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HYPERSONIC RESEARCH ENGINE/AEROTHERMODYNAMIC INTEGRATION MODEL - EXPERIMENTAL RESULTS

Volume III - Mach 7 Component Integration and Performance

by

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16. Abstract

The NASA Hypersonic Research Engine (HRE) Project was initiated in 1967 for the purpose of advancing the technology of airbreathing propulsion for hypersonic flight. A large component (inlet, combustor, and nozzle) and structures development program was encompassed by the project. The component development program was culminated in 1974 with the tests of a full-scale (18 in. diameter cowl and 87 in. long) HRE concept, designated the Aerothermodynamic Integration Model (AIM), in the NASA Lewis Research Center, Plum Brook Station Hypersonic Tunnel Facility at Mach numbers of 5, 6, and 7. AIM tests descriptions, data results, and analysis results have been previously documented. Four reports document computer program analysis results of the AIM experimental engine performance. Enough information is included in the four reports to enable additional analysis and/or additional or different interpretation of the AIM data. The present report (Volume III) presents computer program results for the Mach 7 component integration and performance tests. Program results are contained in three additional volumes that have the following subtitles:

Volume I - Mach 6 Component Integration
Volume II - Mach 6 Performance
Volume IV - Mach 5 Component Integration and Performance

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SUMMARY

An extensive aerothermodynamic development program for the purpose of advancing the technology of airbreathing propulsion for hypersonic flight has been conducted by NASA in the form of the Hypersonic Research Engine (HRE) Project. The engine components (inlet, combustor, and nozzle) aerothermodynamic development program culminated in the testing of an engine which integrated these components and allowed assessment of engine performance at Mach numbers of 5, 6, and 7. This engine was termed the Aerothermodynamic Integration Model (AIM) and was a water-cooled, hydrogen-fueled, full-scale configuration of the HRE design concept, 18 inches in diameter at the cowl lip and 87 inches long.

Descriptions of the AIM tests and a computer program used in the engine performance analyses, as well as data results and analyses, have been previously documented. All of the results of the engine performance computer program, including enough information to enable additional analysis or interpretation of the data, are reported in four volumes. Volume I presents Mach 6 component integration results that were obtained with supersonic combustion. During the integration tests, inlet unstart limits were determined for fuel injection from the first stage fuel injectors only and for multi-stage fuel injection. Optimization of the fuel injector combination that would yield the best combustion and engine performance was attempted. Volume II presents Mach 6 engine performance results during supersonic and subsonic combustion modes. Combustion mode transition was successfully performed, exit surveys made, and effects of altitude, angle of attack, and inlet spike position were determined during these tests. Volume III (present report) presents Mach 7 component integration and engine performance results with supersonic combustion modes. Fuel injector optimization was again attempted, exit surveys made, and the effects of low free-stream total temperature, free-stream oxygen content, and angle of attack were studied during these tests. Volume IV presents Mach 5 component integration and engine performance results with supersonic and subsonic

combustion modes. Combustion mode transition was successfully demonstrated, exit surveys made, and effects of free-stream total temperature, free-stream oxygen content, and angle of attack were investigated during these tests.

INTRODUCTION

The NASA Hypersonic Research Engine (HRE) Project was undertaken to design, develop, and construct a hypersonic research ramjet engine for high performance and to flight test the developed concept on the X-15-2A airplane over the speed range from Mach 3 to 8. It should be emphasized that from the beginning the design was specified to be a research ramjet engine to conduct meaningful experiments and was in no sense intended to be a small-scale prototype of a propulsion system for any particular mission.

About one year after the development phase of the HRE program was underway, the X-15 program was phased out; as a result, adjustments to the project plan and scope were necessitated, which were, however, effected without detriment to achievement of the basic project objectives. The result of the adjustment was that ground testing became the major experimental effort for the HRE program. Engine aerothermodynamic components (inlet, combustor, and nozzle) were developed in separate ground-test programs. Results of the development tests are documented in references 1 through 3. Regeneratively cooled engine structures were also included in the ground-testing program. Tests of the hydrogen-cooled engine structure progressed from small panels and problem area components in laboratory setups to wind-tunnel tests at Mach 6.7 of a full-scale, flight-weight engine termed the Structure Assembly Model (SAM). Results of this program, which was completed in May 1971, are reported in reference 4. Culmination of all the HRE development testing was the engine tests of what was termed the Aerothermodynamic Integration Model (AIM). The purpose of the tests of this full-scale, water-cooled, hydrogen-fueled engine was to integrate the aerothermodynamic components and to assess the engine performance at Mach numbers of 5, 6, and 7. Successful tests of the AIM were completed in April 1974.

The AIM employed the HRE design concept of an axisymmetric engine, 18 inches in diameter at the cowl lip and 87 inches long. Versatility was incorporated into the AIM to allow: (1) inlet spike translation for optimum air flow and inlet internal contraction ratio variation; and (2) hydrogen fuel injection for tailored fuel distribution for proper heat release in a diverging combustor, and to change the mode of combustion from supersonic to subsonic or vice versa. The AIM tests are reported in reference 5 and data results of the tests have been analyzed in terms of engine performance by use of a computer program (ref. 6) generated during the HRE program. Results of these analyses are reported in references 7 through 9.

The purpose of the present reports (herein and refs. 10 to 12) is to present experimental engine performance results obtained from computer program analyses of the test data. These results contain the free-stream conditions, pressure distributions, fuel injection configuration and rate, etc., that should enable additional analysis or interpretation of results other than those previously reported. It

should be noted that all units are in U.S. Customary Units because the data results from the HRE contracts, which were initiated in May 1965 with a follow-on effort in February 1967, were under that system. Because of the cost that would have been incurred if the contractors had been required to change to the metric system, the U.S. Customary Units were retained through the HRE contractual effort; this procedure is consistent with the guidelines for conversion established by NASA.

SYMBOLS

All units are in U.S. Customary Units because of the reason noted above.

A	area, $ft.^2$
M	Mach number
P or p	pressure, psia
r	radius, in.
R_{CL}	cowl lip radius at 12^o tangent point (see table 3), in.
x	longitudinal distance from inlet spike virtual tip (see table 3), in.
x_{CL}	longitudinal distance from inlet spike virtual tip to the cowl lip 12^o tangent point (see table 3), in.
Δx	longitudinal distance inlet centerbody moved from inlet physical close-off, in.
$\Delta\Delta x$	difference between an actual x_{CL} value and the Mach 6 x_{CL} value of 34.884 in., in.
T	temperature, ^oR
α	angle of attack, deg.
ϕ	fuel equivalence ratio; value of unity is for stoichiometric combustion (subscript symbols or notations, such as ϕ_{1A} or ER1A, represent the values for the designated fuel injector (e.g., 1A), ER0A is the sum of all ϕ-values).

Subscripts:

0	free stream
ref.	reference condition
th	throat
T	total

APPARATUS

Experimental Tests

Experimental tests of the HRE/AIM were conducted in the Plum Brook Hypersonic Tunnel Facility (HTF) (figs. 1(a) and 1(b)) at nominal Mach numbers of 5, 6, and 7. The AIM is shown partially installed in the HTF in the photographs of figures 1(c) and 1(d). During the tests the engine was nearly completely enshrouded except for an 11-inch gap between the facility nozzle exit and the front of the shroud as depicted in the schematic of figure 1(e). This test configuration was suggested by results of a subscale tunnel starting investigation reported in reference 13.

A description of the facility and the results of calibration tests are presented in reference 14. The test facility used an induction-heated, drilled-core graphite storage bed to raise the temperature of nitrogen to a nominal 4960° R at a maximum design pressure of 1200 psia. The nitrogen was mixed with ambient-temperature oxygen to produce synthetic air. Diluent nitrogen was added with the oxygen in the mixture at tunnel Mach numbers below 7 to control free-stream total temperature and to supply the correct weight flow. Because of facility heater deterioration and a lack of time to implement necessary repairs, true temperature simulation of 3700° R at Mach 7 was not achieved; a maximum temperature of about 3100° R was obtained.

The original test plan is summarized in table 1. Because of testing problems and limitations in facility schedule, the test plan was altered to provide a maximum of data to meet the test objectives. Details of the AIM tests are described in reference 5. General test conditions, results, and remarks of the AIM tests were tabulated in references 5 and 9 and are presented herein as table 2. All tests (reading numbers in second column) are listed including the tests that were aborted because of tunnel starting or other problems. Run numbers were assigned to AIM reading numbers or groups of AIM reading numbers with the same test objective (some readings represent zero success, partial success, or are reruns of others) to provide a means for a cross-check with the original plan.

Model

The HRE/AIM was a full-scale (18 inches in diameter at the cowl and 87 inches long), water-cooled, hydrogen-fueled research engine. Details of the design and fabrication of the AIM have been reported in references 16 through 29. The design is described generally in references 5 and 9, and some difficulties encountered with the AIM during the tests are discussed in reference 5.

A schematic of the AIM is presented in figure 2 and the coordinates are listed in table 3. The AIM incorporated a mixed compression inlet with a translating spike that enabled the close-off of the engine (an early HRE program

requirement). The inlet was designed for spike translation to the most open position for Mach 4 to 6 operation with spillage occurring up to Mach 6. At Mach 6 "shock-on-lip" occurred, and from Mach 6 to 8 the spike was designed to translate to maintain shock-on-lip over this Mach number range. An "upsloping throat" was incorporated in the inlet which enabled the inlet to not only maintain shock-on-lip with spike translation for Mach 6 to 8, but also to have increased inlet contraction ratio with increased Mach number. The combustor was designed with diverging walls and the area distribution is shown in figure 3(a) with fuel injector locations indicated. Figure 3(b) presents a sketch of the combustor with the locations of the staged fuel injectors and two sets of ignitors indicated (a third set of ignitors planned for the outerbody at an x-station of 54.38 inches was not installed). The set of ignitors at an x-station of 42.0 inches malfunctioned and use was discontinued (see fig. 3(b)) about midway in the Mach 6 test program (see discussion in ref. 5). Injectors 1A, 1B, 1C, 4, 2A, and 2C were designed to allow optimum distribution of the fuel in the combustor to obtain a fuel equivalence ratio, ϕ, of unity during the supersonic combustion mode. During the supersonic combustion mode, it was desired to inject the maximum amount of fuel from the first-stage injectors (1A and 1B) without unstarting the inlet; all of the fuel was designed to be injected from injectors 1A and 1B at Mach 8. Injectors 3A and 3B were designed for use in the subsonic combustion mode. The locations are tabulated in figure 3(b) for the designed Mach 6 inlet operating position; cowl lip positions other than the Mach 6 position (because of spike translation) result in different x-station values for the injectors and ignitors on the outer wall and also for injector 3B. These changes are accounted for in the performance results presented herein.

Instrumentation

Planned instrumentation for the AIM is documented in reference 15. All of the instrumentation planned was not used because of facility instrumentation recording channel limitations or damages to instrumentation in inaccessible places during the AIM final assembly or during AIM repairs at the test site. A list of all planned instrumentation is presented in table 4 (obtained from ref. 5) with notations indicating the items not installed or damaged, the recording channel numbers for each item used, and the ranges of the pressure transducers or thermocouples.

Method of Calculation

A computer program that incorporated methods described in reference 15 was used in reducing the data from the AIM tests to engineering units. Listings of this program were checked for accuracy and determination of steady-state conditions. Times of interest were selected from each run and the information from the engineering units computer program was used in a performance analysis computer program which incorporated methods described in reference 6. After the erroneous surface pressures were eliminated, the remaining pressures at each station were averaged by the performance computer program which then performed surface-pressure integration by linear interpolation and determined the skin-friction coefficients. Chemical equilibria of the synthetic air and fuel-air mixtures were calculated by the program using methods described in reference 30.

Description of Performance Program Methods

General.- Several methods were used to establish validity of critical parameters, such as the wind tunnel Mach number. The first method used curves generated from instrumentation rakes installed during calibration of the wind tunnel. The second method used measured values of wind tunnel total pressure and temperature, and pitot pressure at the spike tip along with real-gas, normal-shock solution to calculate the wind tunnel Mach number. The third method used measured values of wind tunnel total temperature, spike-tip pitot pressure, and spike cone surface pressure, along with the real-gas, normal-and conical-shock solutions, to calculate the wind tunnel Mach number. Calculations made utilizing each of the three methods indicated good agreement. After confidence was established in the three methods, the use of the third method was discontinued, since it required excessive computer time. Additional information concerning tunnel Mach number determination is contained in reference 9.

The conditions at the inlet throat were determined by computing the momentum and total enthalpy from the pressure forces and accounting for friction and heat losses incurred on the inlet spike and the internal surfaces. The inlet mass flow ratio and additive drag were determined from theoretical calculations (ref. 31). Pressures used in these calculations were obtained as follows: (1) for conditions where inlet start was obtained ($M_{th} > 1$), the calculated mass-momentum-average static pressure was used, and the measured static pressures at the throat were not used; and (2) for conditions where inlet unstart was experienced ($M_{th} \leq 1$), the average of the measured static pressures at the throat was used with the Mach number constrained to unity to calculate spillage and additive drag.

For both cases above, the flow was analytically expanded (isentropically) from the inlet throat conditions to the freestream static pressure in order to determine the hypothetical static enthalpy and associated velocity which are required to compute the inlet kinetic energy efficiency and the inlet process efficiency (as required under the contract statement of work). Also the flow was analytically compressed (isentropically) from the inlet throat conditions until the calculated total enthalpy matched the known total enthalpy after heat loss. For a started inlet, a side calculation was made by isentropically expanding the flow to an area which was arbitrarily set 10 percent larger than the throat area (for flow stability). At this point, the flow was passed through a normal shock. The limiting subsonic pressure recovery for the inlet and the corresponding kinetic energy and process efficiencies were then determined from conditions downstream of the normal shock. These inlet performance parameters were considered of interest as indicators of the overall inlet performance and of flow conditions prior to inlet unstart.

Two methods were used to calculate conditions at the combustor stations: (1) up to the first station where fuel was injected, the mass-momentum-averaged static pressure that satisfied the state, continuity, momentum, and energy equations was calculated; and (2) at stations downstream of the first fuel injector the average of the measured innerbody and outerbody pressures was used, and the combustor efficiency was calculated to satisfy the conservation equations. For these methods it was assumed that the flow area equals the geometric duct

area (no flow separation). The amount of hydrogen required to react in order to satisfy the measured static pressure, the duct area, the heat loss, and the conservation equations is computed by the program. Of the total hydrogen injected or present in the flow at a given station, the amount which reacts has been named "real" hydrogen and is used in the equilibrium chemistry process being completed. The hydrogen which is not reacting has been named "inert" hydrogen. The concept of real and inert hydrogen and the station-wise conversion from inert to real is simply a bookkeeping procedure in the program which simulates or "models" the mixing process. The inert hydrogen is assumed to have the properties of an inert gas, not to react with other species, and not to dissociate.

The combustor throat was defined as the point of minimum-flow area between the struts in the subsonic combustion mode and at the strut exit plane in the supersonic combustion mode. When the computed one-dimensional Mach number at the assumed combustor exit was found to be less than 0.95, the computation was considered to improperly represent the subsonic combustor flow situation in that the flow must have reached a sonic point further downstream. With the area increasing added combustion (heat release) downstream of the assumed combustor exit station is implied. Therefore, a side calculation was made of the combustor efficiency required to produce sonic velocity at the assumed combustor exit station, as if this added heat release occurred prior to the assumed combustor exit station. For this condition, the performance program printout shows results under the heading SONIC THROAT (e.g., reading 94, time 150.342 sec).

The regeneratively cooled combustor performance ("COMBUSTOR REGEN" in the performance program printout) was simulated by recalculating the total enthalpy at the combustor exit as the sum of the free-stream enthalpy of the synthetic air, the enthalpy of the hydrogen fuel at $50^{\circ}R$, and the absolute value of the heat loss through all the engine surfaces wetted by the internal flow stream. Using this total enthalpy, the stream total pressure, and the same combustion efficiency, the combustor exit static-state properties were also computed.

Nozzle performance was obtained by isentropically expanding the flow from the actual and regeneratively cooled combustor exits to the nozzle exit area and to ambient pressure ("NOZZLE AE" and "NOZZLE PO" in the performance program printout). The flow was then isentropically expanded from the actual combustor throat to those nozzle stations representing the locations of pressure taps, and the local skin-friction coefficients were calculated using the Spalding-Chi correlation. The nozzle vacuum stream thrust coefficient was also computed. This coefficient is arbitrarily defined in previous HRE documents (e.g., refs. 3 and 15) as the ratio of the actual nozzle exit total momentum (stream thrust) divided by the theoretical nozzle exit total momentum where the flow was isentropically expanded from the combustor exit conditions to the nozzle exit area (512.389 in^2). The actual nozzle exit total momentum was determined by taking the combustor exit total momentum and adding (or subtracting) the pressure force, the friction force, and one-half of the calculated drag force (one-half of strut assumed to be charged to the nozzle component). The hypothetical static enthalpy resulting from the computed isentropic expansion from the combustor exit conditions to the free-stream static pressure was used to calculate the nozzle kinetic energy and process efficiencies.

Side calculations were made of a fictitious stagnation combustion process (constant pressure and zero velocity) with 100 percent combustion efficiency and no loss to the walls (denoted in the performance program printout as "FICTIVE COMBUSTOR"), followed by an isentropic expansion to ambient pressure to obtain the combustor effectiveness. Also to obtain the combustor effectiveness, the flow at the combustor exit was expanded to free-stream static pressure and the total momentum at this pressure was determined. The combustor effectiveness (ref. 15) is then the change in total momentum for the actual combustor process from the combustor entrance condition to the expanded (free-stream static pressure) condition divided by the change in total momentum for the fictitious process mentioned above from the combustor entrance condition to the expanded (free-stream static pressure) condition. Side calculations were also made of a fictitious nozzle to determine the static and total conditions ("FICTIVE NOZZLE" in the performance program printout) required to match the actual vacuum specific impulse at the nozzle exit.

Calculation of cooling load distribution.- For the AIM tests, the heat loss distribution was determined from the differences between the skin thermocouples inbedded in the engine surfaces and the cooling water temperatures. Standard heat-transfer equations were used to obtain local heat losses. These losses were then adjusted linearly with the overall heat loss as measured by the overall water temperature rise. The detailed equations and procedures used for these computations are presented in reference 9.

Tare forces.- Purge nitrogen was injected in the AIM cavity between the non-metric "windshield" shroud and the metric outerbody to assure that hot tunnel gases did not enter into this cavity. This method produced a large tare force which was of the same order of magnitude as the engine net thrust. An effort was made to reduce and even control the tare force by suitable control of the pressures in two parts of the cavity. This tare-force control concept was, however, not achieved. Since the thrust is considered the most important measurement in evaluating the engine performance, special tare-force calibration tests were made and the results carefully correlated in order to determine the correction for the measured thrust. The method and procedures are described in detail in references 5 and 9.

External drag.- The external drag was calculated from the summation of pressure and friction forces acting on the external metric surfaces of the AIM. The method and procedures are described in reference 9.

Strut force calculation.- The performance program was originally programmed to calculate strut force based on a theoretical calculation, assuming uniform flow ahead of the strut. This force should be a drag term since, theoretically, pressures downstream of the maximum strut blockage should be lower than upstream. However, test data indicate that this is only true with subsonic combustion. Upon examination of the test data, it appeared that measured static pressures between struts on both the inner and outer walls (there were no measurements along the strut surfaces) could be used to represent the forces occurring on the strut surface. Thus, a pressure integral was used to determine the strut force and a calculation was also made for strut base pressure as discussed in reference 9.

Performance correction for regeneratively cooled system.- The AIM incorporated a water-cooled jacket in which heat was rejected and not recovered. In order to compensate for this heat loss, hydrogen fuel was heated up to 1500° R to simulate a regeneratively cooled system. The deficiency of energy in the system in terms of theoretical energy release was less than 10 percent in all cases.

In order to correct this deficiency, the performance computer program (ref. 6) incorporated a side calculation in which the energy deficiency, because of the heat loss through internal surfaces, was added to the stream at the combustor exit with no total pressure change. The flow was then expanded to the nozzle exit with measured nozzle efficiency. The differences between the heat added to fuel and the internal cooling loss are presented for several tests in reference 9 as table 6.6-1.

Performance correction for inlet total temperature.- Because of the facility heater deterioration, the true temperature simulation of 3700° R at Mach 7 was not achieved (the test Mach number was generally about 7.25 requiring a simulation temperature of about 3960° R). It is known that the effect of decreasing total temperature is to increase the engine performance. Therefore, it is necessary to correct the measured performance for Mach 7 (results contained herein) to properly account for deviations in test conditions. Theoretical calculations indicate that, at Mach 7, a decrease of 560° R would increase the thrust coefficient by 5 percent and the specific impulse by 3.5 percent. The accomplishment of this correction in the performance computer program (ref. 6) employed the methods discussed in reference 9.

Determination of tunnel gas composition.- The oxygen-to-nitrogen ratio was determined from the flow measurements of oxygen, diluent nitrogen, and nitrogen entering the storage heater, and checked by gas samples taken through two aspirating thermocouple probes 180° apart in the facility nozzle entrance prior to each run. The samples were collected in high-pressure bottles and later analyzed on a mass-spectrometer. The measured compositions for each run are presented in reference 9 as table 6.8-1. The one-dimensional performance computer program (ref. 6) used only the N_2 and O_2 values.

RESULTS

Selected points of interest of the HRE/AIM test data have been analyzed by use of the one-dimensional performance analysis computer program (ref. 6). The amount of material generated requires four volumes. Mach 7 component integration and engine performance results are presented herein. Mach 6 component integration results, Mach 6 engine performance results, and Mach 5 component integration and engine performance results are presented in references 10 to 12, respectively. All of these results were used in references 7 through 9 in the discussion of the results of the AIM test program.

Selected Test Points for Performance Analysis

Details of the AIM tests were discussed in reference 5 which included a list of all the HRE/AIM tests; this list is contained herein as table 1 (included in each volume). The individual AIM tests were recorded as consecutive reading numbers that extended through number 97 for a total operation time of 112 minutes with 41.5 minutes of combustor operations. About 60 successful tests are noted in the first column of table 2.

Reference 5 documented the fuel injection schedules, both planned and measured, for the successful tests. The measured fuel injection schedules for the successful Mach 7 tests are contained herein for convenience in figure 4. Such plots were reviewed and points (run time) of interest were selected for performance analysis. The selected points were listed in reference 9 and are included in tables 5(a) through 5(d) for the results presented in references 10 and 11, herein, and reference 12, respectively, where the times correspond to the abscissa in figure 4. The first column of table 5 indicates the page number of the initial page of the data for a given test point (specific time of a reading number). Table 5 indicates the general test conditions and fuel injection equivalence ratios, ϕ, for the first-, second-, and third stage injectors and the accumulative ϕ-value. Also, the use of ignitors is indicated and the general purpose of the test is noted.

Vagaries in the test program that should be noted (table 5, last column) are:

(1) Fuel equivalence ratio values, ϕ, in table 5 for reading 93 are lower than the values indicated by the fuel injection schedule (fig. 4(a) of ref. 12). In preparation for the performance analysis, the tunnel measured oxygen content was found to be about 34 percent instead of the standard 21 percent; therefore, the fuel equivalence ratios were corrected to account for the difference in the available oxygen for combustion.

(2) Time 235 seconds in reading 90 is for an inlet unstart condition. With an unstart, the captured mass flow is, of course, greatly decreased, and since the fuel flow rate is still high, the ϕ-value would be high as indicated, therefore this time is not very meaningful.

(3) At Mach 7 the agreement between computed thrust (a function of $\int pda$) and measured thrust was not nearly as favorable as experienced for Mach 6. Examination of the surface static pressure distributions on the outer combustor surface in the vicinity of the pressure rise indicated some pressure instrumentation to be faulty. For reading 89, more reasonable values were substituted for the measured pressures and the performance recomputed. The recomputation was performed for two different times, 316.47 and 327.27 seconds (see table 5(c)), and the results indicate a much more favorable agreement between the computed and measured thrust. The channel numbers in which new pressure values were substituted are noted on the first page of the results for these two times. A more detailed discussion of this exercise is contained in reference 9 (section 7.7.2 Mach 7 Performance).

(4) Times 264.04, 274.84, and 275.74 seconds of reading 96 had a fuel flow measurement malfunction that indicated no fuel flow from injector 1B. Injector 1B manifold pressure, however, indicated flow to exist at pressure levels about equal to planned pressure levels (ϕ-values about the same as for injector 1A). The performance calculations for these times of reading 96 erroneously used only fuel flow from injector 1A.

(5) At time 313.54 seconds, also of reading 96, the test chamber pressure was noted to be high, thus yielding unrealistically high pressures on the AIM nozzle shroud and plug that would, of course, contribute erroneously to increased engine thrust.

Description of Performance Computer Results

The selected points listed in table 5 were analyzed using the performance computer program described in reference 6. As noted in the Method of Computation section, the AIM test data were reduced to engineering units and reviewed for erroneous data. Such data were "coded out" in the performance computer program. Table 6 indicates the channels that were coded out. The COXX indicates the code outs for a reading number, e.g., for reading 33, C033 is indicated. Channels that are coded out are listed adjacent to the notation KODSEL, e.g., for reading 33 the first and last of 85 coded out channels are 60 and 399, respectively. The locations and type of measurement for the listed channels may be determined by referring to table 4.

Several points (run time) of interest were selected for each run as indicated in table 5. The page numbers indicated in the first column of table 5 are output listings of the performance computer program (ref. 6). For each time of interest there are seven or eight pages of computer output listings. On each of these pages a standard heading exists: READING number (test number); BLOCK number (numbered sequentially and corresponding to recording times of test data); TIME (of data recording, seconds); MACH number (in wind tunnel); PT (total pressure in wind tunnel, psia); TT (total temperature in wind tunnel, ^{o}R); and PAGE number.

Station flow parameters.- A summary of flow parameters at each calculation station in the AIM is contained on pages 1, 2, and 3. Each station is headed by a station designator (i.e., WIND TUNNEL, INLET THROAT, COMBUSTOR, etc.), followed by three integers (the zero following the combustor designator is meaningless). The first integer denotes the station number, the second denotes the combustor station, and the third denotes the number of interations required to converge on a solution. The third integer may assume values between 0-21, 100-121, and 200-221. A value of the third integer equal to 21 denotes that the mass flow was too great or the flow area too small to obtain a solution, 121 denotes that the solution for total conditions did not converge in 21 interations and 200-221 denotes that the mass flow was too small or the flow area too large to obtain a solution. When both solutions for static and total conditions have converged, the third integer may assume the values 1-20 or 101-120 depending upon which solution (static or total) required the larger number of interations. Columns 2-8 have two rows of values for each station; total and static conditions in first and second rows, respectively.

Most of the station designators are self-explanatory. The first appearance of the designators WIND TUNNEL and SPIKE TIP NS (NS = NORMAL SHOCK) reports conditions in wind tunnel and upstream of the spike tip based on a wind tunnel Mach number determined from calibration runs. The second appearance of these designators reports these conditions based on a wind-tunnel Mach number calculated from the total and pitot pressures and the total temperature of the synthetic air applied to the normal shock equations. The designators INLET UPNRSK and INLET DNNRSK denote conditions upstream and downstream of a normal shock positioned at a fictitious flow area 1.10 times the flow area at the inlet throat. The designator COMBUSTOR REGEN denotes, for cases with fuel flow, conditions at the combustor throat simulating a regeneratively cooled ramjet. In some cases (e.g., reading 94 time 150.342 sec) the designator SONIC THROAT appears ahead of the COMBUSTOR REGEN. This denotes the results discussed in section entitled "Description of Performance Program Methods." NOZZLE AE and NOZZLE PO report conditions when the flow is expanded isentropically to the nozzle exit area and to the wind-tunnel static pressure, respectively. NOZZLE AE REGEN and NOZZLE PO REGEN denote, for cases with fuel flow, conditions at the nozzle exit simulating a regeneratively cooled ramjet. FICTIVE COMBUSTOR denotes stagnation combustion conditions (zero velocity and constant pressure) with combustor efficiency equal to unity. FICTIVE NOZZLE reports conditions required to match the actual momentum and nozzle exit area.

Definition and units of parameters in the SUMMARY REPORT, pages 1-3 in the computer listings, are listed below:

P - pressure, psia
T - temperature, ^{o}R
H - enthalpy*, Btu/lb_m
GAMMA - specific heat ratio
MOLWT - molecular weight
SONV - conic velocity, ft/sec
MACH - Mach number
VEL - flow velocity, ft/sec
S - entropy, Btu/lb_m-^{o}R
W/A - flow rate per unit area, lb_m/sq in
W - flow rate, lb_m/sec
A/AC - mass flow ratio
MØMTM - flow momentum, lb_f
Q - dynamic pressure, lb_f/sq in
IVAC - vacuum specific impulse, lb_f-sec/lb_m
PHI - equivalence ratio (see discussion in Ramjet Performance section)
ETAC - combustor efficiency

*Two values were reported. The first value (column 4) was the JANNAF-based enthalpy. The value in parentheses (column 5) was the enthalpy potential or the sensible enthalpy based on the equation

$$\sum_i \int_0^T C_{p,i}dT \quad \sigma_i(T) = \sum_i H_{f,i}^{298} + \int_{298}^{T} C_{p,i}dT \quad \sigma_i(T)$$

$$- \sum_i H_{f,i}^{298} + \int_{298}^{300} C_{p,i}dT \quad \sigma_i(T) + \sum_i \int_0^{300} C_{p,i}dT \quad \sigma_i(T)$$

where: $C_{p,i}$ is specific heat at constant pressure, Btu/lb_m - ^{o}R, and $\sigma_i(T)$ is the mass fraction of the specie i as a function of temperature and H_f is fuel enthalpy.

Cooling and surface-pressure parameters.- Surface pressures, cumulative surface-pressure integrals, cumulative cooling losses, cumulative surface area, and pressure ratios for axial distances from the AIM virtual spike tip are listed on pages 4 and 5.

Definitions and units of the parameters are as follows:

XABS - axial distance from virtual spike tip, in
P-IB - surface pressure on innerbody, psia
P-ØB - pressure on cowl inner surface, psia
PDA - cumulative surface-pressure integral, $\int_0^{X_{ABS}} P dA$, lb_f
QØX - cumulative total cooling loss, Btu/sec
Q-IB - cumulative cooling loss from innerbody, Btu/sec
Q-ØB - cumulative cooling loss from outerbody, Btu/sec
CAWALL - cumulative surface area, sq in
P-IB/PSØ - innerbody static to wind-tunnel static-pressure ratio
P-IB/PTØ - innerbody static to wind-tunnel total-pressure ratio
PØB/PSØ - outerbody surface static to wind-tunnel static-pressure ratio
PØB/PTØ - outerbody surface static to wind-tunnel total-pressure ratio

Drag and heat-transfer coefficients.- Longitudinal values of drag force and drag and heat-transfer coefficients are listed on page 6 (for some cases on page 6 and 7). Definition and units of the parameters are as follows:

X - axial distance from spike virtual tip, in
DDRAG - incremental frictional drag force, lf_f
CDRAG - cumulative frictional drag force, lb_f
C_F - friction-drag coefficient
HC - heat-transfer coefficient, Btu/(sec-sq ft-^oR)

Ramjet performance.- AIM performance parameters and pertinent information are contained on page 7 (page 8 for some cases). The performance parameters are generally self-explanatory; detailed discussion about the methods of computation are presented in references 6 and 9. Parameters listed below STATIONS are presented since they are related (except for the inlet throat) to the cowl leading-edge station. The NOMINAL COWL LEADING EDGE refers to the x_{CL} (table 3) value for the Mach 6 design operating position. SPIKE TRANSLATION is the recorded distance between the nominal and the actual x_{CL} value (this distance is designated as $\Delta\Delta x$ in symbols and used in figure 3(a)); all dimensions other than those for the inlet spike are corrected by this amount.

The fuel injectors and their corrected stations in inches are shown. A letter in the VALVE column indicates the injectors that were in use during the respective time. Table 5 indicates the general fuel equivalence ratio values for the various injector stages. The actual fuel equivalence ratio, however, for each injector can be determined by noting the step increases in the PHI column on the output, pages 1-3, for the respective time (ignore 0.01 or 0.02 changes); the step difference at the combustor station corresponding to the indicated injector station is the ϕ-value for the respective injector.

SUMMARY OF TESTS

The Hypersonic Research Engine/Aerothermodynamic Integration Model was tested in the NASA Hypersonic Tunnel Facility at the Plum Brook Station of the NASA Lewis Research Center. Synthetic air (heated nitrogen with proper amount of oxygen added) was delivered by the facility at nominal Mach numbers of 5, 6, and 7. The Mach 5 and 6 tests were conducted at true air temperature while Mach 7 tests were conducted at Mach 6 temperature (3000° R) because of heater deficiency. Changes in total temperature and instream oxygen content at Mach 5 and 7 were also explored. The hydrogen fuel was heated up to 1500° R prior to injection to simulate a regeneratively cooled system.

The engine testing was completed with an accumulated actual running time of about 112 minutes with 41.5 minutes of combustor operation. The important achievements realized from this test program which advanced the state-of-the-art in hypersonic propulsion were discussed in detail in reference 9 and are:

1. Realistic engine performance levels for hypersonic flight were obtained from Mach 5 to 7.

Test Mach No.	Equivalence Ratio	Internal Thrust Coefficient	Internal Specific Impulse
5.1	1.0	0.910	2740
6.0	1.0	0.735	2360
7.25	1.0	0.570	2170

2. Engine inlet performance agreed well with theoretical prediction. Combustor efficiency of 95 percent was achieved. Nozzle vacuum thrust coefficient was lower than predicted.

3. The interaction effects in staged fuel injection were very important in achieving auto-ignition, high combustor efficiency, and overall performance. High supersonic combustor efficiency in a diverging duct was difficult to achieve. The strong stage interaction effects discovered during these tests may be used to great advantage in future designs.

4. The "transonic combustion" or "mixed combustion mode" was the most efficient heat addition process in the range of Mach numbers and temperatures tested in this program.

5. The effects of ignitors, altitudes, spike translation, fuel schedules, angle of attack, step and struts, inlet gas composition, inlet total temperature, and component interactions were investigated and correlated.

6. Stable subsonic and supersonic combustion and convertibility over a range of fuel equivalence ratios at Mach 5 and 6 was demonstrated.

7. The overall cooling load and its distribution as compared with theoretical prediction was determined.

8. Experience was acquired in free jet testing in a ground test facility with large model blockage and combustion.

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Table 1. - Summary of planned HRE/AIM wind tunnel tests.

(obtained from ref. 9 and 15)

RUN	M_0	PTO, PSIA	TTO, °R	α	FUEL SYSTEMS	FUEL SCHED.	INLET ΔX, IN.	COMBUSTION MODE	RUN TYPE AND PURPOSE
1	6	466	1500	0	-	-	4.23	-	Purge force, nominal case
2	6	466	1500	0	-	-	1.90	-	Purge force, effect of spike position
3	6	466	1500	3	-	-	4.23	-	Purge force, effect of angle of attack
4	6	466	2000	0	-	-	4.23	-	Operation checkout, effect of higher TTO
5	6	466	3000	0	-	-	0, 1.71, 2.52 4.23, aft stop	-	Airflow calibration, effect of altitude
6	6	930	2946	0	-	-	0, 1.71, 2.52 4.23, aft stop	-	Airflow calibration, nominal case
7	6	930	2946	3	-	-	0, 1.71, 2.52 4.23, aft stop	-	Airflow calibration, effect of angle of attack
8	6	930	2946	0	1a, 1b	1	4.23	Supersonic	Inlet-combustor performance, ignition and inlet unstart limits
9	6	930	2946	0	1a, 1b, 2a, 2c	2	4.23	Supersonic	Inlet-combustor performance, injector optimization
10	6	930	2946	0	1c, 4, 2a, 2c	2	4.23	Supersonic	Inlet-combustor performance, injector optimization
11	6	930	2946	0	1a, 1b, 1c, 4	3	4.23	Supersonic	Inlet-combustor performance, injector optimization
12	6	930	2946	0	TBD	TBD	4.23	Supersonic	Inlet-combustor performance, injector optimization
13	6	466	3000	0	1a, 1b, 2a, 2c	2	4.23	Supersonic	Inlet-combustor performance, effect of altitude
14	6	700	3000	0	1a, 1b, 2a, 2c	2	4.23	Supersonic	Inlet-combustor performance, effect of altitude
15	6	930	2946	0	1a, 1b, 2a, 2c	2	Aft stop	Supersonic	Inlet-combustor performance, effect of spike position
16	6	930	2946	0	1a, 1b, 2a, 2c	2	2.52	Supersonic	Inlet-combustor performance, effect of spike position
17	6	930	2946	0	1a, 1b, 2a, 2c	2	1.71	Supersonic	Inlet-combustor performance, effect of spike position
18	6	930	2946	0	3a, 3b	4	4.23	Subsonic	Inlet-combustor performance, subsonic combustion
19	6	930	2946	0	3a, 3b	5	4.23	Subsonic & transition	Engine performance, subsonic combustion and transition
20	6	930	2946	0	1a, 1b, 2a, 2c	2	4.23	Supersonic	Engine performance, nominal case
21	6	466	2946	0	1a, 1b, 2a, 2c	2	4.23	Supersonic	Engine performance, effect of altitude
22	6	930	2946	3	1a, 1b, 2a, 2c	2	4.23	Supersonic	Engine performance, effect of angle of attack
23	7	520	1500	0	-	-	2.88	-	Purge force
24	7	520	3965	0	-	-	2.34, 2.88 3.24	-	Airflow calibration, effect of altitude
25	7	1000	3840	0	-	-	1.98, 2.88 3.24	-	Airflow calibration, nominal case
26	7	1000	3840	3	-	-	2.34, 2.88 3.24	-	Airflow calibration, effect of angle of attack
27	7	520 & 1000	3965 3840	0	1a, 1b	6	2.88	Supersonic	Inlet-combustor performance, ignition and inlet unstart limits
28	7	1000	3840	0	1a, 1b, 2a, 2c	7	2.88	Supersonic	Inlet-combustor performance, injector optimization
29	7	1000	3840	0	1c, 4, 2a, 2c	7	2.88	Supersonic	Inlet-combustor performance, injector optimization
30	7	1000	3840	0	1a, 1b, 1c, 4	8	2.88	Supersonic	Inlet-combustor performance, injector optimization
31	7	1000	3840	0	TBD	TBD	2.88	Supersonic	Inlet-combustor performance, injector optimization
32	7	522	3965	0	1a, 1b, 2a, 2c	7	2.88	Supersonic	Inlet-combustor performance, effect of altitude
33	7	700	3965	0	1a, 1b, 2a, 2c	7	2.88	Supersonic	Inlet-combustor performance, effect of altitude
34	7	1000	3840	0	1a, 1b, 2a, 2c	7	3.24	Supersonic	Inlet-combustor performance, effect of spike position
35	7	1000	3840	0	1a, 1b, 2a, 2c	7	2.34	Supersonic	Inlet-combustor performance, effect of spike position
36	7	1000	3840	0	1a, 1b, 2a, 2c	7	1.98	Supersonic	Inlet-combustor performance, effect of spike position
37	7	1000	3840	0	1a, 1b, 2a, 2c	7	2.88	Supersonic	Engine performance, nominal case
38	7	522	3965	0	1a, 1b, 2a, 2c	7	2.88	Supersonic	Engine performance, effect of altitude
39	7	1000	3840	3	1a, 1b, 2a, 2c	7	2.88	Supersonic	Engine performance, effect of angle of attack
40	5	445	1500	0	1a, 1b, 2a, 2c	-	4.23	-	Purge force
41	5	206	2210	0	1a, 1b, 2a, 2c	-	4.23	-	Airflow calibration
42	5	415	2210	0	1a, 1b, 2a, 2c	9	4.23	Supersonic	Inlet-combustor performance, nominal case effect of altitude
43	5	415	2210	0	1a, 1b, 2a, 2c	TBD	4.23	Supersonic	Inlet-combustor performance, and ignitor flow rate
44	5	415	2210	0	1a, 1b, 2a, 2c	9	4.23	Supersonic	Engine performance, supersonic combustion
45	5	415	2210	0	3a, 3b	10	4.23	Subsonic	Engine performance, subsonic combustion
46	5	415	2210	3	1a, 1b, 2a, 2c	11	4.23	Subsonic & Supersonic	Engine performance, effect of angle of attack

Table 2. - HRE/AIM Test Run Summary (obtained from ref. 5).

Run No.	Reading No.	Date	Inlet Condition			Inlet Spike Position, Δx, in.	Fuel Injectors Used	* Tunnel Config.	Time				Objective of Test	Comments
			Mach No.	P_{TO}, Psia	T_{TO}, ^{o}R				Run		Useful			
									Min	Sec	Min	Sec		
1	1 through 5	9/14/72	-	-	-	-	-	A	-	-	-	-	*Pre-run reference* No-airflow engine Purge system calibration	*Data not valid due to mechanical interference between AIM and* outer cowl body
2	6	10/31/72	6	466	1500/2100	4.266	-	A	-	40	-	-	Facility and engine checkout	Test terminated due to cooling system overpressure abort system failure.
3	7	11/1	6	466	1500	4.266	-	A	2	26	-	-	Same as run 2	Tunnel nozzle started. Inlet started. Strong shocks in test section. Cell pressure ~ 2.0 psia.
4	8	11/2	6	466	1500	4.266	-	A	-	5	-	1	Establish facility operational procedure	Test aborted due to facility problem (TAFP).
5	9	11/16	6	466	1500	4.266	-	B1	-	-	-	-	Same as run 4	Facility shroud extended and washer added to assist tunnel start (TAFP).
	10	11/16	6	466	1500	4.266	-		-	-	-	-	Same as run 4	TAFP
	11	11/16	6	466	1500	4.266	-		2	39	-	99	Same as run 4	Nozzle start and inlet start obtained Cell pressure ~ 1.2 psia. Wedge nozzle pressure changed from 50 to 60 psia. No improvement in cell pressure.
6	12	11/21	6	466	2250	3.962	-	B1	-	-	-	-	Same as run 4	TAFP
	13	11/21	6	466	2250	3.962	-		1	07	-	-	Same as run 4	Wedge nozzle pressure 55 to 90 psig. No tunnel nozzle start. Nozzle started when inlet closed for shutdown.
7	14	11/21	6	466	2950	3.962	-	B1	-	34	-	-	Same as run 4	TAFP
8	15	12/8/72	6	466	2950	4.266	-		-	16	-	-	Same as run 4	TAFP
9	16	1/18/73	6	466	2800	4.266	1C, 4	B1	-	35	-	-	Same as run 4	First combustion attempt. TAFP
	17	"	"	"	"	"	1C, 4		1	06	-	-	Same as run 4	Nozzle start not obtained. TAFP.
	18	"	"	"	"	"	1C, 4		1	00	-	-	Same as run 4	Nozzle start obtained by cycling inlet spike open and closed. Inlet start obtained. Fuel ramped to equivalence ratio = .25 prior to tunnel unstart and TAFP.
10	19	2/2	6	466	2950	0.99/ 4.00	-	B1	-	13	-	-	Same as run 4	Nozzle start with inlet partially open. (Δx = 0.99). TAFP. No fuel injected.
11	20	2/2	6	466	2950	0.99/ 4.00	1C, 4	B1	1	02	-	-	Same as run 4	No start at ΔX = 0.99. Nozzle started by cycling inlet spike. Combustor lit causing tunnel unstart.
12	21	2/15/73	6	750	3000	0.99/ 4.00	-	C1	-	-	-	-	Establish facility operational procedure	Jet pump installed. Test aborted due to freezing of coolant supply system.
13	22	2/21	6	750	3000	0.99/ 4.00	-	C1	-	22	-	-	Same as run 12 above	Jet pump used for this test. Nozzle start obtained. Unstart experienced when inlet was opened. Test aborted manually. Nozzle restart noted during shutdown.
14	23	2/21	6	750	3000	0.99/ 4.00	-	C1	-	58	-	-	Same as run 12 above	Jet pump and wedge nozzle inlet pressure varied. Nozzle start was not obtained. Use of jet pump did not affect test chamber pressure. Seals between AIM support struts and facility shroud blown out.
15	24	2/23	6	750	3000	0.99/ 4.00	-	C2	-	-	-	-	Same as run 12 above	Jet pump inactivated. TAFP
	25	2/23	6	750	3000	0.99/ 4.00	-	C2	-	-	-	-	Same as run 12 above	TAFP
	26	2/23	6	750	3000	0.99/ 4.00	1A, 1B	C2	-	49	-	-	Same as run 12 above	Nozzle start and engine start obtained. Fuel injected for 4 seconds prior to nozzle unstart. Unstart attributed to excessive fuel injected caused by facility valve malfunction.
16	27	3/1	6	930	3100	0.99/ 4.00	-	C2	1	42	-	-	Same as run 12 above	Nozzle start and inlet start obtained. Jet pump inactivated. Fuel was injected, engine inlet unstart experienced 12 seconds later. Inlet start reestablished and fuel again injected. Inlet unstart experienced 9 seconds later. Test was manually aborted. Cowl leading edge assembly separated from the outer body. Cause of the separation was attributed to failure of the screw heads. The failure was caused by overheating of the screw heads resulting from ingesting the hot tunnel environment into this area. Ingestion of tunnel ambient was the result of a shock standing on the AIM cowl. Additional diagnostic instrumentation was installed in the facility shroud and diffuser.
17	28	3/16	6	930	3100	0.99/ 4.00	1A, 1B	B2	1	11	-	-	Establish facility operational procedure to obtain hypersonic airflow.	Tunnel configuration same as config. B except washer inside diameter changed to 44.5 inches. Tunnel unstart observed 19 seconds after fuel introduced. Start reestablished. Test manually aborted 3 seconds later when excessive heating of HRE-AIM cowl leading edge assembly mount flange was noted. Excessive heating of the external skin of the AIM was noted.

* see figure 5-9, reference 5

Table 2. - Continued.

Run No.	Reading No.	Date	Inlet Condition			Inlet Spike Position, Δx, in.	Fuel Injector Used	Tunnel Config.	Time				Objective of Test	Comments
			Mach No.	P_{T0}, Psia	T_{T0}, °R				Run		Useful			
									Min	Sec	Min	Sec		
18	29	3/22	6	930	3100	0.99/ 4.00	1A, 1B	C1	-	36	-	-	Same as run 17 above	Re-run of reading 23 with seal repaired. Jet pump did not improve tunnel start.
19	30	4/27	6	750	2000	0.99/ 4.00	Fuel injec. not planned	D	1	16	-	-	Same as run 17 above	Shroud inlet washer replaced with cone-cylinder and 15° conical diffuser inlet contraction replaced with 7° cone; tunnel nozzle did not start.
20	31	4/30	6	750	2000	0.99/ 4.00	Fuel injec. not planned	E	-	51	-	-	Establish operational procedure	First run with fully started tunnel. Shroud inlet cone cylinder replaced with original 46 in. diameter washer. Tunnel start obtained when inlet spike was cycled twice; supersonic flow in diffuser. Test terminated when target conditions achieved due to limited supply of nitrogen. Test cell pressure was 1.2 psia.
21	32	4/30	6	750	2000	0.99/ 4.00	Fuel injec. not planned	E	1	42	-	-	Determine effect of varying wedge nozzle flow	Tunnel config. identical to run 20. Tunnel start obtained when inlet spike cycled twice. Test cell pressure of 1.0 psia obtained. Wedge nozzle has negligible effect on cell pressure.
22	33	5/4	6	750		0.99/ 4.00	1B, 2B	E	1	25	-	-	Investigate inlet unstart limit with first stage combustion	First successful supersonic combustion run. Intentional inlet unstart when first stage equivalence ratio reached 0.34. No second stage fuel added. O-ring between the outerbody and the cowl leading edge extruded.
23	34	5/15/73	6	750/ 930	3000	0.99/ 4.00	1A,1B,2A, 3A	E	2	08	-	-	Checkout AIM and facility. Fuel rich at P_{T0} = 750 psia ϕ= 1.0 at P_{T0} = 930 psia	Tunnel start and inlet start obtained. ϕ of 1.35 set at P_{T0} = 150 psia and ϕ of 1.00 set at P_{T0} = 930 psia. Facility fuel control valve for injector 1B oscillated. Run proved AIM and tunnel can operate at $\phi > 1.0$. Erosion of zirconium oxide coating on outer cowl body crossover manifold noted. Erosion caused by carbon dust in tunnel flow.
24	35	5/16/73	6	750	3000	0.99/ 4.00	1A,1B,2A,2C	E	-	25	-	-	Checkout AIM and facility. Design injector locations	Test was aborted when engine inlet unstart was observed three seconds after initiation of fuel injection. The engine unstart was result of injecting excessive fuel, caused by malfunction of facility control valve. Inspection of the unit revealed that the coolant leak on the spike assembly had progressed, and repair was necessary.
25	36	5/24	6	750	3000	0.99/ 4.00	1A,1B,2A,2C	E	2	19	1	38	Demonstrate operation with design injector location and determine auto ignition limit	First good run with design injector locations. Auto ignition obtained at ϕ = 0.55; first stage did not light until second stage fuel added. Overall ϕ ramped to 1.0 with first stage ϕ held at 0.24.
26	37	5/30/73	6	750	3000	0.99/ 4.00	-	E	-	-	-	-	Determine effect of first stage ϕ on combustor performance	Test aborted due to malfunction of the steam ejector system
	38	5/30	6	750	3000	0.99/ 4.00	1A,1B,2A,2C	E	-	47	-	26	Determine effect of first stage ϕ on combustor performance	Test aborted when inlet unstarted. Malfunction of the facility fuel control valve resulted in injecting excessive fuel into injector 2C. 3 small cracks in spike skin in region of ignitors found in post run inspection. Cracks repaired to prevent water leak into combustor.
	39 thru 48	-	-	-	-	-	-	E	-	-	-	-	Purge system calibration test	
27	49	10/4/73	6	750	3000	-	-	E	-	-	-	-	Combustor optimization	TAFP
	50	10/5/73	6	750	3000	-	-						Combustor optimization	TAFP
	51	10/5/73	6	750	3000	0.99/ 4.00	1A,1B,2A,2C	E	2	39	2	09	Combustor optimization	Fuel control problems encountered.
28	52	10/10/73	6	750	3000	0.99/ 4.00	1A,1B,2C,4	E	1	21	-	50	Combustor optimization	Investigating performance improvement due to injecting fuel closer to inlet. Inlet unstarted at overall ϕ of .83.
	53	10/10	-	-	-	-	-	E	-	-	-	-	Purge system calibration test. Evacuated test cell.	
29	54	10/11/73	6	750	3000	0.99/ 4.00	1A,1B,2A,2C	E	3	04	2	13	Combustor optimization	Attempt to determine effect of first stage ϕ and thrust on performance. Auto ignition obtained at ϕ = .54. Data taken with ignitors on and off to determine effect on performance. Inspection of unit revealed excessive coolant leak at spike/ ignitor body interface. Repair necessary. Tunnel operating procedure modified to reduce water ingestion into AIM wall pressure taps.
	55	10/17/74	-	-	-	-	-	E	-	-	-	-	Purge system calibration evacuated test cell	
30	56	11/2/73	6	750	3000	-	-	E	-	-	-	-	Combustor optimization	Effect of fuel split between 1st and second stage injectors at overall ϕ = 1.0 investigated. Also all second stage fuel added from innerbody side (system 2C). Fuel system purges turned off to determine effect on combustor wall pressure distribution. Found thrust measurement affected by thermal expansion of fuel manifold 1B. Inlet unstarted at overall ϕ of 1.0 with first stage ϕ = 0.36. Cavity pressure tap PA2 repaired for this run. Encountered fuel control problems.

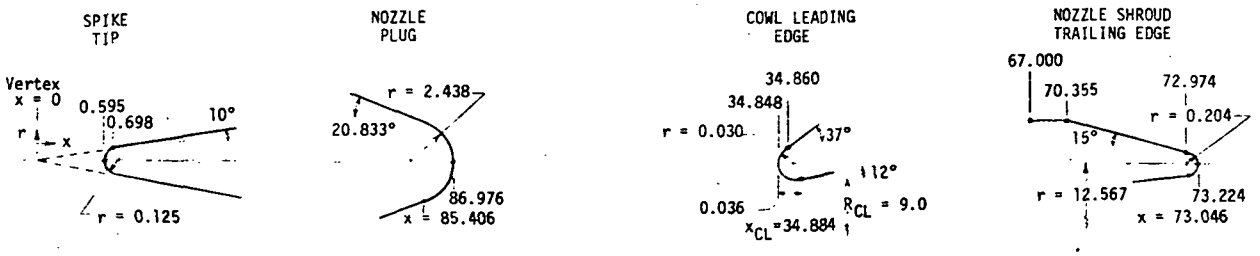
Table 2. - Continued.

Run No.	Reading No.	Date	Inlet Condition			Inlet Spike Position, Δx, in.	Fuel Injectors Used	Tunnel Config.	Time				Objective of Test	Comments
			Mach No.	P_{T0}, Psia	T_{T0}, °R				Run		Useful			
									Min	Sec	Min	Sec		
	57	11/2/73	6	750	3000	0.99/ 4.00	1A,1B,2A 2C	E	-	-	-	-		
	58	11/7/74	-	-	-	-	-	E	-	-	-	-	Purge system calibration	Determine effect of thermal expansion of fuel manifold 1B.
31	59	11/8/73	6	750	3000	-	-		-	-	-	-	Combustor optimization	TAFP
	60	11/8/73	6	750	3000	0.99/ 4.00	1A,1B,2A, 2C	E	2	34	2	04	Combustor optimization	Overall ϕ held constant while amount of fuel from innerbody and outerbody injectors varied. Fuel temperature compensation added to fuel control
32	61	11/13/73	6	750	3000	0.99/ 1.72/ 2.52	1A,1B,2A, 2C	E	2	50	2	21	Determine effect of spike position on engine performance	Inlet massflow ratios of 0.81 and 0.58 ran by varying the inlet spike position. AIM wall pressure distribution measured with fuel line purge flow shut off. Reworked section of the innnerbody assembly burned and damaged during combustion; damaged section was removed. Operational procedure modified to prevent further damage.
33	62	11/20/73	6	930/ 466	3000			E					Performance test	TAFP
	63	11/21/73	6	930/ 466	3000	0.99/ 4.00	1A,1B,2A, 2C		2	59	1	52	Performance test	Tunnel total pressure varied to determine effect of altitude on performance.
34	64	11/28/73	6	750	3000	0.99/ 4.00	1B,2A,2C, 3A,3B	E	3	38	2	35	Subsonic-supersonic combustor mode transition	Transition from subsonic to supersonic combustion mode demonstrated. Inspection of unit revealed coolant was flowing into the 1B fuel manifold and a nickel plated section of the innerbody had blistered. Separation at the spike skirt-spike body has progressed to approximately 1.0 inches. Forward facing step at the interface of the cowl leading edge assembly and the outerbody had progressed to approximately .065 inches. Larger fuel metering venturi installed in fuel system E.
35	65	12/11/73	6	750	3000	4.00	1A,1B,2A, 2C	E	2	52	1	44	Supersonic combustion with instrumentation rig	Instrumentation rake installed. Rake caused tunnel to unstart at ϕ = 1.05. Exhaust gas sampling data taken.
	66	12/14	-	-	-	-	-	E	-	-	-	-	Purge system calibration	TAFP
	67	12/14	-	-	-	-	-		-	-	-	-	Purge system calibration	N_2 purge force calibration with cell evacuated.
36	68	12/14/73	6	750	3000	-	-		-	-	-	-		Time of steady state fuel flow increased to 20 seconds to allow gas sampling data to stabilize.
	69	12/14/73	6	750	3000	4.00	1A,1B,2A, 2C	E	3	20	2	17	Supersonic combustion	One tunnel unstart experienced near end of run. Several tunnel unstarts prevented by shutting off fuel. Incipient unstart detected by monitoring luminescent normal shock position in T.V. view of tunnel.
37	70	12/19/73	6	750	3000	-	-	E	-	-	-	-	Determine effects of angle of attack	Test terminated prematurely due to frozen vent valve.
	71	12/19/73	6	750	3000	4.00	1A,1B,2A, 2C		3	56	2	29		Cowl leading edge assembly removed after this run to remove facing step noted after reading 64.
	72												Purge system calibration	Calibration with 1B fuel injector manifold heated test cell evacuated.
47	73,74,75	1/22/74	7	1000	3200	-	-	F	-	-	-	-	Mach 7 facility check-out	Test aborted due to facility problems (TAFP)
	76	1/23/74	7	1000	3200	-	-	F	-	-	-	-	Mach 7 facility check-out	TAFP
	77	1/23/74	7	1000	3200	2.57	-	F	2	-	-	-	Mach 7 facility check-out	Attempt to start tunnel at Mach 7 unsuccessful. Secondary steam ejector used; wedge nozzle pressure varied; inlet spike assembly translated.
48	78	1/25/74	7	1000	3500	2.57	-	G	2	-	-	-	Mach 7 facility check-out	Test aborted while attempting tunnel start. TAFP. Unusual amount of carbon dust deposited on AIM.
49	79	2/15/74	7	1000	3100	-	-	G1	-	-	-	-	Facility check-out	AIM moved aft 5.5 inches.
	80	2/15/74	7	1000	3100	2.57	-	G1	-	-	-	-	Facility check-out	TAFP (dewar water system frozen).
	81	2/20/74	7	1000	3300	2.57	2A, 2C	G2	2	38	-	-	Facility check-out	Blowout doors installed in tunnel closure. Tunnel started when wedge nozzle pressure reduced. Tunnel unstarted when combustor lit. Restart not obtained due to change in wedge nozzle inlet pressure.
50	82	2/22/74	7	1000	3300	-	-	G2					Facility check-out	TAFP. Seal around outer cowl body support damaged.
	83	2/22/74	7	1000	3300	2.57	-	G2	2	05	-	-	Facility check-out	Tunnel start not obtained.
51	84,85,86	2/28/74	7	1000	3300	-	-	G2	-	-	-	-	Facility check-out	TAFP
	87	2/28/74	7	1000	3300	2.57	1A,1B,2A, 2C		2	46	1	30	Facility check-out	Tunnel nozzle started. Unstarted at $\phi \approx 0.8$

Table 2. - Concluded.

Run No.	Reading No.	Date	Inlet Condition			Inlet Spike Position, Δx, in.	Fuel Injectors Used	Tunnel Config.	Time				Objective of Test	Comments
			Mach No.	P_{T0}, Psia	T_{T0}, °R				Run Min	Run Sec	Useful Min	Useful Sec		
52	88	2/28	7	1000	3100	2.57	1A,1B,2A, 2C	F	2	45	1	31	Combustion evaluation	First successful Mach 7 run. Tunnel closure removed. Diffuser seal repaired. Effect of fuel injection location investigated. Row 2 ignitors on. Outer cowl body support damaged by carbon particles in tunnel flow due to failure of carbon part in facility heater. Shroud inlet pressure rake hit and damaged. Repaired outer cowl body support and water cooled protective wedge installed. Coolant leak at the interface of spike skirt and spike body noted at angular location 270° in addition to leak at 180 degrees noted in Rdg 64. Leak at 180° progressed to approximately 1.25 inches. Cowl leading edge tip radius and spike tip damaged by particles. Damaged areas reworked.
53	89	3/15/74	7	1000	3000	2.57	1A,1B,2A, 2C,4	F	3	-	2	02	Combustor optimization	Performance measured with various fuel injection schemes. T_{T0} varied during run. Ignitors on. Test terminated prematurely due to failure of transducer in fuel control causing fuel control valve to fully open. Abnormal amount of carbon dust observed in tunnel flow. Cowl leading edge tip radius and spike tip again damaged. Tip section repaired.
54	90	3/8/75	7	1000	3000	2.57	1A,1B,1C, 4	F	3	09	1	16	Combustor optimization	Second stage fuel injection closer to inlet (injectors 1C, 4). Inlet unstarts encountered.
55	91	3/12/74	7	1000	3000	2.57	1A,1B,2C, 4	F	2	52	1	32	Effect of angle of attack	Tunnel start improved at angle of attack. Tunnel started at P_{T0} = 850 psia. 3 inlet unstarts encountered due to excessive 1st stage fuel. Total coolant leak into combustor estimated to be 5.0 gpm.
56	92	3/18/74	7	1000	2900	2.57	1A,1B,2C, 4	F	3	50	2	30	Combustor performance with instrumentation rake installed.	Instrumentation rake blockage had adverse effect on tunnel start. Inlet spike stroked twice to start tunnel. Oxygen content of tunnel flow varied while AIM exhaust gas sampling data taken.
57	93	3/27/74	5	415	2210	4.0	1A,1B,2A, 3A,3B	F	0	85	-	-	Facility check-out	First Mach 5 run. Subsonic combustion date obtained. Run terminated prematurely (TAFP).
58	94	3/28/74	5	(a) 415 (b) 300 (c) 206	2210 3000 2210	4.00 4.00 4.00	1A,1B,2A, 3A,3B 1A,1B,2A, 3A,3B 1A,1B,2A, 3A,3B	F	2	25	2	01	Combustor optimization	Subsonic and supersonic combustion and transition demonstrated. Four unstarts experienced, three unstarts attributed to high cell pressure, one to injecting excessive fuel intentionally into the AIM. More carbon in tunnel flow. Cowl leading edge and spike tip damaged. Both reworked.
59	95	3/29/74	5	415 300 206	2210 3000 2210	4.00 4.00 4.00	1A,1B,2A, 2C 1A,1B,2A, 2C 1A,1B,2A, 2C	F	3	41	3	20	Combustor optimization	All comments made for Rdg 94 applicable for this run, except combustion was limited to supersonic combustion mode. Four engine unstarts experienced. Three unstarts were attributed to facility conditions and the other to programmed to determine inlet unstart limit.
60	96	4/15	5	415 300 206	2210 3000 2210	4.00 4.00 4.00	1A,1B,2A, 3A,3B	F					Evaluate effects of angle of attack	Subsonic and supersonic combustion and transition demonstrated at angle of attack. Intentional engine unstart obtained when excessive fuel was injected in supersonic combustion mode.
61	97	4/22	5	206/ 415	2210	4.00	2A, 3A, 3B	F					Combustor performance with instrumentation rake installed	Combustor exit flow conditions surveyed. Gas sampling data taken. Blockage of instrumentation rake had adverse effect on tunnel operation.

Table 3. - AIM aerodynamic coordinates
(Mach 6 cowl position, x_{CL} = 34.844 in.)



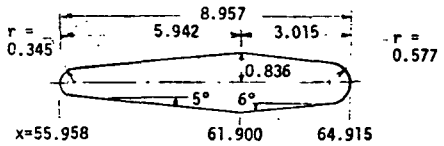
a) Centerbody

x, in.	r, in.	
0.595	0.0	90°
0.698	0.123	st. line
18.360	3.237	10°
19.304	3.411	
20.443	3.633	
21.691	3.885	
22.830	4.122	
23.850	4.338	
25.875	4.782	
26.766	4.985	
27.900	5.256	
28.904	5.518	
29.655	5.726	15.819°
30.360	5.926	
32.760	6.660	
34.080	7.140	22.0°
37.710	8.607	
38.070	8.734	
38.538	8.874	
38.826	8.942	
39.132	9.000	
39.780	9.096	
40.500	9.180	5.645° Throat
42.000	9.318	
43.400	9.415	
44.000	9.452	
45.000	9.518	
46.000	9.578	
47.000	9.624	
47.600	9.650	
48.400	9.670	
55.760	9.670	End of spike; step 0°
55.760	9.406	
61.900	9.406	Thermal throat
65.740	9.406	
67.553	9.072	20.833°
85.406	2.278	
86.976	0.0	90°

b) Outerbody

x, in.	r, in.		
40.894	11.611		External
36.750	10.103		
36.250	9.975		
36.000	9.808		
35.750	9.685		
35.437	9.487	37°	
34.860	9.053		
34.848	9.029	90°	Internal
34.884	9.000	12°	
35.397	9.104		
35.874	9.192	10°	
36.171	9.241		
36.414	9.278	8°	
36.765	9.322		
37.494	9.398		
40.500	9.695	5.645°	
40.894	9.720		
41.894	9.810		
42.894	9.890		
43.894	9.960		
46.294	10.132		
55.760	10.873		
57.000	10.955		
58.000	11.000		
58.700	11.022		
61.900	11.022	Thermal throat	
65.980	11.022		
66.220	11.042		
66.740	11.132		
67.740	11.348		
68.780	11.572		
69.740	11.773		
70.820	11.989		
71.660	12.146		
72.260	12.249		
72.920	12.349		
72.980	12.357		
73.046	12.365		
73.224	12.567	90°	
72.974	12.791	15°	External
70.355	13.493		
67.000	13.493		

c) Internal struts (6)



(d) Cowl lip design positions

	x_{CL}, in.	Δx, in.	x_{CL}/R_{CL}
Close off	39.150	0.0	4.350
Inlet start	38.160	0.990	4.240
Mach 8	36.990	2.160	4.110
Mach 7	36.270	2.880	4.030
Mach 4 - 6	34.884	4.266	3.876

Table 4. - HRE/AIM Instrumentation
(obtained from ref. 5).

(a) Coding for instrumentation list.

The code for the instrumentation listed in the "Identification" column is as follows: Sample, S-P-14.492-0°11'-90-3 (A-B-C-D-E-F).

"A" designates the component on which the instrumentation is located:

S = inlet spike assembly

I = innerbody assembly

NP = nozzle plug assembly

CO = cowl leading edge assembly (outside)

C = cowl leading edge assembly (combustor side)

O = outerbody

N = nozzle shroud (combustor side)

NO = nozzle shroud (outside)

CE = combustor exit

EF = engine airflow-metering duct

F = fluids

"B" designates type of instrumentation

P = pressure

T = temperature

"C" designates the location of the instrumentation in terms of station, with the inlet spike assembly positioned for testing at Mach 6 condition.

"D" designates the angular location in degrees and minutes.

"E" designates position of the pressure pickup with respect to airflow in degrees, or, if the instrument is a temperature sensor, it designates the thermocouple:

CA = chromel alumel

CuC = copper constantan

P/rh = platinum-platinum/rhodium

"F" designates the leg through which the leads are brought out.

An "X" anywhere in the Identification Code indicates that the parameter was not applicable.

xxx/yy in the "Reading No." column indicates the Channel No. (xxx) on which the parameter was recorded, and the rated capacity (yy) of the transducer used.

The "N/U" Code in the "Reading No." Column indicates channels that were not used.

"LeRC Sys" - recorded on separate system, therefore no channel number.

Table 4. - Continued.

(b) Instrumentation list.

Measurement Number	Identification	READING NUMBER																								
		31	33	34	36	37	38	51	57	61	63	64	65	69	70	73	78	84	88	89	91	92	93	96	97
1-S	S-P - 0.595 - 0 - 0-3	121/25	→	*																					
2-S	S-P - 14.492 - 0°11' - 90-3	N/U	→	*																					
3-S	S-P - 14.483 - 271°8' - 90-3	123/10	→			123/10																			→
4-S	S-P - 14.473 - 180°5' - 90-3	N/U	→	*																					
5-S	S-P - 14.4 - 90 - 90	Not Routed																							
6-S	S-P - 30.695 - 359°36' - 90-3	125/10																							
7-S	S-P - 35.085 - 359°34' - 90-3	126/10																							
8-S	S-P - 35.071 - 269°35' - 90-3	127/10																							
9-S	S-P - 35.071 - 179°28' - 90-3	259/25																							
10-S	S-P - 35.079 - 89°23' - 90-3	260/10																							
11-S	S-P - 35.580 - 359°32' - 90-3	261/10	→	*																					
12-S	S-P - 36.077 - 359°34' - 90-3	262/10																							
13-S	S-P - 36.487 - 359°30' - 90-3	263/10																							
14-S	S-P - 36.476 - 269°31 - 90-3	264/10																							
15-S	S-P - 36.476 - 179°27 - 90-3	265/25																							
16-S	S-P - 36.482 - 89°29' - 90-3	266/15	→													266/10	→								→
17-S	S-P - 36.984 - 359°32' - 90-3	128/10	→														→						128/15	→	→
18-S	S-P - 37.5 - 0 - 90-3	Not Routed																							
19-S	S-P - 38.0 - 0 - 90-3	Not Routed																							
20-S	S-P - 38.017 - 269°27' - 90-3	122/10	→														→						122/15	→	→
21-S	S-P - 38.001 - 179°23' - 90	Not Routed																							
22-S	S-P - 38.00 - 270 - 90	Not Routed																							
23-S	S-P - 38.5 - 0 - 90	Not Routed																							
24-S	S-P - 39.024 - 359°25' - 90-4	129/20	→														→						129/25	→	→
25-S	S-P - 39.011 - 269°25' - 90-4	N/U	→	*																					
26-S	S-P - 38.996 - 179°23' - 90-4	N/U																							
27-S	S-P - 39.0 - 270° - 90	Not Routed																							
28-S	S-P - 39.497 - 359°24' - 90-4	130/25	→												→	130/15	→						130/25	→	→
29-S	S-P - 40.027 - 359°24' - 90-4	131/25	→	*																					
30-S	S-P - 40.023 - 269°28' - 90-4	132/25																							
31-S	S-P - 40.015 - 179°25' - 90-4	267/25	→								267/50	→			→	267/25	→								→
32-S	S-P - 40.015 - 89°20' - 90-4	133/25	→	*																					
33-S	S-P - 41.498 - 359°30' - 90-4	134/75	→													134/25	→				134/50	→	134/75	→	→
34-S	S-P - 42.464 - 359°28' - 90-4	135/75	→												→	135/50	→					→	135/75	→	→
35-S	S-P - 43.7 - 0 - 90	Not Routed																							
36-S	S-P - 43.7 - 90 - 90	Not Routed																							
37-S	S-P - 43.7 - 180 - 90	Not Routed																							
38-S	S-P - 43.7 - 270 - 90	Not Routed																							
39-S	S-P - 44.796 - 359°28' - 90-4	136/75	→												→	136/50	→				136/75	→			→
40-S	S-P - 45.0 - 0 - 90	Not Routed																							
41-S	S-P - 47.315 - 359°28' - 90-4	268/75	→								268/100	→			→	268/50	→					→	268/75	→	→
42-S	S-P - 47.301 - 269°22' - 90-4	137/75	→												→	137/50	→					→	137/75	→	→
43-S	S-P - 47.289 - 179°15' - 90-4	138/75	→												→	138/50	→					→	138/75	→	→
44-S	S-P - 47.309 - 89°20' - 90-4	139/75	→												→	139/50	→					→	139/75	→	→
45-S	S-P - 48.109 - 359°28' - 90-4	269/75	→								269/100	→			→	269/50	→					→	269/75	→	→
46-S	S-T - 24.0 - 359°45' -	Not Routed																							
47-S	S-T - 37.789 - 359°30' - CA-3	303/50mv	→	*																					
48-S	S-T - 38.017 - 354°35' - CA-3	N/U																							
49-S	S-T - 40.021 - 354°30' - CA-4	305/50mv																							
50-S	S-T - 41.965 - 359°30' - CA-4	306/50mv	→	*																					
51-S	S-T - 44.796 - 354°27' - CA-4	307/50mv																							
52-S	LVDT (Spike Position)	120/100mv = 4.372 inches	→	*																					
77-T	Load Cell	277/3000 lb = 20mv	→	*																					

*Continuous to end

S-69719

Table 4. - Continued.

(b) Continued

Measurement Number	Identification	READING NUMBER																								
		31	33	34	36	37	38	51	57	61	63	64	65	69	70	73	78	84	88	89	91	92	93	96	97
1-I	I-P - 54.519 - 359°49' - 90-3	143/20									143/25	143/50											143/100		
2-I	I-P - 54.529 - 269°49' - 90-3	N/U		N/U	186/50																		186/100		
3-I	I-P - 54.512 - 179°41' - 90-3	141/75														141/50							141/75		
4-I	I-P - 54.514 - 90° 0' - 90-4	N/U		N/U	191/50																		191/100		
5-I	I-P - 56.004 - 0°48' - 90-4	271/75														271/50							271/100		
6-I	I-P - 56.0 - 32°30' - 90	Not Routed																							
7-I	I-P - 56.0 - 178°30' - 90	Not Routed																							
8-I	I-P - 56.0 - 262°30' - 90	Not Routed																							
9-I	I-P - 64.799 - 359°45' - 90-4	270/75														270/20							270/50		
10-I	I-T - 54.0 - 0	Not Routed																							
11-I	I-T - 55.25 - 0	Not Routed																							
12-I	I-T - 60.0 - 0	Not Routed																							
13-I	I-T - 59.979 - 240° 0' - CA-3	308/50 mv																							
14-I	I-T - 60.019 - 120° 0' - CA-4	290/50 mv		*																					
15-I	I-T - 64.799 - 354°56' - CA-4	309/50 mv																							

*Continuous to end

S-09686

Measurement Number	Identification	READING NUMBER																								
		31	33	34	36	37	38	51	57	61	63	64	65	69	70	73	78	84	88	89	91	92	93	96	97
1-HP	HP-P - 66.640 - 59°54' - 90-4	144/20														144/10							144/25		
2-HP	HP-P - 68.080 - 119°38' - 90-4	145/10																					145/20		
3-HP	HP-P - 69.405 - 180° 8' - 90-4	146/10																							
4-HP	HP-P - 70.790 - 240°12' - 90-4	147/10																							
5-HP	HP-P - 70.665 - 300°12' - 90-4	148/10																							
6-HP	HP-P - 74.550 - 0°10' - 90-4	149/10																							
7-HP	HP-P - 77.400 - 60° 0' - 90-4	150/10	*																						
8-HP	HP-P - 81.295 - 120° 8' - 90-4	151/10																							
9-HP	HP-P - 84.105 - 180° 5' - 90-4	152/10																							
10-HP	HP-P - 86.967 - ℄ - X-4	153/10																							
11-HP	HP-T - 68.080 - 124°15' - CA-3	310/50 mv	*																						
12-HP	HP-T - 70.790 - 245°12' - CA-3	311/50 mv	*																						
13-HP	HP-T - 74.45 - 5	Not Routed																							
14-HP	HP-T - 81.300 - 125° 8' - CA-4	312/50 mv	*																						

*Continuous to end

S-09679

Table 4. - Continued.

(b) Continued.

Measurement Number	Identification	READING NUMBER																								
		31	33	34	36	37	38	51	57	61	63	64	65	69	70	73	78	84	88	89	91	92	93	96	97
1-CO	CO-P - 35.525 - 83° 2' - 90-4	N/U	→																						
2-CO	CO-P - 35.514 - 172°58' - 90-4	155/25											N/U	155/25	155/15							N/U	155/15	125/20	N/U
3-CO	CO-P - 35.544 - 262°56' - 90-3	N/U		N/U	156/15									156/15									156/15	156/20	
4-CO	CO-P - 35.519 - 352°59' - 90-3	157/25												157/25		N/U	N/U	N/U	N/U	157/25			157/15		
5-CO	CO-P - 37.040 - 83° 4' - 90-4	N/U		N/U	158/10									158/10						158/10			158/10		
6-CO	CO-P - 37.044 - 173° 5' - 90-4	159/15												159/15									159/15		
7-CO	CO-P - 37.047 - 263° 5' - 90-3	N/U		N/U	160/10									160/10		N/U	N/U	N/U	N/U	160/10			160/10		
8-CO	CO-P - 37.044 - 353° 2' - 90-3	161/15												161/15			161/10			161/10			161/10		
9-CO	CO-P - 39.008 - 83° 7' - 90-4	N/U		N/U	162/10									162/10		N/U	N/U	N/U	N/U	162/10			162/10		
10-CO	CO-P - 39.004 - 173° 7' - 90-4	163/15												163/15									163/15		
11-CO	CO-P - 39.004 - 263° 1' - 90-3	N/U		N/U	164/10									164/10									164/10		
12-CO	CO-P - 39.000 - 353° 6' - 90-3	165/15												165/15		165/10							165/10		
13-CO	CO-P - 40.509 - 83° 6' - 90-4	N/U		N/U	166/10						166/15			166/15		N/U	N/U	N/U	N/U	166/15			166/15		
14-CO	CO-P - 40.507 - 173° 6' - 90-4	167/15												167/15		167/10						N/U	167/10		N/U
15-CO	CO-P - 40.504 - 263° 4' - 90-3	Not Routed																							
16-CO	CO-P - 40.500 - 353° 5' - 90-3	169/15												169/15		N/U	N/U	N/U	N/U	169/15		N/U	169/15	169/20	N/U
17-CO	CO-P - 40.004 - 210° 2' - 90-3	170/15												170/15						170/15			170/15		
18-CO	CO-P - 40.360 - 210° 7' - 75-3	N/U		N/U	171/10									171/10						171/10			171/10		
19-CO	CO-P - 40.680 - 210° 3' - 110-3	N/U		N/U	172/10									172/10						172/10			172/10		
20-CO	CO-P - 40.249 - 330° 1' - 135-3	173/15												173/15						173/15			173/15		
21-CO	CO-P - 40.654 - 330° 0' - 110-3	N/U		N/U	174/10									174/10		N/U	N/U	N/U	N/U	174/10		N/U	174/10		N/U
22-CO	CO-P - 40.008 - 0° 5' - 110-4	N/U		N/U	175/25																				
23-CO	CO-P - 40.364 - 359°57' - 75-3	N/U		N/U	176/10											N/U	N/U	N/U	N/U	176/10				176/15	
24-CO	CO-P - 40.655 - 0° 3' - 110-3	177/15												177/15		N/U	N/U	N/U	N/U	177/15		N/U	177/15		N/U
25-CO	CO-P - 40.209 - 180°10' - 135-4	178/15									178/20		N/U	178/20		N/U	N/U	N/U	N/U	178/20		N/U	178/20		N/U
26-CO	CO-P - 40.656 - 180° 5' - 110-4	179/15			179/25								N/U	179/25		N/U	N/U	N/U	N/U	179/25		N/U	179/25		N/U
31-C	C-P - 35.514 - 359°58' - 90-3	180/50															180/25						180/50		
32-C	C-P - 36.0 - 0 - 90	181/50															181/25						181/50		
33-C	C-P - 36.685 - 0° 8' - 90-4	182/50															182/25						182/50		
34-C	C-P - 36.634 - 180°10' - 90-3	183/50															183/25						183/50		
35-C	C-P - 37.034 - 0° 8' - 90-4	184/50															184/25						184/50		
36-C	C-P - 37.044 - 90°10' - 90-4	185/50															185/25						185/50		
37-C	C-P - 37.049 - 180° 7' - 90-3	N/U	→																						
38-C	C-P - 37.034 - 270° 7' - 90	Damaged																							
39-C	C-P - 37.544 - 0°10' - 90-4	187/50															187/25						187/50		
40-C	C-P - 38.044 - 0°10' - 86-4	188/50															188/25						188/50		
41-C	C-P - 38.044 - 90°10' - 86-4	189/50															189/25						189/50		
42-C	C-P - 38.049 - 180° 7' - 86-4	190/50															190/25						190/50		
43-C	C-P - 38.041 - 210° 7' - 86-3	N/U	→																						
44-C	C-P - 38.514 - 0° 5' - 94-4	192/50															192/25						192/50		
45-C	C-P - 39.014 - 0° 5' - 94-4	193/50															193/25						193/50		
46-C	C-P - 39.026 - 90° 7' - 94-4	194/50															194/25				194/50				
47-C	C-P - 39.019 - 180° 4' - 94-	Damaged																							
48-C	C-P - 39.014 - 270° 0' - 94-3	195/50															195/25						195/50		
49-C	C-P - 39.511 - 359° 4' - 94-3	196/50															196/25						196/50		
50-C	C-P - 39.995 - 0° 8' - 90-4	197/50															197/25						197/50		
51-C	C-P - 40.00 - 90° 7' - 90-4	N/U	→																						
52-C	C-P - 39.994 - 180° 7' - 90-3	199/50															199/25						199/50		
53-C	C-P - 40.004 - 270° 5' - 90	Damaged																							
54-C	C-T - 37.044 - 7° 9' - CA-4	314/50 mv	→																						
55-C	C-T - 39.014 - 7° 5' - CA-4	315/50 mv	→																						
56-C	C-T - 39.994 - 7° 8' - CA-4	316/50 mv	→																						
57-C	C-T - 40.0 - 90° - CA	Not Routed																							
58-C	C-T - 40.004 - 180° 7' - CA-3	N/U	→																						
59-C	C-T - 40.000 - 277° 4' - CA-3	292/50 mv							N/U																N/U
60-CO	CO-T - 36.544 - 353° 2' - CA-3	313/50 mv	→																						
61-CO	CO-T - 38.504 - 0 - CA	Not Routed																							

*Continuous to end

S-09720

Table 4. - Continued.

(b) Continued.

Measurement Number	Identification	READING NUMBER																							
		31	33	34	36	37	38	51	57	61	63	64	65	69	70	73	78	84	88	89	91	92	93	96	97
1-0	O-P - 41.06 - 0°0' - 110-4	201/75															201/50								
2-0	O-P - 41.06 - 180°0' - 110-4	272/75															272/50						272/75		
3-0	O-P - 41.06 - 210°0' - 110-3	N/U		N/U	228/75												228/50								
4-0	O-P - 41.06 - 330°0' - 110-3	N/U					N/U	200/75									200/50								
5-0	O-P - 43.786 - 1°0' - 90-4	202/75									202/100						202/50						202/75		
6-0	O-P - 43.786 - 90°0' - 90-4	N/U					N/U	203/75			203/100						203/50						203/75		
7-0	O-P - 43.731 - 180°0' - 90-3	204/75															204/50						204/75		
8-0	O-P - 43.786 - 270°0' - 90-3	N/U					N/U	205/75									205/50						205/75		
9-0	O-P - 45.222 - 1°0' - 90-4	206/75															206/50						206/75		
10-0	O-P - 47.016 - 1°0' - 90-4	273/75									273/100						273/50						273/75		
11-0	O-P - 49.005 - 1°0' - 90-4	207/75															207/50						207/75		
12-0	O-P - 49.020 - 90°0' - 90-4	N/U					N/U	219/50															219/75		
13-0	O-P - 49.003 - 180°0' - 90-4	N/U	*																						
14-0	O-P - 49.005 - 270°0' - 90-3	N/U					N/U	198/50			198/15	598/75					198/50						198/75		
15-0	O-P - 49.506 - 0° - 90-3	N/U																							
16-0	O-P - 50.405 - 0° - 90-4	208/75															208/50						208/75		
17-0	O-P - 50.411 - 90° - 90-4	N/U					N/U	221/50				221/75					221/50						221/75		
18-0	O-P - 50.411 - 180° - 90-4	N/U																							
19-0	O-P - 50.411 - 270° - 90-3	N/U																							
20-0	O-P - 50.505 - 1° - 90-4	N/U																							
21-0	O-P - 52.506 - 0° - 90-3	209/75															209/50						209/100		
22-0	O-P - 53.008 - 1° - 90-4	210/75															210/50						210/100		
23-0	O-P - 53.006 - 90° - 90-4	N/U					N/U	211/25			211/30						211/50						211/100		
24-0	O-P - 53.006 - 180° - 90-4	212/75	N/U																						N/U
25-0	O-P - 52.993 - 270° - 90-3	N/U					N/U	212/25			212/30						212/50						212/100		
26-0	O-P - 54.510 - 0° - 90-3	214/75															214/50						214/100		
27-0	O-P - 56.496 - 0° - 90-4	215/75															215/50						215/100		
28-0	O-P - 57.451 - 0° - 90-3	N/U					N/U	213/25			213/30						213/50						213/100		
29-0	O-P - 58.473 - 0° - 90-4	216/75															216/50						216/75		
30-0	O-P - 59.474 - 0° - 90-3	N/U																							
31-0	O-P - 60.476 - 0° - 90-4	217/50										217/75					217/25						217/75		
32-0	O-P - 61.870 - 0° - 90-3	218/50										218/75					218/25						218/75		
33-0	O-P - 51.881 - 110° - 90-4	N/U																							
34-0	O-P - 61.881 - 180° - 90-3	220/75															220/50						220/75		
35-0	O-P - 61.874 - 290° - 90-3	N/U																							
36-0	O-P - 62.976 - 0° - 90-4	N/U																							
37-0	O-P - 63.974 - 0° - 90-4	N/U																							
38-0	O-P - 64.975 - 1° - 90-4	222/20			222/50												222/15						222/75		
39-0	O-T - 41.978 - 0° - CA-3	317/50mv																							
40-0	O-T - 42.581 - 0° - CA-3	318/50mv																							
41-0	O-T - 43.786 - 359° - CA-4	319/50mv																							
42-0	O-T - 45.234 - 359° - CA-	320/50mv																							
43-0	O-T - 46.507 - 0° - CA-3	289/50mv	*																						
44-0	O-T - 46.510 - 90° - CA-4	293/50mv																							
45-0	O-T - 46.520 - 180° - CA-3	294/50mv																							
46-0	O-T - 46.491 - 270° - CA-3	295/50mv																							
47-0	O-T - 47.016 - 359° - CA-3	321/50mv																							
48-0	O-T - 48.0 - 0° - CA-	Not Routed																							
49-0	O-T - 49.005 - 359° - CA-3	322/50mv	*																						
50-0	O-T - 50.005 - 0° - CA-3	323/50mv																							
51-0	O-T - 50.014 - 90° - CA	Not Routed																							
52-0	O-T - 50.014 - 180° - CA-4	296/50mv	*																						

*Continuous to end

S-89491

Table 4. - Continued.

(b) Continued.

Measurement Number	Identification	READING NUMBER 31	33	34	36	37	38	51	57	61	63	64	65	69	70	73	78	84	88	89	91	92	93	96	97
53-0	O-T - 50.010 - 270° - CA-	Not Routed																							
54-0	O-T - 51.505 - 359° - CA-3	324/50mv																							
55-0	O-T - 52.010 - 0° - CA-4	325/50mv																							
56-0	O-T - 52.996 - 359° - CA-3	326/50mv																							
57-0	O-T - 54.0 - 0° - CA-	Not Routed																							
58-0	O-T - 55.0 - 0° - CA-	Not Routed																							
59-0	O-T - 56.00 - 0° - CA-3	327/50mv																							
60-0	O-T - 56.00 - 120° - CA-3	297/50mv																							
61-0	O-T - 56.00 - 240° - CA-4	298/50mv																							
62-0	O-T - 57.010 - 0° - CA-3	328/50mv																							
63-0	O-T - 57.970 - 0° - CA-3	329/50mv																							
64-0	O-T - 58.969 - 0° - CA-3	330/50mv																							
65-0	O-T - 59.976 - 0° - CA-4	331/50mv																							
66-0	O-T - 60.974 - 0° - CA-4	332/50mv																							
67-0	O-T - 62.474 - 0° - CA-4	333/50mv																							
68-0	O-T - 62.474 - 120° - CA-3	299/50mv																							
69-0	O-T - 62.474 - 240° - CA-4	300/50mv																							
70-0	O-T - 63.978 - 0° - CA-3	334/50mv																							
71-0	O-T - 64.475 - 0° - CA-4	335/50mv																							
72-0	O-T - 65.224 - 359° - CA-3	336/50mv																							
73-0	O-T - 66.0 - 0° - CA-	Not Routed																							

*Continuous to end

S-89693

Measurement Number	Identification	READING NUMBER 31	33	34	36	37	38	51	57	61	63	64	65	69	70	73	78	84	88	89	91	92	93	96	97
1-N	N-P - 66.635 - 298°55' - 80-3	223/20															223/10						223/25		
2-N	N-P - 67.305 - 240° - 78-3	224/15																							
3-N	N-P - 68.18 - 180°	Not Routed																							
4-N	N-P - 68.800 - 118°49' - 90-3	225/10																							
5-N	N-P - 69.605 - 58°53' - 90-3	N/U	N/U	N/U	226/10																				
6-N	N-P - 70.360 - 358°6' - 90-3	227/10																							
7-N	N-P - 71.225 - 299°0' - 90-3	N/U																							
8-N	N-P - 72.320 - 235°5' - 90-3	229/10																							
9-N	N-P - 73.030 - 178°17' - 92.5-4	230/10			230/25												230/15								
10-N	N-P - 73.224 - 0°10' - 188-4	N/U																							
11-N	N-P - 73.224 - 180°11' - 188-3	232/10																							
12-N	N-T - 67.330 - 237°57' - CA-4	301/50mv																							
13-N	N-T - 68.805 - 113°49' - CA-4	302/50 mv																							
14-N	N-T - 70.360 - 353°51' - CA-4	337/50mv																							
15-N	N-T - 72.300 - 240°7' - CA-4	338/50mv																							

†Continuous to end

S-89694

Measurement Number	Identification	READING NUMBER 31	33	34	36	37	38	51	57	61	63	64	65	69	70	73	78	84	88	89	91	92	93	96	97
16-NO	NO-P - 70.921 - 180°12' - 90-4	233/10											N/U	233/10								N/U	233/10		N/U
17-NO	NO-P - 70.917 - 330°8' - 90-3	234/10											N/U	234/10								N/U	234/10		N/U
18-NO	NO-P - 71.040 - 134°53' - 90-4	235/10											N/U	235/10								N/U	235/10		N/U
19-NO	NO-P - 71.054 - 150°10' - 90-4	N/U																	N/U	154/15					
20-NO	NO-P - 71.053 - 155°35' - 90-4	237/10											N/U	237/10								N/U	237/10		N/U
21-NO	NO-P - 71.978 - 0°11' - 90-4	238/10											N/U	238/10								N/U	238/10		N/U
22-NO	NO-P - 71.965 - 180°12' - 90-4	239/10											N/U	239/10								N/U	239/10		N/U
23-NO	NO-P - 71.965 - 183°43' - 90-3	N/U																	N/U	168/15					
24-NO	NO-P - 71.960 - 192°53' - 90-3	N/U		*																					
25-NO	NO-P - 71.955 - 201°13' - 90-3	242/10											N/U	242/10								N/U	242/10		N/U
26-NO	NO-P - 71.945 - 210°13' - 90-3	N/U																							
27-NO	NO-P - 71.925 - 219°3' - 90-3	243/10		N/U	243/10								N/U	243/10								N/U	243/10		N/U
28-NO	NO-P - 71.920 - 227°53' - 90-3	N/U		*																					
29-NO	NO-P - 71.920 - 236°41' - 90-3	245/10												245/10									245/10		
30-NO	NO-P - 71.957 - 330°8' - 90-3	246/10												246/10									246/10		
31-NO	NO-P - 71.971 - 340°19' - 90-4	247/10												247/10									247/10		
32-NO	NO-P - 71.970 - 346°56' - 90-4	N/U		*																					
33-NO	NO-P - 71.970 - 353°35' - 90-4	249/10												249/10									249/10		
34-NO	NO-P - 72.430 - 150°11' - 60-4	250/10												250/10									250/10		

*Continuous to end

S-89718

Table 4. - Continued.

(b) Continued.

Measurement Number	Identification	READING NUMBER																								
		31	33	34	36	37	38	51	57	61	63	64	65	69	70	73	78	84	88	89	91	92	93	96	97
35-OC	OCB - P - 66.34 - X - 180-X	251/10		*																					
1-F	S-P - 1A - 172 - X-3	N/U																							
2-F	S-P - 1A - 25 - X-3	244/200						73/300																	
3-F	S-P - 1C - 175 - X-3	N/U					N/U	74/300																	
4-F	S-P - 1C - 25 - X-3	N/U		*																					
5-F	S-P - 2C - 175 - X-4	N/U	123/500		123/500	231/500	231/500	75/500																	
6-F	S-P - 2C - 25 - X-4	N/U	124/500		124/500																				
7-F	1-P - 3B - 95 - X-4	N/U					N/U	76/300																	
8-F	1-P - 3B - 275 - X-4	N/U		*																					
9-F	O-P - 1B - 90 - X-4	240/200						77/300																	
10-F	O-P - 1B - 270 - X-3	241/200		*																					
11-F	O-P - 4 - 90 - X-4	N/U					N/U	78/300																	
12-F	O-P - 4 - 270 - X-X	Not Routed																							
13-F	O-P - 2A - 90 - X-X	Not Routed																							
14-F	O-P - 2A - 270 - X-3	N/U					N/U	79/500																	
15-F	O-P - 3A - 90 - X-4	N/U	N/U	123/500				80/300																	
16-F	O-P - 3A - 270 - X-3	N/U	N/U	124/500																					
17-F	S-T - 1A - 188 - CA-3	53/50																							
18-F	S-T - 1A - 30 - CA-3	54/50																							
19-F	S-T - 1C - 180 - CA-4	55/50																							
20-F	S-T - 1C - 30 - CA-4	56/50																							
21-F	S-T - 2C - 180 - CA-3	57/50																							
22-F	S-T - 2C - 30 - CA-3	58/50																							
23-F	I-T - 3B - 90 - CA-4	59/50																							
24-F	I-T - 3B - 270 - CA-4	60/50																							
25-F	O-T - 1B - 90 - CA-4	61/50		*																					
26-F	O-T - 1B - 270 - CA-3	62/50																							
27-F	O-T - 2A - 90 - CA-4	63/50																							
28-F	O-T - 2A - 270 - CA-3	64/50																							
29-F	O-T - 4 - 90 - CA-4	65/50																							
30-F	O-T - 4 - 270 - CA-3	66/50																							
31-F	O-T - 3A - 90 - CA-4	67/50																							
32-F	O-T - 3A - 270 - CA-3	68/50																							
33-F	S-P - IGN O_2 - X - X-3	248/300																							
34-F	S-P - IGN O_2	Not Routed																							
35-F	O-P - IGN O_2 - X - X-4	236/300																					236/500		
36-F	O-P - IGN O_2	Not Routed																							
37-F	S-P - IGN H_2 - X - X-4	252/300																					252/500		
38-F	S-P - IGN H_2	Not Routed																							
39-F	O-P - IGN H_2 - X - X-4	253/300																					253/500		
40-F	O-P - IGN H_2	Not Routed																							
41-F	S-P - H_2O IN (TIP) - X - X-4																								
42-F	1-P - H_2O IN (TIP) - X - X-4																								
43-F	ST-P - H_2O IN (LE) - X - X-4	Visually Monitored																							
44-F	ST-P - H_2O IN (SIDE) - X - X-4																								
45-F	O-P - H_2O IN - X - X-3																								

*Continuous to end

Table 4, - Continued.

(b) Continued.

Measurement Number	Identification	READING NUMBER																							
		31	33	34	36	37	38	51	57	61	63	64	65	69	70	73	78	84	88	89	91	92	93	96	97
46-F	OC-P - H_2O IN (A) - X - X-4	Visually Monitored																							
47-F	OC-P - H_2O IN (B) - X - X-4																								
48-F	OC-P - H_2O IN (C) - X - X-4																								
49-F	OC-P - H_2O IN (D) - X - X-4																								
50-F	S-P - H_2O OUT (TIP) - X - X-4																								
51-F	I-P - H_2O OUT - X - X-3																								
52-F	ST-P - H_2O OUT (LE) - X - X-3																								
53-F	ST-P - H_2O OUT (SIDE) -X-X-3																								
54-F	O-P - H_2O OUT -X-X-3																								
55-F	OC-P - H_2O OUT (A) - X - X-3																								
56-F	OC-P - H_2O OUT (B) - X - X-3																								
57-F	OC-P - H_2O OUT (C) - X - X-3																								
58-F	OC-P - H_2O OUT (D) - X - X-3																								
59-F	S-ΔT - H_2O OUT - X - CuC-4	370/ΔSmv												386/Smv											
59-F	S-ΔT - H_2O IN - X- CuC-4													387/Smv											
60-F	I-ΔT - H_2O OUT - X - CuC-3	371/ΔTSmv												370/Smv											
60-F	I-ΔT - H_2O IN - X - CuC-4													371/Smv											
61-F	ST-ΔT - H_2O OUT LE - X - CuC-3	372/ΔTSmv													366/Smv										
61-F	ST-ΔT - H_2O IN LE - X - CuC-3														367/Smv										
62-F	ST-ΔT - H_2O OUT (SIDE) -X-CuC-3	373/ΔTSmv													368/Smv										
62-F	ST-ΔT - H_2O IN (SIDE) -X-CuC-4														369/Smv										
63-F	O-ΔT - H_2O OUT - X - CuC-3	374/ΔTSmv												372/Smv											
63-F	O-ΔT - H_2O IN - X - CuC-3													373/Smv											
64-F	HYD-P - IN - X - X-X	Visually Monitored																							
65-F	HYD-P - OUT - X - X-X																								
66-F	ΔT1B - 40.6 - 3 - CuC-4	375/ΔTSmv												374/Smv											
66-F	ΔT1A - 35.75 - 356 - CuC-3													375/Smv											
67-F	ΔT1B - 40.6 - 181 - CuC-4	376/ΔTSmv												376/Smv											
67-F	ΔT1A - 35.75 - 176 - CuC-3													377/Smv											
68-F	ΔT2D - 55.6 - 357 - CuC-3	377/ΔTSmv													352/Smv										
68-F	ΔT2C - 40.5 - 5 - CuC-4														353/Smv										
69-F	ΔT2D - 55.6 - 177 - CuC-4	378/ΔTSmv												388/Smv											
69-F	ΔT2C - 40.5 - 178 - CuC-4													389/Smv											
70-F	ΔT3F - 66.2 - 356 - CuC-3	379/ΔTSmv													359/Smv										
70-F	ΔT3E - 55.6 - 355 - CuC-3														358/Smv										
71-F	ΔT3F - 66.19 - 176 - CuC-4	380/ΔTSmv													351/Smv										
71-F	ΔT3E - 55.6 - 175 - CuC-4														350/Smv										
72-F	ΔT4H - 72.36 - 356 - CuC-4	381/ΔTSmv												378/Smv											
72-F	ΔT4G - 66.68 - 356 - CuC-4													379/Smv											
73-F	ΔT4H - 72.36 - 176 - CuC-4	382/ΔTSmv												380/Smv											
73-F	ΔT4G - 66.68 - 176 - CuC-4													381/Smv											

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Table 4. - Continued.

(b) Continued

Measurement Number	Identification	READING NUMBER																							
		31	33	34	36	37	38	51	57	61	63	64	65	69	70	73	78	84	88	89	91	92	93	96	97
74-F	ΔT5J - 40.0 - 4 - CuC-3	383/ΔT5mv	→	→	→	→	→	→	→	→	→	→	→	→	361/5mv	→	→	→	→	→	→	→	→	→	→
74-F	ΔT5K - 47.84 - 357 - CuC-3		→	→	→	→	→	→	→	→	→	→	→	→	363/5mv	→	→	→	→	→	→	→	→	→	→
75-F	ΔT5J - 40.0 - 184 - CuC-4	384/ΔT5mv	→	→	→	→	→	→	→	→	→	→	→	→	354/5mv	→	→	→	→	→	→	→	→	→	→
75-F	ΔT5K - 47.84 - 181 - CuC-4		→	→	→	→	→	→	→	→	→	→	→	→	355/5mv	→	→	→	→	→	→	→	→	→	→
76-F	ΔT6M - 50.8 - 358 - CuC-3	385/ΔT5mv	→	→	→	→	→	→	→	→	→	→	→	→	364/5mv	→	→	→	→	→	→	→	→	→	→
76-F	ΔT6L - 48.58 - 357 - CuC-3		→	→	→	→	→	→	→	→	→	→	→	→	365/5mv	→	→	→	→	→	→	→	→	→	→
77-F	ΔT6M - 50.8 - 178 - CuC-4	386/ΔT5mv	→	→	→	→	→	→	→	→	→	→	→	→	356/5mv	→	→	→	→	→	→	→	→	→	→
77-F	ΔT6L - 48.58 - 181 - CuC-4		→	→	→	→	→	→	→	→	→	→	→	→	357/5mv	→	→	→	→	→	→	→	→	→	→
78-F	ΔT7P - 66.10 - 356 - CuC-3	387/ΔT5mv	→	→	→	→	→	→	→	→	→	→	→	→	382/5mv	→	→	→	→	→	→	→	→	→	→
78-F	ΔT7N - 50.8 - 354 - CuC-3		→	→	→	→	→	→	→	→	→	→	→	→	383/5mv	→	→	→	→	→	→	→	→	→	→
79-F	ΔT7P - 66.10 - 176 - CuC-4	388/ΔT5mv	→	→	→	→	→	→	→	→	→	→	→	→	384/5mv	→	→	→	→	→	→	→	→	→	→
79-F	ΔT7N - 50.8 - 174 - CuC-4		→	→	→	→	→	→	→	→	→	→	→	→	385/5mv	→	→	→	→	→	→	→	→	→	→
80-F	O-ΔT - H_2O OUT - X - X-4	389/ΔT5mv	→	→	→	→	→	→	→	→	→	→	→	→	360/5mv	→	→	→	→	→	→	→	→	→	→
80-F	O-ΔT - H_2O IN - X - X-4		→	→	→	→	→	→	→	→	→	→	→	→	362/5mv	→	→	→	→	→	→	→	→	→	→
81-F	O-P - H_2O OUT - X - X-3	Visually Monitored																							
82-F	O-P - H_2O IN - X - X-4																								
83-F	I-T - H_2O - 52.8 - 27 - CA-3	390/5mv	→	*																					
84-F	I-T - H_2O - 57.8 - 30 - CA-4	391/5mv	→	→	→	→	→	→	→	→	→	→	→	→	391/5mv	→	→	→	→	→	→	→	→	→	→
85-F	PURGE CAVITY PA-1-X - X - X-3	254/25	→	→	→	→	→	254/50	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→
86-F	PURGE CAVITY PA-2-X - X - X-3	255/25	→	→	255/50	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→
87-F	PURGE CAVITY PB-1-X - X - X-3	256/25																							
88-F	PURGE CAVITY PB-2-X - X - X-3	257/25																							
89-F	INNER BODY CAV PRES - X - X-4	258/50																							
90-F	INNER BODY CAV TEMP - X-X-CA-	69/5																							
91-F	PURGE CAVITY TA1 - X - X - CA-	394/5mv		→	*																				
92-F	PURGE CAVITY TA2 - X - X - CA-	395/5mv																							
93-F	PURGE CAVITY TB1 - X - X - CA-	396/5mv																							
94-F	PURGE CAVITY TB2 - X - X - CA-	397/5mv																							
95-F		N/U																							
96-F		N/U																							
97-F		N/U																							
98-F		N/U																							
99-F		N/U																							
100-F	PURGE CAVITY	70/50																							
101-F	PURGE CAVITY	71/50		→	*																				
102-F	PURGE CAVITY	72/50																							

*Continuous to end

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Table 4. - Concluded.

(b) Concluded

Measurement Number	Identification	READING NUMBER 65	92	97
ICE	CE-PT - 66.74 - 0 - 00 - X	155/75	155/50	155/75
2	CE-PS - 67.04 - 0 - 13 - X	156/50	156/15	156/50
3	CE-PS - 67.04 - 0 - 109 - X	157/50	157/15	157/50
4	CE-PS - 67.04 - 0 - 193 - X	158/50	158/15	158/50
5	CE-PS - 67.04 - 0 - 283 - X	159/50	159/15	159/50
6	CE-PT - 66.74 - 110 - 00 - X	160/75	160/50	160/75
7	CE-PS - 67.04 - 110 - 18 - X	161/50	161/15	161/50
8	CE-PS - 67.04 - 110 - 108 - X	162/50	162/15	162/50
9	CE-PS - 67.04 - 110 - 198 - X	163/50	163/15	163/50
10	CE-PS - 67.04 - 110 - 288 - X	164/50	164/15	164/50
11	CE-PT - 66.74 - 180 - 00 - X	165/75	165/50	165/75
12	CE-PS - 67.04 - 180 - 1 - X	166/50	166/15	166/50
13	CE-PS - 67.04 - 180 - 91 - X	167/50	167/15	167/50
14	CE-PS - 67.04 - 180 - 181 - X	169/50	169/15	169/50
15	CE-PS - 67.04 - 180 - 271 - X	170/50	170/15	170/50
16	CE-PT - 66.74 - 280 - 00 - X	171/75	171/50	171/75
17	CE-PS - 67.04 - 280 - 355 - X	172/50	172/15	172/50
18	CE-PS - 67.04 - 280 - 85 - X	173/50	173/15	173/50
19	CE-PS - 67.04 - 280 - 175 - X	174/50	174/15	174/50
20	CE-PS - 67.04 - 280 - 265 - X	177/50	177/15	177/50
21	CE-PT - 66.74 - 330 - 00 - X	178/75	178/50	178/75
22	CE-PS - 67.04 - 330 - 3 - X	179/50	179/15	179/50
23	CE-PS - 67.04 - 330 - 93 - X	233/50	233/15	233/50
24	CE-PS - 67.04 - 330 - 183 - X	234/50	234/15	234/50
25	CE-PS - 67.04 - 330 - 273 - X	235/50	235/15	235/50
26	CE-G-GS - 30 - X - X	LeRC sys	LeRC	LeRC
27	CE-G-TT - 30 - P/R - X	LeRC sys	124/20	124/20
28	CE-G-RT - 30 - C/A - X	LeRC sys	142/20	142/20
29	CE-G-PT - 30 - X - X	237/75	237/50	237/75
30	CE-G-PS - 30 - X - X	238/60	238/30	238/60
31	CE-G-GS - 70 - X - X	LeRC sys	LeRC	LeRC
32	CE-G-TT - 70 - P/R - X	LeRC sys	81/20	81/20
33	CE-G-RT - 70 - CA - X	LeRC sys	231/20	231/10
34	CE-G-PT - 70 - X - X	239/75	239/50	239/75
35	CE-G-PS - 70 - X - X	242/60	242/30	242/60
36	CE-G-GS - 170 - X - X	LeRC sys	LeRC	LeRC
37	CE-G-TT - 170 - X - X	LeRC sys	82/20	82/20
38	CE-G-RT - 170 - X - X	LeRC sys	244/20	244/10
39	CE-G-PT - 170 - X - X	243/75	243/50	243/75
40	CE-G-PS - 170 - X - X	245/60	245/30	245/60
41	CE-G-GS - 260 - X - X	LeRC sys	LeRC	LeRC
42	CE-G-TT - 260 - X - X	LeRC sys	345/20	LeRC
43	CE-G-RT - 260 - X - X	LeRC sys	LeRC	LeRC
44	CE-G-PT - 260 - X - X	246/75	246/50	246/75
45	CE-G-PS - 260 - X - X	247/60	247/30	247/60
46	CE-G-GS - 350 - X - X	LeRC sys	LeRC	LeRC
47	CE-G-TT - 350 - X - X	LeRC sys	346/20	LeRC
48	CE-G-RT - 350 - X - X	LeRC sys	140/20	140/20
49	CE-G-PT - 350 - X - X	249/75	249/50	249/75
50	CE-G-PS - 350 - X - X	250/60	250/50	250/60

Table 5. - Summary of HRE/AIM test points used for analyses.

(a) Mach 6 component integration results.

Page No.*	Reading Number	Time	M_o	P_{T_o}, psia	T_{T_o}, °R	X_{CL}, in.	α	Inj.1/ϕ_1	Inj.2/ϕ_2	Inj.3/ϕ_3	ϕ_T	Ignitors 1, 2, 3	Purpose & Remarks
—	33**	126.95	6.0	750	3000	35.2	0°	0	0	0	0	No	No fuel injection
—	↓	161.15	↓	↓	↓	↓	↓	1A,1B/.24	0	0	0.24	1,2	1st stage only
—		168.0						1A,1B/.3	0	0	0.30	↓	1st stage only
—		174.65						1A,1B/.36	0	0	0.36		Max. ϕ, engine unstart
57	34	98.15	6.0	750	3000	35.2	0°	0	0	0	0	1,2	
65	↓	104.45	↓	↓	↓	↓	↓	1A,1B/.20	0	0	0.20	↓	1st stage only
73		148.55						1A,1B/.23	2A/.58	0	0.81		1st and 2nd stages
81		181.85						1A,1B/.21	2A/.56	3A/.39	1.16		Max. ϕ, 3 stages
89		196.25		940				1A,1B/.15	2A/.44	3A/.32	0.91		Max. ϕ, 3 stages
—	36 a	119.18	6.0	750	3000	35.2	0°	0	0	0	0	No	Auto ignition
—	a	124.58						1A,1B/.26	0	0	0.26		
97		132.68						1A,1B/.25	2A,2C/.34	0	0.59		
106		144.38						1A,1B/.24	2A,2C/.49	0	0.73		
115		158.78						1A,1B/.23	2A,2C/.69	0	0.92		
124		173.18						1A,1B/.22	2A,2C/.75	0	0.97		
133	38	96.24	6.0	750	3000	35.2	0°	0	0	0	0	No	
141		107.05						1A,1B/.33	0	0	0.33		1st stage only
150		113.35						0	2C/.38	0	0.38		2nd stage only } transient
158		116.95						1A,1B/.18	2C/.67		0.85		} data
167	52	165.93	6.0	750	3000	35.2	0°	0	0	0	0	No	ϕ1A,1B and ϕ4,2C
175		172.23						1A,1B/.24	4,2C/.26	0	0.50		
183		180.33						1A,1B/.20	4,2C/.41	0	0.61		
191		189.33						1A,1B/.20	4,2C/.53	0	0.73		
199	54	156.46	6.0	750	3000	35.2	0°	0	0	0	0	No	Constant ϕ1A,1B, ϕ2A,2C
207		185.26						1A,1B/.21	2A,2C/.64	0	0.85		ramped up 3 times
215		200.56						1A,1B/.23	2A,2C/.43	0	0.66		
223		222.16						1A,1B/.24	2A,2C/.25	0	0.49		
231		235.66						1A,1B/.24	2A,2C/.52	0	0.76		
239		253.66						1A,1B/.18	2A,2C/.60	0	0.78	1.2	
247		280.66						1A,1B/.20	2A,2C/.61	0	0.81	No	
255	57	195.11	6.0	750	3000	35.2	0°	0	0	0	0	No	Optimized performance
263		207.71						1A,1B/.21	2A,2C/.73	0	0.94		
271		234.71						1A,1B/.32	2A,2C/.60	0	0.92		
279		265.31						1A,1B/.21	2A,2C/.36	0	0.57		
287		287.81						1A,1B/.20	2A,2C/.54	0	0.74		
295	60	155.69	6.0	750	3000	35.2	0°	0	0	0	0	No	Variation of fuel schedule
303		178.19						1A,1B/.21	2A,2C/.64	0	0.85		
311		186.29						1A,1B/.22	2A,2C/.65	0	0.87		
319		202.49						1A,1B/.21	2A,2C/.65	0	0.86		
327		223.19						1A/.21	2A,2C/.66	0	0.87		
335		230.39						1A,1B/.21	2A,2C/.67	0	0.88		
343		241.19						1B/.19	2A,2C/.68	0	0.87		
351		249.29						1B/.24	2A,2C/.68	0	0.92		
359		258.29						0	2A,2C/.76	0	0.76		
367		264.59						0	2A,2C/.80	0	0.80		

*Reference 10

** Because of insufficient valid engine surface pressure measurements, performance results were not obtained.

a Listings not available.

Table 5. - Continued.

(b) Mach 6 engine performance results.

Page* No.	Reading Number	Time	M_o	P_{T_o}, psia	P_{T_o}, °R	X_{CL}, in.	α	Inj.1/ϕ_1	Inj.2/ϕ_2	Inj.3/ϕ_3	ϕ_T	Ignitors 1, 2, 3	Purpose & Remarks
55	61	178.86	6.0	750	3000	36.7	0°	0	0	0	0	No	Effect of spike position
63	↓	198.66	↓	↓	↓	↓	↓	1A,1B/.13	2A,2C/.36	0	0.49	↓	↓
72	↓	205.86	↓	↓	↓	↓	↓	1A,1B/.15	2A,2C/.49	0	0.64	↓	↓
81	↓	212.16	↓	↓	↓	↓	↓	1A,1B/.15	2A,2C/.61	0	0.76	↓	↓
90	↓	222.06	↓	↓	↓	↓	↓	1A,1B/.14	2A,2C/.73	0	0.87	↓	↓
99	↓	231.06	↓	↓	↓	37.5	0°	0	0	0	0	No	Effect of spike position
108	↓	243.66	↓	↓	↓	↓	↓	1A,1B/.30	0	0	0.30	↓	↓
117	↓	246.36	↓	↓	↓	↓	↓	1A,1B/.30	2A,2C/.47	0	0.77	↓	↓
126	↓	251.76	↓	↓	↓	↓	↓	1A,1B/.29	2A,2C/.65	0	0.94	↓	↓
135	↓	262.56	↓	↓	↓	↓	↓	1A,1B/.27	2A,2C/.96	0	1.13	↓	↓
144	↓	273.36	↓	↓	↓	↓	↓	1A,1B/.26	2A,2C/1.15	0	1.41	↓	High test cell and AIM nozz. pressures
153	63	186.15	6.0	930	3000	35.2	0°	0	0	0		No	Effect of altitude
161	↓	192.45	↓	↓	↓	↓	↓	1A,1B/.24	2A,2C/.56	0	0.80	↓	↓
169	↓	216.75	↓	↓	↓	↓	↓	1A,1B/.24	2A,2C/.76	0	1.00	↓	↓
177	↓	249.15	↓	470	↓	↓	↓	0	0	0	0	↓	↓
185	↓	275.25	↓	470	↓	↓	↓	1A,1B/.26	2A,2C/.73	0	0.99	↓	↓
193	64	156.11	6.0	750	3000	35.2	0°	0	0	0	0	No	Subsonic-supersonic
201	↓	167.81	↓	↓	↓	↓	↓	1B/.24	2A,2C/.77	0	1.01	↓	transition
209	↓	202.01	↓	↓	↓	↓	↓	0	0	3A,3B/.85	0.85	↓	↓
217	↓	239.81	↓	↓	↓	↓	↓	1B/.23	2A,2C/1.11	0	1.34	↓	↓
225	↓	261.41	↓	↓	↓	↓	↓	1B/.24	0	3A,3B/.8	1.04	↓	↓
233	↓	293.81	↓	↓	↓	↓	↓	1B/.26	2A,2C/.8	0	1.06	↓	↓
241	65	164.03	6.0	750	3000	35.2	0°	0	0	0	0	No	Supersonic combustion
249	↓	174.83	↓	↓	↓	↓	↓	1A,1B/.23	0	0	0.23	↓	with instrumentation rig,
257	↓	180.23	↓	↓	↓	↓	↓	1A,1B/.24	2A,2C/.34	0	0.58	↓	gas sampling
265	↓	196.43	↓	↓	↓	↓	↓	1A,1B/.24	2A,2C/.59	0	0.83	↓	↓
273	↓	201.83	↓	↓	↓	↓	↓	1A,1B/.24	2A,2C/.80	0	1.04	↓	↓
281	↓	218.03	↓	↓	↓	↓	↓	1A,1B/.27	2A,2C/.76	0	1.03	↓	↓
289	↓	235.13	↓	↓	↓	↓	↓	1A,1B/.25	2A,2C/.79	0	1.04	↓	↓
297	69	177.00	6.0	750	3000	35.2	0°	0	0	0	0	No	Supersonic combustion
305	↓	198.60	↓	↓	↓	↓	↓	1A,1B/.22	0	0	0.22	↓	with instrumentation rig,
313	↓	212.10	↓	↓	↓	↓	↓	1A,1B/.23	2A,2C/.48	0	0.48	↓	gas sampling
321	↓	226.50	↓	↓	↓	↓	↓	1A,1B/.23	2A,2C/.59	0	0.82	↓	↓
329	↓	256.20	↓	↓	↓	↓	↓	1A,1B/.22	2A,2C/.69	0	0.91	↓	↓
337	↓	265.20	↓	↓	↓	↓	↓	1A,1B/.23	2A,2C/.79	0	1.02	↓	↓
345	71	160.54	6.0	750	3000	35.2	3°	0	0	0	0	No	Angle of attack perform-
353	↓	171.39	↓	↓	↓	↓	↓	1A,1B/.22	0	0	0.22	↓	ance
361	↓	174.94	↓	↓	↓	↓	↓	1A,1B/.22	2A,2C/.31	0	0.53	↓	↓
369	↓	193.84	↓	↓	↓	↓	↓	1A,1B/.24	2A,2C/.59	0	0.83	↓	↓
377	↓	207.34	↓	↓	↓	↓	↓	1A,1B/.24	2A,2C/.81	0	1.05	↓	↓
385	↓	248.74	↓	↓	↓	↓	↓	0	2A,2C/1.33	0	1.33	↓	↓
393	↓	266.74	↓	↓	↓	↓	↓	0	2A,2C/.87	0	0.87	↓	↓
401	↓	270.34	↓	↓	↓	↓	↓	0	2A,2C/.87	0	0.87	↓	↓
409	↓	284.74	↓	↓	↓	↓	↓	0	2A,2C/.66	0	0.66	↓	↓
417	↓	285.64	↓	↓	↓	↓	↓	0	2A,2C/.66	0	0.66	↓	↓

*Reference 11

Table 5. - Continued.

(c) Mach 7 component integration and engine performance results.

Page* No.	Reading Number	Time	M_o	P_{T_o}, psia	T_{T_o}, °R	X_{CL}, in.	α	inj.1/ϕ_1	inj.2/ϕ_2	inj.3/ϕ_3	ϕ_T	Ignitors 1, 2, 3	Purpose & Remarks
54	88	236.40	7.25	1000	3160	36.6	0°	0	0	0	0	2	Exploratory run
62	↓	245.40	↓	↓	3170	↓	↓	1A,1B/.30	0	0	0.30	↓	↓
70	↓	261.60	↓	↓	3250	↓	↓	1A,1B/.42	0	0	0.42	↓	↓
78	↓	269.70	↓	↓	3280	↓	↓	1A,1B/.55	0	0	0.55	↓	↓
86	↓	270.60	↓	↓	3270	↓	↓	1A,1B/.57	0	0	0.57	↓	↓
94	↓	271.50	↓	↓	3270	↓	↓	1A,1B/.58	0	0	0.58	↓	↓
102	↓	278.70	↓	↓	3270	↓	↓	1A,4/.16	2A,2C/.70	0	0.86	↓	↓
111	↓	285.90	↓	↓	3250	↓	↓	1A,4/.31	2A,2C/.60	0	0.91	↓	↓
120	↓	294.00	↓	↓	3200	↓	↓	1A,4/.28	2A,2C/.57	0	0.85	↓	↓
129	↓	299.40	↓	↓	3150	↓	↓	1A,4/.45	2A,2C/.46	0	0.91	↓	↓
138	↓	305.70	↓	↓	3090	↓	↓	1A,4/.49	2A,2C/.41	0	0.90	↓	↓
147	89	250.77	7.4	1000	1790	36.6	0°	0	0	0	0	No	Effect of low T_{T_O}
155	↓	272.37	7.25	↓	3180	↓	↓	1A,1B/.32	2A,2C/.47	0	0.79	2	↓
164	↓	283.17	↓	↓	3270	↓	↓	1A,1B/.34	2A,2C/.55	0	0.89	↓	↓
173	↓	290.37	↓	↓	3270	↓	↓	0	2A,2C/.75	0	0.75	↓	↓
181	↓	294.87	↓	↓	3310	↓	↓	0	2A,2C/.92	0	0.92	↓	↓
189	↓	304.77	↓	↓	3290	↓	↓	0	2A,2C/.59	0	0.59	↓	↓
197	↓	310.17	↓	↓	3060	↓	↓	1A,1B/.32	2A,2C/.57	0	0.89	↓	↓
206,232	**	316.47	7.30	↓	2720	↓	↓	1A,1B/.29	2A,2C/.54	0	0.83	↓	↓
215,241	**	327.27	7.34	↓	2410	↓	↓	1A,1B/.28	2A,2C/.54	0	0.82	↓	↓
224	↓	352.47	7.25	↓	3300	↓	↓	1A,1B/.36	2A,2C/.57	0	0.93	↓	↓
249	90	197.22	7.25	1000	3000	36.6	0°	0	0	0	0	No	Optimization
257	↓	206.22	↓	↓	↓	↓	↓	1A,1B/.48	0	0	0.48	2	↓
265	↓	212.52	↓	↓	↓	↓	↓	1A,1B/.49	4/.05	0	0.54	↓	↓
273	↓	217.02	↓	↓	↓	↓	↓	1A,1B/.48	1C,4/.34	0	0.82	↓	↓
281	↓	230.52	↓	↓	↓	↓	↓	1A,1B/.26	1C,4/.51	0	0.77	↓	↓
289	↓	235.02	↓	↓	↓	↓	↓	1A,1B/.79	1C,4/1.19	0	1.98	↓	Inlet unstarted
297	↓	246.72	↓	↓	↓	↓	↓	1A/.51	0	0	0.51	↓	↓
305	↓	247.62	↓	↓	↓	↓	↓	1A/.55	0	0	0.55	↓	↓
313	91	175.65	7.25	1000	3100	36.6	3°	1A,1B/.39	0	0	0.39	2	Angle of attack
321	↓	180.15	↓	↓	↓	↓	↓	1A,1B/.47	0	0	0.47	2	↓
329	↓	186.45	↓	↓	↓	↓	↓	0	0	0	0	No	↓
337	↓	190.05	↓	↓	↓	↓	↓	1A,1B/.51	4/.13	0	0.64	2	↓
345	↓	203.55	↓	↓	↓	↓	↓	1A,1B/.52	0	0	0.52	↓	↓
353	↓	216.15	↓	↓	↓	↓	↓	1B/.27	4,2C/.34	0	0.61	↓	↓
361	↓	224.25	↓	↓	↓	↓	↓	1B/.28	4,2C/.50	0	0.78	↓	↓
369	↓	226.95	↓	↓	↓	↓	↓	1B/.28	4,2C/.45	0	0.73	↓	↓
377	↓	229.65	↓	↓	↓	↓	↓	1B/.33	4,2C/.39	0	0.72	↓	↓
385	↓	235.95	↓	↓	↓	↓	↓	1B/.29	2C/.41	0	0.70	↓	↓
393	92	186.87	7.38	1000	2050	36.6	0°	0	0	0	0	No	Supersonic combustion
401	↓	205.77	7.29	↓	2850	↓	↓	1A,1B/.48	4,2C/.34	0	0.72	2	with instrumentation rig, gas sampling and O_2
409	↓	227.37	↓	↓	↓	↓	↓	1A,1B/.50	4,2C/.43	0	0.93	↓	content effect
417	↓	248.07	↓	↓	↓	↓	↓	1B/.33	4,2C/.58	0	0.91	↓	↓
425	↓	290.37	7.25	↓	3000	↓	↓	1A,1b/.47	4,2C/.55	0	1.12	↓	↓
433	↓	312.87	7.25	↓	3000	↓	↓	1A,1B/.36	4,2C/.49	0	0.85	↓	↓

*Herein

** Recomputations were made with surface pressure substitutions

Table 5. - Continued.

(d) Mach 5 component integration and engine performance results.

Page No.*	Reading Number	Time	M_o	P_{T_o}, psia	T_{T_o}, °R	X_{CL}, in.	α	Inj.1/ϕ_1	Inj.2/ϕ_2	Inj.3/ϕ_3	ϕ_T	Ignitors 1, 2, 3	Purpose & Remarks
54	93	134.03	5.1	420	2100	35.2	0°	0	0	0	0	No	No fuel injection
62		142.13						0	2A/.29	0	0.29	2	2nd stage only
70		150.23						0	2A/.31	3A,3B/.25	0.56		Subsonic combustion
78		158.33						0	0	3A,3B/.60	0.60		and O_2 content effect
86		162.83						0	0	3A,3B/.71	0.71		
94		174.53						0	0	3A,3B/.49	0.49		
102		182.63						0	0	3A,3B/.35	0.35		
110	94	134.14	5.1	420	2230	35.2	0°	0	0	0	0	No	Subsonic combustion
118		140.44						0	2A/.49	0	0.49	2	
126		150.34						0	2A/.49	3A,3B/.47	0.96		
134		157.54						0	0	3A,3B/1.03	1.03		
142		163.84						0	0	3A,3B/1.19	1.19		
150		180.04						0	0	3A,3B/.59	0.59		
158		214.24		300	2940			0	2A/.53	0	0.53		Effect of T_{T_O}
166		215.14						0	2A/.53	0	0.53		High test cell and
174		218.74						0	2A/.54	3A,3B/.5	1.04		AIM nozz. pressures
183		231.34						1A,1B/.15	0	0	0.15		
191		233.14						1A,1B/.25	0	0	0.25		
199		234.04						1A,1B/.27	0	0	0.27		
207	95	129.55	5.2	300	2430	35.2	0°	0	0	0	0	No	Supersonic combustion
215		140.35	5.1		3080			1A,1B/.16	0	0	0.16	2	
223		160.15			2940			1A,1B/.18	2A,2C/.68	0	0.86		
231		169.15						1A,1B/.19	2A,2C/.83	0	1.02		
239		189.85						0	2A,2C/.99	0	0.99		
247		196.15						0	2A,2C/.86	0	0.86		
255		204.25						0	2A,2C/.71	0	0.71		
263		211.45						0	2A,2C/.58	0	0.58		
271		217.75						0	2A,2C/.70	0	0.70		
279		228.55						1A,1B/.22	2A,2C/.63	0	0.85		
287		241.15						0	0	0	0	No	
295		252.85		320	2800			1A,1B/.18	2A,2C/.70	0	0.88	2	
303		289.75		310	2890			0	2A,2C/.86	0	0.86		AIM nozz. press. high
311		310.45		420	2230			0	2A,2C/.66	0	0.66		Effect of T_{T_O}
319		317.65		420	2230			0	2A,2C/.51	0	0.51		
327	96	134.44	5.1	420	2230	35.2	3°	0	0	0	0	No	Angle of attack perform-
336		141.64						0	2A/.38	0	0.38	2	ance
344		150.64						0	2A/.45	3A,3B/.38	0.83		
352		165.94						0	0	3A,3B/.87	0.87		
360		172.24						0	0	3A,3B/.59	0.59		
368		180.34						0	0	3A,3B/.43	0.43		
376		244.24		300	2925			0	0	0	0	No	
384		264.04		420	2230			1A,1B/.10	0	0	0.10	2	Fuel flow meas.
392		274.84						1A,1B/.21	0	0	0.21	2	malfunction; 1A
400		275.74						1A,1B/.20	0	0	0.20	2	flow only indicated
408		294.64						0	0	0	0	No	
417		313.54						0	0	3A,3B/.77	0.77	2	High test cell and AIM nozz. pressures

*Reference 12

Table 5. - Concluded.

(d) Concluded.

Page No.*	Reading Number	Time	M_o	P_{T_o}' psia	P_{T_o}' ^oR	X_{CL}' in.	α	Inj.1/ϕ_1	Inj.2/ϕ_2	Inj.3/ϕ_3	ϕ_T	Ignitors 1, 2, 3	Purpose & Remarks
425	97	135.71	5.1	210	2100	35.2	0°	0	0	0	0	No	Subsonic combustion with
433	↓	156.41	↓	↓	2200	↓	↓	0	2A/.51	3A,3B/.49	0.90	2	instrumentation rig and
442	↓	160.91	↓	↓	↓	↓	↓	0	2A/.32	3A,3B/.24	0.56	↓	gas sampling probes
451	↓	182.51	↓	↓	↓	↓	↓	0	0	3A,3B/.50	0.50	↓	↓
459	↓	201.41	↓	↓	↓	↓	↓	0	0	3A,3B/.67	0.67	↓	↓
467	↓	224.81	↓	↓	↓	↓	↓	0	0	3A,3B/.86	0.86	↓	↓
476	↓	252.71	↓	420	↓	↓	↓	0	2A/.50	3A,3B/.43	0.93	↓	↓
485	↓	271.61	↓	↓	↓	↓	↓	0	2A/.43	3A,3B/.34	0.77	↓	↓
494	↓	295.91	↓	↓	↓	↓	↓	0	0	3A,3B/.74	0.74	↓	↓
502	↓	317.51	↓	↓	↓	↓	↓	0	0	3A,3B/.90	0.90	↓	↓
510	↓	322.01	↓	↓	↓	↓	↓	0	0	3A,3B/1.07	1.07	↓	High test cell and
518	↓	325.61	↓	↓	↓	↓	↓	0	0	3A,3B/1.08	1.08	↓	AIM nozz. pressures

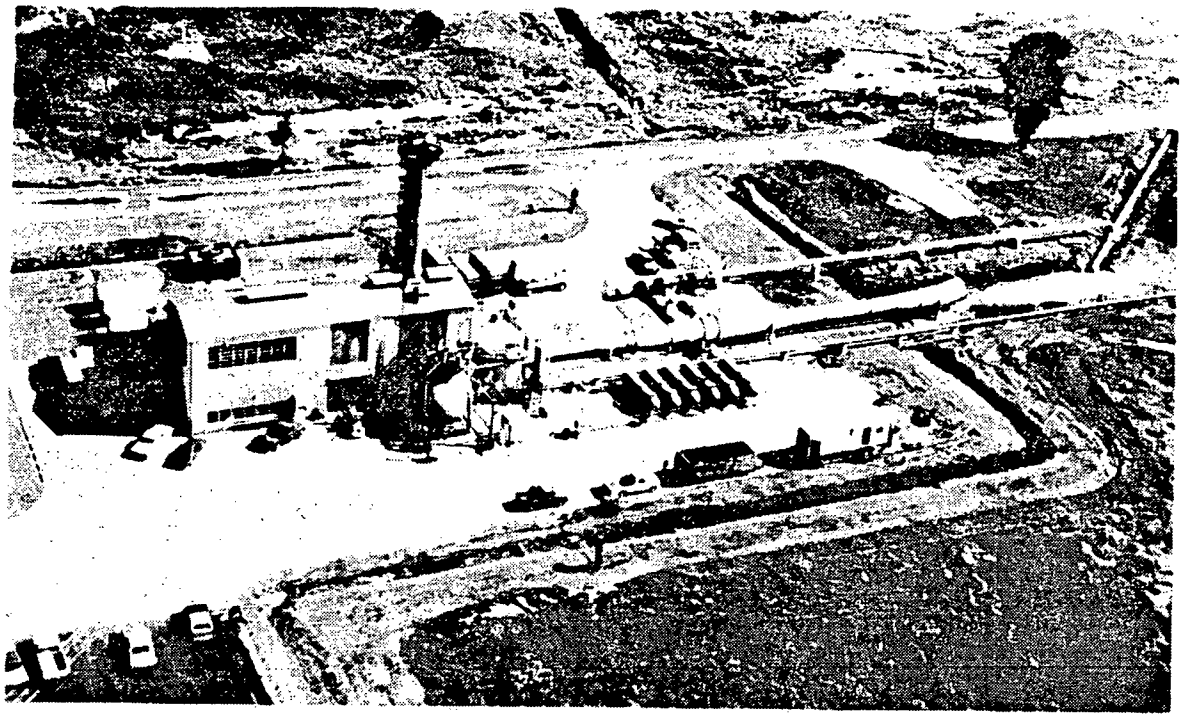
*Reference 12

Table 6. - Instrumentation code-outs for HRE/AIM performance computations.

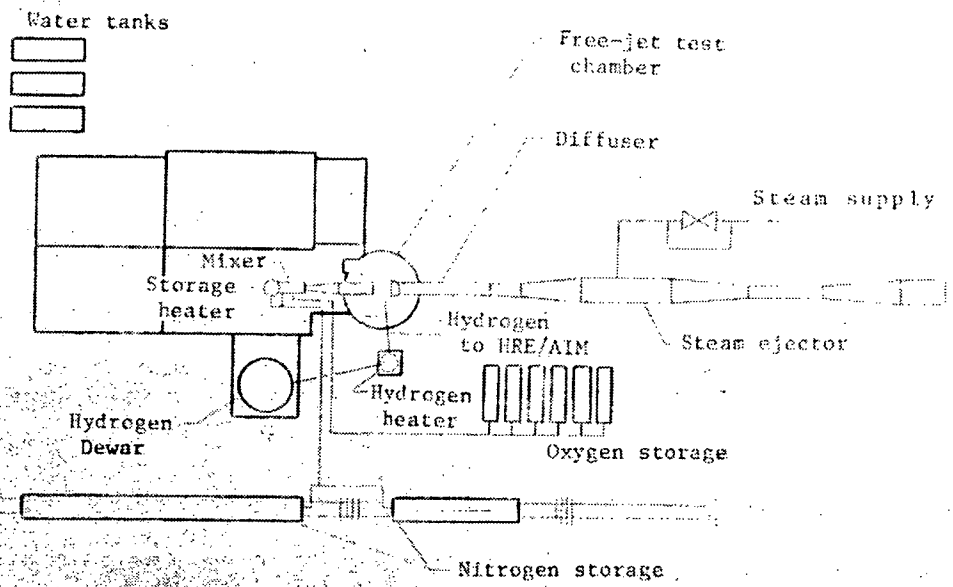
```
C033    0000000 PROCDEF C033
C033    0000100 KDOSEL   60, 65, 67, 83, 84, 85, 86, 87, 88, 91, 92,123,124,148,154,156,158,160,162,164
C033    0000200 KDOSEL 165,166,168,171,172,174,175,176,180,181,182,183,186,191,206
C033    0000300 KDOSEL 208,212,226,228,230,231,236,239,240,241,244,248,249,290,292
C033    0000400 KDOSEL 305,306,307,308,309,310,311,312,313,314,315,316,317,318,319
C033    0000500 KDOSEL 320,321,322,323,324,325,326,327,328,329,330,331,332,333,334
C033    0000600 KDOSEL 335,336,337,338
C033    0000700 KDOSEL 399
C033    0000800 QUALIFY AINLETT
C033    0000900 AT 3(2);SET VAL(11,INITRO)=.73448,VAL(11,IOXY)=.26552;DISPLAY VAL(11,INITRO),VAL(11,IOXY)
C033    0001000 QUALIFY STAPRS
C033    0001100 AT 320(2);DISPLAY 'INPUT PSI(1,1), THEN TYPE GO'
C034    0000000 PROCDEF C034
C034    0000100 KDOSEL   60, 65, 67, 84, 85, 86, 87, 88, 92,123,124,148,154,156,158,160,162,164
C034    0000200 KDOSEL 166,168,171,172,174,176,180,181,182,183,186,191,195,199,201
C034    0000300 KDOSEL 206,208,212,226,228,230,231,236,240,241,244,248,249,252,290,292
C034    0000400 KDOSEL 305,306,307,308,309,310,311,312,313,314,315,316,317,318,319
C034    0000500 KDOSEL 320,321,322,323,324,325,326,327,328,329,330,331,332,334,335
C034    0000600 KDOSEL 336,337,338
C034    0000700 KDOSEL 399
C034    0000800 QUALIFY AINLETT
C034    0000900 AT 3(2);SET VAL(11,INITRO)=.73448,VAL(11,IOXY)=.26552;DISPLAY VAL(11,INITRO),VAL(11,IOXY)
C036    0000000 PROCDEF C036
C036    0000100 KDOSEL  60, 65, 66, 67,123,124,144,154,156,158,160,162,164,166,168,171,172,174,181
C036    0000200 KDOSEL 182,186,191,195,199,206,208,218,228,230,231,236,240,241,244
C036    0000300 KDOSEL 248,249,252,289,290,292,294,305,310,312,313,314,315,320
C036    0000400 KDOSEL 399
C036    0000500 QUALIFY AINLETT
C036    0000600 AT 3(2);SET VAL(11,INITRO)=.73448,VAL(11,IOXY)=.26552;DISPLAY VAL(11,INITRO),VAL(11,IOXY)
C038    0000000 PROCDEF C038
C038    0000100 KDOSEL  60, 65, 66, 67,123,124,144,154,168,174,181,182,186,191,195,199,201,206,228
C038    0000200 KDOSEL 230,231,236,240,241,244,248,249,252,290,292,294,305,310,312,313
C038    0000300 KDOSEL 314,315,319,320
C036    0000400 KDOSEL 399
C038    0000500 QUALIFY AINLETT
C036    0000600 AT 3(2);SET VAL(11,INITRO)=.73448,VAL(11,IOXY)=.26552;DISPLAY VAL(11,INITRO),VAL(11,IOXY)
C038    0000700 QUALIFY STAPRS
C038    0000800 AT 320(2);DISPLAY 'INPUT PSI(1,1), THEN TYPE GO'
C052    0000000 PROCDEF C052
C052    0000100 KDOSEL  65, 66, 67,124,137,139,141,158,165,168,178,181,182,195,199,200,201,206,208
C052    0000200 KDOSEL 226,230,249,252,289,290,292,294,305,313,314,315,320,329,399
C052    0000400 QUALIFY AINLETT
C052    0000500 AT 3(2);SET VAL(11,INITRO)=.73448,VAL(11,IOXY)=.26552;DISPLAY VAL(11,INITRO),VAL(11,IOXY)
C054    0000000 PROCDEF C054
C054    0000100 KDOSEL  65, 66, 67,124,137,139,141,156,165,168,178,181,182,195,199,200,201,206,226,230
C054    0000200 KDOSEL 249,252,268,289,290,292,294,305,313,314,315,319,320,329,399
C054    0000400 QUALIFY AINLETT
C054    0000500 AT 3(2);SET VAL(11,INITRO)=.73448,VAL(11,IOXY)=.26552;DISPLAY VAL(11,INITRO),VAL(11,IOXY)
C057    0000000 PROCDEF C057
C057    0000100 KDOSEL  62, 65, 66, 74,124,137,139,158,160,168,172,179,181,182,183,187,190,195,199
C057    0000200 KDOSEL 201,206,226,230,248,249,252,289,290,292,294,305,313,314,315,320,321
C057    0000300 KDOSEL 329
C057    0000400 KDOSEL 399
C057    0000500 QUALIFY AINLETT
C057    0000600 AT 3(2);SET VAL(11,INITRO)=.73613,VAL(11,IOXY)=.26387;DISPLAY VAL(11,INITRO),VAL(11,IOXY)
C060    0000000 PROCDEF C060
C060    0000100 KDOSEL  62, 65, 66, 74,124,137,139,158,160,168,172,179,181,182,183,187,190,195,199
C060    0000200 KDOSEL 201,206,226,230,248,249,252,289,290,292,294,305,313,314,315,319,320
C060    0000300 KDOSEL 321,329
C060    0000400 KDOSEL 399
C060    0000500 QUALIFY AINLETT
C060    0000600 AT 3(2);SET VAL(11,INITRO)=.73613,VAL(11,IOXY)=.26387;DISPLAY VAL(11,INITRO),VAL(11,IOXY)
C061    0000000 PROCDEF C061
C061    0000100 KDOSEL  62, 65, 66, 74,124,137,139,158,160,168,172,179,181,182,183,187,190,195,199
C061    0000200 KDOSEL 201,206,226,230,248,249,252,289,290,292,294,305,313,314,315,319,320
C061    0000300 KDOSEL 321,329
C061    0000400 KDOSEL 399
C061    0000500 QUALIFY AINLETT
C061    0000600 AT 3(2);SET VAL(11,INITRO)=.73928,VAL(11,IOXY)=.26072;DISPLAY VAL(11,INITRO),VAL(11,IOXY)
C063    0000000 PROCDEF C063
C063    0000100 KDOSEL  62, 65, 66, 74,124,137,139,158,160,168,172,179,181,182,183,187,190,195,197
C063    0000200 KDOSEL 199,201,206,226,230,248,249,252,289,290,292,294,305,313,314,315,319
C063    0000300 KDOSEL 320,321,329
C063    0000400 KDOSEL 399
C063    0000500 QUALIFY AINLETT
C063    0000600 AT 3(2);SET VAL(11,INITRO)=.7724,VAL(11,IOXY)=.2276;DISPLAY VAL(11,INITRO),VAL(11,IOXY)
C064    0000000 PROCDEF C064
C064    0000050 KDOSEL  62, 65, 66, 74
C064    0000100 KDOSEL 124,137,139,148,158,160,168,172,179,181,182,183,187,190,195
C064    0000200 KDOSEL 197,199,201,206,226,230,248,249,252,289,290,292,294,305,313,314,315
C064    0000300 KDOSEL 319,320,321,329,399
C064    0000400 QUALIFY AINLETT
C064    0000500 AT 3(2);SET VAL(11,INITRO)=.76751,VAL(11,IOXY)=.23249;DISPLAY VAL(11,INITRO),VAL(11,IOXY)
C065    0000000 PROCDEF C065
C065    0000100 KDOSEL  62, 65, 66, 74,137,139,181,182,183,187,188,190,195,197,199,201,206,226,230
C065    0000200 KDOSEL 248,252,289,290,292,294,305,313,314,315,320,321,329,399
C065    0000400 QUALIFY AINLETT
C065    0000500 AT 3(2);SET VAL(11,INITRO)=.76751,VAL(11,IOXY)=.23249;DISPLAY VAL(11,INITRO),VAL(11,IOXY)
C069    0000000 PROCDEF C069
C069    0000100 KDOSEL  62, 65, 66, 74,137,139,181,182,183,187,190,195,197,199,201,206,226,230,248,252
C069    0000200 KDOSEL 289,290,292,294,305,313,314,315,320,321,322,329,399
C069    0000400 QUALIFY AINLETT
C069    0000500 AT 3(2);SET VAL(11,INITRO)=.76479,VAL(11,IOXY)=.23521;DISPLAY VAL(11,INITRO),VAL(11,IOXY)
```

Table 6. - Concluded.

```
C071    0000000 PROCDEF C071
C071    0000100 KDOSEL  53, 62, 65, 66, 74,124,137,139,158,160,172,179,181,182,183,187,190,195,197,199
C071    0000200 KDOSEL 201,206,226,230,248,249,252,289,290,292,294,305,313,314,315,320,321,322,329,399
C071    0000500 QUALIFY AINLETT
C071    0000600 AT 3(2);SET VAL(11,INITRO)=.75452,VAL(11,IOXY)=.24548;DISPLAY VAL(11,INITRO),VAL(11,IOXY)
C088    0000000 PROCDEF C088
C088    0000100 KDOSEL  19, 22, 23, 54, 55, 60, 62, 64, 67, 74, 95,124,137,139,157,158,160
C088    0000200 KDOSEL 162,165,166,169,170,171,172,173,174,175,176,177,178,179,181
C088    0000300 KDOSEL 182,183,187,190,195,197,199,206,226,227,230,235,241,248,249
C088    0000400 KDOSEL 250,252,278,289,290,292,294,305,313,314,315,320,321,329,348
C088    0000500 KDOSEL 353,366,367,368,369,370,374,375,378,379,382,388,394,395,399
C088    0000800 QUALIFY AINLETT
C088    0000900 AT 3(2);SET VAL(11,INITRO)=.75328,VAL(11,IOXY)=.24672;DISPLAY VAL(11,INITRO),VAL(11,IOXY)
C088    0001000 QUALIFY ANOZ
C088    0001100 AT 360(3);SET DRAGEX=-0.5*Q0AC;DISPLAY DRAGEX,DRAGEX*PSIATM,'DRAGEX = -0.5*Q0*AC'
C088    0001200 QUALIFY CONVTA
C088    0001300 AT 0;SET MV(65)=MV(53),MV(66)=MV(53);DISPLAY MV(53),MV(65),MV(66)
C088    0001400 SETPS 123,0.690
C089    0000000 PROCDEF C089
C089    0000100 KDOSEL  54, 55, 60, 62, 64, 67, 74, 95,124,137,139,157,158,160,165,166,169
C089    0000200 KDOSEL 172,175,176,178,181,182,185,187,190,195,197,199
C089    0000300 KDOSEL 210,223,224,226,227,230,235,248,249,250,252,289,290,292,294
C089    0000400 KDOSEL 305,313,320,321,329,399
C089    0000600 QUALIFY AINLETT
C089    0000700 AT 3(2);SET VAL(11,INITRO)=.75148,VAL(11,IOXY)=.24852;DISPLAY VAL(11,INITRO),VAL(11,IOXY)
C089    0000800 QUALIFY CONVTA
C089    0000900 AT 0;SET MV(65)=MV(53),MV(66)=MV(53);DISPLAY MV(53),MV(65),MV(66)
C089    0001000 SETPS 123,0.690
C090    0000000 PROCDEF C090
C090    0000100 KDOSEL  54, 55, 60, 62, 64, 67, 74,124,137,139,157,158,160,165,172,175,176
C090    0000200 KDOSEL 179,181,182,185,187,190,195,197,199,202,203,206,207
C090    0000300 KDOSEL 208,210,215,224,226,227,230,235,248,249,250,252,273,289,290
C090    0000400 KDOSEL 292,294,305,313,314,315,320,321,329
C090    0000500 KDOSEL 399
C090    0000600 QUALIFY AINLETT
C090    0000700 AT 3(2);SET VAL(11,INITRO)=.7389,VAL(11,IOXY)=.2611;DISPLAY VAL(11,INITRO),VAL(11,IOXY)
C090    0000800 QUALIFY CONVTA
C090    0000900 AT 0;SET MV(65)=MV(53),MV(66)=MV(53);DISPLAY MV(53),MV(65),MV(66)
C091    0000000 PROCDEF C091
C091    0000100 KDOSEL  54, 55, 60, 62, 64, 67, 74, 96,124,137,139,148,157,158,160,165,172
C091    0000200 KDOSEL 175,176,179,181,182,185,187,190,195,197,199,206,258
C091    0000300 KDOSEL 226,227,230,235,248,249,250,252,289,290,292,294,305,313
C091    0000400 KDOSEL 314,315,320,321,329,399
C091    0000600 QUALIFY AINLETT
C091    0000700 AT 3(2);SET VAL(11,INITRO)=.7389,VAL(11,IOXY)=.2611;DISPLAY VAL(11,INITRO),VAL(11,IOXY)
C091    0000800 QUALIFY ENGPGM
C091    0000900 SET ALPHA=3.0;DISPLAY ALPHA
C091    0001000 QUALIFY CONVTA
C091    0001100 AT 0;SET MV(65)=MV(61),MV(66)=MV(61);DISPLAY MV(61),MV(65),MV(66)
C091    0001200 SETPS 123,0.690
C092    0000000 PROCDEF C092
C092    0000100 KDOSEL  54, 55, 60, 62, 64, 67, 74,137,139,148,175,176,181,182,185,187,190,195
C092    0000200 KDOSEL 197,199,206,208,226,227,230,232,248,252,265,266
C092    0000300 KDOSEL 267,268,270,271,272,289,290,292,294,305
C092    0000400 KDOSEL 313,314,315,320,321,329,399
C092    0000500 QUALIFY ANOZ
C092    0000600 AT 360(3);SET DRAGEX=-0.5*Q0AC;DISPLAY DRAGEX,DRAGEX*PSIATM,'DRAGEX = -0.5*Q0*AC'
C092    0000700 QUALIFY CONVTA
C092    0000800 AT 0;SET MV(65)=MV(53),MV(66)=MV(53);DISPLAY MV(53),MV(65),MV(66)
C093    0000000 PROCDEF C093
C093    0000100 COMACH5
C093    0000200 KDOSEL 96
C093    0000500 QUALIFY AINLETT
C093    0000600 AT 3(2);SET VAL(11,INITRO)=.655704,VAL(11,IOXY)=.344296;DISPLAY VAL(11,INITRO),VAL(11,IOXY)
C093    0000700 TUNNOPT 3
C094    0000000 PROCDEF C094
C094    0000100 COMACH5
C094    0000600 QUALIFY AINLETT
C094    0000700 AT 3(2);SET VAL(11,INITRO)=.76284,VAL(11,IOXY)=.23716;DISPLAY VAL(11,INITRO),VAL(11,IOXY)
C094    0000800 TUNNOPT 3
C095    0000000 PROCDEF C095
C095    0000100 COMACH5
C095    0000600 QUALIFY AINLETT
C095    0000700 AT 3(2);SET VAL(11,INITRO)=.7486,VAL(11,IOXY)=.25138;DISPLAY VAL(11,INITRO),VAL(11,IOXY)
C095    0000800 TUNNOPT 3
C096    0000000 PROCDEF C096
C096    0000100 COMACH5
C096    0000600 QUALIFY AINLETT
C096    0000700 AT 3(2);SET VAL(11,INITRO)=.76488,VAL(11,IOXY)=.23512;DISPLAY VAL(11,INITRO),VAL(11,IOXY)
C096    0000800 TUNNOPT 3
C097    0000000 PROCDEF C097
C097    0000100 KDOSEL  54, 55, 60, 62, 64, 65, 66, 67, 74,124,137,139,181,182,185,187,190,195,197
C097    0000200 KDOSEL 198,226,230,248,252,280,289,290,292,294,305,313,314,315,320,321,329,399
C097    0000500 QUALIFY AINLETT
C097    0000600 AT 3(2);SET VAL(11,INITRO)=.77086,VAL(11,IOXY)=.22914;DISPLAY VAL(11,INITRO),VAL(11,IOXY)
C097    0000700 QUALIFY ANOZ
C097    0000800 AT 360(3);SET DRAGEX=-0.5*Q0AC;DISPLAY DRAGEX,DRAGEX*PSIATM,'DRAGEX = -0.5*Q0*AC'
C097    0000900 TUNNOPT 3
C097    0001000 QUALIFY ACMBSTR
C097    0001100 AT 350(3);SET XCTP=XCT;DISPLAY XSLE,XCT,XCTP,XSTE,'SUBSONIC COMBUSTION'
COMACH5 0000000 PROCDEF COMACH5
COMACH5 0000100 KDOSEL  54, 55, 60, 62, 64, 65, 66, 67, 74,124,137,139,157,158,160,162,165,172,176,178
COMACH5 0000200 KDOSEL 181,182,183,187,190,195,197,199,206,226,230,248,249,252,280,289,290,292,294,305
COMACH5 0000300 KDOSEL 313,314,315,320,321,329,399
```

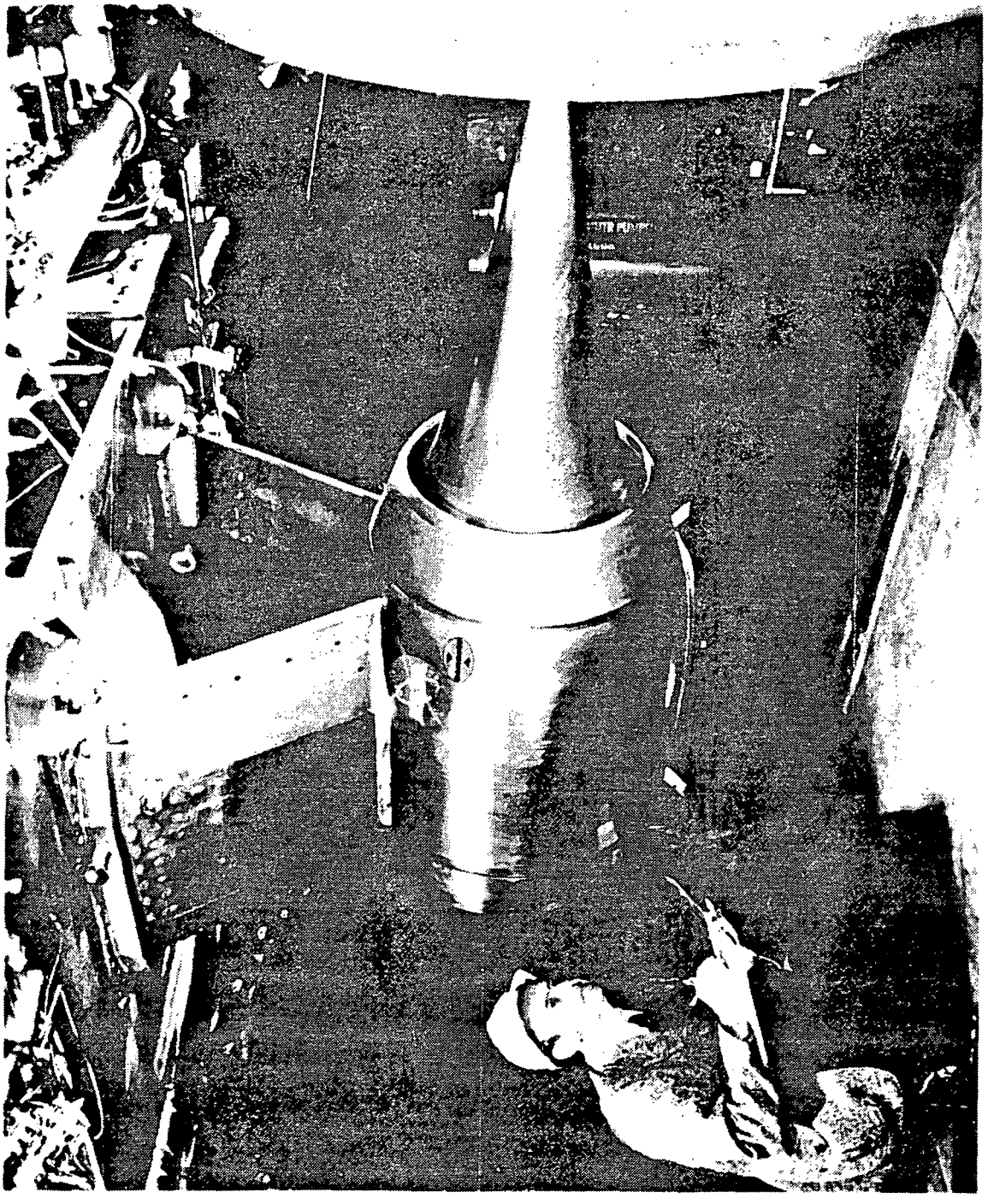


(a) Hypersonic Tunnel Facility (HTF).



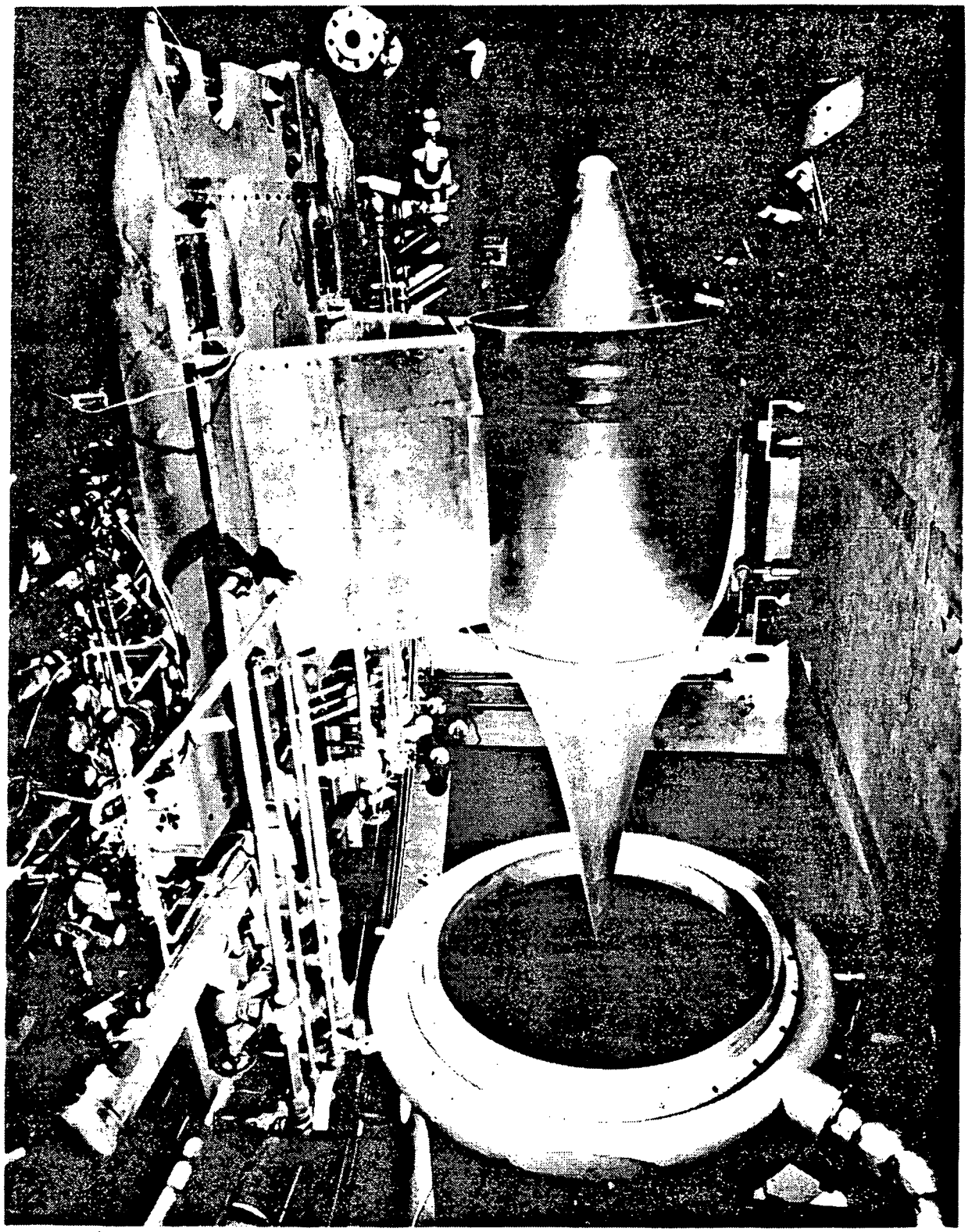
(b) Schematic layout of the NASA - Lewis - Plum Brook Hypersonic Tunnel Facility(HTF).

Figure 1. - NASA - Lewis Research Center's Plum Brook Station Hypersonic Tunnel Facility (HTF) and the Hypersonic Research Engine/ Aerothermodynamic Integration Model (HRE/AIM) installation.

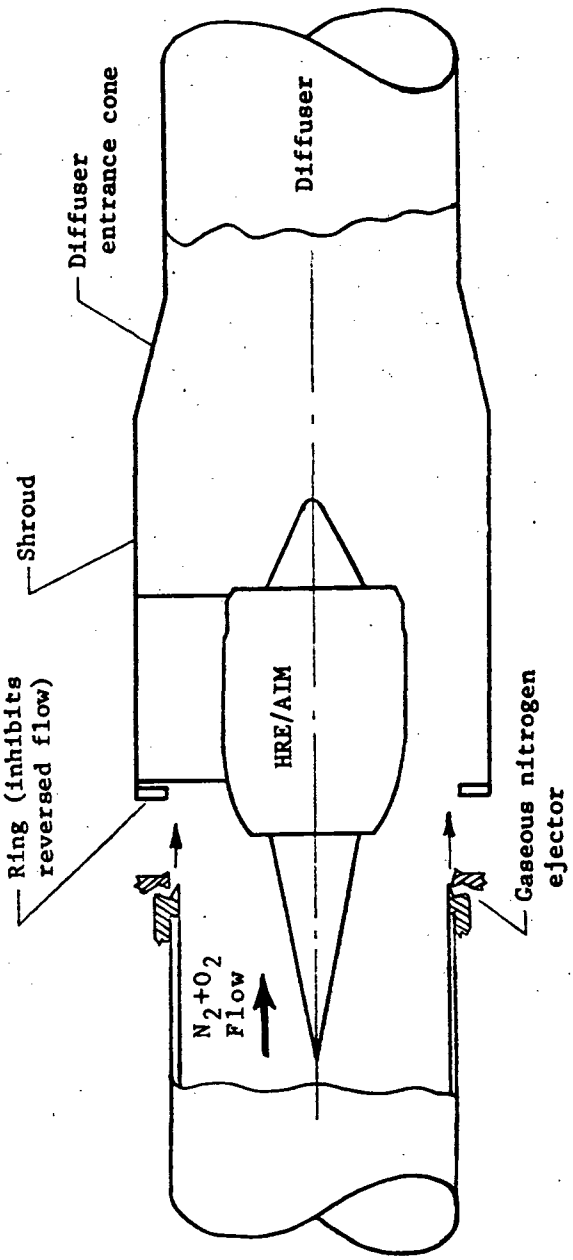


(c) HRE/AIM partically installed: pretest.

Figure 1. - Continued.



(d) HRE/AIM partically installed; Mach 5, 6, and 7 post test.



(e) Schematic of HRE/AIM test section located in the free-jet test chamber of the HTF.

Figure 1. - Concluded.

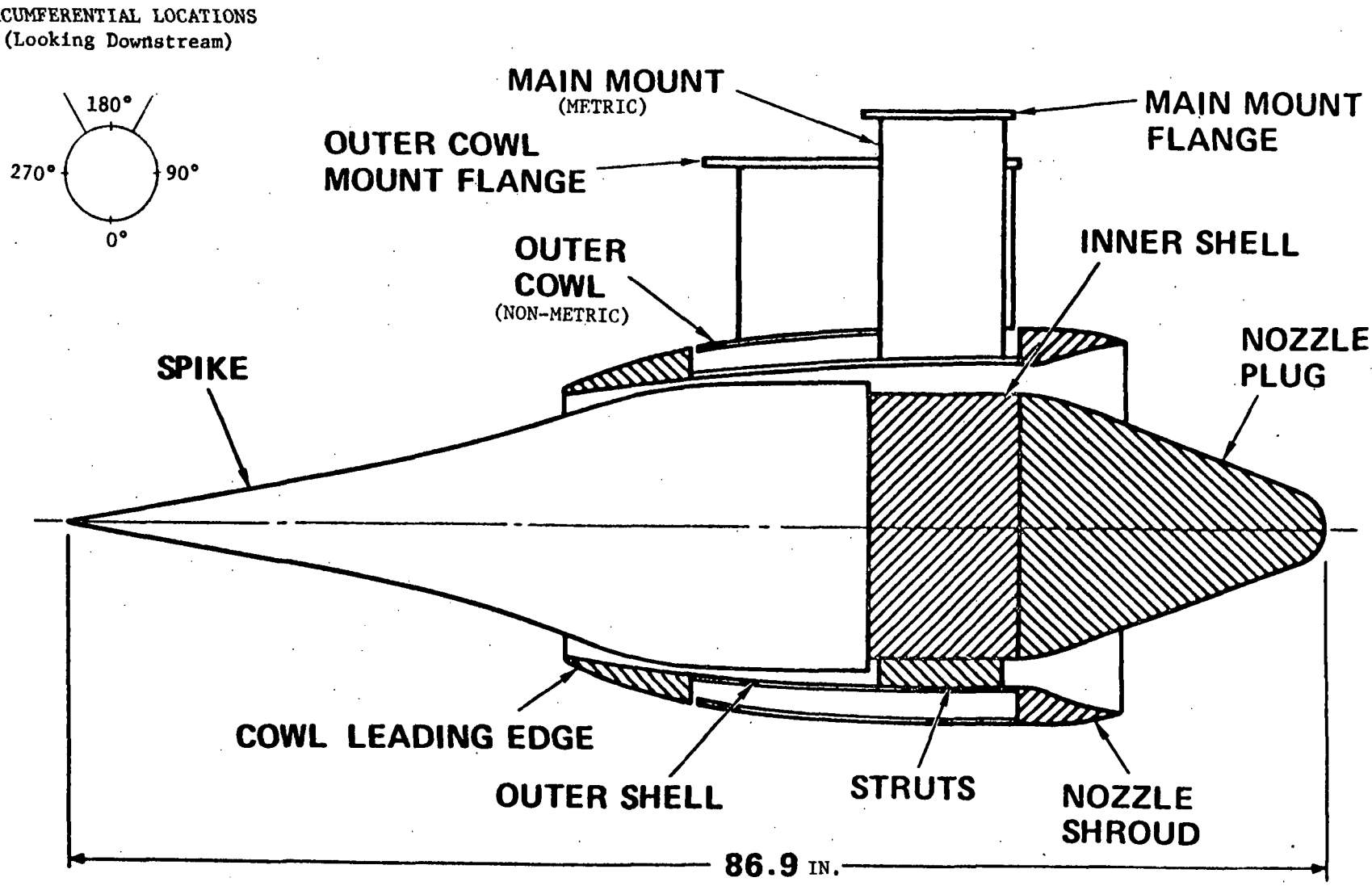
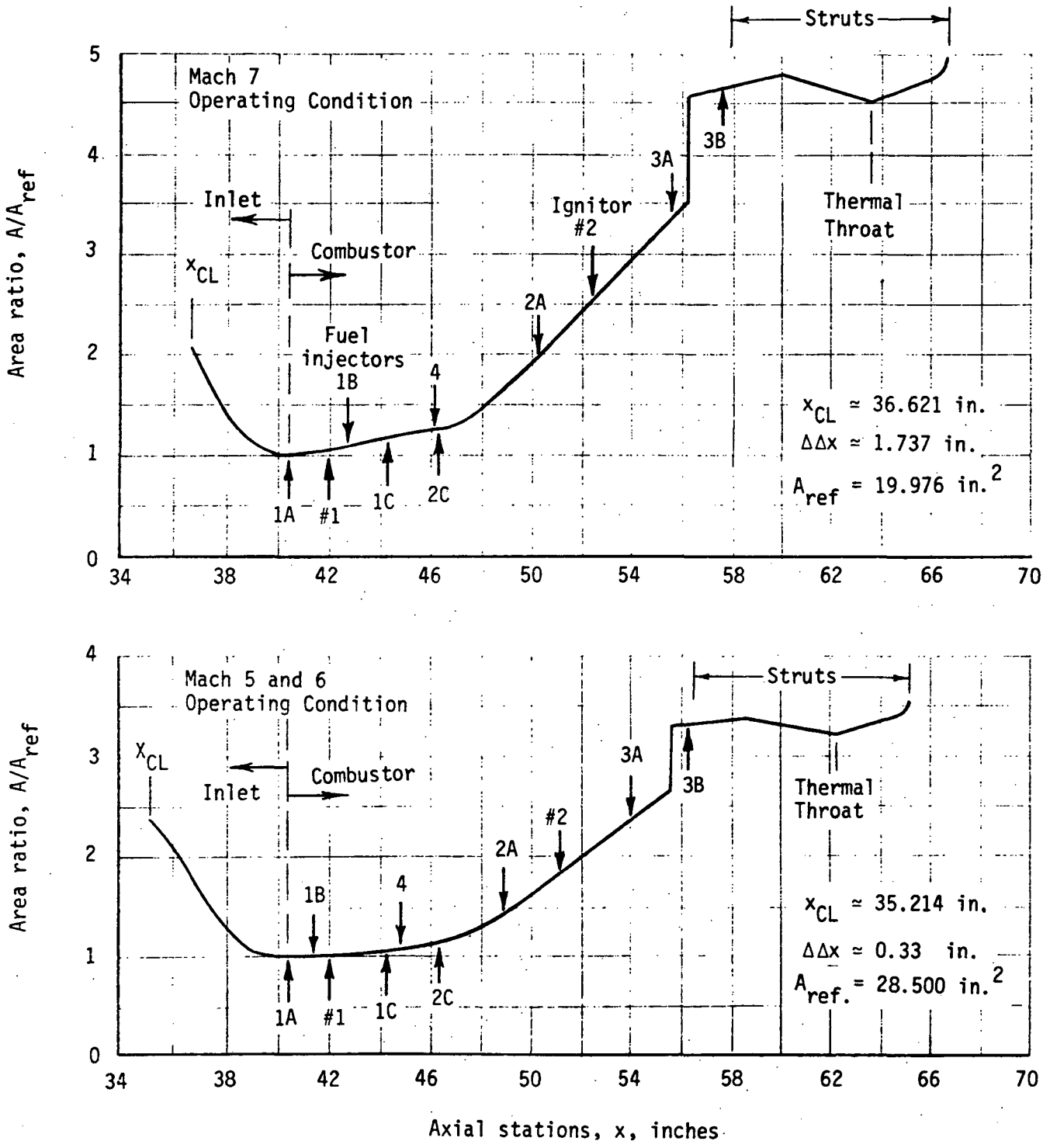


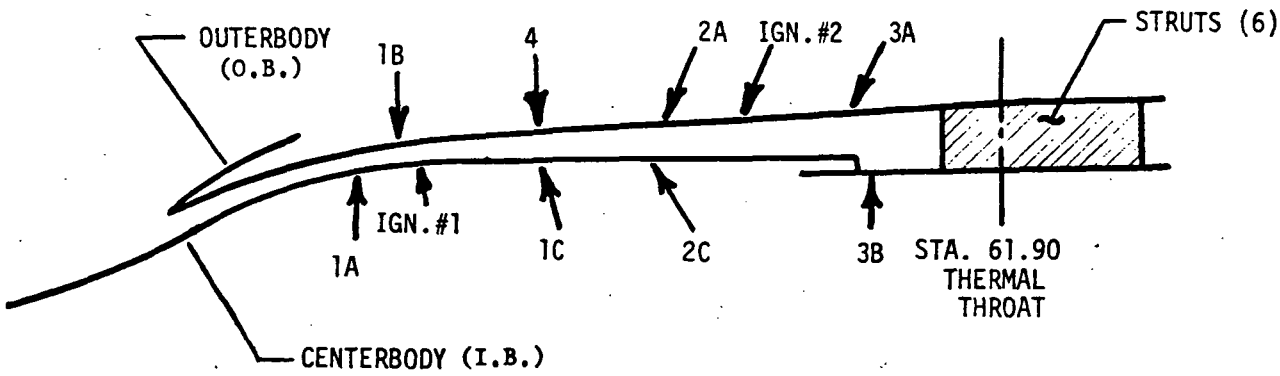
Figure 2. - General Configuration of the AIM



(a) Combustor area ratio distributions

Figure 3. - HRE/AIM combustor information.

COMBUSTOR CONFIGURATION



INJECTOR PARAMETERS
(Mach 6 position, x_{CL} = 34.884 in.)

Injector	Number of Injectors	Diameter, in.	Injection Angle[a], deg.	S/d	x, in.	Location
1A	37	0.119	90	13.1	40.5	I.B.
1B	37	0.119	90	13.9	41.25	O.B.
1C	37	0.119	106	13.5	44.5	I.B.
4	37	0.119	90	14.2	44.5	O.B.
2A	60	0.095	67	11.4	48.5	O.B.
2C	60	0.095	119	10.6	46.5	I.B.
3A	114	0.090	65	7.0	53.75	O.B.
3B	102	0.095	90	6.3	55.9	I.B.

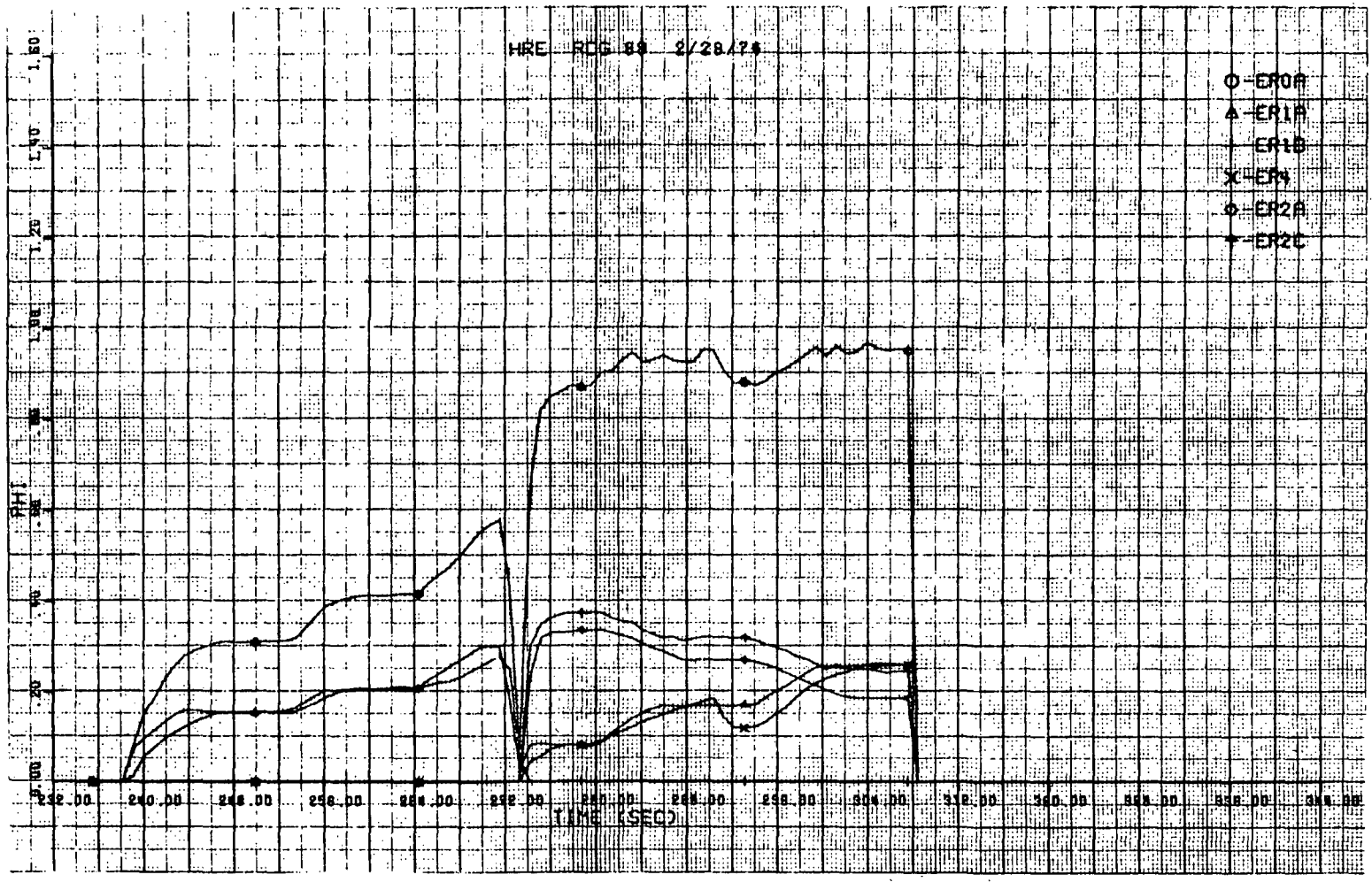
IGNITOR PARAMETERS

Ignitor	x, in.	Circumferential locations						Injection Angle[a], deg.	Location
1[c]	42.00	55	110	165	230	290	350	94.5	I.B.
2	50.98	40	100	-	220	240	280	60.0[b]	O.B.

a. With respect to AIM centerline.
b. Also looking upstream, ignitors #2 are inclined 30° clockwise.
c. Plug welded prior to reading 57.

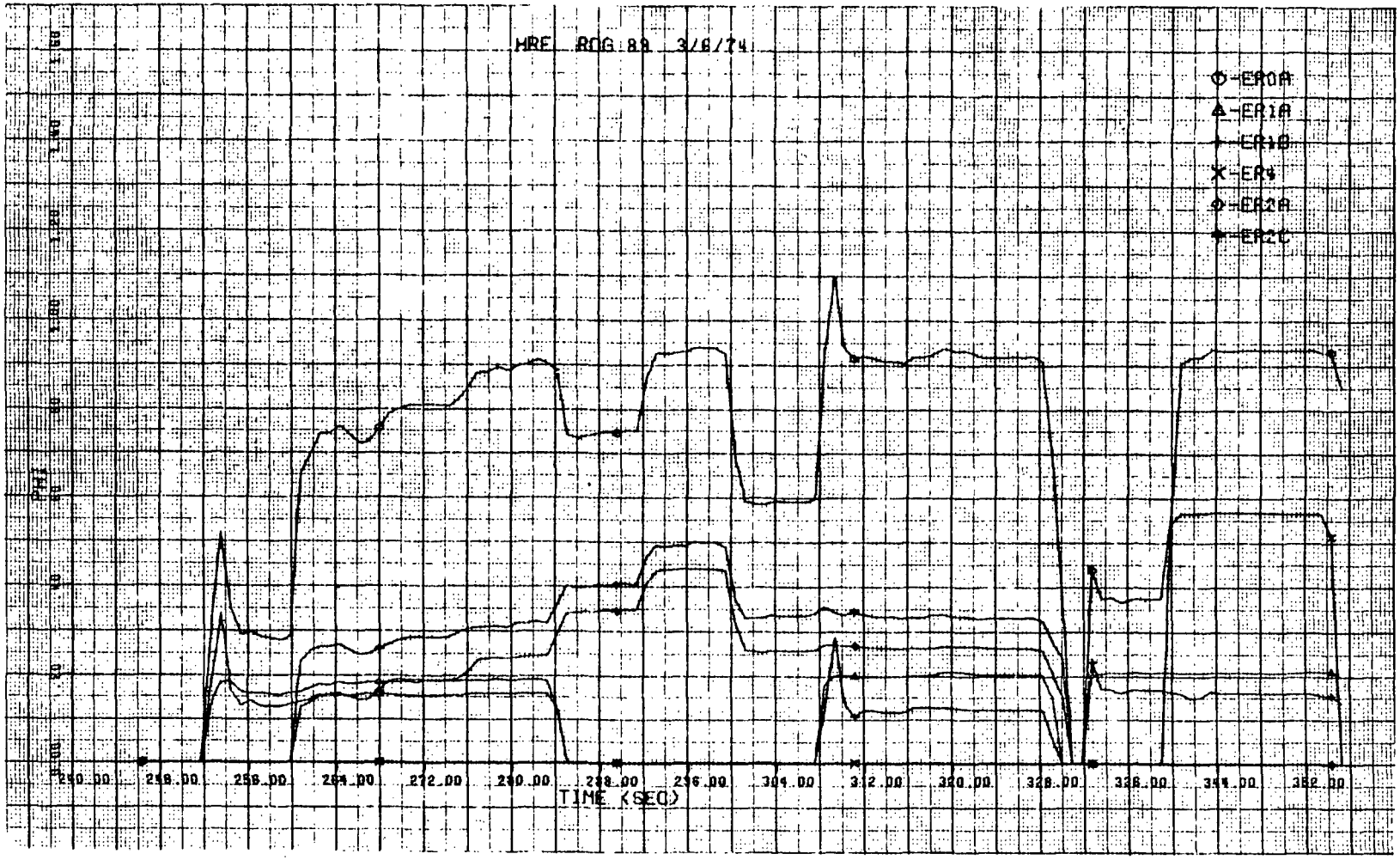
(b) Combustor configuration and parameters.

Figure 3. - Concluded.



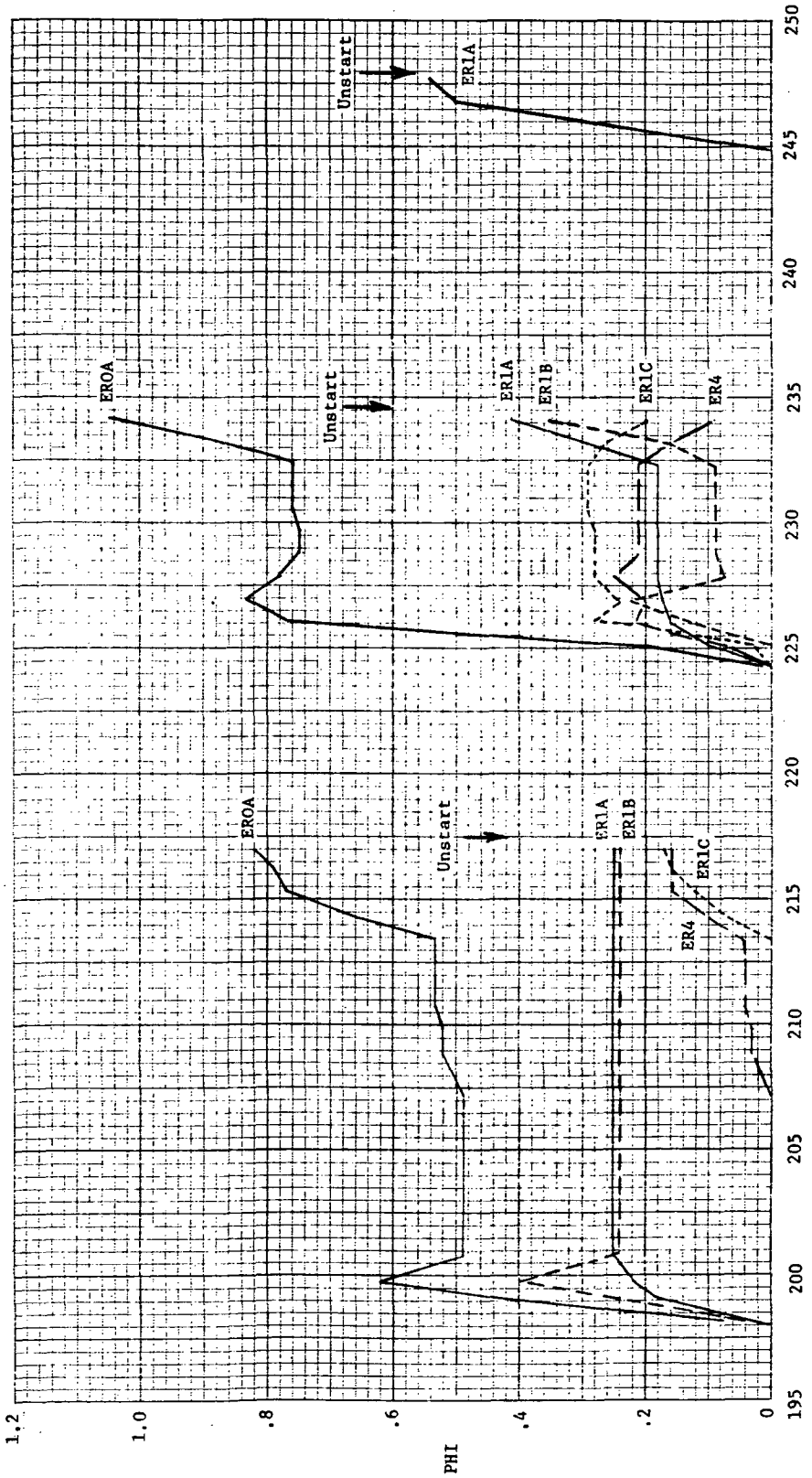
(a) Reading 88 - Measured Equivalence Ratio, ϕ

Figure 4. - HRE/AIM fuel equivalence ratio; Mach 7 component integration and performance results.



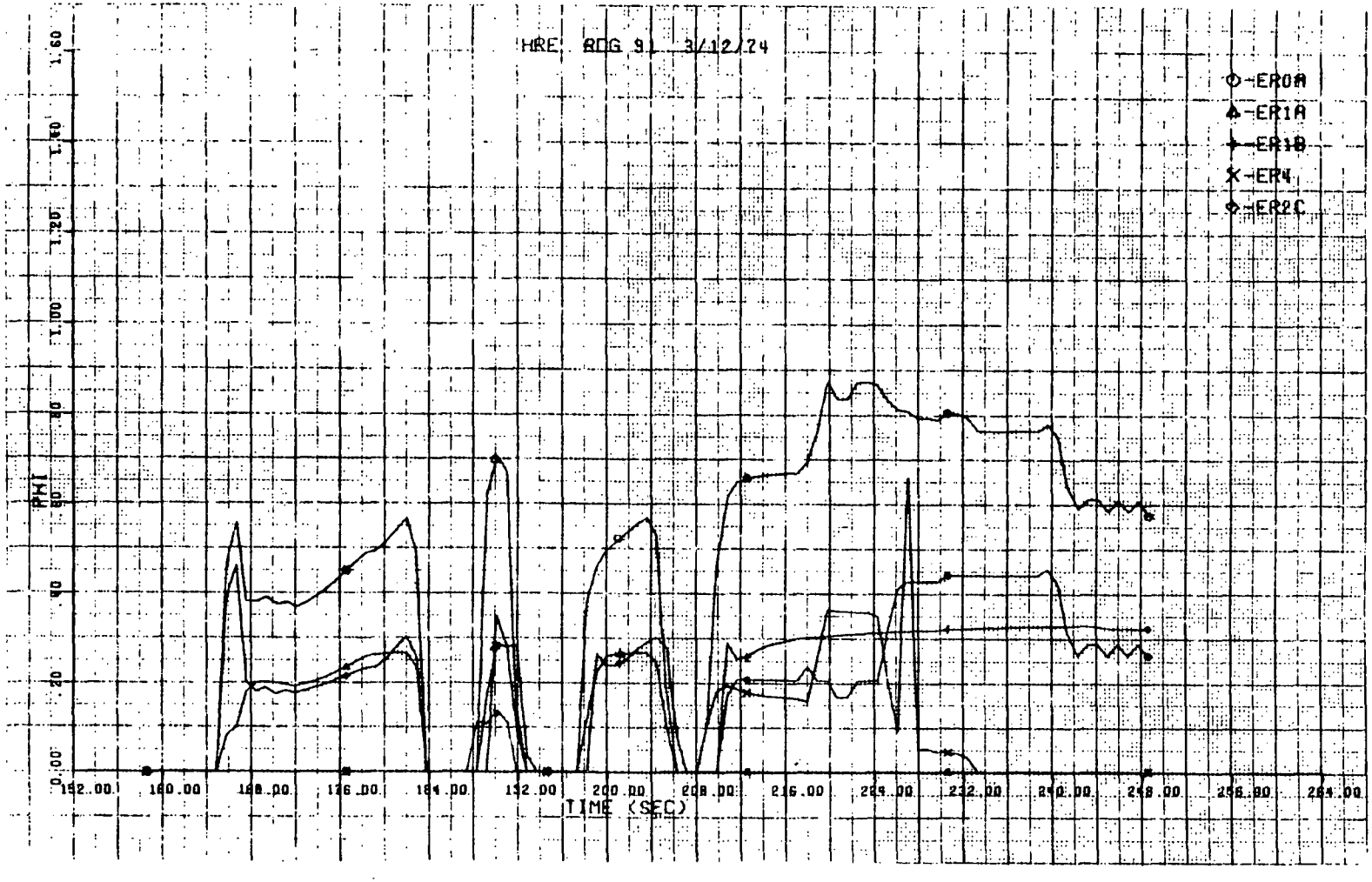
(b) Reading 89 - Measured Equivalence Ratio, ϕ

Figure 4. - Continued.



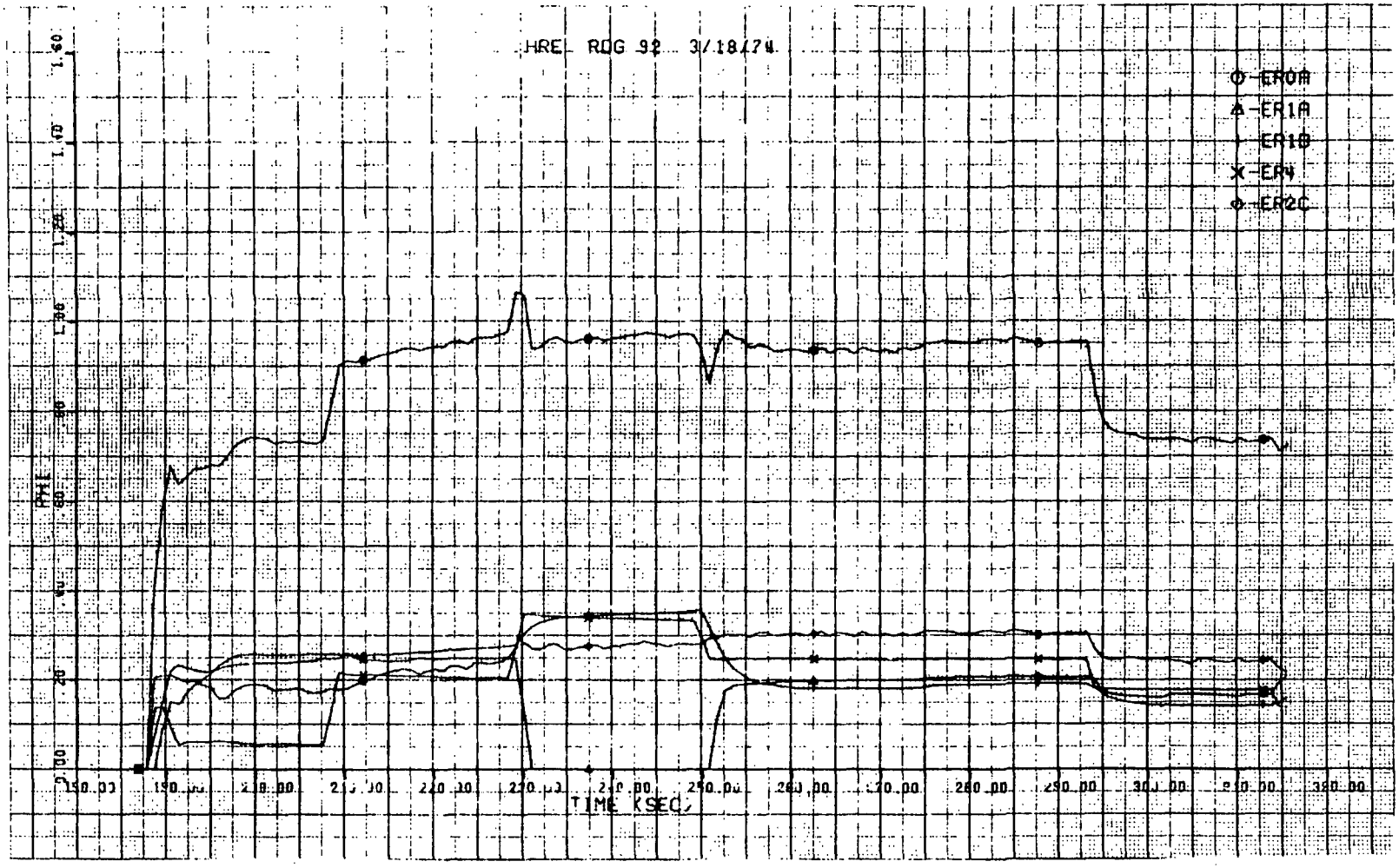
(c) Reading 90 - Measured equivalence ratio, ϕ

Figure 4. - Continued.



(d) Reading 91 - Measured Equivalence Ratio, ϕ

Figure 4. - Continued.



(e) Reading 92 - Measured Equivalence Ratio, ∅

Figure 4. - Concluded.

Reading 88

t = 236.40 sec.

/G = 0088 BLOCK = 131 TIME = 236.401 MACH 7.2 PT = 999.500 TT = 3157.3 2-12-75 PAGE 1

RAMJET PERFORMANCE

S U M M A R Y R E P O R T

	P	T	H		GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	G	IVAC	PHI	ETAC
WIND TUNNEL		1	0	6														
0.000	999.500	3157	718.2	(842)	1.2884	28.903	2645											
0.000	0.154	307	-55.5	(74)	1.3967	28.901	858	7.249	6222	1.823	0.05857	14.837	0.9890	2909	5.664	196.0		
SPIKE TIP NS		2	0	6														
0.600	11.437	3157	718.2	(842)	1.2879	28.901	2645											
0.600	10.576	3102	701.4	(826)	1.2897	28.901	2623	0.350	918	2.131	0.05857	14.837	0.9890	3103	0.836	209.1		
WIND TUNNEL		3	0	0														
0.000	999.500	3157	718.2	(842)	1.2884	28.903	2645											
0.000	0.172	316	-53.1	(76)	1.3970	28.901	872	7.125	6213	1.823	0.06326	16.026	0.9890	3138	6.108	195.8		
SPIKE TIP NS		4	0	0														
0.600	11.437	3157	718.2	(842)	1.2879	28.901	2645											
0.600	10.414	3091	698.1	(823)	1.2900	28.901	2619	0.383	1004	2.131	0.06326	16.026	0.9890	3138	0.987	195.8		
INLET THROAT		5	0	3														
40.400	321.385	3088	697.1	(822)	1.2906	28.902	2618											
40.400	10.616	1342	200.7	(330)	1.3577	28.902	1770	2.816	4984	1.895	0.73761	14.837	0.0785	2512	57.130	169.3		
INLET UPNRSK		6	0	3														
40.400	321.385	3088	697.1	(822)	1.2906	28.902	2618											
40.400	9.160	1290	187.4	(316)	1.3608	28.901	1738	2.906	5050	1.895	0.67056	14.837	0.0864	2532	52.629	170.6		
INLET DNNRSK		7	0	4														
40.400	102.602	3088	697.1	(822)	1.2905	28.902	2618											
40.400	89.397	2994	668.3	(794)	1.2935	28.902	2581	0.465	1201	1.973	0.67056	14.837	0.0864	2532	12.811	170.6		
COMBUSTOR	0	8	1	3														
40.410	321.007	3088	697.0	(822)	1.2906	28.902	2618											
40.410	10.620	1342	200.8	(330)	1.3577	28.902	1770	2.815	4983	1.895	0.73752	14.837	0.0785	2512	57.112	169.3		
COMBUSTOR	0	9	2	3														
40.747	310.347	3082	695.1	(820)	1.2908	28.902	2616											
40.747	10.862	1359	205.2	(334)	1.3567	28.902	1781	2.780	4951	1.896	0.74023	14.837	0.0783	2501	56.955	168.6		
COMBUSTOR	0	10	3	4														
41.237	280.789	3072	692.1	(817)	1.2911	28.902	2612											
41.237	11.314	1405	217.3	(346)	1.3539	28.901	1809											
								2.695	4875	1.902	0.73431	14.837	0.0789	2477	55.629	166.9		
COMBUSTOR	0	11	4	4														
41.500	258.027	3067	690.5	(815)	1.2912	28.902	2610											
41.500	11.681	1445	227.9	(357)	1.3515	28.901	1833	2.625	4811	1.907	0.72733	14.837	0.0796	2457	54.383	165.6		
COMBUSTOR	0	12	5	5														
42.460	206.843	3046	684.3	(809)	1.2918	28.902	2602											
42.460	12.056	1531	250.7	(380)	1.3467	28.901	1883	2.473	4658	1.921	0.68997	14.837	0.0844	2409	49.654	162.3		
COMBUSTOR	0	13	6	5														
42.732	199.115	3040	682.5	(807)	1.2920	28.902	2599											
42.732	12.037	1542	253.7	(383)	1.3461	28.901	1890	2.451	4632	1.923	0.67628	14.837	0.0857	2400	48.683	161.8		
COMBUSTOR	0	14	7	5														
42.797	197.270	3039	682.0	(807)	1.2921	28.902	2599											
42.797	12.028	1545	254.4	(383)	1.3460	28.901	1891	2.446	4626	1.923	0.67376	14.837	0.0860	2398	48.439	161.6		
COMBUSTOR	0	15	8	5														
44.310	167.012	3009	672.9	(798)	1.2930	28.902	2587											
44.310	11.661	1581	264.2	(393)	1.3440	28.901	1912	2.365	4522	1.932	0.62369	14.837	0.0929	2363	43.834	159.3		
COMBUSTOR	0	16	9	4														
44.800	161.175	3000	670.3	(796)	1.2933	28.902	2584											
44.800	11.651	1590	266.6	(396)	1.3436	28.901	1917	2.344	4494	1.933	0.61590	14.837	0.0941	2353	43.019	158.6		
COMBUSTOR	0	17	10	4														
45.517	155.960	2988	666.5	(792)	1.2937	28.902	2579											
45.517	11.718	1599	268.8	(398)	1.3432	28.901	1922	2.321	4461	1.934	0.61162	14.837	0.0947	2341	42.401	157.8		
COMBUSTOR	0	18	11	4														
46.232	151.042	2975	662.7	(788)	1.2940	28.902	2573											
46.232	11.375	1592	267.0	(396)	1.3435	28.901	1918	2.320	4449	1.935	0.59465	14.837	0.0974	2336	41.119	157.4		

	P	T	H		GAMMA	MOLWT	SONV	MACH	VEL	S	M/A	A	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	19	12	4														
46.260	150.790	2975	662.5(	788)	1.2941	28.902	2573											
46.260	11.338	1591	266.6(	396)	1.3436	28.901	1918	2.321	4450	1.935	0.59314	14.837	0.0977	2336	41.020	157.4		
COMBUSTOR	0	20	13	4														
47.310	142.904	2955	656.6(	782)	1.2947	28.902	2565											
47.310	10.295	1562	259.0(	388)	1.3451	28.902	1901	2.346	4461	1.937	0.54986	14.837	0.1053	2335	38.117	157.4		
COMBUSTOR	0	21	14	3														
48.110	137.724	2940	652.1(	778)	1.2951	28.902	2559											
48.110	9.130	1520	247.8(	377)	1.3473	28.901	1877	2.396	4498	1.938	0.50529	14.837	0.1146	2342	35.318	157.9		
COMBUSTOR	0	22	15	3														
48.757	134.944	2928	648.4(	774)	1.2955	28.902	2554											
48.757	7.871	1464	232.8(	362)	1.3505	28.901	1844	2.473	4560	1.938	0.45868	14.837	0.1263	2358	32.508	158.9		
COMBUSTOR	0	23	16	3														
50.207	131.110	2906	641.9(	768)	1.2962	28.902	2546											
50.207	5.708	1345	201.5(	331)	1.3575	28.901	1772											
								2.649	4695	1.938	0.37275	14.837	0.1554	2392	27.196	161.2		
COMBUSTOR	0	24	17	3														
50.737	129.017	2901	640.4(	767)	1.2964	28.902	2544											
50.737	5.174	1313	193.3(	322)	1.3594	28.901	1752	2.699	4730	1.938	0.34861	14.837	0.1662	2401	25.626	161.9		
COMBUSTOR	0	25	18	3														
52.147	124.029	2890	637.1(	763)	1.2967	28.902	2539											
52.147	4.103	1242	174.9(	304)	1.3639	28.901	1707	2.817	4809	1.940	0.29711	14.837	0.1950	2423	22.205	163.3		
COMBUSTOR	0	26	19	21														
54.247	104.551	2863	630.6(	760)	1.2976	28.732	2535											
54.247	2.075	1070	129.9(	262)	1.3747	28.732	1595	3.138	5005	1.960	0.24439	14.890	0.2379	2443	19.011	164.1	0.02	0.07
COMBUSTOR	0	27	20	21														
54.747	107.863	2855	629.8(	757)	1.2980	28.726	2532											
54.747	2.358	1095	137.8(	268)	1.3732	28.725	1613	3.076	4962	1.957	0.23440	14.890	0.2480	2446	18.074	164.3	0.02	0.01
COMBUSTOR	0	28	21	21														
55.497	100.539	2850	628.6(	756)	1.2981	28.725	2531											
55.497	1.771	1030	121.6(	252)	1.3772	28.724	1567	3.215	5037	1.961	0.22096	14.890	0.2631	2450	17.296	164.6	0.02	0.00
COMBUSTOR	0	29	22	21														
55.760	96.531	2849	628.2(	755)	1.2982	28.724	2530											
55.760	1.564	1006	115.6(	246)	1.3786	28.724	1549	3.269	5064	1.964	0.21663	14.890	0.2684	2451	17.050	164.6	0.02	0.00
COMBUSTOR	0	30	23	21														
56.257	89.009	2873	627.5(	762)	1.2969	28.756	2538											
56.257	1.419	1012	109.3(	247)	1.3780	28.755	1553	3.278	5092	1.972	0.17094	14.890	0.3401	2480	13.527	166.6	0.02	0.31
COMBUSTOR	0	31	24	202														
57.682	80.116	2926	625.7(	777)	1.2944	28.824	2556											
57.682	2.273	1211	142.6(	297)	1.3661	28.824	1689	2.911	4917	1.982	0.15800	14.890	0.3679	2490	12.072	167.2	0.02	1.00
COMBUSTOR	0	32	25	200														
57.737	80.570	2926	625.6(	777)	1.2944	28.824	2556											
57.737	2.070	1180	134.5(	289)	1.3671	28.824	1668	2.972	4958	1.981	0.15758	14.890	0.3689	2490	12.141	167.2	0.02	1.00
COMBUSTOR	0	33	26	200														
57.877	80.426	2925	625.5(	777)	1.2944	28.824	2556											
57.877	2.124	1188	136.6(	291)	1.3666	28.824	1674	2.955	4946	1.981	0.15645	14.890	0.3716	2491	12.025	167.3	0.02	1.00
COMBUSTOR	0	34	27	200														
57.957	80.372	2925	625.4(	777)	1.2944	28.824	2555											
57.957	2.484	1239	149.8(	304)	1.3634	28.824	1707	2.858	4878	1.981	0.15817	14.890	0.3675	2492	11.992	167.3	0.02	1.00
COMBUSTOR	0	35	28	200														
58.237	79.763	2924	625.1(	776)	1.2944	28.824	2555											
58.237	2.700	1269	157.5(	312)	1.3615	28.824	1726	2.802	4837	1.982	0.15770	14.890	0.3686	2494	11.855	167.5	0.02	1.00
COMBUSTOR	0	36	29	200														
58.463	81.837	2923	624.8(	776)	1.2945	28.824	2555											
58.463	2.415	1223	145.6(	300)	1.3644	28.824	1696	2.867	4897	1.980	0.15735	14.890	0.3695	2495	11.975	167.6	0.02	1.00
COMBUSTOR	0	37	30	21														
59.187	81.613	2921	624.1(	775)	1.2945	28.824	2554											
59.187	1.500	1075	107.8(	262)	1.3737	28.823	1596	3.164	5082	1.980	0.15491	14.890	0.3753	2496	12.235	167.7	0.02	1.00

READING = 0088 BLOCK = 131 TIME = 236.401 MACH 7.2 PT = 999.500 TT = 3157.3 PAGE 3

	P	T	H		GAMMA	MOLWT	SONV	MACH	VEL	S	M/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	38	31 200															
60.207	82.333	2917	623.1(	775)	1.2946	28.824	2552											
60.207	2.050	1166	130.9(	286)	1.3660	28.824	1659	2.992	4963	1.979	0.15392	14.890	0.3777	2495	11.672	167.6	0.02	1.00
COMBUSTOR	0	39	32 21															
62.217	79.146	2913	621.8(	773)	1.2948	28.824	2551											
62.217	1.450	1071	106.8(	261)	1.3739	28.824	1593	3.186	5076	1.981	0.15928	14.890	0.3650	2485	12.566	166.9	0.02	1.00
COMBUSTOR	0	40	33 21															
63.637	76.975	2910	621.0(	772)	1.2949	28.824	2550											
63.637	1.387	1065	105.3(	260)	1.3743	28.823	1589	3.197	5080	1.983	0.16360	14.890	0.3553	2477	12.915	166.4	0.02	1.00
COMBUSTOR	0	41	34 21															
66.101	68.731	2906	619.7(	771)	1.2950	28.824	2548											
66.101	1.351	1089	111.2(	266)	1.3728	28.823	1606	3.141	5044	1.990	0.15507	14.890	0.3749	2464	12.155	165.5	0.02	1.00
COMBUSTOR	0	42	35 21															
66.477	63.642	2905	619.4(	771)	1.2950	28.824	2547											
66.477	1.288	1097	113.3(	268)	1.3723	28.823	1611	3.125	5032	1.996	0.14417	14.890	0.4032	2462	11.275	165.3	0.02	1.00
COMBUSTOR	REGEN	43	36 4															
66.477	63.642	3277	734.0(	882)	1.2827	28.823	2693											
66.477	2.194	1458	207.1(	362)	1.3502	28.824	1842	2.787	5135	2.033	0.14417	14.890	0.4032	2603	11.505	174.8	0.02	1.00
NOZZLE AE		44	37 3															
88.713	63.642	2905	619.4(	767)	1.2950	28.824	2547											
88.713	0.184	638	-0.4(	154)	1.3958	28.824	1240	4.493	5569	1.996	0.03001	14.890	1.9371	2669	2.597	179.2	0.02	1.00
NOZZLE PO		45	38 3															
88.713	63.642	2905	619.4(	767)	1.2950	28.824	2547											
88.713	0.154	607	-8.0(	147)	1.3966	28.824	1209	4.635	5603	1.996	0.02658	14.890	2.1868	2680	2.315	180.0	0.02	1.00
NOZZLE AE REGEN		46	39 4															
88.713	63.642	3277	734.0(	882)	1.2827	28.823	2693											
88.713	0.209	770	31.7(	186)	1.3908	28.824	1359	4.363	5928	2.033	0.03001	14.890	1.9371	2847	2.765	191.2	0.02	1.00
NOZZLE PO REGEN		47	40 4															
88.713	63.642	3277	734.0(	882)	1.2827	28.823	2693											
88.713	0.194	707	16.3(	171)	1.3934	28.824	1303	4.598	5993	2.033	0.02441	14.890	2.3818	2868	2.273	192.6	0.02	1.00
FICTIVE COMBUSTR		66	59 0															
66.477	321.385	2905	619.4(	771)	1.2951	28.824	2548											
66.477	0.154	383	-62.3(	92)	1.3980	28.824	961	6.081	5841	1.884	0.04394	14.890	1.3229	2755	3.989	185.0	0.02	1.00
FICTIVE NOZZLE		67	60 0															
88.713	165.817	2849	602.5(	754)	1.2969	28.824	2525											
88.713	0.117	417	-54.1(	101)	1.3984	28.824	1002	5.718	5732	1.924	0.03001	14.890	1.9371	2711	2.673	182.1	0.02	1.00

XABS	P-IB	P-OB	PDA	QDX	Q-IB	Q-OB	CAWALL	P-IB/PSO	P-IB/PTO	P-OB/PSO	P-OB/PTO
6.98₁E-01	6.900E-01	0.000	-2.762E-01	0.000	0.000	0.000	2.470E-02	4.471E 00	6.903E-04	0.000	0.000
1.83₆E 01	6.900E-01	0.000	-2.296E 01	0.000	0.000	0.000	1.654E 02	4.471E 00	6.903E-04	0.000	0.000
3.07₀E 01	1.020E 00	0.000	-9.228E 01	0.000	0.000	0.000	5.053E 02	6.609E 00	1.021E-03	0.000	0.000
3.50₈E 01	1.876E 00	0.000	-1.861E 02	0.000	0.000	0.000	6.804E 02	1.215E 01	1.877E-03	0.000	0.000
3.55₅E 01	2.100E 00	0.000	-2.042E 02	0.000	0.000	0.000	7.013E 02	1.361E 01	2.101E-03	0.000	0.000
3.60₄E 01	2.080E 00	0.000	-2.254E 02	-1.057E 02	-1.057E 02	0.000	7.246E 02	1.348E 01	2.081E-03	0.000	0.000
3.64₈E 01	2.267E 00	0.000	-2.440E 02	-1.083E 02	-1.083E 02	0.000	7.443E 02	1.469E 01	2.268E-03	0.000	0.000
3.66₁E 01	2.298E 00	3.234E 00	-2.838E 02	-1.091E 02	-1.091E 02	0.000	7.507E 02	1.489E 01	2.299E-03	2.094E 01	3.236E-03
3.66₂E 01	2.300E 00	3.250E 00	-2.839E 02	-1.092E 02	-1.092E 02	0.000	7.509E 02	1.490E 01	2.301E-03	2.106E 01	3.252E-03
3.70₁E 01	2.390E 00	4.265E 00	-2.860E 02	-1.117E 02	-1.117E 02	0.000	7.913E 02	1.549E 01	2.391E-03	2.763E 01	4.267E-03
3.72₉E 01	2.283E 00	4.987E 00	-2.858E 02	-1.135E 02	-1.135E 02	0.000	8.204E 02	1.479E 01	2.284E-03	3.232E 01	4.990E-03
3.80₃E 01	1.995E 00	8.318E 00	-2.691E 02	-1.188E 02	-1.188E 02	0.000	9.004E 02	1.293E 01	1.996E-03	5.389E 01	8.322E-03
3.87₅E 01	6.483E 00	1.153E 01	-2.659E 02	-1.855E 02	-1.264E 02	-5.903E 01	9.802E 02	4.201E 01	6.486E-03	7.471E 01	1.154E-02
3.87₅E 01	6.502E 00	1.152E 01	-2.659E 02	-1.857E 02	-1.265E 02	-5.920E 01	9.806E 02	4.213E 01	6.506E-03	7.465E 01	1.153E-02
3.90₁E 01	8.130E 00	1.063E 01	-2.699E 02	-2.038E 02	-1.305E 02	-7.338E 01	1.010E 03	5.268E 01	8.134E-03	6.884E 01	1.063E-02
3.95₀E 01	1.117E 01	8.938E 00	-2.865E 02	-2.401E 02	-1.401E 02	-1.000E 02	1.066E 03	7.236E 01	1.117E-02	5.791E 01	8.942E-03
3.97₇E 01	1.090E 01	8.019E 00	-2.964E 02	-2.611E 02	-1.466E 02	-1.145E 02	1.097E 03	7.061E 01	1.090E-02	5.196E 01	8.023E-03
4.00₀E 01	1.066E 01	7.743E 00	-3.025E 02	-2.802E 02	-1.531E 02	-1.271E 02	1.124E 03	6.909E 01	1.067E-02	5.017E 01	7.747E-03
4.02₄E 01	1.116E 01	7.462E 00	-3.094E 02	-3.001E 02	-1.602E 02	-1.399E 02	1.151E 03	7.231E 01	1.117E-02	4.835E 01	7.466E-03
4.04₀E 01	1.150E 01	8.462E 00	-3.135E 02	-3.140E 02	-1.653E 02	-1.487E 02	1.170E 03	7.453E 01	1.151E-02	5.483E 01	8.466E-03
4.04₁E 01	1.152E 01	8.523E 00	-3.137E 02	-3.149E 02	-1.657E 02	-1.492E 02	1.172E 03	7.466E 01	1.153E-02	5.522E 01	8.527E-03
4.07₅E 01	1.223E 01	1.059E 01	-3.192E 02	-3.441E 02	-1.767E 02	-1.674E 02	1.211E 03	7.925E 01	1.224E-02	6.860E 01	1.059E-02
4.12₄E 01	1.326E 01	1.937E 00	-3.359E 02	-3.874E 02	-1.941E 02	-1.933E 02	1.269E 03	8.592E 01	1.327E-02	1.255E 01	1.938E-03
4.15₀E 01	1.381E 01	2.003E 00	-3.814E 02	-4.111E 02	-2.041E 02	-2.070E 02	1.300E 03	8.950E 01	1.382E-02	1.298E 01	2.004E-03
4.24₆E 01	6.825E 00	2.241E 00	-3.853E 02	-5.035E 02	-2.431E 02	-2.604E 02	1.414E 03	4.422E 01	6.828E-03	1.452E 01	2.242E-03
4.27₃E 01	6.985E 00	2.309E 00	-3.898E 02	-5.307E 02	-2.544E 02	-2.763E 02	1.446E 03	4.526E 01	6.988E-03	1.496E 01	2.310E-03
4.28₀E 01	7.023E 00	2.325E 00	-3.909E 02	-5.371E 02	-2.570E 02	-2.801E 02	1.454E 03	4.550E 01	7.026E-03	1.506E 01	2.326E-03
4.43₁E 01	7.912E 00	5.315E 00	-4.049E 02	-6.721E 02	-3.144E 02	-3.577E 02	1.636E 03	5.126E 01	7.916E-03	3.444E 01	5.318E-03
4.48₀E 01	8.200E 00	6.283E 00	-4.078E 02	-7.112E 02	-3.312E 02	-3.801E 02	1.696E 03	5.314E 01	8.204E-03	4.071E 01	6.286E-03
4.55₂E 01	8.346E 00	7.700E 00	-4.101E 02	-7.674E 02	-3.546E 02	-4.128E 02	1.783E 03	5.408E 01	8.351E-03	4.989E 01	7.704E-03
4.62₃E 01	8.492E 00	7.650E 00	-4.064E 02	-8.244E 02	-3.771E 02	-4.473E 02	1.871E 03	5.502E 01	8.497E-03	4.957E 01	7.654E-03
4.62₆E 01	8.498E 00	7.648E 00	-4.059E 02	-8.267E 02	-3.780E 02	-4.487E 02	1.874E 03	5.506E 01	8.502E-03	4.956E 01	7.652E-03
4.73₁E 01	8.712E 00	7.575E 00	-3.937E 02	-9.143E 02	-4.094E 02	-5.049E 02	2.004E 03	5.645E 01	8.717E-03	4.906E 01	7.579E-03
4.81₁E 01	7.925E 00	7.520E 00	-3.770E 02	-9.820E 02	-4.322E 02	-5.498E 02	2.103E 03	5.135E 01	7.929E-03	4.872E 01	7.524E-03
4.87₆E 01	7.475E 00	7.475E 00	-3.547E 02	-1.036E 03	-4.498E 02	-5.863E 02	2.184E 03	4.843E 01	7.479E-03	4.843E 01	7.479E-03
5.02₁E 01	5.284E 00	5.284E 00	-3.070E 02	-1.152E 03	-4.869E 02	-6.451E 02	2.365E 03	3.424E 01	5.287E-03	3.424E 01	5.287E-03
5.07₄E 01	4.483E 00	4.483E 00	-2.935E 02	-1.155E 03	-4.997E 02	-6.551E 02	2.431E 03	2.905E 01	4.486E-03	2.905E 01	4.486E-03
5.21₅E 01	3.887E 00	3.887E 00	-2.626E 02	-1.204E 03	-5.314E 02	-6.726E 02	2.609E 03	2.519E 01	3.889E-03	2.519E 01	3.889E-03
5.42₅E 01	2.075E 00	2.075E 00	-2.298E 02	-1.267E 03	-5.728E 02	-6.937E 02	2.875E 03	1.344E 01	2.076E-03	1.344E 01	2.076E-03
5.47₅E 01	2.358E 00	2.358E 00	-2.240E 02	-1.279E 03	-5.817E 02	-6.975E 02	2.939E 03	1.528E 01	2.360E-03	1.528E 01	2.360E-03
5.55₀E 01	1.771E 00	1.771E 00	-2.160E 02	-1.297E 03	-5.942E 02	-7.023E 02	3.035E 03	1.147E 01	1.771E-03	1.147E 01	1.771E-03
5.57₆E 01	1.564E 00	1.564E 00	-2.138E 02	-1.302E 03	-5.984E 02	-7.040E 02	3.068E 03	1.014E 01	1.565E-03	1.014E 01	1.565E-03
5.62₆E 01	1.662E 00	1.175E 00	-1.839E 02	-1.313E 03	-6.059E 02	-7.070E 02	3.102E 03	1.077E 01	1.663E-03	7.613E 00	1.176E-03
5.76₈E 01	2.273E 00	2.273E 00	-1.716E 02	-1.340E 03	-6.248E 02	-7.150E 02	3.209E 03	1.472E 01	2.274E-03	1.472E 01	2.274E-03
5.77₄E 01	1.825E 00	2.315E 00	-1.710E 02	-1.341E 03	-6.254E 02	-7.153E 02	3.217E 03	1.182E 01	1.826E-03	1.500E 01	2.316E-03
5.78₈E 01	1.825E 00	2.423E 00	-1.694E 02	-1.343E 03	-6.271E 02	-7.160E 02	3.234E 03	1.182E 01	1.826E-03	1.570E 01	2.424E-03
5.79₆E 01	2.484E 00	2.484E 00	-1.684E 02	-1.344E 03	-6.280E 02	-7.165E 02	3.245E 03	1.610E 01	2.486E-03	1.610E 01	2.486E-03
5.82₄E 01	2.700E 00	2.700E 00	-1.651E 02	-1.349E 03	-6.312E 02	-7.180E 02	3.280E 03	1.749E 01	2.701E-03	1.749E 01	2.701E-03
5.84₆E 01	2.415E 00	2.415E 00	-1.626E 02	-1.353E 03	-6.337E 02	-7.192E 02	3.309E 03	1.564E 01	2.416E-03	1.564E 01	2.416E-03
5.91₉E 01	1.500E 00	1.500E 00	-1.573E 02	-1.364E 03	-6.410E 02	-7.232E 02	3.402E 03	9.719E 00	1.501E-03	9.719E 00	1.501E-03
6.02₁E 01	2.050E 00	2.050E 00	-1.532E 02	-1.376E 03	-6.499E 02	-7.283E 02	3.532E 03	1.328E 01	2.051E-03	1.328E 01	2.051E-03
6.22₂E 01	1.450E 00	1.450E 00	-1.527E 02	-1.399E 03	-6.629E 02	-7.356E 02	3.790E 03	9.395E 00	1.451E-03	9.395E 00	1.451E-03
6.30₄E 01	1.387E 00	1.387E 00	-1.527E 02	-1.410E 03	-6.698E 02	-7.404E 02	3.972E 03	8.990E 00	1.388E-03	8.990E 00	1.388E-03
6.61₆E 01	1.351E 00	1.351E 00	-1.527E 02	-1.430E 03	-6.794E 02	-7.510E 02	4.289E 03	8.757E 00	1.352E-03	8.757E 00	1.352E-03
6.64₈E 01	1.230E 00	1.346E 00	-1.527E 02	-1.433E 03	-6.807E 02	-7.527E 02	4.337E 03	7.970E 00	1.231E-03	8.721E 00	1.347E-03
6.65₂E 01	1.230E 00	1.345E 00	-1.527E 02	-1.434E 03	-6.808E 02	-7.529E 02	4.342E 03	7.970E 00	1.231E-03	8.717E 00	1.346E-03

READING = 0088 BLOCK = 151 TIME = 236.401 MACH 7.2 PT = 999.500 TT = 3157.3 PAGE 5

XABS	P-IB	P-OB	PDA	QDX	W-IB	Q-OB	CANALL	P-IB/P80	P-IB/PTO	P-OB/P80	P-OB/PTO
6.672E 01	1.354E 00	1.342E 00	-1.527E 02	-1.455E 03	-6.814E 02	-7.539E 02	4.368E 03	8.774E 00	1.355E-03	8.696E 00	1.343E-03
6.838E 01	2.365E 00	1.570E 00	-1.348E 02	-1.449E 03	-6.867E 02	-7.626E 02	4.584E 03	1.545E 01	2.386E-03	1.017E 01	1.571E-03
6.905E 01	1.710E 00	1.380E 00	-9.906E 01	-1.455E 03	-6.888E 02	-7.667E 02	4.665E 03	1.108E 01	1.711E-03	8.941E 00	1.381E-03
6.982E 01	9.350E-01	1.171E 00	-6.275E 01	-1.463E 03	-6.912E 02	-7.721E 02	4.760E 03	6.058E 00	9.355E-04	7.585E 00	1.171E-03
7.054E 01	8.321E-01	9.750E-01	-3.748E 01	-1.471E 03	-6.934E 02	-7.779E 02	4.848E 03	5.392E 00	8.326E-04	6.317E 00	9.755E-04
7.115E 01	7.450E-01	9.481E-01	-1.854E 01	-1.477E 03	-6.952E 02	-7.822E 02	4.922E 03	4.827E 00	7.454E-04	6.143E 00	9.486E-04
7.253E 01	6.400E-01	8.874E-01	1.813E 01	-1.486E 03	-6.991E 02	-7.869E 02	5.088E 03	4.147E 00	6.403E-04	5.750E 00	8.878E-04
7.406E 01	4.396E-01	8.200E-01	5.055E 01	-1.496E 03	-7.027E 02	-7.931E 02	5.273E 03	2.849E 00	4.399E-04	5.313E 00	8.204E-04
7.421E 01	4.200E-01	7.183E-01	5.305E 01	-1.497E 03	-7.030E 02	-7.942E 02	5.290E 03	2.721E 00	4.202E-04	4.654E 00	7.187E-04
7.496E 01	4.669E-01	2.100E-01	6.855E 01	-1.505E 03	-7.044E 02	-8.007E 02	5.374E 03	3.025E 00	4.671E-04	1.361E 00	2.101E-04
7.496E 01	4.671E-01	2.073E-01	6.897E 01	-1.505E 03	-7.044E 02	-8.007E 02	5.375E 03	3.027E 00	4.674E-04	1.343E 00	2.074E-04
7.629E 01	5.500E-01	0.000	7.971E 01	-1.521E 03	-7.063E 02	-8.144E 02	5.426E 03	3.564E 00	5.503E-04	0.000	0.000
7.914E 01	1.950E-01	0.000	9.461E 01	-1.493E 03	-7.091E 02	-7.841E 02	5.525E 03	1.263E 00	1.951E-04	0.000	0.000
8.304E 01	2.000E-01	0.000	1.031E 02	-1.496E 03	-7.110E 02	-7.847E 02	5.630E 03	1.296E 00	2.001E-04	0.000	0.000
8.585E 01	2.550E-01	0.000	1.081E 02	-1.684E 03	-7.119E 02	-9.719E 02	5.684E 03	1.652E 00	2.551E-04	0.000	0.000
8.871E 01	3.150E-01	0.000	1.150E 02	-1.685E 03	-7.136E 02	-9.719E 02	5.707E 03	2.041E 00	3.152E-04	0.000	0.000
8.871E 01	3.151E-01	0.000	1.150E 02	-1.685E 03	-7.136E 02	-9.719E 02	5.707E 03	2.042E 00	3.153E-04	0.000	0.000

X	DRAG	CDRAG	CF	MC
4.040E 01	8.362E 01	8.362E 01	2.275E-03	3.481E-02
4.041E 01	1.525E-01	8.378E 01	2.275E-03	3.484E-02
4.079E 01	5.142E 00	8.892E 01	2.296E-03	3.570E-02
4.124E 01	7.530E 00	9.645E 01	2.348E-03	3.684E-02
4.150E 01	4.047E 00	1.005E 02	2.391E-03	3.752E-02
4.246E 01	1.447E 01	1.150E 02	2.486E-03	3.817E-02
4.273E 01	3.976E 00	1.189E 02	2.501E-03	3.541E-02
4.280E 01	9.478E-01	1.199E 02	2.504E-03	3.584E-02
4.431E 01	2.129E 01	1.412E 02	2.558E-03	3.400E-02
4.480E 01	6.636E 00	1.478E 02	2.572E-03	3.380E-02
4.552E 01	9.634E 00	1.574E 02	2.587E-03	3.379E-02
4.623E 01	9.462E 00	1.669E 02	2.586E-03	3.283E-02
4.626E 01	3.649E-01	1.673E 02	2.586E-03	3.273E-02
4.731E 01	1.320E 01	1.805E 02	2.567E-03	3.003E-02
4.811E 01	9.285E 00	1.898E 02	2.536E-03	2.713E-02
4.876E 01	6.854E 00	1.966E 02	2.486E-03	2.400E-02
5.021E 01	1.316E 01	2.098E 02	2.381E-03	1.841E-02
5.074E 01	4.157E 00	2.139E 02	2.353E-03	1.693E-02
5.219E 01	9.843E 00	2.238E 02	2.283E-03	1.369E-02
5.425E 01	1.246E 01	2.362E 02	2.257E-03	7.974E-03
5.475E 01	2.632E 00	2.389E 02	2.197E-03	8.817E-03
5.550E 01	3.698E 00	2.426E 02	2.167E-03	7.034E-03
5.576E 01	1.252E 00	2.438E 02	2.164E-03	6.378E-03
5.626E 01	1.084E 00	2.449E 02	2.067E-03	5.675E-03
5.768E 01	2.897E 00	2.478E 02	2.136E-03	7.695E-03
5.774E 01	1.846E-01	2.480E 02	2.142E-03	7.247E-03
5.788E 01	4.710E-01	2.485E 02	2.194E-03	7.378E-03
5.796E 01	2.709E-01	2.487E 02	2.215E-03	8.282E-03
5.824E 01	9.441E-01	2.497E 02	2.225E-03	8.704E-03
5.846E 01	7.591E-01	2.504E 02	2.194E-03	8.095E-03
5.919E 01	2.420E 00	2.528E 02	2.123E-03	5.655E-03
6.021E 01	3.368E 00	2.562E 02	2.153E-03	7.120E-03
6.222E 01	6.739E 00	2.630E 02	2.125E-03	5.482E-03
6.364E 01	4.939E 00	2.679E 02	2.131E-03	5.293E-03
6.610E 01	8.545E 00	2.764E 02	2.181E-03	5.143E-03
6.648E 01	1.242E 00	2.777E 02	2.213E-03	4.930E-03
6.652E 01	1.122E-01	2.778E 02	2.180E-03	4.852E-03
6.672E 01	4.894E-01	2.783E 02	2.187E-03	5.024E-03
6.838E 01	4.760E 00	2.830E 02	2.248E-03	6.705E-03
6.905E 01	1.869E 00	2.849E 02	2.200E-03	5.544E-03
6.982E 01	1.767E 00	2.867E 02	2.127E-03	4.124E-03
7.054E 01	1.360E 00	2.880E 02	2.096E-03	3.660E-03
7.115E 01	1.062E 00	2.891E 02	2.083E-03	3.478E-03
7.253E 01	2.251E 00	2.913E 02	2.061E-03	3.205E-03
7.406E 01	2.248E 00	2.936E 02	2.021E-03	2.793E-03
7.421E 01	1.893E-01	2.938E 02	2.003E-03	2.546E-03
7.496E 01	7.549E-01	2.945E 02	1.915E-03	1.705E-03
7.496E 01	1.186E-03	2.945E 02	1.915E-03	1.700E-03
7.629E 01	4.556E-01	2.950E 02	1.990E-03	2.470E-03
7.914E 01	7.355E-01	2.957E 02	1.816E-03	1.108E-03
8.304E 01	5.162E-01	2.962E 02	1.807E-03	1.121E-03
8.585E 01	2.949E-01	2.965E 02	1.835E-03	1.343E-03
8.871E 01	1.436E-01	2.967E 02	1.859E-03	1.572E-03
8.871E 01	0.000	2.967E 02	1.859E-03	1.573E-03

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	=198.	(LBF)
MEASURED THRUST	=253.	(LBF)
CALCULATED SPECIFIC IMPULSE	******	(LBF=SEC/LBM)
MEASURED SPECIFIC IMPULSE	******	(LBF=SEC/LBM)
CALCULATED THRUST COEFFICIENT	=.1366	
MEASURED THRUST COEFFICIENT	=.1741	

REGENERATIVE-COOLED ENGINE PERFORMANCE CALCULATED

STREAM THRUST	2892.	(LBF)
NET THRUST	=17.	(LBF)
SPECIFIC IMPULSE	=2354.	(LBF=SEC/LBM)
THRUST COEFFICIENT	=.0117	

MOMENTUM AND FORCES

INLET FRICTION DRAG	83.6	(LBF)
INLET MOMENTUM CHANGE	=397.1	(LBF)
COMBUSTOR FRICTION DRAG	194.1	(LBF)
COMBUSTOR STRUT DRAG	16.51	(LBF)
COMBUSTOR MOMENTUM CHANGE	=50.	(LBF)
NOZZLE FRICTION DRAG	19.00	(LBF)
NOZZLE STRUT DRAG	0.00	(LBF)
NOZZLE MOMENTUM CHANGE	249.	(LBF)
NOZZLE PRESSURE INTEGRAL	268.	(LBF)
EXTERNAL FRICTION DRAG	0.00	(LBF)
EXTERNAL PRESSURE INTEGRAL	0.	(LBF)
TOTAL EXTERNAL DRAG	=725.	(LBF)
TOTAL STRUT DRAG	16.51	(LBF)
CAVITY FORCE	=529.	(LBF)
CALCULATED LOAD CELL FORCE	=1453.	(LBF)
MEASURED LOAD CELL FORCE	=1507.	(LBF)
FUEL VACUUM SPECIFIC IMPULSE		

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	1.7369	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	36.621	(IN)
NOZZLE SHROUD TRAILING EDGE	74.961	(IN)
NOZZLE PLUG TRAILING EDGE	88.713	(IN)
STRUT LEADING EDGE	57.877	(IN)
STRUT TRAILING EDGE	66.477	(IN)
COMBUSTOR EXIT	66.477	(IN)

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.9890	
ADDITIVE DRAG COEFFICIENT	0.0000	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.1013	
DELTA PT2	0.0899	(PSI)
TOTAL PRESSURE RECOVERY = SUPERSONIC	0.3215	
TOTAL PRESSURE RECOVERY = SUBSONIC	0.1027	
INLET PROCESS EFFICIENCY = SUPERSONIC	0.9008	
INLET PROCESS EFFICIENCY = SUBSONIC	0.9121	
KINETIC ENERGY EFFICIENCY = SUPERSONIC	0.9398	
KINETIC ENERGY EFFICIENCY = SUBSONIC	0.8904	
ENTHALPY AT P0 = SUPERSONIC	=30.10	(BTU/LBM)
ENTHALPY AT P0 = SUBSONIC	8.12	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0005
EQUIVALENCE RATIO	0.015
COMBUSTOR EFFICIENCY	1.000
TOTAL PRESSURE RATIO	0.1980
COMBUSTOR EFFECTIVENESS	0.6789
INJECTOR DISCHARGE COEFFICIENTS	

NOZZLE

VACUUM STREAM THRUST COEFFICIENT = CS	1.0157
NOZZLE COEFFICIENT = CT	0.9830
PROCESS EFFICIENCY	1.2632
KINETIC ENERGY EFFICIENCY	1.0281

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	
1B	42.722	
1C	44.300	
2A	50.197	
2C	46.250	
3A	55.487	
3B	57.672	
4	46.222	

Reading 88

t = 245.40 sec.

Combustor pressure distributions indicate the injected fuel did not ignite.

READING = 0088 BLOCK = 141 TIME = 205.401 MACH 7.2 PT = 996.999 TT = 3173.1

2/12/75

RAMJET PERFORMANCE

S U M M A R Y R E P O R T

	P	T	H		GAMMA	MOLWT	SONV	MACH	VEL	S	F/A		A/AC	MOMTM	Q	TVAC	PHI	ETAC
WIND TUNNEL		1	0	6														
0.000	998.999	3173	723.1(	847)	1.2880	28.903	2651											
0.000	0.154	309	-55.0(	74)	1.3967	28.901	861	7.247	6240	1.825	0.05831	14.767	0.9888	2903	5.654	196.6		
SPIKE TIP NS		2	0	6														
0.600	11.425	3173	723.1(	847)	1.2874	28.901	2651											
0.600	10.566	3118	706.2(	830)	1.2892	28.901	2630	0.350	920	2.132	0.05831	14.767	0.9888	3098	0.834	209.8		
WIND TUNNEL		3	0	0														
0.000	998.999	3173	723.1(	847)	1.2880	28.903	2651											
0.000	0.172	318	-52.7(	76)	1.3970	28.901	878	7.122	6230	1.825	0.06301	15.958	0.9888	3134	6.101	196.4		
SPIKE TIP NS		4	0	0														
0.600	11.425	3173	723.1(	847)	1.2874	28.901	2651											
0.600	10.404	3107	702.9(	827)	1.2898	28.901	2625	0.383	1006	2.132	0.06301	15.958	0.9888	3134	0.985	196.4		
INLET THROAT		5	0	3														
40.400	326.599	3091	698.0(	823)	1.2905	28.902	2620											
40.400	10.496	1332	198.2(	327)	1.3583	28.901	1764	2.835	5001	1.894	0.73414	14.767	0.0785	2506	57.054	169.7		
INLET UPWRK		6	0	3														
40.400	326.599	3091	698.0(	823)	1.2905	28.902	2620											
40.400	9.024	1281	185.0(	314)	1.3614	28.901	1732	2.925	5057	1.894	0.66740	14.767	0.0844	2525	52.550	171.0		
INLET DNWRK		7	0	4														
40.400	102.348	3091	698.0(	823)	1.2904	28.902	2620											
40.400	89.274	2997	669.3(	795)	1.2933	28.902	2582	0.464	1198	1.973	0.66740	14.767	0.0864	2525	12.488	171.0		
COMBUSTOR		0	8	1	21													
40.410	258.417	3027	699.2(	850)	1.2939	27.253	2673											
40.410	10.225	1370	202.3(	357)	1.3575	27.253	1842	2.707	4986	2.000	0.73753	14.837	0.0785	2505	57.153	168.9	0.15	0.07
COMBUSTOR		0	9	2	3													
40.747	271.433	2971	697.2(	833)	1.2964	27.198	2654											
40.747	11.795	1372	218.8(	358)	1.3578	27.198	1846	2.681	4893	1.991	0.74024	14.837	0.0783	2493	56.289	168.0	0.15	0.01
COMBUSTOR		0	10	3	21													
41.237	235.531	2954	694.2(	828)	1.2971	27.190	2647											
41.237	8.216	1284	197.3(	335)	1.3630	27.190	1790	2.785	4987	2.000	0.73433	14.837	0.0789	2466	56.906	166.2	0.15	0.00
COMBUSTOR		0	11	4	21													
41.500	217.292	2948	692.9(	826)	1.2973	27.189	2645											
41.500	8.658	1329	209.4(	346)	1.3604	27.189	1818	2.704	4917	2.005	0.72734	14.837	0.0796	2444	55.976	164.7	0.15	0.00
COMBUSTOR		0	12	5	21													
42.460	140.822	2928	686.0(	820)	1.2980	27.189	2636											
42.460	5.199	1292	199.2(	334)	1.3626	27.188	1794	2.751	4936	2.034	0.68598	14.837	0.0804	2388	52.616	161.0	0.15	0.00
COMBUSTOR		0	13	6	21													
42.722	112.987	2878	686.5(	844)	1.3007	25.872	2682											
42.722	5.410	1354	210.9(	371)	1.3601	25.872	1881	2.594	4879	2.128	0.67941	14.900	0.0856	2378	51.542	159.6	0.29	0.04
COMBUSTOR		0	14	7	21													
42.732	120.958	2835	686.5(	830)	1.3027	25.828	2666											
42.732	5.418	1306	211.1(	358)	1.3633	25.828	1851	2.635	4877	2.119	0.67917	14.900	0.0857	2378	51.479	159.6	0.29	0.01
COMBUSTOR		0	15	8	21													
42.797	121.599	2827	686.0(	828)	1.3031	25.821	2663											
42.797	5.471	1303	212.4(	357)	1.3639	25.821	1850	2.632	4868	2.117	0.67665	14.900	0.0860	2375	51.194	159.4	0.29	0.00
COMBUSTOR		0	16	9	21													
44.310	120.879	2800	677.5(	819)	1.3040	25.820	2652											
44.310	8.539	1452	256.2(	400)	1.3552	25.820	1947	2.359	4592	2.115	0.62636	14.900	0.0929	2330	44.697	156.4	0.29	0.00
COMBUSTOR		0	17	10	21													
44.800	118.807	2794	675.4(	817)	1.3042	25.820	2649											
44.800	9.533	1498	269.5(	414)	1.3527	25.820	1975	2.282	4507	2.115	0.61853	14.900	0.0941	2317	43.320	155.5	0.29	0.00
COMBUSTOR		0	18	11	21													
45.517	104.746	2873	672.4(	842)	1.3003	25.911	2677											
45.517	10.225	1428	279.4(	461)	1.3452	25.911	2050	2.163	4435	2.133	0.61423	14.900	0.0947	2302	42.332	154.5	0.29	0.06

	D	T	P	GAMMA	SPLIT	SONV	MACH	VEL	S	A/AC	PORTP	C	TVAL	PHI	ETAC
COMBUSTOR	0	19	12 21												
46.252	109.404	2748	669.2(915)	1.3041	25.834	2645									
46.252	9.722	1539	276.2(424)	1.3527	25.833	1997	2.220	4434	2.121	0.59720	14.900	0.0976	2296	41.155	154.1	0.29	0.01
COMBUSTOR	0	20	13 21												
46.260	110.477	2777	669.1(912)	1.3047	25.822	2641									
46.260	9.702	1522	276.1(421)	1.3514	25.822	1990	2.220	4434	2.119	0.59548	14.900	0.0977	2296	41.051	154.1	0.29	0.00
COMBUSTOR	0	21	14 21												
47.310	105.300	2758	663.6(906)	1.3053	25.820	2633									
47.310	8.943	1499	269.5(410)	1.3524	25.820	1976	2.248	4436	2.120	0.55221	14.900	0.1053	2297	38.090	154.2	0.29	0.00
COMBUSTOR	0	22	15 21												
48.110	97.952	2749	659.3(901)	1.3057	25.820	2627									
48.110	6.820	1419	245.1(389)	1.3572	25.820	1923	2.368	4552	2.124	0.50706	14.900	0.1146	2308	35.900	154.9	0.29	0.00
COMBUSTOR	0	23	16 21												
48.757	87.394	2946	655.7(932)	1.3009	25.935	2664									
48.757	7.600	1564	252.9(432)	1.3482	25.935	2011	2.233	4490	2.143	0.46064	14.900	0.1263	2325	32.143	156.1	0.29	0.08
COMBUSTOR	0	24	17 21												
50.207	91.169	2731	649.2(797)	1.3059	25.837	2620									
50.207	5.440	1351	221.2(371)	1.3606	25.837	1881	2.461	4628	2.128	0.37435	14.900	0.1554	2360	26.925	158.4	0.29	0.01
COMBUSTOR	0	25	18 21												
50.737	89.792	2711	647.5(791)	1.3068	25.823	2612									
50.737	4.650	1290	208.2(353)	1.3642	25.823	1841	2.547	4689	2.127	0.35010	14.900	0.1662	2369	25.511	159.0	0.29	0.00
COMBUSTOR	0	26	19 21												
52.147	86.955	2697	643.4(786)	1.3073	25.821	2605									
52.147	4.212	1259	200.0(344)	1.3660	25.820	1820	2.588	4710	2.128	0.29838	14.900	0.1950	2392	21.801	160.5	0.29	0.00
COMBUSTOR	0	27	20 21												
54.247	87.862	2670	635.9(781)	1.3082	25.705	2599									
54.247	1.975	1060	149.4(296)	1.3761	25.705	1699	2.904	4934	2.152	0.24534	14.948	0.2379	2413	18.812	161.4	0.30	0.00
COMBUSTOR	0	28	21 21												
54.747	69.894	2663	635.0(778)	1.3085	25.701	2596									
54.747	2.108	1093	153.2(298)	1.3757	25.701	1705	2.879	4910	2.149	0.23531	14.948	0.2480	2415	17.955	161.6	0.30	0.00
COMBUSTOR	0	29	22 21												
55.497	63.169	2659	633.9(777)	1.3086	25.700	2594									
55.497	1.670	1051	141.6(286)	1.3781	25.700	1674	2.965	4983	2.156	0.22182	14.948	0.2631	2418	17.109	161.8	0.30	0.00
COMBUSTOR	0	30	23 21												
55.760	60.382	2658	633.5(777)	1.3087	25.700	2594									
55.760	1.516	1039	137.3(282)	1.3789	25.699	1662	2.998	4983	2.159	0.21747	14.948	0.2684	2419	16.840	161.8	0.30	0.00
COMBUSTOR	0	31	24 21												
56.257	35.282	2809	632.8(823)	1.3016	25.856	2651									
56.257	1.042	1165	124.4(317)	1.3702	25.856	1752	2.879	5044	2.215	0.17160	14.948	0.3401	2036	13.450	163.0	0.30	0.10
COMBUSTOR	0	32	25 21												
57.682	58.003	2672	630.8(781)	1.3078	25.723	2599									
57.682	2.251	1174	169.2(321)	1.3708	25.723	1764	2.725	4806	2.164	0.15861	14.948	0.3679	2445	11.846	163.6	0.30	0.02
COMBUSTOR	0	33	26 21												
57.737	59.723	2652	630.7(775)	1.3088	25.703	2591									
57.737	1.958	1111	157.7(304)	1.3746	25.703	1719	2.830	4865	2.159	0.15819	14.948	0.3689	2445	11.660	163.6	0.30	0.00
COMBUSTOR	0	34	27 21												
57.877	60.194	2649	630.5(774)	1.3089	25.700	2590									
57.877	2.008	1119	159.6(305)	1.3744	25.700	1722	2.819	4854	2.158	0.15705	14.948	0.3716	2446	11.848	163.7	0.30	0.00
COMBUSTOR	0	35	28 3												
57.957	56.078	2697	630.4(789)	1.3067	25.749	2639									
57.957	2.448	1224	175.6(334)	1.3676	25.749	1799	2.652	4771	2.169	0.15478	14.948	0.3775	2447	11.772	163.7	0.30	0.03
COMBUSTOR	0	36	29 4												
58.237	50.662	2762	630.1(809)	1.3037	25.816	2633									
58.237	2.650	1323	182.6(363)	1.3614	25.816	1863	2.541	4732	2.183	0.15631	14.948	0.3886	2449	11.642	163.8	0.30	0.08
COMBUSTOR	0	37	30 4												
58.463	57.749	2684	629.8(785)	1.3072	25.740	2604									
58.463	2.376	1200	171.4(329)	1.3692	25.739	1782	2.688	4749	2.165	0.15796	14.948	0.3895	2450	11.757	163.9	0.30	0.03

READING = 0080 BLOCK = 141 TIME = 245.401 MACH 7.2 PT = 998.999 TT = 3173.1

	P	T	H		GAMMA	MOLWT	SONV	MACH	VEL	S	F/A	A	A/AC	MOMTM	G	IVAC	PHI	ETAC
COMBUSTOR	0	38	31	21														
59.187	58.535	2649	625.0(	774)	1.3088	25.706	2590											
59.187	1.500	1038	136.1(	283)	1.3787	25.706	1663	2.965	4946	2.160	0.15551	14.948	0.3753	2451	12.001	164.0	0.30	0.00
COMBUSTOR	0	39	32	21														
60.207	61.508	2641	627.8(	771)	1.3092	25.701	2586											
60.207	2.050	1111	158.3(	303)	1.3746	25.701	1719	2.820	4847	2.156	0.15452	14.948	0.3777	2450	11.638	163.9	0.30	0.00
COMBUSTOR	0	40	33	21														
62.217	53.805	2635	626.2(	769)	1.3094	25.700	2584											
62.217	1.175	987	123.6(	268)	1.3816	25.700	1626	3.088	5015	2.165	0.15990	14.948	0.3650	2440	12.462	163.2	0.30	0.00
COMBUSTOR	0	41	34	21														
63.637	55.303	2633	625.4(	769)	1.3095	25.700	2583											
63.637	1.337	1018	131.2(	276)	1.3801	25.699	1645	3.023	4973	2.163	0.16023	14.948	0.3593	2432	12.691	162.7	0.30	0.00
COMBUSTOR	0	42	35	21														
66.101	39.157	2744	624.1(	803)	1.3042	25.816	2625											
66.101	1.323	1169	137.9(	319)	1.3703	25.817	1756	2.809	4932	2.200	0.15567	14.948	0.3749	2419	11.933	161.6	0.30	0.08
COMBUSTOR	0	43	36	21														
66.477	44.919	2646	624.0(	773)	1.3088	25.717	2587											
66.477	1.286	1068	141.0(	291)	1.3769	25.717	1686	2.915	4916	2.180	0.14472	14.948	0.4032	2417	11.056	161.7	0.30	0.01
COMBUSTOR	REGEN	44	37	4														
66.477	44.919	2887	703.9(	851)	1.3010	25.717	2695											
66.477	2.580	1424	243.5(	394)	1.3566	25.717	1933	2.484	4800	2.209	0.14472	14.948	0.4032	2496	10.795	167.0	0.30	0.01
NOZZLE AE		45	38	4														
88.713	44.919	2646	624.0(	771)	1.3088	25.717	2587											
88.713	0.214	647	24.4(	175)	1.3965	25.717	1321	4.145	5477	2.180	0.03013	14.948	1.9371	2651	2.564	177.3	0.30	0.01
NOZZLE PO		46	39	4														
88.713	44.919	2646	624.0(	771)	1.3088	25.717	2587											
88.713	0.154	589	8.8(	159)	1.3981	25.717	1262	4.396	5548	2.180	0.02415	14.948	2.4164	2673	2.082	178.8	0.30	0.01
NOZZLE AE REGEN		47	40	4														
88.713	44.919	2887	703.9(	851)	1.3010	25.717	2695											
88.713	0.233	737	49.0(	199)	1.3934	25.717	1409	4.064	5725	2.209	0.03013	14.948	1.9371	2775	2.680	185.7	0.30	0.01
NOZZLE PO REGEN		48	41	4														
88.713	44.919	2887	703.9(	851)	1.3010	25.717	2695											
88.713	0.154	654	26.8(	177)	1.3962	25.717	1330	4.375	5821	2.209	0.02278	14.948	2.5621	2805	2.040	187.7	0.30	0.01
FICTIVE COMBUSTR		67	60	0														
66.477	326.559	4068	624.0(	1220)	1.2418	27.305	3033											
66.477	0.154	630	-458.9(	163)	1.3963	27.330	1260	5.842	7361	2.114	0.03188	14.948	1.8306	3492	3.647	233.6	0.30	1.00
FICTIVE NOZZLE		66	61	0														
88.713	41.013	2637	621.3(	770)	1.3091	25.717	2584											
88.713	0.223	669	30.4(	181)	1.3958	25.717	1343	4.047	5437	2.186	0.03013	14.948	1.9371	2437	2.546	176.4	0.30	0.01

XARB	P=IH	P=OH	PCA	COX	P=IB	P=OB	CA=ALI	P=IH/P80	P=IB/P10	P=OB/P80	P=OB/PTO
6.981E-01	6.900E-01	0.000	-2.754E-01	0.000	0.000	0.000	2.370E-02	4.476E 00	4.476E-04	0.000	0.000
1.034E 01	6.900E-01	0.000	-2.264E 01	0.000	0.000	0.000	1.434E 02	4.476E 00	4.476E-04	0.000	0.000
3.070E 01	1.020E 00	0.000	-9.225E 01	0.000	0.000	0.000	5.053E 02	6.616E 00	1.021E-03	0.000	0.000
3.508E 01	1.874E 00	0.000	-1.860E 02	0.000	0.000	0.000	6.804E 02	1.215E 01	1.874E-03	0.000	0.000
3.555E 01	2.100E 00	0.000	-2.042E 02	0.000	0.000	0.000	7.013E 02	1.362E 01	2.102E-03	0.000	0.000
3.606E 01	2.070E 00	0.000	-2.253E 02	-1.454E 02	-1.454E 02	0.000	7.246E 02	1.343E 01	2.072E-03	0.000	0.000
3.644E 01	2.268E 00	0.000	-2.439E 02	-1.494E 02	-1.494E 02	0.000	7.443E 02	1.471E 01	2.270E-03	0.000	0.000
3.661E 01	2.298E 00	3.237E 00	-2.837E 02	-1.505E 02	-1.505E 02	0.000	7.507E 02	1.491E 01	2.300E-03	2.100E 01	3.240E-03
3.662E 01	2.299E 00	3.252E 00	-2.838E 02	-1.506E 02	-1.506E 02	0.000	7.509E 02	1.491E 01	2.302E-03	2.110E 01	3.256E-03
3.701E 01	2.385E 00	4.266E 00	-2.858E 02	-1.540E 02	-1.540E 02	0.000	7.913E 02	1.547E 01	2.387E-03	2.767E 01	4.270E-03
3.729E 01	2.279E 00	4.987E 00	-2.856E 02	-1.566E 02	-1.566E 02	0.000	8.204E 02	1.478E 01	2.281E-03	3.235E 01	4.992E-03
3.803E 01	1.995E 00	6.321E 00	-2.889E 02	-1.648E 02	-1.648E 02	0.000	9.004E 02	1.294E 01	1.997E-03	5.398E 01	8.330E-03
3.875E 01	1.890E 00	1.154E 01	-2.857E 02	-2.353E 02	-1.732E 02	-6.209E 01	9.812E 02	4.210E 01	6.497E-03	7.444E 01	1.155E-02
3.875E 01	4.510E 00	1.153E 01	-2.857E 02	-2.355E 02	-1.734E 02	-6.227E 01	9.804E 02	4.223E 01	6.516E-03	7.477E 01	1.154E-02
3.901E 01	8.140E 00	1.063E 01	-2.697E 02	-2.550E 02	-1.778E 02	-7.718E 01	1.010E 03	5.280E 01	8.148E-03	6.897E 01	1.064E-02
3.950E 01	1.120E 01	8.949E 00	-2.844E 02	-2.935E 02	-1.883E 02	-1.092E 02	1.066E 03	7.268E 01	1.122E-02	5.805E 01	8.958E-03
3.977E 01	1.091E 01	8.031E 00	-2.964E 02	-3.155E 02	-1.951E 02	-1.204E 02	1.097E 03	7.076E 01	1.092E-02	5.210E 01	8.039E-03
4.000E 01	1.065E 01	7.743E 00	-3.024E 02	-3.354E 02	-2.017E 02	-1.337E 02	1.124E 03	6.908E 01	1.066E-02	5.023E 01	7.751E-03
4.024E 01	1.139E 01	7.450E 00	-3.095E 02	-3.562E 02	-2.090E 02	-1.471E 02	1.151E 03	7.384E 01	1.140E-02	4.833E 01	7.457E-03
4.040E 01	1.189E 01	8.463E 00	-3.139E 02	-3.706E 02	-2.142E 02	-1.564E 02	1.170E 03	7.715E 01	1.191E-02	5.490E 01	8.472E-03
4.041E 01	1.192E 01	8.525E 00	-3.141E 02	-3.715E 02	-2.146E 02	-1.569E 02	1.172E 03	7.735E 01	1.194E-02	5.530E 01	8.534E-03
4.078E 01	1.297E 01	1.062E 01	-3.207E 02	-4.018E 02	-2.258E 02	-1.760E 02	1.211E 03	8.414E 01	1.298E-02	6.888E 01	1.063E-02
4.124E 01	1.449E 01	1.937E 00	-3.408E 02	-4.466E 02	-2.439E 02	-2.033E 02	1.269E 03	9.402E 01	1.451E-02	1.257E 01	1.939E-03
4.150E 01	1.531E 01	2.004E 00	-3.576E 02	-4.713E 02	-2.537E 02	-2.176E 02	1.300E 03	9.933E 01	1.533E-02	1.300E 01	2.006E-03
4.246E 01	8.150E 00	2.249E 00	-3.977E 02	-5.674E 02	-2.928E 02	-2.706E 02	1.414E 03	5.287E 01	8.158E-03	1.459E 01	2.251E-03
4.272E 01	8.505E 00	2.315E 00	-4.034E 02	-5.948E 02	-3.035E 02	-2.913E 02	1.445E 03	5.517E 01	8.514E-03	1.502E 01	2.318E-03
4.273E 01	8.519E 00	2.318E 00	-4.038E 02	-5.958E 02	-3.039E 02	-2.919E 02	1.446E 03	5.526E 01	8.527E-03	1.503E 01	2.320E-03
4.280E 01	8.607E 00	2.334E 00	-4.052E 02	-6.025E 02	-3.065E 02	-2.960E 02	1.454E 03	5.583E 01	8.616E-03	1.514E 01	2.337E-03
4.431E 01	1.066E 01	6.418E 00	-4.274E 02	-7.294E 02	-3.599E 02	-3.694E 02	1.634E 03	6.915E 01	1.067E-02	4.163E 01	6.424E-03
4.480E 01	1.132E 01	7.740E 00	-4.333E 02	-7.608E 02	-3.745E 02	-3.863E 02	1.696E 03	7.346E 01	1.134E-02	5.021E 01	7.748E-03
4.592E 01	1.078E 01	9.675E 00	-4.382E 02	-8.053E 02	-3.943E 02	-4.110E 02	1.783E 03	6.989E 01	1.079E-02	6.276E 01	9.685E-03
4.623E 01	1.023E 01	9.217E 00	-4.339E 02	-8.530E 02	-4.134E 02	-4.396E 02	1.871E 03	6.634E 01	1.024E-02	5.979E 01	9.226E-03
4.626E 01	1.021E 01	9.199E 00	-4.334E 02	-8.550E 02	-4.141E 02	-4.409E 02	1.874E 03	6.620E 01	1.022E-02	5.967E 01	9.208E-03
4.731E 01	9.400E 00	8.527E 00	-4.185E 02	-9.360E 02	-4.488E 02	-4.952E 02	2.004E 03	6.097E 01	9.409E-03	5.531E 01	8.539E-03
4.811E 01	9.425E 00	8.014E 00	-3.976E 02	-1.001E 03	-4.802E 02	-5.412E 02	2.103E 03	3.649E 01	5.631E-03	9.199E 01	8.022E-03
4.876E 01	7.600E 00	7.600E 00	-3.736E 02	-1.054E 03	-4.752E 02	-5.745E 02	2.184E 03	4.930E 01	7.608E-03	4.930E 01	7.608E-03
5.021E 01	5.440E 00	5.440E 00	-3.249E 02	-1.151E 03	-5.068E 02	-6.440E 02	2.365E 03	3.529E 01	5.445E-03	3.529E 01	5.445E-03
5.074E 01	4.450E 00	4.680E 00	-3.110E 02	-1.176E 03	-5.177E 02	-6.587E 02	2.431E 03	3.016E 01	4.655E-03	3.016E 01	4.655E-03
5.215E 01	4.212E 00	4.212E 00	-2.782E 02	-1.234E 03	-5.448E 02	-6.936E 02	2.609E 03	2.732E 01	4.217E-03	2.732E 01	4.217E-03
5.429E 01	1.975E 00	1.975E 00	-2.441E 02	-1.314E 03	-5.802E 02	-7.340E 02	2.879E 03	1.281E 01	1.977E-03	1.281E 01	1.977E-03
5.479E 01	2.108E 00	2.108E 00	-2.388E 02	-1.327E 03	-5.870E 02	-7.391E 02	2.939E 03	1.368E 01	2.110E-03	1.368E 01	2.110E-03
5.550E 01	1.670E 00	1.670E 00	-2.315E 02	-1.344E 03	-5.984E 02	-7.453E 02	3.038E 03	1.083E 01	1.671E-03	1.083E 01	1.671E-03
5.576E 01	1.516E 00	1.516E 00	-2.294E 02	-1.350E 03	-6.022E 02	-7.475E 02	3.068E 03	9.832E 00	1.517E-03	9.832E 00	1.517E-03
5.626E 01	9.000E-01	1.225E 00	-2.116E 02	-1.360E 03	-6.085E 02	-7.519E 02	3.102E 03	5.838E 00	9.009E-04	7.946E 00	1.226E-03
5.768E 01	2.251E 00	2.251E 00	-1.992E 02	-1.390E 03	-6.244E 02	-7.655E 02	3.209E 03	1.460E 01	2.253E-03	1.486E 01	2.293E-03
5.774E 01	1.625E 00	2.290E 00	-1.986E 02	-1.391E 03	-6.250E 02	-7.660E 02	3.217E 03	1.054E 01	1.627E-03	1.486E 01	2.292E-03
5.788E 01	1.625E 00	2.391E 00	-1.971E 02	-1.394E 03	-6.264E 02	-7.674E 02	3.234E 03	1.054E 01	1.627E-03	1.551E 01	2.393E-03
5.796E 01	2.448E 00	2.448E 00	-1.961E 02	-1.395E 03	-6.272E 02	-7.683E 02	3.245E 03	1.588E 01	2.451E-03	1.588E 01	2.451E-03
5.824E 01	2.650E 00	2.650E 00	-1.928E 02	-1.401E 03	-6.298E 02	-7.711E 02	3.280E 03	1.719E 01	2.653E-03	1.719E 01	2.653E-03
5.846E 01	2.376E 00	2.376E 00	-1.903E 02	-1.405E 03	-6.319E 02	-7.733E 02	3.309E 03	1.541E 01	2.379E-03	1.541E 01	2.379E-03
5.919E 01	1.900E 00	1.500E 00	-1.851E 02	-1.419E 03	-6.381E 02	-7.806E 02	3.402E 03	9.730E 00	1.502E-03	9.730E 00	1.502E-03
6.021E 01	2.050E 00	2.050E 00	-1.810E 02	-1.435E 03	-6.455E 02	-7.896E 02	3.532E 03	1.330E 01	2.052E-03	1.330E 01	2.052E-03
6.222E 01	1.175E 00	1.175E 00	-1.806E 02	-1.459E 03	-6.563E 02	-8.024E 02	3.790E 03	7.622E 00	1.176E-03	7.622E 00	1.176E-03
6.364E 01	1.337E 00	1.337E 00	-1.806E 02	-1.471E 03	-6.616E 02	-8.096E 02	3.972E 03	8.676E 00	1.339E-03	8.676E 00	1.339E-03
6.610E 01	1.323E 00	1.323E 00	-1.806E 02	-1.490E 03	-6.698E 02	-8.215E 02	4.289E 03	8.585E 00	1.325E-03	8.585E 00	1.325E-03
6.648E 01	1.250E 00	1.321E 00	-1.806E 02	-1.492E 03	-6.689E 02	-8.232E 02	4.337E 03	8.108E 00	1.251E-03	8.571E 00	1.323E-03

READING = 0088 BLOCK = 141 TIME = 245.401 MACH 7.2 PT = 998.999 TT = 3175.1

XABS	P=TR	P=OR	PDA	QOX	Q=TR	Q=OR	CA=ALL	P=TR/PSO	P=TR/PTO	P=OR/PSO	P=OR/PTO
6.652E 01	1.250E 00	1.321E 00	-1.906E 02	-1.492E 03	-6.690E 02	-8.233E 02	4.342E 03	8.108E 00	1.251E-03	8.570E 00	1.322E-03
6.672E 01	1.223E 00	1.320E 00	-1.896E 02	-1.490E 03	-6.693E 02	-8.232E 02	4.364E 03	7.934E 00	1.224E-03	8.562E 00	1.321E-03
6.838E 01	1.000E 00	1.150E 00	-1.674E 02	-1.505E 03	-6.725E 02	-8.326E 02	4.589E 03	6.487E 00	1.001E-03	7.460E 00	1.151E-03
6.905E 01	9.042E-01	1.407E 00	-1.444E 02	-1.511E 03	-6.740E 02	-8.346E 02	4.665E 03	6.124E 00	9.451E-04	9.389E 00	1.449E-03
6.982E 01	8.800E-01	1.201E 00	-1.141E 02	-1.518E 03	-6.757E 02	-8.420E 02	4.760E 03	5.708E 00	8.809E-04	7.789E 00	1.202E-03
7.054E 01	7.928E-01	9.700E-01	-8.974E 01	-1.526E 03	-6.775E 02	-8.482E 02	4.848E 03	4.883E 00	7.535E-04	6.292E 00	9.710E-04
7.115E 01	6.450E-01	9.475E-01	-7.193E 01	-1.532E 03	-6.790E 02	-8.527E 02	4.922E 03	4.148E 00	6.456E-04	6.146E 00	9.484E-04
7.253E 01	5.500E-01	6.965E-01	-3.772E 01	-1.539E 03	-6.825E 02	-8.542E 02	5.088E 03	3.568E 00	5.504E-04	5.815E 00	8.974E-04
7.406E 01	4.271E-01	5.400E-01	-6.819E 00	-1.546E 03	-6.858E 02	-8.617E 02	5.273E 03	2.770E 00	4.275E-04	5.449E 00	8.408E-04
7.421E 01	4.150E-01	7.333E-01	-3.907E 00	-1.549E 03	-6.861E 02	-8.628E 02	5.290E 03	2.692E 00	4.154E-04	4.757E 00	7.341E-04
7.496E 01	4.655E-01	2.000E-01	1.161E 01	-1.557E 03	-6.874E 02	-8.696E 02	5.374E 03	3.019E 00	4.659E-04	1.297E 00	2.002E-04
7.496E 01	4.457E-01	1.971E-01	1.201E 01	-1.557E 03	-6.874E 02	-8.696E 02	5.375E 03	3.021E 00	4.662E-04	1.279E 00	1.973E-04
7.629E 01	5.550E-01	0.000	2.279E 01	-1.573E 03	-6.893E 02	-8.639E 02	5.424E 03	3.600E 00	5.556E-04	0.000	0.000
7.914E 01	1.650E-01	0.000	3.719E 01	-1.576E 03	-6.922E 02	-8.837E 02	5.525E 03	1.070E 00	1.652E-04	0.000	0.000
8.304E 01	1.800E-01	0.000	4.054E 01	-1.578E 03	-6.943E 02	-8.340E 02	5.430E 03	1.168E 00	1.802E-04	0.000	0.000
8.585E 01	2.250E-01	0.000	4.906E 01	-1.580E 03	-6.958E 02	-8.340E 02	5.684E 03	1.459E 00	2.282E-04	0.000	0.000
8.871E 01	2.950E-01	0.000	5.533E 01	-1.583E 03	-6.985E 02	-8.340E 02	5.707E 03	1.914E 00	2.953E-04	0.000	0.000
8.871E 01	2.951E-01	0.000	5.533E 01	-1.583E 03	-6.985E 02	-8.340E 02	5.707E 03	1.915E 00	2.954E-04	0.000	0.000

X	DDRAG	CDRAG	CF	MC
4.040E 01	8.401E 01	8.401E 01	2.265E-03	5.447E-02
4.041E 01	1.666E-01	8.417E 01	2.707E-03	5.262E-02
4.075E 01	5.724E 00	8.990E 01	2.410E-03	3.876E-02
4.124E 01	7.823E 00	9.772E 01	2.389E-03	2.974E-02
4.150E 01	4.204E 00	1.019E 02	2.425E-03	3.665E-02
4.246E 01	1.543E 01	1.174E 02	2.574E-03	2.024E-02
4.272E 01	4.555E 00	1.219E 02	3.021E-03	1.984E-02
4.273E 01	1.720E-01	1.221E 02	2.698E-03	2.121E-02
4.280E 01	1.070E 00	1.232E 02	2.647E-03	2.157E-02
4.431E 01	2.322E 01	1.464E 02	2.666E-03	2.910E-02
4.480E 01	7.015E 00	1.534E 02	2.685E-03	3.127E-02
4.552E 01	1.010E 01	1.635E 02	2.707E-03	3.265E-02
4.623E 01	9.899E 00	1.734E 02	2.707E-03	3.265E-02
4.626E 01	3.823E-01	1.738E 02	2.707E-03	3.265E-02
4.731E 01	1.383E 01	1.876E 02	2.690E-03	2.897E-02
4.811E 01	9.801E 00	1.974E 02	2.656E-03	2.350E-02
4.876E 01	7.216E 00	2.046E 02	2.614E-03	2.497E-02
5.021E 01	1.407E 01	2.187E 02	2.644E-03	1.847E-02
5.074E 01	4.498E 00	2.232E 02	2.516E-03	1.670E-02
5.215E 01	1.042E 01	2.336E 02	2.441E-03	1.516E-02
5.425E 01	1.320E 01	2.468E 02	2.437E-03	8.303E-03
5.475E 01	2.820E 00	2.496E 02	2.378E-03	8.740E-03
5.550E 01	3.988E 00	2.536E 02	2.370E-03	7.202E-03
5.576E 01	1.356E 00	2.550E 02	2.374E-03	6.725E-03
5.626E 01	1.194E 00	2.562E 02	2.332E-03	4.868E-03
5.768E 01	3.274E 00	2.594E 02	2.477E-03	8.044E-03
5.774E 01	2.007E-01	2.596E 02	2.309E-03	7.505E-03
5.788E 01	4.858E-01	2.601E 02	2.284E-03	7.745E-03
5.796E 01	2.780E-01	2.604E 02	2.316E-03	8.899E-03
5.824E 01	9.757E-01	2.614E 02	2.357E-03	9.310E-03
5.846E 01	8.043E-01	2.622E 02	2.411E-03	8.450E-03
5.919E 01	2.584E 00	2.648E 02	2.288E-03	6.143E-03
6.021E 01	3.505E 00	2.683E 02	2.251E-03	7.783E-03
6.222E 01	6.979E 00	2.752E 02	2.240E-03	5.153E-03
6.364E 01	5.134E 00	2.804E 02	2.241E-03	5.674E-03
6.610E 01	8.818E 00	2.892E 02	2.290E-03	5.575E-03
6.648E 01	1.323E 00	2.905E 02	2.481E-03	5.222E-03
6.652E 01	1.140E-01	2.906E 02	2.301E-03	5.279E-03
6.672E 01	4.425E-01	2.911E 02	2.298E-03	5.234E-03
6.838E 01	3.512E 00	2.946E 02	2.259E-03	4.600E-03
6.905E 01	1.299E 00	2.959E 02	2.274E-03	4.971E-03
6.982E 01	1.489E 00	2.974E 02	2.245E-03	4.473E-03
7.054E 01	1.240E 00	2.986E 02	2.208E-03	3.879E-03
7.115E 01	9.540E-01	2.996E 02	2.193E-03	3.655E-03
7.253E 01	2.021E 00	3.016E 02	2.172E-03	3.343E-03
7.406E 01	2.069E 00	3.037E 02	2.141E-03	3.061E-03
7.421E 01	1.787E-01	3.038E 02	2.124E-03	2.843E-03
7.496E 01	7.116E-01	3.045E 02	2.032E-03	1.866E-03
7.496E 01	1.113E-03	3.045E 02	2.032E-03	1.861E-03
7.629E 01	4.297E-01	3.050E 02	2.110E-03	2.760E-03
7.914E 01	6.709E-01	3.056E 02	1.910E-03	1.105E-03
8.304E 01	4.484E-01	3.061E 02	1.909E-03	1.170E-03
8.585E 01	2.593E-01	3.064E 02	1.933E-03	1.376E-03
8.871E 01	1.279E-01	3.065E 02	1.965E-03	1.678E-03
8.871E 01	0.000	3.065E 02	1.965E-03	1.679E-03

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	=267.	(LBF)
MEASURED THRUST	=224.	(LBF)
CALCULATED SPECIFIC IMPULSE	=1908.	(LBF-SEC/LBM)
MEASURED SPECIFIC IMPULSE	=1604.	(LBF-SEC/LBM)
CALCULATED THRUST COEFFICIENT	=.1843	
MEASURED THRUST COEFFICIENT	=.1550	

REGENERATIVE-COOLED ENGINE PERFORMANCE CALCULATED

STREAM THRUST	2760.	(LBF)
NET THRUST	=143.	(LBF)
SPECIFIC IMPULSE	=1023.	(LBF-SEC/LBM)
THRUST COEFFICIENT	=.0988	

MOMENTUM AND FORCES

INLET FRICTION DRAG	84.0	(LBF)
INLET MOMENTUM CHANGE	=397.9	(LBF)
COMBUSTOR FRICTION DRAG	206.5	(LBF)
COMBUSTOR STRUT DRAG	15.76	(LBF)
COMBUSTOR MOMENTUM CHANGE	=89.	(LBF)
NOZZLE FRICTION DRAG	15.97	(LBF)
NOZZLE STRUT DRAG	0.00	(LBF)
NOZZLE MOMENTUM CHANGE	220.	(LBF)
NOZZLE PRESSURE INTEGRAL	236.	(LBF)
EXTERNAL FRICTION DRAG	0.00	(LBF)
EXTERNAL PRESSURE INTEGRAL	0.	(LBF)
TOTAL EXTERNAL DRAG	=720.	(LBF)
TOTAL STRUT DRAG	15.76	(LBF)
CAVITY FORCE	=528.	(LBF)
CALCULATED LOAD CELL FORCE	=1519.	(LBF)
MEASURED LOAD CELL FORCE	=1476.	(LBF)
FUEL VACUUM SPECIFIC IMPULSE 0.0. 0.0.		

