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SPACE SHUTTLE (ATP CONFIGURATION)

ABORT STAGING INVESTIGATION

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SPACE SHUTTLE

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SPACE SHUTTLE (ATP CONFIGURATION)

ABORT STAGING INVESTIGATION

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by

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for

Aerodynamics Section
Flight Technology Branch
Engineering Analysis Division

Manned Spacecraft Center
National Aeronautics and Space Administration
Houston, Texas

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SPACE SHUTTLE (ATP CONFIGURATION) ABORT STAGING INVESTIGATION

By J. Rampy*, K. Blackwell**, E. Allen***, and I. Fossler****

ABSTRACT

This report presents results of a wind tunnel test conducted in the MSFC 14-Inch Trisonic Wind Tunnel to determine the force and moment characteristics of the ATP Orbiter and modified ATP External Tank/SRB combination during abort staging conditions. The .004 scale models were previously employed in MSFC Test 545. Figure 6 shows a typical installation of these models. The MSFC TWT staging apparatus was used to move the orbiter to relative horizontal and vertical distances and relative incidence angles to ET/SRB combination. Six component aerodynamic force and moment data were recorded for the orbiter and ET/SRB combination.

Pitch polars were obtained for an angle of attack range from -10 to 10 degrees and orbiter incidence angles (orbiter relative to the ET/SRB combination) of 0 and 2 degrees. A limited amount of yaw data were obtained at 0 degree angle of attack and beta range from -10 to 10 degrees. In addition, orbiter pitch control effectiveness was determined at several grid points. These force and moment data were obtained for Mach numbers of 0.9, 1.2 and 2.0.

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4. CAF, CN, CLM versus DELZ/D

NOMENCLATURE
General

SYMBOL	PLOT SYMBOL	DEFINITION
a		speed of sound; m/sec, ft/sec
C_p	CP	pressure coefficient; $(p_l - p_\infty)/q$
M	MACH	Mach number; V/a
p		pressure; N/m^2, psf
q	Q(NSM) Q(PSF)	dynamic pressure; $1/2\rho V^2$, N/m^2, psf
RN/L	RN/L	unit Reynolds number; per m, per ft
V		velocity; m/sec, ft/sec
α	ALPHA	angle of attack, degrees
β	BETA	angle of sideslip, degrees
ψ	PSI	angle of yaw, degrees
ϕ	PHI	angle of roll, degrees
ρ		mass density; kg/m^3, $slugs/ft^3$

Reference & C.G. Definitions

A_b		base area; m^2, ft^2
b	EREF	wing span or reference span; m, ft
c.g.		center of gravity
ℓ_{REF} or $\bar{c}$	LREF	reference length or wing mean aerodynamic chord; m, ft
S	SREF	wing area or reference area; m^2, ft^2
	MRP	moment reference point
	XMRP	moment reference point on X axis
	YMRP	moment reference point on Y axis
	ZMRP	moment reference point on Z axis

SUBSCRIPTS

b	base
l	local
s	static conditions
t	total conditions
∞	free stream

NOMENCLATURE
(Continued)

Body-Axis System

SYMBOL	PLOT SYMBOL	DEFINITION
C_N	CN	normal-force coefficient; $\frac{\text{normal force}}{qS}$
C_A	CA	axial-force coefficient; $\frac{\text{axial force}}{qS}$
C_Y	CY	side-force coefficient; $\frac{\text{side force}}{qS}$
C_{A_b}	CAB	base-force coefficient; $\frac{\text{base force}}{qS}$ $-A_b(p_b - p_\infty)/qS$
C_{A_f}	CAF	forebody axial force coefficient; $C_A - C_{A_b}$
C_m	CLM	pitching-moment coefficient; $\frac{\text{pitching moment}}{qSl_{REF}}$
C_n	CYN	yawing-moment coefficient; $\frac{\text{yawing moment}}{qSb}$
C_l	CBL	rolling-moment coefficient; $\frac{\text{rolling moment}}{qSb}$

NOMENCLATURE (concluded)

Additions to Standard List

D		ET Diameter - 318 in.
$\Delta X/D$	DELX/D	Incremental distance in X direction measured relative to nominal launch position (forward is plus). Change in orbiter nose location relative to ET nose. $\Delta X/D = 0$ is launch position.
$\Delta Z/D$	DELZ/D	Incremental distance in Z direction measured relative to nominal launch position (up is negative). Vertical gap distance between bottom of orbiter wing and top of ET surface. $\Delta Z/D = 0$ is launch position.
δ_e	ELEVON	Effective elevon deflection angle of the inboard/outboard elevons, positive trailing edge down.
i_o	ORBINC	Orbiter incidence angle
X_{cp}/ℓ	XCP/L	Center of pressure location based on body length; $\left[\frac{X_{c.g.}}{\ell_{Body}} - \frac{C_m}{C_N} \cdot \frac{\ell_{ref}}{\ell_{Body}}\right]$
Y_{cp}/ℓ	YCP/L	Center of pressure location based on body length; $\left[\frac{X_{c.g.}}{\ell_{Body}} - \frac{C_n}{C_Y} \cdot \frac{\ell_{ref}}{\ell_{Body}}\right]$

The 0.004 scale modified Rockwell International ATP Orbiter and ET/SRB models were utilized in this test. The External Tank, SRB bodies, and nose cones were made of aluminum while the SRB nozzles were made of brass. All other parts were constructed of stainless steel.

Orbiter and ET/SRB models were mounted on separate stings and balances. The orbiter was mounted on the top sting of the MSFC Parallel Staging Mounting System and the ET/SRB combination on the lower sting. Figures 5 and 6 show the staging system.

CONFIGURATIONS INVESTIGATED

The following configurations were investigated during this test:

SYMBOL		DESCRIPTION
01		Orbiter consisting of the following components:
	B1	Body
	C1	Canopy
	D1	Manipulator housing
	F1	Body flap
	M1	OMS pods
	W1	Wing
	E1	Elevon
	V1	Vertical tail
	K1	Coolant inlet
	R1	Rudder

T3	318-inch diameter External Tank with ogive nose
S1	156-inch diameter solid Rocket Booster

Figures 2 and 3 present the orbiter and ET/SRB combination geometry and moment reference points. Other pertinent dimensional information for each model component is given in Table IV.

Test results reported herein were obtained on model configurations 01, T3, and S1. The data plots present the data according to the following definitions:

(01)/(T3)(S1)	Orbiter data obtained in presence of ET/SRB combination.
(T3)(S1)/(01)	ET/SRB data obtained in presence of orbiter. ET contains the balance.

TEST FACILITY DESCRIPTION

The Marshall Space Flight Center 14" x 14" Trisonic Wind Tunnel is an intermittent blowdown tunnel which operates by high pressure air flowing from storage to either vacuum or atmospheric conditions. A Mach number range from .2 to 5.85 is covered by utilizing two interchangeable test sections. The transonic section permits testing at Mach 0.20 through 2.50, and the supersonic section permits testing at Mach 2.74 through 5.85. Mach numbers between .2 and .9 are obtained by using a controllable diffuser. The range from .95 to 1.3 is achieved through the use of plenum suction and perforated walls. Mach numbers of 1.44, 1.93 and 2.50 are produced by interchangeable sets of fixed contour nozzle blocks. Above Mach 2.50 a set of fixed contour nozzle blocks are tilted and translated automatically to produce any desired Mach number in .25 increments.

Air is supplied to a 6000 cubic foot storage tank at approximately -40°F dew point and 500 psi. The compressor is a three-stage reciprocating unit driven by a 1500 hp motor.

The tunnel flow is established and controlled with a servo actuated gate valve. The controlled air flows through the valve diffuser into the stilling chamber and heat exchanger where the air temperature can be controlled from ambient to approximately 180°F. The air then passes through the test section which contains the nozzle blocks and test region.

Downstream of the test section is a hydraulically controlled pitch sector that provides a total angle of attack range of 20° (±10°). Sting offsets are available for obtaining various maximum angles of attack up to 90°.

TEST PROCEDURE

The orbiter and ET/SRB combination were mounted on their respective balances as shown in Figures 5 and 6. The orbiter was moved horizontally and vertically with respect to the ET/SRB combination. The ΔX and ΔZ grid locations are given in Table 1 and shown in Figure 4. At each X, Z location, data were obtained for relative incidence angles (orbiter relative to the ET/SRB combination) of 0 and 2 degrees.

DATA REDUCTION

All model forces and moments are resolved in the body axis system and are presented in the form of non-dimensional coefficients. See Table IV

for model dimensional data. The data have been corrected for sting and balance deflections and have been interpolated to obtain constant grid locations and relative incidence angles. The moment reference points are shown in Figures 2 and 3. The orbiter nose and tank nose are the XMRP.

REFERENCE DIMENSIONS

PARAMETER	FULL SCALE	MODEL SCALE
Reference area (S_{ref}) (Orbiter wing area)	3220 ft.^{2}	7.419 in.^{2}
Reference length (l_{ref}) (Orbiter body length)	1328.0 in.	5.312 in.
Reference span (b_{ref}) (Orbiter body length)	1328.0 in.	5.312 in.
Balance location		
Orbiter (aft of nose)		3.714 in.
HO-Tank (forward of base)		3.113 in.
Moment reference point		
Orbiter		
XMRP (aft of nose)	0	0
HO Tank		
XMRP (aft of nose)	0	0
Base area (A_b)		
Orbiter	382 ft.^{2}	0.878 in.^{2}
SRB (one)	122.8 ft.^{2}	.306 in.^{2}
HO Tank	553 ft.^{2}	1.271 in.^{2}

TABLE I

TEST GRID

MACH NUMBER	X/D	X/D
0.9	-D/2, 0, D/2	-D/2, -D, -3D/2
1.2	-D/2, 0, D/2	-D/2, -D, -3D/2
2.0	-D, 0, D, 2D, 3D	-D/2, -D, -3D/2

ΔX and ΔZ are increments measured from the nominal launch position.

D = ET Diameter (318 inches)

TABLE II

TEST : MSFC TWT 558 | DATE :

TEST CONDITIONS

MACH NUMBER	REYNOLDS NUMBER (per unit length)	DYNAMIC PRESSURE (pounds/sq. inch)	STAGNATION TEMPERATURE (degrees Fahrenheit)
.90	6.3×10^6/ft.	7.38	100°
1.20	6.7×10^6/ft.	9.15	100°
1.96	6.0×10^6/ft.	9.90	100°

BALANCE UTILIZED: MSFC #231 and #232

	CAPACITY: 231	CAPACITY: 232	ACCURACY: 231	ACCURACY: 232	COEFFICIENT TOLERANCE: q=10 psi 231	COEFFICIENT TOLERANCE: q=10 psi 232
NF	122	300 (lb)	.61	1.5 (lb)	.0082	.0202
SF	52	143 (lb)	.26	.72 (lb)	.0035	.0097
AF	20	50 (lb)	.10	.25 (lb)	.0013	.0034
PM	122	400 (in-lb)	.61	2.0 (in-lb)	.0015	.0051
RM	53	192 (in-lb)	.27	.96 (in-lb)	.0007	.0024
YM	30	100 (in-lb	.15	.50 (in-lb)	.0004	.0013

COMMENTS:

TEST TWT-558 DATA SET COLLATION SHEET

TABLE III.

☐ PRETEST
☒ POSTTEST

DATA SET IDENTIFIER	CONFIGURATION	SCHED. α	SCHED. β	CONTROL DEFLECTION δ_L	δ_M	δ_E	$\Delta Z/D$	NO. of RUNS	$\Delta X/D$ 3.0	2.0	1.0	MACH NUMBERS 0.5	0	-0.5	-1.0
R78Φ01	Φ1T351	A	0	0	0.9	0	-.52	3				1016	1017	1018	
02				↓	↓	↓	-1.0	3				1021	1020	1019	
03				↓	↓	↓	-1.5	4				1036	1037	1040	1041
04				2	↓	↓	-.52	3				1074	1070	1073	
05				↓	↓	↓	-1.0	3				1085	1086	1089	
06				↓	↓	↓	-1.5	3				1049	1050	1051	
07				0	↓	10	-.52	2				1015	1014		
08				↓	↓	↓	-1.0	2				1022	1023		
09				↓	↓	-20	-.52	2				1010	1011		
10				↓	↓	↓	-1.0	2				1025	1024		
11				2	↓	10	-.52	2				1077	1078		
12				↓	↓	↓	-1.0	2				1082	1081		
13				0	1.2	0	-.52	3				1075	1071 / 1	1072	
14				↓	↓	↓	-1.0	5			1095	1084	1087	1088	1094
15				↓	↓	↓	-1.5	5			1044	1045	1046	1047	1048
16				2	↓	↓	-.52	3				1003	1002	1001	
17				↓	↓	↓	-1.0	5			1033	1026	1027	1028	1034
18		↓	↓	↓	↓	↓	-1.5	5			1043	1035	1038	1039	1042

1 7 13 19 25 31 37 43 49 55 61 67 75 76

KN	KLM	KY	KYN	KBL	KAF	KAB	DELX/D	7

IDPVAR(1) | IDPVAR(2) | NDV

COEFFICIENTS:

α or β SCHEDULES

αA = -8 to 8 (Δα = 2°)

βB = -10 to 10 (Δβ = 2°)

TEST TWT-558 DATA SET COLLATION SHEET

TABLE III. - Continued

☐ PRETEST
☒ POSTTEST

DATA SET IDENTIFIER	CONFIGURATION	SCHED. α	SCHED. β	CONTROL DEFLECTION δ_{LO}	CONTROL DEFLECTION M	CONTROL DEFLECTION δ_E	CONTROL DEFLECTION $\Delta\delta$	NO. OF RUNS	ΔX/D 3.0	ΔX/D 2.0	ΔX/D 1.0	MACH NUMBERS 0.5	MACH NUMBERS 0	MACH NUMBERS -0.5	MACH NUMBERS -1.0
R78Φ19	Φ1T3S1	A	0	0	1.2	10	-.52	3				1004	1005	1006	
20						↓	-1.0	2				1030	1029		
21						-20	-.52	3				1009	1008	1007	
22				↓		↓	-1.0	2				1031	1032		
23				2		10	-.52	2				1076	1079		
24				↓	↓	↓	-1.0	2				1083	1080		
25				0	2.0	0	-.52	5	1120	1119	1118		1122		1121
26				↓	↓	↓	-1.0	5	1128	1129	1127		1125		1126
27				↓	↓	↓	-1.5	4		1132	1130		1131		
28				2	↓	↓	-.52	5	1108	1109	1110/1		1111		1112
29				↓	↓	↓	-1.0	5	1107	1106	1105		1102		1104
30				↓	↓	↓	-1.5	5	1099	1098	1097		1100		1096
31				↓	↓	10	-.52	1					1103		
32		↓	↓	↓	↓	↓	-1.0	1					1101		
33		0	B	0	0.9	0	-.52	1					1066		
34		↓	↓	↓	↓	↓	-1.0	1					1063		
35		↓	↓	2	↓	↓	-.52	1					1091		
36		↓	↓	↓	↓	↓	-1.0	1					1092		

1 7 13 19 25 31 37 43 49 55 61 67 75 76

C.N. | C.L.M. | C.Y. | C.Y.N. | C.B.L. | C.A.F. | C.A.B. | DELX/D | 7

COEFFICIENTS: → IDPVAR(1) | IDPVAR(2) | NDV

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α or β SCHEDULES

α A = -8 to 8 (Δα = 2°)

β B = -10 to 10 (Δβ = 2°)

TEST TWT-558 DATA SET COLLATION SHEET

TABLE III. - Continued

☐ PRETEST

☒ POSTTEST

DATA SET IDENTIFIER	CONFIGURATION	SCHED.		CONTROL DEFLECTION				NO. of RUNS	ΔK/D MACH NUMBERS												
		α	β	δ_o	M	δ_e	$\Delta\delta_e/\Delta\delta$		3.0	2.0	1.0	0.5	0	-0.5	-1.0					
R78ϕ37	ϕ1T351	0	B	0	1.2	0	-.52	1					1065							
38		↓	↓	↓	↓	↓	-1.0	1					1064							
39				2			-.52	1					1090							
40				↓	↓		-1.0	1					1093							
41				↓	2.0	↓	-.52	1					1116							
42	↓	↓	↓	↓	↓	↓	-1.0	1					1117							

1 7 13 19 25 31 37 43 49 55 61 67 75 76

CN | CLM | CY | CYN | CBL | CAF | CAB | ... | DELX/D | 7

IDPVAR(1) | IDPVAR(2) | NDV

COEFFICIENTS:

α or β SCHEDULES: ~~β~~ B = -10 to 10 (ΔB = 2°)

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TEST TWT-558 DATA SET COLLATION SHEET

TABLE III. - Continued

☐ PRETEST
☒ POSTTEST

DATA SET IDENTIFIER	CONFIGURATION	SCHED. α	SCHED. β	CONTROL DEFLECTIONS Lo	CONTROL DEFLECTIONS M	CONTROL DEFLECTIONS δE	CONTROL DEFLECTIONS Δα	NO. of PUNS	ΔX/D MACH NUMBERS 3.0	2.0	1.0	0.5	0	-0.5	-1.0
R78T01	Φ1T351	A	0	0	0.9	0	-.52	3				2016	2017	2018	
02							-1.0	3				2021	2020	2019	
03							-1.5	4				2036	2037	2040	2041
04				2			-.52	3				2074	2070	2073	
05							-1.0	3				2085	2086	2089	
06							-1.5	3				2049	2050	2051	
07				0		10	-.52	2				2015	2014		
08							-1.0	2				2022	2023		
09						-20	-.52	2				2010	2011		
10							-1.0	2				2025	2024		
11				2		10	-.52	2				2077	2078		
12							-1.0	2				2082	2081		
13				0	1.2	0	-.52	3				2075	2071/1	2072	
14							-1.0	5			2095	2084	2087	2088	2094
15							-1.5	5			2044	2045	2046	2047	2048
16				2			-.52	3				2003	2002	2001	
17							-1.0	5			2033	2026	2027	2028	2034
18							-1.5	5			2043	2035	2038	2031	2042

