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VOLUME 2 OF 2

RESULTS OF WIND TUNNEL TESTS
OF AN ASRM CONFIGURED 0.03 SCALE SPACE
SHUTTLE INTEGRATED VEHICLE MODEL (47-OTS)
IN THE AEDC 16-FOOT TRANSONIC WIND TUNNEL
(IA613A)

SPACE SHUTTLE AEROTHERMODYNAMIC DATA REPORT

(NASA-CR-185697) RESULTS OF WIND
TUNNEL TESTS OF AN ASRM CONFIGURED
0.03 SCALE SPACE SHUTTLE INTEGRATED
VEHICLE MODEL (47-OTS) IN THE AEDC
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Laura Gross
Johnson Space Center
Management Services Division
Documentation Management Branch
Mail Code JM2
Houston, TX 77058

Subject: Space Shuttle Wind Tunnel Test Data Report Documentation - Contract
NAS9-17840

Dear Ms Gross:

Enclosed are two copies each of the following Space Shuttle Wind Tunnel Test Data
Reports:

CE
DTS)
WNL

7840

EMS

VISION

TRATION

WIND TUNNEL TEST SPECIFICS:

Facility Test No. PWT-TF-829
SSV Test No. IA613A
Model Number/Scale: 47-OTS/0.03
Test Dates: March 27 through April 12, 1991
Test Hours: Occupancy: 94.2 Hours
Air On: 35.8 Hours
No. of Runs/Data Points: 464/1887

FACILITY COORDINATOR:

1st. Lt. Gary F. Wesselmann AEDC/DOFA Proj. Manager
Arnold Engrg. Development Center/DOF PWT-16T
Arnold Engineering Development Center
Arnold AFS, Tennessee 37389-5000

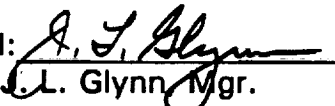
Phone (615) 454-3161

PROJECT ENGINEERS:

R. H. Spangler
J. S. Cunningham
S. R. Johnson
Rockwell International
12214 Lakewood Blvd.
Downey, CA 90241
Phone (310) 922-1935

Randy Hobbs
John Black
Arnold Engineering
Arnold Engrg. Dev. Center
Arnold Air Force Base
Phone: (615) 454-6679

DATA MANAGEMENT SERVICES:

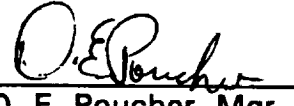
Approved: 
J. L. Glynn, Mgr.
Data Management Services

AERODYNAMIC ANALYSIS ENGINEERS:

L. P. LeBlanc
J. B. Bennett
D. K. Rau
Rockwell International
12214 Lakewood Blvd.
Downey, CA 90241
Phone (310) 922-5369

AERO ACOUSTIC ANALYSIS ENGINEERS:

P. H. Schuetz
Rockwell International
Space Systems Division
Downey, CA 90241
(310) 922-3552

Concurrence: 
D. E. Poucher, Mgr.
CTAS Michoud Engrg. Office

**Results of Wind Tunnel Tests
of An ASRM Configured 0.03-Scale
Space Shuttle Integrated Vehicle Model (47-OTS)
In The AEDC 16 Foot Transonic Wind Tunnel
(IA613A)**

**by
J. Marroquin & P. Lemoine
Rockwell International
Space Division**

ABSTRACT

An experimental Aerodynamic and Aero-Acoustic loads data base was obtained at transonic Mach numbers for the Space Shuttle Launch Vehicle configured with the ASRM Solid Rocket Boosters as an increment to the current flight configuration (RSRB). These data were obtained during transonic wind tunnel tests (IA 613A) conducted in the Arnold Engineering Development Center 16-Foot transonic propulsion wind tunnel from March 27, 1991 through April 12, 1991. This test is the first of a series of two tests covering the Mach range from 0.6 to 3.5.

Steady state surface static and fluctuating pressure distributions over the Orbiter, External Tank and Solid Rocket Boosters of the Shuttle Integrated Vehicle were measured. Total Orbiter forces, Wing forces and Elevon hinge moments were directly measured as well from force balances. Two configurations of Solid Rocket Boosters were tested, the Redesigned Solid Rocket Booster (RSRB) and the Advanced Solid Rocket Motor (ASRM). The effects of the position (i.e. top, bottom, top and bottom) of the Integrated Electronics Assembly (IEA) box, mounted on the SRB attach ring, were obtained on the ASRM configured model. These data were obtained with and without Solid Plume Simulators which, when used, matched as close as possible the flight derived pressures on the Orbiter and External Tank base.

Data were obtained at Mach numbers ranging from 0.6 to 1.55 at a Unit Reynolds Number of 2.5 million per foot through model angles of attack from -8 to +4 degrees at sideslip angles of 0, +4 and -4 degrees.

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SCHEDULE COEFFICIENTS PLOTTED SCHEDULE COEFFICIENTS PLOTTED

A	C_{N_f} VS α	D	C_{N_f} VS Mach
	C_{m_f} VS α		C_{m_f} VS Mach
	C_{A_f} VS α		C_{A_f} VS Mach
B	$C_{h_{eI}}$ VS α		$C_{h_{eI}}$ VS Mach
	$C_{h_{eO}}$ VS α		$C_{h_{eO}}$ VS Mach
	C_{N_w} VS α		C_{N_w} VS Mach
	C_{B_w} VS α		C_{B_w} VS Mach
	C_{T_w} VS α		C_{T_w} VS Mach

C	C_Y VS β
	C_n (BODY) VS β
	C_l (BODY) VS β

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SCHEDULE COEFFICIENTS PLOTTED

A C_p VS x/l_B

B C_p VS Z_0

C C_p VS $x/\epsilon_B F$

D C_p VS ϵ_{TA}

C_p VS XV/CV

E C_p VS XW/CH

F C_p VS x/l_T

G C_p VS \bullet

H C_p VS X_T

I C_p VS x/l_S

INTRODUCTION

In 1990, the Space Shuttle Vehicle program began the design effort for an Advanced Solid Rocket Motor (ASRM) which would provide the system with improved ascent performance, resulting in enhanced launch capabilities as well as the ability to carry heavier payloads to orbit.

The design concept increased the Booster diameter by four inches between the nose cone and the skirt as well as modifying the aft support ring, IEA box and booster stiffeners. High fidelity Aerodynamic and Aero-Acoustic loads data were required on the vehicle configured with this preliminary outer mold line design to determine the effects on the ascent orbiter wing loads and to update the IVBC-3 loads data base. This IVBC-3 data base was generated using previous wind tunnel test data from this model and upgraded to the Redesigned Solid Rocket Motor (RSRM) configuration using Flight derived data.

To obtain these data, the large 0.03 scale integrated vehicle pressure loads wind tunnel model 47-OTS was modified such that both the latest RSRM Booster configuration, representing that of the current configuration data base, and the new ASRM configurations could be tested with minimum change time in the wind tunnel.

This test IA613A, the first of a two test series was conducted in the Arnold Engineering Development Center 16 Foot Transonic Propulsion Wind Tunnel. The test was conducted at transonic Mach numbers during the time period of March 27, 1991 to April 12, 1991. The model tested was a 0.03 scale replica of the Space Shuttle Launch Vehicle, designated 47-OTS, as shown in Figure 2a.

This test measured 1392 surface static pressures and 68 Aero-acoustic surface pressures to provide distributions over the orbiter, external tank and solid rocket

boosters on both the ASRM and RSRB configured SSV launch vehicle. The force and moment data directly measured were; six component orbiter force and moment, three component orbiter right hand wing force and moment, and right hand wing elevon hinge moments. These data were obtained at Mach numbers from 0.6 to 1.55 at a unit Reynolds number of 2.5 million per foot at angles of attack ranging from -8 to +4 degrees and at sideslip angles of 0, +4 and -4 degrees. All primary objectives of the test were completed.

This report presents a description of this first (Transonic Mach Range Test) of a series of two tests. This report consists of remarks on the conduct of the test, description of the model and test facility, details on the test procedure, information on data reduction as well as presentation of recorded test data.

The data obtained from this test is contained on the final data tapes from AEDC. These tapes are available at Rockwell International Space Systems Division as well as NASA/JSC. The AEDC Data Tape at Rockwell is under the control of the Aerodynamics group, specifically L.P. LeBlanc, (310) 922-5369. Additional raw Kulite data, recorded on MUX recorders are in the possession of the Structural Dynamics group at Rockwell SSD. For information on these data, contact Phil Schuetz (310) 922-3552.

Data presented in this report have been included in the Chrysler DATAMAN Space Shuttle wind tunnel test database.

NOMENCLATURE

<u>SYMBOL</u>	<u>MNEMONIC</u>	<u>DEFINITION</u>
A_i		AREA OVER WHICH P_i ACTS, SQ.FT.
α	ALPHA	MODEL PITCH ANGLE, DEGREES
	ALPHAO	ORBITER ANGLE OF ATTACK, DEG. RELATIVE TO ET & SRB - CORRECTED FOR BALANCE DEFLECTION
	BREF	SPAN OF VEHICLE, INCHES
β	BETA	MODEL ANGLE OF SIDESLIP, DEGREES
	BETAO	ORBITER ANGLE OF SIDESLIP, DEG. RELATIVE TO ET & SRB - CORRECTED FOR BALANCE DEFLECTION
b_w		WING BENDING REFERENCE LENGTH
C_A	CA	ORBITER AXIAL FORCE COEFFICIENT, UNCORRECTED FOR BASE PRESSURE EFFECTS (BODY AXIS)
C_{AB}	CAB	ORBITER BASE AXIAL FORCE COEFFICIENT
C_{Af}	CAF	ORBITER AXIAL FORCE COEFFICIENT, CORRECTED FOR BASE PRESSURE EFFECTS (BODY AXIS)
C_{Bw}	CBW	ORBITER WING BENDING MOMENT COEFFICIENT
C_e		ELEVON REFERENCE CHORD LENGTH
C_{hei}	CHEI	RIGHT INBOARD ELEVON HINGE MOMENT COEFFICIENT
C_{heo}	CHEO	RIGHT OUTBOARD ELEVON HINGE MOMENT COEFFICIENT
C_l	CBL	ORBITER ROLLING MOMENT COEFFICIENT (BODY AXIS)
C_m	CLM	ORBITER PITCHING MOMENT, COEFFICIENT, UNCORRECTED FOR BASE PRESSURE EFFECTS (BODY AXIS)
C_{m_B}	CLMB	ORBITER BASE PITCHING MOMENT COEFFICIENT
C_{m_f}	CLMF	ORBITER PITCHING MOMENT COEFFICIENT, CORRECTED FOR BASE PRESSURE EFFECTS (BODY AXIS)
C_N	CN	ORBITER NORMAL FORCE COEFFICIENT, UNCORRECTED FOR BASE PRESSURE EFFECTS (BODY AXIS)

NOMENCLATURE - (Continued)

<u>YMBOL</u>	<u>MNEMONIC</u>	<u>DEFINITION</u>
C_{NB}	CNB	ORBITER BASE NORMAL FORCE COEFFICIENT, CNBO + CNBF
C_{NBO}	CNBO	NORMAL FORCE BASE PRESSURE COEFFICIENT, CORRECTION FOR THE ORBITER FUSELAGE BASE
C_{NBF}	CNBF	NORMAL FORCE BASE PRESSURE COEFFICIENT, CORRECTION FOR THE ORBITER BODY FLAP
C_{Nf}	CNF	ORBITER NORMAL FORCE COEFFICIENT, CORRECTED FOR BASE PRESSURE EFFECTS (BODY AXIS)
	CNW	ORBITER WING NORMAL FORCE COEFFICIENT
C_n	CYN	ORBITER YAWING MOMENT COEFFICIENT (BODY AXIS)
C_{pi}	CP 0101 -	32x48 STRING OF SURFACE STATIC PRESSURE COEFFICIENTS
	CP 3248	SORTED BY MODULE, PORT = $(P_i - P_o)/q$
C_{prmsi}	CP RMSI	PRESSURE COEFFICIENT MEASURED BY DYNAMIC PRESSURE TRANSDUCERS, $i = 1$ TO 68 = $(Prmsi - P_o)/q$
C_{pao}	CPAO	AVERAGE ORBITER BASE PRESSURE COEFFICIENT = $\frac{1}{14} \sum_{i=311}^{i=324} C_{pi}$
C_{pas}	CPAS	AVERAGE SOLID ROCKET BOOSTER BASE PRESSURE COEFFICIENT = $\frac{1}{10} \sum_{i=2201}^{i=2210} C_{pi}$
C_{pat}	CPAT	AVERAGE EXTERNAL TANK BASE PRESSURE COEFFICIENT = $\frac{1}{75} \sum_{i=1501}^{i=1575} C_{pi}$
C_{TW}	CTW	ORBITER WING TORSION MOMENT COEFFICIENT
C_w		MEAN AERODYNAMIC CHORD
C_y	CY	ORBITER SIDE FORCE COEFFICIENT (BODY AXIS)
$D_{b,rmsi}$	DB RMSI	DECIBEL LEVEL CORRESPONDING TO PRESSURE MEASURED BY DYNAMIC PRESSURE TRANSDUCERS, $i = 1$ TO 68
η	ETA	SPANWISE LOCATION ON SURFACE, FRACTION OF SPAN
δe_i	IB-ELV	DEFLECTION ANGLE OF INBOARD ELEVONS, DEGREES

NOMENCLATURE - (Continued)

<u>SYMBOL</u>	<u>MNEMONIC</u>	<u>DEFINITION</u>
δe_o	OB-ELV	DEFLECTION ANGLE OF OUTBOARD ELEVONS, DEGREES
δe_{LI}	LI-ELV	DEFLECTION ANGLE OF LEFT INBOARD ELEVON, DEGREES
δe_{LO}	LO-ELV	DEFLECTION ANGLE OF LEFT OUTBOARD ELEVON, DEGREES
δe_{RI}	RI-ELV	DEFLECTION ANGLE OF RIGHT INBOARD ELEVON, DEGREES
δe_{RO}	RO-ELV	DEFLECTION ANGLE OF RIGHT OUTBOARD ELEVON, DEGREES
LO_2	LO2	LIQUID OXYGEN
	LREF	REFERENCE LENGTH OF VEHICLE, INCHES
M	MACH	FREESTREAM MACH NUMBER
P_o	P	FREESTREAM STATIC PRESSURE, PSFA
Φ	PHI	EXTERNAL TANK ROLL ANGLE, DEG.
	PHIO	ORBITER ROLL ANGLE, DEG. RELATIVE TO ET & SRB - CORRECTED FOR BALANCE DEFLECTION
P_t	PT	FREESTREAM TOTAL PRESSURE, PSFA
q	Q(PSF)	FREESTREAM DYNAMIC PRESSURE, PSFA
	RN/L	FREESTREAM UNIT REYNOLDS NUMBER/MILLION
	SREF	REFERENCE AREA, IN. ²
	XMRP	LOCATION OF MODEL REFERENCE POINT ALONG X-AXIS, INCHES
X_o	XO	LONGITUDINAL STATION ON ORBITER
X_s	XS	LONGITUDINAL STATION ON SRB
X_T	XT	LONGITUDINAL STATION ON THE EXTERNAL TANK
X/l_B	X/LB	LONGITUDINAL LOCATION ON ORBITER BODY SURFACE, FRACTION OF BODY LENGTH
X/l_s	X/LS	LONGITUDINAL LOCATION ON SOLID ROCKET BOOSTER SURFACE, FRACTION OF BODY LENGTH
X/l_T	X/LT	LONGITUDINAL LOCATION ON EXTERNAL TANK BODY SURFACE, FRACTION OF BODY LENGTH
X_V/C_V	XV/CV	CHORDWISE LOCATION ON VERTICAL TAIL, FRACTION OF LOCAL CHORD

NOMENCLATURE - (Concluded)

<u>SYMBOL</u>	<u>MNEMONIC</u>	<u>DEFINITION</u>
X_W/C_W	XW/CW	CHORDWISE LOCATION ON WING SURFACE, FRACTION OF LOCAL CHORD
X/C_{BF}	X/CBF	CHORDWISE LOCATION ON BODY FLAP, FRACTION OF LOCAL CHORD
	YMRP	LOCATION OF MODEL REFERENCE POINT ALONG Y-AXIS, INCHES
Y_0	YO	ORBITER LATERAL STATION
	ZMRP	LOCATION OF MODEL REFERENCE POINT ALONG Z-AXIS, INCHES
Z_0	ZO	ORBITER WATER LINE

REMARKS

After completion of the model rework at Krug International, Dayton, Ohio, the model was shipped directly to AEDC. A number of model and orbiter balance fouling problems were discovered and corrected during orbiter balance check loads.

Fouling of the Orbiter balance inside the Orbiter cavity was corrected by fabricating a new balance pin. This balance pin used the top forward balance pin hole and placed the longitudinal center of the balance at Orbiter model station (MS) 32.7202. This places the Orbiter aft relative to the External Tank 0.009 inches from the original centerline position of (MS) 32.63. In addition, the new pin also positioned the Orbiter at a negative roll (right wing up) relative to the ET/SRB assembly of between 0.15 and 0.20 degrees.

During the model calibration loadings which required inverting the model, the Orbiter SSME solid plume grounded on the Orbiter SSME's. This plume assembly was moved aft on the sting 0.40 inches resulting in a 0.525 gap at the static model upright position.

Due to an additional requirement to duplicate the scaled blockage (cross-sectional area) of the aft External Tank to Orbiter attach region, a fairing was added to the lower part of the crossbeam to simulate the GH2 line cover fairing. This on-site modification measured 0.170 inches high from the lower moldline to the top of the External Tank. The scaled vehicle dimension is 0.1626 inches.

During the beginning of the test for run numbers less than 580, the Orbiter umbilical doors were left off. These were mounted prior to run number 580, however, there was no clearance between these doors and the Orbiter non metric support umbilicals resulting in a ground from model to balance system. This problem was rectified prior to run #600. Therefore, with the exception of the Orbiter balance forces, the remaining data from run #580 to #600 are valid. Run #602 is the first run with the Orbiter configured with umbilical doors to provide valid Orbiter force data.

Aero-Acoustic (Kulite) data was obtained throughout the test up to and including run #1565. No Kulite data was planned for the configurations tested in the run numbers from #1586 through the end of the test, run #1745.

Anomalies in the model setup that were not corrected prior to or during the test are; 1) The pressure taps on the ET LOX feedline were numbered 120 degrees rotation from the published orientation in reference 1. Figure 3~~l~~ provides the as hooked up pressure locations. On line printout data obtained during the test lists the pressure coefficients for the pretest report location. However, the final data tape referred to in this report lists the pressure data by ESP number - Port number so the figure presented herein should be used. 2) The External Tank spike nose part was mounted on the model inverted (i.e. at 180 degrees rotation from that shown in reference 1). The tap location as tested is as follows;

P# 1002 & # 1010	is @ Φ = 180 deg.	was @ Φ = 0 deg.
P# 1003 & # 1011	is @ Φ = 240 deg.	was @ Φ = 60 deg.
P# 1004 & # 1012	is @ Φ = 270 deg.	was @ Φ = 90 deg.
P# 1005 & # 1013	is @ Φ = 315 deg.	was @ Φ = 135 deg.
P# 1006 & # 1014	is @ Φ = 0 deg.	was @ Φ = 180 deg.
P# 1007 & # 1015	is @ Φ = 45 deg.	was @ Φ = 225 deg.
P# 1008 & # 1016	is @ Φ = 90 deg.	was @ Φ = 270 deg.
P# 1009 & # 1017	is @ Φ = 120 deg.	was @ Φ = 300 deg.

Various anomalies occurred during the test yielding pressure data (steady state and dynamic) either no good or questionable. Plugged, leaking and non existent pressure taps were determined prior to as well as during the test. Most data are bad coded in the data output. However some slow leaking pressures were left in the data. These marginal pressures are marked (?) and caution should be used in their use. Table III lists the pressure tap numbers versus ESP No. and port location. This table presents notes which indicate these pressure data problems for specific runs and runs greater than a given run.

It should be noted here that for runs #498 through #517, a problem existed with the data collection of the ESP's measuring the SRB pressures. The data from the odd numbered ports of these ESP's are questionable.

Pressure #416 checked as open during the pretest checks. Because this upper body flap pressure was involved in calculating the orbiter base force correction, pressure tap #424 was substituted in its place. In doing this, the pressure from tap 424 is output in both the location for P416 and P424.

Three Kulite transducers were bad throughout the test. These are;

Kulite # 8

Kulite #31

Kulite #66

Some errors exist in the data tape, primarily in the Elevon deflection setting and corrections to these settings for load deflections. The following lists these errors;

- 1) Left Hand Elevon Run #'s 503 to 516 - The elevons were set at 10° outb'd and $+5^\circ$ inb'd but indicated in the data as 10° outb'd and -5° inb'd. Run #'s 1559 to 1565 - The elevons were set at 10° outb'd and -5° inb'd but indicated in the data as 8° outb'd and 9° inb'd.
- 2) Right Hand Elevon Run #'s 410 to 516 - The elevons were set at 10° outb'd and $+5^\circ$ inb'd but indicated in the data as 9° outb'd and 5° inb'd. Run #'s 1584 to 1611 - The elevons were set at 8° outb'd and 9° inb'd but input in the data as -8° outb'd and -9° inb'd.

These errors in deflection setting inputs were corrected in the corrected elevon deflection data, therefore no deflection under load was accounted for in these cases.

CONFIGURATIONS INVESTIGATED

The model provided for the AEDC test period was a 0.030 scale replica of the Rockwell International Space Shuttle Vehicle in the launch configuration. The launch configuration consists of the assembly of a payload carrying Orbiter, an expendable external oxygen/hydrogen tank (ET) which provides fuel for the Orbiter main engines (SSME) and two recoverable Solid Rocket Boosters (SRB's). The launch configuration is shown in Figure 2a. The entire model is the launch vehicle configuration, comprised of the 102 Orbiter, the Light Weight External Tank and the RSRB or ASRB Boosters.

ORBITER

The Orbiter is a blended wing/body design with a double delta planform (81°/45° leading edge), twelve percent thick airfoil wing with full span elevons incorporating a six-inch interpanel gap between the independently deflectable inboard and outboard panels. A single swept (45°) centerline vertical tail with rudder and/or speed brake capability. The aft fuselage incorporates two Orbital maneuvering system (OMS) pods. These two OMS pods are fabricated with the OMS nozzles and RCS thrusters simulated. A single body flap (to aid in trim control while the speed brake is flared during re-entry) is fitted on the lower trailing edge of the fuselage.

The Orbiter fuselage is in accord with Rockwell International control drawing VL70-000140A, with the vertical tail as defined by drawing VL70-000146A. The OMS pods are the VL70-000140C configuration, this being a combination of the VL70-08401 and VL70-08410 drawings. Fitted to this is the Orbiter vehicle 102 wing as defined in the MD-V70 data book(s). For the purposes of this test and report, the resulting outer mold line (OML) is referred to as the "OV102 Orbiter". The complete Orbiter weighs approximately 140 pounds.

The wing is two piece with LH and RH panels mounted to a central steel wing beam. This beam of cross shaped planform supports one wing on a tang on each side of the central plate. The right hand tang is instrumented with strain gauges to form the three component wing load indicator balance. The exposed wings are made integral with the glove and a labyrinth seal is provided on the metric side to improve the data quality. The left hand wing is instrumented with pressure taps.

Each of the wings is fitted with deflectable inboard and outboard elevons which are supported in torsion only by a beam mounted on the hinge line. Identical R.H. and L.H. elevon supports insure similar aeroelastic deflections under load. The right hand elevon panels are supported on beams which are strain gauged. The following table shows the elevon deflections used during this test. The nominal deflection angles are listed as the requested angles, the unloaded measured deflection angles listed as the average of the measurements \pm the tolerance band. These angles are the unloaded deflection angles.

<u>ELEVON DEFLECTIONS</u>		
NOMINAL	MEASURED	
INBOARD	R.H. INBOARD	L.H. INBOARD
10°	9.750 \pm 0.100	10.145 \pm 0.155
8°	8.200	8.220
OUTBOARD	R.H. OUTBOARD	L.H. OUTBOARD
9°	7.675 \pm 0.195	8.750 \pm 0.060
5°	3.750 \pm 0.780	4.815 \pm 0.165
-5°	-6.195 \pm 0.125	-4.390 \pm 0.110

Interchangeable simulated flipper doors are fitted to the upper wing surface for the various elevon deflections.

The body flap, with hinge moment capability and forty pressure taps is provided. The body flap deflectable to four deflections, -11.7°, 0°, +16.3° or +22.5°. The body flap was set at 0° deflection for this test.

The vertical tail provided for this test includes a single panel hinged rudder/speed brake on each side. These panels are individually pinned to the hinge shaft, the shaft is then pinned to the vertical to provide any combination of rudder/speed brake deflections. The 0° rudder/speed brake (No deflection) was used for this test.

The SSME nozzles are simulated in the base of the Orbiter. The nozzles are set at the nominal angles of 16° up, no yaw upper, and 10° up, +3-1/2° yaw outboard for the lower two.

The entire Orbiter is mounted on the AEDC MK XXXIC Task balance. The balance taper fits into a block in the cavity at the rear of the fuselage. This block is attached to a beam running under the balance block and to a stiffener rod that runs forward above the right upper corner of the balance block to a "flying wedge" piece attached to the front of the longitudinal beam. This forms a support system within the Orbiter with the taper for the balance in the rear block. The ET attach hardware (simulated LO₂ and LH₂ feedlines) were upgraded to the latest dimensions which allowed for the increase in instrumentation leads in the Orbiter. These feedlines mount to the lower aft part of the beam through holes in the bottom of the Orbiter. The forward end of the balance support is mounted to the forward ET/ORB bipod in the lower fuselage cavity.

EXTERNAL TANK (ET)

The ET has been modified to the "lightweight" configuration for this test. It has a cylindrical cross section with a nominal diameter of 333.0" full scale and a maximum diameter of 336.2" full scale. The forward portion of the ET has a tangent ogive nose which terminates in a triconic nose cap over the LO₂ vent valve. The triconic nose functions as the Ascent Air Data System (AADS). The aft end of the tank is basically an ellipsoid of revolution. Between the LO₂ and LH₂ vessels one third of the ET length behind the nose is a structure of stiffeners which is slightly larger than the nominal tank diameter. Covering the entire tank is a Spray-On Foam Insulation (SOFI) of varying thickness, as dictated by the relative heat load, i.e., approximately 2.5 inches thick on the tangent ogive, 1.0 inches thick on the cylindrical portion of the tank and 2.0 inches thick on the rear ellipsoid. The diameters given above include this SOFI. A plate is provided in the forward section to support 13 ESP units and the Schaevitz angle of attack transmitter. The approximate weight of the External Tank with instrumentation is 190 pounds.

Protruding above the insulation are a number of external protuberances which fall into three major categories; electrical trays, fluid lines and attach hardware. The fluid lines modeled are the LO₂ and LH₂ feed and vent plumbing. The attach hardware, considered as part of the tank, is the front and rear ET/Orbiter attach structure, which is discarded with the ET at the end of the main engine burn (ET separation). The external tank for this test is built to the geometry described in the Rockwell International Interface Control Drawing ICD 2-00001C.

The Orbiter/ET attach hardware is scaled to as great a degree possible and is load-bearing. The Orbiter/ET front attach is fabricated from a single piece with two integral end plates. The aft attach structure is the scaled OML between the ET and Orbiter. A fairing on the ET side of

the main cross member was added for this test series. It represents the hydrogen tank pressurization line and maintains the scaled height (gap) above the ET. This gap between the ET top and the lower extremity of pressure line and fairing measured 0.0074 inches, model scale, larger than the vehicle.

The pressure and feed lines, previously used during test IA190, are modified to simulate the "light weight" tank. A removable mirror image pressure and feedline assembly was tested. This mirror image configuration provided pressure data on the RH wing including the interference caused by this large line system.

SOLID ROCKET BOOSTERS (SRB's)

Two configurations of the Solid Rocket Boosters were tested. The current configuration (the Redesigned Solid Rocket Boosters (RSRB's)), are 146-inch nominal diameter cylinders, each with an 18° semi-angle nose and a 13.27° spherical tip. An 18° flared skirt, 208.20" diameter, protects the gimballed rocket nozzle. The vehicle flexible donut shaped seal and thermal shield is provided between skirt and nozzle. Major protrusions from the basic envelope include a forward attach lug, separation thrusters front and rear, aft attach ring, various stiffeners, field joints and a full length electrical systems tunnel. This RSRB outer mold line configuration geometry is described in the Rockwell International Interface Control Drawing ICD 2-00001 Rev. H.

The second configuration, the Advanced Solid Rocket Motor (ASRM), is built to the IRN 190 Drawings, January 3, 1991. The booster diameter was enlarged to 150.25 inches between stations 523.83 and 1837.24 and appropriate changes were made to the stiffener rings, field joints (systems tunnel) aft attach ring with the Integrated Electronics Assembly (IEA) box. The ASRM configuration is shown in Figure 2b. The cylindrical inner aft attach struts as well as a section of the attach ring inside between these struts were not updated.

The two (LH & RH) baseline SRB's built around a 2.00" ID x 3.38" OD sleeve cores. Modified outer shells provide the RSRB and ASRM configurations for this test. The SRB to ET attachments bear the expected loads and carry the electrical leads through from the tank. The weight of the right hand SRB is approximately forty pounds and the weight of the thinner, left hand SRB with the pressure instruments installed, is approximately twenty-one pounds. The SRB itself consists of four main parts, nose cone, forebody, aft attach ring and aft SRB body with the skirt and nozzle assembly.

Nozzle actuator struts are simulated on each of the SRB aft skirts. The SRB aft separation thrusters are attached to the skirt. The forward attach structure is simulated utilizing a 7/16 inch diameter bolt which secures the SRB to the ET. Just aft of this bolt, the body of both the SRB and the ET have been relieved to provide a passage for instrumentation leads. The RSRM aft attach ring (ETA) configuration has been updated for this test and is interchangeable with the ASRM ETA. This ring is carved of a single piece of stock with integral different size mounting studs that simulate the aft attach struts. The struts and ETA wing configuration between these struts (inside) was not upgraded.

Removable IEA boxes were provided for both the ASRM and RSRB configurations so that they could be mounted either on top or bottom or both on top and bottom. The current launch configuration uses the top-mounted IEA box, but the bottom-mounted IEA box was proposed and used to alleviate aerodynamic disturbances between the boosters and the orbiter. During this test, the RSRB's were configured only with the top mounted RSRB IEA box configuration. The ASRM configuration was tested with the IEA box position on Top, Bottom, and Top and Bottom.

SOLID PLUME SIMULATORS

Plume simulators were provided for both the Orbiter and the SRB's in order to approximate as close as possible, the flight base pressures. The Orbiter plume simulator is a single contoured mahogany wood block, supported from the model stings and metrically isolated from the Orbiter base. The SRB plume simulators are conical wood with a disk of larger diameter at the aft cone surface. Two different sizes were provided. One, the small simulator, is a 28° half angle cone terminating at 8.12 inch diameter with a 1/2 inch thick, 9.37 inch diameter disc. The second is a 33 degree half angle cone terminating at 9.37 inch diameter with an 1/2 inch thick 11.25 inch diameter disc. These were mounted on the forked sting and adapter assemblies in proximity of the SRB nozzles. Longitudinal positioning of these SRB simulators was provided at 7.5, 13.5 and 18.75 inches, distance downstream of the SRB exit plane to the forward face of the disc (aft end of the cone). These plume simulators were designed using the configuration of those tested on an 0.10 scale SSV model (test IA-300), Reference 4, which is based on a solid plume simulator study by NASA/MSFC reported in Reference 5. The plume simulators are shown in Figures 2c.

INSTRUMENTATION

The model was instrumented so that steady state and fluctuating pressure as well as force data could be obtained simultaneously. In general the RH side of the model contained the force gauges of the model (i.e., RH wing and RH elevons). The LH side of the model was heavily instrumented with surface static pressures. The kulites pressure transducer were mounted to the RH side of the Orbiter External Tank and SRB.

A total of 1392 steady state surface static pressures were measured by thirty-two 48-port ESP's. The first and thirty-second port were used to measure a known pressure furnished from outside the model leaving forty six ports for model pressures. The location of the 1392 pressures are shown in Figures 3 and are categorized as follows:

<u>Major Model Component</u>	<u>Model Component</u>	<u>No. of Orifices</u>
Orbiter Total 628 pressures	Fuselage	196
	Body flap	40
	Base	24
	Vertical Stabilizer	75
	Wing	293
External Tank Total 557 pressures	Body	423
	Base	74
	LO ₂ Protuberances	60
Solid Rocket Boosters 207 pressures	SRB Basic Body	177
	Base	10
	Protuberances	20

The model was instrumented to measure 68 Aero Acoustic pressures. Sixty eight (68) Kulite high frequency response ± 15 psid pressure transducers are installed in the model to measure these vibra-acoustic pressure levels. Figure 4 shows the location of these kulites on the Integrated Vehicle and are categorized as follows;

<u>Major Model Component</u>	<u>Model Component</u>	<u>No. of Orifices</u>
Orbiter Total 15 Kulites	Fuselage	5
	Wing	10
External Tank Total 26 Kulites	Body	24
	Base	2
Solid Rocket Total 27 Kulites	Basic Body	27

Model forces and moments were measured by strain gauge balances as follows:

<u>Balance Location</u>	<u>Type</u>	<u>Model Forces & Moments Measured or Calculated</u>
Orbiter	6- component *AEDC/Task 2.5" MK XXX1 C	Orbiter normal force, side force, axial force, pitching moment, rolling moment and yawing moment
RH Wing	3-component	Wing normal force, bending moment and torsional moment
RH Inboard Elevon	1-component Strain gauge beam	Inboard elevon hinge moment
RH Outboard Elevon	1-component Strain gauge beam	Outboard elevon hinge moment
Dual Stings	4-component (each) Strain gauge	2" AEDC sting (used to calculate sting deflections determination only) rated loads unknown

*The backup balance was the AEDC/Task 2.5" MK XXII B

An AEDC supplied Schaevitz angular position indicator was mounted in the external tank. The output from this instrument was used to check angle of attack at zero roll angle only (i.e. $\phi = 0^\circ$).

The output of the kulite dynamic pressure transducers were sent to the AEDC RMS (root-mean-square) meters and four (4) MUX magnetic tape recorders. IRIG time was provided to all Data Systems so that the Steady State and Dynamic Data could be correlated. Voice identification of each data point, run and point number, was also recorded on the MUX tape.

TEST FACILITY DESCRIPTION

The AEDC PWT 16-Ft. Transonic Tunnel (Propulsion Wind Tunnel, Transonic 16T) is a continuous-flow closed-circuit tunnel capable of operation within a Mach number range of 0.06 to 1.60. The tunnel can be operated within a stagnation pressure range of 120 to 4000 psfa depending upon the Mach number. The stagnation temperature can be varied from an average minimum of about 80° to a maximum of 160° F as a function of cooling water temperature. Using a special cooling system of mineral spirits, liquid nitrogen, and liquid air, the stagnation temperature range can be varied from +30° to -30° F. Supersonic velocities are obtained by use of flexible-wall, Laval type nozzles.

The test section used during the test was the High Angle Automated Sting (HAAS) cart with a test section that is 16 ft square by 40 ft long and enclosed by 60 deg inclined-hole perforated walls of six-percent porosity. The HAAS test section has a side wall angle variance capability from -2.0° (convergence) to 0.8 deg (divergence). To compensate for the HAAS strut blockage, the HAAS cart side walls have a bulge section, which has a depth of 6.0 in. The entire test section and supporting structure is constructed as a separate unit, called the test section cart, and is removable from the tunnel circuit. The test section carts may be moved to the model installation building where the test article and associated equipment are installed. The test section is completely enclosed in a plenum chamber which can be evacuated, allowing part of the tunnel main flow to be removed through the test section perforated walls, thereby unchoking the test section at near sonic speeds and alleviating wall interference effects.

The 16T HAAS sting support system was used to support and position the 0.03-scale model in the test section during the test entry. The model was supported by a dual sting arrangement consisting of two, 2.0-in. dia. stings exiting from the bases of the left and right hand solid rocket boosters (SRB). These stings were then attached by adapters to 4.16-in. dia. parallel stings which were mounted in the modified lockheed support system. This support arrangement allowed the base of the orbiter to be essentially free from any support system interference.

The sting support system utilizes computer control to position the model at angles of attack and sideslip by means of combinations of pitch and roll angles. This model support system is advantageous in that the model can be maintained at, or close to, the tunnel centerline where flow angularity is a minimum. A sketch showing the location of the 0.03-scale model in the test section is presented in Figure 6 and a photograph showing this installation is presented in Figure 7a.

TEST PROCEDURE

The model was mounted upright in the tunnel on a steel forked sting assembly (figure 6). This sting, supplied by AEDC, was constructed by Lockheed and modified by Rockwell to a nominal length of 130.96 inches. The model was mounted to the sting assembly through the base of the SRB's by two steel eccentric adapters. This forked sting assembly is set at a nominal spacing of 16 inches. This installation places the center of rotation at the base of the SRB nozzles. The model therefore transfers away from the tunnel centerline when pitched to any angle other than $\alpha = 0^\circ$, $\beta = 0$.

The general test procedure was as follows: After starting the tunnel, the desired test conditions for a particular Mach number were established as given in Table I, the test conditions were held constant while model angle of attack and sideslip were varied in a pitch pause manner. To record dynamic pressure (Kulite) data, the model attitude was held constant for a specified period of time. At the start of the test 10 to 20 seconds in addition to the force and static pressure data time was used. After run #719 this additional pause time to record the dynamic Kulite data was reduced to 6 seconds

Two Mach sweeps runs were conducted where Mach number was varied continuously from 0.6 to 1.55 while the model attitude was held constant at -4 deg angle of attack and zero sideslip angle. During the Mach sweeps the dynamic data was recorded continuously.

Flow angularity (Aerodynamic tares) were determined early in the test program. Special runs were conducted through the pitch range at 0° sideslip angle with both the model in the upright ($\phi = 0^\circ$) and inverted ($\phi = 180^\circ$) position. These were accomplished at all Mach numbers except $M = 1.55$. The tare angle was determined as the angle required to collapse the CN versus alpha curves for these runs.

Test runs were specifically conducted to determine the solid plume configuration which will yield average orbiter and external tank base pressures as close to flight values as possible. The results of these runs selected the 28° cone SRB plume set at an axial distance of 13.25 inches behind the SRB nozzle exit was the nominal configuration for tests from $M = 0.6$ through 1.25. The larger 33° cone plume at the same axial position was nominal for tests from $M = 1.25$ to 1.55. Figure 5 presents data which show the degree of base pressure match achieved.

The model attitude (Alpha & Beta) were set in the tunnel with the pitch and roll mechanism of the HAAS cart pitch and sting roll assembly. The model was pointed to the corrected Alpha-Beta angle requested on the run schedule, within setting accuracies. This model pointing angle was achieved through computer control of the pitch and roll mechanism. Real time sting deflections and flows angularity tares, were calculated and applied to the pitch and roll mechanism outputs in an iterative closed feedback loop to automatically adjust and point the model to the corrected attitude.

The pressure transducers were calibrated prior to the test and were again calibrated after the model was installed in the tunnel using the "reference" and "calibrate" ports on the ESP's in accordance with normal AEDC/PWT procedures.

After installation all pressures were either leak checked using a hand held vacuum pump or continuity checked with compressed air when the orifice was located in a position where it could not be leak checked. This checking continued throughout the test whenever there was any evidence of a problem and after model changes to check all pressures which had been disconnected during the change.

The 2.5" MK XXX1C Orbiter balance, the wing balance, and the elevon hinge moment beams were calibrated in the AEDC calibration laboratory prior to the test. The elevon hinge moment gauge calibration were checked after each change in elevon angle. All balances were check-loaded after the model was installed in the tunnel. After installation in the model, the Schaevitz angle position indicator was calibrated over the angle-of-attack range required for the test.

The strain gauge instrumented dual sting was calibrated, installed in the cart prior to installation into the tunnel. The model-sting assembly was loaded installed in the tunnel to provide checks to that calibration.

The test run number summary defining model configuration, model attitudes, and elevon deflections is presented in Table II.

DATA REDUCTION

Standard AEDC methods for computing tunnel parameters, balance forces and moments, and model attitudes were used. Force and moment coefficients (body axis system only) were computed for each balance using the axis system defined in Figure 1a. Orbiter force and moment data were adjusted to account for the difference between measured base pressure and freestream pressure. Elevon hinge moments, and wing forces and moments were calculated in coefficient form about reference locations specified for each component.

The model angle of attack and sideslip angle were corrected for sting deflections caused by model weight and aerodynamic loading. The attitude of the integrated vehicle was calculated from the sector reading, the output of the strain gauges on the forked sting, accounting for sting deflection, and the determined flow angularity tare. The attitude of the orbiter was corrected for the orbiter balance deflections. The deflection of the right hand elevons due to the applied hinge moment were also calculated and accounted for. The deflection of the wing under load was found to be insignificant and therefore was not accounted for in the data reduction.

Standard six component body axis force coefficients were computed for the balance mounted orbiter. The reference area used was the orbiter wing area, and the reference length for moment coefficients was the orbiter reference length. Forces and moments were resolved about the integrated vehicle reference center which is at the orbiter nose on the tank centerline. These Orbiter forces and moments were corrected for model weight tares. The orbiter normal force, axial force, and pitching moment were corrected for base pressure effects as determined from pressures measured on the orbiter base and body flap to yield "Orbiter forebody forces". These base pressure corrections were calculated as follows:

$$C_{NB} = - \frac{1}{S_w} \left[\tan 14.75^\circ \sum_{i=301}^{324} C_{pi} A_i + \sum_{i=401}^{440} C_{pi} A_i \right]$$

$$C_{AB} = - \frac{1}{S_w} \sum_{i=301}^{324} C_{pi} A_i$$

$$C_{mB} = - \frac{1}{S_w l_b} \left[-X_1 \tan 14.75^\circ \sum_{i=301}^{324} C_{pi} A_i - X_2 \sum_{i=401}^{440} C_{pi} A_i + Z_1 \sum_{i=301}^{324} C_{pi} A_i \right]$$

where X_1 , X_2 and Z_1 are the distances to the centroid of the area from the moment reference center given in the reference dimension table.

The resulting coefficients are applied as follows to obtain the Orbiter forebody coefficients:

$$\begin{aligned} C_{A_f} &= C_{A_U} - C_{A_B} \\ C_{N_f} &= C_{N_U} - C_{N_B} \\ C_{m_f} &= C_{m_U} - C_{m_B} \end{aligned}$$

Model component loads were reduced to force and moment coefficients as follows:

Wing Force Coefficients:

$$\begin{aligned} \text{Shear (Normal Force)} \quad C_{N_W} &= N_W / [(q) (S_W)] \quad \text{where: } N_W = \frac{m_1 - m_2}{a_m} \\ \text{Bending Moment} \quad C_{B_W} &= B_W / [(q) (S_W) (b_W)] \quad \text{where: } B_W = m_2 + \frac{(m_1 - m_2)d_m}{a_m} \\ \text{Torsion Moment} \quad C_{T_W} &= T_W / [(q) (S_W) (C_W)] \quad \text{where: } T_W = m_3 + \frac{(m_1 - m_2)e_m}{a_m} \end{aligned}$$

where: m_1 - wing inboard bending moment ~ in-lbs
 m_2 - wing outboard bending moment ~ in-lbs
 m_3 - wing torsion ~ in-lbs
 a_m , d_m & e_m - moment transfer distances ~ in. (see figure 1d)

Elevon Hinge Moment Coefficients:

$$\begin{aligned} C_{he_i} &= H_{e_i} / [(q) (S_e) (C_e)] \\ C_{he_o} &= H_{e_o} / [(q) (S_e) (C_e)] \end{aligned}$$

The right hand Elevon deflection angles were corrected for load deflections as follows:

$$\begin{aligned} \delta_{ei} &= \delta_{ei_{set}} + H_{ei} K_{ei} \\ \delta_{eo} &= \delta_{eo_{set}} + H_{eo} K_{eo} \end{aligned}$$

where: K_{ei} and K_{eo} are calibrated deflection constants
 $\delta_{ei_{set}}$ & $\delta_{eo_{set}}$ are Elevon deflection settings

Aero acoustic (dynamic) pressure data from the Kulites were recorded on RMS meters to directly yield P_{rms} in. (lb./ft. ²). These RMS pressures were reduced to; pressure coefficients C_{prms_i} then to the Aero Acoustic power terms (Decibels);

$$\text{Decibels:} \quad db(rms)_i = 20 \log_{10} \left[\frac{P_{rms_i} \times 10^9}{2.9} \right]$$

FORCE AND MOMENT REFERENCE CENTERS

Total Orbiter Force & Moment Resolved About the Integrated Vehicle MRC	Full Scale	Model Scale
	X_T 976	29.28
	Y_T 0	0
	Z_T 400	12.0
	X_O 235	7.05
	Z_O 63.5	1.905
R.H. Wing Force & Moment	X_O 1307	X_O 39.21
	Y_O 105	Y_O 3.15
	Z_O 288	Z_O 8.64
R.H. Elevon Hinge Moment About Hingeline	X_O 1387	X_O 41.61

MODEL REFERENCE DIMENSIONS

SYMBOL	MODEL SCALE AREA	FULL SCALE	DESCRIPTION
S_w	2.421 ft. ²	2690 ft. ²	Wing reference area
l_b	38.70 in.	1290.3 in.	Orbiter reference length
b_w	28.101 in.	936.7 in.	Wing bending reference length
C_w	14.244 in.	474.8 in.	Mean aerodynamic chord
S_e	0.189 ft. ²	210 ft. ²	Elevon reference area
C_e	2.721 in.	90.7 in	Elevon reference chord length
X_1	37.890 in.	1263.0 in.	Base pressure transfer distance
X_2	39.890 in.	1329.67	Base pressure transfer distance
X_2	-25.6702 in.	855.673 in.	Longitudinal transfer distance from orbiter balance referenced point to the integrated vehicle MRC
Z_1	-9.795 in	-326.5 in	Vertical transfer distance from orbiter balance center-line to integrated vehicle MRC

ORBITER BASE AREA FOR PRESSURE TAP

SYMBOL	MODEL SCALE AREA (FT. ²)	SYMBOL	MODEL SCALE AREA (FT. ²)
A ₃₀₁	0.012813	A ₃₁₃	0.022146
A ₃₀₂	0.022146	A ₃₁₄	0.025837
A ₃₀₃	0.089535	A ₃₁₅	0.014764
A ₃₀₄	0.011073	A ₃₁₆	0.025837
A ₃₀₅	0.014764	A ₃₁₇	0.025837
A ₃₀₆	0.014764	A ₃₁₈	0.025837
A ₃₀₇	0.014764	A ₃₁₉	0.013831
A ₃₀₈	0.025837	A ₃₂₀	0.013273
A ₃₀₉	0.025837	A ₃₂₁	0.030447
A ₃₁₀	0.040600	A ₃₂₂	0.018268
A ₃₁₁	0.040600	A ₃₂₃	0.012189
A ₃₁₂	0.018455	A ₃₂₄	0.018283

BODY FLAP BASE AREA FOR PRESSURE TAP

SYMBOL	MODEL SCALE AREA (FT. ²)	SYMBOL	MODEL SCALE AREA (FT. ²)
A ₄₀₁	- 0 -	A ₄₂₁	- 0 -
A ₄₀₂	- 0 -	A ₄₂₂	- 0 -
A ₄₀₃	- 0 -	A ₄₂₃	- 0 -
A ₄₀₄	- 0 -	A ₄₂₄	- 0 -
A ₄₀₅	0.01151	A ₄₂₅	- 0 -
A ₄₀₆	0.010267	A ₄₂₆	- 0 -
A ₄₀₇	0.0089838	A ₄₂₇	- 0 -
A ₄₀₈	0.0077004	A ₄₂₈	- 0 -
A ₄₀₉	- 0 -	A ₄₂₉	- 0 -
A ₄₁₀	- 0 -	A ₄₃₀	- 0 -
A ₄₁₁	- 0 -	A ₄₃₁	- 0 -
A ₄₁₂	- 0 -	A ₄₃₂	- 0 -
A ₄₁₃	0.012834	A ₄₃₃	- 0 -
A ₄₁₄	0.012834	A ₄₃₄	- 0 -
A ₄₁₆	0.012834	A ₄₃₅	- 0 -
A ₄₁₇	- 0 -	A ₄₃₆	- 0 -
A ₄₁₈	- 0 -	A ₄₃₇	.011551
A ₄₁₉	- 0 -	A ₄₃₈	.010267
A ₄₂₀	- 0 -	A ₄₃₉	.0089838
		A ₄₄₀	.0077004

The flow angularity (AFA) in the tunnel pitch-plane was determined by testing the model upright and inverted and the angle required to collapse the CN vs ALPHA curves determined. These values are shown below:

PITCH-PLANE LOW ANGLE CORRECTIONS

M	AFA	RUN #
0.60	0.008	322/323
0.80	0.069	329/330
0.90	0.085	335/336
0.95	0.010	347/348
1.05	0.081	353/354
1.10	0.067	362/363
1.15	0.118	368/369
1.25	0.097	374/375
1.30	0.093	473/474
1.35	0.117	480/481
1.40	0.068	487/488
1.50	0.010*	N/A

* Estimated

UNCERTAINTY OF MEASUREMENTS

Uncertainties (combinations of systematic and random errors) of the basic tunnel parameters were estimated from repeat calibrations of the instrumentation and from repeatability and uniformity of the test section flow during tunnel calibration, reference 2. Uncertainties in the instrumentation systems were estimated from repeat calibration of the systems against secondary standards whose uncertainties are traceable to the National Institute of Standards and Technology calibration equipment. The tunnel parameter and instrument uncertainties, for a 95-percent confidence level, were combined using the Taylor series method of error propagation described in reference 3 to determine the uncertainties of the parameters. These uncertainties are presented in the following Table.

Estimated Data Uncertainties

PARAMETER	VALUE	MACH NUMBER												
		0.60	0.80	0.90	0.95	1.05	1.10	1.15	1.25	1.30	1.35	1.40	1.55	
Orbiter	CN	0	0.0203	0.0162	0.0149	0.0144	0.0137	0.0133	0.0131	0.0126	0.0124	0.0123	0.0122	0.0119
		0.40	0.0205	0.0163	0.0150	0.0145	0.0136	0.0133	0.0130	0.0126	0.0124	0.0122	0.0121	0.0119
	CLM	0	0.0116	0.0093	0.0085	0.0083	0.0078	0.0076	0.0075	0.0072	0.0071	0.0070	0.0070	0.0068
		0.30	0.0118	0.0094	0.0086	0.0083	0.0079	0.0077	0.0075	0.0072	0.0071	0.0070	0.0069	0.0068
	CY	0	0.0104	0.0083	0.0077	0.0074	0.0070	0.0069	0.0067	0.0065	0.0064	0.0063	0.0063	0.0061
		0.10	0.0105	0.0084	0.0077	0.0075	0.0070	0.0069	0.0067	0.0065	0.0064	0.0063	0.0063	0.0061
	CLN	0	0.0060	0.0048	0.0044	0.0043	0.0040	0.0040	0.0039	0.0037	0.0037	0.0036	0.0036	0.0035
		0.10	0.0061	0.0049	0.0045	0.0043	0.0041	0.0040	0.0039	0.0038	0.0037	0.0036	0.0035	0.0036
	CLL	0	0.0027	0.0021	0.0020	0.0019	0.0018	0.0018	0.0017	0.0017	0.0016	0.0016	0.0016	0.0016
		0.05	0.0027	0.0022	0.0020	0.0019	0.0018	0.0018	0.0017	0.0017	0.0016	0.0016	0.0015	0.0016
CA	0	0.0020	0.0016	0.0015	0.0015	0.0014	0.0013	0.0013	0.0013	0.0012	0.0012	0.0012	0.0012	
	0.10	0.0022	0.0017	0.0016	0.0015	0.0014	0.0014	0.0014	0.0013	0.0013	0.0013	0.0013	0.0012	
Wing	CNW	0	0.0309	0.0247	0.0228	0.0220	0.0208	0.0203	0.0199	0.0192	0.0189	0.0187	0.0185	0.0182
		0.20	0.0308	0.0246	0.0227	0.0219	0.0207	0.0202	0.0198	0.0191	0.0188	0.0186	0.0184	0.0181
	CBW	0	0.0025	0.0020	0.0019	0.0018	0.0017	0.0016	0.0016	0.0016	0.0015	0.0015	0.0015	0.0015
		0.04	0.0026	0.0020	0.0019	0.0018	0.0017	0.0017	0.0016	0.0016	0.0015	0.0015	0.0015	0.0015
	CTW	0	0.0037	0.0030	0.0027	0.0026	0.0025	0.0025	0.0024	0.0023	0.0023	0.0022	0.0022	0.0022
		0.06	0.0038	0.0030	0.0028	0.0027	0.0025	0.0025	0.0024	0.0023	0.0023	0.0022	0.0022	0.0022
Elevans	CHEI	0	0.0151	0.0121	0.0111	0.0108	0.0102	0.0099	0.0097	0.0094	0.0093	0.0091	0.0090	0.0089
		0.08	0.0161	0.0128	0.0118	0.0115	0.0108	0.0106	0.0103	0.0100	0.0098	0.0097	0.0096	0.0094
	CHEO	0	0.0205	0.0164	0.0151	0.0146	0.0138	0.0135	0.0132	0.0127	0.0126	0.0124	0.0123	0.0120
		0.08	0.0203	0.0163	0.0150	0.0145	0.0137	0.0134	0.0131	0.0126	0.0125	0.0123	0.0122	0.0119
Pressure Coefficients	CP	0.5	0.0112	0.0090	0.0099	0.0095	0.0087	0.0084	0.0081	0.0077	0.0075	0.0072	0.0071	0.0067
		0.0	0.0112	0.0096	0.0084	0.0085	0.0080	0.0078	0.0076	0.0073	0.0072	0.0071	0.0070	0.0068
		-0.5	0.0145	0.0110	0.0083	0.0081	0.0077	0.0075	0.0074	0.0072	0.0071	0.0071	0.0071	0.0071

REFERENCES

1. **SSD91DO112A, Pretest Information for ASRB Test IA-613A of the 0.03-Scale 47-OTS Pressure Loads Space Shuttle model in the AEDC 16-Foot Transonic Wind Tunnel" dated March 9, 1991.**
2. **AEDC-TSR-91-P13," Effects of the Advanced Solid Propellant Rocket Motor (ASRM) on the Space Shuttle Launch Configuration (IA-613A)", dated June 1991.**
3. **Abermthy, R.B. and Thompson, J.W. Jr., "Handbook-Uncertainty in Gas Turbine Measurements." AEDC-TR-73-5 (AD755 356), February. 1973.**
4. **NASA-CR-167,671 "Results of Cold Plume Tests of the 0.010 Scale Model (75-OTS) in the NASA Ames Research Center 11x11-foot Wind Tunnel(IA-300)", dated September 1983**
5. **NASA Technical Paper 2569 "Investigation of Solid Plume Simulation Criteria to Produce Flight Plume Effects on Multibody Configurations in Wind Tunnel Tests" by Alonzo L. Frost and Charlie C. Dill, dated March 1986**

Table I Summary of Test Conditions

NOMINAL TEST CONDITIONS

MACH NUMBER	PT (psfa)	RE x 10⁶	Q (psf)	TT (deg F)	P (psfa)
0.60	1598	2.5	316	100	1253
0.80	1342	"	394	"	880
0.90	1274	"	427	"	753
0.95	1249	"	442	"	699
1.05	1216	"	467	"	606
1.10	1206	"	479	"	565
1.15	1200	"	489	"	528
1.25	1198	"	506	"	463
1.30	1201	"	513	"	434
1.35	1207	"	519	"	407
1.40	1216	"	524	"	382
1.55	1255	"	534	"	318

Mach Sweeps

M = 0.6 to 1.1 continuous sweep @ P_T approx. = 1400 PSF

M > 1.1, M = 1.15, 1.25, 1.30, 1.35, 1.40, and 1.55 @ Re = 2.5 x 10⁶

TABLE II - PRESSURE LOADS TEST OF SSV IN PRESENCE OF ASRB (IA613A)
 RUN SCHEDULE

TEST: IA613A (AEDC 16TF--829)		DATA SET/RUNNUMBER COLLATION SUMMARY										DATE: MAR/APR 1991	
DATA SET IDENTIFIER	CONFIGURATION	SCHD.			CONTROL DEFLECTION			BETA					
		alpha	mach	Plume	IEA	ELVI	ELVO	-4	0	+4			
RCO001	ORB/ET (DOOR OFF) +	A	.60	OFF	TOP	10	9	324	325	326			
RCO002	RSRM	A	.80	OFF	TOP	10	9	331	332	333			
RCO003		A	.90	OFF	TOP	10	9	343	344*	345			
RCO004		A	.95	OFF	TOP	10	9	349	350	351			
RCO005		A	1.05	OFF	TOP	10	9	355	356	360			
RCO006		A	1.10	OFF	TOP	10	9	364	365*	366			
RCO007		A	1.15	OFF	TOP	10	9	370	371	372			
RCO008		A	1.25	OFF	TOP	10	9	376	377	378			
RCO009		A	1.25	OFF	TOP	10	5	503	504*	505			
RCO010		A	1.30	OFF	TOP	10	5	507	508	509			
RCO011		A	1.35	OFF	TOP	10	5	511	512	513			
RCO012		A	1.40	OFF	TOP	10	5	514	515*	516			
RCO013		A	1.40	OFF	TOP	10	-5	557	558	559			
RCO014		A	1.55	OFF	TOP	10	-5	561	562	563			
RCO015	B/L ORB/ET + RSRM	A	.60	S1,2	TOP	10	9	619	620	621			
RCO016		A	.80	S1,2	TOP	10	9	623	624	625			
RCO017		A	.90	S1,2	TOP	10	9	626	627*	628			
RCO018		A	.95	S1,2	TOP	10	9	630	631	632			
RCO019		A	1.05	S1,2	TOP	10	9	633	634	635			
RCO020		A	1.10	S1,2	TOP	10	9	637	647*	639			

alpha or beta A: ALPHA = -8, -4, 0, +4 DEG.
 SCHEDULES IEABOX = 0.0 = TOP
 = 180.0 = BOTTOM
 = 999.0 = TOP + BOTTOM

* INCLUDES ALPHA -4.5 DEG @ M =0.9;
 -4.7 DEG @ M=1.1; -5.1 DEG @ M=1.25;
 -4.8 DEG @ M=1.40

TABLE II - PRESSURE LOADS TEST OF SSV IN PRESENCE OF ASRB (IA613A)
RUN SCHEDULE

TEST: IA613A (AEDC 16TF--829)		DATA SET/RUNNUMBER COLLATION SUMMARY										DATE: MAR/APR 1991		
DATA SET IDENTIFIER	CONFIGURATION	SCHD.		CONTROL DEFLECTION						BETA				T E S T R U N N U M B E R S
		alpha	mach	Plume	IEA	ELVI	ELVO	-4	0	+4				
RCO041	B/L ORB/ET + ASRM	A	1.55	OFF	TOP	10	5	1464	1465	1466				
RCO042		A	.60	S1,2	TOP	10	9	837	838	839				
RCO043		A	.80	S1,2	TOP	10	9	833	834	835				
RCO044		A	.90	S1,2	TOP	10	9	830	831*	832				
RCO045		A	.95	S1,2	TOP	10	9	827	828	829				
RCO046		A	1.05	S1,2	TOP	10	9	823	824	825				
RCO047		A	1.10	S1,2	TOP	10	9	820	821*	822				
RCO048		A	1.15	S1,2	TOP	10	9	816	817	818				
RCO049		A	1.25	S1,2	TOP	10	9	813	814	815				
RCO050		A	1.30	S1,2	TOP	10	9	810	811	812				
RCO051		A	1.35	S1,2	TOP	10	9	806	807	808				
RCO052		A	1.40	S1,2	TOP	10	9	803	804	805				
RCO053		A	1.25	S1,3	TOP	10	5	1373	1374*	1375				
RCO054		A	1.30	S1,3	TOP	10	5	1377	1378	1379				
RCO055		A	1.35	S1,3	TOP	10	5	1380	1381	1382				
RCO056		A	1.40	S1,3	TOP	10	5	1385	1386*	1387				
RCO057		A	1.55	S1,3	TOP	10	5	1388	1389	1390				
RCO058		A	1.40	S1,3	TOP	10	-5	1525	1526	1527				
RCO059		A	1.55	S1,3	TOP	10	-5	1529	1530	1531				
RCO060		A	.60	S1,2	TOP	10	5	1352	1353	1354				

alpha or beta
SCHEDULES

A: ALPHA = -8, -4, 0, +4 DEG.
* INCLUDES ALPHA -4.5 DEG @ M=0.90;
-4.7 DEG @ M=1.10; -5.1 DEG @ M=1.25;
-4.8 DEG @ M=1.40

TABLE II - PRESSURE LOADS TEST OF SSV IN PRESENCE OF ASRB(A613A)
RUN SCHEDULE

TEST: IA613A (AEDC 16TF-829)		DATA SET/RUNNUMBER COLLATION SUMMARY										DATE: MAR/APR 1991					
DATA SET IDENTIFIER	CONFIGURATION	SCHED.		CONTROL DEFLECTION						BETA							
		alpha mach	Plume	IEA	ELVI	ELVO	-4	0	+4								
RCO061	B/L ORB/ET + ASRM	A .90	S1,2	TOP	10	5		1356	1357	1358							
RCO062		A 1.10	S1,2	TOP	10	5		1359	1360	1361							
RCO063		A 1.15	S1,2	TOP	10	5		1362	1363	1364							
RCO064		A 1.25	S1,2	TOP	10	5		1365	1366	1367							
RCO065		A .60	OFF	BOT	10	9		722	723	724							
RCO066		A .80	OFF	BOT	10	9		725	726	727							
RCO067		A .90	OFF	BOT	10	9		728	729*	730							
RCO068		A .95	OFF	BOT	10	9		732	733	734							
RCO069		A 1.05	OFF	BOT	10	9		735	736	737							
RCO070		A 1.10	OFF	BOT	10	9		738	739*	740							
RCO071		A 1.15	OFF	BOT	10	9		741	742	743							
RCO072		A 1.25	OFF	BOT	10	9		745	746	747							
RCO073		A 1.25	OFF	BOT	10	5		1427	1428*	1429							
RCO074		A 1.30	OFF	BOT	10	5		1431	1432	1433							
RCO075		A 1.35	OFF	BOT	10	5		1435	1436	1437							
RCO076		A 1.40	OFF	BOT	10	5		1438	1439*	1440							
RCO077		A 1.55	OFF	BOT	10	5		1441	1442	1443							
RCO078		A 1.40	OFF	BOT	10	-5		1559	1560	1561							
RCO079		A 1.55	OFF	BOT	10	-5		1563	1564	1565							
RCO080		A .60	S1,2	BOT	10	9		756	757	758							

alpha or beta SCHEDULES

A: ALPHA = -8, -4, 0, +4 DEG.

* INCLUDES ALPHA -4.5 DEG @ M=0.90;
-4.7 DEG @ M=1.10; -5.1 DEG @ M=1.25;
-4.8 DEG @ M=1.40

TABLE II - PRESSURE LOADS TEST OF SSV IN PRESENCE OF ASRB (IA613A)
 RUN SCHEDULE

TEST: IA613A (AEDC 16TF - 829)		DATA SET/RUNNUMBER COLLATION SUMMARY										DATE: MAR/APR 1991											
DATA SET IDENTIFIER	CONFIGURATION	SCHD.	CONTROL DEFLECTION			BETA				T	E	S	T	R	U	N	U	M	B	E	R	S	
			alpha	mach	Plume	IEA	ELVI	ELVO	-4														0
RCO0A1	B/L ORB/ET + ASRM	A	1.15	OFF	BOT	8	9	1639	1640	1641													
RCO0A2		A	1.25	OFF	BOT	8	9	1642	1643	1644													
RCO0A3		A	1.25	OFF	BOT	8	5	1674	1675	1676													
RCO0A4		A	1.30	OFF	BOT	8	5	1679	1680	1681													
RCO0A5		A	1.35	OFF	BOT	8	5	1682	1683	1684													
RCO0A6		A	1.40	OFF	BOT	8	5	1685	1686	1687													
RCO0A7		A	1.55	OFF	BOT	8	5	1689	1690	1691													
RCO0A8		A	.60	S1,2	BOT	8	9	1586	1587	1588													
RCO0A9		A	.80	S1,2	BOT	8	9	1590	1591	1592													
RCO0B0		A	.90	S1,2	BOT	8	9	1593	1594	1595													
RCO0B1		A	.95	S1,2	BOT	8	9	1596	1597	1598													
RCO0B2		A	1.05	S1,2	BOT	8	9	1599	1600	1601													
RCO0B3		A	1.10	S1,2	BOT	8	9	1603	1604	1605													
RCO0B4		A	1.15	S1,2	BOT	8	9	1606	1607	1608													
RCO0B5		A	1.25	S1,2	BOT	8	9	1609	1610	1611													
RCO0B6		A	1.25	S1,3	BOT	8	5	1654	1655	1656													
RCO0B7		A	1.30	S1,3	BOT	8	5	1658	1659	1660													
RCO0B8		A	1.35	S1,3	BOT	8	5	1662	1663	1664													
RCO0B9		A	1.40	S1,3	BOT	8	5	1665	1666	1667													
RCO0C0		A	1.55	S1,3	BOT	8	5	1669	1670	1671													

alpha or beta
 SCHEDULES

A: ALPHA = -8, -4, 0, +4 DEG.

TABLE II - PRESSURE LOADS TEST OF SSV IN PRESENCE OF ASRB (IA613A)
RUN SCHEDULE

TEST: IA613A (AEDC 16TF-829)		DATA SET/RUN NUMBER COLLATION SUMMARY										DATE: MAR/APR 1991																
DATA SET IDENTIFIER	CONFIGURATION	SCHED.		CONTROL DEFLECTION				BETA				T	E	S	T	R	U	N	N	U	M	B	E	R	S			
		alpha	mach	Plume	IEA	ELVI	ELVO	-4	0	+4	0															+4		
RCO0C1	B/L ORB/ET + ASRM	A	.60	S1,2	T+B	10	5	1477	1478	1479	1479																	
RCO0C2		A	.90	S1,2	T+B	10	5	1481	1482	1483	1483																	
RCO0C3		A	1.10	S1,2	T+B	10	5	1484	1485	1486	1486																	
RCO0C4		A	1.15	S1,2	T+B	10	5	1488	1489	1490	1490																	
RCO0C5		A	1.25	S1,2	T+B	10	5	1491	1492	1493	1493																	
RCO0C6		A	1.25	S1,3	T+B	10	5	1501	1502	1503	1503																	
RCO0C7		A	1.30	S1,3	T+B	10	5	1505	1506	1507	1507																	
RCO0C8		A	1.35	S1,3	T+B	10	5	1508	1509	1510	1510																	
RCO0C9		A	1.40	S1,3	T+B	10	5	1512	1513	1514	1514																	
RCO0D0		A	1.55	S1,3	T+B	10	5	1515	1516	1517	1517																	
RCO0D1	ORB(ET/MIRROR) + ASRM	A	.60	S1,2	TOP	10	5	1720	1721	1722	1722																	
RCO0D2		A	.80	S1,2	TOP	10	5	1724	1725	1726	1726																	
RCO0D3		A	.90	S1,2	TOP	10	5	1727	1728	1729	1729																	
RCO0D4		A	.95	S1,2	TOP	10	5	1730	1731	1732	1732																	
RCO0D5		A	1.05	S1,2	TOP	10	5	1733	1734	1735	1735																	
RCO0D6		A	1.10	S1,2	TOP	10	5	1737	1738	1739	1739																	
RCO0D7		A	1.15	S1,2	TOP	10	5	1740	1741	1742	1742																	
RCO0D8		A	1.25	S1,2	TOP	10	5	1743	1744	1745	1745																	
RCO0D9		A	1.25	S1,3	TOP	10	5	1698	1699	1700	1700																	
RCO0E0		A	1.30	S1,3	TOP	10	5	1702	1703	1704	1704																	

A: ALPHA = -8, -4, 0, +4 DEG.

alpha or beta
SCHEDULES

TABLE II -- PRESSURE LOADS TEST OF SSV IN PRESENCE OF ASRB (IA613A) RUN SCHEDULE

TEST: IA613A (AEDC 16TF - 829)			DATA SET/RUN NUMBER COLLATION SUMMARY										DATE: MAR/APR 1991							
DATA SBT IDENTIFIER	CONFIGURATION	SCHD. alpha	CONTROL DEFLECTION			BETA				T	R	U	N	U	M	B	B	R	S	
			P	IEA	ELVI	ELVO	-4	0	+4											
RCO0E1	ORB/ET(MIRROR) + ASRM	A 1.35	S1,3	TOP	10	5	1706	1707	1708											
RCO0E2		A 1.40	S1,3	TOP	10	5	1709	1710	1711											
RCO0E3		A 1.55	S1,3	TOP	10	5	1712	1713	1714											
RCO0E4	B/L ORB/ET + RSRM	A .60	OFF	TOP	10	9		664												
RCO0E5		A .80	OFF	TOP	10	9		665												
RCO0E6		A .90	OFF	TOP	10	9		666*												
RCO0E7		A .95	OFF	TOP	10	9		667												
RCO0E8		A 1.05	OFF	TOP	10	9		668												
RCO0E9		A 1.10	OFF	TOP	10	9		670*												
RCO0F0		A 1.15	OFF	TOP	10	9		671												
RCO0F1		A 1.25	OFF	TOP	10	9		672*												
RCO0F2		A 1.35	OFF	TOP	10	9		675												
RCO0F3		A 1.40	OFF	TOP	10	9		676*												
RCO0F4		A 1.55	OFF	TOP	10	9		678												
RCO0F5		A 1.30	OFF	TOP	10	9			673											
RCO0F6		A 1.35	OFF	TOP	10	9			674											
RCO0F7	ORB/ET(DOOR OFF) +	-4 .60	S1,2	TOP	10	5		410												
RCO0F8	RSRM	-4 .80	S1,2	TOP	10	5		412												
RCO0F9		-4 .90	S1,2	TOP	10	5		413												
RCO0G0		-4 .95	S1,2	TOP	10	5		414												

alpha or beta
SCHEDULES

A: ALPHA = -8, -4, 0, +4 DEG.
* INCLUDES ALPHA -4.5 DEG @ M=0.90;
-4.7 DEG @ M=1.10; -5.1 DEG @ M=1.25;
-4.8 DEG @ M=1.40

TABLE II - (Continued)

VOLUME I - FORCE DATA

1ST CHARACTER ID	1ST IND. VAR.	2ND IND. VAR.	COEFFICIENTS
R	BETA	ALPHA	MACH CN CNF CLM CLMF CA CAF CY CYN CBL
S	BETA	ALPHA	MACH PHI CHEI CHEO CNW CBW CTW
T	BETA	ALPHA	MACH CNB CNBO CNBF CLMB CAB CPAO CPAT CPAS

R DATASETS PAGES 1-167
 S DATASETS PAGES 168-334
 T DATASETS PAGES 335-501

NOTE: The first and second independent variable for the Mach sweep runs (D/S's I0 and I1) are ALPHA and MACH, respectively and the fourth character of the dataset ID is used to identify subdivisions of the Mach sweep.

VOLUME II - PRESSURE DATA

4TH CHARACTER ID	COMPONENT	PRINT PAGE NO.	MICROFICHE PAGE NO.
B	ORBITER FUSELAGE	1- 2810	1 - 45
E	ORBITER BASE	2811- 4039	45- 65
G	BODY FLAP -UPPER SURFACE	4040- 4741	65- 76
F	BODY FLAP - LOWER SURFACE	4742- 5443	76- 87
U	WING - UPPER SURFACE	5444- 8953	88-143
L	WING - LOWER SURFACE	8954-12801	143-204
V	VERTICAL TAIL	12802-13660	204-218
T	EXTERNAL TANK	13661-17209	219-275
A	EXTERNAL TANK BASE	17210-18438	275-294
M	EXTERNAL TANK LO ₂ FEEDLINE	18439-19352	294-309
S	LEFT SRB	19353-21136	310-338
C	LEFT SRB BASE	21137-21668	338-346
H	SRB SYSTEMS TUNNEL	21669-22897	346-366

NOTE: For the Mach sweep datasets (D/S's I0 and I1) the first character of the dataset ID is used to identify subdivisions.

TABLE II (Concluded)

VOLUME II - KULITE DATA (DBRMS)

<u>4TH CHARACTER ID</u>	<u>COMPONENT</u>	<u>PRINT PAGE NO.</u>	<u>MICROFICHE PAGE NO.</u>
N	ORBITER FUSELAGE	22898-23443	367-375
O	WING - UPPER SURFACE	23444-23886	375-382
P	WING - LOWER SURFACE	23887-24432	382-391
Q	EXTERNAL TANK	24433-25522	391-408
R	LEFT SRB	25523-26612	408-426

NOTE: 1st Character ID for Kulite data is K except for the Mach sweep runs where it is used to identify subdivisions of D/S's 10 and 11.

TABLE III: IA-613A ESP/PRESS. TAP HOOKUP

TEST # 613A SSV MODEL 47-OTS ORBITER ESP HOOKUP

ESP PORT No.	ESP #1 Fuselage		ESP #2 Fuselage		ESP #3 Fuselage/Wing	
	Press. No.	COMMENT	Press. No.	COMMENT	Press. No.	Comment
1	Cal.		Cal.		Cal.	
2	1		58		113	
3	2		59		114	
4	3		60		115	
5	5		61		116	
6	6		62		117	
7	7		63		118	
8	8		64		119	
9	9		65		121	
10	10		69		122	
11	11		70		123	
12	12		71		124	
13	13		72		125	
14	17		73		126	
15	18		74		127	
16	19		75		128	
17	20		76		130	BC/(Plugged)
18	21		77		131	? (watch)
19	22		78		132	
20	23		79		133	
21	24		80		134	
22	25		81		135	
23	29		85		136	
24	30		86		137	
25	31		87		138	
26	32		88	BC/(Plugged)	140	BC/(Plugged)
27	33		89		141	
28	34		90		142	
29	35		91		143	
30	36		92		144	
31	37		94		145	
32	Cal.		Cal.		Cal.	
33	41	BC/(Out)	95		146	
34	42		96		147	
35	43		97		148	
36	44		98		150	
37	45		99		151	
38	46		100		601	
39	47		101		602	
40	48		103		603	
41	49		104		604	
42	53		105		605	
43	54		106		606	BC/(Leak)
44	55		107		607	
45	56		108		608	
46	57		109		609	
47	Open		110		610	
48	Open		112		611	

Note: BC is Bad Code - Data No Good
 >R#xxx is Runs Greater Than R#xxx
 ? is Marginal leak found, use data with caution

TABLE III: IA-613A ESP/PRESS. TAP HOOKUP

TEST # 613A

SSV MODEL 47-OTS

ORBITER ESP HOOKUP

PORT No.	ESP #4 Wing		ESP #5 Wing		ESP #6 Wing	
	Press. No.	COMMENT	Press. No.	COMMENT	Press. No.	COMMENT
1	Cal.		Cal.		Cal.	
2	612		658		707	
3	613		659		708	
4	614		660		709	
5	615		661		710	
6	616		662		711	
7	617		663	? (watch)	712	
8	618	BC/(Out)	664		713	
9	619	BC/(Out)	665		714	
10	620		667		716	
11	621		668		717	
12	622		669		718	
13	623		670		719	
14	624		671		720	
15	625		672		721	
16	626		673		722	
17	627		674		723	
18	628		675		724	
19	629		676		725	
20	630		677		726	
21	631		678		727	
22	633		679		728	
23	634		680		729	
24	635		681		730	
25	636		682		732	
26	637		684		733	
27	638		685		734	
28	639		686		735	
29	640		687		736	
30	641		688		737	
31	642		689		738	
32	Cal.		Cal.		Cal.	
33	643		690		739	BC/(Leak)
34	644		691		740	
35	645		692		741	
36	646		693	BC/(Out)	742	
37	647		694		743	
38	648		695		744	BC/(Plugged)
39	650		696		745	
40	651		697	BC/(behind screwhole)	746	
41	652		698		748	
42	653		700		749	
43	654		701		750	
44	655		702		751	
45	656		703		752	
46	657		704		753	
47	Open		705	SL @R#1583	214	
48	Open		706		215	

Note: BC is Bad Code - Data No Good
 >R#xxx is Runs Greater Than R#xxx
 ? is Marginal leak found, use data with caution

TABLE III: IA-613A ESP/PRESS. TAP HOOKUP

TEST # 613A

SSV MODEL 47-OTS

ORBITER ESP HOOKUP

ESP #7 Wing			ESP #8 Wing			ESP #9 Wing		
PORT No.	Press. No.	COMMENT	Press. No.	COMMENT	Press. No.	COMMENT	Press. No.	COMMENT
1	Cal.		Cal.		Cal.			
2	754		803		848			
3	755		804		849	?(watch)		
4	756		805		850			
5	757		806		851			
6	758		807		852			
7	759		808		853			
8	760		809		854			
9	761		810		855			
10	762		812		857			
11	764		813	BC/(Out)	858	SL>R#1583		
12	765		814		859			
13	766		815	? >R#557	860			
14	767		816		861			
15	768		817		862			
16	769		818		863			
17	770		819		864			
18	771		820		865			
19	772		821		866			
20	773		822		867			
21	774		823		868			
22	775		824		869	BC/>R#1583		
23	776		825		870			
24	777		827		872			
25	778	?(watch)	828		873	BC/(Out)		
26	780		829		874			
27	781		830		875			
28	782		831		876			
29	783		832		877			
30	784		833		878			
31	785		834		879			
32	Cal.		Cal.		Cal.			
33	786		835		880			
34	787		836		881			
35	788		837		882			
36	789		838		883			
37	790		839		884			
38	791		840		886	LK R#1525-1539		
39	792		295		887			
40	793		296		888			
41	794		844		889			
42	796		845		890			
43	797	?(watch)	846		891			
44	798		847		892			
45	799		291		Open			
46	800		292		Open			
47	801		293		Open			
48	802		294		Open			

Note: BC is Bad Code - Data No Good
 >R#xxx is Runs Greater Than R#xxx
 ? is Marginal leak found, use data with caution

TABLE III: IA-613A ESP/PRESS. TAP HOOKUP

TEST # 613A

SSV MODEL 47-OTS

ORBITER ESP HOOKUP

ESP PORT No.	ESP #10 Wing & Fuselage		ESP #11 Fuselage		ESP #12 Fuselage	
	Press. No.	COMMENT	Press. No.	COMMENT	Press. No.	COMMENT
1	Cal.		Cal.		Cal.	
2	893		218		301	
3	894		219		302	
4	895		220		303	
5	896		221		304	
6	897		222		305	
7	898		223		306	
8	901	BC/(Open)	224		307	
9	900		225	BC/>R#385	308	
10	902		226		309	
11	903		227		310	
12	904		183		311	
13	905		184		312	
14	906	BC/(Not Exist)	185		313	
15	907		186		314	
16	909		187		315	
17	910		188		316	
18	911		189		317	
19	912		190		318	
20	152		191		319	
21	154		192		320	
22	155		193		321	
23	156		194		322	
24	157		195		323	
25	158		196		324	
26	159		197		401	
27	161		198		402	
28	162		199		403	
29	163		200		404	
30	164		201		405	
31	165		202		406	
32	Cal.		Cal.		Cal.	
33	166		288		407	
34	167		289		408	
35	168		290		409	
36	169		204		410	
37	170		205		411	
38	171		206		412	
39	173		207		413	
40	174		208		414	
41	175		209		415	
42	176		210		416	Sub #424/(Open)
43	177		211		417	
44	178		212		418	
45	179		216		419	
46	180		217		420	
47	181		576		421	
48	Open		297		422	

Note: BC is Bad Code - Data No Good
 >R#xxx is Runs Greater Than R#xxx
 ? is Marginal leak found, use data with caution

TABLE III: IA-613A ESP/PRESS. TAP HOOKUP

TEST # 613A

SSV MODEL 47-OTS

ORBITER ESP HOOKUP

ESP PORT No.	ESP #13 Body Flap & V.T.		ESP #14 Vertical Tail			
	Press. No.	COMMENT	Press. No.	COMMENT		
1	Cal.		Cal.			
2	423		530			
3	424		531			
4	425		532			
5	426		533			
6	427		534			
7	428		535			
8	429		536			
9	430		537			
10	431		538			
11	432		539			
12	433		540			
13	434		541			
14	435		542			
15	436		543			
16	437		544			
17	438		545			
18	439		546			
19	440		547			
20	501		548			
21	502		549			
22	503		550			
23	504		551			
24	505		552			
25	506		553			
26	507		554			
27	509		555			
28	510		556			
29	511		557			
30	512		558			
31	513		559			
32	Cal.		Cal.			
33	514		560			
34	515		561			
35	516		562			
36	517		563			
37	518		564			
38	519		565			
39	520		566			
40	521		567			
41	522		568			
42	523		569			
43	524		570			
44	525		571			
45	526		572			
46	527		573			
47	528		574			
48	529		575			

Note: BC is Bad Code - Data No Good
 >R#xxx is Runs Greater Than R#xxx
 ? is Marginal leak found, use data with caution

TABLE III: IA-613A ESP/PRESS. TAP HOOKUP

TEST # 613A

SSV MODEL 47-OTS

EXTERNAL TANK ESP HOOKUP

ESP # PORT No.	ESP #15 Spike Nose Press. No.	COMMENT	ESP #16 Ogive Press. No.	COMMENT	ESP #17 Ogive Press. No.	COMMENT
1	Cal.		Cal.		Cal.	
2	1002		1046		1088	
3	1003		1047		1089	
4	1004		1048		1090	
5	1005		1049		1091	
6	1006		1050		1092	
7	1007		1051		1093	
8	1008		1052		1094	
9	1009		1053		1095	
10	1010		1054		1096	
11	1011		1055		1097	
12	1012		1056		1098	
13	1013		1057		1099	
14	1014		1058		1100	
15	1015		1059		1101	
16	1016		1060		1102	
17	1017		1061		1103	
18	1018		1062		1104	
19	1019		1063		1105	
20	1020		1064	BC/(Plugged-R#407)	1106	
21	1021		1065		1107	
22	1022		1066		1108	
23	1023		1067		1109	
24	1024	? (watch)	1068		1110	BC/(>R#447)
25	1025		1069		1111	
26	1026		1070		1112	
27	1027		1071		1113	
28	1028		1072		1114	
29	1029		1073		1115	
30	1030		1074		1116	
31	1031		1075		1117	
32	Cal.		Cal.		Cal.	
33	1032		1076		1118	
34	1033		1077		1119	
35	1034		1078		1120	
36	1035		1079		1121	
37	1036		1080		1122	
38	1037	BC/(>R#469)	1081		1123	
39	1038		1082		1124	
40	1039		1083		1125	
41	1040		1084		1126	
42	1041		1085		1127	
43	1042		1086		1128	
44	1043		1087		1129	
45	1044		Open		Open	
46	1045		Open		Open	
47	Open		Open		Open	
48	Open		Open		Open	

Note: BC Is Bad Code - Data No Good
 >R#xxx Is Runs Greater Than R#xxx
 ? Is Marginal leak found, use data with caution

TABLE III: IA-613A ESP/PRESS. TAP HOOKUP

TEST # 613A SSV MODEL 47-OTS EXTERNAL TANK ESP HOOKUP

ESP #18 Mid & Aft-Body		ESP #19 Mid & Aft-Body		ESP #20 Mid & Aft-Body	
ESP PORT No.	Press. No.	Press. No.	COMMENT	Press. No.	COMMENT
1	Cal.	Cal.		Cal.	
2	1130	1176		1223	
3	1131	1177		1224	
4	1132	1178		1225	
5	1133	1179		1226	
6	1134	1180		1227	
7	1135	1181		1228	
8	1136	1182		1229	
9	1137	1183		1230	
10	1138	1184		1231	BC/(Out>R#409)
11	1139	1185		1232	
12	1140	1186		1233	
13	1141	1187		1234	
14	1142	1188		1235	
15	1143	1189		1236	
16	1144	1190		1237	
17	1145	1191		1238	BC/(Out>R#409)
18	1146	1192		1239	
19	1147	1193		1240	
20	1148	1194		1241	
21	1149	1195		1242	
22	1150	1196		1243	
23	1151	1197		1244	
24	1152	1198		1245	
25	1153	1199		1246	
26	1154	1200		1247	
27	1155	1201		1248	
28	1156	1202		1249	
29	1157	1203		1250	
30	1158	1204		1251	
31	1159	1205		1252	
32	Cal.	Cal.		Cal.	
33	1160	1206		1253	
34	1161	1207		1254	
35	1162	1208		1255	
36	1163	1209		1256	
37	1164	1210		1257	
38	1165	1212		1258	
39	1166	1213		1259	
40	1167	1214		1260	
41	1168	1215		1261	
42	1169	1216		1262	
43	1170	1217		1263	
44	1171	1218		1264	
45	1172	1219		1265	
46	1173	1220		1266	BC/(Bad)
47	1174	1221		1267	
48	1175	1222		1268	

Note: BC is Bad Code - Data No Good
 >R#xxx is Runs Greater Than R#xxx
 ? is Marginal leak found, use data with caution

TABLE III: IA-613A ESP/PRESS. TAP HOOKUP

TEST # 613A

SSV MODEL 47-OTS

EXTERNAL TANK ESP HOOKUP

ESP PORT No.	ESP #21 Mid & Aft-Body		ESP #22 Mid & Aft-Body		ESP #23 Mid & Aft-Body	
	Press. No.	COMMENT	Press. No.	COMMENT	Press. No.	COMMENT
1	Cal.		Cal.		Cal.	
2	1269		1309		1348	
3	1270		1310		1349	
4	1271		1311	BC/(Plugged>R#407)	1350	
5	1272	BC/(>R#469)	1312		1351	
6	1273		1313		1352	
7	1274		1314		1353	
8	1275		1315		1354	
9	1276		1316		1355	
10	1277		1317		1356	
11	1278		1318		1357	
12	1279		1319		1358	
13	1280		1320		1359	
14	1281		1321		1360	
15	1282		1322		1361	
16	1283		1323		1362	
17	1284		1324		1363	
18	1285		1325		1364	
19	1286		1326		1365	
20	1287		1327		1366	
21	1288		1328		1367	
22	1289		1329		1368	
23	1290		1330		1369	
24	1291		1331		1370	
25	1292		1332		1371	
26	1293		1333		1372	
27	1294		1334		1373	
28	1295		1335		1374	
29	1296		1336		1375	
30	1297		1337		1376	
31	1298		1338		1377	
32	Cal.		Cal.		Cal.	
33	1299		1339		1378	
34	1300		1340		1379	
35	1301		1341		1380	
36	1302		1342		1381	
37	1303		1343		1382	
38	1304		1344		1383	
39	1305		1345		1384	
40	1306		1346		1385	
41	1307		1347		1386	
42	1308		Open		Open	
43	Open		Open		Open	
44	Open		Open		Open	
45	Open		Open		Open	
46	Open		Open		Open	
47	Open		Open		Open	
48	Open		Open		Open	

Note: BC is Bad Code - Data No Good
 >R#xxx is Runs Greater Than R#xxx
 ? is Marginal leak found, use data with caution

TABLE III: IA-613A ESP/PRESS. TAP HOOKUP

TEST # 613A

SSV MODEL 47-OTS

EXTERNAL TANK ESP HOOKUP

ESP PORT No.	ESP #24 Mid & Aft-Body		ESP #25 ET Base		ESP #26 Base & LO2 Feedli	
	Press. No.	COMMENT	Press. No.	COMMENT	Press. No.	COMMENT
1	Cal.		Cal.		Cal.	
2	1387		1501		1546	
3	1388		1502		1547	
4	1389		1503		1548	
5	1390		1504		1549	
6	1391		1505		1550	
7	1392		1506		1551	
8	1393		1507		1552	
9	1394		1508		1553	
10	1395		1509		1554	
11	1396		1510		1555	
12	1397		1511		1556	
13	1398		1512		1557	
14	1399		1513		1558	
15	1400		1514		1559	
16	1401		1515		1560	
17	1402		1516		1561	
18	1403		1517		1562	
19	1404		1518		1563	
20	1405		1519		1564	
21	1406		1520		1565	
22	1407		1521		1566	
23	1408		1522		1567	
24	1409		1523		1568	
25	1410		1524		1569	
26	1411		1525		1570	
27	1412		1526		1571	
28	1413		1527		1572	
29	1414		1528		1573	
30	1415		1529		1574	
31	1416		1530		1782	
32	Cal.		Cal.		Cal.	
33	1417		1531		1783	
34	1418		1532		1784	
35	1419		1533		1785	
36	1420		1534		1786	
37	1421		1535		1787	
38	1422		1536		1788	
39	1423		1537		1789	
40	1424		1538		1790	
41	1425		1539		1791	
42	Open		1540		1792	
43	Open		1541		1793	
44	Open		1542		1794	
45	Open		1543		1795	
46	Open		1544		Open	
47	Open		1545		Open	
48	Open		Open		Open	

Note: BC is Bad Code - Data No Good
 >R#xxx is Runs Greater Than R#xxx
 ? is Marginal leak found, use data with caution

TABLE III: IA-613A ESP/PRESS. TAP HOOKUP

TEST # 613A

SSV MODEL 47-OTS

EXTERNAL TANK ESP HOOKUP

ESP PORT No.	ESP # 27 LO2 Feedline				
	Press. No.	COMMENT			
1	Cal.				
2	1796				
3	1797				
4	1798				
5	1799				
6	1800				
7	1801				
8	1802				
9	1803				
10	1804				
11	1805				
12	1806				
13	1807				
14	1808				
15	1809				
16	1810				
17	1811				
18	1812				
19	1813				
20	1814				
21	1815				
22	1816				
23	1817				
24	1818				
25	1819				
26	1820				
27	1821				
28	1822				
29	1823				
30	1824				
31	1825				
32	Cal.				
33	1826				
34	1827				
35	1828				
36	1829				
37	1830				
38	1831				
39	1832				
40	1833				
41	1834				
42	1835				
43	1836				
44	1837				
45	1838				
46	1839				
47	1840				
48	1841				

Note: BC Is Bad Code - Data No Good
 >R#xxx Is Runs Greater Than R#xxx
 ? Is Marginal leak found, use data with caution

TABLE III: IA-613A ESP/PRESS. TAP HOOKUP

TEST # 613A

SSV MODEL 47-OTS

SOLID ROCKET BOOSTER ESP HOOKUP

ESP PORT No.	ESP #28 Nose & ETA Ring		ESP #29 Fwd Shell & Sys Tun		ESP #30 Lwr Fwd Shell	
	Press. No.	COMMENT	Press. No.	COMMENT	Press. No.	COMMENT
1	Cal.		Cal.		Cal.	
2	2001		2028		2026	
3	2002	?(R#498-517)	2029	?(R#498-517)	2027	?(R#498-517)
4	2003		2030		2032	
5	2004	?(R#498-517)	2037	? (watch)+(R#498-517)	2033	?(R#498-517)
6	2005		2038		2034	
7	2006	?(R#498-517)	2039	?(R#498-517)	2035	BC>R#780(?R#498-5
8	2007		2046		2036	
9	2008	?(R#498-517)	2047	?(R#498-517)	2040	?(R#498-517)
10	2009		2048		2041	
11	2010	?(R#498-517)	2053	?(R#498-517)	2042	?(R#498-517)
12	2011		2054		2043	
13	2012	?(R#498-517)	2055	?(R#498-517)	2044	?(R#498-517)
14	2013		2064		2045	
15	2014	?(R#498-517)	2065	?(R#498-517)	2049	?(R#498-517)
16	2015		2066		2050	
17	2016	?(R#498-517)	2073	?(R#498-517)	2051	?(R#498-517)
18	2017		2074		2052	
19	2018	?(R#498-517)	2075	?(R#498-517)	2056	?(R#498-517)
20	2019		2082		2057	
21	2020	?(R#498-517)	2083	?(R#498-517)	2058	?(R#498-517)
22	2021		2084	? (watch)	2059	
23	2022	?(R#498-517)	2091	?(R#498-517)	2060	?(R#498-517)
24	2023		2092		2061	
25	2024	?(R#498-517)	2093	?(R#498-517)	2062	?(R#498-517)
26	2025		2301		2063	
27	2096	?(R#498-517)	2302	?(R#498-517)	2067	?(R#498-517)
28	2097	? (watch)	2303	BC/(Plugged>R#1525)	2068	
29	2098	?(watch)+(R#498-517)	2304	?(R#498-517)	2069	?(R#498-517)
30	2099		2305		2070	
31	2101	?(R#498-517)	2306	?(watch)&R#498-517	2071	?(R#498-517)
32	Cal.		Cal.		Cal.	
33	2103	?(R#498-517)	2307	?(R#498-517)	2072	?(R#498-517)
34	2104		2308		2076	
35	2105	?(R#498-517)	2309	?(R#498-517)	2077	?(R#498-517)
36	2106		2310		2078	
37	2108	?(R#498-517)	2311	?(R#498-517)	2079	?(R#498-517)
38	Open		2312		2080	
39	Open		2313	?(R#498-517)	2081	?(R#498-517)
40	Open		2314		2085	
41	Open		2331	?(R#498-517)	2086	?(R#498-517)
42	Open		2333	BC/(Out)	2087	
43	Open		Open		2088	?(R#498-517)
44	Open		Open		2089	
45	Open		Open		2090	?(R#498-517)
46	Open		Open		2094	
47	Open		Open		2095	?(R#498-517)
48	Open		Open		Open	

Note: BC is Bad Code - Data No Good
 >R#xxx is Runs Greater Than R#xxx
 ? is Marginal leak found, use data with caution

TABLE III: IA-613A ESP/PRESS. TAP HOOKUP

TEST # 613A

SSV MODEL 47-OTS

SOLID ROCKET BOOSTER ESP HOOKUP

ESP PORT No.	ESP #31 Top Aft Shell		ESP #32 Skirt-Nozzle-Base			
	Press. No.	COMMENT	Press. No.	COMMENT		
1	Cal.		Cal.			
2	2115		2144			
3	2116	?(R#498-517)	2145	?(R#498-517)		
4	2117		2146			
5	2122	?(R#498-517)	2147	?(R#498-517)		
6	2123		2148			
7	2124	?(R#498-517)	2149	?(R#498-517)		
8	2131		2150			
9	2132	?(R#498-517)	2151	?(R#498-517)		
10	2133		2152			
11	2138	?(R#498-517)	2153	?(R#498-517)		
12	2139		2154			
13	2140	?(R#498-517)	2155	?(R#498-517)		
14	2110		2156			
15	2111	?(R#498-517)	2157	?(R#498-517)		
16	2112		2158			
17	2113	?(R#498-517)	2159	?(R#498-517)		
18	2114		2160			
19	2118	?(R#498-517)	2161	?(R#498-517)		
20	2119		2162			
21	2120	?(R#498-517)	2163	?(R#498-517)		
22	2121		2164			
23	2125	?(R#498-517)	2165	?(R#498-517)		
24	2126		2166			
25	2127	?(R#498-517)	2167	?(R#498-517)		
26	2128		2168			
27	2129	?(R#498-517)	2169	?(R#498-517)		
28	2130		2170			
29	2134	?(R#498-517)	2171	?(R#498-517)		
30	2135		2172			
31	2136	?(R#498-517)	2173	?(R#498-517)		
32	Cal.		Cal.			
33	2137	?(R#498-517)	2174	?(R#498-517)		
34	2141		2175			
35	2142	?(R#498-517)	2176	?(R#498-517)		
36	2327		2177			
37	2328	?(R#498-517)	2178	?(R#498-517)		
38	2329		2179			
39	2330	?(R#498-517)	2201	?(R#498-517)		
40	2143		2202			
41	Open		2203	?(R#498-517)		
42	Open		2204			
43	Open		2205	?(R#498-517)		
44	Open		2206			
45	Open		2207	?(R#498-517)		
46	Open		2208			
47	Open		2209	?(R#498-517)		
48	Open		2210			

Note: BC is Bad Code - Data No Good
 >R#xxx is Runs Greater Than R#xxx
 ? is Marginal leak found, use data with caution

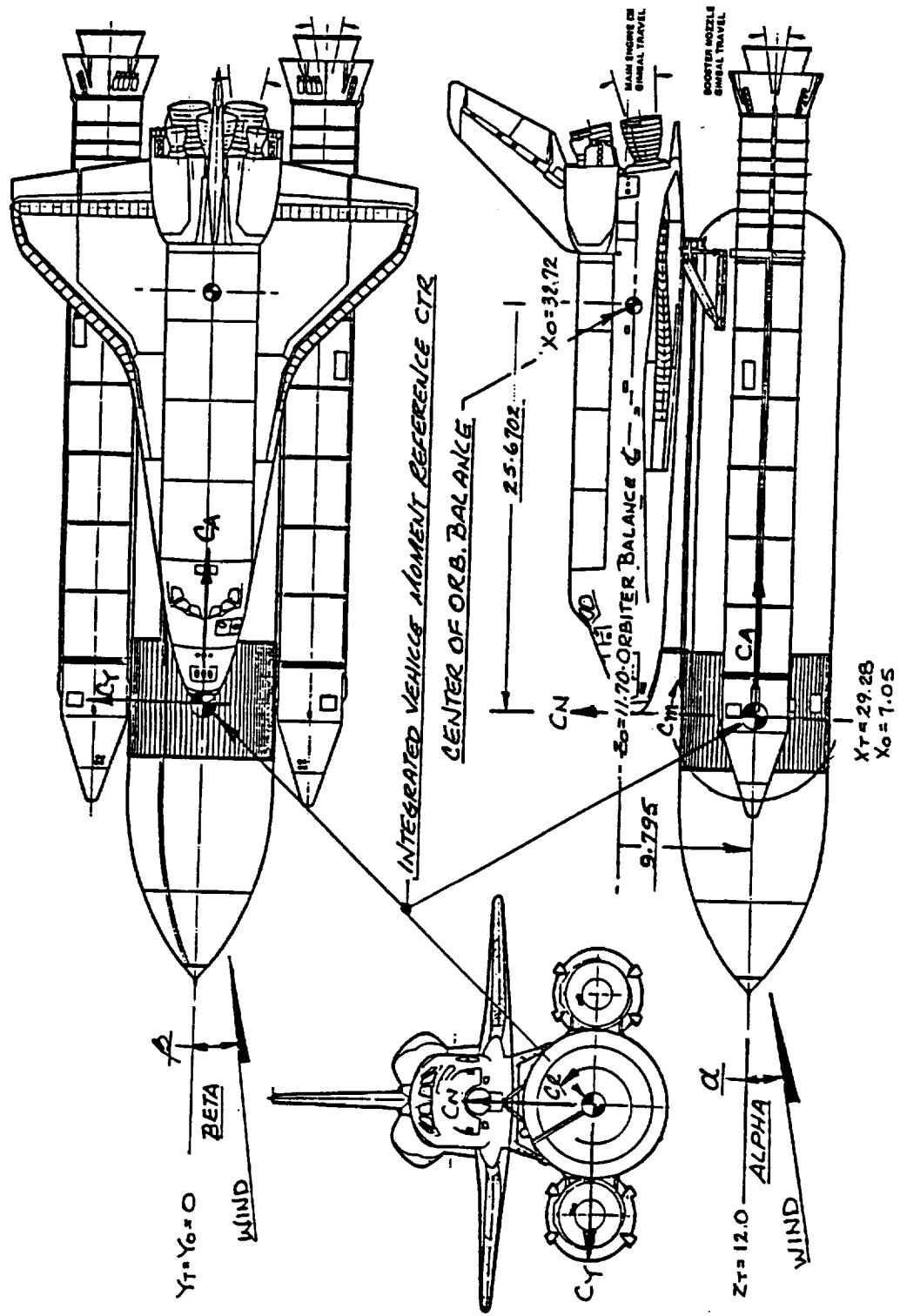
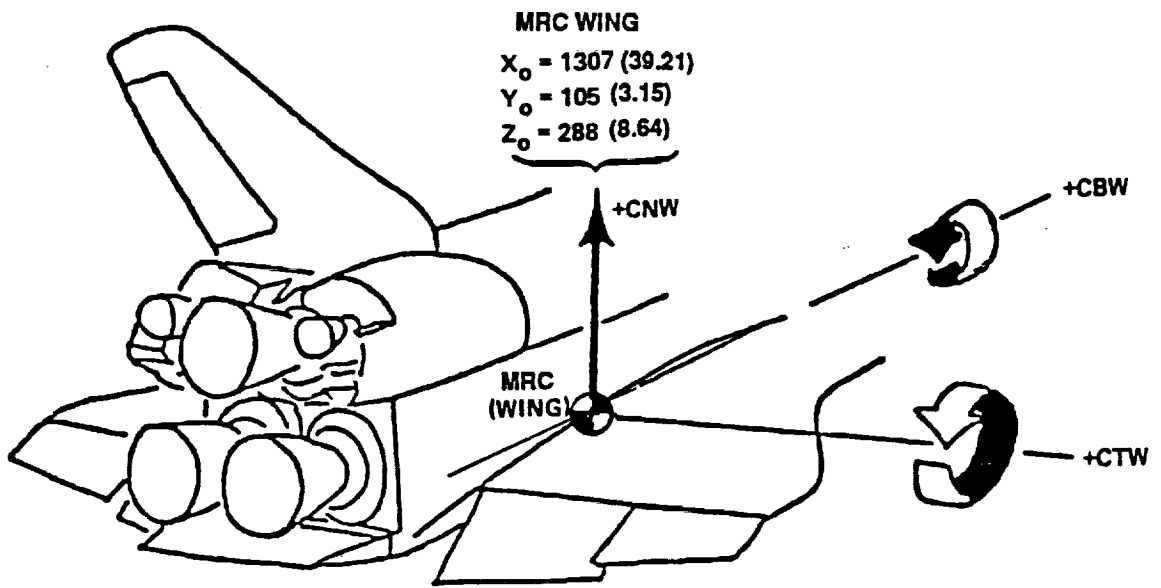
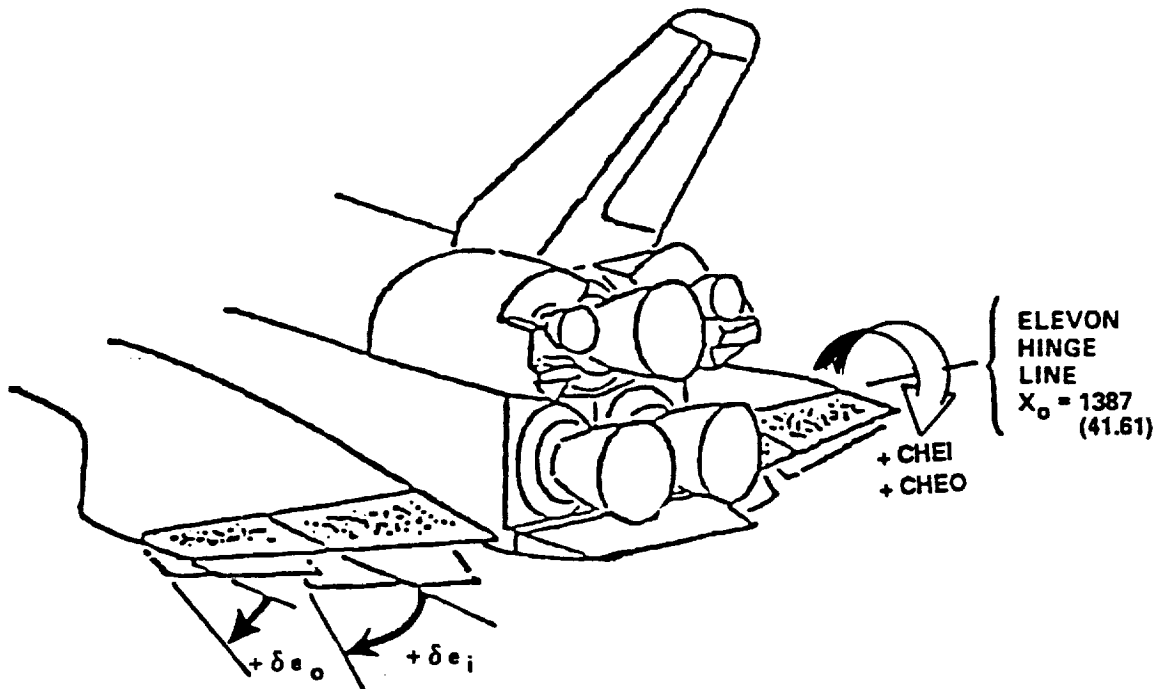


Figure 1a ; Body Axis System and Orbiter Balance Transfer



ALL DIMENSIONS IN INCHES
 MODEL SCALE IN PARENTHESES

Figure 1b; Wing coordinate axes.



ALL DIMENSIONS IN INCHES
 MODEL SCALE IN PARENTHESES

Figure 1c; Elevon coordinate axes.

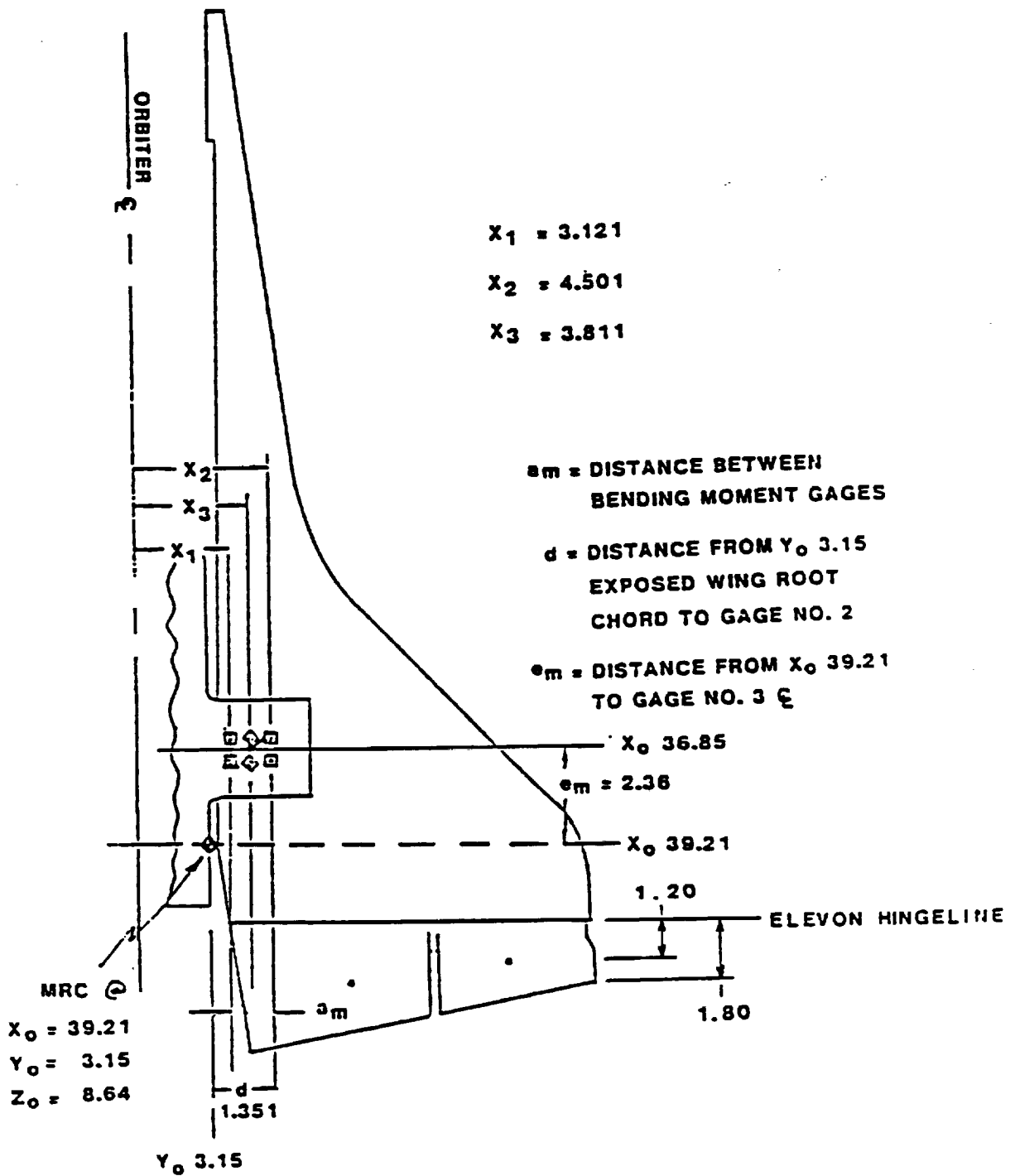


Figure 1d ; Wing Balance Transfer

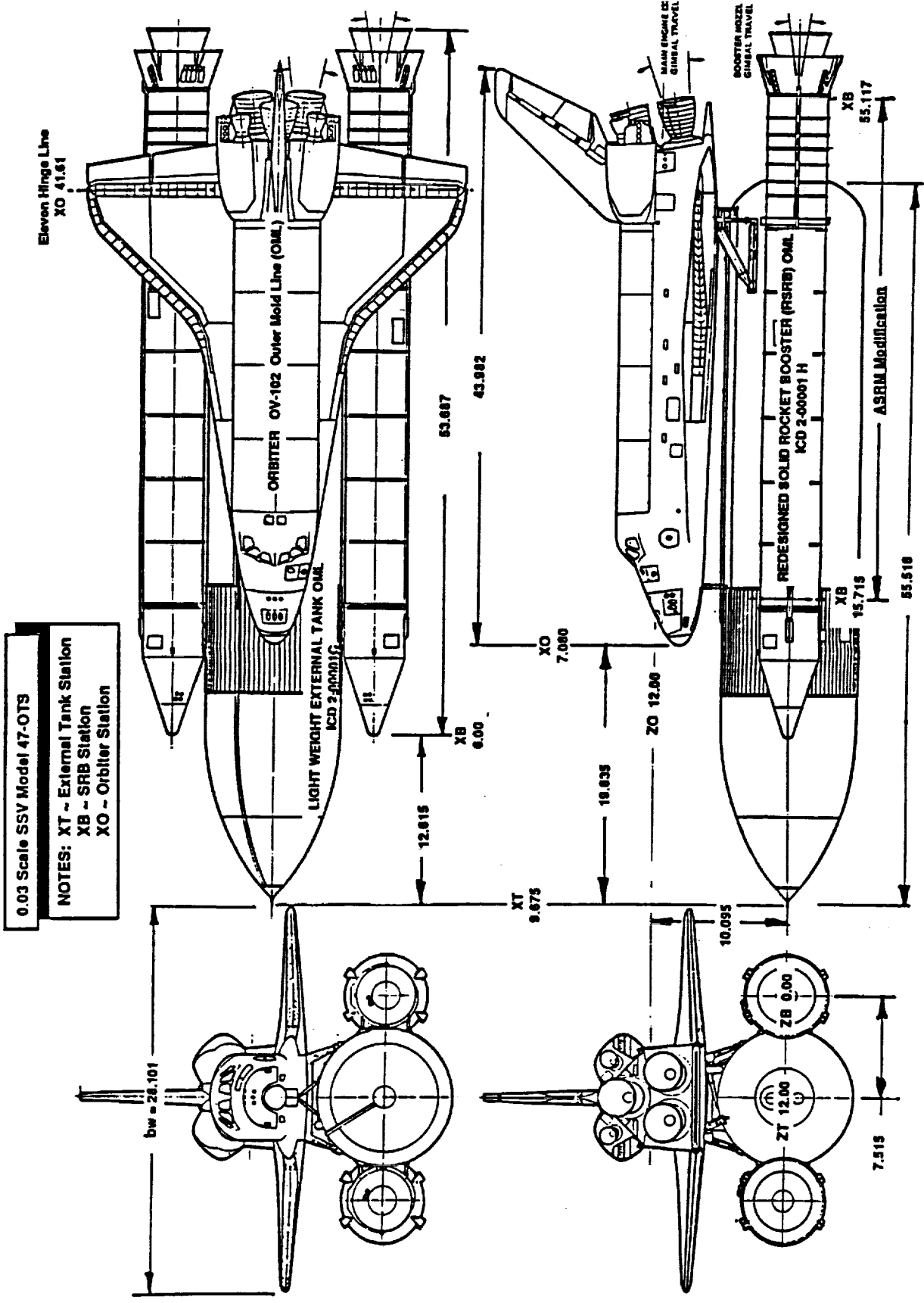


Figure 2 a ; Launch Vehicle Configuration

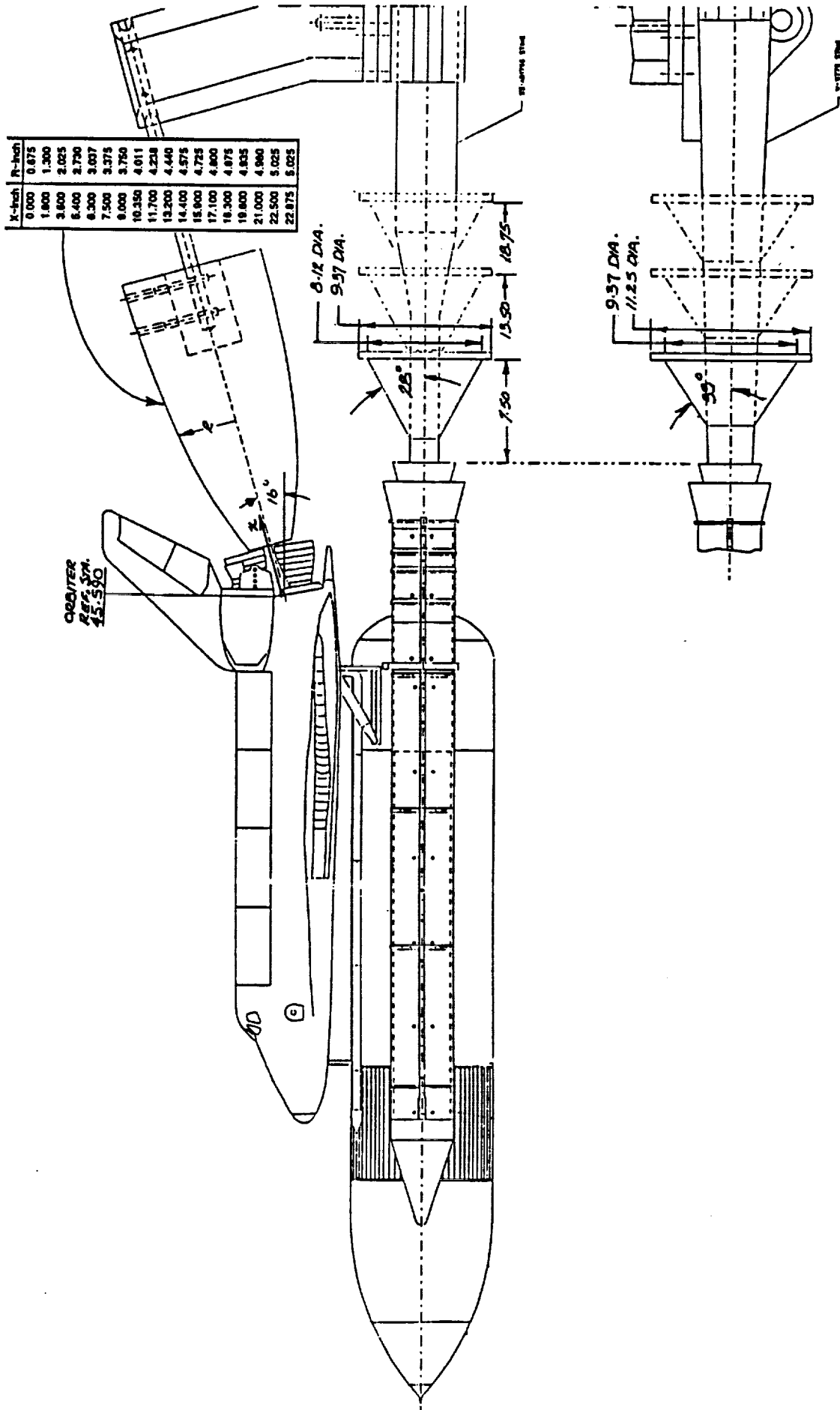


Figure 2 c ; Solid Plume Simulators

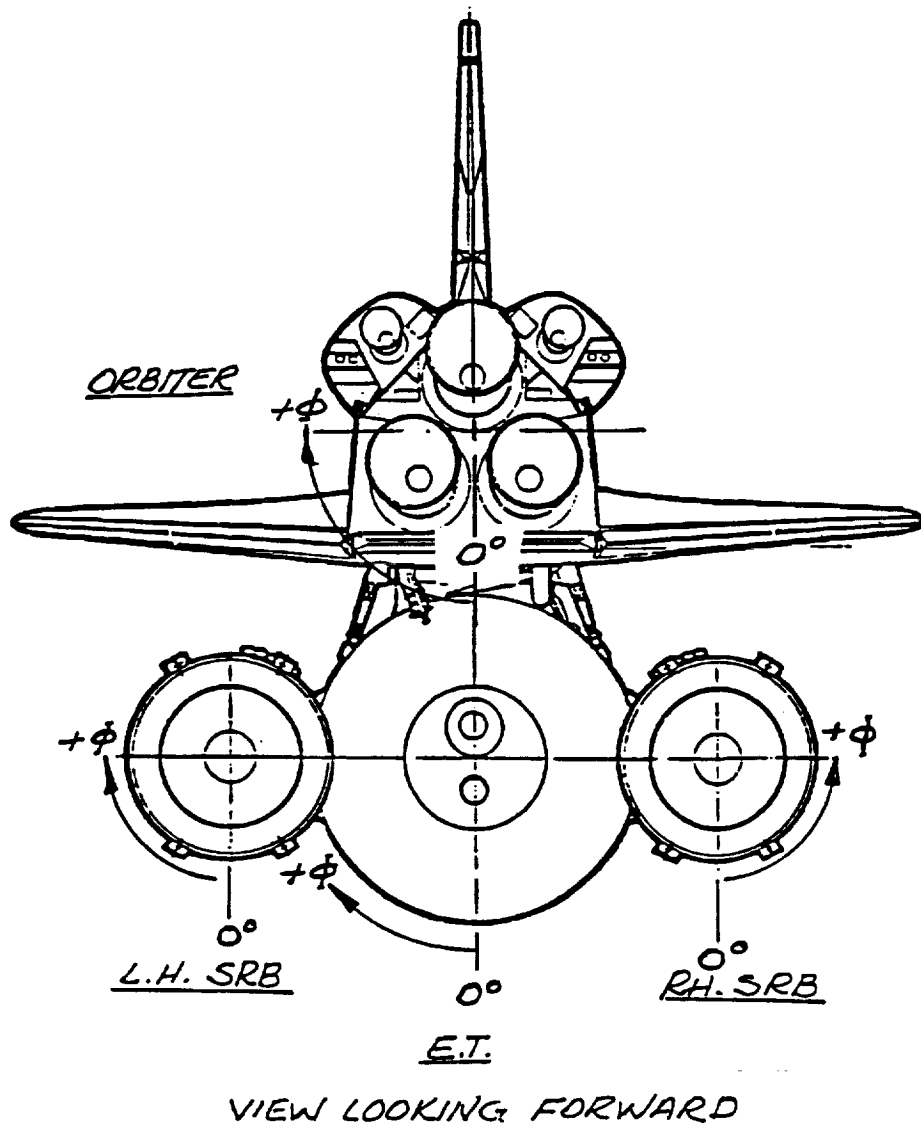
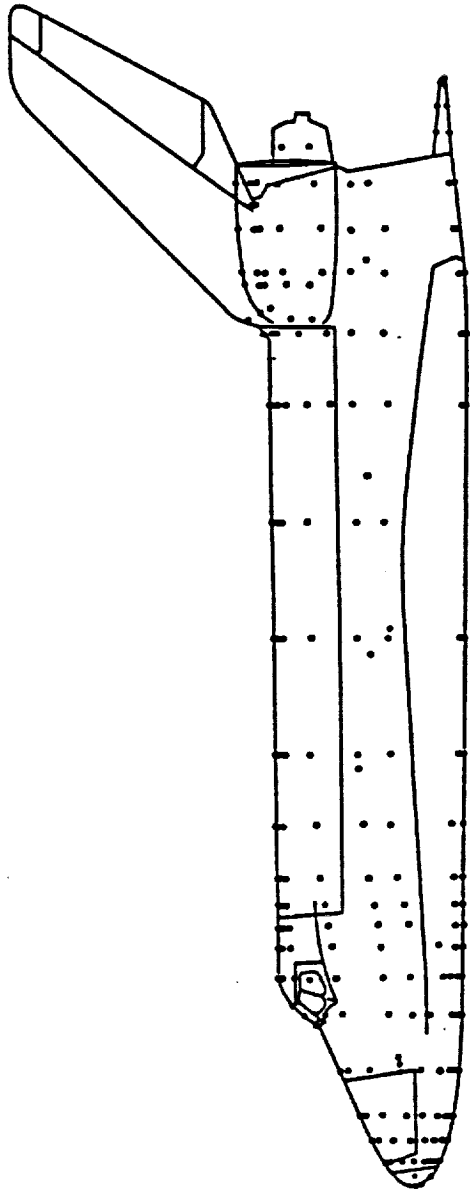
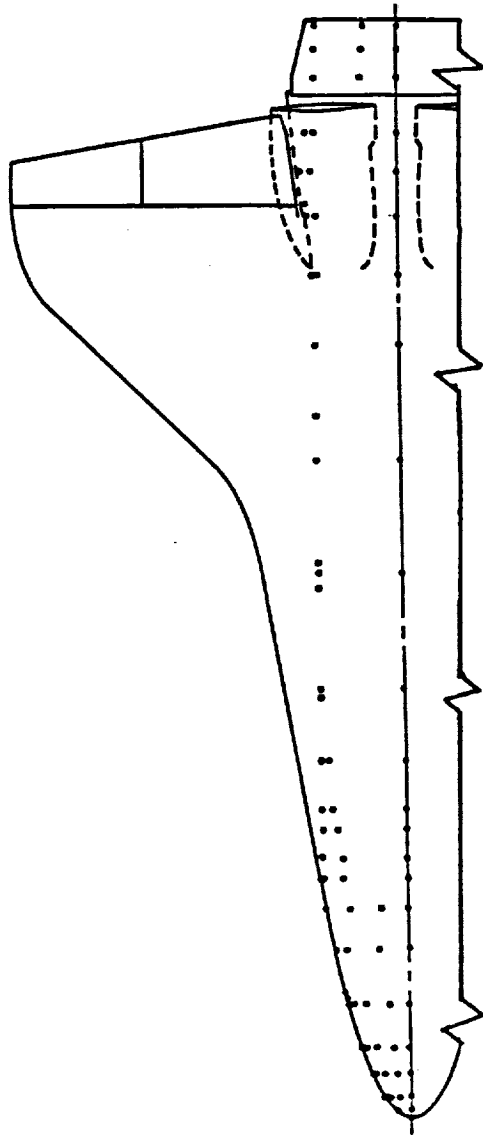


Figure 3a: Instrumentation Phi (ϕ) Angle Definition



ORBITER SIDE VIEW

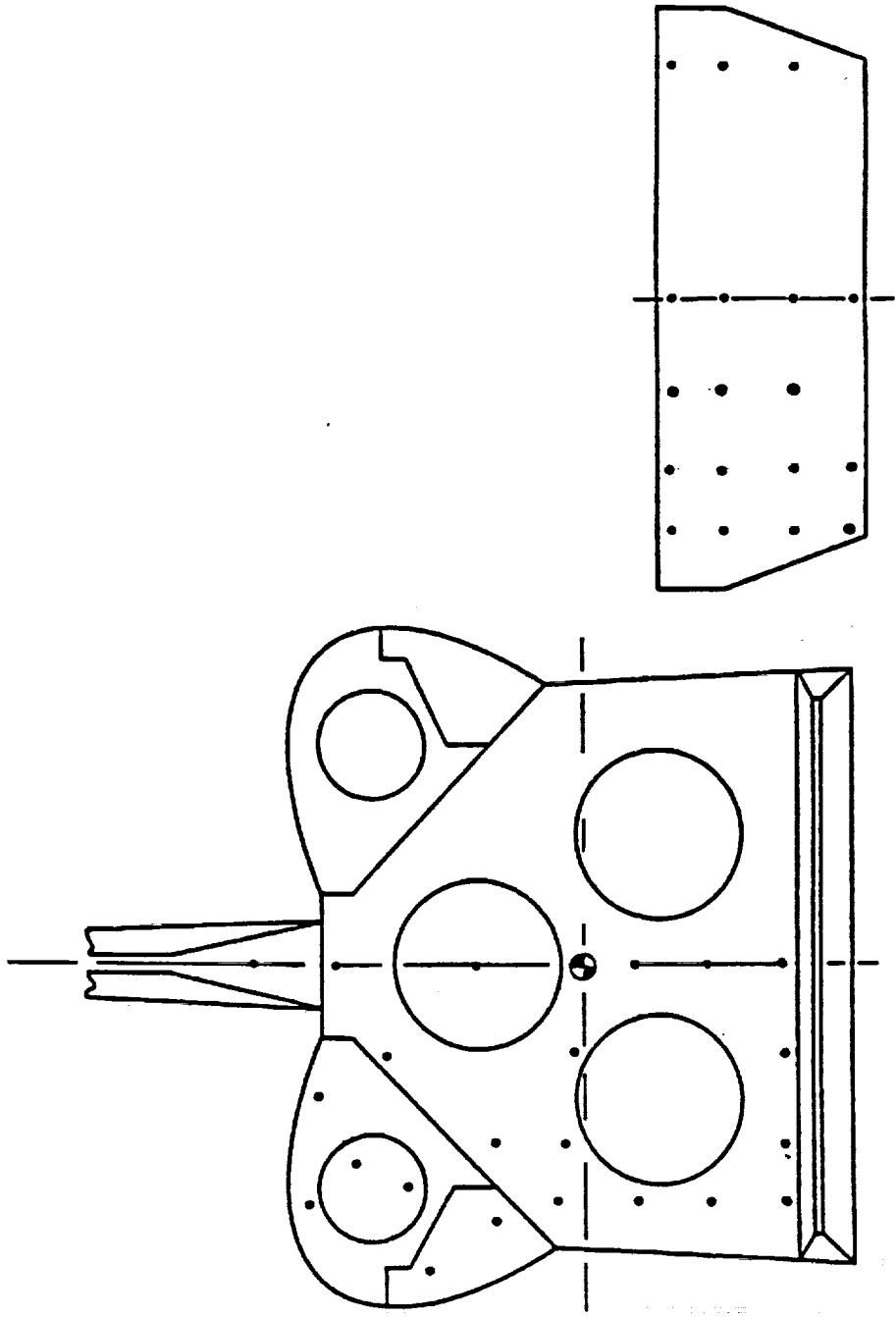


ORBITER BOTTOM VIEW (L.H. Side)

Figure 3 b ; Steady State Static Pressure Tap Locations - Orbiter Fuselage Layout

X(O)	X/L	0	20	40	55	60	67.5	70	82	90	105	110	120	135	140	150	151	156	162	165	169	174	180	S
235	0.0000	1																						1
245	0.0078	2								3														2
265	0.0233	5	6	7	8		9			10														4
295	0.0465	17	18	19	20		21			22		11				12								9
325	0.0698	29	30	31	32		33			34		23				24								9
380	0.1124	41	42	43	44		45			46		35				36								9
385	0.1163									53		47				48								1
399	0.1271									54														1
440	0.1589																					55		1
450	0.1666	56	57	58	59		60			61		62				63			64					10
465	0.1783																							2
500	0.2054	71	72	73	74		75			76		77			78	79								11
540	0.2364	85	86	87						88		89				90								8
565	0.2558	94		95			96			97		98			99									8
590	0.2751	103		104			105			106		107			108									8
625	0.3023	112		113			114			115		116			117									8
650	0.3526	121		122			123			124		125			126									8
764	0.4100							130																1
780	0.4224	131		132			133			134		135			136									8
905	0.5193							140																1
928	0.5371	141		142			143			144		145			146									8
937	0.5441						150																	1
994	0.5882																							0
1070	0.6471	152		151			154			155		156			157									8
1129	0.6929							161																1
1215	0.7595	162		163			164			165		166			167	168								10
1300	0.8254	173		174			175			176		177			178	179								9
1318	0.8393						191			192		218			219	220								7
1350	0.8641									186		223			224	225								5
1375	0.8835	183		184			185			187		188			189									10
1390	0.8951						193																	2
1430	0.9261	194		195			196			197		198			199	200								11
1455	0.9455						199			206														4
1480	0.9649	204		205			206			207		208			209	210								10
1524	0.9990	409	417	433																				3
1530	1.0036											216	217											2
1548	1.0176	410	418	434																				3
1580	1.0424	411	419	435																				3
1609	1.0649	412	420	436																				3
1613	1.0680																							0
LIB) = 1290.3		25	10	23	7	3	1	21	3	24	5	3	22	7	1	20	1	1	1	16	1	1	19	215

Figure 3 c : Steady State Static Pressure Tap Locations - Orbiter Fuselage List



TOP VIEW BODY FLAP

Figure 3 d ; Steady State Static Pressure Tap Locations - Orbiter Base & Body Flap Layout

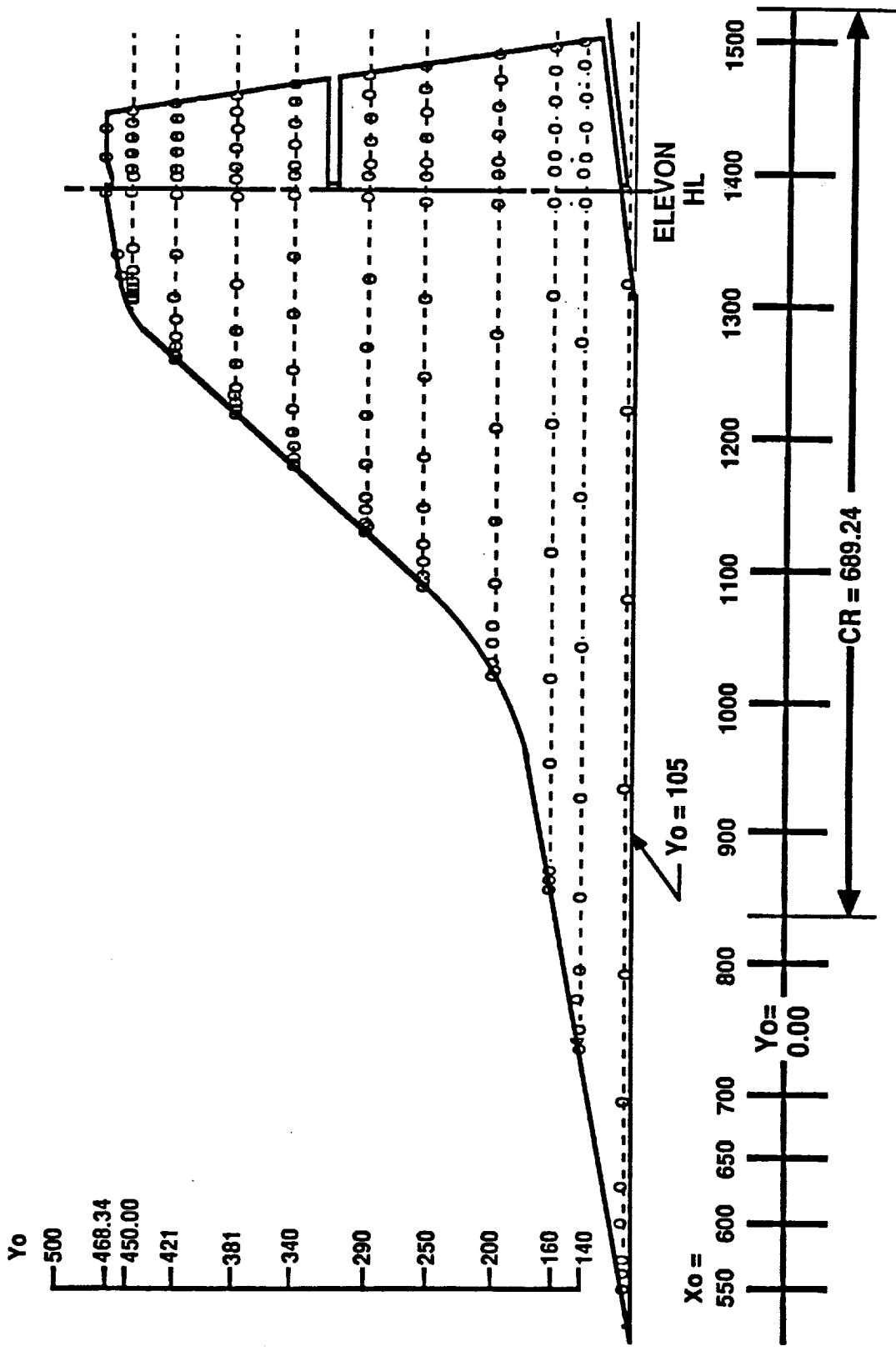


FIGURE 3f : WING - INSTRUMENTATION LAYOUT

**RUDDER
HINGELINE**

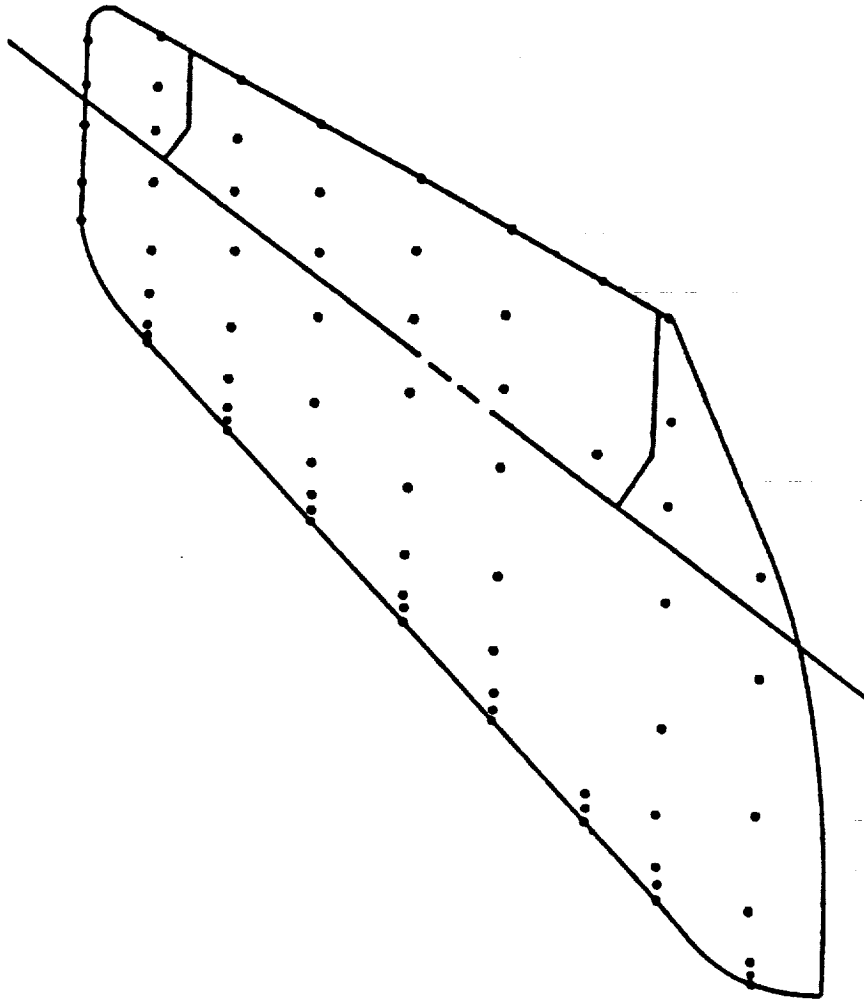


Figure 3 h ; Steady State Static Pressure Tap Locations - Vertical Tail Layout

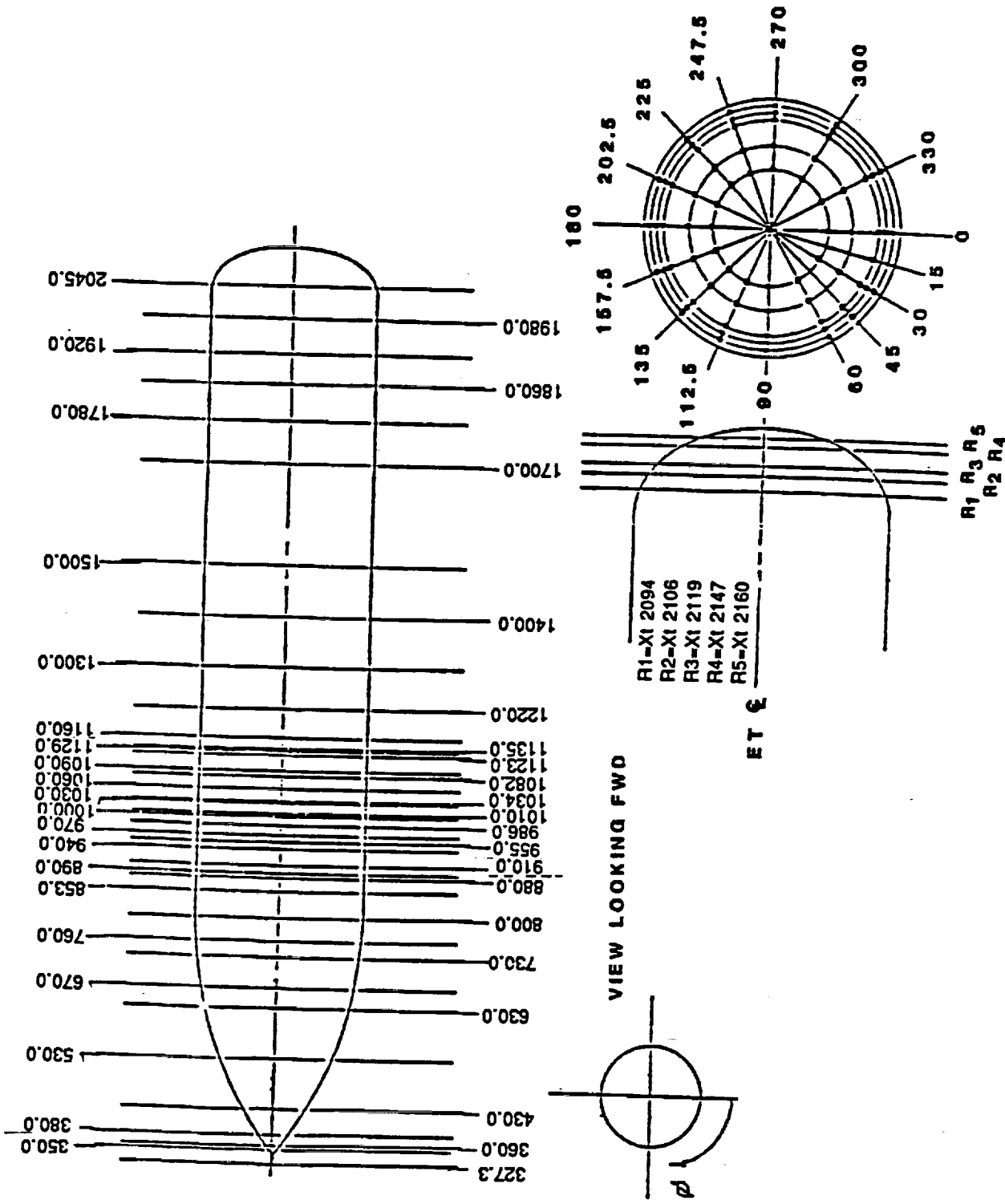


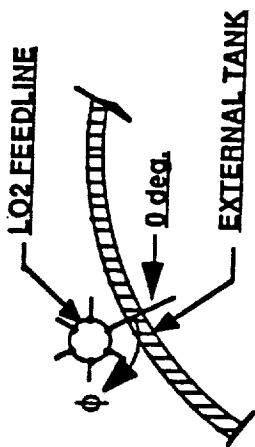
Figure 3 J ; Steady State Static Pressure Tap Locations - External Tank Layout

o ~ deg.

X(T)	XL	0	2.5	5	30	45	60	75	90	95	112.5	120	157.5	165	182.5	190	172.5	180	182.5	195	202.5	210	214	220	225	240	270	315	330	
350	0.015	1006							1008			1009				1002														
360	0.020	1014							1016			1017				1010														
X(T)	XL	0	2.5	5	30	45	60	75	90	95	112.5	120	157.5	165	182.5	190	172.5	180	182.5	195	202.5	210	214	220	225	240	270	315	330	
380	0.021	1018			1019				1021			1022	1023	1024		1025														
430	0.056	1032			1033				1035			1036	1037	1038		1039														
530	0.112	1048			1047				1049			1050	1051	1052		1053														
830	0.166	1080			1081				1083			1084	1085	1086		1087														
870	0.180	1074			1075				1077			1078	1079	1080		1081														
730	0.220	1068			1069				1071			1072	1073	1074		1075														
760	0.226	1102			1103				1105			1106	1107	1108		1109														
800	0.256	1118			1117				1119			1120	1121	1122		1123														
847	0.283	1130			1131				1133			1134	1135	1136		1137														
890	0.301	1144			1145				1146			1147	1148	1149		1150														
890	0.306	1157			1158				1159			1160	1161	1162		1163														
910	0.317	1168			1169				1171			1172	1173	1174		1175														
940	0.333	1188			1189				1191			1192	1193	1194		1195														
955	0.341	1192			1193				1195			1196	1197	1198		1199														
870	0.350	1182			1183				1185			1186	1187	1188		1189														
866	0.356	1207			1207				1208			1209	1210	1211		1212														
1000	0.366	1214			1215				1217			1218	1219	1220		1221														
1010	0.371	1226			1226				1228			1229	1230	1231		1232														
1030	0.382	1228			1229				1231			1232	1233	1234		1235														
1034	0.384	1244			1245				1246			1247	1248	1249		1250														
1060	0.396	1258			1259				1260			1261	1262	1263		1264														
1082	0.410	1270			1271				1272			1273	1274	1275		1276														
1080	0.414	1288			1289				1290			1291	1292	1293		1294														
1120	0.435	1306			1307				1308			1309	1310	1311		1312														
1135	0.439	1324			1325				1326			1327	1328	1329		1330														
1190	0.452	1348			1349				1350			1351	1352	1353		1354														
1220	0.464	1366			1367				1368			1369	1370	1371		1372														
1300	0.529	1398			1399				1400			1401	1402	1403		1404														
1400	0.562	1322			1323				1324			1325	1326	1327		1328														
1500	0.636	1335			1336				1337			1338	1339	1340		1341														
1700	0.744	1348			1349				1350			1351	1352	1353		1354														
1780	0.787	1381			1382				1383			1384	1385	1386		1387														
1800	0.830	1374			1375				1376			1377	1378	1379		1380														
1820	0.862	1387			1388				1389			1390	1391	1392		1393														
1860	0.895	1400			1401				1402			1403	1404	1405		1406														
2045	0.930	1413			1414				1415			1416	1417	1418		1419														
2084	0.956	1502			1503				1504			1505	1506	1507		1508														
2108	0.983	1518			1519				1520			1521	1522	1523		1524														
2119	0.970	1500			1501				1502			1503	1504	1505		1506														
2147	0.985	1548			1549				1550			1551	1552	1553		1554														
2160	0.992	1500			1501				1502			1503	1504	1505		1506														
2175	1.000	1574			1575				1576			1577	1578	1579		1580														

B: BASE

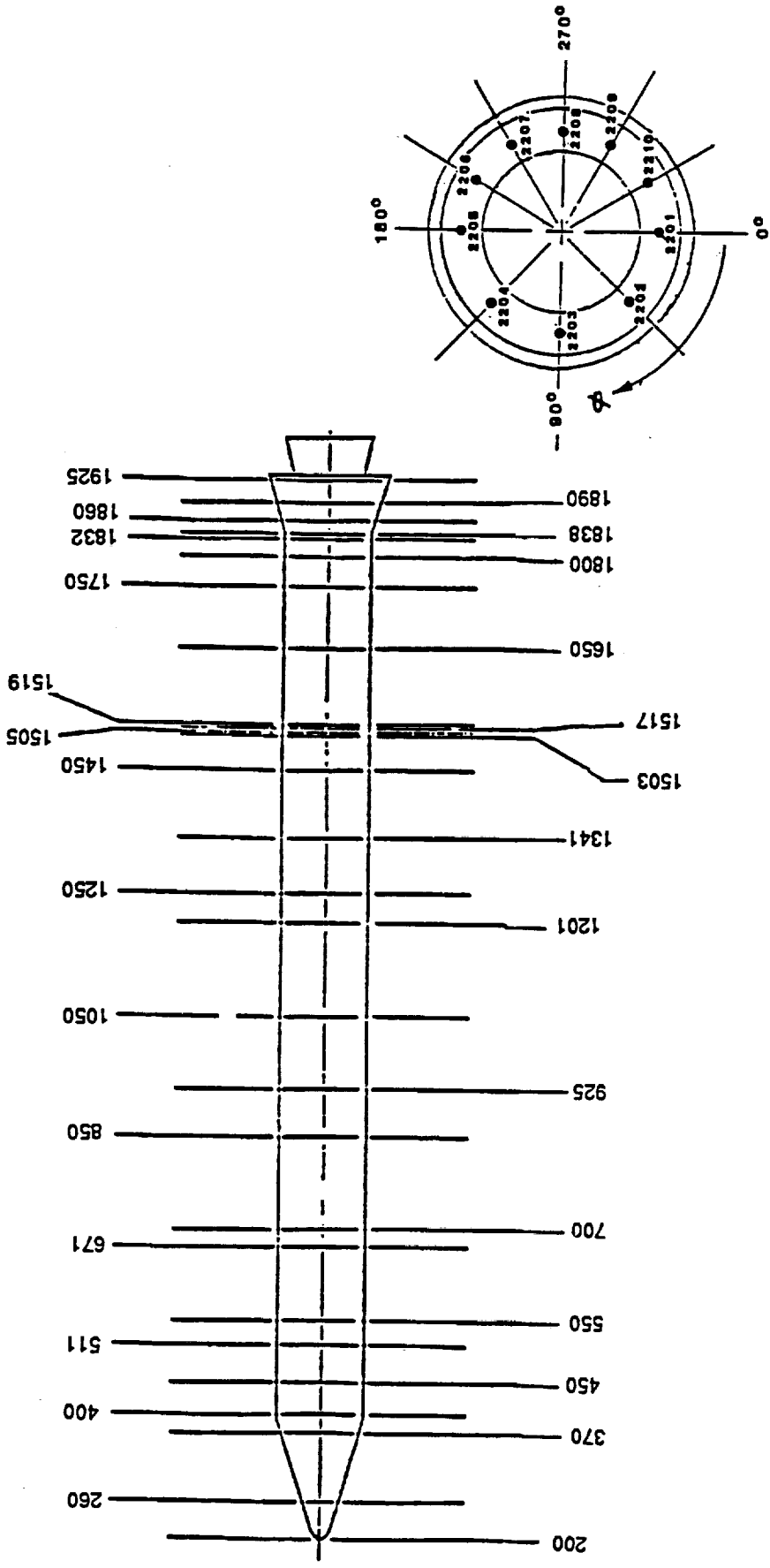
Figure 3 k ; Steady State Static Pressure Tap Locations - External Tank List



TYPICAL CROSSECTION
(View Looking Aft)

E.T. STA. XT - inches	ϕ - degrees					
	0	60	120	180	240	300
1100	1786	1787	1782	1783	1784	1785
1200	1792	1793	1788	1789	1790	1791
1300	1798	1799	1794	1795	1796	1797
1400	1804	1805	1800	1801	1802	1803
1500	1810	1811	1806	1807	1808	1809
1600	1816	1817	1812	1813	1814	1815
1700	1822	1823	1818	1819	1820	1821
1800	1828	1829	1824	1825	1826	1827
1900	1834	1835	1830	1831	1832	1833
2000	1840	1841	1836	1837	1838	1837

Figure 30 : EXTERNAL TANK LO2 FEEDLINE INSTRUMENTATION



Solid Rocket Booster Base

Figure 3 m ; Steady State Static Pressure Tap Locations - Solid Rocket Booster Layout

$\phi \sim \text{degrees}$

X(0)	X/L	0	45	86	90	94	135	180	225	247.5	270	292.5	315	360	s
200	0.000	2001												2001	1
260	0.035	2002	2003		2004		2005	2006	2007		2008		2009	2002	8
370	0.098	2010	2011		2012		2013	2014	2015		2016		2017	2010	8
400	0.116	2018	2019		2020		2021	2022	2023		2024		2025	2018	8
450	0.144	2026	2027				2028	2029	2030		2031		2032	2026	7
511	0.180			2033	2306	2034									3
550	0.202	2035	2036				2037	2038	2039		2040		2041	2035	7
671	0.272			2042	2308	2043									3
700	0.289	2044	2045				2046	2047	2048		2049		2050	2044	7
850	0.376	2051	2052				2053	2054	2055		2056		2057	2051	7
926	0.420			2058	2310	2059									3
1050	0.491	2060	2061	2062	2311	2063	2064	2065	2066		2067		2068	2060	10
1201	0.578			2069	2312	2070									3
1250	0.607	2071	2072				2073	2074	2075		2076		2077	2071	7
1341	0.659			2078	2313	2079									3
1450	0.722	2080	2081				2082	2083	2084		2085		2086	2080	7
1503	0.753	2087	2088	2089	2314	2090	2091	2092	2093		2094		2095	2087	10
1505	0.754	2096	2097				2098	2099	2100		2101			2096	6
1517	0.761	2103	2104				2105	2106	2107		2108		2109	2103	7
1519	0.762					2110									1
1650	0.838	2111	2112	2113	2328	2114	2115	2116	2117		2118		2119	2111	10
1750	0.896	2120	2121				2122	2123	2124		2125		2126	2120	7
1800	0.925	2127	2128	2129	2330	2130	2131	2132	2133		2134		2135	2127	10
1832	0.943	2136	2137				2138	2139	2140		2141		2142	2136	7
1838	0.946	2143	2144				2145	2146	2147		2148		2149	2143	7
1860	0.959	2150	2151		2152		2153	2154	2155	2156	2157	2158	2159	2150	10
1890	0.977	2160	2161		2162		2163	2164	2165	2166	2167	2168	2169	2160	10
1925	0.997	2170	2171		2172		2173	2174	2175	2176	2177	2178	2179	2170	10
1930.6	1.000														0
L(S) = 1730.6		22	21	9	15	10	21	21	21	3	21	3	20	22	187

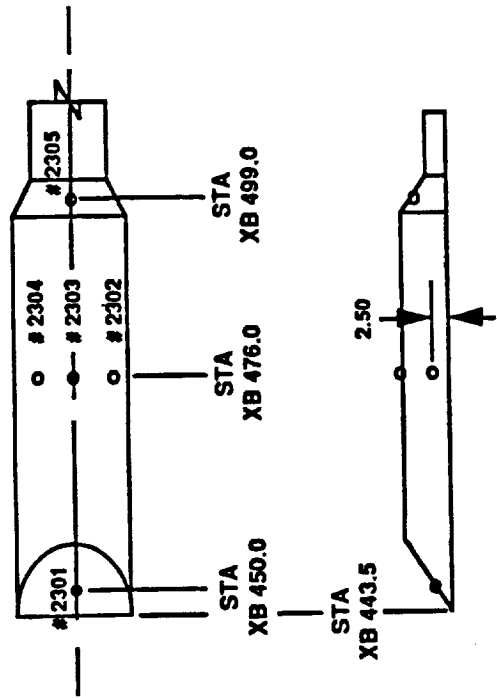
Figure 3 n : Steady State Static Pressure Tap Locations - Solid Rocket Booster List

CENTER SECTION - SYSTEMS TUNNEL (13 TAPS)

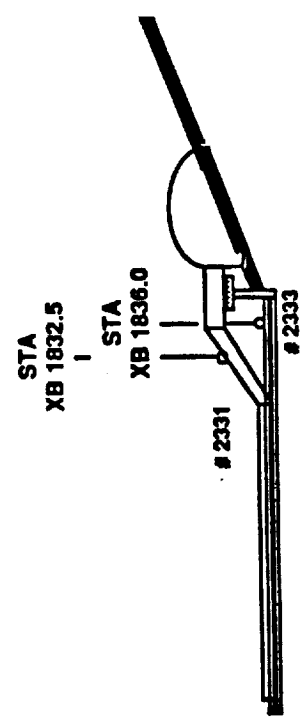
EACH TAP LOCATED ON TOP CENTERLINE @ THE FOLLOWING:

STATION	TAP NO.
XB 511	2306
XB 561	2307
XB 671	2308
XB 811	2309
XB 926	2310
XB 1051	2311
XB 1201	2312
XB 1341	2313
XB 1503	2314
XB 1591	2327
XB 1650	2328
XB 1726	2329
XB 1800	2330

FORWARD FAIRING - SYSTEMS TUNNEL (5 TAPS)



AFT FAIRING - SYSTEMS TUNNEL (2 TAPS)



TOTAL 20 TAPS

Figure 3 o ; Steady State Static Pressure Tap Locations - SRB Systems Tunnel

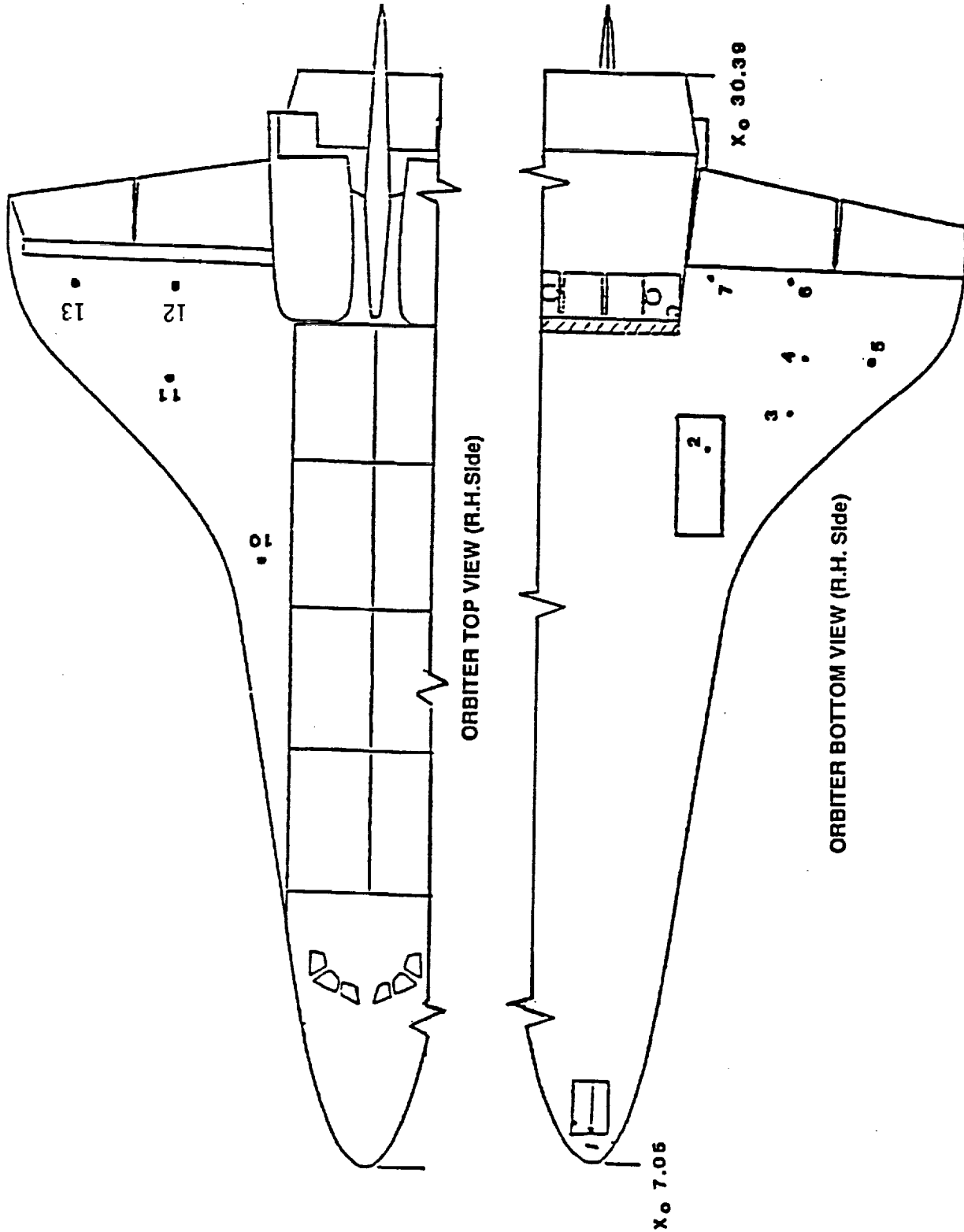


Figure 4 a ; Dynamic (KULITE) Pressure Tap Locations - Orbiter Fuselage Layout

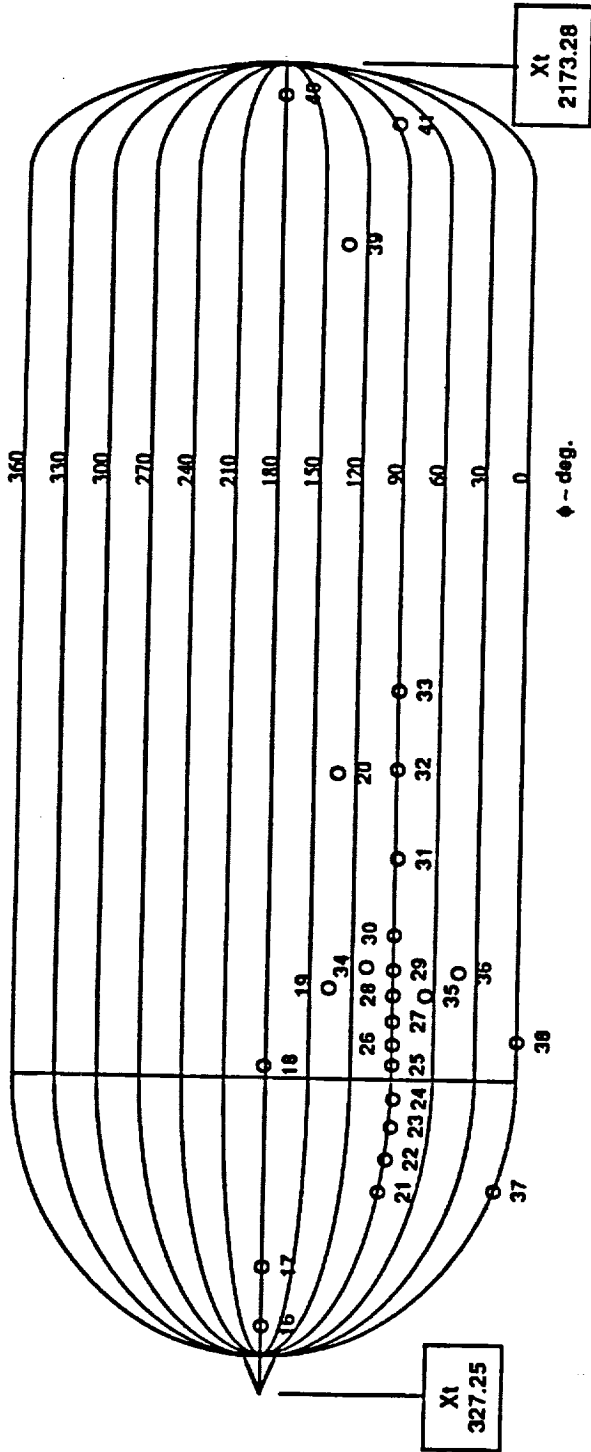
ORBITER KULITE LOCATIONS

ORBITER STATIONS			(MSID)	KULITE #
Xo	Yo	Zo		
279	0	BOT	1	1
1150	-150	BOT	35	2
1200	-250	BOT	39	3
1280	-250	BOT	53	4
1280	-370	BOT	55	5
1370	-150	BOT	58	6
1370	-250	BOT	60	7
540	-105*	380 In.	87	8
600	-105*	380 In.	96	9
1000	-140	TOP	114	10
1220	-260	TOP	116	11
1340	-260	TOP	118	12
1340	-380	TOP	119	13
785	-105*	386 In.	144	14
380	- 75*	360 In.	151	15

* - Fus. Side

TOTAL 15 KULITES

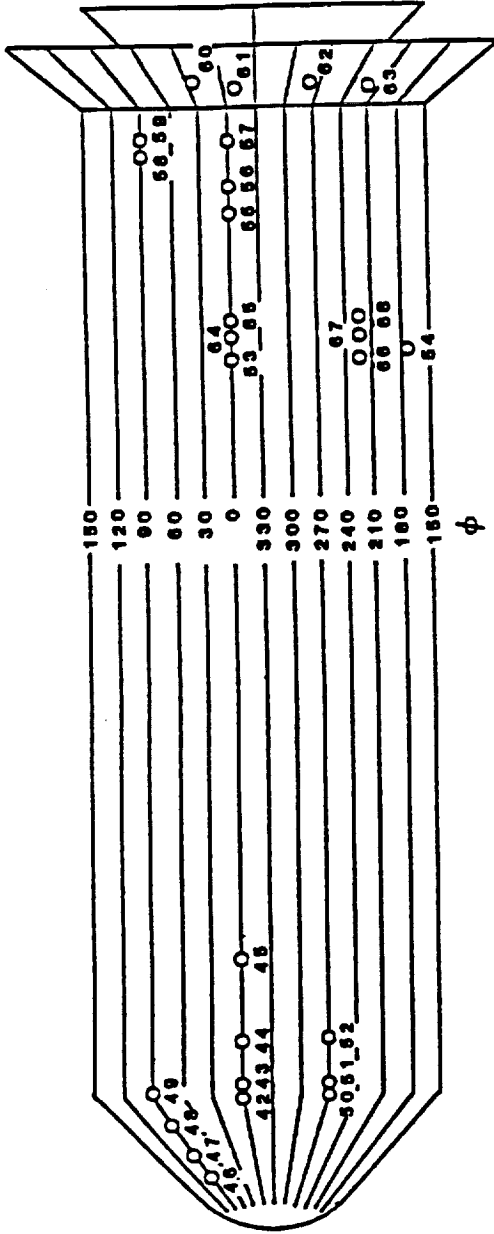
FIGURE 4b : ORBITER KULITE INSTRUMENTATION LOCATIONS



E.T. STA. Xt	φ Deg.	Kullite No.	(MSID)	E.T. STA. Xt	φ Deg.	Kullite No.	(MSID)
371	180	16	(2)	940	92	29	(33)
500	180	17	(4)	955	88.5	30	(34)
820	180	18	(8)	1060	92	31	(35)
940	137	19	(21)	1140	90	32	(36)
1146	135	20	(22)	1220	92	33	(37)
660	90	21	(25)	940	110	34	(38)
700	90	22	(26)	940	68	35	(39)
740	90	23	(27)	940	45	36	(40)
780	90	24	(28)	660	0	37	(41)
820	90	25	(29)	820	0	38	(43)
860	90	26	(30)	1863	135	39	(59)
900	92	27	(31)	2150	180	40	(61)
920	92	28	(32)	2050	90	41	(63)

TOTAL 26 KULITES

Figure 4c ; External Tank Kullite Locations



$\phi = 0$ IS SRB BOTTOM

SRB STA. Xs	ϕ Deg.	Kullite No.	MSID	SRB STA. Xs	ϕ Deg.	Kullite No.	MSID
400	0	42	(1)	1770	0	56R&A	(16)
425	0	43	(2)	1825	0	57R&A	(18)
490	0	44R&A	(3)	1790	90	58R&A	(19)
600	0	45R&A	(4)	1825	90	59R&A	(20)
280	90	46	(6)	1882	90	60	(21)
317	90	47	(7)	1865	352	61	(23)
360	90	48	(8)	1882	285	62	(24)
406	90	49	(9)	1853	225	63	(25)
400	270	50	(10)	1535	>0	64R&A	(26)
425	270	51	(11)	1550	<0	65R&A	(27)
500	270	52R&A	(12)	1485	225	66R&A	(28)
1485	0	53R&A	(13)	1535	>225	67R&A	(29)
1500	171	54R&A	(14)	1550	<225	68R&A	(30)
1730	0	55R&A	(15)	TOTAL 27 KULITES			

Note : R&A Indicate Kullites on both the RSRM and ASRM Interchangeable shells

Figure 4 d : Solid Rocket Booster KULLITE LOCATIONS

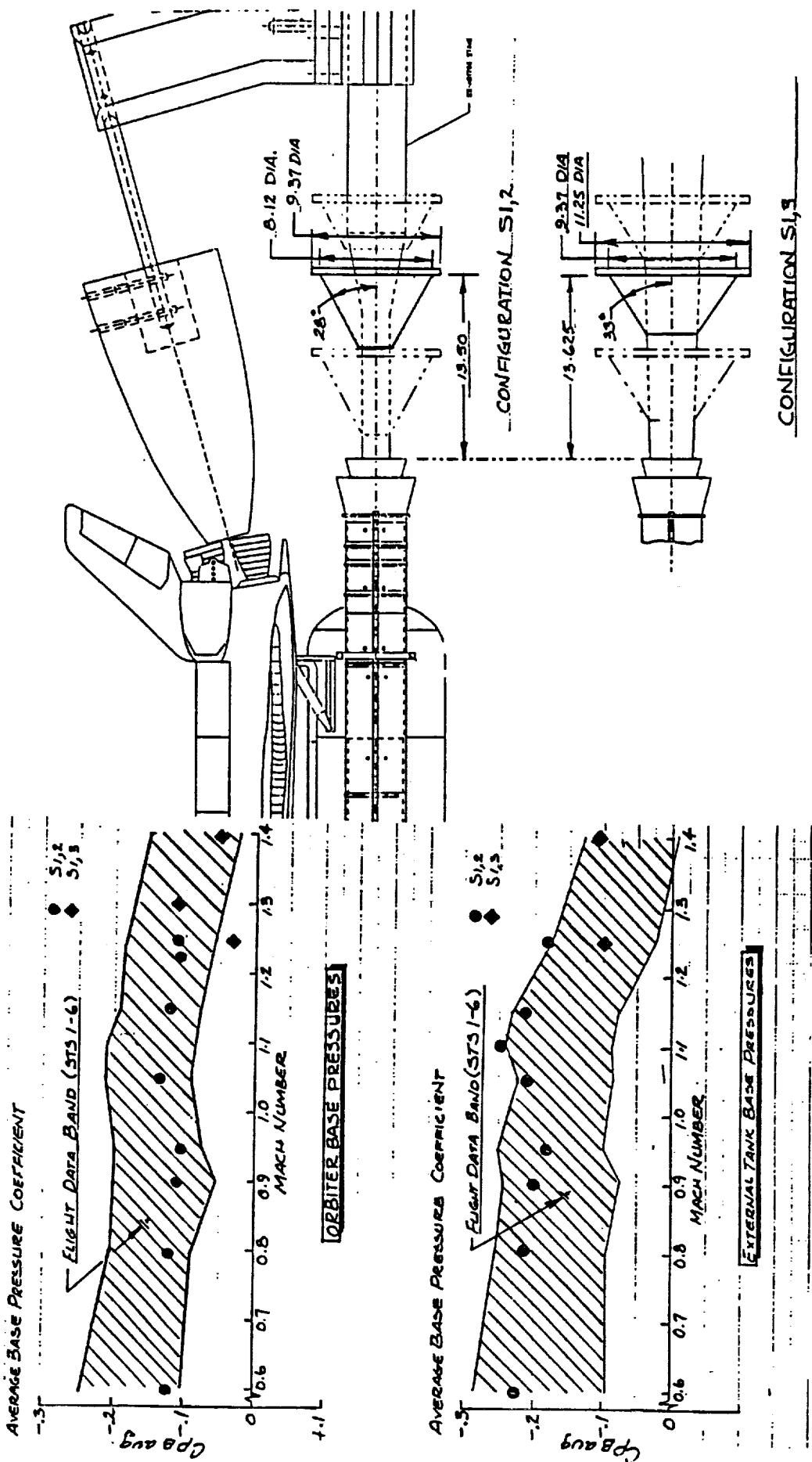


Figure 5 ; Selected Solid Plume Configuration & Base Pressure Match

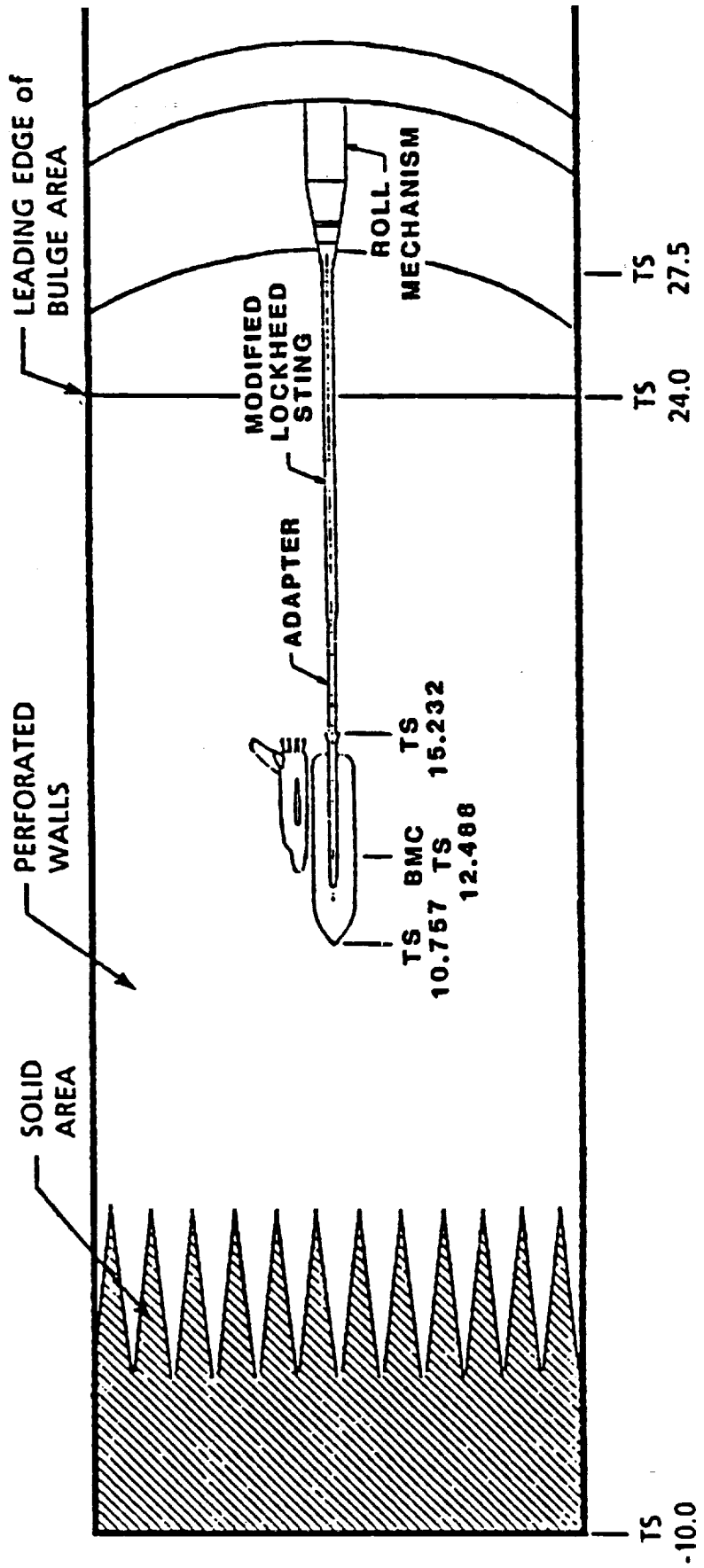


Figure 6 ; Model Installation in the AEDC 16'T Wind Tunnel



Figure 7.a: Model Installation - 3/4 Top Fwd. View - ASRM Configuration + Solid Plume



Figure 7.b: Model Installation - 3/4 Lwr. Fwd. View - RSRB Configuration w/o Solid Plume

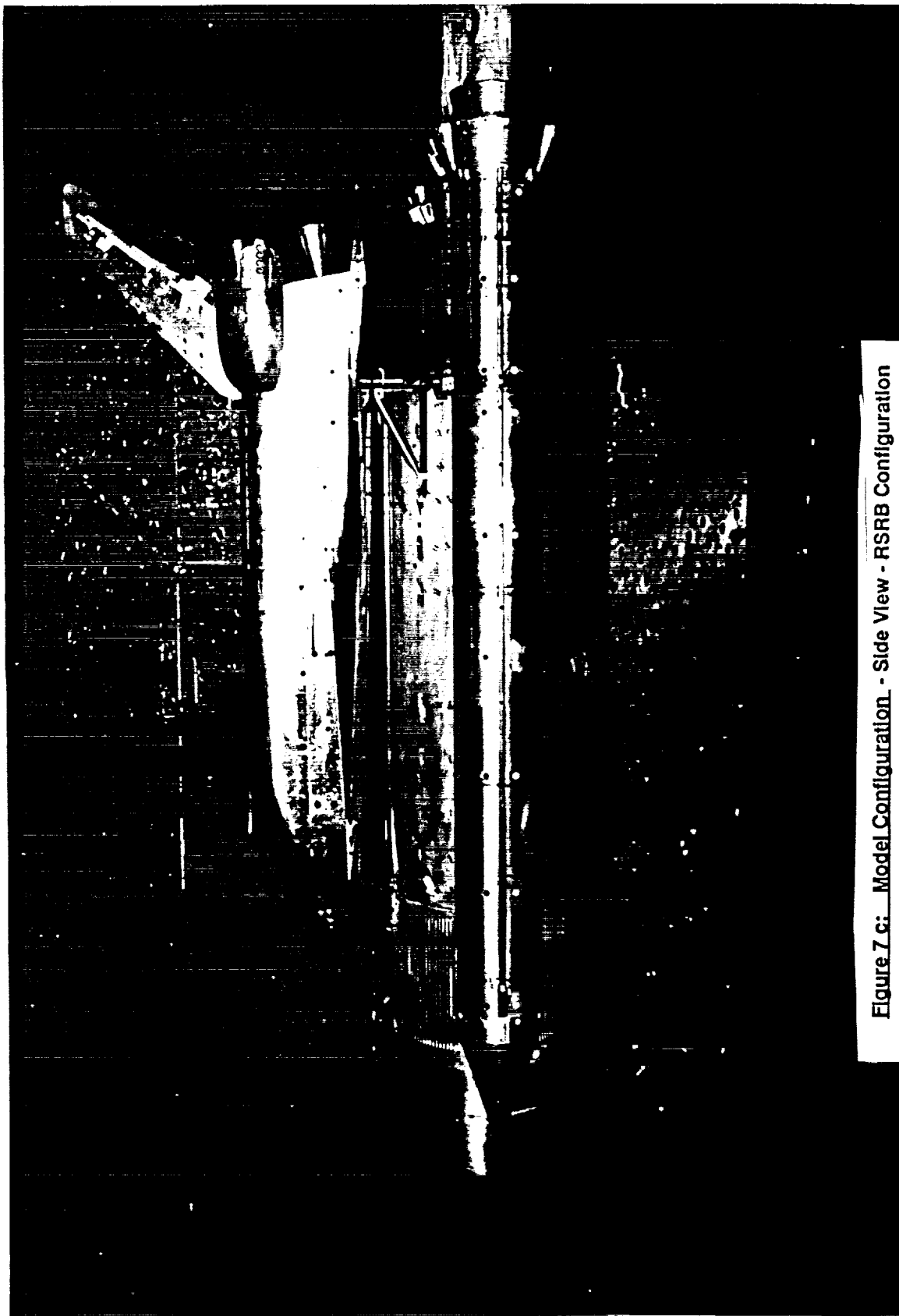


Figure 7 c: Model Configuration - Side View - RSRB Configuration

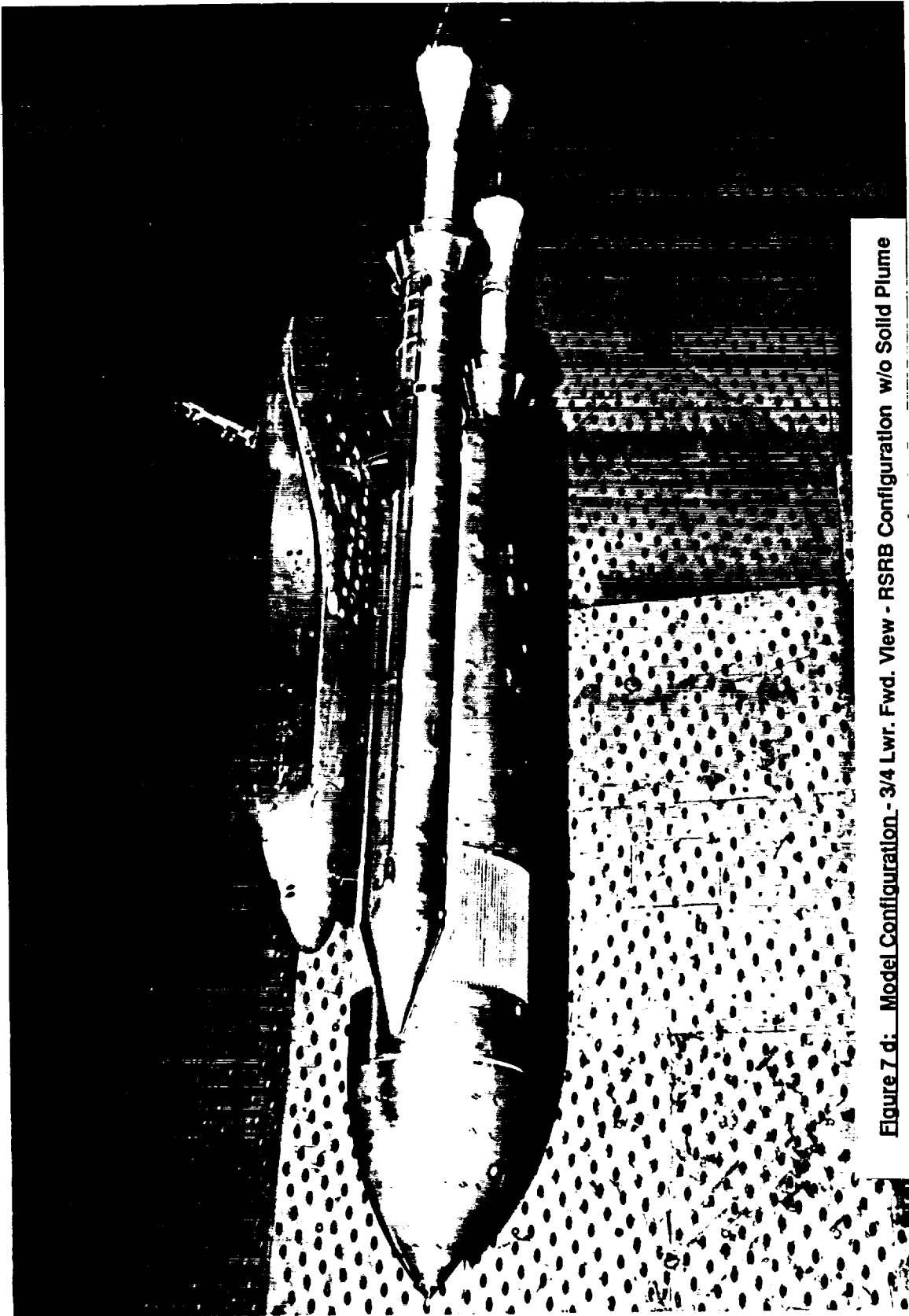


Figure 7 d: Model Configuration - 3/4 Lwr. Fwd. View - RSRB Configuration w/o Solid Plume

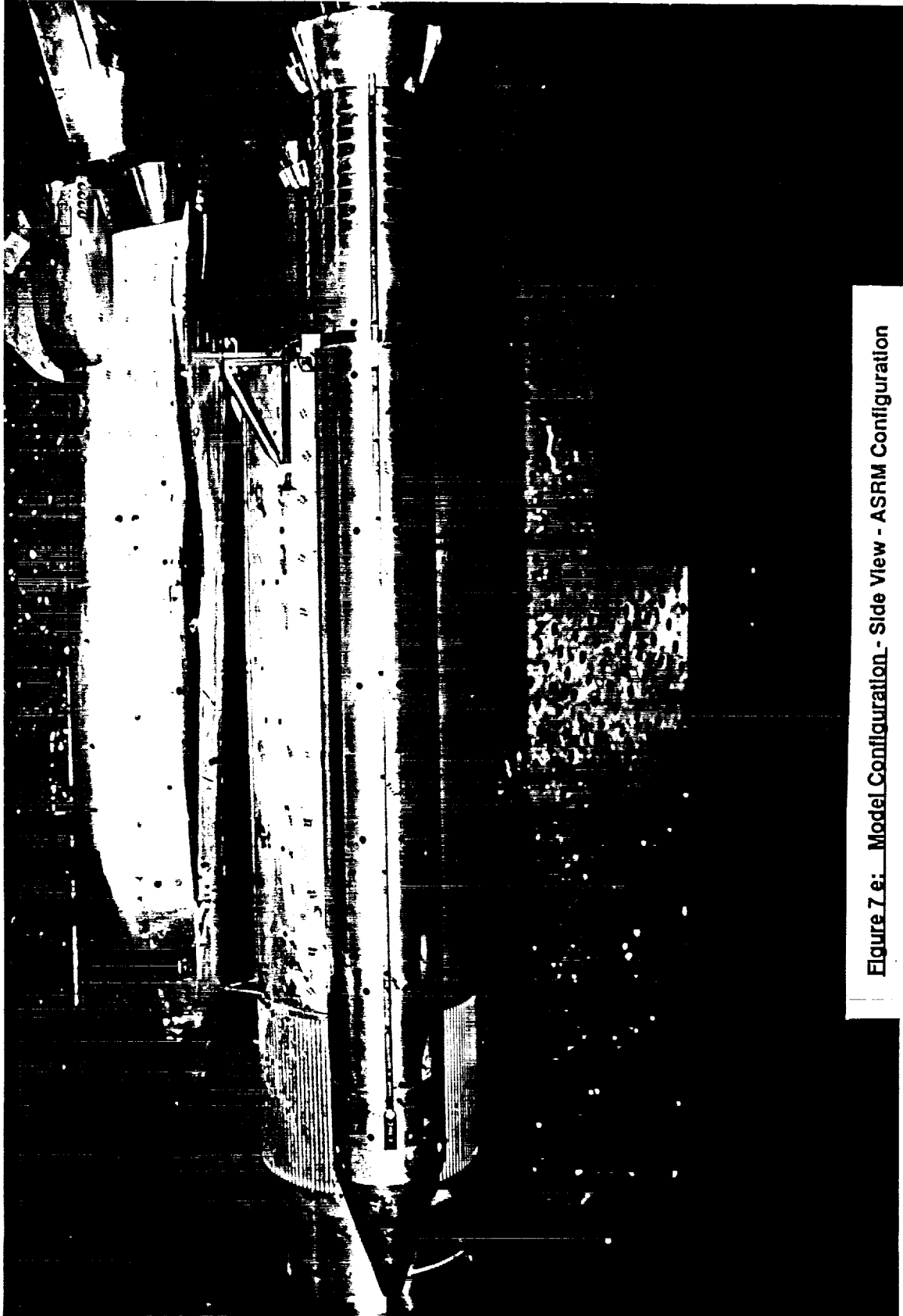


Figure 7.e: Model Configuration - Side View - ASRM Configuration

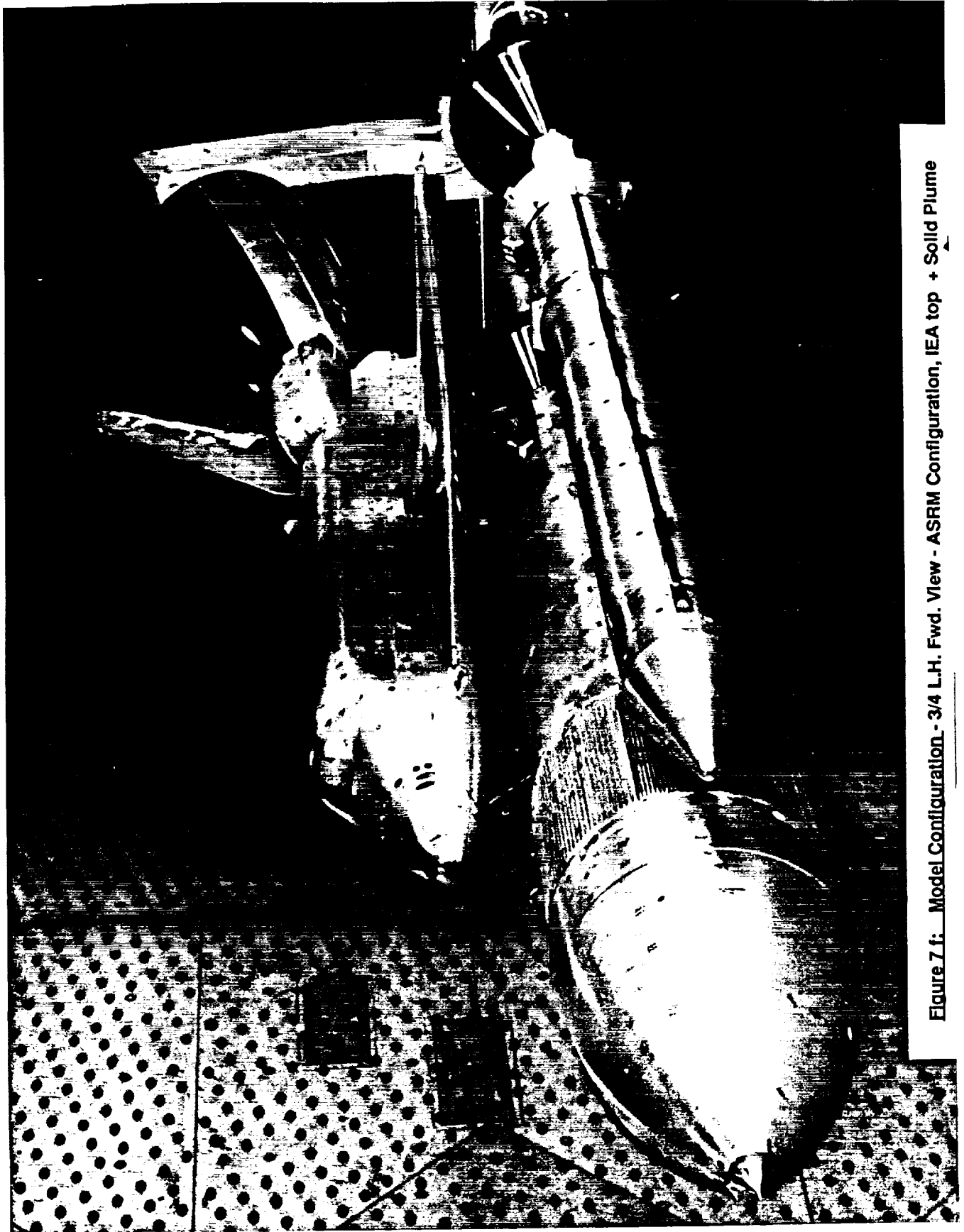


Figure 7 f: Model Configuration - 3/4 L.H. Fwd. View - ASRM Configuration, IEA top + Solid Plume