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	1.7369	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	36.621	(IN)
NOZZLE SHROUD TRAILING EDGE	74.961	(IN)
NOZZLE PLUG TRAILING EDGE	88.713	(IN)
STRUT LEADING EDGE	57.477	(IN)
STRUT TRAILING EDGE	66.477	(IN)
COMBUSTOR EXIT	66.477	(IN)

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.9886	
ADDITIVE DRAG COEFFICIENT	0.0000	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.1012	
DELTA PT2	0.0892	(PSI)
TOTAL PRESSURE RECOVERY = SUPERSONIC	0.3269	
TOTAL PRESSURE RECOVERY = SUBSONIC	0.1025	
INLET PROCESS EFFICIENCY = SUPERSONIC	0.9029	
INLET PROCESS EFFICIENCY = SUBSONIC	0.9125	
KINETIC ENERGY EFFICIENCY = SUPERSONIC	0.9362	
KINETIC ENERGY EFFICIENCY = SUBSONIC	0.8863	
ENTHALPY AT P0 = SUPERSONIC	=30.44	(BTU/LBM)
ENTHALPY AT P0 = SUBSONIC	8.33	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0094	
EQUIVALENCE RATIO	0.301	
COMBUSTOR EFFICIENCY	0.911	
TOTAL PRESSURE RATIO	0.1376	
COMBUSTOR EFFECTIVENESS	0.1638	
INJECTOR DISCHARGE COEFFICIENTS 0.9194. 0.6339.		

NOZZLE

VACUUM STREAM THRUST COEFFICIENT = CS	0.9946	
NOZZLE COEFFICIENT = CT	0.9578	
PROCESS EFFICIENCY	0.9653	
KINETIC ENERGY EFFICIENCY	0.9888	

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	A
1B	42.722	B
1C	44.300	
2A	50.197	
2C	44.250	
3A	55.887	
3B	57.672	
4	46.222	

Reading 88

t = 261.60 sec.

Combustor pressure distributions indicate the injected fuel did not ignite.

2/12/75

READING # 0086 BLOCK # 159 TIME = 261.601 MACH 7.2 PT = 998.749 TT = 4249.8 PAGE 1

RAMJET PERFORMANCE

SUMMARY REPORT

	P	T	M		GAMMA	WDOT	SONV	MACH	VEL	S	F/A	A	A/AC	MOMTM	G	TVAC	PHI	ETAB
WIND TUNNEL		1	0	6														
0.000	998.749	3250	746.8	(870)	1.2857	28.903	2681											
0.000	0.154	318	-52.8	(76)	1.3970	28.901	874	7.238	6325	1.832	0.05719	14.469	0.9878	2883	5.621	199.3		
SPIKE TIP NS		2	0	6														
0.600	11.375	3249	746.8	(869)	1.2848	28.901	2680											
0.600	10.526	3194	729.6	(853)	1.2866	28.901	2659	0.349	928	2.140	0.05719	14.469	0.9878	3080	0.824	212.9		
WIND TUNNEL		3	0	0														
0.000	998.749	3250	746.8	(870)	1.2857	28.903	2681											
0.000	0.172	328	-50.3	(79)	1.3973	28.901	888	7.111	6315	1.832	0.06187	15.653	0.9878	3116	6.072	199.1		
SPIKE TIP NS		4	0	0														
0.600	11.375	3249	746.8	(869)	1.2848	28.901	2680											
0.600	10.362	3183	726.1	(850)	1.2870	28.901	2654	0.383	1016	2.140	0.06187	15.653	0.9878	3116	0.977	199.1		
INLET THROAT		5	0	3														
40.400	336.673	3143	713.9	(838)	1.2889	28.902	2640											
40.400	10.119	1336	199.2	(328)	1.3580	28.901	1767	2.873	5075	1.897	0.71889	14.469	0.0786	2486	56.696	171.8		
INLET UPNRSK		6	0	3														
40.400	336.673	3143	713.9	(838)	1.2889	28.902	2640											
40.400	8.737	1285	186.0	(315)	1.3612	28.901	1735	2.963	5140	1.897	0.65354	14.469	0.0864	2505	52.200	173.1		
INLET DNNRSK		7	0	4														
40.400	101.610	3143	713.9	(838)	1.2888	28.902	2640											
40.400	88.754	3049	685.1	(810)	1.2917	28.902	2603	0.461	1200	1.979	0.65354	14.469	0.0864	2505	18.191	173.1		
COMBUSTOR	0	8	1	21														
40.410	241.616	3076	721.7	(881)	1.2928	26.760	2718											
40.410	10.493	1428	217.0	(380)	1.3546	26.759	1896	2.651	5026	2.039	0.72331	14.560	0.0786	2485	56.492	170.7	0.20	0.07
COMBUSTOR	0	9	2	3														
40.745	249.759	3030	719.6	(866)	1.2949	26.717	2702											
40.745	12.406	1453	236.6	(388)	1.3537	26.717	1913	2.570	4916	2.033	0.72599	14.560	0.0783	2473	55.464	169.9	0.20	0.04
COMBUSTOR	0	10	3	21														
41.235	225.603	2989	716.3	(854)	1.2967	26.683	2687											
41.235	8.578	1332	212.4	(354)	1.3608	26.683	1838	2.733	5022	2.036	0.72022	14.560	0.0789	2446	56.205	168.0	0.20	0.01
COMBUSTOR	0	11	4	21														
41.500	208.879	2979	714.5	(851)	1.2971	26.678	2683											
41.500	9.097	1375	226.0	(366)	1.3584	26.678	1866	2.650	4944	2.001	0.71332	14.560	0.0797	2423	54.808	166.4	0.20	0.00
COMBUSTOR	0	12	5	21														
42.460	129.618	2956	707.6	(840)	1.2978	26.678	2674											
42.460	4.883	1312	208.5	(348)	1.3620	26.677	1825	2.739	4997	2.074	0.67221	14.560	0.0846	2367	52.205	162.6	0.20	0.00
COMBUSTOR	0	13	6	21														
42.720	95.113	2904	714.7	(885)	1.3011	24.861	2749											
42.720	5.154	1410	229.2	(403)	1.3581	24.861	1957	2.519	4929	2.213	0.66824	14.651	0.0856	2357	51.184	160.9	0.41	0.04
COMBUSTOR	0	14	7	21														
42.730	104.199	2843	714.6	(865)	1.3039	24.801	2726											
42.730	5.165	1342	229.4	(383)	1.3624	24.801	1914	2.574	4927	2.199	0.66761	14.651	0.0857	2357	51.120	160.9	0.41	0.01
COMBUSTOR	0	15	8	21														
42.795	105.534	2832	714.1	(862)	1.3044	24.792	2722											
42.795	5.233	1336	230.8	(381)	1.3628	24.792	1911	2.574	4918	2.197	0.66597	14.651	0.0859	2355	50.900	160.7	0.41	0.00
COMBUSTOR	0	16	9	21														
44.310	118.471	2803	704.6	(852)	1.3054	24.790	2709											
44.310	9.970	1518	286.6	(437)	1.3531	24.790	2030	2.253	4573	2.184	0.61585	14.651	0.0929	2320	43.771	158.3	0.41	0.00
COMBUSTOR	0	17	10	21														
44.800	119.123	2799	702.1	(850)	1.3056	24.790	2706											
44.800	11.502	1569	302.3	(452)	1.3505	24.790	2061	2.170	4473	2.183	0.60821	14.651	0.0940	2314	42.279	157.9	0.41	0.00
COMBUSTOR	0	18	11	21														
45.515	114.048	2831	698.6	(861)	1.3038	24.835	2718											
45.515	12.767	1654	313.2	(478)	1.3459	24.835	2111	2.080	4392	2.190	0.60370	14.651	0.0948	2310	41.201	157.6	0.41	0.02

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	A/A	W	A/AC	MOMTM	Q	TVAC	PHT	ETAC
COMBUSTOR	0	19	12 21														
46.230	118.333	2782	695.1(845)	1.3059	24.797	2699											
46.230	11.662	1569	300.0(452)	1.3504	24.797	2061	2.157	4447	2.181	0.58685	14.651	0.0975	2316	40.554	158.1	0.41	0.00
COMBUSTOR	0	20	13 21														
46.260	119.049	2774	695.0(843)	1.3062	24.791	2696											
46.260	11.616	1561	299.5(450)	1.3509	24.791	2056	2.163	4449	2.180	0.58543	14.651	0.0977	2317	40.476	158.1	0.41	0.00
COMBUSTOR	0	21	14 21														
47.310	116.918	2760	689.9(838)	1.3068	24.790	2689											
47.310	9.993	1498	280.5(431)	1.3541	24.790	2017	2.244	4526	2.180	0.54277	14.651	0.1054	2331	38.177	159.1	0.41	0.00
COMBUSTOR	0	22	15 21														
48.110	110.731	2748	686.1(834)	1.3071	24.790	2684											
48.110	7.073	1381	245.0(395)	1.3603	24.790	1941	2.420	4698	2.183	0.49879	14.651	0.1147	2347	36.418	160.2	0.41	0.00
COMBUSTOR	0	23	16 21														
48.755	103.408	2793	683.0(848)	1.3049	24.843	2701											
48.755	7.275	1444	246.0(413)	1.3564	24.842	1980	2.361	4676	2.193	0.45293	14.651	0.1263	2365	32.912	161.4	0.41	0.03
COMBUSTOR	0	24	17 21														
50.205	104.870	2729	676.9(827)	1.3076	24.798	2675											
50.205	5.816	1320	223.9(376)	1.3636	24.798	1900	2.506	4761	2.185	0.36808	14.651	0.1554	2400	27.238	163.8	0.41	0.00
COMBUSTOR	0	25	18 21														
50.735	104.269	2717	675.1(824)	1.3081	24.791	2670											
50.735	5.283	1282	214.7(365)	1.3658	24.791	1874	2.561	4800	2.184	0.34424	14.651	0.1662	2411	25.678	164.5	0.41	0.00
COMBUSTOR	0	26	19 21														
52.145	100.186	2704	670.9(819)	1.3086	24.790	2664											
52.145	4.050	1200	190.5(341)	1.3709	24.790	1816	2.700	4903	2.185	0.29339	14.651	0.1950	2435	22.353	166.2	0.41	0.00
COMBUSTOR	0	27	20 21														
54.245	79.907	2678	663.1(814)	1.3094	24.685	2657											
54.245	1.950	1034	140.6(293)	1.3797	24.685	1695	3.017	5113	2.208	0.24124	14.698	0.2379	2455	19.170	167.0	0.42	0.00
COMBUSTOR	0	28	21 21														
54.745	84.603	2670	662.0(811)	1.3097	24.681	2654											
54.745	2.333	1069	151.4(302)	1.3780	24.681	1720	2.940	5055	2.202	0.23138	14.698	0.2480	2457	18.177	167.2	0.42	0.00
COMBUSTOR	0	29	22 21														
55.495	77.898	2665	660.5(809)	1.3099	24.680	2652											
55.495	1.795	1012	135.9(287)	1.3809	24.680	1678	3.054	5123	2.208	0.21811	14.698	0.2631	2462	17.367	167.5	0.42	0.00
COMBUSTOR	0	30	23 21														
55.760	74.625	2663	659.9(809)	1.3100	24.680	2651											
55.760	1.605	992	130.1(281)	1.3819	24.679	1662	3.099	5149	2.211	0.21381	14.698	0.2684	2463	17.108	167.5	0.42	0.00
COMBUSTOR	0	31	24 21														
56.255	42.570	2802	659.0(853)	1.3035	24.817	2705											
56.255	1.047	1095	113.3(310)	1.3752	24.817	1737	3.008	5225	2.271	0.16874	14.698	0.3401	2478	13.703	168.6	0.42	0.07
COMBUSTOR	0	32	25 4														
57.680	63.368	2714	656.7(825)	1.3075	24.738	2671											
57.680	2.294	1171	162.5(333)	1.3716	24.738	1796	2.768	4972	2.230	0.15596	14.698	0.3679	2488	12.092	169.3	0.42	0.03
COMBUSTOR	0	33	26 21														
57.735	70.211	2662	656.6(808)	1.3099	24.689	2650											
57.735	1.967	1066	149.0(303)	1.3779	24.688	1720	2.930	5040	2.216	0.15555	14.698	0.3689	2488	12.183	169.3	0.42	0.00
COMBUSTOR	0	34	27 21														
57.875	71.467	2654	656.4(806)	1.3103	24.681	2647											
57.875	2.018	1065	151.0(302)	1.3780	24.681	1719	2.925	5028	2.214	0.15443	14.698	0.3716	2489	12.068	169.4	0.42	0.00
COMBUSTOR	0	35	28 5														
57.955	57.159	2777	656.2(845)	1.3046	24.801	2695											
57.955	2.495	1266	169.3(361)	1.3657	24.801	1862	2.651	4936	2.205	0.15613	14.698	0.3675	2490	11.977	169.4	0.42	0.06
COMBUSTOR	0	36	29 4														
58.235	51.601	2844	655.8(867)	1.3014	24.868	2720											
58.235	2.700	1367	176.7(390)	1.3594	24.868	1928	2.540	4896	2.259	0.15562	14.698	0.3688	2492	11.841	169.5	0.42	0.10
COMBUSTOR	0	37	30 4														
58.461	49.087	2763	655.4(841)	1.3052	24.789	2689											
58.461	2.415	1236	164.4(352)	1.3675	24.789	1841	2.692	4957	2.240	0.15532	14.698	0.3695	2493	11.965	169.6	0.42	0.06

	P	T	H		GAMMA	MOLWT	SONV	MACH	VEL	S	F/A	A	A/AC	MOMTM	G	IVAC	PHI	ETAC
COMBUSTOR	0	38	31	21														
59.185	69.054	2660	654.3(	809)	1.3097	24.696	2450											
59.185	1.500	998	125.5(	242)	1.3814	24.696	1464	3.092	5144	2.218	0.15291	14.698	0.3753	2498	12.224	169.7	0.42	0.01
COMBUSTOR	0	39	32	2														
60.205	69.727	2667	652.9(	810)	1.3095	24.704	2451											
60.205	2.050	1083	148.8(	307)	1.3768	24.703	1733	2.899	5023	2.217	0.15194	14.698	0.3777	2493	11.880	169.6	0.42	0.01
COMBUSTOR	0	40	33	21														
62.215	65.741	2643	650.6(	806)	1.3107	24.683	2440											
62.215	1.075	918	107.4(	259)	1.3857	24.683	1600	3.258	5214	2.221	0.15723	14.698	0.3650	2482	12.740	168.9	0.42	0.00
COMBUSTOR	0	41	34	21														
63.635	69.476	2633	649.3(	799)	1.3110	24.680	2637											
63.635	1.456	971	124.0(	275)	1.3830	24.680	1648	3.116	5127	2.213	0.16149	14.698	0.3553	2475	12.866	168.4	0.42	0.00
COMBUSTOR	0	42	35	21														
66.099	61.854	2625	646.8(	796)	1.3112	24.680	2633											
66.099	1.341	977	125.9(	277)	1.3827	24.680	1650	3.095	5106	2.222	0.15307	14.698	0.3789	2461	12.146	167.5	0.42	0.00
COMBUSTOR	0	43	36	21														
66.475	57.512	2624	646.5(	796)	1.3113	24.680	2633											
66.475	1.287	989	128.3(	279)	1.3822	24.679	1656	3.074	5092	2.227	0.14231	14.698	0.4032	2459	11.262	167.3	0.42	0.00
COMBUSTOR	REGEN	44	37	4														
66.475	57.512	2865	729.2(	877)	1.3035	24.680	2743											
66.475	2.214	1265	210.9(	362)	1.3669	24.680	1966	2.728	5092	2.257	0.14231	14.698	0.4032	2559	11.262	173.8	0.42	0.00
NOZZLE AE		45	38	3														
88.711	57.512	2624	646.5(	796)	1.3113	24.680	2633											
88.711	0.189	574	10.4(	161)	1.3988	24.680	1271	0.437	5642	2.227	0.02962	14.698	1.9372	2671	2.597	181.7	0.42	0.00
NOZZLE PO		46	39	3														
88.711	57.512	2624	646.5(	796)	1.3113	24.680	2633											
88.711	0.154	541	1.2(	152)	1.3994	24.680	1235	0.401	5642	2.227	0.02577	14.698	2.2270	2683	2.275	182.6	0.42	0.00
NOZZLE AE REGEN		47	40	4														
88.711	57.512	2865	729.2(	877)	1.3035	24.680	2743											
88.711	0.206	658	33.1(	184)	1.3966	24.680	1356	0.351	5902	2.257	0.02962	14.698	1.9371	2798	2.717	190.4	0.42	0.00
NOZZLE PO REGEN		48	41	4														
88.711	57.512	2865	729.2(	877)	1.3035	24.680	2743											
88.711	0.154	602	18.5(	169)	1.3961	24.680	1302	0.380	5964	2.257	0.02430	14.698	2.3611	2817	2.252	191.7	0.42	0.00
FICTIVE COMBUSTR		67	60	0														
66.475	336.673	4478	646.5(1404)		1.2217	26.718	3191											
66.475	0.154	736	-609.3(	196)	1.3791	26.786	1373	5.774	7927	2.202	0.02867	14.698	2.0018	3700	3.532	251.7	0.42	1.00
FICTIVE NOZZLE		68	61	0														
88.711	138.004	2586	633.7(	783)	1.3125	24.680	2615											
88.711	0.124	390	-41.4(	109)	1.4009	24.680	1049	5.542	5812	2.152	0.02962	14.698	1.9371	2717	2.676	184.8	0.42	0.00

XABS	P=IR	P=OB	PDA	QOX	Q=IR	Q=OB	CA=ALL	P=IR/PSO	P=IR/PTO	P=OB/PSO	P=OB/PTO
6.981E-01	6.900E-01	0.000	-2.747E-01	0.000	0.000	0.000	2.470E-02	4.491E 00	8.909E-04	0.000	0.000
1.836E 01	6.900E-01	0.000	-2.296E 01	0.000	0.000	0.000	1.434E 02	4.491E 00	8.909E-04	0.000	0.000
3.070E 01	1.015E 00	0.000	-9.208E 01	0.000	0.000	0.000	5.053E 02	6.607E 00	1.016E-03	0.000	0.000
3.508E 01	1.875E 00	0.000	-1.857E 02	0.000	0.000	0.000	6.804E 02	1.221E 01	1.877E-03	0.000	0.000
3.555E 01	2.105E 00	0.000	-2.039E 02	0.000	0.000	0.000	7.013E 02	1.370E 01	2.108E-03	0.000	0.000
3.606E 01	2.065E 00	0.000	-2.250E 02	-2.365E 02	-2.365E 02	0.000	7.244E 02	1.344E 01	2.068E-03	0.000	0.000
3.648E 01	2.260E 00	0.000	-2.435E 02	-2.423E 02	-2.423E 02	0.000	7.443E 02	1.471E 01	2.263E-03	0.000	0.000
3.661E 01	2.295E 00	3.255E 00	-2.434E 02	-2.441E 02	-2.441E 02	0.000	7.504E 02	1.494E 01	2.298E-03	2.119E 01	3.260E-03
3.662E 01	2.297E 00	3.271E 00	-2.435E 02	-2.442E 02	-2.442E 02	0.000	7.508E 02	1.495E 01	2.300E-03	2.129E 01	3.275E-03
3.701E 01	2.400E 00	4.279E 00	-2.855E 02	-2.498E 02	-2.498E 02	0.000	7.914E 02	1.562E 01	2.403E-03	2.785E 01	4.284E-03
3.728E 01	2.292E 00	4.987E 00	-2.853E 02	-2.539E 02	-2.539E 02	0.000	8.203E 02	1.492E 01	2.295E-03	3.247E 01	4.994E-03
3.803E 01	2.000E 00	8.365E 00	-2.687E 02	-2.656E 02	-2.656E 02	0.000	9.005E 02	1.302E 01	2.003E-03	5.443E 01	8.376E-03
3.874E 01	6.487E 00	1.161E 01	-2.652E 02	-3.358E 02	-2.797E 02	-5.609E 01	9.801E 02	4.222E 01	6.495E-03	7.555E 01	1.162E-02
3.875E 01	6.518E 00	1.159E 01	-2.652E 02	-3.362E 02	-2.799E 02	-5.636E 01	9.807E 02	4.243E 01	6.527E-03	7.544E 01	1.160E-02
3.901E 01	8.150E 00	1.069E 01	-2.691E 02	-3.561E 02	-2.862E 02	-6.983E 01	1.010E 03	5.305E 01	8.160E-03	6.960E 01	1.071E-02
3.950E 01	1.123E 01	9.001E 00	-2.858E 02	-3.955E 02	-3.004E 02	-9.515E 01	1.066E 03	7.313E 01	1.125E-02	5.859E 01	9.013E-03
3.976E 01	1.093E 01	8.087E 00	-2.954E 02	-4.181E 02	-3.093E 02	-1.088E 02	1.097E 03	7.116E 01	1.095E-02	5.264E 01	8.098E-03
4.000E 01	1.066E 01	7.775E 00	-3.018E 02	-4.388E 02	-3.180E 02	-1.209E 02	1.124E 03	6.941E 01	1.068E-02	5.061E 01	7.785E-03
4.023E 01	1.152E 01	7.462E 00	-3.087E 02	-4.601E 02	-3.272E 02	-1.329E 02	1.151E 03	7.500E 01	1.154E-02	4.858E 01	7.472E-03
4.040E 01	1.213E 01	8.745E 00	-3.134E 02	-4.753E 02	-3.340E 02	-1.414E 02	1.171E 03	7.893E 01	1.214E-02	5.693E 01	8.756E-03
4.041E 01	1.216E 01	8.823E 00	-3.136E 02	-4.763E 02	-3.344E 02	-1.419E 02	1.172E 03	7.917E 01	1.21AE-02	5.743E 01	8.834E-03
4.074E 01	1.339E 01	1.142E 01	-3.198E 02	-5.077E 02	-3.487E 02	-1.590E 02	1.211E 03	8.715E 01	1.340E-02	7.437E 01	1.144E-02
4.123E 01	1.518E 01	1.979E 00	-3.395E 02	-5.549E 02	-3.713E 02	-1.836E 02	1.269E 03	9.881E 01	1.520E-02	1.286E 01	1.977E-03
4.150E 01	1.615E 01	2.043E 00	-3.580E 02	-5.811E 02	-3.844E 02	-1.967E 02	1.300E 03	1.051E 02	1.617E-02	1.330E 01	2.046E-03
4.246E 01	7.475E 00	2.292E 00	-3.983E 02	-6.825E 02	-4.326E 02	-2.499E 02	1.414E 03	4.866E 01	7.484E-03	1.492E 01	2.294E-03
4.272E 01	7.950E 00	2.359E 00	-4.034E 02	-7.109E 02	-4.449E 02	-2.661E 02	1.445E 03	5.175E 01	7.960E-03	1.535E 01	2.362E-03
4.273E 01	7.968E 00	2.361E 00	-4.036E 02	-7.120E 02	-4.453E 02	-2.667E 02	1.446E 03	5.187E 01	7.978E-03	1.537E 01	2.364E-03
4.279E 01	8.087E 00	2.378E 00	-4.049E 02	-7.189E 02	-4.482E 02	-2.707E 02	1.454E 03	5.264E 01	8.097E-03	1.548E 01	2.381E-03
4.431E 01	1.088E 01	9.089E 00	-4.162E 02	-8.584E 02	-4.985E 02	-3.599E 02	1.637E 03	7.066E 01	1.087E-02	5.914E 01	9.096E-03
4.480E 01	1.175E 01	1.125E 01	-4.191E 02	-8.951E 02	-5.078E 02	-3.873E 02	1.694E 03	7.649E 01	1.176E-02	7.326E 01	1.127E-02
4.551E 01	1.112E 01	1.442E 01	-4.095E 02	-9.463E 02	-5.190E 02	-4.273E 02	1.783E 03	7.236E 01	1.113E-02	9.386E 01	1.444E-02
4.623E 01	1.048E 01	1.284E 01	-3.934E 02	-9.973E 02	-5.299E 02	-4.673E 02	1.871E 03	6.823E 01	1.050E-02	8.360E 01	1.286E-02
4.626E 01	1.046E 01	1.278E 01	-3.924E 02	-9.994E 02	-5.304E 02	-4.690E 02	1.875E 03	6.806E 01	1.047E-02	8.316E 01	1.279E-02
4.731E 01	9.525E 00	1.046E 01	-3.646E 02	-1.074E 03	-5.462E 02	-5.276E 02	2.004E 03	6.200E 01	9.537E-03	6.809E 01	1.047E-02
4.811E 01	5.450E 00	8.697E 00	-3.384E 02	-1.130E 03	-5.580E 02	-5.723E 02	2.103E 03	3.548E 01	5.457E-03	5.661E 01	8.708E-03
4.875E 01	7.275E 00	7.275E 00	-3.139E 02	-1.176E 03	-5.674E 02	-6.084E 02	2.183E 03	4.736E 01	7.284E-03	4.736E 01	7.284E-03
5.020E 01	5.816E 00	5.816E 00	-2.649E 02	-1.265E 03	-5.881E 02	-6.768E 02	2.365E 03	3.786E 01	5.824E-03	3.786E 01	5.824E-03
5.073E 01	5.283E 00	5.283E 00	-2.496E 02	-1.291E 03	-5.955E 02	-6.953E 02	2.431E 03	3.439E 01	5.290E-03	3.439E 01	5.290E-03
5.214E 01	4.050E 00	4.050E 00	-2.151E 02	-1.353E 03	-6.147E 02	-7.381E 02	2.609E 03	2.636E 01	4.055E-03	2.636E 01	4.055E-03
5.424E 01	1.950E 00	1.950E 00	-1.821E 02	-1.430E 03	-6.423E 02	-7.880E 02	2.875E 03	1.269E 01	1.952E-03	1.269E 01	1.952E-03
5.474E 01	2.333E 00	2.333E 00	-1.765E 02	-1.446E 03	-6.487E 02	-7.971E 02	2.939E 03	1.519E 01	2.336E-03	1.519E 01	2.336E-03
5.549E 01	1.795E 00	1.795E 00	-1.685E 02	-1.468E 03	-6.581E 02	-8.102E 02	3.035E 03	1.169E 01	1.797E-03	1.169E 01	1.797E-03
5.576E 01	1.605E 00	1.605E 00	-1.662E 02	-1.476E 03	-6.614E 02	-8.147E 02	3.068E 03	1.045E 01	1.607E-03	1.045E 01	1.607E-03
5.625E 01	8.437E-01	1.250E 00	-1.492E 02	-1.490E 03	-6.666E 02	-8.230E 02	3.102E 03	5.492E 00	8.448E-04	8.137E 00	1.252E-03
5.768E 01	2.294E 00	2.294E 00	-1.366E 02	-1.524E 03	-6.790E 02	-8.466E 02	3.217E 03	1.042E 01	1.602E-03	1.519E 01	2.337E-03
5.773E 01	1.600E 00	2.334E 00	-1.359E 02	-1.526E 03	-6.790E 02	-8.466E 02	3.217E 03	1.042E 01	1.602E-03	1.519E 01	2.337E-03
5.787E 01	1.600E 00	2.436E 00	-1.344E 02	-1.529E 03	-6.801E 02	-8.488E 02	3.234E 03	1.042E 01	1.602E-03	1.586E 01	2.439E-03
5.795E 01	2.495E 00	2.495E 00	-1.334E 02	-1.531E 03	-6.807E 02	-8.500E 02	3.245E 03	1.624E 01	2.498E-03	1.624E 01	2.498E-03
5.823E 01	2.700E 00	2.700E 00	-1.300E 02	-1.537E 03	-6.829E 02	-8.542E 02	3.280E 03	1.758E 01	2.703E-03	1.758E 01	2.703E-03
5.846E 01	2.415E 00	2.415E 00	-1.275E 02	-1.542E 03	-6.847E 02	-8.577E 02	3.309E 03	1.572E 01	2.418E-03	1.572E 01	2.418E-03
5.918E 01	1.500E 00	1.500E 00	-1.222E 02	-1.559E 03	-6.901E 02	-8.685E 02	3.402E 03	9.764E 00	1.502E-03	9.764E 00	1.502E-03
6.020E 01	2.050E 00	2.050E 00	-1.181E 02	-1.580E 03	-6.974E 02	-8.823E 02	3.532E 03	1.334E 01	2.053E-03	1.334E 01	2.053E-03
6.221E 01	1.075E 00	1.075E 00	-1.177E 02	-1.613E 03	-7.102E 02	-9.027E 02	3.790E 03	6.998E 00	1.076E-03	6.998E 00	1.076E-03
6.363E 01	1.496E 00	1.456E 00	-1.177E 02	-1.633E 03	-7.179E 02	-9.149E 02	3.972E 03	9.479E 00	1.458E-03	9.479E 00	1.458E-03
6.610E 01	1.341E 00	1.341E 00	-1.177E 02	-1.669E 03	-7.285E 02	-9.401E 02	4.289E 03	8.731E 00	1.343E-03	8.731E 00	1.343E-03
6.647E 01	1.250E 00	1.324E 00	-1.177E 02	-1.674E 03	-7.299E 02	-9.441E 02	4.337E 03	8.137E 00	1.252E-03	8.616E 00	1.325E-03

READING = 0088 BLOCK = 159 TIME = 261.401 MACH 7.2 P1 = 998.739 T1 = 3249.4

XARS	P=1B	P=0B	PDA	QQX	G=1B	G=0B	CAMALL	P=1B/PS0	P=1B/PT0	P=0B/PS0	P=0B/PT0
6.651E 01	1.250E 00	1.322E 00	-1.177E 02	-1.675E 03	-7.300E 02	-9.449E 02	9.342E 03	8.137E 00	1.252E-03	8.604E 00	1.323E-03
6.671E 01	1.397E 00	1.312E 00	-1.177E 02	-1.677E 03	-7.307E 02	-9.444E 02	4.368E 03	9.096E 00	1.399E-03	8.544E 00	1.314E-03
6.837E 01	2.420E 00	1.550E 00	-9.932E 01	-1.696E 03	-7.363E 02	-9.594E 02	4.544E 03	1.705E 01	2.423E-03	1.009E 01	1.552E-03
6.904E 01	1.803E 00	1.665E 00	-6.061E 01	-1.702E 03	-7.386E 02	-9.639E 02	4.665E 03	1.174E 01	1.806E-03	1.084E 01	1.667E-03
6.981E 01	8.650E-01	1.306E 00	-2.164E 01	-1.711E 03	-7.414E 02	-9.696E 02	4.760E 03	5.631E 00	8.661E-04	8.500E 00	1.307E-03
7.053E 01	8.623E-01	9.700E-01	4.059E 00	-1.720E 03	-7.440E 02	-9.759E 02	4.848E 03	5.613E 00	8.634E-04	6.314E 00	9.712E-04
7.114E 01	8.600E-01	9.466E-01	2.387E 01	-1.726E 03	-7.463E 02	-9.813E 02	4.922E 03	5.598E 00	8.611E-04	6.162E 00	9.478E-04
7.252E 01	7.100E-01	8.937E-01	6.306E 01	-1.743E 03	-7.515E 02	-9.912E 02	5.088E 03	4.622E 00	7.109E-04	5.817E 00	8.948E-04
7.405E 01	4.641E-01	8.350E-01	9.700E 01	-1.757E 03	-7.565E 02	-1.001E 03	5.273E 03	3.021E 00	4.647E-04	5.435E 00	8.360E-04
7.420E 01	4.400E-01	7.267E-01	9.958E 01	-1.759E 03	-7.569E 02	-1.002E 03	5.290E 03	2.864E 00	4.404E-04	4.730E 00	7.276E-04
7.495E 01	4.851E-01	1.850E-01	1.151E 02	-1.767E 03	-7.588E 02	-1.008E 03	5.374E 03	3.158E 00	4.857E-04	1.204E 00	1.852E-04
7.496E 01	4.853E-01	1.821E-01	1.155E 02	-1.767E 03	-7.588E 02	-1.008E 03	5.375E 03	3.159E 00	4.859E-04	1.185E 00	1.823E-04
7.628E 01	5.650E-01	0.000	1.264E 02	-1.783E 03	-7.616E 02	-1.022E 03	5.426E 03	3.678E 00	5.657E-04	0.000	0.000
7.913E 01	1.450E-01	0.000	1.404E 02	-1.798E 03	-7.657E 02	-1.022E 03	5.525E 03	9.439E-01	1.452E-04	0.000	0.000
8.303E 01	1.750E-01	0.000	1.474E 02	-1.857E 03	-7.884E 02	-1.048E 03	5.630E 03	1.139E 00	1.752E-04	0.000	0.000
8.584E 01	2.450E-01	0.000	1.523E 02	-1.859E 03	-7.704E 02	-1.048E 03	5.684E 03	1.595E 00	2.453E-04	0.000	0.000
8.870E 01	2.950E-01	0.000	1.588E 02	-1.862E 03	-7.736E 02	-1.048E 03	5.707E 03	1.920E 00	2.954E-04	0.000	0.000
8.871E 01	2.951E-01	0.000	1.588E 02	-1.862E 03	-7.736E 02	-1.048E 03	5.707E 03	1.921E 00	2.955E-04	0.000	0.000

X	DDRAG	CDRAG	CF	MC
4.040E 01	4.063E 01	4.465E 01	2.259E-03	5.586E-02
4.041E 01	1.68ME-01	4.480E 01	2.831E-03	5.284E-02
4.074E 01	5.811E 00	9.061E 01	2.464E-03	4.045E-02
4.123E 01	7.914E 00	9.853E 01	2.454E-03	3.983E-02
4.150E 01	4.276E 00	1.028E 02	2.467E-03	3.207E-02
4.246E 01	1.556E 01	1.184E 02	2.628E-03	1.946E-02
4.272E 01	4.701E 00	1.231E 02	3.240E-03	1.894E-02
4.273E 01	1.830E-01	1.232E 02	2.811E-03	2.078E-02
4.279E 01	1.103E 00	1.243E 02	2.738E-03	2.127E-02
4.431E 01	2.353E 01	1.479E 02	2.706E-03	3.328E-02
4.480E 01	6.937E 00	1.548E 02	2.714E-03	3.662E-02
4.551E 01	9.907E 00	1.647E 02	2.724E-03	3.927E-02
4.623E 01	9.786E 00	1.745E 02	2.742E-03	3.643E-02
4.626E 01	4.05AE-01	1.749E 02	2.705E-03	3.666E-02
4.731E 01	1.365E 01	1.886E 02	2.656E-03	3.272E-02
4.811E 01	9.724E 00	1.983E 02	2.604E-03	2.532E-02
4.875E 01	7.186E 00	2.055E 02	2.563E-03	2.542E-02
5.020E 01	1.389E 01	2.194E 02	2.535E-03	2.062E-02
5.073E 01	4.38ME 00	2.237E 02	2.455E-03	1.927E-02
5.214E 01	1.029E 01	2.340E 02	2.373E-03	1.552E-02
5.424E 01	1.309E 01	2.471E 02	2.362E-03	8.664E-03
5.474E 01	2.774E 00	2.499E 02	2.300E-03	9.931E-03
5.549E 01	3.901E 00	2.538E 02	2.282E-03	8.096E-03
5.576E 01	1.334E 00	2.551E 02	2.281E-03	7.417E-03
5.625E 01	1.163E 00	2.563E 02	2.243E-03	5.110E-03
5.768E 01	3.217E 00	2.595E 02	2.197E-03	6.624E-03
5.773E 01	1.998E-01	2.597E 02	2.283E-03	7.904E-03
5.787E 01	4.848E-01	2.602E 02	2.216E-03	8.182E-03
5.795E 01	2.733E-01	2.605E 02	2.227E-03	9.551E-03
5.823E 01	9.784E-01	2.615E 02	2.379E-03	9.710E-03
5.846E 01	8.261E-01	2.623E 02	2.434E-03	8.795E-03
5.918E 01	2.655E 00	2.649E 02	2.306E-03	6.324E-03
6.020E 01	3.537E 00	2.685E 02	2.188E-03	8.179E-03
6.221E 01	6.941E 00	2.754E 02	2.188E-03	9.054E-03
6.363E 01	5.063E 00	2.805E 02	2.153E-03	6.391E-03
6.610E 01	8.589E 00	2.891E 02	2.192E-03	5.963E-03
6.647E 01	1.246E 00	2.903E 02	2.222E-03	5.746E-03
6.651E 01	1.111E-01	2.904E 02	2.179E-03	5.622E-03
6.671E 01	4.777E-01	2.909E 02	2.187E-03	5.842E-03
6.837E 01	4.709E 00	2.956E 02	2.255E-03	8.002E-03
6.904E 01	1.913E 00	2.975E 02	2.219E-03	6.975E-03
6.981E 01	1.811E 00	2.993E 02	2.133E-03	4.917E-03
7.053E 01	1.352E 00	3.007E 02	2.101E-03	4.325E-03
7.114E 01	1.068E 00	3.018E 02	2.094E-03	4.275E-03
7.252E 01	2.292E 00	3.040E 02	2.071E-03	3.900E-03
7.405E 01	2.268E 00	3.063E 02	2.031E-03	3.322E-03
7.420E 01	1.899E-01	3.065E 02	2.013E-03	3.064E-03
7.495E 01	7.498E-01	3.073E 02	1.924E-03	2.019E-03
7.496E 01	1.165E-03	3.073E 02	1.924E-03	2.014E-03
7.628E 01	4.530E-01	3.077E 02	2.001E-03	2.980E-03
7.913E 01	6.847E-01	3.084E 02	1.789E-03	1.066E-03
8.303E 01	4.398E-01	3.086E 02	1.802E-03	1.221E-03
8.584E 01	2.756E-01	3.091E 02	1.841E-03	1.563E-03
8.870E 01	1.369E-01	3.092E 02	1.860E-03	1.787E-03
8.871E 01	0.000	3.092E 02	1.860E-03	1.788E-03

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	=167.	(LBF)
MEASURED THRUST	=200.	(LBF)
CALCULATED SPECIFIC IMPULSE	=884.	(LBF-SEC/LBM)
MEASURED SPECIFIC IMPULSE	=1061.	(LBF-SEC/LBM)
CALCULATED THRUST COEFFICIENT	=.1160	
MEASURED THRUST COEFFICIENT	=.1391	

REGENERATIVE-COOLED ENGINE PERFORMANCE

CALCULATED

STREAM THRUST	2846.	(LBF)
NET THRUST	=38.	(LBF)
SPECIFIC IMPULSE	=199.	(LBF-SEC/LBM)
THRUST COEFFICIENT	=.0261	

MOMENTUM AND FORCES

INLET FRICTION DRAG	84.6	(LBF)
INLET MOMENTUM CHANGE	=398.0	(LBF)
COMBUSTOR FRICTION DRAG	205.7	(LBF)
COMBUSTOR STRUT DRAG	16.56	(LBF)
COMBUSTOR MOMENTUM CHANGE	=27.	(LBF)
NOZZLE FRICTION DRAG	18.93	(LBF)
NOZZLE STRUT DRAG	0.00	(LBF)
NOZZLE MOMENTUM CHANGE	258.	(LBF)
NOZZLE PRESSURE INTEGRAL	277.	(LBF)
EXTERNAL FRICTION DRAG	0.00	(LBF)
EXTERNAL PRESSURE INTEGRAL	0.	(LBF)
TOTAL EXTERNAL DRAG	=720.	(LBF)
TOTAL STRUT DRAG	16.56	(LBF)
CAVITY FORCE	=580.	(LBF)
CALCULATED LOAD CELL FORCE	=1467.	(LBF)
MEASURED LOAD CELL FORCE	=1500.	(LBF)
FUEL VACUUM SPECIFIC IMPULSE 0.0. 0.0.		

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	1.7349	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	36.619	(IN)
NOZZLE SHROUD TRAILING EDGE	70.959	(IN)
NOZZLE PLUG TRAILING EDGE	88.711	(IN)
STRUT LEADING EDGE	57.875	(IN)
STRUT TRAILING EDGE	66.475	(IN)
COMBUSTOR EXIT	66.475	(IN)

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.9878	
ADDITIVE DRAG COEFFICIENT	0.0000	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.1004	
DELTA PT2	0.0875	(PSI)
TOTAL PRESSURE RECOVERY - SUPERSONIC	0.3371	
TOTAL PRESSURE RECOVERY - SUBSONIC	0.1017	
INLET PROCESS EFFICIENCY - SUPERSONIC	0.9068	
INLET PROCESS EFFICIENCY - SUBSONIC	0.9129	
KINETIC ENERGY EFFICIENCY - SUPERSONIC	0.9295	
KINETIC ENERGY EFFICIENCY - SUBSONIC	0.6786	
ENTHALPY AT P0 - SUPERSONIC	=29.32	(BTU/LBM)
ENTHALPY AT P0 - SUBSONIC	11.44	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0130	
EQUIVALENCE RATIO	0.418	
COMBUSTOR EFFICIENCY	0.000	
TOTAL PRESSURE RATIO	0.1708	
COMBUSTOR EFFECTIVENESS	0.1579	
INJECTOR DISCHARGE COEFFICIENTS 0.9305. 0.6781.		

NOZZLE

VACUUM STREAM THRUST COEFFICIENT - CS	1.0172	
NOZZLE COEFFICIENT - CT	0.9840	
PROCESS EFFICIENCY	1.2477	
KINETIC ENERGY EFFICIENCY	1.0319	

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	A
1B	42.720	B
1C	44.300	
2A	50.195	
2C	46.250	
3A	55.485	
3B	57.670	
4	48.220	

2/12/75

READING = 0088 BLOCK = 168 TIME = 269.701 MACH 7.2 PT = 998.999 TT = 3278.2 PAGE 1

RAMJET PERFORMANCE

S U M M A R Y R E P O R T

	P	T	H		GAMMA	MOLWT	SONV	MACH	VEL	S	A/A	W	A/AC	MOMTM	F	TTAC	PHI	ETAC
WIND TUNNEL		1	0	6														
0.000	998.999	3278	755.6	(878)	1.2848	28.903	2692											
0.000	0.153	321	-52.0	(77)	1.3971	28.901	879	7.234	6357	1.835	0.056A0	14.363	0.9874	2877	5.611	200.3		
SPIKE TIP NS		2	0	6														
0.600	11.350	3278	755.6	(878)	1.2838	28.900	2690											
0.600	10.503	3222	738.2	(861)	1.2957	28.901	2669	0.349	932	2.143	0.056A0	14.363	0.9874	3072	6.822	213.9		
WIND TUNNEL		3	0	0														
0.000	998.999	3278	755.6	(878)	1.2848	28.903	2692											
0.000	0.172	332	-49.5	(80)	1.3974	28.901	893	7.109	6347	1.835	0.06142	15.532	0.9874	3107	6.058	200.1		
SPIKE TIP NS		4	0	0														
0.600	11.350	3278	755.6	(878)	1.2838	28.900	2690											
0.600	10.341	3211	734.8	(858)	1.2960	28.901	2665	0.383	1019	2.143	0.06142	15.532	0.9874	3107	6.973	200.1		
INLET THROAT		5	0	4														
40.400	312.434	3186	727.2	(851)	1.2876	28.902	2657											
40.400	10.565	1400	216.1	(345)	1.3542	28.901	1806	2.800	5057	1.906	0.71347	14.363	0.0786	2470	56.091	172.0		
INLET UPPRBK		6	0	3														
40.400	312.434	3186	727.2	(851)	1.2876	28.902	2657											
40.400	9.117	1347	202.2	(331)	1.3574	28.901	1774	2.890	5126	1.906	0.64879	14.363	0.0864	2490	51.681	173.4		
INLET DNNRBK		7	0	4														
40.400	100.868	3186	727.2	(851)	1.2875	28.902	2657											
40.400	87.890	3090	697.5	(822)	1.2905	28.902	2619	0.466	1219	1.984	0.64879	14.363	0.0864	2090	12.295	173.4		
COMBUSTOR	0	8	1	20														
40.410	229.843	3004	739.9	(886)	1.2973	25.808	2740											
40.410	13.082	1486	260.4	(411)	1.3532	25.808	1968	2.489	4898	2.090	0.72009	14.495	0.0786	2470	54.815	170.4	0.29	0.01
COMBUSTOR	0	9	2	5														
40.745	162.281	3301	737.0	(979)	1.2831	26.132	2839											
40.745	18.152	1979	309.0	(554)	1.3281	26.133	2234	2.082	4650	2.141	0.72275	14.495	0.0783	2499	92.227	169.6	0.29	0.83
COMBUSTOR	0	10	3	21														
41.235	190.278	3013	732.8	(889)	1.2965	25.839	2742											
41.235	12.513	1549	269.1	(429)	1.3496	25.839	2006	2.401	4817	2.105	0.71701	14.495	0.0789	2423	53.676	167.2	0.29	0.03
COMBUSTOR	0	11	4	21														
41.500	178.410	2964	730.4	(874)	1.2987	25.796	2724											
41.500	13.826	1586	293.7	(440)	1.3482	25.796	2030	2.303	4675	2.106	0.71014	14.495	0.0797	2388	51.592	164.8	0.29	0.01
COMBUSTOR	0	12	5	4														
42.460	95.881	3172	720.0	(938)	1.2883	26.046	2793											
42.460	24.142	2302	434.1	(657)	1.3173	26.047	2406	1.572	3782	2.170	0.66921	14.495	0.0846	2227	39.332	153.7	0.29	0.17
COMBUSTOR	0	13	6	21														
42.720	84.734	2899	728.5	(923)	1.3022	23.759	2811											
42.720	24.480	2153	467.6	(665)	1.3273	23.759	2446	1.477	3613	2.302	0.66624	14.607	0.0856	2177	37.404	149.0	0.54	0.05
COMBUSTOR	0	14	7	15														
42.730	89.386	2781	728.3	(884)	1.3077	23.649	2765											
42.730	24.492	2031	468.3	(626)	1.3331	23.649	2386	1.512	3607	2.285	0.66541	14.607	0.0857	2175	37.310	148.9	0.54	0.00
COMBUSTOR	0	15	8	21														
42.795	87.354	2778	727.5	(882)	1.3079	23.648	2764											
42.795	24.572	2042	472.2	(629)	1.3327	23.648	2392	1.494	3573	2.287	0.66397	14.607	0.0859	2163	36.872	148.1	0.54	0.00
COMBUSTOR	0	16	9	21														
44.310	61.390	2941	704.3	(936)	1.2993	23.862	2822											
44.310	38.067	2631	593.5	(827)	1.3096	23.862	2479	0.879	2355	2.331	0.61400	14.607	0.0929	1975	22.473	135.2	0.54	0.09
COMBUSTOR	0	17	10	21														
44.800	61.627	2724	696.1	(869)	1.3091	23.679	2736											
44.800	42.431	2492	614.5	(782)	1.3167	23.679	2625	0.770	2021	2.309	0.60639	14.607	0.0940	1940	19.050	132.8	0.54	0.01
COMBUSTOR	0	18	11	21														
45.515	60.973	2661	684.3	(841)	1.3115	23.652	2709											
45.515	44.100	2463	614.6	(772)	1.3181	23.652	2612	0.715	1868	2.302	0.60189	14.607	0.0948	1918	17.471	131.3	0.54	0.00

	P	T	H		GAMMA	VOLMT	SONV	MACH	VEL	S	F/A	R	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	19	12	21														
46.230	60.354	2625	672.9(	429)	1.3168	23.648	2491											
46.230	37.260	2337	572.5(	729)	1.3224	23.648	2549	0.880	2242	2.298	0.58509	14.607	0.0975	1948	20.390	133.4	0.54	0.00
COMBUSTOR	0	20	13	21														
46.260	60.355	2623	672.5(	428)	1.3129	23.648	2691											
46.260	36.972	2330	570.6(	727)	1.3226	23.647	2546	0.887	2259	2.297	0.58347	14.607	0.0977	1951	20.407	133.5	0.54	0.00
COMBUSTOR	0	21	14	4														
47.310	60.404	2652	657.1(	838)	1.3108	23.716	2700											
47.310	26.927	2183	493.8(	676)	1.3268	23.716	2464	1.160	2856	2.300	0.50114	14.607	0.1054	2025	24.036	138.6	0.54	0.03
COMBUSTOR	0	22	15	4														
48.110	60.227	2710	645.9(	854)	1.3079	23.797	2721											
48.110	20.690	2093	432.6(	648)	1.3290	23.797	2411	1.355	3267	2.306	0.49729	14.607	0.1147	2091	25.246	143.1	0.54	0.06
COMBUSTOR	0	23	16	4														
48.755	57.318	2828	637.1(	895)	1.3021	23.932	2764											
48.755	18.325	2153	402.4(	663)	1.3251	23.932	2435	1.407	3427	2.320	0.48157	14.607	0.1243	2148	24.047	147.1	0.54	0.12
COMBUSTOR	0	24	17	4														
50.205	52.789	2970	620.3(	942)	1.2949	24.113	2816											
50.205	13.241	2142	331.0(	656)	1.3233	24.114	2417	1.574	3804	2.338	0.36697	14.607	0.1554	2254	21.696	154.3	0.54	0.20
COMBUSTOR	0	25	18	2														
50.735	52.882	2954	615.7(	936)	1.2955	24.110	2809											
50.735	11.383	2051	301.7(	626)	1.3267	24.111	2369	1.673	3984	2.336	0.34321	14.607	0.1662	2284	21.142	156.4	0.54	0.20
COMBUSTOR	0	26	19	4														
52.145	48.584	3063	605.3(	973)	1.2899	24.245	2846											
52.145	9.337	2078	261.2(	633)	1.3240	24.246	2376	1.747	4150	2.351	0.29251	14.607	0.1990	2350	18.864	160.9	0.54	0.25
COMBUSTOR	0	27	20	4														
54.245	50.093	2957	590.8(	940)	1.2944	24.087	2811											
54.245	6.125	1785	186.5(	539)	1.3364	24.088	2219	2.027	4498	2.346	0.24052	14.654	0.2379	2422	16.812	165.3	0.55	0.22
COMBUSTOR	0	28	21	4														
54.745	48.173	2994	588.2(	952)	1.2926	24.130	2824											
54.745	5.933	1814	180.3(	548)	1.3347	24.130	2234	2.022	4518	2.352	0.23069	14.654	0.2480	2438	16.196	166.1	0.55	0.24
COMBUSTOR	0	29	22	4														
55.495	51.537	2912	584.5(	924)	1.2964	24.060	2793											
55.495	4.961	1651	152.8(	495)	1.3428	24.060	2140	2.172	4648	2.339	0.21746	14.654	0.2631	2451	15.708	167.3	0.55	0.21
COMBUSTOR	0	30	23	3														
55.760	53.457	2874	583.3(	912)	1.2981	24.027	2779											
55.760	4.617	1582	142.6(	474)	1.3465	24.027	2099	2.237	4696	2.332	0.21317	14.654	0.2684	2454	15.558	167.6	0.55	0.20
COMBUSTOR	0	31	24	2														
56.255	50.108	2870	581.2(	910)	1.2982	24.028	2776											
56.255	3.250	1466	105.1(	437)	1.3525	24.029	2025	2.410	4881	2.337	0.16823	14.654	0.3401	2506	12.760	171.0	0.55	0.20
COMBUSTOR	0	32	25	5														
57.680	39.697	3068	575.7(	976)	1.2885	24.237	2848											
57.680	3.543	1725	111.3(	517)	1.3375	24.238	2174	2.217	4821	2.372	0.15549	14.654	0.3679	2530	11.649	172.6	0.55	0.28
COMBUSTOR	0	33	26	4														
57.735	35.665	3181	575.5(1015)		1.2829	24.350	2886											
57.735	3.938	1896	126.8(	572)	1.3289	24.352	2268	2.089	4738	2.389	0.15508	14.654	0.3689	2530	11.420	172.7	0.55	0.33
COMBUSTOR	0	34	27	3														
57.875	35.404	3184	575.1(1017)		1.2826	24.357	2888											
57.875	3.917	1901	125.9(	573)	1.3286	24.359	2271	2.088	4741	2.390	0.15397	14.654	0.3716	2532	11.344	172.8	0.55	0.33
COMBUSTOR	0	35	28	7														
57.955	40.905	3051	574.8(	971)	1.2893	24.222	2841											
57.955	3.460	1689	105.4(	506)	1.3392	24.223	2150	2.250	4846	2.368	0.15567	14.654	0.3675	2533	11.724	172.9	0.55	0.28
COMBUSTOR	0	36	29	3														
58.235	41.822	3037	573.9(	966)	1.2900	24.210	2836											
58.235	3.375	1659	100.3(	496)	1.3407	24.211	2137	2.278	4868	2.365	0.15515	14.654	0.3688	2536	11.739	173.1	0.55	0.27
COMBUSTOR	0	37	30	4														
58.461	48.605	2918	573.3(	926)	1.2956	24.096	2793											
58.461	2.941	1469	81.3(	437)	1.3515	24.097	2024	2.451	4962	2.343	0.15486	14.654	0.3695	2538	11.941	173.2	0.55	0.23

READING = 0088 BLOCK = 168 TIME = 269.701 MACH 7.2 PI = 998.999 TI = 3278.2

	P	T	H		GAMMA	MOLWT	SONV	MACH	VEL	S	Y/A	M	A/AC	MOMTM	Q	TVAC	PHI	ETAC
COMBUSTOR	0	38	31	9														
59.185	112.712	2515	571.3(	791)	1.3142	23.721	2432											
59.185	1.550	820	20.1(	241)	1.3893	23.721	1545	3.399	5252	2.234	0.15246	14.650	0.3753	2541	12.443	173.4	0.55	0.07
COMBUSTOR	0	39	32	5														
60.205	73.467	2674	568.8(	844)	1.3068	23.876	2698											
60.205	2.090	1076	40.0(	317)	1.3754	23.876	1755	2.931	5144	2.286	0.15149	14.654	0.3777	2541	12.110	173.4	0.55	0.14
COMBUSTOR	0	40	33	6														
62.215	31.860	3357	564.2(	1074)	1.2731	24.562	2941											
62.215	4.612	2160	138.0(	657)	1.3161	24.567	2399	1.925	4618	2.408	0.15676	14.654	0.3650	2535	11.250	173.0	0.55	0.42
COMBUSTOR	0	41	34	8														
63.635	34.935	3249	561.0(	1037)	1.2788	24.459	2906											
63.635	4.356	2005	123.2(	606)	1.3233	24.462	2322	2.016	4681	2.393	0.16101	14.654	0.3553	2528	11.711	172.5	0.55	0.37
COMBUSTOR	0	42	35	4														
66.099	27.247	3511	554.7(	1127)	1.2438	24.750	2984											
66.099	5.257	2438	164.7(	748)	1.3037	24.759	2526	1.749	4418	2.429	0.15262	14.654	0.3749	2517	10.478	171.8	0.55	0.49
COMBUSTOR	0	43	36	4														
66.475	23.051	3709	553.7(	1194)	1.2509	24.966	3039											
66.475	5.727	2757	197.1(	854)	1.2896	24.985	2660	1.588	4224	2.452	0.14188	14.654	0.4032	2515	9.313	171.6	0.55	0.58
COMBUSTOR	REGEN	44	37	3														
66.475	23.051	4114	725.8(	1343)	1.2272	24.925	3173											
66.475	6.602	3210	362.0(	1014)	1.2715	24.980	2850	1.497	4247	2.496	0.14188	14.654	0.4032	2625	9.409	179.2	0.55	0.58
NOZZLE AE		45	38	5														
88.711	23.051	3709	553.7(	1171)	1.2509	24.966	3039											
88.711	0.434	1488	-227.4(	432)	1.3419	24.986	1991	3.140	6252	2.452	0.02954	14.654	1.9371	3063	2.870	209.0	0.55	0.58
NOZZLE PO		46	39	5														
88.711	23.051	3709	553.7(	1171)	1.2509	24.966	3039											
88.711	0.153	1132	-334.9(	324)	1.3627	24.986	1752	3.806	6668	2.452	0.01461	14.654	3.9147	3191	1.515	217.8	0.55	0.58
NOZZLE AE REGEN		47	40	5														
88.711	23.051	4114	725.8(	1343)	1.2272	24.925	3173											
88.711	0.487	1755	-141.4(	518)	1.3279	24.986	2154	3.059	6588	2.496	0.02954	14.654	1.9371	3242	3.024	221.2	0.55	0.58
NOZZLE PO REGEN		48	41	5														
88.711	23.051	4114	725.8(	1343)	1.2272	24.925	3173											
88.711	0.153	1310	-291.3(	378)	1.3520	24.986	1877	3.782	7099	2.496	0.01345	14.654	4.2540	3401	1.484	232.1	0.55	0.58
FICTIVE COMBUSTR		67	60	0														
66.475	312.434	4644	583.7(	1520)	1.2102	26.052	3275											
66.475	0.153	817	-802.5(	289)	1.3715	26.156	1459	5.646	8238	2.279	0.02620	14.654	2.1835	3838	3.355	261.9	0.55	1.00
FICTIVE NOZZLE		68	61	0														
88.711	15.190	3679	542.9(	1184)	1.2505	24.965	3027											
88.711	0.532	1720	-152.9(	504)	1.3296	24.986	2133	2.766	5900	2.483	0.02954	14.654	1.9371	2952	2.708	201.4	0.55	0.58

READING = 0088 BLOCK = 168 TIME = 269.701 MACH 7.2 PT = 998.999 TT = 527.2

XABS	P-IB	P-OH	PCA	CUR	Q-IP	Q-OH	CA-ALI	P-TB/PSU	P-IH/PTO	P-OB/PSU	P-CA/PTO
6.981E-01	6.900E-01	0.000	-2.742E-01	0.000	0.000	0.000	2.470E-02	4.496E 00	4.907E-00	0.000	0.000
1.836E 01	6.900E-01	0.000	-2.296E 01	0.000	0.000	0.000	1.450E 02	4.496E 00	4.907E-00	0.000	0.000
3.070E 01	1.020E 00	0.000	-9.228E 01	0.000	0.000	0.000	5.153E 02	6.696E 00	1.021E-03	0.000	0.000
3.508E 01	1.898E 00	0.000	-1.868E 02	0.000	0.000	0.000	6.804E 02	1.237E 01	1.900E-03	0.000	0.000
3.559E 01	2.165E 00	0.000	-2.054E 02	0.000	0.000	0.000	7.013E 02	1.411E 01	2.167E-03	0.000	0.000
3.606E 01	2.065E 00	0.000	-2.258E 02	-1.537E 02	-1.537E 02	0.000	7.246E 02	1.345E 01	2.067E-03	0.000	0.000
3.648E 01	2.260E 00	0.000	-2.453E 02	-1.574E 02	-1.574E 02	0.000	7.443E 02	1.473E 01	2.262E-03	0.000	0.000
3.661E 01	2.293E 00	3.264E 00	-2.853E 02	-1.585E 02	-1.585E 02	0.000	7.504E 02	1.494E 01	2.295E-03	2.127E 01	3.267E-03
3.662E 01	2.294E 00	3.279E 00	-2.854E 02	-1.587E 02	-1.587E 02	0.000	7.505E 02	1.495E 01	2.294E-03	2.136E 01	3.282E-03
3.701E 01	2.390E 00	4.275E 00	-2.874E 02	-1.623E 02	-1.623E 02	0.000	7.914E 02	1.557E 01	2.392E-03	2.785E 01	4.279E-03
3.728E 01	2.279E 00	4.975E 00	-2.871E 02	-1.650E 02	-1.650E 02	0.000	8.203E 02	1.485E 01	2.282E-03	3.242E 01	4.980E-03
3.803E 01	1.980E 00	8.295E 00	-2.705E 02	-1.726E 02	-1.726E 02	0.000	9.005E 02	1.290E 01	1.982E-03	5.405E 01	8.304E-03
3.874E 01	6.554E 00	1.146E 01	-2.478E 02	-2.402E 02	-1.863E 02	-5.392E 01	9.801E 02	4.270E 01	6.561E-03	7.481E 01	1.149E-02
3.875E 01	6.587E 00	1.146E 01	-2.478E 02	-2.406E 02	-1.864E 02	-5.417E 01	9.807E 02	4.292E 01	6.593E-03	7.470E 01	1.148E-02
3.901E 01	8.250E 00	1.060E 01	-2.722E 02	-2.616E 02	-1.945E 02	-6.713E 01	1.010E 03	9.375E 01	8.258E-03	6.905E 01	1.061E-02
3.950E 01	1.149E 01	8.964E 00	-2.894E 02	-3.064E 02	-2.150E 02	-9.144E 01	1.066E 03	7.487E 01	1.150E-02	5.841E 01	8.973E-03
3.976E 01	1.128E 01	8.081E 00	-3.000E 02	-3.338E 02	-2.292E 02	-1.045E 02	1.097E 03	7.350E 01	1.129E-02	5.266E 01	8.089E-03
4.000E 01	1.109E 01	7.791E 00	-3.071E 02	-3.600E 02	-2.439E 02	-1.161E 02	1.124E 03	7.228E 01	1.110E-02	5.076E 01	7.79AE-03
4.023E 01	1.336E 01	7.500E 00	-3.157E 02	-3.875E 02	-2.599E 02	-1.277E 02	1.151E 03	8.707E 01	1.338E-02	4.887E 01	7.50AE-03
4.040E 01	1.496E 01	1.090E 01	-3.219E 02	-4.072E 02	-2.714E 02	-1.398E 02	1.171E 03	9.747E 01	1.497E-02	7.104E 01	1.091E-02
4.041E 01	1.506E 01	1.111E 01	-3.221E 02	-4.084E 02	-2.721E 02	-1.363E 02	1.172E 03	9.810E 01	1.507E-02	7.238E 01	1.112E-02
4.074E 01	1.829E 01	1.801E 01	-3.278E 02	-4.491E 02	-2.964E 02	-1.527E 02	1.211E 03	1.192E 02	1.831E-02	1.174E 02	1.803E-02
4.123E 01	2.303E 01	2.000E 00	-3.559E 02	-5.105E 02	-3.342E 02	-1.763E 02	1.269E 03	1.500E 02	2.305E-02	1.303E 01	2.002E-03
4.150E 01	2.559E 01	2.065E 00	-3.855E 02	-5.447E 02	-3.559E 02	-1.888E 02	1.300E 03	1.667E 02	2.561E-02	1.345E 01	2.067E-03
4.246E 01	4.602E 01	2.299E 00	-5.524E 02	-6.964E 02	-4.595E 02	-2.549E 02	1.414E 03	2.999E 02	4.607E-02	1.498E 01	2.302E-03
4.272E 01	4.660E 01	2.363E 00	-5.790E 02	-7.463E 02	-4.630E 02	-2.833E 02	1.445E 03	3.036E 02	4.666E-02	1.540E 01	2.365E-03
4.273E 01	4.662E 01	2.365E 00	-5.807E 02	-7.483E 02	-4.639E 02	-2.844E 02	1.446E 03	3.038E 02	4.667E-02	1.541E 01	2.368E-03
4.278E 01	4.674E 01	2.381E 00	-5.920E 02	-7.613E 02	-4.698E 02	-2.915E 02	1.454E 03	3.047E 02	4.681E-02	1.552E 01	2.384E-03
4.431E 01	5.010E 01	2.604E 01	-7.630E 02	-1.099E 03	-6.059E 02	-4.926E 02	1.637E 03	3.264E 02	5.015E-02	1.696E 02	2.606E-02
4.480E 01	5.117E 01	3.369E 01	-7.939E 02	-1.218E 03	-6.496E 02	-5.682E 02	1.696E 03	3.334E 02	5.123E-02	2.195E 02	3.372E-02
4.551E 01	4.335E 01	4.485E 01	-8.100E 02	-1.391E 03	-7.11AE 02	-6.749E 02	1.783E 03	2.825E 02	4.339E-02	2.922E 02	4.489E-02
4.623E 01	3.552E 01	3.900E 01	-7.744E 02	-1.557E 03	-7.713E 02	-7.854E 02	1.871E 03	2.315E 02	3.556E-02	2.541E 02	3.904E-02
4.626E 01	3.519E 01	3.875E 01	-7.718E 02	-1.563E 03	-7.737E 02	-7.897E 02	1.875E 03	2.293E 02	3.523E-02	2.525E 02	3.879E-02
4.731E 01	2.370E 01	3.015E 01	-6.887E 02	-1.789E 03	-8.961E 02	-9.326E 02	2.004E 03	1.544E 02	2.372E-02	1.965E 02	3.018E-02
4.811E 01	1.777E 01	2.360E 01	-6.149E 02	-1.952E 03	-9.152E 02	-1.037E 03	2.103E 03	1.158E 02	1.779E-02	1.538E 02	2.363E-02
4.875E 01	1.832E 01	1.832E 01	-5.515E 02	-2.082E 03	-9.609E 02	-1.121E 03	2.183E 03	1.194E 02	1.834E-02	1.194E 02	1.834E-02
5.020E 01	1.324E 01	1.324E 01	-4.335E 02	-2.327E 03	-1.055E 03	-1.272E 03	2.365E 03	8.628E 01	1.325E-02	8.628E 01	1.325E-02
5.073E 01	1.138E 01	1.138E 01	-3.995E 02	-2.394E 03	-1.087E 03	-1.307E 03	2.431E 03	7.417E 01	1.139E-02	7.417E 01	1.139E-02
5.214E 01	9.337E 00	9.337E 00	-3.229E 02	-2.545E 03	-1.165E 03	-1.380E 03	2.609E 03	6.084E 01	9.347E-03	6.084E 01	9.347E-03
5.424E 01	6.128E 00	6.128E 00	-2.377E 02	-2.729E 03	-1.262E 03	-1.467E 03	2.875E 03	3.991E 01	6.131E-03	3.991E 01	6.131E-03
5.474E 01	5.933E 00	5.933E 00	-2.221E 02	-2.767E 03	-1.282E 03	-1.484E 03	2.939E 03	3.866E 01	5.939E-03	3.866E 01	5.939E-03
5.549E 01	4.961E 00	4.961E 00	-2.010E 02	-2.820E 03	-1.310E 03	-1.510E 03	3.039E 03	3.232E 01	4.966E-03	3.232E 01	4.966E-03
5.576E 01	4.617E 00	4.617E 00	-1.948E 02	-2.838E 03	-1.319E 03	-1.518E 03	3.068E 03	3.008E 01	4.621E-03	3.008E 01	4.621E-03
5.625E 01	2.525E 00	2.975E 00	-1.434E 02	-2.869E 03	-1.334E 03	-1.533E 03	3.102E 03	1.645E 01	2.52AE-03	2.590E 01	3.979E-03
5.768E 01	3.543E 00	3.543E 00	-1.168E 02	-2.949E 03	-1.382E 03	-1.588E 03	3.209E 03	2.309E 01	3.547E-03	2.309E 01	3.547E-03
5.773E 01	4.350E 00	3.527E 00	-1.158E 02	-2.952E 03	-1.384E 03	-1.589E 03	3.217E 03	2.834E 01	4.354E-03	2.298E 01	3.530E-03
5.787E 01	4.350E 00	3.484E 00	-1.135E 02	-2.959E 03	-1.387E 03	-1.592E 03	3.230E 03	2.834E 01	4.354E-03	2.270E 01	3.488E-03
5.795E 01	3.460E 00	3.460E 00	-1.121E 02	-2.963E 03	-1.389E 03	-1.573E 03	3.245E 03	2.254E 01	3.463E-03	2.254E 01	3.463E-03
5.823E 01	3.375E 00	3.375E 00	-1.077E 02	-2.975E 03	-1.397E 03	-1.579E 03	3.280E 03	2.199E 01	3.378E-03	2.199E 01	3.378E-03
5.846E 01	2.941E 00	2.941E 00	-1.046E 02	-2.985E 03	-1.402E 03	-1.583E 03	3.309E 03	1.916E 01	2.944E-03	1.916E 01	2.944E-03
5.918E 01	1.550E 00	1.550E 00	-9.851E 01	-3.013E 03	-1.419E 03	-1.595E 03	3.402E 03	1.010E 01	1.552E-03	1.010E 01	1.552E-03
6.020E 01	2.050E 00	2.050E 00	-9.434E 01	-3.050E 03	-1.437E 03	-1.613E 03	3.532E 03	1.336E 01	2.052E-03	1.336E 01	2.052E-03
6.221E 01	4.412E 00	4.412E 00	-9.354E 01	-3.119E 03	-1.463E 03	-1.656E 03	3.790E 03	3.005E 01	4.617E-03	3.005E 01	4.617E-03
6.363E 01	4.356E 00	4.356E 00	-9.356E 01	-3.165E 03	-1.476E 03	-1.689E 03	3.972E 03	2.838E 01	4.361E-03	2.838E 01	4.361E-03
6.610E 01	5.257E 00	5.257E 00	-9.354E 01	-3.257E 03	-1.502E 03	-1.755E 03	4.289E 03	3.425E 01	5.263E-03	3.425E 01	5.263E-03
6.647E 01	5.060E 00	5.395E 00	-9.354E 01	-3.272E 03	-1.506E 03	-1.766E 03	4.337E 03	3.449E 01	5.066E-03	3.515E 01	5.400E-03

READING # 0088 BLOCK # 168 TIME = 269.701 MACH 7.2 PT = 998.494 TT = 3278.2

XABS	P-IB	P-OB	PBA	BBX	Q-IB	Q-OB	CA-ALL	P-IB/PBO	P-IB/PTO	P-OB/PBO	P-OB/PTO
6.651E 01	4.060E 00	5.409E 00	-9.354E 01	-3.274E 03	-1.507E 03	-1.747E 03	4.342E 03	3.949E 01	4.064E-03	3.525E 01	5.415E-03
6.671E 01	5.828E 00	5.482E 00	-9.354E 01	-3.283E 03	-1.509E 03	-1.773E 03	4.368E 03	3.797E 01	5.838E-03	3.572E 01	5.488E-03
6.837E 01	3.900E 00	4.125E 00	-9.985E 01	-3.344E 03	-1.525E 03	-1.819E 03	4.466E 03	2.541E 01	3.904E-03	2.688E 01	4.129E-03
6.904E 01	3.263E 00	3.435E 00	3.462E 01	-3.365E 03	-1.530E 03	-1.834E 03	4.465E 03	2.126E 01	3.266E-03	2.238E 01	3.438E-03
6.981E 01	2.530E 00	2.164E 00	1.142E 02	-3.387E 03	-1.534E 03	-1.851E 03	4.760E 03	1.648E 01	2.533E-03	1.410E 01	2.166E-03
7.053E 01	2.029E 00	9.750E-01	1.660E 02	-3.406E 03	-1.540E 03	-1.866E 03	4.848E 03	1.322E 01	2.031E-03	6.353E 00	9.760E-04
7.114E 01	1.605E 00	9.681E-01	1.978E 02	-3.422E 03	-1.543E 03	-1.879E 03	4.922E 03	1.046E 01	1.607E-03	4.308E 00	9.690E-04
7.252E 01	9.000E-01	9.524E-01	2.503E 02	-3.451E 03	-1.549E 03	-1.902E 03	5.048E 03	5.864E 00	9.009E-04	6.205E 00	9.533E-04
7.405E 01	4.810E-01	9.350E-01	2.887E 02	-3.474E 03	-1.554E 03	-1.920E 03	5.273E 03	3.134E 00	4.815E-04	6.092E 00	9.359E-04
7.420E 01	4.400E-01	8.142E-01	2.915E 02	-3.476E 03	-1.554E 03	-1.922E 03	5.290E 03	2.867E 00	4.404E-04	5.305E 00	8.150E-04
7.495E 01	4.887E-01	2.100E-01	3.083E 02	-3.487E 03	-1.556E 03	-1.931E 03	5.374E 03	3.184E 00	4.892E-04	1.368E 00	2.102E-04
7.496E 01	4.889E-01	2.068E-01	3.087E 02	-3.487E 03	-1.556E 03	-1.931E 03	5.375E 03	3.186E 00	4.894E-04	1.347E 00	2.070E-04
7.628E 01	5.750E-01	0.000	3.199E 02	-3.510E 03	-1.559E 03	-1.951E 03	5.526E 03	3.747E 00	5.754E-04	0.000	0.000
7.913E 01	2.600E-01	0.000	3.384E 02	-3.513E 03	-1.562E 03	-1.951E 03	5.525E 03	1.694E 00	2.603E-04	0.000	0.000
8.303E 01	2.850E-01	0.000	3.483E 02	-3.429E 03	-1.564E 03	-1.866E 03	5.430E 03	1.857E 00	2.853E-04	0.000	0.000
8.504E 01	3.100E-01	0.000	3.549E 02	-3.430E 03	-1.564E 03	-1.866E 03	5.684E 03	2.020E 00	3.103E-04	0.000	0.000
8.870E 01	5.050E-01	0.000	3.647E 02	-3.430E 03	-1.565E 03	-1.866E 03	5.707E 03	3.290E 00	5.055E-04	0.000	0.000
8.871E 01	5.054E-01	0.000	3.647E 02	-3.430E 03	-1.565E 03	-1.866E 03	5.707E 03	3.293E 00	5.059E-04	0.000	0.000

X	DRAG	CDRAG	CF	MC
4.040E 01	8.4RRE 01	8.4RRE 01	2.299E-03	3.827E-02
4.041E 01	1.722E-01	8.505E 01	3.011E-03	5.742E-02
4.074E 01	5.789E 00	9.084E 01	2.507E-03	5.334E-02
4.123E 01	4.080E 00	9.492E 01	2.790E-03	3.827E-02
4.150E 01	4.445E 00	1.034E 02	2.808E-03	4.270E-02
4.246E 01	1.424E 01	1.176E 02	2.882E-03	5.499E-02
4.272E 01	3.742E 00	1.213E 02	3.410E-03	4.876E-02
4.273E 01	1.025E-01	1.215E 02	3.044E-03	5.466E-02
4.279E 01	8.705E-01	1.224E 02	2.981E-03	5.563E-02
4.431E 01	1.695E 01	1.393E 02	3.276E-03	5.462E-02
4.480E 01	4.164E 00	1.435E 02	3.068E-03	5.033E-02
4.551E 01	5.481E 00	1.493E 02	3.412E-03	5.063E-02
4.623E 01	5.552E 00	1.545E 02	3.285E-03	5.204E-02
4.626E 01	2.466E-01	1.548E 02	3.277E-03	5.208E-02
4.731E 01	9.189E 00	1.639E 02	3.097E-03	4.936E-02
4.811E 01	7.453E 00	1.714E 02	3.006E-03	4.343E-02
4.875E 01	5.914E 00	1.773E 02	2.975E-03	4.036E-02
5.020E 01	1.218E 01	1.895E 02	2.904E-03	3.240E-02
5.073E 01	4.189E 00	1.937E 02	2.979E-03	2.840E-02
5.214E 01	1.039E 01	2.041E 02	2.871E-03	2.474E-02
5.424E 01	1.360E 01	2.177E 02	2.858E-03	1.789E-02
5.474E 01	2.954E 00	2.206E 02	2.763E-03	1.774E-02
5.540E 01	4.216E 00	2.248E 02	2.793E-03	1.549E-02
5.576E 01	1.440E 00	2.263E 02	2.675E-03	1.495E-02
5.625E 01	1.229E 00	2.275E 02	2.526E-03	1.125E-02
5.768E 01	3.305E 00	2.308E 02	2.503E-03	1.182E-02
5.773E 01	2.119E-01	2.310E 02	2.711E-03	1.208E-02
5.787E 01	5.571E-01	2.316E 02	2.798E-03	1.174E-02
5.795E 01	3.539E-01	2.319E 02	3.198E-03	9.696E-03
5.823E 01	1.225E 00	2.332E 02	2.655E-03	1.043E-02
5.846E 01	9.010E-01	2.341E 02	2.623E-03	9.960E-03
5.918E 01	2.881E 00	2.369E 02	2.480E-03	6.400E-03
6.020E 01	3.547E 00	2.405E 02	1.940E-03	8.948E-03
6.221E 01	6.475E 00	2.470E 02	2.359E-03	1.460E-02
6.363E 01	5.486E 00	2.524E 02	2.886E-03	1.212E-02
6.610E 01	1.012E 01	2.626E 02	2.883E-03	1.369E-02
6.647E 01	1.431E 00	2.640E 02	3.113E-03	1.339E-02
6.651E 01	1.518E-01	2.641E 02	3.237E-03	1.303E-02
6.671E 01	7.723E-01	2.649E 02	3.233E-03	1.292E-02
6.837E 01	6.160E 00	2.711E 02	3.159E-03	1.048E-02
6.904E 01	2.135E 00	2.732E 02	3.123E-03	9.323E-03
6.981E 01	2.209E 00	2.754E 02	3.058E-03	7.332E-03
7.053E 01	1.487E 00	2.771E 02	2.981E-03	5.345E-03
7.114E 01	1.204E 00	2.783E 02	2.953E-03	4.772E-03
7.252E 01	2.358E 00	2.807E 02	2.893E-03	3.737E-03
7.409E 01	2.177E 00	2.828E 02	2.842E-03	3.046E-03
7.420E 01	1.799E-01	2.830E 02	2.820E-03	2.777E-03
7.495E 01	7.112E-01	2.837E 02	2.715E-03	1.769E-03
7.496E 01	1.107E-03	2.837E 02	2.714E-03	1.763E-03
7.628E 01	4.216E-01	2.842E 02	2.795E-03	2.569E-03
7.913E 01	7.331E-01	2.849E 02	2.643E-03	1.395E-03
8.303E 01	6.007E-01	2.855E 02	2.641E-03	1.487E-03
8.584E 01	3.296E-01	2.858E 02	2.643E-03	1.579E-03
8.670E 01	1.467E-01	2.860E 02	2.714E-03	2.291E-03
8.871E 01	0.000	2.860E 02	2.716E-03	2.293E-03

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	74.	(LBF)
MEASURED THRUST	472.	(LBF)
CALCULATED SPECIFIC IMPULSE	294.	(LBF-SEC/LBM)
MEASURED SPECIFIC IMPULSE	1869.	(LBF-SEC/LBM)
CALCULATED THRUST COEFFICIENT	0.0518	
MEASURED THRUST COEFFICIENT	0.3286	

REGENERATIVE-COOLED ENGINE PERFORMANCE

CALCULATED

STREAM THRUST	312.	(LBF)
NET THRUST	247.	(LBF)
SPECIFIC IMPULSE	969.	(LBF-SEC/LBM)
THRUST COEFFICIENT	0.1720	

MOMENTUM AND FORCES

INLET FRICTION DRAG	84.9	(LBF)
INLET MOMENTUM CHANGE	-406.8	(LBF)
COMBUSTOR FRICTION DRAG	179.1	(LBF)
COMBUSTOR STRUT DRAG	4.27	(LBF)
COMBUSTOR MOMENTUM CHANGE	45.	(LBF)
NOZZLE FRICTION DRAG	22.00	(LBF)
NOZZLE STRUT DRAG	0.00	(LBF)
NOZZLE MOMENTUM CHANGE	436.	(LBF)
NOZZLE PRESSURE INTEGRAL	458.	(LBF)
EXTERNAL FRICTION DRAG	0.00	(LBF)
EXTERNAL PRESSURE INTEGRAL	0.	(LBF)
TOTAL EXTERNAL DRAG	-719.	(LBF)
TOTAL STRUT DRAG	4.27	(LBF)
CAVITY FORCE	-646.	(LBF)
CALCULATED LOAD CELL FORCE	-1290.	(LBF)
MEASURED LOAD CELL FORCE	-892.	(LBF)
FUEL VACUUM SPECIFIC IMPULSE 0.0, 0.0,		

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	1.7349	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	36.619	(IN)
NOZZLE SHROUD TRAILING EDGE	74.959	(IN)
NOZZLE PLUG TRAILING EDGE	68.711	(IN)
STRUT LEADING EDGE	57.875	(IN)
STRUT TRAILING EDGE	66.475	(IN)
COMBUSTOR EXIT	64.475	(IN)

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.9874	
ADDITIVE DRAG COEFFICIENT	0.0000	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.0997	
DELTA PT2	0.0483	(PSI)
TOTAL PRESSURE RECOVERY - SUPERSONIC	0.3127	
TOTAL PRESSURE RECOVERY - SUBSONIC	0.1010	
INLET PROCESS EFFICIENCY - SUPERSONIC	0.9008	
INLET PROCESS EFFICIENCY - SUBSONIC	0.9117	
KINETIC ENERGY EFFICIENCY - SUPERSONIC	0.9320	
KINETIC ENERGY EFFICIENCY - SUBSONIC	0.8830	
ENTHALPY AT P0 - SUPERSONIC	-25.39	(BTU/LBM)
ENTHALPY AT P0 - SUBSONIC	14.18	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0174	
EQUIVALENCE RATIO	0.553	
COMBUSTOR EFFICIENCY	0.577	
TOTAL PRESSURE RATIO	0.0738	
COMBUSTOR EFFECTIVENESS	0.5246	
INJECTOR DISCHARGE COEFFICIENTS 0.9320, 0.6727,		

NOZZLE

VACUUM STREAM THRUST COEFFICIENT - CS	0.9637	
NOZZLE COEFFICIENT - CT	0.9011	
PROCESS EFFICIENCY	0.8757	
KINETIC ENERGY EFFICIENCY	0.9200	

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	A
1B	42.720	B
1C	44.300	
2A	50.195	
2C	46.250	
3A	55.085	
3B	57.470	
4	46.220	

2/12/75

READING = 0088 BLOCK = 169 TIME = 270.601 MACH 7.2 PT = 998.499 TT = 3269.1

RAMJET PERFORMANCE

S U M M A R Y R E P O R T

	P	T	H		GAMMA	MOLWT	SONV	MACH	VEL	S	F/A	W	A/AC	MOMTM	G	TVAC	PHI	ETAC
WIND TUNNEL		1	0	6														
0.000	998.499	3269	752.7(	875)	1.2851	28.903	2688											
0.000	0.153	320	-52.2(	77)	1.3971	28.901	877	7.235	6347	1.834	0.05690	14.387	0.9872	2877	5.612	200.0		
SPIKE TIP NS		2	0	6														
0.600	11.375	3268	752.7(	875)	1.2841	28.901	2687											
0.600	10.530	3213	735.5(	859)	1.2860	28.901	2666	0.348	928	2.142	0.05690	14.387	0.9872	3077	0.821	213.9		
WIND TUNNEL		3	0	0														
0.000	998.499	3269	752.7(	875)	1.2851	28.903	2688											
0.000	0.172	331	-49.7(	79)	1.3974	28.901	892	7.107	6337	1.834	0.06166	15.590	0.9872	3114	6.072	199.7		
SPIKE TIP NS		4	0	0														
0.600	11.375	3268	752.7(	875)	1.2841	28.901	2687											
0.600	10.364	3202	732.0(	855)	1.2864	28.901	2662	0.383	1018	2.142	0.06166	15.590	0.9872	3114	0.976	199.7		
INLET THROAT		5	0	4														
40.400	313.967	3172	722.9(	847)	1.2880	28.902	2651											
40.400	10.527	1390	213.3(	342)	1.3548	28.902	1800	2.806	5049	1.904	0.71524	14.387	0.0785	2470	56.125	171.7		
INLET UPWRK		6	0	3														
40.400	313.967	3172	722.9(	847)	1.2880	28.902	2651											
40.400	9.054	1337	199.5(	329)	1.3580	28.901	1767	2.895	5117	1.904	0.65022	14.387	0.0864	2489	51.710	173.0		
INLET DNWRK		7	0	4														
40.400	100.897	3172	722.9(	847)	1.2879	28.902	2651											
40.400	87.926	3076	693.3(	818)	1.2909	28.902	2613	0.465	1216	1.982	0.65022	14.387	0.0864	2489	12.289	173.0		
COMBUSTOR	0	8	1	19														
40.410	228.662	2993	735.8(	884)	1.2976	25.786	2737											
40.410	13.137	1484	258.7(	410)	1.3533	25.786	1968	2.483	4886	2.091	0.72174	14.519	0.0785	2469	54.803	170.1	0.30	0.02
COMBUSTOR	0	9	2	5														
40.747	160.956	3296	732.8(	978)	1.2832	26.116	2838											
40.747	18.316	1980	303.7(	556)	1.3278	26.117	2237	2.071	4634	2.142	0.72440	14.519	0.0783	2458	92.164	169.3	0.30	0.83
COMBUSTOR	0	10	3	21														
41.237	190.622	2999	728.3(	885)	1.2969	25.815	2737											
41.237	12.529	1541	266.4(	427)	1.3500	25.815	2002	2.402	4808	2.105	0.71841	14.519	0.0789	2423	53.691	166.9	0.30	0.03
COMBUSTOR	0	11	4	21														
41.500	179.248	2949	789.8(	869)	1.2992	25.771	2719											
41.500	13.826	1575	290.5(	437)	1.3488	25.771	2028	2.306	4667	2.105	0.71177	14.519	0.0796	2388	51.624	164.5	0.30	0.01
COMBUSTOR	0	12	5	4														
42.460	94.856	3175	714.8(	939)	1.2879	26.042	2794											
42.460	24.701	2323	434.3(	664)	1.3163	26.043	2416	1.551	3746	2.172	0.67130	14.519	0.0844	2225	39.080	153.2	0.30	0.18
COMBUSTOR	0	13	6	21														
42.722	83.911	2884	723.8(	922)	1.3028	23.651	2810											
42.722	24.961	2156	468.5(	669)	1.3273	23.651	2493	1.457	3574	2.310	0.66781	14.637	0.0856	2173	37.091	148.5	0.56	0.09
COMBUSTOR	0	14	7	6														
42.732	88.391	2766	723.7(	882)	1.3083	23.542	2764											
42.732	24.971	2035	469.2(	630)	1.3331	23.541	2393	1.491	3568	2.293	0.66718	14.637	0.0857	2171	36.997	148.3	0.56	0.00
COMBUSTOR	0	15	8	21														
42.797	86.509	2756	722.7(	879)	1.3087	23.535	2761											
42.797	25.036	2039	473.2(	631)	1.3330	23.535	2396	1.474	3533	2.293	0.66470	14.637	0.0860	2159	36.498	147.5	0.56	0.00
COMBUSTOR	0	16	9	21														
44.310	43.436	2689	699.0(	859)	1.3109	23.534	2729											
44.310	38.218	2381	590.6(	748)	1.3210	23.534	2578	0.903	2379	2.311	0.61530	14.637	0.0929	1969	22.271	134.5	0.56	0.00
COMBUSTOR	0	17	10	21														
44.800	59.123	3002	690.7(	960)	1.2960	23.849	2848											
44.800	42.487	2782	611.1(	882)	1.3034	23.849	2749	0.726	1996	2.347	0.60761	14.637	0.0941	1932	18.847	132.0	0.56	0.13
COMBUSTOR	0	18	11	21														
45.517	60.406	2682	678.7(	852)	1.3104	23.580	2722											
45.517	44.223	2490	610.8(	785)	1.3167	23.580	2629	0.701	1844	2.313	0.60339	14.637	0.0947	1912	17.291	130.6	0.56	0.02

	P	T	H		CAPA	VOLAT	SONV	MACH	VEL	S	ZA	W	AZAC	FLOFM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	19	12	21														
46.232	59.960	2607	667.2(	826)	1.3135	23.541	2849											
46.232	37.410	2326	569.1(	729)	1.3228	23.541	2549	0.869	2216	2.304	0.58665	14.637	0.0974	1942	20.207	132.7	0.56	0.00
COMBUSTOR	0	20	13	21														
46.260	60.013	2599	666.8(	824)	1.3138	23.539	2486											
46.260	37.142	2315	567.3(	725)	1.3233	23.535	2544	0.877	2231	2.303	0.58516	14.637	0.0977	1944	20.290	132.8	0.56	0.00
COMBUSTOR	0	21	14	3														
47.310	60.149	2619	651.3(	830)	1.3123	23.594	2691											
47.310	27.137	2159	491.5(	671)	1.3279	23.594	2458	1.150	2827	2.305	0.54246	14.637	0.1053	2019	23.635	137.9	0.56	0.03
COMBUSTOR	0	22	15	4														
48.110	59.920	2677	640.0(	808)	1.3092	23.676	2713											
48.110	20.798	2072	430.0(	640)	1.3300	23.676	2405	1.348	3241	2.311	0.49850	14.637	0.1146	2085	25.110	142.5	0.56	0.06
COMBUSTOR	0	23	16	4														
48.757	56.995	2797	631.6(	884)	1.3034	23.611	2759											
48.757	18.425	2134	399.8(	659)	1.3261	23.611	2431	1.399	3401	2.326	0.45251	14.637	0.1263	2143	23.918	146.4	0.56	0.12
COMBUSTOR	0	24	17	4														
50.207	52.438	2942	614.2(	936)	1.2961	23.994	2811											
50.207	13.323	2126	328.6(	654)	1.3241	23.994	2415	1.565	3780	2.344	0.36774	14.637	0.1554	2250	21.601	153.7	0.56	0.19
COMBUSTOR	0	25	18	2														
50.737	52.484	2927	609.5(	931)	1.2966	23.992	2804											
50.737	11.458	2038	299.3(	624)	1.3274	23.993	2368	1.664	3940	2.342	0.34392	14.637	0.1662	2280	21.057	155.8	0.56	0.19
COMBUSTOR	0	26	19	4														
52.147	47.974	3046	599.0(	971)	1.2905	24.136	2846											
52.147	9.478	2080	259.9(	636)	1.3241	24.137	2382	1.729	4119	2.358	0.29312	14.637	0.1950	2347	18.763	160.3	0.56	0.88
COMBUSTOR	0	27	20	4														
54.247	49.601	2937	584.2(	937)	1.2952	23.978	2809											
54.247	6.175	1780	183.6(	539)	1.3368	23.978	2221	2.016	4477	2.353	0.24102	14.684	0.2379	2420	16.749	164.8	0.57	0.22
COMBUSTOR	0	28	21	4														
54.747	47.638	2975	581.6(	950)	1.2933	24.022	2822											
54.747	5.992	1811	177.7(	549)	1.3350	24.022	2237	2.010	4496	2.359	0.23117	14.684	0.2480	2432	16.151	168.7	0.57	0.24
COMBUSTOR	0	29	22	4														
55.497	50.263	2907	577.9(	926)	1.2964	23.965	2796											
55.497	5.077	1669	151.7(	503)	1.3419	23.966	2155	2.143	4616	2.348	0.21791	14.684	0.2631	2450	15.638	166.8	0.57	0.22
COMBUSTOR	0	30	23	3														
55.760	51.765	2875	576.6(	916)	1.2979	23.938	2784											
55.760	4.756	1608	142.2(	484)	1.3451	23.939	2119	2.200	4662	2.343	0.21364	14.684	0.2684	2455	15.480	167.2	0.57	0.21
COMBUSTOR	0	31	24	2														
56.257	48.386	2871	574.4(	914)	1.2980	23.940	2782											
56.257	3.347	1492	104.2(	447)	1.3510	23.940	2046	2.371	4850	2.348	0.16858	14.684	0.3401	2505	12.707	170.6	0.57	0.21
COMBUSTOR	0	32	25	5														
57.682	37.811	3093	568.6(	989)	1.2871	24.171	2861											
57.682	3.718	1783	112.9(	538)	1.3345	24.173	2212	2.159	4775	2.385	0.15582	14.684	0.3679	2530	11.564	172.3	0.57	0.30
COMBUSTOR	0	33	26	4														
57.737	34.736	3184	568.4(	1021)	1.2824	24.266	2893											
57.737	4.051	1927	125.8(	584)	1.3274	24.268	2289	2.056	4706	2.399	0.15540	14.684	0.3689	2531	11.346	172.3	0.57	0.34
COMBUSTOR	0	34	27	3														
57.877	34.482	3192	568.0(	1023)	1.2820	24.273	2895											
57.877	4.030	1932	124.9(	586)	1.3271	24.276	2292	2.055	4709	2.400	0.15429	14.684	0.3716	2533	11.290	172.5	0.57	0.34
COMBUSTOR	0	35	28	7														
57.957	38.885	3074	567.7(	983)	1.2879	24.158	2856											
57.957	3.635	1749	106.9(	527)	1.3361	24.159	2193	2.189	4802	2.382	0.15599	14.684	0.3675	2534	11.640	172.5	0.57	0.29
COMBUSTOR	0	36	29	3														
58.237	39.708	3063	566.8(	979)	1.2865	24.147	2851											
58.237	3.550	1721	101.6(	518)	1.3375	24.149	2177	2.216	4824	2.379	0.15553	14.684	0.3686	2537	11.661	172.8	0.57	0.29
COMBUSTOR	0	37	30	4														
58.463	46.199	2936	566.0(	935)	1.2944	24.025	2804											
58.463	3.074	1517	81.0(	450)	1.3488	24.025	2058	2.394	4926	2.356	0.15518	14.684	0.3695	2539	11.650	172.9	0.57	0.24

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	F/A	F	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	38	31 9														
59.187	112.681	2498	563.9(784)	1.3148	23.619	2629											
59.187	1.550	813	14.3(240)	1.3898	23.619	1542	3.400	5248	2.239	0.15277	14.684	0.3753	2542	12.451	173.1	0.57	0.08
COMBUSTOR	0	39	32 5														
60.207	72.251	2464	561.1(804)	1.3071	23.780	2698											
60.207	2.075	1079	34.9(319)	1.3752	23.780	1762	2.913	5131	2.294	0.15180	14.680	0.3777	2543	12.105	173.2	0.57	0.14
COMBUSTOR	0	40	33 6														
62.217	31.608	3348	556.1(1075)	1.2734	24.464	2943											
62.217	4.662	2163	132.8(660)	1.3159	24.469	2405	1.914	4602	2.416	0.15708	14.684	0.3650	2536	11.235	172.7	0.57	0.41
COMBUSTOR	0	41	34 4														
63.637	33.652	3278	552.7(1051)	1.2771	24.402	2921											
63.637	4.556	2068	123.2(629)	1.3203	24.406	2358	1.966	4636	2.406	0.16130	14.684	0.3593	2531	11.624	172.3	0.57	0.39
COMBUSTOR	0	42	35 5														
66.101	26.082	3580	546.1(1155)	1.2594	24.736	3010											
66.101	5.651	2564	171.1(793)	1.2981	24.749	2586	1.675	4332	2.444	0.15293	14.684	0.3709	2520	10.295	171.6	0.57	0.52
COMBUSTOR	0	43	36 4														
66.477	22.622	3737	545.0(1209)	1.2487	24.909	3052											
66.477	5.959	2819	197.7(879)	1.2867	24.930	2689	1.550	4169	2.463	0.14218	14.684	0.4032	2518	9.211	171.5	0.57	0.59
COMBUSTOR REGEN		44	37 4														
66.477	22.622	4179	736.5(1373)	1.2221	24.858	3196											
66.477	6.999	3327	389.5(1060)	1.2655	24.923	2898	1.446	4191	2.511	0.14218	14.684	0.4032	2636	9.260	179.5	0.57	0.59
NOZZLE AE		45	38 5														
88.713	22.622	3737	545.0(1181)	1.2487	24.909	3052											
88.713	0.444	1518	-240.1(444)	1.3396	24.931	2014	3.113	6268	2.463	0.02960	14.684	1.9371	3081	2.883	209.8	0.57	0.59
NOZZLE PO		46	39 5														
88.713	22.622	3737	545.0(1181)	1.2487	24.909	3052											
88.713	0.153	1152	-352.5(331)	1.3611	24.931	1768	3.790	6702	2.463	0.01441	14.684	3.9798	3215	1.500	218.9	0.57	0.59
NOZZLE AE REGEN		47	40 5														
88.713	22.622	4179	736.5(1373)	1.2221	24.858	3196											
88.713	0.504	1822	-142.8(541)	1.3245	24.931	2190	3.024	6633	2.511	0.02960	14.684	1.9371	3277	3.051	223.2	0.57	0.59
NOZZLE PO REGEN		48	41 5														
88.713	22.622	4179	736.5(1373)	1.2221	24.858	3196											
88.713	0.153	1350	-292.1(392)	1.3492	24.931	1906	3.764	7174	2.511	0.01315	14.684	4.3584	3406	1.467	234.7	0.57	0.59
FICTIVE COMBUSTR		67	60 0														
66.477	313.967	4662	545.0(1333)	1.2090	25.984	3284											
66.477	0.193	823	-823.2(227)	1.3708	26.092	1466	5.644	8274	2.287	0.02605	14.684	2.2007	3863	3.350	263.1	0.57	1.00
FICTIVE NOZZLE		68	61 0														
88.713	16.040	3672	519.8(1189)	1.2804	24.911	3027											
88.713	0.520	1685	-187.1(497)	1.3308	24.931	2114	2.813	5947	2.484	0.02960	14.684	1.9371	2972	2.735	202.4	0.57	0.59

READING = 0088 BLOCK = 169 TIME = 270.601 MACH 7.2 PT = 998.499 TT = 3269.1

XABB	P=IN	P=OB	PCA	QOX	Q=IB	Q=OB	CA=ALL	P=IP/PTO	P=OB/PTO	P=OB/PSO	P=CB/PTO
6.981E=01	6.900E=01	0.000	=2.747E=01	0.000	0.000	0.000	2.470E=02	4.496E 00	6.910E=04	0.000	0.000
1.836E 01	6.900E=01	0.000	=2.294E 01	0.000	0.000	0.000	1.434E 02	4.496E 00	6.910E=04	0.000	0.000
3.070E 01	1.020E 00	0.000	=9.228E 01	0.000	0.000	0.000	5.053E 02	6.647E 00	1.022E=03	0.000	0.000
3.308E 01	1.898E 00	0.000	=1.868E 02	0.000	0.000	0.000	6.804E 02	1.237E 01	1.901E=03	0.000	0.000
3.555E 01	2.170E 00	0.000	=2.094E 02	0.000	0.000	0.000	7.013E 02	1.414E 01	2.173E=03	0.000	0.000
3.606E 01	2.065E 00	0.000	=2.269E 02	=1.657E 02	=1.657E 02	0.000	7.246E 02	1.344E 01	2.068E=03	0.000	0.000
3.648E 01	2.259E 00	0.000	=2.454E 02	=1.697E 02	=1.697E 02	0.000	7.443E 02	1.472E 01	2.262E=03	0.000	0.000
3.661E 01	2.292E 00	3.240E 00	=2.454E 02	=1.711E 02	=1.711E 02	0.000	7.507E 02	1.494E 01	2.294E=03	2.124E 01	3.265E=03
3.662E 01	2.294E 00	3.275E 00	=2.455E 02	=1.711E 02	=1.711E 02	0.000	7.509E 02	1.495E 01	2.297E=03	2.134E 01	3.280E=03
3.701E 01	2.390E 00	4.268E 00	=2.679E 02	=1.750E 02	=1.750E 02	0.000	7.913E 02	1.559E 01	2.394E=03	2.781E 01	4.279E=03
3.729E 01	2.280E 00	4.975E 00	=2.672E 02	=1.779E 02	=1.779E 02	0.000	8.204E 02	1.486E 01	2.283E=03	3.242E 01	4.982E=03
3.803E 01	1.985E 00	8.267E 00	=2.707E 02	=1.861E 02	=1.861E 02	0.000	9.008E 02	1.293E 01	1.988E=03	5.387E 01	8.280E=03
3.875E 01	6.590E 00	1.144E 01	=2.684E 02	=2.540E 02	=2.012E 02	=5.280E 01	9.802E 02	4.294E 01	6.600E=03	7.457E 01	1.146E=02
3.875E 01	6.610E 00	1.143E 01	=2.684E 02	=2.543E 02	=2.013E 02	=5.295E 01	9.806E 02	4.307E 01	6.620E=03	7.451E 01	1.145E=02
3.901E 01	8.280E 00	1.059E 01	=2.729E 02	=2.759E 02	=2.103E 02	=6.563E 01	1.010E 03	5.396E 01	8.292E=03	6.901E 01	1.061E=02
3.950E 01	1.152E 01	9.003E 00	=2.906E 02	=3.227E 02	=2.333E 02	=8.945E 01	1.066E 03	7.507E 01	1.154E=02	5.866E 01	9.016E=03
3.977E 01	1.133E 01	8.137E 00	=3.012E 02	=3.517E 02	=2.494E 02	=1.024E 02	1.097E 03	7.382E 01	1.135E=02	5.303E 01	8.150E=03
4.000E 01	1.116E 01	7.828E 00	=3.079E 02	=3.793E 02	=2.657E 02	=1.136E 02	1.124E 03	7.274E 01	1.118E=02	5.101E 01	7.839E=03
4.024E 01	1.344E 01	7.512E 00	=3.169E 02	=4.089E 02	=2.834E 02	=1.250E 02	1.151E 03	8.759E 01	1.344E=02	4.895E 01	7.524E=03
4.040E 01	1.501E 01	1.096E 01	=3.228E 02	=4.296E 02	=2.967E 02	=1.329E 02	1.170E 03	9.781E 01	1.503E=02	7.140E 01	1.097E=02
4.041E 01	1.511E 01	1.117E 01	=3.230E 02	=4.309E 02	=2.975E 02	=1.334E 02	1.172E 03	9.843E 01	1.513E=02	7.278E 01	1.119E=02
4.075E 01	1.835E 01	1.829E 01	=3.282E 02	=4.746E 02	=3.251E 02	=1.495E 02	1.211E 03	1.195E 02	1.837E=02	1.192E 02	1.831E=02
4.184E 01	2.306E 01	2.000E 00	=3.556E 02	=5.402E 02	=3.676E 02	=1.726E 02	1.269E 03	1.503E 02	2.309E=02	1.303E 01	2.003E=03
4.150E 01	2.559E 01	2.065E 00	=3.457E 02	=5.766E 02	=3.918E 02	=1.848E 02	1.300E 03	1.667E 02	2.563E=02	1.340E 01	2.068E=03
4.246E 01	4.710E 01	2.301E 00	=5.350E 02	=7.368E 02	=4.849E 02	=2.519E 02	1.414E 03	3.069E 02	4.717E=02	1.500E 01	2.305E=03
4.272E 01	4.756E 01	2.366E 00	=5.430E 02	=7.893E 02	=5.110E 02	=2.782E 02	1.445E 03	3.099E 02	4.763E=02	1.542E 01	2.369E=03
4.273E 01	4.757E 01	2.368E 00	=5.447E 02	=7.913E 02	=5.120E 02	=2.793E 02	1.446E 03	3.100E 02	4.765E=02	1.543E 01	2.372E=03
4.280E 01	4.769E 01	2.384E 00	=5.963E 02	=8.048E 02	=5.185E 02	=2.864E 02	1.454E 03	3.107E 02	4.776E=02	1.554E 01	2.388E=03
4.431E 01	5.032E 01	2.611E 01	=7.699E 02	=1.151E 03	=6.641E 02	=4.870E 02	1.636E 03	3.279E 02	5.040E=02	1.702E 02	2.615E=02
4.480E 01	5.117E 01	3.380E 01	=8.026E 02	=1.273E 03	=7.096E 02	=5.630E 02	1.696E 03	3.335E 02	5.125E=02	2.202E 02	3.385E=02
4.552E 01	4.340E 01	4.504E 01	=8.170E 02	=1.448E 03	=7.739E 02	=6.744E 02	1.783E 03	2.82HE 02	4.347E=02	2.935E 02	4.511E=02
4.623E 01	3.569E 01	3.917E 01	=7.813E 02	=1.616E 03	=8.353E 02	=7.811E 02	1.871E 03	2.323E 02	3.570E=02	2.592E 02	3.923E=02
4.626E 01	3.535E 01	3.894E 01	=7.787E 02	=1.623E 03	=8.377E 02	=7.851E 02	1.874E 03	2.303E 02	3.540E=02	2.537E 02	3.900E=02
4.731E 01	2.396E 01	3.031E 01	=6.992E 02	=1.851E 03	=9.229E 02	=9.278E 02	2.004E 03	1.561E 02	2.400E=02	1.975E 02	3.036E=02
4.811E 01	1.785E 01	2.374E 01	=6.212E 02	=2.016E 03	=9.841E 02	=1.032E 03	2.103E 03	1.163E 02	1.788E=02	1.847E 02	2.374E=02
4.876E 01	1.842E 01	1.842E 01	=5.571E 02	=2.147E 03	=1.031E 03	=1.116E 03	2.184E 03	1.201E 02	1.845E=02	1.201E 02	1.845E=02
5.021E 01	1.332E 01	1.332E 01	=4.384E 02	=2.394E 03	=1.129E 03	=1.245E 03	2.365E 03	8.682E 01	1.334E=02	8.682E 01	1.334E=02
5.074E 01	1.146E 01	1.146E 01	=4.042E 02	=2.463E 03	=1.162E 03	=1.301E 03	2.431E 03	7.467E 01	1.148E=02	7.467E 01	1.148E=02
5.215E 01	9.475E 00	9.475E 00	=3.268E 02	=2.616E 03	=1.243E 03	=1.373E 03	2.609E 03	6.174E 01	9.489E=03	6.174E 01	9.489E=03
5.425E 01	6.175E 00	6.175E 00	=2.406E 02	=2.803E 03	=1.345E 03	=1.458E 03	2.815E 03	4.024E 01	6.184E=03	4.024E 01	6.184E=03
5.475E 01	5.992E 00	5.992E 00	=2.248E 02	=2.842E 03	=1.366E 03	=1.476E 03	2.939E 03	3.904E 01	6.001E=03	3.904E 01	6.001E=03
5.550E 01	5.077E 00	5.077E 00	=2.034E 02	=2.897E 03	=1.396E 03	=1.501E 03	3.035E 03	3.308E 01	5.085E=03	3.308E 01	5.085E=03
5.576E 01	4.756E 00	4.756E 00	=1.96AE 02	=2.915E 03	=1.405E 03	=1.509E 03	3.068E 03	3.099E 01	4.763E=03	3.099E 01	4.763E=03
5.626E 01	2.544E 00	4.150E 00	=1.451E 02	=2.948E 03	=1.423E 03	=1.524E 03	3.102E 03	1.658E 01	2.548E=03	2.704E 01	4.156E=03
5.768E 01	3.718E 00	3.718E 00	=1.171E 02	=3.032E 03	=1.471E 03	=1.562E 03	3.209E 03	2.423E 01	3.724E=03	2.423E 01	3.724E=03
5.774E 01	4.400E 00	3.702E 00	=1.161E 02	=3.035E 03	=1.472E 03	=1.563E 03	3.217E 03	2.867E 01	4.407E=03	2.412E 01	3.707E=03
5.788E 01	4.400E 00	3.659E 00	=1.137E 02	=3.042E 03	=1.476E 03	=1.566E 03	3.234E 03	2.867E 01	4.407E=03	2.384E 01	3.665E=03
5.796E 01	3.635E 00	3.635E 00	=1.122E 02	=3.046E 03	=1.478E 03	=1.568E 03	3.245E 03	2.369E 01	3.640E=03	2.369E 01	3.640E=03
5.824E 01	3.550E 00	3.550E 00	=1.075E 02	=3.060E 03	=1.486E 03	=1.574E 03	3.280E 03	2.313E 01	3.555E=03	2.313E 01	3.555E=03
5.846E 01	3.074E 00	3.074E 00	=1.043E 02	=3.070E 03	=1.492E 03	=1.578E 03	3.309E 03	2.003E 01	3.079E=03	2.003E 01	3.079E=03
5.919E 01	1.550E 00	1.550E 00	=9.804E 01	=3.101E 03	=1.509E 03	=1.592E 03	3.402E 03	1.010E 01	1.552E=03	1.010E 01	1.552E=03
6.021E 01	2.075E 00	2.075E 00	=9.384E 01	=3.142E 03	=1.529E 03	=1.613E 03	3.532E 03	1.352E 01	2.078E=03	1.352E 01	2.078E=03
6.222E 01	4.662E 00	4.662E 00	=9.305E 01	=3.217E 03	=1.556E 03	=1.641E 03	3.790E 03	3.038E 01	4.670E=03	3.038E 01	4.670E=03
6.364E 01	4.556E 00	4.556E 00	=9.305E 01	=3.266E 03	=1.571E 03	=1.695E 03	3.972E 03	2.969E 01	4.563E=03	2.969E 01	4.563E=03
6.610E 01	5.651E 00	5.651E 00	=9.305E 01	=3.363E 03	=1.600E 03	=1.743E 03	4.249E 03	3.683E 01	5.660E=03	3.683E 01	5.660E=03
6.648E 01	4.100E 00	5.81AE 00	=9.305E 01	=3.379E 03	=1.605E 03	=1.775E 03	4.337E 03	3.975E 01	6.109E=03	3.791E 01	5.827E=03

READING # 0088 BLOCK # 169 TIME = 270.601 MACH 7.2 PT = 998.499 TT = 3269.1 PAGE 5

XARB	P-IB	P-OB	PBA	DDX	Q-IB	Q-OB	CAWALL	P-IB/P80	P-IB/PT0	P-OB/P80	P-OB/PT0
6.652E 01	4.109E 00	5.836E 00	-9.305E 01	-3.391E 03	-1.605E 03	-1.778E 03	4.342E 03	3.975E 01	6.109E-03	3.803E 01	5.845E-03
6.672E 01	5.933E 00	5.925E 00	-9.305E 01	-3.390E 03	-1.608E 03	-1.782E 03	4.368E 03	3.866E 01	5.942E-03	3.861E 01	5.934E-03
6.838E 01	4.545E 00	4.190E 00	-3.600E 01	-3.456E 03	-1.626E 03	-1.830E 03	4.584E 03	2.962E 01	4.552E-03	2.730E 01	4.196E-03
6.905E 01	3.633E 00	3.457E 00	4.410E 01	-3.479E 03	-1.632E 03	-1.846E 03	4.669E 03	2.367E 01	3.639E-03	2.253E 01	3.463E-03
6.982E 01	2.585E 00	2.175E 00	1.273E 02	-3.502E 03	-1.638E 03	-1.864E 03	4.760E 03	1.684E 01	2.589E-03	1.417E 01	2.178E-03
7.050E 01	2.065E 00	9.750E-01	1.799E 02	-3.523E 03	-1.643E 03	-1.881E 03	4.848E 03	1.346E 01	2.068E-03	6.353E 00	9.765E-04
7.115E 01	1.625E 00	9.733E-01	2.120E 02	-3.540E 03	-1.648E 03	-1.894E 03	4.922E 03	1.059E 01	1.627E-03	6.342E 00	9.747E-04
7.253E 01	9.150E-01	9.693E-01	2.652E 02	-3.571E 03	-1.657E 03	-1.918E 03	5.048E 03	5.962E 00	9.164E-04	6.317E 00	9.708E-04
7.406E 01	4.778E-01	9.650E-01	3.042E 02	-3.596E 03	-1.659E 03	-1.937E 03	5.273E 03	3.114E 00	4.784E-04	6.288E 00	9.664E-04
7.421E 01	4.350E-01	8.383E-01	3.070E 02	-3.598E 03	-1.659E 03	-1.939E 03	5.290E 03	2.835E 00	4.357E-04	5.463E 00	8.396E-04
7.496E 01	4.859E-01	2.050E-01	3.200E 02	-3.610E 03	-1.661E 03	-1.949E 03	5.374E 03	3.164E 00	4.862E-04	1.336E 00	2.053E-04
7.496E 01	4.857E-01	2.016E-01	3.244E 02	-3.610E 03	-1.661E 03	-1.949E 03	5.375E 03	3.165E 00	4.865E-04	1.314E 00	2.019E-04
7.629E 01	5.750E-01	0.000	3.354E 02	-3.634E 03	-1.668E 03	-1.970E 03	5.424E 03	3.747E 00	5.759E-04	0.000	0.000
7.914E 01	2.900E-01	0.000	3.529E 02	-3.638E 03	-1.669E 03	-1.970E 03	5.529E 03	1.890E 00	2.904E-04	0.000	0.000
8.304E 01	3.050E-01	0.000	3.656E 02	-3.749E 03	-1.670E 03	-2.078E 03	5.630E 03	1.987E 00	3.055E-04	0.000	0.000
8.385E 01	3.300E-01	0.000	3.727E 02	-3.749E 03	-1.671E 03	-2.078E 03	5.684E 03	2.150E 00	3.305E-04	0.000	0.000
8.871E 01	5.400E-01	0.000	3.832E 02	-3.750E 03	-1.672E 03	-2.078E 03	5.707E 03	3.519E 00	5.408E-04	0.000	0.000
8.871E 01	5.404E-01	0.000	3.832E 02	-3.750E 03	-1.672E 03	-2.078E 03	5.707E 03	3.522E 00	5.413E-04	0.000	0.000

X	WDRAG	CDRAG	CF	MC
4.040E 01	4.486E 01	4.486E 01	2.281E-03	3.419E-02
4.041E 01	1.722E-01	8.503E 01	3.012E-03	3.751E-02
4.075E 01	5.819E 00	9.085E 01	2.505E-03	5.365E-02
4.124E 01	8.075E 00	9.893E 01	2.791E-03	3.828E-02
4.190E 01	4.408E 00	1.033E 02	2.600E-03	4.275E-02
4.246E 01	1.418E 01	1.175E 02	2.879E-03	5.564E-02
4.272E 01	5.756E 00	1.213E 02	3.430E-03	4.899E-02
4.273E 01	1.404E-01	1.214E 02	3.048E-03	5.519E-02
4.280E 01	8.648E-01	1.223E 02	2.986E-03	5.611E-02
4.431E 01	1.677E 01	1.390E 02	3.276E-03	5.456E-02
4.480E 01	4.064E 00	1.431E 02	3.360E-03	5.229E-02
4.552E 01	5.465E 00	1.486E 02	3.558E-03	4.785E-02
4.623E 01	5.640E 00	1.542E 02	3.310E-03	5.157E-02
4.626E 01	2.293E-01	1.544E 02	3.282E-03	5.199E-02
4.731E 01	9.119E 00	1.636E 02	3.098E-03	4.952E-02
4.811E 01	7.395E 00	1.710E 02	2.999E-03	4.418E-02
4.876E 01	5.888E 00	1.768E 02	2.969E-03	4.059E-02
5.021E 01	1.210E 01	1.889E 02	2.900E-03	3.242E-02
5.074E 01	4.166E 00	1.931E 02	2.977E-03	2.859E-02
5.215E 01	1.034E 01	2.034E 02	2.871E-03	2.505E-02
5.425E 01	1.355E 01	2.170E 02	2.858E-03	1.801E-02
5.475E 01	2.949E 00	2.199E 02	2.765E-03	1.790E-02
5.550E 01	4.205E 00	2.242E 02	2.757E-03	1.576E-02
5.576E 01	1.428E 00	2.256E 02	2.692E-03	1.524E-02
5.626E 01	1.238E 00	2.268E 02	2.549E-03	1.145E-02
5.768E 01	3.318E 00	2.301E 02	2.929E-03	1.219E-02
5.774E 01	8.131E-01	2.303E 02	2.748E-03	1.223E-02
5.788E 01	5.603E-01	2.309E 02	2.818E-03	1.194E-02
5.796E 01	3.546E-01	2.313E 02	3.225E-03	9.977E-03
5.824E 01	1.231E 00	2.325E 02	2.697E-03	1.124E-02
5.846E 01	9.099E-01	2.334E 02	2.665E-03	1.021E-02
5.919E 01	2.922E 00	2.363E 02	2.520E-03	6.366E-03
6.021E 01	3.577E 00	2.399E 02	1.936E-03	9.069E-03
6.222E 01	6.471E 00	2.464E 02	2.364E-03	1.473E-02
6.364E 01	5.473E 00	2.518E 02	2.893E-03	1.250E-02
6.610E 01	1.008E 01	2.619E 02	2.923E-03	1.421E-02
6.648E 01	1.432E 00	2.634E 02	3.164E-03	1.353E-02
6.652E 01	1.920E-01	2.635E 02	3.263E-03	1.326E-02
6.672E 01	7.707E-01	2.643E 02	3.260E-03	1.321E-02
6.838E 01	6.217E 00	2.705E 02	3.192E-03	1.102E-02
6.905E 01	2.173E 00	2.727E 02	3.151E-03	9.649E-03
6.982E 01	2.228E 00	2.749E 02	3.079E-03	7.369E-03
7.054E 01	1.689E 00	2.766E 02	3.002E-03	5.384E-03
7.115E 01	1.206E 00	2.778E 02	2.974E-03	4.801E-03
7.253E 01	2.367E 00	2.802E 02	2.915E-03	3.781E-03
7.406E 01	2.194E 00	2.823E 02	2.865E-03	3.088E-03
7.421E 01	1.814E-01	2.825E 02	2.843E-03	2.808E-03
7.496E 01	7.112E-01	2.832E 02	2.734E-03	1.752E-03
7.496E 01	1.096E-03	2.832E 02	2.733E-03	1.746E-03
7.629E 01	4.192E-01	2.837E 02	2.815E-03	2.588E-03
7.914E 01	7.937E-01	2.848E 02	2.683E-03	1.518E-03
8.304E 01	6.367E-01	2.851E 02	2.674E-03	1.567E-03
8.585E 01	3.438E-01	2.854E 02	2.675E-03	1.657E-03
8.871E 01	1.736E-01	2.856E 02	2.747E-03	2.412E-03
8.871E 01	0.000	2.856E 02	2.747E-03	2.413E-03

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	95.	(LBF)
MEASURED THRUST	490.	(LBF)
CALCULATED SPECIFIC IMPULSE	369.	(LBF-SEC/LBM)
MEASURED SPECIFIC IMPULSE	1907.	(LBF-SEC/LBM)
CALCULATED THRUST COEFFICIENT	0.0660	
MEASURED THRUST COEFFICIENT	0.3409	

REGENERATIVE-COOLED ENGINE PERFORMANCE CALCULATED

STREAM THRUST	3162.	(LBF)
NET THRUST	284.	(LBF)
SPECIFIC IMPULSE	1106.	(LBF-SEC/LBM)
THRUST COEFFICIENT	0.1978	

MOMENTUM AND FORCES

INLET FRICTION DRAG	84.9	(LBF)
INLET MOMENTUM CHANGE	-407.7	(LBF)
COMBUSTOR FRICTION DRAG	178.5	(LBF)
COMBUSTOR STRUT DRAG	2.72	(LBF)
COMBUSTOR MOMENTUM CHANGE	49.	(LBF)
NOZZLE FRICTION DRAG	22.22	(LBF)
NOZZLE STRUT DRAG	0.00	(LBF)
NOZZLE MOMENTUM CHANGE	454.	(LBF)
NOZZLE PRESSURE INTEGRAL	476.	(LBF)
EXTERNAL FRICTION DRAG	0.00	(LBF)
EXTERNAL PRESSURE INTEGRAL	0.	(LBF)
TOTAL EXTERNAL DRAG	-719.	(LBF)
TOTAL STRUT DRAG	2.72	(LBF)
CAVITY FORCE	-657.	(LBF)
CALCULATED LOAD CELL FORCE	-1281.	(LBF)
MEASURED LOAD CELL FORCE	-886.	(LBF)
FUEL VACUUM SPECIFIC IMPULSE 0.0, 0.0,		

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	1.7369	(IN)
INLET THROAT	40.000	(IN)
COWL LEADING EDGE	36.621	(IN)
NOZZLE SHROUD TRAILING EDGE	74.961	(IN)
NOZZLE PLUG TRAILING EDGE	68.713	(IN)
STRUT LEADING EDGE	57.877	(IN)
STRUT TRAILING EDGE	64.477	(IN)
COMBUSTOR EXIT	66.477	(IN)

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.9872	
ADDITIVE DRAG COEFFICIENT	0.0000	
LIFTING PRESSURE RECOVERY EFFICIENCY	0.0997	
DELTA PT2	0.0883	(PSI)
TOTAL PRESSURE RECOVERY - SUPERSONIC	0.3144	
TOTAL PRESSURE RECOVERY - SUBSONIC	0.1010	
INLET PROCESS EFFICIENCY - SUPERSONIC	0.9017	
INLET PROCESS EFFICIENCY - SUBSONIC	0.9120	
KINETIC ENERGY EFFICIENCY - SUPERSONIC	0.9305	
KINETIC ENERGY EFFICIENCY - SUBSONIC	0.8814	
ENTHALPY AT P0 - SUPERSONIC	-26.13	(BTU/LBM)
ENTHALPY AT P0 - SUBSONIC	13.35	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0178	
EQUIVALENCE RATIO	0.568	
COMBUSTOR EFFICIENCY	0.589	
TOTAL PRESSURE RATIO	0.0721	
COMBUSTOR EFFECTIVENESS	0.5327	
INJECTOR DISCHARGE COEFFICIENTS	0.9210,	0.6819,

NOZZLE

VACUUM STREAM THRUST COEFFICIENT - CS	0.9647
NOZZLE COEFFICIENT - CT	0.9007
PROCESS EFFICIENCY	0.9196
KINETIC ENERGY EFFICIENCY	0.9231

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.000	A
1B	42.722	B
1C	44.300	
2A	50.197	
2C	46.250	
3A	55.487	
3B	57.672	
4	46.222	

Reading 88

t = 271.50 sec.

2/12/75

READING = 0098 BLOCK = 170 TIME = 271.501 MACH 7.2 PT = 998.749 TI = 3264.7 PAGE 1

RAMJET PERFORMANCE

S U M M A R Y R E P O R T

	P	T	H		GAMMA	MOLWT	SONV	MACH	VEL	S	F/A	W	A/AC	MOMTM	D	TVAC	PHI	ETAC
WIND TUNNEL		1	0 6															
0.000	998.749	3265	751.4(	874)	1.2852	28.903	2687											
0.000	0.154	320	-52.4(	77)	1.3971	28.901	876	7.236	6342	1.834	0.05697	14.407	0.9873	2879	5.615	199.8		
SPIKE TIP NS		2	0 6															
0.600	11.375	3264	751.4(	874)	1.2843	28.901	2685											
0.600	10.528	3208	734.1(	857)	1.2861	28.901	2664	0.348	928	2.141	0.05697	14.407	0.9873	3078	0.822	213.6		
WIND TUNNEL		3	0 0															
0.000	998.749	3265	751.4(	874)	1.2852	28.903	2687											
0.000	0.172	330	-49.8(	79)	1.3974	28.901	891	7.108	6332	1.834	0.06171	15.603	0.9873	3114	6.072	199.6		
SPIKE TIP NS		4	0 0															
0.600	11.375	3264	751.4(	874)	1.2843	28.901	2685											
0.600	10.343	3197	730.7(	854)	1.2865	28.901	2660	0.383	1018	2.141	0.06171	15.603	0.9873	3114	0.976	199.6		
INLET THROAT		5	0 4															
40.400	315.217	3164	720.2(	844)	1.2883	28.902	2648											
40.400	10.498	1383	211.5(	341)	1.3552	28.902	1796	2.810	5045	1.903	0.71625	14.407	0.0785	2470	56.156	171.5		
INLET UPNRBK		6	0 3															
40.400	315.217	3164	720.2(	844)	1.2883	28.902	2648											
40.400	9.059	1330	197.8(	327)	1.3584	28.901	1763	2.900	5113	1.903	0.65114	14.407	0.0864	2490	51.736	172.8		
INLET DNNRBK		7	0 4															
40.400	100.927	3163	720.2(	844)	1.2882	28.902	2648											
40.400	87.962	3067	690.7(	815)	1.2912	28.902	2610	0.465	1214	1.982	0.65114	14.407	0.0864	2490	12.285	172.8		
COMBUSTOR	0	8	1 18															
40.410	227.869	2991	733.2(	883)	1.2975	25.801	2735											
40.410	13.181	1486	257.5(	411)	1.3532	25.801	1968	2.479	4879	2.091	0.72273	14.539	0.0785	2470	54.797	169.9	0.30	0.02
COMBUSTOR	0	9	2 5															
40.747	160.290	3297	730.1(	978)	1.2830	26.134	2837											
40.747	18.411	1985	302.6(	558)	1.3275	26.136	2239	2.066	4625	2.142	0.72539	14.539	0.0783	2489	52.137	169.1	0.30	0.04
COMBUSTOR	0	10	3 21															
41.237	191.405	2992	725.3(	882)	1.2971	25.826	2733											
41.237	12.532	1536	264.3(	429)	1.3503	25.826	1998	2.404	4803	2.104	0.71940	14.539	0.0789	2424	53.715	166.7	0.30	0.04
COMBUSTOR	0	11	4 21															
41.500	180.266	2940	722.7(	866)	1.2995	25.781	2714											
41.500	13.826	1567	288.2(	435)	1.3491	25.781	2019	2.309	4663	2.103	0.71275	14.539	0.0796	2389	51.649	164.3	0.30	0.01
COMBUSTOR	0	12	5 4															
42.460	94.047	3184	711.3(	942)	1.2874	26.072	2796											
42.460	25.114	2344	434.8(	670)	1.3154	26.073	2425	1.534	3719	2.172	0.67222	14.539	0.0844	2224	38.896	153.0	0.30	0.20
COMBUSTOR	0	13	6 21															
42.722	87.920	2760	720.9(	883)	1.3085	23.464	2766											
42.722	25.329	2040	469.5(	633)	1.3329	23.464	2400	1.478	3547	2.299	0.66898	14.663	0.0856	2171	36.872	148.1	0.57	0.01
COMBUSTOR	0	14	7 2															
42.732	87.723	2756	720.8(	882)	1.3087	23.460	2765											
42.732	25.337	2038	470.2(	633)	1.3330	23.460	2399	1.476	3541	2.298	0.66834	14.663	0.0857	2170	36.778	148.0	0.57	0.01
COMBUSTOR	0	15	8 21															
42.797	86.024	2742	719.9(	877)	1.3093	23.450	2759											
42.797	25.390	2038	474.2(	633)	1.3331	23.450	2400											
								1.461	3506	2.298	0.66586	14.663	0.0860	2157	36.280	147.1	0.57	0.00
COMBUSTOR	0	16	9 21															
44.310	63.270	2673	695.6(	852)	1.3116	23.449	2726											
44.310	38.507	2372	589.5(	747)	1.3219	23.449	2578	0.894	2304	2.315	0.61638	14.663	0.0929	1966	22.071	134.1	0.57	0.00
COMBUSTOR	0	17	10 21															
44.800	57.910	3204	687.1(	1032)	1.2863	23.973	2923											
44.800	42.755	2993	609.3(	956)	1.2935	23.974	2833	0.497	1974	2.371	0.60868	14.663	0.0941	1930	18.677	131.6	0.57	0.22
COMBUSTOR	0	18	11 21															
45.517	60.270	2698	674.9(	860)	1.3094	23.525	2733											
45.517	44.605	2512	608.7(	795)	1.3157	23.525	2643	0.489	1820	2.321	0.60404	14.663	0.0947	1912	17.100	130.4	0.57	0.03

READING = 0088 BLOCK = 170 TIME = 271.501 MACH 7.2 PT = 998.749 TT = 3264.7

	P	T	H		GAMMA	WGHT	SONV	MACH	VEL	S	A/A	W	A/AC	MUPIM	Q	TVAC	PMT	ETAC
COMBUSTOR	0	19	12	21														
46.232	60.044	2594	663.3(	825)	1.3139	23.460	2488											
46.232	37.735	2319	566.7(	729)	1.3231	23.460	2550	0.862	2199	2.309	0.58768	14.663	0.0974	1943	20.086	132.5	0.57	0.00
COMBUSTOR	0	20	13	21														
46.260	60.144	2582	662.8(	821)	1.3145	23.450	2683											
46.260	37.465	2303	564.9(	723)	1.3238	23.450	2542	0.871	2214	2.307	0.58619	14.663	0.0977	1946	20.165	132.7	0.57	0.00
COMBUSTOR	0	21	14	3														
47.310	60.207	2414	647.1(	831)	1.3124	23.520	2693											
47.310	27.375	2159	488.6(	673)	1.3279	23.520	2462	1.144	2817	2.310	0.54341	14.663	0.1053	2022	23.786	137.9	0.57	0.03
COMBUSTOR	0	22	15	4														
48.110	60.022	2673	635.8(	850)	1.3093	23.602	2715											
48.110	20.877	2069	425.9(	641)	1.3301	23.602	2408	1.346	3241	2.316	0.49937	14.663	0.1106	2090	25.108	142.5	0.57	0.06
COMBUSTOR	0	23	16	4														
48.757	57.144	2791	626.8(	889)	1.3036	23.735	2760											
48.757	18.450	2128	395.1(	659)	1.3263	23.735	2432	1.400	3404	2.331	0.45330	14.663	0.1243	2148	23.983	146.5	0.57	0.12
COMBUSTOR	0	24	17	4														
50.207	52.478	2939	609.7(	938)	1.2961	23.922	2814											
50.207	13.397	2127	324.4(	656)	1.3240	23.922	2419	1.562	3778	2.350	0.36838	14.663	0.1554	2255	21.631	153.8	0.57	0.20
COMBUSTOR	0	25	18	2														
50.737	52.440	2928	605.0(	934)	1.2964	23.923	2809											
50.737	11.550	2043	295.3(	628)	1.3271	23.924	2374	1.658	3936	2.348	0.34452	14.663	0.1662	2286	21.076	155.9	0.57	0.20
COMBUSTOR	0	26	19	4														
52.147	47.861	3051	594.3(	975)	1.2902	24.071	2851											
52.147	9.575	2090	256.0(	641)	1.3235	24.072	2390	1.721	4114	2.365	0.29363	14.663	0.1950	2353	18.775	160.8	0.57	0.86
COMBUSTOR	0	27	20	4														
54.247	49.693	2934	579.2(	939)	1.2951	23.908	2812											
54.247	6.200	1780	178.0(	541)	1.3367	23.909	2225	2.014	4481	2.358	0.24144	14.710	0.2379	2427	16.814	165.0	0.58	0.22
COMBUSTOR	0	28	21	4														
54.747	47.609	2977	576.5(	953)	1.2931	23.955	2827											
54.747	6.033	1816	172.3(	553)	1.3347	23.956	2243	2.005	4497	2.365	0.23157	14.710	0.2480	2439	16.185	165.8	0.58	0.24
COMBUSTOR	0	29	22	4														
55.497	49.446	2925	572.7(	935)	1.2954	23.915	2807											
55.497	5.197	1698	148.4(	514)	1.3402	23.916	2175	2.119	4608	2.357	0.21829	14.710	0.2631	2457	15.632	167.0	0.58	0.23
COMBUSTOR	0	30	23	3														
55.760	50.538	2900	571.4(	927)	1.2966	23.894	2797											
55.760	4.904	1647	139.6(	498)	1.3429	23.895	2145	2.167	4648	2.353	0.21402	14.710	0.2684	2462	15.460	167.4	0.58	0.22
COMBUSTOR	0	31	24	3														
56.257	47.039	2896	569.1(	925)	1.2966	23.897	2795											
56.257	3.456	1532	101.1(	460)	1.3486	23.898	2073	2.334	4839	2.398	0.16887	14.710	0.3401	2514	12.700	170.9	0.58	0.22
COMBUSTOR	0	32	25	5														
57.682	36.092	3151	563.0(1012)		1.2840	24.163	2885											
57.682	3.936	1871	113.3(	568)	1.3300	24.165	2262	2.097	4743	2.399	0.15609	14.710	0.3679	2540	11.506	172.6	0.58	0.32
COMBUSTOR	0	33	26	4														
57.737	33.997	3222	562.7(1036)		1.2804	24.234	2909											
57.737	4.185	1978	122.8(	602)	1.3248	24.237	2319	2.023	4692	2.409	0.15568	14.710	0.3689	2541	11.351	172.7	0.58	0.35
COMBUSTOR	0	34	27	3														
57.877	33.742	3229	562.2(1038)		1.2800	24.242	2911											
57.877	4.165	1985	121.9(	604)	1.3245	24.245	2322	2.022	4694	2.410	0.15456	14.710	0.3716	2543	11.275	172.8	0.58	0.36
COMBUSTOR	0	35	28	7														
57.957	37.010	3137	561.9(1007)		1.2847	24.151	2880											
57.957	3.856	1840	107.3(	558)	1.3314	24.153	2246	2.124	4770	2.396	0.15626	14.710	0.3675	2544	11.582	172.9	0.58	0.32
COMBUSTOR	0	36	29	3														
58.237	37.682	3126	560.9(1003)		1.2853	24.143	2876											
58.237	3.778	1814	102.0(	549)	1.3326	24.145	2231	2.148	4792	2.394	0.15580	14.710	0.3686	2547	11.603	173.2	0.58	0.32
COMBUSTOR	0	37	30	4														
58.463	43.914	2986	560.2(	955)	1.2921	24.008	2827											
58.463	3.246	1591	79.3(	478)	1.3444	24.008	2105	2.331	4905	2.370	0.15545	14.710	0.3695	2550	11.850	173.3	0.58	0.26

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	R	IVAC	PHI	ETAC
COMBUSTOR	0	38	31 10														
59.187	114.042	2501	557.9(792)	1.3145	23.557	2634											
59.187	1.550	812	8.3(240)	1.3895	23.597	1543	3.408	5259	2.244	0.15304	14.710	0.3753	2553	12.507	173.6	0.58	0.08
COMBUSTOR	0	39	32 5														
60.207	73.093	2667	555.0(847)	1.3068	23.717	2703											
60.207	2.075	1078	25.7(320)	1.3751	23.717	1763	2.920	5146	2.299	0.15206	14.710	0.3777	2554	12.162	173.6	0.58	0.19
COMBUSTOR	0	40	33 6														
62.217	31.739	3357	549.6(1082)	1.2728	24.408	2950											
62.217	4.687	2171	124.2(665)	1.3154	24.413	2412	1.913	4614	2.422	0.15736	14.710	0.3650	2548	11.282	173.2	0.58	0.42
COMBUSTOR	0	41	34 3														
63.637	33.013	3321	546.1(1069)	1.2747	24.380	2938											
63.637	4.712	2127	119.3(650)	1.3174	24.384	2390	1.934	4622	2.416	0.16162	14.710	0.3553	2542	11.608	172.8	0.58	0.41
COMBUSTOR	0	42	35 5														
66.101	25.298	3671	539.3(1190)	1.2534	24.768	3039											
66.101	6.042	2700	175.4(841)	1.2919	24.785	2645	1.615	4268	2.457	0.15320	14.710	0.3749	2531	10.161	172.1	0.58	0.56
COMBUSTOR	0	43	36 4														
66.477	22.384	3791	538.2(1231)	1.2448	24.903	3069											
66.477	6.188	2898	196.4(909)	1.2828	24.927	2723	1.519	4136	2.472	0.14842	14.710	0.3632	2530	9.154	172.0	0.58	0.61
COMBUSTOR REGEN	44	37 3															
66.477	22.384	4201	718.6(1384)	1.2196	24.849	3202											
66.477	7.210	3380	376.1(1021)	1.2620	24.919	2917	1.419	4140	2.517	0.14242	14.710	0.3632	2637	9.163	179.3	0.58	0.61
NOZZLE AE	45	38 5															
88.713	22.384	3791	538.2(1203)	1.2448	24.903	3069											
88.713	0.456	1564	-256.3(459)	1.3363	24.929	2042	3.088	6309	2.472	0.02965	14.710	1.9371	3109	2.908	211.4	0.58	0.61
NOZZLE PO	46	39 5															
88.713	22.384	3791	538.2(1203)	1.2448	24.903	3069											
88.713	0.154	1181	-374.8(340)	1.3586	24.929	1789	3.778	6759	2.472	0.01417	14.710	4.0527	3250	1.489	220.9	0.58	0.61
NOZZLE AE REGEN	47	40 5															
88.713	22.384	4201	718.6(1384)	1.2196	24.849	3202											
88.713	0.512	1853	-163.5(552)	1.3223	24.929	2210	3.006	6644	2.517	0.02965	14.710	1.9371	3292	3.061	223.8	0.58	0.61
NOZZLE PO REGEN	48	41 5															
88.713	22.384	4201	718.6(1384)	1.2196	24.849	3202											
88.713	0.154	1369	-317.3(398)	1.3473	24.929	1918	3.753	7200	2.517	0.01302	14.710	4.4105	3465	1.457	235.6	0.58	0.61
FICTIVE COMBUSTR	67	60 0															
66.477	315.217	4676	538.2(1542)	1.2082	25.932	3291											
66.477	0.154	828	-838.9(229)	1.3702	26.043	1471	5.642	8301	2.292	0.02595	14.710	2.2130	3888	3.348	263.9	0.58	1.00
FICTIVE NOZZLE	68	61 0															
88.713	14.789	3764	528.7(1222)	1.2440	24.901	3058											
88.713	0.540	1810	-177.3(938)	1.3242	24.929	2186	2.718	5943	2.503	0.02965	14.710	1.9371	2995	2.738	203.6	0.58	0.61

XARS	P=IP	P=OP	PFA	SOX	S=IA	S=OP	CA=ALL	P=IP/PSO	P=JP/PIO	P=OP/PSO	P=OB/PIO
6.981E-01	6.900E-01	0.000	-2.787E-01	0.000	0.000	0.000	2.472E-02	4.494E-01	4.909E-04	0.000	0.000
1.836E 01	6.900E-01	0.000	-2.296E 01	0.000	0.000	0.000	1.654E 02	4.494E 01	6.919E-04	0.000	0.000
5.070E 01	1.025E 00	0.000	-9.248E 01	0.000	0.000	0.000	5.453E 02	6.676E 01	1.026E-03	0.000	0.000
3.508E 01	1.902E 00	0.000	-1.873E 02	0.000	0.000	0.000	6.804E 02	1.239E 01	1.904E-03	0.000	0.000
3.555E 01	2.170E 00	0.000	-2.059E 02	0.000	0.000	0.000	7.013E 02	1.413E 01	2.173E-03	0.000	0.000
3.606E 01	2.070E 00	0.000	-2.274E 02	-1.763E 02	-1.763E 02	0.000	7.204E 02	1.348E 01	2.079E-03	0.000	0.000
3.648E 01	2.260E 00	0.000	-2.659E 02	-1.806E 02	-1.806E 02	0.000	7.447E 02	1.472E 01	2.263E-03	0.000	0.000
3.661E 01	2.292E 00	3.259E 00	-2.680E 02	-1.820E 02	-1.820E 02	0.000	7.507E 02	1.493E 01	2.295E-03	2.123E 01	3.263E-03
3.662E 01	2.293E 00	3.275E 00	-2.860E 02	-1.820E 02	-1.820E 02	0.000	7.509E 02	1.494E 01	2.296E-03	2.133E 01	3.279E-03
3.701E 01	2.385E 00	4.268E 00	-2.880E 02	-1.862E 02	-1.862E 02	0.000	7.913E 02	1.553E 01	2.388E-03	2.780E 01	4.273E-03
3.729E 01	2.276E 00	4.975E 00	-2.877E 02	-1.893E 02	-1.893E 02	0.000	8.204E 02	1.483E 01	2.279E-03	3.240E 01	4.981E-03
3.803E 01	1.985E 00	8.261E 00	-2.712E 02	-1.980E 02	-1.980E 02	0.000	9.004E 02	1.293E 01	1.987E-03	5.381E 01	8.271E-03
3.875E 01	6.619E 00	1.143E 01	-2.692E 02	-2.671E 02	-2.141E 02	-5.298E 01	9.802E 02	4.312E-03	6.628E-03	7.446E 01	1.145E-02
3.875E 01	6.639E 00	1.142E 01	-2.692E 02	-2.673E 02	-2.142E 02	-5.313E 01	9.806E 02	4.325E 01	6.648E-03	7.439E 01	1.144E-02
3.901E 01	8.320E 00	1.059E 01	-2.737E 02	-2.847E 02	-2.238E 02	-6.586E 01	1.010E 03	5.419E 01	8.330E-03	6.897E 01	1.060E-02
3.950E 01	1.156E 01	9.018E 00	-2.916E 02	-3.381E 02	-2.484E 02	-8.975E 01	1.066E 03	7.528E 01	1.157E-02	5.874E 01	9.029E-03
3.977E 01	1.137E 01	8.162E 00	-3.023E 02	-3.603E 02	-2.656E 02	-1.027E 02	1.097E 03	7.405E 01	1.138E-02	5.317E 01	8.173E-03
4.000E 01	1.120E 01	7.840E 00	-3.090E 02	-3.971E 02	-2.831E 02	-1.140E 02	1.124E 03	7.297E 01	1.122E-02	5.107E 01	7.850E-03
4.024E 01	1.348E 01	7.512E 00	-3.180E 02	-4.280E 02	-3.025E 02	-1.245E 02	1.151E 03	8.777E 01	1.349E-02	4.893E 01	7.522E-03
4.040E 01	1.504E 01	1.101E 01	-3.239E 02	-4.496E 02	-3.163E 02	-1.333E 02	1.170E 03	9.796E 01	1.504E-02	7.173E 01	1.103E-02
4.041E 01	1.513E 01	1.123E 01	-3.241E 02	-4.509E 02	-3.171E 02	-1.338E 02	1.172E 03	9.854E 01	1.515E-02	7.312E 01	1.124E-02
4.075E 01	1.837E 01	1.846E 01	-3.292E 02	-4.966E 02	-3.466E 02	-1.500E 02	1.211E 03	1.196E 02	1.839E-02	1.202E 02	1.848E-02
4.120E 01	2.306E 01	2.000E 00	-3.563E 02	-5.694E 02	-3.922E 02	-1.732E 02	1.269E 03	1.502E 02	2.309E-02	1.303E 01	2.003E-03
4.150E 01	2.559E 01	2.065E 00	-3.865E 02	-6.034E 02	-4.180E 02	-1.854E 02	1.300E 03	1.667E 02	2.562E-02	1.345E 01	2.068E-03
4.246E 01	4.792E 01	2.304E 00	-5.376E 02	-7.700E 02	-5.172E 02	-2.527E 02	1.414E 03	3.122E 02	4.799E-02	1.501E 01	2.307E-03
4.272E 01	4.829E 01	2.369E 00	-5.864E 02	-8.240E 02	-5.449E 02	-2.791E 02	1.445E 03	3.145E 02	4.835E-02	1.543E 01	2.372E-03
4.273E 01	4.830E 01	2.371E 00	-5.881E 02	-8.261E 02	-5.460E 02	-2.802E 02	1.446E 03	3.146E 02	4.836E-02	1.545E 01	2.374E-03
4.280E 01	4.839E 01	2.387E 00	-5.999E 02	-8.401E 02	-5.522E 02	-2.873E 02	1.454E 03	3.152E 02	4.849E-02	1.555E 01	2.390E-03
4.431E 01	9.049E 01	2.652E 01	-7.741E 02	-1.195E 03	-7.051E 02	-4.899E 02	1.636E 03	3.289E 02	5.056E-02	1.727E 02	2.655E-02
4.480E 01	9.117E 01	3.433E 01	-8.064E 02	-1.319E 03	-7.514E 02	-5.669E 02	1.696E 03	3.333E 02	5.124E-02	2.236E 02	3.438E-02
4.552E 01	4.344E 01	4.577E 01	-8.190E 02	-1.446E 03	-8.179E 02	-6.800E 02	1.783E 03	2.830E 02	4.350E-02	2.941E 02	4.583E-02
4.623E 01	3.573E 01	3.974E 01	-7.815E 02	-1.669E 03	-8.809E 02	-7.879E 02	1.871E 03	2.327E 02	3.577E-02	2.588E 02	3.979E-02
4.626E 01	3.543E 01	3.950E 01	-7.788E 02	-1.675E 03	-8.834E 02	-7.920E 02	1.874E 03	2.307E 02	3.547E-02	2.573E 02	3.955E-02
4.731E 01	2.410E 01	3.065E 01	-6.934E 02	-1.906E 03	-9.709E 02	-9.349E 02	2.004E 03	1.570E 02	2.413E-02	1.996E 02	3.069E-02
4.811E 01	1.785E 01	2.390E 01	-6.185E 02	-2.072E 03	-1.034E 03	-1.038E 03	2.103E 03	1.163E 02	1.787E-02	1.597E 02	2.393E-02
4.876E 01	1.845E 01	1.845E 01	-5.541E 02	-2.205E 03	-1.082E 03	-1.122E 03	2.184E 03	1.202E 02	1.847E-02	1.202E 02	1.847E-02
5.021E 01	1.340E 01	1.340E 01	-4.351E 02	-2.455E 03	-1.183E 03	-1.272E 03	2.365E 03	8.726E 01	1.341E-02	8.726E 01	1.341E-02
5.074E 01	1.155E 01	1.155E 01	-4.006E 02	-2.524E 03	-1.217E 03	-1.307E 03	2.431E 03	7.523E 01	1.156E-02	7.523E 01	1.156E-02
5.215E 01	9.575E 00	9.575E 00	-3.225E 02	-2.684E 03	-1.301E 03	-1.379E 03	2.609E 03	6.237E 01	9.587E-03	6.237E 01	9.587E-03
5.428E 01	6.200E 00	6.200E 00	-2.357E 02	-2.873E 03	-1.407E 03	-1.466E 03	2.835E 03	4.038E 01	6.208E-03	4.038E 01	6.208E-03
5.475E 01	6.033E 00	6.033E 00	-2.198E 02	-2.913E 03	-1.429E 03	-1.484E 03	2.939E 03	3.930E 01	6.041E-03	3.930E 01	6.041E-03
5.550E 01	9.197E 00	5.197E 00	-1.980E 02	-2.969E 03	-1.460E 03	-1.510E 03	3.035E 03	3.385E 01	5.204E-03	3.385E 01	5.204E-03
5.576E 01	4.904E 00	4.904E 00	-1.912E 02	-2.988E 03	-1.470E 03	-1.518E 03	3.068E 03	3.194E 01	4.910E-03	3.194E 01	4.910E-03
5.626E 01	2.562E 00	4.350E 00	-1.388E 02	-3.023E 03	-1.489E 03	-1.534E 03	3.102E 03	1.669E 01	2.566E-03	2.833E 01	4.355E-03
5.768E 01	3.936E 00	3.936E 00	-1.093E 02	-3.113E 03	-1.537E 03	-1.575E 03	3.209E 03	2.564E 01	3.941E-03	2.564E 01	3.941E-03
5.774E 01	4.450E 00	3.920E 00	-1.082E 02	-3.116E 03	-1.539E 03	-1.577E 03	3.217E 03	2.899E 01	4.456E-03	2.553E 01	3.925E-03
5.788E 01	4.450E 00	3.880E 00	-1.057E 02	-3.123E 03	-1.543E 03	-1.580E 03	3.234E 03	2.899E 01	4.456E-03	2.527E 01	3.884E-03
5.796E 01	3.856E 00	3.856E 00	-1.041E 02	-3.128E 03	-1.546E 03	-1.582E 03	3.245E 03	2.512E 01	3.861E-03	2.512E 01	3.861E-03
5.824E 01	3.775E 00	3.775E 00	-9.915E 01	-3.142E 03	-1.554E 03	-1.589E 03	3.280E 03	2.459E 01	3.780E-03	2.459E 01	3.780E-03
5.846E 01	3.246E 00	3.246E 00	-9.973E 01	-3.154E 03	-1.560E 03	-1.594E 03	3.309E 03	2.114E 01	3.250E-03	2.114E 01	3.250E-03
5.919E 01	1.550E 00	1.550E 00	-8.923E 01	-3.187E 03	-1.578E 03	-1.609E 03	3.402E 03	1.010E 01	1.552E-03	1.010E 01	1.552E-03
6.021E 01	2.075E 00	2.075E 00	-8.504E 01	-3.230E 03	-1.598E 03	-1.632E 03	3.532E 03	1.352E 01	2.078E-03	1.352E 01	2.078E-03
6.222E 01	4.688E 00	4.688E 00	-8.425E 01	-3.309E 03	-1.627E 03	-1.682E 03	3.790E 03	3.053E 01	4.693E-03	3.053E 01	4.693E-03
6.364E 01	4.712E 00	4.712E 00	-8.425E 01	-3.361E 03	-1.643E 03	-1.717E 03	3.972E 03	3.069E 01	4.718E-03	3.069E 01	4.718E-03
6.610E 01	6.042E 00	6.042E 00	-8.425E 01	-3.460E 03	-1.675E 03	-1.785E 03	4.289E 03	3.936E 01	6.050E-03	3.936E 01	6.050E-03
6.648E 01	6.130E 00	6.245E 00	-8.425E 01	-3.477E 03	-1.680E 03	-1.797E 03	4.337E 03	3.993E 01	6.138E-03	4.068E 01	6.253E-03

READING # 0088 BLOCK # 170 TIME # 271,501 MACH 7.2 PI = 998.749 TT = 3264.7

XABS	P-IB	P-OB	PDA	QQX	Q-IB	Q-OB	CANALL	P-TB/P80	P-IB/PTO	P-OB/P80	P-OB/PTO
6.652E 01	5.130E 00	6.287E 00	-8.425E 01	-3.479E 03	-1.680E 03	-1.798E 03	4.342E 03	3.493E 01	4.13PE-03	4.(82E 01	4.275E-03
6.672E 01	5.992E 00	6.375E 00	-8.025E 01	-3.488E 03	-1.683E 03	-1.805E 03	4.348E 03	3.903E 01	5.999E-03	4.152E 01	6.383E-03
6.838E 01	4.845E 00	4.255E 00	-2.466E 01	-3.557E 03	-1.703E 03	-1.854E 03	4.564E 03	3.156E 01	4.851E-03	2.771E 01	4.260E-03
6.905E 01	3.803E 00	3.487E 00	5.832E 01	-3.580E 03	-1.710E 03	-1.871E 03	4.665E 03	2.477E 01	3.80AE-03	2.272E 01	3.492E-03
6.982E 01	2.605E 00	2.186E 00	1.433E 02	-3.605E 03	-1.718E 03	-1.889E 03	4.760E 03	1.697E 01	2.608E-03	1.424E 01	2.189E-03
7.054E 01	2.080E 00	9.700E-01	1.961E 02	-3.627E 03	-1.722E 03	-1.906E 03	4.848E 03	1.355E 01	2.082E-03	6.318E 00	9.712E-04
7.115E 01	1.639E 00	9.735E-01	2.288E 02	-3.645E 03	-1.726E 03	-1.919E 03	4.922E 03	1.065E 01	1.637E-03	6.341E 00	9.747E-04
7.253E 01	9.200E-01	9.813E-01	2.819E 02	-3.677E 03	-1.733E 03	-1.944E 03	5.088E 03	5.992E 00	9.212E-04	6.392E 00	9.825E-04
7.406E 01	4.783E-01	9.900E-01	3.214E 02	-3.704E 03	-1.739E 03	-1.964E 03	5.273E 03	3.115E 00	4.789E-04	6.448E 00	9.912E-04
7.421E 01	4.350E-01	8.600E-01	3.243E 02	-3.706E 03	-1.740E 03	-1.966E 03	5.290E 03	2.833E 00	4.355E-04	5.602E 00	8.611E-04
7.496E 01	4.873E-01	2.100E-01	3.415E 02	-3.719E 03	-1.742E 03	-1.977E 03	5.374E 03	3.174E 00	4.879E-04	1.368E 00	2.103E-04
7.496E 01	4.876E-01	2.065E-01	3.419E 02	-3.719E 03	-1.742E 03	-1.977E 03	5.375E 03	3.176E 00	4.882E-04	1.345E 00	2.068E-04
7.629E 01	5.800E-01	0.000	3.532E 02	-3.744E 03	-1.745E 03	-1.999E 03	5.424E 03	3.778E 00	5.807E-04	0.000	0.000
7.914E 01	3.150E-01	0.000	3.711E 02	-3.748E 03	-1.750E 03	-1.998E 03	5.525E 03	2.052E 00	3.154E-04	0.000	0.000
8.304E 01	3.300E-01	0.000	3.849E 02	-3.614E 03	-1.753E 03	-1.862E 03	5.630E 03	2.149E 00	3.304E-04	0.000	0.000
8.585E 01	3.450E-01	0.000	3.924E 02	-3.615E 03	-1.754E 03	-1.862E 03	5.688E 03	2.247E 00	3.454E-04	0.000	0.000
8.871E 01	5.650E-01	0.000	4.034E 02	-3.617E 03	-1.755E 03	-1.862E 03	5.707E 03	3.680E 00	5.657E-04	0.000	0.000
8.871E 01	5.655E-01	0.000	4.034E 02	-3.617E 03	-1.755E 03	-1.862E 03	5.707E 03	3.683E 00	5.662E-04	0.000	0.000

100

X	DDRAG	CDRAG	CF	HC
4.040E 01	8.492E 01	8.492E 01	2.275E-03	3.413E-02
4.041E 01	1.719E-01	8.510E 01	3.007E-03	3.761E-02
4.075E 01	5.812E 00	9.091E 01	2.505E-03	5.377E-02
4.124E 01	8.075E 00	9.898E 01	2.792E-03	3.824E-02
4.150E 01	4.407E 00	1.034E 02	2.594E-03	4.276E-02
4.206E 01	1.413E 01	1.175E 02	2.879E-03	5.613E-02
4.272E 01	5.746E 00	1.213E 02	3.044E-03	4.911E-02
4.273E 01	1.385E-01	1.214E 02	2.979E-03	5.699E-02
4.280E 01	8.503E-01	1.223E 02	2.990E-03	5.651E-02
4.431E 01	1.667E 01	1.389E 02	3.277E-03	5.461E-02
4.480E 01	4.028E 00	1.430E 02	3.360E-03	5.230E-02
4.552E 01	5.486E 00	1.484E 02	3.454E-03	4.618E-02
4.623E 01	5.683E 00	1.541E 02	3.325E-03	5.147E-02
4.626E 01	2.284E-01	1.543E 02	3.281E-03	5.219E-02
4.731E 01	9.069E 00	1.634E 02	3.092E-03	4.994E-02
4.811E 01	7.384E 00	1.708E 02	2.999E-03	4.441E-02
4.876E 01	5.698E 00	1.767E 02	2.968E-03	4.075E-02
5.021E 01	1.212E 01	1.888E 02	2.898E-03	3.263E-02
5.074E 01	4.170E 00	1.930E 02	2.977E-03	2.880E-02
5.215E 01	1.035E 01	2.033E 02	2.873E-03	2.524E-02
5.425E 01	1.359E 01	2.169E 02	2.862E-03	1.808E-02
5.475E 01	2.958E 00	2.199E 02	2.765E-03	1.802E-02
5.550E 01	4.211E 00	2.241E 02	2.761E-03	1.604E-02
5.576E 01	1.432E 00	2.255E 02	2.710E-03	1.553E-02
5.626E 01	1.247E 00	2.268E 02	2.575E-03	1.167E-02
5.708E 01	3.345E 00	2.301E 02	2.559E-03	1.263E-02
5.774E 01	2.155E-01	2.303E 02	2.794E-03	1.238E-02
5.788E 01	9.667E-01	2.309E 02	2.844E-03	1.216E-02
5.796E 01	3.565E-01	2.313E 02	3.252E-03	1.033E-02
5.824E 01	1.241E 00	2.325E 02	2.748E-03	1.161E-02
5.846E 01	9.243E-01	2.334E 02	2.719E-03	1.049E-02
5.919E 01	2.985E 00	2.364E 02	2.574E-03	6.307E-03
6.021E 01	3.632E 00	2.400E 02	1.931E-03	9.097E-03
6.222E 01	6.485E 00	2.465E 02	2.360E-03	1.484E-02
6.364E 01	5.480E 00	2.520E 02	2.897E-03	1.280E-02
6.610E 01	1.007E 01	2.621E 02	2.957E-03	1.471E-02
6.648E 01	1.437E 00	2.635E 02	3.211E-03	1.367E-02
6.652E 01	1.528E-01	2.637E 02	3.292E-03	1.349E-02
6.672E 01	7.730E-01	2.644E 02	3.290E-03	1.347E-02
6.838E 01	6.858E 00	2.707E 02	3.220E-03	1.126E-02
6.905E 01	2.193E 00	2.729E 02	3.177E-03	9.797E-03
6.982E 01	2.240E 00	2.751E 02	3.102E-03	7.406E-03
7.054E 01	1.692E 00	2.768E 02	3.024E-03	5.385E-03
7.115E 01	1.208E 00	2.780E 02	2.994E-03	4.805E-03
7.253E 01	2.376E 00	2.804E 02	2.940E-03	3.799E-03
7.406E 01	2.213E 00	2.826E 02	2.891E-03	3.123E-03
7.421E 01	1.434E-01	2.828E 02	2.870E-03	2.839E-03
7.496E 01	7.182E-01	2.835E 02	2.760E-03	1.762E-03
7.496E 01	1.105E-03	2.835E 02	2.759E-03	1.756E-03
7.629E 01	4.221E-01	2.839E 02	2.840E-03	2.600E-03
7.914E 01	7.744E-01	2.847E 02	2.722E-03	1.615E-03
8.304E 01	6.730E-01	2.854E 02	2.712E-03	1.662E-03
8.585E 01	3.587E-01	2.857E 02	2.704E-03	1.711E-03
8.871E 01	1.789E-01	2.859E 02	2.778E-03	2.492E-03
8.871E 01	0.000	2.859E 02	2.778E-03	2.493E-03

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	114.	(LBF)
MEASURED THRUST	515.	(LBF)
CALCULATED SPECIFIC IMPULSE	442.	(LBF-SEC/LBM)
MEASURED SPECIFIC IMPULSE	1965.	(LBF-SEC/LBM)
CALCULATED THRUST COEFFICIENT	0.0807	
MEASURED THRUST COEFFICIENT	0.3583	

REGENERATIVE-COOLED ENGINE PERFORMANCE

CALCULATED

STREAM THRUST	3171.	(LBF)
NET THRUST	292.	(LBF)
SPECIFIC IMPULSE	1114.	(LBF-SEC/LBM)
THRUST COEFFICIENT	0.2031	

MOMENTUM AND FORCES

INLET FRICTION DRAG	84.9	(LBF)
INLET MOMENTUM CHANGE	-406.9	(LBF)
COMBUSTOR FRICTION DRAG	178.6	(LBF)
COMBUSTOR STRUT DRAG	1.44	(LBF)
COMBUSTOR MOMENTUM CHANGE	60.	(LBF)
NOZZLE FRICTION DRAG	22.42	(LBF)
NOZZLE STRUT DRAG	0.00	(LBF)
NOZZLE MOMENTUM CHANGE	465.	(LBF)
NOZZLE PRESSURE INTEGRAL	488.	(LBF)
EXTERNAL FRICTION DRAG	0.00	(LBF)
EXTERNAL PRESSURE INTEGRAL	0.	(LBF)
TOTAL EXTERNAL DRAG	-719.	(LBF)
TOTAL STRUT DRAG	1.44	(LBF)
CAVITY FORCE	-670.	(LBF)
CALCULATED LOAD CELL FORCE	-1273.	(LBF)
MEASURED LOAD CELL FORCE	-874.	(LBF)
FUEL VACUUM SPECIFIC IMPULSE 0.0, 0.0,		

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	1.7369	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	36.621	(IN)
NOZZLE SHROUD TRAILING EDGE	74.961	(IN)
NOZZLE PLUG TRAILING EDGE	88.713	(IN)
STRUT LEADING EDGE	57.877	(IN)
STRUT TRAILING EDGE	66.477	(IN)
COMBUSTOR EXIT	66.477	(IN)

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.9873	
ADDITIVE DRAG COEFFICIENT	0.0000	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.0998	
DELTA PT2	0.0882	(PSI)
TOTAL PRESSURE RECOVERY - SUPERSONIC	0.3156	
TOTAL PRESSURE RECOVERY - SUBSONIC	0.1011	
INLET PROCESS EFFICIENCY - SUPERSONIC	0.9023	
INLET PROCESS EFFICIENCY - SUBSONIC	0.9122	
KINETIC ENERGY EFFICIENCY - SUPERSONIC	0.9291	
KINETIC ENERGY EFFICIENCY - SUBSONIC	0.8800	
ENTHALPY AT P0 - SUPERSONIC	-26.60	(BTU/LBM)
ENTHALPY AT P0 - SUBSONIC	12.85	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0182	
EQUIVALENCE RATIO	0.579	
COMBUSTOR EFFICIENCY	0.612	
TOTAL PRESSURE RATIO	0.0710	
COMBUSTOR EFFECTIVENESS	0.5497	
INJECTOR DISCHARGE COEFFICIENTS 0.9202, 0.6873,		

NOZZLE

VACUUM STREAM THRUST COEFFICIENT - CS	0.9634
NOZZLE COEFFICIENT - CT	0.8982
PROCESS EFFICIENCY	0.8762
KINETIC ENERGY EFFICIENCY	0.9180

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	A
1B	42.722	B
1C	44.300	
2A	50.197	
2C	46.250	
3A	55.487	
3H	57.672	
4	46.222	

Reading 88

t = 278.70 sec.

Combustor pressure distributions indicate the injected fuel did not ignite.

READING = 0088 BLOCK = 178 TIME = 278.701 MACH 7.2 PT = 999.249 TT = 3266.3 2/12/75 PAGE 1

RAMJET PERFORMANCE

S U M M A R Y R E P O R T

	P	T	H		GAMMA	MOLWT	SONV	MACH	VEL	S	F/A	M	A/AC	MOMTM	C	IVAC	PHI	ETAC
WIND TUNNEL		1	0	6														
0.000	999.249	3266	751.8	(875)	1.2892	28.903	2687											
0.000	0.194	320	-52.3	(77)	1.3971	28.901	877	7.236	6343	1.834	0.05698	14.413	0.9876	2881	5.617	199.9		
SPIKE TIP NS		2	0	6														
0.600	11.350	3266	751.8	(874)	1.2892	28.901	2686											
0.600	10.500	3210	734.5	(858)	1.2861	28.901	2665	0.349	931	2.142	0.05698	14.413	0.9876	3073	0.825	213.2		
WIND TUNNEL		3	0	0														
0.000	999.249	3266	751.8	(875)	1.2892	28.903	2687											
0.000	0.171	330	-49.9	(79)	1.3974	28.901	891	7.112	6334	1.834	0.06155	15.569	0.9876	3108	6.058	199.6		
SPIKE TIP NS		4	0	0														
0.600	11.350	3266	751.8	(874)	1.2892	28.901	2686											
0.600	10.341	3199	731.1	(854)	1.2864	28.901	2661	0.383	1018	2.142	0.06155	15.569	0.9876	3108	0.974	199.6		
INLET THROAT		5	0	3														
40.400	327.729	3158	718.5	(842)	1.2884	28.902	2646											
40.400	10.256	1358	204.9	(334)	1.3567	28.901	1780	2.848	9069	1.900	0.71612	14.413	0.0786	2477	56.417	171.9		
INLET UPWBK		6	0	3														
40.400	327.729	3158	718.5	(842)	1.2884	28.902	2646											
40.400	8.854	1306	191.5	(321)	1.3599	28.901	1748	2.938	5135	1.900	0.65102	14.413	0.0844	2497	51.956	173.2		
INLET DNWBK		7	0	4														
40.400	101.226	3158	718.5	(842)	1.2883	28.902	2646											
40.400	88.346	3063	689.4	(814)	1.2913	28.902	2608	0.463	1807	1.981	0.65102	14.413	0.0864	2497	12.210	173.2		
COMBUSTOR	0	8	1	21														
40.410	284.925	3130	721.7	(859)	1.2899	28.011	2677											
40.410	10.215	1390	210.5	(353)	1.3556	28.011	1829	2.766	5058	1.959	0.71781	14.449	0.0786	2477	56.422	171.4	0.08	0.07
COMBUSTOR	0	9	2	3														
40.745	267.501	3145	719.5	(864)	1.2891	28.036	2681											
40.745	11.815	1477	227.1	(377)	1.3504	28.036	1881	2.639	4963	1.965	0.72046	14.449	0.0783	2466	55.573	170.7	0.08	0.13
COMBUSTOR	0	10	3	21														
41.235	247.978	3089	716.1	(847)	1.2916	27.984	2662											
41.235	8.016	1331	201.8	(337)	1.3593	27.984	1793	2.830	5073	1.965	0.71474	14.449	0.0789	2440	56.348	168.9	0.08	0.02
COMBUSTOR	0	11	4	21														
41.500	230.612	3076	714.3	(843)	1.2922	27.976	2658											
41.500	8.426	1368	213.9	(347)	1.3572	27.976	1816	2.755	5004	1.969	0.70789	14.449	0.0797	2419	55.051	167.4	0.08	0.00
COMBUSTOR	0	12	5	21														
42.460	156.040	3054	707.5	(837)	1.2929	27.975	2649											
42.460	5.579	1348	208.9	(342)	1.3584	27.975	1804	2.768	4995	1.995	0.66709	14.449	0.0846	2364	51.782	163.6	0.08	0.00
COMBUSTOR	0	13	6	21														
42.730	151.482	3048	705.6	(835)	1.2931	27.975	2647											
42.730	5.803	1370	214.8	(348)	1.3571	27.974	1818	2.726	4956	1.996	0.65840	14.449	0.0857	2353	50.710	162.9	0.08	0.00
COMBUSTOR	0	14	7	21														
42.795	129.826	3143	705.2	(862)	1.2884	28.085	2677											
42.795	5.857	1495	216.2	(378)	1.3495	28.085	1884	2.626	4947	2.014	0.65679	14.449	0.0859	2350	50.493	162.7	0.08	0.23
COMBUSTOR	0	15	8	21														
44.310	135.369	3031	695.9	(829)	1.2933	27.991	2639											
44.310	8.705	1558	261.7	(399)	1.3464	27.991	1930	2.414	4661	2.002	0.60736	14.449	0.0929	2300	43.993	159.2	0.08	0.03
COMBUSTOR	0	16	9	21														
44.800	133.054	3010	693.0	(823)	1.2942	27.977	2631											
44.800	9.626	1593	275.1	(409)	1.3447	27.977	1951	2.344	4573	2.001	0.59983	14.449	0.0940	2286	42.629	158.2	0.08	0.01
COMBUSTOR	0	17	10	21														
45.515	127.463	2995	689.0	(819)	1.2947	27.975	2625											
45.515	10.729	1647	290.6	(424)	1.3421	27.975	1982	2.253	4465	2.003	0.59537	14.449	0.0948	2266	41.312	156.8	0.08	0.00
COMBUSTOR	0	18	11	21														
46.220	111.371	2959	688.1	(831)	1.2965	27.152	2651											
46.220	10.852	1688	300.7	(447)	1.3412	27.152	2034	2.165	4403	2.059	0.58020	14.480	0.0975	2253	39.701	155.6	0.16	0.04

COL 105

	P	T	H		GAMMA	RGLNT	SONV	MACH	VEL	S	W/A	M	ANAC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	19	12	21														
46.230	114.308	2933	698.1(	824)	1.2978	27.123	2642											
46.230	10.853	1656	300.8(	440)	1.3428	27.123	2019	2.180	4402	2.654	0.58018	14.844	0.0975	2253	39.693	155.5	0.16	0.01
COMBUSTOR	0	20	13	21														
46.250	77.456	2839	700.5(	897)	1.3039	23.912	2774											
46.250	10.857	1757	331.0(	930)	1.3421	23.912	2214	1.942	4300	2.291	0.58575	14.649	0.0976	2229	39.142	152.2	0.53	0.05
COMBUSTOR	0	21	14	21														
46.260	85.216	2732	700.4(	861)	1.3088	23.912	2732											
46.260	10.859	1641	331.1(	494)	1.3483	23.912	2149	2.000	4299	2.272	0.58534	14.649	0.0977	2229	39.106	152.2	0.53	0.01
COMBUSTOR	0	22	15	21														
47.310	80.860	2697	693.8(	849)	1.3102	23.797	2717											
47.310	11.042	1647	338.6(	496)	1.3482	23.797	2194	1.957	4216	2.272	0.54269	14.649	0.1084	2218	35.595	151.4	0.53	0.00
COMBUSTOR	0	23	16	21														
48.110	75.868	2680	688.5(	843)	1.3108	23.795	2709											
48.110	10.023	1621	331.1(	487)	1.3494	23.794	2138	1.978	4229	2.275	0.49871	14.649	0.1147	2220	32.773	151.5	0.53	0.00
COMBUSTOR	0	24	17	21														
48.795	70.546	2667	684.3(	839)	1.3112	23.794	2703											
48.795	7.825	1541	305.6(	462)	1.3533	23.794	2088	2.085	4353	2.279	0.45286	14.649	0.1243	2239	30.635	152.6	0.53	0.00
COMBUSTOR	0	25	18	21														
50.195	50.162	2602	688.8(	898)	1.3155	21.560	2809											
50.195	7.552	1620	326.0(	536)	1.3520	21.560	2247	1.896	4261	2.487	0.37222	14.797	0.1552	2260	24.646	152.7	0.86	0.03
COMBUSTOR	0	26	19	21														
50.205	54.467	2514	688.7(	866)	1.3195	21.487	2770											
50.205	7.550	1529	326.0(	504)	1.3573	21.487	2188	1.947	4260	2.468	0.37174	14.797	0.1554	2260	24.613	152.7	0.86	0.00
COMBUSTOR	0	27	20	21														
50.735	54.644	2495	686.8(	859)	1.3203	21.476	2762											
50.735	7.450	1506	324.3(	498)	1.3583	21.476	2176	1.957	4259	2.465	0.34767	14.797	0.1662	2276	23.011	153.8	0.86	0.00
COMBUSTOR	0	28	21	3														
52.145	53.165	2501	682.4(	861)	1.3199	21.490	2763											
52.145	7.812	1540	329.9(	509)	1.3568	21.490	2198	1.910	4200	2.468	0.29631	14.797	0.1950	2322	19.340	156.9	0.86	0.01
COMBUSTOR	0	29	22	21														
54.245	44.799	2464	675.1(	850)	1.3214	21.407	2750											
54.245	5.000	1228	226.9(	403)	1.3723	21.407	1978	2.344	4136	2.485	0.24363	14.844	0.2379	2368	17.931	159.5	0.86	0.00
COMBUSTOR	0	30	23	21														
54.745	46.645	2455	674.0(	847)	1.3218	21.402	2745											
54.745	3.392	1250	236.9(	411)	1.3712	21.402	1996	2.343	4677	2.480	0.23368	14.844	0.2480	2373	16.983	159.9	0.86	0.00
COMBUSTOR	0	31	24	21														
55.495	45.413	2490	672.4(	845)	1.3220	21.402	2743											
55.495	3.123	1229	229.9(	403)	1.3723	21.401	1979	2.378	4706	2.482	0.22028	14.844	0.2631	2382	16.109	160.4	0.86	0.00
COMBUSTOR	0	32	25	21														
55.760	44.955	2448	671.9(	844)	1.3220	21.401	2742											
55.760	3.028	1221	227.3(	400)	1.3727	21.401	1973	2.391	4717	2.483	0.21593	14.844	0.2684	2384	15.828	160.6	0.86	0.00
COMBUSTOR	0	33	26	21														
56.255	33.313	2554	670.9(	883)	1.3171	21.490	2790											
56.255	2.253	1284	208.0(	421)	1.3685	21.490	2016	2.387	4813	2.529	0.17041	14.844	0.3401	2417	12.746	162.8	0.86	0.03
COMBUSTOR	0	34	27	3														
57.680	34.689	2580	668.5(	892)	1.3158	21.517	2801											
57.680	3.642	1461	257.1(	482)	1.3593	21.517	2142	2.118	4537	2.524	0.15751	14.844	0.3679	2437	11.106	164.1	0.86	0.04
COMBUSTOR	0	35	28	21														
57.735	40.435	2460	668.4(	848)	1.3213	21.418	2747											
57.735	2.886	1247	224.5(	409)	1.3712	21.418	1993	2.355	4692	2.494	0.15709	14.844	0.3689	2437	11.484	164.2	0.86	0.01
COMBUSTOR	0	36	29	21														
57.875	41.592	2442	668.2(	842)	1.3222	21.404	2738											
57.875	2.925	1232	229.8(	404)	1.3721	21.404	1981	2.364	4684	2.489	0.15996	14.844	0.3716	2439	11.352	164.3	0.86	0.00
COMBUSTOR	0	37	30	3														
57.955	33.597	2620	668.1(	906)	1.3140	21.551	2818											
57.955	3.794	1515	240.7(	509)	1.3562	21.551	2177	2.074	4515	2.531	0.15768	14.844	0.3675	2440	11.064	164.4	0.86	0.05

READING = 0088 BLOCK = 178 TIME = 278.701 MACH 7.2 PT = 999.249 TT = 3266.3 PAGE 3

	P	T	H		GAMMA	MOLWT	SONV	MACH	VEL	S	F/A	W	A/AC	MOMTM	D	IVAC	PHI	ETAC
COMBUSTOR	0	38	31	3														
58.235	32.330	2663	667.7	(922)	1.3119	21.588	2837											
58.235	3.950	1574	265.1	(521)	1.3528	21.588	2216	2.026	4488	2.500	0.15716	14.844	0.3688	2448	10.962	164.6	0.86	0.06
COMBUSTOR	0	39	32	4														
58.461	37.032	2547	667.3	(880)	1.3173	21.492	2786											
58.461	3.403	1389	243.7	(457)	1.3632	21.492	2093	2.200	4604	2.514	0.15686	14.844	0.3695	2446	11.224	164.8	0.86	0.03
COMBUSTOR	0	40	33	21														
59.185	38.325	2450	666.3	(845)	1.3217	21.415	2742											
59.185	1.650	1081	173.8	(353)	1.3795	21.415	1861	2.667	4964	2.498	0.15443	14.844	0.3753	2449	11.914	165.0	0.86	0.00
COMBUSTOR	0	41	34	21														
60.205	41.473	2432	665.0	(838)	1.3225	21.403	2734											
60.205	2.050	1114	190.0	(364)	1.3780	21.403	1888	2.582	4875	2.488	0.15345	14.844	0.3777	2448	11.626	164.9	0.86	0.00
COMBUSTOR	0	42	35	21														
62.215	42.410	2425	663.1	(836)	1.3228	21.402	2730											
62.215	2.337	1144	200.9	(374)	1.3766	21.402	1913	2.514	4809	2.484	0.15879	14.844	0.3650	2437	11.847	164.2	0.86	0.00
COMBUSTOR	0	43	36	21														
63.635	40.092	2421	661.6	(834)	1.3229	21.401	2728											
63.635	1.837	1085	181.3	(354)	1.3794	21.401	1865	2.629	4903	2.489	0.16309	14.844	0.3593	2429	12.427	163.7	0.86	0.00
COMBUSTOR	0	44	37	3														
66.099	36.768	2448	658.7	(851)	1.3206	21.446	2749											
66.099	3.236	1325	242.6	(434)	1.3669	21.446	2049	2.226	4563	2.504	0.15459	14.844	0.3749	2416	10.962	162.7	0.86	0.01
COMBUSTOR	0	45	38	4														
66.475	28.979	2605	658.2	(901)	1.3143	21.560	2810											
66.475	3.589	1543	266.3	(510)	1.3547	21.560	2196	2.017	4428	2.542	0.14372	14.844	0.4032	2414	9.891	162.6	0.86	0.05
COMBUSTOR	REGEN	46	39	3														
66.475	28.979	2715	700.9	(943)	1.3106	21.560	2865											
66.475	3.746	1633	298.0	(542)	1.3505	21.560	2255	1.991	4490	2.558	0.14372	14.844	0.4032	2458	10.029	165.6	0.86	0.05
NOZZLE AE		47	40	4														
88.711	28.979	2605	658.2	(900)	1.3143	21.560	2810											
88.711	0.292	778	6.9	(251)	1.3916	21.560	1580	3.613	5709	2.542	0.02992	14.844	1.9371	2779	2.654	187.2	0.86	0.05
NOZZLE PO		48	41	4														
88.711	28.979	2605	658.2	(900)	1.3143	21.560	2810											
88.711	0.154	649	-35.2	(209)	1.3960	21.560	1445	4.076	5891	2.542	0.01946	14.844	2.9779	2835	1.782	191.0	0.86	0.05
NOZZLE AE REGEN		49	42	4														
88.711	28.979	2715	700.9	(943)	1.3106	21.560	2865											
88.711	0.304	826	22.8	(267)	1.3897	21.560	1627	3.580	5825	2.558	0.02992	14.844	1.9372	2838	2.708	191.2	0.86	0.05
NOZZLE PO REGEN		50	43	4														
88.711	28.979	2715	700.9	(943)	1.3106	21.560	2865											
88.711	0.154	681	-24.6	(219)	1.3959	21.560	1481	4.069	6025	2.558	0.01895	14.844	3.0586	2900	1.774	195.4	0.86	0.05
FICTIVE COMBUSTR		69	62	0														
66.475	327.729	5404	658.2	(1962)	1.1678	24.365	3588											
66.475	0.154	1146	-1173.5	(340)	1.3048	24.873	1755	5.456	9574	2.486	0.02066	14.844	2.8096	4527	3.073	305.0	0.86	1.00
FICTIVE NOZZLE		70	63	0														
88.711	22.279	2576	646.8	(889)	1.3153	21.560	2795											
88.711	0.331	856	32.5	(274)	1.3885	21.560	1655	3.349	5544	2.562	0.02992	14.844	1.9371	2722	2.578	183.4	0.86	0.05

XABS	P=IP	P=OP	PDA	DOX	Q=IP	Q=OP	CAXALI	P=IP/P80	P=IP/PTO	P=OP/P80	P=OP/PTO
6.941E-01	4.900E-01	0.000	-2.742E-01	0.000	0.000	0.000	2.470E-02	4.492E 00	4.905E-04	0.000	0.000
1.636E 01	4.900E-01	0.000	-2.296E 01	0.000	0.000	0.000	1.434E 02	4.492E 00	4.905E-04	0.000	0.000
3.070E 01	1.020E 00	0.000	-9.22BE 01	0.000	0.000	0.000	5.053E 02	6.641E 00	1.021E-03	0.000	0.000
3.508E 01	1.485E 00	0.000	-1.864E 02	0.000	0.000	0.000	8.804E 02	1.227E 01	1.486E-03	0.000	0.000
3.555E 01	2.115E 00	0.000	-2.046E 02	0.000	0.000	0.000	7.013E 02	1.377E 01	2.117E-03	0.000	0.000
3.606E 01	2.065E 00	0.000	-2.259E 02	-2.239E 02	-2.239E 02	0.000	7.244E 02	1.344E 01	2.067E-03	0.000	0.000
3.648E 01	2.271E 00	0.000	-2.444E 02	-2.293E 02	-2.293E 02	0.000	7.443E 02	1.479E 01	2.272E-03	0.000	0.000
3.661E 01	2.302E 00	3.261E 00	-2.844E 02	-2.311E 02	-2.311E 02	0.000	7.506E 02	1.499E 01	2.304E-03	2.123E 01	3.264E-03
3.662E 01	2.303E 00	3.277E 00	-2.844E 02	-2.312E 02	-2.312E 02	0.000	7.506E 02	1.500E 01	2.305E-03	2.133E 01	3.279E-03
3.701E 01	2.395E 00	4.274E 00	-2.865E 02	-2.345E 02	-2.365E 02	0.000	7.914E 02	1.559E 01	2.397E-03	2.783E 01	4.277E-03
3.728E 01	2.291E 00	4.975E 00	-2.863E 02	-2.404E 02	-2.404E 02	0.000	8.203E 02	1.492E 01	2.293E-03	3.239E 01	4.979E-03
3.803E 01	2.010E 00	8.308E 00	-2.700E 02	-2.514E 02	-2.514E 02	0.000	9.005E 02	1.309E 01	2.012E-03	5.409E 01	8.314E-03
3.874E 01	6.701E 00	1.151E 01	-2.682E 02	-3.319E 02	-2.643E 02	-6.768E 01	9.801E 02	4.363E 01	6.704E-03	7.491E 01	1.151E-02
3.875E 01	6.734E 00	1.149E 01	-2.682E 02	-3.324E 02	-2.644E 02	-6.800E 01	9.807E 02	4.384E 01	6.739E-03	7.480E 01	1.150E-02
3.901E 01	6.440E 00	1.063E 01	-2.730E 02	-3.542E 02	-2.700E 02	-8.426E 01	1.010E 03	5.495E 01	8.444E-03	6.921E 01	1.064E-02
3.950E 01	1.160E 01	9.012E 00	-2.912E 02	-3.968E 02	-2.820E 02	-1.148E 02	1.066E 03	7.550E 01	1.161E-02	5.868E 01	9.019E-03
3.976E 01	1.107E 01	8.137E 00	-3.013E 02	-4.207E 02	-2.895E 02	-1.313E 02	1.097E 03	7.208E 01	1.108E-02	5.298E 01	8.144E-03
4.000E 01	1.060E 01	7.819E 00	-3.077E 02	-4.425E 02	-2.964E 02	-1.488E 02	1.124E 03	6.901E 01	1.061E-02	5.090E 01	7.824E-03
4.023E 01	1.124E 01	7.500E 00	-3.143E 02	-4.646E 02	-3.042E 02	-1.664E 02	1.151E 03	7.330E 01	1.127E-02	4.883E 01	7.506E-03
4.040E 01	1.172E 01	8.615E 00	-3.187E 02	-4.804E 02	-3.098E 02	-1.786E 02	1.171E 03	7.631E 01	1.173E-02	5.609E 01	8.621E-03
4.041E 01	1.175E 01	8.682E 00	-3.188E 02	-4.813E 02	-3.101E 02	-1.712E 02	1.172E 03	7.649E 01	1.176E-02	5.653E 01	8.689E-03
4.074E 01	1.269E 01	1.094E 01	-3.245E 02	-5.137E 02	-3.219E 02	-1.918E 02	1.211E 03	8.259E 01	1.270E-02	7.129E 01	1.095E-02
4.123E 01	1.406E 01	1.975E 00	-3.424E 02	-5.620E 02	-3.405E 02	-2.216E 02	1.269E 03	9.153E 01	1.407E-02	1.286E 01	1.976E-03
4.150E 01	1.480E 01	2.053E 00	-3.592E 02	-5.886E 02	-3.513E 02	-2.373E 02	1.300E 03	9.636E 01	1.481E-02	1.336E 01	2.054E-03
4.246E 01	8.825E 00	2.333E 00	-3.993E 02	-6.866E 02	-3.931E 02	-2.935E 02	1.414E 03	5.746E 01	8.832E-03	1.519E 01	2.335E-03
4.273E 01	9.194E 00	2.412E 00	-4.060E 02	-7.135E 02	-4.051E 02	-3.084E 02	1.444E 03	5.986E 01	9.201E-03	1.571E 01	2.414E-03
4.279E 01	9.283E 00	2.431E 00	-4.074E 02	-7.197E 02	-4.080E 02	-3.117E 02	1.454E 03	6.044E 01	9.290E-03	1.583E 01	2.433E-03
4.431E 01	1.135E 01	6.055E 00	-4.350E 02	-8.948E 02	-4.711E 02	-3.837E 02	1.637E 03	7.393E 01	1.136E-02	3.942E 01	6.060E-03
4.480E 01	1.202E 01	7.227E 00	-4.427E 02	-8.956E 02	-4.899E 02	-4.057E 02	1.696E 03	7.829E 01	1.203E-02	4.706E 01	7.233E-03
4.551E 01	1.252E 01	8.937E 00	-4.529E 02	-9.543E 02	-5.163E 02	-4.379E 02	1.783E 03	8.151E 01	1.253E-02	5.819E 01	8.944E-03
4.622E 01	1.301E 01	8.695E 00	-4.555E 02	-1.014E 03	-5.415E 02	-4.729E 02	1.870E 03	8.469E 01	1.302E-02	5.661E 01	8.702E-03
4.623E 01	1.301E 01	8.692E 00	-4.554E 02	-1.015E 03	-5.418E 02	-4.734E 02	1.871E 03	8.474E 01	1.302E-02	5.659E 01	8.699E-03
4.625E 01	1.303E 01	8.685E 00	-4.555E 02	-1.017E 03	-5.425E 02	-4.745E 02	1.873E 03	8.483E 01	1.304E-02	5.655E 01	8.692E-03
4.626E 01	1.304E 01	8.682E 00	-4.554E 02	-1.018E 03	-5.429E 02	-4.750E 02	1.875E 03	8.487E 01	1.305E-02	5.652E 01	8.688E-03
4.731E 01	1.376E 01	8.321E 00	-4.529E 02	-1.116E 03	-5.788E 02	-5.372E 02	2.004E 03	8.960E 01	1.377E-02	5.418E 01	8.327E-03
4.811E 01	1.200E 01	8.046E 00	-4.411E 02	-1.193E 03	-6.049E 02	-5.843E 02	2.103E 03	7.813E 01	1.201E-02	5.239E 01	8.052E-03
4.875E 01	7.825E 00	7.625E 00	-4.186E 02	-1.255E 03	-6.251E 02	-6.297E 02	2.183E 03	5.095E 01	7.831E-03	5.095E 01	7.831E-03
5.019E 01	7.552E 00	7.552E 00	-3.615E 02	-1.367E 03	-6.647E 02	-6.994E 02	2.363E 03	4.917E 01	7.555E-03	4.917E 01	7.555E-03
5.020E 01	7.550E 00	7.550E 00	-3.611E 02	-1.368E 03	-6.681E 02	-6.997E 02	2.365E 03	4.916E 01	7.554E-03	4.916E 01	7.556E-03
5.073E 01	7.450E 00	7.450E 00	-3.404E 02	-1.397E 03	-6.830E 02	-7.138E 02	2.431E 03	4.850E 01	7.456E-03	4.850E 01	7.456E-03
5.214E 01	7.812E 00	7.812E 00	-2.839E 02	-1.461E 03	-7.202E 02	-7.408E 02	2.609E 03	5.086E 01	7.818E-03	5.086E 01	7.818E-03
5.428E 01	3.000E 00	3.000E 00	-2.244E 02	-1.541E 03	-7.697E 02	-7.718E 02	2.875E 03	1.953E 01	3.002E-03	1.953E 01	3.002E-03
5.474E 01	3.392E 00	3.392E 00	-2.161E 02	-1.558E 03	-7.804E 02	-7.776E 02	2.939E 03	2.208E 01	3.394E-03	2.208E 01	3.394E-03
5.549E 01	3.123E 00	3.123E 00	-2.035E 02	-1.582E 03	-7.958E 02	-7.858E 02	3.035E 03	2.033E 01	3.125E-03	2.033E 01	3.125E-03
5.576E 01	3.028E 00	3.028E 00	-1.993E 02	-1.590E 03	-8.010E 02	-7.886E 02	3.068E 03	1.971E 01	3.030E-03	1.971E 01	3.030E-03
5.625E 01	1.656E 00	2.850E 00	-1.656E 02	-1.604E 03	-8.099E 02	-7.937E 02	3.102E 03	1.078E 01	1.657E-03	1.856E 01	2.852E-03
5.768E 01	3.642E 00	3.642E 00	-1.425E 02	-1.639E 03	-8.321E 02	-8.073E 02	3.209E 03	2.371E 01	3.644E-03	2.371E 01	3.644E-03
5.773E 01	2.100E 00	3.672E 00	-1.415E 02	-1.641E 03	-8.329E 02	-8.078E 02	3.217E 03	1.367E 01	2.102E-03	2.391E 01	3.675E-03
5.787E 01	2.100E 00	3.750E 00	-1.391E 02	-1.644E 03	-8.349E 02	-8.091E 02	3.234E 03	1.367E 01	2.102E-03	2.442E 01	3.753E-03
5.795E 01	3.794E 00	3.794E 00	-1.374E 02	-1.646E 03	-8.360E 02	-8.098E 02	3.245E 03	2.470E 01	3.797E-03	2.470E 01	3.797E-03
5.823E 01	3.950E 00	3.950E 00	-1.325E 02	-1.652E 03	-8.398E 02	-8.124E 02	3.280E 03	2.572E 01	3.953E-03	2.572E 01	3.953E-03
5.846E 01	3.403E 00	3.403E 00	-1.289E 02	-1.657E 03	-8.427E 02	-8.145E 02	3.309E 03	2.215E 01	3.405E-03	2.215E 01	3.405E-03
5.91AE 01	1.650E 00	1.650E 00	-1.221E 02	-1.673E 03	-8.516E 02	-8.213E 02	3.402E 03	1.074E 01	1.651E-03	1.074E 01	1.651E-03
6.020E 01	2.050E 00	2.050E 00	-1.178E 02	-1.692E 03	-8.625E 02	-8.291E 02	3.532E 03	1.335E 01	2.052E-03	1.335E 01	2.052E-03
6.221E 01	2.337E 00	2.337E 00	-1.173E 02	-1.720E 03	-8.796E 02	-8.408E 02	3.790E 03	1.522E 01	2.339E-03	1.522E 01	2.339E-03
6.363E 01	1.837E 00	1.837E 00	-1.173E 02	-1.742E 03	-8.901E 02	-8.514E 02	3.972E 03	1.196E 01	1.839E-03	1.196E 01	1.839E-03

READING = 0048 BLOCK = 178 TIME = 278.701 MACH 7.2 PT = 999.249 TT = 3264.3

XABS	P=IP	P=OB	PBA	GOX	G=IP	G=OB	CAXALL	P=TB/PSO	P=IB/PTO	P=OB/PSO	P=OB/PTO
6.610E 01	3.236E 00	5.236E 00	-1.173E 02	-1.745E 03	-9.090E 02	-8.740E 02	4.269E 03	2.107E 01	3.23RE-03	2.107E 01	3.23RE-03
6.647E 01	3.733E 00	3.449E 00	-1.173E 02	-1.792E 03	-9.125E 02	-8.900E 02	4.337E 03	2.422E 01	3.733E-03	2.245E 01	3.451E-03
6.651E 01	3.733E 00	3.472E 00	-1.173E 02	-1.793E 03	-9.129E 02	-8.904E 02	4.342E 03	2.426E 01	3.733E-03	2.260E 01	3.474E-03
6.671E 01	3.640E 00	3.585E 00	-1.173E 02	-1.797E 03	-9.140E 02	-8.826E 02	4.356E 03	2.370E 01	3.643E-03	2.334E 01	3.588E-03
6.837E 01	2.895E 00	1.700E 00	-8.519E 01	-1.825E 03	-9.261E 02	-8.992E 02	4.580E 03	1.885E 01	2.897E-03	1.107E 01	1.701E-03
6.904E 01	2.146E 00	1.455E 00	-4.362E 01	-1.836E 03	-9.300E 02	-9.055E 02	4.665E 03	1.397E 01	2.147E-03	9.473E 00	1.456E-03
6.981E 01	1.285E 00	1.204E 00	-3.635E-01	-1.848E 03	-9.342E 02	-9.119E 02	4.760E 03	8.346E 00	1.284E-03	7.841E 00	1.205E-03
7.053E 01	1.207E 00	9.700E-01	3.051E 01	-1.862E 03	-9.379E 02	-9.236E 02	4.844E 03	7.855E 00	1.207E-03	6.315E 00	9.707E-04
7.114E 01	1.140E 00	9.555E-01	5.422E 01	-1.872E 03	-9.412E 02	-9.311E 02	4.922E 03	7.422E 00	1.141E-03	6.208E 00	9.543E-04
7.252E 01	8.100E-01	9.163E-01	9.474E 01	-1.888E 03	-9.488E 02	-9.390E 02	5.088E 03	5.274E 00	8.106E-04	5.966E 00	9.170E-04
7.405E 01	4.776E-01	8.750E-01	1.349E 02	-1.903E 03	-9.563E 02	-9.467E 02	5.273E 03	3.109E 00	4.779E-04	5.697E 00	8.757E-04
7.420E 01	4.450E-01	7.633E-01	1.376E 02	-1.905E 03	-9.569E 02	-9.480E 02	5.290E 03	2.897E 00	4.453E-04	4.970E 00	7.639E-04
7.495E 01	4.991E-01	2.050E-01	1.539E 02	-1.915E 03	-9.594E 02	-9.556E 02	5.374E 03	3.249E 00	4.995E-04	1.335E 00	2.052E-04
7.496E 01	4.994E-01	2.020E-01	1.543E 02	-1.915E 03	-9.594E 02	-9.557E 02	5.375E 03	3.251E 00	4.998E-04	1.315E 00	2.022E-04
7.628E 01	5.950E-01	0.000	1.659E 02	-1.936E 03	-9.642E 02	-9.718E 02	5.524E 03	3.874E 00	5.954E-04	0.000	0.000
7.913E 01	2.650E-01	0.000	1.831E 02	-1.943E 03	-9.711E 02	-9.718E 02	5.525E 03	1.725E 00	2.652E-04	0.000	0.000
8.303E 01	2.750E-01	0.000	1.946E 02	-1.949E 03	-9.769E 02	-9.718E 02	5.630E 03	1.790E 00	2.752E-04	0.000	0.000
8.584E 01	3.100E-01	0.000	2.011E 02	-1.953E 03	-9.815E 02	-9.718E 02	5.684E 03	2.018E 00	3.102E-04	0.000	0.000
8.870E 01	4.250E-01	0.000	2.100E 02	-1.962E 03	-9.900E 02	-9.718E 02	5.707E 03	2.767E 00	4.253E-04	0.000	0.000
8.871E 01	4.252E-01	0.000	2.100E 02	-1.962E 03	-9.900E 02	-9.718E 02	5.707E 03	2.769E 00	4.254E-04	0.000	0.000

X	ODRAG	CDRAG	CF	MC
4.040E 01	9.500E 01	8.500E 01	2.27BE+03	3.592E+02
4.041E 01	1.590E+01	8.516E 01	2.532E+03	5.304E+02
4.074E 01	5.394E 00	9.055E 01	2.382E+03	3.815E+02
4.123E 01	7.763E 00	9.832E 01	2.433E+03	2.822E+02
4.150E 01	8.235E 00	1.026E 02	2.426E+03	2.930E+02
4.246E 01	1.519E 01	1.177E 02	2.557E+03	2.061E+02
4.273E 01	8.228E 00	1.220E 02	2.571E+03	2.131E+02
4.279E 01	1.014E 00	1.230E 02	2.57?E+03	2.143E+02
4.431E 01	2.288E 01	1.459E 02	2.729E+03	2.724E+02
4.480E 01	4.960E 00	1.528E 02	2.674E+03	2.954E+02
4.551E 01	9.837E 00	1.627E 02	2.498E+03	5.177E+02
4.622E 01	9.798E 00	1.725E 02	2.904E+03	3.085E+02
4.623E 01	1.389E+01	1.726E 02	2.760E+03	3.207E+02
4.625E 01	2.992E+01	1.729E 02	3.463E+03	2.896E+02
4.626E 01	1.558E+01	1.730E 02	2.968E+03	3.333E+02
4.731E 01	1.413E 01	1.872E 02	2.878E+03	3.371E+02
4.811E 01	9.698E 00	1.969E 02	2.849E+03	3.102E+02
4.875E 01	7.200E 00	2.041E 02	2.811E+03	2.573E+02
5.019E 01	1.535E 01	2.194E 02	3.363E+03	2.157E+02
5.020E 01	1.036E+01	2.195E 02	3.363E+03	2.157E+02
5.073E 01	4.893E 00	2.244E 02	2.819E+03	2.456E+02
5.214E 01	1.047E 01	2.349E 02	2.751E+03	2.467E+02
5.424E 01	1.351E 01	2.484E 02	2.693E+03	1.230E+02
5.474E 01	2.957E 00	2.514E 02	2.622E+03	1.351E+02
5.549E 01	4.136E 00	2.555E 02	2.595E+03	1.263E+02
5.576E 01	1.404E 00	2.569E 02	2.587E+03	1.231E+02
5.625E 01	1.216E 00	2.581E 02	2.513E+03	9.476E+03
5.768E 01	3.303E 00	2.614E 02	2.632E+03	1.258E+02
5.773E 01	2.094E+01	2.616E 02	2.638E+03	1.067E+02
5.787E 01	5.214E+01	2.621E 02	2.507E+03	1.115E+02
5.795E 01	2.993E+01	2.624E 02	2.712E+03	1.260E+02
5.823E 01	1.061E 00	2.635E 02	2.690E+03	1.299E+02
5.846E 01	8.428E+01	2.644E 02	2.705E+03	1.164E+02
5.918E 01	2.823E 00	2.672E 02	2.565E+03	7.201E+03
6.020E 01	1.844E 00	2.710E 02	2.432E+03	8.665E+03
6.221E 01	7.347E 00	2.784E 02	2.419E+03	9.552E+03
6.363E 01	5.348E 00	2.837E 02	2.414E+03	8.047E+03
6.610E 01	9.063E 00	2.928E 02	2.489E+03	1.178E+02
6.647E 01	1.282E 00	2.941E 02	2.608E+03	1.222E+02
6.651E 01	1.356E+01	2.942E 02	2.730E+03	1.174E+02
6.671E 01	6.939E+01	2.949E 02	2.729E+03	1.176E+02
6.837E 01	5.246E 00	3.001E 02	2.633E+03	8.628E+03
6.904E 01	1.656E 00	3.018E 02	2.585E+03	7.267E+03
6.9A1E 01	1.619E 00	3.034E 02	2.513E+03	5.583E+03
7.053E 01	1.289E 00	3.047E 02	2.483E+03	5.059E+03
7.114E 01	1.028E 00	3.057E 02	2.475E+03	4.916E+03
7.292E 01	2.152E 00	3.079E 02	2.437E+03	4.266E+03
7.405E 01	2.076E 00	3.100E 02	2.387E+03	3.561E+03
7.420E 01	1.728E+01	3.101E 02	2.367E+03	3.279E+03
7.495E 01	6.917E+01	3.108E 02	2.275E+03	2.207E+03
7.496E 01	1.093E+03	3.108E 02	2.274E+03	2.200E+03
7.628E 01	4.208E+01	3.113E 02	2.359E+03	3.229E+03
7.913E 01	7.341E+01	3.120E 02	2.212E+03	1.776E+03
8.303E 01	5.860E+01	3.126E 02	2.203E+03	1.810E+03
8.584E 01	3.197E+01	3.129E 02	2.211E+03	1.966E+03
8.870E 01	1.537E+01	3.130E 02	2.251E+03	2.465E+03

READING # 0368 BLOCK # 178 TIME # 278.701 MACH 7.2 PT # 999.249 TT # 5264.3

X	DDRAG	CDRAG	CF	HC
8.871F 01	0.000	3.130F 02	2.251E-03	2.467E-03

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RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	=159.	(LBF)
MEASURED THRUST	=134.	(LBF)
CALCULATED SPECIFIC IMPULSE	=407.	(LBF=SEC/LBM)
MEASURED SPECIFIC IMPULSE	=344.	(LBF=SEC/LBM)
CALCULATED THRUST COEFFICIENT	=.1104	
MEASURED THRUST COEFFICIENT	=.0932	

REGENERATIVE-COOLED ENGINE PERFORMANCE CALCULATED

STREAM THRUST	278).	(LBF)
NET THRUST	=100.	(LBF)
SPECIFIC IMPULSE	=257.	(LBF=SEC/LBM)
THRUST COEFFICIENT	=.0698	

MOMENTUM AND FORCES

INLET FRICTION DRAG	85.0	(LBF)
INLET MOMENTUM CHANGE	=403.7	(LBF)
COMBUSTOR FRICTION DRAG	209.1	(LBF)
COMBUSTOR STRUT DRAG	15.30	(LBF)
COMBUSTOR MOMENTUM CHANGE	=63.	(LBF)
NOZZLE FRICTION DRAG	18.98	(LBF)
NOZZLE STRUT DRAG	0.00	(LBF)
NOZZLE MOMENTUM CHANGE	308.	(LBF)
NOZZLE PRESSURE INTEGRAL	327.	(LBF)
EXTERNAL FRICTION DRAG	0.00	(LBF)
EXTERNAL PRESSURE INTEGRAL	0.	(LBF)
TOTAL EXTERNAL DRAG	=719.	(LBF)
TOTAL STRUT DRAG	15.30	(LBF)
CAVITY FORCE	=596.	(LBF)
CALCULATED LOAD CELL FORCE	=1474.	(LBF)
MEASURED LOAD CELL FORCE	=1449.	(LBF)

FUEL VACUUM SPECIFIC IMPULSE 0.0, 0.0, =142.6, =115.4,

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	1.7349	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	36.619	(IN)
NOZZLE SHROUD TRAILING EDGE	74.959	(IN)
NOZZLE PLUG TRAILING EDGE	88.711	(IN)
STRUT LEADING EDGE	57.875	(IN)
STRUT TRAILING EDGE	66.475	(IN)
COMBUSTOR EXIT	66.475	(IN)

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.9876	
ADDITIVE DRAG COEFFICIENT	0.0000	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.1000	
DELTA PT2	0.0876	(PSI)
TOTAL PRESSURE RECOVERY = SUPERSONIC	0.3280	
TOTAL PRESSURE RECOVERY = SUBSONIC	0.1013	
INLET PROCESS EFFICIENCY = SUPERSONIC	0.9052	
INLET PROCESS EFFICIENCY = SUBSONIC	0.9127	
KINETIC ENERGY EFFICIENCY = SUPERSONIC	0.9282	
KINETIC ENERGY EFFICIENCY = SUBSONIC	0.8780	
ENTHALPY AT P0 = SUPERSONIC	=27.94	(BTU/LBM)
ENTHALPY AT P0 = SUBSONIC	12.44	(BTU/LBM)

COMBUSTOR

FUEL=AIR RATIO	0.0270	
EQUIVALENCE RATIO	0.861	
COMBUSTOR EFFICIENCY	0.053	
TOTAL PRESSURE RATIO	0.0884	
COMBUSTOR EFFECTIVENESS	0.1716	

INJECTOR DISCHARGE COEFFICIENTS 0.8473, 0.7576, 0.8961, 0.7459

NOZZLE

VACUUM STREAM THRUST COEFFICIENT = CS	0.9796	
NOZZLE COEFFICIENT = CT	0.9334	
PROCESS EFFICIENCY	0.9342	
KINETIC ENERGY EFFICIENCY	0.9566	

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	A
1B	42.720	
1C	44.300	
2A	50.195	C
2C	44.250	F
3A	55.485	
3H	57.670	
4	46.220	C

Reading 88

t = 285.90 sec.

Combustor pressure distributions indicate the injected fuel did not ignite,

Fuel ignition during the second fuel schedule appeared to occur at about time 290 seconds when the fuel flow rate from injector 4 reached a peak prior to a fuel flow decrease (see fig. 6(a)).

2/12/75

READING = 0088 BLOCK = 186 TIME = 289.901 MACH 7.2 PT = 998.749 TT = 3248.2 PAGE 1

RAMJET PERFORMANCE

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S U M M A R Y R E P O R T

	P	T	H	GAMMA	MOL-T	SONV	MACH	VEL	S	A/A	%	A/AC	MOMTM	D	IVAC	PHI	ETAC
WIND TUNNEL		1	0 6														
0.000	998.749	3248	746.3(869)	1.2857	28.903	2680											
0.000	0.154	318	-52.9(76)	1.3970	28.901	874	7.238	6324	1.832	0.05721	14.475	0.9878	2884	5.622	199.2		
SPIKE TIP NS		2	0 8														
0.600	11.325	3248	746.3(869)	1.2848	28.901	2679											
0.600	10.471	3191	728.9(852)	1.2867	28.901	2658	0.351	932	2.140	0.05721	14.475	0.9878	3069	0.829	212.0		
WIND TUNNEL		3	0 0														
0.000	998.749	3248	746.3(869)	1.2857	28.903	2680											
0.000	0.171	327	-50.8(79)	1.3973	28.901	887	7.119	6314	1.832	0.06161	15.589	0.9878	3103	6.046	199.0		
SPIKE TIP NS		4	0 0														
0.600	11.325	3248	746.3(869)	1.2848	28.901	2679											
0.600	10.317	3181	725.6(849)	1.2870	28.901	2654	0.383	1016	2.140	0.06161	15.589	0.9878	3103	0.972	199.0		
INLET THROAT		5	0 2														
40.400	326.362	3145	714.5(839)	1.2888	28.902	2641											
40.400	10.306	1354	204.1(333)	1.3569	28.902	1778	2.842	5054	1.899	0.71921	14.475	0.0786	2481	56.487	171.4		
INLET UPNRSK		6	0 3														
40.400	326.362	3145	714.5(839)	1.2888	28.902	2641											
40.400	8.896	1303	190.6(320)	1.3601	28.901	1746	2.933	5120	1.899	0.65383	14.475	0.0864	2500	52.024	172.7		
INLET DNNRSK		7	0 4														
40.400	101.367	3145	714.5(839)	1.2887	28.902	2641											
40.400	88.448	3050	685.5(810)	1.2917	28.902	2603	0.463	1206	1.979	0.65383	14.475	0.0864	2500	12.290	172.7		
COMBUSTOR	0	8	1 21														
40.410	247.403	3090	721.3(874)	1.2920	27.117	2706											
40.410	10.359	1423	216.8(374)	1.3545	27.117	1880	2.672	5025	2.018	0.72283	14.550	0.0786	2481	56.444	170.5	0.17	0.07
COMBUSTOR	0	9	2 3														
40.745	358.535	3036	719.1(858)	1.2945	27.046	2687											
40.745	12.049	1433	234.4(377)	1.3545	27.065	1888	2.608	4925	2.010	0.72550	14.550	0.0783	2469	55.523	169.7	0.17	0.08
COMBUSTOR	0	10	3 21														
41.235	227.030	3012	715.7(850)	1.2955	27.050	2678											
41.235	8.413	1336	211.7(350)	1.3602	27.050	1828	2.748	5022	2.017	0.71973	14.550	0.0789	2441	56.168	167.8	0.17	0.00
COMBUSTOR	0	11	4 21														
41.500	209.659	3004	713.8(848)	1.2958	27.048	2675											
41.500	8.906	1381	224.8(363)	1.3576	27.048	1856	2.665	4947	2.022	0.71284	14.550	0.0797	2419	54.798	166.2	0.17	0.00
COMBUSTOR	0	12	5 21														
42.460	131.624	2983	707.0(841)	1.2965	27.048	2666											
42.460	4.928	1324	209.2(347)	1.3609	27.047	1820	2.742	4991	2.054	0.67175	14.550	0.0846	2364	52.100	162.5	0.17	0.00
COMBUSTOR	0	13	6 21														
42.730	72.061	3036	705.1(977)	1.2739	27.564	2810											
42.730	9.224	1867	215.2(496)	1.3287	27.568	2115	2.341	4952	2.128	0.66300	14.550	0.0857	2354	51.019	161.8	0.17	0.55
COMBUSTOR	0	14	7 21														
42.795	116.547	3045	704.7(860)	1.2933	27.123	2687											
42.795	5.295	1430	216.6(376)	1.3541	27.123	1884	2.623	4942	2.068	0.66138	14.550	0.0859	2361	50.796	161.6	0.17	0.08
COMBUSTOR	0	15	8 21														
44.310	126.573	2960	698.5(834)	1.2969	27.059	2656											
44.310	8.794	1544	267.7(409)	1.3485	27.059	1956	2.368	4633	2.054	0.61140	14.550	0.0929	2304	44.031	158.4	0.17	0.01
COMBUSTOR	0	16	9 21														
44.800	125.098	2945	694.4(829)	1.2976	27.049	2650											
44.800	9.926	1588	283.0(421)	1.3463	27.049	1983	2.289	4537	2.053	0.60402	14.550	0.0940	2291	42.589	157.5	0.17	0.00
COMBUSTOR	0	17	10 21														
45.515	120.632	2934	691.4(826)	1.2980	27.048	2646											
45.515	11.182	1646	300.0(438)	1.3435	27.047	2016	2.195	4425	2.055	0.59953	14.550	0.0948	2273	41.233	156.2	0.17	0.00
COMBUSTOR	0	18	11 21														
46.220	99.780	2890	684.6(954)	1.3006	25.670	2698											
46.220	11.345	1702	315.3(474)	1.3424	25.670	2106	2.071	4356	2.152	0.58546	14.414	0.0975	2262	39.635	154.8	0.31	0.03

READING = 0088 BLOCK = 186 TTRF = 285.901 MACH 7.2 PT = 958.749 TT = 3248.2 PAGE 2

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	S/A	A	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	19	12 21														
46.230	104.239	2844	694.5(880)	1.3027	25.623	2681											
46.230	11.348	1652	315.4(463)	1.3452	25.623	2077	2.097	4355	2.144	0.58504	14.816	0.0975	2262	39.627	154.8	0.31	0.01
COMBUSTOR	0	20	13 21														
46.250	75.966	2780	708.2(904)	1.3072	23.137	2795											
46.250	11.392	1742	344.4(502)	1.3441	23.137	2243	1.902	4267	2.343	0.59006	14.756	0.0976	2241	39.126	151.9	0.63	0.04
COMBUSTOR	0	21	14 21														
46.260	82.070	2691	708.2(873)	1.3113	23.056	2759											
46.260	11.355	1646	344.5(511)	1.3492	23.056	2189	1.949	4266	2.327	0.58965	14.756	0.0977	2241	39.092	151.9	0.63	0.01
COMBUSTOR	0	22	15 21														
47.310	78.037	2665	703.4(864)	1.3124	23.044	2747											
47.310	11.598	1659	353.4(515)	1.3488	23.044	2197	1.905	4185	2.327	0.54668	14.756	0.1054	2232	35.553	151.3	0.63	0.00
COMBUSTOR	0	23	16 21														
48.110	73.192	2652	699.7(859)	1.3128	23.043	2741											
48.110	10.423	1632	345.3(507)	1.3500	23.043	2181	1.931	4211	2.331	0.50238	14.756	0.1147	2238	32.877	151.6	0.63	0.00
COMBUSTOR	0	24	17 21														
48.755	69.004	2644	696.8(856)	1.3131	23.042	2737											
48.755	8.650	1574	326.0(487)	1.3528	23.042	2143	2.010	4308	2.335	0.45619	14.756	0.1263	2255	30.339	152.8	0.63	0.00
COMBUSTOR	0	25	18 21														
50.195	50.341	2598	703.4(910)	1.3163	21.214	2831											
50.195	7.656	1620	337.0(505)	1.3526	21.214	2266	1.890	4282	2.517	0.37444	14.885	0.1552	2285	24.916	153.5	0.91	0.02
COMBUSTOR	0	26	19 21														
50.205	53.930	2523	703.4(882)	1.3198	21.153	2797											
50.205	7.649	1539	336.9(517)	1.3571	21.153	2216	1.933	4282	2.500	0.37395	14.885	0.1554	2286	24.886	153.6	0.91	0.00
COMBUSTOR	0	27	20 21														
50.735	53.556	2507	701.7(877)	1.3204	21.145	2790											
50.735	7.283	1512	331.4(507)	1.3585	21.144	2198	1.959	4304	2.499	0.34973	14.885	0.1662	2301	23.294	154.6	0.91	0.00
COMBUSTOR	0	28	21 21														
52.145	53.206	2499	697.6(872)	1.3209	21.143	2784											
52.145	7.887	1538	341.5(517)	1.3573	21.143	2216	1.905	4221	2.497	0.29807	14.885	0.1950	2347	19.853	157.7	0.91	0.00
COMBUSTOR	0	29	22 21														
54.245	44.235	2474	690.1(867)	1.3216	21.077	2777											
54.245	3.150	1253	240.3(418)	1.3714	21.077	2013	2.356	4744	2.518	0.24508	14.932	0.2379	2394	18.069	160.3	0.91	0.00
COMBUSTOR	0	30	23 21														
54.745	45.103	2467	689.0(864)	1.3219	21.074	2774											
54.745	3.358	1265	245.7(422)	1.3708	21.074	2022	2.329	4710	2.515	0.23506	14.932	0.2480	2399	17.205	160.7	0.91	0.00
COMBUSTOR	0	31	24 21														
55.495	44.315	2463	687.6(863)	1.3220	21.073	2772											
55.495	3.230	1255	242.5(418)	1.3713	21.073	2015	2.342	4719	2.516	0.22158	14.932	0.2631	2408	16.250	161.2	0.91	0.00
COMBUSTOR	0	32	25 21														
55.760	44.043	2462	687.0(862)	1.3221	21.073	2771											
55.760	3.185	1251	241.3(417)	1.3715	21.073	2012	2.347	4723	2.517	0.21721	14.932	0.2684	2411	15.941	161.4	0.91	0.00
COMBUSTOR	0	33	26 21														
56.255	34.274	2529	686.1(887)	1.3189	21.129	2801											
56.255	2.322	1268	220.7(422)	1.3701	21.129	2022	2.386	4826	2.550	0.17142	14.932	0.3401	2442	12.856	163.5	0.91	0.02
COMBUSTOR	0	34	27 3														
57.680	34.592	2576	683.6(904)	1.3167	21.173	2822											
57.680	3.730	1467	270.0(492)	1.3596	21.173	2164	2.102	4549	2.554	0.15804	14.932	0.3679	2463	11.201	164.9	0.91	0.03
COMBUSTOR	0	35	28 21														
57.735	39.336	2471	683.5(865)	1.3215	21.088	2775											
57.735	2.927	1267	239.7(422)	1.3706	21.088	2023	2.329	4713	2.529	0.15802	14.932	0.3689	2464	11.573	165.0	0.91	0.00
COMBUSTOR	0	36	29 21														
57.875	40.306	2455	683.3(859)	1.3223	21.076	2767											
57.875	2.958	1252	240.7(418)	1.3714	21.075	2013	2.338	4706	2.524	0.15689	14.932	0.3716	2466	11.474	165.1	0.91	0.00
COMBUSTOR	0	37	30 4														
57.955	33.785	2609	683.2(916)	1.3152	21.200	2836											
57.955	3.881	1510	272.4(507)	1.3572	21.200	2192	2.068	4534	2.561	0.15861	14.932	0.3675	2467	11.176	165.2	0.91	0.04

	P	T	H		GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	A	A/AC	MOMTM	G	TVAC	PHI	ETAC
COMBUSTOR	0	38	31	3														
58.235	32.757	2644	682.7(	929)	1.3135	21.230	2852											
58.235	3.975	1559	275.6(	524)	1.3544	21.230	2224	2.030	4514	2.548	0.15809	14.932	0.3686	2470	11.089	165.4	0.91	0.05
COMBUSTOR	0	39	32	4														
58.461	37.752	2524	682.4(	885)	1.3190	21.133	2799											
58.461	3.404	1367	253.3(	457)	1.3650	21.133	2095	2.211	4634	2.540	0.15779	14.932	0.3695	2473	11.362	165.6	0.91	0.02
COMBUSTOR	0	40	33	21														
59.185	36.310	2458	681.3(	860)	1.3220	21.082	2768											
59.185	1.575	1087	180.3(	360)	1.3796	21.082	1860	2.663	5007	2.534	0.15534	14.932	0.3753	2475	12.088	165.8	0.91	0.00
COMBUSTOR	0	41	34	21														
60.205	39.753	2445	680.0(	856)	1.3226	21.075	2762											
60.205	2.050	1133	199.6(	376)	1.3774	21.075	1918	2.556	4903	2.524	0.15436	14.932	0.3777	2474	11.760	165.7	0.91	0.00
COMBUSTOR	0	42	35	21														
62.215	41.537	2439	678.0(	853)	1.3228	21.074	2759											
62.215	2.737	1207	226.0(	402)	1.3737	21.073	1978	2.404	4756	2.518	0.15973	14.932	0.3650	2463	11.805	165.0	0.91	0.00
COMBUSTOR	0	43	36	21														
63.635	38.994	2439	676.7(	852)	1.3230	21.073	2757											
63.635	1.962	1120	195.9(	372)	1.3780	21.073	1908	2.971	4905	2.524	0.16406	14.932	0.3553	2455	12.806	164.4	0.91	0.00
COMBUSTOR	0	44	37	4														
66.099	37.003	2456	674.0(	859)	1.3219	21.096	2766											
66.099	3.279	1319	254.3(	440)	1.3679	21.096	2062	2.222	4582	2.532	0.15591	14.932	0.3749	2441	11.074	163.5	0.91	0.01
COMBUSTOR	0	45	38	4														
66.475	27.360	2659	673.5(	934)	1.3128	21.262	2857											
66.475	3.938	1640	290.0(	502)	1.3503	21.262	2276	1.925	4381	2.585	0.14457	14.932	0.4032	2439	9.842	163.4	0.91	0.00
COMBUSTOR REGEN		46	39	3														
66.475	27.360	2702	690.5(	951)	1.3111	21.262	2878											
66.475	4.002	1677	303.1(	565)	1.3487	21.262	2300	1.915	4403	2.592	0.14457	14.932	0.4032	2457	9.892	164.5	0.91	0.00
NOZZLE AE		47	40	4														
88.711	27.360	2659	673.5(	934)	1.3128	21.262	2857											
88.711	0.313	828	8.0(	270)	1.3896	21.262	1638	3.524	5771	2.585	0.03009	14.932	1.9372	2834	2.699	189.8	0.91	0.00
NOZZLE PO		48	41	4														
88.711	27.360	2659	673.5(	934)	1.3128	21.262	2857											
88.711	0.154	676	-41.8(	220)	1.3950	21.262	1484	4.030	5983	2.585	0.01672	14.932	3.1139	2849	1.741	194.2	0.91	0.00
NOZZLE AE REGEN		49	42	4														
88.711	27.360	2702	690.5(	951)	1.3111	21.262	2878											
88.711	0.318	845	14.5(	277)	1.3888	21.262	1656	3.511	5816	2.592	0.03009	14.932	1.9372	2857	2.720	191.3	0.91	0.00
NOZZLE PO REGEN		50	43	4														
88.711	27.360	2702	690.5(	951)	1.3111	21.262	2878											
88.711	0.154	689	-37.4(	225)	1.3946	21.262	1499	4.028	6035	2.592	0.01853	14.932	3.1445	2925	1.738	195.9	0.91	0.00
FICTIVE COMBUSTR		69	62	0														
66.475	326.362	5476	673.5(2021)		1.1631	24.048	3629											
66.475	0.194	1206	-1233.9(	363)	1.3394	24.667	1804	5.415	9770	2.520	0.01987	14.932	2.0336	4650	3.017	311.4	0.91	1.00
FICTIVE NOZZLE		70	63	0														
88.711	17.599	2633	663.3(	924)	1.3134	21.262	2844											
88.711	0.391	982	60.5(	323)	1.3828	21.262	1782	3.082	5492	2.623	0.03010	14.932	1.9371	2743	2.569	183.7	0.91	0.00

XARS	P=IR	P=OB	PPA	OOX	Q=IR	Q=OB	CA=ALL	P=IB/PSO	P=IB/PTO	P=OB/PSO	P=OB/PTO
6.981E-01	6.900E-01	0.000	-2.735E-01	0.000	0.000	0.000	2.470E-02	4.491E 00	6.909E-04	0.000	0.000
1.836E 01	6.900E-01	0.000	-2.296E 01	0.000	0.000	0.000	1.634E 02	4.491E 00	6.909E-04	0.000	0.000
3.070E 01	1.020E 00	0.000	-9.228E 01	0.000	0.000	0.000	5.053E 02	6.639E 00	1.021E-03	0.000	0.000
3.508E 01	1.881E 00	0.000	-1.863E 02	0.000	0.000	0.000	6.804E 02	1.224E 01	1.884E-03	0.000	0.000
3.555E 01	2.110E 00	0.000	-2.045E 02	0.000	0.000	0.000	7.013E 02	1.373E 01	2.113E-03	0.000	0.000
3.606E 01	2.060E 00	0.000	-2.256E 02	-2.019E 02	-2.019E 02	0.000	7.246E 02	1.341E 01	2.063E-03	0.000	0.000
3.648E 01	2.271E 00	0.000	-2.442E 02	-2.068E 02	-2.068E 02	0.000	7.443E 02	1.478E 01	2.273E-03	0.000	0.000
3.661E 01	2.304E 00	3.255E 00	-2.841E 02	-2.084E 02	-2.084E 02	0.000	7.506E 02	1.500E 01	2.307E-03	2.119E 01	3.259E-03
3.662E 01	2.306E 00	3.271E 00	-2.841E 02	-2.085E 02	-2.085E 02	0.000	7.508E 02	1.501E 01	2.309E-03	2.129E 01	3.275E-03
3.701E 01	2.405E 00	4.271E 00	-2.863E 02	-2.133E 02	-2.133E 02	0.000	7.914E 02	1.568E 01	2.408E-03	2.780E 01	4.277E-03
3.728E 01	2.299E 00	4.975E 00	-2.861E 02	-2.168E 02	-2.168E 02	0.000	8.203E 02	1.496E 01	2.301E-03	3.238E 01	4.981E-03
3.803E 01	2.010E 00	6.308E 00	-2.699E 02	-2.267E 02	-2.267E 02	0.000	9.005E 02	1.308E 01	2.013E-03	5.408E 01	8.318E-03
3.874E 01	6.679E 00	1.151E 01	-2.679E 02	-3.084E 02	-2.387E 02	-6.968E 01	9.801E 02	4.347E 01	6.687E-03	7.489E 01	1.152E-02
3.875E 01	6.712E 00	1.144E 01	-2.680E 02	-3.088E 02	-2.388E 02	-7.001E 01	9.807E 02	4.369E 01	6.720E-03	7.478E 01	1.150E-02
3.901E 01	8.410E 00	1.063E 01	-2.727E 02	-3.309E 02	-2.442E 02	-8.675E 01	1.010E 03	5.474E 01	8.421E-03	6.918E 01	1.064E-02
3.950E 01	1.150E 01	9.008E 00	-2.906E 02	-3.742E 02	-2.560E 02	-1.182E 02	1.066E 03	7.484E 01	1.151E-02	5.863E 01	9.019E-03
3.976E 01	1.103E 01	8.131E 00	-3.005E 02	-3.986E 02	-2.635E 02	-1.351E 02	1.097E 03	7.180E 01	1.105E-02	5.293E 01	8.141E-03
4.000E 01	1.062E 01	7.828E 00	-3.069E 02	-4.208E 02	-2.707E 02	-1.502E 02	1.124E 03	6.912E 01	1.063E-02	5.095E 01	7.838E-03
4.023E 01	1.143E 01	7.525E 00	-3.136E 02	-4.435E 02	-2.784E 02	-1.651E 02	1.151E 03	7.437E 01	1.144E-02	4.898E 01	7.534E-03
4.040E 01	1.199E 01	8.624E 00	-3.183E 02	-4.596E 02	-2.840E 02	-1.756E 02	1.171E 03	7.807E 01	1.201E-02	5.613E 01	8.634E-03
4.041E 01	1.203E 01	8.690E 00	-3.184E 02	-4.606E 02	-2.844E 02	-1.763E 02	1.172E 03	7.829E 01	1.204E-02	5.656E 01	8.701E-03
4.074E 01	1.318E 01	1.092E 01	-3.249E 02	-4.938E 02	-2.963E 02	-1.975E 02	1.211E 03	8.578E 01	1.320E-02	7.107E 01	1.093E-02
4.123E 01	1.486E 01	1.962E 00	-3.447E 02	-5.432E 02	-3.151E 02	-2.281E 02	1.269E 03	9.675E 01	1.488E-02	1.277E 01	1.965E-03
4.150E 01	1.577E 01	2.037E 00	-3.627E 02	-5.703E 02	-3.260E 02	-2.443E 02	1.300E 03	1.027E 02	1.579E-02	1.326E 01	2.039E-03
4.246E 01	7.550E 00	2.306E 00	-4.023E 02	-6.695E 02	-3.678E 02	-3.016E 02	1.414E 03	4.914E 01	7.559E-03	1.501E 01	2.309E-03
4.273E 01	8.066E 00	2.382E 00	-4.077E 02	-6.963E 02	-3.797E 02	-3.165E 02	1.446E 03	5.250E 01	8.076E-03	1.550E 01	2.385E-03
4.279E 01	8.191E 00	2.400E 00	-4.090E 02	-7.024E 02	-3.825E 02	-3.199E 02	1.454E 03	5.331E 01	8.201E-03	1.562E 01	2.403E-03
4.431E 01	1.109E 01	6.501E 00	-4.309E 02	-8.214E 02	-4.423E 02	-3.791E 02	1.637E 03	7.217E 01	1.110E-02	4.231E 01	6.509E-03
4.480E 01	1.202E 01	7.827E 00	-4.371E 02	-8.522E 02	-4.593E 02	-3.929E 02	1.696E 03	7.827E 01	1.204E-02	5.095E 01	7.837E-03
4.551E 01	1.260E 01	9.762E 00	-4.454E 02	-8.959E 02	-4.828E 02	-4.131E 02	1.783E 03	8.202E 01	1.262E-02	6.350E 01	9.775E-03
4.622E 01	1.317E 01	9.520E 00	-4.459E 02	-9.400E 02	-5.052E 02	-4.348E 02	1.870E 03	8.573E 01	1.319E-02	6.197E 01	9.532E-03
4.623E 01	1.318E 01	9.517E 00	-4.460E 02	-9.406E 02	-5.055E 02	-4.352E 02	1.871E 03	8.578E 01	1.320E-02	6.194E 01	9.529E-03
4.625E 01	1.319E 01	9.510E 00	-4.458E 02	-9.419E 02	-5.061E 02	-4.358E 02	1.873E 03	8.588E 01	1.321E-02	6.190E 01	9.522E-03
4.626E 01	1.320E 01	9.507E 00	-4.457E 02	-9.426E 02	-5.064E 02	-4.362E 02	1.875E 03	8.594E 01	1.322E-02	6.188E 01	9.519E-03
4.731E 01	1.405E 01	9.146E 00	-4.398E 02	-1.013E 03	-5.383E 02	-4.745E 02	2.004E 03	9.145E 01	1.407E-02	5.953E 01	9.158E-03
4.811E 01	1.197E 01	8.871E 00	-4.249E 02	-1.067E 03	-5.614E 02	-5.058E 02	2.103E 03	7.794E 01	1.199E-02	5.774E 01	8.883E-03
4.875E 01	8.650E 00	8.650E 00	-3.994E 02	-1.111E 03	-5.794E 02	-5.312E 02	2.183E 03	5.630E 01	8.661E-03	5.630E 01	8.661E-03
5.019E 01	7.656E 00	7.656E 00	-3.391E 02	-1.196E 03	-6.172E 02	-5.786E 02	2.363E 03	4.983E 01	7.666E-03	4.983E 01	7.666E-03
5.020E 01	7.649E 00	7.649E 00	-3.387E 02	-1.196E 03	-6.174E 02	-5.789E 02	2.365E 03	4.979E 01	7.659E-03	4.979E 01	7.659E-03
5.073E 01	7.283E 00	7.283E 00	-3.181E 02	-1.222E 03	-6.304E 02	-5.916E 02	2.431E 03	4.741E 01	7.292E-03	4.741E 01	7.292E-03
5.214E 01	7.887E 00	7.887E 00	-2.620E 02	-1.283E 03	-6.635E 02	-6.192E 02	2.609E 03	5.134E 01	7.897E-03	5.134E 01	7.897E-03
5.424E 01	3.150E 00	3.150E 00	-2.013E 02	-1.358E 03	-7.071E 02	-6.510E 02	2.875E 03	2.050E 01	3.154E-03	2.050E 01	3.154E-03
5.474E 01	3.358E 00	3.358E 00	-1.928E 02	-1.374E 03	-7.165E 02	-6.570E 02	2.939E 03	2.186E 01	3.363E-03	2.186E 01	3.363E-03
5.549E 01	3.230E 00	3.230E 00	-1.800E 02	-1.396E 03	-7.299E 02	-6.658E 02	3.035E 03	2.102E 01	3.234E-03	2.102E 01	3.234E-03
5.576E 01	3.185E 00	3.185E 00	-1.757E 02	-1.403E 03	-7.344E 02	-6.690E 02	3.068E 03	2.073E 01	3.189E-03	2.073E 01	3.189E-03
5.625E 01	1.544E 00	3.100E 00	-1.433E 02	-1.417E 03	-7.424E 02	-6.749E 02	3.102E 03	1.005E 01	1.546E-03	2.018E 01	3.104E-03
5.768E 01	3.730E 00	3.730E 00	-1.190E 02	-1.454E 03	-7.621E 02	-6.924E 02	3.209E 03	2.428E 01	3.734E-03	2.428E 01	3.734E-03
5.773E 01	2.100E 00	3.754E 00	-1.179E 02	-1.456E 03	-7.628E 02	-6.930E 02	3.217E 03	1.367E 01	2.103E-03	2.443E 01	3.759E-03
5.787E 01	2.100E 00	3.816E 00	-1.154E 02	-1.459E 03	-7.646E 02	-6.948E 02	3.234E 03	1.367E 01	2.103E-03	2.484E 01	3.821E-03
5.795E 01	3.451E 00	3.851E 00	-1.139E 02	-1.461E 03	-7.656E 02	-6.958E 02	3.245E 03	2.507E 01	3.856E-03	2.507E 01	3.856E-03
5.823E 01	3.975E 00	3.975E 00	-1.088E 02	-1.468E 03	-7.689E 02	-6.992E 02	3.280E 03	2.587E 01	3.980E-03	2.587E 01	3.980E-03
5.846E 01	3.404E 00	3.404E 00	-1.052E 02	-1.473E 03	-7.716E 02	-7.018E 02	3.309E 03	2.216E 01	3.408E-03	2.216E 01	3.408E-03
5.918E 01	1.575E 00	1.575E 00	-9.844E 01	-1.490E 03	-7.794E 02	-7.102E 02	3.402E 03	1.025E 01	1.577E-03	1.025E 01	1.577E-03
6.020E 01	2.050E 00	2.050E 00	-9.424E 01	-1.509E 03	-7.891E 02	-7.200E 02	3.532E 03	1.334E 01	2.053E-03	1.334E 01	2.053E-03
6.221E 01	2.737E 00	2.737E 00	-9.36AE 01	-1.538E 03	-8.042E 02	-7.338E 02	3.790E 03	1.782E 01	2.741E-03	1.782E 01	2.741E-03
6.363E 01	1.962E 00	1.962E 00	-9.36AE 01	-1.558E 03	-8.132E 02	-7.448E 02	3.972E 03	1.277E 01	1.965E-03	1.277E 01	1.965E-03

XA88	P=IR	P=OR	PPA	POX	Q=IR	Q=OR	QA=ALL	P=IR/PS0	P=IR/PT0	P=OR/PS0	P=OR/PT0
6.610E 01	3.279E 00	3.279E 00	-9.368E 01	-1.599E 03	-8.292E 02	-7.695E 02	4.289E 03	2.134E 01	3.283E-03	2.134E 01	3.283E-03
6.647E 01	4.390E 00	3.479E 00	-9.368E 01	-1.605E 03	-8.317E 02	-7.726E 02	4.337E 03	2.857E 01	4.395E-03	2.265E 01	3.484E-03
6.651E 01	4.390E 00	3.501E 00	-9.368E 01	-1.606E 03	-8.320E 02	-7.730E 02	4.342E 03	2.857E 01	4.395E-03	2.279E 01	3.505E-03
6.671E 01	4.228E 00	3.607E 00	-9.368E 01	-1.610E 03	-8.333E 02	-7.743E 02	4.368E 03	2.752E 01	4.233E-03	2.348E 01	3.612E-03
6.837E 01	2.885E 00	1.680E 00	-6.034E 01	-1.636E 03	-8.426E 02	-7.934E 02	4.584E 03	1.878E 01	2.889E-03	1.093E 01	1.682E-03
6.904E 01	2.143E 00	1.432E 00	-1.906E 01	-1.645E 03	-8.458E 02	-7.995E 02	4.665E 03	1.395E 01	2.146E-03	9.324E 00	1.434E-03
6.981E 01	1.290E 00	1.196E 00	2.404E 01	-1.657E 03	-8.490E 02	-8.078E 02	4.760E 03	8.396E 00	1.292E-03	7.785E 00	1.198E-03
7.053E 01	1.195E 00	9.750E-01	5.485E 01	-1.670E 03	-8.518E 02	-8.182E 02	4.848E 03	7.780E 00	1.197E-03	6.346E 00	9.762E-04
7.114E 01	1.115E 00	9.585E-01	7.838E 01	-1.681E 03	-8.543E 02	-8.265E 02	4.922E 03	7.257E 00	1.116E-03	6.239E 00	9.597E-04
7.252E 01	7.900E-01	9.213E-01	1.224E 02	-1.695E 03	-8.597E 02	-8.354E 02	5.048E 03	5.142E 00	7.910E-04	5.997E 00	9.224E-04
7.405E 01	4.849E-01	8.800E-01	1.585E 02	-1.709E 03	-8.649E 02	-8.441E 02	5.273E 03	3.156E 00	4.855E-04	5.728E 00	8.811E-04
7.420E 01	4.550E-01	7.667E-01	1.612E 02	-1.711E 03	-8.653E 02	-8.456E 02	5.290E 03	2.942E 00	4.554E-04	4.990E 00	7.676E-04
7.495E 01	5.073E-01	2.000E-01	1.774E 02	-1.722E 03	-8.673E 02	-8.503E 02	5.374E 03	3.302E 00	5.079E-04	1.302E 00	2.003E-04
7.496E 01	5.076E-01	1.970E-01	1.780E 02	-1.722E 03	-8.673E 02	-8.543E 02	5.375E 03	3.304E 00	5.082E-04	1.282E 00	1.972E-04
7.628E 01	6.000E-01	0.000	1.897E 02	-1.743E 03	-8.702E 02	-8.726E 02	5.426E 03	3.905E 00	6.008E-04	0.000	0.000
7.913E 01	2.000E-01	0.000	2.097E 02	-1.747E 03	-8.747E 02	-8.726E 02	5.525E 03	1.302E 00	2.003E-04	0.000	0.000
8.303E 01	2.350E-01	0.000	2.150E 02	-1.751E 03	-8.781E 02	-8.726E 02	5.630E 03	1.530E 00	2.353E-04	0.000	0.000
8.584E 01	2.850E-01	0.000	2.208E 02	-1.753E 03	-8.805E 02	-8.726E 02	5.684E 03	1.855E 00	2.854E-04	0.000	0.000
8.870E 01	3.650E-01	0.000	2.286E 02	-1.757E 03	-8.849E 02	-8.726E 02	5.707E 03	2.376E 00	3.655E-04	0.000	0.000
8.871E 01	3.652E-01	0.000	2.286E 02	-1.757E 03	-8.849E 02	-8.726E 02	5.707E 03	2.377E 00	3.656E-04	0.000	0.000

READING = 0088 BLOCK = 186 TIME = 285.901 MACH 7.2 PT = 998.749 TT = 1248.2

X	DDRAG	CDRAG	CP	HC
4.040E 01	8.486E 01	8.486E 01	2.277E-03	3.403E-02
4.041E 01	1.666E-01	8.503E 01	2.760E-03	3.271E-02
4.074E 01	9.718E 00	9.075E 01	2.450E-03	3.925E-02
4.123E 01	7.857E 00	9.860E 01	2.434E-03	3.017E-02
4.150E 01	4.292E 00	1.029E 02	2.464E-03	3.122E-02
4.246E 01	1.552E 01	1.184E 02	2.625E-03	1.936E-02
4.273E 01	4.360E 00	1.227E 02	2.431E-03	2.012E-02
4.279E 01	1.141E 00	1.239E 02	3.125E-03	1.835E-02
4.431E 01	2.538E 01	1.493E 02	2.738E-03	2.820E-02
4.480E 01	7.007E 00	1.563E 02	2.702E-03	3.093E-02
4.551E 01	9.931E 00	1.662E 02	2.728E-03	3.343E-02
4.622E 01	1.011E 01	1.763E 02	3.064E-03	3.182E-02
4.623E 01	1.443E-01	1.765E 02	2.827E-03	3.403E-02
4.625E 01	2.991E-01	1.768E 02	3.401E-03	3.103E-02
4.626E 01	1.545E-01	1.769E 02	2.979E-03	3.506E-02
4.731E 01	1.422E 01	1.911E 02	2.906E-03	3.543E-02
4.811E 01	9.811E 00	2.009E 02	2.880E-03	3.238E-02
4.875E 01	7.279E 00	2.082E 02	2.842E-03	2.803E-02
5.019E 01	1.534E 01	2.236E 02	3.307E-03	2.238E-02
5.020E 01	1.030E-01	2.237E 02	3.307E-03	2.238E-02
5.073E 01	4.927E 00	2.286E 02	2.833E-03	2.438E-02
5.214E 01	1.068E 01	2.393E 02	2.789E-03	2.498E-02
5.424E 01	1.368E 01	2.529E 02	2.693E-03	1.289E-02
5.474E 01	2.999E 00	2.559E 02	2.644E-03	1.350E-02
5.549E 01	4.218E 00	2.602E 02	2.620E-03	1.300E-02
5.576E 01	1.429E 00	2.616E 02	2.612E-03	1.283E-02
5.625E 01	1.239E 00	2.628E 02	2.543E-03	9.721E-03
5.768E 01	3.341E 00	2.662E 02	2.617E-03	1.299E-02
5.773E 01	2.110E-01	2.664E 02	2.643E-03	1.088E-02
5.787E 01	5.296E-01	2.669E 02	2.629E-03	1.130E-02
5.795E 01	3.069E-01	2.672E 02	2.766E-03	1.267E-02
5.823E 01	1.083E 00	2.683E 02	2.686E-03	1.321E-02
5.846E 01	8.708E-01	2.692E 02	2.694E-03	1.181E-02
5.918E 01	2.850E 00	2.720E 02	2.554E-03	7.075E-03
6.020E 01	3.903E 00	2.759E 02	2.454E-03	8.726E-03
6.221E 01	7.461E 00	2.834E 02	2.457E-03	1.071E-02
6.363E 01	5.426E 00	2.888E 02	2.448E-03	8.474E-03
6.610E 01	9.242E 00	2.981E 02	2.515E-03	1.195E-02
6.647E 01	1.296E 00	2.993E 02	2.622E-03	1.311E-02
6.691E 01	1.371E-01	2.995E 02	2.801E-03	1.241E-02
6.671E 01	7.068E-01	3.002E 02	2.798E-03	1.235E-02
6.837E 01	5.254E 00	3.054E 02	2.685E-03	8.576E-03
6.904E 01	1.631E 00	3.071E 02	2.636E-03	7.226E-03
6.981E 01	1.599E 00	3.087E 02	2.564E-03	5.576E-03
7.053E 01	1.277E 00	3.099E 02	2.534E-03	5.048E-03
7.114E 01	1.016E 00	3.110E 02	2.525E-03	4.802E-03
7.252E 01	2.125E 00	3.131E 02	2.488E-03	4.242E-03
7.405E 01	2.063E 00	3.152E 02	2.439E-03	3.547E-03
7.420E 01	1.730E-01	3.153E 02	2.420E-03	3.308E-03
7.495E 01	6.925E-01	3.160E 02	2.325E-03	2.216E-03
7.496E 01	1.093E-03	3.160E 02	2.325E-03	2.209E-03
7.628E 01	4.209E-01	3.164E 02	2.407E-03	3.251E-03
7.913E 01	6.826E-01	3.171E 02	2.217E-03	1.445E-03
8.303E 01	5.037E-01	3.176E 02	2.227E-03	1.614E-03
8.584E 01	2.940E-01	3.179E 02	2.244E-03	1.850E-03
8.870E 01	1.413E-01	3.181E 02	2.275E-03	2.207E-03

READING # 0088 BLOCK # 186 TIME = 289.901 MACH 7.2 PT = 998.749 TT = 3248.2

X	CDWAG	CDRAG	CF	HC
8.871E 01	0.000	3.181E 02	2.275E-03	2.20nE-03

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	=141.	(LBF)
MEASURED THRUST	=144.	(LBF)
CALCULATED SPECIFIC IMPULSE	=339.	(LBF=SEC/LBM)
MEASURED SPECIFIC IMPULSE	=347.	(LBF=SEC/LBM)
CALCULATED THRUST COEFFICIENT	=.0981	
MEASURED THRUST COEFFICIENT	=.1002	

REGENERATIVE-COOLED ENGINE PERFORMANCE CALCULATED

STREAM THRUST	2766.	(LBF)
NET THRUST	=119.	(LBF)
SPECIFIC IMPULSE	=285.	(LBF=SEC/LBM)
THRUST COEFFICIENT	=.0823	

MOMENTUM AND FORCES

INLET FRICTION DRAG	84.9	(LBF)
INLET MOMENTUM CHANGE	=403.1	(LBF)
COMBUSTOR FRICTION DRAG	214.5	(LBF)
COMBUSTOR STRUT DRAG	15.45	(LBF)
COMBUSTOR MOMENTUM CHANGE	=42.	(LBF)
NOZZLE FRICTION DRAG	18.72	(LBF)
NOZZLE STRUT DRAG	0.00	(LBF)
NOZZLE MOMENTUM CHANGE	304.	(LBF)
NOZZLE PRESSURE INTEGRAL	322.	(LBF)
EXTERNAL FRICTION DRAG	0.00	(LBF)
EXTERNAL PRESSURE INTEGRAL	0.	(LBF)
TOTAL EXTERNAL DRAG	=720.	(LBF)
TOTAL STRUT DRAG	15.45	(LBF)
CAVITY FORCE	=563.	(LBF)
CALCULATED LOAD CELL FORCE	=1424.	(LBF)
MEASURED LOAD CELL FORCE	=1427.	(LBF)

FUEL VACUUM SPECIFIC IMPULSE 0.0, 0.0, =148.9, =120.3,

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	1.7349	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	36.619	(IN)
NOZZLE SHROUD TRAILING EDGE	74.959	(IN)
NOZZLE PLUG TRAILING EDGE	88.711	(IN)
STRUT LEADING EDGE	57.875	(IN)
STRUT TRAILING EDGE	66.475	(IN)
COMBUSTOR EXIT	66.475	(IN)

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.9878	
ADDITIVE DRAG COEFFICIENT	0.0000	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.1002	
DELTA PT2	0.0879	(PSI)
TOTAL PRESSURE RECOVERY = SUPERSONIC	0.3268	
TOTAL PRESSURE RECOVERY = SUBSONIC	0.1015	
INLET PROCESS EFFICIENCY = SUPERSONIC	0.9046	
INLET PROCESS EFFICIENCY = SUBSONIC	0.9126	
KINETIC ENERGY EFFICIENCY = SUPERSONIC	0.9298	
KINETIC ENERGY EFFICIENCY = SUBSONIC	0.8795	
ENTHALPY AT P0 = SUPERSONIC	=28.34	(BTU/LBM)
ENTHALPY AT P0 = SUBSONIC	11.65	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0287	
EQUIVALENCE RATIO	0.915	
COMBUSTOR EFFICIENCY	0.961	
TOTAL PRESSURE RATIO	0.0838	
COMBUSTOR EFFECTIVENESS	0.1901	

INJECTOR DISCHARGE COEFFICIENTS 0.9371, 0.8809, 0.9556, 0.7729

NOZZLE

VACUUM STREAM THRUST COEFFICIENT = CS	0.9681	
NOZZLE COEFFICIENT = CT	0.9199	
PROCESS EFFICIENCY	0.8685	
KINETIC ENERGY EFFICIENCY	0.9306	

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	A
1B	42.720	
1C	44.300	
2A	50.195	D
2C	48.250	E
3A	55.485	
3B	57.670	
4	48.220	C

2/12/75

READING = 0088 BLOCK = 195 TIME = 294.001 MACH 7.2 PT = 998.749 TT = 3203.3

RAMJET PERFORMANCE

SUMMARY REPORT

	P	T	H		GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	N	A/AC	MOMTM	C	IVAC	PHI	ETAC
WIND TUNNEL		1	0 6															
	0.000	998.749	3203	732.4(856)	1.2871	28.903	2663											
	0.000	0.154	312	-54.2(75)	1.3968	28.901	866	7.243	6274	1.828	0.05785	14.644	0.0883	2895	5.641	197.7		
SPIKE TIP NS		2	0 7															
	0.600	11.300	3203	732.4(856)	1.2864	28.901	2662											
	0.600	10.435	3146	715.0(839)	1.2882	28.901	2641	0.353	933	2.136	0.05785	14.644	0.0883	3066	0.839	209.4		
WIND TUNNEL		3	0 0															
	0.000	998.749	3203	732.4(856)	1.2871	28.903	2663											
	0.000	0.170	321	-52.0(77)	1.3971	28.901	878	7.133	6265	1.828	0.06197	15.686	0.0883	3098	6.034	197.8		
SPIKE TIP NS		4	0 0															
	0.600	11.300	3203	732.4(856)	1.2864	28.901	2662											
	0.600	10.292	3137	712.0(836)	1.2885	28.901	2637	0.383	1010	2.136	0.06197	15.686	0.0883	3097	0.972	197.5		
INLET THROAT		5	0 3															
	40.400	325.678	3106	702.5(827)	1.2900	28.902	2628											
	40.400	10.386	1338	199.8(329)	1.3579	28.901	1768	2.837	5015	1.895	0.72805	14.644	0.0785	2492	56.747	170.2		
INLET UPNRBK		6	0 3															
	40.400	325.678	3106	702.5(827)	1.2900	28.902	2625											
	40.400	8.964	1287	186.5(316)	1.3610	28.901	1736	2.927	5081	1.895	0.66187	14.644	0.0844	2511	52.266	171.5		
INLET DNNRBK		7	0 4															
	40.400	101.832	3106	702.5(827)	1.2900	28.902	2625											
	40.400	88.809	3011	673.7(799)	1.2929	28.902	2588	0.464	1200	1.975	0.66187	14.644	0.0864	2511	12.343	171.5		
COMBUSTOR		0 8	1 21															
	40.410	246.225	3055	709.7(862)	1.2931	27.129	2691											
	40.410	10.362	1406	212.1(369)	1.3555	27.129	1869	2.670	4990	2.014	0.73169	14.720	0.0785	2491	56.742	169.3	0.17	0.07
COMBUSTOR		0 9	2 4															
	40.747	260.747	2992	707.4(844)	1.2960	27.068	2669											
	40.747	12.047	1405	229.5(369)	1.3561	27.067	1871	2.614	4890	2.004	0.73438	14.720	0.0783	2479	55.813	168.4	0.17	0.01
COMBUSTOR		0 10	3 21															
	41.237	225.944	2976	704.2(839)	1.2966	27.061	2662											
	41.237	8.468	1321	208.0(346)	1.3610	27.061	1818	2.741	4983	2.012	0.72852	14.720	0.0789	2451	56.415	166.5	0.17	0.00
COMBUSTOR		0 11	4 21															
	41.500	208.366	2969	702.4(837)	1.2969	27.060	2660											
	41.500	8.967	1367	221.0(359)	1.3588	27.060	1847	2.657	4908	2.018	0.72158	14.720	0.0796	2428	55.039	165.0	0.17	0.00
COMBUSTOR		0 12	5 21															
	42.460	189.763	2948	695.5(830)	1.2975	27.060	2651											
	42.460	4.884	1308	204.7(342)	1.3618	27.059	1809	2.739	4956	2.050	0.68055	14.720	0.0844	2373	52.413	161.2	0.17	0.00
COMBUSTOR		0 13	6 21															
	42.732	104.707	3116	693.5(880)	1.2894	27.251	2707											
	42.732	5.766	1547	216.2(407)	1.3466	27.252	1949	2.507	4887	2.079	0.67094	14.720	0.0857	2362	50.958	160.5	0.17	0.21
COMBUSTOR		0 14	7 21															
	42.797	130.178	2966	693.1(835)	1.2964	27.088	2657											
	42.797	5.975	1390	219.1(365)	1.3568	27.088	1860	2.618	4870	2.052	0.66844	14.720	0.0860	2360	50.591	160.3	0.17	0.03
COMBUSTOR		0 15	8 4															
	44.310	110.954	3169	682.7(895)	1.2864	27.349	2722											
	44.310	17.075	2044	332.6(591)	1.3244	27.349	2218	1.887	4185	2.078	0.61877	14.720	0.0929	2321	40.246	157.7	0.17	0.31
COMBUSTOR		0 16	9 4															
	44.800	94.717	3384	679.4(960)	1.2757	27.606	2788											
	44.800	20.669	2397	365.0(653)	1.3091	27.609	2377	1.669	3946	2.102	0.61104	14.720	0.0941	2312	37.640	157.1	0.17	0.58
COMBUSTOR		0 17	10 4															
	45.517	84.390	3606	674.5(1028)	1.2637	27.886	2850											
	45.517	25.198	2770	400.6(764)	1.2933	27.895	2527	1.465	3701	2.120	0.60679	14.720	0.0947	2304	34.903	156.5	0.17	0.87
COMBUSTOR		0 18	11 4															
	46.222	79.388	3549	673.6(1050)	1.2672	28.707	2893											
	46.222	26.792	2797	418.0(804)	1.2937	28.714	2595	1.378	3576	2.196	0.59211	14.773	0.0978	2310	32.905	156.4	0.28	0.55

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	V	AZWP	MOMTM	Q	IVAC	PHT	ETAC
COMBUSTOR	0	19	12 2														
46.232	79.341	3549	673.5(1051)	1.2872	26.708	2894											
46.232	26.815	2798	418.1(809)	1.2937	26.714	2596	1.377	3574	2.196	0.59211	14.773	0.0974	2310	32.691	156.4	0.28	0.55
COMBUSTOR	0	20	13 8														
46.250	77.646	3093	687.8(999)	1.2918	23.736	2893											
46.250	26.857	2416	444.0(760)	1.3146	23.737	2579	1.354	3493	2.348	0.59651	14.912	0.0976	2290	32.379	153.6	0.59	0.17
COMBUSTOR	0	21	14 2														
46.260	77.575	3094	687.7(1000)	1.2918	23.738	2893											
46.260	26.880	2418	444.1(760)	1.3145	23.739	2580	1.353	3491	2.348	0.59617	14.912	0.0977	2290	32.344	153.6	0.59	0.17
COMBUSTOR	0	22	15 4														
47.310	70.174	3303	674.2(1071)	1.2811	23.977	2962											
47.310	29.314	2712	457.2(859)	1.3013	23.980	2705	1.218	3295	2.371	0.55266	14.912	0.1093	2318	28.304	155.5	0.59	0.27
COMBUSTOR	0	23	16 4														
48.110	65.124	3496	662.4(1137)	1.2707	24.204	3021											
48.110	29.401	2937	452.8(935)	1.2906	24.209	2790	1.161	3239	2.389	0.50787	14.912	0.1146	2364	25.561	158.6	0.59	0.36
COMBUSTOR	0	24	17 4														
48.757	61.173	3730	653.0(1218)	1.2572	24.475	3086											
48.757	27.250	3144	427.7(1005)	1.2796	24.486	2858	1.175	3357	2.407	0.46102	14.912	0.1263	2438	24.053	163.5	0.59	0.46
COMBUSTOR	0	25	18 6														
50.197	58.852	3414	649.0(1193)	1.2755	22.411	3108											
50.197	16.080	2549	307.8(860)	1.3057	22.415	2717	1.521	4132	2.540	0.37812	15.031	0.1552	2569	24.279	170.9	0.85	0.29
COMBUSTOR	0	26	19 2														
50.207	58.901	3412	649.0(1192)	1.2756	22.409	3109											
50.207	16.003	2543	306.7(858)	1.3059	22.413	2714	1.525	4138	2.540	0.37763	15.031	0.1554	2570	24.285	171.0	0.85	0.29
COMBUSTOR	0	27	20 4														
50.737	64.230	3224	645.3(1122)	1.2850	22.242	3043											
50.737	11.892	2176	242.4(725)	1.3213	22.244	2535	1.771	4490	2.517	0.35318	15.031	0.1662	2604	24.643	173.2	0.85	0.24
COMBUSTOR	0	28	21 4														
52.147	55.237	3452	637.5(1207)	1.2730	22.473	3118											
52.147	10.800	2386	219.7(798)	1.3106	22.478	2630	1.738	4572	2.547	0.30100	15.031	0.1950	2675	21.387	178.0	0.85	0.31
COMBUSTOR	0	29	22 4														
54.247	50.976	3514	625.1(1233)	1.2691	22.489	3140											
54.247	8.175	2325	157.8(777)	1.3116	22.495	2596	1.863	4835	2.563	0.24749	15.078	0.2379	2764	18.598	183.3	0.85	0.34
COMBUSTOR	0	30	23 4														
54.747	47.611	3620	622.9(1273)	1.2629	22.597	3172											
54.747	8.275	2456	159.6(823)	1.3054	22.607	2685	1.813	4815	2.576	0.23737	15.078	0.2480	2782	17.762	184.5	0.85	0.37
COMBUSTOR	0	31	24 4														
55.497	46.359	3652	619.8(1284)	1.2610	22.635	3180											
55.497	7.654	2452	141.7(821)	1.3050	22.646	2650	1.845	4891	2.580	0.22376	15.078	0.2631	2808	17.008	186.2	0.85	0.38
COMBUSTOR	0	32	25 3														
55.760	46.044	3658	618.7(1287)	1.2605	22.643	3182											
55.760	7.436	2445	135.2(818)	1.3052	22.655	2646	1.859	4919	2.581	0.21938	15.078	0.2684	2817	16.771	186.8	0.85	0.38
COMBUSTOR	0	33	26 4														
56.257	41.227	3705	616.8(1304)	1.2573	22.694	3195											
56.257	5.381	2363	82.3(787)	1.3074	22.708	2601	1.989	5172	2.593	0.17311	15.078	0.3401	2893	13.913	191.8	0.85	0.40
COMBUSTOR	0	34	27 4														
57.682	35.585	3956	611.7(1399)	1.2401	22.956	3259											
57.682	5.622	2681	86.0(900)	1.2924	22.990	2737	1.874	5129	2.619	0.16000	15.078	0.3679	2933	12.793	194.5	0.85	0.48
COMBUSTOR	0	35	28 4														
57.737	33.382	4079	611.5(1446)	1.2308	23.086	3288											
57.737	6.109	2883	105.8(974)	1.2832	23.132	2820	1.784	5030	2.631	0.15957	15.078	0.3689	2935	12.475	194.6	0.85	0.53
COMBUSTOR	0	36	29 2														
57.877	33.306	4080	611.1(1446)	1.2307	23.087	3288											
57.877	6.040	2877	103.1(972)	1.2833	23.134	2817	1.790	5042	2.631	0.15843	15.078	0.3716	2938	12.413	194.8	0.85	0.53
COMBUSTOR	0	37	30 10														
57.957	37.228	3900	610.8(1378)	1.2442	22.903	3245											
57.957	5.351	2574	71.0(862)	1.2969	22.930	2692	1.931	5197	2.612	0.16017	15.078	0.3675	2939	12.937	194.9	0.85	0.47

READING = 0088 BLOCK = 145 TIME = 294.001 MACH 7.2 PI = 998.709 TT = 3203.3

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	A	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	38	31 4														
58.237	38.861	3844	609.9(1357)	1.2481	22.849	3231											
58.237	5.075	2475	56.7(825)	1.3013	22.871	2446	1.989	5262	2.606	0.15970	15.078	0.3696	2945	13.059	195.3	0.85	0.45
COMBUSTOR	0	39	32 4														
58.463	42.562	3723	609.3(1311)	1.2561	22.729	3198											
58.463	4.581	2271	33.6(752)	1.3103	22.744	2551	2.104	5367	2.591	0.15934	15.078	0.3695	2949	13.291	195.6	0.85	0.41
COMBUSTOR	0	40	33 6														
59.187	66.341	3294	607.4(1150)	1.2803	22.323	3065											
59.187	3.000	1573	-40.4(509)	1.3449	22.326	2171	2.623	5693	2.522	0.15687	15.078	0.3753	2957	13.880	196.1	0.85	0.28
COMBUSTOR	0	41	34 7														
60.207	27.907	4618	604.7(1681)	1.1834	23.682	3387											
60.207	8.290	3783	176.9(1311)	1.2294	23.870	3112	1.487	4627	2.667	0.15587	15.078	0.3777	2967	11.208	196.7	0.85	0.74
COMBUSTOR	0	42	35 4														
62.217	27.786	4748	599.1(1700)	1.1715	23.841	3404											
62.217	9.412	4041	204.5(1410)	1.2082	24.081	3175	1.400	4444	2.671	0.16130	15.078	0.3650	2962	11.139	196.5	0.85	0.81
COMBUSTOR	0	43	36 4														
63.637	27.794	4844	594.8(1737)	1.1629	23.957	3419											
63.637	10.450	4235	228.5(1484)	1.1909	24.234	3217	1.331	4281	2.672	0.16567	15.078	0.3553	2958	11.022	196.1	0.85	0.87
COMBUSTOR	0	44	37 4														
66.101	25.757	4919	585.8(1765)	1.1547	24.063	3426											
66.101	10.648	4404	249.4(1550)	1.1739	24.370	3248	1.263	4103	2.678	0.15704	15.078	0.3709	2949	10.013	195.6	0.85	0.93
COMBUSTOR	0	45	38 4														
66.477	23.609	4995	584.3(1794)	1.1468	24.149	3434											
66.477	10.672	4561	274.3(1611)	1.1581	24.481	3275	1.203	3939	2.683	0.14599	15.078	0.4032	2948	8.936	195.5	0.85	1.00
COMBUSTOR REGEN		46	39 3														
66.477	23.609	5101	694.6(1841)	1.1428	23.981	3477											
66.477	11.424	4718	401.4(1678)	1.1494	24.319	3329	1.151	3831	2.705	0.14599	15.078	0.4032	2975	8.691	197.3	0.85	1.00
NOZZLE AE		47	40 5														
88.713	23.609	4995	584.3(1730)	1.1468	24.149	3434											
88.713	0.742	2937	-531.7(964)	1.2591	24.887	2718	2.749	7473	2.683	0.03039	15.078	1.9371	3870	3.529	256.7	0.85	1.00
NOZZLE PO		48	41 5														
88.713	23.609	4995	584.3(1730)	1.1468	24.149	3434											
88.713	0.154	2090	-845.1(654)	1.2925	24.892	2323	3.641	8457	2.683	0.01003	15.078	5.8667	4195	1.319	278.2	0.85	1.00
NOZZLE AE REGEN		49	42 5														
88.713	23.609	5101	694.6(1841)	1.1428	23.981	3477											
88.713	0.781	3136	-452.8(1040)	1.2486	24.881	2797	2.709	7577	2.705	0.03039	15.078	1.9371	3939	3.579	261.2	0.85	1.00
NOZZLE PO REGEN		50	43 5														
88.713	23.609	5101	694.6(1841)	1.1428	23.981	3477											
88.713	0.154	2222	-798.0(701)	1.2870	24.892	2390	3.614	8642	2.705	0.00964	15.078	6.1050	4291	1.295	284.6	0.85	1.00
FICTIVE COMBUSTR		69	62 0														
66.477	325.678	5293	584.3(1911)	1.1722	24.484	3549											
66.477	0.154	1092	-1179.2(323)	1.3481	24.902	1714	5.480	9394	2.468	0.02134	15.078	2.7587	4511	3.115	299.2	0.85	1.00
FICTIVE NOZZLE		70	63 0														
88.713	10.704	4871	560.7(1745)	1.1408	24.072	3388											
88.713	1.095	3642	-230.4(1238)	1.2078	24.821	2968	2.120	6292	2.743	0.03039	15.078	1.9371	3492	2.972	231.6	0.85	1.00

XABB	P-IA	P-OA	PDA	QQX	C-IP	C-OP	CA-ALI	P-TP/PSO	P-IP/PTO	P-OA/PSO	P-CB/PTO
6.991E-01	6.900E-01	0.000	-2.729E-01	0.000	0.000	0.000	2.479E-02	4.483E 00	4.909E-04	0.000	0.000
1.836E 01	6.900E-01	0.000	-2.294E 01	0.000	0.000	0.000	1.634E 02	4.483E 00	4.909E-04	0.000	0.000
3.070E 01	1.025E 00	0.000	-9.248E 01	0.000	0.000	0.000	5.453E 02	6.659E 00	1.028E-03	0.000	0.000
3.508E 01	1.889E 00	0.000	-1.869E 02	0.000	0.000	0.000	6.804E 02	1.227E 01	1.891E-03	0.000	0.000
3.595E 01	2.170E 00	0.000	-2.054E 02	0.000	0.000	0.000	7.013E 02	1.410E 01	2.173E-03	0.000	0.000
3.606E 01	2.060E 00	0.000	-2.269E 02	-1.838E 02	-1.838E 02	0.000	7.246E 02	1.338E 01	2.063E-03	0.000	0.000
3.648E 01	2.269E 00	0.000	-2.454E 02	-1.883E 02	-1.883E 02	0.000	7.443E 02	1.474E 01	2.272E-03	0.000	0.000
3.661E 01	2.302E 00	3.244E 00	-2.453E 02	-1.897E 02	-1.897E 02	0.000	7.507E 02	1.496E 01	2.305E-03	2.107E 01	3.248E-03
3.662E 01	2.304E 00	3.259E 00	-2.453E 02	-1.898E 02	-1.898E 02	0.000	7.509E 02	1.497E 01	2.307E-03	2.117E 01	3.263E-03
3.701E 01	2.400E 00	4.262E 00	-2.875E 02	-1.941E 02	-1.941E 02	0.000	7.913E 02	1.559E 01	2.403E-03	2.769E 01	4.267E-03
3.729E 01	2.294E 00	4.975E 00	-2.873E 02	-1.973E 02	-1.973E 02	0.000	8.204E 02	1.490E 01	2.297E-03	3.232E 01	4.981E-03
3.803E 01	2.010E 00	8.296E 00	-2.710E 02	-2.064E 02	-2.064E 02	0.000	9.004E 02	1.306E 01	2.013E-03	5.389E 01	8.306E-03
3.875E 01	6.655E 00	1.150E 01	-2.690E 02	-2.882E 02	-2.174E 02	-7.084E 01	9.802E 02	4.324E 01	6.664E-03	7.471E 01	1.151E-02
3.875E 01	6.675E 00	1.149E 01	-2.690E 02	-2.885E 02	-2.175E 02	-7.104E 01	9.806E 02	4.337E 01	6.684E-03	7.464E 01	1.150E-02
3.901E 01	8.360E 00	1.064E 01	-2.736E 02	-3.105E 02	-2.224E 02	-8.806E 01	1.010E 03	5.431E 01	8.370E-03	6.914E 01	1.066E-02
3.950E 01	1.135E 01	9.045E 00	-2.910E 02	-3.534E 02	-2.334E 02	-1.200E 02	1.066E 03	7.377E 01	1.137E-02	5.876E 01	9.056E-03
3.977E 01	1.098E 01	8.175E 00	-3.010E 02	-3.777E 02	-2.404E 02	-1.374E 02	1.097E 03	7.131E 01	1.099E-02	5.311E 01	8.185E-03
4.000E 01	1.065E 01	7.846E 00	-3.070E 02	-3.995E 02	-2.470E 02	-1.525E 02	1.124E 03	6.917E 01	1.066E-02	5.097E 01	7.856E-03
4.024E 01	1.148E 01	7.512E 00	-3.140E 02	-4.221E 02	-2.543E 02	-1.678E 02	1.151E 03	7.456E 01	1.149E-02	4.880E 01	7.522E-03
4.040E 01	1.205E 01	8.570E 00	-3.185E 02	-4.378E 02	-2.595E 02	-1.783E 02	1.170E 03	7.831E 01	1.207E-02	5.567E 01	8.580E-03
4.041E 01	1.209E 01	8.634E 00	-3.186E 02	-4.387E 02	-2.598E 02	-1.790E 02	1.172E 03	7.854E 01	1.210E-02	5.604E 01	8.645E-03
4.078E 01	1.328E 01	1.042E 01	-3.295E 02	-4.716E 02	-2.709E 02	-2.006E 02	1.211E 03	8.624E 01	1.329E-02	7.028E 01	1.083E-02
4.124E 01	1.500E 01	1.937E 00	-3.457E 02	-5.201E 02	-2.884E 02	-2.317E 02	1.269E 03	9.744E 01	1.502E-02	1.259E 01	1.940E-03
4.150E 01	1.592E 01	2.009E 00	-3.639E 02	-5.469E 02	-2.989E 02	-2.480E 02	1.300E 03	1.039E 02	1.594E-02	1.309E 01	2.011E-03
4.246E 01	7.500E 00	2.268E 00	-4.038E 02	-6.473E 02	-3.408E 02	-3.065E 02	1.414E 03	4.872E 01	7.509E-03	1.474E 01	2.271E-03
4.273E 01	9.188E 00	2.342E 00	-4.099E 02	-6.764E 02	-3.545E 02	-3.220E 02	1.446E 03	5.969E 01	9.199E-03	1.521E 01	2.345E-03
4.280E 01	9.592E 00	2.359E 00	-4.116E 02	-6.833E 02	-3.579E 02	-3.254E 02	1.454E 03	6.231E 01	9.604E-03	1.533E 01	2.362E-03
4.431E 01	1.898E 01	1.517E 01	-4.274E 02	-8.361E 02	-4.500E 02	-3.841E 02	1.636E 03	1.233E 02	1.901E-02	9.853E 01	1.519E-02
4.480E 01	2.202E 01	1.931E 01	-4.295E 02	-8.851E 02	-4.852E 02	-3.999E 02	1.696E 03	1.431E 02	2.205E-02	1.255E 02	1.934E-02
4.552E 01	2.493E 01	2.538E 01	-4.286E 02	-9.578E 02	-5.376E 02	-4.201E 02	1.783E 03	1.620E 02	2.497E-02	1.649E 02	2.541E-02
4.622E 01	2.780E 01	2.579E 01	-4.124E 02	-1.049E 03	-5.873E 02	-4.612E 02	1.870E 03	1.806E 02	2.783E-02	1.675E 02	2.582E-02
4.623E 01	2.784E 01	2.579E 01	-4.124E 02	-1.050E 03	-5.880E 02	-4.621E 02	1.871E 03	1.808E 02	2.787E-02	1.676E 02	2.583E-02
4.625E 01	2.791E 01	2.580E 01	-4.112E 02	-1.053E 03	-5.892E 02	-4.638E 02	1.873E 03	1.813E 02	2.795E-02	1.676E 02	2.584E-02
4.626E 01	2.795E 01	2.581E 01	-4.109E 02	-1.055E 03	-5.899E 02	-4.647E 02	1.874E 03	1.816E 02	2.799E-02	1.677E 02	2.584E-02
4.731E 01	3.221E 01	2.642E 01	-3.706E 02	-1.255E 03	-7.116E 02	-7.198E 02	2.103E 03	2.074E 02	3.196E-02	1.746E 02	2.691E-02
4.811E 01	3.192E 01	2.688E 01	-3.161E 02	-1.431E 03	-7.116E 02	-7.198E 02	2.184E 03	1.770E 02	2.728E-02	1.770E 02	2.728E-02
4.876E 01	2.725E 01	2.725E 01	-2.365E 02	-1.573E 03	-7.513E 02	-8.213E 02	2.369E 03	1.045E 02	1.610E-02	1.045E 02	1.610E-02
5.020E 01	1.608E 01	1.608E 01	-7.563E 01	-1.817E 03	-8.345E 02	-9.820E 02	2.365E 03	1.040E 02	1.602E-02	1.040E 02	1.602E-02
5.021E 01	1.600E 01	1.600E 01	-7.479E 01	-1.818E 03	-8.351E 02	-9.826E 02	2.431E 03	7.725E 01	1.191E-02	7.725E 01	1.191E-02
5.074E 01	1.189E 01	1.189E 01	-3.626E 01	-1.872E 03	-8.639E 02	-1.009E 03	2.609E 03	7.016E 01	1.081E-02	7.016E 01	1.081E-02
5.215E 01	1.080E 01	1.080E 01	4.762E 01	-1.990E 03	-9.357E 02	-1.054E 03	2.675E 03	5.311E 01	8.185E-03	5.311E 01	8.185E-03
5.425E 01	8.175E 00	8.175E 00	1.921E 02	-2.146E 03	-1.030E 03	-1.116E 03	2.939E 03	5.376E 01	8.285E-03	5.376E 01	8.285E-03
5.475E 01	8.275E 00	8.275E 00	1.735E 02	-2.179E 03	-1.050E 03	-1.129E 03	3.035E 03	4.972E 01	7.664E-03	4.972E 01	7.664E-03
5.550E 01	7.654E 00	7.654E 00	2.043E 02	-2.226E 03	-1.079E 03	-1.147E 03	3.068E 03	4.831E 01	7.446E-03	4.831E 01	7.446E-03
5.576E 01	7.436E 00	7.436E 00	2.145E 02	-2.242E 03	-1.088E 03	-1.153E 03	3.102E 03	2.428E 01	3.742E-03	4.564E 01	7.034E-03
5.626E 01	3.737E 00	7.029E 00	2.921E 02	-2.271E 03	-1.106E 03	-1.165E 03	3.209E 03	3.652E 01	5.629E-03	3.652E 01	5.629E-03
5.768E 01	5.622E 00	5.622E 00	3.371E 02	-2.348E 03	-1.152E 03	-1.196E 03	3.217E 03	4.320E 01	6.658E-03	3.617E 01	5.574E-03
5.774E 01	6.650E 00	5.567E 00	3.387E 02	-2.351E 03	-1.154E 03	-1.197E 03	3.234E 03	4.324E 01	6.664E-03	3.527E 01	5.436E-03
5.788E 01	6.650E 00	5.430E 00	3.423E 02	-2.356E 03	-1.156E 03	-1.200E 03	3.249E 03	3.476E 01	5.357E-03	3.476E 01	5.357E-03
5.796E 01	5.351E 00	5.351E 00	3.444E 02	-2.362E 03	-1.160E 03	-1.201E 03	3.280E 03	3.297E 01	5.081E-03	3.297E 01	5.081E-03
5.824E 01	5.075E 00	5.075E 00	3.512E 02	-2.374E 03	-1.168E 03	-1.206E 03	3.309E 03	2.976E 01	4.587E-03	2.976E 01	4.587E-03
5.846E 01	4.581E 00	4.581E 00	3.559E 02	-2.384E 03	-1.175E 03	-1.210E 03	3.402E 03	1.949E 01	3.004E-03	1.949E 01	3.004E-03
5.919E 01	3.000E 00	3.000E 00	3.662E 02	-2.413E 03	-1.193E 03	-1.220E 03	3.532E 03	5.360E 01	8.260E-03	5.360E 01	8.260E-03
6.021E 01	8.250E 00	8.250E 00	3.792E 02	-2.453E 03	-1.216E 03	-1.237E 03	3.790E 03	6.115E 01	9.424E-03	6.115E 01	9.424E-03
6.222E 01	9.412E 00	9.412E 00	3.813E 02	-2.538E 03	-1.254E 03	-1.285E 03	3.972E 03	6.789E 01	1.046E-02	6.789E 01	1.046E-02
6.364E 01	1.045E 01	1.045E 01	3.813E 02	-2.603E 03	-1.277E 03	-1.326E 03	3.972E 03	6.789E 01	1.046E-02	6.789E 01	1.046E-02

READING # 0088 BLOCK # 195 TYPE # 294.001 MACH 7.2 PT # 998.749 TT # 3203.3

XABS	P-IB	P-OB	PDA	DOX	Q-IB	Q-OB	CA-ALL	P-TB/PSO	P-IB/PTO	P-OB/PSO	P-OB/PTO
6.610E 01	1.069E 01	1.049E 01	3.813E 02	-2.739E 03	-1.321E 03	-1.417E 03	4.289E 03	6.943E 01	1.070E-02	6.943E 01	1.070E-02
6.648E 01	1.062E 01	1.072E 01	3.813E 02	-2.762E 03	-1.328E 03	-1.434E 03	4.337E 03	6.899E 01	1.063E-02	6.967E 01	1.074E-02
6.652E 01	1.062E 01	1.073E 01	3.813E 02	-2.764E 03	-1.329E 03	-1.435E 03	4.342E 03	6.899E 01	1.063E-02	6.970E 01	1.074E-02
6.672E 01	1.007E 01	1.075E 01	3.813E 02	-2.777E 03	-1.333E 03	-1.444E 03	4.368E 03	6.543E 01	1.008E-02	6.982E 01	1.076E-02
6.838E 01	5.920E 00	4.910E 00	4.483E 02	-2.864E 03	-1.359E 03	-1.506E 03	4.584E 03	3.586E 01	5.527E-03	3.190E 01	4.916E-03
6.905E 01	4.038E 00	4.785E 00	5.657E 02	-2.895E 03	-1.364E 03	-1.529E 03	4.665E 03	2.623E 01	4.043E-03	3.109E 01	4.791E-03
6.982E 01	2.335E 00	2.901E 00	6.623E 02	-2.929E 03	-1.374E 03	-1.555E 03	4.760E 03	1.517E 01	2.338E-03	1.885E 01	2.905E-03
7.054E 01	1.448E 00	1.140E 00	7.163E 02	-2.959E 03	-1.379E 03	-1.579E 03	4.848E 03	1.200E 01	1.850E-03	7.406E 00	1.141E-03
7.115E 01	1.435E 00	1.119E 00	7.474E 02	-2.981E 03	-1.383E 03	-1.597E 03	4.922E 03	9.322E 00	1.437E-03	7.271E 00	1.121E-03
7.253E 01	8.300E-01	1.072E 00	7.993E 02	-3.015E 03	-1.390E 03	-1.625E 03	5.048E 03	5.392E 00	8.310E-04	6.965E 00	1.074E-03
7.406E 01	4.885E-01	1.020E 00	8.390E 02	-3.044E 03	-1.396E 03	-1.648E 03	5.273E 03	3.173E 00	4.891E-04	6.626E 00	1.021E-03
7.421E 01	4.550E-01	8.867E-01	8.419E 02	-3.047E 03	-1.396E 03	-1.650E 03	5.290E 03	2.956E 00	4.556E-04	5.760E 00	8.878E-04
7.496E 01	5.109E-01	2.200E-01	8.598E 02	-3.063E 03	-1.398E 03	-1.665E 03	5.374E 03	3.319E 00	5.115E-04	1.429E 00	2.203E-04
7.496E 01	5.112E-01	2.144E-01	8.603E 02	-3.063E 03	-1.398E 03	-1.665E 03	5.375E 03	3.321E 00	5.118E-04	1.406E 00	2.167E-04
7.629E 01	6.100E-01	0.000	8.721E 02	-3.097E 03	-1.402E 03	-1.695E 03	5.426E 03	3.963E 00	6.108E-04	0.000	0.000
7.914E 01	7.700E-01	0.000	8.997E 02	-3.102E 03	-1.407E 03	-1.695E 03	5.525E 03	5.002E 00	7.710E-04	0.000	0.000
8.304E 01	5.100E-01	0.000	9.271E 02	-3.107E 03	-1.411E 03	-1.695E 03	5.630E 03	3.313E 00	5.106E-04	0.000	0.000
8.589E 01	4.650E-01	0.000	9.379E 02	-3.110E 03	-1.415E 03	-1.695E 03	5.688E 03	3.021E 00	4.656E-04	0.000	0.000
8.871E 01	6.400E-01	0.000	9.512E 02	-3.117E 03	-1.421E 03	-1.695E 03	5.707E 03	4.158E 00	6.408E-04	0.000	0.000
8.871E 01	6.404E-01	0.000	9.512E 02	-3.117E 03	-1.421E 03	-1.695E 03	5.707E 03	4.160E 00	6.412E-04	0.000	0.000

X	DDRAG	CDRAG	CF	HC
4.040E 01	8.476E 01	8.476E 01	2.267E-03	3.425E-02
4.041E 01	1.672E-01	8.493E 01	2.754E-03	3.272E-02
4.078E 01	9.766E 00	9.070E 01	2.442E-03	3.924E-02
4.120E 01	7.853E 00	9.855E 01	2.417E-03	3.037E-02
4.190E 01	4.217E 00	1.028E 02	2.456E-03	3.138E-02
4.246E 01	1.555E 01	1.183E 02	2.619E-03	1.922E-02
4.273E 01	4.381E 00	1.227E 02	2.609E-03	2.167E-02
4.280E 01	1.072E 00	1.238E 02	2.806E-03	2.136E-02
4.431E 01	2.284E 01	1.466E 02	2.712E-03	4.478E-02
4.480E 01	6.537E 00	1.532E 02	2.922E-03	4.732E-02
4.552E 01	9.555E 00	1.627E 02	3.101E-03	5.009E-02
4.622E 01	9.445E 00	1.722E 02	3.350E-03	4.827E-02
4.623E 01	1.341E-01	1.723E 02	3.249E-03	5.000E-02
4.625E 01	2.430E-01	1.725E 02	3.571E-03	4.758E-02
4.626E 01	1.364E-01	1.727E 02	3.161E-03	5.472E-02
4.731E 01	1.238E 01	1.850E 02	3.144E-03	5.531E-02
4.811E 01	8.513E 00	1.936E 02	3.235E-03	5.190E-02
4.876E 01	6.490E 00	2.001E 02	3.266E-03	4.798E-02
5.020E 01	1.457E 01	2.146E 02	3.436E-03	3.423E-02
5.021E 01	1.002E-01	2.147E 02	3.149E-03	3.736E-02
5.074E 01	9.070E 00	2.198E 02	3.085E-03	3.130E-02
5.215E 01	1.221E 01	2.320E 02	2.892E-03	2.972E-02
5.425E 01	1.593E 01	2.475E 02	2.941E-03	2.313E-02
5.475E 01	3.426E 00	2.510E 02	2.973E-03	2.284E-02
5.550E 01	4.980E 00	2.559E 02	3.004E-03	2.115E-02
5.576E 01	1.713E 00	2.577E 02	3.018E-03	2.057E-02
5.626E 01	1.924E 00	2.592E 02	2.911E-03	1.581E-02
5.768E 01	4.179E 00	2.634E 02	2.911E-03	1.596E-02
5.774E 01	2.661E-01	2.636E 02	3.077E-03	1.608E-02
5.788E 01	6.878E-01	2.643E 02	3.143E-03	1.565E-02
5.796E 01	4.457E-01	2.648E 02	3.728E-03	1.268E-02
5.824E 01	1.559E 00	2.663E 02	2.999E-03	1.446E-02
5.846E 01	1.129E 00	2.674E 02	2.947E-03	1.364E-02
5.919E 01	3.636E 00	2.711E 02	2.831E-03	1.033E-02
6.021E 01	4.570E 00	2.756E 02	2.744E-03	2.114E-02
6.222E 01	8.870E 00	2.845E 02	3.413E-03	1.850E-02
6.364E 01	6.957E 00	2.915E 02	3.479E-03	1.920E-02
6.610E 01	1.171E 01	3.032E 02	3.564E-03	1.864E-02
6.648E 01	1.650E 00	3.048E 02	3.656E-03	1.776E-02
6.652E 01	1.699E-01	3.050E 02	3.750E-03	1.785E-02
6.678E 01	8.627E-01	3.059E 02	3.745E-03	1.770E-02
6.838E 01	7.117E 00	3.130E 02	3.469E-03	1.257E-02
6.905E 01	2.565E 00	3.155E 02	3.650E-03	1.133E-02
6.982E 01	2.610E 00	3.182E 02	3.592E-03	8.011E-03
7.054E 01	1.881E 00	3.200E 02	3.514E-03	5.353E-03
7.115E 01	1.296E 00	3.213E 02	3.490E-03	4.763E-03
7.253E 01	2.555E 00	3.239E 02	3.442E-03	3.808E-03
7.406E 01	2.407E 00	3.263E 02	3.401E-03	3.184E-03
7.421E 01	2.016E-01	3.265E 02	3.385E-03	2.909E-03
7.496E 01	7.950E-01	3.273E 02	3.302E-03	1.813E-03
7.496E 01	1.228E-03	3.273E 02	3.301E-03	1.806E-03
7.629E 01	4.696E-01	3.278E 02	3.360E-03	2.693E-03
7.914E 01	1.116E 00	3.289E 02	3.373E-03	3.203E-03
8.304E 01	1.125E 00	3.300E 02	3.297E-03	2.315E-03
8.585E 01	4.919E-01	3.305E 02	3.269E-03	2.144E-03
8.671E 01	2.198E-01	3.307E 02	3.296E-03	2.753E-03

READING # 0088 BLOCK # 195 TIME # 244.001 MACH 7.2 PT # 998.744 TT # 3203.3

X	CDRAG	CDRAG	CF	HC
8.871E 01	0.000	3.307E 02	2.296E-03	2.734E-03

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	597.	(LBF)
MEASURED THRUST	751.	(LBF)
CALCULATED SPECIFIC IMPULSE	1519.	(LBF-SEC/LBM)
MEASURED SPECIFIC IMPULSE	1909.	(LBF-SEC/LBM)
CALCULATED THRUST COEFFICIENT	0.4133	
MEASURED THRUST COEFFICIENT	0.5197	

REGENERATIVE-COOLED ENGINE PERFORMANCE CALCULATED

STREAM THRUST	3554.	(LBF)
NET THRUST	659.	(LBF)
SPECIFIC IMPULSE	1676.	(LBF-SEC/LBM)
THRUST COEFFICIENT	0.4561	

MOMENTUM AND FORCES

INLET FRICTION DRAG	84.8	(LBF)
INLET MOMENTUM CHANGE	-403.2	(LBF)
COMBUSTOR FRICTION DRAG	220.1	(LBF)
COMBUSTOR STRUT DRAG	-11.91	(LBF)
COMBUSTOR MOMENTUM CHANGE	456.	(LBF)
NOZZLE FRICTION DRAG	25.89	(LBF)
NOZZLE STRUT DRAG	-0.00	(LBF)
NOZZLE MOMENTUM CHANGE	544.	(LBF)
NOZZLE PRESSURE INTEGRAL	970.	(LBF)
EXTERNAL FRICTION DRAG	0.00	(LBF)
EXTERNAL PRESSURE INTEGRAL	0.	(LBF)
TOTAL EXTERNAL DRAG	-722.	(LBF)
TOTAL STRUT DRAG	-11.91	(LBF)
CAVITY FORCE	-516.	(LBF)
CALCULATED LOAD CELL FORCE	-641.	(LBF)
MEASURED LOAD CELL FORCE	-487.	(LBF)

FUEL VACUUM SPECIFIC IMPULSE 0.0, 0.0, -150.6, -121.0,

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	1.7369	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	36.621	(IN)
NOZZLE SHROUD TRAILING EDGE	74.961	(IN)
NOZZLE PLUG TRAILING EDGE	88.713	(IN)
STRUT LEADING EDGE	57.877	(IN)
STRUT TRAILING EDGE	66.477	(IN)
COMBUSTOR EXIT	66.477	(IN)

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.9883	
ADDITIVE DRAG COEFFICIENT	0.0000	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.1007	
DELTA PT2	0.0886	(PSI)
TOTAL PRESSURE RECOVERY - SUPERSONIC	0.3261	
TOTAL PRESSURE RECOVERY - SUBSONIC	0.1020	
INLET PROCESS EFFICIENCY - SUPERSONIC	0.9042	
INLET PROCESS EFFICIENCY - SUBSONIC	0.9128	
KINETIC ENERGY EFFICIENCY - SUPERSONIC	0.9311	
KINETIC ENERGY EFFICIENCY - SUBSONIC	0.8813	
ENTHALPY AT P0 - SUPERSONIC	-29.83	(BTU/LBM)
ENTHALPY AT P0 - SUBSONIC	9.32	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0268	
EQUIVALENCE RATIO	0.854	
COMBUSTOR EFFICIENCY	0.997	
TOTAL PRESSURE RATIO	0.0725	
COMBUSTOR EFFECTIVENESS	0.8428	

INJECTOR DISCHARGE COEFFICIENTS 0.9279, 0.5606, 0.9583, 0.7788

NOZZLE

VACUUM STREAM THRUST COEFFICIENT - CS	0.9023	
NOZZLE COEFFICIENT - CT	0.8143	
PROCESS EFFICIENCY	0.7099	
KINETIC ENERGY EFFICIENCY	0.7980	

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	A
1B	42.722	
1C	44.300	
2A	50.197	D
2C	46.250	B
3A	55.487	
3B	57.672	
4	46.222	C

Reading 88

t = 299.40 sec.

