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NASA CONTRACTOR  
REPORT

NASA CR-137674

Copy Number 7

Multivariate Analysis, Retrieval, and  
Storage System (MARS)

Vol. IV, Turbojet and Turbofan Data Base (By Engine)

N76-10090

Unclas  
39392

MAY 1975

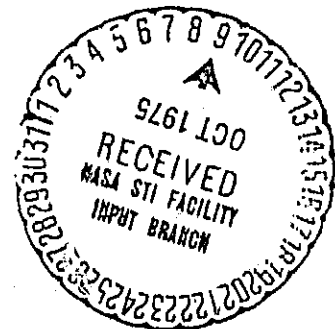
Developed under  
CONTRACT No. NAS 2-7627

(NASA-CR-137674) MULTIVARIATE ANALYSIS,  
RETRIEVAL, AND STORAGE SYSTEM (MARS).  
VOLUME 4: TURBOJET AND TURBOFAN DATA BASE  
(BY ENGINE) (Aerophysics Research Corp.,  
Bellevue, Wash.) 32 p HC \$3.75 CSCI 01C 63/05

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FOR THE NATIONAL AERONAUTICS AND SPACE ADMINISTRATION  
Ames Research Center, Moffett Field, California 94035

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## PREFACE

This report was prepared under Task II of Contract NAS2-7627, "Further Flight Mechanics and Vehicle Synthesis Research", in the period from June 1973 to May 1974. Mr. Michael J. Tauber was the NASA technical monitor for this study which was done for the Advanced Concepts Branch of the Aeronautics Division of National Aeronautics and Space Administration's Ames Research Center. Mr. Donald S. Hague, of Aerophysics Research Corporation, served as project leader for this study.

In the aerospace vehicle preliminary design process the estimation of subsystem component weights and costs are based on formulae obtained by multivariate correlation-regression analyses of historical data. While many groupings of such formulae have been presented in the past, there exists a need for a rapid method of verifying and improving these formulae in specific applications. The Multivariable Data Analysis, Retrieval, and Storage System (MARS) fulfills this function. In the MARS system selected vehicle characteristics information has been stored in a computerized data base. The data can be displayed, retrieved, or analyzed for functional relationships by multivariable statistical correlation-regression analyses using any specified subset of characteristics and vehicles.

This report, Volume IV of the Task II documentation, consists of a partial listing of the MARS system engine data base. The information contained in this data base was originally supplied by Mr. J. Morris of NASA's Ames Research Center, Aeronautics Division.

## ENGINE IDENTIFICATION FILE

ENGINE IDENTIFICATION

BYPASS RATIO = 0.75000  
OVERALL COMPRESSOR PRESS. RATIO = 21.800  
OUTER COMPRESSOR PRESS. RATIO = 7.4100  
NO. OF STAGES, LOW PRESS. COMPRESSOR = 9.0000  
NO. OF STAGES, HIGH PRESS. COMPRESSOR = 7.0000  
NO. OF STAGES, LOW PRESS. TURBINE = 3.0000  
NO. OF STAGES, HIGH PRESS. TURBINE = 1.0000  
FAN PRESSURE RATIO = 2.4300  
TURBINE MAX. INLET TEMP. DEGREES F = 2283.0  
NOMINAL ENGINE LENGTH, INCHES = 241.70  
WEIGHT IN POUNDS = 3985.0  
S.L. STATIC MIL. POWER (30 MIN. MAX.) = 14560.  
S.L. S.F.C. MIL. POWER (30 MIN. MAX.) = 0.68600  
ENGINE MASS FLOW S.L. STATIC, LPS/SEC = 260.00  
S.L. STATIC MAX. A/B THRUST = 25100.  
S.L. STATIC MAX. A/B S.F.C. = 2.4500  
NOMINAL ENGINE DIAMETER, INCHES = 48.900  
= 0.11111E-08  
INSTALLATION MONTH = 7.0000  
INSTALLATION YEAR = 71.000  
TOTAL NUMBER OF COMP. STAGES = 16.000  
TOTAL NUMBER OF TURBINE STAGES = 4.0000

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ENGINE IDENTIFICATION FILE

ENGINE NUMBER =

A/B THRUST TO NON A/B THRUST RATIO = 1.7250  
BYPASS RATIO + 1 = 1.7200  
THRUST/WEIGHT = 3.6537  
THRUST PER SQUARE INCH = 7.7527

ENGINE IDENTIFICATION F52H

ENGINE NUMBER

BYPASS RATIO = 0.59000  
 OVERALL COMPRESSOR PRESS. RATIO = 10.000  
 OUTER COMPRESSOR PRESS. RATIO = 2.9000  
 NO. OF STAGES, LOW PRESS. COMPRESSOR = 6.0000  
 NO. OF STAGES, HIGH PRESS. COMPRESSOR = 7.0000  
 NO. OF STAGES, LOW PRESS. TURBINE = 2.0000  
 NO. OF STAGES, HIGH PRESS. TURBINE = 1.0000  
 FAN PRESSURE RATIO = 1.7000  
 TURBINE MAX. INLET TEMP. DEGREES F = 1000.0  
 NOMINAL ENGINE LENGTH, INCHES = 145.70  
 WEIGHT IN POUNDS = 2900.0  
 S.L. STATIC MIL. POWER (30 MIN. MAX.) = 10500.  
 S.L. S.F.C. MIL. POWER (30 MIN. MAX.) = 0.52000  
 ENGINE MASS FLOW S.L. STATIC, LBS/SEC = 444.00  
 S.L. STATIC MAX. A/B THRUST = -1.0000  
 S.L. STATIC MAX. A/B S.F.C. = -1.0000  
 NOMINAL ENGINE DIAMETER, INCHES = 52.900  
 = 0.111110-03  
 INSTALLATION MONTH = 5.0000  
 INSTALLATION YEAR = 60.000  
 TOTAL NUMBER OF COMP. STAGES = 15.000  
 TOTAL NUMBER OF TURBINE STAGES = 4.0000

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ENGINE IDENTIFICATION R52H

ENGINE IDENTIFICATION

A/B THRUST TO NON A/B THRUST RATIO	=	1.0000
BYPASS RATIO + 1	=	1.5900
THRUST/WEIGHT	=	4.2308
THRUST PER SQUARE INCH	=	7.5073



ENGINE IDENTIFICATION ALJA

ENGINE MODEL =

3

A/B THRUST TO NON A/B THRUST RATIO	=	1.0000
BYPASS RATIO + 1	=	7.2300
THRUST/WEIGHT	=	5.7417
THRUST PER SQUARE INCH	=	4.1553