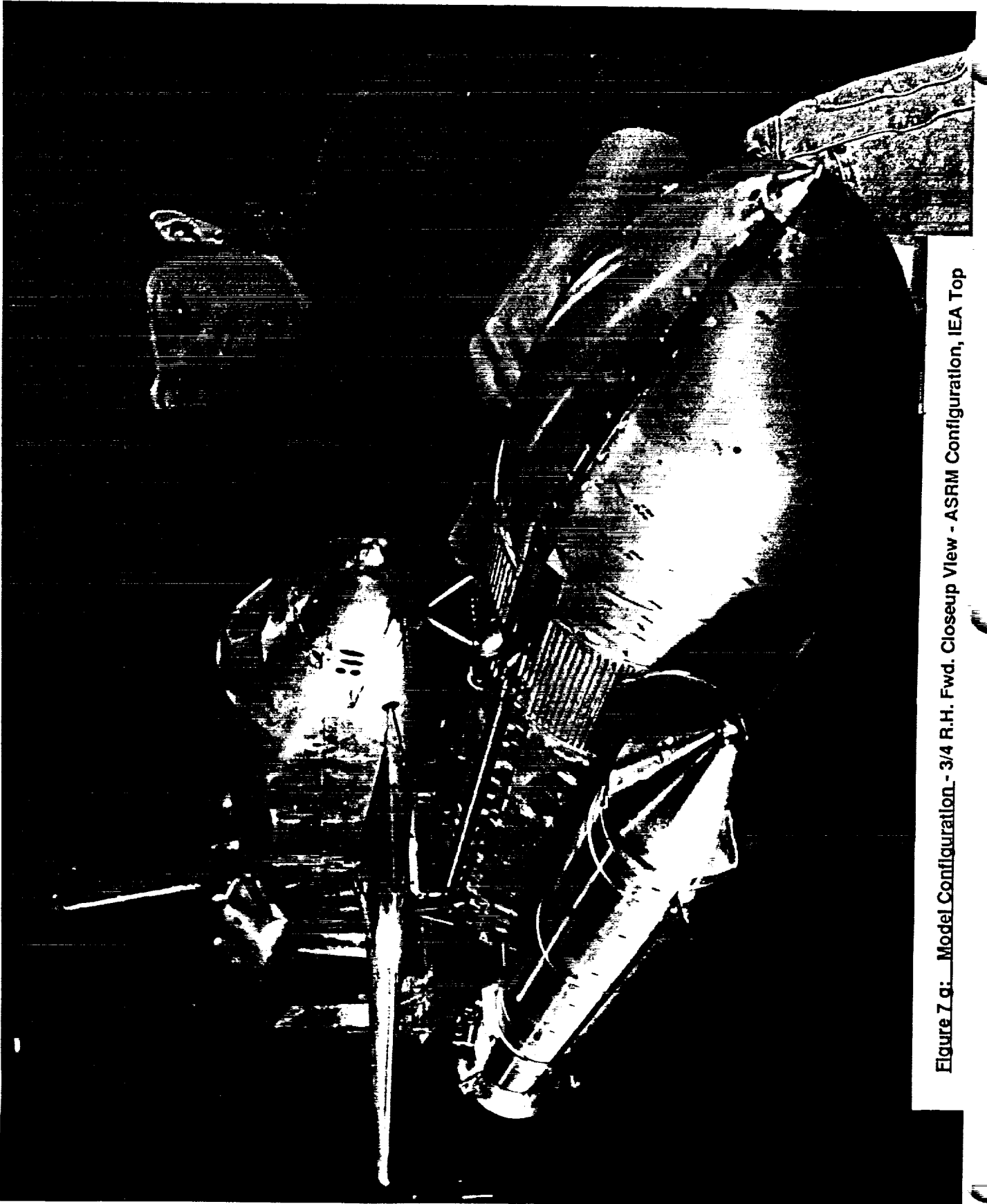


Figure 7 g: Model Configuration - 3/4 R.H. Fwd. Closeup View - ASRM Configuration, IEA Top



Figure 7 h: Model Configuration - 3/4 Lwr. Fwd. View - ASRM Configuration, IEA Bottom w/o Solid Plume

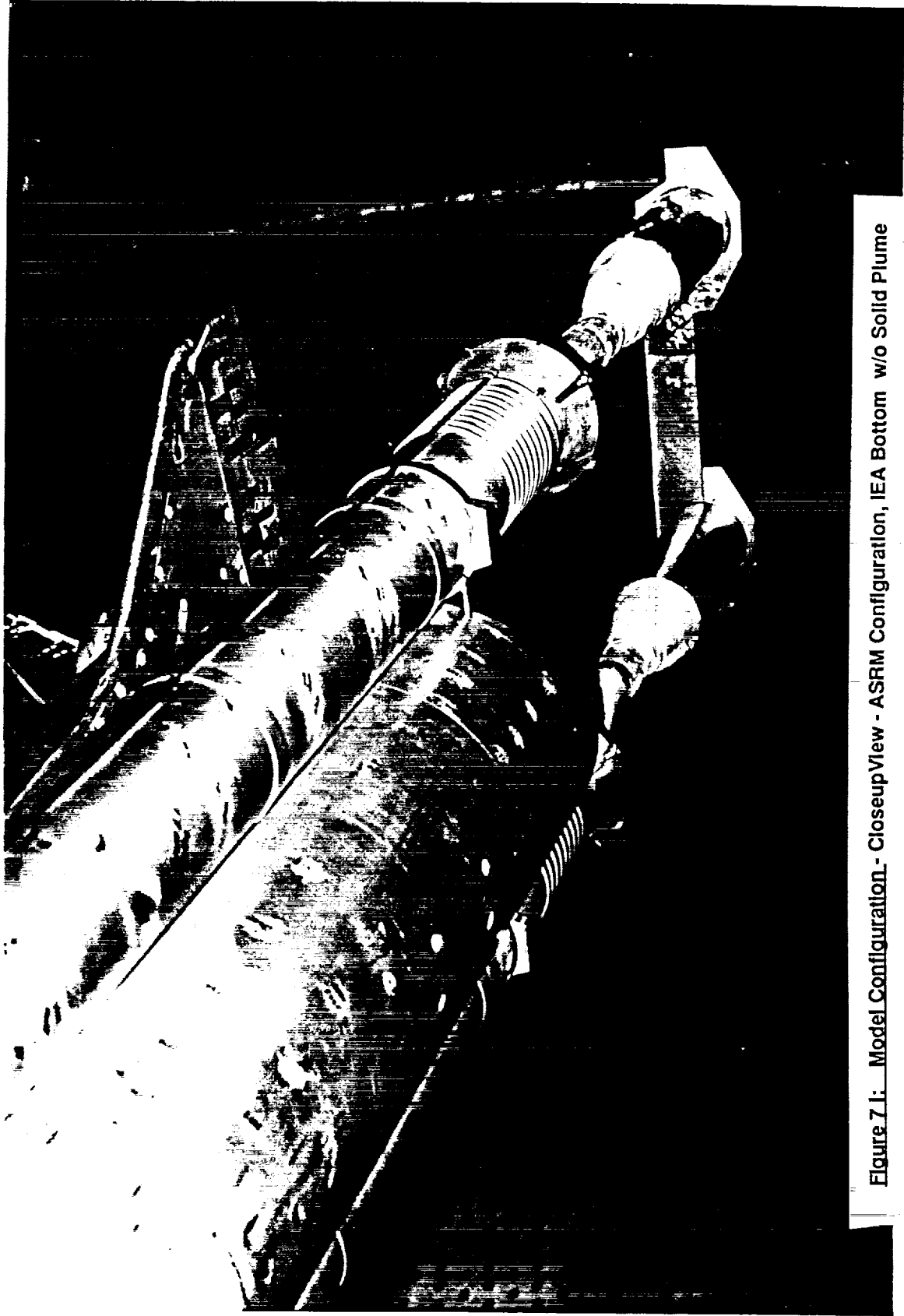


Figure 7 I: Model Configuration - CloseupView - ASRM Configuration, IEA Bottom w/o Solid Plume

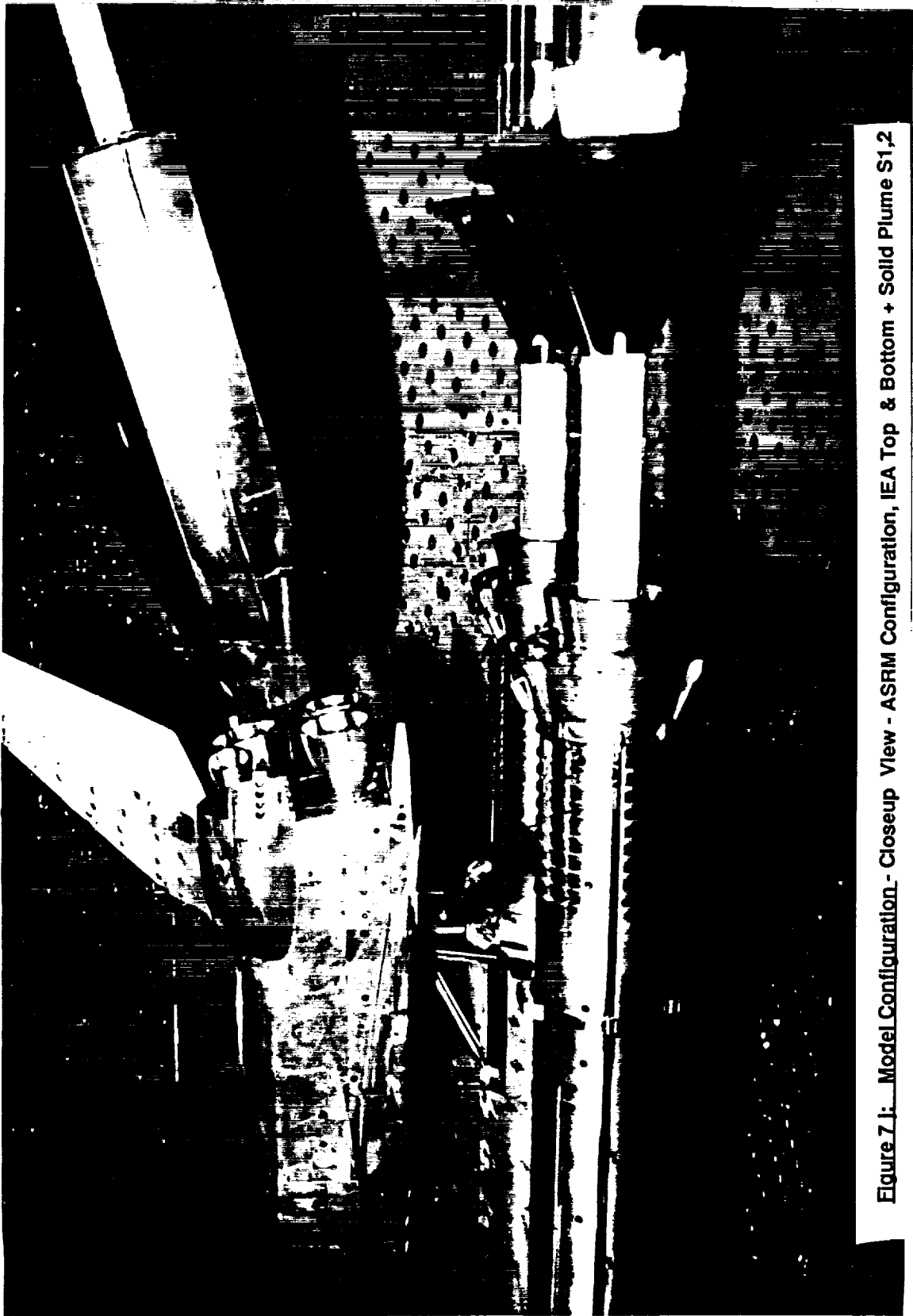


Figure 7 j: Model Configuration - Closeup View - ASRM Configuration, IEA Top & Bottom + Solid Plume S1,2

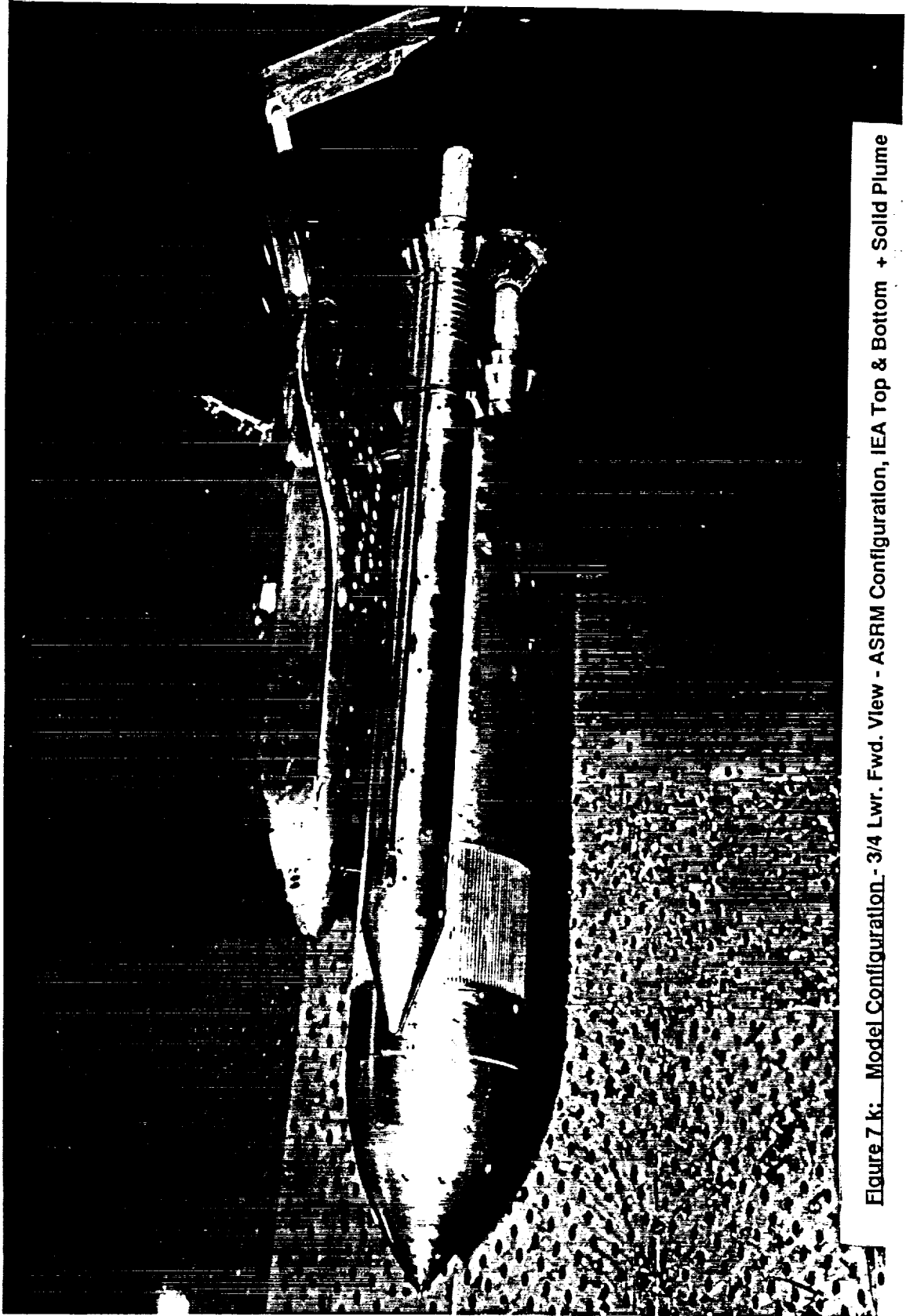


Figure 7 k: Model Configuration - 3/4 Lwr. Fwd. View - ASRM Configuration, IEA Top & Bottom + Solid Plume

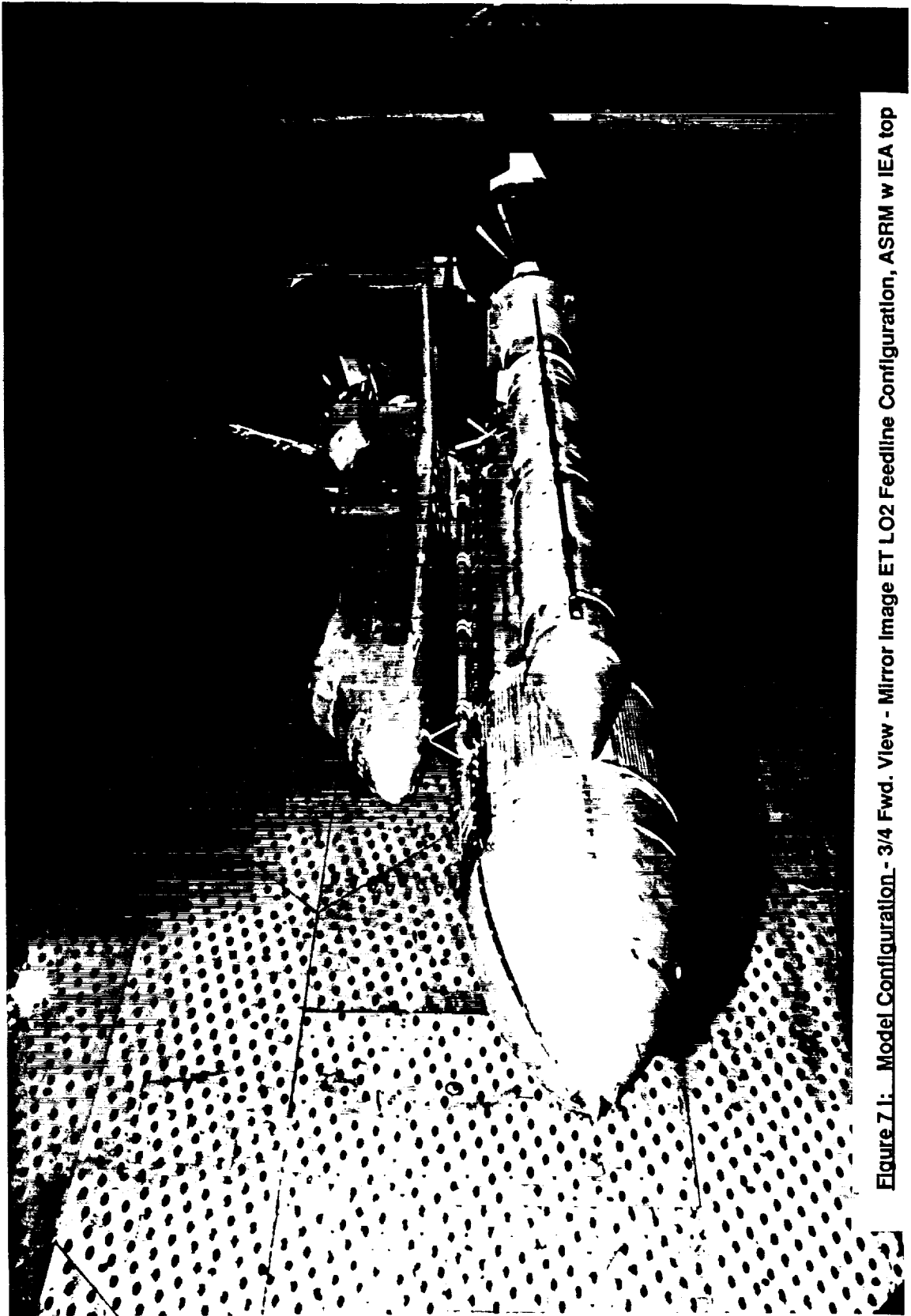


Figure 7.1: Model Configuration - 3/4 Fwd. View - Mirror Image ET LO2 Feedline Configuration, ASRM w IEA top

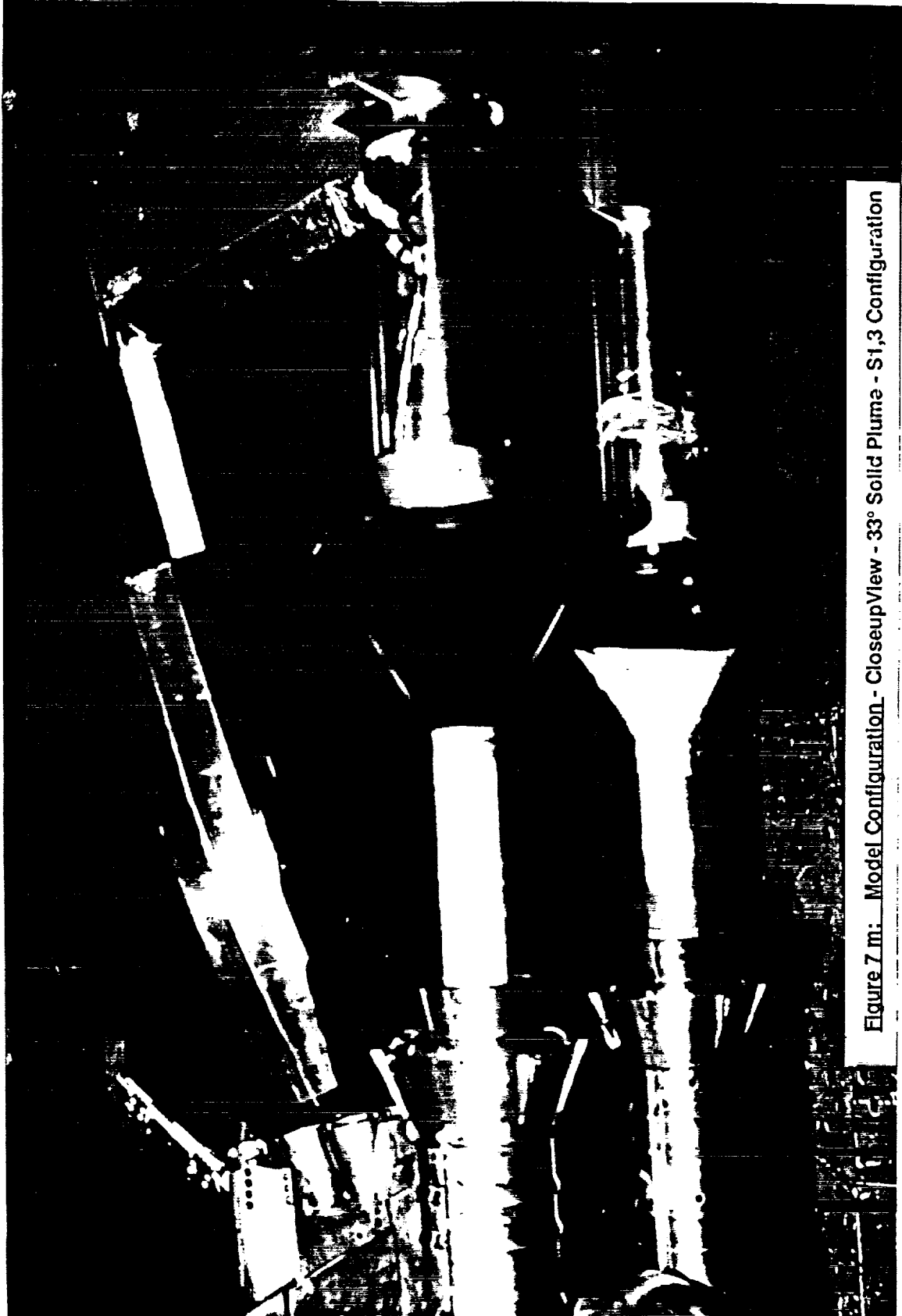
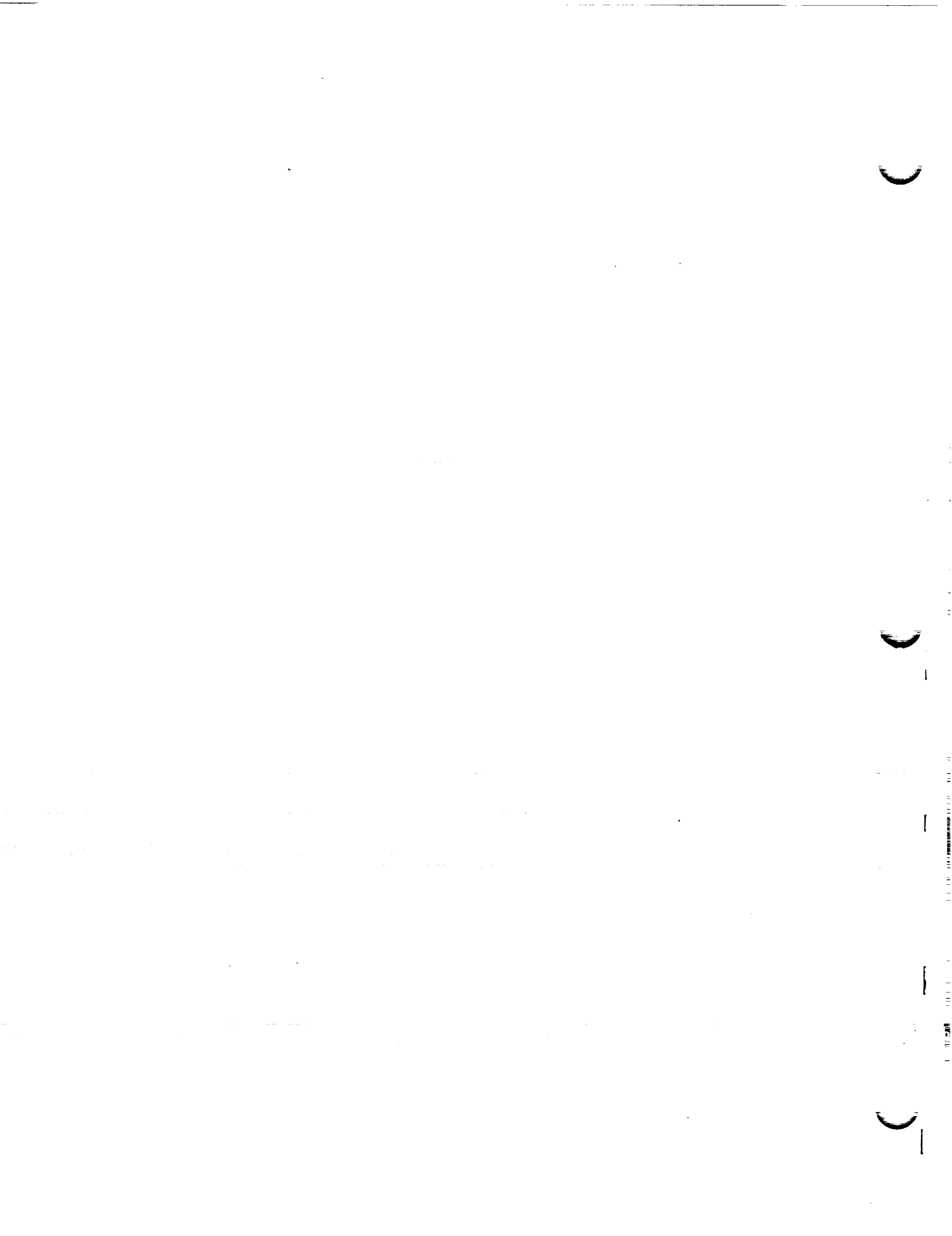


Figure 7.m: Model Configuration - Closeup View - 33° Solid Plume - S1,3 Configuration

DATA FIGURES

(PRESSURE)



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOB15)	IA613A-B/L OT+ASRM+PLUMES S1.2 -ORB. FUSE. & OMS	.600	.000	10.000	9.000
(RCOB16)	IA613A-B/L OT+ASRM+PLUMES S1.2 -ORB. FUSE. & OMS	.600	.000	10.000	9.000
(RCOB17)	IA613A-B/L OT+ASRM+PLUMES S1.2 -ORB. FUSE. & OMS	.600	180.000	10.000	9.000
(RCOB18)	IA613A-B/L OT+ASRM+PLUMES S1.2 -ORB. FUSE. & OMS	.600	999.000	10.000	5.000

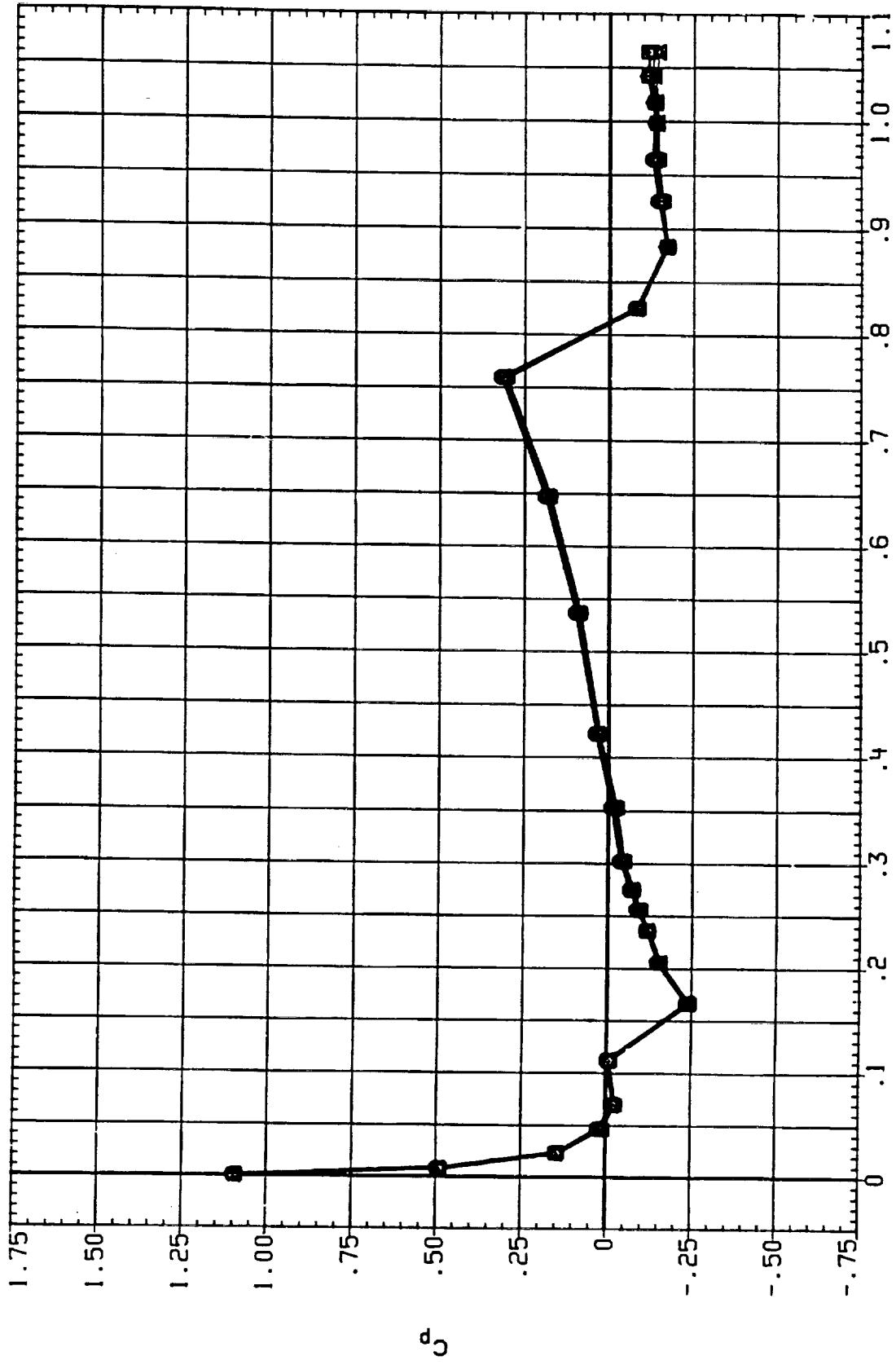


FIGURE 1 IA613A SELECTED PRESSURE DISTRIBUTIONS
ORBITER FUSELAGE

BETA = .000 PHI = .000 ALPHA = .000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELY	OB-ELY
(RC0815)	IAG13A,B/L OT+RSRM+PLUMES S1.2 -ORB. FUSE. & OMS	.600	.000	10.000	9.000
(RC0812)	IAG13A,B/L OT+ASRM+PLUMES S1.2 -ORB. FUSE. & OMS	.600	.000	10.000	9.000
(RC0880)	IAG13A,B/L OT+ASRM+PLUMES S1.2 -ORB. FUSE. & OMS	.600	180.000	10.000	9.000
(RC08C1)	IAG13A,B/L OT+ASRM+PLUMES S1.2 -ORB. FUSE. & OMS	.600	999.000	10.000	5.000

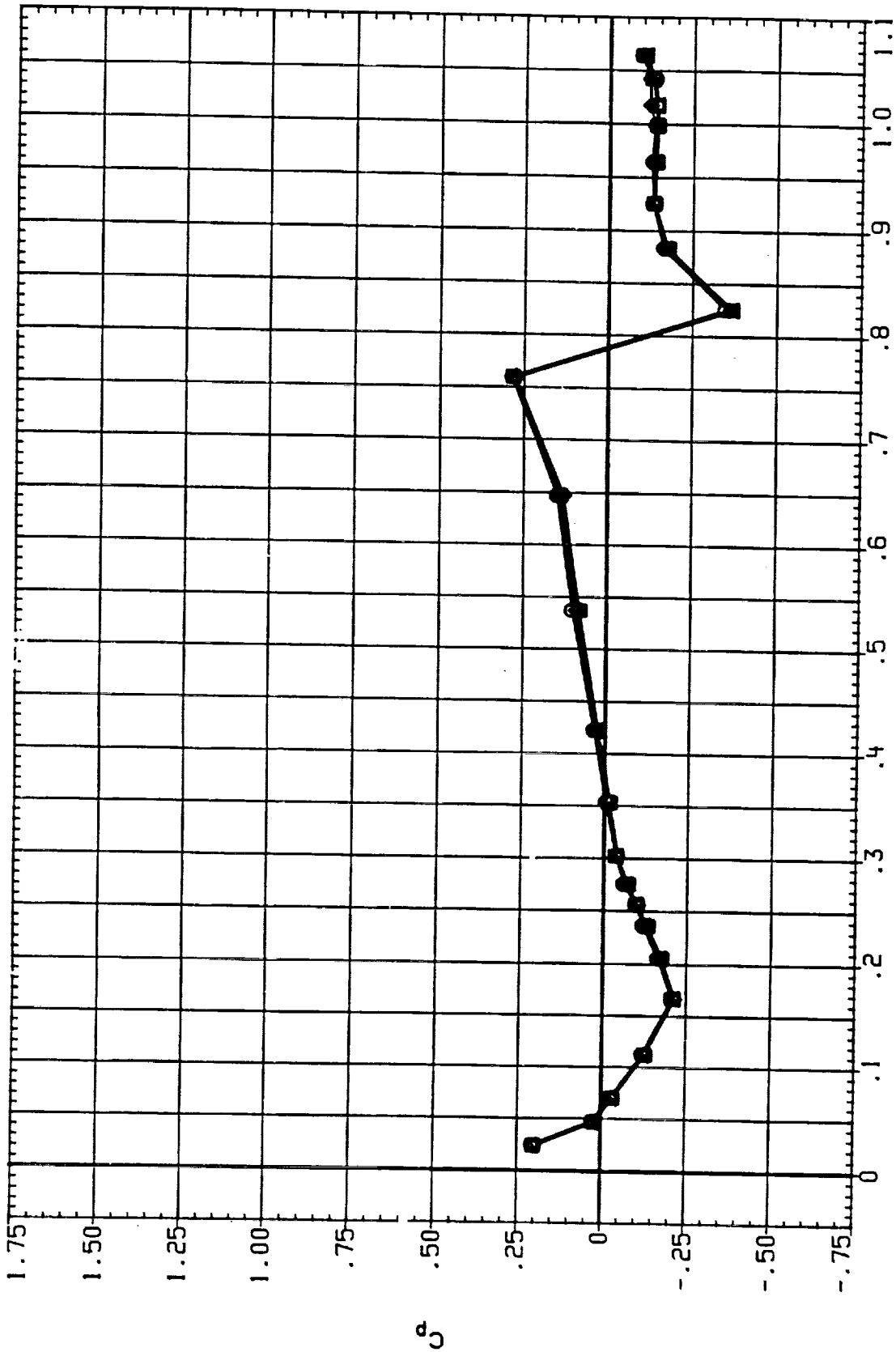


FIGURE 1 IAG13A SELECTED PRESSURE DISTRIBUTIONS
ORBITER FUSELAGE

BETA = .000 PHI = 40.000 ALPHA = .000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RC0816)	IA613A.8/L OT+ASRM+PLUMES S1.2 -ORB. FUSE. & OHS	.800	.000	10.000	9.000
(RC0813)	IA613A.8/L OT+ASRM+PLUMES S1.2 -ORB. FUSE. & OHS	.800	.000	10.000	9.000
(RC0881)	IA613A.8/L OT+ASRM+PLUMES S1.2 -ORB. FUSE. & OHS	.800	180.000	10.000	9.000

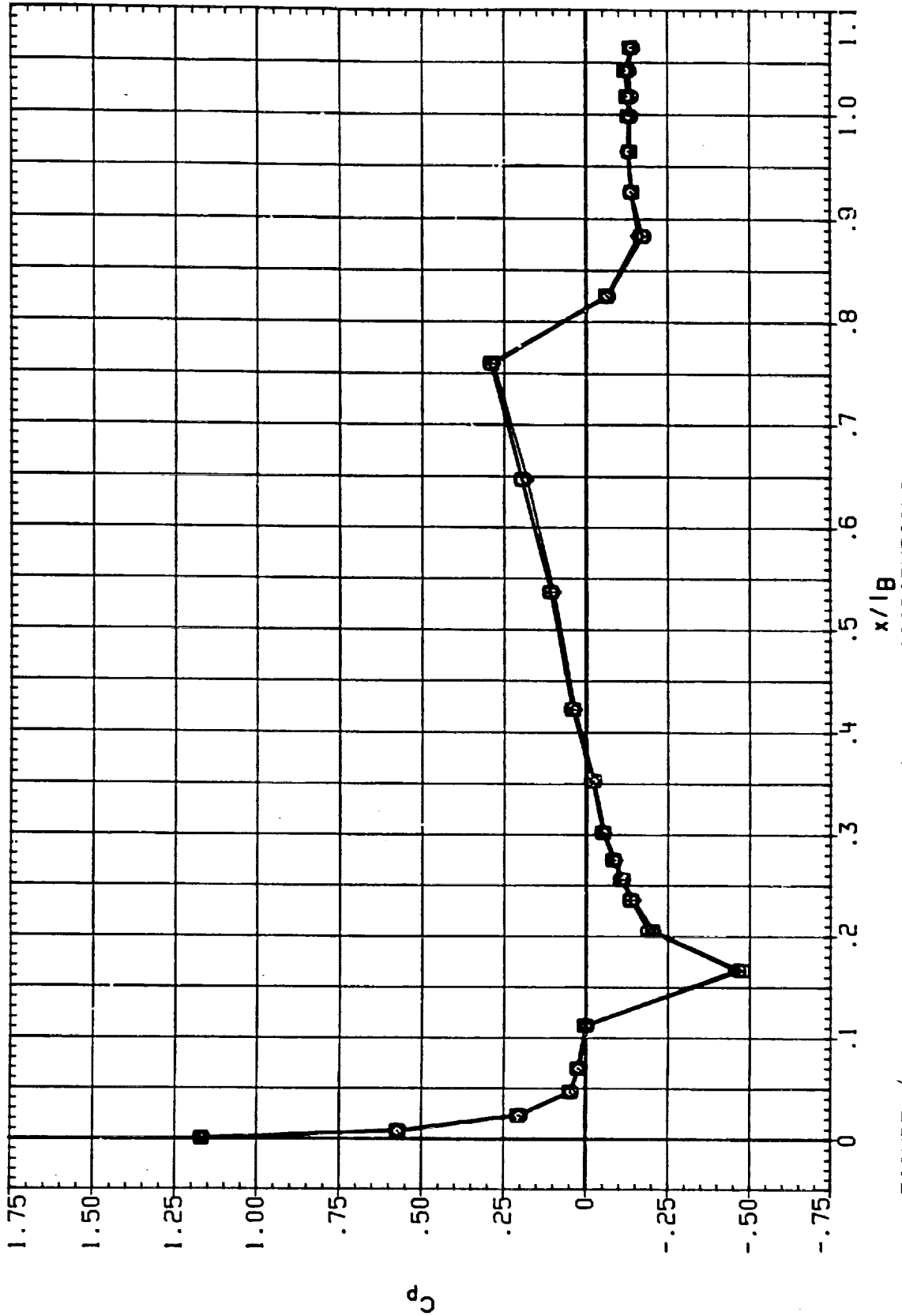


FIGURE 1 IA613A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER FUSELAGE ALPHA = .000
 BETA = .000 PHI = .000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MACH	1EABOX	1B-ELV	0B-ELV
(RC0816)	IA613A.B/L OT+PSRM+PLUMES S1.2 -ORB. FUSE. & OHS	.800	.000	10.000	9.000
(RC0813)	IA613A.B/L OT+ASRM+PLUMES S1.2 -ORB. FUSE. & OHS	.800	.000	10.000	9.000
(RC08B1)	IA613A.B/L OT+ASRM+PLUMES S1.2 -ORB. FUSE. & OHS	.800	180.000	10.000	9.000

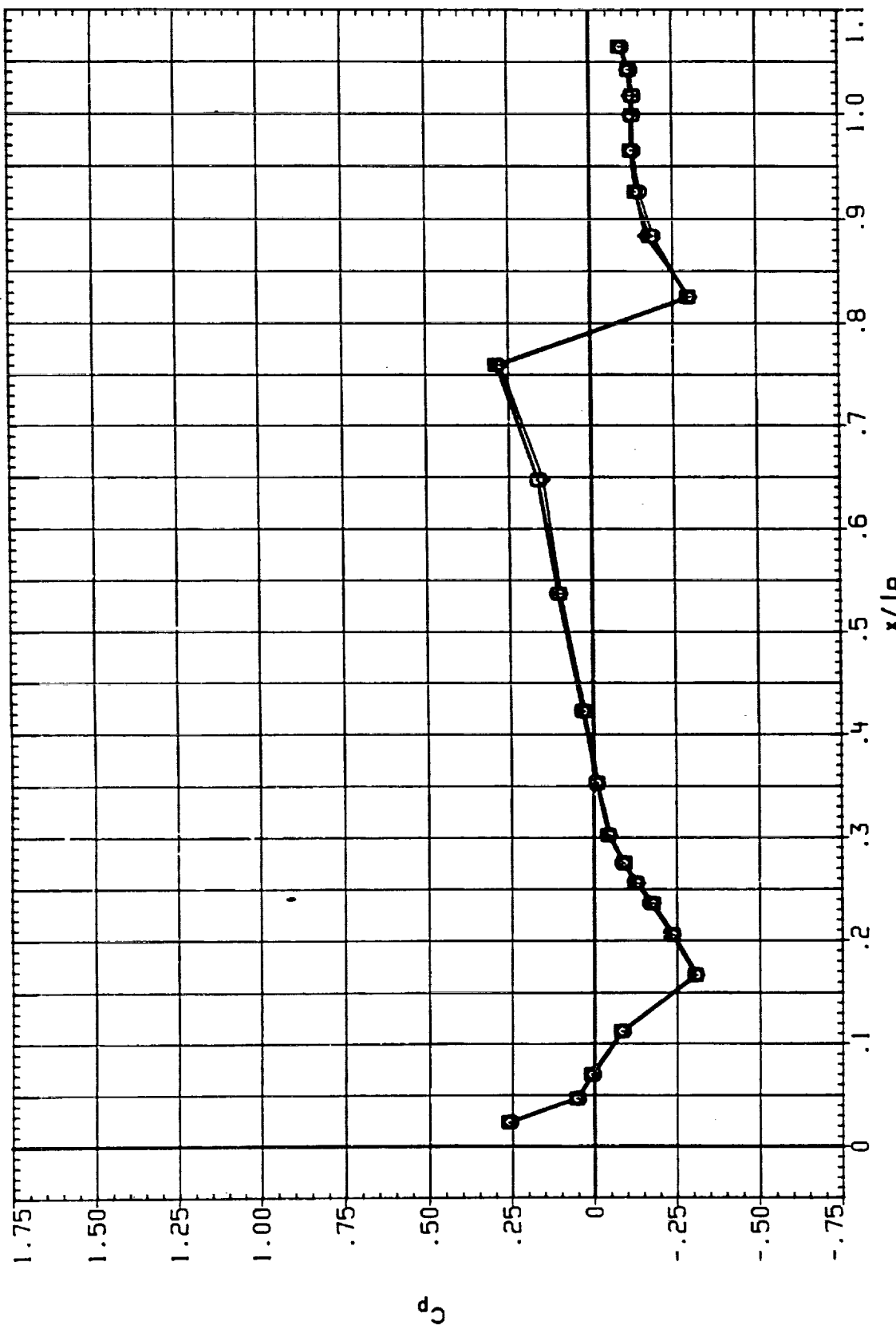


FIGURE 1 IA613A SELECTED PRESSURE DISTRIBUTIONS
ORBITER FUSELAGE

BETA = .000 PHI = 40.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IE-BOX	IB-ELV	OB-ELV
(RC0817)	□	I A613A, B/L OT*ASRH*PLUMES S1.2 -ORB. FUSE. & OMS	.900	.000	10.000	9.000
(RC0844)	□	I A613A, B/L OT*ASRH*PLUMES S1.2 -ORB. FUSE. & OMS	.900	.000	10.000	9.000
(RC0882)	◇	I A613A, B/L OT*ASRH*PLUMES S1.2 -ORB. FUSE. & OMS	.900	180.000	10.000	9.000
(RC08C2)	△	I A613A, B/L OT*ASRH*PLUMES S1.2 -ORB. FUSE. & OMS	.900	999.000	10.000	5.000

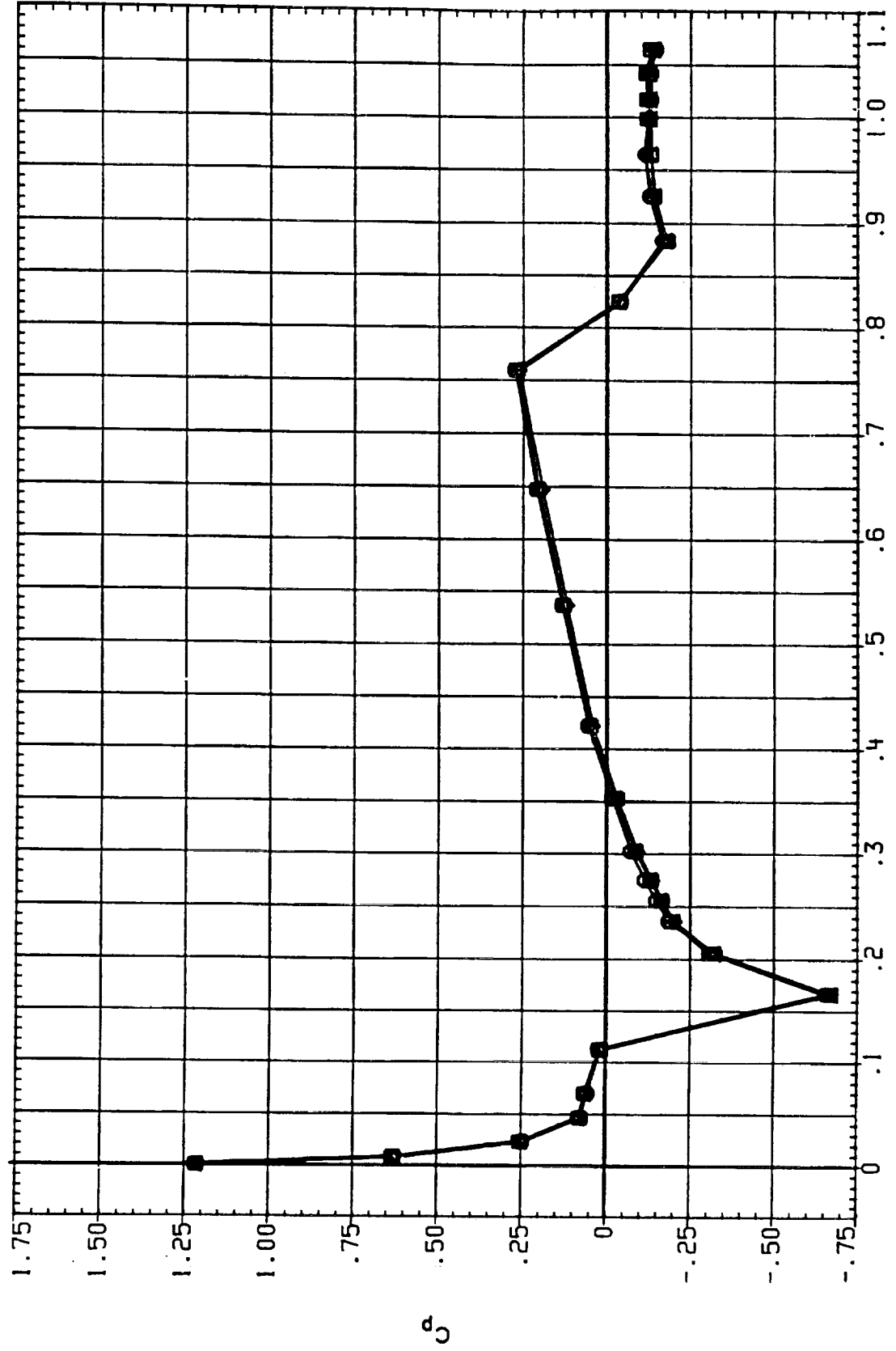


FIGURE 1 I A613A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER FUSELAGE
 BETA = .000 PHI = .000 ALPHA = .000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RC0817)	IA613A, B/L OT+RSRH+PLUMES S1,2 -ORB. FUSE. & OMS	.900	.000	10.000	9.000
(RC0844)	IA613A, B/L OT+ASRH+PLUMES S1,2 -ORB. FUSE. & OMS	.900	.000	10.000	9.000
(RC08B2)	IA613A, B/L OT+ASRH+PLUMES S1,2 -ORB. FUSE. & OMS	.900	180.000	10.000	9.000
(RC08C2)	IA613A, B/L OT+ASRH+PLUMES S1,2 -ORB. FUSE. & OMS	.900	939.000	10.000	5.000

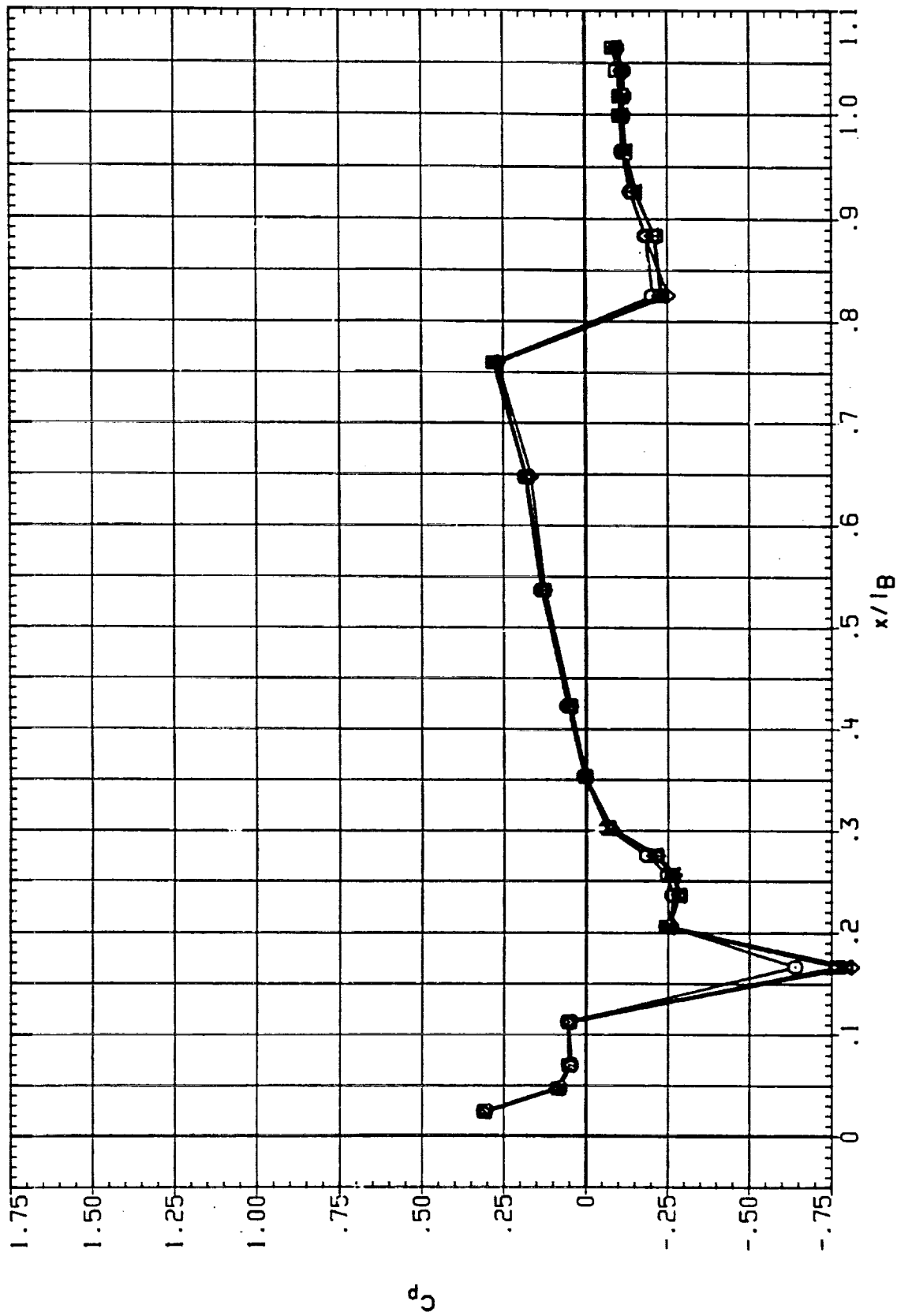


FIGURE 1 IA613A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER FUSELAGE ALPHA = .000
 BETA = .000 PHI = 40.000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RC0818)	IA613A, B/L OT+RSRM+PLUMES S1.2 -ORB. FUSE. & OHS	.950	.000	10.000	9.000
(RC0845)	IA613A, B/L OT+ASRM+PLUMES S1.2 -ORB. FUSE. & OHS	.950	.000	10.000	9.000
(RC0983)	IA613A, B/L OT+ASRM+PLUMES S1.2 -ORB. FUSE. & OHS	.950	180.000	10.000	9.000

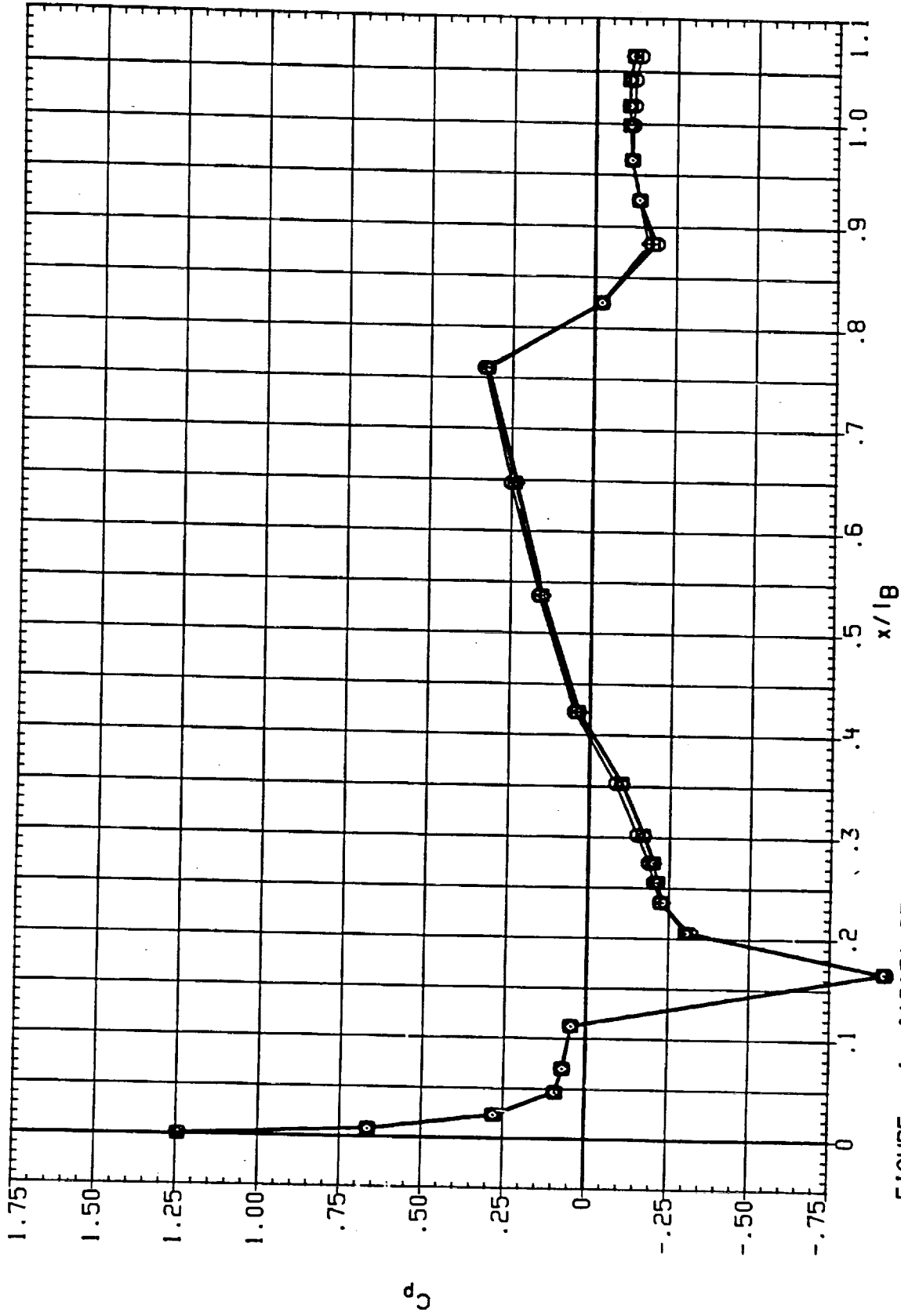
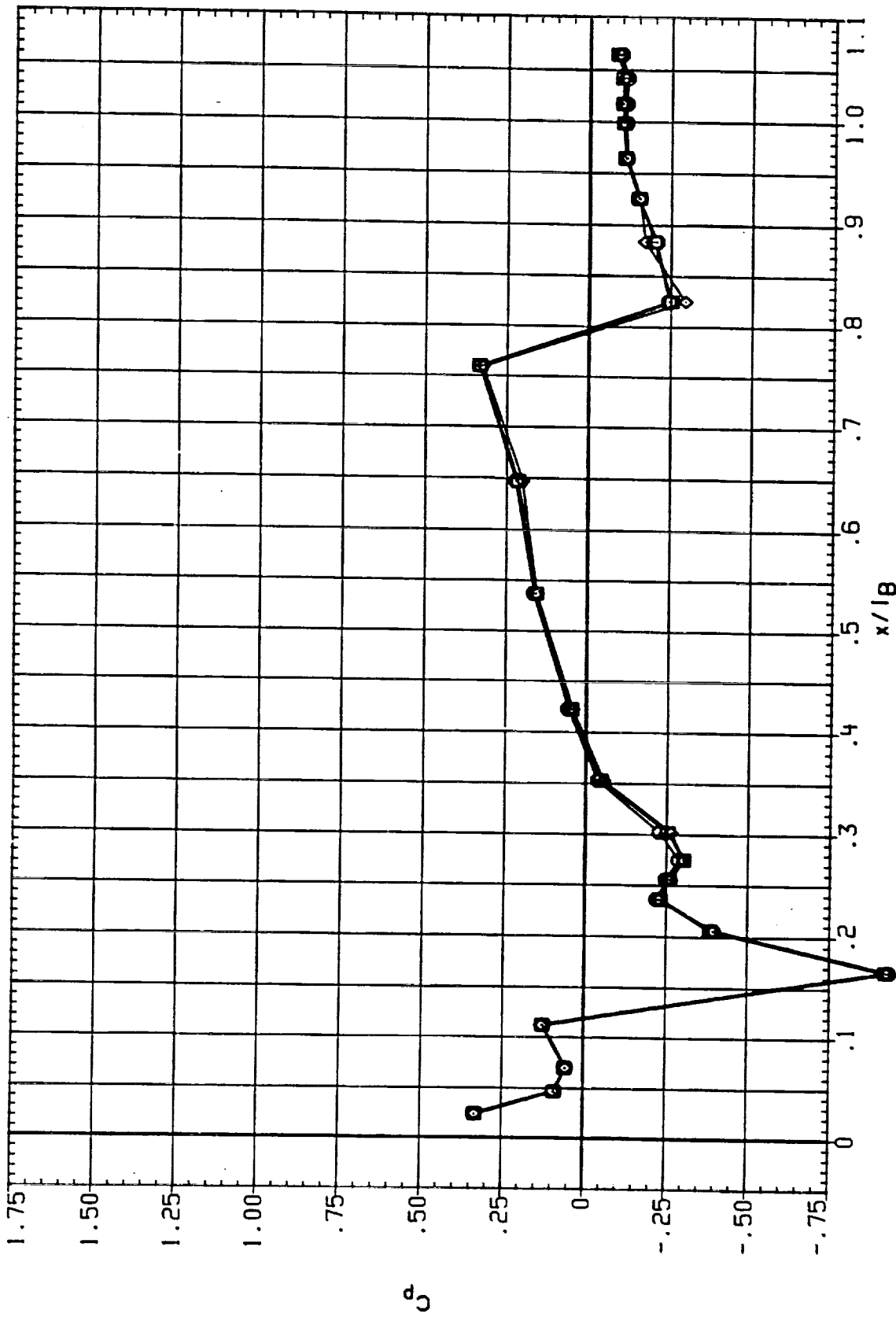


FIGURE 1 IA613A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER FUSELAGE ALPHA = .000
 BETA = .000 PHI = .000

DATA SET SYMBOL CONFIGURATION DESCRIPTION MACH IEABOX IB-ELV OB-ELV
 (RC0818) ○ IAG13A,B/L OT*ASRM*PLUMES S1.2 -ORB. FUSE. & OMS .950 .000 10.000 9.000
 (RC0845) □ IAG13A,B/L OT*ASRM*PLUMES S1.2 -ORB. FUSE. & OMS .950 .000 10.000 9.000
 (RC0883) ◇ IAG13A,B/L OT*ASRM*PLUMES S1.2 -ORB. FUSE. & OMS .950 180.000 10.000 9.000



BETA = .000 PHI = 40.000 ALPHA = .000
 FIGURE 1 IAG13A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER FUSELAGE

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MACH	IE-BOX	IB-ELV	OB-ELV
(K0819)	IA613A,B/L OT+RSRH+PLUMES S1.2 -ORB. FUSE. & OMS	1.050	.000	10.000	9.000
(RC0816)	IA613A,B/L OT+ASRM+PLUMES S1.2 -ORB. FUSE. & OMS	1.050	.000	10.000	9.000
(RC0884)	IA613A,B/L OT+ASRM+PLUMES S1.2 -ORB. FUSE. & OMS	1.050	180.000	10.000	9.000

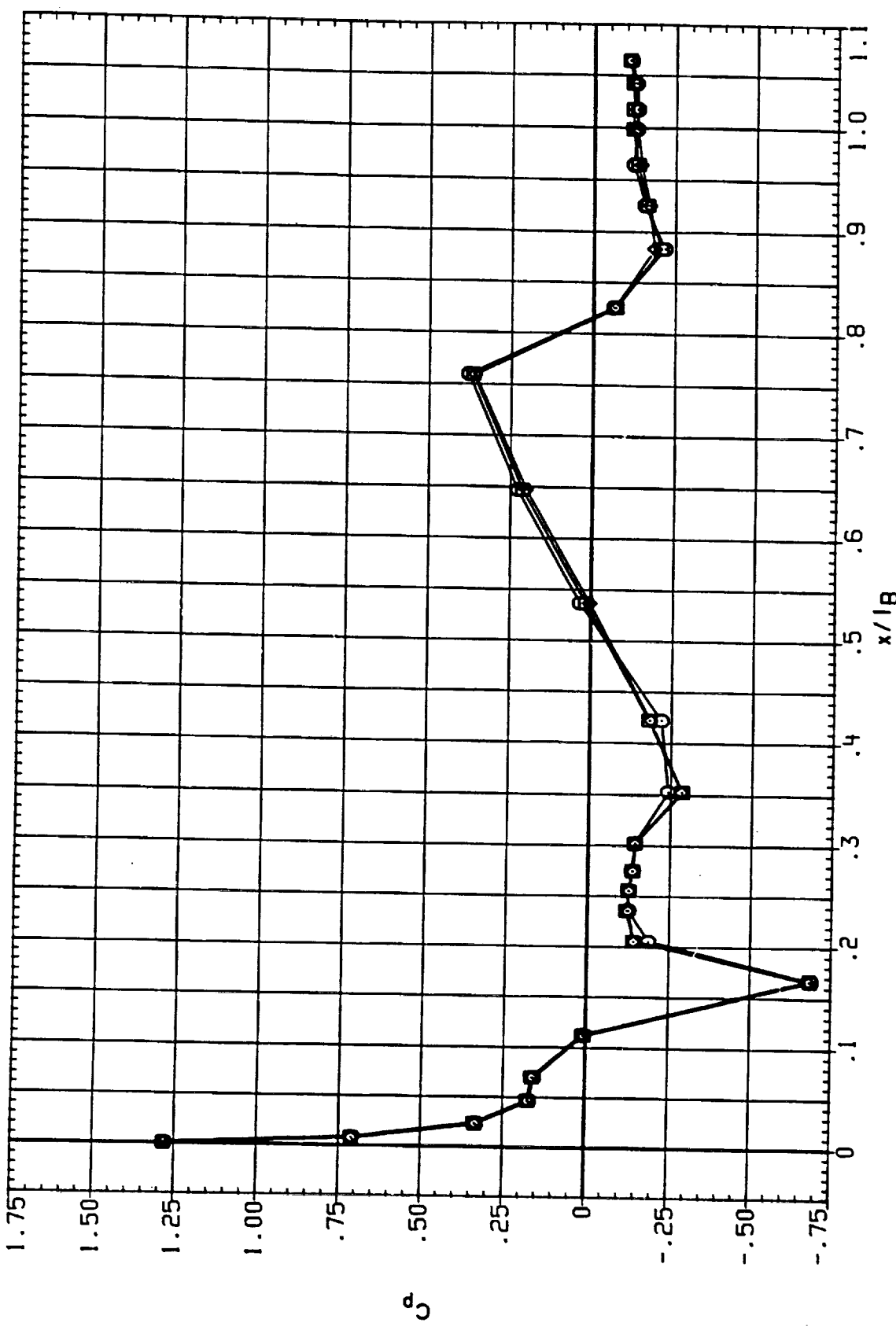


FIGURE 1 IA613A SELECTED PRESSURE DISTRIBUTIONS
ORBITER FUSELAGE

BETA = .000 PHI = .000 ALPHA = .000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RC0819)	IA613A, B/L OT+RSRM+PLUMES S1,2 -ORB. FUSE. & OMS	1.050	.000	10.000	9.000
(RC0846)	IA613A, B/L OT+ASRM+PLUMES S1,2 -ORB. FUSE. & OMS	1.050	.000	10.000	9.000
(RC0881)	IA613A, B/L OT+ASRM+PLUMES S1,2 -ORB. FUSE. & OMS	1.050	180.000	10.000	9.000

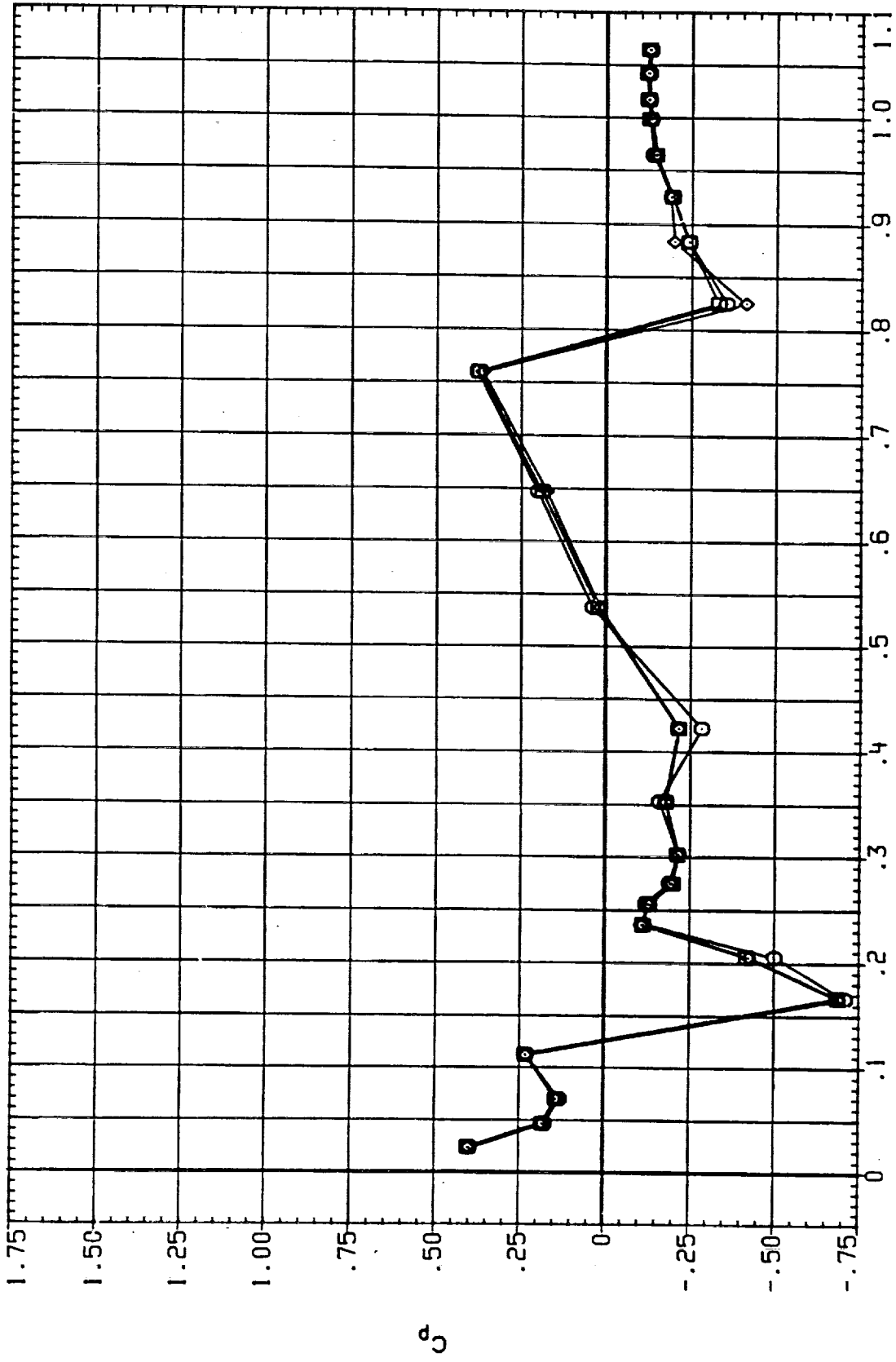


FIGURE 1 IA613A SELECTED PRESSURE DISTRIBUTIONS
ORBITER FUSELAGE

BETA = .000 PHI = 40.000 ALPHA = .000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RC080)	IA613A, B/L OT+SRM+PLUMES S1.2 -ORB. FUSE. & OHS	1.100	.000	10.000	9.000
(RC0847)	IA613A, B/L OT+SRM+PLUMES S1.2 -ORB. FUSE. & OHS	1.100	.000	10.000	9.000
(RC0885)	IA613A, B/L OT+SRM+PLUMES S1.2 -ORB. FUSE. & OHS	1.100	180.000	10.000	9.000
(RC0883)	IA613A, B/L OT+SRM+PLUMES S1.2 -ORB. FUSE. & OHS	1.100	999.000	10.000	5.000

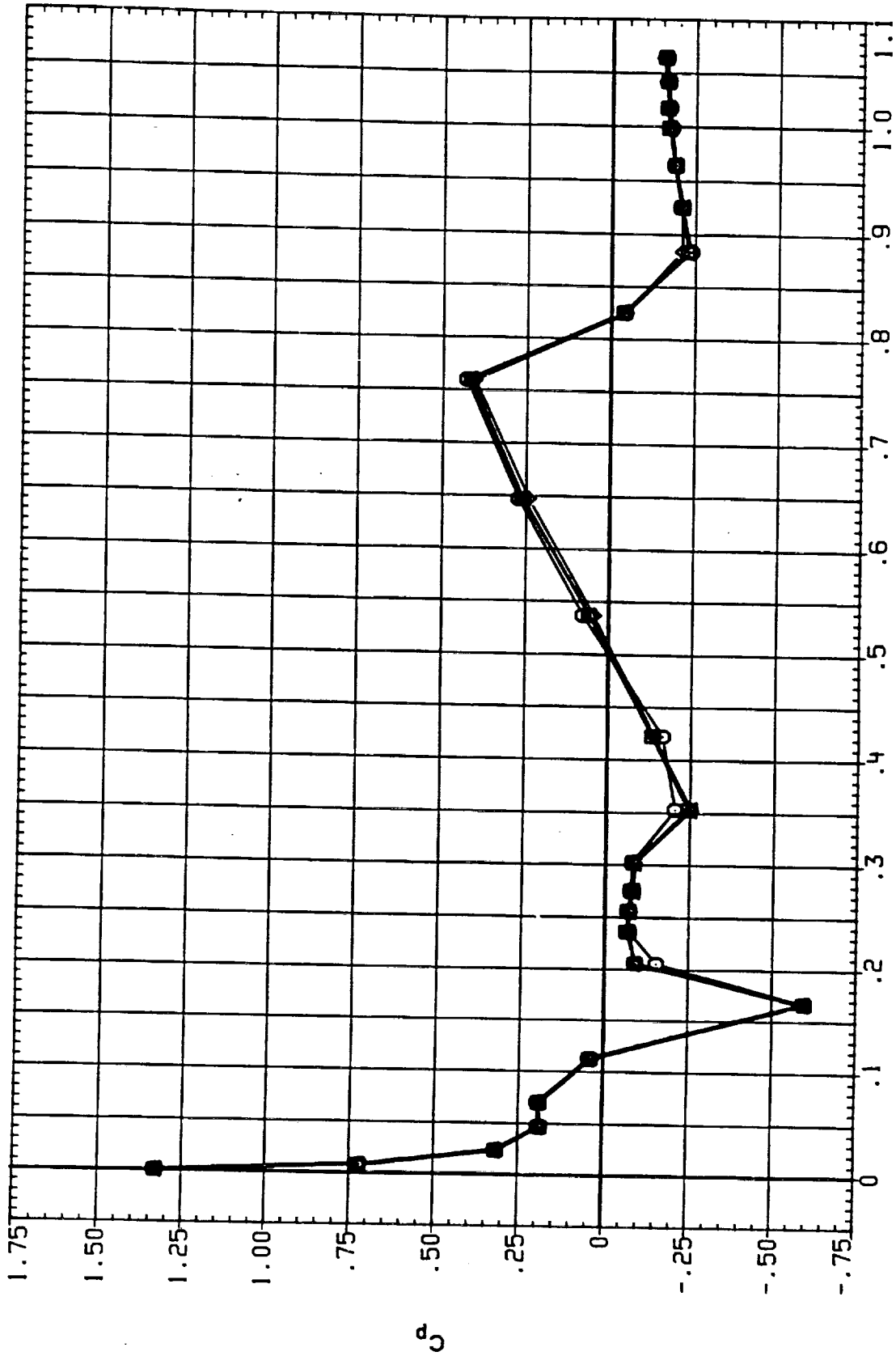


FIGURE 1 IA613A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER FUSELAGE
 BETA = .000 PHI = .000 ALPHA = .000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RC0820)	14613A, B/L OT+SRM+PLUMES S1.2 -ORB. FUSE. & OHS	1.100	.000	10.000	9.000
(RC0871)	14613A, B/L OT+ASRM+PLUMES S1.2 -ORB. FUSE. & OHS	1.100	.000	10.000	9.000
(RC0885)	14613A, B/L OT+ASRM+PLUMES S1.2 -ORB. FUSE. & OHS	1.100	180.000	10.000	9.000
(RC08C31)	14613A, B/L OT+ASRM+PLUMES S1.2 -ORB. FUSE. & OHS	1.100	999.000	10.000	5.000

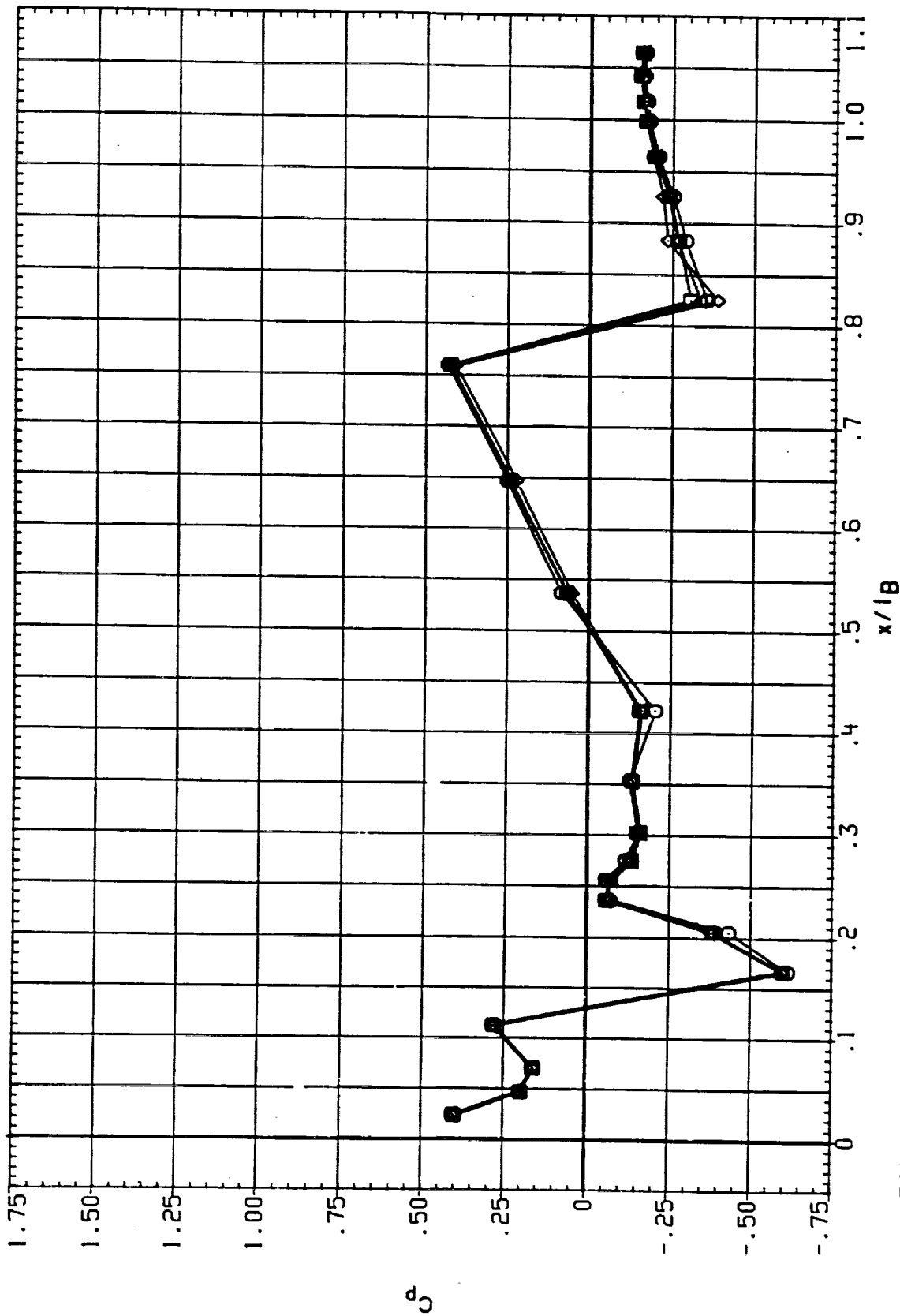


FIGURE 1 14613A SELECTED PRESSURE DISTRIBUTIONS
ORBITER FUSELAGE
BETA = .000 PHI = 40.000 ALPHA = .000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RC0821)	IA613A,B/L 01+RSRH+PLUMES S1.2 -ORB. FUSE. & OMS	1.150	.000	10.000	9.000
(RC0848)	IA613A,B/L 01+ASRH+PLUMES S1.2 -ORB. FUSE. & OMS	1.150	.000	10.000	9.000
(RC0886)	IA613A,B/L 01+ASRH+PLUMES S1.2 -ORB. FUSE. & OMS	1.150	180.000	10.000	9.000
(XC08C4)	IA613A,B/L 01+ASRH+PLUMES S1.2 -ORB. FUSE. & OMS	1.150	999.000	10.000	5.000

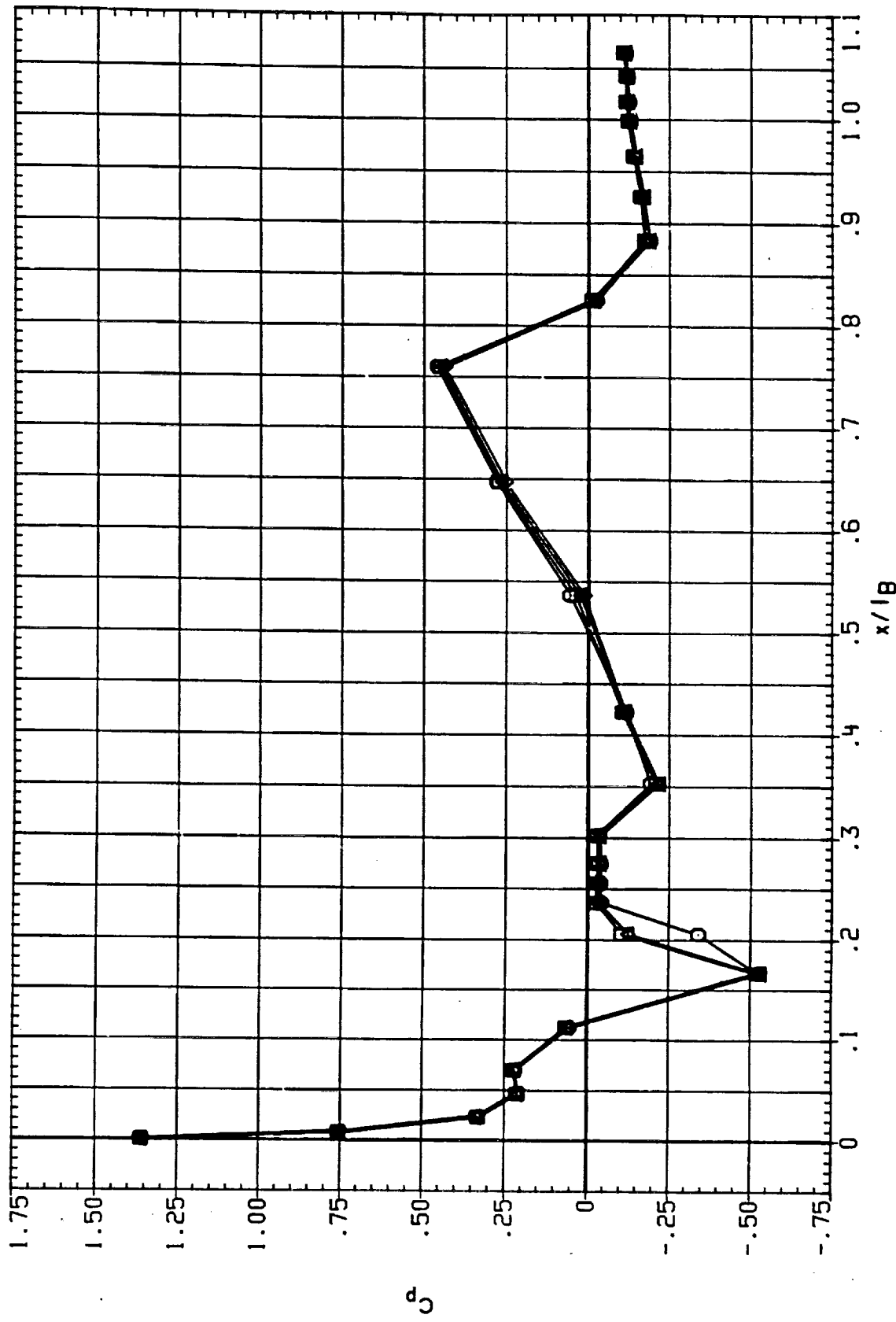


FIGURE 1 IA613A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER FUSELAGE
 BETA = .000 PHI = .000 ALPHA = .000

DATA SET SYMBOL CONFIGURATION DESCRIPTION
 (RC0B21) ○ IA613A, B/L OT+RSRH+PLUMES S1,2 -ORB. FUSE. & OMS
 (RC0B48) □ IA613A, B/L OT+ASRH+PLUMES S1,2 -ORB. FUSE. & OMS
 (RC0B86) ◇ IA613A, B/L OT+ASRH+PLUMES S1,2 -ORB. FUSE. & OMS
 (XC0B8C) △ IA613A, B/L OT+ASRH+PLUMES S1,2 -ORB. FUSE. & OMS

MACH IE4BCK IB-ELV
 1.150 .000 10.000
 1.150 .000 10.000
 1.150 180.000 10.000
 1.150 999.000 10.000

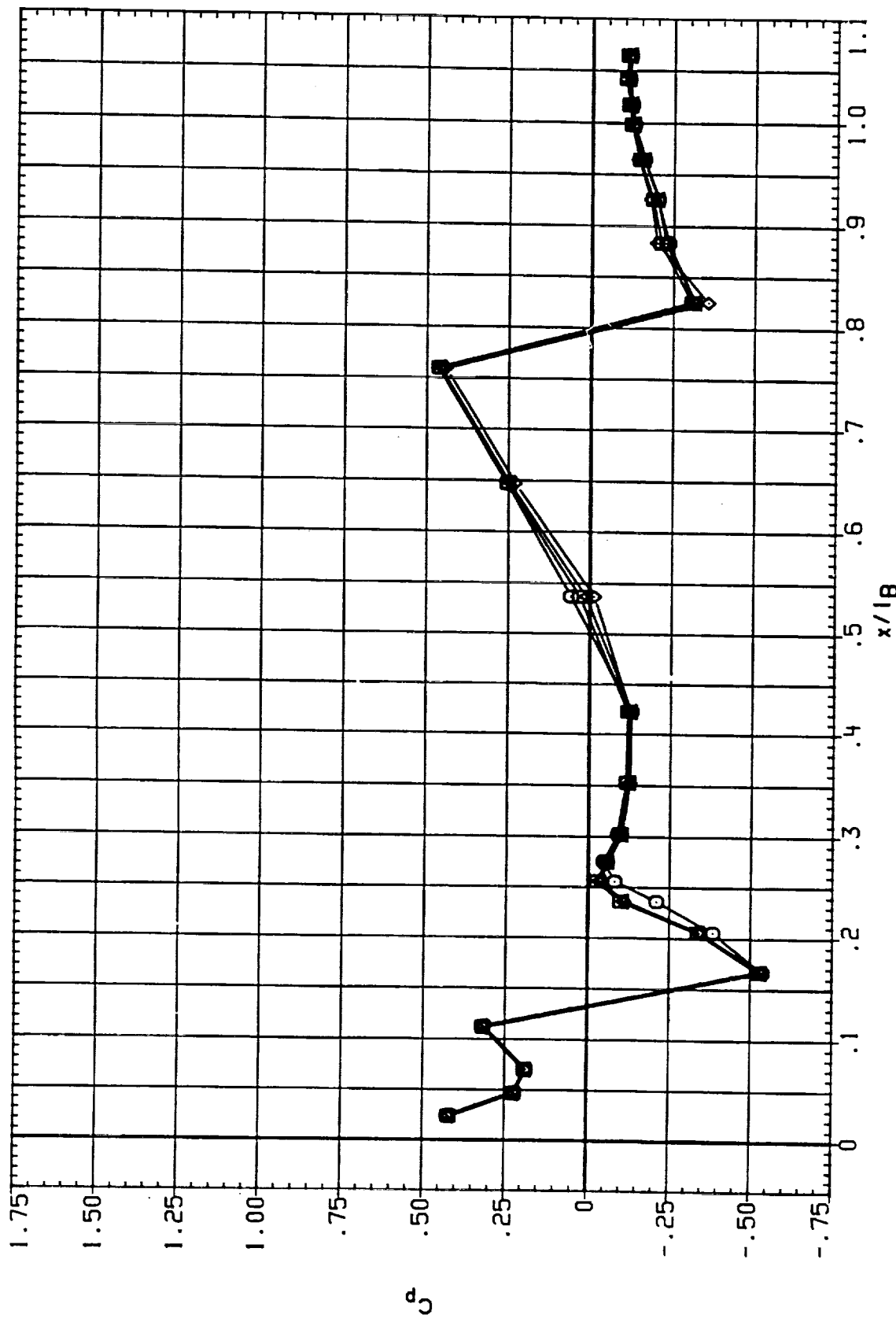


FIGURE 1 IA613A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER FUSELAGE
 BETA = .000 PHI = 40.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IE-BOX	IB-ELV	OB-ELV
(RC0822)	○	IA613A.8/L OT*ASRM+PLUMES S1.2 -ORB. FUSE. & OMS	1.250	.000	10.000	9.000
(RC0849)	□	IA613A.8/L OT*ASRM+PLUMES S1.2 -ORB. FUSE. & OMS	1.250	.000	10.000	9.000
(RC0887)	◇	IA613A.8/L OT*ASRM+PLUMES S1.2 -ORB. FUSE. & OMS	1.250	180.000	10.000	9.000
(RC08C5)	△	IA613A.8/L OT*ASRM+PLUMES S1.2 -ORB. FUSE. & OMS	1.250	999.000	10.000	9.000

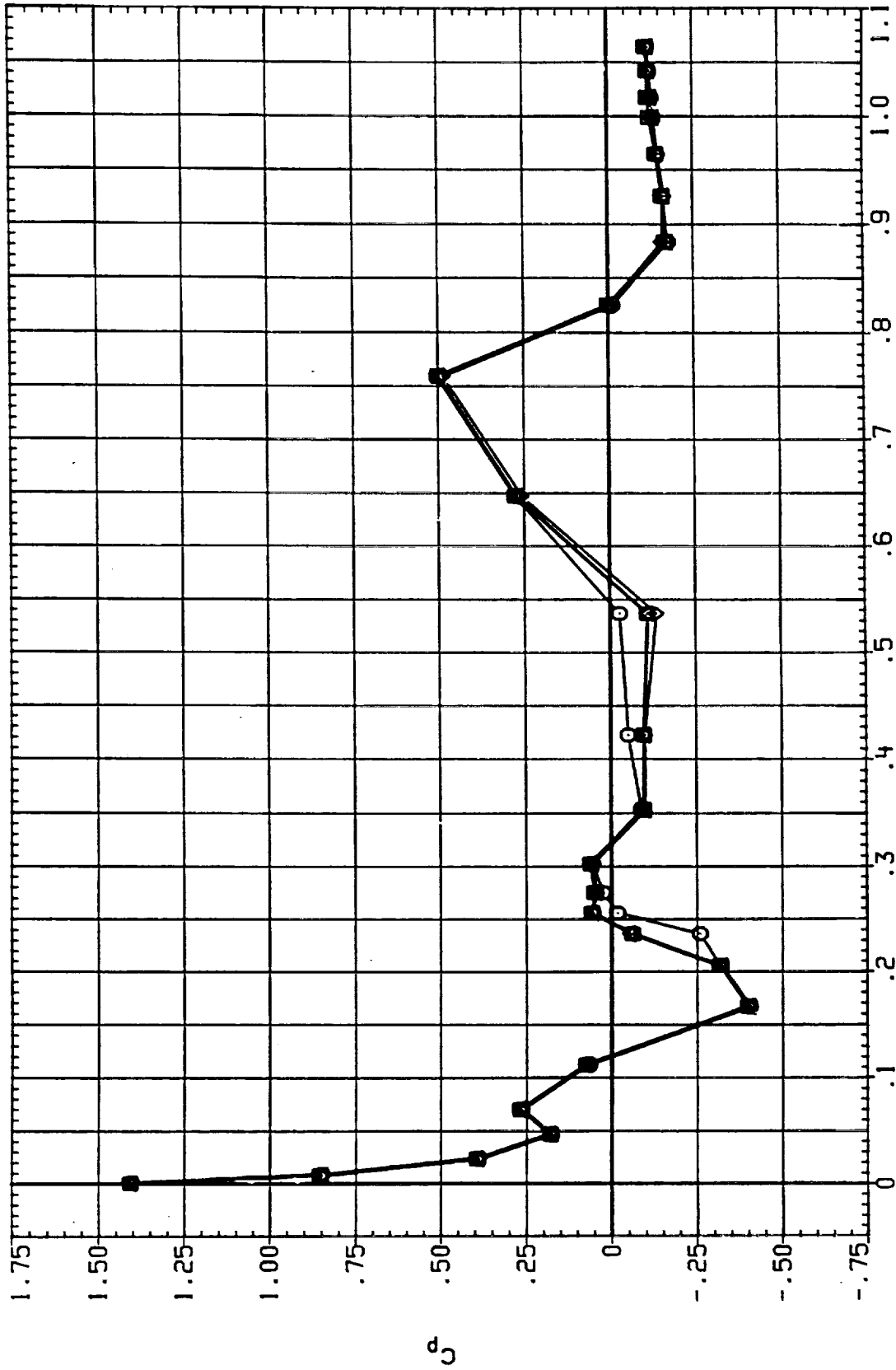


FIGURE 1 IA613A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER FUSELAGE
 BETA = .000 PHI = .000 ALPHA = .000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RC0822)	IA613A.B/L OT*PSRM*PLUMES S1.2 -ORB. FUSE. & OMS	1.250	.000	10.000	9.000
(RC0849)	IA613A.B/L OT*ASRM*PLUMES S1.2 -ORB. FUSE. & OMS	1.250	.000	10.000	9.000
(RC0887)	IA613A.B/L OT*ASRM*PLUMES S1.2 -ORB. FUSE. & OMS	1.250	180.000	10.000	9.000
(RC08C5)	IA613A.B/L OT*ASRM*PLUMES S1.2 -ORB. FUSE. & OMS	1.250	999.000	10.000	5.000

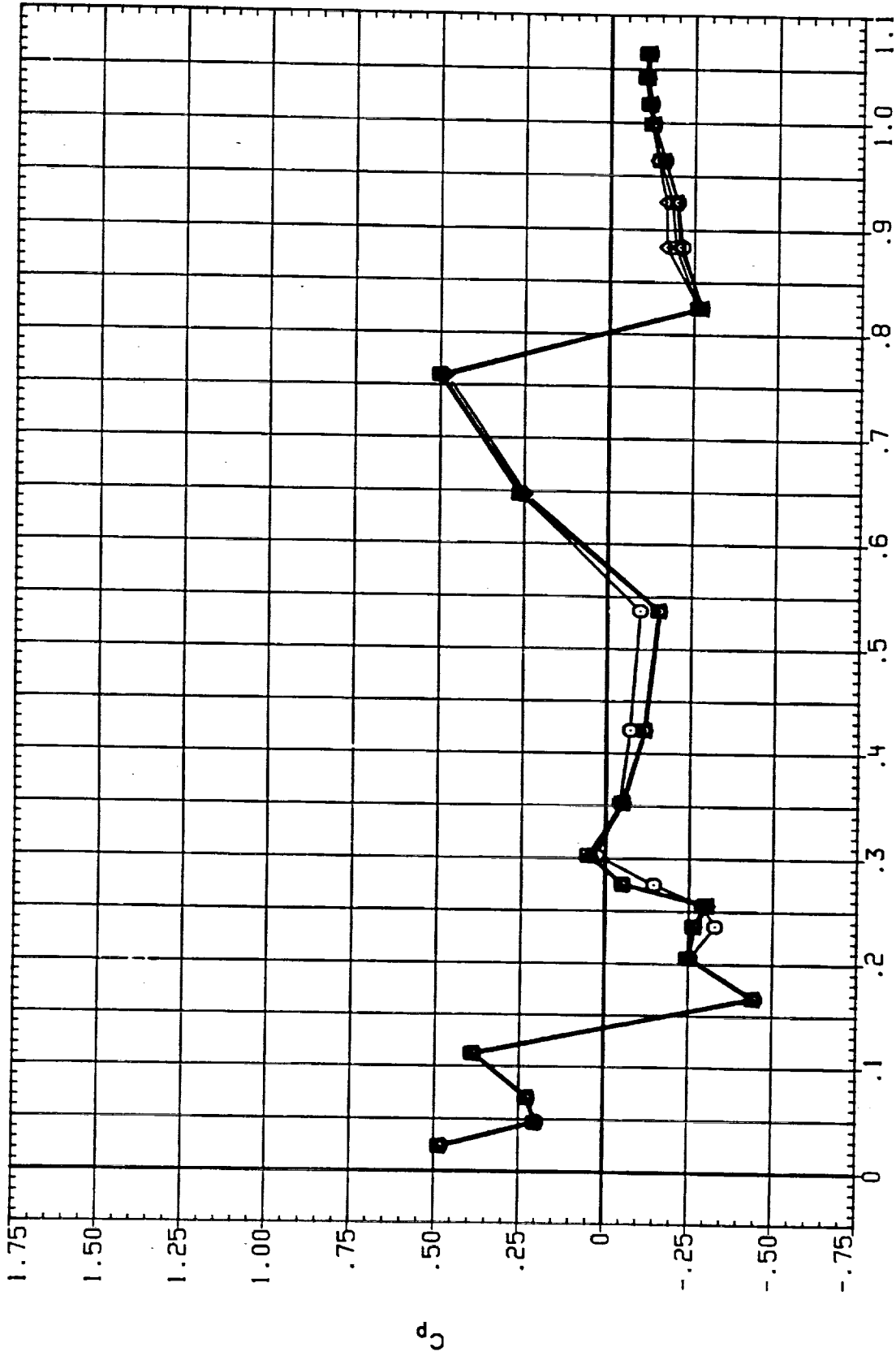


FIGURE 1 IA613A SELECTED PRESSURE DISTRIBUTIONS
ORBITER FUSELAGE

BETA = .000 PHI = 40.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RC0B146)	○	IA613A, B/L OT+ASRM+PLUMES S1.2 -ORB. FUSE. & OMS	1.300	.000	10.000	9.000
(RC0B54)	□	IA613A, B/L OT+ASRM+PLUMES S1.3 -ORB. FUSE. & OMS	1.300	.000	10.000	5.000
(RC0B89)	◇	IA613A, B/L OT+ASRM+PLUMES S1.3 -ORB. FUSE. & OMS	1.300	180.000	10.000	5.000
(RC0B87)	△	IA613A, B/L OT+ASRM+PLUMES S1.3 -ORB. FUSE. & OMS	1.300	999.000	10.000	5.000

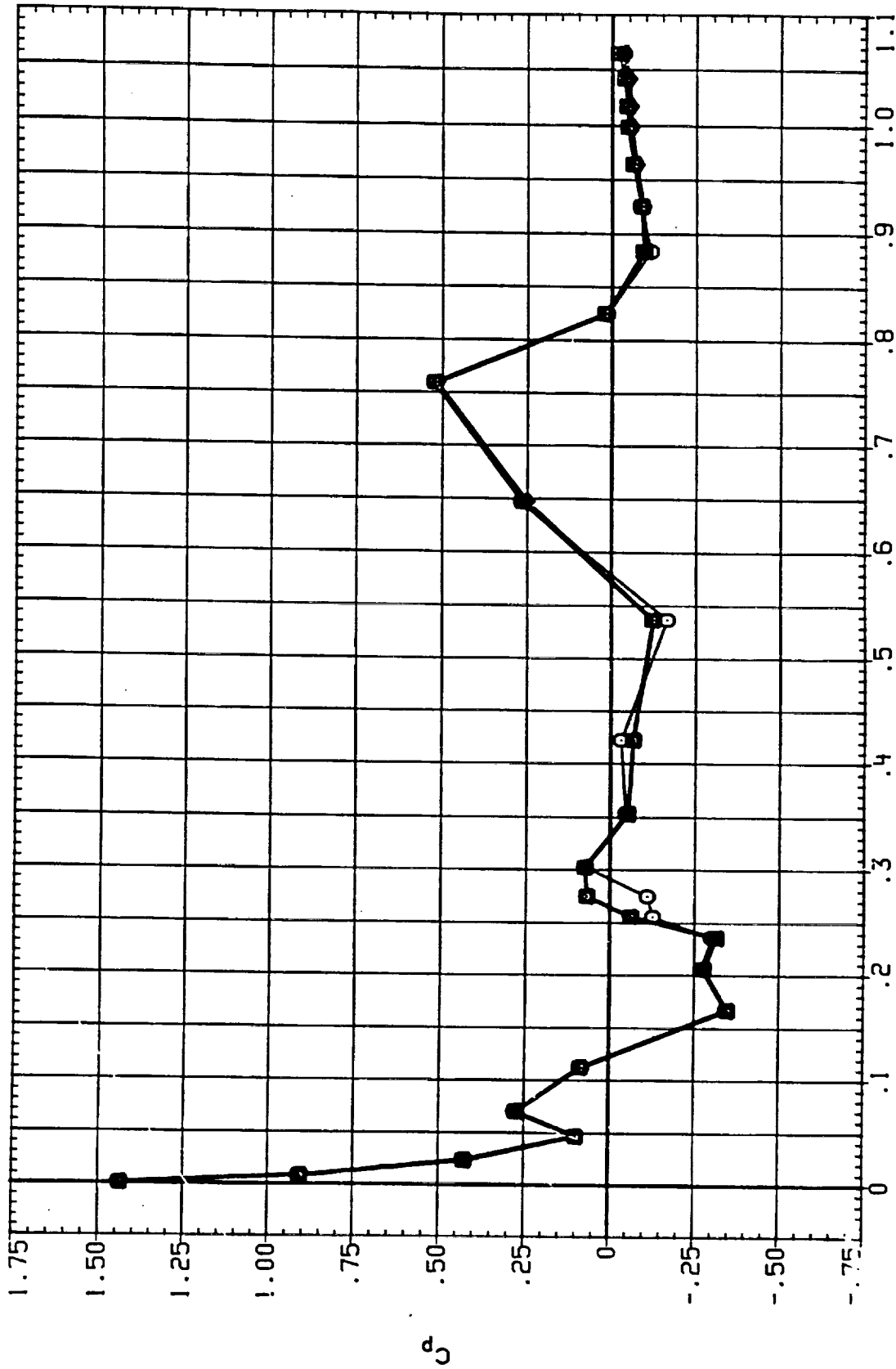


FIGURE 1 IA613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 PHI = .000 ALPHA = .000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RC0846)	IA613A, B/L OT+RSRM+PLUMES S1.2 -ORB. FUSE. & OMS	1.300	.000	10.000	9.000
(RC0854)	IA613A, B/L OT+ASRM+PLUMES S1.3 -ORB. FUSE. & OMS	1.300	.000	10.000	5.000
(RC0889)	IA613A, B/L OT+ASRM+PLUMES S1.3 -ORB. FUSE. & OMS	1.300	180.000	10.000	5.000
(RC0871)	IA613A, B/L OT+ASRM+PLUMES S1.3 -ORB. FUSE. & OMS	1.300	999.000	10.000	5.000

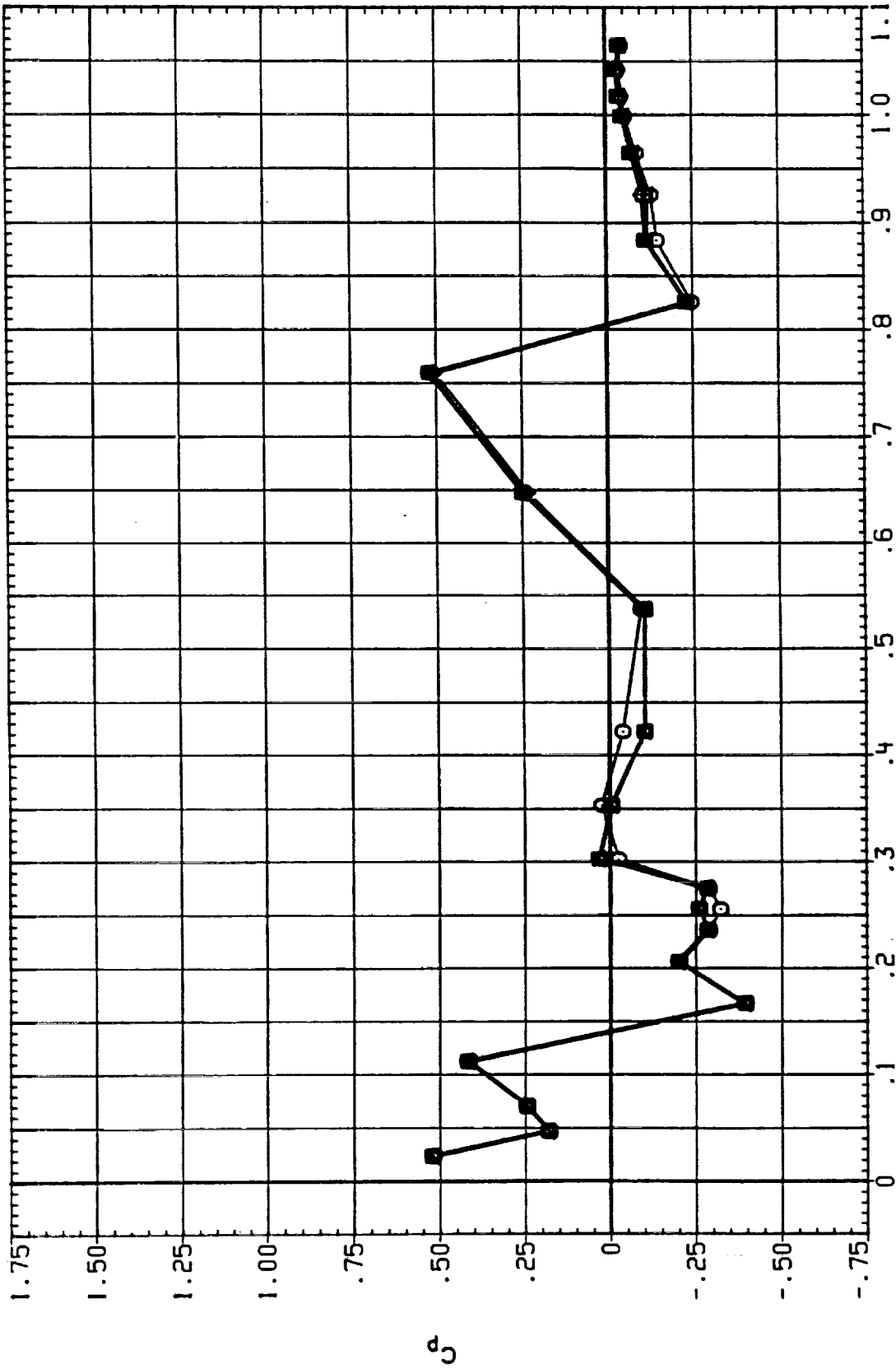


FIGURE 1 IA613A SELECTED PRESSURE DISTRIBUTIONS
ORBITER FUSELAGE

BETA = .000 PHI = 40.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	ICABOX	IB-ELV	OB-ELV
(RC08H7)	○	IAG13A.B/L OT*ASRM*PLUMES S1.2 -ORB. FUSE. & OMS	1.350	.000	10.000	9.000
(RC0855)	□	IAG13A.B/L OT*ASRM*PLUMES S1.3 -ORB. FUSE. & OMS	1.350	.000	10.000	5.000
(RC0890)	◇	IAG13A.B/L OT*ASRM*PLUMES S1.3 -ORB. FUSE. & OMS	1.350	180.000	10.000	5.000
(RC08CB)	△	IAG13A.B/L OT*ASRM*PLUMES S1.3 -ORB. FUSE. & OMS	1.350	999.000	10.000	5.000

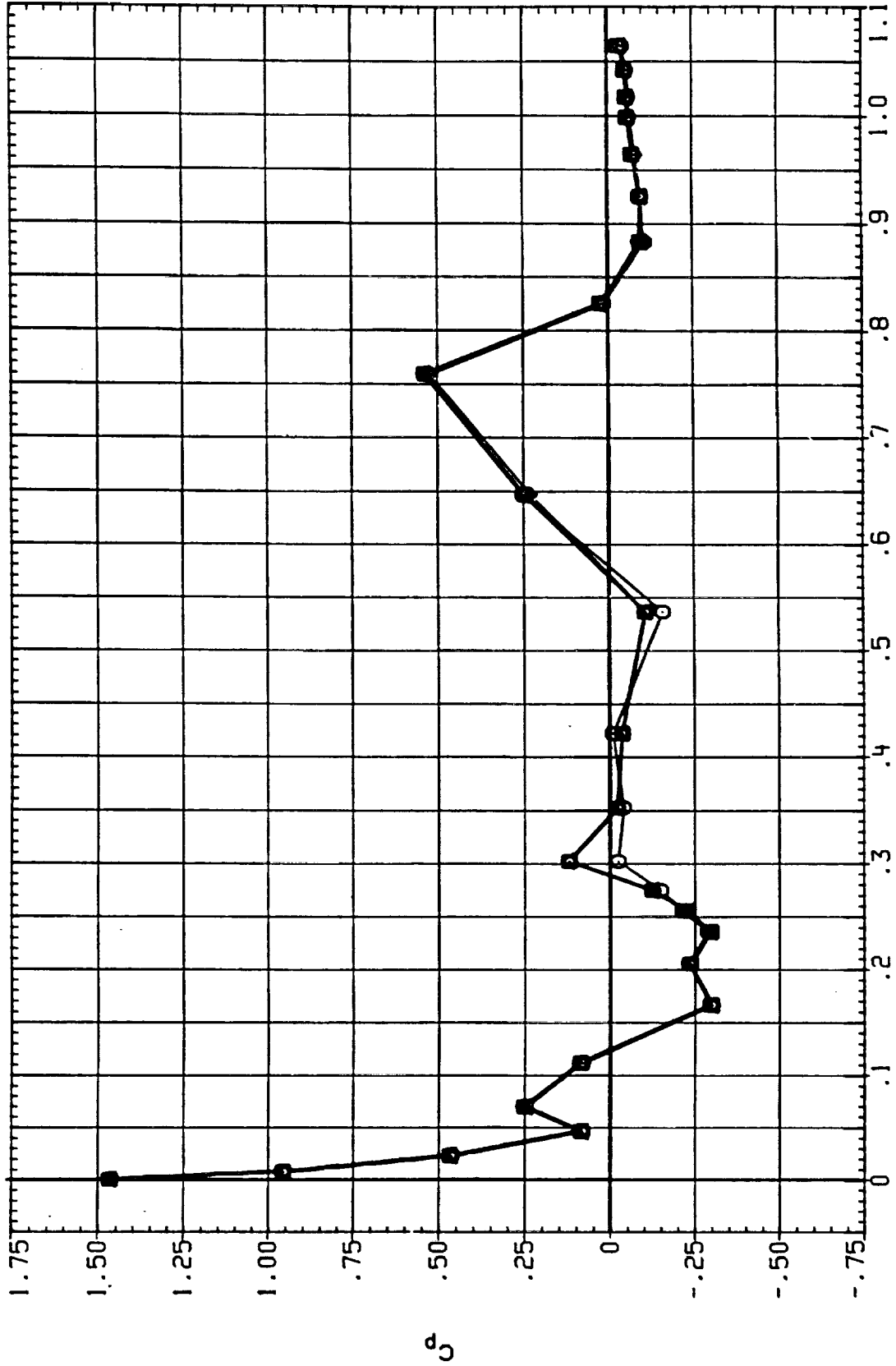


FIGURE 1 IAG13A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER FUSELAGE ALPHA = .000
 BETA = .000 PHI = .000

DATA SET SYMBOL CONFIGURATION DESCRIPTION

(RC08H7) O IAG13A.B/L OT*ASRM+PLUMES S1.2 -ORB. FUSE. & OHS
 (RC08S5) U IAG13A.B/L OT*ASRM+PLUMES S1.3 -ORB. FUSE. & OHS
 (RC0890) ◇ IAG13A.B/L OT*ASRM+PLUMES S1.3 -ORB. FUSE. & OHS
 (RC08C8) △ IAG13A.B/L OT*ASRM+PLUMES S1.3 -ORB. FUSE. & OHS

MACH IEABOX IB-ELY OB-ELY
 1.350 .000 10.000 9.000
 1.350 .000 10.000 5.000
 1.350 180.000 10.000 5.000
 1.350 999.000 10.000 5.000

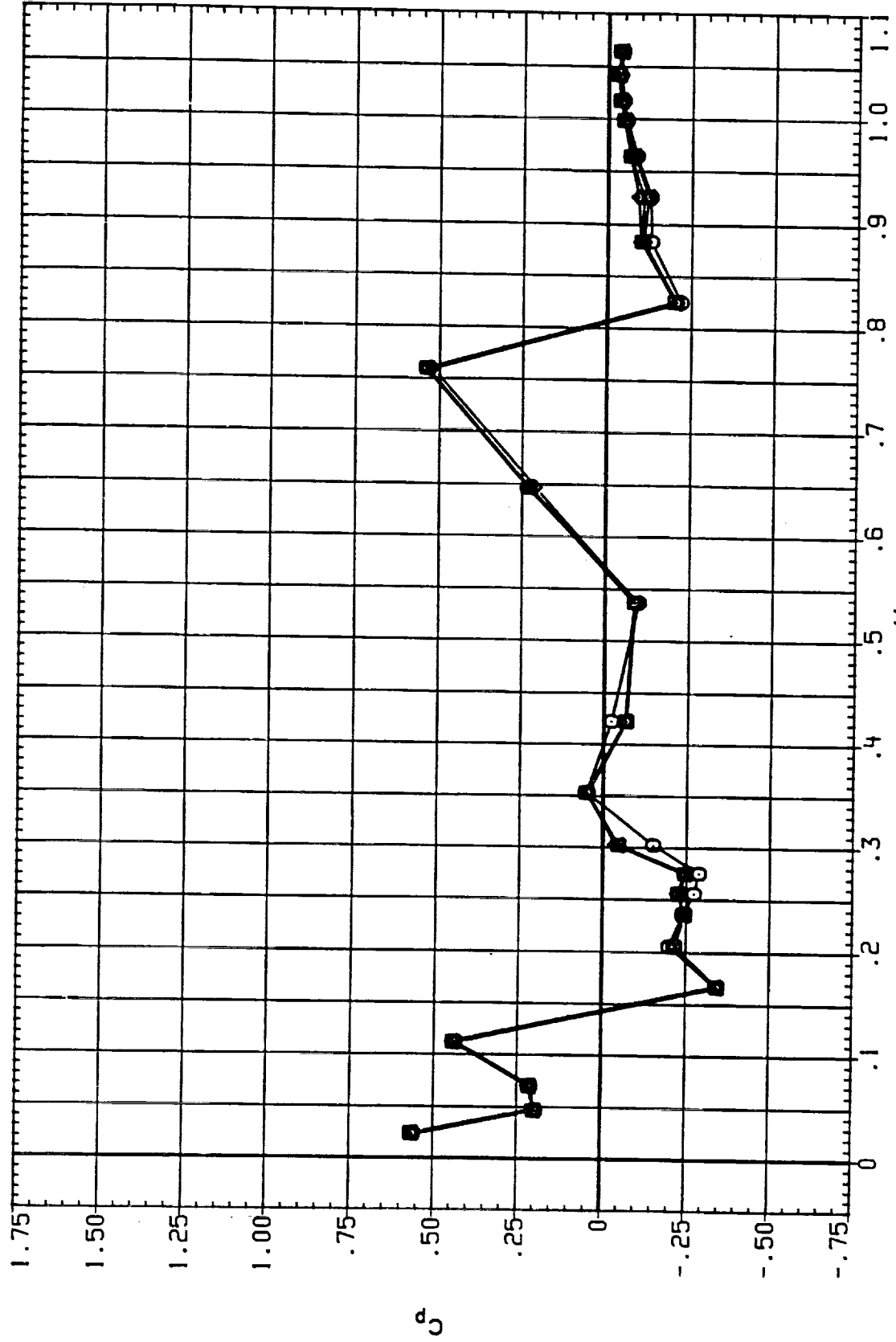


FIGURE 1 IAG13A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 PHI = 40.000 ALPHA = .000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RC08B8)	IA613A,B/L OT+RSRM+PLUMES S1.2 -ORB. FUSE. & OMS	1.400	.000	10.000	9.000
(RC0856)	IA613A,B/L OT+ASRM+PLUMES S1.3 -ORB. FUSE. & OMS	1.400	.000	10.000	5.000
(RC0891)	IA613A,B/L OT+ASRM+PLUMES S1.3 -ORB. FUSE. & OMS	1.400	180.000	10.000	5.000
(RC08C9)	IA613A,B/L OT+ASRM+PLUMES S1.3 -ORB. FUSE. & OMS	1.400	999.000	10.000	5.000

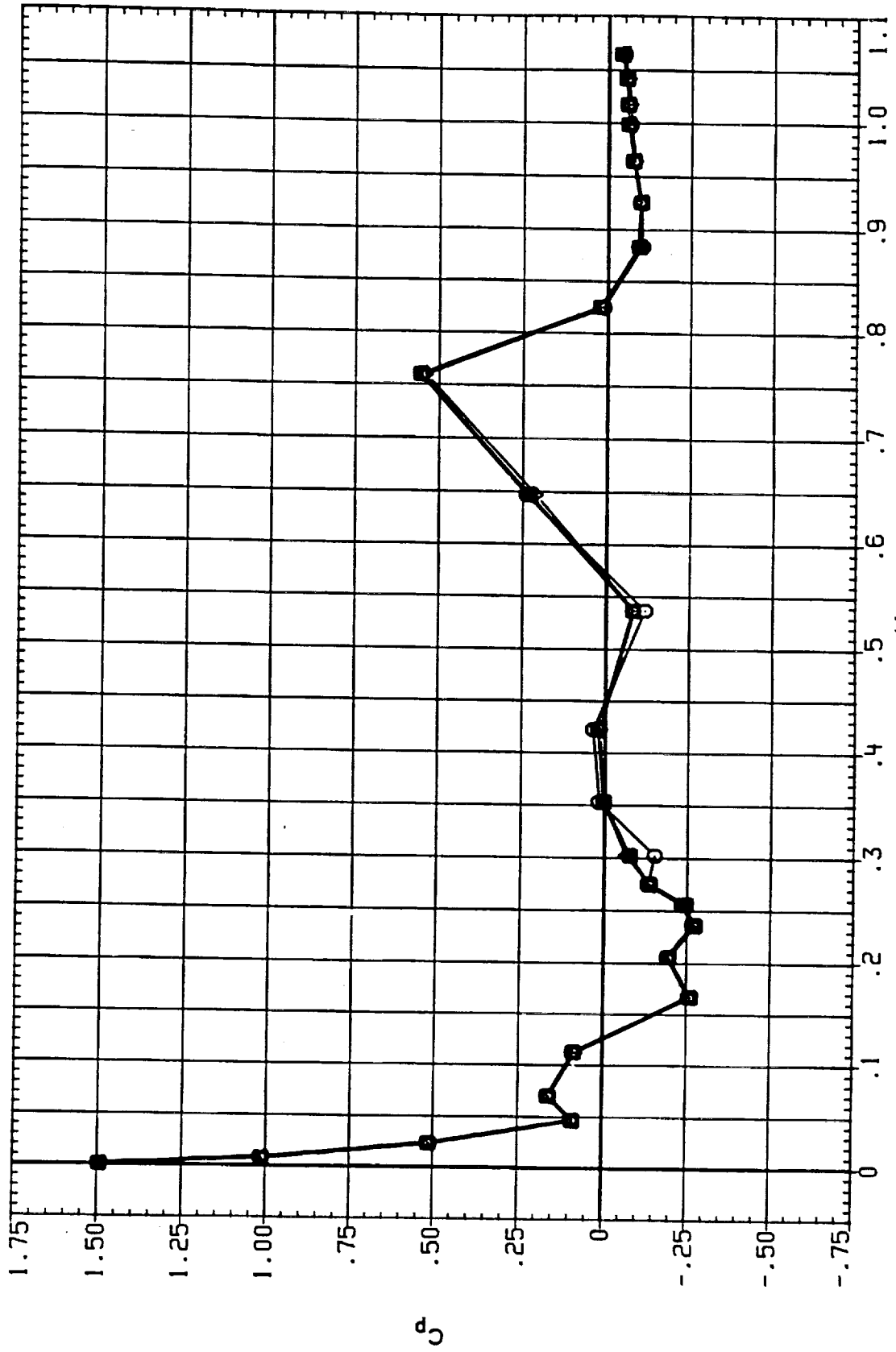


FIGURE 1 IA613A SELECTED PRESSURE DISTRIBUTIONS
ORBITER FUSELAGE

DATA SET SYMBOL CONFIGURATION DESCRIPTION

(RC08H8)
(RC0856)
(RC0891)
(RC08C9)

□ IAG13A.B/L OT*ASRM+PLUMES S1.2 -ORB. FUSE. & OMS
 ○ IAG13A.B/L OT*ASRM+PLUMES S1.3 -ORB. FUSE. & OMS
 ◇ IAG13A.B/L OT*ASRM+PLUMES S1.3 -ORB. FUSE. & OMS
 △ IAG13A.B/L OT*ASRM+PLUMES S1.3 -ORB. FUSE. & OMS

MACH
1.400
1.400
1.400
1.400

IEABOX
.000
.000
180.000
999.000

IB-ELV
10.000
10.000
10.000
10.000

OB-ELV
9.000
5.000
5.000
5.000

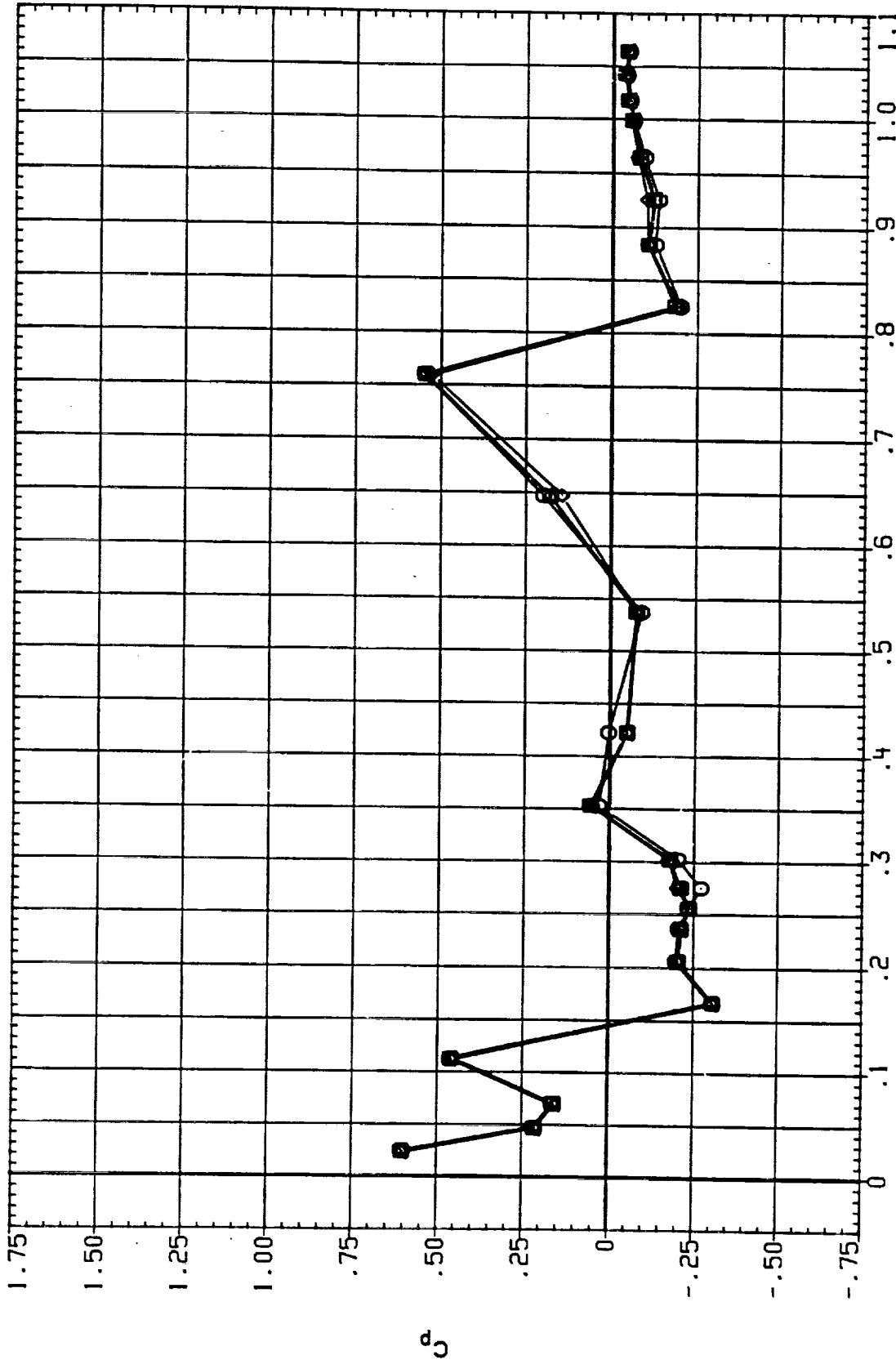


FIGURE 1 IAG13A SELECTED PRESSURE DISTRIBUTIONS
ORBITER FUSELAGE

BETA = .000 PHI = 40.000 ALPHA = .000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RC08H9)	IA613A,B/L 01*RSRH*PLUMES S1.2 -ORB. FUSE. & OMS	1.550	.000	10.000	9.000
(RC0857)	IA613A,B/L 01*ASRH*PLUMES S1.3 -ORB. FUSE. & OMS	1.550	.000	10.000	5.000
(RC0892)	IA613A,B/L 01*ASRH*PLUMES S1.3 -ORB. FUSE. & OMS	1.550	180.000	10.000	5.000
(RC08D0)	IA613A,B/L 01*ASRH*PLUMES S1.3 -ORB. FUSE. & OMS	1.550	999.000	10.000	5.000

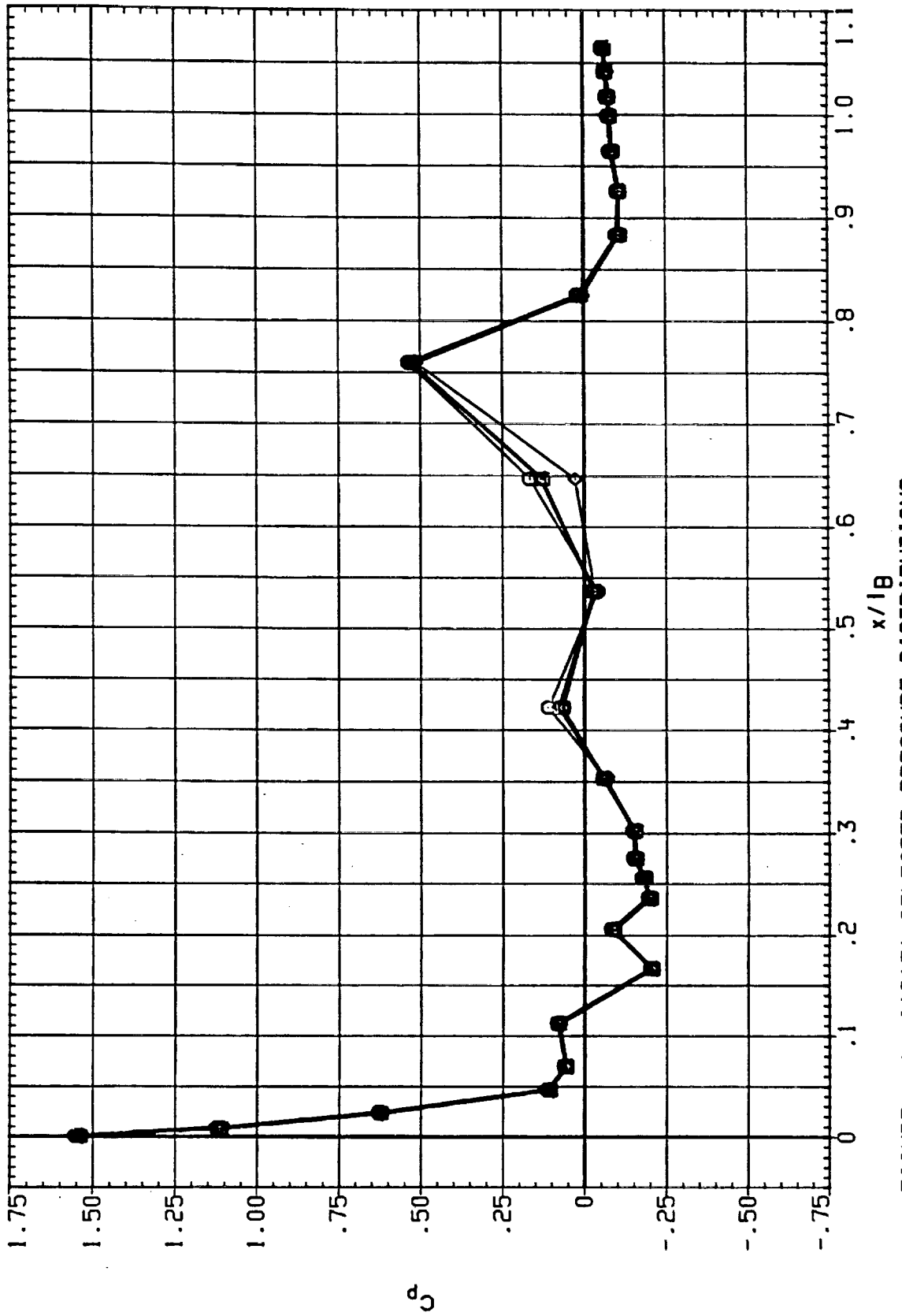


FIGURE 1 IA613A SELECTED PRESSURE DISTRIBUTIONS

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RC08H9)	○	IA613A, B/L OT+RSRM+PLUMES S1.2 -ORB.	1.550	.000	10.000	9.000
(RC0857)	◇	IA613A, B/L OT+ASRM+PLUMES S1.3 -ORB.	1.550	.000	10.000	5.000
(RC0892)	◇	IA613A, B/L OT+ASRM+PLUMES S1.3 -ORB.	1.550	180.000	10.000	5.000
(RC08D0)	△	IA613A, B/L OT+ASRM+PLUMES S1.3 -ORB.	1.550	999.000	10.000	5.000

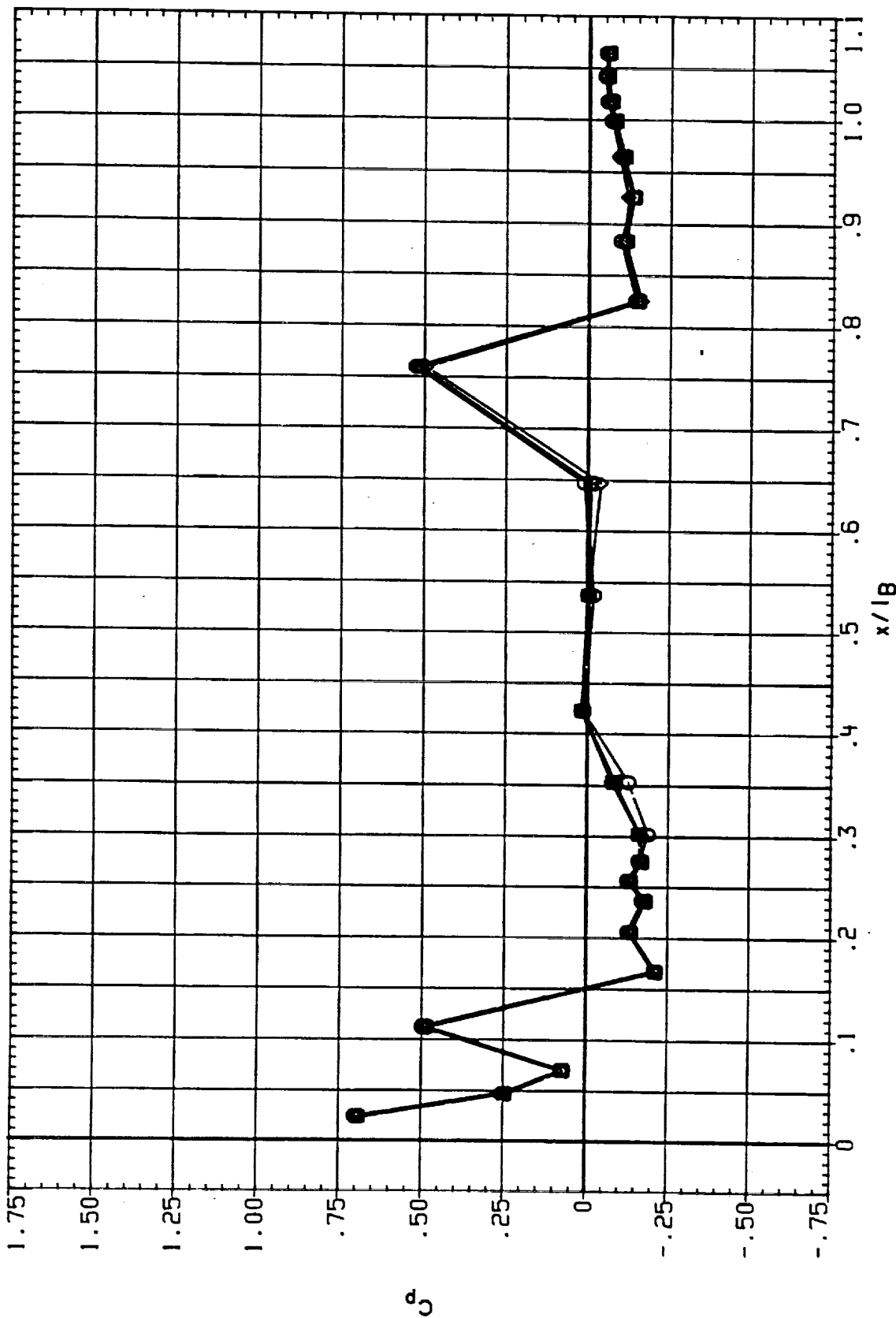


FIGURE 1 IA613A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER FUSELAGE ALPHA = .000
 BETA = .000 PHI = 40.000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELY	OB-ELY
(RCOE15)	○	IAG13A, B/L OT+ASRR+PLUMES S1.2	.600	.000	10.000	9.000
(RCOE42)	□	IAG13A, B/L OT+ASRR+PLUMES S1.2	.600	.000	10.000	9.000
(RCOE80)	◇	IAG13A, B/L OT+ASRR+PLUMES S1.2	.600	180.000	10.000	9.000
(RCOE11)	△	IAG13A, B/L OT+ASRR+PLUMES S1.2	.600	999.000	10.000	5.000

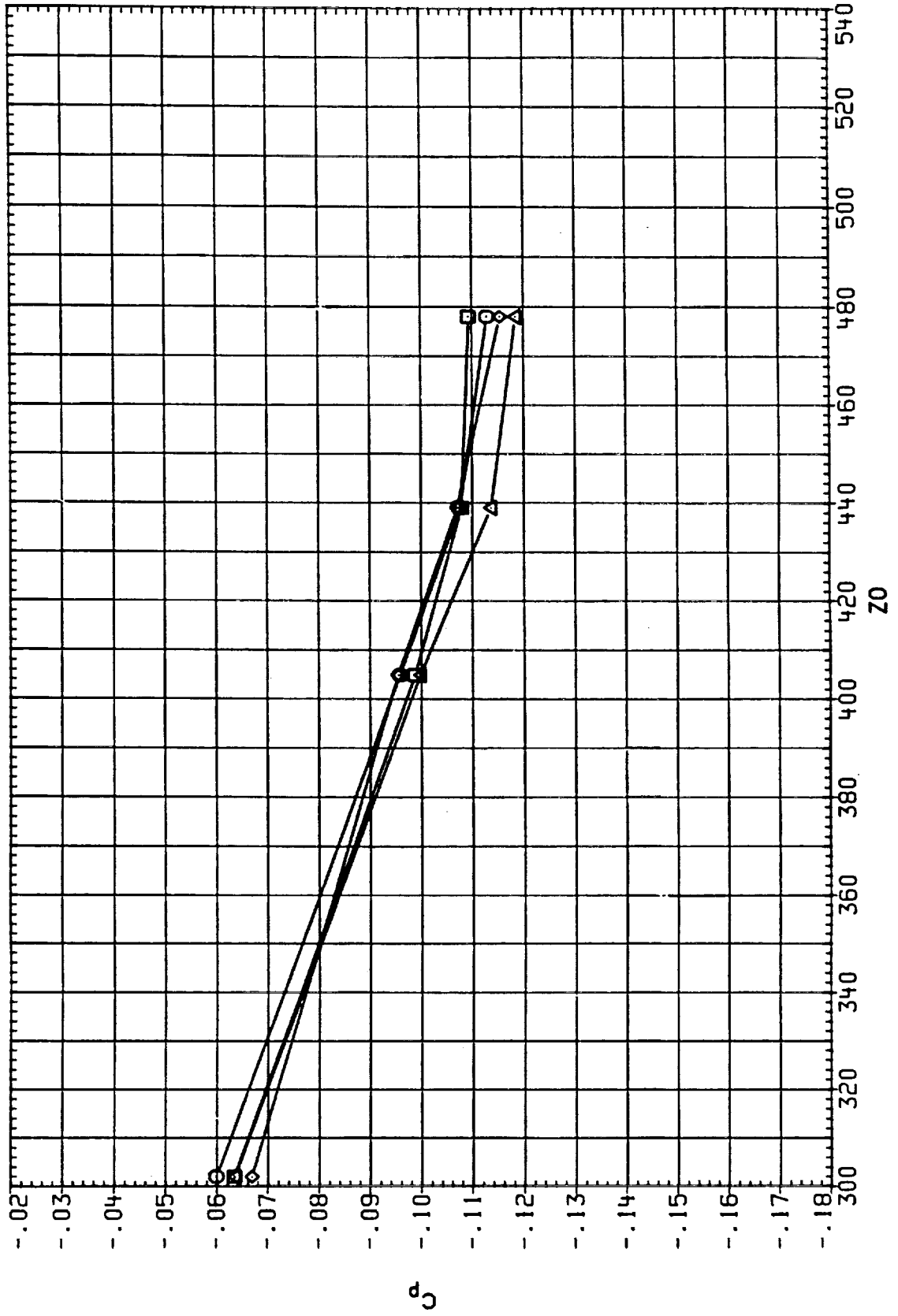


FIGURE 2 IAG13A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 YO = -38.000 ALPHA = .000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOE15)	IAB13A.B/L OT+RSRM+PLUMES S1.2	.600	.000	10.000	9.000
(RCOE16)	IAB13A.B/L OT+ASRM+PLUMES S1.2	.600	.000	10.000	9.000
(RCOE17)	IAB13A.B/L OT+ASRM+PLUMES S1.2	.600	180.000	10.000	9.000
(RCOE18)	IAB13A.B/L OT+ASRM+PLUMES S1.2	.600	999.000	10.000	5.000

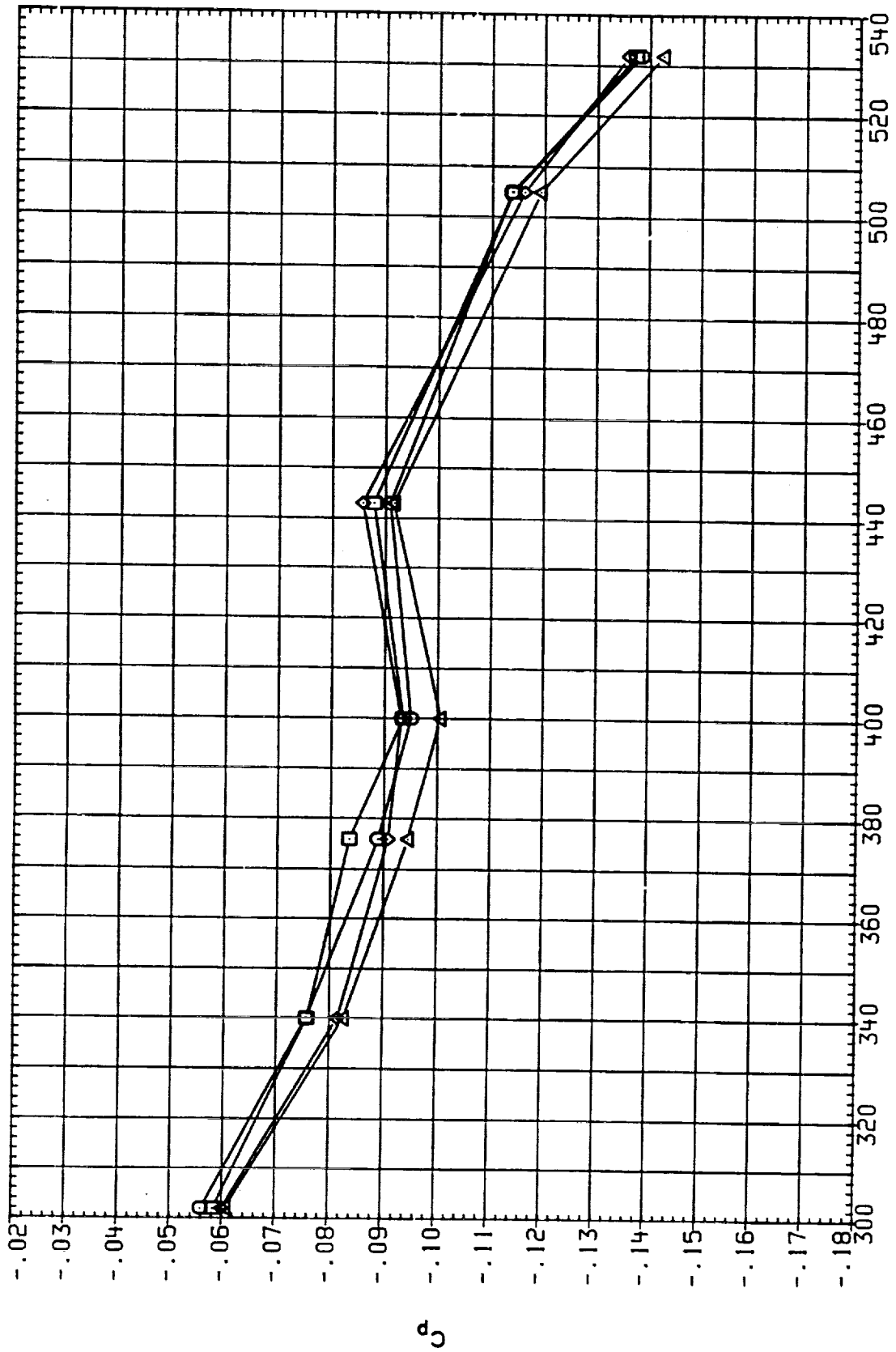


FIGURE 2 IAB13A SELECTED PRESSURE DISTRIBUTIONS
ORBITER BASE

BETA = .000 Y0 = .000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	EA BOX	IB-ELY	OB-ELY
(RCOE16)	○	IA613A .B/L OT+RSRM+PLUMES S1.2	.800	.000	10.000	9.000
(RCOE17)	□	IA613A .B/L OT+ASRM+PLUMES S1.2	.800	.000	10.000	9.000
(RCOE18)	◇	IA613A .B/L OT+ASRM+PLUMES S1.2	.800	180.000	10.000	9.000

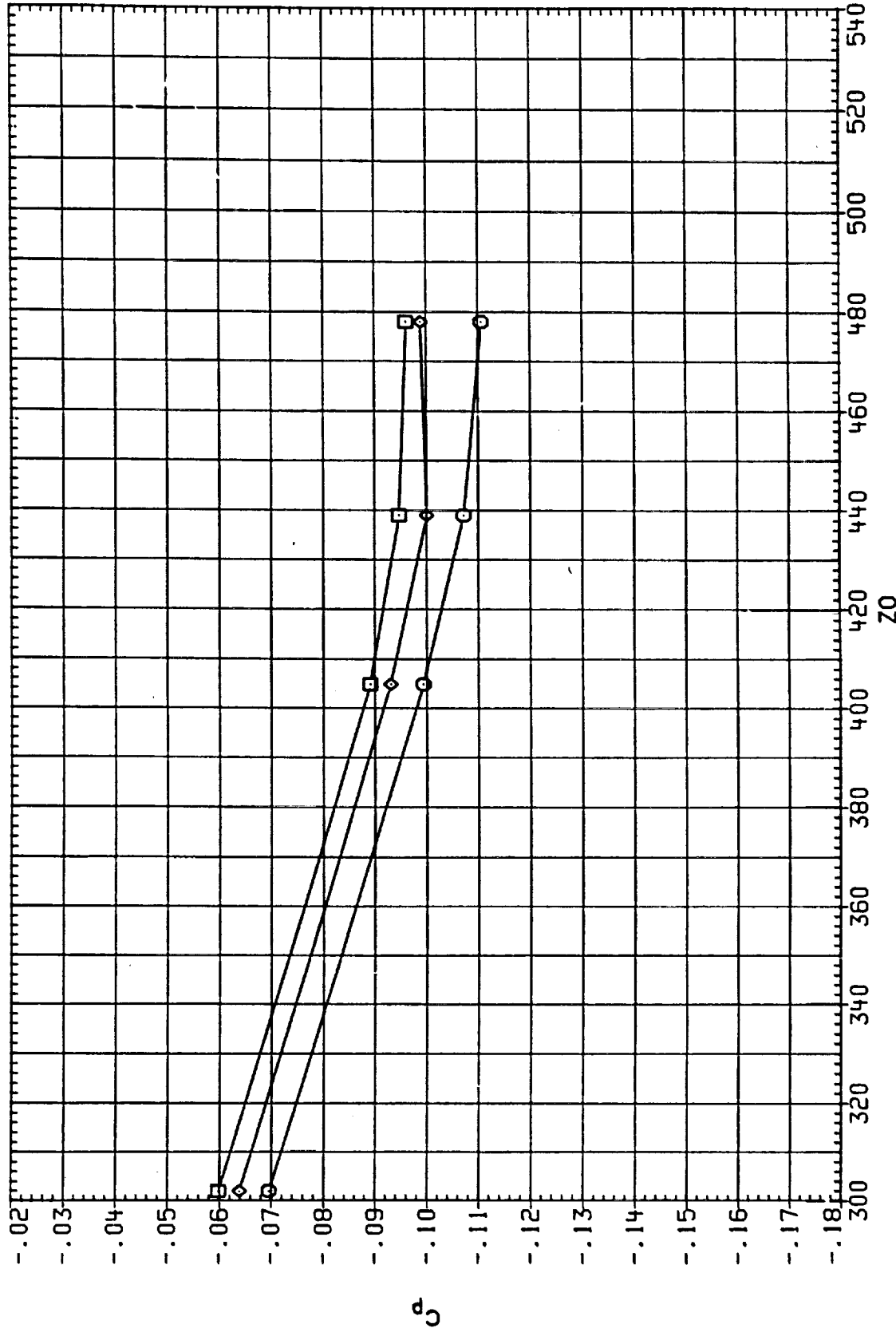


FIGURE 2 IA613A SELECTED PRESSURE DISTRIBUTIONS
ORBITER BASE

BETA = .000 Y0 = -38.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOE16)	□	1A613A, B/L 01*RSRM*PLUMES S1.2	.800	.000	10.000	9.000
(RCOE13)	□	1A613A, B/L 01*ASRM*PLUMES S1.2	.800	.000	10.000	9.000
(RCOE81)	◇	1A613A, B/L 01*ASRM*PLUMES S1.2	.800	180.000	10.000	9.000

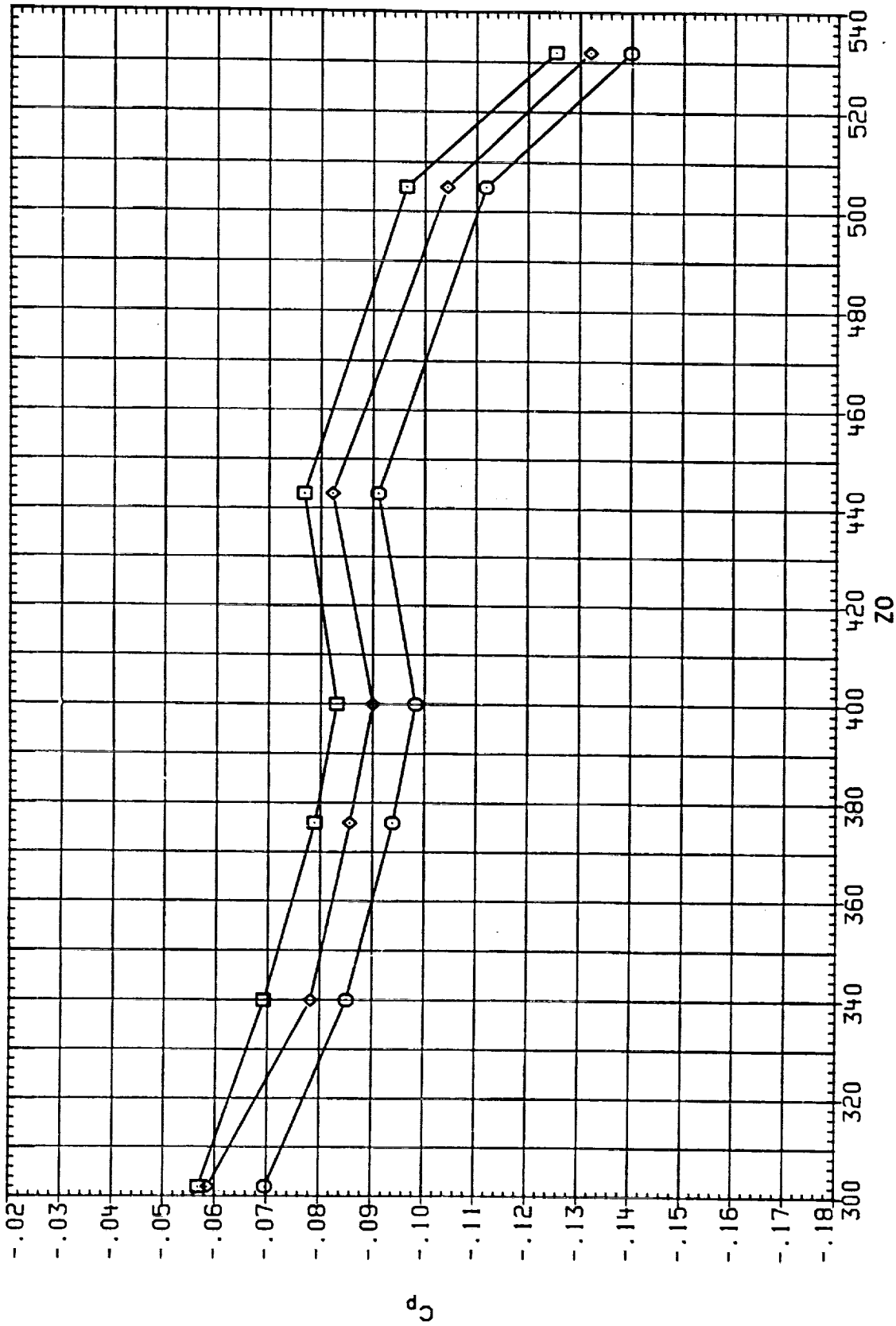


FIGURE 2 1A613A SELECTED PRESSURE DISTRIBUTIONS
ORBITER BASE

BETA = .000 Y0 = .000 ALPHA = .000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOE17)	IA613A, B/L OT+RSRH+PLUMES S1.2	.900	.000	10.000	9.000
(RCOE44)	IA613A, B/L OT+ASRH+PLUMES S1.2	.900	.000	10.000	9.000
(RCOE82)	IA613A, B/L OT+ASRH+PLUMES S1.2	.900	180.000	10.000	9.000
(RCOE82)	IA613A, B/L OT+ASRH+PLUMES S1.2	.900	999.000	10.000	5.000

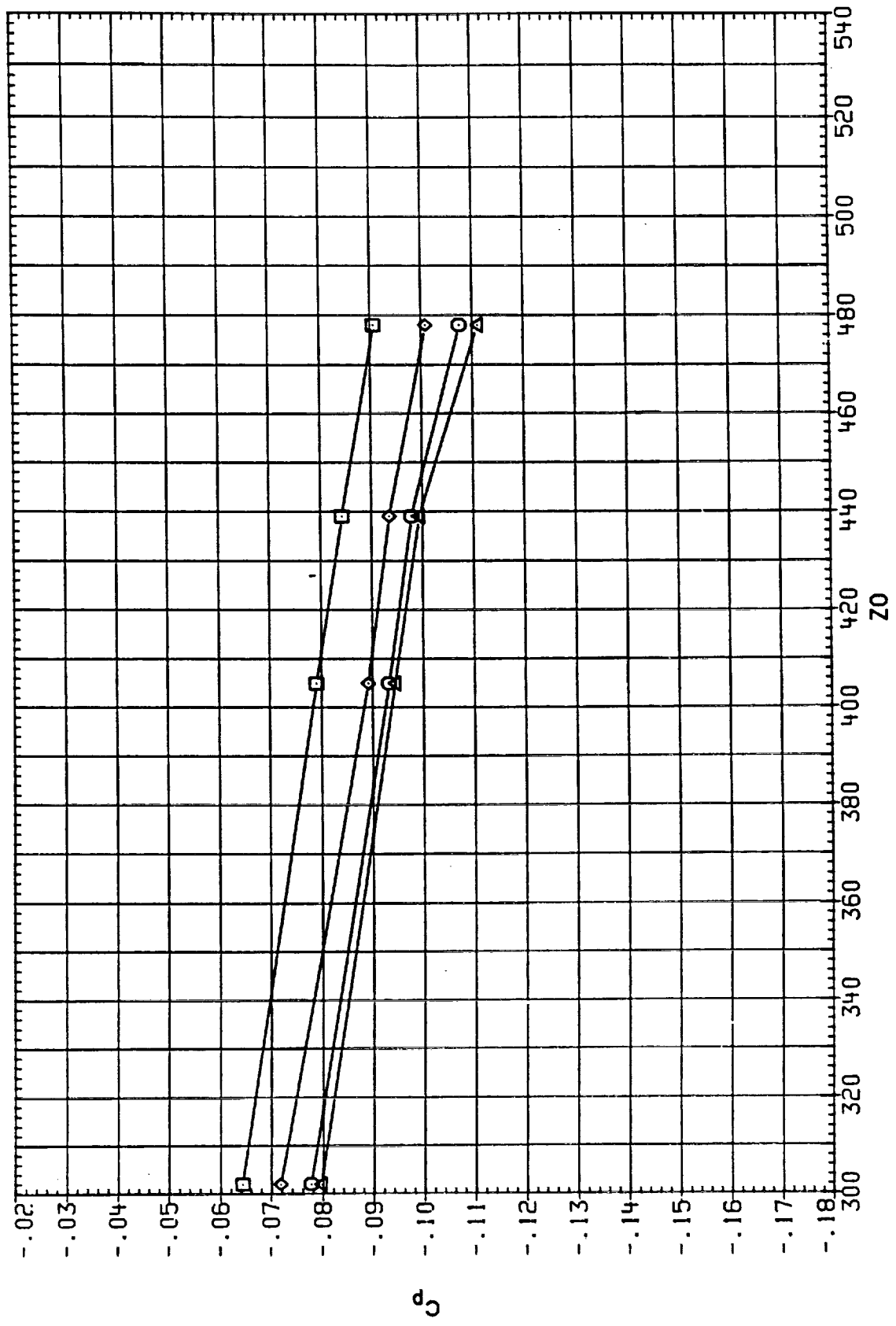


FIGURE 2 IA613A SELECTED PRESSURE DISTRIBUTIONS
ORBITER BASE

BETA = .000 Y0 = -38.000 ALPHA = .000

DATA SET SYMBOL	CONF IGURATION DESCRIPTION	MACH	IEABOX	18-ELV	OB-ELV
(RCOE17)	IA613A .B/L OT*ASRM*PLUMES S1.2	.900	.000	10.000	9.000
(RCOE44)	IA613A .B/L OT*ASRM*PLUMES S1.2	.900	.000	10.000	9.000
(RCOE82)	IA613A .B/L OT*ASRM*PLUMES S1.2	.900	180.000	10.000	9.000
(RCOE82)	IA613A .B/L OT*ASRM*PLUMES S1.2	.900	999.000	10.000	5.000

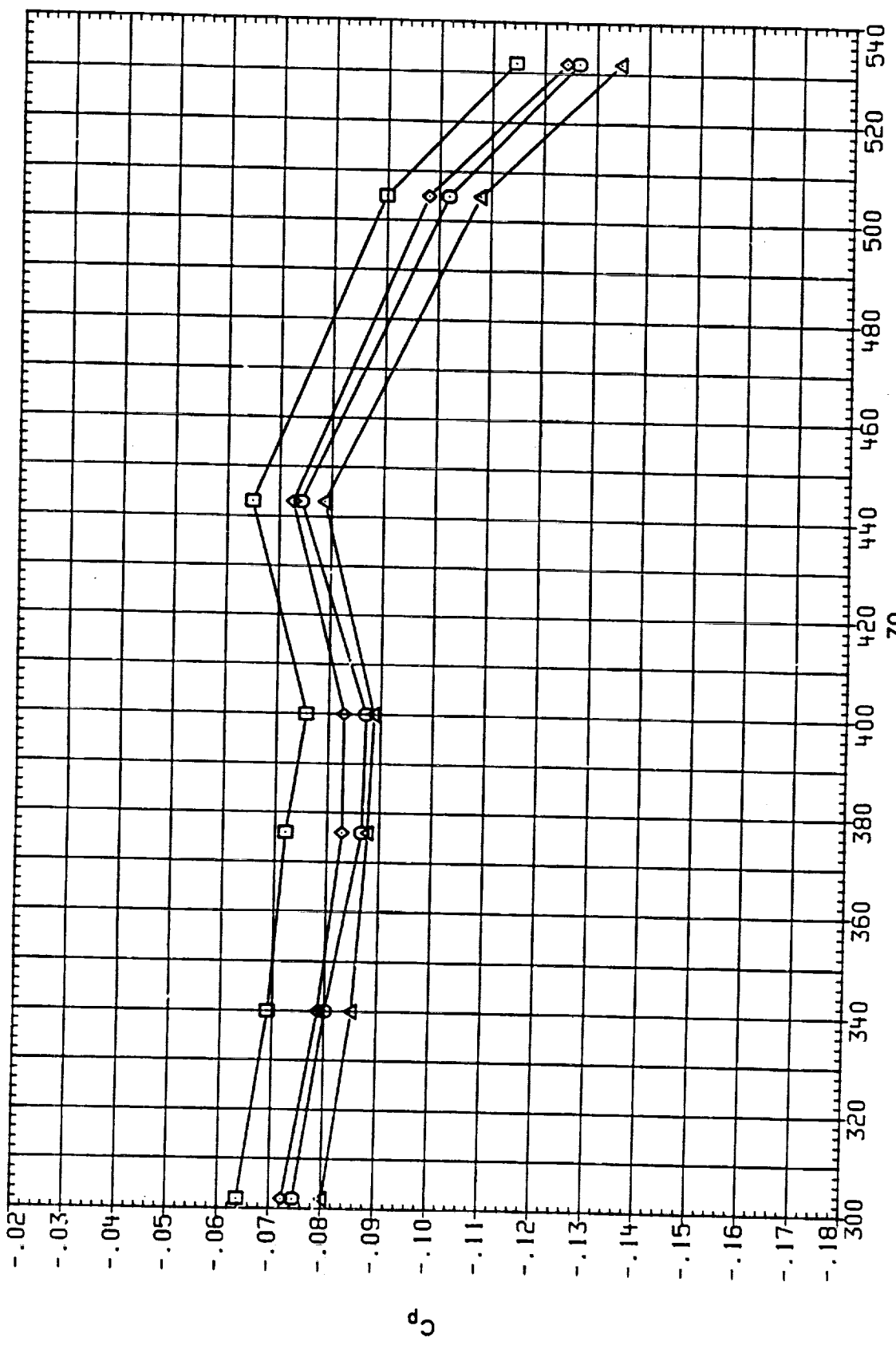


FIGURE 2 IA613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 Y0 = .000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOE18)	□	IA613A, B/L OT+RSRM+PLUMES S1.2	.950	.000	10.000	9.000
(RCOE45)	○	IA613A, B/L OT+ASRM+PLUMES S1.2	.950	.000	10.000	9.000
(RCOE83)	◇	IA613A, B/L OT+ASRM+PLUMES S1.2	.950	180.000	10.000	9.000

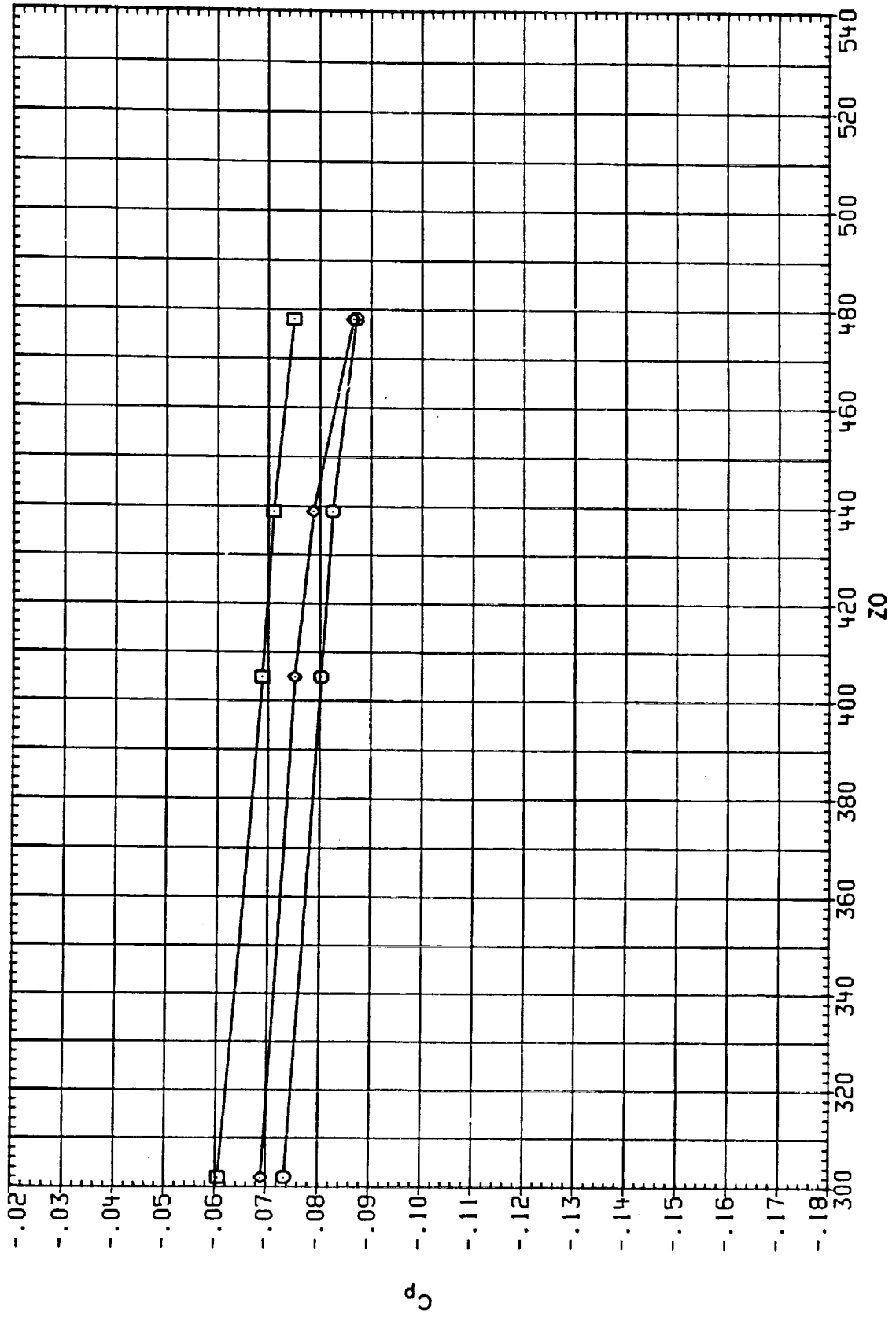


FIGURE 2 IA613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 Y0 = -38.000 ALPHA = .000

DATA SET SYMBOL CONFIGURATION DESCRIPTION

(RCOE18)	□	IA613A .B/L 01*PSRM*PLUMES S1.2	ORBITTER BASE	MACH	ICABOX	IB-ELV	OB-ELV
(RCOE45)	○	IA613A .B/L 01*ASRM*PLUMES S1.2	-ORBITTER BASE	.950	.000	10.000	9.000
(RCOE83)	◇	IA613A .B/L 01*ASRM*PLUMES S1.2	-ORBITTER BASE	.950	180.000	10.000	9.000

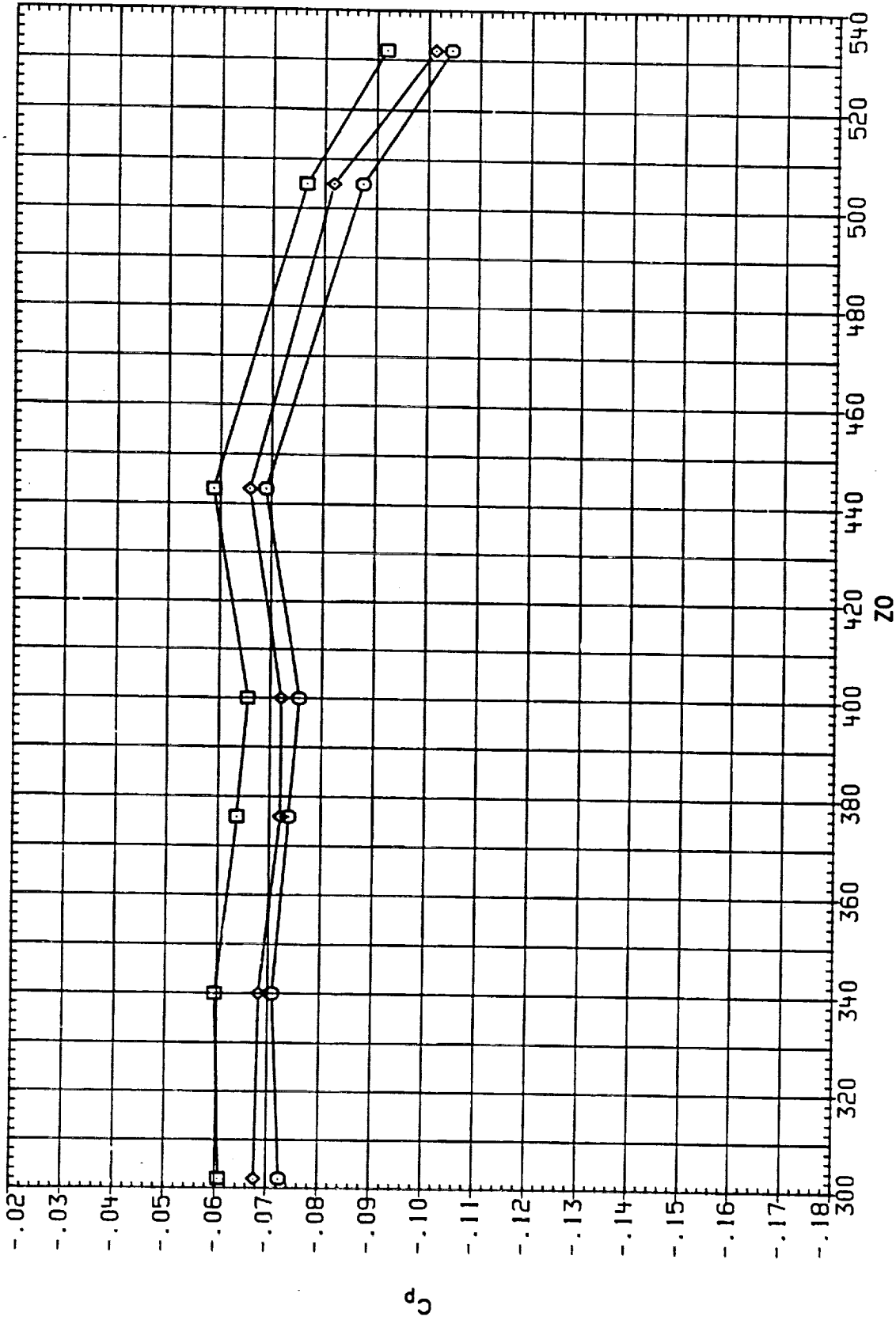


FIGURE 2 IA613A SELECTED PRESSURE DISTRIBUTIONS
ORBITTER BASE

BETA = .000 YO = .000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOE19)	○	IA613A.B/L OT+RSRH+PLUMES S1.2	1.050	.000	10.000	9.000
(RCOE46)	◇	IA613A.B/L OT+ASRH+PLUMES S1.2	1.050	.000	10.000	9.000
(RCOE84)	◇	IA613A.B/L OT+ASRH+PLUMES S1.2	1.050	180.000	10.000	9.000

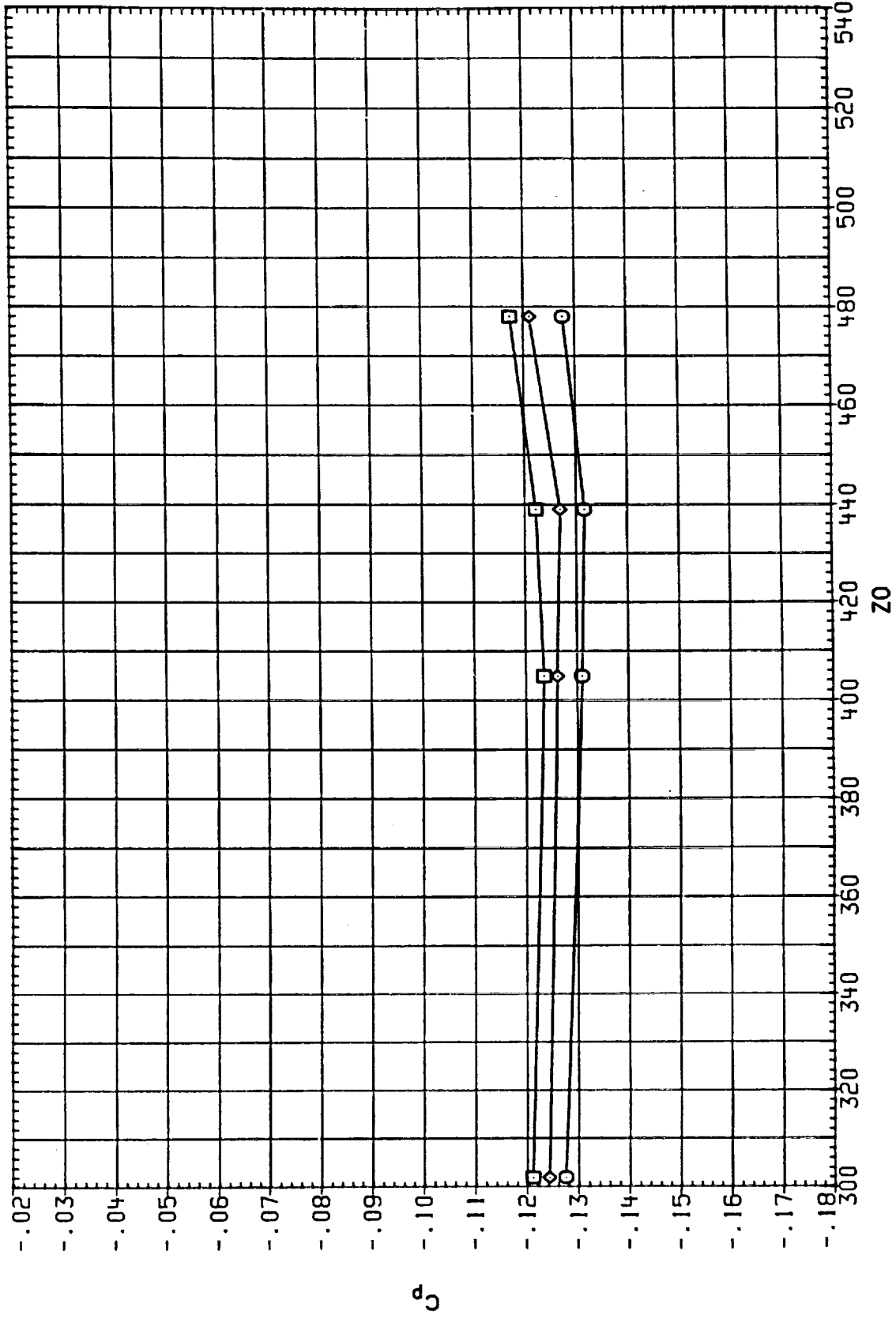


FIGURE 2 IA613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 Y0 = -38.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOE191)	○	IA613A, B/L OT+RSRM+PLUMES S1,2	1.050	.000	10.000	9.000
(RCOE46)	□	IA613A, B/L OT+ASRM+PLUMES S1,2	1.050	.000	10.000	9.000
(RCOE84)	◇	IA613A, B/L OT+ASRM+PLUMES S1,2	1.050	180.000	10.000	9.000

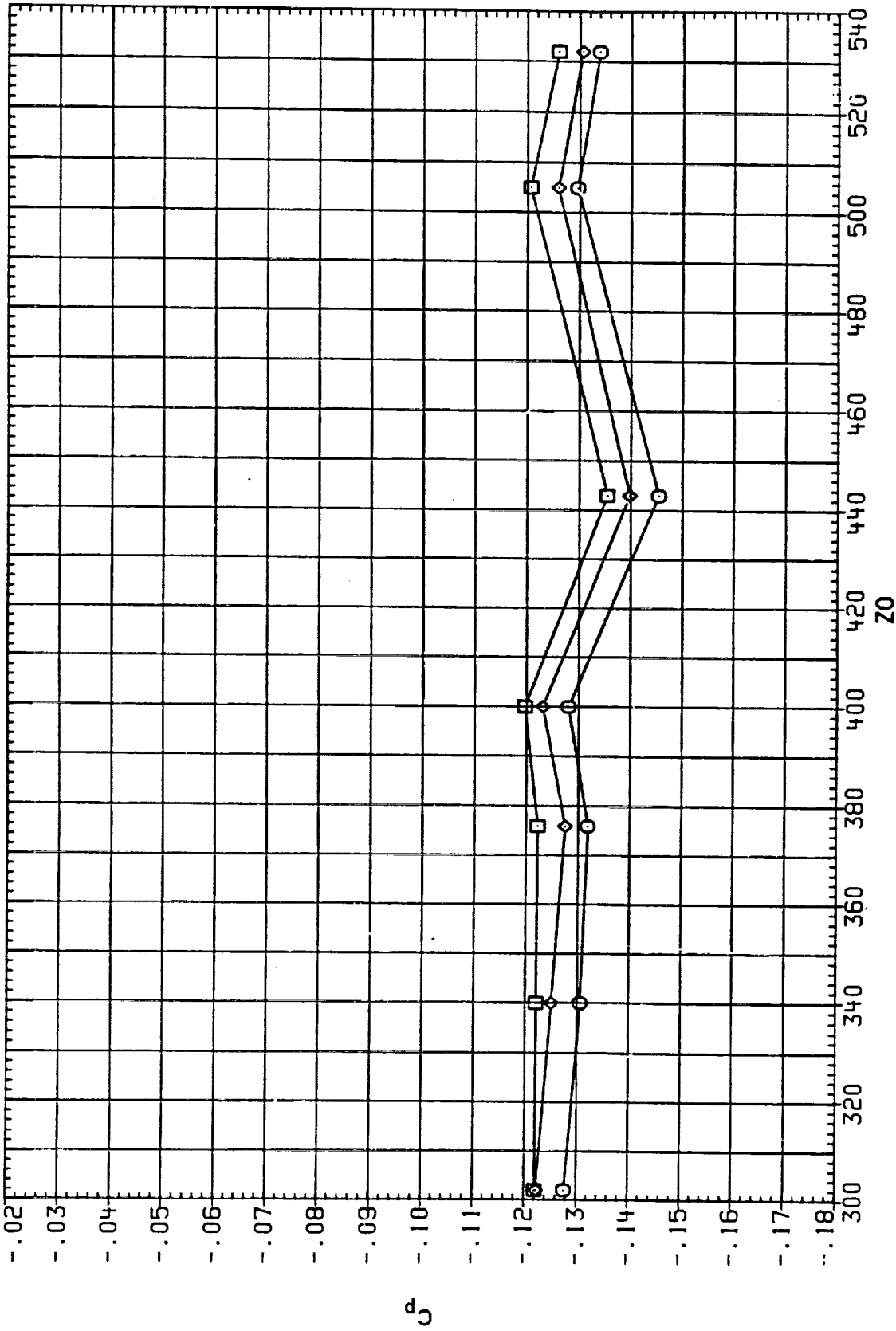


FIGURE 2 IA613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 Y0 = .000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOE20)	○	IAB13A, B/L OT+RSRM+PLUFS S1.2	1.100	.000	10.000	9.000
(RCOE47)	□	IAB13A, B/L OT+ASRM+PLUFS S1.2	1.100	.000	10.000	9.000
(RCOE85)	◇	IAB13A, B/L OT+ASRM+PLUFS S1.2	1.100	180.000	10.000	9.000
(RCOEC31)	△	IAB13A, B/L OT+ASRM+PLUFS S1.2	1.100	999.000	10.000	5.000

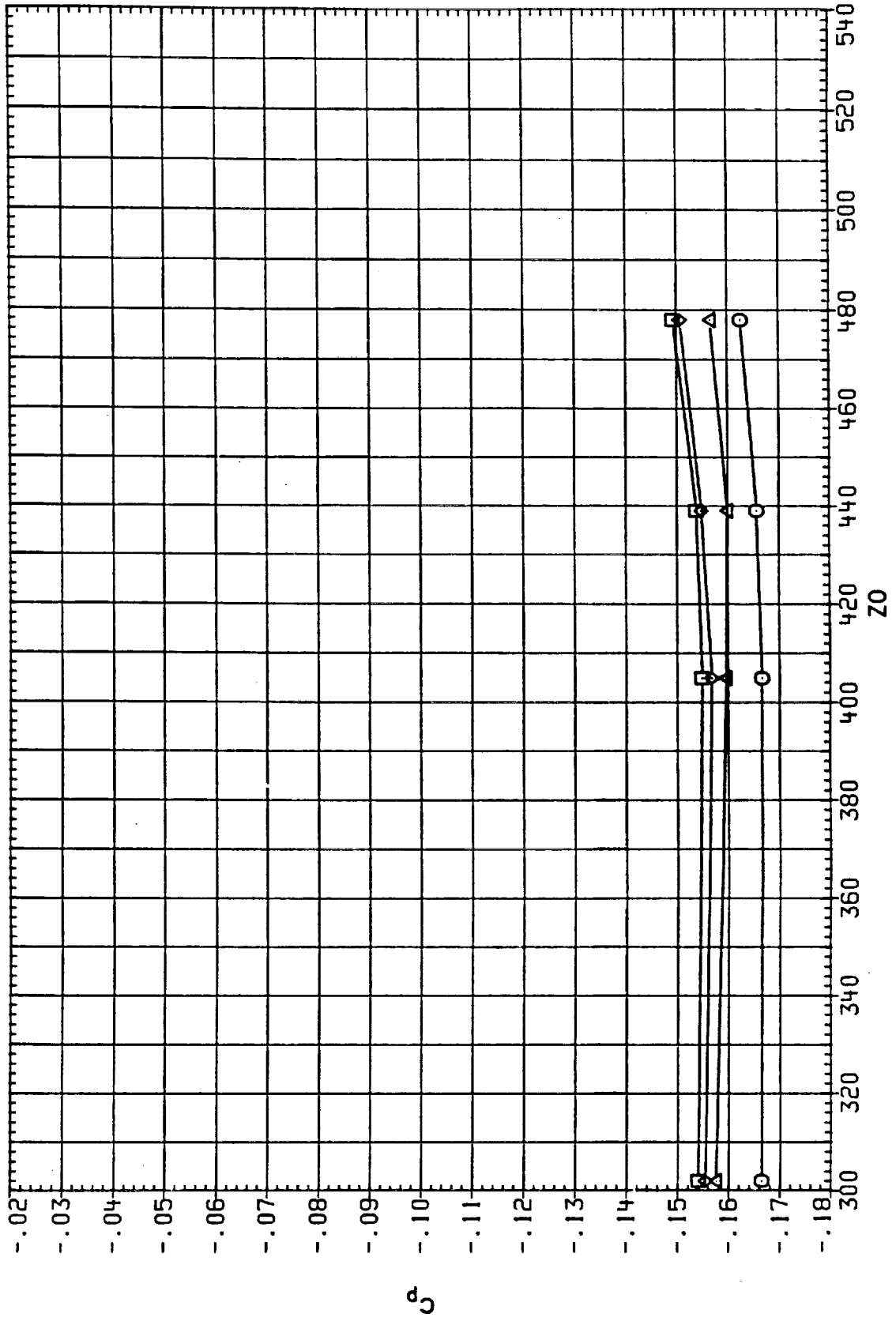


FIGURE 2 IAB13A SELECTED PRESSURE DISTRIBUTIONS
ORBITTER BASE

BETA = .000 Y0 = -38.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	SCALE	SCALE	SCALE
(RCOE20)	○	IA613A,B/L OT+ASRM+PLUMES S1.2	1.100	.000	10.000
(RCOE7)	◇	IA613A,B/L OT+ASRM+PLUMES S1.2	1.100	.000	10.000
(RCOE95)	△	IA613A,B/L OT+ASRM+PLUMES S1.2	1.100	180.000	10.000
(RCOE31)	△	IA613A,B/L OT+ASRM+PLUMES S1.2	1.100	999.000	10.000
		-ORBITER BASE			
		-ORBITER BASE			
		-ORBITER BASE			