2/12/75

READING # 0048 BLOCK # 201 TIME = 299.001 MACH 7.2 P1 = 998.999 T1 = 3150.9

RAMJET PERFORMANCE

SUMMARY REPORT

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	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	A/A	%	A/AF	MOMTM	G	IVAC	PHI	ETAC
WIND TUNNEL		1	0 6														
0.000	998.999	3151	716.3(840)	1.2886	28.903	2643											
0.000	0.154	306	-55.7(73)	1.3966	28.901	857	7.250	6215	1.823	0.05844	14.855	0.9891	2909	5.643	195.8		
SPIKE TIP NS		2	0 7														
0.600	11.312	3151	716.3(840)	1.2881	28.901	2642											
0.600	10.439	3094	699.0(823)	1.2899	28.901	2620	0.355	929	2.131	0.05864	14.855	0.9891	3074	0.847	206.9		
WIND TUNNEL		3	0 0														
0.000	998.999	3151	716.3(840)	1.2886	28.903	2643											
0.000	0.170	314	-53.7(75)	1.3969	28.901	869	7.144	6207	1.823	0.06263	15.869	0.9891	3104	6.042	195.6		
SPIKE TIP NS		4	0 0														
0.600	11.312	3151	716.3(840)	1.2881	28.901	2642											
0.600	10.301	3085	696.2(821)	1.2902	28.901	2617	0.383	1003	2.131	0.06263	15.869	0.9891	3104	0.976	195.6		
INLET THROAT		5	0 3														
40.400	326.253	3055	687.1(812)	1.2916	28.902	2605											
40.400	10.438	1314	193.5(323)	1.3594	28.901	1753	2.835	4970	1.890	0.73853	14.855	0.0785	2505	57.040	168.6		
INLET UPNRBK		6	0 3														
40.400	326.253	3055	687.1(812)	1.2916	28.902	2605											
40.400	9.007	1263	180.4(309)	1.3625	28.901	1721	2.926	5035	1.890	0.67139	14.855	0.0864	2524	52.537	169.9		
INLET DNNRBK		7	0 4														
40.400	102.338	3055	687.1(812)	1.2915	28.902	2605											
40.400	89.210	2962	658.7(784)	1.2944	28.902	2568	0.464	1192	1.970	0.67139	14.855	0.0864	2524	12.435	169.9		
COMBUSTOR	0	8	1 21														
40.410	220.510	2988	698.3(865)	1.2960	26.369	2702											
40.410	11.346	1443	219.9(390)	1.3542	26.369	1919	2.549	4893	2.061	0.74401	14.967	0.0795	2504	56.570	167.3	0.24	0.07
COMBUSTOR	0	9	2 3														
40.747	212.005	2998	696.2(868)	1.2954	26.386	2705											
40.747	14.363	1596	247.8(423)	1.3480	26.386	1988	2.383	4738	2.064	0.74675	14.967	0.0783	2492	84.990	166.5	0.24	0.09
COMBUSTOR	0	10	3 21														
41.237	208.454	2897	693.1(837)	1.2999	26.290	2669											
41.237	9.997	1365	221.8(368)	1.3593	26.290	1873	2.592	4657	2.056	0.74078	14.967	0.0789	2461	55.909	164.4	0.24	0.01
COMBUSTOR	0	11	4 21														
41.500	193.841	2879	691.4(831)	1.3008	26.276	2662											
41.500	10.816	1410	239.0(381)	1.3569	26.275	1903	2.501	4758	2.060	0.73373	14.967	0.0796	2438	54.257	162.6	0.24	0.00
COMBUSTOR	0	12	5 21														
42.460	111.629	2856	684.8(824)	1.3015	26.273	2652											
42.460	4.888	1311	211.2(353)	1.3626	26.273	1838	2.648	4868	2.099	0.69201	14.967	0.0804	2370	52.351	158.4	0.24	0.00
COMBUSTOR	0	13	6 21														
42.732	123.767	2890	692.7(922)	1.3018	26.273	2649											
42.732	6.560	1375	229.7(371)	1.3589	26.273	1880	2.532	4761	2.090	0.68223	14.967	0.0887	2359	50.481	157.6	0.24	0.00
COMBUSTOR	0	14	7 21														
42.797	79.045	3235	682.2(900)	1.2834	26.688	2781											
42.797	6.960	1823	234.3(498)	1.3326	26.690	2127	2.226	4734	2.155	0.67970	14.967	0.0860	2356	50.009	157.4	0.24	0.32
COMBUSTOR	0	15	8 4														
44.310	87.030	3315	669.8(964)	1.2790	26.819	2804											
44.310	24.493	2486	398.4(699)	1.3070	26.822	2454	1.902	3685	2.151	0.62919	14.967	0.0929	2296	36.035	153.4	0.24	0.42
COMBUSTOR	0	16	9 4														
44.800	78.485	3484	665.2(1016)	1.2701	27.025	2853											
44.800	30.117	2822	443.8(802)	1.2932	27.030	2591	1.285	3329	2.168	0.62133	14.967	0.0941	2274	32.141	151.9	0.24	0.57
COMBUSTOR	0	17	10 3														
45.517	75.317	3513	658.4(1024)	1.2683	27.082	2860											
45.517	33.414	2943	466.3(840)	1.2884	27.087	2638	1.175	3100	2.171	0.61700	14.967	0.0947	2253	29.730	150.5	0.24	0.62
COMBUSTOR	0	18	11 5														
46.222	73.592	3234	660.3(1004)	1.2834	24.982	2874											
46.222	31.944	2677	464.6(813)	1.3023	24.984	2634	1.188	3130	2.282	0.60375	15.064	0.0974	2262	29.365	150.2	0.45	0.28

READING = 0088 BLOCK = 201 TIME = 299.401 MACH 7.2 PT = 998.999 TT = 3150.9

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	F/A	W	A/AC	MONTP	Q	IVAC	PHI	ETAC
COMBUSTOR	0	19	12 0														
46.232	73.591	3234	660.2(1004)	1.2834	24.982	2874											
46.232	31.923	2676	464.3(813)	1.3023	24.984	2638	1.189	3131	2.282	0.60375	15.060	0.0974	2262	29.374	150.2	0.45	0.28
COMBUSTOR	0	20	13 6														
46.250	72.598	2891	671.9(961)	1.3011	22.804	2864											
46.250	31.885	2380	483.4(775)	1.3183	22.805	2615	1.174	3071	2.399	0.60720	15.180	0.0976	2246	28.978	148.0	0.70	0.12
COMBUSTOR	0	21	14 2														
46.260	72.567	2892	671.8(961)	1.3011	22.805	2864											
46.260	31.864	2380	483.2(775)	1.3183	22.805	2615	1.174	3072	2.399	0.60686	15.180	0.0977	2246	28.968	148.0	0.70	0.12
COMBUSTOR	0	22	15 4														
47.310	68.718	3002	656.0(999)	1.2958	22.944	2903											
47.310	29.675	2468	457.6(804)	1.3134	22.945	2650	1.189	3151	2.412	0.56257	15.180	0.1053	2287	27.546	150.7	0.70	0.17
COMBUSTOR	0	23	16 4														
48.110	64.772	3154	642.6(1053)	1.2877	23.119	2955											
48.110	27.760	2598	433.7(848)	1.3066	23.121	2702	1.197	3233	2.429	0.51698	15.180	0.1146	2341	25.977	154.2	0.70	0.23
COMBUSTOR	0	24	17 4														
48.757	61.035	3342	632.0(1119)	1.2780	23.326	3017											
48.757	25.175	2741	403.1(886)	1.2989	23.329	2754	1.229	3384	2.447	0.46928	15.180	0.1263	2411	24.680	158.8	0.70	0.30
COMBUSTOR	0	25	18 5														
50.197	58.351	3149	623.0(1111)	1.2881	21.865	3037											
50.197	15.575	2316	297.0(790)	1.3167	21.867	2633	1.534	4039	2.550	0.38426	15.275	0.1592	2537	24.118	166.1	0.91	0.23
COMBUSTOR	0	26	19 2														
50.207	58.384	3147	622.9(1110)	1.2882	21.864	3036											
50.207	15.508	2312	296.0(788)	1.3168	21.866	2631	1.537	4044	2.550	0.38376	15.275	0.1594	2537	24.119	166.1	0.91	0.23
COMBUSTOR	0	27	20 4														
50.737	62.186	3016	618.5(1061)	1.2943	21.758	2987											
50.737	11.975	2039	241.9(688)	1.3284	21.759	2488	1.745	4341	2.532	0.35891	15.275	0.1662	2570	24.210	168.3	0.91	0.19
COMBUSTOR	0	28	21 4														
52.147	53.636	3232	608.6(1141)	1.2835	21.972	3064											
52.147	10.880	2232	217.2(756)	1.3183	21.975	2980	1.715	4426	2.563	0.30589	15.275	0.1950	2643	21.039	173.0	0.91	0.26
COMBUSTOR	0	29	22 3														
54.247	52.301	3203	593.6(1133)	1.2844	21.913	3055											
54.247	7.600	2040	141.0(687)	1.3255	21.915	2477	1.922	4759	2.568	0.25149	15.322	0.2379	2730	18.600	178.1	0.91	0.26
COMBUSTOR	0	30	23 4														
54.747	47.321	3344	590.9(1186)	1.2772	22.047	3103											
54.747	8.000	2224	149.5(753)	1.3166	22.051	2570	1.829	4700	2.588	0.24121	15.322	0.2480	2746	17.618	179.2	0.91	0.30
COMBUSTOR	0	31	24 3														
55.497	48.047	3306	587.2(1172)	1.2790	22.020	3090											
55.497	6.994	2117	121.3(713)	1.3210	22.024	2513	1.922	4828	2.583	0.22738	15.322	0.2631	2771	17.061	180.8	0.91	0.29
COMBUSTOR	0	32	25 3														
55.760	48.669	3284	585.9(1164)	1.2801	22.004	3082											
55.760	6.641	2068	111.0(696)	1.3231	22.007	2487	1.961	4875	2.580	0.22293	15.322	0.2684	2778	16.889	181.3	0.91	0.29
COMBUSTOR	0	33	26 4														
56.257	43.188	3358	583.6(1190)	1.2763	22.073	3105											
56.257	4.897	2027	64.6(679)	1.3239	22.077	2458	2.073	5096	2.596	0.17591	15.322	0.3401	2853	13.930	186.2	0.91	0.31
COMBUSTOR	0	34	27 6														
57.682	26.727	4373	577.3(1581)	1.2037	23.103	3366											
57.682	9.070	3603	207.7(1265)	1.2454	23.203	3101	1.387	4301	2.694	0.16258	15.322	0.3679	2903	10.867	189.5	0.91	0.63
COMBUSTOR	0	35	28 4														
57.737	27.195	4310	577.1(1556)	1.2094	23.036	3354											
57.737	8.582	3483	190.6(1219)	1.2529	23.123	3063	1.436	4398	2.690	0.16216	15.322	0.3689	2905	11.083	189.6	0.91	0.61
COMBUSTOR	0	36	29 4														
57.877	26.837	4355	576.6(1574)	1.2053	23.087	3362											
57.877	8.734	3550	195.5(1246)	1.2483	23.183	3084	1.416	4367	2.692	0.16099	15.322	0.3716	2911	10.925	190.0	0.91	0.63
COMBUSTOR	0	37	30 5														
57.957	26.402	4479	576.2(1622)	1.1940	23.220	3384											
57.957	9.667	3775	222.4(1332)	1.2331	23.346	3149	1.336	4208	2.699	0.16276	15.322	0.3675	2910	10.644	190.2	0.91	0.68

	P	T	H	GAMMA	FCLAT	SONV	MACH	VEL	S	A/A	A	A/AC	PORTM	Q	IVAC	PHT	ETAC
COMBUSTOR	0	38	31	4													
58.237	26.035	4585	575.2(1463)	1.1842	23.336	3401											
58.237	10.275	3951	238.4(1400)	1.2191	23.492	3193	1.286	4105	2.703	0.16228	15.322	0.3686	2925	10.352	190.9	0.91	0.72
COMBUSTOR	0	39	32	2													
58.463	26.203	4584	574.3(1463)	1.1843	23.338	3401											
58.463	10.067	3931	228.6(1392)	1.2208	23.496	3186	1.305	4159	2.703	0.16192	15.322	0.3695	2933	10.468	191.4	0.91	0.72
COMBUSTOR	0	40	33	3													
59.187	26.478	4570	571.5(1457)	1.1857	23.330	3398											
59.187	9.400	3860	201.0(1363)	1.2252	23.489	3164	1.361	4306	2.701	0.15941	15.322	0.3753	2954	10.668	192.8	0.91	0.72
COMBUSTOR	0	41	34	5													
60.207	25.135	4902	567.8(1786)	1.1545	23.699	3446											
60.207	12.075	4477	281.1(1605)	1.1698	23.960	3296	1.149	3787	2.713	0.15839	15.322	0.3777	2972	9.323	194.0	0.91	0.90
COMBUSTOR	0	42	35	4													
62.217	25.696	4930	560.2(1797)	1.1523	23.747	3449											
62.217	13.537	4565	306.9(1641)	1.1635	23.991	3318	1.073	3540	2.710	0.16391	15.322	0.3650	2961	9.068	193.2	0.91	0.92
COMBUSTOR	0	43	36	5													
63.637	26.990	4730	554.3(1719)	1.1707	23.546	3420											
63.637	11.344	4171	230.1(1484)	1.1990	23.793	3236	1.245	4028	2.701	0.16035	15.322	0.3553	2951	10.537	192.6	0.91	0.80
COMBUSTOR	0	44	37	3													
66.101	25.182	4725	542.9(1716)	1.1694	23.570	3414											
66.101	11.191	4208	238.7(1499)	1.1953	23.772	3244	1.203	3901	2.705	0.15958	15.322	0.3749	2932	9.675	191.4	0.91	0.81
COMBUSTOR	0	45	38	4													
66.477	23.189	4768	541.0(1733)	1.1638	23.621	3418											
66.477	11.024	4311	258.3(1540)	1.1849	23.835	3264	1.152	3761	2.713	0.14835	15.322	0.4032	2930	8.672	191.2	0.91	0.84
COMBUSTOR REGEN		46	39	21													
66.477	23.189	4933	680.2(1805)	1.1545	23.455	3475											
66.477	15.802	4712	524.0(1710)	1.1608	23.603	3394	0.824	2796	2.742	0.14835	15.322	0.4032	2964	6.446	193.4	0.91	0.84
NOZZLE AE		47	40	5													
88.713	23.189	4768	541.0(1664)	1.1638	23.621	3418											
88.713	0.695	2554	-524.0(842)	1.2800	24.016	2602	2.806	7300	2.713	0.03088	15.322	1.9371	3821	3.504	249.4	0.91	0.84
NOZZLE PO		48	41	5													
88.713	23.189	4768	541.0(1664)	1.1638	23.621	3418											
88.713	0.154	1813	-793.9(573)	1.3104	24.017	2217	3.686	8173	2.713	0.01081	15.322	5.5322	4111	1.373	268.3	0.91	0.84
NOZZLE AE REGEN		49	42	5													
88.713	23.189	4933	680.2(1805)	1.1545	23.455	3475											
88.713	0.744	2793	-432.4(932)	1.2707	24.015	2711	2.753	7461	2.742	0.03088	15.322	1.9371	3922	3.581	256.0	0.91	0.84
NOZZLE PO REGEN		50	43	5													
88.713	23.189	4933	680.2(1805)	1.1545	23.455	3475											
88.713	0.154	1966	-739.7(627)	1.3033	24.017	2303	3.660	8429	2.742	0.01028	15.322	5.8188	4244	1.347	277.0	0.91	0.84
FICTIVE COMBUSTR		69	62	0													
66.477	326.253	5304	541.0(1945)	1.1689	24.206	3568											
66.477	0.154	1115	-1260.0(334)	1.3483	24.673	1739	5.460	9493	2.494	0.02097	15.322	2.8527	4634	3.094	302.4	0.91	1.00
FICTIVE NOZZLE		70	63	0													
88.713	12.546	4676	512.0(1695)	1.1592	23.594	3380											
88.713	0.939	3060	-326.7(1035)	1.2587	24.010	2824	2.294	6478	2.759	0.03088	15.322	1.9371	3551	3.109	231.8	0.91	0.84

READING # 0088 BLOCK # 201 TIME # 299.401 MACH 7.2 PT # 998.999 TT # 3150.9

XARB	P=IB	P=OB	PDA	QDX	Q=IB	Q=OB	CAWALI	P=IB/PBO	P=IB/PTO	P=OB/PBO	P=OB/PTO
6.981E-01	4.900E-01	0.000	-2.732E-01	0.000	0.000	0.000	2.470E-02	4.472E 00	6.907E-04	0.000	0.000
1.836E 01	4.900E-01	0.000	-2.294E 01	0.000	0.000	0.000	1.434E 02	4.472E 00	6.907E-04	0.000	0.000
3.070E 01	1.025E 00	0.000	-9.248E 01	0.000	0.000	0.000	5.053E 02	6.643E 00	1.026E-03	0.000	0.000
3.508E 01	1.492E 00	0.000	-1.870E 02	0.000	0.000	0.000	6.804E 02	1.226E 01	1.894E-03	0.000	0.000
3.595E 01	2.190E 00	0.000	-2.056E 02	0.000	0.000	0.000	7.013E 02	1.419E 01	2.192E-03	0.000	0.000
3.606E 01	2.055E 00	0.000	-2.271E 02	-1.907E 02	-1.907E 02	0.000	7.246E 02	1.332E 01	2.057E-03	0.000	0.000
3.648E 01	2.269E 00	0.000	-2.456E 02	-1.953E 02	-1.953E 02	0.000	7.443E 02	1.470E 01	2.271E-03	0.000	0.000
3.661E 01	2.302E 00	3.231E 00	-2.854E 02	-1.968E 02	-1.968E 02	0.000	7.507E 02	1.492E 01	2.304E-03	2.094E 01	3.234E-03
3.662E 01	2.304E 00	3.247E 00	-2.855E 02	-1.969E 02	-1.969E 02	0.000	7.509E 02	1.493E 01	2.306E-03	2.104E 01	3.250E-03
3.701E 01	2.400E 00	4.264E 00	-2.876E 02	-2.014E 02	-2.014E 02	0.000	7.913E 02	1.555E 01	2.402E-03	2.763E 01	4.268E-03
3.729E 01	2.295E 00	4.987E 00	-2.879E 02	-2.047E 02	-2.047E 02	0.000	8.204E 02	1.488E 01	2.298E-03	3.232E 01	4.992E-03
3.803E 01	2.015E 00	8.299E 00	-2.712E 02	-2.141E 02	-2.141E 02	0.000	9.004E 02	1.306E 01	2.017E-03	5.378E 01	8.307E-03
3.875E 01	4.664E 00	1.149E 01	-2.692E 02	-2.918E 02	-2.253E 02	-6.647E 01	9.802E 02	4.319E 01	6.671E-03	7.449E 01	1.151E-02
3.875E 01	4.684E 00	1.148E 01	-2.692E 02	-2.920E 02	-2.254E 02	-6.646E 01	9.806E 02	4.332E 01	6.691E-03	7.442E 01	1.150E-02
3.901E 01	8.370E 00	1.064E 01	-2.738E 02	-3.130E 02	-2.303E 02	-8.263E 01	1.010E 03	5.424E 01	8.378E-03	6.896E 01	1.065E-02
3.950E 01	1.137E 01	9.053E 00	-2.913E 02	-3.538E 02	-2.412E 02	-1.126E 02	1.066E 03	7.369E 01	1.138E-02	5.867E 01	9.062E-03
3.977E 01	1.099E 01	8.187E 00	-3.013E 02	-3.769E 02	-2.480E 02	-1.289E 02	1.097E 03	7.129E 01	1.100E-02	5.306E 01	8.196E-03
4.000E 01	1.067E 01	7.853E 00	-3.073E 02	-3.975E 02	-2.545E 02	-1.431E 02	1.124E 03	6.912E 01	1.068E-02	5.089E 01	7.861E-03
4.024E 01	1.208E 01	7.512E 00	-3.148E 02	-4.189E 02	-2.615E 02	-1.574E 02	1.151E 03	7.828E 01	1.209E-02	4.869E 01	7.520E-03
4.040E 01	1.305E 01	9.461E 00	-3.197E 02	-4.338E 02	-2.665E 02	-1.673E 02	1.170E 03	8.458E 01	1.306E-02	6.132E 01	9.471E-03
4.041E 01	1.311E 01	9.581E 00	-3.199E 02	-4.347E 02	-2.668E 02	-1.679E 02	1.172E 03	8.497E 01	1.312E-02	6.209E 01	9.590E-03
4.075E 01	1.512E 01	1.361E 01	-3.259E 02	-4.659E 02	-2.776E 02	-1.882E 02	1.211E 03	9.799E 01	1.514E-02	8.818E 01	1.362E-02
4.124E 01	1.804E 01	1.950E 00	-3.348E 02	-5.119E 02	-2.944E 02	-2.174E 02	1.269E 03	1.169E 02	1.806E-02	1.264E 01	1.952E-03
4.150E 01	1.961E 01	2.020E 00	-3.710E 02	-5.370E 02	-3.043E 02	-2.327E 02	1.300E 03	1.271E 02	1.963E-02	1.309E 01	2.022E-03
4.246E 01	7.500E 00	2.276E 00	-4.197E 02	-6.369E 02	-3.487E 02	-2.883E 02	1.414E 03	4.861E 01	7.508E-03	1.475E 01	2.278E-03
4.273E 01	1.077E 01	2.348E 00	-4.264E 02	-6.677E 02	-3.644E 02	-3.033E 02	1.446E 03	6.981E 01	1.078E-02	1.522E 01	2.351E-03
4.280E 01	1.155E 01	2.366E 00	-4.288E 02	-6.751E 02	-3.684E 02	-3.067E 02	1.454E 03	7.488E 01	1.157E-02	1.533E 01	2.368E-03
4.431E 01	2.976E 01	1.915E 01	-4.660E 02	-8.613E 02	-4.935E 02	-3.679E 02	1.836E 03	1.928E 02	2.979E-02	1.241E 02	1.917E-02
4.480E 01	3.565E 01	2.458E 01	-4.818E 02	-9.292E 02	-5.468E 02	-3.829E 02	1.996E 03	2.310E 02	3.569E-02	1.593E 02	2.461E-02
4.552E 01	3.429E 01	3.254E 01	-4.941E 02	-1.032E 03	-6.277E 02	-4.038E 02	1.783E 03	2.222E 02	3.432E-02	2.109E 02	3.257E-02
4.622E 01	3.295E 01	3.094E 01	-4.760E 02	-1.150E 03	-7.041E 02	-4.459E 02	1.870E 03	2.136E 02	3.299E-02	2.005E 02	3.097E-02
4.623E 01	3.293E 01	3.091E 01	-4.760E 02	-1.152E 03	-7.052E 02	-4.468E 02	1.871E 03	2.134E 02	3.297E-02	2.003E 02	3.094E-02
4.625E 01	3.290E 01	3.087E 01	-4.745E 02	-1.156E 03	-7.071E 02	-4.485E 02	1.873E 03	2.132E 02	3.293E-02	2.001E 02	3.090E-02
4.626E 01	3.288E 01	3.085E 01	-4.742E 02	-1.158E 03	-7.082E 02	-4.494E 02	1.874E 03	2.131E 02	3.291E-02	1.999E 02	3.088E-02
4.731E 01	3.089E 01	2.846E 01	-4.217E 02	-1.397E 03	-8.161E 02	-5.805E 02	2.004E 03	2.002E 02	3.092E-02	1.845E 02	2.849E-02
4.811E 01	2.887E 01	2.668E 01	-3.601E 02	-1.600E 03	-8.939E 02	-7.042E 02	2.103E 03	1.871E 02	2.890E-02	1.727E 02	2.667E-02
4.876E 01	2.517E 01	2.517E 01	-2.833E 02	-1.762E 03	-9.540E 02	-8.082E 02	2.184E 03	1.632E 02	2.520E-02	1.632E 02	2.520E-02
5.020E 01	1.557E 01	1.557E 01	-1.321E 02	-2.047E 03	-1.079E 03	-9.679E 02	2.363E 03	1.009E 02	1.559E-02	1.009E 02	1.559E-02
5.021E 01	1.551E 01	1.551E 01	-1.315E 02	-2.048E 03	-1.080E 03	-9.685E 02	2.365E 03	1.005E 02	1.552E-02	1.005E 02	1.552E-02
5.074E 01	1.197E 01	1.197E 01	-9.331E 01	-2.116E 03	-1.123E 03	-9.931E 02	2.431E 03	7.761E 01	1.199E-02	7.761E 01	1.199E-02
5.215E 01	1.085E 01	1.085E 01	-8.933E 00	-2.266E 03	-1.229E 03	-1.037E 03	2.609E 03	7.032E 01	1.086E-02	7.032E 01	1.086E-02
5.425E 01	7.600E 00	7.600E 00	9.264E 01	-2.467E 03	-1.366E 03	-1.101E 03	2.875E 03	4.925E 01	7.608E-03	4.925E 01	7.608E-03
5.475E 01	8.000E 00	8.000E 00	1.129E 02	-2.508E 03	-1.395E 03	-1.114E 03	2.939E 03	5.185E 01	8.008E-03	5.185E 01	8.008E-03
5.550E 01	6.994E 00	6.994E 00	1.419E 02	-2.566E 03	-1.435E 03	-1.131E 03	3.035E 03	4.533E 01	7.001E-03	4.533E 01	7.001E-03
5.576E 01	6.641E 00	6.641E 00	1.511E 02	-2.585E 03	-1.448E 03	-1.137E 03	3.068E 03	4.304E 01	6.648E-03	4.304E 01	6.648E-03
5.626E 01	3.819E 00	5.975E 00	2.277E 02	-2.621E 03	-1.473E 03	-1.148E 03	3.102E 03	2.475E 01	3.823E-03	3.872E 01	5.981E-03
5.768E 01	9.070E 00	9.070E 00	2.812E 02	-2.717E 03	-1.539E 03	-1.178E 03	3.209E 03	5.878E 01	9.079E-03	5.878E 01	9.079E-03
5.774E 01	7.975E 00	9.189E 00	2.838E 02	-2.720E 03	-1.541E 03	-1.179E 03	3.217E 03	5.168E 01	7.983E-03	5.955E 01	9.19AE-03
5.788E 01	7.975E 00	9.493E 00	2.899E 02	-2.729E 03	-1.547E 03	-1.182E 03	3.234E 03	5.168E 01	7.983E-03	6.152E 01	9.503E-03
5.796E 01	9.667E 00	9.667E 00	2.933E 02	-2.733E 03	-1.550E 03	-1.183E 03	3.245E 03	6.265E 01	9.677E-03	6.265E 01	9.677E-03
5.824E 01	1.027E 01	1.027E 01	3.068E 02	-2.750E 03	-1.561E 03	-1.189E 03	3.280E 03	6.659E 01	1.029E-02	6.659E 01	1.029E-02
5.846E 01	1.007E 01	1.007E 01	3.167E 02	-2.764E 03	-1.569E 03	-1.194E 03	3.309E 03	6.524E 01	1.008E-02	6.524E 01	1.008E-02
5.919E 01	9.400E 00	9.400E 00	3.431E 02	-2.804E 03	-1.595E 03	-1.211E 03	3.402E 03	6.092E 01	9.409E-03	6.092E 01	9.409E-03
6.021E 01	1.207E 01	1.207E 01	3.679E 02	-2.863E 03	-1.625E 03	-1.238E 03	3.532E 03	7.826E 01	1.209E-02	7.826E 01	1.209E-02
6.222E 01	1.354E 01	1.354E 01	3.709E 02	-2.980E 03	-1.671E 03	-1.309E 03	3.790E 03	8.773E 01	1.355E-02	8.773E 01	1.355E-02
6.364E 01	1.134E 01	1.134E 01	3.709E 02	-3.070E 03	-1.699E 03	-1.371E 03	3.972E 03	7.352E 01	1.136E-02	7.352E 01	1.136E-02

READING # 0088 BLOCK # 201 TIME = 299.401 MACH 7.2 PT = 998.999 TT = 3150.9

XABS	P=IB	P=OB	PBA	BOX	Q=IB	Q=OB	Q=ALL	P=IB/PS0	P=IB/PT0	P=OB/PS0	P=OB/PT0
6.610E 01	1.119E 01	1.119E 01	3.709E 02	-3.245E 03	-1.755E 03	-1.490E 03	4.289E 03	7.252E 01	1.120E-02	7.252E 01	1.120E-02
6.648E 01	1.088E 01	1.117E 01	3.709E 02	-3.270E 03	-1.764E 03	-1.510E 03	4.337E 03	7.051E 01	1.089E-02	7.237E 01	1.118E-02
6.652E 01	1.088E 01	1.116E 01	3.709E 02	-3.277E 03	-1.765E 03	-1.512E 03	4.342E 03	7.051E 01	1.089E-02	7.236E 01	1.118E-02
6.672E 01	1.029E 01	1.115E 01	3.709E 02	-3.291E 03	-1.770E 03	-1.521E 03	4.368E 03	6.671E 01	1.030E-02	7.228E 01	1.116E-02
6.838E 01	5.430E 00	4.905E 00	4.596E 02	-3.395E 03	-1.804E 03	-1.592E 03	4.584E 03	3.519E 01	5.435E-03	3.179E 01	4.910E-03
6.905E 01	4.006E 00	4.777E 00	5.563E 02	-3.432E 03	-1.818E 03	-1.618E 03	4.665E 03	2.596E 01	4.010E-03	3.096E 01	4.782E-03
6.982E 01	2.370E 00	3.513E 00	6.565E 02	-3.472E 03	-1.824E 03	-1.648E 03	4.760E 03	1.536E 01	2.372E-03	2.276E 01	3.516E-03
7.054E 01	1.480E 00	2.330E 00	7.210E 02	-3.506E 03	-1.831E 03	-1.676E 03	4.848E 03	1.218E 01	1.882E-03	1.510E 01	2.332E-03
7.115E 01	1.465E 00	2.108E 00	7.629E 02	-3.535E 03	-1.836E 03	-1.697E 03	4.922E 03	9.494E 00	1.466E-03	1.366E 01	2.110E-03
7.253E 01	8.700E-01	1.606E 00	8.309E 02	-3.580E 03	-1.845E 03	-1.735E 03	5.088E 03	5.638E 00	8.709E-04	1.041E 01	1.608E-03
7.406E 01	5.148E-01	1.050E 00	8.772E 02	-3.619E 03	-1.853E 03	-1.767E 03	5.273E 03	3.336E 00	5.153E-04	6.805E 00	1.051E-03
7.421E 01	4.800E-01	9.166E-01	8.803E 02	-3.625E 03	-1.853E 03	-1.770E 03	5.290E 03	3.111E 00	4.805E-04	5.941E 00	9.176E-04
7.496E 01	3.575E-01	2.500E-01	8.993E 02	-3.643E 03	-1.856E 03	-1.786E 03	5.374E 03	3.613E 00	5.581E-04	1.620E 00	2.503E-04
7.496E 01	3.579E-01	2.464E-01	8.998E 02	-3.643E 03	-1.856E 03	-1.787E 03	5.375E 03	3.616E 00	5.585E-04	1.597E 00	2.467E-04
7.629E 01	6.950E-01	0.000	9.130E 02	-3.683E 03	-1.861E 03	-1.822E 03	5.424E 03	4.504E 00	6.957E-04	0.000	0.000
7.914E 01	1.080E 00	0.000	9.485E 02	-3.691E 03	-1.869E 03	-1.822E 03	5.525E 03	6.999E 00	1.081E-03	0.000	0.000
8.304E 01	7.050E-01	0.000	9.867E 02	-3.699E 03	-1.877E 03	-1.822E 03	5.630E 03	4.569E 00	7.057E-04	0.000	0.000
8.585E 01	6.300E-01	0.000	1.002E 03	-3.705E 03	-1.883E 03	-1.822E 03	5.684E 03	4.083E 00	6.304E-04	0.000	0.000
8.871E 01	8.400E-01	0.000	1.019E 03	-3.717E 03	-1.895E 03	-1.822E 03	5.707E 03	5.444E 00	8.408E-04	0.000	0.000
8.871E 01	8.404E-01	0.000	1.019E 03	-3.717E 03	-1.895E 03	-1.822E 03	5.707E 03	5.447E 00	8.413E-04	0.000	0.000

READING = 0088 BLOCK = 201 TIME = 299.401 MACH 7.2 PT = 998.999 TT = 3150.9

X	DDRAG	CDRAG	CP	MC
4.040E 01	8.483E 01	8.483E 01	2.254E-03	3.444E-02
4.041E 01	1.725E-01	8.500E 01	2.922E-03	3.429E-02
4.075E 01	5.970E 00	9.097E 01	2.505E-03	4.499E-02
4.124E 01	8.081E 00	9.906E 01	2.554E-03	3.414E-02
4.150E 01	4.332E 00	1.034E 02	2.510E-03	3.644E-02
4.246E 01	1.580E 01	1.192E 02	2.685E-03	1.949E-02
4.273E 01	4.447E 00	1.236E 02	2.648E-03	2.418E-02
4.280E 01	1.037E 00	1.247E 02	2.645E-03	2.522E-02
4.431E 01	2.234E 01	1.470E 02	3.052E-03	5.069E-02
4.480E 01	6.326E 00	1.533E 02	3.178E-03	5.366E-02
4.552E 01	8.774E 00	1.621E 02	3.309E-03	5.334E-02
4.622E 01	8.690E 00	1.708E 02	3.502E-03	5.024E-02
4.623E 01	1.226E-01	1.709E 02	3.252E-03	5.482E-02
4.625E 01	2.155E-01	1.711E 02	3.513E-03	5.201E-02
4.626E 01	1.214E-01	1.713E 02	3.175E-03	5.845E-02
4.731E 01	1.149E 01	1.827E 02	3.103E-03	5.602E-02
4.811E 01	8.257E 00	1.910E 02	3.123E-03	5.242E-02
4.876E 01	6.385E 00	1.974E 02	3.141E-03	4.823E-02
5.020E 01	1.413E 01	2.115E 02	3.297E-03	3.491E-02
5.021E 01	9.412E-02	2.116E 02	3.066E-03	3.738E-02
5.074E 01	4.877E 00	2.165E 02	3.006E-03	3.205E-02
5.215E 01	1.174E 01	2.282E 02	2.839E-03	3.016E-02
5.425E 01	1.510E 01	2.433E 02	2.883E-03	2.240E-02
5.475E 01	3.318E 00	2.467E 02	2.867E-03	2.301E-02
5.550E 01	4.810E 00	2.515E 02	2.923E-03	2.041E-02
5.576E 01	1.661E 00	2.531E 02	2.889E-03	1.979E-02
5.626E 01	1.458E 00	2.546E 02	2.757E-03	1.546E-02
5.768E 01	3.798E 00	2.584E 02	2.933E-03	2.142E-02
5.774E 01	2.454E-01	2.586E 02	3.415E-03	1.782E-02
5.788E 01	6.649E-01	2.593E 02	3.385E-03	1.811E-02
5.796E 01	3.867E-01	2.597E 02	3.622E-03	1.785E-02
5.824E 01	1.328E 00	2.610E 02	3.467E-03	1.914E-02
5.806E 01	1.046E 00	2.621E 02	3.502E-03	1.874E-02
5.919E 01	3.413E 00	2.659E 02	3.472E-03	1.819E-02
6.021E 01	4.556E 00	2.700E 02	3.502E-03	2.000E-02
6.222E 01	8.470E 00	2.785E 02	3.642E-03	2.001E-02
6.364E 01	6.480E 00	2.850E 02	3.415E-03	1.916E-02
6.610E 01	1.147E 01	2.964E 02	3.562E-03	1.891E-02
6.648E 01	1.589E 00	2.980E 02	3.620E-03	1.806E-02
6.652E 01	1.687E-01	2.982E 02	3.688E-03	1.818E-02
6.672E 01	8.246E-01	2.990E 02	3.682E-03	1.803E-02
6.838E 01	6.862E 00	3.059E 02	3.557E-03	1.266E-02
6.905E 01	2.493E 00	3.084E 02	3.530E-03	1.145E-02
6.982E 01	2.609E 00	3.110E 02	3.470E-03	8.817E-03
7.094E 01	2.063E 00	3.130E 02	3.420E-03	6.992E-03
7.115E 01	1.533E 00	3.146E 02	3.395E-03	6.217E-03
7.293E 01	2.991E 00	3.176E 02	3.339E-03	4.751E-03
7.406E 01	2.416E 00	3.202E 02	3.270E-03	3.360E-03
7.421E 01	2.042E-01	3.204E 02	3.254E-03	3.081E-03
7.496E 01	8.208E-01	3.212E 02	3.175E-03	2.016E-03
7.496E 01	1.299E-03	3.212E 02	3.175E-03	2.010E-03
7.629E 01	5.013E-01	3.217E 02	3.240E-03	3.057E-03
7.914E 01	1.281E 00	3.230E 02	3.283E-03	4.240E-03
8.304E 01	1.366E 00	3.204E 02	3.204E-03	3.052E-03
8.385E 01	5.951E-01	3.249E 02	3.174E-03	2.786E-03
8.871E 01	2.407E-01	3.252E 02	3.199E-03	3.453E-03

READING = 0068 BLOCK = 201 TIME = 249.401 MACH 7.2 PT = 998.999 TT = 3150.0

X	DRAG	CDRAG	CF	MC
8.671E 01	0.000	3.252E 02	3.199E-03	3.050E-03

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	842.	(LBF)
MEASURED THRUST	740.	(LBF)
CALCULATED SPECIFIC IMPULSE	1505.	(LBF-SEC/LBM)
MEASURED SPECIFIC IMPULSE	1735.	(LBF-SEC/LBM)
CALCULATED THRUST COEFFICIENT	0.4425	
MEASURED THRUST COEFFICIENT	0.5099	

REGENERATIVE-COOLED ENGINE PERFORMANCE CALCULATED

STREAM THRUST	3645.	(LBF)
NET THRUST	736.	(LBF)
SPECIFIC IMPULSE	1725.	(LBF-SEC/LBM)
THRUST COEFFICIENT	0.5071	

MOMENTUM AND FORCES

INLET FRICTION DRAG	84.8	(LBF)
INLET MOMENTUM CHANGE	-404.5	(LBF)
COMBUSTOR FRICTION DRAG	213.2	(LBF)
COMBUSTOR STRUT DRAG	23.27	(LBF)
COMBUSTOR MOMENTUM CHANGE	425.	(LBF)
NOZZLE FRICTION DRAG	27.19	(LBF)
NOZZLE STRUT DRAG	0.00	(LBF)
NOZZLE MOMENTUM CHANGE	621.	(LBF)
NOZZLE PRESSURE INTEGRAL	648.	(LBF)
EXTERNAL FRICTION DRAG	0.00	(LBF)
EXTERNAL PRESSURE INTEGRAL	0.	(LBF)
TOTAL EXTERNAL DRAG	-725.	(LBF)
TOTAL STRUT DRAG	23.27	(LBF)
CAVITY FORCE	-529.	(LBF)
CALCULATED LOAD CELL FORCE	-612.	(LBF)
MEASURED LOAD CELL FORCE	-515.	(LBF)

FUEL VACUUM SPECIFIC IMPULSE 0.0, 0.0, 0.0, -150.4, -120.8,

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	1.7369	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	36.621	(IN)
NOZZLE SHROUD TRAILING EDGE	74.961	(IN)
NOZZLE PLUG TRAILING EDGE	88.713	(IN)
STRUT LEADING EDGE	57.877	(IN)
STRUT TRAILING EDGE	66.477	(IN)
COMBUSTOR EXIT	66.477	(IN)

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.9891	
ADDITIVE DRAG COEFFICIENT	0.0000	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.1011	
DELTA PT2	0.0893	(PSI)
TOTAL PRESSURE RECOVERY = SUPERSONIC	0.3266	
TOTAL PRESSURE RECOVERY = SUBSONIC	0.1024	
INLET PROCESS EFFICIENCY = SUPERSONIC	0.9043	
INLET PROCESS EFFICIENCY = SUBSONIC	0.9131	
KINETIC ENERGY EFFICIENCY = SUPERSONIC	0.9319	
KINETIC ENERGY EFFICIENCY = SUBSONIC	0.8818	
ENTHALPY AT P0 = SUPERSONIC	-31.84	(BTU/LBM)
ENTHALPY AT P0 = SUBSONIC	6.36	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0286	
EQUIVALENCE RATIO	0.913	
COMBUSTOR EFFICIENCY	0.839	
TOTAL PRESSURE RATIO	0.0711	
COMBUSTOR EFFECTIVENESS	0.7536	

INJECTOR DISCHARGE COEFFICIENTS 0.9294, 0.8232, 1.0666, 0.8135

NOZZLE

VACUUM STREAM THRUST COEFFICIENT = CS	0.9292	
NOZZLE COEFFICIENT = CT	0.8452	
PROCESS EFFICIENCY	0.8162	
KINETIC ENERGY EFFICIENCY	0.8392	

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.000	A
1B	42.722	
1C	44.300	
2A	50.197	D
2C	46.250	E
3A	55.487	
3B	57.472	
0	46.222	C

2/12/75

READING = 0088 BLOCK = 208 TIME = 305.701 MACH 7.3 PT = 998.749 TT = 3085.7

RAMJET PERFORMANCE

SUMMARY REPORT

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	H/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
WIND TUNNEL		1	0 6														
0.000	998.749	3086	696.3(821)	1.2906	28.903	2617											
0.000	0.155	298	-57.6(72)	1.3964	28.901	846	7.258	6142	1.816	0.05959	15.080	0.9880	2918	5.688	193.5		
SPIKE TIP NS		2	0 7														
0.600	11.312	3086	696.3(821)	1.2903	28.901	2617											
0.600	10.428	3029	679.2(804)	1.2921	28.901	2595	0.357	926	2.124	0.05959	15.080	0.9880	3073	0.857	203.8		
WIND TUNNEL		3	0 0														
0.000	998.749	3086	696.3(821)	1.2906	28.903	2617											
0.000	0.169	306	-55.7(73)	1.3966	28.901	857	7.158	6135	1.816	0.06339	16.043	0.9880	3102	6.044	193.3		
SPIKE TIP NS		4	0 0														
0.600	11.312	3086	696.3(821)	1.2903	28.901	2617											
0.600	10.297	3021	676.6(802)	1.2924	28.901	2591	0.384	994	2.124	0.06339	16.043	0.9880	3102	0.980	193.3		
INLET THROAT		5	0 3														
40.400	320.771	2997	669.2(795)	1.2934	28.902	2582											
40.400	10.582	1295	188.5(318)	1.3606	28.901	1741	3.817	4905	1.885	0.74972	15.080	0.0785	2512	57.143	166.6		
INLET UPWRK		6	0 3														
40.400	320.771	2997	669.2(795)	1.2934	28.902	2582											
40.400	9.128	1245	175.6(305)	1.3637	28.901	1709	2.908	4970	1.885	0.68156	15.080	0.0864	2531	52.641	167.9		
INLET DNWRK		7	0 4														
40.400	108.558	2997	669.2(795)	1.2934	28.902	2582											
40.400	89.311	2904	641.2(767)	1.2963	28.902	2545	0.466	1185	1.964	0.68196	15.080	0.0864	2531	12.849	167.9		
COMBUSTOR	0	8	1 21														
40.410	216.194	2935	681.1(848)	1.2977	26.360	2680											
40.410	11.712	1433	217.0(387)	1.3547	26.360	1914	2.518	4819	2.057	0.75530	15.195	0.0785	2511	56.561	165.3	0.24	0.07
COMBUSTOR	0	9	2 3														
40.747	200.715	2972	679.1(859)	1.2999	26.405	2693											
40.747	15.123	1584	247.3(431)	1.3463	26.405	2004	2.320	4649	2.065	0.75808	15.195	0.0783	2498	54.765	164.4	0.24	0.11
COMBUSTOR	0	10	3 21														
41.237	202.497	2949	676.3(822)	1.3014	26.285	2648											
41.237	10.776	1377	223.9(372)	1.3586	26.285	1881	2.930	4758	2.053	0.75203	15.195	0.0789	2465	55.608	162.2	0.24	0.02
COMBUSTOR	0	11	4 21														
41.500	187.875	2828	674.8(915)	1.3028	26.267	2640											
41.500	11.762	1428	242.9(386)	1.3561	26.267	1912	2.431	4649	2.057	0.74487	15.195	0.0796	2435	53.812	160.3	0.24	0.00
COMBUSTOR	0	12	5 21														
42.460	104.478	2806	668.4(908)	1.3031	26.265	2631											
42.460	4.891	1307	210.2(352)	1.3628	26.264	1836	2.608	4788	2.099	0.70251	15.195	0.0844	2367	52.277	155.8	0.24	0.00
COMBUSTOR	0	13	6 21														
42.732	117.028	2799	666.4(906)	1.3034	26.264	2628											
42.732	6.641	1372	228.8(371)	1.3591	26.264	1879	2.491	4679	2.089	0.69259	15.195	0.0887	2356	50.367	155.0	0.24	0.00
COMBUSTOR	0	14	7 21														
42.797	48.466	3290	665.9(956)	1.2799	26.795	2795											
42.797	7.059	1936	233.4(531)	1.3269	26.798	2183	2.131	4652	2.167	0.69002	15.195	0.0860	2352	49.885	154.8	0.24	0.41
COMBUSTOR	0	15	8 2														
44.310	85.348	3245	653.1(948)	1.2817	26.788	2779											
44.310	25.352	2461	397.4(692)	1.3088	26.789	2444	1.463	3577	2.147	0.63874	15.195	0.0929	2292	35.503	150.9	0.24	0.80
COMBUSTOR	0	16	9 4														
44.800	77.527	3399	648.2(989)	1.2738	26.977	2825											
44.800	31.275	2780	442.2(790)	1.2952	26.981	2576	1.247	3211	2.162	0.63075	15.195	0.0941	2270	31.476	149.4	0.24	0.54
COMBUSTOR	0	17	10 3														
45.517	74.824	3415	641.0(994)	1.2726	27.019	2828											
45.517	34.412	2879	461.5(820)	1.2913	27.023	2615	1.144	2996	2.165	0.62637	15.195	0.0947	2250	29.166	148.1	0.24	0.57
COMBUSTOR	0	18	11 6														
46.222	73.305	3096	645.0(970)	1.2897	24.561	2843											
46.222	32.516	2564	459.2(788)	1.3074	24.562	2607	1.170	3049	2.294	0.61347	15.311	0.0974	2262	29.082	147.8	0.49	0.23

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	M/A	A/AF	MOMTM	Q	TVAC	PHI	ETAC
COMBUSTOR	0	19	12 4													
46.232	73.310	3096	644.9(970)	1.2897	24.561	2843										
46.232	32.449	2567	458.9(788)	1.3075	24.562	2607	1.170	3051	2.294	0.61368	15.311	0.0970	2262	24.695	147.6	0.49	0.23
COMBUSTOR	0	20	13 6													
46.250	72.428	2798	655.4(933)	1.3049	22.636	2832										
46.250	32.440	2310	475.8(755)	1.3214	22.636	2589	1.158	2998	2.399	0.61675	15.419	0.0976	2248	26.735	145.8	0.72	0.10
COMBUSTOR	0	21	14 2													
46.260	72.400	2798	655.3(933)	1.3049	22.637	2832										
46.260	32.414	2310	475.5(755)	1.3214	22.637	2589	1.158	2999	2.399	0.61641	15.419	0.0977	2248	26.728	145.8	0.72	0.10
COMBUSTOR	0	22	15 4													
47.310	69.015	2912	639.4(972)	1.2991	22.777	2873										
47.310	29.590	2385	444.2(779)	1.3169	22.777	2618	1.193	3125	2.412	0.57102	15.419	0.1093	2296	27.750	148.9	0.72	0.15
COMBUSTOR	0	23	16 4													
48.110	65.036	3077	626.0(1030)	1.2909	22.962	2933										
48.110	28.057	2534	422.4(830)	1.3093	22.963	2680	1.191	3192	2.431	0.52511	15.419	0.1146	2354	26.049	152.6	0.72	0.22
COMBUSTOR	0	24	17 4													
48.757	61.203	3272	615.4(1099)	1.2811	23.172	2999										
48.757	25.700	2691	394.1(883)	1.3011	23.175	2740	1.214	3328	2.450	0.47667	15.419	0.1263	2426	24.690	157.3	0.72	0.29
COMBUSTOR	0	25	18 5													
50.197	58.513	3127	604.4(1099)	1.2885	21.947	3021										
50.197	15.852	2308	285.0(784)	1.3166	21.948	2624	1.524	3998	2.541	0.38996	15.502	0.1552	2556	24.228	164.9	0.90	0.23
COMBUSTOR	0	26	19 2													
50.207	58.546	3125	604.3(1098)	1.2886	21.946	3021										
50.207	15.783	2304	284.0(782)	1.3168	21.947	2622	1.527	4003	2.540	0.38945	15.502	0.1554	2557	24.230	165.0	0.90	0.23
COMBUSTOR	0	27	20 4													
50.737	62.358	2995	599.2(1049)	1.2946	21.841	2971										
50.737	12.158	2030	229.2(683)	1.3284	21.842	2678	1.737	4303	2.523	0.36423	15.502	0.1662	2591	24.358	167.1	0.90	0.20
COMBUSTOR	0	28	21 4													
52.147	53.903	3208	587.3(1128)	1.2840	22.058	3047										
52.147	10.987	2219	201.8(749)	1.3184	22.060	2568	1.710	4392	2.553	0.31043	15.502	0.1990	2665	21.186	171.9	0.90	0.27
COMBUSTOR	0	29	22 4													
54.247	54.324	3132	569.7(1102)	1.2871	21.962	3021										
54.247	7.375	1956	116.6(654)	1.3289	21.964	2425	1.963	4742	2.550	0.25521	15.549	0.2379	2751	18.885	176.9	0.90	0.26
COMBUSTOR	0	30	23 4													
54.747	48.550	3281	566.5(1158)	1.2796	22.105	3073										
54.747	7.858	2155	126.4(725)	1.3192	22.108	2529	1.856	4693	2.572	0.24478	15.549	0.2480	2767	17.851	178.0	0.90	0.30
COMBUSTOR	0	31	24 4													
55.497	50.914	3202	562.1(1128)	1.2834	22.042	3044										
55.497	6.625	1966	92.1(664)	1.3266	22.045	2438	1.989	4850	2.561	0.23074	15.549	0.2631	2790	17.391	179.4	0.90	0.28
COMBUSTOR	0	32	25 4													
55.760	52.323	3164	560.6(1114)	1.2853	22.011	3031										
55.760	6.192	1913	79.4(638)	1.3300	22.013	2397	2.047	4907	2.565	0.22622	15.549	0.2684	2797	17.252	179.9	0.90	0.27
COMBUSTOR	0	33	26 4													
56.257	46.761	3223	557.9(1134)	1.2822	22.071	3051										
56.257	4.550	1863	34.6(619)	1.3313	22.073	2364	2.165	5117	2.570	0.17851	15.549	0.3401	2870	14.197	184.5	0.90	0.29
COMBUSTOR	0	34	27 5													
57.682	34.919	3614	550.9(1284)	1.2603	22.456	3176										
57.682	5.537	2405	65.2(812)	1.3053	22.467	2636	1.870	4930	2.622	0.16499	15.549	0.3679	2904	12.641	186.8	0.90	0.41
COMBUSTOR	0	35	28 4													
57.737	32.600	3738	550.7(1331)	1.2525	22.577	3211										
57.737	6.059	2599	84.9(883)	1.2967	22.595	2723	1.773	4828	2.636	0.16456	15.549	0.3689	2906	12.346	186.9	0.90	0.44
COMBUSTOR	0	36	29 3													
57.877	32.246	3756	550.1(1338)	1.2513	22.596	3216										
57.877	6.067	2621	85.0(891)	1.2956	22.615	2733	1.765	4824	2.637	0.16337	15.549	0.3716	2909	12.248	187.1	0.90	0.45
COMBUSTOR	0	37	30 9													
57.957	34.991	3633	549.7(1291)	1.2592	22.477	3181										
57.957	5.568	2423	62.4(818)	1.3044	22.489	2443	1.868	4938	2.623	0.16517	15.549	0.3675	2911	12.676	187.2	0.90	0.41

	P	T	M	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	M	A/AC	MOMTM	C	IVAC	PHI	ETAC
COMBUSTOR	0	38	31 3														
58.237	34.819	3657	508.6(1500)	1.2577	22.503	3188											
58.237	5.600	2048	66.6(927)	1.3031	22.516	2654	1.962	4902	2.625	0.16469	15.549	0.3684	2917	12.647	187.6	0.90	0.42
COMBUSTOR	0	39	32 4														
58.463	38.827	3500	547.7(1240)	1.2671	22.353	3141											
58.463	4.892	2191	30.6(734)	1.3146	22.360	2531	2.010	5087	2.605	0.16432	15.549	0.3695	2921	12.989	187.9	0.90	0.38
COMBUSTOR	0	40	33 7														
59.187	75.628	2924	545.2(1023)	1.2963	21.832	2938											
59.187	2.625	1270	-67.8(414)	1.3632	21.832	1985	2.790	5538	2.499	0.16177	15.549	0.3753	2929	13.923	188.4	0.90	0.22
COMBUSTOR	0	41	34 6														
60.207	27.934	4177	542.0(1099)	1.2196	23.045	3315											
60.207	7.725	3258	131.3(1128)	1.2647	23.109	2977	1.923	4533	2.670	0.16074	15.549	0.3777	2938	11.323	189.0	0.90	0.59
COMBUSTOR	0	42	35 5														
62.217	26.296	4522	535.7(1632)	1.1887	23.431	3377											
62.217	10.447	3889	208.8(1371)	1.2259	23.548	3169	1.276	4044	2.688	0.16633	15.549	0.3690	2935	10.454	188.8	0.90	0.73
COMBUSTOR	0	43	36 4														
63.637	28.187	4323	530.9(1558)	1.2073	23.228	3342											
63.637	9.231	3526	157.1(1230)	1.2492	23.317	3065	1.411	4325	2.674	0.17084	15.549	0.3593	2930	11.482	188.5	0.90	0.65
COMBUSTOR	0	44	37 4														
66.101	25.225	4540	521.2(1638)	1.1959	23.487	3376											
66.101	10.648	3953	212.2(1395)	1.2185	23.628	3184	1.239	3932	2.690	0.16194	15.549	0.3749	2923	9.894	188.0	0.90	0.74
COMBUSTOR	0	45	38 4														
66.477	23.118	4617	519.8(1668)	1.1771	23.575	3385											
66.477	10.792	4117	240.1(1460)	1.2041	23.735	3222	1.160	3739	2.699	0.15055	15.549	0.4032	2922	8.747	187.9	0.90	0.78
COMBUSTOR REGEN		46	39 21														
66.477	23.112	4809	659.9(1750)	1.1645	23.436	3447											
66.477	17.680	4645	552.7(1680)	1.1706	23.524	3390	0.683	2316	2.729	0.15055	15.549	0.4032	2945	5.416	189.4	0.90	0.78
NOZZLE AE		47	40 5														
88.713	23.112	4617	519.5(1609)	1.1771	23.575	3389											
88.713	0.670	2358	-502.3(771)	1.2901	23.837	2519	2.839	7150	2.699	0.03134	15.549	1.9371	3788	3.482	243.6	0.90	0.78
NOZZLE PO		48	41 5														
88.713	23.112	4617	519.5(1609)	1.1771	23.575	3389											
88.713	0.155	1674	-746.7(527)	1.3199	23.837	2147	3.708	7960	2.699	0.01134	15.549	5.3516	4059	1.403	261.0	0.90	0.78
NOZZLE AE REGEN		49	42 5														
88.713	23.112	4809	659.9(1750)	1.1645	23.436	3447											
88.713	0.718	2592	-414.2(858)	1.2813	23.836	2632	2.785	7331	2.729	0.03134	15.549	1.9371	3900	3.571	250.8	0.90	0.78
NOZZLE PO REGEN		50	43 5														
88.713	23.112	4809	659.9(1750)	1.1645	23.436	3447											
88.713	0.155	1824	-694.7(579)	1.3125	23.837	2235	3.684	8233	2.729	0.01077	15.549	5.6377	4202	1.378	270.3	0.90	0.78
FICTIVE COMBUSTR		69	62 0														
66.477	320.771	5261	519.5(1921)	1.1708	24.283	3551											
66.477	0.155	1097	-1250.5(328)	1.3466	24.712	1728	5.458	9411	2.486	0.02121	15.549	2.8620	4662	3.102	299.8	0.90	1.00
FICTIVE NOZZLE		70	63 0														
88.713	13.133	4538	492.1(1636)	1.1732	23.559	3352											
88.713	0.882	2796	-335.9(935)	1.2733	23.835	2725	2.362	6437	2.741	0.03134	15.549	1.9371	3549	3.135	228.2	0.90	0.78

XAHS	P-IR	P-OR	PDA	QDX	A-IR	S-CC	CA-AIL	P-IB/PSO	P-IS/PIO	P-OB/PSO	P-OP/PTO
6.981E-01	4.900E-01	0.000	-2.737E-01	0.000	0.000	0.000	2.773E-02	4.441E 00	4.509E-04	0.000	0.000
1.836E 01	4.900E-01	0.000	-2.29-E 01	0.000	0.000	0.000	1.459E 02	4.441E 00	4.909E-04	0.000	0.000
3.070E 01	1.030E 00	0.000	-9.268E 01	0.000	0.000	0.000	5.053E 02	6.660E 00	1.631E-03	0.000	0.000
3.508E 01	1.899E 00	0.000	-1.876E 02	0.000	0.000	0.000	4.804E 02	1.228E 01	1.901E-03	0.000	0.000
3.555E 01	2.219E 00	0.000	-2.063E 02	0.000	0.000	0.000	7.013E 02	1.432E 01	2.218E-03	0.000	0.000
3.606E 01	2.070E 00	0.000	-2.281E 02	-1.813E 02	-1.813E 02	0.000	7.246E 02	1.336E 01	2.073E-03	0.000	0.000
3.648E 01	2.276E 00	0.000	-2.467E 02	-1.857E 02	-1.857E 02	0.000	7.443E 02	1.471E 01	2.278E-03	0.000	0.000
3.661E 01	2.310E 00	3.214E 00	-2.863E 02	-1.871E 02	-1.871E 02	0.000	7.507E 02	1.493E 01	2.313E-03	2.076E 01	3.218E-03
3.662E 01	2.311E 00	3.230E 00	-2.864E 02	-1.872E 02	-1.872E 02	0.000	7.509E 02	1.494E 01	2.314E-03	2.088E 01	3.234E-03
3.701E 01	2.410E 00	4.257E 00	-2.886E 02	-1.915E 02	-1.915E 02	0.000	7.913E 02	1.558E 01	2.413E-03	2.752E 01	4.262E-03
3.729E 01	2.301E 00	4.987E 00	-2.885E 02	-1.946E 02	-1.946E 02	0.000	8.204E 02	1.486E 01	2.304E-03	3.225E 01	4.994E-03
3.803E 01	2.010E 00	8.296E 00	-2.723E 02	-2.036E 02	-2.036E 02	0.000	9.000E 02	1.300E 01	2.013E-03	5.364E 01	8.306E-03
3.875E 01	6.477E 00	1.149E 01	-2.704E 02	-2.760E 02	-2.142E 02	-6.181E 01	9.402E 02	4.317E 01	6.666E-03	7.427E 01	1.150E-02
3.875E 01	6.497E 00	1.148E 01	-2.704E 02	-2.762E 02	-2.142E 02	-6.198E 01	9.406E 02	4.330E 01	6.706E-03	7.421E 01	1.149E-02
3.901E 01	8.390E 00	1.063E 01	-2.750E 02	-2.958E 02	-2.190E 02	-7.683E 01	1.010E 03	5.425E 01	8.401E-03	6.874E 01	1.064E-02
3.950E 01	1.146E 01	9.037E 00	-2.928E 02	-3.339E 02	-2.292E 02	-1.047E 02	1.066E 03	7.410E 01	1.147E-02	5.843E 01	9.049E-03
3.977E 01	1.105E 01	8.169E 00	-3.030E 02	-3.555E 02	-2.357E 02	-1.198E 02	1.097E 03	7.142E 01	1.106E-02	5.282E 01	8.179E-03
4.000E 01	1.068E 01	7.849E 00	-3.091E 02	-3.746E 02	-2.418E 02	-1.330E 02	1.124E 03	6.900E 01	1.070E-02	5.075E 01	7.859E-03
4.024E 01	1.240E 01	7.525E 00	-3.166E 02	-3.948E 02	-2.485E 02	-1.464E 02	1.151E 03	6.011E-02	4.865E 01	7.534E-03	
4.040E 01	1.357E 01	9.649E 00	-3.220E 02	-4.088E 02	-2.532E 02	-1.555E 02	1.170E 03	6.775E 01	1.359E-02	6.239E 01	9.661E-03
4.041E 01	1.364E 01	9.780E 00	-3.222E 02	-4.096E 02	-2.535E 02	-1.561E 02	1.172E 03	8.822E 01	1.366E-02	6.323E 01	9.792E-03
4.079E 01	1.608E 01	1.417E 01	-3.291E 02	-4.388E 02	-2.637E 02	-1.750E 02	1.211E 03	1.099E 02	1.610E-02	9.161E 01	1.419E-02
4.124E 01	1.961E 01	1.937E 00	-3.547E 02	-4.819E 02	-2.798E 02	-2.021E 02	1.269E 03	1.268E 02	1.964E-02	1.253E 01	1.940E-03
4.150E 01	2.151E 01	2.012E 00	-3.798E 02	-5.053E 02	-2.890E 02	-2.163E 02	1.300E 03	1.391E 02	2.154E-02	1.301E 01	2.014E-03
4.246E 01	7.500E 00	2.283E 00	-4.321E 02	-6.016E 02	-3.323E 02	-2.693E 02	1.414E 03	4.849E 01	7.509E-03	1.476E 01	2.286E-03
4.273E 01	1.092E 01	2.360E 00	-4.391E 02	-6.323E 02	-3.482E 02	-2.841E 02	1.446E 03	7.042E 01	1.094E-02	1.526E 01	2.363E-03
4.280E 01	1.174E 01	2.378E 00	-4.413E 02	-6.398E 02	-3.523E 02	-2.875E 02	1.454E 03	7.591E 01	1.174E-02	1.538E 01	2.381E-03
4.431E 01	3.078E 01	1.992E 01	-4.791E 02	-8.352E 02	-4.863E 02	-3.489E 02	1.636E 03	1.990E 02	3.082E-02	1.288E 02	1.994E-02
4.480E 01	3.695E 01	2.560E 01	-4.952E 02	-9.085E 02	-5.450E 02	-3.635E 02	1.696E 03	2.389E 02	3.700E-02	1.655E 02	2.563E-02
4.552E 01	3.491E 01	3.391E 01	-5.067E 02	-1.019E 03	-6.343E 02	-3.849E 02	1.783E 03	2.257E 02	3.496E-02	2.193E 02	3.395E-02
4.622E 01	3.291E 01	3.213E 01	-4.854E 02	-1.145E 03	-7.187E 02	-4.260E 02	1.870E 03	2.128E 02	3.295E-02	2.077E 02	3.217E-02
4.623E 01	3.288E 01	3.210E 01	-4.853E 02	-1.147E 03	-7.199E 02	-4.268E 02	1.871E 03	2.126E 02	3.292E-02	2.076E 02	3.214E-02
4.625E 01	3.283E 01	3.205E 01	-4.838E 02	-1.150E 03	-7.220E 02	-4.284E 02	1.873E 03	2.122E 02	3.287E-02	2.073E 02	3.209E-02
4.626E 01	3.280E 01	3.203E 01	-4.834E 02	-1.152E 03	-7.232E 02	-4.293E 02	1.874E 03	2.121E 02	3.284E-02	2.071E 02	3.207E-02
4.731E 01	2.981E 01	2.937E 01	-4.241E 02	-1.398E 03	-8.424E 02	-5.554E 02	2.004E 03	1.928E 02	2.985E-02	1.899E 02	2.940E-02
4.811E 01	2.877E 01	2.734E 01	-3.583E 02	-1.604E 03	-9.281E 02	-6.758E 02	2.103E 03	1.861E 02	2.881E-02	1.768E 02	2.737E-02
4.876E 01	2.570E 01	2.570E 01	-2.795E 02	-1.766E 03	-9.940E 02	-7.736E 02	2.184E 03	1.662E 02	2.573E-02	1.662E 02	2.573E-02
5.020E 01	1.585E 01	1.585E 01	-1.253E 02	-2.066E 03	-1.130E 03	-9.357E 02	2.363E 03	1.025E 02	1.587E-02	1.025E 02	1.587E-02
5.021E 01	1.578E 01	1.578E 01	-1.245E 02	-2.068E 03	-1.131E 03	-9.345E 02	2.365E 03	1.020E 02	1.580E-02	1.020E 02	1.580E-02
5.074E 01	1.216E 01	1.216E 01	-8.588E 01	-2.146E 03	-1.178E 03	-9.679E 02	2.431E 03	7.861E 01	1.217E-02	7.861E 01	1.217E-02
5.215E 01	1.099E 01	1.099E 01	-3.196E-01	-2.331E 03	-1.292E 03	-1.039E 03	2.609E 03	7.104E 01	1.100E-02	7.104E 01	1.100E-02
5.425E 01	7.375E 00	7.375E 00	1.008E 02	-2.577E 03	-1.438E 03	-1.139E 03	2.875E 03	4.768E 01	7.384E-03	4.768E 01	7.384E-03
5.475E 01	7.858E 00	7.858E 00	1.204E 02	-2.627E 03	-1.468E 03	-1.158E 03	2.939E 03	5.081E 01	7.868E-03	5.081E 01	7.868E-03
5.550E 01	6.625E 00	6.625E 00	1.486E 02	-2.695E 03	-1.511E 03	-1.184E 03	3.035E 03	4.283E 01	6.633E-03	4.283E 01	6.633E-03
5.576E 01	6.192E 00	6.192E 00	1.572E 02	-2.718E 03	-1.525E 03	-1.193E 03	3.068E 03	4.004E 01	6.200E-03	4.004E 01	6.200E-03
5.626E 01	3.725E 00	5.375E 00	2.310E 02	-2.760E 03	-1.551E 03	-1.209E 03	3.102E 03	2.408E 01	3.730E-03	3.475E 01	5.382E-03
5.768E 01	5.537E 00	5.537E 00	2.698E 02	-2.869E 03	-1.620E 03	-1.249E 03	3.209E 03	3.580E 01	5.544E-03	3.580E 01	5.544E-03
5.774E 01	6.575E 00	5.543E 00	2.714E 02	-2.873E 03	-1.623E 03	-1.250E 03	3.217E 03	4.251E 01	6.583E-03	3.584E 01	5.550E-03
5.788E 01	6.575E 00	5.559E 00	2.750E 02	-2.882E 03	-1.629E 03	-1.253E 03	3.234E 03	4.251E 01	6.583E-03	3.594E 01	5.566E-03
5.796E 01	5.568E 00	5.568E 00	2.773E 02	-2.887E 03	-1.632E 03	-1.255E 03	3.245E 03	3.600E 01	5.575E-03	3.600E 01	5.575E-03
5.824E 01	5.400E 00	5.600E 00	2.840E 02	-2.905E 03	-1.644E 03	-1.261E 03	3.280E 03	3.621E 01	5.607E-03	3.621E 01	5.607E-03
5.846E 01	4.892E 00	4.892E 00	2.897E 02	-2.919E 03	-1.653E 03	-1.266E 03	3.309E 03	3.163E 01	4.898E-03	3.163E 01	4.898E-03
5.919E 01	2.625E 00	2.625E 00	2.998E 02	-2.958E 03	-1.679E 03	-1.280E 03	3.402E 03	1.697E 01	2.628E-03	1.697E 01	2.628E-03
6.021E 01	7.725E 00	7.725E 00	3.118E 02	-3.008E 03	-1.709E 03	-1.299E 03	3.532E 03	4.995E 01	7.735E-03	4.995E 01	7.735E-03
6.222E 01	1.049E 01	1.049E 01	3.140E 02	-3.106E 03	-1.754E 03	-1.352E 03	3.790E 03	6.781E 01	1.050E-02	6.781E 01	1.050E-02
6.364E 01	9.231E 00	9.231E 00	3.140E 02	-3.180E 03	-1.780E 03	-1.400E 03	3.972E 03	5.969E 01	9.243E-03	5.969E 01	9.243E-03

XARB	P=IB	P=DB	PCA	ROX	G=IB	G=DB	CA=ALL	P=IB/P80	P=IB/PTO	P=DB/P80	P=DB/PTO
6.610E 01	1.065E 01	1.065E 01	3.140E 02	-3.332E 02	-1.432E 03	-1.500E 03	4.289E 03	4.885E 01	1.066E-02	6.885E 01	1.066E-02
6.644E 01	1.072E 01	1.086E 01	3.140E 02	-3.350E 02	-1.441E 03	-1.517E 03	4.337E 03	4.931E 01	1.073E-02	7.025E 01	1.088E-02
6.678E 01	1.072E 01	1.089E 01	3.140E 02	-3.361E 02	-1.442E 03	-1.519E 03	4.342E 03	4.931E 01	1.073E-02	7.040E 01	1.090E-02
6.672E 01	1.016E 01	1.100E 01	3.140E 02	-3.374E 02	-1.447E 03	-1.527E 03	4.364E 03	4.571E 01	1.018E-02	7.114E 01	1.102E-02
6.838E 01	5.545E 00	4.810E 00	4.017E 02	-3.469E 02	-1.479E 03	-1.591E 03	4.584E 03	3.585E 01	5.552E-03	3.110E 01	4.816E-03
6.905E 01	4.072E 00	4.740E 00	4.987E 02	-3.502E 02	-1.489E 03	-1.614E 03	4.665E 03	2.633E 01	4.077E-03	3.065E 01	4.746E-03
6.982E 01	2.780E 00	3.523E 00	5.993E 02	-3.538E 02	-1.499E 03	-1.640E 03	4.760E 03	1.539E 01	2.383E-03	2.278E 01	3.527E-03
7.054E 01	1.871E 00	2.385E 00	6.643E 02	-3.570E 02	-1.506E 03	-1.664E 03	4.844E 03	1.210E 01	1.873E-03	1.542E 01	2.388E-03
7.115E 01	1.440E 00	2.156E 00	7.065E 02	-3.595E 02	-1.511E 03	-1.684E 03	4.922E 03	9.311E 00	1.442E-03	1.394E 01	2.159E-03
7.253E 01	9.700E-01	1.639E 00	7.749E 02	-3.640E 02	-1.521E 03	-1.719E 03	5.048E 03	5.625E 00	8.711E-04	1.060E 01	1.641E-03
7.406E 01	5.477E-01	1.065E 00	8.227E 02	-3.679E 02	-1.530E 03	-1.749E 03	5.273E 03	3.800E 00	5.884E-04	6.886E 00	1.066E-03
7.421E 01	5.600E-01	9.308E-01	8.260E 02	-3.682E 02	-1.530E 03	-1.752E 03	5.290E 03	3.621E 00	5.607E-04	6.018E 00	9.320E-04
7.496E 01	4.177E-01	2.600E-01	8.401E 02	-3.702E 02	-1.534E 03	-1.744E 03	5.174E 03	3.994E 00	4.185E-04	1.681E 00	2.603E-04
7.496E 01	4.180E-01	2.564E-01	8.467E 02	-3.702E 02	-1.534E 03	-1.748E 03	5.175E 03	3.996E 00	4.188E-04	1.658E 00	2.567E-04
7.629E 01	7.200E-01	0.000	8.408E 02	-3.741E 02	-1.539E 03	-1.802E 03	5.324E 03	4.655E 00	7.209E-04	0.000	0.000
7.914E 01	1.095E 00	0.000	8.971E 02	-3.751E 02	-1.549E 03	-1.802E 03	5.525E 03	7.080E 00	1.096E-03	0.000	0.000
8.304E 01	7.100E-01	0.000	9.337E 02	-3.760E 02	-1.558E 03	-1.802E 03	5.650E 03	4.591E 00	7.109E-04	0.000	0.000
8.585E 01	6.200E-01	0.000	9.502E 02	-3.768E 02	-1.566E 03	-1.802F 03	5.844E 03	4.009E 00	6.208E-04	0.000	0.000
8.871E 01	8.450E-01	0.000	9.688E 02	-3.783E 02	-1.581E 03	-1.802F 03	5.707E 03	5.593E 00	8.661E-04	0.000	0.000
8.871E 01	8.455E-01	0.000	9.688E 02	-3.783E 02	-1.981E 03	-1.802F 03	5.707E 03	5.596E 00	8.666E-04	0.000	0.000

X	DRAG	CDRAG	CF	CL
4.040E 01	8.475E 01	8.475E 01	2.24FE-03	5.474E-02
4.041E 01	1.725E-01	8.492E 01	2.524E-03	3.499E-02
4.075E 01	5.964E 00	9.089E 01	2.510E-03	4.656E-02
4.124E 01	8.100E 00	9.899E 01	2.585E-03	3.575E-02
4.150E 01	4.342E 00	1.033E 02	2.525E-03	3.852E-02
4.246E 01	1.584E 01	1.192E 02	2.707E-03	1.940E-02
4.273E 01	4.470E 00	1.236E 02	2.663E-03	2.427E-02
4.280E 01	1.040E 00	1.247E 02	2.659E-03	2.534E-02
4.431E 01	2.246E 01	1.471E 02	3.113E-03	5.019E-02
4.480E 01	6.267E 00	1.534E 02	3.169E-03	5.412E-02
4.552E 01	8.565E 00	1.620E 02	3.291E-03	5.367E-02
4.622E 01	8.561E 00	1.705E 02	3.515E-03	5.025E-02
4.623E 01	1.209E-01	1.706E 02	3.212E-03	5.578E-02
4.625E 01	2.106E-01	1.709E 02	3.460E-03	5.293E-02
4.626E 01	1.188E-01	1.710E 02	3.141E-03	5.901E-02
4.731E 01	1.133E 01	1.823E 02	3.056E-03	5.644E-02
4.811E 01	8.181E 00	1.905E 02	3.081E-03	5.312E-02
4.876E 01	6.317E 00	1.968E 02	3.111E-03	4.896E-02
5.020E 01	1.396E 01	2.108E 02	3.240E-03	3.562E-02
5.021E 01	9.946E-02	2.109E 02	3.050E-03	3.763E-02
5.074E 01	4.876E 00	2.157E 02	2.989E-03	3.225E-02
5.215E 01	1.174E 01	2.275E 02	2.816E-03	3.032E-02
5.425E 01	1.514E 01	2.426E 02	2.860E-03	2.195E-02
5.475E 01	3.322E 00	2.459E 02	2.816E-03	2.292E-02
5.550E 01	4.807E 00	2.507E 02	2.879E-03	1.980E-02
5.576E 01	1.660E 00	2.524E 02	2.814E-03	1.915E-02
5.626E 01	1.444E 00	2.539E 02	2.666E-03	1.494E-02
5.768E 01	3.888E 00	2.577E 02	2.716E-03	1.658E-02
5.774E 01	2.514E-01	2.580E 02	2.996E-03	1.628E-02
5.788E 01	6.625E-01	2.587E 02	3.066E-03	1.594E-02
5.796E 01	4.231E-01	2.591E 02	3.58AE-03	1.324E-02
5.824E 01	1.477E 00	2.606E 02	2.974E-03	1.549E-02
5.846E 01	1.098E 00	2.617E 02	2.968E-03	1.415E-02
5.919E 01	3.619E 00	2.653E 02	2.83AE-03	9.402E-03
6.021E 01	4.478E 00	2.697E 02	2.589E-03	2.113E-02
6.222E 01	8.292E 00	2.780E 02	3.317E-03	1.989E-02
6.364E 01	6.741E 00	2.848E 02	3.430E-03	1.809E-02
6.610E 01	1.154E 01	2.963E 02	3.402E-03	1.926E-02
6.648E 01	1.565E 00	2.979E 02	3.559E-03	1.806E-02
6.652E 01	1.616E-01	2.981E 02	3.637E-03	1.810E-02
6.672E 01	8.188E-01	2.989E 02	3.632E-03	1.799E-02
6.838E 01	4.797E 00	3.057E 02	3.492E-03	1.271E-02
6.905E 01	2.468E 00	3.081E 02	3.463E-03	1.151E-02
6.982E 01	2.587E 00	3.107E 02	3.401E-03	8.871E-03
7.054E 01	2.051E 00	3.128E 02	3.350E-03	7.077E-03
7.115E 01	1.587E 00	3.143E 02	3.324E-03	6.276E-03
7.853E 01	2.982E 00	3.173E 02	3.268E-03	4.823E-03
7.406E 01	2.645E 00	3.199E 02	3.203E-03	3.523E-03
7.421E 01	2.103E-01	3.201E 02	3.18AE-03	3.25AE-03
7.496E 01	8.532E-01	3.210E 02	3.109E-03	2.165E-03
7.496E 01	1.362E-03	3.210E 02	3.109E-03	2.159E-03
7.689E 01	5.197E-01	3.215E 02	3.171E-03	3.160E-03
7.914E 01	1.289E 00	3.228E 02	3.212E-03	4.308E-03
8.304E 01	1.364E 00	3.242E 02	3.131E-03	3.087E-03
8.585E 01	5.890E-01	3.247E 02	3.09AE-03	2.769E-03
8.671E 01	2.400E-01	3.250E 02	3.130E-03	3.550E-03

READING # 0088 BLOCK # 208 TMF = 305.701 MACH 7.3 P1 = 998.709 T1 = 3045.7

X	DRAG	CDRAG	CF	MC
8.871E 01	1.000	5.250E 02	2.130E-03	5.352E-03

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	630.	(LBF)
MEASURED THRUST	778.	(LBF)
CALCULATED SPECIFIC IMPULSE	1473.	(LBF-SEC/LBM)
MEASURED SPECIFIC IMPULSE	1819.	(LBF-SEC/LBM)
CALCULATED THRUST COEFFICIENT	0.4527	
MEASURED THRUST COEFFICIENT	0.5303	

REGENERATIVE-COOLED ENGINE PERFORMANCE CALCULATED

STREAM THRUST	3453.	(LBF)
NET THRUST	735.	(LBF)
SPECIFIC IMPULSE	1717.	(LBF-SEC/LBM)
THRUST COEFFICIENT	0.5044	

MOMENTUM AND FORCES

INLET FRICTION DRAG	84.7	(LBF)
INLET MOMENTUM CHANGE	-406.8	(LBF)
COMBUSTOR FRICTION DRAG	213.1	(LBF)
COMBUSTOR STRUT DRAG	-13.09	(LBF)
COMBUSTOR MOMENTUM CHANGE	410.	(LBF)
NOZZLE FRICTION DRAG	27.12	(LBF)
NOZZLE STRUT DRAG	-0.00	(LBF)
NOZZLE MOMENTUM CHANGE	627.	(LBF)
NOZZLE PRESSURE INTEGRAL	654.	(LBF)
EXTERNAL FRICTION DRAG	0.00	(LBF)
EXTERNAL PRESSURE INTEGRAL	0.	(LBF)
TOTAL EXTERNAL DRAG	-728.	(LBF)
TOTAL STRUT DRAG	-13.09	(LBF)
CAVITY FORCE	-527.	(LBF)
CALCULATED LOAD CELL FORCE	-625.	(LBF)
MEASURED LOAD CELL FORCE	-477.	(LBF)

FUEL VACUUM SPECIFIC IMPULSE 0.0, 0.0, 0.0, -150.0, -120.2,

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	1.7369	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	36.621	(IN)
NOZZLE SHROUD TRAILING EDGE	74.961	(IN)
NOZZLE PLUG TRAILING EDGE	88.713	(IN)
STRUT LEADING EDGE	57.877	(IN)
STRUT TRAILING EDGE	66.477	(IN)
COMBUSTOR EXIT	66.477	(IN)

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.9880	
ADDITIVE DRAG COEFFICIENT	0.0000	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.1014	
DELTA PT2	0.0901	(PSI)
TOTAL PRESSURE RECOVERY - SUPERSONIC	0.3217	
TOTAL PRESSURE RECOVERY - SUBSONIC	0.1027	
INLET PROCESS EFFICIENCY - SUPERSONIC	0.9030	
INLET PROCESS EFFICIENCY - SUBSONIC	0.9132	
KINETIC ENERGY EFFICIENCY - SUPERSONIC	0.9324	
KINETIC ENERGY EFFICIENCY - SUBSONIC	0.8836	
ENTHALPY AT P0 - SUPERSONIC	-33.69	(BTU/LBM)
ENTHALPY AT P0 - SUBSONIC	3.09	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0283	
EQUIVALENCE RATIO	0.903	
COMBUSTOR EFFICIENCY	0.782	
TOTAL PRESSURE RATIO	0.0721	
COMBUSTOR EFFECTIVENESS	0.7188	

INJECTOR DISCHARGE COEFFICIENTS 0.9193, 0.8415, 1.0544, 0.8354

NOZZLE

VACUUM STREAM THRUST COEFFICIENT - CFS	0.9368	
NOZZLE COEFFICIENT - CT	0.8554	
PROCESS EFFICIENCY	0.8391	
KINETIC ENERGY EFFICIENCY	0.8573	

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	A
1B	42.722	
1C	44.300	
2A	50.197	D
2C	46.250	E
3A	55.487	
3B	57.672	
4	46.222	C

Reading 89

t = 250.77 sec.

READING = 0089 BLOCK = 70 TIME = 250.773 MACH 7.4 PT = 989.499 TT = 1793.9

RAMJET PERFORMANCE

SUMMARY REPORT

	P	T	M		GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	G	IVAC	PHI	ETAC
WIND TUNNEL			1	0 5														
0.00_0	989.499	1794	321.9(	451)	1.3340	28.908	2029											
0.00_0	0.155	158	-91.8(	37)	1.3892	28.908	614	7.415	4550	1.660	0.08395	21.307	0.9909	3053	5.936	143.3		
SPIKE TIP NS			2	0 5														
0.60_0	11.262	1794	321.9(	451)	1.3340	28.908	2029											
0.60_0	10.223	1751	310.1(	439)	1.3359	28.908	2006	0.383	769	1.968	0.08395	21.307	0.9909	3104	1.003	145.7		
WIND TUNNEL			3	0 0														
0.00_0	989.499	1794	321.9(	451)	1.3340	28.908	2029											
0.00_0	0.160	159	-91.5(	38)	1.3893	28.908	616	7.381	4548	1.660	0.08570	21.751	0.9909	3115	6.057	143.2		
SPIKE TIP NS			4	0 0														
0.60_0	11.262	1794	321.9(	451)	1.3340	28.908	2029											
0.60_0	10.178	1749	309.5(	439)	1.3360	28.908	2004	0.393	787	1.968	0.08570	21.751	0.9909	3115	1.048	143.2		
INLET THROAT			5	0 3														
40.40_0	319.406	1750	309.9(	439)	1.3359	28.908	2005											
40.40_0	10.749	702	39.9(	169)	1.3942	28.908	1297	2.833	3675	1.731	1.05315	21.307	0.0790	2651	60.150	124.4		
INLET UPNRSK			6	0 3														
40.40_0	319.406	1750	309.9(	439)	1.3359	28.908	2005											
40.40_0	9.242	672	32.8(	162)	1.3952	28.908	1270	2.931	3723	1.731	0.95742	21.307	0.0869	2671	55.399	125.4		
INLET DNNRSK			7	0 4														
40.40_0	106.921	1750	309.9(	439)	1.3359	28.908	2005											
40.40_0	92.193	1686	292.4(	421)	1.3388	28.908	1970	0.475	936	1.807	0.95742	21.307	0.0869	2671	13.924	125.4		
COMBUSTOR	0	8	1 3															
40.41_0	319.122	1750	309.8(	439)	1.3359	28.908	2005											
40.41_0	10.752	702	40.0(	169)	1.3942	28.908	1297	2.832	3675	1.731	1.05301	21.307	0.0790	2651	60.134	124.4		
COMBUSTOR	0	9	2 3															
40.72_7	311.845	1746	308.8(	438)	1.3360	28.908	2003											
40.72_7	10.943	708	41.6(	171)	1.3939	28.908	1303	2.806	3697	1.732	1.05683	21.307	0.0787	2643	60.066	124.0		
COMBUSTOR	0	10	3 4															
41.21_7	284.864	1741	307.3(	436)	1.3363	28.908	2000											
41.21_7	11.384	732	47.4(	176)	1.3930	28.908	1324											
								2.723	3607	1.738	1.04900	21.307	0.0793	2620	58.797	123.0		
COMBUSTOR	0	11	4 4															
41.50_0	261.019	1737	306.4(	435)	1.3364	28.908	1998											
41.50_0	11.800	757	53.3(	182)	1.3919	28.908	1346	2.645	3559	1.743	1.03848	21.307	0.0801	2599	57.439	122.0		
COMBUSTOR	0	12	5 5															
42.46_0	211.151	1726	303.4(	432)	1.3369	28.908	1992											
42.46_0	12.206	805	65.1(	194)	1.3897	28.908	1387	2.490	3453	1.756	0.97969	21.307	0.0849	2552	52.572	119.8		
COMBUSTOR	0	13	6 5															
42.71_2	204.307	1723	302.6(	432)	1.3371	28.908	1991											
42.71_2	12.204	811	66.6(	196)	1.3894	28.908	1392	2.469	3437	1.758	0.96777	21.307	0.0860	2545	51.688	119.4		
COMBUSTOR	0	14	7 5															
42.77_7	202.718	1723	302.4(	431)	1.3371	28.908	1990											
42.77_7	12.212	812	66.9(	196)	1.3893	28.908	1393	2.464	3433	1.758	0.96537	21.307	0.0862	2543	51.497	119.3		
COMBUSTOR	0	15	8 5															
44.31_0	171.063	1707	298.1(	427)	1.3378	28.908	1982											
44.31_0	11.908	837	73.1(	202)	1.3881	28.908	1414	2.373	3356	1.768	0.89280	21.307	0.0932	2507	46.561	117.6		
COMBUSTOR	0	16	9 4															
44.80_0	164.725	1702	296.9(	426)	1.3380	28.908	1979											
44.80_0	11.922	844	74.7(	204)	1.3877	28.908	1419	2.349	3334	1.769	0.88117	21.307	0.0944	2496	45.658	117.2		
COMBUSTOR	0	17	10 4															
45.49_7	158.882	1696	295.1(	424)	1.3383	28.908	1976											
45.49_7	12.037	851	76.5(	206)	1.3874	28.908	1425	2.321	3307	1.771	0.87505	21.307	0.0951	2483	44.975	116.6		
COMBUSTOR	0	18	11 4															
46.21_2	153.423	1689	293.4(	422)	1.3386	28.908	1972											
46.21_2	11.734	850	76.2(	205)	1.3874	28.908	1424	2.315	3297	1.772	0.85148	21.307	0.0977	2477	43.625	116.2		

READING # 0089 BLOCK # 70 TIME = 250.773 MACH 7.4 PT = 989.499 TT = 1793.9 PAGE 2

	P	T	H		GAMMA	MOLWT	SONV	MACH	VEL	S	M/A	M	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	19	12	4														
46.260	152.992	1689	293.3	(422)	1.3386	28.908	1972											
46.260	11.693	850	76.1	(205)	1.3874	28.908	1424	2.315	3297	1.772	0.84888	21.307	0.0980	2477	43.491	116.2		
COMBUSTOR	0	20	13	4														
46.937	146.202	1684	292.0	(421)	1.3389	28.908	1969											
46.937	11.067	845	74.9	(204)	1.3877	28.908	1420	2.321	3296	1.775	0.80790	21.307	0.1030	2475	41.384	116.1		
COMBUSTOR	0	21	14	4														
47.310	142.485	1682	291.4	(420)	1.3390	28.908	1968											
47.310	10.756	843	74.4	(205)	1.3878	28.908	1418	2.323	3295	1.776	0.78671	21.307	0.1057	2473	40.285	116.1		
COMBUSTOR	0	22	15	4														
48.110	136.691	1677	290.1	(419)	1.3392	28.908	1965											
48.110	9.570	823	69.5	(199)	1.3888	28.908	1402	2.370	3323	1.778	0.72518	21.307	0.1150	2482	37.342	116.5		
COMBUSTOR	0	23	16	3														
48.737	133.268	1674	289.1	(418)	1.3394	28.908	1963											
48.737	8.306	794	62.5	(192)	1.3902	28.908	1378											
								2.443	3367	1.779	0.65870	21.307	0.1263	2498	34.467	117.3		
COMBUSTOR	0	24	17	4														
50.187	126.151	1666	287.0	(416)	1.3397	28.908	1959											
50.187	6.084	735	48.1	(177)	1.3928	28.908	1327	2.605	3457	1.782	0.53530	21.307	0.1554	2532	28.762	118.8		
COMBUSTOR	0	25	18	4														
50.717	122.612	1663	286.3	(415)	1.3399	28.908	1958											
50.717	5.546	721	44.6	(174)	1.3934	28.908	1314	2.646	3478	1.783	0.50064	21.307	0.1662	2539	27.059	119.2		
COMBUSTOR	0	26	19	4														
52.127	114.284	1658	284.8	(414)	1.3401	28.908	1955											
52.127	4.459	689	36.8	(166)	1.3947	28.908	1285	2.741	3523	1.787	0.42669	21.307	0.1950	2556	23.360	119.9		
COMBUSTOR	0	27	20	5														
54.227	102.544	1651	282.9	(412)	1.3405	28.908	1951											
54.227	3.447	657	29.1	(158)	1.3957	28.908	1256	2.837	3564	1.794	0.34972	21.307	0.2379	2570	19.367	120.6		
COMBUSTOR	0	28	21	4														
54.727	99.883	1649	282.5	(412)	1.3406	28.908	1950											
54.727	3.273	652	27.8	(157)	1.3959	28.908	1251	2.854	3570	1.795	0.33542	21.307	0.2480	2572	18.609	120.7		
COMBUSTOR	0	29	22	5														
55.477	96.812	1647	282.0	(411)	1.3406	28.908	1949											
55.477	3.032	643	25.6	(155)	1.3962	28.908	1242	2.883	3582	1.797	0.31619	21.307	0.2631	2576	17.600	120.9		
COMBUSTOR	0	30	23	5														
55.760	95.615	1647	281.8	(411)	1.3407	28.908	1949											
55.760	2.952	640	24.9	(154)	1.3963	28.908	1239	2.893	3585	1.798	0.30954	21.307	0.2688	2578	17.247	121.0		
COMBUSTOR	0	31	24	5														
56.237	83.222	1645	281.5	(411)	1.3407	28.908	1948											
56.237	2.204	612	18.2	(147)	1.3971	28.908	1213	2.993	3630	1.807	0.24461	21.307	0.3401	2596	13.798	121.8		
COMBUSTOR	0	32	25	4														
57.662	80.901	1642	280.6	(410)	1.3409	28.908	1946											
57.662	1.977	597	14.5	(144)	1.3974	28.908	1198	3.047	3649	1.809	0.22617	21.307	0.3678	2603	12.825	122.2		
COMBUSTOR	0	33	26	4														
57.717	80.775	1642	280.6	(410)	1.3409	28.908	1946											
57.717	1.969	596	14.4	(143)	1.3975	28.908	1197	3.048	3650	1.809	0.22545	21.307	0.3690	2603	12.787	122.2		
COMBUSTOR	0	34	27	4														
57.857	80.499	1642	280.5	(410)	1.3409	28.908	1946											
57.857	1.951	595	14.1	(143)	1.3975	28.908	1196	3.052	3651	1.809	0.22387	21.307	0.3716	2603	12.702	122.2		
COMBUSTOR	0	35	28	4														
57.937	81.567	1642	280.4	(410)	1.3409	28.908	1946											
57.937	1.971	595	14.0	(143)	1.3975	28.908	1196	3.054	3651	1.808	0.22642	21.307	0.3674	2604	12.848	122.2		
COMBUSTOR	0	36	29	4														
58.217	81.765	1641	280.3	(409)	1.3410	28.908	1946											
58.217	1.958	593	13.6	(143)	1.3975	28.908	1194	3.060	3653	1.808	0.22567	21.307	0.3686	2604	12.813	122.2		
COMBUSTOR	0	37	30	4														
58.443	81.953	1641	280.2	(409)	1.3410	28.908	1945											
58.443	1.949	592	13.3	(142)	1.3976	28.908	1192											
								3.065	3655	1.807	0.22528	21.307	0.3693	2605	12.796	122.2		

	P	T	H		GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	38	31	4														
59.167	81.458	1640	279.4	(409)	1.3410	28.908	1945											
59.167	1.906	588	12.5	(142)	1.3976	28.908	1189	3.076	3658	1.808	0.22167	21.307	0.3753	2606	12.601	122.3		
COMBUSTOR	0	39	32	4														
60.187	81.092	1638	279.4	(409)	1.3411	28.908	1944											
60.187	1.890	587	12.2	(141)	1.3977	28.908	1188	3.078	3657	1.808	0.22026	21.307	0.3777	2605	12.518	122.2		
COMBUSTOR	0	40	33	5														
62.197	81.308	1636	278.9	(408)	1.3412	28.908	1943											
62.197	1.989	594	13.9	(143)	1.3975	28.908	1195	3.046	3641	1.807	0.22792	21.307	0.3650	2597	12.898	121.9		
COMBUSTOR	0	41	34	5														
63.617	81.427	1635	278.7	(408)	1.3412	28.908	1942											
63.617	2.071	601	15.5	(145)	1.3973	28.908	1202	3.020	3629	1.807	0.23410	21.307	0.3553	2592	13.204	121.6		
COMBUSTOR	0	42	35	4														
66.08_1	73.972	1633	278.2	(407)	1.3413	28.908	1941											
66.08_1	2.010	611	16.0	(147)	1.3971	28.908	1212	2.977	3608	1.813	0.22190	21.307	0.3749	2583	12.443	121.2		
COMBUSTOR	0	43	36	4														
66.457	68.347	1633	278.1	(407)	1.3413	28.908	1941											
66.457	1.875	613	16.4	(147)	1.3970	28.908	1214	2.971	3605	1.819	0.20630	21.307	0.4032	2581	11.558	121.1		
NOZZLE AE		44	37	3														
88.69_3	68.347	1633	278.1	(407)	1.3413	28.908	1941											
88.69_3	0.176	312	-54.1	(75)	1.3969	28.908	866	4.707	4078	1.819	0.04294	21.307	1.9371	2788	2.721	130.8		
NOZZLE PQ		45	38	3														
88.69_3	68.347	1633	278.1	(407)	1.3413	28.908	1941											
88.69_3	0.155	302	-56.7	(72)	1.3969	28.908	851	4.810	4093	1.819	0.03947	21.307	2.1078	2795	2.511	131.2		
FICTIVE COMBUSTR		63	56	0														
66.457	319.406	1633	278.1	(407)	1.3413	28.908	1941											
66.457	0.155	195	-82.6	(46)	1.3916	28.908	683	6.219	4249	1.713	0.06335	21.307	1.3131	2866	4.183	134.5		
FICTIVE NOZZLE		64	57	0														
88.69_3	113.851	1632	277.8	(407)	1.3414	28.908	1940											
88.69_3	0.139	253	-68.6	(61)	1.3946	28.908	779	5.346	4163	1.783	0.04294	21.307	1.9371	2826	2.778	132.6		

READING = 0089 BLOCK = 70 TIME = 250.775 MACH 7.4 PT = 989.499 TT = 1793.9 PAGE 4

XABS	P-IB	P-OB	PDA	QOX	Q-IB	Q-OB	CAWALL	P-IB/P80	P-IB/PTO	P-OB/P80	P-OB/PTO
6.981E-01	6.900E-01	0.000	-2.714E-01	0.000	0.000	0.000	2.470E-02	4.439E 00	6.973E-04	0.000	0.000
1.836E 01	6.900E-01	0.000	-2.296E 01	0.000	0.000	0.000	1.634E 02	4.439E 00	6.973E-04	0.000	0.000
3.070E 01	1.155E 00	0.000	-9.775E 01	0.000	0.000	0.000	5.053E 02	7.430E 00	1.167E-03	0.000	0.000
3.508E 01	2.026E 00	0.000	-2.008E 02	0.000	0.000	0.000	6.804E 02	1.304E 01	2.048E-03	0.000	0.000
3.555E 01	2.250E 00	0.000	-2.203E 02	0.000	0.000	0.000	7.013E 02	1.447E 01	2.274E-03	0.000	0.000
3.606E 01	2.035E 00	0.000	-2.421E 02	-8.123E 01	-8.123E 01	0.000	7.246E 02	1.309E 01	2.057E-03	0.000	0.000
3.648E 01	2.256E 00	0.000	-2.604E 02	-8.320E 01	-8.320E 01	0.000	7.443E 02	1.451E 01	2.280E-03	0.000	0.000
3.650E 01	2.270E 00	2.878E 00	-2.957E 02	-8.375E 01	-8.375E 01	0.000	7.497E 02	1.460E 01	2.294E-03	1.851E 01	2.908E-03
3.660E 01	2.270E 00	2.899E 00	-2.958E 02	-8.378E 01	-8.378E 01	0.000	7.500E 02	1.461E 01	2.294E-03	1.865E 01	2.930E-03
3.701E 01	2.320E 00	4.351E 00	-2.982E 02	-8.580E 01	-8.580E 01	0.000	7.924E 02	1.492E 01	2.345E-03	2.799E 01	4.397E-03
3.727E 01	2.228E 00	5.262E 00	-2.971E 02	-8.711E 01	-8.711E 01	0.000	8.194E 02	1.433E 01	2.252E-03	3.385E 01	5.318E-03
3.803E 01	1.955E 00	8.310E 00	-2.785E 02	-9.124E 01	-9.124E 01	0.000	9.015E 02	1.258E 01	1.976E-03	5.346E 01	8.398E-03
3.873E 01	6.482E 00	1.109E 01	-2.768E 02	-1.516E 02	-9.602E 01	-5.563E 01	9.792E 02	4.170E 01	6.551E-03	7.137E 01	1.121E-02
3.875E 01	6.631E 00	1.103E 01	-2.771E 02	-1.530E 02	-9.620E 01	-5.681E 01	9.818E 02	4.266E 01	6.702E-03	7.094E 01	1.114E-02
3.901E 01	8.320E 00	1.028E 01	-2.823E 02	-1.666E 02	-9.845E 01	-7.017E 01	1.011E 03	5.352E 01	8.408E-03	6.612E 01	1.039E-02
3.950E 01	1.137E 01	8.868E 00	-3.004E 02	-1.987E 02	-1.035E 02	-9.527E 01	1.067E 03	7.315E 01	1.149E-02	5.705E 01	8.962E-03
3.975E 01	1.098E 01	8.156E 00	-3.097E 02	-2.143E 02	-1.064E 02	-1.079E 02	1.096E 03	7.062E 01	1.109E-02	5.247E 01	8.243E-03
4.000E 01	1.057E 01	7.944E 00	-3.164E 02	-2.305E 02	-1.098E 02	-1.208E 02	1.125E 03	6.803E 01	1.069E-02	5.111E 01	8.029E-03
4.022E 01	1.106E 01	7.762E 00	-3.220E 02	-2.446E 02	-1.129E 02	-1.318E 02	1.150E 03	7.114E 01	1.118E-02	4.994E 01	7.845E-03
4.040E 01	1.146E 01	8.931E 00	-3.265E 02	-2.566E 02	-1.156E 02	-1.411E 02	1.172E 03	7.376E 01	1.159E-02	5.746E 01	9.026E-03
4.041E 01	1.149E 01	8.995E 00	-3.266E 02	-2.573E 02	-1.157E 02	-1.416E 02	1.173E 03	7.390E 01	1.161E-02	5.787E 01	9.090E-03
4.073E 01	1.219E 01	1.102E 01	-3.309E 02	-2.782E 02	-1.206E 02	-1.576E 02	1.210E 03	7.844E 01	1.232E-02	7.089E 01	1.114E-02
4.122E 01	1.328E 01	1.900E 00	-3.472E 02	-3.106E 02	-1.288E 02	-1.820E 02	1.268E 03	8.545E 01	1.342E-02	1.222E 01	1.920E-03
4.150E 01	1.391E 01	1.953E 00	-3.641E 02	-3.297E 02	-1.340E 02	-1.957E 02	1.301E 03	8.950E 01	1.406E-02	1.256E 01	1.973E-03
4.246E 01	6.700E 00	2.132E 00	-3.984E 02	-3.949E 02	-1.527E 02	-2.422E 02	1.415E 03	4.310E 01	6.771E-03	1.371E 01	2.154E-03
4.271E 01	6.993E 00	2.179E 00	-4.027E 02	-4.115E 02	-1.578E 02	-2.538E 02	1.445E 03	4.499E 01	7.068E-03	1.401E 01	2.202E-03
4.278E 01	7.069E 00	2.191E 00	-4.038E 02	-4.156E 02	-1.590E 02	-2.566E 02	1.453E 03	4.548E 01	7.144E-03	1.409E 01	2.214E-03
4.431E 01	8.854E 00	5.447E 00	-4.210E 02	-5.063E 02	-1.873E 02	-3.190E 02	1.638E 03	5.696E 01	8.948E-03	3.504E 01	5.505E-03
4.480E 01	9.425E 00	6.488E 00	-4.254E 02	-5.336E 02	-1.955E 02	-3.381E 02	1.697E 03	6.063E 01	9.525E-03	4.174E 01	6.557E-03
4.550E 01	9.314E 00	7.969E 00	-4.301E 02	-5.719E 02	-2.067E 02	-3.652E 02	1.782E 03	5.992E 01	9.413E-03	5.126E 01	8.053E-03
4.621E 01	9.200E 00	7.463E 00	-4.282E 02	-6.077E 02	-2.177E 02	-3.900E 02	1.870E 03	5.919E 01	9.298E-03	4.801E 01	7.542E-03
4.626E 01	9.192E 00	7.429E 00	-4.278E 02	-6.099E 02	-2.184E 02	-3.914E 02	1.876E 03	5.914E 01	9.290E-03	4.779E 01	7.508E-03
4.694E 01	9.084E 00	6.950E 00	-4.222E 02	-6.371E 02	-2.284E 02	-4.087E 02	1.959E 03	5.844E 01	9.181E-03	4.471E 01	7.024E-03
4.731E 01	9.025E 00	7.064E 00	-4.195E 02	-6.503E 02	-2.337E 02	-4.166E 02	2.005E 03	5.806E 01	9.121E-03	4.544E 01	7.139E-03
4.811E 01	5.275E 00	7.308E 00	-4.023E 02	-6.782E 02	-2.447E 02	-4.335E 02	2.104E 03	3.394E 01	5.331E-03	4.702E 01	7.386E-03
4.874E 01	7.900E 00	7.500E 00	-3.803E 02	-6.998E 02	-2.529E 02	-4.468E 02	2.182E 03	4.825E 01	7.580E-03	4.825E 01	7.580E-03
5.019E 01	4.571E 00	4.571E 00	-3.352E 02	-7.445E 02	-2.707E 02	-4.738E 02	2.364E 03	2.940E 01	4.619E-03	2.940E 01	4.619E-03
5.072E 01	3.500E 00	3.500E 00	-3.240E 02	-7.584E 02	-2.768E 02	-4.816E 02	2.430E 03	2.252E 01	3.537E-03	2.252E 01	3.537E-03
5.213E 01	3.287E 00	3.287E 00	-2.989E 02	-7.914E 02	-2.917E 02	-4.997E 02	2.608E 03	2.115E 01	3.322E-03	2.115E 01	3.322E-03
5.423E 01	1.300E 00	1.300E 00	-2.737E 02	-8.316E 02	-3.108E 02	-5.208E 02	2.874E 03	8.363E 00	1.314E-03	8.363E 00	1.314E-03
5.473E 01	2.125E 00	2.125E 00	-2.692E 02	-8.397E 02	-3.148E 02	-5.248E 02	2.938E 03	1.367E 01	2.148E-03	1.367E 01	2.148E-03
5.548E 01	1.752E 00	1.752E 00	-2.617E 02	-8.510E 02	-3.204E 02	-5.306E 02	3.033E 03	1.127E 01	1.771E-03	1.127E 01	1.771E-03
5.576E 01	1.612E 00	1.612E 00	-2.593E 02	-8.551E 02	-3.224E 02	-5.327E 02	3.070E 03	1.037E 01	1.629E-03	1.037E 01	1.629E-03
5.620E 01	9.750E-01	1.375E 00	-2.402E 02	-8.618E 02	-3.257E 02	-5.361E 02	3.102E 03	6.272E 00	9.853E-04	8.846E 00	1.390E-03
5.766E 01	1.321E 00	1.321E 00	-2.306E 02	-8.801E 02	-3.345E 02	-5.456E 02	3.209E 03	8.498E 00	1.335E-03	8.498E 00	1.335E-03
5.772E 01	1.400E 00	1.319E 00	-2.302E 02	-8.807E 02	-3.348E 02	-5.459E 02	3.217E 03	9.006E 00	1.415E-03	8.485E 00	1.333E-03
5.786E 01	1.400E 00	1.314E 00	-2.293E 02	-8.824E 02	-3.356E 02	-5.468E 02	3.234E 03	9.006E 00	1.415E-03	8.451E 00	1.328E-03
5.794E 01	1.311E 00	1.311E 00	-2.288E 02	-8.833E 02	-3.360E 02	-5.473E 02	3.245E 03	8.431E 00	1.325E-03	8.431E 00	1.325E-03
5.822E 01	1.300E 00	1.300E 00	-2.271E 02	-8.864E 02	-3.374E 02	-5.489E 02	3.280E 03	8.363E 00	1.314E-03	8.363E 00	1.314E-03
5.840E 01	1.312E 00	1.312E 00	-2.258E 02	-8.888E 02	-3.385E 02	-5.502E 02	3.309E 03	8.440E 00	1.326E-03	8.440E 00	1.326E-03
5.917E 01	1.350E 00	1.350E 00	-2.222E 02	-8.959E 02	-3.418E 02	-5.541E 02	3.402E 03	8.685E 00	1.364E-03	8.685E 00	1.364E-03
6.019E 01	1.200E 00	1.200E 00	-2.193E 02	-9.046E 02	-3.457E 02	-5.589E 02	3.532E 03	7.720E 00	1.213E-03	7.720E 00	1.213E-03
6.220E 01	7.125E-01	7.125E-01	-2.191E 02	-9.198E 02	-3.508E 02	-5.649E 02	3.790E 03	4.584E 00	7.201E-04	4.584E 00	7.201E-04
6.362E 01	1.169E 00	1.169E 00	-2.191E 02	-9.211E 02	-3.530E 02	-5.681E 02	3.972E 03	7.519E 00	1.181E-03	7.519E 00	1.181E-03
6.608E 01	1.320E 00	1.320E 00	-2.191E 02	-9.309E 02	-3.548E 02	-5.761E 02	4.289E 03	8.490E 00	1.334E-03	8.490E 00	1.334E-03
6.646E 01	1.400E 00	1.343E 00	-2.191E 02	-9.323E 02	-3.549E 02	-5.774E 02	4.337E 03	9.006E 00	1.415E-03	8.638E 00	1.357E-03

READING = 0089 BLOCK = 70 TIME = 250.775 MACH 7.4 PT = 989.499 TT = 1793.9

XABS	P-IB	P-OB	PDA	QDA	Q-IB	Q-OB	CA-ALL	P-IB/PSO	P-IB/PTO	P-OB/PSO	P-OB/PTO
6.650E 01	1.400E 00	1.345E 00	-2.191E 02	-9.325E 02	-3.549E 02	-5.776E 02	4.342E 03	9.006E 00	1.415E-03	6.654E 00	1.360E-03
6.670E 01	1.354E 00	1.357E 00	-2.191E 02	-9.333E 02	-3.549E 02	-5.783E 02	4.368E 03	8.711E 00	1.369E-03	6.735E 00	1.372E-03
6.83AE 01	9.750E-01	1.126E 00	-2.056E 02	-9.341E 02	-3.557E 02	-5.834E 02	4.584E 03	6.272E 00	9.853E-04	7.244E 00	1.138E-03
6.980E 01	8.600E-01	9.254E-01	-1.591E 02	-9.434E 02	-3.570E 02	-5.864E 02	4.761E 03	5.533E 00	8.691E-04	5.953E 00	9.352E-04
7.052E 01	7.220E-01	8.250E-01	-1.374E 02	-9.456E 02	-3.577E 02	-5.878E 02	4.849E 03	4.644E 00	7.298E-04	5.307E 00	8.338E-04
7.113E 01	6.050E-01	8.042E-01	-1.214E 02	-9.472E 02	-3.583E 02	-5.888E 02	4.923E 03	3.892E 00	6.114E-04	5.174E 00	8.127E-04
7.251E 01	6.100E-01	7.572E-01	-8.971E 01	-9.487E 02	-3.596E 02	-5.891E 02	5.089E 03	3.924E 00	6.165E-04	4.871E 00	7.652E-04
7.404E 01	6.140E-01	7.050E-01	-5.781E 01	-9.472E 02	-3.607E 02	-5.845E 02	5.273E 03	3.954E 00	6.211E-04	4.535E 00	7.125E-04
7.419E 01	6.150E-01	6.667E-01	-5.498E 01	-9.466E 02	-3.608E 02	-5.861E 02	5.291E 03	3.956E 00	6.215E-04	4.284E 00	6.731E-04
7.494E 01	6.258E-01	4.750E-01	-3.496E 01	-9.446E 02	-3.612E 02	-5.834E 02	5.375E 03	4.026E 00	6.325E-04	3.056E 00	4.800E-04
7.494E 01	6.259E-01	4.740E-01	-3.404E 01	-9.446E 02	-3.612E 02	-5.834E 02	5.375E 03	4.026E 00	6.325E-04	3.049E 00	4.790E-04
7.627E 01	6.450E-01	0.000	-2.062E 01	-9.395E 02	-3.617E 02	-5.778E 02	5.427E 03	4.149E 00	6.518E-04	0.000	0.000
7.912E 01	4.700E-01	0.000	1.675E 00	-9.403E 02	-3.625E 02	-5.778E 02	5.525E 03	3.024E 00	4.750E-04	0.000	0.000
8.302E 01	4.400E-01	0.000	2.112E 01	-9.407E 02	-3.629E 02	-5.778E 02	5.630E 03	2.831E 00	4.447E-04	0.000	0.000
8.583E 01	3.850E-01	0.000	3.029E 01	-9.408E 02	-3.630E 02	-5.778E 02	5.685E 03	2.477E 00	3.891E-04	0.000	0.000
8.869E 01	5.300E-01	0.000	4.133E 01	-9.409E 02	-3.632E 02	-5.778E 02	5.707E 03	3.410E 00	5.356E-04	0.000	0.000
8.869E 01	5.303E-01	0.000	4.133E 01	-9.409E 02	-3.632E 02	-5.778E 02	5.707E 03	3.412E 00	5.359E-04	0.000	0.000

READING = 0089 BLOCK = 70 TIME = 250.775 MACH 7.4 PT = 989.499 TT = 1793.9

X	DDRAG	CDRAG	CF	HC
4.040E 01	7.512E 01	7.512E 01	1.872E-03	3.819E-02
4.041E 01	1.321E-01	7.525E 01	1.872E-03	3.822E-02
4.073E 01	4.190E 00	7.944E 01	1.885E-03	3.864E-02
4.122E 01	6.525E 00	8.597E 01	1.926E-03	3.923E-02
4.150E 01	3.779E 00	8.975E 01	1.966E-03	3.970E-02
4.246E 01	1.261E 01	1.024E 02	2.052E-03	3.925E-02
4.271E 01	3.229E 00	1.056E 02	2.064E-03	3.900E-02
4.278E 01	8.307E-01	1.064E 02	2.067E-03	3.896E-02
4.431E 01	1.896E 01	1.254E 02	2.118E-03	3.699E-02
4.480E 01	5.827E 00	1.312E 02	2.132E-03	3.678E-02
4.550E 01	8.254E 00	1.395E 02	2.149E-03	3.683E-02
4.621E 01	8.352E 00	1.478E 02	2.155E-03	3.592E-02
4.626E 01	5.494E-01	1.484E 02	2.155E-03	3.581E-02
4.694E 01	7.622E 00	1.560E 02	2.155E-03	3.406E-02
4.731E 01	4.062E 00	1.600E 02	2.154E-03	3.515E-02
4.811E 01	8.240E 00	1.683E 02	2.129E-03	3.007E-02
4.874E 01	5.909E 00	1.742E 02	2.090E-03	2.681E-02
5.019E 01	1.173E 01	1.859E 02	2.007E-03	2.083E-02
5.072E 01	3.705E 00	1.896E 02	1.987E-03	1.927E-02
5.213E 01	8.788E 00	1.984E 02	1.940E-03	1.600E-02
5.423E 01	1.091E 01	2.093E 02	1.896E-03	1.279E-02
5.473E 01	2.290E 00	2.116E 02	1.888E-03	1.222E-02
5.548E 01	3.265E 00	2.149E 02	1.875E-03	1.143E-02
5.576E 01	1.182E 00	2.161E 02	1.871E-03	1.116E-02
5.624E 01	9.211E-01	2.170E 02	1.819E-03	8.564E-03
5.766E 01	2.590E 00	2.196E 02	1.796E-03	7.816E-03
5.772E 01	1.620E-01	2.197E 02	1.795E-03	7.788E-03
5.786E 01	4.064E-01	2.201E 02	1.794E-03	7.767E-03
5.794E 01	2.342E-01	2.204E 02	1.788E-03	7.790E-03
5.822E 01	8.172E-01	2.212E 02	1.783E-03	7.740E-03
5.844E 01	6.575E-01	2.219E 02	1.779E-03	7.708E-03
5.917E 01	2.088E 00	2.239E 02	1.771E-03	7.551E-03
6.019E 01	2.904E 00	2.268E 02	1.766E-03	7.480E-03
6.220E 01	5.799E 00	2.326E 02	1.772E-03	7.703E-03
6.362E 01	4.218E 00	2.369E 02	1.776E-03	7.990E-03
6.408E 01	7.273E 00	2.441E 02	1.812E-03	7.755E-03
6.446E 01	1.056E 00	2.452E 02	1.837E-03	7.292E-03
6.650E 01	9.814E-02	2.453E 02	1.761E-03	5.745E-03
6.670E 01	4.362E-01	2.457E 02	1.758E-03	5.668E-03
6.836E 01	3.358E 00	2.491E 02	1.713E-03	4.682E-03
6.980E 01	2.382E 00	2.515E 02	1.683E-03	4.159E-03
7.052E 01	1.062E 00	2.525E 02	1.660E-03	3.717E-03
7.113E 01	8.226E-01	2.533E 02	1.645E-03	3.466E-03
7.251E 01	1.768E 00	2.551E 02	1.637E-03	3.380E-03
7.404E 01	1.909E 00	2.570E 02	1.628E-03	3.284E-03
7.419E 01	1.744E-01	2.572E 02	1.623E-03	3.213E-03
7.494E 01	8.029E-01	2.580E 02	1.600E-03	2.866E-03
7.494E 01	1.456E-03	2.580E 02	1.600E-03	2.864E-03
7.627E 01	4.928E-01	2.585E 02	1.618E-03	3.215E-03
7.912E 01	8.826E-01	2.594E 02	1.567E-03	2.528E-03
8.302E 01	8.159E-01	2.602E 02	1.547E-03	2.389E-03
8.583E 01	3.931E-01	2.606E 02	1.522E-03	2.151E-03
8.869E 01	1.744E-01	2.608E 02	1.557E-03	2.717E-03
8.869E 01	0.000	2.608E 02	1.558E-03	2.718E-03

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	=227.	(LBF)
MEASURED THRUST	=267.	(LBF)
CALCULATED SPECIFIC IMPULSE	=227.	(LBF=SEC/LBM)
MEASURED SPECIFIC IMPULSE	=267.	(LBF=SEC/LBM)
CALCULATED THRUST COEFFICIENT	=.1493	
MEASURED THRUST COEFFICIENT	=.1753	

REGENERATIVE-COOLED ENGINE PERFORMANCE

CALCULATED

STREAM THRUST	0.	(LBF)
NET THRUST	0.	(LBF)
SPECIFIC IMPULSE	0.	(LBF=SEC/LBM)
THRUST COEFFICIENT	0.0000	

MOMENTUM AND FORCES

INLET FRICTION DRAG	75.1	(LBF)
INLET MOMENTUM CHANGE	=401.6	(LBF)
COMBUSTOR FRICTION DRAG	170.1	(LBF)
COMBUSTOR STRUT DRAG	7.53	(LBF)
COMBUSTOR MOMENTUM CHANGE	=70.	(LBF)
NOZZLE FRICTION DRAG	15.57	(LBF)
NOZZLE STRUT DRAG	0.00	(LBF)
NOZZLE MOMENTUM CHANGE	245.	(LBF)
NOZZLE PRESSURE INTEGRAL	260.	(LBF)
EXTERNAL FRICTION DRAG	41.19	(LBF)
EXTERNAL PRESSURE INTEGRAL	=630.	(LBF)
TOTAL EXTERNAL DRAG	=671.	(LBF)
TOTAL STRUT DRAG	7.53	(LBF)
CAVITY FORCE	=537.	(LBF)
CALCULATED LOAD CELL FORCE	=1455.	(LBF)
MEASURED LOAD CELL FORCE	=1475.	(LBF)

FUEL VACUUM SPECIFIC IMPULSE

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	1.7170	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	36.601	(IN)
NOZZLE SHROUD TRAILING EDGE	74.941	(IN)
NOZZLE PLUG TRAILING EDGE	68.695	(IN)
STRUT LEADING EDGE	57.857	(IN)
STRUT TRAILING EDGE	66.457	(IN)
COMBUSTOR EXIT	66.457	(IN)

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.9909	
ADDITIVE DRAG COEFFICIENT	0.0000	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.1066	
DELTA PT2	0.1002	(PSI)
TOTAL PRESSURE RECOVERY = SUPERSONIC	0.3228	
TOTAL PRESSURE RECOVERY = SUBSONIC	0.1081	
INLET PROCESS EFFICIENCY = SUPERSONIC	0.9018	
INLET PROCESS EFFICIENCY = SUBSONIC	0.9179	
KINETIC ENERGY EFFICIENCY = SUPERSONIC	0.9396	
KINETIC ENERGY EFFICIENCY = SUBSONIC	0.8947	
ENTHALPY AT P0 = SUPERSONIC	=78.62	(BTU/LBM)
ENTHALPY AT P0 = SUBSONIC	=60.25	(BTU/LBM)

COMBUSTOR

FUEL=AIR RATIO	0.0000
EQUIVALENCE RATIO	0.000
COMBUSTOR EFFICIENCY	0.000
TOTAL PRESSURE RATIO	0.2140
COMBUSTOR EFFECTIVENESS	0.6682

INJECTOR DISCHARGE COEFFICIENTS

NOZZLE

VACUUM STREAM THRUST COEFFICIENT = CS	1.0158
NOZZLE COEFFICIENT = CT	0.9836
PROCESS EFFICIENCY	1.1242
KINETIC ENERGY EFFICIENCY	1.0273

FUEL INJECTIONS

INJECTORS	STATION	VALVE
1A	40.400	
1B	42.702	
1C	44.300	
2A	50.177	
2C	46.250	
3A	55.467	
3B	57.652	
4	46.202	

Reading 89

t = 272.37 sec.

Injected fuel did not ignite.

The first occurrance of fuel ignition occurred at time 309 seconds when fuel flow from injectors 1A and 1B was reinitiated and 1B flow "spiked" (see fig. 6 (b)).

READING # 0089 BLOCK # 90 TIME = 272.373 MACH 7.2 PT = 994.709 TT = 3175.3

2/12/75

RAMJET PERFORMANCE

S U M M A R Y R E P O R T

	P	T	H		GAMMA	MOLWT	SONV	MACH	VEL	S	M/A	A	A/AC	MOMTM	D	TVAL	PHI	ETAC
WIND TUNNEL		1	0	6														
0.000	994.709	3175	723.7	(847)	1.2878	28.909	2652											
0.000	0.153	309	-55.0	(74)	1.3967	28.908	861	7.247	6242	1.825	0.05801	14.727	0.9912	2896	5.627	196.7		
SPIKE TIP NS		2	0	6														
0.600	11.462	3175	723.7	(847)	1.2872	28.908	2651											
0.600	10.616	3121	707.1	(831)	1.2890	28.908	2630	0.347	912	2.132	0.05801	14.727	0.9912	3112	0.822	211.3		
WIND TUNNEL		3	0	0														
0.000	994.709	3175	723.7	(847)	1.2878	28.909	2652											
0.000	0.173	320	-52.3	(77)	1.3971	28.908	877											
								7.109	6231	1.825	0.06320	14.045	0.9912	3152	6.121	196.4		
SPIKE TIP NS		4	0	0														
0.600	11.462	3175	723.7	(847)	1.2872	28.908	2651											
0.600	10.438	3109	703.4	(828)	1.2894	28.908	2626	0.383	1006	2.132	0.06320	14.045	0.9912	3152	0.988	196.4		
INLET THROAT		5	0	3														
40.400	315.862	3067	690.6	(815)	1.2911	28.909	2610											
40.400	10.449	1331	198.0	(327)	1.3583	28.908	1764	2.815	4964	1.894	0.72878	14.727	0.0789	2484	56.225	168.6		
INLET UPWRBK		6	0	3														
40.400	315.862	3067	690.6	(815)	1.2911	28.909	2610											
40.400	9.015	1280	184.8	(314)	1.3614	28.908	1732	2.905	5031	1.894	0.66253	14.727	0.0868	2503	51.797	170.0		
INLET DNNRBK		7	0	4														
40.400	100.968	3067	690.6	(815)	1.2911	28.908	2610											
40.400	87.960	2973	661.9	(787)	1.2940	28.908	2572	0.465	1197	1.972	0.66253	14.727	0.0868	2503	12.324	170.0		
COMBUSTOR	0	8	1	21														
40.410	234.836	3011	697.6	(853)	1.2946	26.974	2680											
40.410	10.607	1409	212.1	(372)	1.3555	26.974	1876	2.627	4929	2.022	0.73279	14.810	0.0789	2483	56.130	167.7	0.18	0.07
COMBUSTOR	0	9	2	4														
40.731	249.551	2948	695.3	(839)	1.2974	26.914	2658											
40.731	12.271	1404	228.5	(371)	1.3562	26.914	1874	2.577	4833	2.012	0.73549	14.810	0.0786	2472	55.242	166.9	0.18	0.01
COMBUSTOR	0	10	3	21														
41.221	219.176	2926	691.7	(828)	1.2984	26.902	2650											
41.221	8.571	1310	205.7	(345)	1.3618	26.901	1816	2.716	4931	2.019	0.72994	14.810	0.0792	2448	55.940	165.0	0.18	0.00
COMBUSTOR	0	11	4	21														
41.500	201.718	2917	689.6	(825)	1.2987	26.900	2646											
41.500	9.125	1357	219.4	(358)	1.3591	26.899	1846	2.627	4851	2.024	0.72247	14.810	0.0800	2420	54.477	163.4	0.18	0.00
COMBUSTOR	0	12	5	21														
42.460	124.907	2895	682.5	(818)	1.2994	26.899	2637											
42.460	4.871	1293	201.7	(340)	1.3628	26.899	1805	2.718	4905	2.057	0.68190	14.810	0.0848	2364	51.981	159.6	0.18	0.00
COMBUSTOR	0	13	6	21														
42.706	99.893	2858	687.3	(847)	1.3017	25.544	2691											
42.706	5.211	1373	218.4	(381)	1.3594	25.544	1906	2.542	4844	2.157	0.67719	14.877	0.0858	2354	50.980	158.3	0.32	0.03
COMBUSTOR	0	14	7	21														
42.716	107.092	2813	687.2	(833)	1.3039	25.499	2674											
42.716	5.224	1323	218.6	(367)	1.3426	25.498	1875											
								2.583	4843	2.147	0.67658	14.877	0.0858	2354	50.916	158.2	0.32	0.00
COMBUSTOR	0	15	8	21														
42.781	108.133	2805	686.8	(831)	1.3042	25.492	2671											
42.781	5.314	1321	220.3	(367)	1.3428	25.492	1874	2.579	4832	2.145	0.67366	14.877	0.0862	2352	50.584	158.1	0.32	0.00
COMBUSTOR	0	16	9	21														
44.310	118.925	2782	679.6	(823)	1.3050	25.491	2661											
44.310	10.715	1535	284.1	(430)	1.3512	25.491	2011	2.212	4449	2.135	0.62301	14.877	0.0932	2313	43.072	155.5	0.32	0.00
COMBUSTOR	0	17	10	21														
44.800	117.390	2777	678.1	(822)	1.3051	25.491	2659											
44.800	12.446	1598	303.2	(449)	1.3480	25.490	2050	2.113	4332	2.136	0.61562	14.877	0.0943	2304	41.442	154.8	0.32	0.00
COMBUSTOR	0	18	11	21														
45.501	113.010	2796	676.2	(828)	1.3041	25.515	2666											
45.501	13.511	1661	314.2	(464)	1.3448	25.515	2086	2.060	4256	2.140	0.61177	14.877	0.0949	2297	40.464	154.4	0.32	0.02

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	%	A/AC	MOMTM	Q	TVAC	PHI	ETAC
COMBUSTOR	0	19	12 21														
46.216	112.568	2768	673.8(819)	1.3054	25.494	2655											
46.216	11.476	1576	295.4(442)	1.3491	25.494	2034	2.137	4352	2.138	0.59493	14.877	0.0976	2299	40.233	154.5	0.32	0.00
COMBUSTOR	0	20	13 21														
46.250	86.596	2691	675.2(865)	1.3100	23.316	2742											
46.250	11.379	1627	308.1(500)	1.3490	23.316	2163	1.981	4286	2.306	0.59851	15.002	0.0979	2284	39.866	152.2	0.60	0.03
COMBUSTOR	0	21	14 21														
46.260	93.509	2612	675.2(838)	1.3136	23.245	2709											
46.260	11.351	1541	307.8(472)	1.3540	23.245	2113	2.029	4287	2.290	0.59414	15.002	0.0979	2284	39.854	152.2	0.60	0.01
COMBUSTOR	0	22	15 21														
46.941	88.705	2592	672.1(831)	1.3144	23.234	2700											
46.941	9.413	1475	290.4(451)	1.3574	23.234	2070	2.112	4371	2.292	0.56942	15.002	0.1029	2286	38.677	152.4	0.60	0.00
COMBUSTOR	0	23	16 21														
47.310	86.594	2585	670.2(829)	1.3147	23.233	2697											
47.310	8.994	1462	286.9(447)	1.3581	23.232	2061	2.125	4380	2.293	0.55429	15.002	0.1057	2286	37.727	152.4	0.60	0.00
COMBUSTOR	0	24	17 21														
48.110	84.687	2573	666.1(825)	1.3151	23.232	2691											
48.110	9.583	1488	295.3(455)	1.3867	23.232	2078	2.072	4307	2.293	0.50953	15.002	0.1150	2291	34.108	152.7	0.60	0.00
COMBUSTOR	0	25	18 21														
48.741	81.305	2781	662.9(895)	1.3054	23.430	2776											
48.741	7.200	1642	268.4(503)	1.3471	23.430	2166	2.050	4442	2.344	0.46379	15.002	0.1263	2304	32.015	153.6	0.60	0.08
COMBUSTOR	0	26	19 21														
50.181	58.220	2559	663.9(863)	1.3163	22.034	2757											
50.181	6.515	1473	273.9(475)	1.3584	22.034	2125	2.079	4418	2.425	0.37948	15.085	0.1552	2330	26.093	154.5	0.78	0.03
COMBUSTOR	0	27	20 21														
50.191	63.536	2483	663.9(837)	1.3198	21.970	2723											
50.191	6.510	1390	273.8(447)	1.3633	21.970	2071	2.133	4418	2.408	0.37899	15.085	0.1554	2331	26.021	154.5	0.78	0.00
COMBUSTOR	0	28	21 21														
50.721	63.248	2469	662.6(831)	1.3204	21.961	2717											
50.721	6.258	1368	270.5(440)	1.3645	21.961	2056	2.154	4429	2.406	0.35445	15.085	0.1662	2343	24.399	155.3	0.78	0.00
COMBUSTOR	0	29	22 21														
52.131	54.012	2460	660.0(828)	1.3208	21.959	2712											
52.131	3.712	1236	226.5(395)	1.3714	21.959	1959	2.378	4657	2.419	0.30209	15.085	0.1950	2369	21.865	157.0	0.78	0.00
COMBUSTOR	0	30	23 21														
54.231	35.813	2449	656.6(827)	1.3212	21.871	2712											
54.231	1.750	1120	187.1(399)	1.3773	21.871	1873	2.588	4847	2.463	0.24817	15.120	0.2379	2385	18.694	157.7	0.79	0.00
COMBUSTOR	0	31	24 21														
54.731	44.642	2442	655.9(825)	1.3215	21.867	2709											
54.731	2.825	1199	214.8(385)	1.3733	21.867	1935	2.429	4698	2.442	0.23803	15.120	0.2480	2387	17.380	157.9	0.79	0.00
COMBUSTOR	0	32	25 21														
55.481	40.309	2439	654.9(824)	1.3216	21.867	2707											
55.481	2.229	1153	199.8(369)	1.3757	21.867	1899	2.513	4772	2.490	0.22438	15.120	0.2631	2393	16.641	158.3	0.79	0.00
COMBUSTOR	0	33	26 21														
55.760	38.438	2438	654.6(823)	1.3216	21.867	2707											
55.760	2.007	1135	193.9(363)	1.3766	21.866	1885	2.547	4801	2.494	0.21972	15.120	0.2687	2394	16.394	158.4	0.79	0.00
COMBUSTOR	0	34	27 21														
56.241	28.397	2561	654.0(867)	1.3159	21.971	2762											
56.241	1.672	1243	183.9(398)	1.3700	21.971	1963	2.471	4850	2.498	0.17358	15.120	0.3401	2425	13.084	160.4	0.79	0.04
COMBUSTOR	0	35	28 21														
57.666	31.587	2451	652.5(828)	1.3209	21.882	2712											
57.666	1.427	1098	174.8(351)	1.3783	21.882	1854	2.637	4889	2.474	0.16050	15.120	0.3678	2432	12.195	160.9	0.79	0.01
COMBUSTOR	0	36	29 21														
57.721	34.493	2435	652.5(822)	1.3217	21.869	2705											
57.721	1.647	1107	183.5(354)	1.3780	21.869	1862	2.602	4845	2.464	0.15996	15.120	0.3691	2432	12.043	160.9	0.79	0.00
COMBUSTOR	0	37	30 21														
57.861	34.461	2432	652.3(821)	1.3218	21.867	2704											
57.861	1.637	1103	183.2(353)	1.3782	21.867	1859	2.606	4845	2.464	0.15887	15.120	0.3716	2433	11.962	160.9	0.79	0.00

	P	T	H		GAMMA	MOLWT	SONV	MACH	VEL	S	A/A	A/AC	RUNIN	Q	ISOL	PHI	ETAC
COMBUSTOR	0	38	31	21													
57.941	32.270	2436	652.3(	823)	1.3216	21.870	2705										
57.941	1.389	1076	172.7(| 344)	1.3745	21.870	1837	2.667	4899	2.470	0.16045	15.120	0.3675	2433	12.230	160.9	0.79	0.00
COMBUSTOR	0	39	32	21													
58.221	32.166	2432	652.0(	821)	1.3218	21.867	2703										
58.221	1.390	1066	170.8(| 341)	1.3800	21.867	1829	2.683	4907	2.470	0.16020	15.120	0.3685	2434	12.217	160.9	0.79	0.00
COMBUSTOR	0	40	33	21													
58.447	32.562	2431	651.6(	821)	1.3219	21.867	2703										
58.447	1.362	1066	171.1(| 341)	1.3800	21.867	1829	2.682	4905	2.469	0.15979	15.120	0.3695	2434	12.179	161.0	0.79	0.00
COMBUSTOR	0	41	34	21													
59.171	32.663	2429	651.2(	820)	1.3219	21.867	2702										
59.171	1.400	1071	172.6(| 342)	1.3798	21.866	1833	2.670	4894	2.468	0.15731	15.120	0.3753	2434	11.983	161.0	0.79	0.00
COMBUSTOR	0	42	35	21													
60.191	23.521	2553	650.4(	864)	1.3161	21.973	2757										
60.191	1.175	1184	163.7(| 379)	1.3730	21.973	1918	2.573	4935	2.514	0.15630	15.120	0.3777	2433	11.987	160.9	0.79	0.04
COMBUSTOR	0	43	36	21													
62.201	26.860	2442	649.1(	825)	1.3212	21.882	2708										
62.201	1.062	1054	160.2(| 337)	1.3805	21.882	1818	2.720	4946	2.487	0.16174	15.120	0.3650	2424	12.432	160.3	0.79	0.01
COMBUSTOR	0	44	37	21													
63.621	32.716	2424	648.2(	818)	1.3221	21.869	2699										
63.621	1.512	1091	178.2(| 349)	1.3788	21.869	1849	2.623	4850	2.467	0.16613	15.120	0.3553	2417	12.521	159.8	0.79	0.00
COMBUSTOR	0	45	38	21													
66.085	33.441	2417	646.8(	816)	1.3223	21.867	2696										
66.085	1.934	1156	200.8(| 371)	1.3755	21.867	1902	2.484	4724	2.464	0.15747	15.120	0.3749	2406	11.560	159.1	0.79	0.00
COMBUSTOR	0	46	39	21													
66.461	31.313	2417	646.6(	815)	1.3223	21.867	2695										
66.461	1.874	1167	204.4(| 374)	1.3750	21.867	1910	2.463	4704	2.470	0.14640	15.120	0.4032	2404	10.702	159.0	0.79	0.00
COMBUSTOR REGEN	47	40	4														
66.461	31.313	2492	674.7(	843)	1.3198	21.867	2734										
66.461	3.288	1404	284.6(| 454)	1.3628	21.867	2086	2.118	4418	2.481	0.14640	15.120	0.4032	2416	10.052	159.8	0.79	0.00
NOZZLE AE	48	41	4														
88.697	31.313	2417	646.6(	815)	1.3223	21.867	2695										
88.697	0.265	676	44.3(| 214)	1.3964	21.867	1465	3.748	5490	2.470	0.03047	15.120	1.9371	2711	2.600	179.3	0.79	0.00
NOZZLE PO	49	42	4														
88.697	31.313	2417	646.6(	815)	1.3223	21.867	2695										
88.697	0.153	578	13.2(| 183)	1.3992	21.867	1356	4.150	5630	2.470	0.02114	15.120	2.7931	2755	1.849	182.2	0.79	0.00
NOZZLE AE REGEN	50	43	4														
88.697	31.313	2492	674.7(	843)	1.3198	21.867	2734										
88.697	0.273	706	54.0(| 224)	1.3954	21.867	1497	3.724	5573	2.481	0.03047	15.120	1.9372	2754	2.639	182.2	0.79	0.00
NOZZLE PO REGEN	51	44	4														
88.697	31.313	2492	674.7(	843)	1.3198	21.867	2734										
88.697	0.153	599	20.0(| 190)	1.3986	21.867	1381	4.146	5724	2.481	0.02073	15.120	2.8475	2802	1.844	185.3	0.79	0.00
FICTIVE COMBUSTR	69	62	0														
66.461	315.862	5290	646.6(1879)		1.1748	24.771	3532										
66.461	0.153	1084=1084.4(		316)	1.3500	25.162	1701	5.472	9307	2.445	0.02144	15.120	2.7529	4482	3.102	296.4	0.79	1.00
FICTIVE NOZZLE	70	63	0														
88.697	26.899	2396	639.0(	808)	1.3230	21.867	2685										
88.697	0.284	712	58.1(| 226)	1.3952	21.867	1503	3.593	5401	2.480	0.03048	15.120	1.9371	2679	2.598	177.2	0.79	0.00

READING = 0089 BLOCK = 98 TIME = 272.373 MACH 7.2 PT = 994.749 TT = 5175.3

XABS	P=IR	P=OB	PDA	QUX	Q=IB	Q=OB	CAWALL	P=IB/P80	P=IR/PTO	P=OB/P80	P=OB/PTO
6.981E-01	4.900E-01	0.000	-2.788E-01	0.000	0.000	0.000	2.470E-02	4.497E 00	6.936E-04	0.000	0.000
1.034E 01	4.900E-01	0.000	-2.294E 01	0.000	0.000	0.000	1.438E 02	4.497E 00	4.934E-04	0.000	0.000
3.070E 01	1.145E 00	0.000	-9.735E 01	0.000	0.000	0.000	5.053E 02	7.462E 00	1.151E-03	0.000	0.000
3.508E 01	2.006E 00	0.000	-1.945E 02	0.000	0.000	0.000	6.804E 02	1.308E 01	2.017E-03	0.000	0.000
3.555E 01	2.180E 00	0.000	-2.185E 02	0.000	0.000	0.000	7.013E 02	1.421E 01	2.192E-03	0.000	0.000
3.606E 01	2.025E 00	0.000	-2.399E 02	-2.129E 02	-2.129E 02	0.000	7.246E 02	1.320E 01	2.036E-03	0.000	0.000
3.648E 01	2.270E 00	0.000	-2.563E 02	-2.1[illegible]E 02	-2.[illegible]E 02	0.000	7.443E 02	1.479E 01	2.282E-03	0.000	0.000
3.660E 01	2.291E 00	3.221E 00	-2.972E 02	-2.195E 02	-2.195E 02	0.000	7.499E 02	1.493E 01	2.303E-03	2.099E 01	3.238E-03
3.660E 01	2.292E 00	3.239E 00	-2.972E 02	-2.196E 02	-2.196E 02	0.000	7.502E 02	1.494E 01	2.304E-03	2.111E 01	3.256E-03
3.701E 01	2.365E 00	4.477E 00	-2.988E 02	-2.248E 02	-2.248E 02	0.000	7.922E 02	1.541E 01	2.377E-03	2.918E 01	4.501E-03
3.727E 01	2.265E 00	5.275E 00	-2.978E 02	-2.283E 02	-2.283E 02	0.000	8.196E 02	1.476E 01	2.277E-03	3.438E 01	5.303E-03
3.803E 01	1.975E 00	6.320E 00	-2.798E 02	-2.391E 02	-2.391E 02	0.000	9.012E 02	1.287E 01	1.985E-03	5.422E 01	8.364E-03
3.873E 01	6.513E 00	1.113E 01	-2.779E 02	-3.245E 02	-2.517E 02	-7.277E 01	9.794E 02	4.245E 01	6.548E-03	7.255E 01	1.119E-02
3.875E 01	6.637E 00	1.104E 01	-2.781E 02	-3.262E 02	-2.521E 02	-7.406E 01	9.815E 02	4.325E 01	6.672E-03	7.221E 01	1.114E-02
3.901E 01	8.320E 00	1.083E 01	-2.831E 02	-3.446E 02	-2.580E 02	-9.154E 01	1.011E 03	5.422E 01	8.360E-03	6.764E 01	1.043E-02
3.950E 01	1.147E 01	9.058E 00	-3.011E 02	-3.957E 02	-2.714E 02	-1.244E 02	1.067E 03	7.474E 01	1.153E-02	5.903E 01	9.106E-03
3.975E 01	1.103E 01	8.381E 00	-3.105E 02	-4.205E 02	-2.793E 02	-1.412E 02	1.096E 03	7.190E 01	1.109E-02	5.462E 01	8.425E-03
4.000E 01	1.060E 01	8.087E 00	-3.168E 02	-4.458E 02	-2.880E 02	-1.578E 02	1.125E 03	6.908E 01	1.066E-02	5.270E 01	8.129E-03
4.022E 01	1.143E 01	7.825E 00	-3.229E 02	-4.668E 02	-2.963E 02	-1.725E 02	1.151E 03	7.448E 01	1.149E-02	5.100E 01	7.866E-03
4.040E 01	1.210E 01	9.010E 00	-3.274E 02	-4.877E 02	-3.033E 02	-1.844E 02	1.171E 03	7.886E 01	1.216E-02	5.872E 01	9.057E-03
4.041E 01	1.214E 01	9.070E 00	-3.276E 02	-4.887E 02	-3.037E 02	-1.850E 02	1.173E 03	7.910E 01	1.220E-02	5.915E 01	9.124E-03
4.073E 01	1.334E 01	1.120E 01	-3.335E 02	-5.231E 02	-3.164E 02	-2.043E 02	1.210E 03	8.695E 01	1.341E-02	7.299E 01	1.126E-02
4.122E 01	1.518E 01	1.962E 00	-3.536E 02	-5.766E 02	-3.383E 02	-2.343E 02	1.268E 03	9.892E 01	1.526E-02	1.279E 01	1.973E-03
4.150E 01	1.622E 01	2.026E 00	-3.732E 02	-6.076E 02	-3.515E 02	-2.561E 02	1.301E 03	1.057E 02	1.631E-02	1.320E 01	2.036E-03
4.246E 01	7.500E 00	2.243E 00	-4.139E 02	-7.128E 02	-3.973E 02	-3.155E 02	1.415E 03	4.688E 01	7.540E-03	1.462E 01	2.255E-03
4.271E 01	8.123E 00	2.299E 00	-4.189E 02	-7.378E 02	-4.084E 02	-3.294E 02	1.444E 03	5.294E 01	8.164E-03	1.498E 01	2.311E-03
4.272E 01	8.148E 00	2.301E 00	-4.191E 02	-7.388E 02	-4.088E 02	-3.300E 02	1.445E 03	5.310E 01	8.191E-03	1.500E 01	2.313E-03
4.278E 01	8.313E 00	2.316E 00	-4.205E 02	-7.449E 02	-4.116E 02	-3.334E 02	1.453E 03	5.418E 01	8.357E-03	1.509E 01	2.328E-03
4.431E 01	1.218E 01	9.246E 00	-4.350E 02	-8.527E 02	-4.586E 02	-3.942E 02	1.637E 03	7.941E 01	1.225E-02	6.026E 01	9.295E-03
4.480E 01	1.342E 01	1.147E 01	-4.381E 02	-8.746E 02	-4.666E 02	-4.080E 02	1.697E 03	8.790E 01	1.350E-02	7.473E 01	1.153E-02
4.550E 01	1.238E 01	1.464E 01	-4.357E 02	-9.035E 02	-4.758E 02	-4.278E 02	1.783E 03	8.067E 01	1.244E-02	9.544E 01	1.472E-02
4.622E 01	1.131E 01	1.164E 01	-4.234E 02	-9.391E 02	-4.850E 02	-4.541E 02	1.870E 03	7.371E 01	1.137E-02	7.588E 01	1.170E-02
4.625E 01	1.126E 01	1.150E 01	-4.227E 02	-9.411E 02	-4.854E 02	-4.557E 02	1.874E 03	7.338E 01	1.132E-02	7.495E 01	1.156E-02
4.626E 01	1.124E 01	1.146E 01	-4.225E 02	-9.417E 02	-4.856E 02	-4.561E 02	1.875E 03	7.328E 01	1.130E-02	7.468E 01	1.152E-02
4.694E 01	1.023E 01	6.600E 00	-4.110E 02	-9.880E 02	-4.943E 02	-4.937E 02	1.959E 03	6.665E 01	1.028E-02	5.603E 01	8.645E-03
4.731E 01	9.675E 00	8.313E 00	-4.066E 02	-1.016E 03	-4.990E 02	-5.173E 02	2.005E 03	6.306E 01	9.724E-03	5.418E 01	8.357E-03
4.811E 01	1.147E 01	7.691E 00	-3.917E 02	-1.078E 03	-5.090E 02	-5.686E 02	2.104E 03	7.479E 01	1.154E-02	5.012E 01	7.731E-03
4.874E 01	7.200E 00	7.200E 00	-3.711E 02	-1.126E 03	-5.169E 02	-6.092E 02	2.183E 03	4.692E 01	7.238E-03	4.692E 01	7.238E-03
5.018E 01	6.515E 00	6.515E 00	-3.202E 02	-1.213E 03	-5.346E 02	-6.780E 02	2.363E 03	4.246E 01	6.550E-03	4.246E 01	6.550E-03
5.019E 01	6.510E 00	6.510E 00	-3.199E 02	-1.213E 03	-5.347E 02	-6.783E 02	2.364E 03	4.243E 01	6.545E-03	4.243E 01	6.545E-03
5.072E 01	6.258E 00	6.258E 00	-3.022E 02	-1.233E 03	-5.411E 02	-6.914E 02	2.430E 03	4.079E 01	6.291E-03	4.079E 01	6.291E-03
5.213E 01	3.712E 00	3.712E 00	-2.650E 02	-1.272E 03	-5.579E 02	-7.144E 02	2.608E 03	2.420E 01	3.732E-03	2.420E 01	3.732E-03
5.423E 01	1.750E 00	1.750E 00	-2.353E 02	-1.322E 03	-5.823E 02	-7.400E 02	2.874E 03	1.141E 01	1.759E-03	1.141E 01	1.759E-03
5.473E 01	2.825E 00	2.825E 00	-2.294E 02	-1.333E 03	-5.880E 02	-7.449E 02	2.93AE 03	1.841E 01	2.840E-03	1.841E 01	2.840E-03
5.548E 01	2.229E 00	2.229E 00	-2.196E 02	-1.348E 03	-5.965E 02	-7.516E 02	3.034E 03	1.453E 01	2.241E-03	1.453E 01	2.241E-03
5.576E 01	2.007E 00	2.007E 00	-2.166E 02	-1.354E 03	-5.994E 02	-7.541E 02	3.069E 03	1.308E 01	2.018E-03	1.308E 01	2.018E-03
5.620E 01	1.719E 00	1.625E 00	-1.848E 02	-1.362E 03	-6.041E 02	-7.581E 02	3.102E 03	1.120E 01	1.728E-03	1.059E 01	1.634E-03
5.747E 01	1.427E 00	1.427E 00	-1.740E 02	-1.384E 03	-6.150E 02	-7.694E 02	3.209E 03	9.301E 00	1.435E-03	9.301E 00	1.435E-03
5.772E 01	1.475E 00	1.419E 00	-1.735E 02	-1.385E 03	-6.154E 02	-7.698E 02	3.217E 03	1.222E 01	1.885E-03	9.251E 00	1.427E-03
5.786E 01	1.475E 00	1.400E 00	-1.726E 02	-1.387E 03	-6.160E 02	-7.708E 02	3.234E 03	1.222E 01	1.885E-03	9.124E 00	1.407E-03
5.794E 01	1.389E 00	1.389E 00	-1.721E 02	-1.388E 03	-6.170E 02	-7.714E 02	3.245E 03	9.052E 00	1.396E-03	9.052E 00	1.396E-03
5.822E 01	1.350E 00	1.350E 00	-1.703E 02	-1.392E 03	-6.190E 02	-7.734E 02	3.280E 03	8.798E 00	1.357E-03	8.798E 00	1.357E-03
5.845E 01	1.362E 00	1.362E 00	-1.690E 02	-1.396E 03	-6.206E 02	-7.749E 02	3.309E 03	8.876E 00	1.369E-03	8.876E 00	1.369E-03
5.917E 01	1.400E 00	1.400E 00	-1.652E 02	-1.405E 03	-6.257E 02	-7.796E 02	3.402E 03	9.124E 00	1.407E-03	9.124E 00	1.407E-03
6.019E 01	1.175E 00	1.175E 00	-1.622E 02	-1.417E 03	-6.326E 02	-7.848E 02	3.532E 03	7.654E 00	1.181E-03	7.658E 00	1.181E-03
6.220E 01	1.062E 00	1.062E 00	-1.620E 02	-1.437E 03	-6.448E 02	-7.921E 02	3.790E 03	6.925E 00	1.068E-03	6.925E 00	1.068E-03

READING # 0049 BLOCK # 94 TIME = 272.373 MACH 7.2 P1 = 996.749 T1 = 5175.5

XAR8	P=IR	P=OR	PRA	P0x	P=IR	P=OR	P=ALL	P=TR/PS0	P=IR/PT0	P=OR/PS0	P=OR/PT0
6.362E 01	1.512E 00	1.512E 00	=1.420E 02	=1.45 E 03	=A.521E 02	=7.979E 02	4.072E 03	9.857E 00	1.520E=03	9.857E 00	1.520E=03
6.608E 01	1.934E 00	1.934E 00	=1.422E 02	=1.471E 03	=A.[illegible]	=8.[illegible]	4.[illegible]	1.241E 01	1.945E=03	1.261E 01	1.945E=03
6.646E 01	1.750E 00	1.999E 00	=1.420E 02	=1.475E 03	=A.619E 02	=8.125E 02	4.337E 03	1.141E 01	1.759E=03	1.303E 01	2.009E=03
6.650E 01	1.750E 00	2.00AE 00	=1.420E 02	=1.475E 03	=A.619E 02	=8.127E 02	4.342E 03	1.141E 01	1.759E=03	1.307E 01	2.016E=03
6.670E 01	1.833E 00	2.040E 00	=1.420E 02	=1.476E 03	=A.624E 02	=8.100E 02	4.368E 03	1.194E 01	1.842E=03	1.330E 01	2.051E=03
6.836E 01	2.920E 00	1.549E 00	=1.424E 02	=1.492E 03	=A.669E 02	=8.289E 02	4.584E 03	1.642E 01	2.533E=03	1.009E 01	1.557E=03
6.980E 01	9.550E=01	1.123E 00	=A.550E 01	=1.508E 03	=A.717E 02	=8.341E 02	4.761E 03	6.224E 00	9.600E=04	7.319E 00	1.129E=03
7.052E 01	9.117E=01	9.100E=01	=A.015E 01	=1.518E 03	=A.740E 02	=8.442E 02	4.859E 03	5.942E 00	9.165E=04	5.931E 00	9.14AE=04
7.113E 01	8.750E=01	8.AA3E=01	=2.051E 01	=1.525E 03	=A.76AE 02	=8.485E 02	4.923E 03	5.703E 00	8.796E=04	5.790E 00	8.930E=04
7.251E 01	7.450E=01	8.393E=01	1.824E 01	=1.535E 03	=6.819E 02	=8.535E 02	5.089E 03	4.855E 00	7.489E=04	5.470E 00	8.438E=04
7.404E 01	5.765E=01	7.850E=01	5.314E 01	=1.547E 03	=A.871E 02	=A.601E 02	5.273E 03	3.757E 00	5.794E=04	5.116E 00	7.891E=04
7.419E 01	5.600E=01	7.333E=01	5.599E 01	=1.549E 03	=6.875E 02	=8.613E 02	5.291E 03	3.650E 00	5.630E=04	4.779E 00	7.372E=04
7.494E 01	5.528E=01	4.750E=01	7.590E 01	=1.558E 03	=A.894E 02	=8.685E 02	5.375E 03	3.603E 00	5.557E=04	3.096E 00	4.775E=04
7.494E 01	5.527E=01	4.736E=01	7.682E 01	=1.558E 03	=A.894E 02	=8.686E 02	5.375E 03	3.602E 00	5.557E=04	3.087E 00	4.761E=04
7.627E 01	5.400E=01	0.000	8.836E 01	=1.576E 03	=A.922E 02	=8.839E 02	5.427E 03	3.519E 00	5.429E=04	0.000	0.000
7.912E 01	2.900E=01	0.000	1.050E 02	=1.580E 03	=6.964E 02	=8.839E 02	5.525E 03	1.890E 00	2.915E=04	0.000	0.000
8.302E 01	2.700E=01	0.000	1.169E 02	=1.583E 03	=6.994E 02	=8.839E 02	5.630E 03	1.760E 00	2.714E=04	0.000	0.000
8.583E 01	2.590E=01	0.000	1.228E 02	=1.585E 03	=7.013E 02	=8.839E 02	5.695E 03	1.662E 00	2.563E=04	0.000	0.000
8.869E 01	3.600E=01	0.000	1.302E 02	=1.584E 03	=7.049E 02	=8.839E 02	5.707E 03	2.346E 00	3.619E=04	0.000	0.000
8.870E 01	3.602E=01	0.000	1.302E 02	=1.584E 03	=7.049E 02	=8.839E 02	5.707E 03	2.348E 00	3.621E=04	0.000	0.000

X	CORAS	CP	HC
4.0405E 01	8.6552E 01	2.273E-03	3.435E-02
4.0441E 01	8.5648E 01	2.797E-03	3.505E-02
4.0478E 01	9.1188E 01	2.455E-03	3.961E-02
4.0122E 01	9.9006E 01	2.028E-03	3.071E-02
4.0150E 01	1.0134E 02	2.043E-03	3.187E-02
4.0246E 01	1.1109E 02	2.622E-03	1.925E-02
4.0271E 01	1.1232E 02	3.097E-03	1.922E-02
4.0272E 01	1.2346E 02	2.765E-03	2.042E-02
4.0278E 01	1.2458E 02	2.711E-03	2.110E-02
4.0431E 01	1.4798E 02	2.708E-03	3.427E-02
4.0480E 01	1.5417E 02	2.734E-03	3.776E-02
4.0550E 01	1.6035E 02	2.751E-03	3.977E-02
4.0622E 01	1.6708E 02	2.748E-03	3.520E-02
4.0625E 01	1.7054E 02	3.274E-03	3.209E-02
4.0626E 01	1.7477E 02	2.875E-03	3.595E-02
4.0690E 01	1.8409E 02	2.790E-03	3.187E-02
4.0731E 01	1.8859E 02	2.775E-03	3.077E-02
4.0811E 01	1.9879E 02	2.755E-03	3.152E-02
4.0874E 01	2.0588E 02	2.722E-03	2.538E-02
5.0118E 01	2.2144E 02	3.231E-03	2.018E-02
5.0195E 01	2.2158E 02	3.231E-03	2.018E-02
5.0072E 01	2.2058E 02	2.700E-03	2.230E-02
5.0213E 01	2.2375E 02	2.698E-03	1.503E-02
5.0423E 01	2.5207E 02	2.743E-03	8.206E-03
5.0473E 01	2.5511E 02	2.419E-03	1.171E-02
5.0548E 01	2.5704E 02	2.415E-03	9.756E-03
5.0576E 01	2.6056E 02	2.421E-03	8.996E-03
5.0624E 01	2.6211E 02	2.439E-03	7.502E-03
5.0767E 01	2.6576E 02	2.669E-03	6.304E-03
5.0772E 01	2.6598E 02	2.538E-03	7.260E-03
5.0786F 01	2.6658E 02	2.515E-03	7.260E-03
5.0794E 01	2.6798E 02	2.562E-03	6.373E-03
5.0822E 01	2.6888E 02	2.524E-03	6.263E-03
5.0845E 01	2.6889E 02	2.513E-03	6.323E-03
5.0917E 01	2.7168E 02	2.500E-03	6.423E-03
6.0019E 01	3.0266E 02	2.755E 02	2.517E-03	5.613E-03
6.0220E 01	3.0256E 02	2.837E 02	2.720E-03	4.961E-03
6.0362E 01	5.9598E 02	2.897E 02	2.520E-03	6.708E-03
6.0608E 01	9.5908E 02	2.993E 02	2.519E-03	8.000E-03
6.0646E 01	1.3608E 02	3.007E 02	2.588E-03	7.764E-03
6.0650E 01	1.4028E 02	3.008E 02	2.509E-03	7.645E-03
6.0670E 01	5.0796E 01	3.013E 02	2.513E-03	7.807E-03
6.0836E 01	4.7608E 00	3.056E 02	2.511E-03	8.045E-03
6.0980E 01	3.0116E 00	3.086E 02	2.381E-03	4.976E-03
7.0052E 01	1.1588E 00	3.098E 02	2.354E-03	4.514E-03
7.0113E 01	9.2458E-01	3.107E 02	2.334E-03	4.411E-03
7.0251E 01	1.9876E 00	3.127E 02	2.324E-03	4.072E-03
7.0404E 01	2.8222E 00	3.147E 02	2.299E-03	3.635E-03
7.0419E 01	1.7677E-01	3.149E 02	2.280E-03	5.501E-03
7.0494E 01	7.9184E-01	3.157E 02	2.239E-03	2.958E-03
7.0494E 01	1.4036E-03	3.157E 02	2.239E-03	2.955E-03
7.0627E 01	4.9626E-01	3.162E 02	2.242E-03	3.058E-03
7.0912E 01	7.2276E-01	3.149E 02	2.131E-03	1.951E-03
8.0102E 01	5.0796E-01	3.175E 02	2.114E-03	1.441E-03
8.0545E 01	2.9566E-01	3.178E 02	2.087E-03	1.733E-03
8.0869E 01	1.3566E-01	3.179E 02	2.137E-03	2.221E-03

READING # 0089 BLOCK # 94 TIME = 272.373 MACH 7.2 P1 = 994.749 TT = 5175.3

X	UDRAG	CDRAG	CF	HC
8.870E 01	0.000	3.179E 02	2.130E-03	2.222E-03

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	=217.	(LBF)
MEASURED THRUST	=129.	(LBF)
CALCULATED SPECIFIC IMPULSE	=595.	(LBF-SEC/LBM)
MEASURED SPECIFIC IMPULSE	=354.	(LBF-SEC/LBM)
CALCULATED THRUST COEFFICIENT	=.1509	
MEASURED THRUST COEFFICIENT	=.0897	

REGENERATIVE-COOLED ENGINE PERFORMANCE CALCULATED

STREAM THRUST	2721.	(LBF)
NET THRUST	=175.	(LBF)
SPECIFIC IMPULSE	=479.	(LBF-SEC/LBM)
THRUST COEFFICIENT	=.1215	

MOMENTUM AND FORCES

INLET FRICTION DRAG	85.5	(LBF)
INLET MOMENTUM CHANGE	=413.0	(LBF)
COMBUSTOR FRICTION DRAG	215.1	(LBF)
COMBUSTOR STRUT DRAG	5.05	(LBF)
COMBUSTOR MOMENTUM CHANGE	=79.	(LBF)
NOZZLE FRICTION DRAG	17.27	(LBF)
NOZZLE STRUT DRAG	0.00	(LBF)
NOZZLE MOMENTUM CHANGE	275.	(LBF)
NOZZLE PRESSURE INTEGRAL	292.	(LBF)
EXTERNAL FRICTION DRAG	65.50	(LBF)
EXTERNAL PRESSURE INTEGRAL	=677.	(LBF)
TOTAL EXTERNAL DRAG	=742.	(LBF)
TOTAL STRUT DRAG	5.05	(LBF)
CAVITY FORCE	=612.	(LBF)
CALCULATED LOAD CELL FORCE	=1571.	(LBF)
MEASURED LOAD CELL FORCE	=1483.	(LBF)

FUEL VACUUM SPECIFIC IMPULSE 0.0, 0.0, 0.0, =123.7, =110.0,

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	1.7210	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	36.605	(IN)
NOZZLE SHROUD TRAILING EDGE	70.945	(IN)
NOZZLE PLUG TRAILING EDGE	88.697	(IN)
STRUT LEADING EDGE	57.861	(IN)
STRUT TRAILING EDGE	66.461	(IN)
COMBUSTOR EXIT	66.461	(IN)

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.9912	
ADDITIVE DRAG COEFFICIENT	0.0000	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.1002	
DELTA PT2	0.0885	(PSI)
TOTAL PRESSURE RECOVERY - SUPERSONIC	0.3175	
TOTAL PRESSURE RECOVERY - SUBSONIC	0.1015	
INLET PROCESS EFFICIENCY - SUPERSONIC	0.9037	
INLET PROCESS EFFICIENCY - SUBSONIC	0.9131	
KINETIC ENERGY EFFICIENCY - SUPERSONIC	0.9262	
KINETIC ENERGY EFFICIENCY - SUBSONIC	0.8774	
ENTHALPY AT P0 - SUPERSONIC	=30.61	(BTU/LBM)
ENTHALPY AT P0 - SUBSONIC	7.35	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0248	
EQUIVALENCE RATIO	0.786	
COMBUSTOR EFFICIENCY	0.000	
TOTAL PRESSURE RATIO	0.0991	
COMBUSTOR EFFECTIVENESS	0.1340	

INJECTOR DISCHARGE COEFFICIENTS 0.9198, 0.5585, 1.3323, 0.8182

NOZZLE

VACUUM STREAM THRUST COEFFICIENT - CS	0.9881
NOZZLE COEFFICIENT - CT	0.9447
PROCESS EFFICIENCY	0.9520
KINETIC ENERGY EFFICIENCY	0.9749

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	A
1B	42.706	B
1C	44.300	
2A	50.181	D
2C	46.250	E
3A	55.471	
3B	57.656	
B	46.206	

Reading 89

t = 283.17 sec.

Injected fuel did not ignite.

2/13/75

READING # 0089 BLOCK # 106 TIME = 283.173 MACH 7.2 PT = 994.249 TT = 3270.0

RAMJET PERFORMANCE

S U M M A R Y R E P O R T

	P	T	M	GAMMA	DELNT	SONV	MACH	VEL	S	W/A	R	A/AC	PCMTM	G	IVAC	PHI	ETAC
WIND TUNNEL		1	0 6														
0.000	994.249	3270	753.1(876)	1.2850	28.909	2688											
0.000	0.153	320	=52.2(77)	1.3971	28.908	877	7.235	6308	1.834	0.05662	14.356	0.9899	2871	5.585	200.0		
SPIKE TIP NS		2	0 6														
0.600	11.437	3270	753.0(875)	1.2840	28.907	2687											
0.600	10.607	3215	736.2(859)	1.2858	28.907	2667	0.304	918	2.141	0.05662	14.356	0.9899	3099	0.607	215.8		
WIND TUNNEL		3	0 0														
0.000	994.249	3270	753.1(876)	1.2850	28.909	2688											
0.000	0.174	332	=49.3(80)	1.3974	28.908	894											
							7.090	6336	1.834	0.06200	15.719	0.9899	3140	6.105	199.7		
SPIKE TIP NS		4	0 6														
0.600	11.437	3270	753.0(875)	1.2840	28.907	2687											
0.600	10.420	3203	732.3(854)	1.2862	28.908	2662	0.383	1019	2.141	0.06200	15.719	0.9899	3140	0.981	199.7		
INLET THROAT		5	0 3														
40.400	312.533	3156	717.7(842)	1.2884	28.909	2644											
40.400	10.379	1378	210.2(339)	1.3554	28.908	1792	2.811	5039	1.903	0.70998	14.356	0.0789	2458	55.600	171.2		
INLET UPNRBK		6	0 3														
40.400	312.533	3156	717.7(842)	1.2884	28.909	2644											
40.400	8.997	1326	196.5(326)	1.3586	28.908	1760	2.902	5107	1.903	0.64544	14.356	0.0868	2678	51.223	172.6		
INLET DNNRBK		7	0 4														
40.400	99.918	3156	717.7(842)	1.2884	28.908	2644											
40.400	87.085	3060	688.3(813)	1.2913	28.908	2607	0.465	1212	1.981	0.64544	14.356	0.0868	2678	12.180	172.6		
COMBUSTOR	0	8	1 21														
40.410	232.471	3096	725.6(881)	1.2919	26.945	2717											
40.410	10.656	1460	226.5(387)	1.3526	26.945	1909	2.618	4997	2.033	0.71395	14.438	0.0790	2458	55.446	170.2	0.18	0.07
COMBUSTOR	0	9	2 21														
40.729	242.437	3044	723.1(865)	1.2943	26.897	2698											
40.729	12.362	1471	243.8(390)	1.3525	26.897	1918	2.554	4898	2.026	0.71656	14.438	0.0787	2447	54.538	169.5	0.18	0.03
COMBUSTOR	0	10	3 21														
41.219	216.196	3011	719.3(855)	1.2957	26.874	2684											
41.219	8.608	1360	219.5(359)	1.3589	26.873	1849	2.704	5001	2.031	0.71122	14.438	0.0793	2419	55.274	167.5	0.18	0.00
COMBUSTOR	0	11	4 21														
41.500	199.154	3000	717.0(852)	1.2961	26.870	2682											
41.500	9.177	1408	233.9(373)	1.3562	26.870	1880	2.616	4917	2.036	0.70410	14.438	0.0801	2395	53.799	165.9	0.18	0.00
COMBUSTOR	0	12	5 21														
42.460	123.318	2976	709.4(844)	1.2969	26.870	2672											
42.460	4.865	1339	214.7(353)	1.3602	26.869	1836	2.710	4975	2.069	0.66476	14.438	0.0848	2338	51.399	162.0	0.18	0.00
COMBUSTOR	0	13	6 21														
42.704	97.898	2935	714.9(876)	1.2994	25.442	2730											
42.704	5.211	1422	232.9(397)	1.3568	25.442	1942	2.529	4911	2.174	0.65924	14.507	0.0859	2329	50.314	160.5	0.34	0.03
COMBUSTOR	0	14	7 21														
42.714	105.047	2887	714.8(861)	1.3016	25.395	2712											
42.714	5.225	1369	233.1(382)	1.3601	25.394	1910											
							2.571	4910	2.164	0.65912	14.507	0.0859	2329	50.289	160.5	0.34	0.01
COMBUSTOR	0	15	8 21														
42.779	106.217	2879	714.4(858)	1.3020	25.387	2709											
42.779	5.317	1367	234.8(382)	1.3603	25.387	1908	2.567	4899	2.162	0.65753	14.507	0.0861	2326	50.060	160.4	0.34	0.00
COMBUSTOR	0	16	9 21														
44.310	117.033	2855	706.6(850)	1.3028	25.386	2699											
44.310	10.830	1590	301.9(448)	1.3486	25.386	2049	2.196	4500	2.152	0.60713	14.507	0.0933	2288	42.498	157.7	0.34	0.00
COMBUSTOR	0	17	10 21														
44.800	115.597	2850	705.0(849)	1.3030	25.386	2697											
44.800	12.594	1655	321.7(468)	1.3454	25.386	2089	2.097	4379	2.152	0.60033	14.507	0.0943	2279	40.855	157.1	0.34	0.00
COMBUSTOR	0	18	11 21														
45.499	111.918	2862	702.9(853)	1.3023	25.405	2701											
45.499	13.838	1718	334.9(487)	1.3424	25.405	2125	2.020	4291	2.156	0.59639	14.507	0.0950	2271	39.772	156.6	0.34	0.01

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	P/A	M	A/AC	MOMTM	Q	TVAC	PHI	ETAC
COMBUSTOR	0	19	12 21														
46.214	111.160	2858	700.2(845)	1.3033	25.389	2491											
46.214	12.004	1644	317.5(465)	1.3459	25.389	2062	2.107	4376	2.154	0.57979	14.547	0.0977	2274	34.432	156.7	0.34	0.00
COMBUSTOR	0	20	13 21														
46.250	81.454	2772	711.0(907)	1.3077	22.967	2802											
46.250	11.911	1727	342.4(541)	1.3450	22.967	2242	1.915	4295	2.350	0.58389	14.645	0.0979	2254	38.971	153.9	0.64	0.04
COMBUSTOR	0	21	14 21														
46.260	87.970	2685	710.9(877)	1.3118	22.889	2766											
46.260	11.686	1632	342.1(510)	1.3501	22.889	2188	1.964	4296	2.333	0.58363	14.645	0.0980	2254	38.964	153.9	0.64	0.01
COMBUSTOR	0	22	15 21														
46.939	83.915	2662	707.5(869)	1.3127	22.877	2756											
46.939	10.144	1570	326.3(489)	1.3532	22.877	2149	2.032	4367	2.334	0.55561	14.645	0.1099	2255	37.707	154.0	0.64	0.00
COMBUSTOR	0	23	16 21														
47.310	81.913	2654	705.3(866)	1.3130	22.875	2752											
47.310	9.767	1560	323.5(486)	1.3537	22.875	2142	2.041	4371	2.335	0.54100	14.645	0.1057	2254	36.750	153.9	0.64	0.00
COMBUSTOR	0	24	17 21														
48.110	79.426	2641	700.6(861)	1.3134	22.875	2746											
48.110	10.260	1584	331.7(494)	1.3525	22.875	2158	1.991	4297	2.336	0.49724	14.645	0.1150	2256	33.203	154.2	0.64	0.00
COMBUSTOR	0	25	18 21														
48.739	55.087	2894	696.9(948)	1.3016	23.112	2847											
48.739	7.200	1763	296.2(551)	1.3418	23.112	2256	1.985	4476	2.395	0.45276	14.645	0.1263	2271	31.508	155.1	0.64	0.09
COMBUSTOR	0	26	19 21														
50.179	52.000	2625	701.0(915)	1.3149	21.370	2834											
50.179	6.921	1584	313.2(528)	1.3538	21.370	2233	1.973	4405	2.505	0.37111	14.752	0.1552	2295	25.408	155.6	0.88	0.03
COMBUSTOR	0	27	20 21														
50.189	57.211	2531	701.0(880)	1.3192	21.293	2792											
50.189	6.919	1482	313.1(493)	1.3596	21.293	2169	2.031	4405	2.484	0.37063	14.752	0.1554	2295	25.374	155.6	0.88	0.00
COMBUSTOR	0	28	21 21														
50.719	57.353	2513	699.5(874)	1.3200	21.281	2784											
50.719	6.817	1463	312.0(487)	1.3607	21.281	2157	2.042	4404	2.481	0.34663	14.792	0.1662	2309	23.722	156.5	0.88	0.00
COMBUSTOR	0	29	22 21														
52.129	50.528	2503	696.5(870)	1.3204	21.280	2779											
52.129	4.337	1336	268.1(442)	1.3670	21.280	2065	2.242	4630	2.491	0.29542	14.752	0.1950	2340	21.256	156.6	0.88	0.00
COMBUSTOR	0	30	23 21														
54.229	33.025	2487	691.3(867)	1.3209	21.196	2776											
54.229	1.850	1182	214.0(391)	1.3748	21.196	1952	2.504	4887	2.537	0.24270	14.787	0.2379	2359	18.434	159.5	0.89	0.00
COMBUSTOR	0	31	24 21														
54.729	43.286	2481	690.5(865)	1.3212	21.193	2773											
54.729	3.500	1301	257.1(432)	1.3688	21.193	2044	2.278	4657	2.510	0.23279	14.787	0.2480	2363	16.848	159.8	0.89	0.00
COMBUSTOR	0	32	25 21														
55.479	38.809	2477	689.3(863)	1.3213	21.192	2771											
55.479	2.556	1229	232.2(407)	1.3725	21.192	1989	2.404	4782	2.520	0.21944	14.787	0.2631	2370	16.309	160.3	0.89	0.00
COMBUSTOR	0	33	26 21														
55.760	36.401	2476	688.9(863)	1.3214	21.192	2770											
55.760	2.203	1200	222.4(397)	1.3739	21.192	1967	2.456	4831	2.526	0.21485	14.787	0.2687	2372	16.132	160.4	0.89	0.00
COMBUSTOR	0	34	27 21														
56.239	26.720	2599	688.2(908)	1.3156	21.294	2826											
56.239	1.737	1295	207.6(429)	1.3680	21.294	2034	2.411	4904	2.571	0.16976	14.787	0.3401	2405	12.938	162.7	0.89	0.03
COMBUSTOR	0	35	28 21														
57.664	28.946	2488	686.5(867)	1.3209	21.207	2776											
57.664	1.438	1144	196.0(378)	1.3766	21.207	1921	2.578	4954	2.549	0.15691	14.787	0.3679	2413	12.081	163.1	0.89	0.00
COMBUSTOR	0	36	29 21														
57.719	31.581	2472	686.4(861)	1.3215	21.194	2768											
57.719	1.653	1152	204.7(381)	1.3763	21.194	1928	2.546	4910	2.539	0.15646	14.787	0.3690	2413	11.938	163.2	0.89	0.00
COMBUSTOR	0	37	30 21														
57.859	31.587	2469	686.3(860)	1.3216	21.192	2767											
57.859	1.645	1149	204.6(380)	1.3765	21.192	1926	2.549	4910	2.538	0.15534	14.787	0.3717	2413	11.852	163.2	0.89	0.00

READING = 0089 BLOCK = 106 TIME = 283.173 MACH 7.2 PT = 984.249 TT = 5270.4

	P	T	H		GAMMA	MOLWT	SONV	MACH	VEL	S	-/A	R	A/AC	MOMTM	Q	TVAC	PHI	ETAC
COMBUSTOR	0	38	31	21														
57.939	29.706	2471	686.2(	861)	1.3215	21.194	2768											
57.939	1.407	1120	194.0(	370)	1.3779	21.194	1903	2.608	4983	2.544	0.15716	14.787	0.3673	2413	12.121	163.2	0.89	0.00
COMBUSTOR	0	39	32	21														
58.219	29.582	2468	685.9(	860)	1.3216	21.192	2766											
58.219	1.375	1113	192.3(	367)	1.3782	21.192	1897	2.620	4970	2.544	0.15656	14.787	0.3688	2414	12.091	163.2	0.89	0.00
COMBUSTOR	0	40	33	21														
58.445	29.725	2467	685.6(	860)	1.3217	21.192	2766											
58.445	1.381	1112	192.2(	367)	1.3783	21.192	1896	2.620	4969	2.544	0.15635	14.787	0.3693	2414	12.073	163.3	0.89	0.00
COMBUSTOR	0	41	34	21														
59.169	15.358	2933	684.8(	1031)	1.2997	21.581	2964											
59.169	1.400	1631	192.8(	543)	1.3481	21.582	2251	2.205	4962	2.657	0.15385	14.787	0.3783	2415	11.863	163.3	0.89	0.13
COMBUSTOR	0	42	35	21														
60.189	24.212	2533	683.8(	884)	1.3186	21.249	2795											
60.189	1.200	1168	184.9(	385)	1.3750	21.249	1938	2.579	4998	2.572	0.15286	14.787	0.3777	2413	11.874	163.2	0.89	0.02
COMBUSTOR	0	43	36	21														
62.199	27.534	2469	682.1(	860)	1.3215	21.200	2766											
62.199	1.275	1112	188.2(	367)	1.3782	21.200	1896	2.622	4971	2.551	0.15818	14.787	0.3650	2404	12.221	162.6	0.89	0.00
COMBUSTOR	0	44	37	21														
63.619	29.670	2457	681.0(	854)	1.3220	21.193	2760											
63.619	1.456	1124	195.6(	371)	1.3777	21.193	1906	2.586	4929	2.542	0.16247	14.787	0.3553	2398	12.444	162.1	0.89	0.00
COMBUSTOR	0	45	38	21														
66.083	33.095	2450	679.0(	853)	1.3222	21.192	2757											
66.083	2.469	1256	241.5(	416)	1.3711	21.192	2010	2.328	4679	2.531	0.15400	14.787	0.3749	2387	11.197	161.8	0.89	0.00
COMBUSTOR	0	46	39	21														
66.459	30.376	2449	678.7(	853)	1.3223	21.192	2756											
66.459	2.187	1243	237.2(	412)	1.3718	21.192	2000	2.350	4700	2.539	0.14317	14.787	0.4032	2386	10.457	161.4	0.89	0.00
COMBUSTOR REGEN		47	40	4														
66.459	30.376	2497	697.1(	871)	1.3207	21.192	2782											
66.459	3.327	1422	299.5(	474)	1.3628	21.192	2132	2.092	4460	2.546	0.14317	14.787	0.4032	2394	9.924	161.9	0.89	0.00
NOZZLE AE		48	41	4														
88.695	30.376	2449	678.7(	853)	1.3223	21.192	2756											
88.695	0.269	694	51.8(	227)	1.3959	21.192	1508	3.715	5601	2.539	0.02980	14.787	1.9371	2708	2.594	183.1	0.89	0.00
NOZZLE PO		49	42	4														
88.695	30.376	2449	678.7(	853)	1.3223	21.192	2756											
88.695	0.153	591	17.7(	193)	1.3990	21.192	1392	4.131	5751	2.539	0.02040	14.787	2.8306	2754	1.823	186.2	0.89	0.00
NOZZLE AE REGEN		50	43	4														
88.695	30.376	2497	697.1(	871)	1.3207	21.192	2782											
88.695	0.274	713	58.2(	233)	1.3953	21.192	1528	3.700	5654	2.546	0.02980	14.787	1.9372	2735	2.619	184.9	0.89	0.00
NOZZLE PO REGEN		51	44	4														
88.695	30.376	2497	697.1(	871)	1.3207	21.192	2782											
88.695	0.153	604	22.2(	197)	1.3986	21.192	1408	4.128	5811	2.546	0.02015	14.787	2.8653	2783	1.820	188.2	0.89	0.00
FICTIVE COMBUSTR		69	62	0														
66.459	312.533	5461	678.7(	2004)	1.1638	24.149	3617											
66.459	0.153	1204	-1206.2(	361)	1.3399	24.743	1800	5.394	9712	2.513	0.01973	14.787	2.9262	4578	2.978	309.6	0.89	1.00
FICTIVE NOZZLE		70	63	0														
88.695	28.194	2426	669.8(	844)	1.3230	21.192	2744											
88.695	0.277	707	56.1(	231)	1.3955	21.192	1521	3.643	5542	2.542	0.02980	14.787	1.9371	2685	2.567	181.6	0.89	0.00

XABS	P=1B	P=0B	PDA	GDX	G=1B	G=0B	CA=ALL	P=TH/PSC	P=1H/PTC	P=0B/PSC	P=0B/PTC
6.981E=01	6.900E=01	0.000	=2.762E=01	0.000	0.000	0.000	2.470E=02	4.517E 00	6.940E=04	0.000	0.000
1.836E 01	4.900E=01	0.000	=2.294E 01	0.000	0.000	0.000	1.634E 02	4.517E 00	6.940E=04	0.000	0.000
3.070E 01	1.145E 00	0.000	=9.735E 01	0.000	0.000	0.000	5.053E 02	7.496E 00	1.152E=03	0.000	0.000
3.508E 01	2.006E 00	0.000	=1.995E 02	0.000	0.000	0.000	6.804E 02	1.314E 01	2.018E=03	0.000	0.000
3.559E 01	2.168E 00	0.000	=2.185E 02	0.000	0.000	0.000	7.013E 02	1.417E 01	2.178E=03	0.000	0.000
3.606E 01	2.240E 00	0.000	=2.398E 02	=2.239E 02	=2.239E 02	0.000	7.246E 02	1.336E 01	2.052E=03	0.000	0.000
3.648E 01	2.275E 00	0.000	=2.583E 02	=2.293E 02	=2.293E 02	0.000	7.443E 02	1.489E 01	2.288E=03	0.000	0.000
3.660E 01	2.290E 00	3.243E 00	=2.973E 02	=2.309E 02	=2.309E 02	0.000	7.498E 02	1.500E 01	2.304E=03	2.123E 01	3.262E=03
3.660E 01	2.291E 00	3.261E 00	=2.974E 02	=2.310E 02	=2.310E 02	0.000	7.501E 02	1.500E 01	2.304E=03	2.135E 01	3.280E=03
3.701E 01	2.345E 00	4.492E 00	=2.988E 02	=2.365E 02	=2.365E 02	0.000	7.923E 02	1.535E 01	2.359E=03	2.941E 01	4.518E=03
3.727E 01	2.861E 00	5.275E 00	=2.977E 02	=2.401E 02	=2.401E 02	0.000	8.195E 02	1.474E 01	2.264E=03	3.454E 01	5.306E=03
3.803E 01	1.975E 00	8.321E 00	=2.994E 02	=2.515E 02	=2.515E 02	0.000	9.013E 02	1.293E 01	1.986E=03	5.448E 01	8.369E=03
3.873E 01	6.500E 00	1.112E 01	=2.777E 02	=3.384E 02	=2.648E 02	=7.359E 01	9.793E 02	4.256E 01	6.538E=03	7.280E 01	1.118E=02
3.875E 01	4.437E 00	1.106E 01	=2.779E 02	=3.403E 02	=2.653E 02	=7.502E 01	9.817E 02	4.349E 01	6.679E=03	7.243E 01	1.113E=02
3.901E 01	8.320E 00	1.037E 01	=2.830E 02	=3.644E 02	=2.717E 02	=9.270E 01	1.011E 03	5.447E 01	8.368E=03	6.788E 01	1.043E=02
3.950E 01	1.146E 01	9.059E 00	=3.009E 02	=4.120E 02	=2.861E 02	=1.259E 02	1.067E 03	7.503E 01	1.153E=02	5.931E 01	9.111E=03
3.975E 01	1.104E 01	8.394E 00	=3.100E 02	=4.374E 02	=2.947E 02	=1.427E 02	1.096E 03	7.226E 01	1.110E=02	5.495E 01	8.448E=03
4.000E 01	1.061E 01	8.090E 00	=3.166E 02	=4.639E 02	=3.043E 02	=1.597E 02	1.125E 03	6.946E 01	1.067E=02	5.297E 01	8.137E=03
4.022E 01	1.144E 01	7.825E 00	=3.225E 02	=4.876E 02	=3.133E 02	=1.744E 02	1.150E 03	7.492E 01	1.151E=02	5.123E 01	7.870E=03
4.040E 01	1.213E 01	9.072E 00	=3.273E 02	=5.075E 02	=3.209E 02	=1.865E 02	1.172E 03	7.944E 01	1.220E=02	5.940E 01	9.124E=03
4.041E 01	1.217E 01	9.141E 00	=3.274E 02	=5.086E 02	=3.214E 02	=1.872E 02	1.173E 03	7.969E 01	1.224E=02	5.985E 01	9.194E=03
4.073E 01	1.339E 01	1.134E 01	=3.332E 02	=5.441E 02	=3.356E 02	=2.086E 02	1.210E 03	8.765E 01	1.346E=02	7.423E 01	1.140E=02
4.122E 01	1.589E 01	1.962E 00	=3.533E 02	=6.000E 02	=3.590E 02	=2.409E 02	1.260E 03	9.987E 01	1.534E=02	1.285E 01	1.974E=03
4.180E 01	1.632E 01	2.029E 00	=3.731E 02	=6.326E 02	=3.739E 02	=2.591E 02	1.301E 03	1.069E 02	1.642E=02	1.328E 01	2.041E=03
4.246E 01	7.475E 00	2.256E 00	=4.139E 02	=7.420E 02	=4.236E 02	=3.191E 02	1.415E 03	4.894E 01	7.518E=03	1.477E 01	2.269E=03
4.270E 01	8.108E 00	2.314E 00	=4.189E 02	=7.686E 02	=4.356E 02	=3.331E 02	1.444E 03	5.309E 01	8.155E=03	1.515E 01	2.327E=03
4.271E 01	8.134E 00	2.316E 00	=4.191E 02	=7.696E 02	=4.360E 02	=3.336E 02	1.445E 03	5.326E 01	8.181E=03	1.516E 01	2.329E=03
4.278E 01	8.303E 00	2.331E 00	=4.205E 02	=7.761E 02	=4.390E 02	=3.370E 02	1.453E 03	5.436E 01	8.351E=03	1.526E 01	2.345E=03
4.431E 01	1.228E 01	9.381E 00	=4.355E 02	=8.895E 02	=4.904E 02	=3.991E 02	1.638E 03	8.038E 01	1.235E=02	6.142E 01	9.436E=03
4.466E 01	1.355E 01	1.164E 01	=4.374E 02	=9.128E 02	=4.991E 02	=4.134E 02	1.697E 03	8.871E 01	1.363E=02	7.619E 01	1.170E=02
4.550E 01	1.282E 01	1.486E 01	=4.354E 02	=9.428E 02	=5.091E 02	=4.337E 02	1.782E 03	8.393E 01	1.289E=02	9.726E 01	1.494E=02
4.621E 01	1.207E 01	1.194E 01	=4.237E 02	=9.811E 02	=5.193E 02	=4.618E 02	1.870E 03	7.903E 01	1.214E=02	7.815E 01	1.201E=02
4.625E 01	1.203E 01	1.179E 01	=4.230E 02	=9.834E 02	=5.198E 02	=4.636E 02	1.874E 03	7.878E 01	1.210E=02	7.718E 01	1.186E=02
4.626E 01	1.202E 01	1.175E 01	=4.229E 02	=9.841E 02	=5.200E 02	=4.641E 02	1.876E 03	7.872E 01	1.209E=02	7.691E 01	1.182E=02
4.694E 01	1.131E 01	8.975E 00	=4.121E 02	=1.035E 03	=5.294E 02	=5.054E 02	1.959E 03	7.407E 01	1.138E=02	5.876E 01	9.027E=03
4.731E 01	1.092E 01	8.609E 00	=4.083E 02	=1.067E 03	=5.348E 02	=5.318E 02	2.005E 03	7.153E 01	1.099E=02	5.636E 01	8.659E=03
4.811E 01	1.270E 01	7.620E 00	=3.945E 02	=1.155E 03	=5.461E 02	=5.890E 02	2.104E 03	8.315E 01	1.277E=02	5.120E 01	7.865E=03
4.874E 01	7.200E 00	7.200E 00	=3.742E 02	=1.189E 03	=5.550E 02	=6.341E 02	2.182E 03	4.714E 01	7.242E=03	4.714E 01	7.242E=03
5.018E 01	6.921E 00	6.921E 00	=3.218E 02	=1.285E 03	=5.752E 02	=7.099E 02	2.362E 03	4.531E 01	6.961E=03	4.531E 01	6.961E=03
5.019E 01	6.919E 00	6.919E 00	=3.219E 02	=1.286E 03	=5.753E 02	=7.102E 02	2.364E 03	4.530E 01	6.959E=03	4.530E 01	6.959E=03
5.072E 01	6.817E 00	6.817E 00	=3.029E 02	=1.307E 03	=5.827E 02	=7.242E 02	2.430E 03	4.463E 01	6.856E=03	4.463E 01	6.856E=03
5.213E 01	4.337E 00	4.337E 00	=2.613E 02	=1.351E 03	=6.024E 02	=7.488E 02	2.608E 03	2.840E 01	4.363E=03	2.840E 01	4.363E=03
5.423E 01	1.850E 00	1.850E 00	=2.272E 02	=1.408E 03	=6.314E 02	=7.768E 02	2.874E 03	1.211E 01	1.861E=03	1.211E 01	1.861E=03
5.473E 01	1.900E 00	1.900E 00	=2.202E 02	=1.420E 03	=6.383E 02	=7.821E 02	2.938E 03	2.291E 01	3.520E=03	2.291E 01	3.520E=03
5.548E 01	2.556E 00	2.556E 00	=2.085E 02	=1.438E 03	=6.486E 02	=7.895E 02	3.034E 03	1.674E 01	2.571E=03	1.674E 01	2.571E=03
5.576E 01	2.203E 00	2.203E 00	=2.051E 02	=1.445E 03	=6.524E 02	=7.922E 02	3.070E 03	1.442E 01	2.215E=03	1.442E 01	2.215E=03
5.624E 01	1.875E 00	1.600E 00	=1.707E 02	=1.455E 03	=6.580E 02	=7.966E 02	3.102E 03	1.228E 01	1.886E=03	1.048E 01	1.609E=03
5.766E 01	1.438E 00	1.438E 00	=1.899E 02	=1.480E 03	=6.712E 02	=8.087E 02	3.209E 03	9.415E 00	1.446E=03	9.415E 00	1.446E=03
5.772E 01	1.875E 00	1.432E 00	=1.595E 02	=1.481E 03	=6.717E 02	=8.091E 02	3.217E 03	1.228E 01	1.886E=03	9.374E 00	1.440E=03
5.786E 01	1.875E 00	1.416E 00	=1.585E 02	=1.483E 03	=6.730E 02	=8.102E 02	3.234E 03	1.228E 01	1.886E=03	9.270E 00	1.424E=03
5.794E 01	1.407E 00	1.407E 00	=1.580E 02	=1.485E 03	=6.737E 02	=8.109E 02	3.245E 03	9.211E 00	1.415E=03	9.211E 00	1.415E=03
5.822E 01	1.375E 00	1.375E 00	=1.562E 02	=1.489E 03	=6.763E 02	=8.131E 02	3.280E 03	9.002E 00	1.383E=03	9.002E 00	1.383E=03
5.844E 01	1.381E 00	1.381E 00	=1.548E 02	=1.493E 03	=6.783E 02	=8.148E 02	3.309E 03	9.041E 00	1.389E=03	9.041E 00	1.389E=03
5.917E 01	1.400E 00	1.400E 00	=1.511E 02	=1.505E 03	=6.847E 02	=8.205E 02	3.402E 03	9.166E 00	1.408E=03	9.166E 00	1.408E=03
6.019E 01	1.200E 00	1.200E 00	=1.480E 02	=1.520E 03	=6.936E 02	=8.266E 02	3.532E 03	7.856E 00	1.207E=03	7.856E 00	1.207E=03
6.220E 01	1.275E 00	1.275E 00	=1.478E 02	=1.545E 03	=7.098E 02	=8.348E 02	3.790E 03	8.348E 00	1.282E=03	8.348E 00	1.282E=03

XARS	P=IR	P=OR	PRA	QQX	Q=IR	Q=OR	CA=ALI	P=IR/PTO	P=OR/PTO	P=OR/PTO
6.362E 01	1.456E 00	1.456E 00	-1.478E 02	-1.561E 03	-7.194E 02	-8.415E 02	3.972E 03	9.534E 00	1.465E-03	9.534E 00	1.465E-03
6.608E 01	2.469E 00	2.469E 00	-1.478E 02	-1.591E 03	-7.305E 02	-8.605E 02	4.269E 03	1.617E 01	2.484E-03	1.617E 01	2.484E-03
6.646E 01	1.750E 00	2.624E 00	-1.478E 02	-1.596E 03	-7.315E 02	-8.603E 02	4.337E 03	1.146E 01	1.767E-03	1.718E 01	2.639E-03
6.650E 01	1.750E 00	2.640E 00	-1.478E 02	-1.596E 03	-7.317E 02	-8.607E 02	4.342E 03	1.146E 01	1.760E-03	1.724E 01	2.656E-03
6.670E 01	1.834E 00	2.722E 00	-1.478E 02	-1.599E 03	-7.322E 02	-8.647E 02	4.368E 03	1.201E 01	1.844E-03	1.782E 01	2.738E-03
6.836E 01	2.530E 00	1.924E 00	-1.225E 02	-1.619E 03	-7.378E 02	-8.812E 02	4.584E 03	1.656E 01	2.545E-03	1.260E 01	1.935E-03
6.980E 01	1.095E 00	1.231E 00	-8.003E 01	-1.636E 03	-7.421E 02	-8.938E 02	4.761E 03	7.169E 00	1.101E-03	8.062E 00	1.238E-03
7.052E 01	1.106E 00	8.856E-01	-1.206E 01	-1.644E 03	-7.475E 02	-9.017E 02	4.849E 03	7.240E 00	1.112E-03	5.794E 00	8.901E-04
7.113E 01	1.115E 00	8.737E-01	1.008E 01	-1.650E 03	-7.504E 02	-9.074E 02	4.923E 03	7.300E 00	1.121E-03	5.720E 00	8.788E-04
7.251E 01	8.250E-01	8.483E-01	5.305E 01	-1.669E 03	-7.570E 02	-9.171E 02	5.089E 03	5.401E 00	8.298E-04	5.554E 00	8.532E-04
7.404E 01	5.973E-01	8.200E-01	8.979E 01	-1.681E 03	-7.631E 02	-9.182E 02	5.273E 03	3.911E 00	6.008E-04	5.369E 00	8.247E-04
7.419E 01	5.750E-01	7.633E-01	9.274E 01	-1.683E 03	-7.636E 02	-9.195E 02	5.291E 03	3.765E 00	5.783E-04	4.998E 00	7.678E-04
7.494E 01	5.696E-01	4.800E-01	1.132E 02	-1.693E 03	-7.659E 02	-9.271E 02	5.375E 03	3.729E 00	5.729E-04	3.143E 00	4.828E-04
7.494E 01	5.696E-01	4.785E-01	1.142E 02	-1.693E 03	-7.659E 02	-9.271E 02	5.375E 03	3.729E 00	5.729E-04	3.133E 00	4.813E-04
7.627E 01	5.600E-01	0.000	1.261E 02	-1.712E 03	-7.693E 02	-9.431E 02	5.527E 03	3.666E 00	5.632E-04	0.000	0.000
7.912E 01	3.000E-01	0.000	1.433E 02	-1.717E 03	-7.742E 02	-9.431E 02	5.525E 03	1.964E 00	3.017E-04	0.000	0.000
8.302E 01	2.750E-01	0.000	1.556E 02	-1.721E 03	-7.776E 02	-9.431E 02	5.630E 03	1.800E 00	2.766E-04	0.000	0.000
8.583E 01	2.650E-01	0.000	1.616E 02	-1.723E 03	-7.796E 02	-9.431E 02	5.685E 03	1.735E 00	2.665E-04	0.000	0.000
8.849E 01	3.550E-01	0.000	1.691E 02	-1.726E 03	-7.833E 02	-9.431E 02	5.707E 03	2.324E 00	3.571E-04	0.000	0.000
8.849E 01	3.552E-01	0.000	1.691E 02	-1.726E 03	-7.833E 02	-9.431E 02	5.707E 03	2.325E 00	3.572E-04	0.000	0.000

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X	DDRAG	CDRAG	CF	HC
4.040E 01	8.582E 01	8.582E 01	2.300E-03	3.408E-02
4.041E 01	1.667E-01	8.598E 01	2.818E-03	3.508E-02
4.073E 01	5.443E 00	9.143E 01	2.484E-03	3.496E-02
4.122E 01	7.835E 00	9.926E 01	2.470E-03	3.062E-02
4.150E 01	4.492E 00	1.036E 02	2.495E-03	3.188E-02
4.246E 01	1.547E 01	1.192E 02	2.660E-03	1.916E-02
4.270E 01	4.295E 00	1.235E 02	3.139E-03	1.913E-02
4.271E 01	1.769E-01	1.237E 02	2.801E-03	2.057E-02
4.278E 01	1.083E 00	1.248E 02	2.745E-03	2.106E-02
4.431E 01	2.341E 01	1.482E 02	2.741E-03	3.443E-02
4.480E 01	6.827E 00	1.550E 02	2.705E-03	3.797E-02
4.550E 01	9.541E 00	1.646E 02	2.785E-03	4.027E-02
4.621E 01	9.644E 00	1.742E 02	2.776E-03	3.624E-02
4.625E 01	5.287E-01	1.747E 02	3.358E-03	3.264E-02
4.626E 01	1.914E-01	1.749E 02	2.945E-03	3.681E-02
4.694E 01	9.292E 00	1.842E 02	2.857E-03	3.336E-02
4.731E 01	4.878E 00	1.891E 02	2.842E-03	3.238E-02
4.811E 01	9.824E 00	1.989E 02	2.825E-03	3.279E-02
4.874E 01	7.114E 00	2.060E 02	2.794E-03	2.524E-02
5.018E 01	1.582E 01	2.218E 02	3.385E-03	2.051E-02
5.019E 01	1.077E-01	2.219E 02	3.385E-03	2.051E-02
5.072E 01	5.043E 00	2.270E 02	2.795E-03	2.359E-02
5.213E 01	1.102E 01	2.380E 02	2.725E-03	1.682E-02
5.423E 01	1.463E 01	2.526E 02	2.814E-03	8.608E-03
5.473E 01	3.089E 00	2.557E 02	2.681E-03	1.372E-02
5.548E 01	4.252E 00	2.600E 02	2.672E-03	1.086E-02
5.576E 01	1.562E 00	2.615E 02	2.680E-03	9.701E-03
5.624E 01	1.240E 00	2.628E 02	2.601E-03	7.783E-03
5.766E 01	3.609E 00	2.664E 02	2.758E-03	6.402E-03
5.772E 01	2.268E-01	2.666E 02	2.602E-03	7.344E-03
5.786E 01	5.501E-01	2.671E 02	2.602E-03	7.344E-03
5.794E 01	3.199E-01	2.675E 02	2.818E-03	6.516E-03
5.822E 01	1.123E 00	2.686E 02	2.587E-03	6.428E-03
5.844E 01	8.998E-01	2.695E 02	2.578E-03	6.445E-03
5.917E 01	2.881E 00	2.723E 02	2.565E-03	6.481E-03
6.019E 01	4.435E 00	2.768E 02	3.152E-03	5.013E-03
6.220E 01	9.048E 00	2.858E 02	2.672E-03	5.862E-03
6.362E 01	5.894E 00	2.917E 02	2.574E-03	6.005E-03
6.608E 01	9.610E 00	3.013E 02	2.569E-03	9.611E-03
6.646E 01	1.350E 00	3.027E 02	2.599E-03	8.749E-03
6.650E 01	1.243E-01	3.028E 02	2.567E-03	8.652E-03
6.670E 01	5.517E-01	3.033E 02	2.572E-03	8.673E-03
6.836E 01	4.649E 00	3.080E 02	2.557E-03	8.697E-03
6.980E 01	3.179E 00	3.112E 02	2.430E-03	5.488E-03
7.052E 01	1.230E 00	3.124E 02	2.398E-03	4.900E-03
7.113E 01	9.851E-01	3.134E 02	2.397E-03	4.892E-03
7.251E 01	2.098E 00	3.156E 02	2.363E-03	4.311E-03
7.404E 01	2.083E 00	3.176E 02	2.325E-03	3.809E-03
7.419E 01	1.810E-01	3.177E 02	2.315E-03	3.694E-03
7.494E 01	8.063E-01	3.186E 02	2.272E-03	3.059E-03
7.494E 01	1.423E-03	3.186E 02	2.272E-03	3.056E-03
7.627E 01	4.650E-01	3.190E 02	2.277E-03	3.194E-03
7.912E 01	7.405E-01	3.198E 02	2.164E-03	2.018E-03
8.302E 01	6.098E-01	3.204E 02	2.138E-03	1.878E-03
8.583E 01	3.020E-01	3.207E 02	2.122E-03	1.818E-03
8.669E 01	1.368E-01	3.208E 02	2.157E-03	2.240E-03

READING # 0089 BLOCK # 106 TIME # 283.173 MACH .62 PT # 999.249 TT # 327.0

X	CDRAG	CP	HC
8.8895 01	0.000	5.2095 02	2.1575+03

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	=187.	(LBF)
MEASURED THRUST	=117.	(LBF)
CALCULATED SPECIFIC IMPULSE	=663.	(LBF=SEC/LBM)
MEASURED SPECIFIC IMPULSE	=290.	(LBF=SEC/LBM)
CALCULATED THRUST COEFFICIENT	=.1306	
MEASURED THRUST COEFFICIENT	=.0817	

REGENERATIVE-COOLED ENGINE PERFORMANCE CALCULATED

STREAM THRUST	2711.	(LBF)
NET THRUST	=160.	(LBF)
SPECIFIC IMPULSE	=396.	(LBF=SEC/LBM)
THRUST COEFFICIENT	=.1119	

MOMENTUM AND FORCES

INLET FRICTION DRAG	85.8	(LBF)
INLET MOMENTUM CHANGE	=413.1	(LBF)
COMBUSTOR FRICTION DRAG	210.9	(LBF)
COMBUSTOR STRUT DRAG	2.37	(LBF)
COMBUSTOR MOMENTUM CHANGE	=72.	(LBF)
NOZZLE FRICTION DRAG	18.14	(LBF)
NOZZLE STRUT DRAG	0.00	(LBF)
NOZZLE MOMENTUM CHANGE	299.	(LBF)
NOZZLE PRESSURE INTEGRAL	317.	(LBF)
EXTERNAL FRICTION DRAG	66.43	(LBF)
EXTERNAL PRESSURE INTEGRAL	=679.	(LBF)
TOTAL EXTERNAL DRAG	=746.	(LBF)
TOTAL STRUT DRAG	2.37	(LBF)
CAVITY FORCE	=648.	(LBF)
CALCULATED LOAD CELL FORCE	=1580.	(LBF)
MEASURED LOAD CELL FORCE	=1510.	(LBF)

FUEL VACUUM SPECIFIC IMPULSE 0.0, 0.0, 0.0, =143.9, =119.1,

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	1.7190	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	36.603	(IN)
NOZZLE SHROUD TRAILING EDGE	74.943	(IN)
NOZZLE PLUG TRAILING EDGE	88.695	(IN)
STRUT LEADING EDGE	57.459	(IN)
STRUT TRAILING EDGE	66.459	(IN)
COMBUSTOR EXIT	66.459	(IN)

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.9899	
ADDITIVE DRAG COEFFICIENT	0.0000	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.0992	
DELTA PT2	1.0473	(PSI)
TOTAL PRESSURE RECOVERY - SUPERSONIC	0.3143	
TOTAL PRESSURE RECOVERY - SUBSONIC	0.1005	
INLET PROCESS EFFICIENCY - SUPERSONIC	0.9032	
INLET PROCESS EFFICIENCY - SUBSONIC	0.9125	
KINETIC ENERGY EFFICIENCY - SUPERSONIC	0.9246	
KINETIC ENERGY EFFICIENCY - SUBSONIC	0.8756	
ENTHALPY AT P0 - SUPERSONIC	=26.79	(BTL/LBM)
ENTHALPY AT P0 - SUBSONIC	12.63	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0281	
EQUIVALENCE RATIO	0.891	
COMBUSTOR EFFICIENCY	0.000	
TOTAL PRESSURE RATIO	0.0972	
COMBUSTOR EFFECTIVENESS	0.1375	

INJECTOR DISCHARGE COEFFICIENTS 0.9131, 0.5613, 1.0788, 0.7768

NOZZLE

VACUUM STREAM THRUST COEFFICIENT - CS	0.9915	
NOZZLE COEFFICIENT - CT	0.9473	
PROCESS EFFICIENCY	0.9871	
KINETIC ENERGY EFFICIENCY	0.9821	

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	A
1B	42.704	B
1C	44.300	
2A	50.179	D
2C	46.250	E
3A	55.484	
3B	57.650	
4	46.204	

Reading 89

t = 290.37 sec.

Injected fuel did not ignite.