1 7 13 19 25 31 37 43 49 55 61 67 75 76

CN KLM KY KYN KBL CAF CAB ... DELX/D 7

17 COEFFICIENTS: IDPVAR(1) | IDPVAR(2) | NDV

α or β SCHEDULES: αA = -3 to 9 (Δα = 2°)

TEST TWT-558 DATA SET COLLATION SHEET

TABLE III. - Continued

☐ PRETEST
☒ POSTTEST

DATA SET IDENTIFIER	CONFIGURATION	SCHED. α	SCHED. β	CONTROL DEFLECTION Lo	CONTROL DEFLECTION M	CONTROL DEFLECTION Sc	CONTROL DEFLECTION Δδc/Δα	NO. of PTS	ΔX/D 3.0	ΔX/D 2.0	ΔX/D 1.0	MACH NUMBERS 0.5	MACH NUMBERS 0	MACH NUMBERS -0.5	MACH NUMBERS -1.0
R78T19	Φ1T351	A	0	0	1.2	10	-.52	3				2004	2005	2006	
20							-1.0	2				2030	2029		
21						-20	-.52	3				2009	2008	2007	
22							-1.0	2				2031	2032		
23				2		10	-.52	2				2076	2079		
24							-1.0	2				2083	2080		
25				0	2.0	0	-.57	5	2120	2119	2118		2122		2121
26							-1.0	5	2128	2129	2127		2125		2126
27							-1.5	3		2132	2130		2131		
28				2			-.52	5	2108	2109	2110/1		2111		2112
29							-1.0	5	2107	2106	2105		2102		2104
30							-1.5	5	2099	2098	2097		2100		2096
31						10	-.52	1					2103		
32							-1.0	1					2101		
33		0	B	0	0.9	0	-.52	1					2066		
34							-1.0	1					2063		
35				2			-.52	1					2091		
36							-1.0	1					2092		

1 7 13 19 25 31 37 43 49 55 61 67 75 76

CN | CLM | CY | CYN | CBL | CAF | CAB | ... | DELX/D | 7

COEFFICIENTS: → IDPVAR(1) | IDPVAR(2) | NDV

18 α or β SCHEDULES

αA = -9 to 9 (Δα = 2°)

βB = -10 to 10 (Δβ = 2°)

TEST TWT-558 DATA SET COLLATION SHEET

TABLE III. - Concluded

☐ PRETEST

☒ POSTTEST

DATA SET IDENTIFIER	CONFIGURATION	SCHED. α	SCHED. β	CONTROL DEFLECTION δ_c	δ_M	δ_e	δ_{RJ}	NO. of PTS	ΔK/D 3.0	2.0	1.0	0.5	MACH NUMBERS 0	-0.5	-1.0
R78T37	Φ1T351	0	B	0	1.2	0	-.52	1					2065		
38							-1.0	1					2064		
39				2			-.52	1					2090		
40							-1.0	1					2093		
41					2.0		-.52	1					2116		
42							-1.0	1					2117		

1 7 11 19 31 37 43 49 55 61 67 75 76

CN CLM CY CYN CBL CAF CAB ... DELX/D 7

COEFFICIENTS: IDPVAR(1) | IDPVAR(2) | NDV

α or β SCHEDULES: RB = -10 to 10 (ΔB = 2°)

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TABLE IV.
NAR ATP BASELINE ORBITER
CONFIGURATION

MODEL COMPONENT: BODY - B1

GENERAL DESCRIPTION: BASIC DELTA WING FUSELAGE PER NAR LINES DRAWING VL70-000001

MODEL SCALE = .004

DRAWING NUMBER: VL000001

DIMENSIONS:	THEORETICAL FULL-SCALE	THEORETICAL MODEL SCALE	ACTUAL MEASURED MODEL SCALE
Length	1328.33	5.313	
Max. Width	237.96	0.952	
Max. Depth	238.00	0.952	
Fineness Ratio	5.527	5.527	
Area-FT^2			
Max. Cross-Sectional	326.0	.00522	
Planform			
Wetted			
Base			

TABLE IV. - Continued
NAR ATP BASELINE ORBITER
CONFIGURATION

MODEL COMPONENT: BODY - CANOPY C1

GENERAL DESCRIPTION: CANOPY USED WITH BASIC DELTA WING FUSELAGE PER NAR LINES DWG VL70-000001

MODEL CALE = 0.004

DRAWING NUMBER: VL70-000001

DIMENSIONS:	THEORETICAL FULL-SCALE	THEORETICAL MODEL SCALE	ACTUAL MEASURED MODEL SCALE
STA FWD BULKHEAD, IN	340.00	1.3600	
STA, TRAILING EDGE, IN	560.00	2.240	
Max. Depth			
Fineness Ratio			
Area			
Max. Cross-Sectional			
Planform			
Wetted			
Base			

TABLE IV. - Continued
NAR ATP BASELINE ORBITER
CONFIGURATION

MODEL COMPONENT: BODY - MANIPULATOR HOUSING - D1

GENERAL DESCRIPTION:

SCALE MODEL = 0.004

DRAWING NUMBER: VL70-000001

DIMENSIONS:	THEORETICAL FULL-SCALE	THEORETICAL MODEL SCALE	ACTUAL MEASURED MODEL SCALE
Length, IN	967.0	3.8680	
Max. Width, IN	53.32	0.2132	
Max. Depth, IN	20.00	0.080	
Fineness Ratio			
Area			
Max. Cross-Sectional			
Planform			
Wetted			
Base			

TABLE IV. - Continued

MODEL COMPONENT: BODY - FLAP F1

GENERAL DESCRIPTION: FLAP LOCATED ON LOWER AFT PORTION OF BODY AND EXTENDING AFT OF BODY TRAILING EDGE

SCALE MODEL = 0.004

DRAWING NUMBER:

DIMENSIONS:	THEORETICAL FULL-SCALE	THEORETICAL MODEL SCALE	ACTUAL MEASURED MODEL SCALE
Length	83.33	0.333	
Fus. Sta. LE IN.	1528.33	5.113	
Fus. Sta. T.E. In.	1611.67	6.447	
Width (span) In.	229.33	0.917	
Area Ft.^{2}			
Max. Cross-Sectional	-	-	
Planform	132.72	0.0021	
Wetted			
Base			

TABLE IV. - Continued
NAR ATP BASELINE ORBITER
CONFIGURATION

MODEL COMPONENT: BODY - ORBITAL MANEUVERING SYSTEM POD-UP

GENERAL DESCRIPTION: _____

MODEL SCALE = 0.004

DRAWING NUMBER: VL - 000001

DIMENSIONS:	THEORETICAL FULL-SCALE	THEORETICAL MODEL SCALE	ACTUAL MEASURED MODEL SCALE
Length ~IN	290.67	1.1626	
Max. Width ~IN	67.33	0.2693	
Max. Depth ~IN	104.00	0.416	
Fineness Ratio	-	-	
Area			
Max. Cross-Sectional	-	-	
Planform	-	-	
Wetted	-	-	
Base	-	-	

TABLE IV. - Continued
NAR ATP BASELINE ORBITER
CONFIGURATION

MODEL COMPONENT: WING - W1

GENERAL DESCRIPTION: DELTA WING WITH -5° TWIST AND ROUNDED WING TIPS. WING BLENDS INTO BODY. FOLLOWS NAR LINES. V70-00000[1]. EQUIV. SPAN IS 78.604 % OF THEORETICAL DELTA WING. MODEL SCALE = 0.004

DRAWING NUMBER: V170-00000[1]

DIMENSIONS:	THEORETICAL		ACTUAL MEASURED
TOTAL DATA	FULL-SCALE	MODEL SCALE	MODEL SCALE
Area			
Planform	3221.92	.05155	
Wetted	-	-	
Span (equivalent)	1007.8	4.0312	
Aspect Ratio	2.144	2.144	
Rate of Taper	1.191	1.191	
Taper Ratio	0.219	0.219	
Diehedral Angle, degrees	3.500	3.500	
Incidence Angle, degrees	3.000	3.000	
Aerodynamic Twist, degrees	-5.000	-5.000	
Toe-In Angle	3.000	3.000	
Cant Angle	-2.000	-2.000	
Sweep Back Angles, degrees			
Leading Edge	49.910	49.910	
Trailing Edge	-0.183	-0.183	
0.25 Element Line	41.675	41.675	
Chords:			
Root (Wing Sta. 0.0)	760.56	3.0422	
Tip, (equivalent)	159.72	0.6388	
MAC	525.4	2.0976	
Fus. Sta. of .25 MAC	1132.98	4.5319	
W.P. of .25 MAC	304.55	1.2182	
B.L. of .25 MAC	196.09	.7843	
Airfoil Section			
Root			
Tip			
EXPOSED DATA			
Area	2203.00	0.03524	
Span, (equivalent)	795.86	3.1834	
Aspect Ratio	1.966	1.966	
Taper Ratio	0.260	0.260	
Chords			
Root	641.57	2.5662	
Tip	166.68	.6667	
MAC	450.63	1.8025	
Fus. Sta. of .25 MAC	1190.82	4.7633	
W.P. of .25 MAC	305.47	1.2219	
B.L. of .25 MAC	260.80	1.0432	
Leading Edge Cuff			
Planform Area (In W.R.P.) Ft.^{2}		271.39	0043
Leading edge intersects fuselage ML - @ sta. In.		540.00	2.1600

TABLE IV. - Continued
NAR ATP BASELINE ORBITER
CONFIGURATION

MODEL COMPONENT: ELEVON - EL (DATA FOR 1 of 2 SIDES)

GENERAL DESCRIPTION: FULL SPAN, CONSTANT CHORD ELEVON LOCATED ON WING WI.

MODEL SCALE = 0.004

DRAWING NUMBER: VL70.000001

DIMENSIONS:	THEORETICAL FULL-SCALE	THEORETICAL MODEL SCALE	ACTUAL MEASURED MODEL SCALE
Area (TRUE), FT^2	347.2	.00555	
Span (equivalent)	384.0	1.536	
Inb'd equivalent chord	134.38	.537	
Outb'd equivalent chord	134.38	.537	
Ratio movable surface chord/ total surface chord			
At Inb'd equiv. chord	0.209	0.209	
At Outb'd equiv. chord	0.805	0.805	
Sweep Back Angles, degrees			
Leading Edge	-0.183	-0.183	
Tailing Edge	-0.183	-0.183	
Hingeline	-0.183	-0.183	
Area Moment (Normal to hinge line) (PRODUCT OF AREA & MEAN CHORD)	4164.40	0.00026	

TABLE IV. - Continued
NAR ATP BASELINE ORBITER

CONFIGURATION

MODEL COMPONENT: VERTICAL TAIL - VI

GENERAL DESCRIPTION: CENTERLINE VERTICAL ON DELTA WING CONFIGURATION WITH DOUBLE WEDGE AIRFOIL AND ROUNDED LEADING EDGE. TOTAL DATA INCLUDES VOID AREA LISTED BELOW. SCALE MODEL = 0.004

DRAWING NUMBER: VL70-00000[1]

DIMENSIONS:	THEORETICAL		ACTUAL MEASURED
TOTAL DATA	FULL-SCALE	MODEL SCALE	MODEL SCALE
Area	415.25	.00664	
Planform	1.29	.00002	
Wetted	19.93	.00032	
Span (equivalent)	32.35	1.2956	
Aspect Ratio	1.675	1.675	
Rate of Taper	0.504	0.504	
Taper Ratio	0.424	0.424	
Dihedral Angle, degrees	-	-	
Incidence Angle, degrees	-	-	
Aerodynamic Twist, degrees	-	-	
Toe-In Angle	0.0	0.0	
Cant Angle	0.0	0.0	
Sweep Back Angles, degrees			
Leading Edge	45.000	45.000	
Trailing Edge	26.361	26.361	
0.25 Element Line	41.150	41.150	
Chords:			
Root (Wing Sta. 0.0)	275.52	1.1021	
Tip, (equivalent)	111.4	0.448	
MAC	205.0	0.820	
Fus. Sta. of .25 MAC	1462.2	5.849	
W.P. of .25 MAC	639.0	2.556	
B.L. of .25 MAC	0.0	0.0	
Airfoil Section 5° HALF ANGLE			
Root DOUBLE WEDGE WITH			
Tip ROUNDED L.E.			
EXPOSED DATA			
Area			
Span, (equivalent)			
Aspect Ratio			
Taper Ratio			
Chords			
Root			
Tip			
MAC			
Fus. Sta. of .25 MAC			
W.P. of .25 MAC			
B.L. of .25 MAC			

*Void area located at the lower, aft portion of the surface

TABLE IV. - Continued

MODEL COMPONENT: BODY - COOLANT INLET K1

GENERAL DESCRIPTION: COOLANT INLET PER LINES VL70-000012 AIR COOLANT DUCT MOLDED INTO 60% ELEMENT LINE OF VERTICAL TAIL.

SCALE MODEL .004

DRAWING NUMBER: VL70-000012

DIMENSIONS:	THEORETICAL FULL-SCALE	THEORETICAL MODEL SCALE	ACTUAL MEASURED MODEL SCALE
Length	143.00	0.572	
Max. Width			
Max. (DIA)	38.00		
Fineness Ratio			
Area			
Max. Cross-Sectional			
Planform			
Wetted			
Base			

FS 1307.0 IN. FS

BP = 0.00 IN. FS

WP = 539.00 IN. FS

TABLE IV. - Continued
NAR ATP BASELINE ORBITER
CONFIGURATION

MODEL COMPONENT: RUDDER - RI

GENERAL DESCRIPTION: RUDDER ON CENTERLINE VERTICAL TAIL, VI

MODEL SCALE = 0.004

DRAWING NUMBER: VL70-000001

DIMENSIONS:	THEORETICAL FULL-SCALE	THEORETICAL MODEL SCALE	ACTUAL MEASURED MODEL SCALE
Area ~FT^2	117.7	.00108	
Span (equivalent) ~In	226.0	0.9040	
Inb'd equivalent chord ~In	97.09	.3884	
Outb'd equivalent chord ~In	52.02	.2081	
Ratio movable surface chord/ total surface chord			
At Inb'd equiv. chord	0.400	0.400	
At Outb'd equiv. chord	0.400	0.400	
Sweep Back Angles, degrees			
Leading Edge	34.889	34.889	
Tailing Edge	26.361	26.361	
Hingeline	34.889	34.889	
Area Moment (Normal to hinge line) (PRODUCT OF AREA AND MEAN CHORD)	647.77	.00004	

TABLE IV. - Continued
NAR ATP BASELINE INTERGRATED LAUNCH
CONFIGURATION

MODEL COMPONENT: BODY - T_3

GENERAL DESCRIPTION: EXTERNAL TANK (BASELINE DIA.) WITH OGIVE NOSE CONE AND RETRO ROCKET

DRAWING NUMBER: MSFC 80M 32569 (NOSE) & 80M 42575 (body)

DIMENSIONS:	THEORETICAL FULL-SCALE	THEORETICAL MODEL SCALE	ACTUAL MEASURED MODEL SCALE
Length	2467.8 in.	9.871 in.	—
Max. Width	318 in.	1.272 in.	—
Max. Depth	318 in.	1.272 in.	—
Fineness Ratio	7.76	7.76	—
Area			
Max. Cross-Sectional	551.54 ft.^{2}	1.271 in.^{2}	—
Planform	—	—	—
Wetted	—	—	—
Base	551.54 ft.^{2}	1.271 in.^{2}	—

TABLE IV. - Concluded

NAR ATP BASELINE INTERGRATED LAUNCH CONFIGURATION

MODEL COMPONENT: BODY - S_1

GENERAL DESCRIPTION: SOLID ROCKET BOOSTER (BASELINE DIA) WITH HOLD DOWN ARMS

DRAWING NUMBER: MSFC 80M32563-68 & 42574

DIMENSIONS:	THEORETICAL FULL-SCALE	THEORETICAL MODEL SCALE	ACTUAL MEASURED MODEL SCALE
Length	2217 in.	8.868 in.	—
Max. Width	156 in.	0.624 in.	—
Max. Depth	156 in.	0.624 in.	—
Fineness Ratio	14.21	14.21	—
Area			
Max. Cross-Sectional	132.5 ft^2	0.306 $in.^2$	—
Planform	—	—	—
Wetted	—	—	—
Base	132.5 $ft.^2$	0.306 $in.^2$	—

MODEL FIGURES

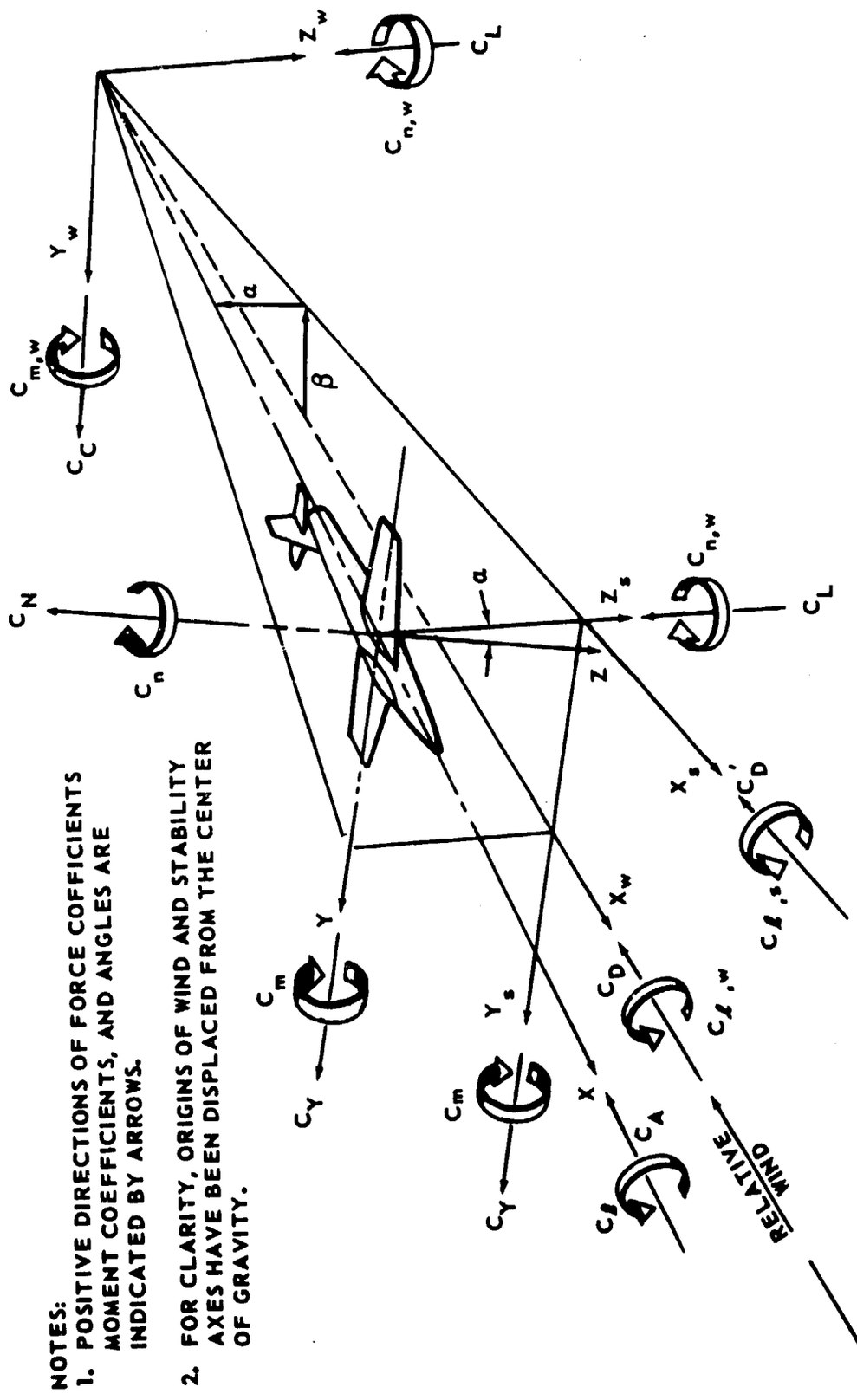

Figure 1. - Axis systems.