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ENGINE IDENTIFICATION	ALIA
BYPASS RATIO	= 6.2500
OVERALL COMPRESSOR PRESS. RATIO	= 17.500
LOW COMPRESSOR PRESS. RATIO	= 1.5100
NO. OF STAGES, LOW PRESS. COMPRESSOR	= 1.0000
NO. OF STAGES, HIGH PRESS. COMPRESSOR	= 14.000
NO. OF STAGES, LOW PRESS. TURBINE	= 4.0000
NO. OF STAGES, HIGH PRESS. TURBINE	= 2.0000
FAN PRESSURE RATIO	= 1.5100
TURBINE MAX. INLET TEMP. DEGREES F	= 2197.0
NOMINAL ENGINE LENGTH, INCHES	= 104.09
WEIGHT IN POUNDS	= 1421.0
S.L. STATIC MIL. POWER (30 MIN. MAX.)	= 8155.0
S.L. S.F.C. MIL. POWER (30 MIN. MAX.)	= 0.34900
ENGINE MASS FLOW S.L. STATIC, LBS/SEC	= 239.00
S.L. STATIC MAX. A/B THRUST	= -1.0000
S.L. STATIC MAX. A/B S.F.C.	= -1.0000
NOMINAL ENGINE DIAMETER, INCHES	= 50.000
	= 0.11111E-09
INSTALLATION MONTH	= 9.0000
INSTALLATION YEAR	= 69.000
TOTAL NUMBER OF COMP. STAGES	= 15.000
TOTAL NUMBER OF TURBINE STAGES	= 6.0000

ENGINE IDENTIFICATION EC1030

ENGINE

4

BYPASS RATIO	=	4.4000
OVERALL COMPRESSOR PRESS. RATIO	=	30.000
OUTER COMPRESSOR PRESS. RATIO	=	1.7200
NO. OF STAGES, LOW PRESS. COMPRESSOR	=	2.0000
NO. OF STAGES, HIGH PRESS. COMPRESSOR	=	11.000
NO. OF STAGES, LOW PRESS. TURBINE	=	4.0000
NO. OF STAGES, HIGH PRESS. TURBINE	=	2.0000
FAW PRESSURE RATIO	=	1.5000
TURBINE MAX. INLET TEMP. DEGREES F	=	2470.0
NOMINAL ENGINE LENGTH, INCHES	=	160.00
WEIGHT IN POUNDS	=	9325.0
S.L. STATIC MIL. POWER (30 MIN. MAX.)	=	43225.
S.L. S.F.C. MIL. POWER (30 MIN. MAX.)	=	0.38000
ENGINE MASS FLOW S.L. STATIC, LBS/SEC	=	1345.0
S.L. STATIC MAX. A/B THRUST	=	-1.0000
S.L. STATIC MAX. A/B S.F.C.	=	-1.0000
NOMINAL ENGINE DIAMETER, INCHES	=	107.00
	=	0.111114-08
INSTALLATION MONTH	=	9.0000
INSTALLATION YEAR	=	70.000
TOTAL NUMBER OF COMP. STAGES	=	17.000
TOTAL NUMBER OF TURBINE STAGES	=	6.0000

ENGINE IDENTIFICATION LC1030

COPY PAGE = 6

A/B THRUST TO NON A/B THRUST RATIO	=	1.0000
BYPASS RATIO + 1	=	5.4000
THRUST/WEIGHT	=	5.1922
THRUST PER SQUARE INCH	=	4.8070

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## ENGINE IDENTIFICATION 747200

UNIT NO. 10000 =

5

BYPASS RATIO	=	5.1000
LOW PRESS. COMPRESSOR PRESS. RATIO	=	22.200
HIGH PRESS. COMPRESSOR PRESS. RATIO	=	2.3000
NO. OF STAGES, LOW PRESS. COMPRESSOR	=	4.0000
NO. OF STAGES, HIGH PRESS. COMPRESSOR	=	11.000
NO. OF STAGES, LOW PRESS. TURBINE	=	4.0000
NO. OF STAGES, HIGH PRESS. TURBINE	=	2.0000
FAN PRESSURE RATIO	=	1.5000
TURBINE MAX. INLET TEMP. DEGREES F	=	2330.0
NOMINAL ENGINE LENGTH, INCHES	=	154.20
WEIGHT IN POUNDS	=	8770.0
S.L. STATIC MIL. POWER (30 MIN. MAX.)	=	39650.
S.L. S.F.C. MIL. POWER (30 MIN. MAX.)	=	0.34600
ENGINE MASS FLOW S.L. STATIC, LBS/SEC	=	1440.0
S.L. STATIC MAX. A/B THRUST	=	-1.0000
S.L. STATIC MAX. A/B S.F.C.	=	-1.0000
NOMINAL ENGINE DIAMETER, INCHES	=	99.500
	=	C.11111L-03
INSTALLATION MONTH	=	7.0000
INSTALLATION YEAR	=	71.000
TOTAL NUMBER OF COMP. STAGES	=	15.000
TOTAL NUMBER OF TURBINE STAGES	=	6.0000

A/B THRUST TO NON A/B THRUST RATIO = 1.0000  
BYPASS RATIO + 1 = 6.1000  
THRUST/WEIGHT = 4.5211  
THRUST PER SQUARE INCH = 5.5204

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ENGINE IDENTIFICATION 7E720)

ENGINE NUMBER 7

6

BYPASS RATIO	=	1.0300
OVERALL COMPRESSOR PRESS. RATIO	=	10.900
OUTER COMPRESSOR PRESS. RATIO	=	4.2000
NO. OF STAGES, LOW PRESS. COMPRESSOR	=	6.0000
NO. OF STAGES, HIGH PRESS. COMPRESSOR	=	7.0000
NO. OF STAGES, LOW PRESS. TURBINE	=	3.0000
NO. OF STAGES, HIGH PRESS. TURBINE	=	1.0000
FAN PRESSURE RATIO	=	1.6100
TURBINE MAX. INLET TEMP. DEGREES F	=	1720.0
NOMINAL ENGINE LENGTH, INCHES	=	123.67
WEIGHT IN POUNDS	=	2218.0
S.L. STATIC MIL. POWER (30 MIN. MAX.)	=	12600.
S.L. S.F.C. MIL. POWER (30 MIN. MAX.)	=	0.57000
ENGINE MASS FLOW S.L. STATIC, LBS/SEC	=	218.00
S.L. STATIC MAX. A/B THRUST	=	-1.0000
S.L. STATIC MAX. A/B S.F.C.	=	-1.0000
NOMINAL ENGINE DIAMETER, INCHES	=	45.060
	=	0.11111E-08
INSTALLATION MONTH	=	3.0000
INSTALLATION YEAR	=	68.000
TOTAL NUMBER OF COMP. STAGES	=	13.000
TOTAL NUMBER OF TURBINE STAGES	=	4.0000

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ENGINE IDENTIFICATION 727209

ENGINE NUMBER = 6

A/B THRUST TO NON A/B THRUST RATIO	=	1.0000
BYPASS RATIO + 1	=	2.0300
THRUST/WEIGHT	=	3.9155
THRUST PER SQUARE INCH	=	7.9013