2/13/75

READING = 0089 BLOCK = 114 TYPE = 290.373 MACH 7.2 PT = 994.749 TT = 3271.9

RAMJET PERFORMANCE

S U M M A R Y R E P O R T

	P	T	I		GAMMA	MOLWT	BONV	MACH	VEL	S	A/A	M	A/AC	MOMTM	G	IVAC	PHI	ETAC
WIND TUNNEL		1	0	6														
0.000	994.749	3272	753.5	(876)	1.2850	28.909	2689											
0.000	0.153	321	-52.1	(77)	1.3971	28.908	878	7.235	6349	1.835	0.05663	14.353	0.9896	2871	9.588	200.0		
SPIKE TIP NS		2	0	6														
0.600	11.412	3271	753.5	(876)	1.2840	28.907	2688											
0.600	10.579	3217	736.6	(860)	1.2858	28.907	2667	0.345	920	2.142	0.05663	14.353	0.9896	3092	0.810	215.4		
WIND TUNNEL		3	0	0														
0.000	994.749	3272	753.5	(876)	1.2850	28.909	2689											
0.000	0.173	332	-49.3	(80)	1.3974	28.908	893	7.094	6338	1.835	0.06184	15.674	0.9896	3132	0.091	199.8		
SPIKE TIP NS		4	0	0														
0.600	11.412	3271	753.5	(876)	1.2840	28.907	2688											
0.600	10.398	3204	732.8	(856)	1.2862	28.908	2662	0.383	1019	2.142	0.06184	15.674	0.9896	3132	0.979	199.8		
INLET THROAT		5	0	3														
40.400	295.668	3193	729.1	(853)	1.2873	28.909	2659											
40.400	10.833	1433	224.8	(354)	1.3522	28.908	1826	2.751	5024	1.910	0.71025	14.353	0.0789	2460	55.490	171.4		
INLET UPWSK		6	0	3														
40.400	295.668	3193	729.1	(853)	1.2873	28.909	2659											
40.400	9.344	1379	210.5	(340)	1.3554	28.908	1793	2.841	5094	1.910	0.64569	14.353	0.0868	2480	51.116	172.8		
INLET DNWSK		7	0	4														
40.400	99.945	3193	729.1	(853)	1.2872	28.908	2659											
40.400	86.920	3095	698.9	(823)	1.2902	28.908	2620	0.469	1229	1.985	0.64569	14.353	0.0868	2480	12.330	172.8		
COMBUSTOR	0	8	1	3														
40.410	295.350	3193	729.1	(853)	1.2873	28.909	2659											
40.410	10.837	1434	224.9	(354)	1.3521	28.908	1826	2.751	5023	1.910	0.71016	14.353	0.0789	2460	55.433	171.4		
COMBUSTOR	0	9	2	3														
40.731	286.822	3187	727.2	(851)	1.2875	28.909	2656											
40.731	11.059	1449	229.0	(358)	1.3513	28.908	1835	2.721	4993	1.912	0.71278	14.353	0.0786	2450	55.308	170.7		
COMBUSTOR	0	10	3	4														
41.221	260.048	3177	724.2	(848)	1.2878	28.909	2653											
41.221	11.520	1497	241.7	(371)	1.3485	28.908	1863											
								2.637	4914	1.918	0.70740	14.353	0.0792	2426	54.023	169.0		
COMBUSTOR	0	11	4	4														
41.500	437.903	3172	722.5	(846)	1.2879	28.909	2651											
41.500	11.921	1542	253.7	(383)	1.3461	28.908	1890	2.563	4844	1.923	0.70036	14.353	0.0800	2405	52.717	167.6		
COMBUSTOR	0	12	5	5														
42.460	190.869	3152	716.6	(840)	1.2885	28.909	2643											
42.460	12.330	1634	278.4	(407)	1.3413	28.908	1942	2.411	4682	1.937	0.66085	14.353	0.0848	2357	48.087	164.2		
COMBUSTOR	0	13	6	5														
42.716	184.130	3147	715.0	(839)	1.2887	28.909	2641											
42.716	12.340	1647	281.8	(411)	1.3407	28.908	1949	2.389	4656	1.939	0.65275	14.353	0.0858	2348	47.232	163.6		
COMBUSTOR	0	14	7	5														
42.781	182.196	3146	714.6	(839)	1.2887	28.909	2640											
42.781	12.330	1650	282.7	(412)	1.3405	28.908	1950	2.384	4649	1.939	0.64993	14.353	0.0862	2346	46.958	163.5		
COMBUSTOR	0	15	8	4														
44.310	148.037	3118	706.1	(830)	1.2896	28.908	2630											
44.310	12.287	1720	301.7	(431)	1.3372	28.908	1989	2.262	4498	1.951	0.60107	14.353	0.0932	2300	42.020	160.3		
COMBUSTOR	0	16	9	4														
44.800	139.626	3110	703.6	(828)	1.2898	28.908	2626											
44.800	12.493	1748	309.3	(438)	1.3360	28.908	2004	2.217	4442	1.954	0.59395	14.353	0.0943	2283	41.000	159.1		
COMBUSTOR	0	17	10	4														
45.501	130.856	3098	699.9	(824)	1.2902	28.908	2622											
45.501	12.876	1782	318.7	(448)	1.3345	28.908	2023	2.159	4367	1.957	0.59022	14.353	0.0949	2261	40.060	157.6		
COMBUSTOR	0	18	11	4														
46.216	123.599	3086	696.2	(821)	1.2905	28.908	2617											
46.216	12.731	1795	322.2	(451)	1.3340	28.908	2029	2.132	4326	1.960	0.57397	14.353	0.0976	2248	38.587	156.6		

	P	T	M		GAMMA	BOLMT	SONV	MACH	VEL	S	M/A	M	A/AC	MOMTM	Q	TVAC	PHI	ETAC
COMBUSTOR	0	19	12	21														
46.250	76.722	2980	715.6(	904)	1.2974	24.991	2774											
46.250	10.151	1836	336.8(	533)	1.3370	24.991	2210	1.970	4354	2.234	0.57971	14.531	0.0979	2221	39.224	152.6	0.40	0.07
COMBUSTOR	0	20	13	21														
46.260	84.087	2860	715.6(	869)	1.3031	24.872	2730											
46.260	10.151	1709	336.8(	493)	1.3439	24.872	2140	2.034	4353	2.214	0.57935	14.531	0.0979	2221	39.194	152.8	0.40	0.01
COMBUSTOR	0	21	14	21														
46.941	81.886	2831	711.8(	860)	1.3043	24.854	2718											
46.941	10.135	1697	340.2(	491)	1.3443	24.854	2136	2.019	4312	2.213	0.55154	14.531	0.1029	2215	36.960	152.4	0.40	0.00
COMBUSTOR	0	22	15	21														
47.310	79.965	2823	709.7(	857)	1.3046	24.852	2714											
47.310	9.977	1690	340.4(	490)	1.3448	24.852	2139	2.010	4299	2.214	0.53686	14.531	0.1057	2212	35.868	152.2	0.40	0.00
COMBUSTOR	0	23	16	21														
48.110	76.217	2809	705.2(	852)	1.3051	24.851	2708											
48.110	9.913	1704	343.3(	493)	1.3440	24.851	2140	1.988	4255	2.216	0.49352	14.531	0.1150	2210	32.636	152.3	0.40	0.00
COMBUSTOR	0	24	17	21														
48.741	50.296	3160	701.7(	935)	1.2881	25.214	2833											
48.741	7.225	1999	312.5(	582)	1.3282	25.216	2288	1.929	4413	2.280	0.44922	14.531	0.1263	2227	30.808	153.2	0.40	0.19
COMBUSTOR	0	25	18	21														
50.181	45.993	2779	711.9(	933)	1.3077	22.375	2842											
50.181	7.243	1764	344.1(	568)	1.3439	22.375	2295	1.869	4290	2.492	0.36937	14.683	0.1552	2246	24.626	152.9	0.73	0.05
COMBUSTOR	0	26	19	21														
50.191	51.649	2644	711.8(	886)	1.3139	22.258	2786											
50.191	7.243	1619	344.1(	519)	1.3516	22.258	2211	1.940	4290	2.426	0.36849	14.683	0.1554	2246	24.592	153.0	0.73	0.01
COMBUSTOR	0	27	20	21														
50.721	52.178	2620	710.1(	877)	1.3150	22.241	2775											
50.721	7.250	1598	344.4(	512)	1.3528	22.241	2198	1.946	4278	2.422	0.34500	14.683	0.1662	2261	22.937	154.0	0.73	0.00
COMBUSTOR	0	28	21	21														
52.131	51.600	2609	706.4(	872)	1.3155	22.238	2769											
52.131	7.475	1607	348.5(	515)	1.3524	22.238	2204	1.920	4232	2.421	0.29404	14.683	0.1950	2305	19.338	157.0	0.73	0.00
COMBUSTOR	0	29	22	21														
54.231	33.438	2586	700.1(	868)	1.3162	22.144	2765											
54.231	1.950	1251	227.9(	397)	1.3703	22.144	1962	2.478	4861	2.465	0.24157	14.718	0.2379	2342	16.248	159.2	0.75	0.00
COMBUSTOR	0	30	23	21														
54.731	42.122	2579	699.1(	866)	1.3165	22.140	2761											
54.731	3.350	1356	264.5(	432)	1.3649	22.140	2038	2.288	4664	2.444	0.23170	14.718	0.2480	2346	16.792	159.4	0.75	0.00
COMBUSTOR	0	31	24	21														
55.481	39.011	2575	697.8(	864)	1.3167	22.140	2759											
55.481	2.704	1308	247.5(	415)	1.3676	22.139	2001	2.372	4747	2.450	0.21841	14.718	0.2631	2354	16.112	159.9	0.75	0.00
COMBUSTOR	0	32	25	21														
55.760	37.566	2574	697.3(	864)	1.3167	22.140	2759											
55.760	2.464	1284	240.9(	408)	1.3686	22.139	1987	2.406	4779	2.453	0.21388	14.718	0.2687	2356	15.885	160.1	0.75	0.00
COMBUSTOR	0	33	26	21														
56.241	29.097	2664	696.5(	894)	1.3124	22.219	2797											
56.241	1.925	1340	225.4(	424)	1.3649	22.219	2023	2.400	4855	2.487	0.16897	14.718	0.3401	2389	12.749	162.3	0.75	0.03
COMBUSTOR	0	34	27	21														
57.666	30.319	2580	694.5(	866)	1.3163	22.151	2761											
57.666	1.582	1211	211.4(	384)	1.3723	22.151	1931	2.546	4916	2.473	0.15623	14.718	0.3678	2398	11.936	162.9	0.75	0.00
COMBUSTOR	0	35	28	21														
57.721	31.996	2568	694.4(	861)	1.3169	22.141	2756											
57.721	1.732	1216	217.5(	386)	1.3721	22.141	1936	2.524	4885	2.467	0.15570	14.718	0.3691	2398	11.820	162.9	0.75	0.00
COMBUSTOR	0	36	29	21														
57.861	31.881	2566	694.2(	861)	1.3170	22.140	2755											
57.861	1.709	1212	216.7(	384)	1.3724	22.140	1932	2.530	4888	2.467	0.15464	14.718	0.3716	2399	11.747	163.0	0.75	0.00
COMBUSTOR	0	37	30	21														
57.941	30.408	2566	694.1(	861)	1.3169	22.141	2755											
57.941	1.492	1183	206.9(	375)	1.3739	22.141	1911	2.584	4937	2.471	0.15637	14.718	0.3675	2399	11.998	163.0	0.75	0.00

	W	T	P		GAMMA	SOLNT SONV	MACH	VEL	S	A/A	A	A/AC	PUMTM	G	TVAL	PHI	ETAC
COMBUSTOR	0	38	31	21													
58.221	29.723	2564	693.7(	860)	1.3170	22.140	2754										
58.221	1.400	1169	202.7(	370)	1.3746	22.140	1900	2.609	4957	2.473	0.15594	14.718	0.3645	2400	12.013	163.0	0.75 0.00
COMBUSTOR	0	39	32	21													
58.447	29.785	2563	693.5(	860)	1.3170	22.140	2753										
58.447	1.400	1168	202.4(	370)	1.3746	22.139	1899	2.611	4957	2.472	0.15553	14.718	0.3695	2400	11.982	163.1	0.75 0.00
COMBUSTOR	0	40	33	21													
59.171	20.382	2806	692.6(	946)	1.3057	22.351	2855										
59.171	1.400	1439	202.1(	458)	1.3584	22.351	2085	2.376	4954	2.534	0.15312	14.718	0.3753	2401	11.789	163.1	0.75 0.08
COMBUSTOR	0	41	34	21													
60.191	25.769	2595	691.6(	871)	1.3155	22.171	2767										
60.191	1.200	1182	193.6(	374)	1.3736	22.171	1908	2.616	4992	2.490	0.15215	14.718	0.3777	2400	11.803	163.0	0.75 0.01
COMBUSTOR	0	42	35	21													
62.201	28.340	2560	690.0(	858)	1.3171	22.144	2751										
62.201	1.325	1164	199.2(	369)	1.3748	22.144	1896	2.614	4956	2.476	0.15744	14.718	0.3650	2391	12.125	162.4	0.75 0.00
COMBUSTOR	0	43	36	21													
63.621	29.597	2552	689.0(	856)	1.3174	22.140	2748										
63.621	1.444	1174	204.1(	372)	1.3743	22.140	1903	2.588	4996	2.471	0.16171	14.718	0.3553	2385	12.379	162.0	0.75 0.00
COMBUSTOR	0	44	37	21													
66.085	33.569	2546	686.9(	853)	1.3176	22.140	2745										
66.085	2.701	1340	259.6(	427)	1.3657	22.139	2027	2.281	4624	2.459	0.15328	14.718	0.3749	2375	11.016	161.4	0.75 0.00
COMBUSTOR	0	45	38	21													
66.461	30.748	2545	686.6(	853)	1.3177	22.140	2744										
66.461	2.326	1318	252.1(	420)	1.3669	22.139	2011	2.319	4663	2.467	0.14250	14.718	0.4032	2373	10.386	161.3	0.75 0.00
COMBUSTOR REGEN	46	39	4														
66.461	30.748	2600	707.0(	873)	1.3159	22.140	2772										
66.461	3.286	1479	306.5(	474)	1.3587	22.140	2124	2.108	4477	2.475	0.14250	14.718	0.4032	2387	9.915	162.2	0.75 0.00
NOZZLE AE	47	40	4														
88.697	30.748	2545	686.6(	853)	1.3177	22.140	2744										
88.697	0.268	724	99.1(	227)	1.3947	22.139	1506	3.721	5603	2.467	0.02966	14.718	1.9372	2696	2.583	183.2	0.75 0.00
NOZZLE PD	48	41	4														
88.697	30.748	2545	686.6(	853)	1.3177	22.140	2744										
88.697	0.153	618	25.5(	193)	1.3981	22.140	1392	4.131	5752	2.467	0.02039	14.718	2.8182	2741	1.823	186.3	0.75 0.00
NOZZLE AE REGEN	49	42	4														
88.697	30.748	2600	707.0(	873)	1.3159	22.140	2772										
88.697	0.273	747	66.3(	234)	1.3939	22.139	1529	3.704	5662	2.475	0.02966	14.718	1.9372	2726	2.610	185.2	0.75 0.00
NOZZLE PD REGEN	50	43	4														
88.697	30.748	2600	707.0(	873)	1.3159	22.140	2772										
88.697	0.153	633	30.4(	198)	1.3976	22.140	1410	4.127	5819	2.475	0.02011	14.718	2.8569	2774	1.819	188.5	0.75 0.00
FICTIVE COMBUSTR	68	61	0														
66.461	295.668	5282	686.6(1856)		1.1758	24.944	3818										
66.461	0.193	1092	1020.4(	316)	1.3505	25.329	1702	5.431	9242	2.433	0.02119	14.718	2.7116	4334	3.044	294.5	0.75 1.00
FICTIVE NOZZLE	69	62	0														
88.697	29.649	2524	678.7(	845)	1.3184	22.140	2733										
88.697	0.270	724	59.9(	227)	1.3944	22.140	1508	3.689	5544	2.467	0.02966	14.718	1.9371	2680	2.565	182.1	0.75 0.00

READING # 0049 BLOCK # 114 TIME = 290.373 MACH 7.2 PT = 994.749 TT = 3271.9 PAGE 8

XARB	P=IB	P=OB	PDA	QDX	Q=IB	Q=OB	CA=ALL	P=TH/P80	P=IB/PTO	P=OB/P80	P=OB/PTO
6.981E-01	6.900E-01	0.000	-2.756E-01	0.000	0.000	0.000	2.470E-02	4.516E 00	6.934E-04	0.000	0.000
1.036E 01	6.900E-01	0.000	-2.296E 01	0.000	0.000	0.000	1.634E 02	4.516E 00	6.934E-04	0.000	0.000
3.070E 01	1.140E 00	0.000	-9.714E 01	0.000	0.000	0.000	5.053E 02	7.460E 00	1.146E-03	0.000	0.000
3.508E 01	2.006E 00	0.000	-1.991E 02	0.000	0.000	0.000	6.804E 02	1.313E 01	2.017E-03	0.000	0.000
3.555E 01	2.160E 00	0.000	-2.181E 02	0.000	0.000	0.000	7.013E 02	1.414E 01	2.171E-03	0.000	0.000
3.606E 01	2.050E 00	0.000	-2.395E 02	-1.397E 02	-1.397E 02	0.000	7.244E 02	1.342E 01	2.061E-03	0.000	0.000
3.648E 01	2.272E 00	0.000	-2.579E 02	-1.430E 02	-1.430E 02	0.000	7.443E 02	1.487E 01	2.284E-03	0.000	0.000
3.660E 01	2.287E 00	3.245E 00	-2.971E 02	-1.440E 02	-1.440E 02	0.000	7.499E 02	1.497E 01	2.299E-03	2.124E 01	3.262E-03
3.660E 01	2.288E 00	3.263E 00	-2.972E 02	-1.441E 02	-1.441E 02	0.000	7.502E 02	1.497E 01	2.300E-03	2.136E 01	3.281E-03
3.701E 01	2.340E 00	4.487E 00	-2.983E 02	-1.475E 02	-1.475E 02	0.000	7.922E 02	1.531E 01	2.352E-03	2.936E 01	4.510E-03
3.727E 01	2.248E 00	5.275E 00	-2.974E 02	-1.498E 02	-1.498E 02	0.000	8.196E 02	1.471E 01	2.260E-03	3.452E 01	5.303E-03
3.803E 01	1.980E 00	8.303E 00	-2.793E 02	-1.569E 02	-1.569E 02	0.000	9.012E 02	1.296E 01	1.990E-03	5.434E 01	8.347E-03
3.873E 01	6.515E 00	1.110E 01	-2.776E 02	-2.226E 02	-1.657E 02	-5.716E 01	9.794E 02	4.263E 01	6.549E-03	7.264E 01	1.116E-02
3.875E 01	6.638E 00	1.105E 01	-2.778E 02	-2.241E 02	-1.660E 02	-5.817E 01	9.815E 02	4.344E 01	6.673E-03	7.231E 01	1.111E-02
3.901E 01	8.320E 00	1.035E 01	-2.829E 02	-2.422E 02	-1.703E 02	-7.190E 01	1.011E 03	5.445E 01	8.364E-03	6.775E 01	1.041E-02
3.950E 01	1.135E 01	9.041E 00	-3.006E 02	-2.780E 02	-1.803E 02	-9.770E 01	1.067E 03	7.431E 01	1.141E-02	5.916E 01	9.088E-03
3.973E 01	1.098E 01	8.369E 00	-3.099E 02	-2.973E 02	-1.864E 02	-1.109E 02	1.096E 03	7.185E 01	1.104E-02	5.477E 01	8.413E-03
4.000E 01	1.061E 01	8.067E 00	-3.162E 02	-3.172E 02	-1.933E 02	-1.239E 02	1.125E 03	6.941E 01	1.066E-02	5.279E 01	8.110E-03
4.022E 01	1.111E 01	7.800E 00	-3.221E 02	-3.353E 02	-1.998E 02	-1.355E 02	1.151E 03	7.268E 01	1.116E-02	5.105E 01	7.841E-03
4.040E 01	1.151E 01	8.873E 00	-3.262E 02	-3.501E 02	-2.053E 02	-1.448E 02	1.171E 03	7.533E 01	1.157E-02	5.807E 01	8.920E-03
4.041E 01	1.153E 01	8.933E 00	-3.263E 02	-3.509E 02	-2.056E 02	-1.453E 02	1.173E 03	7.548E 01	1.159E-02	5.846E 01	8.980E-03
4.073E 01	1.226E 01	1.086E 01	-3.310E 02	-3.779E 02	-2.159E 02	-1.621E 02	1.210E 03	8.023E 01	1.232E-02	7.105E 01	1.091E-02
4.122E 01	1.337E 01	1.962E 00	-3.477E 02	-4.200E 02	-2.328E 02	-1.872E 02	1.268E 03	8.749E 01	1.344E-02	1.284E 01	1.973E-03
4.150E 01	1.400E 01	2.028E 00	-3.643E 02	-4.444E 02	-2.432E 02	-2.012E 02	1.301E 03	9.162E 01	1.407E-02	1.327E 01	2.039E-03
4.246E 01	6.750E 00	2.255E 00	-3.983E 02	-5.303E 02	-2.816E 02	-2.487E 02	1.415E 03	4.417E 01	6.786E-03	1.476E 01	2.267E-03
4.272E 01	7.382E 00	2.316E 00	-4.027E 02	-5.527E 02	-2.921E 02	-2.606E 02	1.445E 03	4.831E 01	7.421E-03	1.516E 01	2.328E-03
4.278E 01	7.542E 00	2.331E 00	-4.039E 02	-5.582E 02	-2.948E 02	-2.634E 02	1.453E 03	4.936E 01	7.582E-03	1.526E 01	2.344E-03
4.431E 01	1.132E 01	5.514E 00	-4.286E 02	-6.800E 02	-3.531E 02	-3.249E 02	1.637E 03	7.405E 01	1.138E-02	3.609E 01	5.543E-03
4.480E 01	1.252E 01	6.534E 00	-4.387E 02	-7.169E 02	-3.704E 02	-3.446E 02	1.697E 03	8.197E 01	1.259E-02	4.276E 01	6.569E-03
4.550E 01	1.234E 01	7.994E 00	-4.513E 02	-7.688E 02	-3.940E 02	-3.708E 02	1.783E 03	8.078E 01	1.241E-02	5.231E 01	8.036E-03
4.622E 01	1.216E 01	8.146E 00	-4.552E 02	-8.230E 02	-4.173E 02	-4.056E 02	1.870E 03	7.957E 01	1.222E-02	5.331E 01	8.189E-03
4.625E 01	1.215E 01	8.153E 00	-4.551E 02	-8.256E 02	-4.184E 02	-4.072E 02	1.874E 03	7.951E 01	1.221E-02	5.336E 01	8.196E-03
4.626E 01	1.215E 01	8.155E 00	-4.550E 02	-8.264E 02	-4.187E 02	-4.077E 02	1.875E 03	7.949E 01	1.221E-02	5.337E 01	8.198E-03
4.694E 01	1.197E 01	8.300E 00	-4.517E 02	-8.811E 02	-4.401E 02	-4.410E 02	1.959E 03	7.834E 01	1.203E-02	5.432E 01	8.344E-03
4.731E 01	1.187E 01	8.080E 00	-4.498E 02	-9.115E 02	-4.514E 02	-4.601E 02	2.005E 03	7.771E 01	1.194E-02	5.287E 01	8.122E-03
4.811E 01	1.222E 01	7.602E 00	-4.379E 02	-9.767E 02	-4.750E 02	-5.017E 02	2.104E 03	8.000E 01	1.229E-02	4.975E 01	7.642E-03
4.874E 01	7.225E 00	7.225E 00	-4.177E 02	-1.028E 03	-4.930E 02	-5.345E 02	2.183E 03	4.728E 01	7.263E-03	4.728E 01	7.263E-03
5.018E 01	7.243E 00	7.243E 00	-3.640E 02	-1.123E 03	-5.316E 02	-5.910E 02	2.363E 03	4.740E 01	7.281E-03	4.740E 01	7.281E-03
5.019E 01	7.243E 00	7.243E 00	-3.636E 02	-1.123E 03	-5.319E 02	-5.913E 02	2.364E 03	4.740E 01	7.282E-03	4.740E 01	7.282E-03
5.072E 01	7.250E 00	7.250E 00	-3.436E 02	-1.148E 03	-5.452E 02	-6.026E 02	2.430E 03	4.745E 01	7.288E-03	4.745E 01	7.288E-03
5.213E 01	7.475E 00	7.475E 00	-2.892E 02	-1.203E 03	-5.787E 02	-6.239E 02	2.608E 03	4.892E 01	7.514E-03	4.892E 01	7.514E-03
5.423E 01	1.950E 00	1.950E 00	-2.373E 02	-1.271E 03	-6.228E 02	-6.482E 02	2.870E 03	1.276E 01	1.960E-03	1.276E 01	1.960E-03
5.473E 01	3.350E 00	3.350E 00	-2.304E 02	-1.285E 03	-6.323E 02	-6.527E 02	2.938E 03	2.192E 01	3.368E-03	2.192E 01	3.368E-03
5.548E 01	2.704E 00	2.704E 00	-2.187E 02	-1.305E 03	-6.459E 02	-6.590E 02	3.034E 03	1.770E 01	2.719E-03	1.770E 01	2.719E-03
5.576E 01	2.464E 00	2.464E 00	-2.150E 02	-1.312E 03	-6.507E 02	-6.613E 02	3.069E 03	1.613E 01	2.477E-03	1.613E 01	2.477E-03
5.624E 01	1.800E 00	2.050E 00	-1.809E 02	-1.324E 03	-6.585E 02	-6.651E 02	3.102E 03	1.178E 01	1.809E-03	1.342E 01	2.061E-03
5.767E 01	1.582E 00	1.582E 00	-1.680E 02	-1.354E 03	-6.787E 02	-6.753E 02	3.209E 03	1.035E 01	1.591E-03	1.035E 01	1.591E-03
5.772E 01	1.900E 00	1.564E 00	-1.675E 02	-1.355E 03	-6.790E 02	-6.756E 02	3.217E 03	1.243E 01	1.910E-03	1.024E 01	1.572E-03
5.786E 01	1.900E 00	1.518E 00	-1.665E 02	-1.358E 03	-6.811E 02	-6.746E 02	3.234E 03	1.243E 01	1.910E-03	9.935E 00	1.526E-03
5.794E 01	1.492E 00	1.492E 00	-1.659E 02	-1.359E 03	-6.822E 02	-6.771E 02	3.245E 03	9.763E 00	1.500E-03	9.763E 00	1.500E-03
5.822E 01	1.400E 00	1.400E 00	-1.640E 02	-1.365E 03	-6.854E 02	-6.789E 02	3.280E 03	9.162E 00	1.407E-03	9.162E 00	1.407E-03
5.845E 01	1.400E 00	1.400E 00	-1.627E 02	-1.369E 03	-6.883E 02	-6.804E 02	3.309E 03	9.162E 00	1.407E-03	9.162E 00	1.407E-03
5.917E 01	1.400E 00	1.400E 00	-1.589E 02	-1.381E 03	-6.963E 02	-6.852E 02	3.402E 03	9.162E 00	1.407E-03	9.162E 00	1.407E-03
6.019E 01	1.200E 00	1.200E 00	-1.559E 02	-1.397E 03	-7.061E 02	-6.904E 02	3.532E 03	7.853E 00	1.206E-03	7.853E 00	1.206E-03
6.220E 01	1.325E 00	1.325E 00	-1.556E 02	-1.419E 03	-7.211E 02	-6.979E 02	3.790E 03	8.671E 00	1.332E-03	8.671E 00	1.332E-03
6.362E 01	1.444E 00	1.444E 00	-1.554E 02	-1.434E 03	-7.295E 02	-7.007E 02	3.972E 03	9.448E 00	1.451E-03	9.448E 00	1.451E-03

READING # 0089 BLOCK # 114 TIME # 290,373 MACH 7.2 PT # 994,749 TT # 3271.9

XARB	P=IR	P=OR	PDA	QOX	Q=IR	Q=OR	CA=ALL	P=IR/PTO	P=IR/PSO	P=OR/PSO	P=OR/PTO
6.608E 01	2.701E 00	2.701E 00	-1.556E 02	-1.465E 03	-7.426E 02	-7.221E 02	4.289E 03	1.747E 01	2.715E-03	1.747E 01	2.715E-03
6.646E 01	1.760E 00	2.893E 00	-1.556E 02	-1.470E 03	-7.448E 02	-7.253E 02	4.337E 03	1.152E 01	1.769E-03	1.893E 01	2.908E-03
6.650E 01	1.760E 00	2.913E 00	-1.556E 02	-1.470E 03	-7.446E 02	-7.256E 02	4.342E 03	1.152E 01	1.769E-03	1.906E 01	2.928E-03
6.670E 01	1.843E 00	3.015E 00	-1.556E 02	-1.473E 03	-7.455E 02	-7.273E 02	4.368E 03	1.206E 01	1.853E-03	1.973E 01	3.031E-03
6.836E 01	2.535E 00	2.079E 00	-1.288E 02	-1.493E 03	-7.531E 02	-7.395E 02	4.584E 03	1.659E 01	2.548E-03	1.360E 01	2.089E-03
6.980E 01	1.195E 00	1.246E 00	-4.324E 01	-1.509E 03	-7.592E 02	-7.498E 02	4.761E 03	7.820E 00	1.201E-03	8.286E 00	1.273E-03
7.052E 01	1.165E 00	8.600E-01	-1.362E 01	-1.518E 03	-7.621E 02	-7.562E 02	4.849E 03	7.626E 00	1.171E-03	5.628E 00	8.645E-04
7.113E 01	1.140E 00	8.548E-01	8.828E 00	-1.526E 03	-7.646E 02	-7.611E 02	4.923E 03	7.460E 00	1.146E-03	5.594E 00	8.593E-04
7.251E 01	8.150E-01	8.430E-01	5.176E 01	-1.536E 03	-7.699E 02	-7.663E 02	5.069E 03	5.334E 00	8.193E-04	5.517E 00	8.475E-04
7.404E 01	6.055E-01	8.300E-01	8.853E 01	-1.547E 03	-7.748E 02	-7.726E 02	5.273E 03	3.963E 00	6.087E-04	5.432E 00	8.344E-04
7.419E 01	5.850E-01	7.717E-01	9.152E 01	-1.549E 03	-7.752E 02	-7.737E 02	5.291E 03	3.828E 00	5.881E-04	5.050E 00	7.757E-04
7.494E 01	5.796E-01	4.800E-01	1.122E 02	-1.557E 03	-7.771E 02	-7.803E 02	5.379E 03	3.793E 00	5.826E-04	3.141E 00	4.825E-04
7.494E 01	5.796E-01	4.784E-01	1.131E 02	-1.557E 03	-7.771E 02	-7.803E 02	5.375E 03	3.793E 00	5.826E-04	3.131E 00	4.810E-04
7.627E 01	5.700E-01	0.000	1.253E 02	-1.574E 03	-7.798E 02	-7.942E 02	5.427E 03	3.730E 00	5.730E-04	0.000	0.000
7.912E 01	3.100E-01	0.000	1.429E 02	-1.578E 03	-7.839E 02	-7.942E 02	5.525E 03	2.029E 00	3.116E-04	0.000	0.000
8.302E 01	2.800E-01	0.000	1.559E 02	-1.581E 03	-7.868E 02	-7.942E 02	5.630E 03	1.832E 00	2.815E-04	0.000	0.000
8.583E 01	2.700E-01	0.000	1.616E 02	-1.583E 03	-7.887E 02	-7.942E 02	5.685E 03	1.767E 00	2.714E-04	0.000	0.000
8.869E 01	3.650E-01	0.000	1.693E 02	-1.586E 03	-7.922E 02	-7.942E 02	5.707E 03	2.389E 00	3.669E-04	0.000	0.000
8.870E 01	3.652E-01	0.000	1.693E 02	-1.586E 03	-7.922E 02	-7.942E 02	5.707E 03	2.390E 00	3.671E-04	0.000	0.000

READING = 0089 BLOCK = 114 TIME = 290.373 MACH 7.2 PT = 994.749 TT = 3271.9

X	CDRAG	CDRAG	CF	HC
4.040E 01	8.542E 01	8.542E 01	2.344E-03	3.492E-02
4.041E 01	1.525E-01	8.557E 01	2.345E-03	3.495E-02
4.073E 01	4.897E 00	9.047E 01	2.363E-03	3.542E-02
4.122E 01	7.523E 00	9.799E 01	2.419E-03	3.610E-02
4.150E 01	4.286E 00	1.023E 02	2.461E-03	3.661E-02
4.246E 01	1.443E 01	1.167E 02	2.560E-03	3.827E-02
4.272E 01	3.740E 00	1.205E 02	2.575E-03	3.808E-02
4.278E 01	9.457E-01	1.214E 02	2.579E-03	3.800E-02
4.431E 01	2.147E 01	1.429E 02	2.658E-03	3.454E-02
4.480E 01	6.605E 00	1.495E 02	2.688E-03	3.461E-02
4.550E 01	9.384E 00	1.589E 02	2.725E-03	3.497E-02
4.622E 01	9.414E 00	1.683E 02	2.741E-03	3.425E-02
4.625E 01	5.058E-01	1.688E 02	3.536E-03	2.655E-02
4.626E 01	1.599E-01	1.689E 02	3.004E-03	3.060E-02
4.694E 01	9.436E 00	1.784E 02	2.904E-03	3.094E-02
4.731E 01	4.820E 00	1.832E 02	2.891E-03	3.049E-02
4.811E 01	9.769E 00	1.930E 02	2.876E-03	2.971E-02
4.874E 01	7.127E 00	2.001E 02	2.848E-03	2.344E-02
5.018E 01	1.410E 01	2.162E 02	3.610E-03	1.912E-02
5.019E 01	1.112E-01	2.163E 02	3.610E-03	1.912E-02
5.072E 01	5.131E 00	2.215E 02	2.885E-03	2.318E-02
5.213E 01	1.068E 01	2.321E 02	2.809E-03	2.307E-02
5.423E 01	1.412E 01	2.463E 02	2.834E-03	8.590E-03
5.473E 01	3.096E 00	2.494E 02	2.712E-03	1.276E-02
5.548E 01	4.264E 00	2.536E 02	2.698E-03	1.005E-02
5.576E 01	1.542E 00	2.552E 02	2.698E-03	1.011E-02
5.624E 01	1.235E 00	2.564E 02	2.621E-03	8.046E-03
5.767E 01	3.551E 00	2.599E 02	2.723E-03	6.682E-03
5.772E 01	2.234E-01	2.602E 02	2.615E-03	7.513E-03
5.786E 01	5.461E-01	2.607E 02	2.600E-03	7.259E-03
5.794E 01	3.169E-01	2.610E 02	2.616E-03	6.556E-03
5.822E 01	1.118E 00	2.622E 02	2.607E-03	6.258E-03
5.845E 01	9.005E-01	2.631E 02	2.600E-03	6.292E-03
5.917E 01	2.856E 00	2.659E 02	2.588E-03	6.223E-03
6.019E 01	4.243E 00	2.701E 02	2.915E-03	5.129E-03
6.220E 01	8.571E 00	2.787E 02	2.642E-03	5.868E-03
6.362E 01	5.839E 00	2.846E 02	2.590E-03	6.318E-03
6.608E 01	9.586E 00	2.941E 02	2.594E-03	9.852E-03
6.646E 01	1.343E 00	2.955E 02	2.622E-03	8.797E-03
6.650E 01	1.265E-01	2.956E 02	2.590E-03	8.721E-03
6.670E 01	5.759E-01	2.962E 02	2.601E-03	8.954E-03
6.836E 01	4.820E 00	3.010E 02	2.581E-03	8.606E-03
6.980E 01	3.291E 00	3.043E 02	2.458E-03	5.500E-03
7.052E 01	1.269E 00	3.056E 02	2.419E-03	4.771E-03
7.113E 01	9.996E-01	3.066E 02	2.415E-03	4.715E-03
7.251E 01	2.111E 00	3.087E 02	2.378E-03	4.115E-03
7.404E 01	2.101E 00	3.108E 02	2.344E-03	3.692E-03
7.419E 01	1.839E-01	3.110E 02	2.334E-03	3.542E-03
7.494E 01	8.187E-01	3.118E 02	2.290E-03	2.953E-03
7.494E 01	1.442E-03	3.118E 02	2.289E-03	2.950E-03
7.627E 01	4.727E-01	3.123E 02	2.296E-03	3.107E-03
7.912E 01	7.578E-01	3.130E 02	2.186E-03	1.977E-03
8.302E 01	6.245E-01	3.136E 02	2.155E-03	1.821E-03
8.583E 01	3.078E-01	3.139E 02	2.139E-03	1.763E-03
8.669E 01	1.399E-01	3.141E 02	2.176E-03	2.149E-03
8.870E 01	0.000	3.141E 02	2.176E-03	2.190E-03

180

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	=192.	(LBF)
MEASURED THRUST	=154.	(LBF)
CALCULATED SPECIFIC IMPULSE	=569.	(LBF=SEC/LBM)
MEASURED SPECIFIC IMPULSE	=457.	(LBF=SEC/LBM)
CALCULATED THRUST COEFFICIENT	=.1342	
MEASURED THRUST COEFFICIENT	=.1076	

REGENERATIVE-COOLED ENGINE PERFORMANCE

CALCULATED

STREAM THRUST	2709.	(LBF)
NET THRUST	=163.	(LBF)
SPECIFIC IMPULSE	=482.	(LBF=SEC/LBM)
THRUST COEFFICIENT	=.1136	

MOMENTUM AND FORCES

INLET FRICTION DRAG	85.4	(LBF)
INLET MOMENTUM CHANGE	=411.6	(LBF)
COMBUSTOR FRICTION DRAG	210.1	(LBF)
COMBUSTOR STRUT DRAG	1.58	(LBF)
COMBUSTOR MOMENTUM CHANGE	=87.	(LBF)
NOZZLE FRICTION DRAG	18.60	(LBF)
NOZZLE STRUT DRAG	0.00	(LBF)
NOZZLE MOMENTUM CHANGE	306.	(LBF)
NOZZLE PRESSURE INTEGRAL	325.	(LBF)
EXTERNAL FRICTION DRAG	50.42	(LBF)
EXTERNAL PRESSURE INTEGRAL	=663.	(LBF)
TOTAL EXTERNAL DRAG	=713.	(LBF)
TOTAL STRUT DRAG	1.58	(LBF)
CAVITY FORCE	=609.	(LBF)
CALCULATED LOAD CELL FORCE	=1514.	(LBF)
MEASURED LOAD CELL FORCE	=1476.	(LBF)
FUEL VACUUM SPECIFIC IMPULSE	=151.8,	=122.4.

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	1.7210	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	36.605	(IN)
NOZZLE SHROUD TRAILING EDGE	74.945	(IN)
NOZZLE PLUG TRAILING EDGE	88.697	(IN)
STRUT LEADING EDGE	57.861	(IN)
STRUT TRAILING EDGE	66.461	(IN)
COMBUSTOR EXIT	66.461	(IN)

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.9896	
ADDITIVE DRAG COEFFICIENT	0.0000	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.0992	
DELTA PT2	0.0884	(PSI)
TOTAL PRESSURE RECOVERY = SUPERSONIC	0.2972	
TOTAL PRESSURE RECOVERY = SUBSONIC	0.1005	
INLET PROCESS EFFICIENCY = SUPERSONIC	0.8969	
INLET PROCESS EFFICIENCY = SUBSONIC	0.9109	
KINETIC ENERGY EFFICIENCY = SUPERSONIC	0.9343	
KINETIC ENERGY EFFICIENCY = SUBSONIC	0.8867	
ENTHALPY AT P0 = SUPERSONIC	=23.57	(BTU/LBM)
ENTHALPY AT P0 = SUBSONIC	14.77	(BTU/LBM)

COMBUSTOR

FUEL=AIR RATIO	0.0235	
EQUIVALENCE RATIO	0.745	
COMBUSTOR EFFICIENCY	0.000	
TOTAL PRESSURE RATIO	0.1040	
COMBUSTOR EFFECTIVENESS	0.1481	
INJECTOR DISCHARGE COEFFICIENTS	0.8944,	0.7518,

NOZZLE

VACUUM STREAM THRUST COEFFICIENT = CS	0.9939
NOZZLE COEFFICIENT = CT	0.9498
PROCESS EFFICIENCY	0.9995
KINETIC ENERGY EFFICIENCY	0.9872

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	
1B	42.706	
1C	44.300	
2A	50.181	C
2C	48.250	E
3A	55.471	
3B	57.656	
4	48.206	

Reading 89

t = 294.87 sec.

Injected fuel did not ignite.

READING # 0089 BLOCK # 119 TIME # 294.873 MACH 7.2 PT # 994.499 TT # 3308.6

RAMJET PERFORMANCE

SUMMARY REPORT

	P	T	M	GAMMA	MOLWT	SONV	MACH	VEL	S	A/A	A	A/AC	MOMTM	Q	IVAC	PHI	ETAC
WIND TUNNEL		1	0 6														
0.000	994.499	3309	764.9(887)	1.2839	28.909	2703											
0.000	0.153	325	-51.1(78)	1.3972	28.908	884	7.231	4390	1.838	0.05610	14.211	0.9890	2861	5.571	201.3		
SPIKE TIP NS		2	0 6														
0.600	11.375	3308	764.9(887)	1.2827	28.907	2701											
0.600	10.545	3253	747.8(870)	1.2845	28.907	2681	0.345	925	2.145	0.05610	14.211	0.9890	3080	0.807	216.7		
WIND TUNNEL		3	0 0														
0.000	994.499	3309	764.9(887)	1.2839	28.909	2703											
0.000	0.173	337	-48.2(81)	1.3976	28.908	900	7.090	4379	1.838	0.06124	15.512	0.9890	3119	6.070	201.1		
SPIKE TIP NS		4	0 0														
0.600	11.375	3308	764.9(887)	1.2827	28.907	2701											
0.600	10.366	3240	744.0(867)	1.2850	28.907	2676	0.382	1023	2.145	0.06124	15.512	0.9890	3119	0.974	201.1		
INLET THROAT		5	0 3														
40.400	292.725	3231	741.0(864)	1.2861	28.909	2674											
40.400	10.853	1458	231.3(360)	1.3507	28.908	1840	2.748	5050	1.915	0.70321	14.211	0.0789	2450	59.191	172.4		
INLET UPNRBK		6	0 3														
40.400	292.725	3231	741.0(864)	1.2861	28.909	2674											
40.400	9.361	1403	216.8(346)	1.3539	28.908	1807	2.834	5122	1.915	0.63929	14.211	0.0868	2470	50.884	173.8		
INLET DNNRBK		7	0 4														
40.400	99.539	3231	741.0(864)	1.2860	28.908	2673											
40.400	86.560	3132	710.4(839)	1.2891	28.908	2635	0.869	1237	1.989	0.63929	14.211	0.0868	2470	12.285	173.8		
COMBUSTOR	0	8	1 3														
40.410	292.416	3231	740.9(864)	1.2861	28.909	2673											
40.410	10.857	1459	231.4(360)	1.3507	28.908	1841	2.743	5049	1.915	0.70312	14.211	0.0789	2450	55.174	172.4		
COMBUSTOR	0	9	2 3														
40.731	284.029	3225	738.9(862)	1.2863	28.909	2671											
40.731	11.077	1474	235.5(369)	1.3499	28.908	1850	2.713	5019	1.916	0.70572	14.211	0.0786	2440	55.088	171.7		
COMBUSTOR	0	10	3 4														
41.221	257.574	3215	735.8(859)	1.2866	28.909	2667											
41.221	11.535	1522	248.2(377)	1.3472	28.908	1878	2.630	4939	1.922	0.70039	14.211	0.0792	2416	53.762	170.0		
COMBUSTOR	0	11	4 4														
41.500	235.674	3209	734.0(857)	1.2868	28.909	2665											
41.500	11.934	1567	260.4(389)	1.3447	28.908	1904	2.557	4868	1.928	0.69342	14.211	0.0800	2395	52.458	168.5		
COMBUSTOR	0	12	5 5														
42.460	189.231	3188	727.6(851)	1.2874	28.909	2657											
42.460	12.334	1659	285.2(414)	1.3401	28.908	1956	2.406	4705	1.941	0.65430	14.211	0.0848	2346	47.843	165.1		
COMBUSTOR	0	13	6 5														
42.716	182.606	3183	729.9(850)	1.2876	28.909	2655											
42.716	12.341	1671	288.5(418)	1.3395	28.908	1962	2.384	4679	1.943	0.64628	14.211	0.0858	2338	46.992	164.5		
COMBUSTOR	0	14	7 5														
42.781	180.700	3181	725.5(849)	1.2876	28.909	2654											
42.781	12.330	1675	289.3(418)	1.3393	28.908	1964	2.379	4672	1.943	0.64349	14.211	0.0862	2336	46.720	164.4		
COMBUSTOR	0	15	8 4														
44.310	147.360	3152	716.4(840)	1.2885	28.908	2643											
44.310	12.251	1742	307.6(437)	1.3363	28.908	2001	2.261	4523	1.954	0.59512	14.211	0.0932	2290	41.830	161.2		
COMBUSTOR	0	16	9 4														
44.800	139.237	3143	713.7(838)	1.2888	28.908	2639											
44.800	12.439	1768	314.8(444)	1.3351	28.908	2015	2.217	4468	1.957	0.58806	14.211	0.0943	2274	40.630	160.0		
COMBUSTOR	0	17	10 4														
45.501	130.680	3130	709.8(834)	1.2892	28.908	2634											
45.501	12.803	1801	323.9(453)	1.3337	28.908	2033	2.162	4394	1.960	0.58437	14.211	0.0949	2252	39.907	158.5		
COMBUSTOR	0	18	11 4														
46.216	123.276	3117	705.8(830)	1.2896	28.908	2629											
46.216	12.667	1814	327.5(456)	1.3332	28.908	2040	2.133	4351	1.963	0.58029	14.211	0.0976	2238	38.425	157.5		

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	A/A	W	A/AC	MOMTM	Q	TVAC	PWT	ETAC
COMBUSTOR	0	19	12 21														
46.250	69.595	2993	731.5(939)	1.2977	24.262	2821											
46.250	10.306	1889	354.9(566)	1.3358	24.262	2274	1.909	4341	2.295	0.57554	14.426	0.0979	2205	38.826	152.8	0.48	0.07
COMBUSTOR	0	20	13 21														
46.260	76.212	2850	731.4(891)	1.3044	24.125	2768											
46.260	10.307	1735	355.0(518)	1.3436	24.125	2192	1.980	4340	2.272	0.57519	14.426	0.0979	2205	38.795	152.8	0.48	0.01
COMBUSTOR	0	21	14 21														
46.941	76.246	2818	727.6(881)	1.3058	24.104	2755											
46.941	10.351	1726	359.5(515)	1.3442	24.104	2188	1.962	4291	2.270	0.54757	14.426	0.1029	2197	36.518	152.3	0.48	0.00
COMBUSTOR	0	22	15 21														
47.310	74.435	2809	725.4(877)	1.3062	24.101	2751											
47.310	10.283	1727	361.1(515)	1.3442	24.101	2189	1.951	4270	2.271	0.53302	14.426	0.1057	2193	35.368	152.0	0.48	0.00
COMBUSTOR	0	23	16 21														
48.110	69.712	2795	720.9(873)	1.3066	24.101	2745											
48.110	9.545	1714	357.1(511)	1.3447	24.101	2181	1.956	4266	2.275	0.48998	14.426	0.1150	2194	32.487	152.1	0.48	0.00
COMBUSTOR	0	24	17 21														
48.741	63.040	3262	717.3(1027)	1.2839	24.568	2911											
48.741	7.175	2148	329.6(646)	1.3224	24.570	2398											
							1.837	4404	2.355	0.44599	14.426	0.1263	2207	30.528	153.0	0.48	0.21
COMBUSTOR	0	25	18 21														
50.181	80.402	2775	732.7(980)	1.3091	21.235	2916											
50.181	7.593	1840	375.9(625)	1.3423	21.235	2405	1.757	4225	2.567	0.36773	14.618	0.1552	2222	24.148	152.0	0.92	0.05
COMBUSTOR	0	26	19 21														
50.191	45.908	2608	732.7(918)	1.3168	21.099	2845											
50.191	7.596	1662	375.9(563)	1.3514	21.098	2301	1.837	4225	2.535	0.36726	14.618	0.1554	2222	24.114	152.0	0.92	0.01
COMBUSTOR	0	27	20 21														
50.721	46.773	2579	730.8(907)	1.3181	21.078	2831											
50.721	7.750	1642	378.2(556)	1.3525	21.078	2288	1.836	4201	2.529	0.34347	14.618	0.1662	2238	22.493	153.1	0.92	0.00
COMBUSTOR	0	28	21 21														
52.131	46.501	2565	726.7(902)	1.3186	21.075	2824											
52.131	8.112	1654	384.0(560)	1.3520	21.075	2297	1.803	4141	2.527	0.29273	14.618	0.1950	2286	18.837	156.4	0.92	0.00
COMBUSTOR	0	29	22 21														
54.231	28.753	2544	719.9(897)	1.3194	20.993	2820											
54.231	1.975	1280	250.4(429)	1.3701	20.993	2038	2.378	4847	2.578	0.24050	14.653	0.2379	2328	18.115	158.9	0.92	0.00
COMBUSTOR	0	30	23 21														
54.731	36.759	2537	718.8(894)	1.3197	20.989	2816											
54.731	3.362	1378	286.6(463)	1.3652	20.989	2111	2.203	4650	2.553	0.23067	14.653	0.2480	2331	16.670	159.1	0.92	0.00
COMBUSTOR	0	31	24 21														
55.481	34.349	2533	717.3(893)	1.3198	20.989	2814											
55.481	2.835	1338	272.7(449)	1.3672	20.989	2082	2.266	4717	2.559	0.21744	14.653	0.2631	2339	15.938	159.6	0.92	0.00
COMBUSTOR	0	32	25 21														
55.760	33.311	2531	716.8(892)	1.3199	20.989	2813											
55.760	2.638	1322	267.3(444)	1.3680	20.988	2070	2.291	4743	2.562	0.21293	14.653	0.2687	2341	15.693	159.8	0.92	0.00
COMBUSTOR	0	33	26 21														
56.241	23.122	2660	715.9(940)	1.3138	21.094	2870											
56.241	1.869	1408	246.9(473)	1.3625	21.095	2126	2.278	4844	2.613	0.16822	14.653	0.3401	2369	12.664	161.7	0.92	0.03
COMBUSTOR	0	34	27 21														
57.666	25.626	2542	713.5(896)	1.3192	21.004	2818											
57.666	1.652	1258	237.0(421)	1.3711	21.004	2020	2.417	4883	2.588	0.15553	14.653	0.3678	2379	11.802	162.4	0.92	0.01
COMBUSTOR	0	35	28 21														
57.721	27.228	2525	713.4(890)	1.3200	20.991	2810											
57.721	1.801	1297	243.1(421)	1.3713	20.991	2020	2.401	4851	2.580	0.15501	14.653	0.3691	2380	11.687	162.4	0.92	0.00
COMBUSTOR	0	36	29 21														
57.861	27.100	2522	713.2(889)	1.3201	20.989	2808											
57.861	1.749	1250	241.9(419)	1.3714	20.989	2016	2.409	4856	2.580	0.15395	14.653	0.3716	2380	11.614	162.4	0.92	0.00
COMBUSTOR	0	37	30 21														
57.941	25.550	2524	713.1(890)	1.3200	20.991	2809											
57.941	1.527	1222	231.0(409)	1.3730	20.991	1994	2.464	4911	2.586	0.15568	14.653	0.3675	2360	11.882	162.5	0.92	0.00

READING # 0089 BLOCK # 119 TTRF # 294.873 MACH 7.2 PT # 990.499 TT # 3508.5

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	R/A	A	A/AS	MOMTM	F	TVAC	PHI	ETAC
COMBUSTOR	0	38	31 21														
58.221	24.672	2521	712.6(888)	1.3202	20.989	2808											
58.221	1.400	1203	225.3(402)	1.3740	20.989	1979	2.496	4938	2.589	0.15525	14.653	0.3685	2381	11.914	162.5	0.92	0.00
COMBUSTOR	0	39	32 21														
58.447	24.728	2520	712.3(888)	1.3202	20.989	2807											
58.447	1.400	1202	225.0(401)	1.3741	20.989	1978	2.497	4938	2.588	0.15484	14.653	0.3695	2382	11.884	162.5	0.92	0.00
COMBUSTOR	0	40	33 21														
59.171	12.626	3046	711.3(1084)	1.2950	21.427	3025											
59.171	1.400	1783	224.6(602)	1.3410	21.428	2355	2.095	4935	2.707	0.15204	14.653	0.3753	2382	11.692	162.6	0.92	0.14
COMBUSTOR	0	41	34 21														
60.191	19.679	2594	710.2(915)	1.3167	21.053	2840											
60.191	1.175	1261	215.1(421)	1.3704	21.053	2020	2.464	4977	2.620	0.15147	14.653	0.3777	2380	11.717	162.5	0.92	0.02
COMBUSTOR	0	42	35 21														
62.201	24.117	2521	708.2(888)	1.3200	20.998	2807											
62.201	1.425	1217	225.6(407)	1.3732	20.998	1989	2.471	4914	2.591	0.15674	14.653	0.3650	2371	11.970	161.8	0.92	0.00
COMBUSTOR	0	43	36 21														
63.621	27.780	2507	706.7(883)	1.3206	20.990	2800											
63.621	1.894	1257	243.5(421)	1.3713	20.990	2020	2.383	4814	2.575	0.16099	14.653	0.3593	2369	12.045	161.4	0.92	0.00
COMBUSTOR	0	44	37 21														
66.085	29.256	2498	703.9(880)	1.3209	20.989	2796											
66.085	2.821	1374	285.5(462)	1.3654	20.989	2108	2.170	4576	2.569	0.15260	14.653	0.3749	2355	10.852	160.7	0.92	0.00
COMBUSTOR	0	45	38 21														
66.461	26.587	2497	703.5(879)	1.3210	20.989	2795											
66.461	2.361	1340	274.7(451)	1.3670	20.989	2086	2.221	4632	2.578	0.14187	14.653	0.4032	2353	10.213	160.6	0.92	0.00
COMBUSTOR REGEN		46	39 4														
66.461	26.587	2506	706.9(882)	1.3207	20.989	2800											
66.461	3.686	1518	336.9(513)	1.3584	20.989	2210	1.947	4303	2.579	0.14187	14.653	0.4032	2340	9.487	159.7	0.92	0.00
NOZZLE AE		47	40 4														
88.697	26.587	2497	703.5(879)	1.3210	20.989	2795											
88.697	0.291	763	72.1(249)	1.3939	20.989	1577	3.564	5621	2.578	0.02953	14.653	1.9372	2704	2.580	184.6	0.92	0.00
NOZZLE PD		48	41 4														
88.697	26.587	2497	703.5(879)	1.3210	20.989	2795											
88.697	0.153	627	29.9(206)	1.3980	20.989	1441	4.029	5806	2.578	0.01919	14.653	2.9818	2760	1.731	188.4	0.92	0.00
NOZZLE AE REGEN		49	42 4														
88.697	26.587	2506	706.9(882)	1.3207	20.989	2800											
88.697	0.292	757	73.4(250)	1.3938	20.989	1581	3.561	5630	2.579	0.02953	14.653	1.9372	2709	2.584	184.9	0.92	0.00
NOZZLE PD REGEN		50	43 4														
88.697	26.587	2506	706.9(882)	1.3207	20.989	2800											
88.697	0.153	629	30.6(207)	1.3980	20.989	1444	4.029	5816	2.579	0.01914	14.653	2.9883	2768	1.730	188.7	0.92	0.00
FICTIVE COMBUSTR		68	61 0														
66.461	292.725	5511	703.5(2044)	1.1602	23.919	3646											
66.461	0.183	1273=1	233.7(385)	1.3347	24.614	1853	5.315	9846	2.542	0.01879	14.683	3.0445	4603	2.875	314.1	0.92	1.00
FICTIVE NOZZLE		69	62 0														
88.697	40.636	2473	694.0(870)	1.3218	20.989	2783											
88.697	0.233	620	27.6(204)	1.3982	20.989	1433	4.030	5775	2.534	0.02953	14.653	1.9371	2746	2.650	187.4	0.92	0.00

READING = 0099 BLOCK = 119 TIME = 294.473 MACH 7.2 PT = 944.494 TT = 3308.6 PAGE 8

X*R8	P=IR	P=OR	PTA	OOX	Q=IR	Q=OR	CA*ALL	P=TR/PTO	P=IR/PTO	P=OR/PTO	P=OR/PTO
6.981E-01	6.900E-01	0.000	-2.747E-01	0.000	0.000	0.000	2.470E-02	4.524E 00	6.93AE-04	0.000	0.000
1.836E 01	6.900E-01	0.000	-2.294E 01	0.000	0.000	0.000	1.434E 02	4.524E 00	6.93AE-04	0.000	0.000
3.070E 01	1.140E 00	0.000	-9.714E 01	0.000	0.000	0.000	5.753E 02	7.474E 00	1.146E-03	0.000	0.000
3.504E 01	2.004E 00	0.000	-1.990E 02	0.000	0.000	0.000	6.408E 02	1.314E 01	2.015E-03	0.000	0.000
3.595E 01	2.160E 00	0.000	-2.180E 02	0.000	0.000	0.000	7.013E 02	1.416E 01	2.172E-03	0.000	0.000
3.606E 01	2.050E 00	0.000	-2.394E 02	-1.218E 02	-1.218E 02	0.000	7.24AE 02	1.344E 01	2.061E-03	0.000	0.000
3.64AE 01	2.279E 00	0.000	-2.479E 02	-1.248E 02	-1.248E 02	0.000	7.443E 02	1.494E 01	2.291E-03	0.000	0.000
3.660E 01	2.294E 00	3.254E 00	-2.972E 02	-1.256E 02	-1.256E 02	0.000	7.499E 02	1.504E 01	2.306E-03	2.133E 01	3.272E-03
3.660E 01	2.294E 00	3.272E 00	-2.972E 02	-1.257E 02	-1.257E 02	0.000	7.502E 02	1.504E 01	2.307E-03	2.145E 01	3.290E-03
3.701E 01	2.345E 00	4.490E 00	-2.986E 02	-1.287E 02	-1.287E 02	0.000	7.922E 02	1.537E 01	2.358E-03	2.944E 01	4.515E-03
3.727E 01	2.252E 00	5.275E 00	-2.975E 02	-1.307E 02	-1.307E 02	0.000	8.19AE 02	1.476E 01	2.264E-03	3.459E 01	5.304E-03
3.803E 01	1.980E 00	8.300E 00	-2.794E 02	-1.369E 02	-1.369E 02	0.000	9.012E 02	1.294E 01	1.991E-03	5.442E 01	8.34AE-03
3.873E 01	6.500E 00	1.109E 01	-2.777E 02	-2.058E 02	-1.451E 02	-6.976E 01	9.794E 02	4.262E 01	6.53AE-03	7.274E 01	1.116E-02
3.875E 01	6.423E 00	1.104E 01	-2.779E 02	-2.072E 02	-1.453E 02	-6.183E 01	9.815E 02	4.343E 01	6.660E-03	7.240E 01	1.110E-02
3.901E 01	6.300E 00	1.034E 01	-2.830E 02	-2.260E 02	-1.496E 02	-7.643E 01	1.011E 03	5.442E 01	8.34AE-03	6.779E 01	1.040E-02
3.950E 01	1.130E 01	9.016E 00	-3.006E 02	-2.635E 02	-1.597E 02	-1.039E 02	1.067E 03	7.410E 01	1.137E-02	5.911E 01	9.066E-03
3.975E 01	1.095E 01	8.337E 00	-3.098E 02	-2.838E 02	-1.660E 02	-1.179E 02	1.096E 03	7.181E 01	1.101E-02	5.466E 01	8.384E-03
4.000E 01	1.061E 01	8.059E 00	-3.161E 02	-3.048E 02	-1.730E 02	-1.317E 02	1.129E 03	6.954E 01	1.066E-02	5.284E 01	8.104E-03
4.022E 01	1.111E 01	7.813E 00	-3.220E 02	-3.239E 02	-1.799E 02	-1.440E 02	1.151E 03	7.287E 01	1.117E-02	5.122E 01	7.856E-03
4.040E 01	1.152E 01	8.870E 00	-3.261E 02	-3.395E 02	-1.856E 02	-1.539E 02	1.171E 03	7.556E 01	1.159E-02	5.816E 01	8.919E-03
4.041E 01	1.155E 01	8.929E 00	-3.262E 02	-3.404E 02	-1.859E 02	-1.545E 02	1.173E 03	7.571E 01	1.161E-02	5.854E 01	8.978E-03
4.073E 01	1.228E 01	1.082E 01	-3.310E 02	-3.689E 02	-1.967E 02	-1.722E 02	1.210E 03	8.054E 01	1.235E-02	7.097E 01	1.088E-02
4.122E 01	1.341E 01	1.962E 00	-3.478E 02	-4.133E 02	-2.144E 02	-1.990E 02	1.268E 03	8.792E 01	1.348E-02	1.287E 01	1.973E-03
4.150E 01	1.405E 01	2.026E 00	-3.645E 02	-4.391E 02	-2.253E 02	-2.139E 02	1.301E 03	9.212E 01	1.413E-02	1.328E 01	2.037E-03
4.246E 01	6.750E 00	2.245E 00	-3.987E 02	-5.297E 02	-2.653E 02	-2.644E 02	1.415E 03	4.426E 01	6.787E-03	1.472E 01	2.258E-03
4.272E 01	7.363E 00	2.304E 00	-4.031E 02	-5.535E 02	-2.763E 02	-2.772E 02	1.445E 03	4.827E 01	7.403E-03	1.511E 01	2.317E-03
4.278E 01	7.518E 00	2.319E 00	-4.043E 02	-5.593E 02	-2.791E 02	-2.802E 02	1.453E 03	4.929E 01	7.560E-03	1.520E 01	2.332E-03
4.431E 01	1.118E 01	5.555E 00	-4.254E 02	-6.886E 02	-3.401E 02	-3.499E 02	1.637E 03	7.328E 01	1.124E-02	3.642E 01	5.585E-03
4.480E 01	1.235E 01	6.592E 00	-4.381E 02	-7.278E 02	-3.581E 02	-3.697E 02	1.697E 03	8.097E 01	1.242E-02	4.322E 01	6.628E-03
4.550E 01	1.244E 01	8.075E 00	-4.503E 02	-7.783E 02	-3.829E 02	-4.003E 02	1.783E 03	8.157E 01	1.251E-02	5.294E 01	8.120E-03
4.622E 01	1.253E 01	8.075E 00	-4.547E 02	-8.400E 02	-4.073E 02	-4.327E 02	1.870E 03	8.217E 01	1.260E-02	5.294E 01	8.120E-03
4.625E 01	1.254E 01	8.075E 00	-4.547E 02	-8.427E 02	-4.084E 02	-4.343E 02	1.874E 03	8.220E 01	1.261E-02	5.294E 01	8.120E-03
4.626E 01	1.254E 01	8.075E 00	-4.547E 02	-8.436E 02	-4.087E 02	-4.348E 02	1.875E 03	8.221E 01	1.261E-02	5.294E 01	8.120E-03
4.694E 01	1.263E 01	8.075E 00	-4.528E 02	-8.994E 02	-4.311E 02	-4.684E 02	1.959E 03	8.279E 01	1.270E-02	5.294E 01	8.120E-03
4.731E 01	1.267E 01	7.890E 00	-4.521E 02	-9.301E 02	-4.429E 02	-4.872E 02	2.005E 03	8.310E 01	1.275E-02	5.173E 01	7.934E-03
4.811E 01	1.160E 01	7.490E 00	-4.409E 02	-9.959E 02	-4.677E 02	-5.282E 02	2.104E 03	7.606E 01	1.166E-02	4.911E 01	7.532E-03
4.874E 01	7.175E 00	7.175E 00	-4.208E 02	-1.047E 03	-4.869E 02	-5.607E 02	2.183E 03	4.704E 01	7.215E-03	4.704E 01	7.215E-03
5.018E 01	7.593E 00	7.593E 00	-3.860E 02	-1.145E 03	-5.270E 02	-6.178E 02	2.363E 03	4.978E 01	7.635E-03	4.978E 01	7.635E-03
5.019E 01	7.596E 00	7.596E 00	-3.656E 02	-1.145E 03	-5.272E 02	-6.181E 02	2.364E 03	4.980E 01	7.638E-03	4.980E 01	7.638E-03
5.072E 01	7.750E 00	7.750E 00	-3.444E 02	-1.172E 03	-5.413E 02	-6.389E 02	2.430E 03	5.081E 01	7.793E-03	5.081E 01	7.793E-03
5.213E 01	8.112E 00	8.112E 00	-2.857E 02	-1.233E 03	-5.764E 02	-6.561E 02	2.608E 03	5.319E 01	8.157E-03	5.319E 01	8.157E-03
5.423E 01	1.975E 00	1.975E 00	-2.302E 02	-1.309E 03	-6.228E 02	-6.842E 02	2.874E 03	1.295E 01	1.986E-03	1.295E 01	1.986E-03
5.473E 01	3.362E 00	3.362E 00	-2.233E 02	-1.324E 03	-6.328E 02	-6.916E 02	2.938E 03	2.205E 01	3.381E-03	2.205E 01	3.381E-03
5.548E 01	2.835E 00	2.835E 00	-2.113E 02	-1.346E 03	-6.470E 02	-6.995E 02	3.034E 03	1.859E 01	2.850E-03	1.859E 01	2.850E-03
5.576E 01	2.638E 00	2.638E 00	-2.074E 02	-1.354E 03	-6.521E 02	-7.023E 02	3.069E 03	1.730E 01	2.653E-03	1.730E 01	2.653E-03
5.624E 01	1.437E 00	2.300E 00	-1.785E 02	-1.367E 03	-6.603E 02	-7.072E 02	3.102E 03	9.425E 00	1.445E-03	1.508E 01	2.313E-03
5.767E 01	1.652E 00	1.652E 00	-1.644E 02	-1.402E 03	-6.815E 02	-7.208E 02	3.209E 03	1.083E 01	1.661E-03	1.083E 01	1.661E-03
5.772E 01	1.975E 00	1.627E 00	-1.640E 02	-1.404E 03	-6.822E 02	-7.213E 02	3.217E 03	1.295E 01	1.98AE-03	1.067E 01	1.636E-03
5.786E 01	1.975E 00	1.564E 00	-1.629E 02	-1.407E 03	-6.841E 02	-7.226E 02	3.234E 03	1.295E 01	1.98AE-03	1.025E 01	1.572E-03
5.794E 01	1.527E 00	1.527E 00	-1.623E 02	-1.409E 03	-6.852E 02	-7.233E 02	3.245E 03	1.001E 01	1.53AE-03	1.001E 01	1.536E-03
5.822E 01	1.400E 00	1.400E 00	-1.604E 02	-1.415E 03	-6.888E 02	-7.258E 02	3.280E 03	9.179E 00	1.408E-03	9.179E 00	1.408E-03
5.845E 01	1.400E 00	1.400E 00	-1.590E 02	-1.419E 03	-6.916E 02	-7.277E 02	3.309E 03	9.179E 00	1.408E-03	9.179E 00	1.408E-03
5.917E 01	1.400E 00	1.400E 00	-1.552E 02	-1.434E 03	-7.001E 02	-7.335E 02	3.402E 03	9.179E 00	1.408E-03	9.179E 00	1.408E-03
6.019E 01	1.175E 00	1.175E 00	-1.523E 02	-1.450E 03	-7.104E 02	-7.399E 02	3.532E 03	7.704E 00	1.181E-03	7.704E 00	1.181E-03
6.220E 01	1.425E 00	1.425E 00	-1.520E 02	-1.480E 03	-7.267E 02	-7.542E 02	3.790E 03	9.343E 00	1.433E-03	9.343E 00	1.433E-03
6.362E 01	1.894E 00	1.894E 00	-1.520E 02	-1.502E 03	-7.369E 02	-7.648E 02	3.972E 03	1.242E 01	1.904E-03	1.242E 01	1.904E-03

%ANB	P=1P	P=0H	PPA	QUX	W=1B	G=PE	CA=ALI	P=TB/P80	P=1H/PTO	P=0H/P80	P=0P/PTO
6.606E 01	2.821E 00	2.821E 00	-1.520E 02	-1.542E 03	-7.564E 02	-7.858E 02	4.284E 03	1.649E 01	2.836E-03	1.649E 01	2.836E-03
6.646E 01	1.760E 00	2.962E 00	-1.520E 02	-1.549E 03	-7.596E 02	-7.893E 02	4.337E 03	1.154E 01	1.770E-03	1.942E 01	2.979E-03
6.650E 01	1.760E 00	2.977E 00	-1.520E 02	-1.550E 03	-7.599E 02	-7.896E 02	4.342E 03	1.154E 01	1.770E-03	1.952E 01	2.994E-03
6.670E 01	1.844E 00	3.052E 00	-1.520E 02	-1.553E 03	-7.616E 02	-7.915E 02	4.368E 03	1.209E 01	1.859E-03	2.001E 01	3.069E-03
6.836E 01	2.545E 00	2.854E 00	-1.224E 02	-1.578E 03	-7.731E 02	-8.045E 02	4.584E 03	1.669E 01	2.559E-03	1.871E 01	2.869E-03
6.980E 01	1.220E 00	2.681E 00	-1.244E 01	-1.598E 03	-7.801E 02	-8.178E 02	4.761E 03	7.999E 00	1.227E-03	1.756E 01	2.696E-03
7.052E 01	1.136E 00	2.595E 00	3.472E 01	-1.611E 03	-7.830E 02	-8.283E 02	4.849E 03	7.404E 00	1.142E-03	1.701E 01	2.609E-03
7.113E 01	1.065E 00	2.291E 00	7.167E 01	-1.622E 03	-7.854E 02	-8.369E 02	4.923E 03	6.983E 00	1.071E-03	1.502E 01	2.304E-03
7.251E 01	7.850E-01	1.603E 00	1.349E 02	-1.637E 03	-7.908E 02	-8.458E 02	5.069E 03	5.147E 00	7.893E-04	1.051E 01	1.612E-03
7.404E 01	6.029E-01	8.400E-01	1.791E 02	-1.648E 03	-7.959E 02	-8.524E 02	5.273E 03	3.953E 00	6.062E-04	5.507E 00	8.446E-04
7.419E 01	5.850E-01	7.800E-01	1.821E 02	-1.650E 03	-7.963E 02	-8.539E 02	5.291E 03	3.836E 00	5.882E-04	5.114E 00	7.843E-04
7.494E 01	5.796E-01	4.800E-01	2.029E 02	-1.658E 03	-7.982E 02	-8.600E 02	5.375E 03	3.800E 00	5.828E-04	3.147E 00	4.827E-04
7.494E 01	5.796E-01	4.784E-01	2.038E 02	-1.658E 03	-7.982E 02	-8.600E 02	5.375E 03	3.800E 00	5.828E-04	3.137E 00	4.810E-04
7.627E 01	5.700E-01	0.000	2.160E 02	-1.675E 03	-8.010E 02	-8.737E 02	5.427E 03	3.737E 00	5.732E-04	0.000	0.000
7.912E 01	3.150E-01	0.000	2.337E 02	-1.679E 03	-8.051E 02	-8.737E 02	5.525E 03	2.065E 00	3.167E-04	0.000	0.000
8.302E 01	2.900E-01	0.000	2.466E 02	-1.682E 03	-8.080E 02	-8.737E 02	5.630E 03	1.901E 00	2.916E-04	0.000	0.000
8.583E 01	2.700E-01	0.000	2.528E 02	-1.684E 03	-8.099E 02	-8.737E 02	5.685E 03	1.770E 00	2.715E-04	0.000	0.000
8.869E 01	3.750E-01	0.000	2.606E 02	-1.687E 03	-8.133E 02	-8.737E 02	5.707E 03	2.459E 00	3.771E-04	0.000	0.000
8.870E 01	3.752E-01	0.000	2.606E 02	-1.687E 03	-8.133E 02	-8.737E 02	5.707E 03	2.460E 00	3.773E-04	0.000	0.000

X	DDRAG	CDRAG	CF	MC
4.040E 01	8.929E 01	8.529E 01	2.359E-03	3.490E-02
4.041E 01	1.528E-01	8.544E 01	2.360E-03	3.492E-02
4.073E 01	4.905E 00	9.034E 01	2.370E-03	3.539E-02
4.122E 01	7.533E 00	9.788E 01	2.429E-03	3.606E-02
4.150E 01	4.290E 00	1.022E 02	2.475E-03	3.656E-02
4.246E 01	1.444E 01	1.166E 02	2.574E-03	3.620E-02
4.272E 01	3.741E 00	1.203E 02	2.588E-03	3.600E-02
4.278E 01	9.458E-01	1.213E 02	2.593E-03	3.592E-02
4.431E 01	2.146E 01	1.426E 02	2.669E-03	3.441E-02
4.480E 01	6.601E 00	1.494E 02	2.697E-03	3.445E-02
4.550E 01	9.376E 00	1.587E 02	2.733E-03	3.477E-02
4.622E 01	9.405E 00	1.681E 02	2.750E-03	3.407E-02
4.625E 01	5.132E-01	1.687E 02	3.666E-03	2.621E-02
4.626E 01	1.630E-01	1.688E 02	3.072E-03	3.105E-02
4.694E 01	9.517E 00	1.783E 02	2.957E-03	3.164E-02
4.731E 01	4.842E 00	1.832E 02	2.941E-03	3.138E-02
4.811E 01	9.868E 00	1.930E 02	2.928E-03	2.919E-02
4.874E 01	7.213E 00	2.003E 02	2.905E-03	2.352E-02
5.018E 01	1.645E 01	2.167E 02	3.785E-03	1.929E-02
5.019E 01	1.043E-01	2.168E 02	3.122E-03	2.350E-02
5.072E 01	4.705E 00	2.215E 02	2.960E-03	2.449E-02
5.213E 01	1.069E 01	2.322E 02	2.878E-03	2.482E-02
5.423E 01	1.427E 01	2.465E 02	2.921E-03	8.804E-03
5.473E 01	3.163E 00	2.496E 02	2.786E-03	1.305E-02
5.548E 01	4.343E 00	2.540E 02	2.773E-03	1.144E-02
5.576E 01	1.566E 00	2.555E 02	2.772E-03	1.083E-02
5.624E 01	1.263E 00	2.568E 02	2.720E-03	8.006E-03
5.767E 01	3.672E 00	2.605E 02	2.855E-03	6.943E-03
5.772E 01	2.303E-01	2.607E 02	2.712E-03	7.642E-03
5.786E 01	5.596E-01	2.613E 02	2.692E-03	7.573E-03
5.794E 01	3.256E-01	2.616E 02	2.723E-03	6.769E-03
5.822E 01	1.153E 00	2.628E 02	2.710E-03	6.368E-03
5.845E 01	9.282E-01	2.637E 02	2.701E-03	6.364E-03
5.917E 01	2.943E 00	2.666E 02	2.689E-03	6.335E-03
6.019E 01	4.997E 00	2.712E 02	3.320E-03	4.790E-03
6.220E 01	9.318E 00	2.805E 02	2.782E-03	6.221E-03
6.362E 01	9.952E 00	2.865E 02	2.660E-03	7.836E-03
6.608E 01	9.644E 00	2.961E 02	2.669E-03	1.032E-02
6.646E 01	1.363E 00	2.979E 02	2.698E-03	9.040E-03
6.650E 01	1.851E-01	2.976E 02	2.664E-03	8.934E-03
6.670E 01	5.493E-01	2.982E 02	2.669E-03	9.134E-03
6.836E 01	4.767E 00	3.029E 02	2.680E-03	9.721E-03
6.980E 01	3.684E 00	3.066E 02	2.609E-03	7.763E-03
7.052E 01	1.653E 00	3.083E 02	2.593E-03	7.508E-03
7.113E 01	1.335E 00	3.096E 02	2.574E-03	6.973E-03
7.251E 01	2.652E 00	3.123E 02	2.510E-03	5.481E-03
7.404E 01	2.294E 00	3.146E 02	2.413E-03	3.811E-03
7.419E 01	1.789E-01	3.147E 02	2.403E-03	3.660E-03
7.494E 01	7.961E-01	3.155E 02	2.358E-03	3.044E-03
7.494E 01	1.402E-03	3.155E 02	2.357E-03	3.040E-03
7.627E 01	4.592E-01	3.160E 02	2.364E-03	3.200E-03
7.912E 01	7.410E-01	3.167E 02	2.255E-03	2.069E-03
8.302E 01	6.206E-01	3.173E 02	2.227E-03	1.933E-03
8.583E 01	3.144E-01	3.177E 02	2.205E-03	1.824E-03
8.869E 01	1.379E-01	3.178E 02	2.246E-03	2.306E-03
8.870E 01	0.000	3.178E 02	2.246E-03	2.307E-03

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	=116.	(LBF)
MEASURED THRUST	=125.	(LBF)
CALCULATED SPECIFIC IMPULSE	=279.	(LBF=SEC/LBM)
MEASURED SPECIFIC IMPULSE	=302.	(LBF=SEC/LBM)
CALCULATED THRUST COEFFICIENT	=.0810	
MEASURED THRUST COEFFICIENT	=.0879	

REGENERATIVE-COOLED ENGINE PERFORMANCE

CALCULATED

STREAM THRUST	2751.	(LBF)
NET THRUST	=111.	(LBF)
SPECIFIC IMPULSE	=267.	(LBF=SEC/LBM)
THRUST COEFFICIENT	=.0776	

MOMENTUM AND FORCES

INLET FRICTION DRAG	85.3	(LBF)
INLET MOMENTUM CHANGE	=411.4	(LBF)
COMBUSTOR FRICTION DRAG	212.2	(LBF)
COMBUSTOR STRUT DRAG	1.41	(LBF)
COMBUSTOR MOMENTUM CHANGE	=96.	(LBF)
NOZZLE FRICTION DRAG	20.30	(LBF)
NOZZLE STRUT DRAG	0.00	(LBF)
NOZZLE MOMENTUM CHANGE	392.	(LBF)
NOZZLE PRESSURE INTEGRAL	413.	(LBF)
EXTERNAL FRICTION DRAG	50.51	(LBF)
EXTERNAL PRESSURE INTEGRAL	=663.	(LBF)
TOTAL EXTERNAL DRAG	=713.	(LBF)
TOTAL STRUT DRAG	1.41	(LBF)
CAVITY FORCE	=595.	(LBF)
CALCULATED LOAD CELL FORCE	=1424.	(LBF)
MEASURED LOAD CELL FORCE	=1434.	(LBF)
FUEL VACUUM SPECIFIC IMPULSE	=154.3,	=123.8.

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	1.7210	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	36.605	(IN)
NOZZLE SHROUD TRAILING EDGE	74.945	(IN)
NOZZLE PLUG TRAILING EDGE	88.697	(IN)
STRUT LEADING EDGE	57.861	(IN)
STRUT TRAILING EDGE	66.461	(IN)
COMBUSTOR EXIT	66.461	(IN)

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.9890	
ADDITIVE DRAG COEFFICIENT	0.0000	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.0968	
DELTA PT2	0.0883	(PSI)
TOTAL PRESSURE RECOVERY - SUPERSONIC	0.2943	
TOTAL PRESSURE RECOVERY - SUBSONIC	0.1001	
INLET PROCESS EFFICIENCY - SUPERSONIC	0.8960	
INLET PROCESS EFFICIENCY - SUBSONIC	0.9105	
KINETIC ENERGY EFFICIENCY - SUPERSONIC	0.9347	
KINETIC ENERGY EFFICIENCY - SUBSONIC	0.8872	
ENTHALPY AT P0 - SUPERSONIC	=21.69	(BTU/LBM)
ENTHALPY AT P0 - SUBSONIC	17.09	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0291	
EQUIVALENCE RATIO	0.925	
COMBUSTOR EFFICIENCY	0.000	
TOTAL PRESSURE RATIO	0.0908	
COMBUSTOR EFFECTIVENESS	0.1424	
INJECTOR DISCHARGE COEFFICIENTS	0.8456,	0.7450.

NOZZLE

VACUUM STREAM THRUST COEFFICIENT - CB	1.0153
NOZZLE COEFFICIENT - CT	0.9673
PROCESS EFFICIENCY	1.1337
KINETIC ENERGY EFFICIENCY	1.0304

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	
1B	42.706	
1C	44.300	
2A	50.181	D
2C	46.250	E
3A	55.471	
3B	57.456	
4	46.206	

Reading 89

t = 304.77 sec.

Injected fuel did not ignite.

2-13-75

READING # 0049 BLOCK # 130 TTHR = 304,773 MACH 7.2 PT = 994,499 TT = 3287.2 PAGE 1

RAMJET PERFORMANCE

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S U M M A R Y R E P O R T

	P	T	H		GAMMA	MOLWT	SONV	MACH	VEL	S	A/A	A	A/AC	MOMTM	Q	IVAC	PHI	ETAC
WIND TUNNEL		1	0	6														
0.000	994.499	3287	758.3(	881)	1.2845	28.909	2695											
0.000	0.153	322	-51.7(	77)	1.3972	28.906	880	7.233	6346	1.836	0.05640	14.296	0.9896	2867	5.540	200.6		
SPIKE TIP #8		2	0	6														
0.600	11.387	3286	758.3(	880)	1.2834	28.907	2693											
0.600	10.555	3232	741.2(	864)	1.2853	28.907	2673	0.345	923	2.143	0.05640	14.296	0.9896	3065	0.809	215.8		
WIND TUNNEL		3	0	0														
0.000	994.499	3287	758.3(	881)	1.2845	28.909	2695											
0.000	0.173	334	-48.9(	80)	1.3975	28.908	896	7.093	6355	1.836	0.06153	15.598	0.9896	3125	6.077	200.3		
SPIKE TIP #8		4	0	0														
0.600	11.387	3286	758.3(	880)	1.2834	28.907	2693											
0.600	10.376	3219	737.4(	860)	1.2857	28.907	2668	0.383	1021	2.143	0.06153	15.598	0.9896	3125	0.976	200.3		
INLET THROAT		5	0	3														
40.400	303.370	3190	728.4(	852)	1.2874	28.909	2658											
40.400	10.595	1414	219.8(	349)	1.3533	28.908	1814	2.781	5045	1.908	0.70700	14.296	0.0749	2456	55.429	171.8		
INLET UPWASH		6	0	3														
40.400	303.370	3190	728.4(	852)	1.2874	28.909	2658											
40.400	9.142	1361	205.7(	335)	1.3565	28.908	1782	2.870	5114	1.908	0.64273	14.296	0.0868	2476	51.082	173.2		
INLET DNWASH		7	0	4														
40.400	99.771	3190	728.4(	852)	1.2873	28.908	2658											
40.400	86.870	3093	698.5(	823)	1.2903	28.908	2620	0.467	1223	1.985	0.64273	14.296	0.0868	2476	12.219	173.2		
COMBUSTOR	0	8	1	3														
40.410	303.052	3190	728.3(	852)	1.2874	28.909	2658											
40.410	10.599	1415	219.9(	349)	1.3533	28.908	1815	2.780	5044	1.908	0.70691	14.296	0.0790	2456	55.413	171.8		
COMBUSTOR	0	9	2	3														
40.729	294.306	3184	726.3(	850)	1.2876	28.909	2655											
40.729	10.813	1430	223.8(	353)	1.3524	28.908	1824	2.750	5015	1.910	0.70950	14.296	0.0787	2446	55.290	171.1		
COMBUSTOR	0	10	3	4														
41.219	266.552	3174	723.2(	847)	1.2879	28.909	2651											
41.219	11.266	1477	236.3(	365)	1.3497	28.908	1852	2.665	4936	1.916	0.70421	14.296	0.0793	2422	54.015	169.4		
COMBUSTOR	0	11	4	4														
41.500	243.454	3168	721.4(	845)	1.2881	28.909	2649											
41.500	11.662	1522	248.4(	377)	1.3471	28.908	1878	2.590	4885	1.921	0.69719	14.296	0.0801	2401	52.706	167.9		
COMBUSTOR	0	12	5	5														
42.460	195.199	3147	715.0(	839)	1.2887	28.909	2641											
42.460	12.065	1613	272.7(	402)	1.3424	28.908	1930	2.438	4704	1.935	0.65821	14.296	0.0848	2352	48.121	164.5		
COMBUSTOR	0	13	6	5														
42.714	188.077	3142	713.4(	837)	1.2888	28.909	2639											
42.714	12.061	1625	276.0(	405)	1.3418	28.908	1937	2.416	4678	1.937	0.64953	14.296	0.0859	2344	47.285	164.0		
COMBUSTOR	0	14	7	5														
42.779	186.473	3140	713.0(	837)	1.2889	28.909	2638											
42.779	12.073	1628	276.8(	406)	1.3416	28.908	1938	2.410	4672	1.937	0.64796	14.296	0.0861	2342	47.042	163.8		
COMBUSTOR	0	15	8	4														
44.310	151.695	3111	703.9(	828)	1.2898	28.908	2627											
44.310	11.971	1694	294.6(	424)	1.3384	28.908	1975	2.292	4526	1.948	0.59829	14.296	0.0933	2297	42.079	160.7		
COMBUSTOR	0	16	9	4														
44.600	143.497	3102	701.2(	826)	1.2901	28.908	2623											
44.600	12.154	1719	301.4(	430)	1.3373	28.908	1988	2.249	4473	1.951	0.59159	14.296	0.0943	2281	41.120	159.6		
COMBUSTOR	0	17	10	4														
45.499	135.112	3089	697.3(	822)	1.2904	28.908	2618											
45.499	12.469	1748	309.4(	438)	1.3360	28.908	2004	2.198	4405	1.954	0.58771	14.296	0.0950	2261	40.236	158.1		
COMBUSTOR	0	18	11	4														
46.214	128.438	3077	693.6(	818)	1.2908	28.908	2614											
46.214	12.262	1756	311.4(	440)	1.3357	28.908	2008	2.177	4373	1.956	0.57136	14.296	0.0977	2250	38.628	157.4		

	P	T	P		GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AS	MOMTM	Q	TVAC	PHI	ETAC
COMBUSTOR	0	19	12	21														
46.250	81.904	2992	710.8(	891)	1.2965	25.589	2745											
46.250	9.449	1777	318.0(	502)	1.3387	25.589	2150	2.062	4433	2.188	0.57578	14.442	0.0979	2227	39.668	154.2	0.33	0.07
COMBUSTOR	0	20	13	21														
46.260	90.143	2891	710.7(	860)	1.3012	25.485	2709											
46.260	9.444	1666	310.6(	470)	1.3446	25.485	2090	2.121	4433	2.171	0.57552	14.442	0.0980	2227	39.648	154.2	0.33	0.01
COMBUSTOR	0	21	14	21														
46.939	87.662	2867	707.7(	852)	1.3023	25.470	2699											
46.939	9.113	1650	310.1(	465)	1.3456	25.470	2082	2.121	4415	2.171	0.54748	14.442	0.1029	2222	37.594	153.9	0.33	0.00
COMBUSTOR	0	22	15	21														
47.310	84.908	2860	706.2(	850)	1.3025	25.468	2697											
47.310	8.851	1644	317.0(	463)	1.3459	25.468	2078	2.124	4413	2.172	0.53348	14.442	0.1097	2220	36.586	153.8	0.33	0.00
COMBUSTOR	0	23	16	21														
48.110	79.518	2850	703.0(	846)	1.3029	25.467	2692											
48.110	7.832	1614	308.0(	454)	1.3473	25.467	2060	2.158	4446	2.176	0.49033	14.442	0.1150	2224	33.876	154.1	0.33	0.00
COMBUSTOR	0	24	17	21														
48.739	58.304	3120	700.5(	931)	1.2898	25.753	2787											
48.739	7.075	1890	299.5(	535)	1.3324	25.754	2208	2.032	4480	2.223	0.44647	14.442	0.1263	2240	31.083	155.1	0.33	0.17
COMBUSTOR	0	25	18	21														
50.179	53.488	2826	708.6(	908)	1.3049	23.475	2794											
50.179	6.996	1715	324.1(	526)	1.3445	23.475	2210	1.985	4386	2.354	0.36614	14.555	0.1552	2262	24.958	155.4	0.58	0.05
COMBUSTOR	0	26	19	21														
50.189	59.066	2720	708.5(	872)	1.3098	23.378	2753											
50.189	6.996	1601	324.1(	489)	1.3508	23.378	2145	2.045	4386	2.334	0.36566	14.555	0.1594	2263	24.924	155.5	0.58	0.01
COMBUSTOR	0	27	20	21														
50.719	59.405	2700	707.0(	865)	1.3107	23.364	2744											
50.719	6.967	1584	324.0(	484)	1.3518	23.364	2134	2.051	4378	2.331	0.34198	14.555	0.1662	2277	23.266	156.4	0.58	0.00
COMBUSTOR	0	28	21	21														
52.129	55.983	2687	703.2(	861)	1.3112	23.361	2738											
52.129	5.287	1489	293.9(	453)	1.3565	23.361	2073	2.183	4526	2.334	0.29146	14.555	0.1950	2311	20.300	158.8	0.58	0.00
COMBUSTOR	0	29	22	21														
54.229	39.641	2666	696.9(	857)	1.3119	23.254	2735											
54.229	2.125	1269	222.8(	384)	1.3681	23.254	1927	2.528	4871	2.370	0.23946	14.589	0.2379	2338	16.125	160.3	0.59	0.00
COMBUSTOR	0	30	23	21														
54.729	44.601	2658	695.9(	854)	1.3122	23.250	2731											
54.729	2.829	1323	241.7(	402)	1.3653	23.250	1965	2.426	4768	2.359	0.22967	14.589	0.2480	2341	17.018	160.8	0.59	0.00
COMBUSTOR	0	31	24	21														
55.479	42.494	2654	694.6(	853)	1.3124	23.249	2729											
55.479	2.515	1296	233.5(	393)	1.3667	23.249	1946	2.468	4803	2.362	0.21650	14.589	0.2631	2348	16.161	160.9	0.59	0.00
COMBUSTOR	0	32	25	21														
55.760	41.638	2652	694.1(	852)	1.3125	23.249	2728											
55.760	2.398	1286	230.3(	390)	1.3673	23.249	1939	2.484	4817	2.364	0.21198	14.589	0.2687	2350	15.870	161.0	0.59	0.00
COMBUSTOR	0	33	26	21														
56.239	35.258	2734	693.3(	880)	1.3086	23.325	2762											
56.239	2.178	1358	223.5(	412)	1.3626	23.326	1986	2.441	4848	2.388	0.16749	14.589	0.3401	2368	12.620	163.7	0.59	0.03
COMBUSTOR	0	34	27	21														
57.664	35.977	2657	691.2(	854)	1.3121	23.260	2730											
57.664	1.642	1211	201.9(	366)	1.3712	23.260	1884	2.627	4948	2.377	0.15481	14.589	0.3679	2398	11.904	164.4	0.59	0.00
COMBUSTOR	0	35	28	21														
57.719	36.287	2646	691.1(	850)	1.3126	23.251	2725											
57.719	1.898	1232	212.4(	373)	1.3702	23.251	1900	2.576	4894	2.370	0.15437	14.589	0.3690	2399	11.742	164.4	0.59	0.00
COMBUSTOR	0	36	29	21														
57.859	36.196	2644	690.9(	849)	1.3127	23.249	2724											
57.859	1.870	1227	211.4(	371)	1.3704	23.249	1896	2.583	4898	2.370	0.15326	14.589	0.3717	2399	11.667	164.4	0.59	0.00
COMBUSTOR	0	37	30	21														
57.939	36.161	2644	690.8(	849)	1.3127	23.249	2724											
57.939	1.535	1160	196.5(	356)	1.3730	23.249	1861	2.672	4973	2.375	0.15506	14.589	0.3673	2400	11.984	164.5	0.59	0.00

	P	T	H		GAMMA	MOLWT	GONV	MACH	VEL	S			MOMTM	D	IVEL	PHT	ETAC
COMBUSTOR	0	38	31	21													
58.219	35.241	2642	690.4(	949)	1.3128	23.249	2724										
58.219	1.425	1164	191.5(| 351)	1.3738	23.249	1849	2.702	4997	2.377	0.15447	14.589	0.3688	2400	11.994	164.5	0.59	0.00
COMBUSTOR	0	39	32	21													
58.445	22.276	2935	690.2(	948)	1.2990	23.519	2839										
58.445	1.419	1490	190.9(| 852)	1.3537	23.519	2068	2.421	4998	2.445	0.15426	14.589	0.3693	2401	11.982	164.6	0.59	0.11
COMBUSTOR	0	40	33	21													
59.169	32.342	2683	689.3(	862)	1.3108	23.289	2740										
59.169	1.400	1207	189.9(| 365)	1.3711	23.289	1880	2.659	4999	2.389	0.15179	14.589	0.3753	2401	11.792	164.6	0.59	0.02
COMBUSTOR	0	41	34	21													
60.189	32.234	2643	688.3(	849)	1.3126	23.259	2723										
60.189	1.200	1138	181.3(| 343)	1.3751	23.255	1829	2.753	5037	2.385	0.15082	14.589	0.3777	2400	11.805	164.5	0.59	0.00
COMBUSTOR	0	42	35	21													
62.199	38.826	2633	686.7(	845)	1.3131	23.250	2719										
62.199	1.962	1231	212.6(| 373)	1.3702	23.250	1899	2.564	4871	2.367	0.15606	14.589	0.3650	2392	11.814	164.0	0.59	0.00
COMBUSTOR	0	43	36	21													
63.619	36.547	2629	685.7(	844)	1.3132	23.249	2717										
63.619	1.612	1185	198.2(| 358)	1.3727	23.249	1865	2.648	4939	2.372	0.16030	14.589	0.3593	2386	12.304	163.6	0.59	0.00
COMBUSTOR	0	44	37	21													
66.083	38.310	2624	684.0(	842)	1.3134	23.249	2715										
66.083	2.849	1361	254.1(| 414)	1.3633	23.249	1992	2.329	4638	2.367	0.15194	14.589	0.3749	2377	10.952	162.9	0.59	0.00
COMBUSTOR	0	45	38	21													
66.459	33.384	2662	683.7(	855)	1.3116	23.284	2730										
66.459	2.399	1371	243.8(| 417)	1.3624	23.284	1997	2.349	4692	2.384	0.14126	14.589	0.4032	2375	10.299	162.8	0.59	0.01
COMBUSTOR REGEN	46	39	3														
66.459	33.384	2771	723.0(	894)	1.3080	23.284	2782										
66.459	3.122	1537	297.9(| 470)	1.3539	23.284	2108	2.189	4614	2.398	0.14126	14.589	0.4032	2415	10.129	165.5	0.59	0.01
NOZZLE AE	47	40	4														
88.695	33.384	2662	683.7(	854)	1.3116	23.284	2730										
88.695	0.256	740	47.8(| 221)	1.3936	23.284	1484	3.801	5641	2.384	0.02940	14.589	1.9371	2685	2.578	184.0	0.59	0.01
NOZZLE PO	48	41	4														
88.695	33.384	2662	683.7(	854)	1.3116	23.284	2730										
88.695	0.153	639	17.4(| 190)	1.3970	23.284	1381	4.181	5774	2.384	0.02078	14.589	2.7416	2726	1.844	186.8	0.59	0.01
NOZZLE AE REGEN	49	42	4														
88.695	33.384	2771	723.0(	894)	1.3080	23.284	2782										
88.695	0.266	785	61.3(| 234)	1.3919	23.284	1527	3.767	5754	2.398	0.02940	14.589	1.9372	2741	2.629	187.9	0.59	0.01
NOZZLE PO REGEN	50	43	4														
88.695	33.384	2771	723.0(	894)	1.3080	23.284	2782										
88.695	0.153	671	26.9(| 200)	1.3960	23.284	1414	4.174	5902	2.398	0.02024	14.589	2.8144	2766	1.856	191.0	0.59	0.01
FICTIVE COMBUSTR	68	61	0														
66.459	303.370	4995	683.7(	1670)	1.1934	25.775	5391										
66.459	0.153	942	828.3(| 262)	1.3636	25.985	1568	5.549	8698	2.334	0.02371	14.589	2.4024	4038	3.205	276.8	0.89	1.00
FICTIVE NOZZLE	69	62	0														
88.695	36.451	2639	675.6(	847)	1.3123	23.284	2720										
88.695	0.243	704	37.0(| 210)	1.3949	23.284	1449	3.903	5653	2.373	0.02941	14.589	1.9371	2684	2.583	184.0	0.59	0.01

READING # 0089 BLOCK # 130 TIME # 300.773 MACH 7.2 PT # 994.499 TI # 5287.7

YAWS	P=1R	P=0B	P0A	P0X	Q=1R	Q=0B	CA=ALL	P=1R/P10	P=1R/PT0	P=0B/P80	P=0R/PT0
6.981E-01	5.900E-01	0.000	-2.750E-01	0.000	0.000	0.000	2.470E-02	4.520E 00	6.938E-04	0.000	0.000
1.836E 01	4.900E-01	0.000	-2.296E 01	0.000	0.000	0.000	1.634E 02	4.520E 00	6.938E-04	0.000	0.000
3.070E 01	1.140E 00	0.000	-9.714E 01	0.000	0.000	0.000	5.053E 02	7.467E 00	1.146E-03	0.000	0.000
3.508E 01	2.005E 00	0.000	-1.991E 02	0.000	0.000	0.000	6.402E 02	1.313E 01	2.016E-03	0.000	0.000
3.555E 01	2.135E 00	0.000	-2.180E 02	0.000	0.000	0.000	7.013E 02	1.412E 01	2.167E-03	0.000	0.000
3.606E 01	2.045E 00	0.000	-2.393E 02	-1.880E 02	-1.880E 02	0.000	7.244E 02	1.340E 01	2.056E-03	0.000	0.000
3.648E 01	2.282E 00	0.000	-2.578E 02	-1.926E 02	-1.926E 02	0.000	7.443E 02	1.495E 01	2.294E-03	0.000	0.000
3.660E 01	2.298E 00	3.248E 00	-2.970E 02	-1.939E 02	-1.939E 02	0.000	7.498E 02	1.505E 01	2.311E-03	2.124E 01	3.266E-03
3.660E 01	2.299E 00	3.266E 00	-2.970E 02	-1.940E 02	-1.940E 02	0.000	7.501E 02	1.506E 01	2.312E-03	2.140E 01	3.285E-03
3.701E 01	2.355E 00	4.494E 00	-2.985E 02	-1.986E 02	-1.986E 02	0.000	7.923E 02	1.543E 01	2.368E-03	2.904E 01	4.519E-03
3.727E 01	2.261E 00	5.275E 00	-2.974E 02	-2.016E 02	-2.016E 02	0.000	8.195E 02	1.481E 01	2.274E-03	3.455E 01	5.304E-03
3.803E 01	1.985E 00	8.298E 00	-2.904E 02	-2.111E 02	-2.111E 02	0.000	9.013E 02	1.300E 01	1.996E-03	5.436E 01	8.344E-03
3.873E 01	6.482E 00	1.107E 01	-2.778E 02	-2.874E 02	-2.217E 02	-6.975E 01	9.793E 02	4.246E 01	6.518E-03	7.254E 01	1.114E-02
3.875E 01	6.617E 00	1.102E 01	-2.780E 02	-2.891E 02	-2.220E 02	-6.703E 01	9.817E 02	4.335E 01	6.654E-03	7.217E 01	1.108E-02
3.901E 01	8.290E 00	1.032E 01	-2.831E 02	-3.096E 02	-2.268E 02	-6.282E 01	1.011E 03	5.430E 01	8.336E-03	6.757E 01	1.037E-02
3.950E 01	1.126E 01	8.991E 00	-3.007E 02	-3.495E 02	-2.370E 02	-1.129E 02	1.067E 03	7.379E 01	1.133E-02	5.890E 01	9.041E-03
3.975E 01	1.094E 01	8.319E 00	-3.095E 02	-3.705E 02	-2.429E 02	-1.275E 02	1.096E 03	7.167E 01	1.100E-02	5.449E 01	8.365E-03
4.000E 01	1.062E 01	8.042E 00	-3.162E 02	-3.921E 02	-2.494E 02	-1.426E 02	1.125E 03	6.954E 01	1.067E-02	5.268E 01	8.088E-03
4.022E 01	1.111E 01	7.800E 00	-3.220E 02	-4.113E 02	-2.555E 02	-1.558E 02	1.150E 03	7.276E 01	1.117E-02	5.109E 01	7.843E-03
4.040E 01	1.151E 01	8.858E 00	-3.263E 02	-4.273E 02	-2.606E 02	-1.667E 02	1.172E 03	7.543E 01	1.158E-02	5.802E 01	8.907E-03
4.041E 01	1.154E 01	8.917E 00	-3.264E 02	-4.282E 02	-2.609E 02	-1.673E 02	1.173E 03	7.557E 01	1.160E-02	5.841E 01	8.966E-03
4.073E 01	1.225E 01	1.078E 01	-3.311E 02	-4.568E 02	-2.704E 02	-1.864E 02	1.210E 03	8.027E 01	1.232E-02	7.042E 01	1.084E-02
4.122E 01	1.336E 01	1.962E 00	-3.379E 02	-5.015E 02	-2.862E 02	-2.193E 02	1.268E 03	8.768E 01	1.343E-02	1.285E 01	1.973E-03
4.130E 01	1.399E 01	2.025E 00	-3.646E 02	-5.275E 02	-2.960E 02	-2.318E 02	1.301E 03	9.162E 01	1.406E-02	1.326E 01	2.034E-03
4.246E 01	6.750E 00	2.238E 00	-3.986E 02	-6.180E 02	-3.317E 02	-2.863E 02	1.415E 03	4.421E 01	6.787E-03	1.466E 01	2.251E-03
4.271E 01	7.341E 00	2.295E 00	-4.031E 02	-6.415E 02	-3.414E 02	-3.001E 02	1.445E 03	4.809E 01	7.382E-03	1.503E 01	2.308E-03
4.278E 01	7.493E 00	2.309E 00	-4.042E 02	-6.473E 02	-3.439E 02	-3.034E 02	1.453E 03	4.906E 01	7.534E-03	1.513E 01	2.322E-03
4.431E 01	1.106E 01	5.551E 00	-4.281E 02	-7.766E 02	-3.983E 02	-3.783E 02	1.638E 03	7.244E 01	1.112E-02	3.636E 01	5.582E-03
4.480E 01	1.220E 01	6.589E 00	-4.374E 02	-8.161E 02	-4.144E 02	-4.017E 02	1.697E 03	7.991E 01	1.227E-02	4.316E 01	6.629E-03
4.550E 01	1.156E 01	8.069E 00	-4.484E 02	-8.716E 02	-4.364E 02	-4.352E 02	1.782E 03	7.574E 01	1.163E-02	5.285E 01	8.113E-03
4.621E 01	1.091E 01	8.022E 00	-4.499E 02	-9.235E 02	-4.581E 02	-4.664E 02	1.870E 03	7.147E 01	1.097E-02	5.255E 01	8.067E-03
4.625E 01	1.088E 01	8.020E 00	-4.497E 02	-9.270E 02	-4.592E 02	-4.678E 02	1.874E 03	7.126E 01	1.093E-02	5.253E 01	8.064E-03
4.626E 01	1.087E 01	8.019E 00	-4.497E 02	-9.277E 02	-4.595E 02	-4.682E 02	1.876E 03	7.120E 01	1.093E-02	5.253E 01	8.064E-03
4.694E 01	1.025E 01	7.975E 00	-4.443E 02	-9.710E 02	-4.793E 02	-4.916E 02	1.959E 03	6.714E 01	1.031E-02	5.224E 01	8.019E-03
4.731E 01	9.912E 00	7.789E 00	-4.410E 02	-9.928E 02	-4.899E 02	-5.029E 02	2.005E 03	6.493E 01	9.967E-03	5.102E 01	7.833E-03
4.811E 01	8.275E 00	7.389E 00	-4.254E 02	-1.039E 03	-5.120E 02	-5.271E 02	2.104E 03	5.420E 01	8.321E-03	4.840E 01	7.430E-03
4.874E 01	7.075E 00	7.075E 00	-4.047E 02	-1.075E 03	-5.287E 02	-5.441E 02	2.182E 03	4.634E 01	7.114E-03	4.634E 01	7.114E-03
5.018E 01	6.996E 00	6.996E 00	-3.524E 02	-1.148E 03	-5.648E 02	-5.834E 02	2.362E 03	4.583E 01	7.035E-03	4.583E 01	7.035E-03
5.019E 01	6.996E 00	6.996E 00	-3.521E 02	-1.149E 03	-5.650E 02	-5.836E 02	2.364E 03	4.582E 01	7.034E-03	4.582E 01	7.034E-03
5.072E 01	6.967E 00	6.967E 00	-3.328E 02	-1.172E 03	-5.775E 02	-5.941E 02	2.430E 03	4.563E 01	7.005E-03	4.563E 01	7.005E-03
5.213E 01	5.287E 00	5.287E 00	-2.875E 02	-1.220E 03	-6.088E 02	-6.170E 02	2.606E 03	3.463E 01	5.317E-03	3.463E 01	5.317E-03
5.423E 01	2.125E 00	2.125E 00	-2.467E 02	-1.294E 03	-6.501E 02	-6.439E 02	2.874E 03	1.392E 01	2.137E-03	1.392E 01	2.137E-03
5.473E 01	2.825E 00	2.825E 00	-2.403E 02	-1.308E 03	-6.590E 02	-6.493E 02	2.938E 03	1.850E 01	2.841E-03	1.850E 01	2.841E-03
5.548E 01	2.515E 00	2.515E 00	-2.299E 02	-1.329E 03	-6.717E 02	-6.548E 02	3.034E 03	1.647E 01	2.529E-03	1.647E 01	2.529E-03
5.576E 01	2.398E 00	2.398E 00	-2.264E 02	-1.336E 03	-6.763E 02	-6.595E 02	3.070E 03	1.571E 01	2.412E-03	1.571E 01	2.412E-03
5.624E 01	2.196E 00	2.200E 00	-1.865E 02	-1.347E 03	-6.836E 02	-6.638E 02	3.102E 03	1.412E 01	2.168E-03	1.441E 01	2.212E-03
5.766E 01	1.642E 00	1.642E 00	-1.729E 02	-1.378E 03	-7.025E 02	-6.755E 02	3.209E 03	1.076E 01	1.651E-03	1.076E 01	1.651E-03
5.772E 01	2.175E 00	1.621E 00	-1.724E 02	-1.379E 03	-7.032E 02	-6.759E 02	3.217E 03	1.425E 01	2.187E-03	1.062E 01	1.630E-03
5.786E 01	2.175E 00	1.566E 00	-1.714E 02	-1.382E 03	-7.049E 02	-6.769E 02	3.234E 03	1.425E 01	2.187E-03	1.026E 01	1.575E-03
5.794E 01	1.535E 00	1.535E 00	-1.707E 02	-1.383E 03	-7.058E 02	-6.775E 02	3.245E 03	1.005E 01	1.543E-03	1.005E 01	1.543E-03
5.822E 01	1.425E 00	1.425E 00	-1.688E 02	-1.389E 03	-7.091E 02	-6.795E 02	3.280E 03	9.334E 00	1.433E-03	9.334E 00	1.433E-03
5.844E 01	1.419E 00	1.419E 00	-1.674E 02	-1.393E 03	-7.116E 02	-6.811E 02	3.309E 03	9.295E 00	1.427E-03	9.295E 00	1.427E-03
5.917E 01	1.400E 00	1.400E 00	-1.636E 02	-1.405E 03	-7.191E 02	-6.861E 02	3.402E 03	9.170E 00	1.408E-03	9.170E 00	1.408E-03
6.019E 01	1.200E 00	1.200E 00	-1.606E 02	-1.420E 03	-7.284E 02	-6.918E 02	3.532E 03	7.860E 00	1.207E-03	7.860E 00	1.207E-03
6.220E 01	1.962E 00	1.962E 00	-1.602E 02	-1.443E 03	-7.424E 02	-7.006E 02	3.790E 03	1.285E 01	1.973E-03	1.285E 01	1.973E-03
6.362E 01	1.612E 00	1.612E 00	-1.602E 02	-1.457E 03	-7.495E 02	-7.077E 02	3.972E 03	1.056E 01	1.621E-03	1.056E 01	1.621E-03

XABS	P-IP	P-OP	PDA	DDX	U-IP	Q-OP	CAMBER	P-IP/P50	P-IP/PTO	P-OP/P50	P-OP/PTO
6.608E 01	2.849E 00	2.849E 00	-1.602E 02	-1.463E 03	-7.578E 02	-7.253E 02	4.209E 03	1.866E 01	2.864E-03	1.866E 01	2.864E-03
6.646E 01	1.760E 00	3.037E 00	-1.602E 02	-1.467E 03	-7.584E 02	-7.268E 02	4.337E 03	1.153E 01	1.771E-03	1.989E 01	3.054E-03
6.650E 01	1.760E 00	3.057E 00	-1.602E 02	-1.486E 03	-7.587E 02	-7.289E 02	4.342E 03	1.153E 01	1.770E-03	2.003E 01	3.074E-03
6.670E 01	1.849E 00	3.157E 00	-1.602E 02	-1.490E 03	-7.591E 02	-7.305E 02	4.368E 03	1.209E 01	1.856E-03	2.064E 01	3.175E-03
6.836E 01	2.555E 00	2.192E 00	-1.325E 02	-1.500E 03	-7.635E 02	-7.426E 02	4.584E 03	1.674E 01	2.569E-03	1.436E 01	2.204E-03
6.980E 01	1.190E 00	1.354E 00	-4.459E 01	-1.522E 03	-7.686E 02	-7.538E 02	4.761E 03	7.795E 00	1.197E-03	8.869E 00	1.361E-03
7.052E 01	1.063E 00	9.350E-01	-1.087E 01	-1.533E 03	-7.711E 02	-7.612E 02	4.849E 03	6.962E 00	1.069E-03	6.125E 00	9.402E-04
7.113E 01	9.550E-01	9.177E-01	8.066E 00	-1.541E 03	-7.737E 02	-7.670E 02	4.923E 03	6.256E 00	9.603E-04	6.011E 00	9.227E-04
7.251E 01	8.050E-01	8.785E-01	4.774E 01	-1.552E 03	-7.789E 02	-7.731E 02	5.049E 03	5.273E 00	8.095E-04	5.754E 00	8.833E-04
7.404E 01	6.183E-01	8.350E-01	8.098E 01	-1.564E 03	-7.839E 02	-7.803E 02	5.273E 03	4.050E 00	6.217E-04	5.470E 00	8.396E-04
7.419E 01	6.000E-01	7.758E-01	8.402E 01	-1.566E 03	-7.843E 02	-7.815E 02	5.291E 03	3.930E 00	6.033E-04	5.082E 00	7.801E-04
7.494E 01	5.964E-01	4.800E-01	1.090E 02	-1.575E 03	-7.862E 02	-7.889E 02	5.375E 03	3.907E 00	5.997E-04	3.134E 00	4.827E-04
7.494E 01	5.964E-01	4.784E-01	1.099E 02	-1.575E 03	-7.862E 02	-7.890E 02	5.375E 03	3.906E 00	5.997E-04	3.134E 00	4.811E-04
7.627E 01	5.900E-01	0.000	1.224E 02	-1.593E 03	-7.889E 02	-8.046E 02	5.427E 03	3.865E 00	5.933E-04	0.000	0.000
7.912E 01	3.150E-01	0.000	1.405E 02	-1.598E 03	-7.930E 02	-8.046E 02	5.525E 03	2.063E 00	3.167E-04	0.000	0.000
8.302E 01	3.000E-01	0.000	1.537E 02	-1.600E 03	-7.959E 02	-8.046E 02	5.630E 03	1.965E 00	3.017E-04	0.000	0.000
8.583E 01	2.650E-01	0.000	1.599E 02	-1.602E 03	-7.978E 02	-8.046E 02	5.689E 03	1.736E 00	2.665E-04	0.000	0.000
8.869E 01	3.850E-01	0.000	1.678E 02	-1.606E 03	-8.012E 02	-8.046E 02	5.707E 03	2.522E 00	3.871E-04	0.000	0.000
8.869E 01	3.853E-01	0.000	1.678E 02	-1.606E 03	-8.013E 02	-8.046E 02	5.707E 03	2.524E 00	3.874E-04	0.000	0.000

X	DDRAG	CDRAG	CF	MC
4.040E 01	8.972E 01	8.572E 01	2.32PE-03	3.444E-02
4.041E 01	1.514E-01	8.587E 01	2.328E-03	3.447E-02
4.073E 01	4.A31E 00	9.070E 01	2.347E-03	3.493E-02
4.122E 01	7.469E 00	9.817E 01	2.398E-03	3.561E-02
4.150E 01	4.287E 00	1.025E 02	2.445E-03	3.612E-02
4.246E 01	1.435E 01	1.168E 02	2.543E-03	3.582E-02
4.271E 01	3.687E 00	1.205E 02	2.559E-03	3.560E-02
4.278E 01	9.393E-01	1.214E 02	2.563E-03	3.556E-02
4.431E 01	2.139E 01	1.428E 02	2.639E-03	3.406E-02
4.480E 01	6.570E 00	1.494E 02	2.667E-03	3.411E-02
4.550E 01	9.310E 00	1.587E 02	2.700E-03	3.440E-02
4.621E 01	9.373E 00	1.681E 02	2.715E-03	3.364E-02
4.625E 01	5.300E-01	1.686E 02	3.427E-03	2.551E-02
4.626E 01	1.A75E-01	1.688E 02	3.427E-03	2.551E-02
4.694E 01	1.015E 01	1.789E 02	2.864E-03	2.865E-02
4.731E 01	4.A72E 00	1.838E 02	2.A51E-03	2.797E-02
4.811E 01	9.983E 00	1.937E 02	2.833E-03	2.519E-02
4.874E 01	7.160E 00	2.009E 02	2.801E-03	2.302E-02
5.018E 01	1.569E 01	2.166E 02	3.425E-03	1.918E-02
5.019E 01	1.070E-01	2.167E 02	3.425E-03	1.916E-02
5.072E 01	4.998E 00	2.217E 02	2.815E-03	2.232E-02
5.213E 01	1.077E 01	2.324E 02	2.730E-03	1.803E-02
5.423E 01	1.412E 01	2.466E 02	2.761E-03	8.928E-03
5.473E 01	3.042E 00	2.496E 02	2.674E-03	1.103E-02
5.548E 01	4.236E 00	2.538E 02	2.656E-03	1.003E-02
5.576E 01	1.529E 00	2.554E 02	2.652E-03	9.655E-03
5.624E 01	1.197E 00	2.566E 02	2.553E-03	8.602E-03
5.766E 01	3.426E 00	2.600E 02	2.638E-03	6.736E-03
5.772E 01	2.197E-01	2.602E 02	2.541E-03	7.647E-03
5.786E 01	5.272E-01	2.607E 02	2.527E-03	7.561E-03
5.794E 01	3.061E-01	2.610E 02	2.530E-03	6.559E-03
5.822E 01	1.082E 00	2.621E 02	2.528E-03	6.200E-03
5.844E 01	8.728E-01	2.630E 02	2.522E-03	6.173E-03
5.917E 01	2.968E 00	2.660E 02	2.86AE-03	5.598E-03
6.019E 01	4.205E 00	2.702E 02	2.585E-03	5.320E-03
6.220E 01	7.740E 00	2.779E 02	2.498E-03	7.750E-03
6.362E 01	5.489E 00	2.834E 02	2.499E-03	6.721E-03
6.608E 01	9.272E 00	2.927E 02	2.546E-03	1.002E-02
6.646E 01	1.311E 00	2.940E 02	2.568E-03	8.801E-03
6.650E 01	1.280E-01	2.941E 02	2.990E-03	8.657E-03
6.670E 01	6.065E-01	2.947E 02	2.896E-03	8.886E-03
6.836E 01	5.071E 00	2.998E 02	2.875E-03	8.528E-03
6.980E 01	3.456E 00	3.032E 02	2.450E-03	5.435E-03
7.052E 01	1.312E 00	3.046E 02	2.403E-03	4.549E-03
7.113E 01	1.001E 00	3.056E 02	2.390E-03	4.335E-03
7.251E 01	2.130E 00	3.077E 02	2.366E-03	4.000E-03
7.404E 01	2.171E 00	3.099E 02	2.332E-03	3.577E-03
7.419E 01	1.A9AE-01	3.100E 02	2.322E-03	3.435E-03
7.494E 01	8.450E-01	3.109E 02	2.278E-03	2.862E-03
7.494E 01	1.489E-03	3.109E 02	2.277E-03	2.859E-03
7.627E 01	4.910E-01	3.114E 02	2.28AE-03	3.055E-03
7.912E 01	7.A72E-01	3.122E 02	2.173E-03	1.910E-03
8.302E 01	6.546E-01	3.128E 02	2.151E-03	1.828E-03
8.583E 01	3.190E-01	3.131E 02	2.121E-03	1.65AE-03
8.869E 01	1.445E-01	3.133E 02	2.170E-03	2.176E-03
8.869E 01	0.000	3.133E 02	2.170E-03	2.17AE-03

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	=184.	(LBF)
MEASURED THRUST	=191.	(LBF)
CALCULATED SPECIFIC IMPULSE	=690.	(LBF=SEC/LBM)
MEASURED SPECIFIC IMPULSE	=717.	(LBF=SEC/LBM)
CALCULATED THRUST COEFFICIENT	=.1286	
MEASURED THRUST COEFFICIENT	=.1338	

REGENERATIVE-COOLED ENGINE PERFORMANCE CALCULATED

STREAM THRUST	2740.	(LBF)
NET THRUST	=128.	(LBF)
SPECIFIC IMPULSE	=479.	(LBF=SEC/LBM)
THRUST COEFFICIENT	=.0893	

MOMENTUM AND FORCES

INLET FRICTION DRAG	85.7	(LBF)
INLET MOMENTUM CHANGE	=412.0	(LBF)
COMBUSTOR FRICTION DRAG	208.3	(LBF)
COMBUSTOR STRUT DRAG	1.89	(LBF)
COMBUSTOR MOMENTUM CHANGE	=81.	(LBF)
NOZZLE FRICTION DRAG	19.31	(LBF)
NOZZLE STRUT DRAG	0.00	(LBF)
NOZZLE MOMENTUM CHANGE	309.	(LBF)
NOZZLE PRESSURE INTEGRAL	328.	(LBF)
EXTERNAL FRICTION DRAG	50.27	(LBF)
EXTERNAL PRESSURE INTEGRAL	=662.	(LBF)
TOTAL EXTERNAL DRAG	=712.	(LBF)
TOTAL STRUT DRAG	1.89	(LBF)
CAVITY FORCE	=579.	(LBF)
CALCULATED LOAD CELL FORCE	=1476.	(LBF)
MEASURED LOAD CELL FORCE	=1483.	(LBF)
FUEL VACUUM SPECIFIC IMPULSE	=153.7, =123.7.	

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	1.7190	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	36.603	(IN)
NOZZLE SHROUD TRAILING EDGE	74.943	(IN)
NOZZLE PLUG TRAILING EDGE	68.695	(IN)
STRUT LEADING EDGE	57.859	(IN)
STRUT TRAILING EDGE	66.459	(IN)
COMBUSTOR EXIT	66.459	(IN)

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.9896	
ADDITIVE DRAG COEFFICIENT	0.0000	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.0990	
DELTA PT2	0.0878	(PSI)
TOTAL PRESSURE RECOVERY = SUPERSONIC	0.3050	
TOTAL PRESSURE RECOVERY = SUBSONIC	0.1003	
INLET PROCESS EFFICIENCY = SUPERSONIC	0.8998	
INLET PROCESS EFFICIENCY = SUBSONIC	0.9116	
KINETIC ENERGY EFFICIENCY = SUPERSONIC	0.9295	
KINETIC ENERGY EFFICIENCY = SUBSONIC	0.8812	
ENTHALPY AT P0 = SUPERSONIC	=24.48	(BTU/LBM)
ENTHALPY AT P0 = SUBSONIC	14.66	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0186	
EQUIVALENCE RATIO	0.591	
COMBUSTOR EFFICIENCY	0.014	
TOTAL PRESSURE RATIO	0.1100	
COMBUSTOR EFFECTIVENESS	0.1680	
INJECTOR DISCHARGE COEFFICIENTS	1.0350,	0.7941.

NOZZLE

VACUUM STREAM THRUST COEFFICIENT = CS	0.9996
NOZZLE COEFFICIENT = CT	0.9569
PROCESS EFFICIENCY	1.0379
KINETIC ENERGY EFFICIENCY	0.9992

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	
1B	42.704	
1C	44.300	
2A	50.179	C
2C	46.250	E
3A	53.469	
3B	57.694	
A	46.204	

Reading 89

t = 310.17 sec.

READING # 0089 BLOCK # 136 TTAP # 310,173 MACH 7.3 PI # 997,499 TT # 3057.1

PAGE 1

PARIET PRESS TAPE

SUMMARY REPORT

	P	T	H		PAPA	PCRIT	BOUV	MACH	VEL	S	/A		A/AC	% RIR	G	T.AC	PHI	ETAC
WIND TUNNEL		1	0	6														
0.000	997.499	3057	687.5(	812)	1.2914	28.909	2606											
0.000	0.155	295	=58.4(	71)	1.3963	28.908	841	7.281	6109	1.814	0.05993	15.198	0.9901	2925	5.690	192.5		
SPIKE TIP PS		2	0	7														
0.600	11.300	3057	687.5(	812)	1.2911	28.908	2605											
0.600	10.413	3001	670.5(	794)	1.2929	28.908	2583	0.357	923	2.121	0.05993	15.198	0.9901	3017	6.861	202.6		
WIND TUNNEL		3	0	0														
0.000	997.499	3057	687.5(	812)	1.2914	28.909	2606											
0.000	0.168	302	=56.6(	72)	1.3965	28.906	852	7.164	6102	1.814	0.06367	15.146	0.9901	3105	6.036	192.3		
SPIKE TIP PS		4	0	0														
0.600	11.300	3057	687.5(	812)	1.2911	28.908	2605											
0.600	10.284	2993	667.9(	793)	1.2932	28.908	2580	0.384	990	2.121	0.06367	15.146	0.9901	3105	6.980	192.3		
INLET THROAT		5	0	2														
40.400	297.501	2990	667.2(	793)	1.2935	28.909	2579											
40.400	11.080	1334	198.6(	328)	1.3581	28.908	1765	2.743	4842	1.890	0.75291	15.195	0.0789	2511	56.626	165.2		
INLET UPWASH		6	0	3														
40.400	297.501	2990	667.2(	793)	1.2935	28.909	2579											
40.400	9.549	1282	185.2(	314)	1.3613	28.908	1733	2.834	4911	1.890	0.68410	15.198	0.0867	2532	52.208	166.6		
INLET DNWASH		7	0	4														
40.400	101.973	2990	667.2(	793)	1.2935	28.908	2579											
40.400	88.537	2895	638.6(	765)	1.2965	28.908	2541	0.471	1196	1.964	0.68410	15.198	0.0867	2532	12.714	166.6		
COMBUSTOR	0	8	1	21														
40.410	222.823	2934	674.0(	832)	1.2971	26.885	2453											
40.410	12.395	1444	221.8(	383)	1.3534	26.885	1901											
								2.502	4797	2.023	0.75686	15.288	0.0789	2511	55.952	164.2	0.19	0.07
COMBUSTOR	0	9	2	4														
40.733	187.240	3053	672.2(	867)	1.2916	27.020	2694											
40.733	16.060	1692	253.4(	453)	1.3395	27.020	2042	2.242	4578	2.025	0.75964	15.288	0.0786	2499	54.048	163.4	0.19	0.20
COMBUSTOR	0	10	3	21														
41.223	200.361	2877	669.4(	814)	1.2996	26.839	2632											
41.223	11.496	1422	229.3(	377)	1.3552	26.838	1890	2.480	4693	2.025	0.75388	15.288	0.0792	2463	54.982	161.1	0.19	0.03
COMBUSTOR	0	11	4	21														
41.500	185.229	2847	667.8(	805)	1.3009	26.812	2621											
41.500	12.671	1471	250.9(	391)	1.3528	26.812	1921	2.378	4567	2.028	0.74641	15.288	0.0800	2430	52.978	158.9	0.19	0.00
COMBUSTOR	0	12	5	21														
42.460	126.779	2823	661.3(	798)	1.3018	26.808	2610											
42.460	14.933	1676	311.1(	450)	1.3424	26.808	2049	2.049	4186	2.093	0.70391	15.288	0.0808	2313	45.791	151.5	0.19	0.00
COMBUSTOR	0	13	6	21														
42.708	105.440	2785	662.9(	821)	1.3041	25.622	2655											
42.708	16.028	1759	335.7(	496)	1.3400	25.622	2139	1.892	4007	2.139	0.69789	15.348	0.0859	2283	43.891	148.7	0.32	0.03
COMBUSTOR	0	14	7	21														
42.718	108.784	2745	662.9(	809)	1.3059	25.582	2639											
42.718	16.072	1718	336.3(	484)	1.3422	25.582	2117	1.909	4043	2.132	0.69822	15.348	0.0858	2282	43.865	148.7	0.32	0.00
COMBUSTOR	0	15	8	21														
42.783	107.171	2737	662.4(	806)	1.3063	25.576	2636											
42.783	16.340	1727	341.0(	487)	1.3419	25.576	2123	1.889	4010	2.132	0.69609	15.348	0.0861	2274	43.381	148.1	0.32	0.00
COMBUSTOR	0	16	9	4														
44.310	71.911	2927	650.2(	965)	1.2969	25.807	2704											
44.310	33.883	2455	494.6(	712)	1.3126	25.807	2492	1.120	2791	2.180	0.64311	15.348	0.0932	2160	27.689	139.0	0.32	0.15
COMBUSTOR	0	17	10	3														
44.800	69.427	2858	646.3(	843)	1.3000	25.747	2678											
44.800	39.506	2534	529.7(	728)	1.3117	25.747	2518	0.959	2415	2.176	0.63474	15.348	0.0944	2107	23.818	137.5	0.32	0.11
COMBUSTOR	0	18	11	5														
45.503	68.551	2749	646.7(	809)	1.3048	25.653	2636											
45.503	42.397	2453	543.9(	713)	1.3145	25.653	2500	0.880	2201	2.167	0.63135	15.348	0.0949	2080	21.591	135.5	0.32	0.05

READING = 0049 BLOCK = 156 TIME = 310.173 MACH 7.3 PT = 967.499 TT = 3057.1

	P	T			GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	A	A/AC	MOMIN	Q	TVAC	PHI	ETAC
COMBUSTOR	0	19	12	3														
46.210	58.922	2790	635.0(	821)	1.3027	25.713	2651											
46.210	35.937	2380	501.0(	665)	1.3163	25.713	2661	1.452	2589	2.173	0.61410	15.498	0.0976	2063	20.706	135.7	0.32	0.00
COMBUSTOR	0	20	13	21														
46.250	41.513	2640	652.1(	855)	1.3117	23.086	2731											
46.250	33.558	2281	524.0(	728)	1.3238	23.086	2550	0.943	2532	2.348	0.61838	15.498	0.0979	2061	24.333	133.0	0.63	0.04
COMBUSTOR	0	21	14	21														
46.260	63.056	2533	652.1(	819)	1.3165	22.991	2685											
46.260	33.440	2170	523.4(	691)	1.3249	22.991	2497	1.016	2538	2.333	0.61811	15.498	0.0979	2061	24.376	133.0	0.63	0.01
COMBUSTOR	0	22	15	21														
46.943	59.108	2501	646.3(	808)	1.3178	22.977	2671											
46.943	25.340	2031	480.9(	643)	1.3341	22.977	2422	1.188	2876	2.334	0.58831	15.498	0.1029	2054	26.299	132.8	0.63	0.00
COMBUSTOR	0	23	16	21														
47.310	56.453	2490	643.1(	804)	1.3182	22.975	2665											
47.310	23.362	2004	472.2(	634)	1.3351	22.975	2406	1.215	2924	2.336	0.57293	15.498	0.1056	2041	26.037	131.7	0.63	0.00
COMBUSTOR	0	24	17	21														
48.110	51.275	2470	636.3(	797)	1.3189	22.975	2655											
48.110	20.698	1974	462.2(	624)	1.3362	22.974	2389	1.235	2952	2.342	0.52656	15.498	0.1149	2030	24.155	131.0	0.63	0.00
COMBUSTOR	0	25	18	21														
48.743	26.078	2995	630.9(	976)	1.2941	23.466	2866											
48.743	7.200	2212	348.8(	498)	1.3212	23.467	2488	1.511	3757	2.453	0.47913	15.498	0.1243	2043	27.972	131.8	0.63	0.19
COMBUSTOR	0	26	19	21														
50.183	34.021	2495	634.1(	864)	1.3187	21.406	2764											
50.183	10.891	1881	404.0(	639)	1.3408	21.406	2420	1.402	3393	2.523	0.39288	15.618	0.1552	2080	20.715	133.2	0.88	0.04
COMBUSTOR	0	27	20	21														
50.193	36.506	2362	634.0(	816)	1.3248	21.299	2703											
50.193	10.917	1743	404.3(	587)	1.3477	21.299	2342	1.408	3390	2.499	0.39237	15.618	0.1554	2080	20.674	133.2	0.88	0.01
COMBUSTOR	0	28	21	21														
50.723	37.679	2336	631.4(	806)	1.3260	21.283	2690											
50.723	12.275	1761	418.1(	593)	1.3472	21.283	2354	1.388	3267	2.492	0.36696	15.618	0.1662	2108	18.631	135.0	0.88	0.00
COMBUSTOR	0	29	22	21														
52.133	36.289	2317	625.4(	799)	1.3266	21.281	2680											
52.133	9.412	1646	377.7(	552)	1.3521	21.281	2280	1.544	3520	2.493	0.31275	15.618	0.1950	2179	17.110	139.5	0.88	0.00
COMBUSTOR	0	30	23	21														
54.233	28.383	2286	614.1(	790)	1.3278	21.202	2669											
54.233	3.625	1345	270.7(	407)	1.3666	21.202	2076	1.997	4145	2.518	0.25691	15.653	0.2379	2238	16.550	143.0	0.89	0.00
COMBUSTOR	0	31	24	4														
54.733	30.867	2407	612.4(	834)	1.3221	21.303	2725											
54.733	9.387	1787	381.0(	603)	1.3449	21.303	2368	1.437	3403	2.527	0.24641	15.653	0.2480	2252	13.030	143.9	0.89	0.03
COMBUSTOR	0	32	25	21														
55.483	33.164	2289	609.9(	791)	1.3275	21.214	2669											
55.483	6.836	1530	330.5(	512)	1.3573	21.214	2206	1.695	3738	2.504	0.23228	15.653	0.2631	2279	13.495	145.6	0.89	0.01
COMBUSTOR	0	33	26	21														
55.760	33.492	2270	609.0(	784)	1.3283	21.201	2659											
55.760	5.893	1455	310.0(	486)	1.3611	21.200	2155	1.795	3868	2.500	0.22749	15.653	0.2686	2287	13.674	146.1	0.89	0.00
COMBUSTOR	0	34	27	21														
56.243	32.330	2264	607.5(	782)	1.3286	21.199	2656											
56.243	4.242	1342	271.5(	446)	1.3668	21.198	2074	1.977	4101	2.502	0.17970	15.653	0.3401	2366	11.482	151.2	0.89	0.00
COMBUSTOR	0	35	28	21														
57.668	29.641	2253	603.7(	778)	1.3296	21.198	2650											
57.668	2.217	1145	203.4(	374)	1.3766	21.198	1923	2.327	4475	2.509	0.16612	15.653	0.3679	2386	11.553	152.4	0.89	0.00
COMBUSTOR	0	36	29	5														
57.723	24.699	2528	603.6(	877)	1.3163	21.419	2778											
57.723	5.319	1720	303.9(	579)	1.3486	21.419	2321	1.669	3872	2.562	0.16562	15.653	0.3690	2387	9.966	152.5	0.89	0.07
COMBUSTOR	0	37	30	2														
57.863	24.716	2518	603.2(	874)	1.3167	21.413	2774											
57.863	5.219	1709	301.8(	573)	1.3487	21.413	2312	1.681	3886	2.561	0.16446	15.653	0.3716	2387	9.932	152.5	0.89	0.07

200

	P	T	H		GAMMA	SOUND	SONV	MACH	VEL	S	W/A	A	A/AC	PCNTR	Q	T/AC	PHI	ETAC
COMBUSTOR	0	34	31	21														
57.943	26.105	2294	603.4(	793)	1.3270	21.232	2670											
57.943	1.824	1148	188.3(	379)	1.3762	21.232	1923	2.369	4555	2.527	0.16630	15.653	0.3675	2388	11.773	152.6	0.89	0.01
COMBUSTOR	0	39	32	21														
58.223	25.121	2256	602.4(	779)	1.3288	21.203	2651											
58.223	1.825	1063	173.1(	350)	1.3854	21.203	1855	2.498	4635	2.525	0.16575	15.653	0.3687	2390	11.939	152.7	0.89	0.00
COMBUSTOR	0	40	33	21														
58.449	25.446	2250	601.9(	777)	1.3291	21.199	2648											
58.449	1.819	1054	172.1(	347)	1.3911	21.199	1848	2.510	4638	2.522	0.16547	15.653	0.3693	2391	11.926	152.7	0.89	0.00
COMBUSTOR	0	41	34	21														
59.173	25.568	2248	600.6(	775)	1.3292	21.198	2646											
59.173	1.800	1047	169.9(	343)	1.3814	21.198	1842	2.521	4642	2.521	0.16284	15.653	0.3753	2393	11.748	152.9	0.89	0.00
COMBUSTOR	0	42	35	5														
60.193	22.224	2705	598.7(	903)	1.3079	21.579	2855											
60.193	6.225	1986	325.5(	671)	1.3334	21.579	2470	1.497	3697	2.591	0.16181	15.653	0.3777	2401	9.295	153.4	0.89	0.12
COMBUSTOR	0	43	36	4														
62.203	22.304	2766	594.3(	965)	1.3049	21.640	2880											
62.203	6.937	2089	335.4(	708)	1.3287	21.640	2525	1.426	3599	2.596	0.16744	15.653	0.3690	2400	9.366	153.3	0.89	0.14
COMBUSTOR	0	44	37	4														
63.623	22.245	2830	591.2(	988)	1.3018	21.701	2905											
63.623	7.744	2200	349.2(	749)	1.3239	21.701	2583	1.347	3480	2.602	0.17198	15.653	0.3553	2398	9.300	153.2	0.89	0.16
COMBUSTOR	0	45	38	3														
66.087	20.942	2837	585.1(	991)	1.3012	21.720	2907											
66.087	7.465	2219	347.5(	755)	1.3227	21.721	2592	1.330	3448	2.608	0.16301	15.653	0.3749	2394	8.735	153.0	0.89	0.17
COMBUSTOR	0	46	39	5														
66.463	23.553	2495	584.2(	869)	1.3172	21.434	2761											
66.463	4.591	1658	273.0(	555)	1.3487	21.434	2277	1.733	3946	2.561	0.15155	15.653	0.4032	2394	9.293	192.9	0.89	0.08
COMBUSTOR	REGEN	47	40	3														
66.463	23.553	2632	637.4(	918)	1.3125	21.434	2831											
66.463	4.878	1784	318.3(	600)	1.3483	21.434	2358	1.695	3996	2.581	0.15155	15.653	0.4032	2448	9.410	156.4	0.89	0.08
NOZZLE AE		48	41	4														
88.699	23.593	2495	584.2(	864)	1.3172	21.434	2761											
88.699	0.340	819	-15.5(	266)	1.3894	21.434	1625	3.371	5478	2.561	0.03155	15.653	1.9372	2834	2.685	181.0	0.89	0.08
NOZZLE PO		49	42	4														
88.699	23.593	2495	584.2(	864)	1.3172	21.434	2761											
88.699	0.195	656	-69.2(	212)	1.3952	21.434	1457	3.924	5718	2.561	0.01869	15.653	3.2702	2911	1.661	186.0	0.89	0.08
NOZZLE AE REGEN		50	43	4														
88.699	23.593	2632	637.4(	918)	1.3125	21.434	2831											
88.699	0.358	885	6.3(	288)	1.3866	21.434	1687	3.331	5620	2.581	0.03155	15.653	1.9372	2912	2.755	186.0	0.89	0.08
NOZZLE PO REGEN		51	44	4														
88.699	23.593	2632	637.4(	918)	1.3125	21.434	2831											
88.699	0.155	699	-55.2(	227)	1.3938	21.434	1503	3.916	5887	2.581	0.01806	15.653	3.3841	2998	1.692	191.5	0.89	0.08
FICTIVE COMBUSTR		69	62	0														
66.463	297.501	5333	584.2(	1908)	1.1675	24.256	3572											
66.463	0.155	1156	-1219.7(	344)	1.3430	24.747	1766	5.379	9501	2.499	0.02034	15.653	3.0039	4741	3.004	302.9	0.89	1.00
FICTIVE NOZZLE		70	63	0														
88.699	64.806	2461	571.3(	852)	1.3183	21.434	2743											
88.699	0.204	524	-112.4(	169)	1.3986	21.434	1304	4.487	5849	2.462	0.03155	15.653	1.9371	2947	2.868	188.3	0.89	0.08

X/RS	P=IB	P=OB	PDA	QDX	Q=IB	Q=OB	CA=ALI	P=TH/PS0	P=IB/PT0	P=OB/PS0	P=OB/PT0
3.231E+01	6.900E+01	0.000	-2.729E+01	0.000	0.000	0.000	2.470E+02	9.943E 00	6.917E-04	0.000	0.000
3.336E 01	6.900E+01	0.000	-2.294E 01	0.000	0.000	0.000	1.451E 02	9.943E 00	6.917E-04	0.000	0.000
3.470E 01	1.135E 00	0.000	-9.694E 01	0.000	0.000	0.000	5.053E 02	7.342E 00	1.134E-03	0.000	0.000
3.508E 01	1.992E 00	0.000	-1.983E 02	0.000	0.000	0.000	6.898E 02	1.289E 01	1.997E-03	0.000	0.000
3.555E 01	2.155E 00	0.000	-2.172E 02	0.000	0.000	0.000	7.913E 02	1.394E 01	2.160E-03	0.000	0.000
3.606E 01	2.050E 00	0.000	-2.345E 02	-1.203E 02	-1.203E 02	0.000	7.946E 02	1.326E 01	2.055E-03	0.000	0.000
3.648E 01	2.279E 00	0.000	-2.571E 02	-1.232E 02	-1.232E 02	0.000	7.943E 02	1.474E 01	2.285E-03	0.000	0.000
3.660E 01	2.298E 00	3.200E 00	-2.959E 02	-1.240E 02	-1.240E 02	0.000	7.500E 02	1.488E 01	2.304E-03	2.070E 01	3.208E-03
3.661E 01	2.299E 00	3.219E 00	-2.959E 02	-1.241E 02	-1.241E 02	0.000	7.503E 02	1.487E 01	2.304E-03	2.082E 01	3.227E-03
3.701E 01	2.360E 00	4.463E 00	-2.974E 02	-1.270E 02	-1.270E 02	0.000	7.921E 02	1.527E 01	2.366E-03	2.887E 01	4.474E-03
3.727E 01	2.265E 00	5.275E 00	-2.966E 02	-1.290E 02	-1.290E 02	0.000	8.197E 02	1.465E 01	2.270E-03	3.412E 01	5.288E-03
3.803E 01	1.990E 00	8.273E 00	-2.788E 02	-1.351E 02	-1.351E 02	0.000	9.009E 02	1.287E 01	1.995E-03	5.351E 01	8.293E-03
3.873E 01	6.509E 00	1.106E 01	-2.773E 02	-1.883E 02	-1.443E 02	-4.394E 01	9.795E 02	4.211E 01	6.525E-03	7.152E 01	1.108E-02
3.875E 01	6.619E 00	1.101E 01	-2.775E 02	-1.893E 02	-1.446E 02	-4.448E 01	9.814E 02	4.281E 01	6.635E-03	7.123E 01	1.104E-02
3.901E 01	8.290E 00	1.032E 01	-2.825E 02	-2.051E 02	-1.499E 02	-5.525E 01	1.011E 03	5.363E 01	8.311E-03	6.673E 01	1.034E-02
3.950E 01	1.129E 01	9.007E 00	-3.002E 02	-2.381E 02	-1.630E 02	-7.529E 01	1.067E 03	7.307E 01	1.132E-02	5.826E 01	9.030E-03
3.975E 01	1.110E 01	8.331E 00	-3.095E 02	-2.506E 02	-1.715E 02	-8.529E 01	1.096E 03	7.180E 01	1.113E-02	5.389E 01	8.352E-03
4.000E 01	1.091E 01	8.045E 00	-3.162E 02	-2.763E 02	-1.810E 02	-9.524E 01	1.125E 03	7.057E 01	1.094E-02	5.204E 01	8.066E-03
4.022E 01	1.276E 01	7.787E 00	-3.234E 02	-2.946E 02	-1.904E 02	-1.042E 02	1.151E 03	8.252E 01	1.279E-02	5.038E 01	7.807E-03
4.040E 01	1.422E 01	1.034E 01	-3.295E 02	-3.094E 02	-1.981E 02	-1.113E 02	1.171E 03	9.201E 01	1.426E-02	6.688E 01	1.037E-02
4.041E 01	1.431E 01	1.048E 01	-3.297E 02	-3.103E 02	-1.986E 02	-1.117E 02	1.172E 03	9.255E 01	1.435E-02	6.781E 01	1.051E-02
4.073E 01	1.698E 01	1.514E 01	-3.363E 02	-3.378E 02	-2.132E 02	-1.246E 02	1.210E 03	1.099E 02	1.702E-02	9.792E 01	1.518E-02
4.122E 01	2.104E 01	1.950E 00	-3.638E 02	-3.808E 02	-2.370E 02	-1.439E 02	1.268E 03	1.361E 02	2.109E-02	1.261E 01	1.955E-03
4.150E 01	2.334E 01	2.004E 00	-3.926E 02	-4.058E 02	-2.513E 02	-1.545E 02	1.301E 03	1.510E 02	2.340E-02	1.296E 01	2.009E-03
4.246E 01	2.767E 01	2.190E 00	-4.941E 02	-5.055E 02	-3.027E 02	-2.028E 02	1.415E 03	1.790E 02	2.774E-02	1.417E 01	2.196E-03
4.271E 01	2.982E 01	2.239E 00	-5.207E 02	-5.347E 02	-3.159E 02	-2.188E 02	1.444E 03	1.929E 02	2.989E-02	1.448E 01	2.244E-03
4.272E 01	2.990E 01	2.240E 00	-5.217E 02	-5.359E 02	-3.164E 02	-2.194E 02	1.445E 03	1.934E 02	2.998E-02	1.449E 01	2.246E-03
4.278E 01	3.047E 01	2.253E 00	-5.289E 02	-5.436E 02	-3.198E 02	-2.238E 02	1.453E 03	1.971E 02	3.054E-02	1.458E 01	2.259E-03
4.431E 01	4.366E 01	2.410E 01	-6.834E 02	-7.304E 02	-3.896E 02	-3.408E 02	1.657E 03	2.825E 02	4.377E-02	1.559E 02	2.416E-02
4.480E 01	4.790E 01	3.111E 01	-6.711E 02	-7.907E 02	-4.082E 02	-3.823E 02	1.697E 03	3.099E 02	4.802E-02	2.013E 02	3.119E-02
4.550E 01	4.363E 01	4.117E 01	-6.913E 02	-8.757E 02	-4.331E 02	-4.426E 02	1.763E 03	2.822E 02	4.373E-02	2.663E 02	4.127E-02
4.622E 01	3.928E 01	2.060E 01	-6.820E 02	-9.641E 02	-4.574E 02	-5.046E 02	1.870E 03	2.541E 02	3.93?E-02	1.850E 02	2.867E-02
4.625E 01	3.904E 01	2.803E 01	-6.809E 02	-9.681E 02	-4.585E 02	-5.096E 02	1.874E 03	2.528E 02	3.917E-02	1.813E 02	2.810E-02
4.626E 01	3.902E 01	2.786E 01	-6.807E 02	-9.694E 02	-4.588E 02	-5.106E 02	1.875E 03	2.529E 02	3.919E-02	1.802E 02	2.793E-02
4.694E 01	3.487E 01	1.585E 01	-6.811E 02	-1.059E 03	-4.913E 02	-5.773E 02	1.959E 03	2.256E 02	3.494E-02	1.025E 02	1.589E-02
4.731E 01	3.264E 01	1.409E 01	-6.904E 02	-1.108E 03	-4.930E 02	-6.106E 02	2.005E 03	2.111E 02	3.272E-02	9.112E 01	1.412E-02
4.811E 01	3.107E 01	1.024E 01	-6.933E 02	-1.214E 03	-5.174E 02	-6.842E 02	2.104E 03	2.010E 02	3.115E-02	6.625E 01	1.027E-02
4.874E 01	7.200E 00	7.200E 00	-6.742E 02	-1.294E 03	-5.367E 02	-7.611E 02	2.183E 03	4.658E 01	7.218E-03	4.658E 01	7.218E-03
5.018E 01	1.089E 01	1.089E 01	-6.071E 02	-1.455E 03	-5.771E 02	-8.775E 02	2.363E 03	7.045E 01	1.092E-02	7.045E 01	1.092E-02
5.019E 01	1.092E 01	1.092E 01	-6.065E 02	-1.456E 03	-5.774E 02	-8.781E 02	2.364E 03	7.062E 01	1.094E-02	7.062E 01	1.094E-02
5.072E 01	1.227E 01	1.227E 01	-5.745E 02	-1.497E 03	-5.914E 02	-9.051E 02	2.430E 03	7.940E 01	1.231E-02	7.940E 01	1.231E-02
5.213E 01	9.412E 00	9.412E 00	-4.943E 02	-1.590E 03	-6.269E 02	-9.631E 02	2.608E 03	6.089E 01	9.436E-03	6.089E 01	9.436E-03
5.423E 01	3.625E 00	3.625E 00	-4.225E 02	-1.713E 03	-6.727E 02	-1.040E 03	2.874E 03	2.345E 01	3.636E-03	2.345E 01	3.636E-03
5.473E 01	9.387E 00	9.387E 00	-4.056E 02	-1.740E 03	-6.826E 02	-1.058E 03	2.938E 03	6.073E 01	9.411E-03	6.073E 01	9.411E-03
5.548E 01	6.836E 00	6.836E 00	-3.742E 02	-1.779E 03	-6.968E 02	-1.082E 03	3.034E 03	4.422E 01	6.853E-03	4.422E 01	6.853E-03
5.576E 01	5.893E 00	5.893E 00	-3.652E 02	-1.793E 03	-7.018E 02	-1.091E 03	3.069E 03	3.812E 01	5.908E-03	3.812E 01	5.908E-03
5.624E 01	4.275E 00	4.250E 00	-2.844E 02	-1.815E 03	-7.103E 02	-1.105E 03	3.102E 03	2.745E 01	4.286E-03	2.749E 01	4.261E-03
5.747E 01	2.217E 00	2.217E 00	-2.618E 02	-1.874E 03	-7.334E 02	-1.142E 03	3.209E 03	1.434E 01	2.222E-03	1.434E 01	2.222E-03
5.772E 01	8.500E 00	2.138E 00	-2.612E 02	-1.876E 03	-7.343E 02	-1.144E 03	3.217E 03	5.494E 01	8.521E-03	1.383E 01	2.144E-03
5.786E 01	8.500E 00	1.939E 00	-2.599E 02	-1.883E 03	-7.363E 02	-1.147E 03	3.234E 03	5.494E 01	8.521E-03	1.254E 01	1.943E-03
5.794E 01	1.824E 00	1.824E 00	-2.591E 02	-1.886E 03	-7.375E 02	-1.149E 03	3.245E 03	1.180E 01	1.829E-03	1.180E 01	1.829E-03
5.822E 01	1.425E 00	1.425E 00	-2.570E 02	-1.894E 03	-7.415E 02	-1.154E 03	3.280E 03	9.218E 00	1.429E-03	9.218E 00	1.429E-03
5.845E 01	1.419E 00	1.419E 00	-2.556E 02	-1.903E 03	-7.447E 02	-1.158E 03	3.309E 03	9.180E 00	1.423E-03	9.180E 00	1.423E-03
5.917E 01	1.400E 00	1.400E 00	-2.518E 02	-1.924E 03	-7.541E 02	-1.170E 03	3.402E 03	9.056E 00	1.404E-03	9.056E 00	1.404E-03
6.019E 01	6.225E 00	6.225E 00	-2.430E 02	-1.955E 03	-7.666E 02	-1.185E 03	3.552E 03	4.027E 01	6.241E-03	4.027E 01	6.241E-03
6.220E 01	6.937E 00	6.937E 00	-2.414E 02	-2.023E 03	-7.853E 02	-1.237E 03	3.790E 03	4.488E 01	6.955E-03	4.488E 01	6.955E-03

YARS	P=10	P=Pw	P/P0	rho/rho0	M/M0	Pw/P0	rho/rho0
6.3625 01	7.7445 00	7.7445 00	-2.0145 02	-2.0145 02	-7.9728 03	5.0722 00	7.7674 01	5.0722 00	7.7674 01	7.7674-03
6.6096 01	7.0465 00	7.0465 00	-2.0161 02	-2.0161 02	-8.1401 03	4.8294 00	7.4348 01	4.8294 00	7.4348 01	7.4834-03
6.6446 01	1.7606 00	7.4228 00	-2.0162 02	-2.0162 02	-8.2438 03	4.6525 00	7.1564 01	1.1564 01	1.7664-03	4.8134 01	7.4416-03
6.6506 01	1.7606 00	7.4188 00	-2.0164 02	-2.0164 02	-8.2278 02	-1.3403 03	-1.3442 03	1.1396 01	1.7606-03	4.7988 01	7.4366-03
6.6706 01	2.1946 00	7.3958 00	-2.0168 02	-2.0168 02	-8.2458 02	-1.3478 03	-1.3514 03	1.1322 01	2.2046-03	4.7846 01	7.4106-03
6.8366 01	5.8356 00	5.2946 00	-1.8048 02	-2.2068 02	-8.1738 02	-1.4098 03	-1.4188 03	3.7756 01	5.8356-03	3.4266 01	5.3096-03
6.9806 01	2.1806 00	3.4756 00	-2.2798 02	-2.2798 02	-8.0606 02	-1.4738 03	-1.4768 03	1.4106 01	2.1856-03	2.2466 01	3.4806-03
7.0526 01	1.4486 00	2.3656 00	-2.2946 02	-2.2946 02	-8.0956 02	-1.4668 03	-1.4708 03	1.0796 01	1.6136-03	1.6596 01	2.5716-03
7.1136 01	1.2356 00	2.2666 00	-2.3046 02	-2.3046 02	-8.1216 02	-1.4628 03	-1.4668 03	9.0236 00	1.3986-03	1.4676 01	2.2736-03
7.2516 01	8.6006-01	1.5956 00	-2.3226 02	-2.3226 02	-8.1696 02	-1.4656 03	-1.4696 03	6.0696 00	9.4046-04	9.8216-01	1.5226-03
7.4046 01	6.2606-01	8.5006-01	-2.3376 02	-2.3376 02	-8.2096 02	-1.4766 03	-1.4796 03	5.2796 00	8.1836-04	6.2756-01	9.7256-04
7.4196 01	4.0506-01	7.8836-01	-2.3396 02	-2.3396 02	-8.2176 02	-1.4786 03	-1.4816 03	4.2916 00	6.6516-04	4.0656-01	6.2986-04
7.4946 01	4.0116-01	4.6006-01	-2.3496 02	-2.3496 02	-8.2526 02	-1.4886 03	-1.4926 03	3.4926 00	5.4126-04	4.0296-01	6.2426-04
7.4956 01	6.0116-01	6.7836-01	-2.3496 02	-2.3496 02	-8.2526 02	-1.4886 03	-1.4926 03	5.1756 00	8.0196-04	6.0296-01	9.3426-04
7.6276 01	5.9506-01	0.000	-2.3666 02	-2.3666 02	-8.3126 02	-1.5036 03	-1.5076 03	5.0276 00	7.7896-04	5.9086-01	9.1576-04
7.9126 01	5.3506-01	0.000	-2.3716 02	-2.3716 02	-8.3306 02	-1.5096 03	-1.5136 03	4.5256 00	7.0126-04	5.3636-01	8.3116-04
8.3026 01	4.0006-01	0.000	-2.3756 02	-2.3756 02	-8.3446 02	-1.5136 03	-1.5176 03	3.4616 00	5.3636-04	4.0116-01	6.2146-04
8.5836 01	3.5006-01	0.000	-2.3776 02	-2.3776 02	-8.3516 02	-1.5156 03	-1.5196 03	2.9586 00	4.5866-04	3.5096-01	5.4386-04
8.8696 01	4.9006-01	0.000	-2.3626 02	-2.3626 02	-8.2986 02	-1.5036 03	-1.5076 03	4.1766 00	6.4716-04	4.9126-01	7.6126-04
8.8706 01	4.9036-01	0.000	-2.3626 02	-2.3626 02	-8.2986 02	-1.5036 03	-1.5076 03	4.1726 00	6.4656-04	4.9156-01	7.6176-04

X	DRAG	CDRAG	CF	HF
4.040E 01	8.492E 01	8.492E 01	2.27RE-03	3.5[illegible]E-02
4.0[illegible]E 01	1.481E+01	8.509E 01	2.R11E-03	3.6[illegible]E-02
4.[illegible]73E 01	5.510E 00	9.[illegible]E 01	2.[illegible]E-03	4.[illegible]E-02
4.122E 01	8.051E 00	9.865E 01	2.A3RE-03	3.61RE-02
4.150E 01	8.569E 00	1.032E 02	2.537E-03	3.957E-02
4.246E 01	1.[illegible]79E 01	1.1R0E 02	2.715E-03	4.157E-02
4.271E 01	3.R15E 00	1.21RE 02	3.022E-03	4.11[illegible]E-02
4.272E 01	1.502E+01	1.220E 02	2.R23E-03	4.350E-02
4.278E 01	9.564E+01	1.229E 02	2.R03E-03	4.427E-02
4.431E 01	1.939E 01	1.423E 02	3.109E-03	5.715E-02
4.4R0E 01	4.946E 00	1.473E 02	3.31[illegible]E-03	5.460E-02
4.550E 01	4.089E 00	1.538E 02	3.344E-03	5.411E-02
4.622E 01	4.642E 00	1.604E 02	3.20RE-03	5.28RE-02
4.625E 01	3.276E+01	1.607E 02	3.A02E-03	4.757E-02
4.626E 01	1.035E+01	1.608E 02	3.271E-03	5.3R2E-02
4.694E 01	8.R45E 00	1.677E 02	3.152E-03	4.881E-02
4.731E 01	3.740E 00	1.714E 02	3.142E-03	4.638E-02
4.811E 01	7.809E 00	1.792E 02	3.137E-03	4.19[illegible]E-02
4.874E 01	6.400E 00	1.857E 02	3.13RE-03	2.199E-02
5.016E 01	1.49RE 01	2.006E 02	3.701E-03	2.300E-02
5.019E 01	8.929E+02	2.007E 02	3.188E-03	2.720E-02
5.072E 01	4.088E 00	2.048E 02	3.070E-03	2.960E-02
5.213E 01	9.556E 00	2.144E 02	2.953E-03	2.512E-02
5.423E 01	1.310E 01	2.275E 02	2.A93E-03	1.315E-02
5.473E 01	2.72RE 00	2.302E 02	2.R95E-03	2.358E-02
5.548E 01	3.690E 00	2.339E 02	2.912E-03	1.910E-02
5.576E 01	1.374E 00	2.353E 02	2.791E-03	1.798E-02
5.624E 01	1.111E 00	2.364E 02	2.A3RE-03	1.409E-02
5.767E 01	3.923E 00	2.396E 02	2.567E-03	9.026E-03
5.772E 01	1.983E+01	2.39RE 02	2.664E-03	1.5R0E-02
5.786E 01	4.90RE+01	2.403E 02	2.RARE-03	1.449E-02
5.794E 01	3.224E+01	2.406E 02	2.91RE-03	7.165E-03
5.822E 01	1.177E 00	2.418E 02	2.650E-03	6.454E-03
5.845E 01	9.017E+01	2.427E 02	2.592E-03	6.518E-03
5.917E 01	2.R30E 00	2.455E 02	2.570E-03	6.447E-03
6.019E 01	3.604E 00	2.491E 02	2.A71E-03	1.701E-02
6.220E 01	6.R25E 00	2.559E 02	3.00[illegible]E-03	1.619E-02
6.362E 01	9.145E 00	2.611E 02	3.049E-03	1.695E-02
6.609E 01	8.77RE 00	2.699E 02	3.109E-03	1.610E-02
6.646E 01	1.350E 00	2.712E 02	3.099E-03	1.216E-02
6.650E 01	1.416E+01	2.714E 02	2.R36E-03	1.309E-02
6.670E 01	6.R11E+01	2.720E 02	2.R45E-03	1.344E-02
6.836E 01	5.R87E 00	2.779E 02	2.R74E-03	1.462E-02
6.9R0E 01	4.379E 00	2.823E 02	2.732E-03	9.597E-03
7.052E 01	1.786E 00	2.841E 02	2.675E-03	7.897E-03
7.113E 01	1.334E 00	2.854E 02	2.639E-03	6.931E-03
7.251E 01	2.587E 00	2.880E 02	2.570E-03	5.369E-03
7.404E 01	2.23RE 00	2.903E 02	2.475E-03	5.746E-03
7.419E 01	1.753E+01	2.904E 02	2.460E-03	5.593E-03
7.494E 01	7.R07E+01	2.912E 02	2.R10E-03	2.980E-03
7.495E 01	1.376E+03	2.912E 02	2.41RE-03	2.985E-03
7.627E 01	4.539E+01	2.917E 02	2.42RE-03	3.194E-03
7.912E 01	8.537E+01	2.925E 02	2.396E-03	2.941E-03
8.302E 01	8.007E+01	2.933E 02	2.335E-03	2.383E-03
8.583E 01	3.595E+01	2.937E 02	2.3[illegible]E-03	2.143E-03
8.849E 01	1.595E+01	2.934E 02	2.34RE-03	2.71[illegible]E-03

READING # 0089 BLOCK # 136 TIME # 510.173 MACH 7.3 PT # 997.499 TT # 3657.1

X	DDRAG	CDRAG	CF	MC
8.870E 01	0.000	2.93RF 02	2.345E-03	2.711E-03

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	21.	(LBF)
MEASURED THRUST	928.	(LBF)
CALCULATED SPECIFIC IMPULSE	50.	(LBF-SEC/LBM)
MEASURED SPECIFIC IMPULSE	2175.	(LBF-SEC/LBM)
CALCULATED THRUST COEFFICIENT	0.0145	
MEASURED THRUST COEFFICIENT	0.6371	

REGENERATIVE-COOLED ENGINE PERFORMANCE

CALCULATED

STREAM THRUST	3928.	(LBF)
NET THRUST	102.	(LBF)
SPECIFIC IMPULSE	239.	(LBF-SEC/LBM)
THRUST COEFFICIENT	0.0701	

MOMENTUM AND FORCES

INLET FRICTION DRAG	84.9	(LBF)
INLET MOMENTUM CHANGE	=414.4	(LBF)
COMBUSTOR FRICTION DRAG	186.3	(LBF)
COMBUSTOR STRUT DRAG	=18.90	(LBF)
COMBUSTOR MOMENTUM CHANGE	=117.	(LBF)
NOZZLE FRICTION DRAG	22.62	(LBF)
NOZZLE STRUT DRAG	=0.00	(LBF)
NOZZLE MOMENTUM CHANGE	553.	(LBF)
NOZZLE PRESSURE INTEGRAL	575.	(LBF)
EXTERNAL FRICTION DRAG	73.31	(LBF)
EXTERNAL PRESSURE INTEGRAL	=605.	(LBF)
TOTAL EXTERNAL DRAG	=758.	(LBF)
TOTAL STRUT DRAG	=18.90	(LBF)
CAVITY FORCE	=550.	(LBF)
CALCULATED LOAD CELL FORCE	=1287.	(LBF)
MEASURED LOAD CELL FORCE	=380.	(LBF)
FUEL VACUUM SPECIFIC IMPULSE	0.0. 0.0. =153.8. =124.3.	

STATIONS

NOMINAL COWL LEADING EDGE	36.884	(IN)
SPIKE TRANSLATION	1.7230	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	36.607	(IN)
NOZZLE SHROUD TRAILING EDGE	74.947	(IN)
NOZZLE PLUG TRAILING EDGE	88.699	(IN)
STRUT LEADING EDGE	57.863	(IN)
STRUT TRAILING EDGE	66.463	(IN)
COMBUSTOR EXIT	66.463	(IN)

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.9901	
ADDITIVE DRAG COEFFICIENT	0.0000	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.1009	
DELTA PT2	0.0910	(PSI)
TOTAL PRESSURE RECOVERY - SUPERSONIC	0.2962	
TOTAL PRESSURE RECOVERY - SUBSONIC	0.1022	
INLET PROCESS EFFICIENCY - SUPERSONIC	0.8969	
INLET PROCESS EFFICIENCY - SUBSONIC	0.9120	
KINETIC ENERGY EFFICIENCY - SUPERSONIC	0.9372	
KINETIC ENERGY EFFICIENCY - SUBSONIC	0.8905	
ENTHALPY AT P0 - SUPERSONIC	=31.87	(BTU/LBM)
ENTHALPY AT P0 - SUBSONIC	2.95	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0280	
EQUIVALENCE RATIO	0.891	
COMBUSTOR EFFICIENCY	0.977	
TOTAL PRESSURE RATIO	0.0792	
COMBUSTOR EFFECTIVENESS	0.1778	
INJECTOR DISCHARGE COEFFICIENTS	0.9752, 0.4606, 1.0405, 0.8161	

NOZZLE

VACUUM STREAM THRUST COEFFICIENT - CFS	1.0399	
NOZZLE COEFFICIENT - CT	0.9858	
PROCESS EFFICIENCY	1.1866	
KINETIC ENERGY EFFICIENCY	1.0751	

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	A
1B	42.708	B
1C	44.300	
2A	50.183	D
2C	46.250	E
3A	55.473	
3B	57.658	
4	46.208	

2/13/75

READING = 0089 PLOCK = 143 TTHF = 518.473 MACH 7.3 PT = 995.499 TT = 2722.1 PAGE 1

RAMJET PERFORMANCE

S U M M A R Y R E P O R T

	P	T			GAMMA	MOLWT	SONV	MACH	VEL	S	F/A		A/AC	MDMIX	C	THAC	PHI	ETAC
WIND TUNNEL		1	0	5														
0.000	995.499	2723	587.1(	714)	1.3019	28.909	2069											
0.000	0.156	256	-67.7(	61)	1.3947	28.908	784	7.302	5724	1.779	0.06518	16.528	0.9901	2980	5.798	180.3		
SPIKE TIP #8		2	0	6														
0.600	11.175	2723	587.1(	714)	1.3019	28.909	2069											
0.600	10.223	2667	570.6(	698)	1.3037	28.909	2045	0.372	909	2.087	0.06518	16.528	0.9901	3059	0.921	185.1		
WIND TUNNEL		3	0	0														
0.000	995.499	2723	587.1(	714)	1.3019	28.909	2069											
0.000	0.163	259	-66.9(	62)	1.3949	28.908	789	7.251	5721	1.779	0.06727	17.059	0.9901	3075	5.981	180.2		
SPIKE TIP #8		4	0	0														
0.600	11.175	2723	587.1(	714)	1.3019	28.909	2069											
0.600	10.152	2663	569.3(	697)	1.3039	28.908	2040	0.386	943	2.087	0.06727	17.059	0.9901	3075	0.996	180.2		
INLET THROAT		5	0	4														
40.400	332.041	2618	556.1(	684)	1.3053	28.909	2024											
40.400	10.420	1092	136.4(	266)	1.3733	28.908	1606	2.854	4583	1.843	0.81836	16.528	0.0789	2565	56.282	155.2		
INLET DRAG		6	0	3														
40.400	332.041	2618	556.1(	684)	1.3053	28.909	2024											
40.400	8.980	1048	125.5(	255)	1.3760	28.908	1575	2.907	4602	1.843	0.77396	16.528	0.0847	2584	53.669	156.4		
INLET DRAG		7	0	4														
40.400	104.177	2618	556.1(	684)	1.3053	28.908	2024											
40.400	90.605	2534	531.4(	659)	1.3081	28.908	2387	0.466	1112	1.922	0.74396	16.528	0.0847	2584	12.857	156.4		
COMBUSTOR	0	8	1	10														
40.410	239.443	2588	560.7(	721)	1.3083	26.979	2098											
40.410	15.261	1251	169.8(	328)	1.3648	26.979	1774	2.506	4445	1.972	0.82283	16.620	0.0789	2564	56.845	154.3	0.18	0.07
COMBUSTOR	0	9	2	5														
40.733	171.741	2826	561.9(	792)	1.2974	27.244	2587											
40.733	18.122	1640	202.8(	435)	1.3407	27.244	2003	2.116	4239	2.017	0.82585	16.620	0.0786	2555	54.408	153.7	0.18	0.33
COMBUSTOR	0	10	3	21														
41.223	216.454	2546	557.5(	709)	1.3099	26.959	2480											
41.223	12.426	1239	172.4(	325)	1.3656	26.959	1767	2.485	4390	1.975	0.81959	16.620	0.0792	2520	55.911	151.6	0.18	0.05
COMBUSTOR	0	11	4	3														
41.500	204.997	2494	554.9(	693)	1.3122	26.913	2459											
41.500	13.805	1262	192.2(	331)	1.3646	26.913	1784	2.388	4260	1.973	0.81147	16.620	0.0800	2483	53.721	149.4	0.18	0.00
COMBUSTOR	0	12	5	4														
42.460	110.879	2430	544.6(	733)	1.3054	27.091	2910											
42.460	21.095	1756	280.6(	470)	1.3368	27.091	2076	1.751	3634	2.031	0.76526	16.620	0.0808	2336	43.221	140.5	0.18	0.18
COMBUSTOR	0	13	6	8														
42.708	103.023	2465	547.0(	711)	1.3140	25.841	2895											
42.708	21.674	1676	301.5(	467)	1.3432	25.841	2080	1.685	3504	2.086	0.75841	16.679	0.0859	2293	41.304	137.5	0.29	0.05
COMBUSTOR	0	14	7	2														
42.718	102.911	2462	546.8(	710)	1.3141	25.859	2894											
42.718	21.698	1675	301.9(	466)	1.3432	25.859	2080	1.683	3501	2.086	0.75876	16.679	0.0858	2292	41.279	137.4	0.29	0.04
COMBUSTOR	0	15	8	2														
42.783	101.169	2450	546.0(	707)	1.3146	25.850	2889											
42.783	21.850	1677	305.3(	467)	1.3433	25.850	2081	1.668	3470	2.086	0.75645	16.679	0.0861	2281	40.797	136.7	0.29	0.04
COMBUSTOR	0	16	9	3														
44.310	70.273	2452	527.1(	707)	1.3138	25.911	2886											
44.310	36.964	2099	415.2(	595)	1.3260	25.911	2311	1.024	2366	2.113	0.69887	16.679	0.0932	2109	25.701	126.4	0.29	0.08
COMBUSTOR	0	17	10	4														
44.800	68.526	2342	521.1(	673)	1.3186	25.829	2839											
44.800	41.814	2074	437.2(	589)	1.3279	25.820	2304	0.889	2049	2.132	0.68978	16.679	0.0944	2073	21.948	124.3	0.29	0.02
COMBUSTOR	0	18	11	21														
45.503	67.255	2293	512.8(	658)	1.3205	25.798	2816											
45.503	44.827	2076	444.5(	590)	1.3281	25.797	2305	0.801	1948	2.097	0.68609	16.679	0.0949	2068	19.704	122.8	0.29	0.00

READING # 0089 BLOCK # 143 TIME # 316.473 MACH 7.5 PI = 995.099 TI = 2722.9

	P	T	H	GAMMA	FLOW	SONV	MACH	WEI	S							
COMBUSTOR	0	19	12	3												
46.218	65.270	2325	504.3(	666)	1.3148	23.453	2427									
46.218	35.508	2001	403.3(| 564)	1.3382	23.453	2263	0.994	2208	2.103	0.66735	16.679	0.0976	2054	23.315	123.1	0.29	0.04
COMBUSTOR	0	20	13	21												
46.250	59.793	2278	521.7(	718)	1.3236	23.386	2532									
46.250	35.091	1996	425.0(| 622)	1.3337	23.385	2379	0.924	2199	2.274	0.67142	16.833	0.0979	2030	22.453	120.6	0.59	0.04
COMBUSTOR	0	21	14	21												
46.260	61.170	2162	521.6(	686)	1.3260	23.301	2466									
46.260	34.960	1897	424.4(| 589)	1.3385	23.301	2328	0.947	2205	2.259	0.67132	16.833	0.0979	2030	23.002	120.6	0.59	0.01
COMBUSTOR	0	22	15	21												
46.943	57.167	2144	513.5(	673)	1.3295	23.289	2467									
46.943	26.059	1759	383.0(| 543)	1.3441	23.289	2247	1.157	2555	2.259	0.63896	16.833	0.1029	2023	25.348	120.2	0.59	0.00
COMBUSTOR	0	23	16	21												
47.310	54.629	2129	509.1(	668)	1.3301	23.287	2459									
47.310	23.928	1728	373.6(| 535)	1.3454	23.287	2228	1.168	2603	2.281	0.62225	16.833	0.1056	2009	25.175	119.4	0.59	0.00
COMBUSTOR	0	24	17	21												
48.110	49.840	2101	499.6(	659)	1.3311	23.287	2444									
48.110	21.307	1695	362.7(| 522)	1.3468	23.287	2208	1.185	2617	2.284	0.57190	16.833	0.1149	1998	23.241	118.7	0.59	0.00
COMBUSTOR	0	25	18	21												
48.743	24.903	2568	492.2(	813)	1.3092	23.724	2650									
48.743	7.200	1899	261.5(| 584)	1.3333	23.725	2303	1.475	3397	2.376	0.52038	16.833	0.1243	2010	27.475	119.4	0.59	0.18
COMBUSTOR	0	26	19	21												
50.183	33.113	2128	491.9(	714)	1.3311	21.768	2543									
50.183	10.994	1607	305.0(| 527)	1.3519	21.768	2228	1.373	3058	2.433	0.42650	16.958	0.1552	2049	20.269	120.8	0.82	0.04
COMBUSTOR	0	27	20	21												
50.193	35.745	2003	491.8(	671)	1.3370	21.668	2479									
50.193	11.020	1479	305.2(| 484)	1.3592	21.668	2147	1.423	3056	2.407	0.42594	16.958	0.1554	2049	20.229	120.9	0.82	0.01
COMBUSTOR	0	28	21	21												
50.723	37.051	1974	488.0(	660)	1.3383	21.653	2463									
50.723	12.417	1488	315.2(| 488)	1.3589	21.653	2155	1.364	2940	2.399	0.39836	16.958	0.1662	2078	18.199	122.5	0.82	0.00
COMBUSTOR	0	29	22	21												
52.133	36.678	1946	478.8(	650)	1.3394	21.651	2447									
52.133	10.475	1405	287.5(| 459)	1.3631	21.651	2097	1.475	3094	2.394	0.33951	16.958	0.1950	2153	16.324	127.0	0.82	0.00
COMBUSTOR	0	30	23	4												
54.233	33.146	2041	464.4(	685)	1.3344	21.682	2499									
54.233	9.000	1459	257.0(| 479)	1.3592	21.682	2132	1.511	3222	2.425	0.27884	16.989	0.2379	2249	13.961	132.4	0.83	0.04
COMBUSTOR	0	31	24	3												
54.733	31.970	2086	461.9(	701)	1.3322	21.724	2522									
54.733	8.800	1499	252.0(| 491)	1.3567	21.724	2157	1.502	3241	2.435	0.26745	16.989	0.2480	2270	13.469	133.6	0.83	0.05
COMBUSTOR	0	32	25	4												
55.483	30.379	2152	458.1(	724)	1.3289	21.786	2535									
55.483	8.527	1558	244.7(| 511)	1.3531	21.786	2194	1.490	3268	2.449	0.25211	16.989	0.2631	2300	12.804	135.4	0.83	0.07
COMBUSTOR	0	33	26	3												
55.760	29.850	2174	456.8(	732)	1.3278	21.809	2566									
55.760	8.426	1579	242.0(| 518)	1.3518	21.809	2206	1.486	3279	2.453	0.24691	16.989	0.2686	2311	12.581	136.0	0.83	0.08
COMBUSTOR	0	34	27	4												
56.243	25.862	2261	454.6(	762)	1.3237	21.884	2608									
56.243	6.142	1575	207.1(| 515)	1.3512	21.884	2199	1.601	3519	2.478	0.19504	16.989	0.3401	2395	10.667	141.0	0.83	0.10
COMBUSTOR	0	35	28	5												
57.668	31.516	2073	448.8(	696)	1.3324	21.743	2513									
57.668	3.968	1269	148.1(| 391)	1.3714	21.743	1947	2.005	3904	2.433	0.18030	16.989	0.3679	2435	10.939	143.4	0.83	0.06
COMBUSTOR	0	36	29	5												
57.723	25.707	2378	448.6(	804)	1.3180	21.995	2662									
57.723	6.064	1690	199.7(| 555)	1.3443	21.995	2269	1.555	3529	2.499	0.17976	16.989	0.3690	2456	9.858	143.4	0.83	0.14
COMBUSTOR	0	37	30	3												
57.863	26.903	2361	448.1(	797)	1.3148	21.941	2654									
57.863	5.853	1662	194.8(| 548)	1.3459	21.941	2249	1.568	3562	2.496	0.17850	16.989	0.3716	2458	9.882	145.5	0.83	0.14

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READING = 0089  BLOCK = 143  TIME = 316.073  MACH 7.5  P1 = 995.000  T1 = 2722.0

                P       T       H            GAMMA   MOLWT SONV   MACH   VEL     S      P/A      W      A/AC   MOMTM    F      ISAC   PHI   ETAC
COMBUSTOR         0   38   31   15
57.943       39.882 1939  407.7( 568) 1.3589 21.837 2902
57.943        3.191  949  118.3( 191) 1.3933 21.837 1773  2.249 6660  2.592 0.18050 16.989 0.3675   2040  11.589 143.6 0.83 0.02
COMBUSTOR         0   39   32   21
58.223       35.959 1865  446.7( 823) 1.3425 21.581 2901
58.223        2.300  832   91.5( 268) 1.3907 21.581 1433  2.582 8216  2.365 0.17990 16.989 0.3687   2043  11.787 143.8 0.83 0.00
COMBUSTOR         0   40   33   21
58.449       37.345 1952  465.9( 818) 1.3431 21.572 2898
58.449        2.080  796   83.0( 254) 1.3922 21.572 1598  2.606 8259  2.360 0.17940 16.989 0.3693   2046  11.888 144.0 0.83 0.00
COMBUSTOR         0   41   34   21
59.173       34.653 1848  443.6( 816) 1.3434 21.571 2896
59.173        1.375  716   58.1( 230) 1.3951 21.571 1518  2.894 9392  2.364 0.17675 16.989 0.3753   2052  12.065 144.3 0.83 0.00
COMBUSTOR         0   42   35    0
60.193       21.882 2600  440.4( 883) 1.3074 22.204 2759
60.193        7.475 2916  223.3( 667) 1.3284 22.204 2449  1.306 3296  2.531 0.17542 16.989 0.3777   2063  8.995 145.0 0.83 0.21
COMBUSTOR         0   43   36    0
62.203       21.083 2775  433.2( 944) 1.2990 22.375 2830
62.203       10.512 2358  274.9( 789) 1.3135 22.375 2623  1.073 2815  2.549 0.18173 16.989 0.3650   2069  7.950 145.3 0.83 0.26
COMBUSTOR         0   44   37    3
63.623       21.636 2790  427.9( 950) 1.2982 22.400 2835
63.623       11.212 2392  277.1( 801) 1.3119 22.400 2639  1.041 2747  2.547 0.18066 16.989 0.3553   2071  7.970 145.5 0.83 0.27
COMBUSTOR         0   45   38    3
66.087       20.528 2805  417.9( 956) 1.2971 22.438 2840
66.087       11.230 2438  278.1( 817) 1.3098 22.438 2660  0.995 2645  2.592 0.17693 16.989 0.3749   2079  7.274 145.7 0.83 0.28
COMBUSTOR         0   46   39    5
66.463       20.787 2574  416.3( 872) 1.3079 22.236 2744
66.463        6.497 1943  182.8( 600) 1.3309 22.237 2404  1.022 3418  2.529 0.16409 16.989 0.4032   2076  8.737 145.7 0.83 0.22
COMBUSTOR  REGEN  47   40    4
66.463       20.787 2933  554.6(1008) 1.2954 22.236 2914
66.463        7.992 2348  329.9( 786) 1.3158 22.237 2624  1.277 3353  2.579 0.16449 16.989 0.4032   2596  8.571 152.8 0.83 0.22
NOZZLE  AE        48   41    5
88.699       20.787 2574  416.3( 870) 1.3079 22.236 2744
88.699        0.419  945 -154.3( 299) 1.3800 22.237 1707  3.141 5362  2.529 0.03424 16.989 1.9371   3039  2.893 178.9 0.83 0.22
NOZZLE  PO        49   42    5
88.699       20.787 2574  416.3( 870) 1.3079 22.236 2744
88.699        0.156  718 -231.3( 224) 1.3897 22.237 1493  3.813 5693  2.529 0.01780 16.989 3.7243   3159  1.575 185.7 0.83 0.22
NOZZLE  AE REGEN  50   43    5
88.699       20.787 2933  554.6(1008) 1.2950 22.236 2914
88.699        0.476 1141  -94.2( 363) 1.3700 22.237 1869  3.048 5696  2.579 0.03424 16.989 1.9371   3245  3.032 191.0 0.83 0.22
NOZZLE  PO REGEN  51   44    5
88.699       20.787 2933  554.6(1008) 1.2954 22.236 2914
88.699        0.156  840 -192.3( 265) 1.3848 22.237 1612  3.792 6113  2.579 0.01634 16.989 4.0599   3390  1.552 199.6 0.83 0.22
FICTIVE COMBUSTR  69   62    0
66.463      332.041 5005  416.3(1781) 1.1860 24.741 3454
66.463        0.156  964-1189.5( 283) 1.3563 24.980 1613  5.556 8964  2.423 0.02343 16.989 2.8307   4846  3.264 285.3 0.83 1.00
FICTIVE NOZZLE    70   63    0
88.699       91.624 2512  392.6( 849) 1.3101 22.237 2712
88.699        0.259  622 -261.7( 195) 1.3927 22.237 1392  4.111 5722  2.438 0.03424 16.989 1.9371   3150  3.045 185.4 0.83 0.22
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XABS	P-IR	P-OR	P-A	CD2	C-TR	C-DF	CA-ALL	P-TR/PSU	P-IR/PTO	P-DF/PSU	P-CH/PTO
6.981E-01	6.930E-01	0.000	-2.497E-01	0.000	0.000	0.000	2.577E-02	4.925E 01	6.531E-04	0.000	0.000
1.836E 01	6.900E-01	0.000	-2.234E 01	0.000	0.000	0.000	1.543E 02	4.925E 01	6.431E-04	0.000	0.000
3.070E 01	1.135E 00	0.000	-9.496E 01	0.000	0.000	0.000	5.253E 02	7.274E 01	1.140E-03	0.000	0.000
3.504E 01	2.006E 00	0.000	-1.987E 02	0.000	0.000	0.000	6.804E 02	1.288E 01	2.015E-03	0.000	0.000
3.555E 01	2.155E 00	0.000	-2.177E 02	0.000	0.000	0.000	7.013E 02	1.342E 01	2.165E-03	0.000	0.000
3.606E 01	2.075E 00	0.000	-2.391E 02	-2.231E 02	-2.231E 02	0.000	7.244E 02	1.331E 01	2.084E-03	0.000	0.000
3.644E 01	2.279E 00	0.000	-2.574E 02	-2.285E 02	-2.285E 02	0.000	7.443E 02	1.442E 01	2.290E-03	0.000	0.000
3.660E 01	2.303E 00	3.111E 00	-2.957E 02	-2.301E 02	-2.301E 02	0.000	7.509E 02	1.477E 01	2.314E-03	1.995E 01	3.125E-03
3.661E 01	2.305E 00	3.131E 00	-2.958E 02	-2.301E 02	-2.301E 02	0.000	7.505E 02	1.478E 01	2.315E-03	2.008E 01	3.145E-03
3.701E 01	2.385E 00	4.428E 00	-2.979E 02	-2.356E 02	-2.356E 02	0.000	7.921E 02	1.530E 01	2.396E-03	2.840E 01	4.448E-03
3.727E 01	2.282E 00	5.275E 00	-2.970E 02	-2.393E 02	-2.393E 02	0.000	8.197E 02	1.483E 01	2.292E-03	3.383E 01	5.299E-03
3.803E 01	1.985E 00	8.266E 00	-2.794E 02	-2.506E 02	-2.506E 02	0.000	9.009E 02	1.273E 01	1.994E-03	5.301E 01	8.304E-03
3.873E 01	6.951E 00	1.104E 01	-2.781E 02	-3.190E 02	-2.693E 02	-4.966E 01	9.795E 02	4.201E 01	6.580E-03	7.083E 01	1.109E-02
3.875E 01	6.661E 00	1.100E 01	-2.783E 02	-3.204E 02	-2.700E 02	-5.044E 01	9.814E 02	4.272E 01	6.691E-03	7.054E 01	1.105E-02
3.901E 01	8.350E 00	1.031E 01	-2.835E 02	-3.435E 02	-2.811E 02	-6.237E 01	1.011E 03	5.355E 01	8.388E-03	6.612E 01	1.036E-02
3.950E 01	1.164E 01	9.013E 00	-3.021E 02	-3.941E 02	-3.094E 02	-8.474E 01	1.067E 03	7.465E 01	1.169E-02	5.781E 01	9.050E-03
3.975E 01	1.127E 01	8.344E 00	-3.119E 02	-4.242E 02	-3.280E 02	-9.624E 01	1.096E 03	7.226E 01	1.132E-02	5.351E 01	8.381E-03
4.000E 01	1.091E 01	8.058E 00	-3.187E 02	-4.564E 02	-3.490E 02	-1.074E 02	1.125E 03	6.997E 01	1.096E-02	5.166E 01	8.090E-03
4.022E 01	1.309E 01	7.600E 00	-3.262E 02	-4.872E 02	-3.697E 02	-1.175E 02	1.151E 03	6.396E 01	1.315E-02	5.002E 01	7.835E-03
4.040E 01	1.482E 01	1.140E 01	-3.322E 02	-5.121E 02	-3.866E 02	-1.255E 02	1.171E 03	9.567E 01	1.489E-02	7.309E 01	1.145E-02
4.041E 01	1.492E 01	1.160E 01	-3.324E 02	-5.135E 02	-3.876E 02	-1.259E 02	1.172E 03	9.570E 01	1.499E-02	7.440E 01	1.165E-02
4.073E 01	1.808E 01	1.816E 01	-3.367E 02	-5.602E 02	-4.197E 02	-1.405E 02	1.210E 03	1.160E 02	1.816E-02	1.165E 02	1.824E-02
4.122E 01	2.288E 01	1.975E 00	-3.438E 02	-6.337E 02	-4.716E 02	-1.621E 02	1.268E 03	1.467E 02	2.268E-02	1.267E 01	1.984E-03
4.150E 01	2.589E 01	2.023E 00	-3.456E 02	-6.769E 02	-5.028E 02	-1.741E 02	1.301E 03	1.691E 02	2.570E-02	1.298E 01	2.032E-03
4.246E 01	4.000E 01	2.191E 00	-3.595E 02	-8.486E 02	-6.184E 02	-2.300E 02	1.415E 03	2.565E 02	4.018E-02	1.405E 01	2.200E-03
4.271E 01	4.112E 01	2.234E 00	-3.681E 02	-8.986E 02	-6.532E 02	-2.554E 02	1.444E 03	2.637E 02	4.130E-02	1.433E 01	2.244E-03
4.272E 01	4.116E 01	2.236E 00	-3.696E 02	-9.006E 02	-6.543E 02	-2.563E 02	1.445E 03	2.640E 02	4.135E-02	1.434E 01	2.244E-03
4.278E 01	4.145E 01	2.247E 00	-3.796E 02	-9.139E 02	-6.516E 02	-2.623E 02	1.453E 03	2.658E 02	4.164E-02	1.441E 01	2.257E-03
4.431E 01	4.832E 01	2.561E 01	-7.336E 02	-1.229E 03	-8.805E 02	-4.284E 02	1.637E 03	3.099E 02	4.854E-02	1.642E 02	2.572E-02
4.480E 01	5.052E 01	3.310E 01	-7.646E 02	-1.328E 03	-8.392E 02	-4.802E 02	1.697E 03	3.240E 02	5.075E-02	2.123E 02	3.325E-02
4.550E 01	4.580E 01	4.386E 01	-7.844E 02	-1.468E 03	-8.911E 02	-5.747E 02	1.783E 03	2.937E 02	4.601E-02	2.813E 02	4.405E-02
4.622E 01	4.099E 01	3.002E 01	-7.736E 02	-1.610E 03	-9.424E 02	-6.671E 02	1.870E 03	2.629E 02	4.118E-02	1.926E 02	3.016E-02
4.625E 01	4.078E 01	2.940E 01	-7.724E 02	-1.616E 03	-9.447E 02	-6.712E 02	1.874E 03	2.615E 02	4.096E-02	1.686E 02	2.950E-02
4.626E 01	4.071E 01	2.921E 01	-7.722E 02	-1.618E 03	-9.454E 02	-6.725E 02	1.875E 03	2.611E 02	4.089E-02	1.873E 02	2.934E-02
4.694E 01	3.612E 01	1.600E 01	-7.729E 02	-1.754E 03	-9.931E 02	-7.613E 02	1.959E 03	2.316E 02	3.628E-02	1.026E 02	1.607E-02
4.731E 01	3.365E 01	1.421E 01	-7.832E 02	-1.828E 03	-1.018E 03	-8.096E 02	2.005E 03	2.158E 02	3.380E-02	9.110E 01	1.427E-02
4.811E 01	3.240E 01	1.029E 01	-7.877E 02	-1.987E 03	-1.072E 03	-9.194E 02	2.104E 03	2.078E 02	3.255E-02	6.602E 01	1.034E-02
4.874E 01	7.200E 00	7.200E 00	-7.689E 02	-2.112E 03	-1.113E 03	-9.993E 02	2.183E 03	4.618E 01	7.233E-03	4.618E 01	7.233E-03
5.018E 01	1.099E 01	1.099E 01	-7.614E 02	-2.351E 03	-1.202E 03	-1.169E 03	2.363E 03	7.051E 01	1.104E-02	7.051E 01	1.104E-02
5.019E 01	1.102E 01	1.102E 01	-7.008E 02	-2.353E 03	-1.203E 03	-1.170E 03	2.364E 03	7.068E 01	1.107E-02	7.068E 01	1.107E-02
5.072E 01	1.242E 01	1.242E 01	-6.664E 02	-2.416E 03	-1.235E 03	-1.183E 03	2.430E 03	7.963E 01	1.247E-02	7.963E 01	1.247E-02
5.213E 01	1.047E 01	1.047E 01	-5.838E 02	-2.573E 03	-1.315E 03	-1.258E 03	2.588E 03	6.718E 01	1.052E-02	6.718E 01	1.052E-02
5.423E 01	9.000E 00	9.000E 00	-4.764E 02	-2.761E 03	-1.424E 03	-1.355E 03	2.874E 03	5.772E 01	9.041E-03	5.772E 01	9.041E-03
5.473E 01	8.800E 00	8.800E 00	-4.534E 02	-2.825E 03	-1.456E 03	-1.378E 03	2.938E 03	5.644E 01	8.840E-03	5.644E 01	8.840E-03
5.548E 01	8.527E 00	8.527E 00	-4.199E 02	-2.888E 03	-1.488E 03	-1.402E 03	3.004E 03	5.468E 01	8.565E-03	5.468E 01	8.565E-03
5.576E 01	8.426E 00	8.426E 00	-4.079E 02	-2.910E 03	-1.499E 03	-1.412E 03	3.026E 03	5.404E 01	8.464E-03	5.404E 01	8.464E-03
5.624E 01	4.075E 00	8.250E 00	-3.227E 02	-2.948E 03	-1.519E 03	-1.429E 03	3.102E 03	2.613E 01	4.093E-03	5.291E 01	8.287E-03
5.767E 01	3.968E 00	3.968E 00	-2.792E 02	-3.047E 03	-1.572E 03	-1.475E 03	3.209E 03	2.545E 01	3.986E-03	2.545E 01	3.986E-03
5.772E 01	8.325E 00	3.803E 00	-2.781E 02	-3.050E 03	-1.574E 03	-1.476E 03	3.217E 03	5.339E 01	8.363E-03	2.439E 01	3.820E-03
5.786E 01	8.325E 00	3.382E 00	-2.758E 02	-3.059E 03	-1.579E 03	-1.481E 03	3.234E 03	5.339E 01	8.363E-03	2.169E 01	3.397E-03
5.794E 01	3.141E 00	3.141E 00	-2.745E 02	-3.064E 03	-1.581E 03	-1.483E 03	3.245E 03	2.015E 01	3.156E-03	2.015E 01	3.156E-03
5.822E 01	2.300E 00	2.300E 00	-2.709E 02	-3.081E 03	-1.591E 03	-1.491E 03	3.280E 03	1.475E 01	2.310E-03	1.475E 01	2.310E-03
5.845E 01	2.080E 00	2.080E 00	-2.688E 02	-3.095E 03	-1.598E 03	-1.496E 03	3.309E 03	1.334E 01	2.089E-03	1.334E 01	2.089E-03
5.917E 01	1.375E 00	1.375E 00	-2.641E 02	-3.134E 03	-1.621E 03	-1.512E 03	3.402E 03	8.818E 00	1.381E-03	8.818E 00	1.381E-03
6.019E 01	7.475E 00	7.475E 00	-2.538E 02	-3.189E 03	-1.651E 03	-1.538E 03	3.532E 03	4.794E 01	7.509E-03	4.794E 01	7.509E-03
6.220E 01	1.051E 01	1.051E 01	-2.517E 02	-3.311E 03	-1.702E 03	-1.609E 03	3.790E 03	6.742E 01	1.056E-02	6.742E 01	1.056E-02

XARB	P=IR	P=OR	PPA	DDX	D=IR	D=OR	CANAL	P=IR/P=0	P=OR/P=0	P=OB/P=0	P=OR/PTO
6.342E 01	1.121E 01	1.121E 01	-2.517E 02	-3.401E 03	-1.737E 03	-1.666E 03	5.472E 03	1.191E 01	1.191E 01	7.191E 01	1.126E-02
6.609E 01	1.123E 01	1.123E 01	-2.517E 02	-3.571E 03	-1.804E 03	-1.747E 03	1.288E 04	7.202E 01	7.202E 01	7.202E 01	1.129E-02
6.646E 01	1.760E 00	1.123E 01	-2.517E 02	-3.594E 03	-1.815E 03	-1.758E 03	1.129E 04	1.129E 01	1.129E 01	7.204E 01	1.128E-02
6.650E 01	1.760E 00	1.123E 01	-2.517E 02	-3.601E 03	-1.818E 03	-1.785E 03	1.502E 04	1.126E 01	1.126E 01	7.204E 01	1.128E-02
6.670E 01	2.145E 00	1.123E 01	-2.517E 02	-3.615E 03	-1.822E 03	-1.794E 03	1.376E 04	1.376E 01	1.376E 01	7.205E 01	1.129E-02
6.836E 01	5.345E 00	7.428E 00	-1.719E 02	-3.713E 03	-1.860E 03	-1.852E 03	3.584E 04	3.428E 01	3.428E 01	4.764E 01	7.462E-03
6.980E 01	2.335E 00	4.126E 00	5.510E 01	-3.777E 03	-1.882E 03	-1.895E 03	1.794E 04	1.494E 01	1.494E 01	2.646E 01	4.145E-03
7.052E 01	1.813E 00	2.479E 00	1.232E 02	-3.808E 03	-1.891E 03	-1.917E 03	1.194E 04	1.194E 01	1.194E 01	1.547E 01	2.086E-03
7.113E 01	1.370E 00	2.253E 00	1.655E 02	-3.852E 03	-1.907E 03	-1.976E 03	4.782E 03	4.782E 00	4.782E 00	1.445E 01	2.263E-03
7.251E 01	9.400E-01	1.751E 00	2.399E 02	-3.877E 03	-1.907E 03	-1.969E 03	5.849E 03	6.024E 00	6.042E 00	1.123E 01	1.759E-03
7.404E 01	6.977E-01	1.195E 00	2.882E 02	-3.913E 03	-1.917E 03	-1.996E 03	5.273E 03	4.218E 00	6.604E 00	7.664E 00	1.260E-03
7.419E 01	6.300E-01	1.076E 00	2.919E 02	-3.916E 03	-1.917E 03	-1.988E 03	5.291E 03	4.040E 00	6.432E 00	6.900E 00	1.081E-03
7.494E 01	6.967E-01	4.800E-01	3.169E 02	-3.933E 03	-1.921E 03	-2.012E 03	5.375E 03	4.046E 00	6.949E 00	3.078E 00	4.822E-04
7.495E 01	6.971E-01	4.764E-01	3.174E 02	-3.933E 03	-1.921E 03	-2.012E 03	5.375E 03	4.037E 00	7.002E 00	3.058E 00	4.790E-04
7.627E 01	8.150E-01	0.000	3.334E 02	-3.946E 03	-1.927E 03	-2.019E 03	5.027E 03	5.227E 00	8.187E 00	0.000	0.000
7.912E 01	1.105E 00	0.000	3.722E 02	-3.975E 03	-1.936E 03	-2.039E 03	5.525E 03	7.087E 00	1.110E 01	0.000	0.000
8.302E 01	7.000E-01	0.000	4.104E 02	-3.993E 03	-1.944E 03	-2.039E 03	5.456E 03	4.489E 00	7.032E 00	0.000	0.000
8.561E 01	6.856E-01	0.000	4.262E 02	-3.990E 03	-1.950E 03	-2.039E 03	5.469E 03	4.393E 00	6.881E 00	0.000	0.000
8.649E 01	9.150E-01	0.000	4.455E 02	-4.001E 03	-1.962E 03	-2.039E 03	5.707E 03	5.868E 00	9.191E 00	0.000	0.000
8.870E 01	9.155E-01	0.000	4.455E 02	-4.001E 03	-1.962E 03	-2.039E 03	5.707E 03	5.871E 00	9.194E 00	0.000	0.000

X	DDRAG	CDRAG	CF	MC
4.040E 01	8.573E 01	8.573E 01	2.[illegible]E+03	5.[illegible]E+02
4.041E 01	1.626E+01	8.349E 01	2.[illegible]E+03	5.[illegible]E+02
4.073E 01	5.330E 00	8.922E 01	2.362E+03	5.256E+02
4.122E 01	7.910E 00	9.713E 01	2.616E+03	3.772E+02
4.150E 01	4.499E 00	1.016E 02	2.483E+03	4.258E+02
4.246E 01	1.392E 01	1.155E 02	2.433E+03	5.204E+02
4.271E 01	3.957E 00	1.191E 02	3.041E+03	4.766E+02
4.272E 01	1.405E+01	1.192E 02	2.766E+03	5.190E+02
4.278E 01	8.866E+01	1.201E 02	2.77AE+03	5.180E+02
4.431E 01	1.792E 01	1.381E 02	3.079E+03	5.659E+02
4.480E 01	4.455E 00	1.425E 02	3.200E+03	5.447E+02
4.550E 01	9.719E 01	1.482E 02	3.201E+03	5.412E+02
4.622E 01	5.906E 00	1.541E 02	3.071E+03	5.341E+02
4.625E 01	2.991E+01	1.544E 02	3.517E+03	4.686E+02
4.626E 01	9.919E+02	1.545E 02	3.179E+03	5.317E+02
4.690E 01	6.332E 00	1.609E 02	3.046E+03	4.861E+02
4.731E 01	3.486E 00	1.643E 02	3.030E+03	4.623E+02
4.811E 01	7.260E 00	1.716E 02	3.019E+03	4.203E+02
4.874E 01	6.010E 00	1.776E 02	2.999E+03	2.193E+02
5.018E 01	1.420E 01	1.918E 02	3.613E+03	2.266E+02
5.019E 01	8.465E+02	1.919E 02	3.061E+03	2.716E+02
5.072E 01	3.828E 00	1.957E 02	2.933E+03	2.960E+02
5.213E 01	8.799E 00	2.045E 02	2.809E+03	2.673E+02
5.423E 01	1.112E 01	2.157E 02	2.787E+03	2.391E+02
5.473E 01	2.398E 00	2.180E 02	2.764E+03	2.273E+02
5.548E 01	3.506E 00	2.216E 02	2.791E+03	2.165E+02
5.576E 01	1.268E 00	2.228E 02	2.843E+03	2.118E+02
5.624E 01	1.057E 00	2.239E 02	2.740E+03	1.669E+02
5.767E 01	3.172E 00	2.271E 02	2.713E+03	1.246E+02
5.772E 01	1.955E+01	2.272E 02	2.624E+03	1.678E+02
5.786E 01	4.822E+01	2.277E 02	2.874E+03	1.511E+02
5.794E 01	3.228E+01	2.281E 02	3.058E+03	9.652E+03
5.822E 01	1.105E 00	2.292E 02	2.289E+03	9.699E+03
5.845E 01	7.599E+01	2.299E 02	2.164E+03	9.373E+03
5.917E 01	2.377E 00	2.323E 02	2.122E+03	7.042E+03
6.019E 01	3.138E 00	2.354E 02	2.438E+03	1.990E+02
6.220E 01	6.031E 00	2.415E 02	3.083E+03	1.860E+02
6.362E 01	4.536E 00	2.460E 02	3.173E+03	1.852E+02
6.609E 01	7.692E 00	2.537E 02	3.212E+03	1.790E+02
6.646E 01	1.228E 00	2.549E 02	3.146E+03	1.421E+02
6.650E 01	1.378E+01	2.551E 02	2.998E+03	1.487E+02
6.670E 01	6.731E+01	2.557E 02	3.006E+03	1.508E+02
6.836E 01	5.657E 00	2.614E 02	2.992E+03	1.472E+02
6.980E 01	4.235E 00	2.656E 02	2.842E+03	9.901E+03
7.052E 01	1.751E 00	2.674E 02	2.760E+03	7.549E+03
7.113E 01	1.289E 00	2.687E 02	2.728E+03	6.726E+03
7.251E 01	2.570E 00	2.712E 02	2.671E+03	5.463E+03
7.404E 01	2.369E 00	2.736E 02	2.601E+03	4.183E+03
7.419E 01	1.934E+01	2.738E 02	2.586E+03	3.941E+03
7.494E 01	8.295E+01	2.746E 02	2.518E+03	3.910E+03
7.495E 01	1.410E+03	2.746E 02	2.518E+03	3.005E+03
7.627E 01	5.003E+01	2.751E 02	2.569E+03	3.799E+03
7.912E 01	1.140E 00	2.763E 02	2.609E+03	4.697E+03
8.302E 01	1.162E 00	2.774E 02	2.512E+03	5.360E+03
8.583E 01	5.171E+01	2.779E 02	2.496E+03	5.290E+03
8.869E 01	2.326E+01	2.782E 02	2.535E+03	4.034E+03

HEADING = 0000 HLOCK = 103 TIME = 314.077 MACH 7.5 PT = 995.699 TI = 2722.0

X	DRAG	CDRAG	CF	-C
8.8706E 01	0.000	2.7625E 02	2.5351E-03	4.0135E-03

ORIGINAL PAGE IS
OF POOR QUALITY

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	169.	(LBF)
MEASURED THRUST	1024.	(LBF)
CALCULATED SPECIFIC IMPULSE	390.	(LBF-SEC/LBM)
MEASURED SPECIFIC IMPULSE	2364.	(LBF-SEC/LBM)
CALCULATED THRUST COEFFICIENT	0.1139	
MEASURED THRUST COEFFICIENT	0.6898	

REGENERATIVE-COOLED ENGINE PERFORMANCE CALCULATED

STREAM THRUST	3383.	(LBF)
NET THRUST	342.	(LBF)
SPECIFIC IMPULSE	881.	(LBF-SEC/LBM)
THRUST COEFFICIENT	0.2572	

MOMENTUM AND FORCES

INLET FRICTION DRAG	83.7	(LBF)
INLET MOMENTUM CHANGE	-416.0	(LBF)
COMBUSTOR FRICTION DRAG	171.2	(LBF)
COMBUSTOR STRUT DRAG	-40.70	(LBF)
COMBUSTOR MOMENTUM CHANGE	-89.	(LBF)
NOZZLE FRICTION DRAG	23.26	(LBF)
NOZZLE STRUT DRAG	-0.00	(LBF)
NOZZLE MOMENTUM CHANGE	674.	(LBF)
NOZZLE PRESSURE INTEGRAL	697.	(LBF)
EXTERNAL FRICTION DRAG	72.05	(LBF)
EXTERNAL PRESSURE INTEGRAL	-683.	(LBF)
TOTAL EXTERNAL DRAG	-755.	(LBF)
TOTAL STRUT DRAG	-40.70	(LBF)
CAVITY FORCE	-636.	(LBF)
CALCULATED LOAD CELL FORCE	-1222.	(LBF)
MEASURED LOAD CELL FORCE	-367.	(LBF)

FUEL VACUUM SPECIFIC IMPULSE 0.0, 0.0, -154.4, -124.8,

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	1.7230	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	36.607	(IN)
NOZZLE SHROUD TRAILING EDGE	74.947	(IN)
NOZZLE PLUG TRAILING EDGE	68.699	(IN)
STRUT LEADING EDGE	57.463	(IN)
STRUT TRAILING EDGE	66.463	(IN)
COMBUSTOR EXIT	66.463	(IN)

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.9901	
ADDITIVE DRAG COEFFICIENT	0.0000	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.1033	
DELTA PT2	0.0924	(PSI)
TOTAL PRESSURE RECOVERY = SUPERSONIC	0.3335	
TOTAL PRESSURE RECOVERY = SUBSONIC	0.1046	
INLET PROCESS EFFICIENCY = SUPERSONIC	0.9083	
INLET PROCESS EFFICIENCY = SUBSONIC	0.9162	
KINETIC ENERGY EFFICIENCY = SUPERSONIC	0.9241	
KINETIC ENERGY EFFICIENCY = SUBSONIC	0.8760	
ENTHALPY AT P0 = SUPERSONIC	-49.01	(BTU/LBM)
ENTHALPY AT P0 = SUBSONIC	-17.52	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0262	
EQUIVALENCE RATIO	0.832	
COMBUSTOR EFFICIENCY	0.219	
TOTAL PRESSURE RATIO	0.0626	
COMBUSTOR EFFECTIVENESS	0.2573	

INJECTOR DISCHARGE COEFFICIENTS 0.9647, 0.4742, 1.0235, 0.6134

NOZZLE

VACUUM STREAM THRUST COEFFICIENT = CFS	1.0363	
NOZZLE COEFFICIENT = CF	0.9739	
PROCESS EFFICIENCY	1.1720	
KINETIC ENERGY EFFICIENCY	1.0677	

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	A
1B	42.708	B
1C	44.300	
2A	50.183	D
2C	44.250	E
3A	55.473	
3B	57.658	
4	44.208	

Reading 89

t = 327.27 sec.

2/13/75

READING # 0089 BLOCK # 155 TYPE # 327,273 MACH 7.5 PT # 994,999 TT # 2408.1

RAMJET PERFORMANCE

S U M M A R Y R E P O R T

	P	T			GAMMA	RGLAT	SONV	MACH	WFL	B	FA	A/AC	MOMTM	G	TVAL	PHI	ETAC
WIND TUNNEL		1	0	5													
0.000	994.999	2408	495.0(	623)	1.3121	28.909	2331										
0.000	0.197	221	-76.2(	53)	1.3934	28.908	728	7.340	5306	1.743	0.07087	17.976	0.9904	3027	5.898	168.4	
SPIKE TIP AS		2	0	5													
0.600	11.162	2408	495.0(	623)	1.3122	28.909	2331										
0.600	10.161	2355	479.6(	608)	1.3140	28.908	2307	0.381	878	2.052	0.07087	17.976	0.9904	3068	0.967	170.7	
WIND TUNNEL		3	0	0													
0.000	994.999	2408	495.0(	623)	1.3121	28.909	2331										
0.000	0.161	223	-75.8(	53)	1.3931	28.908	731	7.314	5344	1.743	0.07204	18.273	0.9904	3076	5.983	168.5	
SPIKE TIP AS		4	0	0													
0.600	11.162	2408	495.0(	623)	1.3122	28.908	2331										
0.600	10.123	2353	479.0(	607)	1.3140	28.908	2306	0.388	895	2.052	0.07204	18.273	0.9904	3076	1.002	168.3	
INLET THROAT		5	0	5													
40.400	331.827	2318	469.0(	598)	1.3151	28.908	2290										
40.400	10.547	951	101.3(	230)	1.3818	28.908	1504	2.853	4290	1.807	0.80956	17.976	0.0789	2610	59.302	145.2	
INLET DNNRSK		6	0	3													
40.400	331.827	2318	469.0(	598)	1.3151	28.908	2290										
40.400	9.082	913	91.7(	221)	1.3840	28.908	1474	2.948	4345	1.807	0.80869	17.976	0.0848	2630	54.609	146.3	
INLET DNNRSK		7	0	4													
40.400	105.783	2318	469.0(	598)	1.3152	28.908	2290										
40.400	91.778	2240	446.8(	575)	1.3178	28.908	2253	0.468	1055	1.886	0.80869	17.976	0.0848	2630	13.261	146.3	
COMBUSTOR	0	8	1	5													
40.410	187.486	2451	478.8(	674)	1.3111	27.174	2425										
40.410	16.915	1343	153.1(	351)	1.3580	27.173	1826	2.210	4037	1.967	0.89429	18.074	0.0789	2610	56.103	144.4	0.17 0.22
COMBUSTOR	0	9	2	4													
40.731	153.911	2614	476.4(	724)	1.3036	27.356	2489										
40.731	21.043	1609	176.0(	425)	1.3416	27.356	1981	1.957	3877	1.995	0.89799	18.074	0.0786	2602	54.081	143.9	0.17 0.40
COMBUSTOR	0	10	3	21													
41.221	209.466	2282	472.6(	627)	1.3185	27.018	2353										
41.221	12.841	1115	135.6(	290)	1.3729	27.017	1678	2.447	4106	1.940	0.89082	18.074	0.0792	2567	56.849	142.0	0.17 0.06
COMBUSTOR	0	11	4	21													
41.500	201.476	2227	470.4(	611)	1.3210	26.948	2329										
41.500	13.812	1117	150.6(	291)	1.3732	26.968	1682	2.379	4000	1.936	0.88195	18.074	0.0800	2530	54.828	140.0	0.17 0.01
COMBUSTOR	0	12	5	4													
42.460	105.998	2381	461.7(	658)	1.3134	27.158	2393										
42.460	23.403	1640	241.6(	435)	1.3419	27.158	2007	1.653	3318	2.000	0.83219	18.074	0.0848	2373	42.418	131.5	0.17 0.20
COMBUSTOR	0	13	6	8													
42.706	99.627	2222	465.2(	631)	1.3220	25.994	2370										
42.706	23.770	1551	260.4(	427)	1.3491	25.993	2000	1.600	3201	2.048	0.82542	18.133	0.0858	2328	41.061	128.3	0.28 0.09
COMBUSTOR	0	14	7	2													
42.716	99.332	2220	465.1(	631)	1.3220	25.992	2369										
42.716	23.785	1551	260.9(	427)	1.3491	25.992	2000	1.598	3196	2.048	0.82467	18.133	0.0858	2324	40.965	128.2	0.28 0.05
COMBUSTOR	0	15	8	3													
42.781	97.655	2206	464.5(	627)	1.3226	25.981	2363										
42.781	23.882	1549	264.0(	427)	1.3493	25.981	2000	1.584	3167	2.048	0.82111	18.133	0.0862	2312	40.416	127.5	0.28 0.04
COMBUSTOR	0	16	9	3													
44.310	70.950	2136	448.9(	605)	1.3254	25.960	2328										
44.310	38.747	1838	357.0(	513)	1.3364	25.960	2169	0.989	2144	2.062	0.75938	18.133	0.0932	2133	25.299	117.7	0.28 0.03
COMBUSTOR	0	17	10	21													
44.800	68.793	2084	444.0(	589)	1.3276	25.924	2303										
44.800	43.511	1859	374.9(	520)	1.3360	25.924	2182	0.852	1861	2.098	0.75038	18.133	0.0943	2100	21.697	115.8	0.28 0.00
COMBUSTOR	0	18	11	21													
45.501	67.897	2057	437.3(	581)	1.3287	25.919	2269										
45.501	47.693	1883	383.9(	528)	1.3351	25.919	2196	0.745	1635	2.054	0.74548	18.133	0.0949	2081	18.952	114.7	0.28 0.00

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	P	T	H		GAMMA	WGLWT	SOLV	MACH	VEL	B	W/A	W	A/AC	WDMTH	G	IVAC	PHI	ETAC
COMBUSTOR	0	19	12	3														
46.216	46.538	2042	430.5(	576)	1.3291	25.927	2281											
46.216	38.473	1785	351.4(| 498)	1.3389	25.927	2141	0.927	1985	2.054	0.72515	18.133	0.0976		2091	22.367	115.3	0.28	0.01
COMBUSTOR	0	20	15	21														
46.250	60.715	2064	448.2(	640)	1.3310	23.568	2407											
46.250	38.455	1840	373.1(| 565)	1.3395	23.568	2280	0.850	1939	2.225	0.72942	18.294	0.0979		2066	21.991	113.0	0.56	0.04
COMBUSTOR	0	21	14	21														
46.260	41.913	1974	408.1(	611)	1.3352	23.491	2363											
46.260	38.332	1749	372.6(| 536)	1.3440	23.491	2231	0.871	1988	2.210	0.72937	18.294	0.0979		2067	22.031	113.0	0.56	0.01
COMBUSTOR	0	22	15	21														
46.941	58.064	1943	441.6(	600)	1.3366	23.480	2345											
46.941	29.970	1641	341.4(| 500)	1.3489	23.480	2165	1.034	2238	2.210	0.69436	18.294	0.1029		2062	24.151	112.7	0.56	0.00
COMBUSTOR	0	23	16	21														
47.310	55.599	1931	438.0(	596)	1.3371	23.478	2338											
47.310	27.866	1618	334.5(| 493)	1.3504	23.478	2151	1.058	2276	2.212	0.67590	18.294	0.1057		2048	23.905	112.0	0.56	0.00
COMBUSTOR	0	24	17	21														
48.110	50.441	1907	430.3(	588)	1.3380	23.478	2325											
48.110	23.902	1575	320.5(| 479)	1.3521	23.478	2124	1.104	2344	2.216	0.62132	18.294	0.1150		2036	22.630	111.3	0.56	0.00
COMBUSTOR	0	25	18	21														
48.741	23.995	2357	424.3(	735)	1.3165	23.895	2541											
48.741	7.225	1753	220.4(| 531)	1.3393	23.895	2210	1.445	3194	2.337	0.56555	18.294	0.1263		2050	20.072	112.0	0.56	0.17
COMBUSTOR	0	26	19	21														
50.181	32.650	1954	426.7(	645)	1.3372	21.981	2431											
50.181	11.383	1490	263.5(| 482)	1.3573	21.981	2139	1.336	2858	2.389	0.46340	18.421	0.1592		2089	20.579	113.4	0.79	0.04
COMBUSTOR	0	27	20	21														
50.191	35.295	1833	426.7(	603)	1.3432	21.884	2365											
50.191	11.411	1365	263.7(| 441)	1.3646	21.884	2057	1.368	2855	2.358	0.46280	18.421	0.1554		2089	20.537	113.4	0.79	0.01
COMBUSTOR	0	28	21	21														
50.721	36.722	1806	423.4(	594)	1.3440	21.870	2350											
50.721	12.942	1375	273.4(| 444)	1.3643	21.870	2065	1.326	2739	2.349	0.43283	18.421	0.1662		2119	18.423	115.0	0.79	0.00
COMBUSTOR	0	29	22	21														
52.131	36.298	1781	415.4(	585)	1.3455	21.867	2334											
52.131	11.112	1305	250.6(| 420)	1.3679	21.867	2014	1.426	2872	2.345	0.36889	18.421	0.1950		2199	16.463	119.4	0.79	0.00
COMBUSTOR	0	30	23	4														
54.231	32.835	1878	403.1(	620)	1.3403	21.900	2390											
54.231	9.925	1376	227.7(| 444)	1.3632	21.900	2063	1.436	2962	2.377	0.30292	18.456	0.2379		2304	13.946	124.8	0.80	0.04
COMBUSTOR	0	31	24	3														
54.731	32.240	1898	400.7(	627)	1.3393	21.922	2401											
54.731	9.300	1374	217.7(| 444)	1.3630	21.922	2061	1.468	3026	2.382	0.29054	18.456	0.2480		2327	13.663	126.1	0.80	0.04
COMBUSTOR	0	32	25	4														
55.481	30.747	1956	397.0(	644)	1.3363	21.977	2432											
55.481	8.992	1422	209.9(| 459)	1.3599	21.977	2092	1.463	3060	2.395	0.27388	18.456	0.2631		2358	13.023	127.8	0.80	0.06
COMBUSTOR	0	33	26	3														
55.760	30.248	1976	395.7(	653)	1.3353	21.997	2442											
55.760	8.823	1439	206.9(| 465)	1.3589	21.997	2102	1.462	3073	2.399	0.26820	18.456	0.2687		2370	12.808	128.4	0.80	0.07
COMBUSTOR	0	34	27	4														
56.241	25.999	2076	393.4(	688)	1.3304	22.083	2494											
56.241	6.575	1461	176.5(| 471)	1.3568	22.083	2112	1.560	3294	2.427	0.21188	18.456	0.3401		2462	10.847	133.4	0.80	0.10
COMBUSTOR	0	35	28	5														
57.666	21.366	2498	386.8(	836)	1.3103	22.458	2492											
57.666	11.425	2149	258.3(| 708)	1.3227	22.458	2509	1.011	2536	2.495	0.19591	18.456	0.3678		2531	7.720	137.1	0.80	0.22
COMBUSTOR	0	36	29	3														
57.721	21.322	2505	386.6(	838)	1.3099	22.464	2495											
57.721	11.742	2170	263.4(| 715)	1.3218	22.464	2520	0.985	2483	2.496	0.19525	18.456	0.3691		2534	7.533	137.3	0.80	0.23
COMBUSTOR	0	37	30	3														
57.861	21.244	2519	385.9(	843)	1.3093	22.478	2701											
57.861	11.881	2191	265.1(| 723)	1.3209	22.478	2530	0.972	2459	2.498	0.19302	18.456	0.3716		2541	7.410	137.7	0.80	0.23

	P	T	H		GAMMA	SPLIT	BODY	MACH	VEL	S	A/A	A	A/AC	MOMTM	G	ISAC	PRT	ETAC
COMBUSTOR	0	38	31	5														
57.941	21.516	2528	345.5(	846)	1.3268	22.467	2705											
57.941	11.970	2197	263.3(	725)	1.3215	22.467	2533	0.977	2473	2.498	0.19609	18.456	0.3675	2545	7.537	137.9	0.80	0.23
COMBUSTOR	0	39	32	3														
58.221	21.609	2551	384.2(	854)	1.3077	22.511	2715											
58.221	12.525	2240	269.0(	740)	1.3187	22.511	2554	0.940	2401	2.500	0.19554	18.456	0.3685	2559	7.296	138.7	0.80	0.24
COMBUSTOR	0	40	33	3														
58.447	21.689	2565	383.0(	859)	1.3070	22.525	2720											
58.447	12.953	2269	273.2(	750)	1.3174	22.526	2569	0.912	2344	2.500	0.19504	18.456	0.3695	2570	7.104	139.3	0.80	0.25
COMBUSTOR	0	41	34	3														
59.171	21.868	2570	379.3(	861)	1.3067	22.538	2722											
59.171	14.325	2324	288.1(	770)	1.3153	22.538	2597	0.823	2136	2.500	0.19201	18.456	0.3753	2602	6.394	141.0	0.80	0.25
COMBUSTOR	0	42	35	4														
60.191	22.513	2454	374.1(	819)	1.3119	22.448	2670											
60.191	16.400	2274	307.8(	753)	1.3183	22.448	2577	0.707	1821	2.484	0.19079	18.456	0.3777	2631	5.490	142.6	0.80	0.22
COMBUSTOR	0	43	36	4														
62.201	23.427	2364	364.0(	787)	1.3158	22.395	2628											
62.201	17.550	2205	305.4(	729)	1.3215	22.395	2543	0.673	1712	2.470	0.19743	18.456	0.3650	2622	5.291	142.1	0.80	0.20
COMBUSTOR	0	44	37	4														
63.621	23.072	2631	357.3(	882)	1.3031	22.645	2744											
63.621	14.587	2362	256.9(	782)	1.3125	22.646	2609	0.859	2241	2.498	0.20278	18.456	0.3553	2613	7.062	141.6	0.80	0.28
COMBUSTOR	0	45	38	3														
66.085	21.945	2643	345.9(	885)	1.3022	22.683	2746											
66.085	12.361	2319	225.4(	765)	1.3136	22.683	2584	0.951	2456	2.504	0.19221	18.456	0.3749	2596	7.337	140.7	0.80	0.30
COMBUSTOR	0	46	39	4														
66.461	21.642	2436	344.2(	812)	1.3118	22.503	2657											
66.461	6.891	1842	129.2(	597)	1.3342	22.503	2330	1.408	3280	2.482	0.17869	18.456	0.4032	2593	9.108	140.5	0.80	0.24
COMBUSTOR REGEN		47	40	4														
66.461	21.642	2768	469.5(	936)	1.3003	22.503	2820											
66.461	8.493	2218	264.2(	732)	1.3195	22.503	2543	1.260	3205	2.531	0.17869	18.456	0.4032	2716	8.901	147.1	0.80	0.24
NOZZLE AE		48	41	5														
88.697	21.642	2436	344.2(	810)	1.3118	22.503	2657											
88.697	0.439	488	-190.9(	277)	1.3822	22.503	1647	3.141	5174	2.482	0.03720	18.456	1.9371	3186	2.991	172.6	0.80	0.24
NOZZLE PO		49	42	5														
88.697	21.642	2436	344.2(	810)	1.3118	22.503	2657											
88.697	0.157	667	-261.0(	207)	1.3910	22.503	1432	3.844	5503	2.482	0.01685	18.456	3.8219	3310	1.612	179.4	0.80	0.24
NOZZLE AE REGEN		50	43	5														
88.697	21.642	2768	469.5(	936)	1.3003	22.503	2820											
88.697	0.497	1068	-133.2(	335)	1.3734	22.503	1800	3.051	5491	2.531	0.03720	18.456	1.9371	3396	3.174	184.0	0.80	0.24
NOZZLE PO REGEN		51	44	5														
88.697	21.642	2768	469.5(	936)	1.3003	22.503	2820											
88.697	0.157	777	-226.3(	242)	1.3871	22.503	1543	3.824	5900	2.531	0.01735	18.456	4.1532	3552	1.591	192.4	0.80	0.24
FICTIVE COMBUSTR		69	62	0														
66.461	331.827	4810	344.2(	1686)	1.1967	24.959	3386											
66.461	0.197	891	-1159.6(	259)	1.3613	25.116	1550	5.597	8675	2.388	0.02482	18.456	2.9037	5093	3.345	275.9	0.80	1.00
FICTIVE NOZZLE		70	63	0														
88.697	75.306	2365	317.9(	786)	1.3143	22.503	2621											
88.697	0.229	504	-311.9(	156)	1.3951	22.503	1247	4.504	5614	2.361	0.03720	18.456	1.9371	3334	3.245	180.7	0.80	0.24

X/B8	P=IB	P=OB	PBA	BOX	C=IB	C=OB	CAWALL	P=TB/PB0	P=IB/PT0	P=OB/PB0	P=OB/PT0
0.591E-01	6.900E-01	0.000	-2.693E-01	0.000	0.000	0.000	2.476E-02	4.398E 00	6.935E-04	0.000	0.000
1.836E 01	6.900E-01	0.000	-2.295E 01	0.000	0.000	0.000	1.634E 02	4.398E 00	6.935E-04	0.000	0.000
3.070E 01	1.135E 00	0.000	-9.494E 01	0.000	0.000	0.000	5.054E 02	7.234E 00	1.141E-03	0.000	0.000
3.508E 01	1.998E 00	0.000	-1.985E 02	0.000	0.000	0.000	6.804E 02	1.274E 01	2.009E-03	0.000	0.000
3.555E 01	2.150E 00	0.000	-2.174E 02	0.000	0.000	0.000	7.013E 02	1.370E 01	2.161E-03	0.000	0.000
3.606E 01	2.110E 00	0.000	-2.390E 02	-2.115E 02	-2.115E 02	0.000	7.244E 02	1.349E 01	2.121E-03	0.000	0.000
3.648E 01	2.283E 00	0.000	-2.578E 02	-2.167E 02	-2.167E 02	0.000	7.443E 02	1.455E 01	2.295E-03	0.000	0.000
3.660E 01	2.295E 00	3.034E 00	-2.949E 02	-2.182E 02	-2.182E 02	0.000	7.499E 02	1.463E 01	2.306E-03	1.934E 01	3.050E-03
3.690E 01	2.295E 00	3.055E 00	-2.949E 02	-2.182E 02	-2.182E 02	0.000	7.502E 02	1.463E 01	2.307E-03	1.947E 01	3.070E-03
3.701E 01	2.335E 00	4.420E 00	-2.970E 02	-2.235E 02	-2.235E 02	0.000	7.922E 02	1.488E 01	2.347E-03	2.617E 01	4.448E-03
3.727E 01	2.249E 00	5.300E 00	-2.959E 02	-2.269E 02	-2.269E 02	0.000	8.194E 02	1.434E 01	2.261E-03	3.378E 01	5.327E-03
3.803E 01	2.000E 00	8.267E 00	-2.780E 02	-2.377E 02	-2.377E 02	0.000	9.012E 02	1.275E 01	2.010E-03	5.269E 01	8.308E-03
3.873E 01	6.621E 00	1.101E 01	-2.773E 02	-2.927E 02	-2.559E 02	-3.685E 01	9.794E 02	4.220E 01	6.654E-03	7.015E 01	1.106E-02
3.875E 01	6.746E 00	1.100E 01	-2.776E 02	-2.941E 02	-2.564E 02	-3.780E 01	9.819E 02	4.300E 01	6.780E-03	7.008E 01	1.105E-02
3.901E 01	8.460E 00	1.085E 01	-2.827E 02	-3.139E 02	-2.676E 02	-4.635E 01	1.011E 03	5.392E 01	8.503E-03	6.914E 01	1.090E-02
3.950E 01	1.180E 01	1.057E 01	-2.989E 02	-3.586E 02	-2.957E 02	-6.294E 01	1.067E 03	7.524E 01	1.186E-02	6.736E 01	1.062E-02
3.975E 01	1.361E 01	1.042E 01	-3.086E 02	-3.895E 02	-3.141E 02	-7.139E 01	1.096E 03	8.676E 01	1.368E-02	6.645E 01	1.048E-02
4.000E 01	1.541E 01	1.129E 01	-3.173E 02	-4.150E 02	-3.353E 02	-7.975E 01	1.125E 03	9.820E 01	1.548E-02	7.198E 01	1.135E-02
4.022E 01	1.691E 01	1.206E 01	-3.263E 02	-4.430E 02	-3.559E 02	-8.715E 01	1.151E 03	1.078E 02	1.699E-02	7.686E 01	1.212E-02
4.040E 01	1.812E 01	1.545E 01	-3.317E 02	-4.662E 02	-3.731E 02	-9.313E 01	1.171E 03	1.155E 02	1.821E-02	9.849E 01	1.553E-02
4.041E 01	1.819E 01	1.564E 01	-3.318E 02	-4.675E 02	-3.740E 02	-9.346E 01	1.173E 03	1.159E 02	1.828E-02	9.970E 01	1.572E-02
4.073E 01	2.037E 01	2.172E 01	-3.344E 02	-5.102E 02	-4.061E 02	-1.041E 02	1.210E 03	1.298E 02	2.047E-02	1.384E 02	2.183E-02
4.122E 01	2.369E 01	1.987E 00	-3.606E 02	-5.784E 02	-4.583E 02	-1.201E 02	1.268E 03	1.510E 02	2.381E-02	1.267E 01	1.997E-03
4.150E 01	2.559E 01	2.037E 00	-3.932E 02	-6.190E 02	-4.899E 02	-1.290E 02	1.301E 03	1.631E 02	2.572E-02	1.298E 01	2.047E-03
4.246E 01	4.460E 01	2.206E 00	-5.373E 02	-7.774E 02	-6.016E 02	-1.757E 02	1.415E 03	2.843E 02	4.482E-02	1.406E 01	2.217E-03
4.271E 01	4.529E 01	2.249E 00	-5.801E 02	-8.225E 02	-6.296E 02	-1.929E 02	1.444E 03	2.887E 02	4.552E-02	1.434E 01	2.261E-03
4.272E 01	4.532E 01	2.251E 00	-5.817E 02	-8.243E 02	-6.307E 02	-1.936E 02	1.445E 03	2.889E 02	4.555E-02	1.435E 01	2.262E-03
4.278E 01	4.550E 01	2.262E 00	-5.929E 02	-8.363E 02	-6.378E 02	-1.985E 02	1.453E 03	2.900E 02	4.573E-02	1.442E 01	2.274E-03
4.431E 01	4.980E 01	2.770E 01	-7.548E 02	-1.119E 03	-7.784E 02	-3.402E 02	1.637E 03	3.174E 02	5.005E-02	1.765E 02	2.784E-02
4.480E 01	5.117E 01	3.585E 01	-7.836E 02	-1.206E 03	-8.125E 02	-3.938E 02	1.697E 03	3.262E 02	5.143E-02	2.285E 02	3.603E-02
4.550E 01	4.780E 01	4.751E 01	-7.977E 02	-1.328E 03	-8.972E 02	-4.706E 02	1.783E 03	3.047E 02	4.804E-02	3.028E 02	4.774E-02
4.622E 01	4.436E 01	3.339E 01	-7.820E 02	-1.452E 03	-9.020E 02	-5.501E 02	1.870E 03	2.827E 02	4.456E-02	2.120E 02	3.356E-02
4.625E 01	4.419E 01	3.272E 01	-7.811E 02	-1.458E 03	-9.042E 02	-5.539E 02	1.874E 03	2.817E 02	4.441E-02	2.085E 02	3.288E-02
4.626E 01	4.414E 01	3.252E 01	-7.808E 02	-1.460E 03	-9.048E 02	-5.550E 02	1.875E 03	2.814E 02	4.437E-02	2.073E 02	3.268E-02
4.694E 01	4.086E 01	1.907E 01	-7.793E 02	-1.579E 03	-9.469E 02	-6.325E 02	1.959E 03	2.605E 02	4.107E-02	1.216E 02	1.917E-02
4.731E 01	3.909E 01	1.665E 01	-7.900E 02	-1.645E 03	-9.695E 02	-6.751E 02	2.005E 03	2.491E 02	3.928E-02	1.041E 02	1.673E-02
4.811E 01	3.642E 01	1.138E 01	-7.950E 02	-1.786E 03	-1.018E 03	-7.675E 02	2.104E 03	2.322E 02	3.661E-02	7.253E 01	1.144E-02
4.874E 01	7.225E 00	7.225E 00	-7.757E 02	-1.896E 03	-1.056E 03	-8.407E 02	2.183E 03	4.605E 01	7.261E-03	4.605E 01	7.261E-03
5.018E 01	1.138E 01	1.138E 01	-7.066E 02	-2.113E 03	-1.140E 03	-9.726E 02	2.363E 03	7.255E 01	1.144E-02	7.255E 01	1.144E-02
5.019E 01	1.141E 01	1.141E 01	-7.060E 02	-2.114E 03	-1.141E 03	-9.732E 02	2.364E 03	7.273E 01	1.147E-02	7.273E 01	1.147E-02
5.072E 01	1.294E 01	1.294E 01	-6.724E 02	-2.175E 03	-1.171E 03	-1.004E 03	2.430E 03	8.249E 01	1.301E-02	8.249E 01	1.301E-02
5.213E 01	1.111E 01	1.111E 01	-5.835E 02	-2.321E 03	-1.250E 03	-1.071E 03	2.608E 03	7.083E 01	1.117E-02	7.083E 01	1.117E-02
5.423E 01	9.925E 00	9.925E 00	-4.677E 02	-2.521E 03	-1.360E 03	-1.157E 03	2.874E 03	6.326E 01	9.975E-03	6.326E 01	9.975E-03
5.473E 01	9.300E 00	9.300E 00	-4.427E 02	-2.566E 03	-1.391E 03	-1.175E 03	2.938E 03	5.928E 01	9.347E-03	5.928E 01	9.347E-03
5.548E 01	8.952E 00	8.952E 00	-4.074E 02	-2.633E 03	-1.430E 03	-1.203E 03	3.034E 03	5.706E 01	8.997E-03	5.706E 01	8.997E-03
5.576E 01	8.823E 00	8.823E 00	-3.947E 02	-2.658E 03	-1.444E 03	-1.214E 03	3.069E 03	5.624E 01	8.867E-03	5.624E 01	8.867E-03
5.624E 01	4.550E 00	8.600E 00	-3.011E 02	-2.700E 03	-1.466E 03	-1.234E 03	3.102E 03	2.900E 01	4.573E-03	5.482E 01	8.643E-03
5.767E 01	1.142E 01	1.142E 01	-2.298E 02	-2.821E 03	-1.524E 03	-1.297E 03	3.209E 03	7.282E 01	1.148E-02	7.282E 01	1.148E-02
5.772E 01	1.195E 01	1.153E 01	-2.266E 02	-2.826E 03	-1.526E 03	-1.300E 03	3.217E 03	7.617E 01	1.201E-02	7.352E 01	1.159E-02
5.786E 01	1.195E 01	1.181E 01	-2.190E 02	-2.838E 03	-1.531E 03	-1.307E 03	3.234E 03	7.617E 01	1.201E-02	7.528E 01	1.187E-02
5.794E 01	1.197E 01	1.197E 01	-2.142E 02	-2.845E 03	-1.534E 03	-1.311E 03	3.245E 03	7.629E 01	1.203E-02	7.629E 01	1.203E-02
5.822E 01	1.252E 01	1.252E 01	-1.982E 02	-2.870E 03	-1.545E 03	-1.325E 03	3.280E 03	7.983E 01	1.259E-02	7.983E 01	1.259E-02
5.845E 01	1.295E 01	1.295E 01	-1.858E 02	-2.891E 03	-1.554E 03	-1.337E 03	3.309E 03	8.256E 01	1.302E-02	8.256E 01	1.302E-02
5.917E 01	1.432E 01	1.432E 01	-1.488E 02	-2.959E 03	-1.581E 03	-1.378E 03	3.402E 03	9.131E 01	1.440E-02	9.131E 01	1.440E-02
6.019E 01	1.640E 01	1.640E 01	-1.132E 02	-3.056E 03	-1.618E 03	-1.438E 03	3.532E 03	1.045E 02	1.648E-02	1.045E 02	1.648E-02
6.220E 01	1.755E 01	1.755E 01	-1.093E 02	-3.242E 03	-1.686E 03	-1.556E 03	3.790E 03	1.119E 02	1.764E-02	1.119E 02	1.764E-02

XARS	P=IN	P=CH	PDX	P=IF	P=CH	CP-ALL	P=T/P0	P=CH/P0	P=CH/PIN
6.3425 01	1.4554E 01	1.4554E 01	-3.3445E 02	-1.7736E 03	-1.0432E 03	4.5728E 03	9.6554E-01	1.4554E-01	1.0466E-02
6.6785 01	1.2366E 01	1.2366E 01	-3.5761E 02	-1.8236E 03	-1.2538E 03	4.9244E 03	7.6794E-01	1.2426E-01	1.2426E-02
6.6946 01	1.2602E 01	1.2602E 01	-3.6146E 02	-1.8437E 03	-1.2771E 03	4.9537E 03	7.8635E-01	1.2086E-01	1.2086E-02
6.6508 01	1.1998E 01	1.1998E 01	-3.6112E 02	-1.8438E 03	-1.2773E 03	4.9542E 03	7.6396E-01	1.2056E-01	1.2056E-02
6.6708 01	1.1809E 01	1.1809E 01	-3.6428E 02	-1.8446E 03	-1.2782E 03	4.9566E 03	7.5246E-01	1.1846E-01	1.1846E-02
6.8368 01	9.4058E 00	7.9335E 00	-2.8628E 01	-1.8495E 03	-1.2403E 03	4.8648E 03	5.0456E-01	7.9756E-03	7.9756E-03
6.8408 01	2.5508E 00	2.1546E 00	-3.8196E 02	-1.8922E 03	-1.2447E 03	4.7619E 03	2.5616E-01	2.9164E-01	4.5476E-03
7.0528 01	1.0338E 00	2.8895E 00	-3.8043E 02	-1.9032E 03	-1.9114E 03	4.4496E 03	1.2324E-01	1.8035E-03	2.9106E-03
7.1138 01	1.4116E 00	2.8043E 00	-3.9172E 02	-1.9466E 03	-1.9323E 03	4.9237E 03	1.4987E 00	1.4617E-03	2.4566E-03
7.2518 01	1.2356E 00	2.0172E 00	-3.9277E 02	-1.9556E 03	-1.9372E 03	5.0899E 03	7.8728E 00	1.2416E-01	1.3216E 01
7.4048 01	7.0686E-01	1.4406E 00	-3.9737E 02	-1.9648E 03	-2.0055E 03	5.2273E 03	4.5656E 00	7.1036E-04	1.4476E-03
7.4198 01	4.8506E-01	1.2696E 00	-3.9777E 02	-1.9706E 03	-2.0067E 03	5.2916E 03	4.1756E 00	4.9836E-04	1.2766E-03
7.4948 01	7.4686E-01	5.1406E 02	-3.9946E 02	-1.9756E 03	-2.0023E 03	5.1756E 03	4.8876E 00	7.7046E-04	4.1716E-04
7.4948 01	7.4746E-01	5.1446E 02	-3.9996E 02	-1.9756E 03	-2.0023E 03	5.1756E 03	4.8916E 00	7.7126E-04	4.1256E-04
7.6278 01	9.4506E-01	0.000	-4.0408E 02	-1.9836E 03	-2.0067E 03	5.0427E 03	6.1516E 00	9.6496E-04	0.000
7.9128 01	1.1558E 00	0.000	5.7556E 02	-4.0548E 03	-1.9976E 03	5.5256E 03	7.3626E 00	1.1616E-03	0.000
8.3028 01	7.4006E-01	0.000	6.1606E 02	-4.0668E 03	-2.0056E 03	5.6308E 03	4.7176E 00	7.4376E-04	0.000
8.5838 01	6.2008E-01	0.000	6.3336E 02	-4.0768E 03	-2.0196E 03	5.6896E 03	5.2276E 00	8.2416E-04	0.000
8.8498 01	1.0656E 00	0.000	5.5606E 02	-4.0936E 03	-2.0336E 03	5.7076E 03	6.7886E 00	1.0706E-03	0.000
8.8708 01	1.0666E 00	0.000	4.9606E 02	-4.0936E 03	-2.0336E 03	5.7076E 03	6.7916E 00	1.0716E-03	0.000

X	DRAG	CURAD	CF	MC
4.040E 01	8.556E 01	1.556E 01	2.021E-03	3.547E-02
4.081E 01	1.587E-01	4.571E 01	2.467E-03	4.340E-02
4.073E 01	5.305E 00	9.102E 01	2.655E-03	5.611E-02
4.122E 01	8.124E 00	9.914E 01	2.682E-03	5.790E-02
4.150E 01	8.565E 00	1.037E 02	2.334E-03	4.281E-02
4.246E 01	1.136E 01	1.174E 02	2.579E-03	5.561E-02
4.271E 01	9.444E 00	1.206E 02	1.800E-03	4.977E-02
4.272E 01	1.375E-01	1.210E 02	2.720E-03	5.002E-02
4.278E 01	6.644E-01	1.219E 02	2.733E-03	5.015E-02
4.291E 01	1.743E 01	1.393E 02	3.020E-03	5.677E-02
4.280E 01	4.280E 00	1.436E 02	3.095E-03	5.848E-02
4.550E 01	5.010E 00	1.490E 02	3.133E-03	5.965E-02
4.622E 01	5.561E 00	1.505E 02	3.018E-03	5.461E-02
4.625E 01	2.975E-01	1.508E 02	3.068E-03	4.759E-02
4.626E 01	9.038E-02	1.509E 02	3.120E-03	5.407E-02
4.694E 01	5.929E 00	1.609E 02	2.907E-03	5.101E-02
4.731E 01	3.281E 00	1.664E 02	2.902E-03	4.884E-02
4.811E 01	6.854E 00	1.716E 02	2.901E-03	4.359E-02
4.874E 01	5.864E 00	1.749E 02	2.932E-03	2.141E-02
5.014E 01	1.422E 01	1.911E 02	3.574E-03	2.270E-02
5.019E 01	8.461E-02	1.912E 02	3.065E-03	2.709E-02
5.072E 01	3.807E 00	1.950E 02	2.874E-03	1.018E-02
5.213E 01	8.719E 00	2.037E 02	2.753E-03	2.746E-02
5.423E 01	1.094E 01	2.107E 02	2.659E-03	2.511E-02
5.473E 01	2.336E 00	2.177E 02	2.724E-03	2.334E-02
5.548E 01	3.472E 00	2.220E 02	2.710E-03	2.251E-02
5.576E 01	1.261E 00	2.221E 02	2.757E-03	2.181E-02
5.624E 01	1.034E 00	2.222E 02	2.652E-03	1.744E-02
5.767E 01	2.762E 00	2.256E 02	2.873E-03	2.071E-02
5.772E 01	1.618E-01	2.257E 02	3.151E-03	1.472E-02
5.784E 01	6.184E-01	2.261E 02	3.155E-03	1.478E-02
5.794E 01	2.412E-01	2.264E 02	3.152E-03	1.864E-02
5.822E 01	8.345E-01	2.272E 02	3.157E-03	1.899E-02
5.845E 01	6.571E-01	2.279E 02	3.173E-03	1.899E-02
5.917E 01	1.990E 00	2.299E 02	3.204E-03	1.893E-02
6.019E 01	2.249E 00	2.323E 02	3.265E-03	1.839E-02
6.220E 01	4.453E 00	2.376E 02	3.219E-03	1.893E-02
6.362E 01	3.507E 00	2.403E 02	3.035E-03	2.096E-02
6.606E 01	7.037E 00	2.473E 02	3.144E-03	1.870E-02
6.646E 01	1.233E 00	2.486E 02	3.068E-03	1.482E-02
6.650E 01	1.402E-01	2.487E 02	2.926E-03	1.934E-02
6.670E 01	6.844E-01	2.494E 02	2.931E-03	1.553E-02
6.836E 01	5.754E 00	2.552E 02	2.922E-03	1.514E-02
6.980E 01	9.354E 00	2.595E 02	2.782E-03	1.057E-02
7.052E 01	1.833E 00	2.613E 02	2.791E-03	8.188E-03
7.113E 01	1.358E 00	2.627E 02	2.667E-03	7.270E-03
7.251E 01	2.774E 00	2.659E 02	2.624E-03	6.313E-03
7.404E 01	2.599E 00	2.681E 02	2.549E-03	4.455E-03
7.419E 01	2.077E-01	2.683E 02	2.524E-03	4.305E-03
7.494E 01	8.567E-01	2.691E 02	2.442E-03	3.027E-03
7.494E 01	1.400E-03	2.691E 02	2.442E-03	3.020E-03
7.627E 01	9.248E-01	2.697E 02	2.520E-03	4.290E-03
7.912E 01	1.203E 00	2.709E 02	2.534E-03	4.856E-03
8.302E 01	1.187E 00	2.721E 02	2.444E-03	5.507E-03
8.543E 01	5.813E-01	2.726E 02	2.452E-03	5.756E-03
8.649E 01	2.534E-01	2.729E 02	2.487E-03	4.504E-03

READING = 0089 BLOCK = 155 TIME = 327,273 MACH 7.5 PT = 994,999 TT = 2008.1

	X	DDRAG	DDRAG	CF	MC
222	8.870E 01	1.000	2.729E 02	2.487E-03	4.50HE-03

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	307.	(LBF)
MEASURED THRUST	1300.	(LBF)
CALCULATED SPECIFIC IMPULSE	679.	(LBF-SEC/LBM)
MEASURED SPECIFIC IMPULSE	2874.	(LBF-SEC/LBM)
CALCULATED THRUST COEFFICIENT	0.2036	
MEASURED THRUST COEFFICIENT	0.8620	

REGENERATIVE-COOLED ENGINE PERFORMANCE CALCULATED

STREAM THRUST	3555.	(LBF)
NET THRUST	527.	(LBF)
SPECIFIC IMPULSE	1167.	(LBF-SEC/LBM)
THRUST COEFFICIENT	0.3497	

MOMENTUM AND FORCES

INLET FRICTION DRAG	85.6	(LBF)
INLET MOMENTUM CHANGE	-417.3	(LBF)
COMBUSTOR FRICTION DRAG	163.0	(LBF)
COMBUSTOR STRUT DRAG	35.25	(LBF)
COMBUSTOR MOMENTUM CHANGE	-17.	(LBF)
NOZZLE FRICTION DRAG	28.29	(LBF)
NOZZLE STRUT DRAG	0.00	(LBF)
NOZZLE MOMENTUM CHANGE	741.	(LBF)
NOZZLE PRESSURE INTEGRAL	765.	(LBF)
EXTERNAL FRICTION DRAG	60.53	(LBF)
EXTERNAL PRESSURE INTEGRAL	-677.	(LBF)
TOTAL EXTERNAL DRAG	-747.	(LBF)
TOTAL STRUT DRAG	35.25	(LBF)
CAVITY FORCE	-804.	(LBF)
CALCULATED LOAD CELL FORCE	-1245.	(LBF)
MEASURED LOAD CELL FORCE	-252.	(LBF)

FUEL VACUUM SPECIFIC IMPULSE 0.0, 0.0, 0.0, -155.3, -125.4,

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	1.7210	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	36.605	(IN)
NOZZLE SHROUD TRAILING EDGE	74.945	(IN)
NOZZLE PLUG TRAILING EDGE	88.697	(IN)
STRUT LEADING EDGE	57.861	(IN)
STRUT TRAILING EDGE	66.461	(IN)
COMBUSTOR EXIT	66.461	(IN)

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.9904	
ADDITIVE DRAG COEFFICIENT	0.0000	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.1049	
DELTA PT2	0.0953	(PSI)
TOTAL PRESSURE RECOVERY = SUPERSONIC	0.3335	
TOTAL PRESSURE RECOVERY = SUBSONIC	0.1063	
INLET PROCESS EFFICIENCY = SUPERSONIC	0.9078	
INLET PROCESS EFFICIENCY = SUBSONIC	0.9175	
KINETIC ENERGY EFFICIENCY = SUPERSONIC	0.9260	
KINETIC ENERGY EFFICIENCY = SUBSONIC	0.8790	
ENTHALPY AT P0 = SUPERSONIC	-59.83	(BTU/LBM)
ENTHALPY AT P0 = SUBSONIC	-33.62	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0251	
EQUIVALENCE RATIO	0.798	
COMBUSTOR EFFICIENCY	0.239	
TOTAL PRESSURE RATIO	0.0652	
COMBUSTOR EFFECTIVENESS	0.2810	

INJECTOR DISCHARGE COEFFICIENTS 0.9444, 0.4501, 1.0001, 0.8069

NOZZLE

VACUUM STREAM THRUST COEFFICIENT = CS	1.0466	
NOZZLE COEFFICIENT = CT	0.9837	
PROCESS EFFICIENCY	1.2033	
KINETIC ENERGY EFFICIENCY	1.0829	

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	A
1B	42.706	B
1C	44.300	
2A	50.181	C
2C	46.250	E
3A	55.471	
3B	57.656	
D	66.206	

2-13-75

READING = 0089 BLOCK = 183 TIME = 352.473 MACH 7.2 PT = 994.749 TT = 3296.5

RAMJET PERFORMANCE

S U M M A R Y R E P O R T

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	A/A	A	A/AC	MOMTM	Q	IVAC	PHI	ETAC
WIND TUNNEL		1	0 6														
0.000	994.749	3296	761.1(883)	1.2842	28.909	2698											
0.000	0.153	323	-51.4(78)	1.3972	28.908	882	7.232	6376	1.837	0.05629	14.261	0.9892	2865	5.577	200.9		
SPIKE TIP NS		2	0 6														
0.600	11.362	3295	761.1(883)	1.2831	28.907	2697											
0.600	10.528	3240	743.9(867)	1.2850	28.907	2676	0.346	926	2.144	0.05629	14.261	0.9892	3078	0.610	215.6		
WIND TUNNEL		3	0 0														
0.000	994.749	3296	761.1(883)	1.2842	28.909	2698											
0.000	0.172	335	-48.7(80)	1.3975	28.908	897	7.095	6365	1.837	0.06130	15.531	0.9892	3116	6.064	200.7		
SPIKE TIP NS		4	0 0														
0.600	11.362	3295	761.1(883)	1.2831	28.907	2697											
0.600	10.353	3228	740.2(863)	1.2854	28.907	2672	0.382	1022	2.144	0.06130	15.531	0.9892	3116	0.673	200.7		
INLET THRUAT		5	0 3														
40.400	300.721	3185	726.6(850)	1.2875	28.909	2656											
40.400	10.599	1415	219.8(349)	1.3533	28.908	1815	2.775	5035	1.908	0.70569	14.261	0.0789	2446	55.224	171.5		
INLET UPNRSK		6	0 3														
40.400	300.721	3185	726.6(850)	1.2875	28.909	2656											
40.400	9.143	1361	205.7(335)	1.3565	28.908	1782	2.865	5105	1.908	0.64154	14.261	0.0868	2466	50.697	172.9		
INLET DNNRSK		7	0 4														
40.400	99.424	3185	726.6(850)	1.2875	28.908	2655											
40.400	86.545	3087	696.7(821)	1.2905	28.908	2618	0.467	1223	1.985	0.64154	14.261	0.0868	2466	12.196	172.9		
COMBUSTOR	0	8	1 13														
40.410	231.610	3077	737.4(884)	1.2934	28.654	2725											
40.410	12.746	1519	256.6(407)	1.3501	28.654	1956	2.508	4905	2.047	0.71018	14.353	0.0789	2446	54.133	170.4	0.21	0.03
COMBUSTOR	0	9	2 4														
40.731	175.543	3300	734.6(951)	1.2827	28.908	2797											
40.731	16.502	1897	291.8(516)	1.3304	28.909	2160	2.179	4707	2.086	0.71280	14.353	0.0786	2432	52.141	169.4	0.21	0.25
COMBUSTOR	0	10	3 21														
41.221	193.358	3061	730.2(878)	1.2938	28.660	2718											
41.221	12.399	1570	269.8(422)	1.3474	28.660	1986	2.416	4800	2.059	0.70742	14.353	0.0792	2393	52.767	166.7	0.21	0.04
COMBUSTOR	0	11	4 21														
41.500	178.089	3019	727.6(865)	1.2957	28.624	2703											
41.500	13.783	1621	295.7(437)	1.3452	28.623	2018	2.304	4649	2.061	0.70038	14.353	0.0800	2357	50.603	164.2	0.21	0.01
COMBUSTOR	0	12	5 4														
42.460	108.272	3073	716.7(881)	1.2925	28.718	2719											
42.460	19.453	2047	393.3(562)	1.3268	28.718	2248	1.769	4022	2.102	0.66087	14.353	0.0848	2217	41.309	154.4	0.21	0.09
COMBUSTOR	0	13	6 21														
42.706	93.572	2950	722.3(890)	1.2940	25.195	2750											
42.706	20.249	2045	423.4(594)	1.3295	25.195	2316	1.669	3867	2.197	0.65656	14.424	0.0858	2178	39.455	151.0	0.36	0.04
COMBUSTOR	0	14	7 21														
42.716	96.617	2890	722.1(871)	1.3019	25.136	2728											
42.716	20.281	1984	424.2(575)	1.3324	25.136	2287	1.669	3861	2.188	0.65596	14.424	0.0858	2177	39.359	150.9	0.36	0.01
COMBUSTOR	0	15	8 21														
42.781	94.812	2879	721.2(867)	1.3024	25.127	2724											
42.781	20.492	1990	428.9(577)	1.3323	25.127	2290	1.670	3824	2.188	0.65313	14.424	0.0862	2167	38.811	150.2	0.36	0.00
COMBUSTOR	0	16	9 4														
44.310	67.294	2904	695.1(874)	1.3000	25.229	2728											
44.310	38.388	2546	574.6(755)	1.3118	25.229	2565	0.956	2454	2.216	0.60403	14.424	0.0932	2017	25.033	139.8	0.36	0.06
COMBUSTOR	0	17	10 21														
44.800	65.908	2787	685.4(836)	1.3051	25.141	2682											
44.800	44.123	2535	601.1(753)	1.3133	25.141	2566	0.801	2055	2.206	0.59687	14.424	0.0943	1987	19.061	137.8	0.36	0.01
COMBUSTOR	0	18	11 21														
45.501	65.445	2733	671.7(818)	1.3070	25.128	2659											
45.501	47.931	2539	606.6(754)	1.3133	25.128	2569	0.702	1802	2.200	0.59313	14.424	0.0949	1974	16.013	136.6	0.36	0.00

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	A/A	M	A/AC	MOMTM	G	IVAL	PHI	ETAC
COMBUSTOR	0	19	12 21														
46.206	54.067	2653	687.5(926)	1.3142	21.179	2850											
46.206	37.739	2362	582.6(822)	1.3234	21.179	2709	0.846	2292	2.514	0.58729	14.672	0.0975	1968	20.915	135.5	0.92	0.04
COMBUSTOR	0	20	13 21														
46.216	60.583	2485	687.3(872)	1.3210	21.061	2784											
46.216	37.594	2211	581.7(767)	1.3304	21.061	2635	0.872	2299	2.493	0.58674	14.672	0.0976	1969	20.966	135.5	0.92	0.01
COMBUSTOR	0	21	14 21														
46.260	60.665	2461	686.5(863)	1.3221	21.043	2773											
46.260	36.958	2178	576.1(755)	1.3318	21.043	2618	0.890	2330	2.489	0.58498	14.672	0.0979	1970	21.184	135.6	0.92	0.00
COMBUSTOR	0	22	15 21														
46.941	56.922	2425	673.8(849)	1.3233	21.040	2754											
46.941	27.113	2017	516.6(695)	1.3377	21.040	2525	1.104	2787	2.490	0.55690	14.672	0.1029	1985	24.120	135.3	0.92	0.00
COMBUSTOR	0	23	16 21														
47.310	54.446	2407	667.0(842)	1.3239	21.040	2744											
47.310	24.997	1983	506.0(682)	1.3389	21.040	2505	1.133	2838	2.491	0.54210	14.672	0.1057	1971	25.910	134.3	0.92	0.00
COMBUSTOR	0	24	17 21														
48.110	47.573	2519	652.5(883)	1.3183	21.160	2793											
48.110	23.167	2111	496.4(728)	1.3325	21.160	2571	1.087	2795	2.518	0.49832	14.672	0.1150	1957	21.642	133.4	0.92	0.04
COMBUSTOR	0	25	18 21														
48.741	34.780	2363	641.2(825)	1.3252	21.058	2719											
48.741	7.250	1587	352.2(537)	1.3549	21.058	2253	1.688	3803	2.526	0.45359	14.672	0.1263	1969	26.605	134.2	0.92	0.01
COMBUSTOR	0	26	19 21														
50.191	41.959	2286	619.0(796)	1.3281	21.043	2678											
50.191	12.395	1678	392.3(570)	1.3510	21.043	2314	1.455	3368	2.496	0.36862	14.672	0.1554	2029	19.293	138.3	0.92	0.00
COMBUSTOR	0	27	20 4														
50.721	40.635	2346	612.6(818)	1.3251	21.104	2706											
50.721	14.275	1804	409.2(615)	1.3450	21.104	2391	1.334	3190	2.507	0.34474	14.672	0.1662	2062	17.092	140.0	0.92	0.02
COMBUSTOR	0	28	21 4														
52.131	36.855	2526	597.8(863)	1.3163	21.280	2787											
52.131	12.025	1917	366.6(653)	1.3382	21.280	2448	1.389	3401	2.538	0.29382	14.672	0.1950	2151	15.527	146.6	0.92	0.08
COMBUSTOR	0	29	22 4														
54.231	32.924	2702	577.6(951)	1.3075	21.387	2866											
54.231	9.475	1998	307.3(682)	1.3326	21.387	2468	1.478	3677	2.575	0.24140	14.708	0.2379	2258	13.796	153.5	0.93	0.14
COMBUSTOR	0	30	23 2														
54.731	32.929	2694	573.6(948)	1.3078	21.389	2862											
54.731	8.550	1941	285.4(661)	1.3347	21.389	2454	1.548	3798	2.573	0.23154	14.708	0.2480	2279	13.665	155.0	0.93	0.14
COMBUSTOR	0	31	24 4														
55.481	31.867	2742	566.0(965)	1.3054	21.440	2881											
55.481	7.954	1959	267.9(667)	1.3333	21.441	2461	1.574	3875	2.581	0.21826	14.708	0.2631	2307	13.143	156.9	0.93	0.15
COMBUSTOR	0	32	25 3														
55.760	31.542	2756	566.0(970)	1.3047	21.456	2886											
55.760	7.732	1961	261.3(667)	1.3330	21.457	2461	1.587	3905	2.583	0.21373	14.708	0.2687	2317	12.970	157.5	0.93	0.16
COMBUSTOR	0	33	26 4														
56.241	27.658	2840	562.7(1002)	1.3006	21.535	2920											
56.241	5.622	1955	215.1(656)	1.3330	21.536	2440	1.709	4171	2.603	0.16885	14.708	0.3401	2396	10.944	162.9	0.93	0.18
COMBUSTOR	0	34	27 4														
57.666	26.632	2910	554.0(1027)	1.2970	21.614	2946											
57.666	5.119	1961	188.5(665)	1.3309	21.615	2450	1.745	4277	2.612	0.15612	14.708	0.3678	2437	10.377	165.7	0.93	0.21
COMBUSTOR	0	35	28 4														
57.721	23.661	3122	553.6(1107)	1.2866	21.801	3027											
57.721	6.266	2295	227.6(786)	1.3158	21.803	2624	1.539	4039	2.641	0.15560	14.708	0.3691	2439	9.766	165.8	0.93	0.26
COMBUSTOR	0	36	29 2														
57.861	23.665	3117	553.0(1105)	1.2868	21.798	3025											
57.861	6.157	2281	223.8(781)	1.3163	21.800	2617	1.551	4059	2.641	0.15453	14.708	0.3716	2441	9.747	166.0	0.93	0.26
COMBUSTOR	0	37	30 7														
57.941	28.464	2835	552.6(999)	1.3005	21.553	2916											
57.941	4.688	1853	169.4(618)	1.3370	21.553	2377	1.842	4379	2.599	0.15626	14.708	0.3675	2443	10.634	166.1	0.93	0.19

READING = DUMP BLOCK = 103 TIME = 352.474 MACH 7.2 PI = 990.749 TI = 3296.3

	P	T	H		GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	G	ISAL	PHI	ETAC
COMBUSTOR	0	38	51	4														
58.221	50.686	2756	551.2(	970)	1.3042	21.488	2884											
58.221	4.250	1699	150.3(	571)	1.3435	21.488	2298	1.949	4479	2.584	0.15585	14.708	0.3685	2449	10.646	166.5	0.93	0.17
COMBUSTOR	0	39	52	4														
58.447	33.405	2675	550.1(	939)	1.3080	21.422	2850											
58.447	3.840	1565	132.8(	524)	1.3506	21.422	2215	2.063	4570	2.568	0.15543	14.708	0.3695	2452	11.037	166.7	0.93	0.15
COMBUSTOR	0	40	53	6														
59.171	50.632	2587	547.0(	835)	1.3212	21.192	2720											
59.171	2.525	1098	76.8(	365)	1.3768	21.192	1863	2.576	4851	2.495	0.15302	14.708	0.3755	2460	11.535	167.3	0.93	0.08
COMBUSTOR	0	41	54	6														
60.191	22.635	3295	543.0(1172)		1.2772	21.982	3085											
60.191	6.725	2505	226.3(	862)	1.3057	21.986	2720	1.464	3981	2.657	0.15204	14.708	0.3777	2470	9.406	168.0	0.93	0.32
COMBUSTOR	0	42	55	3														
62.201	23.432	3246	535.2(1155)		1.2796	21.954	3067											
62.201	6.625	2423	207.4(	832)	1.3090	21.956	2660	1.511	4050	2.647	0.15733	14.708	0.3650	2471	9.902	168.0	0.93	0.31
COMBUSTOR	0	43	56	5														
63.621	21.746	3649	529.5(1307)		1.2559	22.347	3193											
63.621	11.000	3163	323.4(1112)		1.2764	22.358	2996	1.072	3212	2.682	0.16160	14.708	0.3555	2469	8.066	167.9	0.93	0.43
COMBUSTOR	0	44	57	3														
66.085	20.568	3661	517.4(1311)		1.2545	22.386	3194											
66.085	10.870	3206	325.3(1128)		1.2741	22.398	3011	1.055	3117	2.686	0.15516	14.708	0.3749	2468	7.419	167.8	0.93	0.44
COMBUSTOR	0	45	58	3														
66.461	19.117	3662	515.3(1311)		1.2541	22.392	3193											
66.461	10.885	3259	342.5(1149)		1.2718	22.404	3033	0.970	2940	2.692	0.14240	14.708	0.4032	2468	6.507	167.8	0.93	0.44
COMBUSTOR	REGEN	46	59	21														
66.461	19.117	4105	724.0(1493)		1.2273	22.351	3348											
66.461	14.198	3884	618.4(1402)		1.2393	22.373	3271	0.703	2299	2.746	0.14240	14.708	0.4032	2517	5.088	171.2	0.93	0.44
NOZZLE AE		47	40	5														
88.697	19.117	3662	515.3(1284)		1.2541	22.392	3193											
88.697	0.511	1591	-294.6(	519)	1.3378	22.409	2173	2.929	6366	2.692	0.02964	14.708	1.9371	3164	2.933	215.1	0.93	0.44
NOZZLE PO		48	41	5														
88.697	19.117	3662	515.3(1284)		1.2541	22.392	3193											
88.697	0.153	1163	-441.2(	372)	1.3615	22.409	1875	3.691	6918	2.692	0.01316	14.708	4.3623	3333	1.415	226.6	0.93	0.44
NOZZLE AE REGEN		49	42	5														
88.697	19.117	4105	724.0(1493)		1.2273	22.351	3348											
88.697	0.580	1908	-181.3(	632)	1.3230	22.409	2367	2.844	6731	2.746	0.02964	14.708	1.9371	3364	3.101	228.7	0.93	0.44
NOZZLE PO REGEN		50	43	5														
88.697	19.117	4105	724.0(1493)		1.2273	22.351	3348											
88.697	0.153	1364	-373.4(	440)	1.3501	22.409	2021	3.666	7410	2.746	0.01203	14.708	4.7746	3574	1.385	243.0	0.93	0.44
FICTIVE COMBUSTR		60	61	0														
66.461	300.721	5285	515.3(1947)		1.1676	24.109	3567											
66.461	0.153	1138	-1285.1(	343)	1.3433	24.593	1758	5.398	9492	2.509	0.02025	14.708	2.8352	4450	2.987	302.5	0.93	1.00
FICTIVE NOZZLE		69	62	0														
88.697	24.963	3594	484.6(1283)		1.2565	22.396	3169											
88.697	0.438	1394	-363.0(	450)	1.3464	22.409	2042	3.189	6513	2.660	0.02964	14.708	1.9371	3194	3.000	217.2	0.93	0.44

XABS	P-IB	P-OB	PDA	QUA	Q-IB	Q-OB	LAMALL	P-IB/PSO	P-IB/PTO	P-OB/PSO	P-OB/PTO
6.981E-01	6.900E-01	0.000	-2.744E-01	0.000	0.000	0.000	2.470E-02	4.520E 00	6.936E-04	0.000	0.000
1.836E 01	6.900E-01	0.000	-2.296E 01	0.000	0.000	0.000	1.854E 02	4.520E 00	6.936E-04	0.000	0.000
3.070E 01	1.155E 00	0.000	-9.694E 01	0.000	0.000	0.000	5.953E 02	7.436E 00	1.141E-03	0.000	0.000
3.508E 01	2.001E 00	0.000	-1.986E 02	0.000	0.000	0.000	6.804E 02	1.311E 01	2.012E-03	0.000	0.000
3.555E 01	2.150E 00	0.000	-2.175E 02	0.000	0.000	0.000	7.013E 02	1.409E 01	2.161E-03	0.000	0.000
3.606E 01	2.055E 00	0.000	-2.368E 02	-2.199E 02	-2.199E 02	0.000	7.240E 02	1.346E 01	2.066E-03	0.000	0.000
3.648E 01	2.287E 00	0.000	-2.574E 02	-2.252E 02	-2.252E 02	0.000	7.443E 02	1.496E 01	2.299E-03	0.000	0.000
3.660E 01	2.292E 00	3.251E 00	-2.967E 02	-2.267E 02	-2.267E 02	0.000	7.499E 02	1.502E 01	2.304E-03	2.150E 01	3.298E-03
3.660E 01	2.292E 00	3.270E 00	-2.967E 02	-2.268E 02	-2.268E 02	0.000	7.502E 02	1.502E 01	2.304E-03	2.142E 01	3.287E-03
3.701E 01	2.310E 00	4.520E 00	-2.979E 02	-2.322E 02	-2.322E 02	0.000	7.922E 02	1.513E 01	2.322E-03	2.961E 01	4.544E-03
3.727E 01	2.238E 00	5.325E 00	-2.965E 02	-2.358E 02	-2.358E 02	0.000	8.196E 02	1.466E 01	2.250E-03	3.489E 01	5.353E-03
3.803E 01	2.030E 00	8.282E 00	-2.786E 02	-2.470E 02	-2.470E 02	0.000	9.012E 02	1.330E 01	2.041E-03	5.426E 01	8.326E-03
3.873E 01	6.672E 00	1.101E 01	-2.783E 02	-3.170E 02	-2.633E 02	-5.449E 01	9.794E 02	4.371E 01	6.707E-03	7.215E 01	1.107E-02
3.875E 01	6.798E 00	1.096E 01	-2.786E 02	-3.143E 02	-2.639E 02	-5.545E 01	9.815E 02	4.454E 01	6.834E-03	7.185E 01	1.102E-02
3.901E 01	8.526E 00	1.030E 01	-2.843E 02	-3.415E 02	-2.730E 02	-6.854E 01	1.011E 03	5.582E 01	8.565E-03	6.740E 01	1.035E-02
3.950E 01	1.148E 01	9.043E 00	-3.029E 02	-3.864E 02	-2.953E 02	-9.511E 01	1.067E 03	7.522E 01	1.154E-02	5.924E 01	9.091E-03
3.975E 01	1.121E 01	8.400E 00	-3.125E 02	-4.151E 02	-3.095E 02	-1.056E 02	1.096E 03	7.344E 01	1.127E-02	5.503E 01	8.444E-03
4.000E 01	1.094E 01	8.181E 00	-3.191E 02	-4.436E 02	-3.256E 02	-1.181E 02	1.125E 03	7.167E 01	1.100E-02	5.360E 01	8.225E-03
4.022E 01	1.308E 01	7.987E 00	-3.206E 02	-4.701E 02	-3.411E 02	-1.290E 02	1.151E 03	8.569E 01	1.315E-02	5.235E 01	8.030E-03
4.040E 01	1.481E 01	1.044E 01	-3.328E 02	-4.919E 02	-3.540E 02	-1.379E 02	1.171E 03	9.704E 01	1.489E-02	6.845E 01	1.050E-02
4.041E 01	1.491E 01	1.056E 01	-3.350E 02	-4.932E 02	-3.548E 02	-1.384E 02	1.173E 03	9.768E 01	1.499E-02	6.952E 01	1.066E-02
4.073E 01	1.802E 01	1.499E 01	-3.412E 02	-5.332E 02	-3.789E 02	-1.543E 02	1.210E 03	1.180E 02	1.811E-02	9.819E 01	1.507E-02
4.122E 01	2.276E 01	2.037E 00	-3.726E 02	-5.963E 02	-4.182E 02	-1.781E 02	1.268E 03	1.491E 02	2.288E-02	1.355E 01	2.048E-03
4.150E 01	2.546E 01	2.103E 00	-4.043E 02	-6.334E 02	-4.419E 02	-1.914E 02	1.301E 03	1.666E 02	2.560E-02	1.378E 01	2.115E-03
4.246E 01	3.657E 01	2.330E 00	-5.297E 02	-7.911E 02	-5.330E 02	-2.582E 02	1.415E 03	2.396E 02	3.677E-02	1.527E 01	2.343E-03
4.271E 01	3.811E 01	2.389E 00	-5.646E 02	-8.406E 02	-5.586E 02	-2.620E 02	1.444E 03	2.497E 02	3.831E-02	1.565E 01	2.401E-03
4.272E 01	3.817E 01	2.391E 00	-5.660E 02	-8.427E 02	-5.597E 02	-2.830E 02	1.445E 03	2.501E 02	3.837E-02	1.566E 01	2.403E-03
4.278E 01	3.858E 01	2.406E 00	-5.752E 02	-8.564E 02	-5.666E 02	-2.898E 02	1.453E 03	2.527E 02	3.878E-02	1.576E 01	2.419E-03
4.431E 01	4.812E 01	2.866E 01	-7.078E 02	-1.232E 03	-7.491E 02	-4.831E 02	1.637E 03	3.152E 02	4.837E-02	1.877E 02	2.881E-02
4.480E 01	5.117E 01	3.707E 01	-7.328E 02	-1.371E 03	-8.152E 02	-5.554E 02	1.697E 03	3.353E 02	5.145E-02	2.429E 02	3.727E-02
4.550E 01	4.676E 01	4.911E 01	-7.416E 02	-1.569E 03	-9.103E 02	-6.592E 02	1.783E 03	3.065E 02	4.706E-02	3.217E 02	4.937E-02
4.621E 01	4.231E 01	5.317E 01	-7.216E 02	-1.700E 03	-1.002E 03	-7.641E 02	1.869E 03	2.772E 02	4.255E-02	2.173E 02	3.334E-02
4.622E 01	4.225E 01	3.294E 01	-7.206E 02	-1.709E 03	-1.004E 03	-7.656E 02	1.870E 03	2.768E 02	4.247E-02	2.156E 02	3.312E-02
4.626E 01	4.197E 01	3.195E 01	-7.193E 02	-1.701E 03	-1.009E 03	-7.722E 02	1.875E 03	2.750E 02	4.219E-02	2.093E 02	3.211E-02
4.694E 01	3.768E 01	1.655E 01	-7.176E 02	-1.908E 03	-1.094E 03	-8.740E 02	1.959E 03	2.468E 02	3.788E-02	1.084E 02	1.664E-02
4.731E 01	3.535E 01	1.464E 01	-7.287E 02	-2.008E 03	-1.139E 03	-9.293E 02	2.005E 03	2.316E 02	3.554E-02	9.593E 01	1.472E-02
4.811E 01	3.582E 01	1.051E 01	-7.359E 02	-2.282E 03	-1.232E 03	-1.050E 03	2.104E 03	2.347E 02	3.601E-02	6.885E 01	1.057E-02
4.874E 01	7.250E 00	7.250E 00	-7.178E 02	-2.447E 03	-1.302E 03	-1.145E 03	2.183E 03	4.750E 01	7.288E-03	4.750E 01	7.288E-03
5.019E 01	1.239E 01	1.239E 01	-6.444E 02	-2.773E 03	-1.452E 03	-1.320E 03	2.364E 03	8.120E 01	1.246E-02	8.120E 01	1.246E-02
5.072E 01	1.427E 01	1.427E 01	-6.075E 02	-2.866E 03	-1.504E 03	-1.363E 03	2.430E 03	9.352E 01	1.435E-02	9.352E 01	1.435E-02
5.213E 01	1.202E 01	1.202E 01	-5.103E 02	-3.085E 03	-1.630E 03	-1.455E 03	2.608E 03	7.878E 01	1.209E-02	7.878E 01	1.209E-02
5.423E 01	9.475E 00	9.475E 00	-3.920E 02	-3.383E 03	-1.792E 03	-1.571E 03	2.874E 03	6.207E 01	9.525E-03	6.207E 01	9.525E-03
5.473E 01	8.550E 00	8.550E 00	-3.685E 02	-3.461E 03	-1.825E 03	-1.595E 03	2.945E 03	5.601E 01	8.595E-03	5.601E 01	8.595E-03
5.548E 01	7.954E 00	7.954E 00	-3.366E 02	-3.503E 03	-1.873E 03	-1.631E 03	3.034E 03	5.211E 01	7.996E-03	5.211E 01	7.996E-03
5.576E 01	7.732E 00	7.732E 00	-3.254E 02	-3.533E 03	-1.869E 03	-1.643E 03	3.069E 03	5.066E 01	7.773E-03	5.066E 01	7.773E-03
5.624E 01	3.894E 00	7.350E 00	-2.451E 02	-3.581E 03	-1.917E 03	-1.663E 03	3.102E 03	2.551E 01	3.914E-03	4.815E 01	7.389E-03
5.767E 01	5.119E 00	5.119E 00	-2.007E 02	-3.708E 03	-1.992E 03	-1.716E 03	3.209E 03	3.354E 01	5.146E-03	3.354E 01	5.146E-03
5.772E 01	7.500E 00	5.033E 00	-1.993E 02	-3.713E 03	-1.995E 03	-1.718E 03	3.217E 03	4.913E 01	7.540E-03	3.297E 01	5.059E-03
5.786E 01	7.500E 00	4.814E 00	-1.961E 02	-3.724E 03	-2.001E 03	-1.723E 03	3.234E 03	4.915E 01	7.540E-03	3.153E 01	4.839E-03
5.794E 01	4.688E 00	4.688E 00	-1.942E 02	-3.730E 03	-2.005E 03	-1.725E 03	3.245E 03	3.071E 01	4.713E-03	3.071E 01	4.713E-03
5.822E 01	4.250E 00	4.250E 00	-1.883E 02	-3.750E 03	-2.017E 03	-1.735E 03	3.280E 03	2.784E 01	4.272E-03	2.784E 01	4.272E-03
5.845E 01	3.840E 00	3.840E 00	-1.844E 02	-3.766E 03	-2.026E 03	-1.739E 03	3.309E 03	2.515E 01	3.860E-03	2.515E 01	3.860E-03
5.917E 01	2.525E 00	2.525E 00	-1.758E 02	-3.811E 03	-2.054E 03	-1.757E 03	3.402E 03	1.654E 01	2.538E-03	1.654E 01	2.538E-03
6.019E 01	6.725E 00	6.725E 00	-1.651E 02	-3.871E 03	-2.088E 03	-1.784E 03	3.532E 03	4.406E 01	6.760E-03	4.406E 01	6.760E-03
6.220E 01	6.625E 00	6.625E 00	-1.635E 02	-3.967E 03	-2.137E 03	-1.850E 03	3.790E 03	4.340E 01	6.660E-03	4.340E 01	6.660E-03
6.362E 01	1.100E 01	1.100E 01	-1.635E 02	-4.069E 03	-2.170E 03	-1.898E 03	3.972E 03	7.206E 01	1.106E-02	7.206E 01	1.106E-02

READING = 0089 BLOCK = 183 TIME = 352.473 MACH 7.2 PI = 994.749 TI = 5296.5

XABS	P-IB	P-OB	PDA	QUX	G-IB	G-OB	LAMALL	P-IB/PSO	P-IB/PTO	P-OB/PSO	P-OB/PTO
6.608E 01	1.087E 01	1.087E 01	-1.655E 02	-4.247E 03	-2.250E 03	-1.997E 03	4.289E 03	7.121E 01	1.093E-02	7.121E 01	1.093E-02
6.646E 01	1.092E 01	1.085E 01	-1.655E 02	-4.276E 03	-2.264E 03	-2.014E 03	4.337E 03	7.154E 01	1.098E-02	7.106E 01	1.091E-02
6.650E 01	1.092E 01	1.085E 01	-1.655E 02	-4.282E 03	-2.266E 03	-2.016E 03	4.342E 03	7.154E 01	1.098E-02	7.107E 01	1.091E-02
6.670E 01	1.044E 01	1.084E 01	-1.655E 02	-4.296E 03	-2.273E 03	-2.025E 03	4.368E 03	6.838E 01	1.049E-02	7.100E 01	1.089E-02
6.836E 01	6.430E 00	7.288E 00	-6.536E 01	-4.412E 03	-2.325E 03	-2.086E 03	4.584E 03	4.212E 01	6.464E-03	4.775E 01	7.327E-03
6.980E 01	2.695E 00	4.209E 00	1.801E 02	-4.484E 03	-2.354E 03	-2.130E 03	4.701E 03	1.766E 01	2.709E-03	2.758E 01	4.232E-03
7.052E 01	2.056E 00	2.670E 00	2.542E 02	-4.515E 03	-2.364E 03	-2.150E 03	4.849E 03	1.347E 01	2.067E-03	1.749E 01	2.684E-03
7.113E 01	1.515E 00	2.424E 00	3.006E 02	-4.539E 03	-2.371E 03	-2.168E 03	4.923E 03	9.925E 00	1.523E-03	1.588E 01	2.437E-03
7.251E 01	9.400E-01	1.867E 00	3.759E 02	-4.587E 03	-2.385E 03	-2.202E 03	5.069E 03	6.158E 00	9.450E-04	1.223E 01	1.877E-03
7.404E 01	6.941E-01	1.250E 00	4.304E 02	-4.624E 03	-2.396E 03	-2.229E 03	5.273E 03	4.547E 00	6.978E-04	8.189E 00	1.257E-03
7.419E 01	6.700E-01	1.089E 00	4.343E 02	-4.627E 03	-2.397E 03	-2.231E 03	5.291E 03	4.389E 00	6.735E-04	7.135E 00	1.095E-03
7.494E 01	7.439E-01	2.850E-01	4.579E 02	-4.644E 03	-2.402E 03	-2.242E 03	5.375E 03	4.874E 00	7.478E-04	1.867E 00	2.865E-04
7.494E 01	7.443E-01	2.807E-01	4.584E 02	-4.644E 03	-2.402E 03	-2.242E 03	5.375E 03	4.876E 00	7.482E-04	1.839E 00	2.822E-04
7.627E 01	8.750E-01	0.000	4.756E 02	-4.676E 03	-2.409E 03	-2.267E 03	5.427E 03	5.732E 00	8.796E-04	0.000	0.000
7.912E 01	1.035E 00	0.000	5.137E 02	-4.668E 03	-2.422E 03	-2.267E 03	5.525E 03	6.780E 00	1.040E-03	0.000	0.000
8.302E 01	7.900E-01	0.000	5.527E 02	-4.701E 03	-2.434E 03	-2.267E 03	5.630E 03	5.175E 00	7.942E-04	0.000	0.000
8.583E 01	6.350E-01	0.000	5.686E 02	-4.711E 03	-2.445E 03	-2.267E 03	5.685E 03	4.160E 00	6.384E-04	0.000	0.000
8.669E 01	8.450E-01	0.000	5.864E 02	-4.729E 03	-2.463E 03	-2.267E 03	5.707E 03	5.536E 00	8.495E-04	0.000	0.000
8.670E 01	8.454E-01	0.000	5.864E 02	-4.729E 03	-2.463E 03	-2.267E 03	5.707E 03	5.539E 00	8.499E-04	0.000	0.000

X	DDRAG	CLRAG	CF	MC
4.040E 01	8.634E 01	8.634E 01	2.313E-03	5.426E-02
4.041E 01	1.662E-01	8.650E 01	2.309E-03	5.716E-02
4.073E 01	5.372E 00	9.193E 01	2.512E-03	4.677E-02
4.122E 01	7.948E 00	9.988E 01	2.748E-03	5.753E-02
4.150E 01	4.568E 00	1.044E 02	2.617E-03	4.159E-02
4.246E 01	1.429E 01	1.187E 02	2.833E-03	4.792E-02
4.271E 01	3.583E 00	1.223E 02	3.205E-03	4.520E-02
4.272E 01	1.423E-01	1.225E 02	2.959E-03	4.869E-02
4.278E 01	8.966E-01	1.234E 02	2.931E-03	4.924E-02
4.431E 01	1.752E 01	1.409E 02	3.218E-03	5.492E-02
4.480E 01	4.121E 00	1.450E 02	3.360E-03	5.200E-02
4.550E 01	5.136E 00	1.501E 02	3.375E-03	5.095E-02
4.621E 01	5.779E 00	1.559E 02	3.757E-03	4.730E-02
4.622E 01	9.154E-02	1.560E 02	3.316E-03	5.507E-02
4.626E 01	3.717E-01	1.564E 02	3.229E-03	5.653E-02
4.694E 01	6.032E 00	1.624E 02	3.123E-03	5.156E-02
4.731E 01	3.421E 00	1.656E 02	3.116E-03	4.909E-02
4.811E 01	7.030E 00	1.729E 02	3.113E-03	4.525E-02
4.874E 01	6.021E 00	1.784E 02	3.220E-03	4.253E-02
5.019E 01	1.290E 01	1.918E 02	2.957E-03	5.141E-02
5.072E 01	3.564E 00	1.953E 02	2.937E-03	3.525E-02
5.213E 01	8.400E 00	2.037E 02	2.865E-03	2.961E-02
5.423E 01	1.124E 01	2.150E 02	2.895E-03	2.468E-02
5.473E 01	2.577E 00	2.176E 02	2.996E-03	2.190E-02
5.548E 01	3.823E 00	2.214E 02	2.956E-03	2.094E-02
5.576E 01	1.385E 00	2.228E 02	2.985E-03	2.025E-02
5.624E 01	1.135E 00	2.239E 02	2.869E-03	1.504E-02
5.767E 01	3.296E 00	2.272E 02	2.874E-03	1.463E-02
5.772E 01	2.076E-01	2.274E 02	2.976E-03	1.605E-02
5.786E 01	5.270E-01	2.279E 02	3.102E-03	1.525E-02
5.794E 01	3.596E-01	2.283E 02	3.410E-03	1.163E-02
5.822E 01	1.197E 00	2.295E 02	2.836E-03	1.305E-02
5.845E 01	8.819E-01	2.304E 02	2.754E-03	1.245E-02
5.917E 01	2.818E 00	2.332E 02	2.636E-03	9.556E-03
6.019E 01	3.562E 00	2.367E 02	2.568E-03	1.877E-02
6.220E 01	7.097E 00	2.438E 02	3.133E-03	1.556E-02
6.362E 01	5.205E 00	2.490E 02	3.226E-03	1.934E-02
6.608E 01	8.156E 00	2.572E 02	3.421E-03	1.752E-02
6.646E 01	1.163E 00	2.583E 02	3.501E-03	1.657E-02
6.650E 01	1.172E-01	2.584E 02	3.513E-03	1.661E-02
6.670E 01	5.916E-01	2.590E 02	3.503E-03	1.656E-02
6.836E 01	5.382E 00	2.644E 02	3.371E-03	1.459E-02
6.980E 01	4.405E 00	2.688E 02	3.231E-03	9.655E-03
7.052E 01	1.897E 00	2.707E 02	3.162E-03	7.706E-03
7.113E 01	1.417E 00	2.721E 02	3.130E-03	6.806E-03
7.251E 01	2.805E 00	2.749E 02	3.070E-03	5.364E-03
7.404E 01	2.575E 00	2.775E 02	3.006E-03	4.108E-03
7.419E 01	2.103E-01	2.777E 02	2.969E-03	3.817E-03
7.494E 01	8.590E-01	2.786E 02	2.896E-03	2.558E-03
7.494E 01	1.380E-03	2.786E 02	2.896E-03	2.551E-03
7.627E 01	5.247E-01	2.791E 02	2.976E-03	3.706E-03
7.912E 01	1.210E 00	2.803E 02	2.988E-03	4.257E-03
8.302E 01	1.250E 00	2.816E 02	2.924E-03	5.467E-03
8.583E 01	5.584E-01	2.821E 02	2.875E-03	2.933E-03
8.869E 01	2.360E-01	2.824E 02	2.908E-03	3.606E-03
8.870E 01	0.000	2.824E 02	2.908E-03	3.606E-03

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	329.	(LBF)
MEASURED THRUST	1234.	(LBF)
CALCULATED SPECIFIC IMPULSE	786.	(LBF-SEC/LBM)
MEASURED SPECIFIC IMPULSE	2946.	(LBF-SEC/LBM)
CALCULATED THRUST COEFFICIENT	0.2303	
MEASURED THRUST COEFFICIENT	0.8655	

REGENERATIVE-COOLED ENGINE PERFORMANCE CALCULATED

STREAM THRUST	3397.	(LBF)
NET THRUST	552.	(LBF)
SPECIFIC IMPULSE	1270.	(LBF-SEC/LBM)
THRUST COEFFICIENT	0.3721	

MOMENTUM AND FORCES

INLET FRICTION DRAG	86.4	(LBF)
INLET MOMENTUM CHANGE	-419.2	(LBF)
COMBUSTOR FRICTION DRAG	171.9	(LBF)
COMBUSTOR STRUT DRAG	-24.96	(LBF)
COMBUSTOR MOMENTUM CHANGE	22.	(LBF)
NOZZLE FRICTION DRAG	24.04	(LBF)
NOZZLE STRUT DRAG	-0.00	(LBF)
NOZZLE MOMENTUM CHANGE	726.	(LBF)
NOZZLE PRESSURE INTEGRAL	750.	(LBF)
EXTERNAL FRICTION DRAG	76.38	(LBF)
EXTERNAL PRESSURE INTEGRAL	-695.	(LBF)
TOTAL EXTERNAL DRAG	-771.	(LBF)
TOTAL STRUT DRAG	-24.96	(LBF)
CAVITY FORCE	-895.	(LBF)
CALCULATED LOAD CELL FORCE	-1337.	(LBF)
MEASURED LOAD CELL FORCE	-433.	(LBF)
FUEL VACUUM SPECIFIC IMPULSE 0.0, 0.0,		

STATIONS

NOMINAL COWL LEADING EDGE	54.884	(IN)
SPIKE TRANSLATION	1.7210	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	56.605	(IN)
NOZZLE SHROUD TRAILING EDGE	74.945	(IN)
NOZZLE PLUG TRAILING EDGE	88.697	(IN)
STRUT LEADING EDGE	57.861	(IN)
STRUT TRAILING EDGE	66.461	(IN)
COMBUSTOR EXIT	66.461	(IN)

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.9892	
ADDITIVE DRAG COEFFICIENT	0.0000	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.0987	
DELTA PT2	0.0876	(PSI)
TOTAL PRESSURE RECOVERY - SUPERSONIC	0.3023	
TOTAL PRESSURE RECOVERY - SUBSONIC	0.0999	
INLET PROCESS EFFICIENCY - SUPERSONIC	0.9006	
INLET PROCESS EFFICIENCY - SUBSONIC	0.9119	
KINETIC ENERGY EFFICIENCY - SUPERSONIC	0.9244	
KINETIC ENERGY EFFICIENCY - SUBSONIC	0.8765	
ENTHALPY AT P0 - SUPERSONIC	-24.46	(BTU/LBM)
ENTHALPY AT P0 - SUBSONIC	14.46	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0293	
EQUIVALENCE RATIO	0.930	
COMBUSTOR EFFICIENCY	0.459	
TOTAL PRESSURE RATIO	0.0636	
COMBUSTOR EFFECTIVENESS	0.4413	
INJECTOR DISCHARGE COEFFICIENTS	0.9610,	0.5506,

NOZZLE

VACUUM STREAM THRUST COEFFICIENT - CS	1.0097
NOZZLE COEFFICIENT - CT	0.9356
PROCESS EFFICIENCY	1.0713
KINETIC ENERGY EFFICIENCY	1.0196

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	A
1B	42.706	B
1C	44.300	
2A	50.181	
2C	46.250	
3A	55.471	
3B	57.656	
4	46.206	C

Reading 89

t = 316.47 sec.