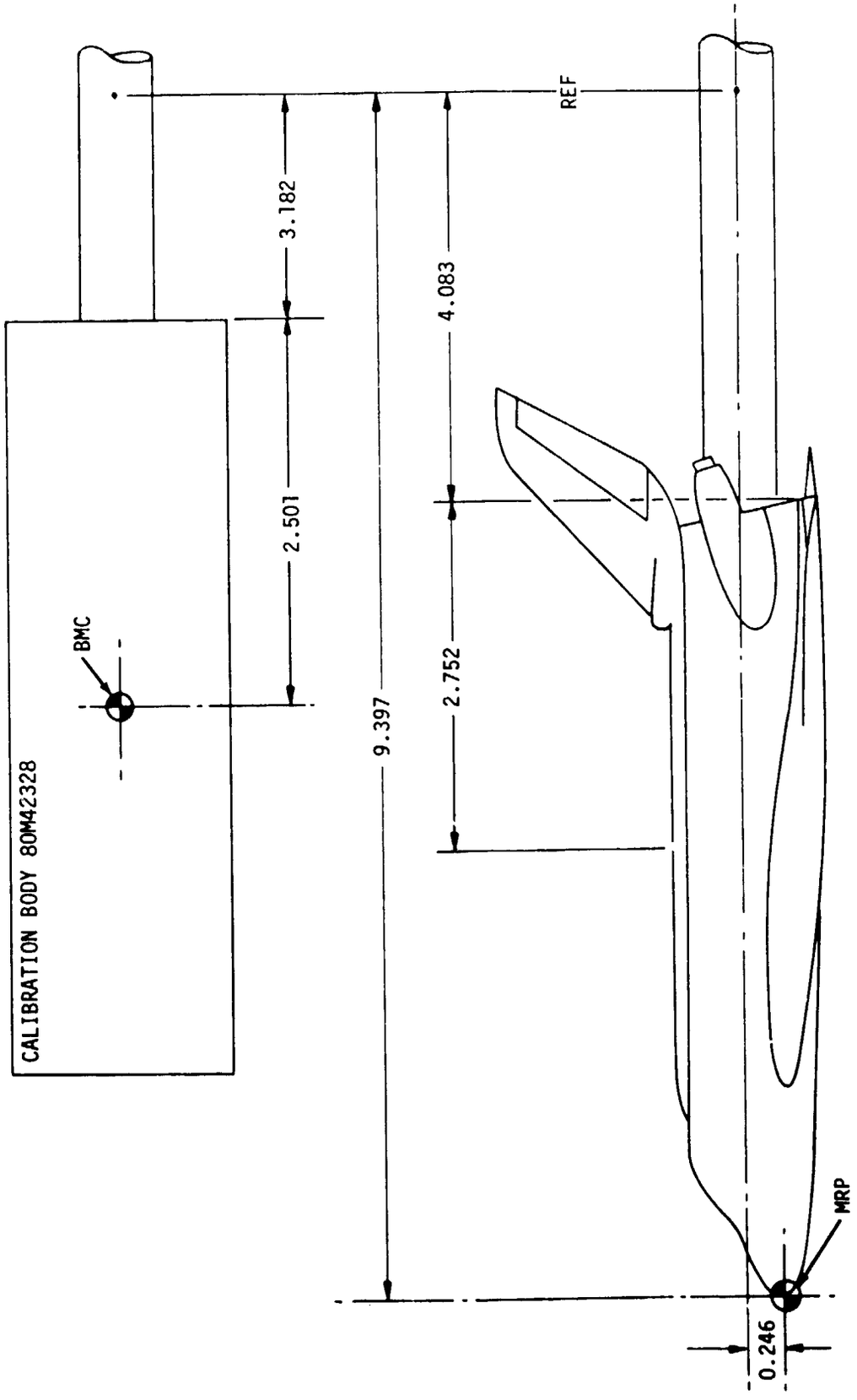

Figure 2.- ATP Orbiter (01).

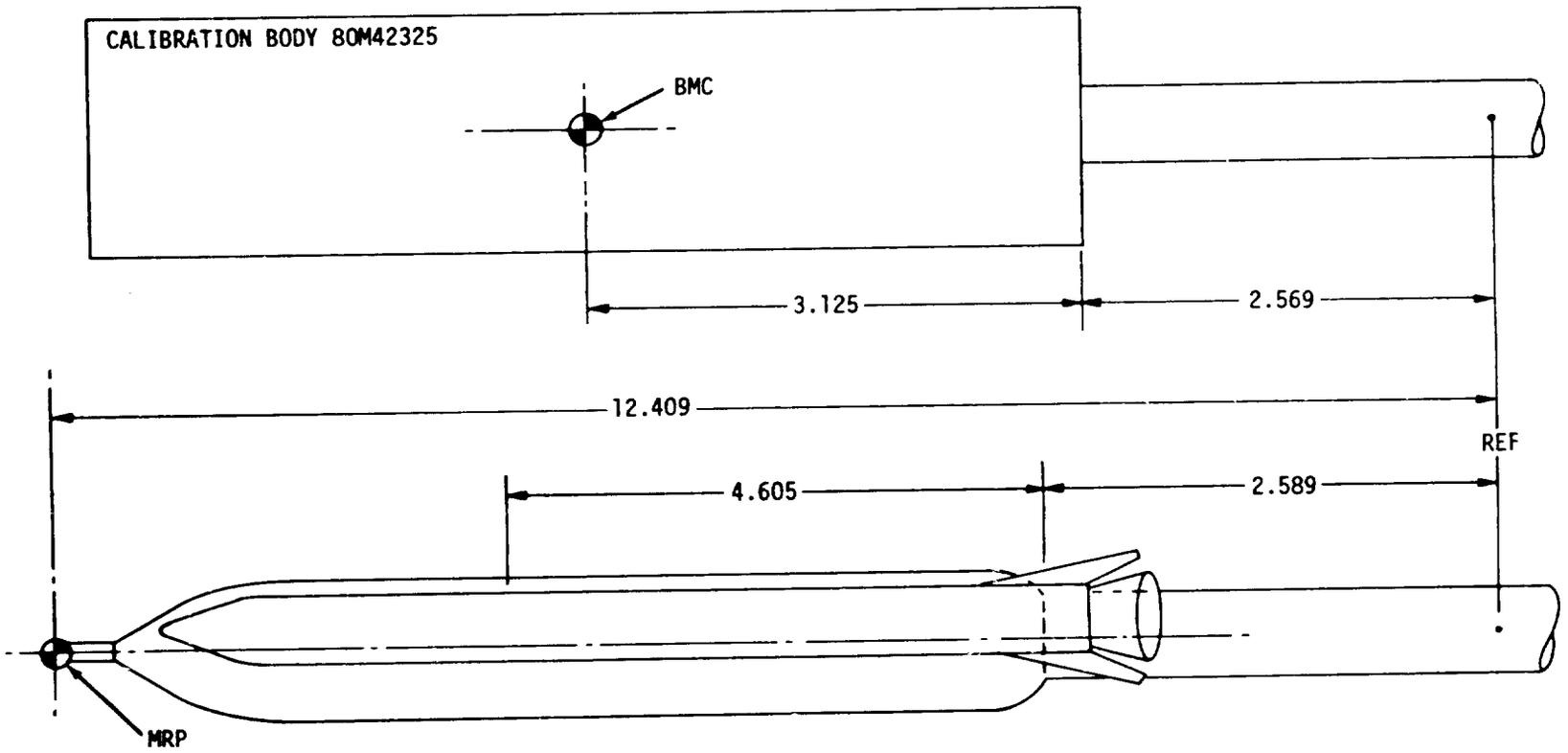

Figure 3. – Modified ATP ET (T3) and ATP SRB.

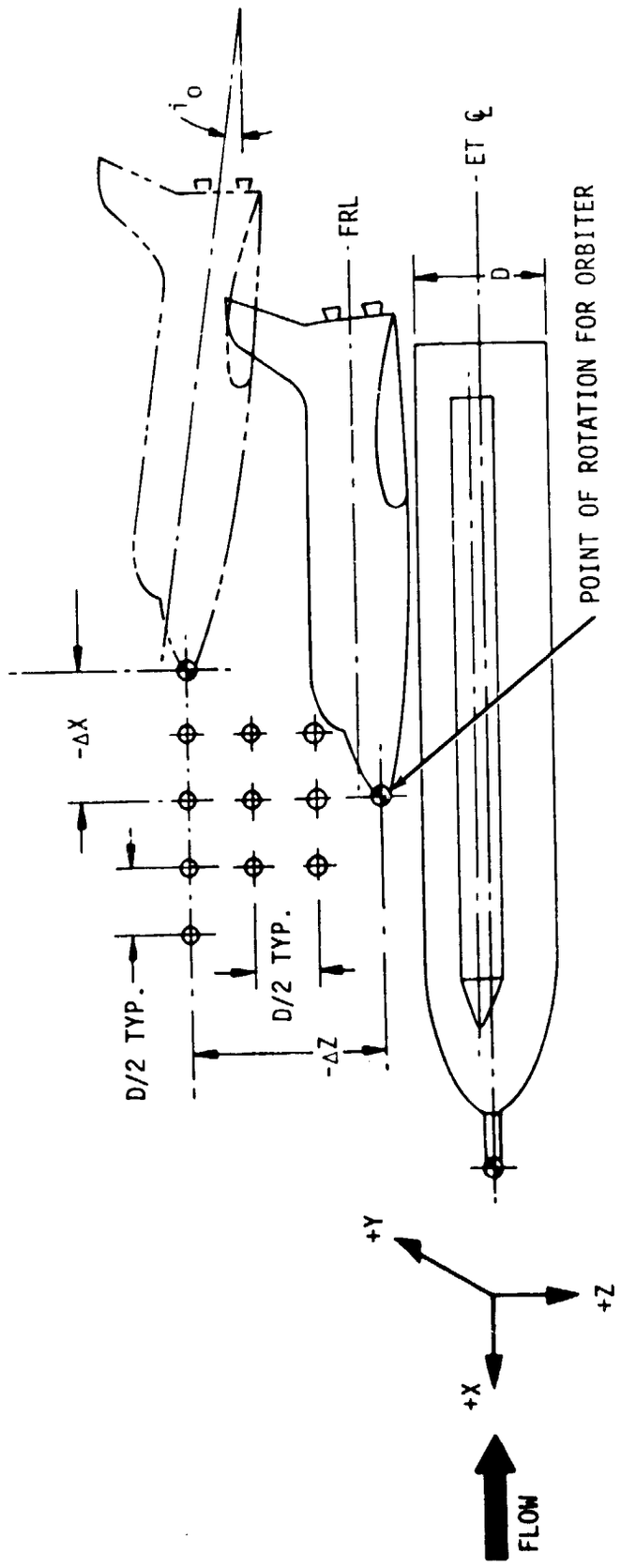

Figure 4.– Layout of test grid and sign convention.

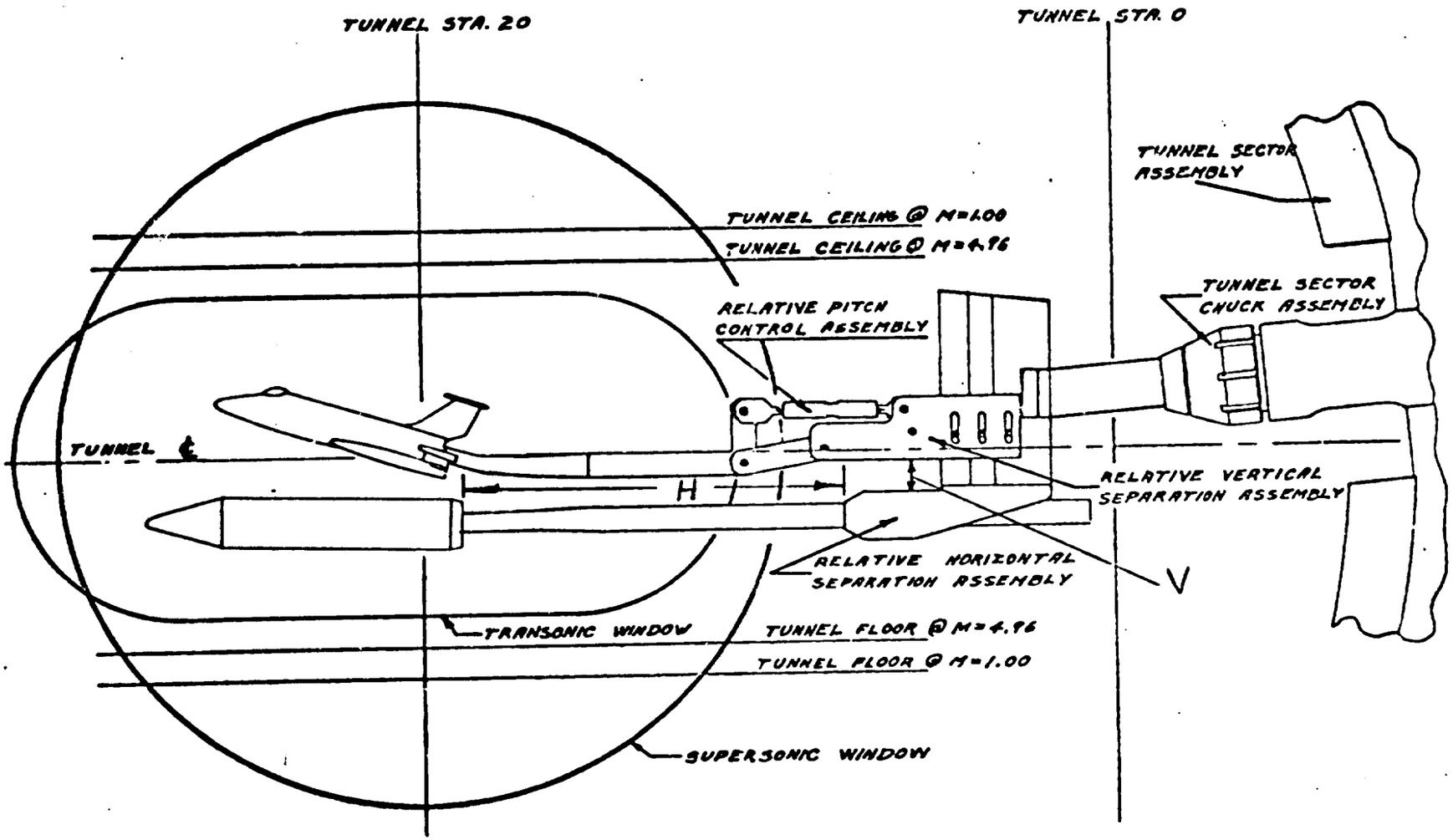

FIGURE 5.–Space Shuttle Parallel Staging System for the MSFC 14 x 14-Inch Trisonic Wind Tunnel.