## ENGINE IDENTIFICATION F100C

ENGINE NUMBER = 7

BYPASS RATIO	=	0.0000
OVERALL COMPRESSOR PRESS. RATIO	=	11.300
ENTER COMPRESSOR PRESS. RATIO	=	2.9000
NO. OF STAGES, LOW PRESS. COMPRESSOR	=	9.0000
NO. OF STAGES, HIGH PRESS. COMPRESSOR	=	7.0000
NO. OF STAGES, LOW PRESS. TURBINE	=	2.0000
NO. OF STAGES, HIGH PRESS. TURBINE	=	1.0000
FAN PRESSURE RATIO	=	1.0000
TURBINE MAX. INLET TEMP. DEGREES F	=	1600.0
NOMINAL ENGINE LENGTH, INCHES	=	246.60
WEIGHT IN POUNDS	=	5160.0
S.L. STATIC MIL. POWER (30 MIN. MAX.)	=	10200.
S.L. S.F.C. MIL. POWER (30 MIN. MAX.)	=	0.93500
ENGINE MASS FLOW S.L. STATIC, LBS/SEC	=	105.00
S.L. STATIC MAX. A/B THRUST	=	16000.
S.L. STATIC MAX. A/B S.F.C.	=	2.1000
NOMINAL ENGINE DIAMETER, INCHES	=	40.100
	=	0.11111E-08
INSTALLATION MONTH	=	1.0000
INSTALLATION YEAR	=	57.000
TOTAL NUMBER OF COMP. STAGES	=	16.000
TOTAL NUMBER OF TURBINE STAGES	=	3.0000

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ENGINE IDENTIFICATION F100C

ENGINE NUMBER

7

A/B THRUST TO NON A/B THRUST RATIO	=	1.9685
BYPASS RATIO + 1	=	1.0000
THRUST/WEIGHT	=	1.9767
THRUST PER SQUARE INCH	=	8.0755

## ENGINE IDENTIFICATION NUMBER

ENGINE NUMBER

8

BYPASS RATIO	=	0.0000
OVERALL COMPRESSOR PRESS. RATIO	=	11.500
OUTER COMPRESSOR PRESS. RATIO	=	3.7500
NO. OF STAGES, LOW PRESS. COMPRESSOR	=	9.0000
NO. OF STAGES, HIGH PRESS. COMPRESSOR	=	7.0000
NO. OF STAGES, LOW PRESS. TURBINE	=	2.0000
NO. OF STAGES, HIGH PRESS. TURBINE	=	1.0000
FAN PRESSURE RATIO	=	1.0000
TURBINE MAX. INLET TEMP. DEGREES F	=	1610.0
NOMINAL ENGINE LENGTH, INCHES	=	255.00
WEIGHT IN POUNDS	=	5950.0
S.L. STATIC MIL. POWER (30 MIN. MAX.)	=	16100.
S.L. S.F.C. MIL. POWER (30 MIN. MAX.)	=	0.92000
ENGINE MASS FLOW S.L. STATIC, LBS/SEC	=	252.00
S.L. STATIC MAX. A/P THRUST	=	24500.
S.L. STATIC MAX. A/B S.F.C.	=	2.1500
NOMINAL ENGINE DIAMETER, INCHES	=	43.000
	=	0.111110-08
INSTALLATION MONTH	=	1.0000
INSTALLATION YEAR	=	59.000
TOTAL NUMBER OF COMP. STAGES	=	15.000
TOTAL NUMBER OF TURBINE STAGES	=	3.0000

## ENGINE IDENTIFICATION F105DF

ENCLOSURE

8

A/B THRUST TO NON A/B THRUST RATIO = 1.5217

BYPASS RATIO + 1 = 1.0000

THRUST/WEIGHT = 2.7059

THRUST PER SQUARE INCH = 11.087

ENGINE IDENTIFICATION	FAC, D
BYPASS RATIO	= 0.0000
OVERALL COMPRESSOR PRESS. RATIO	= 12.900
OUTER COMPRESSOR PRESS. RATIO	= 1.0000
NO. OF STAGES, LOW PRESS. COMPRESSOR	= 0.0000
NO. OF STAGES, HIGH PRESS. COMPRESSOR	= 7.000
NO. OF STAGES, LOW PRESS. TURBINE	= 0.0000
NO. OF STAGES, HIGH PRESS. TURBINE	= 2.0000
FAN PRESSURE RATIO	= 1.0000
TURBINE MAX. INLET TEMP. DEGREES F	= 1775.0
NOMINAL ENGINE LENGTH, INCHES	= 208.45
WEIGHT IN POUNDS	= 2685.0
S.L. STATIC MIL. POWER (30 MIN. MAX.)	= 10900.
S.L. SFC MIL. POWER (30 MIN. MAX.)	= 0.96000
ENGINE MASS FLOW S.L. STATIC, LBS/SEC	= 165.00
S.L. STATIC MAX. A/B THRUST	= 17000.
S.L. STATIC MAX. A/B S.F.C.	= 1.9450
NOMINAL ENGINE DIAMETER, INCHES	= 35.180
	= 0.1111E-03
INSTALLATION MONTH	= 2.0000
INSTALLATION YEAR	= 63.000
TOTAL NUMBER OF COMP. STAGES	= 17.000
TOTAL NUMBER OF TURBINE STAGES	= 2.0000

ENGINE IDENTIFICATION F4U, D

ENGINE MODEL 91

A/B THRUST TO NON A/B THRUST RATIO	=	1.5590
BYPASS RATIO + 1	=	1.0000
THRUST/WEIGHT	=	2.9579
THRUST PER SQUARE INCH	=	11.219

ENGINE IDENTIFICATION FSA

1000 1000 1

BYPASS RATIO = 0.0000  
 OVERALL COMPRESSOR PRESS. RATIO = 7.0000  
 OUTER COMPRESSOR PRESS. RATIO = 1.0000  
 NO. OF STAGES, LOW PRESS. COMPRESSOR = 0.0000  
 NO. OF STAGES, HIGH PRESS. COMPRESSOR = 8.0000  
 NO. OF STAGES, LOW PRESS. TURBINE = 0.0000  
 NO. OF STAGES, HIGH PRESS. TURBINE = 2.0000  
 FAN PRESSURE RATIO = 1.0000  
 TURBINE MAX. INLET TEMP. DEGREES F = 1700.0  
 NOMINAL ENGINE LENGTH, INCHES = 110.00  
 WEIGHT IN POUNDS = 597.00  
 S.L. STATIC MIL. POWER (30 MIN. MAX.) = 2720.0  
 S.L. S.F.C. MIL. POWER (30 MIN. MAX.) = 1.0300  
 ENGINE MASS FLOW S.L. STATIC, LBS/SEC = 44.000  
 S.L. STATIC MAX. A/R THRUST = 4090.0  
 S.L. STATIC MAX. A/R S.F.C. = 2.2200  
 NOMINAL ENGINE DIAMETER, INCHES = 20.400  
 = 0.1111111-08  
 INSTALLATION MONTH = 7.0000  
 INSTALLATION YEAR = 63.000  
 TOTAL NUMBER OF COMP. STAGES = 8.0000  
 TOTAL NUMBER OF TURBINE STAGES = 2.0000