Recomputations with surface pressure substitutions.

3/6/75

READING = 0089 BLOCK = 143 TIME = 316.473 MACH 7.3 PT = 995.499 TT = 2722.9

RAMJET PERFORMANCE

SUMMARY REPORT

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
WIND TUNNEL		1	0 5														
0.000	995.499	2723	587.1(714)	1.3019	28.909	2469											
0.000	0.156	256	-67.7(61)	1.3947	28.908	784	7.302	5724	1.779	0.06518	16.528	0.9901	2980	5.798	180.3		
SPIKE TIP NS		2	0 6														
0.600	11.175	2723	587.1(714)	1.3019	28.908	2469											
0.600	10.223	2667	570.6(698)	1.3037	28.908	2445	0.372	909	2.087	0.06518	16.528	0.9901	3059	0.921	185.1		
WIND TUNNEL		3	0 0														
0.000	995.499	2723	587.1(714)	1.3019	28.909	2469											
0.000	0.163	259	-66.9(62)	1.3949	28.908	789	7.251	5721	1.779	0.06727	17.059	0.9901	3075	5.981	180.2		
SPIKE TIP NS		4	0 0														
0.600	11.175	2723	587.1(714)	1.3019	28.908	2469											
0.600	10.152	2663	569.3(697)	1.3039	28.908	2444	0.386	943	2.087	0.06727	17.059	0.9901	3075	0.986	180.2		
INLET THROAT		5	0 4														
40.400	332.041	2618	556.1(684)	1.3053	28.909	2424											
40.400	10.420	1092	136.4(266)	1.3733	28.908	1606	2.854	4583	1.843	0.81836	16.528	0.0789	2565	58.282	155.2		
INLET UPNRSK		6	0 3														
40.400	332.041	2618	556.1(684)	1.3053	28.909	2424											
40.400	8.980	1048	125.5(255)	1.3760	28.908	1575	2.947	4642	1.843	0.74396	16.528	0.0867	2584	53.669	156.4		
INLET DNNRSK		7	0 4														
40.400	104.177	2618	556.1(684)	1.3053	28.908	2424											
40.400	90.605	2534	531.4(659)	1.3081	28.908	2387	0.466	1112	1.922	0.74396	16.528	0.0867	2584	12.857	156.4		
COMBUSTOR	0	8	1 10														
40.410	239.443	2588	564.7(721)	1.3083	26.979	2498											
40.410	13.261	1251	169.8(328)	1.3648	26.979	1774	2.506	4445	1.972	0.82283	16.620	0.0789	2564	56.845	154.3	0.18	0.07
COMBUSTOR	0	9	2 5														
40.733	171.741	2826	561.9(792)	1.2974	27.244	2587											
40.733	18.122	1640	202.8(435)	1.3407	27.244	2003	2.116	4239	2.017	0.82585	16.620	0.0786	2555	54.408	153.7	0.18	0.33
COMBUSTOR	0	10	3 21														
41.223	216.454	2546	557.5(709)	1.3099	26.959	2480											
41.223	12.426	1239	172.4(325)	1.3656	26.959	1767	2.485	4390	1.975	0.81959	16.620	0.0792	2520	55.911	151.6	0.18	0.05
COMBUSTOR	0	11	4 3														
41.500	204.997	2494	554.9(693)	1.3122	26.913	2459											
41.500	13.805	1262	192.2(331)	1.3646	26.913	1784	2.388	4260	1.973	0.81147	16.620	0.0800	2483	53.721	149.4	0.18	0.00
COMBUSTOR	0	12	5 4														
42.460	110.879	2630	544.6(733)	1.3056	27.091	2510											
42.460	21.095	1756	280.6(470)	1.3368	27.091	2076	1.751	3634	2.031	0.76526	16.620	0.0848	2336	43.221	140.5	0.18	0.18
COMBUSTOR	0	13	6 8														
42.708	103.023	2465	547.0(711)	1.3140	25.861	2495											
42.708	21.674	1676	301.5(467)	1.3432	25.861	2080	1.685	3504	2.086	0.75841	16.679	0.0859	2293	41.304	137.5	0.29	0.05
COMBUSTOR	0	14	7 2														
42.718	102.911	2462	546.8(710)	1.3141	25.859	2494											
42.718	21.698	1675	301.9(466)	1.3432	25.859	2080	1.683	3501	2.086	0.75876	16.679	0.0858	2292	41.279	137.4	0.29	0.04
COMBUSTOR	0	15	8 2														
42.783	101.169	2450	546.0(707)	1.3146	25.850	2489											
42.783	21.850	1677	305.3(467)	1.3433	25.850	2081	1.668	3470	2.086	0.75645	16.679	0.0861	2281	40.797	136.7	0.29	0.04
COMBUSTOR	0	16	9 3														
44.310	70.273	2452	527.1(707)	1.3138	25.911	2486											
44.310	36.964	2099	415.2(595)	1.3260	25.911	2311	1.024	2366	2.113	0.69887	16.679	0.0932	2109	25.701	126.4	0.29	0.08
COMBUSTOR	0	17	10 4														
44.800	68.526	2342	521.1(673)	1.3186	25.820	2439											
44.800	41.814	2076	437.2(589)	1.3279	25.820	2304	0.889	2049	2.102	0.68978	16.679	0.0944	2073	21.968	124.3	0.29	0.02
COMBUSTOR	0	18	11 21														
45.503	67.255	2293	512.8(658)	1.3205	25.798	2416											
45.503	44.827	2076	444.5(590)	1.3281	25.797	2305	0.801	1848	2.097	0.68609	16.679	0.0949	2048	19.704	122.8	0.29	0.00

Input Pressure Channel 123, 206, 270, 273

READING = 0089 BLOCK = 143 TIME = 316.473 MACH 7.3 PT = 995.499 TT = 2722.9

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	19	12 2														
46.218	67.927	2278	504.3(653)	1.3209	25.809	2408											
46.218	46.432	2075	440.6(589)	1.3280	25.809	2304	0.775	1786	2.094	0.66735	16.679	0.0976	2086	18.521	125.1	0.29	0.01
COMBUSTOR	0	20	13 21														
46.250	63.987	2271	521.7(716)	1.3239	23.380	2529											
46.250	46.504	2100	462.4(657)	1.3300	23.380	2437	0.707	1722	2.268	0.67162	16.833	0.0979	2066	17.975	122.8	0.59	0.04
COMBUSTOR	0	21	14 21														
46.260	64.850	2181	521.5(686)	1.3281	23.301	2486											
46.260	46.526	2008	462.3(627)	1.3343	23.301	2391	0.720	1722	2.254	0.67132	16.833	0.0979	2068	17.970	122.8	0.59	0.01
COMBUSTOR	0	22	15 21														
46.943	67.421	2144	513.4(673)	1.3295	23.289	2467											
46.943	48.059	1970	454.1(614)	1.3359	23.289	2370	0.727	1724	2.245	0.63896	16.833	0.1029	2168	17.119	128.8	0.59	0.00
COMBUSTOR	0	23	16 4														
47.310	67.147	2332	509.1(736)	1.3206	23.467	2555											
47.310	45.805	2124	436.9(664)	1.3280	23.467	2445	0.777	1900	2.270	0.62225	16.833	0.1056	2233	18.374	132.7	0.59	0.07
COMBUSTOR	0	24	17 5														
48.110	65.752	2777	499.6(884)	1.2999	23.902	2740											
48.110	42.958	2515	406.0(792)	1.3088	23.902	2616	0.827	2164	2.317	0.57190	16.833	0.1149	2397	19.236	142.4	0.59	0.25
COMBUSTOR	0	25	18 3														
48.743	66.086	2832	492.2(902)	1.2971	23.974	2760											
48.743	50.000	2656	428.8(840)	1.3030	23.975	2679	0.665	1782	2.321	0.52038	16.833	0.1263	2549	14.408	151.5	0.59	0.27
COMBUSTOR	0	26	19 4														
50.183	58.298	3486	492.3(1205)	1.2666	22.981	3091											
50.183	22.666	2838	234.7(956)	1.2897	22.987	2814	1.276	3590	2.515	0.42650	16.954	0.1552	2793	23.797	164.7	0.82	0.43
COMBUSTOR	0	27	20 2														
50.193	58.356	3482	492.3(1204)	1.2668	22.977	3089											
50.193	22.477	2829	232.6(952)	1.2901	22.983	2810	1.283	3605	2.514	0.42594	16.954	0.1554	2794	23.860	164.8	0.82	0.43
COMBUSTOR	0	28	21 6														
50.723	71.995	3014	488.4(1031)	1.2899	22.541	2928											
50.723	12.417	1992	104.9(652)	1.3260	22.542	2414	1.815	4381	2.461	0.39836	16.954	0.1662	2837	27.120	167.3	0.82	0.29
COMBUSTOR	0	29	22 4														
52.133	64.893	3133	479.2(1074)	1.2839	22.673	2970											
52.133	10.475	2049	69.8(670)	1.3221	22.675	2437	1.857	4526	2.479	0.33951	16.954	0.1950	2908	23.881	171.5	0.82	0.33
COMBUSTOR	0	30	23 4														
54.233	54.557	3331	466.0(1151)	1.2737	22.813	3041											
54.233	9.000	2212	35.5(727)	1.3131	22.817	2516	1.845	4641	2.514	0.27884	16.989	0.2379	2999	20.113	176.5	0.83	0.40
COMBUSTOR	0	31	24 4														
54.733	52.258	3391	463.4(1173)	1.2705	22.877	3060											
54.733	8.800	2270	29.8(747)	1.3101	22.882	2542	1.833	4658	2.521	0.26745	16.989	0.2480	3019	19.361	177.7	0.83	0.42
COMBUSTOR	0	32	25 4														
55.483	49.191	3479	459.7(1205)	1.2656	22.972	3087											
55.483	8.527	2355	21.6(777)	1.3057	22.979	2579	1.815	4682	2.532	0.25211	16.989	0.2631	3047	18.345	179.4	0.83	0.45
COMBUSTOR	0	33	26 4														
55.760	48.186	3510	458.4(1216)	1.2639	23.006	3096											
55.760	8.426	2384	18.5(787)	1.3042	23.014	2592	1.810	4692	2.536	0.24691	16.989	0.2686	3057	18.003	179.9	0.83	0.46
COMBUSTOR	0	34	27 4														
56.243	42.656	3570	456.2(1239)	1.2602	23.071	3114											
56.243	6.162	2327	-29.8(765)	1.3054	23.081	2558	1.928	4931	2.549	0.19504	16.989	0.3401	3141	14.947	184.9	0.83	0.48
COMBUSTOR	0	35	28 5														
57.668	57.674	3228	450.3(1112)	1.2784	22.752	3003											
57.668	3.968	1722	-113.9(554)	1.3340	22.755	2240	2.372	5314	2.500	0.18030	16.989	0.3679	3180	14.888	187.2	0.83	0.38
COMBUSTOR	0	36	29 5														
57.723	38.345	3731	450.1(1298)	1.2502	23.249	3158											
57.723	6.064	2508	-37.1(828)	1.2966	23.267	2636	1.873	4938	2.567	0.17976	16.989	0.3690	3180	13.794	187.2	0.83	0.53
COMBUSTOR	0	37	30 4														
57.863	38.967	3696	449.6(1286)	1.2523	23.216	3149											
57.863	5.853	2451	-44.3(808)	1.2991	23.231	2610	1.904	4971	2.564	0.17850	16.989	0.3716	3182	13.790	187.3	0.83	0.52

READING = 0089 BLOCK = 143 TIME = 316.473 MACH 7.3 PT = 995.499 TT = 2722.9

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	38	31 15														
57.943	76.913	3022	449.3(1036)	1.2884	22.562	2929											
57.943	3.141	1390	-148.3(442)	1.3532	22.563	2036	2.686	5468	2.458	0.18050	16.989	0.3675	3183	15.339	187.4	0.83	0.32
COMBUSTOR	0	39	32 6														
58.223	118.126	2809	448.3(958)	1.2983	22.370	2847											
58.223	2.300	1041	-183.5(329)	1.3741	22.370	1783	3.154	5623	2.401	0.17990	16.989	0.3687	3186	15.720	187.5	0.83	0.26
COMBUSTOR	0	40	33 4														
58.449	137.320	2754	447.5(938)	1.3008	22.323	2825											
58.449	2.080	948	-193.8(299)	1.3791	22.323	1706	3.320	5665	2.382	0.17960	16.989	0.3693	3188	15.811	187.7	0.83	0.25
COMBUSTOR	0	41	34 6														
59.173	263.350	2575	445.2(874)	1.3089	22.171	2749											
59.173	1.375	647	-226.0(204)	1.3925	22.171	1421	4.078	5796	2.305	0.17675	16.989	0.3753	3192	15.919	187.9	0.83	0.20
COMBUSTOR	0	42	35 7														
60.193	32.523	4100	441.9(1437)	1.2237	23.659	3247											
60.193	7.475	3067	1.3(1031)	1.2706	23.713	2858	1.643	4696	2.597	0.17562	16.989	0.3777	3203	12.816	188.5	0.83	0.66
COMBUSTOR	0	43	36 5														
62.203	29.486	4531	434.8(1600)	1.1863	24.156	3326											
62.203	10.512	3827	81.4(1315)	1.2248	24.309	3096	1.358	4205	2.619	0.18173	16.989	0.3650	3203	11.877	188.6	0.83	0.84
COMBUSTOR	0	44	37 4														
63.623	29.928	4577	429.5(1617)	1.1822	24.222	3333											
63.623	11.212	3915	88.6(1349)	1.2181	24.388	3118	1.324	4130	2.618	0.18666	16.989	0.3553	3201	11.980	188.4	0.83	0.86
COMBUSTOR	0	45	38 4														
66.087	27.941	4636	419.5(1639)	1.1752	24.316	3338											
66.087	11.230	4040	97.6(1396)	1.2070	24.505	3145	1.276	4014	2.623	0.17693	16.989	0.3749	3198	11.036	188.2	0.83	0.90
COMBUSTOR	0	46	39 4														
66.463	25.596	4712	417.9(1668)	1.1664	24.406	3346											
66.463	11.234	4198	120.5(1457)	1.1918	24.624	3178	1.214	3858	2.631	0.16449	16.989	0.4032	3197	9.861	188.2	0.83	0.95
COMBUSTOR REGEN	47	40 3															
66.463	25.596	4886	554.6(1742)	1.1562	24.241	3404											
66.463	12.655	4472	285.7(1569)	1.1714	24.488	3261	1.125	3668	2.660	0.16449	16.989	0.4032	3244	9.376	190.9	0.83	0.95
NOZZLE AE	48	41 5															
88.699	25.596	4712	417.9(1604)	1.1664	24.406	3346											
88.699	0.744	2490	-603.5(797)	1.2796	24.767	2529	2.827	7149	2.631	0.03424	16.989	1.9371	4144	3.804	243.9	0.83	0.95
NOZZLE PO	49	42 5															
88.699	25.596	4712	417.9(1604)	1.1664	24.406	3346											
88.699	0.156	1744	-866.9(535)	1.3111	24.767	2143	3.742	8018	2.631	0.01149	16.989	5.7738	4465	1.432	262.8	0.83	0.95
NOZZLE AE REGEN	50	43 5															
88.699	25.596	4886	554.6(1742)	1.1562	24.241	3404											
88.699	0.797	2728	-515.1(885)	1.2706	24.766	2638	2.773	7316	2.660	0.03424	16.989	1.9371	4258	3.893	250.7	0.83	0.95
NOZZLE PO REGEN	51	44 5															
88.699	25.596	4886	554.6(1742)	1.1562	24.241	3404											
88.699	0.156	1896	-815.2(586)	1.3037	24.767	2227	3.717	8279	2.660	0.01091	16.989	6.0782	4614	1.404	271.6	0.83	0.95
FICTIVE COMBUSTR	69	62 0															
66.463	332.041	5008	417.9(1782)	1.1859	24.740	3455											
66.463	0.156	965	-1189.2(283)	1.3563	24.980	1614	5.556	8968	2.423	0.02342	16.989	2.8325	4848	3.263	285.4	0.83	1.00
FICTIVE NOZZLE	70	63 0															
88.699	14.568	4634	394.2(1636)	1.1621	24.381	3314											
88.699	0.976	2941	-433.8(965)	1.2618	24.763	2730	2.358	6437	2.672	0.03424	16.989	1.9371	3883	3.425	228.6	0.83	0.95

READING = 0089 BLOCK = 143 TIME = 316.473 MACH 7.3 PT = 995.499 TT = 2722.9

XABS	P-IB	P-OB	PDA	GUX	Q-IB	Q-OB	CAWALL	P-IB/PSO	P-IB/PTO	P-OB/PSO	P-OB/PTO
6.981E-01	6.900E-01	0.000	-2.697E-01	0.000	0.000	0.000	2.470E-02	4.425E 00	6.931E-04	0.000	0.000
1.836E 01	6.900E-01	0.000	-2.296E 01	0.000	0.000	0.000	1.634E 02	4.425E 00	6.931E-04	0.000	0.000
3.070E 01	1.135E 00	0.000	-9.694E 01	0.000	0.000	0.000	5.053E 02	7.279E 00	1.140E-03	0.000	0.000
3.508E 01	2.006E 00	0.000	-1.987E 02	0.000	0.000	0.000	6.804E 02	1.286E 01	2.015E-03	0.000	0.000
3.555E 01	2.155E 00	0.000	-2.177E 02	0.000	0.000	0.000	7.013E 02	1.382E 01	2.165E-03	0.000	0.000
3.606E 01	2.075E 00	0.000	-2.391E 02	-2.231E 02	-2.231E 02	0.000	7.246E 02	1.331E 01	2.084E-03	0.000	0.000
3.648E 01	2.279E 00	0.000	-2.578E 02	-2.285E 02	-2.285E 02	0.000	7.443E 02	1.462E 01	2.290E-03	0.000	0.000
3.660E 01	2.303E 00	3.111E 00	-2.957E 02	-2.301E 02	-2.301E 02	0.000	7.500E 02	1.477E 01	2.314E-03	1.995E 01	3.125E-03
3.661E 01	2.305E 00	3.131E 00	-2.958E 02	-2.301E 02	-2.301E 02	0.000	7.503E 02	1.478E 01	2.315E-03	2.008E 01	3.145E-03
3.701E 01	2.385E 00	4.428E 00	-2.979E 02	-2.356E 02	-2.356E 02	0.000	7.921E 02	1.530E 01	2.396E-03	2.840E 01	4.448E-03
3.727E 01	2.282E 00	5.275E 00	-2.970E 02	-2.393E 02	-2.393E 02	0.000	8.197E 02	1.463E 01	2.292E-03	3.383E 01	5.299E-03
3.803E 01	1.985E 00	8.266E 00	-2.794E 02	-2.506E 02	-2.506E 02	0.000	9.009E 02	1.273E 01	1.994E-03	5.301E 01	8.304E-03
3.873E 01	6.551E 00	1.104E 01	-2.781E 02	-3.190E 02	-2.693E 02	-4.966E 01	9.795E 02	4.201E 01	6.580E-03	7.083E 01	1.109E-02
3.875E 01	6.661E 00	1.100E 01	-2.783E 02	-3.204E 02	-2.700E 02	-5.044E 01	9.814E 02	4.272E 01	6.691E-03	7.054E 01	1.105E-02
3.901E 01	8.350E 00	1.031E 01	-2.835E 02	-3.435E 02	-2.811E 02	-6.237E 01	1.011E 03	5.355E 01	8.388E-03	6.612E 01	1.036E-02
3.950E 01	1.164E 01	9.013E 00	-3.021E 02	-3.941E 02	-3.094E 02	-8.474E 01	1.067E 03	7.465E 01	1.169E-02	5.781E 01	9.054E-03
3.975E 01	1.127E 01	8.344E 00	-3.119E 02	-4.242E 02	-3.280E 02	-9.624E 01	1.096E 03	7.228E 01	1.132E-02	5.351E 01	8.381E-03
4.000E 01	1.091E 01	8.058E 00	-3.187E 02	-4.564E 02	-3.490E 02	-1.074E 02	1.125E 03	6.997E 01	1.096E-02	5.168E 01	8.094E-03
4.022E 01	1.309E 01	7.800E 00	-3.262E 02	-4.872E 02	-3.697E 02	-1.175E 02	1.151E 03	8.396E 01	1.315E-02	5.002E 01	7.835E-03
4.040E 01	1.482E 01	1.140E 01	-3.322E 02	-5.121E 02	-3.866E 02	-1.255E 02	1.171E 03	9.507E 01	1.489E-02	7.309E 01	1.145E-02
4.041E 01	1.492E 01	1.160E 01	-3.324E 02	-5.135E 02	-3.876E 02	-1.259E 02	1.172E 03	9.570E 01	1.499E-02	7.440E 01	1.165E-02
4.073E 01	1.808E 01	1.816E 01	-3.367E 02	-5.602E 02	-4.197E 02	-1.405E 02	1.210E 03	1.160E 02	1.816E-02	1.165E 02	1.824E-02
4.122E 01	2.288E 01	1.975E 00	-3.638E 02	-6.337E 02	-4.716E 02	-1.621E 02	1.268E 03	1.467E 02	2.298E-02	1.267E 01	1.984E-03
4.150E 01	2.559E 01	2.023E 00	-3.956E 02	-6.769E 02	-5.028E 02	-1.741E 02	1.301E 03	1.641E 02	2.570E-02	1.298E 01	2.032E-03
4.246E 01	4.000E 01	2.191E 00	-5.295E 02	-8.486E 02	-6.146E 02	-2.340E 02	1.415E 03	2.565E 02	4.018E-02	1.405E 01	2.200E-03
4.271E 01	4.112E 01	2.234E 00	-5.681E 02	-8.986E 02	-6.432E 02	-2.554E 02	1.444E 03	2.637E 02	4.130E-02	1.433E 01	2.244E-03
4.272E 01	4.116E 01	2.236E 00	-5.696E 02	-9.006E 02	-6.443E 02	-2.563E 02	1.445E 03	2.640E 02	4.135E-02	1.434E 01	2.246E-03
4.278E 01	4.145E 01	2.247E 00	-5.796E 02	-9.139E 02	-6.516E 02	-2.623E 02	1.453E 03	2.658E 02	4.164E-02	1.441E 01	2.257E-03
4.431E 01	4.832E 01	2.561E 01	-7.336E 02	-1.229E 03	-8.005E 02	-4.284E 02	1.637E 03	3.099E 02	4.854E-02	1.642E 02	2.572E-02
4.480E 01	5.052E 01	3.310E 01	-7.646E 02	-1.328E 03	-8.392E 02	-4.892E 02	1.697E 03	3.240E 02	5.075E-02	2.123E 02	3.325E-02
4.550E 01	4.580E 01	4.386E 01	-7.846E 02	-1.468E 03	-8.911E 02	-5.767E 02	1.783E 03	2.937E 02	4.601E-02	2.813E 02	4.405E-02
4.622E 01	4.099E 01	5.187E 01	-7.408E 02	-1.610E 03	-9.424E 02	-6.671E 02	1.870E 03	2.629E 02	4.118E-02	3.327E 02	5.211E-02
4.625E 01	4.078E 01	5.223E 01	-7.366E 02	-1.616E 03	-9.447E 02	-6.712E 02	1.874E 03	2.615E 02	4.096E-02	3.350E 02	5.247E-02
4.626E 01	4.071E 01	5.234E 01	-7.352E 02	-1.618E 03	-9.454E 02	-6.725E 02	1.875E 03	2.611E 02	4.089E-02	3.357E 02	5.258E-02
4.694E 01	3.612E 01	6.000E 01	-6.302E 02	-1.754E 03	-9.931E 02	-7.613E 02	1.959E 03	2.316E 02	3.628E-02	3.848E 02	6.027E-02
4.731E 01	3.365E 01	5.796E 01	-5.626E 02	-1.828E 03	-1.018E 03	-8.096E 02	2.005E 03	2.158E 02	3.380E-02	3.717E 02	5.822E-02
4.811E 01	3.240E 01	5.352E 01	-3.933E 02	-1.987E 03	-1.072E 03	-9.154E 02	2.104E 03	2.078E 02	3.255E-02	3.432E 02	5.376E-02
4.874E 01	5.000E 01	5.000E 01	-2.364E 02	-2.112E 03	-1.113E 03	-9.993E 02	2.183E 03	3.207E 02	5.023E-02	3.207E 02	5.023E-02
5.018E 01	2.267E 01	2.267E 01	3.332E 01	-2.351E 03	-1.202E 03	-1.149E 03	2.363E 03	1.454E 02	2.277E-02	1.454E 02	2.277E-02
5.019E 01	2.248E 01	2.248E 01	3.450E 01	-2.353E 03	-1.203E 03	-1.150E 03	2.364E 03	1.442E 02	2.258E-02	1.442E 02	2.258E-02
5.072E 01	1.242E 01	1.242E 01	8.270E 01	-2.418E 03	-1.235E 03	-1.183E 03	2.430E 03	7.963E 01	1.247E-02	7.963E 01	1.247E-02
5.213E 01	1.047E 01	1.047E 01	1.673E 02	-2.573E 03	-1.315E 03	-1.258E 03	2.608E 03	6.718E 01	1.052E-02	6.718E 01	1.052E-02
5.423E 01	9.000E 00	9.000E 00	2.745E 02	-2.781E 03	-1.426E 03	-1.355E 03	2.874E 03	5.772E 01	9.041E-03	5.772E 01	9.041E-03
5.473E 01	8.800E 00	8.800E 00	2.977E 02	-2.825E 03	-1.450E 03	-1.374E 03	2.938E 03	5.644E 01	8.840E-03	5.644E 01	8.840E-03
5.548E 01	8.527E 00	8.527E 00	3.312E 02	-2.888E 03	-1.486E 03	-1.402E 03	3.034E 03	5.468E 01	8.565E-03	5.468E 01	8.565E-03
5.576E 01	8.426E 00	8.426E 00	3.432E 02	-2.910E 03	-1.499E 03	-1.412E 03	3.069E 03	5.404E 01	8.464E-03	5.404E 01	8.464E-03
5.624E 01	4.075E 00	8.250E 00	4.284E 02	-2.948E 03	-1.519E 03	-1.429E 03	3.102E 03	2.613E 01	4.093E-03	5.291E 01	8.287E-03
5.767E 01	3.968E 00	3.968E 00	4.719E 02	-3.047E 03	-1.572E 03	-1.475E 03	3.209E 03	2.545E 01	3.986E-03	2.545E 01	3.986E-03
5.772E 01	8.325E 00	3.803E 00	4.730E 02	-3.050E 03	-1.574E 03	-1.476E 03	3.217E 03	5.339E 01	8.363E-03	2.439E 01	3.820E-03
5.786E 01	8.325E 00	3.382E 00	4.753E 02	-3.059E 03	-1.579E 03	-1.481E 03	3.234E 03	5.339E 01	8.363E-03	2.169E 01	3.397E-03
5.794E 01	3.141E 00	3.141E 00	4.767E 02	-3.064E 03	-1.581E 03	-1.483E 03	3.245E 03	2.015E 01	3.156E-03	2.015E 01	3.156E-03
5.822E 01	2.300E 00	2.300E 00	4.802E 02	-3.081E 03	-1.591E 03	-1.491E 03	3.280E 03	1.475E 01	2.310E-03	1.475E 01	2.310E-03
5.845E 01	2.080E 00	2.080E 00	4.823E 02	-3.095E 03	-1.598E 03	-1.496E 03	3.309E 03	1.334E 01	2.089E-03	1.334E 01	2.089E-03
5.917E 01	1.375E 00	1.375E 00	4.870E 02	-3.134E 03	-1.621E 03	-1.512E 03	3.402E 03	8.818E 00	1.381E-03	8.818E 00	1.381E-03
6.019E 01	7.475E 00	7.475E 00	4.973E 02	-3.189E 03	-1.651E 03	-1.538E 03	3.532E 03	4.794E 01	7.509E-03	4.794E 01	7.509E-03
6.220E 01	1.051E 01	1.051E 01	4.994E 02	-3.311E 03	-1.702E 03	-1.609E 03	3.790E 03	6.742E 01	1.056E-02	6.742E 01	1.056E-02

READING = 0089 BLOCK = 143 TIME = 316.473 MACH 7.3 PT = 995.499 TT = 2722.9

XABS	P-IB	P-OB	PDA	QOX	Q-IB	Q-OB	CAWALL	P-IB/PSO	P-IB/PTO	P-OB/PSO	P-OB/PTO
6.362E 01	1.121E 01	1.121E 01	4.994E 02	-3.401E 03	-1.737E 03	-1.664E 03	3.972E 03	7.191E 01	1.126E-02	7.191E 01	1.126E-02
6.609E 01	1.123E 01	1.123E 01	4.994E 02	-3.571E 03	-1.804E 03	-1.767E 03	4.289E 03	7.202E 01	1.128E-02	7.202E 01	1.128E-02
6.646E 01	1.123E 01	1.123E 01	4.994E 02	-3.598E 03	-1.815E 03	-1.783E 03	4.337E 03	7.205E 01	1.129E-02	7.204E 01	1.128E-02
6.650E 01	1.123E 01	1.123E 01	4.994E 02	-3.601E 03	-1.816E 03	-1.785E 03	4.342E 03	7.205E 01	1.129E-02	7.204E 01	1.128E-02
6.670E 01	1.060E 01	1.123E 01	4.994E 02	-3.615E 03	-1.822E 03	-1.794E 03	4.368E 03	6.799E 01	1.065E-02	7.205E 01	1.129E-02
6.836E 01	5.345E 00	7.428E 00	5.974E 02	-3.713E 03	-1.860E 03	-1.852E 03	4.584E 03	3.428E 01	5.369E-03	4.764E 01	7.462E-03
6.980E 01	2.335E 00	4.126E 00	8.244E 02	-3.777E 03	-1.883E 03	-1.895E 03	4.761E 03	1.498E 01	2.346E-03	2.646E 01	4.145E-03
7.052E 01	1.813E 00	2.475E 00	8.925E 02	-3.808E 03	-1.891E 03	-1.917E 03	4.849E 03	1.162E 01	1.821E-03	1.587E 01	2.486E-03
7.113E 01	1.370E 00	2.253E 00	9.347E 02	-3.832E 03	-1.897E 03	-1.936E 03	4.923E 03	8.786E 00	1.376E-03	1.445E 01	2.263E-03
7.251E 01	9.400E-01	1.751E 00	1.005E 03	-3.877E 03	-1.907E 03	-1.969E 03	5.089E 03	6.029E 00	9.442E-04	1.123E 01	1.759E-03
7.404E 01	6.577E-01	1.195E 00	1.057E 03	-3.913E 03	-1.917E 03	-1.996E 03	5.273E 03	4.218E 00	6.606E-04	7.664E 00	1.200E-03
7.419E 01	6.300E-01	1.076E 00	1.061E 03	-3.916E 03	-1.917E 03	-1.998E 03	5.291E 03	4.040E 00	6.328E-04	6.900E 00	1.081E-03
7.494E 01	6.967E-01	4.800E-01	1.086E 03	-3.933E 03	-1.921E 03	-2.012E 03	5.375E 03	4.468E 00	6.999E-04	3.078E 00	4.822E-04
7.495E 01	6.971E-01	4.768E-01	1.087E 03	-3.933E 03	-1.921E 03	-2.012E 03	5.375E 03	4.470E 00	7.002E-04	3.058E 00	4.790E-04
7.627E 01	8.150E-01	0.000	1.103E 03	-3.966E 03	-1.927E 03	-2.039E 03	5.427E 03	5.227E 00	8.187E-04	0.000	0.000
7.912E 01	1.105E 00	0.000	1.141E 03	-3.975E 03	-1.936E 03	-2.039E 03	5.525E 03	7.087E 00	1.110E-03	0.000	0.000
8.302E 01	7.000E-01	0.000	1.180E 03	-3.983E 03	-1.944E 03	-2.039E 03	5.630E 03	4.489E 00	7.032E-04	0.000	0.000
8.583E 01	6.850E-01	0.000	1.195E 03	-3.990E 03	-1.950E 03	-2.039E 03	5.685E 03	4.393E 00	6.881E-04	0.000	0.000
8.869E 01	9.150E-01	0.000	1.215E 03	-4.001E 03	-1.962E 03	-2.039E 03	5.707E 03	5.868E 00	9.191E-04	0.000	0.000
8.870E 01	9.155E-01	0.000	1.215E 03	-4.001E 03	-1.962E 03	-2.039E 03	5.707E 03	5.871E 00	9.196E-04	0.000	0.000

X	DDRAG	CDRAG	CF	HC
4.040E 01	8.373E 01	8.373E 01	2.108E-03	3.481E-02
4.041E 01	1.626E-01	8.389E 01	2.707E-03	3.873E-02
4.073E 01	5.330E 00	8.922E 01	2.362E-03	5.256E-02
4.122E 01	7.910E 00	9.713E 01	2.616E-03	3.772E-02
4.150E 01	4.499E 00	1.016E 02	2.403E-03	4.258E-02
4.246E 01	1.392E 01	1.155E 02	2.633E-03	5.204E-02
4.271E 01	3.557E 00	1.191E 02	3.041E-03	4.766E-02
4.272E 01	1.405E-01	1.192E 02	2.766E-03	5.190E-02
4.278E 01	8.866E-01	1.201E 02	2.778E-03	5.180E-02
4.431E 01	1.792E 01	1.381E 02	3.079E-03	5.639E-02
4.480E 01	4.455E 00	1.425E 02	3.200E-03	5.447E-02
4.550E 01	5.719E 00	1.482E 02	3.201E-03	5.412E-02
4.622E 01	5.334E 00	1.536E 02	3.174E-03	5.448E-02
4.625E 01	2.414E-01	1.538E 02	3.566E-03	4.829E-02
4.626E 01	7.598E-02	1.539E 02	3.267E-03	5.439E-02
4.694E 01	4.742E 00	1.586E 02	3.159E-03	5.693E-02
4.731E 01	2.509E 00	1.611E 02	3.068E-03	5.965E-02
4.811E 01	5.690E 00	1.668E 02	3.037E-03	6.002E-02
4.874E 01	4.208E 00	1.710E 02	3.316E-03	5.167E-02
5.018E 01	1.102E 01	1.821E 02	3.098E-03	4.562E-02
5.019E 01	9.461E-02	1.821E 02	3.241E-03	4.324E-02
5.072E 01	5.407E 00	1.876E 02	3.141E-03	3.134E-02
5.213E 01	1.336E 01	2.009E 02	2.761E-03	2.989E-02
5.423E 01	1.621E 01	2.171E 02	2.775E-03	2.555E-02
5.473E 01	3.566E 00	2.207E 02	2.895E-03	2.405E-02
5.548E 01	5.241E 00	2.259E 02	2.907E-03	2.310E-02
5.576E 01	1.890E 00	2.278E 02	2.956E-03	2.247E-02
5.624E 01	1.563E 00	2.294E 02	2.869E-03	1.734E-02
5.767E 01	4.581E 00	2.340E 02	2.835E-03	1.264E-02
5.772E 01	2.774E-01	2.342E 02	2.656E-03	1.780E-02
5.786E 01	6.900E-01	2.349E 02	2.973E-03	1.591E-02
5.794E 01	4.968E-01	2.354E 02	3.692E-03	8.846E-03
5.822E 01	1.662E 00	2.371E 02	2.308E-03	9.480E-03
5.845E 01	9.842E-01	2.381E 02	2.022E-03	9.375E-03
5.917E 01	2.883E 00	2.410E 02	1.902E-03	7.028E-03
6.019E 01	3.833E 00	2.448E 02	2.181E-03	2.314E-02
6.220E 01	8.561E 00	2.534E 02	3.197E-03	2.086E-02
6.362E 01	7.149E 00	2.605E 02	3.382E-03	2.041E-02
6.609E 01	1.240E 01	2.729E 02	3.436E-03	1.982E-02
6.646E 01	1.753E 00	2.747E 02	3.521E-03	1.896E-02
6.650E 01	1.806E-01	2.748E 02	3.611E-03	1.905E-02
6.670E 01	9.167E-01	2.758E 02	3.605E-03	1.886E-02
6.836E 01	7.641E 00	2.834E 02	3.509E-03	1.452E-02
6.980E 01	5.519E 00	2.889E 02	3.403E-03	9.423E-03
7.052E 01	2.193E 00	2.911E 02	3.341E-03	7.074E-03
7.113E 01	1.592E 00	2.927E 02	3.316E-03	6.262E-03
7.251E 01	3.150E 00	2.959E 02	3.269E-03	5.025E-03
7.404E 01	2.874E 00	2.987E 02	3.212E-03	3.786E-03
7.419E 01	2.331E-01	2.990E 02	3.200E-03	3.555E-03
7.494E 01	9.958E-01	3.000E 02	3.145E-03	2.668E-03
7.495E 01	1.685E-03	3.000E 02	3.145E-03	2.663E-03
7.627E 01	6.002E-01	3.006E 02	3.181E-03	3.420E-03
7.912E 01	1.377E 00	3.019E 02	3.206E-03	4.285E-03
8.302E 01	1.402E 00	3.033E 02	3.124E-03	3.005E-03
8.583E 01	6.199E-01	3.040E 02	3.106E-03	2.941E-03
8.869E 01	2.799E-01	3.042E 02	3.132E-03	3.654E-03

READING = 0089 BLOCK = 143 TIME = 316.473 MACH 7.3 PT = 995.499 TT = 2722.9

X	ODRAG	CDRAG	CF	HC
8.870E 01	0.000	3.042E 02	3.132E-03	3.655E-03

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	903.	(LBF)
MEASURED THRUST	1024.	(LBF)
CALCULATED SPECIFIC IMPULSE	2083.	(LBF-SEC/LBM)
MEASURED SPECIFIC IMPULSE	2364.	(LBF-SEC/LBM)
CALCULATED THRUST COEFFICIENT	0.6077	
MEASURED THRUST COEFFICIENT	0.6898	

REGENERATIVE-COOLED ENGINE PERFORMANCE CALCULATED

STREAM THRUST	3990.	(LBF)
NET THRUST	1009.	(LBF)
SPECIFIC IMPULSE	2329.	(LBF-SEC/LBM)
THRUST COEFFICIENT	0.6797	

MOMENTUM AND FORCES

INLET FRICTION DRAG	83.7	(LBF)
INLET MOMENTUM CHANGE	-416.0	(LBF)
COMBUSTOR FRICTION DRAG	190.9	(LBF)
COMBUSTOR STRUT DRAG	-30.94	(LBF)
COMBUSTOR MOMENTUM CHANGE	633.	(LBF)
NOZZLE FRICTION DRAG	29.57	(LBF)
NOZZLE STRUT DRAG	-0.00	(LBF)
NOZZLE MOMENTUM CHANGE	686.	(LBF)
NOZZLE PRESSURE INTEGRAL	715.	(LBF)
EXTERNAL FRICTION DRAG	72.05	(LBF)
EXTERNAL PRESSURE INTEGRAL	-683.	(LBF)
TOTAL EXTERNAL DRAG	-755.	(LBF)
TOTAL STRUT DRAG	-30.94	(LBF)
CAVITY FORCE	-636.	(LBF)
CALCULATED LOAD CELL FORCE	-488.	(LBF)
MEASURED LOAD CELL FORCE	-367.	(LBF)
FUEL VACUUM SPECIFIC IMPULSE	0.0, 0.0, -154.4, -124.8,	

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	1.7230	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	36.607	(IN)
NOZZLE SHROUD TRAILING EDGE	74.947	(IN)
NOZZLE PLUG TRAILING EDGE	88.699	(IN)
STRUT LEADING EDGE	57.863	(IN)
STRUT TRAILING EDGE	66.463	(IN)
COMBUSTOR EXIT	66.463	(IN)

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.9901	
ADDITIVE DRAG COEFFICIENT	0.0000	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.1033	
DELTA PT2	0.0924	(PSI)
TOTAL PRESSURE RECOVERY - SUPERSONIC	0.3335	
TOTAL PRESSURE RECOVERY - SUBSONIC	0.1046	
INLET PROCESS EFFICIENCY - SUPERSONIC	0.9083	
INLET PROCESS EFFICIENCY - SUBSONIC	0.9162	
KINETIC ENERGY EFFICIENCY - SUPERSONIC	0.9241	
KINETIC ENERGY EFFICIENCY - SUBSONIC	0.8760	
ENTHALPY AT P0 - SUPERSONIC	-49.01	(BTU/LBM)
ENTHALPY AT P0 - SUBSONIC	-17.52	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0262	
EQUIVALENCE RATIO	0.832	
COMBUSTOR EFFICIENCY	0.946	
TOTAL PRESSURE RATIO	0.0771	
COMBUSTOR EFFECTIVENESS	0.8316	
INJECTOR DISCHARGE COEFFICIENTS	0.9647, 0.4742, 1.0235, 0.8134	

NOZZLE

VACUUM STREAM THRUST COEFFICIENT - CS	0.9370
NOZZLE COEFFICIENT - CT	0.8525
PROCESS EFFICIENCY	0.8295
KINETIC ENERGY EFFICIENCY	0.8574

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	A
1B	42.708	B
1C	44.300	
2A	50.183	D
2C	46.250	E
3A	55.473	
3B	57.658	
4	46.208	

Reading 89

t = 327.27 sec.

Recomputations with surface pressure substitutions.

3/6/75

READING = 0089 BLOCK = 155 TIME = 327.273 MACH 7.3 PT = 994.999 TT = 2408.1

RAMJET PERFORMANCE

SUMMARY REPORT

	P	T	H		GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
WIND TUNNEL		1	0	5														
0.000	994.999	2408	495.0	(623)	1.3121	28.909	2331											
0.000	0.157	221	-76.2	(53)	1.3930	28.908	728	7.340	5346	1.743	0.07087	17.976	0.9904	3027	5.888	168.4		
SPIKE TIP NS		2	0	5														
0.600	11.162	2408	495.0	(623)	1.3122	28.908	2331											
0.600	10.161	2355	479.6	(608)	1.3140	28.908	2307	0.381	878	2.052	0.07087	17.976	0.9904	3068	0.967	170.7		
WIND TUNNEL		3	0	0														
0.000	994.999	2408	495.0	(623)	1.3121	28.909	2331											
0.000	0.161	223	-75.8	(53)	1.3931	28.908	731	7.314	5344	1.743	0.07204	18.273	0.9904	3076	5.983	168.3		
SPIKE TIP NS		4	0	0														
0.600	11.162	2408	495.0	(623)	1.3122	28.908	2331											
0.600	10.123	2353	479.0	(607)	1.3140	28.908	2306	0.388	895	2.052	0.07204	18.273	0.9904	3076	1.002	168.3		
INLET THROAT		5	0	5														
40.400	331.827	2318	469.0	(598)	1.3151	28.908	2290											
40.400	10.547	951	101.3	(230)	1.3818	28.908	1504	2.853	4290	1.807	0.88956	17.976	0.0789	2610	59.302	145.2		
INLET UPNRSK		6	0	3														
40.400	331.827	2318	469.0	(598)	1.3151	28.908	2290											
40.400	9.082	913	91.7	(221)	1.3840	28.908	1474	2.948	4345	1.807	0.80869	17.976	0.0868	2630	54.609	146.3		
INLET DNNRSK		7	0	4														
40.400	105.783	2318	469.0	(598)	1.3152	28.908	2290											
40.400	91.778	2240	446.8	(575)	1.3178	28.908	2253	0.468	1055	1.886	0.80869	17.976	0.0868	2630	13.261	146.3		
COMBUSTOR	0	8	1	5														
40.410	187.486	2451	478.8	(676)	1.3111	27.174	2425											
40.410	16.915	1343	153.1	(351)	1.3580	27.173	1826	2.210	4037	1.967	0.89429	18.074	0.0789	2610	56.103	144.4	0.17	0.22
COMBUSTOR	0	9	2	4														
40.731	153.911	2614	476.4	(724)	1.3036	27.356	2489											
40.731	21.043	1609	176.0	(425)	1.3416	27.356	1981	1.957	3877	1.995	0.89759	18.074	0.0786	2602	54.081	143.9	0.17	0.40
COMBUSTOR	0	10	3	21														
41.221	209.466	2282	472.6	(627)	1.3185	27.018	2353											
41.221	12.841	1115	135.6	(290)	1.3729	27.017	1678	2.447	4106	1.940	0.89082	18.074	0.0792	2567	56.849	142.0	0.17	0.06
COMBUSTOR	0	11	4	21														
41.500	201.476	2227	470.4	(611)	1.3210	26.968	2329											
41.500	13.812	1117	150.6	(291)	1.3732	26.968	1682	2.378	4000	1.936	0.88195	18.074	0.0800	2530	54.828	140.0	0.17	0.01
COMBUSTOR	0	12	5	4														
42.460	105.998	2381	461.7	(655)	1.3136	27.158	2393											
42.460	23.403	1640	241.6	(435)	1.3419	27.158	2007	1.653	3318	2.000	0.83219	18.074	0.0848	2373	42.918	131.3	0.17	0.20
COMBUSTOR	0	13	6	8														
42.706	99.627	2222	465.2	(631)	1.3220	25.994	2370											
42.706	23.770	1551	260.4	(427)	1.3491	25.993	2000	1.600	3201	2.048	0.82542	18.133	0.0858	2326	41.061	128.3	0.28	0.05
COMBUSTOR	0	14	7	2														
42.716	99.332	2220	465.1	(631)	1.3220	25.992	2369											
42.716	23.785	1551	260.9	(427)	1.3491	25.992	2000	1.598	3196	2.048	0.82467	18.133	0.0858	2324	40.965	128.2	0.28	0.05
COMBUSTOR	0	15	8	3														
42.781	97.655	2206	464.5	(627)	1.3226	25.981	2363											
42.781	23.882	1549	264.0	(427)	1.3493	25.981	2000	1.584	3167	2.048	0.82111	18.133	0.0862	2312	40.416	127.5	0.28	0.04
COMBUSTOR	0	16	9	3														
44.310	70.950	2136	448.9	(605)	1.3254	25.960	2328											
44.310	38.747	1838	357.0	(513)	1.3364	25.960	2169	0.989	2144	2.062	0.75938	18.133	0.0932	2133	25.299	117.7	0.28	0.03
COMBUSTOR	0	17	10	21														
44.800	68.793	2084	444.0	(589)	1.3276	25.924	2303											
44.800	43.511	1859	374.9	(520)	1.3360	25.924	2182	0.852	1861	2.058	0.75038	18.133	0.0943	2100	21.697	115.8	0.28	0.00
COMBUSTOR	0	18	11	21														
45.501	67.897	2057	437.3	(581)	1.3287	25.919	2289											
45.501	47.653	1883	383.9	(528)	1.3351	25.919	2196	0.745	1635	2.054	0.74568	18.133	0.0949	2081	18.952	114.7	0.28	0.00

Input pressure channel 123, 206, 270, 273

READING = 0089 BLOCK = 155 TIME = 327.273 MACH 7.3 PT = 994.999 TT = 2408.1

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	19	12 21														
46.216	68.705	2034	430.5(574)	1.3295	25.918	2277											
46.216	49.033	1869	380.0(524)	1.3356	25.918	2188	0.726	1589	2.050	0.72515	18.133	0.0976	2122	17.907	117.0	0.28	0.00
COMBUSTOR	0	20	13 21														
46.250	64.849	2063	448.2(639)	1.3311	23.567	2407											
46.250	49.099	1924	401.4(593)	1.3362	23.567	2329	0.657	1530	2.219	0.72982	18.294	0.0979	2100	17.349	114.8	0.56	0.04
COMBUSTOR	0	21	14 21														
46.260	65.649	1975	448.1(611)	1.3352	23.491	2363											
46.260	49.118	1836	401.3(564)	1.3406	23.491	2282	0.670	1530	2.205	0.72937	18.294	0.0979	2102	17.338	114.9	0.56	0.01
COMBUSTOR	0	22	15 21														
46.941	67.658	1943	441.5(600)	1.3366	23.480	2345											
46.941	50.432	1804	395.0(554)	1.3420	23.480	2264	0.674	1527	2.197	0.69436	18.294	0.1029	2197	16.474	120.1	0.56	0.00
COMBUSTOR	0	23	16 3														
47.310	68.429	1978	438.0(611)	1.3348	23.519	2362											
47.310	48.519	1813	382.9(556)	1.3411	23.519	2267	0.732	1660	2.202	0.67590	18.294	0.1057	2257	17.434	123.4	0.56	0.02
COMBUSTOR	0	24	17 5														
48.110	66.548	2357	430.3(735)	1.3167	23.878	2542											
48.110	44.965	2143	356.9(662)	1.3243	23.878	2431	0.788	1916	2.253	0.62132	18.294	0.1150	2413	18.502	131.9	0.56	0.17
COMBUSTOR	0	25	18 4														
48.741	66.354	2446	424.2(764)	1.3124	23.977	2580											
48.741	50.000	2286	368.8(709)	1.3179	23.977	2499	0.667	1666	2.262	0.56555	18.294	0.1263	2565	14.644	140.2	0.56	0.21
COMBUSTOR	0	26	19 4														
50.181	58.208	3015	426.8(1019)	1.2876	22.906	2903											
50.181	23.049	2437	208.4(804)	1.3074	22.906	2630	1.257	3306	2.453	0.46340	18.421	0.1552	2809	23.809	152.5	0.79	0.35
COMBUSTOR	0	27	20 2														
50.191	58.256	3012	426.8(1018)	1.2878	22.903	2902											
50.191	22.862	2430	206.6(801)	1.3077	22.904	2626	1.264	3319	2.453	0.46280	18.421	0.1554	2810	23.871	152.6	0.79	0.35
COMBUSTOR	0	28	21 5														
50.721	69.942	2649	423.4(888)	1.3045	22.579	2759											
50.721	12.942	1758	99.9(566)	1.3377	22.579	2275	1.768	4024	2.404	0.43283	18.421	0.1662	2855	27.065	155.0	0.79	0.24
COMBUSTOR	0	29	22 4														
52.131	62.280	2778	415.5(934)	1.2983	22.714	2810											
52.131	11.112	1837	71.4(592)	1.3327	22.715	2315	1.792	4149	2.426	0.36889	18.421	0.1950	2931	23.787	159.1	0.79	0.29
COMBUSTOR	0	30	23 5														
54.231	51.257	3010	403.8(1020)	1.2871	22.881	2901											
54.231	9.925	2052	46.4(666)	1.3210	22.882	2427	1.743	4229	2.468	0.30292	18.456	0.2379	3031	19.910	164.2	0.80	0.36
COMBUSTOR	0	31	24 3														
54.731	50.599	3022	401.4(1024)	1.2865	22.898	2905											
54.731	9.300	2035	33.5(660)	1.3214	22.899	2416	1.776	4291	2.470	0.29054	18.456	0.2480	3052	19.375	165.4	0.80	0.37
COMBUSTOR	0	32	25 4														
55.481	47.900	3096	397.8(1051)	1.2828	22.977	2931											
55.481	8.952	2101	24.5(682)	1.3179	22.979	2447	1.766	4322	2.480	0.27388	18.456	0.2631	3082	18.395	167.0	0.80	0.39
COMBUSTOR	0	33	26 4														
55.760	47.014	3121	396.4(1060)	1.2815	23.005	2940											
55.760	8.823	2123	21.1(689)	1.3167	23.007	2458	1.763	4334	2.483	0.26820	18.456	0.2687	3093	18.064	167.6	0.80	0.40
COMBUSTOR	0	34	27 4														
56.241	40.981	3212	394.2(1093)	1.2768	23.098	2971											
56.241	6.575	2113	-20.4(684)	1.3159	23.101	2446	1.862	4554	2.501	0.21188	18.456	0.3401	3185	14.997	172.6	0.80	0.43
COMBUSTOR	0	35	28 6														
57.666	28.752	4107	387.6(1423)	1.2202	24.043	3219											
57.666	11.425	3450	100.0(1165)	1.2524	24.094	2986	1.271	3794	2.579	0.19591	18.456	0.3678	3252	11.550	176.2	0.80	0.73
COMBUSTOR	0	36	29 4														
57.721	28.496	4146	387.4(1438)	1.2171	24.086	3227											
57.721	11.742	3514	107.8(1189)	1.2487	24.143	3006	1.244	3740	2.581	0.19525	18.456	0.3691	3255	11.349	176.4	0.80	0.74
COMBUSTOR	0	37	30 4														
57.861	28.275	4180	386.7(1450)	1.2142	24.127	3234											
57.861	11.881	3564	110.7(1207)	1.2456	24.188	3021	1.230	3716	2.583	0.19392	18.456	0.3716	3262	11.199	176.8	0.80	0.75

	P	T	h	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	38	31 4														
57.941	28.658	4187	386.3(1453)	1.2138	24.135	3236											
57.941	11.970	3566	108.2(1208)	1.2454	24.197	3021	1.235	3730	2.582	0.19609	18.456	0.3675	3266	11.367	177.0	0.80	0.76
COMBUSTOR	0	39	32 4														
58.221	28.479	4264	385.0(1482)	1.2074	24.225	3251											
58.221	12.525	3683	117.8(1251)	1.2379	24.298	3054	1.197	3656	2.584	0.19554	18.456	0.3685	3280	11.111	177.7	0.80	0.79
COMBUSTOR	0	40	33 4														
58.447	28.360	4320	383.8(1503)	1.2026	24.291	3261											
58.447	12.953	3769	125.1(1284)	1.2320	24.374	3078	1.169	3598	2.586	0.19504	18.456	0.3695	3290	10.906	178.3	0.80	0.81
COMBUSTOR	0	41	34 4														
59.171	27.896	4474	380.1(1560)	1.1887	24.476	3287											
59.171	14.325	4020	150.9(1378)	1.2132	24.585	3141	1.079	3387	2.591	0.19201	18.456	0.3753	3320	10.107	179.9	0.80	0.88
COMBUSTOR	0	42	35 4														
60.191	27.898	4566	374.9(1595)	1.1801	24.597	3300											
60.191	16.400	4216	186.9(1453)	1.1981	24.710	3188	0.962	3067	2.592	0.19079	18.456	0.3777	3346	9.094	181.3	0.80	0.93
COMBUSTOR	0	43	36 4														
62.201	28.785	4513	364.8(1574)	1.1851	24.564	3290											
62.201	17.550	4182	191.1(1441)	1.2024	24.659	3184	0.926	2948	2.587	0.19743	18.456	0.3650	3332	9.045	180.5	0.80	0.91
COMBUSTOR	0	44	37 4														
63.621	29.534	4461	358.1(1554)	1.1900	24.521	3281											
63.621	14.587	3979	117.4(1361)	1.2160	24.630	3125	1.110	3470	2.582	0.20278	18.456	0.3553	3318	10.935	179.8	0.80	0.89
COMBUSTOR	0	45	38 4														
66.085	28.152	4317	346.7(1499)	1.2016	24.388	3252											
66.085	12.361	3741	77.1(1271)	1.2324	24.474	3060	1.200	3673	2.580	0.19221	18.456	0.3749	3294	10.972	178.5	0.80	0.84
COMBUSTOR	0	46	39 3														
66.461	25.993	4338	345.0(1507)	1.1986	24.417	3254											
66.461	11.913	3797	87.3(1292)	1.2282	24.508	3076	1.168	3591	2.587	0.17869	18.456	0.4032	3290	9.972	178.3	0.80	0.85
COMBUSTOR REGEN	47	40	21														
66.461	25.993	4553	469.5(1595)	1.1833	24.328	3318											
66.461	15.632	4213	287.7(1457)	1.2009	24.431	3209	0.940	3015	2.615	0.17869	18.456	0.4032	3344	8.374	181.2	0.80	0.85
NOZZLE AE	48	41	5														
88.697	25.993	4338	345.0(1470)	1.1986	24.417	3254											
88.697	0.730	2108	-568.6(660)	1.2992	24.548	2355	2.871	6761	2.587	0.03720	18.456	1.9371	4241	3.909	229.8	0.80	0.85
NOZZLE PO	49	42	5														
88.697	25.993	4338	345.0(1470)	1.1986	24.417	3254											
88.697	0.157	1459	-788.6(441)	1.3313	24.548	1983	3.798	7531	2.587	0.01287	18.456	5.5995	4545	1.506	246.3	0.80	0.85
NOZZLE AE REGEN	50	43	5														
88.697	25.993	4553	469.5(1595)	1.1833	24.328	3318											
88.697	0.781	2316	-494.7(734)	1.2910	24.548	2461	2.823	6946	2.615	0.03720	18.456	1.9371	4372	4.015	236.9	0.80	0.85
NOZZLE PO REGEN	51	44	5														
88.697	25.993	4553	469.5(1595)	1.1833	24.328	3318											
88.697	0.157	1589	-746.0(483)	1.3238	24.548	2064	3.779	7799	2.615	0.01224	18.456	5.8891	4710	1.483	255.2	0.80	0.85
FICTIVE COMBUSTR	69	62	0														
66.461	331.827	4811	345.0(1687)	1.1966	24.958	3387											
66.461	0.157	892	-1159.5(259)	1.3612	25.116	1550	5.597	8676	2.388	0.02481	18.456	2.9047	5094	3.345	276.0	0.80	1.00
FICTIVE NOZZLE	70	63	0														
88.697	17.089	4274	318.7(1482)	1.1975	24.416	3228											
88.697	0.889	2385	-469.9(759)	1.2884	24.548	2495	2.518	6282	2.615	0.03720	18.456	1.9371	4045	3.631	219.1	0.80	0.85

READING = 0089 BLOCK = 155 TIME = 327.273 MACH 7.3 PT = 994.999 TT = 2408.1

XABS	P-IB	P-OB	PDA	GOX	G-IB	G-OB	CAWALL	P-IB/PSO	P-IB/PTO	P-OB/PSO	P-OB/PTO
6.981E-01	6.900E-01	0.000	-2.693E-01	0.000	0.000	0.000	2.470E-02	4.398E 00	6.935E-04	0.000	0.000
1.836E 01	6.900E-01	0.000	-2.295E 01	0.000	0.000	0.000	1.634E 02	4.398E 00	6.935E-04	0.000	0.000
3.070E 01	1.135E 00	0.000	-9.694E 01	0.000	0.000	0.000	5.053E 02	7.234E 00	1.141E-03	0.000	0.000
3.508E 01	1.998E 00	0.000	-1.985E 02	0.000	0.000	0.000	6.804E 02	1.274E 01	2.008E-03	0.000	0.000
3.555E 01	2.150E 00	0.000	-2.174E 02	0.000	0.000	0.000	7.013E 02	1.370E 01	2.161E-03	0.000	0.000
3.606E 01	2.110E 00	0.000	-2.390E 02	-2.115E 02	-2.115E 02	0.000	7.246E 02	1.345E 01	2.121E-03	0.000	0.000
3.648E 01	2.283E 00	0.000	-2.578E 02	-2.167E 02	-2.167E 02	0.000	7.443E 02	1.455E 01	2.295E-03	0.000	0.000
3.660E 01	2.295E 00	3.034E 00	-2.949E 02	-2.182E 02	-2.182E 02	0.000	7.499E 02	1.463E 01	2.306E-03	1.934E 01	3.050E-03
3.660E 01	2.295E 00	3.055E 00	-2.949E 02	-2.182E 02	-2.182E 02	0.000	7.502E 02	1.463E 01	2.307E-03	1.947E 01	3.070E-03
3.701E 01	2.335E 00	4.420E 00	-2.970E 02	-2.235E 02	-2.235E 02	0.000	7.922E 02	1.488E 01	2.347E-03	2.817E 01	4.442E-03
3.727E 01	2.249E 00	5.300E 00	-2.959E 02	-2.269E 02	-2.269E 02	0.000	8.196E 02	1.434E 01	2.261E-03	3.378E 01	5.327E-03
3.803E 01	2.000E 00	8.267E 00	-2.780E 02	-2.377E 02	-2.377E 02	0.000	9.012E 02	1.275E 01	2.010E-03	5.269E 01	8.308E-03.
3.873E 01	6.621E 00	1.101E 01	-2.773E 02	-2.927E 02	-2.559E 02	-3.685E 01	9.794E 02	4.220E 01	6.654E-03	7.015E 01	1.106E-02
3.875E 01	6.746E 00	1.100E 01	-2.776E 02	-2.941E 02	-2.566E 02	-3.750E 01	9.815E 02	4.300E 01	6.780E-03	7.008E 01	1.105E-02
3.901E 01	6.460E 00	1.085E 01	-2.827E 02	-3.139E 02	-2.676E 02	-4.635E 01	1.011E 03	5.392E 01	8.503E-03	6.914E 01	1.090E-02
3.950E 01	1.180E 01	1.057E 01	-2.989E 02	-3.586E 02	-2.957E 02	-6.294E 01	1.067E 03	7.524E 01	1.186E-02	6.736E 01	1.062E-02
3.975E 01	1.361E 01	1.042E 01	-3.086E 02	-3.855E 02	-3.141E 02	-7.139E 01	1.096E 03	8.676E 01	1.368E-02	6.645E 01	1.048E-02
4.000E 01	1.541E 01	1.129E 01	-3.173E 02	-4.150E 02	-3.353E 02	-7.975E 01	1.125E 03	9.820E 01	1.548E-02	7.198E 01	1.135E-02
4.022E 01	1.691E 01	1.206E 01	-3.263E 02	-4.430E 02	-3.558E 02	-8.715E 01	1.151E 03	1.078E 02	1.699E-02	7.688E 01	1.212E-02
4.040E 01	1.812E 01	1.545E 01	-3.317E 02	-4.662E 02	-3.731E 02	-9.313E 01	1.171E 03	1.155E 02	1.821E-02	9.849E 01	1.553E-02
4.041E 01	1.819E 01	1.564E 01	-3.318E 02	-4.675E 02	-3.740E 02	-9.346E 01	1.173E 03	1.159E 02	1.828E-02	9.970E 01	1.572E-02
4.073E 01	2.037E 01	2.172E 01	-3.344E 02	-5.102E 02	-4.061E 02	-1.041E 02	1.210E 03	1.298E 02	2.047E-02	1.384E 02	2.183E-02
4.122E 01	2.369E 01	1.987E 00	-3.606E 02	-5.784E 02	-4.583E 02	-1.201E 02	1.268E 03	1.510E 02	2.381E-02	1.267E 01	1.997E-03
4.150E 01	2.559E 01	2.037E 00	-3.932E 02	-6.190E 02	-4.899E 02	-1.290E 02	1.301E 03	1.631E 02	2.572E-02	1.298E 01	2.047E-03
4.246E 01	4.460E 01	2.206E 00	-5.373E 02	-7.774E 02	-6.016E 02	-1.757E 02	1.415E 03	2.843E 02	4.482E-02	1.406E 01	2.217E-03
4.271E 01	4.529E 01	2.249E 00	-5.801E 02	-8.225E 02	-6.296E 02	-1.929E 02	1.444E 03	2.887E 02	4.552E-02	1.434E 01	2.261E-03
4.272E 01	4.532E 01	2.251E 00	-5.817E 02	-8.243E 02	-6.307E 02	-1.936E 02	1.445E 03	2.889E 02	4.555E-02	1.435E 01	2.262E-03
4.278E 01	4.550E 01	2.262E 00	-5.929E 02	-8.363E 02	-6.378E 02	-1.985E 02	1.453E 03	2.900E 02	4.573E-02	1.442E 01	2.274E-03
4.431E 01	4.980E 01	2.770E 01	-7.545E 02	-1.119E 03	-7.784E 02	-3.402E 02	1.637E 03	3.174E 02	5.005E-02	1.765E 02	2.784E-02
4.480E 01	5.117E 01	3.585E 01	-7.836E 02	-1.206E 03	-8.125E 02	-3.938E 02	1.697E 03	3.262E 02	5.143E-02	2.285E 02	3.603E-02
4.550E 01	4.780E 01	4.751E 01	-7.977E 02	-1.328E 03	-8.572E 02	-4.706E 02	1.783E 03	3.047E 02	4.804E-02	3.028E 02	4.774E-02
4.622E 01	4.436E 01	5.371E 01	-7.515E 02	-1.452E 03	-9.020E 02	-5.501E 02	1.870E 03	2.827E 02	4.458E-02	3.423E 02	5.398E-02
4.625E 01	4.419E 01	5.401E 01	-7.476E 02	-1.458E 03	-9.042E 02	-5.539E 02	1.874E 03	2.817E 02	4.441E-02	3.442E 02	5.428E-02
4.626E 01	4.414E 01	5.409E 01	-7.463E 02	-1.460E 03	-9.048E 02	-5.550E 02	1.875E 03	2.814E 02	4.437E-02	3.448E 02	5.436E-02
4.694E 01	4.086E 01	6.000E 01	-6.465E 02	-1.579E 03	-9.469E 02	-6.325E 02	1.959E 03	2.605E 02	4.107E-02	3.824E 02	6.030E-02
4.731E 01	3.909E 01	5.795E 01	-5.840E 02	-1.645E 03	-9.695E 02	-6.751E 02	2.005E 03	2.491E 02	3.928E-02	3.694E 02	5.824E-02
4.811E 01	3.642E 01	5.351E 01	-4.222E 02	-1.786E 03	-1.018E 03	-7.675E 02	2.104E 03	2.322E 02	3.661E-02	3.410E 02	5.377E-02
4.874E 01	5.000E 01	5.000E 01	-2.669E 02	-1.896E 03	-1.056E 03	-8.407E 02	2.183E 03	3.187E 02	5.025E-02	3.187E 02	5.025E-02
5.018E 01	2.305E 01	2.305E 01	4.206E 00	-2.113E 03	-1.140E 03	-9.726E 02	2.363E 03	1.469E 02	2.316E-02	1.469E 02	2.316E-02
5.019E 01	2.286E 01	2.286E 01	5.405E 00	-2.114E 03	-1.141E 03	-9.732E 02	2.364E 03	1.457E 02	2.298E-02	1.457E 02	2.298E-02
5.072E 01	1.294E 01	1.294E 01	5.486E 01	-2.175E 03	-1.171E 03	-1.004E 03	2.430E 03	8.249E 01	1.301E-02	8.249E 01	1.301E-02
5.213E 01	1.111E 01	1.111E 01	1.438E 02	-2.321E 03	-1.250E 03	-1.071E 03	2.608E 03	7.083E 01	1.117E-02	7.083E 01	1.117E-02
5.423E 01	9.925E 00	9.925E 00	2.596E 02	-2.521E 03	-1.364E 03	-1.157E 03	2.874E 03	6.326E 01	9.975E-03	6.326E 01	9.975E-03
5.473E 01	9.300E 00	9.300E 00	2.846E 02	-2.566E 03	-1.391E 03	-1.175E 03	2.938E 03	5.928E 01	9.347E-03	5.928E 01	9.347E-03
5.548E 01	8.952E 00	8.952E 00	3.199E 02	-2.633E 03	-1.430E 03	-1.203E 03	3.034E 03	5.706E 01	8.997E-03	5.706E 01	8.997E-03
5.576E 01	8.823E 00	8.823E 00	3.326E 02	-2.658E 03	-1.444E 03	-1.214E 03	3.069E 03	5.624E 01	8.867E-03	5.624E 01	8.867E-03
5.624E 01	4.550E 00	8.600E 00	4.262E 02	-2.700E 03	-1.466E 03	-1.234E 03	3.102E 03	2.900E 01	4.573E-03	5.482E 01	8.643E-03
5.767E 01	1.142E 01	1.142E 01	4.974E 02	-2.821E 03	-1.524E 03	-1.297E 03	3.209E 03	7.282E 01	1.148E-02	7.282E 01	1.148E-02
5.772E 01	1.195E 01	1.153E 01	5.007E 02	-2.826E 03	-1.526E 03	-1.300E 03	3.217E 03	7.617E 01	1.201E-02	7.352E 01	1.159E-02
5.786E 01	1.195E 01	1.181E 01	5.083E 02	-2.838E 03	-1.531E 03	-1.307E 03	3.234E 03	7.617E 01	1.201E-02	7.528E 01	1.187E-02
5.794E 01	1.197E 01	1.197E 01	5.131E 02	-2.845E 03	-1.534E 03	-1.311E 03	3.245E 03	7.629E 01	1.203E-02	7.629E 01	1.203E-02
5.822E 01	1.252E 01	1.252E 01	5.291E 02	-2.870E 03	-1.545E 03	-1.325E 03	3.280E 03	7.983E 01	1.259E-02	7.983E 01	1.259E-02
5.845E 01	1.295E 01	1.295E 01	5.415E 02	-2.891E 03	-1.554E 03	-1.337E 03	3.309E 03	8.256E 01	1.302E-02	8.256E 01	1.302E-02
5.917E 01	1.432E 01	1.432E 01	5.784E 02	-2.959E 03	-1.581E 03	-1.378E 03	3.402E 03	9.131E 01	1.440E-02	9.131E 01	1.440E-02
6.019E 01	1.640E 01	1.640E 01	6.140E 02	-3.056E 03	-1.618E 03	-1.438E 03	3.532E 03	1.045E 02	1.648E-02	1.045E 02	1.648E-02
6.220E 01	1.755E 01	1.755E 01	6.180E 02	-3.242E 03	-1.686E 03	-1.556E 03	3.790E 03	1.119E 02	1.764E-02	1.119E 02	1.764E-02

READING = 0089 BLOCK = 155 TIME = 327.273 MACH 7.3 PT = 994.999 TT = 2408.1

XABS	P-IB	P-OB	PDA	QuX	Q-IB	Q-OB	CAWALL	P-IB/PSO	P-IB/PTO	P-OB/PSO	P-OB/PTO
6.362E 01	1.459E 01	1.459E 01	6.180E 02	-3.366E 03	-1.734E 03	-1.632E 03	3.972E 03	9.298E 01	1.466E-02	9.298E 01	1.466E-02
6.608E 01	1.236E 01	1.236E 01	6.180E 02	-3.576E 03	-1.823E 03	-1.753E 03	4.289E 03	7.879E 01	1.242E-02	7.879E 01	1.242E-02
6.646E 01	1.180E 01	1.202E 01	6.180E 02	-3.608E 03	-1.837E 03	-1.771E 03	4.337E 03	7.524E 01	1.186E-02	7.663E 01	1.208E-02
6.650E 01	1.180E 01	1.199E 01	6.180E 02	-3.611E 03	-1.838E 03	-1.773E 03	4.342E 03	7.524E 01	1.186E-02	7.639E 01	1.205E-02
6.670E 01	1.112E 01	1.180E 01	6.180E 02	-3.628E 03	-1.846E 03	-1.782E 03	4.368E 03	7.086E 01	1.117E-02	7.524E 01	1.186E-02
6.836E 01	5.405E 00	7.933E 00	7.209E 02	-3.738E 03	-1.895E 03	-1.843E 03	4.584E 03	3.445E 01	5.432E-03	5.056E 01	7.973E-03
6.980E 01	2.550E 00	4.574E 00	9.620E 02	-3.809E 03	-1.922E 03	-1.887E 03	4.761E 03	1.625E 01	2.563E-03	2.916E 01	4.597E-03
7.052E 01	1.933E 00	2.895E 00	1.037E 03	-3.843E 03	-1.932E 03	-1.911E 03	4.849E 03	1.232E 01	1.943E-03	1.845E 01	2.910E-03
7.113E 01	1.410E 00	2.643E 00	1.084E 03	-3.872E 03	-1.940E 03	-1.932E 03	4.923E 03	8.987E 00	1.417E-03	1.685E 01	2.656E-03
7.251E 01	1.235E 00	2.072E 00	1.166E 03	-3.927E 03	-1.955E 03	-1.972E 03	5.089E 03	7.872E 00	1.241E-03	1.321E 01	2.083E-03
7.404E 01	7.068E-01	1.440E 00	1.229E 03	-3.973E 03	-1.968E 03	-2.005E 03	5.273E 03	4.505E 00	7.103E-04	9.178E 00	1.447E-03
7.419E 01	6.550E-01	1.269E 00	1.234E 03	-3.977E 03	-1.970E 03	-2.007E 03	5.291E 03	4.175E 00	6.583E-04	8.089E 00	1.276E-03
7.494E 01	7.668E-01	4.150E-01	1.260E 03	-3.998E 03	-1.975E 03	-2.023E 03	5.375E 03	4.887E 00	7.706E-04	2.645E 00	4.171E-04
7.494E 01	7.674E-01	4.104E-01	1.261E 03	-3.999E 03	-1.975E 03	-2.023E 03	5.375E 03	4.891E 00	7.712E-04	2.616E 00	4.125E-04
7.627E 01	9.650E-01	0.000	1.280E 03	-4.040E 03	-1.983E 03	-2.057E 03	5.427E 03	6.151E 00	9.698E-04	0.000	0.000
7.912E 01	1.155E 00	0.000	1.322E 03	-4.054E 03	-1.997E 03	-2.057E 03	5.525E 03	7.362E 00	1.161E-03	0.000	0.000
8.302E 01	7.400E-01	0.000	1.362E 03	-4.066E 03	-2.009E 03	-2.057E 03	5.630E 03	4.717E 00	7.437E-04	0.000	0.000
8.583E 01	8.200E-01	0.000	1.380E 03	-4.076E 03	-2.019E 03	-2.057E 03	5.685E 03	5.227E 00	8.241E-04	0.000	0.000
8.869E 01	1.065E 00	0.000	1.403E 03	-4.093E 03	-2.036E 03	-2.057E 03	5.707E 03	6.788E 00	1.070E-03	0.000	0.000
8.870E 01	1.066E 00	0.000	1.403E 03	-4.093E 03	-2.036E 03	-2.057E 03	5.707E 03	6.791E 00	1.071E-03	0.000	0.000

READING = 0089 BLOCK = 155 TIME = 327.273 MACH 7.3 PT = 994.999 TT = 2408.1

X	DDRAG	CDRAG	CF	HC
4.040E 01	8.556E 01	8.556E 01	2.021E-03	3.570E-02
4.041E 01	1.587E-01	8.571E 01	2.667E-03	4.566E-02
4.073E 01	5.305E 00	9.102E 01	2.459E-03	5.610E-02
4.122E 01	8.126E 00	9.914E 01	2.628E-03	3.798E-02
4.150E 01	4.563E 00	1.037E 02	2.334E-03	4.281E-02
4.246E 01	1.369E 01	1.174E 02	2.579E-03	5.541E-02
4.271E 01	3.446E 00	1.208E 02	3.004E-03	4.977E-02
4.272E 01	1.375E-01	1.210E 02	2.720E-03	5.442E-02
4.278E 01	8.644E-01	1.219E 02	2.733E-03	5.415E-02
4.431E 01	1.743E 01	1.393E 02	3.024E-03	5.677E-02
4.480E 01	4.280E 00	1.436E 02	3.095E-03	5.568E-02
4.550E 01	5.414E 00	1.490E 02	3.133E-03	5.445E-02
4.622E 01	5.041E 00	1.540E 02	3.113E-03	5.453E-02
4.625E 01	2.424E-01	1.543E 02	3.526E-03	4.765E-02
4.626E 01	7.622E-02	1.543E 02	3.526E-03	4.765E-02
4.694E 01	4.705E 00	1.590E 02	3.113E-03	5.612E-02
4.731E 01	2.380E 00	1.614E 02	3.035E-03	5.851E-02
4.811E 01	5.301E 00	1.667E 02	2.918E-03	6.102E-02
4.874E 01	3.959E 00	1.707E 02	3.169E-03	5.301E-02
5.018E 01	1.071E 01	1.814E 02	3.025E-03	4.570E-02
5.019E 01	9.167E-02	1.815E 02	3.121E-03	4.398E-02
5.072E 01	5.195E 00	1.867E 02	3.015E-03	3.250E-02
5.213E 01	1.285E 01	1.995E 02	2.677E-03	3.113E-02
5.423E 01	1.567E 01	2.152E 02	2.710E-03	2.715E-02
5.473E 01	3.480E 00	2.187E 02	2.850E-03	2.467E-02
5.548E 01	5.139E 00	2.238E 02	2.830E-03	2.379E-02
5.576E 01	1.856E 00	2.257E 02	2.872E-03	2.313E-02
5.624E 01	1.515E 00	2.272E 02	2.781E-03	1.814E-02
5.767E 01	4.090E 00	2.313E 02	2.943E-03	2.358E-02
5.772E 01	2.538E-01	2.315E 02	3.350E-03	2.073E-02
5.786E 01	6.727E-01	2.322E 02	3.365E-03	2.069E-02
5.794E 01	3.938E-01	2.326E 02	3.456E-03	2.019E-02
5.822E 01	1.368E 00	2.340E 02	3.367E-03	2.115E-02
5.845E 01	1.073E 00	2.350E 02	3.396E-03	2.119E-02
5.917E 01	3.319E 00	2.384E 02	3.424E-03	2.163E-02
6.019E 01	4.347E 00	2.427E 02	3.503E-03	2.172E-02
6.220E 01	8.229E 00	2.509E 02	3.534E-03	2.199E-02
6.362E 01	6.354E 00	2.573E 02	3.448E-03	2.186E-02
6.608E 01	1.192E 01	2.692E 02	3.439E-03	2.016E-02
6.646E 01	1.737E 00	2.709E 02	3.436E-03	1.946E-02
6.650E 01	1.775E-01	2.711E 02	3.493E-03	1.966E-02
6.670E 01	8.992E-01	2.720E 02	3.484E-03	1.942E-02
6.836E 01	7.565E 00	2.796E 02	3.369E-03	1.502E-02
6.980E 01	5.581E 00	2.852E 02	3.260E-03	1.016E-02
7.052E 01	2.274E 00	2.874E 02	3.197E-03	7.767E-03
7.113E 01	1.666E 00	2.891E 02	3.169E-03	6.853E-03
7.251E 01	3.384E 00	2.925E 02	3.135E-03	5.903E-03
7.404E 01	3.141E 00	2.956E 02	3.067E-03	4.274E-03
7.419E 01	2.491E-01	2.959E 02	3.050E-03	3.934E-03
7.494E 01	1.022E 00	2.969E 02	2.975E-03	2.703E-03
7.494E 01	1.661E-03	2.969E 02	2.975E-03	2.696E-03
7.627E 01	6.263E-01	2.975E 02	3.040E-03	3.927E-03
7.912E 01	1.443E 00	2.990E 02	3.051E-03	4.473E-03
8.302E 01	1.422E 00	3.004E 02	2.966E-03	3.167E-03
8.583E 01	6.573E-01	3.011E 02	2.967E-03	3.410E-03
8.869E 01	3.051E-01	3.014E 02	2.992E-03	4.140E-03
8.870E 01	*0.000*	*3.014E 02*	*2.992E-03*	*4.141E-03*

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	1017.	(LBF)
MEASURED THRUST	1300.	(LBF)
CALCULATED SPECIFIC IMPULSE	2251.	(LBF-SEC/LBM)
MEASURED SPECIFIC IMPULSE	2876.	(LBF-SEC/LBM)
CALCULATED THRUST COEFFICIENT	0.6746	
MEASURED THRUST COEFFICIENT	0.8620	

REGENERATIVE-COOLED ENGINE PERFORMANCE CALCULATED

STREAM THRUST	4170.	(LBF)
NET THRUST	1142.	(LBF)
SPECIFIC IMPULSE	2527.	(LBF-SEC/LBM)
THRUST COEFFICIENT	0.7575	

MOMENTUM AND FORCES

INLET FRICTION DRAG	85.6	(LBF)
INLET MOMENTUM CHANGE	-417.3	(LBF)
COMBUSTOR FRICTION DRAG	185.4	(LBF)
COMBUSTOR STRUT DRAG	43.00	(LBF)
COMBUSTOR MOMENTUM CHANGE	680.	(LBF)
NOZZLE FRICTION DRAG	30.41	(LBF)
NOZZLE STRUT DRAG	0.00	(LBF)
NOZZLE MOMENTUM CHANGE	754.	(LBF)
NOZZLE PRESSURE INTEGRAL	785.	(LBF)
EXTERNAL FRICTION DRAG	69.53	(LBF)
EXTERNAL PRESSURE INTEGRAL	-677.	(LBF)
TOTAL EXTERNAL DRAG	-747.	(LBF)
TOTAL STRUT DRAG	43.00	(LBF)
CAVITY FORCE	-806.	(LBF)
CALCULATED LOAD CELL FORCE	-535.	(LBF)
MEASURED LOAD CELL FORCE	-252.	(LBF)

FUEL VACUUM SPECIFIC IMPULSE 0.0, 0.0, -155.3, -125.4,

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	1.7210	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	36.605	(IN)
NOZZLE SHROUD TRAILING EDGE	74.945	(IN)
NOZZLE PLUG TRAILING EDGE	88.697	(IN)
STRUT LEADING EDGE	57.861	(IN)
STRUT TRAILING EDGE	66.461	(IN)
COMBUSTOR EXIT	66.461	(IN)

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.9904	
ADDITIVE DRAG COEFFICIENT	0.0000	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.1049	
DELTA PT2	0.0953	(PSI)
TOTAL PRESSURE RECOVERY - SUPERSONIC	0.3335	
TOTAL PRESSURE RECOVERY - SUBSONIC	0.1063	
INLET PROCESS EFFICIENCY - SUPERSONIC	0.9078	
INLET PROCESS EFFICIENCY - SUBSONIC	0.9175	
KINETIC ENERGY EFFICIENCY - SUPERSONIC	0.9260	
KINETIC ENERGY EFFICIENCY - SUBSONIC	0.8790	
ENTHALPY AT P0 - SUPERSONIC	-59.83	(BTU/LBM)
ENTHALPY AT P0 - SUBSONIC	-33.02	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0251	
EQUIVALENCE RATIO	0.798	
COMBUSTOR EFFICIENCY	0.848	
TOTAL PRESSURE RATIO	0.0783	
COMBUSTOR EFFECTIVENESS	0.7788	

INJECTOR DISCHARGE COEFFICIENTS 0.9444, 0.4501, 1.0001, 0.8069

NOZZLE

VACUUM STREAM THRUST COEFFICIENT - CS	0.9537	
NOZZLE COEFFICIENT - CT	0.8727	
PROCESS EFFICIENCY	0.8965	
KINETIC ENERGY EFFICIENCY	0.8970	

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	A
1B	42.706	B
1C	44.300	
2A	50.181	D
2C	46.250	E
3A	55.471	
3B	57.656	
4	46.206	

Reading 90

t = 197.22 sec.

RAMJET PERFORMANCE

250

S U M M A R Y R E P O R T

	P	T	H		GAMMA	MOLWT	SONV	MACH	VEL	Q	M/A	M	A/AC	MOMTM	C	IVAC	PHI	ETAC
WIND TUNNEL		1	0	5														
0.000	996.249	2992	667.2	(792)	1.2930	28.956	2877											
0.000	0.154	287	-60.1	(69)	1.3961	28.955	830	7.270	6035	1.807	0.06073	15.417	0.9912	2930	5.693	190.0		
SPIKE TIP NS		2	0	6														
0.600	11.500	2992	667.2	(792)	1.2928	28.955	2577											
0.600	10.628	2939	651.2	(777)	1.2946	28.955	2556	0.351	896	2.113	0.06073	15.417	0.9912	3128	0.846	202.9		
WIND TUNNEL		3	0	0														
0.000	996.249	2992	667.2	(792)	1.2930	28.956	2877											
0.000	0.172	296	-57.9	(71)	1.3964	28.955	843	7.144	6023	1.807	0.06565	16.668	0.9912	3164	6.146	189.8		
SPIKE TIP NS		4	0	0														
0.600	11.500	2992	667.2	(792)	1.2928	28.955	2577											
0.600	10.463	2928	648.0	(774)	1.2949	28.955	2552	0.384	981	2.113	0.06565	16.668	0.9912	3164	1.001	189.8		
INLET THROAT		5	0	3														
40.400	321.812	2929	648.3	(774)	1.2950	28.956	2552											
40.400	10.582	1261	179.5	(308)	1.3622	28.955	1717	2.820	4843	1.878	0.76157	15.417	0.0790	2535	57.319	164.4		
INLET UPNRBK		6	0	3														
40.400	321.812	2929	648.3	(774)	1.2950	28.956	2552											
40.400	9.126	1212	167.0	(296)	1.3653	28.955	1686	2.911	4907	1.878	0.69234	15.417	0.0869	2555	52.802	165.7		
INLET DNNRBK		7	0	4														
40.400	102.827	2929	648.3	(774)	1.2950	28.955	2552											
40.400	89.523	2838	620.8	(747)	1.2979	28.955	2515	0.466	1171	1.956	0.69234	15.417	0.0869	2555	12.603	168.7		
COMBUSTOR	0	8	1	3														
40.410	321.564	2929	648.2	(774)	1.2950	28.956	2552											
40.410	10.583	1261	179.6	(308)	1.3622	28.955	1717	2.820	4842	1.878	0.76147	15.417	0.0790	2535	57.305	164.4		
COMBUSTOR	0	9	2	3														
40.725	314.900	2924	646.7	(772)	1.2952	28.956	2550											
40.725	10.758	1271	182.3	(311)	1.3619	28.955	1724	2.796	4821	1.879	0.76422	15.417	0.0788	2527	57.292	163.9		
COMBUSTOR	0	10	3	4														
41.215	285.616	2916	644.2	(770)	1.2955	28.956	2547											
41.215	11.200	1314	193.3	(322)	1.3589	28.955	1751											
								2.713	4750	1.885	0.75862	15.417	0.0793	2504	56.001	162.4		
COMBUSTOR	0	11	4	4														
41.500	260.349	2911	642.8	(769)	1.2956	28.956	2545											
41.500	11.610	1357	204.4	(333)	1.3563	28.955	1778	2.635	4683	1.891	0.75097	15.417	0.0802	2483	54.659	161.0		
COMBUSTOR	0	12	5	5														
42.460	208.377	2890	637.7	(764)	1.2961	28.955	2538											
42.460	12.016	1441	226.7	(356)	1.3513	28.955	1829	2.480	4535	1.904	0.70841	15.417	0.0850	2435	49.930	157.9		
COMBUSTOR	0	13	6	5														
42.710	201.143	2890	636.4	(762)	1.2963	28.955	2536											
42.710	12.022	1452	229.5	(358)	1.3507	28.955	1835	2.458	4512	1.906	0.69980	15.417	0.0860	2427	49.069	157.4		
COMBUSTOR	0	14	7	5														
42.775	199.195	2889	636.0	(762)	1.2963	28.955	2536											
42.775	12.022	1455	230.4	(359)	1.3505	28.955	1837	2.453	4506	1.907	0.69739	15.417	0.0863	2425	48.831	157.3		
COMBUSTOR	0	15	8	4														
44.310	162.690	2864	628.5	(755)	1.2971	28.955	2525											
44.310	11.945	1516	246.4	(375)	1.3471	28.955	1873	2.335	4372	1.918	0.64558	15.417	0.0932	2360	43.866	154.4		
COMBUSTOR	0	16	9	4														
44.800	154.024	2856	626.2	(752)	1.2974	28.955	2522											
44.800	12.098	1538	252.3	(381)	1.3459	28.955	1885	2.294	4325	1.921	0.63760	15.417	0.0944	2365	42.860	153.4		
COMBUSTOR	0	17	10	4														
45.495	145.364	2845	622.9	(749)	1.2977	28.955	2518											
45.495	12.389	1564	259.2	(388)	1.3445	28.955	1900	2.245	4266	1.924	0.63332	15.417	0.0950	2346	41.990	152.2		
COMBUSTOR	0	18	11	4														
46.210	138.207	2835	620.0	(746)	1.2981	28.955	2516											
46.210	12.187	1571	261.2	(390)	1.3441	28.955	1904	2.225	4237	1.926	0.61573	15.417	0.0978	2335	40.543	151.5		

	P	T	H		GAMMA	VOLST	SONV	MACH	VEL	S	M/A	*	A/AC	PDMTM	.C	IVAC	PHI	ETAC
COMBUSTOR	0	19	12	4														
46.240	137,696	2858	619.8(	744)	1.2990	28.955	2515											
46.240	12,136	1572	261.3(	390)	1.3461	28.955	1908	2.220	4235	1.926	0.61391	15.417	0.0980	2335	40.409	151.4		
COMBUSTOR	0	20	13	4														
47.310	126,256	2823	616.3(	743)	1.2984	28.955	2509											
47.310	11,304	1570	260.9(	390)	1.3442	28.955	1904	2.214	4218	1.931	0.56907	15.417	0.1058	2327	37.300	151.0		
COMBUSTOR	0	21	14	5														
48.110	118,338	2816	614.1(	740)	1.2986	28.955	2506											
48.110	10,227	1551	255.8(	385)	1.3452	28.955	1893	2.237	4234	1.935	0.52308	15.417	0.1151	2330	34.420	151.2		
COMBUSTOR	0	22	15	5														
50.185	97,407	2798	608.9(	739)	1.2992	28.955	2498											
50.185	7,016	1470	234.2(	363)	1.3497	28.955	1846	2.346	4331	1.946	0.38733	15.417	0.1594	2354	26.067	152.7		
COMBUSTOR	0	23	16	5														
50.715	92,851	2794	607.8(	738)	1.2993	28.955	2497											
50.715	6,472	1455	230.3(	359)	1.3505	28.955	1837											
								2.364	4346	1.949	0.36224	15.417	0.1642	2358	24.468	153.0		
COMBUSTOR	0	24	17	4														
52.125	83,778	2788	605.0(	732)	1.2996	28.955	2493											
52.125	5,301	1414	219.3(	348)	1.3529	28.955	1812	2.424	4393	1.955	0.30873	15.417	0.1950	2370	21.078	153.7		
COMBUSTOR	0	25	18	5														
54.225	74,095	2775	601.6(	728)	1.3000	28.955	2488											
54.225	4,128	1361	205.5(	334)	1.3561	28.955	1780	2.501	4452	1.962	0.25304	15.417	0.2379	2385	17.507	154.7		
COMBUSTOR	0	26	19	5														
54.725	71,871	2771	600.9(	728)	1.3001	28.955	2487											
54.725	3,929	1353	203.4(	332)	1.3565	28.955	1775	2.513	4460	1.964	0.24270	15.417	0.2480	2387	16.822	154.8		
COMBUSTOR	0	27	20	5														
55.475	68,786	2768	599.9(	727)	1.3002	28.955	2486											
55.475	3,668	1342	200.9(	329)	1.3572	28.955	1768	2.528	4470	1.967	0.22878	15.417	0.2631	2389	15.895	155.0		
COMBUSTOR	0	28	21	5														
55.740	67,654	2767	599.6(	726)	1.3002	28.955	2485											
55.740	3,575	1338	199.6(	328)	1.3574	28.955	1766	2.533	4474	1.968	0.22393	15.417	0.2688	2390	15.569	155.0		
COMBUSTOR	0	29	22	5														
56.235	57,536	2765	599.0(	726)	1.3003	28.955	2485											
56.235	2,702	1298	188.7(	314)	1.3600	28.955	1740	2.604	4531	1.979	0.17699	15.417	0.3401	2407	12.464	156.1		
COMBUSTOR	0	30	23	5														
57.660	55,069	2760	597.6(	724)	1.3004	28.955	2482											
57.660	2,444	1274	183.0(	312)	1.3614	28.955	1726	2.639	4555	1.981	0.16364	15.417	0.3678	2413	11.583	156.5		
COMBUSTOR	0	31	24	5														
57.715	54,955	2760	597.5(	724)	1.3004	28.955	2482											
57.715	2,434	1274	182.8(	312)	1.3614	28.955	1725	2.640	4555	1.981	0.16313	15.417	0.3690	2413	11.548	156.5		
COMBUSTOR	0	32	25	5														
57.855	54,702	2759	597.4(	724)	1.3004	28.955	2482											
57.855	2,413	1272	182.4(	311)	1.3615	28.955	1724	2.642	4557	1.982	0.16198	15.417	0.3716	2413	11.471	156.5		
COMBUSTOR	0	33	26	5														
57.935	55,385	2759	597.3(	724)	1.3004	28.955	2482											
57.935	2,438	1271	182.2(	311)	1.3616	28.955	1724	2.644	4558	1.981	0.16380	15.417	0.3675	2413	11.602	156.5		
COMBUSTOR	0	34	27	5														
58.441	55,448	2758	596.9(	724)	1.3005	28.955	2481											
58.441	2,415	1267	181.0(	310)	1.3618	28.955	1721	2.650	4562	1.980	0.16298	15.417	0.3693	2414	11.553	156.6		
COMBUSTOR	0	35	28	4														
59.145	54,939	2756	596.3(	723)	1.3006	28.955	2481											
59.145	2,346	1262	179.8(	309)	1.3621	28.955	1718	2.657	4565	1.981	0.16039	15.417	0.3753	2415	11.379	156.6		
COMBUSTOR	0	36	29	4														
60.185	54,597	2753	595.6(	722)	1.3006	28.955	2480											
60.185	2,349	1260	179.4(	308)	1.3622	28.955	1717	2.658	4563	1.981	0.15937	15.417	0.3777	2414	11.302	156.6		
COMBUSTOR	0	37	30	3														
62.195	54,808	2750	594.7(	721)	1.3007	28.955	2478											
62.195	2,472	1275	183.1(	312)	1.3613	28.955	1726											
								2.629	4538	1.981	0.16492	15.417	0.3650	2406	11.631	156.0		

READING # 0090 BLOCK # 82 TIME = 197.223 MACH 7.3 PI = 996.249 TI = 2992.2

	P	T	H		GAMMA	MOLWT	SOUND	MACH	VEL	S	Z/A	W	A/AP	REYNLD	Q	TOTAL	DHT	ETAP
COMBUSTOR	0	38	31	5														
65.615	54.936	2749	594.3(	721)	1.3008	28.955	2478											
63.615	2.575	1287	186.3(	315)	1.3806	28.955	1750	2.604	4518	1.980	0.16939	15.417	2.4553	2309	11.090	155.6		
COMBUSTOR	0	39	32	5														
66.079	49.987	2746	593.5(	720)	1.3009	28.955	2477											
66.079	2.499	1308	191.7(	321)	1.3993	28.955	1747	2.567	4484	1.986	0.16056	15.417	2.4709	2369	11.189	154.9		
COMBUSTOR	0	40	33	4														
66.455	46.200	2746	593.4(	720)	1.3009	28.955	2477											
66.455	2.331	1311	192.4(	321)	1.3991	28.955	1749	2.561	4479	1.992	0.14927	15.417	2.4832	2387	10.391	154.8		
NOZZLE AE		41	34	4														
88.691	46.200	2746	593.4(	720)	1.3009	28.955	2477											
88.691	0.212	678	34.1(	163)	1.3949	28.955	1270	4.152	5290	1.992	0.03107	15.417	1.9371	2440	2.555	171.5		
NOZZLE P0		42	35	4														
88.691	46.200	2746	593.4(	720)	1.3009	28.955	2477											
88.691	0.150	619	19.9(	149)	1.3968	28.955	1219	4.396	5357	1.992	0.02502	15.417	2.4056	2662	2.083	172.7		
FICTIVE COMBUSTR		60	53	0														
66.455	321.812	2746	593.4(	720)	1.3008	28.956	2477											
66.455	0.154	356	-43.5(	88)	1.3981	28.955	924	6.104	5645	1.859	0.004585	15.417	1.3127	2757	4.023	178.8		
FICTIVE NOZZLE		61	54	0														
88.691	56.115	2736	590.6(	717)	1.3012	28.955	2473											
88.691	0.193	621	20.4(	149)	1.3967	28.955	1221	4.375	5341	1.977	0.03107	15.417	1.9371	2655	2.579	172.2		

Y&RS	P=1R	P=0R	PR1	Q0X	S=1R	Q=0R	CS=ALL	P=1R/PS0	P=1R/PT0	P=0R/PS0	P=0R/PT0
6.991E-01	7.000E-01	0.000	=2.776E-01	0.000	0.000	0.000	2.470E-02	4.536E 00	7.024E-04	0.000	0.000
1.836E 01	7.000E-01	0.000	=2.329E 01	0.000	0.000	0.000	1.459E 02	4.536E 00	7.024E-04	0.000	0.000
3.070E 01	1.055E 00	0.000	=9.443E 01	0.000	0.000	0.000	5.253E 02	6.834E 00	1.059E-03	0.000	0.000
3.504E 01	1.984E 00	0.000	=1.930E 02	0.000	0.000	0.000	6.804E 02	1.285E 01	1.990E-03	0.000	0.000
3.555E 01	2.245E 00	0.000	=2.122E 02	0.000	0.000	0.000	7.013E 02	1.455E 01	2.253E-03	0.000	0.000
3.606E 01	2.050E 00	0.000	=2.340E 02	=1.041E 02	=1.041E 02	0.000	7.204E 02	1.329E 01	2.059E-03	0.000	0.000
3.648E 01	2.244E 00	0.000	=2.524E 02	=1.107E 02	=1.107E 02	0.000	7.443E 02	1.456E 01	2.255E-03	0.000	0.000
3.659E 01	2.285E 00	3.181E 00	=2.564E 02	=1.115E 02	=1.115E 02	0.000	7.496E 02	1.481E 01	2.294E-03	2.062E 01	3.193E-03
3.660E 01	2.287E 00	3.199E 00	=2.567E 02	=1.115E 02	=1.115E 02	0.000	7.499E 02	1.482E 01	2.294E-03	2.073E 01	3.211E-03
3.701E 01	2.430E 00	4.364E 00	=2.729E 02	=1.142E 02	=1.142E 02	0.000	7.925E 02	1.575E 01	2.439E-03	2.828E 01	4.381E-03
3.726E 01	2.539E 00	5.087E 00	=2.827E 02	=1.159E 02	=1.159E 02	0.000	8.193E 02	1.515E 01	2.348E-03	3.297E 01	5.107E-03
3.803E 01	2.065E 00	8.693E 00	=2.750E 02	=1.215E 02	=1.215E 02	0.000	9.017E 02	1.338E 01	2.073E-03	5.633E 01	8.726E-03
3.872E 01	4.416E 00	1.197E 01	=2.704E 02	=1.791E 02	=1.844E 02	=5.056E 01	9.791E 02	4.197E 01	6.440E-03	7.756E 01	1.201E-02
3.875E 01	6.872E 00	1.190E 01	=2.707E 02	=1.806E 02	=1.289E 02	=5.173E 01	9.819E 02	4.259E 01	6.597E-03	7.709E 01	1.194E-02
3.901E 01	8.200E 00	1.115E 01	=2.742E 02	=1.965E 02	=1.324E 02	=4.387E 01	1.011E 03	5.313E 01	8.231E-03	7.224E 01	1.119E-02
3.950E 01	1.135E 01	9.737E 00	=2.896E 02	=2.280E 02	=1.414E 02	=8.670E 01	1.067E 03	7.353E 01	1.139E-02	6.309E 01	9.773E-03
3.974E 01	1.096E 01	9.031E 00	=2.977E 02	=2.447E 02	=1.467E 02	=9.807E 01	1.096E 03	7.104E 01	1.100E-02	5.852E 01	9.065E-03
4.000E 01	1.056E 01	9.116E 00	=3.028E 02	=2.628E 02	=1.529E 02	=1.099E 02	1.125E 03	6.844E 01	1.060E-02	5.907E 01	9.150E-03
4.021E 01	1.104E 01	9.187E 00	=3.069E 02	=2.785E 02	=1.587E 02	=1.198E 02	1.150E 03	7.152E 01	1.108E-02	5.953E 01	9.222E-03
4.040E 01	1.145E 01	9.965E 00	=3.098E 02	=2.922E 02	=1.638E 02	=1.284E 02	1.172E 03	7.417E 01	1.149E-02	6.457E 01	1.000E-02
4.041E 01	1.147E 01	1.001E 01	=3.098E 02	=2.929E 02	=1.641E 02	=1.289E 02	1.173E 03	7.431E 01	1.151E-02	6.485E 01	1.004E-02
4.072E 01	1.216E 01	1.133E 01	=3.128E 02	=3.166E 02	=1.732E 02	=1.434E 02	1.210E 03	7.882E 01	1.221E-02	7.342E 01	1.137E-02
4.121E 01	1.325E 01	1.925E 00	=3.286E 02	=3.542E 02	=1.889E 02	=1.656E 02	1.267E 03	8.583E 01	1.330E-02	1.247E 01	1.932E-03
4.150E 01	1.387E 01	1.987E 00	=3.455E 02	=3.765E 02	=1.981E 02	=1.783E 02	1.301E 03	8.991E 01	1.393E-02	1.288E 01	1.995E-03
4.246E 01	6.575E 00	2.197E 00	=3.791E 02	=4.547E 02	=2.328E 02	=2.219E 02	1.415E 03	4.261E 01	6.600E-03	1.424E 01	2.205E-03
4.271E 01	7.147E 00	2.251E 00	=3.833E 02	=4.753E 02	=2.421E 02	=2.342E 02	1.445E 03	4.631E 01	7.173E-03	1.459E 01	2.260E-03
4.277E 01	7.295E 00	2.266E 00	=3.845E 02	=4.805E 02	=2.445E 02	=2.374E 02	1.453E 03	4.727E 01	7.323E-03	1.468E 01	2.274E-03
4.431E 01	1.080E 01	5.523E 00	=4.074E 02	=5.974E 02	=2.975E 02	=2.999E 02	1.838E 03	7.001E 01	1.085E-02	3.579E 01	5.544E-03
4.480E 01	1.192E 01	6.563E 00	=4.161E 02	=6.329E 02	=3.131E 02	=3.198E 02	1.497E 03	7.727E 01	1.197E-02	4.253E 01	6.587E-03
4.549E 01	1.103E 01	8.037E 00	=4.260E 02	=6.824E 02	=3.344E 02	=3.481E 02	1.782E 03	7.104E 01	1.101E-02	5.208E 01	8.068E-03
4.621E 01	1.010E 01	7.298E 00	=4.272E 02	=7.284E 02	=3.551E 02	=3.730E 02	1.870E 03	6.504E 01	1.010E-02	4.729E 01	7.325E-03
4.626E 01	1.003E 01	7.246E 00	=4.271E 02	=7.312E 02	=3.564E 02	=3.745E 02	1.876E 03	6.502E 01	1.007E-02	4.695E 01	7.273E-03
4.731E 01	8.675E 00	6.160E 00	=4.215E 02	=7.841E 02	=3.859E 02	=3.982E 02	2.005E 03	5.621E 01	8.708E-03	3.992E 01	6.183E-03
4.811E 01	4.450E 00	5.332E 00	=4.091E 02	=8.186E 02	=4.069E 02	=4.117E 02	2.105E 03	2.884E 01	4.467E-03	3.455E 01	5.352E-03
5.018E 01	3.186E 00	3.186E 00	=3.650E 02	=8.985E 02	=4.565E 02	=4.420E 02	2.363E 03	2.064E 01	3.198E-03	2.064E 01	3.198E-03
5.071E 01	2.437E 00	2.637E 00	=3.569E 02	=9.161E 02	=4.680E 02	=4.480E 02	2.434E 03	1.709E 01	2.647E-03	1.709E 01	2.647E-03
5.212E 01	3.275E 00	3.275E 00	=3.351E 02	=9.587E 02	=4.965E 02	=4.622E 02	2.607E 03	2.122E 01	3.287E-03	2.122E 01	3.287E-03
5.422E 01	1.750E 00	1.750E 00	=3.074E 02	=1.012E 03	=5.330E 02	=4.747E 02	2.874E 03	1.134E 01	1.757E-03	1.134E 01	1.757E-03
5.472E 01	1.750E 00	1.750E 00	=3.029E 02	=1.022E 03	=5.407E 02	=4.816E 02	2.937E 03	1.134E 01	1.757E-03	1.134E 01	1.757E-03
5.547E 01	1.489E 00	1.489E 00	=2.966E 02	=1.037E 03	=5.519E 02	=4.857E 02	3.033E 03	9.650E 00	1.495E-03	9.650E 00	1.495E-03
5.576E 01	1.390E 00	1.390E 00	=2.945E 02	=1.042E 03	=5.553E 02	=4.871E 02	3.070E 03	9.008E 00	1.395E-03	9.008E 00	1.395E-03
5.623E 01	9.312E-01	1.225E 00	=2.765E 02	=1.051E 03	=5.615E 02	=4.895E 02	3.102E 03	6.034E 00	9.348E-04	7.938E 00	1.230E-03
5.766E 01	1.310E 00	1.310E 00	=2.675E 02	=1.074E 03	=5.776E 02	=4.962E 02	3.209E 03	8.489E 00	1.315E-03	8.489E 00	1.315E-03
5.771E 01	1.350E 00	1.313E 00	=2.671E 02	=1.075E 03	=5.782E 02	=4.964E 02	3.217E 03	8.748E 00	1.355E-03	8.511E 00	1.318E-03
5.785E 01	1.350E 00	1.322E 00	=2.663E 02	=1.077E 03	=5.796E 02	=4.971E 02	3.234E 03	8.748E 00	1.355E-03	8.565E 00	1.327E-03
5.793E 01	1.327E 00	1.327E 00	=2.658E 02	=1.078E 03	=5.804E 02	=4.974E 02	3.245E 03	8.596E 00	1.332E-03	8.596E 00	1.332E-03
5.844E 01	1.357E 00	1.357E 00	=2.627E 02	=1.085E 03	=5.850E 02	=4.996E 02	3.309E 03	8.792E 00	1.362E-03	8.792E 00	1.362E-03
5.916E 01	1.400E 00	1.400E 00	=2.590E 02	=1.094E 03	=5.910E 02	=5.028E 02	3.402E 03	9.072E 00	1.405E-03	9.072E 00	1.405E-03
6.018E 01	1.525E 00	1.525E 00	=2.556E 02	=1.105E 03	=5.980E 02	=5.067E 02	3.532E 03	9.882E 00	1.531E-03	9.882E 00	1.531E-03
6.219E 01	2.487E 00	2.487E 00	=2.551E 02	=1.118E 03	=6.073E 02	=5.108E 02	3.790E 03	1.612E 01	2.497E-03	1.612E 01	2.497E-03
6.361E 01	1.419E 00	1.419E 00	=2.551E 02	=1.124E 03	=6.118E 02	=5.126E 02	3.972E 03	9.193E 00	1.424E-03	9.193E 00	1.424E-03
6.608E 01	1.376E 00	1.376E 00	=2.551E 02	=1.136E 03	=6.182E 02	=5.160E 02	4.289E 03	8.915E 00	1.381E-03	8.915E 00	1.381E-03
6.645E 01	1.500E 00	1.369E 00	=2.551E 02	=1.138E 03	=6.190E 02	=5.161E 02	4.337E 03	9.720E 00	1.506E-03	8.872E 00	1.374E-03
6.649E 01	1.500E 00	1.368E 00	=2.551E 02	=1.138E 03	=6.191E 02	=5.162E 02	4.342E 03	9.720E 00	1.506E-03	8.868E 00	1.374E-03
6.669E 01	1.452E 00	1.365E 00	=2.551E 02	=1.139E 03	=6.195E 02	=5.196E 02	4.364E 03	9.406E 00	1.457E-03	8.845E 00	1.370E-03
6.835E 01	1.050E 00	1.190E 00	=2.410E 02	=1.149E 03	=6.234E 02	=5.256E 02	4.584E 03	6.804E 00	1.054E-03	7.711E 00	1.194E-03

X	DDRAG	CDRAG	CF	HC
4.040E 01	8.560E 01	8.560E 01	2.252E-03	3.488E-02
4.041E 01	1.501E-01	8.575E 01	2.237E-03	3.490E-02
4.072E 01	4.730E 00	9.048E 01	2.247E-03	3.530E-02
4.121E 01	7.409E 00	9.789E 01	2.294E-03	3.599E-02
4.150E 01	4.319E 00	1.022E 02	2.343E-03	3.654E-02
4.246E 01	1.428E 01	1.165E 02	2.441E-03	3.624E-02
4.271E 01	3.412E 00	1.201E 02	2.454E-03	3.608E-02
4.277E 01	9.175E-01	1.210E 02	2.460E-03	3.603E-02
4.431E 01	2.141E 01	1.424E 02	2.535E-03	3.460E-02
4.480E 01	6.877E 00	1.490E 02	2.561E-03	3.461E-02
4.549E 01	9.274E 00	1.583E 02	2.593E-03	3.490E-02
4.621E 01	9.392E 00	1.677E 02	2.609E-03	3.416E-02
4.626E 01	4.530E-01	1.683E 02	2.610E-03	3.407E-02
4.731E 01	1.316E 01	1.815E 02	2.619E-03	3.144E-02
4.811E 01	9.288E 00	1.908E 02	2.607E-03	2.892E-02
5.018E 01	2.015E 01	2.109E 02	2.540E-03	2.067E-02
5.071E 01	4.257E 00	2.152E 02	2.524E-03	1.921E-02
5.212E 01	1.018E 01	2.253E 02	2.493E-03	1.606E-02
5.422E 01	1.269E 01	2.380E 02	2.444E-03	1.284E-02
5.472E 01	2.674E 00	2.407E 02	2.442E-03	1.227E-02
5.547E 01	3.820E 00	2.445E 02	2.433E-03	1.151E-02
5.576E 01	1.394E 00	2.459E 02	2.430E-03	1.125E-02
5.623E 01	1.080E 00	2.470E 02	2.380E-03	8.665E-03
5.766E 01	3.069E 00	2.501E 02	2.361E-03	7.923E-03
5.771E 01	1.924E-01	2.503E 02	2.360E-03	7.895E-03
5.785E 01	4.827E-01	2.508E 02	2.359E-03	7.835E-03
5.793E 01	2.782E-01	2.510E 02	2.353E-03	7.899E-03
5.844E 01	1.753E 00	2.528E 02	2.342E-03	7.819E-03
5.916E 01	2.484E 00	2.553E 02	2.335E-03	7.666E-03
6.018E 01	3.457E 00	2.587E 02	2.330E-03	7.596E-03
6.219E 01	6.897E 00	2.656E 02	2.335E-03	7.840E-03
6.361E 01	5.008E 00	2.706E 02	2.339E-03	8.125E-03
6.608E 01	8.413E 00	2.792E 02	2.382E-03	7.867E-03
6.645E 01	1.248E 00	2.805E 02	2.413E-03	7.416E-03
6.649E 01	1.117E-01	2.806E 02	2.312E-03	5.135E-03
6.669E 01	4.730E-01	2.811E 02	2.307E-03	5.062E-03
6.835E 01	3.676E 00	2.848E 02	2.257E-03	4.240E-03
6.979E 01	2.763E 00	2.875E 02	2.244E-03	4.142E-03
7.051E 01	1.298E 00	2.888E 02	2.216E-03	3.729E-03
7.112E 01	9.939E-01	2.898E 02	2.187E-03	3.326E-03
7.250E 01	2.044E 00	2.919E 02	2.163E-03	3.046E-03
7.403E 01	2.280E 00	2.941E 02	2.182E-03	3.379E-03
7.418E 01	2.214E-01	2.944E 02	2.177E-03	3.327E-03
7.493E 01	9.759E-01	2.953E 02	2.121E-03	2.626E-03
7.494E 01	1.676E-03	2.953E 02	2.120E-03	2.622E-03
7.626E 01	5.401E-01	2.959E 02	2.119E-03	2.662E-03
7.911E 01	8.593E-01	2.967E 02	2.013E-03	1.730E-03
8.301E 01	8.563E-01	2.976E 02	2.065E-03	2.316E-03
8.582E 01	4.865E-01	2.981E 02	2.039E-03	2.135E-03
8.868E 01	1.723E-01	2.982E 02	1.969E-03	1.608E-03
8.869E 01	0.000	2.982E 02	1.968E-03	1.607E-03

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	=275.	(LBF)
MEASURED THRUST	=365.	(LBF)
CALCULATED SPECIFIC IMPULSE	=275.	(LBF=SEC/LBM)
MEASURED SPECIFIC IMPULSE	=365.	(LBF=SEC/LBM)
CALCULATED THRUST COEFFICIENT	=.1886	
MEASURED THRUST COEFFICIENT	=.2506	

REGENERATIVE-COOLED ENGINE PERFORMANCE CALCULATED

STREAM THRUST	0.	(LBF)
NET THRUST	0.	(LBF)
SPECIFIC IMPULSE	0.	(LBF=SEC/LBM)
THRUST COEFFICIENT	0.0000	

MOMENTUM AND FORCES

INLET FRICTION DRAG	85.6	(LBF)
INLET MOMENTUM CHANGE	=395.4	(LBF)
COMBUSTOR FRICTION DRAG	194.9	(LBF)
COMBUSTOR STRUT DRAG	7.56	(LBF)
COMBUSTOR MOMENTUM CHANGE	=[illegible]	(LBF)
NOZZLE FRICTION DRAG	17.75	(LBF)
NOZZLE STRUT DRAG	0.00	(LBF)
NOZZLE MOMENTUM CHANGE	268.	(LBF)
NOZZLE PRESSURE INTEGRAL	286.	(LBF)
EXTERNAL FRICTION DRAG	20.61	(LBF)
EXTERNAL PRESSURE INTEGRAL	=640.	(LBF)
TOTAL EXTERNAL DRAG	=670.	(LBF)
TOTAL STRUT DRAG	7.56	(LBF)
CAVITY FORCE	=550.	(LBF)
CALCULATED LOAD CELL FORCE	=1495.	(LBF)
MEASURED LOAD CELL FORCE	=1585.	(LBF)
FUEL VACUUM SPECIFIC IMPULSE		

STATIONS

NOMINAL COWL LEADING EDGE	36.884	(IN)
SPIKE TRANSLATION	1.7150	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	36.599	(IN)
NOZZLE SHROUD TRAILING EDGE	74.939	(IN)
NOZZLE PLUG TRAILING EDGE	88.691	(IN)
STRUT LEADING EDGE	57.855	(IN)
STRUT TRAILING EDGE	66.455	(IN)
COMBUSTOR EXIT	64.459	(IN)

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.9912	
ADDITIVE DRAG COEFFICIENT	0.0000	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.1019	
DELTA PT2	0.0909	(PSI)
TOTAL PRESSURE RECOVERY - SUPERSONIC	0.3230	
TOTAL PRESSURE RECOVERY - SUBSONIC	0.1032	
INLET PROCESS EFFICIENCY - SUPERSONIC	0.9004	
INLET PROCESS EFFICIENCY - SUBSONIC	0.9127	
KINETIC ENERGY EFFICIENCY - SUPERSONIC	0.9413	
KINETIC ENERGY EFFICIENCY - SUBSONIC	0.8922	
ENTHALPY AT P0 - SUPERSONIC	=36.32	(BTU/LBM)
ENTHALPY AT P0 - SUBSONIC	=0.62	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0000
EQUIVALENCE RATIO	0.000
COMBUSTION EFFICIENCY	0.000
TOTAL PRESSURE RATIO	0.1436
COMBUSTOR EFFECTIVENESS	0.5727
INJECTOR DISCHARGE COEFFICIENTS	

NOZZLE

VACUUM STREAM THRUST COEFFICIENT - CS	1.0054
NOZZLE COEFFICIENT - CT	0.9687
PROCESS EFFICIENCY	1.0565
KINETIC ENERGY EFFICIENCY	1.0113

FUEL INJECTIONS

INJECTORS	STATION	VALVE
1A	40.400	
1B	42.700	
1C	44.300	
2A	50.175	
2C	46.250	
3A	55.465	
3B	57.650	
0	46.200	

Reading 90

t = 206.22 sec.

1-27-75
Reg! corrected

S U M M A R Y R E P O R T

	P	T	M		GAMMA	MOLWT	SONV	MACH	VEL	S	A/A	S	A/AC	MOMTM	Q	EVAL	PHI	ETAC
WIND TUNNEL		1	0	5														
0.000	995.999	2895	637.8(	764)	1.2961	28.956	2538											
0.000	0.155	276	-62.8(	88)	1.3957	28.955	813	7.281	5921	1.797	0.06226	15.801	0.9909	2947	5.729	186.5		
SPIKE TIP NS		2	0	7														
0.600	11.512	2895	637.8(	764)	1.2960	28.955	2538											
0.600	10.620	2842	622.0(	746)	1.2977	28.955	2517	0.355	889	2.103	0.06226	15.801	0.9909	3133	0.860	198.3		
WIND TUNNEL		3	0	0														
0.000	995.999	2895	637.8(	764)	1.2961	28.956	2538											
0.000	0.172	284	-60.8(	88)	1.3960	28.955	825	7.164	5913	1.797	0.06699	17.002	0.9909	3168	6.155	186.3		
SPIKE TIP NS		4	0	0														
0.600	11.512	2895	637.8(	764)	1.2960	28.955	2538											
0.600	10.469	2852	619.1(	745)	1.2980	28.955	2512	0.305	967	2.103	0.06699	17.002	0.9909	3168	1.007	186.3		
INLET THROAT		5	0	4														
40.400	334.489	2804	610.6(	737)	1.2990	28.956	2501											
40.400	10.317	1178	158.2(	287)	1.3674	28.955	1663	2.861	4758	1.862	0.78103	15.801	0.0790	2546	57.755	161.1		
INLET UPNRSK		6	0	3														
40.400	334.489	2804	610.6(	737)	1.2990	28.956	2501											
40.400	8.898	1132	140.4(	275)	1.3704	28.955	1632	2.953	4819	1.862	0.71003	15.801	0.0869	2565	55.178	162.3		
INLET UNNRSK		7	0	4														
40.400	103.336	2804	610.6(	737)	1.2990	28.955	2501											
40.400	90.028	2716	584.5(	711)	1.3018	28.955	2464	0.484	1143	1.943	0.71003	15.801	0.0869	2565	12.613	162.3		
COMBUSTOR	0	8	1	11														
40.410	220.883	2742	620.0(	749)	1.3037	26.264	2601											
40.410	14.027	1383	203.0(	375)	1.3573	26.264	1885	2.423	4568	2.041	0.78720	15.929	0.0790	2545	55.883	159.8	0.24	0.07
COMBUSTOR	0	9	2	4														
40.727	166.299	2972	617.3(	859)	1.2931	26.515	2684											
40.727	18.489	1756	235.3(	481)	1.3360	26.515	2097	2.085	4372	2.082	0.79006	15.929	0.0787	2537	53.685	159.3	0.24	0.85
COMBUSTOR	0	10	3	21														
41.217	207.854	2676	613.1(	769)	1.3065	26.218	2575											
41.217	12.396	1322	199.8(	357)	1.3612	26.217	1848	2.461	4548	2.039	0.78420	15.929	0.0793	2503	55.421	157.2	0.24	0.04
COMBUSTOR	0	11	4	21														
41.500	195.183	2626	610.6(	754)	1.3067	26.174	2555											
41.500	15.795	1353	222.1(	367)	1.3598	26.174	1869	2.359	4409	2.038	0.77634	15.929	0.0801	2466	53.198	154.8	0.24	0.01
COMBUSTOR	0	12	5	4														
42.460	101.283	2829	600.5(	815)	1.2989	26.418	2630											
42.460	23.663	1999	338.5(	556)	1.3274	26.418	2235	1.620	3620	2.106	0.75239	15.929	0.0849	2307	41.203	144.8	0.24	0.18
COMBUSTOR	0	13	6	16														
42.702	94.876	2506	608.5(	774)	1.3153	24.097	2608											
42.702	24.005	1784	367.4(	534)	1.3412	24.097	2222	1.563	3474	2.215	0.72894	16.046	0.0859	2261	39.349	140.9	0.47	0.02
COMBUSTOR	0	14	7	2														
42.712	94.702	2503	608.4(	773)	1.3155	24.095	2606											
42.712	24.019	1783	367.9(	534)	1.3413	24.094	2221	1.562	3469	2.215	0.72879	16.046	0.0860	2259	39.289	140.8	0.47	0.01
COMBUSTOR	0	15	8	2														
42.777	93.401	2485	607.5(	767)	1.3163	24.080	2599											
42.777	24.111	1777	371.3(	532)	1.3417	24.080	2219	1.550	3438	2.214	0.72699	16.046	0.0862	2247	38.646	140.0	0.47	0.01
COMBUSTOR	0	16	9	21														
44.310	67.602	2403	585.4(	740)	1.3192	24.065	2559											
44.310	37.923	2066	478.5(	634)	1.3302	24.065	2394	0.966	2314	2.229	0.67234	16.046	0.0932	2059	24.175	128.5	0.47	0.00
COMBUSTOR	0	17	10	21														
44.800	65.089	2378	577.7(	732)	1.3201	24.062	2547											
44.800	42.338	2140	497.5(	652)	1.3283	24.062	2424	0.826	2003	2.229	0.66358	16.046	0.0944	2023	20.660	126.1	0.47	0.00
COMBUSTOR	0	18	11	21														
45.497	58.664	3094	566.8(	966)	1.2864	24.785	2826											
45.497	43.093	2899	497.1(	898)	1.2931	24.780	2742	0.561	1867	2.305	0.65897	16.046	0.0951	2000	19.124	124.7	0.47	0.32

READING = 0090 BLOCK = 92 TIME = 200.225 MACH 7.5 PI = 995.999 TT = 2894.5

	P	T	M		GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	NUMIN	Q	IVAC	PMI	ETAC
COMBUSTOR	0	19	12	21														
46.212	62.425	2428	556.1(	787)	1.3170	24.167	2565											
46.212	37.739	2148	461.5(	653)	1.3267	24.167	2421	0.898	2175	2.237	0.64122	16.046	0.0977	2029	21.678	126.5	0.47	0.05
COMBUSTOR	0	20	13	21														
46.260	63.770	2329	555.4(	715)	1.3216	24.077	2521											
46.260	37.325	2041	459.0(	619)	1.3317	24.077	2369	0.927	2197	2.223	0.63927	16.046	0.0980	2033	21.827	126.7	0.47	0.01
COMBUSTOR	0	21	14	4														
47.310	62.787	2461	541.0(	757)	1.3150	24.239	2577											
47.310	28.288	2026	394.7(	611)	1.3303	24.239	2351	1.151	2705	2.239	0.59244	16.046	0.1057	2115	24.908	131.8	0.47	0.08
COMBUSTOR	0	22	15	4														
48.110	62.175	2569	530.5(	792)	1.3097	24.370	2620											
48.110	22.694	2013	343.0(	605)	1.3292	24.370	2336	1.311	3063	2.251	0.54461	16.046	0.1150	2196	25.926	136.9	0.47	0.14
COMBUSTOR	0	23	16	5														
50.187	54.787	2919	507.8(	905)	1.2927	24.775	2752											
50.187	14.926	2152	245.1(	645)	1.3192	24.776	2387	1.519	3625	2.290	0.40312	16.046	0.1554	2402	22.712	149.7	0.47	0.32
COMBUSTOR	0	24	17	4														
50.717	57.691	2809	503.4(	869)	1.2977	24.678	2710											
50.717	11.612	1914	200.9(	569)	1.3294	24.678	2264	1.718	3891	2.276	0.37702	16.046	0.1662	2435	22.796	151.7	0.47	0.28
COMBUSTOR	0	25	18	4														
52.127	56.243	2822	493.7(	873)	1.2967	24.718	2713											
52.127	8.800	1809	152.9(	534)	1.3332	24.719	2203	1.875	4130	2.278	0.32132	16.046	0.1950	2499	20.622	155.7	0.47	0.29
COMBUSTOR	0	26	19	3														
54.227	53.785	2814	480.4(	873)	1.2967	24.644	2713											
54.227	6.400	1684	101.1(	496)	1.3385	24.644	2132	2.043	4357	2.288	0.26408	16.089	0.2379	2569	17.880	159.6	0.48	0.30
COMBUSTOR	0	27	20	5														
54.727	76.174	2531	478.0(	780)	1.3096	24.376	2600											
54.727	4.250	1222	51.8(	355)	1.3658	24.376	1845	2.503	4618	2.233	0.25329	16.089	0.2480	2579	16.178	160.3	0.48	0.19
COMBUSTOR	0	28	21	4														
55.477	69.736	2577	474.6(	795)	1.3074	24.430	2619											
55.477	4.151	1270	47.5(	369)	1.3626	24.430	1877	2.463	4623	2.244	0.23876	16.089	0.2631	2591	17.153	161.1	0.48	0.21
COMBUSTOR	0	29	22	3														
55.760	67.633	2594	473.5(	800)	1.3066	24.449	2625											
55.760	4.113	1288	46.0(	374)	1.3614	24.449	1888	2.450	4625	2.248	0.23374	16.089	0.2688	2596	16.800	161.3	0.48	0.22
COMBUSTOR	0	30	23	4														
56.237	55.699	2679	471.6(	828)	1.3026	24.536	2659											
56.237	3.266	1325	26.7(	385)	1.3565	24.536	1910	2.471	4719	2.272	0.18471	16.089	0.3401	2644	13.545	164.3	0.48	0.25
COMBUSTOR	0	31	24	3														
57.662	57.597	2658	467.1(	821)	1.3034	24.528	2650											
57.662	2.798	1249	6.2(	362)	1.3629	24.528	1857	2.586	4802	2.267	0.17078	16.089	0.3678	2665	12.746	165.6	0.48	0.25
COMBUSTOR	0	32	25	4														
57.717	46.847	2797	467.0(	867)	1.2970	24.664	2704											
57.717	3.325	1466	25.1(	427)	1.3494	24.665	1997	2.355	4702	2.296	0.17024	16.089	0.3690	2666	12.441	165.7	0.48	0.31
COMBUSTOR	0	33	26	3														
57.857	47.169	2789	466.7(	864)	1.2973	24.658	2701											
57.857	3.263	1451	22.9(	423)	1.3502	24.658	1988	2.370	4712	2.294	0.16905	16.089	0.3716	2667	12.379	165.8	0.48	0.31
COMBUSTOR	0	34	27	11														
57.937	64.852	2598	466.5(	801)	1.3061	24.472	2626											
57.937	2.556	1149	-4.3(	332)	1.3691	24.472	1788	2.715	4854	2.251	0.17097	16.089	0.3674	2668	12.896	165.8	0.48	0.23
COMBUSTOR	0	35	28	9														
58.443	83.294	2488	465.3(	766)	1.3112	24.370	2580											
58.443	2.111	967	-22.7(	279)	1.3799	24.370	1650	2.995	4942	2.220	0.17012	16.089	0.3693	2671	13.065	166.0	0.48	0.18
COMBUSTOR	0	36	29	5														
59.167	138.290	2325	463.9(	713)	1.3186	24.221	2509											
59.167	1.475	699	-48.3(	201)	1.3931	24.221	1414	3.580	5063	2.160	-0.16739	16.089	0.3753	2673	13.170	166.2	0.48	0.12
COMBUSTOR	0	37	30	4														
60.187	125.680	2350	462.2(	721)	1.3174	24.249	2520											
60.187	1.550	738	-47.0(	212)	1.3915	24.249	1451	3.478	5048	2.171	0.16632	16.089	0.3777	2674	13.047	166.2	0.48	0.13

	P	T	F	GAMMA	MOLWT	GRAV	MACH	VEL	S	CPA	R	AZAC	PUMIN	Q	IVAC	PHI	ETAC
COMBUSTOR	0	38	31	/													
62.197	26.002	3464	459.5(1069)	1.2923	25.383	2927											
62.197	0.275	2495	112.6(752)	1.2985	25.392	2519	1.654	4165	2.381	0.17211	16.089	0.3650	2870	11.141	165.9	0.48	0.61
COMBUSTOR	0	39	32	6													
63.617	38.960	2997	457.7(933)	1.2870	24.893	2776											
63.617	4.294	1779	44.6(523)	1.3315	24.894	2175	2.090	4546	2.325	0.17678	16.089	0.3553	2664	12.490	165.6	0.48	0.41
COMBUSTOR	0	40	33	5													
66.081	26.978	3298	454.0(1033)	1.2714	25.219	2875											
66.081	5.455	2264	91.2(677)	1.3087	25.224	2417	1.763	4261	2.368	0.16756	16.089	0.3749	2655	11.095	169.0	0.48	0.54
COMBUSTOR	0	41	34	4													
66.457	24.614	3470	453.3(1091)	1.2614	25.408	2927											
66.457	5.871	2537	118.6(766)	1.2966	25.417	2537	1.613	4093	2.390	0.15578	16.089	0.4032	2653	9.909	164.9	0.48	0.62
COMBUSTOR REGEN		42	35	3													
66.457	24.614	3884	617.1(1239)	1.2402	25.384	3072											
66.457	6.793	2978	272.6(917)	1.2803	25.415	2731	1.520	4152	2.435	0.15578	16.089	0.4032	2778	10.052	172.7	0.48	0.62
NOZZLE AE		43	36	5													
88.693	24.614	3470	453.3(1075)	1.2614	25.408	2927											
88.693	0.446	1354	*265.6(385)	1.3486	25.417	1890	3.169	5990	2.390	0.03243	16.089	1.9371	3216	3.019	199.4	0.48	0.62
NOZZLE PO		44	37	5													
88.693	24.614	3470	453.3(1075)	1.2614	25.408	2927											
88.693	0.155	1024	*361.3(287)	1.3684	25.417	1656	3.856	6385	2.390	0.01588	16.089	3.9559	3350	1.576	206.2	0.48	0.62
NOZZLE AE REGEN		45	38	5													
88.693	24.614	3884	617.1(1239)	1.2402	25.384	3072											
88.693	0.503	1614	*183.8(469)	1.3340	25.417	2052	3.065	6330	2.435	0.03243	16.089	1.9371	3415	3.190	212.3	0.48	0.62
NOZZLE PO REGEN		46	39	5													
88.693	24.614	3884	617.1(1239)	1.2402	25.384	3072											
88.693	0.155	1192	*312.1(337)	1.3584	25.417	1780	3.831	6819	2.435	0.01457	16.089	4.3117	3581	1.544	222.6	0.48	0.62
FICTIVE COMBUSTR		64	57	0													
66.457	334.489	4289	453.3(1369)	1.2256	26.360	3149											
66.457	0.155	704	*761.0(191)	1.3776	26.408	1351	5.769	7795	2.221	0.02930	16.089	2.1442	3983	3.549	247.6	0.48	1.00
FICTIVE NOZZLE		65	58	0													
88.693	22.284	3432	438.8(1077)	1.2629	25.409	2912											
88.693	0.463	1383	*254.6(394)	1.3468	25.417	1909	3.085	5890	2.394	0.03243	16.089	1.9371	3175	2.969	197.4	0.48	0.62

XARS	M=IM	M=OB	PDA	UUX	Q=IM	Q=OB	CA*ALL	P=IB/PSU	M=IB/PIU	P=OB/PSU	P=OB/PTO
0.981E-01	0.900E-01	0.000	-2.778E-01	0.000	0.000	0.000	2.470E-02	4.456E 00	6.928E-04	0.000	0.000
1.836E 01	0.900E-01	0.000	-2.296E 01	0.000	0.000	0.000	1.534E 02	4.456E 00	6.928E-04	0.000	0.000
3.070E 01	1.055E 00	0.000	-9.370E 01	0.000	0.000	0.000	5.053E 02	6.814E 00	1.059E-03	0.000	0.000
3.508E 01	2.022E 00	0.000	-1.934E 02	0.000	0.000	0.000	6.804E 02	1.506E 01	2.031E-03	0.000	0.000
3.555E 01	2.235E 00	0.000	-2.128E 02	0.000	0.000	0.000	7.013E 02	1.443E 01	2.244E-03	0.000	0.000
3.606E 01	2.090E 00	0.000	-2.344E 02	-1.593E 02	-1.593E 02	0.000	7.246E 02	1.350E 01	2.098E-03	0.000	0.000
3.648E 01	2.257E 00	0.000	-2.534E 02	-1.632E 02	-1.632E 02	0.000	7.443E 02	1.458E 01	2.266E-03	0.000	0.000
3.659E 01	2.287E 00	3.157E 00	-2.914E 02	-1.642E 02	-1.642E 02	0.000	7.497E 02	1.477E 01	2.296E-03	2.039E 01	3.169E-03
3.660E 01	2.288E 00	3.174E 00	-2.915E 02	-1.643E 02	-1.643E 02	0.000	7.500E 02	1.478E 01	2.298E-03	2.050E 01	3.187E-03
3.701E 01	2.395E 00	4.349E 00	-2.937E 02	-1.682E 02	-1.682E 02	0.000	7.924E 02	1.547E 01	2.405E-03	2.809E 01	4.367E-03
3.727E 01	2.328E 00	5.087E 00	-2.934E 02	-1.706E 02	-1.706E 02	0.000	8.194E 02	1.504E 01	2.338E-03	3.286E 01	5.108E-03
3.803E 01	2.130E 00	8.087E 00	-2.762E 02	-1.769E 02	-1.769E 02	0.000	9.015E 02	1.376E 01	2.139E-03	5.010E 01	8.722E-03
3.873E 01	6.497E 00	1.197E 01	-2.724E 02	-2.486E 02	-1.931E 02	-5.545E 01	4.792E 02	4.196E 01	6.523E-03	7.734E 01	1.202E-02
3.875E 01	6.441E 00	1.191E 01	-2.725E 02	-2.505E 02	-1.938E 02	-5.663E 01	9.818E 02	4.289E 01	6.668E-03	7.693E 01	1.196E-02
3.901E 01	8.270E 00	1.120E 01	-2.762E 02	-2.727E 02	-2.028E 02	-6.995E 01	1.011E 03	5.341E 01	8.303E-03	7.232E 01	1.124E-02
3.950E 01	1.156E 01	9.853E 00	-2.919E 02	-3.207E 02	-2.257E 02	-9.496E 01	1.067E 03	7.464E 01	1.160E-02	6.363E 01	9.893E-03
3.975E 01	1.133E 01	9.175E 00	-3.003E 02	-3.481E 02	-2.406E 02	-1.075E 02	1.096E 03	7.516E 01	1.168E-02	5.926E 01	9.212E-03
4.000E 01	1.110E 01	9.310E 00	-3.061E 02	-3.787E 02	-2.583E 02	-1.204E 02	1.125E 03	7.169E 01	1.114E-02	6.012E 01	9.347E-03
4.022E 01	1.320E 01	9.485E 00	-3.116E 02	-4.063E 02	-2.750E 02	-1.313E 02	1.150E 03	8.522E 01	1.325E-02	6.087E 01	9.463E-03
4.040E 01	1.496E 01	1.281E 01	-3.165E 02	-4.301E 02	-2.895E 02	-1.406E 02	1.172E 03	9.664E 01	1.502E-02	8.273E 01	1.286E-02
4.041E 01	1.506E 01	1.299E 01	-3.165E 02	-4.314E 02	-2.903E 02	-1.411E 02	1.173E 03	9.726E 01	1.512E-02	8.342E 01	1.305E-02
4.073E 01	1.812E 01	1.686E 01	-3.190E 02	-4.734E 02	-3.163E 02	-1.571E 02	1.210E 03	1.170E 02	1.819E-02	1.218E 02	1.893E-02
4.122E 01	2.285E 01	1.937E 00	-3.453E 02	-5.403E 02	-3.590E 02	-1.814E 02	1.268E 03	1.476E 02	2.295E-02	1.251E 01	1.945E-03
4.150E 01	2.559E 01	2.003E 00	-3.778E 02	-5.802E 02	-3.850E 02	-1.951E 02	1.301E 03	1.653E 02	2.569E-02	1.294E 01	2.011E-03
4.246E 01	4.510E 01	2.226E 00	-5.230E 02	-7.425E 02	-4.788E 02	-2.636E 02	1.419E 03	2.913E 02	4.528E-02	1.438E 01	2.235E-03
4.270E 01	4.573E 01	2.283E 00	-5.656E 02	-7.911E 02	-5.033E 02	-2.878E 02	1.444E 03	2.953E 02	4.591E-02	1.474E 01	2.292E-03
4.271E 01	4.575E 01	2.285E 00	-5.673E 02	-7.931E 02	-5.043E 02	-2.889E 02	1.445E 03	2.955E 02	4.594E-02	1.476E 01	2.294E-03
4.278E 01	4.592E 01	2.300E 00	-5.784E 02	-8.067E 02	-5.108E 02	-2.958E 02	1.453E 03	2.966E 02	4.611E-02	1.485E 01	2.309E-03
4.431E 01	4.990E 01	2.594E 01	-7.491E 02	-1.101E 03	-6.627E 02	-4.983E 02	1.638E 03	3.223E 02	5.010E-02	1.676E 02	2.605E-02
4.480E 01	5.117E 01	3.350E 01	-7.810E 02	-1.205E 03	-7.103E 02	-5.746E 02	1.697E 03	3.305E 02	5.138E-02	2.164E 02	3.364E-02
4.550E 01	4.354E 01	4.425E 01	-7.983E 02	-1.460E 03	-7.761E 02	-6.835E 02	1.782E 03	2.812E 02	4.371E-02	2.856E 02	4.443E-02
4.621E 01	3.570E 01	3.978E 01	-7.632E 02	-1.631E 03	-8.406E 02	-7.908E 02	1.870E 03	2.306E 02	3.584E-02	2.569E 02	3.994E-02
4.626E 01	3.517E 01	3.948E 01	-7.594E 02	-1.642E 03	-8.448E 02	-7.976E 02	1.876E 03	2.272E 02	3.531E-02	2.550E 02	3.964E-02
4.731E 01	2.366E 01	3.291E 01	-6.674E 02	-1.875E 03	-9.341E 02	-9.407E 02	2.005E 03	1.528E 02	2.376E-02	2.126E 02	3.305E-02
4.811E 01	1.747E 01	2.791E 01	-5.791E 02	-2.043E 03	-9.980E 02	-1.045E 03	2.104E 03	1.129E 02	1.755E-02	1.803E 02	2.802E-02
5.019E 01	1.493E 01	1.493E 01	-3.555E 02	-2.407E 03	-1.148E 03	-1.299E 03	2.364E 03	9.640E 01	1.499E-02	9.640E 01	1.499E-02
5.072E 01	1.161E 01	1.161E 01	-3.168E 02	-2.477E 03	-1.182E 03	-1.295E 03	2.430E 03	7.500E 01	1.166E-02	7.500E 01	1.166E-02
5.213E 01	8.800E 00	8.800E 00	-2.433E 02	-2.633E 03	-1.266E 03	-1.367E 03	2.608E 03	5.683E 01	8.835E-03	5.683E 01	8.835E-03
5.423E 01	6.400E 00	6.400E 00	-1.597E 02	-2.823E 03	-1.372E 03	-1.451E 03	2.874E 03	4.133E 01	6.426E-03	4.133E 01	6.426E-03
5.473E 01	4.250E 00	4.250E 00	-1.458E 02	-2.863E 03	-1.394E 03	-1.469E 03	2.938E 03	2.745E 01	4.267E-03	2.745E 01	4.267E-03
5.548E 01	4.151E 00	4.151E 00	-1.296E 02	-2.917E 03	-1.424E 03	-1.493E 03	3.033E 03	2.681E 01	4.167E-03	2.681E 01	4.167E-03
5.576E 01	4.113E 00	4.113E 00	-1.236E 02	-2.936E 03	-1.434E 03	-1.501E 03	3.070E 03	2.656E 01	4.130E-03	2.656E 01	4.130E-03
5.624E 01	2.481E 00	4.050E 00	-7.427E 01	-2.965E 03	-1.452E 03	-1.513E 03	3.102E 03	1.602E 01	2.491E-03	2.616E 01	4.066E-03
5.766E 01	2.798E 00	2.798E 00	-4.990E 01	-3.037E 03	-1.500E 03	-1.537E 03	3.209E 03	1.807E 01	2.809E-03	1.807E 01	2.809E-03
5.772E 01	3.900E 00	2.749E 00	-4.911E 01	-3.040E 03	-1.502E 03	-1.537E 03	3.217E 03	2.519E 01	3.916E-03	1.776E 01	2.760E-03
5.786E 01	3.900E 00	2.626E 00	-4.736E 01	-3.045E 03	-1.506E 03	-1.539E 03	3.234E 03	2.519E 01	3.916E-03	1.696E 01	2.637E-03
5.794E 01	2.550E 00	2.556E 00	-4.632E 01	-3.048E 03	-1.509E 03	-1.540E 03	3.245E 03	1.651E 01	2.566E-03	1.651E 01	2.566E-03
5.844E 01	2.111E 00	2.111E 00	-4.101E 01	-3.066E 03	-1.522E 03	-1.544E 03	3.309E 03	1.364E 01	2.120E-03	1.364E 01	2.120E-03
5.917E 01	1.475E 00	1.475E 00	-3.614E 01	-3.089E 03	-1.540E 03	-1.550E 03	3.402E 03	9.526E 00	1.481E-03	9.526E 00	1.481E-03
6.019E 01	1.550E 00	1.550E 00	-3.264E 01	-3.117E 03	-1.559E 03	-1.557E 03	3.532E 03	1.001E 01	1.556E-03	1.001E 01	1.556E-03
6.220E 01	6.275E 00	6.275E 00	-3.173E 01	-3.161E 03	-1.586E 03	-1.575E 03	3.790E 03	4.053E 01	6.300E-03	4.053E 01	6.300E-03
6.362E 01	4.294E 00	4.294E 00	-3.173E 01	-3.190E 03	-1.600E 03	-1.590E 03	3.972E 03	2.773E 01	4.311E-03	2.773E 01	4.311E-03
6.608E 01	5.455E 00	5.455E 00	-3.173E 01	-3.249E 03	-1.629E 03	-1.620E 03	4.289E 03	3.523E 01	5.477E-03	3.523E 01	5.477E-03
6.646E 01	6.110E 00	5.632E 00	-3.173E 01	-3.259E 03	-1.634E 03	-1.626E 03	4.337E 03	3.946E 01	6.135E-03	3.637E 01	5.655E-03
6.650E 01	6.110E 00	5.651E 00	-3.173E 01	-3.261E 03	-1.634E 03	-1.627E 03	4.342E 03	3.946E 01	6.135E-03	3.649E 01	5.673E-03
6.670E 01	5.855E 00	5.745E 00	-3.173E 01	-3.266E 03	-1.637E 03	-1.630E 03	4.364E 03	3.781E 01	5.879E-03	3.710E 01	5.768E-03

XABS	P=1P	P=0P	P/A	Q/A	Z=IP	W=0P	(Z-A)I	P=IP/PSO	P=1P/P10	P=0P/PSO	P=0P/P10
6.836E 01	3.740E 00	3.695E 00	2.113E 01	-3.314E 01	-1.655E 03	-1.659E 03	4.584E 03	2.415E 01	3.755E-03	2.386E 01	3.710E-03
6.980E 01	2.640E 00	2.725E 00	1.750E 02	-3.350E 03	-1.688E 03	-1.688E 03	4.781E 03	1.705E 01	2.651E-03	1.760E 01	2.736E-03
7.052E 01	2.090E 00	2.240E 00	2.383E 02	-3.370E 03	-1.675E 03	-1.705E 03	4.849E 03	1.350E 01	2.099E-03	1.447E 01	2.249E-03
7.113E 01	1.625E 00	2.024E 00	2.817E 02	-3.395E 03	-1.677E 03	-1.718E 03	4.923E 03	1.049E 01	1.632E-03	1.307E 01	2.032E-03
7.251E 01	9.250E-01	1.536E 00	3.510E 02	-3.444E 03	-1.684E 03	-1.740E 03	5.008E 03	5.974E 00	9.287E-04	9.921E 00	1.542E-03
7.404E 01	9.115E-01	9.950E-01	4.023E 02	-3.447E 03	-1.690E 03	-1.757E 03	5.273E 03	5.886E 00	9.150E-04	6.426E 00	9.990E-04
7.419E 01	9.100E-01	6.975E-01	4.064E 02	-3.449E 03	-1.691E 03	-1.758E 03	5.291E 03	5.877E 00	9.137E-04	5.796E 00	9.011E-04
7.494E 01	8.120E-01	4.100E-01	4.312E 02	-3.461E 03	-1.693E 03	-1.768E 03	5.375E 03	5.248E 00	8.159E-04	2.648E 00	4.116E-04
7.494E 01	8.121E-01	4.074E-01	4.320E 02	-3.461E 03	-1.693E 03	-1.768E 03	5.375E 03	5.245E 00	8.154E-04	2.631E 00	4.090E-04
7.627E 01	6.400E-01	0.000	4.474E 02	-3.484E 03	-1.697E 03	-1.787E 03	5.427E 03	4.135E 00	6.426E-04	0.000	0.000
7.912E 01	4.350E-01	0.000	4.689E 02	-3.488E 03	-1.701E 03	-1.787E 03	5.525E 03	2.809E 00	4.367E-04	0.000	0.000
8.302E 01	5.550E-01	0.000	4.900E 02	-3.491E 03	-1.704E 03	-1.787E 03	5.630E 03	3.584E 00	5.572E-04	0.000	0.000
8.503E 01	5.000E-01	0.000	5.017E 02	-3.492E 03	-1.705E 03	-1.787E 03	5.685E 03	3.229E 00	5.020E-04	0.000	0.000
8.869E 01	6.050E-01	0.000	5.151E 02	-3.493E 03	-1.706E 03	-1.787E 03	5.707E 03	3.907E 00	6.074E-04	0.000	0.000
8.869E 01	6.052E-01	0.000	5.151E 02	-3.493E 03	-1.706E 03	-1.787E 03	5.707E 03	3.909E 00	6.077E-04	0.000	0.000

X	DDRAG	CDRAG	CF	HC
4.040E 01	8.565E 01	8.565E 01	2.144E-03	5.417E-02
4.041E 01	1.674E-01	8.582E 01	2.877E-03	5.953E-02
4.073E 01	5.399E 00	9.122E 01	2.435E-03	5.547E-02
4.122E 01	8.025E 00	9.924E 01	2.672E-03	5.810E-02
4.190E 01	4.651E 00	1.039E 02	2.455E-03	4.299E-02
4.246E 01	1.392E 01	1.178E 02	2.716E-03	5.545E-02
4.270E 01	3.500E 00	1.213E 02	3.294E-03	4.802E-02
4.271E 01	1.414E-01	1.215E 02	2.829E-03	5.613E-02
4.278E 01	8.630E-01	1.223E 02	2.840E-03	5.566E-02
4.431E 01	1.732E 01	1.396E 02	3.110E-03	5.663E-02
4.480E 01	4.190E 00	1.438E 02	3.178E-03	5.506E-02
4.550E 01	5.404E 00	1.492E 02	3.209E-03	5.384E-02
4.621E 01	5.998E 00	1.552E 02	3.503E-03	4.723E-02
4.626E 01	4.249E-01	1.557E 02	3.170E-03	5.316E-02
4.731E 01	9.241E 00	1.649E 02	2.937E-03	5.140E-02
4.811E 01	7.579E 00	1.723E 02	2.914E-03	4.637E-02
5.019E 01	1.776E 01	1.900E 02	2.722E-03	3.619E-02
5.072E 01	4.287E 00	1.943E 02	2.945E-03	2.855E-02
5.213E 01	1.101E 01	2.053E 02	2.766E-03	2.409E-02
5.423E 01	1.402E 01	2.193E 02	2.703E-03	1.883E-02
5.473E 01	3.081E 00	2.224E 02	2.660E-03	1.415E-02
5.548E 01	4.231E 00	2.267E 02	2.339E-03	1.483E-02
5.576E 01	1.456E 00	2.281E 02	2.395E-03	1.445E-02
5.624E 01	1.149E 00	2.293E 02	2.315E-03	1.164E-02
5.766E 01	3.310E 00	2.326E 02	2.362E-03	1.011E-02
5.772E 01	2.103E-01	2.328E 02	2.378E-03	1.142E-02
5.786E 01	5.400E-01	2.333E 02	2.519E-03	1.087E-02
5.794E 01	3.655E-01	2.337E 02	3.133E-03	7.874E-03
5.844E 01	2.244E 00	2.359E 02	2.227E-03	8.417E-03
5.917E 01	2.594E 00	2.385E 02	2.043E-03	6.715E-03
6.019E 01	3.262E 00	2.418E 02	1.764E-03	7.489E-03
6.220E 01	6.271E 00	2.481E 02	2.258E-03	1.843E-02
6.362E 01	5.675E 00	2.537E 02	3.015E-03	1.137E-02
6.608E 01	1.078E 01	2.645E 02	2.769E-03	1.429E-02
6.646E 01	1.468E 00	2.660E 02	3.028E-03	1.376E-02
6.650E 01	1.570E-01	2.661E 02	3.144E-03	1.344E-02
6.670E 01	7.982E-01	2.669E 02	3.140E-03	1.332E-02
6.836E 01	6.225E 00	2.732E 02	3.043E-03	1.006E-02
6.980E 01	4.401E 00	2.776E 02	2.976E-03	8.082E-03
7.052E 01	1.922E 00	2.795E 02	2.930E-03	8.957E-03
7.113E 01	1.467E 00	2.810E 02	2.905E-03	8.158E-03
7.251E 01	2.831E 00	2.838E 02	2.835E-03	4.619E-03
7.404E 01	2.592E 00	2.864E 02	2.786E-03	3.810E-03
7.419E 01	2.203E-01	2.866E 02	2.776E-03	3.660E-03
7.494E 01	9.452E-01	2.875E 02	2.704E-03	2.717E-03
7.494E 01	1.590E-03	2.875E 02	2.704E-03	2.711E-03
7.627E 01	5.162E-01	2.881E 02	2.706E-03	2.806E-03
7.912E 01	8.774E-01	2.889E 02	2.626E-03	2.075E-03
8.302E 01	8.878E-01	2.898E 02	2.652E-03	2.486E-03
8.583E 01	4.795E-01	2.903E 02	2.641E-03	2.283E-03
8.869E 01	2.042E-01	2.905E 02	2.643E-03	2.629E-03
8.869E 01	0.000	2.905E 02	2.642E-03	2.630E-03

MAINJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	228.	(LBF)
MEASURED THRUST	485.	(LBF)
CALCULATED SPECIFIC IMPULSE	906.	(LBF-SEC/LBM)
MEASURED SPECIFIC IMPULSE	1927.	(LBF-SEC/LBM)
CALCULATED THRUST COEFFICIENT	0.1552	
MEASURED THRUST COEFFICIENT	0.3304	

REGENERATIVE-COOLED ENGINE PERFORMANCE CALCULATED

STREAM THRUST	3372.	(LBF)
NET THRUST	424.	(LBF)
SPECIFIC IMPULSE	1685.	(LBF-SEC/LBM)
THRUST COEFFICIENT	0.2889	

MOMENTUM AND FORCES

INLET FRICTION DRAG	85.7	(LBF)
INLET MOMENTUM CHANGE	-402.1	(LBF)
COMBUSTOR FRICTION DRAG	180.3	(LBF)
COMBUSTOR STRUT DRAG	-3.24	(LBF)
COMBUSTOR MOMENTUM CHANGE	108.	(LBF)
NOZZLE FRICTION DRAG	24.53	(LBF)
NOZZLE STRUT DRAG	-0.00	(LBF)
NOZZLE MOMENTUM CHANGE	522.	(LBF)
NOZZLE PRESSURE INTEGRAL	547.	(LBF)
EXTERNAL FRICTION DRAG	39.18	(LBF)
EXTERNAL PRESSURE INTEGRAL	-676.	(LBF)
TOTAL EXTERNAL DRAG	-715.	(LBF)
TOTAL STRUT DRAG	-3.24	(LBF)
CAVITY FORCE	-595.	(LBF)
CALCULATED LOAD CELL FORCE	-1083.	(LBF)
MEASURED LOAD CELL FORCE	-826.	(LBF)
FUEL VACUUM SPECIFIC IMPULSE 0.0.	0.0.	

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	1.7170	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	36.601	(IN)
NOZZLE SHROUD TRAILING EDGE	74.941	(IN)
NOZZLE PLUG TRAILING EDGE	88.693	(IN)
STRUT LEADING EDGE	57.857	(IN)
STRUT TRAILING EDGE	66.457	(IN)
COMBUSTOR EXIT	66.457	(IN)

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.9909	
ADDITIVE DRAG COEFFICIENT	0.0000	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.1024	
DELTA PT2	0.0906	(PSI)
TOTAL PRESSURE RECOVERY - SUPERSONIC	0.3358	
TOTAL PRESSURE RECOVERY - SUBSONIC	0.1038	
INLET PROCESS EFFICIENCY - SUPERSONIC	0.9063	
INLET PROCESS EFFICIENCY - SUBSONIC	0.9145	
KINETIC ENERGY EFFICIENCY - SUPERSONIC	0.9316	
KINETIC ENERGY EFFICIENCY - SUBSONIC	0.8822	
ENTHALPY AT P0 - SUPERSONIC	-42.13	(BTU/LBM)
ENTHALPY AT P0 - SUBSONIC	-7.51	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0159	
EQUIVALENCE RATIO	0.480	
COMBUSTOR EFFICIENCY	0.619	
TOTAL PRESSURE RATIO	0.0736	
COMBUSTOR EFFECTIVENESS	0.5576	
INJECTOR DISCHARGE COEFFICIENTS 1.0811.	0.6565.	

NOZZLE

VACUUM STREAM THRUST COEFFICIENT - CS	0.9873
NOZZLE COEFFICIENT - CT	0.9250
PROCESS EFFICIENCY	0.9870
KINETIC ENERGY EFFICIENCY	0.9727

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	E
1B	42.702	B
1C	44.300	
2A	50.177	
2C	46.450	
3A	55.467	
3B	57.652	
4	46.202	

Reading 90

t = 212.52 sec.

1-27-75
Reg. Corrected

RAMJET PERFORMANCE

S U M M A R Y R E P O R T

	P	T	M		GAMMA	MOLWT	SONV	MACH	VEL	S	A/A	F	A/AC	THRTH	G	IVAL	PHI	ETAC
WIND TUNNEL		1	0	5														
0.000	995.999	2909	642.1(	768)	1.2956	28.956	2544											
0.000	0.155	278	-86.4(	68)	1.3957	28.955	816	7.280	5938	1.798	0.06203	15.743	0.9909	2945	5.724	187.0		
SPIKE TIP NS		2	0	7														
0.000	11.487	2909	642.1(	768)	1.2956	28.955	2544											
0.000	10.601	2856	626.2(	752)	1.2973	28.955	2522	0.534	892	2.105	0.06203	15.743	0.9909	3127	0.860	198.0		
WIND TUNNEL		3	0	0														
0.000	995.999	2909	642.1(	768)	1.2956	28.956	2544											
0.000	0.171	286	-80.4(	68)	1.3961	28.955	828	7.164	5929	1.798	0.06665	16.916	0.9909	3161	6.142	186.9		
SPIKE TIP NS		4	0	0														
0.600	11.487	2909	642.1(	768)	1.2956	28.955	2544											
0.600	10.447	2846	623.4(	750)	1.2976	28.955	2518	0.385	969	2.105	0.06665	16.916	0.9909	3161	-1.004	186.9		
INLET THROAT		5	0	5														
40.400	339.698	2809	612.1(	738)	1.2988	28.956	2503											
40.400	10.187	1171	156.5(	285)	1.3679	28.955	1659	2.879	4775	1.862	0.77812	15.743	0.0790	2542	57.737	161.5		
INLET UPWSK		6	0	3														
40.400	339.698	2809	612.1(	738)	1.2988	28.956	2503											
40.400	8.787	1125	144.9(	274)	1.3707	28.955	1628	2.971	4635	1.862	0.70739	15.743	0.0869	2561	53.155	162.7		
INLET DNWSK		7	0	4														
40.400	103.237	2809	612.1(	738)	1.2989	28.955	2503											
40.400	90.001	2721	586.0(	713)	1.3017	28.955	2466	0.463	1141	1.943	0.70739	15.743	0.0869	2561	12.548	162.7		
COMBUSTOR	0	8	1	8														
40.410	201.445	2816	625.4(	814)	1.3006	26.272	2633											
40.410	15.214	1493	215.5(	406)	1.3507	26.272	1954	2.318	4529	2.058	0.78442	15.872	0.0790	2542	55.209	160.2	0.25	0.12
COMBUSTOR	0	9	2	5														
40.727	154.486	3067	622.6(	891)	1.2889	26.548	2721											
40.727	20.072	1892	249.6(	522)	1.3295	26.549	2171	1.990	4320	2.098	0.78726	15.872	0.0787	2536	52.859	159.8	0.25	0.31
COMBUSTOR	0	10	3	21														
41.217	205.052	2700	618.1(	778)	1.3056	26.175	2588											
41.217	12.546	1345	202.8(	365)	1.3598	26.174	1864	2.446	4559	2.040	0.78143	15.872	0.0793	2504	55.364	157.8	0.25	0.05
COMBUSTOR	0	11	4	21														
41.500	195.375	2639	615.5(	759)	1.3083	26.120	2563											
41.500	15.814	1361	224.1(	370)	1.3594	26.120	1876	2.358	4425	2.043	0.77359	15.872	0.0801	2467	53.201	155.4	0.25	0.01
COMBUSTOR	0	12	5	4														
42.460	96.660	2900	604.8(	838)	1.2959	26.426	2659											
42.460	25.558	2116	355.2(	592)	1.3225	26.426	2295	1.540	3534	2.119	0.72980	15.872	0.0849	2299	40.081	144.9	0.25	0.23
COMBUSTOR	0	13	6	15														
42.702	91.198	2532	615.8(	789)	1.3145	23.916	2630											
42.702	25.707	1854	386.6(	561)	1.3386	23.916	2271	1.491	3386	2.236	0.72678	15.998	0.0859	2250	38.247	140.6	0.49	0.02
COMBUSTOR	0	14	7	2														
42.712	91.040	2528	615.6(	788)	1.3147	23.913	2629											
42.712	25.713	1852	387.1(	560)	1.3387	23.913	2270	1.490	3382	2.236	0.72664	15.998	0.0860	2248	38.189	140.5	0.49	0.02
COMBUSTOR	0	15	8	3														
42.777	89.683	2507	614.8(	781)	1.3157	23.895	2619											
42.777	25.753	1841	390.2(	557)	1.3393	23.895	2265	1.480	3352	2.234	0.72484	15.998	0.0862	2235	37.754	139.7	0.49	0.01
COMBUSTOR	0	16	9	21														
44.310	66.214	2410	591.6(	748)	1.3193	23.868	2573											
44.310	39.047	2118	492.2(	649)	1.3293	23.868	2422	0.921	2231	2.246	0.67035	15.998	0.0932	2041	23.243	127.6	0.49	0.00
COMBUSTOR	0	17	10	21														
44.800	64.265	2382	583.5(	739)	1.3203	23.864	2560											
44.800	43.296	2163	508.9(	664)	1.3278	23.864	2446	0.790	1933	2.245	0.66162	15.998	0.0944	2008	19.880	125.5	0.49	0.00
COMBUSTOR	0	18	11	21														
45.497	63.650	2348	572.1(	727)	1.3214	23.864	2543											
45.497	45.399	2162	508.7(	664)	1.3278	23.863	2445	0.728	1782	2.241	0.65702	15.998	0.0951	1991	18.191	124.5	0.49	0.00

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	M	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	19	12 21														
46.202	63.278	2315	562.8(724)	1.3228	23.574	2541											
46.202	39.416	2060	475.6(638)	1.3318	23.574	2405	0.868	2049	2.258	0.640A5	16.017	0.0976	2025	20.807	126.4	0.53	0.01
COMBUSTOR	0	20	13 21														
46.212	63.439	2303	562.7(720)	1.3234	23.563	2536											
46.212	39.532	2046	475.1(633)	1.3324	23.563	2399	0.873	2094	2.256	0.64008	16.017	0.0977	2027	20.829	126.5	0.53	0.00
COMBUSTOR	0	21	14 21														
46.260	63.510	2299	562.0(719)	1.3235	23.562	2534											
46.260	38.924	2037	472.5(630)	1.3328	23.562	2393	0.864	2116	2.255	0.63813	16.017	0.0980	2030	20.985	126.8	0.53	0.00
COMBUSTOR	0	22	15 4														
47.310	62.514	2448	547.0(768)	1.3162	23.735	2598											
47.310	30.013	2046	409.3(631)	1.3303	23.735	2388	1.099	2625	2.274	0.59139	16.017	0.1057	2120	24.127	132.3	0.53	0.07
COMBUSTOR	0	23	16 4														
48.110	61.582	2580	536.2(811)	1.3098	23.886	2652											
48.110	24.018	2054	355.3(651)	1.3281	23.886	2383	1.262	3008	2.289	0.56363	16.017	0.1150	2205	25.415	137.7	0.53	0.14
COMBUSTOR	0	24	17 5														
50.187	54.356	2952	512.3(934)	1.2916	24.307	2793											
50.187	15.340	2205	250.4(675)	1.3175	24.308	2437	1.485	3620	2.331	0.48240	16.017	0.1554	2422	22.640	151.2	0.53	0.31
COMBUSTOR	0	25	18 4														
50.717	57.387	2840	507.6(896)	1.2967	24.210	2750											
50.717	12.050	1958	203.0(594)	1.3279	24.210	2311	1.689	3904	2.316	0.37635	16.017	0.1662	2456	22.832	153.4	0.53	0.27
COMBUSTOR	0	26	19 4														
52.127	53.123	2930	496.8(926)	1.2921	24.328	2782											
52.127	9.775	1964	162.0(595)	1.3263	24.329	2307	1.774	4093	2.329	0.32075	16.017	0.1950	2520	20.404	157.7	0.53	0.31
COMBUSTOR	0	27	20 4														
54.227	53.153	2870	482.1(909)	1.2945	24.209	2762											
54.227	6.075	1745	95.5(525)	1.3357	24.210	2188	2.010	4398	2.330	0.26359	16.060	0.2379	2602	18.018	162.0	0.54	0.30
COMBUSTOR	0	28	21 6														
54.727	78.712	2546	479.3(800)	1.3094	23.907	2633											
54.727	4.237	1218	38.6(361)	1.3662	23.907	1860	2.525	4696	2.287	0.25282	16.060	0.2480	2613	18.451	162.7	0.54	0.18
COMBUSTOR	0	29	22 4														
55.477	67.747	2632	475.4(829)	1.3053	23.999	2668											
55.477	4.348	1329	39.5(394)	1.3591	23.999	1935	2.414	4670	2.288	0.23832	16.060	0.2631	2626	17.297	163.5	0.54	0.22
COMBUSTOR	0	30	23 4														
55.760	64.264	2666	474.1(840)	1.3037	24.034	2681											
55.760	4.417	1372	40.0(408)	1.3564	24.034	1962	2.375	4661	2.295	0.23531	16.060	0.2688	2630	16.899	163.8	0.54	0.23
COMBUSTOR	0	31	24 4														
56.237	52.694	2758	471.9(871)	1.2993	24.128	2718											
56.237	3.522	1418	20.0(421)	1.3529	24.129	1988	2.392	4755	2.320	0.18437	16.060	0.3401	2681	13.625	166.9	0.54	0.27
COMBUSTOR	0	32	25 3														
57.662	53.650	2748	466.4(867)	1.2997	24.133	2712											
57.662	3.053	1354	-1.9(401)	1.3564	24.133	1945	2.489	4841	2.317	0.17047	16.060	0.3678	2704	12.824	168.4	0.54	0.27
COMBUSTOR	0	33	26 5														
57.717	39.565	2999	466.2(952)	1.2877	24.380	2806											
57.717	4.036	1744	33.4(523)	1.3338	24.381	2178	2.137	4654	2.362	0.16993	16.060	0.3690	2705	12.291	168.4	0.54	0.37
COMBUSTOR	0	34	27 3														
57.857	39.742	2991	465.8(949)	1.2881	24.373	2803											
57.857	3.965	1729	30.9(518)	1.3546	24.374	2170	2.150	4665	2.361	0.16874	16.060	0.3716	2706	12.233	168.5	0.54	0.37
COMBUSTOR	0	35	28 12														
57.937	60.566	2679	465.5(844)	1.3028	24.070	2685											
57.937	2.774	1240	-14.2(366)	1.3634	24.070	1969	2.621	4900	2.301	0.17066	16.060	0.3674	2707	12.995	168.5	0.54	0.25
COMBUSTOR	0	36	29 5														
58.443	78.682	2554	464.1(902)	1.3085	23.955	2634											
58.443	2.260	1032	-36.2(305)	1.3760	23.955	1717	2.914	5005	2.266	0.16981	16.060	0.3693	2711	13.203	168.8	0.54	0.20
COMBUSTOR	0	37	30 6														
59.167	136.891	2367	462.2(790)	1.3171	23.787	2553											
59.167	1.525	723	-66.8(212)	1.3919	23.787	1450	3.548	5145	2.200	0.16708	16.060	0.3753	2715	13.360	169.0	0.54	0.13

	P	T	A	GAMA	[illegible]	S	[illegible]	[illegible]	A	AZUC	[illegible]	[illegible]	[illegible]	ETAC
COMBUSTOR	0	36	31	4										
60.187	151.515	2580	459.7(744)	1.3164	25.[illegible]	2554								
60.187	1.550	730	-66.6(217)	1.3911	25.385	1466	5.504	5143	2.294	0.10092	16.060	0.3777	2717	13.268	169.2	0.54	0.14
COMBUSTOR	0	39	32	7										
62.197	26.110	3562	455.6(1144)	1.2548	25.000	2984								
62.197	6.550	2000	100.3(801)	1.2937	25.013	2586	1.629	4213	2.424	0.17186	16.060	0.3650	2715	11.648	169.1	0.54	0.61
COMBUSTOR	0	40	33	5										
63.617	33.893	3263	451.6(1041)	1.2739	24.690	2893								
63.617	5.275	2136	52.0(648)	1.3143	24.694	2578	1.881	4472	2.391	0.17645	16.060	0.3553	2712	12.262	168.9	0.54	0.49
COMBUSTOR	0	41	34	5										
66.081	25.104	3753	444.7(1209)	1.2439	25.242	3032								
66.081	7.535	2925	129.5(911)	1.2788	25.265	2713	1.464	3972	2.441	0.16726	16.060	0.3749	2706	10.324	168.5	0.54	0.70
COMBUSTOR	0	42	35	3										
66.457	23.232	3763	443.5(1212)	1.2428	25.257	3034								
66.457	7.075	2948	130.6(917)	1.2778	25.281	2720	1.454	3956	2.447	0.15549	16.060	0.4032	2705	9.559	168.4	0.54	0.71
COMBUSTOR	REGEN	43	36	4										
66.457	23.232	4175	623.2(1365)	1.2176	25.203	3167								
66.457	8.359	3441	317.0(1095)	1.2557	25.270	2916	1.543	3915	2.492	0.15549	16.060	0.4032	2817	9.459	175.4	0.54	0.71
NOZZLE	AE	44	37	5										
88.693	23.232	3763	443.5(1185)	1.2428	25.257	3034								
88.693	0.506	1589	-327.9(462)	1.3321	25.283	2040	5.046	6213	2.447	0.03237	16.060	1.9371	3352	3.125	208.7	0.54	0.71
NOZZLE	PO	45	38	5										
88.693	23.232	3763	443.5(1185)	1.2428	25.257	3034								
88.693	0.155	1173	-455.7(334)	1.3566	25.283	1769	5.792	6708	2.447	0.01448	16.060	4.3296	3520	1.510	219.2	0.54	0.71
NOZZLE	AE REGEN	46	39	5										
88.693	23.232	4175	623.2(1365)	1.2176	25.203	3167								
88.693	0.569	1883	-233.5(597)	1.3180	25.283	2209	2.964	6547	2.492	0.03237	16.060	1.9371	3551	3.294	221.1	0.54	0.71
NOZZLE	PO REGEN	47	40	5										
88.693	23.232	4175	623.2(1365)	1.2176	25.203	3167								
88.693	0.155	1362	-398.4(392)	1.3451	25.283	1898	3.767	7150	2.492	0.01329	16.060	4.7174	3756	1.477	233.9	0.54	0.71
FICTIVE	COMBUSTR	65	58	0										
66.457	339.698	4446	443.5(1450)	1.2176	26.058	3214								
66.457	0.155	749	-846.4(206)	1.3740	26.127	1399	5.741	8034	2.260	0.02807	16.060	2.2341	4099	3.504	255.2	0.54	1.00
FICTIVE	NOZZLE	66	59	0										
88.693	19.406	3711	422.7(1193)	1.2447	25.259	3015								
88.693	0.546	1663	-304.3(486)	1.3282	25.283	2084	2.894	6032	2.456	0.03237	16.060	1.9371	3201	3.034	204.3	0.54	0.71

XARS	P=1X	P=0B	PDA	QQX	Q=TB	Q=0B	CANALL	P=1B/PS0	P=1B/PT0	P=0B/PS0	P=0B/PT0
6.981E-01	6.6[illegible]E-01	0.000	-2.772E-01	0.000	0.000	0.000	2.470E-02	4.265E 00	6.627E-04	0.000	0.000
1.456E 01	4.600E-01	0.000	-2.199E 01	0.000	0.000	0.000	1.534E 02	4.265E 00	6.627E-04	0.000	0.000
3.070E 01	1.060E 00	0.000	-9.170E 01	0.000	0.000	0.000	5.053E 02	6.[illegible]4E 00	1.064E-03	0.000	0.000
3.508E 01	2.035E 00	0.000	-1.920E 02	0.000	0.000	0.000	6.804E 02	1.515E 01	2.043E-03	0.000	0.000
3.555E 01	2.240E 00	0.000	-2.115E 02	0.000	0.000	0.000	7.013E 02	1.447E 01	2.249E-03	0.000	0.000
3.606E 01	2.090E 00	0.000	-2.335E 02	-1.908E 02	-1.908E 02	0.000	7.246E 02	1.550E 01	2.098E-03	0.000	0.000
3.648E 01	2.268E 00	0.000	-2.521E 02	-1.954E 02	-1.954E 02	0.000	7.443E 02	1.466E 01	2.277E-03	0.000	0.000
3.654E 01	2.298E 00	3.160E 00	-2.902E 02	-1.967E 02	-1.967E 02	0.000	7.497E 02	1.485E 01	2.307E-03	2.042E 01	3.173E-03
3.660E 01	2.299E 00	3.177E 00	-2.903E 02	-1.968E 02	-1.968E 02	0.000	7.500E 02	1.486E 01	2.309E-03	2.053E 01	3.190E-03
3.701E 01	2.405E 00	4.350E 00	-2.925E 02	-2.015E 02	-2.015E 02	0.000	7.924E 02	1.554E 01	2.415E-03	2.811E 01	4.368E-03
3.727E 01	2.525E 00	5.087E 00	-2.922E 02	-2.046E 02	-2.046E 02	0.000	8.194E 02	1.501E 01	2.332E-03	3.287E 01	5.108E-03
3.803E 01	2.080E 00	6.681E 00	-2.746E 02	-2.143E 02	-2.143E 02	0.000	9.015E 02	1.344E 01	2.088E-03	5.609E 01	8.715E-03
3.873E 01	6.506E 00	1.196E 01	-2.709E 02	-2.840E 02	-2.307E 02	-5.328E 01	9.792E 02	4.230E 01	6.573E-03	7.730E 01	1.201E-02
3.875E 01	5.694E 00	1.192E 01	-2.711E 02	-2.859E 02	-2.315E 02	-5.441E 01	9.818E 02	4.325E 01	6.721E-03	7.701E 01	1.197E-02
3.901E 01	9.360E 00	1.141E 01	-2.748E 02	-3.004E 02	-2.416E 02	-6.721E 01	1.011E 03	5.402E 01	8.394E-03	7.373E 01	1.146E-02
3.950E 01	1.167E 01	1.046E 01	-2.898E 02	-3.505E 02	-2.673E 02	-9.123E 01	1.067E 03	7.541E 01	1.172E-02	6.756E 01	1.050E-02
3.975E 01	1.208E 01	9.975E 00	-2.980E 02	-3.671E 02	-2.838E 02	-1.033E 02	1.096E 03	7.803E 01	1.212E-02	6.445E 01	1.002E-02
4.000E 01	1.249E 01	1.006E 01	-3.044E 02	-4.141E 02	-3.035E 02	-1.156E 02	1.125E 03	8.071E 01	1.254E-02	6.498E 01	1.010E-02
4.022E 01	1.439E 01	1.012E 01	-3.110E 02	-4.481E 02	-3.220E 02	-1.262E 02	1.150E 03	9.295E 01	1.444E-02	6.542E 01	1.017E-02
4.040E 01	1.598E 01	1.414E 01	-3.160E 02	-4.731E 02	-3.380E 02	-1.351E 02	1.172E 03	1.033E 02	1.605E-02	9.135E 01	1.419E-02
4.041E 01	1.607E 01	1.436E 01	-3.161E 02	-4.745E 02	-3.389E 02	-1.355E 02	1.173E 03	1.036E 02	1.614E-02	9.277E 01	1.441E-02
4.073E 01	1.884E 01	2.131E 01	-3.166E 02	-5.107E 02	-3.678E 02	-1.509E 02	1.210E 03	1.217E 02	1.891E-02	1.377E 02	2.139E-02
4.122E 01	2.312E 01	1.975E 00	-3.406E 02	-5.893E 02	-4.151E 02	-1.742E 02	1.268E 03	1.494E 02	2.321E-02	1.276E 01	1.983E-03
4.150E 01	2.559E 01	2.041E 00	-3.753E 02	-6.314E 02	-4.440E 02	-1.874E 02	1.301E 03	1.655E 02	2.569E-02	1.319E 01	2.050E-03
4.246E 01	4.885E 01	2.266E 00	-5.266E 02	-8.018E 02	-5.481E 02	-2.537E 02	1.415E 03	3.156E 02	4.905E-02	1.464E 01	2.275E-03
4.270E 01	4.909E 01	2.323E 00	-5.728E 02	-8.564E 02	-5.752E 02	-2.772E 02	1.444E 03	3.172E 02	4.929E-02	1.501E 01	2.332E-03
4.271E 01	4.910E 01	2.325E 00	-5.746E 02	-8.546E 02	-5.763E 02	-2.783E 02	1.445E 03	3.173E 02	4.930E-02	1.503E 01	2.335E-03
4.278E 01	4.916E 01	2.341E 00	-5.865E 02	-8.686E 02	-5.835E 02	-2.851E 02	1.453E 03	3.177E 02	4.936E-02	1.512E 01	2.350E-03
4.431E 01	5.069E 01	2.741E 01	-7.632E 02	-1.236E 03	-7.518E 02	-4.861E 02	1.638E 03	3.275E 02	5.089E-02	1.771E 02	2.752E-02
4.480E 01	5.117E 01	3.542E 01	-7.920E 02	-1.367E 03	-8.044E 02	-5.629E 02	1.697E 03	3.307E 02	5.138E-02	2.288E 02	3.556E-02
4.550E 01	4.399E 01	4.481E 01	-8.038E 02	-1.550E 03	-8.772E 02	-6.724E 02	1.782E 03	2.842E 02	4.416E-02	3.025E 02	4.700E-02
4.620E 01	3.672E 01	4.212E 01	-7.645E 02	-1.726E 03	-9.477E 02	-7.783E 02	1.869E 03	2.372E 02	3.686E-02	2.721E 02	4.229E-02
4.621E 01	3.661E 01	4.205E 01	-7.630E 02	-1.726E 03	-9.487E 02	-7.798E 02	1.870E 03	2.366E 02	3.676E-02	2.717E 02	4.222E-02
4.626E 01	3.612E 01	4.173E 01	-7.589E 02	-1.740E 03	-9.534E 02	-7.866E 02	1.876E 03	2.334E 02	3.626E-02	2.696E 02	4.190E-02
4.731E 01	2.529E 01	3.474E 01	-5.606E 02	-1.901E 03	-1.053E 03	-9.280E 02	2.005E 03	1.634E 02	2.539E-02	2.445E 02	3.488E-02
4.811E 01	1.862E 01	2.941E 01	-5.679E 02	-2.154E 03	-1.124E 03	-1.030E 03	2.104E 03	1.203E 02	1.870E-02	1.900E 02	2.953E-02
5.019E 01	1.558E 01	1.558E 01	-3.331E 02	-2.536E 03	-1.292E 03	-1.245E 03	2.304E 03	1.007E 02	1.564E-02	1.007E 02	1.564E-02
5.072E 01	1.205E 01	1.205E 01	-2.949E 02	-2.612E 03	-1.331E 03	-1.281E 03	2.430E 03	7.786E 01	1.210E-02	7.786E 01	1.210E-02
5.213E 01	9.775E 00	9.775E 00	-2.142E 02	-2.704E 03	-1.426E 03	-1.358E 03	2.608E 03	6.316E 01	9.814E-03	6.316E 01	9.814E-03
5.423E 01	6.675E 00	6.675E 00	-1.237E 02	-2.945E 03	-1.547E 03	-1.448E 03	2.874E 03	4.313E 01	6.702E-03	4.313E 01	6.702E-03
5.473E 01	4.237E 00	4.237E 00	-1.095E 02	-3.040E 03	-1.572E 03	-1.466E 03	2.938E 03	2.738E 01	4.255E-03	2.738E 01	4.255E-03
5.548E 01	4.368E 00	4.368E 00	-9.285E 01	-3.102E 03	-1.607E 03	-1.495E 03	3.033E 03	2.822E 01	4.385E-03	2.822E 01	4.385E-03
5.576E 01	4.417E 00	4.417E 00	-8.649E 01	-3.124E 03	-1.619E 03	-1.504E 03	3.070E 03	2.854E 01	4.435E-03	2.854E 01	4.435E-03
5.624E 01	2.544E 00	4.500E 00	-3.527E 01	-3.159E 03	-1.640E 03	-1.519E 03	3.102E 03	1.644E 01	2.554E-03	2.908E 01	4.518E-03
5.766E 01	3.053E 00	3.053E 00	-8.395E 00	-3.247E 03	-1.695E 03	-1.551E 03	3.209E 03	1.973E 01	3.065E-03	1.973E 01	3.065E-03
5.772E 01	5.075E 00	2.997E 00	-7.536E 00	-3.250E 03	-1.697E 03	-1.552E 03	3.217E 03	3.279E 01	5.095E-03	1.937E 01	3.009E-03
5.786E 01	5.075E 00	2.855E 00	-5.629E 00	-3.257E 03	-1.702E 03	-1.555E 03	3.234E 03	3.279E 01	5.095E-03	1.845E 01	2.867E-03
5.794E 01	2.774E 00	2.774E 00	-4.499E 00	-3.261E 03	-1.705E 03	-1.556E 03	3.245E 03	1.792E 01	2.785E-03	1.792E 01	2.785E-03
5.844E 01	2.260E 00	2.260E 00	1.236E 00	-3.284E 03	-1.721E 03	-1.564E 03	3.309E 03	1.460E 01	2.269E-03	1.460E 01	2.269E-03
5.917E 01	1.525E 00	1.525E 00	6.367E 00	-3.314E 03	-1.741E 03	-1.574E 03	3.402E 03	9.854E 00	1.531E-03	9.854E 00	1.531E-03
6.019E 01	1.550E 00	1.550E 00	9.928E 00	-3.354E 03	-1.764E 03	-1.590E 03	3.532E 03	1.002E 01	1.556E-03	1.002E 01	1.556E-03
6.220E 01	6.550E 00	6.550E 00	1.087E 01	-3.431E 03	-1.797E 03	-1.634E 03	3.790E 03	4.232E 01	6.576E-03	4.232E 01	6.576E-03
6.362E 01	5.275E 00	5.275E 00	1.087E 01	-3.485E 03	-1.816E 03	-1.669E 03	3.972E 03	3.408E 01	5.296E-03	3.408E 01	5.296E-03
6.608E 01	7.535E 00	7.535E 00	1.087E 01	-3.576E 03	-1.854E 03	-1.742E 03	4.269E 03	4.869E 01	7.565E-03	4.869E 01	7.565E-03
6.646E 01	6.270E 00	7.880E 00	1.087E 01	-3.615E 03	-1.860E 03	-1.755E 03	4.337E 03	4.051E 01	6.295E-03	5.092E 01	7.912E-03
6.650E 01	6.270E 00	7.917E 00	1.087E 01	-3.617E 03	-1.861E 03	-1.756E 03	4.342E 03	4.051E 01	6.295E-03	5.115E 01	7.948E-03

XANS										
6.870E 01	6.194E 00	0.000E 00	1.004E 01	-3.020E 03	-1.979E 03	4.169E 03	3.978E 01	6.108E-03	2.634E 01	8.115E-03
6.850E 01	5.049E 00	0.000E 00	7.752E 01	-3.670E 03	-1.981E 03	4.930E 03	5.262E 01	5.115E-03	2.765E 01	4.502E-03
6.960E 01	2.755E 00	2.955E 00	2.595E 02	-3.701E 03	-1.955E 03	4.701E 03	1.784E 01	2.760E-03	1.909E 01	2.967E-03
7.052E 01	2.141E 00	2.296E 00	3.254E 02	-3.706E 03	-1.981E 03	4.549E 03	1.543E 01	2.149E-03	1.480E 01	2.299E-03
7.113E 01	1.622E 00	2.071E 00	3.697E 02	-3.804E 03	-1.988E 03	4.423E 03	1.047E 01	1.627E-03	1.338E 01	2.079E-03
7.251E 01	9.552E-01	1.575E 00	4.442E 02	-3.844E 03	-1.992E 03	5.099E 03	6.171E 00	9.588E-04	1.018E 01	1.581E-03
7.414E 01	9.251E-01	1.023E 00	4.924E 02	-3.867E 03	-1.995E 03	5.273E 03	5.965E 00	9.268E-04	6.625E 00	1.029E-03
7.419E 01	9.200E-01	9.225E-01	4.965E 02	-3.880E 03	-1.939E 03	5.291E 03	5.945E 00	9.237E-04	5.961E 00	9.262E-04
7.494E 01	8.335E-01	4.100E-01	5.222E 02	-3.897E 03	-1.943E 03	5.375E 03	5.385E 00	8.368E-04	2.604E 00	4.116E-04
7.494E 01	8.330E-01	4.072E-01	5.230E 02	-3.897E 03	-1.955E 03	5.375E 03	5.382E 00	8.363E-04	2.631E 00	4.089E-04
7.627E 01	6.800E-01	0.000	5.390E 02	-3.948E 03	-1.980E 03	5.427E 03	4.394E 00	6.827E-04	0.000	0.000
7.912E 01	4.850E-01	0.000	5.623E 02	-3.955E 03	-1.994E 03	5.525E 03	3.134E 00	4.869E-04	0.000	0.000
8.302E 01	5.850E-01	0.000	5.852E 02	-3.941E 03	-1.980E 03	5.630E 03	3.780E 00	5.873E-04	0.000	0.000
8.583E 01	5.450E-01	0.000	5.977E 02	-3.943E 03	-1.963E 03	5.685E 03	3.522E 00	5.472E-04	0.000	0.000
8.869E 01	6.700E-01	0.000	6.124E 02	-3.948E 03	-1.968E 03	5.707E 03	4.329E 00	6.727E-04	0.000	0.000
8.869E 01	6.703E-01	0.000	6.124E 02	-3.948E 03	-1.980E 03	5.707E 03	4.331E 00	6.730E-04	0.000	0.000

X	CNAG	CDRAG	CF	CC
4.040E 01	8.864E 01	9.864E 01	2.138E-03	5.592E-02
4.041E 01	1.866E-01	8.881E 01	2.890E-03	4.175E-02
4.073E 01	9.418E 00	9.222E 01	2.514E-03	5.507E-02
4.122E 01	4.201E 00	1.004E 02	2.748E-03	5.786E-02
4.150E 01	4.735E 00	1.052E 02	2.471E-03	4.591E-02
4.246E 01	1.389E 01	1.190E 02	2.749E-03	5.763E-02
4.270E 01	3.460E 00	1.225E 02	3.361E-03	4.959E-02
4.271E 01	1.399E-01	1.226E 02	2.878E-03	5.773E-02
4.278E 01	8.532E-01	1.235E 02	2.868E-03	5.785E-02
4.431E 01	1.702E 01	1.405E 02	3.153E-03	5.609E-02
4.480E 01	4.07ME 00	1.446E 02	3.209E-03	5.447E-02
4.550E 01	5.223E 00	1.498E 02	3.240E-03	5.326E-02
4.620E 01	5.416E 00	1.552E 02	3.191E-03	5.394E-02
4.621E 01	8.140E-02	1.553E 02	3.143E-03	5.486E-02
4.626E 01	5.837E-01	1.557E 02	3.128E-03	5.503E-02
4.731E 01	8.875E 00	1.646E 02	2.947E-03	5.379E-02
4.811E 01	7.211E 00	1.718E 02	2.927E-03	4.819E-02
5.019E 01	1.764E 01	1.894E 02	2.737E-03	3.735E-02
5.072E 01	4.311E 00	1.937E 02	2.967E-03	2.950E-02
5.213E 01	1.106E 01	2.048E 02	2.794E-03	2.601E-02
5.423E 01	1.424E 01	2.190E 02	2.772E-03	1.934E-02
5.473E 01	5.174E 00	2.222E 02	2.641E-03	1.465E-02
5.548E 01	4.303E 00	2.265E 02	2.334E-03	1.505E-02
5.576E 01	1.478E 00	2.280E 02	2.437E-03	1.529E-02
5.624E 01	1.181E 00	2.292E 02	2.376E-03	1.230E-02
5.766E 01	3.417E 00	2.326E 02	2.423E-03	1.078E-02
5.772E 01	2.167E-01	2.328E 02	2.475E-03	1.302E-02
5.786E 01	5.633E-01	2.334E 02	2.695E-03	1.214E-02
5.794E 01	3.877E-01	2.337E 02	3.311E-03	8.117E-03
5.844E 01	2.368E 00	2.361E 02	2.293E-03	8.845E-03
5.917E 01	2.698E 00	2.388E 02	2.094E-03	6.899E-03
6.019E 01	3.363E 00	2.422E 02	1.770E-03	7.573E-03
6.220E 01	6.363E 00	2.485E 02	2.255E-03	1.923E-02
6.362E 01	5.674E 00	2.542E 02	3.044E-03	1.514E-02
6.608E 01	1.073E 01	2.649E 02	2.966E-03	1.671E-02
6.646E 01	1.493E 00	2.664E 02	3.258E-03	1.451E-02
6.650E 01	1.606E-01	2.666E 02	3.288E-03	1.460E-02
6.670E 01	8.365E-01	2.674E 02	3.287E-03	1.402E-02
6.836E 01	6.479E 00	2.739E 02	3.195E-03	1.152E-02
6.980E 01	4.619E 00	2.785E 02	3.103E-03	8.349E-03
7.052E 01	1.954E 00	2.805E 02	3.057E-03	7.007E-03
7.113E 01	1.476E 00	2.819E 02	3.025E-03	6.155E-03
7.251E 01	2.860E 00	2.84AE 02	2.959E-03	4.675E-03
7.404E 01	2.635E 00	2.874E 02	2.912E-03	3.844E-03
7.419E 01	2.238E-01	2.876E 02	2.902E-03	3.667E-03
7.494E 01	9.604E-01	2.886E 02	2.834E-03	2.734E-03
7.494E 01	1.617E-03	2.886E 02	2.834E-03	2.729E-03
7.627E 01	5.322E-01	2.891E 02	2.842E-03	2.920E-03
7.912E 01	9.317E-01	2.901E 02	2.772E-03	2.241E-03
8.302E 01	9.409E-01	2.910E 02	2.786E-03	2.571E-03
8.583E 01	5.046E-01	2.915E 02	2.761E-03	2.422E-03
8.869E 01	2.183E-01	2.917E 02	2.783E-03	2.824E-03
8.869E 01	0.000	2.917E 02	2.783E-03	2.825E-03

RAMJET PERFORMANCE

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ENGINE PERFORMANCE

CALCULATED THRUST	556.	(LBF)
MEASURED THRUST	545.	(LBF)
CALCULATED SPECIFIC IMPULSE	1194.	(LBF-SEC/LBM)
MEASURED SPECIFIC IMPULSE	2113.	(LBF-SEC/LBM)
CALCULATED THRUST COEFFICIENT	0.2295	
MEASURED THRUST COEFFICIENT	0.4061	

REGENERATIVE-COOLED ENGINE PERFORMANCE CALCULATED

STREAM THRUST	3476.	(LBF)
NET THRUST	551.	(LBF)
SPECIFIC IMPULSE	1883.	(LBF-SEC/LBM)
THRUST COEFFICIENT	0.3619	

MOMENTUM AND FORCES

INLET FRICTION DRAG	86.6	(LBF)
INLET MOMENTUM CHANGE	-402.6	(LBF)
COMBUSTOR FRICTION DRAG	179.8	(LBF)
COMBUSTOR STRUT DRAG	-15.85	(LBF)
COMBUSTOR MOMENTUM CHANGE	163.	(LBF)
NOZZLE FRICTION DRAG	25.30	(LBF)
NOZZLE STRUT DRAG	-0.00	(LBF)
NOZZLE MOMENTUM CHANGE	576.	(LBF)
NOZZLE PRESSURE INTEGRAL	602.	(LBF)
EXTERNAL FRICTION DRAG	39.31	(LBF)
EXTERNAL PRESSURE INTEGRAL	-677.	(LBF)
TOTAL EXTERNAL DRAG	-717.	(LBF)
TOTAL STRUT DRAG	-15.85	(LBF)
CAVITY FORCE	-730.	(LBF)
CALCULATED LOAD CELL FORCE	-1110.	(LBF)
MEASURED LOAD CELL FORCE	-852.	(LBF)
FUEL VACUUM SPECIFIC IMPULSE 0.0, 0.0, 0.0,		

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	1.7170	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	36.601	(IN)
NOZZLE SHROUD TRAILING EDGE	74.941	(IN)
NOZZLE PLUG TRAILING EDGE	88.693	(IN)
STRUT LEADING EDGE	57.857	(IN)
STRUT TRAILING EDGE	66.457	(IN)
COMBUSTOR EXIT	66.457	(IN)

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.9909	
ADDITIVE DRAG COEFFICIENT	0.0000	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.1023	
DELTA PT2	0.0901	(PSI)
TOTAL PRESSURE RECOVERY = SUPERSONIC	0.3411	
TOTAL PRESSURE RECOVERY = SUBSONIC	0.1037	
INLET PROCESS EFFICIENCY = SUPERSONIC	0.9062	
INLET PROCESS EFFICIENCY = SUBSONIC	0.9149	
KINETIC ENERGY EFFICIENCY = SUPERSONIC	0.9268	
KINETIC ENERGY EFFICIENCY = SUBSONIC	0.8790	
ENTHALPY AT P0 = SUPERSONIC	-42.34	(BTU/LBM)
ENTHALPY AT P0 = SUBSONIC	-7.22	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0179	
EQUIVALENCE RATIO	0.539	
COMBUSTION EFFICIENCY	0.706	
TOTAL PRESSURE RATIO	0.0684	
COMBUSTOR EFFECTIVENESS	0.6267	
INJECTOR DISCHARGE COEFFICIENTS	1.0257, 0.6753, 1.2222,	

NOZZLE

VACUUM STREAM THRUST COEFFICIENT = CS	0.9789
NOZZLE COEFFICIENT = CF	0.9104
PROCESS EFFICIENCY	0.9666
KINETIC ENERGY EFFICIENCY	0.9542

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	E
1B	42.702	B
1C	44.300	
2A	50.177	
2C	46.250	
3A	55.467	
3B	57.652	
4	46.202	C

Reading 90

t = 217.02 sec.

RAMJET PERFORMANCE

S U M M A R Y R E P O R T

	P	T	M		GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	R	IVAC	PHI	ETAC
WIND TUNNEL		1	0	5														
0.000	995.999	2919	645.2(	771)	1.2953	28.956	2548											
0.000	0.155	279	-62.1(	67)	1.3958	28.955	817	7.279	5949	1.799	0.06187	15.697	0.9906	2942	5.720	187.4		
SPIKE TIP NS		2	0	7														
0.600	11.428	2919	645.2(	771)	1.2952	28.955	2548											
0.600	10.334	2866	629.1(	755)	1.2970	28.955	2526	0.356	898	2.106	0.06187	15.697	0.9906	3111	0.863	198.2		
WIND TUNNEL		3	0	0														
0.000	995.999	2919	645.2(	771)	1.2953	28.956	2548											
0.000	0.170	286	-60.3(	69)	1.3961	28.955	829	7.171	5942	1.799	0.06615	16.784	0.9906	3143	6.108	187.2		
SPIKE TIP NS		4	0	0														
0.600	11.425	2919	645.2(	771)	1.2952	28.955	2548											
0.600	10.390	2856	626.4(	752)	1.2978	28.955	2522	0.385	971	2.106	0.06615	16.784	0.9906	3143	0.998	187.2		
INLET THROAT		5	0	3														
40.400	97.791	2751	594.8(	722)	1.3007	28.955	2479											
40.400	24.535	1977	372.1(	501)	1.3268	28.955	2122	1.873	3338	1.941	0.77631	15.697	0.0789	2125	40.268	135.3		
INLET UPNRSK		6	0	3														
40.400	97.791	2751	594.8(	722)	1.3007	28.955	2479											
40.400	20.048	1880	345.4(	474)	1.3303	28.955	2072	1.705	3533	1.941	0.70574	15.697	0.0868	2169	38.744	138.2		
INLET DNNRSK		7	0	4														
40.400	82.976	2751	594.8(	722)	1.3007	28.955	2479											
40.400	64.125	2595	548.4(	676)	1.3058	28.955	2411	0.632	1523	1.952	0.70574	15.697	0.0868	2169	16.706	138.2		
COMBUSTOR	0	8	1	21														
40.410	83.409	2710	609.5(	782)	1.3048	26.177	2591											
40.410	23.796	2004	386.5(	560)	1.3290	26.177	2249	1.485	3340	2.116	0.78268	15.828	0.0790	2125	40.630	134.2	0.25	0.07
COMBUSTOR	0	9	2	21														
40.729	87.504	2614	606.3(	792)	1.3091	26.089	2584											
40.729	24.252	1913	386.6(	534)	1.3333	26.089	2205	1.504	3316	2.103	0.78555	15.828	0.0787	2120	40.481	133.9	0.25	0.01
COMBUSTOR	0	10	3	21														
41.219	71.680	2585	601.3(	743)	1.3102	26.076	2541											
41.219	13.470	1714	330.6(	474)	1.3414	26.076	2094	1.758	3680	2.115	0.77969	15.828	0.0793	2084	44.595	131.7	0.25	0.00
COMBUSTOR	0	11	4	21														
41.500	66.629	2574	598.4(	740)	1.3106	26.074	2536											
41.500	13.818	1749	341.8(	485)	1.3399	26.074	2114	1.695	3583	2.119	0.77188	15.828	0.0801	2046	42.978	129.3	0.25	0.00
COMBUSTOR	0	12	5	21														
42.460	44.416	3608	587.3(1057)		1.2885	27.242	2878											
42.460	23.478	3152	430.3(	909)	1.2762	27.251	2709	1.034	2802	2.219	0.72876	15.828	0.0848	1889	31.737	119.3	0.25	0.81
COMBUSTOR	0	13	6	21														
42.704	47.730	2668	598.4(	830)	1.3076	24.171	2679											
42.704	23.490	2251	455.3(	688)	1.3218	24.171	2474	1.082	2676	2.297	0.72466	15.946	0.0859	1843	30.132	116.6	0.48	0.10
COMBUSTOR	0	14	7	21														
42.714	50.502	2466	598.3(	764)	1.3169	23.983	2594											
42.714	23.490	2044	455.6(	622)	1.3315	23.983	2375	1.125	2672	2.270	0.72453	15.946	0.0859	1841	30.083	115.5	0.48	0.01
COMBUSTOR	0	15	8	21														
42.779	50.204	2433	597.5(	783)	1.3184	23.955	2580											
42.779	23.494	2019	457.6(	614)	1.3328	23.955	2363	1.119	2646	2.266	0.72279	15.946	0.0861	1830	29.718	114.7	0.48	0.00
COMBUSTOR	0	16	9	21														
44.300	42.847	2361	584.4(	768)	1.3221	22.695	2615											
44.300	31.072	2182	520.6(	704)	1.3283	22.695	2520	0.709	1788	2.368	0.67180	16.031	0.0932	1632	18.666	101.8	0.65	0.02
COMBUSTOR	0	17	10	21														
44.310	43.135	2310	584.3(	751)	1.3245	22.652	2591											
44.310	31.122	2131	520.8(	687)	1.3307	22.652	2495	0.715	1784	2.361	0.67094	16.031	0.0933	1632	18.596	101.8	0.65	0.00
COMBUSTOR	0	18	11	21														
44.800	43.024	2289	579.5(	743)	1.3253	22.646	2581											
44.800	33.564	2153	531.1(	695)	1.3300	22.646	2507	0.620	1556	2.358	0.66342	16.031	0.0943	1586	16.042	99.0	0.65	0.00

READING = 0090 BLOCK = 104 TIME = 217.023 MACH 7.3 PT = 995.999 PT = 2919.2

	P	T	H		GAMMA	MOLWT	SONV	MACH	VEL	S	V/A	A	A/AC	NUMTM	C	TVAC	PHI	ETAC
COMBUSTOR	0	19	12	21														
45.499	41.703	2269	572.9(	734)	1.3260	22.645	2570											
45.499	33.236	2146	528.9(	693)	1.3303	22.645	2503	0.592	1493	2.357	0.65907	16.031	0.0950	1547	15.190	96.5	0.65	0.00
COMBUSTOR	0	20	13	21														
46.204	37.279	2261	578.3(	770)	1.3274	21.502	2432											
46.204	27.968	2106	520.4(	712)	1.3329	21.502	2545	0.668	1702	2.462	0.64469	16.115	0.0976	1551	17.049	96.3	0.81	0.01
COMBUSTOR	0	21	14	21														
46.214	37.483	2218	578.2(	753)	1.3296	21.504	2469											
46.214	27.894	2057	520.1(	695)	1.3352	21.504	2520	0.677	1706	2.455	0.64409	16.115	0.0977	1552	17.073	96.3	0.81	0.00
COMBUSTOR	0	22	15	21														
46.260	37.242	2206	577.7(	750)	1.3300	21.498	2605											
46.260	27.550	2046	518.5(	691)	1.3357	21.498	2514	0.685	1721	2.454	0.64221	16.115	0.0980	1554	17.180	96.4	0.81	0.00
COMBUSTOR	0	23	16	21														
47.310	31.780	2177	567.4(	740)	1.3310	21.497	2569											
47.310	19.704	1931	476.8(	649)	1.3400	21.497	2446	0.871	2130	2.464	0.59530	16.115	0.1057	1601	19.709	99.3	0.81	0.00
COMBUSTOR	0	24	17	21														
48.110	25.389	3589	559.5(1259)		1.2502	22.767	3143											
48.110	18.347	3354	461.5(1165)		1.2701	22.773	3050	0.726	2216	2.619	0.54715	16.115	0.1150	1651	18.840	102.4	0.81	0.41
COMBUSTOR	0	25	18	21														
50.189	23.624	2333	542.3(	794)	1.3229	21.678	2660											
50.189	11.394	1945	399.0(	681)	1.3370	21.678	2442	1.097	2678	2.511	0.40488	16.115	0.1554	1793	16.650	111.3	0.81	0.06
COMBUSTOR	0	26	19	21														
50.719	23.207	2134	539.1(	723)	1.3322	21.524	2562											
50.719	9.275	1690	377.8(	562)	1.3492	21.524	2295	1.238	2841	2.485	0.37866	16.115	0.1662	1818	16.716	112.8	0.81	0.01
COMBUSTOR	0	27	20	21														
52.129	22.472	2085	531.4(	705)	1.3342	21.501	2536											
52.129	8.300	1616	361.9(	536)	1.3528	21.501	2248	1.296	2913	2.480	0.32272	16.115	0.1950	1873	14.607	116.2	0.81	0.00
COMBUSTOR	0	28	21	21														
54.229	19.000	2048	519.6(	694)	1.3357	21.428	2519											
54.229	5.350	1477	314.0(	489)	1.3594	21.428	2159	1.486	3207	2.495	0.26520	16.158	0.2379	1937	13.219	119.9	0.82	0.00
COMBUSTOR	0	29	22	21														
54.729	16.512	2038	517.4(	691)	1.3361	21.424	2514											
54.729	3.862	1399	288.2(	461)	1.3634	21.424	2104	1.610	3387	2.507	0.25436	16.158	0.2480	1946	13.387	120.4	0.82	0.00
COMBUSTOR	0	30	23	21														
55.479	16.529	2028	514.2(	687)	1.3364	21.424	2508											
55.479	3.869	1392	286.1(	459)	1.3637	21.424	2099	1.610	3378	2.505	0.23978	16.158	0.2631	1957	12.588	121.1	0.82	0.00
COMBUSTOR	0	31	24	21														
55.760	16.533	2025	513.1(	686)	1.3366	21.424	2506											
55.760	3.871	1390	285.4(	458)	1.3638	21.424	2097	1.609	3375	2.504	0.23477	16.158	0.2687	1961	12.314	121.4	0.82	0.00
COMBUSTOR	0	32	25	21														
56.239	13.259	2147	511.4(	729)	1.3307	21.525	2569											
56.239	3.169	1488	273.4(	491)	1.3578	21.525	2161	1.597	3480	2.543	0.18550	16.158	0.3401	2009	9.947	124.3	0.82	0.03
COMBUSTOR	0	33	26	21														
57.664	13.852	2028	507.1(	687)	1.3363	21.439	2507											
57.664	2.769	1334	259.3(	439)	1.3665	21.439	2056	1.713	3521	2.521	0.17145	16.158	0.3679	2029	9.382	125.6	0.82	0.00
COMBUSTOR	0	34	27	21														
57.719	14.958	2011	507.0(	681)	1.3370	21.426	2498											
57.719	3.275	1359	272.4(	446)	1.3659	21.426	2072	1.653	3426	2.511	0.17097	16.158	0.3690	2030	9.102	125.6	0.82	0.00
COMBUSTOR	0	35	28	21														
57.859	14.891	2008	506.6(	680)	1.3372	21.424	2496											
57.859	3.221	1349	270.9(	444)	1.3659	21.424	2067	1.661	3434	2.511	0.16974	16.158	0.3717	2031	9.058	125.7	0.82	0.00
COMBUSTOR	0	36	29	21														
57.939	15.727	2010	506.4(	680)	1.3371	21.426	2497											
57.939	2.555	1297	252.0(	426)	1.3685	21.426	2029	1.758	3568	2.519	0.17173	16.158	0.3673	2032	9.521	125.8	0.82	0.00
COMBUSTOR	0	37	30	21														
58.445	12.881	2004	505.2(	678)	1.3373	21.424	2494											
58.445	2.162	1257	239.3(	413)	1.3705	21.424	1999	1.824	3647	2.523	0.17084	16.158	0.3693	2036	9.693	126.0	0.82	0.00

	P	T	H		GAMMA	MOLWT	GONV	MACH	VEL	S	M/A	A	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	38	31	21														
59.169	11.018	1999	503.6(	676)	1.3375	21.424	2491											
59.169	1.600	1206	221.9(	395)	1.3731	21.424	1960	1.916	3755	2.537	0.16811	16.158	0.3753	2039	9.809	126.2	0.82	0.00
COMBUSTOR	0	39	32	21														
60.189	12.957	2295	501.3(	781)	1.3235	21.667	2640											
60.189	3.800	1687	278.8(	559)	1.3468	21.667	2283	1.461	3336	2.564	0.16703	16.158	0.3777	2043	8.661	126.5	0.82	0.00
COMBUSTOR	0	40	33	21														
62.199	17.331	2024	496.1(	685)	1.3361	21.460	2503											
62.199	6.487	1573	333.2(	522)	1.3545	21.460	2222	1.285	2855	2.499	0.17284	16.158	0.3850	2040	7.669	126.3	0.82	0.01
COMBUSTOR	0	41	34	21														
63.619	17.734	1975	492.3(	668)	1.3385	21.429	2477											
63.619	4.875	1413	291.0(	466)	1.3626	21.429	2113	1.502	3173	2.488	0.17753	16.158	0.3953	2037	8.755	126.1	0.82	0.00
COMBUSTOR	0	42	35	21														
66.083	17.341	1949	484.9(	658)	1.3394	21.425	2461											
66.083	5.799	1468	312.3(	486)	1.3598	21.425	2152	1.365	2939	2.486	0.16828	16.158	0.3749	2033	7.685	125.8	0.82	0.00
COMBUSTOR	0	43	36	21														
66.459	16.170	1948	483.6(	657)	1.3396	21.424	2459											
66.459	5.509	1478	316.0(	489)	1.3595	21.424	2159	1.341	2896	2.491	0.15644	16.158	0.4032	2032	7.040	125.6	0.82	0.00
COMBUSTOR REGEN	44	37	21															
66.459	16.170	2221	585.6(	758)	1.3296	21.424	2618											
66.459	9.653	1946	484.0(	657)	1.3395	21.424	2460	0.917	2255	2.540	0.15644	16.158	0.4032	2119	5.481	131.1	0.82	0.00
NOZZLE AE	45	38	4															
88.695	16.170	1948	483.6(	656)	1.3396	21.424	2459											
88.695	0.349	605	48.3(	221)	1.3961	21.424	1490	3.133	4667	2.491	0.03296	16.158	1.0373	2815	2.362	195.6	0.82	0.00
NOZZLE PO	46	39	4															
88.695	16.170	1948	483.6(	656)	1.3396	21.424	2459											
88.695	0.155	545	2.8(	174)	1.4000	21.424	1331	3.685	4905	2.491	0.01929	16.158	3.2698	2993	1.471	140.5	0.82	0.00
NOZZLE AE REGEN	47	40	5															
88.695	16.170	2221	585.6(	758)	1.3296	21.424	2618											
88.695	0.390	824	93.8(	267)	1.3910	21.424	1631	3.042	4961	2.540	0.03257	16.158	1.0371	2685	2.511	166.2	0.82	0.00
NOZZLE PO REGEN	48	41	5															
88.695	16.170	2221	585.6(	758)	1.3296	21.424	2618											
88.695	0.155	634	31.6(	205)	1.3977	21.424	1034	3.672	5265	2.540	0.01781	16.158	3.5418	2784	1.457	172.3	0.82	0.00
FICTIVE COMBUSTR	66	59	0															
66.459	97.791	5054	483.6(1815)		1.1651	24.466	3459											
66.459	0.155	1413	1089.9(	429)	1.3269	24.907	1935	4.584	8873	2.553	0.01565	16.158	4.0298	4616	2.159	285.7	0.82	1.00
FICTIVE NOZZLE	67	60	0															
88.695	18.182	1868	461.7(	635)	1.3418	21.424	2423											
88.695	0.314	623	28.1(	201)	1.3960	21.424	1422	3.276	4658	2.469	0.03257	16.158	1.0371	2495	2.357	154.4	0.82	0.00

X*B3	P=IB	P=OB	PDA	QDX	C=IB	C=OB	CA=ALL	P=TH/PS0	P=IB/PT0	P=OB/PS0	P=OB/PT0
6.981E-01	4.350E-01	0.000	-2.758E-01	0.000	0.000	0.000	2.477E-02	4.105E 00	4.374E-04	0.000	0.000
1.836E 01	4.350E-01	0.000	-2.115E 01	0.000	0.000	0.000	1.854E 02	4.105E 00	4.374E-04	0.000	0.000
3.070E 01	2.595E 00	0.000	-1.521E 02	0.000	0.000	0.000	5.953E 02	1.677E 01	2.605E-03	0.000	0.000
3.508E 01	3.785E 00	0.000	-3.508E 02	0.000	0.000	0.000	6.904E 02	2.447E 01	3.800E-03	0.000	0.000
3.555E 01	4.150E 00	0.000	-3.950E 02	0.000	0.000	0.000	7.013E 02	2.683E 01	4.167E-03	0.000	0.000
3.606E 01	4.180E 00	0.000	-4.373E 02	-4.199E 02	-4.199E 02	0.000	7.244E 02	2.702E 01	4.197E-03	0.000	0.000
3.648E 01	4.331E 00	0.000	-4.737E 02	-4.301E 02	-4.301E 02	0.000	7.443E 02	2.800E 01	4.349E-03	0.000	0.000
3.660E 01	4.419E 00	3.149E 00	-5.170E 02	-4.330E 02	-4.330E 02	0.000	7.498E 02	2.857E 01	4.437E-03	2.035E 01	3.162E-03
3.660E 01	4.424E 00	3.180E 00	-5.173E 02	-4.331E 02	-4.331E 02	0.000	7.501E 02	2.859E 01	4.442E-03	2.055E 01	3.193E-03
3.701E 01	4.730E 00	5.270E 00	-5.363E 02	-4.435E 02	-4.435E 02	0.000	7.923E 02	3.057E 01	4.749E-03	3.407E 01	5.291E-03
3.727E 01	5.721E 00	6.600E 00	-5.483E 02	-4.503E 02	-4.503E 02	0.000	8.195E 02	3.698E 01	5.740E-03	4.266E 01	6.627E-03
3.803E 01	8.635E 00	1.156E 01	-5.927E 02	-4.714E 02	-4.714E 02	0.000	9.013E 02	5.582E 01	8.670E-03	7.469E 01	1.160E-02
3.873E 01	1.246E 01	1.611E 01	-6.401E 02	-5.670E 02	-4.974E 02	-6.940E 01	9.793E 02	8.055E 01	1.251E-02	1.041E 02	1.617E-02
3.875E 01	1.258E 01	1.614E 01	-6.412E 02	-5.693E 02	-4.985E 02	-7.075E 01	9.817E 02	8.129E 01	1.263E-02	1.044E 02	1.621E-02
3.901E 01	1.400E 01	1.662E 01	-6.544E 02	-5.990E 02	-5.115E 02	-8.702E 01	1.011E 03	9.049E 01	1.404E-02	1.074E 02	1.669E-02
3.950E 01	1.825E 01	1.752E 01	-6.733E 02	-6.602E 02	-5.415E 02	-1.187E 02	1.067E 03	9.854E 01	1.531E-02	1.132E 02	1.759E-02
3.975E 01	1.871E 01	1.797E 01	-6.805E 02	-6.942E 02	-5.596E 02	-1.346E 02	1.096E 03	1.209E 02	1.879E-02	1.162E 02	1.805E-02
4.000E 01	2.220E 01	2.130E 01	-6.867E 02	-7.306E 02	-5.800E 02	-1.556E 02	1.125E 03	1.435E 02	2.229E-02	1.382E 02	2.147E-02
4.022E 01	2.270E 01	2.435E 01	-6.903E 02	-7.836E 02	-5.992E 02	-1.645E 02	1.150E 03	1.467E 02	2.279E-02	1.574E 02	2.445E-02
4.040E 01	2.311E 01	2.446E 01	-6.910E 02	-7.915E 02	-6.155E 02	-1.742E 02	1.172E 03	1.494E 02	2.320E-02	1.581E 02	2.456E-02
4.041E 01	2.313E 01	2.446E 01	-6.908E 02	-7.930E 02	-6.164E 02	-1.746E 02	1.173E 03	1.495E 02	2.322E-02	1.581E 02	2.456E-02
4.073E 01	2.385E 01	2.466E 01	-6.906E 02	-8.431E 02	-6.463E 02	-1.948E 02	1.210E 03	1.542E 02	2.396E-02	1.594E 02	2.476E-02
4.122E 01	2.495E 01	1.987E 00	-7.191E 02	-9.227E 02	-6.954E 02	-2.273E 02	1.268E 03	1.613E 02	2.505E-02	1.285E 01	1.995E-03
4.150E 01	2.559E 01	2.048E 00	-7.388E 02	-9.698E 02	-7.253E 02	-2.445E 02	1.301E 03	1.656E 02	2.569E-02	1.324E 01	2.057E-03
4.246E 01	4.470E 01	2.256E 00	-8.969E 02	-1.145E 03	-8.289E 02	-3.141E 02	1.485E 03	2.889E 02	4.488E-02	1.458E 01	2.265E-03
4.270E 01	4.467E 01	2.309E 00	-9.391E 02	-1.192E 03	-8.540E 02	-3.343E 02	1.444E 03	2.886E 02	4.485E-02	1.492E 01	2.318E-03
4.271E 01	4.467E 01	2.311E 00	-9.408E 02	-1.194E 03	-8.550E 02	-3.392E 02	1.445E 03	2.887E 02	4.485E-02	1.494E 01	2.320E-03
4.278E 01	4.464E 01	2.325E 00	-9.516E 02	-1.207E 03	-8.614E 02	-3.453E 02	1.453E 03	2.887E 02	4.484E-02	1.503E 01	2.334E-03
4.430E 01	4.448E 01	1.766E 01	-1.133E 03	-1.477E 03	-9.782E 02	-4.991E 02	1.436E 03	2.875E 02	4.464E-02	1.142E 02	1.773E-02
4.431E 01	4.448E 01	1.776E 01	-1.133E 03	-1.479E 03	-9.787E 02	-5.002E 02	1.438E 03	2.875E 02	4.466E-02	1.148E 02	1.783E-02
4.480E 01	4.442E 01	2.270E 01	-1.175E 03	-1.556E 03	-1.003E 03	-5.533E 02	1.497E 03	2.872E 02	4.460E-02	1.467E 02	2.279E-02
4.590E 01	3.672E 01	2.975E 01	-1.209E 03	-1.663E 03	-1.033E 03	-6.292E 02	1.782E 03	2.374E 02	3.687E-02	1.923E 02	2.987E-02
4.620E 01	2.895E 01	2.698E 01	-1.200E 03	-1.771E 03	-1.063E 03	-7.076E 02	1.869E 03	1.871E 02	2.907E-02	1.744E 02	2.709E-02
4.621E 01	2.884E 01	2.695E 01	-1.199E 03	-1.772E 03	-1.064E 03	-7.087E 02	1.870E 03	1.864E 02	2.896E-02	1.742E 02	2.705E-02
4.626E 01	2.833E 01	2.676E 01	-1.198E 03	-1.780E 03	-1.066E 03	-7.140E 02	1.876E 03	1.832E 02	2.845E-02	1.730E 02	2.687E-02
4.731E 01	1.676E 01	2.265E 01	-1.142E 03	-1.945E 03	-1.109E 03	-8.361E 02	2.005E 03	1.084E 02	1.683E-02	1.464E 02	2.274E-02
4.811E 01	1.722E 01	1.951E 01	-1.085E 03	-2.073E 03	-1.142E 03	-9.312E 02	2.104E 03	1.113E 02	1.729E-02	1.261E 02	1.959E-02
5.019E 01	1.135E 01	1.135E 01	-9.250E 02	-2.341E 03	-1.223E 03	-1.128E 03	2.364E 03	7.339E 01	1.140E-02	7.339E 01	1.140E-02
5.072E 01	9.275E 00	9.275E 00	-8.969E 02	-2.403E 03	-1.243E 03	-1.160E 03	2.430E 03	5.995E 01	9.312E-03	5.995E 01	9.312E-03
5.213E 01	8.300E 00	8.300E 00	-8.319E 02	-2.527E 03	-1.295E 03	-1.231E 03	2.608E 03	5.365E 01	8.333E-03	5.365E 01	8.333E-03
5.423E 01	5.350E 00	5.350E 00	-7.567E 02	-2.691E 03	-1.370E 03	-1.322E 03	2.874E 03	3.458E 01	5.371E-03	3.458E 01	5.371E-03
5.473E 01	3.862E 00	3.862E 00	-7.448E 02	-2.727E 03	-1.387E 03	-1.340E 03	2.938E 03	2.497E 01	3.878E-03	2.497E 01	3.878E-03
5.548E 01	3.869E 00	3.869E 00	-7.298E 02	-2.778E 03	-1.412E 03	-1.367E 03	3.034E 03	2.501E 01	3.884E-03	2.501E 01	3.884E-03
5.576E 01	3.871E 00	3.871E 00	-7.242E 02	-2.797E 03	-1.421E 03	-1.376E 03	3.070E 03	2.502E 01	3.887E-03	2.502E 01	3.887E-03
5.624E 01	2.462E 00	3.875E 00	-6.757E 02	-2.825E 03	-1.434E 03	-1.390E 03	3.102E 03	1.592E 01	2.472E-03	2.505E 01	3.891E-03
5.766E 01	2.769E 00	2.769E 00	-6.521E 02	-2.893E 03	-1.467E 03	-1.426E 03	3.209E 03	1.790E 01	2.780E-03	1.790E 01	2.780E-03
5.772E 01	3.825E 00	2.726E 00	-6.513E 02	-2.895E 03	-1.469E 03	-1.427E 03	3.217E 03	2.472E 01	3.840E-03	1.762E 01	2.737E-03
5.786E 01	3.825E 00	2.617E 00	-6.495E 02	-2.901E 03	-1.472E 03	-1.430E 03	3.234E 03	2.472E 01	3.840E-03	1.692E 01	2.628E-03
5.794E 01	2.555E 00	2.555E 00	-6.485E 02	-2.905E 03	-1.474E 03	-1.431E 03	3.245E 03	1.652E 01	2.565E-03	1.652E 01	2.565E-03
5.844E 01	2.162E 00	2.162E 00	-6.431E 02	-2.924E 03	-1.484E 03	-1.440E 03	3.309E 03	1.398E 01	2.171E-03	1.398E 01	2.171E-03
5.917E 01	1.600E 00	1.600E 00	-6.380E 02	-2.950E 03	-1.499E 03	-1.450E 03	3.402E 03	1.034E 01	1.606E-03	1.034E 01	1.606E-03
6.019E 01	3.800E 00	3.800E 00	-6.318E 02	-2.987E 03	-1.519E 03	-1.468E 03	3.532E 03	2.456E 01	3.815E-03	2.456E 01	3.815E-03
6.220E 01	6.487E 00	6.487E 00	-6.306E 02	-3.071E 03	-1.555E 03	-1.516E 03	3.790E 03	4.193E 01	6.514E-03	4.193E 01	6.514E-03
6.362E 01	4.875E 00	4.875E 00	-6.304E 02	-3.133E 03	-1.582E 03	-1.552E 03	3.972E 03	3.151E 01	4.895E-03	3.151E 01	4.895E-03
6.608E 01	5.799E 00	5.799E 00	-6.304E 02	-3.243E 03	-1.634E 03	-1.619E 03	4.289E 03	3.748E 01	5.822E-03	3.748E 01	5.822E-03
6.646E 01	5.250E 00	5.940E 00	-6.306E 02	-3.263E 03	-1.643E 03	-1.630E 03	4.337E 03	3.394E 01	5.271E-03	3.840E 01	5.964E-03

YARS	P=IA	P=OH	PPA	POW	P=IB	P=PB				
6.650E 01	5.255E 00	5.955E 00	=5.304E 02	=5.275E 03	=1.843E 03	=1.825E 03	5.375E 03	5.027E 03	5.490E 00	4.922E-04	0.000	4.091E-04
6.670E 01	5.037E 00	6.078E 00	=4.304E 02	=5.245E 03	=1.844E 03	=1.825E 03	5.375E 03	5.525E 03	5.975E 00	4.117E-04	0.000	0.000
6.830E 01	3.265E 00	3.621E 00	=5.812E 02	=5.362E 03	=1.802E 03	=1.825E 03	5.375E 03	5.456E 03	3.167E 00	4.920E-04	0.000	0.000
6.990E 01	1.965E 00	2.190E 00	=4.535E 02	=5.417E 03	=1.804E 03	=1.825E 03	5.375E 03	5.685E 03	2.532E 00	5.072E-04	0.000	0.000
7.052E 01	1.611E 00	1.804E 00	=4.052E 02	=5.443E 03	=1.713E 03	=1.825E 03	5.375E 03	5.707E 03	1.947E 00	5.075E-04	0.000	0.000
7.113E 01	1.311E 00	1.555E 00	=3.719E 02	=5.466E 03	=1.720E 03	=1.794E 03	5.375E 03	5.707E 03	1.541E 00	5.075E-04	0.000	0.000
7.251E 01	8.110E-01	1.224E 00	=3.150E 02	=5.505E 03	=1.735E 03	=1.770E 03	5.688E 03	5.273E 03	5.216E 00	4.133E-04	4.361E 00	1.965E-03
7.404E 01	9.288E-01	9.806E-01	=2.647E 02	=5.544E 03	=1.748E 03	=1.701E 03	5.273E 03	5.001E 03	6.076E 00	9.361E-04	6.335E 00	1.289E-03
7.419E 01	9.800E-01	8.958E-01	=2.437E 02	=5.543E 03	=1.749E 03	=1.793E 03	5.241E 03	6.076E 00	9.043E-04	5.721E 00	8.485E-04	
7.494E 01	8.099E-01	4.100E-01	=2.384E 02	=5.554E 03	=1.755E 03	=1.803E 03	5.375E 03	5.493E 00	8.533E-04	2.650E 00	4.111E-04	
7.494E 01	8.099E-01	4.075E-01	=2.377E 02	=5.556E 03	=1.755E 03	=1.803E 03	5.375E 03	5.490E 00	8.524E-04	2.634E 00	4.091E-04	
7.627E 01	6.900E-01	0.000	=2.215E 02	=5.567E 03	=1.762E 03	=1.825E 03	5.402E 03	5.525E 03	4.840E 00	4.922E-04	0.000	0.000
7.912E 01	4.720E-01	0.000	=1.983E 02	=5.599E 03	=1.777E 03	=1.825E 03	5.525E 03	5.456E 03	3.038E 00	0.719E-04	0.000	0.000
8.302E 01	4.150E-01	0.000	=1.751E 02	=5.608E 03	=1.785E 03	=1.825E 03	5.456E 03	5.685E 03	3.975E 00	4.117E-04	0.000	0.000
8.584E 01	4.000E-01	0.000	=1.642E 02	=5.615E 03	=1.790E 03	=1.825E 03	5.685E 03	5.707E 03	3.167E 00	4.920E-04	0.000	0.000
8.869E 01	5.150E-01	0.000	=1.503E 02	=5.626E 03	=1.801E 03	=1.825E 03	5.707E 03	5.525E 03	3.532E 00	5.072E-04	0.000	0.000
8.869E 01	5.451E-01	0.000	=1.503E 02	=5.626E 03	=1.801E 03	=1.825E 03	5.707E 03	5.525E 03	3.534E 00	5.075E-04	0.000	0.000

REACTING = 0090 BLOCK = 100 TIME = 217.023 MACH 7.3 PT = 995.999 TT = 2019.2

X	DRAG	CDRAG	CF	HC
4.040E 01	1.267E 02	1.247E 02	2.921E-03	5.015E-02
4.041E 01	1.091E-01	1.269E 02	3.344E-03	4.578E-02
4.073E 01	4.841E 00	1.317E 02	3.611E-03	5.176E-02
4.122E 01	7.803E 00	1.391E 02	3.611E-03	3.614E-02
4.150E 01	8.400E 00	1.435E 02	3.644E-03	3.609E-02
4.206E 01	1.333E 01	1.564E 02	3.210E-03	3.429E-02
4.270E 01	3.269E 00	1.601E 02	3.036E-03	3.429E-02
4.271E 01	1.331E-01	1.602E 02	3.433E-03	4.223E-02
4.274E 01	7.857E-01	1.610E 02	3.320E-03	4.377E-02
4.430E 01	1.567E 01	1.767E 02	3.749E-03	3.756E-02
4.431E 01	4.270E-02	1.767E 02	3.569E-03	4.020E-02
4.480E 01	3.703E 00	1.805E 02	3.614E-03	3.863E-02
4.553E 01	4.436E 00	1.853E 02	3.647E-03	3.702E-02
4.620E 01	5.186E 00	1.905E 02	3.617E-03	3.416E-02
4.621E 01	7.702E-02	1.906E 02	3.637E-03	3.650E-02
4.626E 01	3.492E-01	1.909E 02	3.605E-03	3.681E-02
4.731E 01	8.505E 00	1.994E 02	3.515E-03	3.347E-02
4.811E 01	6.650E 00	2.061E 02	3.647E-03	3.239E-02
5.019E 01	1.745E 01	2.235E 02	4.094E-03	1.676E-02
5.072E 01	4.197E 00	2.277E 02	1.930E-03	2.085E-02
5.213E 01	9.222E 00	2.389E 02	3.203E-03	2.001E-02
5.473E 01	1.173E 01	2.487E 02	3.127E-03	1.496E-02
5.473E 01	2.647E 00	2.513E 02	3.117E-03	1.214E-02
5.508E 01	3.457E 00	2.552E 02	3.081E-03	1.205E-02
5.576E 01	1.377E 00	2.565E 02	3.069E-03	1.202E-02
5.624E 01	1.088E 00	2.576E 02	2.984E-03	9.982E-03
5.764E 01	3.158E 00	2.604E 02	3.024E-03	8.690E-03
5.772E 01	1.967E-01	2.610E 02	2.958E-03	1.002E-02
5.786E 01	4.759E-01	2.615E 02	2.940E-03	9.955E-03
5.794E 01	2.811E-01	2.617E 02	2.973E-03	8.510E-03
5.884E 01	1.837E 00	2.636E 02	2.960E-03	7.629E-03
5.917E 01	2.691E 00	2.663E 02	3.002E-03	6.151E-03
6.019E 01	3.549E 00	2.698E 02	2.878E-03	1.099E-02
6.220E 01	4.329E 00	2.761E 02	3.134E-03	1.357E-02
6.342E 01	6.501E 00	2.806E 02	2.881E-03	1.274E-02
6.608E 01	7.049E 00	2.881E 02	2.898E-03	1.586E-02
6.646E 01	1.032E 00	2.892E 02	2.922E-03	1.333E-02
6.650E 01	1.035E-01	2.893E 02	2.869E-03	1.316E-02
6.670E 01	5.069E-01	2.898E 02	2.885E-03	1.310E-02
6.836E 01	9.086E 00	2.938E 02	2.750E-03	9.837E-03
6.990E 01	2.911E 00	2.968E 02	2.655E-03	7.479E-03
7.052E 01	1.255E 00	2.980E 02	2.604E-03	6.423E-03
7.113E 01	9.669E-01	2.990E 02	2.587E-03	5.864E-03
7.281E 01	1.937E 00	3.009E 02	2.516E-03	4.740E-03
7.408E 01	1.919E 00	3.028E 02	2.498E-03	4.444E-03
7.419E 01	1.727E-01	3.030E 02	2.489E-03	4.309E-03
7.494E 01	7.541E-01	3.038E 02	2.423E-03	3.554E-03
7.494E 01	1.200E-03	3.038E 02	2.422E-01	3.328E-03
7.527E 01	9.202E-01	3.042E 02	2.437E-03	3.541E-03
7.912E 01	7.363E-01	3.049E 02	2.355E-03	2.695E-03
8.302E 01	7.504E-01	3.057E 02	2.388E-01	3.229E-03
8.543E 01	3.944E-01	3.061E 02	2.319E-03	2.740E-03
8.569E 01	1.872E-01	3.062E 02	2.344E-03	2.936E-03
8.869E 01	0.000	3.062E 02	2.348E-01	2.956E-03

PROJECT PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	=447.	(LBF)
MEASURED THRUST	385.	(LBF)
CALCULATED SPECIFIC IMPULSE	=1051.	(LBF-SEC/LBM)
MEASURED SPECIFIC IMPULSE	905.	(LBF-SEC/LBM)
CALCULATED THRUST COEFFICIENT	=.3051	
MEASURED THRUST COEFFICIENT	0.2627	

REGENERATIVE-COOLED ENGINE PERFORMANCE
CALCULATED

STREAM THRUST	2664.	(LBF)
NET THRUST	=278.	(LBF)
SPECIFIC IMPULSE	=654.	(LBF-SEC/LBM)
THRUST COEFFICIENT	=.1900	

MOMENTUM AND FORCES

INLET FRICTION DRAG	126.7	(LBF)
INLET MOMENTUM CHANGE	=617.7	(LBF)
COMBUSTOR FRICTION DRAG	162.5	(LBF)
COMBUSTOR STRUT DRAG	=9.61	(LBF)
COMBUSTOR MOMENTUM CHANGE	=92.	(LBF)
NOZZLE FRICTION DRAG	17.05	(LBF)
NOZZLE STRUT DRAG	=0.00	(LBF)
NOZZLE MOMENTUM CHANGE	463.	(LBF)
NOZZLE PRESSURE INTEGRAL	480.	(LBF)
EXTERNAL FRICTION DRAG	34.73	(LBF)
EXTERNAL PRESSURE INTEGRAL	=651.	(LBF)
TOTAL EXTERNAL DRAG	=668.	(LBF)
TOTAL STRUT DRAG	=9.61	(LBF)
CAVITY FORCE	=733.	(LBF)
CALCULATED LOAD CELL FORCE	=1867.	(LBF)
MEASURED LOAD CELL FORCE	=1035.	(LBF)
FUEL VACUUM SPECIFIC IMPULSE 0.0. 0.0. 0.0.		

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	1.7190	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	36.603	(IN)
NOZZLE SHROUD TRAILING EDGE	74.943	(IN)
NOZZLE PLUG TRAILING EDGE	68.495	(IN)
STRUT LEADING EDGE	57.859	(IN)
STRUT TRAILING EDGE	66.459	(IN)
COMBUSTOR EXIT	66.459	(IN)

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.9906	
ADDITIVE DRAG COEFFICIENT	0.0000	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.CR11	
DELTA PT2	0.1255	(PSI)
TOTAL PRESSURE RECOVERY = SUPERSONIC	0.C9R2	
TOTAL PRESSURE RECOVERY = SUBSONIC	0.0829	
INLET PROCESS EFFICIENCY = SUPERSONIC	0.8765	
INLET PROCESS EFFICIENCY = SUBSONIC	0.9024	
KINETIC ENERGY EFFICIENCY = SUPERSONIC	0.8529	
KINETIC ENERGY EFFICIENCY = SUBSONIC	0.8445	
ENTHALPY AT P0 = SUPERSONIC	=8.49	(BTU/LBM)
ENTHALPY AT P0 = SUBSONIC	=2.54	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0270	
EQUIVALENCE RATIO	0.817	
COMBUSTOR EFFICIENCY	0.000	
TOTAL PRESSURE RATIO	0.1694	
COMBUSTOR EFFECTIVENESS	0.1865	
INJECTOR DISCHARGE COEFFICIENTS 1.0042. 0.6189. 0.8306.		

NOZZLE

VACUUM STREAM THRUST COEFFICIENT = CS	0.9922	
NOZZLE COEFFICIENT = CT	0.9327	
PROCESS EFFICIENCY	1.0526	
KINETIC ENERGY EFFICIENCY	0.9830	

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	B
1B	42.704	B
1C	44.300	A
2A	50.179	
2C	46.250	
3A	55.469	
3B	57.654	
4	46.204	C

Reading 90

t = 230.52 sec.