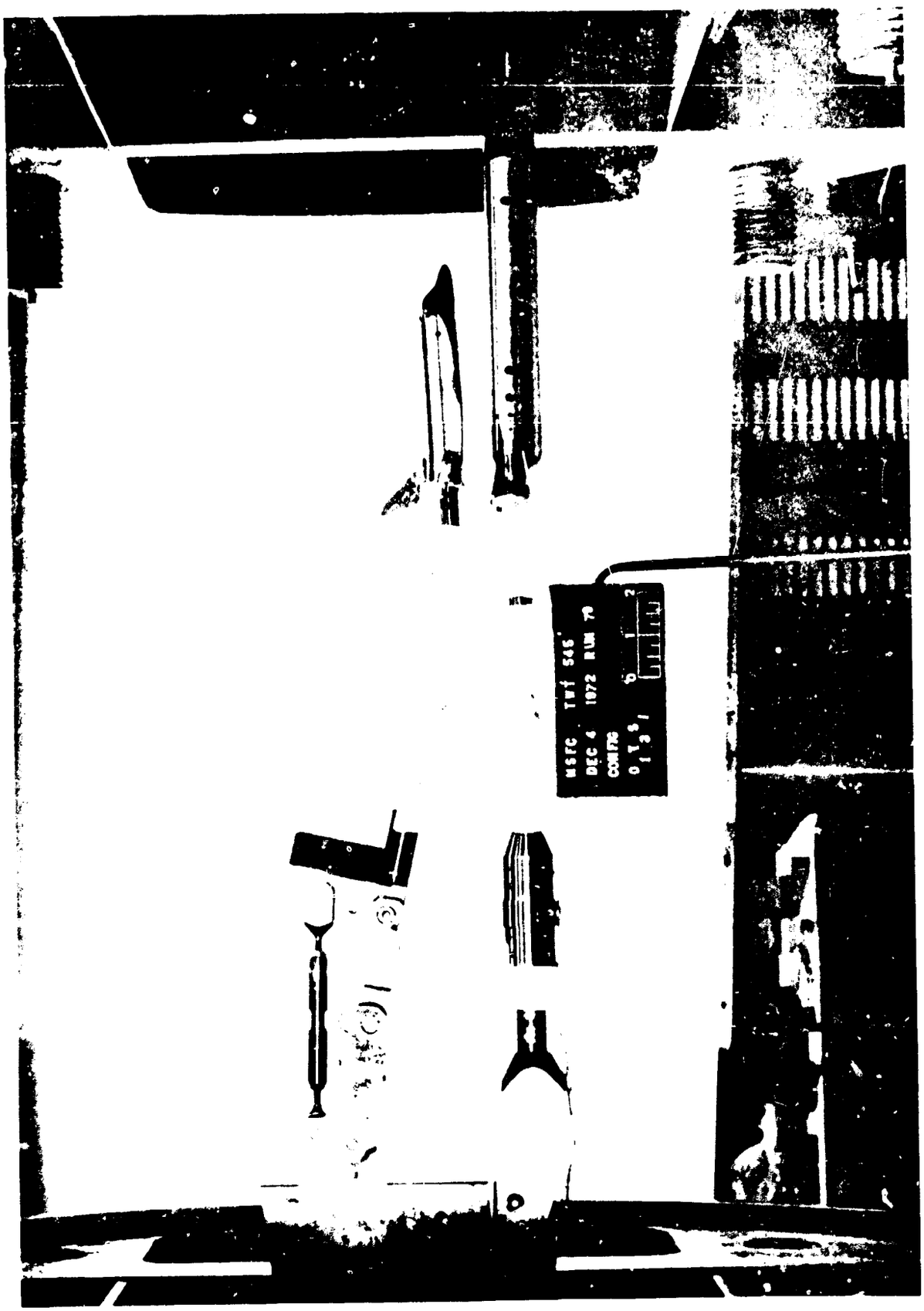

Figure 6. - Typical installation photograph.

DATA FIGURES

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION
(C79O01)	○	MSFC 558 (MA9F) NR ATP (O1)/(T3)(S1)
(C78T01)	△	MSFC 558 (MA9F) NR ATP (T3)(S1)/(O1)
(C78O04)	□	MSFC 558 (MA9F) NR ATP (O1)/(T3)(S1)
(C78T04)	◇	MSFC 558 (MA9F) NR ATP (T3)(S1)/(O1)

ORBINC	MACH	ELEVON	DELZ/D
.000	.900	.000	-.520
.000	.900	.000	-.520
2.000	.900	.000	-.520
2.000	.900	.000	-.520

REFERENCE INFORMATION		
SREF	3220.0000	SQ.FT.
LREF	1328.0000	INCHES
BREF	1328.0000	INCHES
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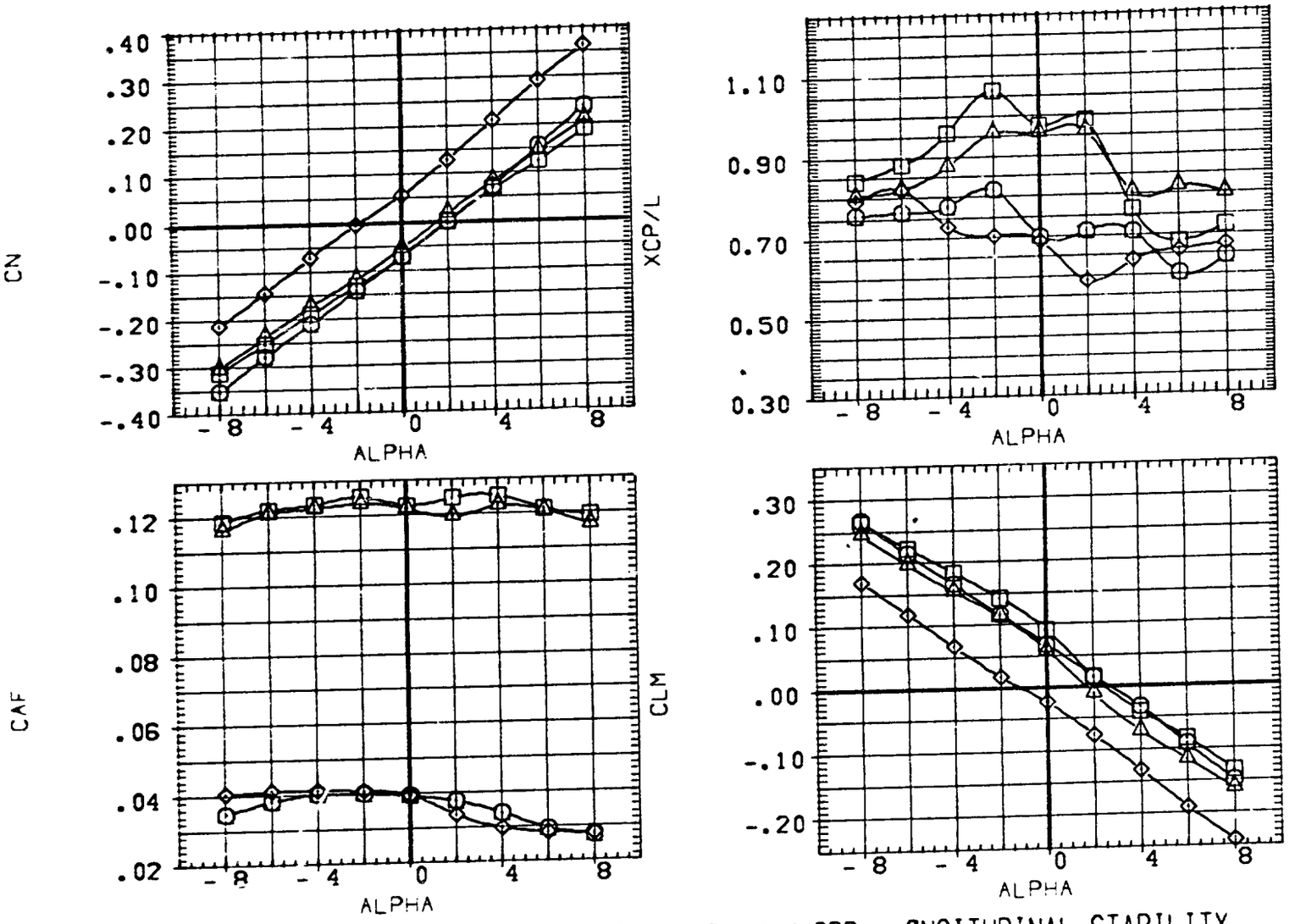
YMRP	.0000	
ZMRP	-61.3000	INCHES
SCALE	100.0000	PER



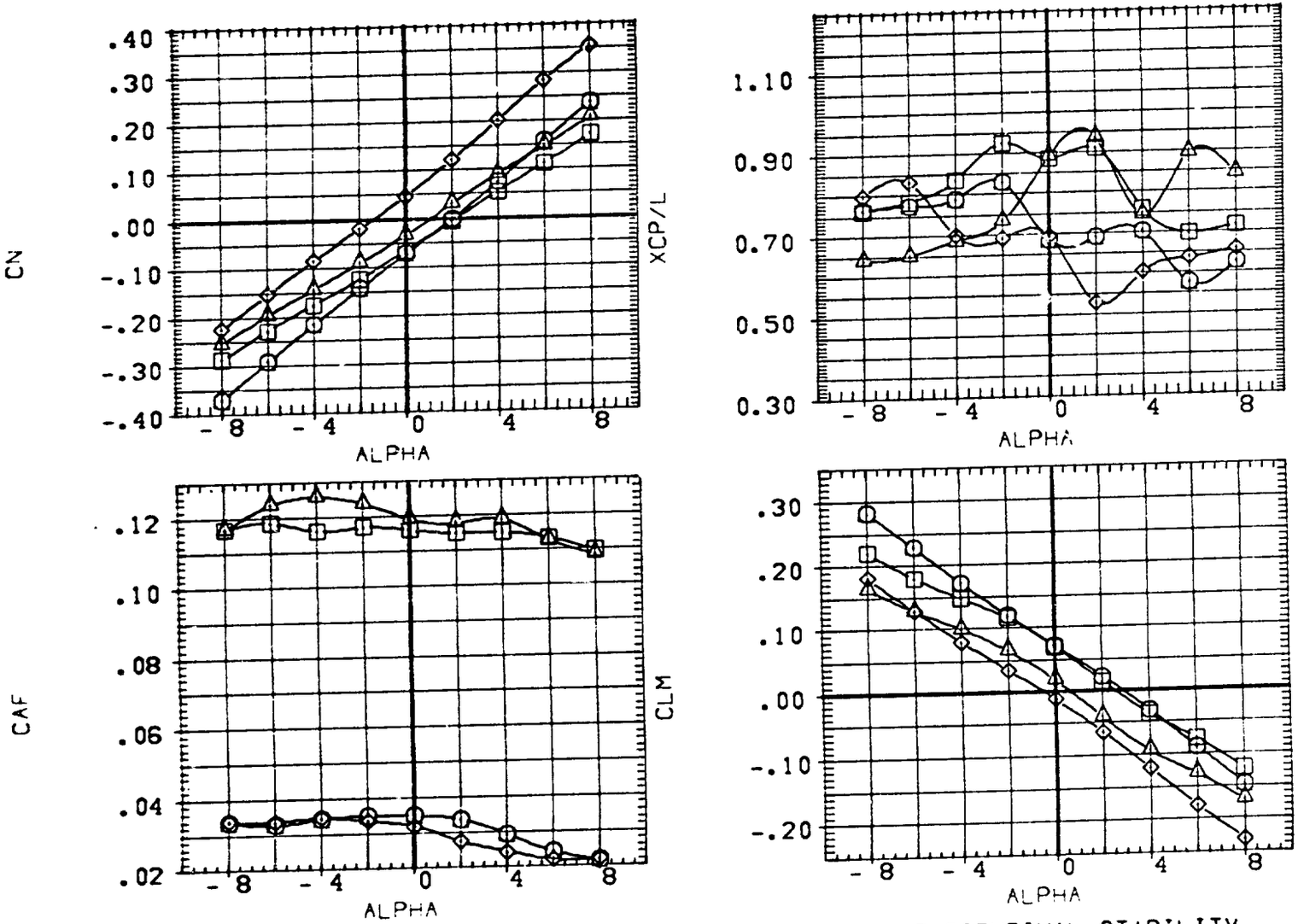
EFFECT OF INCIDENCE ANGLE ON ORBITER AND TANK / SRB, LONGITUDINAL STABILITY

CADDELX/D= -.50

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION
(C79001)	○	MSFC 558 (MASF) NR ATP (O1)/(T3)(S1)
(C79T01)	⊠	MSFC 558 (MASF) NR ATP (T3)(S1)/(O1)
(C79004)	◇	MSFC 558 (MASF) NR ATP (O1)/(T3)(S1)
(C79T04)	□	MSFC 558 (MASF) NR ATP (T3)(S1)/(O1)

ORBINC	MACH	ELEVON	DELZ/D
.000	.900	.000	-.520
.000	.900	.000	-.520
2.000	.900	.000	-.520
2.000	.900	.000	-.520

REFERENCE INFORMATION		
SREF	3220.0000	SQ.FT.
LREF	1328.0000	INCHES
BREF	1328.0000	INCHES
XMRP	.0000	
YMRP	.0000	
ZMRP	-61.5000	INCHES
SCALE	100.0000	PER



EFFECT OF INCIDENCE ANGLE ON ORBITER AND TANK / SRB, LONGITUDINAL STABILITY

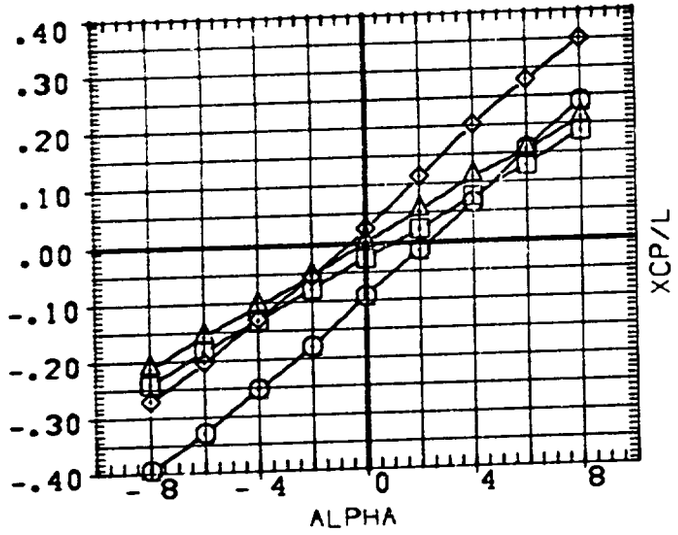
(B)DELX/D= .00

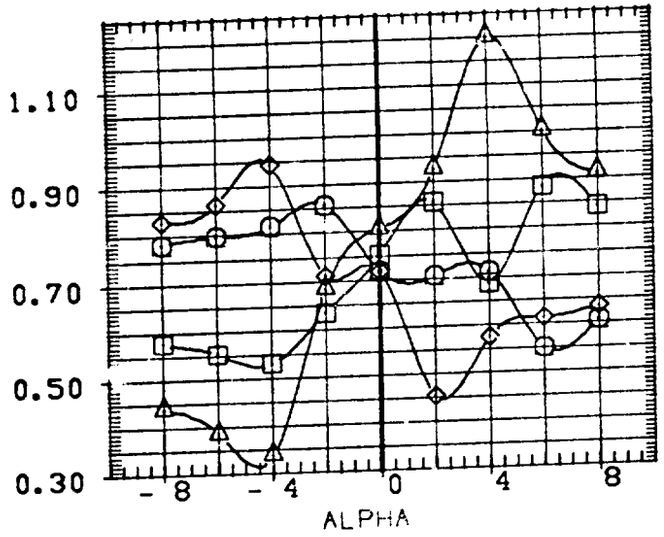
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION
(C78001)	○	MSFC 556 (MA9F) NR ATP (O1)/(T3)(S1)
(C78T01)	△	MSFC 556 (MA9F) NR ATP (T3)(S1)/(O1)
(C78C04)	◇	MSFC 556 (MA9F) NR ATP (O1)/(T3)(S1)
(C78T04)	□	MSFC 556 (MA9F) NR ATP (T3)(S1)/(O1)

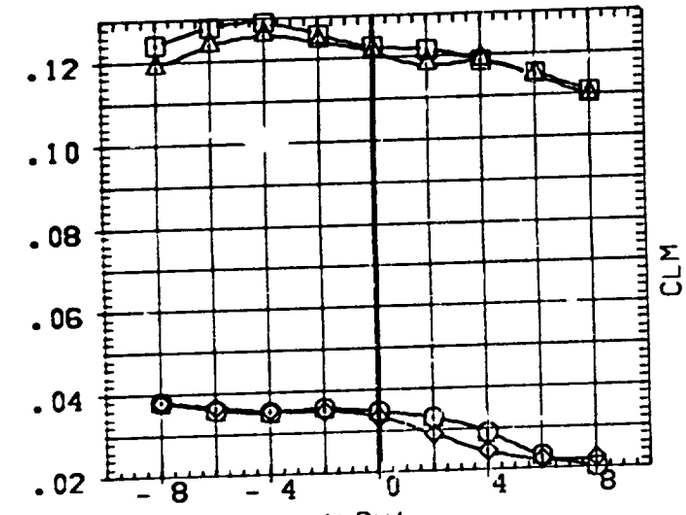
ORBINC	MACH	ELEVON	DELZ/D
.000	.900	.000	-.520
.000	.900	.000	-.520
2.000	.900	.000	-.520
2.000	.900	.000	-.520

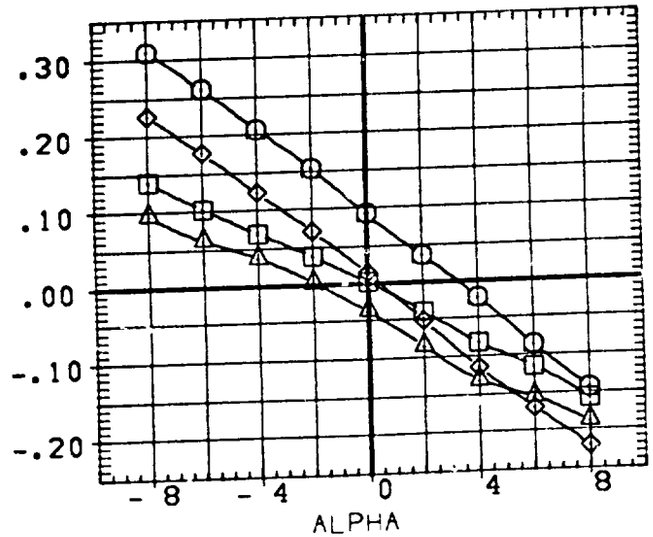
REFERENCE INFORMATION

SREF	3220.0000	SQ.FT.
LREF	1328.0000	INCHES
BREF	1328.0000	INCHES
XMRP	.0000	
YMRP	.0000	
ZMRP	-61.5000	INCHES
SCALE	100.0000	PER