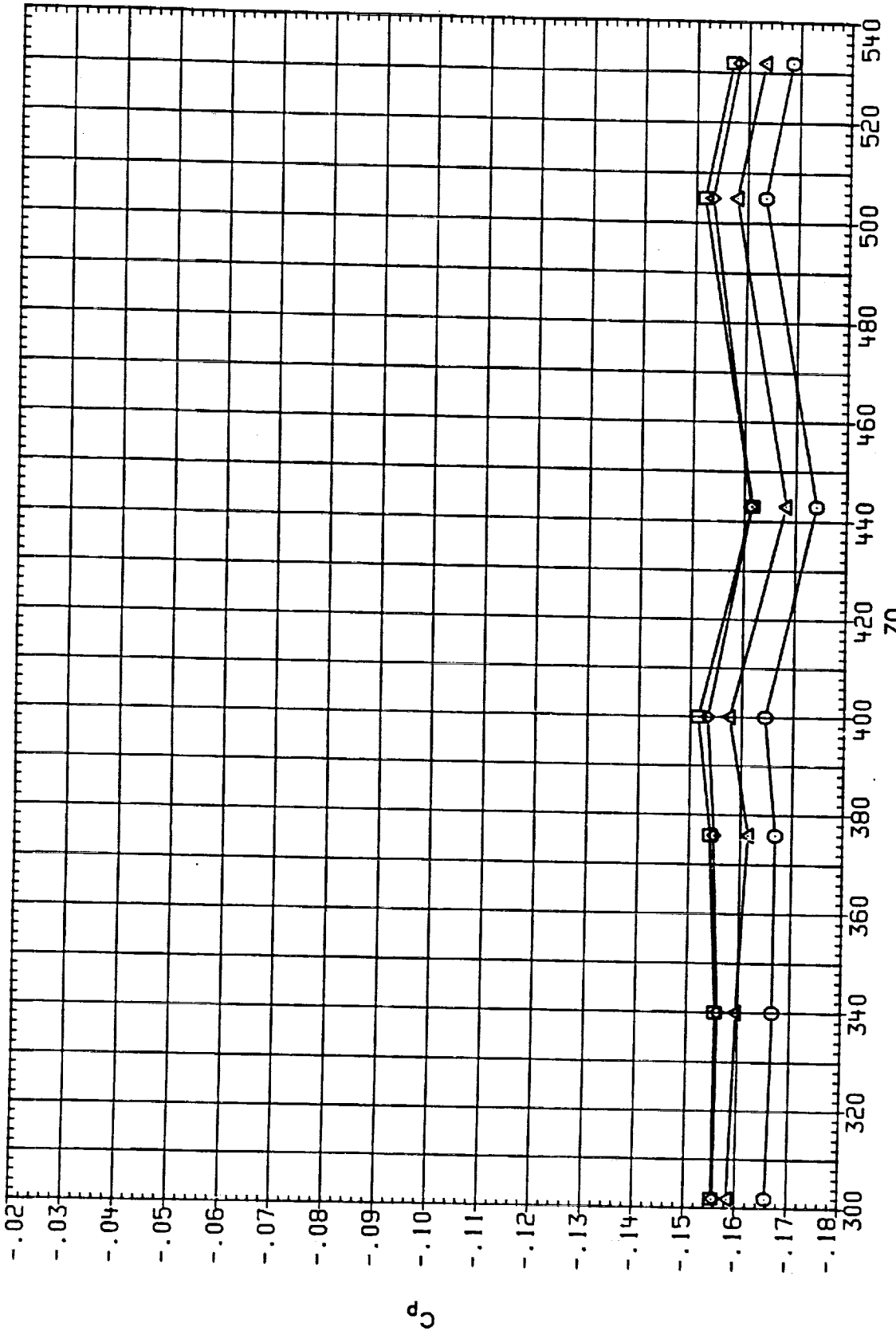


FIGURE 2 IA613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 Y0 = .000 ORBITER BASE ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	LEADBOX	IB-LLV	OB-LLV
(RCOE21)	□	IA613A,B/L OT+RSRM+PLUMES S1.2	1.150	.000	10.000	9.000
(RCOE48)	◇	IA613A,B/L OT+ASRM+PLUMES S1.2	1.150	.000	10.000	9.000
(RCOE86)	◇	IA613A,B/L OT+ASRM+PLUMES S1.2	1.150	180.000	10.000	9.000
(XCOEC4)	△	IA613A,B/L OT+ASRM+PLUMES S1.2	1.150	999.000	10.000	5.000

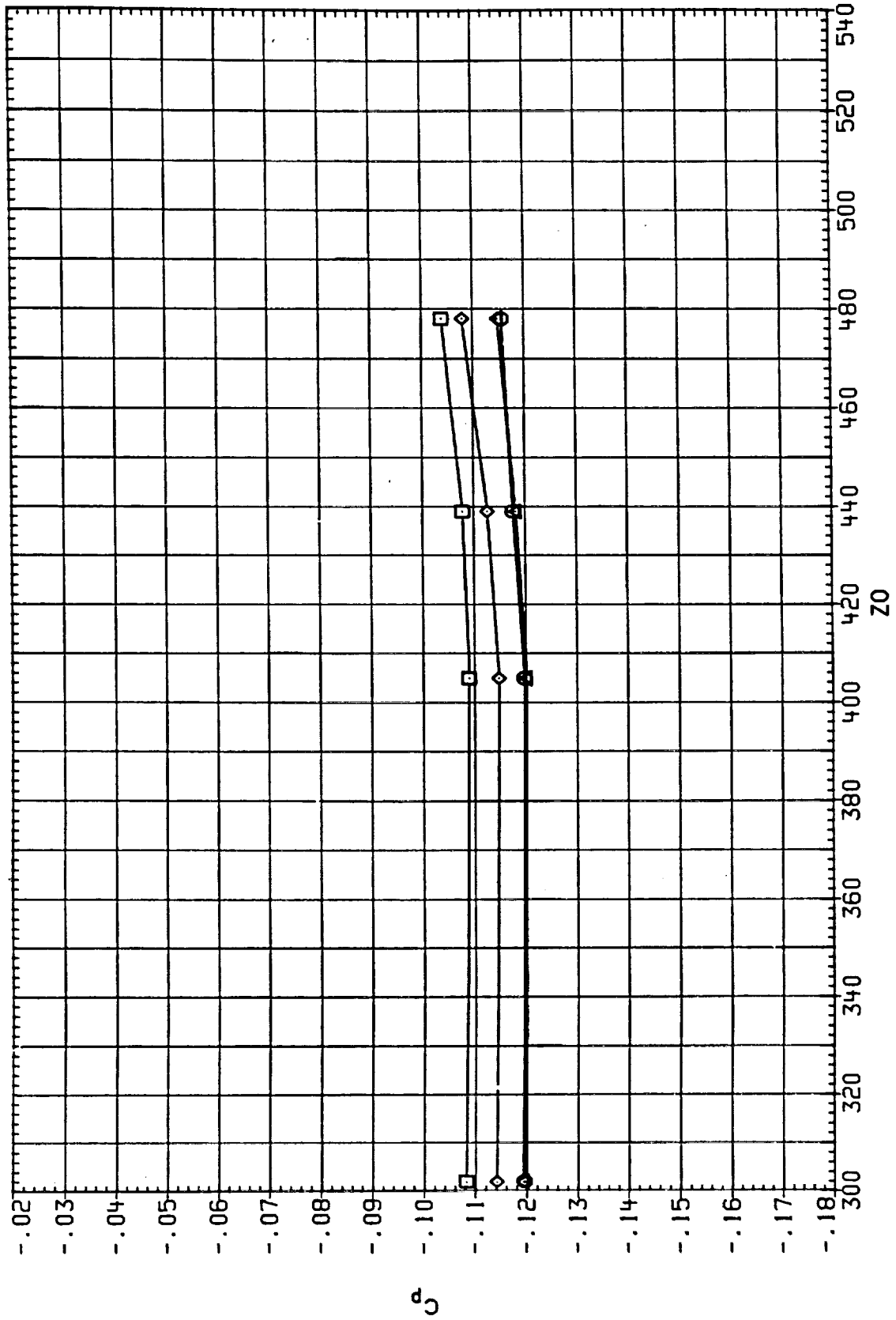


FIGURE 2 IA613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 Y0 = -38.000 ALPHA = .000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MACH	LEBOX	IB-ELV	OB-ELV
(RCOE21)	IAG13A.B/L OT*PSRM*PLUMES S1.2	1.150	.000	10.000	9.000
(RCOE48)	IAG13A.B/L OT*ASRM*PLUMES S1.2	1.150	.000	10.000	9.000
(RCOE86)	IAG13A.B/L OT*ASRM*PLUMES S1.2	1.150	180.000	10.000	9.000
(XCOEC4)	IAG13A.B/L OT*ASRM*PLUMES S1.2	1.150	999.000	10.000	5.000

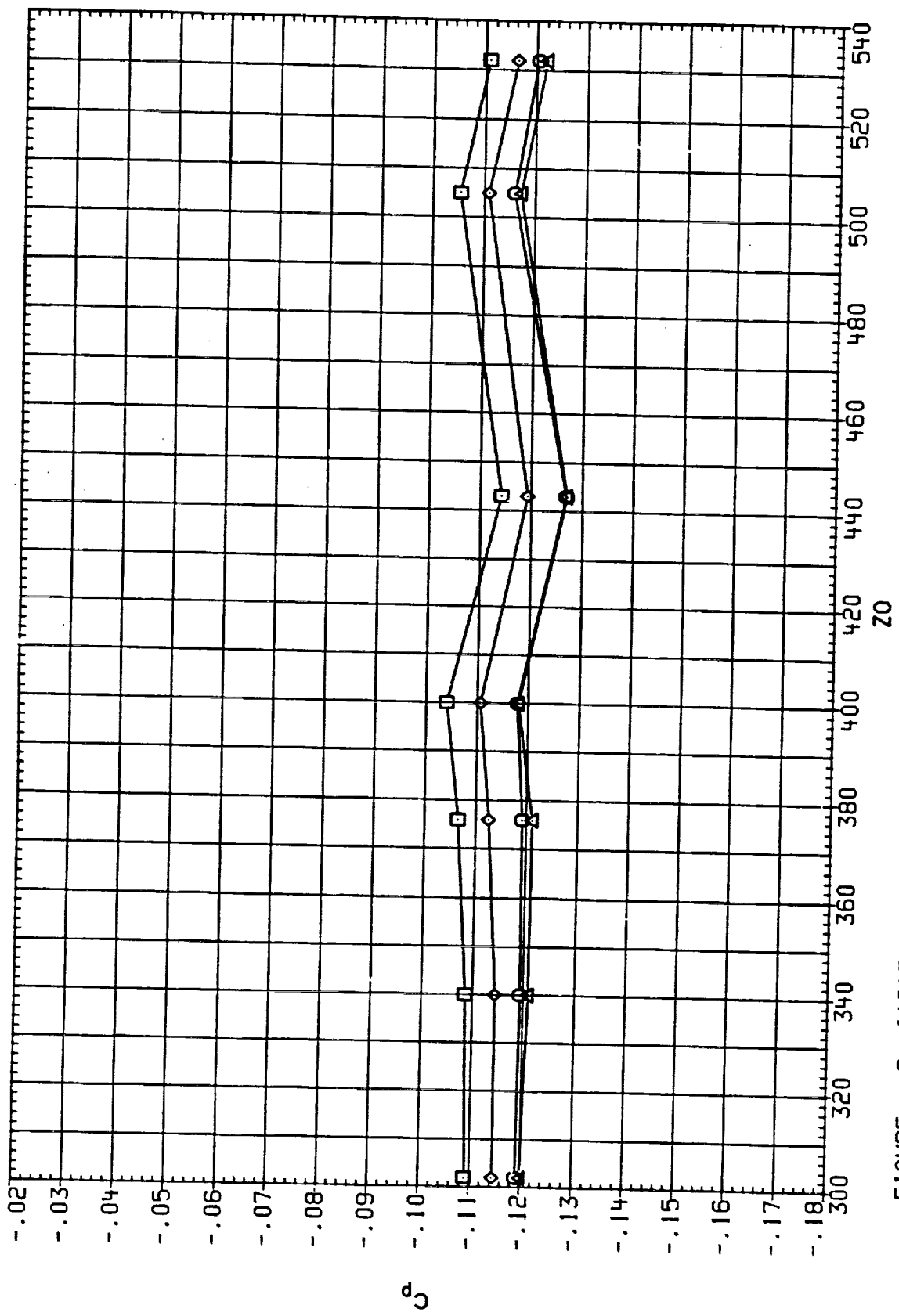


FIGURE 2 IAG13A SELECTED PRESSURE DISTRIBUTIONS
ORBITER BASE

BETA = .000 YO = .000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELY	OB-ELY
(RCOE221)	□	IAG13A.8/L OT*ASRH*PLUMES S1.2	1.250	.000	10.000	9.000
(RCOE491)	○	IAG13A.8/L OT*ASRH*PLUMES S1.2	1.250	.000	10.000	9.000
(RCOE87)	◇	IAG13A.8/L OT*ASRH*PLUMES S1.2	1.250	180.000	10.000	9.000
(RCOECS1)	△	IAG13A.8/L OT*ASRH*PLUMES S1.2	1.250	999.000	10.000	5.000

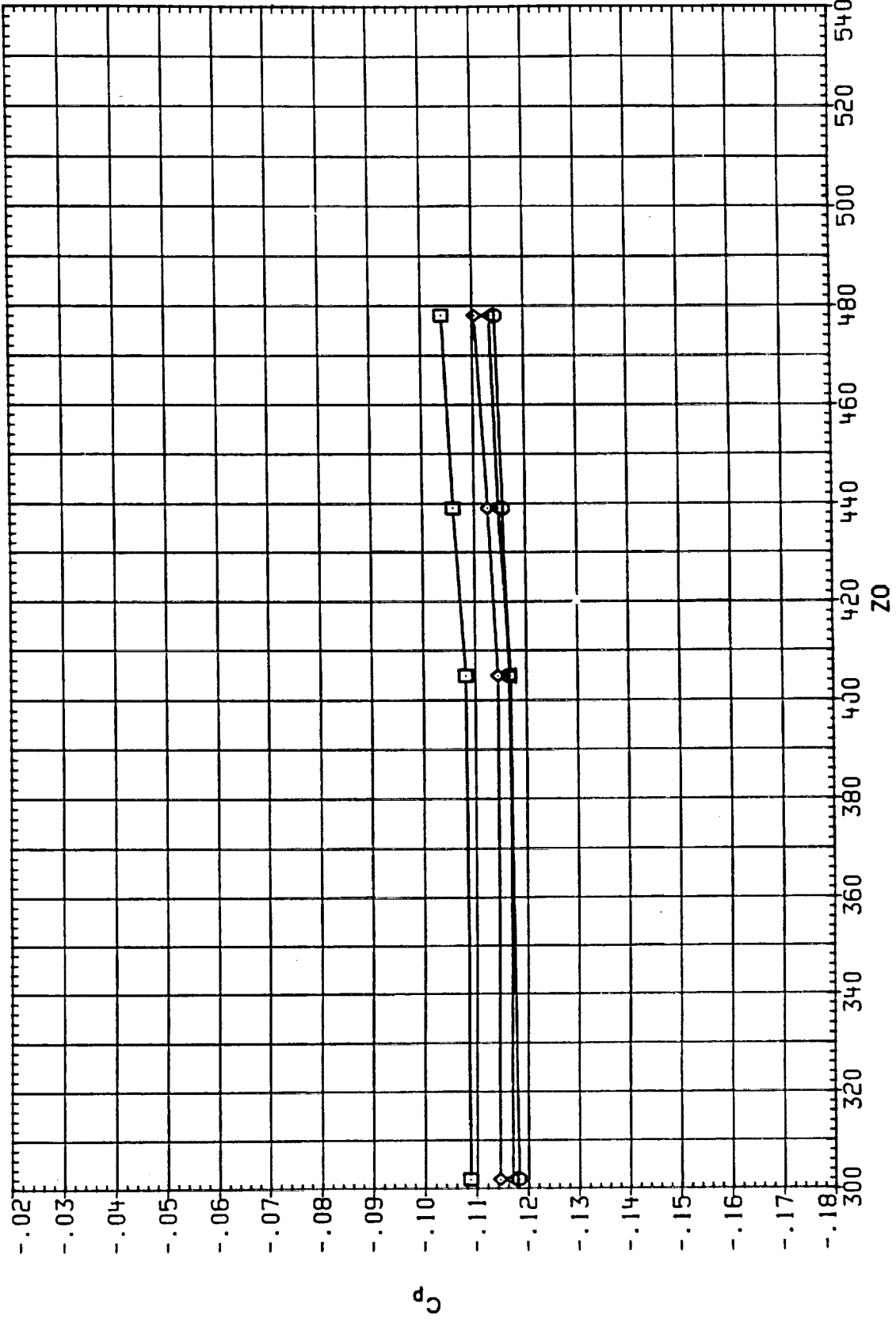


FIGURE 2 IAG13A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 YO = -38.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOE22)	○	IA613A,B/L OI*RSRH*PLUMES S1.2	1.250	.000	10.000	9.000
(RCOE49)	□	IA613A,B/L OI*ASRH*PLUMES S1.2	1.250	.000	10.000	9.000
(RCOE87)	◇	IA613A,B/L OI*ASRH*PLUMES S1.2	1.250	180.000	10.000	9.000
(RCOEC5)	△	IA613A,B/L OI*ASRH*PLUMES S1.2	1.250	999.000	10.000	5.000

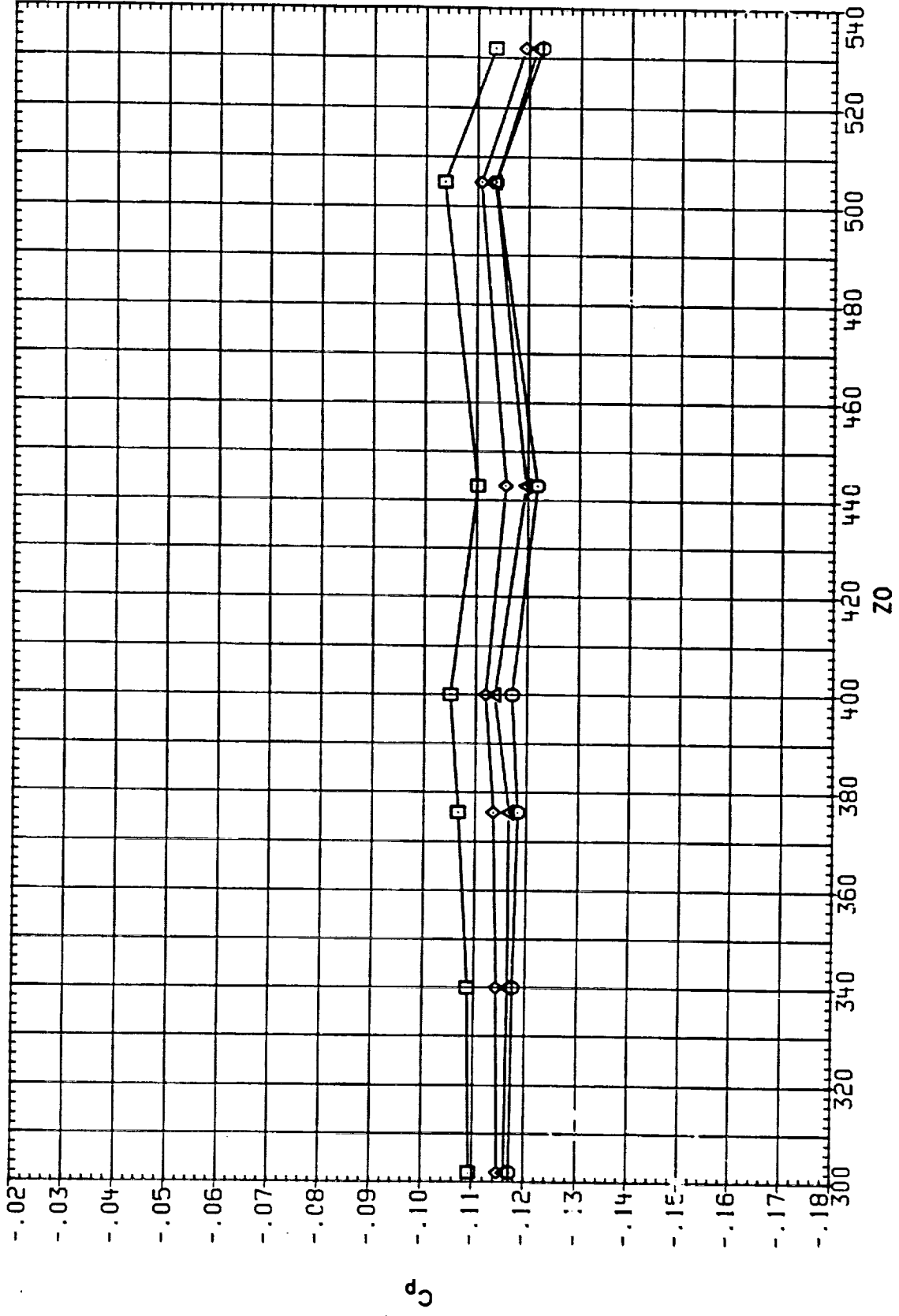


FIGURE 2 IA613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 Y0 = .000 ALPHA = .000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MACH	LEAK	IS-ELY	CS-ELY
(RCOE46)	IA613A, B/L OT+RRM+PLUMES S1.2	1.300	.000	10.000	9.000
(RCOE54)	IA613A, B/L OT+ASRM+PLUMES S1.3	1.300	.000	10.000	5.000
(RCOE89)	IA613A, B/L OT+ASRM+PLUMES S1.3	1.300	180.000	10.000	5.000
(RCOE67)	IA613A, B/L OT+ASRM+PLUMES S1.3	1.300	999.000	10.000	5.000

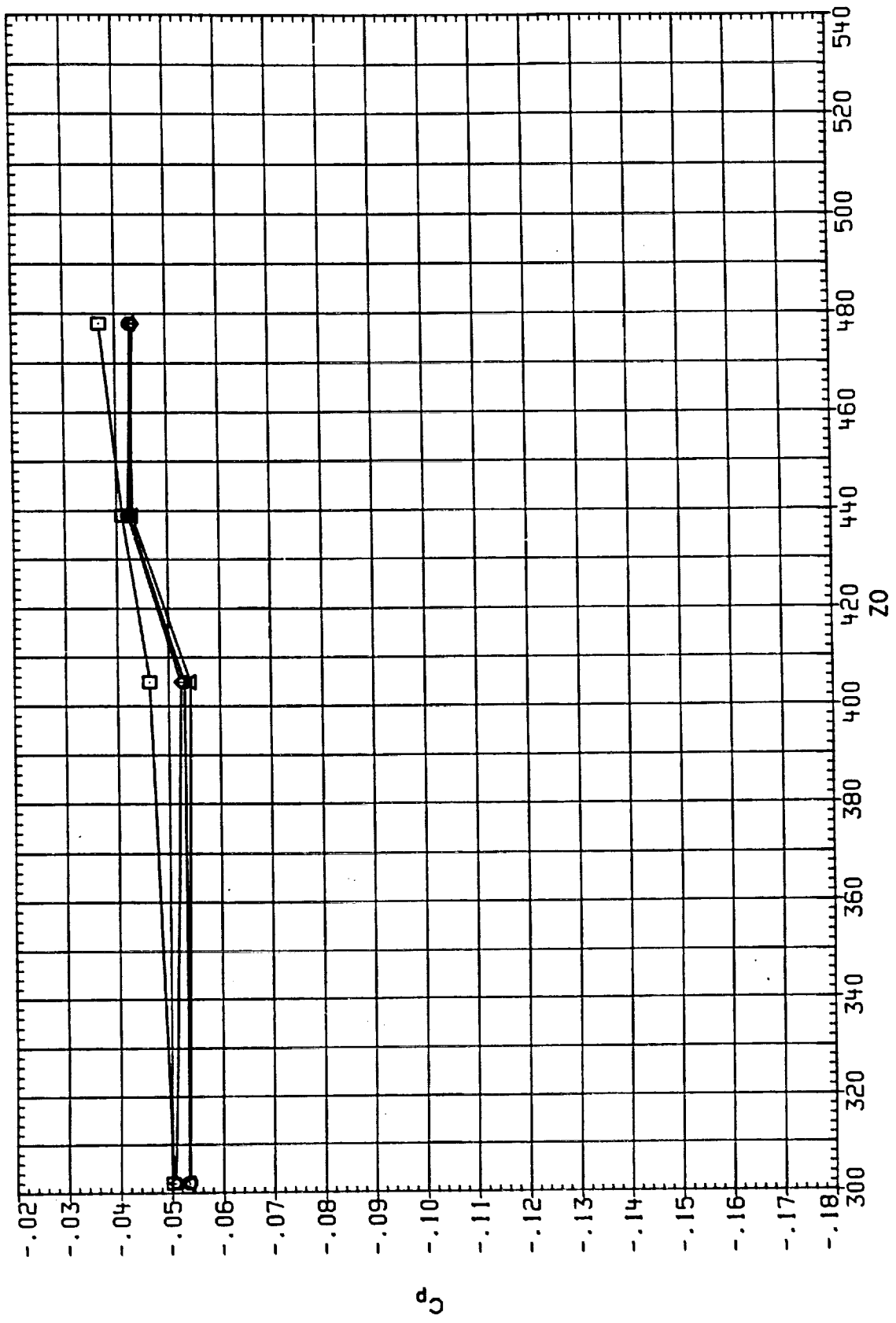


FIGURE 2 IA613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 Y0 = -38.000 ALPHA = .000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELY	OB-ELY
(RCOE46)	IAG13A.B/L OT*ASRM*PLUMES S1.2	1.300	.000	10.000	9.000
(RCOE54)	IAG13A.B/L OT*ASRM*PLUMES S1.3	1.300	.000	10.000	9.000
(RCOE89)	IAG13A.B/L OT*ASRM*PLUMES S1.3	1.300	180.000	10.000	5.000
(RCOE7)	IAG13A.B/L OT*ASRM*PLUMES S1.3	1.300	999.000	10.000	5.000

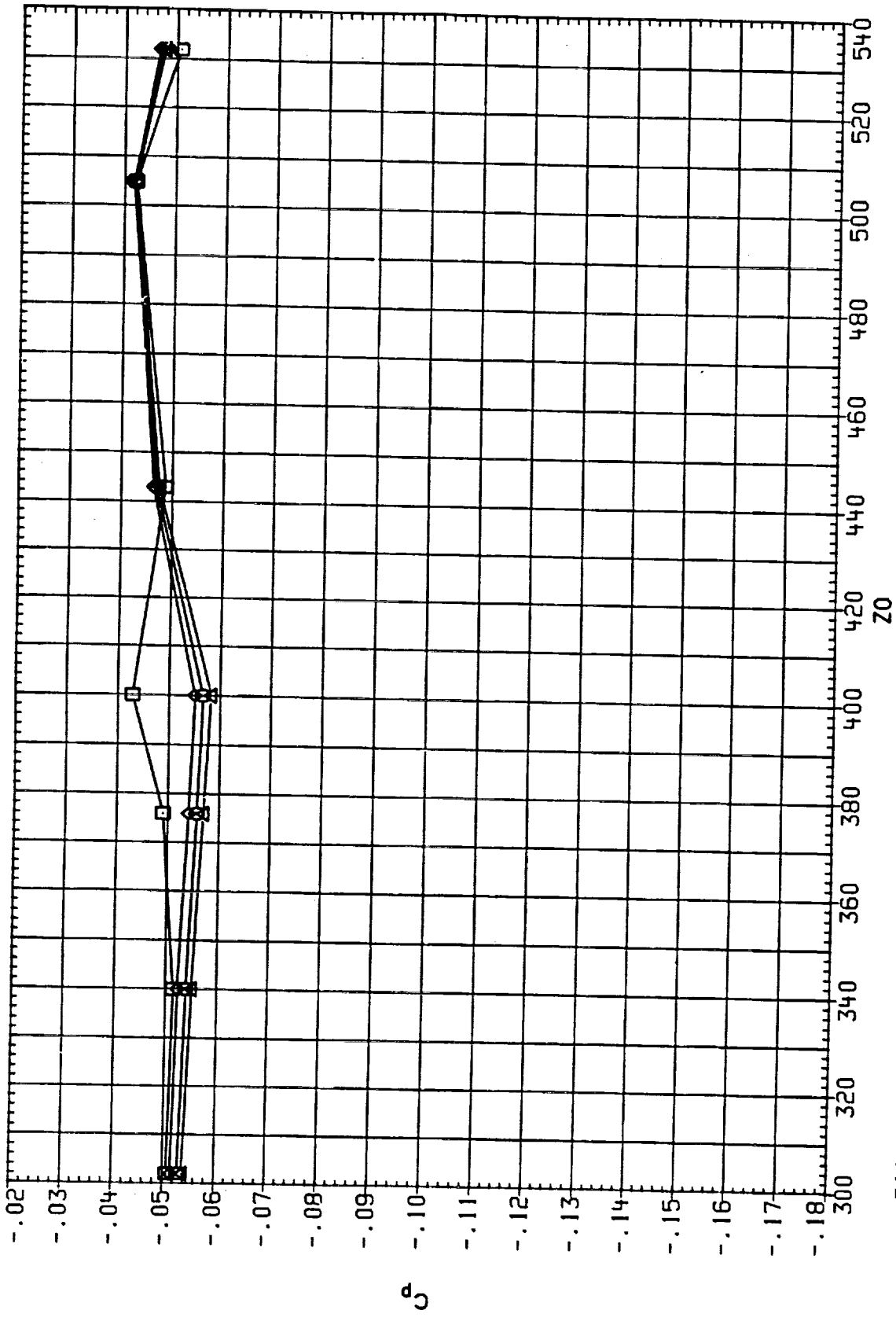


FIGURE 2 IAG13A SELECTED PRESSURE DISTRIBUTIONS
ORBITER BASE

BETA = .000 Y0 = .000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOE7)	□	IA613A,B/L OT+RSRM+PLUMES S1.2	1.350	.000	10.000	9.000
(RCOE55)	□	IA613A,B/L OT+ASRM+PLUMES S1.3	1.350	.000	10.000	5.000
(RCOE90)	◇	IA613A,B/L OT+ASRM+PLUMES S1.3	1.350	180.000	10.000	5.000
(RCOE8)	◇	IA613A,B/L OT+ASRM+PLUMES S1.3	1.350	999.000	10.000	5.000

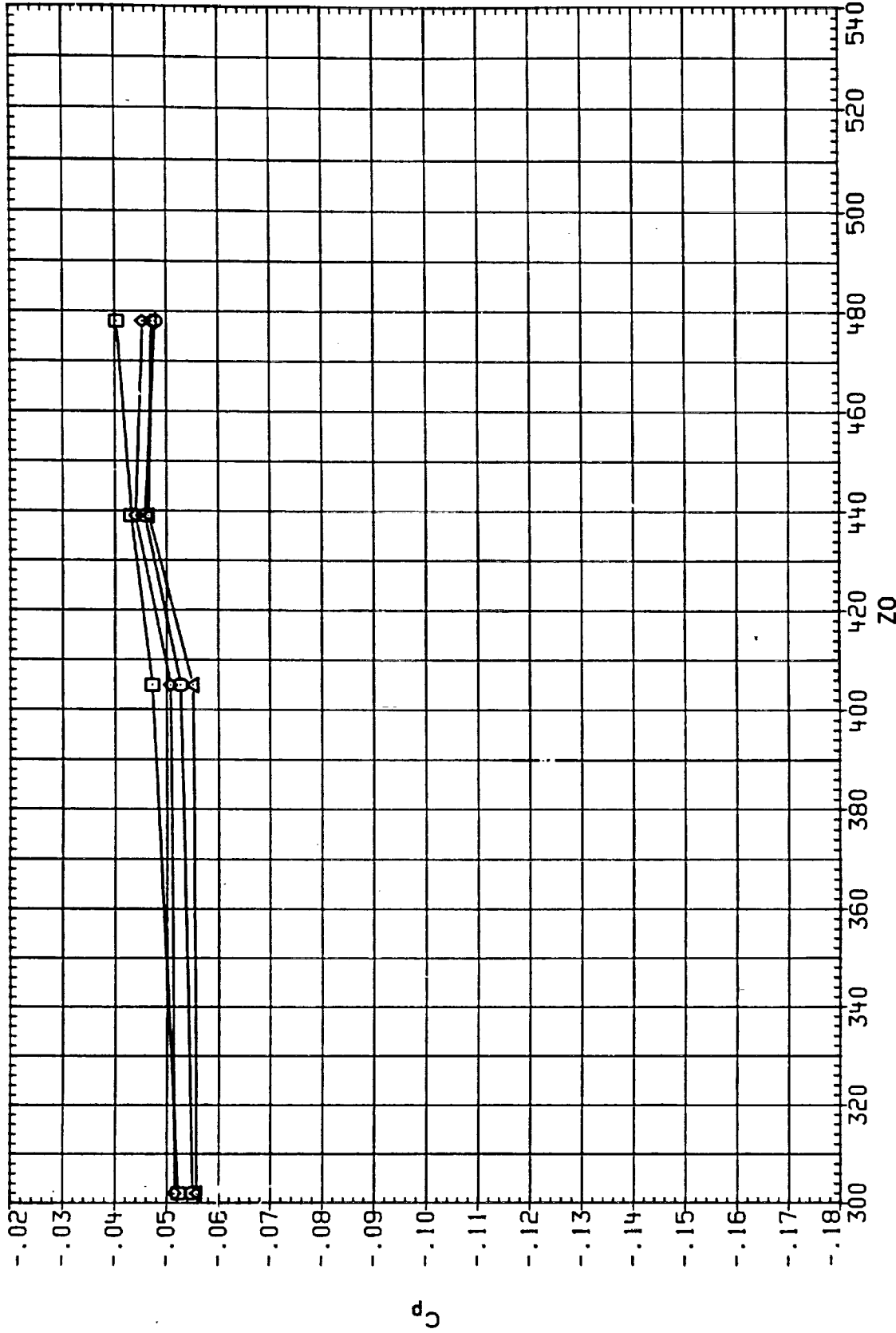


FIGURE 2 IA613A SELECTED PRESSURE DISTRIBUTIONS
ORBITER BASE

BETA = .000 Y0 = -38.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOE7)	○	IA613A.B/L OT+ASRM+PLUMES S1.2	1.350	.000	10.000	9.000
(RCOE5)	□	IA613A.B/L OT+ASRM+PLUMES S1.3	1.350	.000	10.000	5.000
(RCOE9)	◇	IA613A.B/L OT+ASRM+PLUMES S1.3	1.350	180.000	10.000	5.000
(RCOEC8)	△	IA613A.B/L OT+ASRM+PLUMES S1.3	1.350	999.000	10.000	5.000

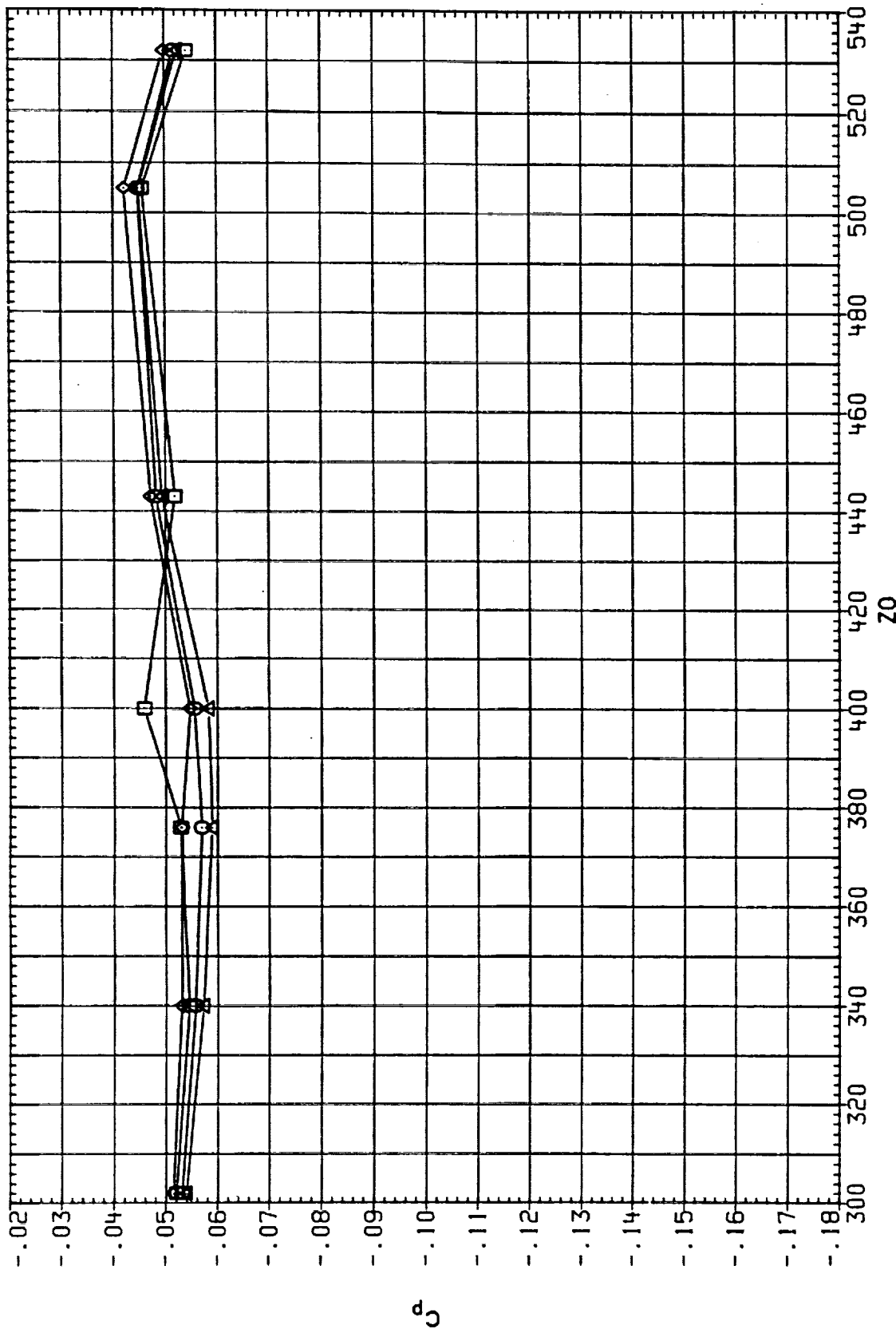


FIGURE 2 IA613A SELECTED PRESSURE DISTRIBUTIONS
ORBITER BASE

BETA = .000 Y0 = .000 ALPHA = .000 PAGE 44

DATA SET	SYMB-L	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOE81)	○	IA613A.B/L OT+ASRM+PLUMES S1.2	1.400	.000	10.000	9.000
(RCOE56)	○	IA613A.B/L OT+ASRM+PLUMES S1.3	1.400	.000	10.000	5.000
(RCOE91)	◇	IA613A.B/L OT+ASRM+PLUMES S1.3	1.400	180.000	10.000	5.000
(RCOE93)	△	IA613A.B/L OT+ASRM+PLUMES S1.3	1.400	999.000	10.000	5.000

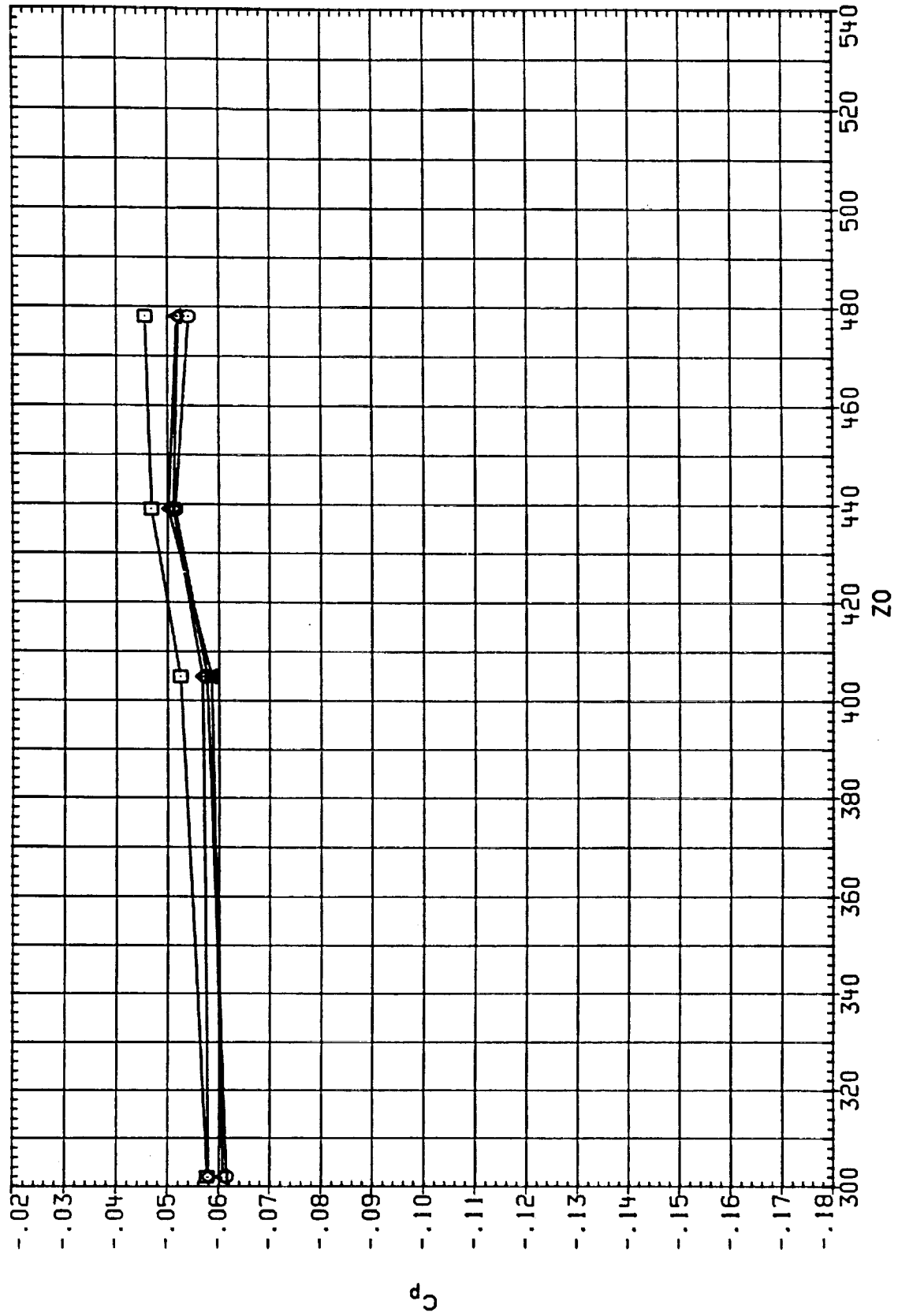


FIGURE 2 IA613A SELECTED PRESSURE DISTRIBUTIONS
ORBITER BASE

BETA = .000 Y0 = -38.000 ALPHA = .000

DATA SET SYMB'A	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOE8)	IA613A,B/L 01*RSRH*PLUMES S1.2	1.400	.000	10.000	9.000
(RCOE56)	IA613A,B/L 01*ASRH*PLUMES S1.3	1.400	.000	10.000	5.000
(RCOE91)	IA613A,B/L 01*ASRH*PLUMES S1.3	1.400	180.000	10.000	5.000
(RCOE9)	IA613A,B/L 01*ASRH*PLUMES S1.3	1.400	999.000	10.000	5.000

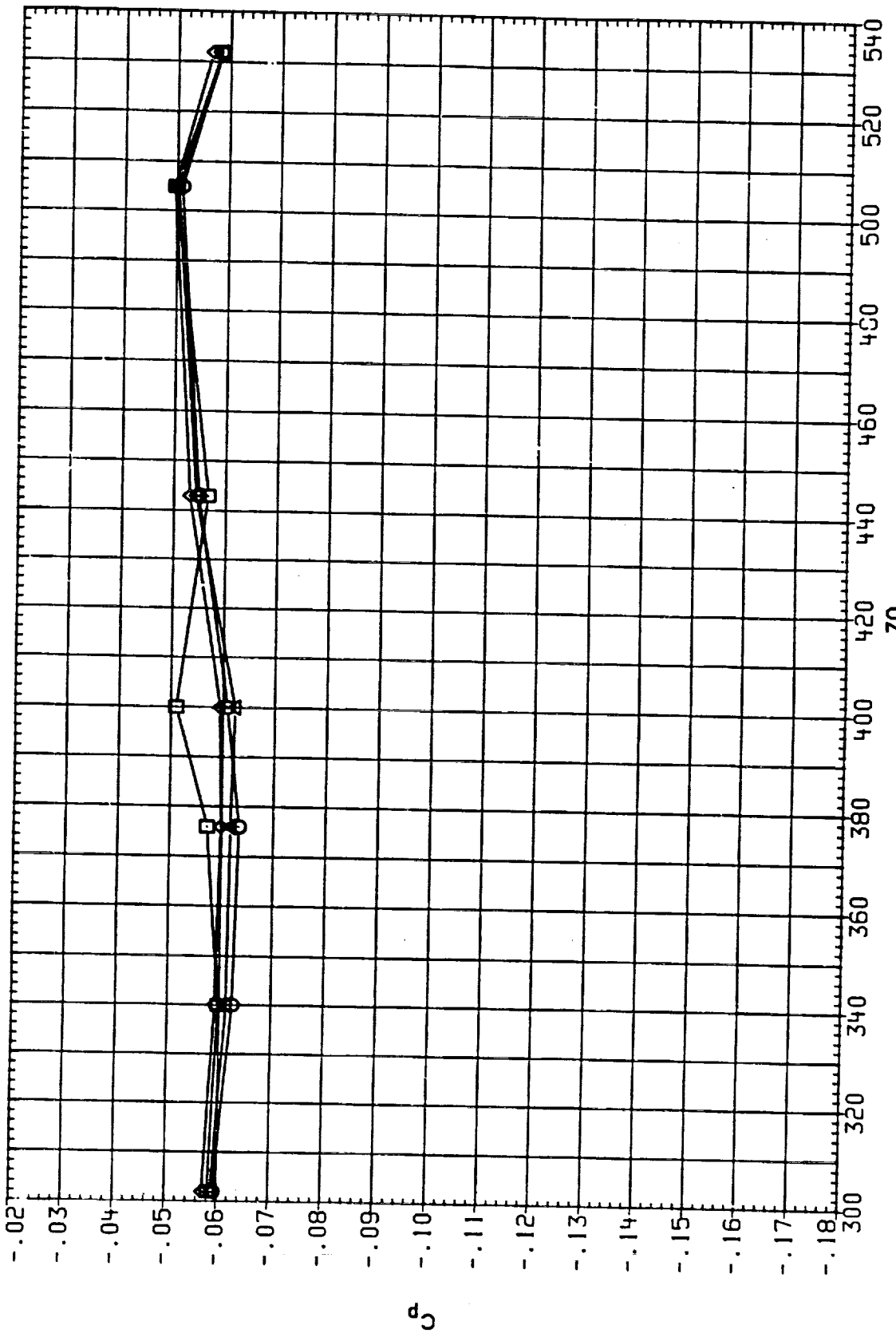


FIGURE 2 IA613A SELECTED PRESSURE DISTRIBUTIONS
ORBITER BASE

BETA = .000 Y0 = .000 ALPHA = .000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOE91)	I A613A, B/L 01+RSRM+PLUMES S1,2	1.550	.000	10.000	9.000
(RCOE57)	I A613A, B/L 01+ASRM+PLUMES S1,3	1.550	.000	10.000	5.000
(RCOE92)	I A613A, B/L 01+ASRM+PLUMES S1,3	1.550	180.000	10.000	5.000
(RCOE00)	I A613A, B/L 01+ASRM+PLUMES S1,3	1.550	999.000	10.000	5.000

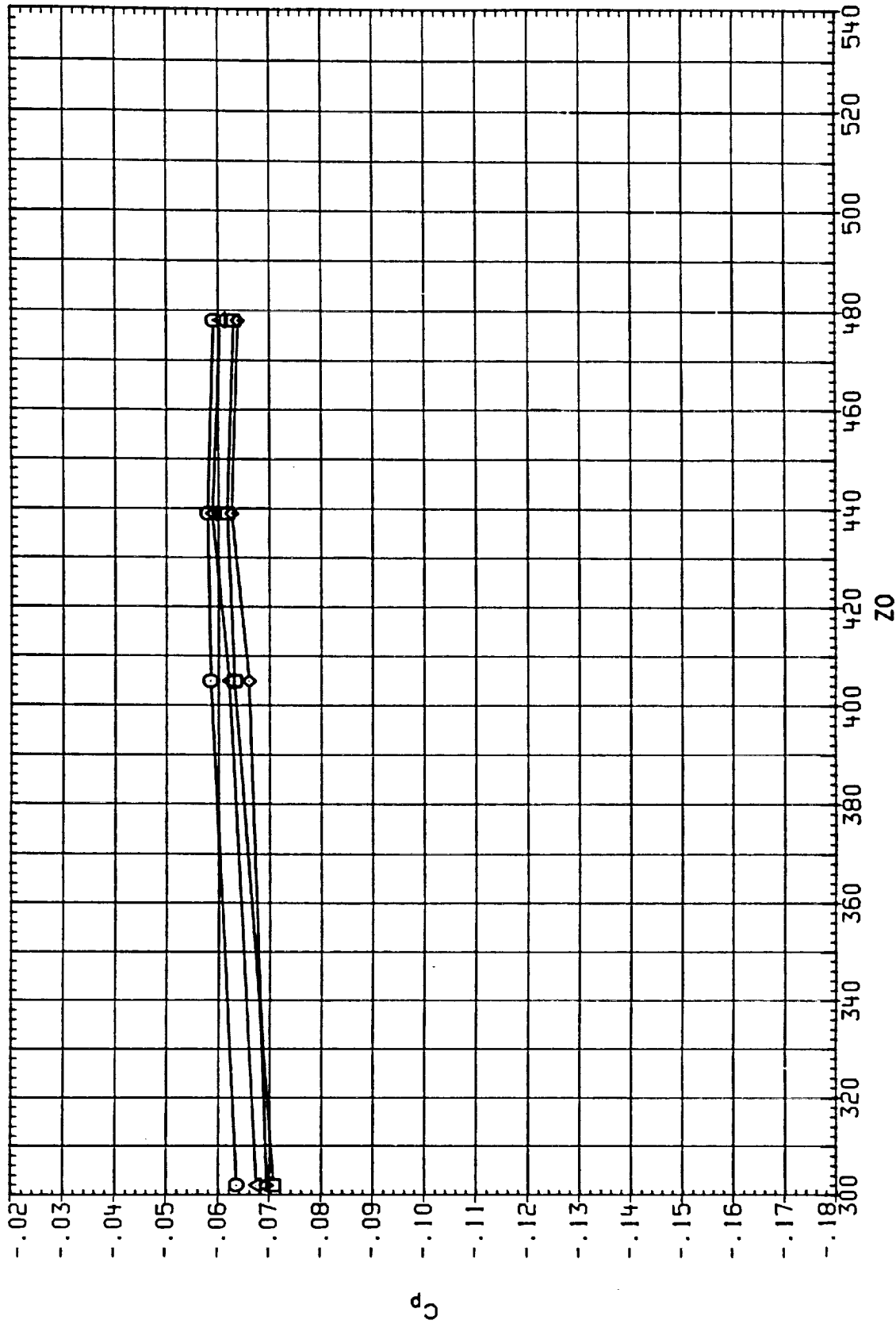


FIGURE 2 I A613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 Y0 = -38.000 ALPHA = .000

DATA SET S/MEOUL CONFIGURATION DESCRIPTION
 (RCOE9) IAG13A .8/L 01*ASRM*PLUMES SI .2
 (RCOE57) IAG13A .8/L 01*ASRM*PLUMES SI .3
 (RCOE92) IAG13A .8/L 01*ASRM*PLUMES SI .3
 (RCOE00) IAG13A .8/L 01*ASRM*PLUMES SI .3
 -ORBITTER BASE
 -ORBITTER BASE
 -ORBITTER BASE
 MACH IE-ABOX IE-CLV OB-ELV
 1.550 .000 10.000 9.000
 1.550 .000 10.000 5.000
 1.550 180.000 10.000 5.000
 1.550 999.000 10.000 5.000

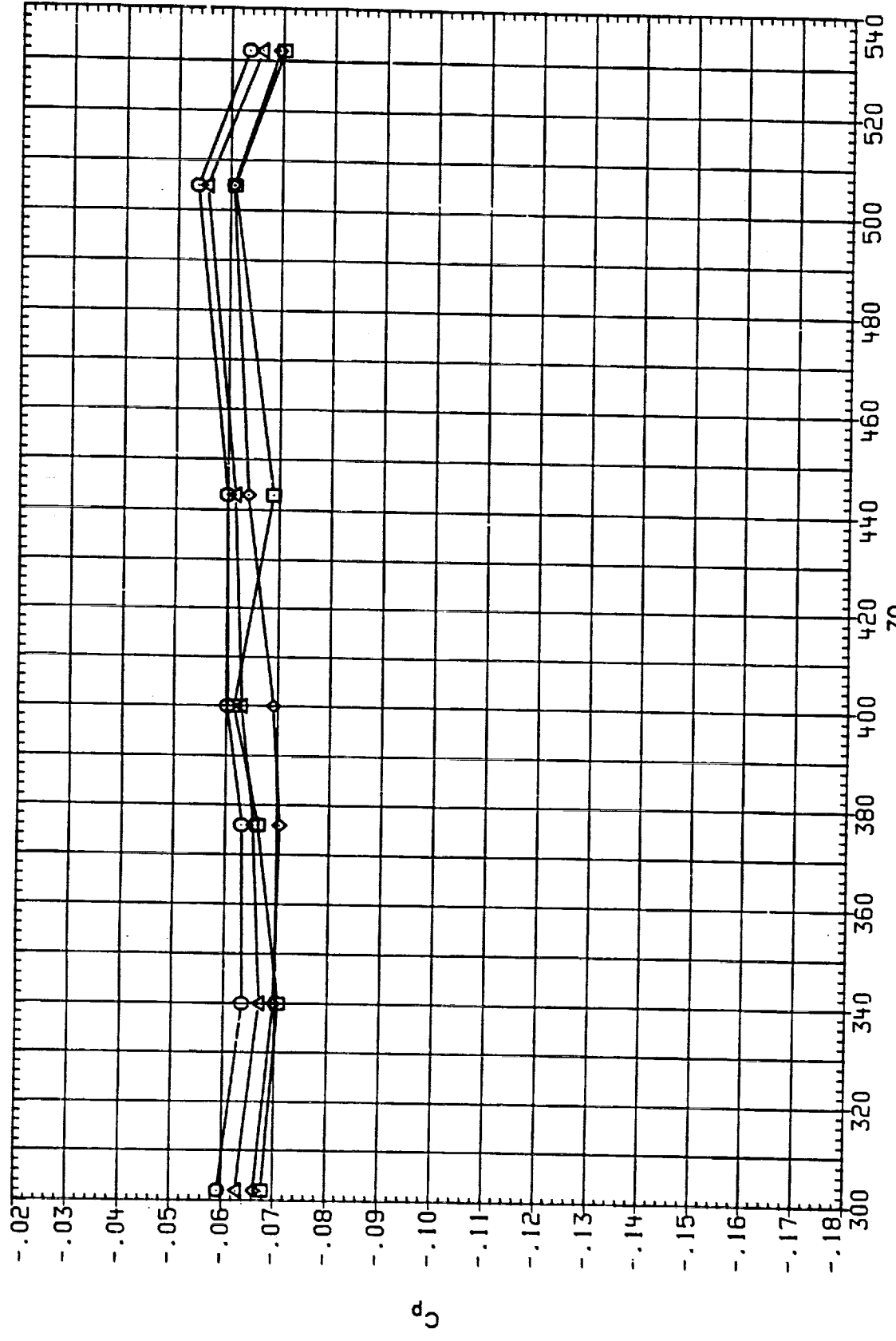


FIGURE 2 IAG13A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 Y0 = .000 ORBITTER BASE ALPHA = .000
 PAGE 48

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RC0615)	□	IA613A, B/L 01+RSRH+PLUMES SI.2	.600	.000	10.000	9.000
(RC0642)	◇	IA613A, B/L 01+ASRH+PLUMES SI.2	.600	.000	10.000	9.000
(RC0680)	◇	IA613A, B/L 01+ASRH+PLUMES SI.2	.600	180.000	10.000	9.000
(RC06C1)	△	IA613A, B/L 01+ASRH+PLUMES SI.2	.600	999.000	10.000	5.000

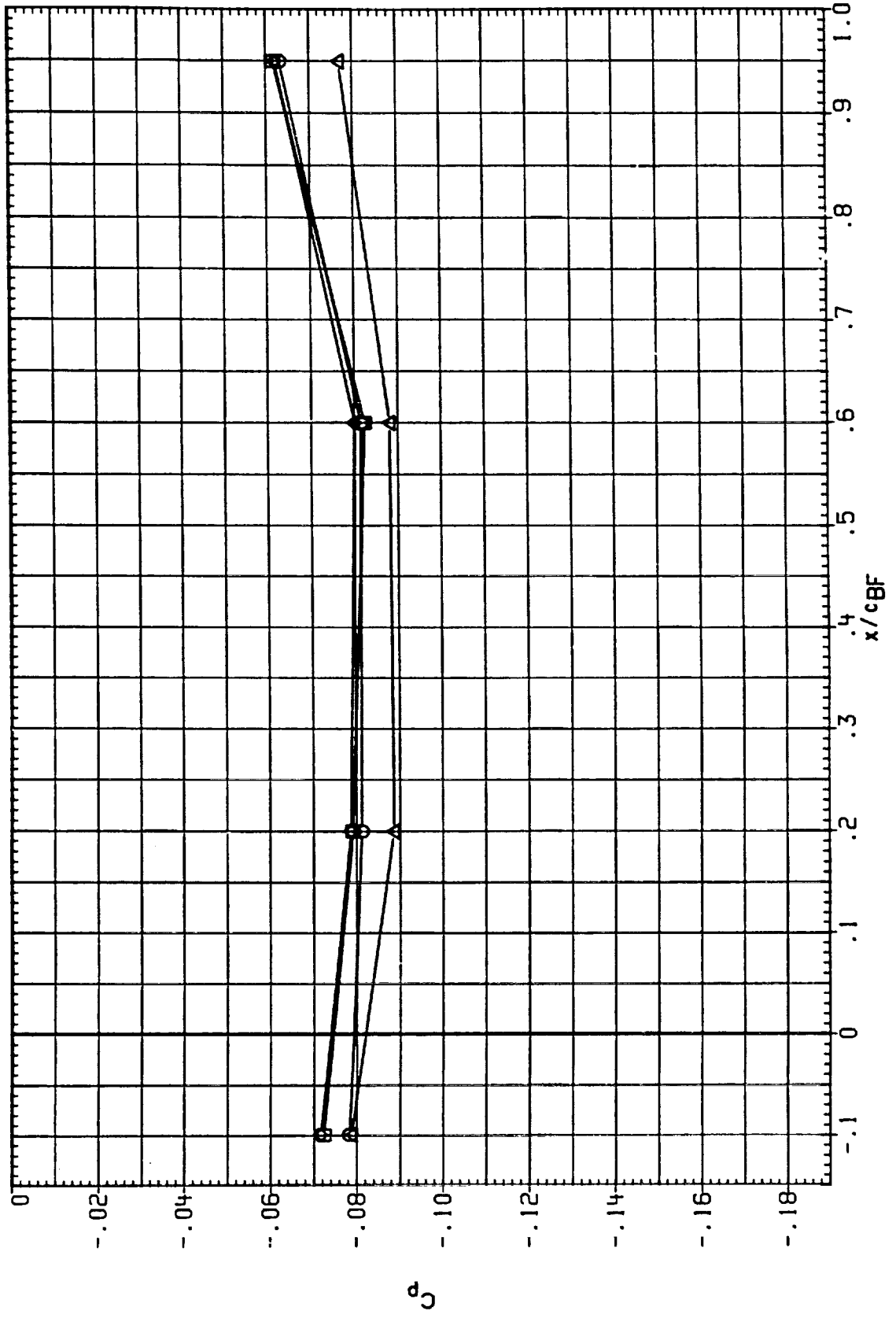


FIGURE 3 IA613A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER BODY FLAP - UPPER SURFACE
 BETA = .000 ETA = .100 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOG15)	○	IA613A,B/L OT+RSRM+PLUMES S1.2	.600	.000	10.000	9.000
(RCOG21)	□	IA613A,B/L OT+ASRM+PLUMES S1.2	.600	.000	10.000	9.000
(RCOG80)	◇	IA613A,B/L OT+ASRM+PLUMES S1.2	.600	180.000	10.000	9.000
(RCOGC1)	△	IA613A,B/L OT+ASRM+PLUMES S1.2	.600	999.000	10.000	5.000

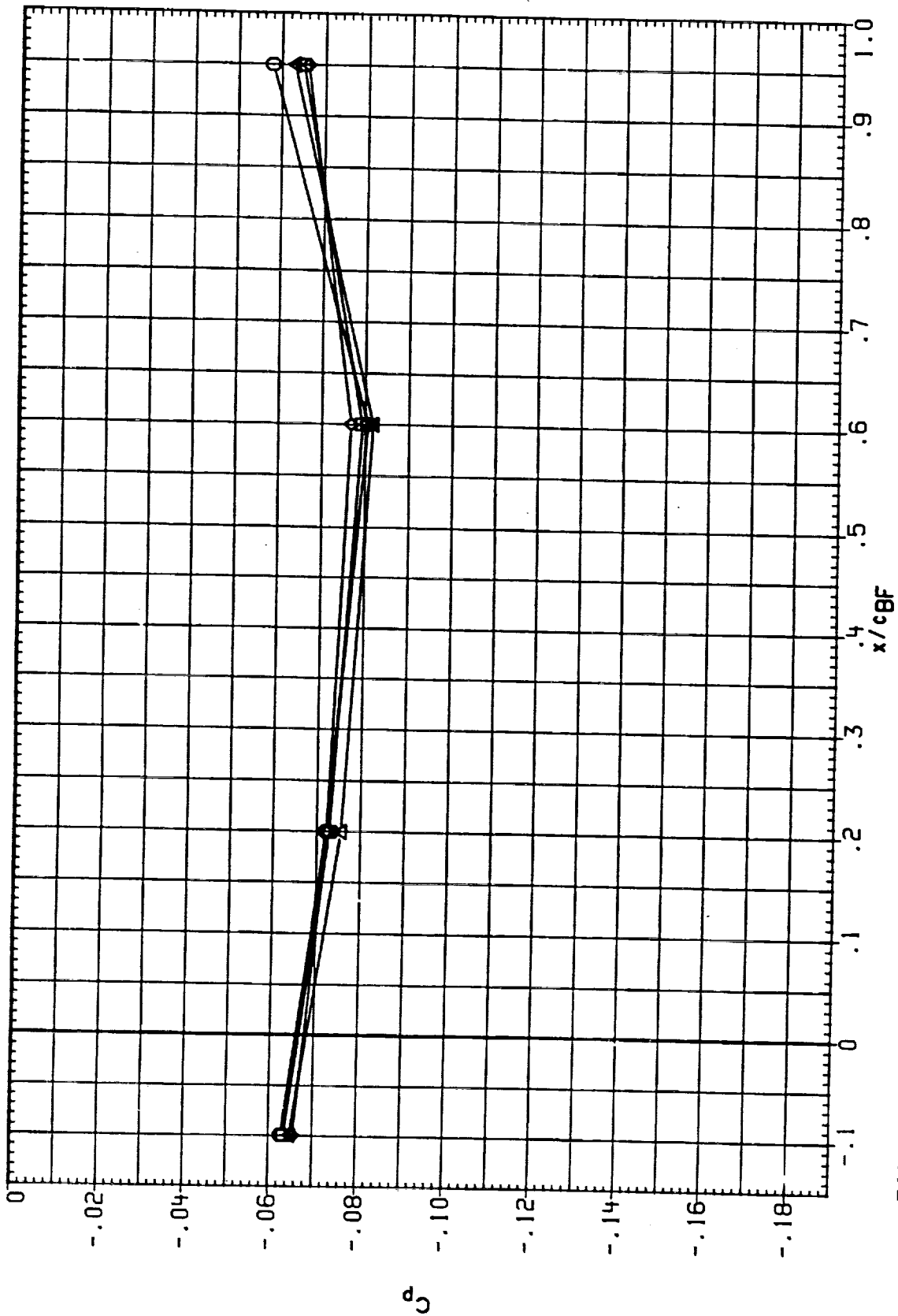


FIGURE 3 IA613A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER BODY FLAP - UPPER SURFACE
 BETA = .000, ETA = .500, ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RC0016)	○	IAB13A,B/L OT+RSRH+PLUMES S1.2 -BODY FLAP UPPER	.800	.000	10.000	9.000
(RC0043)	◇	IAB13A,B/L OT+ASRH+PLUMES S1.2 -BODY FLAP UPPER	.800	.000	10.000	9.000
(RC0081)	□	IAB13A,B/L OT+ASRH+PLUMES S1.2 -BODY FLAP UPPER	.800	180.000	10.000	9.000

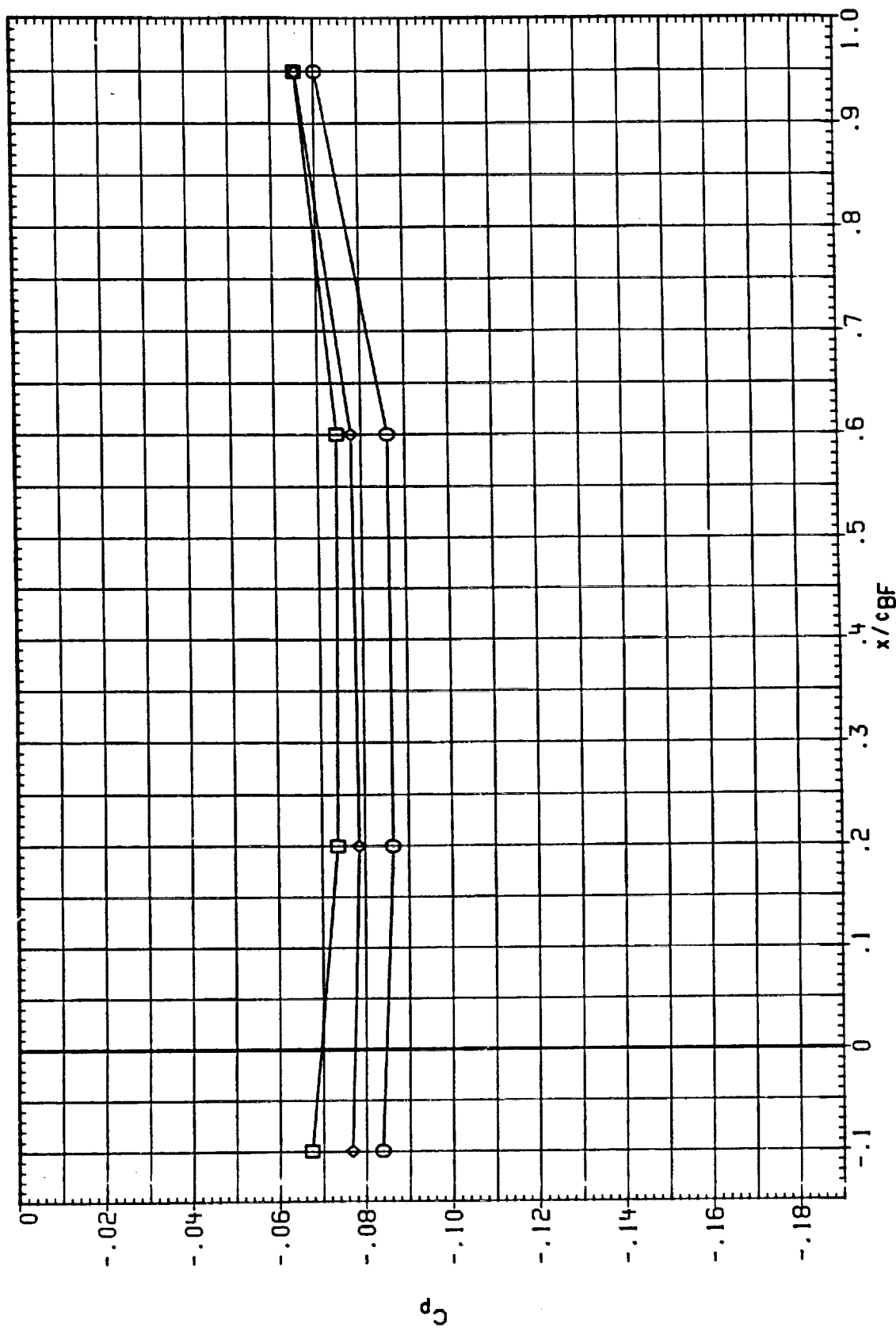


FIGURE 3 IAB13A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER BODY FLAP - UPPER SURFACE
 BETA = .000 ETA = .100 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOG161)	□	IA613A .B/L OT+PSRM+PLUMES S1.2 -BODY FLAP UPPER	.800	.000	10.000	9.000
(RCOG431)	◇	IA613A .B/L OT+ASRM+PLUMES S1.2 -BODY FLAP UPPER	.800	.000	10.000	9.000
(RCOG811)	◇	IA613A .B/L OT+ASRM+PLUMES S1.2 -BODY FLAP UPPER	.800	180.000	10.000	9.000

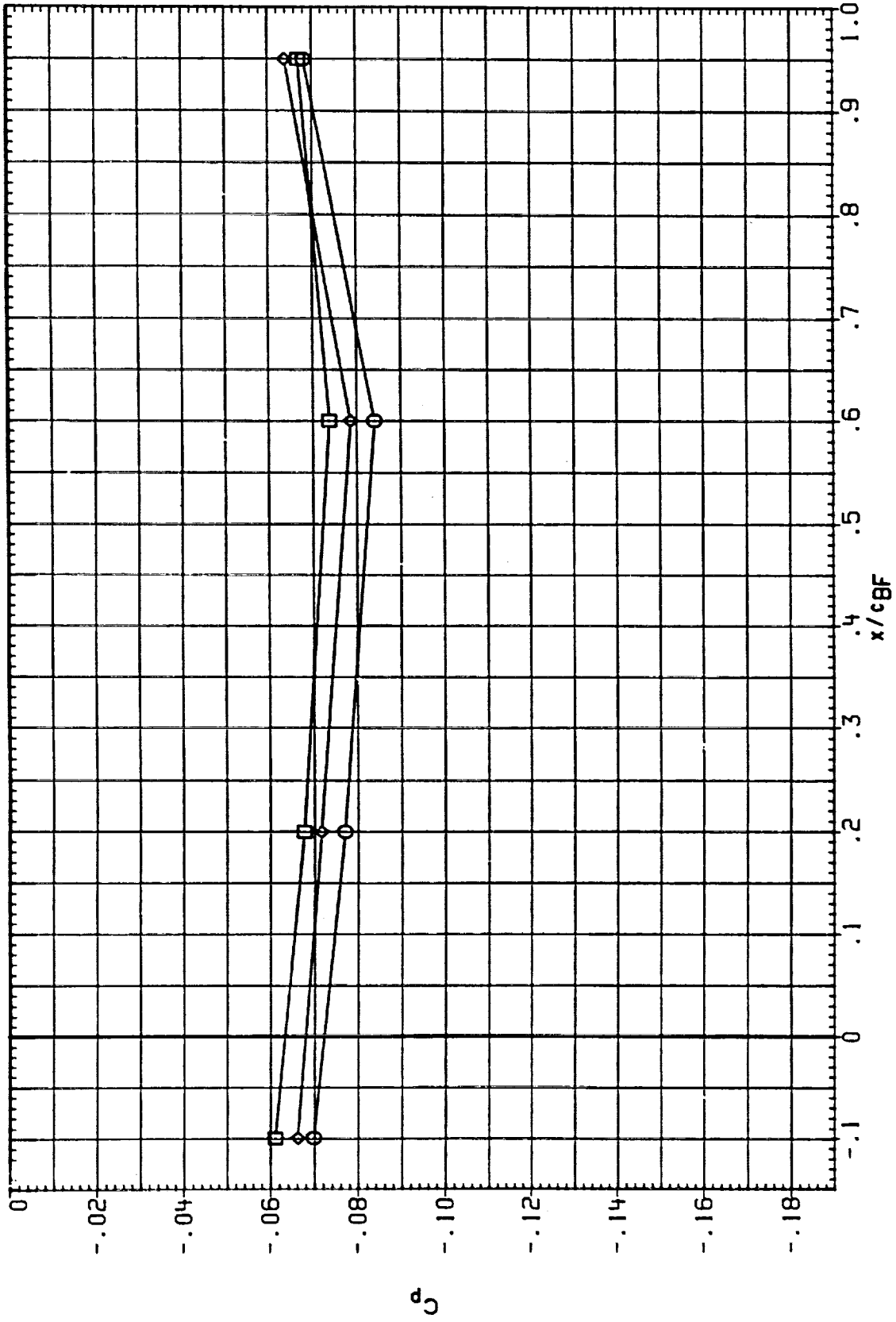


FIGURE 3 IA613A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER BODY FLAP - UPPER SURFACE
 BETA = .000 ETA = .500 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RC0617)	□	IA613A.B/L 01*RSRH*PLUMES S1.2 -BODY FLAP UPPER	.900	.000	10.000	9.000
(RC0644)	○	IA613A.B/L 01*ASRH*PLUMES S1.2 -BODY FLAP UPPER	.900	.000	10.000	9.000
(RC0682)	△	IA613A.B/L 01*ASRH*PLUMES S1.2 -BODY FLAP UPPER	.900	180.000	10.000	9.000
(RC06C2)	◇	IA613A.B/L 01*ASRH*PLUMES S1.2 -BODY FLAP UPPER	.900	999.000	10.000	5.000

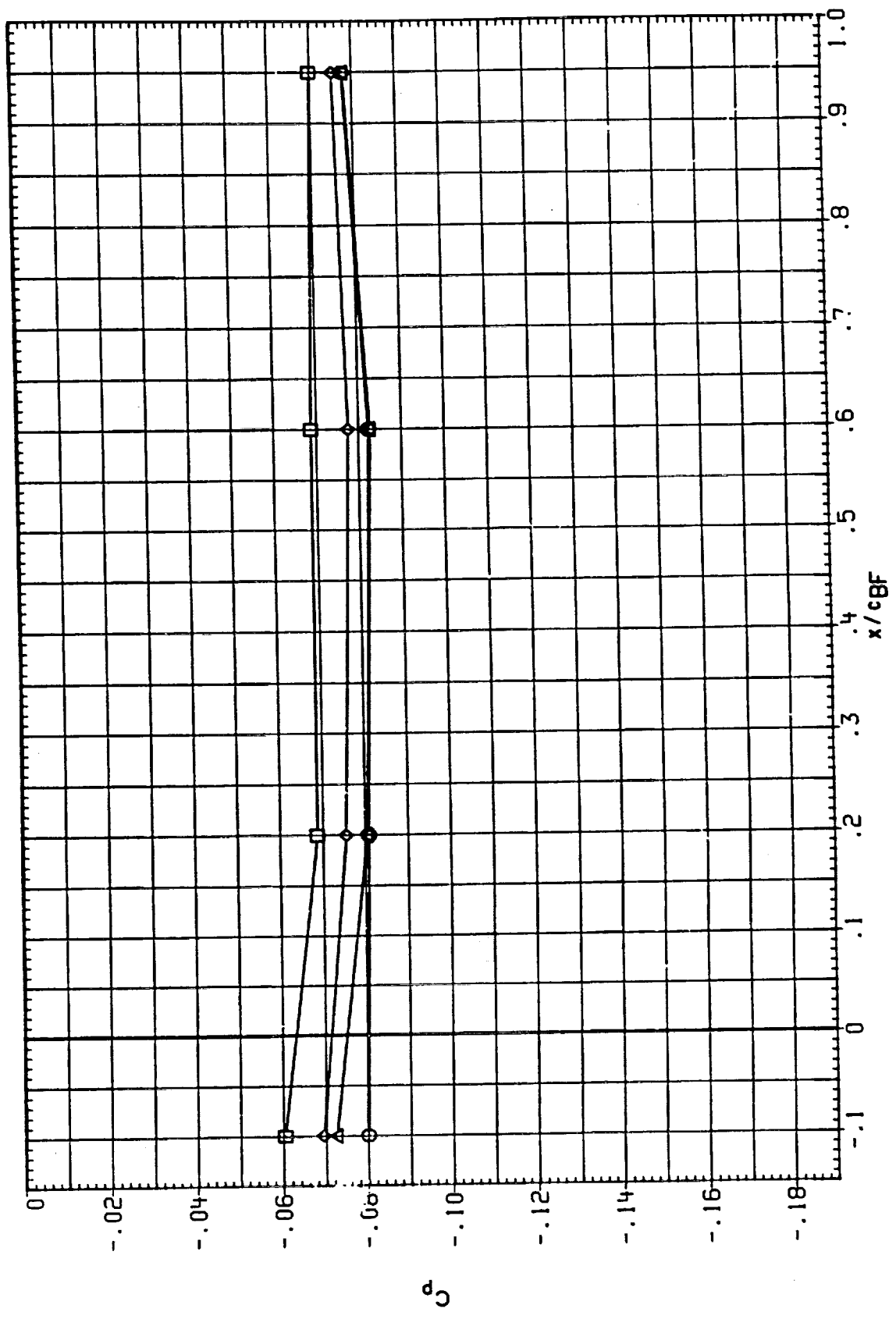


FIGURE 3 IA613A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER BODY FLAP - UPPER SURFACE
 BETA = .000 ETA = .100 ALPHA = .000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MACH	1EABOX	1B-ELV	0B-ELV
(RC0G17)	I A613A, B/L 01*ASRH*PLUMES S1,2	.900	.000	10.000	9.000
(RC0G44)	I A613A, B/L 01*ASRH*PLUMES S1,2	.900	.000	10.000	9.000
(RC0G82)	I A613A, B/L 01*ASRH*PLUMES S1,2	.900	180.000	10.000	9.000
(RC0G62)	I A613A, B/L 01*ASRH*PLUMES S1,2	.900	999.000	10.000	5.000

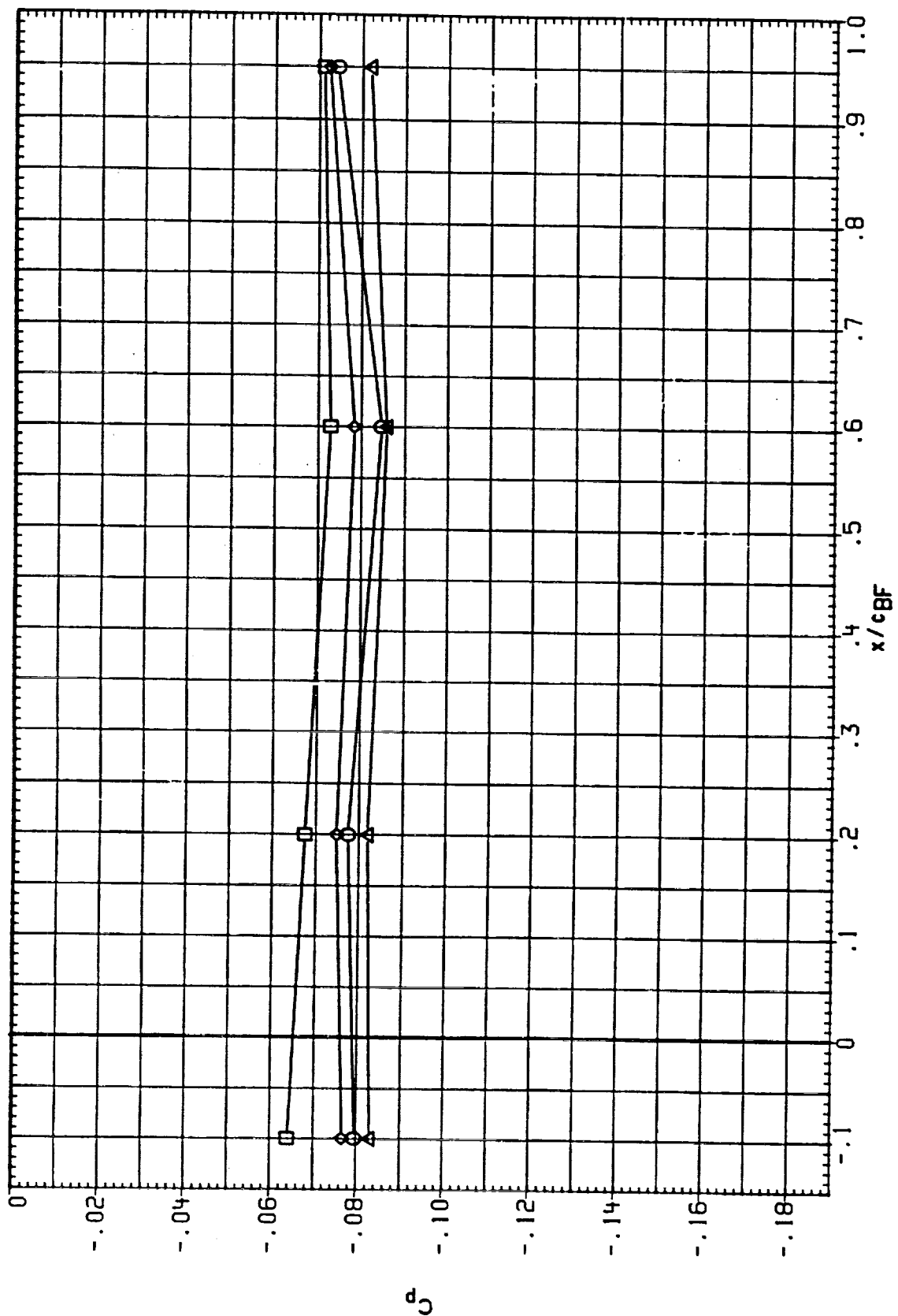


FIGURE 3 I A613A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER BODY FLAP - UPPER SURFACE
 BETA = .000 ETA = .500 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RC0618)	□	IAG13A.8/L OT*ASRM+PLUMES S1.2 -BODY FLAP UPPER	.950	.000	10.000	9.000
(RC0645)	◇	IAG13A.8/L OT*ASRM+PLUMES S1.2 -BODY FLAP UPPER	.950	.000	10.000	9.000
(RC0683)	○	IAG13A.8/L OT*ASRM+PLUMES S1.2 -BODY FLAP UPPER	.950	180.000	10.000	9.000

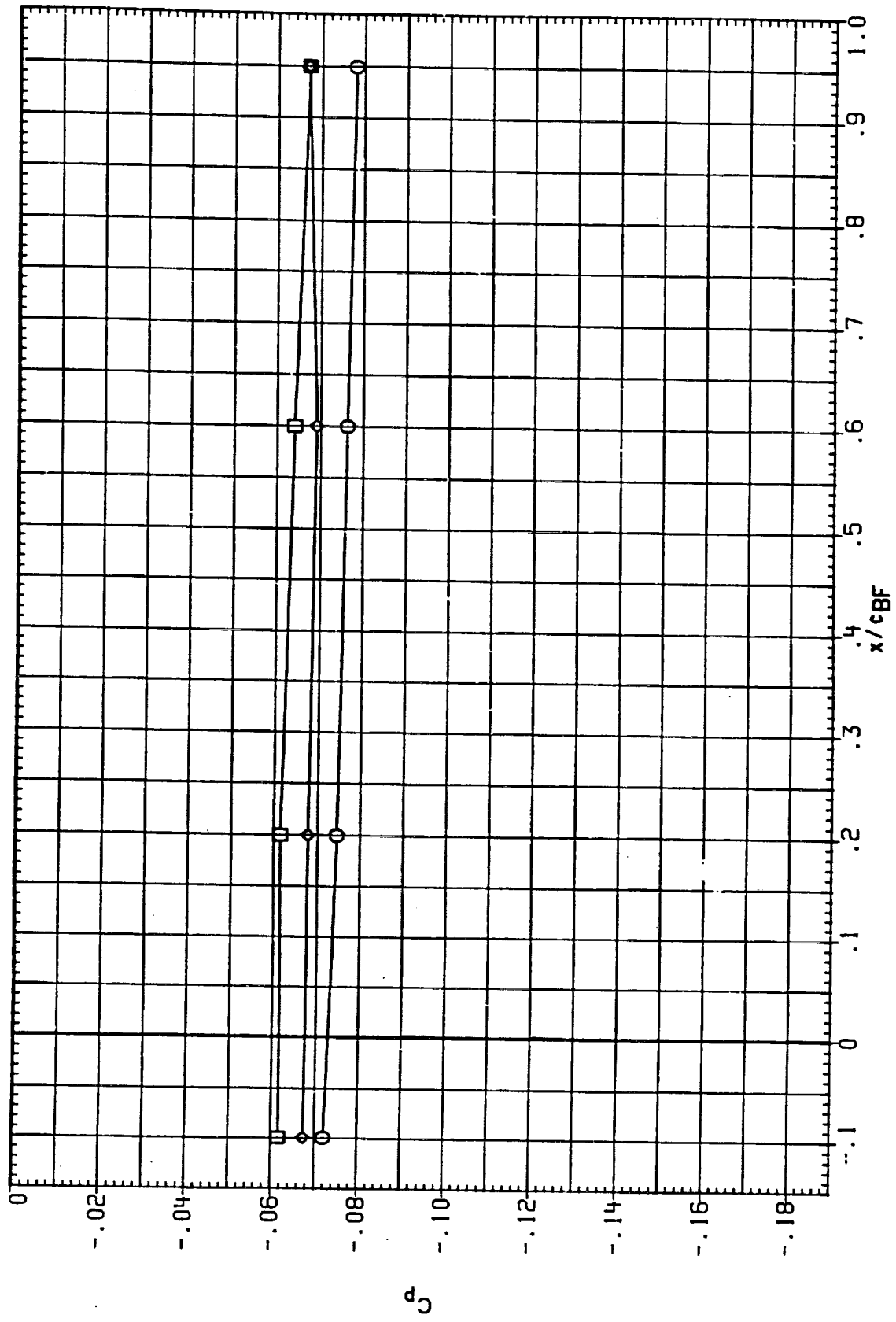


FIGURE 3 IAG13A SELECTED PRESSURE DISTRIBUTIONS
ORBITER BODY FLAP - UPPER SURFACE

BETA = .000

ETA = .100

ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RC0618)	○	IAG13A.B/L OT*RSRM*PLUMES S1.2 -BODY FLAP UPPER	.950	.000	10.000	9.000
(RC0645)	□	IAG13A.B/L OT*ASRM*PLUMES S1.2 -BODY FLAP UPPER	.950	.000	10.000	9.000
(RC0683)	◇	IAG13A.B/L OT*ASRM*PLUMES S1.2 -BODY FLAP UPPER	.950	180.000	10.000	9.000

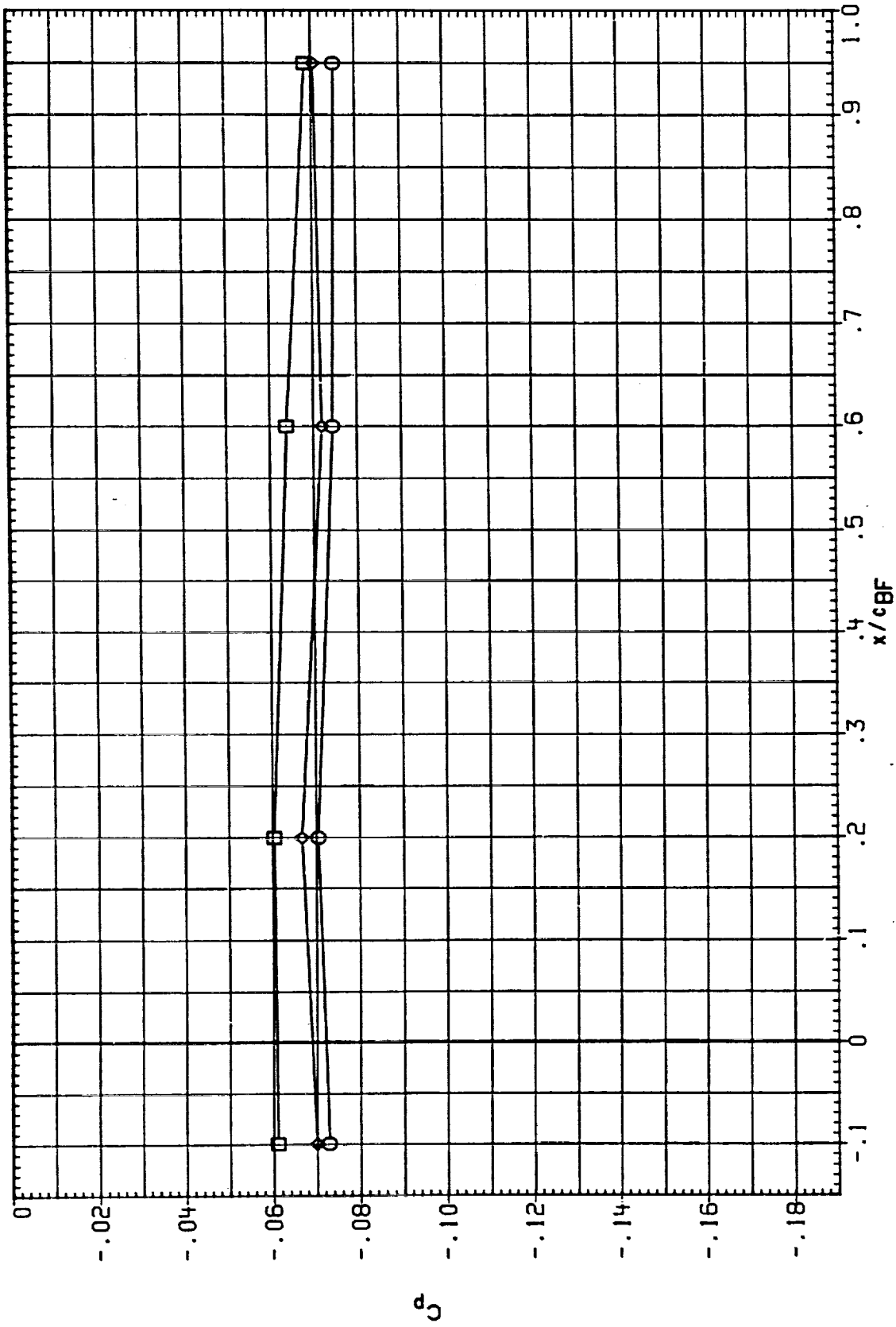


FIGURE 3 IAG13A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER BODY FLAP - UPPER SURFACE
 BETA = .000 ETA = .500 ALPHA = .000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RC0619)	IA613A,B/L 0T+RSRH+PLUMES S1.2 -BODY FLAP UPPER	1.050	.000	10.000	9.000
(RC0646)	IA613A,B/L 0T+ASRH+PLUMES S1.2 -BODY FLAP UPPER	1.050	.000	10.000	9.000
(RC0684)	IA613A,B/L 0T+ASRH+PLUMES S1.2 -BODY FLAP UPPER	1.050	180.000	10.000	9.000

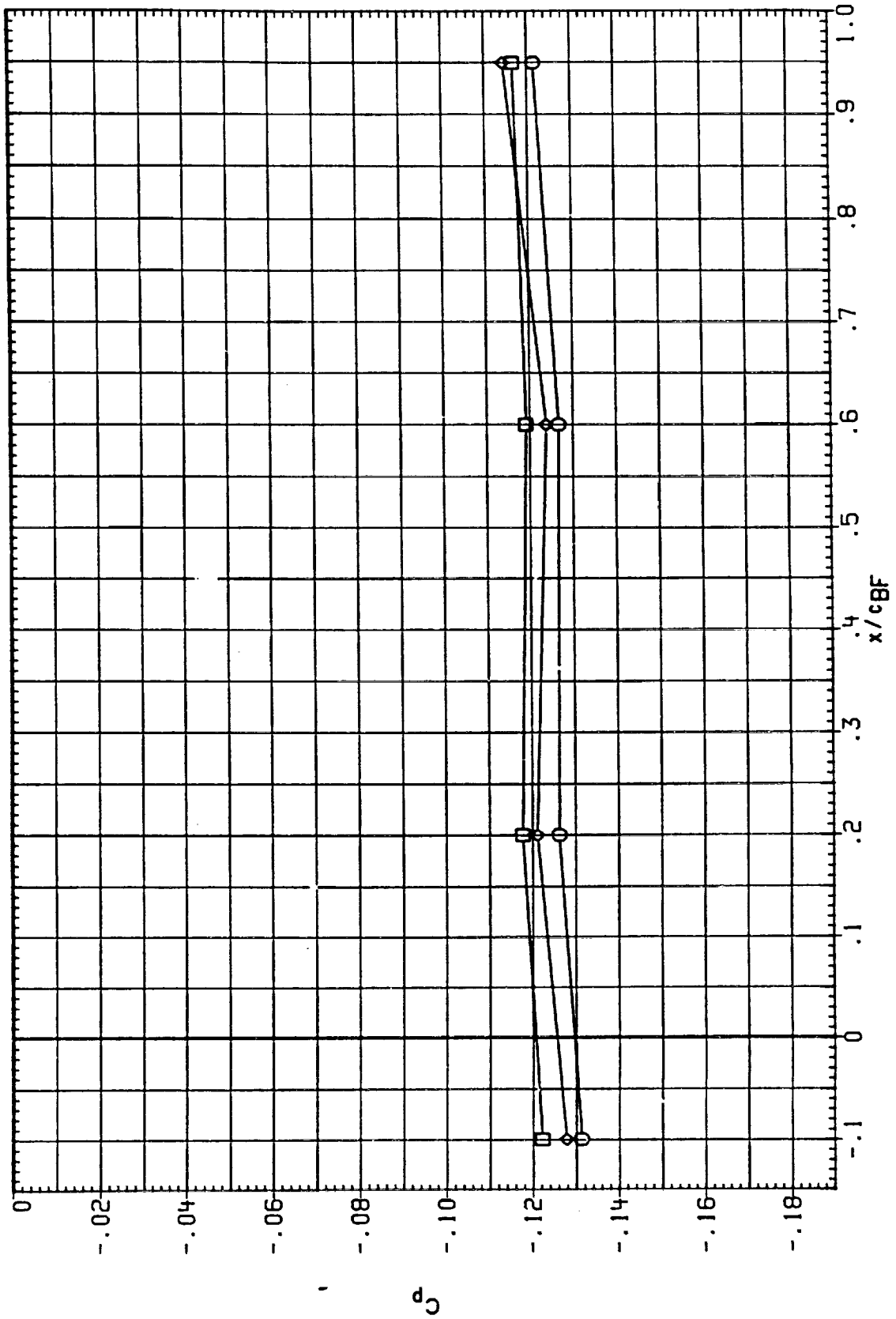


FIGURE 3 IA613A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER BODY FLAP - UPPER SURFACE
 BETA = .000 ETA = .100 ALPHA = .000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RC06191)	IA613A,B/L OT+BSRM+PLUMES S1.2 -BODY FLAP UPPER	1.050	.000	10.000	9.000
(RC06461)	IA613A,B/L OT+ASRM+PLUMES S1.2 -BODY FLAP UPPER	1.050	.000	10.000	9.000
(RC06841)	IA613A,B/L OT+ASRM+PLUMES S1.2 -BODY FLAP UPPER	1.050	180.000	10.000	9.000

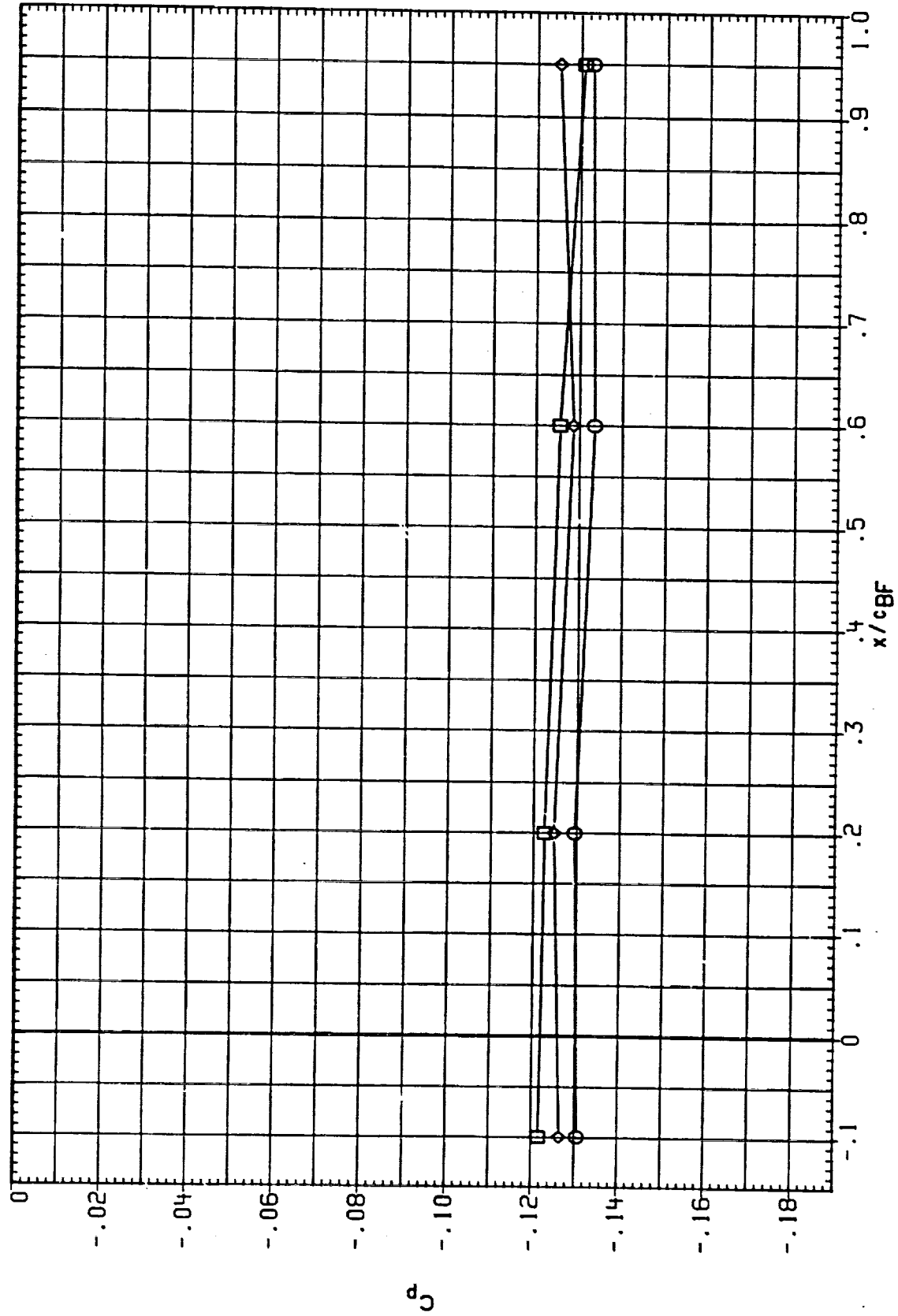


FIGURE 3 IA613A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER BODY FLAP - UPPER SURFACE
 BETA = .000 ETA = .500 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOG20)	○	IA613A, B/L OT+RSRM+PLUMES S1.2 -BODY FLAP UPPER	1.100	.000	10.000	9.000
(RCOG47)	◇	IA613A, B/L OT+ASRM+PLUMES S1.2 -BODY FLAP UPPER	1.100	.000	10.000	9.000
(RCOG85)	◇	IA613A, B/L OT+ASRM+PLUMES S1.2 -BODY FLAP UPPER	1.100	180.000	10.000	9.000
(RCOGC3)	△	IA613A, B/L OT+ASRM+PLUMES S1.2 -BODY FLAP UPPER	1.100	999.000	10.000	5.000

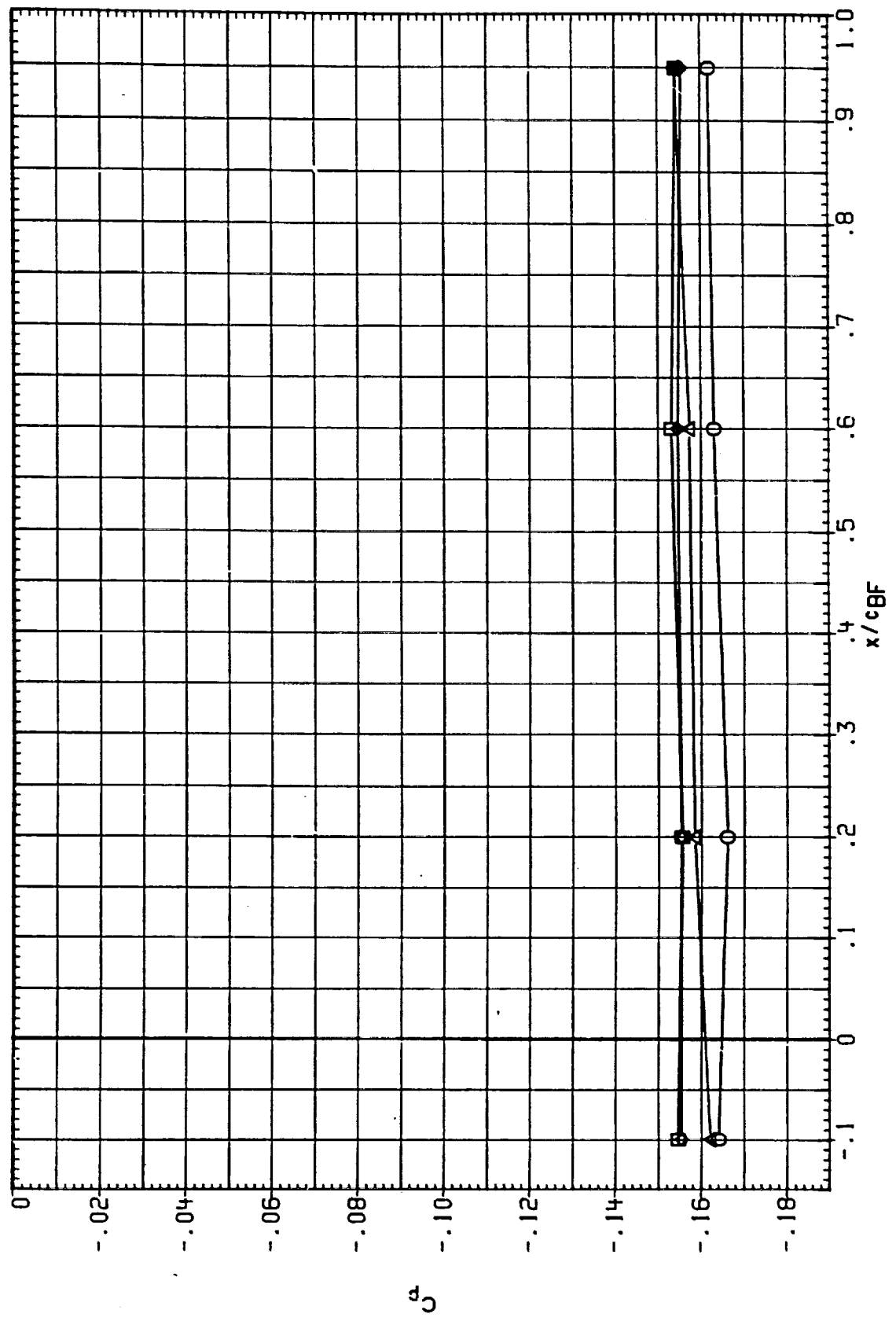


FIGURE 3 IA613A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER BODY FLAP - UPPER SURFACE
 BETA = .000 ETA = .100 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RC0620)	○	IA613A, B/L OT+RSRM+PLUMES S1.2 -BODY FLAP UPPER	1.100	.000	10.000	9.000
(RC0647)	○	IA613A, B/L OT+ASRM+PLUMES S1.2 -BODY FLAP UPPER	1.100	.000	10.000	9.000
(RC0685)	○	IA613A, B/L OT+ASRM+PLUMES S1.2 -BODY FLAP UPPER	1.100	180.000	10.000	9.000
(RC06C3)	△	IA613A, B/L OT+ASRM+PLUMES S1.2 -BODY FLAP UPPER	1.100	999.000	10.000	5.000

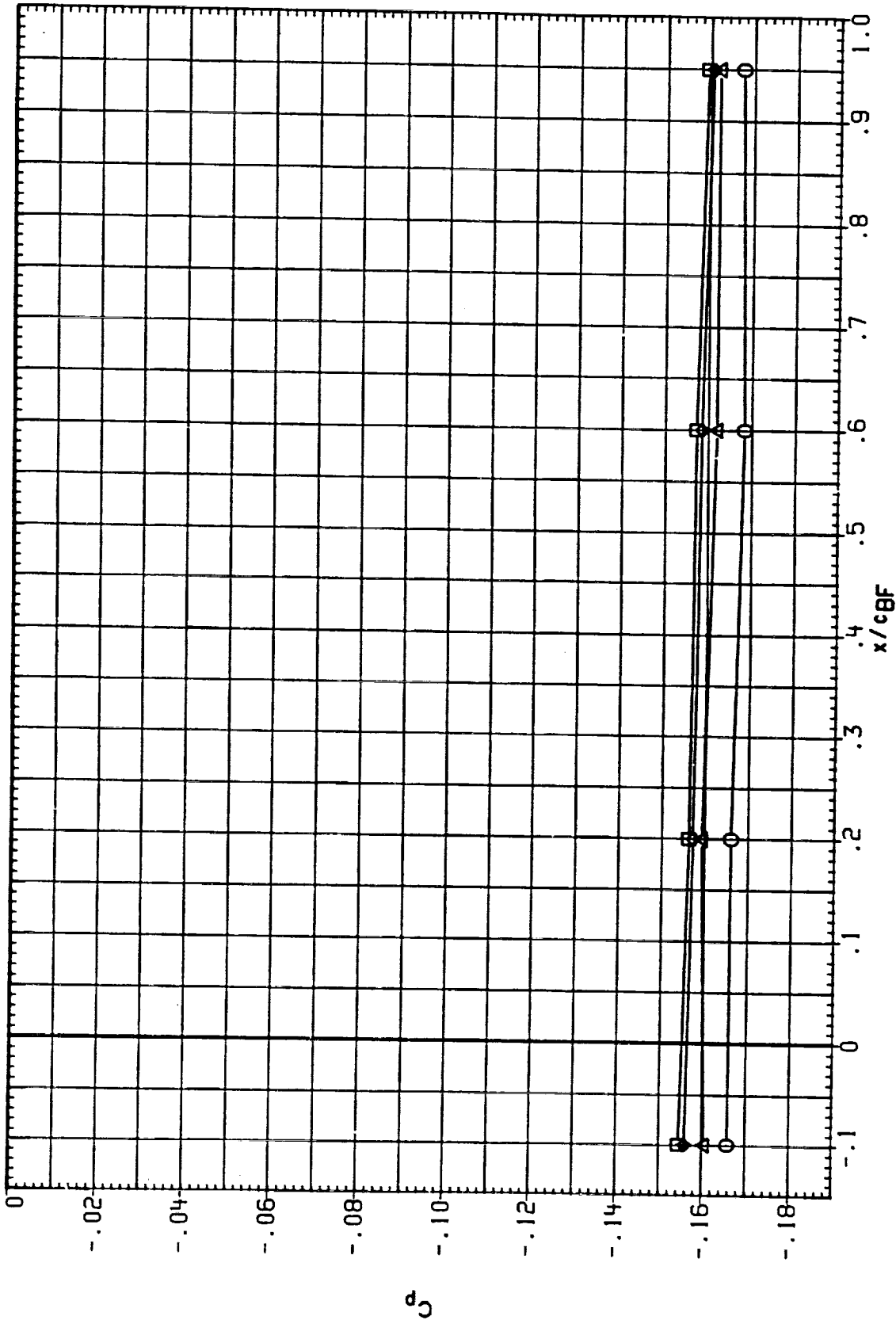


FIGURE 3 IA613A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER BODY FLAP - UPPER SURFACE
 BETA = .000 ETA = .500 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RC0G21)	□	IA613A, B/L OT+RSRM+PLUMES S1.2 -BODY FLAP UPPER	1.150	.000	10.000	9.000
(RC0G48)	◇	IA613A, B/L OT+ASRM+PLUMES S1.2 -BODY FLAP UPPER	1.150	.000	10.000	9.000
(RC0G86)	△	IA613A, B/L OT+ASRM+PLUMES S1.2 -BODY FLAP UPPER	1.150	180.000	10.000	9.000
(XC0G04)	△	IA613A, B/L OT+ASRM+PLUMES S1.2 -BODY FLAP UPPER	1.150	999.000	10.000	5.000

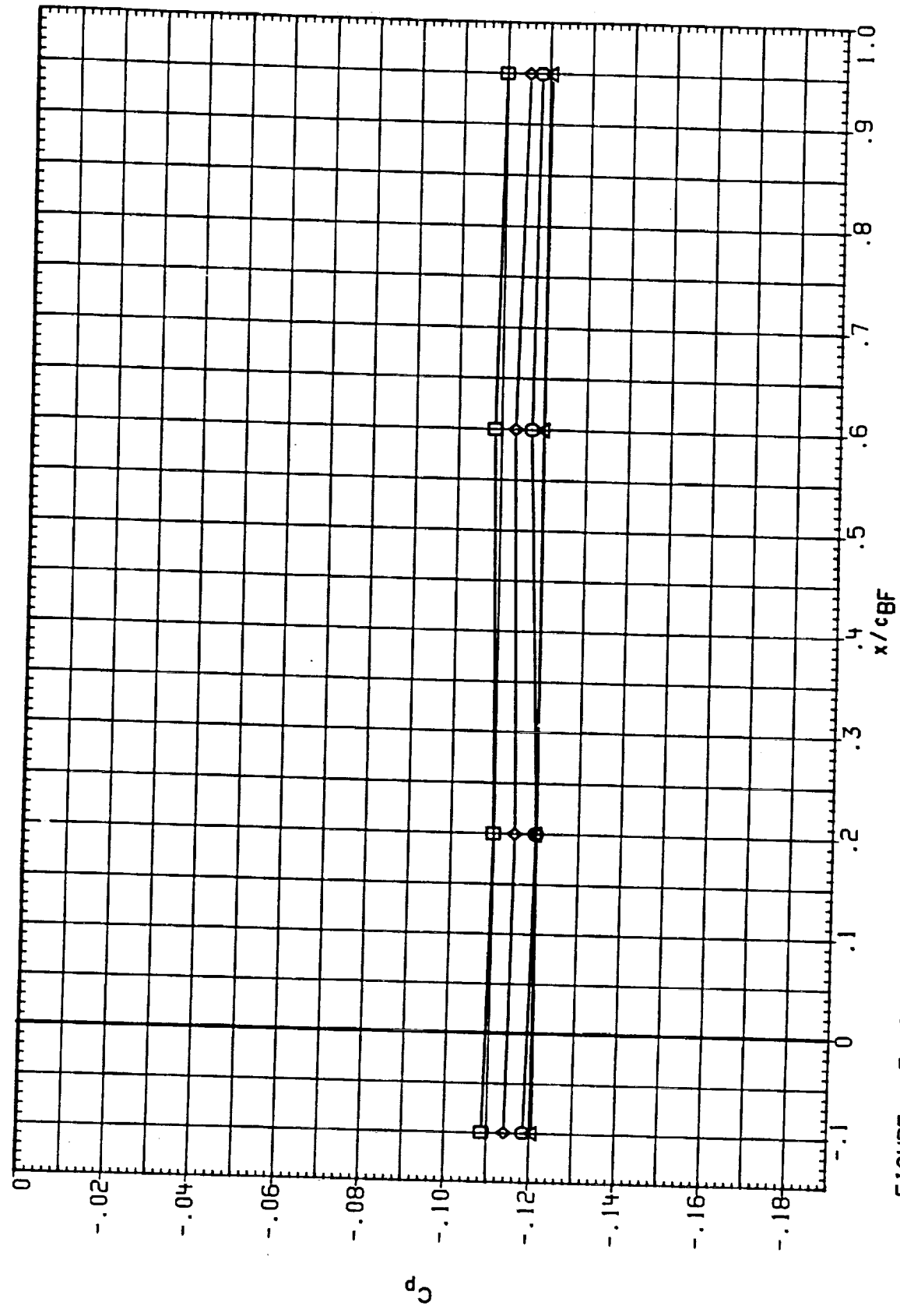


FIGURE 3 IA613A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER BODY FLAP - UPPER SURFACE
 BETA = .000 ETA = .100 ALPHA = .000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RC0621)	IA613A, B/L OT+RSRM+PLUMES S1.2 -BODY FLAP UPPER	1.150	.000	10.000	9.000
(RC0648)	IA613A, B/L OT+ASRM+PLUMES S1.2 -BODY FLAP UPPER	1.150	.000	10.000	9.000
(RC0686)	IA613A, B/L OT+ASRM+PLUMES S1.2 -BODY FLAP UPPER	1.150	180.300	10.000	9.000
(XC06C4)	IA613A, B/L OT+ASRM+PLUMES S1.2 -BODY FLAP UPPER	1.150	999.000	10.000	5.000

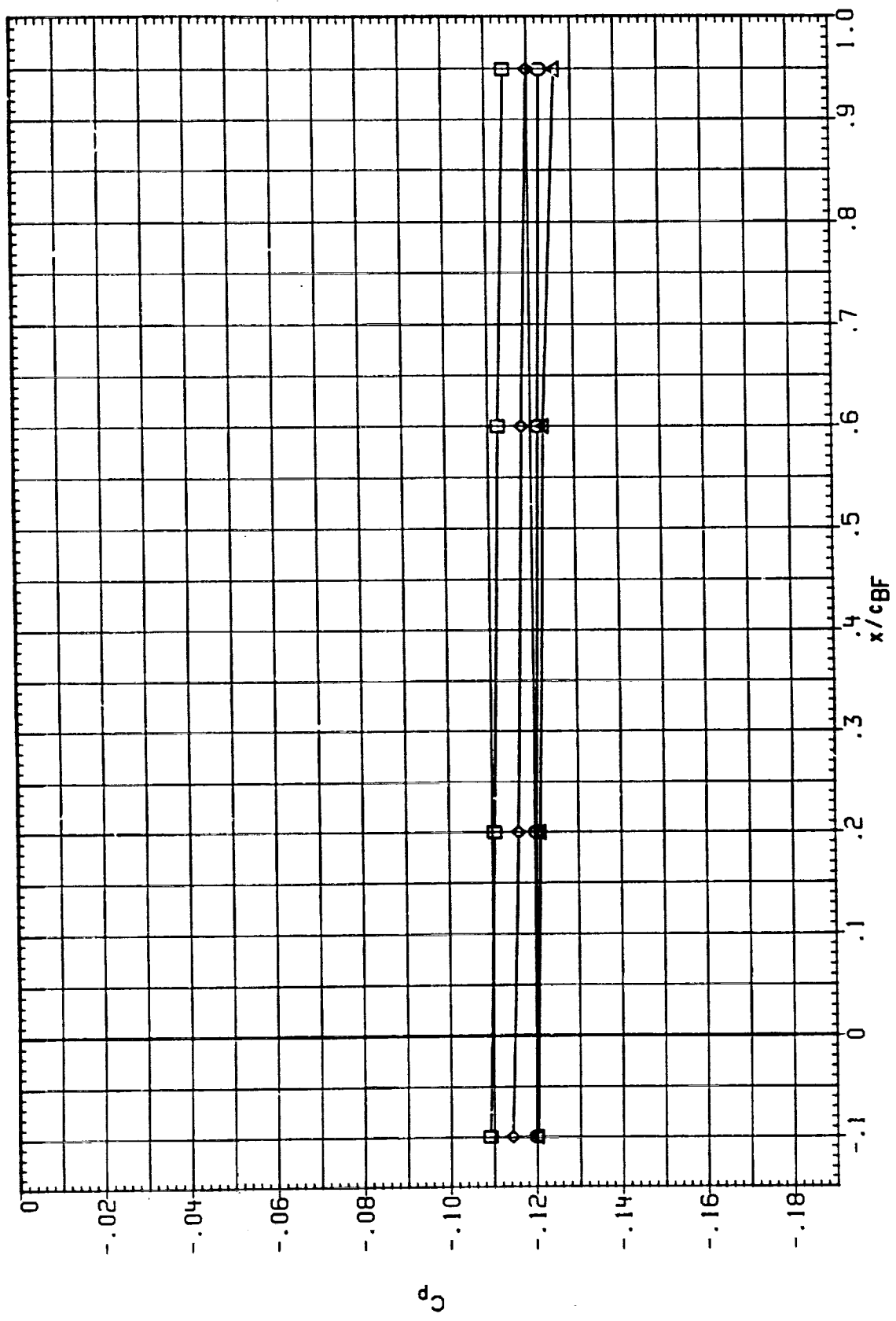


FIGURE 3 IA613A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER BODY FLAP - UPPER SURFACE
 BETA = .000 ETA = .500 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	1EABOX	1B-ELV	OB-ELV
(RC0622)	○	IA613A,B/L 01+RSRH+PLUMES S1,2	1.250	.000	10.000	9.000
(RC0649)	□	IA613A,B/L 01+ASRH+PLUMES S1,2	1.250	.000	10.000	9.000
(RC0687)	◇	IA613A,B/L 01+ASRH+PLUMES S1,2	1.250	180.000	10.000	9.000
(RC06C5)	△	IA613A,B/L 01+ASRH+PLUMES S1,2	1.250	999.000	10.000	5.000

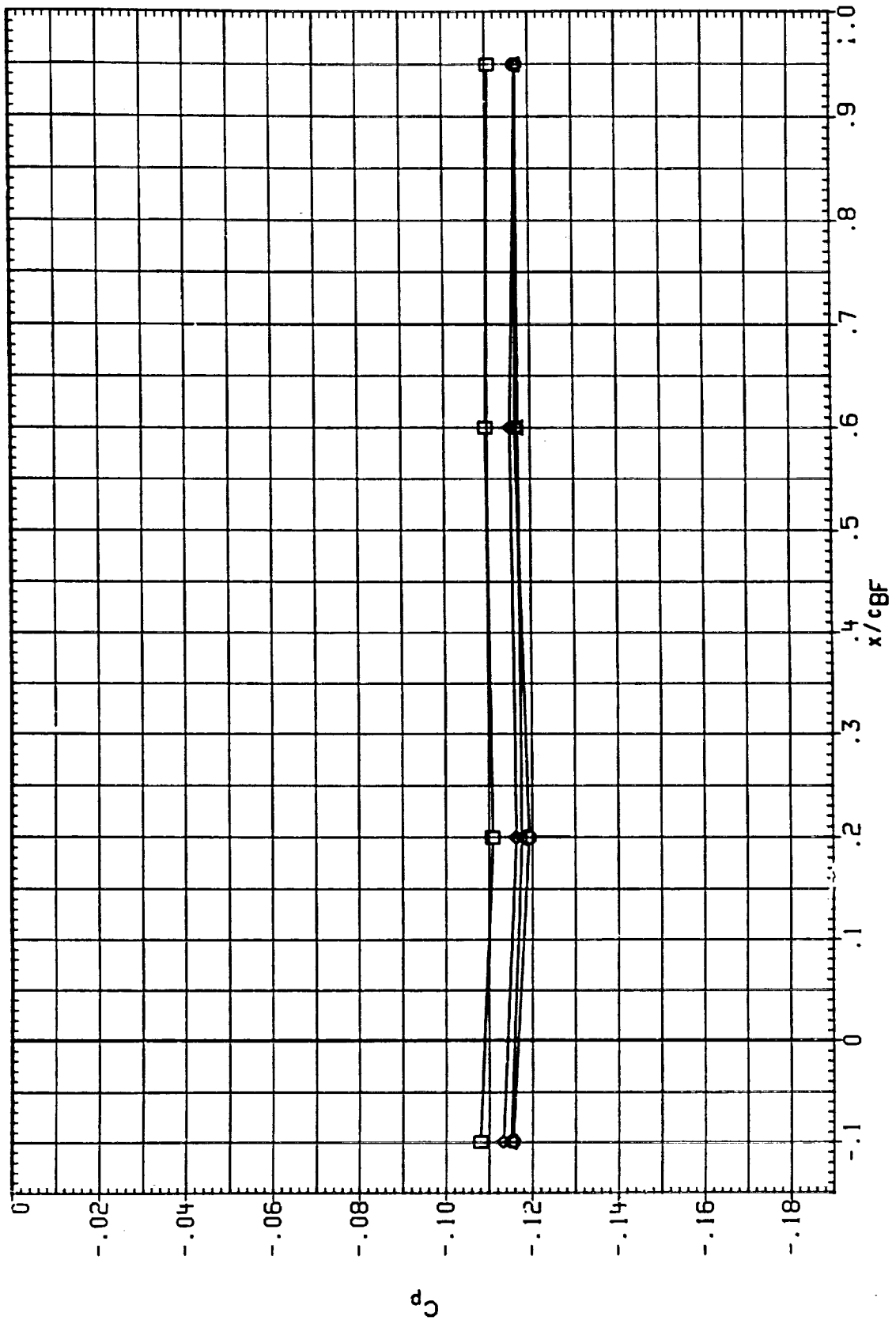


FIGURE 3 IA613A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER BODY FLAP - UPPER SURFACE
 BETA = .000 ETA = .100 ALPHA = .000

DATA SET S1F82A CONFIGURATION DESCRIPTION

RCOG	Symbol	Configuration Description	MACH	IEABOX	IB-ELV	OB-ELV
(RCOG22)	□	IA613A, B/L OT+RSRH+PLUMES S1,2 -BODY FLAP UPPER	1.250	.000	10.000	9.000
(RCOG49)	○	IA613A, B/L OT+ASRH+PLUMES S1,2 -BODY FLAP UPPER	1.250	.000	10.000	9.000
(RCOG87)	△	IA613A, B/L OT+ASRH+PLUMES S1,2 -BODY FLAP UPPER	1.250	180.000	10.000	9.000
(RCOGC5)	◇	IA613A, B/L OT+ASRH+PLUMES S1,2 -BODY FLAP UPPER	1.250	999.000	10.000	5.000

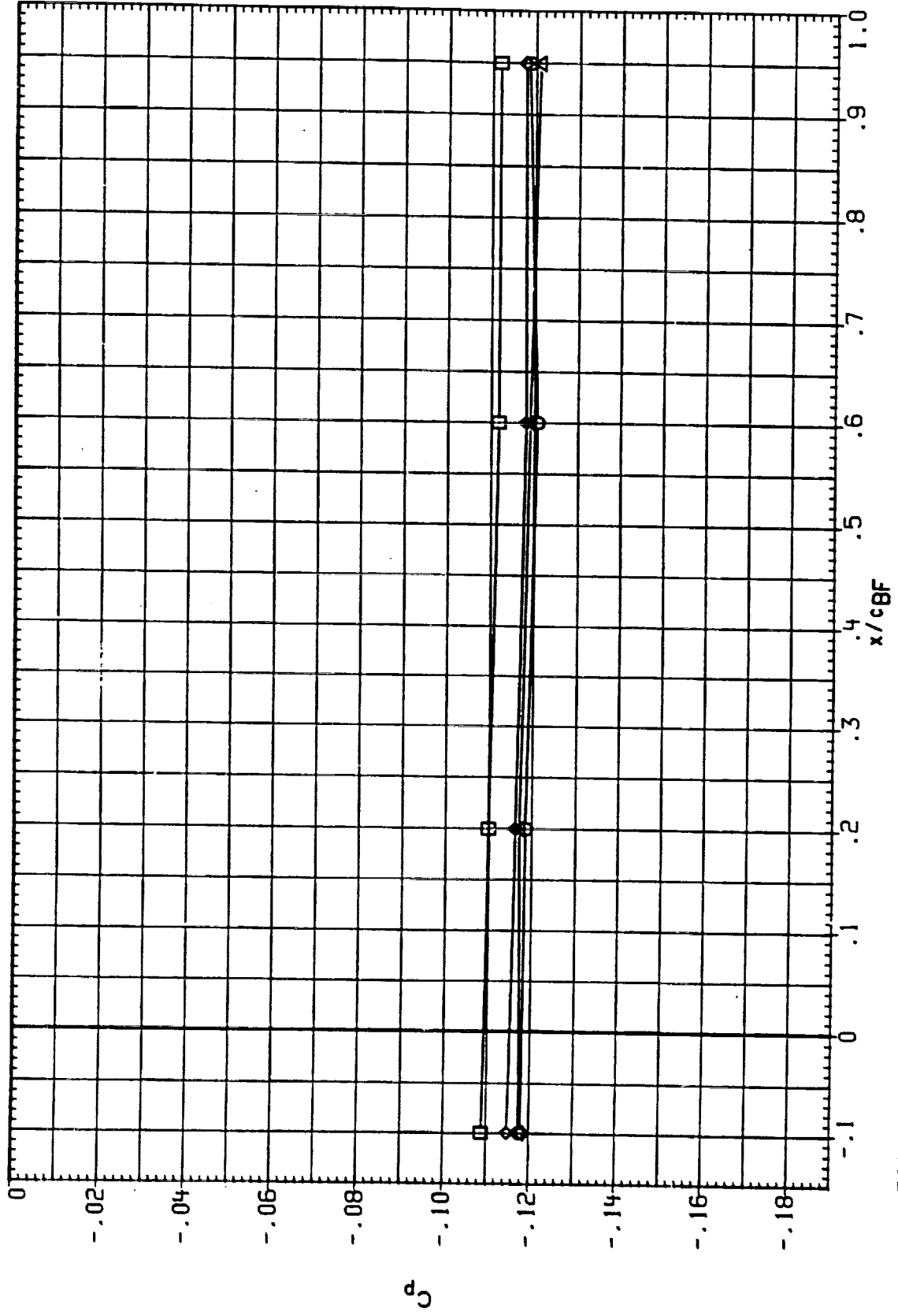


FIGURE 3 IA613A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER BODY FLAP - UPPER SURFACE
 BETA = .000 ETA = .500 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RC06H6)	□	IA613A.B/L OT+RSRM+PLUMES S1.2 -BODY FLAP UPPER	1.300	.000	10.000	9.000
(RC0654)	□	IA613A.B/L OT+ASRM+PLUMES S1.3 -BODY FLAP UPPER	1.300	.000	10.000	5.000
(RC0689)	◇	IA613A.B/L OT+ASRM+PLUMES S1.3 -BODY FLAP UPPER	1.300	180.000	10.000	5.000
(RC06C7)	△	IA613A.B/L OT+ASRM+PLUMES S1.3 -BODY FLAP UPPER	1.300	999.000	10.000	5.000

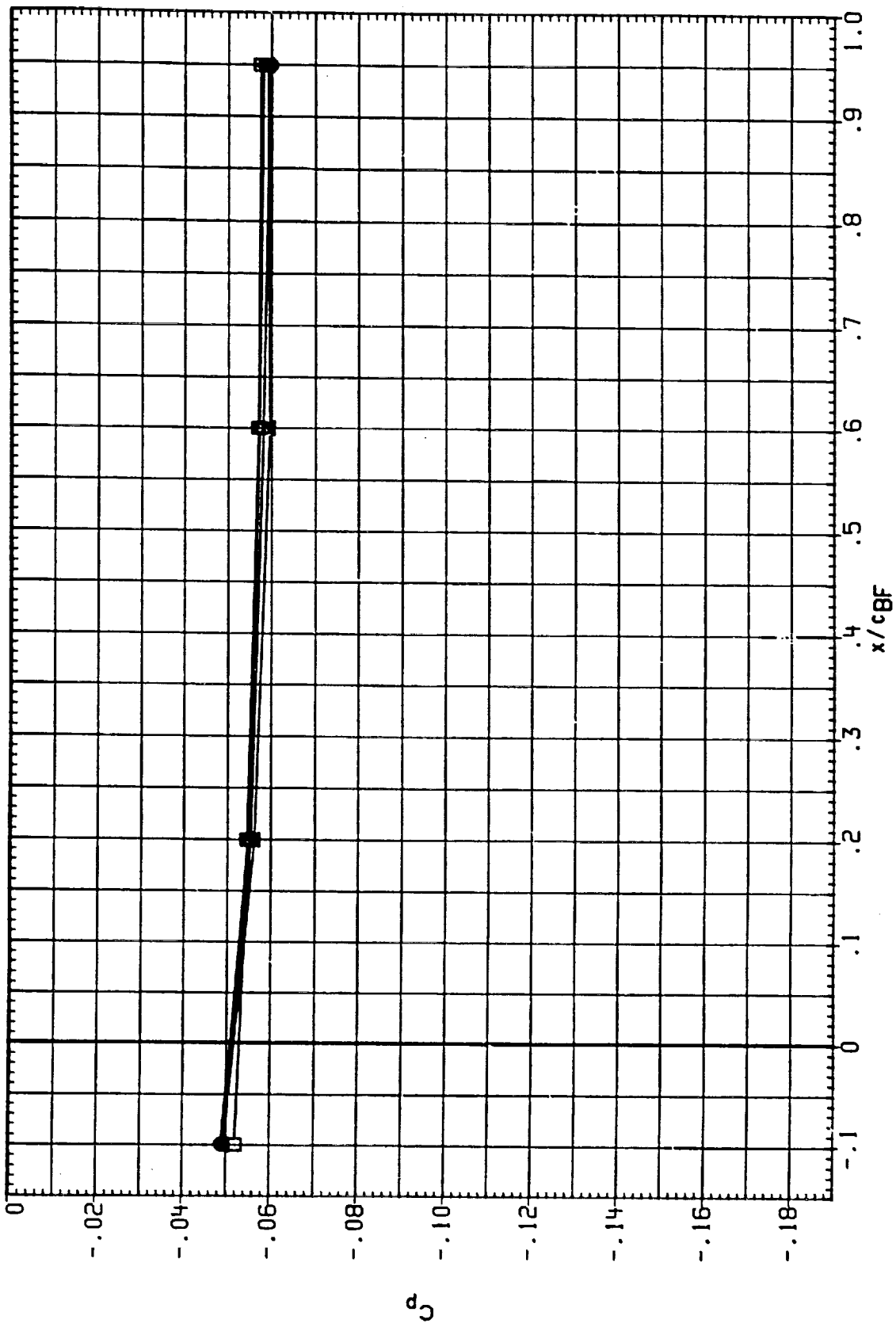


FIGURE 3 IA613A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER BODY FLAP - UPPER SURFACE
 BETA = .000 ETA = .100 ALPHA = .000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELY	OB-ELY
(RC06H6)	IAG13A.8/L OT*ASRM*PLUMES S1.2 -BODY FLAP UPPER	1.300	.000	10.000	9.000
(RC0654)	IAG13A.8/L OT*ASRM*PLUMES S1.3 -BODY FLAP UPPER	1.300	.000	10.000	5.000
(RC0689)	IAG13A.8/L OT*ASRM*PLUMES S1.3 -BODY FLAP UPPER	1.300	180.000	10.000	5.000
(RC06C7)	IAG13A.8/L OT*ASRM*PLUMES S1.3 -BODY FLAP UPPER	1.300	999.000	10.000	5.000

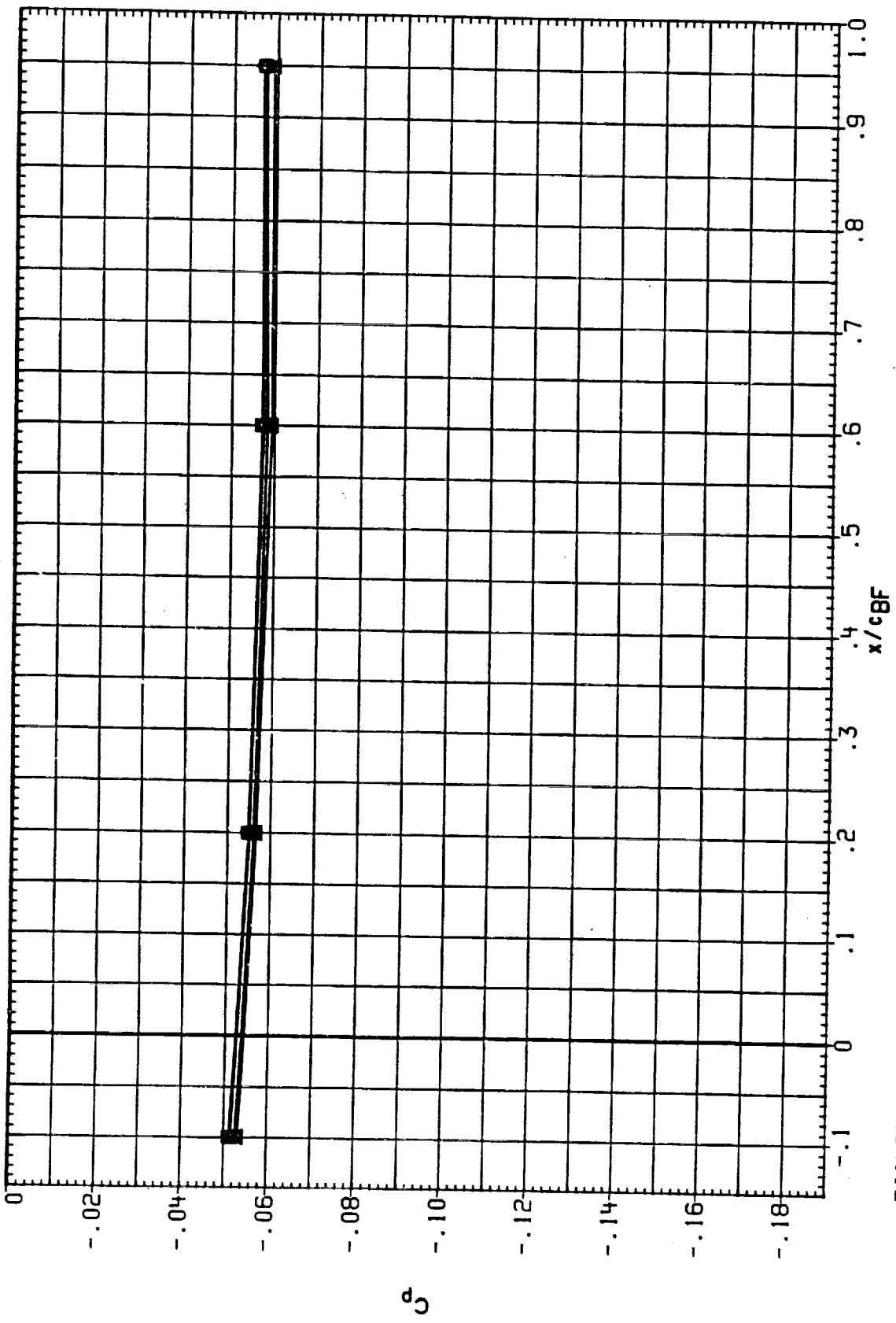


FIGURE 3 IAG13A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER BODY FLAP - UPPER SURFACE
 BETA = .000 ETA = .500 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RC06H7)	○	IA613A,B/L 01+RSRM+PLUMES S1.2	1.350	.000	10.000	9.000
(RC0655)	□	IA613A,B/L 01+ASRM+PLUMES S1.3	1.350	.000	10.000	5.000
(RC0690)	◇	IA613A,B/L 01+ASRM+PLUMES S1.3	1.350	180.000	10.000	5.000
(RC06CB)	△	IA613A,B/L 01+ASRM+PLUMES S1.3	1.350	999.000	10.000	5.000

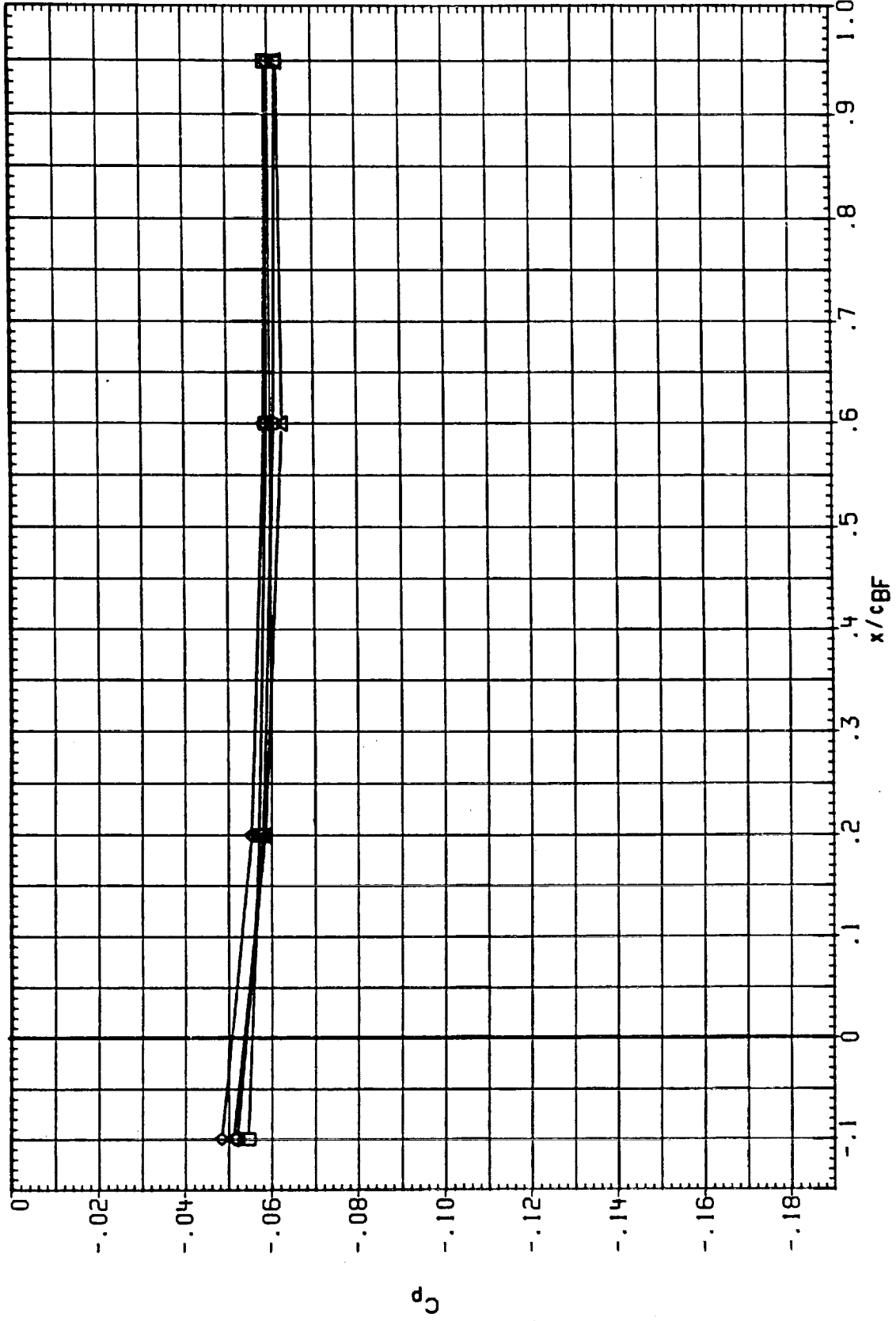


FIGURE 3 IA613A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER BODY FLAP - UPPER SURFACE
 BETA = .000 ETA = .100 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IE4BOX	IB-ELV	OB-ELV
(RC0GH7)	○	IA613A, B/L 01+RSRH+PLUMES S1, 2	1.350	.000	10.000	9.000
(RC0G55)	□	IA613A, B/L 01+ASRH+PLUMES S1, 3	1.350	.000	10.000	5.000
(RC0G90)	◇	IA613A, B/L 01+ASRH+PLUMES S1, 3	1.350	180.000	10.000	5.000
(RC0GCB)	△	IA613A, B/L 01+ASRH+PLUMES S1, 3	1.350	999.000	10.000	5.000

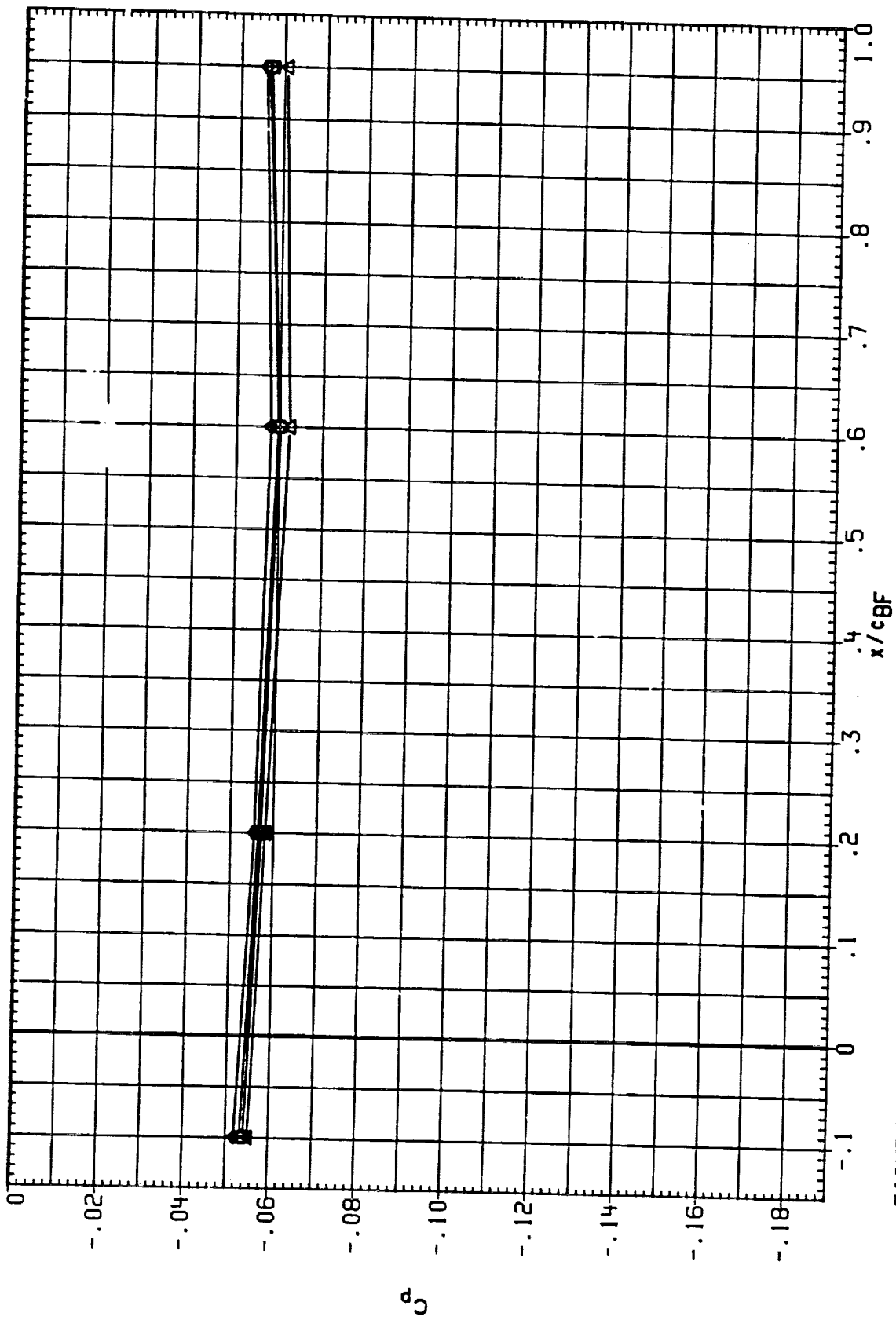


FIGURE 3 IA613A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER BODY FLAP - UPPER SURFACE
 BETA = .000 ETA = .500 ALPHA = .000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RC06P8)	IA613A, B/L 01+RSRH+PLUMES S1.2	1.400	.000	10.000	9.000
(RC06S6)	IA613A, B/L 01+ASRH+PLUMES S1.3	1.400	.000	10.000	5.000
(RC0691)	IA613A, B/L 01+ASRH+PLUMES S1.3	1.400	180.000	10.000	5.000
(RC06C9)	IA613A, B/L 01+ASRH+PLUMES S1.3	1.400	999.000	10.000	5.000

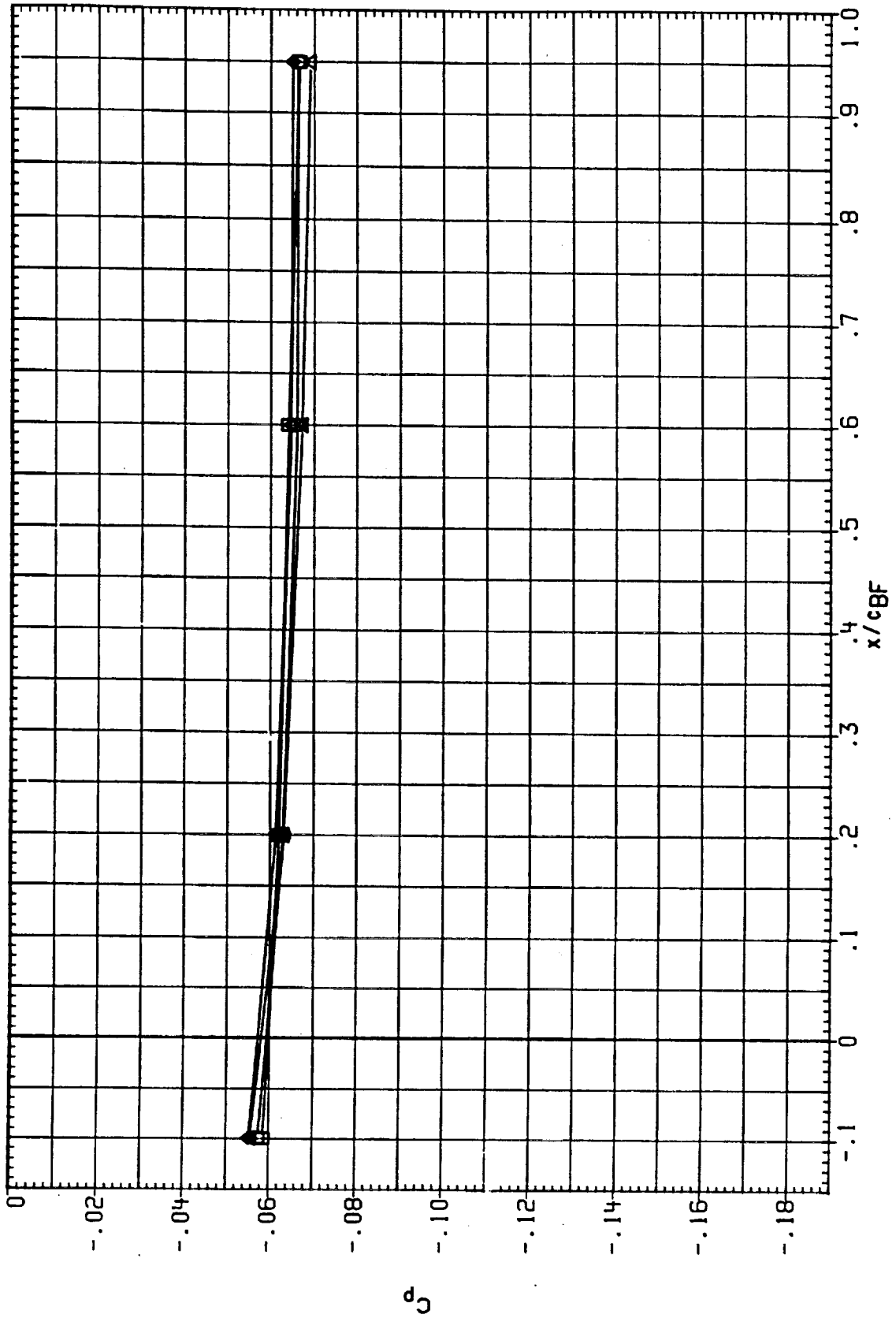


FIGURE 3 IA613A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER BODY FLAP - UPPER SURFACE
 BETA = .000 ETA = .100 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RC0GHB)	□	IAG13A.B/L OT*ASRM*PLUMES S1.2 -BODY FLAP UPPER	1.400	.000	10.000	9.000
(RC0G56)	□	IAG13A.B/L OT*ASRM*PLUMES S1.3 -BODY FLAP UPPER	1.400	.000	10.000	5.000
(RC0G91)	◇	IAG13A.B/L OT*ASRM*PLUMES S1.3 -BODY FLAP UPPER	1.400	180.000	10.000	5.000
(RC0GCR9)	△	IAG13A.B/L OT*ASRM*PLUMES S1.3 -BODY FLAP UPPER	1.400	999.000	10.000	5.000

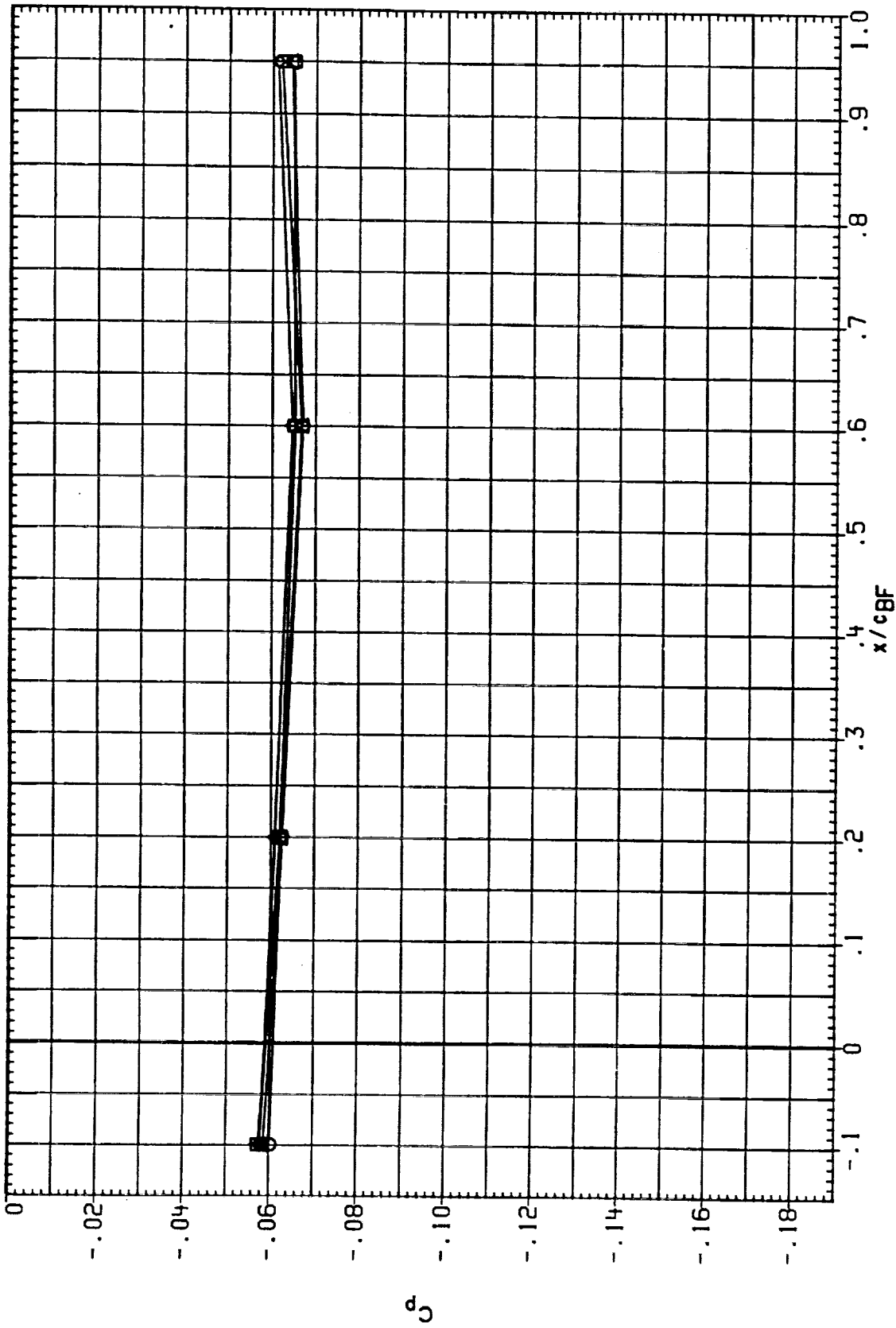


FIGURE 3 IAG13A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER BODY FLAP - UPPER SURFACE
 BETA = .000 ETA = .500 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELY	OB-ELY
(RC06H9)	○	IA613A,B/L OT*RSRM+PLUMES S1.2	1.550	.000	10.000	9.000
(RC0657)	□	IA613A,B/L OT*ASRM+PLUMES S1.3	1.550	.000	10.000	5.000
(RC0692)	△	IA613A,B/L OT*ASRM+PLUMES S1.3	1.550	180.000	10.000	5.000
(RC0600)	◇	IA613A,B/L OT*ASRM+PLUMES S1.3	1.550	999.000	10.000	5.000

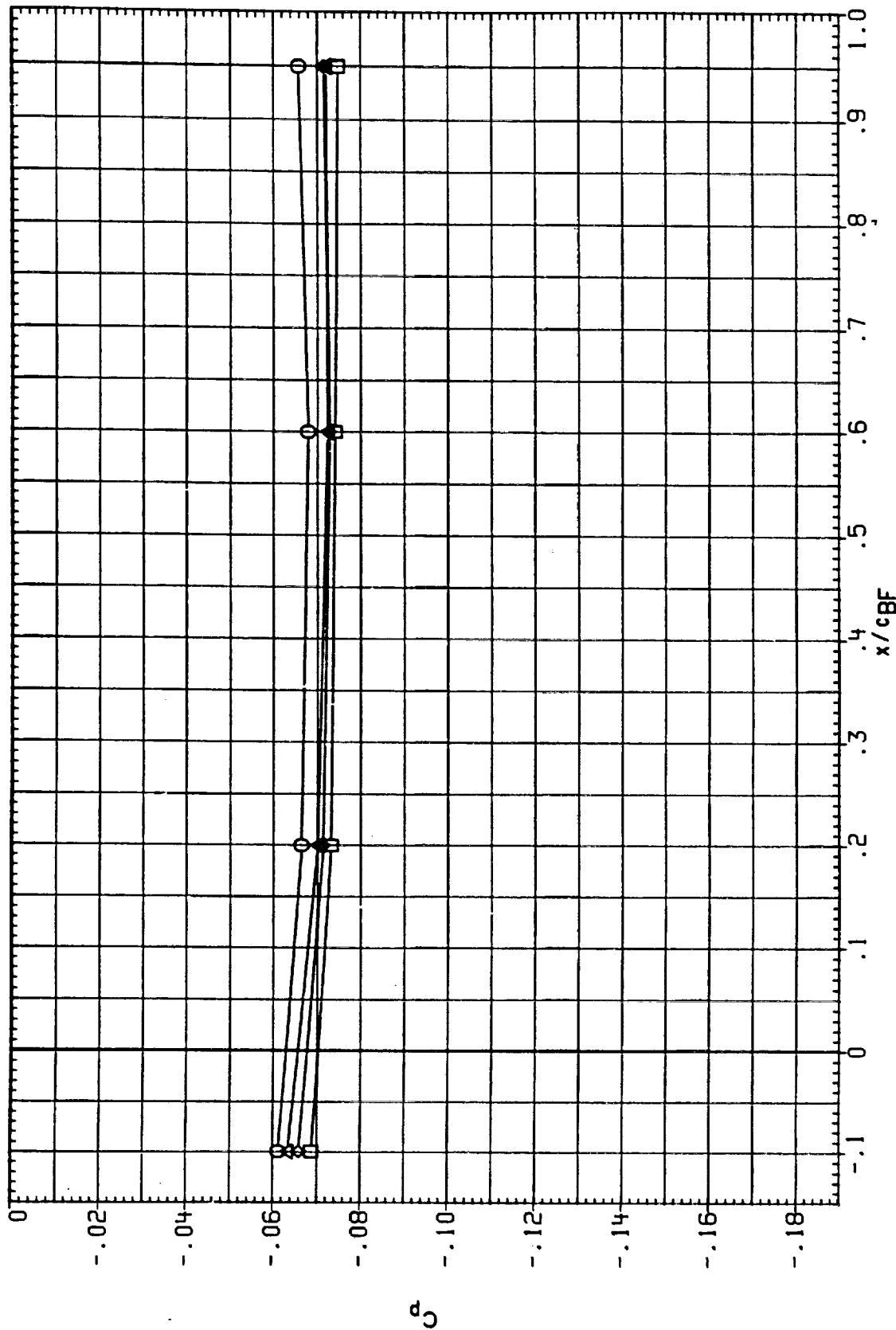


FIGURE 3 IA613A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER BODY FLAP - UPPER SURFACE
 BETA = .000 ETA = .100 ALPHA = .000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOGH9)	IA613A.B/L OT+RSRM+PLUMES S1.2	1.550	.000	10.000	9.000
(RCOG57)	IA613A.B/L OT+ASRM+PLUMES S1.3	1.550	.000	10.000	5.000
(RCOG92)	IA613A.B/L OT+ASRM+PLUMES S1.3	1.550	180.000	10.000	5.000
(RCOG00)	IA613A.B/L OT+ASRM+PLUMES S1.3	1.550	999.000	10.000	5.000

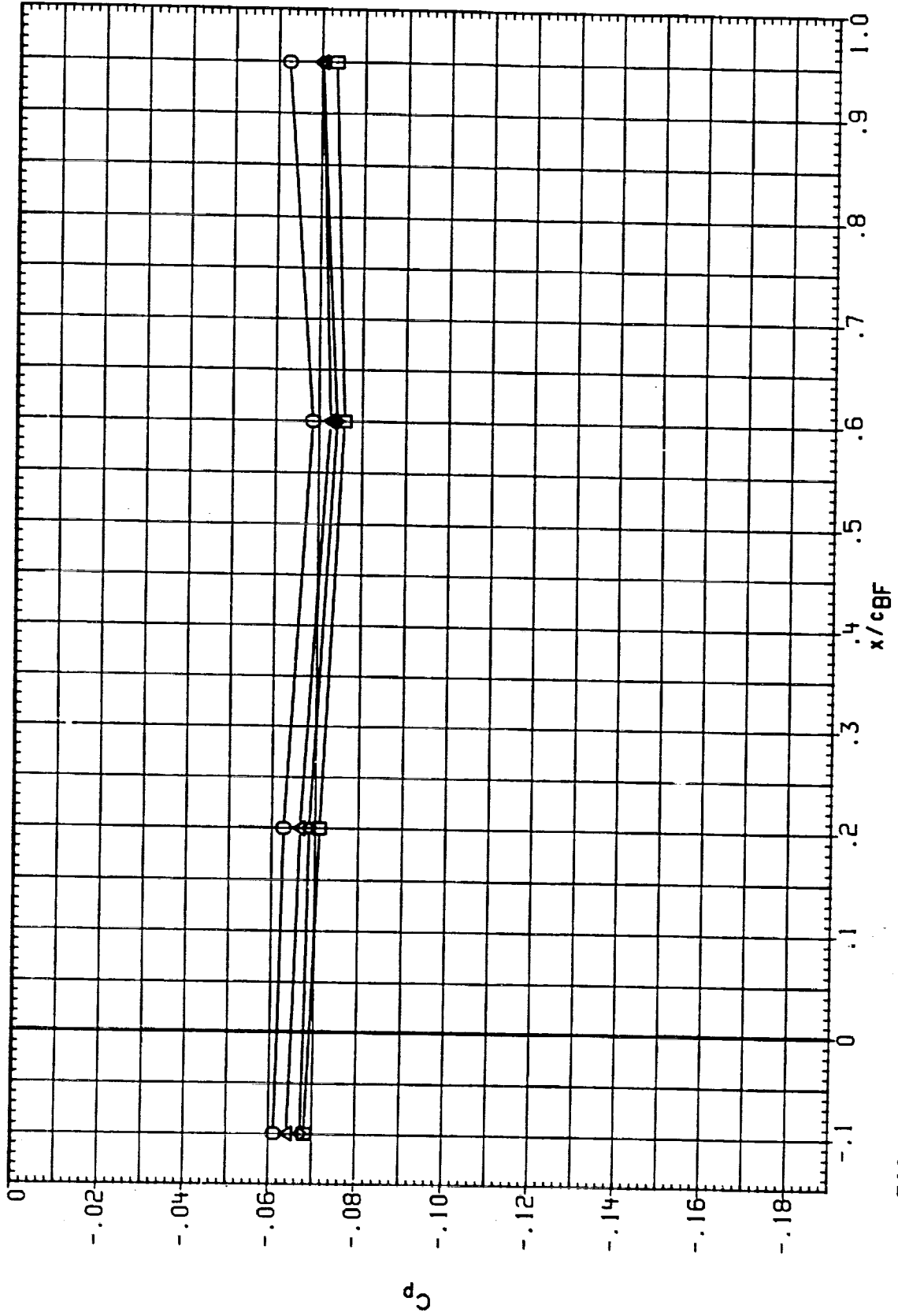


FIGURE 3 IA613A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER BODY FLAP - UPPER SURFACE
 BETA = .000 ETA = .500 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOF15)	□	IA613A,B/L 01+RSRH+PLUMES S1.2	.600	.000	10.000	9.000
(RCOF42)	◇	IA613A,B/L 01+ASRH+PLUMES S1.2	.600	.000	10.000	9.000
(RCOF80)	◇	IA613A,B/L 01+ASRH+PLUMES S1.2	.600	180.000	10.000	9.000
(RCOF C1)	△	IA613A,B/L 01+ASRH+PLUMES S1.2	.600	999.000	10.000	5.000

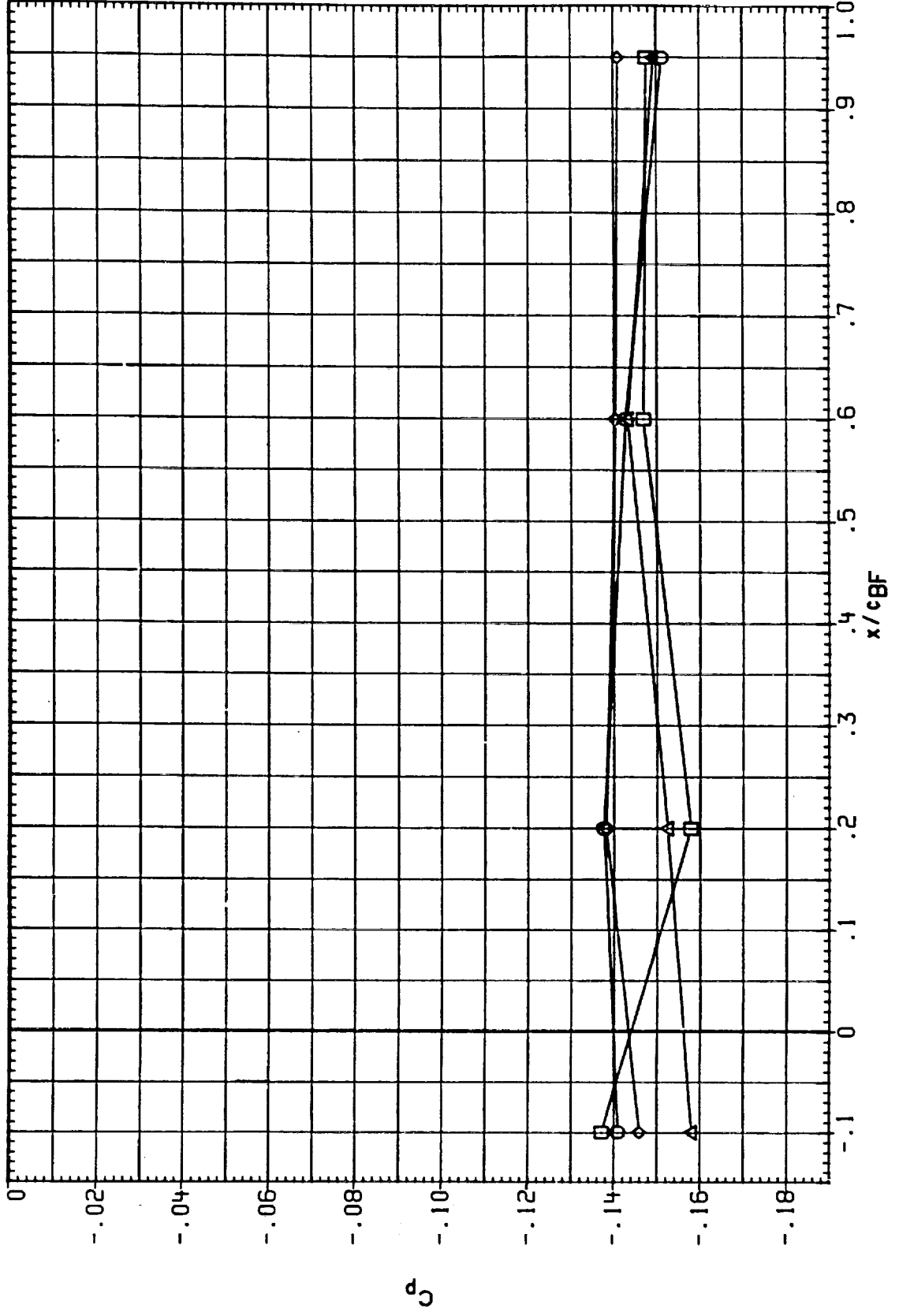


FIGURE 4 IA613A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER BODY FLAP - LOWER SURFACE
 BETA = .000 ETA = .100 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEARBOX	IB-ELV	OB-ELV
(RCOF15)	○	IA613A.B/L OT+RSRM+PLUMES S1.2 -BODY FLAP LOWER	.600	.000	10.000	9.000
(RCOF12)	□	IA613A.B/L OT+ASRM+PLUMES S1.2 -BODY FLAP LOWER	.600	.000	10.000	9.000
(RCOF80)	◇	IA613A.B/L OT+ASRM+PLUMES S1.2 -BODY FLAP LOWER	.600	180.000	10.000	9.000
(RCOF11)	△	IA613A.B/L OT+ASRM+PLUMES S1.2 -BODY FLAP LOWER	.600	999.000	10.000	5.000

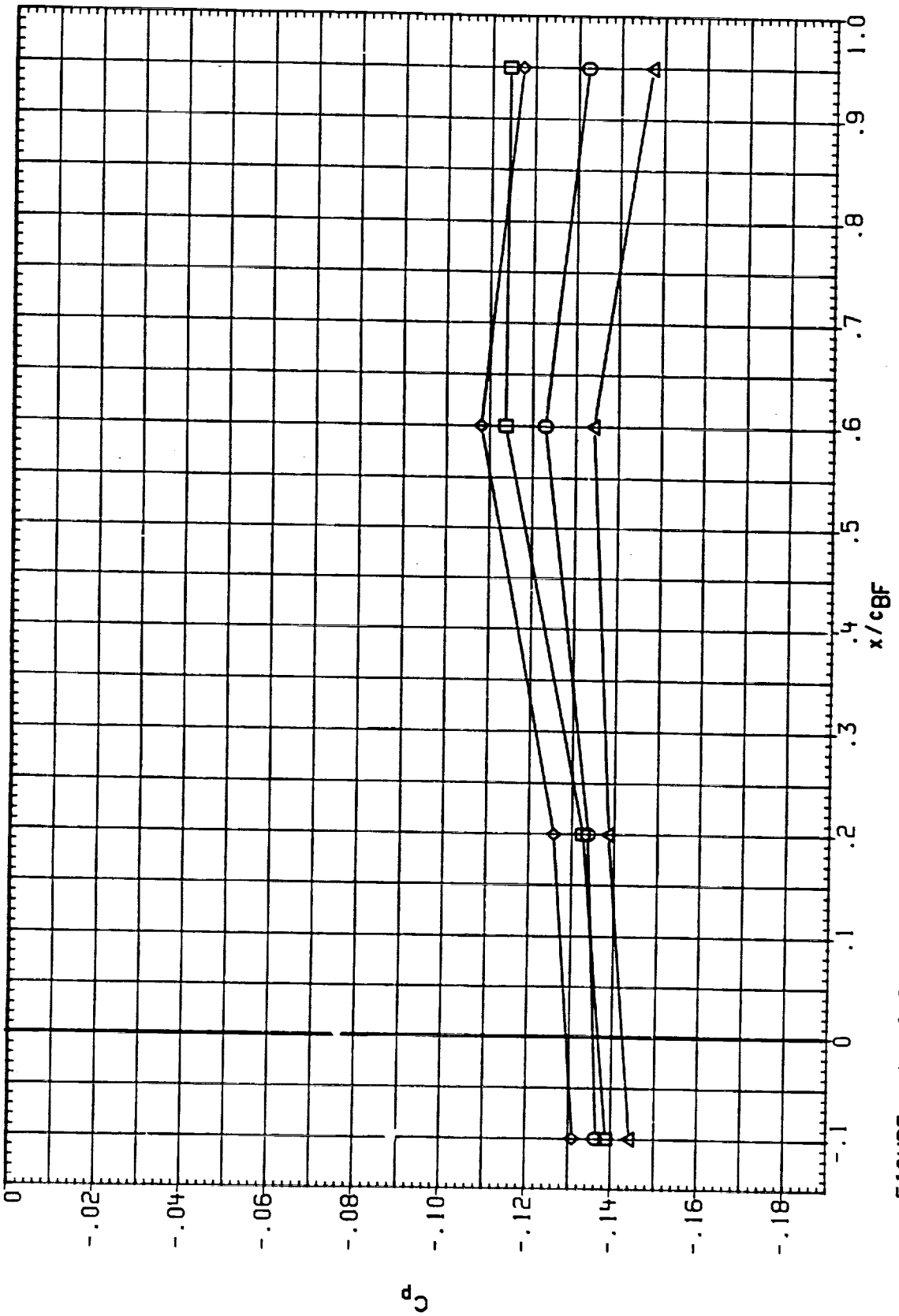


FIGURE 4 IA613A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER BODY FLAP - LOWER SURFACE
 BETA = .000 ETA = .500 ALPHA = .000

DATA SET SYMBOL CONFIGURATION DESCRIPTION MACH IEABOX IB-ELV OB-ELV

(RCOF16) □ IA613A, B/L OT+RSRM+PLUMES S1.2 -BODY FLAP LOWER .800 .000 10.000 9.000

(RCOF43) □ IA613A, B/L OT+ASRM+PLUMES S1.2 -BODY FLAP LOWER .800 .000 10.000 9.000

(RCOF81) ◇ IA613A, B/L OT+ASRM+PLUMES S1.2 -BODY FLAP LOWER .800 180.000 10.000 9.000

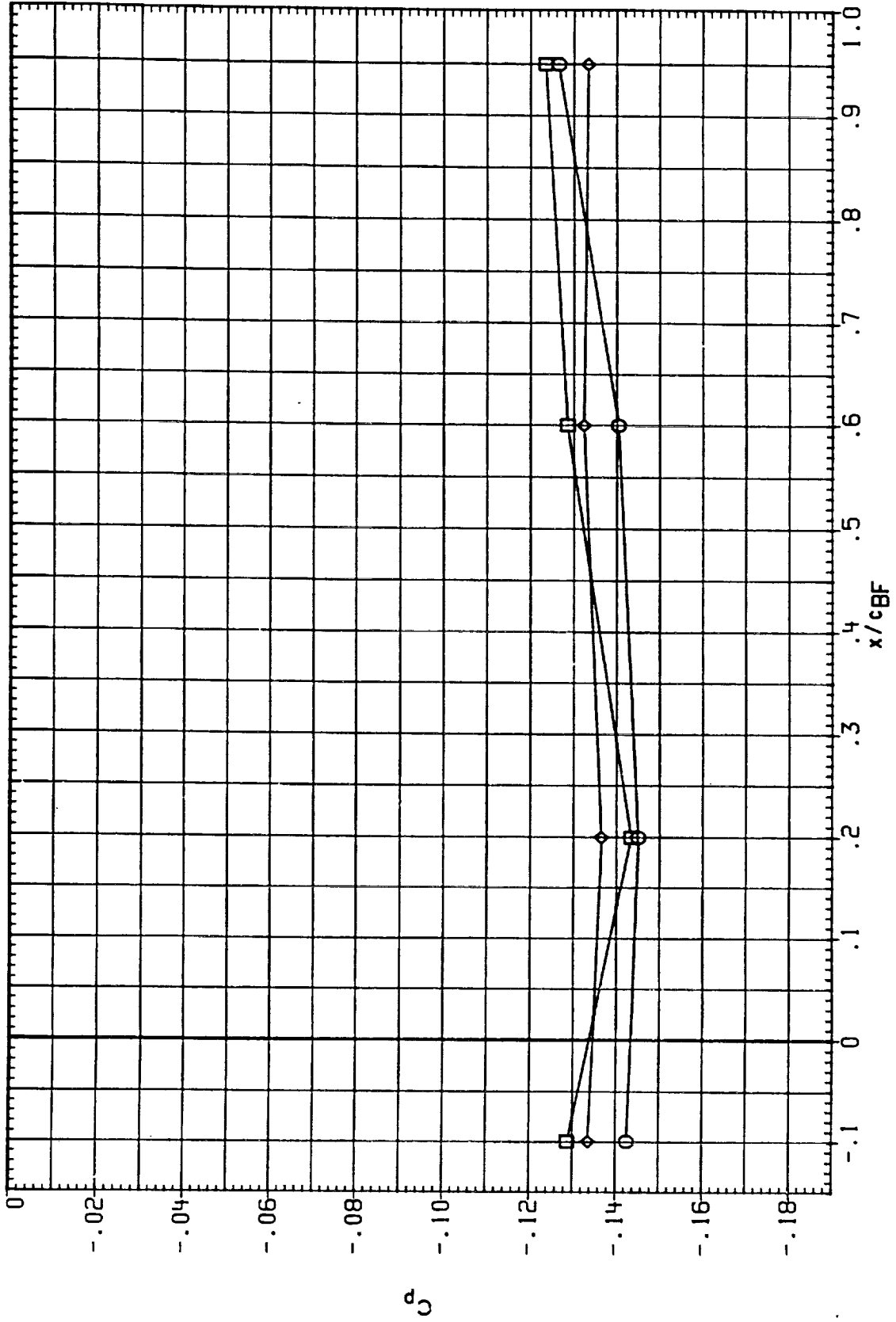


FIGURE 4 IA613A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER BODY FLAP - LOWER SURFACE
 BETA = .000 ETA = .100 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOF 16)	○	1A613A, B/L OT+RSRM+PLUMES S1.2 -BODY FLAP LOWER	.800	.000	10.000	9.000
(RCOF 43)	□	1A613A, B/L OT+ASRM+PLUMES S1.2 -BODY FLAP LOWER	.800	.000	10.000	9.000
(RCOF 81)	◇	1A613A, B/L OT+ASRM+PLUMES S1.2 -BODY FLAP LOWER	.800	180.000	10.000	9.000

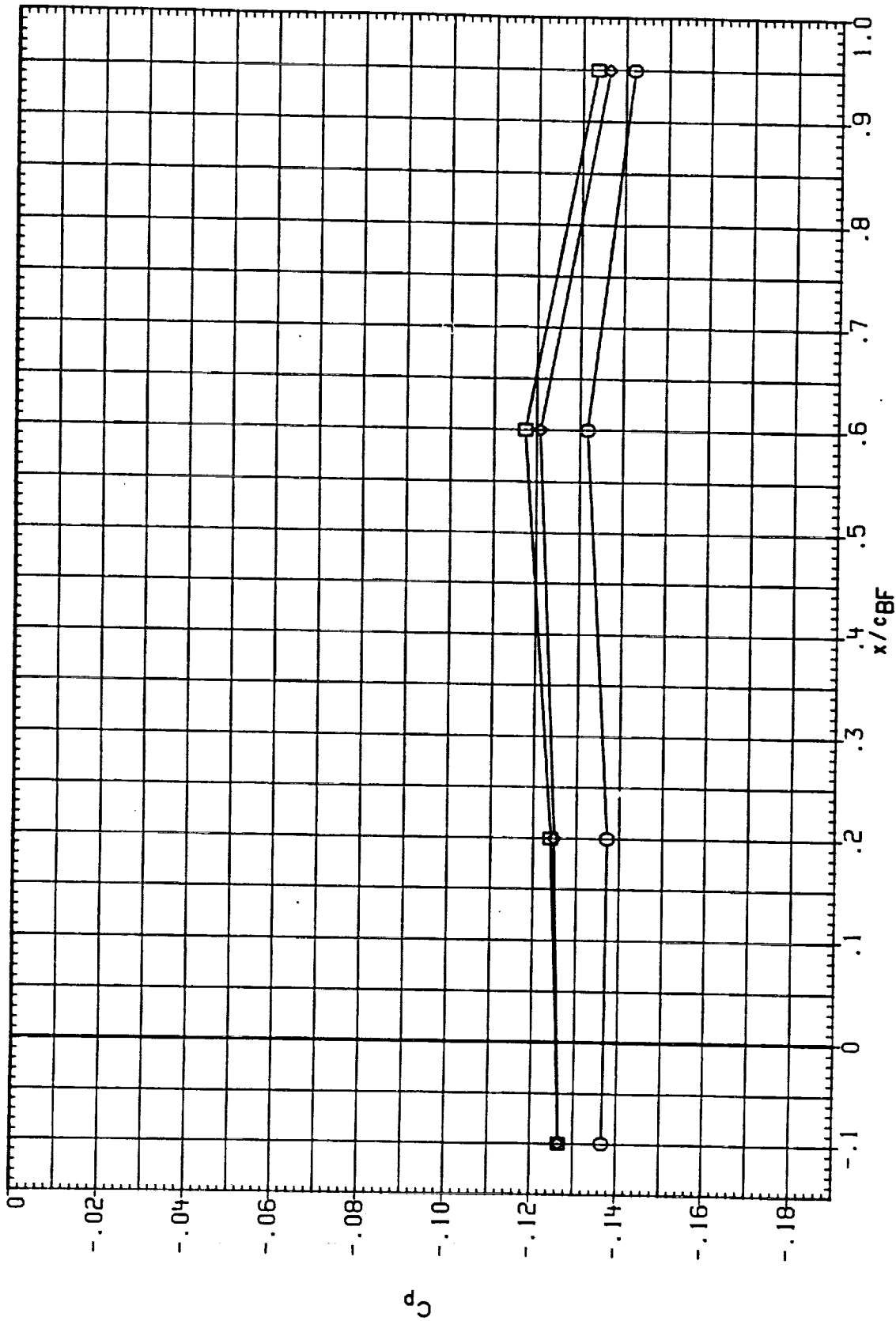


FIGURE 4 IAG13A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER BODY FLAP - LOWER SURFACE
 BETA = .000 ETA = .500 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOF 17)	□	IAG13A.B/L OT+RSRM+PLUMES S1.2 -BODY FLAP LOWER	.900	.000	10.000	9.000
(RCOF 44)	○	IAG13A.B/L OT+ASRM+PLUMES S1.2 -BODY FLAP LOWER	.900	.000	10.000	9.000
(RCOF 82)	◇	IAG13A.B/L OT+ASRM+PLUMES S1.2 -BODY FLAP LOWER	.900	180.000	10.000	9.000
(RCOF C2)	△	IAG13A.B/L OT+ASRM+PLUMES S1.2 -BODY FLAP LOWER	.900	999.000	10.000	5.000

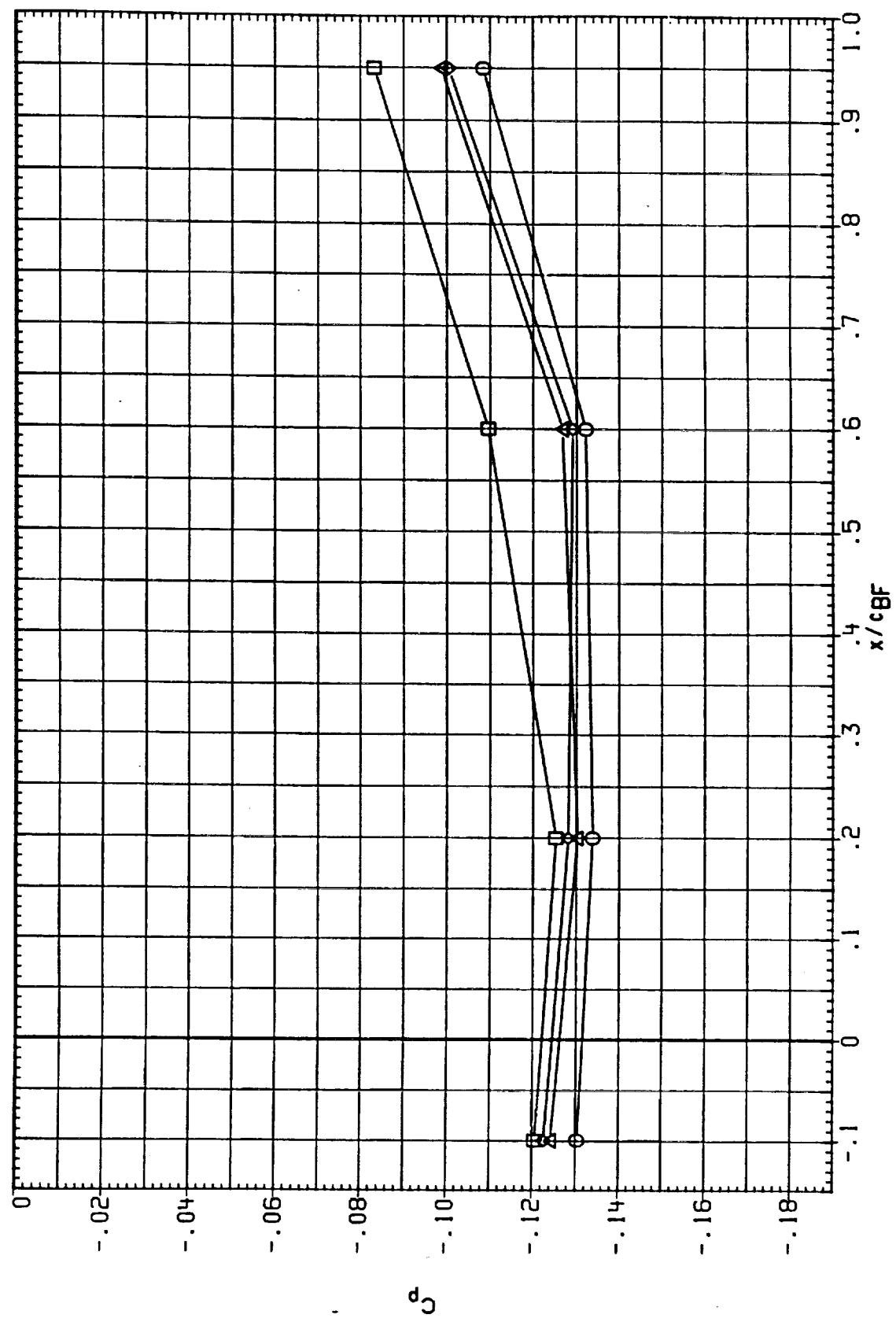


FIGURE 4 IAG13A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER BODY FLAP - LOWER SURFACE
 BETA = .000 ETA = .100 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IF.ABOX	IB-ELV	OB-ELV
(RCOF 17)	□	IA613A.B/L OT*RSRH*PLUMES S1.2 -BODY FLAP LOWER	.900	.000	10.000	9.000
(RCOF 44)	◇	IA613A.B/L OT*ASRN*PLUMES S1.2 -BODY FLAP LOWER	.900	.000	10.000	9.000
(RCOF 82)	△	IA613A.B/L OT*ASRN*PLUMES S1.2 -BODY FLAP LOWER	.900	180.000	10.000	9.000
(RCOF 82)	△	IA613A.B/L OT*ASRN*PLUMES S1.2 -BODY FLAP LOWER	.900	999.000	10.000	5.000