1-27-75
Reg. corrected

RAMJET PERFORMANCE

S U M M A R Y R E P O R T

	P	T	M	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
WIND TUNNEL		1	0 5														
0.000	995.249	2925	646.8(772)	1.2951	28.956	2550											
0.000	0.155	279	=62.0(67)	1.3958	28.955	818	7.278	5955	1.800	0.06173	15.672	0.9912	2940	5.713	187.6		
SPIKE TIP NS		2	0 7														
0.600	11.437	2925	646.8(772)	1.2950	28.955	2550											
0.600	10.550	2871	630.7(757)	1.2968	28.955	2528	0.355	697	2.106	0.06173	15.672	0.9912	3115	0.860	190.8		
WIND TUNNEL		3	0 0														
0.000	995.249	2925	646.8(772)	1.2951	28.956	2550											
0.000	0.171	287	=60.1(69)	1.3961	28.955	830	7.166	5947	1.800	0.06616	16.795	0.9912	3148	6.114	187.4		
SPIKE TIP NS		4	0 0														
0.600	11.437	2925	646.8(772)	1.2950	28.955	2550											
0.600	10.402	2862	627.9(754)	1.2971	28.955	2525	0.385	971	2.106	0.06616	16.795	0.9912	3148	0.999	187.4		
INLET THROAT		5	0 4														
40.400	347.682	2831	618.7(745)	1.2981	28.956	2512											
40.400	10.056	1171	156.4(285)	1.3679	28.955	1658	2.901	4810	1.862	0.77419	15.672	0.0790	2547	57.072	162.5		
INLET DMMSK		6	0 3														
40.400	347.682	2831	618.7(745)	1.2981	28.956	2512											
40.400	8.677	1125	144.6(274)	1.3708	28.955	1627	2.993	4870	1.862	0.70381	15.672	0.0869	2566	53.268	163.7		
INLET DMMSK		7	0 4														
40.400	103.402	2831	618.8(745)	1.2981	28.955	2512											
40.400	90.230	2744	592.7(719)	1.3069	28.955	2476	0.461	1142	1.946	0.70381	15.672	0.0869	2566	12.492	163.7		
COMBUSTOR	0	8	1 5														
40.410	217.695	2874	628.4(812)	1.2977	26.963	2623											
40.410	14.311	1476	204.7(392)	1.3506	26.963	1918	2.401	4605	2.018	0.77879	15.767	0.0790	2546	55.732	161.5	0.18	0.16
COMBUSTOR	0	9	2 5														
40.725	162.187	3141	625.8(892)	1.2852	27.266	2713											
40.725	19.158	1901	239.7(512)	1.3279	27.267	2145	2.049	4395	2.060	0.78159	15.767	0.0788	2541	53.390	161.1	0.18	0.43
COMBUSTOR	0	10	3 21														
41.215	221.553	2761	621.6(778)	1.3026	26.864	2580											
41.215	12.409	1350	198.1(357)	1.3587	26.864	1842	2.499	4604	2.006	0.77587	15.767	0.0793	2508	55.508	159.1	0.18	0.06
COMBUSTOR	0	11	4 3														
41.500	204.026	2719	619.1(766)	1.3044	26.828	2564											
41.500	13.819	1394	221.1(370)	1.3565	26.828	1872	2.384	4463	2.008	0.76805	15.767	0.0802	2471	53.270	156.7	0.18	0.03
COMBUSTOR	0	12	5 5														
42.460	99.206	2997	608.8(848)	1.2911	27.164	2661											
42.460	24.707	2165	348.2(591)	1.3192	27.165	2286	1.580	3611	2.084	0.72452	15.767	0.0850	2307	40.661	146.3	0.18	0.34
COMBUSTOR	0	13	6 5														
42.700	93.777	2812	609.3(815)	1.3002	26.200	2634											
42.700	24.940	2050	366.8(575)	1.3262	26.200	2271	1.534	3484	2.122	0.71665	15.808	0.0859	2260	38.906	143.0	0.26	0.15
COMBUSTOR	0	14	7 2														
42.710	93.419	2809	609.2(815)	1.3003	26.198	2633											
42.710	24.950	2050	367.5(575)	1.3262	26.198	2271	1.531	3477	2.122	0.71753	15.808	0.0860	2258	38.777	142.9	0.26	0.15
COMBUSTOR	0	15	8 3														
42.775	92.017	2787	606.3(808)	1.3013	26.177	2625											
42.775	25.013	2041	371.2(573)	1.3267	26.177	2268	1.519	3445	2.121	0.71506	15.808	0.0863	2245	38.280	142.0	0.26	0.13
COMBUSTOR	0	16	9 21														
44.300	65.714	2510	594.2(796)	1.3151	23.484	2644											
44.300	39.691	2220	493.1(696)	1.3250	23.484	2496	0.901	2250	2.295	0.66830	15.958	0.0932	2062	23.567	129.2	0.55	0.05
COMBUSTOR	0	17	10 21														
44.310	67.242	2398	594.1(759)	1.3202	23.384	2594											
44.310	39.727	2107	493.4(659)	1.3303	23.384	2441	0.919	2244	2.280	0.66824	15.958	0.0932	2062	23.501	129.2	0.55	0.01
COMBUSTOR	0	18	11 21														
44.800	65.656	2359	586.3(746)	1.3218	23.369	2576											
44.800	44.423	2143	511.6(671)	1.3292	23.369	2462	0.785	1934	2.276	0.65998	15.958	0.0944	2033	19.836	127.4	0.55	0.00

READING = 0090 BLOCK = 119 TIME = 230.523 MACH 7.5 PT = 995.249 TT = 2924.5

	W	T	M		GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	H	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	19	12	21														
45.495	65.481	2525	575.5(	734)	1.3269	23.366	2558											
45.495	46.599	2161	518.7(	677)	1.3286	23.366	2472	0.682	1687	2.271	0.65554	15.958	0.0950	2020	17.185	126.6	0.55	0.00
COMBUSTOR	0	20	13	21														
46.200	63.281	2299	577.8(	773)	1.3254	21.878	2631											
46.200	44.267	2104	506.4(	701)	1.3363	21.878	2524	0.749	1890	2.392	0.64278	16.065	0.0976	2050	18.685	127.6	0.76	0.02
COMBUSTOR	0	21	14	21														
46.210	63.882	2237	577.7(	751)	1.3262	21.828	2602											
46.210	44.206	2041	506.0(	680)	1.3353	21.828	2491	0.760	1894	2.382	0.64164	16.065	0.0978	2052	18.884	127.8	0.76	0.00
COMBUSTOR	0	22	15	21														
46.260	63.943	2226	576.9(	747)	1.3287	21.821	2596											
46.260	43.899	2027	504.1(	674)	1.3359	21.821	2484	0.768	1909	2.380	0.63974	16.065	0.0980	2055	18.976	127.9	0.76	0.00
COMBUSTOR	0	23	16	4														
47.310	62.714	2274	561.8(	763)	1.3260	21.894	2617											
47.310	37.447	2000	461.9(	664)	1.3359	21.894	2463	0.908	2236	2.388	0.59301	16.065	0.1058	2131	20.605	132.6	0.76	0.03
COMBUSTOR	0	24	17	4														
48.110	59.550	2445	550.5(	823)	1.3178	22.062	2695											
48.110	35.136	2149	441.5(	715)	1.3281	22.062	2536	0.921	2336	2.414	0.58509	16.065	0.1151	2202	19.786	137.1	0.76	0.08
COMBUSTOR	0	25	18	5														
50.185	52.180	2859	525.4(	970)	1.2978	22.481	2865											
50.185	17.646	2213	283.4(	730)	1.3202	22.482	2542	1.369	3480	2.467	0.40363	16.065	0.1554	2440	21.026	151.9	0.76	0.22
COMBUSTOR	0	26	19	4														
50.715	53.390	2799	520.2(	948)	1.3004	22.439	2840											
50.715	14.012	2033	236.0(	666)	1.3275	22.439	2445	1.542	3771	2.459	0.37748	16.065	0.1662	2479	22.123	154.3	0.76	0.21
COMBUSTOR	0	27	20	6														
52.125	79.218	2361	508.2(	792)	1.3203	22.087	2649											
52.125	6.175	1227	108.1(	392)	1.3669	22.087	1945	2.301	4474	2.374	0.32172	16.065	0.1950	2543	22.370	158.3	0.76	0.09
COMBUSTOR	0	28	21	6														
54.225	43.007	2939	491.6(1000)		1.2929	22.559	2894											
54.225	8.850	2022	149.3(	661)	1.3254	22.560	2430	1.703	4139	2.494	0.26441	16.109	0.2379	2611	17.006	162.1	0.77	0.27
COMBUSTOR	0	29	22	6														
54.725	64.294	2505	488.5(	845)	1.3130	22.182	2715											
54.725	5.062	1319	85.0(	422)	1.3624	22.182	2007	2.294	4603	2.415	0.25360	16.109	0.2480	2627	18.143	163.0	0.77	0.18
COMBUSTOR	0	30	23	5														
55.475	50.001	2709	484.2(	917)	1.3035	22.370	2801											
55.475	3.913	1605	82.5(	517)	1.3459	22.370	2191	2.046	4483	2.459	0.23906	16.109	0.2631	2643	16.656	164.1	0.77	0.21
COMBUSTOR	0	31	24	4														
55.760	46.185	2790	482.7(	946)	1.2996	22.445	2834											
55.760	4.236	1717	89.3(	555)	1.3395	22.446	2257	1.965	4436	2.473	0.23400	16.109	0.2688	2651	16.132	164.5	0.77	0.23
COMBUSTOR	0	32	25	4														
56.235	37.104	2962	480.1(1008)		1.2914	22.607	2900											
56.235	5.162	1853	66.7(	609)	1.3317	22.608	2329	1.948	4537	2.508	0.18494	16.109	0.3401	2721	13.040	168.9	0.77	0.29
COMBUSTOR	0	33	26	4														
57.660	39.175	2909	473.2(	989)	1.2937	22.575	2879											
57.660	4.234	1704	30.0(	549)	1.3386	22.575	2241	2.102	4710	2.497	0.17100	16.109	0.3678	2757	12.515	171.1	0.77	0.27
COMBUSTOR	0	34	27	4														
57.715	34.437	3056	473.0(1042)		1.2866	22.711	2934											
57.715	4.880	1930	52.5(	626)	1.3272	22.713	2365	1.937	4587	2.521	0.17046	16.109	0.3690	2758	12.151	171.2	0.77	0.32
COMBUSTOR	0	35	28	3														
57.855	34.778	3040	472.4(1036)		1.2873	22.698	2928											
57.855	4.756	1902	48.0(	616)	1.3285	22.699	2353	1.959	4608	2.519	0.16926	16.109	0.3716	2760	12.121	171.3	0.77	0.31
COMBUSTOR	0	36	29	11														
57.935	44.441	2803	474.0(	950)	1.2987	22.482	2837											
57.935	3.743	1531	9.5(	490)	1.3460	22.482	2136	2.252	4811	2.477	0.17116	16.109	0.3675	2761	12.797	171.4	0.77	0.25
COMBUSTOR	0	37	30	5														
58.441	60.430	2601	470.1(	878)	1.3060	22.307	2754											
58.441	2.841	1202	-27.6(	382)	1.3674	22.307	1914	2.608	4990	2.429	0.17030	16.109	0.3693	2768	13.208	171.8	0.77	0.19

REACTNG = 0000 BLOCK = 1.9 TIME = 25[illegible].523 MACH= 7.3 PT = 995.249 TT = 2921.5

	P	T	M	GAMMA	RELMT	SONV	MACH	VEL	Q	F/A		A/AC	MOMIM	G	ISAC	PHI	ETAC
COMBUSTOR	0	38	31	7													
59.185	138.955	2286	467.7(766)	1.3265	22.044	2011											
59.185	1.550	691	=80.6(218)	1.3954	22.744	1474	3.555	5239	2.317	0.16760	16.109	0.3755	2772	13.646	172.1	0.77	0.10
COMBUSTOR	0	39	32	7													
60.185	29.366	3533	464.6(1143)	1.2719	22.995	3027											
60.185	5.875	2319	78.8(761)	1.3506	23.000	2561	1.724	4416	2.554	0.16055	16.109	0.3777	2780	11.430	172.5	0.77	0.41
COMBUSTOR	0	40	33	5													
62.195	29.696	3713	458.5(1283)	1.2489	23.392	3139											
62.195	6.350	2929	140.2(981)	1.2813	23.410	2823	1.414	3991	2.587	0.17235	16.109	0.3650	2779	10.688	172.5	0.77	0.53
COMBUSTOR	0	41	34	5													
63.615	31.880	3286	454.5(1125)	1.2742	22.975	3010											
63.615	6.025	2252	59.6(737)	1.3114	22.979	2528	1.760	4449	2.543	0.17700	16.109	0.3553	2776	12.236	172.3	0.77	0.40
COMBUSTOR	0	42	35	5													
66.079	24.371	3801	446.6(1315)	1.2423	23.513	3160											
66.079	8.909	3044	154.1(1041)	1.2733	23.536	2885	1.326	3825	2.595	0.16777	16.109	0.3749	2771	9.974	172.0	0.77	0.97
COMBUSTOR	0	43	36	4													
66.455	22.166	3887	445.2(1347)	1.2355	23.608	3180											
66.455	9.030	3250	175.9(1099)	1.2653	23.638	2941	1.248	3670	2.607	0.15597	16.109	0.4032	2770	8.696	172.0	0.77	0.60
COMBUSTOR REGEN		44	37	7													
66.455	22.166	4228	609.9(1484)	1.2133	23.555	3291											
66.455	12.101	3792	405.4(1310)	1.2371	23.610	3143	1.018	3199	2.648	0.15597	16.109	0.4032	2852	7.754	177.0	0.77	0.60
NOZZLE AE		45	38	5													
88.691	22.166	3887	445.2(1319)	1.2355	23.608	3180											
88.691	0.567	1725	=388.9(541)	1.3254	23.644	2193	2.946	6460	2.607	0.03247	16.109	1.9371	3516	3.260	218.2	0.77	0.60
NOZZLE PO		46	39	5													
88.691	22.166	3887	445.2(1319)	1.2355	23.608	3180											
88.691	0.195	1242	=549.7(380)	1.3522	23.644	1879	3.755	7056	2.607	0.01344	16.109	4.6805	3718	1.473	230.8	0.77	0.60
NOZZLE AE REGEN		47	40	5													
88.691	22.166	4228	609.9(1484)	1.2133	23.555	3291											
88.691	0.625	1986	=298.4(631)	1.3137	23.644	2342	2.878	6742	2.648	0.03247	16.109	1.9371	3666	3.402	228.8	0.77	0.60
NOZZLE PO REGEN		48	41	5													
88.691	22.166	4228	609.9(1484)	1.2133	23.555	3291											
88.691	0.155	1406	=496.0(434)	1.3423	23.644	1992	3.734	7439	2.648	0.01251	16.109	5.0278	3924	1.446	243.6	0.77	0.60
FICTIVE COMBUSTR		66	59	0													
66.455	347.682	5014	445.2(1773)	1.1869	24.676	3449											
66.455	0.155	952	=1159.0(277)	1.3573	25.106	1599	5.601	6959	2.412	0.02364	16.109	2.6610	4591	3.291	285.0	0.77	1.00
FICTIVE NOZZLE		67	60	0													
88.691	17.373	3841	425.8(1329)	1.2366	23.609	3163											
88.691	0.634	1854	=344.3(566)	1.3195	23.644	2268	2.737	6208	2.623	0.03247	16.109	1.9371	3423	3.132	212.5	0.77	0.60

XABS	P-IB	P-OB	PDA	VDA	G-IB	G-OB	CA-ALL	P-IB/PBO	P-IB/PIO	P-OB/PBO	P-OB/PIO
6.981E-01	6.150E-01	0.000	-2.701E-01	0.000	0.000	0.000	2.470E-02	3.979E 00	6.179E-04	0.000	0.000
1.956E 01	6.150E-01	0.000	-2.050E 01	0.000	0.000	0.000	1.634E 02	3.979E 00	6.179E-04	0.000	0.000
3.070E 01	1.100E 00	0.000	-9.062E 01	0.000	0.000	0.000	5.053E 02	7.117E 00	1.105E-03	0.000	0.000
3.506E 01	1.967E 00	0.000	-1.900E 02	0.000	0.000	0.000	5.804E 02	1.286E 01	1.996E-03	0.000	0.000
3.555E 01	2.185E 00	0.000	-2.041E 02	0.000	0.000	0.000	7.013E 02	1.414E 01	2.195E-03	0.000	0.000
3.606E 01	2.020E 00	0.000	-2.304E 02	-1.759E 02	-1.759E 02	0.000	7.246E 02	1.307E 01	2.030E-03	0.000	0.000
3.648E 01	2.306E 00	0.000	-2.489E 02	-1.801E 02	-1.801E 02	0.000	7.443E 02	1.493E 01	2.319E-03	0.000	0.000
3.659E 01	2.329E 00	3.160E 00	-2.870E 02	-1.813E 02	-1.813E 02	0.000	7.496E 02	1.507E 01	2.340E-03	2.044E 01	3.175E-03
3.660E 01	2.330E 00	3.179E 00	-2.871E 02	-1.814E 02	-1.814E 02	0.000	7.499E 02	1.507E 01	2.341E-03	2.057E 01	3.194E-03
3.701E 01	2.405E 00	4.480E 00	-2.892E 02	-1.858E 02	-1.858E 02	0.000	7.925E 02	1.556E 01	2.416E-03	2.899E 01	4.502E-03
3.726E 01	2.324E 00	5.287E 00	-2.884E 02	-1.886E 02	-1.886E 02	0.000	8.193E 02	1.503E 01	2.335E-03	3.421E 01	5.313E-03
3.803E 01	2.080E 00	8.831E 00	-2.694E 02	-1.976E 02	-1.976E 02	0.000	9.017E 02	1.346E 01	2.090E-03	5.714E 01	8.873E-03
3.872E 01	6.463E 00	1.205E 01	-2.648E 02	-2.643E 02	-2.128E 02	-4.952E 01	9.791E 02	4.181E 01	6.493E-03	7.796E 01	1.211E-02
3.875E 01	8.620E 00	1.198E 01	-2.649E 02	-2.642E 02	-2.134E 02	-5.067E 01	9.819E 02	4.283E 01	6.652E-03	7.750E 01	1.204E-02
3.901E 01	8.260E 00	1.124E 01	-2.665E 02	-2.656E 02	-2.230E 02	-6.256E 01	1.011E 03	5.344E 01	8.299E-03	7.270E 01	1.129E-02
3.950E 01	1.157E 01	9.837E 00	-2.842E 02	-3.321E 02	-2.472E 02	-8.449E 01	1.067E 03	7.488E 01	1.163E-02	6.365E 01	9.884E-03
3.974E 01	1.133E 01	9.137E 00	-2.928E 02	-3.506E 02	-2.602E 02	-9.602E 01	1.096E 03	7.331E 01	1.138E-02	5.912E 01	9.181E-03
4.000E 01	1.108E 01	9.314E 00	-2.964E 02	-3.866E 02	-2.813E 02	-1.076E 02	1.125E 03	7.168E 01	1.113E-02	6.026E 01	9.358E-03
4.021E 01	1.316E 01	9.462E 00	-3.042E 02	-4.158E 02	-2.985E 02	-1.173E 02	1.150E 03	8.513E 01	1.322E-02	6.122E 01	9.508E-03
4.040E 01	1.495E 01	1.337E 01	-3.083E 02	-4.394E 02	-3.138E 02	-1.256E 02	1.172E 03	9.671E 01	1.502E-02	8.649E 01	1.343E-02
4.041E 01	1.504E 01	1.358E 01	-3.084E 02	-4.407E 02	-3.144E 02	-1.261E 02	1.173E 03	9.734E 01	1.512E-02	8.785E 01	1.364E-02
4.072E 01	1.809E 01	2.022E 01	-3.089E 02	-4.614E 02	-3.416E 02	-1.402E 02	1.210E 03	1.170E 02	1.818E-02	1.309E 02	2.032E-02
4.121E 01	2.283E 01	1.987E 00	-3.331E 02	-5.401E 02	-3.802E 02	-1.619E 02	1.267E 03	1.477E 02	2.294E-02	1.286E 01	1.997E-03
4.150E 01	2.559E 01	2.451E 00	-3.657E 02	-5.879E 02	-4.137E 02	-1.743E 02	1.301E 03	1.656E 02	2.571E-02	1.327E 01	2.061E-03
4.246E 01	4.715E 01	2.264E 00	-5.152E 02	-7.504E 02	-5.119E 02	-2.385E 02	1.415E 03	3.051E 02	4.738E-02	1.465E 01	2.275E-03
4.270E 01	4.756E 01	2.316E 00	-5.592E 02	-7.990E 02	-5.373E 02	-2.617E 02	1.444E 03	3.077E 02	4.779E-02	1.500E 01	2.329E-03
4.271E 01	4.758E 01	2.320E 00	-5.610E 02	-8.011E 02	-5.384E 02	-2.627E 02	1.445E 03	3.078E 02	4.781E-02	1.501E 01	2.331E-03
4.277E 01	4.769E 01	2.334E 00	-5.729E 02	-8.148E 02	-5.452E 02	-2.695E 02	1.453E 03	3.086E 02	4.792E-02	1.510E 01	2.346E-03
4.430E 01	5.031E 01	2.895E 01	-7.377E 02	-1.167E 03	-7.038E 02	-4.636E 02	1.637E 03	3.255E 02	5.056E-02	1.873E 02	2.908E-02
4.431E 01	5.033E 01	2.912E 01	-7.383E 02	-1.170E 03	-7.049E 02	-4.651E 02	1.638E 03	3.257E 02	5.057E-02	1.884E 02	2.926E-02
4.480E 01	5.117E 01	3.767E 01	-7.623E 02	-1.293E 03	-7.548E 02	-5.379E 02	1.697E 03	3.511E 02	5.142E-02	2.437E 02	3.785E-02
4.549E 01	4.740E 01	4.480E 01	-7.709E 02	-1.465E 03	-8.239E 02	-6.415E 02	1.782E 03	3.067E 02	4.762E-02	3.222E 02	5.004E-02
4.620E 01	4.357E 01	4.497E 01	-7.351E 02	-1.636E 03	-8.909E 02	-7.453E 02	1.869E 03	2.819E 02	4.378E-02	2.909E 02	4.518E-02
4.621E 01	4.351E 01	4.490E 01	-7.329E 02	-1.634E 03	-8.918E 02	-7.467E 02	1.870E 03	2.815E 02	4.372E-02	2.905E 02	4.511E-02
4.626E 01	4.324E 01	4.455E 01	-7.245E 02	-1.650E 03	-8.964E 02	-7.540E 02	1.876E 03	2.798E 02	4.345E-02	2.883E 02	4.477E-02
4.731E 01	3.754E 01	3.736E 01	-6.461E 02	-1.894E 03	-9.906E 02	-9.037E 02	2.005E 03	2.429E 02	3.772E-02	2.417E 02	3.753E-02
4.811E 01	3.840E 01	3.187E 01	-5.691E 02	-2.075E 03	-1.058E 03	-1.016E 03	2.104E 03	2.485E 02	3.858E-02	2.062E 02	3.202E-02
5.018E 01	1.765E 01	1.765E 01	-3.156E 02	-2.479E 03	-1.217E 03	-1.262E 03	2.363E 03	1.142E 02	1.773E-02	1.142E 02	1.773E-02
5.071E 01	1.401E 01	1.401E 01	-2.719E 02	-2.562E 03	-1.254E 03	-1.308E 03	2.430E 03	9.066E 01	1.408E-02	9.066E 01	1.408E-02
5.212E 01	6.175E 00	6.175E 00	-1.973E 02	-2.756E 03	-1.344E 03	-1.412E 03	2.607E 03	3.995E 01	6.204E-03	3.995E 01	6.204E-03
5.422E 01	8.850E 00	8.850E 00	-1.145E 02	-2.995E 03	-1.458E 03	-1.537E 03	2.834E 03	5.726E 01	8.892E-03	5.726E 01	8.892E-03
5.472E 01	5.062E 00	5.062E 00	-9.646E 01	-3.044E 03	-1.481E 03	-1.563E 03	2.937E 03	3.275E 01	5.087E-03	3.275E 01	5.087E-03
5.547E 01	5.913E 00	5.913E 00	-7.523E 01	-3.114E 03	-1.514E 03	-1.600E 03	3.033E 03	3.826E 01	5.941E-03	3.826E 01	5.941E-03
5.576E 01	6.236E 00	6.236E 00	-6.636E 01	-3.139E 03	-1.526E 03	-1.613E 03	3.070E 03	4.035E 01	6.266E-03	4.035E 01	6.266E-03
5.623E 01	3.550E 00	6.775E 00	5.738E 00	-3.180E 03	-1.545E 03	-1.635E 03	3.102E 03	2.297E 01	3.567E-03	4.383E 01	6.807E-03
5.766E 01	4.234E 00	4.234E 00	4.491E 01	-3.291E 03	-1.597E 03	-1.694E 03	3.209E 03	2.739E 01	4.254E-03	2.739E 01	4.254E-03
5.771E 01	5.625E 00	4.136E 00	4.610E 01	-3.295E 03	-1.599E 03	-1.696E 03	3.217E 03	3.639E 01	5.652E-03	2.676E 01	4.155E-03
5.785E 01	5.625E 00	3.886E 00	4.871E 01	-3.305E 03	-1.603E 03	-1.702E 03	3.234E 03	3.639E 01	5.652E-03	3.514E 01	3.905E-03
5.793E 01	3.743E 00	3.743E 00	5.025E 01	-3.310E 03	-1.605E 03	-1.705E 03	3.245E 03	2.422E 01	3.761E-03	2.422E 01	3.761E-03
5.844E 01	2.841E 00	2.841E 00	5.775E 01	-3.341E 03	-1.620E 03	-1.721E 03	3.309E 03	1.838E 01	2.855E-03	1.838E 01	2.855E-03
5.916E 01	1.550E 00	1.550E 00	6.370E 01	-3.379E 03	-1.639E 03	-1.740E 03	3.402E 03	1.003E 01	1.557E-03	1.003E 01	1.557E-03
6.018E 01	5.875E 00	5.875E 00	7.230E 01	-3.430E 03	-1.661E 03	-1.764E 03	3.532E 03	3.801E 01	5.903E-03	3.801E 01	5.903E-03
6.219E 01	8.350E 00	8.350E 00	7.396E 01	-3.524E 03	-1.691E 03	-1.838E 03	3.790E 03	5.403E 01	8.390E-03	5.403E 01	8.390E-03
6.361E 01	6.025E 00	6.025E 00	7.396E 01	-3.593E 03	-1.708E 03	-1.885E 03	3.972E 03	3.898E 01	6.054E-03	3.898E 01	6.054E-03
6.608E 01	8.909E 00	8.909E 00	7.396E 01	-3.721E 03	-1.744E 03	-1.977E 03	4.289E 03	5.764E 01	8.952E-03	5.764E 01	8.952E-03
6.645E 01	8.710E 00	9.349E 00	7.396E 01	-3.743E 03	-1.750E 03	-1.994E 03	4.337E 03	5.635E 01	8.752E-03	6.049E 01	9.394E-03

XARS	P-1P	P-0b	PPA	v0X	v-1P	v-1E	CAMALL	P-1b/PS0	P-1P/PT0	P-0b/PS0	P-0b/PT0
6.649E 01	8.710E 00	9.396E 00	7.346E 01	-5.740E 03	-1.750E 03	-1.995E 03	4.542E 03	5.652E 01	8.752E-03	6.079E 01	9.441E-03
6.669E 01	8.404E 00	9.630E 00	7.390E 01	-5.757E 03	-1.753E 03	-2.004E 03	4.568E 03	5.436E 01	8.444E-03	6.231E 01	9.676E-03
6.835E 01	5.865E 00	5.185E 00	1.552E 02	-3.850E 03	-1.777E 03	-2.062E 03	4.504E 03	3.795E 01	5.893E-03	5.355E 01	5.216E-03
6.979E 01	2.965E 00	3.682E 00	3.600E 02	-3.894E 03	-1.792E 03	-2.101E 03	4.761E 03	1.918E 01	2.979E-03	2.382E 01	3.699E-03
7.051E 01	2.215E 00	2.930E 00	4.039E 02	-3.920E 03	-1.798E 03	-2.122E 03	4.849E 03	1.433E 01	2.226E-03	1.896E 01	2.944E-03
7.112E 01	1.580E 00	2.033E 00	4.944E 02	-3.941E 03	-1.803E 03	-2.138E 03	4.963E 03	1.022E 01	1.588E-03	1.703E 01	2.645E-03
7.250E 01	9.100E-01	1.960E 00	5.727E 02	-3.977E 03	-1.810E 03	-2.166E 03	5.004E 03	5.886E 00	9.143E-04	1.266E 01	1.970E-03
7.403E 01	8.053E-01	1.215E 00	6.269E 02	-4.004E 03	-1.816E 03	-2.187E 03	5.273E 03	5.210E 00	8.091E-04	7.861E 00	1.221E-03
7.418E 01	7.950E-01	1.080E 00	6.331E 02	-4.006E 03	-1.817E 03	-2.189E 03	5.291E 03	5.144E 00	7.988E-04	6.986E 00	1.085E-03
7.493E 01	7.607E-01	4.050E-01	6.587E 02	-4.019E 03	-1.819E 03	-2.200E 03	5.375E 03	4.922E 00	7.644E-04	2.620E 00	4.069E-04
7.494E 01	7.606E-01	4.014E-01	6.595E 02	-4.019E 03	-1.819E 03	-2.200E 03	5.375E 03	4.921E 00	7.642E-04	2.597E 00	4.033E-04
7.626E 01	7.000E-01	0.000	6.750E 02	-4.043E 03	-1.822E 03	-2.221E 03	5.427E 03	4.529E 00	7.033E-04	0.000	0.000
7.911E 01	5.600E-01	0.000	7.001E 02	-4.048E 03	-1.827E 03	-2.221E 03	5.525E 03	3.623E 00	5.627E-04	0.000	0.000
8.301E 01	6.450E-01	0.000	7.259E 02	-4.051E 03	-1.830E 03	-2.221E 03	5.630E 03	4.173E 00	6.481E-04	0.000	0.000
8.582E 01	4.900E-01	0.000	7.365E 02	-4.053E 03	-1.832E 03	-2.221E 03	5.689E 03	3.170E 00	4.923E-04	0.000	0.000
8.668E 01	6.650E-01	0.000	7.524E 02	-4.055E 03	-1.834E 03	-2.221E 03	5.707E 03	4.303E 00	6.682E-04	0.000	0.000
8.869E 01	6.654E-01	0.000	7.524E 02	-4.055E 03	-1.834E 03	-2.221E 03	5.707E 03	4.305E 00	6.685E-04	0.000	0.000

X	CMAG	CLMAG	LF	MC
4.040E 01	8.501E 01	8.561E 01	2.132E+03	3.306E+02
4.041E 01	1.423E+01	8.578E 01	2.740E+03	4.063E+02
4.072E 01	5.253E 00	9.103E 01	2.463E+03	5.359E+02
4.121E 01	8.182E 00	9.921E 01	2.734E+03	5.699E+02
4.150E 01	4.748E 00	1.040E 02	2.449E+03	4.243E+02
4.206E 01	1.391E 01	1.179E 02	2.742E+03	5.573E+02
4.270E 01	3.344E 00	1.212E 02	3.130E+03	4.995E+02
4.271E 01	1.385E+01	1.213E 02	2.933E+03	5.313E+02
4.277E 01	8.823E+01	1.222E 02	2.945E+03	5.279E+02
4.430E 01	1.840E 01	1.406E 02	3.552E+03	4.983E+02
4.431E 01	9.545E+02	1.407E 02	3.191E+03	5.667E+02
4.480E 01	4.104E 00	1.448E 02	3.201E+03	5.610E+02
4.549E 01	5.067E 00	1.499E 02	3.251E+03	5.432E+02
4.620E 01	5.206E 00	1.551E 02	3.435E+03	5.229E+02
4.621E 01	7.295E+02	1.552E 02	3.213E+03	5.664E+02
4.626E 01	3.736E+01	1.556E 02	3.171E+03	5.746E+02
4.731E 01	7.950E 00	1.635E 02	3.032E+03	5.703E+02
4.811E 01	6.054E 00	1.696E 02	3.016E+03	5.550E+02
5.018E 01	1.551E 01	1.851E 02	2.741E+03	4.198E+02
5.071E 01	4.188E 00	1.893E 02	2.992E+03	3.351E+02
5.212E 01	1.149E 01	2.007E 02	2.827E+03	1.998E+02
5.422E 01	1.384E 01	2.146E 02	2.453E+03	2.678E+02
5.472E 01	2.985E 00	2.176E 02	2.877E+03	1.621E+02
5.547E 01	4.403E 00	2.220E 02	2.476E+03	1.972E+02
5.576E 01	1.541E 00	2.236E 02	2.677E+03	1.926E+02
5.623E 01	1.243E 00	2.248E 02	2.646E+03	1.584E+02
5.766E 01	3.692E 00	2.285E 02	2.721E+03	1.352E+02
5.771E 01	2.360E+01	2.287E 02	2.712E+03	1.470E+02
5.785E 01	5.965E+01	2.293E 02	2.819E+03	1.401E+02
5.793E 01	3.961E+01	2.297E 02	3.393E+03	1.026E+02
5.844E 01	2.484E 00	2.322E 02	2.531E+03	1.046E+02
5.916E 01	2.989E 00	2.352E 02	2.276E+03	7.126E+03
6.018E 01	3.642E 00	2.389E 02	2.168E+03	1.965E+02
6.219E 01	7.420E 00	2.463E 02	3.036E+03	1.840E+02
6.361E 01	6.480E 00	2.526E 02	3.171E+03	1.454E+02
6.608E 01	1.092E 01	2.637E 02	3.048E+03	1.882E+02
6.645E 01	1.456E 00	2.651E 02	3.350E+03	1.665E+02
6.649E 01	1.545E+01	2.653E 02	3.417E+03	1.679E+02
6.669E 01	7.799E+01	2.661E 02	3.416E+03	1.676E+02
6.835E 01	6.458E 00	2.725E 02	3.302E+03	1.315E+02
6.979E 01	4.811E 00	2.773E 02	3.204E+03	9.613E+03
7.051E 01	2.077E 00	2.794E 02	3.158E+03	8.097E+03
7.112E 01	1.576E 00	2.810E 02	3.125E+03	7.053E+03
7.250E 01	3.061E 00	2.844E 02	3.062E+03	5.362E+03
7.403E 01	2.770E 00	2.868E 02	3.001E+03	4.136E+03
7.418E 01	2.281E+01	2.870E 02	2.989E+03	3.912E+03
7.493E 01	9.524E+01	2.880E 02	2.908E+03	2.731E+03
7.494E 01	1.560E+03	2.880E 02	2.908E+03	2.724E+03
7.626E 01	5.291E+01	2.885E 02	2.931E+03	3.129E+03
7.911E 01	9.870E+01	2.895E 02	2.881E+03	2.627E+03
8.301E 01	1.021E 00	2.905E 02	2.885E+03	2.905E+03
8.542E 01	5.070E+01	2.910E 02	2.826E+03	2.343E+03
8.868E 01	2.119E+01	2.912E 02	2.863E+03	2.943E+03
8.869E 01	0.000	2.912E 02	2.863E+03	2.944E+03

MASJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	482.	(LBF)
MEASURED THRUST	860.	(LBF)
CALCULATED SPECIFIC IMPULSE	1205.	(LBF-SEC/LBM)
MEASURED SPECIFIC IMPULSE	2149.	(LBF-SEC/LBM)
CALCULATED THRUST COEFFICIENT	0.3295	
MEASURED THRUST COEFFICIENT	0.5874	

REGENERATIVE-COOLED ENGINE PERFORMANCE CALCULATED

STREAM THRUST	558.	(LBF)
NET THRUST	648.	(LBF)
SPECIFIC IMPULSE	1619.	(LBF-SEC/LBM)
THRUST COEFFICIENT	0.4425	

MOMENTUM AND FORCES

INLET FRICTION DRAG	85.6	(LBF)
INLET MOMENTUM CHANGE	-393.9	(LBF)
COMBUSTOR FRICTION DRAG	179.5	(LBF)
COMBUSTOR STRUT DRAG	-20.92	(LBF)
COMBUSTOR MOMENTUM CHANGE	224.	(LBF)
NOZZLE FRICTION DRAG	26.12	(LBF)
NOZZLE STRUT DRAG	-0.00	(LBF)
NOZZLE MOMENTUM CHANGE	652.	(LBF)
NOZZLE PRESSURE INTEGRAL	678.	(LBF)
EXTERNAL FRICTION DRAG	39.13	(LBF)
EXTERNAL PRESSURE INTEGRAL	-679.	(LBF)
TOTAL EXTERNAL DRAG	-718.	(LBF)
TOTAL STRUT DRAG	-20.92	(LBF)
CAVITY FORCE	-619.	(LBF)
CALCULATED LOAD CELL FORCE	-855.	(LBF)
MEASURED LOAD CELL FORCE	-477.	(LBF)
FUEL VACUUM SPECIFIC IMPULSE	0.0, 0.0, 0.0,	

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.9912	
ADDITIVE DRAG COEFFICIENT	0.0000	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.1026	
DELTA PT2	0.0896	(PSI)
TOTAL PRESSURE RECOVERY - SUPERSONIC	0.3493	
TOTAL PRESSURE RECOVERY - SUBSONIC	0.1039	
INLET PROCESS EFFICIENCY - SUPERSONIC	0.9089	
INLET PROCESS EFFICIENCY - SUBSONIC	0.9147	
KINETIC ENERGY EFFICIENCY - SUPERSONIC	0.9324	
KINETIC ENERGY EFFICIENCY - SUBSONIC	0.8816	
ENTHALPY AT P0 - SUPERSONIC	-42.09	(BTU/LBM)
ENTHALPY AT P0 - SUBSONIC	-6.12	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0255	
EQUIVALENCE RATIO	0.769	
COMBUSTOR EFFICIENCY	0.600	
TOTAL PRESSURE RATIO	0.0638	
COMBUSTOR EFFECTIVENESS	0.5716	
INJECTOR DISCHARGE COEFFICIENTS	1.1211, 0.3309, 0.8157,	

NOZZLE

VACUUM STREAM THRUST COEFFICIENT - CS	0.9735	
NOZZLE COEFFICIENT - CT	0.8999	
PROCESS EFFICIENCY	0.9488	
KINETIC ENERGY EFFICIENCY	0.9419	

STATIONS

NOMINAL CORE LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	1.7150	(IN)
INLET THROAT	40.400	(IN)
CORE LEADING EDGE	36.599	(IN)
NOZZLE SHROUD TRAILING EDGE	74.939	(IN)
NOZZLE PLUG TRAILING EDGE	88.691	(IN)
STRUT LEADING EDGE	57.855	(IN)
STRUT TRAILING EDGE	66.455	(IN)
COMBUSTOR EXIT	66.455	(IN)

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	E
1B	42.700	B
1C	44.300	A
2A	50.175	
2C	46.250	
3A	55.465	
3B	57.650	
4	46.200	C

Reading 90

t = 235.02 sec.

The inlet was in an unstarted condition.

REACTNG = 0090 BLOCK = 124 TIRF = 235.063 MACH 7.3 PT = 995.749 TT = 2931.2

RAMJET PERFORMANCE

S U M M A R Y R E P O R T

	P	T	H		GAMMA	MOLWT	SONV	MACH	VEL	S	A/A	A	AXAT	MOMTM	F	TVAC	PHI	ETAC
WIND TUNNEL		1	0	5														
0.000	995.749	2931	648.8(	774)	1.2949	28.956	2553											
0.000	0.155	280	61.8(	67)	1.3958	28.955	819	7.277	5963	1.601	0.06146	6.972	0.4415	1510	5.714	187.8		
SPIKE TIP NS		2	0	7														
0.600	11.387	2931	648.8(	774)	1.2948	28.955	2553											
0.600	10.496	4877	632.6(	759)	1.4966	28.955	2531	0.356	902	2.107	0.06166	6.972	0.4415	1382	0.864	198.3		
WIND TUNNEL		3	0	0														
0.000	995.749	2931	648.8(	774)	1.2949	28.956	2553											
0.000	0.169	288	60.0(	69)	1.3961	28.955	830	7.173	5956	1.601	0.06577	6.972	0.4139	1309	6.088	187.7		
SPIKE TIP NS		4	0	0														
0.600	11.387	2931	648.8(	774)	1.2948	28.955	2553											
0.600	10.397	2868	629.9(	756)	1.2960	28.955	2527	0.385	972	2.107	0.06577	6.972	0.4139	1309	0.994	187.7		
INLET THROAT		5	0	14														
40.400	32.851	2461	509.7(	638)	1.3101	28.955	2353											
40.400	17.791	2124	413.4(	542)	1.3215	28.955	2195	1.000	2195	1.983	0.34462	6.972	0.0790	2004	11.758	287.4		
COMBUSTOR		0	6	1	4													
40.410	56.150	4038	559.6(1015)		1.2350	23.344	3256											
40.410	17.616	3207	207.3(1088)		1.2701	23.418	2941	1.428	4199	2.560	0.35349	7.153	0.0790	1308	23.065	182.9	0.79	0.56
COMBUSTOR		0	7	2	3													
40.727	55.171	4058	551.7(1422)		1.8333	23.424	3259											
40.727	18.603	3868	214.9(1111)		1.2671	23.460	2962	1.386	4105	2.561	0.35477	7.153	0.0787	1302	22.635	182.1	0.79	0.57
COMBUSTOR		0	8	3	7													
41.217	72.893	3226	539.1(1112)		1.2811	22.624	3014											
41.217	10.504	2058	95.4(	674)	1.3222	22.626	2445	1.927	4712	2.484	0.35214	7.153	0.0793	1275	25.785	178.3	0.79	0.32
COMBUSTOR		0	9	4	4													
41.500	68.149	3130	531.6(1076)		1.2854	22.552	2978											
41.500	10.567	2023	113.6(	663)	1.3245	22.553	2431											
								1.882	4574	2.482	0.34861	7.153	0.0801	1248	24.779	174.5	0.79	0.29
COMBUSTOR		0	10	5	5													
42.460	56.831	2813	505.0(	939)	1.2994	22.326	2853											
42.460	9.958	1850	147.7(	605)	1.3343	22.327	2344	1.804	4228	2.467	0.32887	7.153	0.0849	1171	21.610	163.7	0.79	0.22
COMBUSTOR		0	11	6	16													
42.702	52.777	2149	545.0(	881)	1.3350	17.754	2834											
42.702	10.029	1396	219.7(	556)	1.3660	17.754	2311	1.746	4034	2.614	0.33289	7.328	0.0859	1134	20.870	157.5	1.55	0.05
COMBUSTOR		0	12	7	2													
42.712	52.700	2147	544.7(	880)	1.3351	17.754	2833											
42.712	10.032	1396	220.0(	555)	1.3661	17.754	2311	1.744	4031	2.614	0.33283	7.328	0.0860	1133	20.869	157.4	1.55	0.05
COMBUSTOR		0	13	8	3													
42.777	52.081	2137	543.0(	875)	1.3355	17.749	2827											
42.777	10.090	1394	221.9(	555)	1.3662	17.749	2309	1.736	4008	2.613	0.33201	7.328	0.0862	1149	20.679	156.8	1.55	0.05
COMBUSTOR		0	14	9	6													
44.300	36.160	1969	520.0(	861)	1.3431	16.652	2824											
44.300	14.516	1569	327.0(	668)	1.3602	16.652	2524	1.231	3107	2.967	0.30987	7.390	0.0931	1074	14.963	145.4	1.82	0.04
COMBUSTOR		0	15	10	2													
44.310	36.110	1990	519.8(	862)	1.3431	16.653	2825											
44.310	14.546	1571	327.4(	669)	1.3601	16.653	2525	1.229	3103	2.967	0.30965	7.390	0.0932	1074	14.930	145.4	1.82	0.04
COMBUSTOR		0	16	11	3													
44.800	34.615	1985	511.9(	859)	1.3432	16.660	2821											
44.800	15.983	1620	346.0(	693)	1.3577	16.660	2565	1.123	2881	2.971	0.30561	7.390	0.0944	1063	13.683	143.8	1.82	0.04
COMBUSTOR		0	17	12	3													
45.497	33.923	1970	501.3(	852)	1.3436	16.665	2810											
45.497	16.944	1646	352.0(	703)	1.3567	16.665	2581	1.059	2733	2.970	0.30349	7.390	0.0951	1055	12.891	142.8	1.82	0.04
COMBUSTOR		0	18	13	5													
46.202	33.564	1896	501.1(	848)	1.3460	16.049	2813											
46.202	15.214	1541	333.4(	680)	1.3665	16.049	2550	1.156	2897	3.041	0.29720	7.028	0.0976	1064	13.382	143.2	1.99	0.04

READING = 0090 FLTCN = 120 TTAT = 235.023 MACH 7.3 PT = 995.709 TT = 2931.2

	P	T	H	GAMMA	MOL WT	SONV	MACH	VEL	S	A/A	A	A/AP	MOMTM	Q	ISVAC	PHI	ETAC
COMBUSTOR	0	19	14 2														
46.212	33.542	1897	500.9(948)	1.3479	16.051	2810											
46.212	15.190	1541	332.8(630)	1.3624	16.051	2550	1.137	2900	3.041	0.29694	7.428	0.0977	1064	13.379	143.5	1.99	0.04
COMBUSTOR	0	20	15 2														
46.260	33.501	1900	500.0(949)	1.3477	16.053	2816											
46.260	15.072	1541	330.4(626)	1.3624	16.053	2550	1.142	2913	3.042	0.29594	7.428	0.0980	1065	13.396	143.4	1.99	0.04
COMBUSTOR	0	21	16 4														
47.310	32.629	1953	477.4(973)	1.3445	16.112	2847											
47.310	12.496	1520	272.7(669)	1.3623	16.112	2528	1.264	3200	3.054	0.27426	7.428	0.1057	1092	13.640	147.0	1.99	0.05
COMBUSTOR	0	22	17 4														
48.110	31.355	2024	458.5(905)	1.3406	16.176	2888											
48.110	10.972	1541	229.7(477)	1.3600	16.176	2538	1.333	3383	3.072	0.25212	7.428	0.1150	1119	13.255	150.6	1.99	0.07
COMBUSTOR	0	23	18 5														
50.187	27.686	2202	416.9(986)	1.3309	16.334	2986											
50.187	6.838	1538	101.6(471)	1.3980	16.334	2522	1.575	3972	3.116	0.18662	7.428	0.1594	1200	11.519	162.1	1.99	0.11
COMBUSTOR	0	24	19 3														
50.717	28.279	2166	408.8(969)	1.3328	16.323	2965											
50.717	5.662	1430	61.0(622)	1.3631	16.323	2436	1.712	4172	3.106	0.17453	7.428	0.1662	1219	11.315	164.1	1.99	0.11
COMBUSTOR	0	25	20 5														
52.127	22.255	2478	390.2(1110)	1.3172	16.538	3131											
52.127	5.200	1802	64.0(789)	1.3434	16.538	2698	1.498	4040	3.182	0.14875	7.428	0.1950	1257	9.340	169.2	1.99	0.16
COMBUSTOR	0	26	21 4														
54.227	23.618	2340	364.7(1052)	1.3231	16.431	3061											
54.227	3.650	1458	-57.2(631)	1.3595	16.431	2446	1.878	4594	3.161	0.12261	7.470	0.2379	1304	8.754	174.5	1.98	0.14
COMBUSTOR	0	27	22 6														
54.727	33.682	2075	359.9(928)	1.3359	16.275	2910											
54.727	2.300	1019	-129.5(439)	1.3808	16.275	2074	2.387	4949	3.072	0.11760	7.470	0.2480	1310	9.044	175.3	1.98	0.11
COMBUSTOR	0	28	23 5														
55.477	26.845	2206	352.6(989)	1.3293	16.363	2985											
55.477	2.586	1200	-119.0(518)	1.3721	16.363	2237	2.172	4858	3.122	0.11086	7.470	0.2631	1317	8.369	176.3	1.98	0.13
COMBUSTOR	0	29	24 4														
55.760	24.927	2257	350.0(1013)	1.3267	16.398	3013											
55.760	2.693	1270	-114.8(548)	1.3685	16.398	2296	2.101	4823	3.139	0.10852	7.470	0.2688	1320	8.134	176.7	1.98	0.14
COMBUSTOR	0	30	25 5														
56.237	18.436	2483	346.2(1120)	1.3158	16.544	3134											
56.237	2.466	1497	-126.4(648)	1.3558	16.545	2470	1.969	4863	3.210	0.08576	7.470	0.3401	1359	6.482	181.9	1.98	0.17
COMBUSTOR	0	31	26 4														
57.662	17.714	2522	337.4(1138)	1.3138	16.580	3152											
57.662	2.203	1502	-152.0(649)	1.3551	16.580	2470	2.003	4948	3.219	0.07930	7.470	0.3678	1375	6.098	184.0	1.98	0.18
COMBUSTOR	0	32	27 5														
57.717	14.088	2803	337.1(1273)	1.3004	16.765	3288											
57.717	3.072	1944	-87.7(850)	1.3329	16.765	2771	1.664	4610	3.282	0.07904	7.470	0.3690	1375	5.663	184.1	1.98	0.22
COMBUSTOR	0	33	28 3														
57.857	14.035	2804	336.3(1273)	1.3003	16.767	3288											
57.857	3.041	1941	-90.0(849)	1.3326	16.767	2770	1.668	4619	3.283	0.07849	7.470	0.3716	1376	5.634	184.3	1.98	0.22
COMBUSTOR	0	34	29 9														
57.937	18.702	2483	335.9(1119)	1.3155	16.558	3132											
57.937	2.121	1434	-165.5(619)	1.3586	16.558	2419	2.071	5009	3.207	0.07938	7.470	0.3674	1377	6.179	184.4	1.98	0.17
COMBUSTOR	0	35	30 4														
58.443	20.695	2414	333.0(1086)	1.3188	16.517	3096											
58.443	1.696	1312	-189.3(565)	1.3649	16.517	2322	2.202	5112	3.185	0.07899	7.470	0.3693	1381	6.275	184.9	1.98	0.17
COMBUSTOR	0	36	31 4														
59.167	24.486	2308	328.8(1036)	1.3238	16.456	3038											
59.167	1.575	1133	-221.8(486)	1.3738	16.456	2168	2.421	5249	3.148	0.07772	7.470	0.3753	1385	6.340	185.4	1.98	0.15
COMBUSTOR	0	37	32 6														
60.187	14.080	2845	322.8(1293)	1.2981	16.812	3305											
60.187	2.975	1961	-114.6(857)	1.3309	16.812	2778	1.684	4680	3.285	0.07722	7.470	0.3777	1389	5.616	185.9	1.98	0.23

	P	T	H												
COMBUSTOR	0	34	33	5											
62.197	12.084	3270	304.7(1459)	1.2762	17.125	3481									
62.197	4.842	2668	-3.2(1192)	1.2968	17.126	3171	1.248	3950	3.488	0.07991	7.470	0.3659	1388	4.913	185.1	1.98	0.31
COMBUSTOR	0	39	34	5											
63.617	14.123	2934	299.7(1334)	1.2933	16.902	3341									
63.617	5.487	2110	-112.6(925)	1.3233	16.903	2844	1.498	4539	3.292	0.08268	7.470	0.3583	1346	5.790	185.5	1.98	0.28
COMBUSTOR	0	40	35	5											
66.081	11.711	3253	282.6(1490)	1.2765	17.148	3470									
66.081	4.736	2658	-20.5(1186)	1.2984	17.151	3163	1.244	3934	3.343	0.07740	7.470	0.3749	1363	4.756	185.1	1.98	0.31
COMBUSTOR	0	41	36	5											
66.457	10.972	3224	280.2(1476)	1.2779	17.131	3458									
66.457	4.248	2606	-39.7(1161)	1.3007	17.134	3134	1.274	4001	3.347	0.07233	7.470	0.4032	1362	4.497	185.0	1.98	0.31
COMBUSTOR	REGEN	42	37	21											
66.457	10.972	3636	508.5(1692)	1.2575	17.120	3644									
66.457	5.361	3125	227.9(1424)	1.2809	17.131	3408	1.099	3747	3.414	0.07233	7.470	0.4032	1424	4.212	190.6	1.98	0.31
NOZZLE AE		43	38	4											
88.693	10.972	3224	280.2(1463)	1.2779	17.131	3458									
88.693	0.289	1302	-654.4(847)	1.3569	17.134	2265	3.020	6838	3.347	0.01506	7.470	1.9371	1716	1.600	229.7	1.98	0.31
NOZZLE PO		44	39	4											
88.693	10.972	3224	280.2(1463)	1.2779	17.131	3458									
88.693	0.159	1136	-727.0(475)	1.3680	17.134	2121	3.346	7099	3.347	0.01071	7.470	2.7233	1756	1.182	235.1	1.98	0.31
NOZZLE AE REGEN		45	40	4											
88.693	10.972	3636	508.5(1692)	1.2575	17.120	3644									
88.693	0.293	1561	-538.6(663)	1.3439	17.134	2468	2.933	7239	3.414	0.01506	7.470	1.9371	1826	1.694	244.4	1.98	0.31
NOZZLE PO REGEN		46	41	4											
88.693	10.972	3636	508.5(1692)	1.2575	17.120	3644									
88.693	0.155	1323	-645.3(556)	1.3559	17.134	2281	3.330	7598	3.414	0.00984	7.470	2.9626	1882	1.163	251.9	1.98	0.31
FICTIVE COMBUSTR		64	59	0											
66.457	995.749	4460	280.2(2100)	1.2438	18.064	3907									
66.457	0.155	626	-1621.9(242)	1.1936	18.782	1406	6.938	9756	2.919	0.02930	7.470	0.9955	2305	4.402	308.5	1.98	1.00
FICTIVE NOZZLE		65	60	0											
88.693	22.166	3887	445.2(1323)	1.2355	23.608	3180									
88.693	0.665	1794	-365.1(565)	1.3222	23.644	2234	2.851	9409	2.607	0.01506	7.470	1.9371	0	3.575	292.5	0.77	0.31

XARS	P=IR	P=OR	PDA	QDX	P=IR	Q=OR	CANALI	P=TR/P80	P=IR/PTO	P=OR/P80	P=OR/PTO
4.991E-01	4.050E-01	0.000	-2.709E-01	0.000	0.000	0.000	2.471E-02	3.913E 00	4.071E-04	0.000	0.000
1.836E 01	6.050E-01	0.000	-2.017E 01	0.000	0.000	0.000	1.634E 02	3.913E 00	4.071E-04	0.000	0.000
3.070E 01	2.525E 00	0.000	-1.470E 02	0.000	0.000	0.000	5.453E 02	1.633E 01	2.534E-03	0.000	0.000
3.508E 01	4.488E 00	0.000	-3.808E 02	0.000	0.000	0.000	6.804E 02	3.032E 01	4.708E-03	0.000	0.000
3.555E 01	5.160E 00	0.000	-4.257E 02	0.000	0.000	0.000	7.413E 02	3.338E 01	5.182E-03	0.000	0.000
3.606E 01	5.480E 00	0.000	-4.797E 02	-5.298E 02	-5.298E 02	0.000	7.246E 02	3.545E 01	5.503E-03	0.000	0.000
3.648E 01	5.766E 00	0.000	-5.278E 02	-5.426E 02	-5.424E 02	0.000	7.449E 02	3.729E 01	5.790E-03	0.000	0.000
3.659E 01	5.851E 00	3.136E 00	-5.374E 02	-5.462E 02	-5.462E 02	0.000	7.497E 02	3.785E 01	5.876E-03	2.029E 01	3.150E-03
3.660E 01	5.856E 00	3.182E 00	-5.378E 02	-5.464E 02	-5.464E 02	0.000	7.500E 02	3.788E 01	5.881E-03	2.058E 01	3.196E-03
3.701E 01	6.169E 00	6.310E 00	-6.037E 02	-5.595E 02	-5.595E 02	0.000	7.924E 02	3.985E 01	6.186E-03	4.082E 01	6.337E-03
3.727E 01	7.187E 00	8.275E 00	-6.197E 02	-5.680E 02	-5.680E 02	0.000	8.194E 02	4.649E 01	7.217E-03	5.353E 01	8.310E-03
3.803E 01	1.023E 01	1.001E 01	-6.879E 02	-5.947E 02	-5.947E 02	0.000	9.015E 02	6.620E 01	1.028E-02	6.475E 01	1.005E-02
3.873E 01	1.095E 01	1.159E 01	-7.509E 02	-7.104E 02	-6.260E 02	-8.437E 01	9.792E 02	7.083E 01	1.100E-02	7.499E 01	1.164E-02
3.875E 01	1.097E 01	1.166E 01	-7.524E 02	-7.134E 02	-6.272E 02	-8.617E 01	9.818E 02	7.098E 01	1.102E-02	7.539E 01	1.171E-02
3.901E 01	1.124E 01	1.235E 01	-7.661E 02	-7.486E 02	-6.421E 02	-1.064E 02	1.011E 03	7.270E 01	1.129E-02	7.988E 01	1.240E-02
3.950E 01	1.390E 01	1.366E 01	-7.871E 02	-8.200E 02	-6.755E 02	-1.445E 02	1.067E 03	6.994E 01	1.394E-02	8.835E 01	1.372E-02
3.975E 01	1.617E 01	1.432E 01	-7.959E 02	-8.588E 02	-6.952E 02	-1.636E 02	1.096E 03	1.046E 02	1.624E-02	9.262E 01	1.438E-02
4.000E 01	1.850E 01	1.528E 01	-8.000E 02	-9.006E 02	-7.174E 02	-1.831E 02	1.129E 03	1.197E 02	1.858E-02	9.887E 01	1.535E-02
4.022E 01	1.854E 01	1.611E 01	-8.107E 02	-9.377E 02	-7.379E 02	-1.999E 02	1.150E 03	1.201E 02	1.864E-02	1.042E 02	1.618E-02
4.040E 01	1.861E 01	1.697E 01	-8.151E 02	-9.696E 02	-7.556E 02	-2.139E 02	1.172E 03	1.204E 02	1.869E-02	1.098E 02	1.704E-02
4.041E 01	1.862E 01	1.702E 01	-8.151E 02	-9.713E 02	-7.566E 02	-2.147E 02	1.173E 03	1.204E 02	1.870E-02	1.101E 02	1.709E-02
4.073E 01	1.871E 01	1.850E 01	-8.182E 02	-1.028E 03	-7.887E 02	-2.390E 02	1.210E 03	1.210E 02	1.879E-02	1.197E 02	1.858E-02
4.122E 01	1.884E 01	2.162E 00	-8.399E 02	-1.118E 03	-8.416E 02	-2.760E 02	1.268E 03	1.219E 02	1.893E-02	1.399E 01	2.172E-03
4.150E 01	1.892E 01	2.209E 00	-8.648E 02	-1.171E 03	-8.743E 02	-2.969E 02	1.301E 03	1.224E 02	1.901E-02	1.429E 01	2.218E-03
4.246E 01	1.755E 01	2.367E 00	-9.323E 02	-1.362E 03	-9.869E 02	-3.750E 02	1.415E 03	1.135E 02	1.762E-02	1.531E 01	2.377E-03
4.270E 01	1.765E 01	2.406E 00	-9.470E 02	-1.411E 03	-1.014E 03	-3.944E 02	1.444E 03	1.142E 02	1.773E-02	1.557E 01	2.417E-03
4.271E 01	1.765E 01	2.408E 00	-9.475E 02	-1.413E 03	-1.015E 03	-3.973E 02	1.445E 03	1.142E 02	1.773E-02	1.558E 01	2.418E-03
4.278E 01	1.768E 01	2.419E 00	-9.513E 02	-1.425E 03	-1.022E 03	-4.030E 02	1.453E 03	1.144E 02	1.776E-02	1.565E 01	2.429E-03
4.430E 01	1.832E 01	1.072E 01	-1.006E 03	-1.670E 03	-1.155E 03	-5.152E 02	1.636E 03	1.185E 02	1.839E-02	6.932E 01	1.076E-02
4.431E 01	1.832E 01	1.077E 01	-1.006E 03	-1.671E 03	-1.155E 03	-5.158E 02	1.636E 03	1.185E 02	1.840E-02	6.967E 01	1.082E-02
4.480E 01	1.852E 01	1.344E 01	-1.014E 03	-1.730E 03	-1.185E 03	-5.450E 02	1.697E 03	1.198E 02	1.860E-02	8.694E 01	1.350E-02
4.550E 01	1.465E 01	1.724E 01	-1.018E 03	-1.808E 03	-1.222E 03	-5.867E 02	1.782E 03	1.077E 02	1.672E-02	1.115E 02	1.731E-02
4.620E 01	1.475E 01	1.567E 01	-1.006E 03	-1.898E 03	-1.258E 03	-6.398E 02	1.869E 03	9.544E 01	1.482E-02	1.014E 02	1.574E-02
4.621E 01	1.473E 01	1.565E 01	-1.005E 03	-1.900E 03	-1.259E 03	-6.407E 02	1.870E 03	9.527E 01	1.479E-02	1.012E 02	1.572E-02
4.626E 01	1.460E 01	1.555E 01	-1.004E 03	-1.907E 03	-1.261E 03	-6.451E 02	1.876E 03	9.443E 01	1.466E-02	1.006E 02	1.561E-02
4.731E 01	1.177E 01	1.322E 01	-9.715E 02	-2.075E 03	-1.315E 03	-7.598E 02	2.005E 03	7.617E 01	1.183E-02	8.549E 01	1.327E-02
4.811E 01	1.050E 01	1.184E 01	-9.402E 02	-2.215E 03	-1.355E 03	-8.599E 02	2.104E 03	6.792E 01	1.054E-02	7.402E 01	1.149E-02
5.019E 01	6.838E 00	6.838E 00	-8.456E 02	-2.524E 03	-1.457E 03	-1.068E 03	2.364E 03	4.423E 01	6.867E-03	4.423E 01	6.867E-03
5.072E 01	5.662E 00	5.662E 00	-8.284E 02	-2.584E 03	-1.482E 03	-1.102E 03	2.430E 03	3.663E 01	5.687E-03	3.663E 01	5.687E-03
5.213E 01	6.200E 00	6.200E 00	-7.845E 02	-2.722E 03	-1.547E 03	-1.175E 03	2.608E 03	4.010E 01	6.226E-03	4.010E 01	6.226E-03
5.423E 01	3.650E 00	3.650E 00	-7.303E 02	-2.891E 03	-1.641E 03	-1.250E 03	2.874E 03	2.361E 01	3.666E-03	2.361E 01	3.666E-03
5.473E 01	2.300E 00	2.300E 00	-7.225E 02	-2.926E 03	-1.663E 03	-1.263E 03	2.938E 03	1.488E 01	2.310E-03	1.488E 01	2.310E-03
5.548E 01	2.586E 00	2.586E 00	-7.131E 02	-2.980E 03	-1.695E 03	-1.285E 03	3.033E 03	1.672E 01	2.597E-03	1.672E 01	2.597E-03
5.576E 01	2.693E 00	2.693E 00	-7.093E 02	-3.000E 03	-1.707E 03	-1.293E 03	3.070E 03	1.742E 01	2.705E-03	1.742E 01	2.705E-03
5.624E 01	2.856E 00	2.875E 00	-6.699E 02	-3.028E 03	-1.723E 03	-1.305E 03	3.102E 03	1.330E 01	2.065E-03	1.860E 01	2.887E-03
5.746E 01	2.243E 00	2.243E 00	-6.516E 02	-3.094E 03	-1.762E 03	-1.332E 03	3.209E 03	1.451E 01	2.252E-03	1.451E 01	2.252E-03
5.772E 01	3.985E 00	2.218E 00	-6.510E 02	-3.097E 03	-1.763E 03	-1.333E 03	3.217E 03	2.519E 01	3.942E-03	1.435E 01	2.228E-03
5.786E 01	3.925E 00	2.156E 00	-6.496E 02	-3.102E 03	-1.767E 03	-1.335E 03	3.234E 03	2.539E 01	3.942E-03	1.395E 01	2.165E-03
5.794E 01	2.121E 00	2.121E 00	-6.487E 02	-3.106E 03	-1.769E 03	-1.337E 03	3.245E 03	1.372E 01	2.130E-03	1.372E 01	2.130E-03
5.804E 01	1.896E 00	1.896E 00	-6.442E 02	-3.127E 03	-1.782E 03	-1.345E 03	3.309E 03	1.227E 01	1.904E-03	1.227E 01	1.904E-03
5.917E 01	1.575E 00	1.575E 00	-6.394E 02	-3.158E 03	-1.799E 03	-1.359E 03	3.402E 03	1.019E 01	1.582E-03	1.019E 01	1.582E-03
6.019E 01	2.975E 00	2.975E 00	-6.342E 02	-3.203E 03	-1.822E 03	-1.381E 03	3.532E 03	1.924E 01	2.988E-03	1.924E 01	2.988E-03
6.220E 01	4.862E 00	4.862E 00	-6.333E 02	-3.301E 03	-1.864E 03	-1.437E 03	3.790E 03	3.145E 01	4.883E-03	3.145E 01	4.883E-03
6.362E 01	3.887E 00	3.887E 00	-6.333E 02	-3.376E 03	-1.895E 03	-1.481E 03	3.972E 03	2.256E 01	3.502E-03	2.256E 01	3.502E-03
6.608E 01	4.736E 00	4.736E 00	-6.333E 02	-3.502E 03	-1.954E 03	-1.564E 03	4.269E 03	3.043E 01	4.756E-03	3.043E 01	4.756E-03
6.646E 01	3.970E 00	4.926E 00	-6.333E 02	-3.522E 03	-1.969E 03	-1.583E 03	4.337E 03	2.309E 01	3.585E-03	3.186E 01	4.947E-03

XABS	PHIF	DPHI	EPA	QUV	UMIP	UMSM	CANALL	PATRAS	P-IP/PIP	DW/DSD	PHI/PIP
6.650E 01	3.870E 00	-3.960E 00	-4.335E 02	-3.520E 03	-1.978E 03	-1.648E 03	5.435E 03	2.504E 01	1.965E-03	3.139E 01	0.000E+00
6.670E 01	3.077E 00	5.007E 00	-4.331E 02	-3.535E 03	-1.977E 03	-1.650E 03	5.430E 03	2.249E 01	1.962E-03	3.126E 01	5.069E-03
6.830E 01	2.715E 00	2.611E 00	-5.033E 02	-3.626E 03	-2.019E 03	-1.556E 03	5.504E 03	1.789E 01	2.717E-03	1.688E 01	2.621E-03
6.980E 01	2.385E 00	2.347E 00	-4.722E 02	-3.714E 03	-2.051E 03	-1.658E 03	5.761E 03	1.503E 01	2.395E-03	1.516E 01	2.357E-03
7.052E 01	2.165E 00	2.215E 00	-4.130E 02	-3.756E 03	-2.066E 03	-1.690E 03	5.849E 03	1.413E 01	2.194E-03	1.433E 01	2.224E-03
7.113E 01	2.015E 00	2.251E 00	-3.457E 02	-3.796E 03	-2.077E 03	-1.719E 03	5.922E 03	1.503E 01	2.024E-03	1.456E 01	2.261E-03
7.251E 01	1.840E 00	2.334E 00	-2.488E 02	-3.879E 03	-2.101E 03	-1.778E 03	6.069E 03	1.190E 01	1.848E-03	1.510E 01	2.344E-03
7.400E 01	1.685E 00	2.425E 00	-1.671E 02	-3.959E 03	-2.124E 03	-1.835E 03	6.213E 03	1.090E 01	1.692E-03	1.569E 01	2.435E-03
7.419E 01	1.670E 00	2.329E 00	-1.427E 02	-3.966E 03	-2.126E 03	-1.841E 03	6.291E 03	1.090E 01	1.677E-03	1.507E 01	2.339E-03
7.494E 01	1.674E 00	1.850E 00	-9.700E 01	-4.000E 03	-2.134E 03	-1.873E 03	6.375E 03	1.043E 01	1.681E-03	1.197E 01	1.858E-03
7.494E 01	1.674E 00	1.847E 00	-9.347E 01	-4.000E 03	-2.134E 03	-1.873E 03	6.375E 03	1.043E 01	1.681E-03	1.195E 01	1.855E-03
7.627E 01	1.480E 00	0.000	-5.805E 01	-4.070E 03	-2.169E 03	-1.901E 03	6.427E 03	1.087E 01	1.489E-03	0.000	0.000
7.912E 01	1.885E 00	0.000	1.323E 01	-4.110E 03	-2.169E 03	-1.901E 03	6.525E 03	1.219E 01	1.443E-03	0.000	0.000
8.302E 01	1.905E 00	0.000	9.423E 01	-4.120E 03	-2.167E 03	-1.941E 03	5.630E 03	1.232E 01	1.913E-03	0.000	0.000
8.583E 01	2.035E 00	0.000	1.360E 02	-4.141E 03	-2.200E 03	-1.941E 03	5.685E 03	1.316E 01	2.044E-03	0.000	0.000
8.869E 01	2.230E 00	0.000	1.495E 02	-4.164E 03	-2.223E 03	-1.941E 03	5.707E 03	1.442E 01	2.240E-03	0.000	0.000
8.869E 01	2.230E 00	0.000	1.495E 02	-4.164E 03	-2.223E 03	-1.941E 03	5.707E 03	1.443E 01	2.240E-03	0.000	0.000

REACTOR = 0090 PLUG = 124 TIME = 25[illegible] MACH 1.3 P1 = 965.709 T1 = 2931.2

X	UBAR	RHOBAR	CF	HC
4.040E 01	1.211E 00	1.611E 02	3.622E-03	2.609E-02
4.081E 01	1.097E 00	1.611E 02	3.611E-03	2.204E-02
4.073E 01	1.107E 00	1.624E 02	3.711E-03	4.265E-02
4.122E 01	1.211E 00	1.624E 02	3.762E-03	3.021E-02
4.150E 01	2.977E 00	1.624E 02	3.286E-03	3.374E-02
4.204E 01	2.977E 00	1.413E 02	3.012E-03	2.702E-02
4.270E 01	2.555E 00	1.436E 02	3.257E-03	2.721E-02
4.271E 01	8.924E-02	1.437E 02	3.004E-03	3.771E-02
4.278E 01	4.926E-01	1.442E 02	3.044E-03	3.799E-02
4.430E 01	1.101E 01	1.552E 02	3.685E-03	3.666E-02
4.431E 01	6.730E-02	1.553E 02	3.314E-03	4.138E-02
4.440E 01	8.842E 00	1.581E 02	3.368E-03	4.140E-02
4.550E 01	3.842E 00	1.619E 02	3.604E-03	4.199E-02
4.620E 01	3.964E 00	1.659E 02	3.562E-03	3.800E-02
4.621E 01	8.713E-02	1.664E 02	3.562E-03	4.137E-02
4.626E 01	2.607E-01	1.662E 02	3.324E-03	4.125E-02
4.731E 01	5.692E 00	1.719E 02	3.179E-03	3.665E-02
4.811E 01	6.224E 00	1.761E 02	3.159E-03	3.542E-02
5.019E 01	9.758E 00	1.859E 02	2.920E-03	2.666E-02
5.072E 01	2.293E 00	1.882E 02	3.121E-03	2.194E-02
5.213E 01	9.631E 00	1.938E 02	3.021E-03	2.259E-02
5.423E 01	7.465E 00	2.013E 02	3.175E-03	1.471E-02
5.473E 01	1.751E 00	2.030E 02	3.000E-03	1.129E-02
5.508E 01	2.350E 00	2.054E 02	2.634E-03	1.326E-02
5.576E 01	8.154E-01	2.062E 02	2.821E-03	1.282E-02
5.624E 01	6.576E-01	2.069E 02	2.773E-03	1.130E-02
5.766E 01	1.943E 00	2.088E 02	2.965E-03	9.831E-03
5.772E 01	1.255E-01	2.089E 02	3.088E-03	1.162E-02
5.786E 01	3.212E-01	2.093E 02	3.314E-03	1.081E-02
5.794E 01	2.114E-01	2.095E 02	3.481E-03	7.891E-03
5.804E 01	1.326E 00	2.108E 02	2.923E-03	8.797E-03
5.917E 01	1.673E 00	2.125E 02	2.805E-03	7.941E-03
6.019E 01	2.189E 00	2.147E 02	2.797E-03	1.207E-02
6.220E 01	4.182E 00	2.194E 02	3.363E-03	1.353E-02
6.362E 01	3.364E 00	2.222E 02	3.537E-03	1.081E-02
6.606E 01	5.411E 00	2.280E 02	3.435E-03	1.297E-02
6.646E 01	7.921E-01	2.286E 02	3.463E-03	1.115E-02
6.650E 01	8.391E-02	2.289E 02	3.407E-03	1.165E-02
6.670E 01	4.159E-01	2.293E 02	3.405E-03	1.125E-02
6.836E 01	3.422E 00	2.327E 02	3.476E-03	8.857E-03
6.980E 01	2.700E 00	2.354E 02	3.439E-03	8.251E-03
7.052E 01	1.302E 00	2.367E 02	3.417E-03	7.989E-03
7.113E 01	1.067E 00	2.378E 02	3.407E-03	7.734E-03
7.251E 01	2.399E 00	2.402E 02	3.394E-03	7.611E-03
7.404E 01	2.636E 00	2.428E 02	3.386E-03	7.523E-03
7.419E 01	2.447E-01	2.431E 02	3.380E-03	7.390E-03
7.494E 01	1.167E 00	2.442E 02	3.355E-03	6.826E-03
7.494E 01	2.184E-01	2.443E 02	3.355E-03	6.822E-03
7.627E 01	4.924E-01	2.449E 02	3.336E-03	6.606E-03
7.912E 01	1.523E 00	2.463E 02	3.342E-03	7.065E-03
8.302E 01	1.439E 00	2.477E 02	3.324E-03	7.065E-03
8.543E 01	7.543E-01	2.485E 02	3.322E-03	7.319E-03
8.849E 01	0.000	2.488E 02	3.324E-03	7.698E-03
8.849E 01	0.000	2.488E 02	3.324E-03	7.698E-03

ENGINE PERFORMANCE

CALCULATED THRUST	7089.	(LBF)
MEASURED THRUST	12432.	(LBF)
CALCULATED SPECIFIC IMPULSE	1205.	(LBF-SEC/LBM)
MEASURED SPECIFIC IMPULSE	2149.	(LBF-SEC/LBM)
CALCULATED THRUST COEFFICIENT	0.3295	
MEASURED THRUST COEFFICIENT	0.5874	

REGENERATIVE-COOLED ENGINE PERFORMANCE CALCULATED

STREAM THRUST	52456.	(LBF)
NET THRUST	9241.	(LBF)
SPECIFIC IMPULSE	1572.	(LBF-SEC/LBM)
THRUST COEFFICIENT	0.4297	

MOMENTUM AND FORCES

INLET FRICTION DRAG	121.1	(LBF)
INLET MOMENTUM CHANGE	******	(LBF)
COMBUSTOR FRICTION DRAG	107.7	(LBF)
COMBUSTOR STRUT DRAG	-9.11	(LBF)
COMBUSTOR MOMENTUM CHANGE	3287.	(LBF)
NOZZLE FRICTION DRAG	19.98	(LBF)
NOZZLE STRUT DRAG	-0.00	(LBF)
NOZZLE MOMENTUM CHANGE	9867.	(LBF)
NOZZLE PRESSURE INTEGRAL	823.	(LBF)
EXTERNAL FRICTION DRAG	34.91	(LBF)
EXTERNAL PRESSURE INTEGRAL	-535.	(LBF)
TOTAL EXTERNAL DRAG	******	(LBF)
TOTAL STRUT DRAG	-9.11	(LBF)
CAVITY FORCE	-9090.	(LBF)
CALCULATED LOAD CELL FORCE	******	(LBF)
MEASURED LOAD CELL FORCE	-1078.	(LBF)

FUEL VACUUM SPECIFIC IMPULSE 0.0, 0.0, -152.1, 0.0,

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	1.7170	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	36.601	(IN)
NOZZLE SHROUD TRAILING EDGE	74.941	(IN)
NOZZLE PLUG TRAILING EDGE	88.693	(IN)
STRUT LEADING EDGE	57.857	(IN)
STRUT TRAILING EDGE	66.457	(IN)
COMBUSTOR EXIT	66.457	(IN)

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.4415	
ADDITIVE DRAG COEFFICIENT	******	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.0315	
DELTA P/2	0.1025	(PSI)
TOTAL PRESSURE RECOVERY - SUPERSONIC	1.0000	
TOTAL PRESSURE RECOVERY - SUBSONIC	0.0330	
INLET PROCESS EFFICIENCY - SUPERSONIC	0.8392	
INLET PROCESS EFFICIENCY - SUBSONIC	0.9147	
KINETIC ENERGY EFFICIENCY - SUPERSONIC	0.6967	
KINETIC ENERGY EFFICIENCY - SUBSONIC	0.8816	
ENTHALPY AT P0 - SUPERSONIC	14.59	(BTU/LBM)
ENTHALPY AT P0 - SUBSONIC	-21.89	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0660	
EQUIVALENCE RATIO	1.976	
COMBUSTOR EFFICIENCY	0.307	
TOTAL PRESSURE RATIO	0.0110	
COMBUSTOR EFFECTIVENESS	0.4457	

INJECTOR DISCHARGE COEFFICIENTS 0.9433, 0.8423, 5.2343, 0.7369

NOZZLE

VACUUM STREAM THRUST COEFFICIENT - CS	1.2733	
NOZZLE COEFFICIENT - CT	1.2005	
PROCESS EFFICIENCY	0.9488	
KINETIC ENERGY EFFICIENCY	0.9419	

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	E
1B	42.702	B
1C	44.300	A
2A	50.177	
2C	46.250	
3A	55.467	
3B	57.652	
4	46.202	C

Reading 90

t = 246.72 sec.

RAMJET PERFORMANCE

S U M M A R Y O U T P U T

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	P	T	H		GAMMA	MOL WT	SONV	MACH	VEL	S	V/A	A	A/AC	MOMTM	G	IVAC	PHI	ETAC
WIND TUNNEL		1	0	5														
0.000	995.999	2935	649.9(	775)	1.2948	28.956	2554											
0.000	0.155	281	-61.7(	67)	1.3959	28.955	820	7.277	5967	1.801	0.06162	15.638	0.9909	2940	5.716	188.0		
SPIKE TIP NS		2	0	7														
0.600	11.437	2935	649.9(	775)	1.2947	28.955	2554											
0.600	10.551	2881	633.8(	760)	1.2964	28.955	2533	0.355	898	2.107	0.06162	15.638	0.9909	3114	0.860	199.1		
WIND TUNNEL		3	0	0														
0.000	995.999	2935	649.9(	775)	1.2948	28.956	2554											
0.000	0.171	209	-59.8(	69)	1.3962	28.955	832	7.165	5959	1.801	0.06602	15.757	0.9909	3147	6.114	187.8		
SPIKE TIP NS		4	0	0														
0.600	11.437	2935	649.9(	775)	1.2947	28.955	2554											
0.600	10.403	2872	631.0(	757)	1.2967	28.955	2529	0.389	973	2.107	0.06602	15.757	0.9909	3147	0.998	187.8		
INLET THROAT		5	0	4														
40.400	306.251	2853	625.2(	751)	1.2975	28.956	2521											
40.400	10.129	1165	160.0(	289)	1.3670	28.955	1668	2.893	4825	1.865	0.77296	15.638	0.0790	2550	57.958	163.1		
INLET UPNRBK		6	0	3														
40.400	306.251	2853	625.2(	751)	1.2975	28.956	2521											
40.400	8.740	1139	148.2(	277)	1.3699	28.955	1636	2.985	4885	1.865	0.70269	15.638	0.0869	2569	53.350	164.3		
INLET DNNRBK		7	0	4														
40.400	103.600	2853	625.2(	751)	1.2975	28.955	2521											
40.400	90.392	2764	598.9(	726)	1.3003	28.955	2484	0.462	1147	1.948	0.70269	15.638	0.0869	2569	12.524	164.3		
COMBUSTOR	0	8	1	21														
40.410	158.266	2758	652.3(	868)	1.3056	23.964	2733											
40.410	13.162	1488	225.5(	443)	1.3539	23.964	2045	2.260	4622	2.222	0.78561	15.896	0.0790	2550	56.425	160.4	0.50	0.07
COMBUSTOR	0	9	2	4														
40.727	180.105	2648	680.8(	830)	1.3107	23.862	2687											
40.727	16.732	1469	254.3(	435)	1.3564	23.862	2031	2.193	4454	2.199	0.78846	15.896	0.0797	2538	54.577	159.7	0.50	0.03
COMBUSTOR	0	10	3	21														
41.217	169.374	2575	648.4(	807)	1.3138	23.804	2658											
41.217	12.288	1326	233.8(	394)	1.3641	23.804	1943	2.344	4555	2.196	0.78261	15.896	0.0793	2500	55.395	157.3	0.50	0.00
COMBUSTOR	0	11	4	21														
41.500	154.610	2561	646.9(	802)	1.3144	23.796	2652											
41.500	13.741	1391	257.5(	414)	1.3607	23.795	1989	2.220	4415	2.202	0.77476	15.896	0.0801	2463	53.193	154.9	0.50	0.00
COMBUSTOR	0	12	5	21														
42.460	83.520	2546	641.9(	797)	1.3149	23.794	2645											
42.460	5.584	1280	223.3(	380)	1.3667	23.794	1912	2.393	4577	2.251	0.73090	15.896	0.0849	2383	51.986	149.9	0.50	0.00
COMBUSTOR	0	13	6	21														
42.712	83.578	2542	640.6(	796)	1.3151	23.794	2643											
42.712	5.961	1300	229.7(	386)	1.3654	23.794	1926	2.354	4535	2.250	0.72201	15.896	0.0860	2372	50.882	149.2	0.50	0.00
COMBUSTOR	0	14	7	21														
42.777	54.688	2901	640.3(	915)	1.2984	24.133	2786											
42.777	6.059	1701	231.3(	509)	1.3419	24.133	2168	2.067	4524	2.522	0.72022	15.896	0.0862	2369	50.636	149.0	0.50	0.15
COMBUSTOR	0	15	8	21														
44.310	86.589	2575	633.5(	806)	1.3132	23.844	2656											
44.310	11.468	1555	291.5(	466)	1.3518	23.844	2094	1.976	4137	2.251	0.66608	15.896	0.0932	2317	42.819	145.6	0.50	0.02
COMBUSTOR	0	16	9	21														
44.800	90.200	2524	631.5(	789)	1.3155	23.801	2633											
44.800	13.197	1560	309.0(	468)	1.3520	23.801	2099	1.914	4017	2.241	0.65740	15.896	0.0944	2304	41.042	144.9	0.50	0.00
COMBUSTOR	0	17	10	21														
45.497	88.896	2509	628.9(	784)	1.3161	23.795	2627											
45.497	13.893	1977	316.8(	473)	1.3512	23.795	2110	1.873	3951	2.241	0.65223	15.896	0.0951	2291	40.089	144.1	0.50	0.00
COMBUSTOR	0	18	11	21														
46.212	85.939	2500	626.2(	781)	1.3164	23.794	2622											
46.212	12.395	1539	304.9(	461)	1.3531	23.794	2086	1.923	4010	2.242	0.63525	15.896	0.0977	2291	39.587	144.1	0.50	0.00

	P	T	H		GAMMA	MOLWT	SOSV	MACH	VEL	S	W/A	W	A/AP	MOMTM	Q	IVAC	PRT	ETAC
COMBUSTOR	0	19	12	21														
44.240	85.781	2500	626.0	781)	1.3164	23.794	2622											
46.240	12.294	1536	304.0	460)	1.3533	23.794	2068	1.965	4014	2.272	0.63371	15.896	0.0980	2292	39.507	144.2	0.50	0.00
COMBUSTOR	0	20	13	21														
47.310	71.073	2416	622.3	819)	1.3110	23.911	2670											
47.310	10.094	1612	284.8	383)	1.3483	23.911	2125	1.933	4110	2.271	0.58693	15.896	0.1057	2304	37.484	140.9	0.50	0.00
COMBUSTOR	0	21	14	21														
48.110	76.646	2500	619.5	781)	1.3162	23.811	2621											
48.110	9.575	1482	280.3	443)	1.3558	23.811	2048	2.011	4120	2.252	0.53993	15.896	0.1150	2318	34.543	145.6	0.50	0.01
COMBUSTOR	0	22	15	21														
50.187	63.564	2466	613.5	770)	1.3175	23.797	2606											
50.187	5.281	1310	231.8	389)	1.3681	23.796	1939	2.261	4171	2.263	0.39937	15.896	0.1554	2370	27.127	149.1	0.50	0.00
COMBUSTOR	0	23	16	21														
50.717	58.697	2461	612.4	768)	1.3177	23.794	2603											
50.717	4.287	1262	217.7	374)	1.3677	23.794	1899	2.340	4184	2.269	0.37350	15.896	0.1642	2378	25.796	149.6	0.50	0.00
COMBUSTOR	0	24	17	21														
52.127	42.479	2453	609.7	765)	1.3180	23.794	2599											
52.127	6.200	1368	249.9	406)	1.3621	23.794	1971	2.153	4243	2.242	0.31833	15.896	0.1950	2406	20.991	151.4	0.50	0.00
COMBUSTOR	0	25	18	21														
54.227	45.500	2436	604.6	762)	1.3186	23.709	2595											
54.227	2.225	1120	172.9	331)	1.3755	23.709	1797	2.586	4648	2.293	0.26145	15.941	0.2379	2458	18.899	153.0	0.51	0.00
COMBUSTOR	0	26	19	21														
54.727	45.348	2430	603.9	760)	1.3189	23.705	2593											
54.727	2.212	1114	173.1	330)	1.3757	23.705	1794	2.588	4643	2.293	0.25095	15.941	0.2480	2461	18.109	153.1	0.51	0.00
COMBUSTOR	0	27	20	21														
55.477	43.441	2427	603.0	759)	1.3190	23.705	2591											
55.477	2.087	1105	169.9	327)	1.3763	23.705	1786	2.607	4655	2.296	0.23656	15.941	0.2631	2465	17.114	153.4	0.51	0.00
COMBUSTOR	0	28	21	21														
55.760	42.737	2426	602.6	759)	1.3190	23.705	2591											
55.760	1.998	1101	168.6	325)	1.3765	23.704	1783	2.614	4660	2.297	0.23159	15.941	0.2688	2467	16.772	153.5	0.51	0.00
COMBUSTOR	0	29	22	21														
56.237	28.672	2348	602.1	799)	1.3134	23.818	2443											
56.237	1.497	1202	157.5	355)	1.3700	23.818	1850	2.545	4717	2.305	0.18301	15.941	0.3401	2467	13.415	154.8	0.51	0.00
COMBUSTOR	0	30	23	21														
57.662	36.755	2439	600.7	763)	1.3183	23.721	2596											
57.662	1.718	1107	164.4	327)	1.3760	23.721	1787	2.615	4672	2.311	0.16921	15.941	0.3678	2477	12.286	155.4	0.51	0.01
COMBUSTOR	0	31	24	21														
57.717	37.576	2423	600.6	757)	1.3191	23.707	2589											
57.717	1.680	1086	163.1	321)	1.3773	23.707	1771	2.642	4679	2.307	0.16868	15.941	0.3690	2477	12.265	155.4	0.51	0.00
COMBUSTOR	0	32	25	21														
57.857	37.623	2420	600.5	757)	1.3192	23.705	2588											
57.857	1.671	1082	162.9	320)	1.3775	23.705	1768	2.646	4679	2.307	0.16749	15.941	0.3716	2478	12.180	155.4	0.51	0.00
COMBUSTOR	0	33	26	21														
57.937	36.970	2438	600.4	761)	1.3189	23.719	2594											
57.937	1.682	1097	162.4	324)	1.3766	23.718	1779	2.631	4682	2.310	0.16940	15.941	0.3674	2478	12.325	155.4	0.51	0.01
COMBUSTOR	0	34	27	21														
58.443	37.588	2421	600.0	757)	1.3192	23.707	2588											
58.443	1.618	1073	159.5	317)	1.3780	23.707	1761	2.666	4695	2.307	0.16855	15.941	0.3693	2479	12.298	155.5	0.51	0.00
COMBUSTOR	0	35	28	21														
59.167	36.823	2417	599.5	755)	1.3193	23.705	2586											
59.167	1.525	1060	156.2	313)	1.3787	23.705	1751	2.690	4710	2.308	0.16585	15.941	0.3753	2480	12.139	155.6	0.51	0.00
COMBUSTOR	0	36	29	21														
60.187	36.693	2415	598.9	755)	1.3194	23.705	2585											
60.187	1.550	1063	157.2	314)	1.3785	23.704	1753	2.681	4701	2.308	0.16479	15.941	0.3777	2479	12.039	155.5	0.51	0.00
COMBUSTOR	0	37	30	21														
62.197	37.333	2487	598.0	778)	1.3160	23.773	2616											
62.197	2.737	1280	190.7	380)	1.3661	23.772	1912	2.337	4470	2.316	0.17053	15.941	0.3650	2471	11.845	155.0	0.51	0.03

COMBUSTOR	0	38	31	21													
63.617	36.777	2423	597.5(	757)	1.3190	23.715	2568										
63.617	1.706	1097	163.6(| 324)	1.3766	23.715	1779	2.619	4654	2.309	0.17515	15.941	2.3553	2464	12.683	154.8	0.51	0.00
COMBUSTOR	0	39	32	21													
66.081	37.149	2410	596.6(	753)	1.3145	23.706	2568										
66.081	2.177	1162	186.9(| 344)	1.3732	23.706	1829	2.475	4528	2.307	0.16602	15.941	2.3749	2452	11.682	153.4	0.51	0.00
COMBUSTOR	0	40	33	21													
66.457	34.644	2408	596.5(	752)	1.3194	23.705	2582										
66.457	2.085	1169	189.7(| 346)	1.3728	23.705	1835	2.459	4512	2.312	0.15434	15.941	2.4032	2451	10.822	153.7	0.51	0.00
COMBUSTOR	REGEN	41	34	4													
66.457	34.644	2454	612.2(	768)	1.3181	23.705	2605										
66.457	3.090	1327	238.9(| 396)	1.3642	23.705	1949	2.218	4322	2.319	0.15434	15.941	2.4032	2461	10.347	154.4	0.51	0.00
NOZZLE AE		42	35	4													
88.693	34.644	2408	596.5(	752)	1.3194	23.705	2582										
88.693	0.258	853	34.1(| 191)	1.3967	23.705	1383	3.837	5305	2.312	0.03213	15.941	1.9371	2756	2.649	172.9	0.51	0.00
NOZZLE PO		43	36	4													
88.693	34.644	2408	596.5(	752)	1.3194	23.705	2582										
88.693	0.155	969	8.1(| 165)	1.3941	23.705	1287	4.216	5426	2.316	0.02280	15.941	2.7502	2797	1.922	175.4	0.51	0.00
NOZZLE AE REGEN		44	37	4													
88.693	34.644	2454	612.2(	768)	1.3161	23.705	2605										
88.693	0.262	871	39.3(| 196)	1.3961	23.705	1401	3.821	5354	2.319	0.03213	15.941	1.9371	2763	2.673	174.6	0.51	0.00
NOZZLE PO REGEN		45	38	4													
88.693	34.644	2454	612.2(	768)	1.3161	23.705	2605										
88.693	0.155	577	11.8(| 169)	1.3988	23.705	1301	4.213	5482	2.319	0.02254	15.941	2.7618	2825	1.920	177.2	0.51	0.00
FICTIVE COMBUSTR		46	56	0													
66.457	346.251	4697	596.5(	1532)	1.2080	26.154	3284										
66.457	0.155	811	*180.4(| 222)	1.3719	26.247	1451	5.720	8300	2.271	0.02690	15.941	2.3139	4204	3.470	263.7	0.51	1.00
FICTIVE NOZZLE		47	57	0													
88.693	45.298	2382	587.4(	743)	1.3205	23.705	2569										
88.693	0.224	574	10.8(| 168)	1.3969	23.705	1297	4.141	5372	2.286	0.03213	15.941	1.9371	2773	2.682	173.9	0.51	0.00

XARS	P=IP	P=OH	P=A	COX	G=IP	G=OB	CAWALL	P=TP/P=0	P=IP/PTO	P=OH/PBO	P=OB/PTO
3.981E-01	5.050E-01	0.000	-2.761E-01	0.000	0.000	0.000	2.470E-02	5.413E 00	6.674E-04	0.000	0.000
1.036E 01	6.950E-01	0.000	-2.917E 01	0.000	0.000	0.000	1.430E 02	3.413E 00	6.674E-04	0.000	0.000
5.070E 01	1.190E 00	0.000	-4.888E 01	0.000	0.000	0.000	5.053E 02	7.650E 00	1.644E-03	0.000	0.000
3.508E 01	1.952E 00	0.000	-1.875E 02	0.000	0.000	0.000	6.808E 02	1.263E 01	1.966E-03	0.000	0.000
3.555E 01	2.160E 00	0.000	-2.062E 02	0.000	0.000	0.000	7.013E 02	1.397E 01	2.169E-03	0.000	0.000
3.606E 01	2.210E 00	0.000	-2.274E 02	-1.825E 02	-1.825E 02	0.000	7.244E 02	1.390E 01	2.191E-03	0.000	0.000
3.646E 01	2.267E 00	0.000	-2.457E 02	-1.859E 02	-1.859E 02	0.000	7.443E 02	1.447E 01	2.277E-03	0.000	0.000
3.659E 01	2.290E 00	3.184E 00	-2.435E 02	-1.842E 02	-1.842E 02	0.000	7.497E 02	1.481E 01	2.299E-03	2.647E 01	3.177E-03
3.680E 01	2.291E 00	3.184E 00	-2.439E 02	-1.842E 02	-1.842E 02	0.000	7.503E 02	1.482E 01	2.300E-03	2.659E 01	3.196E-03
3.701E 01	2.370E 00	4.491E 00	-2.856E 02	-1.928E 02	-1.928E 02	0.000	7.920E 02	1.533E 01	2.380E-03	2.905E 01	4.509E-03
3.727E 01	2.223E 00	5.312E 00	-2.846E 02	-1.957E 02	-1.957E 02	0.000	8.194E 02	1.477E 01	2.292E-03	3.436E 01	5.330E-03
3.803E 01	2.025E 00	8.697E 00	-2.647E 02	-2.049E 02	-2.049E 02	0.000	9.015E 02	1.310E 01	2.033E-03	5.728E 01	8.892E-03
3.873E 01	6.680E 00	1.209E 01	-2.606E 02	-2.676E 02	-2.152E 02	-5.204E 01	9.792E 02	4.320E 01	6.707E-03	7.822E 01	1.214E-02
3.875E 01	6.834E 00	1.203E 01	-2.608E 02	-2.691E 02	-2.156E 02	-5.355E 01	9.818E 02	4.420E 01	6.861E-03	7.779E 01	1.208E-02
3.901E 01	8.570E 00	1.127E 01	-2.451E 02	-2.843E 02	-2.202E 02	-6.615E 01	1.011E 03	5.543E 01	8.604E-03	7.291E 01	1.132E-02
3.950E 01	1.161E 01	9.653E 00	-2.815E 02	-3.200E 02	-2.302E 02	-8.982E 01	1.067E 03	7.509E 01	1.166E-02	6.373E 01	9.893E-03
3.975E 01	1.102E 01	9.137E 00	-2.897E 02	-3.377E 02	-2.360E 02	-1.017E 02	1.096E 03	7.126E 01	1.106E-02	5.910E 01	9.174E-03
4.000E 01	1.041E 01	9.272E 00	-2.946E 02	-3.563E 02	-2.424E 02	-1.139E 02	1.125E 03	6.734E 01	1.045E-02	5.997E 01	9.309E-03
4.022E 01	1.259E 01	9.387E 00	-2.993E 02	-3.726E 02	-2.483E 02	-1.243E 02	1.150E 03	8.141E 01	1.264E-02	6.071E 01	9.425E-03
4.040E 01	1.442E 01	1.168E 01	-3.041E 02	-3.865E 02	-2.534E 02	-1.331E 02	1.172E 03	9.324E 01	1.447E-02	7.551E 01	1.172E-02
4.041E 01	1.452E 01	1.180E 01	-3.042E 02	-3.873E 02	-2.537E 02	-1.336E 02	1.173E 03	9.393E 01	1.458E-02	7.632E 01	1.185E-02
4.073E 01	1.770E 01	1.576E 01	-3.097E 02	-4.117E 02	-2.630E 02	-1.487E 02	1.210E 03	1.145E 02	1.777E-02	1.019E 02	1.583E-02
4.122E 01	2.261E 01	1.962E 00	-3.395E 02	-4.503E 02	-2.785E 02	-1.718E 02	1.264E 03	1.443E 02	2.270E-02	1.269E 01	1.970E-03
4.150E 01	2.545E 01	2.032E 00	-3.717E 02	-4.731E 02	-2.882E 02	-1.849E 02	1.301E 03	1.646E 02	2.555E-02	1.314E 01	2.040E-03
4.246E 01	8.900E 00	2.269E 00	-4.360E 02	-5.524E 02	-3.228E 02	-2.299E 02	1.415E 03	5.756E 01	8.936E-03	1.467E 01	2.278E-03
4.271E 01	9.592E 00	2.331E 00	-4.426E 02	-5.730E 02	-3.320E 02	-2.410E 02	1.449E 03	6.204E 01	9.630E-03	1.508E 01	2.340E-03
4.278E 01	9.770E 00	2.347E 00	-4.443E 02	-5.781E 02	-3.344E 02	-2.438E 02	1.453E 03	6.319E 01	9.810E-03	1.518E 01	2.356E-03
4.431E 01	1.398E 01	8.957E 00	-4.703E 02	-6.866E 02	-3.837E 02	-3.031E 02	1.438E 03	9.041E 01	1.404E-02	5.793E 01	8.993E-03
4.480E 01	1.532E 01	1.107E 01	-4.764E 02	-7.175E 02	-3.974E 02	-3.202E 02	1.497E 03	9.912E 01	1.539E-02	7.159E 01	1.111E-02
4.550E 01	1.371E 01	1.407E 01	-4.799E 02	-7.601E 02	-4.154E 02	-3.445E 02	1.782E 03	8.868E 01	1.377E-02	9.103E 01	1.413E-02
4.621E 01	1.206E 01	1.273E 01	-4.692E 02	-8.027E 02	-4.336E 02	-3.690E 02	1.870E 03	7.797E 01	1.210E-02	8.236E 01	1.279E-02
4.626E 01	1.194E 01	1.264E 01	-4.681E 02	-8.055E 02	-4.348E 02	-3.706E 02	1.876E 03	7.725E 01	1.199E-02	8.178E 01	1.270E-02
4.731E 01	9.512E 00	1.068E 01	-4.421E 02	-8.650E 02	-4.600E 02	-4.050E 02	2.005E 03	6.152E 01	9.551E-03	6.905E 01	1.072E-02
4.811E 01	9.075E 00	9.176E 00	-4.182E 02	-9.089E 02	-4.782E 02	-4.307E 02	2.104E 03	6.451E 01	1.002E-02	5.934E 01	9.212E-03
5.019E 01	5.281E 00	5.281E 00	-3.038E 02	-1.000E 03	-5.215E 02	-4.826E 02	2.304E 03	3.416E 01	5.302E-03	3.416E 01	5.302E-03
5.072E 01	4.287E 00	4.287E 00	-2.806E 02	-1.022E 03	-5.317E 02	-4.965E 02	2.430E 03	2.773E 01	4.305E-03	2.773E 01	4.305E-03
5.213E 01	6.200E 00	6.200E 00	-2.918E 02	-1.065E 03	-5.570E 02	-5.078E 02	2.408E 03	4.010E 01	6.225E-03	4.010E 01	6.225E-03
5.423E 01	2.225E 00	2.225E 00	-2.454E 02	-1.118E 03	-5.898E 02	-5.287E 02	2.874E 03	1.439E 01	2.234E-03	1.439E 01	2.234E-03
5.473E 01	2.212E 00	2.212E 00	-2.397E 02	-1.129E 03	-5.96AE 02	-5.325E 02	2.936E 03	1.431E 01	2.221E-03	1.431E 01	2.221E-03
5.548E 01	2.057E 00	2.057E 00	-2.314E 02	-1.145E 03	-6.067E 02	-5.378E 02	3.033E 03	1.331E 01	2.066E-03	1.331E 01	2.066E-03
5.576E 01	1.999E 00	1.999E 00	-2.285E 02	-1.150E 03	-6.103E 02	-5.397E 02	3.070E 03	1.293E 01	2.007E-03	1.293E 01	2.007E-03
5.624E 01	1.094E 00	1.900E 00	-2.084E 02	-1.159E 03	-6.159E 02	-5.428E 02	3.102E 03	7.074E 00	1.098E-03	1.229E 01	1.908E-03
5.766E 01	1.718E 00	1.718E 00	-1.935E 02	-1.181E 03	-6.302E 02	-5.510E 02	3.209E 03	1.111E 01	1.725E-03	1.111E 01	1.725E-03
5.772E 01	1.650E 00	1.711E 00	-1.930E 02	-1.182E 03	-6.307E 02	-5.512E 02	3.217E 03	1.067E 01	1.657E-03	1.106E 01	1.717E-03
5.786E 01	1.650E 00	1.693E 00	-1.919E 02	-1.184E 03	-6.320E 02	-5.520E 02	3.230E 03	1.067E 01	1.657E-03	1.095E 01	1.699E-03
5.794E 01	1.682E 00	1.682E 00	-1.912E 02	-1.185E 03	-6.327E 02	-5.524E 02	3.245E 03	1.088E 01	1.689E-03	1.088E 01	1.689E-03
5.844E 01	1.618E 00	1.618E 00	-1.875E 02	-1.192E 03	-6.369E 02	-5.548E 02	3.309E 03	1.046E 01	1.624E-03	1.046E 01	1.624E-03
5.917E 01	1.525E 00	1.525E 00	-1.832E 02	-1.200E 03	-6.423E 02	-5.580E 02	3.402E 03	9.863E 00	1.531E-03	9.863E 00	1.531E-03
6.019E 01	1.550E 00	1.550E 00	-1.796E 02	-1.210E 03	-6.487E 02	-5.616E 02	3.532E 03	1.002E 01	1.556E-03	1.002E 01	1.556E-03
6.220E 01	2.737E 00	2.737E 00	-1.791E 02	-1.224E 03	-6.574E 02	-5.664E 02	3.740E 03	1.771E 01	2.748E-03	1.771E 01	2.748E-03
6.362E 01	1.706E 00	1.706E 00	-1.791E 02	-1.242E 03	-6.617E 02	-5.704E 02	3.972E 03	1.104E 01	1.713E-03	1.104E 01	1.713E-03
6.608E 01	2.177E 00	2.177E 00	-1.791E 02	-1.246E 03	-6.659E 02	-5.801E 02	4.289E 03	1.408E 01	2.186E-03	1.408E 01	2.186E-03
6.646E 01	1.920E 00	2.249E 00	-1.791E 02	-1.246E 03	-6.662E 02	-5.819E 02	4.337E 03	1.242E 01	1.928E-03	1.455E 01	2.258E-03
6.650E 01	1.920E 00	2.257E 00	-1.791E 02	-1.246E 03	-6.662E 02	-5.821E 02	4.342E 03	1.242E 01	1.928E-03	1.460E 01	2.266E-03
6.670E 01	1.854E 00	2.295E 00	-1.791E 02	-1.250E 03	-6.664E 02	-5.832E 02	4.368E 03	1.225E 01	1.902E-03	1.484E 01	2.304E-03
6.836E 01	1.680E 00	1.455E 00	-1.587E 02	-1.259E 03	-6.690E 02	-5.900E 02	4.584E 03	1.087E 01	1.687E-03	9.410E 00	1.461E-03

X/RB	P/PIN	P/PO	P/A	P/IB	P/PO	P/PIN	P/PO	P/PIN
6.9A0E 01	1.09AE 00	1.24AE 00	-0.202E 01	-1.247E 03	-6.727E 02	7.0A2E 00	1.744E-03	4.0311 00	1.247E-03
7.052E 01	8.45AE-01	1.175E 00	-0.099E 01	-1.271E 03	-6.74AE 02	5.470E 00	1.098E-04	7.341E 00	1.140E-03
7.115E 01	6.400E-01	1.090E 00	-0.515E 01	-1.275E 03	-6.767E 02	4.115E 00	4.022E-05	7.077E 00	1.099E-03
7.251F 01	5.700E-01	1.002F 00	-0.23FE 00	-1.28AE 03	-6.A07E 02	3.6A7E 00	5.765E-04	8.051F 00	1.004E-03
7.404E 01	8.159E-01	9.000E-01	1.0AAE 01	-1.285F 03	-6.A47E 02	5.277F 00	8.193E-04	9.821F 00	9.034E-04
7.419F 01	8.400E-01	8.192F-01	1.410E 01	-1.285E 03	-6.A51E 02	5.431E 00	8.430E-04	5.298F 00	8.225E-04
7.494F 01	8.923E-01	4.150E-01	5.A22E 01	-1.2AAF 03	-6.A67E 02	5.771E 00	8.559E-04	2.AAAE 00	4.167E-04
7.494E 01	8.924E-01	4.122E-01	5.900E 01	-1.2A0E 03	-6.A67E 02	5.771E 00	8.941E-04	2.A76E 00	4.145E-04
7.627F 01	9.A50E-01	0.000	7.A87E 01	-1.292E 03	-6.A91E 02	6.A27E 00	9.A95E-04	0.000	0.000
7.912E 01	4.A00E-01	0.000	1.078E 02	-1.273E 03	-6.932E 02	2.525F 00	4.618E-04	0.000	0.000
8.3C2F 01	9.250E-01	0.000	1.537E 02	-1.277F 03	-6.97CE 02	5.794F 00	9.A30E-04	0.000	0.000
8.5H3F 01	5.A50E-01	0.000	1.517E 02	-1.5H6E 03	-7.003E 02	5.A45E 00	2.341F 00	0.000	0.000
8.A69F 01	4.455E-01	0.000	1.A15E 02	-1.392F 03	-7.06AE 02	5.707E 00	2.A07F 00	0.000	0.000
8.B69F 01	4.452E-01	0.000	1.A15E 02	-1.392E 03	-7.06AE 02	5.707E 00	2.B19E 00	0.000	0.000

REACTANS = 0.000 ALPHA = 137 TTWF = 244.723 MACH 7.5 PT = 995.904 TT = 2050.0

X	CDRAG	CDRAG	CF	HC
4.0000E 01	8.565E 01	8.585E 01	2.170E-03	5.411E-02
4.041E 01	1.962E-01	8.604E 01	3.379E-03	3.611E-02
4.073E 01	4.265E 00	9.022E 01	2.644E-03	5.184E-02
4.122E 01	8.282E 00	1.005E 02	2.583E-03	4.235E-02
4.150E 01	4.484E 00	1.056E 02	2.582E-03	4.566E-02
4.256E 01	1.413E 01	1.213E 02	2.799E-03	2.275E-02
4.271E 01	8.931E 00	1.257E 02	2.794E-03	2.374E-02
4.278E 01	1.107E 00	1.268E 02	2.799E-03	2.394E-02
4.451E 01	2.548E 01	1.523E 02	3.104E-03	3.347E-02
4.480E 01	7.433E 00	1.597E 02	2.859E-03	3.924E-02
4.550E 01	9.824E 00	1.695E 02	2.836E-03	4.081E-02
4.621E 01	9.873E 00	1.794E 02	2.822E-03	3.769E-02
4.626E 01	6.530E-01	1.801E 02	2.822E-03	3.747E-02
4.731E 01	1.005E 01	1.901E 02	2.795E-03	3.233E-02
4.811E 01	1.314E 01	2.032E 02	2.886E-03	2.968E-02
5.019E 01	2.230E 01	2.265E 02	2.695E-03	1.901E-02
5.072E 01	4.719E 00	2.312E 02	2.670E-03	1.623E-02
5.213E 01	1.097E 01	2.422E 02	2.614E-03	2.040E-02
5.423E 01	1.387E 01	2.560E 02	2.609E-03	9.396E-03
5.473E 01	1.008E 00	2.591E 02	2.560E-03	9.364E-03
5.588E 01	2.304E 00	2.614E 02	2.545E-03	8.782E-03
5.576E 01	1.961E 00	2.634E 02	2.542E-03	8.561E-03
5.624E 01	1.222E 00	2.646E 02	2.492E-03	6.562E-03
5.766E 01	3.531E 00	2.697E 02	2.411E-03	6.881E-03
5.772E 01	2.199E-01	2.699E 02	2.475E-03	7.006E-03
5.786E 01	5.352E-01	2.705E 02	2.452E-03	7.009E-03
5.790E 01	3.154E-01	2.708E 02	2.477E-03	6.812E-03
5.844E 01	1.996E 00	2.728E 02	2.454E-03	6.793E-03
5.917E 01	2.764E 00	2.755E 02	2.431E-03	6.503E-03
6.019E 01	3.830E 00	2.793E 02	2.422E-03	6.559E-03
6.220E 01	7.469E 00	2.868E 02	2.429E-03	9.871E-03
6.362E 01	5.529E 00	2.924E 02	2.520E-03	6.849E-03
6.608E 01	9.613E 00	3.020E 02	2.472E-03	8.272E-03
6.646E 01	1.304E 00	3.033E 02	2.493E-03	7.975E-03
6.650E 01	1.239E-01	3.035E 02	2.462E-03	7.885E-03
6.670E 01	5.473E-01	3.040E 02	2.461E-03	7.697E-03
6.836E 01	4.241E 00	3.083E 02	2.399E-03	6.400E-03
6.980E 01	2.917E 00	3.112E 02	2.337E-03	5.152E-03
7.052E 01	1.252E 00	3.124E 02	2.305E-03	4.570E-03
7.113E 01	9.668E-01	3.134E 02	2.280E-03	4.143E-03
7.251E 01	1.994E 00	3.154E 02	2.257E-03	3.846E-03
7.404E 01	2.199E 00	3.176E 02	2.265E-03	4.086E-03
7.419E 01	2.089E-01	3.178E 02	2.258E-03	3.985E-03
7.494E 01	9.395E-01	3.187E 02	2.215E-03	3.343E-03
7.494E 01	1.461E-03	3.187E 02	2.219E-03	3.344E-03
7.627E 01	4.103E-01	3.191E 02	2.279E-03	4.494E-03
7.912E 01	1.043E 00	3.202E 02	2.141E-03	2.562E-03
8.302E 01	1.082E 00	3.215E 02	2.242E-03	4.242E-03
8.583E 01	5.259E-01	3.220E 02	2.079E-03	2.132E-03
8.864E 01	1.452E-01	3.222E 02	2.100E-03	2.455E-03
8.869E 01	0.000	3.222E 02	2.100E-03	2.456E-03

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	=167.	(LBF)
MEASURED THRUST	=114.	(LBF)
CALCULATED SPECIFIC IMPULSE	=633.	(LBF=SEC/LBM)
MEASURED SPECIFIC IMPULSE	=432.	(LBF=SEC/LBM)
CALCULATED THRUST COEFFICIENT	=.1144	
MEASURED THRUST COEFFICIENT	=.0780	

REGENERATIVE-COOLED ENGINE PERFORMANCE CALCULATED

STREAM THRUST	2799.	(LBF)
NET THRUST	=141.	(LBF)
SPECIFIC IMPULSE	=532.	(LBF=SEC/LBM)
THRUST COEFFICIENT	=.0961	

MOMENTUM AND FORCES

INLET FRICTION DRAG	85.9	(LBF)
INLET MOMENTUM CHANGE	=389.9	(LBF)
COMBUSTOR FRICTION DRAG	217.5	(LBF)
COMBUSTOR STRUT DRAG	6.75	(LBF)
COMBUSTOR MOMENTUM CHANGE	=99.	(LBF)
NOZZLE FRICTION DRAG	18.81	(LBF)
NOZZLE STRUT DRAG	0.00	(LBF)
NOZZLE MOMENTUM CHANGE	322.	(LBF)
NOZZLE PRESSURE INTEGRAL	341.	(LBF)
EXTERNAL FRICTION DRAG	40.22	(LBF)
EXTERNAL PRESSURE INTEGRAL	=672.	(LBF)
TOTAL EXTERNAL DRAG	=712.	(LBF)
TOTAL STRUT DRAG	6.75	(LBF)
CAVITY FORCE	=585.	(LBF)
CALCULATED LOAD CELL FORCE	=1465.	(LBF)
MEASURED LOAD CELL FORCE	=1412.	(LBF)
FUEL VACUUM SPECIFIC IMPULSE	0.0.	

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	1.7170	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	36.601	(IN)
NOZZLE SHROUD TRAILING EDGE	70.941	(IN)
NOZZLE PLUG TRAILING EDGE	88.693	(IN)
STRUT LEADING EDGE	57.857	(IN)
STRUT TRAILING EDGE	66.457	(IN)
COMBUSTOR EXIT	66.457	(IN)

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.9909	
ADDITIVE DRAG COEFFICIENT	0.0000	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.1027	
DELTA PT2	0.0499	(PSI)
TOTAL PRESSURE RECOVERY - SUPERSONIC	0.3476	
TOTAL PRESSURE RECOVERY - SUBSONIC	0.1040	
INLET PROCESS EFFICIENCY - SUPERSONIC	0.9073	
INLET PROCESS EFFICIENCY - SUBSONIC	0.9142	
KINETIC ENERGY EFFICIENCY - SUPERSONIC	0.9360	
KINETIC ENERGY EFFICIENCY - SUBSONIC	0.8856	
ENTHALPY AT P0 - SUPERSONIC	=41.16	(BTU/LBM)
ENTHALPY AT P0 - SUBSONIC	=5.01	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0169	
EQUIVALENCE RATIO	0.509	
COMBUSTOR EFFICIENCY	0.000	
TOTAL PRESSURE RATIO	0.1001	
COMBUSTOR EFFECTIVENESS	0.1458	
INJECTOR DISCHARGE COEFFICIENTS	1.0494.	

NOZZLE

VACUUM STREAM THRUST COEFFICIENT - CS	1.0059	
NOZZLE COEFFICIENT - CT	0.9640	
PROCESS EFFICIENCY	1.0962	
KINETIC ENERGY EFFICIENCY	1.0117	

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	E
1B	42.702	
1C	48.300	
2A	50.177	
2C	48.250	
3A	55.467	
3B	57.652	
4	46.202	

Reading 90

t = 247.72 sec.

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SUMMARY REPORT

	P	T	M	GAMMA	RELAT SPNV	ALR	REL	S	V/A	n	A/AC	PUMP	E	TVAC	PHT	ETAC
WIND TUNNEL		1	0 5													
0.000	995.249	2939	651.0(777)	1.2947	28.956	2556										
0.000	0.154	281	601.6(67)	1.3959	28.955	821	7.274	5972	1.801	0.06151	15.611	0.9909	2937	5.708	188.1	
SPIKE TIP NS		2	0 7													
0.600	11.425	2939	651.0(777)	1.2946	28.955	2556										
0.600	10.539	2885	634.9(761)	1.2963	28.955	2534	0.355	899	2.108	0.06151	15.611	0.9909	3111	0.059	199.3	
WIND TUNNEL		3	0 0													
0.000	995.249	2939	651.0(777)	1.2947	28.956	2556										
0.000	0.170	289	659.7(69)	1.3952	28.955	832	7.165	5964	1.801	0.06590	14.726	0.9909	3143	6.107	187.9	
SPIKE TIP NS		4	0 0													
0.600	11.425	2939	651.0(777)	1.2946	28.955	2556										
0.600	10.392	2874	632.1(758)	1.2964	28.955	2530	0.385	973	2.108	0.06590	14.726	0.9909	3143	0.997	187.9	
INLET THROAT		5	0 3													
40.400	204.971	2833	619.4(744)	1.2981	28.955	2513										
40.400	13.659	1461	231.8(361)	1.3502	28.955	1840	2.393	4404	1.899	0.77141	15.611	0.8790	2413	52.610	154.4	
INLET UPWASH		6	0 3													
40.400	204.971	2833	619.4(744)	1.2981	28.955	2513										
40.400	11.700	1403	216.5(345)	1.3585	28.955	1806	2.480	4490	1.899	0.78147	15.611	0.8869	2439	48.942	156.2	
INLET DNWASH		7	0 4													
40.400	96.966	2833	619.4(744)	1.2981	28.955	2513										
40.400	82.647	2730	588.8(716)	1.3014	28.955	2470	0.501	1237	1.950	0.78147	15.611	0.8869	2439	13.484	156.2	
COMBUSTOR	0	8	1 21													
40.410	110.792	2744	651.3(774)	1.3044	23.693	2745										
40.410	15.338	1684	289.1(513)	1.3044	23.693	2184										
							1.949	4258	2.273	0.78523	15.869	0.8790	2413	51.456	151.9	0.84 0.07
COMBUSTOR	0	9	2 21													
40.727	128.920	2573	649.7(816)	1.3141	23.501	2675										
40.727	16.942	1549	302.2(470)	1.3528	23.501	2106	1.981	4170	2.241	0.78808	15.869	0.8787	2401	51.073	151.1	0.54 0.01
COMBUSTOR	0	10	3 21													
41.217	110.007	2541	647.1(804)	1.3155	23.479	2660										
41.217	11.545	1440	275.6(435)	1.3586	23.479	2058	2.118	4312	2.280	0.78224	15.869	0.8793	2364	52.413	148.8	0.54 0.00
COMBUSTOR	0	11	4 21													
41.500	102.675	2533	645.5(803)	1.3158	23.475	2657										
41.500	12.400	1489	292.6(451)	1.3561	23.475	2068	2.032	4202	2.255	0.77439	15.889	0.8801	2330	50.575	146.6	0.54 0.00
COMBUSTOR	0	12	5 21													
42.460	65.750	2517	640.2(797)	1.3163	23.475	2649										
42.460	7.787	1471	287.1(445)	1.3570	23.475	2056	2.004	4203	2.291	0.73055	15.889	0.8849	2245	47.723	141.3	0.54 0.00
COMBUSTOR	0	13	6 21													
42.712	33.876	3418	638.8(1102)	1.2722	24.346	2980										
42.712	7.941	2467	292.7(765)	1.3064	24.351	2565	1.622	4161	2.425	0.72166	15.889	0.8840	2230	46.669	140.3	0.54 0.35
COMBUSTOR	0	14	7 21													
42.777	55.250	2651	636.4(842)	1.3101	23.601	2705										
42.777	7.941	1642	294.2(499)	1.3472	23.601	2159	1.923	4151	2.321	0.71988	15.889	0.8842	2226	46.434	140.1	0.54 0.05
COMBUSTOR	0	15	8 21													
44.310	62.188	2513	631.4(796)	1.3162	23.493	2646										
44.310	12.117	1672	345.2(510)	1.3471	23.493	2183	1.733	3784	2.295	0.66576	15.889	0.8932	2158	39.151	135.8	0.54 0.01
COMBUSTOR	0	16	9 21													
44.600	63.076	2490	629.5(788)	1.3172	23.478	2635										
44.800	13.438	1694	358.6(518)	1.3463	23.477	2198	1.674	3682	2.290	0.65709	15.889	0.8904	2143	37.600	134.9	0.54 0.00
COMBUSTOR	0	17	10 21													
45.497	62.441	2480	626.9(784)	1.3174	23.475	2631										
45.497	14.092	1712	365.3(520)	1.3454	23.475	2209	1.638	3618	2.290	0.65252	15.889	0.8951	2130	36.686	134.0	0.54 0.00
COMBUSTOR	0	18	11 21													
46.212	59.446	2472	624.4(782)	1.3179	23.475	2627										
46.212	16.531	1676	353.7(512)	1.3471	23.475	2187	1.683	3680	2.293	0.65494	15.889	0.8977	2131	36.309	134.1	0.54 0.00

READING = 0090 BLOCK = 138 TIME = 247.423 MCH 7.3 PT = 995.249 TT = 2958.5 PAGE 2

	P	T	H	GAMMA	RGAST	SONV	MACH	VEL	S	M/A	A	A/AC	PLNTH	Q	TVAC	PHT	ETAC
COMBUSTOR	0	19	12 21														
46.260	45.939	2894	624.2(923)	1.2983	23.667	2798											
46.260	12.427	2121	352.9(455)	1.3250	23.867	2020	1.523	3684	2.358	0.53301	15.889	0.0980	2131	36.241	134.1	0.54	0.16
COMBUSTOR	0	20	13 21														
47.310	51.643	2526	620.9(799)	1.3152	23.532	2649											
47.310	10.194	1685	334.6(514)	1.3461	23.532	2189	1.729	3785	2.311	0.58644	15.889	0.1097	2143	34.504	134.9	0.54	0.02
COMBUSTOR	0	21	14 21														
48.110	53.498	2465	618.6(779)	1.3179	23.483	2623											
48.110	10.500	1641	330.9(500)	1.3486	23.483	2164	1.728	3740	2.301	0.53927	15.889	0.1150	2157	31.347	135.7	0.54	0.00
COMBUSTOR	0	22	15 21														
50.187	40.691	2441	613.1(771)	1.3189	23.476	2611											
50.187	5.556	1477	288.5(447)	1.3967	23.476	2060	1.956	4030	2.320	0.39917	15.889	0.1554	2211	24.998	139.2	0.54	0.00
COMBUSTOR	0	23	16 21														
50.717	37.039	2437	611.9(769)	1.3190	23.475	2609											
50.717	4.575	1435	275.6(434)	1.3588	23.475	2033	2.018	4102	2.328	0.37333	15.889	0.1662	2220	23.798	139.7	0.54	0.00
COMBUSTOR	0	24	17 21														
52.127	30.488	2428	608.9(766)	1.3193	23.475	2605											
52.127	6.200	1513	300.7(459)	1.3549	23.474	2084	1.885	3927	2.319	0.31818	15.889	0.1950	2249	19.419	141.6	0.54	0.00
COMBUSTOR	0	25	18 21														
54.227	26.867	2410	603.3(763)	1.3199	23.393	2600											
54.227	2.375	1298	231.1(391)	1.3462	23.393	1941	2.223	4316	2.358	0.26154	15.935	0.2379	2282	17.500	143.2	0.55	0.00
COMBUSTOR	0	26	19 21														
54.727	25.727	2404	602.5(761)	1.3202	23.390	2597											
54.727	2.200	1282	227.6(387)	1.3670	23.390	1930	2.244	4331	2.361	0.25085	15.935	0.2480	2285	16.884	143.4	0.55	0.00
COMBUSTOR	0	27	20 21														
55.477	24.527	2401	601.4(759)	1.3203	23.389	2596											
55.477	2.051	1273	224.7(383)	1.3675	23.389	1923	2.257	4342	2.364	0.23606	15.935	0.2631	2288	15.955	143.6	0.55	0.00
COMBUSTOR	0	28	21 21														
55.760	10.129	3387	601.0(1094)	1.2699	24.335	2965											
55.760	1.995	2349	223.5(726)	1.3098	24.343	2507	1.734	4306	2.524	0.23149	15.935	0.2688	2290	15.635	143.7	0.55	0.38
COMBUSTOR	0	29	22 21														
56.237	16.508	2550	600.4(809)	1.3154	23.526	2660											
56.237	1.550	1405	214.3(424)	1.3591	23.526	2009	2.188	4396	2.415	0.18293	15.935	0.3401	2312	12.496	145.1	0.55	0.06
COMBUSTOR	0	30	23 21														
57.662	20.673	2416	598.9(764)	1.3198	23.410	2602											
57.662	1.718	1280	219.2(386)	1.3669	23.409	1928	2.261	4359	2.381	0.16914	15.935	0.3678	2321	11.457	145.6	0.55	0.01
COMBUSTOR	0	31	24 21														
57.717	21.858	2397	598.9(758)	1.3204	23.392	2593											
57.717	1.830	1271	223.0(383)	1.3676	23.392	1922	2.257	4337	2.374	0.16860	15.935	0.3690	2321	11.363	145.6	0.55	0.00
COMBUSTOR	0	32	25 21														
57.857	21.864	2393	598.7(757)	1.3206	23.390	2592											
57.857	1.821	1267	222.8(382)	1.3678	23.390	1919	2.260	4337	2.373	0.16742	15.935	0.3716	2321	11.285	145.7	0.55	0.00
COMBUSTOR	0	33	26 21														
57.937	20.375	2422	598.7(767)	1.3192	23.416	2605											
57.937	1.682	1282	217.4(386)	1.3668	23.416	1929	2.265	4368	2.383	0.16933	15.935	0.3674	2322	11.494	145.7	0.55	0.01
COMBUSTOR	0	34	27 21														
58.443	20.802	2396	598.2(758)	1.3204	23.393	2593											
58.443	1.618	1245	214.6(379)	1.3690	23.393	1903	2.302	4381	2.378	0.16848	15.935	0.3693	2323	11.472	145.8	0.55	0.00
COMBUSTOR	0	35	28 21														
59.167	20.260	2390	597.7(756)	1.3207	23.390	2590											
59.167	1.525	1231	211.5(370)	1.3698	23.390	1893	2.322	4396	2.379	0.16578	15.935	0.3753	2324	11.325	145.8	0.55	0.00
COMBUSTOR	0	36	29 21														
60.187	20.683	2368	596.9(755)	1.3208	23.389	2589											
60.187	1.600	1239	214.1(373)	1.3694	23.389	1899	2.305	4377	2.377	0.16472	15.935	0.3777	2323	11.205	145.8	0.55	0.00
COMBUSTOR	0	37	30 21														
62.197	26.587	2384	595.6(754)	1.3209	23.389	2587											
62.197	3.637	1440	270.1(437)	1.3587	23.389	2039	1.955	3986	2.355	0.17005	15.935	0.3650	2310	10.599	145.2	0.55	0.00

READING = 0030 BLOCK = 138 TIME = 247.423 MACH 7.3 PI = 995.249 TI = 2938.6 PAGE 3

	P	T	H	GAMA	DELNT	SNDV	MACH	VEL	S	Z/A	A	A/A*	MLMTA	M	TVAL	PHI	ETAC
COMBUSTOR	0	36	31 21														
63.617	19.243	2497	594.7(791)	1.3157	23.493	2657											
63.617	1.925	1397	224.3(422)	1.3549	23.493	2005	2.148	4306	2.390	0.17507	15.935	0.3553	2308	11.715	104.6	0.55	0.00
COMBUSTOR	0	39	32 21														
66.081	21.745	2395	593.4(757)	1.3203	23.405	2592											
66.081	2.221	1339	240.0(404)	1.3638	23.405	1970	2.135	4205	2.374	0.16595	15.935	0.3749	2296	10.845	104.1	0.55	0.01
COMBUSTOR	0	40	33 21														
66.457	22.191	2380	593.2(752)	1.3210	23.392	2585											
66.457	2.683	1391	281.7(421)	1.3412	23.391	2004	2.030	4073	2.370	0.15428	15.935	0.4032	2294	9.765	104.0	0.55	0.00
COMBUSTOR REGEN	0	41	34 4														
66.457	22.191	2429	610.6(769)	1.3193	23.392	2610											
66.457	4.506	1630	339.0(499)	1.3493	23.391	2162	1.705	3686	2.377	0.15426	15.935	0.4032	2291	8.839	103.6	0.55	0.00
NOZZLE AE	0	42	35 4														
88.693	22.191	2380	593.2(752)	1.3210	23.392	2585											
88.693	0.328	778	71.4(231)	1.3922	23.391	1517	3.368	5110	2.370	0.03212	15.935	1.0372	2491	2.550	168.9	0.55	0.00
NOZZLE PO	0	43	36 4														
88.693	22.191	2380	593.2(752)	1.3210	23.392	2585											
88.693	0.154	631	27.4(187)	1.3974	23.391	1369	3.886	5321	2.370	0.01971	15.935	1.1567	2760	1.630	173.2	0.55	0.00
NOZZLE AE REGEN	0	44	37 4														
88.693	22.191	2429	610.6(769)	1.3193	23.392	2610											
88.693	0.329	801	78.4(238)	1.3912	23.391	1539	3.353	5161	2.377	0.03211	15.935	1.0372	2719	2.576	170.7	0.55	0.00
NOZZLE PO REGEN	0	45	38 4														
88.693	22.191	2429	610.6(769)	1.3193	23.392	2610											
88.693	0.154	647	32.0(192)	1.3969	23.391	1386	3.883	5381	2.377	0.01945	15.935	1.1980	2791	1.627	175.2	0.55	0.00
FICTIVE COMBUSTR	63	56	0														
66.457	204.971	4769	593.2(1577)	1.1989	25.926	3311											
66.457	0.154	972	-797.5(270)	1.3619	26.086	1589	5.251	8342	2.337	0.02237	15.935	2.7808	4242	2.900	266.2	0.55	1.00
FICTIVE NOZZLE	64	57	0														
88.693	15.085	2387	595.8(755)	1.3208	23.392	2589											
88.693	0.400	924	115.7(275)	1.3897	23.391	1650	2.971	4901	2.404	0.03212	15.935	1.0371	2626	2.446	164.8	0.55	0.00

XABS	P-IP	P-OH	PBA	QOX	Q-IP	Q-OH	CA-ALL	P-IB/PBO	P-IP/PTO	P-OB/PBO	P-OB/PTO
6.981E-01	6.050E-01	0.000	-2.754E-01	0.000	0.000	0.000	2.377E-02	3.916E 00	4.879E-04	0.000	0.000
1.836E 01	6.050E-01	0.000	-2.817E 01	0.000	0.000	0.000	1.438E 02	3.916E 00	4.879E-04	0.000	0.000
3.670E 01	1.240E 00	0.000	-2.896E 01	0.000	0.000	0.000	5.053E 02	8.027E 00	1.244E-03	0.000	0.000
3.508E 01	2.463E 00	0.000	-2.214E 02	0.000	0.000	0.000	6.804E 02	1.724E 01	2.474E-03	0.000	0.000
3.555E 01	2.985E 00	0.000	-2.472E 02	0.000	0.000	0.000	7.013E 02	1.932E 01	2.999E-03	0.000	0.000
3.606E 01	3.030E 00	0.000	-2.777E 02	-2.579E 02	-2.579E 02	0.000	7.246E 02	1.941E 01	3.044E-03	0.000	0.000
3.648E 01	3.404E 00	0.000	-3.052E 02	-2.642E 02	-2.642E 02	0.000	7.443E 02	2.203E 01	3.420E-03	0.000	0.000
3.659E 01	3.362E 00	3.150E 00	-3.060E 02	-2.659E 02	-2.659E 02	0.000	7.497E 02	2.176E 01	3.378E-03	2.034E 01	3.165E-03
3.660E 01	3.360E 00	3.182E 00	-3.062E 02	-2.660E 02	-2.660E 02	0.000	7.500E 02	2.175E 01	3.376E-03	2.060E 01	3.197E-03
3.701E 01	3.210E 00	5.396E 00	-3.539E 02	-2.724E 02	-2.724E 02	0.000	7.920E 02	2.078E 01	3.225E-03	3.493E 01	5.422E-03
3.727E 01	3.370E 00	6.787E 00	-3.554E 02	-2.766E 02	-2.766E 02	0.000	8.194E 02	2.311E 01	3.587E-03	4.394E 01	6.820E-03
3.803E 01	4.440E 00	9.636E 00	-3.578E 02	-2.896E 02	-2.896E 02	0.000	9.015E 02	3.004E 01	4.662E-03	6.238E 01	9.682E-03
3.873E 01	5.367E 00	1.224E 01	-3.751E 02	-3.625E 02	-3.028E 02	-5.964E 01	9.792E 02	5.416E 01	8.407E-03	7.922E 01	1.230E-02
3.875E 01	8.490E 00	1.223E 01	-3.758E 02	-3.642E 02	-3.033E 02	-6.091E 01	9.818E 02	5.530E 01	8.583E-03	7.917E 01	1.229E-02
3.901E 01	9.860E 00	1.214E 01	-3.834E 02	-3.840E 02	-3.087E 02	-7.524E 01	1.011E 03	6.396E 01	9.927E-03	7.860E 01	1.220E-02
3.950E 01	1.300E 01	1.198E 01	-4.019E 02	-4.220E 02	-3.198E 02	-1.022E 02	1.067E 03	8.414E 01	1.306E-02	7.753E 01	1.203E-02
3.975E 01	1.392E 01	1.189E 01	-4.104E 02	-4.415E 02	-3.258E 02	-1.157E 02	1.096E 03	8.753E 01	1.359E-02	7.699E 01	1.195E-02
4.000E 01	1.406E 01	1.270E 01	-4.160E 02	-4.618E 02	-3.323E 02	-1.295E 02	1.125E 03	9.101E 01	1.413E-02	8.224E 01	1.277E-02
4.022E 01	1.532E 01	1.340E 01	-4.205E 02	-4.795E 02	-3.381E 02	-1.414E 02	1.150E 03	9.418E 01	1.462E-02	8.670E 01	1.346E-02
4.040E 01	1.439E 01	1.419E 01	-4.244E 02	-4.945E 02	-3.432E 02	-1.514E 02	1.172E 03	1.041E 02	1.617E-02	9.184E 01	1.425E-02
4.041E 01	1.444E 01	1.423E 01	-4.247E 02	-4.953E 02	-3.434E 02	-1.519E 02	1.173E 03	1.065E 02	1.652E-02	9.212E 01	1.430E-02
4.073E 01	1.829E 01	1.559E 01	-4.304E 02	-5.218E 02	-3.527E 02	-1.691E 02	1.210E 03	1.184E 02	1.839E-02	1.009E 02	1.567E-02
4.122E 01	2.114E 01	1.950E 00	-4.594E 02	-5.634E 02	-3.680E 02	-1.954E 02	1.268E 03	1.369E 02	2.124E-02	1.262E 01	1.959E-03
4.150E 01	2.279E 01	2.012E 00	-4.885E 02	-5.879E 02	-3.776E 02	-2.103E 02	1.301E 03	1.475E 02	2.290E-02	1.303E 01	2.022E-03
4.246E 01	1.335E 01	2.224E 00	-5.569E 02	-6.730E 02	-4.119E 02	-2.611E 02	1.415E 03	8.642E 01	1.341E-02	1.440E 01	2.235E-03
4.271E 01	1.360E 01	2.279E 00	-5.680E 02	-6.950E 02	-4.208E 02	-2.742E 02	1.445E 03	8.806E 01	1.367E-02	1.476E 01	2.290E-03
4.278E 01	1.367E 01	2.294E 00	-5.708E 02	-7.004E 02	-4.231E 02	-2.774E 02	1.453E 03	8.848E 01	1.373E-02	1.485E 01	2.305E-03
4.431E 01	1.821E 01	9.025E 00	-6.118E 02	-8.123E 02	-4.688E 02	-3.435E 02	1.638E 03	9.845E 01	1.528E-02	5.842E 01	9.068E-03
4.480E 01	1.870E 01	1.118E 01	-6.190E 02	-8.425E 02	-4.806E 02	-3.619E 02	1.697E 03	1.016E 02	1.577E-02	7.235E 01	1.123E-02
4.550E 01	1.399E 01	1.424E 01	-6.230E 02	-8.643E 02	-4.961E 02	-3.842E 02	1.782E 03	9.028E 01	1.401E-02	9.216E 01	1.431E-02
4.621E 01	1.215E 01	1.291E 01	-6.122E 02	-9.248E 02	-5.116E 02	-4.132E 02	1.870E 03	7.844E 01	1.221E-02	8.340E 01	1.298E-02
4.626E 01	1.203E 01	1.283E 01	-6.110E 02	-9.274E 02	-5.126E 02	-4.148E 02	1.876E 03	7.786E 01	1.209E-02	8.302E 01	1.289E-02
4.731E 01	9.387E 00	1.088E 01	-5.841E 02	-9.799E 02	-5.344E 02	-4.455E 02	2.005E 03	6.077E 01	9.432E-03	7.044E 01	1.093E-02
4.811E 01	1.160E 01	9.401E 00	-5.605E 02	-1.017E 03	-5.504E 02	-4.648E 02	2.104E 03	7.509E 01	1.166E-02	6.085E 01	9.446E-03
5.019E 01	5.556E 00	5.596E 00	-4.838E 02	-1.104E 03	-5.843E 02	-5.144E 02	2.364E 03	3.597E 01	5.583E-03	3.597E 01	5.583E-03
5.072E 01	4.575E 00	4.575E 00	-4.699E 02	-1.122E 03	-5.986E 02	-5.239E 02	2.430E 03	2.962E 01	4.597E-03	2.962E 01	4.597E-03
5.213E 01	6.200E 00	6.200E 00	-4.300E 02	-1.170E 03	-6.227E 02	-5.478E 02	2.608E 03	4.013E 01	6.230E-03	4.013E 01	6.230E-03
5.423E 01	2.375E 00	2.375E 00	-3.829E 02	-1.232E 03	-6.502E 02	-5.774E 02	2.834E 03	1.537E 01	2.386E-03	1.537E 01	2.386E-03
5.473E 01	2.200E 00	2.200E 00	-3.769E 02	-1.244E 03	-6.613E 02	-5.826E 02	2.938E 03	1.424E 01	2.210E-03	1.424E 01	2.210E-03
5.548E 01	2.051E 00	2.051E 00	-3.686E 02	-1.261E 03	-6.714E 02	-5.898E 02	3.033E 03	1.328E 01	2.061E-03	1.328E 01	2.061E-03
5.576E 01	1.995E 00	1.995E 00	-3.657E 02	-1.268E 03	-6.751E 02	-5.924E 02	3.070E 03	1.291E 01	2.004E-03	1.291E 01	2.004E-03
5.624E 01	1.200E 00	1.900E 00	-3.419E 02	-1.277E 03	-6.806E 02	-5.964E 02	3.102E 03	7.768E 00	1.206E-03	1.230E 01	1.909E-03
5.766E 01	1.719E 00	1.718E 00	-3.291E 02	-1.301E 03	-6.938E 02	-6.049E 02	3.209E 03	1.112E 01	1.726E-03	1.112E 01	1.726E-03
5.772E 01	1.959E 00	1.711E 00	-3.284E 02	-1.302E 03	-6.943E 02	-6.072E 02	3.217E 03	1.262E 01	1.959E-03	1.107E 01	1.719E-03
5.786E 01	1.959E 00	1.693E 00	-3.275E 02	-1.304E 03	-6.955E 02	-6.081E 02	3.234E 03	1.262E 01	1.959E-03	1.096E 01	1.701E-03
5.794E 01	1.682E 00	1.682E 00	-3.268E 02	-1.305E 03	-6.961E 02	-6.086E 02	3.245E 03	1.084E 01	1.690E-03	1.084E 01	1.690E-03
5.844E 01	1.618E 00	1.618E 00	-3.230E 02	-1.312E 03	-7.002E 02	-6.115E 02	3.309E 03	1.047E 01	1.625E-03	1.047E 01	1.625E-03
5.917E 01	1.525E 00	1.525E 00	-3.178E 02	-1.321E 03	-7.055E 02	-6.153E 02	3.402E 03	9.872E 00	1.532E-03	9.872E 00	1.532E-03
6.019E 01	1.400E 00	1.600E 00	-3.151E 02	-1.333E 03	-7.121E 02	-6.205E 02	3.532E 03	1.036E 01	1.608E-03	1.036E 01	1.608E-03
6.220E 01	3.437E 00	3.637E 00	-3.145E 02	-1.354E 03	-7.221E 02	-6.316E 02	3.790E 03	2.355E 01	3.655E-03	2.355E 01	3.655E-03
6.362E 01	1.925E 00	1.925E 00	-3.145E 02	-1.367E 03	-7.274E 02	-6.400E 02	3.972E 03	1.246E 01	1.934E-03	1.246E 01	1.934E-03
6.608E 01	2.221E 00	2.221E 00	-3.145E 02	-1.389E 03	-7.341E 02	-6.507E 02	4.289E 03	1.438E 01	2.232E-03	1.438E 01	2.232E-03
6.646E 01	3.100E 00	2.266E 00	-3.145E 02	-1.392E 03	-7.348E 02	-6.521E 02	4.337E 03	2.007E 01	3.115E-03	1.467E 01	2.277E-03
6.650E 01	3.100E 00	2.271E 00	-3.145E 02	-1.392E 03	-7.349E 02	-6.524E 02	4.342E 03	2.007E 01	3.115E-03	1.470E 01	2.282E-03
6.670E 01	2.981E 00	2.295E 00	-3.145E 02	-1.394E 03	-7.353E 02	-6.587E 02	4.368E 03	1.930E 01	2.995E-03	1.486E 01	2.306E-03
6.836E 01	1.999E 00	1.460E 00	-2.910E 02	-1.406E 03	-7.395E 02	-6.665E 02	4.584E 03	1.291E 01	2.005E-03	9.451E 00	1.467E-03

XARS	P=IP	P=PC	PT4	QDX	Q=IP	Q=PE	CM=ALI	P=IP/PSO	I=IP/PIO	P=CP/PSO	P=CP/PTO
6.980E 01	1.120E 00	1.203E 00	=2.206E 02	=1.414E 03	=7.445E 02	=6.696E 02	4.761E 03	7.250E 00	1.125E=03	6.049E 00	1.249E=03
7.052E 01	8.980E=01	1.135E 00	=1.921E 02	=1.418E 03	=7.472E 02	=6.719E 02	4.849E 03	5.813E 00	9.023E=04	7.347E 00	1.140E=03
7.113E 01	7.190E=01	1.098E 00	=1.715E 02	=1.421E 03	=7.494E 02	=6.717E 02	4.923E 03	4.596E 00	7.134E=04	7.106E 00	1.103E=03
7.251E 01	6.050E=01	1.013E 00	=1.331E 02	=1.426E 03	=7.542E 02	=6.716E 02	5.089E 03	3.916E 00	6.079E=04	6.560E 00	1.018E=03
7.404E 01	4.008E=01	9.200E=01	=9.381E 01	=1.442E 03	=7.588E 02	=6.731E 02	5.273E 03	5.194E 00	8.046E=04	5.555E 00	9.244E=04
7.419E 01	8.200E=01	8.342E=01	=9.013E 01	=1.433E 03	=7.592E 02	=6.735E 02	5.291E 03	5.304E 00	8.239E=04	5.400E 00	8.381E=04
7.494E 01	8.723E=01	4.050E=01	=6.621E 01	=1.437E 03	=7.610E 02	=6.741E 02	5.375E 03	5.647E 00	8.764E=04	2.622E 00	4.069E=04
7.494E 01	9.726E=01	4.027E=01	=6.561E 01	=1.437E 03	=7.610E 02	=6.742E 02	5.375E 03	5.648E 00	8.767E=04	2.607E 00	4.044E=04
7.627E 01	9.450E=01	0.000	=4.600E 01	=1.445E 03	=7.637E 02	=6.816E 02	5.427E 03	6.247E 00	9.696E=04	0.000	0.000
7.912E 01	4.300E=01	0.000	=1.811E 01	=1.482E 03	=7.688E 02	=7.193E 02	5.525E 03	2.788E 00	4.321E=04	0.000	0.000
8.302E 01	9.150E=01	0.000	1.064E 01	=1.485E 03	=7.722E 02	=7.189E 02	5.630E 03	5.923E 00	9.194E=04	0.000	0.000
8.563E 01	3.550E=01	0.000	2.474E 01	=1.345E 03	=7.755E 02	=5.697E 02	5.686E 03	2.298E 00	3.567E=04	0.000	0.000
8.869E 01	4.250E=01	0.000	3.416E 01	=1.351E 03	=7.917E 02	=5.697E 02	5.707E 03	2.751E 00	4.270E=04	0.000	0.000
8.869E 01	4.251E=01	0.000	3.416E 01	=1.352E 03	=7.918E 02	=5.697E 02	5.707E 03	2.752E 00	4.272E=04	0.000	0.000

REACTING B CURV BLOCK = 13A PT/F = 247.623 MACH 7.5 PT = 995.240 TT = 2034.4

X	DRAG	CDRAG	CF	HC
4.040E 01	9.924E 01	9.924E 01	2.466E-03	4.003E-02
4.081E 01	1.047E-01	9.943E 01	3.548E-03	3.707E-02
4.073E 01	6.123E 00	1.056E 02	2.859E-03	4.915E-02
4.122E 01	8.391E 00	1.139E 02	2.772E-03	5.866E-02
4.156E 01	4.788E 00	1.187E 02	2.796E-03	4.039E-02
4.246E 01	1.419E 01	1.329E 02	2.982E-03	2.755E-02
4.271E 01	2.247E 00	1.352E 02	2.994E-03	2.749E-02
4.278E 01	1.223E 00	1.404E 02	3.742E-03	2.278E-02
4.331E 01	2.723E 01	1.676E 02	3.114E-03	3.413E-02
4.440E 01	7.475E 00	1.747E 02	3.059E-03	3.725E-02
4.550E 01	9.661E 00	1.844E 02	3.056E-03	3.832E-02
4.621E 01	9.770E 00	1.941E 02	3.055E-03	3.532E-02
4.626E 01	6.485E-01	1.948E 02	3.054E-03	3.511E-02
4.731E 01	1.473E 01	2.095E 02	3.375E-03	2.731E-02
4.811E 01	1.551E 01	2.200E 02	3.066E-03	2.986E-02
5.019E 01	2.199E 01	2.420E 02	2.959E-03	1.844E-02
5.072E 01	4.793E 00	2.468E 02	2.951E-03	1.588E-02
5.213E 01	1.115E 01	2.579E 02	2.863E-03	1.902E-02
5.423E 01	1.422E 01	2.722E 02	2.918E-03	9.222E-03
5.473E 01	3.184E 00	2.754E 02	2.887E-03	8.709E-03
5.546E 01	4.533E 00	2.799E 02	2.879E-03	8.180E-03
5.576E 01	1.645E 00	2.815E 02	2.873E-03	7.980E-03
5.624E 01	1.902E 00	2.834E 02	3.766E-03	4.970E-03
5.766E 01	4.329E 00	2.874E 02	2.947E-03	6.397E-03
5.772E 01	2.305E-01	2.876E 02	2.788E-03	6.957E-03
5.786E 01	5.412E-01	2.882E 02	2.788E-03	6.957E-03
5.794E 01	3.570E-01	2.889E 02	2.992E-03	6.211E-03
5.844E 01	2.143E 00	2.906E 02	2.795E-03	6.313E-03
5.917E 01	2.934E 00	2.936E 02	2.763E-03	6.062E-03
6.019E 01	7.854E 00	2.976E 02	2.743E-03	6.262E-03
6.220E 01	7.452E 00	3.053E 02	2.710E-03	1.115E-02
6.342E 01	5.507E 00	3.108E 02	2.716E-03	7.166E-03
6.608E 01	9.952E 00	3.207E 02	2.863E-03	7.604E-03
6.648E 01	1.404E 00	3.221E 02	2.788E-03	8.838E-03
6.650E 01	1.227E-01	3.223E 02	2.719E-03	8.765E-03
6.670E 01	5.276E-01	3.228E 02	2.736E-03	8.678E-03
6.836E 01	3.992E 00	3.268E 02	2.647E-03	6.494E-03
6.890E 01	2.469E 00	3.294E 02	2.557E-03	4.966E-03
7.052E 01	1.187E 00	3.306E 02	2.535E-03	4.456E-03
7.113E 01	8.761E-01	3.314E 02	2.512E-03	4.094E-03
7.251E 01	1.436E 00	3.333E 02	2.485E-03	3.771E-03
7.404E 01	1.997E 00	3.359E 02	2.487E-03	3.926E-03
7.419E 01	1.877E-01	3.355E 02	2.479E-03	3.815E-03
7.494E 01	8.411E-01	3.363E 02	2.431E-03	3.143E-03
7.494E 01	1.883E-03	3.363E 02	2.431E-03	3.160E-03
7.627E 01	5.414E-01	3.368E 02	2.497E-03	4.241E-03
7.912E 01	9.175E-01	3.378E 02	2.344E-03	2.456E-03
8.302E 01	9.567E-01	3.387E 02	2.459E-03	4.032E-03
8.583E 01	4.706E-01	3.392E 02	2.284E-03	2.023E-03
8.869E 01	1.480E-01	3.393E 02	2.303E-03	2.294E-03
8.869E 01	0.000	3.393E 02	2.303E-03	2.294E-03

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	=311.	(LBF)
MEASURED THRUST	=580.	(LBF)
CALCULATED SPECIFIC IMPULSE	=1094.	(LBF=SEC/LBM)
MEASURED SPECIFIC IMPULSE	=2041.	(LBF=SEC/LBM)
CALCULATED THRUST COEFFICIENT	=.2129	
MEASURED THRUST COEFFICIENT	=.3966	

REGENERATIVE-COOLED ENGINE PERFORMANCE CALCULATED

STREAM THRUST	2653.	(LBF)
NET THRUST	=284.	(LBF)
SPECIFIC IMPULSE	=999.	(LBF=SEC/LBM)
THRUST COEFFICIENT	=.1941	

MOMENTUM AND FORCES

INLET FRICTION DRAG	99.2	(LBF)
INLET MOMENTUM CHANGE	=523.8	(LBF)
COMBUSTOR FRICTION DRAG	222.9	(LBF)
COMBUSTOR STRUT DRAG	6.04	(LBF)
COMBUSTOR MOMENTUM CHANGE	=119.	(LBF)
NOZZLE FRICTION DRAG	17.19	(LBF)
NOZZLE STRUT DRAG	0.00	(LBF)
NOZZLE MOMENTUM CHANGE	332.	(LBF)
NOZZLE PRESSURE INTEGRAL	349.	(LBF)
EXTERNAL FRICTION DRAG	37.46	(LBF)
EXTERNAL PRESSURE INTEGRAL	=658.	(LBF)
TOTAL EXTERNAL DRAG	=696.	(LBF)
TOTAL STRUT DRAG	6.04	(LBF)
CAVITY FORCE	=562.	(LBF)
CALCULATED LOAD CELL FORCE	=1969.	(LBF)
MEASURED LOAD CELL FORCE	=1837.	(LBF)

FUEL VACUUM SPECIFIC IMPULSE 0.0.

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	1.7170	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	36.601	(IN)
NOZZLE SHROUD TRAILING EDGE	74.941	(IN)
NOZZLE PLUG TRAILING EDGE	68.693	(IN)
STRUT LEADING EDGE	57.857	(IN)
STRUT TRAILING EDGE	66.457	(IN)
COMBUSTOR EXIT	66.457	(IN)

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.9909	
ADDITIVE DRAG COEFFICIENT	0.0000	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.0960	
DELTA PT2	0.0977	(PSI)
TOTAL PRESSURE RECOVERY = SUPERSONIC	0.2059	
TOTAL PRESSURE RECOVERY = SUBSONIC	0.0978	
INLET PROCESS EFFICIENCY = SUPERSONIC	0.8850	
INLET PROCESS EFFICIENCY = SUBSONIC	0.9111	
KINETIC ENERGY EFFICIENCY = SUPERSONIC	0.9082	
KINETIC ENERGY EFFICIENCY = SUBSONIC	0.8744	
ENTHALPY AT P0 = SUPERSONIC	=27.85	(BTU/LBM)
ENTHALPY AT P0 = SUBSONIC	=3.75	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0181	
EQUIVALENCE RATIO	0.548	
COMBUSTOR EFFICIENCY	0.001	
TOTAL PRESSURE RATIO	0.1081	
COMBUSTOR EFFECTIVENESS	0.1871	

INJECTOR DISCHARGE COEFFICIENTS 0.9707.

NOZZLE

VACUUM STREAM THRUST COEFFICIENT = CS	0.9757	
NOZZLE COEFFICIENT = CT	0.9235	
PROCESS EFFICIENCY	0.8306	
KINETIC ENERGY EFFICIENCY	0.9463	

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	F
1B	42.702	
1C	44.300	
2A	50.177	
2C	44.250	
3A	55.967	
3B	57.652	
4	44.202	

Reading 91

t = 175.65 sec.

Injected fuel appeared to have not ignited.

During the first fuel schedule (see fig. 6 (d)) the injected fuel appeared to ignite at time 179 seconds.

READING = 0091 °BLOCK = 74° TIME = 175.651 MACH 7.3 PT = 95n.499 TT = 3071.1

2/13/75

PAYOFF PERFORMANCE

S U M M A R Y S P O O K I

	P	T	M		GAMMA	VISCT	SONV	MACH	REL	S	/A		AZ*C	UNIT	T	TOTAL	PIT	ETAC
WIND TUNNEL		1	0	6														
0.000	996.499	3071	691.3(	816)	1.2906	28.956	2609											
0.000	0.154	297	-57.8(	71)	1.3968	28.955	843	7.259	6122	1.815	0.05955	13.787	0.9039	2459	5.646	192.9		
SPIKE TIP NS		2	0	7														
0.600	11.212	3071	691.3(	816)	1.2902	28.955	2608											
0.600	10.326	3015	674.1(	799)	1.2921	28.955	2586	0.359	928	2.123	0.05955	13.787	0.9039	2458	5.559	192.2		
WIND TUNNEL		3	0	0														
0.000	996.499	3071	691.3(	816)	1.2906	28.956	2609											
0.000	0.167	304	-56.2(	73)	1.3967	28.955	853	7.168	6116	1.815	0.06303	14.592	0.9039	2812	5.990	192.7		
SPIKE TIP NS		4	0	0														
0.600	11.212	3071	691.3(	816)	1.2902	28.955	2608											
0.600	10.206	3007	671.7(	797)	1.2923	28.955	2583	0.384	991	2.123	0.06303	14.592	0.9039	2812	5.971	192.7		
INLET THROAT		5	0	3														
40.400	216.881	2978	662.8(	788)	1.2935	28.955	2572											
40.400	11.267	1949	228.7(	358)	1.3509	28.955	1833	2.542	4661	1.910	0.67907	13.787	0.0793	2226	49.169	161.5		
INLET UPWASH		6	0	3														
40.400	216.881	2978	662.8(	788)	1.2935	28.955	2572											
40.400	9.683	1393	213.9(	343)	1.3541	28.955	1800	2.634	4740	1.910	0.61734	13.787	0.0872	2247	45.471	163.0		
INLET DNWASH		7	0	4														
40.400	89.534	2978	662.8(	788)	1.2935	28.955	2572											
40.400	77.006	2877	632.5(	759)	1.2967	28.955	2531	0.486	1231	1.971	0.61734	13.787	0.0872	2247	11.810	163.0		
COMBUSTOR	0	8	1	21														
40.410	165.353	2911	666.3(	829)	1.2977	26.736	2650											
40.410	11.494	1517	241.6(	406)	1.3494	26.736	1951	2.368	4620	2.053	0.68341	13.876	0.0793	2226	49.065	160.4	0.20	0.07
COMBUSTOR	0	9	2	21														
40.715	179.220	2837	666.2(	807)	1.3011	26.663	2623											
40.715	12.411	1470	249.9(	393)	1.3926	26.663	1925	2.370	4564	2.040	0.68588	13.876	0.0790	2220	48.650	160.0	0.20	0.01
COMBUSTOR	0	10	3	21														
41.205	157.539	2816	662.8(	801)	1.3019	26.653	2615											
41.205	8.494	1365	223.2(	364)	1.3586	26.653	1860	2.522	4690	2.048	0.68107	13.876	0.0795	2196	49.641	158.2	0.20	0.00
COMBUSTOR	0	11	4	21														
41.500	145.861	2808	660.7(	798)	1.3022	26.651	2612											
41.500	9.058	1412	237.1(	377)	1.3559	26.651	1890	2.436	4604	2.052	0.67398	13.876	0.0804	2172	48.227	156.6	0.20	0.00
COMBUSTOR	0	12	5	21														
42.460	106.732	2786	653.8(	791)	1.3029	26.651	2602											
42.460	7.655	1453	248.9(	389)	1.3536	26.650	1916	2.349	4501	2.073	0.63629	13.876	0.0851	2108	44.507	151.9	0.20	0.00
COMBUSTOR	0	13	6	21														
42.690	82.371	2744	659.9(	830)	1.3059	24.922	2674											
42.690	7.836	1534	267.7(	440)	1.3512	24.922	2033	2.179	4430	2.202	0.63268	13.959	0.0861	2095	43.556	150.1	0.38	0.04
COMBUSTOR	0	14	7	21														
42.700	68.082	2685	659.8(	811)	1.3086	24.865	2651											
42.700	7.844	1470	267.9(	421)	1.3551	24.865	1996	2.219	4428	2.191	0.63259	13.959	0.0862	2094	43.532	150.0	0.38	0.01
COMBUSTOR	0	15	8	21														
42.765	48.068	2675	659.4(	808)	1.3091	24.856	2647											
42.765	7.895	1466	269.7(	420)	1.3553	24.856	1994	2.215	4416	2.189	0.63025	13.959	0.0865	2091	43.248	149.8	0.38	0.00
COMBUSTOR	0	16	9	21														
44.310	61.498	2645	649.6(	798)	1.3101	24.855	2633											
44.310	12.774	1674	334.2(	484)	1.3451	24.855	2122	1.872	3973	2.192	0.58270	13.959	0.0935	2030	35.977	145.4	0.38	0.00
COMBUSTOR	0	17	10	21														
44.800	79.592	2637	647.0(	795)	1.3104	24.855	2629											
44.800	14.322	1728	351.3(	501)	1.3427	24.854	2155	1.785	3846	2.193	0.57619	13.959	0.0946	2016	34.441	144.4	0.38	0.00
COMBUSTOR	0	18	11	21														
45.485	74.571	2686	643.4(	810)	1.3079	24.913	2648											
45.485	14.853	1811	357.0(	524)	1.3387	24.913	2199	1.721	3785	2.203	0.57288	13.959	0.0951	2004	33.896	143.8	0.38	0.03

	P	T	A		GAMMA	MOLWT	SONV	MACH	VEL	S	+/A	M	A/AC	NUMIX	Q	IVAL	PHI	ETAC
COMBUSTOR	0	19	12	21														
46.260	75.979	2624	639.7(	791)	1.3184	24.853	2622											
46.260	13.206	1710	339.3(	402)	1.3939	24.853	2137	1.814	3877	2.196	0.55456	13.959	0.0977	2008	33.572	145.8	0.38	0.00
COMBUSTOR	0	20	13	21														
46.260	75.970	2616	639.4(	788)	1.3110	24.856	2619											
46.260	12.851	1687	337.8(	488)	1.3445	24.856	2130	1.924	3884	2.194	0.55494	13.959	0.0982	2009	33.500	145.9	0.38	0.00
COMBUSTOR	0	21	14	21														
47.310	75.433	2599	634.1(	782)	1.3116	24.855	2611											
47.310	10.139	1589	308.0(	458)	1.3491	24.855	2071	1.950	3959	2.194	0.51402	13.959	0.1059	2028	32.294	145.3	0.38	0.00
COMBUSTOR	0	22	15	21														
48.110	58.551	2879	630.2(	871)	1.2985	25.142	2719											
48.110	11.005	1928	316.1(	960)	1.3315	25.142	2253	1.760	3964	2.239	0.47281	13.959	0.1153	2049	29.130	146.5	0.38	0.15
COMBUSTOR	0	23	16	21														
48.725	67.466	2622	627.2(	789)	1.3102	24.897	2619											
48.725	8.675	1576	289.5(	453)	1.3493	24.897	2061	1.994	4111	2.203	0.43154	13.959	0.1263	2064	27.567	147.9	0.38	0.02
COMBUSTOR	0	24	17	21														
50.175	65.429	2568	621.7(	772)	1.3125	24.861	2596											
50.175	6.179	1421	254.3(	406)	1.3577	24.861	1964	2.183	4288	2.199	0.35070	13.959	0.1554	2106	25.366	150.9	0.38	0.00
COMBUSTOR	0	25	18	21														
50.705	63.633	2559	620.4(	769)	1.3129	24.856	2592											
50.705	5.267	1367	239.7(	390)	1.3607	24.856	1929	2.241	4345	2.200	0.32799	13.959	0.1642	2118	22.698	151.7	0.38	0.00
COMBUSTOR	0	26	19	21														
52.115	59.938	2550	617.8(	766)	1.3132	24.855	2588											
52.115	4.250	1307	221.9(	372)	1.3640	24.855	1888	2.357	4451	2.204	0.27954	13.959	0.1950	2143	19.336	153.5	0.38	0.00
COMBUSTOR	0	27	20	21														
54.215	48.612	2529	611.8(	763)	1.3140	24.725	2585											
54.215	2.350	1167	179.5(	332)	1.3719	24.724	1795	2.592	4651	2.228	0.22979	14.000	0.2379	2167	16.610	154.8	0.39	0.00
COMBUSTOR	0	28	21	21														
54.715	49.988	2522	611.1(	761)	1.3143	24.719	2582											
54.715	2.558	1182	185.5(	336)	1.3712	24.719	1805	2.557	4615	2.224	0.22040	14.000	0.2480	2171	15.808	155.1	0.39	0.00
COMBUSTOR	0	29	22	21														
55.465	49.166	2518	610.2(	759)	1.3144	24.719	2580											
55.465	2.492	1176	184.2(	335)	1.3714	24.718	1801	2.563	4617	2.225	0.20776	14.000	0.2631	2177	14.906	155.5	0.39	0.00
COMBUSTOR	0	30	23	21														
55.760	48.845	2517	609.8(	759)	1.3145	24.719	2580											
55.760	2.466	1175	183.7(	334)	1.3715	24.718	1800	2.565	4618	2.226	0.20321	14.000	0.2690	2179	14.582	155.7	0.39	0.00
COMBUSTOR	0	31	24	21														
56.225	35.753	2609	609.2(	789)	1.3102	24.809	2617											
56.225	1.800	1225	167.5(	348)	1.3679	24.809	1832	2.506	4701	2.261	0.16073	14.000	0.3401	2203	11.794	157.3	0.39	0.05
COMBUSTOR	0	32	25	21														
57.650	36.252	2525	607.9(	762)	1.3140	24.732	2583											
57.650	1.202	1051	142.8(	298)	1.3783	24.732	1707	2.826	4824	2.251	0.14856	14.000	0.3679	2212	11.137	158.0	0.39	0.01
COMBUSTOR	0	33	26	21														
57.705	39.856	2513	607.8(	758)	1.3146	24.720	2578											
57.705	1.465	1075	153.7(	305)	1.3771	24.720	1726	2.762	4767	2.241	0.14619	14.000	0.3689	2213	10.978	158.0	0.39	0.00
COMBUSTOR	0	34	27	21														
57.845	39.367	2511	607.7(	757)	1.3147	24.719	2577											
57.845	1.405	1066	151.5(	302)	1.3776	24.719	1718	2.781	4778	2.242	0.14708	14.000	0.3717	2213	10.921	158.1	0.39	0.00
COMBUSTOR	0	35	28	21														
57.925	35.707	2515	607.6(	758)	1.3145	24.723	2578											
57.925	0.965	1005	132.4(	284)	1.3808	24.723	1671	2.919	4877	2.255	0.14475	14.000	0.3675	2213	11.273	158.1	0.39	0.00
COMBUSTOR	0	36	29	21														
58.205	29.058	2510	607.4(	757)	1.3147	24.719	2576											
58.205	0.725	965	122.1(	273)	1.3830	24.719	1639	3.007	4928	2.260	0.14023	14.000	0.3688	2213	11.552	158.1	0.39	0.00
COMBUSTOR	0	37	30	21														
58.431	33.356	2509	607.2(	757)	1.3147	24.719	2576											
58.431	0.927	994	130.6(	281)	1.3815	24.718	1662	2.938	4883	2.255	0.14800	14.000	0.3693	2213	11.232	158.0	0.39	0.00

READING = 0091 BLOCK = 74 TIME = 175.651 MACH 7.5 PT = 996.499 TT = 5071.4 PAGE 5

	P	T	H		GAMMA	MOLWT	SONV	MACH	VEL	S	W/A		AREA	RGAS	P	TVAL	PHI	EFAC
COMBUSTOR	0	38	31	21														
59.155	40.737	2547	666.8	(754)	1.3148	24.718	2575											
59.155	1.575	1084	156.0	(308)	1.3764	24.718	1735	2.730	4738	2.249	0.14508	14.000	0.3753	2213	11.278	156.1	0.39	0.00
COMBUSTOR	0	39	32	21														
60.175	22.569	2654	605.9	(803)	1.3079	24.842	2658											
60.175	0.825	1147	126.2	(525)	1.3719	24.842	1774	2.762	4899	2.302	0.14473	14.000	0.3777	2212	11.019	158.0	0.39	0.07
COMBUSTOR	0	40	33	21														
62.185	34.829	2524	604.8	(761)	1.3139	24.740	2582											
62.185	1.200	1062	143.3	(301)	1.3776	24.740	1745	2.842	4805	2.258	0.14977	14.000	0.3685	2213	11.154	157.4	0.39	0.01
COMBUSTOR	0	41	34	21														
63.605	38.692	2503	604.1	(754)	1.3149	24.722	2573											
63.605	1.469	1080	154.7	(306)	1.3768	24.722	1729	2.742	4742	2.243	0.15383	14.000	0.3555	2197	11.336	156.9	0.39	0.00
COMBUSTOR	0	42	35	21														
66.069	32.199	2497	603.0	(753)	1.3151	24.719	2570											
66.069	1.104	1047	146.1	(297)	1.3786	24.719	1704	2.806	4782	2.256	0.14581	14.000	0.3749	2187	10.836	156.2	0.39	0.00
COMBUSTOR	0	43	36	21														
66.445	33.509	2496	602.9	(752)	1.3151	24.719	2570											
66.445	1.409	1107	163.8	(314)	1.3753	24.718	1750	2.678	4688	2.253	0.13555	14.000	0.4032	2185	9.875	156.1	0.39	0.00
COMBUSTOR REGEN	44	37	4															
66.445	33.509	2698	671.0	(820)	1.3086	24.719	2665											
66.445	2.698	1438	265.2	(414)	1.3570	24.718	1981	2.280	4518	2.279	0.13555	14.000	0.4032	2244	9.517	160.3	0.39	0.00
NOZZLE AE	45	38	4															
88.681	33.509	2496	602.9	(751)	1.3151	24.719	2570											
88.681	0.217	697	33.9	(184)	1.3964	24.718	1358	3.929	5336	2.253	0.02822	14.000	1.9371	2430	2.340	173.5	0.39	0.00
NOZZLE PO	46	39	4															
88.681	33.509	2496	602.9	(751)	1.3151	24.719	2570											
88.681	0.154	596	16.6	(167)	1.3961	24.718	1294	4.185	5416	2.253	0.02239	14.000	2.4408	2453	1.685	175.2	0.39	0.00
NOZZLE AE REGEN	47	40	4															
88.681	33.509	2698	671.0	(820)	1.3086	24.719	2665											
88.681	0.234	736	36.3	(207)	1.3936	24.718	1436	3.862	5546	2.279	0.02822	14.000	1.9371	2529	2.432	180.7	0.39	0.00
NOZZLE PO REGEN	48	41	4															
88.681	33.509	2698	671.0	(820)	1.3086	24.719	2665											
88.681	0.154	654	33.0	(183)	1.3965	24.718	1358	4.170	5650	2.279	0.02129	14.000	2.5677	2560	1.669	182.6	0.39	0.00
FICTIVE COMBUSTR	66	59	0															
66.445	216.881	4367	602.9	(1364)	1.2223	26.767	3149											
66.445	0.154	804	-591.0	(214)	1.3757	26.831	1431	5.400	7729	2.224	0.02571	14.000	2.1261	3447	3.086	246.2	0.39	1.00
FICTIVE NOZZLE	67	60	0															
88.681	46.451	2468	593.5	(743)	1.3161	24.719	2556											
88.681	0.183	563	7.5	(158)	1.3969	24.718	1258	4.304	5416	2.223	0.02822	14.000	1.9371	2448	2.375	174.8	0.39	0.00

READING # 0001, BLOCK # 74 TIME = 175.651 DACH 7.5 DT = 996.094 TT = 5971.9

XABS	P=IA	P=OB	PDA	GOX	W=IB	G=OB	CAWALL	P=IW/PSO	P=IW/PIO	P=OB/PSO	P=OB/PIO
0.981E-01	6.900E-01	0.000	-2.708E-01	0.000	0.000	0.000	2.472E-02	4.891E 00	6.926E-04	0.000	0.000
1.838E 01	6.900E-01	0.000	-2.296E 01	0.000	0.000	0.000	1.65 -E 2	8.491E 00	6.926E-4	0.000	0.000
3.070E 01	1.490E 00	0.000	-1.113E 02	0.000	0.000	0.000	5.133E 02	9.076E 00	1.695E-03	0.000	0.000
3.508E 01	1.892E 00	0.000	-2.209E 02	0.000	0.000	0.000	6.850E 02	1.229E 01	1.859E-03	0.000	0.000
3.559E 01	2.175E 00	0.000	-2.395E 02	0.000	0.000	0.000	7.013E 02	1.413E 01	2.183E-03	0.000	0.000
3.606E 01	2.480E 00	0.000	-2.631E 02	-1.633E 02	-1.633E 02	0.000	7.246E 02	1.611E 01	2.489E-03	0.000	0.000
3.644E 01	2.123E 00	0.000	-2.828E 02	-1.673E 02	-1.673E 02	0.000	7.403E 02	1.379E 01	2.131E-03	0.000	0.000
3.658E 01	2.223E 00	3.191E 00	-3.205E 02	-1.683E 02	-1.683E 02	0.000	7.091E 02	1.443E 01	2.230E-03	2.072E 01	3.202E-03
3.659E 01	2.228E 00	3.219E 00	-3.206E 02	-1.683E 02	-1.683E 02	0.000	7.090E 02	1.447E 01	2.236E-03	2.090E 01	3.230E-03
3.701E 01	2.635E 00	5.167E 00	-3.215E 02	-1.725E 02	-1.725E 02	0.000	7.931E 02	1.711E 01	2.644E-03	3.355E 01	5.185E-03
3.725E 01	2.470E 00	6.300E 00	-3.195E 02	-1.750E 02	-1.750E 02	0.000	8.188E 02	1.604E 01	2.479E-03	4.091E 01	6.322E-03
3.803E 01	1.950E 00	8.881E 00	-2.967E 02	-1.834E 02	-1.834E 02	0.000	9.020E 02	1.266E 01	1.957E-03	5.766E 01	8.912E-03
3.871E 01	7.451E 00	1.116E 01	-2.967E 02	-2.520E 02	-1.937E 02	-5.830E 01	9.785E 02	4.839E 01	7.477E-03	7.249E 01	1.120E-02
3.875E 01	7.732E 00	1.104E 01	-2.996E 02	-2.545E 02	-1.943E 02	-6.018E 01	9.825E 02	5.022E 01	7.759E-03	7.168E 01	1.108E-02
3.901E 01	9.820E 00	1.011E 01	-3.184E 02	-2.759E 02	-1.997E 02	-7.419E 01	1.012E 03	6.377E 01	9.854E-03	6.564E 01	1.014E-02
3.950E 01	1.364E 01	8.353E 00	-3.365E 02	-3.126E 02	-2.121E 02	-1.005E 02	1.068E 03	8.860E 01	1.369E-02	5.425E 01	8.383E-03
3.974E 01	1.189E 01	7.512E 00	-3.491E 02	-3.324E 02	-2.193E 02	-1.131E 02	1.098E 03	7.722E 01	1.193E-02	4.879E 01	7.539E-03
4.000E 01	9.916E 00	9.507E 00	-3.558E 02	-3.557E 02	-2.284E 02	-1.272E 02	1.126E 03	6.439E 01	9.950E-03	6.174E 01	9.540E-03
4.021E 01	1.071E 01	1.105E 01	-3.577E 02	-3.742E 02	-2.360E 02	-1.382E 02	1.150E 03	6.955E 01	1.074E-02	7.176E 01	1.109E-02
4.040E 01	1.146E 01	1.147E 01	-3.586E 02	-3.921E 02	-2.436E 02	-1.486E 02	1.172E 03	7.441E 01	1.150E-02	7.449E 01	1.151E-02
4.041E 01	1.150E 01	1.149E 01	-3.596E 02	-3.931E 02	-2.440E 02	-1.491E 02	1.174E 03	7.466E 01	1.154E-02	7.463E 01	1.153E-02
4.071E 01	1.267E 01	1.215E 01	-3.600E 02	-4.216E 02	-2.563E 02	-1.653E 02	1.209E 03	8.230E 01	1.272E-02	7.891E 01	1.219E-02
4.121E 01	1.456E 01	2.425E 00	-3.764E 02	-4.684E 02	-2.775E 02	-1.910E 02	1.267E 03	9.457E 01	1.461E-02	1.575E 01	2.434E-03
4.180E 01	1.570E 01	2.416E 00	-3.959E 02	-4.973E 02	-2.912E 02	-2.061E 02	1.302E 03	1.020E 02	1.576E-02	1.569E 01	2.424E-03
4.246E 01	1.292E 01	2.385E 00	-4.456E 02	-5.944E 02	-3.367E 02	-2.577E 02	1.416E 03	8.394E 01	1.297E-02	1.549E 01	2.393E-03
4.269E 01	1.329E 01	2.377E 00	-4.552E 02	-6.175E 02	-3.471E 02	-2.704E 02	1.443E 03	8.634E 01	1.334E-02	1.544E 01	2.386E-03
4.270E 01	1.331E 01	2.377E 00	-4.557E 02	-6.185E 02	-3.475E 02	-2.709E 02	1.444E 03	8.644E 01	1.336E-02	1.544E 01	2.385E-03
4.276E 01	1.342E 01	2.375E 00	-4.584E 02	-6.247E 02	-3.503E 02	-2.744E 02	1.452E 03	8.712E 01	1.346E-02	1.542E 01	2.383E-03
4.431E 01	1.590E 01	9.609E 00	-4.980E 02	-7.603E 02	-4.001E 02	-3.602E 02	1.638E 03	1.033E 02	1.596E-02	6.266E 01	9.683E-03
4.480E 01	1.669E 01	1.196E 01	-5.059E 02	-7.980E 02	-4.094E 02	-3.886E 02	1.698E 03	1.084E 02	1.675E-02	7.765E 01	1.200E-02
4.509E 01	1.452E 01	1.518E 01	-5.092E 02	-8.485E 02	-4.203E 02	-4.283E 02	1.782E 03	9.453E 01	1.458E-02	9.859E 01	1.523E-02
4.620E 01	1.227E 01	1.375E 01	-4.970E 02	-9.003E 02	-4.313E 02	-4.689E 02	1.869E 03	7.947E 01	1.231E-02	8.927E 01	1.379E-02
4.626E 01	1.208E 01	1.362E 01	-4.952E 02	-9.045E 02	-4.323E 02	-4.723E 02	1.877E 03	7.844E 01	1.212E-02	8.846E 01	1.367E-02
4.731E 01	8.742E 00	1.152E 01	-4.637E 02	-9.775E 02	-4.481E 02	-5.284E 02	2.000E 03	5.691E 01	8.793E-03	7.479E 01	1.156E-02
4.811E 01	1.210E 01	9.910E 00	-4.377E 02	-1.032E 03	-4.594E 02	-5.722E 02	2.105E 03	7.859E 01	1.214E-02	6.436E 01	9.945E-03
4.872E 01	8.675E 00	8.675E 00	-4.122E 02	-1.074E 03	-4.687E 02	-6.052E 02	2.182E 03	5.634E 01	8.705E-03	5.634E 01	8.705E-03
5.017E 01	6.179E 00	6.179E 00	-3.567E 02	-1.151E 03	-4.888E 02	-6.618E 02	2.343E 03	4.013E 01	6.201E-03	4.013E 01	6.201E-03
5.071E 01	5.267E 00	5.267E 00	-3.409E 02	-1.168E 03	-4.960E 02	-6.720E 02	2.429E 03	3.420E 01	5.285E-03	3.420E 01	5.285E-03
5.211E 01	4.250E 00	4.250E 00	-3.057E 02	-1.204E 03	-5.143E 02	-6.899E 02	2.607E 03	2.760E 01	4.265E-03	2.760E 01	4.265E-03
5.421E 01	2.350E 00	2.350E 00	-2.694E 02	-1.250E 03	-5.401E 02	-7.100E 02	2.873E 03	1.526E 01	2.358E-03	1.526E 01	2.358E-03
5.471E 01	2.598E 00	2.598E 00	-2.630E 02	-1.260E 03	-5.459E 02	-7.136E 02	2.937E 03	1.661E 01	2.567E-03	1.661E 01	2.567E-03
5.546E 01	2.492E 00	2.492E 00	-2.532E 02	-1.273E 03	-5.540E 02	-7.188E 02	3.033E 03	1.618E 01	2.501E-03	1.618E 01	2.501E-03
5.576E 01	2.466E 00	2.466E 00	-2.495E 02	-1.276E 03	-5.577E 02	-7.207E 02	3.070E 03	1.602E 01	2.475E-03	1.602E 01	2.475E-03
5.622E 01	1.175E 00	2.425E 00	-2.250E 02	-1.286E 03	-5.623E 02	-7.236E 02	3.102E 03	7.631E 00	1.179E-03	1.575E 01	2.434E-03
5.769E 01	1.202E 00	1.202E 00	-2.121E 02	-1.305E 03	-5.740E 02	-7.315E 02	3.210E 03	7.803E 00	1.206E-03	7.803E 00	1.206E-03
5.771E 01	1.775E 00	1.154E 00	-2.118E 02	-1.306E 03	-5.740E 02	-7.317E 02	3.217E 03	1.153E 01	1.781E-03	7.496E 00	1.158E-03
5.789E 01	1.775E 00	1.034E 00	-2.111E 02	-1.308E 03	-5.755E 02	-7.324E 02	3.234E 03	1.153E 01	1.781E-03	6.716E 00	1.038E-03
5.792E 01	9.654E-01	9.654E-01	-2.107E 02	-1.309E 03	-5.761E 02	-7.328E 02	3.245E 03	6.270E 00	9.688E-04	6.270E 00	9.688E-04
5.821E 01	7.250E-01	7.250E-01	-2.096E 02	-1.312E 03	-5.782E 02	-7.341E 02	3.280E 03	4.708E 00	7.275E-04	4.708E 00	7.275E-04
5.843E 01	9.272E-01	9.272E-01	-2.088E 02	-1.315E 03	-5.799E 02	-7.351E 02	3.309E 03	6.022E 00	9.305E-04	6.022E 00	9.305E-04
5.915E 01	1.575E 00	1.575E 00	-2.054E 02	-1.323E 03	-5.850E 02	-7.382E 02	3.402E 03	1.023E 01	1.581E-03	1.023E 01	1.581E-03
6.017E 01	8.250E-01	8.250E-01	-2.024E 02	-1.333E 03	-5.918E 02	-7.419E 02	3.532E 03	5.358E 00	8.279E-04	5.358E 00	8.279E-04
6.218E 01	1.200E 00	1.200E 00	-2.024E 02	-1.348E 03	-6.033E 02	-7.451E 02	3.740E 03	7.793E 00	1.204E-03	7.793E 00	1.204E-03
6.360E 01	1.469E 00	1.469E 00	-2.024E 02	-1.356E 03	-6.100E 02	-7.480E 02	3.972E 03	9.538E 00	1.474E-03	9.538E 00	1.474E-03
6.607E 01	1.104E 00	1.104E 00	-2.024E 02	-1.373E 03	-6.184E 02	-7.544E 02	4.289E 03	7.168E 00	1.108E-03	7.168E 00	1.108E-03
6.644E 01	1.770E 00	1.046E 00	-2.024E 02	-1.375E 03	-6.194E 02	-7.555E 02	4.337E 03	1.149E 01	1.774E-03	6.806E 00	1.052E-03

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PAGE 5

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6.666E 01	1.765E 00	1.000E 00	-1.570E 03	-6.195E 02	-7.956E 02	5.705E 03	2.112E 00	3.243E-04
6.683E 01	1.760E 00	1.000E 00	-1.570E 03	-6.195E 02	-7.956E 02	5.705E 03	2.112E 00	3.243E-04
6.700E 01	1.755E 00	1.000E 00	-1.570E 03	-6.195E 02	-7.956E 02	5.705E 03	2.112E 00	3.243E-04
6.901E 01	1.500E 00	2.047E 00	-1.542E 03	-6.266E 02	-7.931E 02	5.705E 03	2.112E 00	3.243E-04
6.978E 01	1.370E 00	1.364E 00	-1.412E 03	-6.295E 02	-7.891E 02	5.705E 03	2.112E 00	3.243E-04
7.050E 01	8.589E-01	7.350E-01	-8.571E 01	-4.427E 02	-7.456E 02	5.705E 03	2.112E 00	3.243E-04
7.111E 01	6.490E-01	7.027E-01	-6.961E 01	-4.401E 02	-7.407E 02	5.705E 03	2.112E 00	3.243E-04
7.249E 01	7.659E-01	8.255E-01	-1.043E 03	-6.248E 02	-7.932E 02	5.705E 03	2.112E 00	3.243E-04
7.402E 01	8.417E-01	8.956E-01	-1.045E 03	-6.553E 02	-8.065E 02	5.705E 03	2.112E 00	3.243E-04
7.492E 01	5.776E-01	2.300E-01	-1.469E 03	-6.578E 02	-8.116E 02	5.705E 03	2.112E 00	3.243E-04
7.495E 01	5.773E-01	2.270E-01	-1.469E 03	-6.579E 02	-8.111E 02	5.705E 03	2.112E 00	3.243E-04
7.625E 01	4.750E-01	0.000	-1.469E 03	-6.579E 02	-8.297E 02	5.705E 03	2.112E 00	3.243E-04
7.910E 01	5.150E-01	0.000	-1.469E 03	-6.579E 02	-8.297E 02	5.705E 03	2.112E 00	3.243E-04
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8.581E 01	2.600E-01	0.000	-1.506E 03	-6.739E 02	-8.297E 02	5.705E 03	2.112E 00	3.243E-04
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X	DMAG	CURAG	CF	MC
4.0306E 01	9.0916E 01	9.0916E 01	2.0478E-03	3.0495E-02
4.0541E 01	1.5606E-01	9.1176E 01	2.0505E-03	3.0547E-02
4.0776E 01	4.8079E 00	9.5956E 01	2.0619E-03	3.0867E-02
4.1121E 01	7.3326E 00	1.0333E 02	2.0572E-03	2.9979E-02
4.1506E 01	4.4126E 00	1.0777E 02	2.0686E-03	3.0069E-02
4.2406E 01	1.0416E 01	1.2188E 02	2.7396E-03	2.0625E-02
4.2696E 01	3.6256E 00	1.2556E 02	3.2554E-03	2.4053E-02
4.2706E 01	1.5856E-01	1.2566E 02	2.8977E-03	2.7126E-02
4.2766E 01	9.6976E-01	1.2666E 02	2.8428E-03	2.7596E-02
4.4316E 01	2.1206E 01	1.4786E 02	2.9096E-03	3.6726E-02
4.4806E 01	6.1316E 00	1.5396E 02	2.9366E-03	3.9136E-02
4.5496E 01	8.3826E 00	1.6236E 02	2.9526E-03	3.9786E-02
4.6206E 01	8.7406E 00	1.7106E 02	2.9406E-03	3.5946E-02
4.6626E 01	7.2926E-01	1.7186E 02	2.9366E-03	3.6006E-02
4.7316E 01	1.2396E 01	1.8426E 02	2.8806E-03	3.0666E-02
4.8116E 01	8.7226E 00	1.9296E 02	2.8506E-03	3.1846E-02
4.8726E 01	6.3986E 00	1.9936E 02	3.0496E-03	2.4976E-02
5.0176E 01	1.3376E 01	2.1266E 02	2.7476E-03	2.0296E-02
5.0716E 01	4.1156E 00	2.1686E 02	2.6816E-03	1.9126E-02
5.2116E 01	9.7716E 00	2.2656E 02	2.6136E-03	1.5156E-02
5.4216E 01	1.2506E 01	2.3906E 02	2.6136E-03	9.4276E-03
5.4716E 01	2.6666E 00	2.4176E 02	2.5496E-03	1.0076E-02
5.5466E 01	3.7326E 00	2.4546E 02	2.5246E-03	9.7626E-03
5.5766E 01	1.4036E 00	2.4686E 02	2.5166E-03	9.6696E-03
5.6226E 01	1.0256E 00	2.4796E 02	2.4516E-03	7.3036E-03
5.7656E 01	3.0946E 00	2.5106E 02	2.5736E-03	5.1826E-03
5.7716E 01	1.9546E-01	2.5126E 02	2.4436E-03	6.1656E-03
5.7856E 01	4.7386E-01	2.5166E 02	2.4276E-03	5.9946E-03
5.7926E 01	2.8006E-01	2.5196E 02	2.5056E-03	4.4816E-03
5.8216E 01	1.0126E 00	2.5296E 02	2.5116E-03	3.6306E-03
5.8436E 01	8.0816E-01	2.5376E 02	2.4576E-03	4.3766E-03
5.9156E 01	2.4496E 00	2.5626E 02	2.3996E-03	6.4676E-03
6.0176E 01	3.4496E 00	2.5966E 02	2.4546E-03	3.9706E-03
6.2186E 01	7.2656E 00	2.6696E 02	2.4216E-03	5.0016E-03
6.3606E 01	5.1866E 00	2.7216E 02	2.4356E-03	6.0566E-03
6.6076E 01	8.6006E 00	2.8076E 02	2.4736E-03	4.4826E-03
6.6446E 01	1.2376E 00	2.8196E 02	2.4776E-03	5.8236E-03
6.6996E 01	1.0596E-01	2.8206E 02	2.4286E-03	5.6406E-03
6.8686E 01	4.3166E-01	2.8256E 02	2.4256E-03	5.8626E-03
6.8556E 01	3.7436E 00	2.8626E 02	2.4346E-03	6.1466E-03
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7.0506E 01	1.1866E 00	2.9056E 02	2.3606E-03	5.7196E-03
7.1116E 01	4.3936E-01	2.9146E 02	2.2406E-03	3.4526F-03
7.2496E 01	1.8816E 00	2.9336E 02	2.2496E-03	3.6946E-03
7.4026E 01	2.1206E 00	2.9546E 02	2.2756E-03	3.5986E-03
7.4926E 01	9.3066E-01	2.9636E 02	2.1646E-03	2.2516E-03
7.4936E 01	1.1986E-03	2.9636E 02	2.1646E-03	2.2646E-03
7.6256E 01	4.0526E-01	2.9676E 02	2.1106E-03	2.3506E-03
7.9106E 01	7.0826E-01	2.9746E 02	2.1106E-03	1.8426E-03
8.3006E 01	5.7366E-01	2.9806E 02	2.0586E-03	1.5776E-03
8.5416E 01	2.7616E-01	2.9836E 02	2.0576E-03	1.5776E-03
8.8876E 01	1.3186E-01	2.9846E 02	2.0626E-03	1.6526E-03
8.8886E 01	0.000	2.9846E 02	2.0626E-03	1.6526E-03

PAYLOAD PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	-228.	(LBF)
MEASURED THRUST	-229.	(LBF)
CALCULATED SPECIFIC IMPULSE	-1267.	(LBF-SEC/LBM)
MEASURED SPECIFIC IMPULSE	-1252.	(LBF-SEC/LBM)
CALCULATED THRUST COEFFICIENT	-.1570	
MEASURED THRUST COEFFICIENT	-.1552	

REGENERATIVE-COOLED ENGINE PERFORMANCE
CALCULATED

STREAM THRUST	2548.	(LBF)
NET THRUST	-127.	(LBF)
SPECIFIC IMPULSE	-708.	(LBF-SEC/LBM)
THRUST COEFFICIENT	-.0877	

MOMENTUM AND FORCES

INLET FRICTION DRAG	90.9	(LBF)
INLET MOMENTUM CHANGE	-449.5	(LBF)
COMBUSTOR FRICTION DRAG	191.0	(LBF)
COMBUSTOR STRUT DRAG	5.91	(LBF)
COMBUSTOR MOMENTUM CHANGE	-41.	(LBF)
NOZZLE FRICTION DRAG	16.48	(LBF)
NOZZLE STRUT DRAG	0.00	(LBF)
NOZZLE MOMENTUM CHANGE	262.	(LBF)
NOZZLE PRESSURE INTEGRAL	279.	(LBF)
EXTERNAL FRICTION DRAG	54.34	(LBF)
EXTERNAL PRESSURE INTEGRAL	-653.	(LBF)
TOTAL EXTERNAL DRAG	-707.	(LBF)
TOTAL STRUT DRAG	5.91	(LBF)
CAVITY FORCE	-524.	(LBF)
CALCULATED LOAD CELL FORCE	-1459.	(LBF)
MEASURED LOAD CELL FORCE	-1454.	(LBF)
FUEL VACUUM SPECIFIC IMPULSE 0.0, 0.0,		

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	1.7050	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	36.589	(IN)
NOZZLE SHROUD TRAILING EDGE	74.929	(IN)
NOZZLE PLUG TRAILING EDGE	88.681	(IN)
STRUT LEADING EDGE	57.845	(IN)
STRUT TRAILING EDGE	66.445	(IN)
COMBUSTOR EXIT	66.445	(IN)

INLET

ANGLE OF ATTACK	3.000	(DEGREES)
MASS FLOW RATIO	0.9039	
ADDITIVE DRAG COEFFICIENT	0.0087	
LIFTING SURFACE PRESSURE RECOVERY FACTOR	0.9966	
DELTA PT2	.0652	(PSI)
TOTAL PRESSURE RECOVERY - SUPERSONIC	0.2176	
TOTAL PRESSURE RECOVERY - SUBSONIC	0.0898	
INLET PROCESS EFFICIENCY - SUPERSONIC	0.8791	
INLET PROCESS EFFICIENCY - SUBSONIC	0.9054	
KINETIC ENERGY EFFICIENCY - SUPERSONIC	0.9158	
KINETIC ENERGY EFFICIENCY - SUBSONIC	0.8752	
ENTHALPY AT P0 - SUPERSONIC	-23.17	(BTU/LBM)
ENTHALPY AT P0 - SUBSONIC	7.24	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0130
EQUIVALENCE RATIO	0.393
COMBUSTION EFFICIENCY	0.000
TOTAL PRESSURE RATIO	0.1545
COMBUSTOR EFFECTIVENESS	0.1M23
INJECTOR DISCHARGE COEFFICIENTS 0.9519, 0.5579,	

NOZZLE

VACUUM STREAM THRUST COEFFICIENT - CS	1.0074
NOZZLE COEFFICIENT - CT	0.9866
PROCESS EFFICIENCY	1.1286
KINETIC ENERGY EFFICIENCY	1.0146

FUEL INJECTIONS

INJECTORS	STATION	VALVE
1A	40.400	A
1B	42.490	B
1C	44.300	
2A	50.165	
2C	46.250	
3A	55.455	
3B	57.640	
4	46.190	

Reading 91

t = 180.15 sec.

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S U M M A R Y R E P O R T

P	T	M	GAMMA	SOUND	VEL	S	ZA						
WIND TUNNEL 1		0 5											
0.000 995.999	3035	680.3(809)	1.2917	28.956	2595								
0.000 0.154	292	58.9(70)	1.3963	28.955	857	7.265	6082	1.811	0.08044	13.891	0.9032	2661	5.675	191.6	
SPIKE TIP NO 2		0 7											
0.000 11.225	3035	680.3(805)	1.2914	28.955	2594								
0.000 10.336	2979	663.3(784)	1.2933	28.955	2572	0.359	924	2.119	0.06694	13.891	0.9032	2740	6.662	190.8	
WIND TUNNEL 3		0 0											
0.000 995.999	3035	680.3(805)	1.2917	28.956	2595								
0.000 0.167	299	57.2(72)	1.3965	28.955	867	7.174	6075	1.811	0.08453	13.898	0.9032	2814	5.996	191.4	
SPIKE TIP NO 4		0 0											
0.000 11.225	3035	680.3(805)	1.2914	28.955	2594								
0.000 10.216	2971	660.9(786)	1.2935	28.955	2569	0.384	986	2.119	0.06553	13.898	0.9032	2814	6.974	191.4	
INLET THROAT 5		0 4											
40.400 201.461	2965	658.8(784)	1.2939	28.955	2566								
40.400 11.895	1490	239.6(368)	1.3485	28.955	1858	2.466	4580	1.914	0.08499	13.891	0.0792	2219	46.757	159.7	
INLET UPNRSK 6		0 3											
40.400 201.461	2965	658.8(784)	1.2939	28.955	2566								
40.400 10.209	1432	224.3(353)	1.3518	28.955	1823	2.557	4663	1.914	0.62272	13.891	0.0871	2241	45.126	161.3	
INLET DNNRSK 7		0 4											
40.400 89.166	2965	658.8(784)	1.2939	28.955	2566								
40.400 76.360	2862	627.8(754)	1.2972	28.955	2525	0.493	1245	1.970	0.62272	13.891	0.0871	2241	12.052	161.3	
COMBUSTOR 0 8		1 13											
40.410 156.340	2859	668.2(824)	1.3003	26.337	2649								
40.410 14.739	1606	279.2(438)	1.3456	26.337	2020	2.185	4412	2.075	0.69016	13.997	0.0792	2219	47.524	158.5	0.23	0.00
COMBUSTOR 0 9		2 4											
40.719 125.987	3089	666.0(894)	1.2894	26.590	2729								
40.719 18.852	1973	311.4(544)	1.3276	26.591	2213	1.904	4213	2.110	0.69267	13.997	0.0789	2214	45.347	158.1	0.23	0.24
COMBUSTOR 0 10		3 21											
41.209 141.188	2830	662.4(815)	1.3013	26.326	2637								
41.209 12.574	1564	270.6(426)	1.3478	26.325	1996	2.219	4428	2.079	0.68772	13.997	0.0795	2182	47.323	155.9	0.23	0.04
COMBUSTOR 0 11		4 21											
41.500 131.114	2786	660.2(802)	1.3033	26.287	2621								
41.500 13.975	1609	295.7(439)	1.3460	26.286	2024	2.110	4271	2.080	0.68064	13.997	0.0803	2145	45.173	153.3	0.23	0.01
COMBUSTOR 0 12		5 2											
42.460 87.412	2760	651.9(793)	1.3042	26.286	2609								
42.460 20.552	1946	396.5(540)	1.3319	26.285	2214	1.615	3574	2.108	0.64228	13.997	0.0851	2003	35.677	143.1	0.23	0.00
COMBUSTOR 0 13		6 21											
42.694 71.227	2710	660.5(840)	1.3078	24.250	2696								
42.694 21.221	2021	427.2(608)	1.3315	24.250	2349	1.455	3417	2.257	0.64032	14.099	0.0860	1965	34.602	139.3	0.46	0.04
COMBUSTOR 0 14		7 21											
42.704 73.497	2659	660.4(817)	1.3111	24.183	2667								
42.704 21.249	1949	426.0(586)	1.3350	24.183	2313	1.475	3410	2.247	0.63936	14.099	0.0861	1963	33.683	139.2	0.46	0.01
COMBUSTOR 0 15		8 21											
42.769 72.424	2626	659.8(813)	1.3117	24.173	2662								
42.769 21.435	1950	432.1(586)	1.3350	24.173	2314	1.458	3375	2.246	0.63830	14.099	0.0862	1952	33.478	138.5	0.46	0.00
COMBUSTOR 0 16		9 21											
44.310 56.133	2583	645.3(798)	1.3131	24.172	2641								
44.310 37.678	2346	564.6(718)	1.3210	24.171	2525	0.796	2010	2.262	0.58693	14.099	0.0935	1763	16.397	126.5	0.46	0.00
COMBUSTOR 0 17		10 21											
44.800 51.648	3621	641.0(1141)	1.2613	25.232	3000								
44.800 42.843	3483	588.8(1092)	1.2668	25.236	2948	0.549	1617	2.350	0.58201	14.099	0.0946	1747	14.630	123.9	0.46	0.48
COMBUSTOR 0 18		11 21											
45.489 54.001	2716	635.2(841)	1.3066	24.325	2693								
45.489 44.157	2590	591.6(798)	1.3108	24.325	2634	0.561	1477	2.279	0.57902	14.099	0.0951	1723	13.292	122.2	0.46	0.07

READING = 0091 BLOCK = 79 TTRF = 140.151 MACH 7.3 PT = 995.797 TT = 5065.5

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	Z/A	W	W/AC	RUNTM	Q	TVAC	PHI	ETAC
COMBUSTOR	0	19	14 21														
46.204	52.493	2501	629.5(783)	1.3145	24.194	2629											
46.204	37.128	2357	559.8(711)	1.3214	24.194	2529	0.739	1868	2.264	0.56283	14.099	0.0974	1749	16.343	124.6	0.46	0.01
COMBUSTOR	0	20	15 21														
46.240	52.471	2539	629.1(783)	1.3145	24.175	2628											
46.260	36.577	2327	557.0(711)	1.3216	24.175	2515	0.758	1900	2.261	0.56095	14.099	0.0981	1752	16.564	124.3	0.46	0.00
COMBUSTOR	0	21	16 21														
47.310	51.471	2515	621.8(775)	1.3154	24.172	2608											
47.310	26.254	2135	493.4(647)	1.3283	24.172	2415	1.050	2535	2.260	0.51988	14.099	0.1059	1823	20.486	129.3	0.46	0.00
COMBUSTOR	0	22	15 21														
48.110	51.945	2499	616.7(769)	1.3159	24.171	2601											
48.110	20.236	1983	443.6(597)	1.3338	24.171	2353	1.262	2943	2.257	0.47749	14.099	0.1152	1887	21.855	133.8	0.46	0.00
COMBUSTOR	0	23	16 4														
48.729	50.491	2563	612.7(790)	1.3128	24.242	2627											
48.729	17.625	1982	417.5(594)	1.3330	24.242	2328	1.342	3125	2.266	0.43584	14.099	0.1263	1940	21.170	137.6	0.46	0.03
COMBUSTOR	0	24	17 4														
50.179	45.891	2733	605.0(845)	1.3047	24.425	2694											
50.179	12.943	2019	362.4(604)	1.3296	24.425	2336	1.492	3485	2.291	0.35423	14.099	0.1594	2043	19.182	144.9	0.46	0.12
COMBUSTOR	0	25	18 3														
50.709	45.472	2737	603.6(846)	1.3044	24.434	2695											
50.709	11.258	1954	338.8(584)	1.3314	24.434	2301	1.580	3636	2.292	0.33129	14.099	0.1662	2073	18.721	147.0	0.46	0.12
COMBUSTOR	0	26	19 4														
52.119	40.921	2892	598.6(897)	1.2970	24.598	2754											
52.119	9.575	2047	311.1(612)	1.3263	24.598	2343	1.619	3793	2.314	0.28235	14.099	0.1950	2140	16.643	151.8	0.46	0.20
COMBUSTOR	0	27	20 9														
54.219	55.896	2499	591.0(772)	1.3150	24.123	2602											
54.219	4.450	1317	204.2(386)	1.3636	24.123	1924	2.287	4399	2.258	0.23210	14.141	0.2379	2205	15.869	155.9	0.47	0.04
COMBUSTOR	0	28	21 4														
54.719	48.637	2600	589.8(805)	1.3103	24.221	2645											
54.719	4.750	1455	211.5(428)	1.3552	24.221	2012	2.163	4351	2.281	0.22261	14.141	0.2480	2214	15.652	156.6	0.47	0.08
COMBUSTOR	0	29	22 4														
55.469	53.410	2519	586.1(778)	1.3140	24.150	2611											
55.469	3.906	1300	189.1(381)	1.3643	24.150	1911	2.339	4468	2.264	0.20985	14.141	0.2631	2227	14.572	157.5	0.47	0.05
COMBUSTOR	0	30	23 3														
55.760	56.415	2480	587.5(766)	1.3157	24.115	2594											
55.760	3.578	1228	180.0(359)	1.3686	24.114	1862	2.426	4516	2.255	0.20531	14.141	0.2689	2231	14.409	157.8	0.47	0.03
COMBUSTOR	0	31	24 3														
56.229	51.469	2499	586.7(772)	1.3149	24.134	2601											
56.229	2.603	1166	153.7(340)	1.3719	24.134	1815	2.564	4654	2.265	0.16234	14.141	0.3401	2272	11.742	160.7	0.47	0.04
COMBUSTOR	0	32	25 21														
57.654	57.811	2411	584.5(743)	1.3188	24.059	2563											
57.654	1.377	908	103.9(263)	1.3861	24.059	1613	3.041	4904	2.245	0.15005	14.141	0.3679	2285	11.436	161.6	0.47	0.01
COMBUSTOR	0	33	26 4														
57.709	47.109	2536	584.4(784)	1.3131	24.175	2617											
57.709	2.444	1194	147.8(348)	1.3699	24.175	1834	2.548	4674	2.276	0.14963	14.141	0.3690	2285	10.869	161.6	0.47	0.06
COMBUSTOR	0	34	27 3														
57.849	48.332	2518	584.3(778)	1.3139	24.159	2609											
57.849	2.361	1165	144.8(339)	1.3717	24.159	1814	2.585	4689	2.272	0.14855	14.141	0.3717	2286	10.826	161.6	0.47	0.05
COMBUSTOR	0	35	28 21														
57.929	44.116	2482	584.2(766)	1.3155	24.126	2594											
57.929	1.054	941	89.5(272)	1.3839	24.126	1639	3.036	4975	2.276	0.15021	14.141	0.3675	2286	11.614	161.6	0.47	0.04
COMBUSTOR	0	36	29 21														
58.209	45.579	2407	583.9(742)	1.3189	24.057	2562											
58.209	0.725	810	75.3(234)	1.3906	24.057	1525	3.307	5044	2.264	0.14974	14.141	0.3687	2286	11.739	161.6	0.47	0.01
COMBUSTOR	0	37	30 21														
58.435	53.028	2396	583.6(738)	1.3195	24.047	2556											
58.435	0.927	827	83.9(239)	1.3899	24.047	1541	3.248	5000	2.250	0.14944	14.141	0.3695	2285	11.612	161.6	0.47	0.00

	P	T	H	GAMMA	CP/CV	SONV	RHO	VEL	A	M/A	A/AC	FLOW	FCAL	PHI	ETAC
COMBUSTOR	0	38	31 21												
59.159	61.465	2392	582.6(737)	1.3196	24.044	2555									
59.159	1.575	918	111.5(266)	1.3857	24.046	1622	2.994	4656	2.237	0.14712	14.141	0.3753	2254	11.103	161.6	0.47	0.00
COMBUSTOR	0	39	32 21												
60.179	51.260	2389	581.9(736)	1.3197	24.046	2553									
60.179	0.850	812	80.2(235)	1.3906	24.045	1528	3.280	5011	2.252	0.14618	14.141	0.3777	2264	11.383	161.5	0.47	0.00
COMBUSTOR	0	40	33 5												
62.189	36.535	2696	580.0(836)	1.3056	24.338	2681									
62.189	3.112	1464	172.1(430)	1.3535	24.339	2012	2.245	4518	2.313	0.15127	14.141	0.3650	2277	10.721	161.1	0.47	0.13
COMBUSTOR	0	41	34 4												
63.609	43.718	2568	578.7(794)	1.3114	24.221	2629									
63.609	2.756	1278	156.7(373)	1.3649	24.221	1892	2.429	4595	2.285	0.15537	14.141	0.3553	2271	11.095	160.6	0.47	0.08
COMBUSTOR	0	42	35 21												
66.073	51.191	2400	576.2(739)	1.3190	24.071	2557									
66.073	1.451	949	111.3(275)	1.3840	24.071	1647	2.929	4823	2.253	0.14727	14.141	0.3744	2259	11.039	159.8	0.47	0.01
COMBUSTOR	0	43	36 6												
66.449	24.726	2939	575.8(915)	1.2938	24.587	2773									
66.449	3.821	1882	216.8(560)	1.3315	24.588	2251	1.883	4239	2.365	0.13691	14.141	0.4032	2258	9.019	159.7	0.47	0.24
COMBUSTOR REGEN	44	37 3													
66.449	24.726	3161	656.0(993)	1.2858	24.586	2867									
66.449	4.132	2079	281.3(624)	1.3239	24.588	2359	1.835	4330	2.391	0.13691	14.141	0.4032	2330	9.213	164.6	0.47	0.24
NOZZLE AE	45	38 4													
88.685	24.726	2939	575.8(913)	1.2938	24.587	2773									
88.685	0.307	971	-65.3(278)	1.3787	24.588	1645	3.442	5664	2.365	0.02850	14.141	1.9371	2642	2.509	186.6	0.47	0.24
NOZZLE PO	46	39 4													
88.685	24.726	2939	575.8(913)	1.2938	24.587	2773									
88.685	0.154	802	-114.7(228)	1.3869	24.586	1500	3.919	5878	2.365	0.01796	14.141	3.0746	2705	1.640	191.3	0.47	0.24
NOZZLE AE REGEN	47	40 4													
88.685	24.726	3161	656.0(993)	1.2858	24.586	2867									
88.685	0.331	1083	-32.3(311)	1.3725	24.588	1734	3.385	5869	2.391	0.02850	14.141	1.9372	2743	2.599	194.0	0.47	0.24
NOZZLE PO REGEN	48	41 4													
88.685	24.726	3161	656.0(993)	1.2858	24.586	2867									
88.685	0.154	878	-92.6(251)	1.3834	24.588	1567	3.905	6120	2.391	0.01708	14.141	3.2325	2817	1.625	199.2	0.47	0.24
FICTIVE COMBUSTR	66	59 0													
66.449	201.461	4527	575.8(1452)	1.2120	26.363	3217									
66.449	0.154	881	-694.8(240)	1.3694	26.459	1506	5.295	7974	2.279	0.02386	14.141	2.3136	3596	2.457	254.3	0.47	1.00
FICTIVE NOZZLE	67	60 0													
88.685	23.661	2909	565.6(905)	1.2949	24.587	2759									
88.685	0.311	974	-64.5(279)	1.3785	24.588	1648	3.406	5613	2.365	0.02850	14.141	1.9371	2621	2.486	185.4	0.47	0.24

READING = 0091 BLOCK = 79 TIME = 180.151 MACH 7.3 PT = 995.999 TT = 3035.3 PAGE 4

XAXIS	P=IB	P=OB	PDA	OOX	Q=IB	Q=OB	CAMALL	P=IB/PBO	P=IB/PTO	P=OB/PBO	P=OB/PTO
6.981E-01	6.900E-01	0.000	-2.711E-01	0.000	0.000	0.000	2.878E-02	4.480E 00	6.928E-04	0.000	0.000
1.836E 01	6.900E-01	0.000	-2.296E 01	0.000	0.000	0.000	1.834E 02	4.480E 00	6.928E-04	0.000	0.000
3.070E 01	1.500E 00	0.000	-1.117E 02	0.000	0.000	0.000	5.053E 02	9.739E 00	1.506E-03	0.000	0.000
3.508E 01	1.897E 00	0.000	-2.218E 02	0.000	0.000	0.000	6.804E 02	1.232E 01	1.905E-03	0.000	0.000
3.655E 01	2.190E 00	0.000	-2.405E 02	0.000	0.000	0.000	7.013E 02	1.422E 01	2.199E-03	0.000	0.000
3.806E 01	2.485E 00	0.000	-2.642E 02	-9.279E 01	-9.279E 01	0.000	7.246E 02	1.613E 01	2.495E-03	0.000	0.000
3.648E 01	2.122E 00	0.000	-2.839E 02	-9.503E 01	-9.503E 01	0.000	7.443E 02	1.378E 01	2.130E-03	0.000	0.000
3.659E 01	2.225E 00	3.181E 00	-3.217E 02	-9.562E 01	-9.562E 01	0.000	7.493E 02	1.445E 01	2.234E-03	2.065E 01	3.193E-03
3.659E 01	2.231E 00	3.208E 00	-3.218E 02	-9.566E 01	-9.566E 01	0.000	7.496E 02	1.449E 01	2.240E-03	2.083E 01	3.221E-03
3.701E 01	2.635E 00	5.136E 00	-3.228E 02	-9.801E 01	-9.801E 01	0.000	7.928E 02	1.711E 01	2.646E-03	3.336E 01	5.157E-03
3.726E 01	2.469E 00	6.287E 00	-3.208E 02	-9.946E 01	-9.946E 01	0.000	8.190E 02	1.603E 01	2.479E-03	4.082E 01	6.313E-03
3.803E 01	1.955E 00	8.852E 00	-2.982E 02	-1.043E 02	-1.043E 02	0.000	9.020E 02	1.269E 01	1.963E-03	5.747E 01	8.888E-03
3.872E 01	7.485E 00	1.114E 01	-3.005E 02	-1.597E 02	-1.131E 02	-4.658E 01	9.787E 02	4.859E 01	7.515E-03	7.235E 01	1.119E-02
3.875E 01	7.733E 00	1.103E 01	-3.013E 02	-1.617E 02	-1.138E 02	-4.792E 01	9.822E 02	5.021E 01	7.764E-03	7.163E 01	1.108E-02
3.901E 01	9.820E 00	1.010E 01	-3.105E 02	-1.788E 02	-1.197E 02	-5.911E 01	1.012E 03	6.376E 01	9.859E-03	6.555E 01	1.014E-02
3.950E 01	1.393E 01	8.335E 00	-3.389E 02	-2.154E 02	-1.352E 02	-8.013E 01	1.068E 03	9.042E 01	1.398E-02	5.411E 01	8.368E-03
3.974E 01	1.854E 01	7.475E 00	-3.529E 02	-2.355E 02	-1.451E 02	-9.035E 01	1.095E 03	8.140E 01	1.259E-02	4.853E 01	7.505E-03
4.000E 01	1.102E 01	9.481E 00	-3.608E 02	-2.593E 02	-1.578E 02	-1.015E 02	1.126E 03	7.194E 01	1.106E-02	6.156E 01	9.519E-03
4.021E 01	1.304E 01	1.109E 01	-3.650E 02	-2.794E 02	-1.690E 02	-1.104E 02	1.150E 03	8.466E 01	1.309E-02	7.198E 01	1.113E-02
4.040E 01	1.489E 01	1.432E 01	-3.680E 02	-2.981E 02	-1.796E 02	-1.185E 02	1.172E 03	9.665E 01	1.495E-02	9.300E 01	1.438E-02
4.041E 01	1.498E 01	1.449E 01	-3.680E 02	-2.991E 02	-1.802E 02	-1.189E 02	1.173E 03	9.726E 01	1.504E-02	9.410E 01	1.455E-02
4.072E 01	1.797E 01	1.973E 01	-3.680E 02	-3.301E 02	-1.980E 02	-1.320E 02	1.210E 03	1.167E 02	1.804E-02	1.281E 02	1.981E-02
4.121E 01	2.271E 01	2.437E 00	-3.920E 02	-3.807E 02	-2.282E 02	-1.525E 02	1.267E 03	1.474E 02	2.280E-02	1.583E 01	2.447E-03
4.150E 01	2.552E 01	2.424E 00	-4.245E 02	-4.117E 02	-2.473E 02	-1.644E 02	1.301E 03	1.657E 02	2.563E-02	1.574E 01	2.434E-03
4.246E 01	3.872E 01	2.380E 00	-5.537E 02	-5.284E 02	-3.107E 02	-2.177E 02	1.416E 03	2.514E 02	3.888E-02	1.545E 01	2.389E-03
4.269E 01	4.007E 01	2.369E 00	-5.889E 02	-5.601E 02	-3.292E 02	-2.349E 02	1.444E 03	2.602E 02	4.023E-02	1.538E 01	2.379E-03
4.270E 01	4.013E 01	2.369E 00	-5.904E 02	-5.615E 02	-3.298E 02	-2.357E 02	1.445E 03	2.605E 02	4.029E-02	1.538E 01	2.378E-03
4.277E 01	4.050E 01	2.366E 00	-6.002E 02	-5.703E 02	-3.297E 02	-2.407E 02	1.452E 03	2.630E 02	4.067E-02	1.536E 01	2.375E-03
4.431E 01	4.938E 01	2.598E 01	-7.540E 02	-7.737E 02	-3.969E 02	-3.768E 02	1.638E 03	3.206E 02	4.958E-02	1.687E 02	2.608E-02
4.480E 01	5.220E 01	3.349E 01	-7.868E 02	-8.341E 02	-4.089E 02	-4.252E 02	1.698E 03	3.389E 02	5.241E-02	2.174E 02	3.362E-02
4.549E 01	4.427E 01	4.404E 01	-8.065E 02	-9.162E 02	-4.227E 02	-4.934E 02	1.782E 03	2.874E 02	4.445E-02	2.859E 02	4.422E-02
4.620E 01	3.604E 01	3.821E 01	-7.753E 02	-9.964E 02	-4.367E 02	-5.597E 02	1.869E 03	2.340E 02	3.619E-02	2.481E 02	3.837E-02
4.626E 01	3.540E 01	3.776E 01	-7.718E 02	-1.002E 03	-4.378E 02	-5.645E 02	1.874E 03	2.298E 02	3.554E-02	2.451E 02	3.791E-02
4.731E 01	2.331E 01	2.920E 01	-6.928E 02	-1.105E 03	-4.575E 02	-6.474E 02	2.006E 03	1.514E 02	2.341E-02	1.895E 02	2.931E-02
4.811E 01	1.780E 01	2.267E 01	-6.223E 02	-1.178E 03	-4.721E 02	-7.057E 02	2.105E 03	1.156E 02	1.787E-02	1.472E 02	2.276E-02
4.873E 01	1.762E 01	1.762E 01	-5.641E 02	-1.234E 03	-4.830E 02	-7.510E 02	2.182E 03	1.144E 02	1.770E-02	1.144E 02	1.770E-02
5.018E 01	1.296E 01	1.296E 01	-4.498E 02	-1.342E 03	-5.076E 02	-8.348E 02	2.363E 03	8.416E 01	1.301E-02	8.416E 01	1.301E-02
5.071E 01	1.126E 01	1.126E 01	-4.163E 02	-1.370E 03	-5.162E 02	-8.502E 02	2.430E 03	7.309E 01	1.130E-02	7.309E 01	1.130E-02
5.212E 01	9.575E 00	9.575E 00	-3.393E 02	-1.433E 03	-5.381E 02	-8.948E 02	2.607E 03	6.216E 01	9.613E-03	6.216E 01	9.613E-03
5.422E 01	4.450E 00	4.450E 00	-2.621E 02	-1.513E 03	-5.682E 02	-9.447E 02	2.873E 03	2.889E 01	4.468E-03	2.889E 01	4.468E-03
5.472E 01	4.750E 00	4.750E 00	-2.502E 02	-1.530E 03	-5.749E 02	-9.551E 02	2.937E 03	3.084E 01	4.769E-03	3.084E 01	4.769E-03
5.547E 01	3.906E 00	3.906E 00	-2.334E 02	-1.554E 03	-5.846E 02	-9.692E 02	3.033E 03	2.536E 01	3.921E-03	2.536E 01	3.921E-03
5.576E 01	3.578E 00	3.576E 00	-2.278E 02	-1.562E 03	-5.883E 02	-9.740E 02	3.070E 03	2.323E 01	3.592E-03	2.323E 01	3.592E-03
5.623E 01	2.156E 00	3.050E 00	-1.857E 02	-1.575E 03	-5.938E 02	-9.811E 02	3.102E 03	1.400E 01	2.165E-03	1.980E 01	3.062E-03
5.765E 01	1.377E 00	1.377E 00	-1.699E 02	-1.605E 03	-6.083E 02	-9.968E 02	3.210E 03	8.938E 00	1.382E-03	8.938E 00	1.382E-03
5.771E 01	3.575E 00	1.312E 00	-1.696E 02	-1.606E 03	-6.088E 02	-9.973E 02	3.217E 03	2.321E 01	3.589E-03	8.519E 00	1.317E-03
5.785E 01	3.575E 00	1.148E 00	-1.688E 02	-1.609E 03	-6.102E 02	-9.984E 02	3.234E 03	2.321E 01	3.589E-03	7.451E 00	1.152E-03
5.793E 01	1.054E 00	1.054E 00	-1.683E 02	-1.610E 03	-6.109E 02	-9.990E 02	3.245E 03	6.842E 00	1.058E-03	6.842E 00	1.058E-03
5.821E 01	7.250E-01	7.250E-01	-1.672E 02	-1.615E 03	-6.135E 02	-1.001E 03	3.280E 03	4.707E 00	7.279E-04	4.707E 00	7.279E-04
5.843E 01	9.272E-01	9.272E-01	-1.664E 02	-1.618E 03	-6.156E 02	-1.003E 03	3.309E 03	6.020E 00	9.310E-04	6.020E 00	9.310E-04
5.916E 01	1.575E 00	1.575E 00	-1.630E 02	-1.629E 03	-6.219E 02	-1.007E 03	3.402E 03	1.023E 01	1.581E-03	1.023E 01	1.581E-03
6.018E 01	8.500E-01	8.500E-01	-1.602E 02	-1.642E 03	-6.300E 02	-1.012E 03	3.532E 03	5.519E 00	8.534E-04	5.519E 00	8.534E-04
6.219E 01	3.112E 00	3.112E 00	-1.597E 02	-1.668E 03	-6.439E 02	-1.025E 03	3.790E 03	2.021E 01	3.125E-03	2.021E 01	3.125E-03
6.361E 01	2.756E 00	2.756E 00	-1.597E 02	-1.688E 03	-6.522E 02	-1.035E 03	3.972E 03	1.789E 01	2.767E-03	1.789E 01	2.767E-03
6.607E 01	1.451E 00	1.451E 00	-1.597E 02	-1.722E 03	-6.644E 02	-1.058E 03	4.269E 03	9.422E 00	1.457E-03	9.422E 00	1.457E-03
6.645E 01	6.390E 00	1.252E 00	-1.597E 02	-1.728E 03	-6.661E 02	-1.062E 03	4.337E 03	4.149E 01	6.416E-03	8.129E 00	1.257E-03

XABB	P=IB	P=OH	PDA	QOX	G=IB	Q=OB	CA=ALL	P=IH/PSO	P=IB/PTO	P=OH/PSO	P=OB/PTO
6.649E 01	6.390E 00	1.231E 00	-1.597E 02	-1.726E 03	-6.662E 02	-1.062E 03	4.342E 03	4.149E 01	6.410E-03	7.492E 00	1.236E-03
6.669E 01	6.002E 00	1.125E 00	-1.597E 02	-1.751E 03	-6.671E 02	-1.064E 03	4.368E 03	3.897E 01	6.024E-03	7.304E 00	1.130E-03
6.835E 01	2.780E 00	1.490E 00	-1.319E 02	-1.756E 03	-6.750E 02	-1.081E 03	4.584E 03	1.805E 01	2.791E-03	9.674E 00	1.496E-03
6.902E 01	2.398E 00	2.910E 00	-8.339E 01	-1.767E 03	-6.786E 02	-1.089E 03	4.665E 03	1.557E 01	2.408E-03	1.889E 01	2.922E-03
6.979E 01	1.960E 00	2.187E 00	-1.828E 01	-1.780E 03	-6.829E 02	-1.097E 03	4.760E 03	1.273E 01	1.968E-03	1.420E 01	2.195E-03
7.051E 01	1.451E 00	1.510E 00	2.801E 01	-1.793E 03	-6.871E 02	-1.106E 03	4.848E 03	9.421E 00	1.457E-03	9.804E 00	1.516E-03
7.112E 01	1.020E 00	1.404E 00	5.721E 01	-1.802E 03	-6.907E 02	-1.112E 03	4.922E 03	6.622E 00	1.024E-03	9.117E 00	1.410E-03
7.250E 01	8.100E-01	1.165E 00	1.071E 02	-1.819E 03	-6.990E 02	-1.120E 03	5.088E 03	5.259E 00	8.133E-04	7.565E 00	1.170E-03
7.403E 01	6.757E-01	9.000E-01	1.488E 02	-1.835E 03	-7.069E 02	-1.129E 03	5.273E 03	4.387E 00	6.784E-04	5.843E 00	9.036E-04
7.493E 01	5.967E-01	2.350E-01	1.716E 02	-1.848E 03	-7.104E 02	-1.137E 03	5.372E 03	3.874E 00	5.991E-04	1.526E 00	2.359E-04
7.493E 01	5.964E-01	2.320E-01	1.721E 02	-1.848E 03	-7.104E 02	-1.137E 03	5.372E 03	3.872E 00	5.988E-04	1.506E 00	2.330E-04
7.626E 01	4.800E-01	0.000	1.834E 02	-1.868E 03	-7.145E 02	-1.153E 03	5.424E 03	3.116E 00	4.819E-04	0.000	0.000
7.911E 01	3.150E-01	0.000	1.993E 02	-1.873E 03	-7.202E 02	-1.153E 03	5.523E 03	2.045E 00	3.163E-04	0.000	0.000
8.301E 01	2.250E-01	0.000	2.109E 02	-1.877E 03	-7.236E 02	-1.153E 03	5.627E 03	1.461E 00	2.259E-04	0.000	0.000
8.382E 01	2.600E-01	0.000	2.163E 02	-1.878E 03	-7.250E 02	-1.153E 03	5.682E 03	1.688E 00	2.610E-04	0.000	0.000
8.868E 01	3.250E-01	0.000	2.233E 02	-1.881E 03	-7.277E 02	-1.153E 03	5.705E 03	2.110E 00	3.263E-04	0.000	0.000
8.868E 01	3.251E-01	0.000	2.233E 02	-1.881E 03	-7.278E 02	-1.153E 03	5.705E 03	2.111E 00	3.264E-04	0.000	0.000

READING = 0091 BLOCK = 79 TIME = 180.151 MACH 7.5 PI = 995.999 TT = 3035.5

X	DDRAG	CDRAG	CF	MC
4.040E 01	9.115E 01	9.115E 01	2.479E-03	3.592E-02
4.041E 01	1.563E-01	9.131E 01	3.066E-03	5.897E-02
4.072E 01	4.811E 00	9.612E 01	2.675E-03	5.130E-02
4.121E 01	7.417E 00	1.035E 02	2.883E-03	3.674E-02
4.150E 01	4.463E 00	1.080E 02	2.735E-03	4.083E-02
4.246E 01	1.315E 01	1.211E 02	2.966E-03	4.733E-02
4.269E 01	3.094E 00	1.242E 02	3.387E-03	4.366E-02
4.270E 01	1.296E-01	1.244E 02	3.107E-03	4.807E-02
4.277E 01	8.110E-01	1.252E 02	3.072E-03	4.870E-02
4.431E 01	1.565E 01	1.408E 02	3.423E-03	4.872E-02
4.480E 01	3.424E 00	1.443E 02	3.545E-03	4.507E-02
4.549E 01	4.448E 00	1.487E 02	4.031E-03	3.581E-02
4.620E 01	4.919E 00	1.536E 02	3.552E-03	4.400E-02
4.626E 01	3.974E-01	1.540E 02	3.474E-03	4.534E-02
4.731E 01	8.103E 00	1.621E 02	3.281E-03	4.431E-02
4.811E 01	6.747E 00	1.689E 02	3.149E-03	4.054E-02
4.873E 01	5.148E 00	1.740E 02	3.065E-03	3.777E-02
5.018E 01	1.100E 01	1.850E 02	2.956E-03	3.106E-02
5.071E 01	3.774E 00	1.888E 02	3.035E-03	2.730E-02
5.212E 01	9.385E 00	1.982E 02	2.944E-03	2.425E-02
5.422E 01	1.274E 01	2.109E 02	2.943E-03	1.387E-02
5.472E 01	2.709E 00	2.136E 02	2.559E-03	1.591E-02
5.547E 01	3.673E 00	2.173E 02	2.619E-03	1.341E-02
5.576E 01	1.387E 00	2.187E 02	2.519E-03	1.286E-02
5.623E 01	1.010E 00	2.197E 02	2.365E-03	9.935E-03
5.765E 01	2.929E 00	2.226E 02	2.329E-03	6.175E-03
5.771E 01	1.801E-01	2.228E 02	2.256E-03	9.580E-03
5.785E 01	4.496E-01	2.233E 02	2.409E-03	8.951E-03
5.793E 01	3.104E-01	2.236E 02	2.998E-03	4.372E-03
5.821E 01	1.119E 00	2.247E 02	2.375E-03	3.813E-03
5.843E 01	7.706E-01	2.255E 02	2.202E-03	4.736E-03
5.916E 01	2.297E 00	2.276E 02	2.164E-03	6.998E-03
6.016E 01	3.186E 00	2.309E 02	2.171E-03	4.424E-03
6.219E 01	6.290E 00	2.372E 02	2.263E-03	1.118E-02
6.301E 01	4.790E 00	2.420E 02	2.580E-03	9.387E-03
6.607E 01	8.827E 00	2.508E 02	2.466E-03	6.068E-03
6.645E 01	1.190E 00	2.520E 02	2.452E-03	1.226E-02
6.649E 01	1.244E-01	2.522E 02	2.921E-03	1.067E-02
6.669E 01	6.662E-01	2.528E 02	2.907E-03	1.021E-02
6.835E 01	4.920E 00	2.577E 02	2.796E-03	7.192E-03
6.902E 01	1.731E 00	2.595E 02	2.831E-03	8.340E-03
6.979E 01	1.989E 00	2.615E 02	2.780E-03	7.020E-03
7.051E 01	1.583E 00	2.631E 02	2.713E-03	5.516E-03
7.112E 01	1.145E 00	2.642E 02	2.675E-03	4.768E-03
7.250E 01	2.284E 00	2.665E 02	2.632E-03	4.093E-03
7.403E 01	2.217E 00	2.687E 02	2.583E-03	3.453E-03
7.493E 01	9.225E-01	2.696E 02	2.466E-03	2.142E-03
7.493E 01	1.199E-03	2.696E 02	2.466E-03	2.135E-03
7.626E 01	4.025E-01	2.700E 02	2.486E-03	2.378E-03
7.911E 01	6.979E-01	2.707E 02	2.402E-03	1.725E-03
8.301E 01	5.740E-01	2.713E 02	2.330E-03	1.330E-03
8.502E 01	2.769E-01	2.716E 02	2.342E-03	1.474E-03
8.868E 01	1.299E-01	2.717E 02	2.369E-03	1.734E-03
8.868E 01	0.000	2.717E 02	2.369E-03	1.735E-03

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	-57.	(LBF)
MEASURED THRUST	338.	(LBF)
CALCULATED SPECIFIC IMPULSE	-262.	(LBF-SEC/LBM)
MEASURED SPECIFIC IMPULSE	1563.	(LBF-SEC/LBM)
CALCULATED THRUST COEFFICIENT	-.0390	
MEASURED THRUST COEFFICIENT	0.2325	

REGENERATIVE-COOLED ENGINE PERFORMANCE CALCULATED

STREAM THRUST	2722.	(LBF)
NET THRUST	44.	(LBF)
SPECIFIC IMPULSE	203.	(LBF-SEC/LBM)
THRUST COEFFICIENT	0.0302	

MOMENTUM AND FORCES

INLET FRICTION DRAG	91.2	(LBF)
INLET MOMENTUM CHANGE	-459.2	(LBF)
COMBUSTOR FRICTION DRAG	160.9	(LBF)
COMBUSTOR STRUT DRAG	8.35	(LBF)
COMBUSTOR MOMENTUM CHANGE	39.	(LBF)
NOZZLE FRICTION DRAG	19.66	(LBF)
NOZZLE STRUT DRAG	0.00	(LBF)
NOZZLE MOMENTUM CHANGE	363.	(LBF)
NOZZLE PRESSURE INTEGRAL	383.	(LBF)
EXTERNAL FRICTION DRAG	39.24	(LBF)
EXTERNAL PRESSURE INTEGRAL	-667.	(LBF)
TOTAL EXTERNAL DRAG	-707.	(LBF)
TOTAL STRUT DRAG	8.35	(LBF)
CAVITY FORCE	-535.	(LBF)
CALCULATED LOAD CELL FORCE	-1299.	(LBF)
MEASURED LOAD CELL FORCE	-903.	(LBF)
FUEL VACUUM SPECIFIC IMPULSE	0.0	0.0

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	1.7090	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	36.593	(IN)
NOZZLE SHROUD TRAILING EDGE	74.933	(IN)
NOZZLE PLUG TRAILING EDGE	88.685	(IN)
STRUT LEADING EDGE	57.849	(IN)
STRUT TRAILING EDGE	66.449	(IN)
COMBUSTOR EXIT	66.449	(IN)

INLET

ANGLE OF ATTACK	3.000	(DEGREES)
MASS FLOW RATIO	0.9032	
ADDITIVE DRAG COEFFICIENT	0.0087	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.0862	
DELTA PT2	0.0871	(PSI)
TOTAL PRESSURE RECOVERY - SUPERSONIC	0.2023	
TOTAL PRESSURE RECOVERY - SUBSONIC	0.0895	
INLET PROCESS EFFICIENCY - SUPERSONIC	0.6749	
INLET PROCESS EFFICIENCY - SUBSONIC	0.9046	
KINETIC ENERGY EFFICIENCY - SUPERSONIC	0.9204	
KINETIC ENERGY EFFICIENCY - SUBSONIC	0.8823	
ENTHALPY AT P0 - SUPERSONIC	-21.51	(BTU/LBM)
ENTHALPY AT P0 - SUBSONIC	6.65	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0155	
EQUIVALENCE RATIO	0.469	
COMBUSTOR EFFICIENCY	0.242	
TOTAL PRESSURE RATIO	0.1227	
COMBUSTOR EFFECTIVENESS	0.3504	
INJECTOR DISCHARGE COEFFICIENTS	0.9390,	0.5954,

NOZZLE

VACUUM STREAM THRUST COEFFICIENT - CS	0.9921
NOZZLE COEFFICIENT - CT	0.9408
PROCESS EFFICIENCY	1.0005
KINETIC ENERGY EFFICIENCY	0.9833

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	A
1B	42.694	B
1C	44.300	
2A	50.169	
2C	46.250	
3A	55.459	
3B	57.644	
4	46.194	

Reading 91

t = 186.45 sec.

330

READING = 0091 BLOCK = 86 TIME = 186.451 MACH 7.3 PT = 995.499 TT = 3069.0

RAMJET PERFORMANCE

SUMMARY REPORT

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
WIND TUNNEL		1	0 6														
0.000	995.499	3069	690.5(815)	1.2907	28.956	2608											
0.000	0.184	296	-57.9(71)	1.3964	28.955	843	7.260	6120	1.814	0.05953	13.781	0.9039	2657	5.661	192.8		
SPIKE TIP NS		2	0 7														
0.600	11.212	3069	690.5(815)	1.2903	28.955	2608											
0.600	10.328	3012	674.4(798)	1.2922	28.955	2585	0.358	927	2.122	0.05953	13.781	0.9039	2788	0.857	202.3		
WIND TUNNEL		3	0 0														
0.000	995.499	3069	690.5(815)	1.2907	28.956	2608											
0.000	0.167	303	-56.2(73)	1.3967	28.955	853	7.167	6113	1.814	0.06306	14.599	0.9039	2812	5.990	192.6		
SPIKE TIP NB		4	0 0														
0.600	11.212	3069	690.5(815)	1.2903	28.955	2608											
0.600	10.206	3004	670.9(796)	1.2924	28.955	2582	0.384	991	2.122	0.06306	14.599	0.9039	2812	0.971	192.6		
INLET THROAT		5	0 3														
40.400	214.202	2949	654.2(780)	1.2944	28.955	2560											
40.400	11.238	1437	225.4(354)	1.3516	28.955	1826	2.537	4632	1.908	0.67881	13.781	0.0793	2212	48.862	160.5		
INLET UPNRBK		6	0 3														
40.400	214.202	2949	654.2(780)	1.2944	28.955	2560											
40.400	9.656	1381	210.8(340)	1.3548	28.955	1792	2.628	4710	1.908	0.61710	13.781	0.0872	2253	45.174	162.1		
INLET DNNRBK		7	0 4														
40.400	88.953	2949	654.2(780)	1.2944	28.955	2560											
40.400	76.469	2849	624.1(750)	1.2976	28.955	2519	0.487	1227	1.968	0.61710	13.781	0.0872	2233	11.767	162.1		
COMBUSTOR	0	8	1 3														
40.410	214.190	2949	654.1(780)	1.2944	28.955	2560											
40.410	11.235	1437	225.4(354)	1.3516	28.955	1826	2.537	4632	1.908	0.67872	13.781	0.0793	2212	48.855	160.5		
COMBUSTOR	0	9	2 3														
40.715	213.518	2941	651.9(777)	1.2947	28.955	2557											
40.715	11.203	1436	225.1(354)	1.3516	28.955	1825	2.532	4621	1.907	0.68117	13.781	0.0790	2208	48.918	160.2		
COMBUSTOR	0	10	3 4														
41.205	197.742	2929	648.2(774)	1.2950	28.955	2552											
41.205	11.651	1469	234.0(363)	1.3497	28.955	1845											
							2.467	4552	1.911	0.67639	13.781	0.0795	2187	47.851	158.7		
COMBUSTOR	0	11	4 4														
41.500	181.246	2922	645.9(772)	1.2953	28.955	2549											
41.500	12.064	1512	245.4(374)	1.3473	28.955	1870	2.394	4477	1.916	0.66936	13.781	0.0804	2166	46.570	157.2		
COMBUSTOR	0	12	5 5														
42.460	144.985	2897	638.5(764)	1.2961	28.955	2539											
42.460	12.588	1603	269.8(399)	1.3425	28.955	1922	2.234	4295	1.929	0.63193	13.781	0.0851	2114	42.182	153.4		
COMBUSTOR	0	13	6 5														
42.700	139.338	2891	636.7(763)	1.2962	28.955	2537											
42.700	12.655	1618	273.8(403)	1.3417	28.955	1931	2.207	4261	1.931	0.62453	13.781	0.0862	2105	41.361	152.7		
COMBUSTOR	0	14	7 5														
42.765	137.753	2889	636.2(762)	1.2963	28.955	2536											
42.765	12.668	1622	274.9(404)	1.3415	28.955	1933	2.200	4252	1.932	0.62223	13.781	0.0865	2102	41.117	152.5		
COMBUSTOR	0	15	8 4														
44.310	108.934	2887	626.5(753)	1.2973	28.955	2823											
44.310	12.966	1710	298.8(428)	1.3373	28.955	1982	2.044	4050	1.945	0.57528	13.781	0.0935	2045	36.207	148.4		
COMBUSTOR	0	16	9 3														
44.800	102.272	2848	623.9(750)	1.2976	28.955	2519											
44.800	13.303	1743	307.7(437)	1.3358	28.955	2000	1.989	3978	1.948	0.56885	13.781	0.0946	2026	35.165	147.0		
COMBUSTOR	0	17	10 3														
45.485	96.339	2836	620.2(746)	1.2980	28.955	2514											
45.485	13.753	1776	316.6(445)	1.3344	28.955	2017	1.932	3897	1.951	0.56558	13.781	0.0951	2005	34.257	145.5		
COMBUSTOR	0	18	11 4														
46.200	92.812	2822	615.9(742)	1.2984	28.955	2508											
46.200	13.429	1772	315.6(444)	1.3346	28.955	2015	1.924	3877	1.952	0.55049	13.781	0.0977	1997	33.165	144.9		

READING # 0091 BLOCK # 86 TIME = 186.451 MACH 7.3 PI = 995.499 TI = 3069.0

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	M/A	M	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	19	12 4														
46.260	92.522	2820	615.5(742)	1.2985	28.955	2508											
46.260	13.340	1770	314.9(444)	1.3347	28.955	2014	1.926	3878	1.952	0.54787	13.781	0.0982	1997	33.022	144.9		
COMBUSTOR	0	20	13 4														
47.310	89.162	2794	607.8(734)	1.2993	28.955	2497											
47.310	11.867	1717	300.5(429)	1.3370	28.955	1985	1.975	3921	1.952	0.50787	13.781	0.1059	2002	30.947	145.2		
COMBUSTOR	0	21	14 4														
48.110	86.980	2773	601.4(728)	1.3000	28.955	2488											
48.110	10.331	1654	283.5(412)	1.3400	28.955	1951	2.044	3988	1.951	0.46679	13.781	0.1153	2013	28.933	146.1		
COMBUSTOR	0	22	15 4														
48.725	84.829	2757	596.5(723)	1.3005	28.955	2481											
48.725	8.922	1593	267.1(396)	1.3430	28.955	1917	2.118	4060	1.951	0.42604	13.781	0.1263	2028	26.882	147.1		
COMBUSTOR	0	23	16 4														
50.175	80.130	2726	587.5(714)	1.3015	28.955	2468											
50.175	6.456	1469	234.0(363)	1.3497	28.955	1845											
							2.279	4205	1.952	0.34623	13.781	0.1554	2058	22.628	149.4		
COMBUSTOR	0	24	17 4														
50.705	78.169	2719	585.3(712)	1.3017	28.955	2465											
50.705	5.855	1437	225.6(354)	1.3515	28.955	1826	2.323	4242	1.953	0.32381	13.781	0.1662	2066	21.349	149.9		
COMBUSTOR	0	25	18 3														
52.115	74.487	2702	580.5(707)	1.3023	28.955	2458											
52.115	4.617	1359	204.9(334)	1.3562	28.955	1779	2.437	4335	1.954	0.27897	13.781	0.1950	2087	18.591	151.5		
COMBUSTOR	0	26	19 3														
54.215	71.737	2682	574.5(702)	1.3029	28.955	2450											
54.215	3.401	1255	178.0(307)	1.3626	28.955	1714	2.599	4454	1.955	0.22619	13.781	0.2379	2115	15.656	153.5		
COMBUSTOR	0	27	20 3														
54.715	71.048	2678	573.3(700)	1.3031	28.955	2448											
54.715	3.196	1235	173.0(302)	1.3638	28.955	1701	2.631	4476	1.955	0.21695	13.781	0.2480	2120	15.089	153.8		
COMBUSTOR	0	28	21 3														
55.465	70.331	2672	571.6(699)	1.3032	28.955	2445											
55.465	2.921	1206	165.5(294)	1.3656	28.955	1682	2.680	4508	1.955	0.20451	13.781	0.2631	2128	14.327	154.4		
COMBUSTOR	0	29	22 3														
55.760	70.175	2670	571.0(698)	1.3033	28.955	2444											
55.760	2.822	1195	162.6(291)	1.3664	28.955	1674	2.700	4521	1.955	0.20003	13.781	0.2690	2131	14.053	154.6		
COMBUSTOR	0	30	23 3														
56.225	64.323	2667	570.1(697)	1.3034	28.955	2443											
56.225	2.048	1121	143.7(273)	1.3710	28.955	1624	2.844	4619	1.960	0.15821	13.781	0.3401	2157	11.357	156.5		
COMBUSTOR	0	31	24 3														
57.650	65.471	2659	567.7(695)	1.3037	28.955	2440											
57.650	1.789	1071	131.1(260)	1.3742	28.955	1590	2.940	4674	1.958	0.14623	13.781	0.3679	2171	10.621	157.5		
COMBUSTOR	0	32	25 3														
57.705	65.462	2659	567.6(695)	1.3037	28.955	2440											
57.705	1.782	1070	130.8(260)	1.3742	28.955	1589	2.942	4675	1.958	0.14587	13.781	0.3689	2171	10.598	157.5		
COMBUSTOR	0	33	26 2														
57.845	65.285	2658	567.4(695)	1.3037	28.955	2439											
57.845	1.763	1067	130.2(259)	1.3744	28.955	1587	2.947	4677	1.958	0.14477	13.781	0.3717	2171	10.523	157.6		
COMBUSTOR	0	34	27 4														
57.925	66.189	2658	567.3(695)	1.3037	28.955	2439											
57.925	1.780	1066	129.8(259)	1.3745	28.955	1586	2.950	4679	1.957	0.14642	13.781	0.3675	2172	10.646	157.6		
COMBUSTOR	0	35	28 4														
58.205	66.376	2656	566.9(694)	1.3038	28.955	2439											
58.205	1.767	1062	128.9(258)	1.3747	28.955	1584	2.956	4681	1.957	0.14591	13.781	0.3688	2172	10.615	157.6		
COMBUSTOR	0	36	29 4														
58.431	66.544	2655	566.6(694)	1.3038	28.955	2438											
58.431	1.760	1060	128.3(257)	1.3749	28.955	1582	2.960	4683	1.957	0.14569	13.781	0.3693	2172	10.603	157.6		
COMBUSTOR	0	37	30 3														
59.135	66.426	2652	565.7(693)	1.3039	28.955	2437											
59.135	1.717	1052	126.3(255)	1.3754	28.955	1576											
							2.975	4689	1.957	0.14337	13.781	0.3793	2173	10.448	157.7		

READING = 0091 BLOCK = 66 TIME = 186.451 MACH 7.3 PI = 995.499 TI = 3069.0

	P	T	H		GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	R	A/AC	MOMTM	G	IVAC	PHI	ETAC
COMBUSTOR	0	38	31	5														
60.175	66.249	2649	564.6	(692)	1.3040	28.955	2435											
60.175	1.700	1048	125.4	(254)	1.3756	28.955	1573	2.980	4688	1.956	0.14246	13.781	0.3777	2173	10.380	157.7		
COMBUSTOR	0	39	32	4														
62.185	66.409	2644	563.4	(691)	1.3041	28.955	2433											
62.185	1.787	1060	128.3	(257)	1.3749	28.955	1582	2.950	4666	1.956	0.14742	13.781	0.3650	2166	10.689	157.1		
COMBUSTOR	0	40	33	4														
63.605	66.466	2642	562.7	(690)	1.3042	28.955	2432											
63.605	1.861	1070	130.9	(260)	1.3742	28.955	1589	2.925	4648	1.955	0.15141	13.781	0.3553	2160	10.938	156.8		
COMBUSTOR	0	41	34	3														
66.069	60.367	2638	561.5	(689)	1.3043	28.955	2431											
66.069	1.803	1087	135.2	(264)	1.3731	28.955	1601	2.884	4618	1.962	0.14352	13.781	0.3749	2151	10.301	156.1		
COMBUSTOR	0	42	35	0														
66.445	55.779	2637	561.3	(689)	1.3044	28.955	2430											
66.445	1.682	1090	135.8	(265)	1.3730	28.955	1603	2.879	4614	1.967	0.13343	13.781	0.4032	2150	9.567	156.0		
NOZZLE AE		43	36	3														
88.681	55.779	2637	561.3	(689)	1.3044	28.955	2430											
88.681	0.158	562	6.2	(135)	1.3981	28.955	1162	4.536	5270	1.967	0.02778	13.781	1.9371	2336	2.275	169.5		
NOZZLE PO		44	37	3														
88.681	55.779	2637	561.3	(689)	1.3044	28.955	2430											
88.681	0.154	558	5.1	(134)	1.3982	28.955	1157	4.558	5275	1.967	0.02726	13.781	1.9739	2337	2.235	169.6		
FICTIVE COMBUSTR	62	55	0															
66.445	214.202	2637	561.3	(689)	1.3044	28.955	2430											
66.845	0.154	380	-37.7	(91)	1.3985	28.955	955	5.730	5475	1.875	0.04152	13.781	1.2960	2396	3.532	173.9		
FICTIVE NOZZLE	63	56	0															
88.681	310.489	2618	555.7	(683)	1.3050	28.955	2422											
88.681	0.073	274	-63.2	(66)	1.3956	28.955	811	6.862	5565	1.847	0.02778	13.781	1.9371	2420	2.402	175.6		

READING = 0091 BLOCK = 86 TIME = 186.451 MACH 7.3 PT = 995.499 TT = 5069.0

XABS	P-IB	P-OB	PDA	QOX	Q-IB	Q-OB	CAWALL	P-IB/PSO	P-IB/PTO	P-OB/PSO	P-OB/PTO
6.981E-01	6.900E-01	0.000	-2.708E-01	0.000	0.000	0.000	2.470E-02	4.485E 00	6.931E-04	0.000	0.000
1.836E 01	6.900E-01	0.000	-2.296E 01	0.000	0.000	0.000	1.634E 02	4.485E 00	6.931E-04	0.000	0.000
3.070E 01	1.515E 00	0.000	-1.123E 02	0.000	0.000	0.000	5.053E 02	9.848E 00	1.522E-03	0.000	0.000
3.508E 01	1.987E 00	0.000	-2.258E 02	0.000	0.000	0.000	6.804E 02	1.292E 01	1.996E-03	0.000	0.000
3.555E 01	2.195E 00	0.000	-2.449E 02	0.000	0.000	0.000	7.013E 02	1.427E 01	2.205E-03	0.000	0.000
3.606F 01	2.485E 00	0.000	-2.687E 02	-2.300E 02	-2.300E 02	0.000	7.246E 02	1.615E 01	2.496E-03	0.000	0.000
3.648E 01	2.262E 00	0.000	-2.490E 02	-2.355E 02	-2.355E 02	0.000	7.443E 02	1.470E 01	2.272E-03	0.000	0.000
3.658E 01	2.335E 00	3.188E 00	-3.269E 02	-2.369E 02	-2.369E 02	0.000	7.491E 02	1.518E 01	2.346E-03	2.072E 01	3.202E-03
3.659E 01	2.340E 00	3.215E 00	-3.270E 02	-2.370E 02	-2.370E 02	0.000	7.494E 02	1.521E 01	2.350E-03	2.090E 01	3.230E-03
3.701E 01	2.640E 00	5.141E 00	-3.285E 02	-2.429E 02	-2.429E 02	0.000	7.931E 02	1.716E 01	2.652E-03	3.342E 01	5.165E-03
3.725E 01	2.943E 00	6.262E 00	-3.268E 02	-2.464E 02	-2.464E 02	0.000	8.188E 02	1.653E 01	2.554E-03	4.071E 01	6.291E-03
3.803E 01	2.235E 00	8.867E 00	-3.070E 02	-2.582E 02	-2.582E 02	0.000	9.020E 02	1.453E 01	2.245E-03	5.764E 01	8.907E-03
3.871E 01	7.551E 00	1.117E 01	-3.111E 02	-3.420E 02	-2.709E 02	-7.115E 01	9.785E 02	4.908E 01	7.585E-03	7.260E 01	1.122E-02
3.875E 01	7.823E 00	1.105E 01	-3.121E 02	-3.451E 02	-2.716E 02	-7.345E 01	9.825E 02	5.085E 01	7.858E-03	7.185E 01	1.110E-02
3.901E 01	9.840E 00	1.020E 01	-3.214E 02	-3.660E 02	-2.775E 02	-9.054E 01	1.012E 03	6.396E 01	9.884E-03	6.632E 01	1.025E-02
3.950E 01	1.375E 01	8.600E 00	-3.489E 02	-4.128E 02	-2.902E 02	-1.227E 02	1.068E 03	8.941E 01	1.382E-02	5.590E 01	8.639E-03
3.976E 01	1.197E 01	7.831E 00	-3.613E 02	-4.351E 02	-2.971E 02	-1.380E 02	1.095E 03	7.779E 01	1.202E-02	5.090E 01	7.867E-03
4.000E 01	9.953E 00	9.893E 00	-3.675E 02	-4.610E 02	-3.057E 02	-1.553E 02	1.126E 03	6.470E 01	9.998E-03	6.431E 01	9.938E-03
4.021E 01	1.055E 01	1.149E 01	-3.689E 02	-4.814E 02	-3.127E 02	-1.686E 02	1.150E 03	6.858E 01	1.060E-02	7.467E 01	1.154E-02
4.040E 01	1.112E 01	1.182E 01	-3.690E 02	-5.010E 02	-3.197E 02	-1.813E 02	1.172E 03	7.228E 01	1.117E-02	7.681E 01	1.187E-02
4.041E 01	1.115E 01	1.183E 01	-3.690E 02	-5.020E 02	-3.200E 02	-1.820E 02	1.174E 03	7.246E 01	1.120E-02	7.692E 01	1.189E-02
4.071E 01	1.204E 01	1.235E 01	-3.689E 02	-5.231E 02	-3.314E 02	-2.017E 02	1.209E 03	7.824E 01	1.209E-02	8.028E 01	1.241E-02
4.121E 01	1.347E 01	2.462E 00	-3.826E 02	-5.841E 02	-3.510E 02	-2.331E 02	1.267E 03	8.753E 01	1.353E-02	1.601E 01	2.474E-03
4.150E 01	1.432E 01	2.455E 00	-3.997E 02	-6.153E 02	-3.637E 02	-2.515E 02	1.302E 03	9.312E 01	1.439E-02	1.896E 01	2.467E-03
4.246E 01	9.250E 00	2.432E 00	-4.383E 02	-7.176E 02	-4.088E 02	-3.088E 02	1.416E 03	6.013E 01	9.292E-03	1.581E 01	2.443E-03
4.270E 01	9.978E 00	2.427E 00	-4.449E 02	-7.423E 02	-4.206E 02	-3.217E 02	1.444E 03	6.486E 01	1.002E-02	1.577E 01	2.438E-03
4.276E 01	1.018E 01	2.425E 00	-4.467E 02	-7.488E 02	-4.239E 02	-3.249E 02	1.452E 03	6.614E 01	1.022E-02	1.576E 01	2.436E-03
4.431E 01	1.486E 01	7.019E 00	-4.838E 02	-8.822E 02	-4.999E 02	-3.823E 02	1.638E 03	9.661E 01	1.493E-02	4.562E 01	7.050E-03
4.480E 01	1.635E 01	8.476E 00	-4.970E 02	-9.188E 02	-5.239E 02	-3.949E 02	1.698E 03	1.063E 02	1.642E-02	5.509E 01	8.514E-03
4.549E 01	1.400E 01	1.051E 01	-5.104E 02	-9.693E 02	-5.567E 02	-4.126E 02	1.782E 03	9.102E 01	1.407E-02	6.833E 01	1.056E-02
4.620E 01	1.155E 01	9.671E 00	-5.098E 02	-1.028E 03	-5.897E 02	-4.384E 02	1.869E 03	7.510E 01	1.161E-02	6.286E 01	9.715E-03
4.626E 01	1.135E 01	9.601E 00	-5.090E 02	-1.034E 03	-5.924E 02	-4.412E 02	1.877E 03	7.376E 01	1.140E-02	6.241E 01	9.644E-03
4.731E 01	7.790E 00	8.365E 00	-4.927E 02	-1.141E 03	-6.382E 02	-5.025E 02	2.006E 03	5.038E 01	7.785E-03	5.437E 01	8.403E-03
4.811E 01	6.425E 00	7.424E 00	-4.726E 02	-1.229E 03	-6.712E 02	-5.575E 02	2.105E 03	4.176E 01	6.454E-03	4.826E 01	7.457E-03
4.872E 01	6.700E 00	6.700E 00	-4.524E 02	-1.295E 03	-6.955E 02	-5.999E 02	2.182E 03	4.355E 01	6.730E-03	4.355E 01	6.730E-03
5.017E 01	4.668E 00	4.668E 00	-4.099E 02	-1.420E 03	-7.489E 02	-6.715E 02	2.363E 03	3.034E 01	4.689E-03	3.034E 01	4.689E-03
5.071E 01	3.925E 00	3.925E 00	-3.980E 02	-1.451E 03	-7.671E 02	-6.835E 02	2.429E 03	2.551E 01	3.943E-03	2.551E 01	3.943E-03
5.211E 01	4.175E 00	4.175E 00	-3.681E 02	-1.517E 03	-8.121E 02	-7.050E 02	2.607E 03	2.714E 01	4.194E-03	2.714E 01	4.194E-03
5.421E 01	2.900E 00	2.900E 00	-3.291E 02	-1.600E 03	-8.699E 02	-7.299E 02	2.873E 03	1.885E 01	2.913E-03	1.885E 01	2.913E-03
5.471E 01	2.792E 00	2.792E 00	-3.217E 02	-1.616E 03	-8.820E 02	-7.342E 02	2.937E 03	1.815E 01	2.804E-03	1.815E 01	2.804E-03
5.546E 01	2.870E 00	2.870E 00	-3.108E 02	-1.639E 03	-8.991E 02	-7.401E 02	3.033E 03	1.866E 01	2.883E-03	1.866E 01	2.883E-03
5.576E 01	2.901E 00	2.901E 00	-3.064E 02	-1.648E 03	-9.054E 02	-7.423E 02	3.070E 03	1.886E 01	2.914E-03	1.886E 01	2.914E-03
5.622E 01	1.275E 00	2.950E 00	-2.793E 02	-1.660E 03	-9.148E 02	-7.455E 02	3.102E 03	8.288E 00	1.281E-03	1.918E 01	2.963E-03
5.765E 01	1.583E 00	1.583E 00	-2.631E 02	-1.693E 03	-9.395E 02	-7.536E 02	3.210E 03	1.029E 01	1.590E-03	1.029E 01	1.590E-03
5.771E 01	1.825E 00	1.530E 00	-2.627E 02	-1.694E 03	-9.404E 02	-7.539E 02	3.217E 03	1.186E 01	1.833E-03	9.944E 00	1.537E-03
5.785E 01	1.829E 00	1.395E 00	-2.617E 02	-1.697E 03	-9.425E 02	-7.545E 02	3.234E 03	1.186E 01	1.833E-03	9.071E 00	1.402E-03
5.792E 01	1.319E 00	1.319E 00	-2.612E 02	-1.699E 03	-9.437E 02	-7.549E 02	3.245E 03	8.572E 00	1.325E-03	8.572E 00	1.325E-03
5.821E 01	1.050E 00	1.050E 00	-2.596E 02	-1.704E 03	-9.477E 02	-7.563E 02	3.280E 03	6.825E 00	1.055E-03	6.825E 00	1.055E-03
5.843E 01	1.175E 00	1.175E 00	-2.586E 02	-1.708E 03	-9.508E 02	-7.573E 02	3.309E 03	7.637E 00	1.180E-03	7.637E 00	1.180E-03
5.915E 01	1.575E 00	1.575E 00	-2.548E 02	-1.721E 03	-9.599E 02	-7.607E 02	3.402E 03	1.024E 01	1.582E-03	1.024E 01	1.582E-03
6.017E 01	8.500E-01	8.500E-01	-2.520E 02	-1.735E 03	-9.703E 02	-7.648E 02	3.532E 03	5.525E 00	8.538E-04	5.525E 00	8.538E-04
6.218E 01	1.175E 00	1.175E 00	-2.518E 02	-1.753E 03	-9.844E 02	-7.682E 02	3.790E 03	7.638E 00	1.180E-03	7.638E 00	1.180E-03
6.360E 01	1.500E 00	1.500E 00	-2.518E 02	-1.762E 03	-9.914E 02	-7.701E 02	3.972E 03	9.750E 00	1.507E-03	9.750E 00	1.507E-03
6.607E 01	1.746E 00	1.746E 00	-2.518E 02	-1.779E 03	-1.003E 03	-7.757E 02	4.289E 03	1.135E 01	1.754E-03	1.135E 01	1.754E-03
6.648E 01	1.580E 00	1.784E 00	-2.518E 02	-1.782E 03	-1.005E 03	-7.767E 02	4.337E 03	1.027E 01	1.587E-03	1.159E 01	1.792E-03
6.649E 01	1.580E 00	1.788E 00	-2.518E 02	-1.782E 03	-1.005E 03	-7.768E 02	4.342E 03	1.027E 01	1.587E-03	1.162E 01	1.796E-03

XABS	P-IB	P-OB	PDA	QUX	Q-IB	Q-OB	CAXALL	P-IB/PSO	P-IB/PTO	P-OB/PSO	P-OB/PTO
6.668E 01	1.574E 00	1.807E 00	-2.518E 02	-1.763E 03	-1.006E 03	-7.774E 02	4.368E 03	1.023E 01	1.561E-03	1.175E 01	1.816E-03
6.839E 01	1.520E 00	2.255E 00	-2.513E 02	-1.796E 03	-1.014E 03	-7.824E 02	4.584E 03	9.880E 00	1.527E-03	1.466E 01	2.265E-03
6.901E 01	1.276E 00	1.852E 00	-1.964E 02	-1.801E 03	-1.017E 03	-7.843E 02	4.665E 03	8.292E 00	1.281E-03	1.204E 01	1.861E-03
6.978E 01	9.980E-01	1.497E 00	-1.584E 02	-1.808E 03	-1.020E 03	-7.877E 02	4.760E 03	6.468E 00	9.995E-04	9.732E 00	1.504E-03
7.050E 01	8.515E-01	1.165E 00	-1.296E 02	-1.817E 03	-1.023E 03	-7.934E 02	4.848E 03	5.535E 00	8.554E-04	7.573E 00	1.170E-03
7.111E 01	7.300E-01	1.097E 00	-1.090E 02	-1.824E 03	-1.026E 03	-7.986E 02	4.922E 03	4.745E 00	7.333E-04	7.133E 00	1.102E-03
7.249E 01	6.250E-01	9.445E-01	-7.073E 01	-1.836E 03	-1.032E 03	-8.045E 02	5.088E 03	4.063E 00	6.278E-04	6.140E 00	9.488E-04
7.402E 01	5.741E-01	7.750E-01	-3.654E 01	-1.842E 03	-1.037E 03	-8.047E 02	5.273E 03	3.732E 00	5.767E-04	5.038E 00	7.785E-04
7.492E 01	5.442E-01	2.300E-01	-1.640E 01	-1.843E 03	-1.040E 03	-8.032E 02	5.372E 03	3.537E 00	5.467E-04	1.495E 00	2.310E-04
7.493E 01	5.441E-01	2.276E-01	-1.594E 01	-1.843E 03	-1.040E 03	-8.032E 02	5.372E 03	3.537E 00	5.465E-04	1.479E 00	2.286E-04
7.625E 01	5.000E-01	0.000	-4.915E 00	-1.843E 03	-1.043E 03	-8.004E 02	5.424E 03	3.250E 00	5.023E-04	0.000	0.000
7.910E 01	3.400E-01	0.000	1.188E 01	-1.848E 03	-1.047E 03	-8.004E 02	5.523E 03	2.210E 00	3.415E-04	0.000	0.000
8.300E 01	2.300E-01	0.000	2.406E 01	-1.851E 03	-1.051E 03	-8.004E 02	5.627E 03	1.495E 00	2.310E-04	0.000	0.000
8.581E 01	2.700E-01	0.000	2.962E 01	-1.854E 03	-1.053E 03	-8.004E 02	5.682E 03	1.755E 00	2.712E-04	0.000	0.000
8.867E 01	3.450E-01	0.000	3.728E 01	-1.858E 03	-1.058E 03	-8.004E 02	5.705E 03	2.373E 00	3.667E-04	0.000	0.000
8.868E 01	3.452E-01	0.000	3.728E 01	-1.858E 03	-1.058E 03	-8.004E 02	5.705E 03	2.374E 00	3.669E-04	0.000	0.000

READING # 0091 BLOCK # 86 TIME = 186.451 MACH 7.3 PI = 995.499 TI = 3069.0

X	DDRAG	CDRAG	CF	HC
4.040E 01	9.213E 01	9.213E 01	2.448E-03	3.487E-02
4.041E 01	1.403E-01	9.227E 01	2.448E-03	3.488E-02
4.071E 01	4.275E 00	9.654E 01	2.450E-03	3.503E-02
4.121E 01	6.885E 00	1.034E 02	2.491E-03	3.550E-02
4.150E 01	4.133E 00	1.076E 02	2.537E-03	3.595E-02
4.246E 01	1.311E 01	1.207E 02	2.641E-03	3.568E-02
4.270E 01	3.173E 00	1.238E 02	2.660E-03	3.556E-02
4.276E 01	8.552E-01	1.247E 02	2.665E-03	3.552E-02
4.431E 01	1.955E 01	1.443E 02	2.768E-03	3.459E-02
4.480E 01	5.922E 00	1.502E 02	2.803E-03	3.454E-02
4.549E 01	8.184E 00	1.584E 02	2.839E-03	3.469E-02
4.620E 01	8.384E 00	1.667E 02	2.840E-03	3.398E-02
4.626E 01	6.904E-01	1.674E 02	2.838E-03	3.379E-02
4.731E 01	1.168E 01	1.791E 02	2.801E-03	3.077E-02
4.811E 01	8.245E 00	1.874E 02	2.755E-03	2.765E-02
4.872E 01	5.832E 00	1.932E 02	2.706E-03	2.463E-02
5.017E 01	1.192E 01	2.051E 02	2.608E-03	1.901E-02
5.071E 01	3.794E 00	2.089E 02	2.583E-03	1.753E-02
5.211E 01	9.028E 00	2.179E 02	2.510E-03	1.438E-02
5.421E 01	1.122E 01	2.291E 02	2.409E-03	1.117E-02
5.471E 01	2.391E 00	2.315E 02	2.390E-03	1.060E-02
5.546E 01	3.347E 00	2.348E 02	2.361E-03	9.839E-03
5.576E 01	1.262E 00	2.361E 02	2.349E-03	9.564E-03
5.622E 01	9.174E-01	2.370E 02	2.256E-03	7.204E-03
5.765E 01	2.638E 00	2.397E 02	2.202E-03	6.450E-03
5.771E 01	1.645E-01	2.398E 02	2.201E-03	6.436E-03
5.785E 01	4.128E-01	2.402E 02	2.198E-03	6.378E-03
5.792E 01	2.378E-01	2.405E 02	2.191E-03	6.427E-03
5.821E 01	8.296E-01	2.413E 02	2.184E-03	6.380E-03
5.843E 01	6.674E-01	2.420E 02	2.179E-03	6.354E-03
5.915E 01	2.119E 00	2.441E 02	2.167E-03	6.214E-03
6.017E 01	2.945E 00	2.470E 02	2.160E-03	6.146E-03
6.218E 01	5.875E 00	2.529E 02	2.165E-03	6.381E-03
6.360E 01	4.269E 00	2.572E 02	2.169E-03	6.571E-03
6.607E 01	7.391E 00	2.645E 02	2.211E-03	6.368E-03
6.644E 01	1.066E 00	2.656E 02	2.240E-03	6.001E-03
6.649E 01	1.094E-01	2.657E 02	2.214E-03	5.963E-03
6.668E 01	5.444E-01	2.662E 02	2.213E-03	5.947E-03
6.839E 01	4.740E 00	2.710E 02	2.225E-03	6.487E-03
6.901E 01	1.748E 00	2.727E 02	2.188E-03	5.579E-03
6.978E 01	1.772E 00	2.745E 02	2.142E-03	4.687E-03
7.050E 01	1.420E 00	2.759E 02	2.100E-03	3.983E-03
7.111E 01	1.076E 00	2.770E 02	2.081E-03	3.693E-03
7.249E 01	2.221E 00	2.792E 02	2.051E-03	3.282E-03
7.402E 01	2.214E 00	2.814E 02	2.020E-03	2.917E-03
7.492E 01	9.484E-01	2.824E 02	1.926E-03	1.909E-03
7.493E 01	1.251E-03	2.824E 02	1.925E-03	1.904E-03
7.625E 01	4.389E-01	2.828E 02	1.963E-03	2.313E-03
7.910E 01	7.948E-01	2.836E 02	1.891E-03	1.715E-03
8.300E 01	6.418E-01	2.843E 02	1.819E-03	1.265E-03
8.581E 01	3.036E-01	2.846E 02	1.834E-03	1.422E-03
8.867E 01	1.486E-01	2.847E 02	1.872E-03	1.779E-03
8.868E 01	0.000	2.847E 02	1.871E-03	1.780E-03

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	=253.	(LBF)
MEASURED THRUST	=318.	(LBF)
CALCULATED SPECIFIC IMPULSE	=253.	(LBF=SEC/LBM)
MEASURED SPECIFIC IMPULSE	=318.	(LBF=SEC/LBM)
CALCULATED THRUST COEFFICIENT	=.1747	
MEASURED THRUST COEFFICIENT	=.2195	

REGENERATIVE-COOLED ENGINE PERFORMANCE CALCULATED

STREAM THRUST	0.	(LBF)
NET THRUST	0.	(LBF)
SPECIFIC IMPULSE	0.	(LBF=SEC/LBM)
THRUST COEFFICIENT	0.0000	

MOMENTUM AND FORCES

INLET FRICTION DRAG	92.1	(LBF)
INLET MOMENTUM CHANGE	=461.2	(LBF)
COMBUSTOR FRICTION DRAG	173.5	(LBF)
COMBUSTOR STRUT DRAG	5.92	(LBF)
COMBUSTOR MOMENTUM CHANGE	=62.	(LBF)
NOZZLE FRICTION DRAG	19.12	(LBF)
NOZZLE STRUT DRAG	0.00	(LBF)
NOZZLE MOMENTUM CHANGE	270.	(LBF)
NOZZLE PRESSURE INTEGRAL	289.	(LBF)
EXTERNAL FRICTION DRAG	41.51	(LBF)
EXTERNAL PRESSURE INTEGRAL	=641.	(LBF)
TOTAL EXTERNAL DRAG	=682.	(LBF)
TOTAL STRUT DRAG	5.92	(LBF)
CAVITY FORCE	=544.	(LBF)
CALCULATED LOAD CELL FORCE	=1460.	(LBF)
MEASURED LOAD CELL FORCE	=1543.	(LBF)

FUEL VACUUM SPECIFIC IMPULSE

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	1.7050	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	36.584	(IN)
NOZZLE SHROUD TRAILING EDGE	74.924	(IN)
NOZZLE PLUG TRAILING EDGE	88.681	(IN)
STRUT LEADING EDGE	57.845	(IN)
STRUT TRAILING EDGE	66.445	(IN)
COMBUSTOR EXIT	66.445	(IN)

INLET

ANGLE OF ATTACK	3.000	(DEGREES)
MASS FLOW RATIO	0.9039	
ADDITIVE DRAG COEFFICIENT	0.0087	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.0881	
DELTA PT2	0.0849	(PSI)
TOTAL PRESSURE RECOVERY - SUPERSONIC	0.2152	
TOTAL PRESSURE RECOVERY - SUBSONIC	0.0894	
INLET PROCESS EFFICIENCY - SUPERSONIC	0.8808	
INLET PROCESS EFFICIENCY - SUBSONIC	0.9066	
KINETIC ENERGY EFFICIENCY - SUPERSONIC	0.9063	
KINETIC ENERGY EFFICIENCY - SUBSONIC	0.8663	
ENTHALPY AT P0 - SUPERSONIC	=24.11	(BTU/LBM)
ENTHALPY AT P0 - SUBSONIC	5.81	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0000
EQUIVALENCE RATIO	0.000
COMBUSTOR EFFICIENCY	0.000
TOTAL PRESSURE RATIO	0.2604
COMBUSTOR EFFECTIVENESS	0.6813

INJECTOR DISCHARGE COEFFICIENTS

NOZZLE

VACUUM STREAM THRUST COEFFICIENT - CS	1.0360
NOZZLE COEFFICIENT - CT	1.0027
PROCESS EFFICIENCY	1.2726
KINETIC ENERGY EFFICIENCY	1.0637

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	
1B	42.690	
1C	44.300	
2A	50.165	
2C	46.250	
3A	55.455	
3B	57.640	
4	46.190	

Reading 91

t = 190.05 sec.