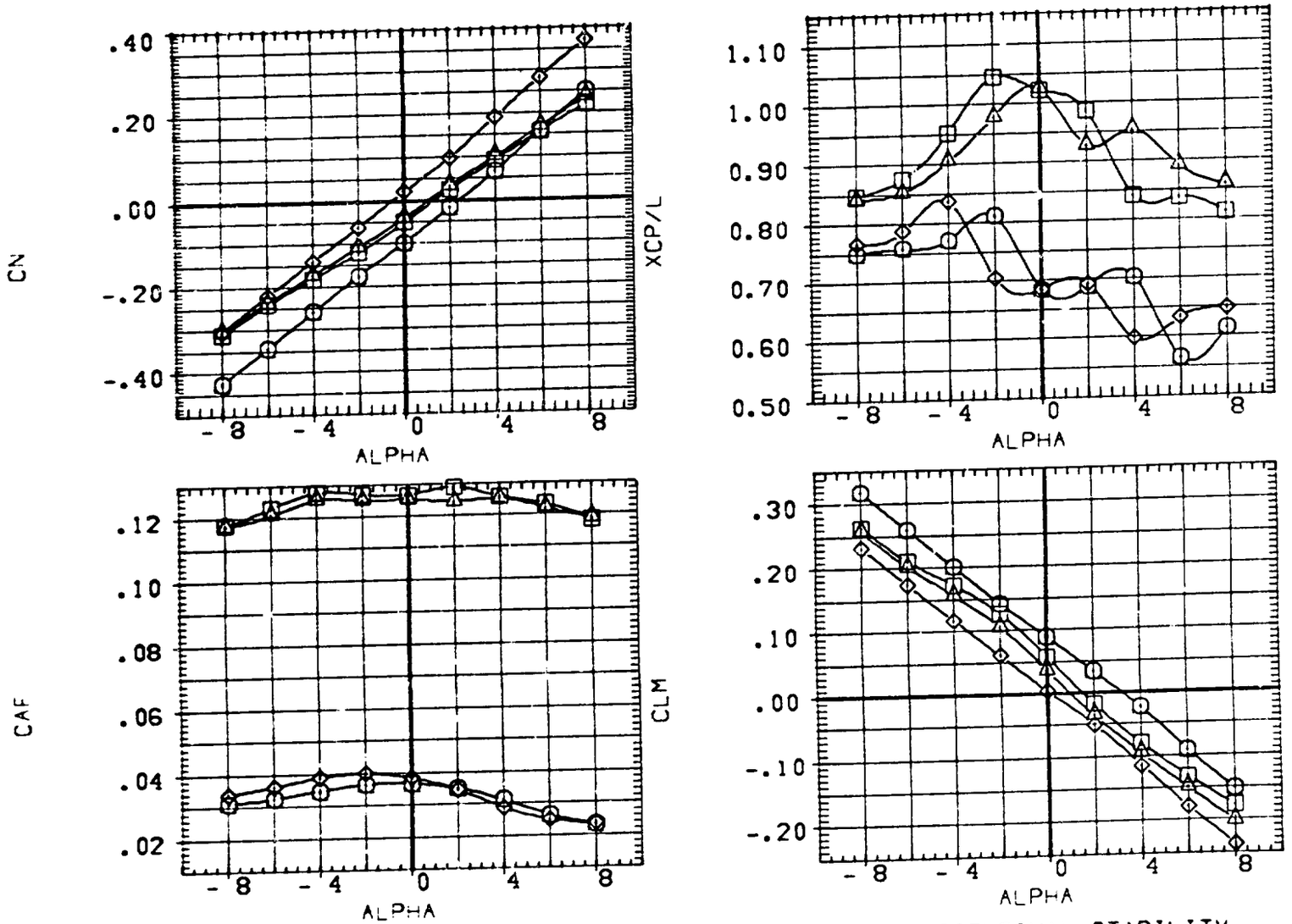
EFFECT OF INCIDENCE ANGLE ON ORBITER AND TANK / SRB, LONGITUDINAL STABILITY

(C)DELX/D= .50

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION
(C78002)	○	MSFC 558 (MA9F) NR ATP (O1)/(T3)(S1)
(C78T02)	⊗	MSFC 558 (MA9F) NR ATP (T3)(S1)/(O1)
(C78005)	◇	MSFC 558 (MA9F) NR ATP (O1)/(T3)(S1)
(C78T05)	□	MSFC 558 (MA9F) NR ATP (T3)(S1)/(O1)

ORBINC	MACH	ELEVON	DELZ/D
.000	.900	.000	-1.000
.000	.900	.000	-1.000
2.000	.900	.000	-1.000
2.000	.900	.000	-1.000

REFERENCE INFORMATION		
SREF	3220.0000	SQ.FT.
LREF	1328.0000	INCHES
BREF	1328.0000	INCHES
XMRP	.0000	
YMRP	.0000	
ZMRP	-61.5000	INCHES
SCALE	100.0000	PER



EFFECT OF INCIDENCE ANGLE ON ORBITER AND TANK / SRB, LONGITUDINAL STABILITY

PAGE 4

(A)DELX/D= -.50

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(C78002)	MSFC 558 (MA9F) NR ATP (O1)/(T3)(S1)
(C78T02)	MSFC 558 (MA9F) NR ATP (T3)(S1)/(O1)
(C78003)	MSFC 558 (MA9F) NR ATP (O1)/(T3)(S1)
(C78T03)	MSFC 558 (MA9F) NR ATP (T3)(S1)/(O1)

ORBINC	MACH	ELEVON	DELZ/D
.000	.900	.000	-1.000
.000	.900	.000	-1.000
2.000	.900	.000	-1.000
2.000	.900	.000	-1.000

REFERENCE INFORMATION		
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LREF.	1328.0000	INCHES
BREF	1328.0000	INCHES
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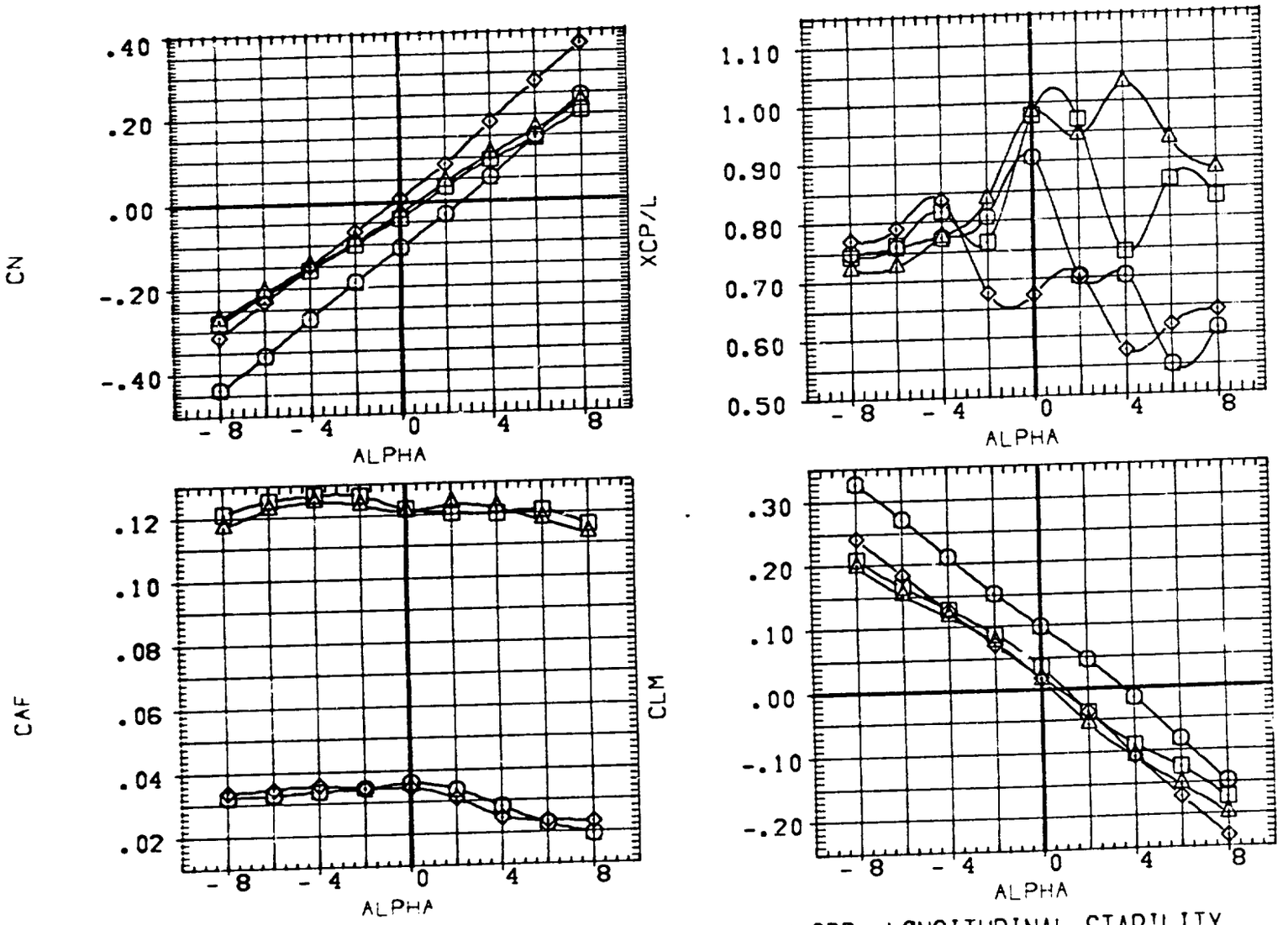
YMRP	.0000	
ZMRP	-61.5000	INCHES
SCALE	100.0000	PER



EFFECT OF INCIDENCE ANGLE ON ORBITER AND TANK / SRB, LONGITUDINAL STABILITY

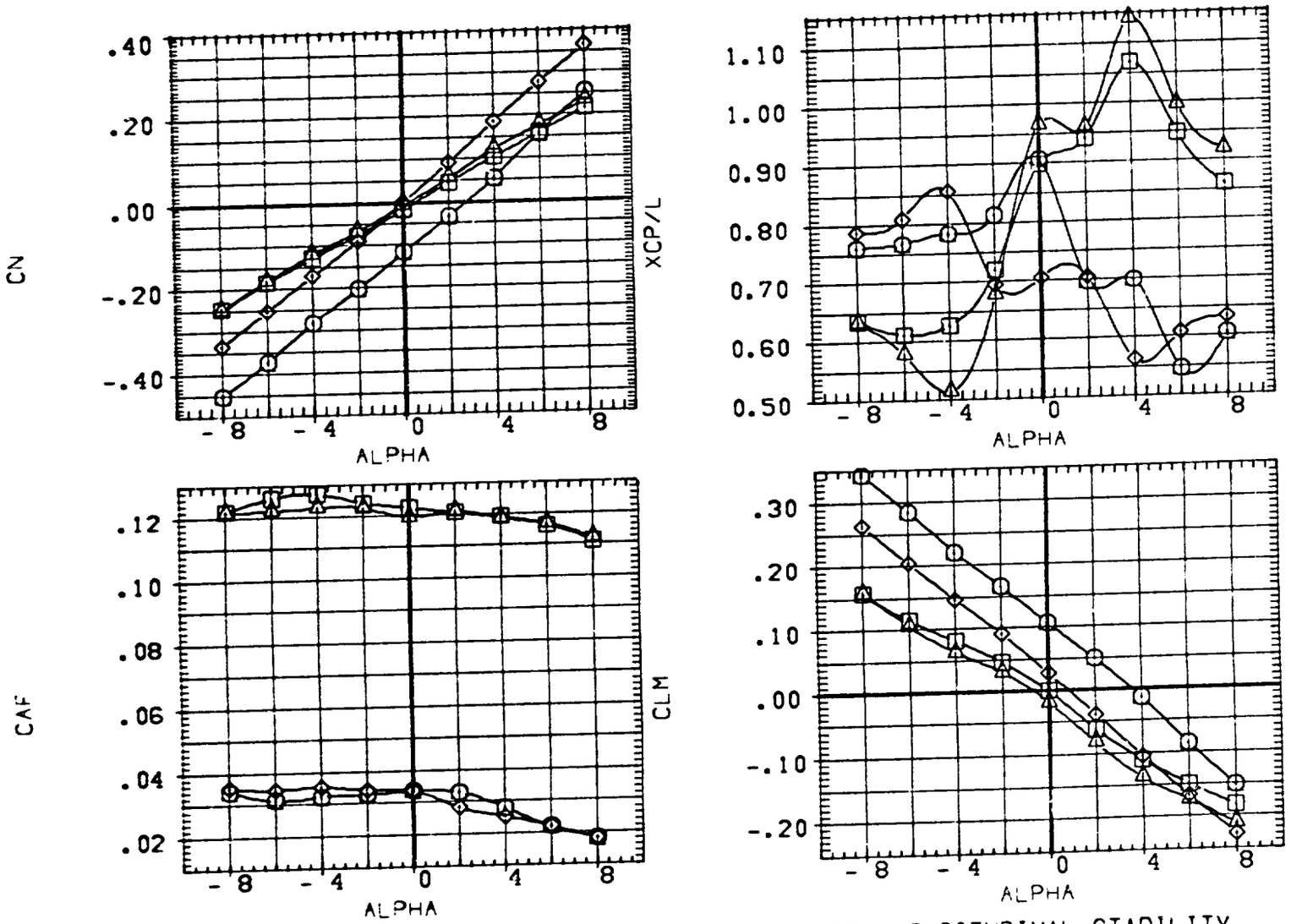
(B)DELX/D= .00

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION
(C79002)	○	MSFC 556 (MASF) NR ATP (O1)/(T3)(S1)
(C78T02)	◇	MSFC 556 (MASF) NR ATP (T3)(S1)/(O1)
(C78O05)	◇	MSFC 556 (MASF) NR ATP (O1)/(T3)(S1)
(C78T05)	□	MSFC 556 (MASF) NR ATP (T3)(S1)/(O1)

ORBINC	MACH	ELEVON	DELZ/D
.000	.900	.000	-1.000
.000	.900	.000	-1.000
2.000	.900	.000	-1.000
2.000	.900	.000	-1.000

REFERENCE INFORMATION

SREF	3220.0000	SQ.FT.
LREF	1328.0000	INCHES
BREF	1328.0000	INCHES
XMRP	.0000	
YMRP	.0000	
ZMRP	-61.5000	INCHES
SCALE	100.0000	PER



EFFECT OF INCIDENCE ANGLE ON ORBITER AND TANK / SRB, LONGITUDINAL STABILITY

CODE_X/D= .50

DATA SET SYMBOL		CONFIGURATION DESCRIPTION
(C78003)	◇	MSFC 558 (MA9F) NR ATP (O1)/(T3)(S1)
(C78T03)	◇	MSFC 558 (MA9F) NR ATP (T3)(S1)/(O1)
(C78C06)		DATA NOT AVAILABLE
(C78T06)		DATA NOT AVAILABLE

ORBINC	MACH	ELEVON	DELZ/D
.000	.900	.000	-1.500
.000	.900	.000	-1.500
2.000	.900	.000	-1.500
2.000	.900	.000	-1.500

REFERENCE INFORMATION

SREF	3220.0000	SQ.FT.
LREF	1328.0000	INCHES
BREF	1328.0000	INCHES
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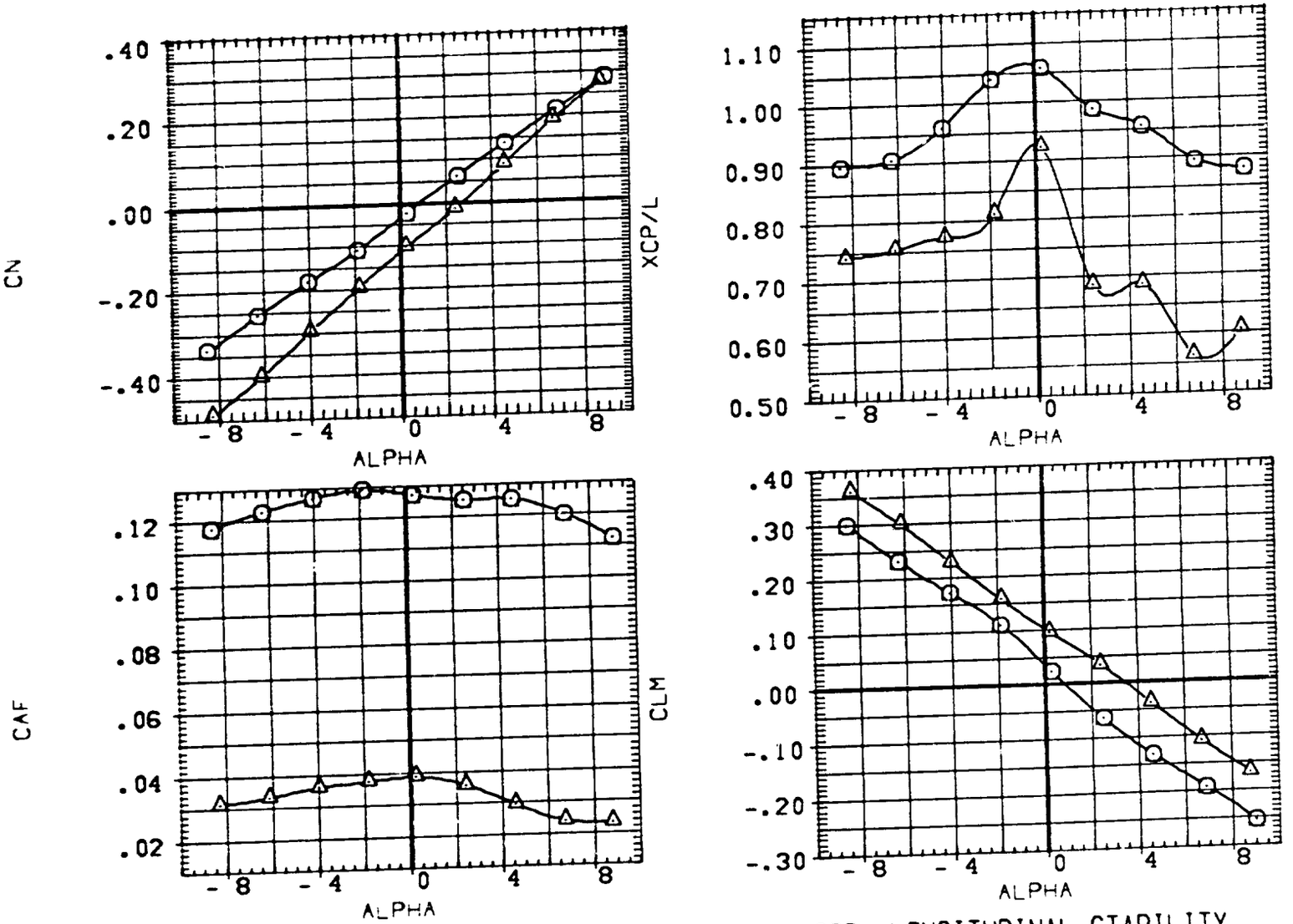
YMRP	.0000	
ZMRP	-61.5000	INCHES
SCALE	100.0000	PER