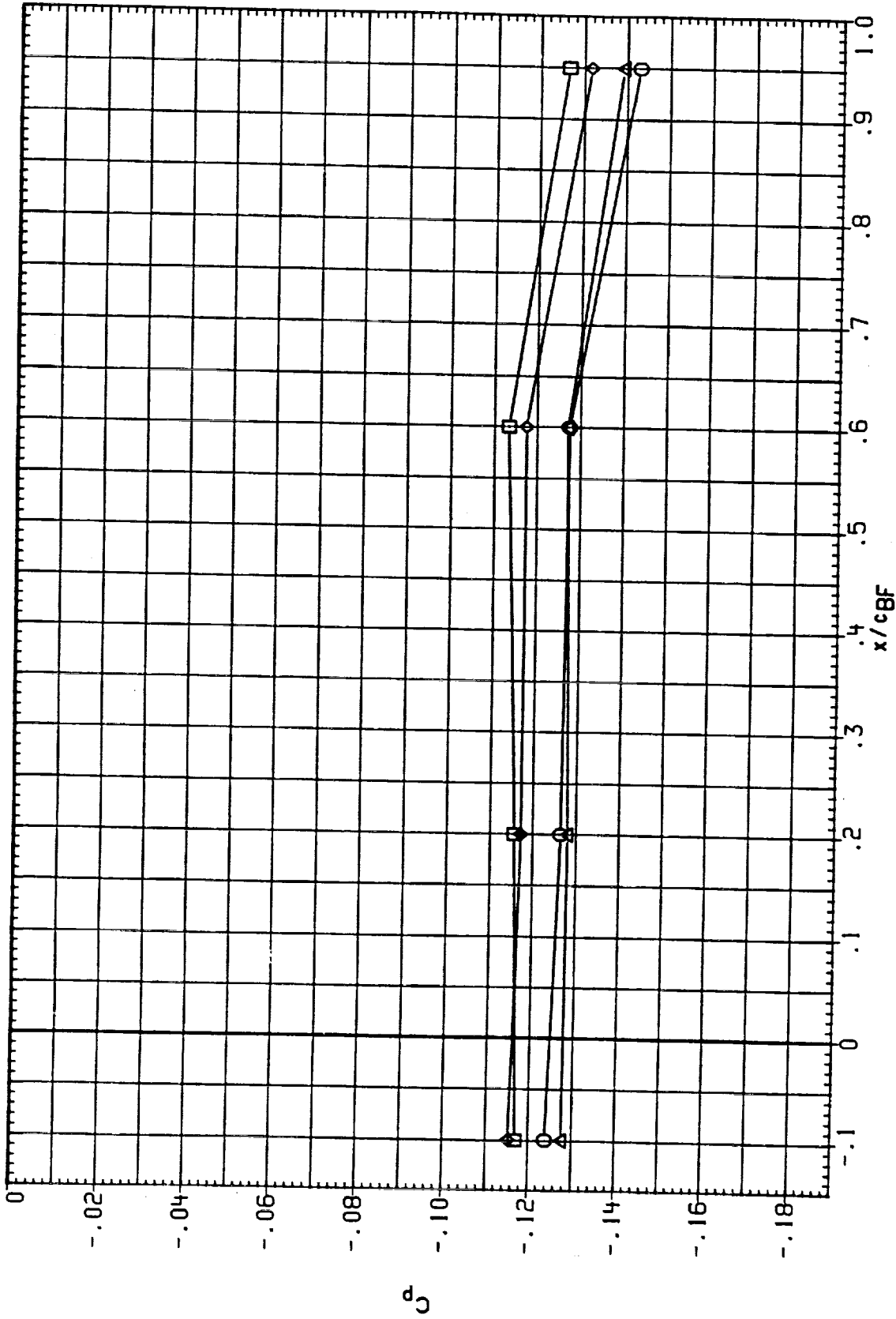


FIGURE 4 IA613A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER BODY FLAP - LOWER SURFACE
 BETA = .000 ETA = .500 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEAROX	IB-ELV	OB-ELV
(RCOF18)	○	IA613A, B/L 01+RSRH+PLUMES S1.2 -BODY FLAP LOWER	.950	.000	10.000	9.000
(RCOF45)	□	IA613A, B/L 01+ASRH+PLUMES S1.2 -BODY FLAP LOWER	.950	.000	10.000	9.000
(RCOF83)	◇	IA613A, B/L 01+ASRH+PLUMES S1.2 -BODY FLAP LOWER	.950	180.000	10.000	9.000

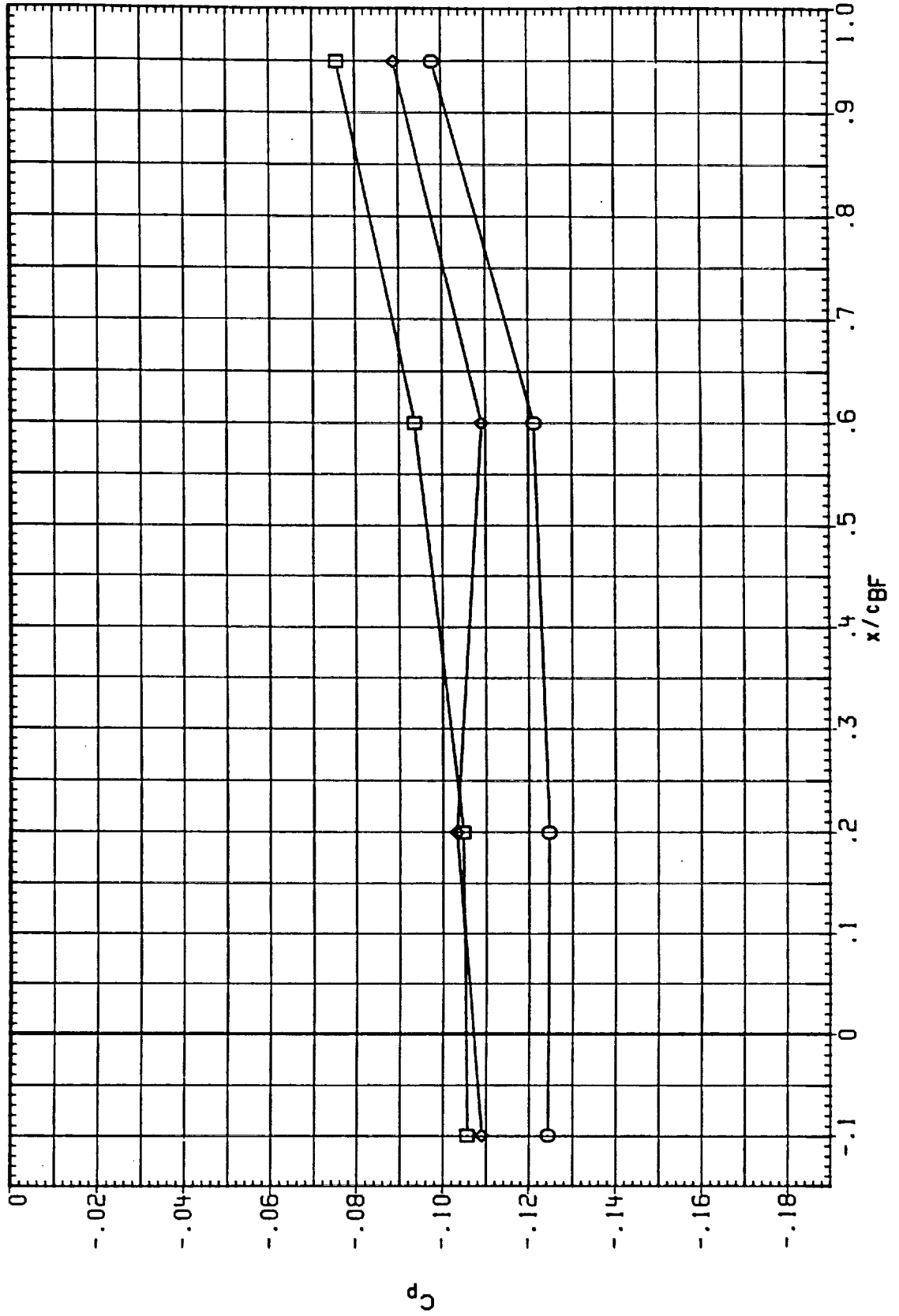


FIGURE 4 IA613A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER BODY FLAP - LOWER SURFACE
 BETA = .000 ETA = .100 ALPHA = .000

DATA SET: SYMBOL CONFIGURATION DESCRIPTION
 (RCOF 18) ○ IAG13A.B/L OT*RSRM*PLUMES S1.2 -BODY FLAP LOWER
 (RCOF 45) □ IAG13A.B/L OT*ASRM*PLUMES S1.2 -BODY FLAP LOWER
 (RCOF 83) ◇ IAG13A.B/L OT*ASRM*PLUMES S1.2 -BODY FLAP LOWER

MACH .950
 .950
 .950
 IE.ABOX .000
 .000
 .000
 IB-ELV 10.000
 10.000
 10.000
 OB-ELV 9.000
 9.000
 9.000

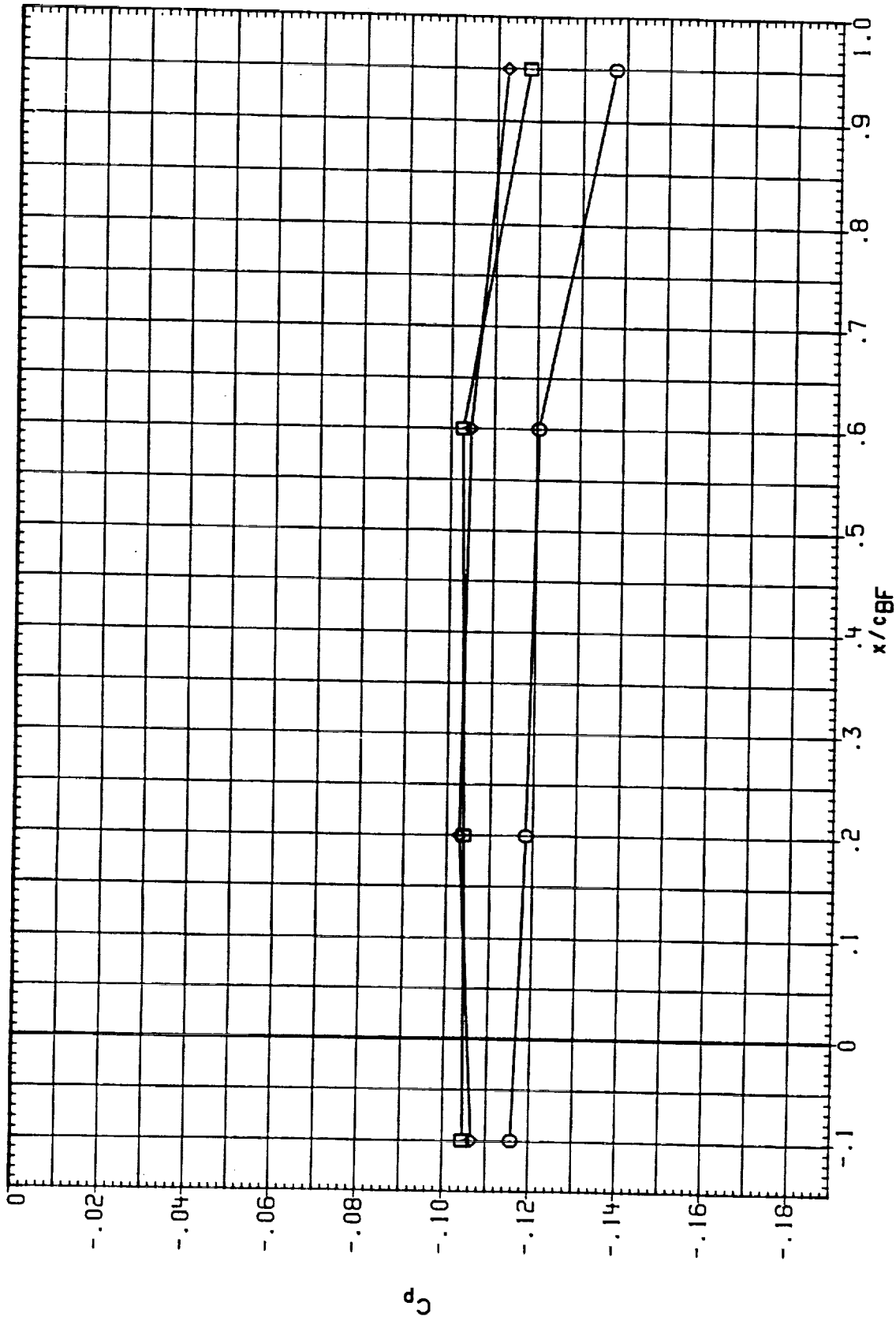


FIGURE 4 IAG13A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER BODY FLAP - LOWER SURFACE
 BETA = .000 ETA = .500 ALPHA = .000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	18-ELV	08-ELV
(RCOF19)	IAG13A.B/L OT+RSRM+PLUMES S1.2 -BODY FLAP LOWER	1.050	.000	10.000	9.000
(RCOF46)	IAG13A.B/L OT+ASRM+PLUMES S1.2 -BODY FLAP LOWER	1.050	.000	10.000	9.000
(RCOF68)	IAG13A.B/L OT+ASRM+PLUMES S1.2 -BODY FLAP LOWER	1.050	180.000	10.000	9.000

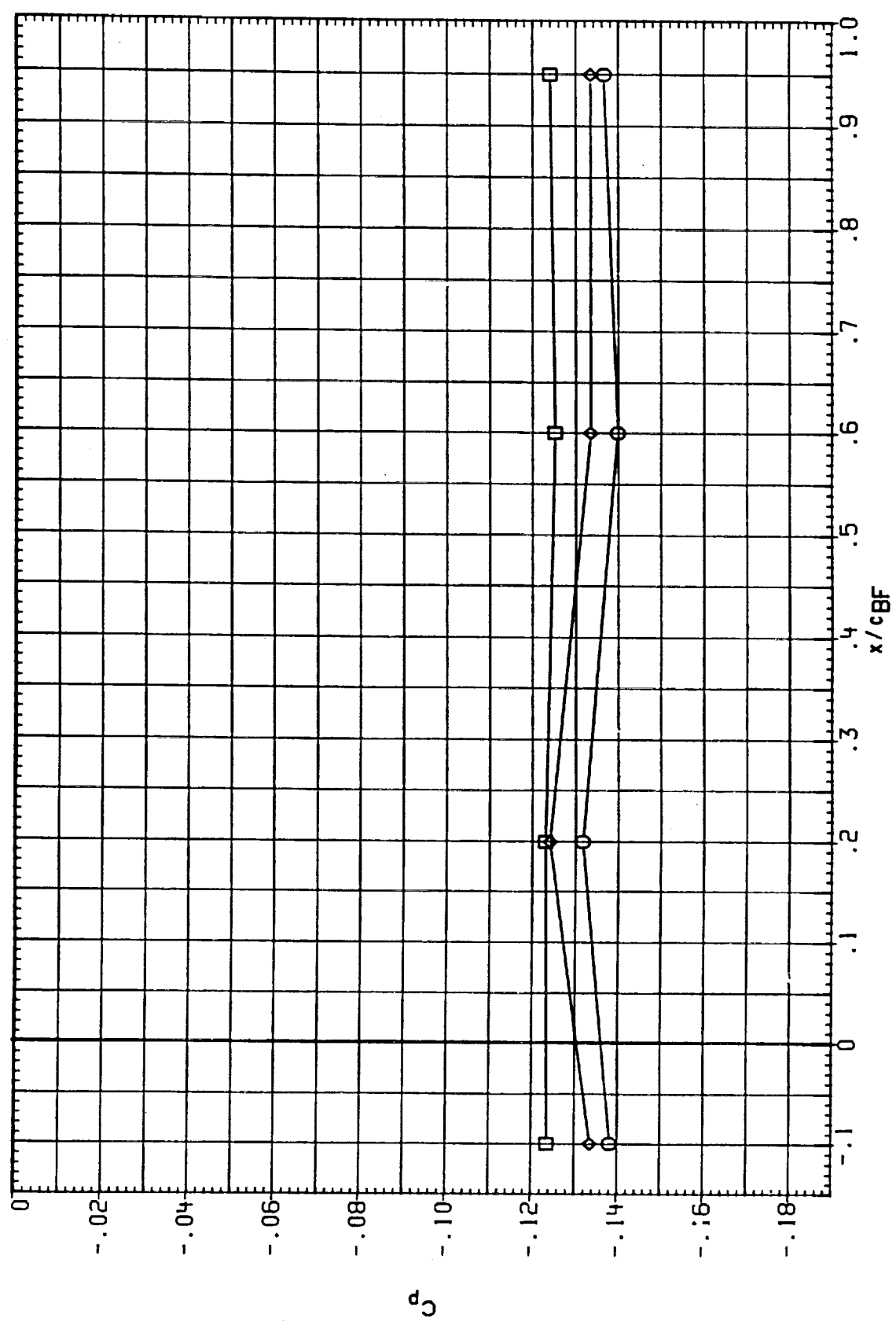


FIGURE 4 IAG13A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER BODY FLAP - LOWER SURFACE
 BETA = .000 ETA = .100 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	:EABOX	1B-ELV	0B-ELV
(RCOF191)	○	IA613A, B/L OT+RSRM+PLUMES S1,2 -BODY FLAP LOWER	1.050	.000	10.000	9.000
(RCOF161)	□	IA613A, B/L OT+ASRM+PLUMES S1,2 -BODY FLAP LOWER	1.050	.000	10.000	9.000
(RCOF81)	◇	IA613A, B/L OT+ASRM+PLUMES S1,2 -BODY FLAP LOWER	1.050	180.000	10.000	9.000

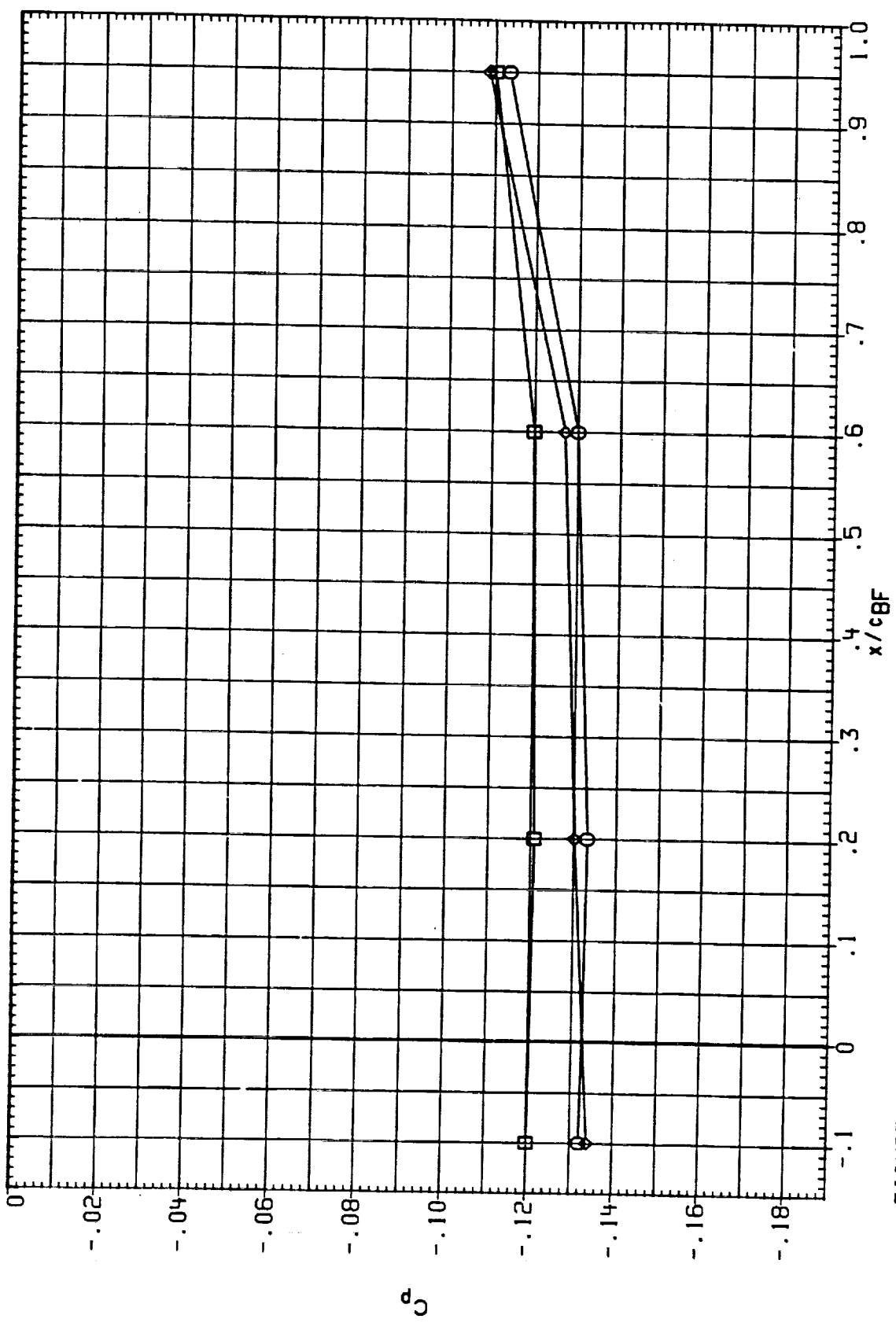


FIGURE 4 IA613A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER BODY FLAP - LOWER SURFACE
 BETA = .000 ETA = .500 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOF20)	○	IAG13A, B/L OT+RSRH+PLUMES S1.2	1.100	.000	10.000	9.000
(RCOF47)	□	IAG13A, B/L OT+ASRH+PLUMES S1.2	1.100	.000	10.000	9.000
(RCOF85)	◇	IAG13A, B/L OT+ASRH+PLUMES S1.2	1.100	180.000	10.000	9.000
(RCOF63)	△	IAG13A, B/L OT+ASRH+PLUMES S1.2	1.100	999.000	10.000	5.000

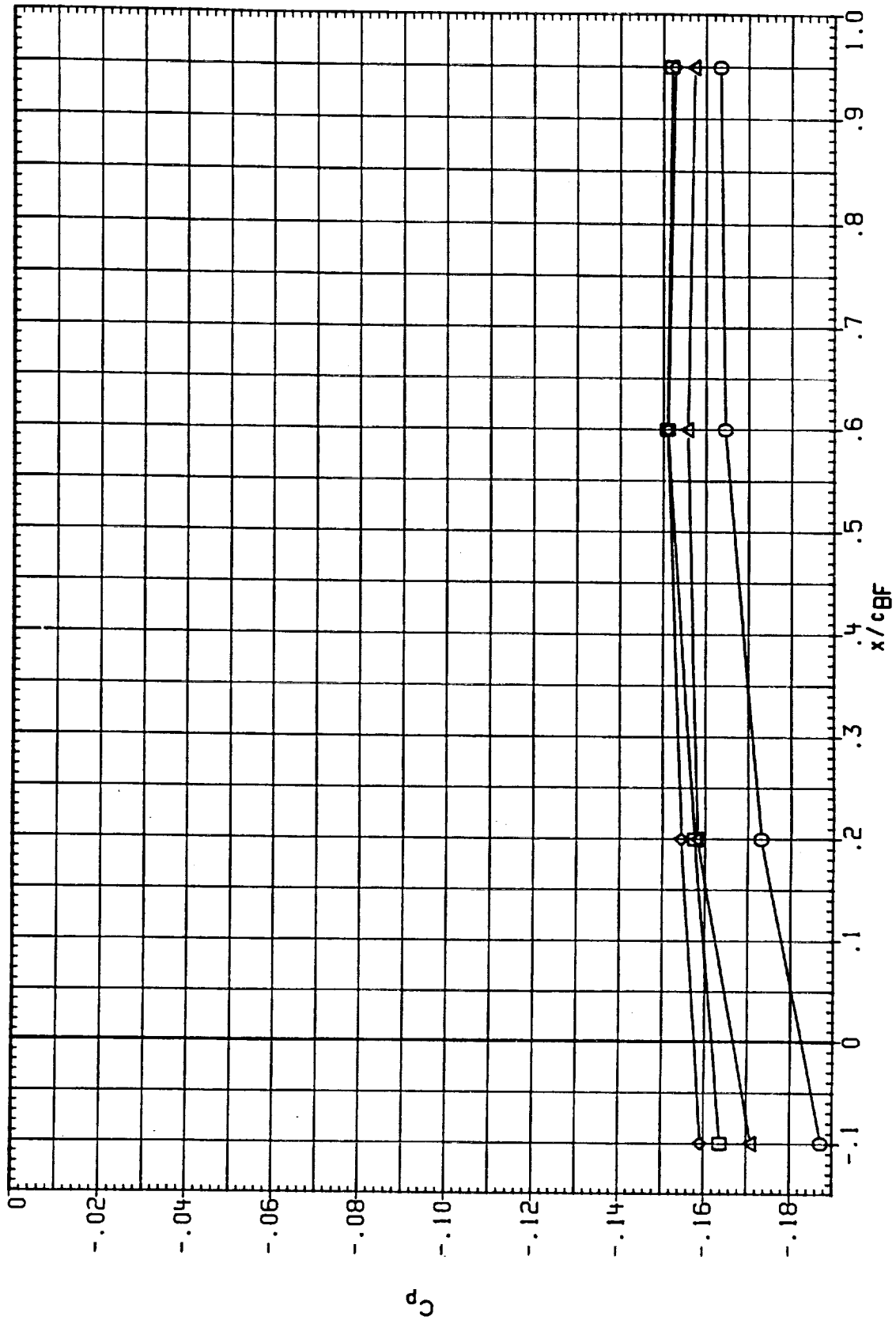


FIGURE 4 IAG13A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER BODY FLAP - LOWER SURFACE
 BETA = .000 ETA = .100 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOF20)	○	IA613A, B/L OT+RSRM+PLUMES S1.2 -BODY FLAP LOWER	1.100	.000	10.000	9.000
(RCOF47)	□	IA613A, B/L OT+ASRM+PLUMES S1.2 -BODY FLAP LOWER	1.100	.000	10.000	9.000
(RCOF85)	◇	IA613A, B/L OT+ASRM+PLUMES S1.2 -BODY FLAP LOWER	1.100	180.000	10.000	9.000
(RCOFC3)	△	IA613A, B/L OT+ASRM+PLUMES S1.2 -BODY FLAP LOWER	1.100	999.000	10.000	5.000

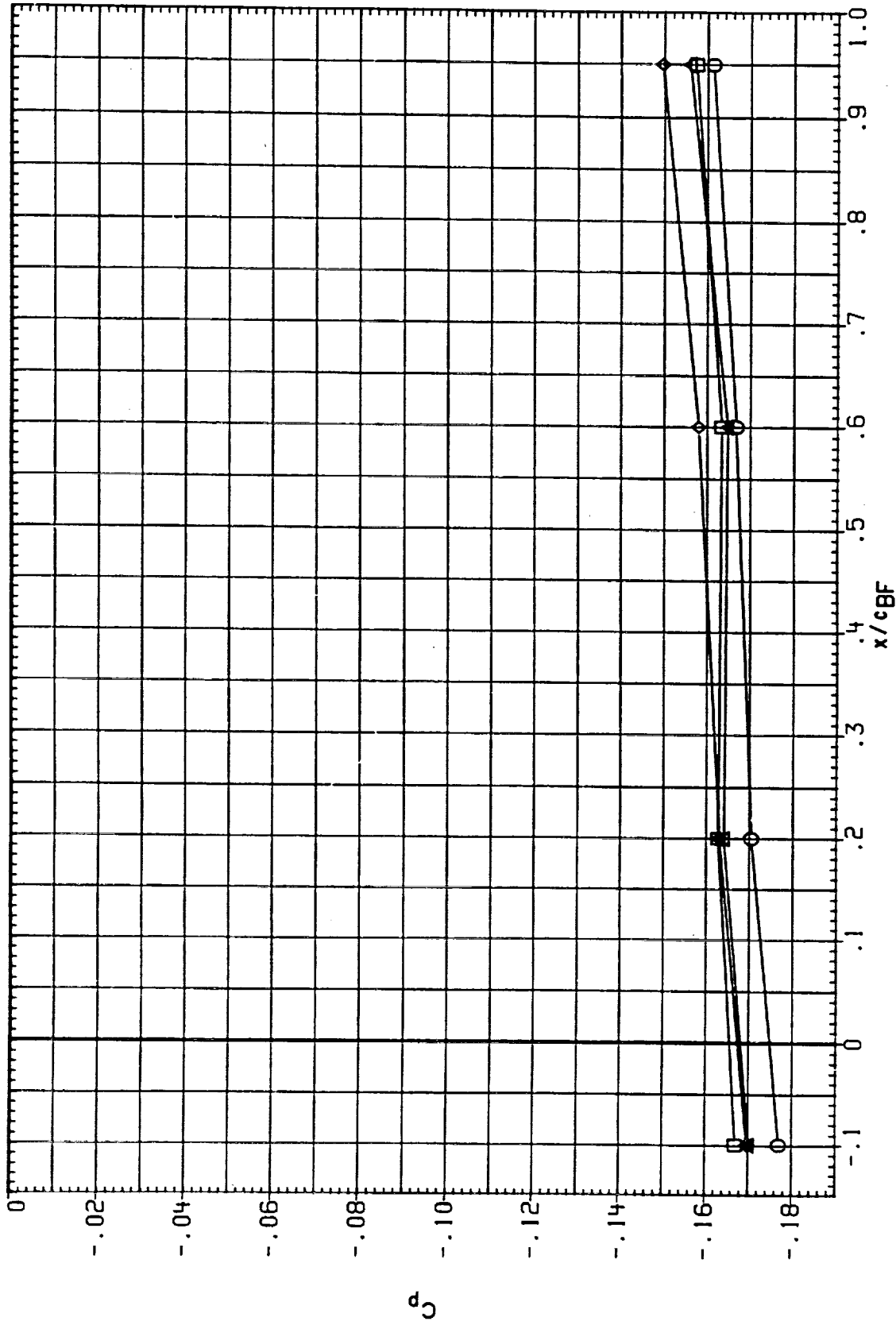


FIGURE 4 IA613A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER BODY FLAP - LOWER SURFACE
 BETA = .000 ETA = .500 ALPHA = .000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOF21)	IA613A,B/L 01+RSRM+PLUMES S1,2	1.150	.000	10.000	9.000
(RCOF48)	IA613A,B/L 01+ASRM+PLUMES S1,2	1.150	.000	10.000	9.000
(RCOF86)	IA613A,B/L 01+ASRM+PLUMES S1,2	1.150	180.000	10.000	9.000
(XCOFC4)	IA613A,B/L 01+ASRM+PLUMES S1,2	1.150	999.000	10.000	5.000

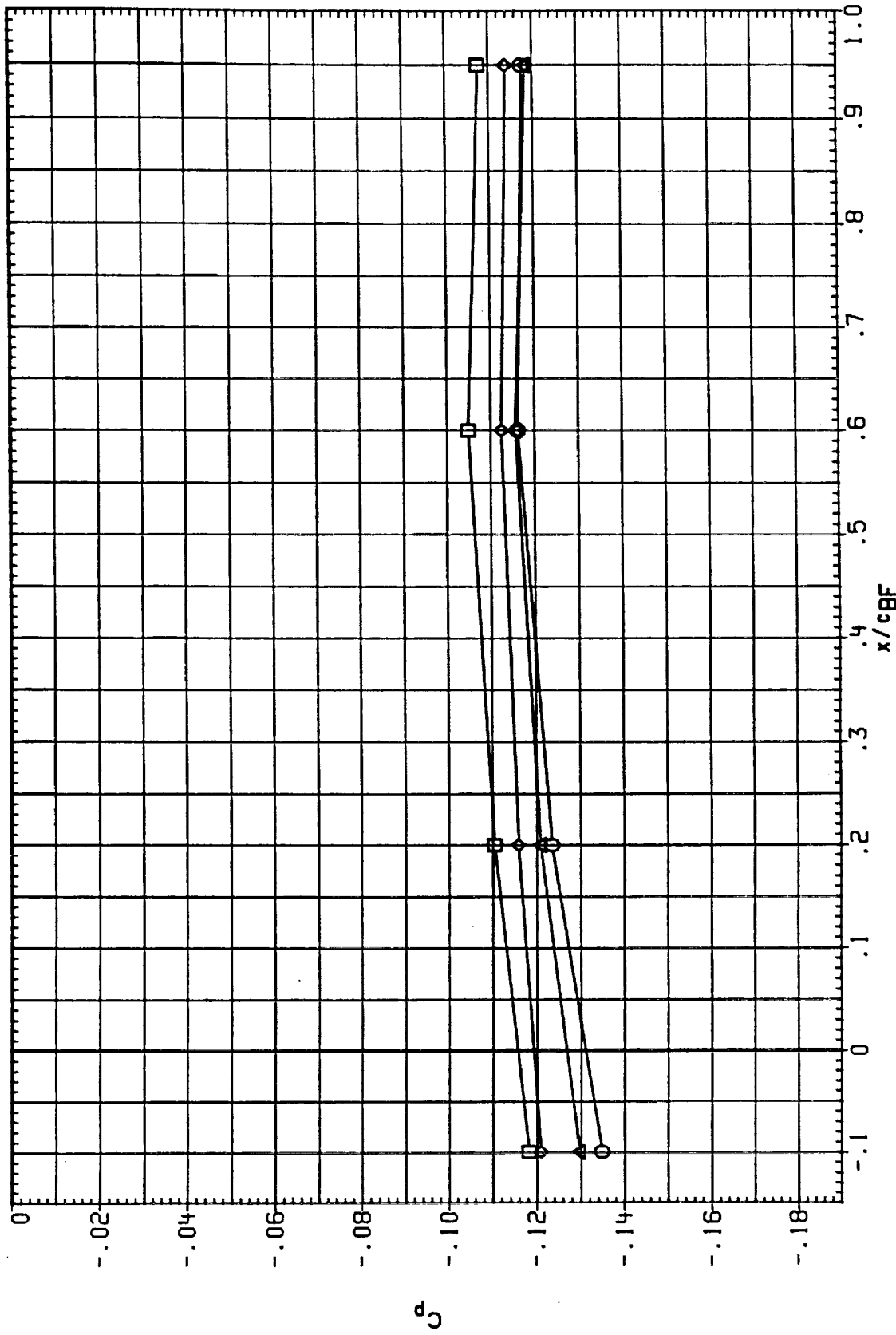


FIGURE 4 IA613A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER BODY FLAP - LOWER SURFACE
 BETA = .000 ETA = .100 ALPHA = .000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOF21)	IA613A,B/L OT+RSRM+PLUMES S1.2	1.150	.000	10.000	9.000
(RCOF58)	IA613A,B/L OT+ASRM+PLUMES S1.2	1.150	.000	10.000	9.000
(RCOF86)	IA613A,B/L OT+ASRM+PLUMES S1.2	1.150	180.000	10.000	9.000
(XCOFC4)	IA613A,B/L OT+ASRM+PLUMES S1.2	1.150	999.000	10.000	5.000

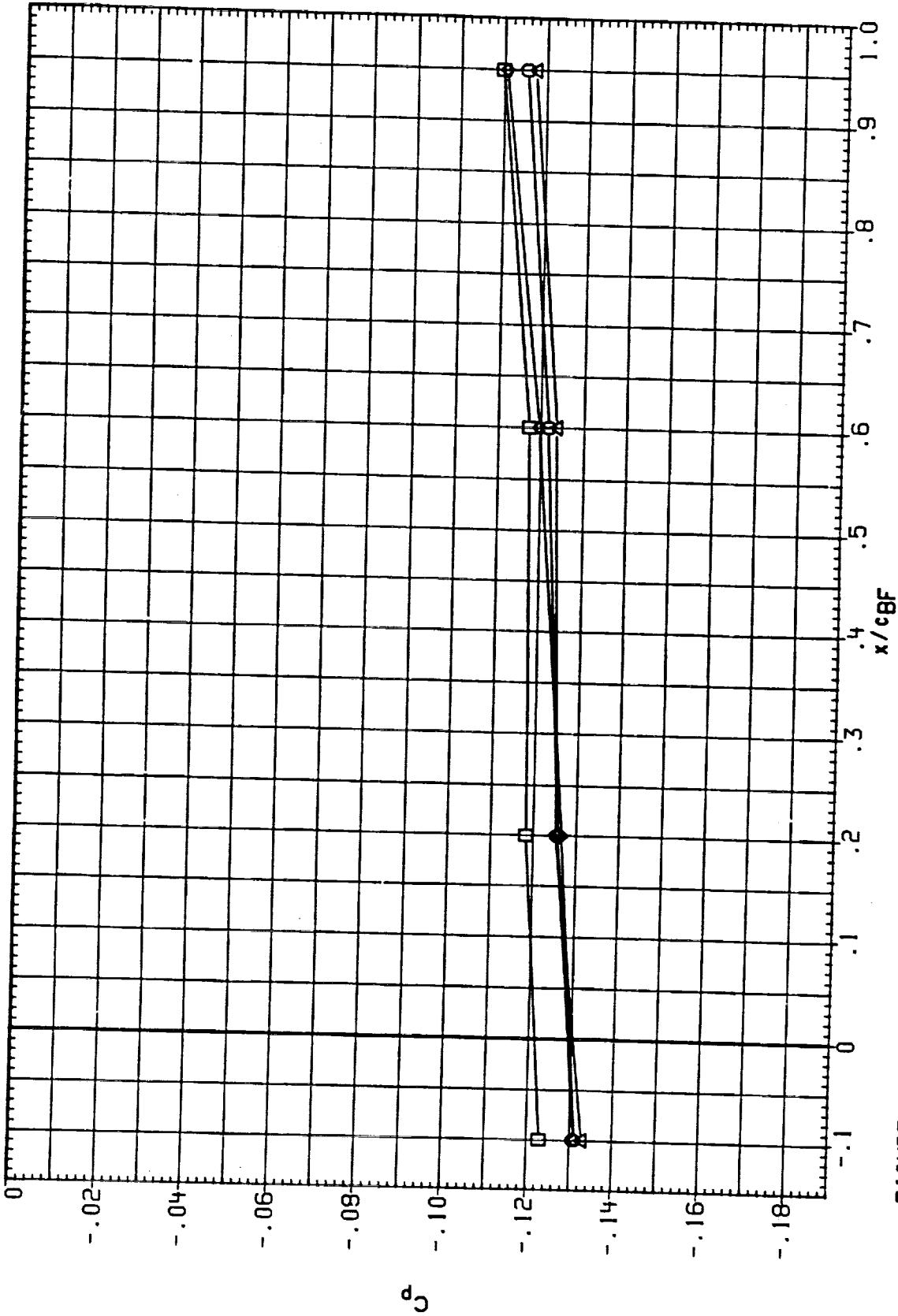


FIGURE 4 IAB13A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER BODY FLAP - LOWER SURFACE
 BETA = .000 ETA = .500 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	ICABOX	IB-ELV	OB-ELV
(RCOF22)	□	IAG13A.B/L OT+RSRM+PLUMES S1.2 -BODY FLAP LOWER	1.250	.000	10.000	9.000
(RCOF49)	◇	IAG13A.B/L OT+ASRM+PLUMES S1.2 -BODY FLAP LOWER	1.250	.000	10.000	9.000
(RCOF87)	◇	IAG13A.B/L OT+ASRM+PLUMES S1.2 -BODY FLAP LOWER	1.250	180.000	10.000	9.000
(RCOF65)	△	IAG13A.B/L OT+ASRM+PLUMES S1.2 -BODY FLAP LOWER	1.250	993.000	10.000	5.000

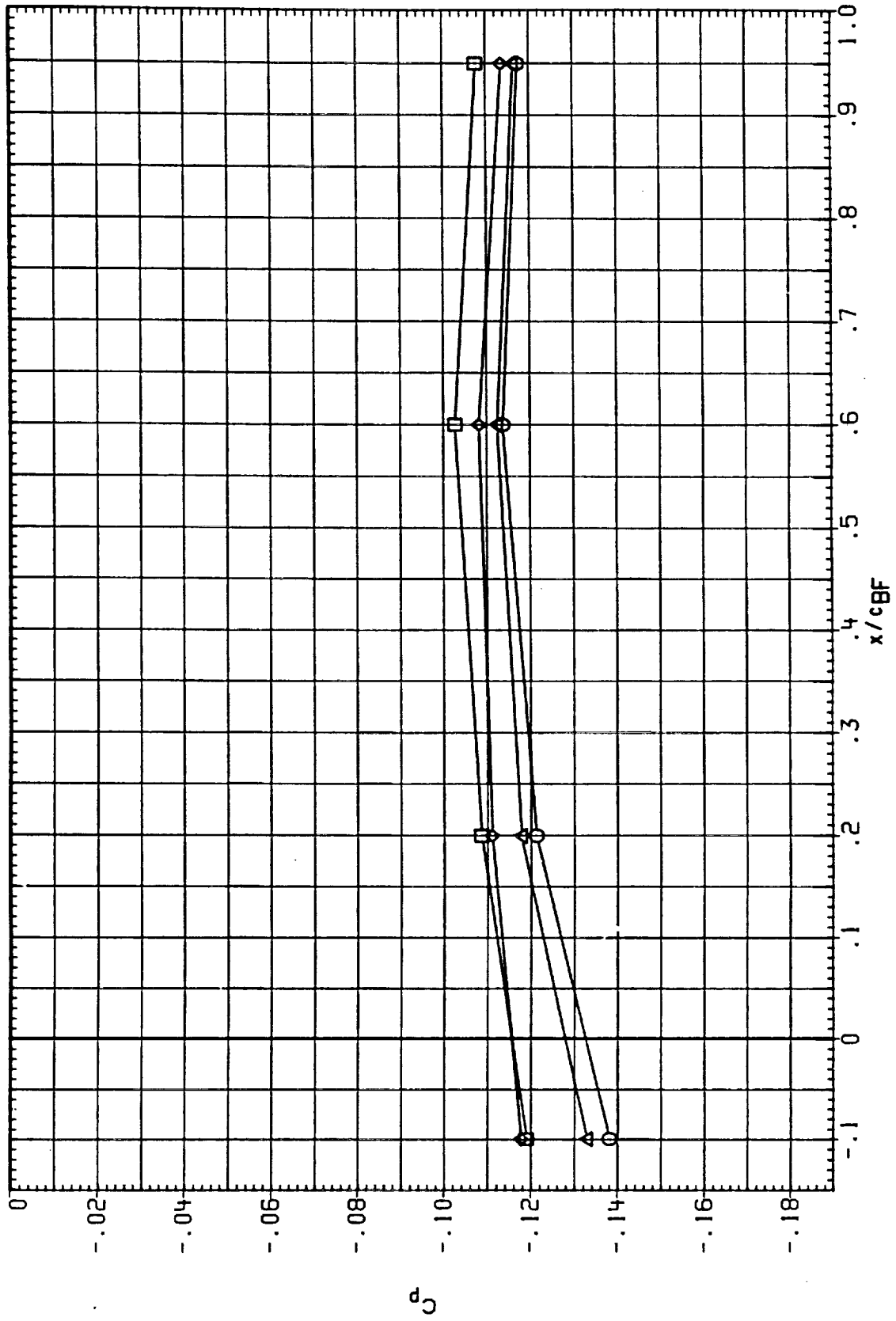


FIGURE 4 IAG13A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER BODY FLAP - LOWER SURFACE
 BETA = .000 ETA = .100 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCDF22)	○	IA613A.B/L OT*PSRM*PLUMES S1.2 -BODY FLAP LOWER	1.250	.000	10.000	9.000
(RCDF49)	□	IA613A.B/L OT*ASRM*PLUMES S1.2 -BODY FLAP LOWER	1.250	.000	10.000	9.000
(RCDF87)	◇	IA613A.B/L OT*ASRM*PLUMES S1.2 -BODY FLAP LOWER	1.250	180.000	10.000	9.000
(RCDFC5)	△	IA613A.B/L OT*ASRM*PLUMES S1.2 -BODY FLAP LOWER	1.250	999.000	10.000	5.000

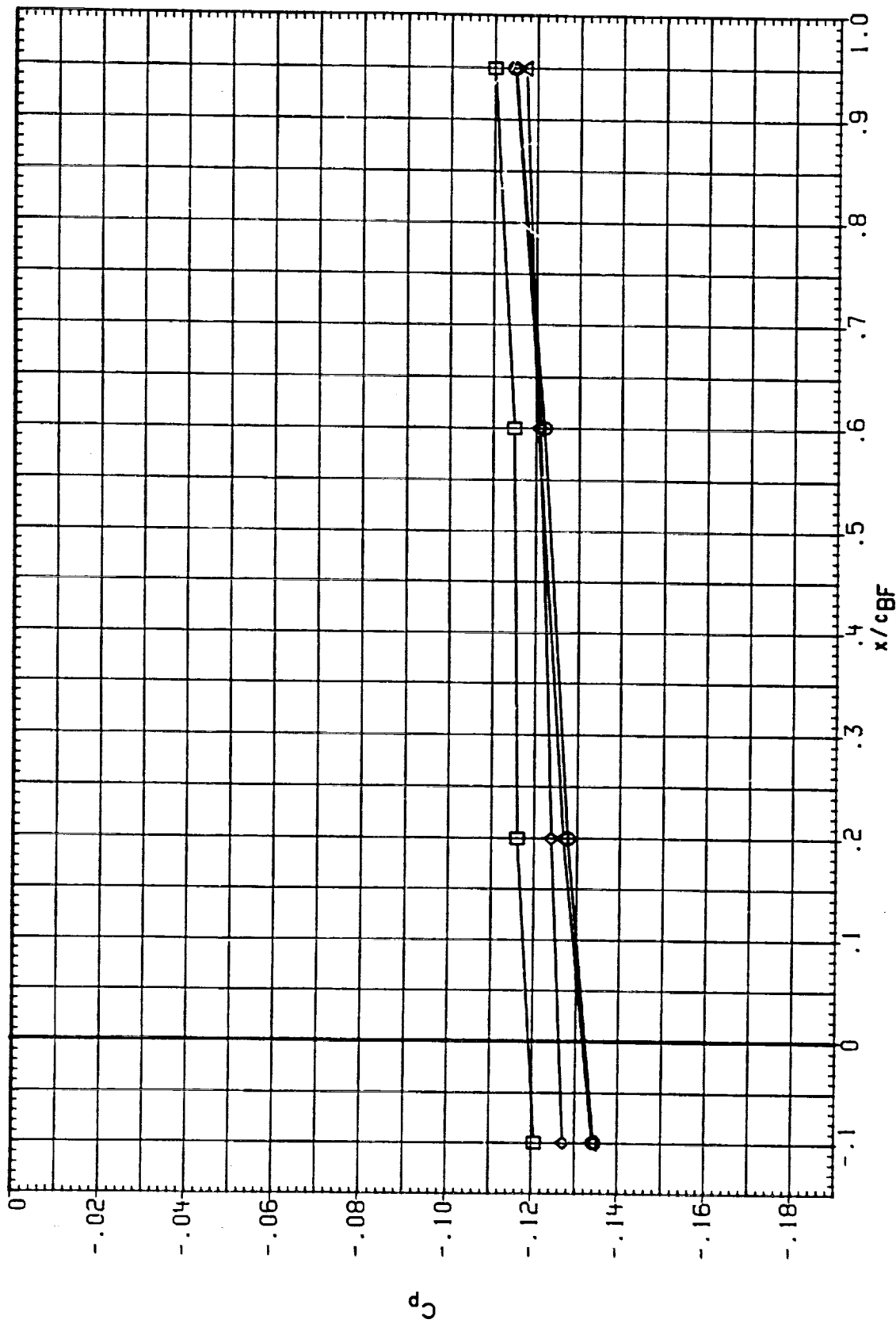


FIGURE 4 IA613A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER BODY FLAP - LOWER SURFACE
 BETA = .000 ETA = .500 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOFH6)	○	IA613A, B/L 01+RSRH+PLUMES S1, 2 -BODY FLAP LOWER	1.300	.000	10.000	9.000
(RCOF54)	◇	IA613A, B/L 01+ASRH+PLUMES S1, 3 -BODY FLAP LOWER	1.300	.000	10.000	5.000
(RCOF89)	◇	IA613A, B/L 01+ASRH+PLUMES S1, 3 -BODY FLAP LOWER	1.300	180.000	10.000	5.000
(RCOFC7)	△	IA613A, B/L 01+ASRH+PLUMES S1, 3 -BODY FLAP LOWER	1.300	999.000	10.000	5.000

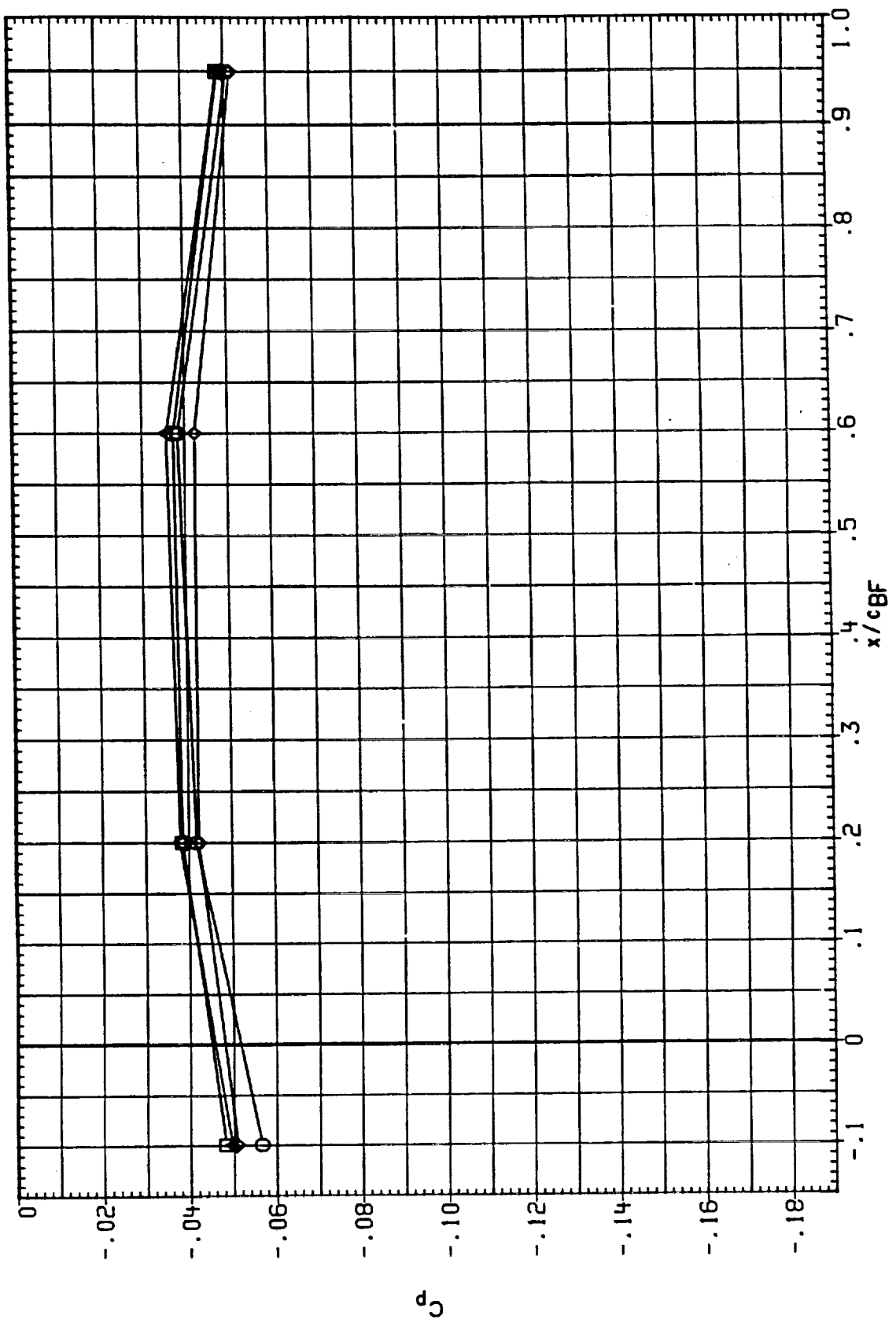


FIGURE 4 IA613A SELECTED PRESSURE DISTRIBUTIONS
ORBITER BODY FLAP - LOWER SURFACE

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOF H6)	○	IAG13A, B/L OT+RSRM+PLUMES S1.2	1.300	.000	10.000	9.000
(RCOF 54)	□	IAG13A, B/L OT+ASRM+PLUMES S1.3	1.300	.000	10.000	5.000
(RCOF 89)	△	IAG13A, B/L OT+ASRM+PLUMES S1.3	1.300	180.000	10.000	5.000
(RCOF C7)	◇	IAG13A, B/L OT+ASRM+PLUMES S1.3	1.300	999.000	10.000	5.000

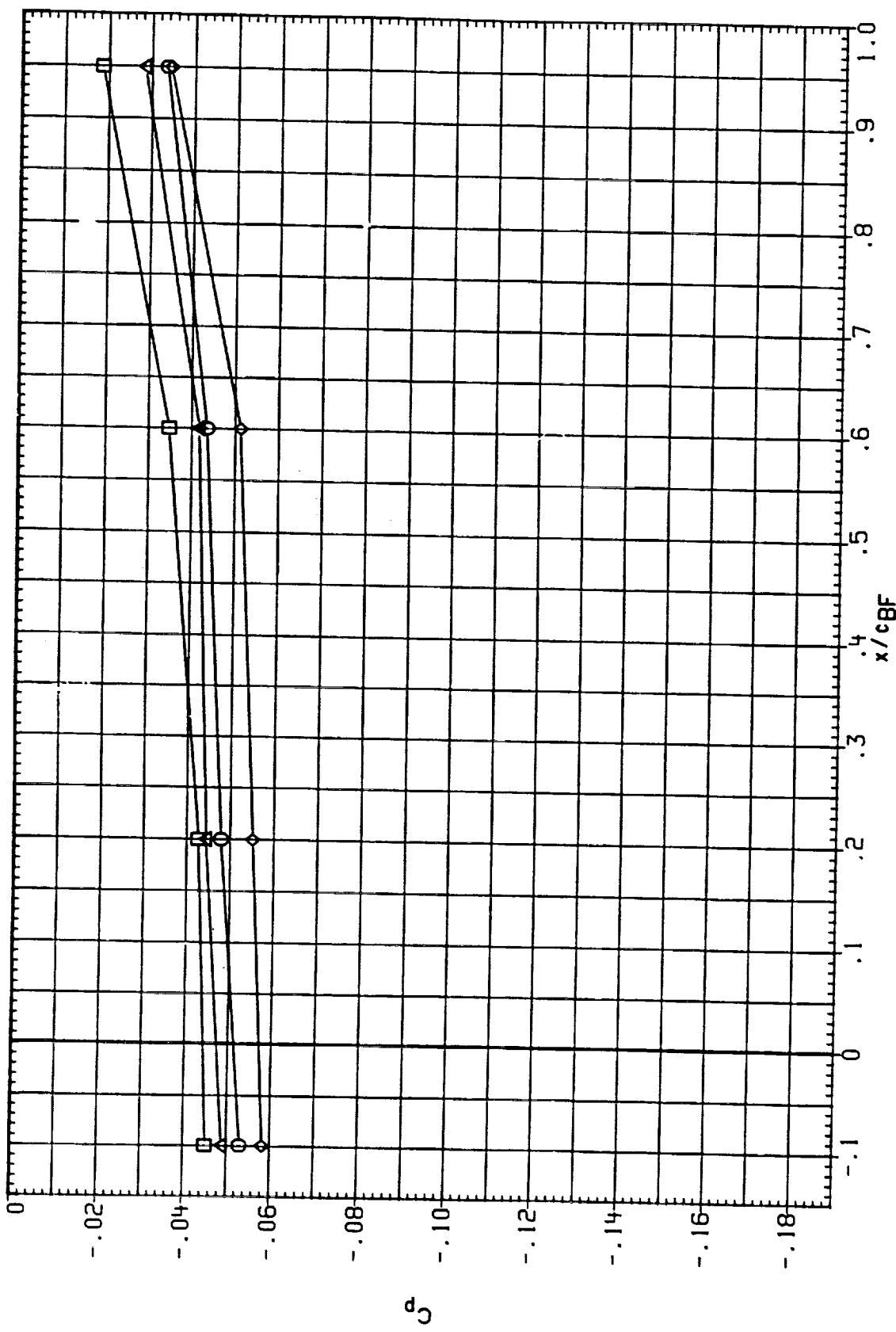


FIGURE 4 IAG13A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER BODY FLAP - LOWER SURFACE
 BETA = .000 ETA = .500 ALPHA = .000

0-3

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOFH7)	○	IA613A, B/L 01+RSRH+PLUMES S1.2	1.350	.000	10.000	9.000
(RCOF55)	□	IA613A, B/L 01+ASRH+PLUMES S1.3	1.350	.000	10.000	5.000
(RCOF90)	◇	IA613A, B/L 01+ASRH+PLUMES S1.3	1.350	180.000	10.000	5.000
(RCOFC8)	△	IA613A, B/L 01+ASRH+PLUMES S1.3	1.350	999.000	10.000	5.000



FIGURE 4 IA613A SELECTED PRESSURE DISTRIBUTIONS
ORBITER BODY FLAP - LOWER SURFACE
ETA = .000 ALPHA = .100

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MACH	IE.ABOX	IB-ELV	OB-ELV
(RCOF H7)	IAG13A .B/L OT*ASRM*PLUMES S1.2	1.350	.000	10.000	9.000
(RCOF 55)	IAG13A .B/L OT*ASRM*PLUMES S1.3	1.350	.000	10.000	5.000
(RCOF 90)	IAG13A .B/L OT*ASRM*PLUMES S1.3	1.350	180.000	10.000	5.000
(RCOF C8)	IAG13A .B/L OT*ASRM*PLUMES S1.3	1.350	999.000	10.000	5.000

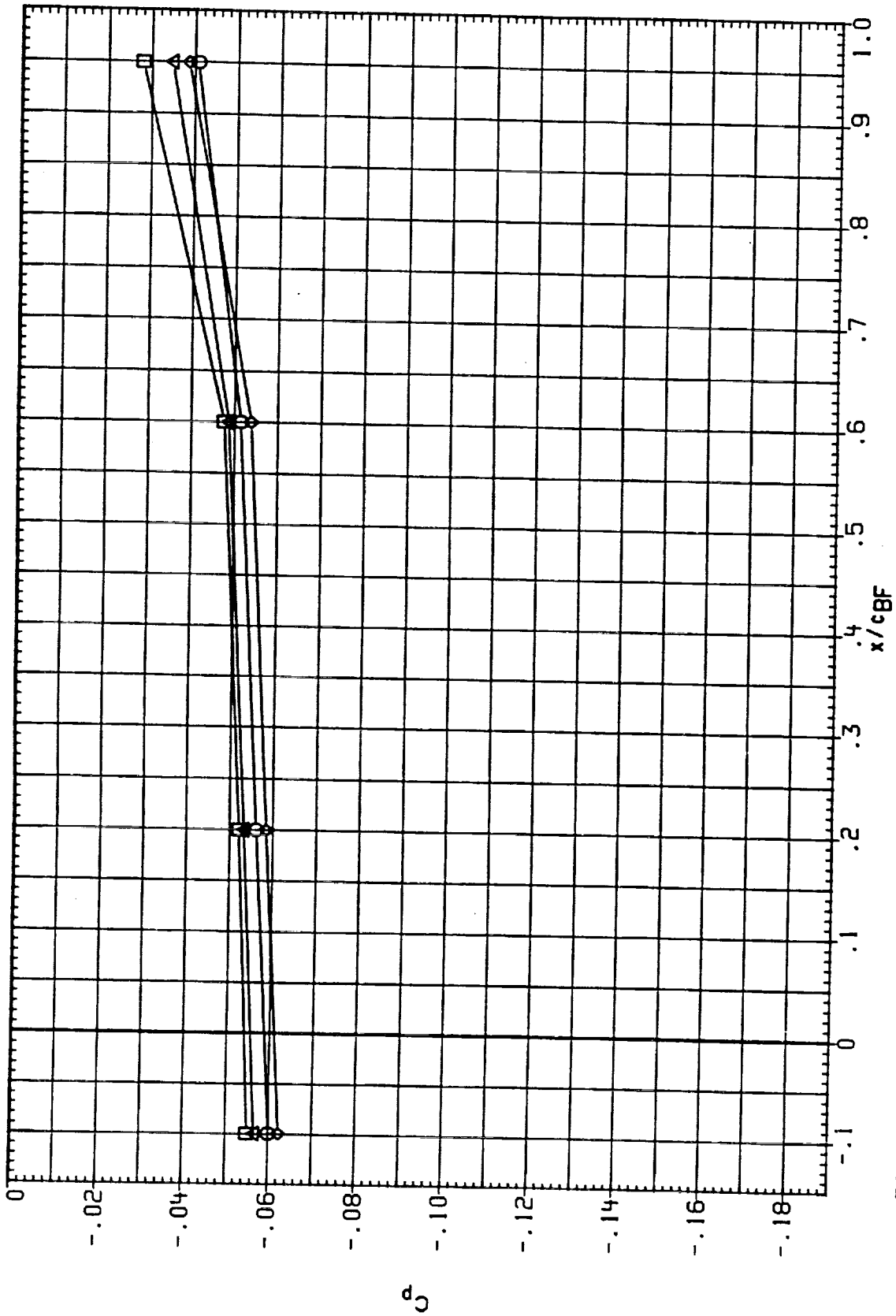


FIGURE 4 IAG13A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER BODY FLAP - LOWER SURFACE
 BETA = .000 ETA = .500 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOFH8)	○	I A613A .B/L OT+PSRM+PLUMES S1.2	1.400	.000	10.000	9.000
(RCOF56)	□	I A613A .B/L OT+ASRM+PLUMES S1.3	1.400	.000	10.000	5.000
(RCOF91)	◇	I A613A .B/L OT+ASRM+PLUMES S1.3	1.400	180.000	10.000	5.000
(RCOF91)	△	I A613A .B/L OT+ASRM+PLUMES S1.3	1.400	999.000	10.000	5.000

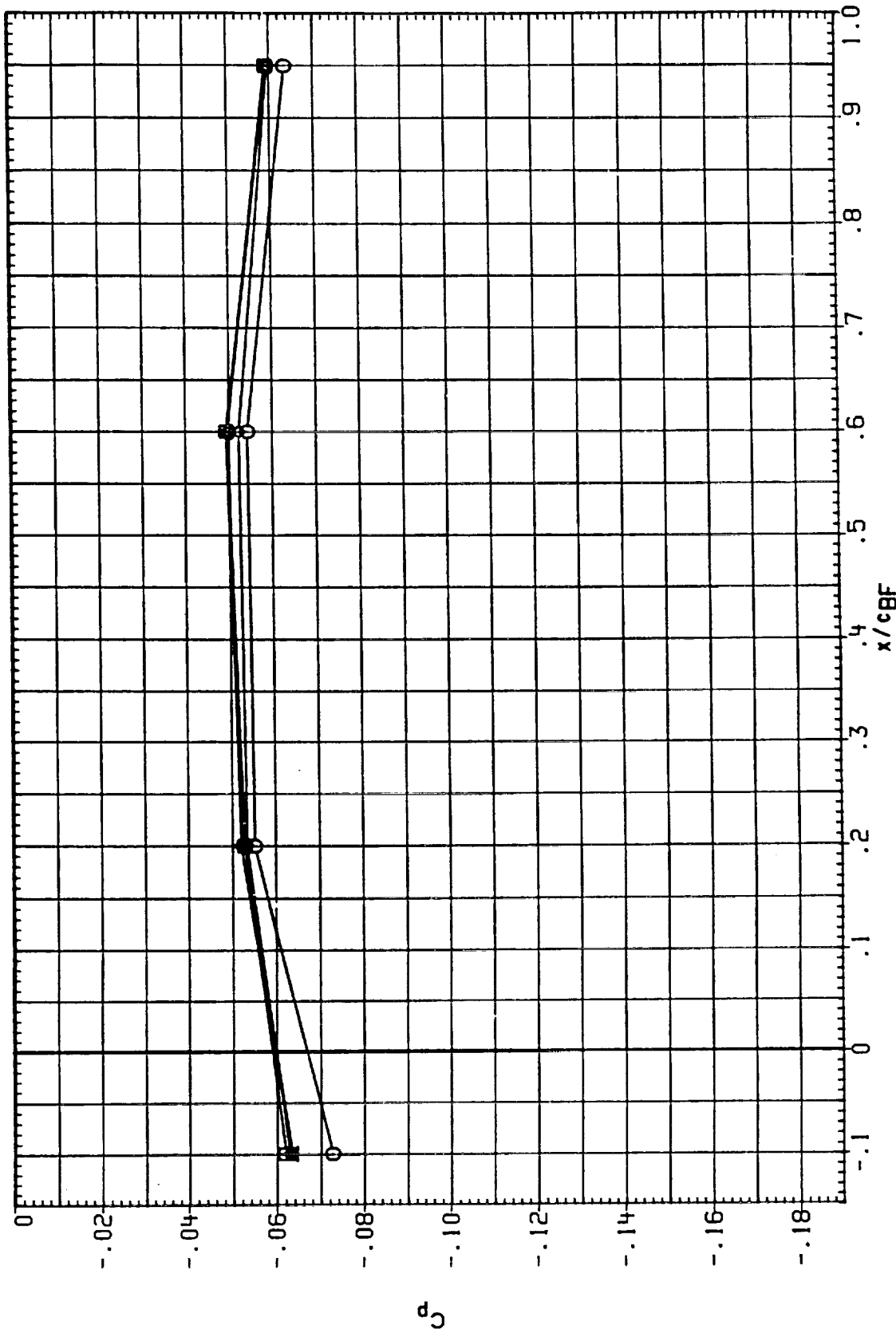


FIGURE 4 I A613A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER BODY FLAP - LOWER SURFACE
 BETA = .000 ETA = .100 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOF 81)	○	IA613A.B/L OT*PSRM*PLUMES S1.2	1.400	.000	10.000	9.000
(RCOF 56)	□	IA613A.B/L OT*ASRM*PLUMES S1.3	1.400	.000	10.000	5.000
(RCOF 91)	◇	IA613A.B/L OT*ASRM*PLUMES S1.3	1.400	180.000	10.000	5.000
(RCOF 99)	△	IA613A.B/L OT*ASRM*PLUMES S1.3	1.400	999.000	10.000	5.000

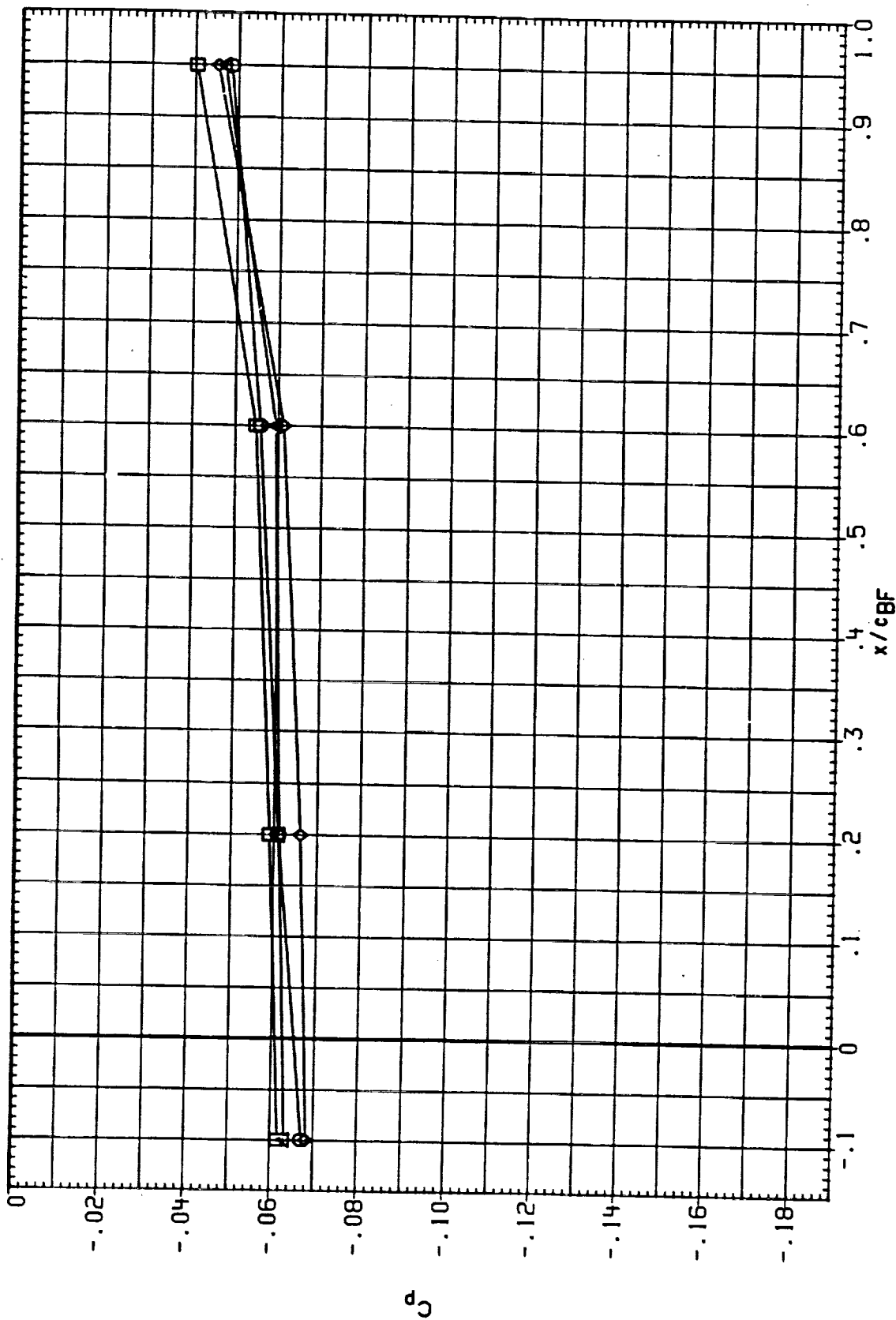


FIGURE 4 IA613A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER BODY FLAP - LOWER SURFACE
 BETA = .000 ETA = .500 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOFH9)	□	IA613A,B/L 01+RSRH+PLUMES S1.2 -BODY FLAP LOWER	1.550	.000	10.000	9.000
(RCOF57)	◇	IA613A,B/L 01+ASRH+PLUMES S1.3 -BODY FLAP LOWER	1.550	.000	10.000	5.000
(RCOF92)	◇	IA613A,B/L 01+ASRH+PLUMES S1.3 -BODY FLAP LOWER	1.550	180.000	10.000	5.000
(RCOF00)	△	IA613A,B/L 01+ASRH+PLUMES S1.3 -BODY FLAP LOWER	1.550	999.000	10.000	5.000

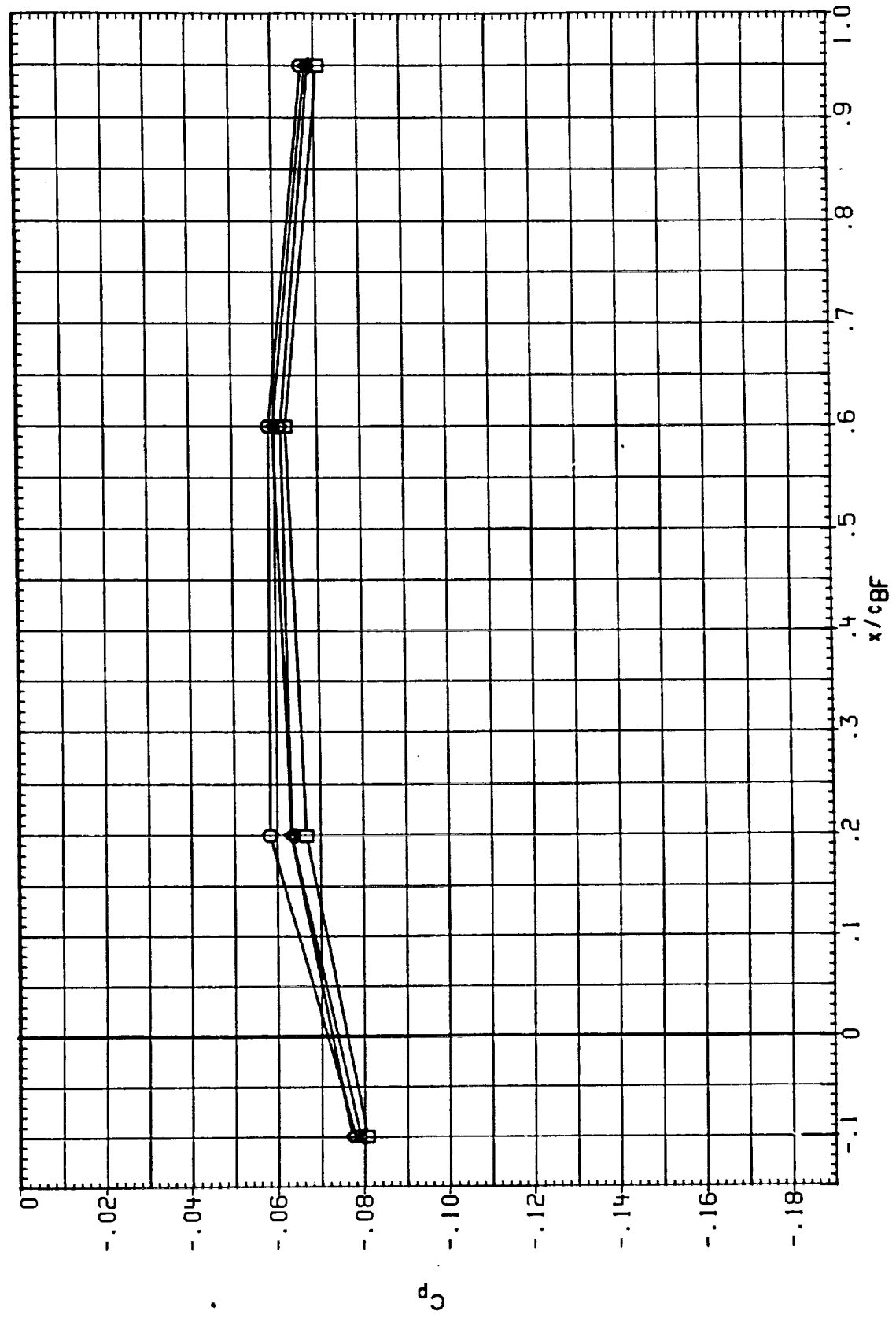


FIGURE 4 IA613A SELECTED PRESSURE DISTRIBUTIONS
ORBITER BODY FLAP - LOWER SURFACE

BETA = .000

ETA = .100

ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOFH9)	○	IA613A, B/L OT+RSRH+PLUMES S1.2	1.550	.000	10.000	9.000
(RCOF57)	□	IA613A, B/L OT+ASRH+PLUMES S1.3	1.550	.000	10.000	5.000
(RCOF92)	◇	IA613A, B/L OT+ASRH+PLUMES S1.3	1.550	180.000	10.000	5.000
(RCOF00)	△	IA613A, B/L OT+ASRH+PLUMES S1.3	1.550	999.000	10.000	5.000

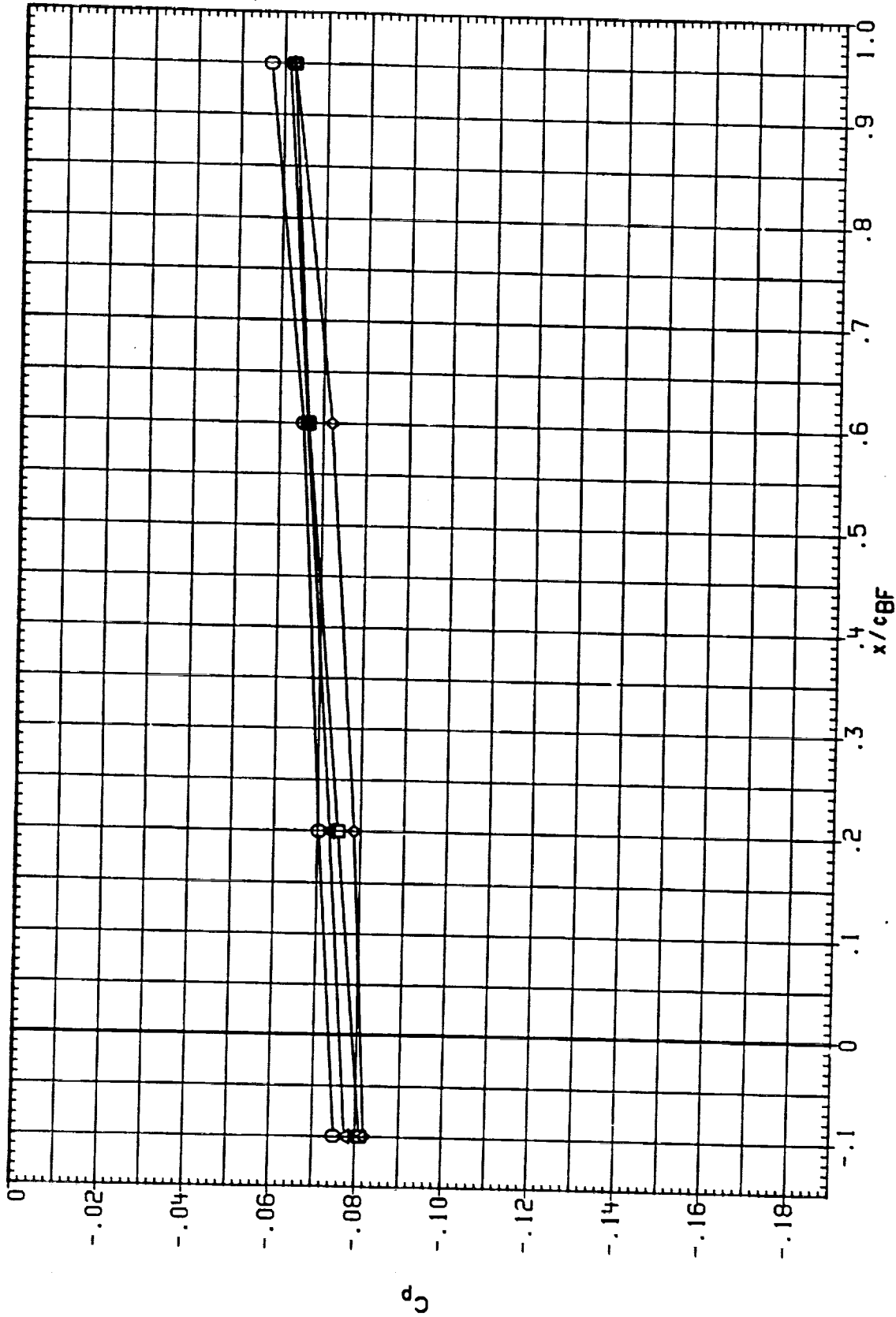


FIGURE 4 IA613A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER BODY FLAP - LOWER SURFACE
 BETA = .000 ETA = .500 ALPHA = .000

(RCOV15)	□	IAG13A.B/L	OT+PSRH+PLUMES	SI.2	-VERT. TAIL	(LS)	.600	.000	10.000	3.000
(RCOV42)	□	IAG13A.B/L	OT+ASRH+PLUMES	SI.2	-VERT. TAIL	(LS)	.600	.000	10.000	9.000
(RCOV80)	◇	IAG13A.B/L	OT+ASRH+PLUMES	SI.2	-VERT. TAIL	(LS)	.600	180.000	10.000	9.000
(RCOVCI)	△	IAG13A.B/L	OT+ASRH+PLUMES	SI.2	-VERT. TAIL	(LS)	.600	999.000	10.000	9.000

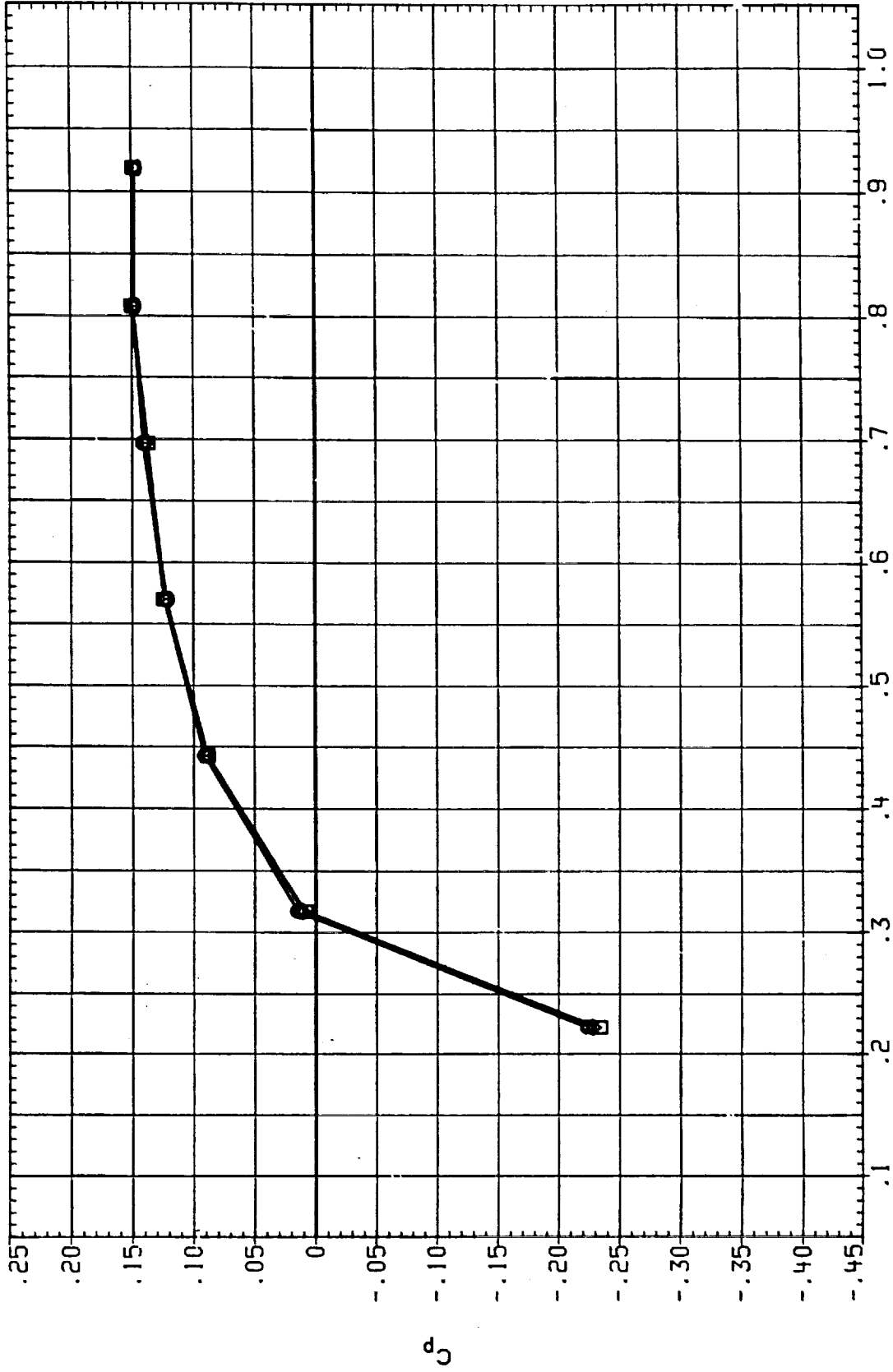


FIGURE 5 IAG13A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER VERTICAL TAIL
 BETA = .000 XV/CV = 1.000 ALPHA = .000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOV16)	IA613A,B/L 01*RSRM+PLUMES S1.2	.800	.000	10.000	9.000
(RCOV43)	IA613A,B/L 01*ASRM+PLUMES S1.2	.800	.000	10.000	9.000
(RCOV81)	IA613A,B/L 01*ASRM+PLUMES S1.2	.800	180.000	10.000	9.000

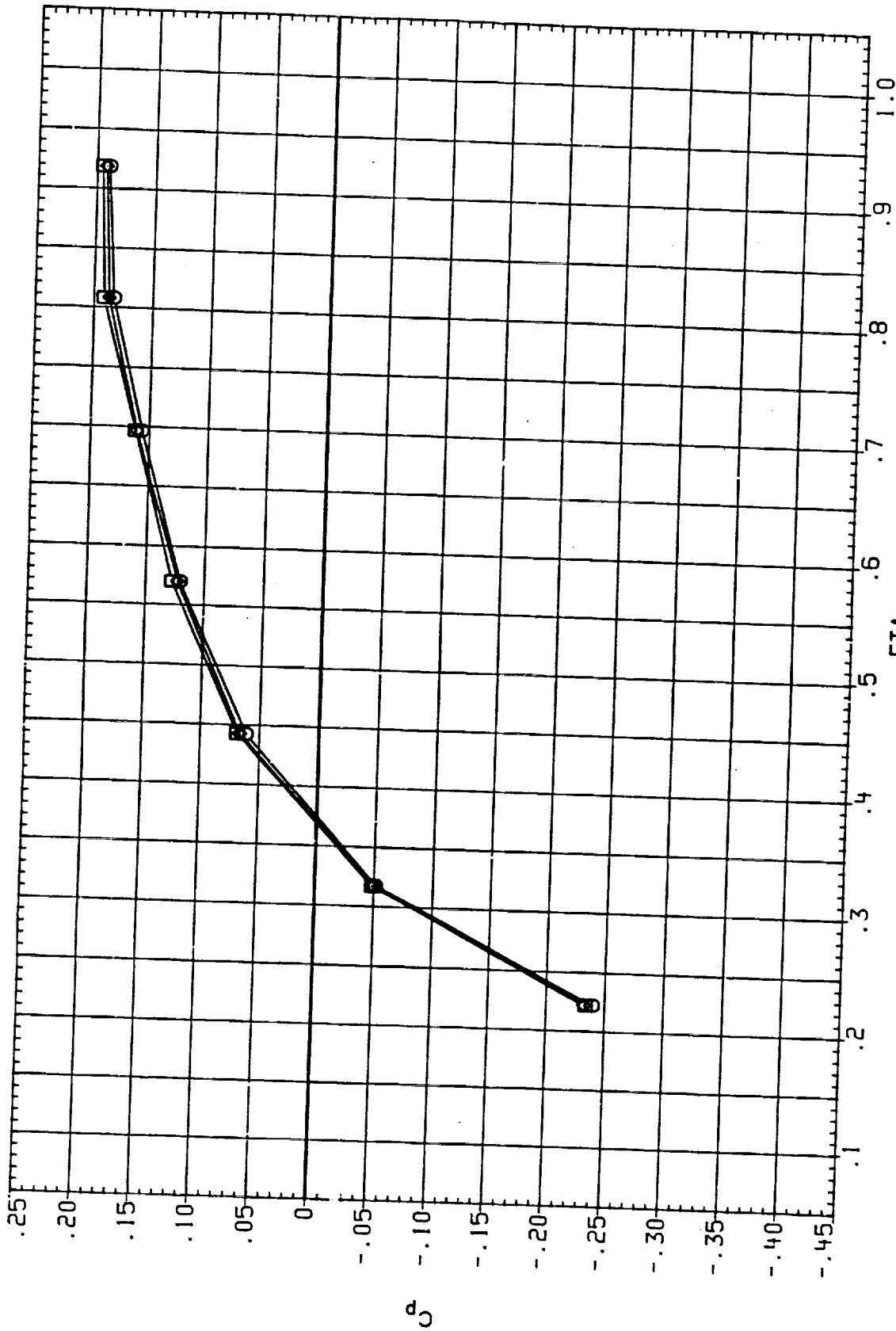


FIGURE 5 IA613A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER VERTICAL TAIL
 BETA = .000 XV/CV = 1.000 ALPHA = .000
 ETA

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	-VERT. TAIL (LS)	MACH	IEABOX	IB-ELV	OB-ELV
(RCOV17)	□	IA613A,B/L 01+RSRH+PLUMES S1.2	-VERT. TAIL (LS)	.900	.000	10.000	9.000
(RCOV44)	○	IA613A,B/L 01+ASRH+PLUMES S1.2	-VERT. TAIL (LS)	.900	.000	10.000	9.000
(RCOV82)	◇	IA613A,B/L 01+ASRH+PLUMES S1.2	-VERT. TAIL (LS)	.900	180.000	10.000	9.000
(RCOV2)	△	IA613A,B/L 01+ASRH+PLUMES S1.2	-VERT. TAIL (LS)	.900	999.000	10.000	5.000

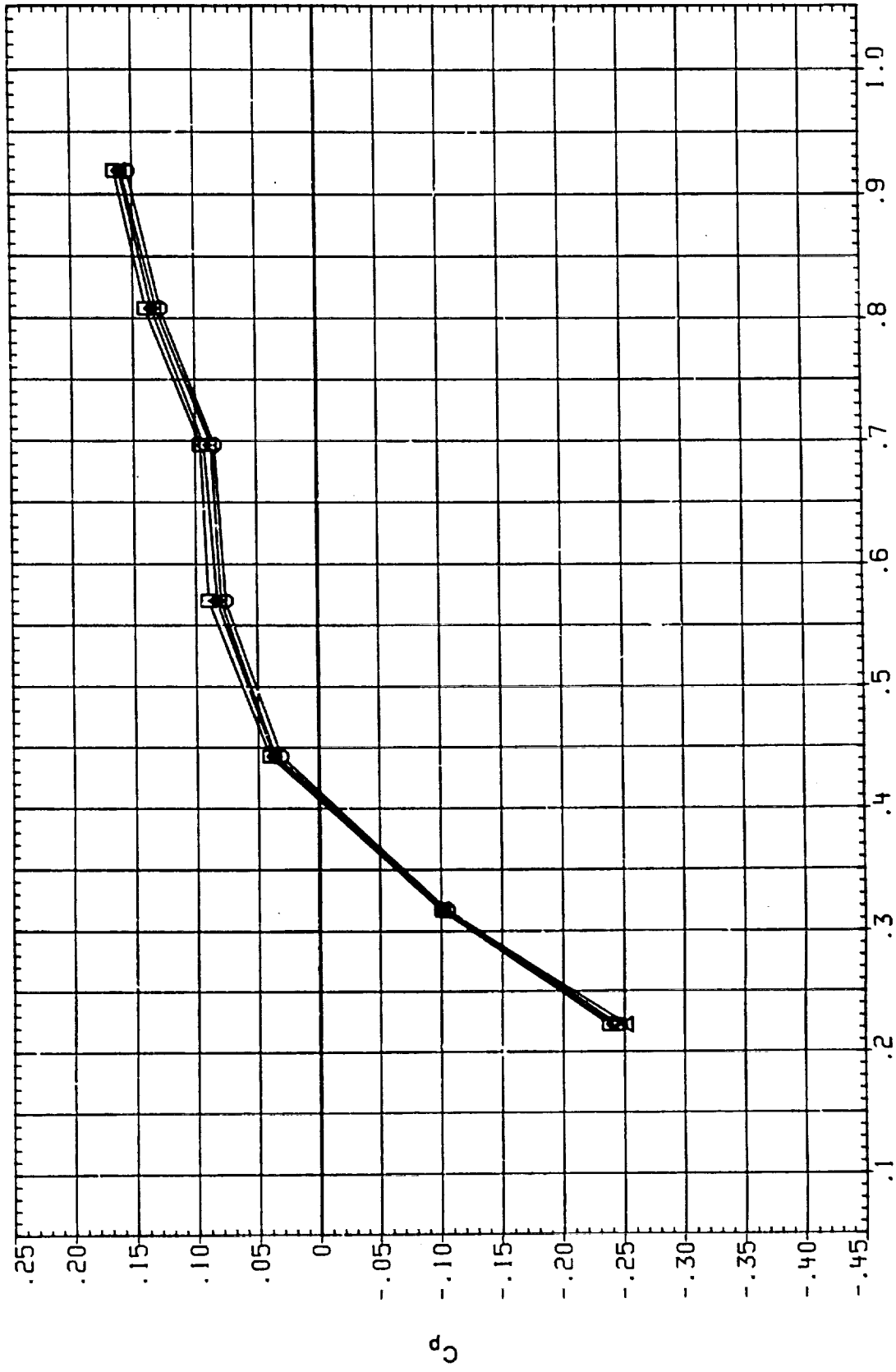


FIGURE 5 IA613A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER VERTICAL TAIL
 BETA = .000 XV/CV = 1.000 ALPHA = .000
 ETA

DATA SET SYMBOL

CONFIGURATION DESCRIPTION

VERT. TAIL (LS)
 -VERT. TAIL (LS)
 -VERT. TAIL (LS)

MACH

IC430X

1B-ELV

0B-ELV

9.000
 9.000
 9.000

10.000
 10.000
 10.000

180.000
 180.000
 180.000

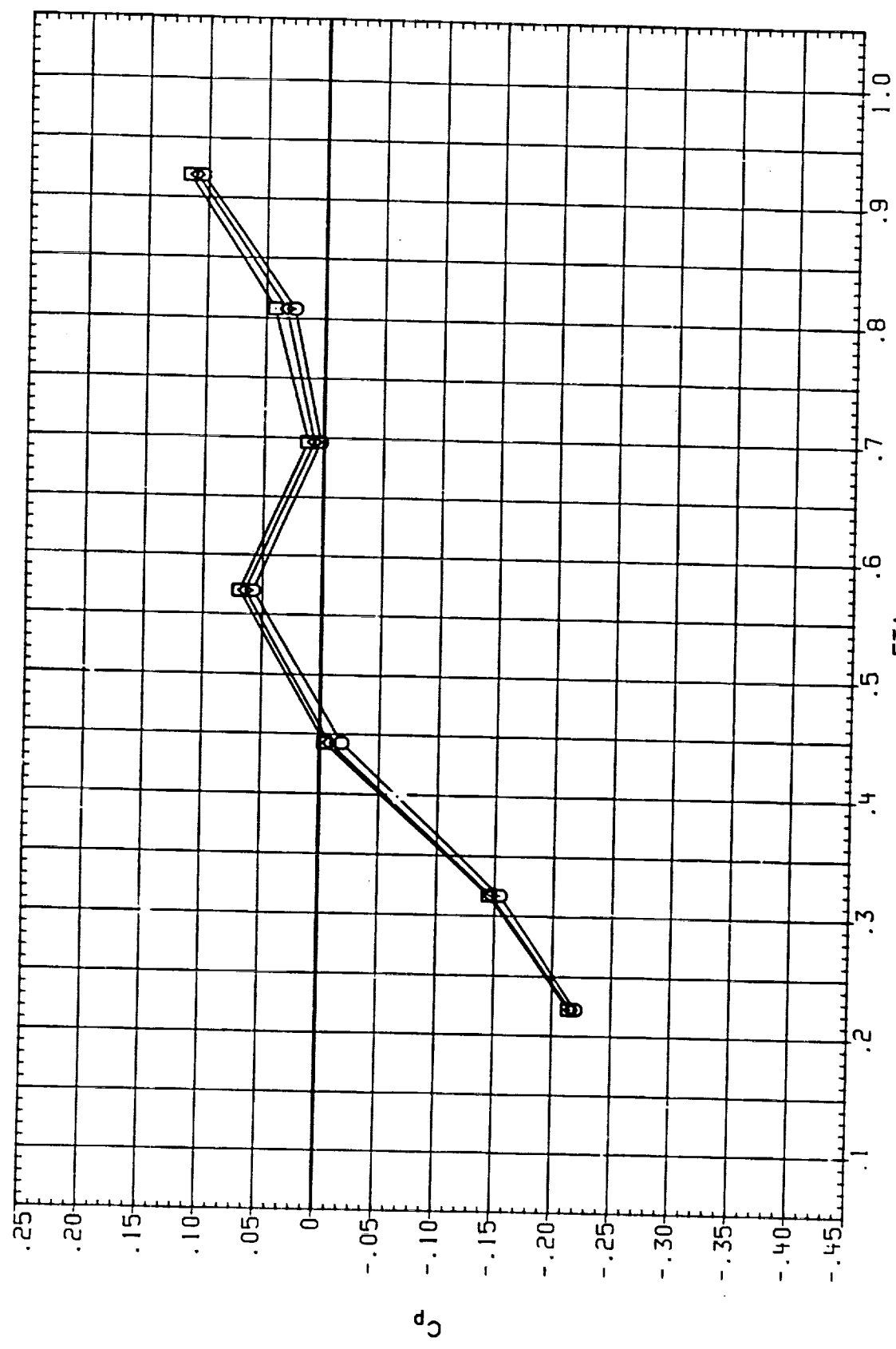


FIGURE 5 IA613A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER VERTICAL TAIL

BETA = .000 XV/CV = 1.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOV19)	()	IA613A, B/L OT+ASRM+PLUMES S1.2 -VERT. TAIL (LS)	1.050	.000	10.000	9.000
(RCOV46)	()	IA613A, B/L OT+ASRM+PLUMES S1.2 -VERT. TAIL (LS)	1.050	.000	10.000	9.000
(RCOV84)	()	IA613A, B/L OT+ASRM+PLUMES S1.2 -VERT. TAIL (LS)	1.050	180.000	10.000	9.000

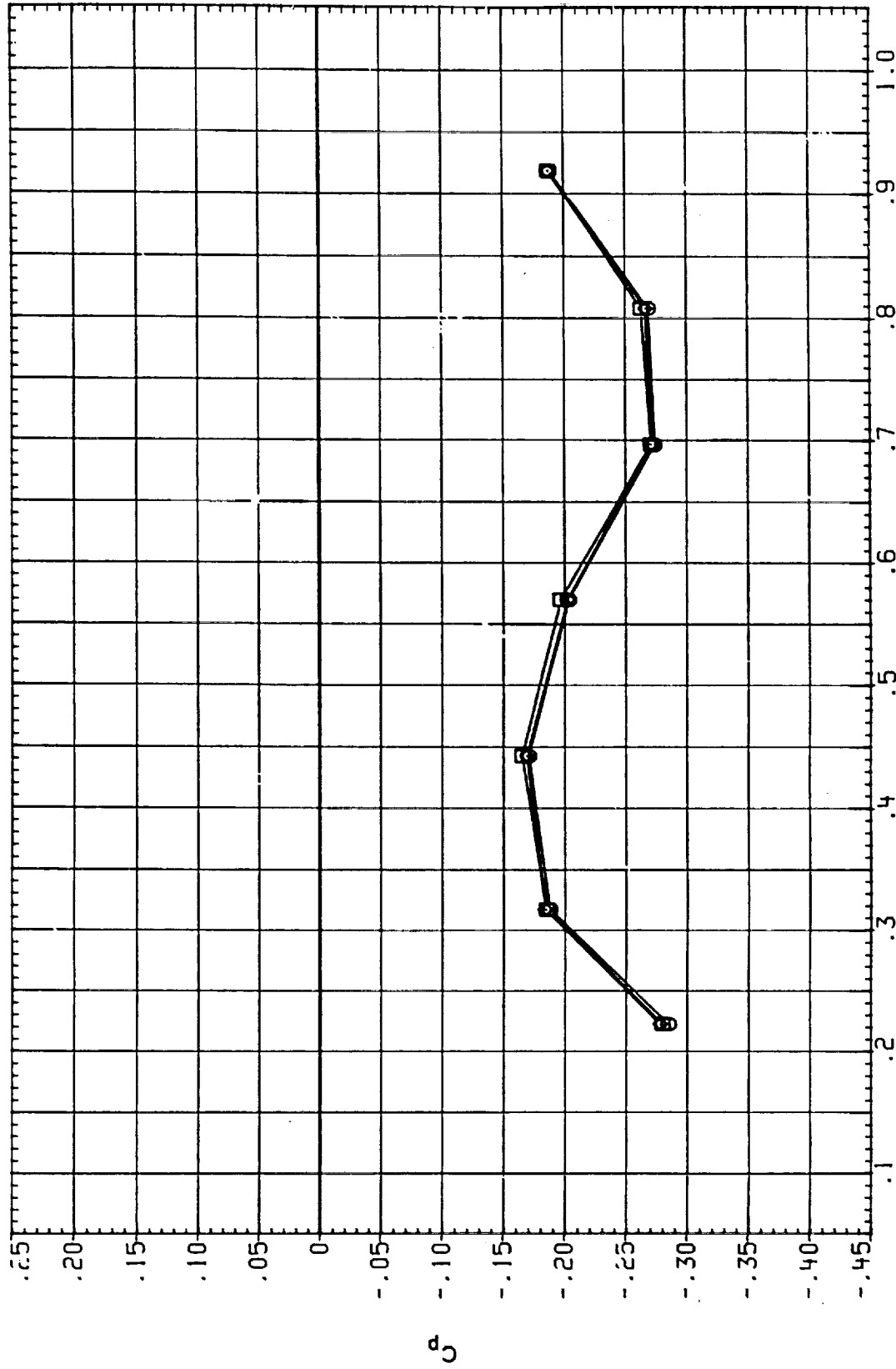


FIGURE 5 IA613A SELECTED PRESSURE DISTRIBUTIONS
ORBITER VERTICAL TAIL

BETA = .000 XV/CV = 1.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELY	OB-ELY
(RCOV20)	○	IA613A, B/L OT+SRM+PLUMES S1.2 -VERT. TAIL (LS)	1.100	.000	10.000	9.000
(RCOV47)	◇	IA613A, B/L OT+SRM+PLUMES S1.2 -VERT. TAIL (LS)	1.100	.000	10.000	9.000
(RCOV85)	◇	IA613A, B/L OT+SRM+PLUMES S1.2 -VERT. TAIL (LS)	1.100	180.000	10.000	9.000
(RCOV3)	△	IA613A, B/L OT+SRM+PLUMES S1.2 -VERT. TAIL (LS)	1.100	999.000	10.000	5.000

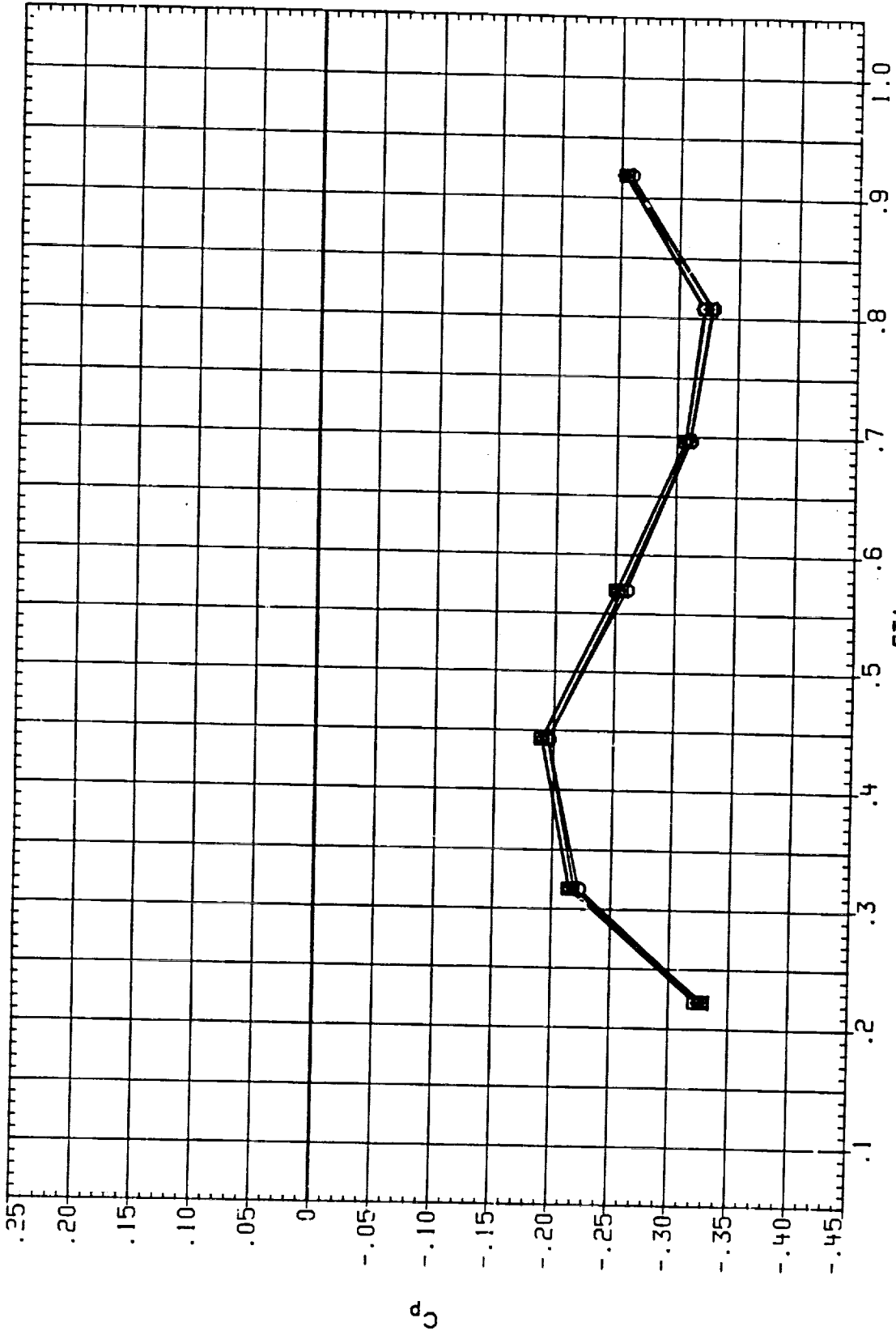


FIGURE 5 IAB613A SELECTED PRESSURE DISTRIBUTIONS
ORBITER VERTICAL TAIL

BETA = .000 XV/CV = 1.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEAROX	IB-ELV	OB-ELV
(RCOV2)1	○	IA613A.8/L OT+ASRM+PLUMES SI.2 -VERT. TAIL (LS)	1.150	.000	10.000	9.000
(RCOV4)8	□	IA613A.8/L OT+ASRM+PLUMES SI.2 -VERT. TAIL (LS)	1.150	.000	10.000	9.000
(RCOV8)6	◇	IA613A.8/L OT+ASRM+PLUMES SI.2 -VERT. TAIL (LS)	1.150	180.000	10.000	9.000
(XCOVC4)	△	IA613A.9/L OT+ASRM+PLUMES SI.2 -VERT. TAIL (LS)	1.150	999.000	10.000	5.000

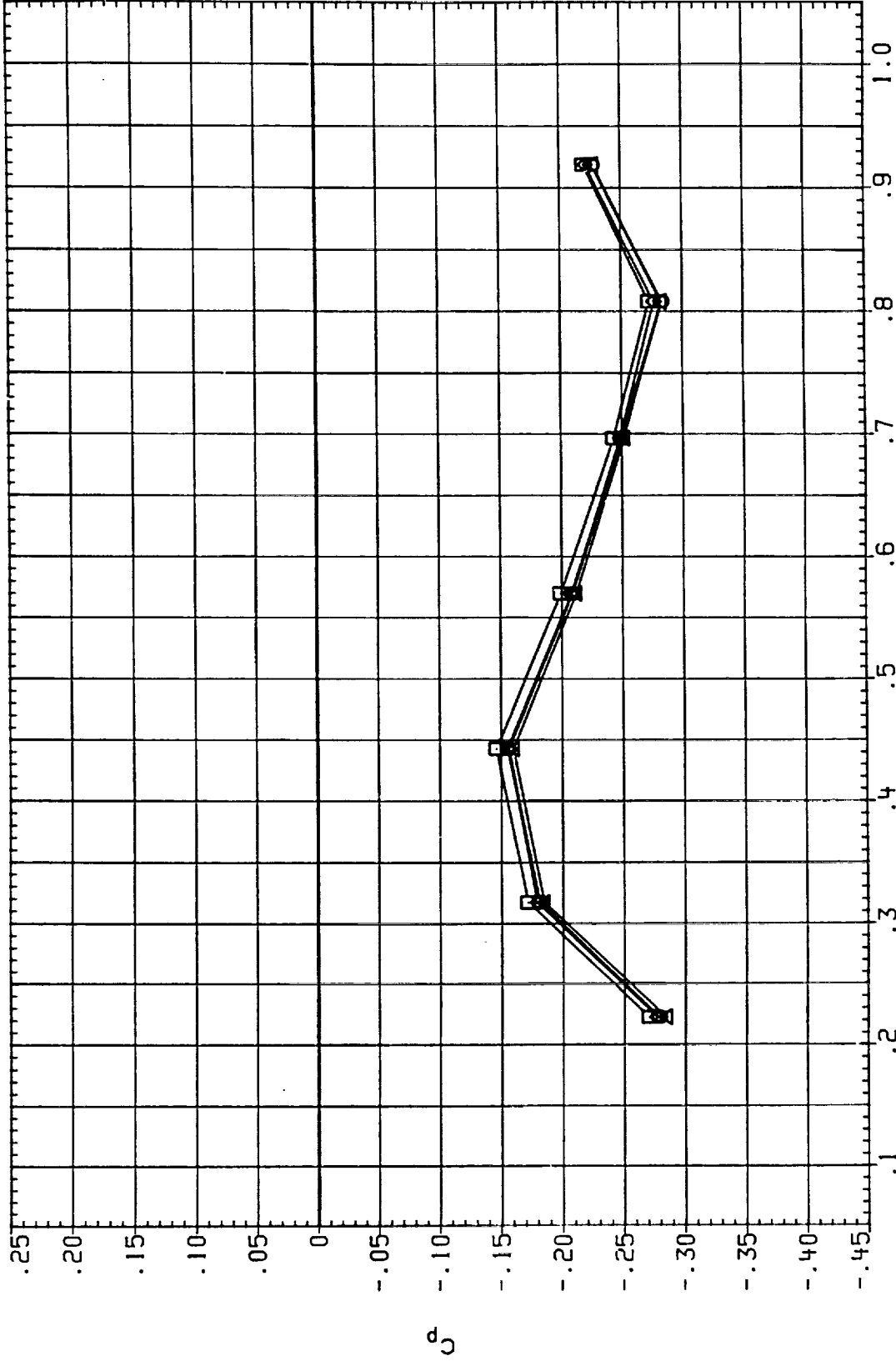


FIGURE 5 IA613A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER VERTICAL TAIL ALPHA = .000
 BETA = .000 XV/CV = 1.000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOV22)	○	IAG13A,B/L 01+RSRH+PLUMES S1.2 -VERT. TAIL (LS)	1.250	.000	10.000	9.000
(RCOV49)	□	IAG13A,B/L 01+ASRH+PLUMES S1.2 -VERT. TAIL (LS)	1.250	.000	10.000	9.000
(RCOV87)	◇	IAG13A,B/L 01+ASRH+PLUMES S1.2 -VERT. TAIL (LS)	1.250	180.000	10.000	9.000
(RCOVCS)	△	IAG13A,B/L 01+ASRH+PLUMES S1.2 -VERT. TAIL (LS)	1.250	999.000	10.000	5.000

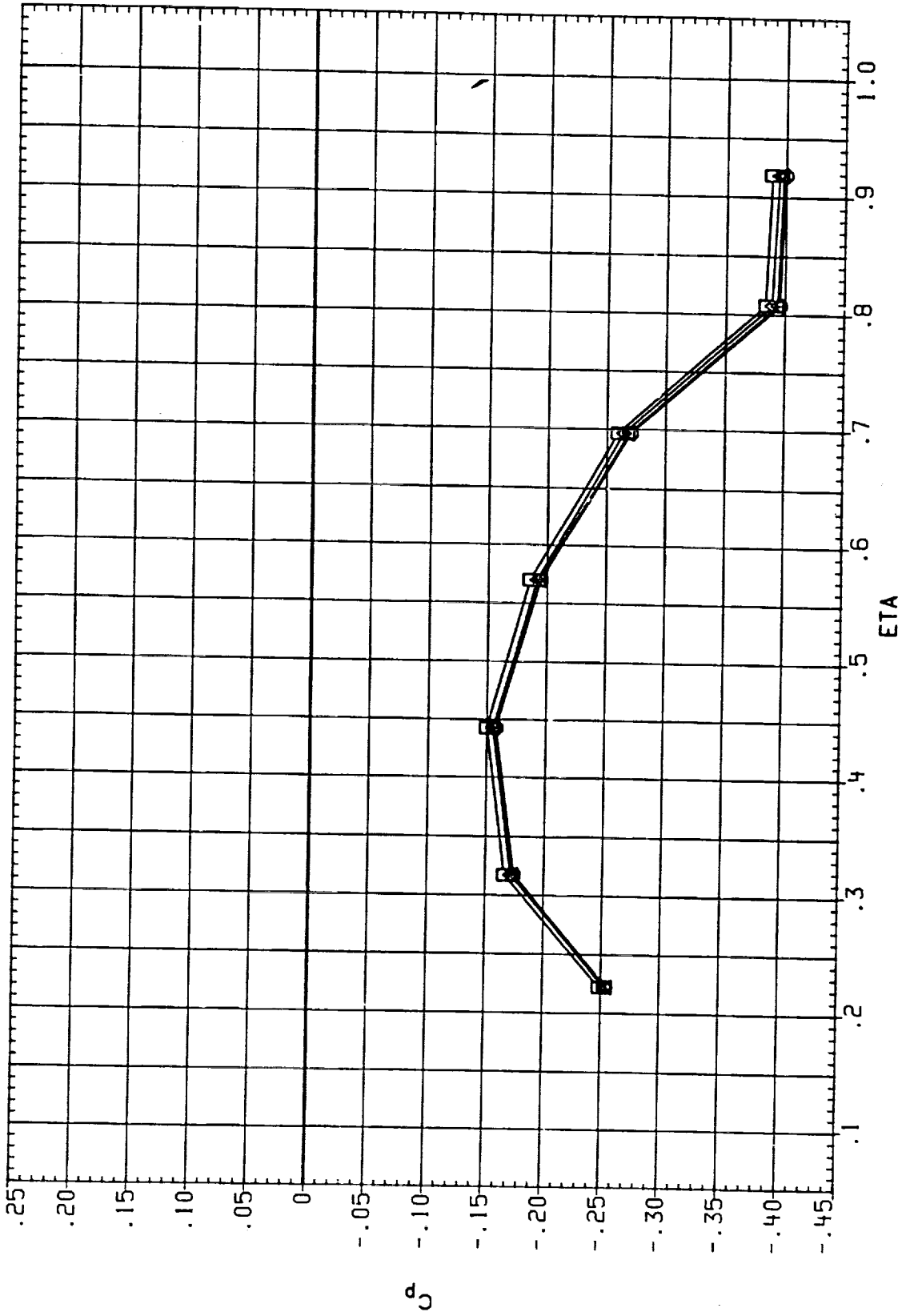


FIGURE 5 IAG13A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER VERTICAL TAIL
 BETA = .000 XV/CV = 1.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOVH6)	○	IAG13A.B/L OT+PSRM+PLUMES S1.2 -VERT. TAIL (LS)	1.300	.000	10.000	9.000
(RCOVH1)	□	IAG13A.B/L OT+ASRM+PLUMES S1.3 -VERT. TAIL (LS)	1.300	.000	10.000	5.000
(RCOVH9)	◇	IAG13A.B/L OT+ASRM+PLUMES S1.3 -VERT. TAIL (LS)	1.500	180.000	10.000	5.000
(RCOVCT)	△	IAG13A.B/L OT+ASRM+PLUMES S1.3 -VERT. TAIL (LS)	1.500	999.000	10.000	5.000

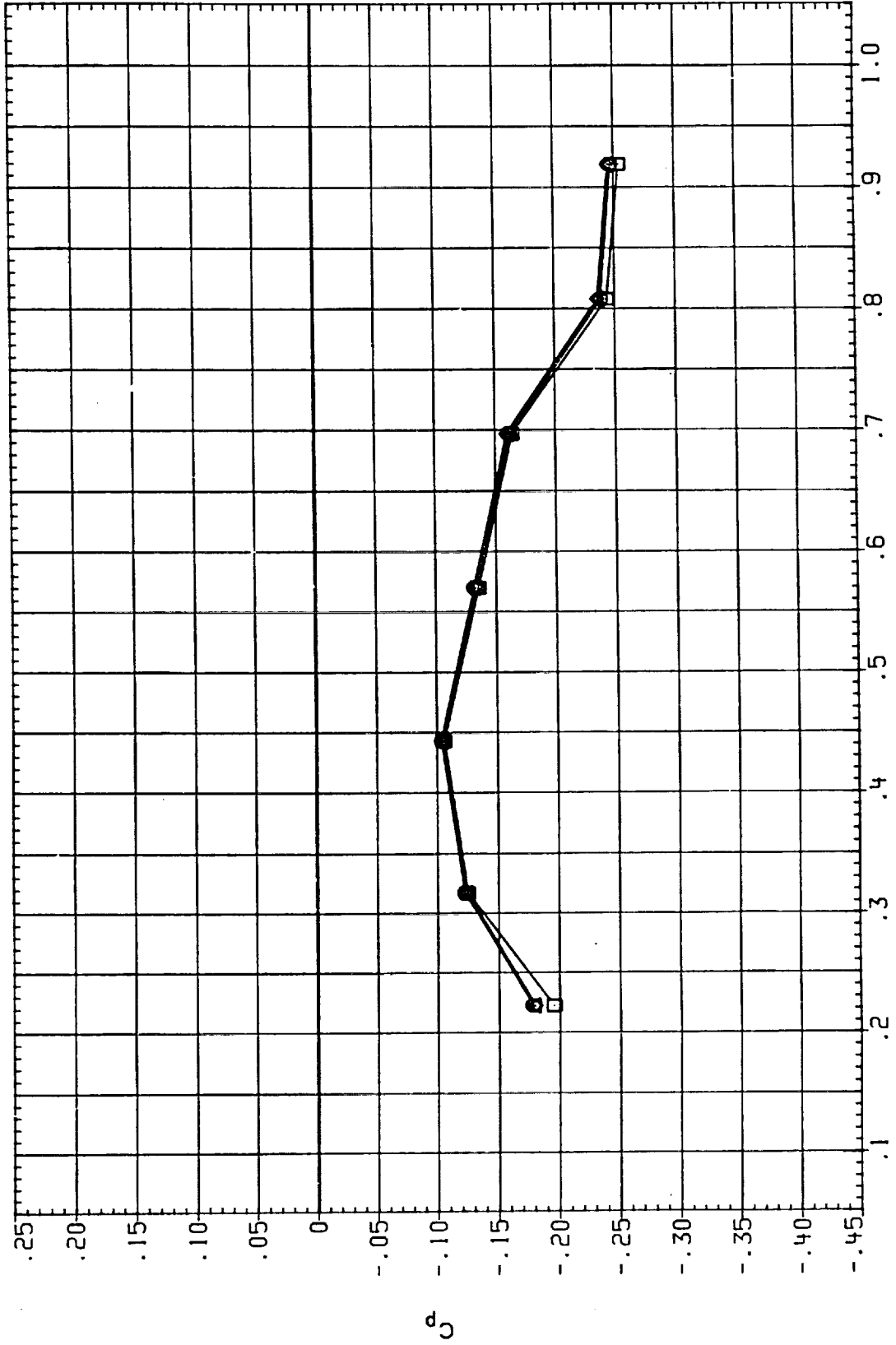


FIGURE 5 IAG13A SELECTED PRESSURE DISTRIBUTIONS
ORBITER VERTICAL TAIL

BETA = .000 XV/CV = 1.000 ALPHA = .000

DATA SET SYMBOL CONFIGURATION DESCRIPTION

IA613A, B/L 01+RSRM+PLUMES S1.2
 IA613A, B/L 01+ASRM+PLUMES S1.3
 IA613A, B/L 01+ASRM+PLUMES S1.3
 IA613A, B/L 01+ASRM+PLUMES S1.3

-VERT. TAIL (LS)
 -VERT. TAIL (LS)
 -VERT. TAIL (LS)
 -VERT. TAIL (LS)

MACH IEABOX IB-ELV OB-ELV
 1.350 .000 10.000 9.000
 1.350 .000 10.000 5.000
 1.350 180.000 10.000 5.000
 1.350 999.000 10.000 5.000

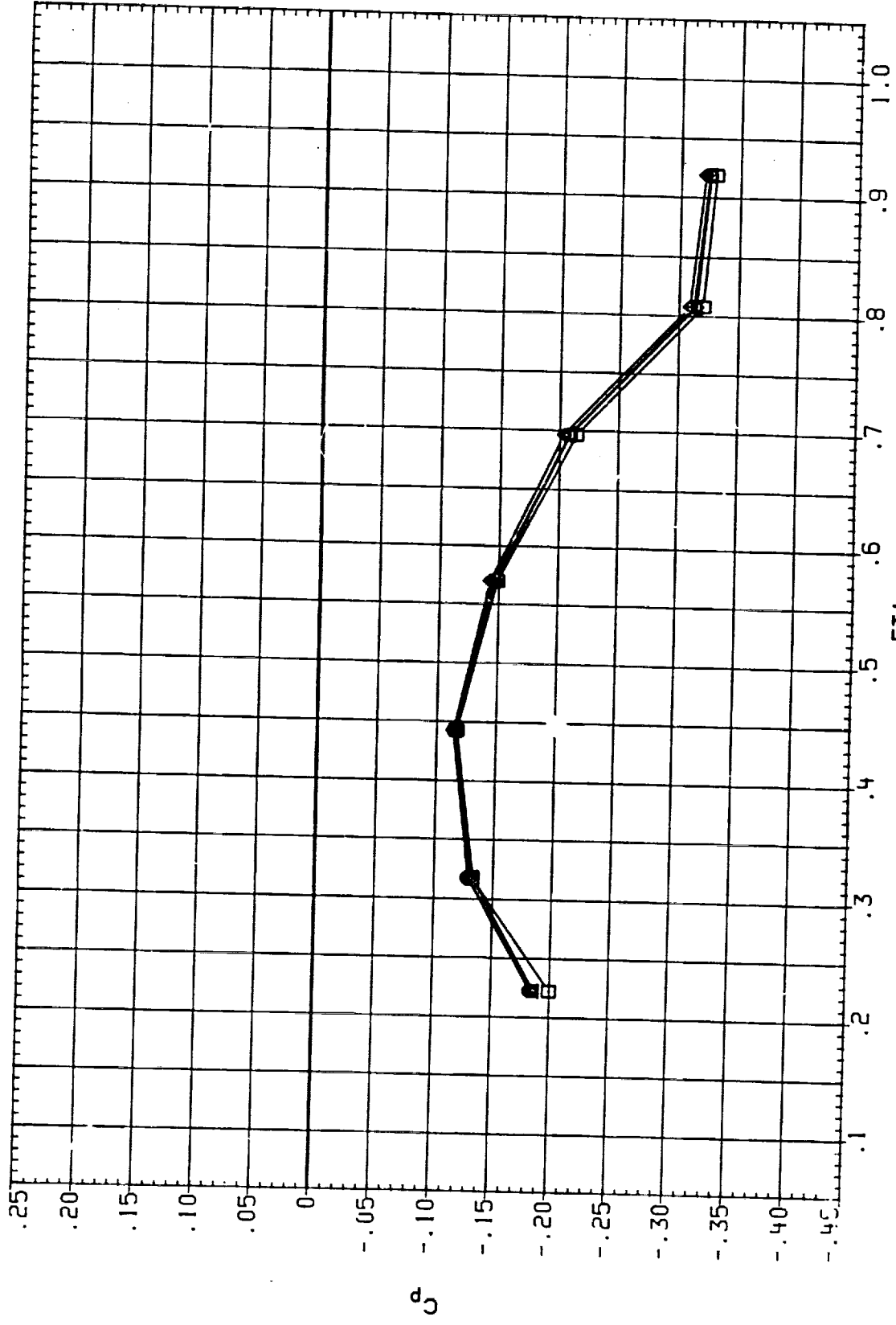


FIGURE 5 IA613A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER VERTICAL TAIL

BETA = .000 XV/CV = 1.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOVH8)	○	I A613A.B/L 01+RSRM+PLUMES S1.2	1.400	.000	10.000	9.000
(RCOV56)	□	I A613A.B/L 01+ASRM+PLUMES S1.3	1.400	.000	10.000	5.000
(RCOV91)	◇	I A613A.B/L 01+ASRM+PLUMES S1.3	1.400	190.000	10.000	5.000
(RCOV99)	△	I A613A.B/L 01+ASRM+PLUMES S1.3	1.400	999.000	10.000	5.000

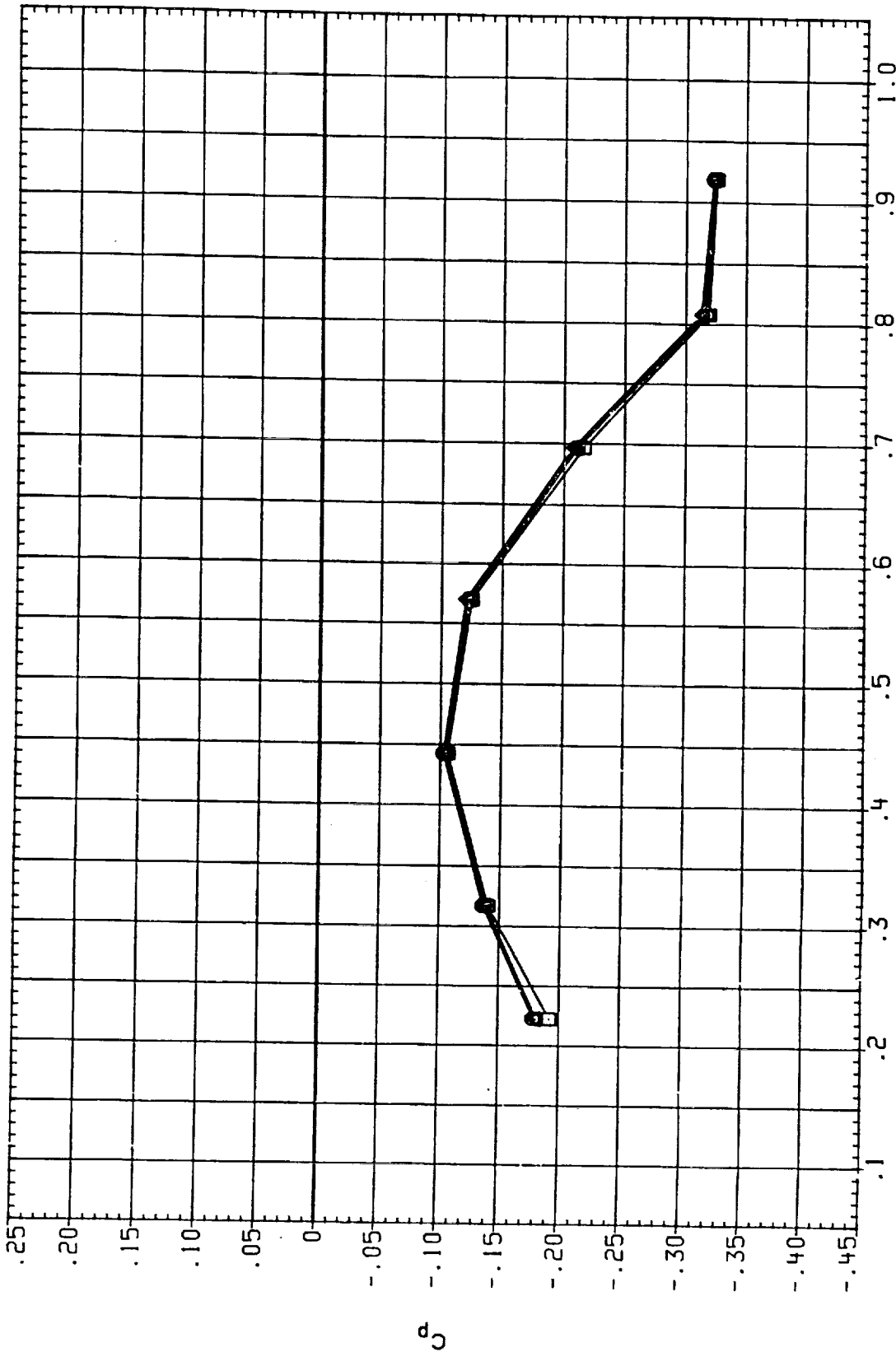


FIGURE 5 I A613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 XV/CV = 1.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	ICABOX	IB-ELV	OB-ELV
(RCOVH9)	□	IA613A, B/L 01+RSRM+PLUMES S1.2	1.550	.000	10.000	9.000
(RCOV57)	□	IA613A, B/L 01+ASRM+PLUMES S1.3	1.550	.000	10.000	5.000
(RCOV92)	◇	IA613A, B/L 01+ASRM+PLUMES S1.3	1.550	180.000	10.000	5.000
(RCOV00)	△	IA613A, B/L 01+ASRM+PLUMES S1.3	1.550	999.000	10.000	5.000

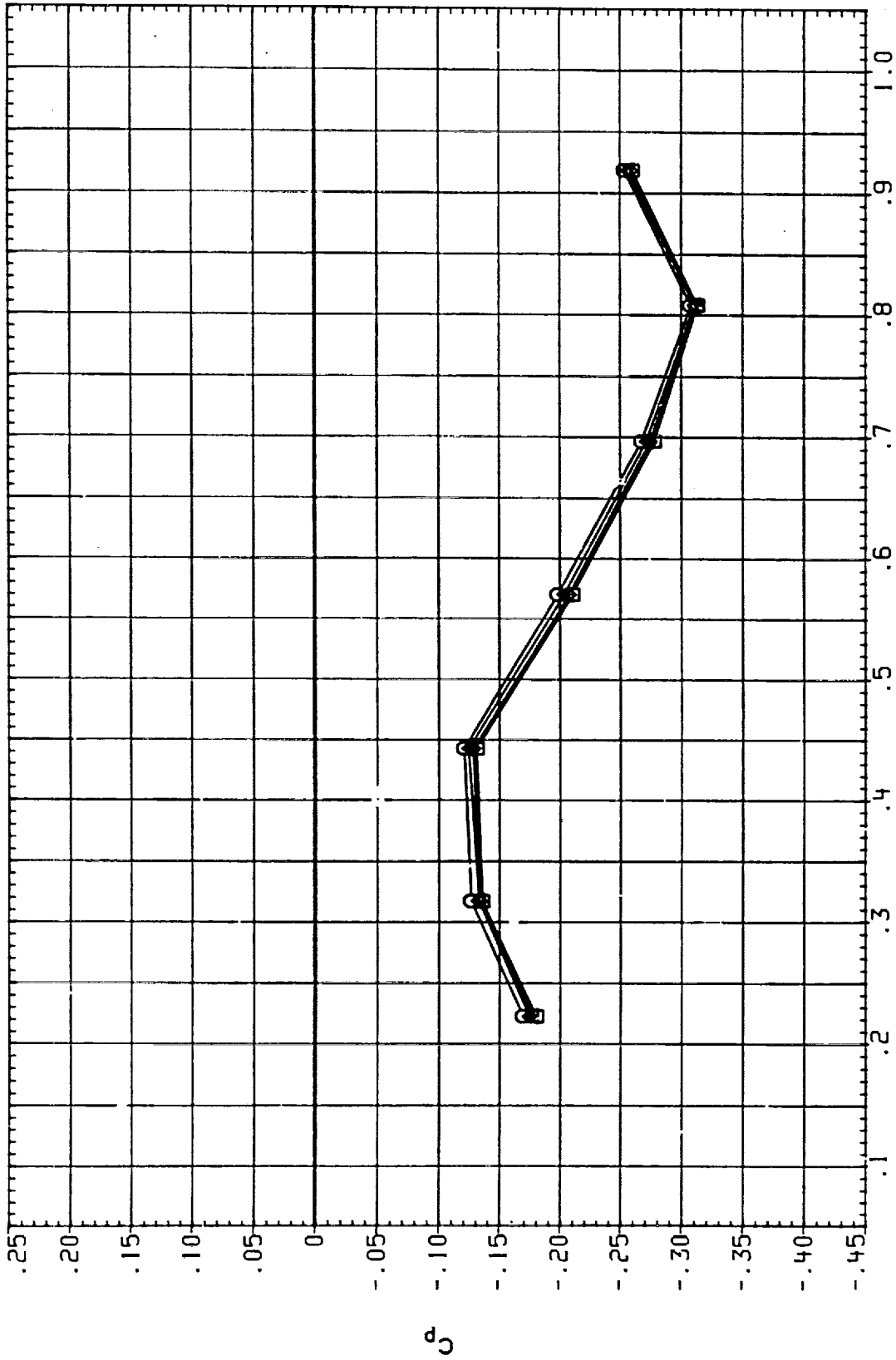


FIGURE 5 IA613A SELECTED PRESSURE DISTRIBUTIONS
ORBITER VERTICAL TAIL

BETA = .000 XV/CV = 1.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOV15)	○	IA613A,B/L 01+RSRM+PLUMES S1.2 -VERT. TAIL (LS)	.600	.000	10.000	9.000
(RCOV42)	◇	IA613A,B/L 01+ASRM+PLUMES S1.2 -VERT. TAIL (LS)	.600	.000	10.000	9.000
(RCOV80)	◇	IA613A,B/L 01+ASRM+PLUMES S1.2 -VERT. TAIL (LS)	.600	180.000	10.000	9.000
(RCOV11)	△	IA613A,B/L 01+ASRM+PLUMES S1.2 -VERT. TAIL (LS)	.600	999.000	10.000	5.000

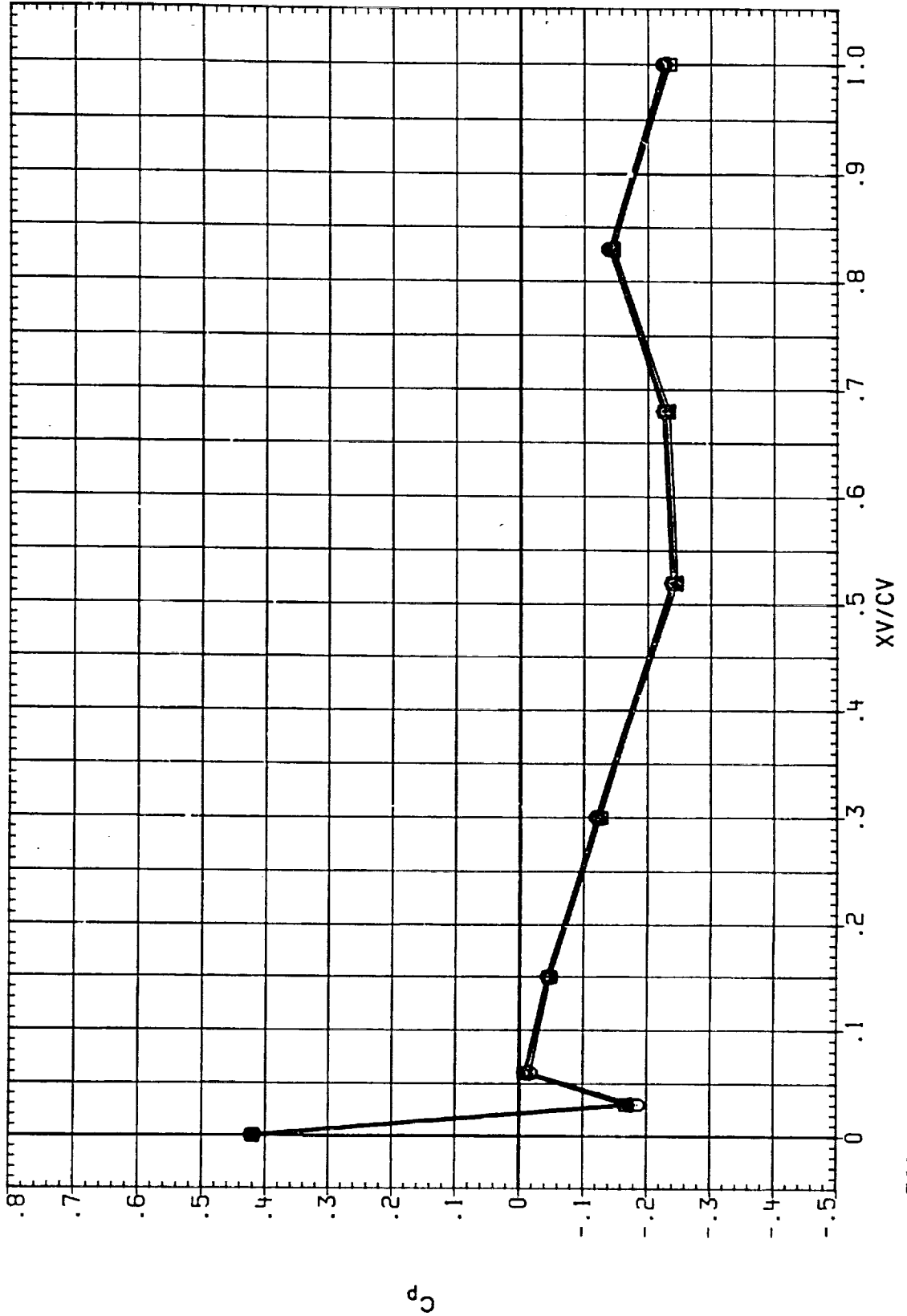


FIGURE 5 IA613A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER VERTICAL TAIL
 BETA = .000 ETA = .222 ALPHA = .000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOV16)	IA613A, B/L OT*RSRM*PLUMES S1.2 -VERT. TAIL (LS)	.800	.000	10.000	9.000
(RCOV43)	IA613A, B/L OT*ASRM*PLUMES S1.2 -VERT. TAIL (LS)	.800	.000	10.000	9.000
(RCOV81)	IA613A, B/L OT*ASRM*PLUMES S1.2 -VERT. TAIL (LS)	.800	180.000	10.000	9.000

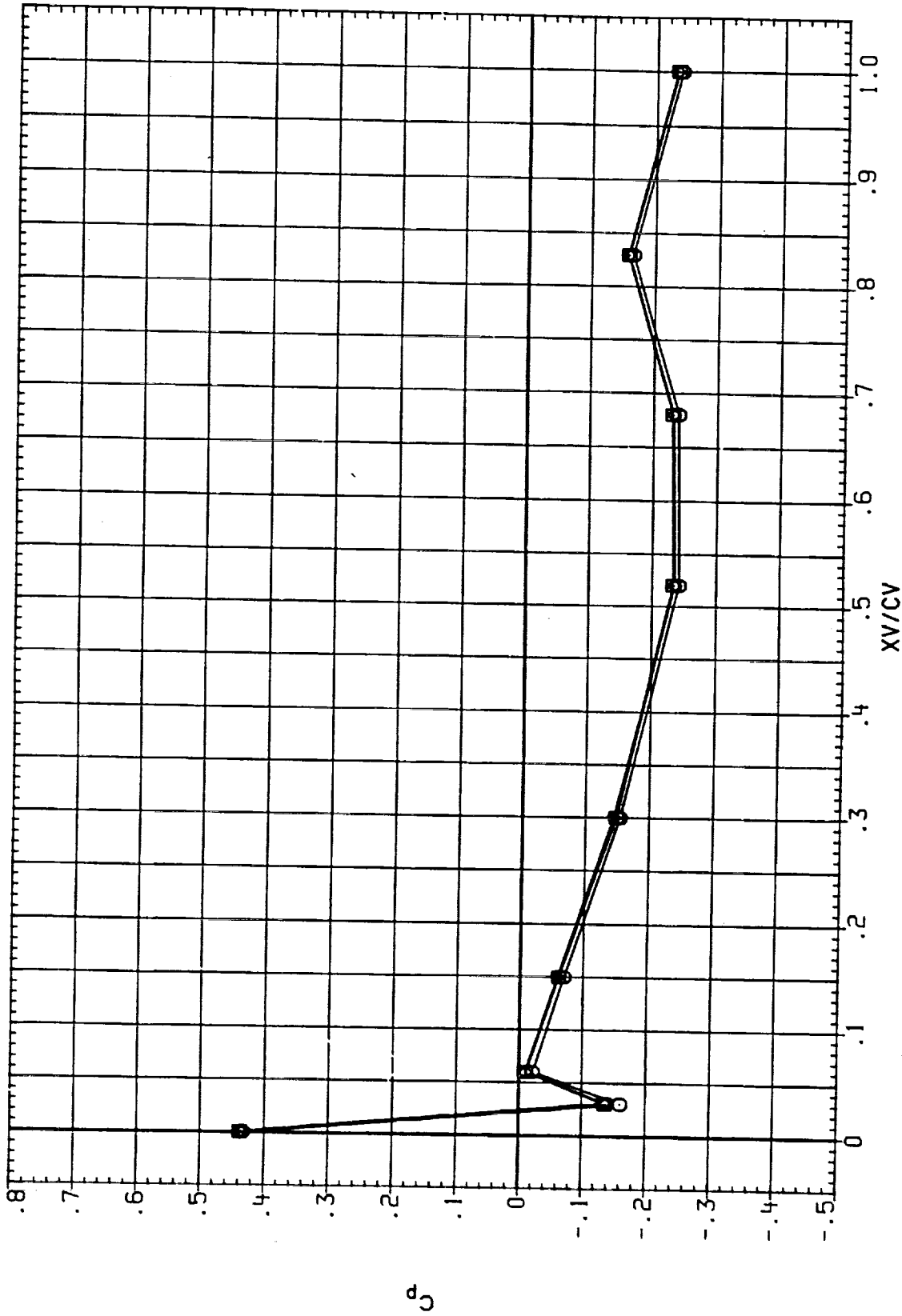


FIGURE 5 IA613A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER VERTICAL TAIL
 BETA = .000 ETA = .222 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOV17)	□	IA613A.B/L OT+RSRH+PLUMES S1.2 -VERT. TAIL (LS)	.900	.000	10.000	9.000
(RCOV44)	□	IA613A.B/L OT+ASRH+PLUMES S1.2 -VERT. TAIL (LS)	.900	.000	10.000	9.000
(RCOV82)	◇	IA613A.B/L OT+ASRH+PLUMES S1.2 -VERT. TAIL (LS)	.900	180.000	10.000	9.000
(RCOV62)	△	IA613A.B/L OT+ASRH+PLUMES S1.2 -VERT. TAIL (LS)	.900	999.000	10.000	5.000

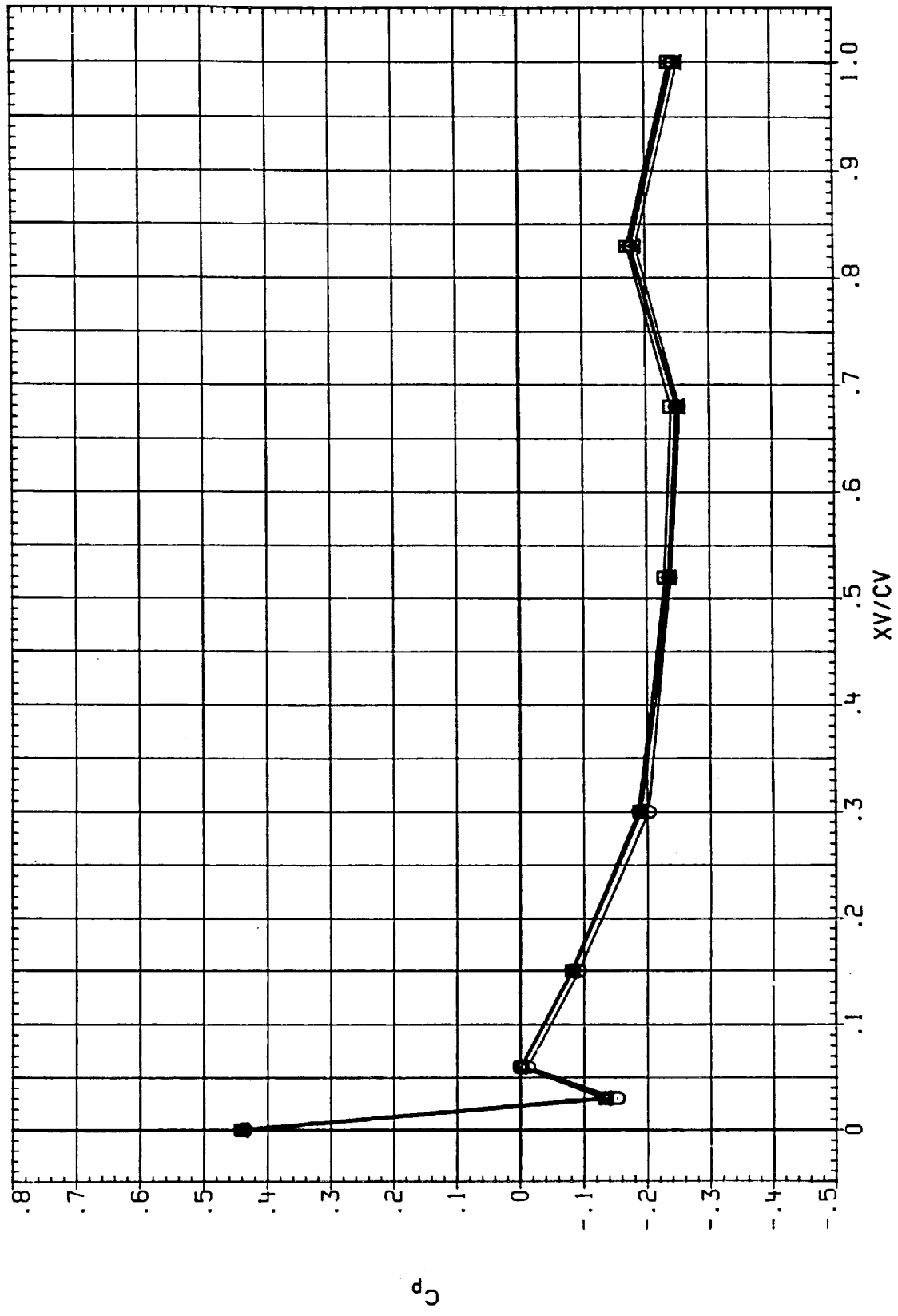


FIGURE 5 IA613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 ETA = .222 ALPHA = .000

DATA SET SYMBOL CONFIGURATION DESCRIPTION MACH IEABOX IB-ELV OB-ELV

(RCOV18) O IA613A,B/L 01*RSRM*PLUMES S1.2 .950 .000 10.000 9.000

(RCOV45) □ IA613A,B/L 01*ASRM*PLUMES S1.2 .950 .000 10.000 9.000

(RCOV83) ◇ IA613A,B/L 01*ASRM*PLUMES S1.2 .950 180.000 10.000 9.000

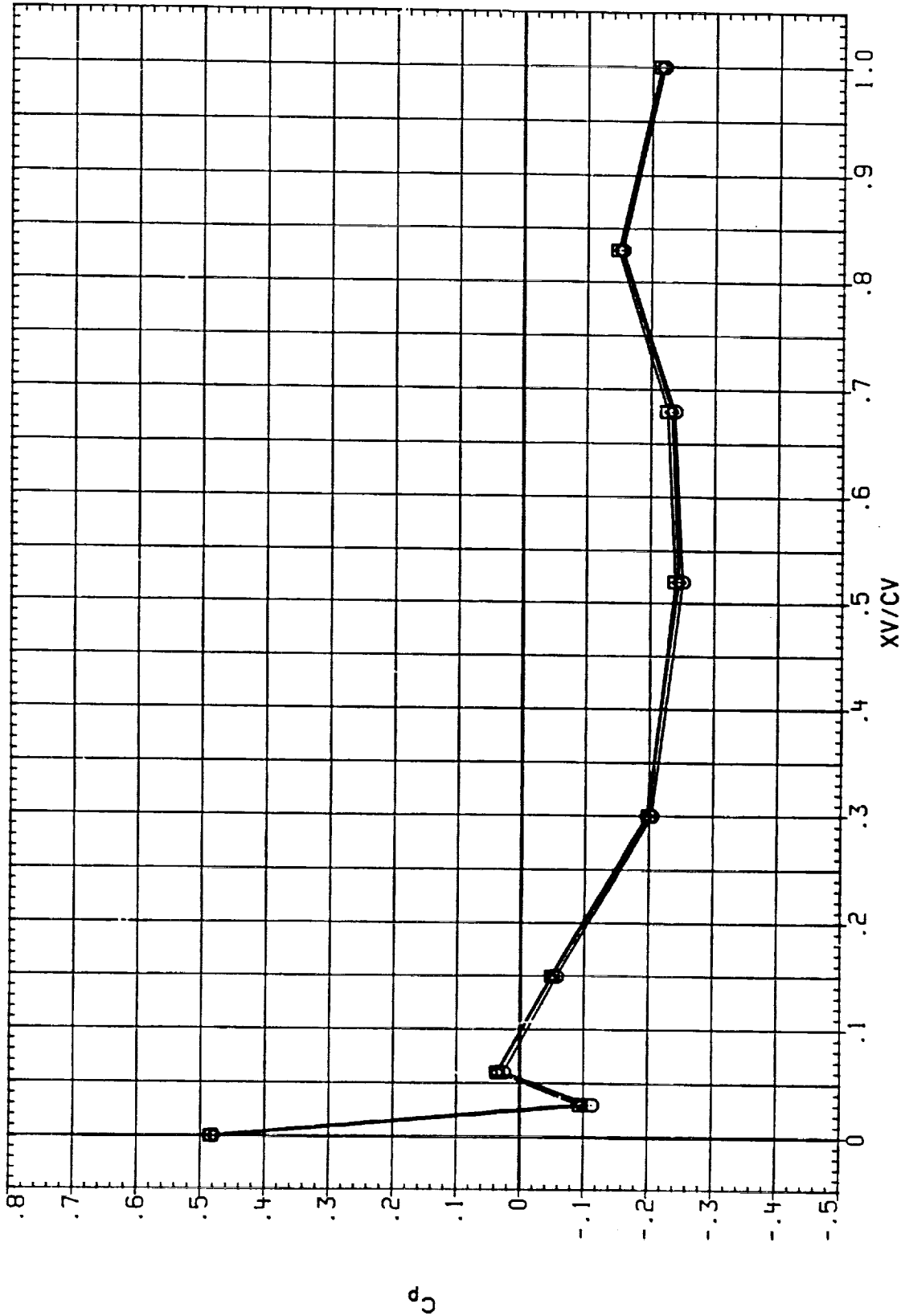


FIGURE 5 IA613A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER VERTICAL TAIL ALPHA = .000
 BETA = .000 ETA = .222

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IE-ABOX	IB-ELV	OB-ELV
(RCOV19)	□	IAG13A.B/L OT+RSRH+PLUMES S1.2 -VERT. TAIL (LS)	1.050	.000	10.000	9.000
(RCOV46)	□	IAG13A.B/L OT+ASRH+PLUMES S1.2 -VERT. TAIL (LS)	1.050	.000	10.000	9.000
(RCOV84)	◇	IAG13A.B/L OT+ASRH+PLUMES S1.2 -VERT. TAIL (LS)	1.050	180.000	10.000	9.000

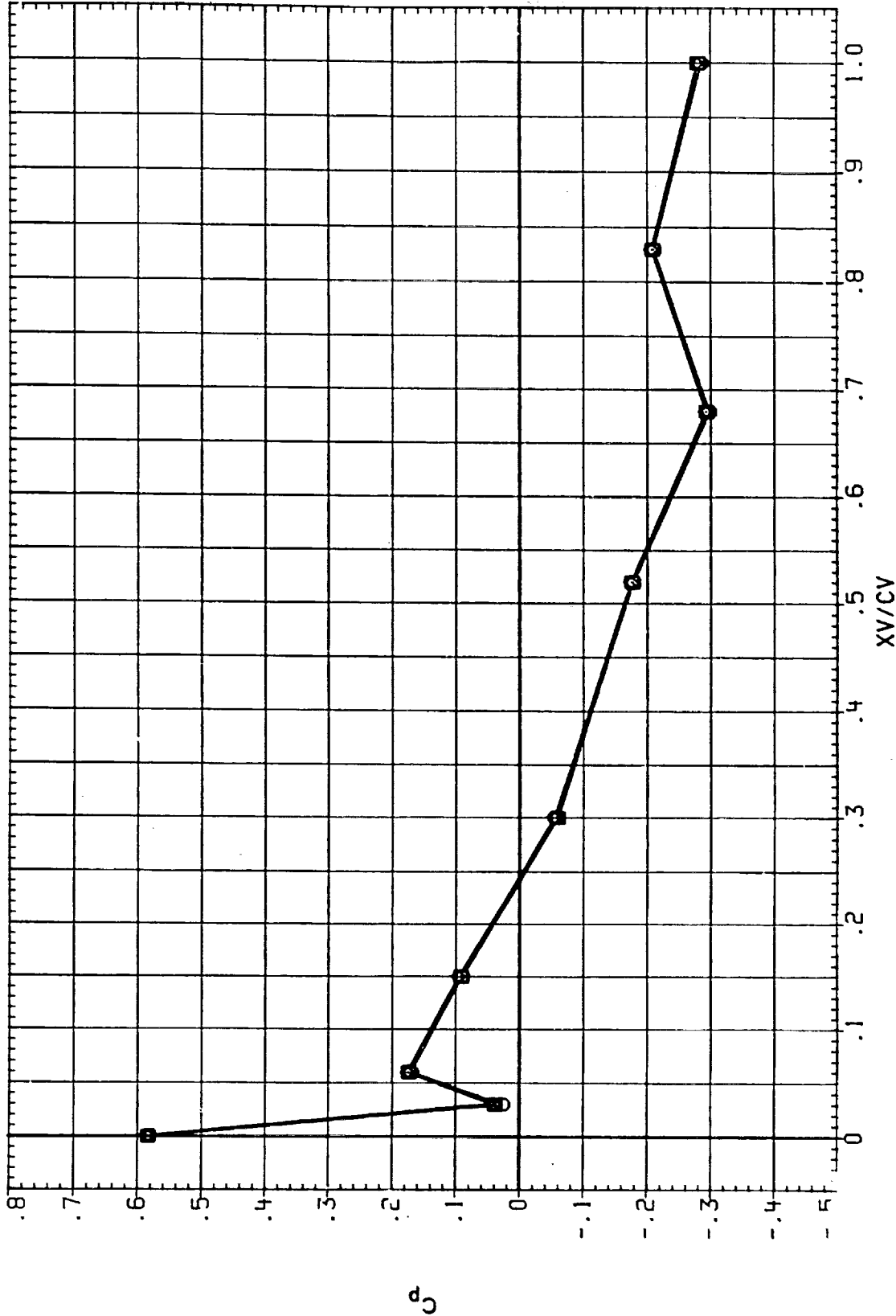


FIGURE 5 IAG13A SELECTED PRESSURE DISTRIBUTIONS
ORBITER VERTICAL TAIL

BETA = .000 ETA = .222 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOV20)	○	IAG13A.B/L OT*ASRM*PLUMES S1.2 -VERT. TAIL (LS)	1.100	.000	10.000	9.000
(RCOV47)	□	IAG13A.B/L OT*ASRM*PLUMES S1.2 -VERT. TAIL (LS)	1.100	.000	10.000	9.000
(RCOV85)	△	IAG13A.B/L OT*ASRM*PLUMES S1.2 -VERT. TAIL (LS)	1.100	180.000	10.000	9.000
(RCOV83)	△	IAG13A.B/L OT*ASRM*PLUMES S1.2 -VERT. TAIL (LS)	1.100	999.000	10.000	5.000

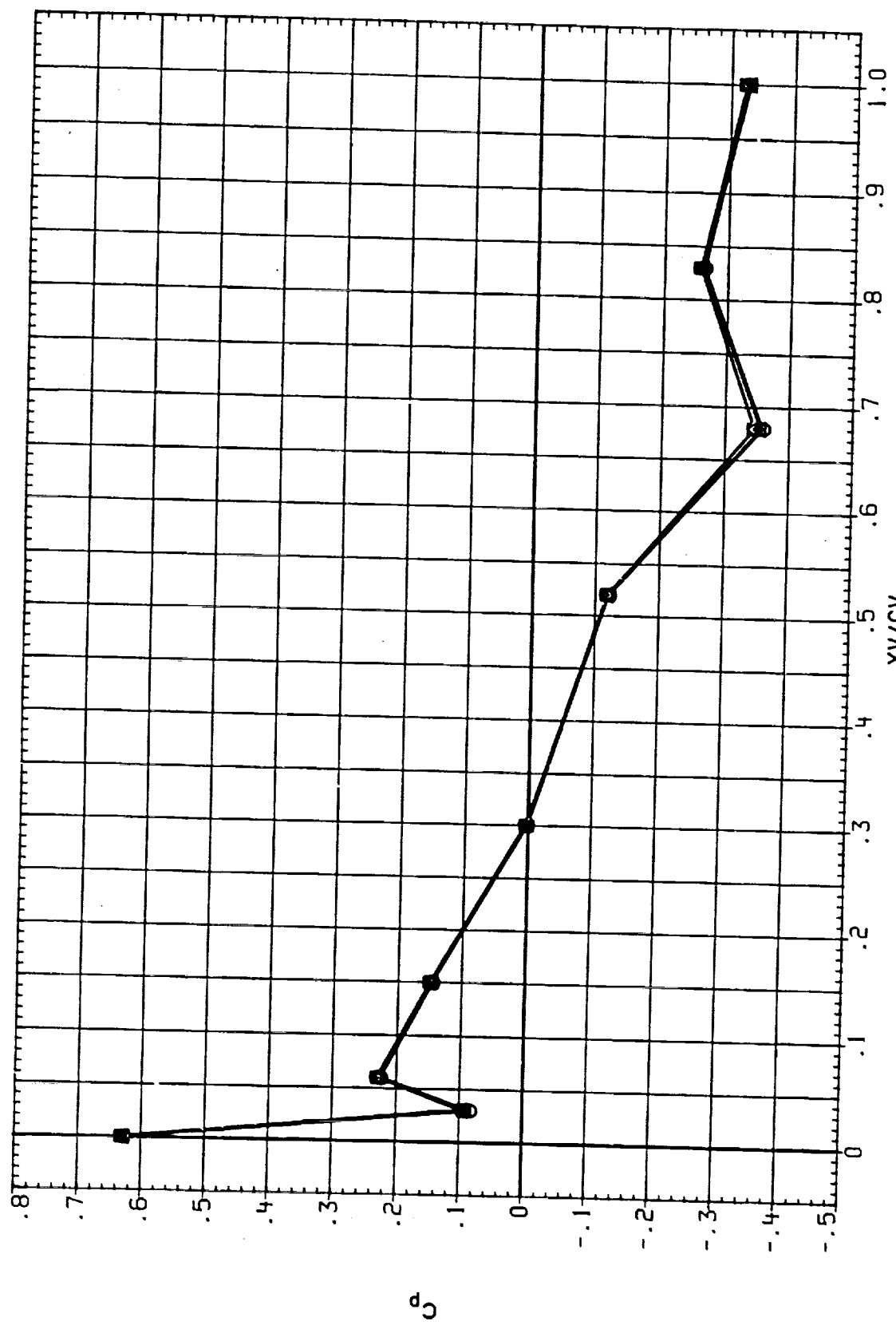


FIGURE 5 IAG13A SELECTED PRESSURE DISTRIBUTIONS
ORBITER VERTICAL TAIL ALPHA = .000

BETA = .000 ETA = .222 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOV211)	□	IA613A, B/L 01+RSRM+PLUMES S1.2	1.150	.000	10.000	9.000
(RCOV481)	○	IA613A, B/L 01+ASRM+PLUMES S1.2	1.150	.000	10.000	9.000
(RCOV861)	◇	IA613A, B/L 01+ASRM+PLUMES S1.2	1.150	180.000	10.000	9.000
(XCOVC4)	△	IA613A, B/L 01+ASRM+PLUMES S1.2	1.150	999.000	10.000	5.000

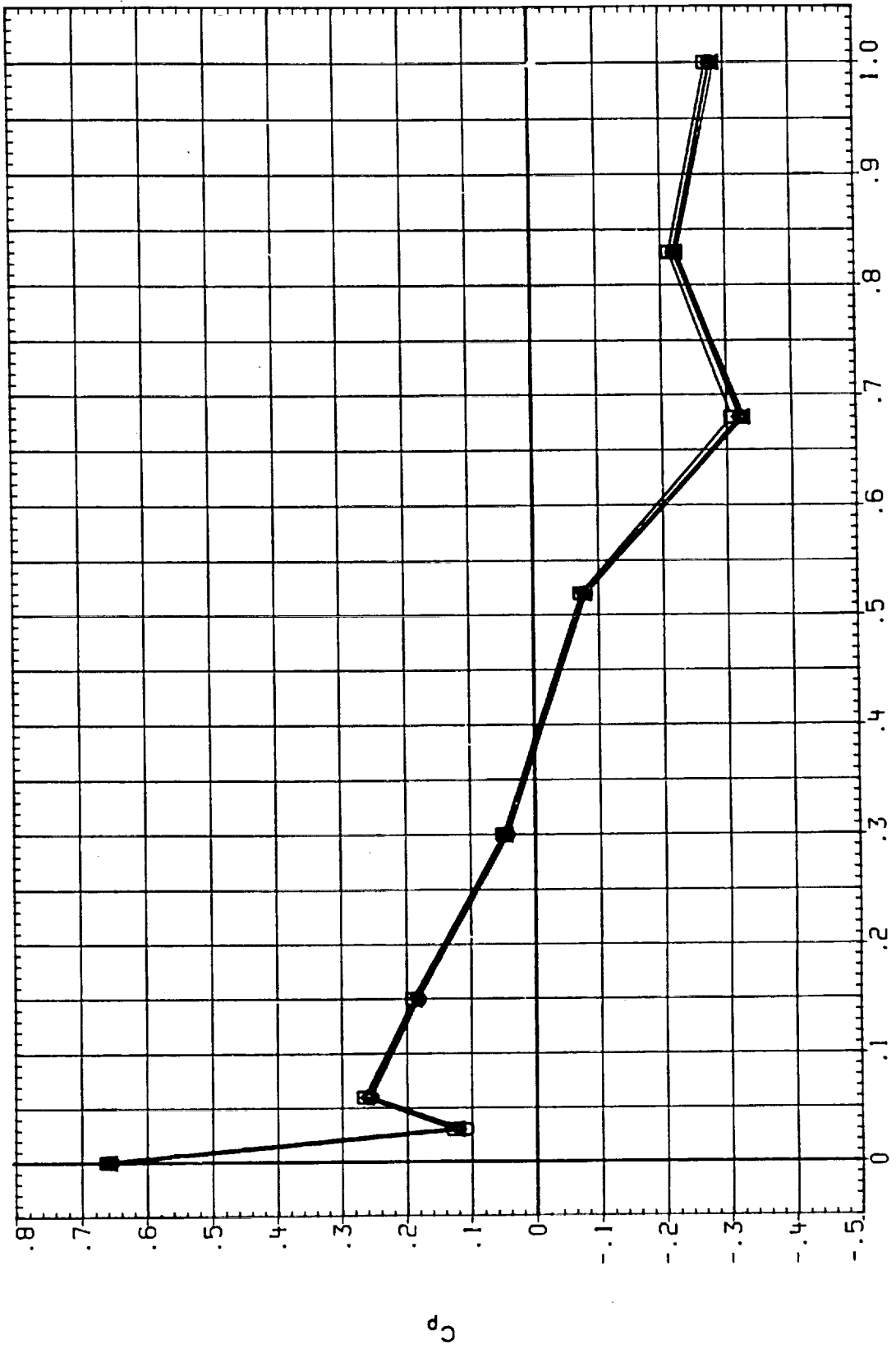


FIGURE 5 IA613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 ETA = .222 ALPHA = .000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOV22)	IAB13A, B/L OT+RSRH+PLUMES S1,2	1.250	.000	10.000	9.000
(RCOV49)	IAB13A, B/L OT+ASRH+PLUMES S1,2	1.250	.000	10.000	9.000
(RCOV87)	IAB13A, B/L OT+ASRH+PLUMES S1,2	1.250	180.000	10.000	9.000
(RCOV5)	IAB13A, B/L OT+ASRH+PLUMES S1,2	1.250	999.000	10.000	5.000

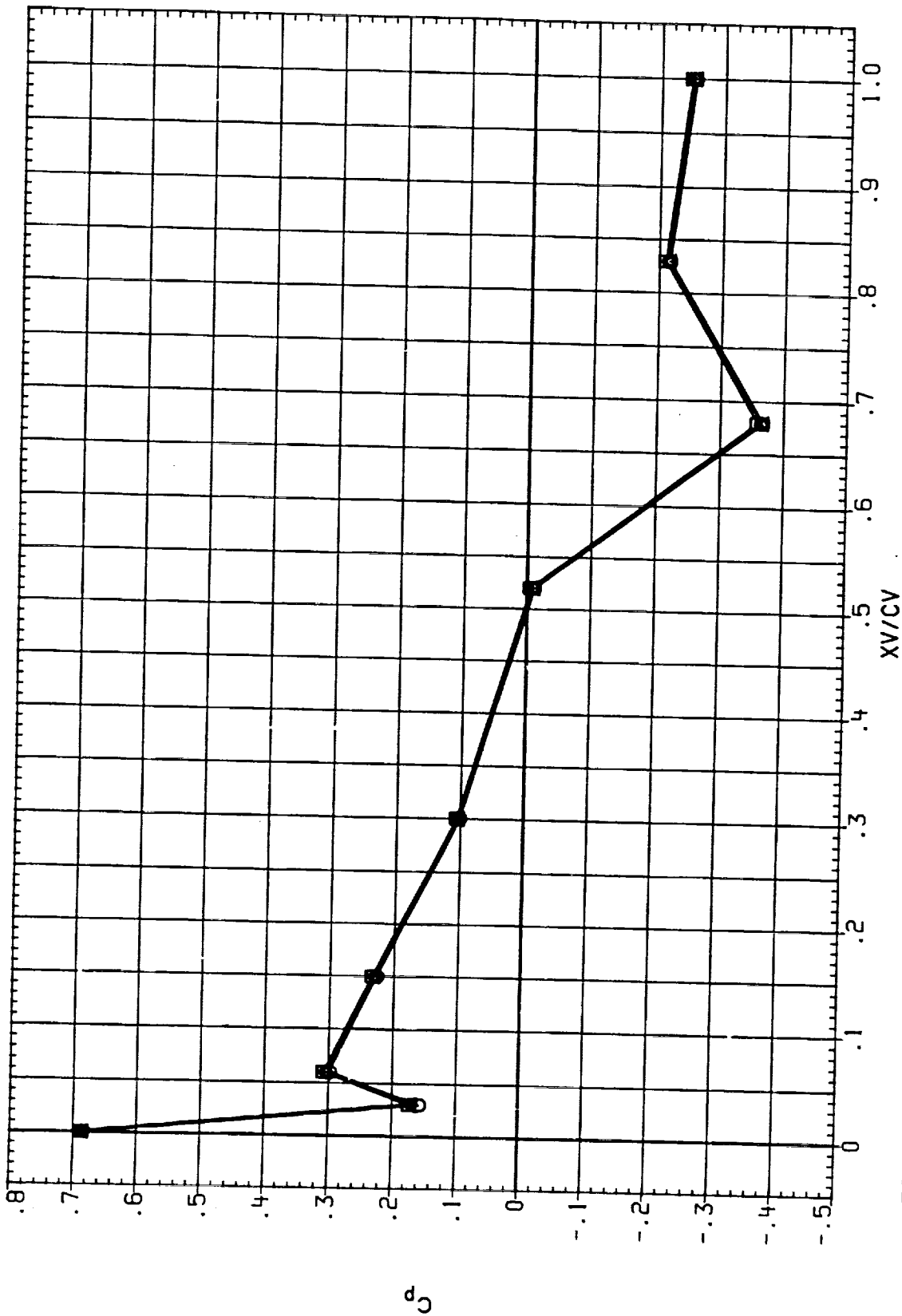


FIGURE 5 IAB13A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER VERTICAL TAIL
 BETA = .000 ETA = .222 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOVH6)	○	IA613A,B/L 01+RSRM+PLUMES S1.2	1.300	.000	10.000	9.000
(RCOV54)	□	IA613A,B/L 01+ASRM+PLUMES S1.3	1.300	.000	10.000	5.000
(RCOV89)	◇	IA613A,B/L 01+ASRM+PLUMES S1.3	1.300	180.000	10.000	5.000
(RCOV67)	△	IA613A,B/L 01+ASRM+PLUMES S1.3	1.300	999.000	10.000	5.000

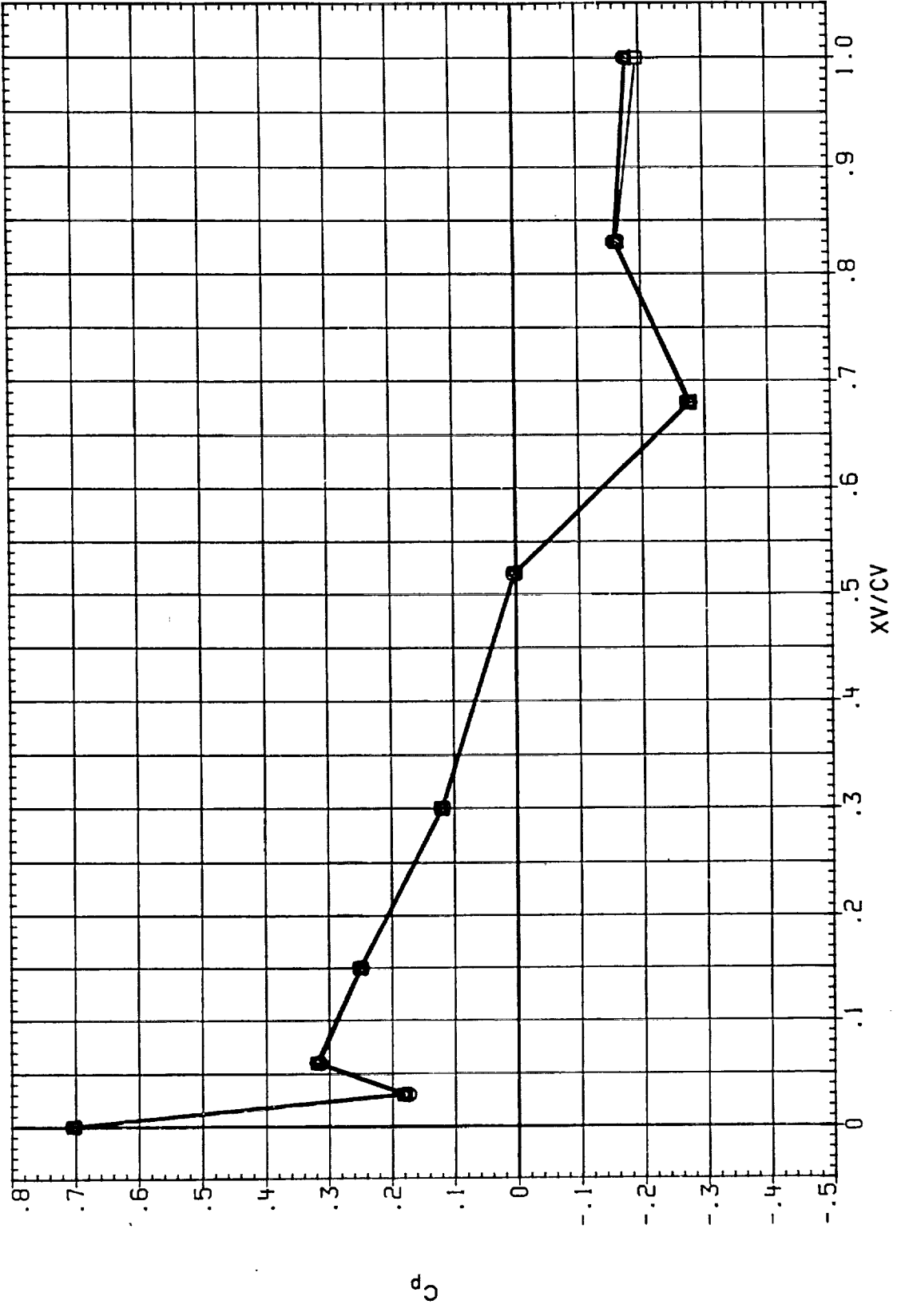


FIGURE 5 IA613A SELECTED PRESSURE DISTRIBUTIONS
ORBITER VERTICAL TAIL

BETA = .000 ETA = .222 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOVH7)	○	IA613A .8/L OT*PSRM*PLUMES S1.2	1.350	.000	10.000	9.000
(RCOV55)	◇	IA613A .8/L OT*ASRM*PLUMES S1.3	1.350	.000	10.000	5.000
(RCOV50)	◇	IA613A .8/L OT*ASRM*PLUMES S1.3	1.350	180.000	10.000	5.000
(RCOV68)	△	IA613A .8/L OT*ASRM*PLUMES S1.3	1.350	999.000	10.000	5.000

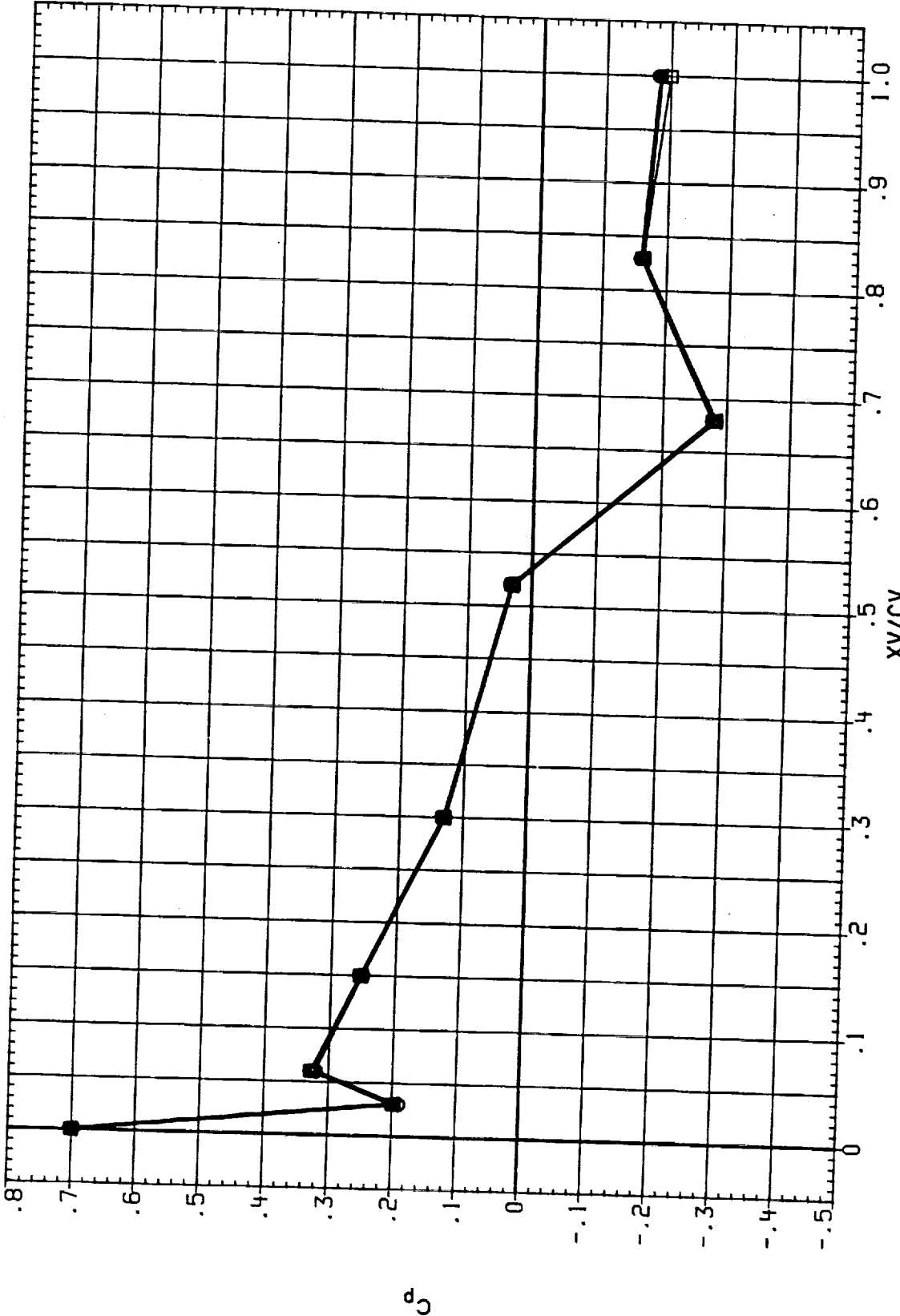


FIGURE 5 IA613A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER VERTICAL TAIL ALPHA = .000
 BETA = .000 ETA = .222

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOVH8)	○	I A613A,B/L OT+RSRM+PLUMES S1.2	1.400	.000	10.000	9.000
(RCOV56)	□	I A613A,B/L OT+ASRM+PLUMES S1.3	1.400	.000	10.000	5.000
(RCOV91)	◇	I A613A,B/L OT+ASRM+PLUMES S1.3	1.400	180.000	10.000	5.000
(RCOV91)	△	I A613A,B/L OT+ASRM+PLUMES S1.3	1.400	999.000	13.000	5.000

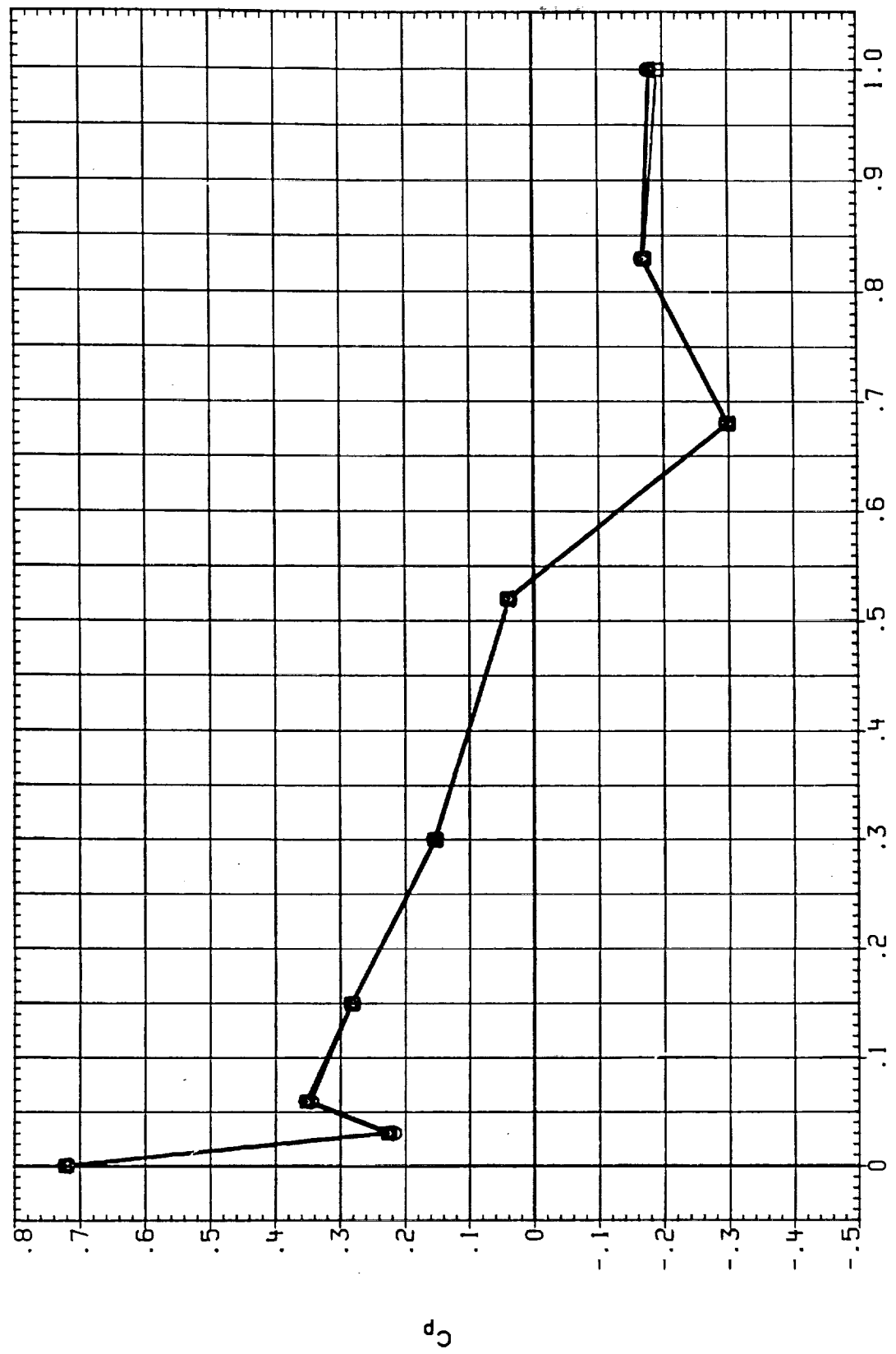


FIGURE 5 I A613A SELECTED PRESSURE DISTRIBUTIONS
ORBITER VERTICAL TAIL

BETA = .000 ETA = .222 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOVH9)	○	IA613A,B/L OT*ASRM*PLUMES SI.2	1.550	.000	10.000	9.000
(RCOV57)	□	IA613A,B/L C.*ASRM*PLUMES SI.3	1.550	.000	10.000	5.000
(RCOV92)	◇	IA613A,B/L OT*ASRM*PLUMES SI.3	1.550	180.000	10.000	5.000
(RCOV00)	△	IA613A,B/L OT*ASRM*PLUMES SI.3	1.550	999.000	10.000	5.000