2-13-75

READING = 0091 BLOCK = 90 TIME = 190.051 MACH 7.3 PT = 995.749 TT = 3071.8 PAGE 1

RAMJET PERFORMANCE

S U M M A R Y R E P O R T

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	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	M/A	M	A/AC	MOMTM	Q	IVAC	PHI	ETAC
WIND TUNNEL		1	0 6														
0.00$_0$	995.749	3072	691.4(816)	1.2906	28.956	2609											
0.00$_0$	0.154	297	-57.8(71)	1.3964	28.955	843	7.259	6123	1.815	0.05950	13.780	0.9042	2658	5.662	192.9		
SPIKE TIP NS		2	0 7														
0.60$_0$	11.187	3072	691.4(816)	1.2902	28.955	2609											
0.60$_0$	10.300	3015	674.1(799)	1.2921	28.955	2586	0.359	929	2.123	0.05950	13.780	0.9042	2764	0.659	202.0		
WIND TUNNEL		3	0 0														
0.00$_0$	995.749	3072	691.4(816)	1.2906	28.956	2609											
0.00$_0$	0.166	303	-56.2(73)	1.3967	28.955	853	7.170	6116	1.815	0.06288	14.563	0.9042	2807	5.977	192.7		
SPIKE TIP NS		4	0 0														
0.60$_0$	11.187	3072	691.4(816)	1.2902	28.955	2609											
0.60$_0$	10.183	3007	671.8(797)	1.2923	28.955	2583	0.384	991	2.123	0.06288	14.563	0.9042	2807	0.966	192.7		
INLET THROAT		5	0 5														
40.40$_0$	173.110	2995	667.9(793)	1.2930	28.955	2578											
40.40$_0$	13.011	1604	269.9(399)	1.3425	28.955	1923	2.321	4463	1.927	0.67836	13.780	0.0793	2176	47.046	157.9		
INLET UPNRBK		6	0 3														
40.40$_0$	173.110	2995	667.9(793)	1.2930	28.955	2578											
40.40$_0$	11.133	1541	253.1(382)	1.3457	28.955	1887	2.414	4556	1.927	0.61669	13.780	0.0872	2200	43.663	159.7		
INLET DNNRBK		7	0 4														
40.40$_0$	86.988	2995	667.9(793)	1.2930	28.955	2578											
40.40$_0$	73.709	2885	634.8(761)	1.2964	28.955	2534	0.508	1287	1.974	0.61669	13.780	0.0872	2200	12.330	159.7		
COMBUSTOR	0	8	1 5														
40.41$_0$	119.397	3032	678.4(885)	1.2928	26.246	2725											
40.41$_0$	19.089	1961	336.2(547)	1.3293	26.247	2222	1.862	4138	2.126	0.68404	13.897	0.0793	2175	43.994	156.5	0.26	0.16
COMBUSTOR	0	9	2 4														
40.71$_3$	107.746	3143	676.4(920)	1.2874	26.372	2762											
40.71$_3$	21.957	2169	360.9(609)	1.3203	26.373	2323	1.710	3973	2.142	0.68655	13.897	0.0790	2161	42.390	155.5	0.26	0.25
COMBUSTOR	0	10	3 7														
41.20$_3$	111.787	2848	672.8(828)	1.3011	26.071	2658											
41.20$_3$	18.860	1853	357.9(516)	1.3353	26.070	2172	1.828	3969	2.115	0.68168	13.897	0.0796	2099	42.046	151.0	0.26	0.04
COMBUSTOR	0	11	4 2														
41.50$_0$	95.374	2856	670.6(831)	1.3006	26.086	2661											
41.50$_0$	21.721	2003	399.0(562)	1.3295	26.086	2253	1.636	3686	2.128	0.67461	13.897	0.0804	2040	38.644	146.8	0.26	0.05
COMBUSTOR	0	12	5 21														
42.46$_0$	65.116	2778	662.7(806)	1.3039	26.030	2630											
42.46$_0$	23.071	2168	467.6(613)	1.3242	26.030	2342	1.334	3124	2.149	0.63726	13.897	0.0851	1853	30.941	133.3	0.26	0.01
COMBUSTOR	0	13	6 21														
42.68$_8$	55.624	2713	670.0(856)	1.3083	23.806	2722											
42.68$_8$	23.572	2206	494.2(682)	1.3254	23.806	2471	1.200	2965	2.311	0.63571	14.011	0.0861	1811	29.296	129.2	0.51	0.04
COMBUSTOR	0	14	7 21														
42.69$_8$	56.943	2633	669.9(830)	1.3119	23.733	2690											
42.69$_8$	23.594	2126	494.9(656)	1.3292	23.733	2433	1.216	2959	2.300	0.63511	14.011	0.0861	1809	29.208	129.1	0.51	0.01
COMBUSTOR	0	15	8 21														
42.76$_3$	56.108	2620	669.3(825)	1.3126	23.722	2685											
42.76$_3$	23.737	2126	498.8(656)	1.3293	23.722	2434	1.200	2921	2.300	0.63278	14.011	0.0865	1798	28.722	128.3	0.51	0.00
COMBUSTOR	0	16	9 21														
44.31$_0$	45.203	2586	657.8(813)	1.3137	23.721	2668											
44.31$_0$	33.869	2412	597.4(753)	1.3195	23.721	2583	0.673	1739	2.313	0.58451	14.011	0.0936	1569	15.795	112.0	0.51	0.00
COMBUSTOR	0	17	10 21														
44.80$_0$	42.418	3613	654.7(1159)	1.2620	24.745	3027											
44.80$_0$	37.078	3513	616.3(1123)	1.2661	24.747	2989	0.464	1388	2.401	0.57838	14.011	0.0946	1503	12.475	107.2	0.51	0.43
COMBUSTOR	0	18	11 21														
45.48$_3$	41.205	2725	650.7(859)	1.3070	23.869	2724											
45.48$_3$	35.258	2627	616.0(825)	1.3103	23.869	2677	0.492	1318	2.336	0.57499	14.011	0.0951	1453	11.774	102.3	0.51	0.06

READING # 0091 BLOCK # 90 TIME = 190.051 MACH 7.3 PT = 995.749 TT = 3071.8

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	19	12 21														
46.18R	36.722	2562	651.4(836)	1.3151	22.812	2710											
46.18R	29.519	2430	604.0(789)	1.3195	22.812	2644	0.583	1541	2.402	0.56155	14.067	0.0978	1413	13.451	100.5	0.63	0.02
COMBUSTOR	0	20	13 21														
46.19B	36.832	2505	651.4(817)	1.3177	22.763	2685											
46.19B	29.437	2373	603.7(770)	1.3221	22.763	2618	0.590	1545	2.395	0.56084	14.067	0.0979	1414	13.468	100.5	0.63	0.00
COMBUSTOR	0	21	14 21														
46.26$_0$	36.479	2496	651.1(814)	1.3181	22.756	2681											
46.26$_0$	28.933	2359	601.9(765)	1.3227	22.756	2611	0.600	1568	2.395	0.55900	14.067	0.0982	1414	13.621	100.5	0.63	0.00
COMBUSTOR	0	22	15 21														
47.31$_0$	30.430	2480	645.8(808)	1.3187	22.755	2673											
47.31$_0$	20.384	2249	563.1(726)	1.3265	22.755	2553	0.797	2034	2.408	0.51817	14.067	0.1060	1443	16.382	102.6	0.63	0.00
COMBUSTOR	0	23	16 21														
48.11$_0$	26.296	3584	642.0(1193)	1.2625	23.805	3074											
48.11$_0$	19.423	3363	554.2(1111)	1.2717	23.810	2988	0.701	2096	2.515	0.47629	14.067	0.1153	1490	15.518	105.9	0.63	0.39
COMBUSTOR	0	24	17 21														
48.72$_3$	28.436	2634	639.1(860)	1.3113	22.906	2738											
48.72$_3$	18.628	2380	547.1(769)	1.3199	22.906	2611	0.822	2145	2.432	0.43488	14.067	0.1263	1540	14.500	109.5	0.63	0.00
COMBUSTOR	0	25	18 21														
50.17$_3$	23.510	2472	633.5(805)	1.3186	22.777	2667											
50.17$_3$	10.746	2039	479.9(652)	1.3337	22.777	2436	1.138	2772	2.429	0.35340	14.067	0.1554	1640	15.227	116.6	0.63	0.01
COMBUSTOR	0	26	19 21														
50.70$_3$	20.738	2445	632.0(796)	1.3198	22.758	2655											
50.70$_3$	7.867	1924	447.8(612)	1.3382	22.758	2371	1.280	3036	2.436	0.33052	14.067	0.1662	1662	15.592	118.2	0.63	0.00
COMBUSTOR	0	27	20 21														
52.11$_3$	17.898	2433	628.5(791)	1.3203	22.755	2649											
52.11$_3$	5.800	1838	419.5(583)	1.3416	22.755	2321	1.393	3234	2.447	0.28170	14.067	0.1950	1703	14.156	121.1	0.63	0.00
COMBUSTOR	0	28	21 21														
54.21$_3$	17.117	2412	622.2(787)	1.3210	22.694	2645											
54.21$_3$	5.525	1820	413.4(579)	1.3424	22.654	2316	1.396	3232	2.457	0.23161	14.111	0.2379	1754	11.633	124.3	0.64	0.00
COMBUSTOR	0	29	22 21														
54.71$_3$	14.472	2405	621.2(785)	1.3213	22.649	2641											
54.71$_3$	3.767	1717	379.7(544)	1.3466	22.649	2253	1.543	3476	2.471	0.22214	14.111	0.2480	1764	11.999	125.0	0.64	0.00
COMBUSTOR	0	30	23 21														
55.46$_3$	14.998	2400	619.7(783)	1.3215	22.649	2639											
55.46$_3$	4.106	1736	386.4(550)	1.3458	22.649	2264	1.509	3417	2.467	0.20940	14.111	0.2631	1775	11.119	125.8	0.64	0.00
COMBUSTOR	0	31	24 21														
55.76$_0$	10.416	3339	619.2(1110)	1.2741	23.515	2999											
55.76$_0$	4.240	2734	389.2(887)	1.2978	23.520	2739	1.239	3393	2.584	0.20478	14.111	0.2690	1780	10.797	126.2	0.64	0.32
COMBUSTOR	0	32	25 21														
56.22$_3$	11.884	2540	618.4(831)	1.3149	22.774	2700											
56.22$_3$	3.259	1846	372.6(586)	1.3398	22.774	2324	1.509	3507	2.505	0.16200	14.111	0.3401	1822	8.830	129.1	0.64	0.05
COMBUSTOR	0	33	26 21														
57.64B	10.315	2412	616.3(787)	1.3208	22.667	2643											
57.64B	2.021	1600	332.9(504)	1.3516	22.667	2178	1.729	3765	2.502	0.14976	14.111	0.3679	1842	8.763	130.5	0.64	0.01
COMBUSTOR	0	34	27 21														
57.70$_3$	12.314	2393	616.2(780)	1.3217	22.651	2635											
57.70$_3$	2.876	1661	359.9(525)	1.3490	22.651	2218	1.615	3580	2.483	0.14934	14.111	0.3689	1842	8.310	130.5	0.64	0.00
COMBUSTOR	0	35	28 21														
57.84$_3$	12.103	2390	616.0(779)	1.3218	22.649	2633											
57.84$_3$	2.757	1648	356.4(520)	1.3496	22.649	2209	1.631	3603	2.485	0.14826	14.111	0.3716	1843	8.303	130.6	0.64	0.00
COMBUSTOR	0	36	29 21														
57.92$_3$	8.949	2404	615.9(784)	1.3211	22.661	2640											
57.92$_3$	1.552	1545	316.6(486)	1.3543	22.661	2142	1.806	3869	2.513	0.14992	14.111	0.3675	1843	9.015	130.6	0.64	0.00
COMBUSTOR	0	37	30 21														
58.20$_3$	7.084	2390	615.5(779)	1.3218	22.650	2633											
58.20$_3$	1.075	1482	300.2(465)	1.3575	22.650	2102	1.890	3972	2.532	0.14943	14.111	0.3687	1844	9.224	130.6	0.64	0.00

READING # 0091 BLOCK # 90 TIME = 190.051 MACH 7.5 PI = 995.749 TT = 1071.4

	P	T	M		GAMMA	MOLWT	SONV	MACH	VEL	S	R/A	W	A/AC	MOMTM	F	IVAC	PHI	ETAC
COMBUSTOR	0	38	31	21														
58.429	7.723	2388	615.2(	778)	1.3219	22.649	2632											
58.429	1.212	1493	304.6(	469)	1.3570	22.649	2109	1.869	3942	2.524	0.14917	14.111	0.3693	1844	9.139	130.7	0.64	0.00
COMBUSTOR	0	39	32	21														
59.153	9.394	2385	614.4(	778)	1.3220	22.649	2631											
59.153	1.650	1537	319.2(	483)	1.3548	22.648	2138	1.798	3843	2.506	0.14681	14.111	0.3753	1844	8.769	130.7	0.64	0.00
COMBUSTOR	0	40	33	21														
60.173	3.734	3048	613.4(1007)		1.2891	23.248	2899											
60.173	0.875	2169	292.2(	691)	1.3215	23.291	2476	1.619	4008	2.650	0.14587	14.111	0.3777	1843	9.087	130.6	0.64	0.22
COMBUSTOR	0	41	34	21														
62.183	12.242	2478	611.4(	809)	1.3176	22.736	2672											
62.183	3.350	1796	371.0(	570)	1.3423	22.736	2296	1.510	3468	2.494	0.15095	14.111	0.3650	1834	8.134	130.0	0.64	0.03
COMBUSTOR	0	42	35	21														
63.603	11.531	2388	610.0(	778)	1.3217	22.661	2631											
63.603	2.506	1627	344.1(	513)	1.3504	22.661	2195	1.662	3648	2.488	0.15504	14.111	0.3553	1828	8.788	129.5	0.64	0.00
COMBUSTOR	0	43	36	21														
66.067	9.296	2368	607.5(	771)	1.3225	22.650	2622											
66.067	1.773	1558	325.6(	490)	1.3538	22.650	2152	1.746	3755	2.504	0.14696	14.111	0.3749	1817	8.577	128.8	0.64	0.00
COMBUSTOR	0	44	37	21														
66.443	12.117	2365	607.0(	770)	1.3227	22.649	2620											
66.443	3.666	1753	392.4(	556)	1.3451	22.649	2275	1.440	3277	2.481	0.13662	14.111	0.4032	1816	6.958	128.7	0.64	0.00
COMBUSTOR REGEN		45	38	21														
66.443	12.117	2483	649.7(	813)	1.3187	22.649	2681											
66.443	2.155	1610	343.6(	508)	1.3814	22.649	2185	1.791	3913	2.498	0.13662	14.111	0.4032	1939	8.309	137.4	0.64	0.00
NOZZLE AE		46	39	5														
88.679	12.117	2369	607.0(	770)	1.3227	22.649	2620											
88.679	0.379	954	129.8(	294)	1.3847	22.649	1703	2.869	4887	2.481	0.02844	14.111	1.9371	2331	2.160	165.2	0.64	0.00
NOZZLE PO		47	40	5														
88.679	12.117	2365	607.0(	770)	1.3227	22.649	2620											
88.679	0.154	741	63.0(	227)	1.3938	22.649	1506	3.464	5217	2.481	0.01587	14.111	3.4709	2425	1.287	171.9	0.64	0.00
NOZZLE AE REGEN		48	41	5														
88.679	12.117	2483	649.7(	813)	1.3187	22.649	2681											
88.679	0.397	1022	151.2(	315)	1.3814	22.649	1761	2.837	4994	2.498	0.02844	14.111	1.9371	2387	2.207	169.2	0.64	0.00
NOZZLE PO REGEN		49	42	5														
88.679	12.117	2483	649.7(	813)	1.3187	22.649	2681											
88.679	0.154	784	76.5(	240)	1.3922	22.649	1548	3.459	5356	2.498	0.01540	14.111	3.5784	2490	1.281	176.5	0.64	0.00
FICTIVE COMBUSTR		67	60	0														
66.443	173.110	4994	607.0(1707)		1.1829	25.380	3402											
66.443	0.154	1129	904.7(	322)	1.3495	25.654	1719	5.060	8697	2.418	0.01967	14.111	2.8009	3925	2.659	278.1	0.64	1.00
FICTIVE NOZZLE		68	61	0														
88.679	5.542	2347	600.5(	764)	1.3233	22.649	2611											
88.679	0.628	1344	255.3(	419)	1.3646	22.649	2007	2.071	4156	2.546	0.02844	14.111	1.9371	2134	1.837	151.3	0.64	0.00

XA8	P-IB	P-OB	PDA	QOX	Q-IB	Q-OB	CAWALL	P-IB/P80	P-IB/PTO	P-OB/P80	P-OB/PTO
6.981E-01	6.900E-01	0.000	-2.702E-01	0.000	0.000	0.000	2.470E-02	4.484E 00	6.929E-04	0.000	0.000
1.836E 01	6.900E-01	0.000	-2.296E 01	0.000	0.000	0.000	1.634E 02	4.484E 00	6.929E-04	0.000	0.000
3.070E 01	1.510E 00	0.000	-1.121E 02	0.000	0.000	0.000	5.053E 02	9.814E 00	1.516E-03	0.000	0.000
3.508E 01	2.031E 00	0.000	-2.269E 02	0.000	0.000	0.000	6.804E 02	1.320E 01	2.039E-03	0.000	0.000
3.558E 01	2.205E 00	0.000	-2.462E 02	0.000	0.000	0.000	7.013E 02	1.433E 01	2.214E-03	0.000	0.000
3.606E 01	2.485E 00	0.000	-2.700E 02	-1.206E 02	-1.206E 02	0.000	7.246E 02	1.615E 01	2.496E-03	0.000	0.000
3.648E 01	2.332E 00	0.000	-2.906E 02	-1.256E 02	-1.236E 02	0.000	7.443E 02	1.516E 01	2.342E-03	0.000	0.000
3.658E 01	2.391E 00	3.189E 00	-3.286E 02	-1.243E 02	-1.243E 02	0.000	7.490E 02	1.554E 01	2.401E-03	2.073E 01	3.203E-03
3.659E 01	2.395E 00	3.217E 00	-3.287E 02	-1.243E 02	-1.243E 02	0.000	7.493E 02	1.556E 01	2.405E-03	2.091E 01	3.230E-03
3.701E 01	2.640E 00	5.143E 00	-3.304E 02	-1.274E 02	-1.274E 02	0.000	7.932E 02	1.716E 01	2.651E-03	3.343E 01	5.165E-03
3.725E 01	2.810E 00	6.250E 00	-3.294E 02	-1.293E 02	-1.293E 02	0.000	8.187E 02	1.827E 01	2.822E-03	4.062E 01	6.277E-03
3.803E 01	3.355E 00	8.977E 00	-3.203E 02	-1.355E 02	-1.355E 02	0.000	9.022E 02	2.180E 01	3.369E-03	5.835E 01	9.016E-03
3.871E 01	9.087E 00	1.137E 01	-3.383E 02	-1.883E 02	-1.456E 02	-4.272E 01	9.784E 02	5.906E 01	9.126E-03	7.393E 01	1.142E-02
3.875E 01	9.398E 00	1.132E 01	-3.400E 02	-1.905E 02	-1.464E 02	-4.419E 01	9.826E 02	6.108E 01	9.438E-03	7.359E 01	1.137E-02
3.901E 01	1.158E 01	1.096E 01	-3.533E 02	-2.072E 02	-1.527E 02	-5.445E 01	1.012E 03	7.526E 01	1.163E-02	7.124E 01	1.101E-02
3.950E 01	1.450E 01	1.028E 01	-3.831E 02	-2.428E 02	-1.691E 02	-7.374E 01	1.068E 03	9.422E 01	1.456E-02	6.681E 01	1.032E-02
3.973E 01	1.336E 01	9.956E 00	-3.945E 02	-2.619E 02	-1.790E 02	-8.289E 01	1.095E 03	8.683E 01	1.342E-02	6.471E 01	9.999E-03
4.000E 01	1.206E 01	1.469E 01	-3.989E 02	-2.857E 02	-1.923E 02	-9.336E 01	1.126E 03	7.836E 01	1.211E-02	9.547E 01	1.475E-02
4.020E 01	1.197E 01	1.829E 01	-3.982E 02	-3.047E 02	-2.034E 02	-1.013E 02	1.150E 03	1.038E 02	1.604E-02	1.189E 02	1.837E-02
4.040E 01	1.177E 01	1.822E 01	-3.999E 02	-3.236E 02	-2.146E 02	-1.090E 02	1.173E 03	1.285E 02	1.986E-02	1.184E 02	1.829E-02
4.041E 01	1.997E 01	1.821E 01	-3.999E 02	-3.245E 02	-2.151E 02	-1.094E 02	1.174E 03	1.298E 02	2.005E-02	1.184E 02	1.829E-02
4.071E 01	2.581E 01	1.810E 01	-4.101E 02	-3.542E 02	-2.330E 02	-1.212E 02	1.209E 03	1.678E 02	2.592E-02	1.176E 02	1.818E-02
4.120E 01	3.527E 01	2.450E 00	-4.646E 02	-4.058E 02	-2.637E 02	-1.400E 02	1.267E 03	2.292E 02	3.542E-02	1.592E 01	2.460E-03
4.150E 01	4.100E 01	2.442E 00	-5.196E 02	-4.349E 02	-2.836E 02	-1.512E 02	1.302E 03	2.665E 02	4.117E-02	1.587E 01	2.453E-03
4.246E 01	4.372E 01	2.417E 00	-6.943E 02	-5.453E 02	-3.485E 02	-1.948E 02	1.416E 03	2.842E 02	4.391E-02	1.571E 01	2.428E-03
4.269E 01	4.473E 01	2.411E 00	-7.331E 02	-5.703E 02	-3.631E 02	-2.072E 02	1.443E 03	2.907E 02	4.492E-02	1.567E 01	2.422E-03
4.270E 01	4.478E 01	2.411E 00	-7.347E 02	-5.715E 02	-3.637E 02	-2.078E 02	1.444E 03	2.910E 02	4.497E-02	1.567E 01	2.421E-03
4.276E 01	4.507E 01	2.409E 00	-7.457E 02	-5.790E 02	-3.676E 02	-2.114E 02	1.452E 03	2.929E 02	4.526E-02	1.566E 01	2.420E-03
4.431E 01	5.191E 01	1.583E 01	-9.597E 02	-7.402E 02	-4.384E 02	-2.617E 02	1.639E 03	3.374E 02	5.213E-02	1.029E 02	1.590E-02
4.480E 01	5.407E 01	2.008E 01	-1.023E 03	-7.832E 02	-4.517E 02	-2.319E 02	1.698E 03	3.514E 02	5.431E-02	1.305E 02	2.017E-02
4.548E 01	4.451E 01	2.601E 01	-1.088E 03	-8.403E 02	-4.670E 02	-3.733E 02	1.781E 03	2.893E 02	4.470E-02	1.690E 02	2.612E-02
4.619E 01	3.464E 01	2.440E 01	-1.104E 03	-8.962E 02	-4.823E 02	-4.139E 02	1.868E 03	2.251E 02	3.479E-02	1.586E 02	2.450E-02
4.620E 01	3.450E 01	2.438E 01	-1.103E 03	-8.970E 02	-4.825E 02	-4.144E 02	1.869E 03	2.242E 02	3.464E-02	1.584E 02	2.448E-02
4.626E 01	3.363E 01	2.424E 01	-1.103E 03	-9.016E 02	-4.839E 02	-4.178E 02	1.877E 03	2.186E 02	3.377E-02	1.575E 02	2.434E-02
4.731E 01	1.892E 01	2.184E 01	-1.066E 03	-9.759E 02	-5.057E 02	-4.702E 02	2.006E 03	1.230E 02	1.901E-02	1.420E 02	2.194E-02
4.811E 01	1.882E 01	2.002E 01	-1.013E 03	-1.029E 03	-5.217E 02	-5.075E 02	2.105E 03	1.223E 02	1.891E-02	1.301E 02	2.011E-02
4.872E 01	1.862E 01	1.862E 01	-9.585E 02	-1.070E 03	-5.335E 02	-5.362E 02	2.182E 03	1.210E 02	1.870E-02	1.210E 02	1.870E-02
5.017E 01	1.075E 01	1.075E 01	-8.487E 02	-1.149E 03	-5.602E 02	-5.892E 02	2.363E 03	6.984E 01	1.079E-02	6.984E 01	1.079E-02
5.070E 01	7.867E 00	7.867E 00	-8.230E 02	-1.171E 03	-5.694E 02	-6.011E 02	2.429E 03	5.113E 01	7.900E-03	5.113E 01	7.900E-03
5.211E 01	5.800E 00	5.800E 00	-7.725E 02	-1.220E 03	-5.928E 02	-6.267E 02	2.607E 03	3.770E 01	5.825E-03	3.770E 01	5.825E-03
5.421E 01	5.525E 00	5.525E 00	-7.101E 02	-1.285E 03	-6.242E 02	-6.604E 02	2.873E 03	3.591E 01	5.549E-03	3.591E 01	5.549E-03
5.471E 01	3.767E 00	3.767E 00	-6.981E 02	-1.299E 03	-6.311E 02	-6.676E 02	2.937E 03	2.448E 01	3.783E-03	2.448E 01	3.783E-03
5.546E 01	4.106E 00	4.106E 00	-6.828E 02	-1.319E 03	-6.410E 02	-6.777E 02	3.033E 03	2.669E 01	4.124E-03	2.669E 01	4.124E-03
5.576E 01	4.240E 00	4.240E 00	-6.765E 02	-1.326E 03	-6.448E 02	-6.816E 02	3.071E 03	2.756E 01	4.259E-03	2.756E 01	4.259E-03
5.622E 01	2.069E 00	4.450E 00	-6.334E 02	-1.338E 03	-6.502E 02	-6.874E 02	3.102E 03	1.345E 01	2.078E-03	2.892E 01	4.469E-03
5.765E 01	2.021E 00	2.021E 00	-6.104E 02	-1.368E 03	-6.647E 02	-7.035E 02	3.210E 03	1.314E 01	2.030E-03	1.314E 01	2.030E-03
5.770E 01	3.825E 00	1.927E 00	-6.098E 02	-1.369E 03	-6.652E 02	-7.041E 02	3.217E 03	2.486E 01	3.841E-03	1.253E 01	1.935E-03
5.784E 01	3.825E 00	1.689E 00	-6.086E 02	-1.372E 03	-6.665E 02	-7.055E 02	3.234E 03	2.486E 01	3.841E-03	1.097E 01	1.696E-03
5.792E 01	1.552E 00	1.552E 00	-6.080E 02	-1.374E 03	-6.673E 02	-7.063E 02	3.245E 03	1.009E 01	1.559E-03	1.009E 01	1.559E-03
5.820E 01	1.075E 00	1.075E 00	-6.063E 02	-1.379E 03	-6.698E 02	-7.089E 02	3.280E 03	6.987E 00	1.080E-03	6.987E 00	1.080E-03
5.843E 01	1.212E 00	1.212E 00	-6.052E 02	-1.383E 03	-6.718E 02	-7.108E 02	3.309E 03	7.876E 00	1.217E-03	7.876E 00	1.217E-03
5.915E 01	1.650E 00	1.650E 00	-6.013E 02	-1.394E 03	-6.778E 02	-7.164E 02	3.402E 03	1.072E 01	1.657E-03	1.072E 01	1.657E-03
6.017E 01	8.750E-01	8.750E-01	-5.984E 02	-1.409E 03	-6.853E 02	-7.238E 02	3.532E 03	5.687E 00	8.787E-04	5.687E 00	8.787E-04
6.218E 01	3.390E 00	3.390E 00	-5.979E 02	-1.437E 03	-6.976E 02	-7.393E 02	3.790E 03	2.177E 01	3.364E-03	2.177E 01	3.364E-03
6.360E 01	2.506E 00	2.506E 00	-5.979E 02	-1.456E 03	-7.051E 02	-7.510E 02	3.972E 03	1.629E 01	2.517E-03	1.629E 01	2.517E-03
6.607E 01	1.773E 00	1.773E 00	-5.979E 02	-1.492E 03	-7.182E 02	-7.742E 02	4.289E 03	1.152E 01	1.781E-03	1.152E 01	1.781E-03

READING # 0091 BLOCK # 90 TIME = 190.051 MACH 7.3 PT = 995.749 TT = 3071.8

XAB$_8$	P=IB	P=OB	PDA	DUX	Q=IA	Q=OB	CA=ALL	P=IB/PSU	P=IB/PTU	P=OB/PSU	P=OB/PTU
6.64$_8$E 01	5.670E 00	1.661E 00	-5.979E 02	-1.498E 03	-7.202E 02	-7.781E 02	4.537E 03	3.685E 01	5.694E-03	1.080E 01	1.668E-03
6.64$_8$E 01	5.670E 00	1.649E 00	-5.979E 02	-1.499E 03	-7.204E 02	-7.786E 02	4.342E 03	3.685E 01	5.694E-03	1.072E 01	1.657E-03
6.66$_8$E 01	5.343E 00	1.590E 00	-5.979E 02	-1.502E 03	-7.214E 02	-7.808E 02	4.368E 03	3.473E 01	5.366E-03	1.033E 01	1.597E-03
6.83$_8$E 01	2.630E 00	2.265E 00	-5.676E 02	-1.524E 03	-7.294E 02	-7.947E 02	4.584E 03	1.709E 01	2.641E-03	1.472E 01	2.275E-03
6.90$_1$E 01	1.091E 00	2.197E 00	-5.218E 02	-1.530E 03	-7.324E 02	-7.980E 02	4.665E 03	1.268E 01	1.959E-03	1.428E 01	2.207E-03
6.97$_8$E 01	1.170E 00	1.796E 00	-4.732E 02	-1.537E 03	-7.355E 02	-8.014E 02	4.760E 03	7.604E 00	1.175E-03	1.167E 01	1.803E-03
7.05$_0$E 01	9.237E-01	1.420E 00	-4.395E 02	-1.543E 03	-7.383E 02	-8.045E 02	4.848E 03	6.003E 00	9.276E-04	9.229E 00	1.426E-03
7.11$_1$E 01	7.150E-01	1.315E 00	-4.163E 02	-1.548E 03	-7.405E 02	-8.070E 02	4.922E 03	4.647E 00	7.181E-04	8.547E 00	1.321E-03
7.24$_9$E 01	6.100E-01	1.078E 00	-3.749E 02	-1.556E 03	-7.452E 02	-8.111E 02	5.088E 03	3.965E 00	6.126E-04	7.006E 00	1.083E-03
7.40$_2$E 01	5.673E-01	8.150E-01	-3.392E 02	-1.564E 03	-7.496E 02	-8.142E 02	5.273E 03	3.687E 00	5.697E-04	5.297E 00	8.185E-04
7.49$_2$E 01	5.421E-01	2.250E-01	-3.187E 02	-1.568E 03	-7.517E 02	-8.162E 02	5.372E 03	3.523E 00	5.445E-04	1.462E 00	2.260E-04
7.49$_3$E 01	5.420E-01	2.224E-01	-3.183E 02	-1.568E 03	-7.517E 02	-8.162E 02	5.372E 03	3.523E 00	5.443E-04	1.445E 00	2.233E-04
7.62$_5$E 01	5.050E-01	0.000	-3.072E 02	-1.574E 03	-7.543E 02	-8.199E 02	5.424E 03	3.282E 00	5.072E-04	0.000	0.000
7.91$_0$E 01	3.450E-01	0.000	-2.902E 02	-1.578E 03	-7.584E 02	-8.199E 02	5.523E 03	2.242E 00	3.465E-04	0.000	0.000
8.30$_0$E 01	2.200E-01	0.000	-2.781E 02	-1.582E 03	-7.619E 02	-8.199E 02	5.627E 03	1.430E 00	2.209E-04	0.000	0.000
8.58$_1$E 01	2.500E-01	0.000	-2.729E 02	-1.585E 03	-7.646E 02	-8.199E 02	5.682E 03	1.625E 00	2.511E-04	0.000	0.000
8.86$_7$E 01	3.500E-01	0.000	-2.657E 02	-1.590E 03	-7.698E 02	-8.199E 02	5.705E 03	2.275E 00	3.515E-04	0.000	0.000
8.86$_8$E 01	3.502E-01	0.000	-2.657E 02	-1.590E 03	-7.699E 02	-8.199E 02	5.705E 03	2.276E 00	3.517E-04	0.000	0.000

X	DDRAG	CDRAG	CF	HC
4.040E 01	9.894E 01	9.894E 01	2.577E-03	3.746E-02
4.041E 01	1.531E-01	9.910E 01	3.164E-03	4.491E-02
4.071E 01	4.652E 00	1.037E 02	2.909E-03	5.300E-02
4.120E 01	7.251E 00	1.110E 02	3.055E-03	4.508E-02
4.150E 01	4.256E 00	1.153E 02	2.962E-03	5.070E-02
4.246E 01	1.230E 01	1.276E 02	3.232E-03	4.532E-02
4.269E 01	2.801E 00	1.304E 02	3.602E-03	4.194E-02
4.270E 01	1.187E-01	1.305E 02	3.323E-03	4.619E-02
4.276E 01	7.462E-01	1.312E 02	3.291E-03	4.664E-02
4.431E 01	1.440E 01	1.456E 02	3.648E-03	3.965E-02
4.480E 01	3.128E 00	1.487E 02	3.787E-03	3.536E-02
4.548E 01	4.085E 00	1.528E 02	4.297E-03	2.744E-02
4.619E 01	4.531E 00	1.574E 02	4.027E-03	3.017E-02
4.620E 01	6.807E-02	1.574E 02	3.846E-03	3.240E-02
4.626E 01	3.938E-01	1.578E 02	3.813E-03	3.271E-02
4.731E 01	7.318E 00	1.651E 02	3.720E-03	3.043E-02
4.811E 01	5.834E 00	1.710E 02	3.660E-03	2.966E-02
4.872E 01	4.455E 00	1.754E 02	4.123E-03	2.357E-02
5.017E 01	1.037E 01	1.858E 02	3.577E-03	2.147E-02
5.070E 01	3.613E 00	1.894E 02	3.477E-03	1.848E-02
5.211E 01	9.106E 00	1.985E 02	3.419E-03	1.497E-02
5.421E 01	1.163E 01	2.101E 02	3.356E-03	1.307E-02
5.471E 01	2.928E 00	2.127E 02	3.360E-03	1.089E-02
5.546E 01	3.696E 00	2.164E 02	3.314E-03	1.141E-02
5.576E 01	1.377E 00	2.178E 02	3.299E-03	1.159E-02
5.622E 01	1.096E 00	2.188E 02	3.855E-03	7.556E-03
5.765E 01	3.432E 00	2.223E 02	3.392E-03	6.376E-03
5.770E 01	1.988E-01	2.225E 02	3.219E-03	8.356E-03
5.788E 01	4.743E-01	2.230E 02	3.207E-03	8.153E-03
5.792E 01	2.935E-01	2.232E 02	3.416E-03	5.334E-03
5.820E 01	1.117E 00	2.244E 02	3.453E-03	4.155E-03
5.843E 01	9.053E-01	2.253E 02	3.386E-03	4.550E-03
5.915E 01	2.761E 00	2.280E 02	3.273E-03	5.674E-03
6.017E 01	3.949E 00	2.320E 02	3.488E-03	3.536E-03
6.218E 01	7.871E 00	2.398E 02	3.601E-03	7.855E-03
6.360E 01	5.287E 00	2.451E 02	3.259E-03	7.371E-03
6.607E 01	8.979E 00	2.541E 02	3.284E-03	5.861E-03
6.644E 01	1.217E 00	2.553E 02	3.213E-03	9.340E-03
6.648E 01	9.896E-02	2.554E 02	3.173E-03	9.217E-03
6.668E 01	4.149E-01	2.558E 02	3.157E-03	8.963E-03
6.834E 01	3.339E 00	2.592E 02	3.068E-03	7.364E-03
6.901E 01	1.179E 00	2.604E 02	3.029E-03	6.656E-03
6.978E 01	1.243E 00	2.616E 02	2.955E-03	5.372E-03
7.050E 01	1.017E 00	2.626E 02	2.904E-03	4.591E-03
7.111E 01	7.805E-01	2.634E 02	2.872E-03	4.163E-03
7.249E 01	1.610E 00	2.650E 02	2.830E-03	3.660E-03
7.402E 01	1.605E 00	2.666E 02	2.785E-03	3.179E-03
7.492E 01	6.971E-01	2.673E 02	2.673E-03	2.097E-03
7.493E 01	9.406E-04	2.673E 02	2.673E-03	2.092E-03
7.625E 01	3.276E-01	2.676E 02	2.716E-03	2.540E-03
7.910E 01	6.002E-01	2.682E 02	2.634E-03	1.948E-03
8.300E 01	4.941E-01	2.687E 02	2.539E-03	1.386E-03
8.581E 01	2.289E-01	2.690E 02	2.547E-03	1.511E-03
8.867E 01	1.101E-01	2.691E 02	2.593E-03	1.911E-03
8.868E 01	0.000	2.691E 02	2.593E-03	1.912E-03

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	=540.	(LBF)
MEASURED THRUST	=33.	(LBF)
CALCULATED SPECIFIC IMPULSE	=1835.	(LBF=SEC/LBM)
MEASURED SPECIFIC IMPULSE	=113.	(LBF=SEC/LBM)
CALCULATED THRUST COEFFICIENT	=.3724	
MEASURED THRUST COEFFICIENT	=.0229	

REGENERATIVE-COOLED ENGINE PERFORMANCE

CALCULATED

STREAM THRUST	2186.	(LBF)
NET THRUST	=489.	(LBF)
SPECIFIC IMPULSE	=1661.	(LBF=SEC/LBM)
THRUST COEFFICIENT	=.3370	

MOMENTUM AND FORCES

INLET FRICTION DRAG	98.9	(LBF)
INLET MOMENTUM CHANGE	=498.8	(LBF)
COMBUSTOR FRICTION DRAG	156.4	(LBF)
COMBUSTOR STRUT DRAG	5.31	(LBF)
COMBUSTOR MOMENTUM CHANGE	=360.	(LBF)
NOZZLE FRICTION DRAG	13.75	(LBF)
NOZZLE STRUT DRAG	0.00	(LBF)
NOZZLE MOMENTUM CHANGE	318.	(LBF)
NOZZLE PRESSURE INTEGRAL	332.	(LBF)
EXTERNAL FRICTION DRAG	37.73	(LBF)
EXTERNAL PRESSURE INTEGRAL	=622.	(LBF)
TOTAL EXTERNAL DRAG	=660.	(LBF)
TOTAL STRUT DRAG	5.31	(LBF)
CAVITY FORCE	=519.	(LBF)
CALCULATED LOAD CELL FORCE	=1719.	(LBF)
MEASURED LOAD CELL FORCE	=1211.	(LBF)
FUEL VACUUM SPECIFIC IMPULSE	0.0. 0.0.	0.0.

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	1.7050	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	36.587	(IN)
NOZZLE SHROUD TRAILING EDGE	74.927	(IN)
NOZZLE PLUG TRAILING EDGE	88.674	(IN)
STRUT LEADING EDGE	57.845	(IN)
STRUT TRAILING EDGE	66.445	(IN)
COMBUSTOR EXIT	66.445	(IN)

INLET

ANGLE OF ATTACK	3.000	(DEGREES)
MASS FLOW RATIO	0.9042	
ADDITIVE DRAG COEFFICIENT	0.0087	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.0860	
DELTA PT2	0.0895	(PSI)
TOTAL PRESSURE RECOVERY = SUPERSONIC	0.1738	
TOTAL PRESSURE RECOVERY = SUBSONIC	0.0873	
INLET PROCESS EFFICIENCY = SUPERSONIC	0.8705	
INLET PROCESS EFFICIENCY = SUBSONIC	0.9031	
KINETIC ENERGY EFFICIENCY = SUPERSONIC	0.9120	
KINETIC ENERGY EFFICIENCY = SUBSONIC	0.8790	
ENTHALPY AT P0 = SUPERSONIC	=15.36	(BTU/LBM)
ENTHALPY AT P0 = SUBSONIC	9.33	(BTU/LBM)

COMBUSTOR

FUEL=AIR RATIO	0.0213	
EQUIVALENCE RATIO	0.643	
COMBUSTOR EFFICIENCY	0.000	
TOTAL PRESSURE RATIO	0.0700	
COMBUSTOR EFFECTIVENESS	0.1397	
INJECTOR DISCHARGE COEFFICIENTS	0.9692. 0.5833.	0.7927.

NOZZLE

VACUUM STREAM THRUST COEFFICIENT = CS	0.9155
NOZZLE COEFFICIENT = CT	0.8487
PROCESS EFFICIENCY	0.6310
KINETIC ENERGY EFFICIENCY	0.7993

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	A
1B	42.688	B
1C	44.300	
2A	50.163	
2C	46.250	
3A	55.453	
3B	57.638	
4	46.188	C

Reading 91

$t = 203.55$ sec.

2/13/75

READING # 0091 BLOCK # 105 TIME = 203.551 MACH 7.3 PT = 995.749 TT = 3070.3

RAMJET PERFORMANCE

S U M M A R Y R E P O R T

	P	T	M		GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	A	A/AC	MOMTM	G	IVAC	PHI	ETAC
WIND TUNNEL		1	0	6														
0.000	995.749	3070	690.9(	815)	1.2906	28.956	2608											
0.000	0.154	297	-57.8(	71)	1.3964	28.955	843	7.260	6121	1.815	0.05952	13.780	0.9039	2657	5.662	192.8		
SPIKE TIP NS		2	0	7														
0.600	11.187	3070	690.9(	815)	1.2903	28.955	2608											
0.600	10.300	3013	673.7(	799)	1.2921	28.955	2586	0.359	929	2.123	0.05952	13.780	0.9039	2783	0.860	201.9		
WIND TUNNEL		3	0	0														
0.000	995.749	3070	690.9(	815)	1.2906	28.956	2608											
0.000	0.166	303	-56.2(	73)	1.3967	28.955	853	7.171	6115	1.815	0.06290	14.562	0.9039	2806	5.977	192.7		
SPIKE TIP NS		4	0	0														
0.600	11.187	3070	690.9(	815)	1.2903	28.955	2608											
0.600	10.183	3006	671.3(	796)	1.2924	28.955	2583											
								0.384	991	2.123	0.06290	14.562	0.9039	2806	0.969	192.7		
INLET THROAT		5	0	4														
40.400	190.129	2967	659.6(	785)	1.2939	28.955	2567											
40.400	12.159	1523	248.3(	377)	1.3467	28.955	1877	2.418	4537	1.918	0.67876	13.780	0.0793	2190	47.858	156.9		
INLET UPNRSK		6	0	3														
40.400	190.129	2967	659.6(	785)	1.2939	28.955	2567											
40.400	10.485	1461	232.5(	361)	1.3500	28.955	1842	2.510	4683	1.918	0.61705	13.780	0.0872	2213	44.333	160.6		
INLET ONNRSK		7	0	4														
40.400	87.808	2967	659.6(	785)	1.2938	28.955	2567											
40.400	74.982	2862	628.0(	754)	1.2972	28.955	2525	0.498	1257	1.971	0.61705	13.780	0.0872	2213	12.054	160.6		
COMBUSTOR	0	8	1	8														
40.410	138.165	2929	670.9(	848)	1.2972	26.338	2678											
40.410	16.292	1748	300.3(	480)	1.3388	26.338	2102	2.049	4306	2.095	0.68403	13.889	0.0793	2190	45.776	157.7	0.24	0.10
COMBUSTOR	0	9	2	4														
40.715	114.499	3134	668.2(	911)	1.2874	26.567	2748											
40.715	20.501	2096	335.3(	583)	1.3226	26.567	2277	1.792	4082	2.125	0.68651	13.889	0.0790	2177	43.546	156.7	0.24	0.26
COMBUSTOR	0	10	3	21														
41.205	124.901	2836	663.8(	819)	1.3012	26.262	2643											
41.205	15.887	1718	314.5(	472)	1.3406	26.262	2088	2.002	4181	2.093	0.68169	13.889	0.0795	2129	44.293	153.3	0.24	0.04
COMBUSTOR	0	11	4	3														
41.500	112.072	2793	661.1(	805)	1.3031	26.226	2627											
41.500	17.957	1790	347.4(	494)	1.3379	26.225	2131	1.860	3962	2.097	0.67460	13.889	0.0804	2080	41.537	149.6	0.24	0.01
COMBUSTOR	0	12	5	21														
42.460	73.790	2746	650.3(	791)	1.3048	26.212	2607											
42.460	23.714	2091	443.2(	586)	1.3267	26.212	2294	1.403	3219	2.123	0.63687	13.889	0.0851	1907	31.862	137.3	0.24	0.00
COMBUSTOR	0	13	6	21														
42.690	61.027	2692	640.7(	849)	1.3089	23.811	2713											
42.690	24.301	2156	475.0(	665)	1.3271	23.811	2444	1.247	3048	2.300	0.63507	14.012	0.0861	1863	30.079	133.0	0.51	0.04
COMBUSTOR	0	14	7	21														
42.700	62.762	2608	660.5(	821)	1.3128	23.733	2678											
42.700	24.327	2070	475.6(	637)	1.3312	23.733	2403	1.266	3042	2.289	0.63498	14.012	0.0862	1862	30.018	132.9	0.51	0.01
COMBUSTOR	0	15	8	21														
42.765	61.783	2593	659.6(	816)	1.3135	23.722	2672											
42.765	24.493	2069	479.6(	637)	1.3314	23.721	2403	1.249	3001	2.288	0.63263	14.012	0.0865	1850	29.507	132.0	0.51	0.00
COMBUSTOR	0	16	9	21														
44.310	48.972	2522	635.6(	791)	1.3158	23.720	2637											
44.310	37.019	2357	578.5(	735)	1.3213	23.720	2555	0.662	1692	2.298	0.58490	14.012	0.0935	1623	15.377	115.9	0.51	0.00
COMBUSTOR	0	17	10	21														
44.800	47.135	3010	627.4(	953)	1.2928	24.203	2827											
44.800	40.991	2916	593.4(	920)	1.2960	24.203	2786	0.468	1304	2.348	0.57837	14.012	0.0946	1561	11.719	111.4	0.51	0.21
COMBUSTOR	0	18	11	21														
45.485	45.865	2543	615.9(	797)	1.3141	23.790	2642											
45.485	39.760	2467	586.1(	768)	1.3170	23.790	2600	0.470	1222	2.305	0.57504	14.012	0.0951	1501	10.917	107.1	0.51	0.03

	P	T	H	GAMMA	MOLWT	BONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Q	IVAL	PHI	ETAC
COMBUSTOR	0	19	12 21														
46.200	41.670	2444	604.7(764)	1.3182	23.730	2598											
46.200	32.873	2308	557.5(717)	1.3229	23.730	2529	0.607	1536	2.300	0.55969	14.012	0.0977	1442	13.364	106.5	0.51	0.00
COMBUSTOR	0	20	13 21														
46.260	41.366	2432	603.8(760)	1.3188	23.721	2593											
46.260	32.295	2290	554.9(712)	1.3236	23.721	2521	0.621	1565	2.299	0.55703	14.012	0.0982	1494	13.549	106.6	0.51	0.00
COMBUSTOR	0	21	14 21														
47.310	36.090	2389	589.4(745)	1.3203	23.720	2571											
47.310	22.181	2120	497.6(654)	1.3295	23.720	2431	0.862	2144	2.305	0.51637	14.012	0.1059	1536	17.208	109.6	0.51	0.00
COMBUSTOR	0	22	15 21														
48.110	28.540	3633	579.4(1162)	1.2568	24.980	3014											
48.110	19.215	3347	469.7(1059)	1.2688	24.988	2907	0.806	2343	2.424	0.47459	14.012	0.1153	1588	17.284	113.3	0.51	0.52
COMBUSTOR	0	23	16 21														
48.725	32.477	2536	571.8(793)	1.3129	23.901	2632											
48.725	17.575	2186	451.5(673)	1.3249	23.901	2455	1.000	2454	2.329	0.43316	14.012	0.1263	1637	16.519	116.6	0.51	0.08
COMBUSTOR	0	24	17 21														
50.175	31.268	2322	556.3(722)	1.3222	23.746	2535											
50.175	11.570	1813	385.0(551)	1.3407	23.746	2256	1.298	2928	2.306	0.35202	14.012	0.1594	1735	16.015	123.9	0.51	0.01
COMBUSTOR	0	25	18 21														
50.705	30.482	2284	551.7(709)	1.3238	23.723	2517											
50.705	9.375	1699	356.3(514)	1.3457	23.723	2189	1.429	3127	2.303	0.32922	14.012	0.1662	1761	16.001	125.7	0.51	0.00
COMBUSTOR	0	26	19 21														
52.115	29.985	2249	541.3(698)	1.3250	23.720	2499											
52.115	8.100	1617	330.9(488)	1.3494	23.720	2139	1.517	3244	2.299	0.28059	14.012	0.1950	1817	14.147	129.7	0.51	0.00
COMBUSTOR	0	27	20 21														
54.215	29.174	2205	526.7(686)	1.3266	23.605	2482											
54.215	6.150	1484	287.7(447)	1.3561	23.605	2059	1.680	3459	2.304	0.23067	14.054	0.2379	1885	12.398	134.2	0.52	0.00
COMBUSTOR	0	28	21 21														
54.715	28.728	2192	524.1(681)	1.3272	23.601	2475											
54.715	4.808	1387	258.6(416)	1.3611	23.601	1994	1.827	3645	2.303	0.22124	14.054	0.2480	1897	12.531	135.0	0.52	0.00
COMBUSTOR	0	29	22 21														
55.465	28.716	2180	520.3(677)	1.3276	23.600	2469											
55.465	4.643	1367	252.3(410)	1.3622	23.600	1980	1.849	3682	2.302	0.20856	14.054	0.2631	1912	11.869	136.1	0.52	0.00
COMBUSTOR	0	30	23 21														
55.760	28.712	2176	518.9(676)	1.3277	23.600	2467											
55.760	4.578	1359	249.9(407)	1.3626	23.600	1975	1.858	3669	2.301	0.20399	14.054	0.2690	1918	11.632	136.6	0.52	0.00
COMBUSTOR	0	31	24 21														
56.225	26.021	2182	516.8(678)	1.3274	23.611	2470											
56.225	3.428	1295	225.7(387)	1.3660	23.611	1930	1.977	3817	2.310	0.16134	14.054	0.3401	1966	9.570	139.9	0.52	0.00
COMBUSTOR	0	32	25 21														
57.650	25.827	2154	511.0(669)	1.3285	23.602	2455											
57.650	2.190	1134	179.0(337)	1.3748	23.602	1812	2.249	4076	2.306	0.14912	14.054	0.3679	1987	9.446	141.4	0.52	0.00
COMBUSTOR	0	33	26 21														
57.705	26.778	2152	510.8(668)	1.3286	23.600	2454											
57.705	3.051	1227	208.4(366)	1.3698	23.600	1882	2.067	3890	2.303	0.14876	14.054	0.3689	1987	8.992	141.4	0.52	0.00
COMBUSTOR	0	34	27 21														
57.845	26.711	2150	510.3(667)	1.3286	23.600	2453											
57.845	2.939	1214	204.6(362)	1.3705	23.600	1872	2.089	3911	2.303	0.14764	14.054	0.3717	1988	8.973	141.5	0.52	0.00
COMBUSTOR	0	35	28 21														
57.925	22.170	2217	510.0(689)	1.3255	23.660	2485											
57.925	1.749	1148	161.5(341)	1.3735	23.660	1821	2.294	4176	2.328	0.14932	14.054	0.3675	1989	9.049	141.5	0.52	0.03
COMBUSTOR	0	36	29 21														
58.205	21.943	2157	509.0(669)	1.3263	23.609	2456											
58.205	1.300	1029	144.1(305)	1.3803	23.609	1729	2.471	4273	2.320	0.14680	14.054	0.3688	1989	9.082	141.6	0.52	0.00
COMBUSTOR	0	37	30 21														
58.431	23.039	2146	508.3(666)	1.3268	23.601	2451											
58.431	1.383	1027	146.3(304)	1.3805	23.601	1728	2.463	4256	2.315	0.14857	14.054	0.3693	1990	9.027	141.6	0.52	0.00

READING = 0091 BLOCK = 105 TIME = 203.551 MACH 7.3 PT = 995.749 TT = 3070.3

	P	T	H		GAMMA	ROLAT	SONV	MACH	VEL	S	/A	A	A/AC	NORTM	Q	TVAL	PHI	ETAC
COMBUSTOR	0	38	31	21														
59.155	24.851	2138	506.2	(663)	1.3241	23.600	2447											
59.155	1.650	1052	154.3	(312)	1.3792	23.600	1748	2.400	4196	2.307	0.14621	14.054	0.3753	1992	9.535	141.7	0.52	0.00
COMBUSTOR	0	39	32	21														
60.175	18.850	2130	503.6	(661)	1.3293	23.600	2443											
60.175	0.875	949	123.0	(280)	1.3844	23.600	1663	2.623	4364	2.329	0.14528	14.054	0.3777	1991	9.653	141.7	0.52	0.00
COMBUSTOR	0	40	33	5														
62.185	22.279	2327	499.0	(725)	1.3200	23.788	2534											
62.185	4.000	1510	227.3	(453)	1.3528	23.788	2066	1.784	3687	2.340	0.15034	14.054	0.3650	1985	9.615	141.2	0.52	0.08
COMBUSTOR	0	41	34	10														
63.605	28.286	2123	496.0	(658)	1.3294	23.613	2438											
63.605	3.119	1198	194.8	(357)	1.3712	23.613	1860	2.087	3883	2.294	0.15441	14.054	0.3553	1980	9.317	140.9	0.52	0.01
COMBUSTOR	0	42	35	4														
66.069	24.846	2161	490.4	(670)	1.3275	23.661	2455											
66.069	3.198	1275	200.3	(380)	1.3666	23.661	1913	1.992	3810	2.310	0.14636	14.054	0.3749	1972	9.667	140.3	0.52	0.03
COMBUSTOR	0	43	36	5														
66.445	16.941	2531	489.5	(791)	1.3103	24.001	2621											
66.445	4.870	1867	263.9	(567)	1.3343	24.001	2272	1.479	3359	2.384	0.13607	14.054	0.4032	1970	7.104	140.2	0.52	0.17
COMBUSTOR REGEN		44	37	4														
66.445	16.941	3027	666.9	(965)	1.2930	24.000	2847											
66.445	6.372	2410	447.5	(750)	1.3144	24.001	2562	1.293	3313	2.448	0.13607	14.054	0.4032	2105	7.006	149.6	0.52	0.17
NOZZLE AE		45	38	4														
88.681	16.941	2531	489.5	(788)	1.3103	24.001	2621											
88.681	0.324	911	-37.0	(266)	1.3830	24.001	1616	3.177	5133	2.384	0.02832	14.054	1.9372	2403	2.259	171.0	0.82	0.17
NOZZLE PO		46	39	4														
88.681	16.941	2531	489.5	(788)	1.3103	24.001	2621											
88.681	0.154	740	-87.7	(215)	1.3906	24.001	1460	3.680	5374	2.384	0.01735	14.054	3.1626	2472	1.444	175.9	0.52	0.17
NOZZLE AE REGEN		47	40	4														
88.681	16.941	3027	666.9	(965)	1.2930	24.000	2847											
88.681	0.386	1181	44.7	(348)	1.3686	24.001	1830	3.050	5580	2.448	0.02832	14.054	1.9373	2629	2.456	187.0	0.52	0.17
NOZZLE PO REGEN		48	41	4														
88.681	16.941	3027	666.9	(965)	1.2930	24.000	2847											
88.681	0.154	918	-34.8	(268)	1.3827	24.001	1622	3.654	5926	2.448	0.01542	14.054	3.5583	2729	1.420	194.2	0.52	0.17
FICTIVE COMBUSTR		66	59	0														
66.445	190.129	4486	489.5	(1459)	1.2118	26.116	3217											
66.445	0.156	890	-779.0	(245)	1.3674	26.207	1519	5.244	7967	2.302	0.02336	14.054	2.3485	3573	2.693	254.2	0.52	1.00
FICTIVE NOZZLE		67	60	0														
88.681	22.438	2487	474.3	(776)	1.3118	24.001	2600											
88.681	0.275	789	-73.4	(230)	1.3887	24.001	1506	3.476	5235	2.354	0.02833	14.054	1.9371	2423	2.304	172.4	0.52	0.17

READING = 0091 BLOCK = 105 TIME = 203.551 MACH 7.3 PT = 995.749 TT = 3070.5

XARB	P=IB	P=OB	PDA	OOX	D=IB	D=OB	CA=ALL	P=IB/P80	P=IB/P10	P=OB/P80	P=OB/P10
6.981E-01	6.900E-01	0.000	-2.702E-01	0.000	0.000	0.000	2.[illegible]E-02	4.484E 00	6.929E-04	0.000	0.000
1.836E 01	6.900E-01	0.000	-2.296E 01	0.000	0.000	0.000	1.638E 02	4.484E 00	6.929E-04	0.000	0.000
3.070E 01	1.515E 00	0.000	-1.123E 02	0.000	0.000	0.000	5.053E 02	9.846E 00	1.521E-03	0.000	0.000
3.508E 01	1.973E 00	0.000	-2.254E 02	0.000	0.000	0.000	6.804E 02	1.282E 01	1.982E-03	0.000	0.000
3.555E 01	2.210E 00	0.000	-2.444E 02	0.000	0.000	0.000	7.013E 02	1.436E 01	2.219E-03	0.000	0.000
3.606E 01	2.485E 00	0.000	-2.683E 02	-1.670E 02	-1.670E 02	0.000	7.246E 02	1.615E 01	2.496E-03	0.000	0.000
3.648E 01	2.286E 00	0.000	-2.887E 02	-1.711E 02	-1.711E 02	0.000	7.443E 02	1.486E 01	2.296E-03	0.000	0.000
3.658E 01	2.355E 00	3.189E 00	-3.267E 02	-1.721E 02	-1.721E 02	0.000	7.491E 02	1.53[illegible]E 01	2.365E-03	2.072E 01	3.202E-03
3.659E 01	2.359E 00	3.216E 00	-3.268E 02	-1.722E 02	-1.722E 02	0.000	7.494E 02	1.533E 01	2.369E-03	2.090E 01	3.230E-03
3.701E 01	2.640E 00	5.150E 00	-3.283E 02	-1.764E 02	-1.764E 02	0.000	7.931E 02	1.716E 01	2.651E-03	3.347E 01	5.172E-03
3.725E 01	2.591E 00	6.275E 00	-3.267E 02	-1.790E 02	-1.790E 02	0.000	8.188E 02	1.684E 01	2.602E-03	4.078E 01	6.302E-03
3.803E 01	2.435E 00	8.491E 00	-3.104E 02	-1.876E 02	-1.876E 02	0.000	9.020E 02	1.582E 01	2.445E-03	5.518E 01	8.527E-03
3.871E 01	7.674E 00	1.045E 01	-3.189E 02	-2.597E 02	-2.005E 02	-5.922E 01	9.785E 02	4.987E 01	7.707E-03	6.791E 01	1.049E-02
3.875E 01	7.942E 00	1.040E 01	-3.201E 02	-2.625E 02	-2.014E 02	-6.114E 01	9.825E 02	5.161E 01	7.976E-03	6.757E 01	1.044E-02
3.901E 01	9.930E 00	1.001E 01	-3.303E 02	-2.845E 02	-2.091E 02	-7.536E 01	1.012E 03	6.453E 01	9.972E-03	6.502E 01	1.005E-02
3.950E 01	1.393E 01	9.267E 00	-3.578E 02	-3.306E 02	-2.285E 02	-1.021E 02	1.068E 03	9.056E 01	1.399E-02	6.022E 01	9.306E-03
3.974E 01	1.320E 01	8.912E 00	-3.703E 02	-3.550E 02	-2.402E 02	-1.148E 02	1.095E 03	8.577E 01	1.325E-02	5.792E 01	8.951E-03
4.000E 01	1.837E 01	1.087E 01	-3.786E 02	-3.846E 02	-2.553E 02	-1.292E 02	1.126E 03	8.036E 01	1.242E-02	6.804E 01	1.051E-02
4.021E 01	1.525E 01	1.167E 01	-3.844E 02	-4.084E 02	-2.682E 02	-1.403E 02	1.150E 03	9.911E 01	1.532E-02	7.587E 01	1.172E-02
4.040E 01	1.799E 01	1.431E 01	-3.902E 02	-4.315E 02	-2.807E 02	-1.508E 02	1.172E 03	1.169E 02	1.807E-02	9.302E 01	1.437E-02
4.041E 01	1.814E 01	1.445E 01	-3.904E 02	-4.324E 02	-2.814E 02	-1.514E 02	1.174E 03	1.179E 02	1.822E-02	9.390E 01	1.451E-02
4.071E 01	2.243E 01	1.857E 01	-3.987E 02	-4.696E 02	-3.018E 02	-1.678E 02	1.209E 03	1.498E 02	2.252E-02	1.207E 02	1.865E-02
4.121E 01	2.932E 01	2.450E 00	-4.396E 02	-5.304E 02	-3.366E 02	-1.938E 02	1.267E 03	1.906E 02	2.945E-02	1.592E 01	2.460E-03
4.150E 01	3.347E 01	2.439E 00	-4.638E 02	-5.680E 02	-3.589E 02	-2.091E 02	1.302E 03	2.175E 02	3.362E-02	1.585E 01	2.449E-03
4.246E 01	4.502E 01	2.402E 00	-5.446E 02	-7.186E 02	-4.368E 02	-2.617E 02	1.416E 03	2.926E 02	4.522E-02	1.561E 01	2.412E-03
4.269E-01	4.621E 01	2.393E 00	-6.852E 02	-7.623E 02	-4.564E 02	-3.099E 02	1.443E 03	3.003E 02	4.641E-02	1.555E 01	2.404E-03
4.270E 01	4.626E 01	2.393E 00	-6.870E 02	-7.643E 02	-4.572E 02	-3.070E 02	1.444E 03	3.006E 02	4.646E-02	1.555E 01	2.403E-03
4.276E 01	4.660E 01	2.391E 00	-6.983E 02	-7.771E 02	-4.628E 02	-3.103E 02	1.452E 03	3.028E 02	4.679E-02	1.554E 01	2.401E-03
4.431E 01	5.459E 01	1.949E 01	-9.103E 02	-1.113E 03	-5.959E 02	-5.168E 02	1.638E 03	3.545E 02	5.478E-02	1.266E 02	1.957E-02
4.480E 01	5.707E 01	2.491E 01	-9.700E 02	-1.228E 03	-6.386E 02	-5.896E 02	1.698E 03	3.709E 02	5.732E-02	1.619E 02	2.501E-02
4.549E 01	4.703E 01	3.249E 01	-1.026E 03	-1.389E 03	-6.972E 02	-6.917E 02	1.782E 03	3.057E 02	4.723E-02	2.111E 02	3.263E-02
4.620E 01	3.655E 01	2.920E 01	-1.031E 03	-1.546E 03	-7.558E 02	-7.905E 02	1.869E 03	2.375E 02	3.671E-02	1.897E 02	2.932E-02
4.626E 01	3.567E 01	2.892E 01	-1.029E 03	-1.559E 03	-7.606E 02	-7.980E 02	1.877E 03	2.318E 02	3.582E-02	1.879E 02	2.904E-02
4.731E 01	2.027E 01	2.409E 01	-9.800E 02	-1.760E 03	-8.415E 02	-9.180E 02	2.006E 03	1.318E 02	2.036E-02	1.565E 02	2.419E-02
4.811E 01	1.802E 01	2.041E 01	-9.220E 02	-1.901E 03	-8.996E 02	-1.001E 03	2.105E 03	1.171E 02	1.810E-02	1.326E 02	2.049E-02
4.872E 01	1.757E 01	1.757E 01	-8.679E 02	-2.007E 03	-9.420E 02	-1.065E 03	2.182E 03	1.142E 02	1.765E-02	1.142E 02	1.765E-02
5.017E 01	1.197E 01	1.157E 01	-7.590E 02	-2.225E 03	-1.035E 03	-1.190E 03	2.363E 03	7.519E 01	1.162E-02	7.519E 01	1.162E-02
5.071E 01	9.375E 00	9.375E 00	-7.301E 02	-2.288E 03	-1.066E 03	-1.222E 03	2.429E 03	6.093E 01	9.415E-03	6.093E 01	9.415E-03
5.211E 01	8.100E 00	8.100E 00	-6.655E 02	-2.435E 03	-1.142E 03	-1.292E 03	2.607E 03	5.264E 01	8.135E-03	5.264E 01	8.135E-03
5.421E 01	6.150E 00	6.150E 00	-5.870E 02	-2.613E 03	-1.238E 03	-1.375E 03	2.873E 03	3.997E 01	6.176E-03	3.997E 01	6.176E-03
5.471E 01	4.808E 00	4.808E 00	-5.728E 02	-2.650E 03	-1.258E 03	-1.393E 03	2.937E 03	3.125E 01	4.829E-03	3.125E 01	4.829E-03
5.546E 01	4.643E 00	4.643E 00	-5.545E 02	-2.703E 03	-1.288E 03	-1.418E 03	3.033E 03	3.017E 01	4.663E-03	3.017E 01	4.663E-03
5.576E 01	4.578E 00	4.578E 00	-5.475E 02	-2.722E 03	-1.295E 03	-1.428E 03	3.070E 03	2.975E 01	4.597E-03	2.975E 01	4.597E-03
5.622E 01	2.381E 00	4.475E 00	-4.990E 02	-2.752E 03	-1.310E 03	-1.442E 03	3.102E 03	1.548E 01	2.391E-03	2.908E 01	4.494E-03
5.765E 01	2.190E 00	2.190E 00	-4.753E 02	-2.835E 03	-1.354E 03	-1.481E 03	3.210E 03	1.423E 01	2.199E-03	1.423E 01	2.199E-03
5.771E 01	4.000E 00	2.102E 00	-4.747E 02	-2.837E 03	-1.355E 03	-1.482E 03	3.217E 03	2.600E 01	4.017E-03	1.366E 01	2.111E-03
5.785E 01	4.000E 00	1.877E 00	-4.734E 02	-2.845E 03	-1.359E 03	-1.485E 03	3.230E 03	2.600E 01	4.017E-03	1.220E 01	1.885E-03
5.792E 01	1.749E 00	1.749E 00	-4.727E 02	-2.848E 03	-1.361E 03	-1.487E 03	3.245E 03	1.137E 01	1.756E-03	1.137E 01	1.756E-03
5.821E 01	1.300E 00	1.300E 00	-4.707E 02	-2.862E 03	-1.368E 03	-1.494E 03	3.280E 03	8.448E 00	1.306E-03	8.448E 00	1.306E-03
5.843E 01	1.383E 00	1.383E 00	-4.694E 02	-2.872E 03	-1.374E 03	-1.498E 03	3.309E 03	8.990E 00	1.389E-03	8.990E 00	1.389E-03
5.915E 01	1.650E 00	1.650E 00	-4.653E 02	-2.902E 03	-1.389E 03	-1.513E 03	3.402E 03	1.072E 01	1.657E-03	1.072E 01	1.657E-03
6.017E 01	8.750E-01	8.750E-01	-4.623E 02	-2.939E 03	-1.407E 03	-1.532E 03	3.532E 03	5.686E 00	8.787E-04	5.686E 00	8.787E-04
6.218E 01	4.000E 00	4.000E 00	-4.618E 02	-3.003E 03	-1.430E 03	-1.573E 03	3.790E 03	2.600E 01	4.017E-03	2.600E 01	4.017E-03
6.360E 01	3.119E 00	3.119E 00	-4.616E 02	-3.045E 03	-1.441E 03	-1.603E 03	3.972E 03	2.027E 01	3.132E-03	2.027E 01	3.132E-03
6.607E 01	3.198E 00	3.198E 00	-4.618E 02	-3.125E 03	-1.461E 03	-1.663E 03	4.289E 03	2.078E 01	3.211E-03	2.078E 01	3.211E-03
6.644E 01	6.530E 00	3.210E 00	-4.618E 02	-3.137E 03	-1.463E 03	-1.673E 03	4.337E 03	4.244E 01	6.558E-03	2.086E 01	3.224E-03

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XAXS	P=IA	P=OA	PDA	QDX	Q=IA	Q=OE	CONALI	P=IA/PSO	P=IA/PTO	P=OA/PSO	P=OE/PTO
6.649E 01	6.530E 00	3.211E 00	-4.618E 02	-3.134E 03	-1.464E 03	-1.675E 03	4.342E 03	4.244E 01	4.554E-03	2.087E 01	3.225E-03
6.648E 01	6.182E 00	3.217E 00	-4.618E 02	-3.140E 03	-1.465E 03	-1.681E 03	4.366E 03	4.017E 01	4.294E-03	2.091E 01	3.231E-03
6.835E 01	3.290E 00	3.540E 00	-4.183E 02	-3.200E 03	-1.477E 03	-1.722E 03	4.504E 03	2.136E 01	3.304E-03	2.301E 01	3.555E-03
6.901E 01	2.874E 00	3.000E 00	-3.541E 02	-3.217E 03	-1.482E 03	-1.735E 03	4.665E 03	1.867E 01	2.886E-03	1.950E 01	3.013E-03
6.978E 01	2.395E 00	2.553E 00	-2.790E 02	-3.236E 03	-1.487E 03	-1.749E 03	4.760E 03	1.556E 01	2.405E-03	1.659E 01	2.564E-03
7.050E 01	1.875E 00	2.135E 00	-2.207E 02	-3.255E 03	-1.491E 03	-1.763E 03	4.848E 03	1.219E 01	1.883E-03	1.386E 01	2.144E-03
7.111E 01	1.435E 00	1.913E 00	-1.809E 02	-3.269E 03	-1.494E 03	-1.775E 03	4.922E 03	9.326E 00	1.441E-03	1.243E 01	1.921E-03
7.249E 01	8.650E-01	1.411E 00	-1.172E 02	-3.295E 03	-1.500E 03	-1.795E 03	5.048E 03	5.621E 00	8.687E-04	9.172E 00	1.417E-03
7.402E 01	7.226E-01	8.550E-01	-7.207E 01	-3.315E 03	-1.505E 03	-1.810E 03	5.273E 03	4.696E 00	7.257E-04	5.557E 00	8.586E-04
7.492E 01	6.388E-01	2.350E-01	-4.910E 01	-3.326E 03	-1.507E 03	-1.819E 03	5.372E 03	4.151E 00	6.415E-04	1.527E 00	2.360E-04
7.493E 01	6.384E-01	2.322E-01	-4.862E 01	-3.326E 03	-1.507E 03	-1.819E 03	5.372E 03	4.149E 00	6.412E-04	1.509E 00	2.332E-04
7.625E 01	5.150E-01	0.000	-3.644E 01	-3.344E 03	-1.509E 03	-1.835E 03	5.424E 03	3.347E 00	5.172E-04	0.000	0.000
7.910E 01	3.550E-01	0.000	-1.904E 01	-3.347E 03	-1.512E 03	-1.835E 03	5.523E 03	2.307E 00	3.565E-04	0.000	0.000
8.300E 01	2.400E-01	0.000	-6.327E 00	-3.349E 03	-1.514E 03	-1.835E 03	5.627E 03	1.560E 00	2.410E-04	0.000	0.000
8.581E 01	3.200E-01	0.000	-1.062E-01	-3.350E 03	-1.515E 03	-1.835E 03	5.682E 03	2.080E 00	3.214E-04	0.000	0.000
8.867E 01	4.400E-01	0.000	9.063E 00	-3.350E 03	-1.515E 03	-1.835E 03	5.705E 03	2.859E 00	4.419E-04	0.000	0.000
8.868E 01	4.403E-01	0.000	9.066E 00	-3.350E 03	-1.515E 03	-1.835E 03	5.705E 03	2.861E 00	4.421E-04	0.000	0.000

X	DDRAG	CDRAG	CF	HC
4.040E 01	9.346E 01	9.346E 01	2.501E-03	3.610E-02
4.041E 01	1.536E-01	9.362E 01	3.090E-03	4.115E-02
4.071E 01	4.674E 00	9.829E 01	2.772E-03	5.231E-02
4.121E 01	7.267E 00	1.056E 02	2.973E-03	4.163E-02
4.150E 01	4.344E 00	1.099E 02	2.840E-03	4.641E-02
4.246E 01	1.240E 01	1.223E 02	3.084E-03	4.802E-02
4.269E 01	2.812E 00	1.251E 02	3.525E-03	4.385E-02
4.270E 01	1.199E-01	1.252E 02	3.216E-03	4.850E-02
4.276E 01	7.414E-01	1.260E 02	3.179E-03	4.903E-02
4.431E 01	1.400E 01	1.400E 02	3.525E-03	4.184E-02
4.480E 01	2.904E 00	1.429E 02	3.670E-03	3.674E-02
4.549E 01	3.620E 00	1.465E 02	3.985E-03	3.114E-02
4.620E 01	4.070E 00	1.506E 02	3.670E-03	3.503E-02
4.626E 01	3.607E-01	1.509E 02	3.624E-03	3.553E-02
4.731E 01	7.063E 00	1.580E 02	3.468E-03	3.418E-02
4.811E 01	5.852E 00	1.639E 02	3.379E-03	3.260E-02
4.872E 01	4.754E 00	1.686E 02	3.972E-03	2.478E-02
5.017E 01	1.069E 01	1.793E 02	3.281E-03	2.425E-02
5.071E 01	3.402E 00	1.827E 02	3.111E-03	2.243E-02
5.211E 01	8.170E 00	1.909E 02	2.994E-03	2.035E-02
5.421E 01	1.041E 01	2.013E 02	2.896E-03	1.600E-02
5.471E 01	2.269E 00	2.035E 02	2.817E-03	1.454E-02
5.546E 01	3.272E 00	2.068E 02	2.781E-03	1.413E-02
5.576E 01	1.231E 00	2.080E 02	2.768E-03	1.397E-02
5.622E 01	9.019E-01	2.089E 02	2.658E-03	1.049E-02
5.765E 01	2.688E 00	2.116E 02	2.594E-03	8.098E-03
5.771E 01	1.688E-01	2.118E 02	2.603E-03	1.012E-02
5.785E 01	4.149E-01	2.122E 02	2.595E-03	9.871E-03
5.792E 01	2.720E-01	2.125E 02	3.101E-03	6.084E-03
5.821E 01	1.010E 00	2.135E 02	2.686E-03	5.479E-03
5.843E 01	7.491E-01	2.143E 02	2.586E-03	5.852E-03
5.915E 01	2.299E 00	2.166E 02	2.542E-03	6.646E-03
6.017E 01	3.267E 00	2.198E 02	2.615E-03	4.178E-03
6.218E 01	6.202E 00	2.260E 02	2.594E-03	1.196E-02
6.360E 01	4.367E 00	2.304E 02	2.792E-03	9.669E-03
6.607E 01	7.570E 00	2.380E 02	2.573E-03	1.033E-02
6.644E 01	1.018E 00	2.390E 02	2.780E-03	1.264E-02
6.649E 01	1.064E-01	2.391E 02	3.055E-03	1.141E-02
6.668E 01	5.552E-01	2.396E 02	3.044E-03	1.119E-02
6.835E 01	4.477E 00	2.441E 02	2.964E-03	9.510E-03
6.901E 01	1.587E 00	2.457E 02	2.930E-03	8.481E-03
6.978E 01	1.734E 00	2.474E 02	2.890E-03	7.594E-03
7.050E 01	1.484E 00	2.489E 02	2.844E-03	6.607E-03
7.111E 01	1.144E 00	2.501E 02	2.809E-03	5.848E-03
7.249E 01	2.235E 00	2.523E 02	2.733E-03	4.473E-03
7.402E 01	2.018E 00	2.543E 02	2.661E-03	3.441E-03
7.492E 01	8.271E-01	2.551E 02	2.551E-03	2.243E-03
7.493E 01	1.107E-03	2.551E 02	2.551E-03	2.237E-03
7.625E 01	3.732E-01	2.555E 02	2.575E-03	2.520E-03
7.910E 01	6.626E-01	2.562E 02	2.497E-03	1.912E-03
8.300E 01	5.515E-01	2.567E 02	2.415E-03	1.425E-03
8.581E 01	2.748E-01	2.570E 02	2.452E-03	1.749E-03
8.867E 01	1.385E-01	2.571E 02	2.494E-03	2.196E-03
8.868E 01	0.000	2.571E 02	2.494E-03	2.197E-03

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	=251.	(LBF)
MEASURED THRUST	162.	(LBF)
CALCULATED SPECIFIC IMPULSE	-1049.	(LBF-SEC/LBM)
MEASURED SPECIFIC IMPULSE	680.	(LBF-SEC/LBM)
CALCULATED THRUST COEFFICIENT	=.1729	
MEASURED THRUST COEFFICIENT	0.1120	

REGENERATIVE-COOLED ENGINE PERFORMANCE CALCULATED

STREAM THRUST	2651.	(LBF)
NET THRUST	=23.	(LBF)
SPECIFIC IMPULSE	=95.	(LBF-SEC/LBM)
THRUST COEFFICIENT	=.0156	

MOMENTUM AND FORCES

INLET FRICTION DRAG	93.5	(LBF)
INLET MOMENTUM CHANGE	=483.7	(LBF)
COMBUSTOR FRICTION DRAG	145.5	(LBF)
COMBUSTOR STRUT DRAG	2.63	(LBF)
COMBUSTOR MOMENTUM CHANGE	=220.	(LBF)
NOZZLE FRICTION DRAG	18.17	(LBF)
NOZZLE STRUT DRAG	0.00	(LBF)
NOZZLE MOMENTUM CHANGE	453.	(LBF)
NOZZLE PRESSURE INTEGRAL	471.	(LBF)
EXTERNAL FRICTION DRAG	39.22	(LBF)
EXTERNAL PRESSURE INTEGRAL	=649.	(LBF)
TOTAL EXTERNAL DRAG	=688.	(LBF)
TOTAL STRUT DRAG	2.63	(LBF)
CAVITY FORCE	=535.	(LBF)
CALCULATED LOAD CELL FORCE	=1474.	(LBF)
MEASURED LOAD CELL FORCE	=1059.	(LBF)
FUEL VACUUM SPECIFIC IMPULSE 0.0. 0.0.		

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	1.7050	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	36.589	(IN)
NOZZLE SHROUD TRAILING EDGE	74.929	(IN)
NOZZLE PLUG TRAILING EDGE	88.681	(IN)
STRUT LEADING EDGE	57.845	(IN)
STRUT TRAILING EDGE	66.445	(IN)
COMBUSTOR EXIT	66.445	(IN)

INLET

ANGLE OF ATTACK	5.000	(DEGREES)
MASS FLOW RATIO	0.9039	
ADDITIVE DRAG COEFFICIENT	0.0087	
STARTING PRESSURE RECOVERY EFFICIENCY	0.0869	
DELTA PI	0.0873	(PSI)
TOTAL PRESSURE RECOVERY - SUPERSONIC	0.1909	
TOTAL PRESSURE RECOVERY - SUBSONIC	0.0882	
INLET PROCESS EFFICIENCY - SUPERSONIC	0.8752	
INLET PROCESS EFFICIENCY - SUBSONIC	0.9049	
KINETIC ENERGY EFFICIENCY - SUPERSONIC	0.9071	
KINETIC ENERGY EFFICIENCY - SUBSONIC	0.8711	
ENTHALPY AT P0 - SUPERSONIC	=19.63	(BTU/LBM)
ENTHALPY AT P0 - SUBSONIC	7.36	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0173
EQUIVALENCE RATIO	0.522
COMBUSTOR EFFICIENCY	0.168
TOTAL PRESSURE RATIO	0.0891
COMBUSTOR EFFECTIVENESS	0.2008
INJECTOR DISCHARGE COEFFICIENTS 0.9306, 0.8640,	

NOZZLE

VACUUM STREAM THRUST COEFFICIENT - CS	1.0065
NOZZLE COEFFICIENT - CT	0.9493
PROCESS EFFICIENCY	1.0777
KINETIC ENERGY EFFICIENCY	1.0169

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.700	A
1B	42.690	B
1C	44.300	
2A	50.165	
2C	46.250	
3A	55.955	
3B	57.640	
1	46.190	

Reading 91

t = 216.15 sec.

READING = 0091 BLOCK = 119 TIME = 216.151 MACH 7.3 PT = 995.999 TT = 3089.3 2/13/75 PAGE 1

RAMJET PERFORMANCE

SUMMARY REPORT

	P	T	H		GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
WIND TUNNEL		1	0	6														
0.000	995.999	3089	696.7	(821)	1.2900	28.956	2616											
0.000	0.154	299	-57.3	(72)	1.3965	28.955	846	7.257	6143	1.816	0.05925	13.717	0.9039	2654	5.656	193.5		
SPIKE TIP NS		2	0	7														
0.600	11.200	3089	696.7	(821)	1.2896	28.955	2615											
0.600	10.317	3032	679.5	(804)	1.2915	28.955	2593	0.358	929	2.124	0.05925	13.717	0.9039	2785	0.856	203.0		
WIND TUNNEL		3	0	0														
0.000	995.999	3089	696.7	(821)	1.2900	28.956	2616											
0.000	0.167	306	-55.6	(73)	1.3968	28.955	856	7.165	6136	1.816	0.06275	14.527	0.9039	2809	5.983	193.4		
SPIKE TIP NS		4	0	0														
0.600	11.200	3089	696.7	(821)	1.2896	28.955	2615											
0.600	10.196	3024	677.0	(802)	1.2918	28.955	2590	0.384	993	2.124	0.06275	14.527	0.9039	2809	0.969	193.4		
INLET THROAT		5	0	3														
40.400	232.982	2933	649.3	(775)	1.2949	28.955	2554											
40.400	10.558	1374	208.9	(338)	1.3553	28.955	1788	2.625	4694	1.900	0.67568	13.717	0.0793	2216	49.287	161.5		
INLET UPNRBK		6	0	3														
40.400	232.982	2933	649.3	(775)	1.2949	28.955	2554											
40.400	9.081	1321	195.0	(324)	1.3585	28.955	1755	2.716	4768	1.900	0.61423	13.717	0.0872	2235	45.509	163.0		
INLET DNNRBK		7	0	4														
40.400	89.268	2933	649.3	(775)	1.2949	28.955	2554											
40.400	77.071	2836	620.2	(746)	1.2980	28.955	2514	0.480	1206	1.966	0.61423	13.717	0.0872	2238	11.514	163.0		
COMBUSTOR	0	8	1	3														
40.410	232.986	2933	649.2	(775)	1.2949	28.955	2554											
40.410	10.552	1374	208.9	(338)	1.3553	28.955	1788	2.625	4694	1.900	0.67556	13.717	0.0793	2215	49.280	161.5		
COMBUSTOR	0	9	2	3														
40.715	232.793	2924	646.8	(772)	1.2952	28.955	2550											
40.715	10.590	1371	208.2	(337)	1.3554	28.955	1786	2.623	4685	1.900	0.67801	13.717	0.0790	2212	49.362	161.2		
COMBUSTOR	0	10	3	4														
41.205	215.415	2911	642.8	(769)	1.2956	28.955	2545											
41.205	10.914	1403	216.5	(345)	1.3535	28.955	1806	2.558	4618	1.904	0.67325	13.717	0.0795	2191	48.322	159.8		
COMBUSTOR	0	11	4	4														
41.500	196.827	2903	640.3	(766)	1.2959	28.955	2542											
41.500	11.304	1445	227.6	(356)	1.3511	28.955	1831	2.462	4545	1.909	0.66624	13.717	0.0804	2170	47.056	158.2		
COMBUSTOR	0	12	5	5														
42.460	156.451	2875	632.0	(758)	1.2967	28.955	2530											
42.460	11.786	1533	251.0	(380)	1.3462	28.955	1882	2.320	4366	1.922	0.62899	13.717	0.0851	2119	42.682	154.5		
COMBUSTOR	0	13	6	21														
42.690	86.858	2813	645.0	(819)	1.3015	26.034	2644											
42.690	8.111	1462	224.1	(401)	1.3531	26.034	1944	2.361	4589	2.135	0.62720	13.838	0.0861	2109	44.734	152.4	0.27	0.07
COMBUSTOR	0	14	7	21														
42.700	98.176	2723	644.9	(791)	1.3057	25.942	2610											
42.700	8.119	1363	224.3	(373)	1.3595	25.941	1884	2.435	4588	2.117	0.62711	13.838	0.0862	2108	44.713	152.4	0.27	0.01
COMBUSTOR	0	15	8	21														
42.765	99.437	2708	644.4	(787)	1.3064	25.928	2605											
42.765	8.175	1353	225.6	(370)	1.3602	25.928	1878	2.437	4578	2.114	0.62479	13.838	0.0865	2106	44.447	152.2	0.27	0.00
COMBUSTOR	0	16	9	4														
44.310	98.511	2825	633.6	(822)	1.3006	26.082	2646											
44.310	15.321	1801	310.0	(501)	1.3364	26.082	2142	1.878	4024	2.125	0.57766	13.838	0.0935	2098	36.120	151.6	0.27	0.11
COMBUSTOR	0	17	10	4														
44.800	86.953	3045	630.9	(890)	1.2902	26.323	2724											
44.800	18.222	2110	329.4	(593)	1.3220	26.324	2295	1.692	3884	2.152	0.57120	13.838	0.0946	2112	34.474	152.6	0.27	0.27
COMBUSTOR	0	18	11	5														
45.485	77.262	3394	627.2	(999)	1.2728	26.720	2835											
45.485	23.519	2603	363.1	(742)	1.3003	26.724	2510	1.449	3635	2.184	0.54792	13.838	0.0951	2134	32.082	154.4	0.27	0.53

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	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	D	IVAC	PHI	ETAC
COMBUSTOR	0	19	12 5														
46.190	74.988	3326	629.8(1029)	1.2772	25.280	2890											
46.190	24.147	2578	368.1(774)	1.3031	25.283	2570	1.408	3619	2.277	0.55500	13.906	0.0978	2169	31.210	156.0	0.42	0.37
COMBUSTOR	0	20	13 0														
46.200	75.053	3326	629.7(1029)	1.2772	25.280	2890											
46.200	24.176	2577	367.9(774)	1.3031	25.283	2570	1.408	3619	2.277	0.55546	13.906	0.0977	2169	31.241	156.0	0.42	0.37
COMBUSTOR	0	21	14 5														
46.250	73.897	3064	633.1(1002)	1.2909	23.541	2892											
46.250	24.222	2367	378.3(751)	1.3147	23.542	2564	1.393	3570	2.372	0.55653	13.989	0.0981	2161	30.879	154.5	0.60	0.21
COMBUSTOR	0	22	15 2														
46.260	73.835	3071	633.0(1003)	1.2907	23.544	2893											
46.260	24.232	2370	378.3(752)	1.3146	23.545	2565	1.392	3570	2.372	0.55613	13.989	0.0982	2162	30.853	154.5	0.60	0.21
COMBUSTOR	0	23	16 4														
47.310	67.912	3292	618.6(1079)	1.2794	23.797	2966											
47.310	25.196	2633	374.1(840)	1.3022	23.799	2676	1.307	3498	2.395	0.51553	13.989	0.1059	2204	28.022	157.6	0.60	0.31
COMBUSTOR	0	24	17 3														
48.110	68.008	3249	605.4(1063)	1.2811	23.788	2949											
48.110	19.642	2448	311.5(775)	1.3087	23.791	2587	1.482	3835	2.390	0.47383	13.989	0.1153	2247	28.241	160.7	0.60	0.31
COMBUSTOR	0	25	18 4														
48.725	63.256	3418	595.3(1122)	1.2721	23.984	3002											
48.725	18.575	2601	291.2(826)	1.3009	23.989	2648	1.473	3901	2.406	0.43246	13.989	0.1243	2297	26.217	164.2	0.60	0.38
COMBUSTOR	0	26	19 4														
50.175	59.502	3520	578.3(1157)	1.2659	24.134	3030											
50.175	13.095	2517	204.6(794)	1.3019	24.142	2598	1.665	4324	2.416	0.35145	13.989	0.1554	2401	23.618	171.7	0.60	0.43
COMBUSTOR	0	27	20 4														
50.705	60.611	3467	575.5(1138)	1.2687	24.088	3013											
50.705	11.092	2369	170.2(743)	1.3077	24.094	2529	1.781	4503	2.411	0.32869	13.989	0.1662	2430	23.003	173.7	0.60	0.42
COMBUSTOR	0	28	21 4														
52.115	56.071	3562	570.6(1171)	1.2632	24.199	3040											
52.115	9.050	2375	130.4(743)	1.3061	24.208	2528	1.859	4694	2.422	0.28014	13.989	0.1950	2493	20.434	178.2	0.60	0.46
COMBUSTOR	0	29	22 5														
54.215	63.242	3326	561.5(1093)	1.2797	23.872	2973											
54.215	5.525	1888	43.1(582)	1.3274	23.876	2284	2.230	5093	2.405	0.23029	14.031	0.2379	2558	18.228	182.3	0.61	0.37
COMBUSTOR	0	30	23 4														
54.715	54.993	3476	559.7(1145)	1.2675	24.030	3019											
54.715	5.917	2096	54.1(651)	1.3172	24.036	2390	2.105	5030	2.426	0.22088	14.031	0.2480	2569	17.266	183.1	0.61	0.43
COMBUSTOR	0	31	24 4														
55.465	56.794	3425	556.7(1127)	1.2702	23.985	3003											
55.465	5.163	1976	30.3(610)	1.3225	23.990	2327	2.206	5133	2.420	0.20821	14.031	0.2631	2586	16.608	184.3	0.61	0.41
COMBUSTOR	0	32	25 4														
55.760	58.030	3396	555.6(1117)	1.2717	23.959	2994											
55.760	4.867	1918	20.4(591)	1.3251	23.964	2296	2.254	5175	2.416	0.20365	14.031	0.2690	2592	16.378	184.7	0.61	0.40
COMBUSTOR	0	33	26 4														
56.225	51.001	3464	554.0(1141)	1.2678	24.033	3014											
56.225	3.672	1894	-15.8(582)	1.3253	24.040	2278	2.344	5340	2.431	0.16108	14.031	0.3401	2649	13.367	188.8	0.61	0.43
COMBUSTOR	0	34	27 6														
57.650	76.320	3161	549.6(1038)	1.2836	23.739	2919											
57.650	2.349	1360	-79.8(411)	1.3947	23.741	1964	2.857	5612	2.376	0.14888	14.031	0.3679	2669	12.985	190.2	0.61	0.32
COMBUSTOR	0	35	28 5														
57.705	50.322	3464	549.4(1141)	1.2676	24.045	3013											
57.705	3.247	1844	-37.0(565)	1.3273	24.051	2249	2.409	5417	2.432	0.14851	14.031	0.3689	2669	12.503	190.2	0.61	0.43
COMBUSTOR	0	36	29 4														
57.845	51.397	3441	549.0(1133)	1.2689	24.022	3006											
57.845	3.147	1804	-41.8(552)	1.3292	24.028	2228	2.440	5436	2.428	0.14739	14.031	0.3717	2670	12.451	190.3	0.61	0.42
COMBUSTOR	0	37	30 15														
57.925	100.017	3029	548.8(984)	1.2900	23.613	2868											
57.925	1.953	1142	-101.0(343)	1.3682	23.614	1814	3.144	5702	2.343	0.14907	14.031	0.3675	2671	13.210	190.3	0.61	0.28

	P	T	H		GAMMA	MOLWT	BONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	R	TVAC	PHT	ETAC
COMBUSTOR	0	38	31	5														
58.205	142.390	2895	548.0(	942)	1.2963	23.488	2818											
58.205	1.550	918	-122.3(	275)	1.3812	23.488	1639	3.534	5791	2.301	0.14855	14.031	0.3648	2672	13.370	190.4	0.61	0.23
COMBUSTOR	0	39	32	4														
58.431	134.479	2916	547.3(	950)	1.2952	23.510	2826											
58.431	1.604	951	-120.8(	285)	1.3794	23.510	1666	3.472	5782	2.308	0.14833	14.031	0.3693	2673	13.328	190.5	0.61	0.24
COMBUSTOR	0	40	33	4														
59.155	110.560	2993	545.4(	976)	1.2916	23.588	2854											
59.155	1.775	1067	-114.6(	320)	1.3726	23.588	1757	3.271	5747	2.331	0.14597	14.031	0.3753	2677	13.036	190.8	0.61	0.27
COMBUSTOR	0	41	34	6														
60.175	186.866	2823	542.4(	917)	1.2994	23.434	2790											
60.175	1.275	781	-143.8(	233)	1.3878	23.434	1517	3.864	5860	2.271	0.14504	14.031	0.3777	2679	13.208	190.9	0.61	0.21
COMBUSTOR	0	42	35	7														
62.185	33.977	4002	535.9(1331)		1.2319	24.659	3153											
62.185	4.987	2692	22.6(	848)	1.2874	24.702	2641	1.919	5068	2.490	0.15009	14.031	0.3650	2676	11.821	190.8	0.61	0.66
COMBUSTOR	0	43	36	3														
63.605	35.182	3979	531.4(1322)		1.2337	24.646	3147											
63.605	5.056	2659	16.7(	837)	1.2888	24.686	2627	1.932	5075	2.486	0.15016	14.031	0.3653	2673	12.158	190.5	0.61	0.65
COMBUSTOR	0	44	37	5														
66.069	26.252	4490	524.8(1505)		1.1896	25.257	3243											
66.069	6.903	3571	102.7(1154)		1.2396	25.420	2943	1.562	4596	2.526	0.14612	14.031	0.3749	2667	10.436	190.1	0.61	0.89
COMBUSTOR	0	45	38	4														
66.445	23.531	4602	523.9(1545)		1.1781	25.394	3258											
66.445	6.963	3792	125.5(1235)		1.2227	25.608	3000	1.488	4465	2.536	0.13588	14.031	0.4032	2666	9.485	190.0	0.61	0.96
COMBUSTOR REGEN		46	39	3														
66.445	23.531	4827	675.1(1634)		1.1640	25.227	3328											
66.445	7.608	4117	279.6(1358)		1.1980	25.534	3099	1.436	4449	2.568	0.13585	14.031	0.4032	2726	9.392	194.3	0.61	0.96
NOZZLE AE		47	40	5														
88.681	23.531	4602	523.9(1482)		1.1781	25.394	3258											
88.681	0.541	2233	-463.0(	674)	1.2938	25.659	2366	2.971	7027	2.536	0.02828	14.031	1.9371	3333	3.088	237.5	0.61	0.96
NOZZLE PO		48	41	5														
88.681	23.531	4602	523.9(1482)		1.1781	25.394	3258											
88.681	0.154	1663	-651.7(	486)	1.3190	25.659	2061	3.721	7670	2.536	0.01178	14.031	4.4500	3528	1.404	251.4	0.61	0.96
NOZZLE AE REGEN		49	42	5														
88.681	23.531	4827	675.1(1634)		1.1640	25.227	3328											
88.681	0.587	2494	-372.8(	764)	1.2835	25.659	2491	2.907	7240	2.568	0.02828	14.031	1.9371	3449	3.182	245.8	0.61	0.96
NOZZLE PO REGEN		50	43	5														
88.681	23.531	4827	675.1(1634)		1.1640	25.227	3328											
88.681	0.154	1836	-595.6(	542)	1.3104	25.659	2159	3.694	7974	2.568	0.01109	14.031	4.9383	3672	1.375	261.7	0.61	0.96
FICTIVE COMBUSTR		68	61	0														
66.445	232.982	4797	523.9(1616)		1.1968	25.622	3338											
66.445	0.154	987	-907.8(	269)	1.3610	25.787	1584	5.342	8464	2.357	0.02271	14.031	2.4124	3786	2.987	269.8	0.61	1.00
FICTIVE NOZZLE		69	62	0														
88.681	14.460	4532	499.4(1518)		1.1752	25.383	3230											
88.681	0.677	2579	-342.7(	794)	1.2803	25.659	2529	2.567	6491	2.569	0.02828	14.031	1.9371	3167	2.853	225.7	0.61	0.96

XABB	P-IB	P-OB	PDA	QQX	Q-IR	Q-OB	CAWALL	P-IB/P80	P-IR/PTO	P-OB/P80	P-OB/PTO
6.981E-01	4.900E-01	0.000	-2.705E-01	0.000	0.000	0.000	2.470E-02	4.487E 00	6.92BE-04	0.000	0.000
1.836E 01	6.900E-01	0.000	-2.29AE 01	0.000	0.000	0.000	1.434E 02	4.487E 00	6.92BE-04	0.000	0.000
3.070E 01	1.515E 00	0.000	-1.123E 02	0.000	0.000	0.000	5.053E 02	9.891E 00	1.521E-03	0.000	0.000
3.508E 01	1.940E 00	0.000	-2.243E 02	0.000	0.000	0.000	6.804E 02	1.261E 01	1.948E-03	0.000	0.000
3.555E 01	2.220E 00	0.000	-2.433E 02	0.000	0.000	0.000	7.013E 02	1.443E 01	2.229E-03	0.000	0.000
3.606E 01	2.490E 00	0.000	-2.672E 02	-3.497E 02	-3.497E 02	0.000	7.246E 02	1.619E 01	2.500E-03	0.000	0.000
3.648E 01	2.238E 00	0.000	-2.874E 02	-3.582E 02	-3.582E 02	0.000	7.443E 02	1.455E 01	2.247E-03	0.000	0.000
3.658E 01	2.316E 00	3.194E 00	-3.254E 02	-3.603E 02	-3.603E 02	0.000	7.491E 02	1.506E 01	2.324E-03	2.077E 01	3.207E-03
3.659E 01	2.321E 00	3.222E 00	-3.254E 02	-3.604E 02	-3.604E 02	0.000	7.494E 02	1.509E 01	2.330E-03	2.095E 01	3.235E-03
3.701E 01	2.640E 00	5.136E 00	-3.269E 02	-3.694E 02	-3.694E 02	0.000	7.931E 02	1.717E 01	2.651E-03	3.340E 01	5.157E-03
3.725E 01	2.472E 00	6.250E 00	-3.250E 02	-3.747E 02	-3.747E 02	0.000	8.188E 02	1.607E 01	2.482E-03	4.064E 01	6.275E-03
3.803E 01	1.940E 00	8.874E 00	-3.023E 02	-3.927E 02	-3.927E 02	0.000	9.020E 02	1.261E 01	1.948E-03	5.770E 01	8.910E-03
3.871E 01	7.518E 00	1.119E 01	-3.045E 02	-4.809E 02	-4.109E 02	-7.000E 01	9.785E 02	4.888E 01	7.548E-03	7.270E 01	1.124E-02
3.875E 01	7.803E 00	1.109E 01	-3.055E 02	-4.842E 02	-4.119E 02	-7.227E 01	9.825E 02	5.074E 01	7.834E-03	7.208E 01	1.113E-02
3.901E 01	9.920E 00	1.028E 01	-3.148E 02	-5.089E 02	-4.199E 02	-8.908E 01	1.012E 03	6.450E 01	9.960E-03	6.684E 01	1.032E-02
3.950E 01	1.414E 01	8.760E 00	-3.431E 02	-5.571E 02	-4.364E 02	-1.207E 02	1.068E 03	9.192E 01	1.419E-02	5.696E 01	8.795E-03
3.974E 01	1.214E 01	8.031E 00	-3.557E 02	-5.809E 02	-4.451E 02	-1.357E 02	1.095E 03	7.896E 01	1.219E-02	5.222E 01	8.063E-03
4.000E 01	9.897E 00	9.980E 00	-3.618E 02	-6.084E 02	-4.557E 02	-1.527E 02	1.126E 03	6.435E 01	9.937E-03	6.489E 01	1.002E-02
4.021E 01	1.049E 01	1.149E 01	-3.630E 02	-6.301E 02	-4.643E 02	-1.658E 02	1.150E 03	6.820E 01	1.053E-02	7.469E 01	1.153E-02
4.040E 01	1.105E 01	1.185E 01	-3.631E 02	-6.510E 02	-4.72AE 02	-1.783E 02	1.172E 03	7.186E 01	1.110E-02	7.706E 01	1.190E-02
4.041E 01	1.108E 01	1.187E 01	-3.630E 02	-6.521E 02	-4.732E 02	-1.789E 02	1.174E 03	7.204E 01	1.112E-02	7.718E 01	1.192E-02
4.071E 01	1.196E 01	1.244E 01	-3.627E 02	-6.854E 02	-4.871E 02	-1.983E 02	1.209E 03	7.777E 01	1.201E-02	8.087E 01	1.249E-02
4.121E 01	1.337E 01	2.450E 00	-3.761E 02	-7.401E 02	-5.111E 02	-2.290E 02	1.267E 03	8.696E 01	1.343E-02	1.593E 01	2.460E-03
4.150E 01	1.422E 01	2.445E 00	-3.931E 02	-7.738E 02	-5.267E 02	-2.471E 02	1.302E 03	9.249E 01	1.428E-02	1.590E 01	2.455E-03
4.246E 01	9.400E 00	2.430E 00	-4.318E 02	-8.876E 02	-5.78AE 02	-3.088E 02	1.416E 03	6.112E 01	9.438E-03	1.580E 01	2.440E-03
4.269E 01	9.796E 00	2.426E 00	-4.381E 02	-9.148E 02	-5.90AE 02	-3.240E 02	1.443E 03	6.369E 01	9.835E-03	1.578E 01	2.436E-03
4.270E 01	9.813E 00	2.426E 00	-4.383E 02	-9.160E 02	-5.913E 02	-3.247E 02	1.444E 03	6.380E 01	9.852E-03	1.577E 01	2.436E-03
4.276E 01	9.925E 00	2.425E 00	-4.401E 02	-9.234E 02	-5.946E 02	-3.289E 02	1.452E 03	6.453E 01	9.964E-03	1.577E 01	2.435E-03
4.431E 01	1.258E 01	1.806E 01	-4.875E 02	-1.073E 03	-6.541E 02	-4.192E 02	1.638E 03	8.181E 01	1.263E-02	1.174E 02	1.813E-02
4.480E 01	1.342E 01	2.302E 01	-4.074E 02	-1.111E 03	-6.662E 02	-4.452E 02	1.698E 03	8.729E 01	1.348E-02	1.497E 02	2.311E-02
4.549E 01	1.709E 01	2.995E 01	-3.744E 02	-1.162E 03	-6.809E 02	-4.816E 02	1.782E 03	1.111E 02	1.716E-02	1.947E 02	3.007E-02
4.619E 01	2.086E 01	2.747E 01	-3.327E 02	-1.241E 03	-6.963E 02	-5.446E 02	1.868E 03	1.356E 02	2.094E-02	1.786E 02	2.759E-02
4.620E 01	2.091E 01	2.744E 01	-3.326E 02	-1.242E 03	-6.966E 02	-5.459E 02	1.869E 03	1.360E 02	2.100E-02	1.784E 02	2.755E-02
4.625E 01	2.118E 01	2.726E 01	-3.291E 02	-1.250E 03	-6.977E 02	-5.524E 02	1.875E 03	1.377E 02	2.127E-02	1.773E 02	2.737E-02
4.626E 01	2.123E 01	2.723E 01	-3.285E 02	-1.252E 03	-6.979E 02	-5.537E 02	1.877E 03	1.381E 02	2.132E-02	1.770E 02	2.734E-02
4.731E 01	2.685E 01	2.354E 01	-2.737E 02	-1.453E 03	-7.215E 02	-7.318E 02	2.006E 03	1.746E 02	2.696E-02	1.531E 02	2.364E-02
4.811E 01	1.855E 01	2.073E 01	-2.219E 02	-1.637E 03	-7.400E 02	-8.971E 02	2.105E 03	1.206E 02	1.862E-02	1.348E 02	2.082E-02
4.872E 01	1.857E 01	1.857E 01	-1.859E 02	-1.779E 03	-7.544E 02	-1.025E 03	2.182E 03	1.208E 02	1.865E-02	1.208E 02	1.865E-02
5.017E 01	1.309E 01	1.309E 01	-4.754E 01	-2.017E 03	-7.894E 02	-1.227E 03	2.363E 03	8.515E 01	1.315E-02	8.515E 01	1.315E-02
5.071E 01	1.109E 01	1.109E 01	-1.413E 01	-2.056E 03	-8.026E 02	-1.283E 03	2.429E 03	7.212E 01	1.114E-02	7.212E 01	1.114E-02
5.211E 01	9.050E 00	9.050E 00	6.033E 01	-2.183E 03	-8.384E 02	-1.285E 03	2.607E 03	5.884E 01	9.086E-03	5.884E 01	9.086E-03
5.421E 01	5.525E 00	5.525E 00	1.406E 02	-2.226E 03	-8.942E 02	-1.332E 03	2.873E 03	3.592E 01	5.547E-03	3.592E 01	5.547E-03
5.471E 01	5.917E 00	5.917E 00	1.554E 02	-2.252E 03	-9.079E 02	-1.344E 03	2.937E 03	3.847E 01	5.940E-03	3.847E 01	5.940E-03
5.546E 01	5.163E 00	5.163E 00	1.769E 02	-2.293E 03	-9.288E 02	-1.364E 03	3.033E 03	3.357E 01	5.184E-03	3.357E 01	5.184E-03
5.576E 01	4.867E 00	4.867E 00	1.845E 02	-2.309E 03	-9.371E 02	-1.372E 03	3.070E 03	3.165E 01	4.887E-03	3.165E 01	4.887E-03
5.622E 01	2.904E 00	4.400E 00	2.422E 02	-2.332E 03	-9.480E 02	-1.384E 03	3.102E 03	1.914E 01	2.956E-03	2.861E 01	4.418E-03
5.765E 01	2.309E 00	2.349E 00	2.662E 02	-2.393E 03	-9.749E 02	-1.418E 03	3.210E 03	1.527E 01	2.358E-03	1.527E 01	2.358E-03
5.771E 01	4.285E 00	2.270E 00	2.668E 02	-2.395E 03	-9.759E 02	-1.419E 03	3.217E 03	2.707E 01	4.242E-03	1.476E 01	2.279E-03
5.785E 01	4.225E 00	2.068E 00	2.682E 02	-2.401E 03	-9.786E 02	-1.422E 03	3.234E 03	2.747E 01	4.242E-03	1.345E 01	2.076E-03
5.792E 01	1.953E 00	1.953E 00	2.691E 02	-2.404E 03	-9.802E 02	-1.424E 03	3.245E 03	1.270E 01	1.961E-03	1.270E 01	1.961E-03
5.821E 01	1.550E 00	1.550E 00	2.713E 02	-2.416E 03	-9.855E 02	-1.430E 03	3.280E 03	1.008E 01	1.556E-03	1.008E 01	1.556E-03
5.843E 01	1.604E 00	1.604E 00	2.729E 02	-2.425E 03	-9.899E 02	-1.435E 03	3.309E 03	1.043E 01	1.610E-03	1.043E 01	1.610E-03
5.915E 01	1.775E 00	1.775E 00	2.775E 02	-2.453E 03	-1.004E 03	-1.449E 03	3.402E 03	1.154E 01	1.782E-03	1.154E 01	1.782E-03
6.017E 01	1.275E 00	1.275E 00	2.810E 02	-2.494E 03	-1.024E 03	-1.470E 03	3.532E 03	8.290E 00	1.280E-03	8.290E 00	1.280E-03
6.218E 01	4.987E 00	4.987E 00	2.817E 02	-2.585E 03	-1.063E 03	-1.522E 03	3.790E 03	3.243E 01	5.008E-03	3.243E 01	5.008E-03
6.360E 01	5.056E 00	5.056E 00	2.817E 02	-2.649E 03	-1.089E 03	-1.560E 03	3.972E 03	3.288E 01	5.077E-03	3.288E 01	5.077E-03

XABB	P=IP	P=OB	PPA	COX	C=IP	C=OB	CAWALL	P=IB/PSU	P=IP/PTO	P=OB/PSO	P=OB/PTO
6.607E 01	6.903E 00	6.903E 00	2.817E 02	-2.742E 03	-1.123E 03	-1.619E 03	4.289E 03	4.499E 01	6.931E-03	4.489E 01	6.931E-03
6.644E 01	6.740E 00	7.185E 00	2.817E 02	-2.754E 03	-1.127E 03	-1.627E 03	4.337E 03	4.382E 01	6.767E-03	4.672E 01	7.214E-03
6.649E 01	6.740E 00	7.215E 00	2.817E 02	-2.756E 03	-1.127E 03	-1.628E 03	4.342E 03	4.382E 01	6.767E-03	4.691E 01	7.244E-03
6.668E 01	6.446E 00	7.365E 00	2.817E 02	-2.762E 03	-1.130E 03	-1.633E 03	4.364E 03	4.191E 01	6.472E-03	4.789E 01	7.395E-03
6.835E 01	4.005E 00	3.320E 00	3.407E 02	-2.821E 03	-1.151E 03	-1.670E 03	4.584E 03	2.604E 01	4.021E-03	2.159E 01	3.333E-03
6.901E 01	3.288E 00	3.559E 00	4.124E 02	-2.848E 03	-1.162E 03	-1.686E 03	4.665E 03	2.138E 01	3.302E-03	2.312E 01	3.569E-03
6.978E 01	2.465E 00	2.971E 00	4.971E 02	-2.881E 03	-1.175E 03	-1.707E 03	4.760E 03	1.603E 01	2.475E-03	1.932E 01	2.983E-03
7.050E 01	1.888E 00	2.425E 00	5.600E 02	-2.914E 03	-1.188E 03	-1.728E 03	4.844E 03	1.228E 01	1.896E-03	1.577E 01	2.435E-03
7.111E 01	1.400E 00	2.169E 00	6.023E 02	-2.940E 03	-1.199E 03	-1.745E 03	4.922E 03	9.103E 00	1.406E-03	1.411E 01	2.178E-03
7.249E 01	8.200E-01	1.591E 00	6.691E 02	-2.981E 03	-1.215E 03	-1.769E 03	5.038E 03	5.332E 00	8.233E-04	1.035E 01	1.598E-03
7.402E 01	7.040E-01	9.800E-01	7.162E 02	-3.013E 03	-1.226E 03	-1.788E 03	5.873E 03	4.578E 00	7.069E-04	6.177E 00	9.538E-04
7.492E 01	6.398E-01	2.350E-01	7.402E 02	-3.033E 03	-1.232E 03	-1.801E 03	5.372E 03	4.134E 00	6.384E-04	1.528E 00	2.359E-04
7.493E 01	6.355E-01	2.318E-01	7.406E 02	-3.033E 03	-1.232E 03	-1.801E 03	5.372E 03	4.132E 00	6.381E-04	1.507E 00	2.327E-04
7.625E 01	5.350E-01	0.000	7.730E 02	-3.064E 03	-1.240E 03	-1.825E 03	5.424E 03	3.479E 00	5.371E-04	0.000	0.000
7.910E 01	5.000E-01	0.000	7.737E 02	-3.076E 03	-1.252E 03	-1.825E 03	5.523E 03	3.251E 00	5.020E-04	0.000	0.000
8.300E 01	2.800E-01	0.000	7.904E 02	-3.084E 03	-1.260E 03	-1.825E 03	5.627E 03	1.821E 00	2.811E-04	0.000	0.000
8.581E 01	3.450E-01	0.000	7.973E 02	-3.089E 03	-1.265E 03	-1.825E 03	5.682E 03	2.243E 00	3.464E-04	0.000	0.000
8.867E 01	4.600E-01	0.000	8.073E 02	-3.098E 03	-1.273E 03	-1.825E 03	5.705E 03	3.121E 00	4.819E-04	0.000	0.000
8.868E 01	4.803E-01	0.000	8.073E 02	-3.098E 03	-1.273E 03	-1.825E 03	5.705E 03	3.123E 00	4.822E-04	0.000	0.000

READING = 0091 BLOCK = 119 TIME = 216.151 MACH 7.3 PT = 995.999 TT = 3089.3

X	DDRAG	CDRAG	CF	MC
4.040E 01	9.221E 01	9.221E 01	2.394E-03	3.368E-02
4.041E 01	1.384E-01	9.235E 01	2.394E-03	3.369E-02
4.071E 01	4.216E 00	9.657E 01	2.395E-03	3.381E-02
4.121E 01	6.793E 00	1.034E 02	2.435E-03	3.426E-02
4.150E 01	4.082E 00	1.074E 02	2.481E-03	3.472E-02
4.246E 01	1.297E 01	1.204E 02	2.586E-03	3.449E-02
4.269E 01	3.599E 00	1.240E 02	3.408E-03	1.959E-02
4.270E 01	1.657E-01	1.242E 02	2.850E-03	2.229E-02
4.276E 01	9.723E-01	1.251E 02	2.750E-03	2.292E-02
4.431E 01	2.063E 01	1.458E 02	2.750E-03	4.248E-02
4.480E 01	5.919E 00	1.517E 02	2.879E-03	4.577E-02
4.549E 01	8.247E 00	1.599E 02	3.052E-03	5.062E-02
4.619E 01	8.794E 00	1.687E 02	3.385E-03	4.683E-02
4.620E 01	1.278E-01	1.689E 02	3.239E-03	4.927E-02
4.625E 01	6.393E-01	1.695E 02	3.455E-03	4.741E-02
4.626E 01	1.269E-01	1.696E 02	3.189E-03	5.192E-02
4.731E 01	1.205E 01	1.817E 02	3.132E-03	5.219E-02
4.811E 01	8.790E 00	1.905E 02	3.172E-03	4.383E-02
4.872E 01	6.536E 00	1.970E 02	3.102E-03	4.214E-02
5.017E 01	1.391E 01	2.109E 02	3.063E-03	3.284E-02
5.071E 01	4.777E 00	2.157E 02	3.102E-03	2.873E-02
5.211E 01	1.173E 01	2.274E 02	2.980E-03	2.486E-02
5.421E 01	1.585E 01	2.427E 02	2.946E-03	1.698E-02
5.471E 01	3.229E 00	2.459E 02	2.764E-03	1.845E-02
5.546E 01	4.547E 00	2.504E 02	2.839E-03	1.618E-02
5.576E 01	1.753E 00	2.522E 02	2.791E-03	1.562E-02
5.622E 01	1.271E 00	2.535E 02	2.661E-03	1.230E-02
5.765E 01	3.769E 00	2.572E 02	2.652E-03	8.706E-03
5.771E 01	2.270E-01	2.575E 02	2.405E-03	1.169E-02
5.785E 01	9.635E-01	2.580E 02	2.677E-03	1.071E-02
5.792E 01	4.168E-01	2.584E 02	3.670E-03	6.135E-03
5.821E 01	1.374E 00	2.598E 02	2.124E-03	7.050E-03
5.843E 01	7.803E-01	2.606E 02	1.928E-03	7.559E-03
5.915E 01	2.372E 00	2.630E 02	1.958E-03	8.057E-03
6.017E 01	3.417E 00	2.664E 02	2.026E-03	6.122E-03
6.218E 01	6.765E 00	2.732E 02	2.166E-03	1.674E-02
6.360E 01	5.681E 00	2.788E 02	3.036E-03	1.340E-02
6.607E 01	1.099E 01	2.898E 02	3.121E-03	1.593E-02
6.644E 01	1.571E 00	2.914E 02	3.437E-03	1.442E-02
6.649E 01	1.690E-01	2.916E 02	3.547E-03	1.440E-02
6.668E 01	8.572E-01	2.924E 02	3.543E-03	1.432E-02
6.835E 01	6.591E 00	2.990E 02	3.423E-03	9.764E-03
6.901E 01	2.236E 00	3.013E 02	3.406E-03	9.322E-03
6.978E 01	2.430E 00	3.037E 02	3.366E-03	7.972E-03
7.050E 01	2.022E 00	3.057E 02	3.327E-03	6.780E-03
7.111E 01	1.531E 00	3.072E 02	3.298E-03	5.921E-03
7.249E 01	2.945E 00	3.102E 02	3.236E-03	4.437E-03
7.402E 01	2.608E 00	3.128E 02	3.174E-03	3.335E-03
7.492E 01	1.038E 00	3.138E 02	3.077E-03	2.032E-03
7.493E 01	1.348E-03	3.138E 02	3.076E-03	2.025E-03
7.625E 01	4.621E-01	3.143E 02	3.099E-03	2.378E-03
7.910E 01	9.113E-01	3.152E 02	3.074E-03	2.244E-03
8.300E 01	7.934E-01	3.160E 02	2.967E-03	1.413E-03
8.581E 01	3.578E-01	3.164E 02	2.984E-03	1.658E-03
8.867E 01	1.777E-01	3.165E 02	3.019E-03	2.137E-03
8.868E 01	0.000	3.165E 02	3.019E-03	2.138E-03

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	496.	(LBF)
MEASURED THRUST	342.	(LBF)
CALCULATED SPECIFIC IMPULSE	1774.	(LBF-SEC/LBM)
MEASURED SPECIFIC IMPULSE	1223.	(LBF-SEC/LBM)
CALCULATED THRUST COEFFICIENT	0.3422	
MEASURED THRUST COEFFICIENT	0.2357	

REGENERATIVE-COOLED ENGINE PERFORMANCE CALCULATED

STREAM THRUST	3276.	(LBF)
NET THRUST	605.	(LBF)
SPECIFIC IMPULSE	2167.	(LBF-SEC/LBM)
THRUST COEFFICIENT	0.4179	

MOMENTUM AND FORCES

INLET FRICTION DRAG	92.2	(LBF)
INLET MOMENTUM CHANGE	-455.3	(LBF)
COMBUSTOR FRICTION DRAG	199.2	(LBF)
COMBUSTOR STRUT DRAG	-15.97	(LBF)
COMBUSTOR MOMENTUM CHANGE	451.	(LBF)
NOZZLE FRICTION DRAG	25.13	(LBF)
NOZZLE STRUT DRAG	-0.00	(LBF)
NOZZLE MOMENTUM CHANGE	500.	(LBF)
NOZZLE PRESSURE INTEGRAL	526.	(LBF)
EXTERNAL FRICTION DRAG	41.99	(LBF)
EXTERNAL PRESSURE INTEGRAL	-641.	(LBF)
TOTAL EXTERNAL DRAG	-683.	(LBF)
TOTAL STRUT DRAG	-15.97	(LBF)
CAVITY FORCE	-559.	(LBF)
CALCULATED LOAD CELL FORCE	-746.	(LBF)
MEASURED LOAD CELL FORCE	-899.	(LBF)
FUEL VACUUM SPECIFIC IMPULSE 0.0, 0.0, -132.1,		

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	1.7050	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	36.589	(IN)
NOZZLE SHROUD TRAILING EDGE	74.929	(IN)
NOZZLE PLUG TRAILING EDGE	88.681	(IN)
STRUT LEADING EDGE	57.845	(IN)
STRUT TRAILING EDGE	66.445	(IN)
COMBUSTOR EXIT	66.445	(IN)

INLET

ANGLE OF ATTACK	3.000	(DEGREES)
MASS FLOW RATIO	0.9039	
ADDITIVE DRAG COEFFICIENT	0.0087	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.0480	
DELTA PT2	0.0830	(PSI)
TOTAL PRESSURE RECOVERY = SUPERSONIC	0.2339	
TOTAL PRESSURE RECOVERY = SUBSONIC	0.0896	
INLET PROCESS EFFICIENCY = SUPERSONIC	0.8874	
INLET PROCESS EFFICIENCY = SUBSONIC	0.9084	
KINETIC ENERGY EFFICIENCY = SUPERSONIC	0.8973	
KINETIC ENERGY EFFICIENCY = SUBSONIC	0.8548	
ENTHALPY AT P0 = SUPERSONIC	-27.31	(BTU/LBM)
ENTHALPY AT P0 = SUBSONIC	4.73	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0203	
EQUIVALENCE RATIO	0.613	
COMBUSTOR EFFICIENCY	0.961	
TOTAL PRESSURE RATIO	0.1010	
COMBUSTOR EFFECTIVENESS	0.8349	
INJECTOR DISCHARGE COEFFICIENTS	0.8815,	0.8123, 0.6844,

NOZZLE

VACUUM STREAM THRUST COEFFICIENT = CB	0.9501	
NOZZLE COEFFICIENT = CT	0.8760	
PROCESS EFFICIENCY	0.8531	
KINETIC ENERGY EFFICIENCY	0.8890	

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	
1B	42.690	A
1C	44.300	
2A	50.165	
2C	46.250	B
3A	55.455	
3B	57.640	
4	46.190	C

Reading 91

t = 224.25 sec.

RAMJET PERFORMANCE

SUMMARY REPORT

	P	T	H		GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	G	IVAC	PHI	ETAC
WIND TUNNEL		1	0 6															
0.000	995.749	3079	693.4(	818)	1.2904	28.956	2612											
0.000	0.154	297	-57.6(	71)	1.3965	28.955	849	7.259	6130	1.815	0.05940	13.751	0.9039	2656	5.689	193.1		
SPIKE TIP NB		2	0 7															
0.600	11.175	3078	693.4(	818)	1.2900	28.955	2611											
0.600	10.288	3021	676.1(	801)	1.2919	28.955	2589	0.360	931	2.124	0.05940	13.751	0.9039	2780	0.859	202.1		
WIND TUNNEL		3	0 0															
0.000	995.749	3079	693.4(	818)	1.2904	28.956	2612											
0.000	0.166	304	-56.0(	73)	1.3967	28.955	854	7.171	6124	1.815	0.06273	14.523	0.9039	2803	5.970	193.0		
SPIKE TIP NB		4	0 0															
0.600	11.175	3078	693.4(	818)	1.2900	28.955	2611											
0.600	10.172	3014	673.8(	799)	1.2921	28.955	2586	0.384	992	2.124	0.06273	14.523	0.9039	2803	0.967	193.0		
INLET THROAT		5	0 3															
40.400	239.299	2904	640.7(	766)	1.2958	28.955	2542											
40.400	10.335	1342	200.5(	329)	1.3572	28.955	1768	2.654	4693	1.896	0.67735	13.751	0.8703	2216	49.404	161.1		
INLET UPNRBK		6	0 3															
40.400	239.259	2904	640.7(	766)	1.2958	28.955	2542											
40.400	8.895	1290	187.0(	316)	1.3604	28.955	1736	2.745	4765	1.896	0.61577	13.751	0.8872	2235	45.598	162.5		
INLET DNNRBK		7	0 4															
40.400	89.320	2904	640.7(	767)	1.2958	28.955	2542											
40.400	77.389	2809	612.2(	739)	1.2989	28.955	2503	0.478	1196	1.963	0.61577	13.751	0.8872	2235	11.441	162.6		
COMBUSTOR	0	8	1 2															
40.410	239.275	2904	640.6(	766)	1.2958	28.955	2542											
40.410	10.332	1342	200.5(	329)	1.3572	28.955	1768	2.654	4693	1.896	0.67726	13.751	0.8703	2216	49.396	161.1		
COMBUSTOR	0	9	2 3															
40.715	239.247	2898	638.0(	764)	1.2961	28.955	2538											
40.715	10.368	1338	199.5(	328)	1.3574	28.955	1766	2.653	4684	1.895	0.67971	13.751	0.8700	2212	49.481	160.8		
COMBUSTOR	0	10	3 4															
41.205	221.604	2881	633.7(	760)	1.2966	28.955	2533											
41.205	10.665	1368	207.3(	336)	1.3556	28.955	1784	2.589	4619	1.898	0.67494	13.751	0.8795	2192	48.452	159.4		
COMBUSTOR	0	11	4 4															
41.500	202.524	2872	631.0(	757)	1.2968	28.955	2529											
41.500	11.037	1408	217.8(	347)	1.3532	28.955	1809	2.514	4547	1.904	0.66792	13.751	0.8804	2171	47.198	157.9		
COMBUSTOR	0	12	5 5															
42.460	161.649	2842	622.1(	748)	1.2978	28.955	2517											
42.460	11.456	1490	239.4(	368)	1.3486	28.955	1857	2.356	4376	1.916	0.63057	13.751	0.8851	2120	42.683	154.2		
COMBUSTOR	0	13	6 21															
42.690	92.159	2785	637.1(	814)	1.3026	25.918	2638											
42.690	6.865	1447	225.2(	404)	1.3529	25.918	1951	2.327	4540	2.135	0.62902	13.878	0.8861	2110	44.382	152.0	0.28	0.07
COMBUSTOR	0	14	7 21															
42.700	104.669	2691	637.0(	785)	1.3069	25.822	2602											
42.700	6.913	1365	225.8(	375)	1.3595	25.822	1840	2.400	4537	2.115	0.62893	13.878	0.8862	2109	44.340	152.0	0.28	0.01
COMBUSTOR	0	15	8 21															
42.765	107.199	2676	636.5(	780)	1.3076	25.808	2596											
42.765	7.221	1363	229.6(	378)	1.3597	25.808	1840	2.388	4512	2.112	0.62661	13.878	0.8868	2106	43.938	151.8	0.28	0.00
COMBUSTOR	0	16	9 5															
44.310	73.995	3216	624.1(	947)	1.2817	26.416	2785											
44.310	24.854	2510	390.1(	718)	1.3058	26.418	2483	1.378	3422	2.183	0.57934	13.878	0.8935	2071	30.808	149.3	0.28	0.40
COMBUSTOR	0	17	10 4															
44.800	69.255	3384	620.6(	999)	1.2730	26.615	2837											
44.800	30.446	2823	430.6(	816)	1.2927	26.619	2611	1.181	3084	2.198	0.57286	13.878	0.8946	2068	27.483	149.0	0.28	0.92
COMBUSTOR	0	18	11 4															
45.485	67.845	3468	615.9(	1025)	1.2684	26.726	2860											
45.485	36.203	3027	464.4(	880)	1.2843	26.730	2689	1.024	2753	2.204	0.56957	13.878	0.8951	2070	24.368	149.1	0.28	0.59

READING = 0091 BLOCK = 128 TIME = 224.251 MACH 7.3 PT = 995.749 TT = 3078.5

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	B	W/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	19	12 6														
46.190	66.632	3103	628.4(1011)	1.2889	23.658	2899											
46.190	36.586	2707	482.3(864)	1.3024	23.659	2722	0.993	2704	2.377	0.55955	14.020	0.0978	2095	23.512	149.4	0.59	0.23
COMBUSTOR	0	20	13 2														
46.200	66.673	3102	628.3(1010)	1.2890	23.657	2899											
46.200	36.591	2705	482.2(867)	1.3025	23.658	2721	0.994	2704	2.377	0.56002	14.020	0.0977	2094	23.535	149.4	0.59	0.23
COMBUSTOR	0	21	14 5														
46.250	66.061	2857	634.5(978)	1.3016	22.140	2890											
46.250	36.618	2486	493.2(839)	1.3141	22.140	2709	0.982	2659	2.465	0.56104	14.102	0.0981	2086	23.184	147.9	0.78	0.14
COMBUSTOR	0	22	15 2														
46.260	66.029	2858	634.4(979)	1.3015	22.141	2890											
46.260	36.624	2488	493.2(839)	1.3140	22.142	2709	0.981	2658	2.465	0.56064	14.102	0.0982	2086	23.160	147.9	0.78	0.14
COMBUSTOR	0	23	16 4														
47.310	62.998	3011	620.0(1034)	1.2938	22.311	2947											
47.310	37.193	2667	486.9(903)	1.3055	22.311	2785	0.927	2581	2.482	0.51971	14.102	0.1059	2140	20.845	151.8	0.78	0.19
COMBUSTOR	0	24	17 4														
48.110	59.756	3194	607.3(1100)	1.2846	22.507	3010											
48.110	36.326	2855	474.5(970)	1.2963	22.508	2859	0.902	2578	2.501	0.47767	14.102	0.1153	2202	19.135	156.2	0.78	0.26
COMBUSTOR	0	25	18 4														
48.725	56.398	3095	597.4(1210)	1.2687	22.817	3109											
48.725	30.925	3069	425.8(1045)	1.2844	22.821	2931	1.000	2930	2.527	0.43597	14.102	0.1243	2285	19.852	162.0	0.78	0.36
COMBUSTOR	0	26	19 4														
50.175	53.489	3747	578.8(1303)	1.2537	23.111	3179											
50.175	17.426	2954	256.7(996)	1.2843	23.125	2856	1.806	4014	2.584	0.35430	14.102	0.1554	2483	22.101	173.9	0.78	0.45
COMBUSTOR	0	27	20 4														
50.705	58.243	3514	574.1(1216)	1.2670	22.890	3110											
50.705	12.492	2495	175.4(828)	1.3035	22.897	2658	1.681	4467	2.522	0.33136	14.102	0.1662	2490	23.002	176.5	0.78	0.38
COMBUSTOR	0	28	21 5														
52.115	49.348	3846	563.8(1339)	1.2468	23.249	3202											
52.115	11.850	2848	157.8(953)	1.2861	23.270	2798	1.611	4508	2.555	0.28241	14.102	0.1950	2568	19.783	182.1	0.78	0.89
COMBUSTOR	0	29	22 5														
54.215	58.617	3475	547.9(1205)	1.2683	22.821	3099											
54.215	6.425	2103	19.2(687)	1.3176	22.828	2457	2.094	5143	2.524	0.23214	14.143	0.2379	2652	18.555	187.5	0.78	0.38
COMBUSTOR	0	30	23 4														
54.715	50.928	3661	545.1(1274)	1.2575	23.011	3154											
54.715	6.983	2363	34.1(778)	1.3054	23.024	2581	1.959	5057	2.548	0.22269	14.143	0.2480	2666	17.496	188.5	0.78	0.44
COMBUSTOR	0	31	24 3														
55.465	51.192	3638	540.9(1266)	1.2587	22.999	3146											
55.465	6.234	2281	9.3(749)	1.3086	23.011	2540	2.031	5157	2.546	0.20989	14.143	0.2631	2687	16.822	190.0	0.78	0.44
COMBUSTOR	0	32	25 3														
55.760	51.505	3622	539.2(1259)	1.2596	22.987	3141											
55.760	5.939	2239	-0.9(734)	1.3103	22.998	2518	2.064	5199	2.544	0.20529	14.143	0.2690	2695	16.585	190.5	0.78	0.44
COMBUSTOR	0	33	26 4														
56.225	46.437	3663	536.9(1275)	1.2568	23.034	3152											
56.225	4.390	2162	-48.4(705)	1.3126	23.046	2474	2.187	5412	2.555	0.16237	14.143	0.3401	2758	13.656	195.0	0.78	0.45
COMBUSTOR	0	34	27 4														
57.650	48.161	3624	530.5(1260)	1.2590	23.010	3140											
57.650	3.694	2038	-84.4(659)	1.3179	23.021	2406	2.305	5547	2.549	0.15007	14.143	0.3679	2787	12.937	197.0	0.78	0.44
COMBUSTOR	0	35	28 5														
57.705	37.794	3936	530.2(1376)	1.2383	23.329	3223											
57.705	4.712	2535	-37.1(836)	1.2949	23.362	2643	2.016	5328	2.587	0.14971	14.143	0.3689	2787	12.395	197.1	0.78	0.54
COMBUSTOR	0	36	29 3														
57.845	37.868	3924	529.6(1372)	1.2391	23.319	3220											
57.845	4.628	2813	-40.9(828)	1.2958	23.351	2633	2.029	5383	2.586	0.14858	14.143	0.3717	2789	12.337	197.2	0.78	0.58
COMBUSTOR	0	37	30 21														
57.925	20.086	4904	529.3(1703)	1.1495	24.405	3389											
57.925	3.350	3866	-104.1(1317)	1.2014	24.945	3042	1.850	5630	2.670	0.15027	14.143	0.3675	2790	13.147	197.3	0.78	1.00

READING = 0091 BLOCK = 128 TTVE = 224.251 MACH 7.3 PT = 995.749 TT = 3078.5

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	∞	A/AC	PUMTA	F	IVAC	PHI	ETAC
COMBUSTOR	0	38	31 21														
58.205	19.110	4897	528.1(1740)	1.1491	24.400	3384											
58.205	3.000	3825	-123.2(1301)	1.2038	24.953	3029	1.885	5709	2.673	0.14974	14.143	0.3688	2793	13.285	197.5	0.78	1.00
COMBUSTOR	0	39	32 21														
58.431	18.814	4894	527.2(1739)	1.1489	24.399	3385											
58.431	2.893	3811	-130.1(1295)	1.2047	24.955	3024	1.896	5735	2.675	0.14952	14.143	0.3693	2795	13.326	197.6	0.78	1.00
COMBUSTOR	0	40	33 21														
59.155	17.612	4884	524.6(1735)	1.1488	24.395	3381											
59.155	2.550	3768	-149.8(1279)	1.2071	24.962	3010	1.930	5809	2.679	0.14714	14.143	0.3753	2799	13.284	197.9	0.78	1.00
COMBUSTOR	0	41	34 21														
60.175	22.237	4906	520.7(1743)	1.1509	24.430	3390											
60.175	4.200	3932	-72.9(1343)	1.1983	24.934	3065	1.778	5450	2.660	0.14621	14.143	0.3777	2802	12.384	198.1	0.78	1.00
COMBUSTOR	0	42	35 21														
62.185	24.251	4907	512.6(1743)	1.1523	24.453	3390											
62.185	5.262	4008	-36.1(1374)	1.1945	24.919	3091	1.695	5240	2.651	0.15129	14.143	0.3850	2795	12.320	197.6	0.78	1.00
COMBUSTOR	0	43	36 21														
63.605	25.914	4908	507.1(1743)	1.1532	24.468	3391											
63.605	6.681	4109	14.8(1414)	1.1889	24.893	3124	1.589	4963	2.644	0.15540	14.143	0.3953	2790	11.986	197.3	0.78	1.00
COMBUSTOR	0	44	37 21														
66.069	25.111	4893	497.5(1737)	1.1535	24.477	3386											
66.069	8.614	4269	102.4(1479)	1.1789	24.835	3174	1.401	4446	2.645	0.14730	14.143	0.3749	2782	10.178	196.7	0.78	1.00
COMBUSTOR	0	45	38 200														
66.445	23.366	4884	496.0(1733)	1.1528	24.471	3382											
66.445	8.480	4208	120.7(1491)	1.1763	24.817	3188	1.362	4333	2.651	0.13694	14.143	0.4032	2781	9.222	196.6	0.78	1.00
COMBUSTOR REGEN		46	39 3														
66.445	23.366	5069	671.2(1813)	1.1445	24.216	3451											
66.445	9.133	4561	303.1(1600)	1.1569	24.621	3264	1.315	4292	2.686	0.13694	14.143	0.4032	2830	9.133	200.1	0.78	1.00
NOZZLE AE		47	40 5														
88.681	23.366	4884	496.0(1636)	1.1528	24.471	3382											
88.681	0.640	2690	-596.3(866)	1.2498	25.037	2608	2.839	7393	2.651	0.02851	14.143	1.9371	3568	3.278	252.2	0.78	1.00
NOZZLE PO		48	41 5														
88.681	23.366	4884	496.0(1636)	1.1528	24.471	3382											
88.681	0.154	1962	-857.9(605)	1.2983	25.038	2249	3.660	8231	2.651	0.01045	14.143	5.2821	3826	1.337	270.5	0.78	1.00
NOZZLE AE REGEN		49	42 5														
88.681	23.366	5069	671.2(1813)	1.1445	24.216	3451											
88.681	0.697	3001	-477.1(982)	1.2556	25.032	2736	2.771	7580	2.686	0.02851	14.143	1.9371	3678	3.358	260.0	0.78	1.00
NOZZLE PO REGEN		50	43 5														
88.681	23.366	5069	671.2(1813)	1.1445	24.216	3451											
88.681	0.154	2170	-785.3(678)	1.2494	25.038	2357	3.622	8537	2.686	0.00980	14.143	5.6321	3975	1.301	281.0	0.78	1.00
FICTIVE COMBUSTR		68	61 0														
66.445	239.259	5101	496.0(1817)	1.1773	24.718	3475											
66.445	0.154	1101	-1139.5(324)	1.3477	25.038	1716	5.271	9046	2.463	0.02049	14.143	2.6954	4083	2.880	288.7	0.78	1.00
FICTIVE NOZZLE		69	62 0														
88.681	14.411	4790	459.7(1695)	1.1502	24.462	3346											
88.681	0.794	3055	-456.1(1002)	1.2531	25.031	2757	2.455	6769	2.682	0.02851	14.143	1.9371	3370	2.999	238.3	0.78	1.00

READING = 0091 BLOCK = 128 TIME = 224.251 MACH 7.3 PT = 995.749 TT = 3078.5 PAGE 4

XABB	P-IB	P-OB	PDA	GOX	Q-IB	Q-OB	CAWALL	P-IB/P80	P-IB/PTO	P-OB/P80	P-OB/PTO
6.981E-01	6.900E-01	0.000	-2.499E-01	0.000	0.000	0.000	2.470E+02	4.486E 00	6.929E-04	0.000	0.000
1.836E 01	4.900E-01	0.000	-2.296E 01	0.000	0.000	0.000	1.634E 02	4.486E 00	6.929E-04	0.000	0.000
3.070E 01	1.520E 00	0.000	-1.125E 02	0.000	0.000	0.000	5.053E 02	9.881E 00	1.526E-03	0.000	0.000
3.508E 01	1.951E 00	0.000	-2.250E 02	0.000	0.000	0.000	6.804E 02	1.268E 01	1.960E-03	0.000	0.000
3.555E 01	2.220E 00	0.000	-2.440E 02	0.000	0.000	0.000	7.013E 02	1.443E 01	2.229E-03	0.000	0.000
3.606E 01	2.495E 00	0.000	-2.680E 02	-4.005E 02	-4.005E 02	0.000	7.246E 02	1.622E 01	2.506E-03	0.000	0.000
3.648E 01	2.240E 00	0.000	-2.482E 02	-4.102E 02	-4.102E 02	0.000	7.443E 02	1.456E 01	2.250E-03	0.000	0.000
3.658E 01	2.319E 00	3.191E 00	-3.262E 02	-4.126E 02	-4.126E 02	0.000	7.491E 02	1.507E 01	2.329E-03	2.074E 01	3.204E-03
3.659E 01	2.323E 00	3.218E 00	-3.262E 02	-4.128E 02	-4.128E 02	0.000	7.494E 02	1.510E 01	2.333E-03	2.092E 01	3.232E-03
3.701E 01	2.645E 00	5.143E 00	-3.977E 02	-4.230E 02	-4.230E 02	0.000	7.931E 02	1.719E 01	2.656E-03	3.343E 01	5.165E-03
3.725E 01	2.472E 00	6.262E 00	-3.258E 02	-4.291E 02	-4.291E 02	0.000	8.188E 02	1.607E 01	2.483E-03	4.071E 01	6.289E-03
3.803E 01	1.925E 00	8.867E 00	-3.030E 02	-4.497E 02	-4.497E 02	0.000	9.020E 02	1.251E 01	1.933E-03	5.764E 01	8.905E-03
3.871E 01	7.500E 00	1.117E 01	-3.051E 02	-5.425E 02	-4.706E 02	-7.181E 01	9.785E 02	4.875E 01	7.532E-03	7.261E 01	1.122E-02
3.875E 01	7.784E 00	1.105E 01	-3.061E 02	-5.460E 02	-4.718E 02	-7.414E 01	9.825E 02	5.060E 01	7.817E-03	7.185E 01	1.110E-02
3.901E 01	9.900E 00	1.019E 01	-3.154E 02	-5.723E 02	-4.810E 02	-9.138E 01	1.012E 03	6.436E 01	9.942E-03	6.626E 01	1.024E-02
3.950E 01	1.405E 01	8.571E 00	-3.438E 02	-6.239E 02	-5.001E 02	-1.238E 02	1.086E 03	9.137E 01	1.411E-02	5.572E 01	8.608E-03
3.974E 01	1.211E 01	7.794E 00	-3.566E 02	-6.494E 02	-5.102E 02	-1.392E 02	1.095E 03	7.871E 01	1.216E-02	5.067E 01	7.827E-03
4.000E 01	9.912E 00	9.869E 00	-3.630E 02	-6.791E 02	-5.224E 02	-1.567E 02	1.126E 03	6.444E 01	9.955E-03	6.416E 01	9.912E-03
4.021E 01	1.050E 01	1.147E 01	-3.643E 02	-7.025E 02	-5.324E 02	-1.701E 02	1.150E 03	6.823E 01	1.054E-02	7.460E 01	1.152E-02
4.040E 01	1.105E 01	1.181E 01	-3.644E 02	-7.251E 02	-5.422E 02	-1.828E 02	1.172E 03	7.183E 01	1.110E-02	7.676E 01	1.186E-02
4.041E 01	1.108E 01	1.182E 01	-3.643E 02	-7.262E 02	-5.427E 02	-1.835E 02	1.170E 03	7.201E 01	1.112E-02	7.687E 01	1.187E-02
4.071E 01	1.194E 01	1.234E 01	-3.641E 02	-7.622E 02	-5.588E 02	-2.034E 02	1.209E 03	7.765E 01	1.200E-02	8.025E 01	1.240E-02
4.121E 01	1.334E 01	2.487E 00	-3.775E 02	-8.215E 02	-5.866E 02	-2.349E 02	1.267E 03	8.670E 01	1.339E-02	1.617E 01	2.498E-03
4.150E 01	1.417E 01	2.484E 00	-3.944E 02	-8.581E 02	-6.047E 02	-2.554E 02	1.302E 03	9.215E 01	1.424E-02	1.615E 01	2.495E-03
4.246E 01	9.875E 00	2.472E 00	-4.320E 02	-9.807E 02	-6.657E 02	-3.149E 02	1.416E 03	5.900E 01	9.114E-03	1.607E 01	2.483E-03
4.269E 01	1.126E 01	2.470E 00	-4.388E 02	-1.010E 03	-6.801E 02	-3.296E 02	1.443E 03	7.321E 01	1.131E-02	1.605E 01	2.480E-03
4.270E 01	1.136E 01	2.470E 00	-4.391E 02	-1.011E 03	-6.807E 02	-3.302E 02	1.444E 03	7.382E 01	1.140E-02	1.605E 01	2.480E-03
4.276E 01	1.197E 01	2.469E 00	-4.414E 02	-1.019E 03	-6.847E 02	-3.342E 02	1.452E 03	7.784E 01	1.202E-02	1.605E 01	2.479E-03
4.431E 01	2.666E 01	2.305E 01	-4.566E 02	-1.191E 03	-7.619E 02	-4.288E 02	1.634E 03	1.733E 02	2.677E-02	1.499E 02	2.315E-02
4.480E 01	3.131E 01	2.958E 01	-4.549E 02	-1.239E 03	-7.801E 02	-4.591E 02	1.698E 03	2.036E 02	3.145E-02	1.923E 02	2.971E-02
4.549E 01	3.570E 01	3.871E 01	-4.457E 02	-1.305E 03	-8.035E 02	-5.017E 02	1.782E 03	2.191E 02	3.384E-02	2.516E 02	3.887E-02
4.619E 01	3.616E 01	3.701E 01	-4.131E 02	-1.394E 03	-8.278E 02	-5.467E 02	1.868E 03	2.351E 02	3.631E-02	2.406E 02	3.717E-02
4.620E 01	3.619E 01	3.699E 01	-4.134E 02	-1.396E 03	-8.281E 02	-5.470E 02	1.869E 03	2.353E 02	3.635E-02	2.405E 02	3.715E-02
4.625E 01	3.637E 01	3.687E 01	-4.097E 02	-1.404E 03	-8.294E 02	-5.742E 02	1.879E 03	2.364E 02	3.652E-02	2.397E 02	3.703E-02
4.686E 01	3.640E 01	3.684E 01	-4.092E 02	-1.406E 03	-8.302E 02	-5.755E 02	1.877E 03	2.366E 02	3.656E-02	2.395E 02	3.700E-02
4.731E 01	4.006E 01	3.432E 01	-3.454E 02	-1.609E 03	-8.668E 02	-7.422E 02	2.006E 03	2.604E 02	4.023E-02	2.231E 02	3.447E-02
4.811E 01	4.025E 01	3.240E 01	-2.771E 02	-1.789E 03	-8.951E 02	-8.937E 02	2.105E 03	2.617E 02	4.042E-02	2.106E 02	3.254E-02
4.872E 01	3.092E 01	3.092E 01	-1.499E 02	-1.928E 03	-9.170E 02	-1.011E 03	2.182E 03	2.010E 02	3.106E-02	2.010E 02	3.106E-02
5.017E 01	1.743E 01	1.743E 01	-9.169E 00	-2.191E 03	-9.495E 02	-1.222E 03	2.303E 03	1.133E 02	1.750E-02	1.133E 02	1.750E-02
5.071E 01	1.249E 01	1.249E 01	3.216E 01	-2.256E 03	-9.589E 02	-1.267E 03	2.329E 03	8.121E 01	1.254E-02	8.121E 01	1.254E-02
5.211E 01	1.185E 01	1.185E 01	1.221E 02	-2.401E 03	-1.041E 03	-1.360E 03	2.407E 03	7.704E 01	1.190E-02	7.704E 01	1.190E-02
5.421E 01	6.425E 00	6.425E 00	2.227E 02	-2.592E 03	-1.121E 03	-1.471E 03	2.873E 03	4.177E 01	6.452E-03	4.177E 01	6.452E-03
5.471E 01	4.983E 00	6.983E 00	2.402E 02	-2.632E 03	-1.140E 03	-1.492E 03	2.937E 03	4.540E 01	7.013E-03	4.540E 01	7.013E-03
5.546E 01	6.234E 00	6.234E 00	2.657E 02	-2.691E 03	-1.170E 03	-1.522E 03	3.033E 03	4.053E 01	6.261E-03	4.053E 01	6.261E-03
5.576E 01	5.939E 00	5.939E 00	2.749E 02	-2.714E 03	-1.181E 03	-1.533E 03	3.070E 03	3.861E 01	5.965E-03	3.861E 01	5.965E-03
5.622E 01	3.225E 00	5.475E 00	3.397E 02	-2.748E 03	-1.196E 03	-1.551E 03	3.102E 03	2.097E 01	3.239E-03	3.559E 01	5.498E-03
5.765E 01	3.694E 00	3.694E 00	3.723E 02	-2.838E 03	-1.234E 03	-1.605E 03	3.210E 03	2.401E 01	3.710E-03	2.401E 01	3.710E-03
5.771E 01	5.800E 00	3.625E 00	3.733E 02	-2.842E 03	-1.235E 03	-1.607E 03	3.217E 03	3.771E 01	5.825E-03	2.357E 01	3.640E-03
5.785E 01	5.800E 00	3.450E 00	3.756E 02	-2.851E 03	-1.239E 03	-1.612E 03	3.234E 03	3.771E 01	5.825E-03	2.243E 01	3.465E-03
5.792E 01	3.450E 00	3.350E 00	3.770E 02	-2.855E 03	-1.241E 03	-1.615E 03	3.245E 03	2.178E 01	3.364E-03	2.178E 01	3.364E-03
5.821E 01	3.000E 00	3.000E 00	3.811E 02	-2.872E 03	-1.248E 03	-1.624E 03	3.280E 03	1.950E 01	3.013E-03	1.950E 01	3.013E-03
5.843E 01	2.893E 00	2.893E 00	3.840E 02	-2.884E 03	-1.254E 03	-1.630E 03	3.309E 03	1.881E 01	2.905E-03	1.881E 01	2.905E-03
5.915E 01	2.550E 00	2.550E 00	3.944E 02	-2.922E 03	-1.273E 03	-1.654E 03	3.402E 03	1.658E 01	2.561E-03	1.658E 01	2.561E-03
6.017E 01	4.200E 00	4.200E 00	3.992E 02	-2.976E 03	-1.299E 03	-1.677E 03	3.532E 03	2.730E 01	4.218E-03	2.730E 01	4.218E-03
6.218E 01	5.262E 00	5.262E 00	4.003E 02	-3.091E 03	-1.350E 03	-1.741E 03	3.790E 03	3.421E 01	5.285E-03	3.421E 01	5.285E-03
6.360E 01	6.681E 00	6.681E 00	4.003E 02	-3.169E 03	-1.383E 03	-1.786E 03	3.972E 03	4.343E 01	6.710E-03	4.343E 01	6.710E-03

READING = 0091 BLOCK = 12A TIME = 224.251 MACH 7.3 PT = 995.749 TT = 3078.5

XABS	P=IR	P=OB	PDA	DOX	Q=IP	Q=OB	CAWALL	P=TR/P80	P=IR/PTO	P=OB/P80	P=OB/PTO
6.607E 01	8.614E 00	8.614E 00	4.003E 02	-3.305E 03	-1.428E 03	-1.877E 03	4.289E 03	5.600E 01	8.451E-03	5.600E 01	8.651E-03
6.644E 01	8.050E 00	8.909E 00	4.003E 02	-3.326E 03	-1.434E 03	-1.893E 03	4.337E 03	5.233E 01	8.084E-03	5.792E 01	8.947E-03
6.649E 01	8.050E 00	8.941E 00	4.003E 02	-3.328E 03	-1.434E 03	-1.894E 03	4.342E 03	5.233E 01	8.084E-03	5.812E 01	8.979E-03
6.668E 01	7.719E 00	9.097E 00	4.003E 02	-3.339E 03	-1.437E 03	-1.902E 03	4.36AE 03	5.018E 01	7.752E-03	5.914E 01	9.136E-03
6.839E 01	4.970E 00	4.710E 00	4.747E 02	-3.429E 03	-1.468E 03	-1.941E 03	4.584E 03	3.231E 01	4.991E-03	3.062E 01	4.730E-03
6.901E 01	3.877E 00	4.927E 00	5.622E 02	-3.467E 03	-1.483E 03	-1.944E 03	4.665E 03	2.520E 01	3.893E-03	3.203E 01	4.949E-03
6.978E 01	2.620E 00	3.720E 00	6.715E 02	-3.515E 03	-1.502E 03	-2.013E 03	4.760E 03	1.703E 01	2.631E-03	2.418E 01	3.735E-03
7.050E 01	1.984E 00	2.590E 00	7.413E 02	-3.562E 03	-1.519E 03	-2.044E 03	4.84AE 03	1.290E 01	1.992E-03	1.684E 01	2.601E-03
7.111E 01	1.445E 00	2.310E 00	7.859E 02	-3.599E 03	-1.531E 03	-2.068E 03	4.922E 03	9.394E 00	1.451E-03	1.502E 01	2.320E-03
7.249E 01	8.850E-01	1.677E 00	8.565E 02	-3.659E 03	-1.554E 03	-2.104E 03	5.088E 03	5.753E 00	8.888E-04	1.090E 01	1.684E-03
7.402E 01	7.446E-01	9.750E-01	9.062E 02	-3.705E 03	-1.577E 03	-2.128E 03	5.273E 03	4.841E 00	7.478E-04	6.338E 00	9.792E-04
7.492E 01	6.620E-01	2.300E-01	9.309E 02	-3.731E 03	-1.587E 03	-2.144E 03	5.372E 03	4.304E 00	6.649E-04	1.495E 00	2.310E-04
7.493E 01	6.617E-01	2.267E-01	9.313E 02	-3.731E 03	-1.587E 03	-2.144E 03	5.372E 03	4.301E 00	6.645E-04	1.474E 00	2.277E-04
7.625E 01	5.400E-01	0.000	9.440E 02	-3.772E 03	-1.600E 03	-2.173E 03	5.424E 03	3.510E 00	5.423E-04	0.000	0.000
7.910E 01	5.700E-01	0.000	9.662E 02	-3.792E 03	-1.619E 03	-2.173E 03	5.523E 03	3.706E 00	5.724E-04	0.000	0.000
8.300E 01	5.350E-01	0.000	9.898E 02	-3.808E 03	-1.635E 03	-2.173E 03	5.627E 03	3.478E 00	5.373E-04	0.000	0.000
8.581E 01	5.650E-01	0.000	1.002E 03	-3.819E 03	-1.647E 03	-2.173E 03	5.682E 03	3.673E 00	5.674E-04	0.000	0.000
8.867E 01	6.250E-01	0.000	1.016E 03	-3.840E 03	-1.667E 03	-2.173E 03	5.705E 03	4.063E 00	6.277E-04	0.000	0.000
8.868E 01	6.251E-01	0.000	1.016E 03	-3.840E 03	-1.667E 03	-2.173E 03	5.705E 03	4.064E 00	6.278E-04	0.000	0.000

READING = 0091 BLOCK = 126 TIME = 224.251 MACH 7.3 RT = 995.749 TT = 307A.5

X	DRAG	CDRAG	CP	MC
4.040E 01	9.207E 01	9.203E 01	2.368E-03	3.329E-02
4.041E 01	1.373E-01	9.217E 01	2.368E-03	3.328E-02
4.071E 01	4.181E 00	9.635E 01	2.369E-03	3.340E-02
4.121E 01	4.735E 00	1.031E 02	2.407E-03	3.383E-02
4.150E 01	4.048E 00	1.071E 02	2.453E-03	3.428E-02
4.246E 01	1.287E 01	1.200E 02	2.554E-03	3.399E-02
4.269E 01	3.560E 00	1.236E 02	2.564E-03	2.137E-02
4.270E 01	1.429E-01	1.237E 02	2.819E-03	2.454E-02
4.276E 01	9.513E-01	1.247E 02	2.715E-03	2.589E-02
4.431E 01	1.955E 01	1.442E 02	2.804E-03	5.461E-02
4.440E 01	5.303E 00	1.496E 02	2.899E-03	5.214E-02
4.509E 01	7.288E 00	1.569E 02	1.433E-03	5.282E-02
4.619E 01	7.388E 00	1.643E 02	3.715E-03	4.975E-02
4.620E 01	1.033E-01	1.644E 02	3.393E-03	5.646E-02
4.625E 01	4.970E-01	1.649E 02	3.570E-03	5.395E-02
4.626E 01	9.901E-02	1.650E 02	3.338E-03	5.801E-02
4.731E 01	9.447E 00	1.744E 02	3.295E-03	5.777E-02
4.811E 01	6.569E 00	1.810E 02	3.338E-03	5.427E-02
4.872E 01	4.961E 00	1.860E 02	3.314E-03	5.072E-02
5.017E 01	1.234E 01	1.983E 02	3.181E-03	3.842E-02
5.071E 01	4.820E 00	2.031E 02	3.250E-03	3.073E-02
5.211E 01	-1.196E 01	2.151E 02	3.046E-03	3.012E-02
5.421E 01	1.571E 01	2.308E 02	3.109E-03	1.882E-02
5.471E 01	3.435E 00	2.342E 02	2.871E-03	2.096E-02
5.546E 01	4.792E 00	2.390E 02	2.958E-03	1.865E-02
5.576E 01	1.454E 00	2.404E 02	2.935E-03	1.804E-02
5.622E 01	1.360E 00	2.422E 02	2.817E-03	1.393E-02
5.765E 01	4.013E 00	2.462E 02	2.789E-03	1.224E-02
5.771E 01	2.497E-01	2.465E 02	2.807E-03	1.447E-02
5.785E 01	4.392E-01	2.471E 02	3.010E-03	1.354E-02
5.792E 01	4.399E-01	2.476E 02	3.737E-03	9.304E-03
5.821E 01	1.766E 00	2.493E 02	3.756E-03	8.574E-03
5.843E 01	1.441E 00	2.508E 02	3.758E-03	8.339E-03
5.915E 01	4.645E 00	2.553E 02	3.779E-03	7.564E-03
6.017E 01	6.223E 00	2.617E 02	3.639E-03	1.081E-02
6.218E 01	1.152E 01	2.732E 02	3.593E-03	1.263E-02
6.360E 01	7.925E 00	2.811E 02	3.565E-03	1.472E-02
6.607E 01	1.255E 01	2.936E 02	3.599E-03	1.650E-02
6.644E 01	1.694E 00	2.955E 02	3.643E-03	1.600E-02
6.649E 01	1.739E-01	2.955E 02	3.695E-03	1.625E-02
6.668E 01	5.766E-01	2.964E 02	3.692E-03	1.617E-02
6.835E 01	7.039E 00	3.034E 02	3.610E-03	1.195E-02
6.901E 01	2.499E 00	3.059E 02	3.592E-03	1.125E-02
6.978E 01	2.677E 00	3.086E 02	3.545E-03	9.075E-03
7.050E 01	2.157E 00	3.108E 02	3.494E-03	7.241E-03
7.111E 01	1.596E 00	3.124E 02	3.476E-03	6.291E-03
7.249E 01	3.078E 00	3.154E 02	3.414E-03	4.750E-03
7.402E 01	2.724E 00	3.182E 02	3.353E-03	3.514E-03
7.492E 01	1.075E 00	3.192E 02	3.265E-03	2.111E-03
7.493E 01	1.390E-03	3.192E 02	3.265E-03	2.111E-03
7.625E 01	4.740E-01	3.197E 02	3.280E-03	2.450E-03
7.910E 01	9.672E-01	3.207E 02	3.270E-03	2.540E-03
8.300E 01	1.025E 00	3.217E 02	3.240E-03	2.401E-03
8.581E 01	5.282E-01	3.222E 02	3.232E-03	2.492E-03
8.667E 01	2.297E-01	3.225E 02	3.230E-03	2.601E-03
8.848E 01	0.000	3.225E 02	3.230E-03	2.682E-03

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	698.	(LBF)
MEASURED THRUST	653.	(LBF)
CALCULATED SPECIFIC IMPULSE	1946.	(LBF-SEC/LBM)
MEASURED SPECIFIC IMPULSE	1822.	(LBF-SEC/LBM)
CALCULATED THRUST COEFFICIENT	0.4812	
MEASURED THRUST COEFFICIENT	0.4505	

REGENERATIVE-COOLED ENGINE PERFORMANCE CALCULATED

STREAM THRUST	3474.	(LBF)
NET THRUST	802.	(LBF)
SPECIFIC IMPULSE	2237.	(LBF-SEC/LBM)
THRUST COEFFICIENT	0.5532	

MOMENTUM AND FORCES

INLET FRICTION DRAG	92.0	(LBF)
INLET MOMENTUM CHANGE	-456.4	(LBF)
COMBUSTOR FRICTION DRAG	203.3	(LBF)
COMBUSTOR STRUT DRAG	-15.32	(LBF)
COMBUSTOR MOMENTUM CHANGE	565.	(LBF)
NOZZLE FRICTION DRAG	27.12	(LBF)
NOZZLE STRUT DRAG	-0.00	(LBF)
NOZZLE MOMENTUM CHANGE	589.	(LBF)
NOZZLE PRESSURE INTEGRAL	616.	(LBF)
EXTERNAL FRICTION DRAG	41.61	(LBF)
EXTERNAL PRESSURE INTEGRAL	-640.	(LBF)
TOTAL EXTERNAL DRAG	-682.	(LBF)
TOTAL STRUT DRAG	-15.32	(LBF)
CAVITY FORCE	-662.	(LBF)
CALCULATED LOAD CELL FORCE	-646.	(LBF)
MEASURED LOAD CELL FORCE	-690.	(LBF)
FUEL VACUUM SPECIFIC IMPULSE 0.0,	0.0, -142.2.	

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	1.7050	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	36.589	(IN)
NOZZLE SHROUD TRAILING EDGE	74.929	(IN)
NOZZLE PLUG TRAILING EDGE	88.481	(IN)
STRUT LEADING EDGE	57.845	(IN)
STRUT TRAILING EDGE	66.445	(IN)
COMBUSTOR EXIT	66.445	(IN)

INLET

ANGLE OF ATTACK	3.000	(DEGREES)
MASS FLOW RATIO	0.9039	
ADDITIVE DRAG COEFFICIENT	0.0087	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.0885	
DELTA PT2	0.0824	(PSI)
TOTAL PRESSURE RECOVERY - SUPERSONIC	0.2403	
TOTAL PRESSURE RECOVERY - SUBSONIC	0.0897	
INLET PROCESS EFFICIENCY - SUPERSONIC	0.8903	
INLET PROCESS EFFICIENCY - SUBSONIC	0.9094	
KINETIC ENERGY EFFICIENCY - SUPERSONIC	0.8921	
KINETIC ENERGY EFFICIENCY - SUBSONIC	0.8490	
ENTHALPY AT P0 - SUPERSONIC	-20.30	(BTU/LBM)
ENTHALPY AT P0 - SUBSONIC	3.10	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0260	
EQUIVALENCE RATIO	0.785	
COMBUSTOR EFFICIENCY	1.000	
TOTAL PRESSURE RATIO	0.0977	
COMBUSTOR EFFECTIVENESS	0.8622	
INJECTOR DISCHARGE COEFFICIENTS	0.5973, 0.8652, 0.6445.	

NOZZLE

VACUUM STREAM THRUST COEFFICIENT - CS	0.9446	
NOZZLE COEFFICIENT - CT	0.8607	
PROCESS EFFICIENCY	0.8610	
KINETIC ENERGY EFFICIENCY	0.8761	

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	
1B	42.690	B
1C	44.300	
2A	50.165	
2C	44.250	B
3A	55.455	
3B	57.640	
4	46.190	C

Reading 91

t = 226.95 sec.

2/13/75

READING = 0091 BLOCK = 131 TIME = 226.951 MACH 7.3 PT = 994.999 TT = 3080.4

RAMJET PERFORMANCE

SUMMARY REPORT

	P	T	M		GAMMA	MOLWT	SONV	MACH	VEL	B	W/A	M	A/AC	MOMTM	Q	TVAC	PHI	ETAC
WIND TUNNEL		1	0	6														
0.000	994.999	3080	694.0	(818)	1.2903	28.956	2612											
0.000	0.154	298	-57.6	(71)	1.3965	28.955	845	7.298	6133	1.816	0.05932	13.735	0.0039	2653	5.694	193.2		
SPIKE TIP NB		2	0	7														
0.600	11.187	3080	694.0	(818)	1.2899	28.955	2612											
0.600	10.304	3024	676.8	(802)	1.2918	28.955	2590	0.359	929	2.124	0.05932	13.735	0.0039	2782	0.857	202.6		
WIND TUNNEL		3	0	0														
0.000	994.999	3080	694.0	(818)	1.2903	28.956	2612											
0.000	0.167	309	-55.9	(73)	1.3967	28.955	855	7.167	6126	1.816	0.06278	14.535	0.0039	2806	5.977	193.0		
SPIKE TIP NB		4	0	0														
0.600	11.187	3080	694.0	(818)	1.2899	28.955	2612											
0.600	10.184	3016	674.3	(799)	1.2921	28.955	2587	0.384	992	2.124	0.06278	14.535	0.0039	2806	0.968	193.0		
INLET THROAT		5	0	2														
40.400	240.181	2903	640.4	(766)	1.2959	28.955	2542											
40.400	10.288	1338	199.6	(328)	1.3574	28.955	1766	2.659	4696	1.895	0.67651	13.735	0.0793	2214	49.376	161.2		
INLET UPNRSK		6	0	3														
40.400	240.181	2903	640.4	(766)	1.2959	28.955	2542											
40.400	8.855	1286	186.1	(315)	1.3606	28.955	1733	2.750	4768	1.895	0.61501	13.735	0.0872	2233	48.570	162.6		
INLET DNNRSK		7	0	8														
40.400	89.246	2903	640.4	(766)	1.2980	28.955	2542											
40.400	77.162	2808	611.9	(738)	1.2989	28.955	2503	0.477	1194	1.963	0.61501	13.735	0.0872	2233	11.416	162.6		
COMBUSTOR	0	8	1	2														
40.410	240.200	2903	640.3	(766)	1.2959	28.955	2542											
40.410	10.284	1338	199.5	(328)	1.3574	28.955	1766	2.660	4696	1.895	0.67643	13.735	0.0793	2214	49.369	161.2		
COMBUSTOR	0	9	2	3														
40.715	240.202	2894	637.7	(764)	1.2961	28.955	2538											
40.715	10.314	1334	198.6	(327)	1.3577	28.955	1764	2.658	4688	1.894	0.67887	13.735	0.0790	2210	49.454	160.9		
COMBUSTOR	0	10	3	4														
41.205	222.538	2880	633.4	(759)	1.2966	28.955	2532											
41.205	10.614	1364	206.3	(335)	1.3559	28.955	1782	2.594	4623	1.898	0.67411	13.735	0.0795	2190	48.431	159.4		
COMBUSTOR	0	11	4	4														
41.500	203.396	2871	630.7	(757)	1.2969	28.955	2529											
41.500	10.983	1404	216.8	(346)	1.3539	28.955	1806	2.520	4591	1.903	0.66710	13.735	0.0804	2169	47.182	157.9		
COMBUSTOR	0	12	5	5														
42.460	162.257	2841	621.8	(748)	1.2978	28.955	2516											
42.460	11.400	1486	238.4	(367)	1.3488	28.955	1855	2.361	4380	1.916	0.62979	13.735	0.0851	2118	42.870	154.2		
COMBUSTOR	0	13	6	21														
42.690	91.544	2785	637.3	(814)	1.3027	25.884	2640											
42.690	6.793	1465	224.5	(404)	1.3931	25.884	1951	2.329	4545	2.137	0.62832	13.863	0.0861	2108	44.378	152.1	0.28	0.07
COMBUSTOR	0	14	7	21														
42.700	104.148	2689	637.2	(785)	1.3070	25.787	2603											
42.700	6.835	1362	225.0	(375)	1.3597	25.787	1890	2.403	4542	2.118	0.62823	13.863	0.0862	2108	44.339	152.0	0.28	0.01
COMBUSTOR	0	15	8	21														
42.765	106.594	2673	636.6	(780)	1.3078	25.773	2597											
42.765	7.113	1358	226.6	(374)	1.3600	25.773	1888	2.393	4519	2.114	0.62591	13.863	0.0865	2105	43.953	151.8	0.28	0.00
COMBUSTOR	0	16	9	5														
44.310	74.760	3225	624.0	(951)	1.2812	26.394	2790											
44.310	24.488	2503	384.2	(717)	1.3059	26.396	2481	1.396	3463	2.185	0.57849	13.863	0.0935	2079	31.145	150.0	0.28	0.40
COMBUSTOR	0	17	10	4														
44.800	69.989	3420	620.3	(1018)	1.2712	26.623	2849											
44.800	29.999	2840	422.8	(821)	1.2917	26.627	2617	1.201	3144	2.202	0.57223	13.863	0.0946	2081	27.955	150.1	0.28	0.54
COMBUSTOR	0	18	11	4														
45.485	68.581	3550	615.4	(1053)	1.2640	26.788	2886											
45.485	36.573	3104	460.4	(908)	1.2804	26.794	2716	1.025	2785	2.209	0.56893	13.863	0.0951	2091	24.692	150.8	0.28	0.65

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	M	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	19	12 3														
46.190	67.643	3570	612.6(1081)	1.2632	26.263	2922											
46.190	37.378	3144	462.0(937)	1.2789	26.249	2760	0.995	2745	2.250	0.55436	13.890	0.0978	2121	23.645	152.7	0.34	0.59
COMBUSTOR	0	20	13 2														
46.200	67.689	3568	612.4(1080)	1.2632	26.261	2921											
46.200	37.389	3144	461.9(937)	1.2790	26.267	2759	0.995	2745	2.249	0.55482	13.890	0.0977	2121	23.667	152.7	0.34	0.59
COMBUSTOR	0	21	14 9														
46.250	66.527	2961	629.8(1001)	1.2963	22.582	2907											
46.250	37.446	2591	489.5(863)	1.3088	22.582	2732	0.969	2649	2.444	0.55944	14.062	0.0981	2099	23.029	149.3	0.72	0.17
COMBUSTOR	0	22	15 2														
46.260	66.497	2962	629.6(1001)	1.2963	22.583	2908											
46.260	37.458	2593	489.5(863)	1.3088	22.584	2733	0.969	2648	2.444	0.55904	14.062	0.0982	2099	23.002	149.3	0.72	0.17
COMBUSTOR	0	23	16 4														
47.310	63.572	3110	615.1(1054)	1.2888	22.753	2959											
47.310	38.656	2777	487.3(929)	1.3001	22.754	2809	0.900	2529	2.459	0.51823	14.062	0.1059	2154	20.364	153.2	0.72	0.23
COMBUSTOR	0	24	17 4														
48.110	60.153	3308	602.3(1124)	1.2785	22.971	3025											
48.110	36.740	2966	468.6(995)	1.2906	22.973	2878	0.899	2586	2.478	0.47631	14.062	0.1153	2215	19.143	157.5	0.72	0.30
COMBUSTOR	0	25	18 4														
48.725	56.749	3620	592.4(1238)	1.2614	23.302	3121											
48.725	30.725	3178	414.7(1069)	1.2782	23.310	2944	1.013	2982	2.503	0.43473	14.062	0.1263	2297	20.143	163.3	0.72	0.41
COMBUSTOR	0	26	19 4														
50.175	53.849	3871	573.2(1329)	1.2456	23.608	3186											
50.175	17.537	3068	246.6(1021)	1.2779	23.629	2872	1.408	4042	2.519	0.35329	14.062	0.1554	2465	22.194	175.3	0.72	0.51
COMBUSTOR	0	27	20 4														
50.705	58.283	3643	568.2(1245)	1.2594	23.386	3123											
50.705	12.717	2614	166.1(856)	1.2972	23.397	2684	1.671	4486	2.499	0.33041	14.062	0.1662	2502	23.033	177.9	0.72	0.44
COMBUSTOR	0	28	21 5														
52.115	49.877	3965	556.9(1363)	1.2386	23.750	3206											
52.115	11.875	2951	143.7(974)	1.2802	23.781	2810	1.418	4568	2.528	0.28160	14.062	0.1950	2581	19.901	183.5	0.72	0.56
COMBUSTOR	0	29	22 5														
54.215	57.165	3637	540.6(1246)	1.2588	23.349	3122											
54.215	6.725	2262	10.6(731)	1.3090	23.360	2510	2.052	5150	2.505	0.23148	14.103	0.2379	2667	18.525	189.1	0.73	0.46
COMBUSTOR	0	30	23 4														
54.715	50.392	3816	537.5(1312)	1.2476	23.542	3171											
54.715	7.217	2514	23.4(819)	1.2974	23.562	2623	1.933	5072	2.526	0.22202	14.103	0.2480	2682	17.800	190.2	0.73	0.52
COMBUSTOR	0	31	24 3														
55.465	50.994	3782	533.0(1300)	1.2496	23.518	3161											
55.465	6.389	2411	-4.2(782)	1.3010	23.536	2574	2.014	5185	2.522	0.20929	14.103	0.2631	2703	16.863	191.7	0.73	0.51
COMBUSTOR	0	32	25 3														
55.760	51.572	3760	531.3(1291)	1.2510	23.499	3155											
55.760	6.063	2358	-15.6(763)	1.3036	23.516	2549	2.052	5231	2.520	0.20470	14.103	0.2690	2711	16.641	192.2	0.73	0.50
COMBUSTOR	0	33	26 4														
56.225	46.767	3792	528.8(1303)	1.2485	23.539	3162											
56.225	4.409	2265	-65.8(729)	1.3065	23.559	2499	2.183	5454	2.530	0.18191	14.103	0.3401	2775	13.724	196.8	0.73	0.52
COMBUSTOR	0	34	27 4														
57.650	46.098	3812	522.0(1310)	1.2470	23.577	3166											
57.650	3.931	2227	-94.3(715)	1.3074	23.598	2477	2.242	5553	2.531	0.14965	14.103	0.3679	2805	12.915	198.9	0.73	0.53
COMBUSTOR	0	35	28 5														
57.705	37.494	4098	521.8(1416)	1.2261	23.883	3234											
57.705	4.899	2699	-50.9(880)	1.2961	23.936	2685	1.994	5353	2.562	0.14928	14.103	0.3689	2806	12.418	198.9	0.73	0.63
COMBUSTOR	0	36	29 3														
57.845	37.557	4090	521.1(1413)	1.2267	23.876	3232											
57.845	4.780	2681	-54.4(874)	1.2868	23.928	2677	2.004	5366	2.562	0.14816	14.103	0.3717	2807	12.356	199.1	0.73	0.63
COMBUSTOR	0	37	30 21														
57.925	23.171	4850	520.8(1696)	1.1565	24.743	3357											
57.925	3.618	3711	-112.7(1240)	1.2179	25.198	2986	1.885	5630	2.622	0.14944	14.103	0.3675	2808	13.110	199.1	0.73	1.00

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	M/A	M	A/AP	MOMTM	G	IVAC	PHI	ETAC
COMBUSTOR	0	38	31 21														
58.205	22.409	4845	519.6(1694)	1.1562	24.741	3355											
58.205	3.300	3671	-130.5(1225)	1.2203	25.203	2973	1.919	5703	2.624	0.14932	14.103	0.3688	2812	13.235	199.4	0.73	1.00
COMBUSTOR	0	39	32 21														
58.431	21.928	4842	518.7(1693)	1.1561	24.739	3354											
58.431	3.116	3646	-141.3(1219)	1.2217	25.206	2964	1.939	5747	2.626	0.14909	14.103	0.3693	2814	13.315	199.5	0.73	1.00
COMBUSTOR	0	40	33 21														
59.155	19.819	4829	516.0(1688)	1.1552	24.731	3349											
59.155	2.529	3571	-173.9(1186)	1.2259	25.214	2938	2.000	5875	2.633	0.14672	14.103	0.3753	2818	13.397	199.8	0.73	1.00
COMBUSTOR	0	41	34 21														
60.175	24.784	4846	512.0(1694)	1.1578	24.762	3356											
60.175	4.250	3758	-92.2(1258)	1.2157	25.193	3003	1.831	5499	2.615	0.14579	14.103	0.3777	2821	12.458	200.1	0.73	1.00
COMBUSTOR	0	42	35 21														
62.185	26.778	4843	503.8(1693)	1.1592	24.781	3356											
62.185	5.350	3845	-53.2(1292)	1.2110	25.181	3032	1.741	5279	2.607	0.15086	14.103	0.3850	2814	12.378	199.6	0.73	1.00
COMBUSTOR	0	43	36 21														
63.605	27.788	4840	498.4(1691)	1.1600	24.792	3355											
63.605	6.000	3887	-34.0(1309)	1.2088	25.175	3046	1.694	5162	2.603	0.15495	14.103	0.3953	2809	12.429	199.1	0.73	1.00
COMBUSTOR	0	44	37 200														
66.069	26.812	4829	489.7(1685)	1.1603	24.799	3350											
66.069	8.496	4120	80.3(1401)	1.1934	25.121	3120	1.451	4526	2.604	0.14688	14.103	0.3749	2800	10.331	198.5	0.73	1.00
COMBUSTOR	0	45	38 200														
66.445	24.884	4817	488.4(1682)	1.1596	24.793	3347											
66.445	8.243	4144	94.0(1410)	1.1911	25.110	3126	1.421	4442	2.609	0.13655	14.103	0.4032	2799	9.427	198.4	0.73	1.00
COMBUSTOR REGEN		46	39 3														
66.445	24.884	5034	675.1(1773)	1.1486	24.535	3423											
66.445	8.014	4393	246.3(1510)	1.1696	24.973	3198	1.448	4632	2.647	0.13655	14.103	0.4032	2858	9.830	202.7	0.73	1.00
NOZZLE AE		47	40 5														
88.681	24.884	4817	488.4(1585)	1.1596	24.793	3347											
88.681	0.592	2503	-591.1(788)	1.2780	25.251	2510	2.928	7350	2.609	0.02843	14.103	1.9371	3516	3.247	249.3	0.73	1.00
NOZZLE PO		48	41 5														
88.681	24.884	4817	488.4(1585)	1.1596	24.793	3347											
88.681	0.154	1846	-820.7(599)	1.3051	25.252	2178	3.714	8094	2.609	0.01101	14.103	5.0007	3745	1.345	265.5	0.73	1.00
NOZZLE AE REGEN		49	42 5														
88.681	24.884	5034	675.1(1773)	1.1486	24.535	3423											
88.681	0.650	2829	-470.8(907)	1.2650	25.249	2655	2.852	7572	2.647	0.02843	14.103	1.9371	3642	3.345	258.2	0.73	1.00
NOZZLE PO REGEN		50	43 5														
88.681	24.884	5034	675.1(1773)	1.1486	24.535	3423											
88.681	0.154	2063	-746.7(633)	1.2953	25.252	2294	3.677	8435	2.647	0.01027	14.103	5.3623	3908	1.346	277.1	0.73	1.00
FICTIVE COMBUSTR		68	61 0														
66.445	240.181	4997	488.4(1751)	1.1841	24.999	3430											
66.445	0.154	1044	-1076.6(303)	1.3525	25.252	1668	5.304	8849	2.428	0.02128	14.103	2.5075	3981	2.927	282.3	0.73	1.00
FICTIVE NOZZLE		69	62 0														
88.681	18.273	4742	452.4(1652)	1.1589	24.805	3319											
88.681	0.672	2696	-520.6(858)	1.2706	25.251	2597	2.687	6977	2.627	0.02843	14.103	1.9371	3392	3.082	240.5	0.73	1.00

READING = 0091 BLOCK = 131 TIME = 226.951 MACH 7.3 PT = 994.999 TT = 3080.4 PAGE 4

XABS	P-IB	P-OB	PRA	COX	Q-IB	Q-OB	CAWALL	P-IB/P80	P-IB/PTO	P-OB/P80	P-OB/PTO
6.981E-01	4.900E-01	0.000	-2.702E-01	0.000	0.000	0.000	2.470E-02	4.489E 00	4.935E-04	0.000	0.000
1.836E 01	4.900E-01	0.000	-2.294E 01	0.000	0.000	0.000	1.434E 02	4.489E 00	6.935E-04	0.000	0.000
3.070E 01	1.520E 00	0.000	-1.125E 02	0.000	0.000	0.000	5.053E 02	9.890E 00	1.528E-03	0.000	0.000
3.508E 01	1.954E 00	0.000	-2.251E 02	0.000	0.000	0.000	6.804E 02	1.271E 01	1.964E-03	0.000	0.000
3.555E 01	2.225E 00	0.000	-2.442E 02	0.000	0.000	0.000	7.013E 02	1.448E 01	2.236E-03	0.000	0.000
3.606E 01	2.495E 00	0.000	-2.681E 02	-4.141E 02	-4.141E 02	0.000	7.246E 02	1.623E 01	2.508E-03	0.000	0.000
3.648E 01	2.241E 00	0.000	-2.484E 02	-4.241E 02	-4.241E 02	0.000	7.443E 02	1.458E 01	2.253E-03	0.000	0.000
3.658E 01	2.320E 00	3.189E 00	-3.263E 02	-4.266E 02	-4.266E 02	0.000	7.491E 02	1.509E 01	2.331E-03	2.075E 01	3.205E-03
3.659E 01	2.324E 00	3.216E 00	-3.264E 02	-4.268E 02	-4.268E 02	0.000	7.494E 02	1.512E 01	2.336E-03	2.093E 01	3.232E-03
3.701E 01	2.645E 00	5.158E 00	-3.278E 02	-4.373E 02	-4.373E 02	0.000	7.931E 02	1.721E 01	2.658E-03	3.356E 01	5.184E-03
3.725E 01	2.472E 00	6.287E 00	-3.259E 02	-4.437E 02	-4.437E 02	0.000	8.188E 02	1.608E 01	2.484E-03	4.091E 01	6.319E-03
3.803E 01	1.925E 00	8.875E 00	-3.029E 02	-4.650E 02	-4.650E 02	0.000	9.020E 02	1.252E 01	1.935E-03	5.775E 01	8.920E-03
3.871E 01	7.493E 00	1.116E 01	-5.050E 02	-5.559E 02	-4.866E 02	-6.925E 01	9.785E 02	4.875E 01	7.530E-03	7.263E 01	1.122E-02
3.875E 01	7.777E 00	1.105E 01	-5.060E 02	-5.593E 02	-4.878E 02	-7.149E 01	9.825E 02	5.060E 01	7.814E-03	7.187E 01	1.110E-02
3.901E 01	9.890E 00	1.019E 01	-5.152E 02	-5.854E 02	-4.972E 02	-8.812E 01	1.012E 03	6.435E 01	9.940E-03	6.629E 01	1.024E-02
3.950E 01	1.408E 01	8.570E 00	-5.434E 02	-6.363E 02	-5.170E 02	-1.193E 02	1.068E 03	9.125E 01	1.410E-02	5.576E 01	8.613E-03
3.974E 01	1.209E 01	7.794E 00	-5.563E 02	-6.617E 02	-5.270E 02	-1.343E 02	1.099E 03	7.867E 01	1.215E-02	5.071E 01	7.833E-03
4.000E 01	9.912E 00	9.869E 00	-5.428E 02	-6.910E 02	-5.400E 02	-1.511E 02	1.124E 03	6.449E 01	9.962E-03	6.421E 01	9.919E-03
4.021E 01	1.048E 01	1.147E 01	-5.640E 02	-7.143E 02	-5.502E 02	-1.640E 02	1.150E 03	6.822E 01	1.054E-02	7.466E 01	1.153E-02
4.040E 01	1.103E 01	1.180E 01	-5.441E 02	-7.367E 02	-5.604E 02	-1.763E 02	1.172E 03	7.176E 01	1.108E-02	7.681E 01	1.186E-02
4.041E 01	1.106E 01	1.182E 01	-5.440E 02	-7.378E 02	-5.609E 02	-1.769E 02	1.174E 03	7.194E 01	1.111E-02	7.692E 01	1.188E-02
4.071E 01	1.191E 01	1.234E 01	-5.638E 02	-7.736E 02	-5.774E 02	-1.961E 02	1.209E 03	7.748E 01	1.197E-02	8.027E 01	1.240E-02
4.121E 01	1.328E 01	2.487E 00	-5.770E 02	-8.326E 02	-6.061E 02	-2.265E 02	1.267E 03	8.638E 01	1.334E-02	1.618E 01	2.500E-03
4.150E 01	1.410E 01	2.483E 00	-5.938E 02	-8.690E 02	-6.247E 02	-2.444E 02	1.302E 03	9.174E 01	1.417E-02	1.616E 01	2.496E-03
4.246E 01	9.150E 00	2.470E 00	-4.315E 02	-9.920E 02	-6.675E 02	-3.005E 02	1.416E 03	5.953E 01	9.194E-03	1.607E 01	2.482E-03
4.269E 01	1.112E 01	2.467E 00	-4.382E 02	-1.021E 03	-7.023E 02	-3.192E 02	1.443E 03	7.234E 01	1.117E-02	1.605E 01	2.479E-03
4.270E 01	1.120E 01	2.467E 00	-4.385E 02	-1.023E 03	-7.029E 02	-3.198E 02	1.444E 03	7.290E 01	1.126E-02	1.605E 01	2.479E-03
4.276E 01	1.176E 01	2.466E 00	-4.407E 02	-1.031E 03	-7.070E 02	-3.238E 02	1.452E 03	7.652E 01	1.182E-02	1.604E 01	2.478E-03
4.431E 01	2.408E 01	2.400E 01	-4.469E 02	-1.207E 03	-7.864E 02	-4.202E 02	1.638E 03	1.625E 02	2.511E-02	1.561E 02	2.412E-02
4.480E 01	2.917E 01	3.082E 01	-4.390E 02	-1.257E 03	-8.051E 02	-4.515E 02	1.698E 03	1.898E 02	2.932E-02	2.005E 02	3.098E-02
4.549E 01	3.278E 01	4.037E 01	-4.214E 02	-1.325E 03	-8.292E 02	-4.954E 02	1.782E 03	2.133E 02	3.294E-02	2.627E 02	4.057E-02
4.619E 01	3.648E 01	3.827E 01	-3.842E 02	-1.416E 03	-8.541E 02	-5.615E 02	1.868E 03	2.374E 02	3.667E-02	2.490E 02	3.846E-02
4.620E 01	3.654E 01	3.824E 01	-3.844E 02	-1.417E 03	-8.545E 02	-5.627E 02	1.869E 03	2.377E 02	3.672E-02	2.488E 02	3.843E-02
4.625E 01	3.680E 01	3.809E 01	-3.806E 02	-1.425E 03	-8.563E 02	-5.691E 02	1.878E 03	2.394E 02	3.699E-02	2.478E 02	3.828E-02
4.626E 01	3.685E 01	3.806E 01	-3.800E 02	-1.427E 03	-8.566E 02	-5.703E 02	1.877E 03	2.398E 02	3.704E-02	2.476E 02	3.825E-02
4.731E 01	4.237E 01	3.494E 01	-3.160E 02	-1.632E 03	-8.944E 02	-7.371E 02	2.006E 03	2.757E 02	4.259E-02	2.273E 02	3.511E-02
4.811E 01	4.692E 01	3.256E 01	-2.684E 02	-1.812E 03	-9.236E 02	-8.882E 02	2.105E 03	2.663E 02	4.113E-02	2.118E 02	3.272E-02
4.872E 01	3.078E 01	3.072E 01	-1.614E 02	-1.951E 03	-9.462E 02	-1.005E 03	2.182E 03	1.999E 02	3.088E-02	1.999E 02	3.088E-02
5.017E 01	1.754E 01	1.754E 01	1.496E 01	-2.221E 03	-1.000E 03	-1.220E 03	2.363E 03	1.141E 02	1.763E-02	1.141E 02	1.763E-02
5.071E 01	1.272E 01	1.272E 01	6.076E 01	-2.290E 03	-1.021E 03	-1.269E 03	2.429E 03	8.274E 01	1.278E-02	8.274E 01	1.278E-02
5.211E 01	1.187E 01	1.187E 01	1.517E 02	-2.449E 03	-1.075E 03	-1.374E 03	2.607E 03	7.726E 01	1.193E-02	7.726E 01	1.193E-02
5.421E 01	6.725E 00	6.725E 00	2.541E 02	-2.657E 03	-1.154E 03	-1.499E 03	2.873E 03	4.376E 01	6.759E-03	4.376E 01	6.759E-03
5.471E 01	7.217E 00	7.217E 00	2.722E 02	-2.700E 03	-1.172E 03	-1.522E 03	2.937E 03	4.695E 01	7.253E-03	4.695E 01	7.253E-03
5.546E 01	6.389E 00	6.389E 00	2.985E 02	-2.764E 03	-1.204E 03	-1.555E 03	3.033E 03	4.157E 01	6.421E-03	4.157E 01	6.421E-03
5.576E 01	6.063E 00	6.063E 00	3.079E 02	-2.789E 03	-1.221E 03	-1.568E 03	3.070E 03	3.945E 01	6.094E-03	3.945E 01	6.094E-03
5.622E 01	3.269E 00	5.550E 00	3.736E 02	-2.824E 03	-1.236E 03	-1.588E 03	3.102E 03	2.127E 01	3.285E-03	3.611E 01	5.578E-03
5.765E 01	3.931E 00	3.931E 00	4.073E 02	-2.919E 03	-1.275E 03	-1.644E 03	3.210E 03	2.557E 01	3.950E-03	2.557E 01	3.950E-03
5.771E 01	3.850E 00	3.868E 00	4.084E 02	-2.923E 03	-1.277E 03	-1.646E 03	3.217E 03	3.806E 01	5.879E-03	2.517E 01	3.888E-03
5.785E 01	3.850E 00	3.709E 00	4.109E 02	-2.932E 03	-1.281E 03	-1.651E 03	3.234E 03	3.806E 01	5.879E-03	2.413E 01	3.728E-03
5.792E 01	3.418E 00	3.618E 00	4.123E 02	-2.937E 03	-1.283E 03	-1.654E 03	3.245E 03	2.354E 01	3.636E-03	2.354E 01	3.636E-03
5.821E 01	3.300E 00	3.300E 00	4.169E 02	-2.953E 03	-1.290E 03	-1.663E 03	3.280E 03	2.147E 01	3.317E-03	2.147E 01	3.317E-03
5.843E 01	3.116E 00	3.116E 00	4.200E 02	-2.966E 03	-1.297E 03	-1.670E 03	3.309E 03	2.027E 01	3.131E-03	2.027E 01	3.131E-03
5.915E 01	2.525E 00	2.525E 00	4.276E 02	-3.004E 03	-1.314E 03	-1.688E 03	3.402E 03	1.643E 01	2.538E-03	1.643E 01	2.538E-03
6.017E 01	4.250E 00	4.250E 00	4.355E 02	-3.060E 03	-1.344E 03	-1.716E 03	3.532E 03	2.765E 01	4.271E-03	2.765E 01	4.271E-03
6.218E 01	5.350E 00	5.350E 00	4.366E 02	-3.176E 03	-1.397E 03	-1.779E 03	3.790E 03	3.481E 01	5.377E-03	3.481E 01	5.377E-03
6.360E 01	6.000E 00	6.000E 00	4.366E 02	-3.252E 03	-1.430E 03	-1.822E 03	3.972E 03	3.904E 01	6.030E-03	3.904E 01	6.030E-03

READING # 0091 BLOCK # 131 TIME # 226.951 MACH 7.3 PT # 994.999 TT # 3080.4

XABS	P=IB	P=OB	PDA	QOX	Q=IB	Q=OB	CANALI	P=TB/PBO	P=IP/PTO	P=OB/PSO	P=OB/PTO
6.607E 01	8.496E 00	8.496E 00	4.366E 02	-3.375E 03	-1.469E 03	-1.906E 03	4.289E 03	5.528E 01	8.539E-03	5.528E 01	8.539E-03
6.644E 01	7.610E 00	8.877E 00	4.366E 02	-3.393E 03	-1.473E 03	-1.920E 03	4.337E 03	4.951E 01	7.648E-03	5.776E 01	8.921E-03
6.649E 01	7.610E 00	8.917E 00	4.366E 02	-3.395E 03	-1.473E 03	-1.922E 03	4.342E 03	4.951E 01	7.648E-03	5.802E 01	8.962E-03
6.668E 01	7.341E 00	9.120E 00	4.366E 02	-3.404E 03	-1.475E 03	-1.929E 03	4.368E 03	4.776E 01	7.378E-03	5.934E 01	9.166E-03
6.835E 01	5.105E 00	4.650E 00	5.104E 02	-3.487E 03	-1.500E 03	-1.987E 03	4.584E 03	3.321E 01	5.131E-03	3.025E 01	4.673E-03
6.901E 01	3.960E 00	4.957E 00	6.048E 02	-3.525E 03	-1.514E 03	-2.011E 03	4.665E 03	2.577E 01	3.980E-03	3.226E 01	4.982E-03
6.978E 01	2.645E 00	3.750E 00	7.093E 02	-3.573E 03	-1.532E 03	-2.040E 03	4.760E 03	1.721E 01	2.658E-03	2.440E 01	3.768E-03
7.050E 01	2.001E 00	2.620E 00	7.798E 02	-3.620E 03	-1.548E 03	-2.071E 03	4.848E 03	1.302E 01	2.011E-03	1.705E 01	2.633E-03
7.111E 01	1.455E 00	2.335E 00	8.248E 02	-3.657E 03	-1.561E 03	-2.096E 03	4.922E 03	9.467E 00	1.462E-03	1.519E 01	2.347E-03
7.249E 01	8.900E-01	1.690E 00	8.960E 02	-3.717E 03	-1.585E 03	-2.132E 03	5.048E 03	5.791E 00	8.945E-04	1.100E 01	1.698E-03
7.402E 01	7.496E-01	9.750E-01	9.460E 02	-3.762E 03	-1.606E 03	-2.156E 03	5.273E 03	4.877E 00	7.534E-04	6.344E 00	9.799E-04
7.492E 01	6.670E-01	2.300E-01	9.707E 02	-3.789E 03	-1.616E 03	-2.172E 03	5.372E 03	4.340E 00	6.704E-04	1.496E 00	2.312E-04
7.493E 01	6.667E-01	2.247E-01	9.711E 02	-3.789E 03	-1.616E 03	-2.173E 03	5.372E 03	4.338E 00	6.700E-04	1.475E 00	2.278E-04
7.625E 01	5.450E-01	0.000	9.839E 02	-3.830E 03	-1.629E 03	-2.201E 03	5.424E 03	3.506E 00	5.477E-04	0.000	0.000
7.910E 01	5.700E-01	0.000	1.006E 03	-3.850E 03	-1.649E 03	-2.201E 03	5.523E 03	3.709E 00	5.729E-04	0.000	0.000
8.300E 01	5.550E-01	0.000	1.030E 03	-3.867E 03	-1.665E 03	-2.201E 03	5.627E 03	3.611E 00	5.578E-04	0.000	0.000
8.581E 01	5.900E-01	0.000	1.043E 03	-3.879E 03	-1.678E 03	-2.201E 03	5.682E 03	3.839E 00	5.930E-04	0.000	0.000
8.867E 01	6.400E-01	0.000	1.058E 03	-3.901E 03	-1.700E 03	-2.201E 03	5.705E 03	4.164E 00	6.432E-04	0.000	0.000
8.868E 01	6.401E-01	0.000	1.058E 03	-3.901E 03	-1.700E 03	-2.201E 03	5.705E 03	4.165E 00	6.433E-04	0.000	0.000

X	DDRAG	CDRAG	CF	HC
4.040E 01	9.205E 01	9.205E 01	2.365E-03	3.319E-02
4.041E 01	1.370E-01	9.219E 01	2.365E-03	3.316E-02
4.071E 01	4.173E 00	9.636E 01	2.366E-03	3.330E-02
4.121E 01	6.723E 00	1.031E 02	2.404E-03	3.372E-02
4.150E 01	4.041E 00	1.071E 02	2.450E-03	3.417E-02
4.246E 01	1.284E 01	1.200E 02	2.551E-03	3.389E-02
4.269E 01	3.563E 00	1.235E 02	3.394E-03	2.119E-02
4.270E 01	1.632E-01	1.237E 02	2.821E-03	2.435E-02
4.276E 01	9.520E-01	1.246E 02	2.716E-03	2.563E-02
4.431E 01	1.958E 01	1.442E 02	2.885E-03	5.461E-02
4.480E 01	5.428E 00	1.496E 02	3.282E-03	5.234E-02
4.549E 01	7.370E 00	1.570E 02	3.428E-03	5.351E-02
4.619E 01	7.232E 00	1.643E 02	3.513E-03	5.200E-02
4.620E 01	1.027E-01	1.644E 02	3.513E-03	5.200E-02
4.625E 01	5.221E-01	1.649E 02	3.805E-03	4.940E-02
4.626E 01	1.021E-01	1.650E 02	3.366E-03	5.853E-02
4.731E 01	9.404E 00	1.744E 02	3.331E-03	5.723E-02
4.811E 01	6.550E 00	1.809E 02	3.359E-03	5.379E-02
4.872E 01	5.029E 00	1.860E 02	3.332E-03	5.007E-02
5.017E 01	1.254E 01	1.985E 02	3.206E-03	3.834E-02
5.071E 01	4.871E 00	2.034E 02	3.274E-03	3.059E-02
5.211E 01	1.209E 01	2.155E 02	3.072E-03	2.967E-02
5.421E 01	1.987E 01	2.313E 02	3.130E-03	1.913E-02
5.471E 01	3.476E 00	2.348E 02	2.926E-03	2.092E-02
5.546E 01	4.881E 00	2.397E 02	3.003E-03	1.857E-02
5.576E 01	1.890E 00	2.416E 02	2.972E-03	1.795E-02
5.622E 01	1.386E 00	2.430E 02	2.851E-03	1.381E-02
5.765E 01	4.067E 00	2.470E 02	2.821E-03	1.257E-02
5.771E 01	2.942E-01	2.473E 02	2.877E-03	1.439E-02
5.785E 01	6.531E-01	2.479E 02	3.056E-03	1.356E-02
5.792E 01	4.334E-01	2.484E 02	3.600E-03	9.960E-03
5.821E 01	1.494E 00	2.501E 02	3.608E-03	9.311E-03
5.843E 01	1.382E 00	2.514E 02	3.612E-03	8.921E-03
5.915E 01	4.491E 00	2.559E 02	3.648E-03	7.607E-03
6.017E 01	6.062E 00	2.620E 02	3.527E-03	1.105E-02
6.218E 01	1.124E 01	2.732E 02	3.491E-03	1.295E-02
6.360E 01	7.471E 00	2.811E 02	3.475E-03	1.399E-02
6.607E 01	1.259E 01	2.937E 02	3.525E-03	1.672E-02
6.644E 01	1.690E 00	2.954E 02	3.569E-03	1.604E-02
6.649E 01	1.785E-01	2.956E 02	3.622E-03	1.631E-02
6.668E 01	9.211E-01	2.965E 02	3.620E-03	1.628E-02
6.835E 01	7.333E 00	3.038E 02	3.531E-03	1.208E-02
6.901E 01	2.580E 00	3.064E 02	3.512E-03	1.140E-02
6.978E 01	2.755E 00	3.092E 02	3.460E-03	9.153E-03
7.050E 01	2.209E 00	3.114E 02	3.411E-03	7.302E-03
7.111E 01	1.632E 00	3.130E 02	3.383E-03	6.336E-03
7.249E 01	3.139E 00	3.161E 02	3.326E-03	4.773E-03
7.402E 01	2.768E 00	3.189E 02	3.265E-03	3.516E-03
7.492E 01	1.089E 00	3.200E 02	3.173E-03	2.120E-03
7.493E 01	1.407E-03	3.200E 02	3.172E-03	2.113E-03
7.625E 01	4.809E-01	3.205E 02	3.191E-03	2.461E-03
7.910E 01	9.792E-01	3.215E 02	3.181E-03	2.534E-03
8.300E 01	1.046E 00	3.225E 02	3.156E-03	2.464E-03
8.541E 01	9.471E-01	3.230E 02	3.149E-03	2.571E-03
8.867E 01	2.370E-01	3.233E 02	3.146E-03	2.725E-03
8.868E 01	0.000	3.233E 02	3.146E-03	2.725E-03

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	722.	(LBF)
MEASURED THRUST	743.	(LBF)
CALCULATED SPECIFIC IMPULSE	2155.	(LBF-SEC/LBM)
MEASURED SPECIFIC IMPULSE	2218.	(LBF-SEC/LBM)
CALCULATED THRUST COEFFICIENT	0.4987	
MEASURED THRUST COEFFICIENT	0.5133	

REGENERATIVE-COOLED ENGINE PERFORMANCE CALCULATED

STREAM THRUST	3514.	(LBF)
NET THRUST	444.	(LBF)
SPECIFIC IMPULSE	2519.	(LBF-SEC/LBM)
THRUST COEFFICIENT	0.5827	

MOMENTUM AND FORCES

INLET FRICTION DRAG	92.0	(LBF)
INLET MOMENTUM CHANGE	-456.2	(LBF)
COMBUSTOR FRICTION DRAG	203.3	(LBF)
COMBUSTOR STRUT DRAG	-13.10	(LBF)
COMBUSTOR MOMENTUM CHANGE	585.	(LBF)
NOZZLE FRICTION DRAG	27.90	(LBF)
NOZZLE STRUT DRAG	-0.00	(LBF)
NOZZLE MOMENTUM CHANGE	593.	(LBF)
NOZZLE PRESSURE INTEGRAL	621.	(LBF)
EXTERNAL FRICTION DRAG	41.72	(LBF)
EXTERNAL PRESSURE INTEGRAL	-640.	(LBF)
TOTAL EXTERNAL DRAG	-682.	(LBF)
TOTAL STRUT DRAG	-13.10	(LBF)
CAVITY FORCE	-693.	(LBF)
CALCULATED LOAD CELL FORCE	-652.	(LBF)
MEASURED LOAD CELL FORCE	-630.	(LBF)
FUEL VACUUM SPECIFIC IMPULSE 0.0, 0.0, -147.6,		

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	1.7050	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	36.589	(IN)
NOZZLE SHROUD TRAILING EDGE	74.929	(IN)
NOZZLE PLUG TRAILING EDGE	88.481	(IN)
STRUT LEADING EDGE	57.845	(IN)
STRUT TRAILING EDGE	64.445	(IN)
COMBUSTOR EXIT	66.445	(IN)

INLET

ANGLE OF ATTACK	3.000	(DEGREES)
MASS FLOW RATIO	0.9039	
ADDITIVE DRAG COEFFICIENT	0.0087	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.0885	
DELTA PT2	0.0822	(PSI)
TOTAL PRESSURE RECOVERY = SUPERSONIC	0.2414	
TOTAL PRESSURE RECOVERY = SUBSONIC	0.0897	
INLET PROCESS EFFICIENCY = SUPERSONIC	0.8908	
INLET PROCESS EFFICIENCY = SUBSONIC	0.9095	
KINETIC ENERGY EFFICIENCY = SUPERSONIC	0.8913	
KINETIC ENERGY EFFICIENCY = SUBSONIC	0.8480	
ENTHALPY AT P0 = SUPERSONIC	-29.48	(BTU/LBM)
ENTHALPY AT P0 = SUBSONIC	3.03	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0243	
EQUIVALENCE RATIO	0.739	
COMBUSTOR EFFICIENCY	1.000	
TOTAL PRESSURE RATIO	0.1036	
COMBUSTOR EFFECTIVENESS	0.8658	
INJECTOR DISCHARGE COEFFICIENTS 0.6014, 0.3774, 0.7807,		

NOZZLE

VACUUM STREAM THRUST COEFFICIENT = CS	0.9648	
NOZZLE COEFFICIENT = CT	0.8855	
PROCESS EFFICIENCY	0.9313	
KINETIC ENERGY EFFICIENCY	0.9228	

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	
1B	42.690	B
1C	44.300	
2A	50.165	
2C	46.250	E
3A	55.455	
3B	57.640	
4	46.190	C

Reading 91

t = 229.65 sec.

READING = 0091 BLOCK = 130 TTMP = 220.451 MACH 7.3 PT = 995.499 TT = 3086.7

RAMJET PERFORMANCE

S U M M A R Y R E P O R T

	P	T	M		GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	G	TVAC	PHI	ETAC
WIND TUNNEL		1	0	6														
0.000	995.499	3086	695.8(	820)	1.2901	28.956	2615											
0.000	0.150	298	-57.4(	71)	1.3969	28.955	846	7.258	6139	1.816	0.05926	13.716	0.0036	2653	5.658	193.4		
SPIKE TIP NB		2	0	7														
0.600	11.175	3084	695.8(	820)	1.2897	28.955	2614											
0.600	10.290	3029	678.5(	803)	1.2914	28.955	2592	0.359	931	2.124	0.05926	13.716	0.0036	2778	0.858	202.6		
WIND TUNNEL		3	0	0														
0.000	995.499	3086	695.8(	820)	1.2901	28.956	2615											
0.000	0.166	305	-55.8(	73)	1.3967	28.955	855	7.168	6133	1.816	0.06264	14.497	0.0036	2809	5.970	193.3		
SPIKE TIP NB		4	0	0														
0.600	11.175	3084	695.8(	820)	1.2897	28.955	2614											
0.600	10.173	3021	676.1(	801)	1.2919	28.955	2589	0.384	993	2.124	0.06264	14.497	0.0036	2802	0.967	193.3		
INLET THROAT		5	0	2														
40.400	241.697	2905	641.0(	767)	1.2958	28.955	2542											
40.400	10.243	1336	198.9(	328)	1.3576	28.955	1760	2.666	4703	1.895	0.67597	13.716	0.0792	2213	49.410	161.3		
INLET UPNRBK		6	0	3														
40.400	241.697	2905	641.0(	767)	1.2958	28.955	2542											
40.400	8.818	1284	185.4(	314)	1.3608	28.955	1732	2.757	4775	1.895	0.61452	13.716	0.0871	2232	45.597	162.7		
INLET DNNRBK		7	0	4														
40.400	89.278	2905	641.0(	767)	1.2958	28.955	2542											
40.400	77.214	2810	618.5(	739)	1.2988	28.955	2503	0.477	1194	1.963	0.61452	13.716	0.0871	2232	11.399	162.7		
COMBUSTOR	0	8	1	3														
40.410	241.716	2905	640.9(	767)	1.2958	28.955	2542											
40.410	10.241	1335	198.8(	328)	1.3576	28.955	1760	2.666	4703	1.895	0.67588	13.716	0.0792	2213	49.403	161.3		
COMBUSTOR	0	9	2	3														
40.717	241.748	2896	638.2(	764)	1.2961	28.955	2539											
40.717	10.269	1332	197.8(	327)	1.3578	28.955	1762	2.664	4694	1.894	0.67835	13.716	0.0789	2209	49.488	161.0		
COMBUSTOR	0	10	3	4														
41.207	223.984	2882	633.9(	760)	1.2965	28.955	2533											
41.207	10.564	1361	205.5(	334)	1.3561	28.955	1780	2.601	4630	1.898	0.67353	13.716	0.0795	2189	48.462	159.6		
COMBUSTOR	0	11	4	4														
41.500	204.836	2873	631.2(	757)	1.2968	28.955	2529											
41.500	10.927	1400	215.8(	345)	1.3537	28.955	1804	2.527	4559	1.903	0.66656	13.716	0.0803	2168	47.223	158.1		
COMBUSTOR	0	12	5	5														
42.460	163.428	2841	621.7(	748)	1.2978	28.955	2516											
42.460	11.309	1480	236.8(	364)	1.3491	28.955	1851	2.370	4389	1.915	0.62850	13.716	0.0852	2118	42.867	154.4		
COMBUSTOR	0	13	6	21														
42.692	92.775	2784	637.5(	815)	1.3027	25.857	2641											
42.692	6.948	1468	228.4(	405)	1.3529	25.857	1955	2.324	4542	2.138	0.62857	13.845	0.0860	2107	44.363	152.2	0.29	0.07
COMBUSTOR	0	14	7	21														
42.702	105.588	2688	637.4(	785)	1.3071	25.759	2604											
42.702	6.994	1365	226.0(	376)	1.3596	25.759	1892	2.398	4538	2.118	0.62803	13.845	0.0861	2107	44.287	152.2	0.29	0.01
COMBUSTOR	0	15	8	21														
42.767	108.285	2672	636.8(	780)	1.3078	25.745	2598											
42.767	7.311	1362	229.8(	375)	1.3599	25.745	1891	2.386	4513	2.115	0.62653	13.845	0.0863	2104	43.942	151.9	0.29	0.00
COMBUSTOR	0	16	9	5														
44.310	73.109	3266	623.6(	965)	1.2792	26.413	2804											
44.310	25.884	2584	395.9(	743)	1.3026	26.415	2517	1.341	3375	2.191	0.57794	13.845	0.0935	2073	30.316	149.7	0.29	0.43
COMBUSTOR	0	17	10	4														
44.800	69.061	3438	620.2(	1017)	1.2704	26.612	2855											
44.800	31.783	2898	437.1(	841)	1.2895	26.616	2642	1.146	3027	2.205	0.57185	13.845	0.0945	2072	26.901	149.7	0.29	0.59
COMBUSTOR	0	18	11	4														
45.487	68.144	3508	615.5(	1041)	1.2663	26.712	2875											
45.487	38.159	3098	473.2(	905)	1.2813	26.717	2718	0.982	2669	2.210	0.56838	13.845	0.0951	2078	23.572	150.1	0.29	0.61

	P	T	H	GAMMA	MOLWT	CONV	MACH	VEL	S	W/A	M	A/AP	MOMTM	G	IVAC	PHI	ETAC
COMBUSTOR	0	19	12 2														
46.192	67.285	3550	611.5(1068)	1.2641	26.398	2907											
46.192	38.516	3152	471.0(934)	1.2788	26.404	2755	0.963	2652	2.238	0.55374	13.863	0.0977	2107	22.823	152.0	0.33	0.60
COMBUSTOR	0	20	13 2														
46.202	67.245	3554	611.6(1070)	1.2638	26.404	2908											
46.202	38.521	3157	470.9(936)	1.2786	26.409	2756	0.962	2652	2.238	0.55308	13.863	0.0979	2108	22.795	152.1	0.33	0.60
COMBUSTOR	0	21	14 9														
46.250	66.160	2937	630.7(987)	1.2974	22.673	2891											
46.250	38.545	2590	500.0(859)	1.3091	22.673	2727	0.938	2557	2.432	0.55840	14.035	0.0981	2084	22.193	148.5	0.71	0.17
COMBUSTOR	0	22	15 2														
46.260	66.148	2938	630.6(988)	1.2973	22.674	2891											
46.260	38.550	2592	499.9(859)	1.3090	22.675	2727	0.938	2557	2.432	0.55816	14.035	0.0982	2085	22.182	148.5	0.71	0.17
COMBUSTOR	0	23	16 4														
47.310	63.283	3088	615.7(1041)	1.2897	22.848	2944											
47.310	39.041	2767	493.1(921)	1.3007	22.848	2798	0.885	2477	2.448	0.51728	14.035	0.1059	2141	19.912	152.3	0.71	0.23
COMBUSTOR	0	24	17 4														
48.110	59.895	3300	602.5(1116)	1.2788	23.081	3015											
48.110	36.749	2962	470.9(989)	1.2907	23.083	2869	0.894	2566	2.468	0.47955	14.035	0.1152	2204	18.962	157.0	0.71	0.31
COMBUSTOR	0	25	18 4														
48.727	56.504	3622	592.3(1232)	1.2618	23.424	3114											
48.727	30.925	3188	418.3(1067)	1.2778	23.431	2940	1.003	2950	2.493	0.43390	14.035	0.1243	2287	19.892	163.0	0.71	0.42
COMBUSTOR	0	26	19 4														
50.177	53.448	3894	572.5(1330)	1.2440	23.755	3184											
50.177	17.668	3101	280.0(1027)	1.2762	23.778	2876	1.397	4017	2.510	0.35261	14.035	0.1554	2456	22.014	175.0	0.71	0.53
COMBUSTOR	0	27	20 4														
50.707	57.653	3670	567.5(1249)	1.2577	23.536	3123											
50.707	12.850	2650	169.4(865)	1.2954	23.548	2692	1.658	4463	2.491	0.32978	14.035	0.1662	2494	22.873	177.7	0.71	0.46
COMBUSTOR	0	28	21 5														
52.117	49.733	3979	555.9(1361)	1.2375	23.889	3201											
52.117	11.850	2964	143.6(974)	1.2794	23.922	2808	1.618	4542	2.518	0.28106	14.035	0.1950	2573	19.838	183.3	0.71	0.97
COMBUSTOR	0	29	22 5														
54.217	54.492	3721	539.2(1271)	1.2536	23.559	3138											
54.217	7.075	2381	19.8(769)	1.3034	23.574	2559	1.992	5098	2.504	0.23104	14.076	0.2379	2661	18.304	189.1	0.72	0.49
COMBUSTOR	0	30	23 4														
54.717	48.930	3885	536.0(1331)	1.2429	23.739	3180											
54.717	7.467	2609	29.5(848)	1.2929	23.764	2656	1.895	5034	2.521	0.22160	14.076	0.2480	2677	17.337	190.2	0.72	0.55
COMBUSTOR	0	31	24 3														
55.467	49.191	3860	531.3(1322)	1.2444	23.724	3173											
55.467	6.651	2518	2.3(815)	1.2963	23.748	2614	1.968	5145	2.519	0.20849	14.076	0.2631	2699	16.703	191.8	0.72	0.55
COMBUSTOR	0	32	25 3														
55.760	49.576	3842	529.6(1319)	1.2456	23.710	3168											
55.760	6.333	2471	-8.8(798)	1.2982	23.732	2592	2.002	5191	2.517	0.20434	14.076	0.2690	2707	16.483	192.3	0.72	0.54
COMBUSTOR	0	33	26 4														
56.227	45.271	3861	527.0(1322)	1.2438	23.736	3172											
56.227	4.556	2350	-62.2(756)	1.3021	23.761	2532	2.144	5430	2.525	0.16160	14.076	0.3401	2772	13.636	197.0	0.72	0.55
COMBUSTOR	0	34	27 4														
57.652	44.457	3889	520.1(1331)	1.2417	23.784	3177											
57.652	4.080	2326	-90.9(745)	1.3025	23.811	2515	2.198	5529	2.527	0.14942	14.076	0.3678	2804	12.839	199.2	0.72	0.56
COMBUSTOR	0	35	28 5														
57.707	36.923	4158	519.8(1431)	1.2214	24.076	3238											
57.707	4.956	2775	-50.0(902)	1.2822	24.140	2707	1.973	5340	2.555	0.14900	14.076	0.3689	2804	12.344	199.2	0.72	0.66
COMBUSTOR	0	36	29 3														
57.847	37.023	4148	519.2(1427)	1.2221	24.067	3236											
57.847	4.870	2754	-53.9(895)	1.2831	24.129	2698	1.985	5355	2.554	0.14790	14.076	0.3716	2806	12.308	199.4	0.72	0.66
COMBUSTOR	0	37	30 21														
57.927	24.198	4830	518.8(1680)	1.1590	24.852	3346											
57.927	3.743	3667	-110.6(1218)	1.2223	25.279	2969	1.890	5612	2.606	0.14955	14.076	0.3675	2808	13.043	199.5	0.72	1.00

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Q	TVAC	PHI	ETAC
COMBUSTOR	0	38	31 21														
58.207	23.472	4825	517.6(1678)	1.1588	24.650	3345											
58.207	3.400	3627	-129.7(1201)	1.2944	25.283	2954	1.927	5691	2.609	0.14906	14.076	0.3687	2811	13.183	194.7	0.72	1.00
COMBUSTOR	0	39	32 21														
58.433	22.883	4822	516.7(1677)	1.1586	24.648	3343											
58.433	3.186	3594	-141.9(1190)	1.2965	25.286	2944	1.950	5741	2.610	0.14875	14.076	0.3695	2813	13.271	199.8	0.72	1.00
COMBUSTOR	0	40	33 21														
59.157	20.437	4807	513.9(1671)	1.1576	24.639	3337											
59.157	2.500	3505	-179.5(1154)	1.2313	25.294	2913	2.022	5890	2.619	0.14645	14.076	0.3753	2817	13.406	200.2	0.72	1.00
COMBUSTOR	0	41	34 21														
60.177	25.896	4825	509.9(1677)	1.1604	24.870	3345											
60.177	4.475	3725	-85.5(1240)	1.2194	25.273	2989	1.826	5458	2.599	0.14551	14.076	0.3777	2821	12.343	200.4	0.72	1.00
COMBUSTOR	0	42	35 21														
62.187	27.746	4820	501.4(1675)	1.1618	24.888	3345											
62.187	5.612	3814	-45.8(1275)	1.2145	25.261	3019	1.733	5233	2.592	0.15058	14.076	0.3650	2814	12.245	199.9	0.72	1.00
COMBUSTOR	0	43	36 21														
63.607	28.505	4815	495.8(1673)	1.1625	24.898	3343											
63.607	5.987	3830	-39.0(1281)	1.2139	25.260	3025	1.710	5173	2.588	0.15466	14.076	0.3553	2808	12.434	199.5	0.72	1.00
COMBUSTOR	0	44	37 200														
66.071	27.301	4799	486.8(1667)	1.1628	24.904	3338											
66.071	8.512	4073	76.7(1376)	1.1983	25.210	3102	1.460	4530	2.590	0.14660	14.076	0.3749	2799	10.321	198.9	0.72	1.00
COMBUSTOR	0	45	38 200														
66.447	25.275	4790	485.5(1663)	1.1620	24.898	3334											
66.447	8.433	4112	97.7(1391)	1.1948	25.196	3114	1.415	4405	2.596	0.13629	14.076	0.4032	2798	9.330	198.8	0.72	1.00
COMBUSTOR REGEN		46	39 3														
66.447	25.275	5023	679.5(1761)	1.1499	24.635	3414											
66.447	7.758	4346	237.0(1485)	1.1736	25.076	3180	1.480	4706	2.635	0.13629	14.076	0.4032	2860	9.966	203.2	0.72	1.00
NOZZLE AE		47	40 5														
88.683	25.275	4790	485.5(1565)	1.1620	24.898	3334											
88.683	0.578	2445	-587.3(764)	1.2807	25.324	2479	2.955	7327	2.596	0.02837	14.076	1.9371	3492	3.230	248.1	0.72	1.00
NOZZLE PO		48	41 5														
88.683	25.275	4790	485.5(1565)	1.1620	24.898	3334											
88.683	0.154	1810	-807.1(545)	1.3073	25.324	2155	3.731	8042	2.596	0.01119	14.076	4.9097	3712	1.399	263.7	0.72	1.00
NOZZLE AE REGEN		49	42 5														
88.683	25.275	5023	679.5(1761)	1.1499	24.635	3414											
88.683	0.637	2782	-444.2(886)	1.2675	25.322	2631	2.875	7565	2.635	0.02837	14.076	1.9371	3626	3.336	257.6	0.72	1.00
NOZZLE PO REGEN		50	43 5														
88.683	25.275	5023	679.5(1761)	1.1499	24.635	3414											
88.683	0.154	2034	-731.2(621)	1.2970	25.324	2276	3.691	8402	2.635	0.01040	14.076	5.2820	3864	1.359	275.9	0.72	1.00
FICTIVE COMBUSTR		68	61 0														
66.447	241.697	4959	485.5(1727)	1.1865	25.091	3414											
66.447	0.154	1024	-1056.0(296)	1.3542	25.324	1650	5.322	8783	2.416	0.02160	14.076	2.5442	3943	2.948	280.1	0.72	1.00
FICTIVE NOZZLE		69	62 0														
88.683	20.577	4722	448.0(1636)	1.1628	24.923	3318											
88.683	0.623	2545	-551.2(800)	1.2769	25.323	2926	2.799	7071	2.604	0.02837	14.076	1.9371	3403	3.118	241.7	0.72	1.00

READING = 0091 BLOCK = 134 TTMP = 229.651 MACH 7.3 PT = 995.499 TT = 3086.3

XABS	P-IA	P-OA	PDA	DOX	D-IA	D-OA	CANALI	P-IB/PBO	P-IB/PTO	P-OB/PBO	P-OB/PTO
6.981E-01	6.900E-01	0.000	-2.699E-01	0.000	0.000	0.000	2.470E-02	4.488E 00	6.931E-04	0.000	0.000
1.836E 01	6.900E-01	0.000	-2.296E 01	0.000	0.000	0.000	1.634E 02	4.488E 00	6.931E-04	0.000	0.000
3.070E 01	1.520E 00	0.000	-1.125E 02	0.000	0.000	0.000	5.053E 02	9.887E 00	1.527E-03	0.000	0.000
3.508E 01	1.955E 00	0.000	-2.251E 02	0.000	0.000	0.000	6.804E 02	1.272E 01	1.964E-03	0.000	0.000
3.555E 01	2.025E 00	0.000	-2.442E 02	0.000	0.000	0.000	7.013E 02	1.447E 01	2.235E-03	0.000	0.000
3.606E 01	2.500E 00	0.000	-2.682E 02	-4.233E 02	-4.233E 02	0.000	7.246E 02	1.626E 01	2.511E-03	0.000	0.000
3.648E 01	2.244E 00	0.000	-2.885E 02	-4.335E 02	-4.335E 02	0.000	7.443E 02	1.460E 01	2.254E-03	0.000	0.000
3.658E 01	2.323E 00	3.192E 00	-3.265E 02	-4.361E 02	-4.361E 02	0.000	7.492E 02	1.511E 01	2.333E-03	2.076E 01	3.206E-03
3.659E 01	2.327E 00	3.219E 00	-3.266E 02	-4.363E 02	-4.363E 02	0.000	7.495E 02	1.514E 01	2.338E-03	2.094E 01	3.234E-03
3.701E 01	2.640E 00	5.142E 00	-3.281E 02	-4.471E 02	-4.471E 02	0.000	7.930E 02	1.717E 01	2.652E-03	3.345E 01	5.165E-03
3.726E 01	2.463E 00	6.275E 00	-3.261E 02	-4.536E 02	-4.536E 02	0.000	8.189E 02	1.602E 01	2.474E-03	4.082E 01	6.303E-03
3.803E 01	1.910E 00	8.853E 00	-3.032E 02	-4.753E 02	-4.753E 02	0.000	9.021E 02	1.242E 01	1.919E-03	5.758E 01	8.893E-03
3.872E 01	7.504E 00	1.114E 01	-3.052E 02	-5.678E 02	-4.975E 02	-7.031E 01	9.786E 02	4.841E 01	7.538E-03	7.249E 01	1.119E-02
3.875E 01	7.773E 00	1.104E 01	-3.061E 02	-5.711E 02	-4.987E 02	-7.246E 01	9.824E 02	5.036E 01	7.808E-03	7.178E 01	1.109E-02
3.901E 01	9.890E 00	1.019E 01	-3.154E 02	-5.976E 02	-5.083E 02	-8.934E 01	1.012E 03	6.433E 01	9.935E-03	6.625E 01	1.023E-02
3.950E 01	1.400E 01	8.582E 00	-3.437E 02	-6.496E 02	-5.285E 02	-1.210E 02	1.068E 03	9.108E 01	1.407E-02	5.582E 01	8.621E-03
3.974E 01	1.807E 01	7.806E 00	-3.565E 02	-6.756E 02	-5.393E 02	-1.363E 02	1.095E 03	7.849E 01	1.212E-02	5.078E 01	7.842E-03
4.000E 01	9.919E 00	9.852E 00	-3.628E 02	-7.053E 02	-5.521E 02	-1.532E 02	1.126E 03	6.452E 01	9.964E-03	6.409E 01	9.897E-03
4.021E 01	1.050E 01	1.146E 01	-3.643E 02	-7.293E 02	-5.627E 02	-1.665E 02	1.150E 03	6.827E 01	1.054E-02	7.456E 01	1.151E-02
4.040E 01	1.103E 01	1.179E 01	-3.642E 02	-7.519E 02	-5.730E 02	-1.789E 02	1.172E 03	7.177E 01	1.108E-02	7.667E 01	1.184E-02
4.041E 01	1.106E 01	1.180E 01	-3.641E 02	-7.531E 02	-5.736E 02	-1.795E 02	1.173E 03	7.195E 01	1.111E-02	7.678E 01	1.186E-02
4.072E 01	1.192E 01	1.232E 01	-3.639E 02	-7.898E 02	-5.906E 02	-1.991E 02	1.209E 03	7.752E 01	1.197E-02	8.013E 01	1.237E-02
4.121E 01	1.328E 01	2.500E 00	-3.772E 02	-8.499E 02	-6.200E 02	-2.299E 02	1.267E 03	8.640E 01	1.334E-02	1.626E 01	2.511E-03
4.150E 01	1.410E 01	2.495E 00	-3.938E 02	-8.869E 02	-6.389E 02	-2.480E 02	1.302E 03	9.178E 01	1.416E-02	1.623E 01	2.507E-03
4.246E 01	9.150E 00	2.480E 00	-4.315E 02	-1.016E 03	-7.033E 02	-3.129E 02	1.416E 03	5.952E 01	9.191E-03	1.613E 01	2.491E-03
4.269E 01	1.141E 01	2.476E 00	-4.384E 02	-1.048E 03	-7.185E 02	-3.300E 02	1.443E 03	7.425E 01	1.147E-02	1.611E 01	2.487E-03
4.270E 01	1.151E 01	2.476E 00	-4.387E 02	-1.050E 03	-7.192E 02	-3.307E 02	1.445E 03	7.488E 01	1.156E-02	1.611E 01	2.487E-03
4.277E 01	1.215E 01	2.475E 00	-4.409E 02	-1.059E 03	-7.233E 02	-3.354E 02	1.452E 03	7.901E 01	1.220E-02	1.610E 01	2.486E-03
4.431E 01	2.721E 01	2.456E 01	-4.826E 02	-1.241E 03	-8.039E 02	-4.374E 02	1.638E 03	1.770E 02	2.733E-02	1.598E 02	2.467E-02
4.480E 01	3.199E 01	3.158E 01	-4.478E 02	-1.289E 03	-8.226E 02	-4.664E 02	1.698E 03	2.081E 02	3.213E-02	2.054E 02	3.172E-02
4.549E 01	3.491E 01	4.141E 01	-4.348E 02	-1.354E 03	-8.469E 02	-5.072E 02	1.782E 03	2.270E 02	3.506E-02	2.694E 02	4.160E-02
4.619E 01	3.790E 01	3.913E 01	-3.987E 02	-1.444E 03	-8.720E 02	-5.718E 02	1.868E 03	2.465E 02	3.807E-02	2.545E 02	3.931E-02
4.620E 01	3.794E 01	3.910E 01	-3.973E 02	-1.445E 03	-8.723E 02	-5.730E 02	1.869E 03	2.466E 02	3.811E-02	2.543E 02	3.927E-02
4.625E 01	3.815E 01	3.894E 01	-3.947E 02	-1.453E 03	-8.741E 02	-5.791E 02	1.875E 03	2.481E 02	3.832E-02	2.533E 02	3.912E-02
4.626E 01	3.819E 01	3.891E 01	-3.941E 02	-1.455E 03	-8.744E 02	-5.804E 02	1.876E 03	2.484E 02	3.836E-02	2.531E 02	3.909E-02
4.731E 01	4.265E 01	3.551E 01	-3.290E 02	-1.663E 03	-9.124E 02	-7.509E 02	2.006E 03	2.774E 02	4.284E-02	2.310E 02	3.567E-02
4.811E 01	4.057E 01	3.292E 01	-2.896E 02	-1.849E 03	-9.418E 02	-9.070E 02	2.105E 03	2.639E 02	4.076E-02	2.141E 02	3.307E-02
4.873E 01	3.092E 01	3.092E 01	-1.713E 02	-1.993E 03	-9.647E 02	-1.028E 03	2.182E 03	2.012E 02	3.106E-02	2.012E 02	3.106E-02
5.018E 01	1.769E 01	1.769E 01	1.041E 01	-2.270E 03	-1.020E 03	-1.290E 03	2.363E 03	1.151E 02	1.777E-02	1.151E 02	1.777E-02
5.071E 01	1.285E 01	1.285E 01	5.259E 01	-2.340E 03	-1.040E 03	-1.300E 03	2.429E 03	8.358E 01	1.291E-02	8.358E 01	1.291E-02
5.212E 01	1.185E 01	1.185E 01	1.439E 02	-2.503E 03	-1.095E 03	-1.408E 03	2.607E 03	7.708E 01	1.190E-02	7.708E 01	1.190E-02
5.422E 01	7.075E 00	7.075E 00	2.481E 02	-2.716E 03	-1.179E 03	-1.537E 03	2.873E 03	4.602E 01	7.107E-03	4.602E 01	7.107E-03
5.472E 01	7.467E 00	7.467E 00	2.670E 02	-2.760E 03	-1.200E 03	-1.561E 03	2.937E 03	4.857E 01	7.500E-03	4.857E 01	7.500E-03
5.547E 01	6.651E 00	6.651E 00	2.943E 02	-2.826E 03	-1.231E 03	-1.595E 03	3.033E 03	4.326E 01	6.681E-03	4.326E 01	6.681E-03
5.576E 01	6.333E 00	6.333E 00	3.040E 02	-2.851E 03	-1.243E 03	-1.608E 03	3.070E 03	4.119E 01	6.361E-03	4.119E 01	6.361E-03
5.623E 01	3.287E 00	5.825E 00	3.707E 02	-2.887E 03	-1.259E 03	-1.628E 03	3.102E 03	2.138E 01	3.302E-03	3.789E 01	5.851E-03
5.765E 01	4.080E 00	4.080E 00	4.059E 02	-2.985E 03	-1.299E 03	-1.686E 03	3.210E 03	2.654E 01	4.098E-03	2.654E 01	4.098E-03
5.771E 01	5.900E 00	4.012E 00	4.071E 02	-2.988E 03	-1.300E 03	-1.688E 03	3.212E 03	3.838E 01	5.927E-03	2.610E 01	4.031E-03
5.785E 01	5.900E 00	3.841E 00	4.096E 02	-2.997E 03	-1.304E 03	-1.693E 03	3.234E 03	3.838E 01	5.927E-03	2.498E 01	3.858E-03
5.793E 01	3.743E 00	3.743E 00	4.112E 02	-3.002E 03	-1.306E 03	-1.696E 03	3.245E 03	2.435E 01	3.760E-03	2.435E 01	3.760E-03
5.821E 01	3.400E 00	3.400E 00	4.158E 02	-3.020E 03	-1.314E 03	-1.705E 03	3.280E 03	2.212E 01	3.415E-03	2.212E 01	3.415E-03
5.843E 01	3.186E 00	3.186E 00	4.190E 02	-3.033E 03	-1.320E 03	-1.712E 03	3.304E 03	2.072E 01	3.200E-03	2.072E 01	3.200E-03
5.916E 01	2.500E 00	2.500E 00	4.267E 02	-3.071E 03	-1.341E 03	-1.731E 03	3.402E 03	1.626E 01	2.511E-03	1.626E 01	2.511E-03
6.018E 01	4.475E 00	4.475E 00	4.394E 02	-3.128E 03	-1.369E 03	-1.759E 03	3.532E 03	2.911E 01	4.495E-03	2.911E 01	4.495E-03
6.219E 01	5.612E 00	5.612E 00	4.360E 02	-3.247E 03	-1.423E 03	-1.824E 03	3.790E 03	3.651E 01	5.638E-03	3.651E 01	5.638E-03
6.361E 01	5.987E 00	5.987E 00	4.360E 02	-3.326E 03	-1.456E 03	-1.869E 03	3.972E 03	3.895E 01	6.015E-03	3.895E 01	6.015E-03

XABB	P-IB	P-OB	POA	POX	Q-IR	Q-OB	CA-ALL	P-IP/PSO	P-IR/PTO	P-OR/PSO	P-OR/PTO
6.607E 01	8.512E 00	8.512E 00	4.360E 02	-3.452E 03	-1.499E 03	-1.957E 03	4.289E 03	5.596E 01	8.550E-03	5.536E 01	8.550E-03
6.645E 01	7.970E 00	8.897E 00	4.360E 02	-3.471E 03	-1.499E 03	-1.972E 03	4.337E 03	5.184E 01	8.006E-03	5.787E 01	8.937E-03
6.649E 01	7.970E 00	8.938E 00	4.360E 02	-3.473E 03	-1.500E 03	-1.974E 03	4.342E 03	5.144E 01	8.006E-03	5.814E 01	8.978E-03
6.669E 01	7.687E 00	9.142E 00	4.360E 02	-3.483E 03	-1.502E 03	-1.981E 03	4.36AE 03	5.000E 01	7.721E-03	5.947E 01	9.184E-03
6.835E 01	5.335E 00	4.640E 00	5.110E 02	-3.568E 03	-1.526E 03	-2.042E 03	4.584E 03	3.470E 01	5.359E-03	3.018E 01	4.661E-03
6.902E 01	4.088E 00	5.010E 00	6.075E 02	-3.607E 03	-1.540E 03	-2.047E 03	4.665E 03	2.659E 01	4.107E-03	3.259E 01	5.033E-03
6.979E 01	3.655E 00	3.811E 00	7.138E 02	-3.656E 03	-1.55AE 03	-2.098E 03	4.760E 03	1.727E 01	2.667E-03	2.479E 01	3.828E-03
7.051E 01	2.016E 00	2.690E 00	7.852E 02	-3.704E 03	-1.574E 03	-2.130E 03	4.84AE 03	1.311E 01	2.025E-03	1.750E 01	2.702E-03
7.112E 01	1.475E 00	2.394E 00	8.311E 02	-3.742E 03	-1.587E 03	-2.156E 03	4.922E 03	9.594E 00	1.482E-03	1.557E 01	2.404E-03
7.250E 01	8.950E-01	1.723E 00	9.035E 02	-3.804E 03	-1.611E 03	-2.193E 03	5.08AE 03	5.822E 00	8.990E-04	1.121E 01	1.731E-03
7.403E 01	7.546E-01	9.800E-01	9.540E 02	-3.852E 03	-1.632E 03	-2.220E 03	5.273E 03	4.908E 00	7.580E-04	6.375E 00	9.844E-04
7.493E 01	6.720E-01	2.300E-01	9.789E 02	-3.880E 03	-1.643E 03	-2.237E 03	5.372E 03	4.371E 00	6.751E-04	1.496E 00	2.310E-04
7.493E 01	6.717E-01	2.267E-01	9.793E 02	-3.880E 03	-1.643E 03	-2.237E 03	5.372E 03	4.369E 00	6.747E-04	1.474E 00	2.277E-04
7.626E 01	5.500E-01	0.000	9.922E 02	-3.924E 03	-1.655E 03	-2.249E 03	5.424E 03	3.578E 00	5.525E-04	0.000	0.000
7.911E 01	5.800E-01	0.000	1.015E 03	-3.945E 03	-1.676E 03	-2.249E 03	5.523E 03	3.773E 00	5.826E-04	0.000	0.000
8.301E 01	6.000E-01	0.000	1.040E 03	-3.962E 03	-1.693E 03	-2.269E 03	5.627E 03	3.903E 00	6.027E-04	0.000	0.000
8.582E 01	6.100E-01	0.000	1.053E 03	-3.975E 03	-1.706E 03	-2.249E 03	5.682E 03	3.968E 00	6.128E-04	0.000	0.000
8.868E 01	6.700E-01	0.000	1.069E 03	-3.999E 03	-1.730E 03	-2.269E 03	5.705E 03	4.358E 00	6.730E-04	0.000	0.000
8.868E 01	6.701E-01	0.000	1.069E 03	-3.999E 03	-1.730E 03	-2.269E 03	5.705E 03	4.359E 00	6.732E-04	0.000	0.000

X	DDRAG	CDRAG	CF	HC
4.040E 01	9.201E 01	9.201E 01	2.362E-03	3.311E-02
4.041E 01	1.369E-01	9.214E 01	2.362E-03	3.310E-02
4.072E 01	4.197E 00	9.634E 01	2.362E-03	3.322E-02
4.121E 01	6.718E 00	1.031E 02	2.401E-03	3.343E-02
4.150E 01	4.010E 00	1.071E 02	2.446E-03	3.408E-02
4.246E 01	1.283E 01	1.199E 02	2.544E-03	3.372E-02
4.269E 01	3.584E 00	1.235E 02	3.389E-03	2.155E-02
4.270E 01	1.611E-01	1.236E 02	2.815E-03	2.480E-02
4.277E 01	9.497E-01	1.246E 02	2.708E-03	2.619E-02
4.431E 01	1.940E 01	1.440E 02	2.913E-03	5.587E-02
4.480E 01	5.319E 00	1.493E 02	3.329E-03	5.270E-02
4.549E 01	7.184E 00	1.565E 02	3.464E-03	5.328E-02
4.619E 01	6.982E 00	1.635E 02	3.505E-03	5.221E-02
4.620E 01	9.681E-02	1.636E 02	3.505E-03	5.221E-02
4.625E 01	4.843E-01	1.641E 02	3.819E-03	4.903E-02
4.626E 01	9.875E-02	1.642E 02	3.376E-03	5.830E-02
4.731E 01	9.142E 00	1.733E 02	3.331E-03	5.689E-02
4.811E 01	6.440E 00	1.797E 02	3.353E-03	5.355E-02
4.873E 01	4.986E 00	1.847E 02	3.333E-03	4.986E-02
5.018E 01	1.241E 01	1.971E 02	3.208E-03	3.834E-02
5.071E 01	4.843E 00	2.020E 02	3.284E-03	3.056E-02
5.212E 01	1.207E 01	2.141E 02	3.084E-03	2.941E-02
5.422E 01	1.579E 01	2.298E 02	3.133E-03	1.970E-02
5.472E 01	3.470E 00	2.333E 02	2.977E-03	2.104E-02
5.547E 01	4.907E 00	2.382E 02	3.041E-03	1.882E-02
5.576E 01	1.885E 00	2.401E 02	3.017E-03	1.821E-02
5.623E 01	1.403E 00	2.415E 02	2.899E-03	1.392E-02
5.765E 01	4.104E 00	2.456E 02	2.859E-03	1.274E-02
5.771E 01	2.564E-01	2.459E 02	2.916E-03	1.439E-02
5.785E 01	6.875E-01	2.465E 02	3.082E-03	1.360E-02
5.793E 01	4.308E-01	2.470E 02	3.560E-03	1.024E-02
5.821E 01	1.666E 00	2.486E 02	3.565E-03	9.545E-03
5.843E 01	1.361E 00	2.500E 02	3.970E-03	9.097E-03
5.916E 01	4.436E 00	2.544E 02	3.611E-03	7.576E-03
6.018E 01	5.974E 00	2.604E 02	3.489E-03	1.149E-02
6.219E 01	1.101E 01	2.714E 02	3.459E-03	1.340E-02
6.361E 01	7.761E 00	2.792E 02	3.446E-03	1.402E-02
6.607E 01	1.249E 01	2.917E 02	3.502E-03	1.680E-02
6.645E 01	1.671E 00	2.933E 02	3.549E-03	1.626E-02
6.649E 01	1.782E-01	2.935E 02	3.604E-03	1.654E-02
6.669E 01	9.322E-01	2.944E 02	3.602E-03	1.650E-02
6.835E 01	7.427E 00	3.019E 02	3.509E-03	1.226E-02
6.902E 01	2.615E 00	3.045E 02	3.489E-03	1.155E-02
6.970E 01	2.787E 00	3.073E 02	3.435E-03	9.222E-03
7.051E 01	2.234E 00	3.095E 02	3.387E-03	7.394E-03
7.112E 01	1.654E 00	3.112E 02	3.359E-03	6.427E-03
7.250E 01	3.180E 00	3.143E 02	3.302E-03	4.821E-03
7.403E 01	2.792E 00	3.171E 02	3.239E-03	3.528E-03
7.493E 01	1.094E 00	3.182E 02	3.147E-03	2.126E-03
7.493E 01	1.414E-03	3.182E 02	3.146E-03	2.119E-03
7.626E 01	4.835E-01	3.187E 02	3.169E-03	2.475E-03
7.911E 01	9.893E-01	3.197E 02	3.156E-03	2.565E-03
8.301E 01	1.081E 00	3.208E 02	3.140E-03	2.614E-03
8.582E 01	5.679E-01	3.213E 02	3.127E-03	2.635E-03
8.868E 01	2.435E-01	3.216E 02	3.126E-03	2.820E-03
8.868E 01	0.000	3.216E 02	3.126E-03	2.820E-03

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	734.	(LBF)
MEASURED THRUST	700.	(LBF)
CALCULATED SPECIFIC IMPULSE	2244.	(LBF-SEC/LBM)
MEASURED SPECIFIC IMPULSE	2140.	(LBF-SEC/LBM)
CALCULATED THRUST COEFFICIENT	0.5066	
MEASURED THRUST COEFFICIENT	0.4832	

REGENERATIVE-COOLED ENGINE PERFORMANCE

CALCULATED

STREAM THRUST	3533.	(LBF)
NET THRUST	864.	(LBF)
SPECIFIC IMPULSE	2642.	(LBF-SEC/LBM)
THRUST COEFFICIENT	0.5965	

MOMENTUM AND FORCES

INLET FRICTION DRAG	92.0	(LBF)
INLET MOMENTUM CHANGE	-456.2	(LBF)
COMBUSTOR FRICTION DRAG	201.3	(LBF)
COMBUSTOR STRUT DRAG	-12.34	(LBF)
COMBUSTOR MOMENTUM CHANGE	585.	(LBF)
NOZZLE FRICTION DRAG	28.26	(LBF)
NOZZLE STRUT DRAG	-0.00	(LBF)
NOZZLE MOMENTUM CHANGE	605.	(LBF)
NOZZLE PRESSURE INTEGRAL	633.	(LBF)
EXTERNAL FRICTION DRAG	41.78	(LBF)
EXTERNAL PRESSURE INTEGRAL	-641.	(LBF)
TOTAL EXTERNAL DRAG	-682.	(LBF)
TOTAL STRUT DRAG	-12.34	(LBF)
CAVITY FORCE	-722.	(LBF)
CALCULATED LOAD CELL FORCE	-670.	(LBF)
MEASURED LOAD CELL FORCE	-704.	(LBF)
FUEL VACUUM SPECIFIC IMPULSE 0.0.	0.0.	-150.5.

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	1.7070	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	36.591	(IN)
NOZZLE SHROUD TRAILING EDGE	74.931	(IN)
NOZZLE PLUG TRAILING EDGE	68.683	(IN)
STRUT LEADING EDGE	57.847	(IN)
STRUT TRAILING EDGE	66.447	(IN)
COMBUSTOR EXIT	66.447	(IN)

INLET

ANGLE OF ATTACK	3.000	(DEGREES)
MASS FLOW RATIO	0.9036	
ADDITIVE DRAG COEFFICIENT	0.0087	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.0885	
DELTA PT2	0.0821	(PSI)
TOTAL PRESSURE RECOVERY - SUPERSONIC	0.2428	
TOTAL PRESSURE RECOVERY - SUBSONIC	0.0897	
INLET PROCESS EFFICIENCY - SUPERSONIC	0.8914	
INLET PROCESS EFFICIENCY - SUBSONIC	0.9096	
KINETIC ENERGY EFFICIENCY - SUPERSONIC	0.8903	
KINETIC ENERGY EFFICIENCY - SUBSONIC	0.8468	
ENTHALPY AT P0 - SUPERSONIC	-29.56	(BTU/LBM)
ENTHALPY AT P0 - SUBSONIC	3.15	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0238	
EQUIVALENCE RATIO	0.718	
COMBUSTOR EFFICIENCY	1.000	
TOTAL PRESSURE RATIO	0.1046	
COMBUSTOR EFFECTIVENESS	0.8661	
INJECTOR DISCHARGE COEFFICIENTS	0.6056.	0.2642. 0.7478.

NOZZLE

VACUUM STREAM THRUST COEFFICIENT - CS	0.9744
NOZZLE COEFFICIENT - CT	0.8962
PROCESS EFFICIENCY	0.9680
KINETIC ENERGY EFFICIENCY	0.9443

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	
1B	42.692	B
1C	44.300	
2A	50.167	
2C	44.250	E
3A	55.457	
3B	57.642	
4	46.192	C

Reading 91

t = 235.95 sec.