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ENGINE IDENTIFICATION F5A

ENGINE NUMBER = 10

A/B THRUST TO NON A/B THRUST RATIO = 1.5000  
BYPASS RATIO + 1 = 1.0000  
THRUST/WEIGHT = 4.5561  
THRUST PER SQUARE INCH = 8.3213

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ENGINE IDENTIFICATION

2061 2470 15

BYPASS RATIO = 0.0000  
 OVERALL COMPRESSOR PRESS. RATIO = 11.300  
 OUTER COMPRESSOR PRESS. RATIO = 2.9000  
 NO. OF STAGES, LOW PRESS. COMPRESSOR = 9.0000  
 NO. OF STAGES, HIGH PRESS. COMPRESSOR = 7.0000  
 NO. OF STAGES, LOW PRESS. TURBINE = 2.0000  
 NO. OF STAGES, HIGH PRESS. TURBINE = 1.0000  
 FAN PRESSURE RATIO = 1.0000  
 TURBINE MAX. INLET TEMP. DEGREES F = 1600.0  
 NOMINAL ENGINE LENGTH, INCHES = 157.70  
 WEIGHT IN POUNDS = 2970.0  
 S.L. STATIC MIL. POWER (30 MIN. MAX.) = 10500.  
 S.L. S.F.C. MIL. POWER (30 MIN. MAX.) = 0.79500  
 ENGINE MASS FLOW S.L. STATIC, LBS/SEC = 165.00  
 S.L. STATIC MAX. A/B THRUST = -1.0000  
 S.L. STATIC MAX. A/B S.F.C. = -1.0000  
 NOMINAL ENGINE DIAMETER, INCHES = 40.500  
 = 0.1111E-03  
 INSTALLATION MONTH = 12.000  
 INSTALLATION YEAR = 55.000  
 TOTAL NUMBER OF COMP. STAGES = 16.000  
 TOTAL NUMBER OF TURBINE STAGES = 3.0000

ENGINE IDENTIFICATION

A/B THRUST TO NON A/B THRUST RATIO	=	1.0000
BYPASS RATIO + 1	=	1.0000
THRUST/WEIGHT	=	2.6445
THRUST PER SQUARE INCH	=	8.1500

ENGINE IDENTIFICATION C5A

ENGINE IDENTIFICATION

12

BYPASS RATIO	=	0.0000
OVERALL COMPRESSOR PRESS. RATIO	=	22.000
OUTER COMPRESSOR PRESS. RATIO	=	1.4000
NO. OF STAGES, LOW PRESS. COMPRESSOR	=	1.5000
NO. OF STAGES, HIGH PRESS. COMPRESSOR	=	16.000
NO. OF STAGES, LOW PRESS. TURBINE	=	6.0000
NO. OF STAGES, HIGH PRESS. TURBINE	=	2.0000
FAN PRESSURE RATIO	=	1.4000
TURBINE MAX. INLET TEMP. DEGREES F	=	2425.0
NOMINAL ENGINE LENGTH, INCHES	=	203.11
WEIGHT IN POUNDS	=	7136.0
S.L. STATIC MIL. POWER (30 MIN. MAX.)	=	40805.
S.L. S.F.C. MIL. POWER (30 MIN. MAX.)	=	0.31500
ENGINE MASS FLOW S.L. STATIC, LBS/SEC	=	1549.0
S.L. STATIC MAX. A/R THRUST	=	-1.0000
S.L. STATIC MAX. A/R S.F.C.	=	-1.0000
NOMINAL ENGINE DIAMETER, INCHES	=	100.00
	=	0.11111E-08
INSTALLATION MONTH	=	9.0000
INSTALLATION YEAR	=	69.000
TOTAL NUMBER OF COMP. STAGES	=	17.500
TOTAL NUMBER OF TURBINE STAGES	=	8.0000

ENGINE IDENTIFICATION C5A

A/E THRUST TO NON A/E THRUST RATIO	=	1.0000
BYPASS RATIO + 1	=	9.0000
THRUST/WEIGHT	=	5.6786
THRUST PER SQUARE INCH	=	5.1954

ENGINE IDENTIFICATION A7D

ENGINE ID. = 13

BYLA RATIO	=	0.76000
OVERALL COMPRESSOR PRESS. RATIO	=	21.000
LOTER COMPRESSOR PRESS. RATIO	=	2.4500
NO. OF STAGES, LOW PRESS.COMPRESSOR	=	5.0000
NO. OF STAGES, HIGH PRESS.COMPRESSOR	=	11.000
NO. OF STAGES, LOW PRESS.TURBINE	=	2.0000
NO. OF STAGES, HIGHPRESS.TURBINE	=	2.0000
FAN PRESSURE RATIO	=	2.4500
TURBINE MAX. INLET TEMP. DEGREES F	=	2157.0
NOMINAL ENGINE LENGTH , INCHES	=	114.17
WEIGHT IN POUNDS	=	2175.0
S.L. STATIC MIL. POWER(30 MIN. MAX.)	=	14500.
S.L. S F C MIL. POWER(30 MIN. MAX.)	=	0.64700
ENGINE MASS FLOW S.L. STATIC, LBS/SEC	=	260.00
S.L. STATIC MAX. A/B THRUST	=	-1.0000
S.L. STATIC MAX. A/B S.F.C.	=	-1.0000
NOMINAL ENGINE DIAMETER, INCHES	=	29.940
	=	0.11111E-06
INSTALLATION MONTH	=	10.000
INSTALLATION YEAR	=	68.000
TOTAL NUMBER OF COMP. STAGES	=	16.000
TOTAL NUMBER OF TURBINE STAGES	=	4.0000

ENGINE IDENTIFICATION A7D

ENGINE NUMBER = 1<sup>st</sup>

A/B THRUST TO NON A/B THRUST RATIO = 1.0000

BYPASS RATIO + 1 = 1.7600

THRUST/WEIGHT = 4.5669

THRUST PER SQUARE INCH = 11.809

## SPECIAL IDENTIFICATION YASA

ENGINE IDENTIFICATION

14

BYPASS RATIO	=	0.2500
OVERALL COMPRESSOR PRESS. RATIO	=	11.200
OUTER COMPRESSOR PRESS. RATIO	=	1.6500
NO. OF STAGES, LOW PRESS. COMPRESSOR	=	2.0000
NO. OF STAGES, HIGH PRESS. COMPRESSOR	=	7.0000
NO. OF STAGES, LOW PRESS. TURBINE	=	2.0000
NO. OF STAGES, HIGH PRESS. TURBINE	=	2.0000
FAN PRESSURE RATIO	=	1.4000
TURBINE MAX. INLET TEMP. DEGREES F	=	2050.0
NOMINAL ENGINE LENGTH, INCHES	=	50.770
WEIGHT IN POUNDS	=	1095.0
S.L. STATIC MIL. POWER (30 MIN. MAX.)	=	6541.0
S.L. S.F.C. MIL. POWER (30 MIN. MAX.)	=	0.39700
ENGINE MASS FLOW S.L. STATIC, LBS/SEC	=	260.00
S.L. STATIC MAX. A/P THRUST	=	-1.0000
S.L. STATIC MAX. A/P S.F.C.	=	-1.0000
NOMINAL ENGINE DIAMETER, INCHES	=	42.400
	=	0.11111E-08
INSTALLATION MONTH	=	5.0000
INSTALLATION YEAR	=	72.000
TOTAL NUMBER OF COMP. STAGES	=	9.0000
TOTAL NUMBER OF TURBINE STAGES	=	4.0000