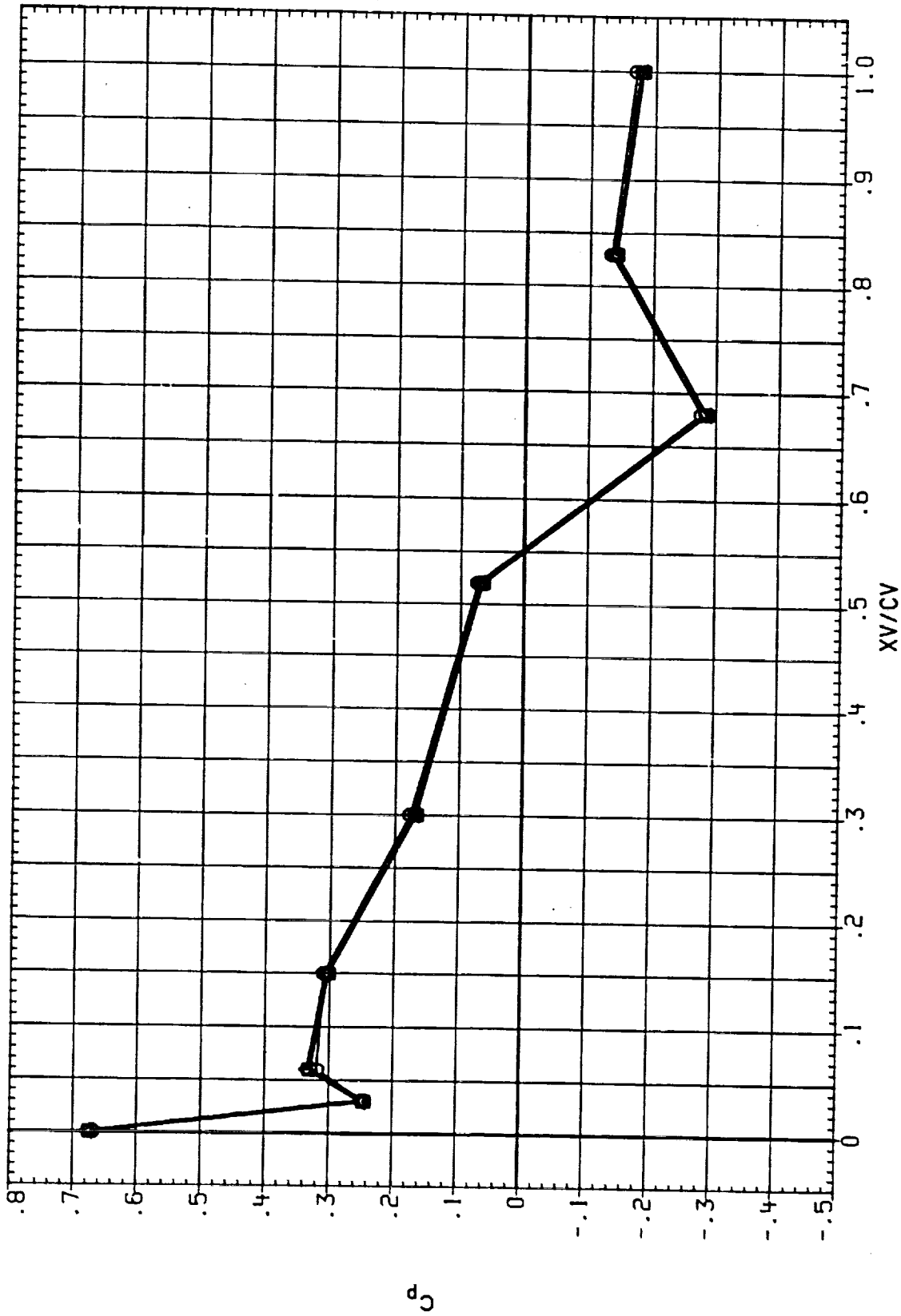


FIGURE 5 IA613A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER VERTICAL TAIL
 BETA = .000 ETA = .222 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOL151)	□	IA613A,B/L OT+RSRM+PLUMES S1.2	.600	.000	10.000	9.000
(RCOL42)	◇	IA613A,B/L OT+ASRM+PLUMES S1.2	.600	.000	10.000	9.000
(RCOL80)	◇	IA613A,B/L OT+ASRM+PLUMES S1.2	.600	180.000	10.000	9.000
(RCOLCT1)	△	IA613A,B/L OT+ASRM+PLUMES S1.2	.600	999.000	10.000	5.000

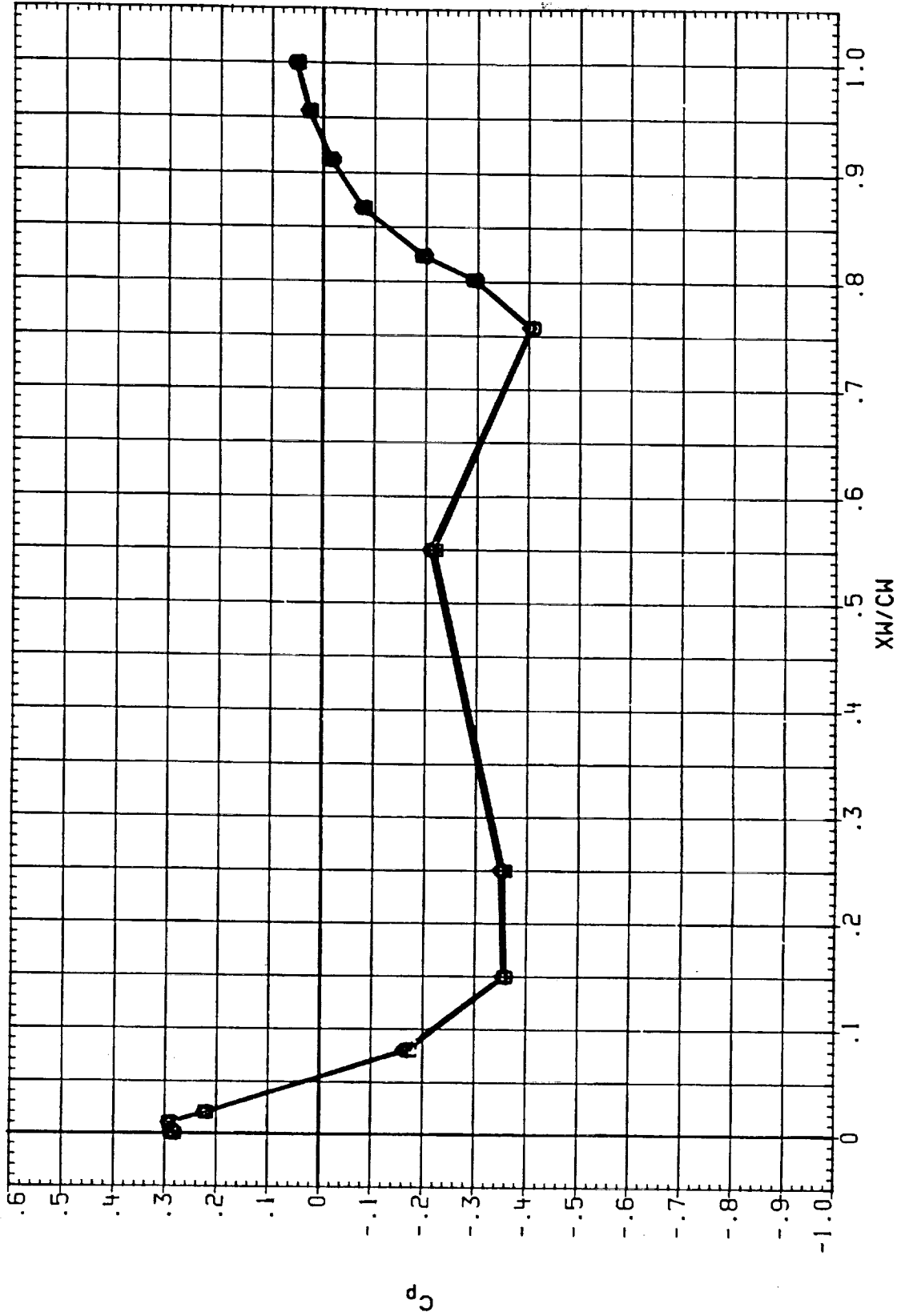


FIGURE 6 IA613A SELECTED PRESSURE DISTRIBUTIONS
ORBITER WING - UPPER SURFACE

BETA = .000 ETA = .427 ALPHA = .000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RC0015)	IA613A.B/L OT+RSRM+PLUMES S1.2	.600	.000	10.000	9.000
(RC0042)	IA613A.B/L OT+ASRM+PLUMES S1.2	.600	.000	10.000	9.000
(RC0080)	IA613A.B/L OT+ASRM+PLUMES S1.2	.600	180.000	10.000	9.000
(RC00C1)	IA613A.B/L OT+ASRM+PLUMES S1.2	.600	999.000	10.000	5.000

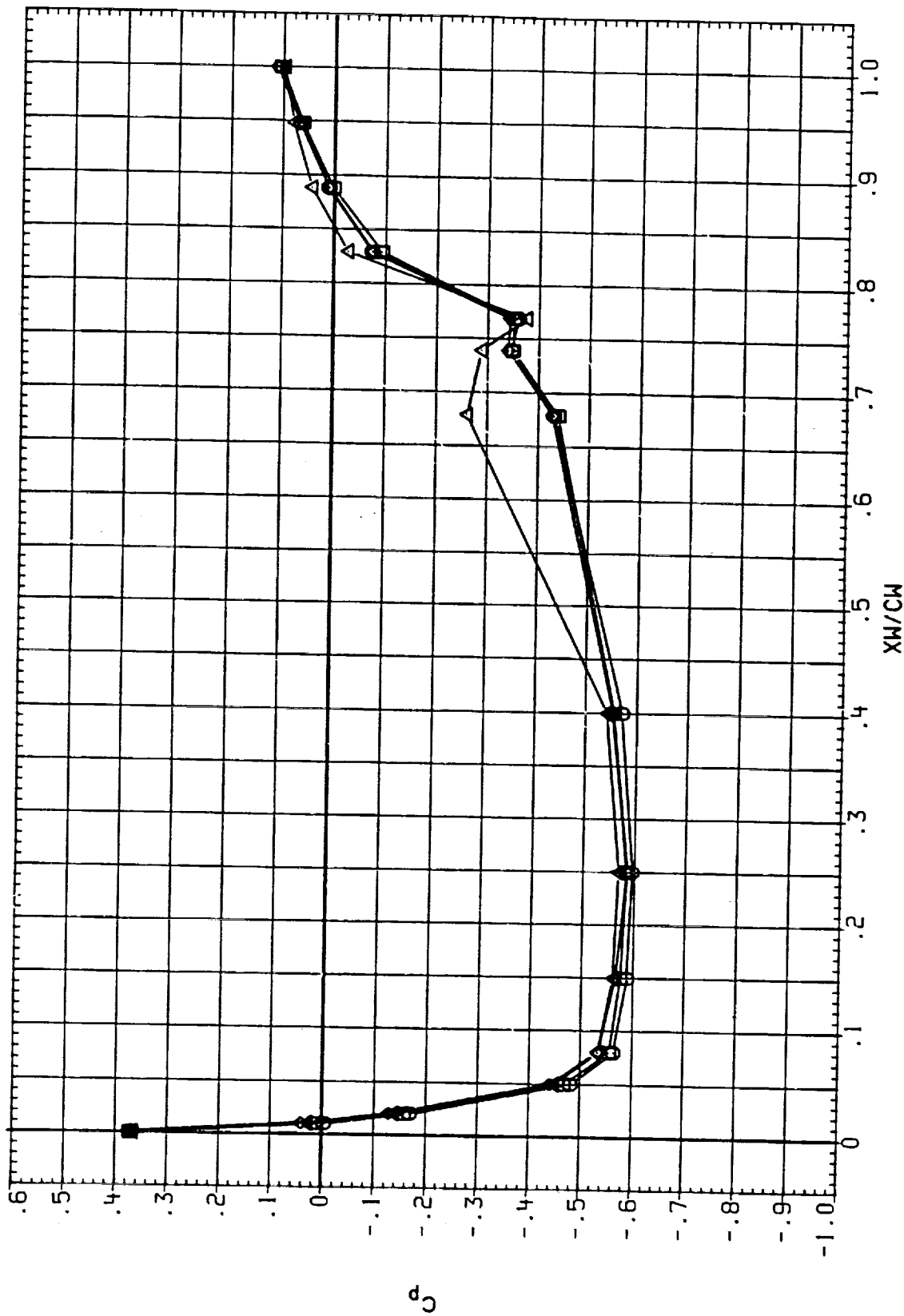


FIGURE 6 IA613A SELECTED PRESSURE DISTRIBUTIONS
ORBITER WING - UPPER SURFACE

BETA = .000 ETA = .811 ALPHA = .000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RC0016)	IA613A,B/L OT+RSRM+PLUMES S1.2	.800	.000	10.000	9.000
(RC0043)	IA613A,B/L OT+ASRM+PLUMES S1.2	.800	.000	10.000	9.000
(RC0081)	IA613A,B/L OT+ASRM+PLUMES S1.2	.800	180.000	10.000	9.000

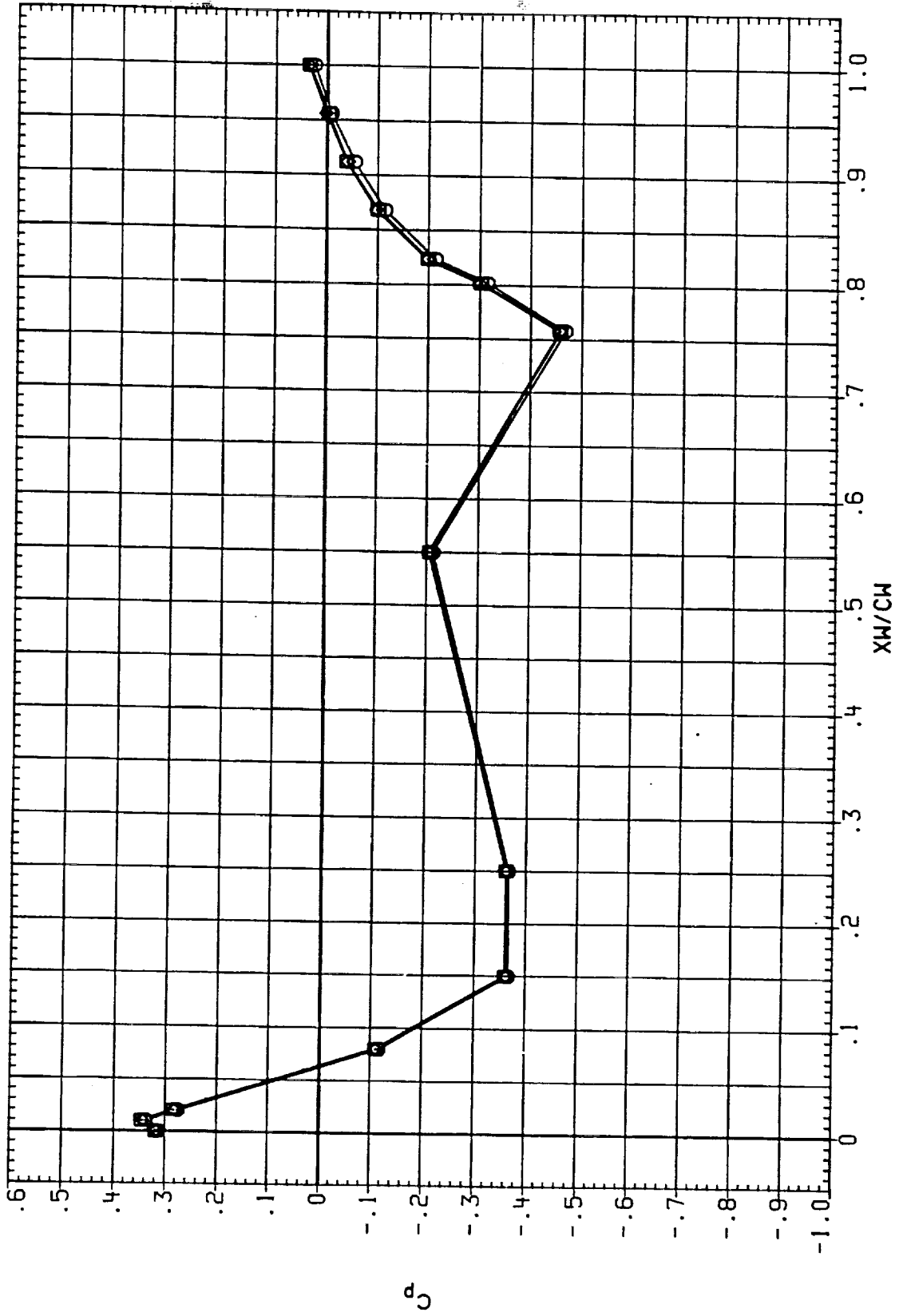


FIGURE 6 IA613A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER WING - UPPER SURFACE
 BETA = .000 ETA = .427 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELY	OB-ELY
(RCOU16)	○	IA613A.B/L OT+PSRM+PLUMES S1.2 -L.H. WING UPPER	.800	.000	10.000	9.000
(RCOU31)	□	IA613A.B/L OT+ASRM+PLUMES S1.2 -L.H. WING UPPER	.800	.000	10.000	9.000
(RCOU81)	◇	IA613A.B/L OT+ASRM+PLUMES S1.2 -L.H. WING UPPER	.800	180.000	10.000	9.000

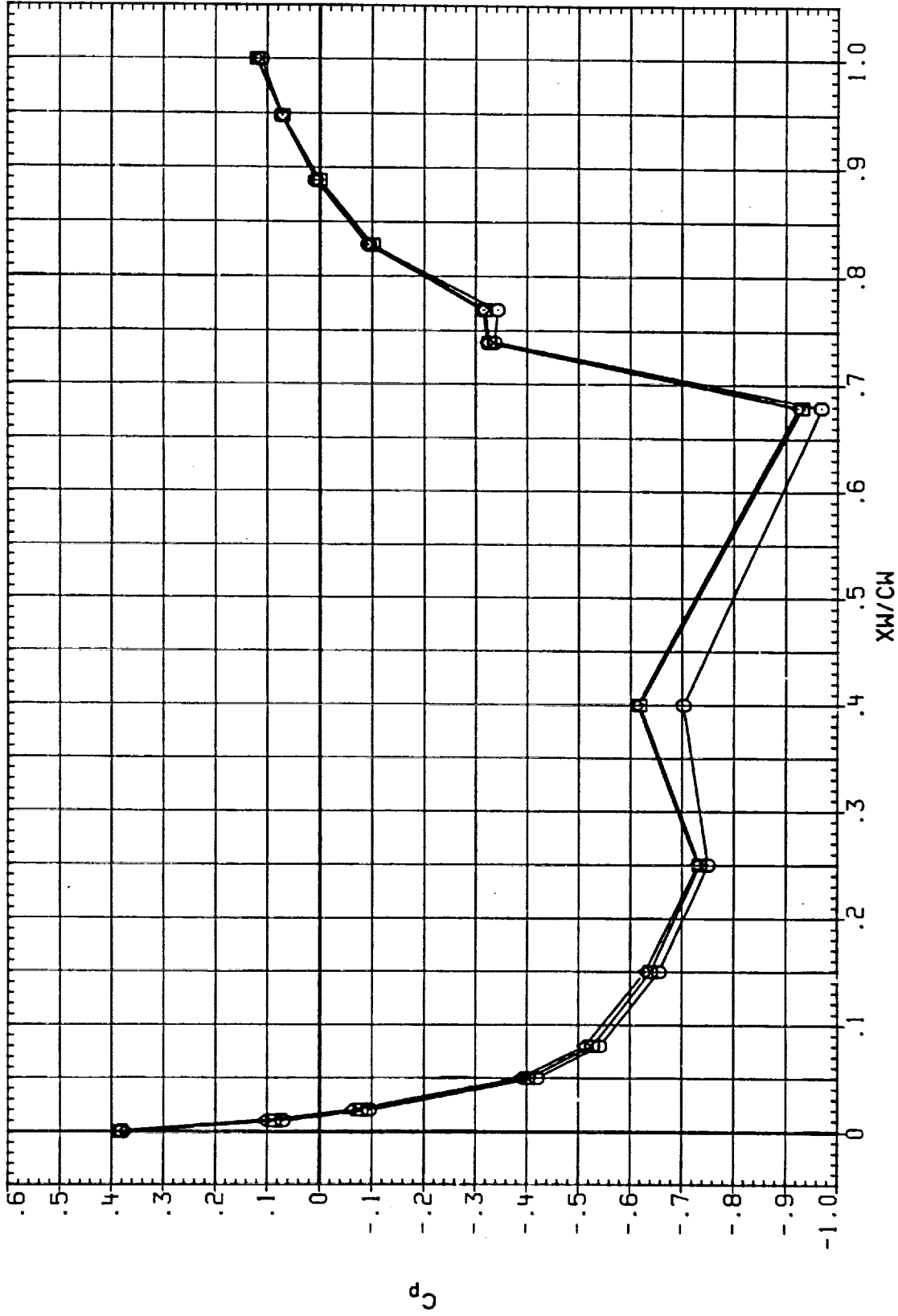


FIGURE 6 IA613A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER WING - UPPER SURFACE
 BETA = .000 ETA = .811 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOU17)	□	IAG13A,B/L OT+PSRM+PLUMES S1.2	.900	.000	10.000	9.000
(RCOU44)	○	IAG13A,B/L OT+ASRM+PLUMES S1.2	.900	.000	10.000	9.000
(RCOUB2)	◇	IAG13A,B/L OT+ASRM+PLUMES S1.2	.900	180.000	10.000	9.000
(RCOUC2)	△	IAG13A,B/L OT+ASRM+PLUMES S1.2	.900	999.000	10.000	5.000

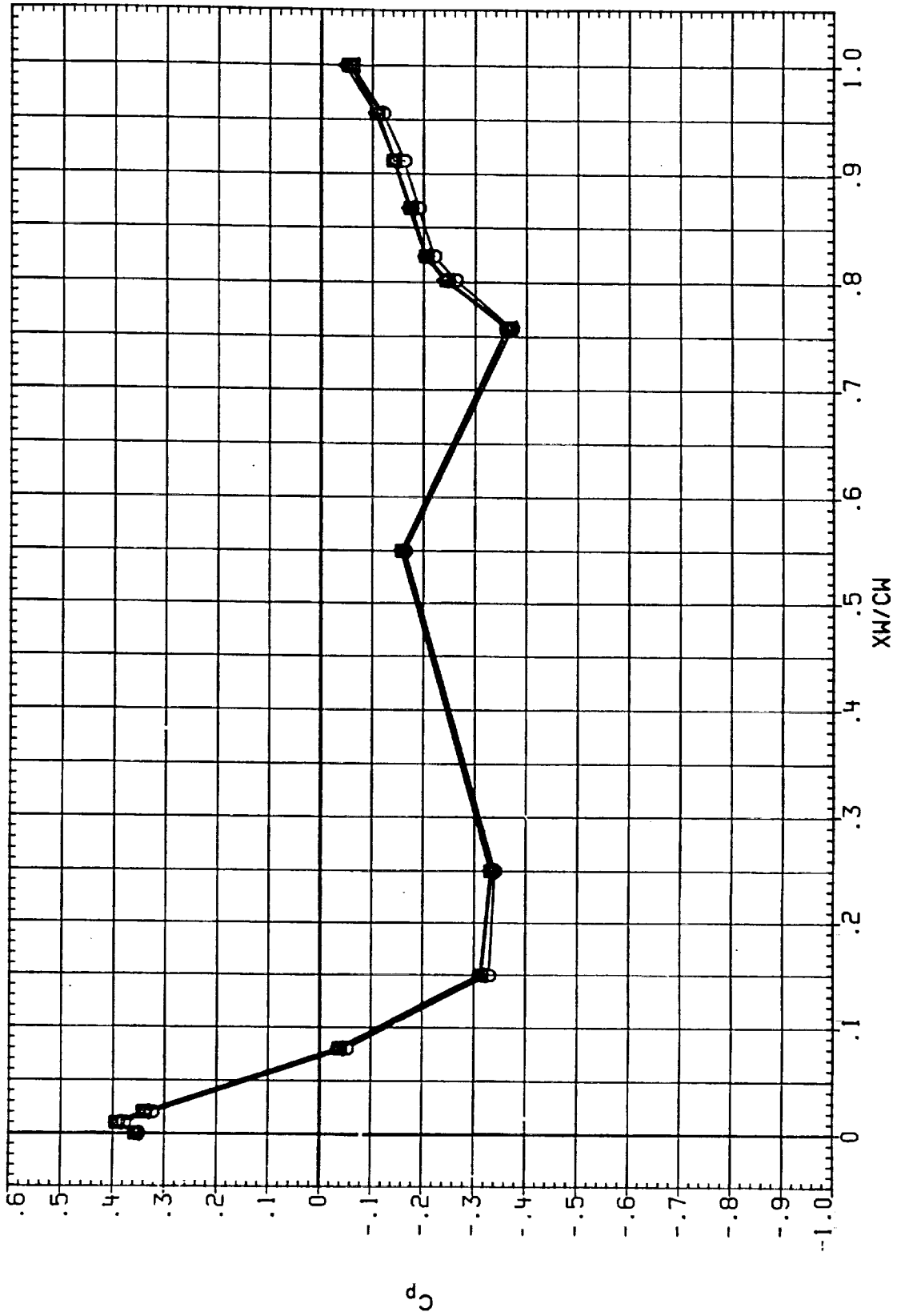


FIGURE 6 IAG13A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER WING - UPPER SURFACE
 BETA = .000 ETA = .427 ALPHA = .000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RC0U17)	IAG13A.B/L OT*ASRM*PLUMES S1.2	.900	.000	10.000	9.000
(RC0U41)	IAG13A.B/L OT*ASRM*PLUMES S1.2	.900	.000	10.000	9.000
(RC0U82)	IAG13A.B/L OT*ASRM*PLUMES S1.2	.900	180.000	10.000	9.000
(RC0UC2)	IAG13A.B/L OT*ASRM*PLUMES S1.2	.900	999.000	10.000	5.000

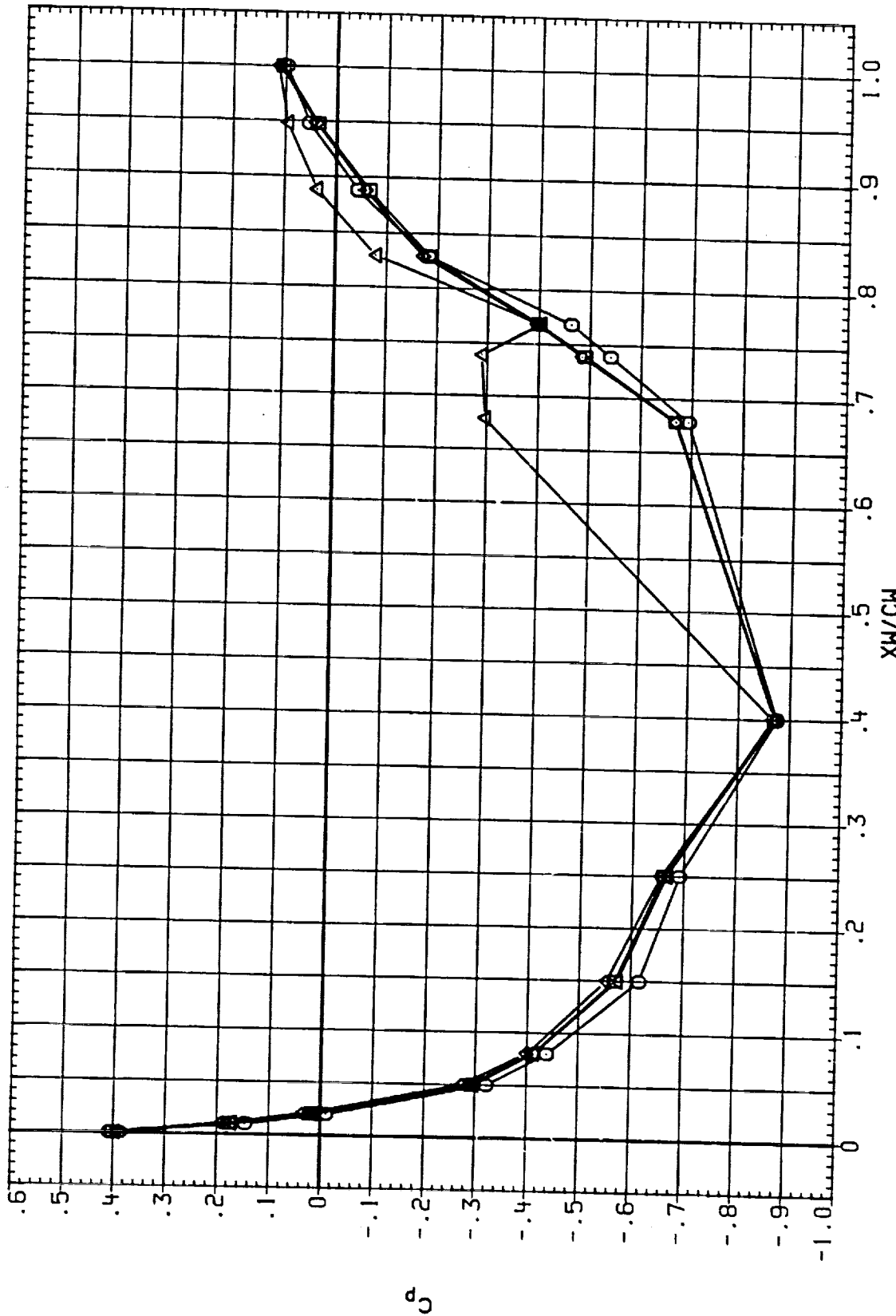


FIGURE 6 IAG13A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER WING - UPPER SURFACE
 BETA = .000 ETA = .811 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IE/BOX	IB-ELV	OB-ELV
(RCOU18)	○	IA613A.B/L OT+ASRM+PLUMES SI.2	.950	.000	10.000	9.000
(RCOU45)	○	IA613A.B/L OT+ASRM+PLUMES SI.2	.950	.000	10.000	9.000
(RCOU83)	◇	IA613A.B/L OT+ASRM+PLUMES SI.2	.950	180.000	10.000	9.000

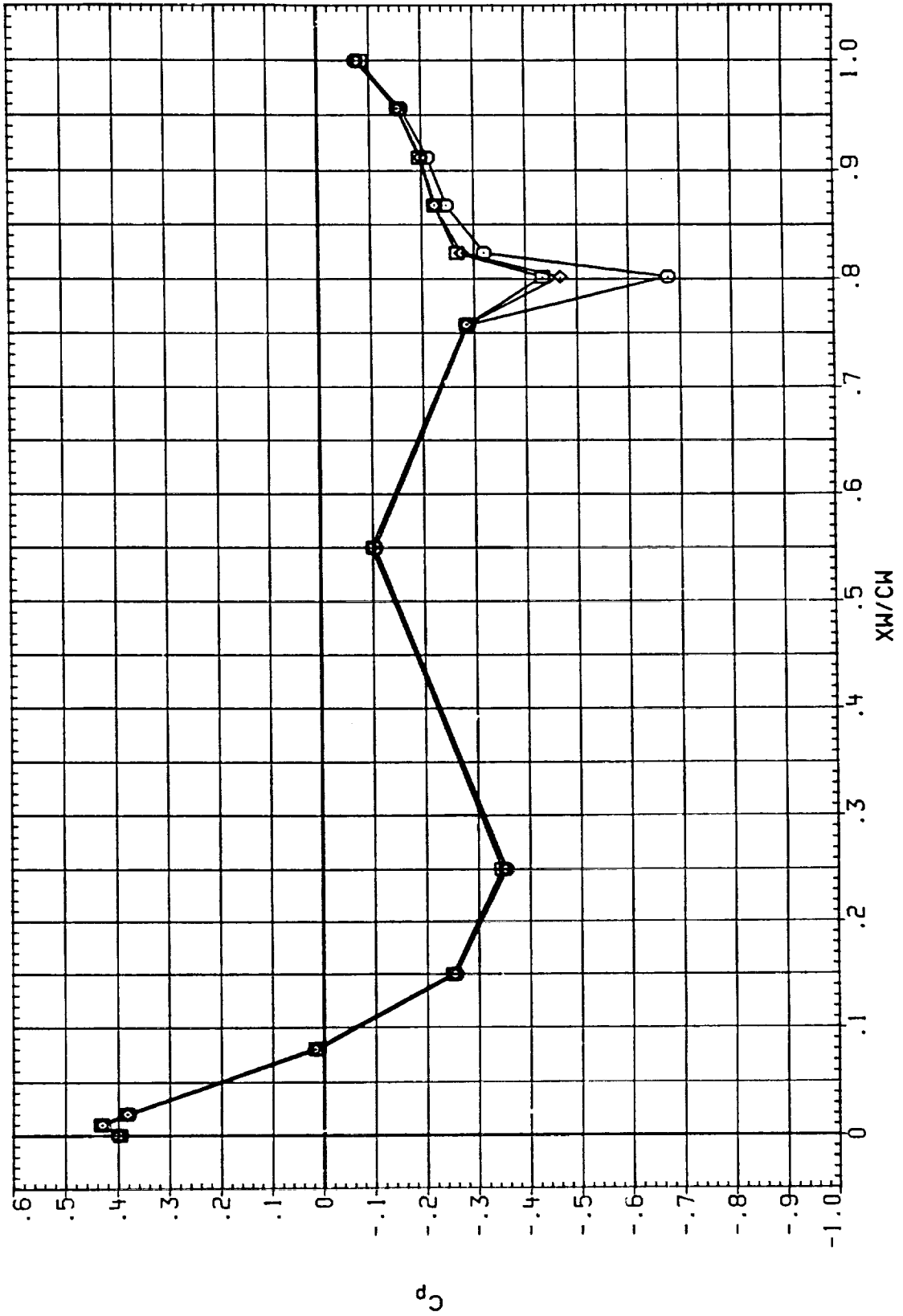


FIGURE 6 IA613A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER WING - UPPER SURFACE
 BETA = .000 ETA = .427 ALPHA = .000

DATA SET SYMBOL CONFIGURATION DESCRIPTION MACH IEABOX 1B-ELV OB-ELV
 (RC001B1) IAG13A.B/L OT*ASRM*PLUMES S1.2 .950 .000 10.000 9.000
 (RC00451) IAG13A.B/L OT*ASRM*PLUMES S1.2 .950 .000 10.000 9.000
 (RC00831) IAG13A.B/L OT*ASRM*PLUMES S1.2 .950 180.000 10.000 9.000

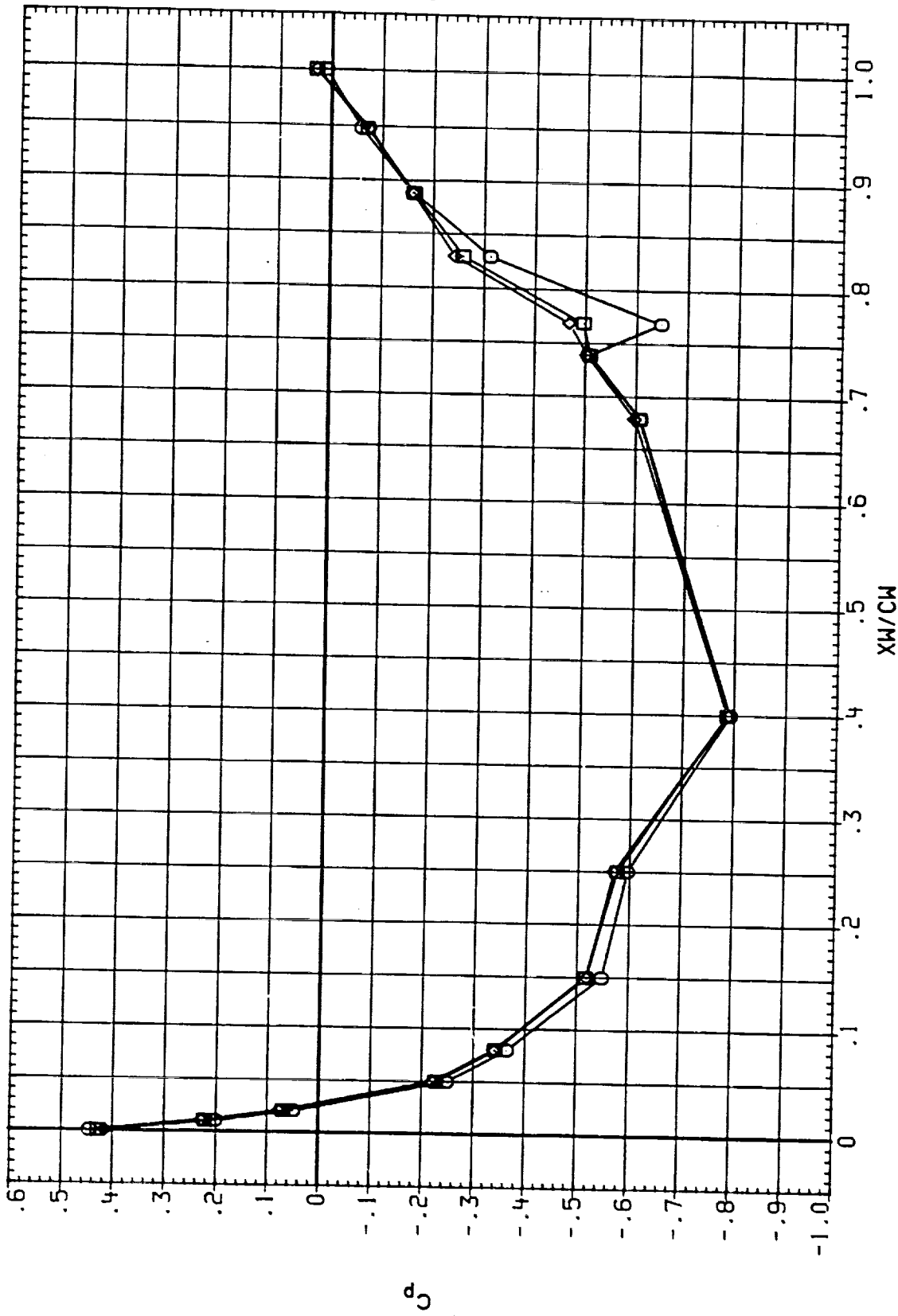


FIGURE 6 IAG13A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER WING - UPPER SURFACE
 BETA = .000 ETA = .811 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELY	OB-ELY
(RC0U191)	○	IAG13A.B/L OT+RSRH+PLUMES S1.2	1.050	.000	10.000	9.000
(RC0U461)	□	IAG13A.B/L OT+ASRH+PLUMES S1.2	1.050	.000	10.000	9.000
(RC0U841)	◇	IAG13A.B/L OT+ASRH+PLUMES S1.2	1.050	180.000	10.000	9.000

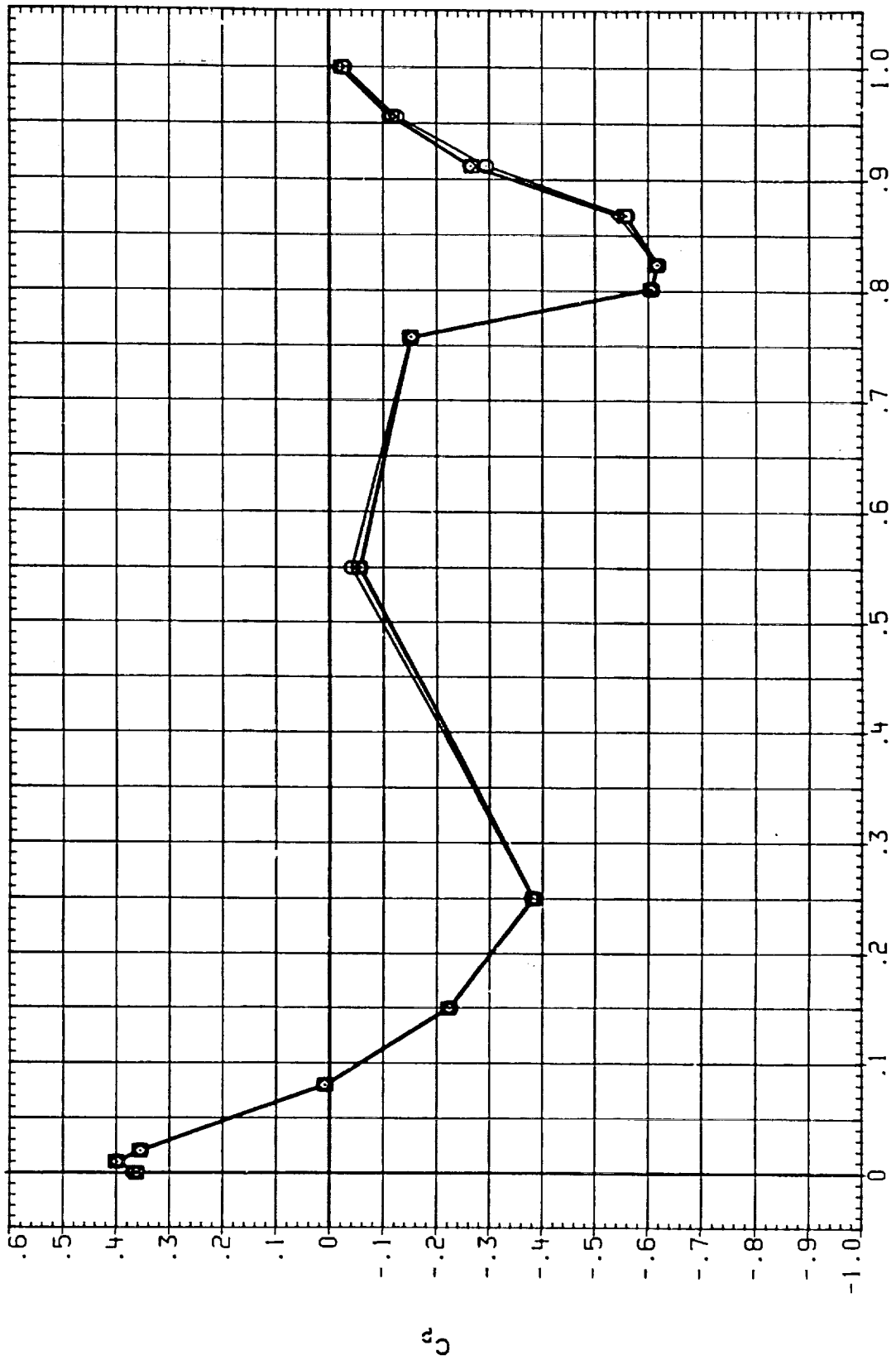


FIGURE 6 IAG13A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER WING - UPPER SURFACE
 BETA = .000 ETA = .427 ALPHA = .000

DATA SET SYMBOL CONFIGURATION DESCRIPTION
 (RC0019) \square IAB13A.B/L OT*RSRM*PLUMES S1.2 -L.H. WING UPPER
 (RC0046) \square IAB13A.B/L OT*ASRM*PLUMES S1.2 -L.H. WING UPPER
 (RC0084) \diamond IAB13A.B/L OT*ASRM*PLUMES S1.2 -L.H. WING UPPER

MACH 1.050 1.050 1.050

IEABOX .000 .000 .000

IB-ELV 10.000 10.000 10.000

OB-ELV 9.000 9.000 9.000

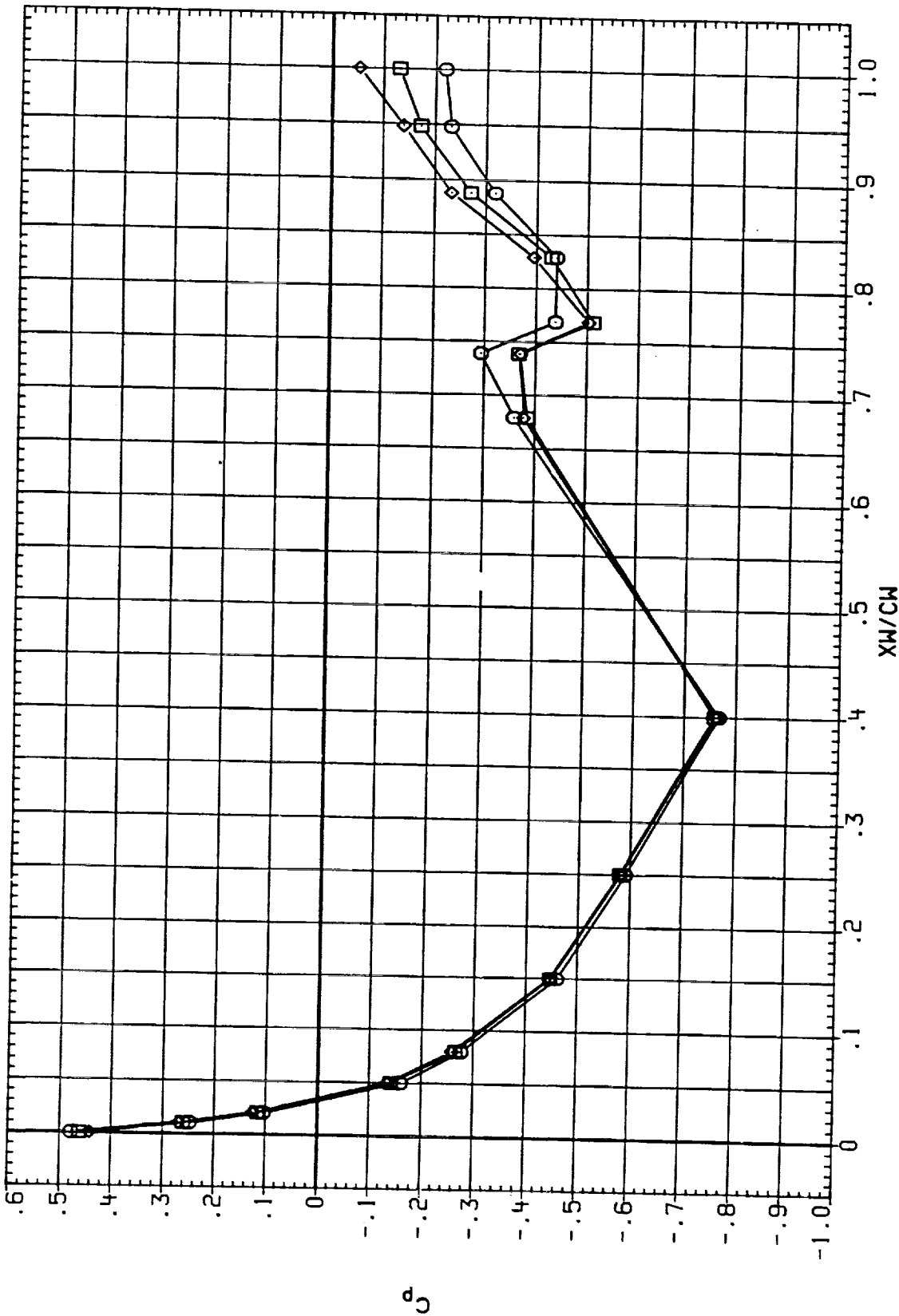


FIGURE 6 IAB13A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 ETA = .811 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RC0020)	○	IA613A, B/L OT+RSRH+PLUMES S1.2	1.100	.000	10.000	9.000
(RC0047)	□	IA613A, B/L OT+ASRH+PLUMES S1.2	1.100	.000	10.000	9.000
(RC0085)	◇	IA613A, B/L OT+ASRH+PLUMES S1.2	1.100	180.000	10.000	9.000
(RC00C3)	△	IA613A, B/L OT+ASRH+PLUMES S1.2	1.100	999.000	10.000	5.000

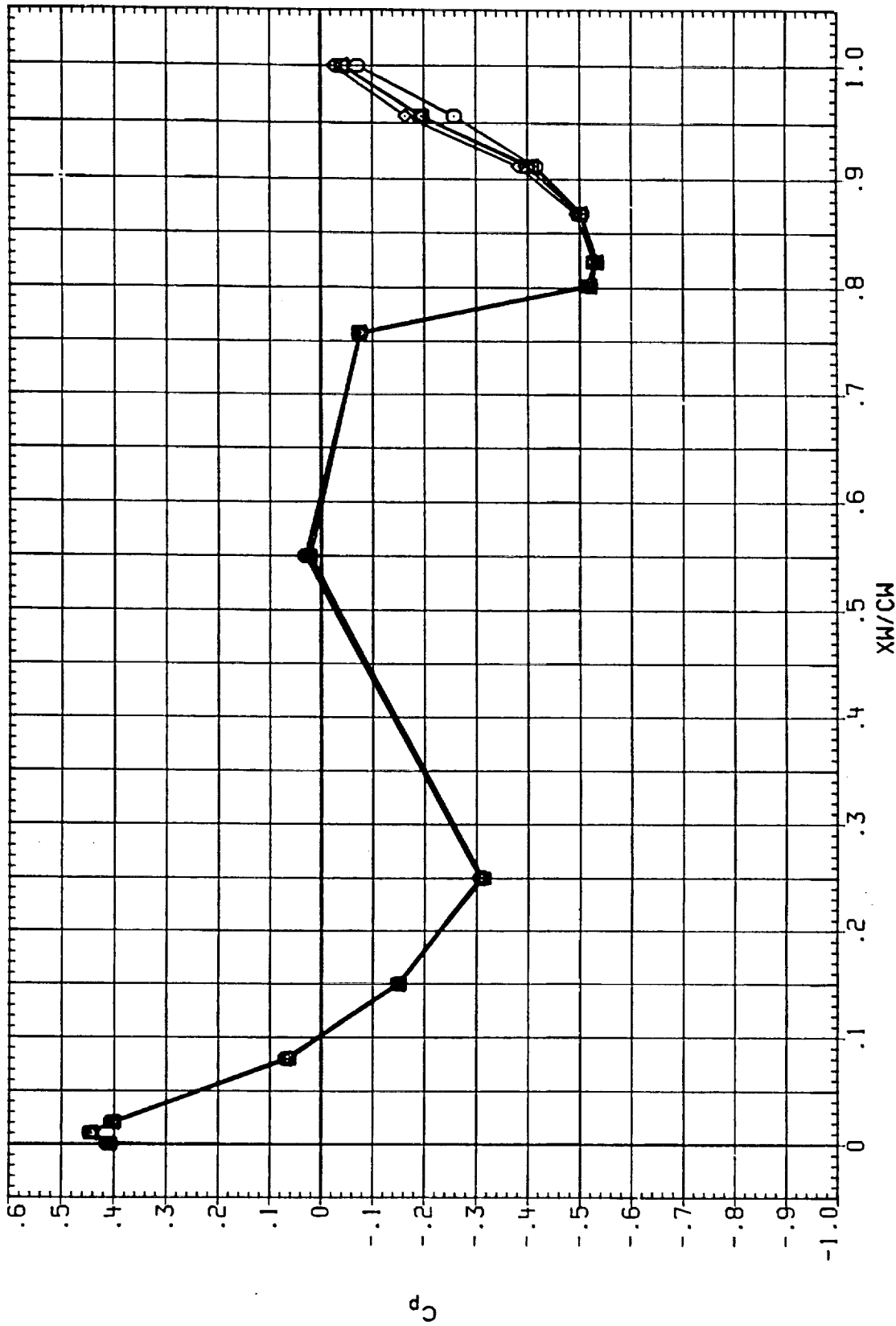


FIGURE 6 IA613A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER WING - UPPER SURFACE
 BETA = .000 ETA = .427 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOU201)	○	IAG13A.B/L OT*RSRM+PLUMES SI.2	1.100	.000	10.000	9.000
(RCOU471)	□	IAG13A.B/L OT*ASRM+PLUMES SI.2	1.100	.000	10.000	9.000
(RCOU851)	△	IAG13A.B/L OT*ASRM+PLUMES SI.2	1.100	180.000	10.000	9.000
(RCOU831)	△	IAG13A.B/L OT*ASRM+PLUMES SI.2	1.100	999.000	10.000	5.000

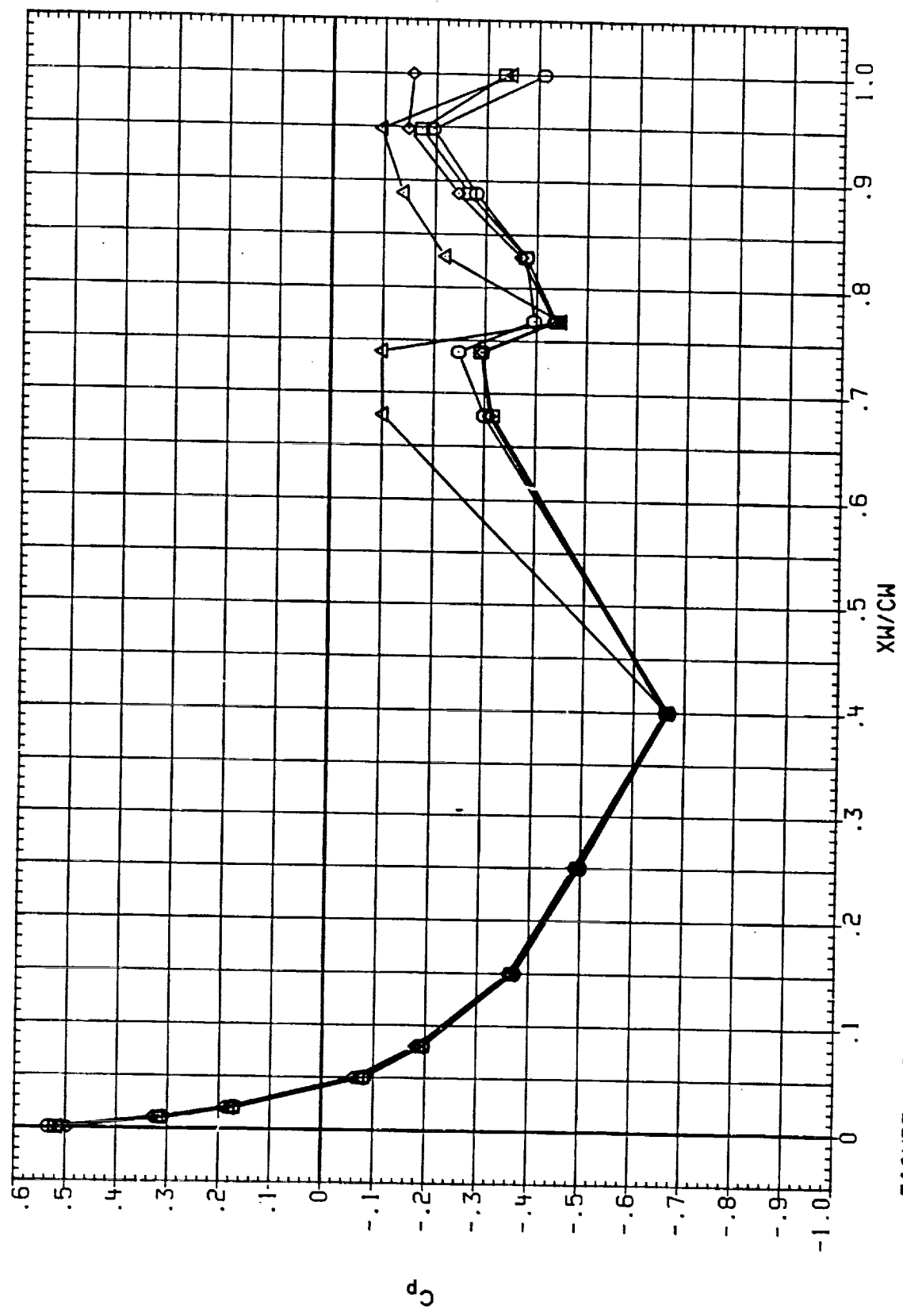


FIGURE 6 IAG13A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER WING - UPPER SURFACE
 BETA = .000 ETA = .811 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOU21)	○	IA613A .B/L OT+RSRM+PLUMES S1.2	1.150	.000	10.000	9.000
(RCOU48)	□	IA613A .B/L OT+ASRM+PLUMES S1.2	1.150	.000	10.000	9.000
(RCOU85)	◇	IA613A .B/L OT+ASRM+PLUMES S1.2	1.150	180.000	10.000	9.000
(XCOCU4)	△	IA613A .B/L OT+ASRM+PLUMES S1.2	1.150	999.000	10.000	5.000

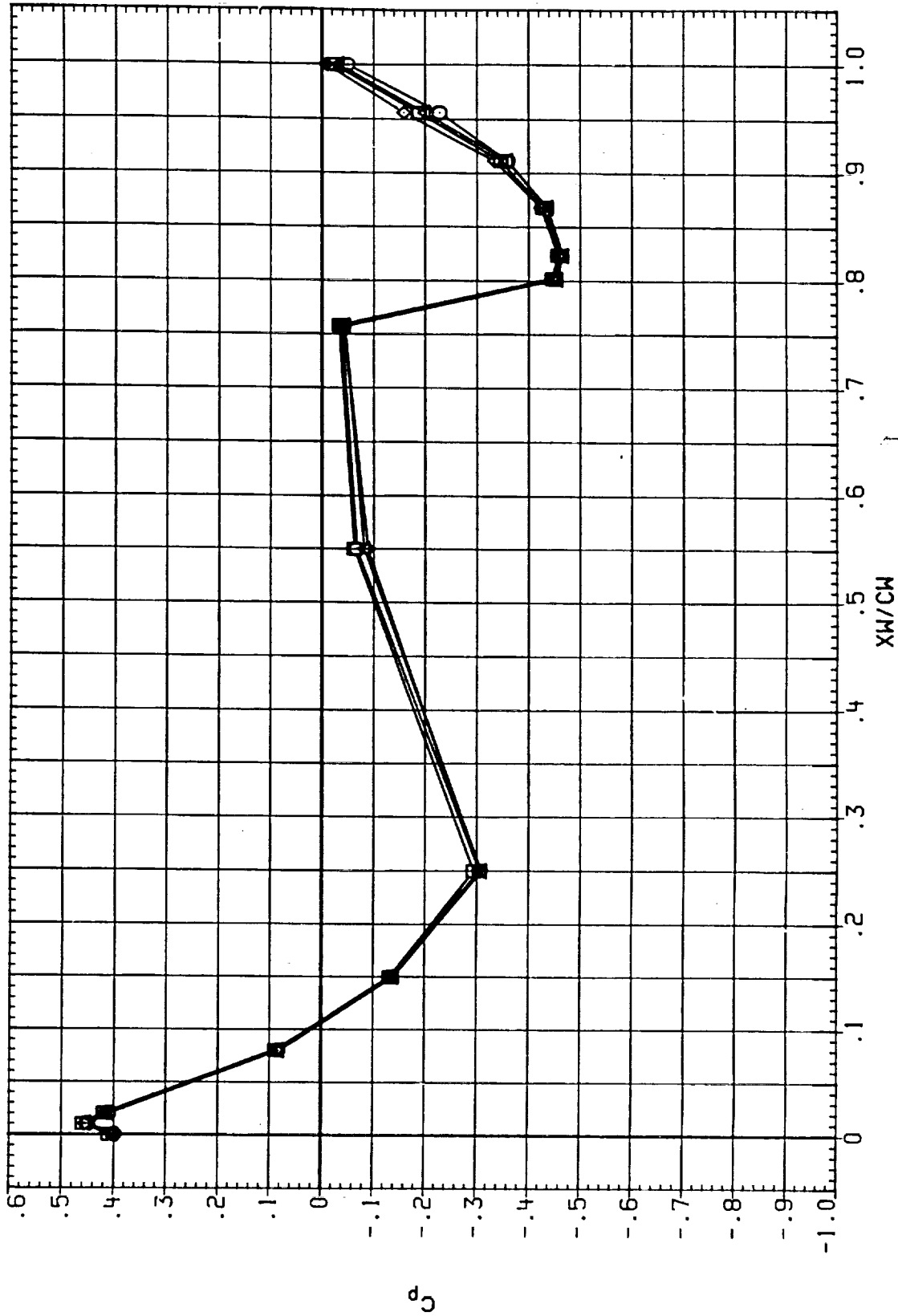


FIGURE 6 IA613A SELECTED PRESSURE DISTRIBUTIONS
ORBITER WING - UPPER SURFACE

BETA = .000 ETA = .427 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	1E-ABOX	1B-ELV	OB-ELV
(RC0021)	○	IA613A, B/L 01+RSRM+PLUMES S1,2	1.150	.000	10.000	9.000
(RC0048)	□	IA613A, B/L 01+ASRM+PLUMES S1,2	1.150	.000	10.000	9.000
(RC0086)	◇	IA613A, B/L 01+ASRM+PLUMES S1,2	1.150	180.000	10.000	9.000
(XC00C4)	△	IA613A, B/L 01+ASRM+PLUMES S1,2	1.150	999.000	10.000	5.000

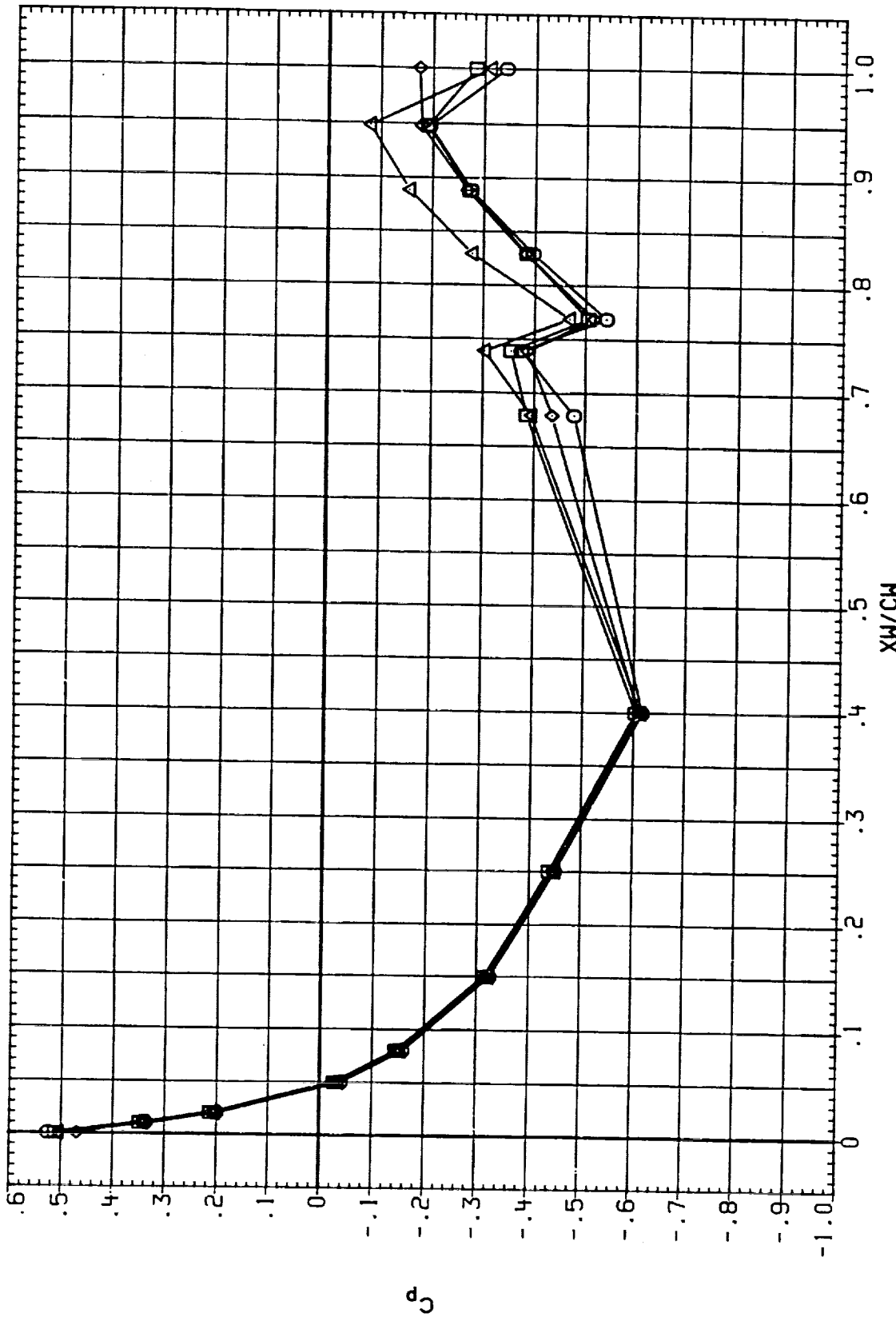


FIGURE 6 IA613A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER WING - UPPER SURFACE
 BETA = .000 ETA = .811 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RC0022)	○	IA613A.B/L 01+RSRM+PLUMES S1.2	1.250	.000	10.000	9.000
(RC0049)	□	IA613A.B/L 01+ASRM+PLUMES S1.2	1.250	.000	10.000	9.000
(RC0087)	◇	IA613A.B/L 01+ASRM+PLUMES S1.2	1.250	180.000	10.000	9.000
(RC00C5)	△	IA613A.B/L 01+ASRM+PLUMES S1.2	1.250	999.000	10.000	5.000

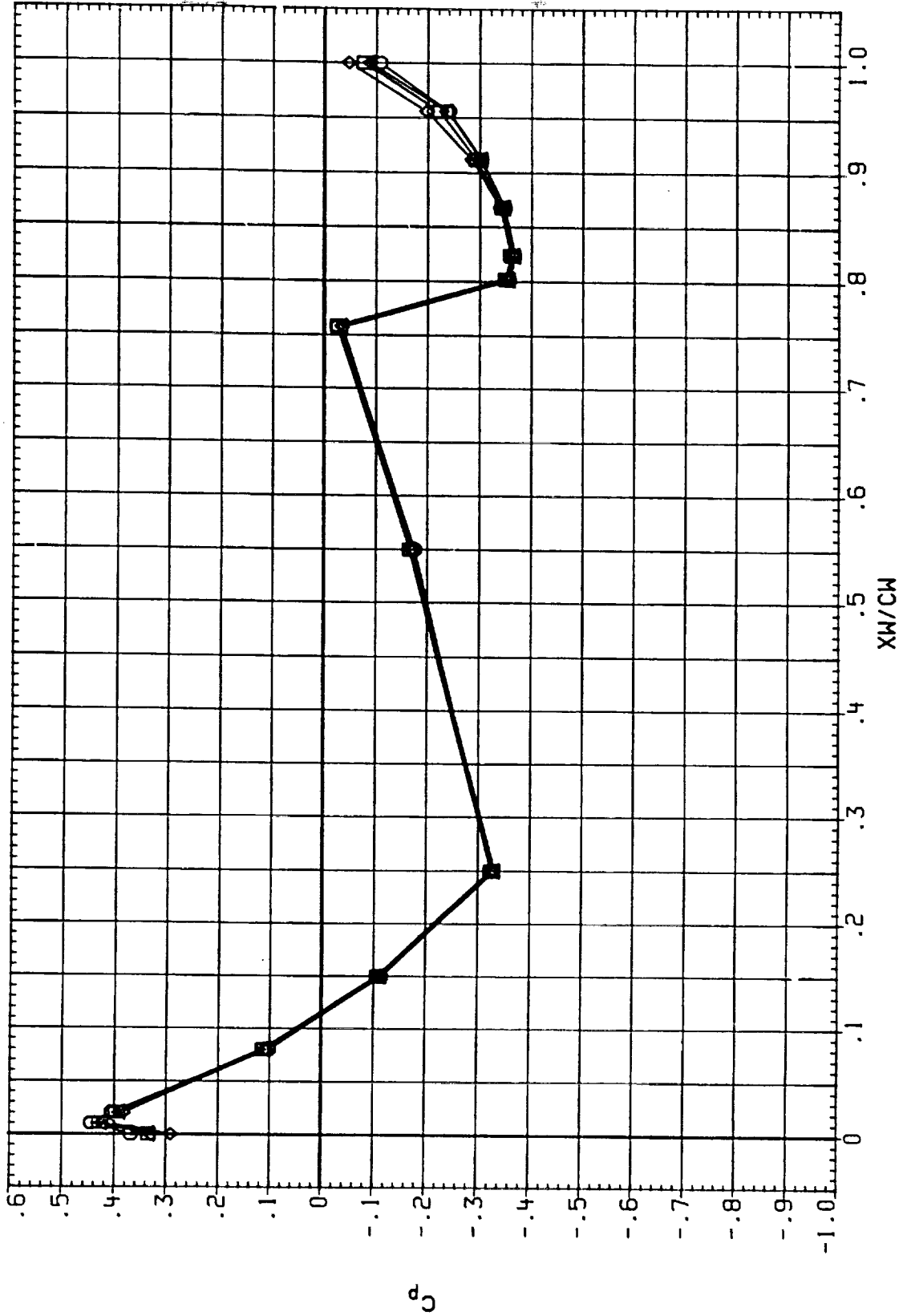


FIGURE 6 IA613A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER WING - UPPER SURFACE
 BETA = .000 ETA = .427 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RC0U221)	○	IAG13A.B/L OT*PSRM*PLUMES S1.2	1.250	.000	10.000	9.000
(RC0U491)	□	IAG13A.B/L OT*ASRM*PLUMES S1.2	1.250	.000	10.000	9.000
(RC0U871)	◇	IAG13A.B/L OT*ASRM*PLUMES S1.2	1.250	180.000	10.000	9.000
(RC0UC51)	△	IAG13A.B/L OT*ASRM*PLUMES S1.2	1.250	999.000	10.000	5.000

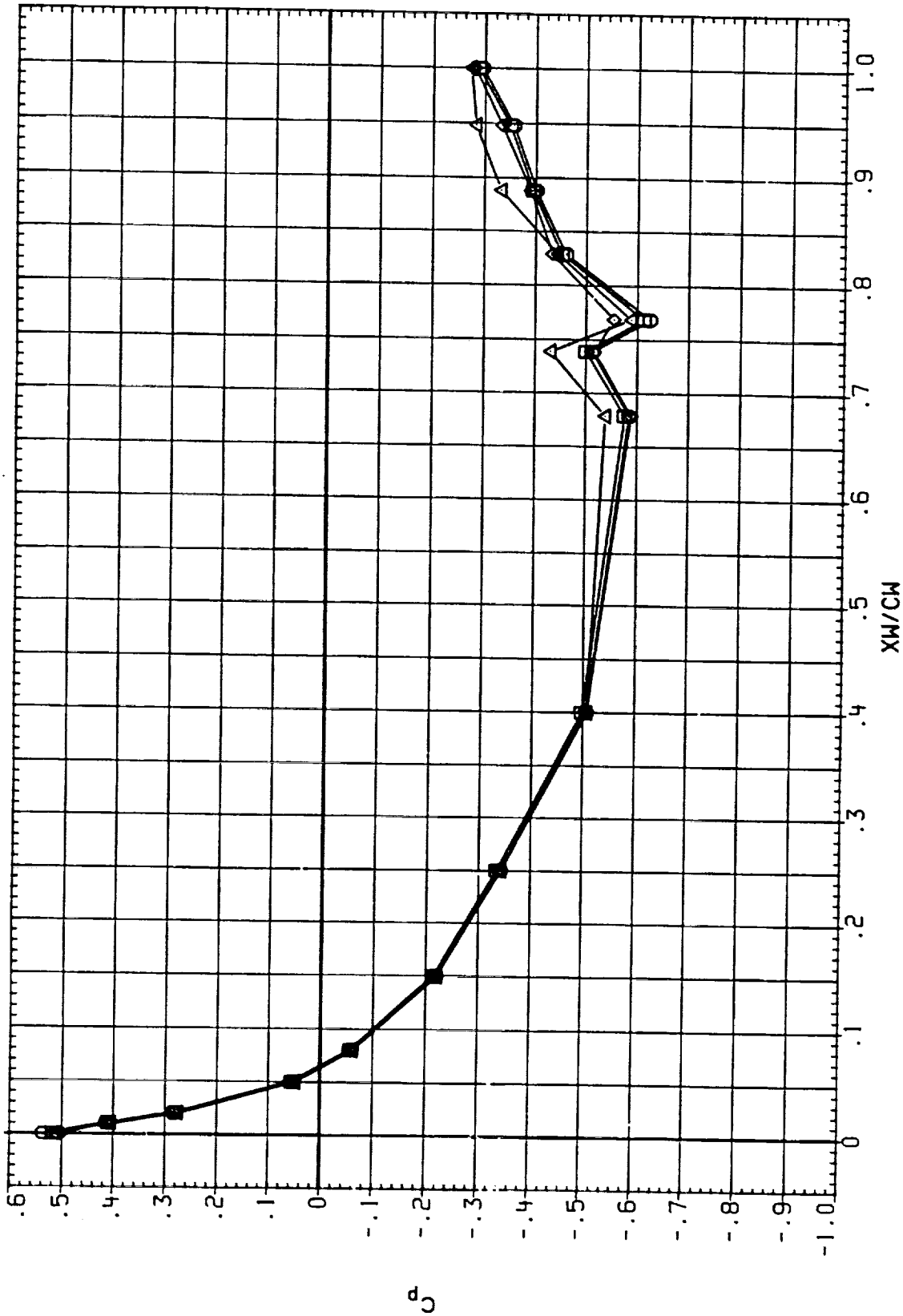


FIGURE 6 IAG13A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER WING - UPPER SURFACE
 BETA = .000 ETA = .811 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RC0U46)	○	IA613A .B/L OT+RSRM+PLUMES S1.2	1.300	.000	10.000	9.000
(RC0U54)	□	IA613A .B/L OT+ASRM+PLUMES S1.3	1.300	.000	10.000	5.000
(RC0U89)	◇	IA613A .B/L OT+ASRM+PLUMES S1.3	1.300	180.000	10.000	5.000
(RC0UC7)	△	IA613A .B/L OT+ASRM+PLUMES S1.3	1.300	999.000	10.000	5.000

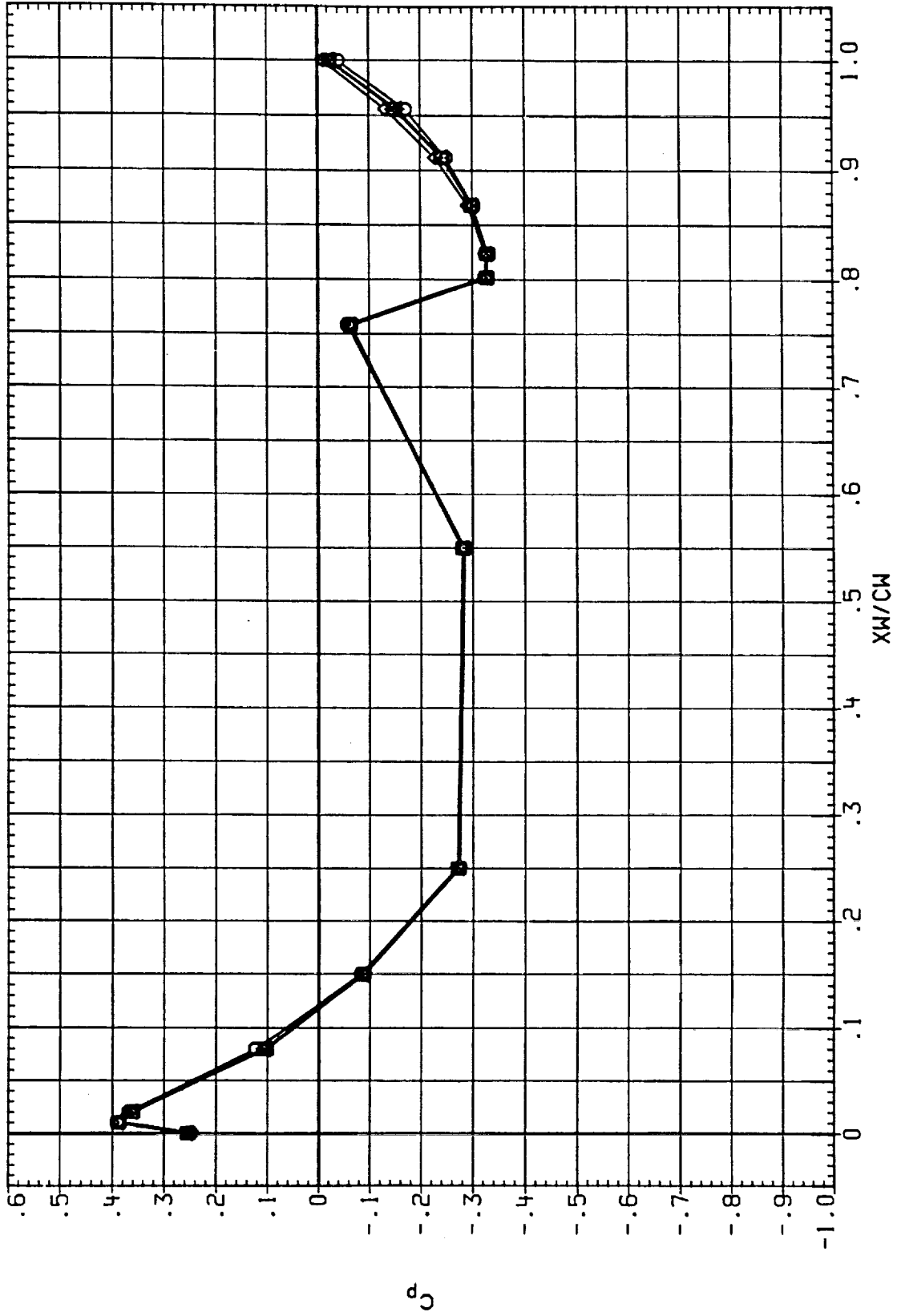


FIGURE 6 IA613A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER WING - UPPER SURFACE
 BETA = .000 ETA = .427 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RC0046)	○	IAG13A, B/L OT+ASRM+PLUMES S1.2	1.300	.000	10.000	9.000
(RC0054)	□	IAG13A, B/L OT+ASRM+PLUMES S1.3	1.300	.000	10.000	5.000
(RC0089)	◇	IAG13A, B/L OT+ASRM+PLUMES S1.3	1.300	180.000	10.000	5.000
(RC00C7)	△	IAG13A, B/L OT+ASRM+PLUMES S1.3	1.300	999.000	10.000	5.000

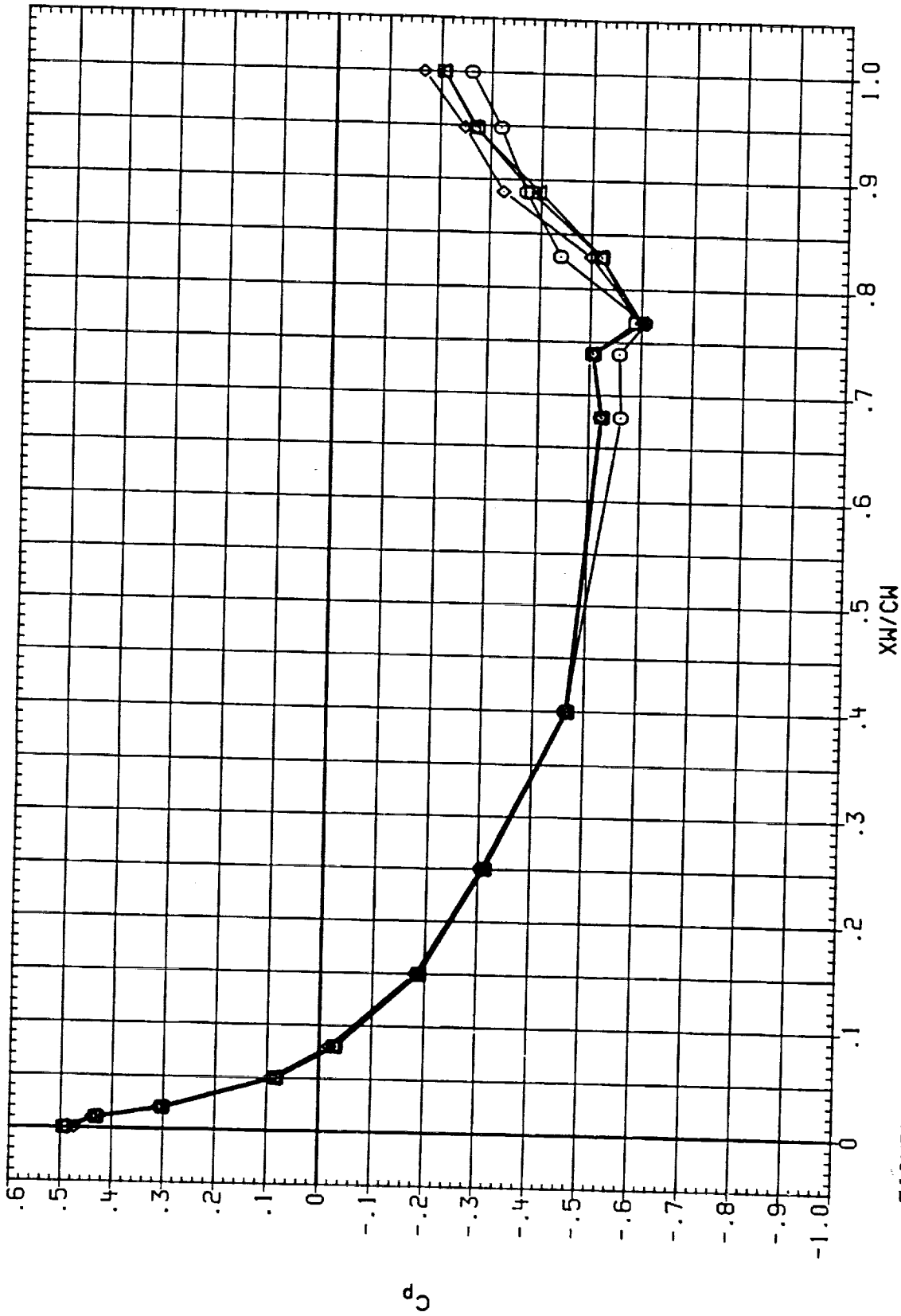


FIGURE 6 IAG13A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER WING - UPPER SURFACE
 BETA = .000 ETA = .811 ALPHA = .000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RC0UJ7)	IA613A, B/L 01+RSRM+PLUMES S1,2	1.350	.000	10.000	9.000
(RC0U55)	IA613A, B/L 01+ASRM+PLUMES S1,3	1.350	.000	10.000	5.000
(RC0U90)	IA613A, B/L 01+ASRM+PLUMES S1,3	1.350	180.000	10.000	5.000
(RC0UC8)	IA613A, B/L 01+ASRM+PLUMES S1,3	1.350	999.000	10.000	5.000

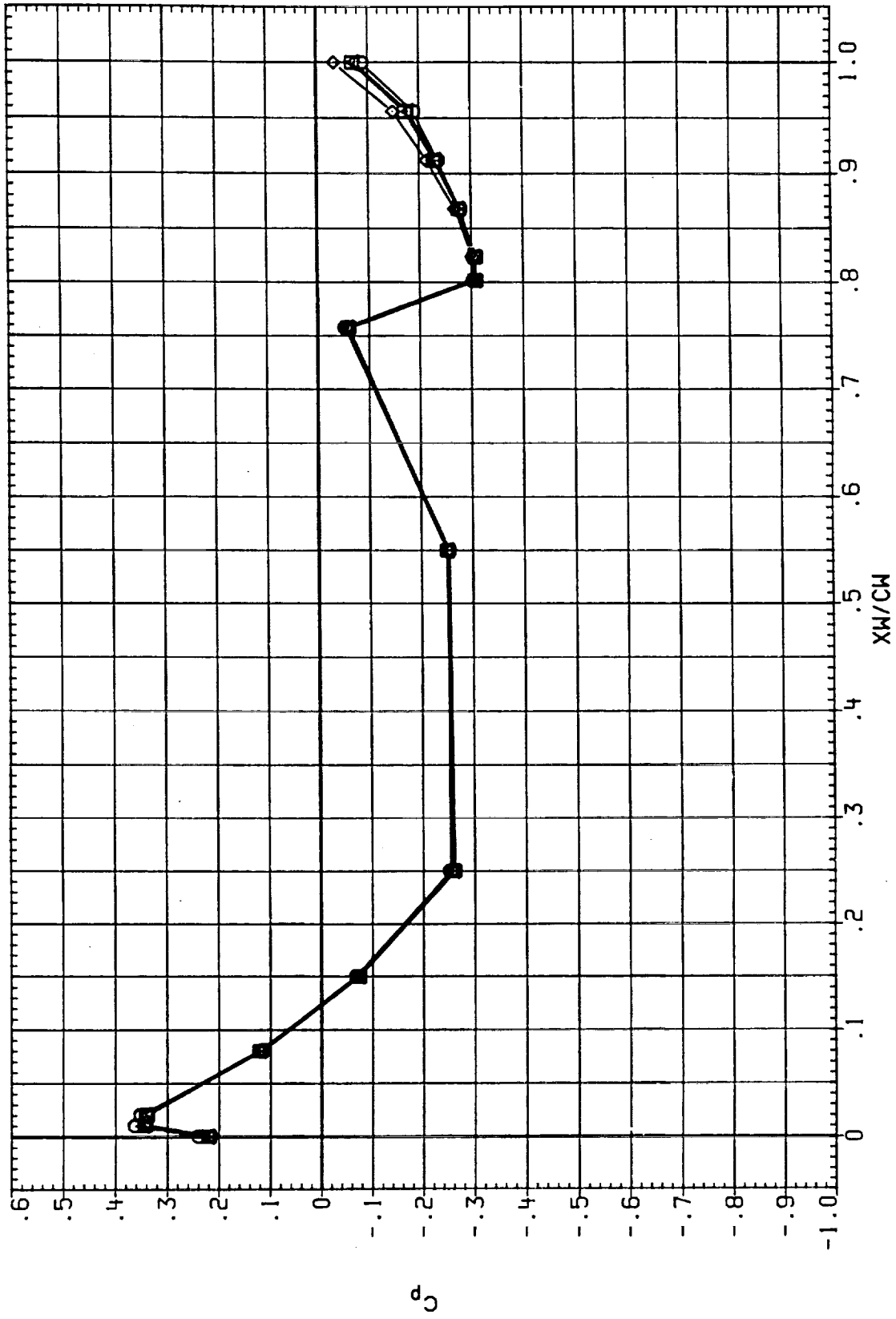


FIGURE 6 IA613A SELECTED PRESSURE DISTRIBUTIONS
ORBITER WING - UPPER SURFACE

BETA = .000 ETA = .427 ALPHA = .000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOUH7)	IA613A.B/L OT*RSRM*PLUNES S1.2	1.350	.000	10.000	9.000
(RCOU55)	IA613A.B/L OT*ASRM*PLUNES S1.3	1.350	.000	10.000	5.000
(RCOU90)	IA613A.B/L OT*ASRM*PLUNES S1.3	1.350	180.000	10.000	5.000
(RCCUC8)	IA613A.B/L OT*ASRM*PLUNES S1.3	1.350	999.000	10.000	5.000

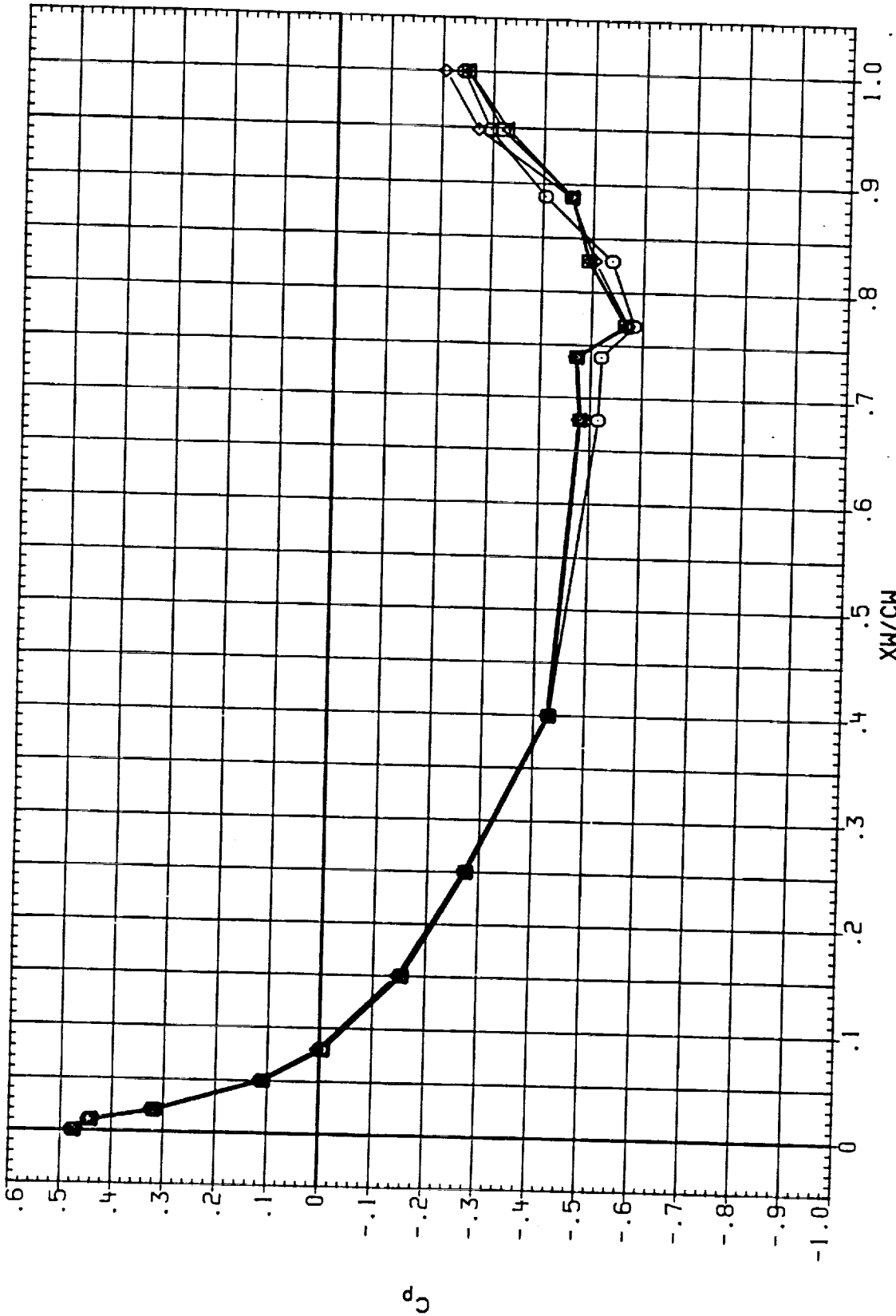


FIGURE 6 IA613A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER WING - UPPER SURFACE
 BETA = .000 ETA = .811 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELY	OB-ELY
(RC0U8)	○	I A613A, B/L 01+RSRH+PLUMES S1,2	1.400	.000	10.000	9.000
(RC0U56)	□	I A613A, B/L 01+ASRH+PLUMES S1,3	1.400	.000	10.000	5.000
(RC0U91)	◇	I A613A, B/L 01+ASRH+PLUMES S1,3	1.400	180.000	10.000	5.000
(RC0UC9)	△	I A613A, B/L 01+ASRH+PLUMES S1,3	1.400	999.000	10.000	5.000

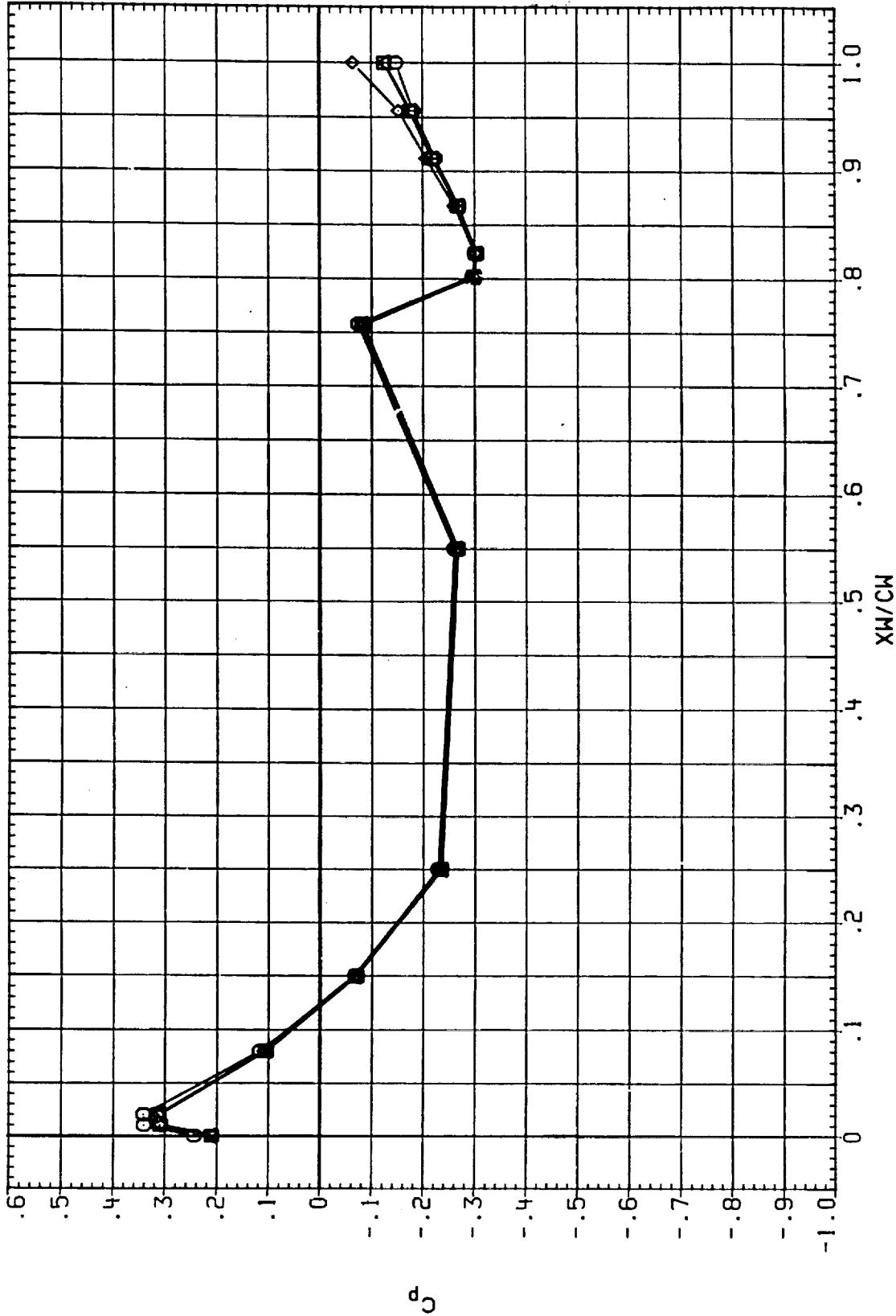


FIGURE 6 I A613A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER WING - UPPER SURFACE
 BETA = .000 ETA = .427 ALPHA = .000

DATA SET SYMBOL

CONFIGURATION DESCRIPTION

IA613A.B/L OT*ASRM*PLUMES S1.2 -L.H. WING UPPER
 IA613A.B/L OT*ASRM*PLUMES S1.3 -L.H. WING UPPER
 IA613A.B/L OT*ASRM*PLUMES S1.3 -L.H. WING UPPER
 IA613A.B/L OT*ASRM*PLUMES S1.3 -L.H. WING UPPER

MACH IEABOX IB-ELY OB-ELY
 1.400 .000 10.000 9.000
 1.400 .000 10.000 5.000
 1.400 .000 10.000 5.000
 1.400 .000 10.000 5.000

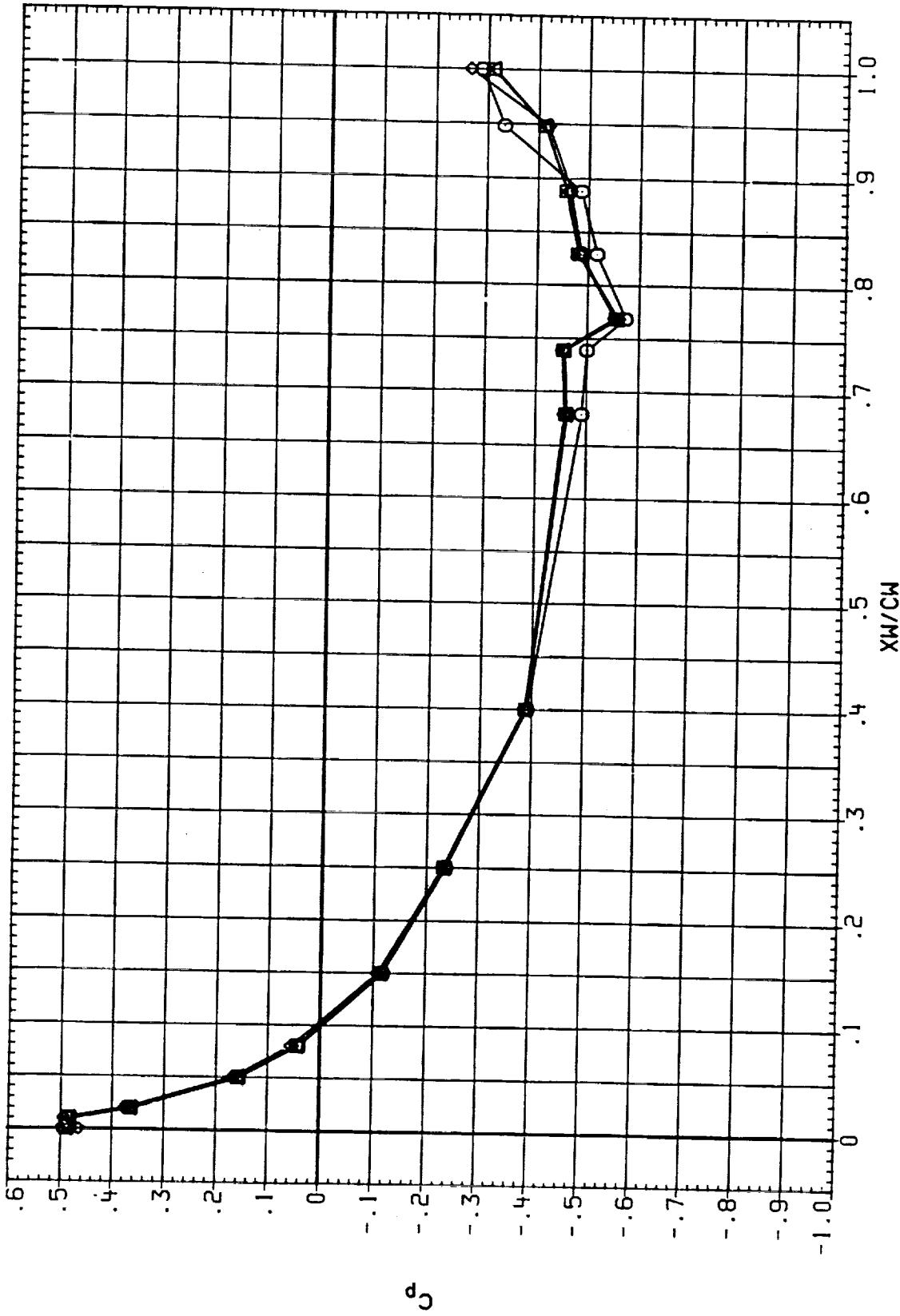


FIGURE 6 IA613A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER WING - UPPER SURFACE
 BETA = .000 ETA = .811 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
TRCOU91	○	IA613A, B/L OT+RSRH+PLUMES S1.2	1.550	.000	10.000	9.000
TRCOU571	○	IA613A, B/L OT+ASRH+PLUMES S1.3	1.550	.000	10.000	5.000
TRCOU921	◇	IA613A, B/L OT+ASRH+PLUMES S1.3	1.550	180.000	10.000	5.000
TRCOU001	△	IA613A, B/L OT+ASRH+PLUMES S1.3	1.550	999.000	10.000	5.000

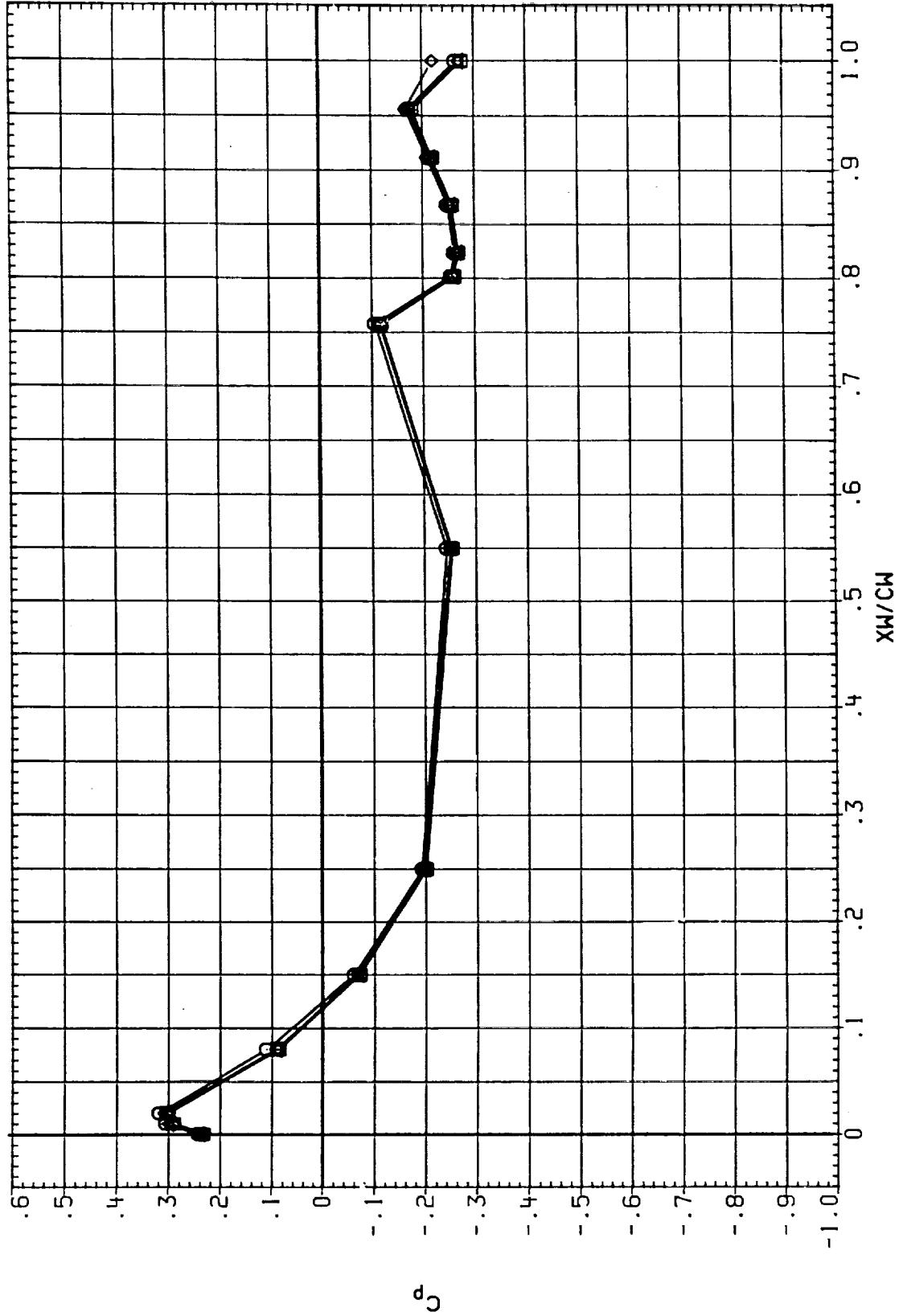


FIGURE 6 IA613A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER WING - UPPER SURFACE
 BETA = .000 ETA = .427 ALPHA = .000

DATA SET SYMBOL
 (RCOU91)
 (RCOU57)
 (RCOU92)
 (RCOU00)

CONFIGURATION DESCRIPTION
 IAG13A.B/L OT*ASRM*PLUMES S1.2
 IAG13A.B/L OT*ASRM*PLUMES S1.3
 IAG13A.B/L OT*ASRM*PLUMES S1.3
 IAG13A.B/L OT*ASRM*PLUMES S1.3

-L.H. HING UPPER
 -L.H. HING UPPER
 -L.H. HING UPPER
 -L.H. HING UPPER

MACH IEABOX IB-ELV OB-ELV
 1.550 .000 10.000 9.000
 1.550 .000 10.000 5.000
 1.550 180.000 10.000 5.000
 1.550 939.000 10.000 5.000

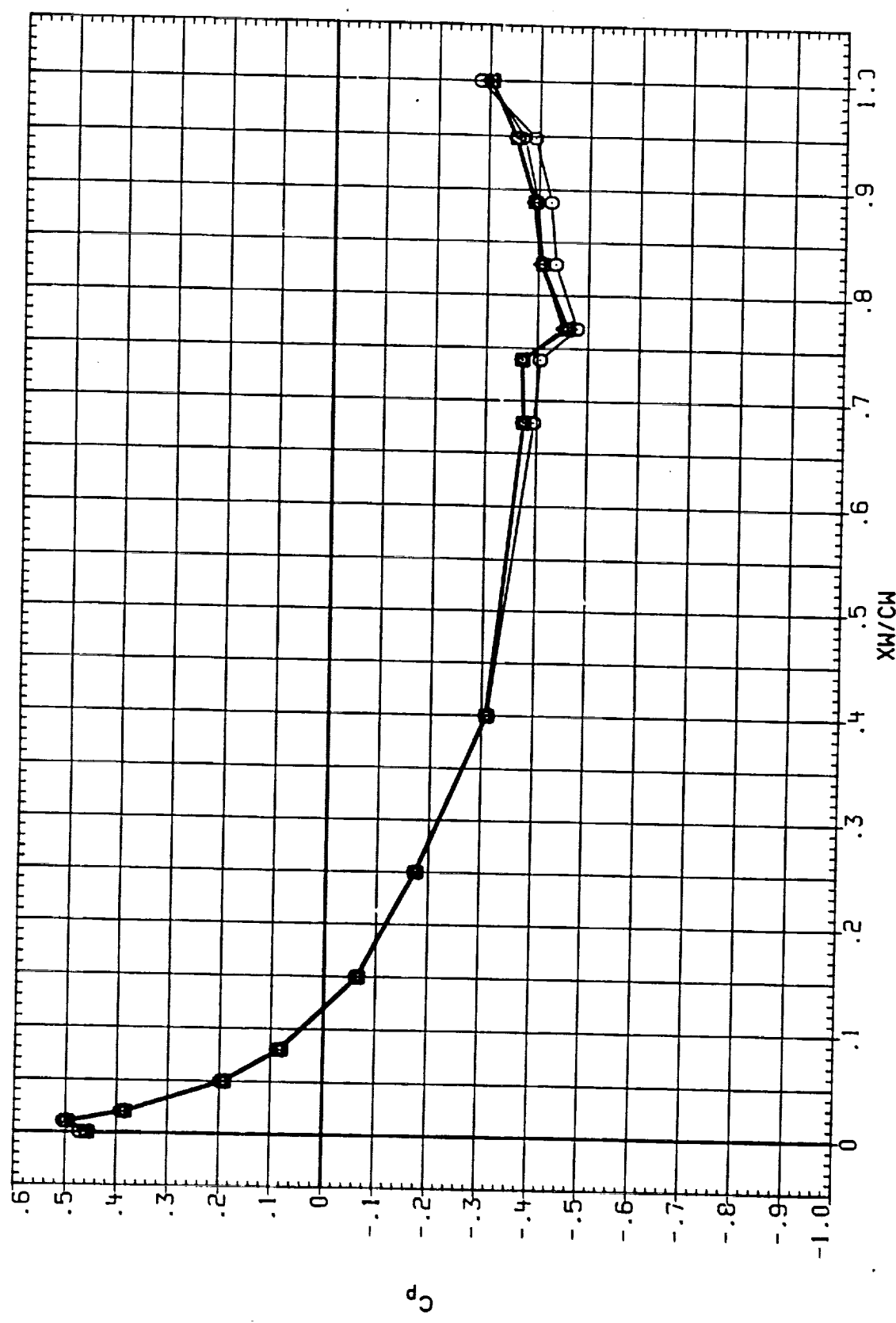


FIGURE 6 IAG13A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER WING - UPPER SURFACE
 BETA = .000 ETA = .811 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOL151)	○	IA613A, B/L 01+RSRH+PLUMES S1.2	.600	.000	10.000	9.000
(RCOL421)	◇	IA613A, B/L 01+ASRH+PLUMES S1.2	.600	.000	10.000	9.000
(RCOL80)	◇	IA613A, B/L 01+ASRH+PLUMES S1.2	.600	180.000	10.000	9.000
(RCOLC11)	△	IA613A, B/L 01+ASRH+PLUMES S1.2	.600	999.000	10.000	5.000

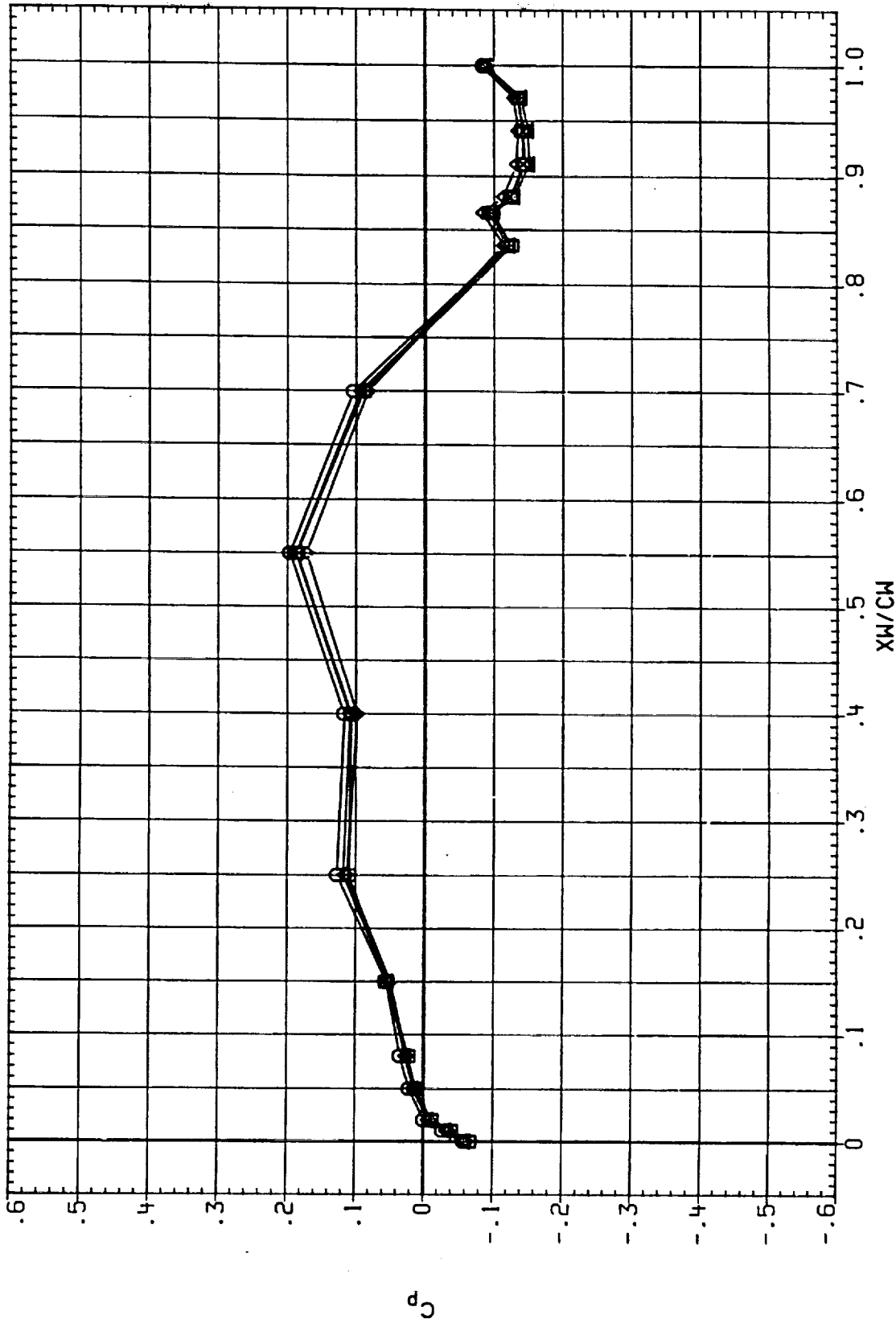


FIGURE 7 IA613A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER WING - LOWER SURFACE
 BETA = .000 ETA = .299 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOL15)	○	IA613A, B/L OT+RSRM+PLUMES S1.2	.600	.000	10.000	9.000
(RCOL42)	□	IA613A, B/L OT+ASRH+PLUMES S1.2	.600	.000	10.000	9.000
(RCOL80)	◇	IA613A, B/L OT+ASRH+PLUMES S1.2	.600	180.000	10.000	9.000
(RCOLC1)	△	IA613A, B/L OT+ASRH+PLUMES S1.2	.600	999.000	10.000	5.000

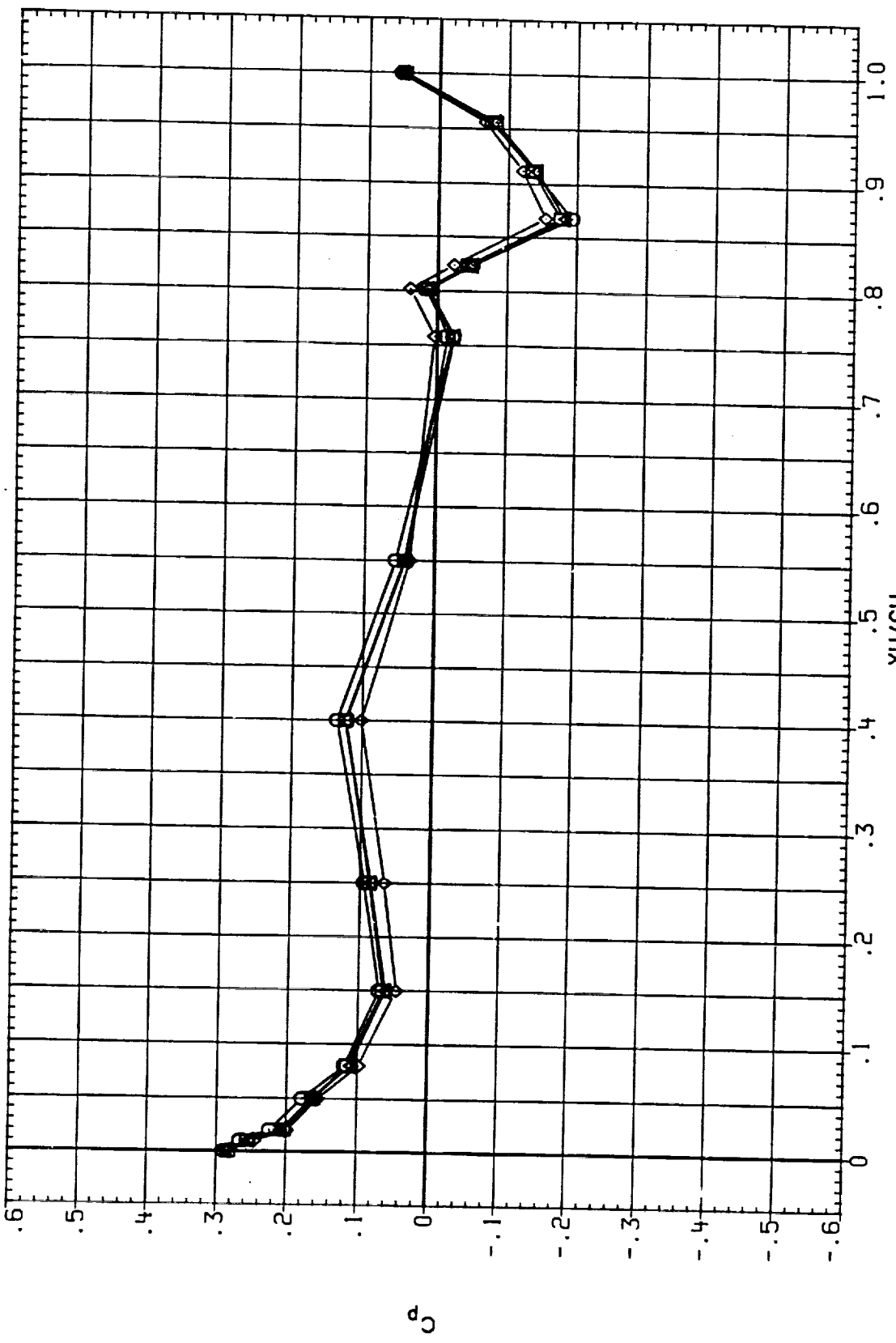


FIGURE 7 IA613A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER WING - LOWER SURFACE
 BETA = .000 ETA = .427 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOL15)	○	IA613A.B/L OT*PSRM*PLUMES S1.2 -L.H. HING LOWER	.600	.000	10.000	9.000
(RCOL12)	◇	IA613A.B/L OT*ASRM*PLUMES S1.2 -L.H. HING LOWER	.600	.000	10.000	9.000
(RCOL80)	□	IA613A.B/L OT*ASRM*PLUMES S1.2 -L.H. HING LOWER	.600	180.000	10.000	9.000
(RCOLC1)	△	IA613A.B/L OT*ASRM*PLUMES S1.2 -L.H. HING LOWER	.600	999.000	10.000	5.000

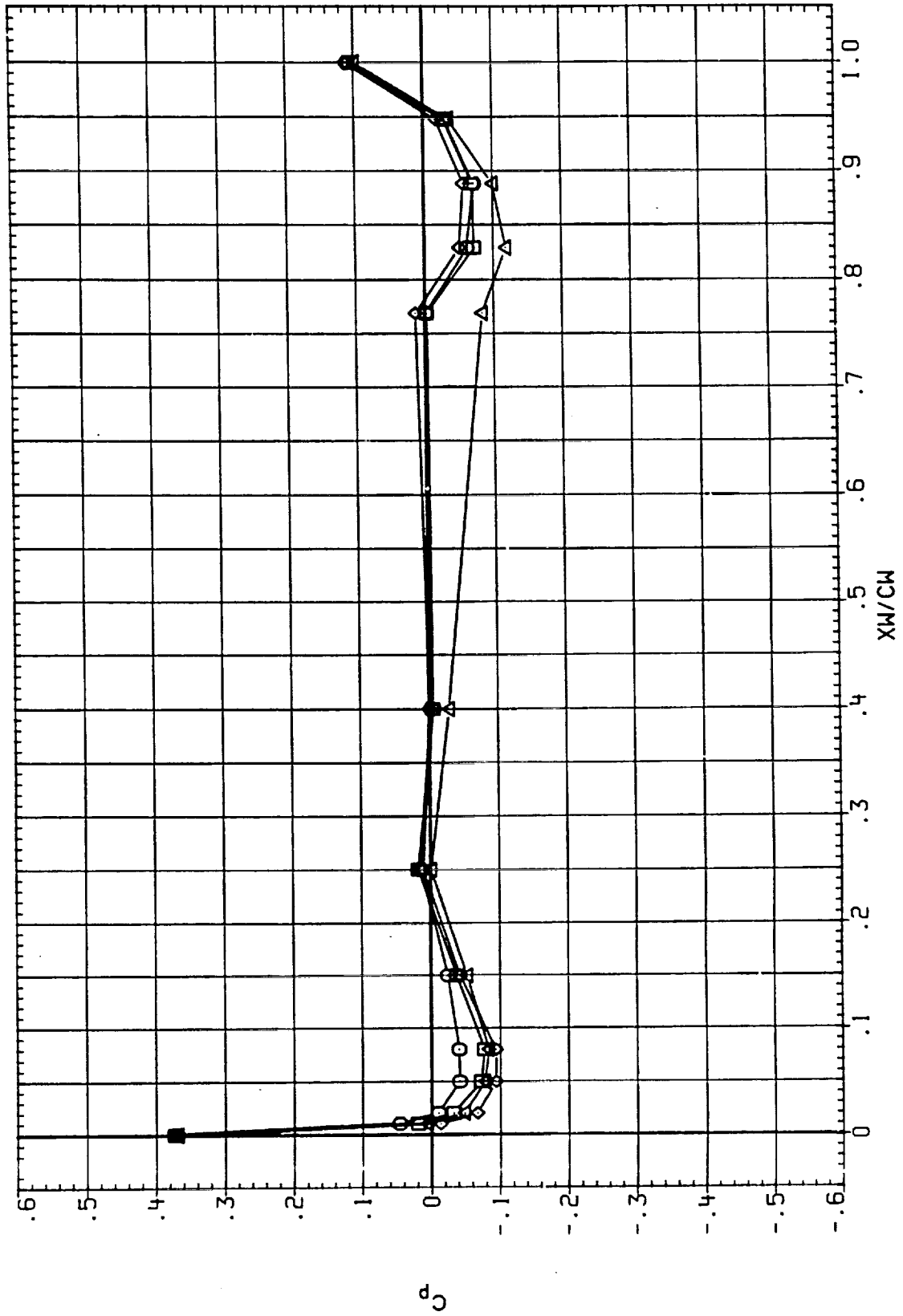


FIGURE 7 IA613A SELECTED PRESSURE DISTRIBUTIONS
ORBITER WING - LOWER SURFACE

BETA = .000 ETA = .811 ALPHA = .000

DATA SET SYMBOL:
 (RCOL16)
 (RCOL43)
 (RCOL81)

CONFIGURATION DESCRIPTION

IA613A, B/L OI+RSRH+PLUMES S1.2 -L.H. HING LOWER
 IA613A, B/L OI+ASRM+PLUMES S1.2 -L.H. HING LOWER
 IA613A, B/L OI+ASRM+PLUMES S1.2 -L.H. HING LOWER

MACH
 .800
 .800
 .800

IEABOX
 .000
 .000
 180.000

IR-ELV
 10.000
 10.000
 10.000

OB-ELV
 9.000
 9.000
 9.000

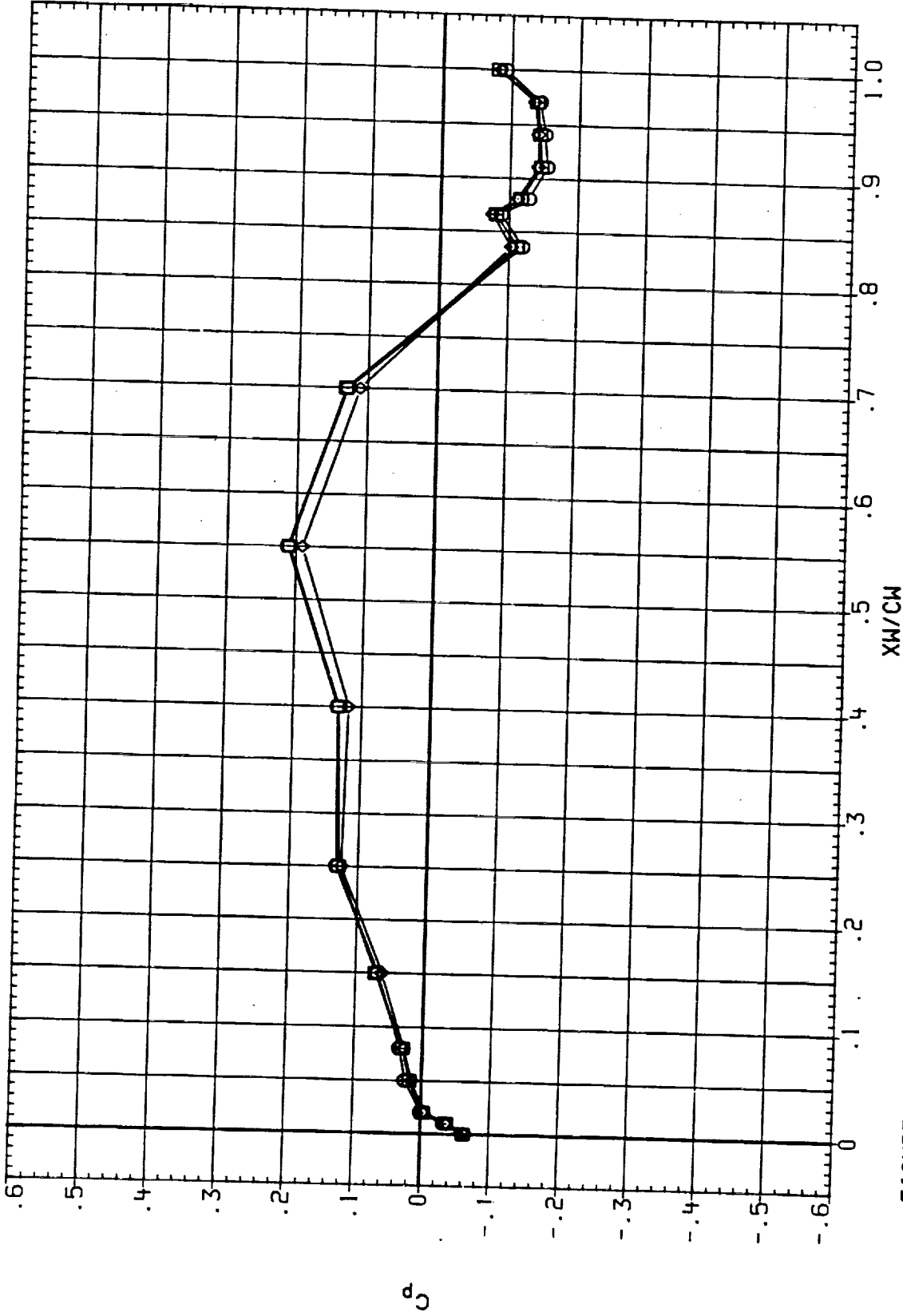


FIGURE 7 IA613A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER WING - LOWER SURFACE
 BETA = .000 ETA = .299 ALPHA = .000

DATA SET SYMBOL: CONFIGURATION DESCRIPTION MACH IEABOX IB-ELY OB-ELY

(RCOL16) IAG13A.B/L OT+RSRH+PLUMES S1.2 .800 .000 10.000 9.000

(RCOL47) IAG13A.B/L OT+ASRH+PLUMES S1.2 .800 .000 10.000 9.000

(RCOL81) IAG13A.B/L OT+ASRH+PLUMES S1.2 .800 180.000 10.000 9.000

-L.H. HING LOWER
-L.H. HING LOWER
-L.H. HING LOWER

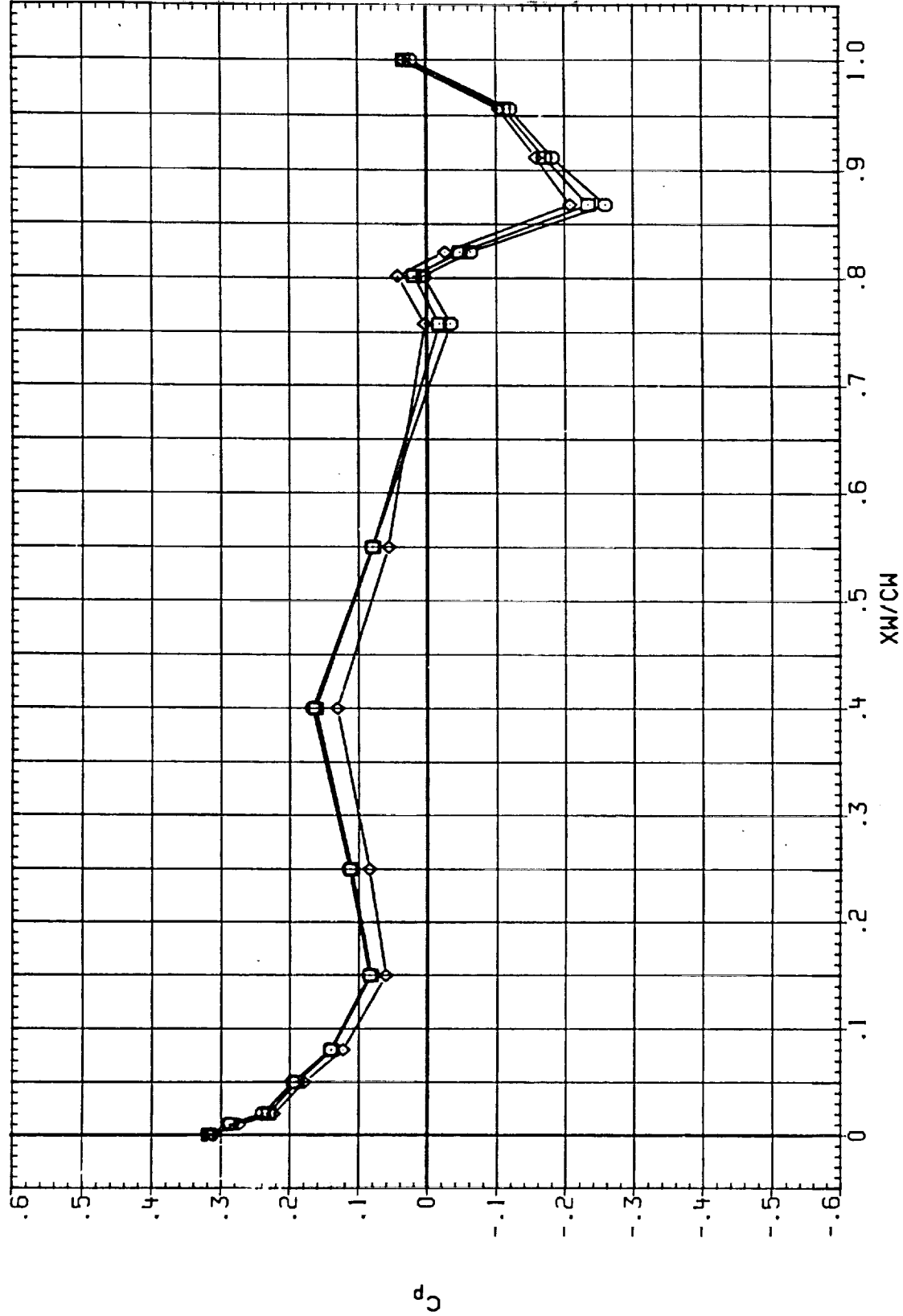


FIGURE 7 IAG13A SELECTED PRESSURE DISTRIBUTIONS
ORBITER WING - LOWER SURFACE
ETA = .000 ALPHA = .427

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOL161)	IAG13A, B/L O1+RSRM+PLUMES S1.2	.800	.000	10.000	9.000
(RCOL43)	IAG13A, B/L O1+ASRM+PLUMES S1.2	.800	.000	10.000	9.000
(RCOL81)	IAG13A, B/L O1+ASRM+PLUMES S1.2	.800	180.000	10.000	9.000

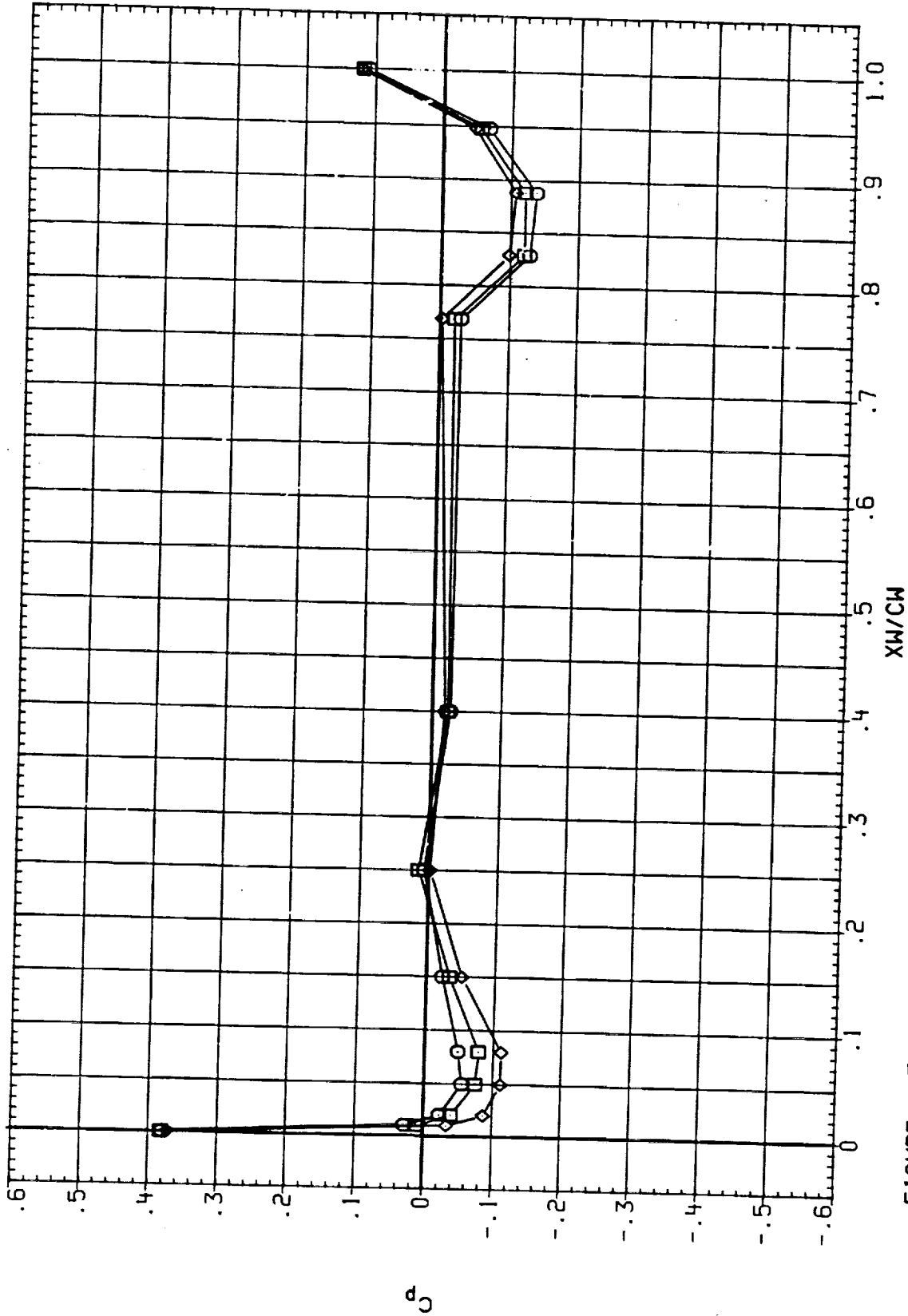


FIGURE 7 IAG13A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER WING - LOWER SURFACE
 BETA = .000 ETA = .811 ALPHA = .000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOL17)	IA613A,B/L OT*PSRM*PLUMES S1,2	.900	.000	10.000	9.000
(RCOL44)	IA613A,B/L OT*ASRM*PLUMES S1,2	.900	.000	10.000	9.000
(RCOL82)	IA613A,B/L OT*ASRM*PLUMES S1,2	.900	180.000	10.000	9.000
(RCOLC2)	IA613A,B/L OT*ASRM*PLUMES S1,2	.900	999.000	10.000	5.000

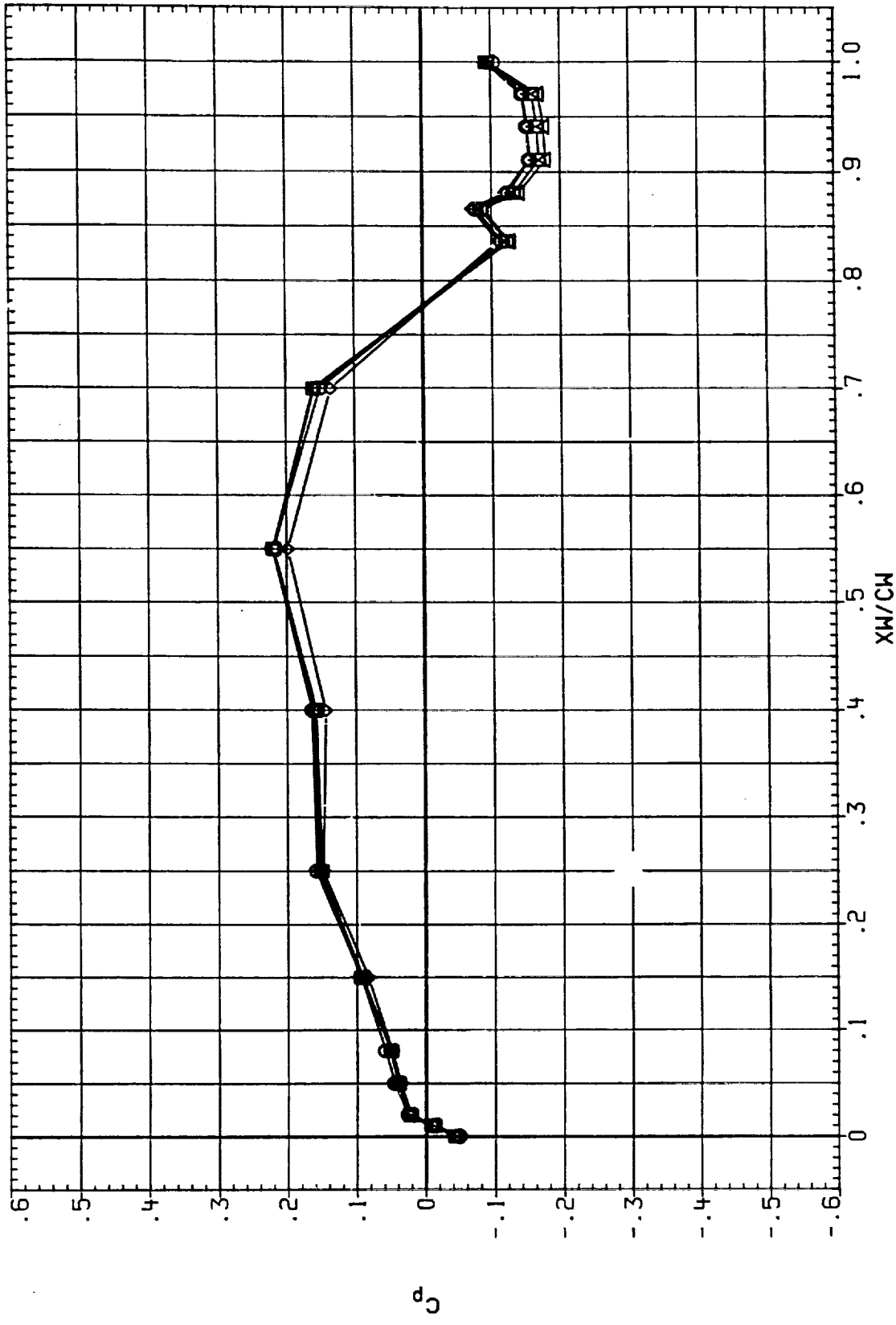


FIGURE 7 IA613A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER WING - LOWER SURFACE
 BETA = .000 ETA = .299 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELY	OB-ELY
(RCOL17)	○	IAG13A .B/L OT+ASRM+PLUNES S1.2	.900	.000	10.000	9.000
(RCOL44)	□	IAG13A .B/L OT+ASRM+PLUNES S1.2	.900	.000	10.000	9.000
(RCOL93)	◇	IAG13A .B/L OT+ASRM+PLUNES S1.2	.900	180.000	10.000	9.000
(RCOLC2)	△	IAG13A .B/L OT+ASRM+PLUNES S1.2	.900	999.000	10.000	5.000

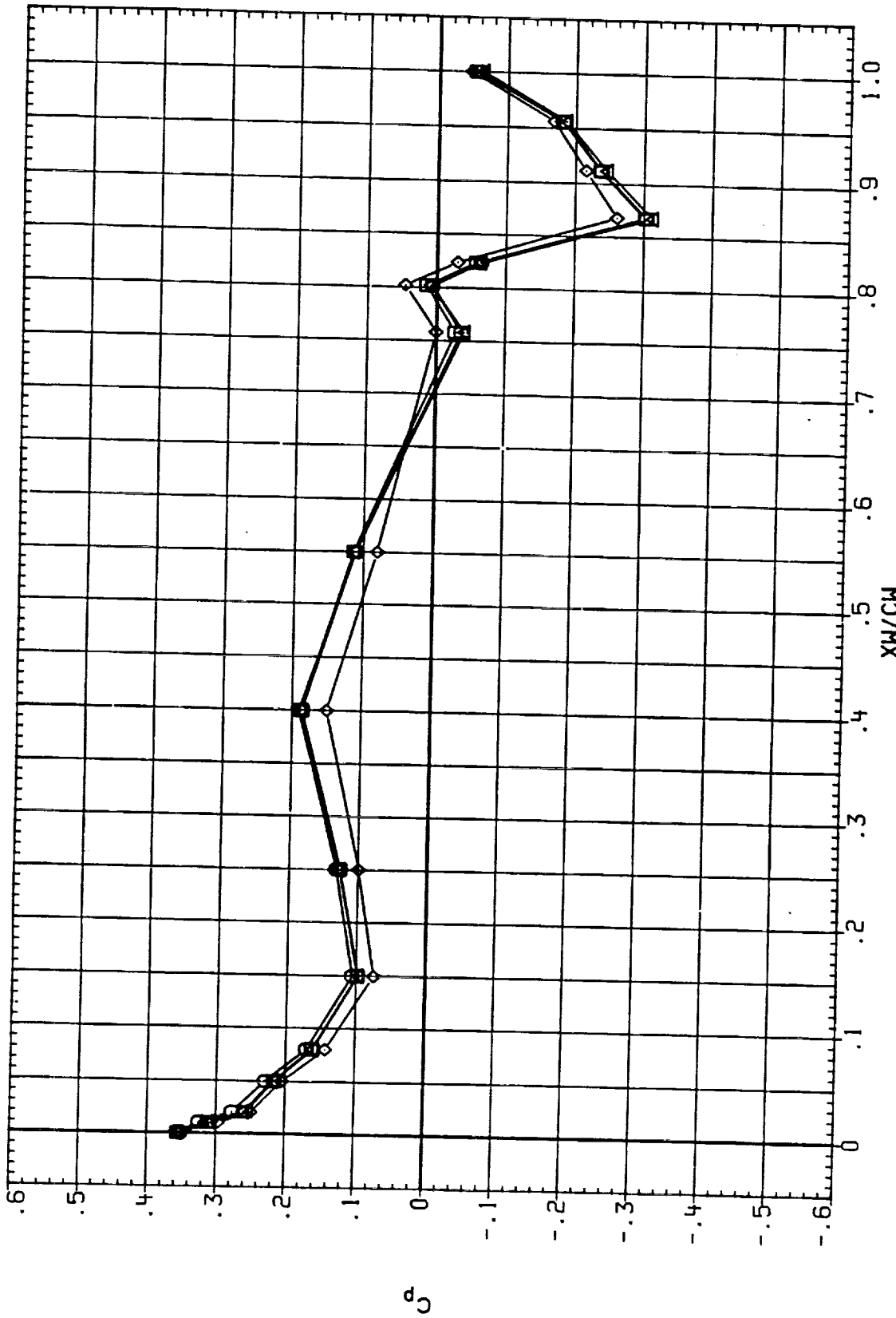


FIGURE 7 IAG13A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER WING - LOWER SURFACE
 BETA = .000 ETA = .427 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOL17)	○	IA613A, B/L 01+RSRH+PLUMES S1.2	.900	.000	10.000	3.000
(RCOL44)	○	IA613A, B/L 01+ASRH+PLUMES S1.2	.900	.000	10.000	9.000
(RCOL82)	◇	IA613A, B/L 01+ASRH+PLUMES S1.2	.900	180.000	10.000	9.000
(RCOLC2)	△	IA613A, B/L 01+ASRH+PLUMES S1.2	.900	999.000	10.000	5.000

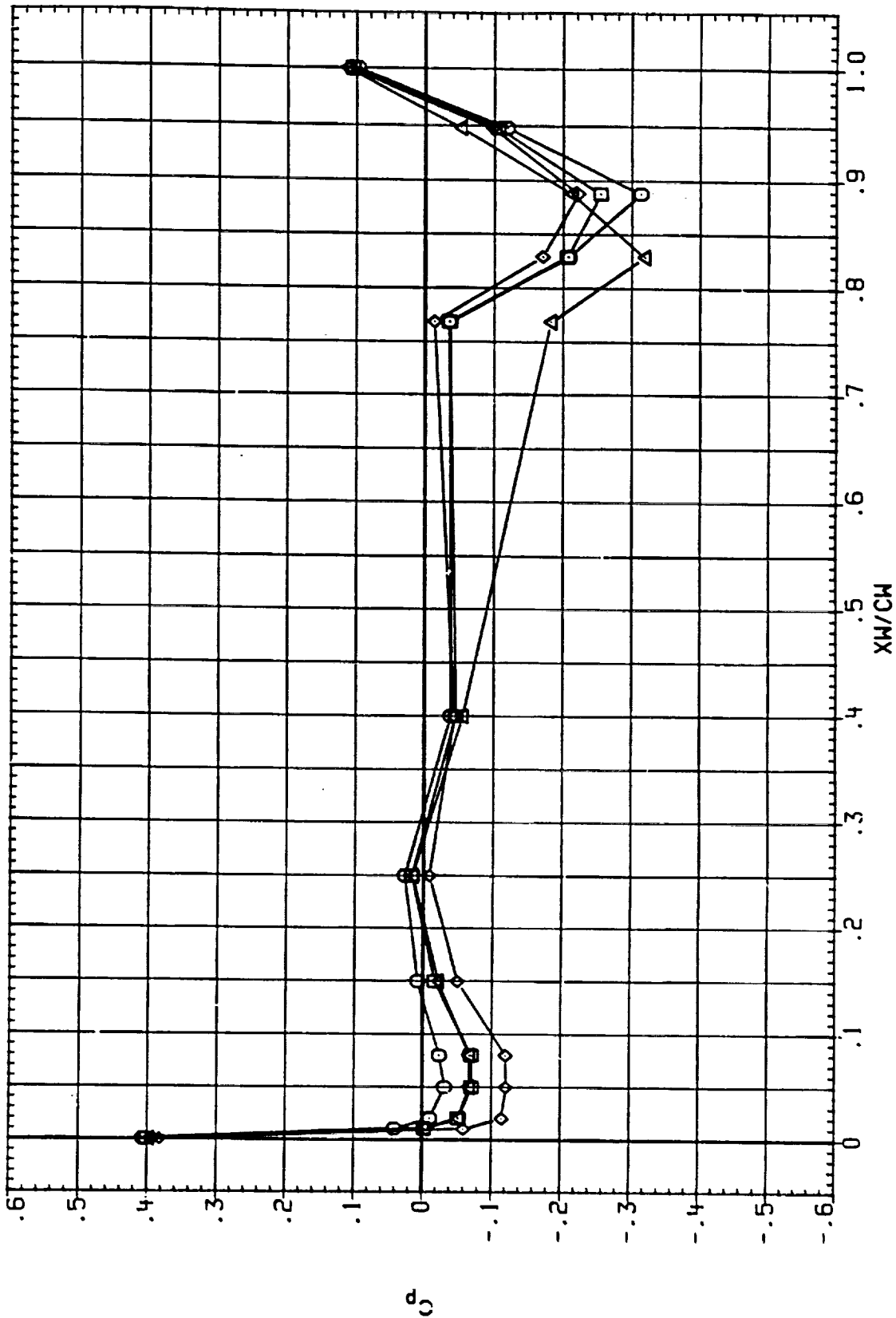


FIGURE 7 IA613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 ETA = .811 ALPHA = .000

DATA SET SYMBOL CONFIGURATION DESCRIPTION

(RCOL181)	○	IA613A, B/L OI+RSRH+PLUMES S1.2	-L.H. WING LOWER	MAC-1	IEABOX	IB-ELV	OB-ELV
(RCOL451)	□	IA613A, B/L OI+ASRH+PLUMES S1.2	-L.H. WING LOWER	.950	.000	10.000	9.000
(RCOL83)	◇	IA613A, B/L OI+ASRH+PLUMES S1.2	-L.H. WING LOWER	.950	180.000	10.000	9.000

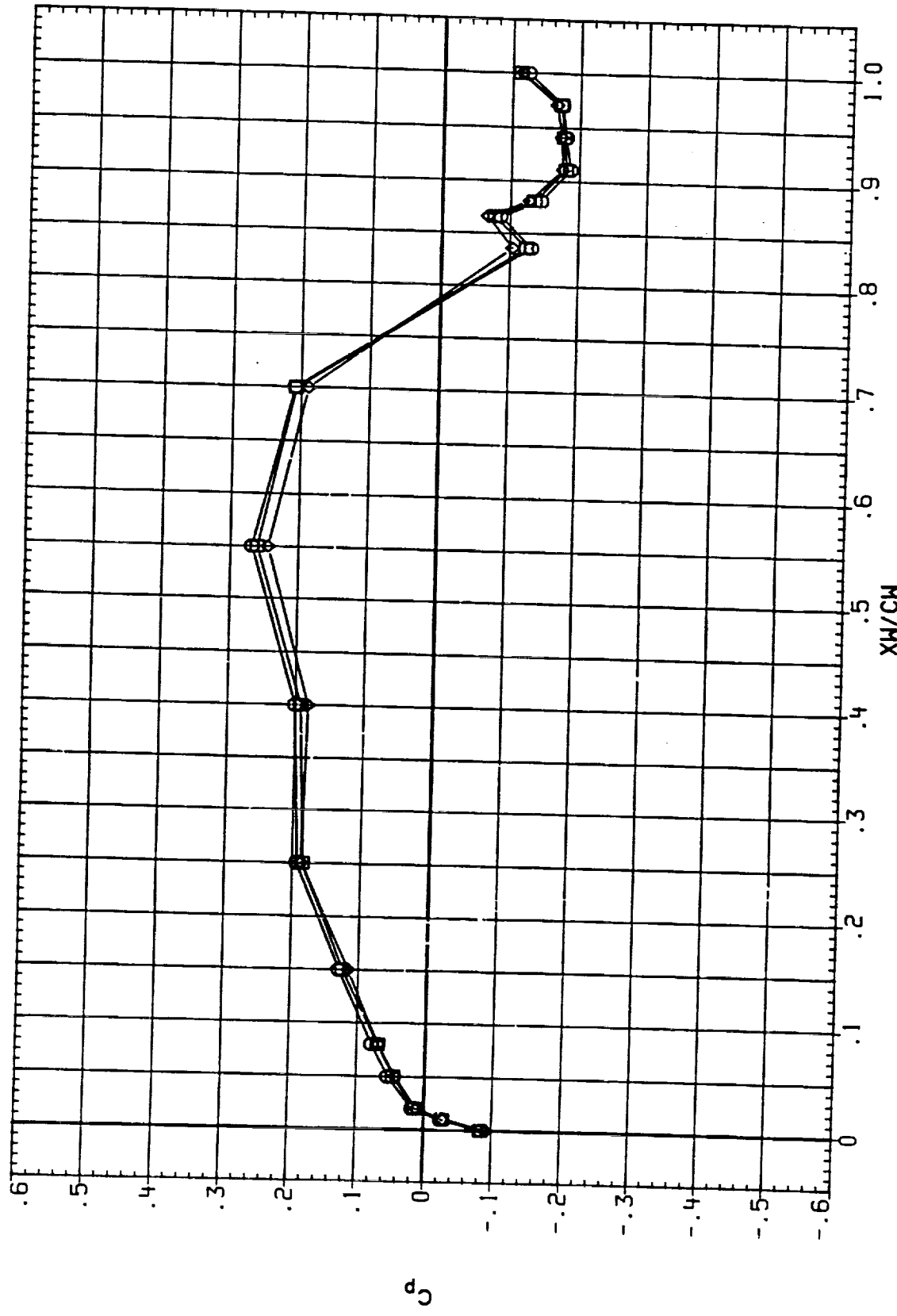


FIGURE 7 IA613A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER WING - LOWER SURFACE
 BETA = .000 ETA = .299 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELY	OB-ELY
(RCOL181)	○	IAG13A.B/L OT+RSRH+PLUMES S1.2	.950	.000	10.000	9.000
(RCOL451)	□	IAG13A.B/L OT+ASRH+PLUMES S1.2	.950	.000	10.000	9.000
(RCOL831)	◇	IAG13A.B/L OT+ASRH+PLUMES S1.2	.950	180.000	10.000	9.000

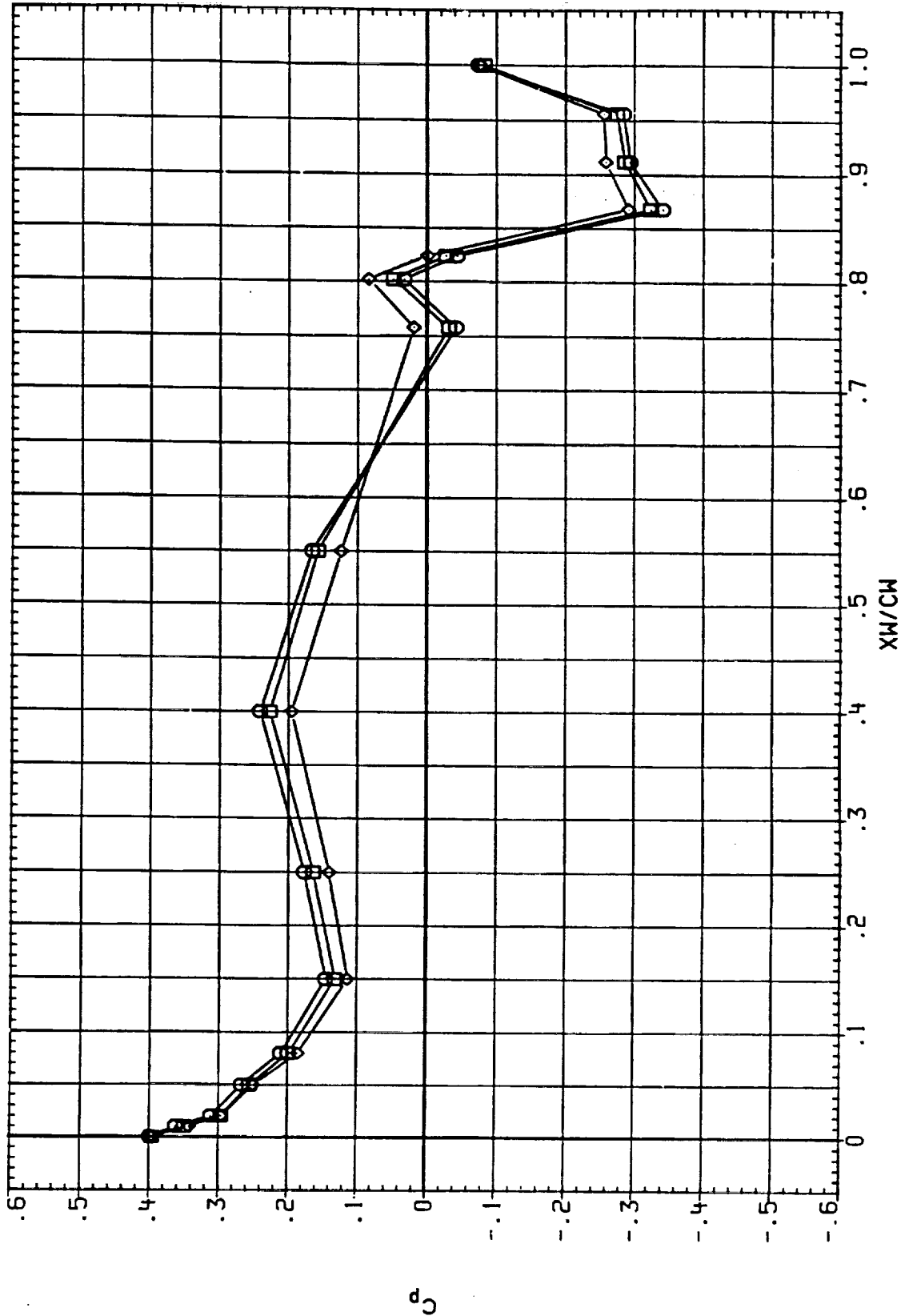


FIGURE 7 IAG13A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER WING - LOWER SURFACE
 BETA = .000 ETA = .427 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOL181)	○	IA613A, B/L 01, RSRM, PLUMES S1.2	.950	.000	10.000	9.000
(RCOL451)	□	IA613A, B/L 01, ASRM, PLUMES S1.2	.950	.000	10.000	9.000
(RCOL831)	◇	IA613A, B/L 01, ASRM, PLUMES S1.2	.950	180.000	10.000	9.000

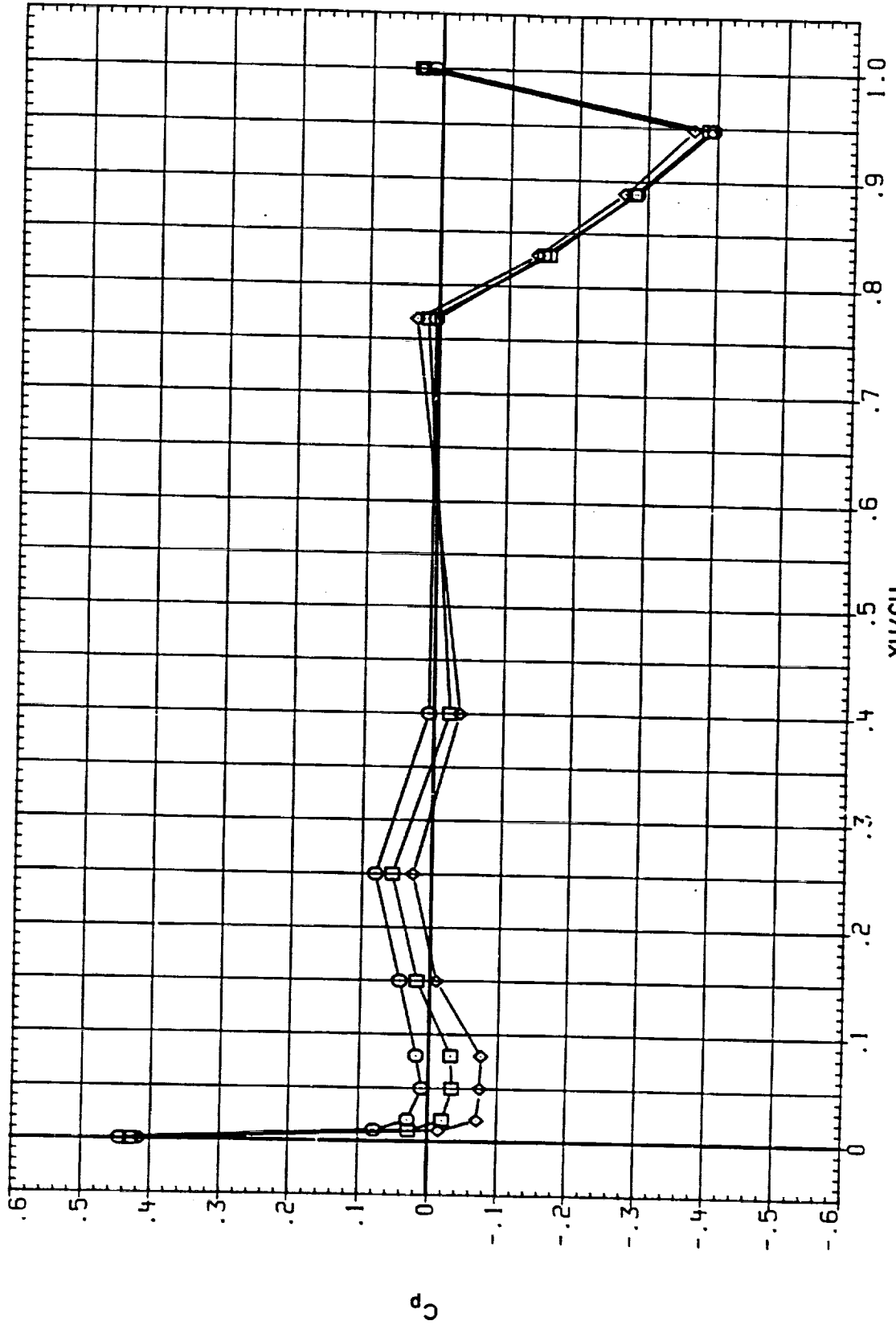


FIGURE 7 IA613A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER WING - LOWER SURFACE
 BETA = .000 ETA = .811 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	ICABOX	IB-ELV	OB-ELV
(RCOL19)	○	IA613A.B/L OT.PSRM.PLUMES S1.2	1.050	.000	10.000	9.000
(RCOL46)	□	IA613A.B/L OT.ASRM.PLUMES S1.2	1.050	.000	10.000	9.000
(RCOL84)	◇	IA613A.B/L OT.ASRM.PLUMES S1.2	1.050	180.000	10.000	9.000

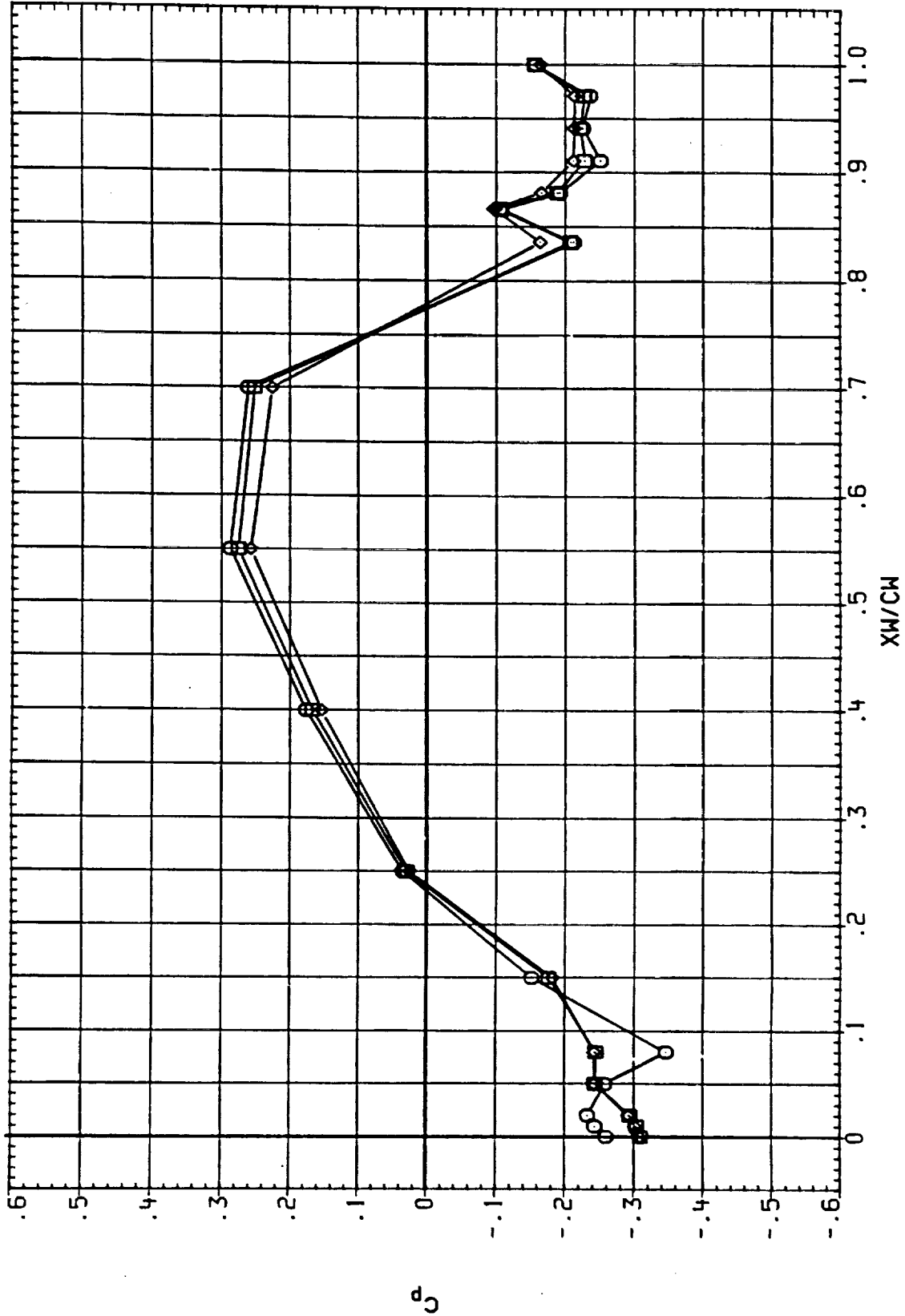


FIGURE 7 IA613A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER WING - LOWER SURFACE
 BETA = .000 ETA = .299 ALPHA = .000

DATA SET SYMBOL

CONFIGURATION DESCRIPTION

L.H. HING LOWER

MACH

IEABOX

IB-ELY

OB-ELY

9.000

10.000

10.000

10.000

180.000

1.050

1.050

1.050

1.050

1.050

1.050

1.050

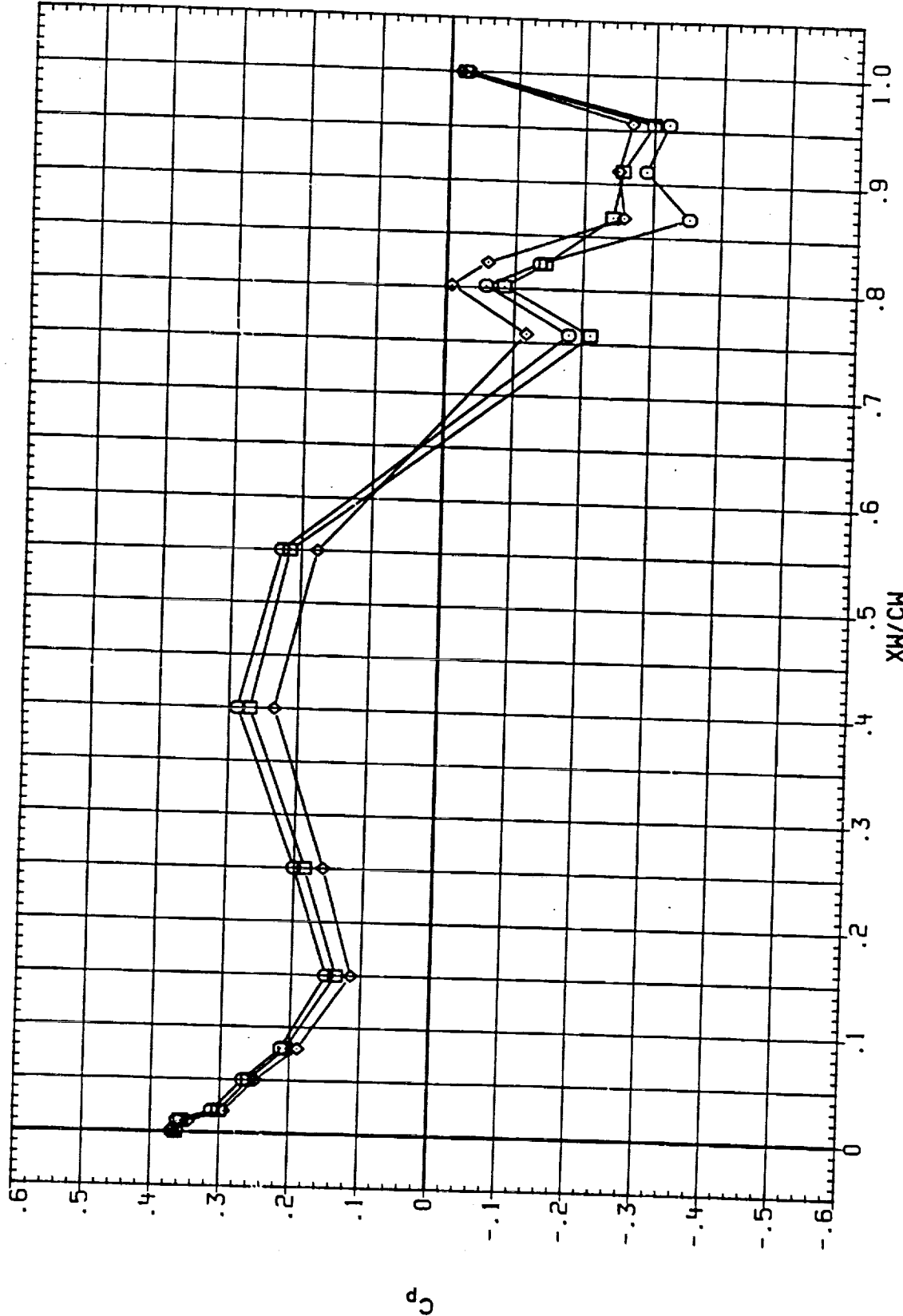


FIGURE 7 IA613A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER WING - LOWER SURFACE
 ALPHA = .427

BETA = .000

ETA = .000

ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOL19)	○	IA613A,B/L OT+RSRM+PLUMES S1.2 -L.H. HING LOWER	1.050	.000	10.000	9.000
(RCOL46)	□	IA613A,B/L OT+ASRM+PLUMES S1.2 -L.H. HING LOWER	1.050	.000	10.000	9.000
(RCOL81)	◇	IA613A,B/L OT+ASRM+PLUMES S1.2 -L.H. HING LOWER	1.050	180.000	10.000	9.000

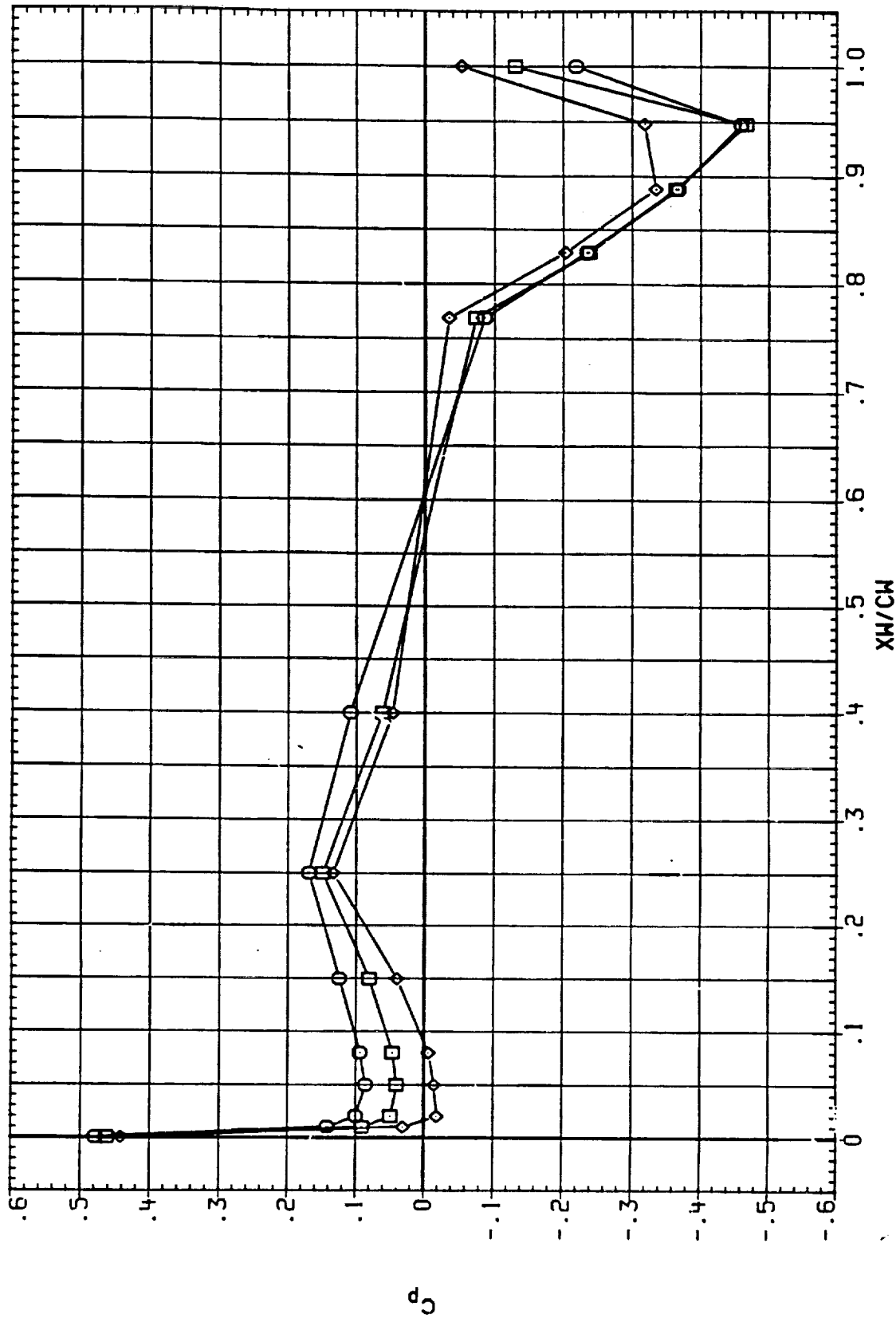


FIGURE 7 IA613A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER WING - LOWER SURFACE
 BETA = .000 ETA = .811 ALPHA = .000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOL20)	IA613A,B/L OT+RSRM+PLUMES S1.2	1.100	.000	10.000	9.000
(RCOL47)	IA613A,B/L OT+ASRM+PLUMES S1.2	1.100	.000	10.000	9.000
(RCOL85)	IA613A,B/L OT+ASRM+PLUMES S1.2	1.100	180.000	10.000	9.000
(RCOLC3)	IA613A,B/L OT+ASRM+PLUMES S1.2	1.100	999.000	10.000	5.000

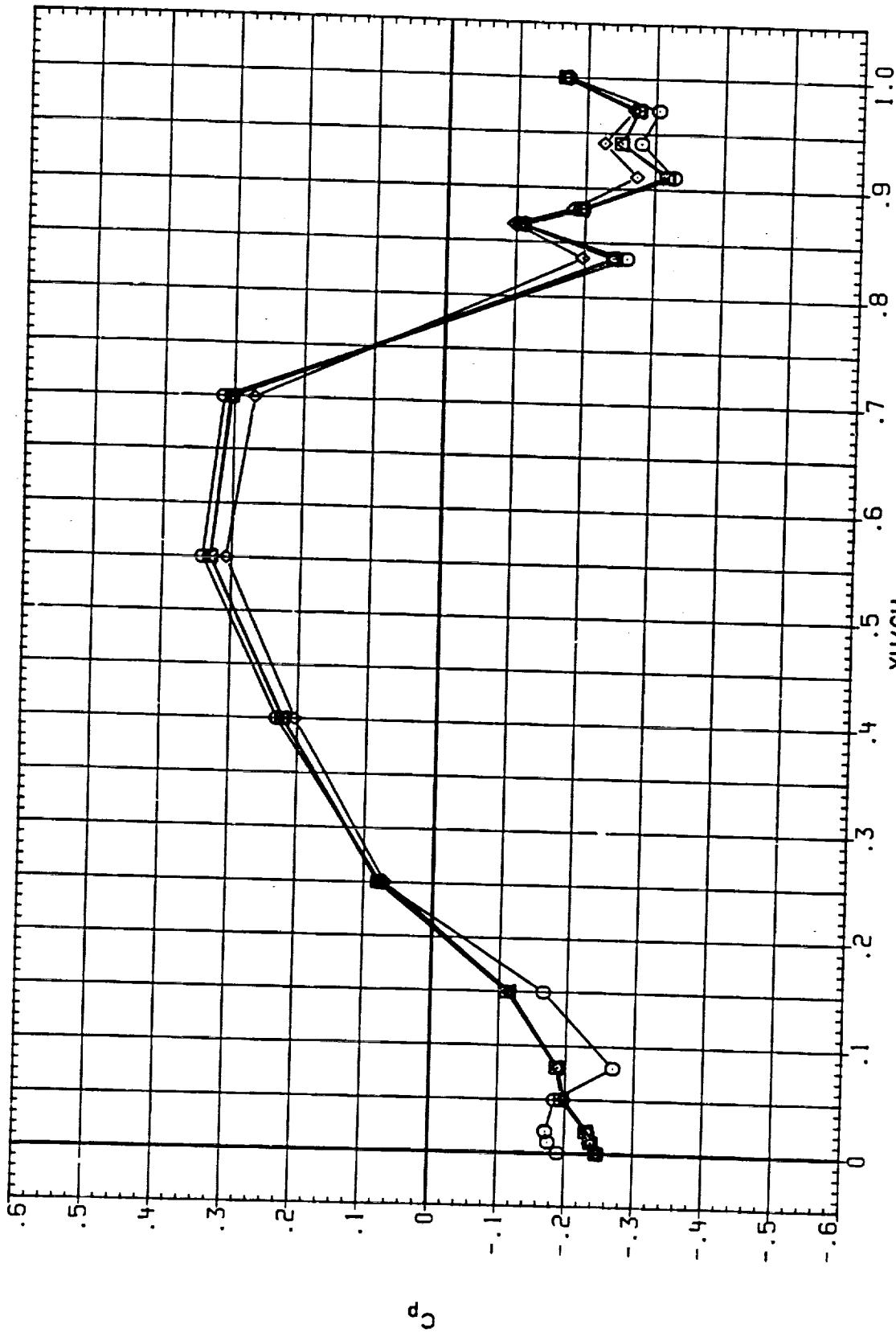


FIGURE 7 IA613A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER WING - LOWER SURFACE
 BETA = .000 ETA = .299 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IE-ABOX	IB-ELY	OB-ELY
(RCOL20)	○	IA613A, B/L OT+RSRM+PLUMES S1.2 -L.H. WING LOWER	1.100	.000	10.000	9.000
(RCOL47)	□	IA613A, B/L OT+ASRM+PLUMES S1.2 -L.H. WING LOWER	1.100	.000	10.000	9.000
(RCOL85)	◇	IA613A, B/L OT+ASRM+PLUMES S1.2 -L.H. WING LOWER	1.100	180.000	10.000	9.000
(RCOLC3)	△	IA613A, B/L OT+ASRM+PLUMES S1.2 -L.H. WING LOWER	1.100	999.000	10.000	5.000

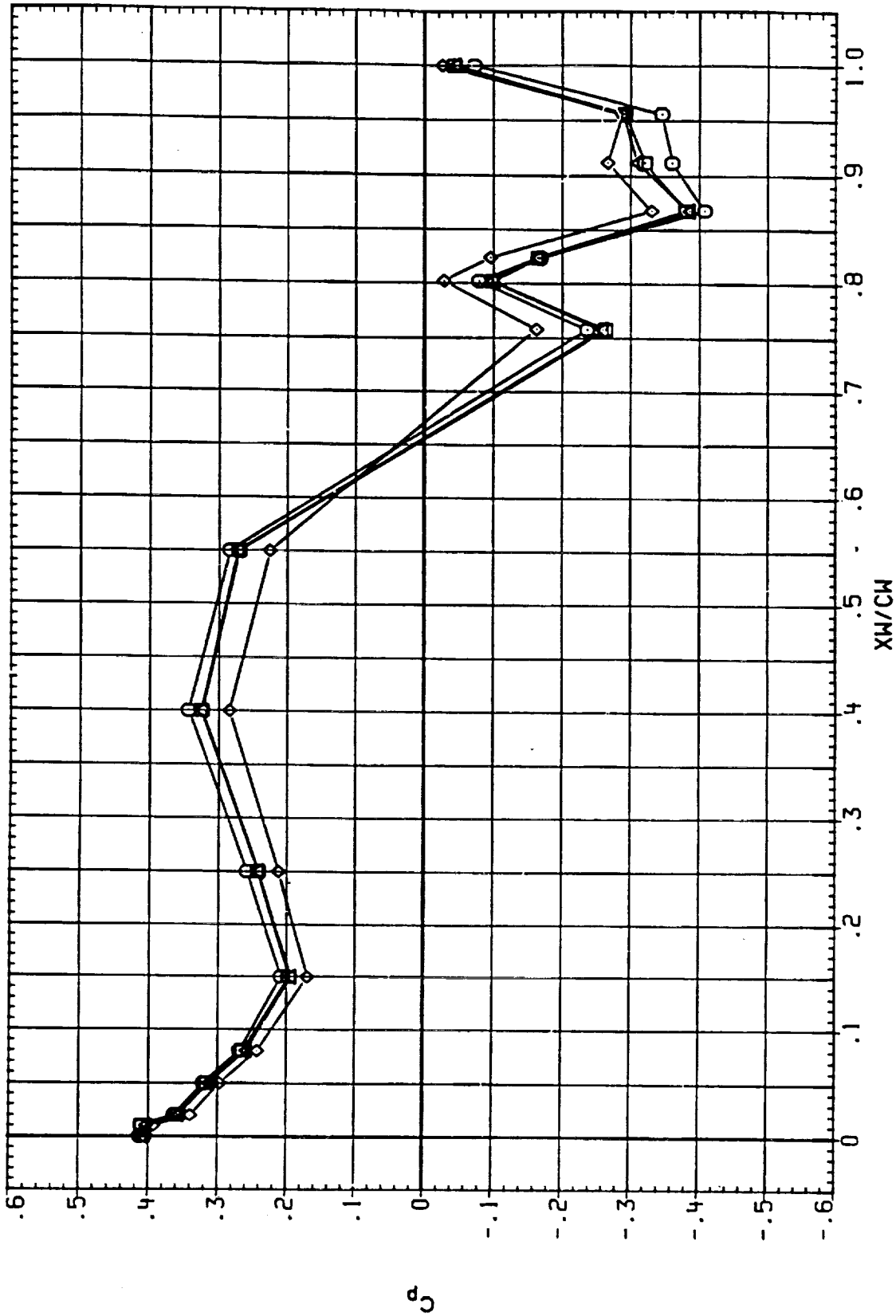


FIGURE 7 IA613A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER WING - LOWER SURFACE
 BETA = .000 ETA = .427 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELY	OB-ELY
(RCOL20)	○	IA613A, B/L 01+RSRH+PLUMES S1.2	1.100	.000	10.000	9.000
(RCOL47)	□	IA613A, B/L 01+ASRH+PLUMES S1.2	1.100	.000	10.000	9.000
(RCOL85)	◇	IA613A, B/L 01+ASRH+PLUMES S1.2	1.100	180.000	10.000	9.000
(RCOLC3)	△	IA613A, B/L 01+ASRH+PLUMES S1.2	1.100	999.000	10.000	5.000

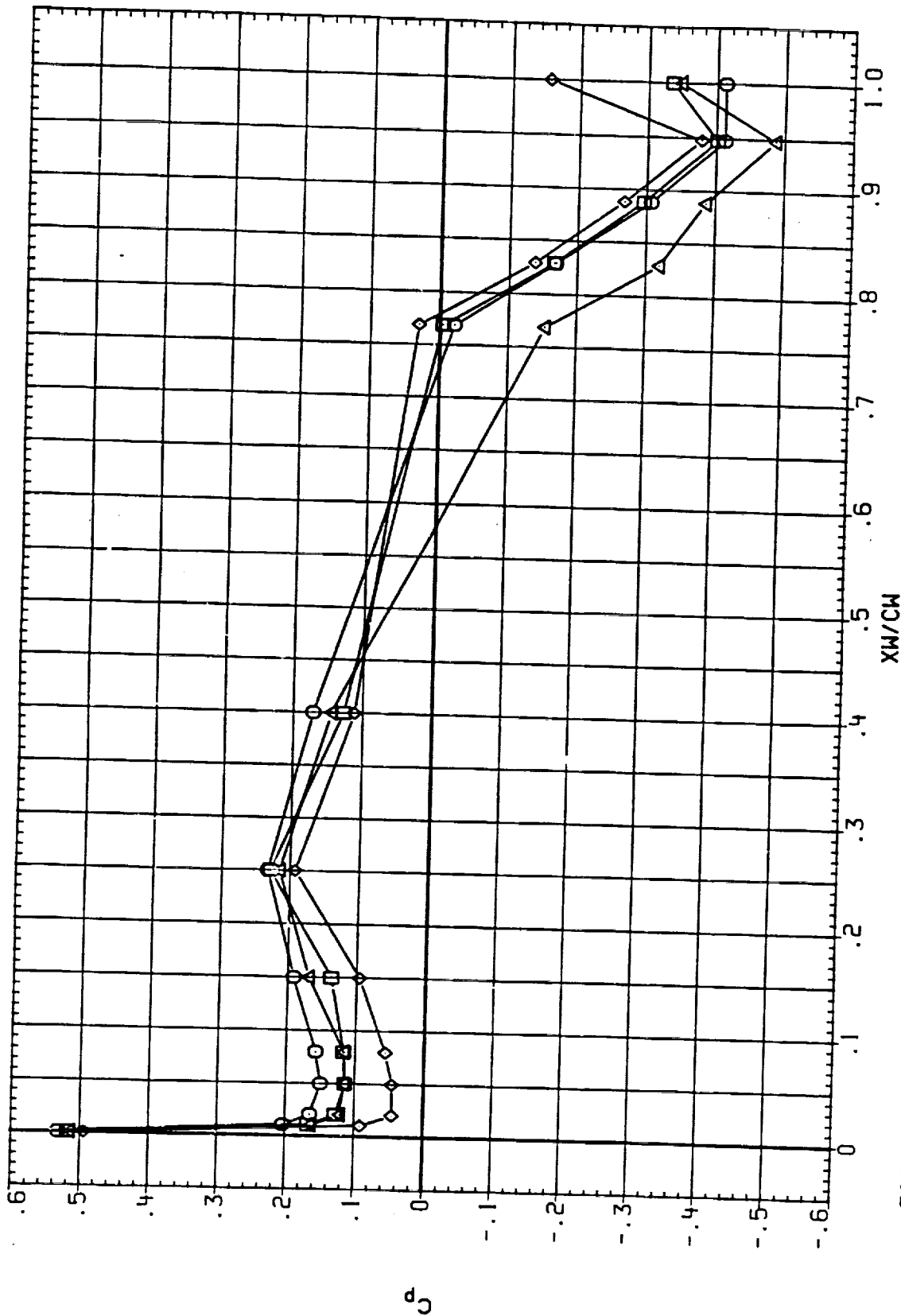


FIGURE 7 IA613A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER WING - LOWER SURFACE
 BETA = .000 ETA = .811 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELY	OB-ELY
(RCOL.21)	○	IAG13A.B/L OI*RSRH*PLUMES S1.2	1.150	.000	10.000	9.000
(RCOL.48)	□	IAG13A.B/L OI*ASRH*PLUMES S1.2	1.150	.000	10.000	9.000
(RCOL.86)	◇	IAG13A.B/L OI*ASRH*PLUMES S1.2	1.150	180.000	10.000	9.000
(XCOL.4)	△	IAG13A.B/L OI*ASRH*PLUMES S1.2	1.150	999.000	10.000	5.000