REACING = 0091 BLOCK = 141 TIME = 235.951 MACH 7.3 PI = 995.499 TI = 3091.8 PAGE 1

RAMJET PERFORMANCE

SUMMARY REPORT

	P	T	M	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	G	IvAC	PHI	ETAC
WIND TUNNEL		1	0 6														
0.000	995.499	3092	697.5(822)	1.2900	28.956	2617											
0.000	0.154	299	-57.2(72)	1.3965	28.955	847	7.257	6145	1.817	0.05918	13.696	0.9036	2652	5.652	193.6		
SPIKE TIP NS		2	0 7														
0.600	11.175	3092	697.5(822)	1.2896	28.955	2616											
0.600	10.291	3035	680.2(805)	1.2914	28.955	2594	0.359	931	2.125	0.05918	13.696	0.9036	2778	0.857	202.8		
WIND TUNNEL		3	0 0														
0.000	995.499	3092	697.5(822)	1.2900	28.956	2617											
0.000	0.166	306	-55.6(73)	1.3968	28.955	857	7.167	6139	1.817	0.06258	14.482	0.9036	2802	5.970	193.5		
SPIKE TIP NS		4	0 0														
0.600	11.175	3092	697.5(822)	1.2896	28.955	2616											
0.600	10.173	3027	677.8(803)	1.2917	28.955	2591	0.383	994	2.125	0.06258	14.482	0.9036	2802	0.966	193.5		
INLET THROAT		5	0 2														
40.400	242.013	2909	642.1(768)	1.2957	28.955	2544											
40.400	10.225	1336	199.1(328)	1.3575	28.955	1765	2.667	4708	1.895	0.67502	13.696	0.0792	2212	49.389	161.5		
INLET UPNRSK		6	0 3														
40.400	242.013	2909	642.1(768)	1.2957	28.955	2544											
40.400	8.803	1285	185.6(315)	1.3607	28.955	1732	2.759	4779	1.895	0.61366	13.696	0.0871	2231	45.576	162.9		
INLET DNNRSK		7	0 4														
40.400	89.233	2909	642.1(768)	1.2957	28.955	2544											
40.400	77.183	2814	613.6(740)	1.2987	28.955	2505	0.477	1194	1.964	0.61366	13.696	0.0871	2231	11.386	162.9		
COMBUSTOR	0	8	1 3														
40.410	242.026	2909	642.0(768)	1.2957	28.955	2544											
40.410	10.223	1336	199.1(328)	1.3576	28.955	1765	2.668	4708	1.895	0.67493	13.696	0.0792	2212	49.381	161.5		
COMBUSTOR	0	9	2 3														
40.717	242.005	2900	639.3(765)	1.2960	28.955	2540											
40.717	10.253	1332	198.1(327)	1.3578	28.955	1763	2.666	4699	1.894	0.67740	13.696	0.0789	2208	49.465	161.2		
COMBUSTOR	0	10	3 4														
41.207	224.187	2885	634.9(761)	1.2964	28.955	2534											
41.207	10.548	1362	205.8(335)	1.3560	28.955	1781											
							2.603	4634	1.898	0.67258	13.696	0.0795	2188	48.439	159.7		
COMBUSTOR	0	11	4 4														
41.500	205.047	2876	632.2(758)	1.2967	28.955	2531											
41.500	10.909	1401	216.1(345)	1.3536	28.955	1805	2.528	4563	1.903	0.66563	13.696	0.0803	2167	47.203	158.2		
COMBUSTOR	0	12	5 5														
42.460	163.636	2845	622.8(749)	1.2977	28.955	2518											
42.460	11.279	1480	236.8(366)	1.3491	28.955	1851	2.374	4395	1.915	0.62761	13.696	0.0852	2117	42.864	154.6		
COMBUSTOR	0	13	6 21														
42.692	92.367	2789	639.5(818)	1.3026	25.618	2645											
42.692	6.954	1473	226.7(407)	1.3527	25.618	1959	2.320	4545	2.141	0.62777	13.827	0.0860	2107	44.343	152.4	0.29	0.07
COMBUSTOR	0	14	7 21														
42.702	105.238	2692	639.4(788)	1.3071	25.720	2608											
42.702	7.004	1368	227.3(377)	1.3594	25.720	1896	2.395	4541	2.122	0.62723	13.827	0.0861	2106	44.267	152.3	0.29	0.01
COMBUSTOR	0	15	8 21														
42.767	107.994	2675	638.8(783)	1.3078	25.705	2601											
42.767	7.328	1365	231.1(377)	1.3597	25.705	1895	2.383	4516	2.118	0.62573	13.827	0.0863	2103	43.918	152.1	0.29	0.00
COMBUSTOR	0	16	9 5														
44.310	72.975	3265	625.7(966)	1.2794	26.367	2806											
44.310	25.927	2585	398.4(744)	1.3027	26.369	2520	1.339	3373	2.194	0.57720	13.827	0.0935	2071	30.252	149.7	0.29	0.42
COMBUSTOR	0	17	10 4														
44.800	68.924	3427	622.4(1017)	1.2709	26.559	2856											
44.800	31.834	2894	440.0(841)	1.2898	26.563	2643	1.143	3021	2.208	0.57112	13.827	0.0945	2069	26.810	149.6	0.29	0.54
COMBUSTOR	0	18	11 3														
45.487	67.984	3494	617.8(1037)	1.2672	26.649	2874											
45.487	38.064	3084	475.7(902)	1.2821	26.654	2716	0.982	2666	2.212	0.56765	13.827	0.0951	2073	23.522	149.9	0.29	0.59

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	G	IVAC	PHI	ETAC
COMBUSTOR	0	19	12 4														
46.202	67.064	3602	611.3(1072)	1.2609	26.796	2903											
46.202	38.349	3201	470.5(938)	1.2760	26.603	2753	0.965	2654	2.218	0.55166	13.827	0.0979	2102	22.760	152.0	0.29	0.68
COMBUSTOR	0	20	13 9														
46.250	65.924	2948	633.0(985)	1.2969	22.827	2886											
46.250	38.368	2600	502.4(857)	1.3086	22.828	2722	0.939	2556	2.421	0.55722	14.006	0.0981	2077	22.134	148.3	0.69	0.17
COMBUSTOR	0	21	14 2														
46.260	65.911	2950	632.8(985)	1.2968	22.829	2886											
46.260	38.372	2601	502.3(857)	1.3085	22.829	2723	0.939	2556	2.421	0.55699	14.006	0.0982	2077	22.123	148.3	0.69	0.17
COMBUSTOR	0	22	15 4														
47.310	62.995	3097	617.9(1037)	1.2893	23.002	2938											
47.310	38.791	2773	495.1(917)	1.3003	23.003	2792	0.888	2479	2.436	0.51619	14.006	0.1059	2132	19.889	152.2	0.69	0.23
COMBUSTOR	0	23	16 4														
48.110	59.608	3311	604.5(1113)	1.2782	23.239	3009											
48.110	36.369	2968	472.0(984)	1.2903	23.241	2862	0.900	2575	2.456	0.47455	14.006	0.1152	2194	18.992	156.7	0.69	0.31
COMBUSTOR	0	24	17 4														
48.727	56.259	3629	594.2(1227)	1.2607	23.582	3106											
48.727	30.725	3193	420.5(1062)	1.2774	23.590	2932	1.005	2948	2.481	0.43299	14.006	0.1263	2277	19.837	162.6	0.69	0.43
COMBUSTOR	0	25	18 4														
50.177	53.269	3896	574.3(1323)	1.2438	23.912	3174											
50.177	17.555	3100	252.5(1021)	1.2761	23.935	2867	1.400	4012	2.497	0.35187	14.006	0.1554	2445	21.939	174.6	0.69	0.54
COMBUSTOR	0	26	19 4														
50.707	57.526	3670	569.2(1241)	1.2576	23.688	3113											
50.707	12.742	2647	172.3(858)	1.2955	23.700	2682	1.662	4457	2.478	0.32908	14.006	0.1662	2482	22.792	177.2	0.69	0.46
COMBUSTOR	0	27	20 5														
52.117	49.551	3981	557.6(1353)	1.2373	24.047	3191											
52.117	11.775	2965	147.1(968)	1.2792	24.080	2798	1.620	4532	2.505	0.28047	14.006	0.1950	2561	19.754	182.6	0.69	0.58
COMBUSTOR	0	28	21 5														
54.217	54.675	3711	540.9(1259)	1.2541	23.700	3125											
54.217	6.975	2364	22.6(758)	1.3041	23.715	2542	2.003	5093	2.490	0.23056	14.047	0.2379	2648	18.247	188.5	0.70	0.49
COMBUSTOR	0	29	22 4														
54.717	48.060	3912	537.8(1332)	1.2410	23.920	3176											
54.717	7.558	2649	37.8(857)	1.2910	23.948	2665	1.877	5002	2.511	0.22113	14.047	0.2480	2664	17.188	189.6	0.70	0.57
COMBUSTOR	0	30	23 3														
55.467	48.062	3895	533.2(1326)	1.2419	23.915	3171											
55.467	6.772	2571	11.6(828)	1.2939	23.942	2628	1.944	5108	2.509	0.20845	14.047	0.2631	2687	16.549	191.3	0.70	0.57
COMBUSTOR	0	31	24 3														
55.760	48.308	3881	531.4(1321)	1.2429	23.904	3167											
55.760	6.465	2529	0.9(814)	1.2955	23.930	2609	1.975	5152	2.508	0.20391	14.047	0.2690	2695	16.327	191.6	0.70	0.56
COMBUSTOR	0	32	25 3														
56.227	44.207	3894	528.8(1325)	1.2414	23.925	3170											
56.227	4.631	2403	-53.6(768)	1.2997	23.953	2546	2.120	5398	2.516	0.16126	14.047	0.3401	2760	13.529	196.5	0.70	0.57
COMBUSTOR	0	33	26 4														
57.652	43.296	3927	522.0(1337)	1.2389	23.978	3176											
57.652	4.158	2382	-82.2(759)	1.2998	24.010	2532	2.171	5498	2.518	0.14910	14.047	0.3678	2792	12.741	198.8	0.70	0.59
COMBUSTOR	0	34	27 5														
57.707	36.295	4190	521.7(1433)	1.2186	24.268	3234											
57.707	5.019	2824	-42.1(914)	1.2798	24.339	2717	1.955	5312	2.544	0.14868	14.047	0.3689	2793	12.273	198.8	0.70	0.69
COMBUSTOR	0	35	28 3														
57.847	36.405	4180	521.1(1430)	1.2194	24.258	3232											
57.847	4.930	2801	-46.1(906)	1.2808	24.327	2708	1.967	5327	2.544	0.14759	14.047	0.3716	2795	12.219	199.0	0.70	0.68
COMBUSTOR	0	36	29 21														
57.927	24.779	4804	520.7(1659)	1.1618	24.982	3333											
57.927	3.807	3619	-102.5(1193)	1.2267	25.379	2949	1.894	5584	2.590	0.14924	14.047	0.3675	2796	12.951	199.1	0.70	1.00
COMBUSTOR	0	37	30 21														
58.207	24.021	4799	519.5(1658)	1.1615	24.980	3331											
58.207	3.450	3573	-122.2(1175)	1.2293	25.383	2933	1.932	5667	2.592	0.14875	14.047	0.3687	2800	13.099	199.3	0.70	1.00

	P	T	M	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	R	A/AC	MOMTM	G	IVAL	PHI	ETAC
COMBUSTOR	0	38	31 21														
58.433	25.443	4796	518.6(1454)	1.1413	24.979	3329											
58.433	3.218	3541	-135.4(1164)	1.2311	25.386	2922	1.958	5720	2.594	0.14844	14.047	0.3695	2802	13.196	199.5	0.70	1.00
COMBUSTOR	0	39	32 21														
59.157	20.793	4781	515.9(1451)	1.1602	24.970	3323											
59.157	2.475	3444	-175.8(1126)	1.2362	25.393	2887	2.038	5883	2.603	0.14614	14.047	0.3753	2806	13.361	199.8	0.70	1.00
COMBUSTOR	0	40	33 21														
60.177	26.665	4798	511.9(1657)	1.1633	25.000	3332											
60.177	4.725	3698	-68.7(1223)	1.2225	25.372	2976	1.811	5390	2.582	0.14521	14.047	0.3777	2810	12.163	200.1	0.70	1.00
COMBUSTOR	0	41	34 21														
62.187	27.912	4791	503.5(1654)	1.1645	25.015	3330											
62.187	5.337	3734	-53.2(1237)	1.2209	25.368	2989	1.766	5278	2.577	0.15026	14.047	0.3650	2803	12.324	199.6	0.70	1.00
COMBUSTOR	0	42	35 21														
63.607	28.820	4786	497.7(1651)	1.1653	25.025	3329											
63.607	5.675	3767	-39.0(1250)	1.2193	25.365	3000	1.727	5183	2.573	0.15433	14.047	0.3553	2797	12.430	199.1	0.70	1.00
COMBUSTOR	0	43	36 200														
66.071	27.635	4767	487.4(1644)	1.1656	25.033	3322											
66.071	8.441	4018	77.3(1347)	1.2033	25.320	3081	1.470	4530	2.575	0.14629	14.047	0.3749	2788	10.299	198.5	0.70	1.00
COMBUSTOR	0	44	37 200														
66.447	25.546	4759	485.7(1641)	1.1649	25.027	3319											
66.447	8.091	4035	86.4(1354)	1.2014	25.314	3086	1.448	4470	2.580	0.13600	14.047	0.4032	2767	9.447	198.4	0.70	1.00
COMBUSTOR REGEN		45	38 3														
66.447	25.546	5003	680.9(1742)	1.1518	24.770	3401											
66.447	7.521	4289	229.0(1454)	1.1788	25.204	3158	1.506	4755	2.620	0.13600	14.047	0.4032	2853	10.051	203.1	0.70	1.00
NOZZLE AE		46	39 5														
88.683	25.546	4759	485.7(1545)	1.1649	25.027	3319											
88.683	0.563	2385	-576.7(739)	1.2837	25.417	2447	2.980	7291	2.580	0.02831	14.047	1.9371	3463	3.208	246.5	0.70	1.00
NOZZLE PO		47	40 5														
88.683	25.546	4759	485.7(1545)	1.1649	25.027	3319											
88.683	0.154	1772	-706.5(530)	1.3098	25.417	2131	3.745	7979	2.580	0.01138	14.047	4.8181	3673	1.411	261.5	0.70	1.00
NOZZLE AE REGEN		48	41 5														
88.683	25.546	5003	680.9(1742)	1.1518	24.770	3401											
88.683	0.622	2722	-455.0(859)	1.2706	25.416	2601	2.898	7539	2.620	0.02831	14.047	1.9371	3600	3.317	256.3	0.70	1.00
NOZZLE PO REGEN		49	42 5														
88.683	25.546	5003	680.9(1742)	1.1518	24.770	3401											
88.683	0.154	1997	-711.2(605)	1.2993	25.417	2253	3.705	8346	2.620	0.01057	14.047	5.1896	3848	1.371	274.0	0.70	1.00
FICTIVE COMBUSTR		67	60 0														
66.447	242.013	4915	485.7(1700)	1.1893	25.206	3395											
66.447	0.154	1003	-1028.0(288)	1.3561	25.417	1631	5.336	8703	2.402	0.02194	14.047	2.4998	3898	2.967	277.5	0.70	1.00
FICTIVE NOZZLE		68	61 0														
88.683	21.773	4696	450.1(1616)	1.1663	25.054	3297											
88.683	0.595	2449	-553.9(762)	1.2812	25.417	2477	2.861	7088	2.585	0.02831	14.047	1.9371	3390	3.118	241.3	0.70	1.00

XABS	P-IB	P-DB	PDA	QDX	Q-IP	Q-DB	CA-ALL	P-IB/PS0	P-IB/PT0	P-DB/PS0	P-DB/PT0
6.981E-01	6.900E-01	0.000	-2.699E-01	0.000	0.000	0.000	2.470E-02	4.489E 00	6.931E-04	0.000	0.000
1.836E 01	6.900E-01	0.000	-2.296E 01	0.000	0.000	0.000	1.634E 02	4.489E 00	6.931E-04	0.000	0.000
3.070E 01	1.520E 00	0.000	-1.125E 02	0.000	0.000	0.000	5.053E 02	9.889E 00	1.527E-03	0.000	0.000
3.50AE 01	1.960E 00	0.000	-2.253E 02	0.000	0.000	0.000	6.804E 02	1.275E 01	1.969E-03	0.000	0.000
3.555E 01	2.230E 00	0.000	-2.444E 02	0.000	0.000	0.000	7.413E 02	1.451E 01	2.240E-03	0.000	0.000
3.606E 01	2.520E 00	0.000	-2.685E 02	-4.312E 02	-4.312E 02	0.000	7.246E 02	1.640E 01	2.531E-03	0.000	0.000
3.64AE 01	2.244E 00	0.000	-2.889E 02	-4.416E 02	-4.416E 02	0.000	7.443E 02	1.460E 01	2.255E-03	0.000	0.000
3.65AE 01	2.324E 00	3.193E 00	-3.270E 02	-4.443E 02	-4.443E 02	0.000	7.492E 02	1.512E 01	2.334E-03	2.076E 01	3.208E-03
3.659E 01	2.328E 00	3.221E 00	-3.270E 02	-4.445E 02	-4.445E 02	0.000	7.495E 02	1.515E 01	2.339E-03	2.095E 01	3.235E-03
3.701E 01	2.645E 00	5.134E 00	-3.285E 02	-4.554E 02	-4.554E 02	0.000	7.950E 02	1.721E 01	2.657E-03	3.341E 01	5.158E-03
3.726E 01	2.465E 00	6.262E 00	-3.266E 02	-4.621E 02	-4.621E 02	0.000	8.189E 02	1.603E 01	2.476E-03	4.074E 01	6.291E-03
3.803E 01	1.900E 00	8.847E 00	-3.037E 02	-4.842E 02	-4.842E 02	0.000	9.021E 02	1.236E 01	1.909E-03	5.756E 01	8.887E-03
3.872E 01	7.501E 00	1.114E 01	-3.057E 02	-5.759E 02	-5.068E 02	-6.909E 01	9.786E 02	4.880E 01	7.535E-03	7.250E 01	1.119E-02
3.875E 01	7.770E 00	1.103E 01	-3.066E 02	-5.742E 02	-5.080E 02	-7.120E 01	9.824E 02	5.055E 01	7.805E-03	7.179E 01	1.108E-02
3.901E 01	9.890E 00	1.018E 01	-3.159E 02	-6.056E 02	-5.178E 02	-6.779E 01	1.012E 03	6.435E 01	9.935E-03	6.622E 01	1.022E-02
3.950E 01	1.392E 01	8.563E 00	-3.440E 02	-6.572E 02	-5.383E 02	-1.189E 02	1.068E 03	9.056E 01	1.398E-02	5.571E 01	8.601E-03
3.974E 01	1.202E 01	7.781E 00	-3.567E 02	-6.832E 02	-5.492E 02	-1.340E 02	1.095E 03	7.822E 01	1.208E-02	5.063E 01	7.816E-03
4.000E 01	9.916E 00	9.841E 00	-3.630E 02	-7.128E 02	-5.622E 02	-1.506E 02	1.126E 03	6.451E 01	9.960E-03	6.403E 01	9.886E-03
4.021E 01	1.049E 01	1.146E 01	-3.645E 02	-7.366E 02	-5.730E 02	-1.636E 02	1.150E 03	6.825E 01	1.054E-02	7.456E 01	1.151E-02
4.040E 01	1.102E 01	1.177E 01	-3.644E 02	-7.592E 02	-5.834E 02	-1.758E 02	1.172E 03	7.173E 01	1.107E-02	7.658E 01	1.182E-02
4.041E 01	1.105E 01	1.179E 01	-3.643E 02	-7.605E 02	-5.839E 02	-1.764E 02	1.173E 03	7.191E 01	1.110E-02	7.666E 01	1.184E-02
4.072E 01	1.190E 01	1.227E 01	-3.642E 02	-7.969E 02	-6.012E 02	-1.957E 02	1.209E 03	7.745E 01	1.196E-02	7.986E 01	1.233E-02
4.121E 01	1.326E 01	2.512E 00	-3.775E 02	-8.569E 02	-6.310E 02	-2.260E 02	1.267E 03	8.629E 01	1.332E-02	1.635E 01	2.524E-03
4.150E 01	1.407E 01	2.515E 00	-3.940E 02	-8.938E 02	-6.501E 02	-2.437E 02	1.302E 03	9.157E 01	1.414E-02	1.636E 01	2.526E-03
4.246E 01	9.075E 00	2.523E 00	-4.313E 02	-1.023E 03	-7.151E 02	-3.082E 02	1.416E 03	5.904E 01	9.116E-03	1.641E 01	2.534E-03
4.269E 01	1.138E 01	2.524E 00	-4.380E 02	-1.056E 03	-7.305E 02	-3.255E 02	1.443E 03	7.406E 01	1.144E-02	1.642E 01	2.536E-03
4.270E 01	1.148E 01	2.524E 00	-4.384E 02	-1.057E 03	-7.311E 02	-3.262E 02	1.445E 03	7.471E 01	1.154E-02	1.642E 01	2.536E-03
4.277E 01	1.213E 01	2.525E 00	-4.406E 02	-1.066E 03	-7.353E 02	-3.310E 02	1.452E 03	7.892E 01	1.219E-02	1.643E 01	2.536E-03
4.431E 01	2.749E 01	2.437E 01	-4.536E 02	-1.247E 03	-8.154E 02	-4.319E 02	1.638E 03	1.788E 02	2.761E-02	1.585E 02	2.448E-02
4.480E 01	3.236E 01	3.131E 01	-4.499E 02	-1.295E 03	-8.337E 02	-4.597E 02	1.698E 03	2.106E 02	3.251E-02	2.037E 02	3.145E-02
4.549E 01	3.510E 01	4.103E 01	-4.385E 02	-1.356E 03	-8.572E 02	-4.988E 02	1.782E 03	2.283E 02	3.525E-02	2.670E 02	4.122E-02
4.620E 01	3.794E 01	3.876E 01	-4.024E 02	-1.446E 03	-8.819E 02	-5.638E 02	1.869E 03	2.468E 02	3.811E-02	2.522E 02	3.893E-02
4.625E 01	3.813E 01	3.860E 01	-3.998E 02	-1.454E 03	-8.836E 02	-5.699E 02	1.875E 03	2.481E 02	3.830E-02	2.512E 02	3.878E-02
4.626E 01	3.817E 01	3.857E 01	-3.993E 02	-1.455E 03	-8.840E 02	-5.712E 02	1.876E 03	2.483E 02	3.834E-02	2.510E 02	3.875E-02
4.731E 01	4.235E 01	3.523E 01	-3.352E 02	-1.665E 03	-9.209E 02	-7.436E 02	2.006E 03	2.755E 02	4.254E-02	2.292E 02	3.539E-02
4.811E 01	4.005E 01	3.269E 01	-2.662E 02	-1.852E 03	-9.496E 02	-9.021E 02	2.105E 03	2.606E 02	4.023E-02	2.127E 02	3.284E-02
4.873E 01	3.072E 01	3.072E 01	-1.784E 02	-1.997E 03	-9.721E 02	-1.025E 03	2.182E 03	1.999E 02	3.086E-02	1.999E 02	3.086E-02
5.01AE 01	1.756E 01	1.756E 01	2.043E 00	-2.276E 03	-1.026E 03	-1.250E 03	2.363E 03	1.142E 02	1.763E-02	1.142E 02	1.763E-02
5.071E 01	1.274E 01	1.274E 01	4.389E 01	-2.347E 03	-1.046E 03	-1.301E 03	2.429E 03	8.290E 01	1.280E-02	8.290E 01	1.280E-02
5.212E 01	1.177E 01	1.177E 01	1.345E 02	-2.509E 03	-1.100E 03	-1.409E 03	2.607E 03	7.661E 01	1.183E-02	7.661E 01	1.183E-02
5.422E 01	6.975E 00	6.975E 00	2.377E 02	-2.720E 03	-1.184E 03	-1.537E 03	2.873E 03	4.538E 01	7.007E-03	4.538E 01	7.007E-03
5.472E 01	7.558E 00	7.558E 00	2.566E 02	-2.764E 03	-1.204E 03	-1.561E 03	2.937E 03	4.918E 01	7.592E-03	4.918E 01	7.592E-03
5.547E 01	6.772E 00	6.772E 00	2.844E 02	-2.829E 03	-1.235E 03	-1.595E 03	3.033E 03	4.406E 01	6.803E-03	4.406E 01	6.803E-03
5.576E 01	6.465E 00	6.465E 00	2.943E 02	-2.854E 03	-1.247E 03	-1.608E 03	3.070E 03	4.206E 01	6.494E-03	4.206E 01	6.494E-03
5.623E 01	3.287E 00	5.975E 00	3.613E 02	-2.891E 03	-1.263E 03	-1.628E 03	3.102E 03	2.139E 01	3.302E-03	3.887E 01	6.002E-03
5.765E 01	4.158E 00	4.158E 00	3.973E 02	-2.987E 03	-1.302E 03	-1.685E 03	3.210E 03	2.705E 01	4.177E-03	2.705E 01	4.177E-03
5.771E 01	5.950E 00	4.088E 00	3.985E 02	-2.990E 03	-1.303E 03	-1.687E 03	3.217E 03	3.871E 01	5.977E-03	2.659E 01	4.106E-03
5.785E 01	5.950E 00	3.909E 00	4.011E 02	-2.999E 03	-1.307E 03	-1.692E 03	3.234E 03	3.871E 01	5.977E-03	2.543E 01	3.927E-03
5.793E 01	3.807E 00	3.807E 00	4.027E 02	-3.004E 03	-1.309E 03	-1.695E 03	3.245E 03	2.477E 01	3.824E-03	2.477E 01	3.824E-03
5.821E 01	3.450E 00	3.450E 00	4.074E 02	-3.021E 03	-1.317E 03	-1.705E 03	3.280E 03	2.245E 01	3.466E-03	2.245E 01	3.466E-03
5.843E 01	3.218E 00	3.218E 00	4.106E 02	-3.034E 03	-1.323E 03	-1.711E 03	3.309E 03	2.094E 01	3.233E-03	2.094E 01	3.233E-03
5.916E 01	2.475E 00	2.475E 00	4.184E 02	-3.073E 03	-1.343E 03	-1.730E 03	3.402E 03	1.610E 01	2.486E-03	1.610E 01	2.486E-03
6.018E 01	4.725E 00	4.725E 00	4.267E 02	-3.124E 03	-1.371E 03	-1.758E 03	3.532E 03	3.074E 01	4.746E-03	3.074E 01	4.746E-03
6.219E 01	5.337E 00	5.337E 00	4.279E 02	-3.246E 03	-1.426E 03	-1.821E 03	3.790E 03	3.473E 01	5.362E-03	3.473E 01	5.362E-03
6.361E 01	5.875E 00	5.875E 00	4.279E 02	-3.327E 03	-1.464E 03	-1.863E 03	3.972E 03	3.822E 01	5.902E-03	3.822E 01	5.902E-03
6.607E 01	8.441E 00	8.441E 00	4.279E 02	-3.473E 03	-1.525E 03	-1.948E 03	4.289E 03	5.492E 01	8.479E-03	5.492E 01	8.479E-03

XAB	P-IB	P-OB	PDA	QUX	Q-IB	Q-OB	CA-ALL	P-IB/PSU	P-IB/PTU	P-OB/PSU	P-OB/PTU
6.645E 01	7.350E 00	8.833E 00	4.279E 02	-3.496E 03	-1.533E 03	-1.983E 03	4.337E 03	4.782E 01	7.383E-03	5.747E 01	8.872E-03
6.649E 01	7.350E 00	8.874E 00	4.279E 02	-3.499E 03	-1.534E 03	-1.985E 03	4.342E 03	4.782E 01	7.383E-03	5.774E 01	8.914E-03
6.669E 01	7.130E 00	9.082E 00	4.279E 02	-3.511E 03	-1.539E 03	-1.992E 03	4.368E 03	4.639E 01	7.162E-03	5.909E 01	9.124E-03
6.835E 01	5.300E 00	4.095E 00	4.996E 02	-3.610E 03	-1.578E 03	-2.032E 03	4.584E 03	3.448E 01	5.324E-03	2.664E 01	4.114E-03
6.902E 01	4.083E 00	5.002E 00	5.931E 02	-3.650E 03	-1.594E 03	-2.056E 03	4.665E 03	2.657E 01	4.102E-03	3.255E 01	5.025E-03
6.979E 01	2.685E 00	3.828E 00	6.996E 02	-3.700E 03	-1.613E 03	-2.087E 03	4.760E 03	1.747E 01	2.697E-03	2.491E 01	3.845E-03
7.051E 01	2.033E 00	2.730E 00	7.717E 02	-3.746E 03	-1.629E 03	-2.119E 03	4.844E 03	1.322E 01	2.042E-03	1.776E 01	2.742E-03
7.112E 01	1.480E 00	2.428E 00	8.181E 02	-3.785E 03	-1.640E 03	-2.145E 03	4.922E 03	9.629E 00	1.487E-03	1.580E 01	2.439E-03
7.250E 01	8.800E-01	1.746E 00	8.909E 02	-3.846E 03	-1.663E 03	-2.182E 03	5.088E 03	5.725E 00	8.840E-04	1.136E 01	1.754E-03
7.403E 01	7.457E-01	9.900E-01	9.414E 02	-3.893E 03	-1.684E 03	-2.209E 03	5.273E 03	4.852E 00	7.491E-04	6.441E 00	9.945E-04
7.493E 01	6.667E-01	2.300E-01	9.663E 02	-3.920E 03	-1.693E 03	-2.227E 03	5.372E 03	4.338E 00	6.697E-04	1.496E 00	2.310E-04
7.493E 01	6.664E-01	2.266E-01	9.668E 02	-3.920E 03	-1.694E 03	-2.227E 03	5.372E 03	4.336E 00	6.694E-04	1.474E 00	2.276E-04
7.626E 01	5.500E-01	0.000	9.796E 02	-3.964E 03	-1.704E 03	-2.259E 03	5.424E 03	3.578E 00	5.525E-04	0.000	0.000
7.911E 01	5.900E-01	0.000	1.002E 03	-3.940E 03	-1.726E 03	-2.214E 03	5.523E 03	3.839E 00	5.927E-04	0.000	0.000
8.301E 01	6.350E-01	0.000	1.029E 03	-3.957E 03	-1.744E 03	-2.214E 03	5.627E 03	4.131E 00	6.379E-04	0.000	0.000
8.582E 01	6.200E-01	0.000	1.043E 03	-3.972E 03	-1.758E 03	-2.214E 03	5.682E 03	4.034E 00	6.228E-04	0.000	0.000
8.868E 01	7.100E-01	0.000	1.059E 03	-3.997E 03	-1.783E 03	-2.214E 03	5.705E 03	4.619E 00	7.132E-04	0.000	0.000
8.868F 01	7.102E-01	0.000	1.059E 03	-3.997E 03	-1.783E 03	-2.214E 03	5.705E 03	4.621E 00	7.134E-04	0.000	0.000

READING = 0091 BLOCK = 141 TIME = 255.951 MACH 7.5 PI = 995.499 TI = 5091.8

X	DDRAG	CDRAG	CF	MC
4.040E 01	9.198E 01	9.198E 01	2.362E+03	5.307E-02
4.041E 01	1.369E-01	9.212E 01	2.362E+03	5.306E-02
4.072E 01	4.195E 00	9.632E 01	2.362E+03	5.316E-02
4.121E 01	6.715E 00	1.030E 02	2.401E+03	5.359E-02
4.150E 01	4.009E 00	1.070E 02	2.446E+03	5.404E-02
4.246E 01	1.282E 01	1.199E 02	2.543E+03	5.566E-02
4.269E 01	3.507E 00	1.234E 02	3.398E+03	2.156E-02
4.270E 01	1.614E-01	1.236E 02	2.819E+03	2.463E-02
4.277E 01	9.504E-01	1.246E 02	2.711E+03	2.625E-02
4.431E 01	1.940E 01	1.440E 02	2.918E+03	5.569E-02
4.486E 01	5.313E 00	1.493E 02	3.333E+03	5.271E-02
4.549E 01	7.170E 00	1.564E 02	3.466E+03	5.321E-02
4.620E 01	7.022E 00	1.635E 02	3.463E+03	5.240E-02
4.625E 01	4.816E-01	1.639E 02	3.438E+03	4.832E-02
4.626E 01	1.051E 01	1.641E 02	3.838E+03	4.852E-02
4.731E 01	9.750E 00	1.738E 02	3.333E+03	5.636E-02
4.811E 01	6.442E 00	1.803E 02	3.352E+03	5.307E-02
4.873E 01	4.984E 00	1.852E 02	3.335E+03	4.938E-02
5.018E 01	1.238E 01	1.976E 02	3.209E+03	3.794E-02
5.071E 01	4.428E 00	2.024E 02	3.284E+03	3.023E-02
5.212E 01	1.202E 01	2.145E 02	3.083E+03	2.915E-02
5.422E 01	1.973E 01	2.302E 02	3.134E+03	1.940E-02
5.472E 01	3.448E 00	2.336E 02	2.974E+03	2.112E-02
5.547E 01	4.675E 00	2.385E 02	3.059E+03	1.886E-02
5.576E 01	1.880E 00	2.404E 02	3.040E+03	1.826E-02
5.623E 01	1.402E 00	2.418E 02	2.925E+03	1.391F-02
5.759E 01	4.106E 00	2.459E 02	2.882E+03	1.276E-02
5.771E 01	2.565E-01	2.462E 02	2.940E+03	1.435E-02
5.785E 01	6.578E-01	2.468F 02	3.101E+03	1.358E-02
5.795E 01	4.270E-01	2.472E 02	3.529E+03	1.036E-02
5.821E 01	1.641E 00	2.489E 02	3.533E+03	9.643E-03
5.841E 01	1.340E 00	2.502F 02	3.538E+03	9.162E-03
5.916E 01	4.378E 00	2.546E 02	3.580E+03	7.519E-03
6.018E 01	5.871E 00	2.605E 02	3.459E+03	1.191E-02
6.219E 01	1.088E 01	2.714E 02	3.436E+03	1.247E-02
6.361E 01	7.732E 00	2.791E 02	3.422E+03	1.385E-02
6.607E 01	1.240E 01	2.915E 02	3.481E+03	1.671E-02
6.645E 01	1.668E 00	2.932E 02	3.523E+03	1.594E-02
6.669E 01	1.789E-01	2.933E 02	3.572E+03	1.626E-02
6.669E 01	9.348E-01	2.943E 02	3.571E+03	1.619E-02
6.883E 01	7.376E 00	3.017E 02	3.476E+03	1.179E-02
6.902E 01	2.595E 00	3.042E 02	3.464E+03	1.153E-02
6.979E 01	2.797E 00	3.070E 02	3.412E+03	9.259E-03
7.051E 01	2.249E 00	3.093E 02	3.363E+03	7.441E-03
7.112E 01	1.666E 00	3.110E 02	3.335E+03	6.481E-03
7.280E 01	3.196E 00	3.142E 02	3.277E+03	4.822E-03
7.403E 01	2.798E 00	3.170E 02	3.213E+03	3.542E-03
7.493E 01	1.093E 00	3.180E 02	3.119E+03	2.111E-03
7.493E 01	1.409E-03	3.180E 02	3.118E+03	2.104E-03
7.626E 01	4.827E-01	3.185E 02	3.139E+03	2.469E-03
7.911E 01	9.951E-01	3.195E 02	3.132E+03	2.593E-03
8.301E 01	1.107E 00	3.206E 02	3.121E+03	2.725E-03
8.582E 01	5.815E-01	3.212E 02	3.104E+03	2.662E-03
8.808E 01	2.495E-01	3.215E 02	3.108E+03	2.941E-03
8.808E 01	0.000	3.215E 02	3.108E+03	2.942E-03

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	721.	(LBF)
MEASURED THRUST	710.	(LBF)
CALCULATED SPECIFIC IMPULSE	2278.	(LBF*SEC/LBM)
MEASURED SPECIFIC IMPULSE	2242.	(LBF*SEC/LBM)
CALCULATED THRUST COEFFICIENT	0.4984	
MEASURED THRUST COEFFICIENT	0.4905	

REGENERATIVE-COOLED ENGINE PERFORMANCE CALCULATED

STREAM THRUST	3524.	(LBF)
NET THRUST	856.	(LBF)
SPECIFIC IMPULSE	2702.	(LBF*SEC/LBM)
THRUST COEFFICIENT	0.5913	

MOMENTUM AND FORCES

INLET FRICTION DRAG	92.0	(LBF)
INLET MOMENTUM CHANGE	-456.4	(LBF)
COMBUSTOR FRICTION DRAG	201.2	(LBF)
COMBUSTOR STRUT DRAG	-11.61	(LBF)
COMBUSTOR MOMENTUM CHANGE	575.	(LBF)
NOZZLE FRICTION DRAG	28.30	(LBF)
NOZZLE STRUT DRAG	-0.00	(LBF)
NOZZLE MOMENTUM CHANGE	602.	(LBF)
NOZZLE PRESSURE INTEGRAL	631.	(LBF)
EXTERNAL FRICTION DRAG	41.63	(LBF)
EXTERNAL PRESSURE INTEGRAL	-640.	(LBF)
TOTAL EXTERNAL DRAG	-682.	(LBF)
TOTAL STRUT DRAG	-11.61	(LBF)
CAVITY FORCE	-769.	(LBF)
CALCULATED LOAD CELL FORCE	-729.	(LBF)
MEASURED LOAD CELL FORCE	-739.	(LBF)
FUEL VACUUM SPECIFIC IMPULSE	0.0, -152.8.	

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	1.7070	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	36.591	(IN)
NOZZLE SHROUD TRAILING EDGE	74.931	(IN)
NOZZLE PLUG TRAILING EDGE	88.683	(IN)
STRUT LEADING EDGE	57.847	(IN)
STRUT TRAILING EDGE	66.447	(IN)
COMBUSTOR EXIT	66.447	(IN)

INLET

ANGLE OF ATTACK	3.000	(DEGREES)
MASS FLOW RATIO	0.4036	
ADDITIVE DRAG COEFFICIENT	0.0087	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.0864	
DELTA PT2	0.0820	(PSI)
TOTAL PRESSURE RECOVERY - SUPERSONIC	0.2431	
TOTAL PRESSURE RECOVERY - SUBSONIC	0.0896	
INLET PROCESS EFFICIENCY - SUPERSONIC	0.8916	
INLET PROCESS EFFICIENCY - SUBSONIC	0.9097	
KINETIC ENERGY EFFICIENCY - SUPERSONIC	0.8898	
KINETIC ENERGY EFFICIENCY - SUBSONIC	0.8463	
ENTHALPY AT P0 - SUPERSONIC	-29.45	(BTU/LBM)
ENTHALPY AT P0 - SUBSONIC	3.36	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0231	
EQUIVALENCE RATIO	0.696	
COMBUSTOR EFFICIENCY	1.000	
TOTAL PRESSURE RATIO	0.1056	
COMBUSTOR EFFECTIVENESS	0.8661	
INJECTOR DISCHARGE COEFFICIENTS	0.6084, 0.7598.	

NOZZLE

VACUUM STREAM THRUST COEFFICIENT - CB	0.9789
NOZZLE COEFFICIENT - CT	0.9020
PROCESS EFFICIENCY	0.9808
KINETIC ENERGY EFFICIENCY	0.9542

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	
1B	42.692	B
1C	44.300	
2A	50.167	
2C	46.250	E
3A	55.457	
3B	57.642	
4	46.192	

Reading 92

t = 186.87 sec.

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S U M M A R Y R E P O R T

	P	T	M	GAMMA	MOLWT	SONV	MACH	VEL	S	A/A	A	A/AC	MOMTM	G	IVAC	PHI	ETAC
WIND TUNNEL		1	0 5														
0.000	993.249	2053	394.3(523)	1.3247	28.847	2165											
0.000	0.157	184	=85.6(44)	1.3907	28.847	664	7.383	4900	1.698	0.07818	19.869	0.9926	3066	5.452	154.3		
SPIKE TIP NS		2	0 4														
0.600	11.100	2053	394.3(524)	1.3247	28.847	2165											
0.600	10.047	2003	380.4(510)	1.3265	28.847	2140	0.390	835	2.007	0.07818	19.869	0.9926	3070	1.014	154.5		
WIND TUNNEL		3	0 0														
0.000	993.249	2053	394.3(523)	1.3247	28.847	2165											
0.000	0.157	184	=85.5(44)	1.3907	28.847	664	7.381	4900	1.698	0.07827	19.898	0.9926	3071	5.961	154.3		
SPIKE TIP NS		4	0 0														
0.600	11.100	2053	394.3(524)	1.3247	28.847	2165											
0.600	10.044	2003	380.4(510)	1.3265	28.847	2140	0.391	836	2.007	0.07827	19.898	0.9926	3071	1.017	154.3		
INLET THROAT		5	0 3														
40.400	316.108	2020	385.0(514)	1.3259	28.847	2148											
40.400	11.004	831	71.7(201)	1.3888	28.847	1410	2.807	3960	1.772	0.97870	19.869	0.0793	2669	60.224	134.3		
INLET UPNRSK		6	0 3														
40.400	316.108	2020	385.0(514)	1.3259	28.847	2148											
40.400	9.462	797	63.2(193)	1.3904	28.847	1382	2.904	4013	1.772	0.88973	19.869	0.0872	2689	55.483	135.4		
INLET DNNRSK		7	0 4														
40.400	107.384	2020	385.0(514)	1.3259	28.847	2148											
40.400	92.744	1948	369.0(494)	1.3286	28.847	2112	0.474	1001	1.847	0.88973	19.869	0.0872	2689	13.843	135.4		
COMBUSTOR	0	8	1 3														
40.410	317.795	2020	385.0(514)	1.3259	28.847	2148											
40.410	11.008	831	71.7(201)	1.3887	28.847	1411	2.807	3959	1.772	0.97857	19.869	0.0793	2668	60.208	134.3		
COMBUSTOR	0	9	2 3														
40.715	310.329	2017	384.3(513)	1.3260	28.847	2147											
40.715	11.215	840	73.9(203)	1.3883	28.847	1418	2.780	3941	1.773	0.98211	19.869	0.0790	2661	60.150	133.9		
COMBUSTOR	0	10	3 4														
41.205	284.144	2013	383.2(512)	1.3261	28.847	2145											
41.205	11.670	869	80.9(210)	1.3868	28.847	1441	2.699	3869	1.779	0.97522	19.869	0.0795	2659	58.936	132.8		
COMBUSTOR	0	11	4 4														
41.500	260.361	2011	382.5(512)	1.3262	28.847	2144											
41.500	12.093	898	88.1(217)	1.3854	28.847	1464	2.621	3838	1.784	0.96507	19.869	0.0804	2619	57.559	131.8		
COMBUSTOR	0	12	5 5														
42.460	213.716	2002	380.1(509)	1.3266	28.847	2140											
42.460	12.426	951	101.3(231)	1.3823	28.847	1505	2.481	3735	1.797	0.91111	19.869	0.0851	2577	52.882	129.7		
COMBUSTOR	0	13	6 5														
42.700	207.707	2000	379.5(509)	1.3266	28.847	2138											
42.700	12.402	957	102.8(232)	1.3819	28.847	1510	2.465	3721	1.798	0.90045	19.869	0.0862	2572	52.069	129.4		
COMBUSTOR	0	14	7 5														
42.765	205.988	1999	379.3(509)	1.3267	28.847	2138											
42.765	12.390	958	103.2(233)	1.3818	28.847	1511	2.460	3717	1.799	0.89712	19.869	0.0865	2570	51.823	129.3		
COMBUSTOR	0	15	8 4														
44.310	174.712	1986	375.6(505)	1.3271	28.847	2131											
44.310	12.053	988	110.6(240)	1.3801	28.847	1533	2.376	3642	1.808	0.82944	19.869	0.0935	2538	46.941	127.7		
COMBUSTOR	0	16	9 4														
44.800	167.734	1982	374.5(504)	1.3273	28.847	2129											
44.800	12.136	999	113.3(243)	1.3795	28.847	1541	2.346	3615	1.811	0.82017	19.869	0.0946	2527	46.061	127.2		
COMBUSTOR	0	17	10 4														
45.485	161.261	1976	372.9(502)	1.3275	28.847	2127											
45.485	12.314	1010	116.2(246)	1.3788	28.847	1549	2.313	3584	1.813	0.81545	19.869	0.0951	2513	45.419	126.5		
COMBUSTOR	0	18	11 4														
46.200	156.128	1971	371.4(501)	1.3277	28.847	2124											
46.200	11.998	1009	115.9(245)	1.3788	28.847	1549	2.309	3576	1.814	0.79569	19.869	0.0977	2509	44.107	126.3		

	P	T	M		GAMMA	MOL-WT	SONV	MACH	VEL	S	A/A	M	A/AC	MOM/P	G	IVAC	PHI	ETAC
COMBUSTOR	0	19	12	4														
46.260	155.615	1971	371.3(	501)	1.3277	28.847	2124											
46.260	11.926	1008	115.6(	245)	1.3769	28.847	1548	2.311	3577	1.814	0.78991	19.869	0.0982	2509	43.909	126.3		
COMBUSTOR	0	20	13	4														
47.310	148.327	1965	369.7(	499)	1.3279	28.847	2121											
47.310	10.812	991	111.4(	241)	1.3799	28.847	1535	2.342	3595	1.817	0.73225	19.869	0.1059	2514	40.915	126.5		
COMBUSTOR	0	21	14	4														
48.110	144.384	1961	368.6(	498)	1.3281	28.847	2119											
48.110	9.539	962	104.2(	234)	1.3816	28.847	1514	2.403	3637	1.818	0.67301	19.869	0.1154	2528	38.043	127.2		
COMBUSTOR	0	22	15	3														
48.725	141.739	1958	367.8(	497)	1.3282	28.847	2117											
48.725	8.285	929	95.8(	225)	1.3835	28.847	1488	2.479	3689	1.819	0.61426	19.869	0.1263	2546	35.215	128.1		
COMBUSTOR	0	23	16	3														
50.175	136.457	1952	366.1(	495)	1.3284	28.847	2114											
50.175	6.028	856	77.9(	207)	1.3875	28.847	1431	2.654	3798	1.821	0.49919	19.869	0.1554	2585	29.462	130.1		
COMBUSTOR	0	24	17	3														
50.705	133.966	1950	365.5(	495)	1.3285	28.847	2113											
50.705	5.467	836	73.0(	202)	1.3885	28.847	1415	2.704	3826	1.822	0.46686	19.869	0.1662	2596	27.760	130.6		
COMBUSTOR	0	25	18	4														
52.115	126.901	1946	364.2(	493)	1.3286	28.847	2111											
52.115	4.364	795	62.8(	192)	1.3905	28.847	1380	2.813	3884	1.825	0.39790	19.869	0.1950	2616	24.015	131.7		
COMBUSTOR	0	26	19	5														
54.215	114.989	1940	362.7(	492)	1.3289	28.847	2108											
54.215	3.364	757	53.6(	183)	1.3922	28.847	1348	2.918	3933	1.831	0.32612	19.869	0.2379	2634	19.933	132.6		
COMBUSTOR	0	27	20	4														
54.715	112.417	1939	362.4(	492)	1.3289	28.847	2107											
54.715	3.189	750	51.9(	181)	1.3925	28.847	1342	2.938	3942	1.832	0.31279	19.869	0.2480	2637	19.162	132.7		
COMBUSTOR	0	28	21	4														
55.465	109.553	1937	361.9(	491)	1.3290	28.847	2106											
55.465	2.947	738	49.0(	178)	1.3930	28.847	1331	2.972	3957	1.834	0.29486	19.869	0.2631	2643	18.134	133.0		
COMBUSTOR	0	29	22	4														
55.760	108.400	1937	361.8(	491)	1.3290	28.847	2106											
55.760	2.863	734	48.0(	177)	1.3932	28.847	1328	2.984	3963	1.834	0.28840	19.869	0.2690	2644	17.760	133.1		
COMBUSTOR	0	30	23	4														
56.225	95.415	1936	361.5(	491)	1.3290	28.847	2106											
56.225	2.131	700	39.6(	169)	1.3945	28.847	1297	3.094	4014	1.843	0.22811	19.869	0.3401	2664	14.228	134.1		
COMBUSTOR	0	31	24	5														
57.650	96.947	1933	360.8(	490)	1.3291	28.847	2104											
57.650	1.867	670	32.3(	162)	1.3955	28.847	1270	3.193	4054	1.841	0.21083	19.869	0.3679	2680	13.284	134.9		
COMBUSTOR	0	32	25	5														
57.845	97.490	1933	360.7(	490)	1.3291	28.847	2104											
57.845	1.832	665	31.2(	161)	1.3957	28.847	1265	3.210	4061	1.841	0.20873	19.869	0.3717	2682	13.172	135.0		
COMBUSTOR	0	33	26	6														
57.925	99.174	1933	360.7(	490)	1.3291	28.847	2104											
57.925	1.847	664	30.8(	160)	1.3957	28.847	1264	3.216	4063	1.840	0.21110	19.869	0.3675	2683	13.330	135.0		
COMBUSTOR	0	34	27	6														
58.205	100.806	1932	360.6(	490)	1.3291	28.847	2104											
58.205	1.821	658	29.3(	159)	1.3959	28.847	1258	3.236	4071	1.839	0.21037	19.869	0.3688	2686	13.310	135.2		
COMBUSTOR	0	35	28	5														
58.431	102.035	1932	360.5(	490)	1.3292	28.847	2104											
58.431	1.804	654	28.3(	158)	1.3960	28.847	1254	3.251	4077	1.838	0.21005	19.869	0.3693	2688	13.308	135.3		
COMBUSTOR	0	36	29	3														
59.155	102.201	1931	360.2(	489)	1.3292	28.847	2103											
59.155	1.758	648	27.0(	156)	1.3962	28.847	1249	3.269	4083	1.837	0.20671	19.869	0.3753	2691	13.118	135.4		
COMBUSTOR	0	37	30	6														
60.175	102.034	1930	359.9(	489)	1.3292	28.847	2103											
60.175	1.741	646	26.6(	156)	1.3963	28.847	1247	3.275	4084	1.837	0.20540	19.869	0.3777	2691	13.037	135.4		

	P	T	M		GAMMA	MOLWT	SONV	MACH	VEL	S	P/A	A	A/AC	PORTM	G	L*AC	PHI	ETAC
COMBUSTOR	0	38	31	5														
62.185	99.564	1928	359.5	(489)	1.3293	28.847	2102											
62.185	1.859	662	30.5	(160)	1.3958	28.847	1262	3.214	4058	1.839	0.21255	19.869	0.3650	2690	13.903	134.9		
COMBUSTOR	0	39	32	5														
63.605	97.780	1928	359.3	(489)	1.3293	28.847	2102											
63.605	1.956	675	33.6	(163)	1.3954	28.847	1274	3.168	4037	1.840	0.21831	19.869	0.3553	2671	13.697	134.4		
COMBUSTOR	0	40	33	4														
66.069	85.950	1927	359.1	(488)	1.3293	28.847	2101											
66.069	1.932	698	34.0	(166)	1.3946	28.847	1295	3.090	4002	1.849	0.20693	19.869	0.3749	2657	12.870	133.7		
COMBUSTOR	0	41	34	4														
66.445	79.034	1927	359.0	(488)	1.3294	28.847	2101											
66.445	1.807	701	34.6	(169)	1.3945	28.847	1298	3.079	3997	1.855	0.19238	19.869	0.4032	2655	11.949	133.6		
NOZZLE AE		42	35	2														
88.681	79.034	1927	359.0	(488)	1.3294	28.847	2101											
88.681	0.171	358	-43.1	(86)	1.3980	28.847	929	4.827	4486	1.855	0.04005	19.869	1.9370	2855	2.792	143.7		
NOZZLE PO		43	36	2														
88.681	79.034	1927	359.0	(488)	1.3294	28.847	2101											
88.681	0.157	350	-45.2	(84)	1.3978	28.847	918	4.901	4498	1.855	0.03771	19.869	2.0571	2860	2.636	144.0		
FICTIVE COMBUSTR	59	92	0															
66.445	516.108	1927	359.0	(488)	1.3293	28.847	2101											
66.445	0.157	236	-72.9	(56)	1.3936	28.847	752	6.181	4649	1.759	0.05786	19.869	1.3409	2925	4.180	147.2		
FICTIVE NOZZLE	60	93	0															
88.681	********	1924	388.4	(488)	1.3291	28.848	2099											
88.681	0.017	38	-121.6	(8)	1.3792	28.847	30116.270	4901	1.462	0.04005	19.869	1.9371	3038	3.050	154.8			

READING = 0092 BLOCK = 76 TIME = 186.867 MACH 7.4 PI = 995.249 TI = 2053.1 PAGE 4

XABS	P-IB	P-OB	PDA	QDA	Q-IB	Q-OB	CA-ALL	P-IB/PSO	P-IB/PTO	P-OB/PSO	P-OB/PTO
6.981E-01	7.250E-01	0.000	-2.677E-01	0.000	0.000	0.000	2.470E-02	4.617E 00	7.299E-04	0.000	0.000
1.636E 01	7.250E-01	0.000	-2.410E 01	0.000	0.000	0.000	1.654E 02	4.617E 00	7.299E-04	0.000	0.000
3.070E 01	1.105E 00	0.000	-9.829E 01	0.000	0.000	0.000	5.053E 02	7.037E 00	1.113E-03	0.000	0.000
3.508E 01	1.956E 00	0.000	-1.975E 02	0.000	0.000	0.000	6.804E 02	1.245E 01	1.969E-03	0.000	0.000
3.555E 01	2.325E 00	0.000	-2.170E 02	0.000	0.000	0.000	7.013E 02	1.481E 01	2.341E-03	0.000	0.000
3.606E 01	2.200E 00	0.000	-2.399E 02	-7.012E 01	-7.012E 01	0.000	7.246E 02	1.401E 01	2.215E-03	0.000	0.000
3.648E 01	2.382E 00	0.000	-2.595E 02	-7.182E 01	-7.182E 01	0.000	7.443E 02	1.517E 01	2.399E-03	0.000	0.000
3.658E 01	2.366E 00	2.944E 00	-2.952E 02	-7.265E 01	-7.225E 01	0.000	7.491E 02	1.507E 01	2.383E-03	1.876E 01	2.968E-03
3.659E 01	2.366E 00	2.968E 00	-2.953E 02	-7.267E 01	-7.227E 01	0.000	7.494E 02	1.506E 01	2.382E-03	1.890E 01	2.988E-03
3.701E 01	2.300E 00	4.324E 00	-2.980E 02	-7.407E 01	-7.407E 01	0.000	7.931E 02	1.465E 01	2.316E-03	2.753E 01	4.353E-03
3.725E 01	2.236E 00	5.112E 00	-2.972E 02	-7.514E 01	-7.514E 01	0.000	8.188E 02	1.424E 01	2.252E-03	3.256E 01	5.147E-03
3.803E 01	2.035E 00	8.782E 00	-2.781E 02	-7.876E 01	-7.876E 01	0.000	9.020E 02	1.296E 01	2.049E-03	5.593E 01	8.842E-03
3.871E 01	6.309E 00	1.202E 01	-2.725E 02	-1.159E 02	-8.294E 01	-5.299E 01	9.785E 02	4.018E 01	6.352E-03	7.656E 01	1.211E-02
3.875E 01	6.528E 00	1.189E 01	-2.724E 02	-1.173E 02	-8.320E 01	-5.406E 01	9.825E 02	4.157E 01	6.572E-03	7.572E 01	1.197E-02
3.901E 01	8.150E 00	1.088E 01	-2.764E 02	-1.273E 02	-8.528E 01	-6.198E 01	1.012E 03	5.190E 01	8.205E-03	6.932E 01	1.096E-02
3.950E 01	1.145E 01	8.990E 00	-2.933E 02	-1.469E 02	-9.001E 01	-5.686E 01	1.068E 03	7.293E 01	1.153E-02	5.725E 01	9.051E-03
3.974E 01	1.089E 01	8.081E 00	-3.021E 02	-1.567E 02	-9.268E 01	-6.398E 01	1.095E 03	6.937E 01	1.097E-02	5.146E 01	8.136E-03
4.000E 01	1.026E 01	7.810E 00	-3.091E 02	-1.660E 02	-9.605E 01	-7.198E 01	1.126E 03	6.536E 01	1.033E-02	4.974E 01	7.863E-03
4.021E 01	1.079E 01	7.600E 00	-3.144E 02	-1.770E 02	-9.887E 01	-7.816E 01	1.150E 03	6.872E 01	1.086E-02	4.840E 01	7.652E-03
4.040E 01	1.129E 01	9.043E 00	-3.187E 02	-1.857E 02	-1.016E 02	-8.403E 01	1.172E 03	7.192E 01	1.137E-02	5.759E 01	9.105E-03
4.041E 01	1.132E 01	9.117E 00	-3.188E 02	-1.861E 02	-1.018E 02	-8.433E 01	1.174E 03	7.208E 01	1.140E-02	5.806E 01	9.179E-03
4.071E 01	1.210E 01	1.137E 01	-3.223E 02	-1.998E 02	-1.063E 02	-9.349E 01	1.209E 03	7.708E 01	1.219E-02	7.244E 01	1.145E-02
4.121E 01	1.337E 01	2.850E 00	-3.368E 02	-2.262E 02	-1.143E 02	-1.080E 02	1.267E 03	8.512E 01	1.346E-02	1.815E 01	2.869E-03
4.150E 01	1.412E 01	2.943E 00	-3.529E 02	-2.399E 02	-1.194E 02	-1.165E 02	1.302E 03	8.995E 01	1.422E-02	1.874E 01	2.963E-03
4.246E 01	6.475E 00	3.245E 00	-3.812E 02	-2.832E 02	-1.375E 02	-1.457E 02	1.416E 03	4.124E 01	6.519E-03	2.066E 01	3.267E-03
4.270E 01	6.980E 00	3.320E 00	-3.838E 02	-2.955E 02	-1.422E 02	-1.533E 02	1.444E 03	4.445E 01	7.028E-03	2.114E 01	3.343E-03
4.276E 01	7.117E 00	3.341E 00	-3.846E 02	-2.987E 02	-1.434E 02	-1.553E 02	1.452E 03	4.532E 01	7.165E-03	2.127E 01	3.363E-03
4.431E 01	1.037E 01	6.843E 00	-3.967E 02	-3.747E 02	-1.714E 02	-2.013E 02	1.638E 03	6.603E 01	1.044E-02	4.358E 01	6.889E-03
4.480E 01	1.140E 01	7.953E 00	-4.016E 02	-3.952E 02	-1.795E 02	-2.156E 02	1.698E 03	7.260E 01	1.148E-02	5.065E 01	8.008E-03
4.549E 01	1.067E 01	9.506E 00	-4.063E 02	-4.202E 02	-1.905E 02	-2.357E 02	1.782E 03	6.795E 01	1.074E-02	6.054E 01	9.571E-03
4.620E 01	9.908E 00	9.218E 00	-4.021E 02	-4.353E 02	-2.015E 02	-2.538E 02	1.869E 03	6.310E 01	9.975E-03	5.870E 01	9.281E-03
4.626E 01	9.844E 00	9.194E 00	-4.012E 02	-4.375E 02	-2.024E 02	-2.551E 02	1.877E 03	6.269E 01	9.911E-03	5.855E 01	9.256E-03
4.731E 01	8.725E 00	8.770E 00	-3.840E 02	-4.903E 02	-2.176E 02	-2.726E 02	2.006E 03	5.556E 01	8.784E-03	5.585E 01	8.830E-03
4.811E 01	5.475E 00	8.448E 00	-3.611E 02	-5.115E 02	-2.286E 02	-2.829E 02	2.105E 03	3.487E 01	5.512E-03	5.380E 01	8.505E-03
4.872E 01	8.200E 00	8.200E 00	-3.367E 02	-5.275E 02	-2.367E 02	-2.909E 02	2.182E 03	5.222E 01	8.256E-03	5.222E 01	8.256E-03
5.017E 01	5.594E 00	5.594E 00	-2.851E 02	-5.615E 02	-2.543E 02	-3.072E 02	2.363E 03	3.563E 01	5.632E-03	3.563E 01	5.632E-03
5.071E 01	4.642E 00	4.642E 00	-2.710E 02	-5.764E 02	-2.603E 02	-3.121E 02	2.429E 03	2.956E 01	4.673E-03	2.956E 01	4.673E-03
5.211E 01	3.500E 00	3.500E 00	-2.409E 02	-5.979E 02	-2.751E 02	-3.229E 02	2.607E 03	2.229E 01	3.524E-03	2.229E 01	3.524E-03
5.421E 01	1.775E 00	1.775E 00	-2.119E 02	-6.289E 02	-2.939E 02	-3.350E 02	2.873E 03	1.130E 01	1.787E-03	1.130E 01	1.787E-03
5.471E 01	2.500E 00	2.500E 00	-2.063E 02	-6.391E 02	-2.978E 02	-3.373E 02	2.937E 03	1.592E 01	2.517E-03	1.592E 01	2.517E-03
5.546E 01	2.177E 00	2.177E 00	-1.973E 02	-6.459E 02	-3.032E 02	-3.407E 02	3.033E 03	1.386E 01	2.192E-03	1.386E 01	2.192E-03
5.576E 01	2.050E 00	2.050E 00	-1.941E 02	-6.471E 02	-3.053E 02	-3.419E 02	3.070E 03	1.306E 01	2.064E-03	1.306E 01	2.064E-03
5.622E 01	1.019E 00	1.850E 00	-1.753E 02	-6.522E 02	-3.084E 02	-3.438E 02	3.102E 03	6.488E 00	1.026E-03	1.176E 01	1.863E-03
5.765E 01	3.235E 00	3.235E 00	-1.552E 02	-6.661E 02	-3.171E 02	-3.490E 02	3.210E 03	2.060E 01	3.257E-03	2.060E 01	3.257E-03
5.785E 01	3.425E 00	3.425E 00	-1.521E 02	-6.678E 02	-3.181E 02	-3.496E 02	3.234E 03	2.181E 01	3.448E-03	2.181E 01	3.448E-03
5.792E 01	3.503E 00	3.503E 00	-1.507E 02	-6.684E 02	-3.186E 02	-3.499E 02	3.245E 03	2.231E 01	3.527E-03	2.231E 01	3.527E-03
5.821E 01	3.775E 00	3.775E 00	-1.459E 02	-6.708E 02	-3.200E 02	-3.508E 02	3.280E 03	2.404E 01	3.801E-03	2.404E 01	3.801E-03
5.843E 01	3.240E 00	3.240E 00	-1.425E 02	-6.726E 02	-3.211E 02	-3.515E 02	3.309E 03	2.063E 01	3.262E-03	2.063E 01	3.262E-03
5.915E 01	1.525E 00	1.525E 00	-1.361E 02	-6.780E 02	-3.243E 02	-3.537E 02	3.402E 03	9.712E 00	1.535E-03	9.712E 00	1.535E-03
6.017E 01	3.475E 00	3.475E 00	-1.303E 02	-6.845E 02	-3.281E 02	-3.564E 02	3.532E 03	2.213E 01	3.499E-03	2.215E 01	3.499E-03
6.218E 01	9.750E-01	9.750E-01	-1.297E 02	-6.962E 02	-3.350E 02	-3.592E 02	3.790E 03	6.209E 00	9.816E-04	6.209E 00	9.816E-04
6.360E 01	1.075E 00	1.075E 00	-1.297E 02	-6.954E 02	-3.350E 02	-3.604E 02	3.972E 03	6.846E 00	1.082E-03	6.846E 00	1.082E-03
6.607E 01	1.169E 00	1.169E 00	-1.297E 02	-7.009E 02	-3.368E 02	-3.640E 02	4.289E 03	7.445E 00	1.177E-03	7.445E 00	1.177E-03
6.644E 01	1.183E 00	1.183E 00	-1.297E 02	-7.017E 02	-3.369E 02	-3.648E 02	4.337E 03	7.536E 00	1.191E-03	7.536E 00	1.191E-03
6.668E 01	9.680E-01	1.192E 00	-1.297E 02	-7.063E 02	-3.369E 02	-3.650E 02	4.368E 03	6.165E 00	9.746E-04	7.594E 00	1.201E-03
6.835E 01	9.600E-01	1.350E 00	-1.169E 02	-7.067E 02	-3.378E 02	-3.689E 02	4.584E 03	6.114E 00	9.665E-04	8.597E 00	1.359E-03

XAMB	P=Im	P=Ub	PDA	VDA	G=IB	G=UB	CA=ALL	P=Im/P3U	P=Ib/P1U	P=Ub/P3U	P=Ub/P1U
6,901E 01	1,002E 00	8,825E-01	-9,581E 01	-7,[illegible] 02	-3,304E 02	-3,095E 02	[illegible] 03	6,560E 00	1,009E-03	5,493E 00	8,884E-04
6,978E 01	1,050E 00	8,535E-01	-8,420E 01	-7,009E 02	-3,342E 02	-3,047E 02	[illegible] 03	[illegible] 00	1,057E-03	5,435E 00	8,593E-04
7,050E 01	1,134E 00	8,450E-01	-4,329E 01	-7,049E 02	-3,400E 02	-3,095E 02	4,844E 03	7,221E 00	1,142E-03	5,381E 00	8,507E-04
7,111E 01	1,206E 00	8,502E-01	-2,072E 01	-7,090E 02	-3,405E 02	-3,693E 02	4,922E 03	7,674E 00	1,213E-03	5,414E 00	8,560E-04
7,249E 01	1,125E 00	8,820E-01	2,736E 01	-7,111E 02	-3,415E 02	-3,696E 02	5,088E 03	7,164E 00	1,133E-03	5,489E 00	8,678E-04
7,402E 01	1,070E 00	8,750E-01	7,549E 01	-7,116E 02	-3,423E 02	-3,693E 02	5,273E 03	6,815E 00	1,077E-03	5,572E 00	8,809E-04
7,493E 01	1,038E 00	8,827E-01	1,136E 02	-7,110E 02	-3,427E 02	-3,683E 02	5,370E 03	6,608E 00	1,045E-03	5,621E 00	8,887E-04
7,625E 01	9,900E-01	0,000	1,350E 02	-7,094E 02	-3,432E 02	-3,664E 02	5,522E 03	6,305E 00	9,967E-04	0,000	0,000
7,910E 01	1,055E 00	0,000	1,759E 02	-7,105E 02	-3,441E 02	-3,664E 02	5,520E 03	6,719E 00	1,062E-03	0,000	0,000
8,300E 01	1,080E 00	0,000	2,215E 02	-7,114E 02	-3,450E 02	-3,664E 02	5,825E 03	6,878E 00	1,087E-03	0,000	0,000
8,581E 01	1,040E 00	0,000	2,451E 02	-7,145E 02	-3,459E 02	-3,664E 02	5,679E 03	6,623E 00	1,047E-03	0,000	0,000
8,867E 01	1,105E 00	0,000	2,709E 02	-7,139E 02	-3,475E 02	-3,664E 02	5,702E 03	7,037E 00	1,113E-03	0,000	0,000
8,868E 01	1,105E 00	0,000	2,709E 02	-7,139E 02	-3,475E 02	-3,664E 02	5,702E 03	7,038E 00	1,113E-03	0,000	0,000

READING = 0092 BLOCK = 76 TIME = 186.867 MACH 7.4 PI = 995.249 TT = 2055.1

X	DDRAG	CDRAG	CF	MC
4.040E 01	7.918E 01	7.918E 01	1.971E-03	5.779E-02
4.041E 01	1.392E-01	7.932E 01	1.971E-03	5.781E-02
4.071E 01	4.251E 00	8.357E 01	1.986E-03	5.840E-02
4.121E 01	6.883E 00	9.045E 01	2.028E-03	5.889E-02
4.150E 01	4.157E 00	9.461E 01	2.070E-03	5.950E-02
4.246E 01	1.329E 01	1.079E 02	2.150E-03	5.861E-02
4.270E 01	3.242E 00	1.111E 02	2.161E-03	5.857E-02
4.276E 01	8.749E-01	1.120E 02	2.164E-03	5.849E-02
4.431E 01	2.013E 01	1.321E 02	2.214E-03	5.652E-02
4.480E 01	6.160E 00	1.383E 02	2.232E-03	5.643E-02
4.549E 01	8.570E 00	1.469E 02	2.251E-03	5.689E-02
4.620E 01	8.840E 00	1.557E 02	2.258E-03	5.570E-02
4.626E 01	7.302E-01	1.564E 02	2.258E-03	5.552E-02
4.731E 01	1.237E 01	1.688E 02	2.245E-03	5.267E-02
4.811E 01	8.720E 00	1.775E 02	2.212E-03	2.950E-02
4.872E 01	6.140E 00	1.837E 02	2.170E-03	2.633E-02
5.017E 01	1.244E 01	1.961E 02	2.076E-03	2.033E-02
5.071E 01	3.924E 00	2.000E 02	2.050E-03	1.874E-02
5.211E 01	9.297E 00	2.093E 02	1.995E-03	1.548E-02
5.421E 01	1.153E 01	2.209E 02	1.946E-03	1.254E-02
5.471E 01	2.418E 00	2.233E 02	1.936E-03	1.177E-02
5.546E 01	3.446E 00	2.267E 02	1.920E-03	1.100E-02
5.576E 01	1.300E 00	2.280E 02	1.915E-03	1.072E-02
5.622E 01	9.460E-01	2.290E 02	1.857E-03	8.207E-03
5.765E 01	2.718E 00	2.317E 02	1.813E-03	7.342E-03
5.785E 01	5.939E-01	2.323E 02	1.806E-03	7.267E-03
5.792E 01	2.444E-01	2.325E 02	1.796E-03	7.339E-03
5.821E 01	8.516E-01	2.334E 02	1.786E-03	7.257E-03
5.843E 01	6.838E-01	2.341E 02	1.778E-03	7.214E-03
5.915E 01	2.169E 00	2.362E 02	1.767E-03	7.053E-03
6.017E 01	3.015E 00	2.392E 02	1.761E-03	6.980E-03
6.218E 01	6.034E 00	2.453E 02	1.779E-03	7.301E-03
6.360E 01	4.409E 00	2.497E 02	1.793E-03	7.559E-03
6.607E 01	7.638E 00	2.573E 02	1.845E-03	7.387E-03
6.644E 01	1.113E 00	2.584E 02	1.872E-03	6.974E-03
6.668E 01	5.829E-01	2.590E 02	1.766E-03	4.700E-03
6.835E 01	3.452E 00	2.625E 02	1.770E-03	4.921E-03
6.901E 01	1.242E 00	2.637E 02	1.735E-03	4.190E-03
6.978E 01	1.344E 00	2.651E 02	1.736E-03	4.249E-03
7.050E 01	1.270E 00	2.663E 02	1.740E-03	4.368E-03
7.111E 01	1.096E 00	2.674E 02	1.743E-03	4.486E-03
7.249E 01	2.462E 00	2.699E 02	1.733E-03	4.302E-03
7.402E 01	2.669E 00	2.726E 02	1.725E-03	4.282E-03
7.493E 01	1.387E 00	2.739E 02	1.720E-03	4.294E-03
7.625E 01	7.442E-01	2.747E 02	1.721E-03	4.360E-03
7.910E 01	1.450E 00	2.761E 02	1.722E-03	4.505E-03
8.300E 01	1.587E 00	2.777E 02	1.714E-03	4.553E-03
8.581E 01	8.164E-01	2.785E 02	1.700E-03	4.405E-03
8.867E 01	3.409E-01	2.789E 02	1.702E-03	4.587E-03
8.868E 01	0.000	2.789E 02	1.702E-03	4.588E-03

RAMJET PERFORMANCE

400

ENGINE PERFORMANCE

CALCULATED THRUST	=32.	(LBF)
MEASURED THRUST	=246.	(LBF)
CALCULATED SPECIFIC IMPULSE	=32.	(LBF=SEC/LBM)
MEASURED SPECIFIC IMPULSE	=246.	(LBF=SEC/LBM)
CALCULATED THRUST COEFFICIENT	=.0207	
MEASURED THRUST COEFFICIENT	=.1614	

REGENERATIVE-COOLED ENGINE PERFORMANCE CALCULATED

STREAM THRUST	0.	(LBF)
NET THRUST	0.	(LBF)
SPECIFIC IMPULSE	0.	(LBF=SEC/LBM)
THRUST COEFFICIENT	0.0000	

MOMENTUM AND FORCES

INLET FRICTION DRAG	79.2	(LBF)
INLET MOMENTUM CHANGE	=397.8	(LBF)
COMBUSTOR FRICTION DRAG	179.3	(LBF)
COMBUSTOR STRUT DRAG	23.54	(LBF)
COMBUSTOR MOMENTUM CHANGE	=14.	(LBF)
NOZZLE FRICTION DRAG	20.44	(LBF)
NOZZLE STRUT DRAG	0.00	(LBF)
NOZZLE MOMENTUM CHANGE	380.	(LBF)
NOZZLE PRESSURE INTEGRAL	401.	(LBF)
EXTERNAL FRICTION DRAG	0.00	(LBF)
EXTERNAL PRESSURE INTEGRAL	0.	(LBF)
TOTAL EXTERNAL DRAG	=762.	(LBF)
TOTAL STRUT DRAG	23.94	(LBF)
CAVITY FORCE	=1261.	(LBF)
CALCULATED LOAD CELL FORCE	=2055.	(LBF)
MEASURED LOAD CELL FORCE	=2269.	(LBF)
FUEL VACUUM SPECIFIC IMPULSE		

STATIONS

NOMINAL COWL LEADING EDGE	34.664	(IN)
SPIKE TRANSLATION	1.7050	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	36.589	(IN)
NOZZLE SHROUD TRAILING EDGE	74.924	(IN)
NOZZLE PLUG TRAILING EDGE	68.661	(IN)
STRUT LEADING EDGE	57.845	(IN)
STRUT TRAILING EDGE	66.445	(IN)
COMBUSTOR EXIT	66.445	(IN)

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.9926	
ADDITIVE DRAG COEFFICIENT	0.0000	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.1066	
DELTA PT2	0.6946	(PSI)
TOTAL PRESSURE RECOVERY = SUPERSONIC	0.3203	
TOTAL PRESSURE RECOVERY = SUBSONIC	0.1081	
INLET PROCESS EFFICIENCY = SUPERSONIC	0.8992	
INLET PROCESS EFFICIENCY = SUBSONIC	0.9165	
KINETIC ENERGY EFFICIENCY = SUPERSONIC	0.9475	
KINETIC ENERGY EFFICIENCY = SUBSONIC	0.9021	
ENTHALPY AT P0 = SUPERSONIC	=69.72	(BTU/LBM)
ENTHALPY AT P0 = SUBSONIC	=47.94	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0000
EQUIVALENCE RATIO	0.000
COMBUSTOR EFFICIENCY	0.000
TOTAL PRESSURE RATIO	0.2484
COMBUSTOR EFFECTIVENESS	0.7473
INJECTOR DISCHARGE COEFFICIENTS	

NOZZLE

VACUUM STREAM THRUST COEFFICIENT = CS	1.0630
NOZZLE COEFFICIENT = CT	1.0339
PROCESS EFFICIENCY	1.2919
KINETIC ENERGY EFFICIENCY	1.0807

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	
1B	42.690	
1C	44.300	
2A	50.165	
2C	46.250	
3A	55.455	
3B	57.640	
4	46.190	

Reading 92

t = 205.77 sec.

402

S U M M A R Y R E P O R T

	P	T	H		GAMMA	MOLWT	SONV	MACH	VEL	S	A/A	H	A/AC	PUPTP	G	IVAC	PHI	ETAC
WIND TUNNEL		1	0	5														
0.000	998.499	2854	627.0	(754)	1.2983	28.844	2527											
0.000	0.156	271	-64.3	(65)	1.3952	28.843	807	7.266	5681	1.793	0.06331	16.066	0.9920	2960	5.787	185.3		
SPIKE TIP NS		2	0	6														
0.600	11.262	2854	627.0	(754)	1.2982	28.843	2527											
0.600	10.328	2798	610.1	(737)	1.3000	28.843	2504	0.367	919	2.102	0.06331	16.036	0.9920	3084	6.404	191.7		
WIND TUNNEL		3	0	0														
0.000	998.499	2854	627.0	(754)	1.2983	28.844	2527											
0.000	0.166	275	-63.2	(66)	1.3954	28.843	814	7.220	5877	1.793	0.06596	16.759	0.9920	3103	6.024	185.2		
SPIKE TIP NS		4	0	0														
0.600	11.262	2854	627.0	(754)	1.2982	28.843	2527											
0.600	10.238	2792	608.4	(736)	1.3002	28.843	2502	0.365	964	2.102	0.06596	16.759	0.9920	3103	6.488	185.2		
INLET THROAT		5	0	5														
40.400	351.546	2758	598.2	(725)	1.3013	28.844	2487											
40.400	10.121	1132	146.9	(276)	1.3713	28.843	1636	2.905	4752	1.855	0.79324	16.066	0.0792	2561	58.582	160.5		
INLET UPNR8K		6	0	3														
40.400	351.546	2758	598.2	(725)	1.3013	28.844	2487											
40.400	8.731	1087	135.6	(265)	1.3741	28.843	1605	2.998	4811	1.855	0.72113	16.066	0.0871	2600	53.919	161.6		
INLET DNNR8K		7	0	4														
40.400	104.579	2758	598.2	(725)	1.3013	28.843	2487											
40.400	91.205	2671	572.6	(700)	1.3041	28.843	2450	0.462	1132	1.936	0.72113	16.066	0.0871	2600	12.066	161.6		
COMBUSTOR	0	8	1	6														
40.410	208.647	2809	608.2	(800)	1.3008	26.635	2611											
40.410	15.092	1472	200.1	(395)	1.3519	26.635	1927	2.345	4519	2.029	0.79857	16.196	0.0792	2561	56.078	159.3	0.24	0.16
COMBUSTOR	0	9	2	5														
40.719	149.445	3113	605.5	(893)	1.2868	26.974	2717											
40.719	21.332	1971	245.9	(538)	1.3257	26.979	2195	1.933	4242	2.077	0.80147	16.196	0.0789	2567	52.638	158.5	0.24	0.44
COMBUSTOR	0	10	3	5														
41.209	172.880	2802	601.2	(798)	1.3008	26.651	2608											
41.209	17.021	1591	229.6	(429)	1.3455	26.651	1998	2.158	4312	2.042	0.79574	16.196	0.0795	2517	53.326	155.4	0.24	0.17
COMBUSTOR	0	11	4	3														
41.500	143.666	2844	596.5	(811)	1.2988	26.704	2622											
41.500	19.501	1756	262.0	(477)	1.3371	26.704	2091	1.963	4103	2.059	0.78755	16.196	0.0803	2467	50.221	152.3	0.24	0.21
COMBUSTOR	0	12	5	3														
42.460	99.103	2747	588.0	(781)	1.3027	26.636	2585											
42.460	23.934	1952	340.9	(536)	1.3300	26.636	2201	1.597	3516	2.078	0.74317	16.196	0.0851	2292	40.610	141.5	0.24	0.16
COMBUSTOR	0	13	6	21														
42.694	87.618	2551	592.7	(779)	1.3131	24.446	2610											
42.694	24.608	1868	306.1	(554)	1.3373	24.446	2254	1.494	3367	2.202	0.74081	16.312	0.0860	2249	38.759	137.9	0.46	0.05
COMBUSTOR	0	14	7	6														
42.704	92.472	2449	592.5	(747)	1.3177	24.351	2567											
42.704	24.637	1764	366.9	(522)	1.3425	24.351	2199	1.528	3360	2.186	0.73970	16.312	0.0861	2247	38.620	137.7	0.48	0.00
COMBUSTOR	0	15	8	21														
42.769	90.816	2441	591.7	(744)	1.3181	24.345	2563											
42.769	24.824	1769	370.4	(523)	1.3424	24.345	2202	1.511	3327	2.187	0.73848	16.312	0.0862	2235	38.185	137.6	0.48	0.00
COMBUSTOR	0	16	9	21														
44.310	66.114	2373	569.0	(721)	1.3204	24.345	2529											
44.310	40.925	2109	481.4	(634)	1.3295	24.344	2393	0.875	2095	2.203	0.68136	16.312	0.0935	2042	22.182	125.2	0.48	0.00
COMBUSTOR	0	17	10	21														
44.800	63.085	2457	561.3	(748)	1.3162	24.445	2565											
44.800	46.045	2277	500.7	(688)	1.3223	24.445	2475	0.703	1741	2.217	0.67335	16.312	0.0946	1998	16.218	122.5	0.48	0.05
COMBUSTOR	0	18	11	21														
45.489	62.465	2353	550.5	(708)	1.3215	24.359	2509											
45.489	46.828	2174	497.5	(655)	1.3270	24.359	2427	0.671	1626	2.202	0.66969	16.312	0.0951	1966	16.549	120.5	0.48	0.01

	P	T	H		GAMMA	MOLWT	SONV	MACH	VEL	S	/A		A/AC	NUMIM	G	IVAC	PHI	ETAC
COMBUSTOR	0	19	12	21														
46.194	60.699	2289	542.7(	704)	1.3235	23.975	2507											
46.194	39.498	2059	465.4(	627)	1.3317	23.975	2384	0.825	1966	2.225	0.65284	16.336	0.0977	1967	19.967	121.7	0.53	0.01
COMBUSTOR	0	20	13	21														
46.204	60.878	2272	542.6(	698)	1.3243	23.960	2499											
46.204	39.394	2040	464.8(	621)	1.3325	23.960	2375	0.831	1973	2.222	0.65211	16.336	0.0978	1989	19.996	121.7	0.53	0.00
COMBUSTOR	0	21	14	21														
46.250	59.511	2246	542.0(	723)	1.3264	22.808	2548											
46.250	38.916	2021	463.1(	644)	1.3345	22.807	2425	0.819	1987	2.309	0.65351	16.415	0.0981	1991	20.183	121.3	0.70	0.02
COMBUSTOR	0	22	15	21														
46.260	60.008	2199	541.9(	707)	1.3286	22.768	2526											
46.260	38.812	1972	462.6(	628)	1.3368	22.766	2400	0.830	1992	2.301	0.65309	16.415	0.0981	1992	20.217	121.3	0.70	0.00
COMBUSTOR	0	23	16	21														
47.310	60.419	2151	527.2(	690)	1.3304	22.762	2500											
47.310	27.695	1769	395.3(	559)	1.3448	22.762	2280	1.127	2569	2.295	0.60527	16.415	0.1059	2067	24.164	125.9	0.70	0.00
COMBUSTOR	0	24	17	4														
48.110	60.570	2193	516.5(	704)	1.3281	22.824	2519											
48.110	21.634	1691	343.3(	531)	1.3474	22.824	2228	1.322	2944	2.298	0.55639	16.415	0.1152	2140	25.456	130.4	0.70	0.02
COMBUSTOR	0	25	18	4														
48.729	56.595	2342	508.3(	754)	1.3209	22.973	2587											
48.729	20.775	1826	320.5(	575)	1.3400	22.973	2301	1.304	3000	2.323	0.50748	16.415	0.1263	2203	23.659	134.2	0.70	0.08
COMBUSTOR	0	26	19	4														
50.179	51.794	2495	492.3(	805)	1.3134	23.148	2653											
50.179	14.910	1837	262.2(	576)	1.3374	23.148	2297	1.477	3393	2.347	0.41241	16.415	0.1554	2325	21.795	141.6	0.70	0.15
COMBUSTOR	0	27	20	3														
50.709	51.628	2490	487.8(	804)	1.3134	23.155	2650											
50.709	16.767	1765	234.8(	551)	1.3403	23.155	2254	1.579	3558	2.346	0.38570	16.415	0.1662	2359	21.326	143.7	0.70	0.15
COMBUSTOR	0	28	21	4														
52.119	48.449	2560	477.7(	827)	1.3099	23.244	2678											
52.119	10.050	1741	191.4(	542)	1.3403	23.244	2234	1.694	3785	2.358	0.32873	16.415	0.1950	2433	19.336	148.2	0.70	0.18
COMBUSTOR	0	29	22	4														
54.219	49.974	2478	462.9(	802)	1.3132	23.107	2646											
54.219	6.500	1489	121.1(	461)	1.3530	23.107	2082	1.997	4136	2.353	0.27001	16.451	0.2379	2511	17.355	156.6	0.72	0.17
COMBUSTOR	0	30	23	4														
54.719	45.746	2562	460.4(	830)	1.3093	23.189	2682											
54.719	6.700	1594	123.5(	495)	1.3467	23.189	2145	1.914	4106	2.369	0.25898	16.451	0.2480	2525	16.525	153.9	0.72	0.20
COMBUSTOR	0	31	24	4														
55.469	47.219	2521	456.9(	816)	1.3111	23.160	2663											
55.469	5.769	1493	101.5(	462)	1.3521	23.160	2082	2.025	4217	2.362	0.24413	16.451	0.2631	2545	15.999	154.7	0.72	0.19
COMBUSTOR	0	32	25	3														
55.760	48.245	2497	455.7(	808)	1.3121	23.142	2653											
55.760	5.407	1445	92.7(	446)	1.3549	23.142	2051	2.078	4262	2.357	0.23885	16.451	0.2689	2552	15.821	155.1	0.72	0.18
COMBUSTOR	0	33	26	4														
56.229	49.572	2398	453.9(	774)	1.3166	23.059	2609											
56.229	3.416	1212	50.5(	372)	1.3684	23.059	1891	2.375	4493	2.344	0.18886	16.451	0.3401	2595	15.186	157.7	0.72	0.15
COMBUSTOR	0	34	27	5														
57.654	30.894	2831	449.2(	923)	1.2964	23.466	2789											
57.654	4.987	1829	93.8(	570)	1.3329	23.467	2273	1.855	4217	2.426	0.17456	16.451	0.3679	2626	11.440	159.6	0.72	0.30
COMBUSTOR	0	35	28	3														
57.849	30.351	2853	448.7(	930)	1.2954	23.488	2797											
57.849	5.009	1855	94.3(	578)	1.3315	23.486	2287	1.842	4212	2.430	0.17282	16.451	0.3717	2630	11.311	159.9	0.72	0.31
COMBUSTOR	0	36	29	6														
57.929	30.936	2847	448.5(	928)	1.2957	23.483	2795											
57.929	5.018	1843	92.1(	574)	1.3321	23.483	2280	1.852	4223	2.428	0.17475	16.451	0.3675	2632	11.470	160.0	0.72	0.30
COMBUSTOR	0	37	30	3														
58.209	30.753	2866	447.9(	935)	1.2948	23.503	2802											
58.209	5.050	1863	91.1(	581)	1.3310	23.503	2290	1.845	4225	2.430	0.17421	16.451	0.3687	2637	11.439	160.3	0.72	0.31

READING = 0092 BLOCK = 97 TIME = 205.767 MACH 1.3 PI = 498.499 TI = 2650.2

	P	T			GAMMA	MOLWT	SOUV	ENTH	VEL	U	A/A	M	A/AC	PRESIP	R	LAC	PHI	ETAC
COMBUSTOR	0	36	31	4														
58.435	35.199	2716	447.3(	663)	1.3017	23.383	2743											
58.435	4.265	1623	64.7(	502)	1.3434	23.383	2154	2.031	4376	2.405	0.17385	10.451	0.3695	2641	11.822	160.5	0.72	0.20
COMBUSTOR	0	39	32	11														
59.159	94.774	2157	445.9(	692)	1.3276	22.868	2495											
59.159	1.750	733	-23.5(	223)	1.3929	22.868	1490	3.252	4847	2.653	0.17115	10.451	0.3753	2646	12.691	160.9	0.72	0.00
COMBUSTOR	0	40	33	6														
60.179	39.800	2605	444.1(	844)	1.3068	23.269	2697											
60.179	3.600	1454	39.4(	441)	1.3541	23.269	2037	2.209	4500	2.384	0.17006	10.451	0.3777	2649	11.093	161.0	0.72	0.23
COMBUSTOR	0	41	34	4														
62.189	34.719	2752	441.1(	895)	1.2999	23.412	2756											
62.189	4.462	1673	62.2(	518)	1.3404	23.413	2182	1.996	4355	2.409	0.17598	10.451	0.3650	2644	11.910	160.7	0.72	0.26
COMBUSTOR	0	42	35	4														
63.609	33.191	2821	439.3(	919)	1.2966	23.482	2783											
63.609	4.981	1790	74.2(	556)	1.3344	23.483	2249	1.901	4274	2.418	0.18075	10.451	0.3553	2639	12.005	160.4	0.72	0.30
COMBUSTOR	0	45	36	5														
66.073	23.729	3305	435.3(1088)		1.2725	23.986	2954											
66.073	7.666	2571	161.2(	820)	1.2988	23.970	2532	1.407	3704	2.481	0.17133	10.451	0.3749	2630	9.861	159.9	0.72	0.47
COMBUSTOR	0	44	37	4														
66.449	21.209	3424	434.6(1130)		1.2657	24.089	2991											
66.449	8.078	2775	188.8(	891)	1.2900	24.098	2738	1.291	3509	2.498	0.15928	10.451	0.4032	2629	8.687	159.6	0.72	0.52
COMBUSTOR REGEN	45	38	5															
66.449	21.209	3782	580.9(1265)		1.2482	24.073	3122											
66.449	10.194	3853	660.5(1066)		1.6716	24.091	2922	1.116	3260	2.538	0.15928	10.451	0.4032	2720	8.070	165.3	0.72	0.52
NOZZLE AE	46	39	5															
88.685	21.209	3424	434.6(1118)		1.2657	24.089	2991											
88.685	0.507	1423	-277.2(	428)	1.3463	24.097	1988	3.001	5968	2.498	0.03316	10.451	1.9371	3303	3.075	200.8	0.72	0.52
NOZZLE PO	47	40	5															
88.685	21.209	3424	434.6(1118)		1.2657	24.089	2991											
88.685	0.156	1044	-390.2(	309)	1.3684	24.097	1717	3.756	6447	2.498	0.01505	10.451	4.2676	3467	1.506	210.8	0.72	0.52
NOZZLE AE REGEN	48	41	5															
88.685	21.209	3782	580.9(1265)		1.2482	24.073	3122											
88.685	0.563	1656	-201.5(	504)	1.3338	24.097	2135	2.931	6257	2.538	0.03316	10.451	1.9371	3479	3.224	211.5	0.72	0.52
NOZZLE PO REGEN	49	42	5															
88.685	21.209	3782	580.9(1265)		1.2482	24.073	3122											
88.685	0.156	1190	-350.8(	354)	1.3599	24.097	1828	3.736	6628	2.538	0.01597	10.451	4.5961	3675	1.483	223.4	0.72	0.52
FICTIVE COMBUSTR	65	58	0															
66.449	351.546	4688	434.6(1585)		1.2079	25.501	3323											
66.449	0.156	817	-979.0(	231)	1.3667	25.612	1474	5.707	8410	2.316	0.02664	10.451	2.4108	4347	5.482	267.3	0.72	1.00
FICTIVE NOZZLE	66	59	0															
88.685	15.342	3370	413.7(1110)		1.2674	24.089	2969											
88.685	0.593	1578	-227.0(	476)	1.3378	24.097	2087	2.713	5662	2.516	0.03316	10.451	1.9371	3189	2.918	193.9	0.72	0.52

404

XABS	P-IB	P-OB	PDA	QUX	Q-IB	Q-OB	CA-ALL	P-IB/PSO	P-IB/PIO	P-OB/PSO	P-OB/PIO
6.981E-01	6.100E-01	0.000	-2.719E-01	0.000	0.000	0.000	2.470E-02	3.904E 00	6.109E-04	0.000	0.000
1.836E 01	6.100E-01	0.000	-2.033E 01	0.000	0.000	0.000	1.654E 02	3.904E 00	6.109E-04	0.000	0.000
3.070E 01	1.050E 00	0.000	-8.762E 01	0.000	0.000	0.000	5.053E 02	6.720E 00	1.052E-03	0.000	0.000
3.908E 01	1.986E 00	0.000	-1.860E 02	0.000	0.000	0.000	8.804E 02	1.271E 01	1.989E-03	0.000	0.000
3.555E 01	2.285E 00	0.000	-2.055E 02	0.000	0.000	0.000	7.013E 02	1.462E 01	2.288E-03	0.000	0.000
3.606E 01	2.165E 00	0.000	-2.280E 02	-1.811E 02	-1.811E 02	0.000	7.246E 02	1.386E 01	2.168E-03	0.000	0.000
3.648E 01	2.340E 00	0.000	-2.473E 02	-1.855E 02	-1.855E 02	0.000	7.443E 02	1.498E 01	2.344E-03	0.000	0.000
3.659E 01	2.337E 00	3.154E 00	-2.851E 02	-1.866E 02	-1.866E 02	0.000	7.493E 02	1.496E 01	2.340E-03	2.019E 01	3.159E-03
3.659E 01	2.337E 00	3.172E 00	-2.852E 02	-1.867E 02	-1.867E 02	0.000	7.496E 02	1.496E 01	2.340E-03	2.030E 01	3.177E-03
3.701E 01	2.325E 00	4.410E 00	-2.872E 02	-1.913E 02	-1.913E 02	0.000	7.928E 02	1.488E 01	2.328E-03	2.823E 01	4.417E-03
3.726E 01	2.241E 00	5.150E 00	-2.863E 02	-1.941E 02	-1.941E 02	0.000	8.190E 02	1.434E 01	2.244E-03	3.296E 01	5.156E-03
3.803E 01	1.980E 00	8.748E 00	-2.668E 02	-2.034E 02	-2.034E 02	0.000	9.020E 02	1.267E 01	1.983E-03	5.599E 01	8.761E-03
3.872E 01	6.360E 00	1.196E 01	-2.613E 02	-2.740E 02	-2.189E 02	-5.506E 01	9.787E 02	4.071E 01	6.370E-03	7.657E 01	1.198E-02
3.875E 01	6.557E 00	1.185E 01	-2.615E 02	-2.766E 02	-2.199E 02	-5.664E 01	9.822E 02	4.197E 01	6.567E-03	7.586E 01	1.187E-02
3.901E 01	8.210E 00	1.092E 01	-2.653E 02	-2.996E 02	-2.297E 02	-6.986E 01	1.012E 03	5.255E 01	8.222E-03	6.991E 01	1.094E-02
3.950E 01	1.171E 01	9.173E 00	-2.826E 02	-3.494E 02	-2.547E 02	-9.470E 01	1.088E 03	7.498E 01	1.173E-02	5.871E 01	9.188E-03
3.974E 01	1.129E 01	8.319E 00	-2.922E 02	-3.770E 02	-2.702E 02	-1.068E 02	1.095E 03	7.223E 01	1.130E-02	5.324E 01	8.331E-03
4.000E 01	1.082E 01	8.003E 00	-2.993E 02	-4.049E 02	-2.900E 02	-1.199E 02	1.126E 03	6.923E 01	1.083E-02	5.122E 01	8.015E-03
4.021E 01	1.432E 01	7.750E 00	-3.072E 02	-4.378E 02	-3.074E 02	-1.304E 02	1.150E 03	9.162E 01	1.434E-02	4.960E 01	7.762E-03
4.040E 01	1.751E 01	1.227E 01	-3.156E 02	-4.656E 02	-3.238E 02	-1.400E 02	1.172E 03	1.121E 02	1.754E-02	7.852E 01	1.229E-02
4.041E 01	1.768E 01	1.250E 01	-3.159E 02	-4.695E 02	-3.246E 02	-1.405E 02	1.173E 03	1.132E 02	1.771E-02	8.003E 01	1.252E-02
4.072E 01	2.285E 01	1.981E 01	-3.249E 02	-5.080E 02	-3.521E 02	-1.560E 02	1.210E 03	1.463E 02	2.289E-02	1.268E 02	1.984E-02
4.121E 01	3.105E 01	2.987E 00	-3.662E 02	-5.782E 02	-3.981E 02	-1.801E 02	1.267E 03	1.988E 02	3.110E-02	1.912E 01	2.992E-03
4.150E 01	3.592E 01	3.076E 00	-4.119E 02	-6.212E 02	-4.271E 02	-1.941E 02	1.301E 03	2.299E 02	3.598E-02	1.969E 01	3.081E-03
4.246E 01	4.450E 01	3.368E 00	-5.725E 02	-7.915E 02	-5.284E 02	-2.631E 02	1.416E 03	2.848E 02	4.457E-02	2.156E 01	3.373E-03
4.269E 01	4.578E 01	3.440E 00	-6.119E 02	-8.407E 02	-5.539E 02	-2.868E 02	1.444E 03	2.930E 02	4.584E-02	2.202E 01	3.445E-03
4.270E 01	4.583E 01	3.443E 00	-6.136E 02	-8.428E 02	-5.550E 02	-2.878E 02	1.445E 03	2.933E 02	4.590E-02	2.203E 01	3.448E-03
4.277E 01	4.619E 01	3.462E 00	-6.245E 02	-8.569E 02	-5.621E 02	-2.949E 02	1.452E 03	2.956E 02	4.625E-02	2.216E 01	3.468E-03
4.431E 01	5.459E 01	2.726E 01	-8.010E 02	-1.225E 03	-7.263E 02	-4.988E 02	1.638E 03	3.494E 02	5.467E-02	1.745E 02	2.730E-02
4.480E 01	5.726E 01	3.483E 01	-8.409E 02	-1.352E 03	-7.772E 02	-5.747E 02	1.696E 03	3.665E 02	5.735E-02	2.229E 02	3.488E-02
4.549E 01	4.819E 01	4.547E 01	-8.685E 02	-1.529E 03	-8.469E 02	-6.817E 02	1.782E 03	3.084E 02	4.826E-02	2.910E 02	4.554E-02
4.619E 01	3.890E 01	4.010E 01	-8.415E 02	-1.703E 03	-9.152E 02	-7.877E 02	1.868E 03	2.490E 02	3.896E-02	2.566E 02	4.016E-02
4.620E 01	3.877E 01	4.002E 01	-8.402E 02	-1.705E 03	-9.161E 02	-7.891E 02	1.869E 03	2.481E 02	3.883E-02	2.561E 02	4.008E-02
4.625E 01	3.816E 01	3.967E 01	-8.371E 02	-1.716E 03	-9.205E 02	-7.958E 02	1.875E 03	2.443E 02	3.822E-02	2.539E 02	3.973E-02
4.626E 01	3.803E 01	3.959E 01	-8.366E 02	-1.719E 03	-9.214E 02	-7.972E 02	1.876E 03	2.434E 02	3.809E-02	2.534E 02	3.965E-02
4.731E 01	2.420E 01	3.159E 01	-7.524E 02	-1.960E 03	-1.017E 03	-9.430E 02	2.006E 03	1.549E 02	2.424E-02	2.022E 02	3.164E-02
4.811E 01	1.777E 01	2.549E 01	-6.722E 02	-2.136E 03	-1.086E 03	-1.050E 03	2.105E 03	1.138E 02	1.780E-02	1.632E 02	2.553E-02
4.873E 01	2.077E 01	2.077E 01	-6.046E 02	-2.270E 03	-1.136E 03	-1.133E 03	2.182E 03	1.330E 02	2.081E-02	1.330E 02	2.081E-02
5.018E 01	1.491E 01	1.491E 01	-4.712E 02	-2.554E 03	-1.246E 03	-1.288E 03	2.363E 03	9.543E 01	1.493E-02	9.543E 01	1.493E-02
5.071E 01	1.277E 01	1.277E 01	-4.330E 02	-2.667E 03	-1.284E 03	-1.323E 03	2.430E 03	8.171E 01	1.279E-02	8.171E 01	1.279E-02
5.212E 01	1.005E 01	1.005E 01	-3.487E 02	-2.772E 03	-1.375E 03	-1.398E 03	2.607E 03	6.432E 01	1.007E-02	6.432E 01	1.007E-02
5.422E 01	6.500E 00	6.500E 00	-2.576E 02	-2.975E 03	-1.490E 03	-1.485E 03	2.873E 03	4.160E 01	6.510E-03	4.160E 01	6.510E-03
5.472E 01	6.700E 00	6.700E 00	-2.404E 02	-3.010E 03	-1.514E 03	-1.503E 03	2.937E 03	4.288E 01	6.710E-03	4.288E 01	6.710E-03
5.547E 01	5.769E 00	5.769E 00	-2.163E 02	-3.074E 03	-1.547E 03	-1.527E 03	3.033E 03	3.692E 01	5.777E-03	3.692E 01	5.777E-03
5.576E 01	5.407E 00	5.407E 00	-2.079E 02	-3.094E 03	-1.559E 03	-1.535E 03	3.070E 03	3.461E 01	5.415E-03	3.461E 01	5.415E-03
5.623E 01	2.006E 00	4.825E 00	-1.639E 02	-3.124E 03	-1.578E 03	-1.547E 03	3.102E 03	1.284E 01	2.009E-03	3.086E 01	4.832E-03
5.765E 01	4.987E 00	4.987E 00	-1.290E 02	-3.200E 03	-1.630E 03	-1.571E 03	3.210E 03	3.192E 01	4.994E-03	3.192E 01	4.994E-03
5.789E 01	5.009E 00	5.009E 00	-1.243E 02	-3.209E 03	-1.636E 03	-1.573E 03	3.234E 03	3.206E 01	5.017E-03	3.206E 01	5.017E-03
5.793E 01	5.018E 00	5.018E 00	-1.223E 02	-3.212E 03	-1.638E 03	-1.573E 03	3.245E 03	3.212E 01	5.026E-03	3.212E 01	5.026E-03
5.821E 01	5.050E 00	5.050E 00	-1.157E 02	-3.223E 03	-1.647E 03	-1.576E 03	3.280E 03	3.232E 01	5.058E-03	3.232E 01	5.058E-03
5.843E 01	4.265E 00	4.265E 00	-1.112E 02	-3.231E 03	-1.653E 03	-1.578E 03	3.309E 03	2.730E 01	4.271E-03	2.730E 01	4.271E-03
5.916E 01	1.750E 00	1.750E 00	-1.030E 02	-3.256E 03	-1.672E 03	-1.583E 03	3.402E 03	1.120E 01	1.753E-03	1.120E 01	1.753E-03
6.018E 01	3.600E 00	3.600E 00	-9.682E 01	-3.285E 03	-1.694E 03	-1.591E 03	3.532E 03	2.304E 01	3.605E-03	2.304E 01	3.605E-03
6.219E 01	4.462E 00	4.462E 00	-9.588E 01	-3.333E 03	-1.723E 03	-1.610E 03	3.790E 03	2.856E 01	4.469E-03	2.856E 01	4.469E-03
6.361E 01	4.981E 00	4.981E 00	-9.588E 01	-3.364E 03	-1.739E 03	-1.625E 03	3.972E 03	3.188E 01	4.989E-03	3.188E 01	4.989E-03
6.607E 01	7.668E 00	7.668E 00	-9.588E 01	-3.430E 03	-1.773E 03	-1.657E 03	4.289E 03	4.908E 01	7.680E-03	4.908E 01	7.680E-03

XABS	P-1B	P-0b	PDA	DUA	Q-1F	Q-Fo	CAAALL	P-1E/P5U	P-1E/P1U	P-0B/P5U	P-0E/P1U
6.645E 01	8.078E 00	6.078E 00	-9.588E 01	-3.442E 03	-1.779E 03	-1.863E 03	4.557E 03	5.170E 01	4.990E-03	5.170E 01	8.990E-03
6.669E 01	4.279E 00	6.340E 00	-9.588E 01	-3.451E 03	-1.782E 03	-1.866E 03	4.560E 03	2.754E 01	4.208E-03	5.330E 01	8.593E-03
6.835E 01	4.640E 00	3.055E 00	-3.575E 01	-3.520E 03	-1.805E 03	-1.705E 03	4.504E 03	2.470E 01	4.647E-03	2.559E 01	3.000E-03
6.902E 01	3.658E 00	8.550E-01	2.925E 01	-3.533E 03	-1.812E 03	-1.721E 03	4.665E 03	2.341E 01	3.664E-03	5.472E 00	8.563E-04
6.979E 01	2.930E 00	1.509E 00	9.291E 01	-3.501E 03	-1.820E 03	-1.742E 03	4.760E 03	1.619E 01	2.534E-03	9.050E 00	1.511E-03
7.051E 01	1.859E 00	2.120E 00	1.402E 02	-3.542E 03	-1.826E 03	-1.766E 03	4.848E 03	1.190E 01	1.862E-03	1.357E 01	2.123E-03
7.112E 01	1.290E 00	1.908E 00	1.849E 02	-3.617E 03	-1.831E 03	-1.786E 03	4.922E 03	8.257E 00	1.292E-03	1.221E 01	1.911E-03
7.250E 01	1.125E 00	1.427E 00	2.502E 02	-3.659E 03	-1.840E 03	-1.815E 03	5.008E 03	7.200E 00	1.127E-03	9.130E 00	1.430E-03
7.403E 01	9.765E-01	8.950E-01	3.030E 02	-3.691E 03	-1.849E 03	-1.842E 03	5.273E 03	6.250E 00	9.779E-04	5.720E 00	8.985E-04
7.493E 01	8.887E-01	5.804E-01	3.357E 02	-3.709E 03	-1.853E 03	-1.856E 03	5.370E 03	5.688E 00	8.901E-04	3.715E 00	5.813E-04
7.626E 01	7.600E-01	0.000	3.531E 02	-3.734E 03	-1.859E 03	-1.880E 03	5.422E 03	4.864E 00	7.611E-04	0.000	0.000
7.911E 01	1.070E 00	0.000	3.897E 02	-3.749E 03	-1.869E 03	-1.880E 03	5.520E 03	6.840E 00	1.072E-03	0.000	0.000
8.301E 01	1.145E 00	0.000	4.370E 02	-3.759E 03	-1.879E 03	-1.880E 03	5.625E 03	7.328E 00	1.147E-03	0.000	0.000
8.582E 01	1.075E 00	0.000	4.617E 02	-3.769E 03	-1.889E 03	-1.880E 03	5.674E 03	6.880E 00	1.077E-03	0.000	0.000
8.868E 01	1.145E 00	0.000	4.885E 02	-3.785E 03	-1.905E 03	-1.880E 03	5.702E 03	7.328E 00	1.147E-03	0.000	0.000
8.868E 01	1.145E 00	0.000	4.885E 02	-3.785E 03	-1.905E 03	-1.880E 03	5.702E 03	7.329E 00	1.147E-03	0.000	0.000

X	DDRAG	CDRAG	CF	MC
4.040E 01	8.379E 01	8.379E 01	2.100E-03	3.588E-02
4.041E 01	1.639E-01	8.395E 01	2.773E-03	4.203E-02
4.072E 01	5.203E 00	8.915E 01	2.510E-03	5.705E-02
4.121E 01	8.113E 00	9.727E 01	2.797E-03	4.518E-02
4.150E 01	4.835E 00	1.021E 02	2.640E-03	5.120E-02
4.246E 01	1.438E 01	1.165E 02	2.910E-03	5.151E-02
4.269E 01	3.428E 00	1.199E 02	3.269E-03	4.860E-02
4.270E 01	1.403E-01	1.200E 02	2.894E-03	5.404E-02
4.277E 01	8.569E-01	1.209E 02	2.832E-03	5.574E-02
4.431E 01	1.673E 01	1.376E 02	3.138E-03	5.544E-02
4.480E 01	3.831E 00	1.415E 02	3.236E-03	5.236E-02
4.549E 01	4.855E 00	1.463E 02	3.330E-03	4.985E-02
4.619E 01	5.233E 00	1.516E 02	3.238E-03	5.081E-02
4.620E 01	7.912E-02	1.516E 02	3.171E-03	5.204E-02
4.625E 01	3.695E-01	1.520E 02	3.353E-03	4.977E-02
4.626E 01	8.157E-02	1.521E 02	3.174E-03	5.306E-02
4.731E 01	8.822E 00	1.609E 02	2.965E-03	5.111E-02
4.811E 01	7.111E 00	1.680E 02	2.818E-03	4.679E-02
4.873E 01	5.317E 00	1.733E 02	2.804E-03	4.477E-02
5.018E 01	1.144E 01	1.848E 02	2.761E-03	3.600E-02
5.071E 01	4.022E 00	1.888E 02	2.857E-03	3.141E-02
5.212E 01	1.012E 01	1.989E 02	2.747E-03	2.602E-02
5.422E 01	1.333E 01	2.122E 02	2.708E-03	1.944E-02
5.472E 01	2.883E 00	2.151E 02	2.632E-03	2.003E-02
5.547E 01	4.132E 00	2.193E 02	2.671E-03	1.706E-02
5.576E 01	1.569E 00	2.208E 02	2.625E-03	1.702E-02
5.623E 01	1.176E 00	2.220E 02	2.500E-03	1.106E-02
5.705E 01	3.275E 00	2.253E 02	2.441E-03	1.540E-02
5.785E 01	7.429E-01	2.260E 02	2.820E-03	1.300E-02
5.793E 01	3.519E-01	2.264E 02	3.216E-03	1.230E-02
5.821E 01	1.232E 00	2.276E 02	2.814E-03	1.395E-02
5.843E 01	9.416E-01	2.285E 02	2.802E-03	1.240E-02
5.916E 01	3.131E 00	2.317E 02	2.669E-03	6.849E-03
6.018E 01	3.802E 00	2.355E 02	2.026E-03	1.300E-02
6.219E 01	7.042E 00	2.425E 02	2.562E-03	1.363E-02
6.361E 01	5.730E 00	2.483E 02	2.698E-03	1.414E-02
6.607E 01	9.652E 00	2.579E 02	2.887E-03	1.737E-02
6.645E 01	1.366E 00	2.593E 02	3.219E-03	1.573E-02
6.669E 01	8.682E-01	2.601E 02	3.237E-03	1.381E-02
6.839E 01	5.839E 00	2.660E 02	3.139E-03	1.083E-02
6.902E 01	1.805E 00	2.678E 02	3.025E-03	7.270E-03
6.979E 01	1.847E 00	2.697E 02	2.999E-03	6.725E-03
7.051E 01	1.656E 00	2.713E 02	2.990E-03	6.641E-03
7.112E 01	1.314E 00	2.727E 02	2.953E-03	5.693E-03
7.250E 01	2.624E 00	2.753E 02	2.913E-03	4.857E-03
7.403E 01	2.500E 00	2.776E 02	2.854E-03	3.845E-03
7.493E 01	1.116E 00	2.789E 02	2.808E-03	3.204E-03
7.626E 01	5.576E-01	2.795E 02	2.807E-03	3.278E-03
7.911E 01	1.182E 00	2.806E 02	2.850E-03	4.201E-03
8.301E 01	1.412E 00	2.820E 02	2.842E-03	4.385E-03
8.582E 01	7.309E-01	2.828E 02	2.819E-03	4.165E-03
8.868E 01	3.025E-01	2.831E 02	2.817E-03	4.340E-03
8.868E 01	0.000	2.831E 02	2.817E-03	4.341E-03

RAMJET PERFORMANCE

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ENGINE PERFORMANCE

CALCULATED THRUST	209.	(LBF)
MEASURED THRUST	563.	(LBF)
CALCULATED SPECIFIC IMPULSE	618.	(LBF-SEC/LBM)
MEASURED SPECIFIC IMPULSE	1669.	(LBF-SEC/LBM)
CALCULATED THRUST COEFFICIENT	0.1409	
MEASURED THRUST COEFFICIENT	0.3802	

REGENERATIVE-COOLED ENGINE PERFORMANCE CALCULATED

STREAM THRUST	3359.	(LBF)
NET THRUST	378.	(LBF)
SPECIFIC IMPULSE	1120.	(LBF-SEC/LBM)
THRUST COEFFICIENT	0.2552	

MOMENTUM AND FORCES

INLET FRICTION DRAG	83.8	(LBF)
INLET MOMENTUM CHANGE	-599.4	(LBF)
COMBUSTOR FRICTION DRAG	175.5	(LBF)
COMBUSTOR STRUT DRAG	-3.37	(LBF)
COMBUSTOR MOMENTUM CHANGE	46.	(LBF)
NOZZLE FRICTION DRAG	25.81	(LBF)
NOZZLE STRUT DRAG	-0.00	(LBF)
NOZZLE MOMENTUM CHANGE	561.	(LBF)
NOZZLE PRESSURE INTEGRAL	584.	(LBF)
EXTERNAL FRICTION DRAG	0.00	(LBF)
EXTERNAL PRESSURE INTEGRAL	0.	(LBF)
TOTAL EXTERNAL DRAG	-741.	(LBF)
TOTAL STRUT DRAG	-3.37	(LBF)
CAVITY FORCE	-1367.	(LBF)
CALCULATED LOAD CELL FORCE	-1899.	(LBF)
MEASURED LOAD CELL FORCE	-1544.	(LBF)
FUEL VACUUM SPECIFIC IMPULSE 0.0, 0.0, 0.0,		

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	1.7090	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	36.593	(IN)
NOZZLE SHROUD TRAILING EDGE	74.933	(IN)
NOZZLE PLUG TRAILING EDGE	88.685	(IN)
STRUT LEADING EDGE	57.849	(IN)
STRUT TRAILING EDGE	66.449	(IN)
COMBUSTOR EXIT	66.449	(IN)

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.9920	
ADDITIVE DRAG COEFFICIENT	0.0000	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.1034	
DELTA P12	0.0910	(PSI)
TOTAL PRESSURE RECOVERY - SUPERSONIC	0.5561	
TOTAL PRESSURE RECOVERY - SUBSONIC	0.1047	
INLET PROCESS EFFICIENCY - SUPERSONIC	0.9100	
INLET PROCESS EFFICIENCY - SUBSONIC	0.9154	
KINETIC ENERGY EFFICIENCY - SUPERSONIC	0.9308	
KINETIC ENERGY EFFICIENCY - SUBSONIC	0.8804	
ENTHALPY AT P0 - SUPERSONIC	-45.29	(BTU/LBM)
ENTHALPY AT P0 - SUBSONIC	-10.44	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0210	
EQUIVALENCE RATIO	0.716	
COMBUSTOR EFFICIENCY	0.517	
TOTAL PRESSURE RATIO	0.0603	
COMBUSTOR EFFECTIVENESS	0.4869	
INJECTOR DISCHARGE COEFFICIENTS 0.9325, 0.6256, 1.6488,		

NOZZLE

VACUUM STREAM THRUST COEFFICIENT - CS	0.9656	
NOZZLE COEFFICIENT - CT	0.8974	
PROCESS EFFICIENCY	0.9290	
KINETIC ENERGY EFFICIENCY	0.9245	

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	A
1B	42.694	B
1C	44.300	
2A	50.169	
2C	46.250	E
3A	55.459	
3B	57.644	
4	46.194	C

Reading 92

$t = 227.37$ sec.

RAMJET PERFORMANCE

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SUMMARY REPORT

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	F/A	F	A/AC	MOMTM	G	IVAC	PHI	ETAC
WIND TUNNEL		1	0 5														
0.000	997.999	2843	623.6(750)	1.2985	28.859	2522											
0.000	0.156	270	-64.6(65)	1.3952	28.858	805	7.288	5868	1.792	0.06342	16.119	0.9923	2960	5.784	184.8		
SPIKE TIP NS		2	0 6														
0.600	11.212	2843	623.6(750)	1.2985	28.858	2522											
0.600	10.274	2787	606.6(734)	1.3003	28.858	2498	0.369	921	2.101	0.06342	16.119	0.9923	3073	0.908	190.6		
WIND TUNNEL		3	0 0														
0.000	997.999	2843	623.6(750)	1.2985	28.859	2522											
0.000	0.165	274	-63.6(66)	1.3954	28.858	811	7.228	5864	1.792	0.06582	16.728	0.9923	3041	5.998	184.8		
SPIKE TIP NS		4	0 0														
0.600	11.212	2843	623.6(750)	1.2985	28.858	2522											
0.600	10.192	2781	605.1(732)	1.3004	28.858	2496	0.385	962	2.101	0.06582	16.728	0.9923	3090	0.984	184.8		
INLET THROAT		5	0 5														
40.400	355.033	2736	591.7(719)	1.3019	28.859	2477											
40.400	10.012	1116	142.7(272)	1.3722	28.858	1624	2.919	4740	1.852	0.79443	16.119	0.0792	2578	56.520	159.9		
INLET UPNSK		6	0 3														
40.400	355.033	2736	591.7(719)	1.3019	28.859	2477											
40.400	8.637	1078	131.6(261)	1.3749	28.858	1593	3.012	4798	1.852	0.72221	16.119	0.0871	2547	53.854	161.1		
INLET DNNSK		7	0 4														
40.400	104.401	2736	591.7(719)	1.3019	28.858	2477											
40.400	91.080	2651	566.4(694)	1.3046	28.858	2441	0.461	1126	1.936	0.72221	16.119	0.0871	2597	12.633	161.1		
COMBUSTOR	0	8	1 5														
40.410	200.367	2817	603.0(804)	1.3002	28.618	2615											
40.410	15.616	1507	202.4(405)	1.3497	28.618	1949	2.299	4481	2.036	0.79990	16.232	0.0792	2577	55.699	158.8	0.24	0.17
COMBUSTOR	0	9	2 5														
40.717	143.444	3144	600.8(903)	1.2851	28.983	2728											
40.717	22.384	2038	250.7(558)	1.3226	28.984	2229	1.878	4186	2.085	0.80282	16.232	0.0789	2565	52.227	158.0	0.24	0.47
COMBUSTOR	0	10	3 5														
41.207	167.357	2812	596.2(802)	1.3000	28.638	2612											
41.207	17.559	1624	230.6(439)	1.3435	28.638	2018	2.120	4277	2.048	0.79712	16.232	0.0795	2516	52.988	155.0	0.24	0.19
COMBUSTOR	0	11	4 3														
41.500	139.852	2854	593.3(815)	1.2981	28.691	2627											
41.500	20.147	1791	263.7(488)	1.3353	28.692	2111	1.924	4061	2.065	0.78687	16.232	0.0803	2464	49.788	151.8		
COMBUSTOR	0	12	5 4													0.24	0.23
42.460	90.703	2745	582.3(781)	1.3025	28.613	2565											
42.460	24.724	1979	343.5(545)	1.3288	28.613	2216	1.560	3457	2.082	0.74382	16.232	0.0852	2284	39.957	140.7	0.24	0.17
COMBUSTOR	0	13	6 21														
42.692	85.227	2545	591.9(782)	1.3134	24.291	2615											
42.692	25.369	1890	373.4(565)	1.3365	24.291	2274	1.454	3306	2.216	0.74260	16.357	0.0860	2240	38.157	136.9	0.50	0.05
COMBUSTOR	0	14	7 21														
42.702	89.582	2446	591.6(750)	1.3179	24.199	2573											
42.702	25.397	1789	374.0(533)	1.3415	24.199	2221	1.486	3301	2.200	0.74196	16.357	0.0861	2238	38.058	136.8	0.50	0.01
COMBUSTOR	0	15	8 21														
42.767	88.386	2429	590.9(745)	1.3186	24.186	2566											
42.767	25.578	1785	377.6(532)	1.3419	24.186	2219	1.472	3267	2.199	0.74019	16.357	0.0863	2226	37.575	136.1	0.50	0.00
COMBUSTOR	0	16	9 21														
44.310	65.175	2359	567.8(721)	1.3210	24.184	2531											
44.310	41.975	2117	487.0(641)	1.3294	24.184	2405	0.836	2012	2.214	0.68278	16.357	0.0935	2028	21.346	124.0	0.50	0.00
COMBUSTOR	0	17	10 21														
44.800	58.407	3330	560.0(1039)	1.2754	25.165	2897											
44.800	47.183	3179	505.2(986)	1.2807	25.166	2836	0.564	1657	2.308	0.67559	16.357	0.0945	1985	17.393	121.3	0.50	0.45
COMBUSTOR	0	18	11 21														
45.487	61.537	2455	549.1(751)	1.3159	24.325	2570											
45.487	49.207	2326	505.5(708)	1.3203	24.325	2506	0.590	1478	2.229	0.67149	16.357	0.0951	1950	15.426	119.2	0.50	0.07

READING = 0092 BLOCK = 121 TIME = 227.367 MACH 7.5 PI = 997.999 TT = 2945.5 PAGE 2

	P	T	H		GAMMA	MOLWT	SONV	MACH	VEL	S	A/A	W	A/AC	MUMIM	G	IVAC	PHI	ETAC
COMBUSTOR	0	19	12	21														
46.192	59.274	2294	548.3(	739)	1.3243	22.645	2572											
46.192	43.828	2130	490.3(	682)	1.3301	22.645	2483	0.666	1705	2.516	0.65705	16.449	0.0977	1969	17.407	119.7	0.89	0.03
COMBUSTOR	0	20	13	21														
46.202	59.817	2222	548.2(	715)	1.3277	22.783	2537											
46.202	43.752	2056	489.9(	657)	1.3336	22.783	2446	0.698	1708	2.305	0.65627	16.449	0.0979	1970	17.425	119.8	0.89	0.00
COMBUSTOR	0	21	14	21														
46.250	57.712	2209	556.7(	756)	1.3297	21.584	2613											
46.250	43.386	2058	500.2(	699)	1.3352	21.584	2527	0.666	1682	2.424	0.65878	16.558	0.0981	1956	17.223	118.1	0.92	0.02
COMBUSTOR	0	22	15	21														
46.260	58.140	2148	556.6(	734)	1.3325	21.535	2583											
46.260	43.310	1995	499.8(	677)	1.3381	21.535	2494	0.676	1686	2.414	0.65650	16.558	0.0982	1957	17.254	118.2	0.92	0.00
COMBUSTOR	0	23	16	21														
47.310	56.732	2098	541.1(	715)	1.3345	21.328	2554											
47.310	35.298	1860	453.7(	628)	1.3434	21.328	2414	0.866	2092	2.408	0.61027	16.558	0.1059	2034	19.837	122.9	0.92	0.00
COMBUSTOR	0	24	17	3														
48.110	56.973	2073	529.6(	706)	1.3353	21.333	2540											
48.110	32.598	1799	429.1(	606)	1.3458	21.333	2376	0.944	2243	2.403	0.56104	16.558	0.1152	2116	19.556	127.8	0.92	0.00
COMBUSTOR	0	25	18	4														
48.727	54.063	2259	520.9(	772)	1.3262	21.501	2632											
48.727	29.975	1951	400.3(	658)	1.3376	21.501	2456	0.975	2394	2.435	0.51190	16.558	0.1263	2202	19.047	133.0	0.92	0.06
COMBUSTOR	0	26	19	5														
50.177	49.648	2515	503.6(	864)	1.3139	21.749	2748											
50.177	18.117	1965	298.2(	659)	1.3337	21.749	2448	1.310	3206	2.473	0.41600	16.558	0.1554	2371	20.730	143.2	0.92	0.10
COMBUSTOR	0	27	20	4														
50.707	51.279	2443	498.9(	837)	1.3170	21.700	2715											
50.707	13.783	1764	247.6(	587)	1.3425	21.700	2329	1.522	3546	2.461	0.38906	16.558	0.1662	2411	21.438	145.6	0.92	0.12
COMBUSTOR	0	28	21	4														
52.117	48.120	2520	488.0(	865)	1.3132	21.787	2748											
52.117	10.800	1742	200.3(	578)	1.3423	21.787	2310	1.643	3794	2.475	0.33159	16.558	0.1950	2492	19.552	150.5	0.92	0.15
COMBUSTOR	0	29	22	4														
54.217	44.603	2573	473.0(	887)	1.3103	21.781	2774											
54.217	8.025	1686	143.7(	559)	1.3439	21.781	2274	1.785	4059	2.494	0.27235	16.594	0.2379	2582	17.179	155.6	0.93	0.17
COMBUSTOR	0	30	23	4														
54.717	40.569	2696	470.1(	932)	1.3045	21.893	2826											
54.717	8.533	1847	151.6(	615)	1.3356	21.894	2367	1.686	3992	2.515	0.26122	16.594	0.2480	2601	16.205	156.7	0.93	0.21
COMBUSTOR	0	31	24	4														
55.467	43.843	2586	466.0(	891)	1.3095	21.808	2778											
55.467	6.754	1629	111.9(	538)	1.3462	21.808	2236	1.882	4209	2.496	0.24624	16.594	0.2631	2626	16.108	158.3	0.93	0.18
COMBUSTOR	0	32	25	4														
55.760	46.223	2526	464.4(	869)	1.3122	21.761	2752											
55.760	6.058	1522	95.3(	501)	1.3520	21.761	2168	1.982	4298	2.485	0.24088	16.594	0.2690	2634	16.089	158.7	0.93	0.17
COMBUSTOR	0	33	26	4														
56.227	47.961	2420	462.1(	831)	1.3170	21.677	2704											
56.227	3.756	1265	43.9(	413)	1.3663	21.677	1991	2.297	4575	2.469	0.19050	16.594	0.3401	2687	15.543	161.9	0.93	0.14
COMBUSTOR	0	34	27	5														
57.652	31.229	2837	455.6(	982)	1.2975	22.048	2881											
57.652	5.328	1856	80.1(	615)	1.3332	22.049	2362	1.820	4300	2.550	0.17614	16.594	0.3678	2720	11.771	163.9	0.93	0.26
COMBUSTOR	0	35	28	3														
57.847	30.575	2863	454.9(	992)	1.2962	22.074	2891											
57.847	5.380	1890	87.3(	627)	1.3315	22.074	2381	1.801	4289	2.555	0.17435	16.594	0.3716	2724	11.620	164.2	0.93	0.27
COMBUSTOR	0	36	29	7														
57.927	31.111	2860	454.5(	991)	1.2964	22.071	2890											
57.927	5.401	1881	85.1(	624)	1.3319	22.072	2376	1.810	4300	2.553	0.17630	16.594	0.3675	2726	11.780	164.3	0.93	0.27
COMBUSTOR	0	37	30	3														
58.207	30.781	2868	453.5(1001)		1.2951	22.099	2901											
58.207	5.475	1914	84.8(	635)	1.3302	22.099	2393	1.795	4295	2.556	0.17572	16.594	0.3687	2732	11.726	164.7	0.93	0.27

	P	T	H		GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	M	A/AC	MOMTM	G	IVAC	PMI	ETAC
COMBUSTOR	0	38	31	4														
58.433	35.069	2735	452.7(	945)	1.3022	21.965	2839											
58.433	4.013	1667	55.3(	549)	1.3425	21.966	2251	1.981	4459	2.530	0.17535	16.594	0.3695	2736	12.152	164.9	0.93	0.23
COMBUSTOR	0	39	32	11														
59.197	100.076	2153	450.3(	734)	1.3292	21.483	2573											
59.197	1.850	741	-44.0(	240)	1.3924	21.483	1585	3.219	4974	2.565	0.17268	16.594	0.3755	2743	13.348	165.3	0.93	0.08
COMBUSTOR	0	40	33	7														
60.177	24.556	3356	447.3(1175)		1.2714	22.544	3067											
60.177	6.050	2620	154.7(	890)	1.2980	22.549	2738	1.397	3826	2.611	0.17153	16.594	0.3727	2752	10.200	165.9	0.93	0.41
COMBUSTOR	0	41	34	5														
62.187	29.540	3019	441.7(1049)		1.2884	22.244	2949											
62.187	6.087	2087	84.5(	696)	1.3214	22.245	2483	1.703	4227	2.570	0.17750	16.594	0.3650	2749	11.601	165.7	0.93	0.32
COMBUSTOR	0	42	35	3														
63.607	29.942	3031	437.8(1053)		1.2878	22.264	2952											
63.607	6.362	2112	85.1(	705)	1.3202	22.265	2495	1.683	4200	2.569	0.18232	16.594	0.3553	2745	11.899	165.4	0.93	0.32
COMBUSTOR	0	43	36	5														
66.071	23.910	3478	429.0(1220)		1.2640	22.705	3103											
66.071	9.475	2898	177.6(	977)	1.2875	22.713	2838	1.250	3547	2.621	0.17281	16.594	0.3749	2739	9.525	165.1	0.93	0.46
COMBUSTOR	0	44	37	4														
66.447	21.400	3564	427.6(1293)		1.2585	22.793	3128											
66.447	9.949	3031	207.8(1042)		1.2799	22.803	2908	1.140	3316	2.638	0.16066	16.594	0.4032	2738	8.280	165.0	0.93	0.48
COMBUSTOR REGEN	45	38	31															
66.447	21.400	3870	563.1(1376)		1.2423	22.775	3240											
66.447	9.309	3269	304.2(1135)		1.2700	22.800	3009	1.196	3399	2.670	0.16066	16.594	0.4032	2818	8.987	169.8	0.93	0.48
NOZZLE AE	46	39	5															
88.683	21.400	3564	427.6(1240)		1.2585	22.793	3128											
88.683	0.557	1532	-348.8(	490)	1.3398	22.806	2115	2.946	6232	2.634	0.03344	16.594	1.9371	3091	3.239	210.4	0.93	0.48
NOZZLE PO	47	40	5															
88.683	21.400	3564	427.6(1240)		1.2585	22.793	3128											
88.683	0.156	1100	-493.3(	345)	1.3648	22.806	1808	3.794	6788	2.634	0.01482	16.594	4.8550	3883	1.500	282.0	0.93	0.48
NOZZLE AE REGEN	48	41	5															
88.683	21.400	3870	563.1(1376)		1.2423	22.775	3240											
88.683	0.606	1739	-276.6(	562)	1.3293	22.805	2245	2.868	6482	2.670	0.03344	16.594	1.9371	3845	3.169	219.7	0.93	0.48
NOZZLE PO REGEN	49	42	5															
88.683	21.400	3870	563.1(1376)		1.2423	22.775	3240											
88.683	0.156	1229	-450.9(	388)	1.3569	22.806	1906	3.737	7123	2.670	0.01336	16.594	4.8499	3868	1.479	283.1	0.93	0.48
FICTIVE COMBUSTR	65	58	0															
66.447	355.033	5100	427.6(1845)		1.1790	24.434	3498											
66.447	0.156	993	-1253.5(	295)	1.3938	24.754	1643	5.562	9172	2.447	0.02310	16.594	2.8046	4842	3.292	291.8	0.93	1.00
FICTIVE NOZZLE	66	59	0															
88.683	15.899	3490	396.3(1223)		1.2611	22.795	3098											
88.683	0.438	1665	-202.4(	536)	1.3329	22.806	2200	2.688	5913	2.651	0.03344	16.594	1.9371	3366	3.073	202.9	0.93	0.48

XABS	P-IB	P-OB	PDA	QUX	Q-IB	Q-OB	CA-ALL	P-IB/PSO	P-IB/PIO	P-OB/PSO	P-OB/PTO
6.981E-01	6.050E-01	0.000	-2.707E-01	0.000	0.000	0.000	2.470E-02	3.876E 00	6.062E-04	0.000	0.000
1.836E 01	6.050E-01	0.000	-2.016E 01	0.000	0.000	0.000	1.854E 02	3.876E 00	6.062E-04	0.000	0.000
3.070E 01	1.075E 00	0.000	-8.826E 01	0.000	0.000	0.000	5.053E 02	6.886E 00	1.077E-03	0.000	0.000
3.508E 01	1.991E 00	0.000	-1.876E 02	0.000	0.000	0.000	6.804E 02	1.276E 01	1.995E-03	0.000	0.000
3.555E 01	2.270E 00	0.000	-2.070E 02	0.000	0.000	0.000	7.013E 02	1.454E 01	2.275E-03	0.000	0.000
3.606E 01	2.165E 00	0.000	-2.296E 02	-2.191E 02	-2.191E 02	0.000	7.246E 02	1.387E 01	2.169E-03	0.000	0.000
3.648E 01	2.362E 00	0.000	-2.489E 02	-2.244E 02	-2.244E 02	0.000	7.443E 02	1.513E 01	2.367E-03	0.000	0.000
3.658E 01	2.361E 00	3.150E 00	-2.866E 02	-2.258E 02	-2.258E 02	0.000	7.492E 02	1.512E 01	2.366E-03	2.018E 01	3.156E-03
3.659E 01	2.361E 00	3.168E 00	-2.867E 02	-2.259E 02	-2.259E 02	0.000	7.495E 02	1.512E 01	2.366E-03	2.029E 01	3.174E-03
3.701E 01	2.355E 00	4.431E 00	-2.869E 02	-2.315E 02	-2.315E 02	0.000	7.930E 02	1.509E 01	2.360E-03	2.838E 01	4.439E-03
3.726E 01	2.267E 00	5.175E 00	-2.881E 02	-2.348E 02	-2.348E 02	0.000	8.169E 02	1.452E 01	2.271E-03	3.315E 01	5.185E-03
3.803E 01	1.990E 00	8.762E 00	-2.689E 02	-2.462E 02	-2.462E 02	0.000	9.021E 02	1.275E 01	1.994E-03	5.613E 01	8.780E-03
3.872E 01	6.392E 00	1.195E 01	-2.635E 02	-3.144E 02	-2.644E 02	-4.998E 01	9.786E 02	4.095E 01	6.405E-03	7.655E 01	1.197E-02
3.875E 01	6.604E 00	1.184E 01	-2.638E 02	-3.172E 02	-2.657E 02	-5.151E 01	9.824E 02	4.230E 01	6.617E-03	7.582E 01	1.186E-02
3.901E 01	8.270E 00	1.094E 01	-2.677E 02	-3.407E 02	-2.772E 02	-6.351E 01	1.012E 03	5.298E 01	8.287E-03	7.009E 01	1.096E-02
3.950E 01	1.170E 01	9.254E 00	-2.850E 02	-3.924E 02	-3.064E 02	-8.604E 01	1.068E 03	7.495E 01	1.172E-02	5.928E 01	9.272E-03
3.974E 01	1.132E 01	8.437E 00	-2.940E 02	-4.211E 02	-3.242E 02	-9.691E 01	1.095E 03	7.252E 01	1.134E-02	5.405E 01	8.454E-03
4.000E 01	1.090E 01	8.067E 00	-3.015E 02	-4.503E 02	-3.474E 02	-1.089E 02	1.126E 03	6.982E 01	1.092E-02	5.167E 01	8.083E-03
4.021E 01	1.451E 01	7.775E 00	-3.098E 02	-4.857E 02	-3.673E 02	-1.184E 02	1.150E 03	9.294E 01	1.454E-02	4.981E 01	7.791E-03
4.040E 01	1.787E 01	1.292E 01	-3.178E 02	-5.137E 02	-3.865E 02	-1.272E 02	1.172E 03	1.145E 02	1.791E-02	8.276E 01	1.295E-02
4.041E 01	1.805E 01	1.319E 01	-3.181E 02	-5.152E 02	-3.876E 02	-1.276E 02	1.173E 03	1.156E 02	1.808E-02	8.446E 01	1.321E-02
4.072E 01	2.340E 01	2.137E 01	-3.258E 02	-5.607E 02	-4.192E 02	-1.415E 02	1.209E 03	1.499E 02	2.345E-02	1.369E 02	2.141E-02
4.121E 01	3.194E 01	3.175E 00	-3.666E 02	-6.301E 02	-4.726E 02	-1.634E 02	1.267E 03	2.046E 02	3.201E-02	2.034E 01	3.181E-03
4.150E 01	3.705E 01	3.245E 00	-4.138E 02	-6.827E 02	-5.065E 02	-1.762E 02	1.302E 03	2.373E 02	3.712E-02	2.079E 01	3.251E-03
4.246E 01	4.597E 01	3.474E 00	-5.795E 02	-8.665E 02	-6.236E 02	-2.390E 02	1.416E 03	2.945E 02	4.607E-02	2.225E 01	3.481E-03
4.269E 01	4.721E 01	3.529E 00	-6.199E 02	-9.130E 02	-6.526E 02	-2.603E 02	1.443E 03	3.024E 02	4.730E-02	2.261E 01	3.536E-03
4.270E 01	4.726E 01	3.531E 00	-6.216E 02	-9.152E 02	-6.539E 02	-2.613E 02	1.445E 03	3.028E 02	4.736E-02	2.262E 01	3.538E-03
4.277E 01	4.761E 01	3.547E 00	-6.328E 02	-9.297E 02	-6.620E 02	-2.677E 02	1.452E 03	3.050E 02	4.770E-02	2.272E 01	3.554E-03
4.431E 01	5.582E 01	2.813E 01	-8.139E 02	-1.306E 03	-8.480E 02	-4.579E 02	1.638E 03	3.576E 02	5.593E-02	1.802E 02	2.819E-02
4.480E 01	5.842E 01	3.594E 01	-8.539E 02	-1.434E 03	-9.047E 02	-5.296E 02	1.698E 03	3.743E 02	5.854E-02	2.302E 02	3.601E-02
4.549E 01	5.153E 01	4.689E 01	-8.834E 02	-1.612E 03	-9.818E 02	-6.304E 02	1.782E 03	3.301E 02	5.163E-02	3.004E 02	4.698E-02
4.619E 01	4.445E 01	4.321E 01	-8.596E 02	-1.791E 03	-1.058E 03	-7.331E 02	1.868E 03	2.847E 02	4.454E-02	2.766E 02	4.329E-02
4.620E 01	4.435E 01	4.316E 01	-8.582E 02	-1.793E 03	-1.059E 03	-7.345E 02	1.869E 03	2.841E 02	4.444E-02	2.764E 02	4.324E-02
4.625E 01	4.387E 01	4.290E 01	-8.556E 02	-1.805E 03	-1.064E 03	-7.414E 02	1.875E 03	2.810E 02	4.396E-02	2.748E 02	4.299E-02
4.626E 01	4.377E 01	4.285E 01	-8.550E 02	-1.808E 03	-1.065E 03	-7.428E 02	1.876E 03	2.804E 02	4.385E-02	2.745E 02	4.294E-02
4.731E 01	3.322E 01	3.737E 01	-7.699E 02	-2.064E 03	-1.172E 03	-8.924E 02	2.006E 03	2.128E 02	3.329E-02	2.394E 02	3.745E-02
4.811E 01	3.200E 01	3.320E 01	-6.817E 02	-2.255E 03	-1.249E 03	-1.005E 03	2.105E 03	2.050E 02	3.206E-02	2.126E 02	3.326E-02
4.873E 01	2.997E 01	2.997E 01	-5.920E 02	-2.399E 03	-1.306E 03	-1.093E 03	2.182E 03	1.920E 02	3.004E-02	1.920E 02	3.004E-02
5.018E 01	1.812E 01	1.812E 01	-4.122E 02	-2.665E 03	-1.431E 03	-1.253E 03	2.363E 03	1.161E 02	1.815E-02	1.161E 02	1.815E-02
5.071E 01	1.378E 01	1.378E 01	-3.682E 02	-2.764E 03	-1.474E 03	-1.289E 03	2.429E 03	8.829E 01	1.381E-02	8.829E 01	1.381E-02
5.212E 01	1.080E 01	1.080E 01	-2.773E 02	-2.945E 03	-1.580E 03	-1.365E 03	2.607E 03	6.918E 01	1.082E-02	6.918E 01	1.082E-02
5.422E 01	8.025E 00	8.025E 00	-1.736E 02	-3.173E 03	-1.716E 03	-1.457E 03	2.873E 03	5.141E 01	8.041E-03	5.141E 01	8.041E-03
5.472E 01	8.533E 00	8.533E 00	-1.521E 02	-3.221E 03	-1.744E 03	-1.476E 03	2.937E 03	5.466E 01	8.550E-03	5.466E 01	8.550E-03
5.547E 01	6.754E 00	6.754E 00	-1.225E 02	-3.289E 03	-1.785E 03	-1.504E 03	3.033E 03	4.326E 01	6.767E-03	4.326E 01	6.767E-03
5.576E 01	6.058E 00	6.058E 00	-1.129E 02	-3.314E 03	-1.799E 03	-1.515E 03	3.070E 03	3.881E 01	6.070E-03	3.881E 01	6.070E-03
5.623E 01	2.562E 00	4.950E 00	-5.916E 01	-3.355E 03	-1.822E 03	-1.531E 03	3.102E 03	1.641E 01	2.568E-03	3.171E 01	4.960E-03
5.765E 01	5.328E 00	5.328E 00	-2.259E 01	-3.460E 03	-1.884E 03	-1.576E 03	3.210E 03	3.413E 01	5.339E-03	3.413E 01	5.339E-03
5.785E 01	5.380E 00	5.380E 00	-1.758E 01	-3.473E 03	-1.892E 03	-1.582E 03	3.234E 03	3.446E 01	5.390E-03	3.446E 01	5.390E-03
5.793E 01	5.401E 00	5.401E 00	-1.541E 01	-3.479E 03	-1.895E 03	-1.584E 03	3.245E 03	3.460E 01	5.412E-03	3.460E 01	5.412E-03
5.821E 01	5.475E 00	5.475E 00	-8.313E 00	-3.496E 03	-1.905E 03	-1.591E 03	3.280E 03	3.507E 01	5.486E-03	3.507E 01	5.486E-03
5.843E 01	4.613E 00	4.613E 00	-3.406E 00	-3.510E 03	-1.913E 03	-1.597E 03	3.309E 03	2.955E 01	4.622E-03	2.955E 01	4.622E-03
5.916E 01	1.850E 00	1.850E 00	5.355E 00	-3.548E 03	-1.936E 03	-1.612E 03	3.402E 03	1.185E 01	1.854E-03	1.185E 01	1.854E-03
6.018E 01	8.050E 00	8.050E 00	1.682E 01	-3.599E 03	-1.964E 03	-1.635E 03	3.532E 03	5.157E 01	8.066E-03	5.157E 01	8.066E-03
6.219E 01	6.087E 00	6.087E 00	1.847E 01	-3.695E 03	-2.005E 03	-1.687E 03	3.790E 03	3.900E 01	6.100E-03	3.900E 01	6.100E-03
6.361E 01	6.362E 00	6.362E 00	1.847E 01	-3.761E 03	-2.031E 03	-1.730E 03	3.972E 03	4.076E 01	6.375E-03	4.076E 01	6.375E-03
6.607E 01	9.475E 00	9.475E 00	1.847E 01	-3.902E 03	-2.089E 03	-1.814E 03	4.289E 03	6.069E 01	9.493E-03	6.069E 01	9.493E-03

XABS	P-1B	P-0B	XDA	XDX	G-1P	G-0B	LAMALL	P-1B/PS0	P-1B/P10	P-0B/PS0	P-0B/P10
6.645E 01	9.949E 00	9.949E 00	1.847E 01	-3.926E 03	-2.049E 03	-1.628E 03	4.337E 03	6.373E 01	9.969E-03	6.373E 01	9.969E-03
6.669E 01	5.124E 00	1.025E 01	1.847E 01	-3.942E 03	-2.105E 03	-1.836E 03	4.308E 03	3.282E 01	5.134E-03	6.564E 01	1.027E-02
6.835E 01	5.530E 00	5.460E 00	9.503E 01	-4.038E 03	-2.143E 03	-1.895E 03	4.584E 03	3.542E 01	5.541E-03	3.498E 01	5.471E-03
6.902E 01	4.181E 00	8.550E-01	1.763E 02	-4.074E 03	-2.155E 03	-1.919E 03	4.665E 03	2.678E 01	4.189E-03	5.477E 00	8.567E-04
6.979E 01	2.630E 00	1.535E 00	2.451E 02	-4.115E 03	-2.166E 03	-1.949E 03	4.760E 03	1.685E 01	2.635E-03	9.830E 00	1.538E-03
7.051E 01	1.918E 00	2.170E 00	3.000E 02	-4.153E 03	-2.175E 03	-1.978E 03	4.848E 03	1.229E 01	1.922E-03	1.390E 01	2.174E-03
7.112E 01	1.315E 00	1.953E 00	3.397E 02	-4.183E 03	-2.182E 03	-2.002E 03	4.922E 03	8.424E 00	1.317E-03	1.251E 01	1.957E-03
7.250E 01	1.195E 00	1.463E 00	4.07UE 02	-4.236E 03	-2.194E 03	-2.042E 03	5.048E 03	7.655E 00	1.197E-03	9.374E 00	1.466E-03
7.403E 01	1.038E 00	9.200E-01	4.623E 02	-4.278E 03	-2.206E 03	-2.078E 03	5.273E 03	6.651E 00	1.040E-03	5.893E 00	9.218E-04
7.493E 01	9.458E-01	5.990E-01	4.965E 02	-4.302E 03	-2.212E 03	-2.089E 03	5.370E 03	6.058E 00	9.477E-04	3.837E 00	6.002E-04
7.626E 01	8.100E-01	0.000	5.150E 02	-4.341E 03	-2.222E 03	-2.119E 03	5.422E 03	5.189E 00	8.116E-04	0.000	0.000
7.911E 01	1.395E 00	0.000	5.591E 02	-4.360E 03	-2.240E 03	-2.119E 03	5.520E 03	8.936E 00	1.398E-03	0.000	0.000
8.301E 01	1.280E 00	0.000	6.163E 02	-4.383E 03	-2.264E 03	-2.119E 03	5.625E 03	8.199E 00	1.283E-03	0.000	0.000
8.502E 01	1.150E 00	0.000	6.433E 02	-4.406E 03	-2.287E 03	-2.119E 03	5.679E 03	7.367E 00	1.152E-03	0.000	0.000
8.868E 01	1.210E 00	0.000	6.717E 02	-4.440E 03	-2.326E 03	-2.119E 03	5.702E 03	7.751E 00	1.212E-03	0.000	0.000
8.868E 01	1.210E 00	0.000	6.717E 02	-4.440E 03	-2.326E 03	-2.119E 03	5.702E 03	7.752E 00	1.213E-03	0.000	0.000

HEADING = 0092 MLOCK = 161 TIME = 227.36/ MACH /.5 P1 = 99/.994 T1 = 2443.5

X	DDRAG	CURAG	CF	MC
4.040E 01	8.415E 01	8.415E 01	2.088E-03	5.366E-02
4.041E 01	1.632E-01	8.431E 01	2.784E-03	4.294E-02
4.072E 01	5.102E 00	8.948E 01	2.539E-03	5.855E-02
4.121E 01	8.137E 00	9.761E 01	2.831E-03	4.574E-02
4.150E 01	4.885E 00	1.025E 02	2.665E-03	5.205E-02
4.246E 01	1.434E 01	1.168E 02	2.957E-03	5.202E-02
4.269E 01	3.378E 00	1.202E 02	3.309E-03	4.866E-02
4.270E 01	1.390E-01	1.204E 02	2.917E-03	5.529E-02
4.277E 01	8.514E-01	1.212E 02	2.859E-03	5.630E-02
4.431E 01	1.649E 01	1.377E 02	3.160E-03	5.494E-02
4.480E 01	3.708E 00	1.414E 02	3.263E-03	5.145E-02
4.549E 01	4.854E 00	1.463E 02	3.795E-03	4.080E-02
4.619E 01	5.197E 00	1.515E 02	3.535E-03	4.651E-02
4.620E 01	7.169E-02	1.515E 02	3.261E-03	5.061E-02
4.625E 01	3.460E-01	1.519E 02	3.512E-03	4.758E-02
4.626E 01	7.248E-02	1.520E 02	3.265E-03	5.164E-02
4.731E 01	7.660E 00	1.596E 02	3.093E-03	5.311E-02
4.811E 01	5.941E 00	1.656E 02	2.993E-03	5.265E-02
4.873E 01	4.371E 00	1.699E 02	2.906E-03	5.140E-02
5.018E 01	1.024E 01	1.802E 02	2.780E-03	4.146E-02
5.071E 01	3.992E 00	1.842E 02	2.916E-03	5.360E-02
5.212E 01	1.031E 01	1.945E 02	2.752E-03	2.965E-02
5.422E 01	1.339E 01	2.079E 02	2.725E-03	2.343E-02
5.472E 01	2.923E 00	2.108E 02	2.772E-03	2.354E-02
5.547E 01	4.324E 00	2.151E 02	2.814E-03	1.970E-02
5.576E 01	1.668E 00	2.168E 02	2.709E-03	1.879E-02
5.623E 01	1.225E 00	2.180E 02	2.543E-03	1.314E-02
5.765E 01	3.414E 00	2.214E 02	2.467E-03	1.676E-02
5.785E 01	7.684E-01	2.222E 02	2.828E-03	1.516E-02
5.793E 01	3.670E-01	2.225E 02	3.301E-03	1.325E-02
5.821E 01	1.265E 00	2.238E 02	2.826E-03	1.529E-02
5.843E 01	9.725E-01	2.248E 02	2.822E-03	1.300E-02
5.916E 01	3.255E 00	2.281E 02	2.692E-03	7.443E-03
6.018E 01	3.896E 00	2.320E 02	2.372E-03	2.230E-02
6.219E 01	7.715E 00	2.397E 02	3.101E-03	1.469E-02
6.361E 01	6.435E 00	2.461E 02	2.896E-03	1.631E-02
6.607E 01	1.003E 01	2.561E 02	3.028E-03	1.937E-02
6.645E 01	1.363E 00	2.575E 02	3.310E-03	1.757E-02
6.669E 01	8.717E-01	2.584E 02	3.306E-03	1.579E-02
6.835E 01	6.174E 00	2.645E 02	3.222E-03	1.360E-02
6.902E 01	2.014E 00	2.666E 02	3.076E-03	8.137E-03
6.979E 01	1.935E 00	2.685E 02	3.042E-03	7.139E-03
7.051E 01	1.704E 00	2.702E 02	3.035E-03	7.037E-03
7.112E 01	1.350E 00	2.715E 02	2.998E-03	6.013E-03
7.250E 01	2.708E 00	2.743E 02	2.963E-03	5.186E-03
7.403E 01	2.601E 00	2.769E 02	2.908E-03	4.135E-03
7.493E 01	1.166E 00	2.780E 02	2.863E-03	3.462E-03
7.626E 01	5.860E-01	2.786E 02	2.862E-03	3.516E-03
7.911E 01	1.325E 00	2.799E 02	2.933E-03	3.292E-03
8.301E 01	1.591E 00	2.815E 02	2.896E-03	4.955E-03
8.582E 01	7.788E-01	2.823E 02	2.865E-03	4.540E-03
8.868E 01	3.171E-01	2.826E 02	2.861E-03	4.669E-03
9.000E 01	0.000	2.826E 02	2.861E-03	4.669E-03

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	366.	(LBF)
MEASURED THRUST	1102.	(LBF)
CALCULATED SPECIFIC IMPULSE	864.	(LBF-SEC/LBM)
MEASURED SPECIFIC IMPULSE	2463.	(LBF-SEC/LBM)
CALCULATED THRUST COEFFICIENT	0.2608	
MEASURED THRUST COEFFICIENT	0.7430	

REGENERATIVE-COOLED ENGINE PERFORMANCE CALCULATED

STREAM THRUST	3515.	(LBF)
NET THRUST	535.	(LBF)
SPECIFIC IMPULSE	1197.	(LBF-SEC/LBM)
THRUST COEFFICIENT	0.3612	

MOMENTUM AND FORCES

INLET FRICTION DRAG	84.2	(LBF)
INLET MOMENTUM CHANGE	-402.0	(LBF)
COMBUSTOR FRICTION DRAG	173.3	(LBF)
COMBUSTOR STRUT DRAG	-13.38	(LBF)
COMBUSTOR MOMENTUM CHANGE	160.	(LBF)
NOZZLE FRICTION DRAG	25.12	(LBF)
NOZZLE STRUT DRAG	-0.00	(LBF)
NOZZLE MOMENTUM CHANGE	628.	(LBF)
NOZZLE PRESSURE INTEGRAL	653.	(LBF)
EXTERNAL FRICTION DRAG	0.00	(LBF)
EXTERNAL PRESSURE INTEGRAL	0.	(LBF)
TOTAL EXTERNAL DRAG	-741.	(LBF)
TOTAL STRUT DRAG	-13.38	(LBF)
CAVITY FORCE	-1740.	(LBF)
CALCULATED LOAD CELL FORCE	-2094.	(LBF)
MEASURED LOAD CELL FORCE	-1379.	(LBF)
FUEL VACUUM SPECIFIC IMPULSE	0.0, 0.0, 0.0, -148.0	

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	1.7070	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	36.591	(IN)
NOZZLE SHROUD TRAILING EDGE	74.931	(IN)
NOZZLE PLUG TRAILING EDGE	88.883	(IN)
STRUT LEADING EDGE	57.847	(IN)
STRUT TRAILING EDGE	66.447	(IN)
COMBUSTOR EXIT	66.447	(IN)

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.9923	
ADDITIVE DRAG COEFFICIENT	0.0000	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.1033	
DELTA PT2	0.0406	(PSI)
TOTAL PRESSURE RECOVERY - SUPERSONIC	0.3557	
TOTAL PRESSURE RECOVERY - SUBSONIC	0.1046	
INLET PROCESS EFFICIENCY - SUPERSONIC	0.9118	
INLET PROCESS EFFICIENCY - SUBSONIC	0.9159	
KINETIC ENERGY EFFICIENCY - SUPERSONIC	0.9271	
KINETIC ENERGY EFFICIENCY - SUBSONIC	0.8766	
ENTHALPY AT P0 - SUPERSONIC	-48.29	(BTU/LBM)
ENTHALPY AT P0 - SUBSONIC	-11.49	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0277	
EQUIVALENCE RATIO	0.930	
COMBUSTOR EFFICIENCY	0.483	
TOTAL PRESSURE RATIO	0.0603	
COMBUSTOR EFFECTIVENESS	0.4871	
INJECTOR DISCHARGE COEFFICIENTS	0.9282, 0.8573, 0.8383, 0.9305	

NOZZLE

VACUUM STREAM THRUST COEFFICIENT - CS	0.9644	
NOZZLE COEFFICIENT - CT	0.8929	
PROCESS EFFICIENCY	0.9486	
KINETIC ENERGY EFFICIENCY	0.9222	

FUEL INJECTIONS

INJECTORS	STATION	VALVE
1A	40.400	A
1B	42.692	B
1C	44.300	
2A	50.167	
2C	48.250	E
3A	55.457	
3B	57.642	
4	48.192	C

Reading 92

t = 248.07 sec.

92/144

RAMJET PERFORMANCE

S U M M A R Y R E P O R T

	P	T	M		GAMMA	MOLWT	SONV	MACH	VEL	S	F/A	A	A/AT	RUNIT	Q	ISAC	PHI	ETAC
WIND TUNNEL		1	0	5														
0.000	998.499	2852	626.0	(752)	1.2980	28.881	2525											
0.000	0.156	271	64.2	(65)	1.3953	28.880	807	7.287	5877	1.795	0.06326	16.074	0.9920	2976	5.778	185.1		
SPIKE TIP NS		2	0	6														
0.600	11.175	2852	626.0	(752)	1.2980	28.880	2525											
0.600	10.235	2795	608.9	(736)	1.2998	28.880	2501	0.370	924	2.102	0.06326	16.074	0.9920	3062	0.909	190.5		
WIND TUNNEL		3	0	0														
0.000	998.499	2852	626.0	(752)	1.2980	28.881	2525											
0.000	0.164	275	63.3	(66)	1.3954	28.880	812	7.231	5873	1.795	0.06549	16.640	0.9920	3079	5.977	185.0		
SPIKE TIP NS		4	0	0														
0.600	11.175	2852	626.0	(752)	1.2980	28.880	2525											
0.600	10.189	2790	607.4	(734)	1.3000	28.880	2499	0.385	962	2.102	0.06549	16.640	0.9920	3079	0.980	185.0		
INLET THROAT		5	0	3														
40.400	371.020	2747	594.6	(722)	1.3014	28.881	2481											
40.400	9.774	1101	138.6	(268)	1.3729	28.880	1613	2.961	4776	1.850	0.79267	16.074	0.0792	2584	58.830	160.8		
INLET UPNRSK		6	0	3														
40.400	371.020	2747	594.6	(722)	1.3014	28.881	2481											
40.400	8.436	1057	127.9	(257)	1.3756	28.880	1582	3.054	4833	1.850	0.72061	16.074	0.0871	2603	54.119	161.9		
INLET DNNRSK		7	0	4														
40.400	104.796	2747	594.6	(722)	1.3014	28.881	2481											
40.400	91.565	2662	580.5	(697)	1.3041	28.880	2445	0.459	1121	1.937	0.72061	16.074	0.0871	2603	12.554	161.9		
COMBUSTOR	0	8	1	3														
40.410	370.652	2747	594.5	(722)	1.3014	28.881	2481											
40.410	9.777	1101	138.9	(268)	1.3729	28.880	1613	2.960	4775	1.850	0.79257	16.074	0.0792	2584	58.814	160.7		
COMBUSTOR	0	9	2	3														
40.719	361.135	2741	592.8	(720)	1.3016	28.881	2478											
40.719	9.954	1111	141.5	(271)	1.3723	28.880	1620	2.933	4752	1.851	0.79545	16.074	0.0789	2575	58.744	160.2		
COMBUSTOR	0	10	3	4														
41.209	329.244	2732	590.1	(717)	1.3019	28.881	2474											
41.209	10.328	1146	150.4	(280)	1.3701	28.880	1644	2.852	4690	1.856	0.78976	16.074	0.0795	2553	57.565	158.9		
COMBUSTOR	0	11	4	4														
41.500	300.973	2726	588.4	(716)	1.3020	28.881	2472											
41.500	10.671	1182	159.5	(289)	1.3678	28.880	1668	2.777	4632	1.862	0.78164	16.074	0.0803	2534	56.270	157.6		
COMBUSTOR	0	12	5	4														
42.460	242.250	2700	580.7	(708)	1.3029	28.881	2461											
42.460	10.942	1247	170.3	(306)	1.3637	28.880	1711	2.629	4498	1.874	0.73759	16.074	0.0851	2486	51.561	154.6		
COMBUSTOR	0	13	6	21														
42.694	133.315	2662	599.7	(781)	1.3074	25.642	2598											
42.694	9.166	1364	194.4	(378)	1.3595	25.641	1896	2.375	4504	2.106	0.73728	14.234	0.0860	2474	51.601	152.4		
COMBUSTOR	0	14	7	21													0.33	0.07
42.704	155.182	2560	599.6	(750)	1.3120	25.540	2557											
42.704	9.270	1255	195.4	(347)	1.3666	25.540	1827	2.461	4497	2.084	0.73617	14.234	0.0861	2474	51.452	152.4	0.33	0.01
COMBUSTOR	0	15	8	21														
42.769	159.648	2543	598.9	(744)	1.3128	25.525	2550											
42.769	9.941	1259	201.5	(348)	1.3665	25.525	1831	2.436	4460	2.079	0.73496	14.234	0.0862	2470	50.936	152.1	0.33	0.00
COMBUSTOR	0	16	9	6														
44.310	80.039	3299	580.0	(980)	1.2768	26.375	2818											
44.310	36.000	2796	409.3	(814)	1.2940	26.376	2611	1.119	2923	2.192	0.67811	14.234	0.0935	2385	30.601	146.9	0.33	0.52
COMBUSTOR	0	17	10	4														
44.800	77.622	3199	573.5	(948)	1.2814	26.286	2764											
44.800	46.922	2859	456.4	(836)	1.2929	26.288	2644	0.908	2400	2.188	0.67014	14.234	0.0946	2348	25.000	144.6	0.33	0.47
COMBUSTOR	0	18	11	4														
45.489	76.593	3036	564.2	(896)	1.2888	26.140	2728											
45.489	49.647	2752	468.9	(803)	1.2983	26.141	2607	0.838	2185	2.176	0.66670	14.234	0.0951	2311	22.635	142.4	0.33	0.38

READING = 0092 BLOCK = 144 TIME = 248.067 MACH 7.3 P1 = 998.499 TT = 2852.2

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	*	A/AC	MOMTM	G	IVAC	PHI	ETAC
COMBUSTOR	0	19	12 6														
46.194	74.380	2765	565.6(892)	1.3030	23.478	2762											
46.194	45.327	2401	454.1(784)	1.3132	23.478	2616	0.895	2340	2.331	0.65491	16.386	0.0977	2326	23.815	141.9	0.64	0.17
COMBUSTOR	0	20	13 2														
46.204	74.332	2769	565.4(893)	1.3028	23.482	2764											
46.204	45.266	2464	453.7(785)	1.3131	23.482	2617	0.895	2343	2.331	0.65412	16.386	0.0978	2327	23.817	142.0	0.64	0.18
COMBUSTOR	0	21	14 8														
46.250	73.535	2472	577.6(852)	1.3181	21.538	2743											
46.250	44.984	2192	472.0(747)	1.3278	21.538	2592	0.887	2299	2.441	0.65745	16.514	0.0981	2310	23.490	139.9	0.90	0.07
COMBUSTOR	0	22	15 2														
46.260	73.492	2473	577.5(852)	1.3180	21.539	2743											
46.260	44.923	2193	471.7(747)	1.3278	21.539	2593	0.888	2301	2.441	0.65703	16.514	0.0981	2310	23.497	139.9	0.90	0.07
COMBUSTOR	0	23	16 4														
47.310	69.889	2676	561.0(925)	1.3082	21.744	2829											
47.310	38.490	2320	425.1(791)	1.3204	21.745	2647	0.986	2608	2.467	0.60892	16.514	0.1059	2383	24.683	144.3	0.90	0.14
COMBUSTOR	0	24	17 4														
48.110	66.534	2874	548.0(998)	1.2987	21.945	2908											
48.110	37.929	2520	410.9(862)	1.3106	21.945	2736	0.957	2619	2.490	0.55974	16.514	0.1152	2463	22.783	149.2	0.90	0.20
COMBUSTOR	0	25	18 4														
48.729	62.988	3117	537.9(1087)	1.2870	22.185	2999											
48.729	33.350	2698	372.5(925)	1.3012	22.186	2805	1.026	2877	2.516	0.51054	16.514	0.1263	2555	22.824	154.7	0.90	0.28
COMBUSTOR	0	26	19 4														
50.179	59.085	3365	518.6(1179)	1.2742	22.459	3081											
50.179	19.765	2636	228.9(896)	1.2995	22.463	2754	1.383	3807	2.538	0.41490	16.514	0.1554	2741	24.546	166.0	0.90	0.36
COMBUSTOR	0	27	20 4														
50.709	62.446	3217	513.6(1123)	1.2815	22.332	3030											
50.709	14.800	2313	161.8(777)	1.3126	22.334	2600	1.614	4196	2.522	0.38803	16.514	0.1662	2783	25.301	168.5	0.90	0.33
COMBUSTOR	0	28	21 4														
52.119	59.839	3264	502.4(1140)	1.2788	22.401	3044											
52.119	11.390	2230	101.0(745)	1.3147	22.404	2551	1.757	4482	2.528	0.33071	16.514	0.1950	2867	23.034	173.6	0.90	0.35
COMBUSTOR	0	29	22 4														
54.219	51.612	3452	487.1(1214)	1.2686	22.528	3109											
54.219	9.475	2362	56.3(793)	1.3071	22.534	2610	1.779	4643	2.560	0.27163	16.549	0.2379	2966	19.600	179.2	0.91	0.41
COMBUSTOR	0	30	23 4														
54.719	50.250	3490	484.1(1229)	1.2665	22.571	3120											
54.719	9.067	2383	45.4(800)	1.3058	22.578	2617	1.790	4686	2.564	0.26053	16.549	0.2480	2986	18.971	180.4	0.91	0.42
COMBUSTOR	0	31	24 4														
55.469	54.413	3351	479.8(1176)	1.2737	22.449	3075											
55.469	7.308	2118	0.1(704)	1.3172	22.453	2486	1.971	4899	2.548	0.24559	16.549	0.2631	3012	18.698	182.0	0.91	0.38
COMBUSTOR	0	32	25 4														
55.760	57.261	3280	478.2(1149)	1.2773	22.385	3050											
55.760	6.625	1992	-18.6(659)	1.3231	22.388	2419	2.061	4986	2.538	0.24028	16.549	0.2684	3021	18.617	182.5	0.91	0.36
COMBUSTOR	0	33	26 4														
56.229	57.109	3196	475.7(1118)	1.2813	22.313	3021											
56.229	4.359	1742	-76.9(571)	1.3346	22.315	2276	2.310	5258	2.531	0.18999	16.549	0.3401	3085	15.526	186.4	0.91	0.34
COMBUSTOR	0	34	27 5														
57.654	40.043	3621	469.1(1278)	1.2582	22.735	3157											
57.654	5.525	2340	-41.1(781)	1.3051	22.747	2584	1.956	5053	2.591	0.17560	16.549	0.3679	3120	13.789	188.5	0.91	0.47
COMBUSTOR	0	35	28 3														
57.849	39.436	3642	468.3(1285)	1.2569	22.758	3162											
57.849	5.525	2365	-41.5(790)	1.3039	22.770	2595	1.946	5051	2.593	0.17385	16.549	0.3717	3124	13.646	188.8	0.91	0.48
COMBUSTOR	0	36	29 8														
57.929	40.294	3632	468.0(1281)	1.2576	22.748	3159											
57.929	5.525	2345	-44.8(783)	1.3048	22.760	2585	1.959	5066	2.590	0.17580	16.549	0.3675	3126	13.840	188.9	0.91	0.47
COMBUSTOR	0	37	30 3														
58.209	40.230	3647	466.9(1287)	1.2567	22.766	3164											
58.209	5.525	2358	-47.6(787)	1.3041	22.778	2591	1.959	5074	2.591	0.17525	16.549	0.3687	3132	13.818	189.2	0.91	0.48

	P	T	M	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	PCP/P	Q	IVAC	PHI	ETAC
COMBUSTOR	0	38	31 5														
58.435	46.625	3451	460.1(1213)	1.2679	22.576	3104											
58.435	4.069	2043	-82.0(675)	1.3166	22.582	2455	2.150	5257	2.566	0.17489	16.549	0.3695	3135	14.233	189.5	0.91	0.42
COMBUSTOR	0	39	32 18														
59.159	143.085	2746	463.6(950)	1.3021	21.936	2847											
59.159	1.925	912	-196.4(292)	1.3814	21.936	1690	3.401	5747	2.407	0.17217	16.549	0.3753	3141	15.376	189.6	0.91	0.23
COMBUSTOR	0	40	33 7														
60.179	30.600	4224	460.2(1507)	1.2148	23.379	3303											
60.179	7.975	3269	33.5(1123)	1.2615	23.452	2957	1.563	4621	2.642	0.17808	16.549	0.3777	3148	12.285	190.2	0.91	0.67
COMBUSTOR	0	41	34 5														
62.189	35.418	3930	453.5(1394)	1.2378	23.085	3237											
62.189	6.762	2788	-22.3(943)	1.2844	23.117	2775	1.758	4879	2.616	0.17708	16.549	0.3650	3142	13.423	189.8	0.91	0.57
COMBUSTOR	0	42	35 6														
63.609	37.808	3832	448.5(1357)	1.2445	22.997	3211											
63.609	6.531	2643	-39.0(890)	1.2909	23.020	2714	1.820	4939	2.604	0.18183	16.549	0.3553	3135	13.956	189.4	0.91	0.55
COMBUSTOR	0	43	36 5														
66.073	38.828	4352	438.6(1555)	1.2026	23.571	3322											
66.073	9.100	3538	56.3(1225)	1.2459	23.673	3043	1.438	4374	2.648	0.17235	16.549	0.3749	3124	11.716	188.8	0.91	0.73
COMBUSTOR	0	44	37 4														
66.449	25.788	4495	437.0(1610)	1.1878	23.732	3344											
66.449	9.492	3811	90.5(1330)	1.2265	23.877	3120	1.335	4164	2.662	0.16023	16.549	0.4032	3122	10.369	188.7	0.91	0.79
COMBUSTOR REGEN		45	38 2														
66.449	25.788	4691	565.2(1693)	1.1741	23.624	3404											
66.449	10.428	4098	231.8(1447)	1.2054	23.823	3211	1.272	4084	2.690	0.16023	16.549	0.4032	3178	10.170	192.0	0.91	0.79
NOZZLE AE		46	39 5														
88.685	25.788	4495	437.0(1564)	1.1878	23.732	3344											
88.685	0.666	2184	-561.4(704)	1.2969	23.920	2426	2.913	7068	2.662	0.03336	16.549	1.9371	3966	3.664	239.6	0.91	0.79
NOZZLE PO		47	40 5														
88.685	25.788	4495	437.0(1564)	1.1878	23.732	3344											
88.685	0.156	1547	-784.5(481)	1.3270	23.920	2065	3.785	7818	2.662	0.01220	16.549	5.2941	4233	1.483	255.8	0.91	0.79
NOZZLE AE REGEN		48	41 5														
88.685	25.788	4691	565.2(1693)	1.1741	23.624	3404											
88.685	0.711	2391	-485.2(780)	1.2869	23.920	2531	2.864	7250	2.690	0.03336	16.549	1.9371	4082	3.758	246.6	0.91	0.79
NOZZLE PO REGEN		49	42 5														
88.685	25.788	4691	565.2(1693)	1.1741	23.624	3404											
88.685	0.156	1679	-739.6(526)	1.3197	23.920	2146	3.765	8080	2.690	0.01162	16.549	5.5605	4378	1.459	264.6	0.91	0.79
FICTIVE COMBUSTR		65	58 0														
66.449	371.020	5129	437.0(1858)	1.1786	24.432	3507											
66.449	0.156	992	-1260.4(295)	1.3536	24.753	1642	5.612	9216	2.448	0.02322	16.549	2.7832	4852	3.325	293.2	0.91	1.00
FICTIVE NOZZLE		66	59 0														
88.685	18.068	4415	399.6(1577)	1.1881	23.740	3314											
88.685	0.777	2398	-402.9(783)	1.2867	23.920	2534	2.622	6645	2.684	0.03336	16.549	1.9371	3804	3.445	229.9	0.91	0.79

READING = 0092 BLOCK = 144 TIME = 248.067 MACH 7.3 P1 = 998.499 T1 = 2852.2 PAGE 4

XABS	P-IB	P-OB	P0A	Q0X	Q-IB	Q-OB	CA-ALL	P-IB/P80	P-IB/PT0	P-OB/P80	P-OB/PT0
6.981E-01	6.050E-01	0.000	-2.498E-01	0.000	0.000	0.000	2.470E-02	3.879E 00	6.059E-04	0.000	0.000
1.836E 01	6.050E-01	0.000	-2.016E 01	0.000	0.000	0.000	1.634E 02	3.879E 00	6.059E-04	0.000	0.000
3.070E 01	1.085E 00	0.000	-5.867E 01	0.000	0.000	0.000	5.053E 02	6.956E 00	1.087E-03	0.000	0.000
3.508E 01	1.972E 00	0.000	-1.877E 02	0.000	0.000	0.000	6.804E 02	1.264E 01	1.975E-03	0.000	0.000
3.555E 01	2.260E 00	0.000	-2.070E 02	0.000	0.000	0.000	7.013E 02	1.449E 01	2.263E-03	0.000	0.000
3.606E 01	2.150E 00	0.000	-2.294E 02	-2.677E 02	-2.677E 02	0.000	7.246E 02	1.378E 01	2.153E-03	0.000	0.000
3.648E 01	2.355E 00	0.000	-2.487E 02	-2.742E 02	-2.742E 02	0.000	7.443E 02	1.510E 01	2.359E-03	0.000	0.000
3.659E 01	2.352E 00	3.153E 00	-2.865E 02	-2.759E 02	-2.759E 02	0.000	7.493E 02	1.508E 01	2.356E-03	2.021E 01	3.158E-03
3.659E 01	2.352E 00	3.171E 00	-2.866E 02	-2.760E 02	-2.760E 02	0.000	7.496E 02	1.508E 01	2.355E-03	2.033E 01	3.176E-03
3.701E 01	2.340E 00	4.434E 00	-2.886E 02	-2.827E 02	-2.827E 02	0.000	7.928E 02	1.500E 01	2.344E-03	2.842E 01	4.440E-03
3.726E 01	2.258E 00	5.187E 00	-2.878E 02	-2.869E 02	-2.869E 02	0.000	8.190E 02	1.448E 01	2.262E-03	3.326E 01	5.195E-03
3.803E 01	2.005E 00	8.808E 00	-2.682E 02	-3.006E 02	-3.006E 02	0.000	9.020E 02	1.285E 01	2.008E-03	5.647E 01	8.821E-03
3.872E 01	6.424E 00	1.204E 01	-2.629E 02	-3.686E 02	-3.152E 02	-5.335E 01	9.787E 02	4.118E 01	6.433E-03	7.721E 01	1.206E-02
3.875E 01	6.623E 00	1.193E 01	-2.631E 02	-3.708E 02	-3.160E 02	-5.488E 01	9.822E 02	4.246E 01	6.633E-03	7.651E 01	1.195E-02
3.901E 01	8.290E 00	1.101E 01	-2.670E 02	-3.902E 02	-3.225E 02	-6.769E 01	1.012E 03	5.315E 01	8.302E-03	7.062E 01	1.103E-02
3.950E 01	1.138E 01	9.282E 00	-2.834E 02	-4.283E 02	-3.366E 02	-9.174E 01	1.068E 03	7.294E 01	1.139E-02	5.951E 01	9.296E-03
3.974E 01	1.090E 01	8.437E 00	-2.921E 02	-4.478E 02	-3.443E 02	-1.034E 02	1.095E 03	6.991E 01	1.092E-02	5.409E 01	8.450E-03
4.000E 01	1.039E 01	8.077E 00	-2.984E 02	-4.697E 02	-3.535E 02	-1.162E 02	1.126E 03	6.659E 01	1.040E-02	5.178E 01	8.089E-03
4.021E 01	1.094E 01	7.787E 00	-3.035E 02	-4.876E 02	-3.613E 02	-1.263E 02	1.150E 03	7.013E 01	1.096E-02	4.992E 01	7.799E-03
4.040E 01	1.144E 01	9.033E 00	-3.079E 02	-5.042E 02	-3.686E 02	-1.356E 02	1.172E 03	7.337E 01	1.146E-02	5.791E 01	9.046E-03
4.041E 01	1.147E 01	9.098E 00	-3.080E 02	-5.051E 02	-3.690E 02	-1.361E 02	1.173E 03	7.354E 01	1.149E-02	5.833E 01	9.112E-03
4.072E 01	1.229E 01	1.111E 01	-3.121E 02	-5.325E 02	-3.819E 02	-1.510E 02	1.210E 03	7.877E 01	1.231E-02	7.124E 01	1.113E-02
4.121E 01	1.358E 01	3.350E 00	-3.268E 02	-5.771E 02	-4.027E 02	-1.744E 02	1.267E 03	8.707E 01	1.360E-02	2.148E 01	3.355E-03
4.190E 01	1.435E 01	3.402E 00	-3.422E 02	-6.043E 02	-4.163E 02	-1.880E 02	1.301E 03	9.200E 01	1.437E-02	2.181E 01	3.408E-03
4.246E 01	9.925E 00	3.576E 00	-3.765E 02	-7.278E 02	-4.681E 02	-2.597E 02	1.416E 03	6.363E 01	9.940E-03	2.292E 01	3.581E-03
4.269E 01	1.472E 01	3.618E 00	-3.840E 02	-7.680F 02	-4.825E 02	-2.855E 02	1.444E 03	9.434E 01	1.474E-02	2.319E 01	3.623E-03
4.270E 01	1.492E 01	3.620E 00	-3.844E 02	-7.698E 02	-4.831E 02	-2.867E 02	1.445E 03	9.569E 01	1.494E-02	2.320E 01	3.625E-03
4.277E 01	1.625E 01	3.631E 00	-3.873E 02	-7.817E 02	-4.872E 02	-2.945E 02	1.452E 03	1.042E 02	1.627E-02	2.328E 01	3.637E-03
4.431E 01	4.779E 01	2.821E 01	-4.525E 02	-1.088E 03	-6.018E 02	-4.861E 02	1.638E 03	3.064E 02	4.787E-02	1.808E 02	2.825E-02
4.480E 01	5.782E 01	3.602E 01	-4.839E 02	-1.194E 03	-6.449E 02	-5.486E 02	1.698E 03	3.707E 02	5.791E-02	2.309E 02	3.607E-02
4.549E 01	5.229E 01	4.701E 01	-5.139E 02	-1.344E 03	-7.068E 02	-6.367E 02	1.782E 03	3.352E 02	5.237E-02	3.014E 02	4.708E-02
4.619E 01	4.662E 01	4.403E 01	-4.923E 02	-1.506E 03	-7.683E 02	-7.373E 02	1.868E 03	2.989E 02	4.669E-02	2.823E 02	4.410E-02
4.620E 01	4.654E 01	4.399E 01	-4.908E 02	-1.508E 03	-7.691E 02	-7.389E 02	1.869E 03	2.984E 02	4.661E-02	2.820E 02	4.406E-02
4.625E 01	4.617E 01	4.380E 01	-4.880E 02	-1.519E 03	-7.731E 02	-7.462E 02	1.875E 03	2.960E 02	4.624E-02	2.808E 02	4.386E-02
4.626E 01	4.609E 01	4.376E 01	-4.876E 02	-1.522E 03	-7.739E 02	-7.478E 02	1.876E 03	2.955E 02	4.616E-02	2.805E 02	4.382E-02
4.731E 01	3.765E 01	3.933E 01	-4.056E 02	-1.793E 03	-8.618E 02	-9.313E 02	2.006E 03	2.414E 02	3.771E-02	2.521E 02	3.939E-02
4.811E 01	3.990E 01	3.996E 01	-3.177E 02	-2.009E 03	-9.262E 02	-1.083E 03	2.105E 03	2.558E 02	3.996E-02	2.305E 02	3.601E-02
4.873E 01	3.335E 01	3.335E 01	-2.203E 02	-2.176E 03	-9.744E 02	-1.201E 03	2.182E 03	2.138E 02	3.340E-02	2.138E 02	3.340E-02
5.018E 01	1.977E 01	1.977E 01	-2.174E 01	-2.495E 03	-1.082E 03	-1.413E 03	2.363E 03	1.267E 02	1.980E-02	1.267E 02	1.980E-02
5.071E 01	1.480E 01	1.480E 01	2.600E 01	-2.577E 03	-1.120E 03	-1.457F 03	2.430E 03	9.488E 01	1.482E-02	9.488E 01	1.482E-02
5.212E 01	1.135E 01	1.135E 01	1.227E 02	-2.761E 03	-1.214E 03	-1.547E 03	2.607E 03	7.276E 01	1.137E-02	7.276E 01	1.137E-02
5.422E 01	9.475E 00	9.475E 00	2.373E 02	-2.996F 03	-1.342E 03	-1.654F 03	2.873E 03	6.074E 01	9.489E-03	6.074E 01	9.489E-03
5.472E 01	9.067E 00	9.067E 00	2.614E 02	-3.046E 03	-1.371E 03	-1.675E 03	2.937E 03	5.813E 01	9.080E-03	5.813E 01	9.080E-03
5.547E 01	7.308E 00	7.308E 00	2.931E 02	-3.117E 03	-1.411E 03	-1.706E 03	3.033E 03	4.685E 01	7.319E-03	4.685E 01	7.319E-03
5.576E 01	6.625E 00	6.625E 00	3.035E 02	-3.144E 03	-1.426E 03	-1.718E 03	3.070E 03	4.247E 01	6.635E-03	4.247E 01	6.635E-03
5.623E 01	3.194E 00	5.525E 00	3.687E 02	-3.165E 03	-1.449E 03	-1.735E 03	3.102E 03	2.047E 01	3.199E-03	3.542E 01	5.533E-03
5.765E 01	5.525E 00	5.525E 00	4.060E 02	-3.294E 03	-1.509E 03	-1.784E 03	3.210E 03	3.542E 01	5.533E-03	3.542E 01	5.533E-03
5.785E 01	5.525E 00	5.525E 00	4.132E 02	-3.307E 03	-1.517E 03	-1.790E 03	3.234E 03	3.542E 01	5.533E-03	3.542E 01	5.533E-03
5.793E 01	5.525E 00	5.525E 00	4.154E 02	-3.313E 03	-1.520E 03	-1.793E 03	3.245E 03	3.542E 01	5.533E-03	3.542E 01	5.533E-03
5.821F 01	5.525E 00	5.525E 00	4.226E 02	-3.331E 03	-1.531E 03	-1.800F 03	3.280E 03	3.542E 01	5.533E-03	3.542E 01	5.533E-03
5.843E 01	4.669E 00	4.669E 00	4.276E 02	-3.345E 03	-1.539E 03	-1.806E 03	3.309E 03	2.993E 01	4.676E-03	2.993E 01	4.676E-03
5.916E 01	1.925E 00	1.925E 00	4.365E 02	-3.386E 03	-1.564E 03	-1.823E 03	3.402E 03	1.234E 01	1.928E-03	1.234E 01	1.928E-03
6.018E 01	7.975E 00	7.975E 00	4.480E 02	-3.441F 03	-1.597E 03	-1.845F 03	3.532E 03	5.113E 01	7.987E-03	5.113E 01	7.987E-03
6.219E 01	6.762E 00	6.762E 00	4.497E 02	-3.553E 03	-1.652E 03	-1.901E 03	3.790E 03	4.335E 01	6.773E-03	4.335E 01	6.773E-03
6.361E 01	6.531E 00	6.531E 00	4.497E 02	-3.636E 03	-1.690E 03	-1.946E 03	3.972E 03	4.187E 01	6.541E-03	4.187E 01	6.541E-03
6.607E 01	9.100E 00	9.100E 00	4.497E 02	-3.799E 03	-1.767E 03	-2.032E 03	4.289E 03	5.834E 01	9.114E-03	5.834E 01	9.114E-03

XABS	P-IP	P-OP	PDA	QUX	Q-IP	Q-OP	CA-ALL	P-IP/PSO	P-IP/PTO	P-OP/PSO	P-CP/PTO
6.645E 01	9.492E 00	9.492E 00	4.497E 02	-5.868E 03	-1.780E 03	-2.345E 03	4.337E 03	6.085E 01	9.507E-03	6.085E 01	9.507E-03
6.669E 01	5.361E 00	9.742E 00	4.497E 02	-3.842E 03	-1.789E 03	-2.054E 03	4.384E 03	3.437E 01	5.369E-03	6.246E 01	9.757E-03
6.835E 01	5.705E 00	5.455E 00	5.254E 02	-5.946E 03	-1.839E 03	-2.107E 03	4.584E 03	3.657E 01	5.710E-03	3.497E 01	5.463E-03
6.902E 01	4.293E 00	3.180E 00	6.197E 02	-5.984E 03	-1.855E 03	-2.129E 03	4.665E 03	2.752E 01	4.299E-03	2.039E 01	3.185E-03
6.979E 01	2.670E 00	2.795E 00	7.109E 02	-6.026E 03	-1.872E 03	-2.157E 03	4.760E 03	1.712E 01	2.674E-03	1.792E 01	2.799E-03
7.051E 01	1.947E 00	2.435E 00	7.749E 02	-6.071E 03	-1.885E 03	-2.186E 03	4.844E 03	1.248E 01	1.950E-03	1.561E 01	2.439E-03
7.112E 01	1.335E 00	2.177E 00	8.172E 02	-6.105E 03	-1.895E 03	-2.210E 03	4.922E 03	8.559E 00	1.337E-03	1.396E 01	2.180E-03
7.250E 01	1.225E 00	1.593E 00	8.887E 02	-6.162E 03	-1.915E 03	-2.247E 03	5.008E 03	7.853E 00	1.227E-03	1.021E 01	1.595E-03
7.403E 01	1.079E 00	9.450E-01	9.465E 02	-6.208E 03	-1.934E 03	-2.273E 03	5.273E 03	6.914E 00	1.080E-03	6.058E 00	9.464E-04
7.493E 01	9.920E-01	5.623E-01	9.812E 02	-6.255E 03	-1.945E 03	-2.290E 03	5.370E 03	6.359E 00	9.934E-04	3.605E 00	5.632E-04
7.626E 01	8.650E-01	0.000	1.001E 03	-6.280E 03	-1.960E 03	-2.320E 03	5.422E 03	5.545E 00	8.663E-04	0.000	0.000
7.911E 01	1.395E 00	0.000	1.046E 03	-6.510E 03	-1.990E 03	-2.320E 03	5.520E 03	8.943E 00	1.397E-03	0.000	0.000
8.301E 01	1.305E 00	0.000	1.104E 03	-6.347E 03	-2.027E 03	-2.320E 03	5.625E 03	8.366E 00	1.307E-03	0.000	0.000
8.582E 01	1.205E 00	0.000	1.132E 03	-6.383E 03	-2.063E 03	-2.320E 03	5.679E 03	7.725E 00	1.207E-03	0.000	0.000
8.868E 01	1.260E 00	0.000	1.161E 03	-6.445E 03	-2.124E 03	-2.320E 03	5.702E 03	8.078E 00	1.262E-03	0.000	0.000
8.868E 01	1.260E 00	0.000	1.161E 03	-6.445E 03	-2.125E 03	-2.320E 03	5.702E 03	8.078E 00	1.262E-03	0.000	0.000

X	DDRAG	CDRAG	CF	MC
4.040E 01	8.398E 01	8.398E 01	2.099E-03	3.355E-02
4.041E 01	1.449E-01	8.412E 01	2.099E-03	3.358E-02
4.072E 01	4.479E 00	8.860E 01	2.114E-03	3.390E-02
4.121E 01	7.157E 00	9.576E 01	2.159E-03	3.458E-02
4.150E 01	4.265E 00	1.000E 02	2.202E-03	3.505E-02
4.246E 01	1.377E 01	1.138E 02	2.275E-03	3.449E-02
4.269E 01	3.941E 00	1.177E 02	3.191E-03	2.725E-02
4.270E 01	1.748E-01	1.179E 02	2.574E-03	3.170E-02
4.277E 01	1.005E 00	1.189E 02	2.462E-03	3.416E-02
4.431E 01	2.010E 01	1.390E 02	2.836E-03	6.836E-02
4.480E 01	5.149E 00	1.442E 02	3.367E-03	5.659E-02
4.549E 01	6.766E 00	1.509E 02	3.388E-03	5.759E-02
4.619E 01	6.946E 00	1.579E 02	3.541E-03	5.558E-02
4.620E 01	9.960E-02	1.580E 02	3.228E-03	6.247E-02
4.625E 01	4.479E-01	1.584E 02	3.489E-03	5.814E-02
4.626E 01	9.644E-02	1.585E 02	3.147E-03	6.593E-02
4.731E 01	9.615E 00	1.681E 02	3.017E-03	6.446E-02
4.811E 01	7.195E 00	1.753E 02	3.099E-03	6.042E-02
4.873E 01	5.458E 00	1.808E 02	3.116E-03	5.596E-02
5.018E 01	1.313E 01	1.939E 02	3.004E-03	4.376E-02
5.071E 01	5.049E 00	1.990E 02	3.091E-03	3.556E-02
5.212E 01	1.285E 01	2.118E 02	2.901E-03	3.047E-02
5.422E 01	1.634E 01	2.282E 02	2.855E-03	2.607E-02
5.472E 01	3.572E 00	2.317E 02	2.957E-03	2.432E-02
5.547E 01	5.318E 00	2.370E 02	2.936E-03	2.089E-02
5.576E 01	2.004E 00	2.391E 02	2.831E-03	1.998E-02
5.623E 01	1.486E 00	2.405E 02	2.671E-03	1.446E-02
5.765E 01	4.168E 00	2.447E 02	2.610E-03	1.704E-02
5.785E 01	9.395E-01	2.456E 02	2.909E-03	1.571E-02
5.793E 01	4.468E-01	2.461E 02	3.444E-03	1.366E-02
5.821E 01	1.564E 00	2.477E 02	2.897E-03	1.571E-02
5.843E 01	1.169E 00	2.488E 02	2.884E-03	1.402E-02
5.916E 01	3.865E 00	2.527E 02	2.752E-03	7.605E-03
6.018E 01	4.638E 00	2.573E 02	2.379E-03	2.301E-02
6.219E 01	9.248E 00	2.666E 02	3.201E-03	1.625E-02
6.361E 01	7.774E 00	2.743E 02	3.033E-03	1.667E-02
6.607E 01	1.240E 01	2.868E 02	3.079E-03	1.994E-02
6.645E 01	1.722E 00	2.885E 02	3.385E-03	1.834E-02
6.669E 01	1.092E 00	2.896E 02	3.451E-03	1.628E-02
6.835E 01	7.473E 00	2.970E 02	3.388E-03	1.368E-02
6.902E 01	2.550E 00	2.996E 02	3.320E-03	1.061E-02
6.979E 01	2.565E 00	3.022E 02	3.270E-03	8.578E-03
7.051E 01	2.095E 00	3.042E 02	3.233E-03	7.339E-03
7.112E 01	1.574E 00	3.058E 02	3.202E-03	6.260E-03
7.250E 01	3.134E 00	3.090E 02	3.168E-03	5.321E-03
7.403E 01	2.964E 00	3.119E 02	3.113E-03	4.146E-03
7.493E 01	1.301E 00	3.132E 02	3.071E-03	3.388E-03
7.626E 01	6.600E-01	3.139E 02	3.077E-03	3.666E-03
7.911E 01	1.495E 00	3.154E 02	3.126E-03	5.212E-03
8.301E 01	1.781E 00	3.172E 02	3.094E-03	4.925E-03
8.582E 01	8.820E-01	3.180E 02	3.069E-03	4.619E-03
8.868E 01	3.612E-01	3.184E 02	3.061E-03	4.752E-03
8.868E 01	0.000	3.184E 02	3.061E-03	4.752E-03

RAMJET PERFORMANCE

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ENGINE PERFORMANCE

CALCULATED THRUST	828.	(LBF)
MEASURED THRUST	1484.	(LBF)
CALCULATED SPECIFIC IMPULSE	1848.	(LBF-SEC/LBM)
MEASURED SPECIFIC IMPULSE	3312.	(LBF-SEC/LBM)
CALCULATED THRUST COEFFICIENT	0.5594	
MEASURED THRUST COEFFICIENT	1.0029	

REGENERATIVE-COOLED ENGINE PERFORMANCE

CALCULATED

STREAM THRUST	3915.	(LBF)
NET THRUST	939.	(LBF)
SPECIFIC IMPULSE	2095.	(LBF-SEC/LBM)
THRUST COEFFICIENT	0.6345	

MOMENTUM AND FORCES

INLET FRICTION DRAG	84.0	(LBF)
INLET MOMENTUM CHANGE	-391.9	(LBF)
COMBUSTOR FRICTION DRAG	204.5	(LBF)
COMBUSTOR STRUT DRAG	-4.60	(LBF)
COMBUSTOR MOMENTUM CHANGE	538.	(LBF)
NOZZLE FRICTION DRAG	29.93	(LBF)
NOZZLE STRUT DRAG	-0.00	(LBF)
NOZZLE MOMENTUM CHANGE	682.	(LBF)
NOZZLE PRESSURE INTEGRAL	712.	(LBF)
EXTERNAL FRICTION DRAG	0.00	(LBF)
EXTERNAL PRESSURE INTEGRAL	0.	(LBF)
TOTAL EXTERNAL DRAG	-740.	(LBF)
TOTAL STRUT DRAG	-4.60	(LBF)
CAVITY FORCE	-2164.	(LBF)
CALCULATED LOAD CELL FORCE	-2076.	(LBF)
MEASURED LOAD CELL FORCE	-1420.	(LBF)
FUEL VACUUM SPECIFIC IMPULSE 0.0, 0.0,	-153.4,	

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	1.7090	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	36.593	(IN)
NOZZLE SHROUD TRAILING EDGE	74.933	(IN)
NOZZLE PLUG TRAILING EDGE	88.685	(IN)
STRUT LEADING EDGE	57.849	(IN)
STRUT TRAILING EDGE	66.449	(IN)
COMBUSTOR EXIT	66.449	(IN)

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.9920	
ADDITIVE DRAG COEFFICIENT	0.0000	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.1036	
DELTA PT2	0.0900	(PSI)
TOTAL PRESSURE RECOVERY - SUPERSONIC	0.3716	
TOTAL PRESSURE RECOVERY - SUBSONIC	0.1050	
INLET PROCESS EFFICIENCY - SUPERSONIC	0.9144	
INLET PROCESS EFFICIENCY - SUBSONIC	0.9160	
KINETIC ENERGY EFFICIENCY - SUPERSONIC	0.9294	
KINETIC ENERGY EFFICIENCY - SUBSONIC	0.8774	
ENTHALPY AT P0 - SUPERSONIC	-46.67	(BTU/LBM)
ENTHALPY AT P0 - SUBSONIC	-11.01	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0278	
EQUIVALENCE RATIO	0.912	
COMBUSTOR EFFICIENCY	0.791	
TOTAL PRESSURE RATIO	0.0695	
COMBUSTOR EFFECTIVENESS	0.7266	
INJECTOR DISCHARGE COEFFICIENTS	0.6746, 0.7379,	0.4121,

NOZZLE

VACUUM STREAM THRUST COEFFICIENT - CS	0.9591	
NOZZLE COEFFICIENT - CT	0.8804	
PROCESS EFFICIENCY	0.9200	
KINETIC ENERGY EFFICIENCY	0.9101	

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	
1B	42.694	B
1C	44.300	
2A	50.169	
2C	46.250	E
3A	55.459	
3B	57.644	
4	46.198	C

Reading 92

t = 290.37 sec.

READING = 0092 BLOCK = 191 TIME = 290.367 MACH 7.3 PT = 998.749 T1 = 2996.4

RAMJET PERFORMANCE

12/23/94

S U M M A R Y R E P O R T

	P	T	M	GAMMA	MOLWT	SONV	MACH	VEL	S	M/A	A	A/AC	MDOTIN	G	ISAL	PRI	ETAC
WIND TUNNEL		1	0 5														
0.000	998.749	2996	671.5(798)	1.2951	28.712	2592											
0.000	0.197	287	-60.7(69)	1.3955	28.711	833	7.269	6053	1.806	0.06136	15.591	0.9920	2973	5.772	190.7		
SPIKE TIP NS		2	0 6														
0.600	11.187	2996	671.5(798)	1.2949	28.711	2592											
0.600	10.255	2937	653.6(781)	1.2968	28.711	2568	0.308	946	2.119	0.06136	15.591	0.9920	3064	0.906	190.5		
WIND TUNNEL		3	0 0														
0.000	998.749	2996	671.5(798)	1.2951	28.712	2592											
0.000	0.165	291	-59.7(70)	1.3957	28.711	839	7.211	6049	1.808	0.06363	16.167	0.9920	3061	5.981	190.6		
SPIKE TIP NS		4	0 0														
0.600	11.187	2996	671.5(798)	1.2949	28.711	2592											
0.600	10.176	2932	652.0(779)	1.2969	28.711	2566	0.305	987	2.119	0.06363	16.167	0.9920	3061	0.976	190.6		
INLET THROAT		5	0 4														
40.400	400.100	2843	625.3(753)	1.2998	28.711	2530											
40.400	9.266	1103	140.1(270)	1.3742	28.711	1620	3.041	4927	1.856	0.76686	15.591	0.0792	2576	56.875	165.2		
INLET UPNRSK		6	0 3														
40.400	400.100	2843	625.3(753)	1.2998	28.711	2530											
40.400	8.003	1060	129.1(259)	1.3769	28.711	1590	3.134	4983	1.856	0.69697	15.591	0.0871	2593	54.124	166.3		
INLET DNNRSK		7	0 4														
40.400	104.605	2843	625.3(753)	1.2998	28.711	2530											
40.400	91.663	2758	599.7(728)	1.3024	28.711	2494	0.454	1132	1.948	0.69897	15.591	0.0871	2593	12.294	166.3		
COMBUSTOR	0	8	1 9														
40.410	264.580	2828	636.1(802)	1.3019	26.731	2617											
40.410	12.372	1319	181.8(350)	1.3622	26.731	1828	2.608	4768	1.999	0.77332	15.684	0.0792	2575	57.302	164.2	0.24	0.09
COMBUSTOR	0	9	2 4														
40.719	202.047	2985	632.3(849)	1.2948	26.912	2672											
40.719	15.507	1602	208.5(428)	1.3447	26.912	1995	2.308	4605	2.032	0.77613	15.684	0.0789	2558	55.545	163.1	0.24	0.27
COMBUSTOR	0	10	3 4														
41.209	218.715	2802	626.0(794)	1.3026	26.737	2605											
41.209	13.702	1411	205.6(375)	1.3560	26.737	1887	2.431	4586	2.010	0.77058	15.684	0.0795	2515	54.924	160.3	0.24	0.10
COMBUSTOR	0	11	4 3														
41.500	182.620	2837	622.1(804)	1.3009	26.787	2617											
41.500	15.340	1546	229.2(413)	1.3489	26.787	1967	2.254	4434	2.026	0.76265	15.684	0.0803	2477	52.551	157.9	0.24	0.15
COMBUSTOR	0	12	5 3														
42.460	118.874	2847	608.0(806)	1.2999	26.844	2618											
42.460	19.274	1836	296.7(497)	1.3347	26.844	2130	1.853	3947	2.058	0.71967	15.684	0.0851	2344	44.142	149.5	0.24	0.20
COMBUSTOR	0	13	6 11														
42.694	109.693	2830	617.0(787)	1.3108	25.035	2616											
42.694	20.064	1730	326.5(497)	1.3431	25.035	2148	1.775	3812	2.148	0.71618	15.770	0.0860	2310	42.428	146.5	0.47	0.04
COMBUSTOR	0	14	7 2														
42.704	109.173	2830	616.8(787)	1.3108	25.035	2616											
42.704	20.098	1733	327.2(498)	1.3430	25.035	2150	1.771	3806	2.148	0.71511	15.770	0.0861	2309	42.300	146.4	0.47	0.04
COMBUSTOR	0	15	8 2														
42.769	107.305	2823	615.8(784)	1.3111	25.032	2613											
42.769	20.318	1741	330.8(501)	1.3427	25.032	2154	1.753	3776	2.149	0.71393	15.770	0.0862	2299	41.892	145.6	0.47	0.04
COMBUSTOR	0	16	9 4														
44.310	71.662	2779	594.5(833)	1.3033	25.248	2671											
44.310	37.402	2383	462.7(703)	1.3163	25.248	2485	1.034	2569	2.194	0.65870	15.770	0.0935	2155	26.297	136.6	0.47	0.16
COMBUSTOR	0	17	10 4														
44.800	70.149	2672	588.8(799)	1.3078	25.159	2628											
44.800	42.835	2376	490.6(701)	1.3176	25.159	2487	0.891	2218	2.185	0.65097	15.770	0.0946	2125	22.437	134.7	0.47	0.11
COMBUSTOR	0	18	11 3														
45.489	69.787	2565	581.4(764)	1.3124	25.075	2583											
45.489	45.762	2317	499.8(684)	1.3206	25.075	2463	0.820	2021	2.174	0.64762	15.770	0.0951	2105	20.337	133.5	0.47	0.06

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	A	A/AC	PUMTH	W	IVAC	PHI	ETAC
COMBUSTOR	0	19	12 8														
46.194	68.069	2456	586.5(785)	1.3187	23.257	2632											
46.194	41.579	2177	489.0(686)	1.3282	23.257	2487	0.868	2210	2.293	0.63467	15.880	0.0977	2131	21.796	134.2	0.75	0.04
COMBUSTOR	0	20	13 2														
46.204	68.026	2459	586.4(785)	1.3185	23.240	2634											
46.204	41.520	2180	488.6(687)	1.3281	23.240	2489	0.889	2215	2.293	0.63391	15.880	0.0978	2132	21.802	134.3	0.75	0.04
COMBUSTOR	0	21	14 21														
46.250	64.682	2362	602.8(814)	1.3247	21.333	2700											
46.250	41.246	2113	509.1(721)	1.3335	21.333	2563	0.845	2166	2.439	0.63761	16.016	0.0981	2114	21.459	136.0	1.11	0.03
COMBUSTOR	0	22	15 21														
46.260	65.791	2273	602.7(782)	1.3288	21.262	2658											
46.260	41.187	2022	506.8(669)	1.3378	21.262	2515	0.862	2168	2.425	0.63720	16.016	0.0981	2115	21.471	136.0	1.11	0.00
COMBUSTOR	0	23	16 4														
47.310	64.268	2384	591.3(822)	1.3234	21.376	2709											
47.310	34.956	2050	466.0(697)	1.3352	21.376	2523	0.992	2504	2.442	0.59055	16.016	0.1059	2195	22.982	137.0	1.11	0.04
COMBUSTOR	0	24	17 4														
48.110	61.303	2571	582.5(889)	1.3146	21.547	2792											
48.110	34.498	2236	455.2(763)	1.3261	21.547	2616	0.965	2523	2.469	0.54285	16.016	0.1152	2274	21.287	142.0	1.11	0.10
COMBUSTOR	0	25	18 4														
48.729	58.048	2783	575.6(967)	1.3048	21.741	2882											
48.729	30.400	2307	423.0(816)	1.3180	21.741	2662	1.030	2763	2.495	0.49513	16.016	0.1263	2359	21.260	147.3	1.11	0.16
COMBUSTOR	0	26	19 4														
50.179	54.049	3020	562.2(1054)	1.2937	21.977	2973											
50.179	18.402	2347	301.8(796)	1.3161	21.978	2644	1.365	3609	2.522	0.40238	16.016	0.1554	2569	22.570	157.9	1.11	0.24
COMBUSTOR	0	27	20 4														
50.709	56.394	2913	558.6(1014)	1.2984	21.892	2931											
50.709	14.017	2091	244.7(703)	1.3266	21.892	2510	1.579	3963	2.509	0.37632	16.016	0.1662	2569	23.177	160.4	1.11	0.21
COMBUSTOR	0	28	21 4														
52.119	53.432	2978	550.1(1038)	1.2952	21.967	2954											
52.119	10.875	2040	192.2(683)	1.3276	21.968	2476	1.709	4232	2.518	0.32073	16.016	0.1950	2650	21.094	165.4	1.11	0.23
COMBUSTOR	0	29	22 4														
54.219	48.090	3080	537.5(1079)	1.2901	21.999	2997											
54.219	8.500	2047	140.5(686)	1.3258	22.000	2477	1.800	4457	2.543	0.26345	16.051	0.2379	2741	18.248	170.8	1.12	0.27
COMBUSTOR	0	30	23 4														
54.719	45.265	3167	535.0(1112)	1.2859	22.084	3028											
54.719	8.542	2148	140.1(721)	1.3208	22.085	2527	1.759	4445	2.555	0.25269	16.051	0.2480	2760	17.456	172.0	1.12	0.30
COMBUSTOR	0	31	24 4														
55.469	48.771	3046	531.3(1066)	1.2915	21.983	2983											
55.469	6.882	1913	98.6(637)	1.3314	21.984	2400	1.939	4653	2.539	0.23820	16.051	0.2631	2785	17.226	173.5	1.12	0.26
COMBUSTOR	0	32	25 4														
55.760	51.197	2983	529.9(1043)	1.2943	21.930	2959											
55.760	6.238	1800	81.4(597)	1.3369	21.931	2336	2.029	4738	2.529	0.23305	16.051	0.2689	2793	17.159	174.0	1.12	0.25
COMBUSTOR	0	33	26 4														
56.229	49.089	2953	527.9(1031)	1.2957	21.908	2946											
56.229	4.250	1631	31.0(537)	1.3448	21.908	2231	2.235	4987	2.529	0.18427	16.051	0.3401	2858	14.280	176.1	1.12	0.24
COMBUSTOR	0	34	27 5														
57.654	34.737	3363	522.7(1185)	1.2758	22.291	3093											
57.654	5.452	2202	68.5(738)	1.3160	22.296	2542	1.875	4767	2.592	0.17032	16.051	0.3679	2892	12.618	180.2	1.12	0.36
COMBUSTOR	0	35	28 3														
57.849	34.071	3390	522.0(1195)	1.2743	22.319	3102											
57.849	5.486	2237	69.5(750)	1.3144	22.324	2559	1.860	4759	2.595	0.16862	16.051	0.3717	2896	12.470	180.4	1.12	0.37
COMBUSTOR	0	36	29 7														
57.929	34.717	3384	521.7(1193)	1.2747	22.314	3100											
57.929	5.500	2223	66.8(745)	1.3149	22.318	2552	1.870	4771	2.593	0.17051	16.051	0.3675	2898	12.643	180.6	1.12	0.37
COMBUSTOR	0	37	30 3														
58.209	34.443	3411	520.8(1203)	1.2733	22.341	3109											
58.209	5.550	2252	65.9(756)	1.3135	22.346	2566	1.860	4771	2.596	0.16997	16.051	0.3687	2904	12.602	180.9	1.12	0.37

READING = 0092 BLOCK = 191 TIME = 290.367 MACH 7.5 P1 = 498.749 T1 = 2990.4

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	Y/A	R	A/AC	PUP(P	W	IVAL	PRT	ETAC
COMBUSTOR	0	36	31 4														
56.435	39.505	3228	520.1(1134)	1.2825	22.173	3047											
58.435	4.694	1961	36.5(652)	1.3270	22.175	2416	2.045	4939	2.570	0.16966	16.051	0.3695	2908	13.021	181.6	1.12	0.32
COMBUSTOR	0	39	32 11														
59.159	111.726	2557	518.0(885)	1.3133	21.590	2781											
59.159	1.950	892	-79.2(289)	1.3855	21.590	1687	3.241	5466	2.415	0.16699	16.051	0.3753	2915	14.186	181.6	1.12	0.14
COMBUSTOR	0	40	33 7														
60.179	27.350	3920	514.9(1396)	1.2422	22.850	3255											
60.179	7.800	3024	137.5(1039)	1.2795	22.879	2900	1.499	4346	2.604	0.16593	16.051	0.3777	2923	11.206	182.1	1.12	0.55
COMBUSTOR	0	41	34 6														
62.189	35.395	3428	508.2(1208)	1.2721	22.585	3112											
62.189	5.550	2252	46.3(755)	1.3129	22.591	2562	1.876	4806	2.592	0.17170	16.051	0.3650	2917	12.829	181.8	1.12	0.39
COMBUSTOR	0	42	35 4														
63.609	35.404	3454	503.4(1218)	1.2706	22.422	3120											
63.609	5.875	2304	49.7(773)	1.3106	22.428	2587	1.842	4765	2.594	0.17630	16.051	0.3553	2912	13.058	181.4	1.12	0.00
COMBUSTOR	0	43	36 5														
66.073	25.793	4070	493.5(1452)	1.2300	23.054	3286											
66.073	9.131	3316	163.8(1149)	1.2654	23.098	3005	1.352	4062	2.652	0.16717	16.051	0.3749	2903	10.552	180.9	1.12	0.59
COMBUSTOR	0	44	37 4														
66.449	23.208	4204	491.8(1504)	1.2175	23.196	3312											
66.449	9.628	3565	199.6(1245)	1.2515	23.260	3088	1.238	3824	2.666	0.15541	16.051	0.4032	2902	9.234	180.8	1.12	0.64
COMBUSTOR REGEN	45	38 4															
66.449	23.208	4421	609.8(1594)	1.2013	23.137	3378											
66.449	11.094	3893	340.7(1377)	1.2319	23.232	3204	1.132	3628	2.694	0.15541	16.051	0.4032	2956	8.762	184.1	1.12	0.64
NOZZLE AE	46	39 5															
88.685	23.208	4204	491.8(1476)	1.2175	23.196	3312											
88.685	0.610	1932	-434.0(624)	1.3149	23.276	2329	2.922	6807	2.666	0.03235	16.051	1.9371	3698	3.422	230.4	1.12	0.64
NOZZLE PO	47	40 5															
88.685	23.208	4204	491.8(1476)	1.2175	23.196	3312											
88.685	0.157	1300	-624.8(433)	1.3435	23.276	1990	3.756	7475	2.666	0.01277	16.051	4.9059	3926	1.484	244.6	1.12	0.64
NOZZLE AE REGEN	48	41 5															
88.685	23.208	4421	609.8(1594)	1.2013	23.137	3378											
88.685	0.650	2116	-367.7(690)	1.3071	23.276	2431	2.877	6994	2.694	0.03235	16.051	1.9371	3812	3.510	237.5	1.12	0.64
NOZZLE PO REGEN	49	42 5															
88.685	23.208	4421	609.8(1594)	1.2013	23.137	3378											
88.685	0.157	1497	-585.5(472)	1.3367	23.276	2067	3.741	7734	2.694	0.01218	16.051	5.1432	4064	1.464	253.2	1.12	0.64
FICTIVE COMBUSTR	65	58 0															
66.449	400.100	5038	491.8(1830)	1.1950	24.057	3527											
66.449	0.157	873	-1140.7(262)	1.3644	24.223	1564	5.779	9038	2.441	0.02540	16.051	2.4675	4608	3.567	287.1	1.12	1.00
FICTIVE NOZZLE	66	59 0															
88.685	21.042	4123	452.1(1470)	1.2222	23.210	3285											
88.685	0.626	1938	-431.9(626)	1.3146	23.276	2333	2.851	6651	2.665	0.03235	16.051	1.9371	3629	3.344	226.1	1.12	0.64

XABS	P-1B	P-0B	PDA	Q0A	Q-1B	Q-0B	CA-ALL	P-1B/P80	P-1B/P10	P-0B/P80	P-0B/P10
0.981E-01	0.050E-01	0.000	-2.702E-01	0.000	0.000	0.000	2.470E-02	3.664E 00	6.056E-04	0.000	0.000
1.836E 01	6.059E-01	0.000	-2.014E 01	0.000	0.000	0.000	1.534E 02	3.664E 00	6.056E-04	0.000	0.000
3.070E 01	1.060E 00	0.000	-8.766E 01	0.000	0.000	0.000	5.055E 02	6.771E 00	1.061E-03	0.000	0.000
3.508E 01	1.976E 00	0.000	-1.860E 02	0.000	0.000	0.000	6.804E 02	1.262E 01	1.979E-03	0.000	0.000
3.555E 01	2.265E 00	0.000	-2.054E 02	0.000	0.000	0.000	7.013E 02	1.447E 01	2.268E-03	0.000	0.000
3.606E 01	2.150E 00	0.000	-2.278E 02	-3.427E 02	-3.427E 02	0.000	7.246E 02	1.373E 01	2.153E-03	0.000	0.000
3.648E 01	2.345E 00	0.000	-2.470E 02	-3.510E 02	-3.510E 02	0.000	7.443E 02	1.496E 01	2.344E-03	0.000	0.000
3.659E 01	2.347E 00	3.190E 00	-2.852E 02	-3.532E 02	-3.532E 02	0.000	7.493E 02	1.499E 01	2.350E-03	2.037E 01	3.194E-03
3.659E 01	2.347E 00	3.208E 00	-2.853E 02	-3.533E 02	-3.533E 02	0.000	7.496E 02	1.499E 01	2.350E-03	2.049E 01	3.212E-03
3.701E 01	2.355E 00	4.447E 00	-2.873E 02	-3.620E 02	-3.620E 02	0.000	7.928E 02	1.504E 01	2.358E-03	2.841E 01	4.453E-03
3.726E 01	2.276E 00	5.187E 00	-2.864E 02	-3.674E 02	-3.674E 02	0.000	8.190E 02	1.454E 01	2.279E-03	3.313E 01	5.194E-03
3.803E 01	2.030E 00	8.818E 00	-2.672E 02	-3.850E 02	-3.850E 02	0.000	9.020E 02	1.297E 01	2.033E-03	5.633E 01	8.829E-03
3.872E 01	6.466E 00	1.206E 01	-2.622E 02	-4.655E 02	-4.124E 02	-5.316E 01	9.787E 02	4.130E 01	6.474E-03	7.705E 01	1.208E-02
3.875E 01	6.666E 00	1.195E 01	-2.624E 02	-4.668E 02	-4.141E 02	-5.469E 01	9.822E 02	4.258E 01	6.674E-03	7.634E 01	1.197E-02
3.901E 01	8.340E 00	1.102E 01	-2.664E 02	-4.982E 02	-4.307E 02	-6.746E 01	1.012E 03	5.327E 01	8.350E-03	7.041E 01	1.104E-02
3.950E 01	1.156E 01	9.273E 00	-2.834E 02	-5.640E 02	-4.725E 02	-9.144E 01	1.068E 03	7.387E 01	1.158E-02	5.923E 01	9.284E-03
3.974E 01	1.109E 01	8.419E 00	-2.924E 02	-6.013E 02	-4.982E 02	-1.031E 02	1.095E 03	7.086E 01	1.111E-02	5.377E 01	8.429E-03
4.000E 01	1.058E 01	8.054E 00	-2.991E 02	-6.404E 02	-5.306E 02	-1.158E 02	1.126E 03	6.757E 01	1.059E-02	5.145E 01	8.064E-03
4.021E 01	1.290E 01	7.762E 00	-3.058E 02	-6.849E 02	-5.590E 02	-1.259E 02	1.150E 03	8.241E 01	1.292E-02	4.958E 01	7.772E-03
4.040E 01	1.502E 01	9.516E 00	-3.133E 02	-7.209E 02	-5.857E 02	-1.352E 02	1.172E 03	9.597E 01	1.504E-02	6.078E 01	9.528E-03
4.041E 01	1.514E 01	9.607E 00	-3.136E 02	-7.228E 02	-5.871E 02	-1.357E 02	1.173E 03	9.666E 01	1.515E-02	6.137E 01	9.619E-03
4.072E 01	1.857E 01	1.244E 01	-3.255E 02	-7.827E 02	-6.320E 02	-1.506E 02	1.210E 03	1.186E 02	1.859E-02	7.948E 01	1.246E-02
4.121E 01	2.402E 01	3.387E 00	-3.613E 02	-8.816E 02	-7.076E 02	-1.739E 02	1.267E 03	1.534E 02	2.405E-02	2.164E 01	3.392E-03
4.150E 01	2.725E 01	3.431E 00	-3.944E 02	-9.428E 02	-7.553E 02	-1.875E 02	1.301E 03	1.741E 02	2.728E-02	2.191E 01	3.435E-03
4.246E 01	3.497E 01	3.573E 00	-5.129E 02	-1.163E 03	-9.109E 02	-2.523E 02	1.416E 03	2.234E 02	3.502E-02	2.282E 01	3.577E-03
4.269E 01	3.652E 01	3.608E 00	-5.431E 02	-1.220E 03	-9.460E 02	-2.741E 02	1.444E 03	2.333E 02	3.657E-02	2.304E 01	3.612E-03
4.270E 01	3.659E 01	3.609E 00	-5.444E 02	-1.222E 03	-9.474E 02	-2.751E 02	1.445E 03	2.337E 02	3.663E-02	2.305E 01	3.614E-03
4.277E 01	3.702E 01	3.619E 00	-5.528E 02	-1.238E 03	-9.566E 02	-2.815E 02	1.452E 03	2.364E 02	3.706E-02	2.311E 01	3.623E-03
4.431E 01	4.720E 01	2.760E 01	-6.792E 02	-1.573E 03	-1.108E 03	-4.648E 02	1.638E 03	3.015E 02	4.726E-02	1.763E 02	2.764E-02
4.480E 01	5.044E 01	3.523E 01	-7.044E 02	-1.662E 03	-1.130E 03	-5.319E 02	1.698E 03	3.222E 02	5.050E-02	2.250E 02	3.528E-02
4.549E 01	4.557E 01	4.596E 01	-7.184E 02	-1.700E 03	-1.153E 03	-6.266E 02	1.782E 03	2.911E 02	4.563E-02	2.935E 02	4.601E-02
4.619E 01	4.059E 01	4.257E 01	-6.860E 02	-1.901E 03	-1.177E 03	-7.242E 02	1.868E 03	2.592E 02	4.064E-02	2.719E 02	4.262E-02
4.620E 01	4.052E 01	4.252E 01	-6.845E 02	-1.903E 03	-1.177E 03	-7.256E 02	1.869E 03	2.588E 02	4.057E-02	2.716E 02	4.258E-02
4.625E 01	4.019E 01	4.230E 01	-6.812E 02	-1.911E 03	-1.179E 03	-7.320E 02	1.875E 03	2.567E 02	4.024E-02	2.702E 02	4.236E-02
4.626E 01	4.012E 01	4.225E 01	-6.807E 02	-1.913E 03	-1.179E 03	-7.334E 02	1.876E 03	2.563E 02	4.017E-02	2.699E 02	4.231E-02
4.731E 01	3.270E 01	3.721E 01	-5.916E 02	-2.096E 03	-1.216E 03	-8.807E 02	2.006E 03	2.089E 02	3.274E-02	2.377E 02	3.726E-02
4.811E 01	3.562E 01	3.337E 01	-5.056E 02	-2.238E 03	-1.244E 03	-9.939E 02	2.105E 03	2.276E 02	3.567E-02	2.132E 02	3.341E-02
4.873E 01	3.040E 01	3.040E 01	-4.157E 02	-2.347E 03	-1.266E 03	-1.082E 03	2.182E 03	1.942E 02	3.044E-02	1.942E 02	3.044E-02
5.018E 01	1.840E 01	1.840E 01	-2.333E 02	-2.563E 03	-1.318E 03	-1.245E 03	2.363E 03	1.175E 02	1.843E-02	1.175E 02	1.843E-02
5.071E 01	1.402E 01	1.402E 01	-1.885E 02	-2.621E 03	-1.338E 03	-1.283E 03	2.430E 03	8.953E 01	1.403E-02	8.953E 01	1.403E-02
5.212E 01	1.087E 01	1.087E 01	-9.649E 01	-2.756E 03	-1.390E 03	-1.366E 03	2.607E 03	6.946E 01	1.089E-02	6.946E 01	1.089E-02
5.422E 01	8.500E 00	8.500E 00	1.017E 01	-2.936E 03	-1.471E 03	-1.467E 03	2.873E 03	5.429E 01	8.511E-03	5.429E 01	8.511E-03
5.472E 01	8.542E 00	8.542E 00	3.232E 01	-2.978E 03	-1.491E 03	-1.487E 03	2.937E 03	5.456E 01	8.552E-03	5.456E 01	8.552E-03
5.547E 01	6.882E 00	6.882E 00	6.216E 01	-3.037E 03	-1.520E 03	-1.516E 03	3.033E 03	4.396E 01	6.890E-03	4.396E 01	6.890E-03
5.576E 01	6.238E 00	6.238E 00	7.194E 01	-3.059E 03	-1.532E 03	-1.527E 03	3.070E 03	3.984E 01	6.246E-03	3.984E 01	6.246E-03
5.623E 01	3.300E 00	5.200E 00	1.380E 02	-3.092E 03	-1.547E 03	-1.544E 03	3.102E 03	2.108E 01	3.304E-03	3.321E 01	5.207E-03
5.765E 01	5.452E 00	5.452E 00	1.759E 02	-3.175E 03	-1.583E 03	-1.592E 03	3.210E 03	3.482E 01	5.459E-03	3.482E 01	5.459E-03
5.785E 01	5.486E 00	5.486E 00	1.810E 02	-3.186E 03	-1.588E 03	-1.598E 03	3.234E 03	3.504E 01	5.493E-03	3.504E 01	5.493E-03
5.793E 01	5.500E 00	5.500E 00	1.832E 02	-3.191E 03	-1.590E 03	-1.600E 03	3.245E 03	3.513E 01	5.507E-03	3.513E 01	5.507E-03
5.821E 01	5.550E 00	5.550E 00	1.904E 02	-3.206E 03	-1.597E 03	-1.608E 03	3.280E 03	3.545E 01	5.557E-03	3.545E 01	5.557E-03
5.843E 01	4.694E 00	4.694E 00	1.954E 02	-3.217E 03	-1.603E 03	-1.614E 03	3.309E 03	2.998E 01	4.699E-03	2.998E 01	4.699E-03
5.916E 01	1.950E 00	1.950E 00	2.044E 02	-3.251E 03	-1.621E 03	-1.630E 03	3.402E 03	1.246E 01	1.952E-03	1.246E 01	1.952E-03
6.018E 01	7.800E 00	7.800E 00	2.157E 02	-3.301E 03	-1.647E 03	-1.653E 03	3.532E 03	4.982E 01	7.810E-03	4.982E 01	7.810E-03
6.219E 01	5.550E 00	5.550E 00	2.173E 02	-3.407E 03	-1.700E 03	-1.708E 03	3.740E 03	3.545E 01	5.557E-03	3.545E 01	5.557E-03
6.361E 01	5.875E 00	5.875E 00	2.173E 02	-3.485E 03	-1.740E 03	-1.745E 03	3.872E 03	3.753E 01	5.882E-03	3.753E 01	5.882E-03
6.607E 01	9.131E 00	9.131E 00	2.173E 02	-3.644E 03	-1.822E 03	-1.822E 03	4.269E 03	5.832E 01	9.142E-03	5.832E 01	9.142E-03

XABS	P=IH	P=OH	PDA	UUX	V=IH	V=OH	CONALI	P=IP/PSO	P=IP/PTO	P=OP/PSO	P=OP/PTO
6.645E 01	9.628E 00	9.628E 00	2.173E 02	-3.072E 03	-1.836E 03	-1.836E 03	4.337E 03	8.150E 01	9.640E-03	8.150E 01	9.640E-03
6.669E 01	5.395E 00	9.445E 00	2.173E 02	-3.069E 03	-1.846E 03	-1.844E 03	4.340E 03	5.445E 01	5.[illegible]E-03	8.356E 01	9.957E-03
6.835E 01	5.725E 00	5.145E 00	2.927E 02	-3.745E 03	-1.900E 03	-1.895E 03	4.564E 03	3.057E 01	5.732E-03	3.286E 01	5.151E-03
6.902E 01	4.334E 00	4.500E 00	3.924E 02	-3.852E 03	-1.918E 03	-1.914E 03	4.665E 03	2.760E 01	4.359E-03	2.874E 01	4.508E-03
6.979E 01	2.735E 00	3.598E 00	4.970E 02	-3.877E 03	-1.938E 03	-1.934E 03	4.760E 03	1.747E 01	2.738E-03	2.298E 01	3.603E-03
7.051E 01	2.010E 00	2.755E 00	5.682E 02	-3.924E 03	-1.954E 03	-1.970E 03	4.848E 03	1.284E 01	2.012E-03	1.760E 01	2.758E-03
7.112E 01	1.395E 00	2.447E 00	6.141E 02	-3.962E 03	-1.965E 03	-1.996E 03	4.922E 03	8.910E 00	1.397E-03	1.563E 01	2.450E-03
7.250E 01	1.280E 00	1.752E 00	6.914E 02	-4.021E 03	-1.988E 03	-2.033E 03	5.068E 03	8.176E 00	1.282E-03	1.119E 01	1.754E-03
7.403E 01	1.127E 00	9.800E-01	7.526E 02	-4.066E 03	-2.009E 03	-2.057E 03	5.273E 03	7.201E 00	1.129E-03	6.260E 00	9.812E-04
7.493E 01	1.037E 00	5.242E-01	7.880E 02	-4.093E 03	-2.021E 03	-2.072E 03	5.370E 03	6.625E 00	1.039E-03	3.348E 00	5.248E-04
7.626E 01	9.050E-01	0.000	8.085E 02	-4.137E 03	-2.037E 03	-2.100E 03	5.422E 03	5.781E 00	9.061E-04	0.000	0.000
7.911E 01	1.395E 00	0.000	8.545E 02	-4.169E 03	-2.069E 03	-2.100E 03	5.520E 03	8.910E 00	1.397E-03	0.000	0.000
8.301E 01	1.335E 00	0.000	9.128E 02	-4.208E 03	-2.108E 03	-2.100E 03	5.625E 03	8.527E 00	1.337E-03	0.000	0.000
8.582E 01	1.255E 00	0.000	9.416E 02	-4.245E 03	-2.145E 03	-2.100E 03	5.679E 03	8.016E 00	1.257E-03	0.000	0.000
8.868E 01	1.325E 00	0.000	9.727E 02	-4.309E 03	-2.209E 03	-2.100E 03	5.702E 03	8.463E 00	1.327E-03	0.000	0.000
8.868E 01	1.325E 00	0.000	9.727E 02	-4.309E 03	-2.209E 03	-2.100E 03	5.702E 03	8.464E 00	1.327E-03	0.000	0.000

X	DDRAG	CDRAG	CF	MC
4.040E 01	8.439E 01	8.439E 01	2.054E-03	5.208E-02
4.041E 01	1.615E-01	8.455E 01	2.684E-03	3.724E-02
4.072E 01	5.137E 00	8.969E 01	2.350E-03	4.765E-02
4.121E 01	7.811E 00	9.750E 01	2.560E-03	4.111E-02
4.150E 01	4.645E 00	1.021E 02	2.472E-03	4.526E-02
4.246E 01	1.433E 01	1.165E 02	2.724E-03	4.822E-02
4.269E 01	3.545E 00	1.200E 02	3.134E-03	4.550E-02
4.270E 01	1.468E-01	1.202E 02	2.760E-03	5.085E-02
4.277E 01	9.073E-01	1.211E 02	2.772E-03	5.042E-02
4.431E 01	1.856E 01	1.396E 02	3.090E-03	5.923E-02
4.480E 01	4.633E 00	1.443E 02	3.300E-03	5.588E-02
4.549E 01	5.938E 00	1.502E 02	3.303E-03	5.564E-02
4.619E 01	6.139E 00	1.563E 02	3.449E-03	5.335E-02
4.620E 01	8.950E-02	1.564E 02	3.196E-03	5.884E-02
4.625E 01	4.094E-01	1.568E 02	3.518E-03	5.340E-02
4.626E 01	8.951E-02	1.569E 02	3.223E-03	5.978E-02
4.731E 01	9.018E 00	1.659E 02	3.040E-03	6.018E-02
4.811E 01	6.703E 00	1.726E 02	3.070E-03	5.791E-02
4.873E 01	5.046E 00	1.777E 02	3.089E-03	5.308E-02
5.018E 01	1.202E 01	1.897E 02	2.968E-03	4.172E-02
5.071E 01	4.578E 00	1.943E 02	3.052E-03	3.419E-02
5.212E 01	1.165E 01	2.059E 02	2.877E-03	2.943E-02
5.422E 01	1.496E 01	2.209E 02	2.834E-03	2.409E-02
5.472E 01	3.257E 00	2.242E 02	2.892E-03	2.347E-02
5.547E 01	4.813E 00	2.290E 02	2.900E-03	1.998E-02
5.576E 01	1.825E 00	2.308E 02	2.800E-03	1.911E-02
5.623E 01	1.352E 00	2.321E 02	2.638E-03	1.424E-02
5.765E 01	3.810E 00	2.360E 02	2.624E-03	1.666E-02
5.785E 01	8.629E-01	2.368E 02	2.920E-03	1.536E-02
5.793E 01	4.068E-01	2.372E 02	3.412E-03	1.358E-02
5.821E 01	1.424E 00	2.386E 02	2.914E-03	1.545E-02
5.843E 01	1.075E 00	2.397E 02	2.906E-03	1.381E-02
5.916E 01	3.578E 00	2.433E 02	2.773E-03	7.619E-03
6.018E 01	4.305E 00	2.476E 02	2.415E-03	2.212E-02
6.219E 01	8.649E 00	2.563E 02	3.167E-03	1.415E-02
6.361E 01	7.136E 00	2.634E 02	2.885E-03	1.594E-02
6.607E 01	1.104E 01	2.744E 02	3.032E-03	1.975E-02
6.645E 01	1.531E 00	2.760E 02	3.384E-03	1.776E-02
6.669E 01	9.812E-01	2.769E 02	3.422E-03	1.595E-02
6.835E 01	6.815E 00	2.838E 02	3.344E-03	1.362E-02
6.902E 01	2.431E 00	2.862E 02	3.303E-03	1.100E-02
6.979E 01	2.566E 00	2.888E 02	3.240E-03	9.399E-03
7.051E 01	2.089E 00	2.908E 02	3.189E-03	7.737E-03
7.112E 01	1.560E 00	2.924E 02	3.158E-03	6.657E-03
7.250E 01	3.121E 00	2.955E 02	3.122E-03	5.612E-03
7.403E 01	2.929E 00	2.985E 02	3.059E-03	4.206E-03
7.493E 01	1.266E 00	2.997E 02	3.008E-03	3.417E-03
7.626E 01	6.436E-01	3.004E 02	3.022E-03	3.808E-03
7.911E 01	1.448E 00	3.018E 02	3.070E-03	5.214E-03
8.301E 01	1.712E 00	3.035E 02	3.041E-03	5.011E-03
8.582E 01	8.580E-01	3.044E 02	3.018E-03	4.760E-03
8.868E 01	3.545E-01	3.047E 02	3.012E-03	4.936E-03
8.868E 01	0.000	3.047E 02	3.012E-03	4.936E-03

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	655.	(LBF)
MEASURED THRUST	1322.	(LBF)
CALCULATED SPECIFIC IMPULSE	1514.	(LBF-SEC/LBM)
MEASURED SPECIFIC IMPULSE	3056.	(LBF-SEC/LBM)
CALCULATED THRUST COEFFICIENT	0.4432	
MEASURED THRUST COEFFICIENT	0.8944	

REGENERATIVE-COOLED ENGINE PERFORMANCE CALCULATED

STREAM THRUST	3740.	(LBF)
NET THRUST	706.	(LBF)
SPECIFIC IMPULSE	1771.	(LBF-SEC/LBM)
THRUST COEFFICIENT	0.5184	

MOMENTUM AND FORCES

INLET FRICTION DRAG	84.4	(LBF)
INLET MOMENTUM CHANGE	-397.7	(LBF)
COMBUSTOR FRICTION DRAG	191.6	(LBF)
COMBUSTOR STRUT DRAG	-8.49	(LBF)
COMBUSTOR MOMENTUM CHANGE	326.	(LBF)
NOZZLE FRICTION DRAG	28.77	(LBF)
NOZZLE STRUT DRAG	-0.00	(LBF)
NOZZLE MOMENTUM CHANGE	767.	(LBF)
NOZZLE PRESSURE INTEGRAL	755.	(LBF)
EXTERNAL FRICTION DRAG	0.00	(LBF)
EXTERNAL PRESSURE INTEGRAL	0.	(LBF)
TOTAL EXTERNAL DRAG	-759.	(LBF)
TOTAL STRUT DRAG	-8.49	(LBF)
CAVITY FORCE	-2153.	(LBF)
CALCULATED LOAD CELL FORCE	-2237.	(LBF)
MEASURED LOAD CELL FORCE	-1570.	(LBF)

FUEL VACUUM SPECIFIC IMPULSE 0.0, 0.0, 0.0, -156.3,

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	1.7090	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	36.593	(IN)
NOZZLE SHROUD TRAILING EDGE	74.933	(IN)
NOZZLE PLUG TRAILING EDGE	88.665	(IN)
STRUT LEADING EDGE	57.849	(IN)
STRUT TRAILING EDGE	66.449	(IN)
COMBUSTOR EXIT	66.449	(IN)

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.9920	
ADDITIVE DRAG COEFFICIENT	0.0000	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.1034	
DELTA PT2	0.0861	(PSI)
TOTAL PRESSURE RECOVERY - SUPERSONIC	0.4006	
TOTAL PRESSURE RECOVERY - SUBSONIC	0.1047	
INLET PROCESS EFFICIENCY - SUPERSONIC	0.9251	
INLET PROCESS EFFICIENCY - SUBSONIC	0.9175	
KINETIC ENERGY EFFICIENCY - SUPERSONIC	0.9163	
KINETIC ENERGY EFFICIENCY - SUBSONIC	0.8625	
ENTHALPY AT P0 - SUPERSONIC	-45.66	(BTU/LBM)
ENTHALPY AT P0 - SUBSONIC	-0.24	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0277
EQUIVALENCE RATIO	1.119
COMBUSTOR EFFICIENCY	0.642
TOTAL PRESSURE RATIO	0.0580
COMBUSTOR EFFECTIVENESS	0.6636

INJECTOR DISCHARGE COEFFICIENTS 0.9374, 0.5433, 0.8051, 0.8396

NOZZLE

VACUUM STREAM THRUST COEFFICIENT - CS	0.9812
NOZZLE COEFFICIENT - CI	0.9045
PROCESS EFFICIENCY	1.0035
KINETIC ENERGY EFFICIENCY	0.9593

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	A
1B	42.694	B
1C	44.300	
2A	50.169	
2C	46.250	E
3A	55.459	
3B	57.644	
0	46.194	C

Reading 92

t = 312.87 sec.

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S U M M A R Y R E P O R T

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	F/A	F	A/AC	PUMP	Q	ISAL	PHI	ETAL
WIND TUNNEL		1	0 5														
0.000	997.999	3006	674.2(801)	1.2947	28.730	2595											
0.000	0.156	288	-60.4(70)	1.3956	28.729	834	7.268	6063	1.809	0.06113	15.527	0.9917	2906	5.759	191.0		
SPIKE TIP NS		2	0 6														
0.600	11.150	3006	674.2(801)	1.2945	28.729	2595											
0.600	10.219	2947	656.3(783)	1.2963	28.729	2571	0.369	948	2.120	0.06113	15.527	0.9917	3053	0.901	190.6		
WIND TUNNEL		3	0 0														
0.000	997.999	3006	674.2(801)	1.2947	28.730	2595											
0.000	0.164	292	-59.4(71)	1.3956	28.729	840	7.211	6059	1.809	0.06331	16.081	0.9917	3070	5.961	190.9		
SPIKE TIP NS		4	0 0														
0.600	11.150	3006	674.2(801)	1.2945	28.729	2595											
0.600	10.142	2942	654.8(782)	1.2965	28.729	2569	0.384	988	2.120	0.06331	16.081	0.9917	3070	0.972	190.9		
INLET THROAT		5	0 3														
40.400	393.051	2868	632.6(760)	1.2988	28.730	2539											
40.400	9.384	1124	145.4(275)	1.3727	28.729	1634	3.021	4937	1.859	0.76612	15.527	0.0791	2573	56.785	165.7		
INLET UPNRSK		6	0 3														
40.400	393.051	2868	632.6(760)	1.2988	28.730	2539											
40.400	8.105	1080	134.2(264)	1.3755	28.729	1604	3.114	4994	1.859	0.69648	15.527	0.0870	2591	54.050	166.6		
INLET DNNRSK		7	0 4														
40.400	104.539	2868	632.6(760)	1.2989	28.729	2539											
40.400	91.569	2782	606.7(734)	1.3015	28.729	2503	0.455	1138	1.951	0.69648	15.527	0.0870	2591	12.319	166.6		
COMBUSTOR	0	8	1 21														
40.410	285.409	2839	641.7(796)	1.3013	27.070	2605											
40.410	10.717	1251	170.2(326)	1.3660	27.070	1772	2.742	4857	1.975	0.76973	15.602	0.0791	2573	58.103	164.9	0.19	0.07
COMBUSTOR	0	9	2 3														
40.721	260.830	2873	639.3(805)	1.2997	27.114	2616											
40.721	12.532	1355	186.2(355)	1.3594	27.114	1838	2.591	4762	1.984	0.77259	15.602	0.0788	2562	57.170	164.2	0.19	0.18
COMBUSTOR	0	10	3 21														
41.211	270.364	2774	635.3(776)	1.3039	27.021	2580											
41.211	9.459	1193	166.6(311)	1.3699	27.021	1734	2.787	4633	1.972	0.76093	15.602	0.0794	2530	57.602	162.5	0.19	0.02
COMBUSTOR	0	11	4 21														
41.500	253.129	2753	632.9(770)	1.3048	27.007	2572											
41.500	10.095	1226	181.3(320)	1.3661	27.007	1757	2.706	4754	1.975	0.75911	15.602	0.0802	2513	56.082	161.1	0.19	0.00
COMBUSTOR	0	12	5 21														
42.460	174.910	2726	624.8(761)	1.3057	27.005	2560											
42.460	5.583	1140	156.7(297)	1.3732	27.005	1698	2.844	4829	1.999	0.71639	15.602	0.0850	2463	53.765	157.9	0.19	0.00
COMBUSTOR	0	13	6 21														
42.696	144.873	2707	632.1(791)	1.3074	25.748	2614											
42.696	7.055	1265	186.4(347)	1.3666	25.748	1827	2.585	4723	2.089	0.71082	15.606	0.0860	2455	52.169	158.7	0.36	0.03
COMBUSTOR	0	14	7 21														
42.706	155.990	2664	632.0(778)	1.3094	25.705	2598											
42.706	7.117	1220	187.0(334)	1.3696	25.705	1798	2.625	4719	2.079	0.71070	15.606	0.0861	2455	52.120	158.7	0.36	0.01
COMBUSTOR	0	15	8 21														
42.771	159.163	2656	631.5(775)	1.3097	25.699	2594											
42.771	7.523	1227	191.1(336)	1.3692	25.699	1803	2.604	4694	2.077	0.70902	15.606	0.0863	2452	51.725	158.5	0.36	0.00
COMBUSTOR	0	16	9 6														
44.310	88.618	3372	621.6(998)	1.2765	26.486	2843											
44.310	27.396	2591	360.1(743)	1.3064	26.469	2516	1.437	3617	2.176	0.65563	15.606	0.0935	2416	50.052	154.2	0.36	0.53
COMBUSTOR	0	17	10 4														
44.800	81.569	3563	619.2(1058)	1.2669	26.708	2899											
44.800	33.723	2941	406.0(853)	1.2861	26.714	2655	1.230	3266	2.192	0.64747	15.606	0.0945	2406	52.865	153.6	0.36	0.67
COMBUSTOR	0	18	11 4														
45.491	79.454	3636	616.0(1081)	1.2629	26.603	2919											
45.491	37.060	3100	429.9(903)	1.2816	26.611	2714	1.124	3052	2.197	0.64324	15.606	0.0951	2403	50.507	153.4	0.36	0.73

	P	T	M	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	M	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	19	12 5														
46.196	78.493	3465	621.9(1083)	1.2727	25.194	2950											
46.196	35.925	2918	425.5(893)	1.2911	25.196	2727	1.150	3135	2.289	0.62927	15.746	0.0977	2433	30.655	154.5	0.56	0.45
COMBUSTOR	0	20	13 2														
46.206	78.442	3469	621.8(1084)	1.2725	25.198	2951											
46.206	35.901	2921	425.2(894)	1.2910	25.202	2728	1.150	3136	2.289	0.62851	15.746	0.0978	2434	30.653	154.6	0.56	0.45
COMBUSTOR	0	21	14 6														
46.250	77.516	3135	634.2(1041)	1.2900	23.171	2945											
46.250	35.792	2623	443.8(854)	1.3066	23.172	2712	1.138	3086	2.399	0.63140	15.855	0.0980	2420	30.282	152.6	0.84	0.23
COMBUSTOR	0	22	15 2														
46.260	77.496	3134	634.1(1042)	1.2899	23.172	2945											
46.260	35.768	2624	443.5(854)	1.3066	23.174	2712	1.138	3088	2.399	0.63106	15.855	0.0981	2420	30.279	152.6	0.84	0.23
COMBUSTOR	0	23	16 4														
47.310	74.475	3334	621.1(1112)	1.2801	23.396	3012											
47.310	33.183	2781	411.6(907)	1.2984	23.399	2770	1.169	3238	2.416	0.58491	15.855	0.1056	2495	29.432	157.4	0.80	0.32
COMBUSTOR	0	24	17 4														
48.110	69.808	3610	609.3(1209)	1.2659	23.700	3096											
48.110	34.754	3106	415.2(1021)	1.2835	23.706	2892	1.083	3132	2.437	0.53758	15.855	0.1152	2569	26.168	162.0	0.84	0.42
COMBUSTOR	0	25	18 4														
48.731	66.136	3856	600.1(1297)	1.2520	23.978	3164											
48.731	31.575	3304	379.2(1089)	1.2728	23.993	2952	1.126	3325	2.454	0.49010	15.855	0.1263	2653	25.326	167.3	0.84	0.52
COMBUSTOR	0	26	19 4														
50.181	63.803	3990	583.5(1345)	1.2434	24.164	3195											
50.181	18.626	3095	226.2(1008)	1.2776	24.191	2851	1.483	4228	2.461	0.39834	15.855	0.1554	2825	26.176	178.2	0.84	0.59
COMBUSTOR	0	27	20 4														
50.711	60.761	3780	579.9(1269)	1.2558	23.952	3139											
50.711	13.967	2679	155.8(860)	1.2946	23.967	2682	1.718	4607	2.444	0.37254	15.855	0.1662	2865	26.670	180.7	0.84	0.51
COMBUSTOR	0	28	21 4														
52.121	62.824	3926	571.9(1321)	1.2468	24.127	3176											
52.121	11.625	2746	111.7(881)	1.2901	24.151	2700	1.777	4799	2.458	0.31751	15.855	0.1950	2945	23.679	185.8	0.84	0.57
COMBUSTOR	0	29	22 4														
54.221	62.684	3847	559.9(1297)	1.2511	23.970	3159											
54.221	8.025	2463	28.4(784)	1.3005	23.989	2577	2.001	5157	2.461	0.26081	15.890	0.2379	3036	20.901	191.0	0.85	0.55
COMBUSTOR	0	30	23 4														
54.721	55.288	4049	557.5(1371)	1.2380	24.192	3210											
54.721	6.658	2751	44.0(884)	1.2877	24.229	2696	1.880	5069	2.481	0.25015	15.890	0.2480	3054	19.707	192.2	0.85	0.63
COMBUSTOR	0	31	24 4														
55.471	60.901	3874	554.1(1307)	1.2492	24.014	3165											
55.471	6.941	2420	-4.2(768)	1.3014	24.035	2552	2.071	5286	2.464	0.23581	15.890	0.2631	3078	19.370	193.7	0.85	0.50
COMBUSTOR	0	32	25 4														
55.760	64.654	3786	552.8(1275)	1.2544	23.925	3142											
55.760	6.279	2265	-24.1(715)	1.3061	23.942	2481	2.166	5373	2.455	0.23074	15.890	0.2689	3086	19.266	194.2	0.85	0.53
COMBUSTOR	0	33	26 4														
56.231	63.415	3726	550.9(1253)	1.2576	23.868	3124											
56.231	4.266	2034	-82.1(635)	1.3177	23.881	2362	2.383	5628	2.453	0.18243	15.890	0.3401	3151	15.955	196.3	0.85	0.51
COMBUSTOR	0	34	27 5														
57.656	43.362	4218	545.6(1432)	1.2239	24.409	3243											
57.656	5.452	2769	-38.7(886)	1.2841	24.475	2688	2.012	5408	2.505	0.16861	15.890	0.3679	3185	14.170	200.4	0.85	0.71
COMBUSTOR	0	35	28 4														
57.851	42.469	4250	544.9(1443)	1.2213	24.446	3249											
57.851	5.486	2815	-37.6(902)	1.2820	24.518	2705	1.996	5399	2.508	0.16696	15.890	0.3716	3189	14.008	200.7	0.85	0.72
COMBUSTOR	0	36	29 21														
57.931	32.141	4785	544.7(1639)	1.1687	25.047	3332											
57.931	5.500	3626	-40.7(1188)	1.2343	25.404	2960	1.829	5412	2.540	0.16889	15.890	0.3673	3190	14.204	200.8	0.85	1.00
COMBUSTOR	0	37	30 21														
58.211	32.404	4784	543.7(1639)	1.1689	25.049	3332											
58.211	5.550	3625	-41.2(1187)	1.2344	25.404	2959	1.828	5410	2.540	0.16827	15.890	0.3687	3196	14.147	201.1	0.85	1.00

READING = 0092 BLOCK = 216 TIME = 312.887 MACH 7.3 P1 = 997.999 T1 = 3006.2 PAGE 3

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	F/A	W	A/AC	PCMTP	I	IVAC	PT	ETAC
COMBUSTOR	0	36	51 21														
58.437	31.543	4760	545.6(1657)	1.1668	25.046	3330											
58.437	4.700	3553	-78.8(1153)	1.2395	25.411	2927	1.906	5578	2.542	0.16792	15.890	0.3695	3200	14.557	201.4	0.85	1.00
COMBUSTOR	0	39	32 21														
59.161	21.145	4742	540.8(1623)	1.1643	25.010	3313											
59.161	1.975	3217	-203.6(1035)	1.2544	25.427	2809	2.173	6103	2.575	0.16532	15.890	0.3755	3204	15.661	201.6	0.85	1.00
COMBUSTOR	0	40	33 200														
60.181	33.447	4778	537.7(1636)	1.1698	25.059	3330											
60.181	7.700	3816	40.1(1260)	1.2230	25.383	3023	1.650	4990	2.536	0.16427	15.890	0.3777	3209	12.736	202.0	0.85	1.00
COMBUSTOR	0	41	34 21														
62.191	33.024	4768	531.2(1632)	1.1702	25.065	3327											
62.191	5.387	3569	-64.3(1166)	1.2360	25.410	2941	1.857	5459	2.535	0.16998	15.890	0.3650	3200	14.421	201.4	0.85	1.00
COMBUSTOR	0	42	35 21														
63.611	33.522	4763	526.7(1630)	1.1708	25.072	3325											
63.611	5.469	3561	-67.8(1163)	1.2387	25.411	2938	1.856	5454	2.533	0.17459	15.890	0.3553	3192	14.799	200.8	0.85	1.00
COMBUSTOR	0	43	36 200														
66.075	32.599	4748	518.3(1624)	1.1712	25.079	3320											
66.075	8.918	3899	76.6(1291)	1.2180	25.371	3050	1.541	4701	2.534	0.16549	15.890	0.3749	3178	12.091	200.0	0.85	1.00
COMBUSTOR	0	44	37 200														
66.451	29.917	4739	516.9(1621)	1.1704	25.073	3316											
66.451	9.444	3992	120.0(1327)	1.2109	25.351	3079	1.448	4457	2.540	0.15385	15.890	0.4036	3176	10.655	199.9	0.85	1.00
COMBUSTOR REGEN		45	38 4														
66.451	29.917	4887	625.7(1681)	1.1617	24.937	3364											
66.451	7.783	4046	149.9(1348)	1.2033	25.328	3092	1.578	4880	2.563	0.15385	15.890	0.4032	3214	11.667	202.3	0.85	1.00
NOZZLE AE		46	39 5														
88.687	29.917	4739	516.9(1571)	1.1704	25.073	3316											
88.687	0.611	2286	-541.3(700)	1.2905	25.436	2402	3.033	7284	2.540	0.03203	15.890	1.9371	3900	3.625	245.5	0.85	1.00
NOZZLE PO		47	40 5														
88.687	29.917	4739	516.9(1571)	1.1704	25.073	3316											
88.687	0.156	1664	-752.1(492)	1.3181	25.436	2071	3.849	7969	2.540	0.01232	15.890	5.0365	4138	1.526	260.4	0.85	1.00
NOZZLE AE REGEN		48	41 5														
88.687	29.917	4887	625.7(1681)	1.1617	24.937	3364											
88.687	0.646	2470	-479.1(764)	1.2838	25.436	2469	2.967	7435	2.563	0.03203	15.890	1.9371	3993	3.701	251.3	0.85	1.00
NOZZLE PO REGEN		49	42 5														
88.687	29.917	4887	625.7(1681)	1.1617	24.937	3364											
88.687	0.156	1783	-713.4(531)	1.3120	25.436	2138	3.828	8186	2.563	0.01181	15.890	5.2550	4253	1.502	267.7	0.85	1.00
FICTIVE COMBUSTR		65	58 0														
66.451	393.051	4909	516.9(1684)	1.1996	25.263	3404											
66.451	0.156	854	-1000.6(243)	1.3670	25.436	1510	5.769	8714	2.537	0.02625	15.890	2.3030	4398	5.555	270.8	0.85	1.00
FICTIVE NOZZLE		66	59 0														
88.687	31.775	4691	481.1(1601)	1.1745	25.118	3302											
88.687	0.583	2183	-579.0(665)	1.2944	25.436	2350	3.099	7283	2.528	0.03203	15.890	1.9371	3867	3.625	244.6	0.85	1.00

XABS	P-IB	P-OB	PDA	UUX	U-IB	U-OB	CAMALL	P-IB/P80	P-IB/PTO	P-UB/P80	P-UB/PTO
6.981E-01	6.050E-01	0.000	-2.693E-01	0.000	0.000	0.000	2.470E-02	3.872E 00	6.062E-04	0.000	0.000
1.836E 01	6.050E-01	0.000	-2.016E 01	0.000	0.000	0.000	1.634E 02	3.872E 00	6.062E-04	0.000	0.000
3.070E 01	1.045E 00	0.000	-8.705E 01	0.000	0.000	0.000	5.053E 02	6.688E 00	1.047E-03	0.000	0.000
3.508E 01	1.966E 00	0.000	-1.846E 02	0.000	0.000	0.000	6.804E 02	1.258E 01	1.970E-03	0.000	0.000
3.555E 01	2.270E 00	0.000	-2.039E 02	0.000	0.000	0.000	7.013E 02	1.453E 01	2.275E-03	0.000	0.000
3.606E 01	2.150E 00	0.000	-2.264E 02	-3.427E 02	-3.427E 02	0.000	7.240E 02	1.376E 01	2.154E-03	0.000	0.000
3.648E 01	2.360E 00	0.000	-2.457E 02	-3.510E 02	-3.510E 02	0.000	7.443E 02	1.510E 01	2.365E-03	0.000	0.000
3.659E 01	2.357E 00	3.190E 00	-2.840E 02	-3.533E 02	-3.533E 02	0.000	7.494E 02	1.508E 01	2.362E-03	2.041E 01	3.196E-03
3.659E 01	2.357E 00	3.208E 00	-2.840E 02	-3.534E 02	-3.534E 02	0.000	7.497E 02	1.508E 01	2.361E-03	2.053E 01	3.214E-03
3.701E 01	2.345E 00	4.449E 00	-2.860E 02	-3.620E 02	-3.620E 02	0.000	7.927E 02	1.501E 01	2.350E-03	2.848E 01	4.458E-03
3.726E 01	2.269E 00	5.200E 00	-2.851E 02	-3.674E 02	-3.674E 02	0.000	8.191E 02	1.452E 01	2.273E-03	3.328E 01	5.210E-03
3.803E 01	2.035E 00	8.828E 00	-2.659E 02	-3.849E 02	-3.849E 02	0.000	9.018E 02	1.302E 01	2.039E-03	5.650E 01	8.846E-03
3.872E 01	6.544E 00	1.209E 01	-2.611E 02	-4.674E 02	-4.049E 02	-6.253E 01	9.788E 02	4.188E 01	6.557E-03	7.736E 01	1.211E-02
3.875E 01	6.733E 00	1.198E 01	-2.613E 02	-4.701E 02	-4.059E 02	-6.421E 01	9.821E 02	4.309E 01	6.747E-03	7.670E 01	1.201E-02
3.901E 01	8.430E 00	1.105E 01	-2.654E 02	-4.947E 02	-4.154E 02	-7.923E 01	1.011E 03	5.395E 01	8.447E-03	7.074E 01	1.108E-02
3.950E 01	1.161E 01	9.300E 00	-2.826E 02	-5.443E 02	-4.368E 02	-1.074E 02	1.068E 03	7.430E 01	1.163E-02	5.952E 01	9.318E-03
3.974E 01	1.104E 01	8.437E 00	-2.914E 02	-5.704E 02	-4.491E 02	-1.213E 02	1.095E 03	7.065E 01	1.106E-02	5.400E 01	8.454E-03
4.000E 01	1.042E 01	8.079E 00	-2.980E 02	-5.998E 02	-4.637E 02	-1.361E 02	1.125E 03	6.672E 01	1.045E-02	5.171E 01	8.095E-03
4.021E 01	1.132E 01	7.787E 00	-3.037E 02	-6.246E 02	-4.764E 02	-1.482E 02	1.150E 03	7.246E 01	1.134E-02	4.984E 01	7.803E-03
4.040E 01	1.212E 01	9.191E 00	-3.085E 02	-6.471E 02	-4.882E 02	-1.590E 02	1.172E 03	7.760E 01	1.215E-02	5.883E 01	9.210E-03
4.041E 01	1.217E 01	9.266E 00	-3.086E 02	-6.483E 02	-4.888E 02	-1.595E 02	1.173E 03	7.787E 01	1.219E-02	5.930E 01	9.284E-03
4.072E 01	1.349E 01	1.157E 01	-3.140E 02	-6.863E 02	-5.091E 02	-1.772E 02	1.210E 03	8.633E 01	1.352E-02	7.400E 01	1.160E-02
4.121E 01	1.557E 01	3.337E 00	-3.324E 02	-7.479E 02	-5.433E 02	-2.047E 02	1.267E 03	9.966E 01	1.560E-02	2.136E 01	3.344E-03
4.150E 01	1.680E 01	3.390E 00	-3.511E 02	-7.855E 02	-5.649E 02	-2.206E 02	1.301E 03	1.075E 02	1.683E-02	2.170E 01	3.397E-03
4.246E 01	7.600E 00	3.565E 00	-3.857E 02	-9.128E 02	-6.393E 02	-2.734E 02	1.415E 03	4.864E 01	7.615E-03	2.282E 01	3.572E-03
4.270E 01	1.050E 01	3.608E 00	-3.901E 02	-9.454E 02	-6.574E 02	-2.880E 02	1.444E 03	6.721E 01	1.052E-02	2.309E 01	3.615E-03
4.271E 01	1.042E 01	3.610E 00	-3.903E 02	-9.447E 02	-6.581E 02	-2.866E 02	1.445E 03	6.800E 01	1.065E-02	2.310E 01	3.617E-03
4.277E 01	1.142E 01	3.622E 00	-3.920E 02	-9.528E 02	-6.629E 02	-2.899E 02	1.453E 03	7.311E 01	1.145E-02	2.318E 01	3.629E-03
4.431E 01	3.035E 01	2.444E 01	-4.069E 02	-1.109E 03	-7.592E 02	-3.497E 02	1.638E 03	1.942E 02	3.041E-02	1.564E 02	2.449E-02
4.480E 01	3.617E 01	3.107E 01	-4.101E 02	-1.146E 03	-7.829E 02	-3.632E 02	1.698E 03	2.328E 02	3.645E-02	1.989E 02	3.113E-02
4.549E 01	3.490E 01	4.042E 01	-4.044E 02	-1.196E 03	-8.139E 02	-3.821E 02	1.782E 03	2.234E 02	3.497E-02	2.587E 02	4.050E-02
4.620E 01	3.340E 01	3.845E 01	-3.656E 02	-1.274E 03	-8.453E 02	-4.286E 02	1.866E 03	2.138E 02	3.347E-02	2.461E 02	3.853E-02
4.621E 01	3.338E 01	3.842E 01	-3.642E 02	-1.275E 03	-8.457E 02	-4.297E 02	1.869E 03	2.136E 02	3.345E-02	2.459E 02	3.850E-02
4.625E 01	3.328E 01	3.830E 01	-3.613E 02	-1.282E 03	-8.477E 02	-4.345E 02	1.875E 03	2.130E 02	3.335E-02	2.451E 02	3.838E-02
4.626E 01	3.326E 01	3.827E 01	-3.606E 02	-1.284E 03	-8.481E 02	-4.356E 02	1.876E 03	2.129E 02	3.333E-02	2.449E 02	3.835E-02
4.731E 01	3.102E 01	3.534E 01	-2.733E 02	-1.489E 03	-8.946E 02	-5.941E 02	2.006E 03	1.986E 02	3.109E-02	2.262E 02	3.541E-02
4.811E 01	3.640E 01	3.511E 01	-1.910E 02	-1.676E 03	-9.299E 02	-7.465E 02	2.105E 03	2.330E 02	3.647E-02	2.119E 02	3.317E-02
4.873E 01	3.137E 01	3.137E 01	-9.984E 01	-1.822E 03	-9.572E 02	-8.653E 02	2.182E 03	2.008E 02	3.144E-02	2.008E 02	3.144E-02
5.018E 01	1.863E 01	1.863E 01	9.706E 01	-2.086E 03	-1.020E 03	-1.065E 03	2.363E 03	1.192E 02	1.866E-02	1.192E 02	1.866E-02
5.071E 01	1.397E 01	1.397E 01	1.321E 02	-2.143E 03	-1.043E 03	-1.099E 03	2.430E 03	8.939E 01	1.399E-02	8.939E 01	1.399E-02
5.212E 01	1.162E 01	1.162E 01	2.267E 02	-2.270E 03	-1.104E 03	-1.165E 03	2.607E 03	7.440E 01	1.165E-02	7.440E 01	1.165E-02
5.422E 01	8.025E 00	8.025E 00	3.349E 02	-2.445E 03	-1.194E 03	-1.251E 03	2.874E 03	5.136E 01	8.041E-03	5.136E 01	8.041E-03
5.472E 01	8.658E 00	8.658E 00	3.565E 02	-2.482E 03	-1.215E 03	-1.267E 03	2.937E 03	5.541E 01	8.676E-03	5.541E 01	8.676E-03
5.547E 01	6.941E 00	6.941E 00	3.867E 02	-2.536E 03	-1.247E 03	-1.289E 03	3.033E 03	4.442E 01	6.955E-03	4.442E 01	6.955E-03
5.576E 01	6.279E 00	6.279E 00	3.965E 02	-2.557E 03	-1.259E 03	-1.298E 03	3.070E 03	4.018E 01	6.291E-03	4.018E 01	6.291E-03
5.623E 01	3.331E 00	5.200E 00	4.632E 02	-2.588E 03	-1.276E 03	-1.312E 03	3.102E 03	2.132E 01	3.338E-03	3.328E 01	5.210E-03
5.766E 01	5.452E 00	5.452E 00	5.011E 02	-2.671E 03	-1.317E 03	-1.353E 03	3.210E 03	3.489E 01	5.463E-03	3.489E 01	5.463E-03
5.785E 01	5.486E 00	5.486E 00	5.062E 02	-2.682E 03	-1.323E 03	-1.359E 03	3.234E 03	3.511E 01	5.497E-03	3.511E 01	5.497E-03
5.793E 01	5.500E 00	5.500E 00	5.084E 02	-2.686E 03	-1.325E 03	-1.361E 03	3.245E 03	3.520E 01	5.512E-03	3.520E 01	5.512E-03
5.821E 01	5.550E 00	5.550E 00	5.156E 02	-2.701E 03	-1.333E 03	-1.368E 03	3.280E 03	3.552E 01	5.561E-03	3.552E 01	5.561E-03
5.844E 01	4.700E 00	4.700E 00	5.206E 02	-2.713E 03	-1.339E 03	-1.373E 03	3.309E 03	3.008E 01	4.709E-03	3.008E 01	4.709E-03
5.916E 01	1.975E 00	1.975E 00	5.296E 02	-2.747E 03	-1.359E 03	-1.388E 03	3.402E 03	1.264E 01	1.979E-03	1.264E 01	1.979E-03
6.018E 01	7.700E 00	7.700E 00	5.408E 02	-2.796E 03	-1.387E 03	-1.409E 03	3.532E 03	4.928E 01	7.715E-03	4.928E 01	7.715E-03
6.219E 01	5.387E 00	5.387E 00	5.424E 02	-2.899E 03	-1.439E 03	-1.460E 03	3.790E 03	3.448E 01	5.398E-03	3.448E 01	5.398E-03
6.361E 01	5.469E 00	5.469E 00	5.424E 02	-2.971E 03	-1.474E 03	-1.496E 03	3.972E 03	3.500E 01	5.480E-03	3.500E 01	5.480E-03
6.607E 01	8.918E 00	8.918E 00	5.424E 02	-3.105E 03	-1.535E 03	-1.570E 03	4.289E 03	5.707E 01	8.936E-03	5.707E 01	8.936E-03

XABS	P-1B	P-0B	PDA	QDA	W-1B	G-0B	CA-ALL	P-1B/P80	P-1B/P10	P-0B/P80	P-0B/P10
6.645E 01	9.444E 00	9.444E 00	5.424E 02	-3.167E 03	-1.544E 03	-1.562E 03	4.337E 03	6.044E 01	9.463E-03	6.044E 01	9.463E-03
6.669E 01	5.289E 00	9.780E 00	5.424E 02	-3.140E 03	-1.550E 03	-1.590E 03	4.368E 03	3.385E 01	5.300E-03	6.259E 01	9.800E-03
6.835E 01	5.600E 00	4.305E 00	6.141E 02	-3.220E 03	-1.589E 03	-1.637E 03	4.584E 03	3.584E 01	5.611E-03	6.794E 01	4.374E-03
6.902E 01	4.276E 00	3.907E 00	7.060E 02	-3.259E 03	-1.605E 03	-1.654E 03	4.665E 03	2.737E 01	4.285E-03	2.501E 01	3.915E-03
6.979E 01	2.755E 00	5.325E 00	8.052E 02	-3.301E 03	-1.622E 03	-1.676E 03	4.760E 03	1.763E 01	2.761E-03	2.128E 01	3.332E-03
7.051E 01	2.024E 00	2.780E 00	8.752E 02	-3.344E 03	-1.637E 03	-1.707E 03	4.846E 03	1.295E 01	2.028E-03	1.779E 01	2.786E-03
7.112E 01	1.405E 00	2.472E 00	9.215E 02	-3.376E 03	-1.648E 03	-1.728E 03	4.922E 03	8.99CE 00	1.406E-03	1.582E 01	2.477E-03
7.250E 01	1.300E 00	1.777E 00	9.997E 02	-3.416E 03	-1.670E 03	-1.747E 03	5.088E 03	8.320E 00	1.303E-03	1.137E 01	1.780E-03
7.403E 01	1.145E 00	1.005E 00	1.082E 03	-3.450E 03	-1.690E 03	-1.760E 03	5.273E 03	7.330E 00	1.148E-03	6.432E 00	1.007E-03
7.493E 01	1.054E 00	5.491E-01	1.098E 03	-3.478E 03	-1.701E 03	-1.777E 03	5.370E 03	6.746E 00	1.056E-03	3.515E 00	5.502E-04
7.626E 01	9.200E-01	0.000	1.119E 03	-3.522E 03	-1.717E 03	-1.806E 03	5.422E 03	5.888E 00	9.218E-04	0.000	0.000
7.911E 01	1.405E 00	0.000	1.166E 03	-3.553E 03	-1.748E 03	-1.806E 03	5.520E 03	8.992E 00	1.408E-03	0.000	0.000
8.301E 01	1.345E 00	0.000	1.224E 03	-3.592E 03	-1.787E 03	-1.806E 03	5.625E 03	8.608E 00	1.348E-03	0.000	0.000
8.502E 01	1.275E 00	0.000	1.253E 03	-3.631E 03	-1.825E 03	-1.806E 03	5.679E 03	8.160E 00	1.278E-03	0.000	0.000
8.808E 01	1.355E 00	0.000	1.285E 03	-3.696E 03	-1.890E 03	-1.806E 03	5.702E 03	8.672E 00	1.358E-03	0.000	0.000
8.869E 01	1.355E 00	0.000	1.285E 03	-3.696E 03	-1.890E 03	-1.806E 03	5.702E 03	8.672E 00	1.358E-03	0.000	0.000

X	DDRAG	CDRAG	CF	MC
4.040E 01	8.456E 01	8.456E 01	2.090E-03	3.250E-02
4.041E 01	1.617E-01	8.472E 01	2.625E-03	3.398E-02
4.072E 01	5.165E 00	8.989E 01	2.298E-03	4.102E-02
4.121E 01	7.704E 00	9.759E 01	2.364E-03	3.270E-02
4.150E 01	4.531E 00	1.021E 02	2.308E-03	3.479E-02
4.246E 01	1.475E 01	1.169E 02	2.393E-03	2.188E-02
4.270E 01	3.904E 00	1.208E 02	2.840E-03	2.459E-02
4.271E 01	1.655E-01	1.209E 02	2.522E-03	2.651E-02
4.277E 01	1.009E 00	1.219E 02	2.470E-03	2.790E-02
4.431E 01	2.138E 01	1.433E 02	2.735E-03	0.255E-02
4.480E 01	6.198E 00	1.495E 02	3.233E-03	5.795E-02
4.549E 01	8.798E 00	1.583E 02	3.354E-03	5.708E-02
4.620E 01	9.022E 00	1.673E 02	3.462E-03	5.504E-02
4.621E 01	1.288E-01	1.675E 02	3.340E-03	5.845E-02
4.625E 01	5.612E-01	1.680E 02	3.528E-03	5.591E-02
4.626E 01	1.284E-01	1.681E 02	3.252E-03	0.192E-02
4.731E 01	1.238E 01	1.805E 02	3.150E-03	6.013E-02
4.811E 01	8.786E 00	1.893E 02	3.227E-03	5.765E-02
4.873E 01	6.468E 00	1.958E 02	3.276E-03	5.287E-02
5.018E 01	1.505E 01	2.108E 02	3.176E-03	4.004E-02
5.071E 01	5.596E 00	2.164E 02	3.195E-03	3.294E-02
5.212E 01	1.383E 01	2.303E 02	2.995E-03	2.964E-02
5.422E 01	1.773E 01	2.480E 02	2.979E-03	2.207E-02
5.472E 01	3.825E 00	2.518E 02	2.933E-03	2.326E-02
5.547E 01	5.560E 00	2.574E 02	3.006E-03	1.951E-02
5.576E 01	2.105E 00	2.595E 02	2.884E-03	1.847E-02
5.623E 01	1.567E 00	2.610E 02	2.718E-03	1.304E-02
5.766E 01	4.379E 00	2.654E 02	2.682E-03	1.611E-02
5.785E 01	9.932E-01	2.664E 02	2.999E-03	1.406E-02
5.793E 01	4.593E-01	2.669E 02	3.363E-03	1.305E-02
5.821E 01	1.698E 00	2.686E 02	3.352E-03	1.372E-02
5.844E 01	1.387E 00	2.700E 02	3.351E-03	1.245E-02
5.916E 01	4.806E 00	2.746E 02	3.512E-03	0.415E-03
6.018E 01	6.361E 00	2.811E 02	3.338E-03	1.669E-02
6.219E 01	1.163E 01	2.927E 02	3.302E-03	1.341E-02
6.301E 01	8.777E 00	3.015E 02	3.293E-03	1.358E-02
6.607E 01	1.414E 01	3.157E 02	3.359E-03	1.799E-02
6.645E 01	1.859E 00	3.175E 02	3.419E-03	1.801E-02
6.669E 01	1.179E 00	3.187E 02	3.438E-03	1.622E-02
6.835E 01	8.137E 00	3.268E 02	3.360E-03	1.250E-02
6.902E 01	2.769E 00	3.296E 02	3.324E-03	1.102E-02
6.979E 01	2.879E 00	3.325E 02	3.273E-03	8.977E-03
7.051E 01	2.343E 00	3.348E 02	3.234E-03	7.588E-03
7.112E 01	1.752E 00	3.366E 02	3.205E-03	6.499E-03
7.250E 01	3.481E 00	3.401E 02	3.171E-03	5.473E-03
7.403E 01	3.247E 00	3.433E 02	3.109E-03	4.167E-03
7.493E 01	1.397E 00	3.447E 02	3.064E-03	3.923E-03
7.626E 01	7.077E-01	3.454E 02	3.074E-03	3.684E-03
7.911E 01	1.595E 00	3.470E 02	3.115E-03	5.047E-03
8.301E 01	1.889E 00	3.489E 02	3.087E-03	4.850E-03
8.582E 01	9.486E-01	3.498E 02	3.066E-03	4.657E-03
8.868E 01	3.934E-01	3.502E 02	3.061E-03	4.851E-03
8.869E 01	0.000	3.502E 02	3.061E-03	4.851E-03

RAMJET PERFORMANCE

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ENGINE PERFORMANCE

CALCULATED THRUST	921.	(LBF)
MEASURED THRUST	1089.	(LBF)
CALCULATED SPECIFIC IMPULSE	2738.	(LBF-SEC/LBM)
MEASURED SPECIFIC IMPULSE	3239.	(LBF-SEC/LBM)
CALCULATED THRUST COEFFICIENT	0.6241	
MEASURED THRUST COEFFICIENT	0.7382	

REGENERATIVE-COOLED ENGINE PERFORMANCE CALCULATED

STREAM THRUST	1979.	(LBF)
NET THRUST	1013.	(LBF)
SPECIFIC IMPULSE	3012.	(LBF-SEC/LBM)
THRUST COEFFICIENT	0.6865	

MOMENTUM AND FORCES

INLET FRICTION DRAG	84.6	(LBF)
INLET MOMENTUM CHANGE	-393.0	(LBF)
COMBUSTOR FRICTION DRAG	233.0	(LBF)
COMBUSTOR STRUT DRAG	-2.73	(LBF)
COMBUSTOR MOMENTUM CHANGE	604.	(LBF)
NOZZLE FRICTION DRAG	32.72	(LBF)
NOZZLE STRUT DRAG	-0.00	(LBF)
NOZZLE MOMENTUM CHANGE	710.	(LBF)
NOZZLE PRESSURE INTEGRAL	743.	(LBF)
EXTERNAL FRICTION DRAG	0.00	(LBF)
EXTERNAL PRESSURE INTEGRAL	0.	(LBF)
TOTAL EXTERNAL DRAG	-738.	(LBF)
TOTAL STRUT DRAG	-2.73	(LBF)
CAVITY FORCE	-2042.	(LBF)
CALCULATED LOAD CELL FORCE	-1659.	(LBF)
MEASURED LOAD CELL FORCE	-1691.	(LBF)

FUEL VACUUM SPECIFIC IMPULSE 0.0, 0.0, 0.0, -156.4,

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	1.7110	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	36.595	(IN)
NOZZLE SHROUD TRAILING EDGE	74.939	(IN)
NOZZLE PLUG TRAILING EDGE	88.687	(IN)
STRUT LEADING EDGE	57.851	(IN)
STRUT TRAILING EDGE	66.451	(IN)
COMBUSTOR EXIT	66.451	(IN)

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.9917	
ADDITIVE DRAG COEFFICIENT	0.0000	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.1034	
DELTA PT2	0.0863	(PSI)
TOTAL PRESSURE RECOVERY - SUPERSONIC	0.3938	
TOTAL PRESSURE RECOVERY - SUBSONIC	0.1047	
INLET PROCESS EFFICIENCY - SUPERSONIC	0.9218	
INLET PROCESS EFFICIENCY - SUBSONIC	0.9168	
KINETIC ENERGY EFFICIENCY - SUPERSONIC	0.9214	
KINETIC ENERGY EFFICIENCY - SUBSONIC	0.8677	
ENTHALPY AT P0 - SUPERSONIC	-44.28	(BTU/LBM)
ENTHALPY AT P0 - SUBSONIC	-4.67	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0216	
EQUIVALENCE RATIO	0.852	
COMBUSTOR EFFICIENCY	1.000	
TOTAL PRESSURE RATIO	0.0761	
COMBUSTOR EFFECTIVENESS	0.8567	

INJECTOR DISCHARGE COEFFICIENTS 0.9499, 0.4944, 0.7528, 0.6730

NOZZLE

VACUUM STREAM THRUST COEFFICIENT - CS	0.9964	
NOZZLE COEFFICIENT - CT	0.9206	
PROCESS EFFICIENCY	1.0409	
KINETIC ENERGY EFFICIENCY	0.9922	

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	A
1B	42.696	B
1C	44.300	
2A	50.171	
2C	46.250	E
3A	55.461	
3B	57.646	
4	46.196	C