ENGINE IDENTIFICATION Y89A

ENGINE NUMBER = 14

A/B THRUST TO NON A/B THRUST RATIO	=	1.0000
BYPASS RATIO + 1	=	7.2500
THRUST/WEIGHT	=	5.9735
THRUST PER SQUARE INCH	=	4.6326



ENGINE IDENTIFICATION EC137D

ENGINE NUMBER = 15

BYPASS RATIO = 1.2700  
OYLFALL COMPRESSOR PRESS. RATIO = 13.560  
OUTER COMPRESSOR PRESS. RATIO = 4.2700  
NO. OF STAGES, LOW PRESS.COMPRESSOR = 8.0000  
NO. OF STAGES, HIGH PRESS.COMPRESSOR = 7.0000  
NO. OF STAGES, LOW PRESS.TURBINE = 2.0000  
NO. OF STAGES, HIGHPRESS.TURBINE = 1.0000  
FAN PRESSURE RATIO = 1.7400  
TURBINE MAX. INLET TEMP. DEGREES F = 1600.0  
NOMINAL ENGINE LENGTH , INCHES = 126.43  
WEIGHT IN POUNDS = 4260.0  
S.L. STATIC MIL. POWER(30 MIN. MAX.) = 16400.  
S.L. S F C MIL. POWER(30 MIN. MAX.) = 0.51500  
ENGINE MASS FLOW S.L. STATIC, LBS/SEC = 465.00  
S.L. STATIC MAX. A/B THRUST = -1.0000  
S.L. STATIC MAX. A/B S.F.C. = -1.0000  
NOMINAL ENGINE DIAMETER, INCHES = 53.140  
= 0.11111E-08  
INSTALLATION MONTH = 4.0000  
INSTALLATION YEAR = 62.000  
TOTAL NUMBER OF COMP. STAGES = 15.000  
TOTAL NUMBER OF TURBINE STAGES = 4.0000

ENGINE IDENTIFICATION EC1570

ENGINE NUMBER =

A/B THRUST TO NON A/B THRUST RATIO	=	1.0000
BYPASS RATIO + 1	=	2.3700
THRUST/WEIGHT	=	3.8490
THRUST PER SQUARE INCH	=	7.3945

ENGINE IDENTIFICATION FAL 10

BYPASS RATIO	=	2.6700
LOW PRESS. COMPRESSOR PRESS. RATIO	=	15.8000
HIGH PRESS. COMPRESSOR PRESS. RATIO	=	2.4000
NO. OF STAGES, LOW PRESS. COMPRESSOR	=	5.0000
NO. OF STAGES, HIGH PRESS. COMPRESSOR	=	1.0000
NO. OF STAGES, LOW PRESS. TURBINE	=	3.0000
NO. OF STAGES, HIGH PRESS. TURBINE	=	1.0000
FAN PRESSURE RATIO	=	1.5400
TURBINE MAX. INLET TEMP. DEGREES F	=	2950.0
NOMINAL ENGINE LENGTH, INCHES	=	49.730
WEIGHT IN POUNDS	=	710.00
S.L. STATIC MIL. POWER (30 MIN. MAX.)	=	3500.0
S.L. S.F.C. MIL. POWER (30 MIN. MAX.)	=	0.49000
ENGINE MASS FLOW S.L. STATIC, LBS/SEC	=	115.00
S.L. STATIC MAX. A/B THRUST	=	-1.0000
S.L. STATIC MAX. A/B S.F.C.	=	-1.0000
NOMINAL ENGINE DIAMETER, INCHES	=	32.750
	=	0.111111L-08
INSTALLATION MONTH	=	3.0000
INSTALLATION YEAR	=	71.000
TOTAL NUMBER OF COMP. STAGES	=	6.0000
TOTAL NUMBER OF TURBINE STAGES	=	4.0000

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ENGINE IDENTIFICATION TABLE

ENGINE NUMBER = 16

A/B THRUST TO NON A/B THRUST RATIO	=	1.0000
BYPASS RATIO + 1	=	3.6700
THRUST/WEIGHT	=	4.9296
THRUST PLP SQUARE INCH	=	4.1548

ENGINE IDENTIFICATION

ENGINE NO

BYPASS RATIO	=	1.2000
OVERALL COMPRESSOR PRESS. RATIO	=	8.2500
OUTER COMPRESSOR PRESS. RATIO	=	2.6000
NO. OF STAGES, LOW PRESS. COMPRESSOR	=	5.0000
NO. OF STAGES, HIGH PRESS. COMPRESSOR	=	1.0000
NO. OF STAGES, LOW PRESS. TURBINE	=	2.0000
NO. OF STAGES, HIGH PRESS. TURBINE	=	1.0000
FAN PRESSURE RATIO	=	1.7000
TURBINE MAX. INLET TEMP. DEGREES F	=	1750.0
NOMINAL ENGINE LENGTH, INCHES	=	30.980
WEIGHT IN POUNDS	=	110.00
S.L. STATIC MIL. POWER (30 MIN. MAX.)	=	476.00
S.L. S.F.C. MIL. POWER (30 MIN. MAX.)	=	0.6400
ENGINE MASS FLOW S.L. STATIC, LBS/SEC	=	11.140
S.L. STATIC MAX. A/B THRUST	=	-1.0000
S.L. STATIC MAX. A/B S.F.C.	=	-1.0000
NOMINAL ENGINE DIAMETER, INCHES	=	12.000
	=	0.11111E-00
INSTALLATION MONTH	=	7.0000
INSTALLATION YEAR	=	70.000
TOTAL NUMBER OF COMP. STAGES	=	6.0000
TOTAL NUMBER OF TURBINE STAGES	=	3.0000

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ENGINE IDENTIFICATION

A/E THRUST TO NON A/B THRUST PATIC	=	1.0000
BYPASS RATIO + 1	=	4.2000
THRUST/WEIGHT	=	4.3273
THRUST PER SQUARE INCH	=	4.2088