EFFECT OF INCIDENCE ANGLE ON ORBITER AND TANK / SRB, LONGITUDINAL STABILITY

(A)DELX/D= -1.00

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION
(C78003)		MSFC 558 (MA9F) NR ATP (O1)/(T3)(S1)
(C78T03)		MSFC 558 (MA9F) NR ATP (T3)(S1)/(O1)
(C78006)		MSFC 558 (MA9F) NR ATP (O1)/(T3)(S1)
(C78T06)		MSFC 558 (MA9F) NR ATP (T3)(S1)/(O1)

ORBINC	MACH	ELEVON	DELZ/D
.000	.900	.000	-1.500
.000	.900	.000	-1.500
2.000	.900	.000	-1.500
2.000	.900	.000	-1.500

REFERENCE INFORMATION		
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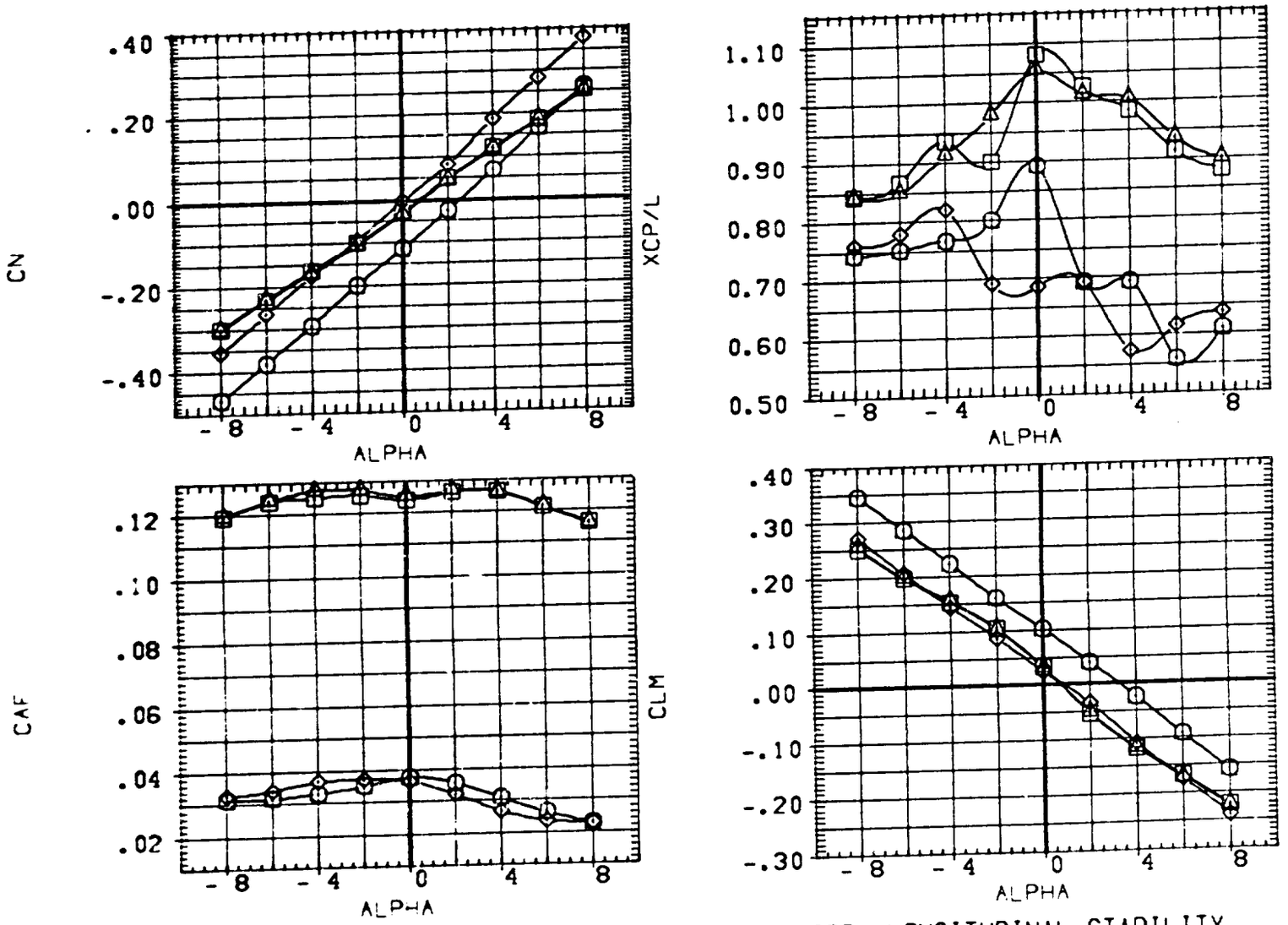
BREF	1328.0000	INCHES
XMRP	.0000	
YMRP	.0000	
ZMRP	-81.5000	INCHES
SCALE	100.0000	PER



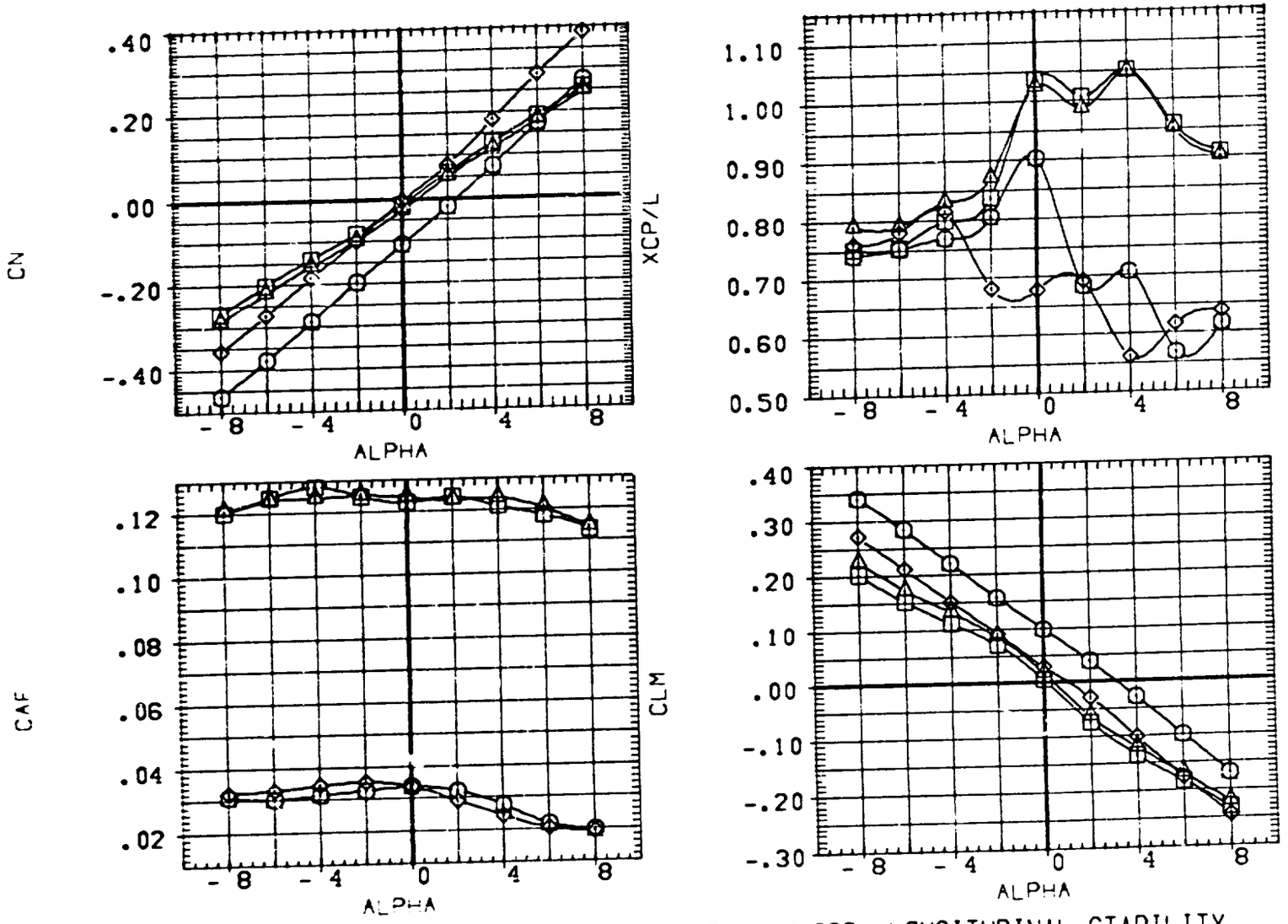
EFFECT OF INCIDENCE ANGLE ON ORBITER AND TANK / SRB, LONGITUDINAL STABILITY

(B)DELX/D= -.50

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(C78003)	MSFC 558 (MA9F) NR ATP (O1)/(T3)(S1)
(C78T03)	MSFC 558 (MA9F) NR ATP (T3)(S1)/(O1)
(C78006)	MSFC 558 (MA9F) NR ATP (O1)/(T3)(S1)
(C78T06)	MSFC 558 (MA9F) NR ATP (T3)(S1)/(O1)

ORBINC	MACH	ELEVON	DELZ/D
.000	.900	.000	-1.500
.000	.900	.000	-1.500
2.000	.900	.000	-1.500
2.000	.900	.000	-1.500

REFERENCE INFORMATION		
SREF	3220.0000	SQ.FT.
LREF	1328.0000	INCHES
BREF	1328.0000	INCHES
XMRP	.0000	
YMRP	.0000	
ZMRP	-61.5000	INCHES
SCALE	100.0000	PER



EFFECT OF INCIDENCE ANGLE ON ORBITER AND TANK / SRB, LONGITUDINAL STABILITY

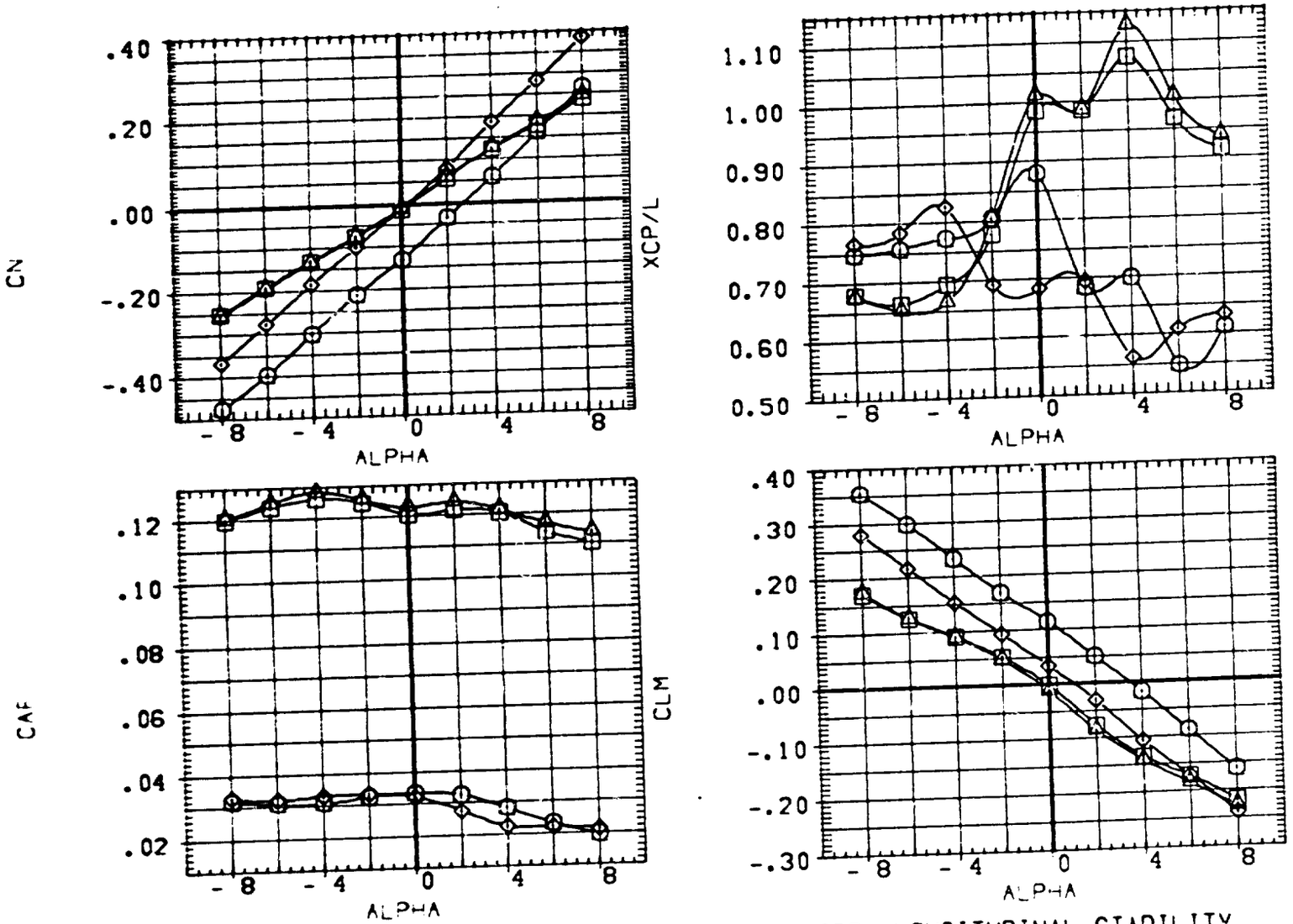
(CG)DELX/D= .00

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION
(C78003)	○	MSFC 558 (MA9%) NR ATP (O1)/(T3)(S1)
(C78T03)	○	MSFC 558 (MA9F) NR ATP (T3)(S1)/(O1)
(C78006)	◇	MSFC 558 (MA9F) NR ATP (O1)/(T3)(S1)
(C78T06)	□	MSFC 558 (MA9F) NR ATP (T3)(S1)/(O1)

ORBINC	MACH	ELEVON	DELZ/D
.000	.900	.000	-1.500
.000	.900	.000	-1.500
2.000	.900	.000	-1.500
2.000	.900	.000	-1.500

REFERENCE INFORMATION

SREF	3220.0000	SQ.FT.
LREF	1328.0000	INCHES
BREF	1328.0000	INCHES
XMRP	.0000	
YMRP	.0000	
ZMRP	-61.5000	INCHES
SCALE	100.0000	PER