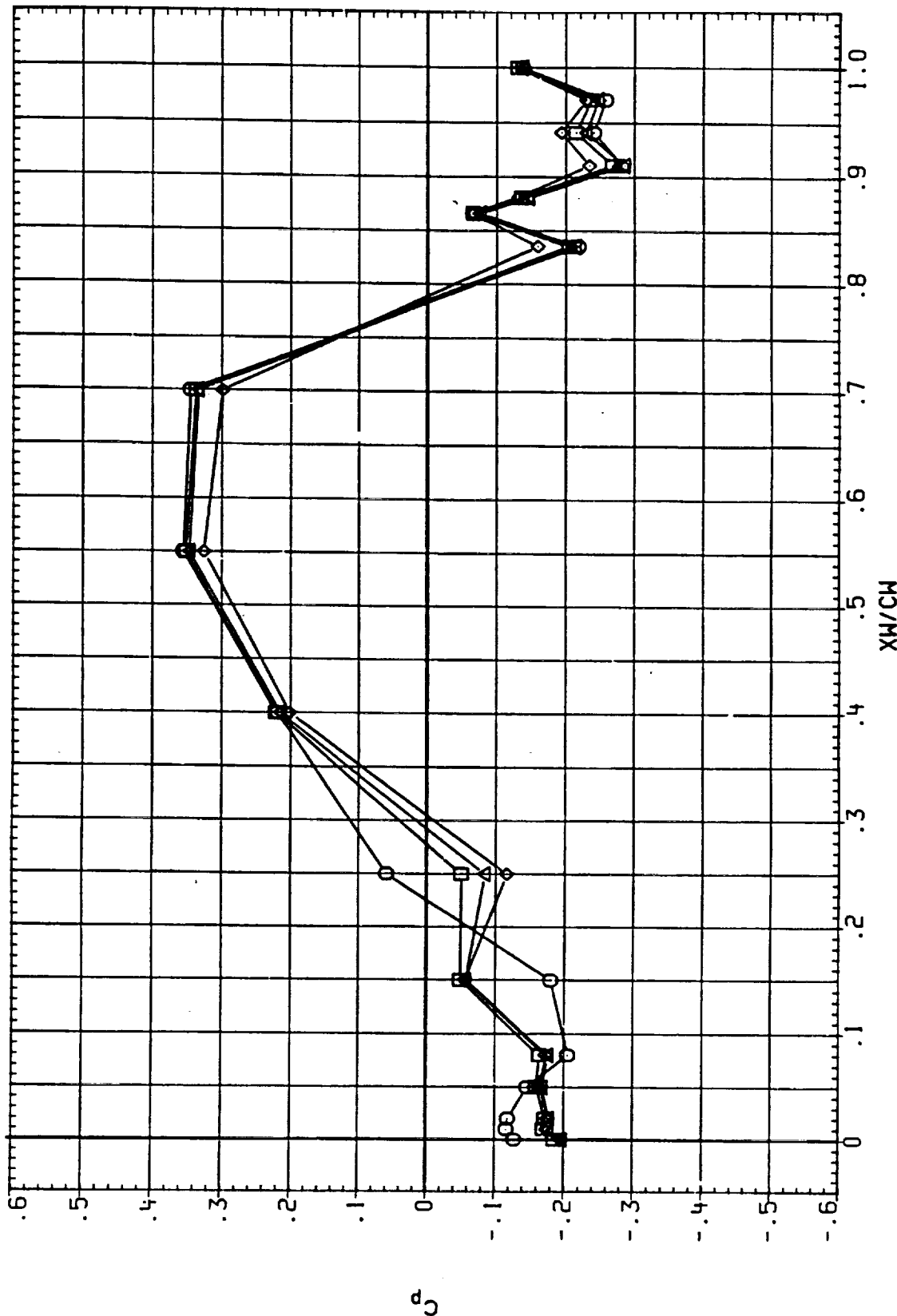


FIGURE 7 IAG13A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER WING - LOWER SURFACE
 BETA = .000 ETA = .299 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	1B-ELV	OB-ELV
(RCOL21)	○	IA613A, B/L OT+RSRM+PLUMES S1.2	1.150	.000	10.000	9.000
(RCOL48)	□	IA613A, B/L OT+ASRM+PLUMES S1.2	1.150	.000	10.000	9.000
(RCOL86)	◇	IA613A, B/L OT+ASRM+PLUMES S1.2	1.150	180.000	10.000	9.000
(XCOLC1)	△	IA613A, B/L OT+ASRM+PLUMES S1.2	1.150	999.000	10.000	5.000

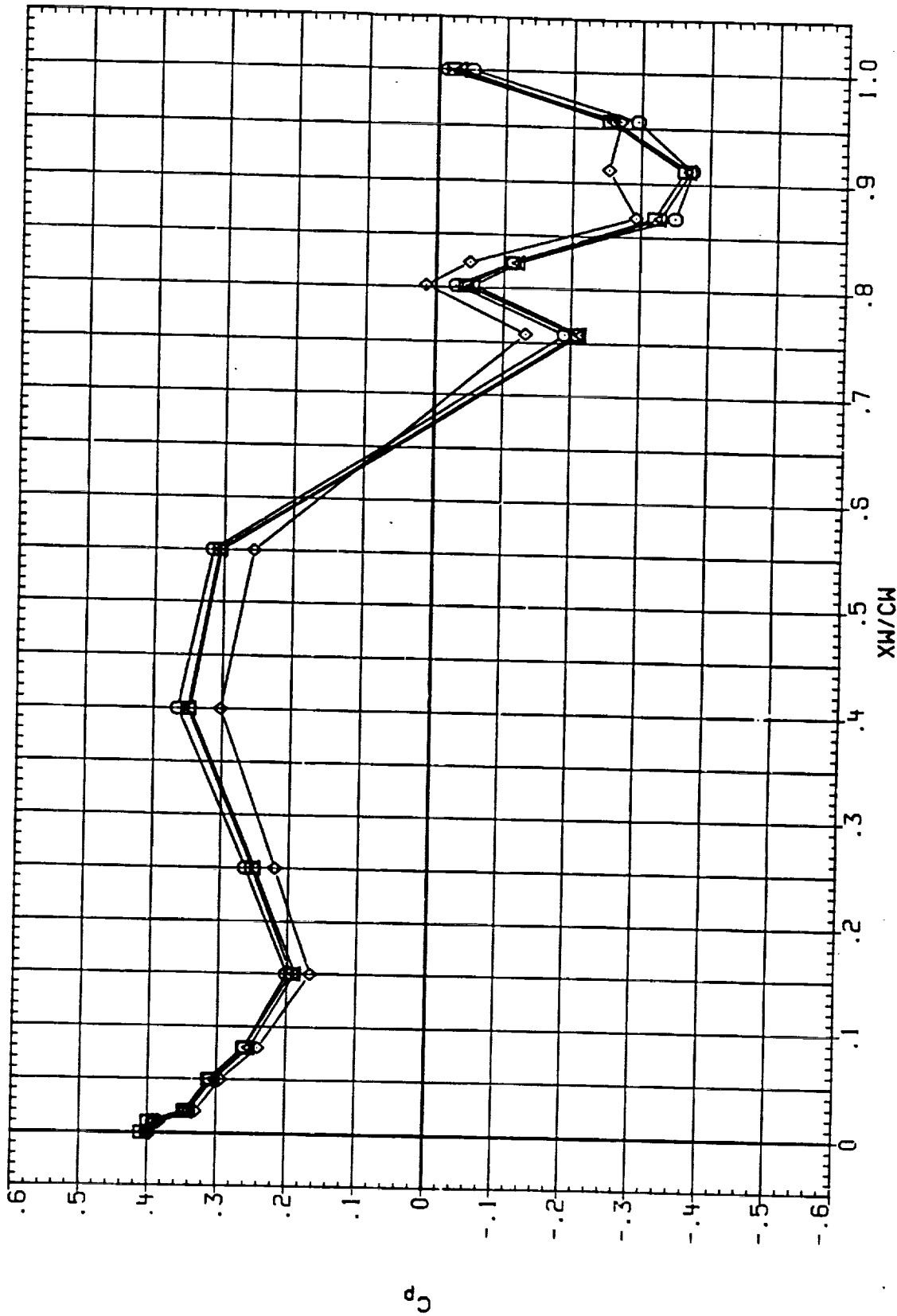


FIGURE 7 IA613A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER WING - LOWER SURFACE
 BETA = .000 ETA = .427 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IE-ABOX	IB-ELV	OB-ELV
(RCOL21)	○	IAG13A.B/L OT+RSRM+PLUHES S1.2	1.150	.000	10.000	9.000
(RCOL48)	□	IAG13A.B/L OT+ASRM+PLUHES S1.2	1.150	.000	10.000	9.000
(RCOL86)	△	IAG13A.B/L OT+ASRM+PLUHES S1.2	1.150	180.000	10.000	9.000
(XCOLC4)	◇	IAG13A.B/L OT+ASRM+PLUHES S1.2	1.150	999.000	10.000	5.000

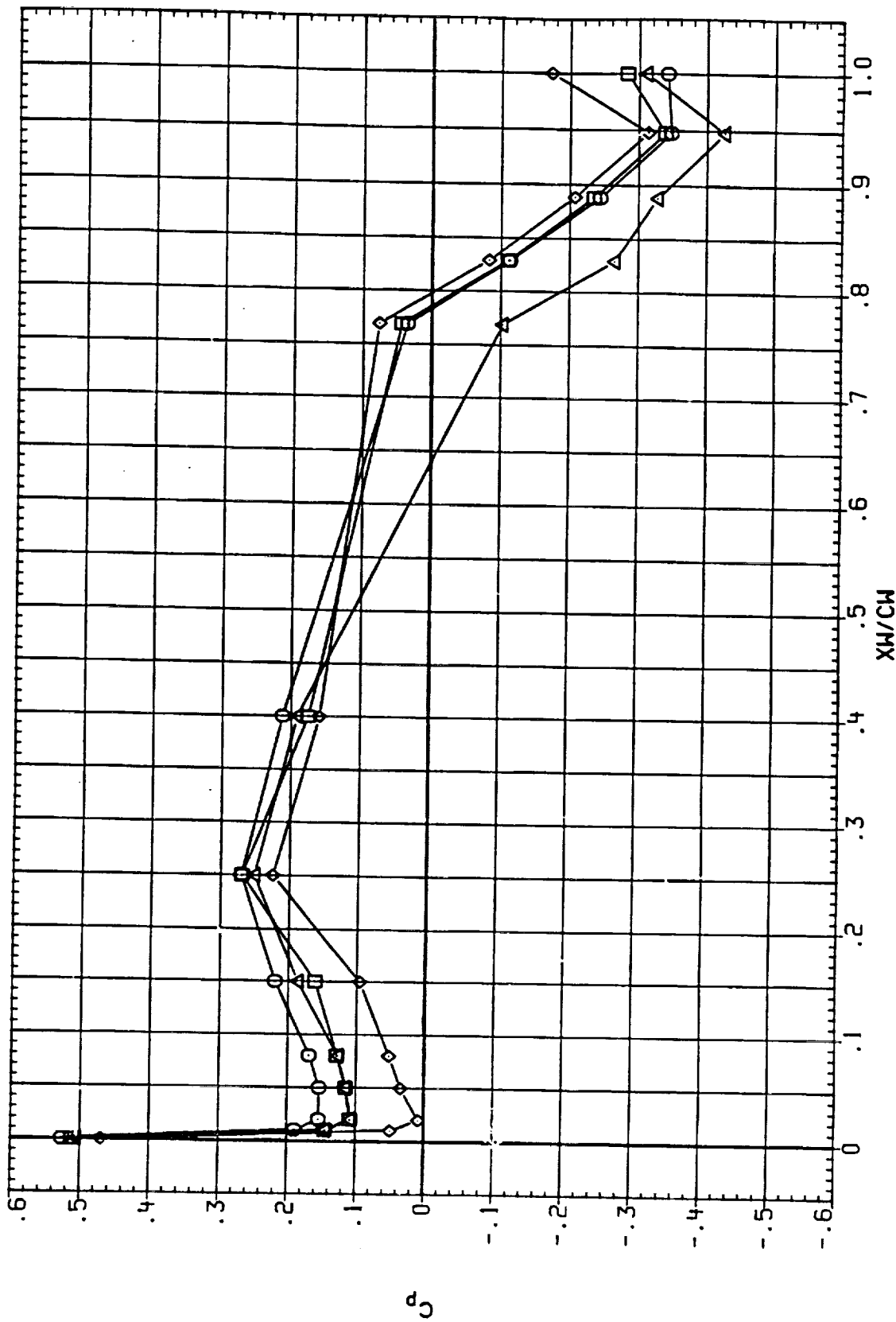


FIGURE 7 IAG13A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER WING - LOWER SURFACE
 BETA = .000 ETA = .811 ALPHA = .000

DATA SET SYMBOL CONFIGURATION DESCRIPTION

(RCOL22) □ IAG13A, B/L OT*ASRM*PLUMES S1.2
 (RCOL49) ◇ IAG13A, B/L OT*ASRM*PLUMES S1.2
 (RCOL87) △ IAG13A, B/L OT*ASRM*PLUMES S1.2
 (RCOLC5) △ IAG13A, B/L OT*ASRM*PLUMES S1.2

-L.H. HING LOWER
 -L.H. HING LOWER
 -L.H. HING LOWER

MACH IEABOX IB-ELY OB-ELY
 1.250 .000 10.000 9.000
 1.250 .000 10.000 9.000
 1.250 180.000 10.000 9.000
 1.250 999.000 10.000 5.000

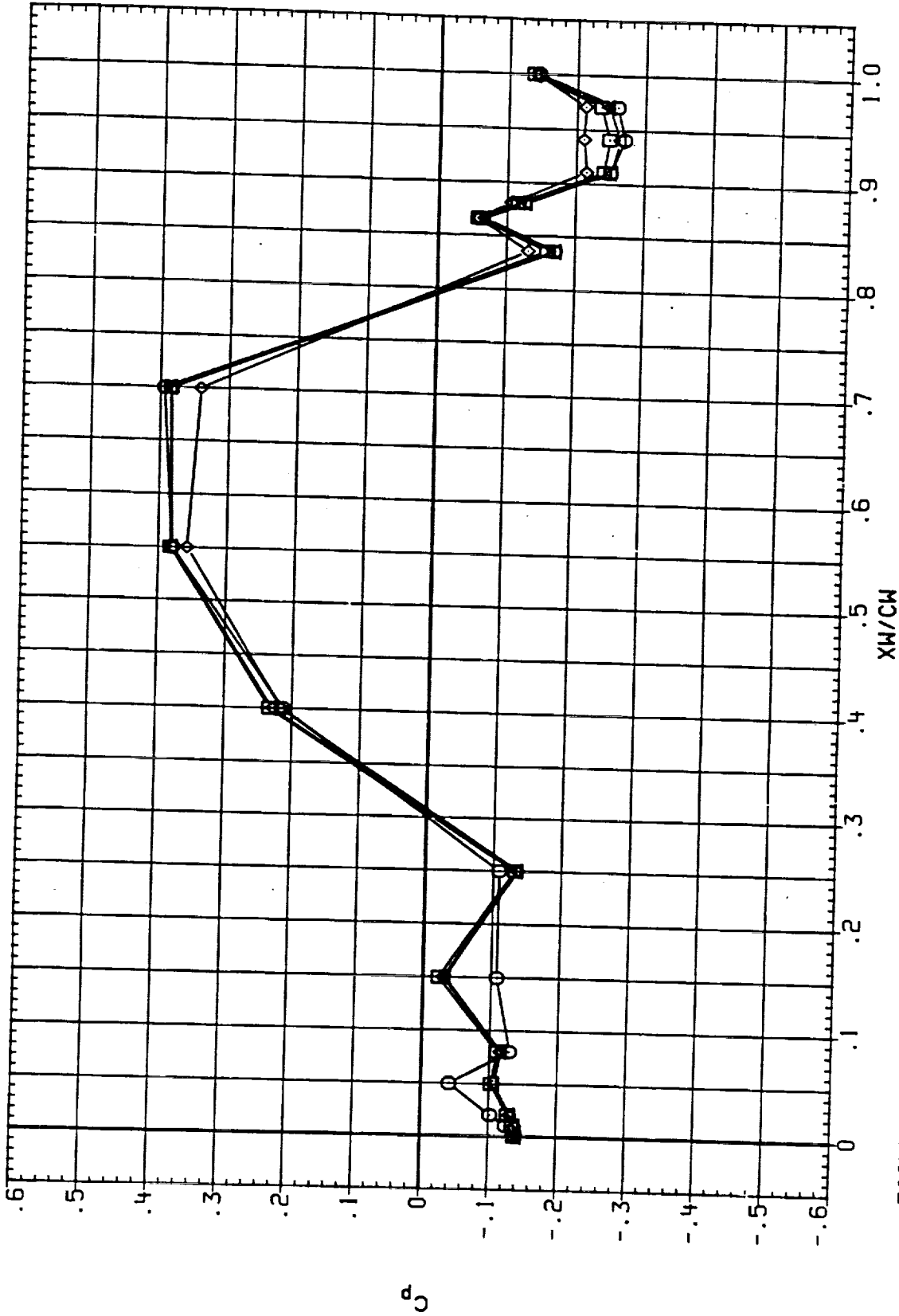


FIGURE 7 IAG13A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER WING - LOWER SURFACE
 BETA = .000 ETA = .299 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOL22)	○	IA613A, B/L 01+RSRH+PLUMES S1.2	1.250	.000	10.000	9.000
(RCOL49)	◇	IA613A, B/L 01+ASRH+PLUMES S1.2	1.250	.000	10.000	9.000
(RCOL87)	□	IA613A, B/L 01+ASRH+PLUMES S1.2	1.250	180.000	10.000	9.000
(RCOLC5)	△	IA613A, B/L 01+ASRH+PLUMES S1.2	1.250	999.000	10.000	5.000

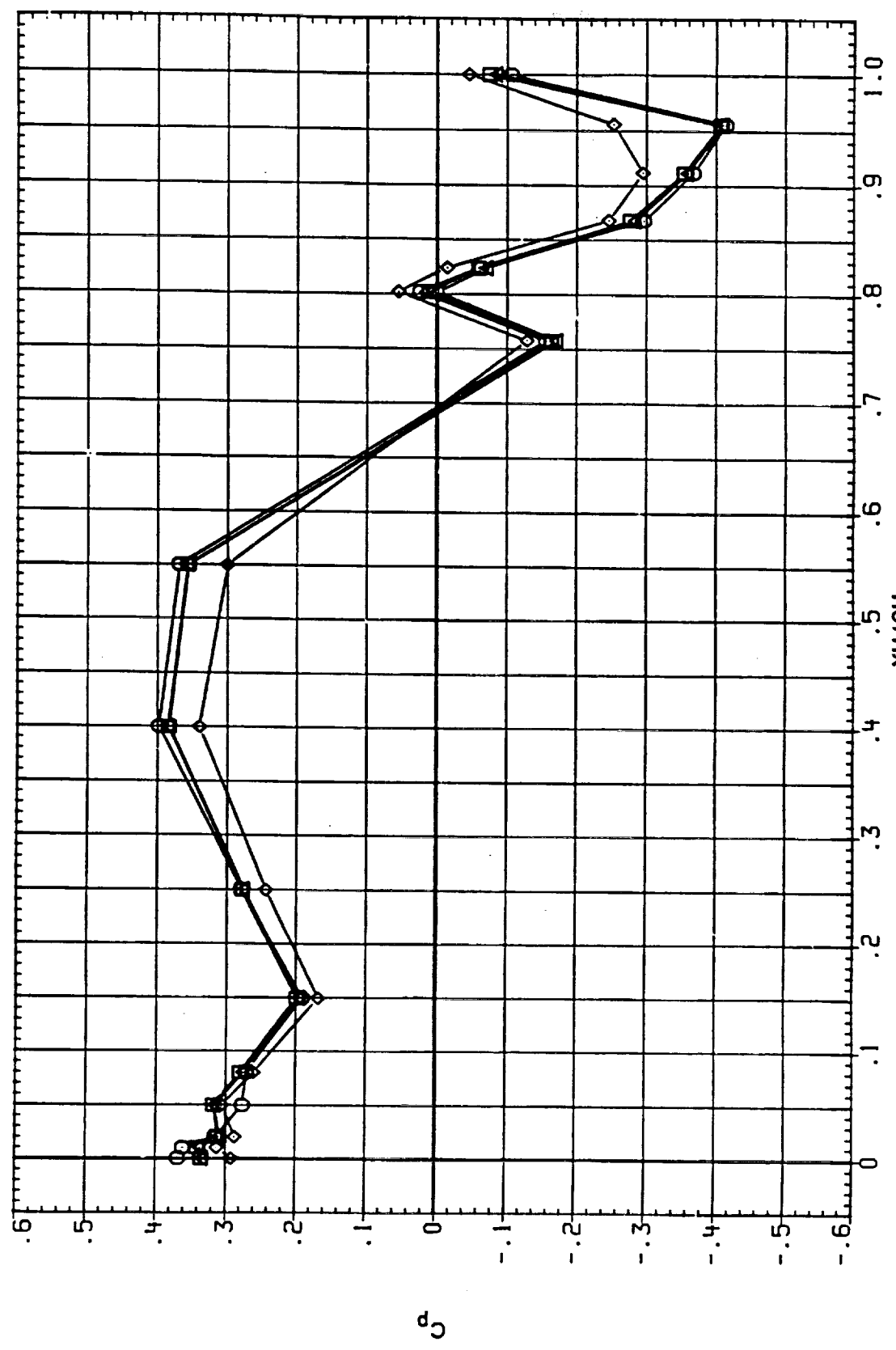


FIGURE 7 IA613A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER WING - LOWER SURFACE
 BETA = .000 ETA = .427 ALPHA = .000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOL221)	IA613A.B/L OT*ASRM*PLUMES S1.2	1.250	.000	10.000	9.000
(RCOL49)	IA613A.B/L OT*ASRM*PLUMES S1.2	1.250	.000	10.000	9.000
(RCOL87)	IA613A.B/L OT*ASRM*PLUMES S1.2	1.250	180.000	10.000	9.000
(RCOLC5)	IA613A.B/L OT*ASRM*PLUMES S1.2	1.250	999.000	10.000	5.000

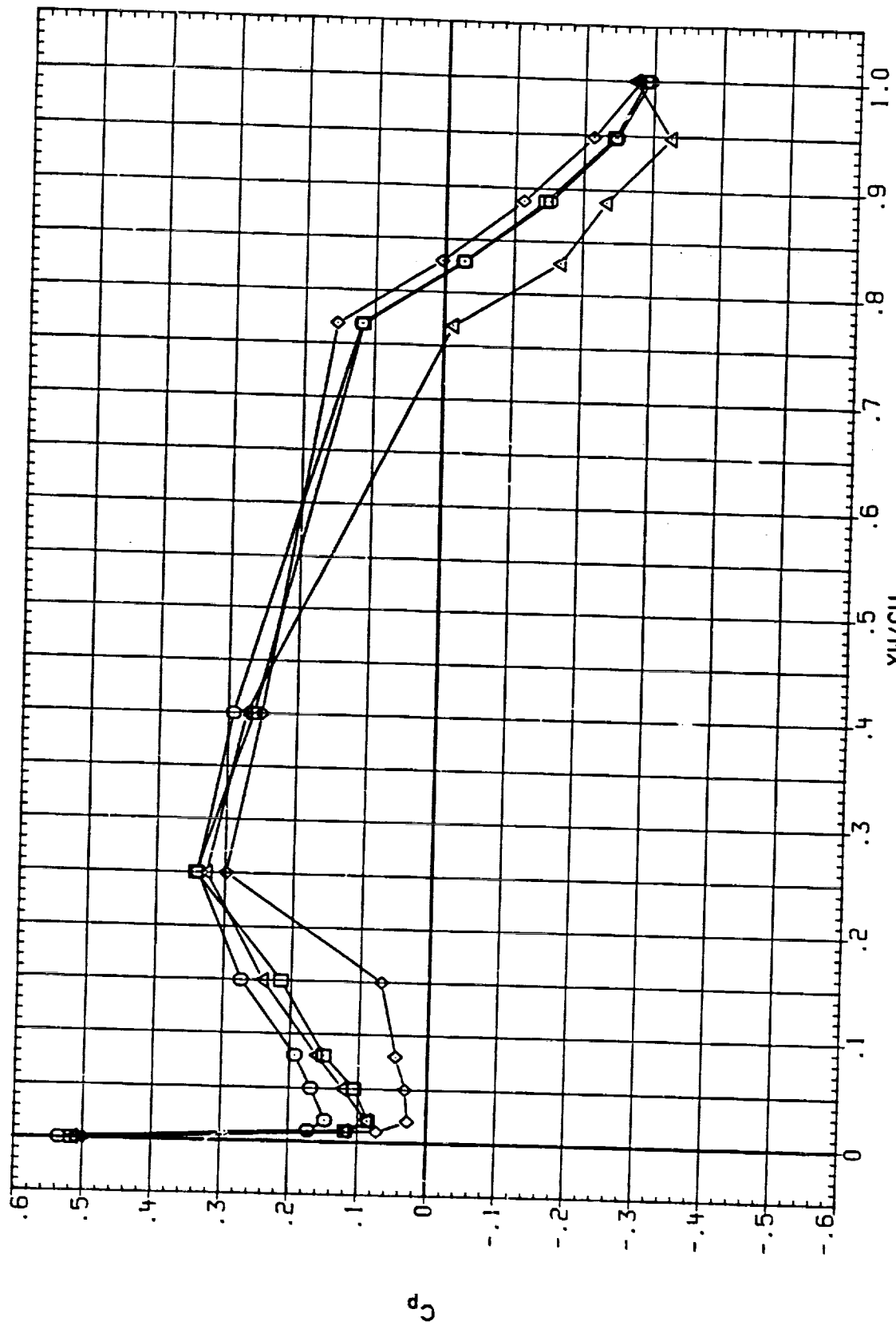


FIGURE 7 IA613A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER WING - LOWER SURFACE
 BETA = .000 ETA = .811 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELY	OB-ELY
(RCOL6)	□	IA613A.B/L 01.RSRH.PLVES S1.2	1.300	.000	10.000	9.000
(RCOL5)	○	IA613A.B/L 01.ASRH.PLVES S1.3	1.300	.000	10.000	5.000
(RCOL8)	◇	IA613A.B/L 01.ASRH.PLVES S1.3	1.300	180.000	10.000	5.000
(RCOL7)	△	IA613A.B/L 01.ASRH.PLVES S1.3	1.300	993.000	10.000	5.000

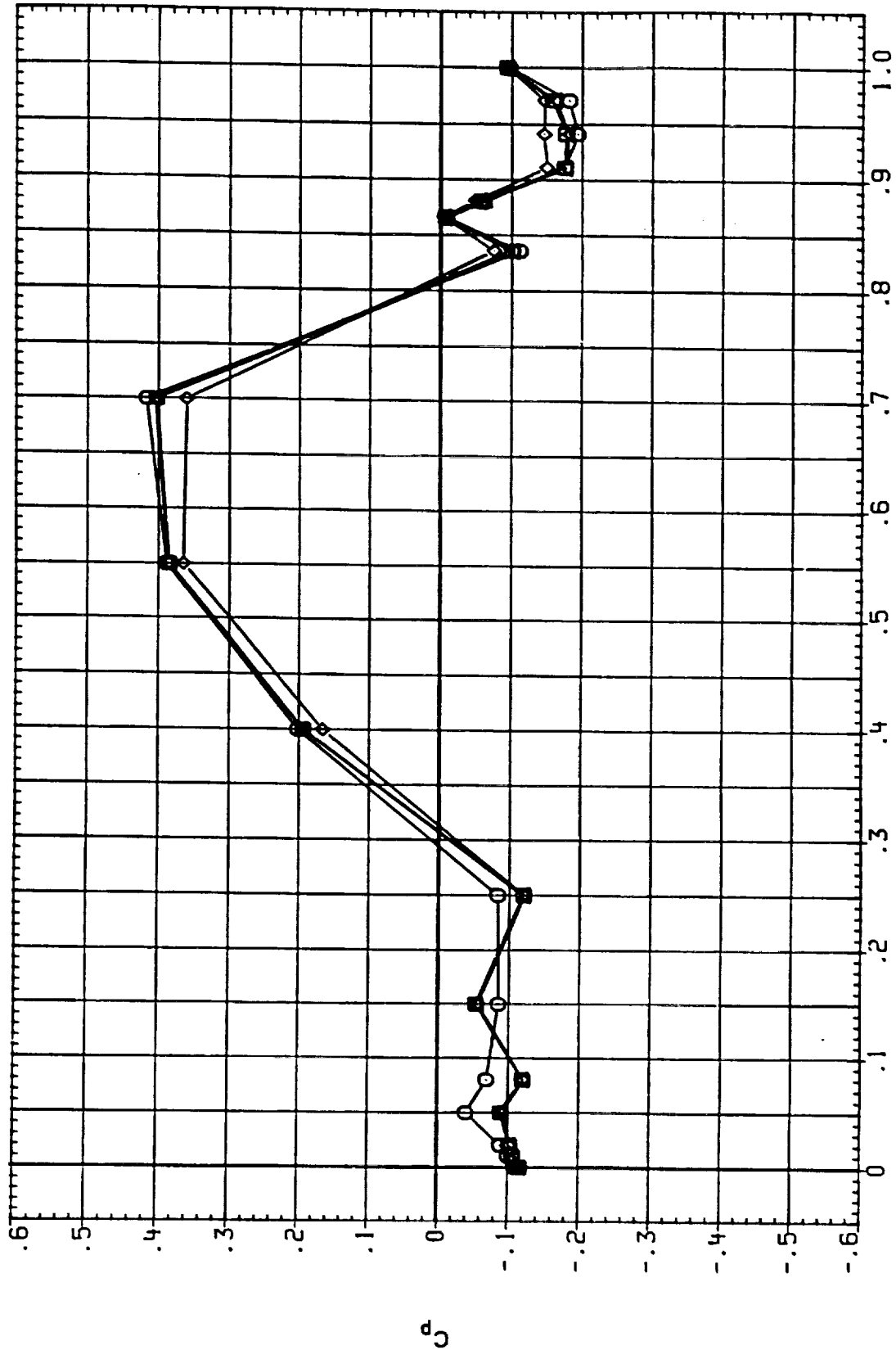


FIGURE 7 IA613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 ETA = .299 ALPHA = .000

DATA SET SYMBOL

- (PCOL46) □
- (PCOL54) ○
- (PCOL89) ◇
- (PCOL71) △

CONFIGURATION DESCRIPTION

- IA613A.B/L OT*ASRM*PLUMES SI.2 -L.H. HING LOWER
- IA613A.B/L OT*ASRM*PLUMES SI.3 -L.H. HING LOWER
- IA613A.B/L OT*ASRM*PLUMES SI.3 -L.H. HING LOWER
- IA613A.B/L OT*ASRM*PLUMES SI.3 -L.H. HING LOWER

- MACH 1.300
 - 1.300
 - 1.300
 - 1.300
- IEABOX .000
 - .000
 - 180.000
 - 999.000
- IB-ELV 10.000
 - 10.000
 - 10.000
 - 10.000
- CB-ELV 9.000
 - 5.000
 - 5.000
 - 5.000

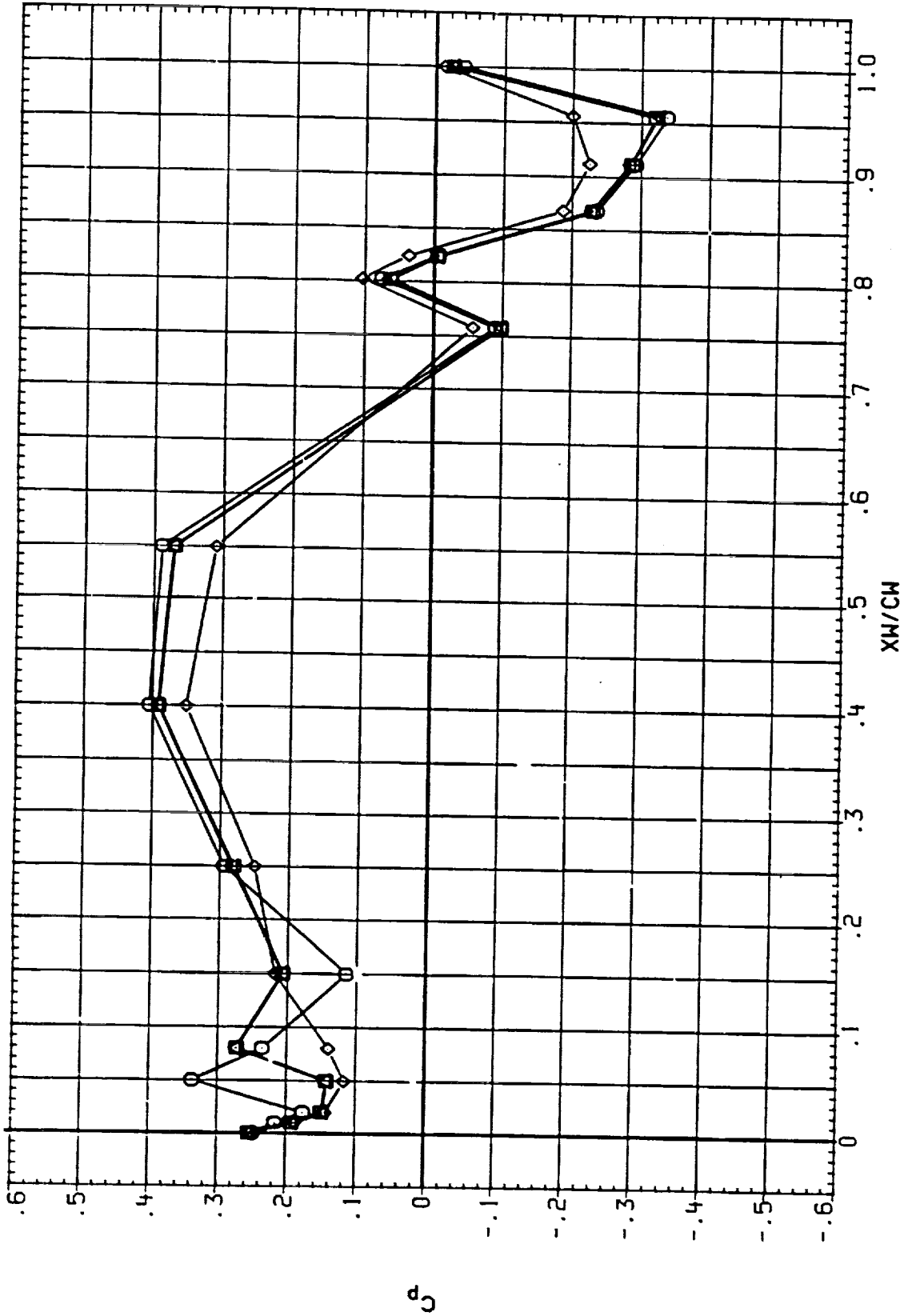


FIGURE 7 IA613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 ETA = .427 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOLH6)	○	IAG13A B/L OT+RSRH+PLUMES S1.2	1.300	.000	10.000	9.000
(RCOL54)	□	IAG13A B/L OT+ASRH+PLUMES S1.3	1.300	.000	10.000	5.000
(RCOL89)	△	IAG13A B/L OT+ASRH+PLUMES S1.3	1.300	180.000	10.000	5.000
(RCOLC7)	◇	IAG13A B/L OT+ASRH+PLUMES S1.3	1.300	999.000	10.000	5.000

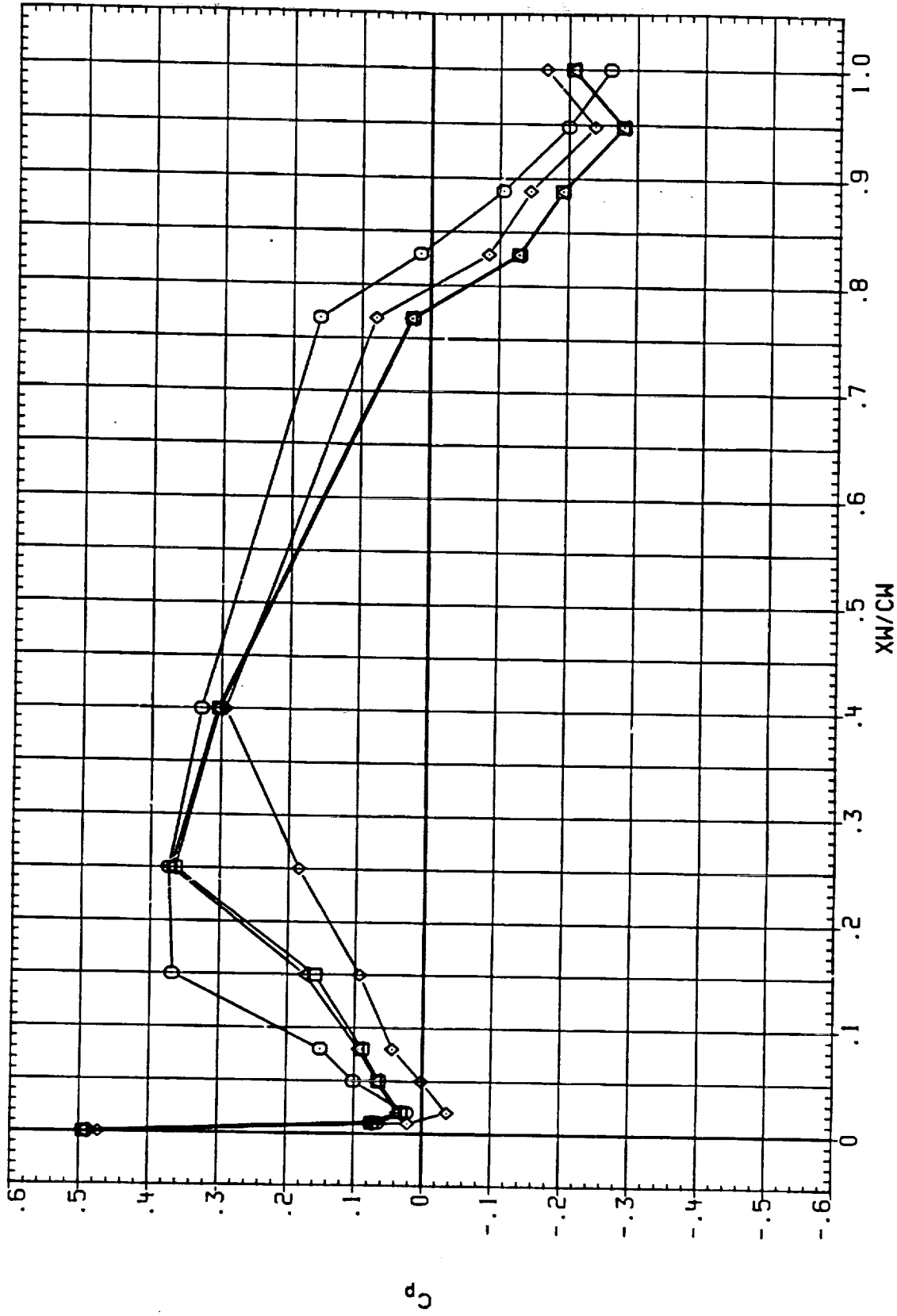


FIGURE 7 IAG13A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER WING - LOWER SURFACE
 BETA = .000 ETA = .811 ALPHA = .000

DATA SET SYMBOL

CONFIGURATION DESCRIPTION

L.H. HING LOWER
L.H. HING LOWER
L.H. HING LOWER

MACH IEABOX IB-ELV OB-ELV

1.350 .000 10.000 9.000
1.350 .000 10.000 5.000
1.350 180.000 10.000 5.000
1.350 999.000 10.000 5.000

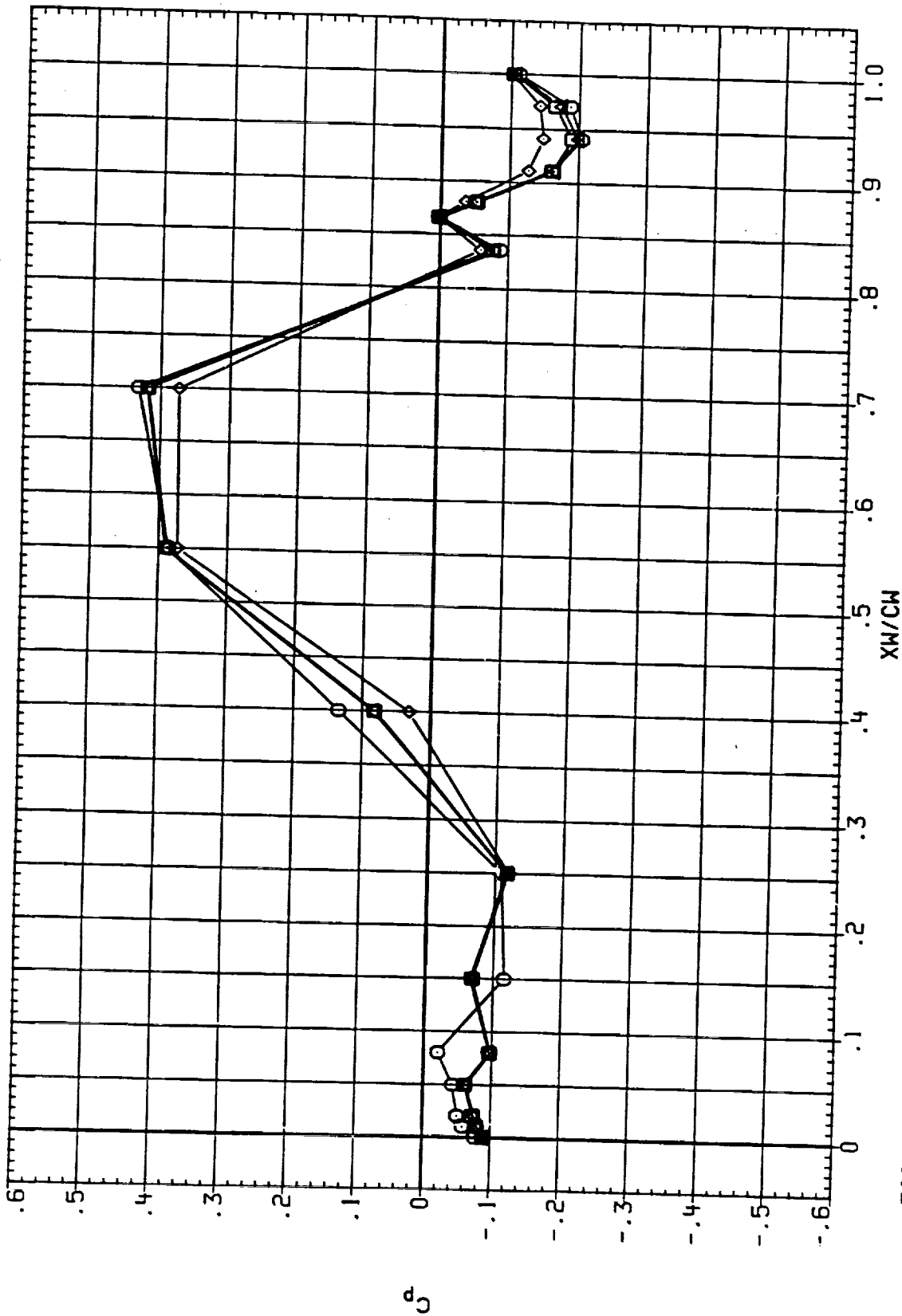


FIGURE 7 IAG13A SELECTED PRESSURE DISTRIBUTIONS
ORBITER WING - LOWER SURFACE

BETA = .000 ETA = .299 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOL71)	○	IA613A.B/L OT+ASRH+PLUMES SI.2	1.350	.000	10.000	9.000
(RCOL55)	◇	IA613A.B/L OT+ASRH+PLUMES SI.3	1.350	.000	10.000	5.000
(RCOL90)	◇	IA613A.B/L OT+ASRH+PLUMES SI.3	1.350	180.000	10.000	5.000
(RCOLC8)	△	IA613A.B/L OT+ASRH+PLUMES SI.3	1.350	999.000	10.000	5.000

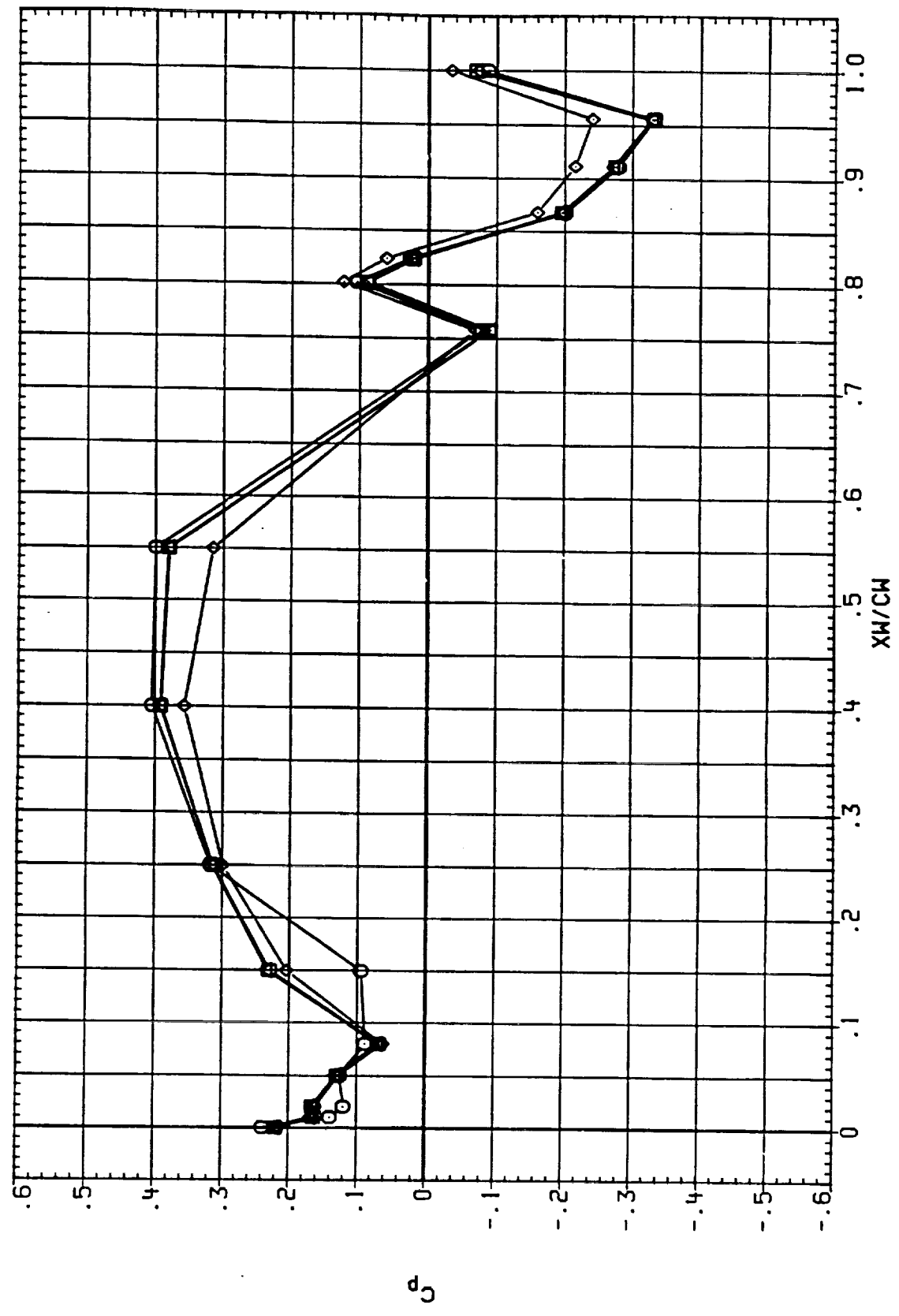


FIGURE 7 IA613A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER WING - LOWER SURFACE
 BETA = .000 ETA = .427 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOLH7)	○	IAG13A.B/L OT*ASRM*PLUMES SI.2	1.350	.000	10.000	9.000
(RCOL55)	□	IAG13A.B/L OT*ASRM*PLUMES SI.3	1.350	.000	10.000	5.000
(RCOL90)	◇	IAG13A.B/L OT*ASRM*PLUMES SI.3	1.350	180.000	10.000	5.000
(RCOLC8)	△	IAG13A.B/L OT*ASRM*PLUMES SI.3	1.350	999.000	10.000	5.000

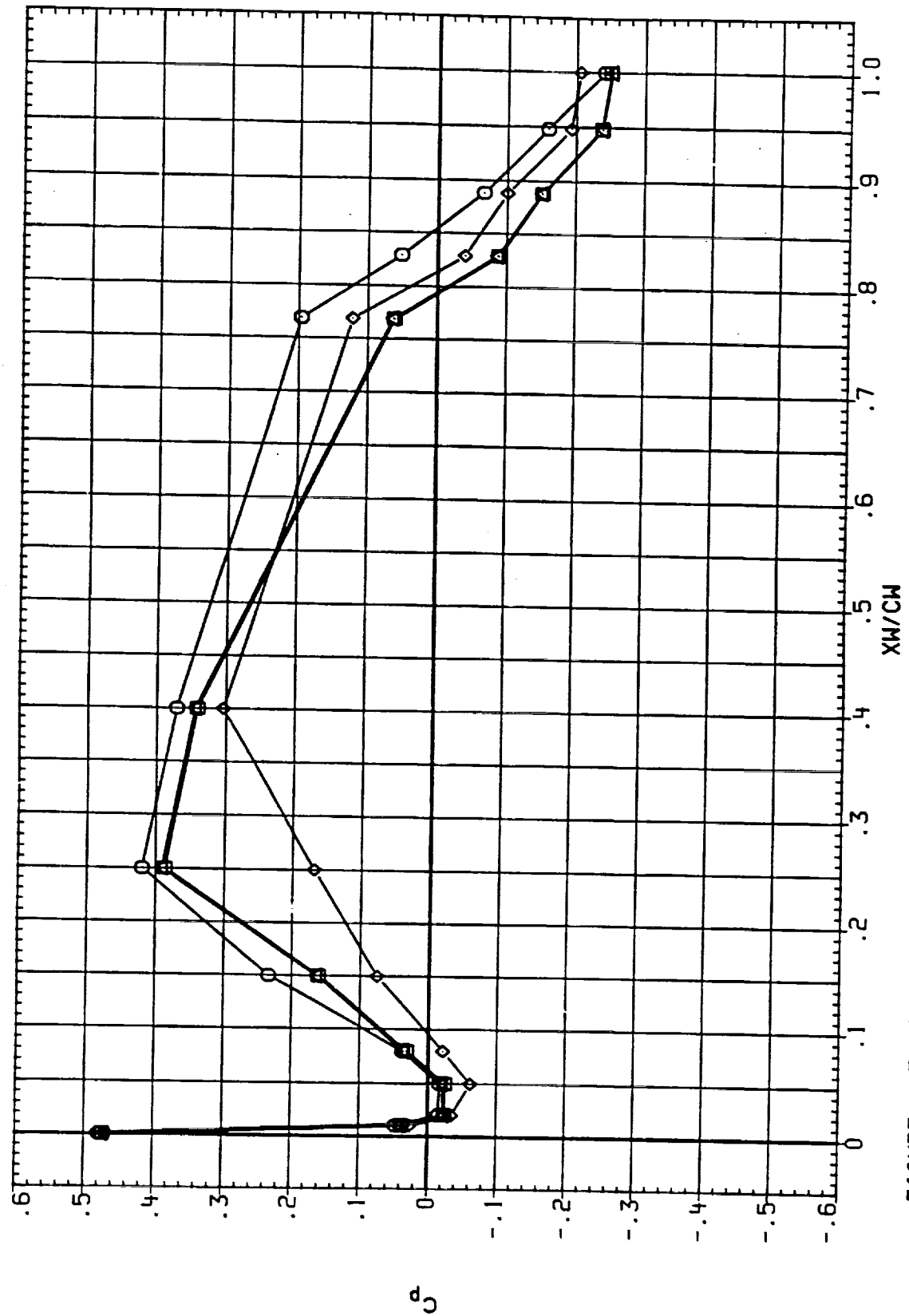


FIGURE 7 IAG13A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER WING - LOWER SURFACE
 BETA = .000 ETA = .811 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOLH8)	○	IA613A.B/L OT+RSR+PLUMES S1.2	1.400	.000	10.000	9.000
(RCOL56)	◇	IA613A.B/L OT+ASRM+PLUMES S1.3	1.400	.000	10.000	5.000
(RCOL91)	◇	IA613A.B/L OT+ASRM+PLUMES S1.3	1.400	180.000	10.000	5.000
(RCOLC9)	△	IA613A.B/L OT+ASRM+PLUMES S1.3	1.400	999.000	10.000	5.000

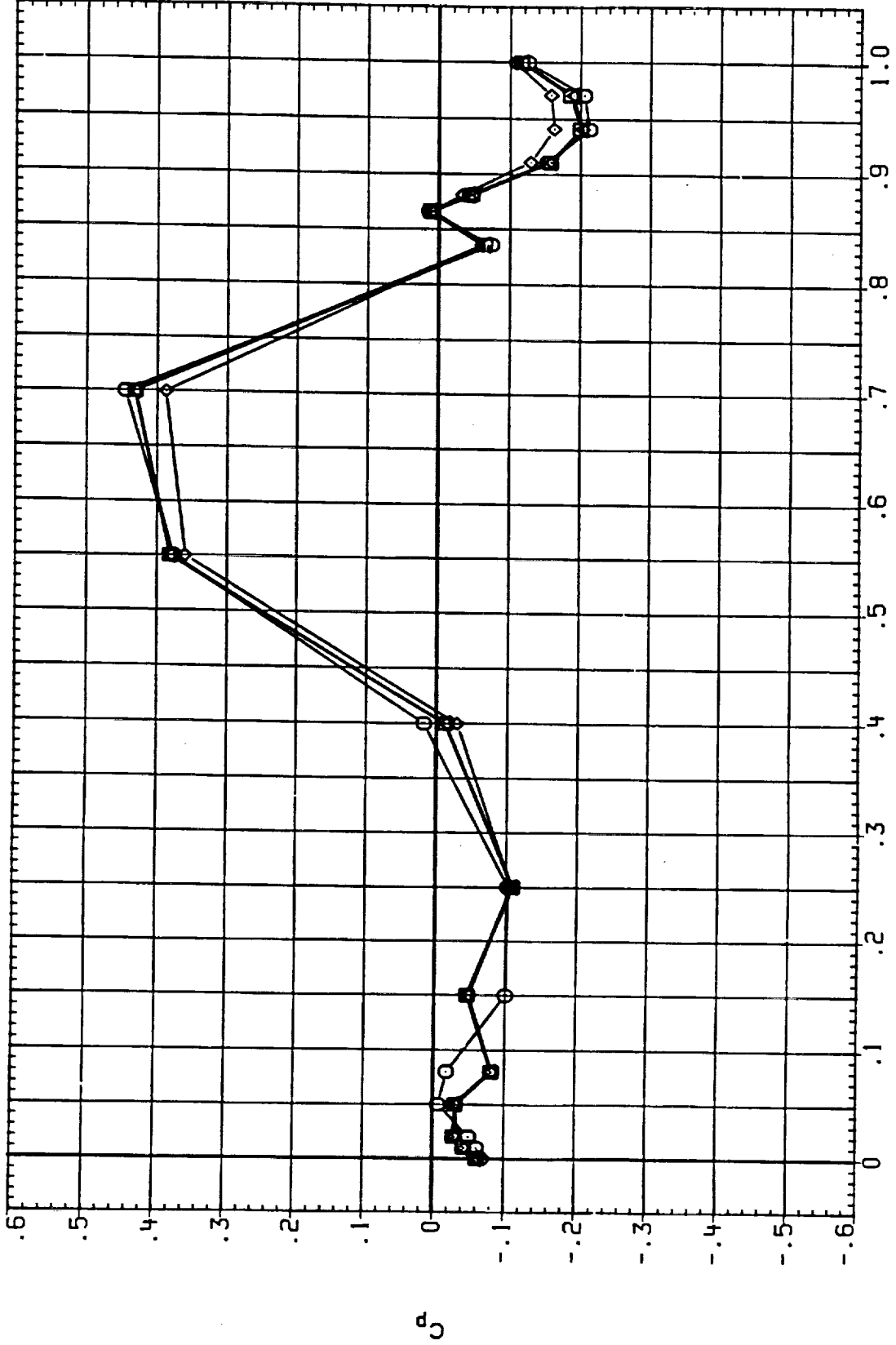


FIGURE 7 IA613A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER WING - LOWER SURFACE
 BETA = .000 ETA = .299 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOLHB)	○	I A613A .B/L OT+ASRM+PLUMES S1.2	1.400	.000	10.000	9.000
(RCOL56)	□	I A613A .B/L OT+ASRM+PLUMES S1.3	1.400	.000	10.000	5.000
(RCOL91)	△	I A613A .B/L OT+ASRM+PLUMES S1.3	1.400	180.000	10.000	5.000
(RCOLC9)	◇	I A613A .B/L OT+ASRM+PLUMES S1.3	1.400	999.000	10.000	5.000

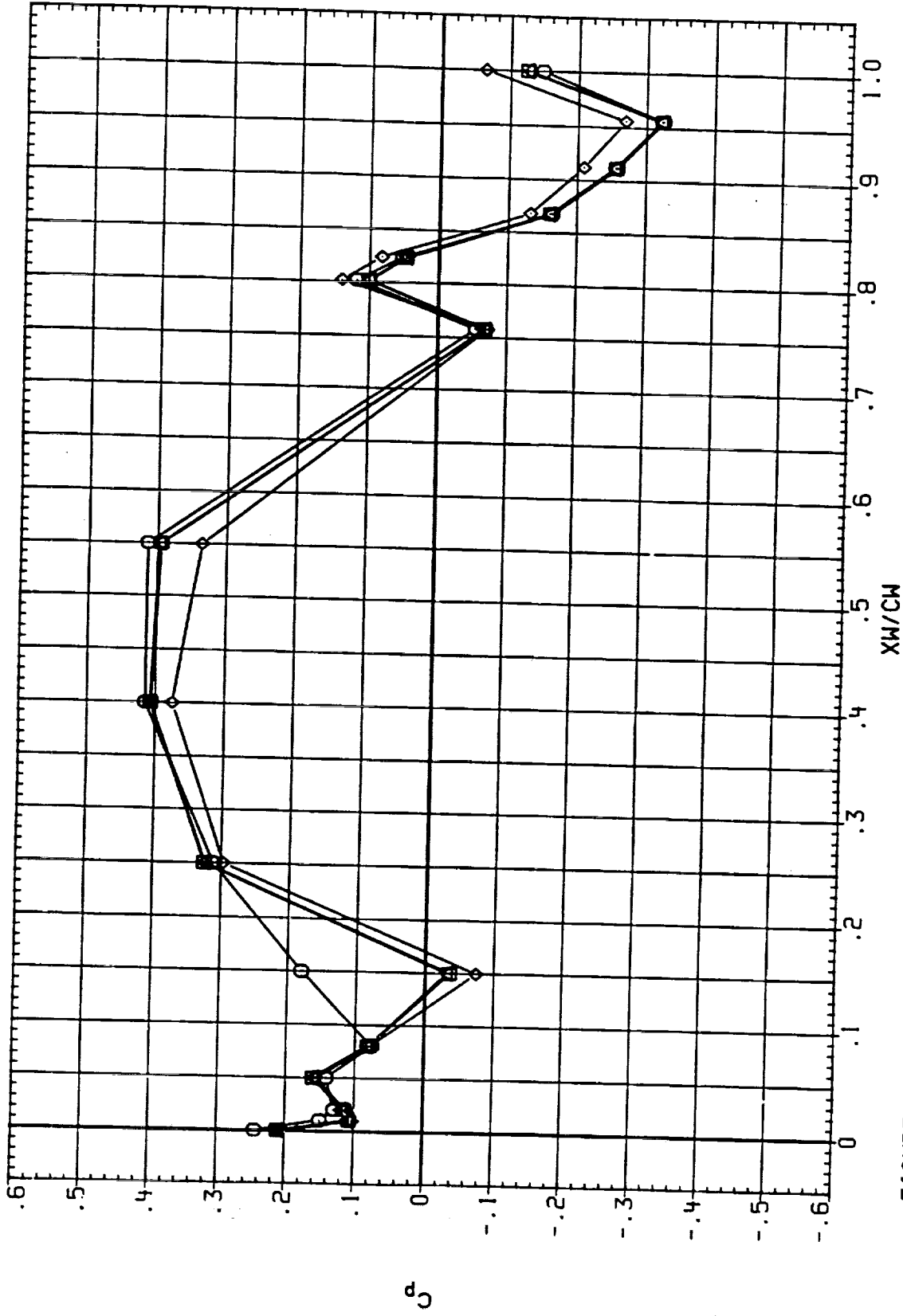


FIGURE 7 I A613A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER WING - LOWER SURFACE
 BETA = .000 ETA = .427 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOL481)	○	I A613A. B/L OT+RSRH+PLUMES S1.2	1.400	.000	10.000	9.000
(RCOL561)	◇	I A613A. B/L OT+ASRH+PLUMES S1.3	1.400	.000	10.000	5.000
(RCOL911)	◇	I A613A. B/L OT+ASRH+PLUMES S1.3	1.400	180.000	10.000	5.000
(RCOLC91)	△	I A613A. B/L OT+ASRH+PLUMES S1.3	1.400	999.000	10.000	5.000

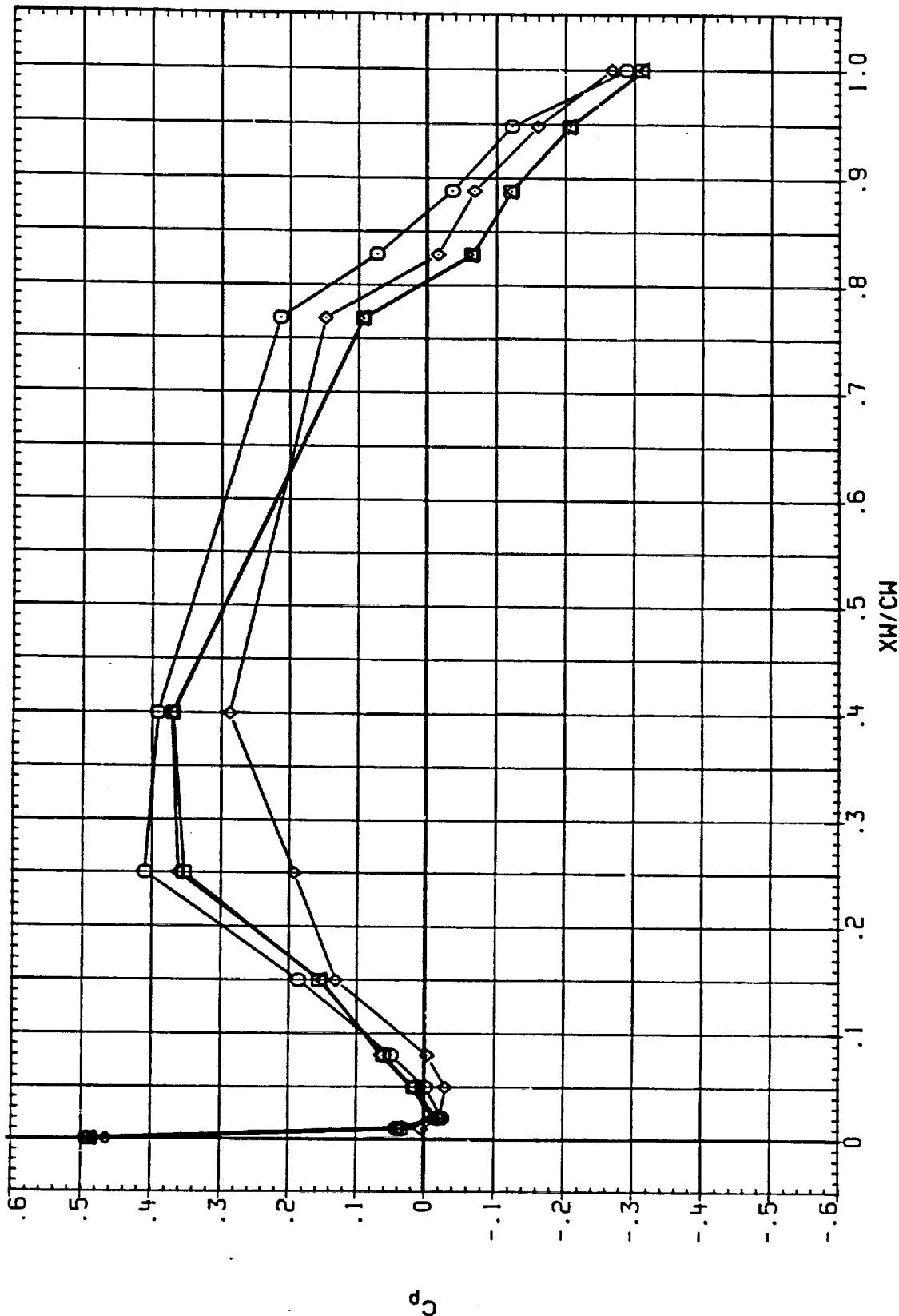


FIGURE 7 I A613A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER WING - LOWER SURFACE
 BETA = .000 ETA = .811 ALPHA = .000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELY	OB-ELY
(RCOL.91)	IAG13A.B/L OT+RSRM+PLUMES S1.2	1.550	.000	10.000	9.000
(RCOL.57)	IAG13A.B/L OT+ASRM+PLUMES S1.3	1.550	.000	10.000	5.000
(RCOL.92)	IAG13A.B/L OT+ASRM+PLUMES S1.3	1.550	180.000	10.000	5.000
(RCOL.00)	IAG13A.B/L OT+ASRM+PLUMES S1.3	1.550	999.000	10.000	5.000

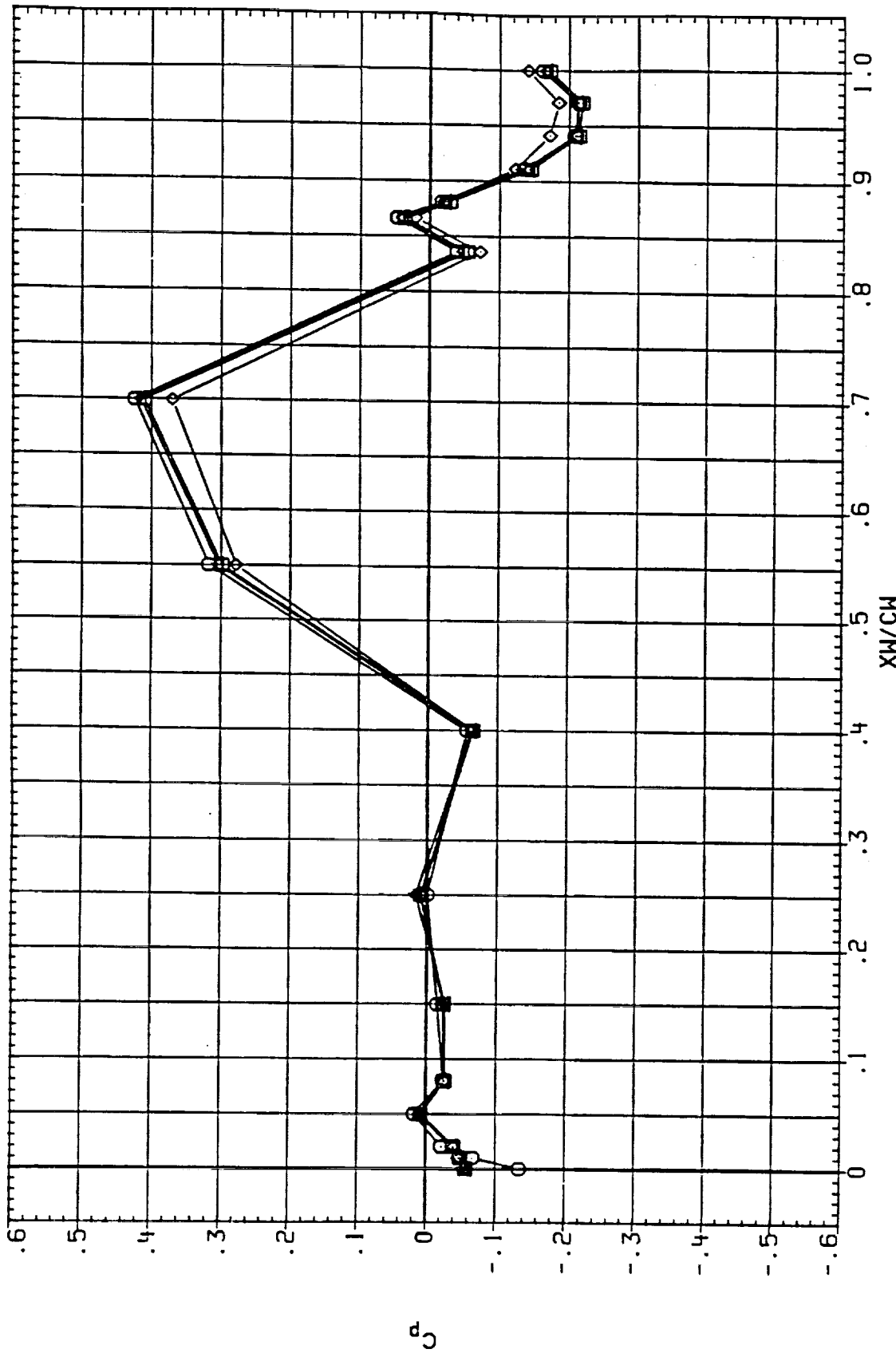


FIGURE 7 IAG13A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER WING - LOWER SURFACE
 BETA = .000 ETA = .299 ALPHA = .000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELY	OB-ELY
(RCOLH9)	IAG13A, B/L OI*ASRH*PLUHES SI,2	1.550	.000	10.000	9.000
(RCOL57)	IAG13A, B/L OI*ASRH*PLUHES SI,3	1.550	.000	10.000	5.000
(RCOL92)	IAG13A, B/L OI*ASRH*PLUHES SI,3	1.550	180.000	10.000	5.000
(RCOLO0)	IAG13A, B/L OI*ASRH*PLUHES SI,3	1.550	999.000	10.000	5.000

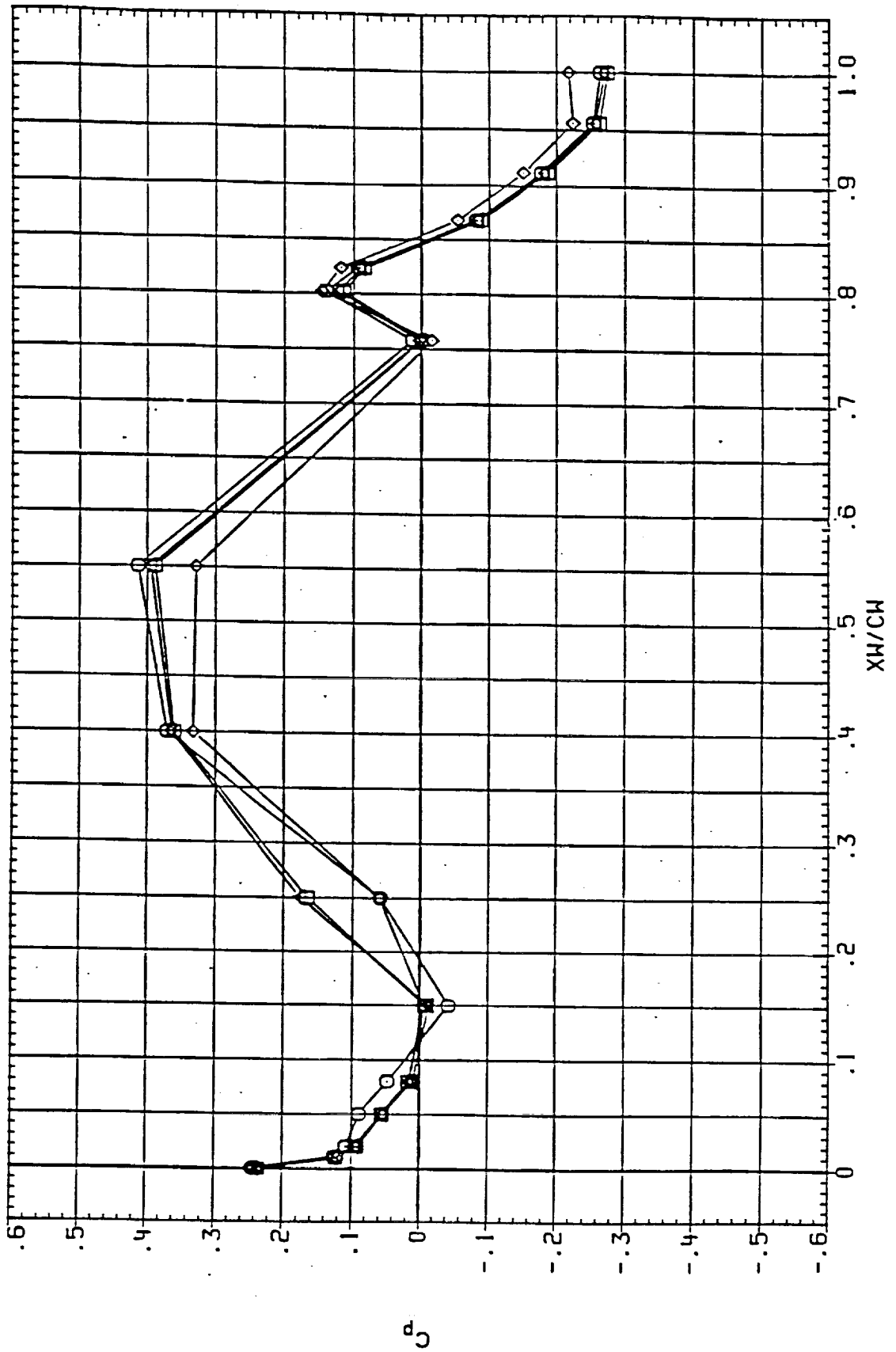


FIGURE 7 IAG13A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER WING - LOWER SURFACE
 BETA = .000 ETA = .427 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOL.91)	○	IAG13A.8/L OT*ASRM*PLUMES S1.2	1.550	.000	10.000	9.000
(RCOL.57)	□	IAG13A.8/L OT*ASRM*PLUMES S1.3	1.550	.000	10.000	5.000
(RCOL.92)	◇	IAG13A.8/L OT*ASRM*PLUMES S1.3	1.550	180.000	10.000	5.000
(RCOL.00)	△	IAG13A.8/L OT*ASRM*PLUMES S1.3	1.550	999.000	10.000	5.000

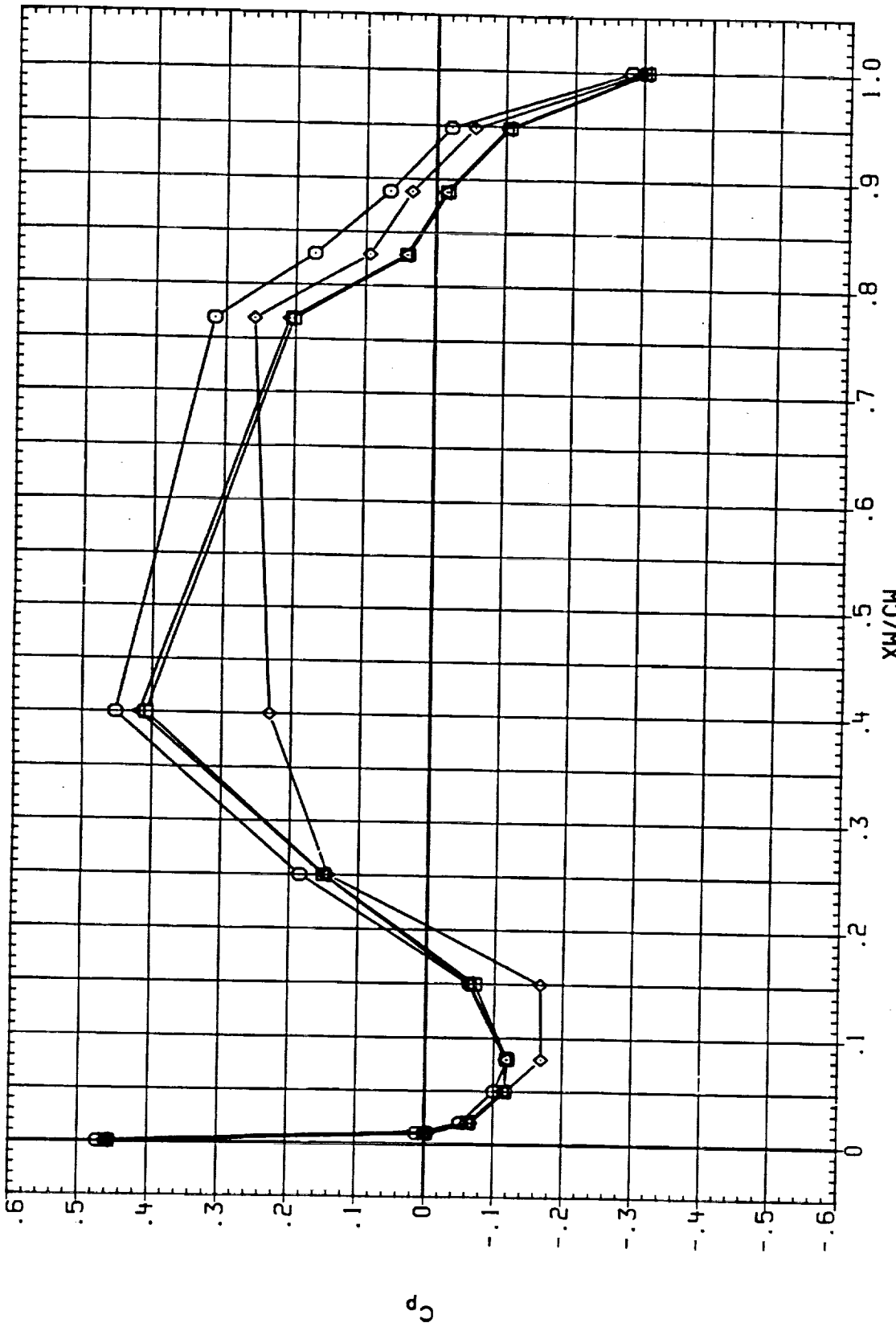


FIGURE 7 IAG13A SELECTED PRESSURE DISTRIBUTIONS
 ORBITER WING - LOWER SURFACE
 BETA = .000 ETA = .811 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	18-ELY	08-ELY
(RCOT151)	□	IAG13A, B/L 01*RSRH*PLUMES S1.2	.600	.000	10.000	9.000
(RCOT142)	○	IAG13A, B/L 01*ASRH*PLUMES S1.2	.600	.000	10.000	9.000
(RCOT180)	◇	IAG13A, B/L 01*ASRH*PLUMES S1.2	.600	180.000	10.000	9.000
(RCOT1C1)	△	IAG13A, B/L 01*ASRH*PLUMES S1.2	.600	999.000	10.000	5.000

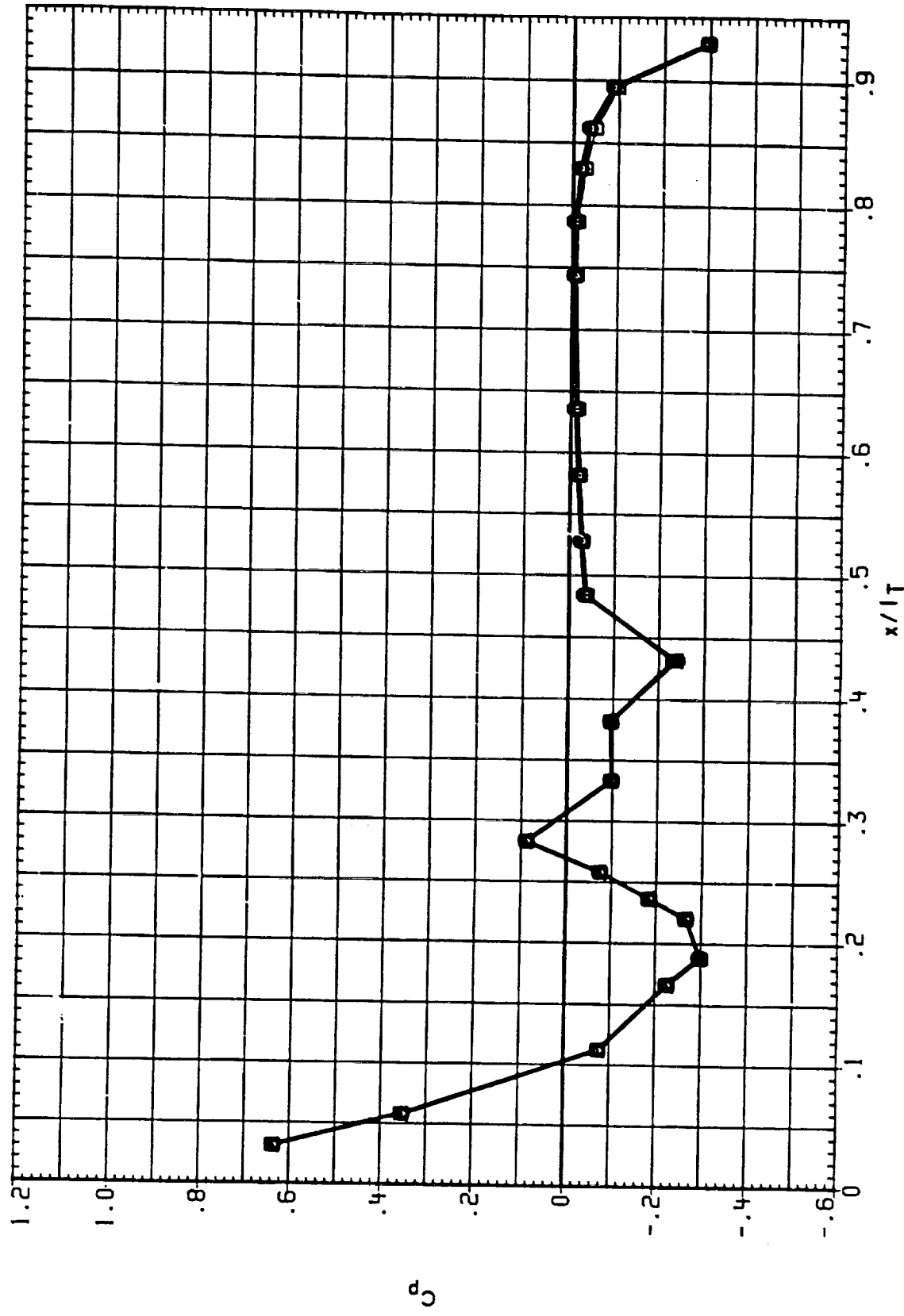


FIGURE 8 IAG13A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 PHI = 30.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	TANK	MACH	IEABOX	IB-ELV	OB-ELV
(RCOT15)	○	IA613A.B/L OT+RSRM+PLUMES S1.2	-EXTERNAL TANK	.600	.000	10.000	9.000
(RCOT12)	□	IA613A.B/L OT+ASRM+PLUMES S1.2	-EXTERNAL TANK	.600	.000	10.000	9.000
(RCOT10)	◇	IA613A.B/L OT+ASHM+PLUMES S1.2	-EXTERNAL TANK	.600	180.000	10.000	9.000
(RCOTC1)	△	IA613A.B/L OT+ASRM+PLUMES S1.2	-EXTERNAL TANK	.600	999.000	10.000	5.000

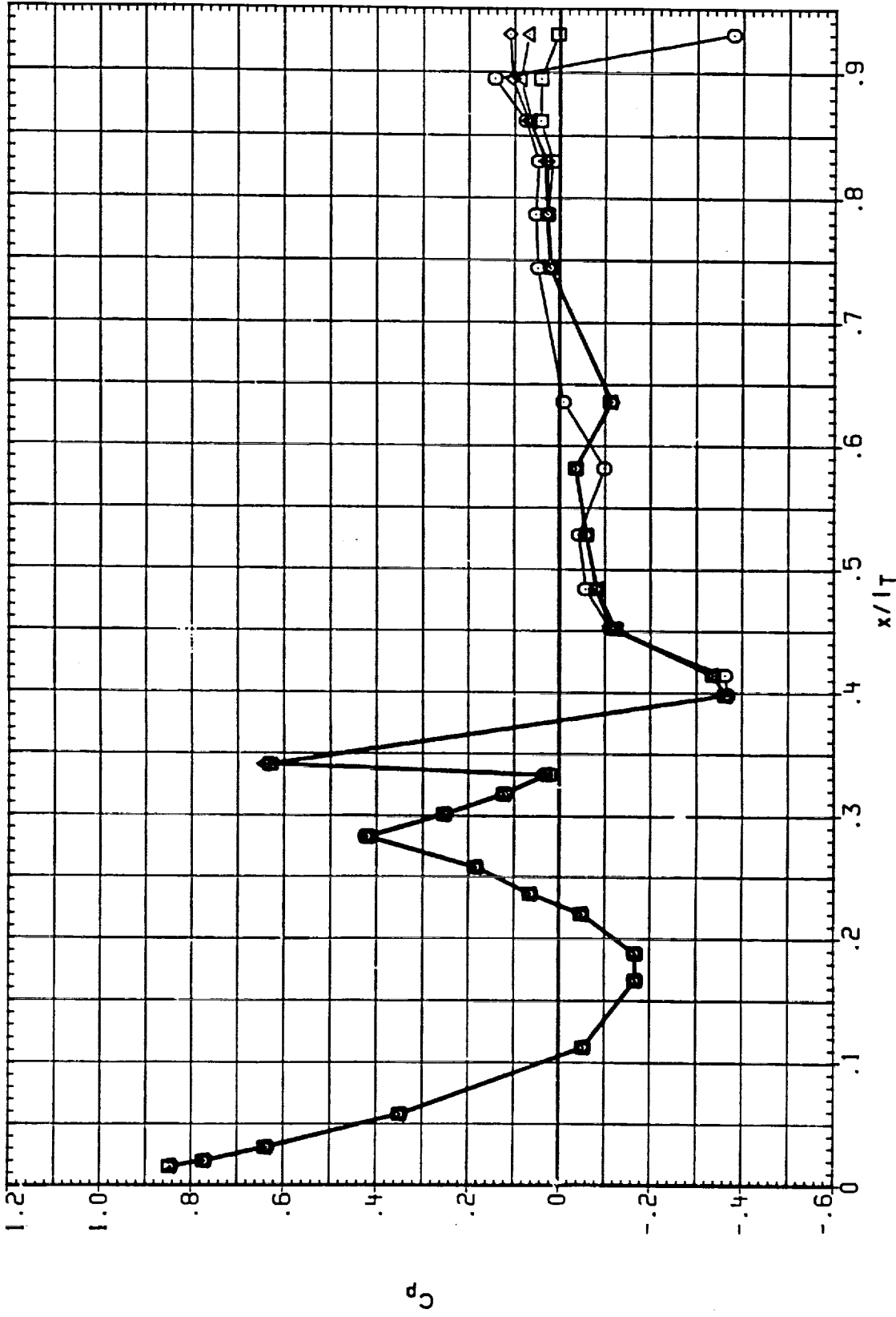


FIGURE 8 IA613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 PHI = 90.000 ALPHA = .000

DATA SET SYMBO.	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOT15)	IAG13A.B/L OT*ASRH*PLUPE'S S1.2	.600	.000	10.000	9.000
(RCOT42)	IAG13A.B/L OT*ASRH*PLUPE'S S1.2	.600	.000	10.000	9.000
(RCOT80)	IAG13A.B/L OT*ASRH*PLUPE'S S1.2	.600	180.000	10.000	9.000
(RCOT1C1)	IAG13A.B/L OT*ASRH*PLUPE'S S1.2	.600	999.000	10.000	5.000

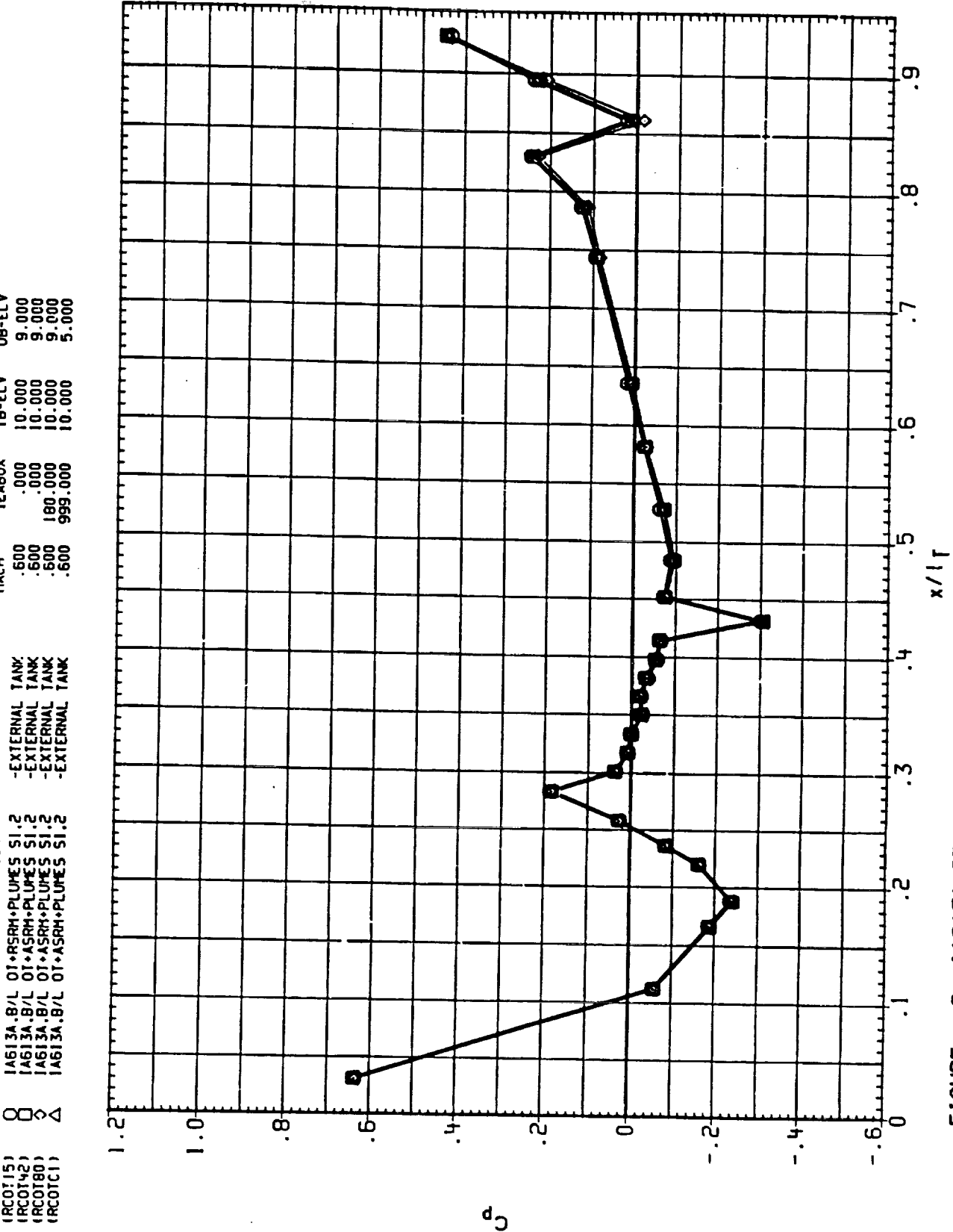


FIGURE 8 IAG13A SELECTED PRESSURE DISTRIBUTIONS
EXTERNAL TANK

BETA = .000 PHI = 135.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RC01161)	○	IA613A. B/L 01-RSRH-PLUMES S1.2	.800	.000	10.000	9.000
(RC0143)	○	IA613A. B/L 01-ASRH-PLUMES S1.2	.800	.000	10.000	9.000
(RC0181)	◇	IA613A. B/L 01-ASRH-PLUMES S1.2	.800	180.000	10.000	9.000

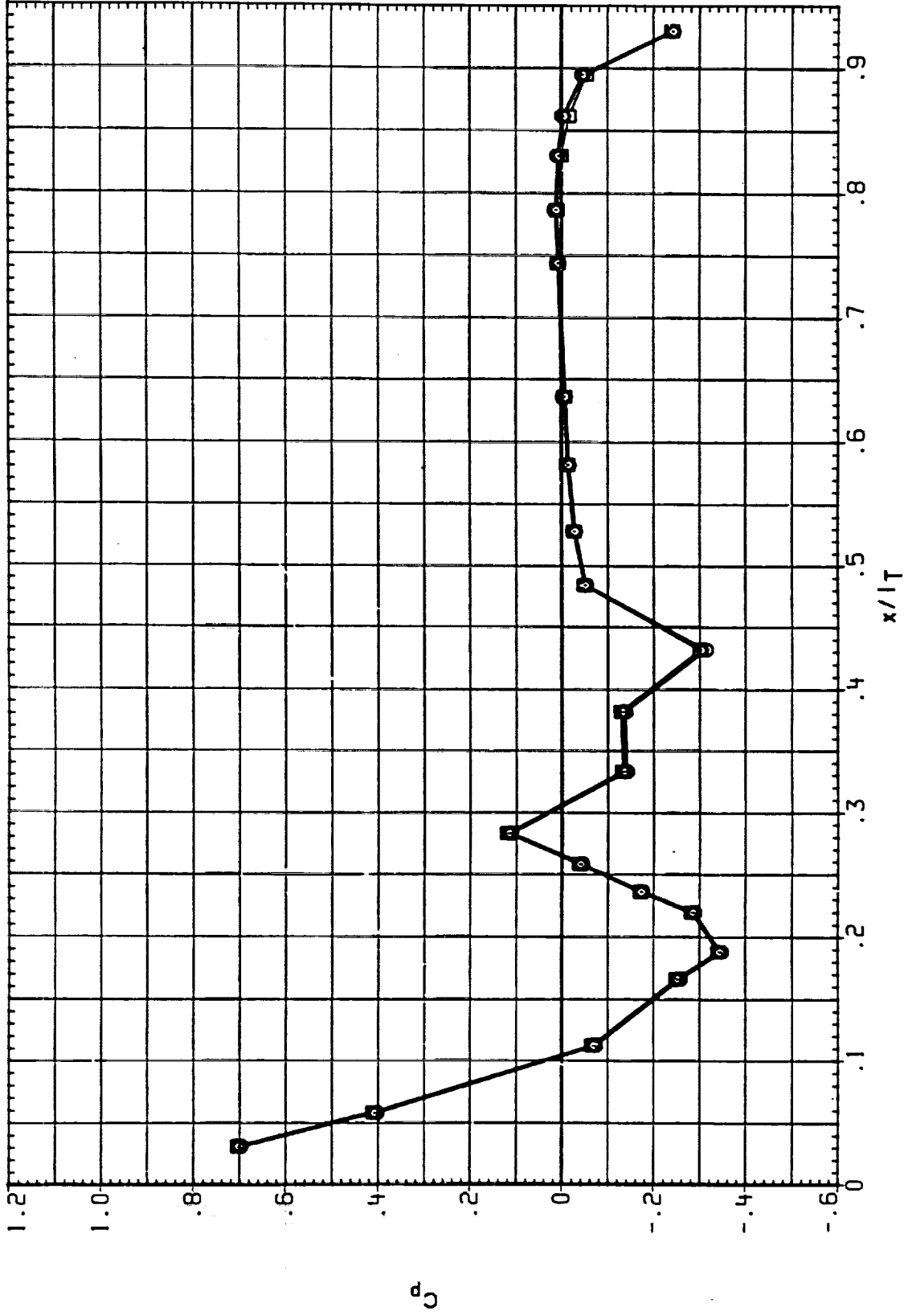


FIGURE 8 IA613A SELECTED PRESSURE DISTRIBUTIONS
EXTERNAL TANK

BETA = .000 PHI = 30.000 ALPHA = .000 PAGE 184

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IE-BOX	IB-ELY	OB-ELY
IRCO1161	○	IA613A.8/L OT*RSRM*PLUMES SI.2	.800	.000	10.000	9.000
IRCO1431	□	IA613A.8/L OT*ASRM*PLUMES SI.2	.800	.000	10.000	9.000
IRCO1811	◇	IA613A.8/L OT*ASRM*PLUMES SI.2	.800	180.000	10.000	9.000

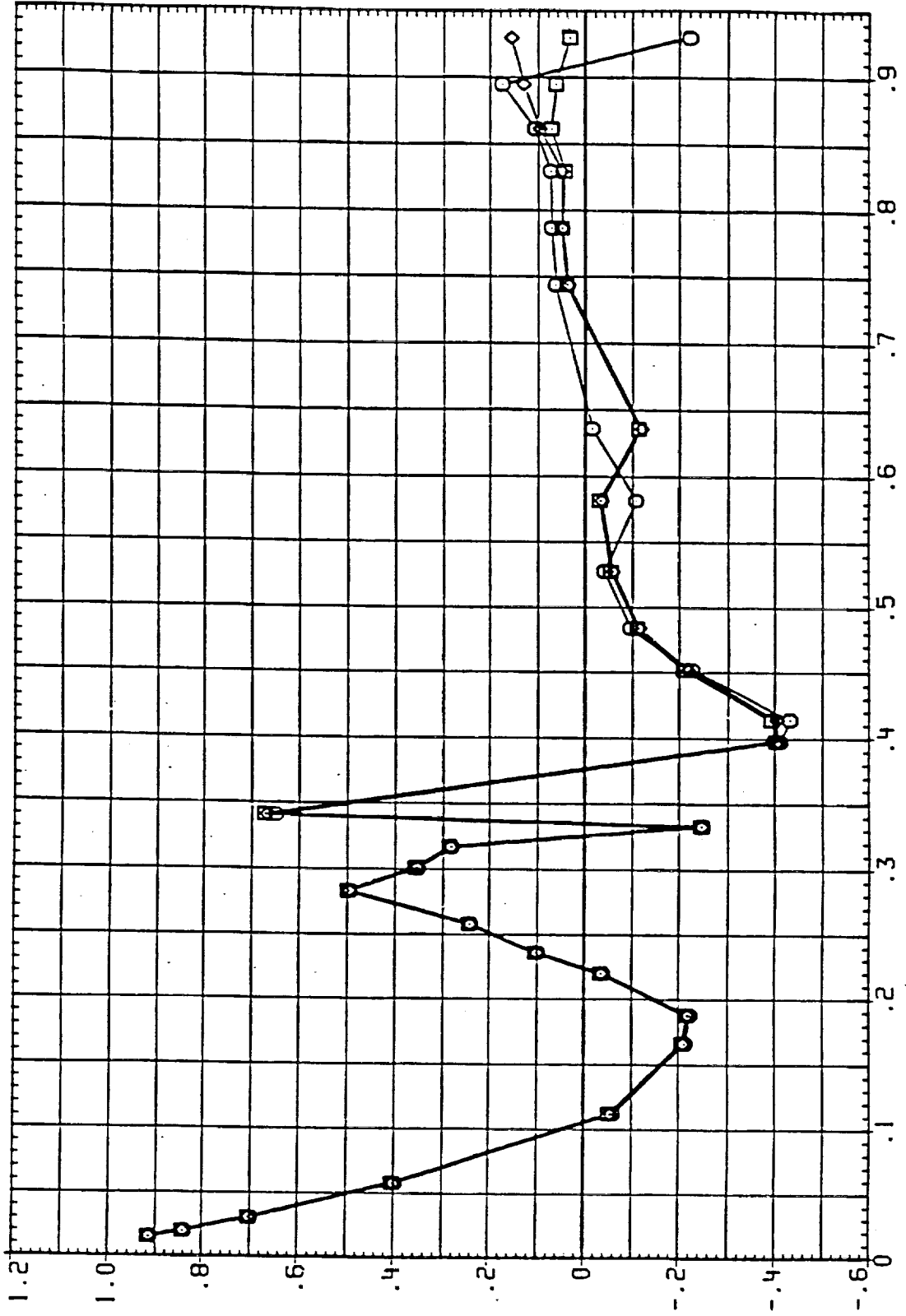


FIGURE 8 IA613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 PHI = 90.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOT16)	○	IA613A, B/L OT+RSRM+PLUMES S1.2	.800	.000	10.000	9.000
(RCOT13)	◇	IA613A, B/L OT+ASRM+PLUMES S1.2	.800	.000	10.000	9.000
(RCOT81)	◇	IA613A, B/L OT+ASRM+PLUMES S1.2	.800	180.000	10.000	9.000

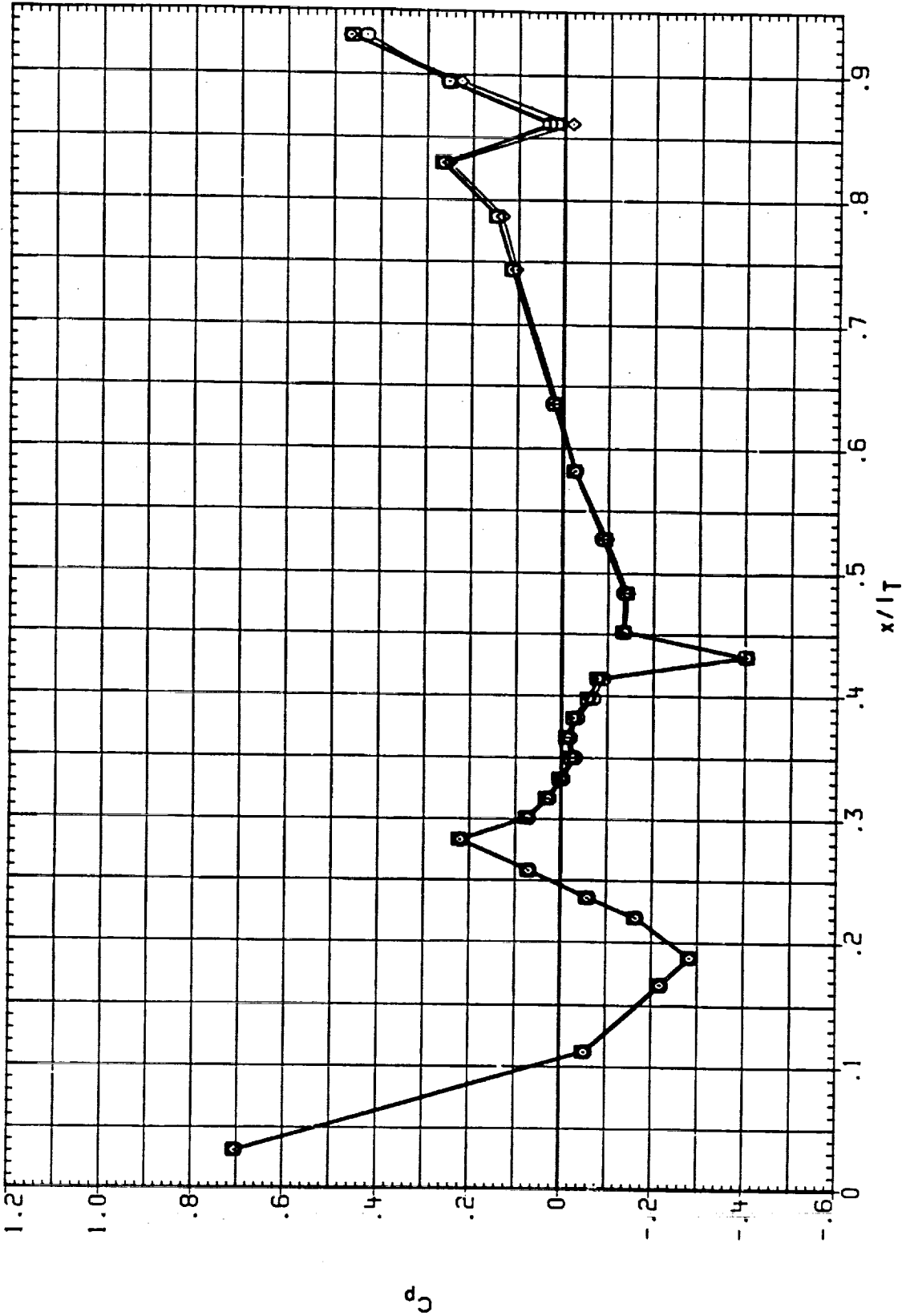


FIGURE 8 IA613A SELECTED PRESSURE DISTRIBUTIONS
 BETA = .000 PHI = 135.000 ALPHA = .000
 EXTERNAL TANK

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELY	OB-ELY
(RC0171)	IA613A, B/L 01+RSRM+PLUMES S1.2	.900	.000	10.000	9.000
(RC0144)	IA613A, B/L 01+ASRM+PLUMES S1.2	.900	.000	10.000	9.000
(RC0182)	IA613A, B/L 01+ASRM+PLUMES S1.2	.900	180.000	10.000	9.000
(RC01C2)	IA613A, B/L 01+ASRM+PLUMES S1.2	.900	999.000	10.000	5.000

-EXTERNAL TANK
-EXTERNAL TANK
-EXTERNAL TANK

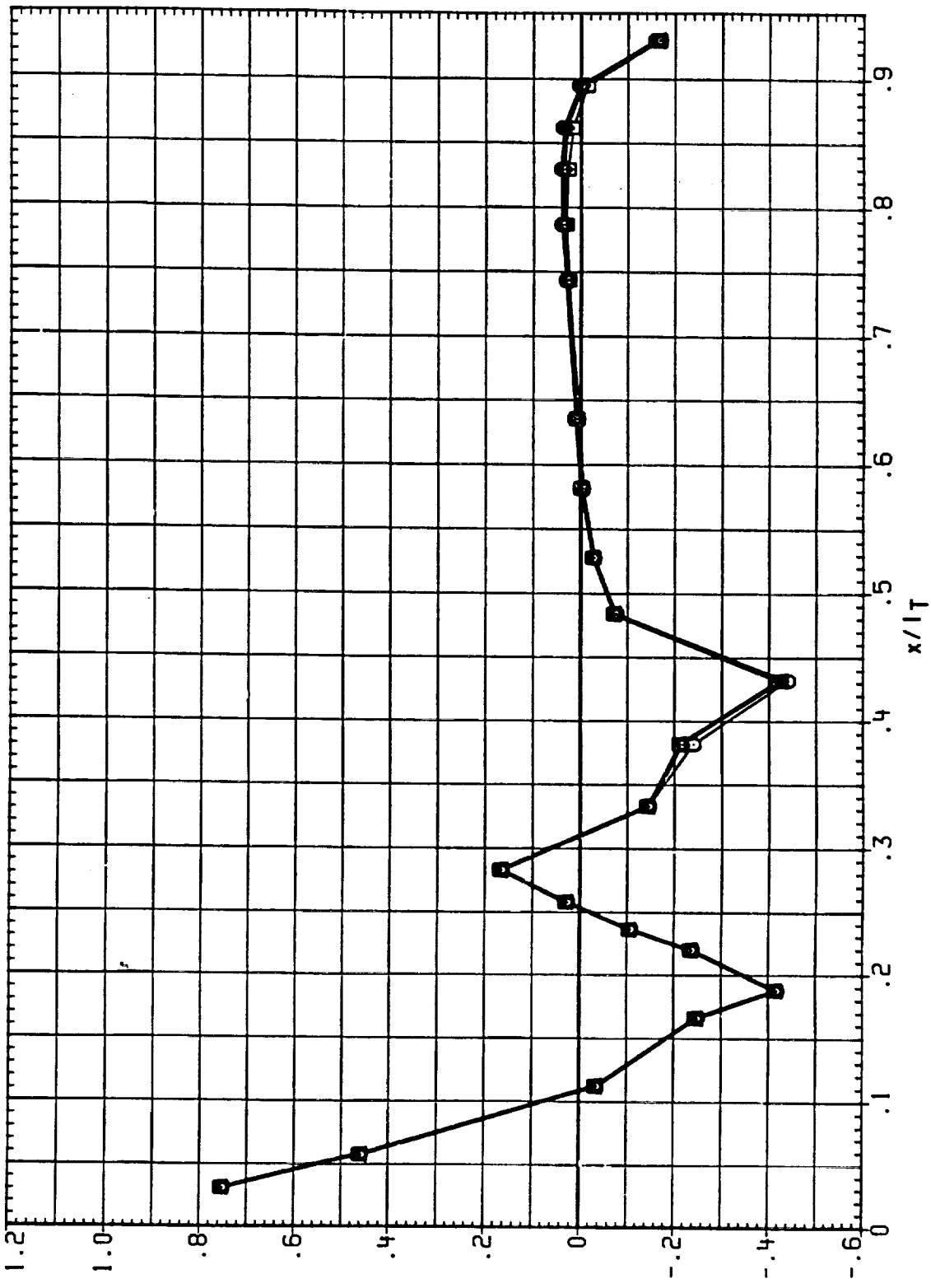


FIGURE 8 IA613A SELECTED PRESSURE DISTRIBUTIONS
EXTERNAL TANK

BETA = .000 PHI = 30.000 ALPHA = .000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOT17)	IA613A, B/L 01+RSRH+PLUMES S1.2	.900	.000	10.000	9.000
(RCOT44)	IA613A, B/L 01+ASRH+PLUMES S1.2	.900	.000	10.000	9.000
(RCOTB2)	IA613A, B/L 01+ASRH+PLUMES S1.2	.900	180.000	10.000	9.000
(RCOTC2)	IA613A, B/L 01+ASRH+PLUMES S1.2	.900	999.000	10.000	5.000

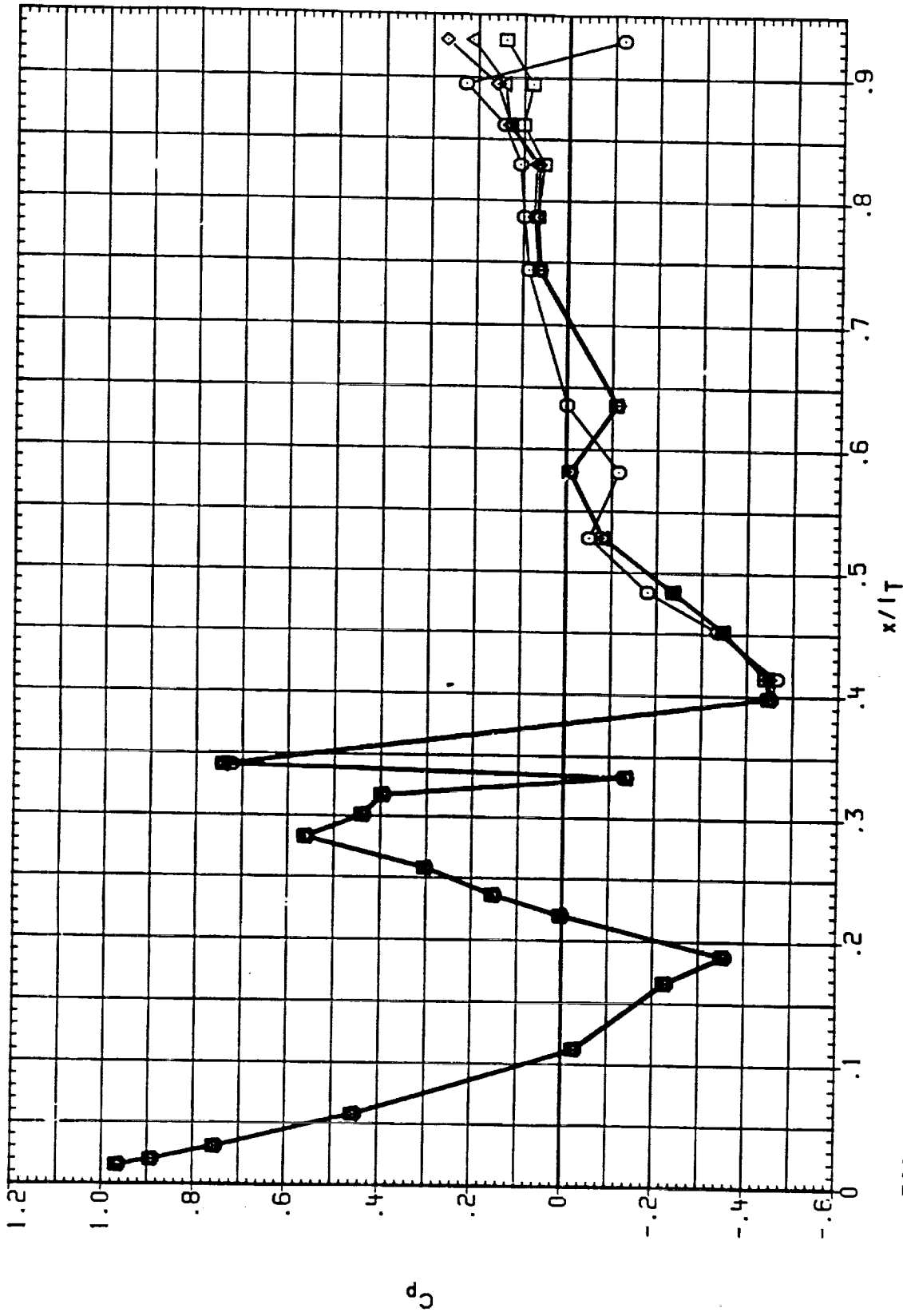


FIGURE 8 IA613A SELECTED PRESSURE DISTRIBUTIONS
 EXTERNAL TANK
 BETA = .000 PHI = 90.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	EXTERNAL TANK	MACH	IEABOX	IB-ELV	OB-ELV
(RC0117)	□	IAB13A-B/L 0T+ASRM+PLUMES S1.2	-EXTERNAL TANK	.900	.000	10.000	9.000
(RC0144)	○	IAB13A-B/L 0T+ASRM+PLUMES S1.2	-EXTERNAL TANK	.900	.000	10.000	9.000
(RC0183)	◇	IAB13A-B/L 0T+ASRM+PLUMES S1.2	-EXTERNAL TANK	.900	180.000	10.000	9.000
(RC01C2)	△	IAB13A-B/L 0T+ASRM+PLUMES S1.2	-EXTERNAL TANK	.900	999.000	10.000	5.000

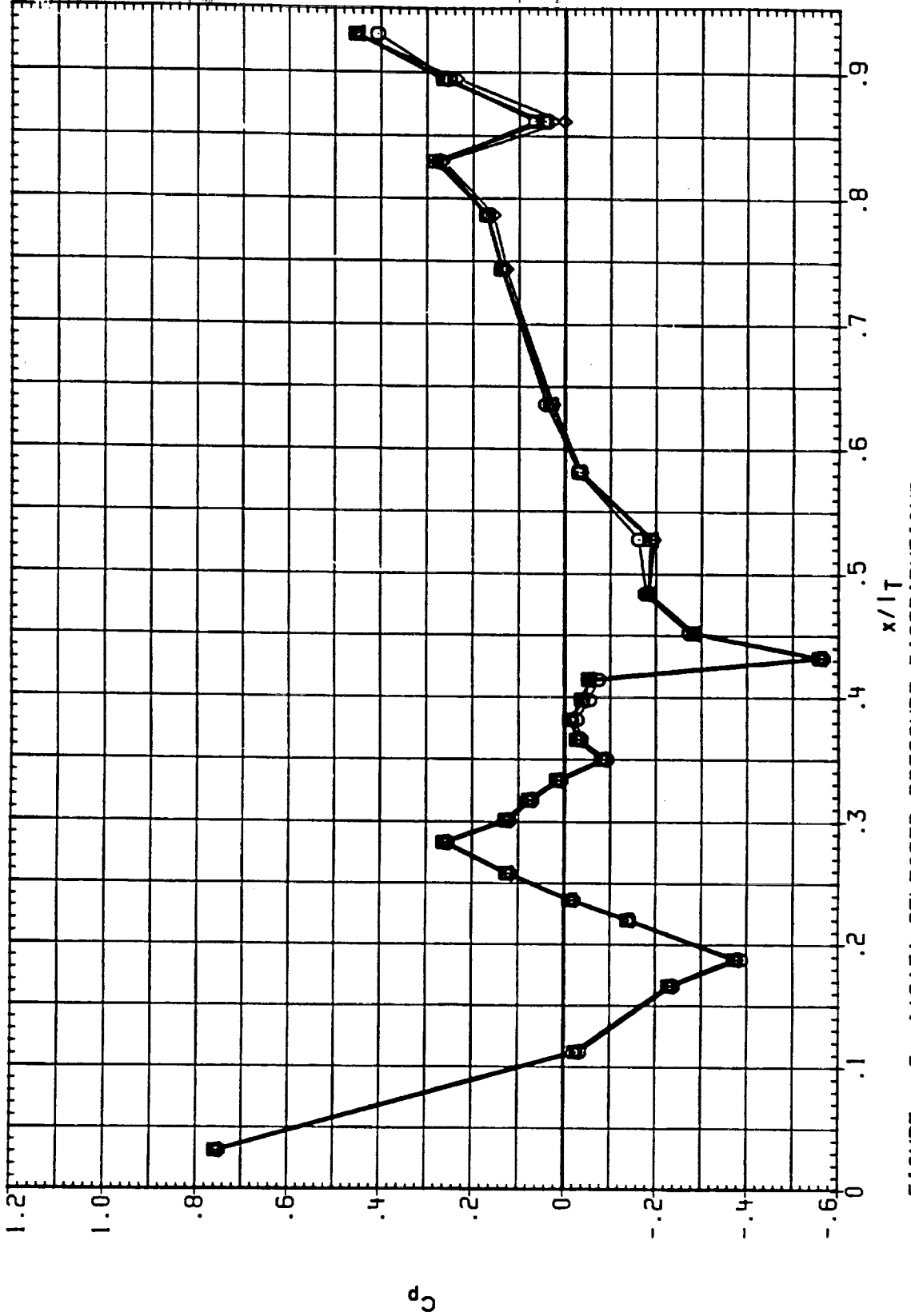


FIGURE 8 IAB13A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 PHI = 135.000 ALPHA = .000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOT18)	IA613A,B/L OT+SRM+PLUMES S1.2	.950	.000	10.000	9.000
(RCOT19)	IA613A,B/L OT+SRM+PLUMES S1.2	.950	.000	10.000	9.000
(RCOT83)	IA613A,B/L OT+SRM+PLUMES S1.2	.950	180.000	10.000	9.000

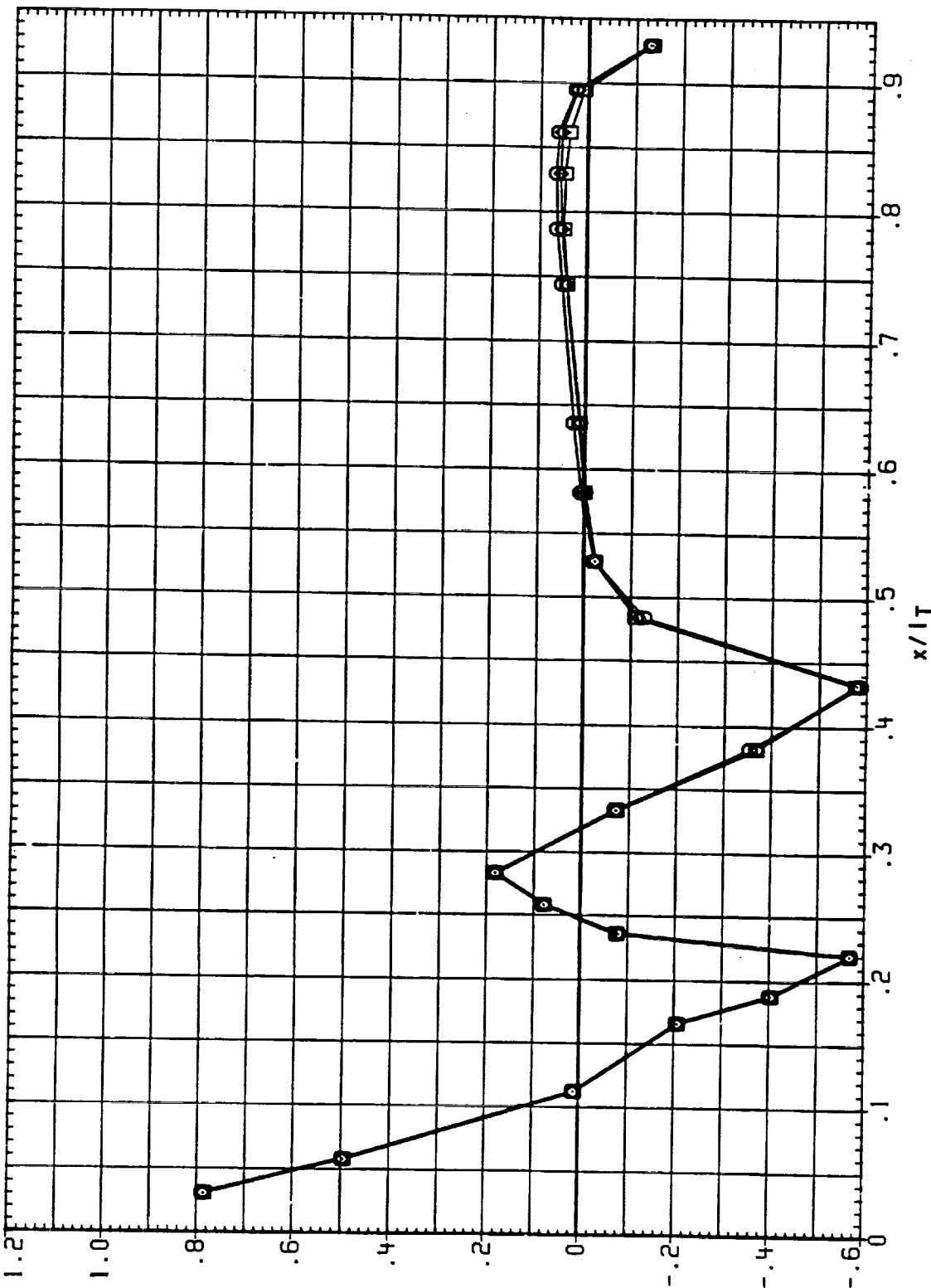


FIGURE 8 IA613A SELECTED PRESSURE DISTRIBUTIONS
EXTERNAL TANK

BETA = .000 PHI = 30.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELY	OB-ELY
(RC01181)	○	IAG13A.B/L OT*ASRH*PLUMES S1.2	.950	.000	10.000	9.000
(RC01451)	□	IAG13A.B/L OT*ASRH*PLUMES S1.2	.950	.000	10.000	9.000
(RC01831)	◇	IAG13A.B/L OT*ASRH*PLUMES S1.2	.950	180.000	10.000	9.000

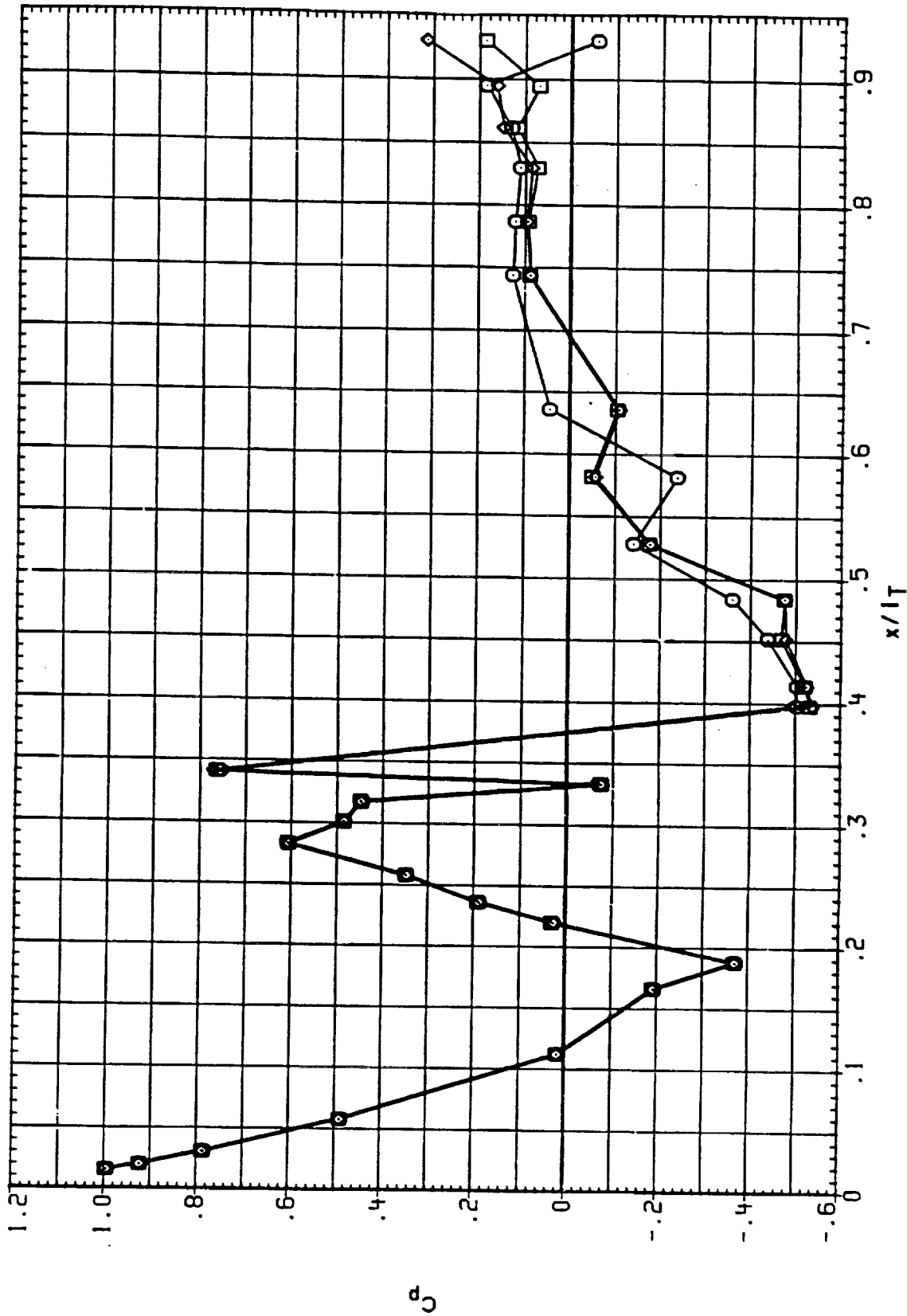


FIGURE 8 IAG13A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 PHI = 90.000 ALPHA = .000

DATA SET SYMBOL CONFIGURATION DESCRIPTION
 (RC01181) ○ IAG13A.B/L 01*PSRH*PLUMES S1.2
 (RC01451) □ IAG13A.B/L 01*ASRH*PLUMES S1.2
 (RC01831) ◇ IAG13A.B/L 01*ASRH*PLUMES S1.2

MACH IEABOX IB-ELV OB-ELV
 .950 .000 10.000 9.000
 .950 .000 10.000 9.000
 .950 180.000 10.000 9.000

-EXTERNAL TANK
 -EXTERNAL TANK
 -EXTERNAL TANK

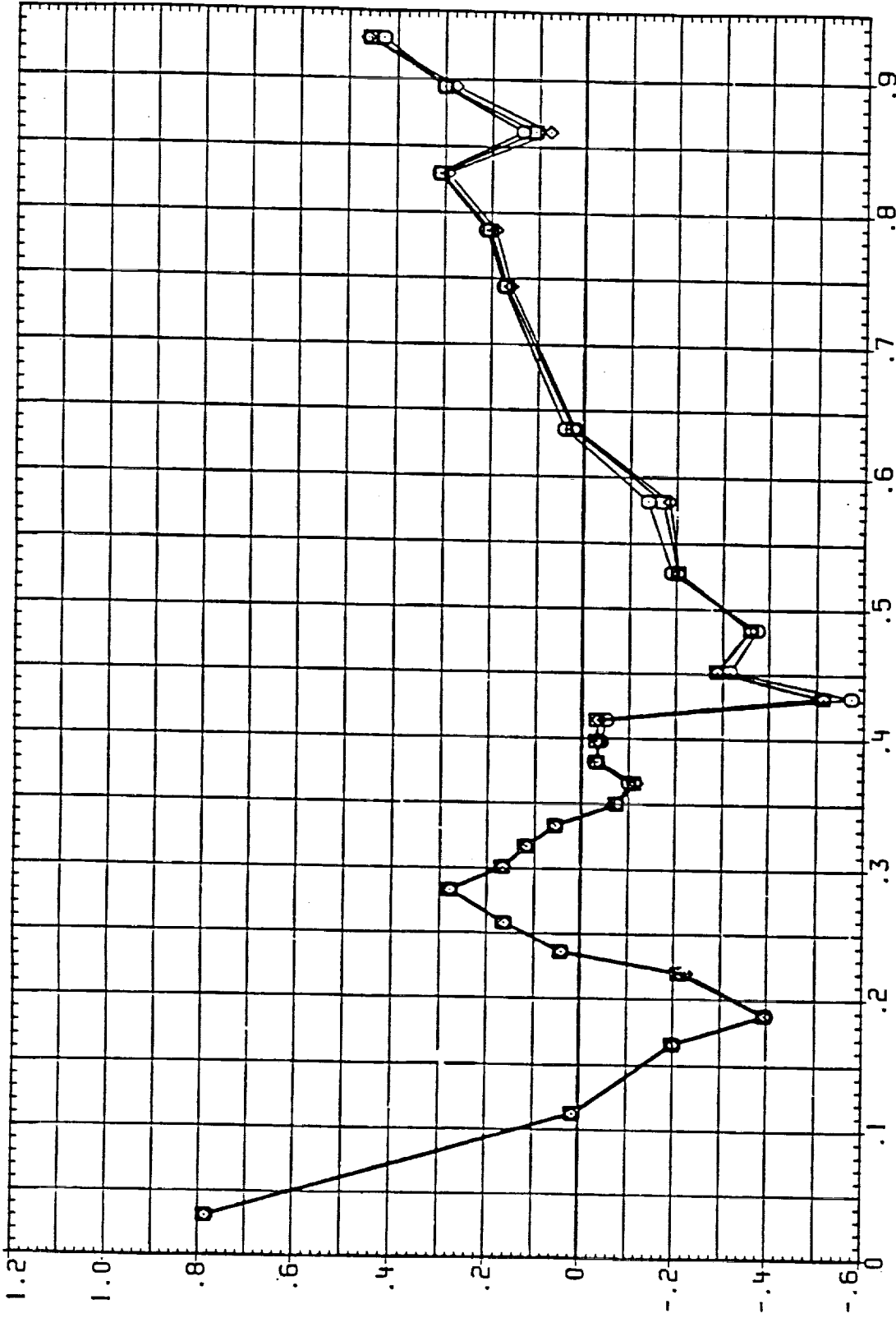


FIGURE 8 IAG13A SELECTED PRESSURE DISTRIBUTIONS
 EXTERNAL TANK

BETA = .000 PHI = 135.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IE/BOX	IB-ELY	OB-ELY
(RCOT19)	○	IAG13A.B/L OT+RSRH+PLUMES S1.2	1.050	.000	10.000	9.000
(RCOT46)	□	IAG13A.B/L OT+ASRH+PLUMES S1.2	1.050	.000	10.000	9.000
(RCOT84)	◇	IAG13A.B/L OT+ASRH+PLUMES S1.2	1.050	180.000	10.000	9.000

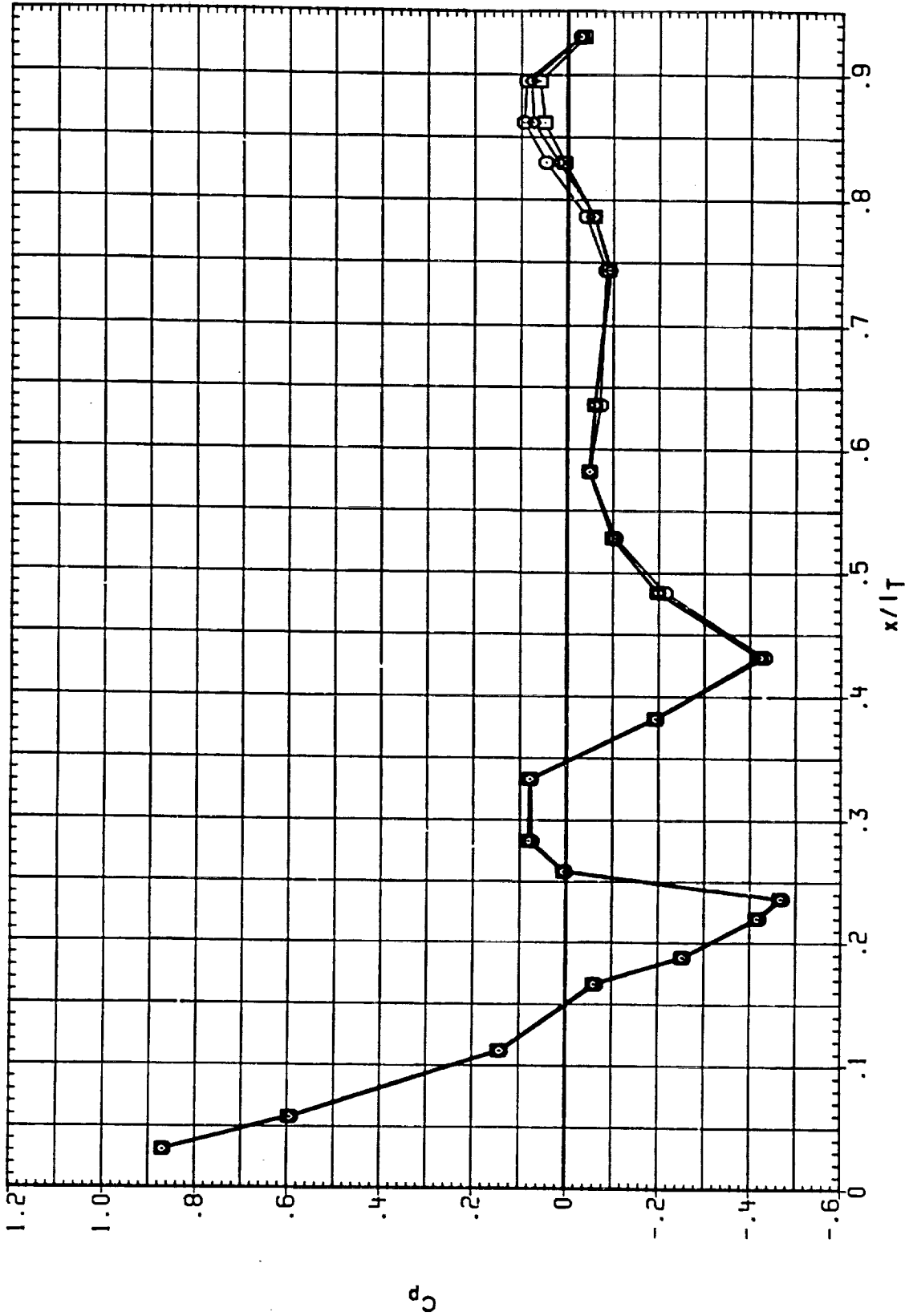


FIGURE 8 IAG13A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 PHI = 30.000 ALPHA = .000

DATA SET SYMBOL CONFIGURATION DESCRIPTION

(RC019)	○	IAG13A.B/L OT*PSRM*PLUMES S1.2	EXTERNAL TANK	MACH	IEABOX	IB-ELV	OB-ELV
(RC0146)	□	IAG13A.B/L OT*ASRM*PLUMES S1.2	-EXTERNAL TANK	1.050	.000	10.000	9.000
(RC0184)	◇	IAG13A.B/L OT*ASRM*PLUMES S1.2	-EXTERNAL TANK	1.050	.000	10.000	9.000
				1.050	180.000	10.000	9.000

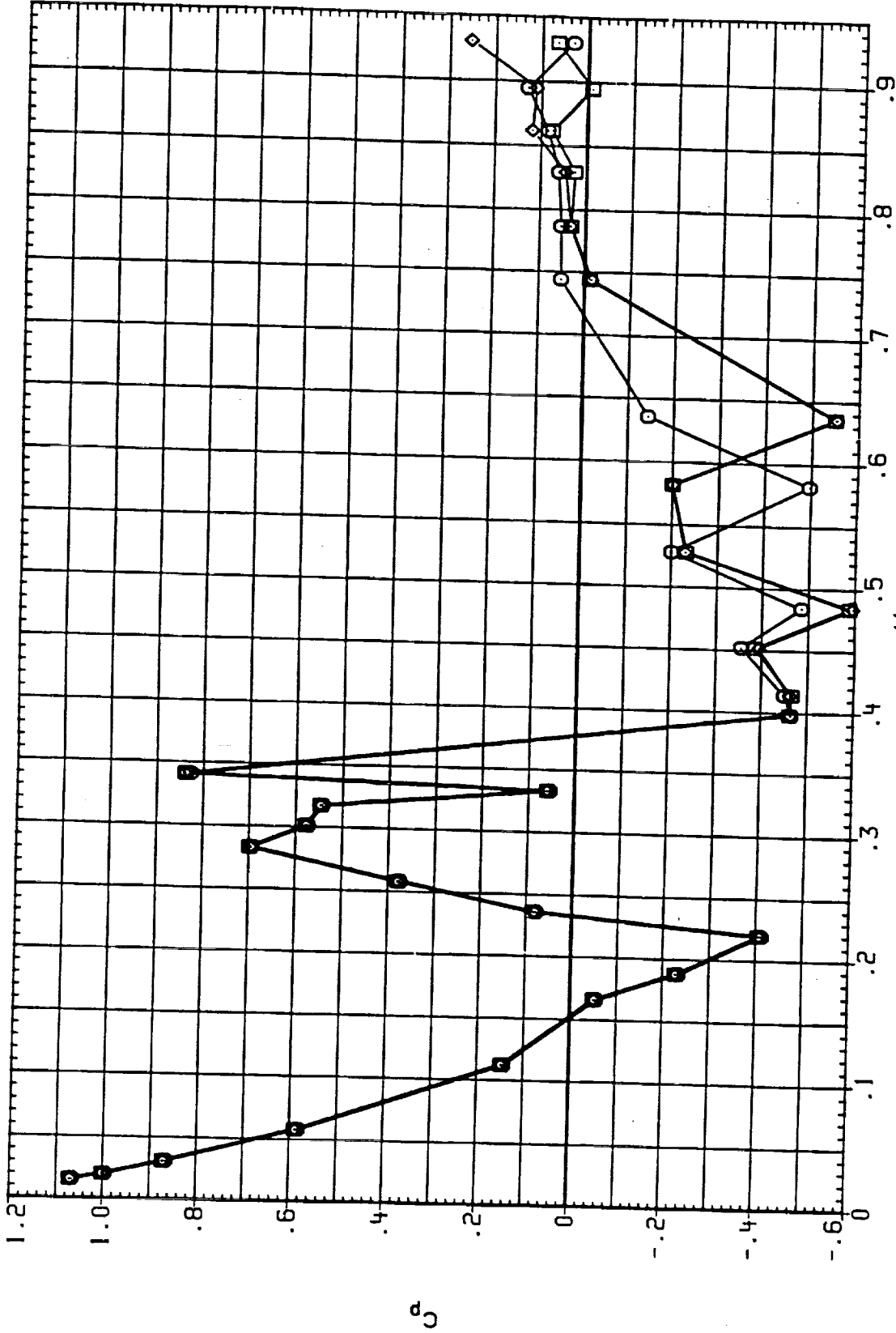


FIGURE 8 IAG13A SELECTED PRESSURE DISTRIBUTIONS
EXTERNAL TANK

BETA = .000 PHI = 90.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RC0119)	○	IA613A.8/L OT+RSRM+PLUMES S1.2	1.050	.000	10.000	9.000
(RC0146)	○	IA613A.8/L OT+ASRM+PLUMES S1.2	1.050	.000	10.000	9.000
(RC0184)	◇	IA613A.8/L OT+ASRM+PLUMES S1.2	1.050	180.000	10.000	9.000

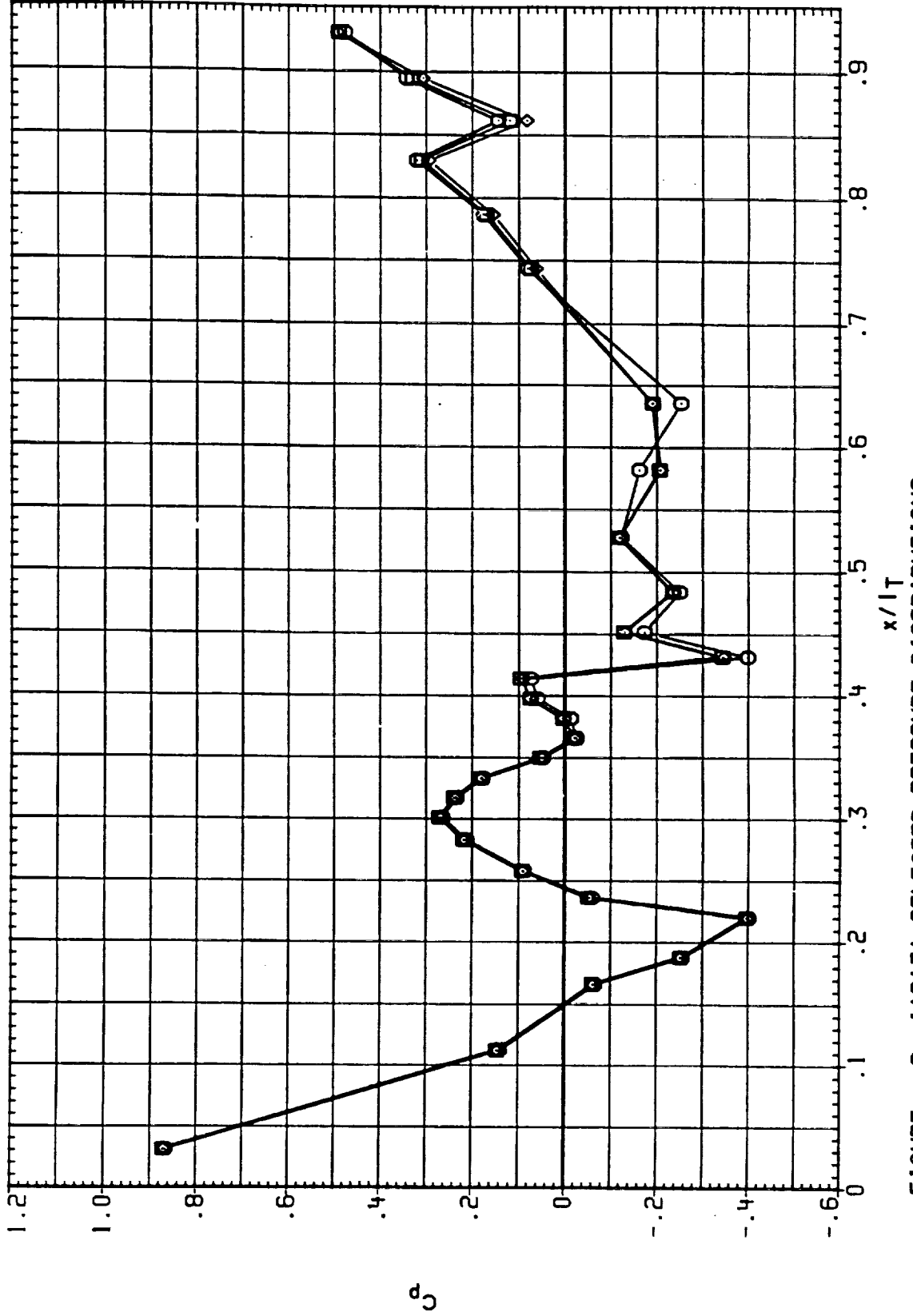


FIGURE 8 IA613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 PHI = 135.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	EXTERNAL TANK	MACH	IEABOX	IB-ELV	OB-ELV
(RCOT201)	□	IA613A.B/L OT*ASRM*PLUMES S1.2	-EXTERNAL TANK	1.100	.000	10.000	9.000
(RCOT471)	○	IA613A.B/L OT*ASRM*PLUMES S1.2	-EXTERNAL TANK	1.100	.000	10.000	9.000
(RCOT851)	◇	IA613A.B/L OT*ASRM*PLUMES S1.2	-EXTERNAL TANK	1.100	180.000	10.000	9.000
(RCOTC31)	△	IA613A.B/L OT*ASRM*PLUMES S1.2	-EXTERNAL TANK	1.100	999.000	10.000	5.000

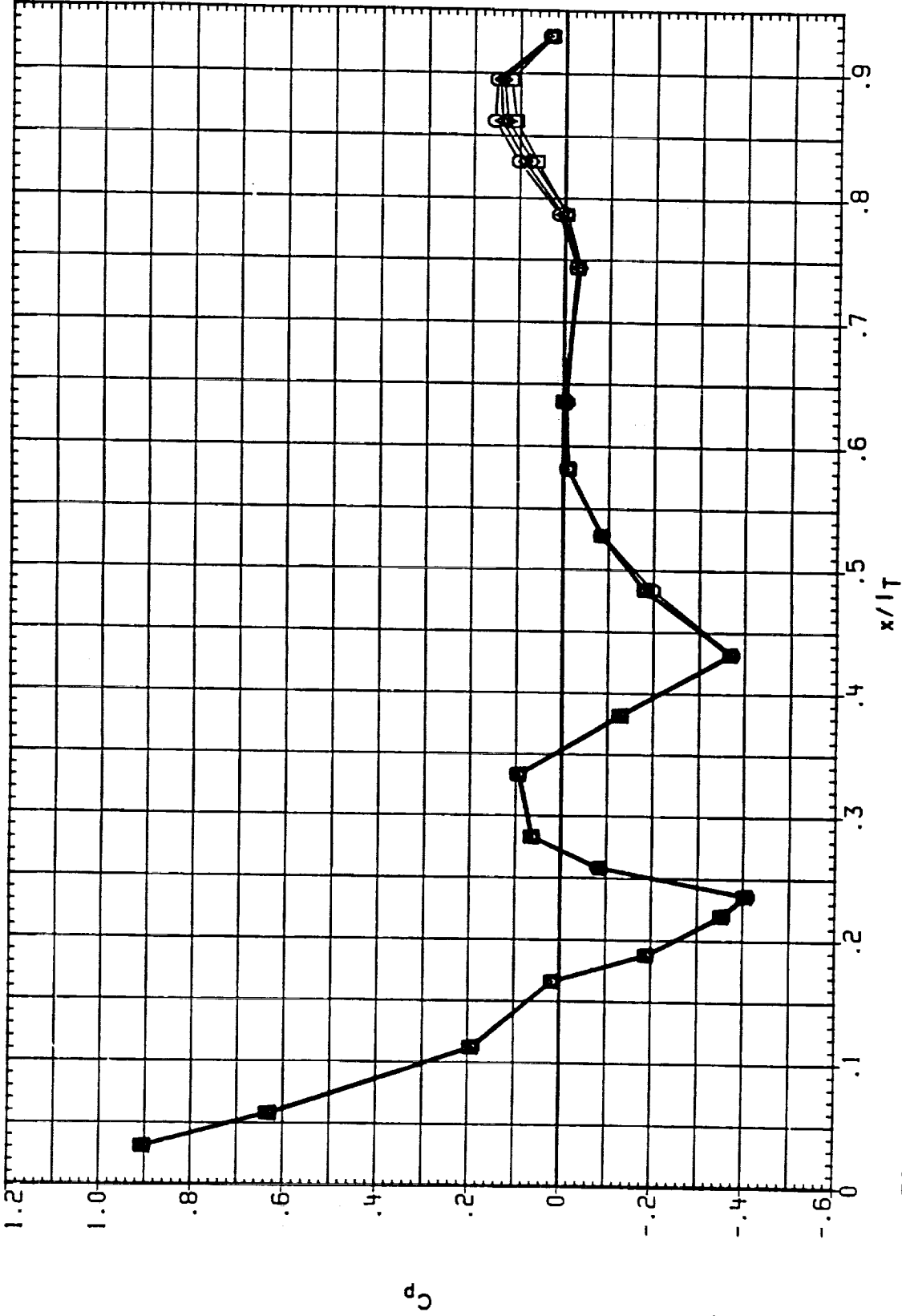


FIGURE 8 IA613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 PHI = 30.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	EXTERNAL TANK	MACH	IEABOX	IB-ELV	OB-ELV
(RCOT20)	○	IA613A.B/L OT+RSRM+PLUMES S1.2	-EXTERNAL TANK	1.100	.000	10.000	9.000
(RCOT47)	○	IA613A.B/L OT+ASRM+PLUMES S1.2	-EXTERNAL TANK	1.100	.000	10.000	9.000
(RCOT85)	◇	IA613A.B/L OT+ASRM+PLUMES S1.2	-EXTERNAL TANK	1.100	180.000	10.000	9.000
(RCOTC3)	△	IA613A.B/L OT+ASRM+PLUMES S1.2	-EXTERNAL TANK	1.100	999.000	10.000	5.000

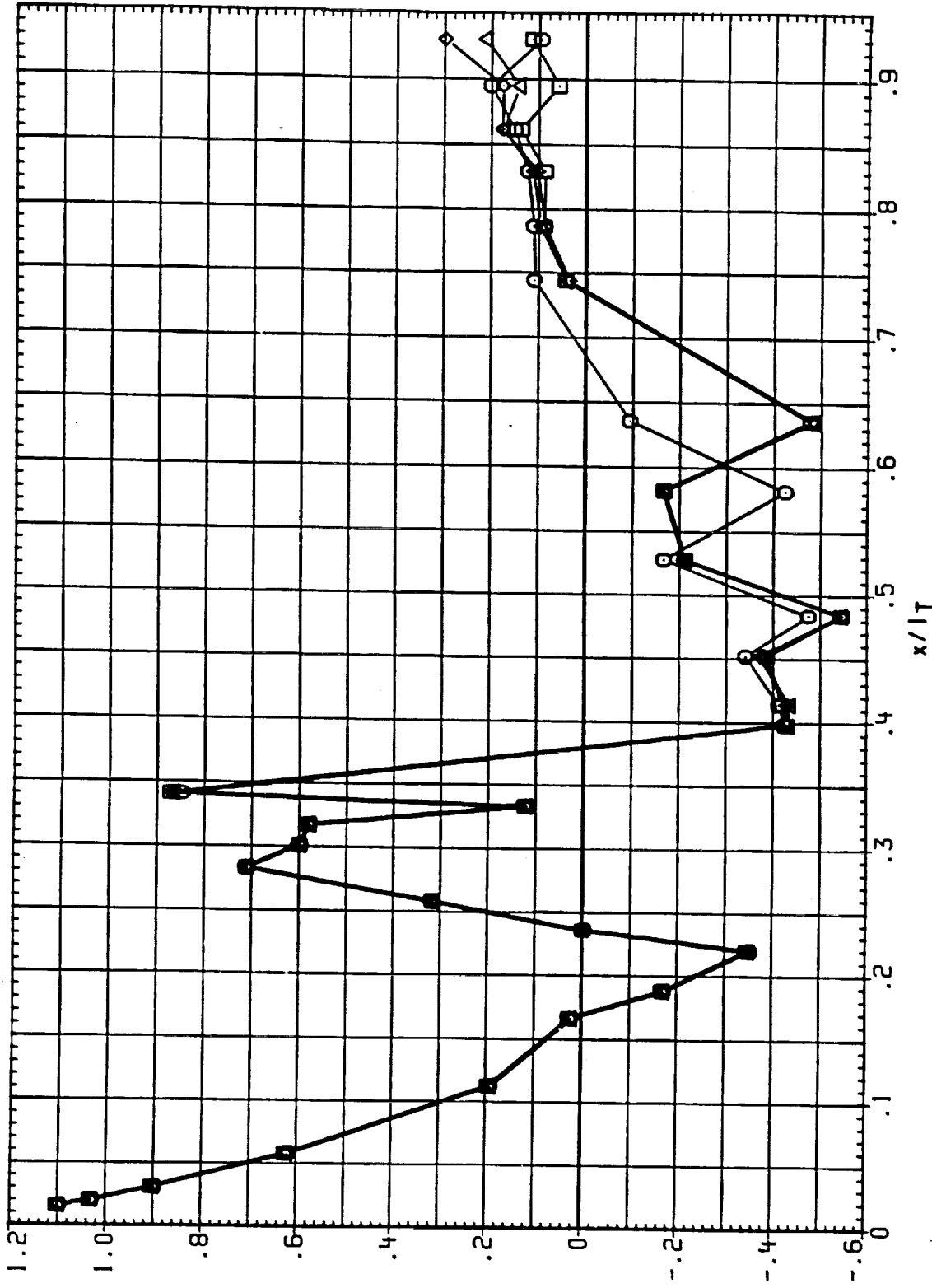


FIGURE 8 IA613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 PHI = 90.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RC0120)	○	IA613A.B/L 01.PSRM.PLUMES S1.2	1.100	.000	10.000	9.000
(RC0147)	□	IA613A.B/L 01.ASRM.PLUMES S1.2	1.100	.000	10.000	9.000
(RC0185)	◇	IA613A.B/L 01.ASRM.PLUMES S1.2	1.100	160.000	10.000	9.000
(RC01C3)	△	IA613A.B/L 01.ASRM.PLUMES S1.2	1.100	999.000	10.000	5.000

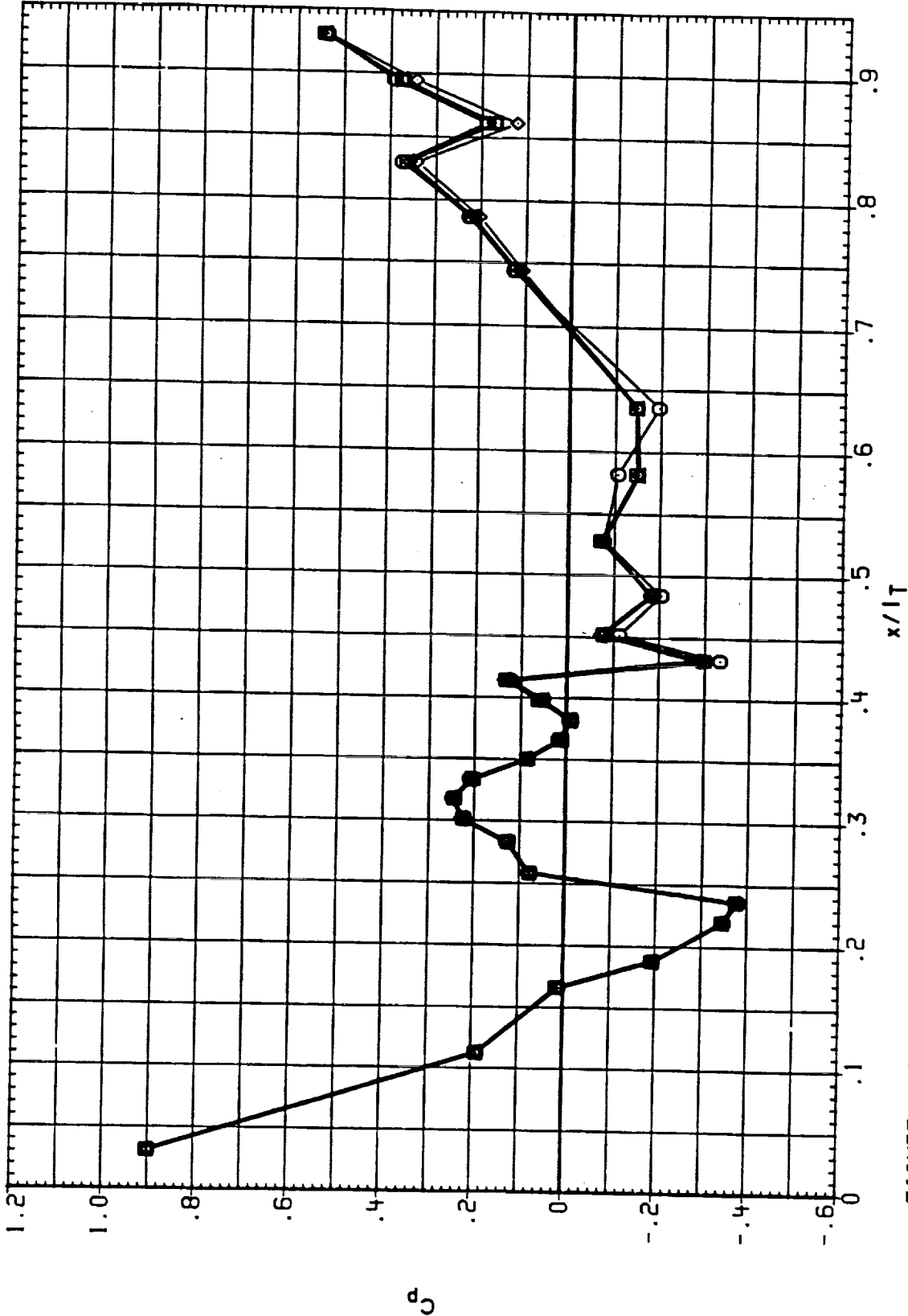


FIGURE 8 IA613A SELECTED PRESSURE DISTRIBUTIONS
EXTERNAL TANK

BETA = .000 PHI = 135.000 ALPHA = .000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	EXTERNAL TANK	MACH	IEABOX	IB-ELV	OB-ELV
(RCOT21)	IA613A.B/L OT*PSRM*PLUMES S1.2	-EXTERNAL TANK	1.150	.000	10.000	9.000
(RCOT48)	IA613A.B/L OT*ASRM*PLUMES S1.2	-EXTERNAL TANK	1.150	.000	10.000	9.000
(RCOT86)	IA613A.B/L OT*ASRM*PLUMES S1.2	-EXTERNAL TANK	1.150	180.000	10.000	9.000
(XCOTC4)	IA613A.B/L OT*ASRM*PLUMES S1.2	-EXTERNAL TANK	1.150	999.000	10.000	5.000

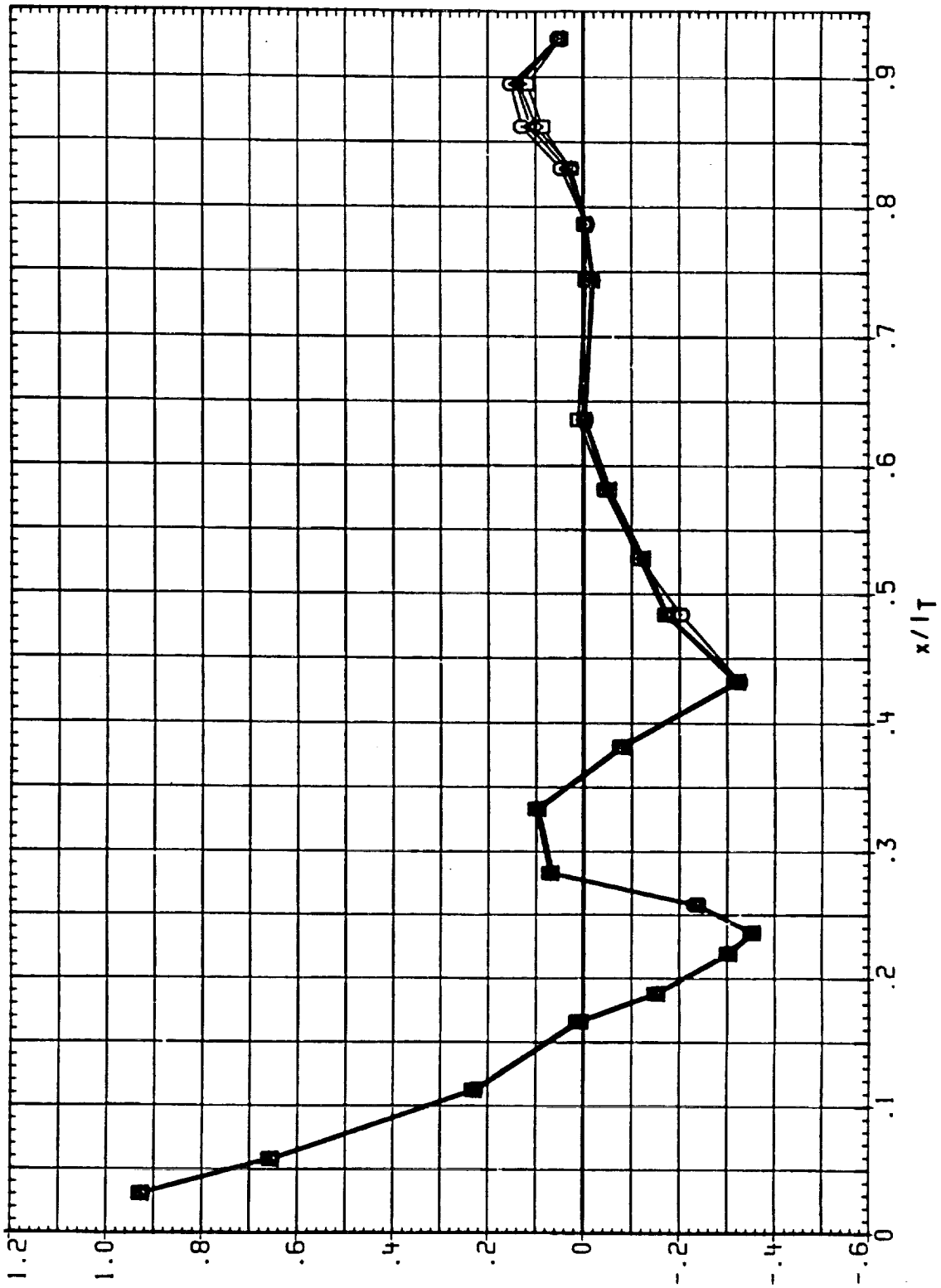


FIGURE 8 IA613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 PHI = 30.000 ALPHA = .000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	EXTERNAL TANK	MACH	IEABOX	IB-ELV	OB-ELV
(RC0121)	IA613A.B/L OT*PSRM*PLUMES S1.2	-EXTERNAL TANK	1.150	.000	10.000	9.000
(RC0148)	IA613A.B/L OT*ASRM*PLUMES S1.2	-EXTERNAL TANK	1.150	.000	10.000	9.000
(RC0186)	IA613A.B/L OT*ASRM*PLUMES S1.2	-EXTERNAL TANK	1.150	180.000	10.000	9.000
(XC01C4)	IA613A.B/L OT*ASRM*PLUMES S1.2	-EXTERNAL TANK	1.150	999.000	10.000	5.000

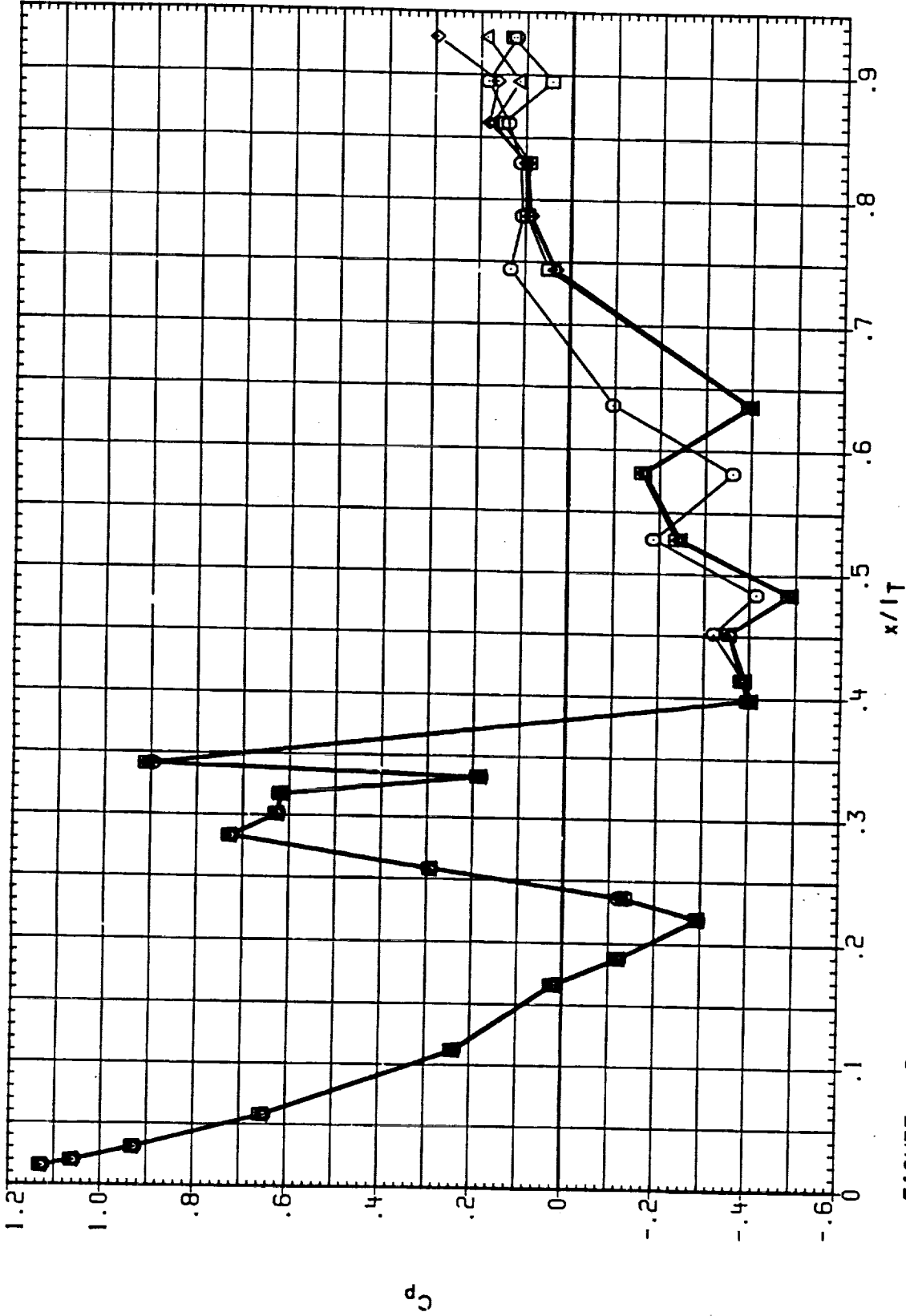


FIGURE 8 IA613A SELECTED PRESSURE DISTRIBUTIONS
 BETA = .000 PHIT = 90.000 ALPHA = .000
 EXTERNAL TANK

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	EXTERNAL TANK	MACH	IEABOX	IB-ELV	OB-ELV
(RCOT21)	○	IA613A.B/L OT+ASRH+PLUMES S1.2	-EXTERNAL TANK	1.150	.000	10.000	9.000
(RCOT48)	◇	IA613A.B/L OT+ASRH+PLUMES S1.2	-EXTERNAL TANK	1.150	.000	10.000	9.000
(RCOT86)	◇	IA613A.B/L OT+ASRH+PLUMES S1.2	-EXTERNAL TANK	1.150	180.000	10.000	9.000
(XCOTCH)	△	IA613A.B/L OT+ASRH+PLUMES S1.2	-EXTERNAL TANK	1.150	999.000	10.000	5.000

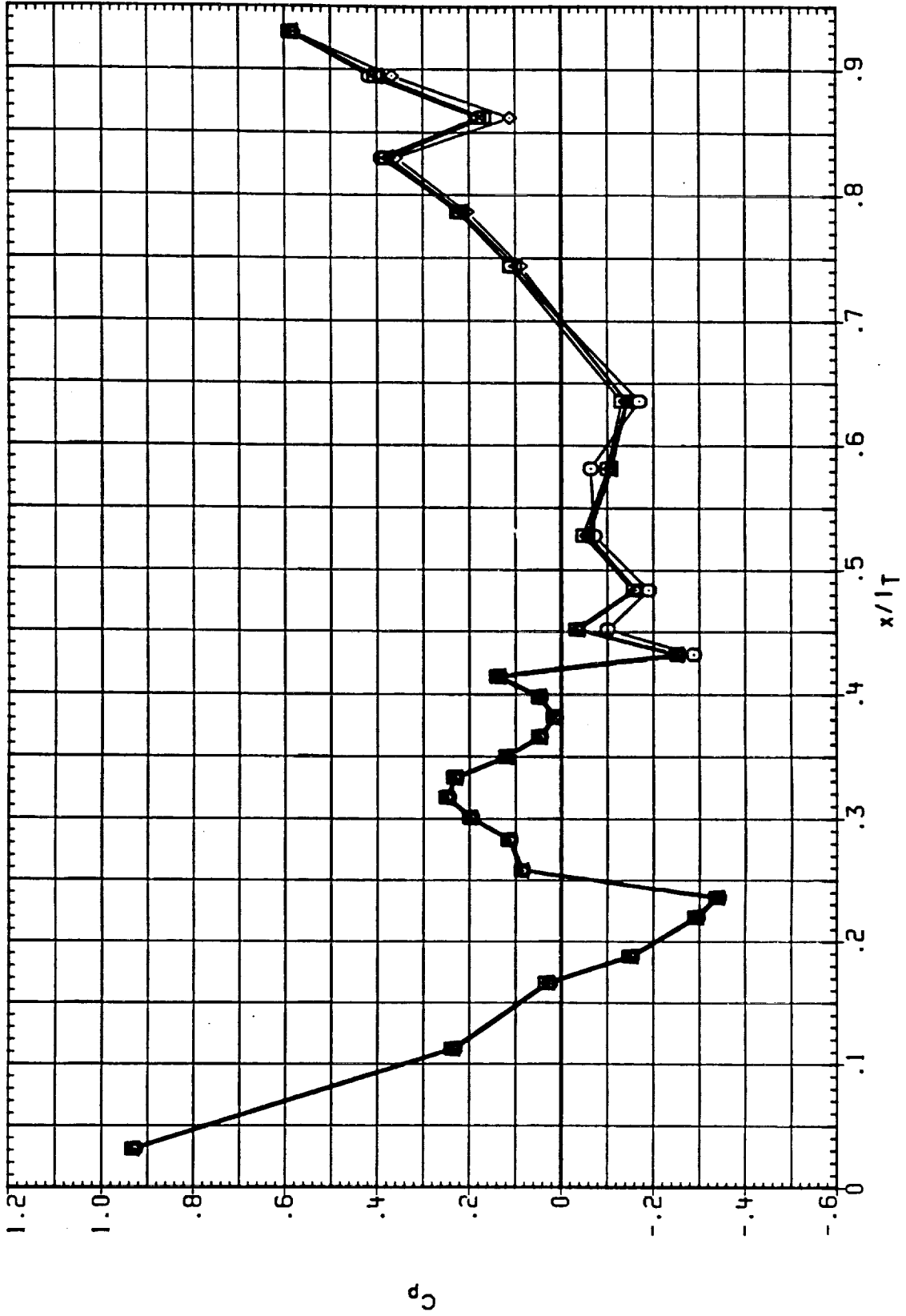


FIGURE 8 IA613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 PHI = 135.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RC01221)	○	IAG13A.B/L OT+RSRM+PLUMES S1.2	1.250	.000	10.000	9.000
(RC01491)	□	IAG13A.B/L OT+ASRM+PLUMES S1.2	1.250	.000	10.000	9.000
(RC01871)	◇	IAG13A.B/L OT+ASRM+PLUMES S1.2	1.250	180.000	10.000	9.000
(RC01C51)	△	IAG13A.B/L OT+ASRM+PLUMES S1.2	1.250	999.000	10.000	5.000

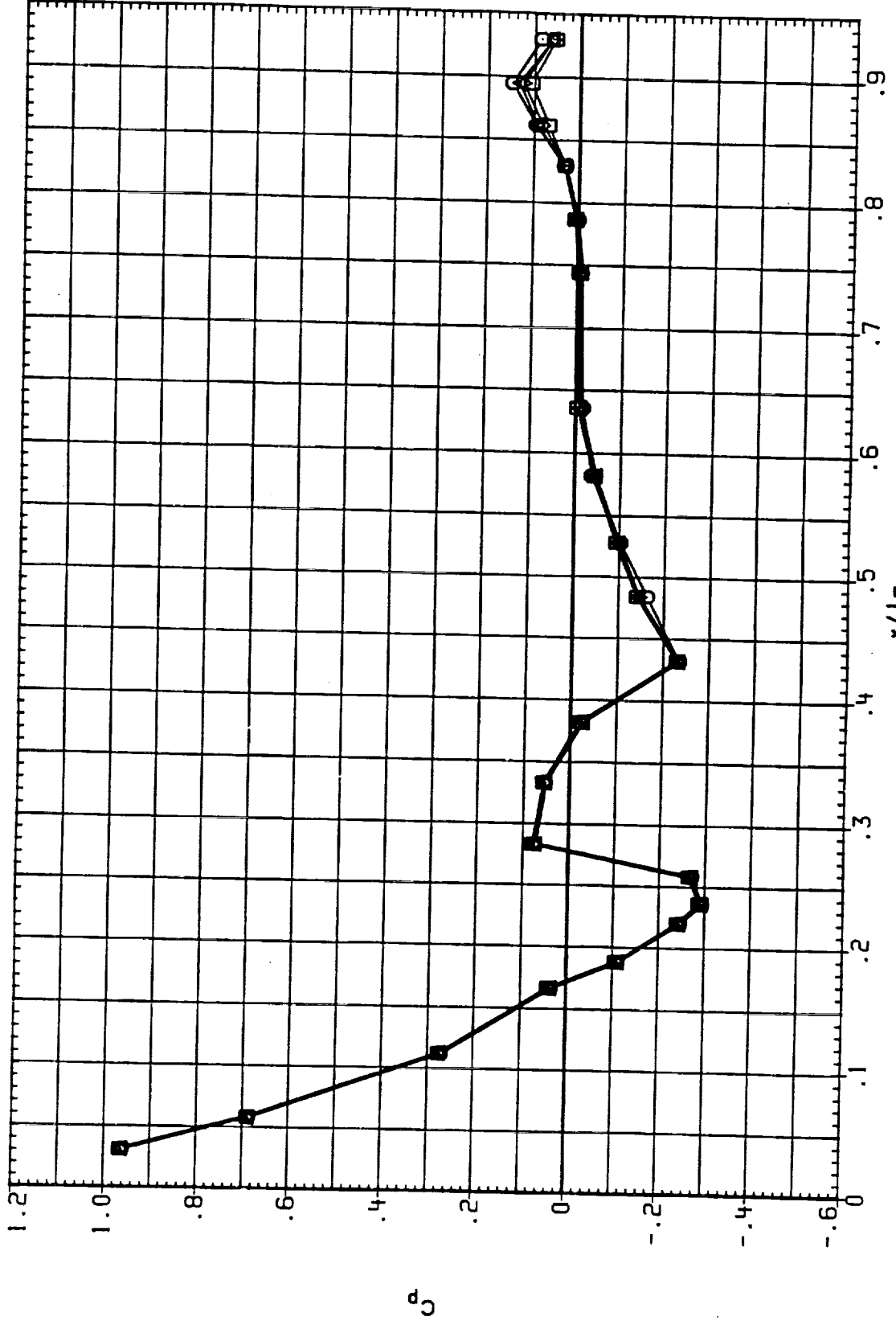


FIGURE 8 IAG13A SELECTED PRESSURE DISTRIBUTIONS
EXTERNAL TANK

BETA = .000 PHI = 30.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOT22)	○	IA613A,B/L OT+RSRH+PLUMES S1.2	1.250	.000	10.000	9.000
(RCOT49)	□	IA613A,B/L OT+ASRH+PLUMES S1.2	1.250	.000	10.000	9.000
(RCOT87)	◇	IA613A,B/L OT+ASRH+PLUMES S1.2	1.250	180.000	10.000	9.000
(RCOTC5)	△	IA613A,B/L OT+ASRH+PLUMES S1.2	1.250	999.000	10.000	5.000

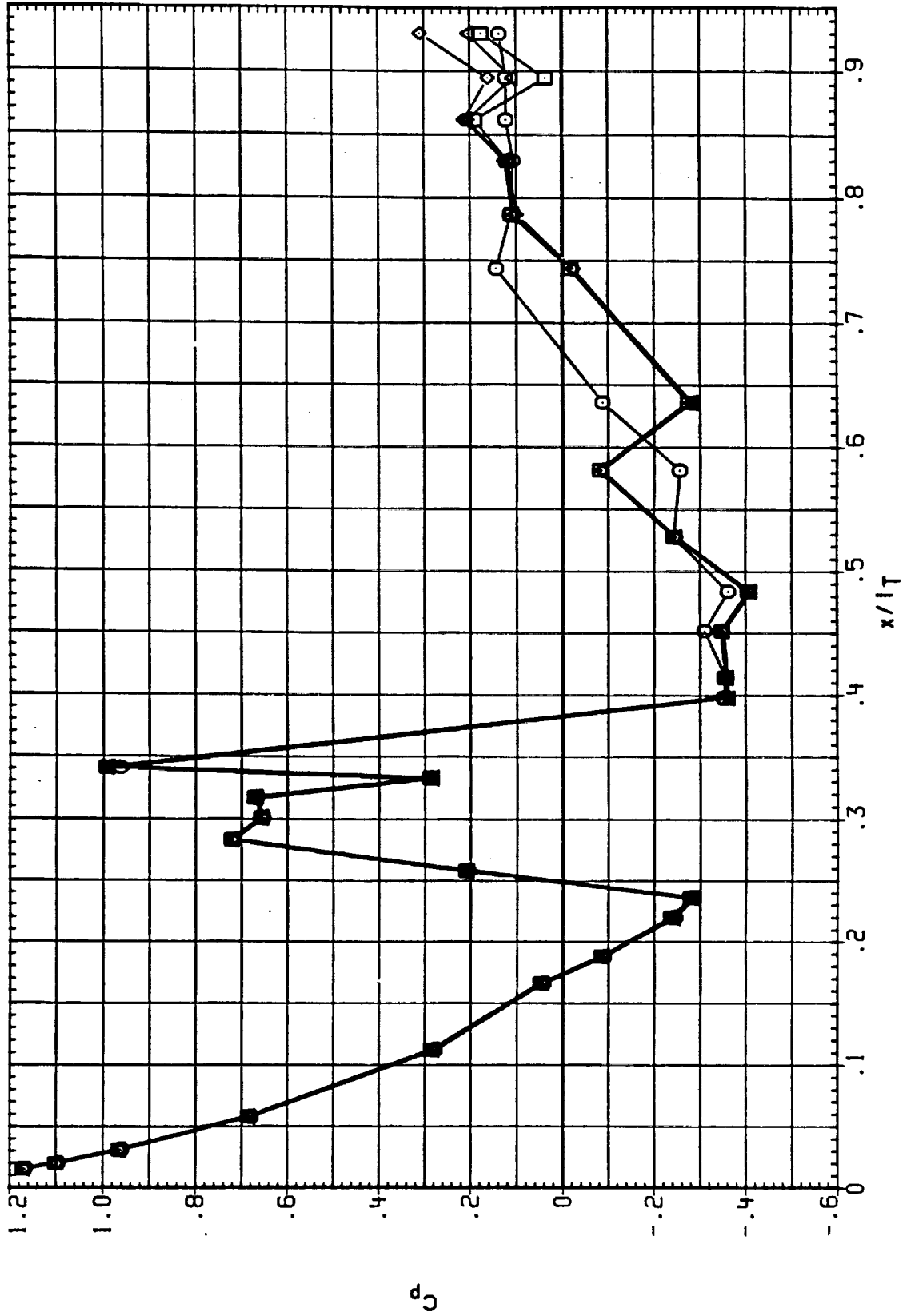


FIGURE 8 IA613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 PHI = 90.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELY	OB-ELY
(RC0122)	○	IA613A, B/L 01*RSRH*PLUMES S1.2	1.250	.000	10.000	9.000
(RC0149)	□	IA613A, B/L 01*ASRH*PLUMES S1.2	1.250	.000	10.000	9.000
(RC0187)	◇	IA613A, B/L 01*ASRH*PLUMES S1.2	1.250	180.000	10.000	9.000
(RC01C5)	△	IA613A, B/L 01*ASRH*PLUMES S1.2	1.250	999.000	10.000	5.000

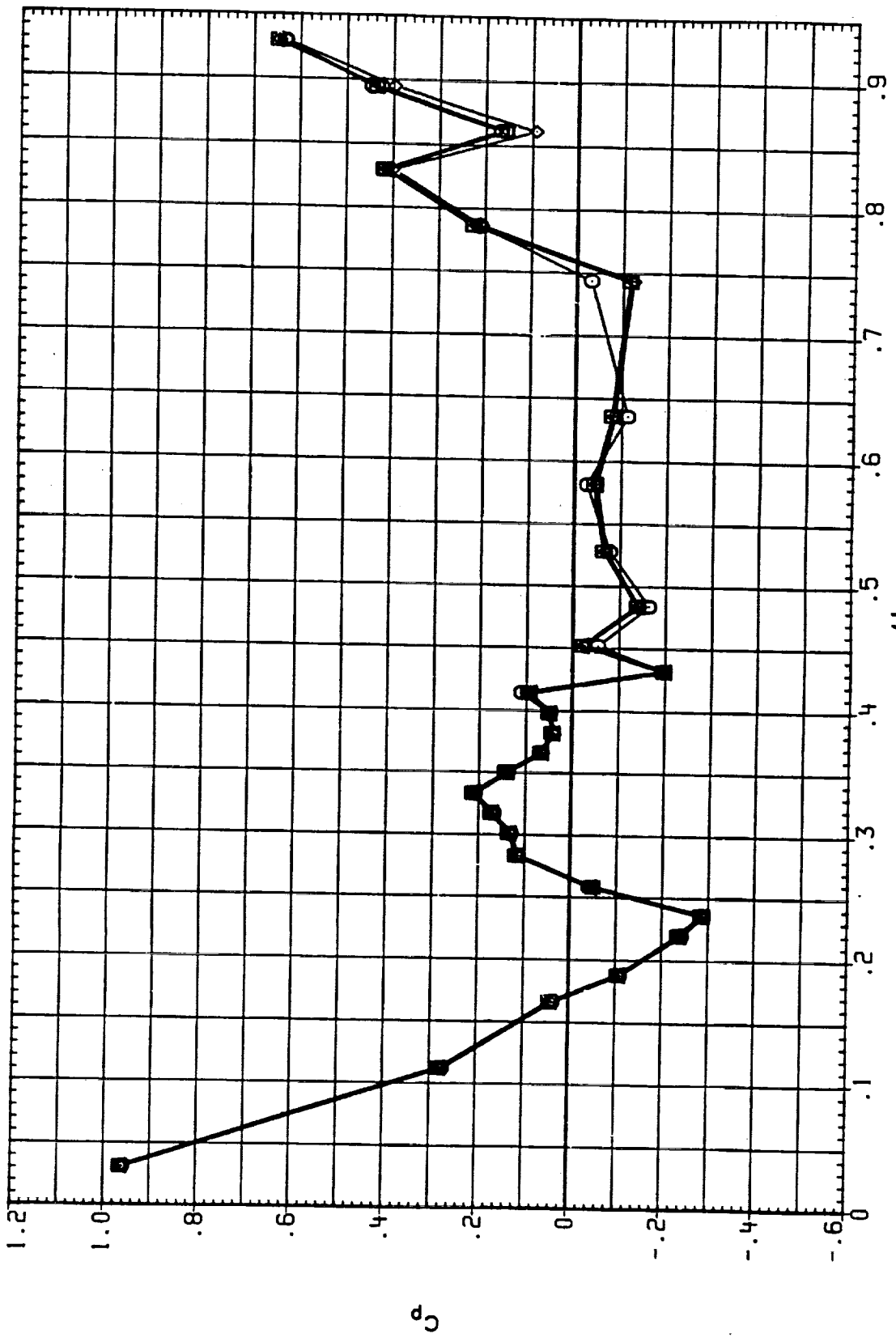


FIGURE 8 IA613A SELECTED PRESSURE DISTRIBUTIONS
EXTERNAL TANK

BETA = .000 PHI = 135.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RC01H6)	○	IAG13A.8/L 0T*ASRH*PLUMES S1.2	1.300	.000	10.000	9.000
(RC01S4)	□	IAG13A.8/L 0T*ASRH*PLUMES S1.3	1.300	.000	10.000	5.000
(RC01B9)	△	IAG13A.8/L 0T*ASRH*PLUMES S1.3	1.300	180.000	10.000	5.000
(RC01C7)	◇	IAG13A.8/L 0T*ASRH*PLUMES S1.3	1.300	999.000	10.000	5.000