ENGINE IDENTIFICATION PROC

BYPASS RATIO = 0.0000  
 OVERALL COMPRESSOR PRESS. RATIO = 4.5500  
 OUTER COMPRESSOR PRESS. RATIO = 1.0000  
 NO. OF STAGES, LOW PRESS. COMPRESSOR = 0.0000  
 NO. OF STAGES, HIGH PRESS. COMPRESSOR = 1.0000  
 NO. OF STAGES, LOW PRESS. TURBINE = 0.0000  
 NO. OF STAGES, HIGH PRESS. TURBINE = 1.0000  
 FAN PRESSURE RATIO = 1.0000  
 TURBINE MAX. INLET TEMP. DEGREES F = 1600.0  
 NOMINAL ENGINE LENGTH, INCHES = 140.52  
 WEIGHT IN POUNDS = 1820.0  
 S.L. STATIC MIL. POWER (30 MIN. MAX.) = 4000.0  
 S.L. SFC MIL. POWER (30 MIN. MAX.) = 1.1400  
 ENGINE MASS FLOW S.L. STATIC, LBS/SEC = 86.200  
 S.L. STATIC MAX. A/B THRUST = -1.0000  
 S.L. STATIC MAX. A/B S.F.C. = -1.0000  
 NOMINAL ENGINE DIAMETER, INCHES = 47.000  
 = 0.11111E-08  
 INSTALLATION MONTH = 7.0000  
 INSTALLATION YEAR = 49.000  
 TOTAL NUMBER OF COMP. STAGES = 1.0000  
 TOTAL NUMBER OF TURBINE STAGES = 1.0000

ENGINE IDENTIFICATION PROC

A/R THRUST TO NON A/R THRUST RATIO	=	1.0000
BYPASS RATIO + 1	=	1.0000
THPLST/WEIGHT	=	2.5275
THRUST PER SQUARE INCH	=	2.6514



## ENGINE IDENTIFICATION F990

ENGINE NUMBER = 19

BYPASS RATIO	=	0.0000
OVERALL COMPRESSOR PRESS. RATIO	=	5.2000
OUTER COMPRESSOR PRESS. RATIO	=	1.0000
NO. OF STAGES, LOW PRESS. COMPRESSOR	=	0.0000
NO. OF STAGES, HIGH PRESS. COMPRESSOR	=	11.000
NO. OF STAGES, LOW PRESS. TURBINE	=	0.0000
NO. OF STAGES, HIGH PRESS. TURBINE	=	1.0000
FAN PRESSURE RATIO	=	1.0000
TURBINE MAX. INLET TEMP. DEGREES F	=	1600.0
NOMINAL ENGINE LENGTH, INCHES	=	199.50
WEIGHT IN POUNDS	=	2850.0
S.L. STATIC MIL. POWER (30 MIN. MAX.)	=	5600.0
S.L. S.F.C. MIL. POWER (30 MIN. MAX.)	=	1.1000
ENGINE MASS FLOW S.L. STATIC, LBS/SEC	=	89.100
S.L. STATIC MAX. A/B THRUST	=	7400.0
S.L. STATIC MAX. A/B S.F.C.	=	2.2500
NOMINAL ENGINE DIAMETER, INCHES	=	43.000
	=	0.11111E-09
INSTALLATION MONTH	=	3.0000
INSTALLATION YEAR	=	53.000
TOTAL NUMBER OF COMP. STAGES	=	11.000
TOTAL NUMBER OF TURBINE STAGES	=	1.0000

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ENGINE IDENTIFICATION F09D

ENGINE NUMBER - 19

A/B THRUST TO NON A/B THRUST RATIO = 1.3214  
BYPASS RATIO + 1 = 1.0000  
THRUST/WEIGHT = 1.9649  
THRUST FLP SQUARE INCH = 2.8562

ENGINE IDENTIFICATION PAGE

ENGINE MODEL = 20

BYPASS RATIO = 0.0000  
 OVERALL COMPRESSOR PRESS. RATIO = 5.2000  
 CORE COMPRESSOR PRESS. RATIO = 1.0000  
 NO. OF STAGES, LOW PRESS. COMPRESSOR = 0.0000  
 NO. OF STAGES, HIGH PRESS. COMPRESSOR = 12.000  
 NO. OF STAGES, LOW PRESS. TURBINE = 0.0000  
 NO. OF STAGES, HIGH PRESS. TURBINE = 1.0000  
 FAN PRESSURE RATIO = 1.0000  
 TURBINE MAX. INLET TEMP. DEGREES F = 1612.0  
 NOMINAL ENGINE LENGTH, INCHES = 226.50  
 WEIGHT IN POUNDS = 3500.0  
 S.L. STATIC MIL. POWER (30 MIN. MAX.) = 5425.0  
 S.L. S.F.C. MIL. POWER (30 MIN. MAX.) = 1.1500  
 ENGINE MASS FLOW S.L. STATIC, LBS/SEC = 102.00  
 S.L. STATIC MAX. A/B THRUST = 7500.0  
 S.L. STATIC MAX. A/B S.F.C. = 2.3000  
 NOMINAL ENGINE DIAMETER, INCHES = 39.000  
 = 0.11111E-08  
 INSTALLATION MONTH = 3.0000  
 INSTALLATION YEAR = 54.000  
 TOTAL NUMBER OF COMP. STAGES = 12.000  
 TOTAL NUMBER OF TURBINE STAGES = 1.0000

ENGINE IDENTIFICATION PROG

ENGINE TYPE 20

A/B THRUST TO MIN A/B THRUST RATIO = 1.3825  
BYPASS RATIO + 1 = 1.0000  
THRUST/WEIGHT = 1.5500  
THRUST PER SQUARE INCH = 4.2425

ENGINE IDENTIFICATION PRBF

ENGINE NO. = 24

BYPASS RATIO = 0.0000  
 OVERALL COMPRESSOR PRESS. RATIO = 5.2000  
 OUTER COMPRESSOR PRESS. RATIO = 1.0000  
 NO. OF STAGES, LOW PRESS. COMPRESSOR = 0.0000  
 NO. OF STAGES, HIGH PRESS. COMPRESSOR = 12.000  
 NO. OF STAGES, LOW PRESS. TURBINE = 0.0000  
 NO. OF STAGES, HIGH PRESS. TURBINE = 1.0000  
 FAN PRESSURE RATIO = 1.0000  
 TURBINE MAX. INLET TEMP. DEGREES F = 1600.0  
 NOMINAL ENGINE LENGTH, INCHES = 148.00  
 WEIGHT IN POUNDS = 2607.0  
 S.L. STATIC MIL. POWER (30 MIN. MAX.) = 5970.0  
 S.L. S.F.C. MIL. POWER (30 MIN. MAX.) = 1.0600  
 ENGINE MASS FLOW S.L. STATIC, LBS/SEC = 103.50  
 S.L. STATIC MAX. A/B THRUST = -1.0000  
 S.L. STATIC MAX. A/B S.F.C. = -1.0000  
 NOMINAL ENGINE DIAMETER, INCHES = 29.500  
 = 0.11111E-08  
 INSTALLATION MONTH = 10.000  
 INSTALLATION YEAR = 51.000  
 TOTAL NUMBER OF COMP. STAGES = 12.000  
 TOTAL NUMBER OF TURBINE STAGES = 1.0000