EFFECT OF INCIDENCE ANGLE ON ORBITER AND TANK / SRB, LONGITUDINAL STABILITY

PAGE 10

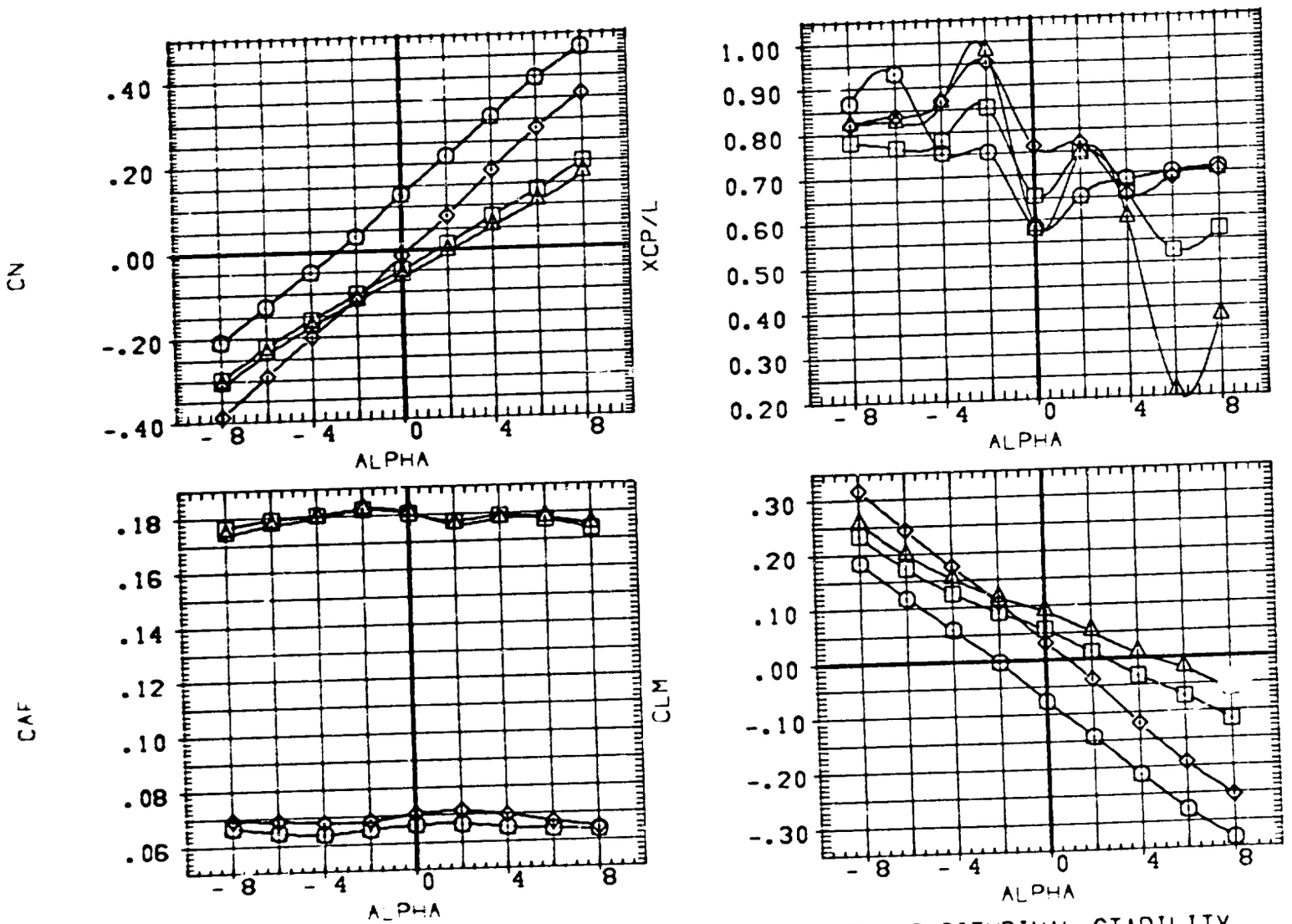
(DELX/D= .50

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION
(C78013)	○	MSFC 55A (MA9F) NR ATP (O1)/(T3)(S1)
(C78T13)	○	MSFC 55A (MA9F) NR ATP (T3)(S1)/(O1)
(C78016)	◇	MSFC 55B (MA9F) NR ATP (O1)/(T3)(S1)
(C78T16)	◇	MSFC 55B (MA9F) NR ATP (T3)(S1)/(O1)

ORBINC	MACH	ELEVON	DELZ/D
.000	1.200	.000	-.520
.000	1.200	.000	-.520
2.000	1.200	.000	-.520
2.000	1.200	.000	-.520

REFERENCE INFORMATION

SREF	3220.0000	SQ.FT.
LREF	1328.0000	INCHES
BREF	1328.0000	INCHES
XMRP	.0000	
YMRP	.0000	
ZMRP	-61.5000	INCHES
SCALE	100.0000	PER



EFFECT OF INCIDENCE ANGLE ON ORBITER AND TANK / SRB, LONGITUDINAL STABILITY

PAGE 11

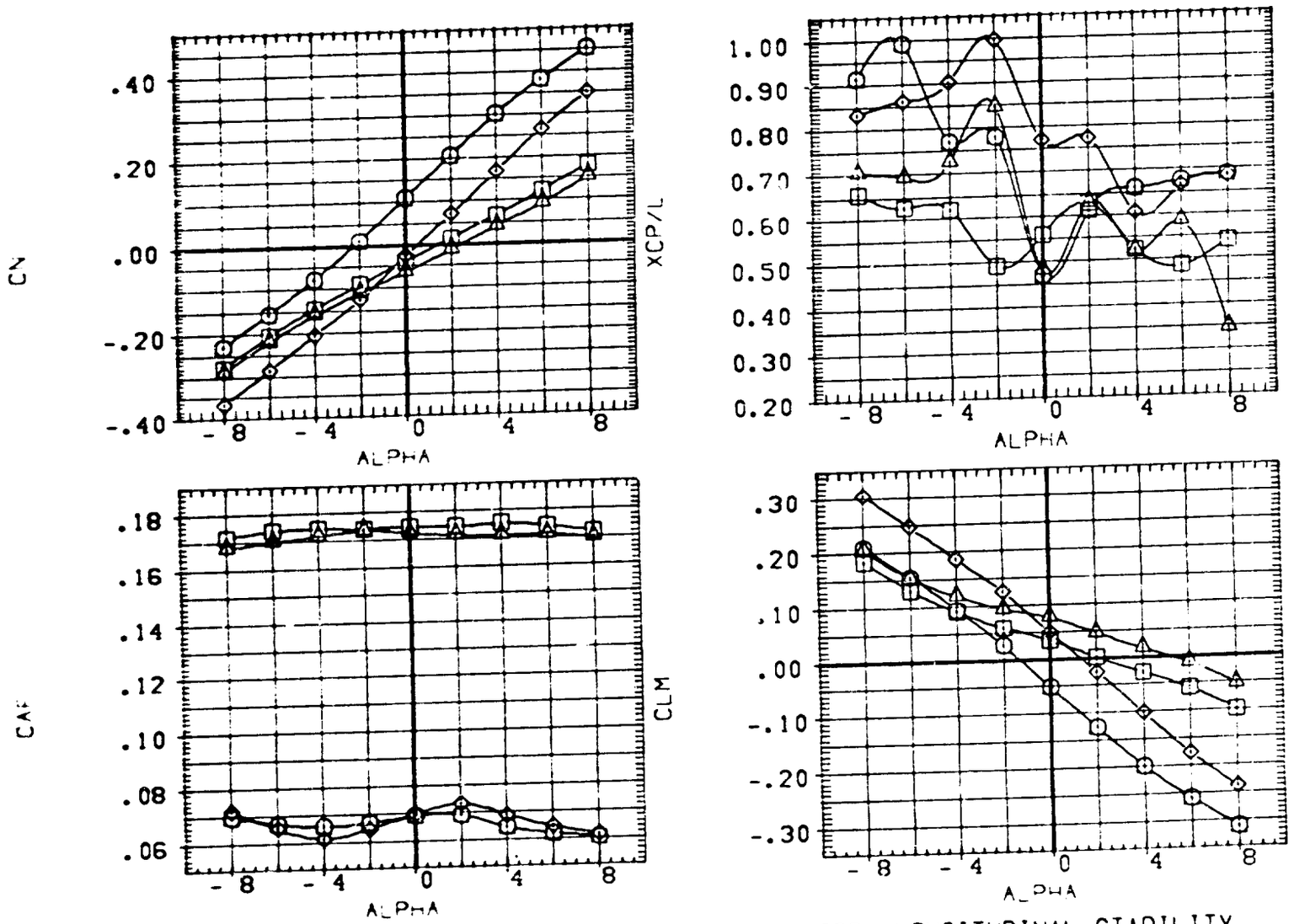
CADELX/D= -.50

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION
(C74013)	□	MSFC 558 (MASF) NR ATP (O1)/(T3)(S1)
(C78113)	○	MSFC 558 (MASF) NR ATP (T3)(S1)/(O1)
(C78016)	◇	MSFC 558 (MASF) NR ATP (O1)/(T3)(S1)
(C78116)	△	MSFC 558 (MASF) NR ATP (T3)(S1)/(O1)

ORBINC	MACH	ELEVON	DELZ/D
.000	1.200	.000	-.520
.000	1.200	.000	-.520
2.000	1.200	.000	-.520
2.000	1.200	.000	-.520

REFERENCE INFORMATION

SREF	3220.0000	SQ.FT.
LREF	1328.0000	INCHES
BREF	1328.0000	INCHES
XMRP	.0000	
YMRP	.0000	
ZMRP	-81.5000	INCHES
SCALE	100.0000	PER



EFFECT OF INCIDENCE ANGLE ON ORBITER AND TANK / SRB, LONGITUDINAL STABILITY

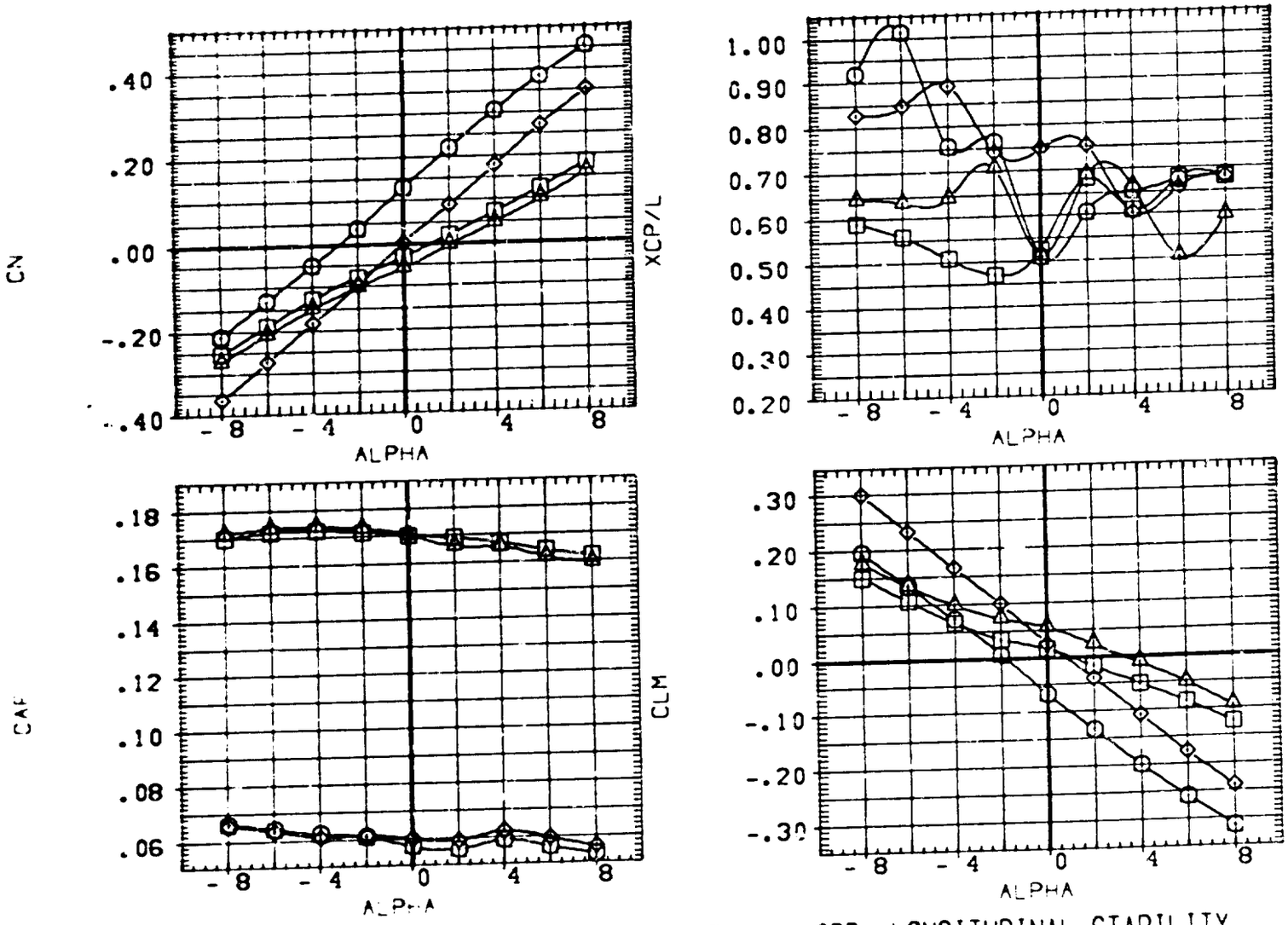
(BODELX/D= .00

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION
(C79013)	○	MSFC 558 (MA9F) NR ATP (O1)/(T3)(S1)
(C78713)	□	MSFC 558 (MA9F) NR ATP (T3)(S1)/(O1)
(C76016)	◇	MSFC 558 (MA9F) NR ATP (O1)/(T3)(S1)
(C78716)	△	MSFC 558 (MA9F) NR ATP (T3)(S1)/(O1)

ORBINC	MACH	ELEVON	DELZ/D
.000	1.200	.000	-.520
.000	1.200	.000	-.520
2.000	1.200	.000	-.520
2.000	1.200	.000	-.520

REFERENCE INFORMATION

SREF	3220.0000	SQ.FT.
LREF	1328.0000	INCHES
BREF	1328.0000	INCHES
XMRP	.0000	
YMRP	.0000	
ZMRP	-61.5000	INCHES
SCALE	100.0000	PER



EFFECT OF INCIDENCE ANGLE ON ORBITER AND TANK / SRB, LONGITUDINAL STABILITY

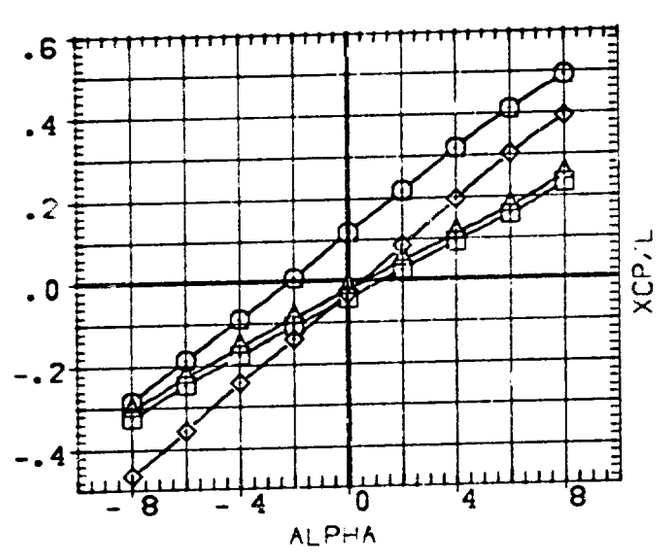
PAGE 13

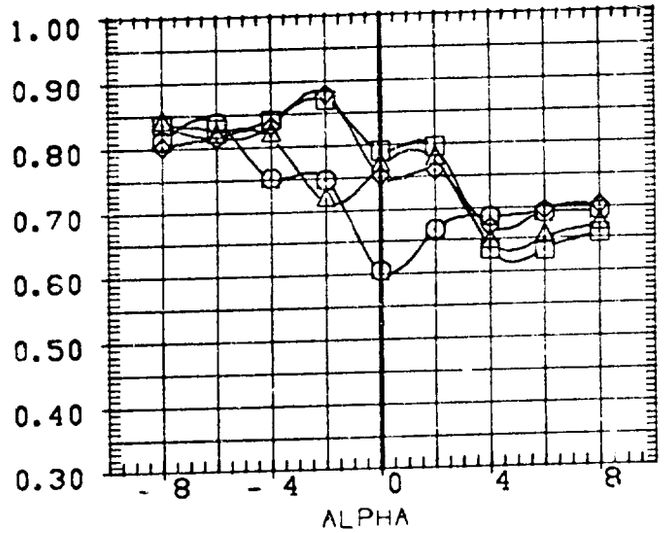
(C)DELX/D= .50

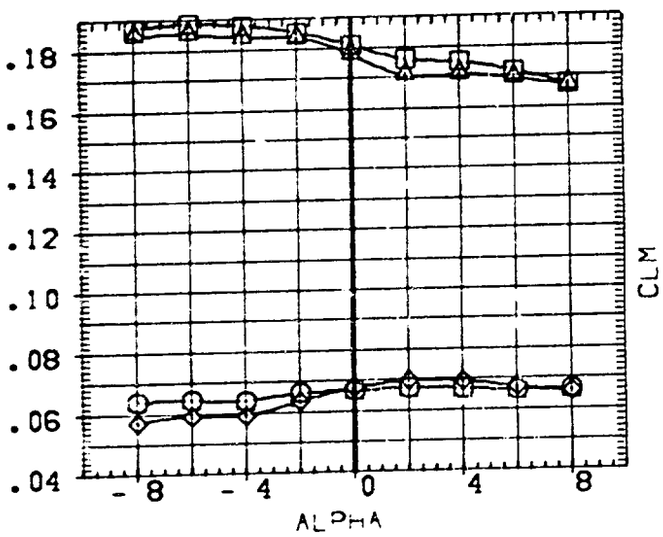
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION
(C78014)	○	MSFC 558 (MA9F) NR ATP (O1)/(T3)(S1)
(C78T14)	◇	MSFC 558 (MA9F) NR ATP (T3)(S1)/(O1)
(C78017)	□	MSFC 558 (MA9F) NR ATP (O1)/(T3)(S1)
(C78T17)	△	MSFC 558 (MA9F) NR ATP (T3)(S1)/(O1)

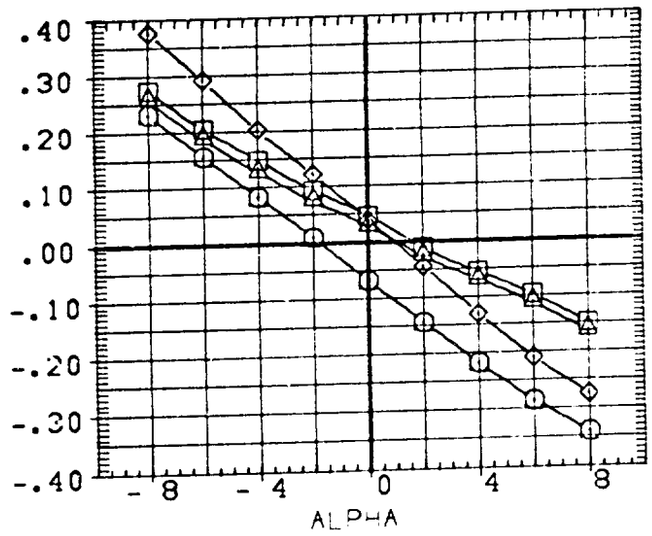
ORBINC	MACH	ELEVON	DELZ/D
.000	1.200	.000	-1.000
.000	1.200	.000	-1.000
2.000	1.200	.000	-1.000
2.000	1.200	.000	-1.000