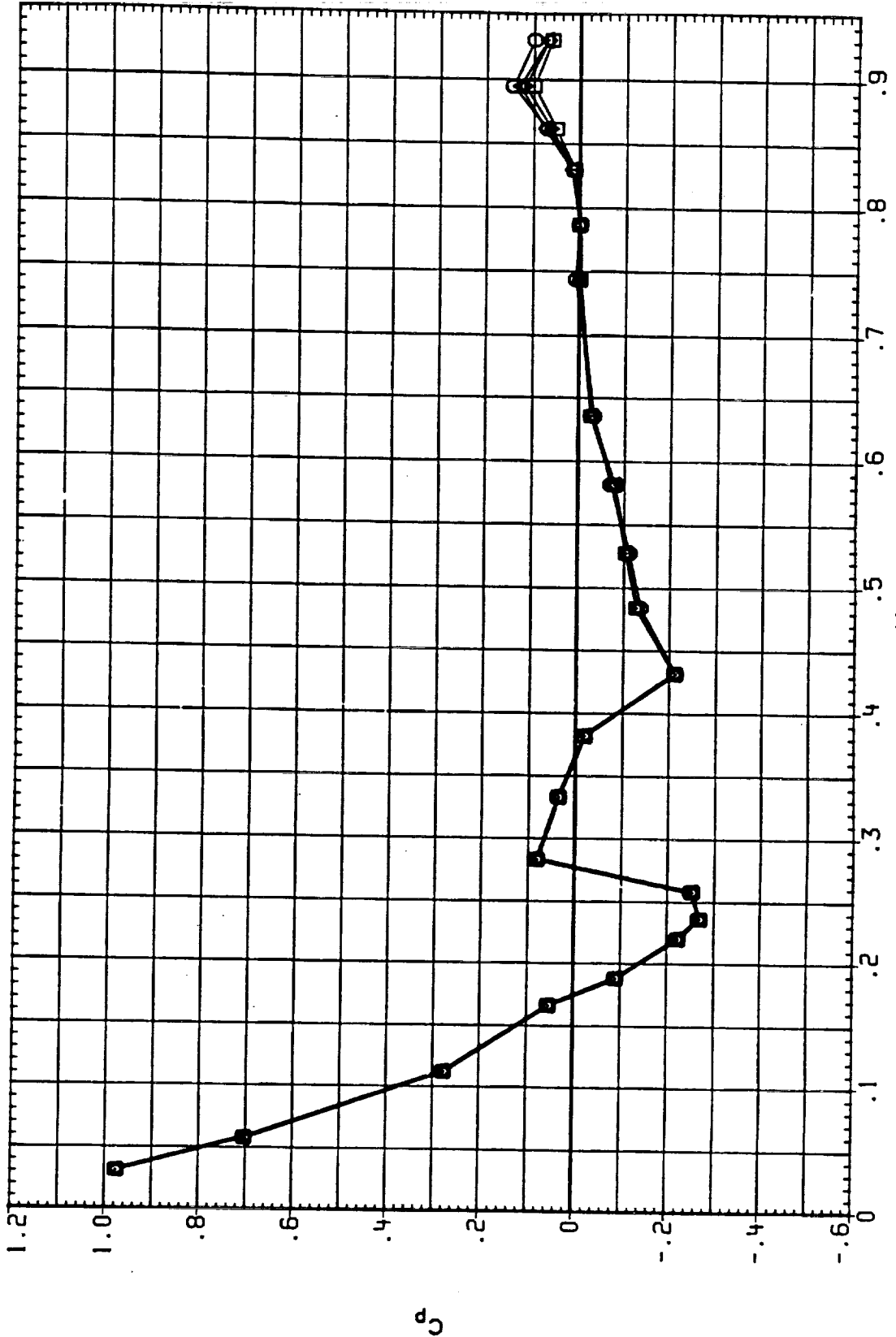


FIGURE 8 IAG13A SELECTED PRESSURE DISTRIBUTIONS
 EXTERNAL TANK
 BETA = .000 PHI = 30.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	EXTERNAL TANK	MACH	IEABOX	18-ELV	08-ELV
(RC0146)	○	1A613A.B/L OT*ASRM*PLUMES S1.2	-EXTERNAL TANK	1.300	.000	10.000	9.000
(RC0154)	□	1A613A.B/L OT*ASRM*PLUMES S1.3	-EXTERNAL TANK	1.300	.000	10.000	5.000
(RC0189)	◇	1A613A.B/L OT*ASRM*PLUMES S1.3	-EXTERNAL TANK	1.300	180.000	10.000	5.000
(RC017)	△	1A613A.B/L OT*ASRM*PLUMES S1.3	-EXTERNAL TANK	1.300	999.000	10.000	5.000

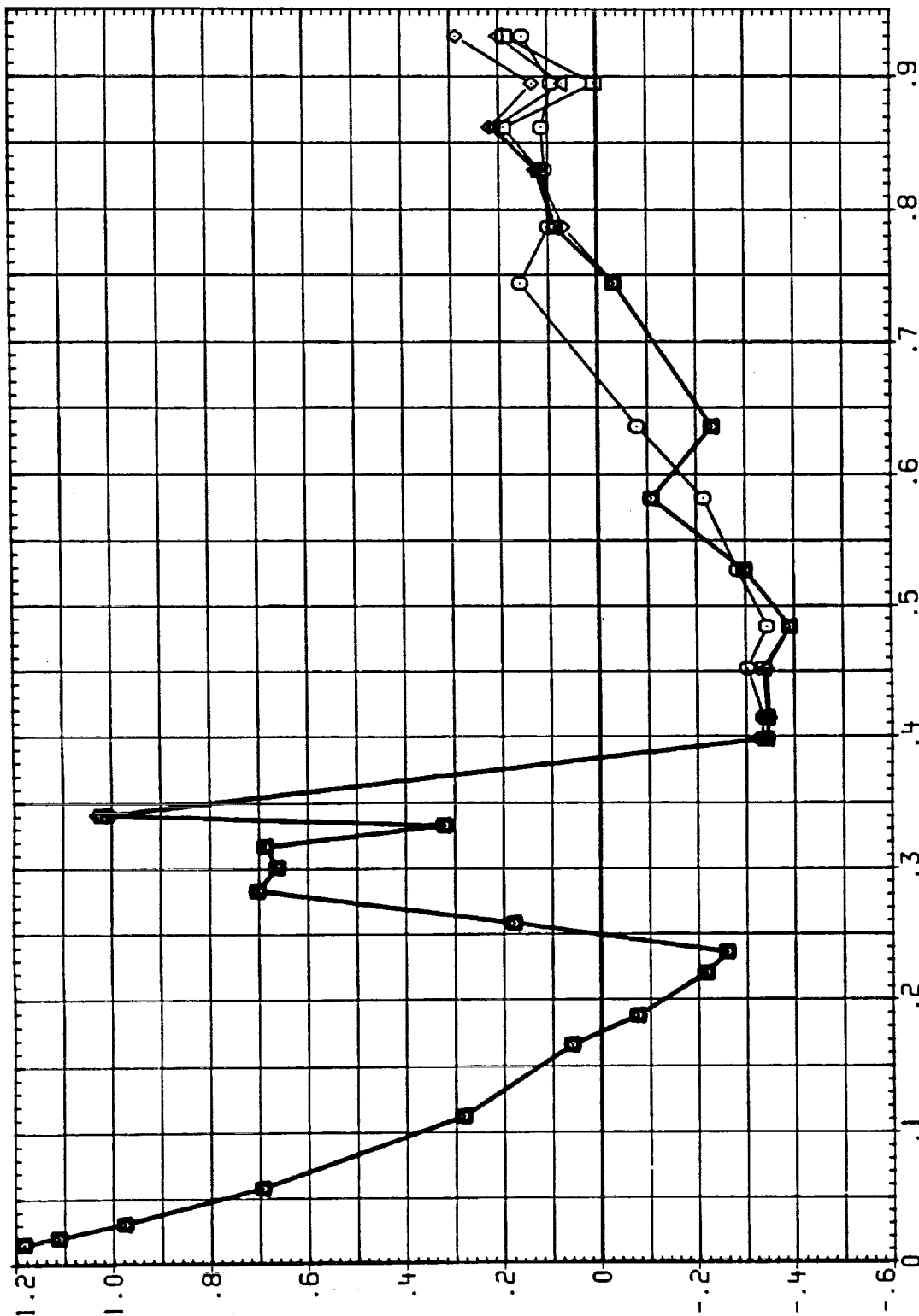


FIGURE 8 1A613A SELECTED PRESSURE DISTRIBUTIONS
 EXTERNAL TANK
 BETA = .000 PHI = 90.000 ALPHA = .000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RC0TH6)	IA613A,B/L OT+RSRM+PLUMES SI.2	1.300	.000	10.000	9.000
(RC0T54)	IA613A,B/L OT+ASRM+PLUMES SI.3	1.300	.000	10.000	5.000
(RC0T89)	IA613A,B/L OT+ASRM+PLUMES SI.3	1.300	180.000	10.000	5.000
(RC0T7)	IA613A,B/L OT+ASRM+PLUMES SI.3	1.300	999.000	10.000	5.000

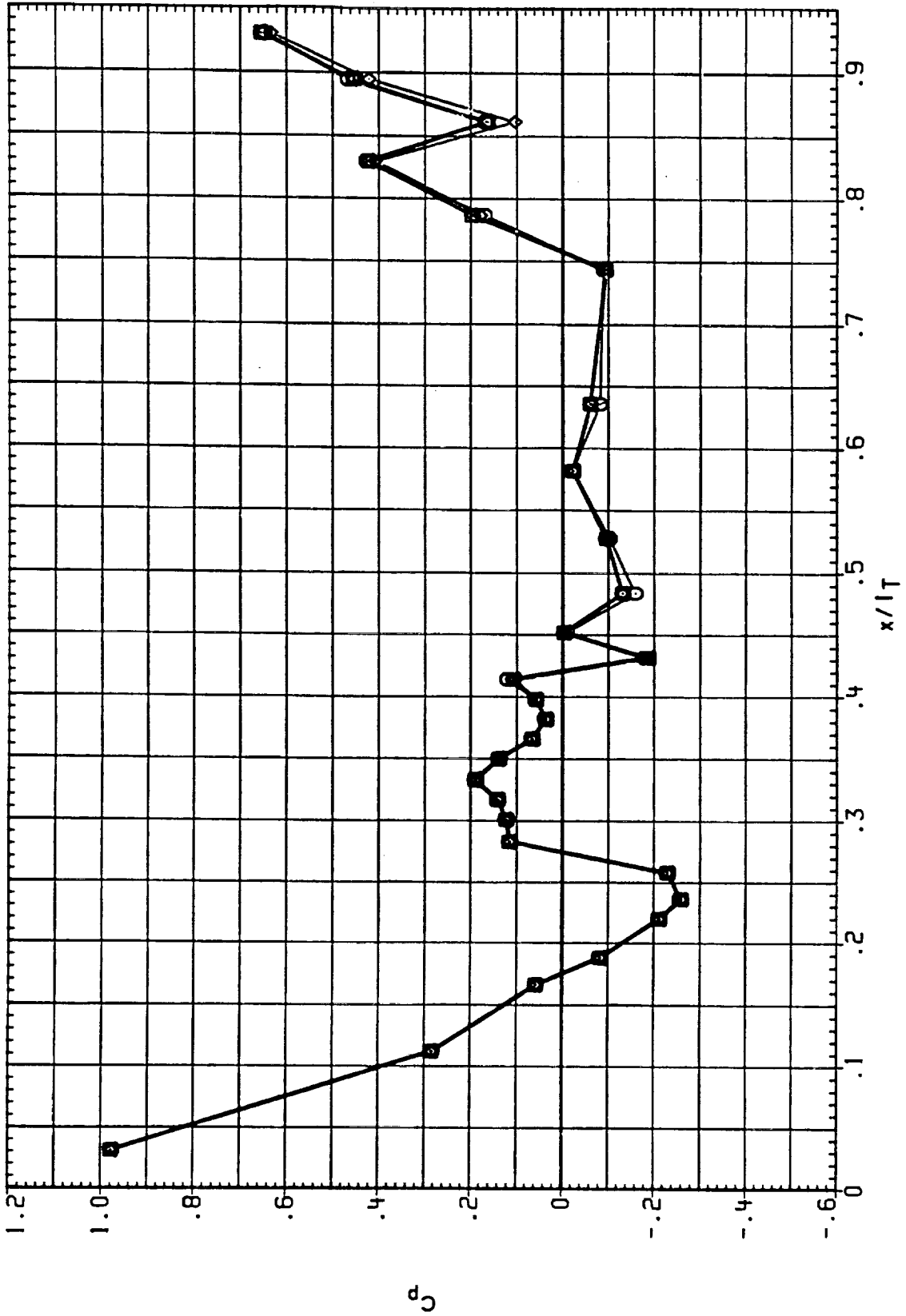


FIGURE 8 IA613A SELECTED PRESSURE DISTRIBUTIONS
EXTERNAL TANK

BETA = .000 PHI = 135.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IE/BOX	IB-ELV	OB-ELV
(RC01H7)	○	IA613A.B/L O1.RSRH.PLUMES S1.2	1.350	.000	10.000	9.000
(RC0155)	○	IA613A.B/L O1.ASRH.PLUMES S1.3	1.350	.000	10.000	9.000
(RC0190)	◇	IA613A.B/L O1.ASRH.PLUMES S1.3	1.350	180.000	10.000	5.000
(RC01C8)	△	IA613A.B/L O1.ASRH.PLUMES S1.3	1.350	999.000	10.000	5.000

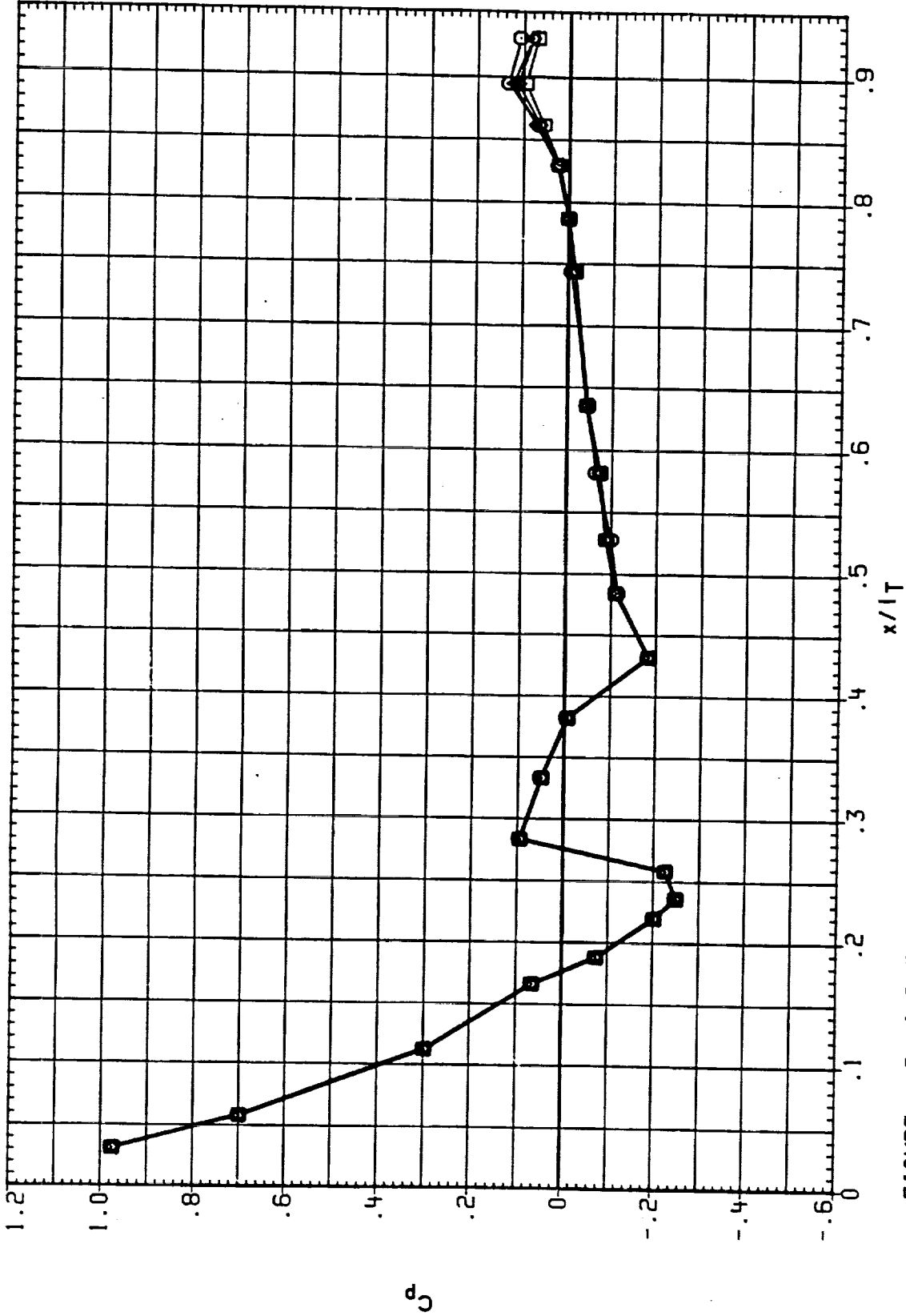


FIGURE 8 IA613A SELECTED PRESSURE DISTRIBUTIONS
 EXTERNAL TANK ALPHA = .000
 BETA = .000 PHI = 30.000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RC0T7)	○	I A613A, B/L OT+RSRM+PLUMES S1.2	1.350	.000	10.000	9.000
(RC0T55)	□	I A613A, B/L OT+ASRM+PLUMES S1.3	1.350	.000	10.000	5.000
(RC0T90)	◇	I A613A, B/L OT+ASRM+PLUMES S1.3	1.350	180.000	10.000	5.000
(RC0TC8)	△	I A613A, B/L OT+ASRM+PLUMES S1.3	1.350	999.000	10.000	5.000

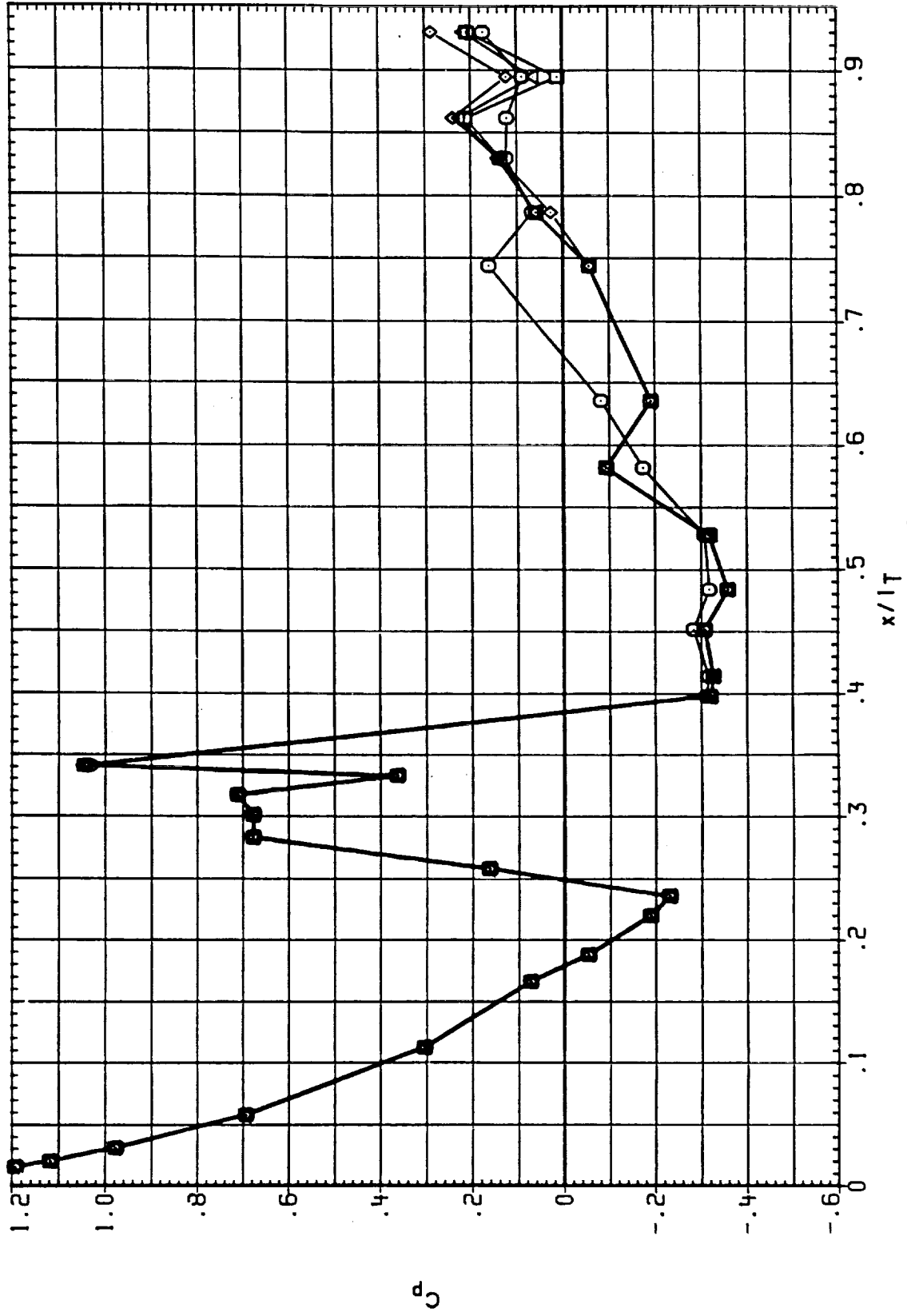


FIGURE 8 I A613A SELECTED PRESSURE DISTRIBUTIONS
EXTERNAL TANK

BETA = .000 PHI = 90.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RC01H7)	□	IAG13A.B/L OT*RSRH*PLUMES S1.2	1.350	.000	10.000	9.000
(RC0155)	○	IAG13A.B/L OT*ASRH*PLUMES S1.3	1.350	.000	10.000	5.000
(RC0190)	◇	IAG13A.B/L OT*ASRH*PLUMES S1.3	1.350	180.000	10.000	5.000
(RC01C8)	△	IAG13A.B/L OT*ASRH*PLUMES S1.3	1.350	999.000	10.000	5.000

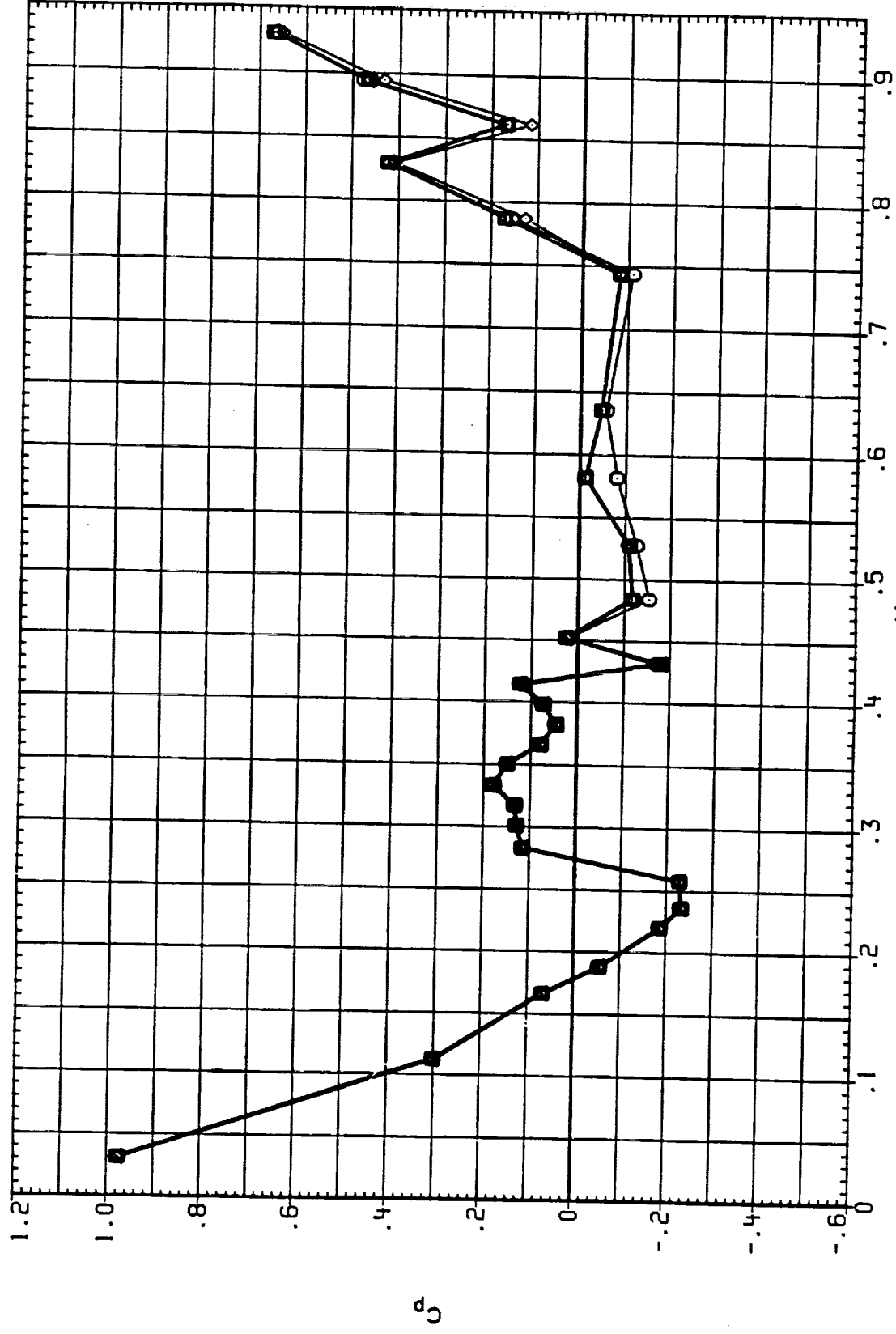


FIGURE 8 IAG13A SELECTED PRESSURE DISTRIBUTIONS
EXTERNAL TANK

BETA = .000 PHI = 135.000 ALPHA = .000 PAGE 210

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RC01H8)	○	IA613A .B/L OT+RSRM+PLUMES S1.2	1.400	.000	10.000	9.000
(RC0156)	○	IA613A .B/L OT+ASRM+PLUMES S1.3	1.400	.000	10.000	5.000
(RC0191)	◇	IA613A .B/L OT+ASRM+PLUMES S1.3	1.400	180.000	10.000	5.000
(RC01C9)	△	IA613A .B/L OT+ASRM+PLUMES S1.3	1.400	999.000	10.000	5.000

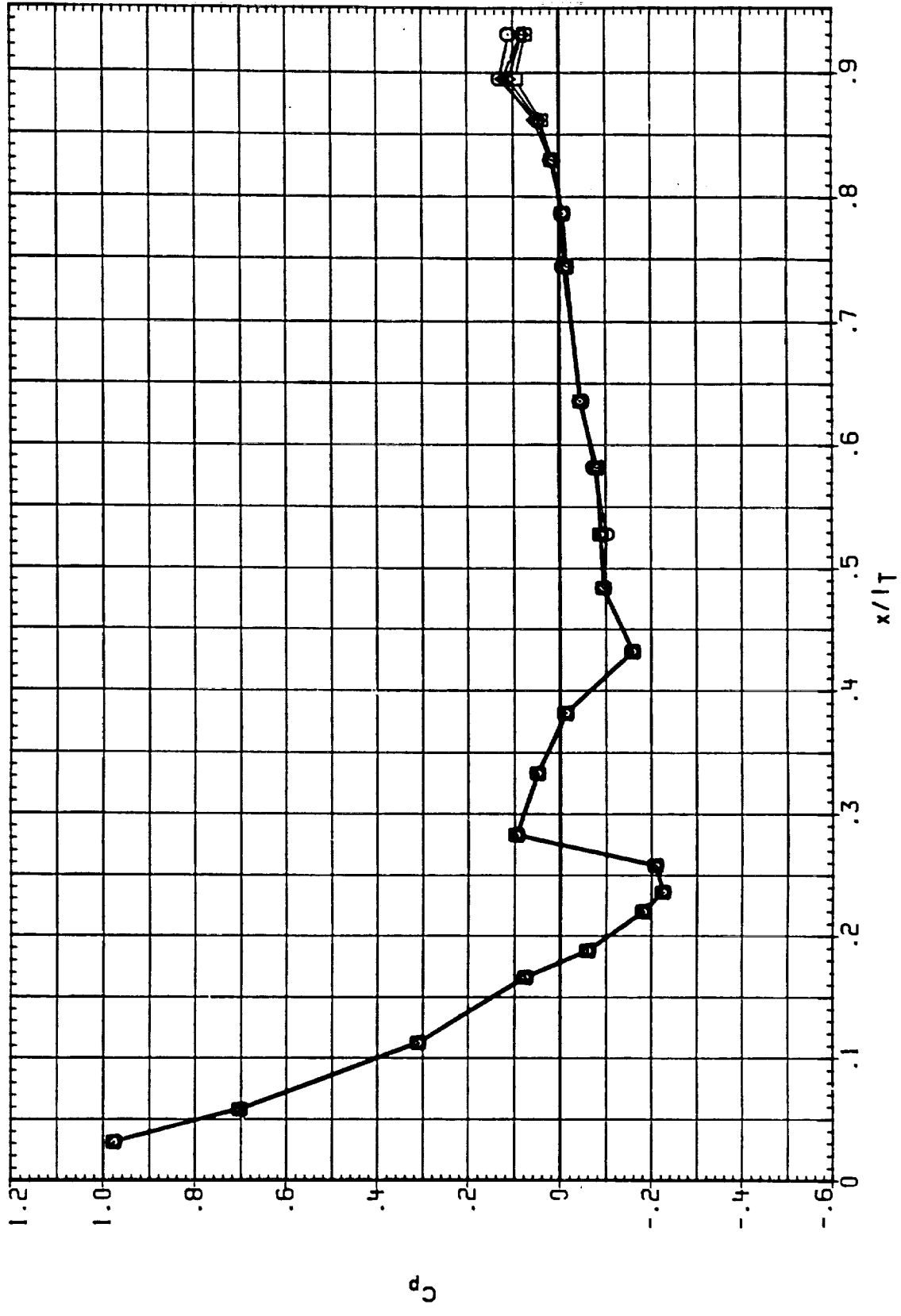


FIGURE 8 IA613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 PHI = 30.000 ALPHA = .000

DATA SET SYMBOL CONFIGURATION DESCRIPTION

(RC01H8)	○	I A613A .B/L	O I *RSRH *PLUMES S1.2	-EXTERNAL TANK	IE4BOX	MACH	OB-ELV
(RC0156)	□	I A613A .B/L	O I *ASRH *PLUMES S1.3	-EXTERNAL TANK	.000	1.400	9.000
(RC0191)	◇	I A613A .B/L	O I *ASRH *PLUMES S1.3	-EXTERNAL TANK	.000	1.400	5.000
(RC01C9)	△	I A613A .B/L	O I *ASRH *PLUMES S1.3	-EXTERNAL TANK	180.000	1.400	5.000
					999.000	1.400	5.000

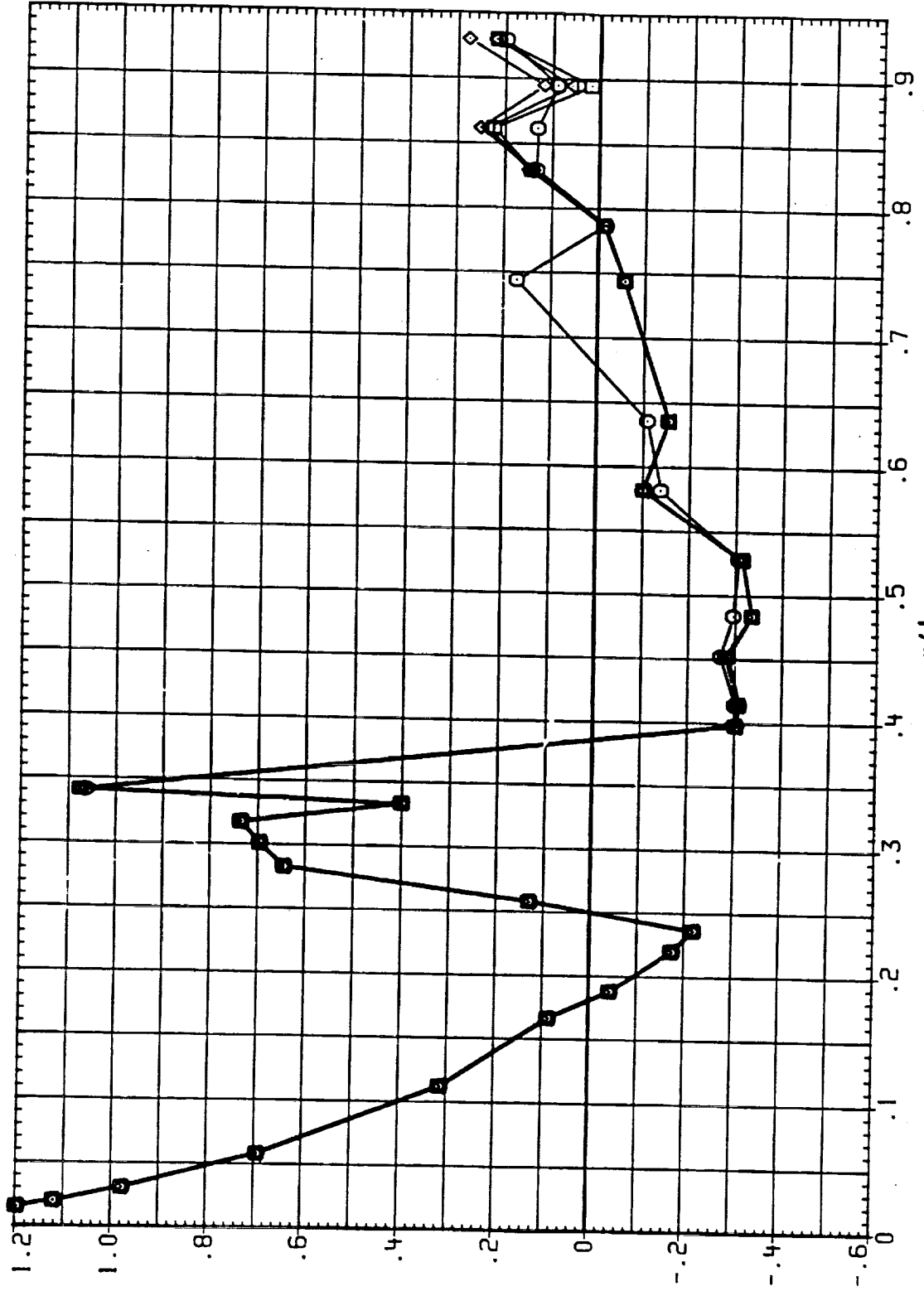


FIGURE 8 I A613A SELECTED PRESSURE DISTRIBUTIONS
EXTERNAL TANK

BETA = .000 PHI = 90.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(PC01H3)	□	IA613A.B/L OT.RSRM.PLUHES S1.2	1.400	.000	10.000	9.000
(PC0156)	○	IA613A.B/L OT.ASRM.PLUHES S1.3	1.400	.000	10.000	9.000
(PC0191)	◇	IA613A.B/L OT.ASRM.PLUHES S1.3	1.400	180.000	10.000	5.000
(PC01C9)	△	IA613A.B/L OT.ASRM.PLUHES S1.3	1.400	999.000	10.000	5.000

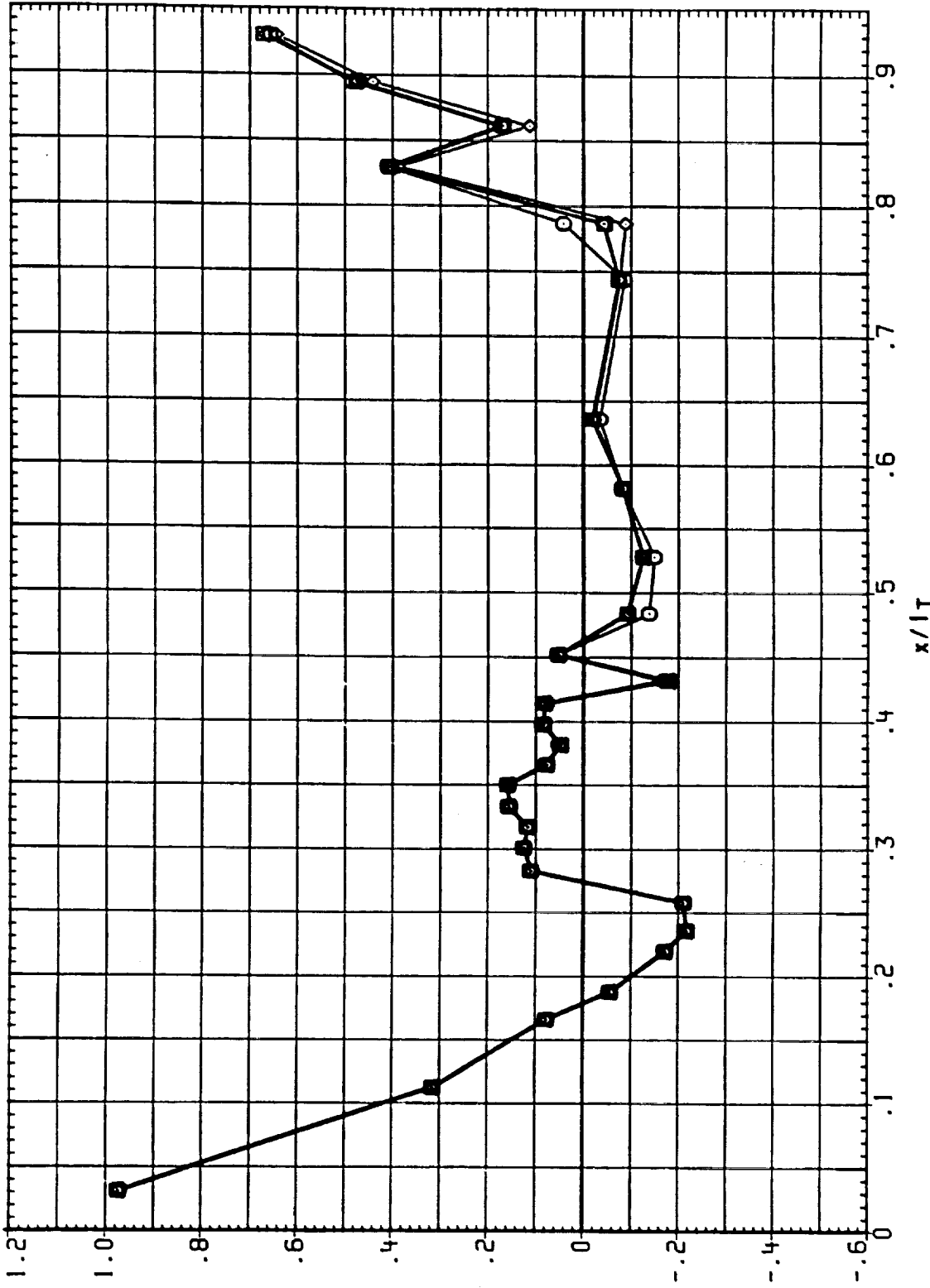


FIGURE 8 IA613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 PHI = 135.000 ALPHA = .000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	EXTERNAL TANK	MACH	IEABOX	IB-ELY	OB-ELY
(RC0149)	IAB13A.B/L OT*ASRM*PLUMES SI.2	-EXTERNAL TANK	1.550	.000	10.000	9.000
(RC0157)	IAB13A.B/L OT*ASRM*PLUMES SI.3	-EXTERNAL TANK	1.550	.000	10.000	5.000
(RC0192)	IAB13A.B/L OT*ASRM*PLUMES SI.3	-EXTERNAL TANK	1.550	180.000	10.000	5.000
(RC0100)	IAB13A.B/L OT*ASRM*PLUMES SI.3	-EXTERNAL TANK	1.550	999.000	10.000	5.000

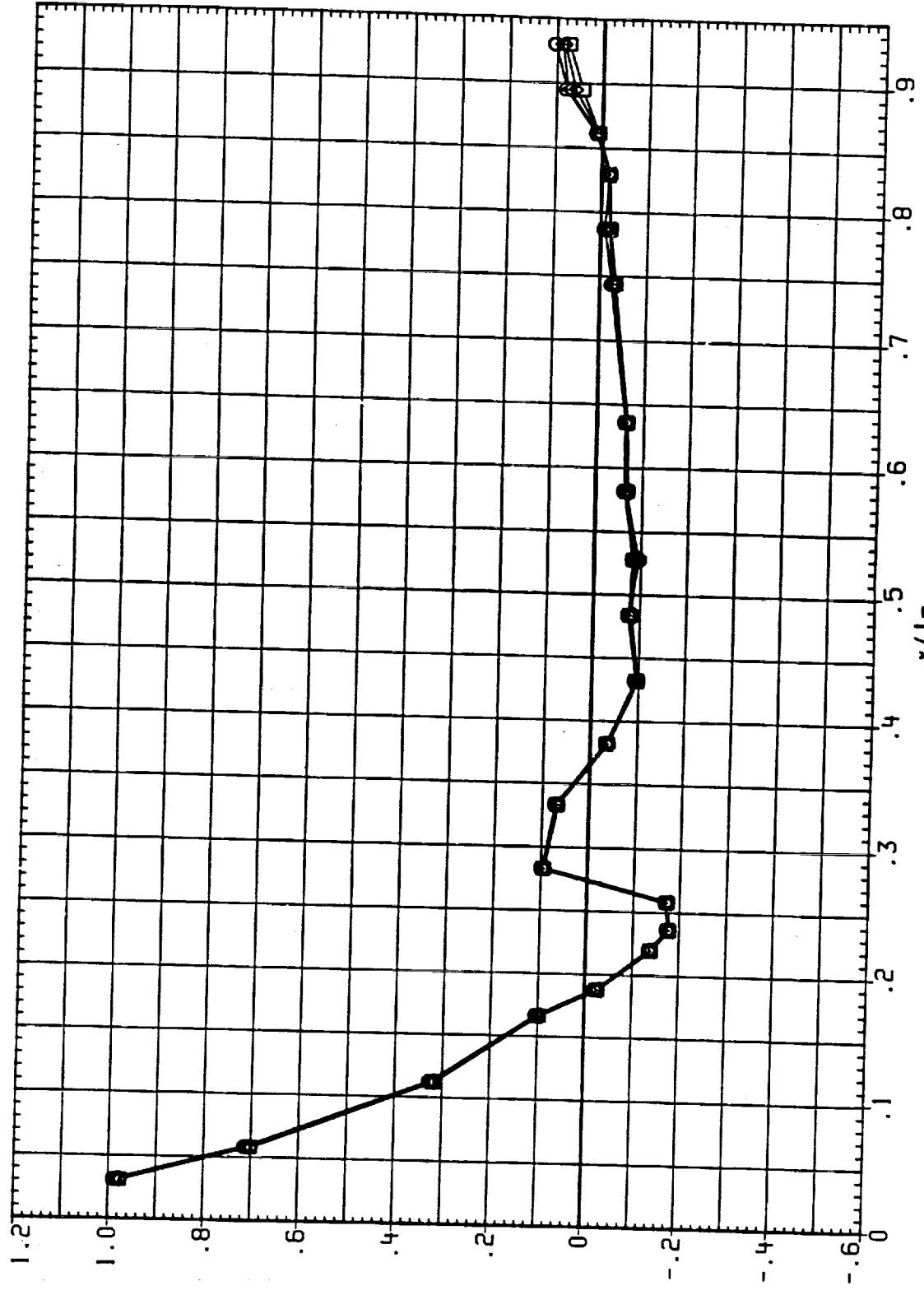


FIGURE 8 IAB13A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 PHI = 30.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RC01H8)	○	IA613A.B/L OT+RSRM+PLUMES S1.2	1.550	.000	10.000	9.000
(RC0157)	○	IA613A.B/L OT+ASRM+PLUMES S1.3	1.550	.000	10.000	5.000
(RC0192)	◇	IA613A.B/L OT+ASRM+PLUMES S1.3	1.550	180.000	10.000	5.000
(RC0100)	△	IA613A.B/L OT+ASRM+PLUMES S1.3	1.550	999.000	10.000	5.000

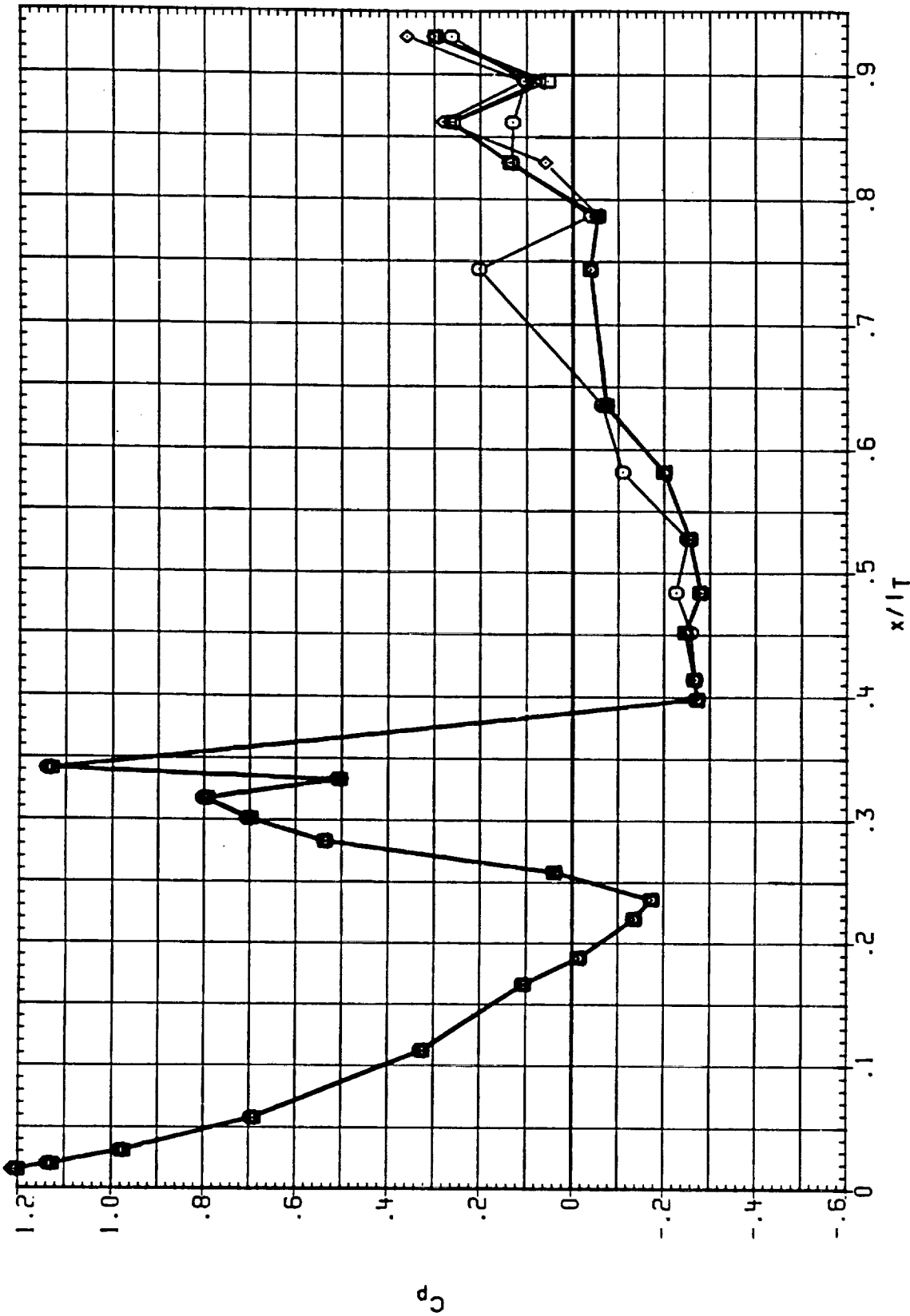


FIGURE 8 IA613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 PHI = 90.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IE-ABOX	IB-ELV	OB-ELV
(RC0181)	○	IA613A, B/L 01+RSRH+PLUMES S1.2	1.550	.000	10.000	9.000
(RC0157)	□	IA613A, B/L 01+ASRH+PLUMES S1.3	1.550	.000	10.000	5.000
(RC0192)	◇	IA613A, B/L 01+ASRH+PLUMES S1.3	1.550	180.000	10.000	5.000
(RC0100)	△	IA613A, B/L 01+ASRH+PLUMES S1.3	1.550	999.000	10.000	5.000

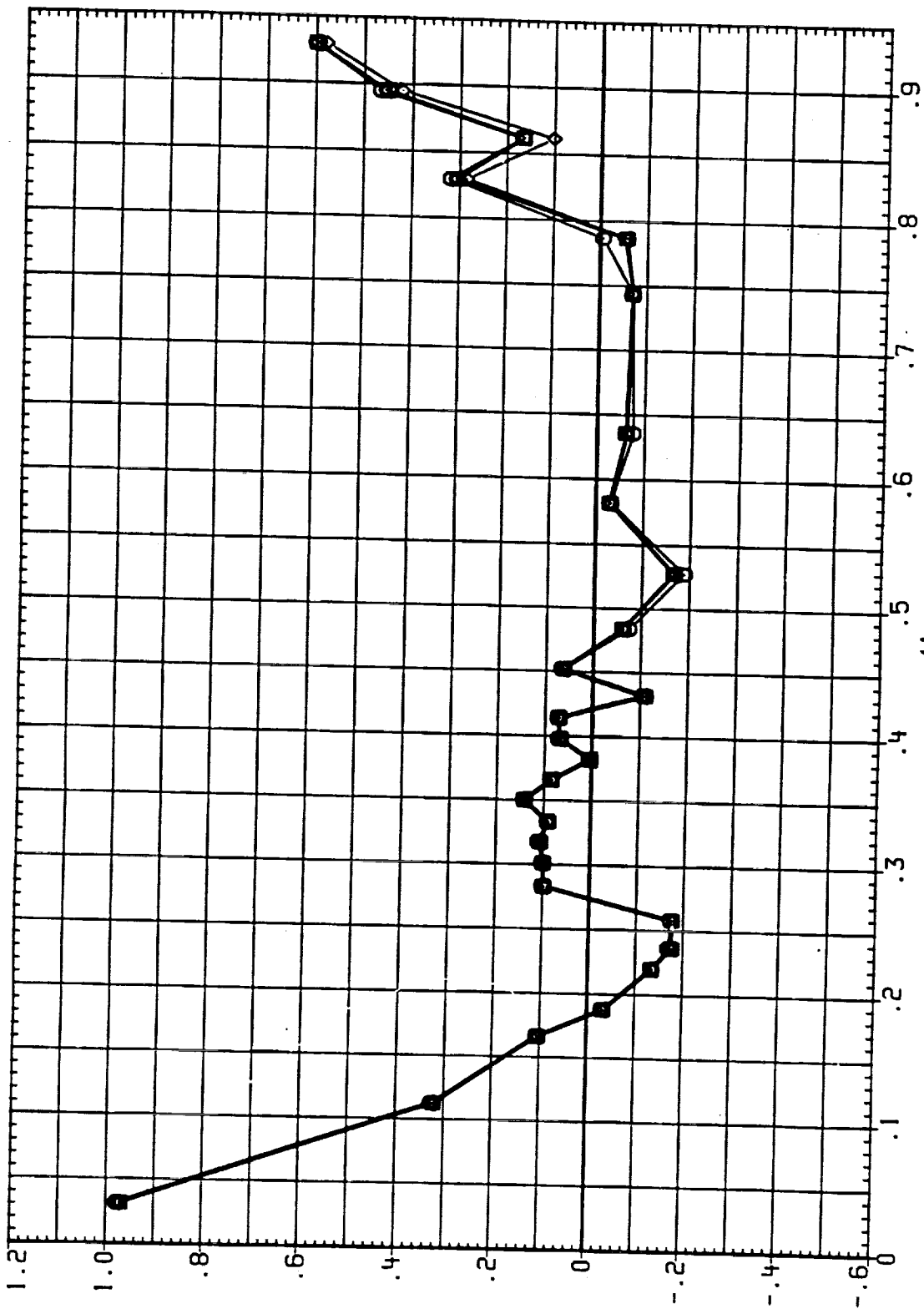


FIGURE 8 IA613A SELECTED PRESSURE DISTRIBUTIONS
EXTERNAL TANK

BETA = .000 PHI = 135.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	EA BOX	18-ELV	08-ELV
(RCOA15)	○	IA613A, B/L 01+RSPH+PLUMES S1.2	.600	.000	10.000	9.000
(RCOA42)	□	IA613A, B/L 01+ASRH+PLUMES S1.2	.600	.000	10.000	9.000
(RCOA80)	◇	IA613A, B/L 01+ASRH+PLUMES S1.2	.600	180.000	10.000	9.000
(RCOA11)	△	IA613A, B/L 01+ASRH+PLUMES S1.2	.600	999.000	10.000	5.000

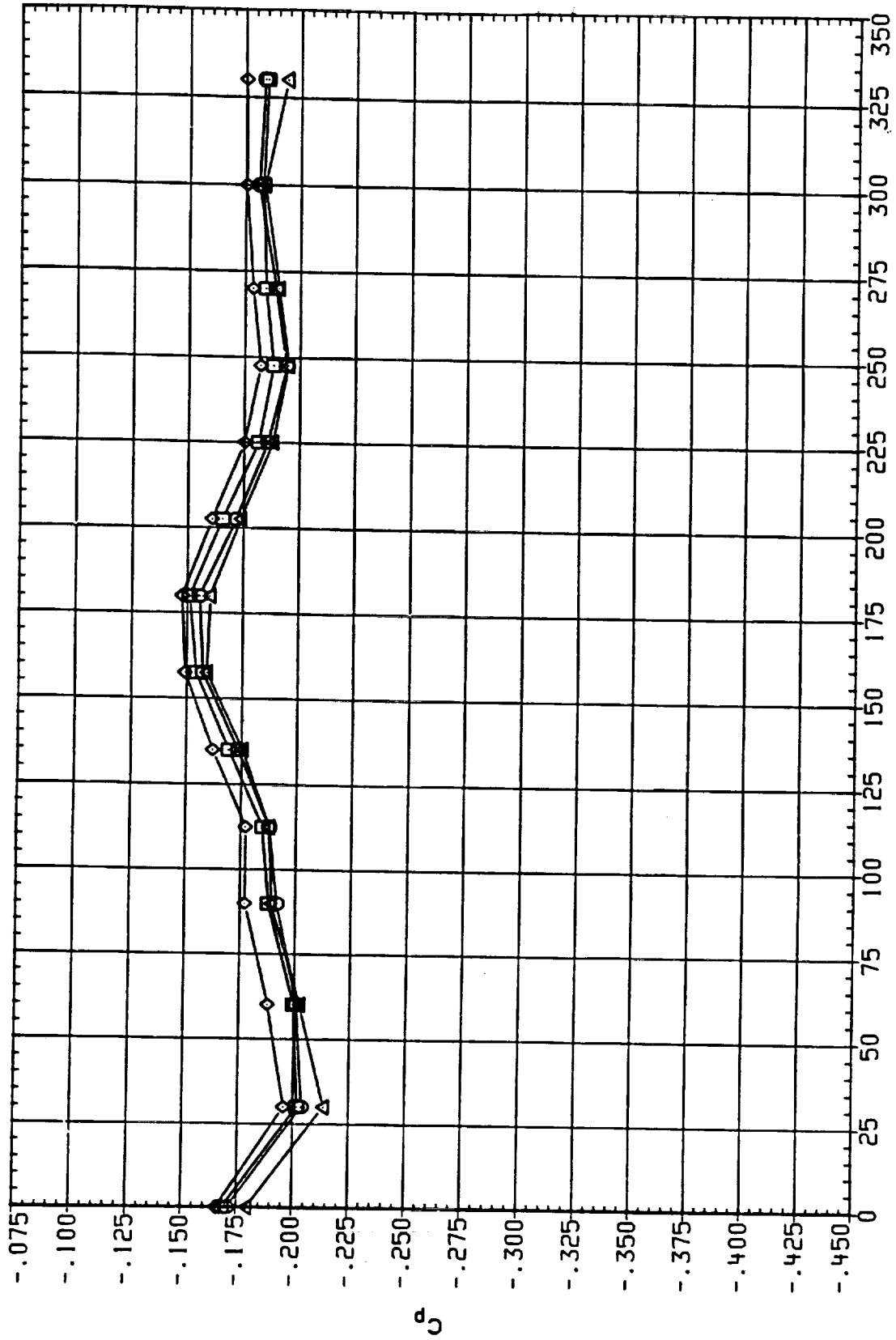


FIGURE 9 IA613A SELECTED PRESSURE DISTRIBUTIONS
EXTERNAL TANK BASE

BETA = .300 RADIUS = 77.480 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOA15)	○	IA613A, B/L 01+RSRH+PLUMES S1.2	.600	.000	10.000	9.000
(RCOA42)	□	IA613A, B/L 01+ASRH+PLUMES S1.2	.600	.000	10.000	9.000
(RCOA80)	◇	IA613A, B/L 01+ASRH+PLUMES S1.2	.600	180.000	10.000	9.000
(RCOAC1)	△	IA613A, B/L 01+ASRH+PLUMES S1.2	.600	999.000	10.000	5.000

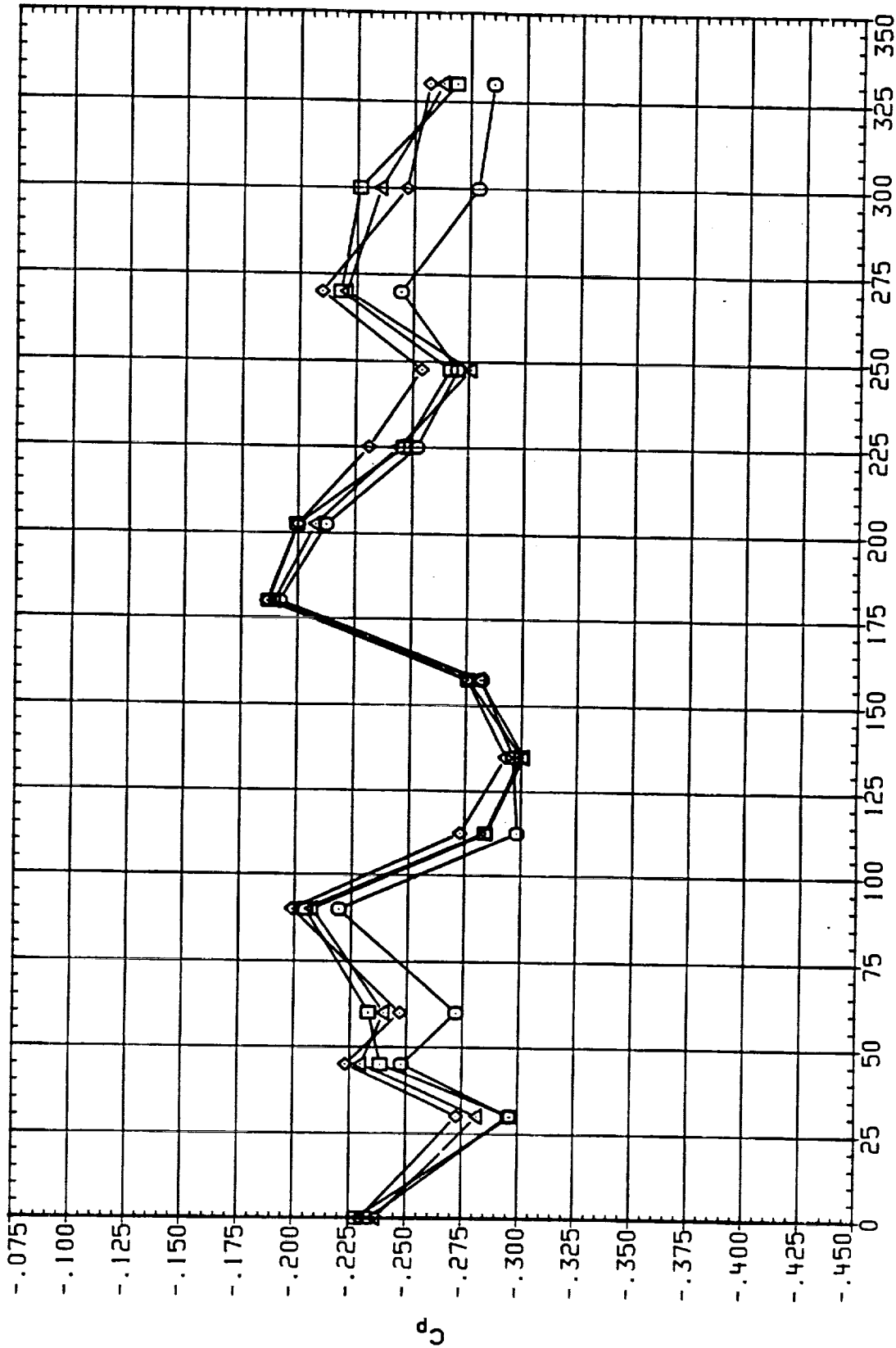


FIGURE 9 IA613A SELECTED PRESSURE DISTRIBUTIONS
EXTERNAL TANK BASE

BETA = .000 RADIUS = 156.560 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELY	OB-ELY
(RCOA15)	○	IA613A, B/L 01, RSRH, PLUMES S1.2	.800	.000	10.000	9.000
(RCOA43)	○	IA613A, B/L 01, ASRH, PLUMES S1.2	.800	.000	10.000	9.000
(RCOA81)	◇	IA613A, B/L 01, ASRH, PLUMES S1.2	.800	180.000	10.000	9.000

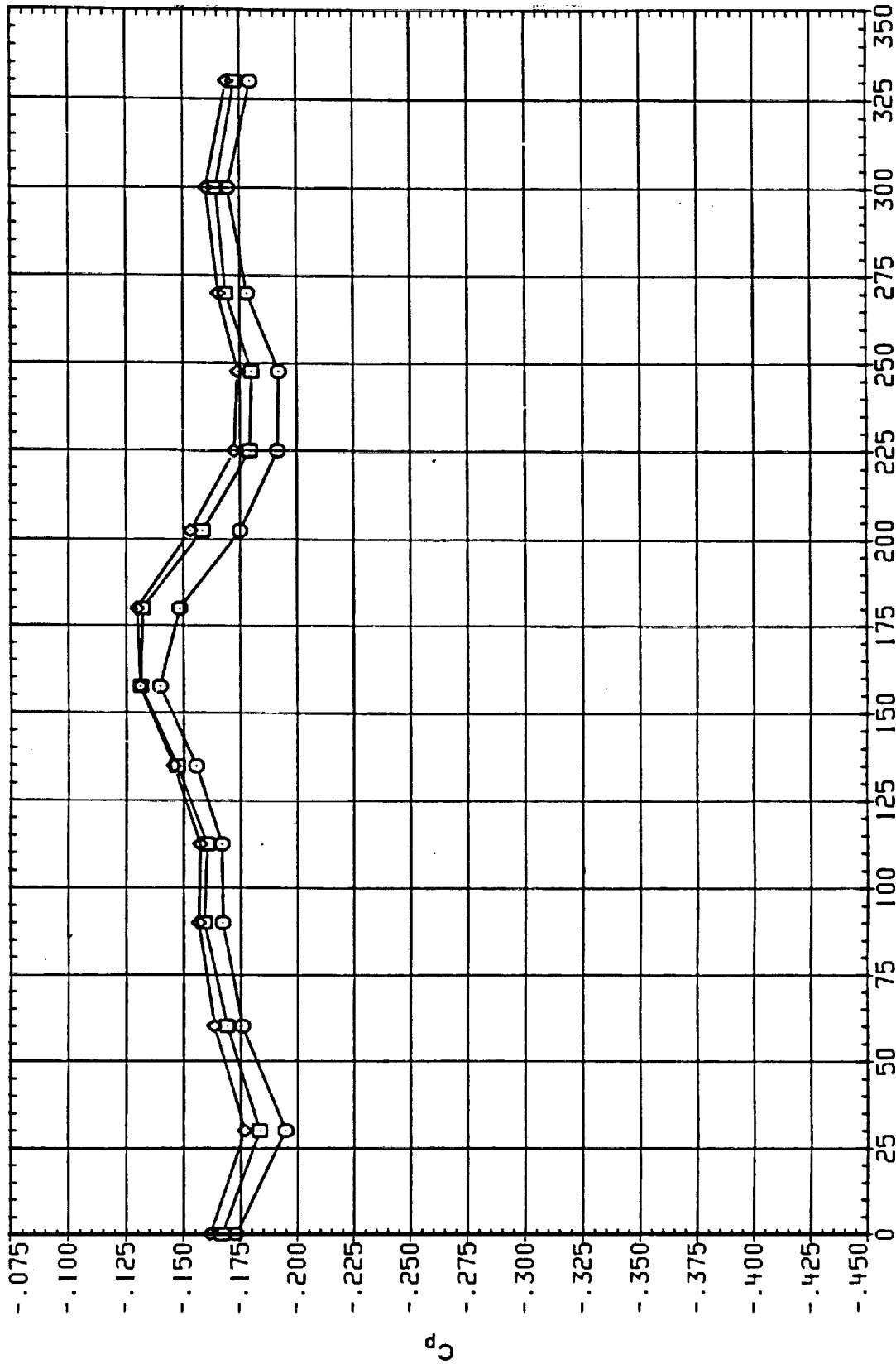


FIGURE 9 IA613A SELECTED PRESSURE DISTRIBUTIONS
EXTERNAL TANK BASE

BETA = .000 RADIUS = 77.480 ALPHA = .000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOA16)	IAG13A.B/L OT*PSRM*PLUMES S1.2	.800	.000	10.000	9.000
(RCOA13)	IAG13A.B/L OT*ASRM*PLUMES S1.2	.800	.000	10.000	9.000
(RCOA81)	IAG13A.B/L OT*ASRM*PLUMES S1.2	.800	180.000	10.000	9.000

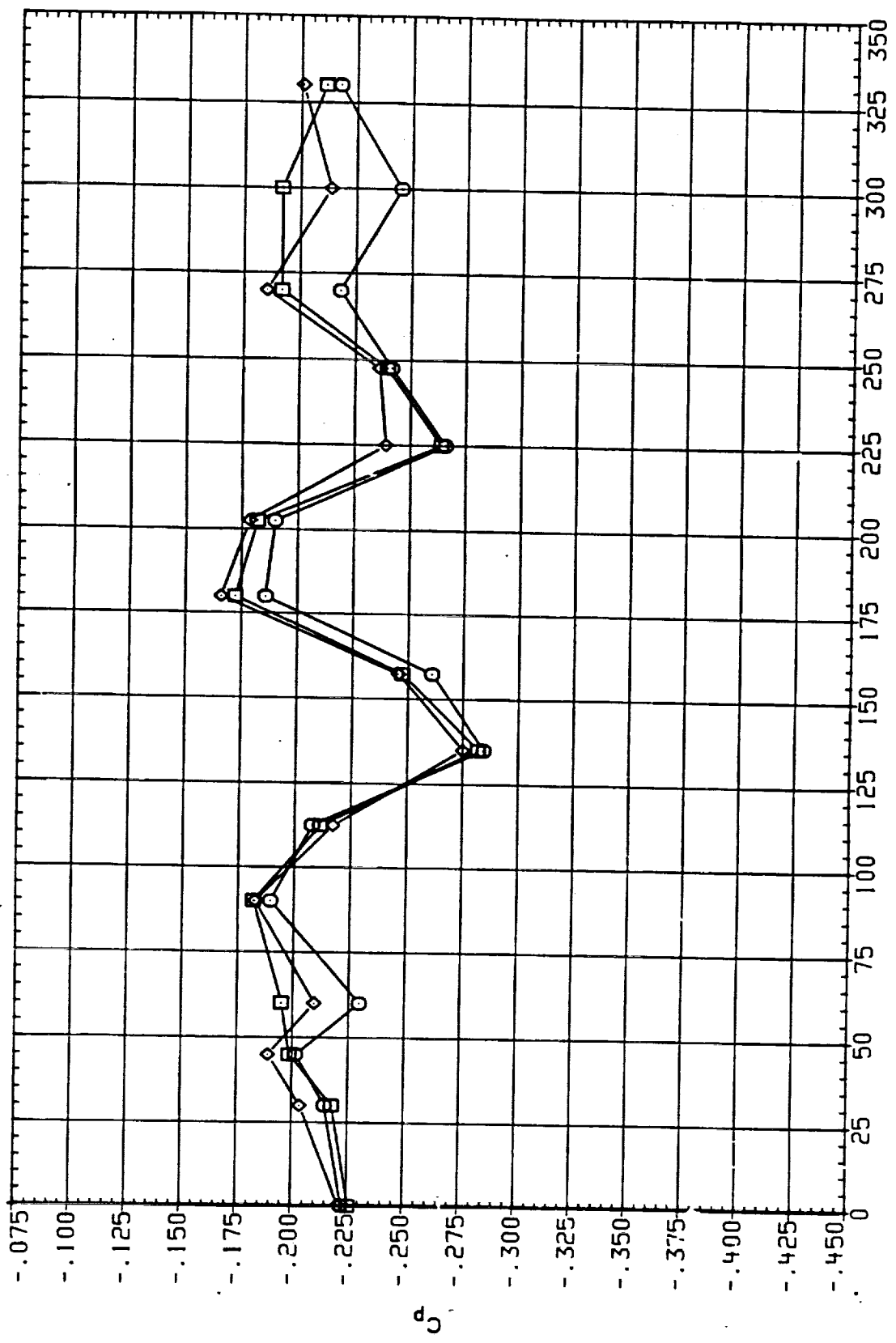


FIGURE 9 IAG13A SELECTED PRESSURE DISTRIBUTIONS
EXTERNAL TANK BASE

BETA = .000 RADIUS = 156.560 ALPHA = .000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(R0A17)	IA613A, B/L 01+RSRH+PLUMES S1,2	.900	.000	10.000	9.000
(R0A44)	IA613A, B/L 01+ASRH+PLUMES S1,2	.900	.000	10.000	9.000
(R0A82)	IA613A, B/L 01+ASRH+PLUMES S1,2	.900	180.000	10.000	9.000
(R0A02)	IA613A, B/L 01+ASRH+PLUMES S1,2	.900	999.000	10.000	5.000

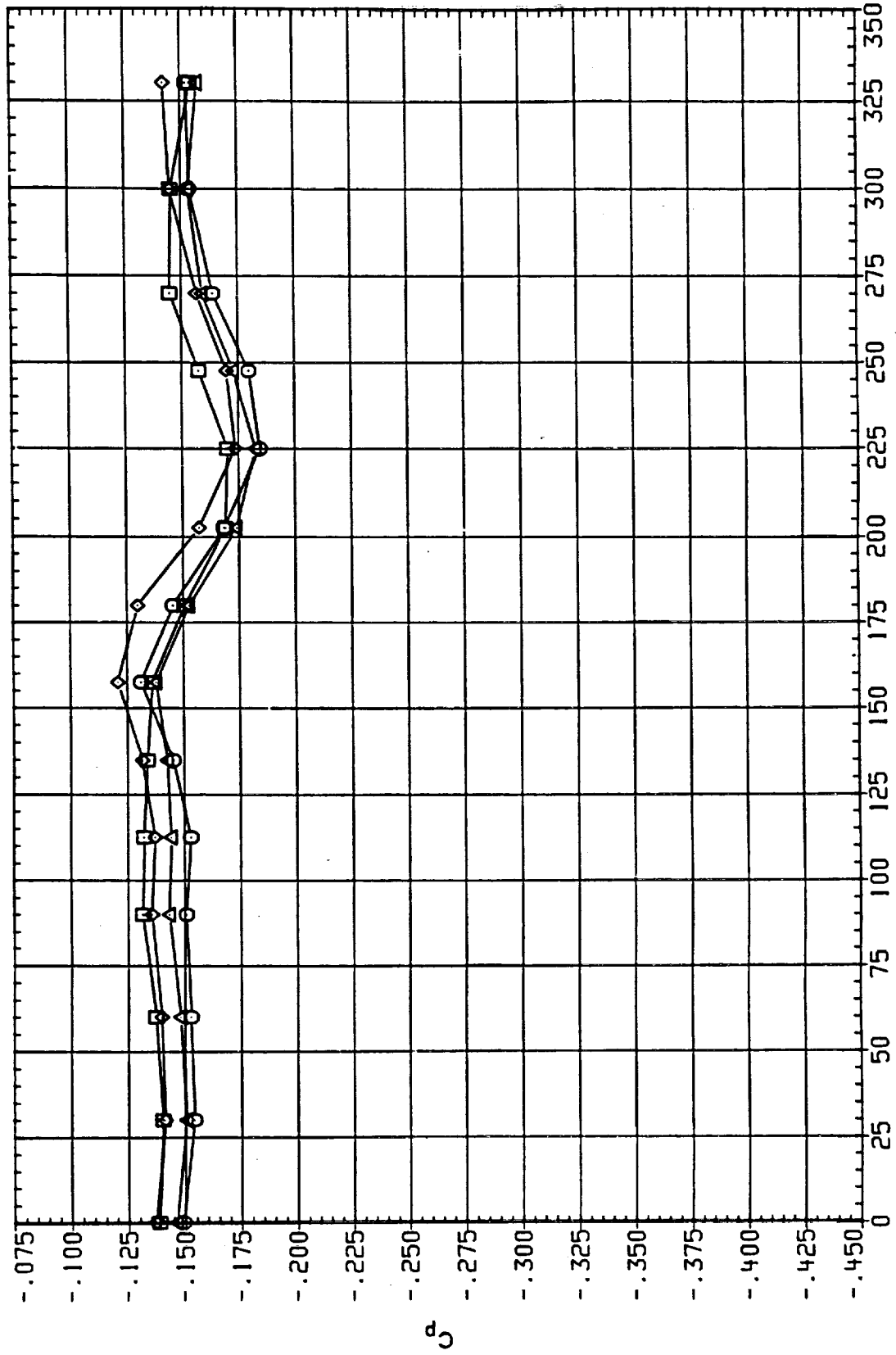


FIGURE 9 IA613A SELECTED PRESSURE DISTRIBUTIONS
 EXTERNAL TANK BASE ALPHA = .000
 RADIUS = 77.480

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	18-ELV	08-ELV
(RCOA17)	□	IA613A.B/L OT*PSRM*PLUMES S1.2	.900	.000	10.000	9.000
(RCOA44)	○	IA613A.B/L OT*ASRM*PLUMES S1.2	.900	.000	10.000	9.000
(RCOA82)	◇	IA613A.B/L OT*ASRM*PLUMES S1.2	.900	180.000	10.000	9.000
(RCOAC2)	△	IA613A.B/L OT*ASRM*PLUMES S1.2	.900	999.000	10.000	5.000

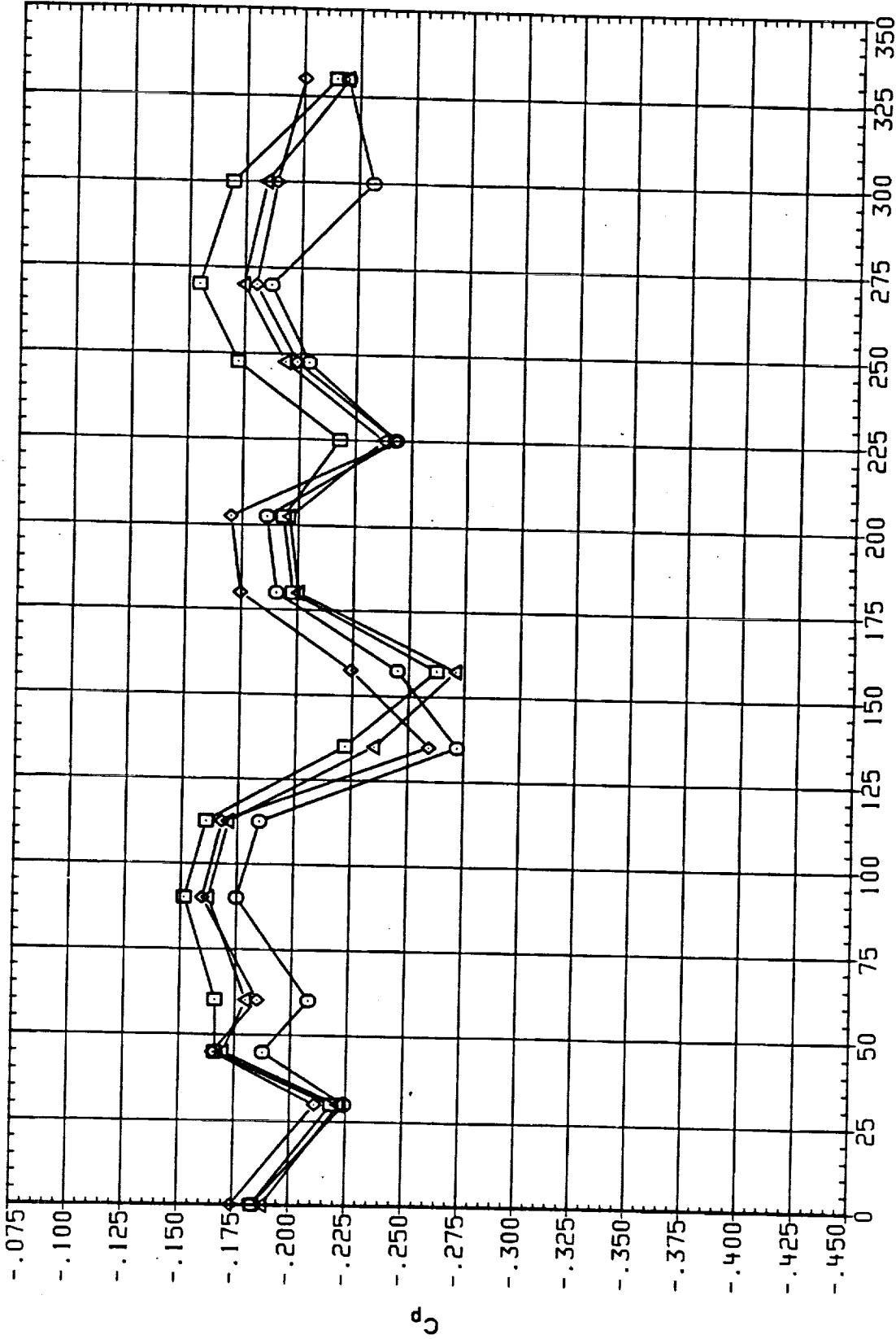


FIGURE 9 IA613A SELECTED PRESSURE DISTRIBUTIONS
 EXTERNAL TANK BASE
 BETA = .000 RADIUS = 156.560 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOA18)	○	IAG13A.B/L 0T+RSR+PLUMES S1.2	.950	.000	10.000	9.000
(RCOA15)	□	IAG13A.B/L 0T+ASRH+PLUMES S1.2	.950	.000	10.000	9.000
(RCOA83)	◇	IAG13A.B/L 0T+ASRH+PLUMES S1.2	.950	180.000	10.000	9.000

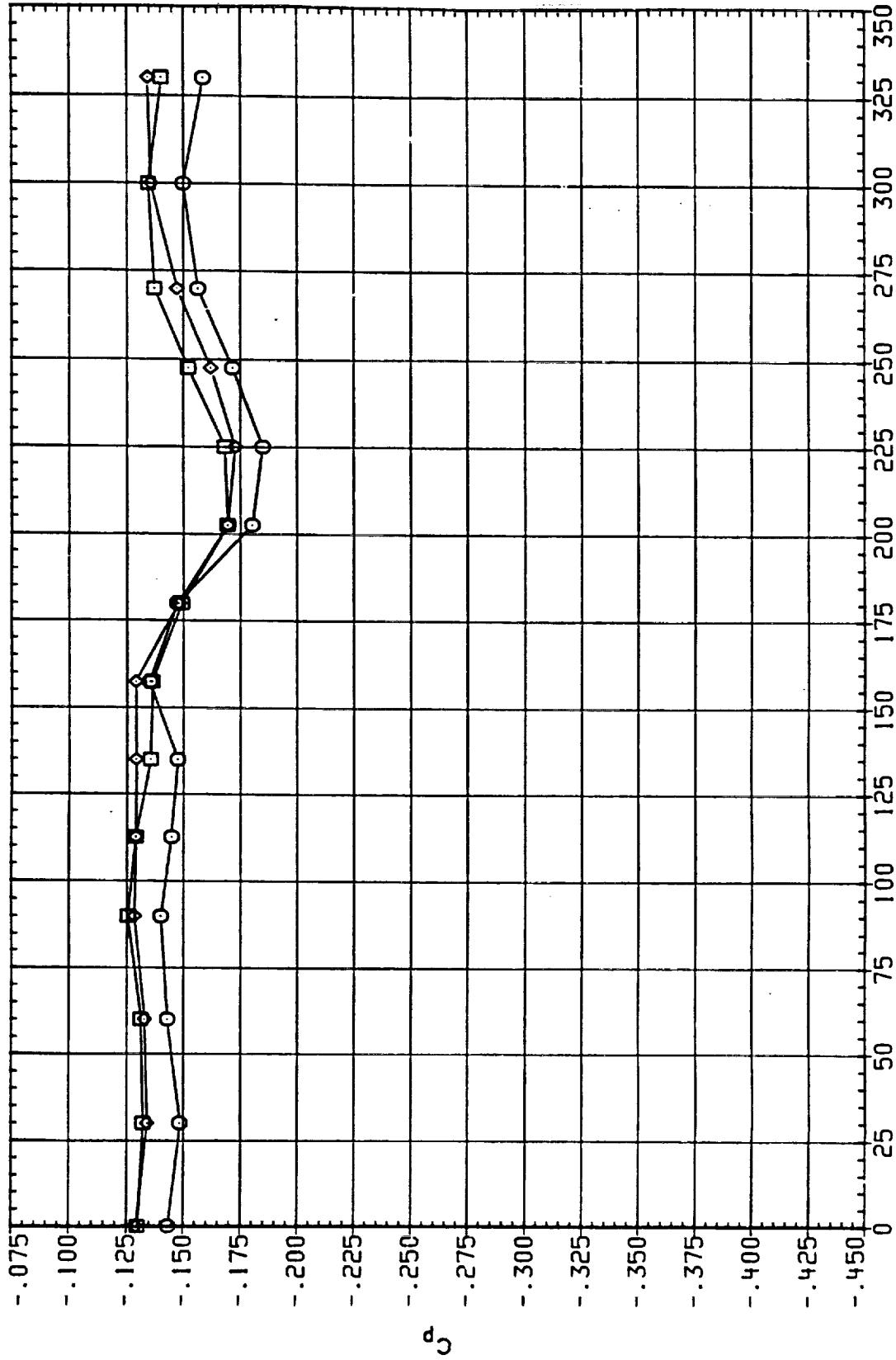


FIGURE 9 IAG13A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 RADIUS = 77.480 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	ICABOX	IB-ELV	OB-ELV
(RCOA18)	□	1A613A,B/L OT+RSRM+PLUMES S1.2	.950	.000	10.000	9.000
(RCOA19)	◇	1A613A,B/L OT+ASRM+PLUMES S1.2	.950	.000	10.000	9.000
(RCOA83)	◇	1A613A,B/L OT+ASRM+PLUMES S1.2	.950	180.000	10.000	9.000

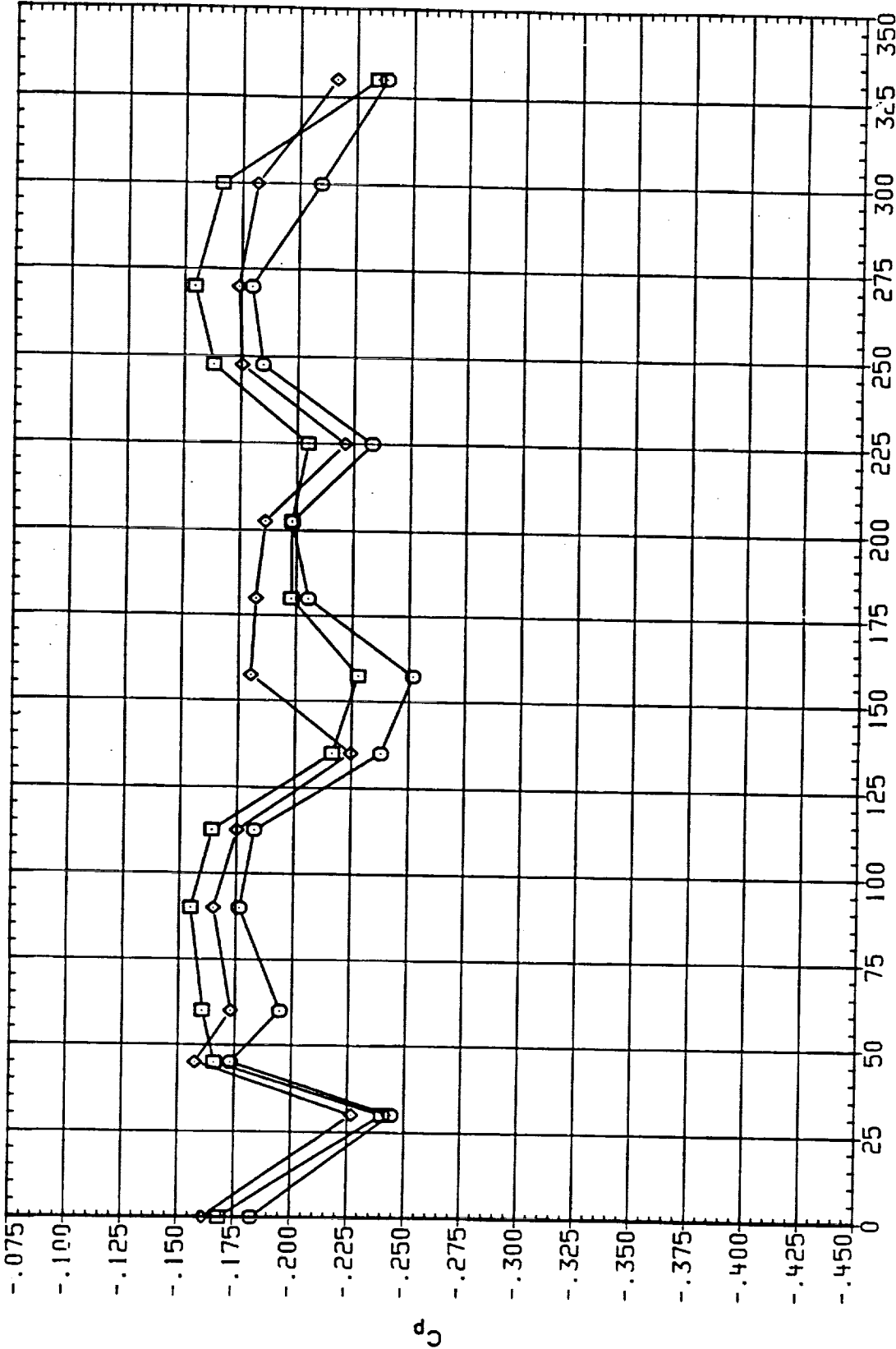


FIGURE 9 1A613A SELECTED PRESSURE DISTRIBUTIONS
 EXTERNAL TANK BASE
 BETA = .000 RADIUS = 156.560 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RC0A191)	○	IAG13A.B/L OT+ASRM+PLUMES S1.2	1.050	.000	10.000	9.000
(RC0A461)	□	IAG13A.B/L OT+ASRM+PLUMES S1.2	1.050	.000	10.000	9.000
(RC0A841)	◇	IAG13A.B/L OT+ASRM+PLUMES S1.2	1.050	180.000	10.000	9.000

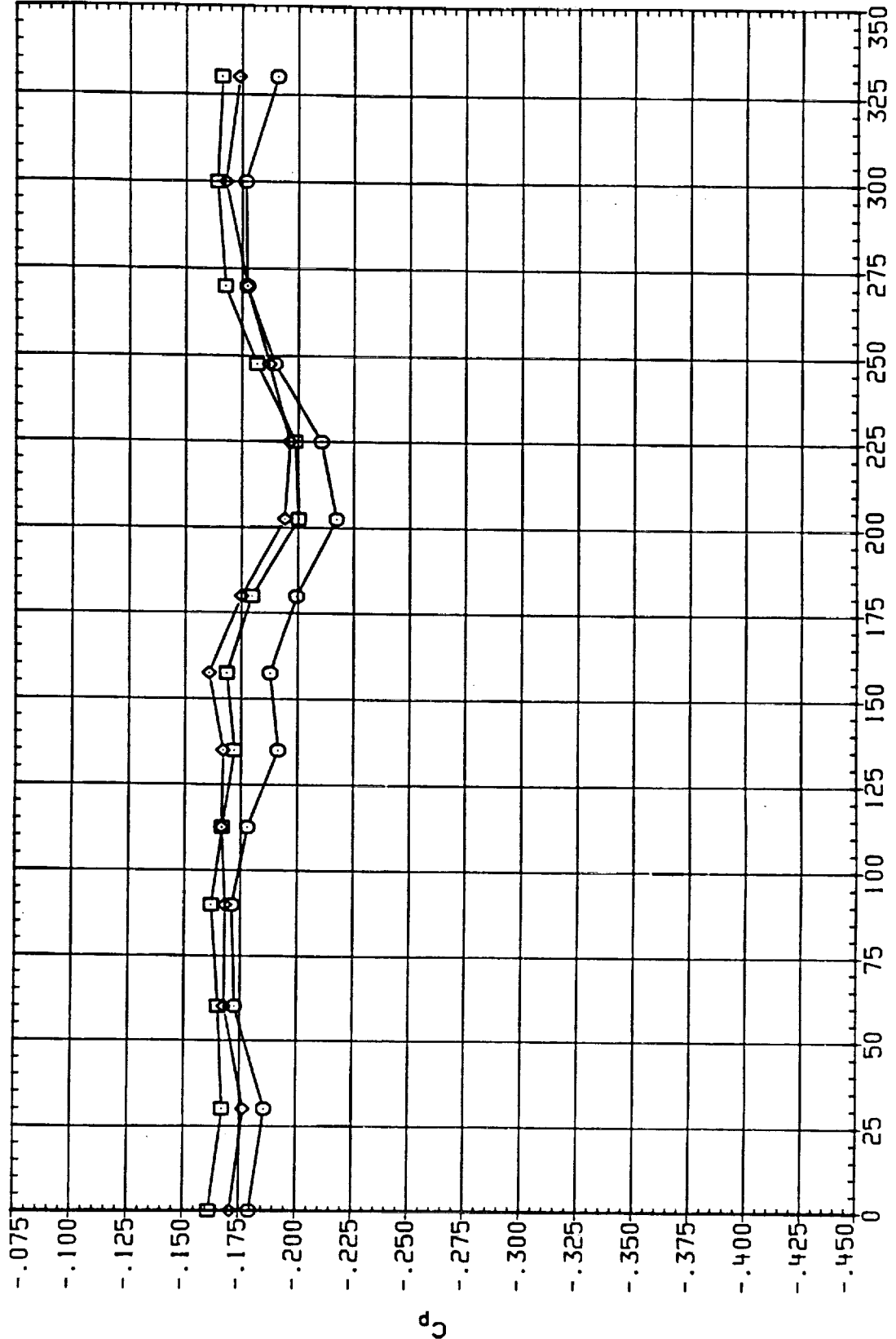


FIGURE 9 IAG13A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 RADIUS = 77.480 ALPHA = .000

DATA SET SYMBOL

CONFIGURATION DESCRIPTION

EXT. TANK BASE
EXT. TANK BASE

MACH

1B-ELV
10.000
10.000
10.000

1E-ABOX
180.000
180.000
180.000

0B-ELV
9.000
9.000
9.000

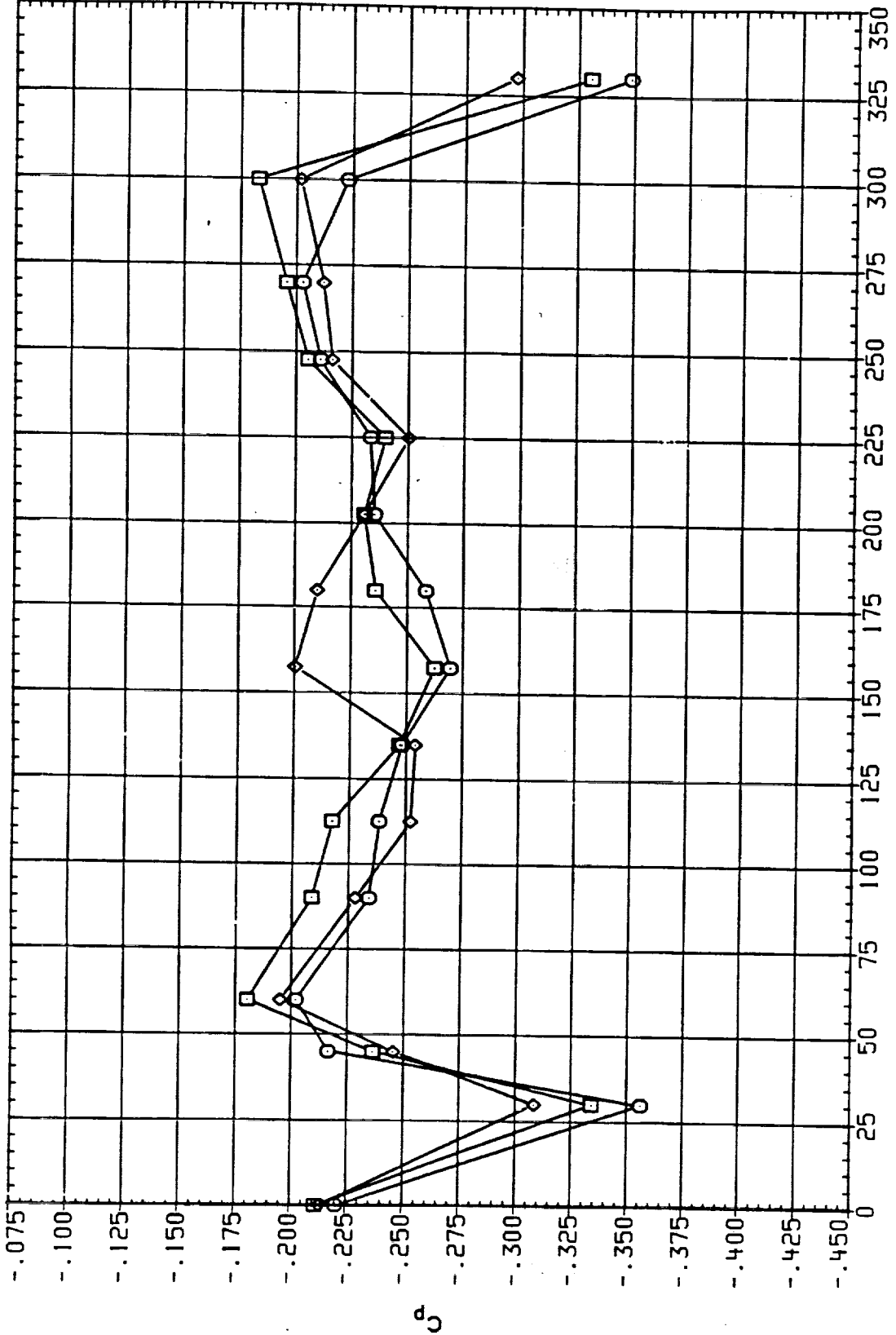


FIGURE 9 IA613A SELECTED PRESSURE DISTRIBUTIONS
EXTERNAL TANK BASE

BETA = .000 RADIUS = 156.560 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IE-ABOX	IB-ELV	OB-ELV
(RC0A20)	○	IA613A, B/L OT+RSRM+PLUMES S1.2	1.100	.000	10.000	9.000
(RC0A47)	□	IA613A, B/L OT+ASRM+PLUMES S1.2	1.100	.000	10.000	9.000
(RC0A85)	◇	IA613A, B/L OT+ASRM+PLUMES S1.2	1.100	180.000	10.000	9.000
(RC0AC3)	△	IA613A, B/L OT+ASRM+PLUMES S1.2	1.100	999.000	10.000	5.000

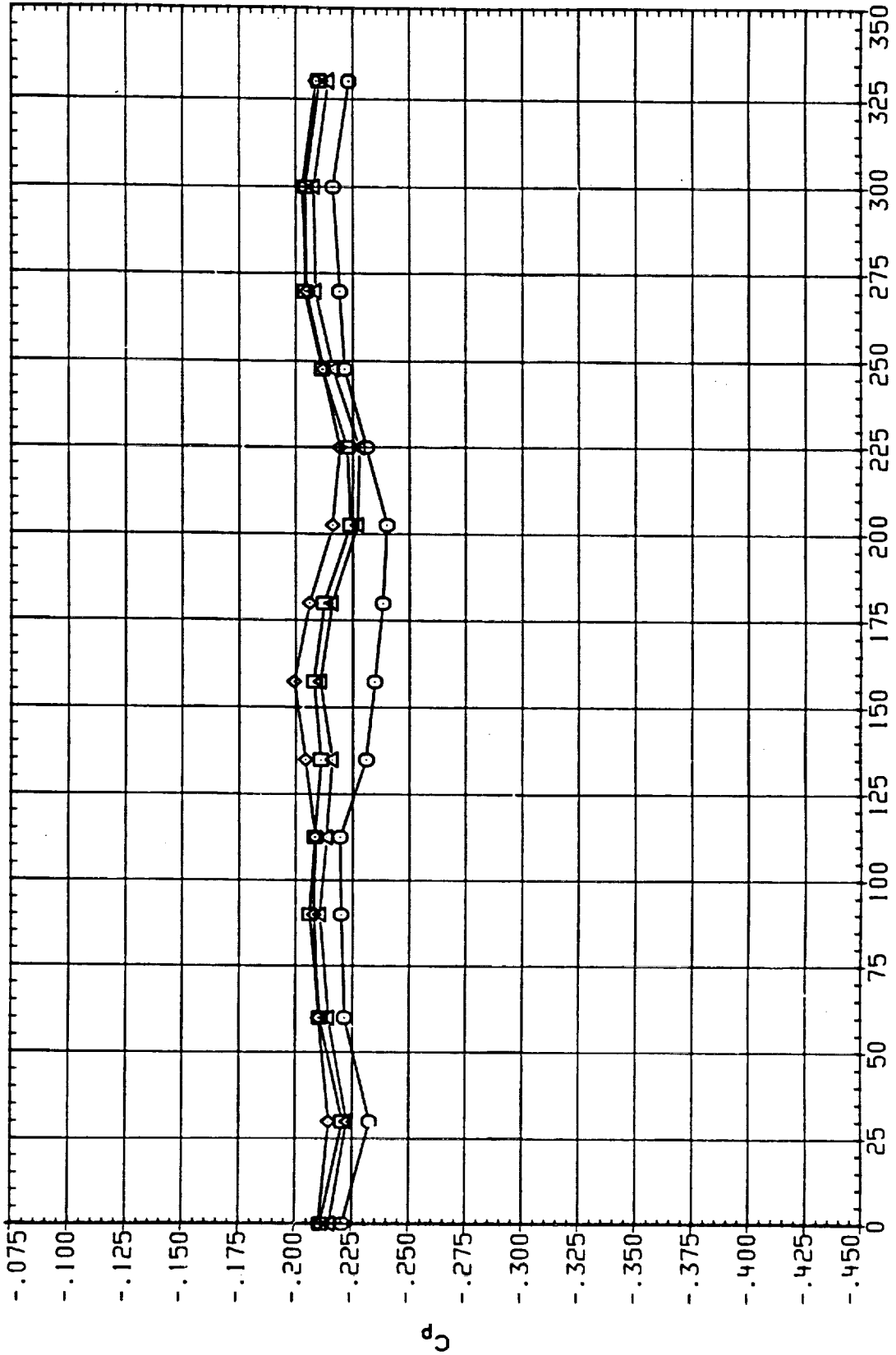


FIGURE 9 IA613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 RADIUS = 77.480 ALPHA = .000

DATA SET SYMBOL
 (RCO201) ○
 (RCO471) □
 (RCO485) ◇
 (RCOAC3) △

CONFIGURATION DESCRIPTION
 IA613A,B/L 01+RSRM+PLUMES S1,2
 IA613A,B/L 01+ASRM+PLUMES S1,2
 IA613A,B/L 01+ASRM+PLUMES S1,2
 IA613A,B/L 01+ASRM+PLUMES S1,2

TANK BASE
 -EXT. TANK BASE
 -EXT. TANK BASE
 -EXT. TANK BASE

MACH IEABOX IB-ELV OB-ELV
 1.100 .000 10.000 9.000
 1.100 .000 10.000 9.000
 1.100 180.000 10.000 9.000
 1.100 999.000 10.000 5.000

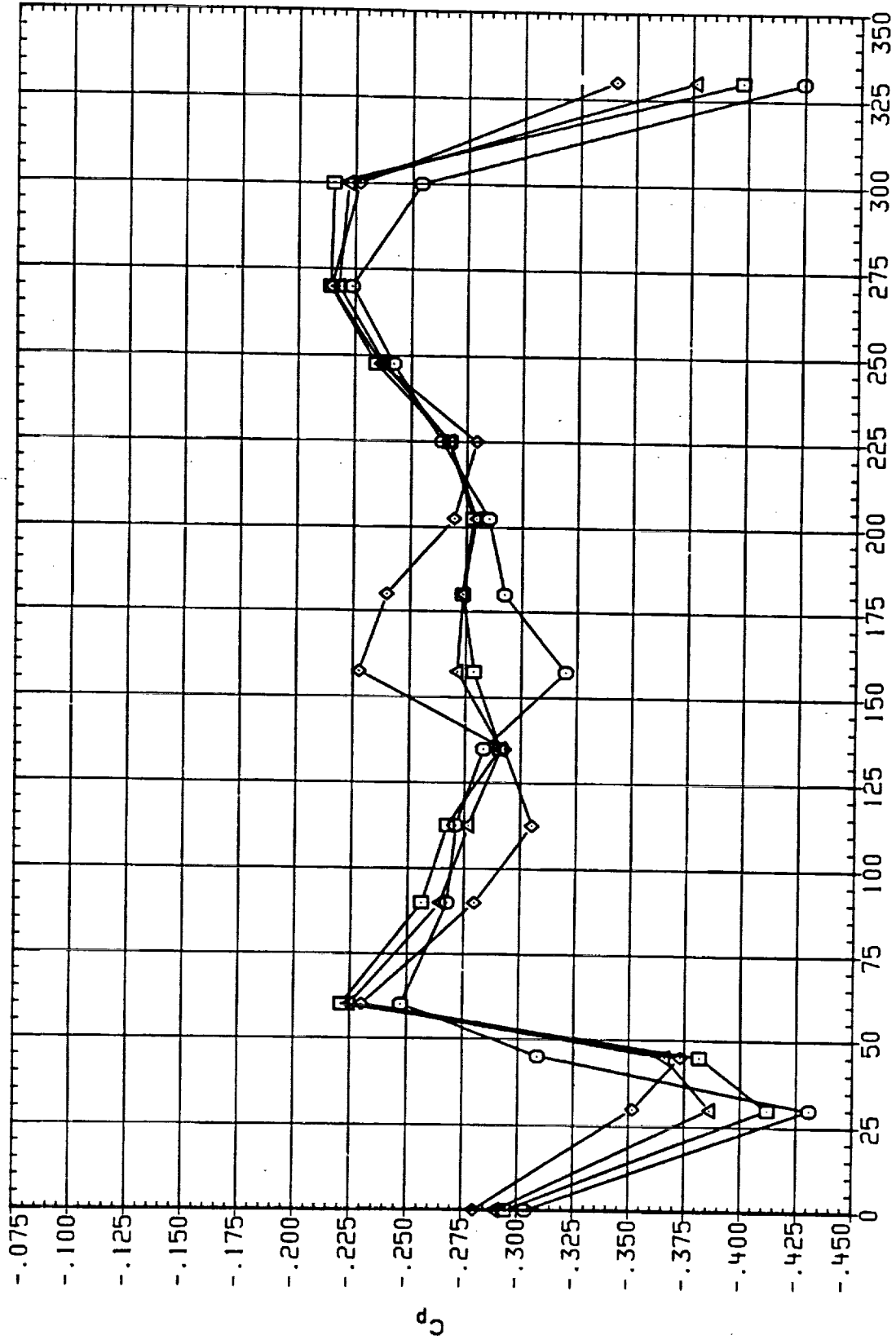


FIGURE 9 IA613A SELECTED PRESSURE DISTRIBUTIONS
 EXTERNAL TANK BASE RADIUS = 156.560 ALPHA = .000
 BETA = .000

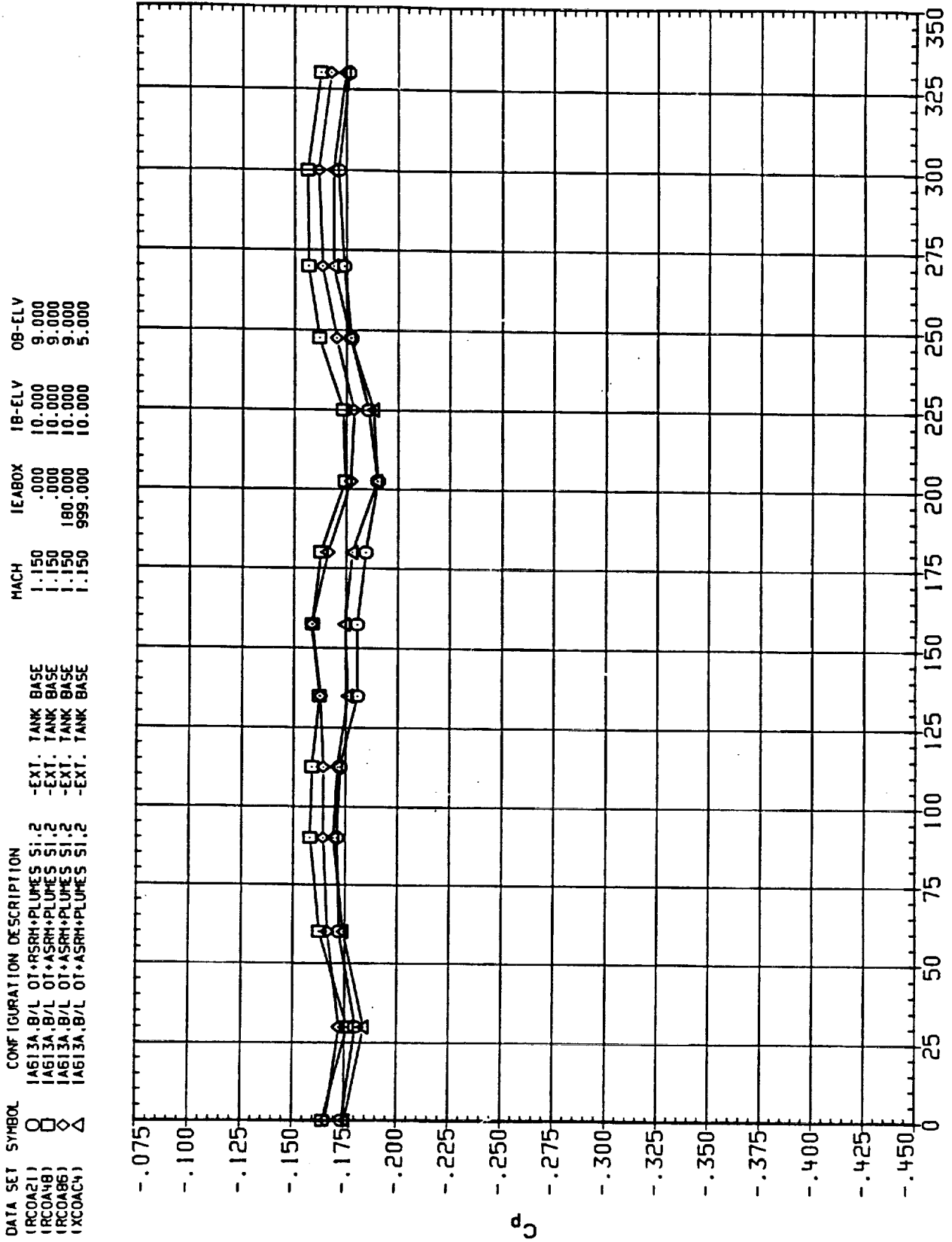


FIGURE 9 IAG13A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 RADIUS = 77.480 ALPHA = .000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	18-ELV	08-ELV
(RCA21)	IAG13A.B/L OT+ASRM+PLUMES S1.2	1.150	.000	10.000	9.000
(RCAV8)	IAG13A.B/L OT+ASRM+PLUMES S1.2	1.150	.000	10.000	9.000
(RCA96)	IAG13A.B/L OT+ASRM+PLUMES S1.2	1.150	180.000	10.000	9.000
(XCA04)	IAG13A.B/L OT+ASRM+PLUMES S1.2	1.150	999.000	10.000	5.000

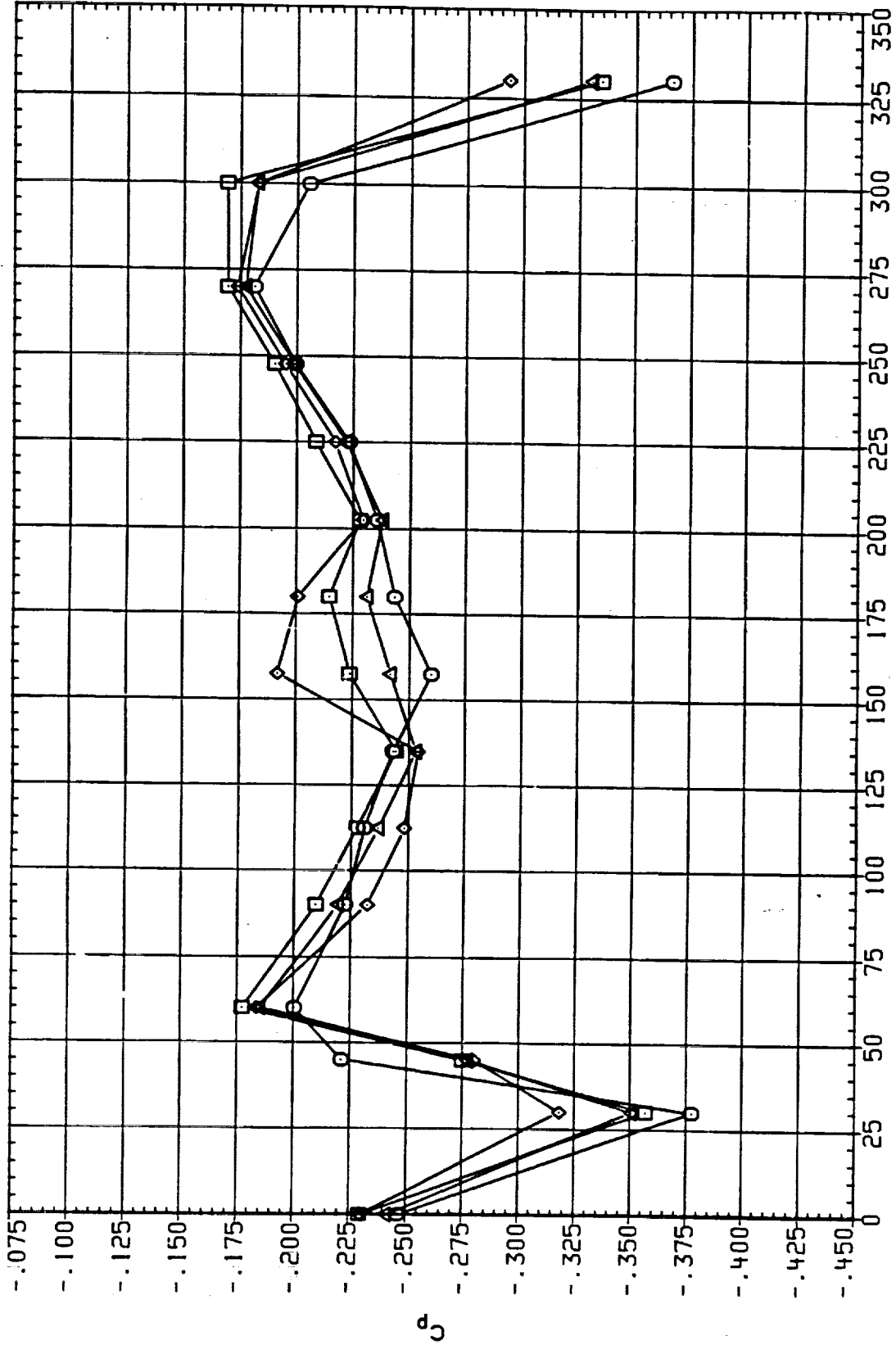


FIGURE 9 IAG13A SELECTED PRESSURE DISTRIBUTIONS
EXTERNAL TANK BASE

BETA = .000 RADIUS = 156.560 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RC0A221)	○	IAG13A.B/L OT+RSRH+PLUMES S1.2	1.250	.000	10.000	9.000
(RC0A491)	◇	IAG13A.B/L OT+ASRH+PLUMES S1.2	1.250	.000	10.000	9.000
(RC0A871)	□	IAG13A.B/L OT+ASRH+PLUMES S1.2	1.250	180.000	10.000	9.000
(RC0AC51)	△	IAG13A.B/L OT+ASRH+PLUMES S1.2	1.250	999.000	10.000	5.000

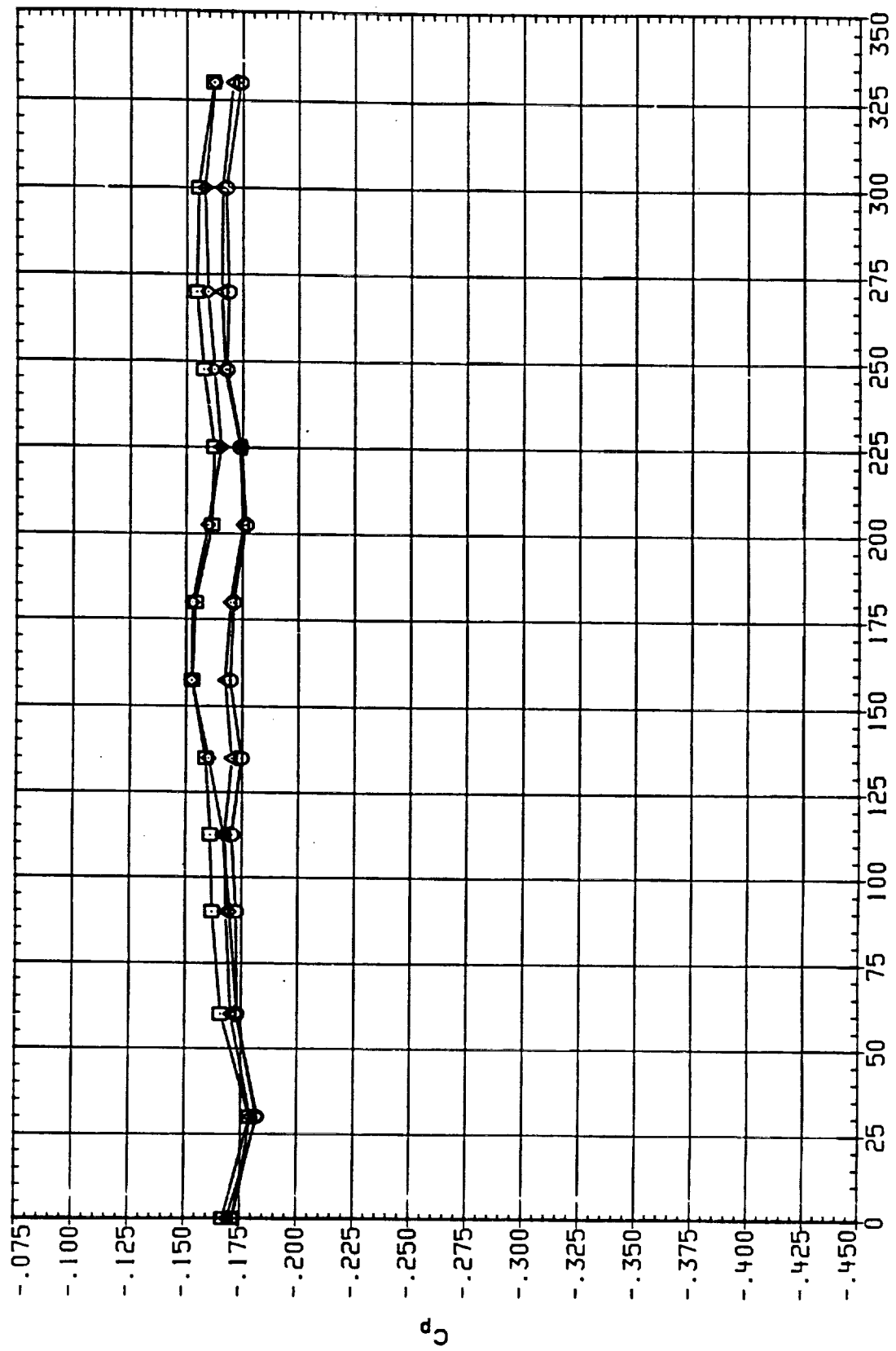


FIGURE 9 IAG13A SELECTED PRESSURE DISTRIBUTIONS
EXTERNAL TANK BASE

BETA = .000 RADIUS = 77.480 ALPHA = .000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCO422)	IA613A,B/L 01+RSRM+PLUMES S1.2	1.250	.000	10.000	9.000
(RCO443)	IA613A,B/L 01+ASRM+PLUMES S1.2	1.250	.000	10.000	9.000
(RCO487)	IA613A,B/L 01+ASRM+PLUMES S1.2	1.250	180.000	10.000	9.000
(RCO4C5)	IA613A,B/L 01+ASRM+PLUMES S1.2	1.250	999.000	10.000	5.000

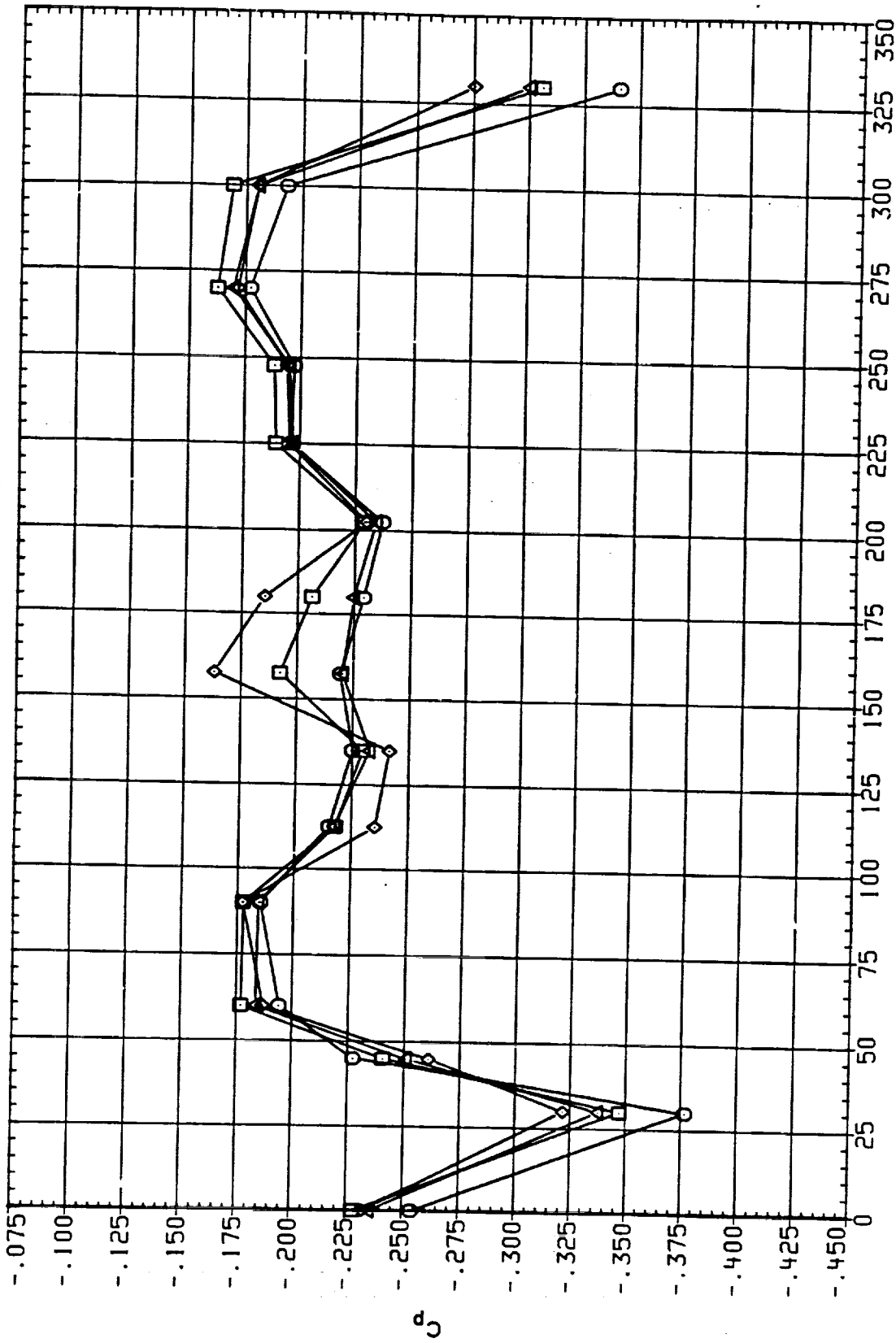


FIGURE 9 IA613A SELECTED PRESSURE DISTRIBUTIONS
EXTERNAL TANK BASE

BETA = .000 RADIUS = 156.560 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELY	OB-ELY
(RC0A81)	○	IA613A, B/L 01+RSRH+PLUMES S1.2	1.300	.000	10.000	9.000
(RC0A54)	□	IA613A, B/L 01+ASRH+PLUMES S1.3	1.300	.000	10.000	5.000
(RC0A83)	◇	IA613A, B/L 01+ASRH+PLUMES S1.3	1.300	180.000	10.000	5.000
(RC0A67)	△	IA613A, B/L 01+ASRH+PLUMES S1.3	1.300	999.000	10.000	5.000

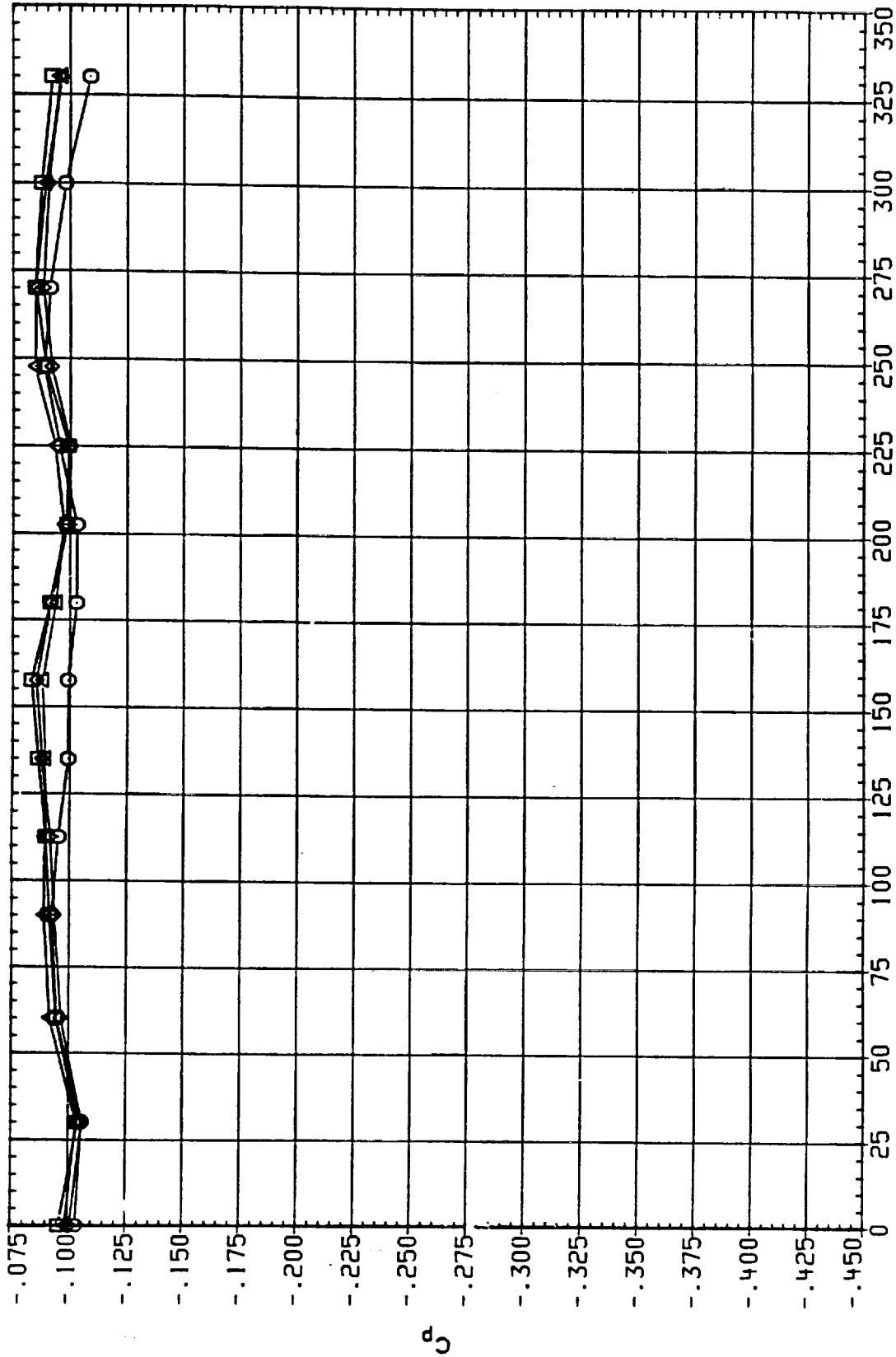


FIGURE 9 IA613A SELECTED PRESSURE DISTRIBUTIONS
 EXTERNAL TANK BASE ALPHA = .000
 BETA = .000 RADIUS = 77.480

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IE-BOX	IB-ELV	OB-ELV
(RC0A6)	○	IAG13A, B/L 01+RSRM+PLUMES S1.2	1.300	.000	10.000	9.000
(RC0A5)	□	IAG13A, B/L 01+ASRM+PLUMES S1.3	1.300	.000	10.000	5.000
(RC0A8)	◇	IAG13A, B/L 01+ASRM+PLUMES S1.3	1.300	180.000	10.000	5.000
(RC0A7)	△	IAG13A, B/L 01+ASRM+PLUMES S1.3	1.300	999.000	10.000	5.000

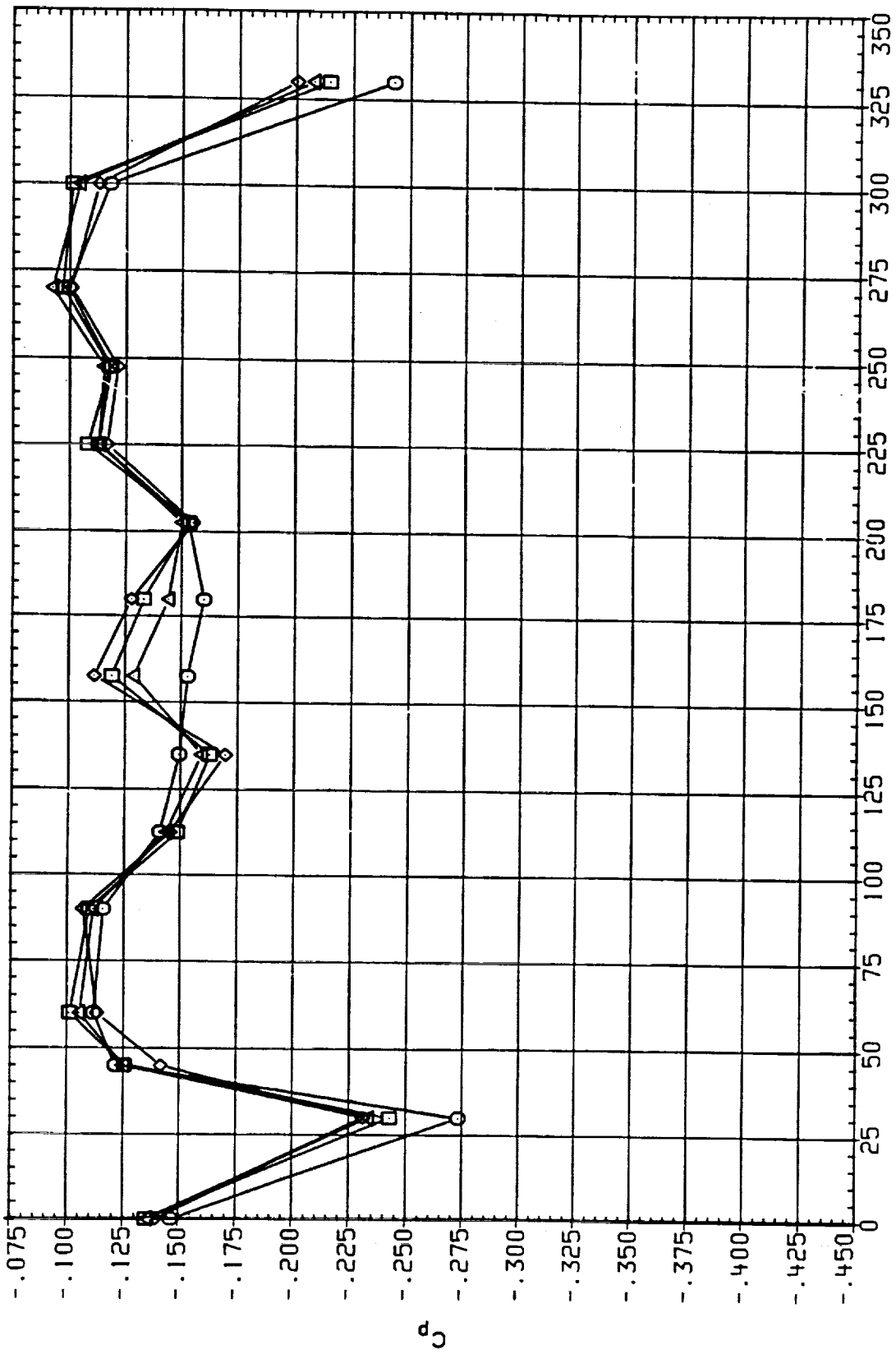


FIGURE 9 IAG13A SELECTED PRESSURE DISTRIBUTIONS
 EXTERNAL TANK BASE
 BETA = .000 RADIUS = 156.560 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOAH7)	○	IAG13A,B/L OT+ASRM+PLUMES S1.2	1.350	.000	10.000	9.000
(RCOAS5)	◇	IAG13A,B/L OT+ASRM+PLUMES S1.3	1.350	.000	10.000	5.000
(RCOAG0)	◇	IAG13A,B/L OT+ASRM+PLUMES S1.3	1.350	180.000	10.000	5.000
(RCOAC8)	△	IAG13A,B/L OT+ASRM+PLUMES S1.3	1.350	999.000	10.000	5.000

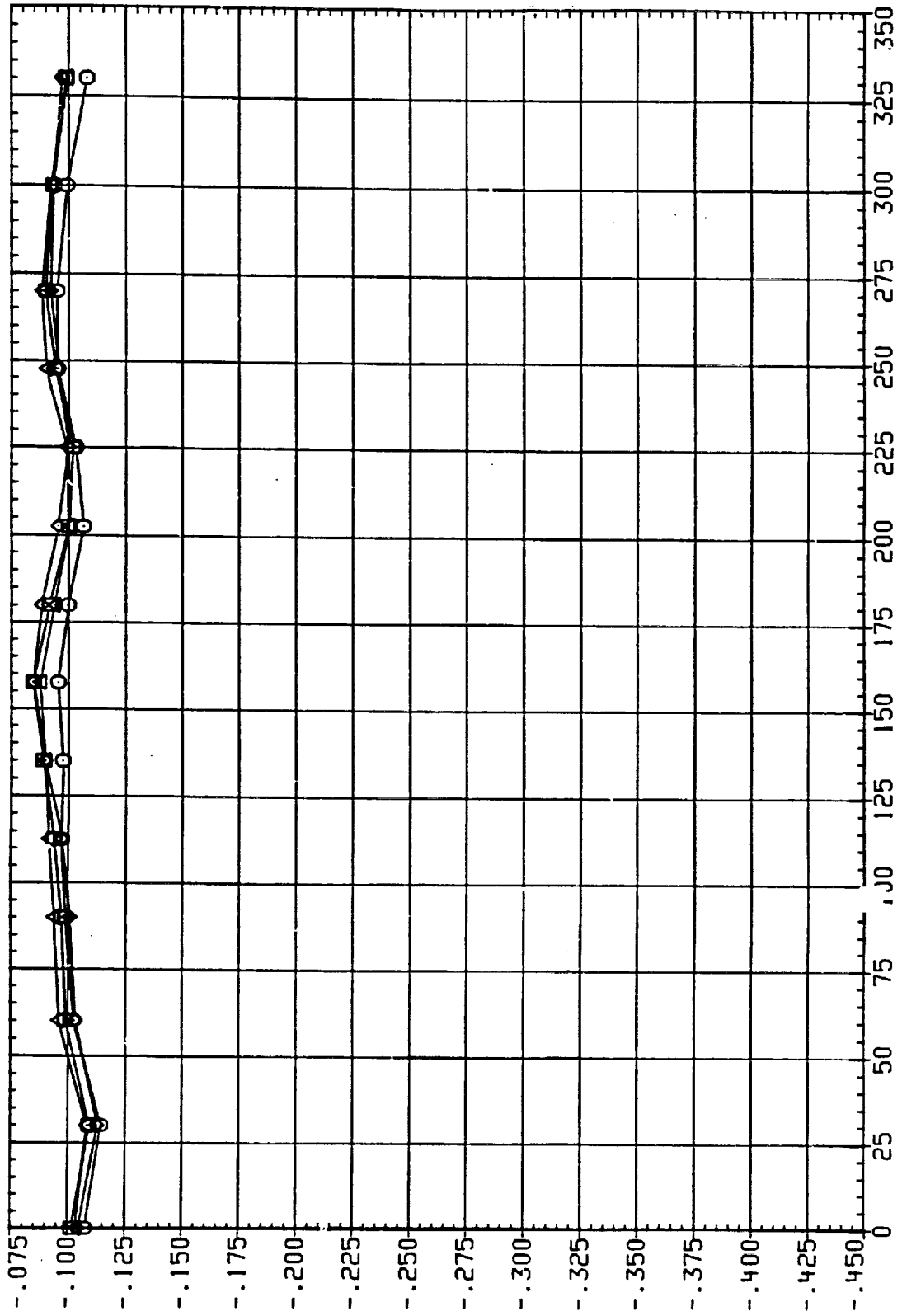


FIGURE 9 IAG13A SELECTED PRESSURE DISTRIBUTIONS
EXTERNAL TANK BASE

BETA = .000 RADIUS = 77.480 ALPHA = .000

DATA SET SYMBOL CONFIGURATION DESCRIPTION

(RCOAH7)	□	IAG13A.B/L OT*RSRH*PLUMES S1.2	EXT. TANK BASE	MACH	IEABOX	IB-ELV	OB-ELV
(RCOA55)	○	IAG13A.B/L OT*ASRH*PLUMES S1.3	-EXT. TANK BASE	1.350	.000	10.000	9.000
(RCOA90)	◇	IAG13A.B/L OT*ASRH*PLUMES S1.3	-EXT. TANK BASE	1.350	.000	10.000	5.000
(RCOACB)	△	IAG13A.B/L OT*ASRH*PLUMES S1.3	-EXT. TANK BASE	1.350	180.000	10.000	5.000
				1.350	999.000	10.000	5.000

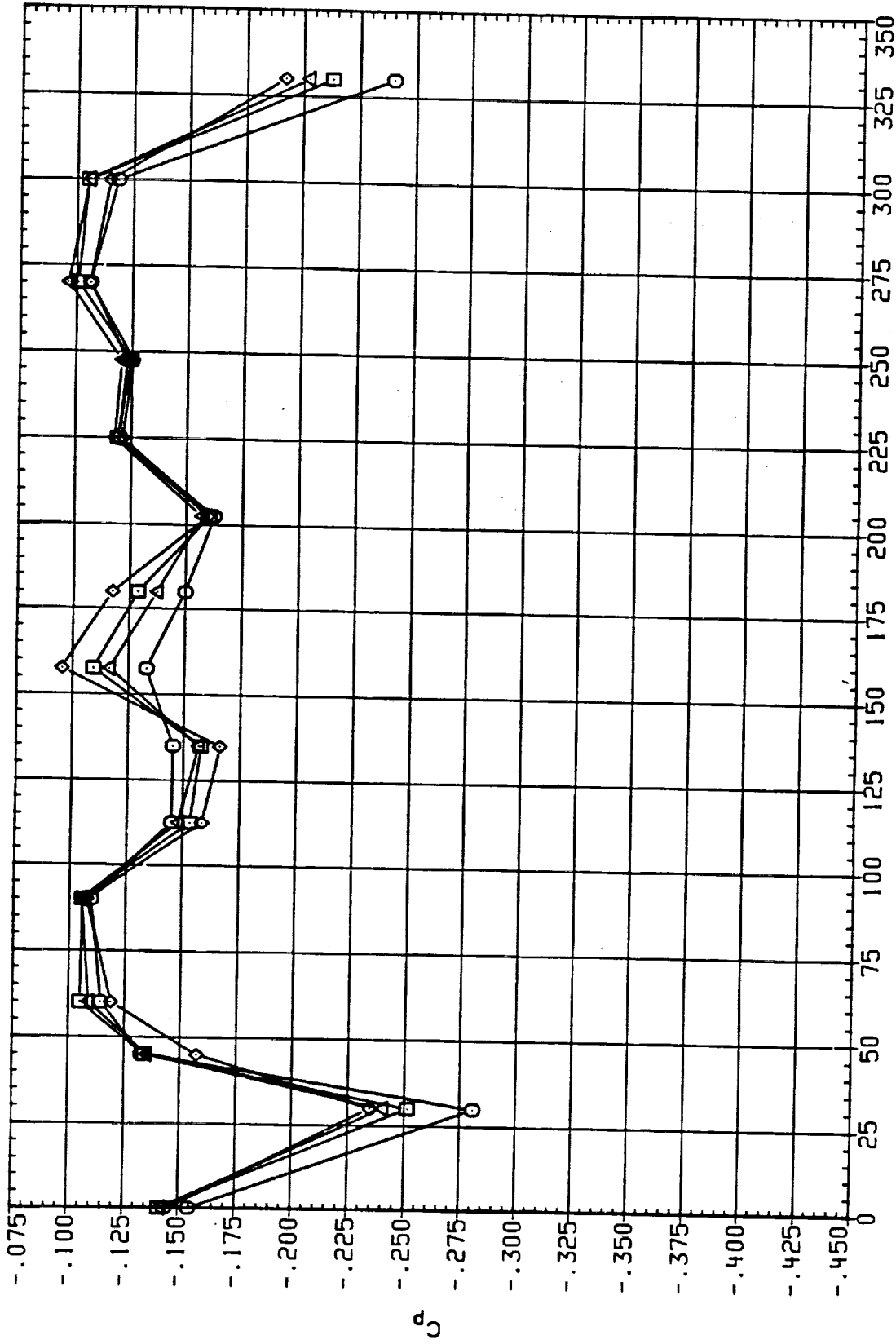


FIGURE 9 IAG13A SELECTED PRESSURE DISTRIBUTIONS
EXTERNAL TANK BASE

BETA = .000 RADIUS = 156.560 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELY	OB-ELY
(RC0A81)	○	IA613A, B/L 01+RSRH+PLUMES S1.2	1.400	.000	10.000	9.000
(RC0A56)	□	IA613A, B/L 01+ASRH+PLUMES S1.3	1.400	.000	10.000	5.000
(RC0A91)	◇	IA613A, B/L 01+ASRH+PLUMES S1.3	1.400	180.000	10.000	5.000
(RC0AC9)	△	IA613A, B/L 01+ASRH+PLUMES S1.3	1.400	999.000	10.000	5.000

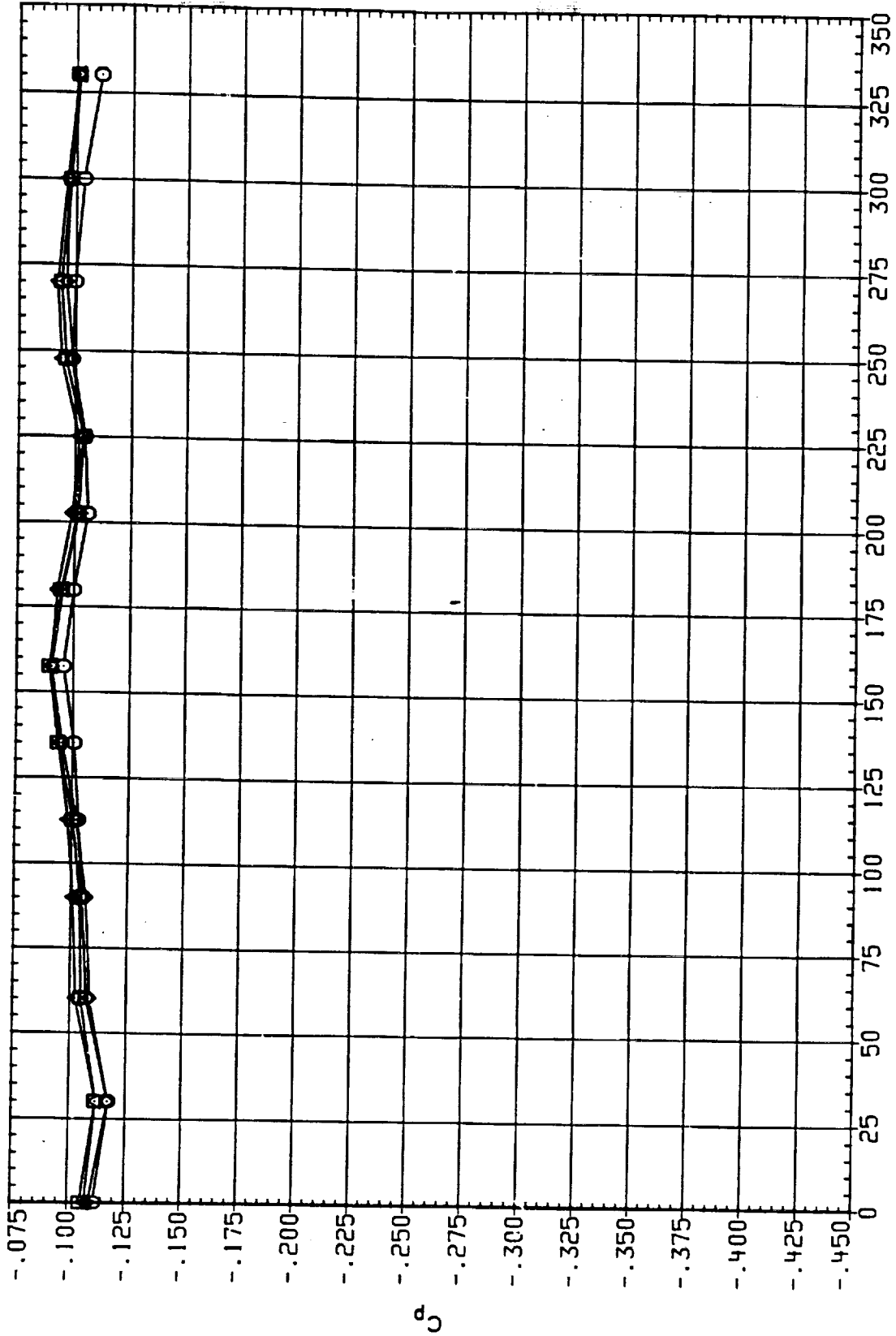


FIGURE 9 IA613A SELECTED PRESSURE DISTRIBUTIONS
EXTERNAL TANK BASE

BETA = .000 RADIUS = 77.490 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOA8)	○	IA613A,B/L 01+RSRH+PLUMES SI.2	1.400	.000	10.000	9.000
(RCOA56)	□	IA613A,B/L 01+ASRH+PLUMES SI.3	1.400	.000	10.000	5.000
(RCOA91)	◇	IA613A,B/L 01+ASRH+PLUMES SI.3	1.400	180.000	10.000	5.000
(RCOA9)	△	IA613A,B/L 01+ASRH+PLUMES SI.3	1.400	999.000	10.000	5.000

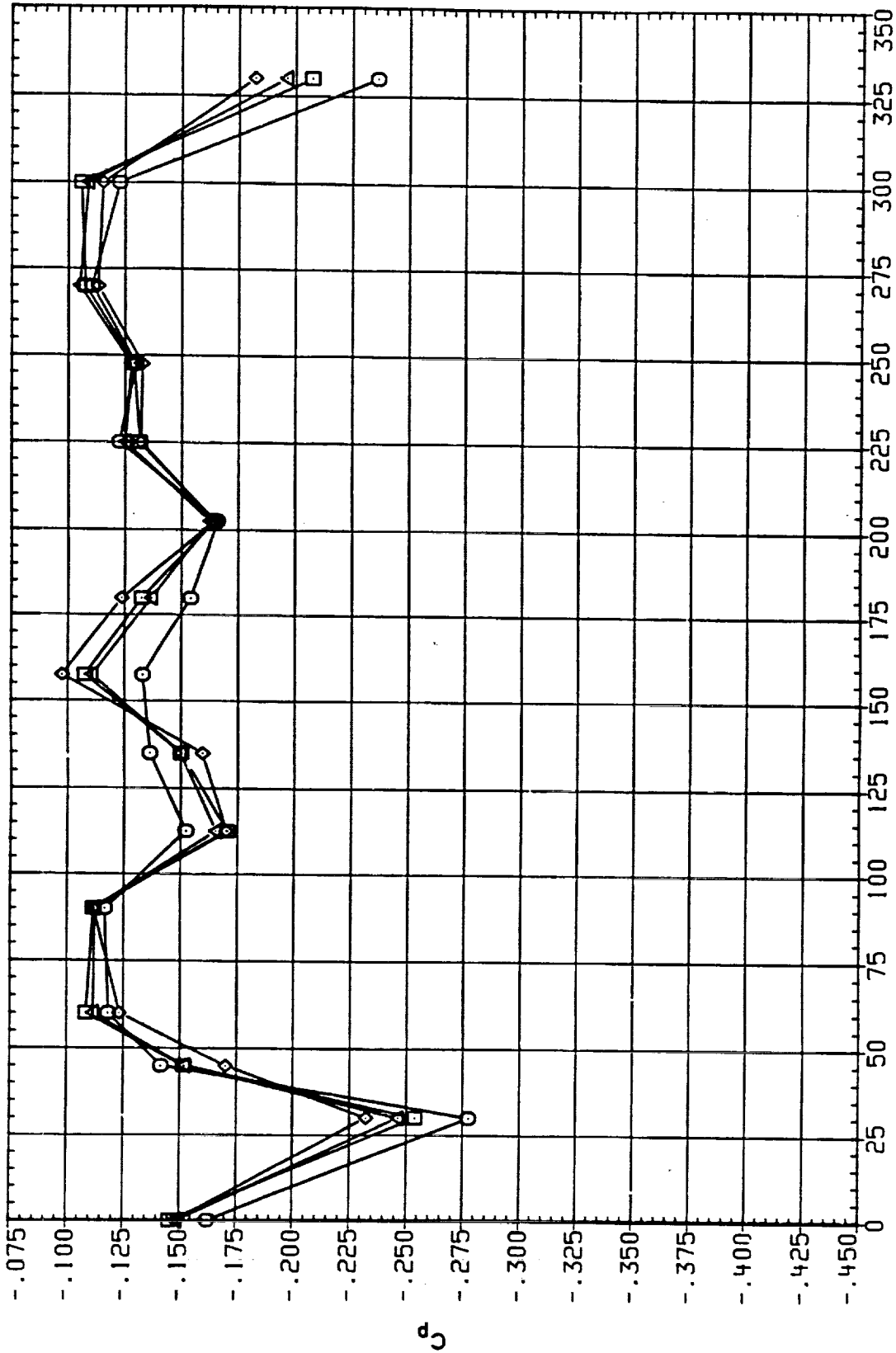


FIGURE 9 IA613A SELECTED PRESSURE DISTRIBUTIONS
EXTERNAL TANK BASE

BETA = .000 RADIUS = 156.560 ALPHA = .000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RC04H1)	IA613A.B/L OT+PSRM+PLUMES S1.2	1.550	.000	10.000	9.000
(RC04S1)	IA613A.B/L OT+ASRM+PLUMES S1.3	1.550	.000	10.000	5.000
(RC04G1)	IA613A.B/L OT+ASRM+PLUMES S1.3	1.550	180.000	10.000	5.000
(RC04D1)	IA613A.B/L OT+ASRM+PLUMES S1.3	1.550	999.000	10.000	5.000

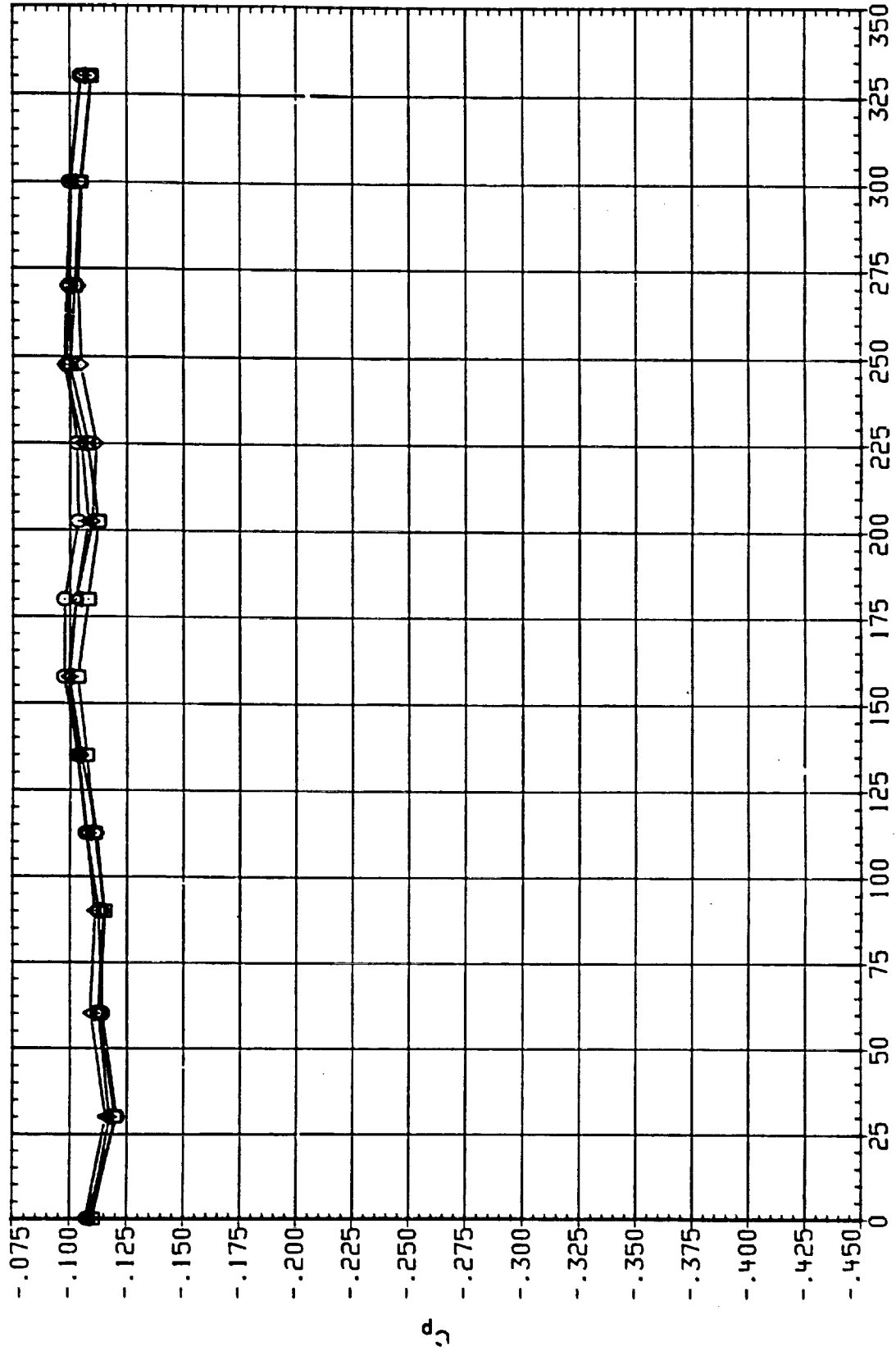


FIGURE 9 IA613A SELECTED PRESSURE DISTRIBUTIONS
EXTERNAL TANK BASE

BETA = .000 RADIUS = 77.480 ALPHA = .000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOAH9)	IA613A.8/L OT*PSRM*PLUHS S1.2	1.550	.000	10.000	9.000
(RCOAS7)	IA613A.8/L OT*ASRM*PLUHS S1.3	1.550	.000	10.000	5.000
(RCOAS2)	IA613A.8/L OT*ASRM*PLUHS S1.3	1.550	180.000	10.000	5.000
(RCOAO0)	IA613A.8/L OT*ASRM*PLUHS S1.3	1.550	999.000	10.000	5.000

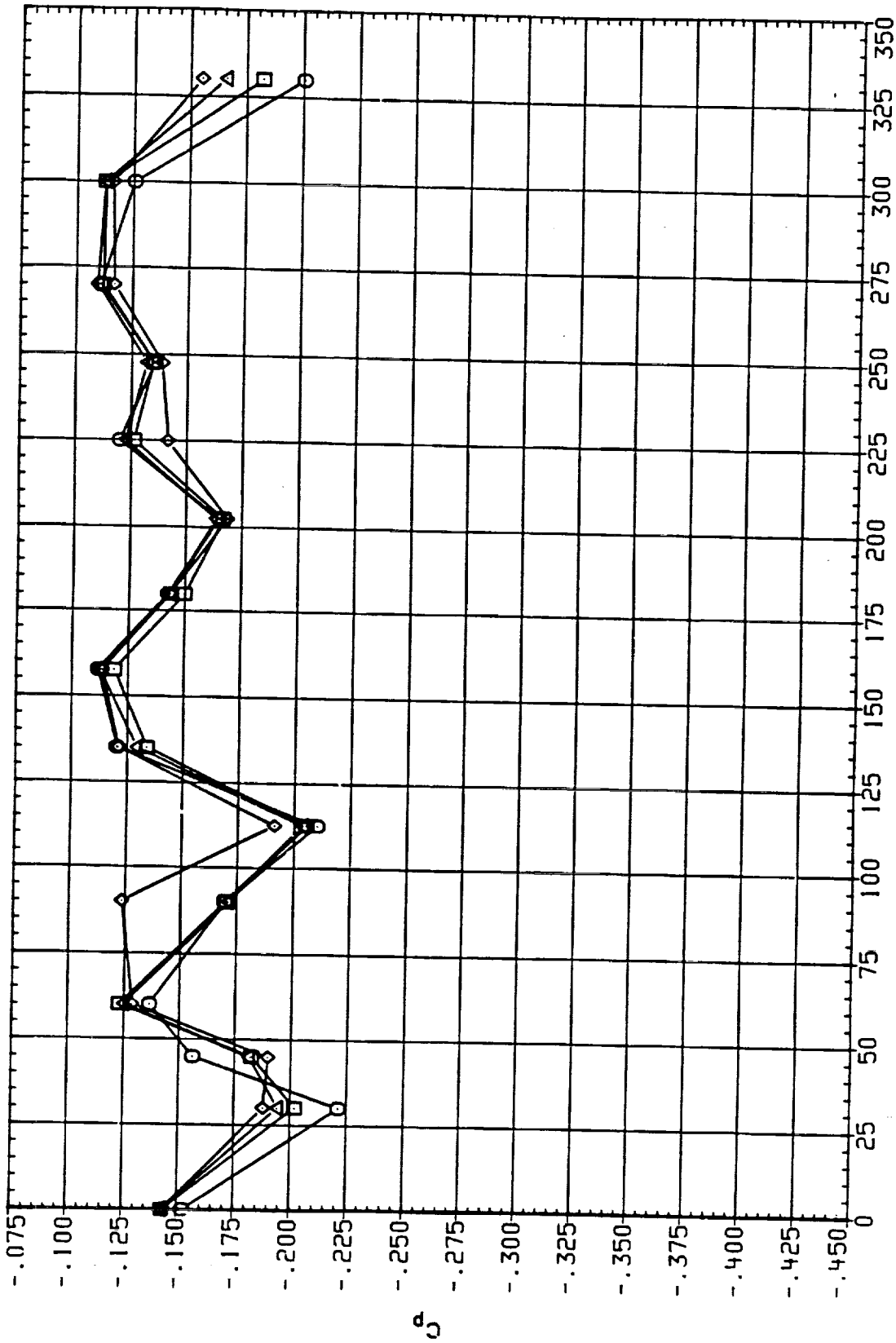


FIGURE 9 IA613A SELECTED PRESSURE DISTRIBUTIONS
 EXTERNAL TANK BASE ALPHA = .000
 RADIUS = 156.560
 BETA = .000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELY	OB-ELY
(RCON15)	IA613A,B/L OT*SRM*PLUMES S1.2	.600	.000	10.000	9.000
(RCON42)	IA613A,B/L OT*ASRM*PLUMES S1.2	.600	.000	10.000	9.000
(RCON80)	IA613A,B/L OT*ASRM*PLUMES S1.2	.600	180.000	10.000	9.000
(RCONC1)	IA613A,B/L OT*ASRM*PLUMES S1.2	.600	999.000	10.000	5.000

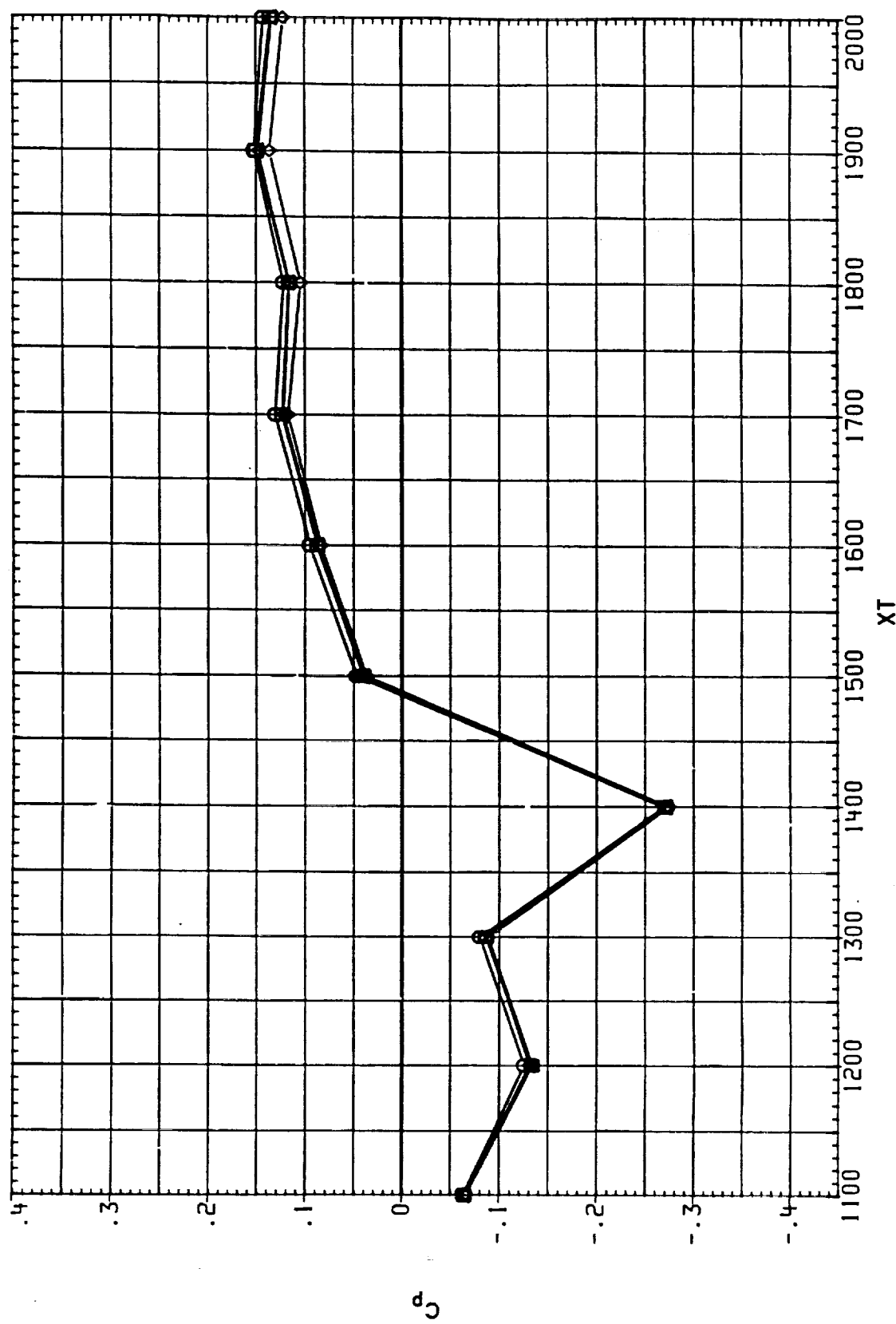


FIGURE 10 IA613A SELECTED PRESSURE DISTRIBUTIONS
 EXTERNAL TANK L02 FEEDLINE
 BETA = .000 PHI = 60.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELY	OB-ELY
(RCOH16)	○	IAG13A.B/L OT*ASRH*PLUMES S1.2	.800	.000	10.000	9.000
(RCOH43)	○	IAG13A.B/L OT*ASRH*PLUMES S1.2	.800	.000	10.000	9.000
(RCOH81)	◇	IAG13A.B/L OT*ASRH*PLUMES S1.2	.800	180.000	10.000	9.000

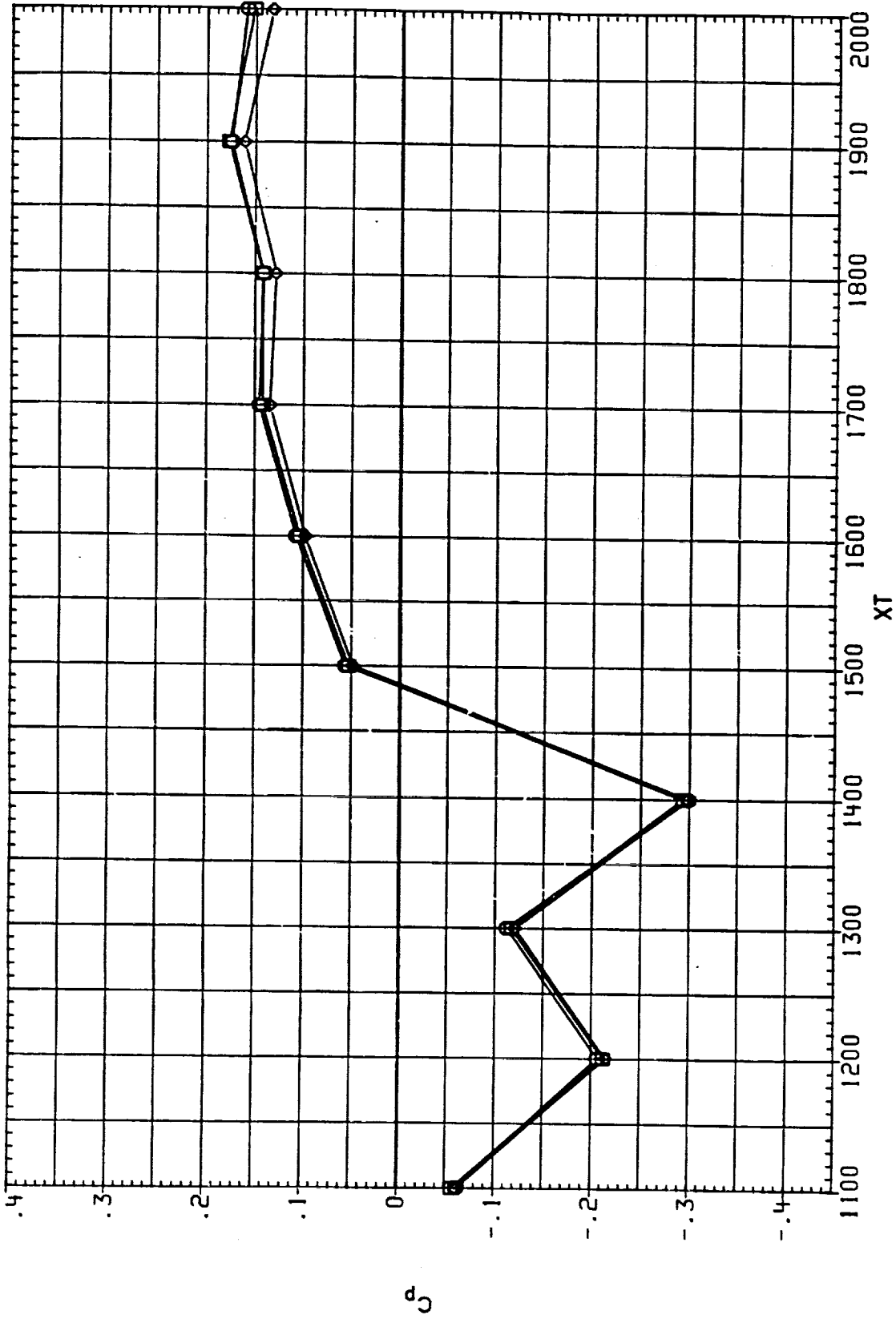


FIGURE 10 IAG13A SELECTED PRESSURE DISTRIBUTIONS
 EXTERNAL TANK L02 FEEDLINE
 BETA = .000 PHI = 60.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOM17)	○	IA613A.B/L OT+RSRM+PLUMES SI.2	.900	.000	10.000	9.000
(RCOM18)	□	IA613A.B/L OT+ASRM+PLUMES SI.2	.900	.000	10.000	9.000
(RCOM19)	◇	IA613A.B/L OT+ASRM+PLUMES SI.2	.900	180.000	10.000	9.000
(RCOM20)	△	IA613A.B/L OT+ASRM+PLUMES SI.2	.900	999.000	10.000	5.000

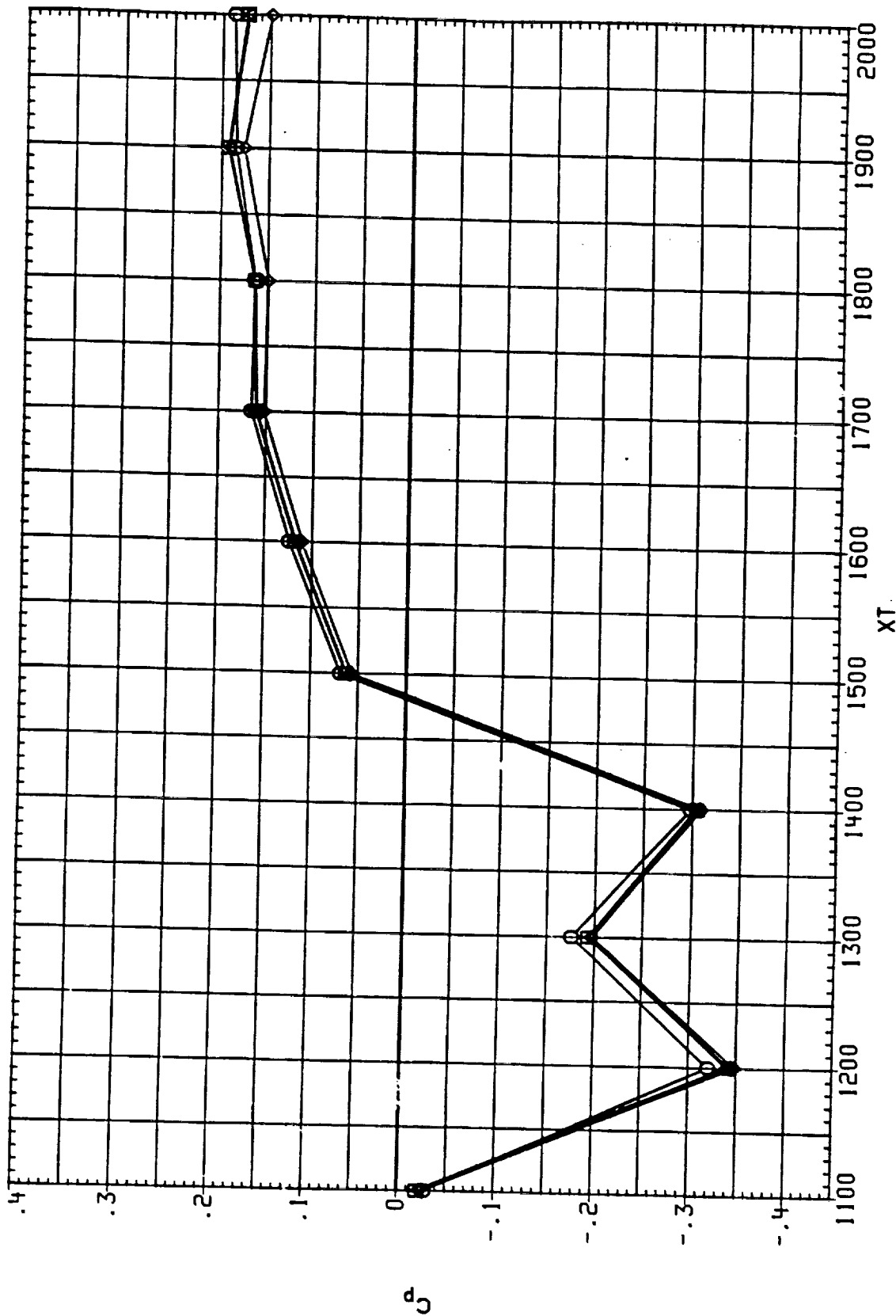


FIGURE 10 IA613A SELECTED PRESSURE DISTRIBUTIONS
 EXTERNAL TANK L02 FEEDLINE
 BETA = .000 PHI = 60.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	ICABOX	IB-ELV	OB-ELV
(RCOM1B)	○	I A613A, B/L OT+RSRH+PLUMES S1.2	.950	.000	10.000	9.000
(RCOM2S)	□	I A613A, B/L OT+ASRH+PLUMES S1.2	.950	.000	10.000	9.000
(RCOM3S)	◇	I A613A, B/L OT+ASRH+PLUMES S1.2	.950	180.000	10.000	9.000

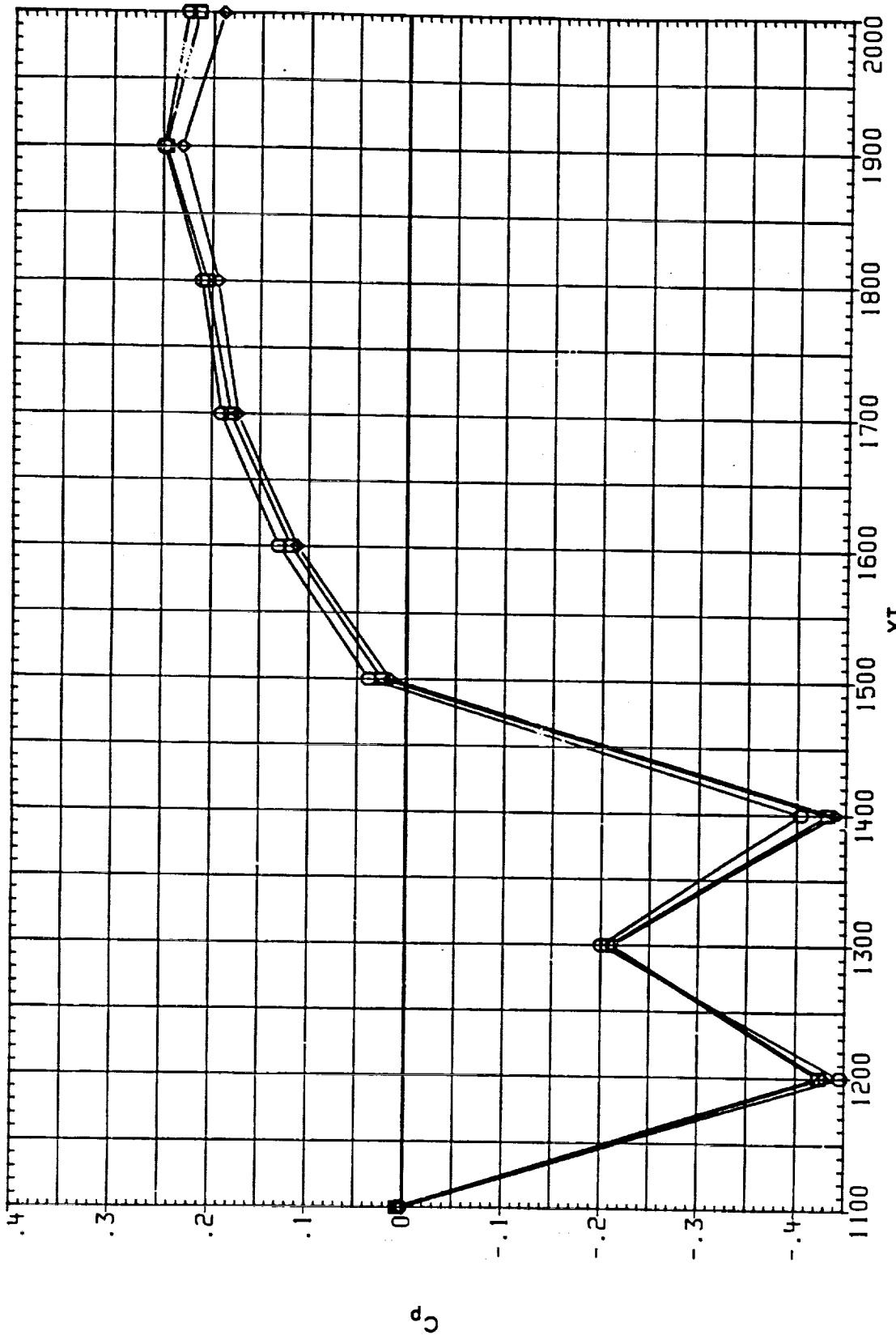


FIGURE 10 I A613A SELECTED PRESSURE DISTRIBUTIONS
 EXTERNAL TANK L02 FEEDLINE
 BETA = .000 PHI = 60.000 ALPHA = .000

DATA SET 5182/L CONFIGURATION DESCRIPTION
 (RCOM19) 0 IA613A.B/L OT*ASRM*PLUMES S1.2
 (RCOM16) 0 IA613A.B/L OT*ASRM*PLUMES S1.2
 (RCOM21) 0 IA613A.B/L OT*ASRM*PLUMES S1.2

MACH IEABOX IB-ELV OB-ELV
 1.050 .000 10.000 9.000
 1.050 .000 10.000 9.000
 1.050 190.000 10.000 9.000

-LO2 FEEDLINE
 -LO2 FEEDLINE

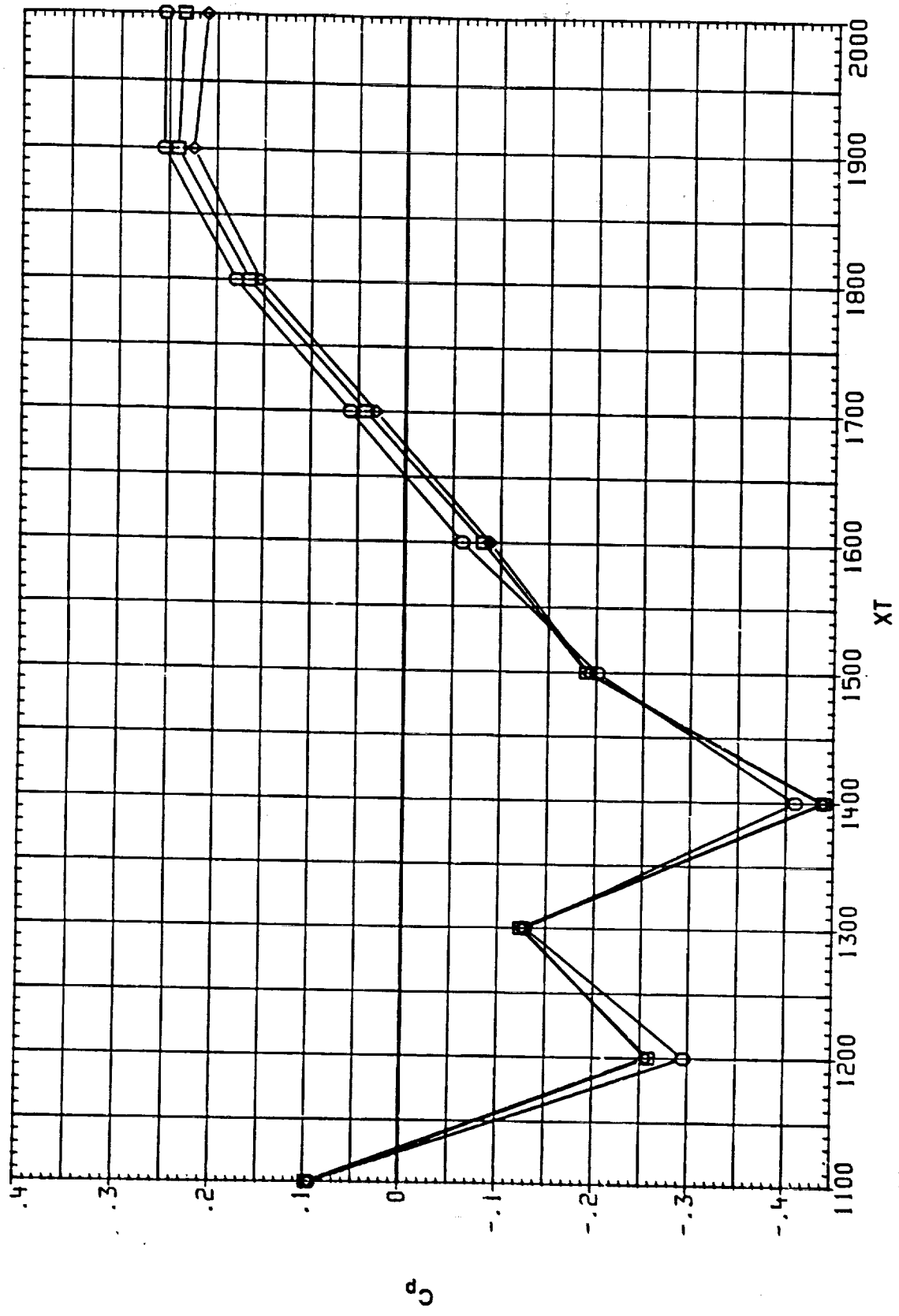


FIGURE 10 IA613A SELECTED PRESSURE DISTRIBUTIONS
 EXTERNAL TANK LO2 FEEDLINE
 BETA = .000 PHI = 60.000 ALPHA = .000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MACH	IC-ABOX	IB-ELV	OB-ELV
(RCOM20)	I4613A,B/L OT*ASRM*PLUMES S1.2	1.100	.000	10.000	9.000
(RCOM47)	I4613A,B/L OT*ASRM*PLUMES S1.2	1.100	.000	10.000	9.000
(RCOM5)	I4613A,B/L OT*ASRM*PLUMES S1.2	1.100	180.000	10.000	9.000
(RCOM3)	I4613A,B/L OT*ASRM*PLUMES S1.2	1.100	999.000	10.000	5.000

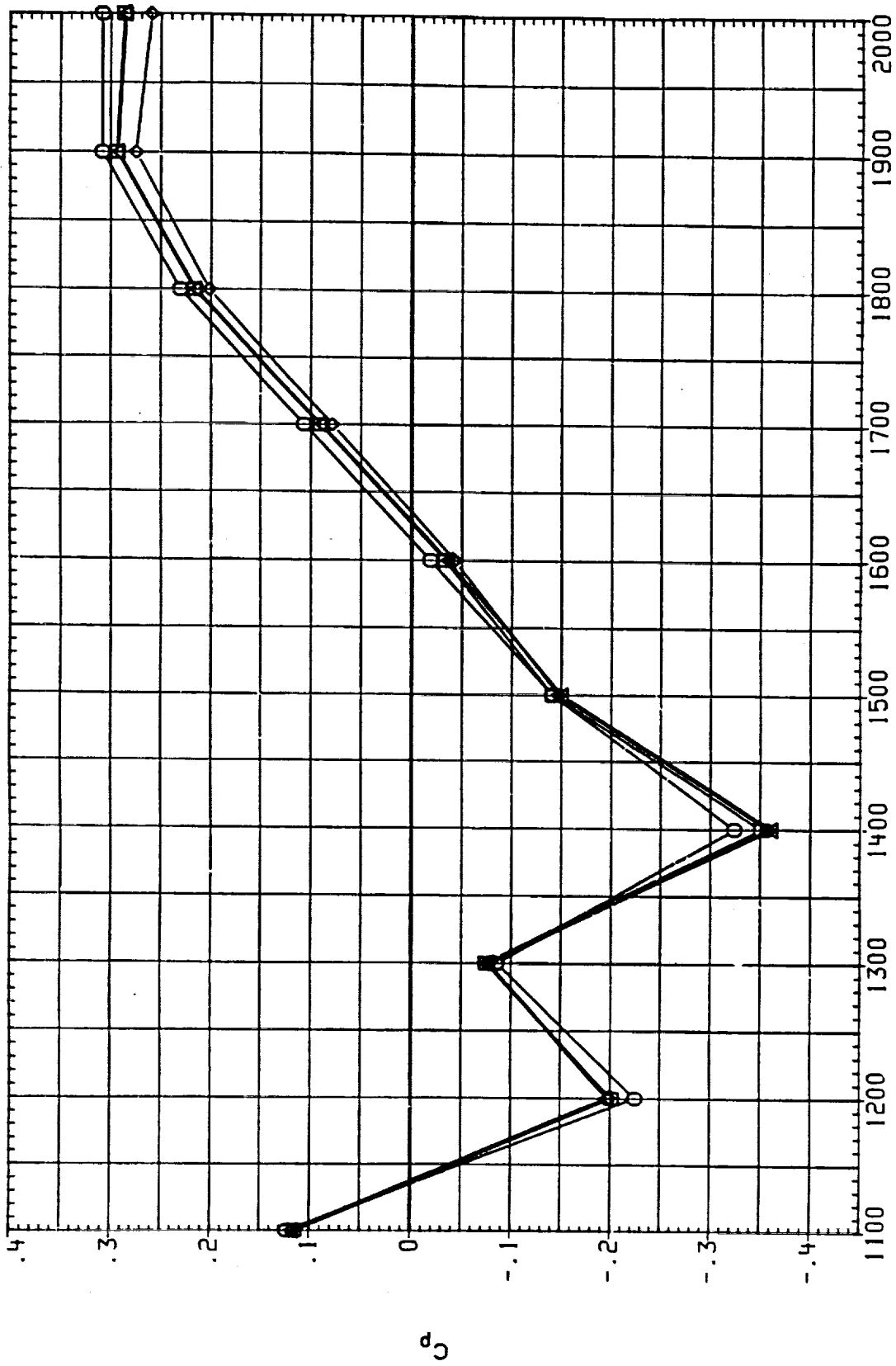


FIGURE 10 I4613A SELECTED PRESSURE DISTRIBUTIONS
 EXTERNAL TANK L02 FEEDLINE
 BETA = 1.000 PHI = 60.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELY	OB-ELY
(RCOH21)	○	1A613A.B/L 01+RSRH+PLUMES S1.2	1.150	.000	10.000	9.000
(RCOH48)	□	1A613A.B/L 01+ASRH+PLUMES S1.2	1.150	.000	10.000	9.000
(RCOH86)	◇	1A613A.B/L 01+ASRH+PLUMES S1.2	1.150	180.000	10.000	9.000
(XCOHC4)	△	1A613A.B/L 01+ASRH+PLUMES S1.2	1.150	999.000	10.000	5.000