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ENGINE IDENTIFICATION F36F

ENGINE NUMBER = 24

A/B THRUST TO NON A/B THRUST RATIO	=	1.0000
BYPASS RATIO + 1	=	1.0000
THRUST/WEIGHT	=	2.2500
THRUST PER SQUARE INCH	=	4.8718

BYPASS RATIO	=	0.0000
OVERALL COMPRESSOR PRESS. RATIO	=	12.000
COMP. COMPRESSOR PRESS. RATIO	=	2.2000
NO. OF STAGES, LOW PRESS. COMPRESSOR	=	5.0000
NO. OF STAGES, HIGH PRESS. COMPRESSOR	=	7.0000
NO. OF STAGES, LOW PRESS. TURBINE	=	1.0000
NO. OF STAGES, HIGH PRESS. TURBINE	=	1.0000
FAN PRESSURE RATIO	=	1.0000
TURBINE MAX. INLET TEMP. DEGREES F	=	1900.0
NOMINAL ENGINE LENGTH, INCHES	=	149.50
WEIGHT IN POUNDS	=	2145.0
S.L. STATIC MIL. POWER (30 MIN. MAX.)	=	3450.0
S.L. S.F.C. MIL. POWER (30 MIN. MAX.)	=	0.2300
ENGINE MASS FLOW S.L. STATIC, LBS/SEC	=	122.00
S.L. STATIC MAX. A/R THRUST	=	-1.0000
S.L. STATIC MAX. A/R S.F.C.	=	-1.0000
NOMINAL ENGINE DIAMETER, INCHES	=	21.500
	=	0.1111E-03
INSTALLATION MONTH	=	10.000
INSTALLATION YEAR	=	59.000
TOTAL NUMBER OF COMP. STAGES	=	12.000
TOTAL NUMBER OF TURBINE STAGES	=	2.0000

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E N G I N E   I D E N T I F I C A T I O N   P N D D O G

ENGINE NUMBER = 22

A/B THRUST TO NON A/B THRUST RATIO   =   1.0000  
BYPASS RATIO + 1   =   1.0000  
THRUST/WEIGHT   =   1.6084  
THRUST PER SQUARE INCH   =   4.4270



ENGINE IDENTIFICATION T39A

ENGINE NUMBER = 23

BYPASS RATIO = 0.0000  
 OVERALL COMPRESSOR PRESS. RATIO = 7.0000  
 OUTER COMPRESSOR PRESS. RATIO = 1.0000  
 NO. OF STAGES, LOW PRESS. COMPRESSOR = 0.0000  
 NO. OF STAGES, HIGH PRESS. COMPRESSOR = 9.0000  
 NO. OF STAGES, LOW PRESS. TURBINE = 0.0000  
 NO. OF STAGES, HIGH PRESS. TURBINE = 2.0000  
 FAN PRESSURE RATIO = 1.0000  
 TURBINE MAX. INLET TEMP. DEGREES F = 1600.0  
 NOMINAL ENGINE LENGTH, INCHES = 79.500  
 WEIGHT IN POUNDS = 460.00  
 S.L. STATIC MIL. POWER (30 MIN. MAX.) = 2000.0  
 S.L. S.F.C. MIL. POWER (30 MIN. MAX.) = 0.9600  
 ENGINE MASS FLOW S.L. STATIC, LBS/SEC = 50.000  
 S.L. STATIC MAX. A/B THRUST = -1.0000  
 S.L. STATIC MAX. A/B S.F.C. = -1.0000  
 NOMINAL ENGINE DIAMETER, INCHES = 23.400  
 = 0.11111E-08  
 INSTALLATION MONTH = 10.000  
 INSTALLATION YEAR = 60.000  
 TOTAL NUMBER OF COMP. STAGES = 9.0000  
 TOTAL NUMBER OF TURBINE STAGES = 2.0000

ENGINE IDENTIFICATION T39A

ENGINE NUMBER =

A/B THRUST TO NON A/B THRUST RATIO	=	1.0000
BYPASS RATIO + 1	=	1.0000
THRUST/WEIGHT	=	6.5217
THRUST PER SQUARE INCH	=	6.9759

## ENGINE IDENTIFICATION P57A

ENGINE NUMBER = 24

BYPASS RATIO	=	0.0000
OVERALL COMPRESSOR PRESS. RATIO	=	6.8000
CUTER COMPRESSOR PRESS. RATIO	=	1.0000
NO. OF STAGES, LOW PRESS. COMPRESSOR	=	0.0000
NO. OF STAGES, HIGH PRESS. COMPRESSOR	=	13.000
NO. OF STAGES, LOW PRESS. TURBINE	=	0.0000
NO. OF STAGES, HIGH PRESS. TURBINE	=	2.0000
FAN PRESSURE RATIO	=	1.0000
TURBINE MAX. INLET TEMP. DEGREES F	=	1570.0
NOMINAL ENGINE LENGTH, INCHES	=	126.30
WEIGHT IN POUNDS	=	2814.0
S.L. STATIC MIL. POWER (30 MIN. MAX.)	=	7220.0
S.L. S.F.C. MIL. POWER (30 MIN. MAX.)	=	0.92000
ENGINE MASS FLOW S.L. STATIC, LBS/SEC	=	117.00
S.L. STATIC MAX. A/B THRUST	=	-1.0000
S.L. STATIC MAX. A/B S.F.C.	=	-1.0000
NOMINAL ENGINE DIAMETER, INCHES	=	27.700
	=	0.11111E-03
INSTALLATION MONTH	=	10.000
INSTALLATION YEAR	=	53.000
TOTAL NUMBER OF COMP. STAGES	=	13.000
TOTAL NUMBER OF TURBINE STAGES	=	2.0000

ENGINE IDENTIFICATION B57A

ENGINE NUMBER = 24

A/B THRUST TO NON A/B THRUST RATIO = 1.0000

BYPASS RATIO + 1 = 1.0000

THRUST/WEIGHT = 2.5657

THRUST PER SQUARE INCH = 6.4679

A/B THRUST TO NON A/B THRUST RATIO	=	1.0000
BYPASS RATIO + 1	=	1.0000
THRUST/WEIGHT	=	2.2716
THRUST PER SQUARE INCH	=	7.9157

F N C I M L I D E N T I F I C A T I O N F 8 6 A

ENGINE NUMBER =

BYPASS RATIO	=	0.0000
OVERALL COMPRESSOR PRESS. RATIO	=	7.0000
OUTER COMPRESSOR PRESS. RATIO	=	1.0000
NO. OF STAGES, LOW PRESS.COMPRESSOR	=	0.0000
NO. OF STAGES, HIGH PRESS.COMPRESSOR	=	10.000
NO. OF STAGES, LOW PRESS.TURBINE	=	0.0000
NO. OF STAGES, HIGHPRESS.TURBINE	=	2.0000
FAN PRESSURE RATIO	=	1.0000
TURBINE MAX. INLET TEMP. DEGREES F	=	1600.0
NOMINAL ENGINE LENGTH , INCHES	=	147.20
WEIGHT IN POUNDS	=	3825.0
S.L. STATIC MIL. POWER(30 MIN. MAX.)	=	8920.0
S.L. S F C MIL. POWER(30 MIN. MAX.)	=	0.91700
ENGINE MASS FLOW S.L. STATIC, LBS/SEC	=	142.00
S.L. STATIC MAX. A/B THRUST	=	-1.0000
S.L. STATIC MAX. A/B S.F.C.	=	-1.0000
NOMINAL ENGINE DIAMETER, INCHES	=	36.800
	=	0.11111E-03
INSTALLATION MONTH	=	10.000
INSTALLATION YEAR	=	54.000
TOTAL NUMBER OF COMP. STAGES	=	10.000
TOTAL NUMBER OF TURBINE STAGES	=	2.0000

ENGINE IDENTIFICATION FR6A

A/P THRUST TO NON A/P THRUST RATIO	=	1.0000
BYPASS RATIO + 1	=	1.0000
THRUST/WEIGHT	=	2.3320
THRUST PER SQUARE INCH	=	8.2865

ENGINE IDENTIFICATION

ENGINE IDENTIFICATION

BYPASS RATIO = 0.0000  
 OVERALL COMPRESSOR PRESS. RATIO = 7.0000  
 OUTER COMPRESSOR PRESS. RATIO = 1.0000  
 NO. OF STAGES, LOW PRESS. COMPRESSOR = 0.0000  
 NO. OF STAGES, HIGH PRESS. COMPRESSOR = 9.0000  
 NO. OF STAGES, LOW PRESS. TURBINE = 1.0000  
 NO. OF STAGES, HIGH PRESS. TURBINE = 1.0000  
 FAN PRESSURE RATIO = 1.0000  
 TURBINE MAX. INLET TEMP. DEGREES F = 1600.0  
 NOMINAL ENGINE LENGTH, INCHES = 78.500  
 WEIGHT IN POUNDS = 486.00  
 S.L. STATIC MIL. POWER (30 MIN. MAX.) = 2900.0  
 S.L. S.F.C. MIL. POWER (30 MIN. MAX.) = 0.96000  
 ENGINE MASS FLOW S.L. STATIC, LBS/SEC = 50.000  
 S.L. STATIC MAX. A/B THRUST = -1.0000  
 S.L. STATIC MAX. A/B S.F.C. = -1.0000  
 NOMINAL ENGINE DIAMETER, INCHES = 23.400  
 = 0.11111E-05  
 INSTALLATION MONTH = 2.0000  
 INSTALLATION YEAR = 62.000  
 TOTAL NUMBER OF COMP. STAGES = 9.0000  
 TOTAL NUMBER OF TURBINE STAGES = 2.0000



ENGINE IDENTIFICATION

ENGINE NO. = 27

A/B THRUST TO NON A/B THRUST RATIO = 1.0000  
 BYPASS RATIO + 1 = 1.0000  
 THRUST/WEIGHT = 5.9671  
 THRUST PER SQUARE INCH = 6.7434

## ENGINE IDENTIFICATION

ENGINE IDENTIFICATION = 28

BYPASS RATIO	=	0.0000
OVERALL COMPRESSOR PRESS. RATIO	=	7.0000
OUTER COMPRESSOR PRESS. RATIO	=	1.0000
NO. OF STAGES, LOW PRESS. COMPRESSOR	=	0.0000
NO. OF STAGES, HIGH PRESS. COMPRESSOR	=	8.0000
NO. OF STAGES, LOW PRESS. TURBINE	=	1.0000
NO. OF STAGES, HIGH PRESS. TURBINE	=	1.0000
FAN PRESSURE RATIO	=	1.0000
TURBINE MAX. INLET TEMP. DEGREES F	=	1740.0
NOMINAL ENGINE LENGTH, INCHES	=	41.000
WEIGHT IN POUNDS	=	387.00
S.L. STATIC MIL. POWER (30 MIN. MAX.)	=	2950.0
S.L. S.F.C. MIL. POWER (30 MIN. MAX.)	=	0.9900
ENGINE MASS FLOW S.L. STATIC, LBS/SEC	=	43.800
S.L. STATIC MAX. A/B THRUST	=	-1.0000
S.L. STATIC MAX. A/B S.F.C.	=	-1.0000
NOMINAL ENGINE DIAMETER, INCHES	=	20.000
	=	0.12111E-03
INSTALLATION MONTH	=	1.0000
INSTALLATION YEAR	=	67.000
TOTAL NUMBER OF COMP. STAGES	=	8.0000
TOTAL NUMBER OF TURBINE STAGES	=	2.0000

ENGINE IDENTIFICATION

ENGINE NUMBER = 28

A/B THRUST TO NON A/B THRUST RATIO	=	1.0000
BYPASS RATIO + 1	=	1.0000
THRUST/WEIGHT	=	7.6227
THRUST PER SQUARE INCH	=	9.3901

ENGINE IDENTIFICATION

ENGINE NUMBER = 29

BYPASS RATIO	=	0.0000
OVERALL COMPRESSOR PRESS. RATIO	=	7.0000
OUTER COMPRESSOR PRESS. RATIO	=	1.0000
NO. OF STAGES, LOW PRESS.COMPRESSOR	=	0.0000
NO. OF STAGES, HIGH PRESS.COMPRESSOR	=	3.0000
NO. OF STAGES, LOW PRESS.TURBINE	=	1.0000
NO. OF STAGES, HIGHPRESS.TURBINE	=	1.0000
FAN PRESSURE RATIO	=	1.0000
TURBINE MAX. INLET TEMP. DEGREES F	=	1750.0
NOMINAL ENGINE LENGTH , INCHES	=	48.210
WEIGHT IN POUNDS	=	430.00
S.L. STATIC MIL. POWER(30 MIN. MAX.)	=	2700.0
S.L. S F C MIL. POWER(30 MIN. MAX.)	=	1.1000
ENGINE MASS FLOW S.L. STATIC, LBS/SEC	=	44.900
S.L. STATIC MAX. A/B THRUST	=	-1.0000
S.L. STATIC MAX. A/B S.F.C.	=	-1.0000
NOMINAL ENGINE DIAMETER, INCHES	=	24.600
	=	0.11111E-06
INSTALLATION MONTH	=	11.000
INSTALLATION YEAR	=	67.000
TOTAL NUMBER OF COMP. STAGES	=	3.0000
TOTAL NUMBER OF TURBINE STAGES	=	2.0000

ENGINE IDENTIFICATION

ENGINE NO = 29

A/B THRUST TO NON A/B THRUST RATIO	=	1.0000
BYPASS RATIO + 1	=	1.0000
THRUST/WEIGHT	=	6.2791
THRUST PER SQUARE INCH	=	5.6807