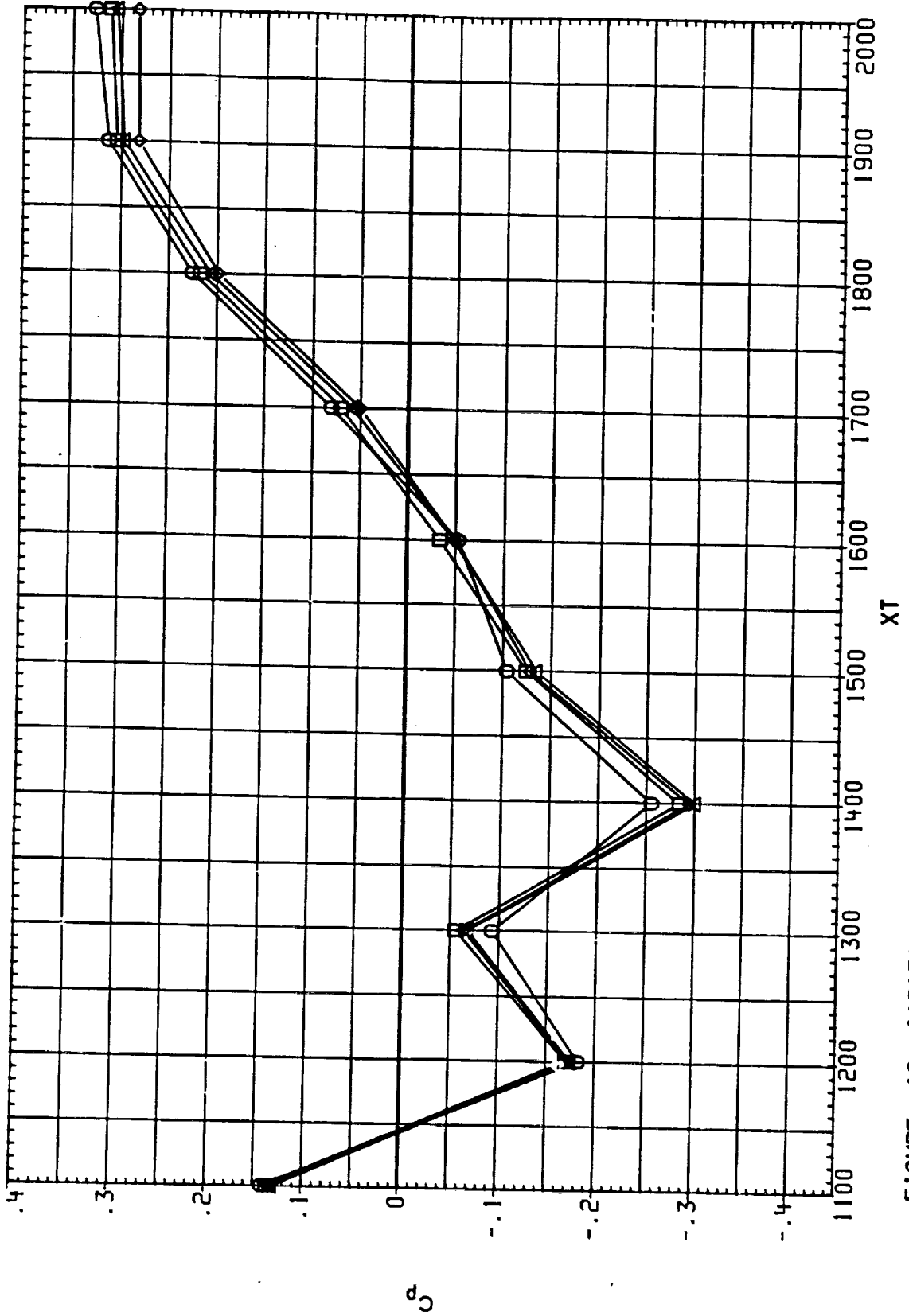


FIGURE 10 1A613A SELECTED PRESSURE DISTRIBUTIONS
 EXTERNAL TANK LO2 FEEDLINE
 BETA = .000 PHI = 60.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEAROX	IB-ELV	OB-ELV
(RCOM21)	○	IA613A.B/L OT*ASRM*PLUMES S1.2	1.250	.000	10.000	9.000
(RCOM19)	□	IA613A.B/L OT*ASRM*PLUMES S1.2	1.500	.000	10.000	9.000
(RCOM87)	◇	IA613A.B/L OT*ASRM*PLUMES S1.2	1.250	180.000	10.000	9.000
(RCOM5)	△	IA613A.B/L OT*ASRM*PLUMES S1.2	1.250	999.000	10.000	5.000

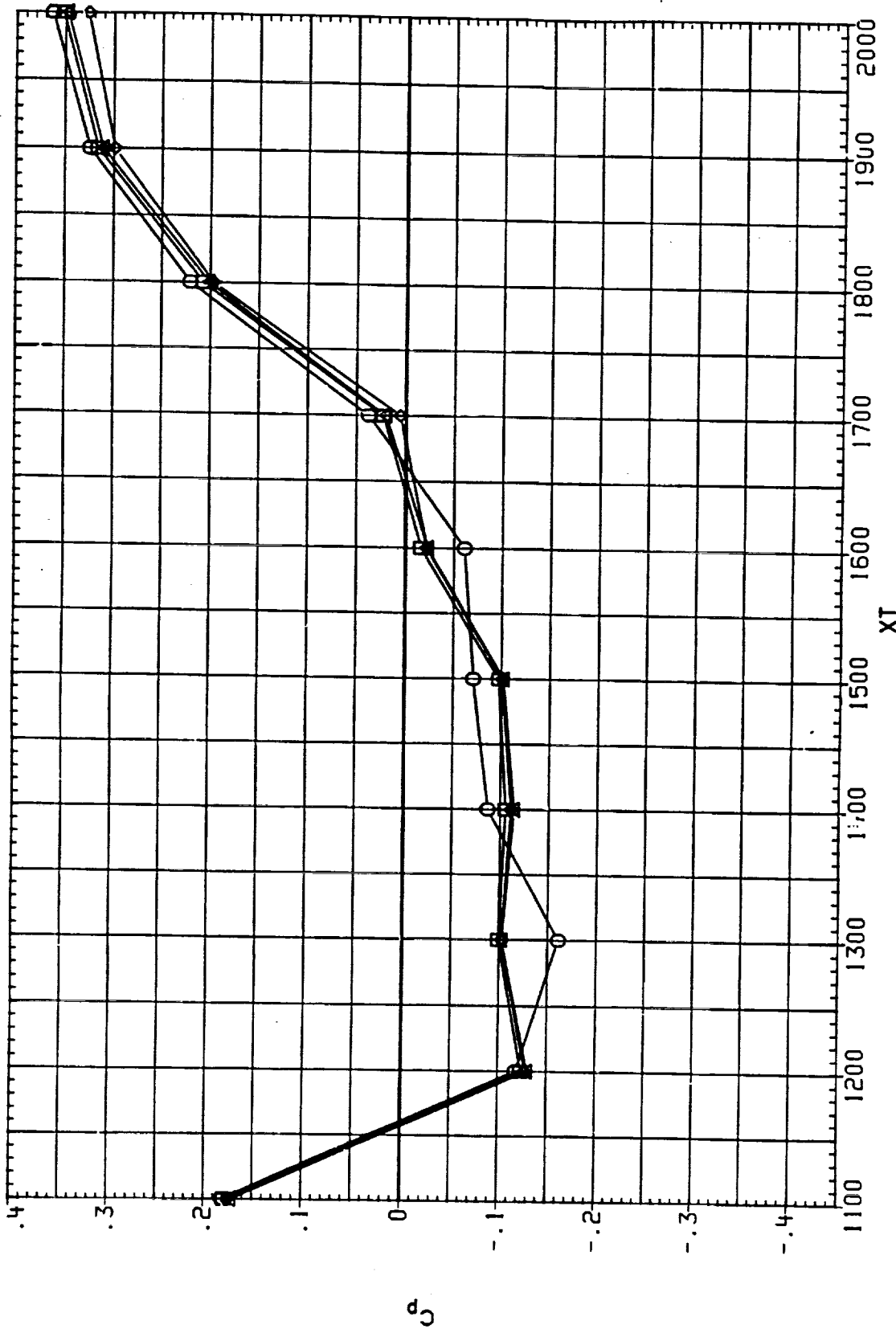


FIGURE 10 IA613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 PHI = 60.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	1B-ELV	0B-ELV
(RCOM46)	○	IAG13A,B/L OT*RSRM+PLUMES S1.2	1.300	.000	10.000	9.000
(RCOM54)	□	IAG13A,B/L OT*ASRM+PLUMES S1.3	1.300	.000	10.000	5.000
(RCOM89)	◇	IAG13A,B/L OT*ASRM+PLUMES S1.3	1.500	180.000	10.000	5.000
(RCOMC7)	△	IAG13A,B/L OT*ASRM+PLUMES S1.3	1.500	999.000	10.000	5.000

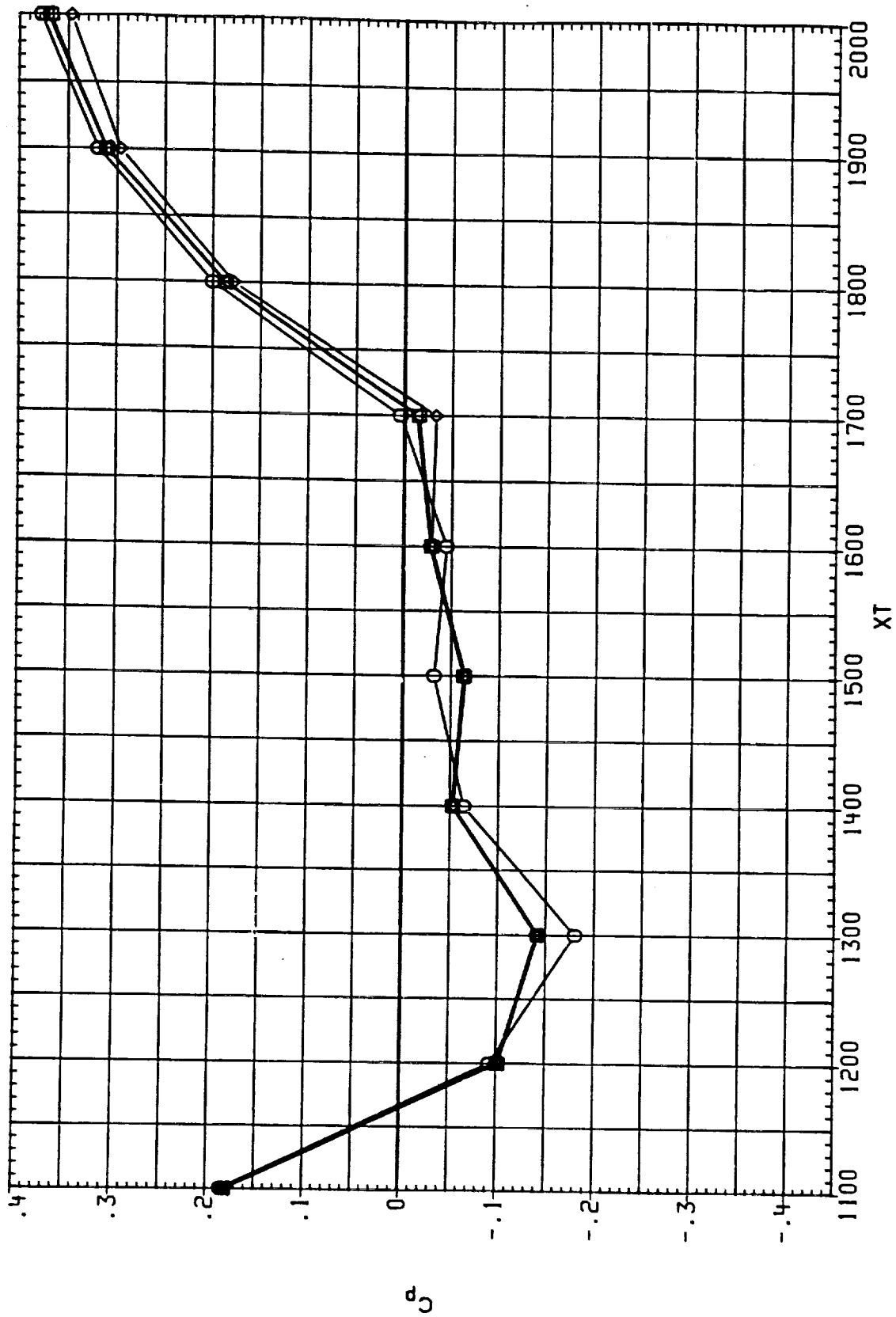


FIGURE 10 IAG13A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 PHI = 60.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IE ABOX	IB-ELV	OB-ELV
(RCOMH7)	○	IA613A, B/L OT*ASRH*PLUMES S1.2	1.350	.000	10.000	9.000
(RCOM55)	□	IA613A, B/L OT*ASRH*PLUMES S1.3	1.350	.000	10.000	5.000
(RCOM90)	◇	IA613A, B/L OT*ASRH*PLUMES S1.3	1.350	180.000	10.000	5.000
(RCOMC8)	△	IA613A, B/L OT*ASRH*PLUMES S1.3	1.350	999.000	10.000	5.000

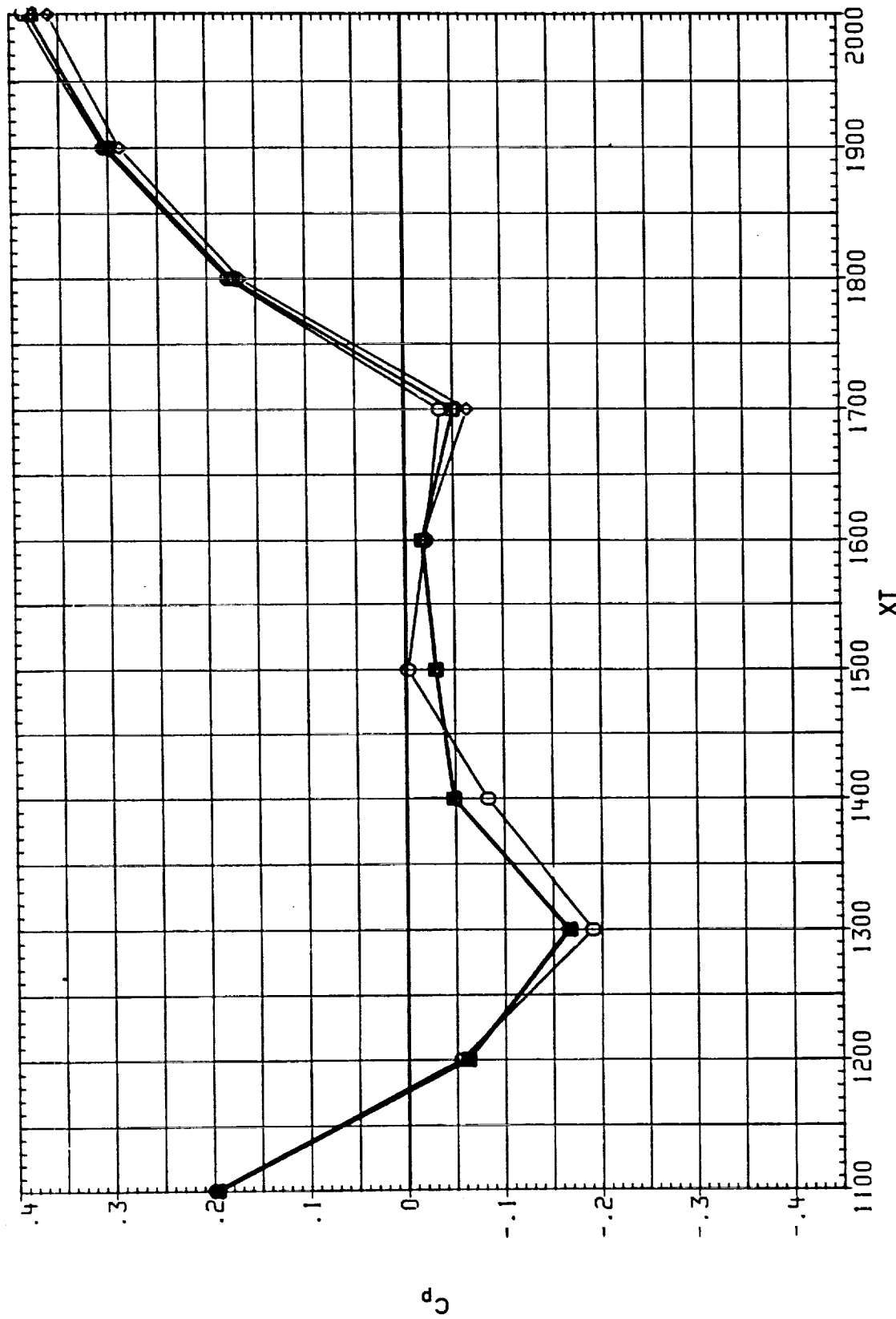


FIGURE 10 IA613A SELECTED PRESSURE DISTRIBUTIONS
 EXTERNAL TANK L02 FEEDLINE
 BETA = .000 PHI = 60.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOMH8)	○	IAG13A.B/L OT*ASRM*PLUMES S1.2	1.400	.000	10.000	9.000
(RCOMH6)	□	IAG13A.B/L OT*ASRM*PLUMES S1.3	1.400	.000	10.000	5.000
(RCOMJ1)	◇	IAG13A.B/L OT*ASRM*PLUMES S1.3	1.400	180.000	10.000	5.000
(RCOMC9)	△	IAG13A.B/L OT*ASRM*PLUMES S1.3	1.400	999.000	10.000	5.000

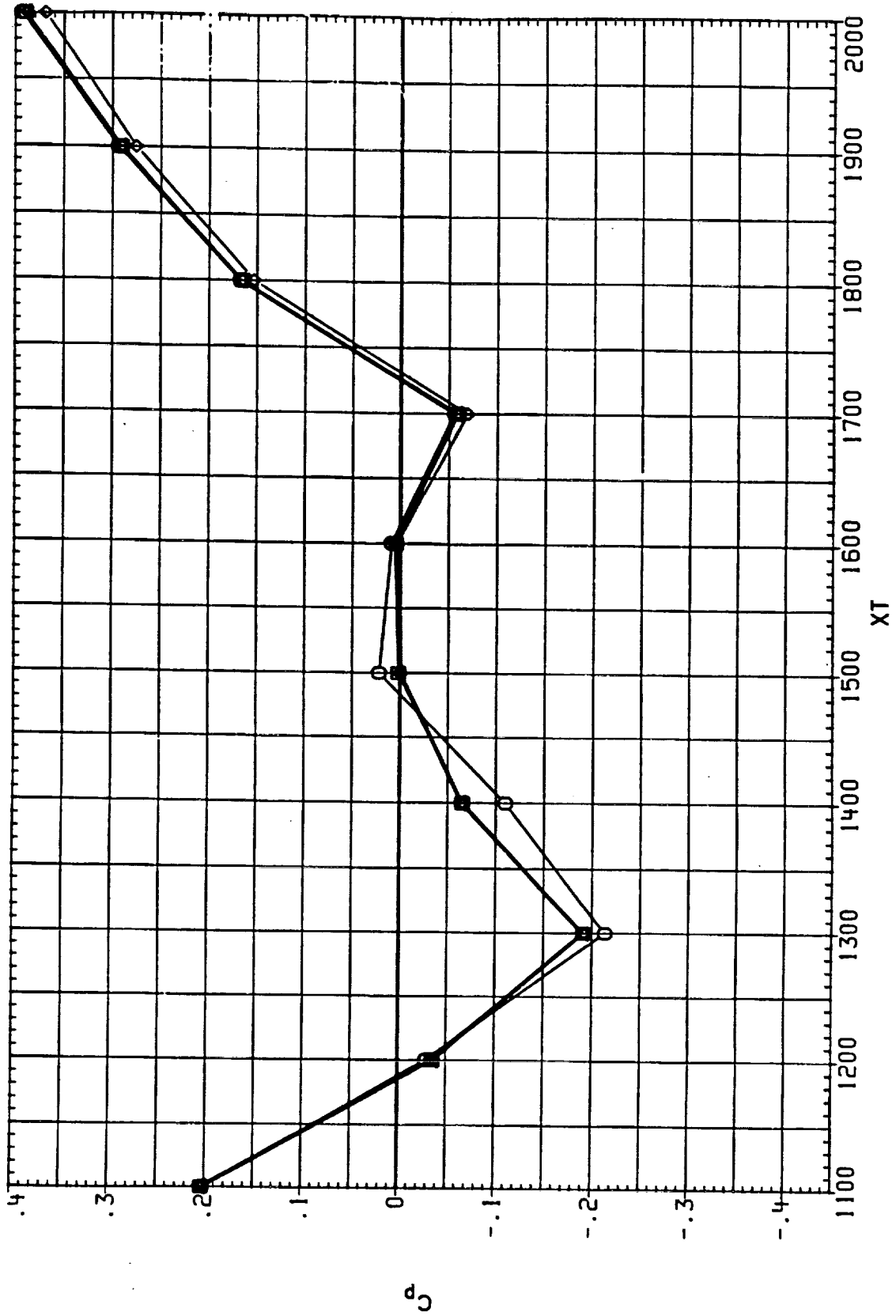


FIGURE 10 IAG13A SELECTED PRESSURE DISTRIBUTIONS
EXTERNAL TANK L02 FEEDLINE

BETA = .000 PHI = 60.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOMH9)	○	IAG13A, B/L OT+ASRM+PLUMES S1.2	1.550	.000	10.000	9.000
(RCOM57)	□	IAG13A, B/L OT+ASRM+PLUMES S1.3	1.550	.000	10.000	9.000
(RCOM92)	◇	IAG13A, B/L OT+ASRM+PLUMES S1.3	1.550	180.000	10.000	5.000
(RCOM00)	△	IAG13A, B/L OT+ASRM+PLUMES S1.3	1.550	999.000	10.000	5.000

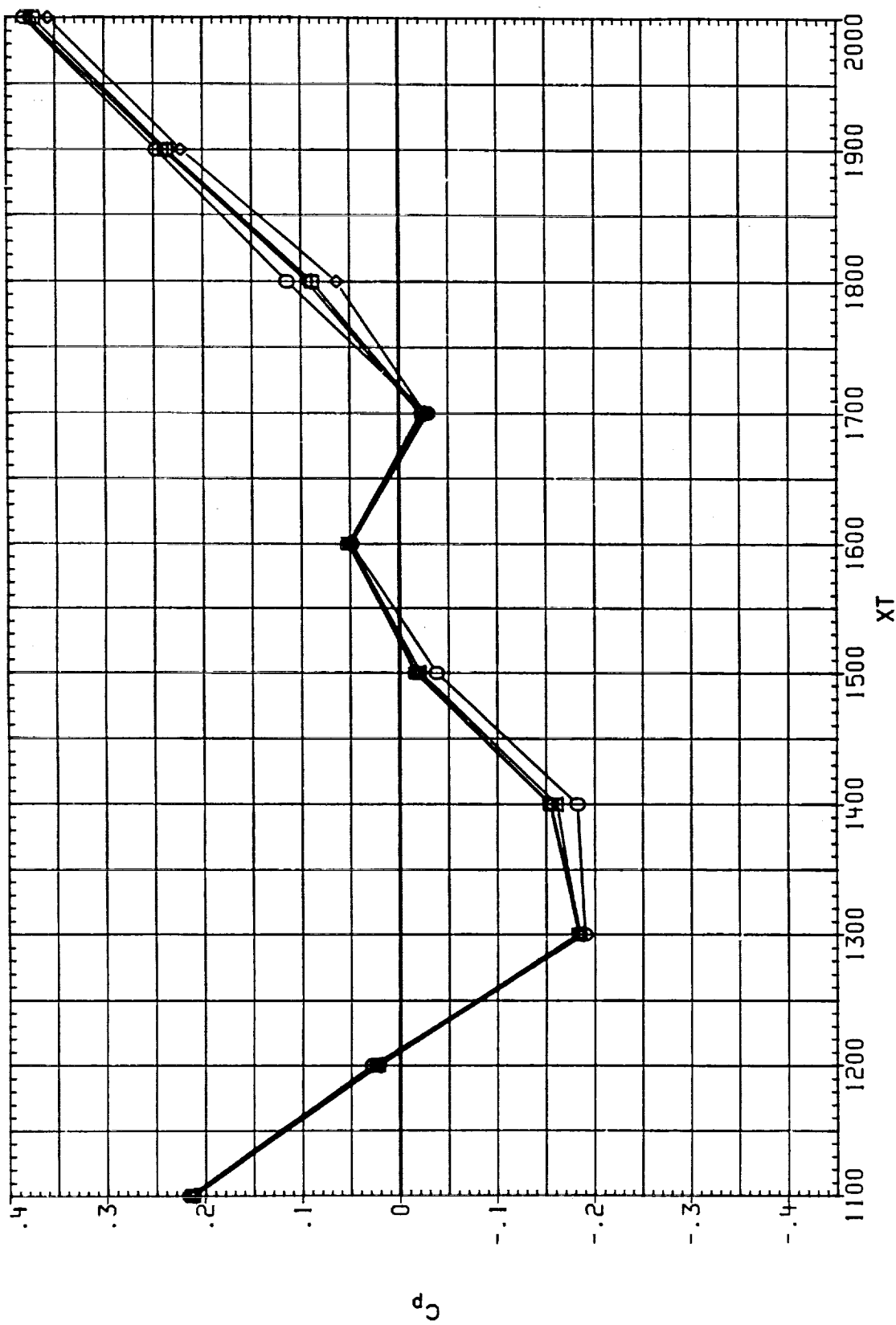


FIGURE 10 IAG13A SELECTED PRESSURE DISTRIBUTIONS
 EXTERNAL TANK L02 FEEDLINE
 BETA = .000 PHI = 60.000 ALPHA = .000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MACH	1E-ABOX	1B-ELY	OB-ELY
(RC0515)	IA613A.B/L 01+RSRM+PLUMES S1.2	.600	.000	10.000	9.000
(RC0542)	IA613A.B/L 01+ASRM+PLUMES S1.2	.600	.000	10.000	9.000
(RC0580)	IA613A.B/L 01+ASRM+PLUMES S1.2	.600	180.000	10.000	9.000
(RC05C1)	IA613A.B/L 01+ASRM+PLUMES S1.2	.600	999.000	10.000	5.000

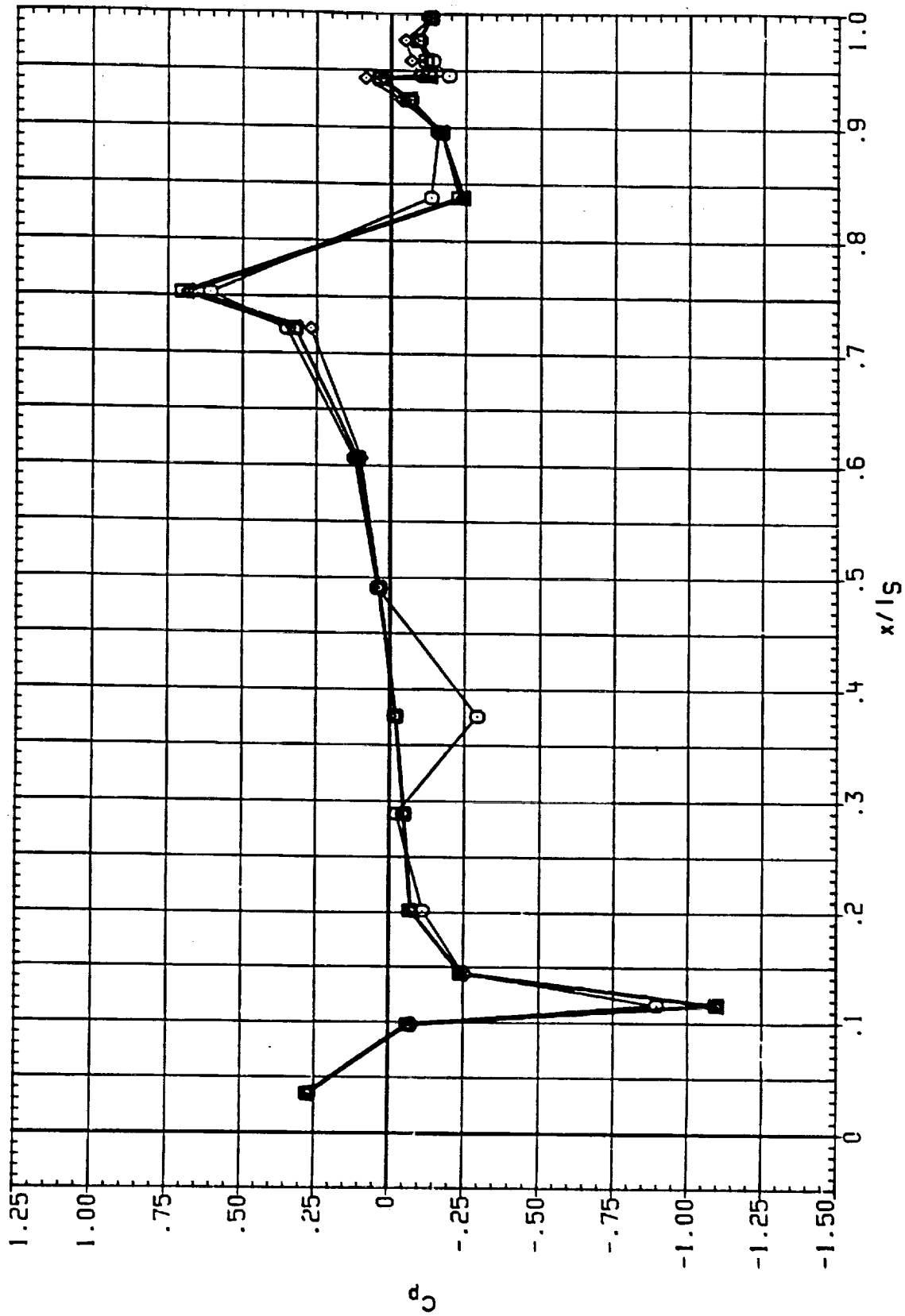


FIGURE 11 IA613A SELECTED PRESSURE DISTRIBUTIONS
LEFT SRB

BETA = .000 PHI = 225.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOS15)	○	IA613A,B/L OT*PSRM+PLUMES S1.2	.600	.000	10.000	9.000
(RCOS12)	□	IA613A,B/L OT*ASRM+PLUMES S1.2	.600	.000	10.000	9.000
(RCOS80)	◇	IA613A,B/L OT*ASRM+PLUMES S1.2	.600	180.000	10.000	9.000
(RCOSC1)	△	IA613A,B/L OT*ASRM+PLUMES S1.2	.600	999.000	10.000	5.000

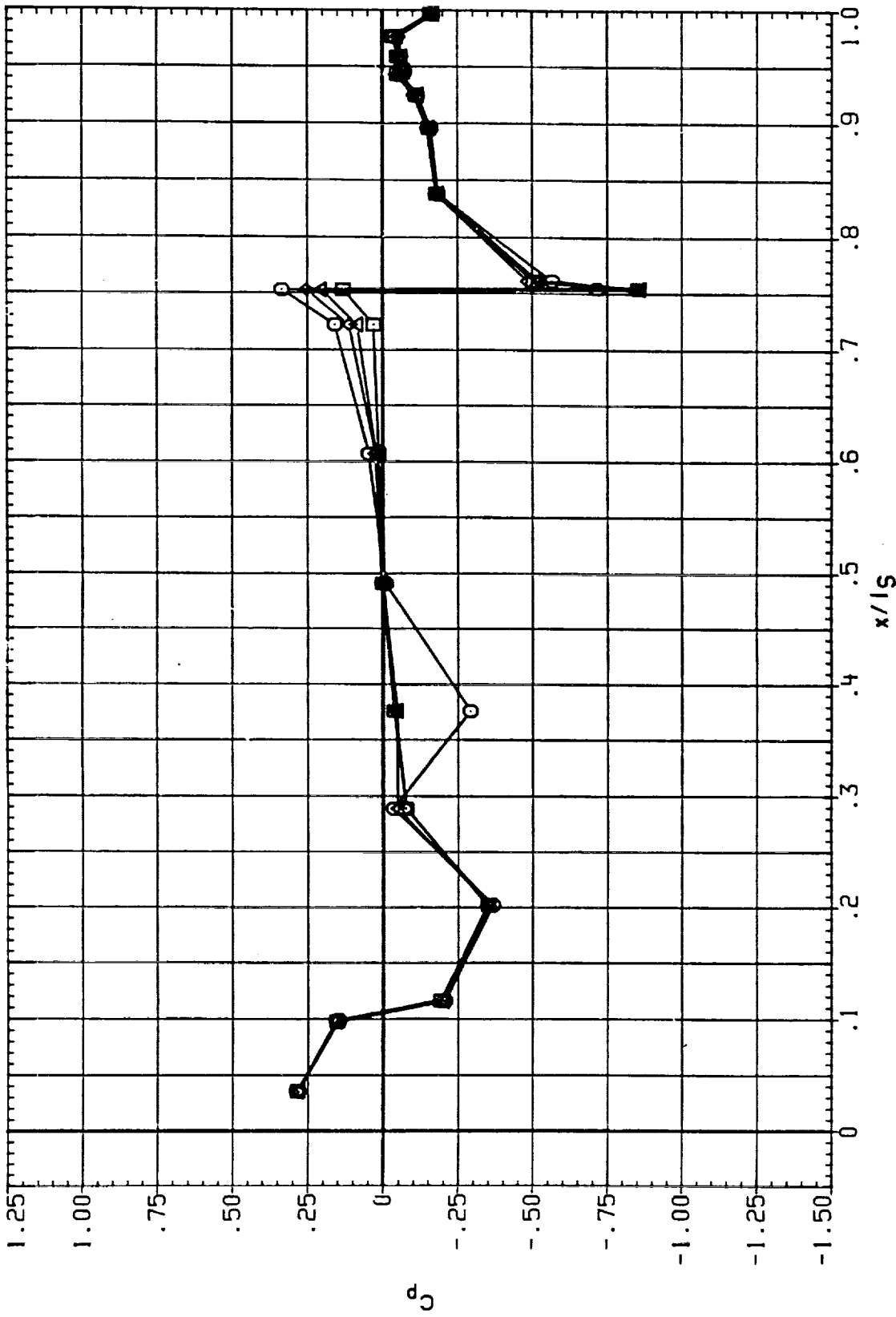


FIGURE 11 IA613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 PHI = 270.000 ALPHA = .000 MACH = .600 IEABOX = .000 IB-ELV = 10.000 OB-ELV = 9.000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RC0516)	○	IAG13A, B/L OT+RSRH+PLUMES S1.2	.800	.000	10.000	9.000
(RC0543)	○	IAG13A, B/L OT+ASRH+PLUMES S1.2	.800	.000	10.000	9.000
(RC0581)	◇	IAG13A, B/L OT+ASRH+PLUMES S1.2	.800	180.000	10.000	9.000

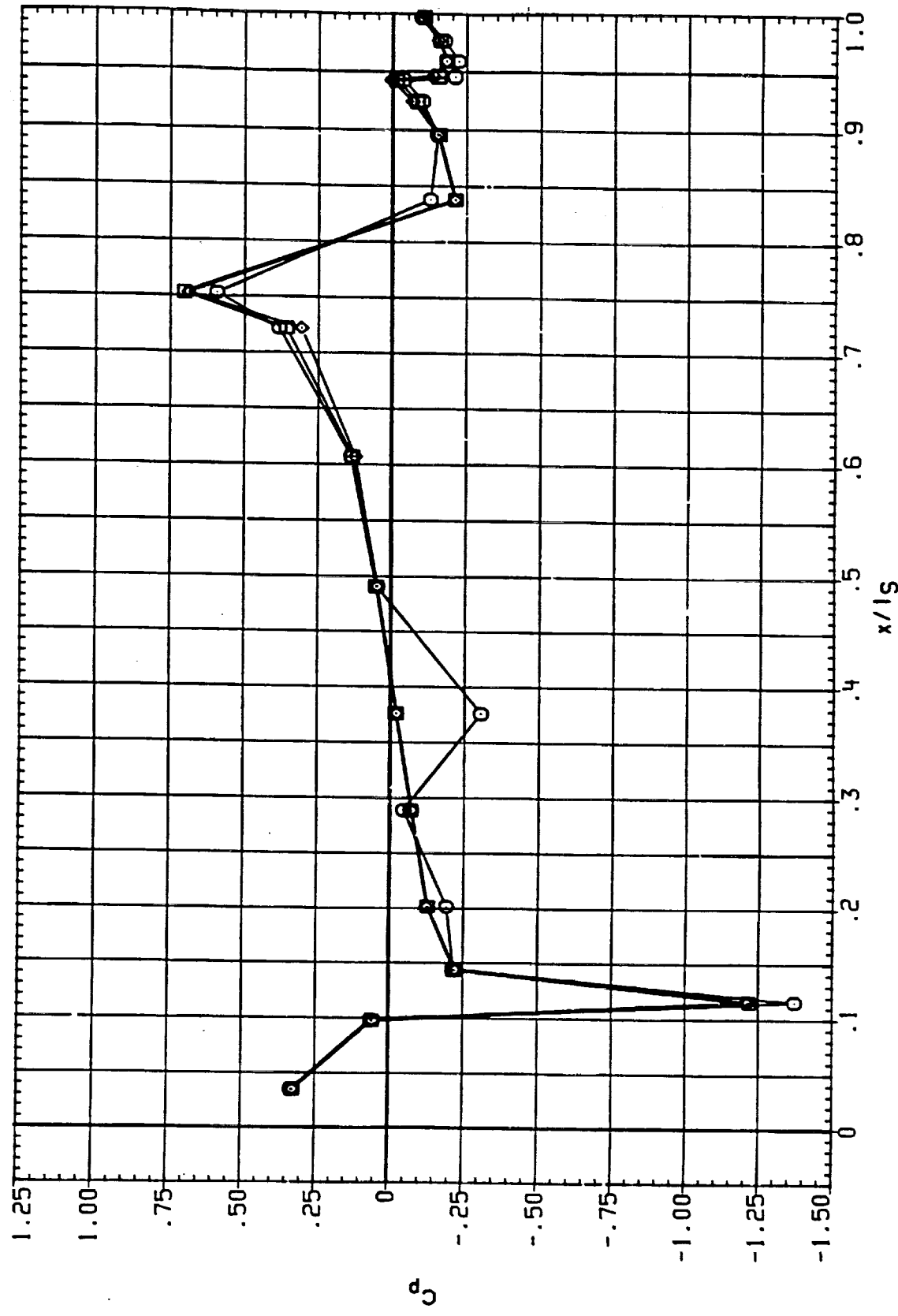


FIGURE 11 IAG13A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 PHI = 225.000 ALPHA = .000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IR-ELV	OB-ELV
(RC0516)	IAG13A.B/L OT+RSRM+PLUMES S1.2	.800	.000	10.000	9.000
(RC0543)	IAG13A.B/L OT+ASRM+PLUMES S1.2	.800	.000	10.000	9.000
(RC0581)	IAG13A.B/L OT+ASRM+PLUMES S1.2	.800	160.000	10.000	9.000

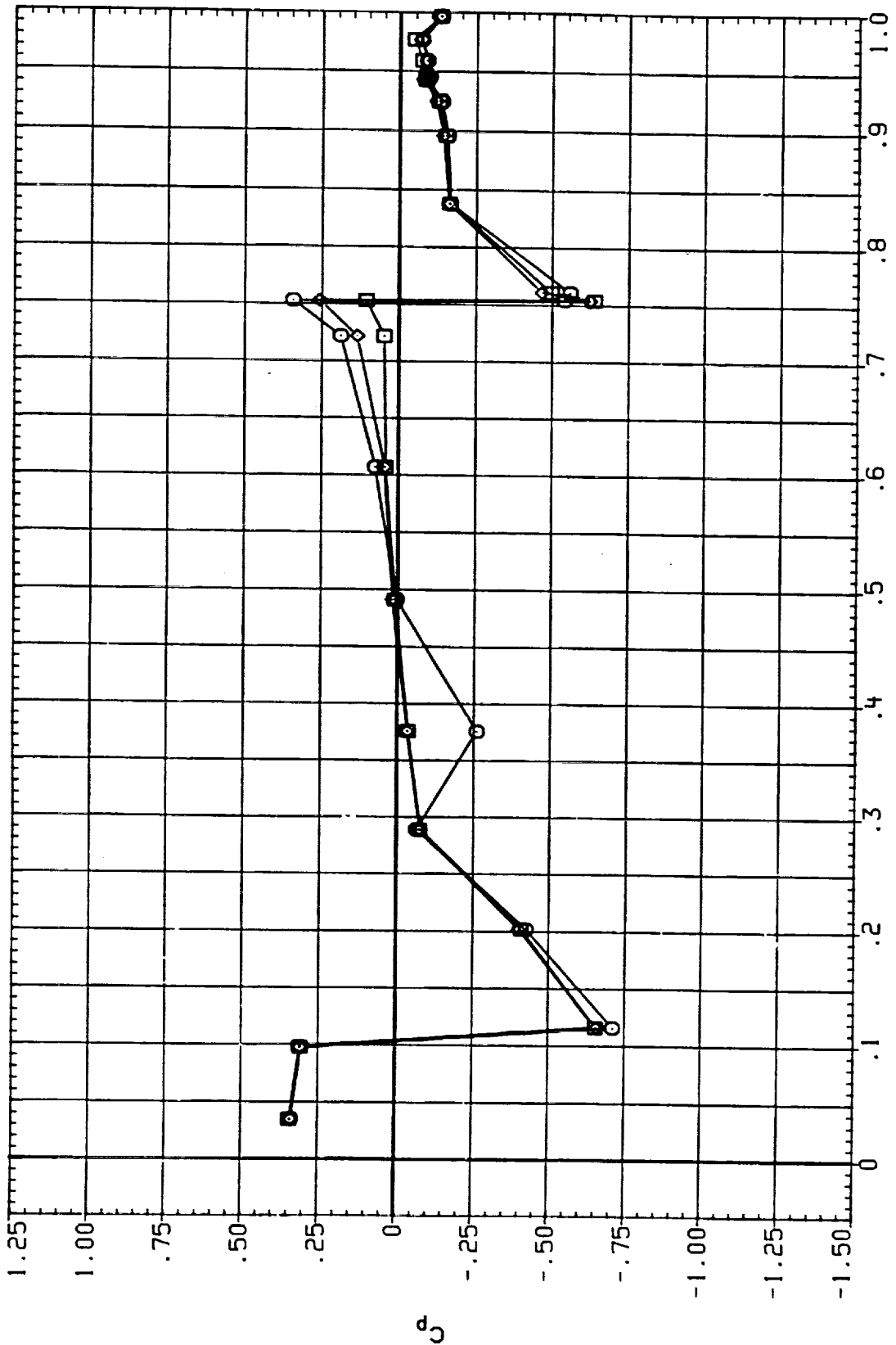


FIGURE 11 IAG13A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 PHI = 270.000 ALPHA = .000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MACH	IE480X	IB-ELY	OB-ELY
(RC0517)	I A613A, B/L OT+RSRM+PLUMES S1.2	.900	.000	10.000	9.000
(RC0544)	I A613A, B/L OT+ASRM+PLUMES S1.2	.900	.000	10.000	9.000
(RC0582)	I A613A, B/L OT+ASRM+PLUMES S1.2	.900	180.000	10.000	9.000
(RC05C2)	I A613A, B/L OT+ASRM+PLUMES S1.2	.900	999.000	10.000	5.000

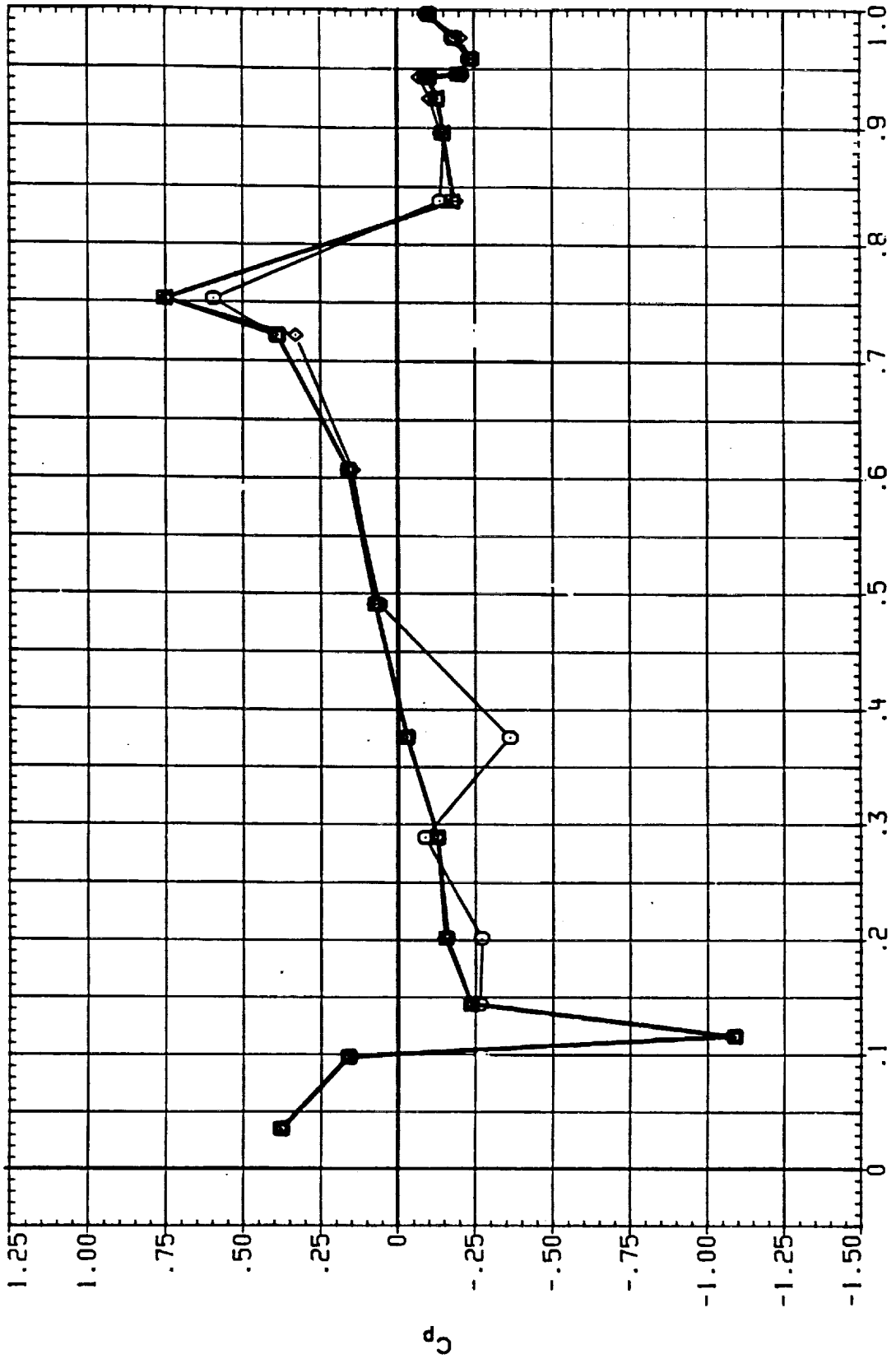


FIGURE 11 I A613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 PHI = 225.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	HACH	IEABOX	IB-ELV	OB-ELV
(RC0517)	○	IA613A,B/L OT+RSRM+PLUMES S1,2	.900	.000	10.000	9.000
(RC0544)	◇	IA613A,B/L OT+ASRM+PLUMES S1,2	.900	.000	10.000	9.000
(RC0582)	◇	IA613A,B/L OT+ASRM+PLUMES S1,2	.900	180.000	10.000	9.000
(RC05C2)	△	IA613A,B/L OT+ASRM+PLUMES S1,2	.900	999.000	10.000	5.000

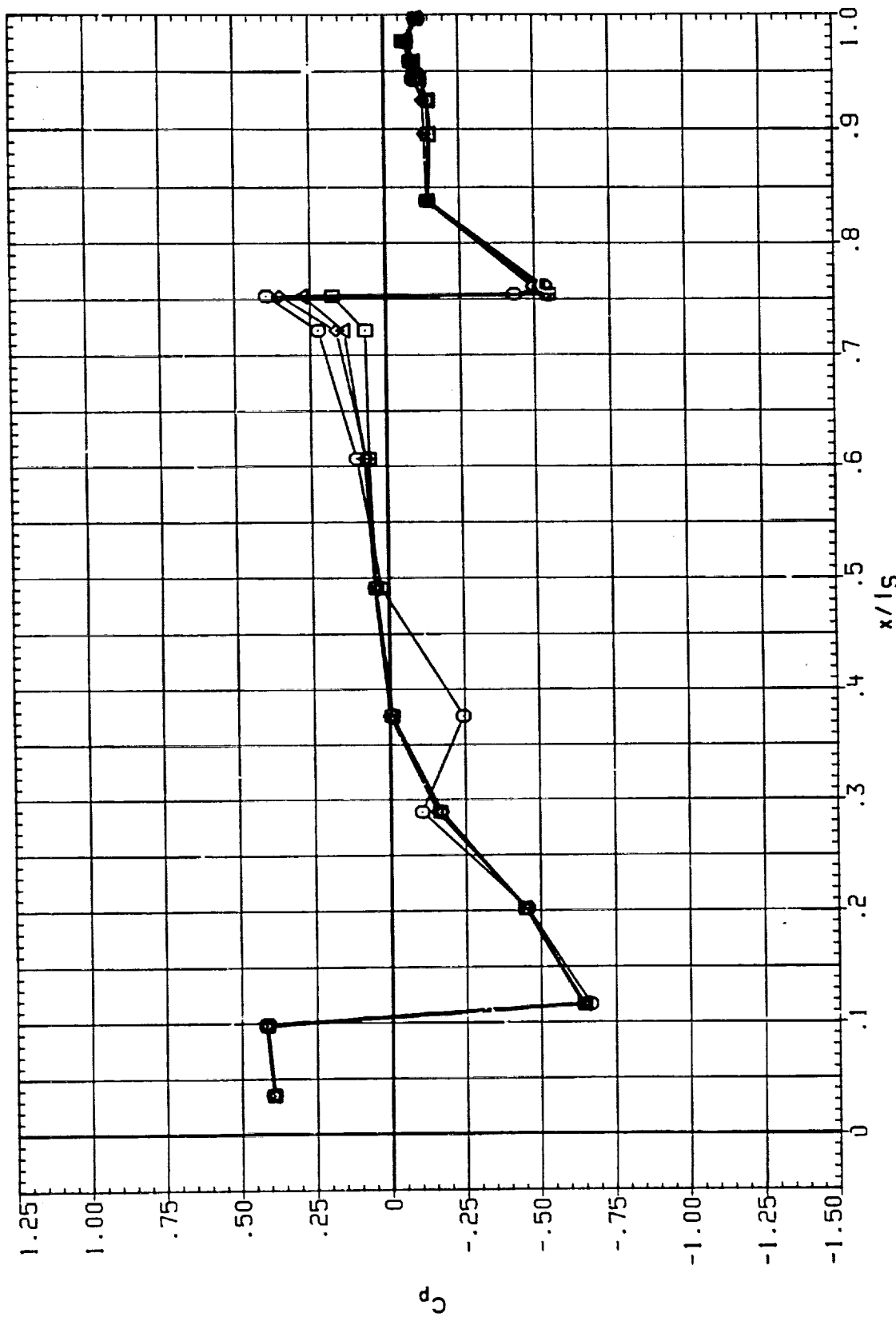


FIGURE 11 IA613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 PHI = 270.000 ALPHA = .000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOS18)	IAG13A.B/L OT+RSRM+PLUMES S1.2	.950	.000	10.000	9.000
(RCOS45)	IAG13A.B/L OT+ASRM+PLUMES S1.2	.950	.000	10.000	9.000
(RCOS83)	IAG13A.B/L OT+ASRM+PLUMES S1.2	.950	180.000	10.000	9.000

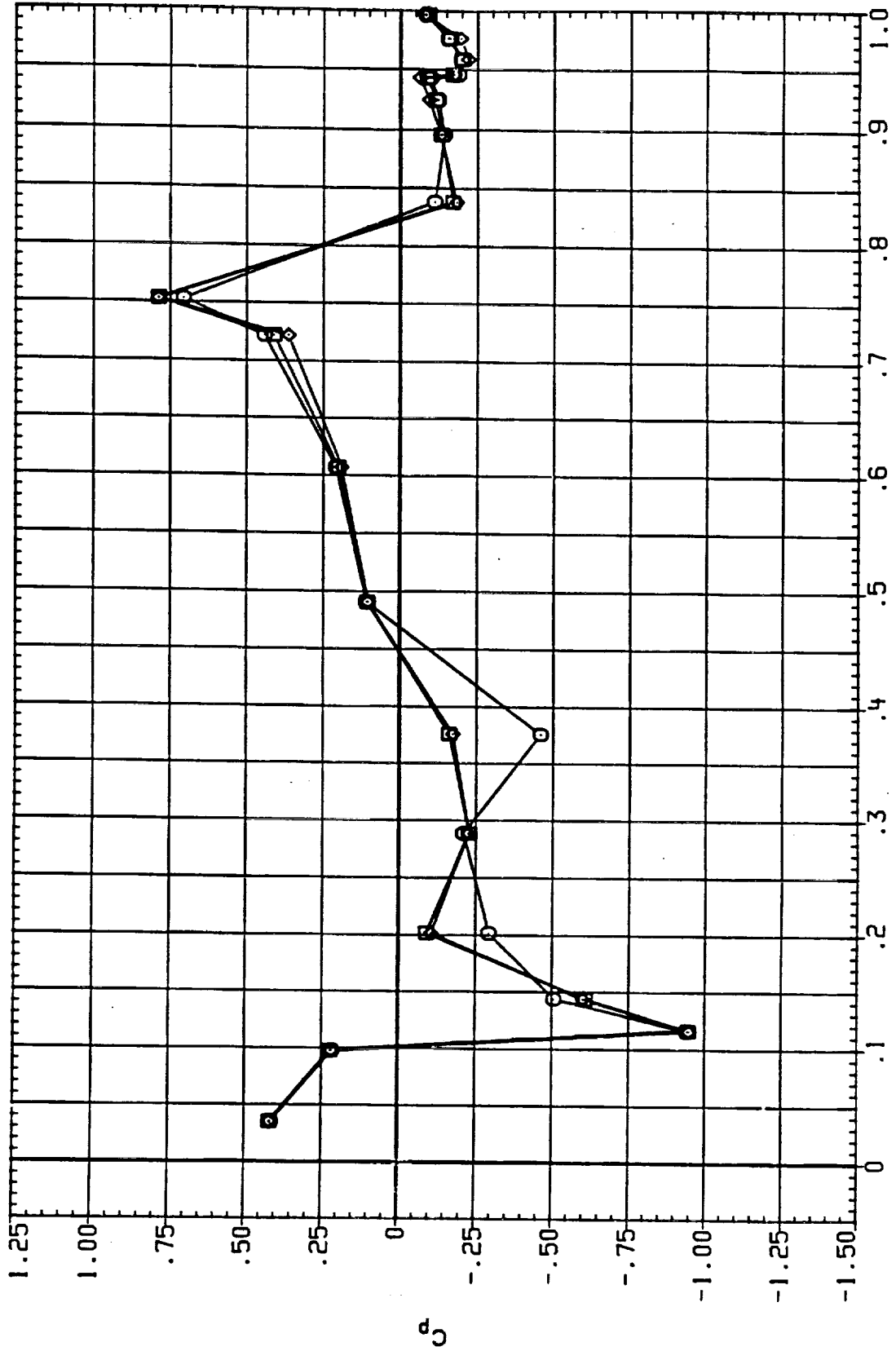


FIGURE 11 IAG13A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 PHI = 225.000 ALPHA = .000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RC0518)	IA613A,B/L OT+RSRM+PLUMES S1.2	.950	.000	10.000	9.000
(RC0545)	IA613A,B/L OT+ASRM+PLUMES S1.2	.950	.000	10.000	9.000
(RC0583)	IA613A,B/L OT+ASRM+PLUMES S1.2	.950	180.000	10.000	9.000

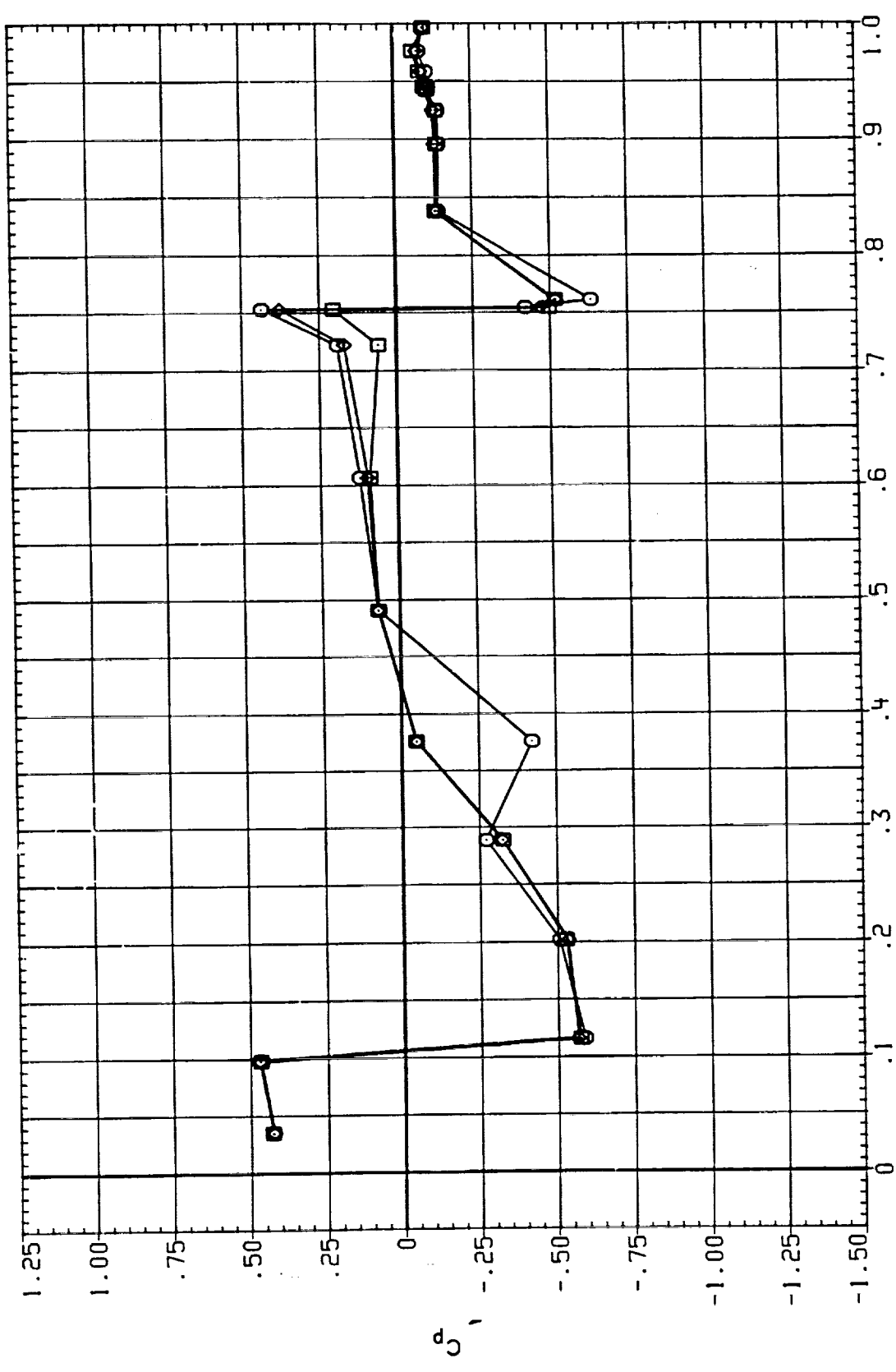


FIGURE 11 IA613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 PHI = 270.000 ALPHA = .000 x/l_s

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RC0519)	IA613A.B/L OT+RSRH+PLUMES S1.2	1.050	.000	10.000	9.000
(RC0546)	IA613A.B/L OT+ASRH+PLUMES S1.2	1.050	.000	10.000	9.000
(RC0584)	IA613A.B/L OT+ASRH+PLUMES S1.2	1.050	180.000	10.000	9.000

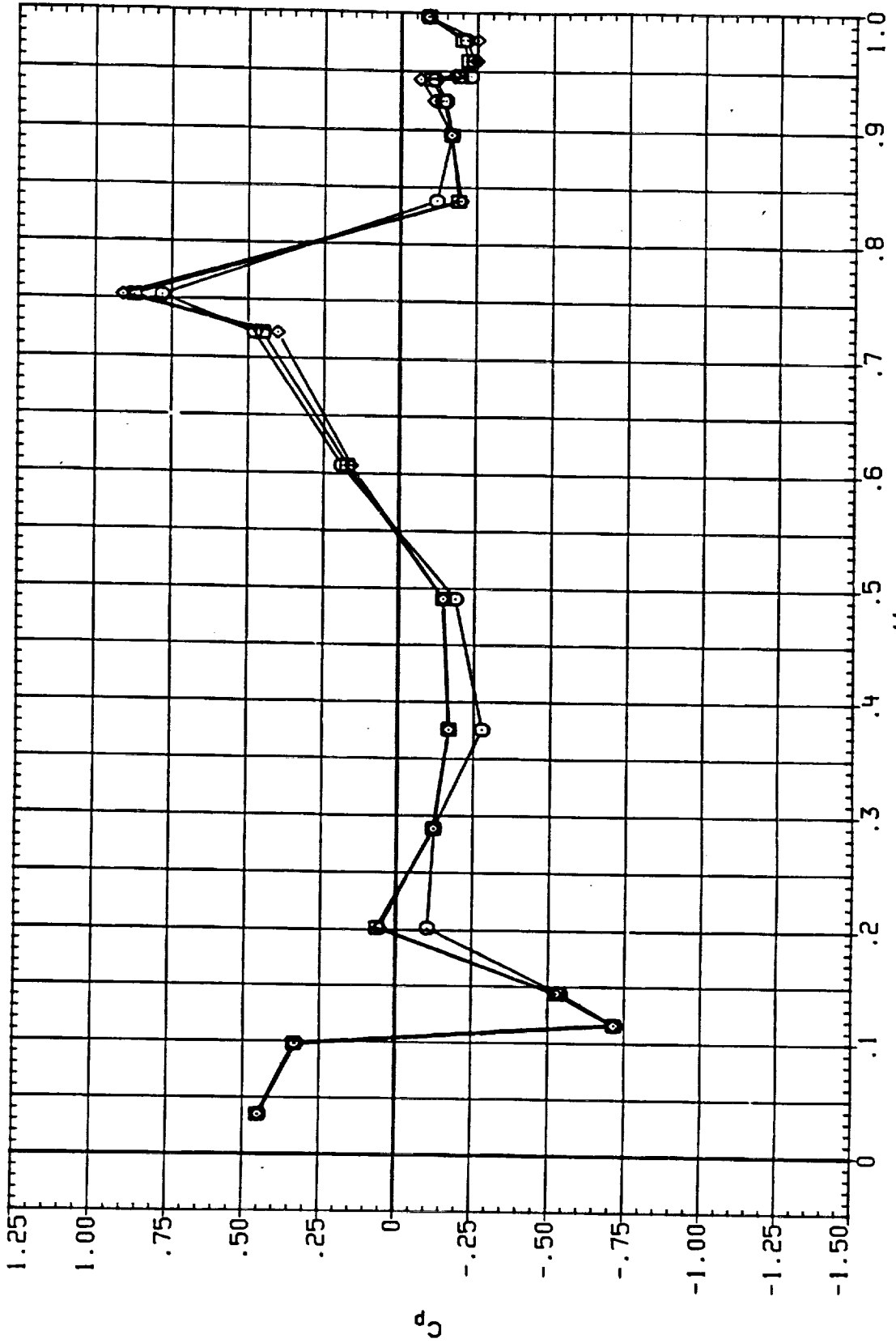


FIGURE 11 IA613A SELECTED PRESSURE DISTRIBUTIONS
LEFT SRB

BETA = .000 PHI = 225.000 ALPHA = .000

DATA SET SYMBOL CONFIGURATION DESCRIPTION
 (RC0519) ○ IA613A.6/L OT+RSRM+PLUMES S1.2
 (RC0546) □ IA613A.8/L OT+ASRM+PLUMES S1.2
 (RC0584) ◇ IA613A.8/L OT+ASRM+PLUMES S1.2

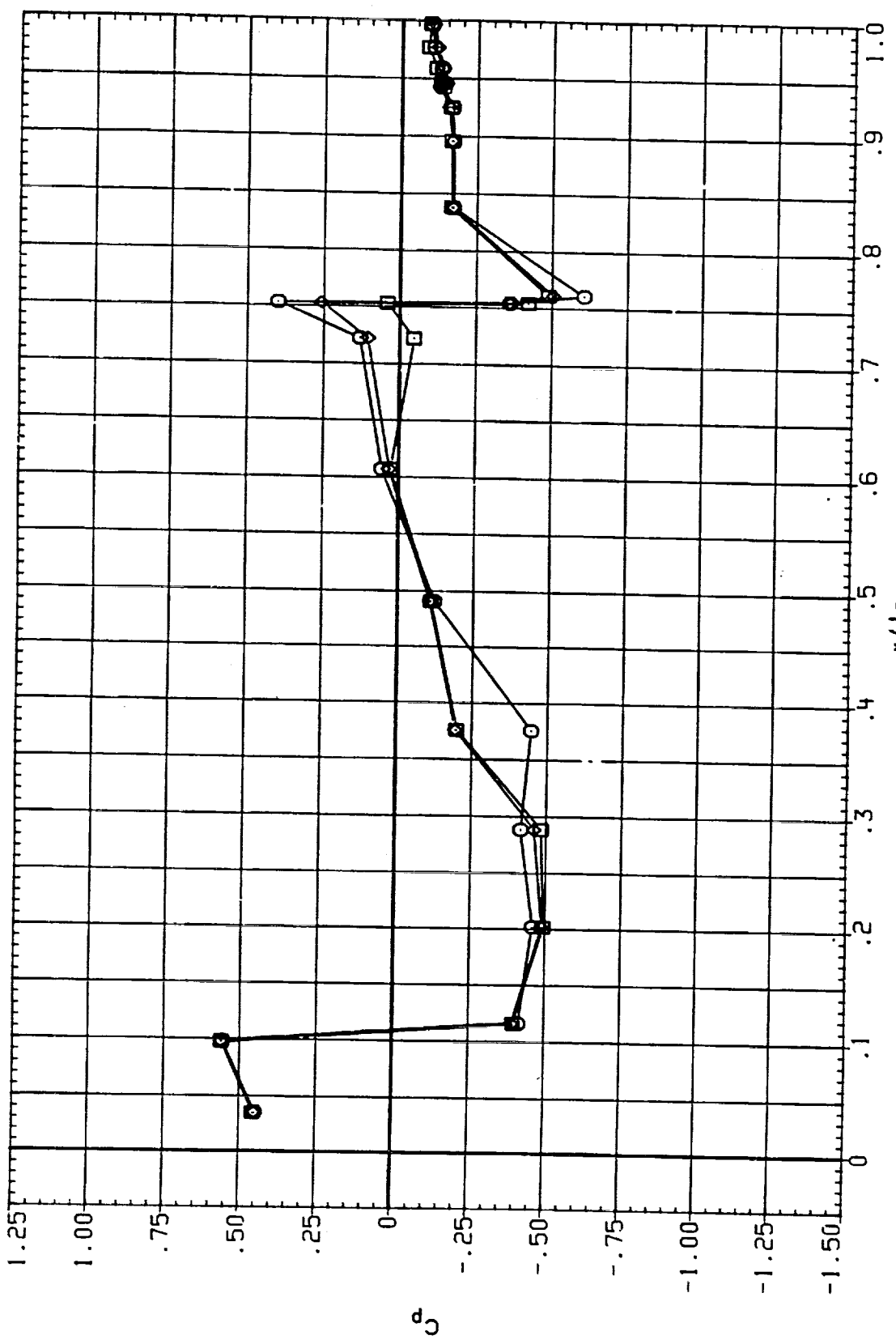


FIGURE 11 IA613A SELECTED PRESSURE DISTRIBUTIONS
 LEFT SRB

BETA = .000 PHI = 270.000 ALPHA = .000

DATA SET SYMBOL CONFIGURATION DESCRIPTION
 (RC0520) ○ IAG13A, B/L 01 • ASRH • PLUMES S1, 2
 (RC05471) □ IAG13A, B/L 01 • ASRH • PLUMES S1, 2
 (RC05851) ◇ IAG13A, B/L 01 • ASRH • PLUMES S1, 2
 (RC05C31) △ IAG13A, B/L 01 • ASRH • PLUMES S1, 2

MACH IAG13A IAG13A IAG13A
 1.100 .000 10.000 9.000
 1.100 .000 10.000 9.000
 1.100 180.000 10.000 9.000
 1.100 999.000 10.000 5.000

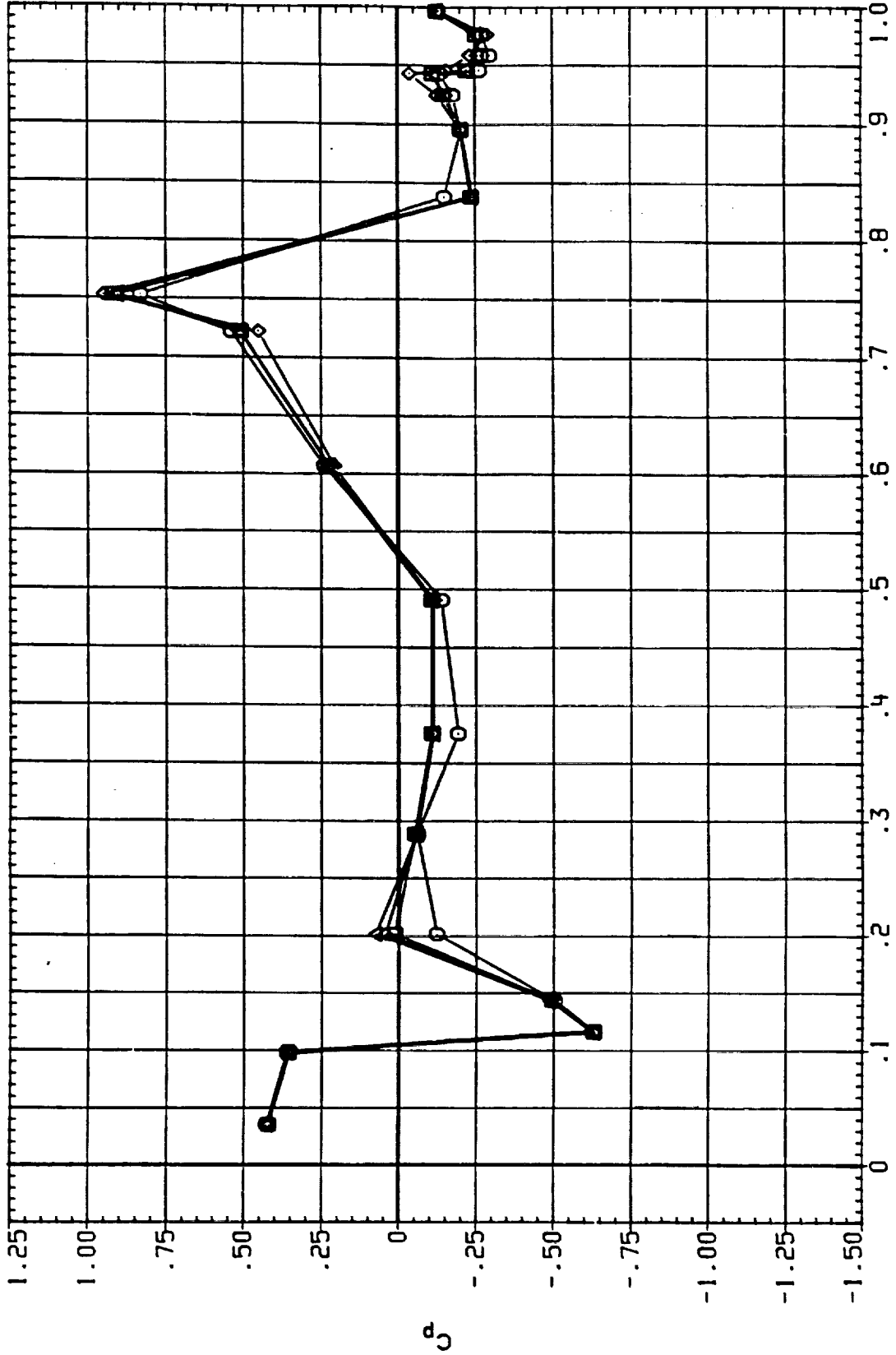


FIGURE 11 IAG13A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 PHI = 225.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RC0520)	○	1:613A,B/L 01:RSRM-PLUMES S1.2	1.100	.000	10.000	9.000
(RC0547)	□	1A613A,B/L 01:ASRM-PLUMES S1.2	1.100	.000	10.000	9.000
(RC0585)	◇	1A613A,B/L 01:ASRM-PLUMES S1.2	1.100	180.000	10.000	9.000
(RC05C3)	△	1A613A,B/L 01:ASRM-PLUMES S1.2	1.100	999.000	10.000	5.000

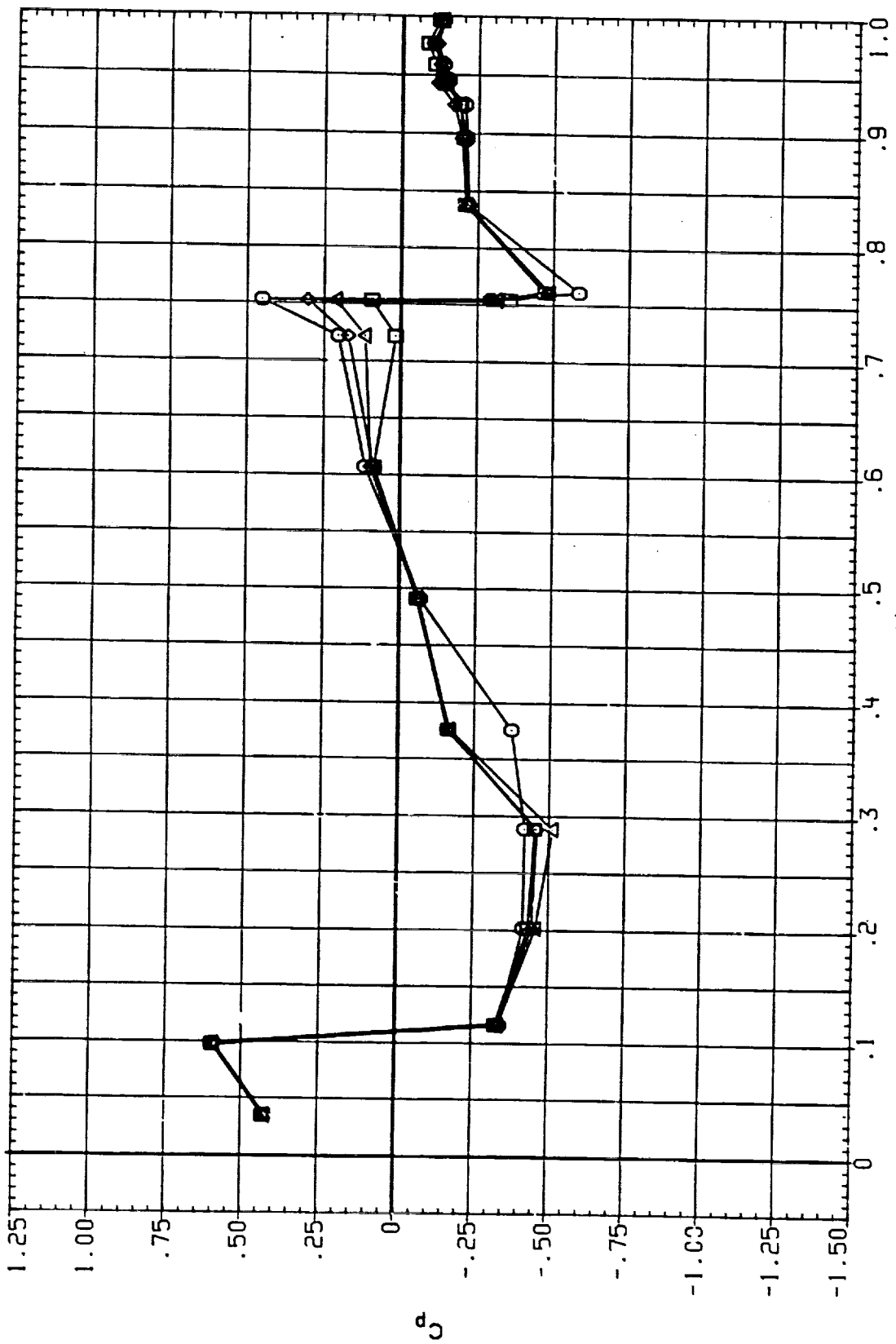


FIGURE 11 1A613A SELECTED PRESSURE DISTRIBUTIONS
LEFT SRB

BETA = .000 PHI = 270.000 ALPHA = .000 PAGE 264

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	-LEFT SRB	MACH	EA BOX	IB-ELV	OB-ELV
(RC0521)	○	I A613A, B/L OT+ASRM+PLUMES S1,2	1.150	.000	10.000	9.000	
(RC0548)	◇	I A613A, B/L OT+ASRM+PLUMES S1,2	1.150	.000	10.000	9.000	
(RC0586)	◇	I A613A, B/L OT+ASRM+PLUMES S1,2	1.150	180.000	10.000	9.000	
(XC05C4)	△	I A613A, B/L OT+ASRM+PLUMES S1,2	1.150	999.000	10.000	5.000	

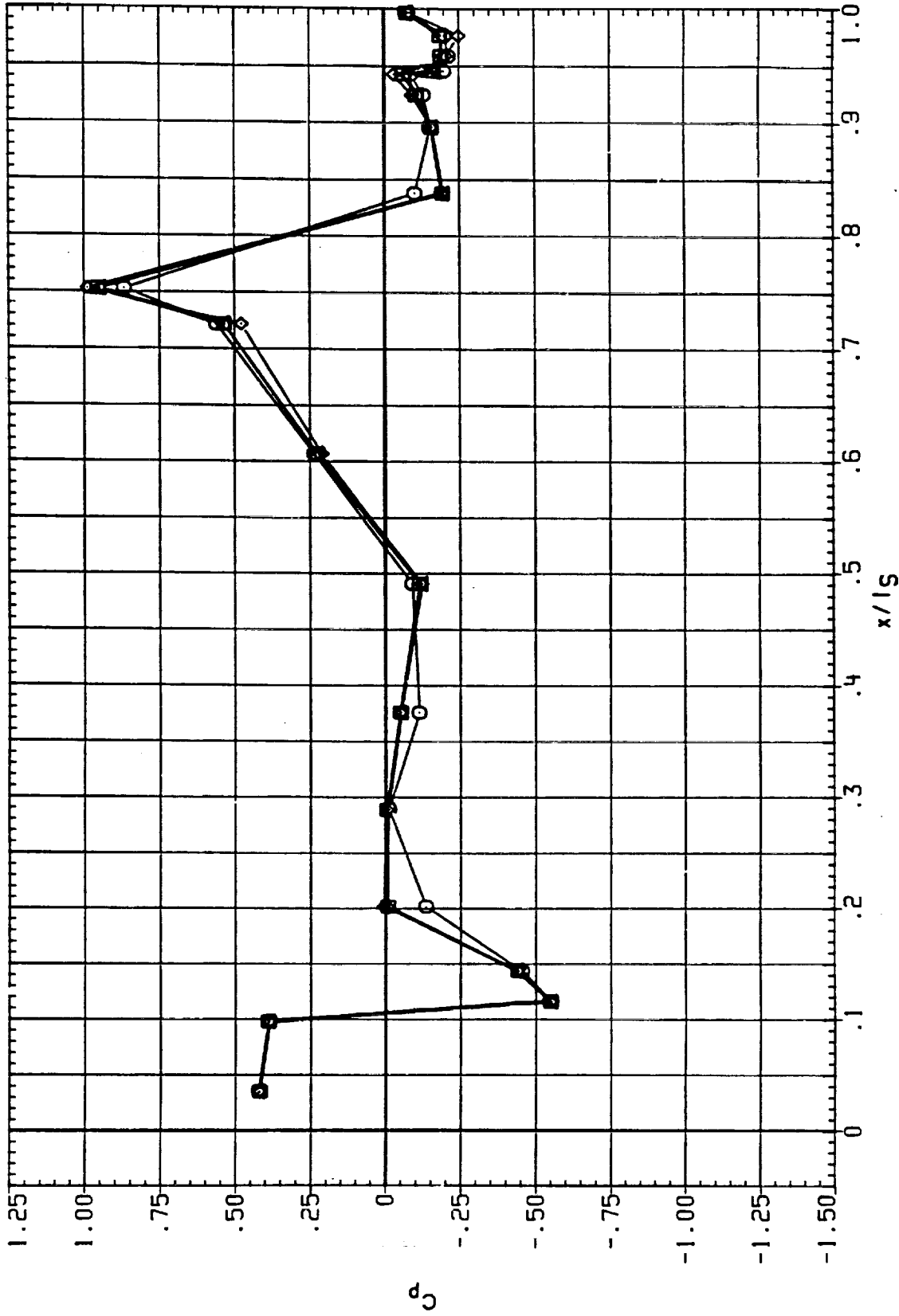


FIGURE 11 I A613A SELECTED PRESSURE DISTRIBUTIONS
LEFT SRB

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	LEFT SRB	MACH	IEABOX	IB-ELV	OB-ELV
(RCOS21)	○	1A613A, B/L OT+RSRM+PLUMES S1,2	-LEFT SRB	1.150	.000	10.000	9.000
(RCOS48)	□	1A613A, B/L OT+ASRM+PLUMES S1,2	-LEFT SRB	1.150	.000	10.000	9.000
(RCOS86)	◇	1A613A, B/L OT+ASRM+PLUMES S1,2	-LEFT SRB	1.150	180.000	10.000	9.000
(XCOSCH)	△	1A613A, B/L OT+ASRM+PLUMES S1,2	-LEFT SRB	1.150	999.000	10.000	5.000

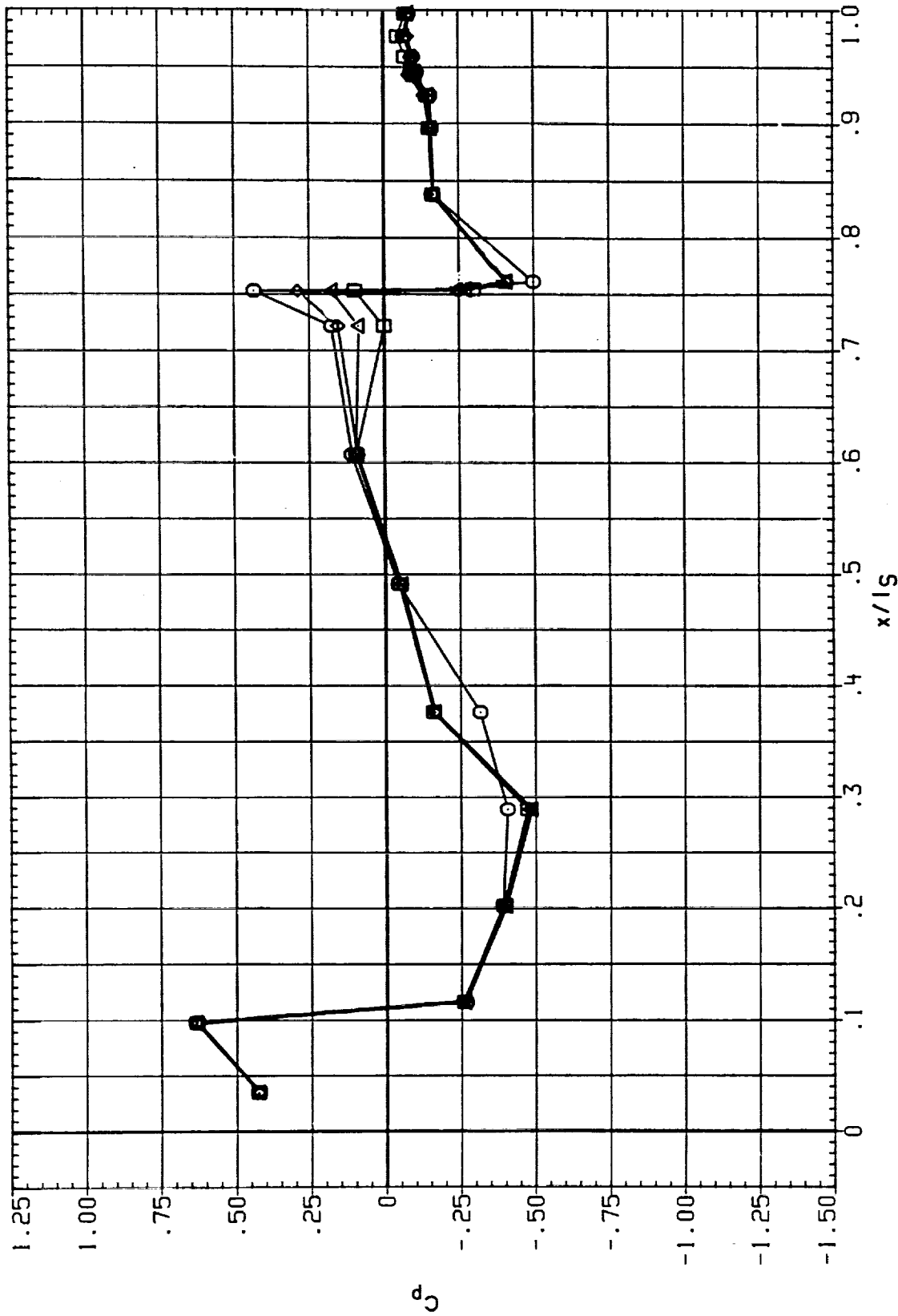


FIGURE 11 1A613A SELECTED PRESSURE DISTRIBUTIONS
LEFT SRB

BETA = .000 PHI = 270.000 ALPHA = .000 PAGE 266

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RC0522)	□	IAG13A.B/L OT*ASRH+PLUMES S1.2	1.250	.000	10.000	9.000
(RC0549)	○	IAG13A.B/L OT*ASRH+PLUMES S1.2	1.250	.000	10.000	9.000
(RC0587)	◇	IAG13A.B/L OT*ASRH+PLUMES S1.2	1.250	180.000	10.000	9.000
(RC05C5)	△	IAG13A.B/L OT*ASRH+PLUMES S1.2	1.250	999.000	10.000	5.000

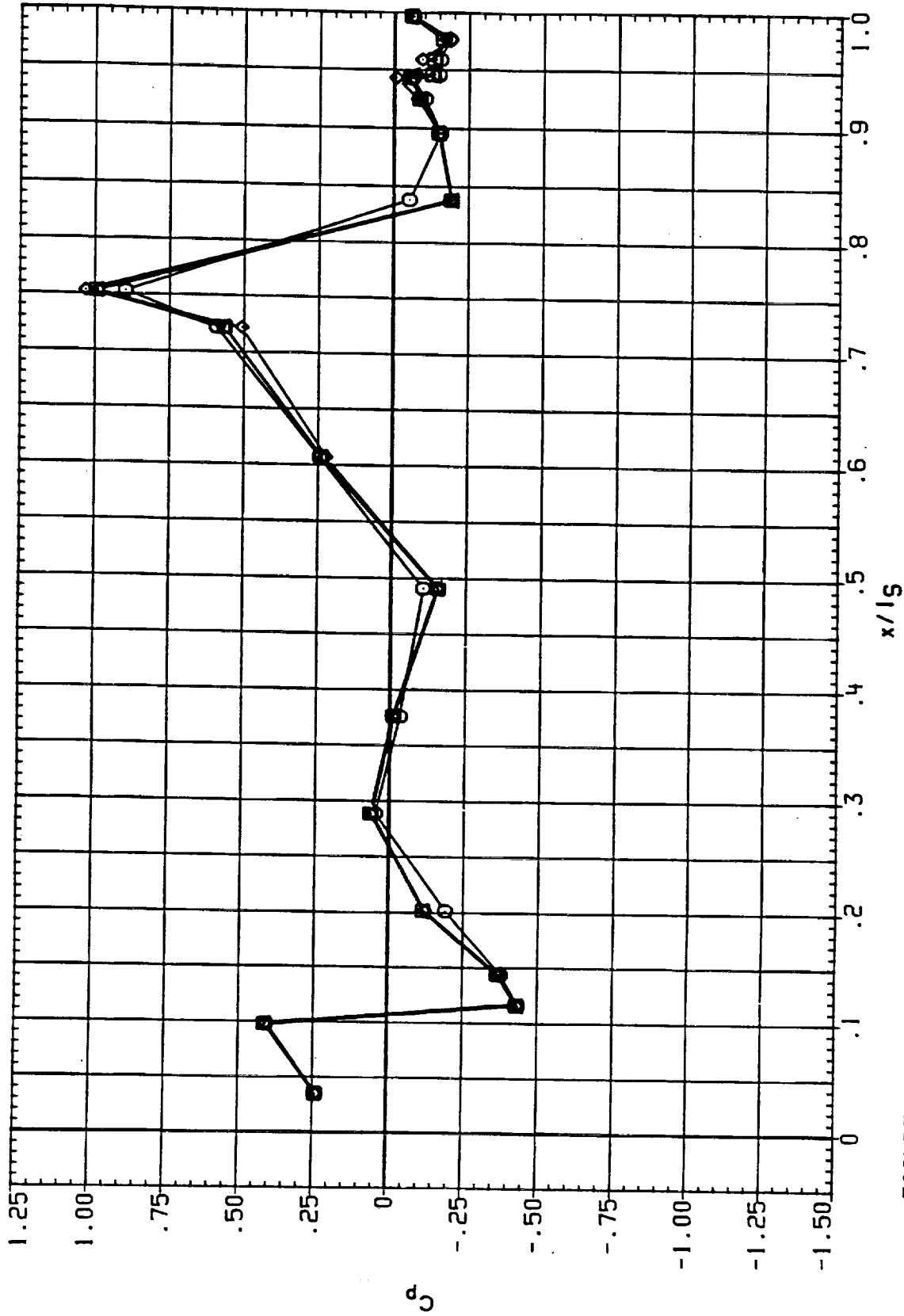


FIGURE 11 IAG13A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 PHI = 225.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	-LEFT SRB	MACH	IEABOX	IB-ELV	OB-ELV
(RC0522)	○	IA613A.B/L OT+SRM+PLUMES S1.2	-LEFT SRB	1.250	.000	10.000	9.000
(RC0549)	□	IA613A.B/L OT+ASRM+PLUMES S1.2	-LEFT SRB	1.250	.000	10.000	9.000
(RC0587)	△	IA613A.B/L OT+ASRM+PLUMES S1.2	-LEFT SRB	1.250	180.000	10.000	9.000
(RC05C5)	◇	IA613A.B/L OT+ASRM+PLUMES S1.2	-LEFT SRB	1.250	999.000	10.000	5.000

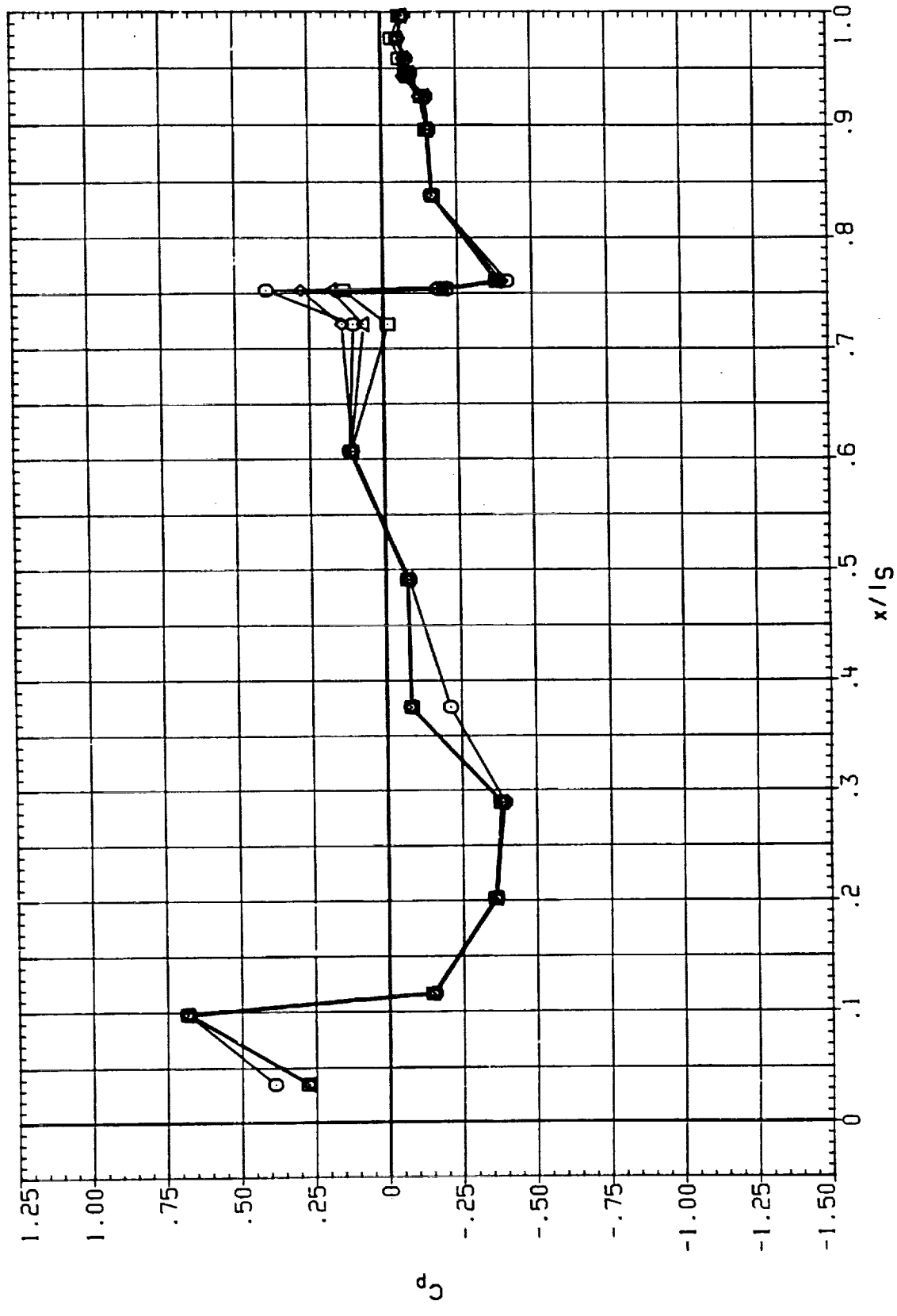


FIGURE 11 IA613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 PHI = 270.000 ALPHA = .000 PAGE 268

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	LEFT SRB	MACH	EA BOX	IB-ELV	OB-ELV
(RC05H6)	○	IAG13A, B/L 01+RSRH+PLUMES S1.2	-LEFT SRB	1.300	.000	10.000	9.000
(RC0554)	□	IAG13A, B/L 01+ASRH+PLUMES S1.3	-LEFT SRB	1.300	.000	10.000	5.000
(RC0589)	◇	IAG13A, B/L 01+ASRH+PLUMES S1.3	-LEFT SRB	1.300	180.000	10.000	5.000
(RC05C7)	△	IAG13A, B/L 01+ASRH+PLUMES S1.3	-LEFT SRB	1.300	999.000	10.000	5.000

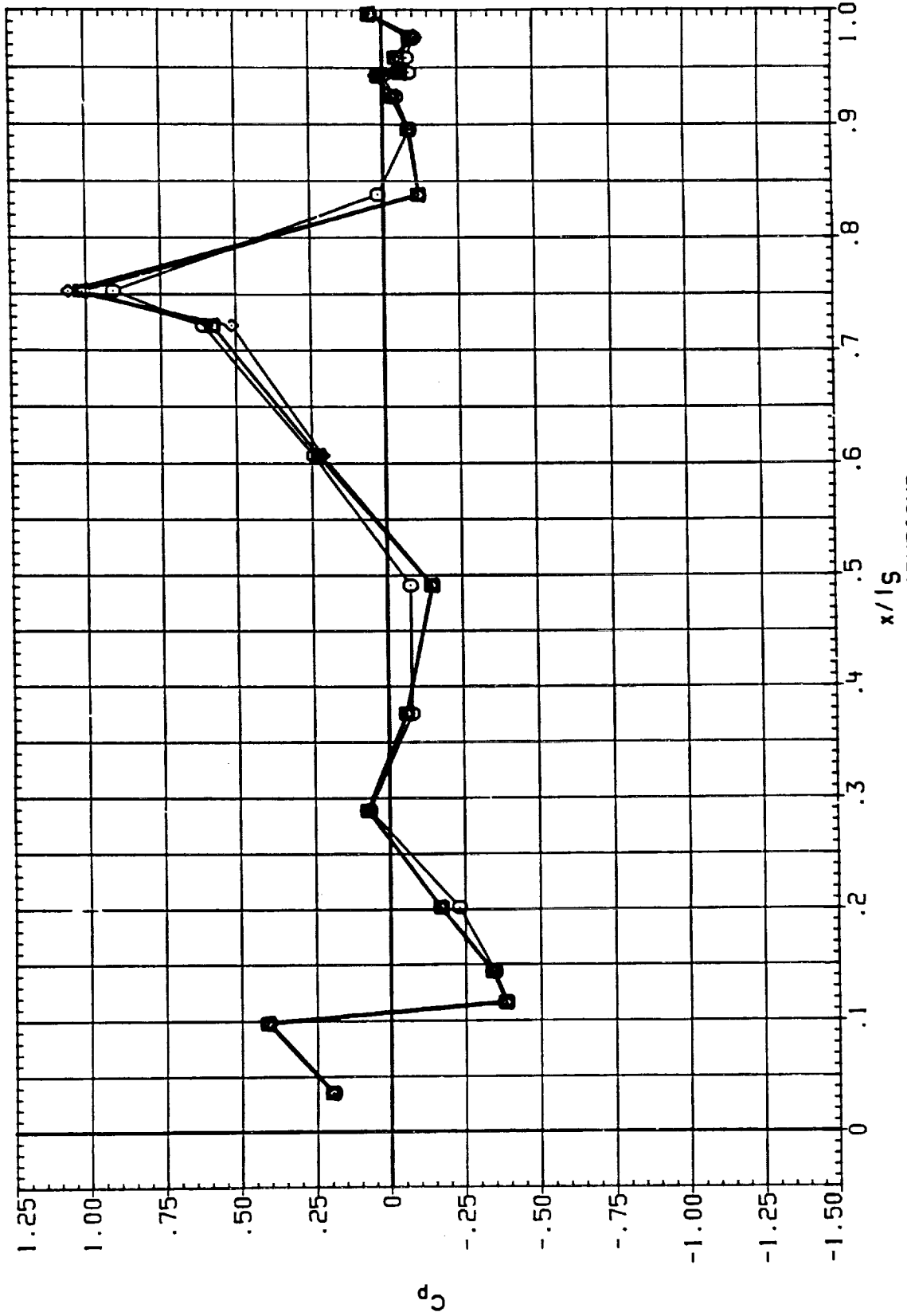


FIGURE 11 IAG13A SELECTED PRESSURE DISTRIBUTIONS
LEFT SRB

BETA = .000 PHI = 225.000 ALPHA = .000

DATA SET SYMBOL: CONFIGURATION DESCRIPTION

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	LEFT SRB	MACH	IE:BOX	IB-ELV	OB-ELV
(RC0546)	IAG13A, B/L OT+RSRM+PLUMES S1,2	-LEFT SRB	1.300	.000	10.000	9.000
(RC0554)	IAG13A, B/L OT+ASRM+PLUMES S1,3	-LEFT SRB	1.300	.000	10.000	5.000
(RC0589)	IAG13A, B/L OT+ASRM+PLUMES S1,3	-LEFT SRB	1.300	180.000	10.000	5.000
(RC0587)	IAG13A, B/L OT+ASRM+PLUMES S1,3	-LEFT SRB	1.300	999.000	10.000	5.000

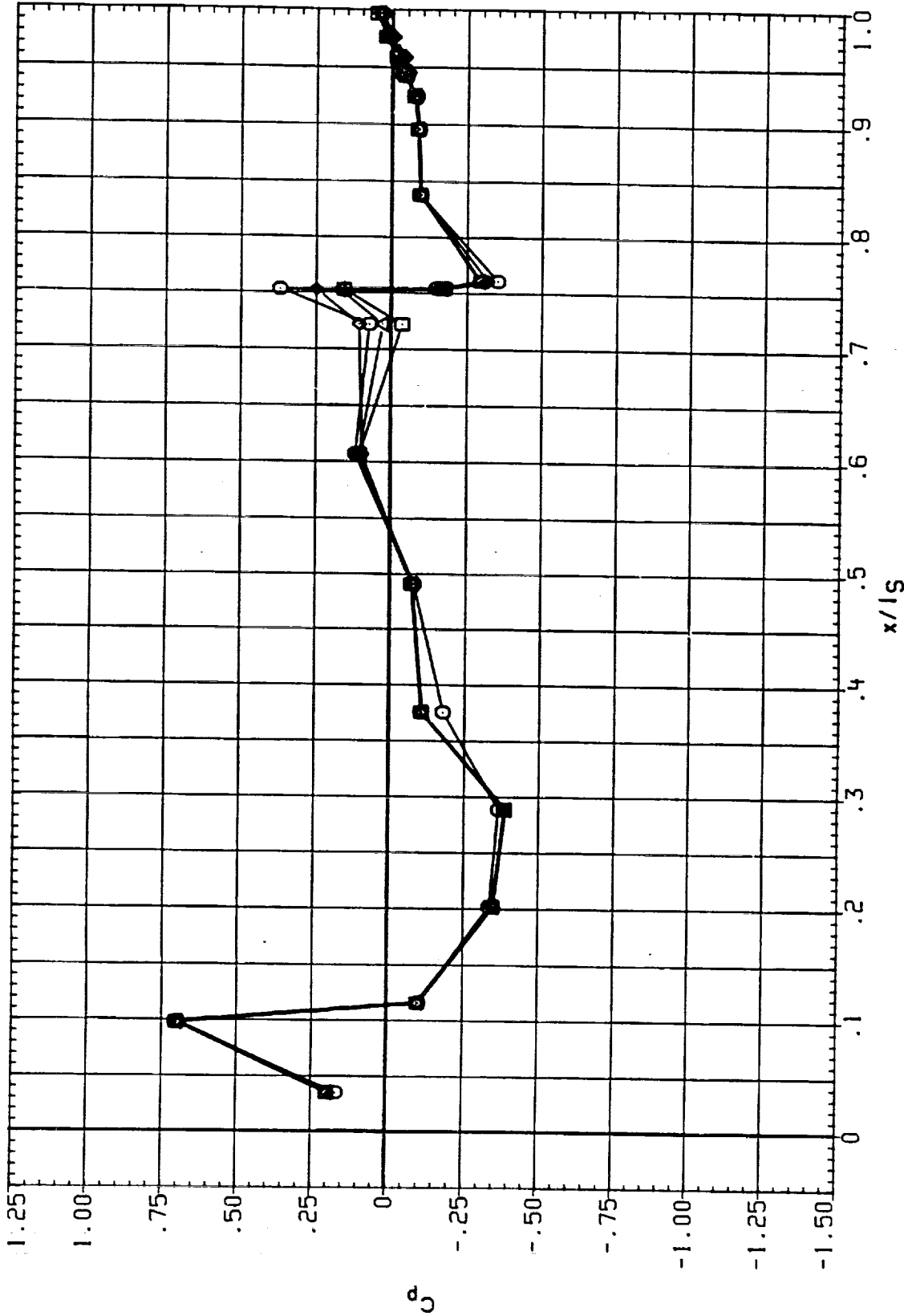


FIGURE 11 IAG13A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 PHI = 270.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOSH7)	○	IA613A.B/L OT*RSRM*PLUMES S1.2	1.350	.000	10.000	9.000
(RCOS55)	□	IA613A.B/L OT*ASRM*PLUMES S1.3	1.350	.000	10.000	5.000
(RCOS90)	◇	I7613A.B/L OT*ASRM*PLUMES S1.3	1.350	180.000	10.000	5.000
(RCOS81)	△	IA613A.B/L OT*ASRM*PLUMES S1.3	1.350	999.000	10.000	5.000

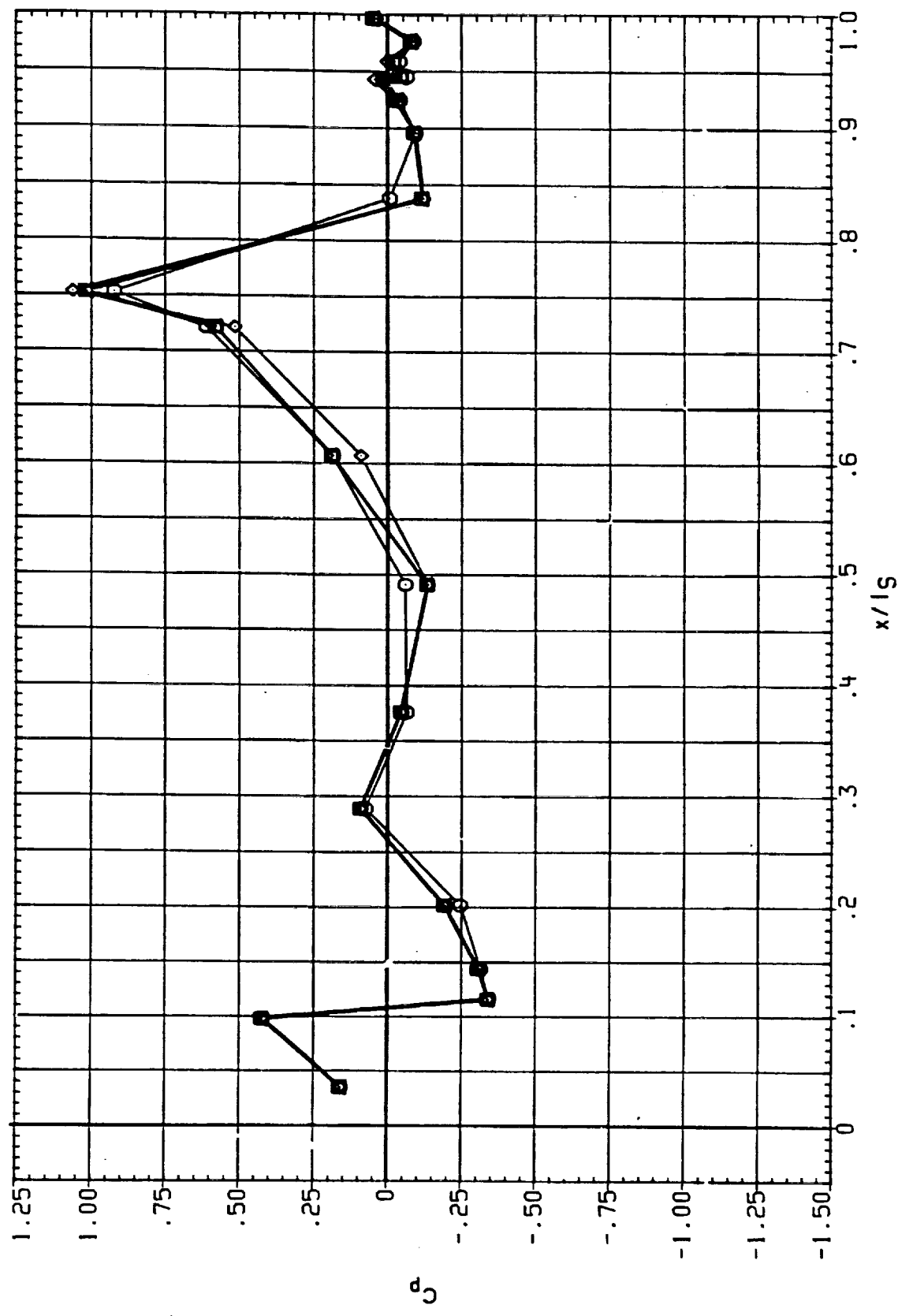


FIGURE 11 IA613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 PHI = 225.000 ALPHA = .000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOSH7)	IA613A,B/L OT+RSRM+PLUMES S1.2	1.350	.000	10.000	9.000
(RCOS53)	IA613A,B/L OT+ASRM+PLUMES S1.3	1.350	.000	10.000	5.000
(RCOS90)	IA613A,B/L OT+ASRM+PLUMES S1.3	1.350	180.000	10.000	5.000
(RCOSCB)	IA613A,B/L OT+ASRM+PLUMES S1.3	1.350	999.000	10.000	5.000

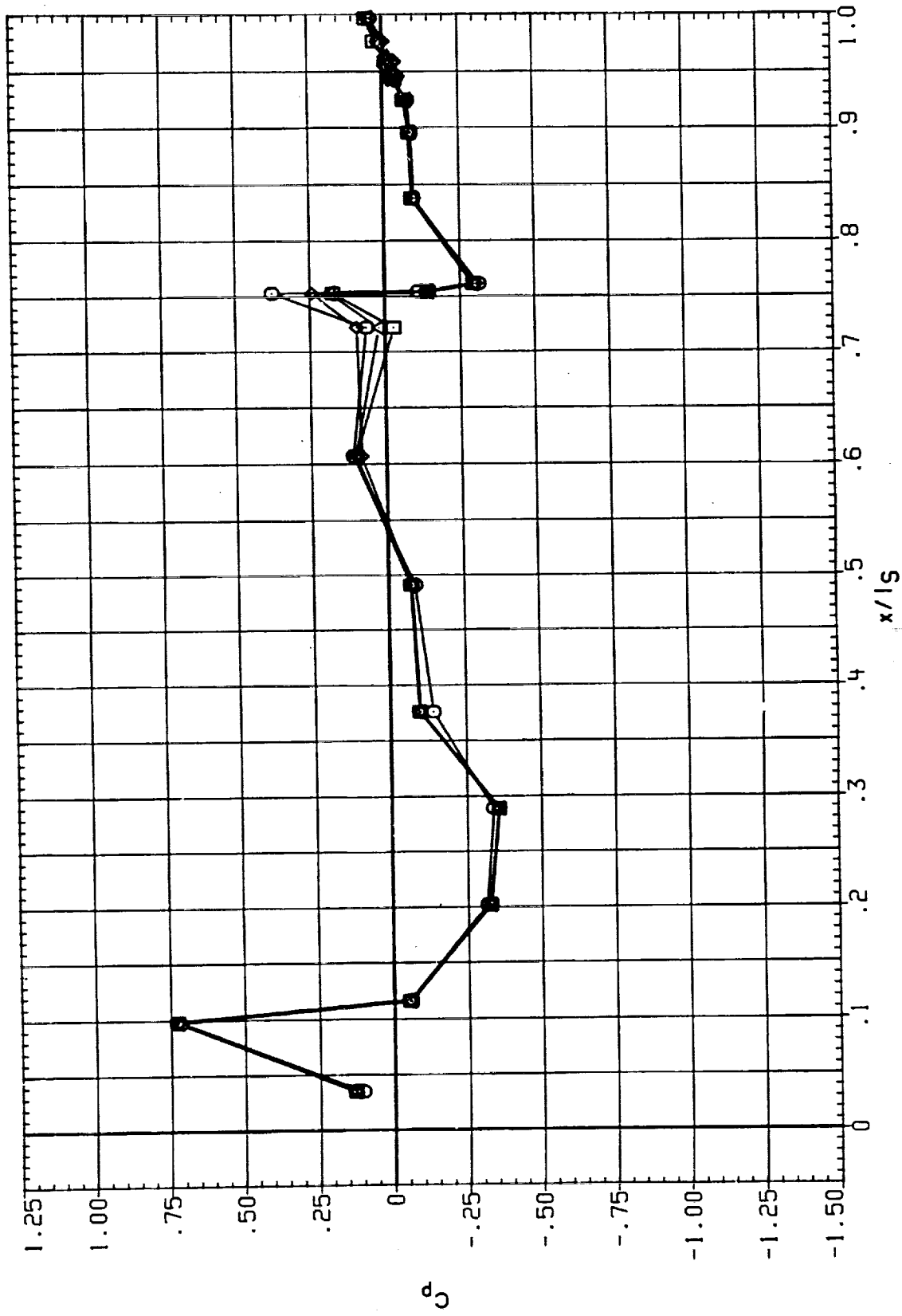


FIGURE 11 IA613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 PHI = 270.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RC05H8)	○	IAG13A, B/L OT+RSRH+PLUMES SI.2	1.400	.000	10.000	9.000
(RC0556)	□	IAG13A, B/L OT+ASRH+PLUMES SI.3	1.400	.000	10.000	9.000
(RC0591)	◇	IAG13A, B/L OT+ASRH+PLUMES SI.3	1.400	180.000	10.000	5.000
(RC05C9)	△	IAG13A, B/L OT+ASRH+PLUMES SI.3	1.400	999.000	10.000	5.000

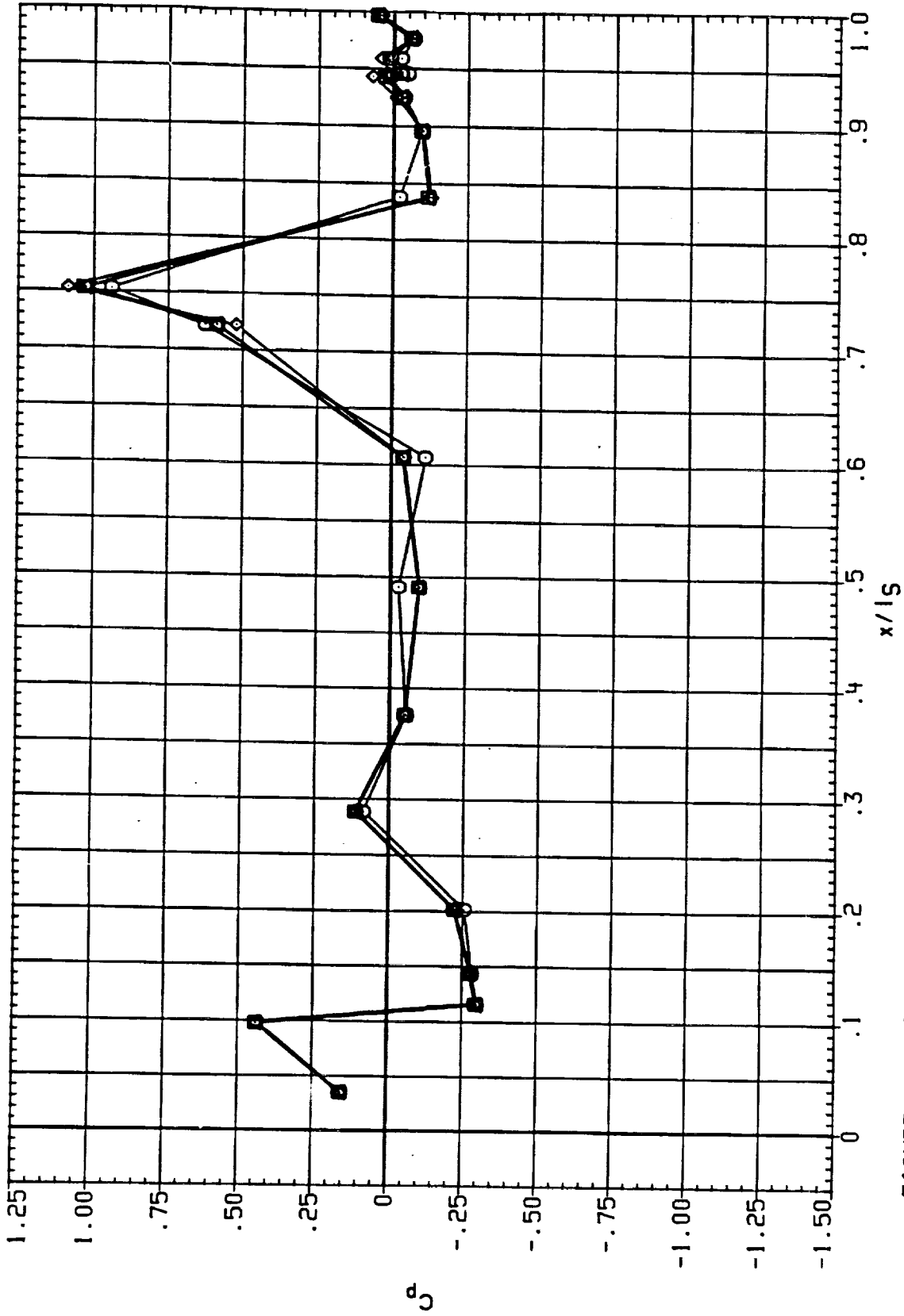


FIGURE 11 IAG13A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 PHI = 225.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	IEABOX	MACH	IB-ELV	OB-ELV
(RC05H8)	○	IA613A.B/L OT.RSRM.PLUMES S1.2	.000	1.400	10.000	9.000
(RC05S6)	◇	IA613A.B/L OT.ASRM.PLUMES S1.3	.000	1.400	10.000	5.000
(RC0591)	◇	IA613A.B/L OT.ASRM.PLUMES S1.3	180.000	1.400	10.000	5.000
(RC05C9)	△	IA613A.B/L OT.ASRM.PLUMES S1.3	999.000	1.400	10.000	5.000

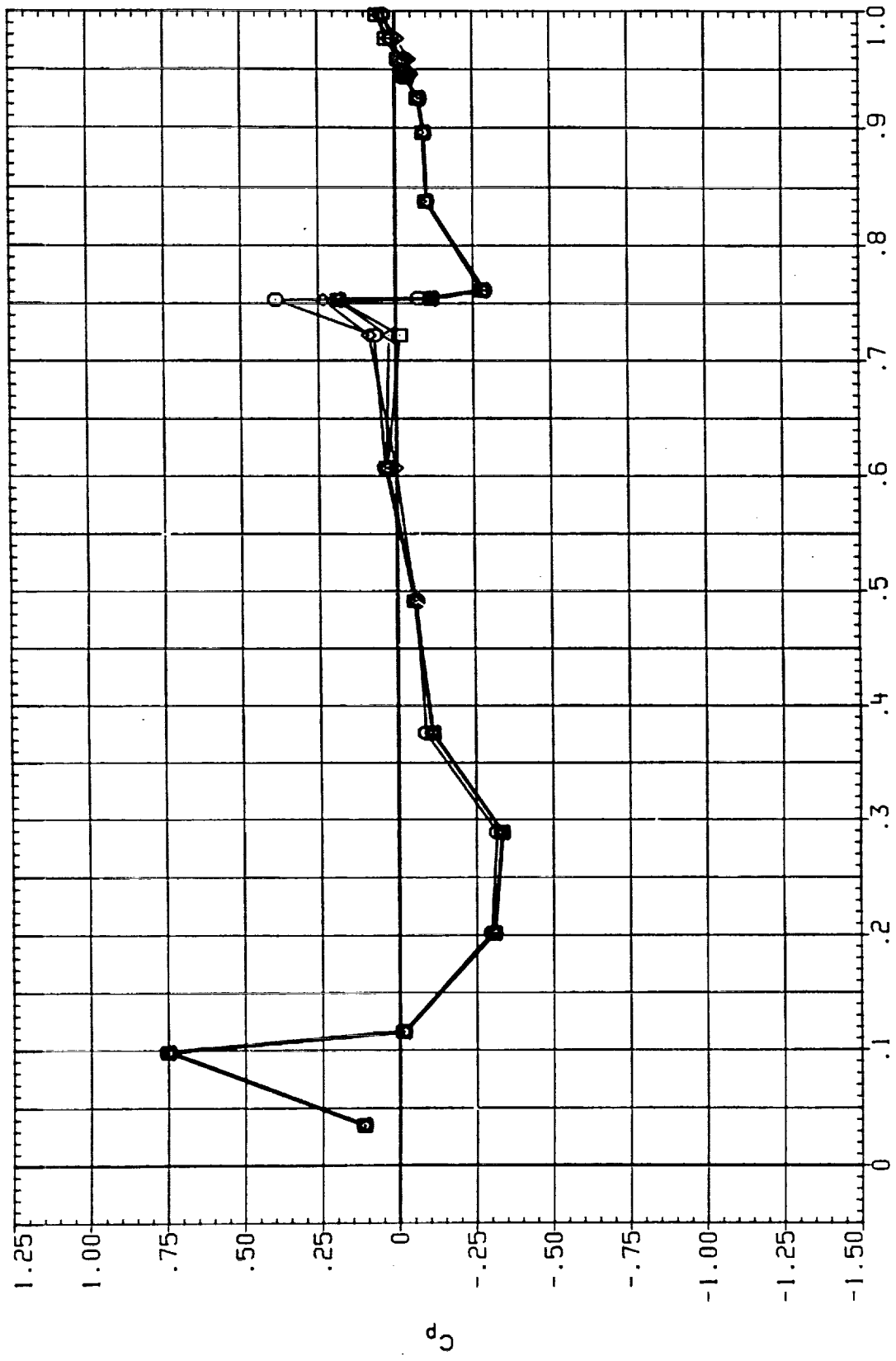


FIGURE 11 IA613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 PHI = 270.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RC05H9)	○	IA613A.B/L OT+SRM+PLUMES S1.2	1.550	.000	10.000	9.000
(RC05E7)	□	IA613A.B/L OT+SRM+PLUMES S1.3	1.550	.000	10.000	5.000
(RC05B2)	◇	IA613A.B/L OT+SRM+PLUMES S1.3	1.550	180.000	10.000	5.000
(RC05D0)	△	IA613A.B/L OT+SRM+PLUMES S1.3	1.550	999.000	10.000	5.000

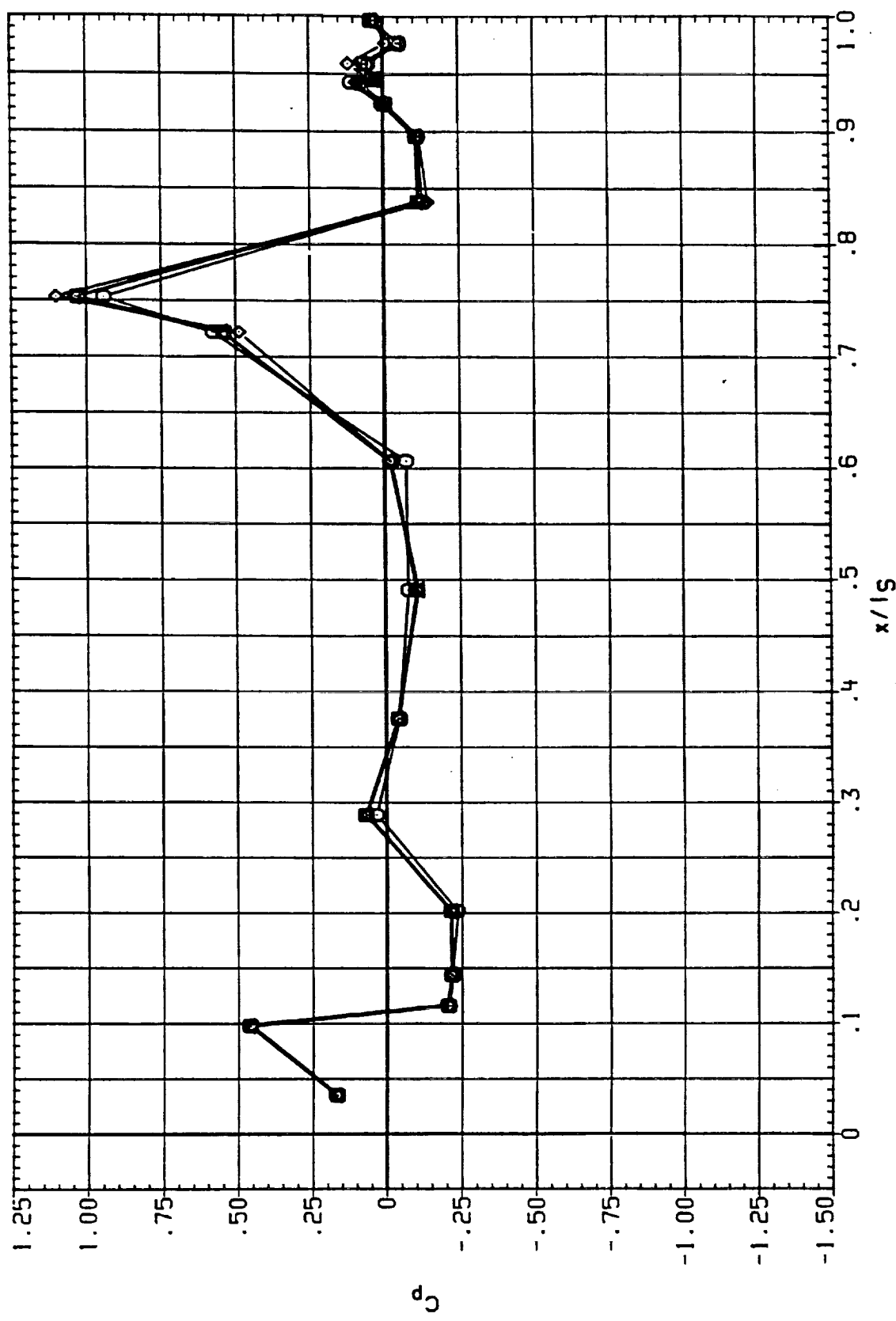


FIGURE 11 IA613A SELECTED PRESSURE DISTRIBUTIONS
 LEFT SRB
 BETA = .000 PHI = 225.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RC0549)	○	IA613A.B/1 OT*ASRM*PLUMES S1.2	1.550	.000	10.000	9.000
(RC0557)	□	IA613A.B/1 OT*ASRM*PLUMES S1.3	1.550	.000	10.000	5.000
(RC0582)	◇	IA613A.B/1 OT*ASRM*PLUMES S1.3	1.550	180.000	10.000	5.000
(RC0500)	△	IA613A.B/1 OT*ASRM*PLUMES S1.3	1.550	599.000	10.000	5.000

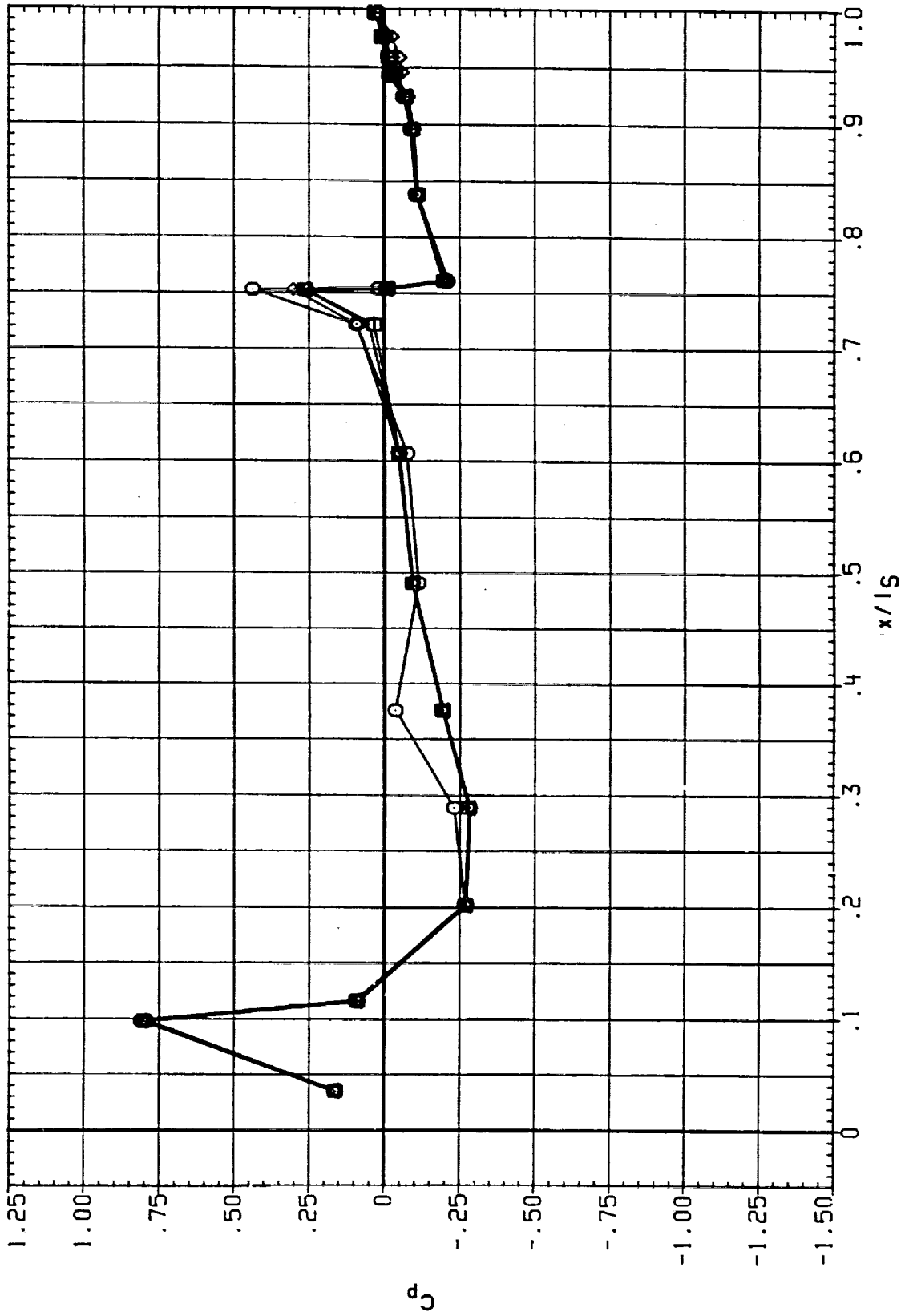


FIGURE 11 IA613A SELECTED PRESSURE DISTRIBUTIONS
 BETA = .000 PHI = 270.000 ALPHA = .000
 LEFT SRB

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RC0C15)	□	IAG13A.B/L OT*ASRM*PLUMES S1.2	.600	.000	10.000	9.000
(RC0C42)	◇	IAG13A.B/L OT*ASRM*PLUMES S1.2	.600	.000	10.000	9.000
(RC0C80)	◇	IAG13A.B/L OT*ASRM*PLUMES S1.2	.600	180.000	10.000	9.000
(RC0C11)	△	IAG13A.B/L OT*ASRM*PLUMES S1.2	.600	999.000	10.000	5.000

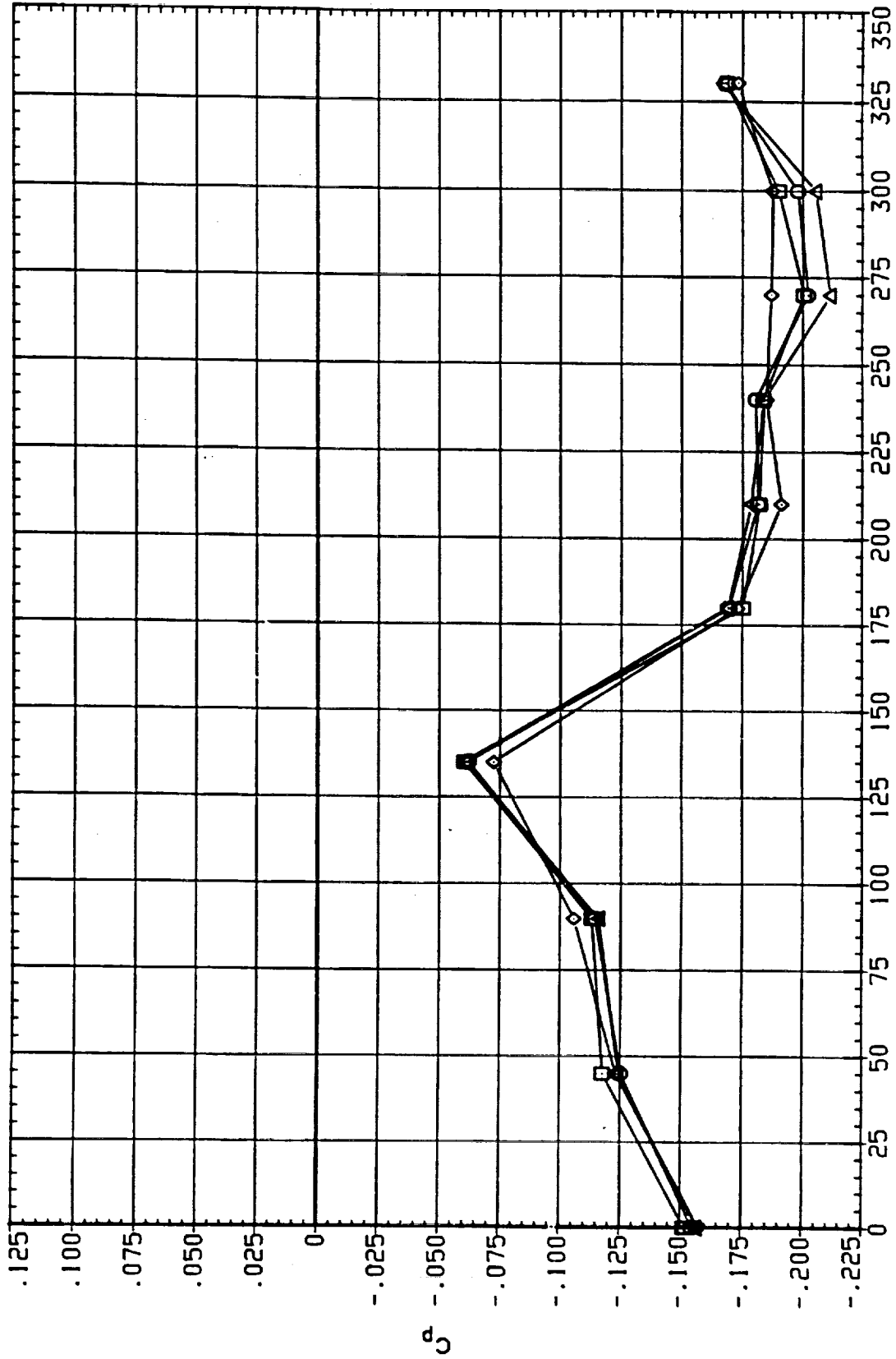


FIGURE 12 IAG13A SELECTED PRESSURE DISTRIBUTIONS
 LEFT SRB BASE
 BETA = .000 X/LS = 1.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOC16)	○	IA613A,B/L OT+RSRM+PLUMES S1.2	.800	.000	10.000	9.000
(RCOC43)	□	IA613A,B/L OT+ASRM+PLUMES S1.2	.800	.000	10.000	9.000
(RCOC81)	◇	IA613A,B/L OT+ASRM+PLUMES S1.2	.800	180.000	10.000	9.000

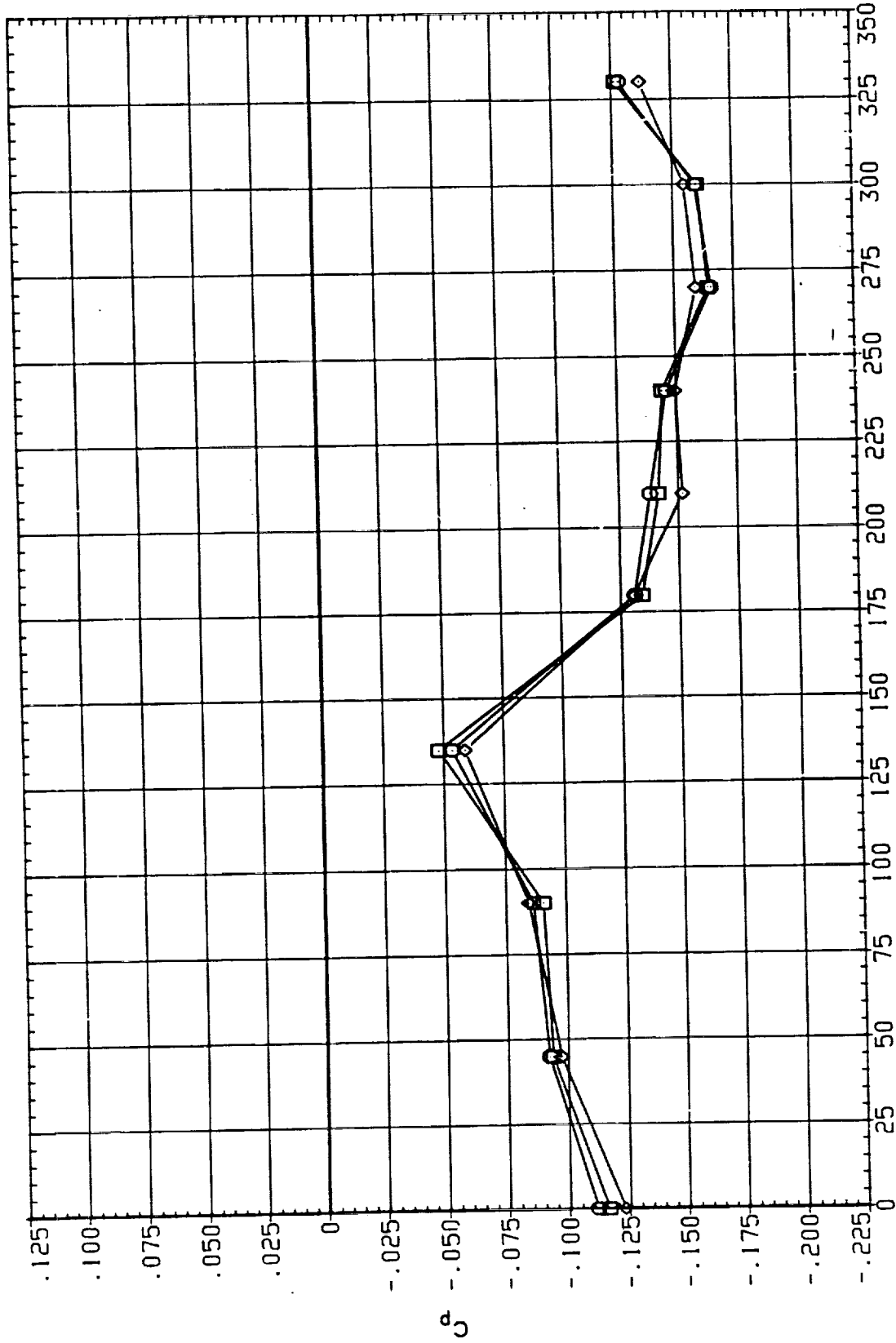


FIGURE 12 IA613A SELECTED PRESSURE DISTRIBUTIONS
 BETA = .000 X/LS = 1.000 ALPHA = .000
 LEFT SRB BASE

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOC17)	□	IA613A, B/L 01+RSRH+PLUMES S1.2	.900	.000	10.000	9.000
(RCOC44)	□	IA613A, B/L 01+ASRH+PLUMES S1.2	.900	.000	10.000	9.000
(RCOC82)	◇	IA613A, B/L 01+ASRH+PLUMES S1.2	.900	180.000	10.000	9.000
(RCOC21)	△	IA613A, B/L 01+ASRH+PLUMES S1.2	.900	999.000	10.000	5.000

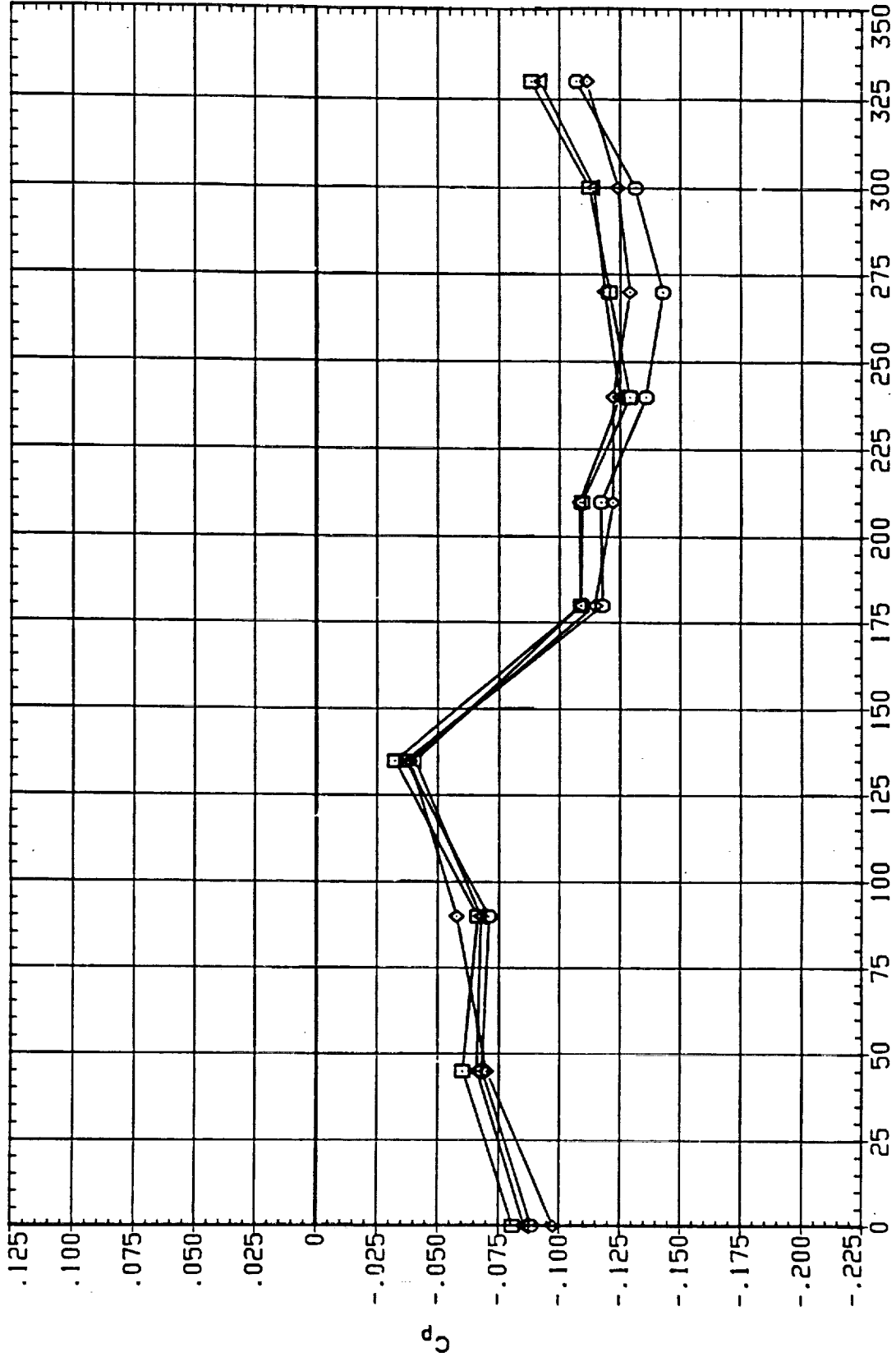


FIGURE 12 IA613A SELECTED PRESSURE DISTRIBUTIONS
 LEFT SRB BASE
 BETA = .000 X/LS = 1.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOC18)	○	IA613A.B/L OT+RSRH+PLUMES S1.2	.950	.000	10.000	9.000
(RCOC45)	□	IA613A.B/L OT+ASRH+PLUMES S1.2	.950	.000	10.000	9.000
(RCOC83)	◇	IA613A.B/L OT+ASRH+PLUMES S1.2	.950	180.000	10.000	9.000

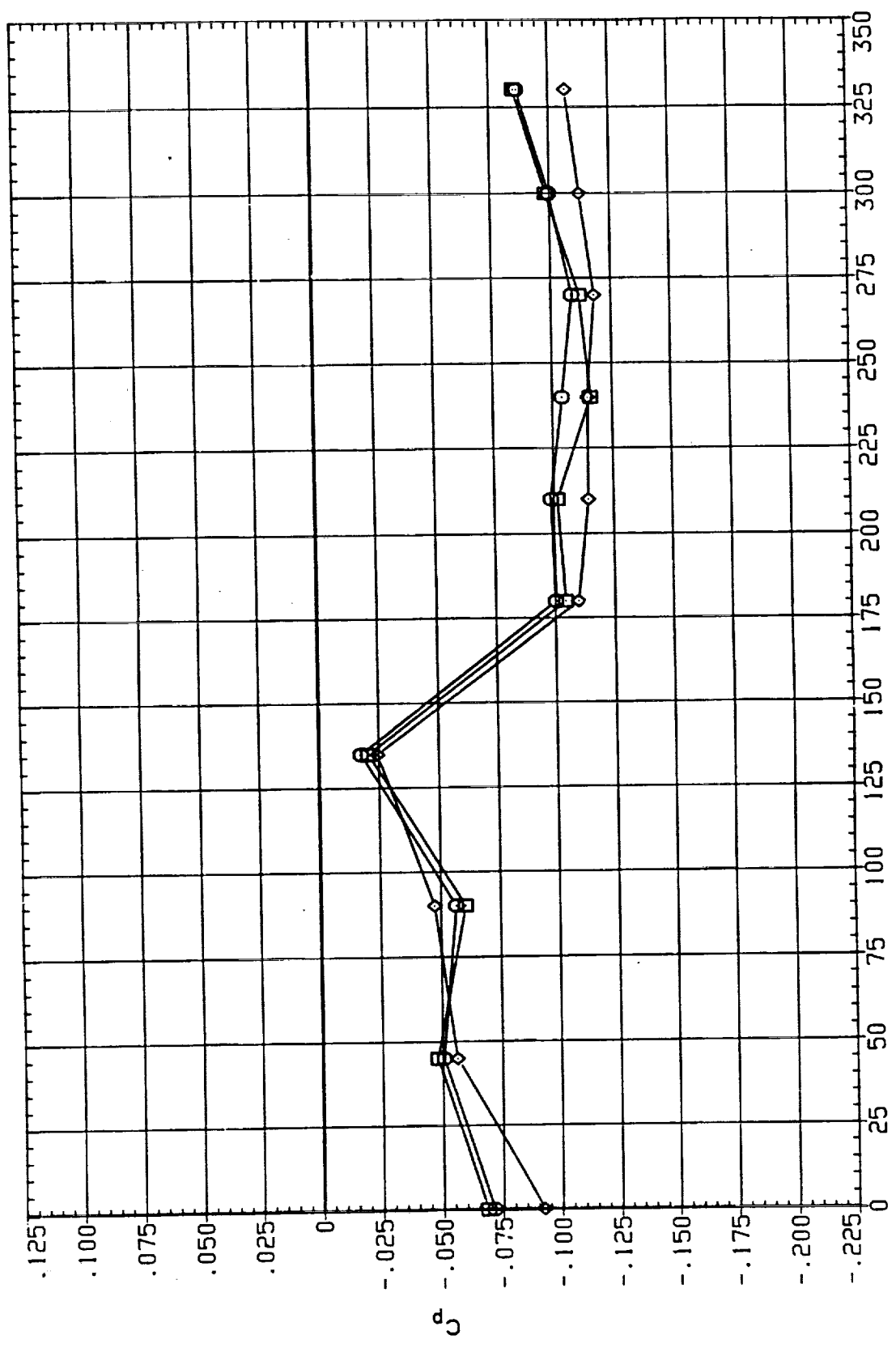


FIGURE 12 IA613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 X/L S = 1.000 ALPHA = .000 PAGE 280

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEARBOX	IB-ELV	OB-ELV
(RCOC19)	○	IAG13A, B/L OT+RSRH+PLUMES S1.2	1.050	.000	10.000	9.000
(RCOC46)	□	IAG13A, B/L OT+ASRH+PLUMES S1.2	1.050	.000	10.000	9.000
(RCOC84)	◇	IAG13A, B/L OT+ASRH+PLUMES S1.2	1.050	180.000	10.000	9.000

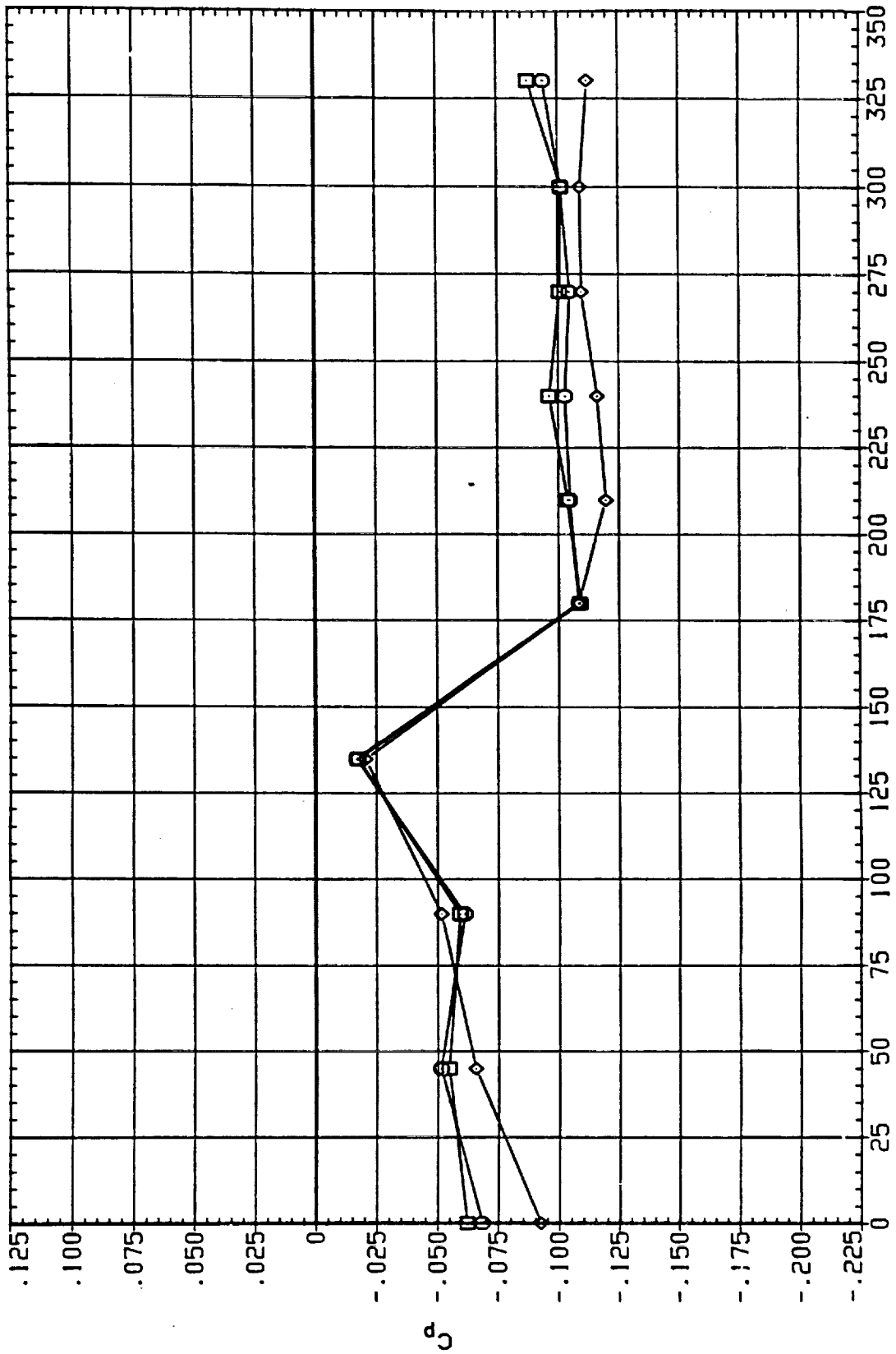


FIGURE 12 IAG13A SELECTED PRESSURE DISTRIBUTIONS
LEFT SRB BASE

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	LEFT SRB BASE	MACH	IEABOX	IB-ELV	OB-ELV
(RCOC20)	○	IA613A, B/L OT+SRM+PLUMES S1.2	-LEFT SRB BASE	1.100	.000	10.000	9.000
(RCOC47)	□	IA613A, B/L OT+ASRM+PLUMES S1.2	-LEFT SRB BASE	1.100	.000	10.000	9.000
(RCOC85)	◇	IA613A, B/L OT+ASRM+PLUMES S1.2	-LEFT SRB BASE	1.100	180.000	10.000	9.000
(RCOC33)	△	IA613A, B/L OT+ASRM+PLUMES S1.2	-LEFT SRB BASE	1.100	999.000	10.000	5.000

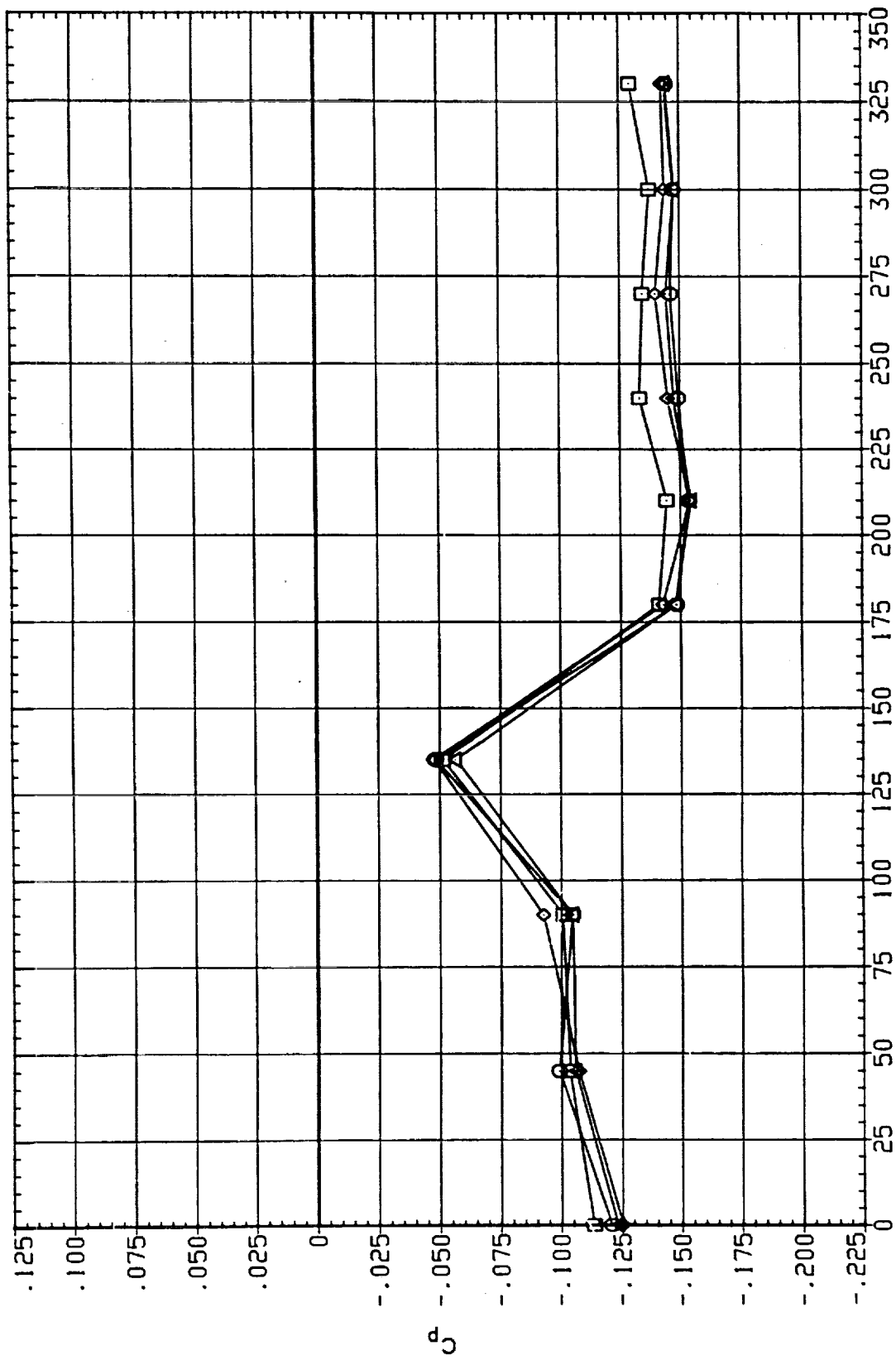


FIGURE 12 IA613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 X/LS = 1.000 ALPHA = .000 PAGE 282

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOC21)	□	IA613A,B/L OT+RSRM+PLUMES S1.2	1.150	.000	10.000	9.000
(RCOC48)	◇	IA613A,B/L OT+ASRM+PLUMES S1.2	1.150	.000	10.000	9.000
(RCOC85)	◇	IA613A,B/L OT+ASRM+PLUMES S1.2	1.150	180.000	10.000	9.000
(XCOC4)	△	IA613A,B/L OT+ASRM+PLUMES S1.2	1.150	999.000	10.000	5.000

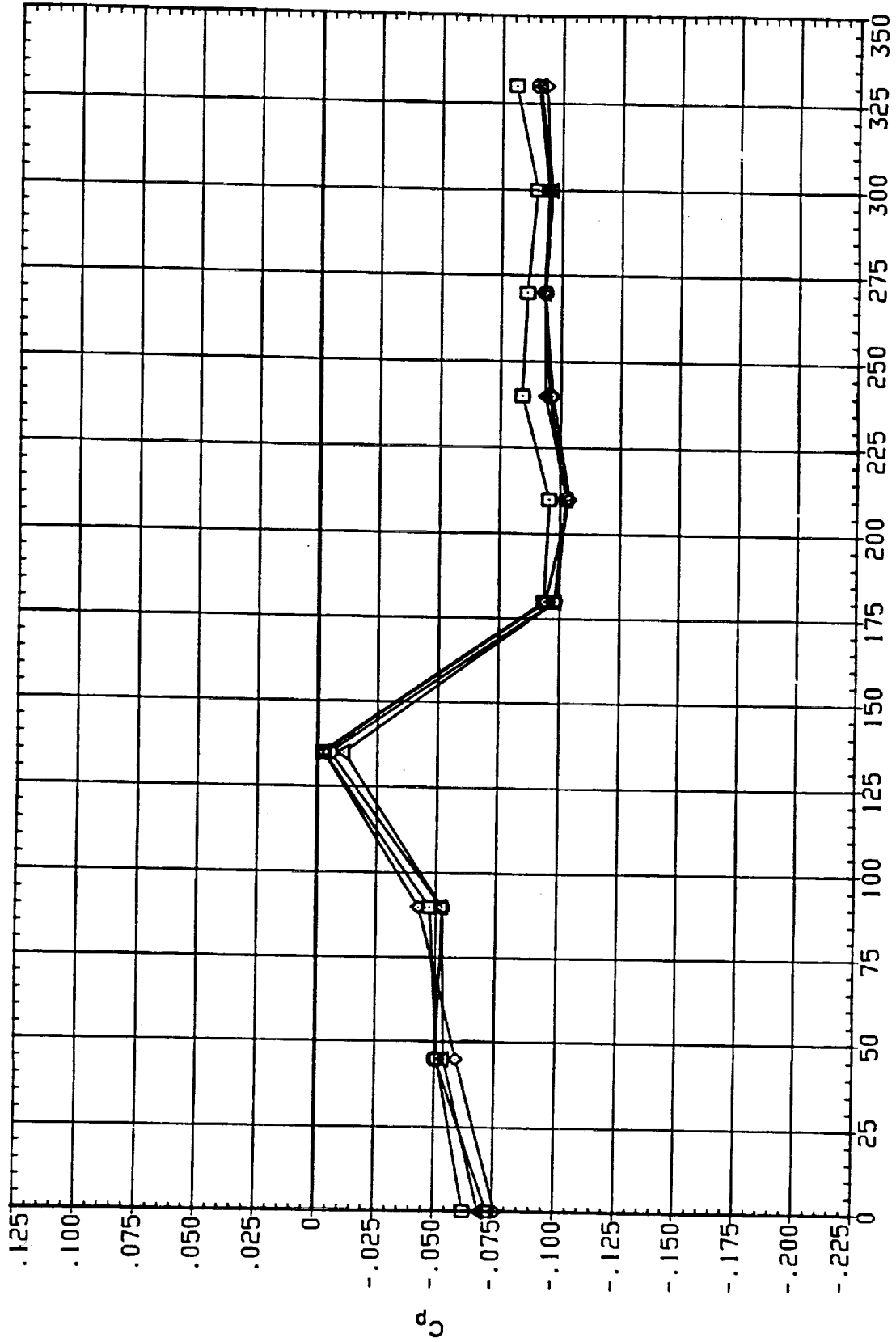


FIGURE 12 IA613A SELECTED PRESSURE DISTRIBUTIONS
 LEFT SRB BASE
 BETA = .000 X/LS = 1.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RC0C22)	□	IA613A.B/L 01*RSRM*PLUMES S1.2	1.250	.000	10.000	9.000
(RC0C49)	○	IA613A.B/L 01*ASRM*PLUMES S1.2	1.250	.000	10.000	9.000
(RC0C87)	◇	IA613A.B/L 01*ASRM*PLUMES S1.2	1.250	180.000	10.000	9.000
(RC0C85)	△	IA613A.B/L 01*ASRM*PLUMES S1.2	1.250	999.000	10.000	5.000

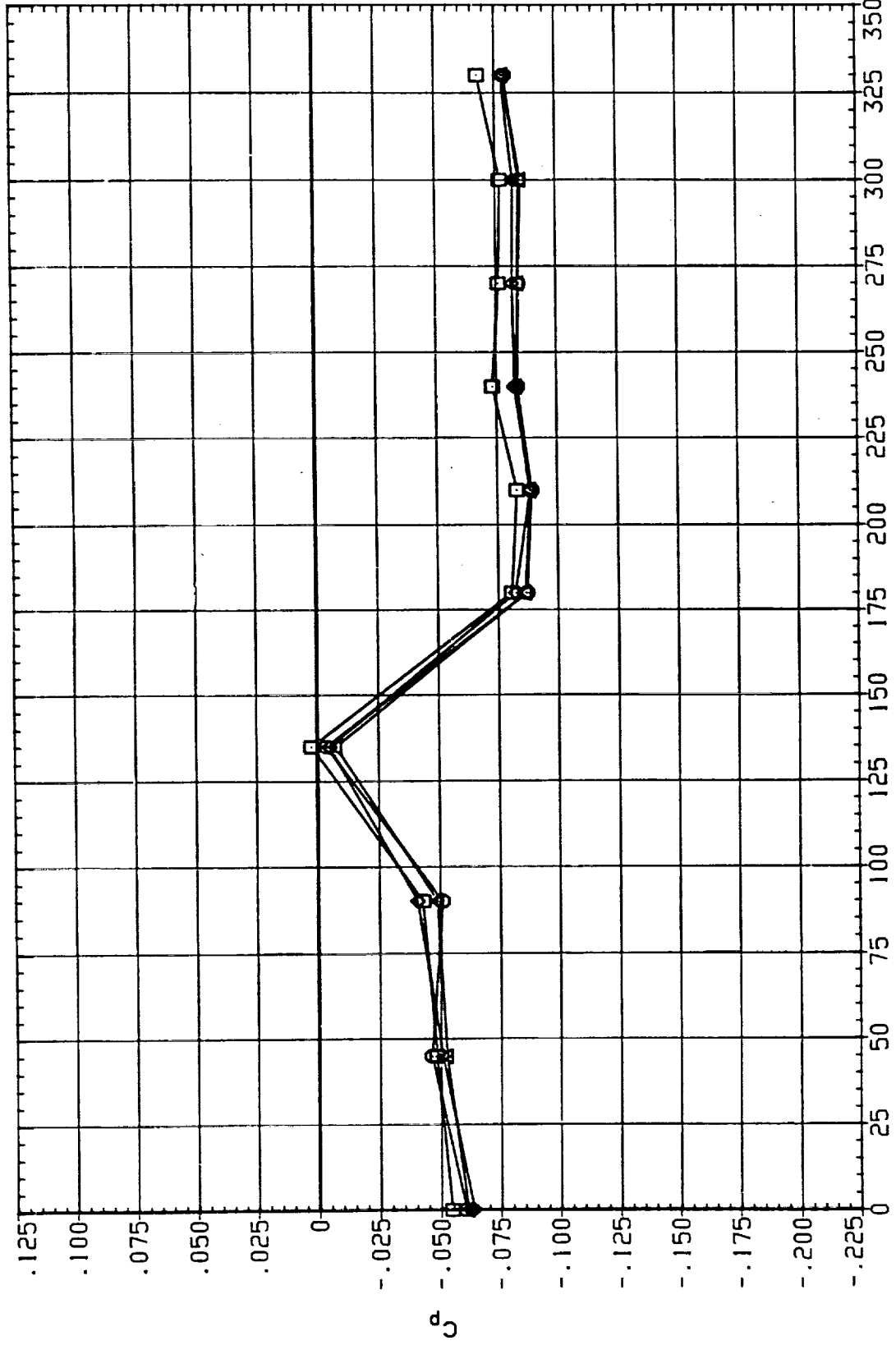


FIGURE 12 IA613A SELECTED PRESSURE DISTRIBUTIONS
LEFT SRB BASE

BETA = .000 X/LS = 1.000 ALPHA = .000 PAGE 284

C-5

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOC6)	○	IA613A,B/L 01*RSRH*PLUMES S1.2	1.300	.000	10.000	9.000
(RCOC5)	○	IA613A,B/L 01*ASRH*PLUMES S1.3	1.300	.000	10.000	5.000
(RCOC8)	◇	IA613A,B/L 01*ASRH*PLUMES S1.3	1.300	180.000	10.000	5.000
(RCOC7)	△	IA613A,B/L 01*ASRH*PLUMES S1.3	1.300	999.000	10.000	5.000

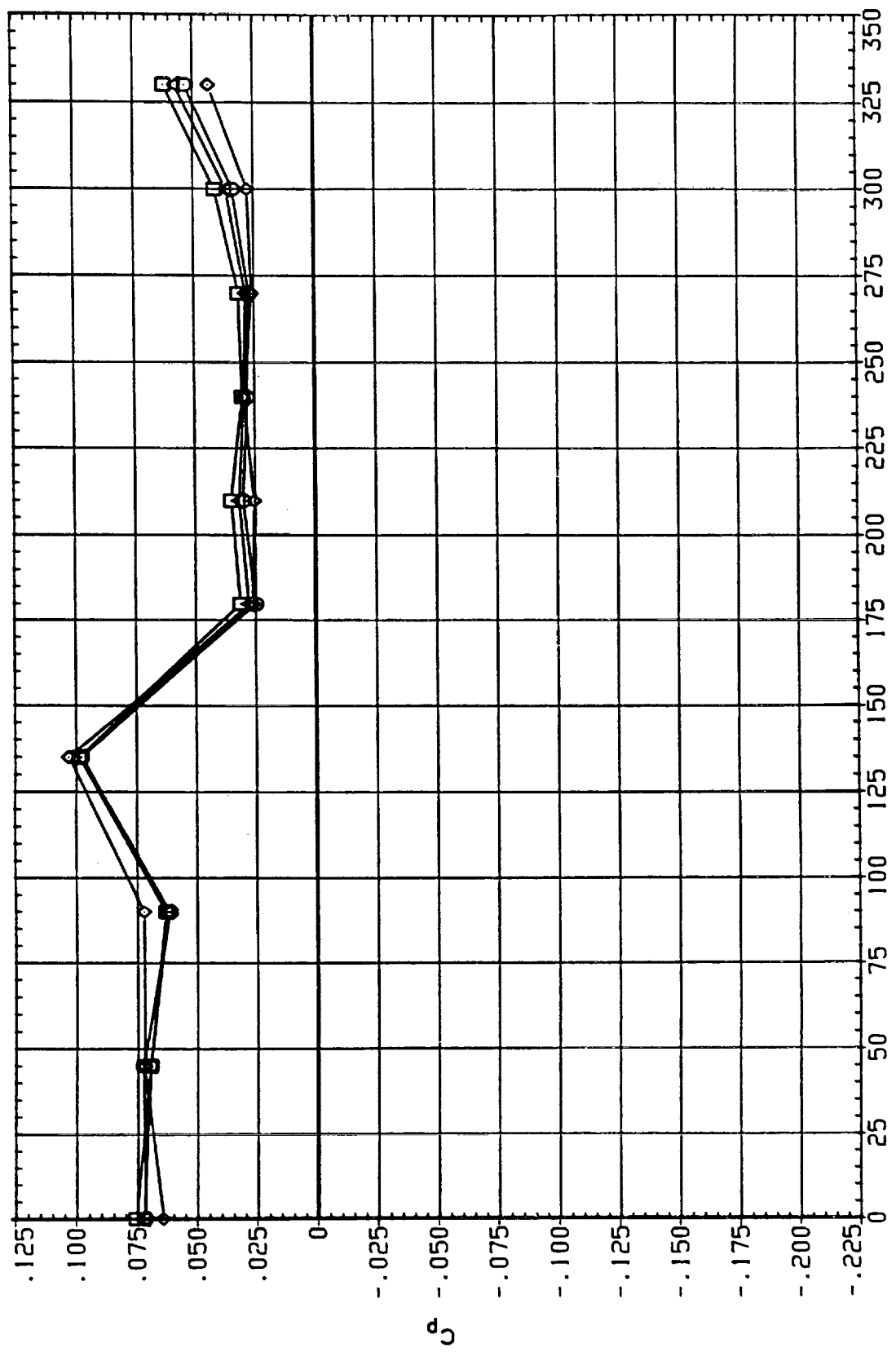


FIGURE 12 IA613A SELECTED PRESSURE DISTRIBUTIONS

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RC0CH7)	□	IA613A,B/L 01+RSRM+PLUMES S1,2	1.350	.000	10.000	9.000
(RC0C55)	○	IA613A,B/L 01+ASRM+PLUMES S1,3	1.350	.000	10.000	5.000
(RC0C90)	◇	IA613A,B/L 01+ASRM+PLUMES S1,3	1.350	180.000	10.000	5.000
(RC0C88)	△	IA613A,B/L 01+ASRM+PLUMES S1,3	1.350	999.000	10.000	5.000

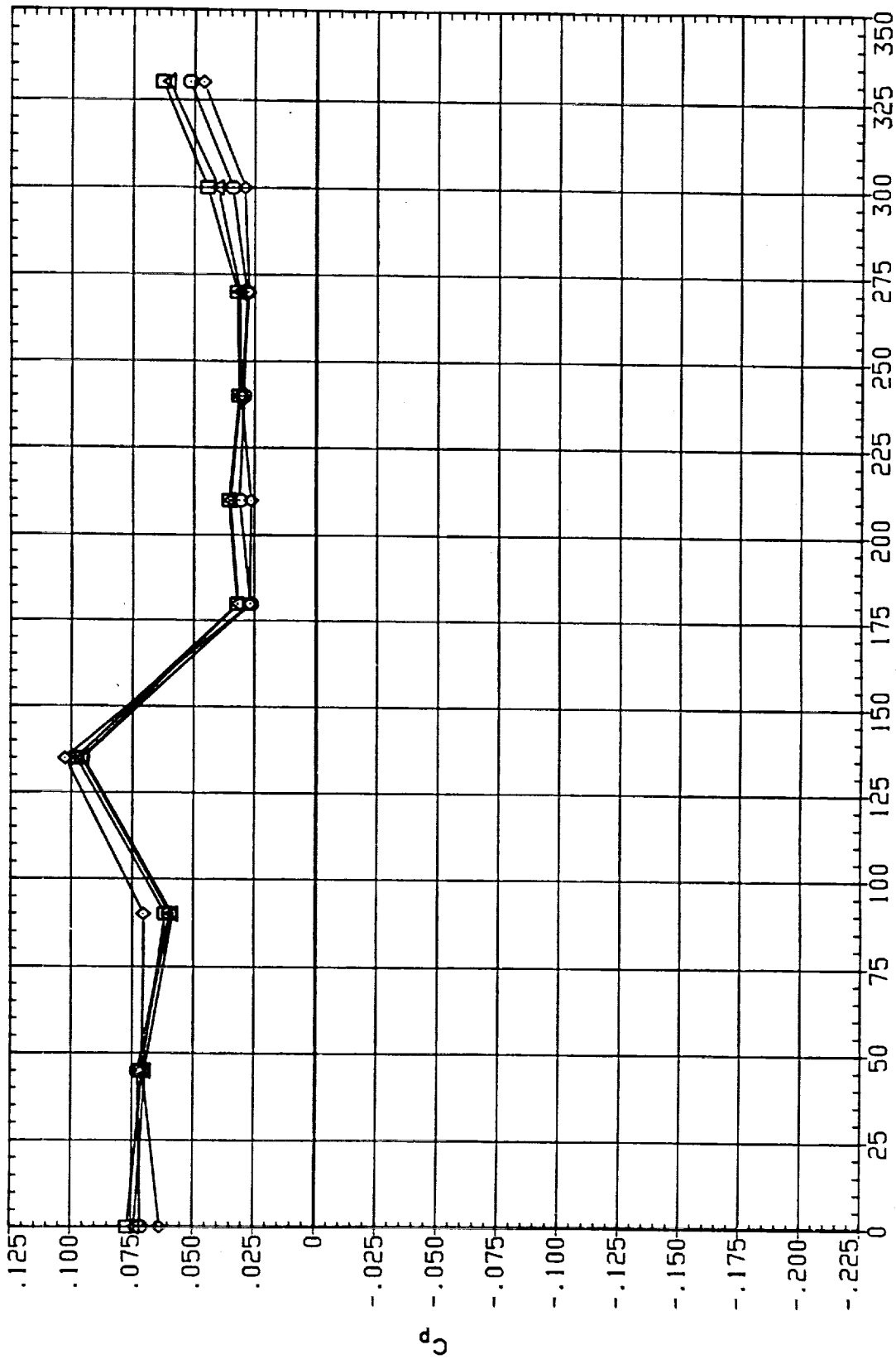


FIGURE 12 IA613A SELECTED PRESSURE DISTRIBUTIONS
LEFT SRB BASE

BETA = .000 X/LS = 1.000 ALPHA = .000 PAGE 286

DATA SET SYMBOL

(RCOC8) ○

(RCOC9) □

(RCOC9) △

CONFIGURATION DESCRIPTION

IA613A.B/L OT+SRM+PLUMES S1.2

IA613A.B/L OT+SRM+PLUMES S1.3

IA613A.B/L OT+SRM+PLUMES S1.3

IA613A.B/L OT+SRM+PLUMES S1.3

-LEFT SRB BASE

-LEFT SRB BASE

-LEFT SRB BASE

-LEFT SRB BASE

MACH

1.400

1.400

1.400

1.400

IE/BOX

.000

.000

180.000

999.000

IB-ELY

10.000

10.000

10.000

10.000

OB-ELY

9.000

5.000

5.000

5.000

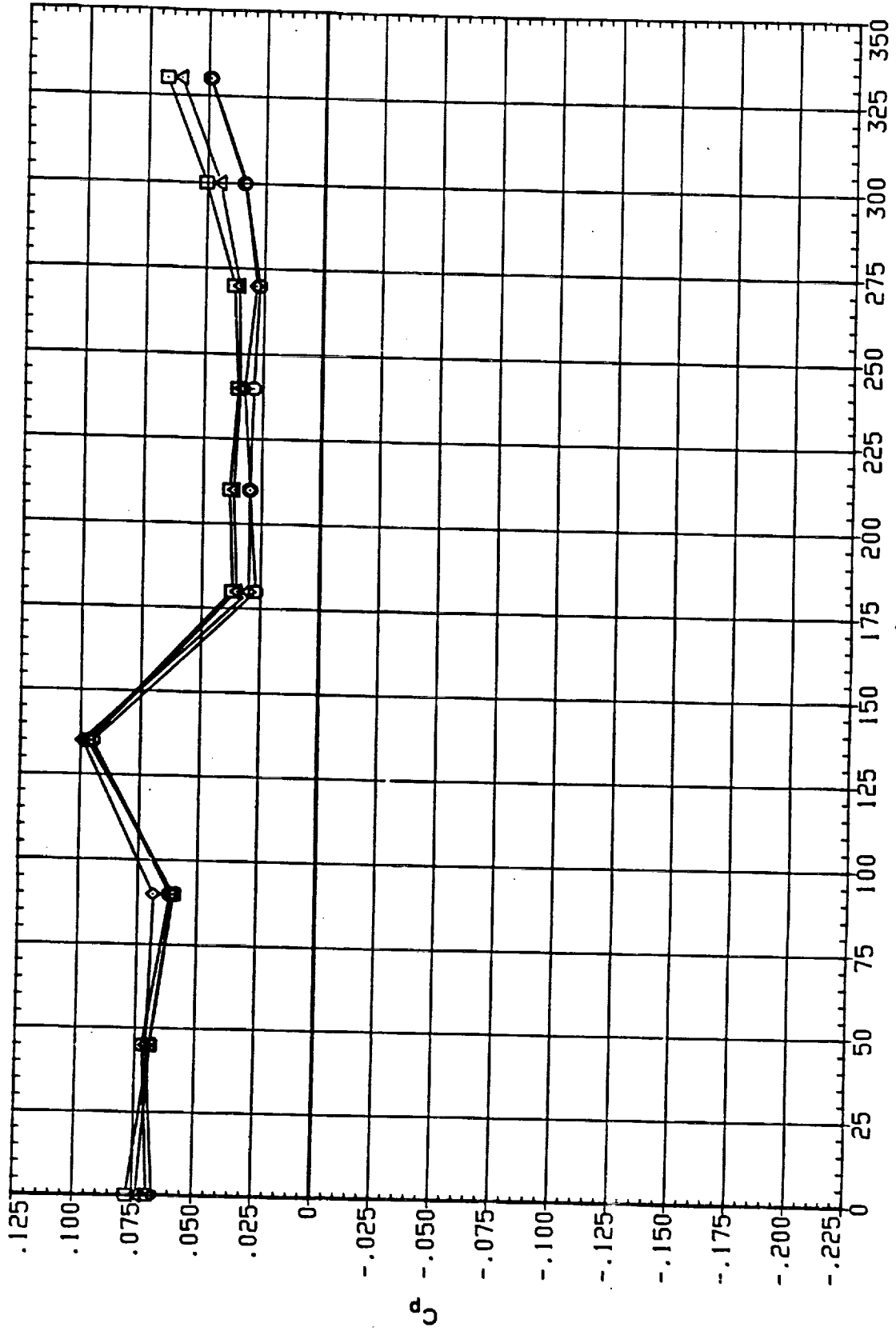


FIGURE 12 IA613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 X/LS = 1.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IE-ABOX	IB-ELV	OB-ELV
(RC0CH9)	○	IA613A, B/L OT*RSRM+PLUMES S1,2	1.550	.000	10.000	9.000
(RC0C57)	◇	IA613A, B/L OT*ASRM+PLUMES S1,3	1.550	.000	10.000	5.000
(RC0C92)	◇	IA613A, B/L OT*ASRM+PLUMES S1,3	1.550	180.000	10.000	5.000
(RC0C00)	△	IA613A, B/L OT*ASRM+PLUMES S1,3	1.550	999.000	10.000	5.000

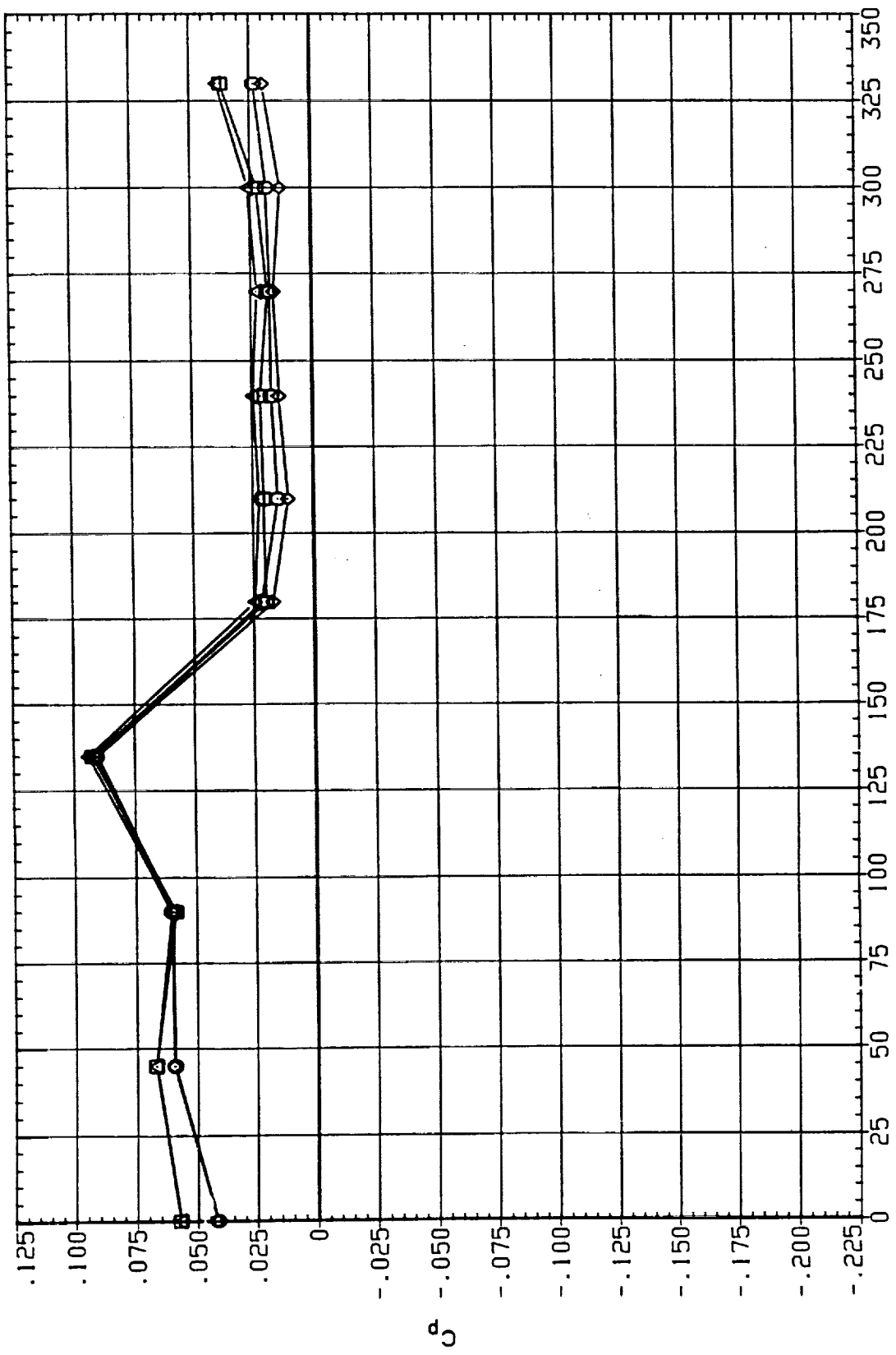


FIGURE 12 IA613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 X/LS = 1.000 ALPHA = .000