REFERENCE INFORMATION		
SREF	3220.0000	SQ.FT.
LREF	1328.0000	INCHES
BREF	1328.0000	INCHES
XMRP	.0000	
YMRP	.0000	
ZMRP	-61.5000	INCHES
SCALE	100.0000	PER









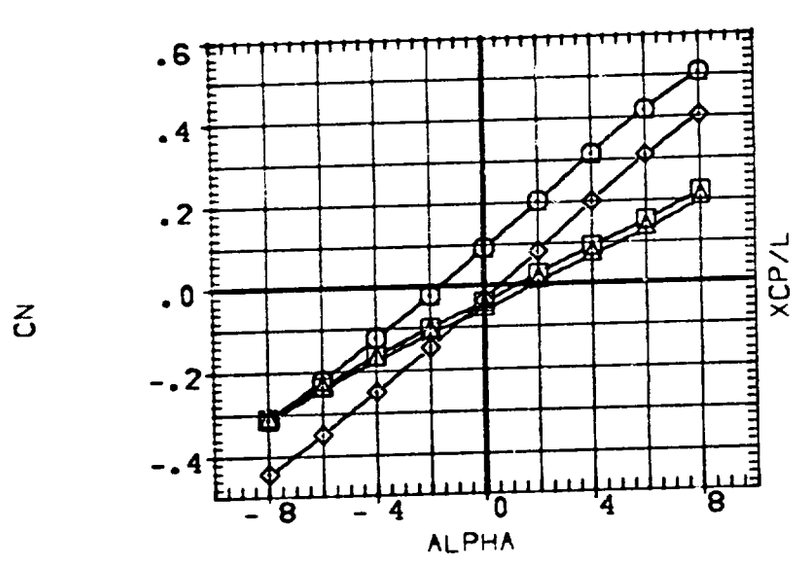
EFFECT OF INCIDENCE ANGLE ON ORBITER AND TANK / SRB. LONGITUDINAL STABILITY

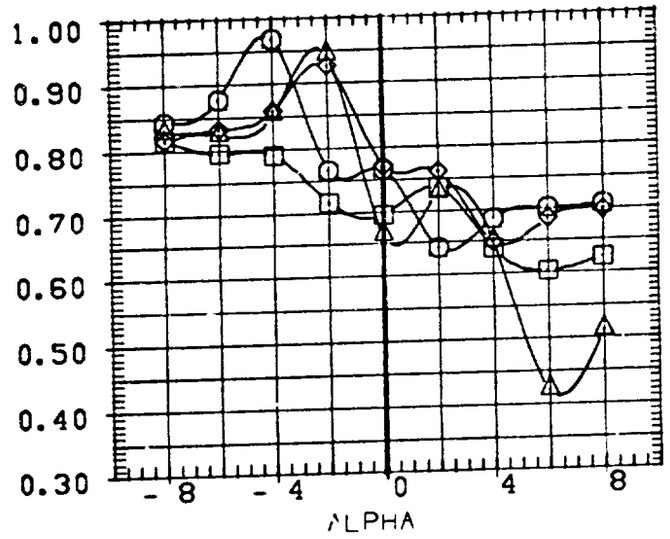
(A)DELX/D= -1.00

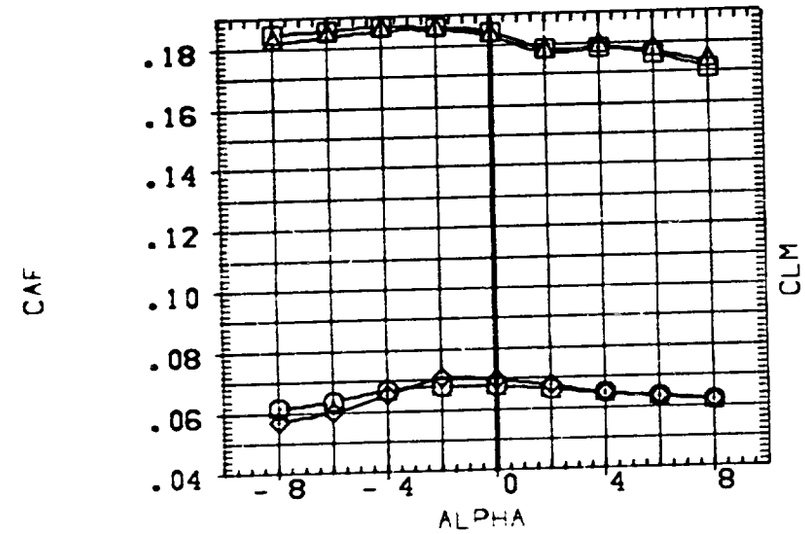
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION
(CY80I4)	○	MSFC 558 (MA9F) NR ATP (OI)/(T3)(S1)
(CY8T14)	⊗	MSFC 558 (MA9F) NR ATP (T3)(S1)/(OI)
(CY80I7)	◇	MSFC 558 (MA9F) NR ATP (OI)/(T3)(S1)
(CY8T17)	□	MSFC 558 (MA9F) NR ATP (T3)(S1)/(OI)

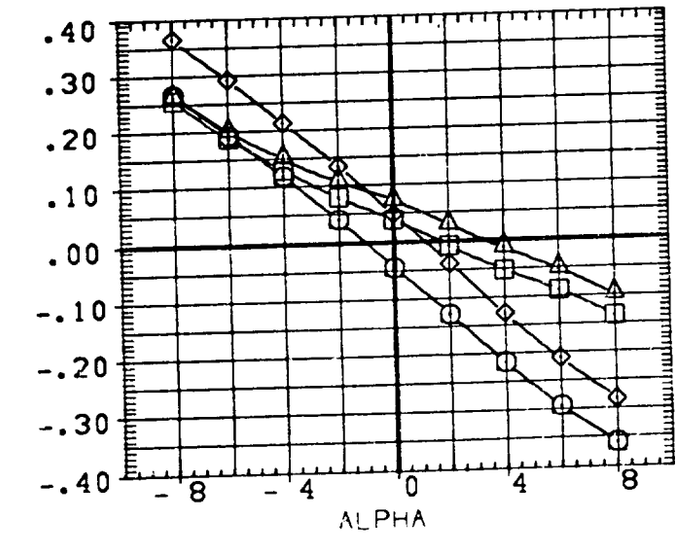
ORBINC	MACH	ELEVON	DELZ/D
.000	1.200	.000	-1.000
.000	1.200	.000	-1.000
2.000	1.200	.000	-1.000
2.000	1.200	.000	-1.000

REFERENCE INFORMATION		
SREF	3220.0000	SQ.FT.
LREF	1328.0000	INCHES
BREF	1328.0000	INCHES
XMRP	.0000	
YMRP	.0000	
ZMRP	-61.5000	INCHES
SCALE	100.0000	PER









EFFECT OF INCIDENCE ANGLE ON ORBITER AND TANK / SRB, LONGITUDINAL STABILITY

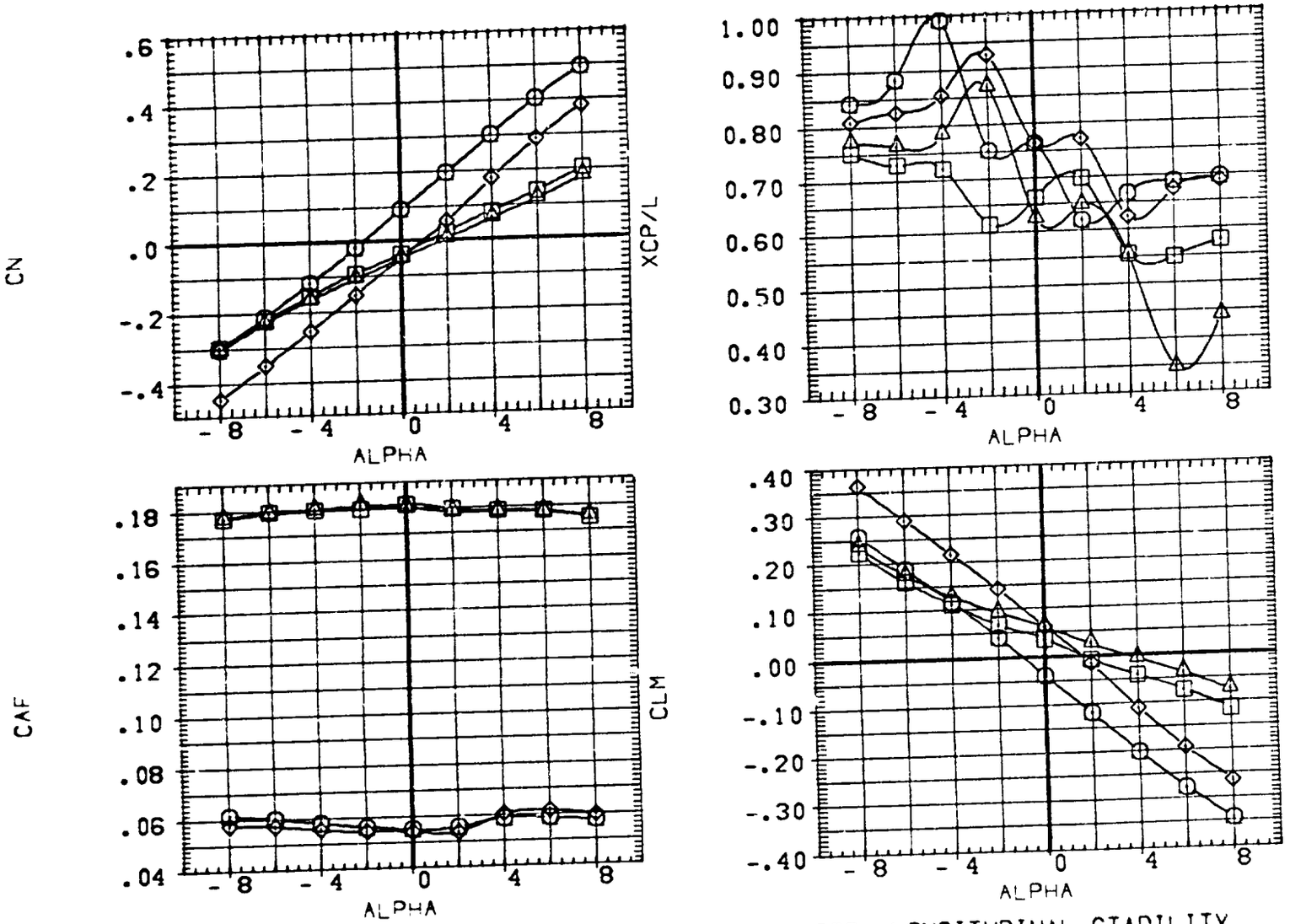
(B)DELX/D= -.50

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION
(C76014)	○	MSFC 556 (MA9F) NR ATP (O1)/(T3)(S1)
(C76T14)	⊠	MSFC 556 (MA9F) NR ATP (T3)(S1)/(O1)
(C76017)	◇	MSFC 556 (MA9F) NR ATP (O1)/(T3)(S1)
(C76T17)	□	MSFC 556 (MA9F) NR ATP (T3)(S1)/(O1)

ORBINC	MACH	ELEVON	DELZ/D
.000	1.200	.000	-1.000
.000	1.200	.000	-1.000
2.000	1.200	.000	-1.000
2.000	1.200	.000	-1.000

REFERENCE INFORMATION

SREF	3220.0000	SQ.FT.
LREF	1328.0000	INCHES
BREF	1328.0000	INCHES
XMRP	.0000	
YMRP	.0000	
ZMRP	-61.5000	INCHES
SCALE	100.0000	PER



EFFECT OF INCIDENCE ANGLE ON ORBITER AND TANK / SRB, LONGITUDINAL STABILITY

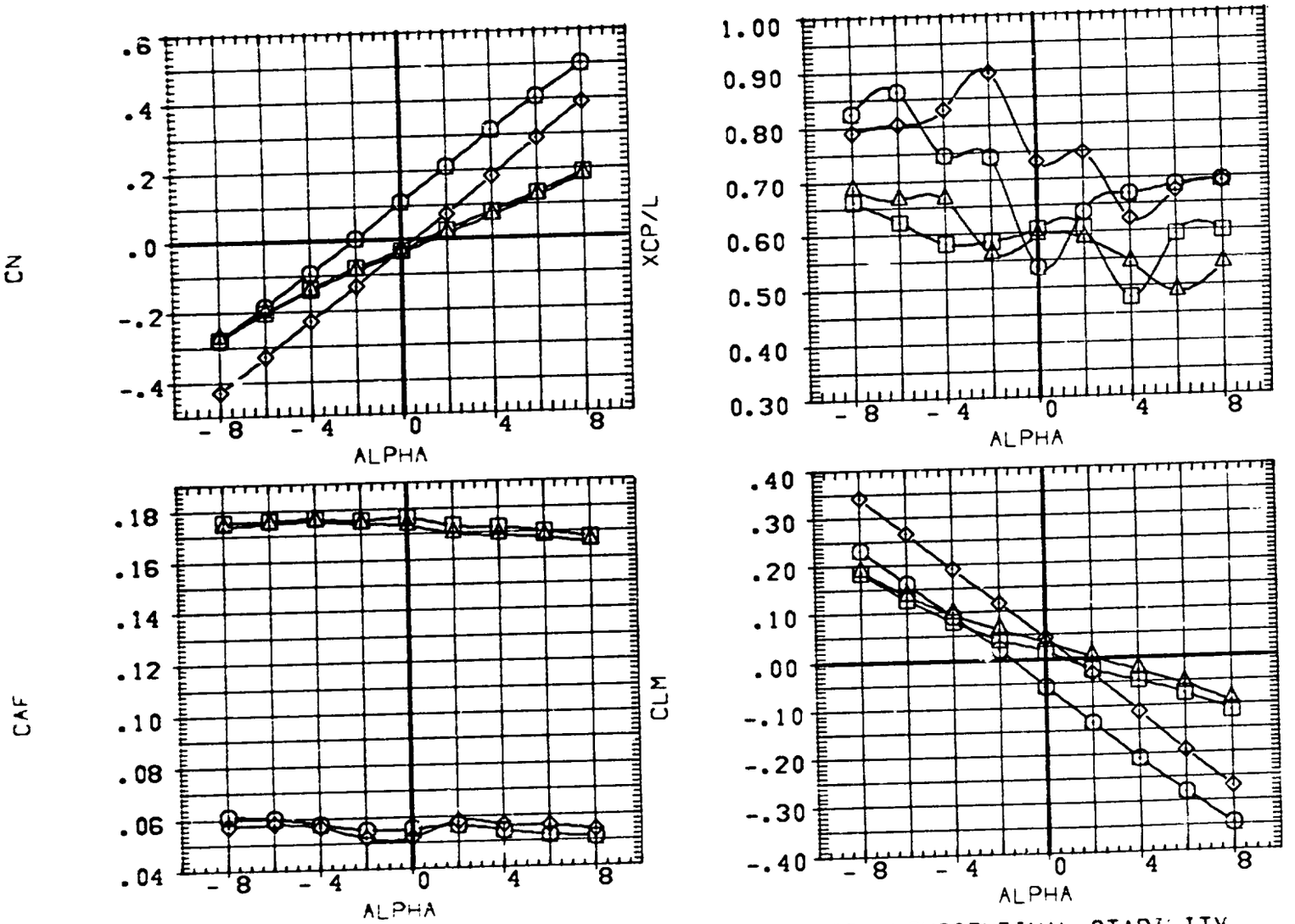
(C)DELX/C= .00

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION
(C78014)		MSFC 558 (MA9F) NR ATP (O1)/(T3)(S1)
(C78T14)		MSFC 558 (MA9F) NR ATP (T3)(S1)/(O1)
(C78017)		MSFC 558 (MA9F) NR ATP (O1)/(T3)(S1)
(C78T17)		MSFC 558 (MA9F) NR ATP (T3)(S1)/(O1)

ORBINC	MACH	ELEVON	DELZ/D
.000	1.200	.000	-1.000
.000	1.200	.000	-1.000
2.000	1.200	.000	-1.000
2.000	1.200	.000	-1.000

REFERENCE INFORMATION

SREF	3220.0000	SQ.FT.
LREF	1328.0000	INCHES
BREF	1328.0000	INCHES
XMRP	.0000	
YMRP	.0000	
ZMRP	-81.5000	INCHES
SCALE	100.0000	PER



EFFECT OF INCIDENCE ANGLE ON ORBITER AND TANK / SRB, LONGITUDINAL STABILITY

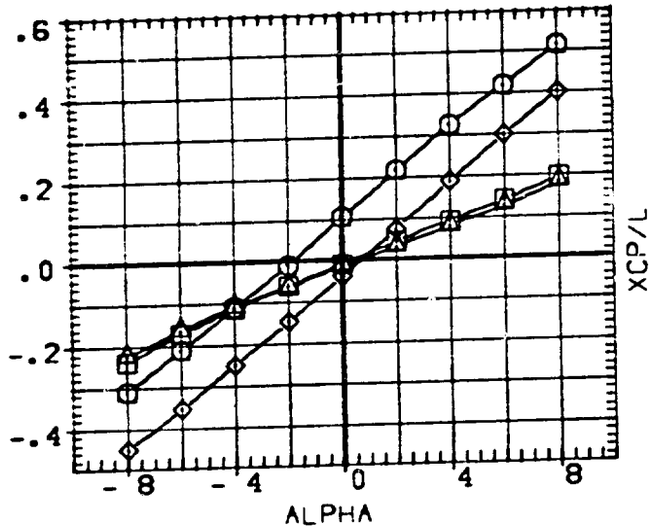
(O)DELX/D= .50

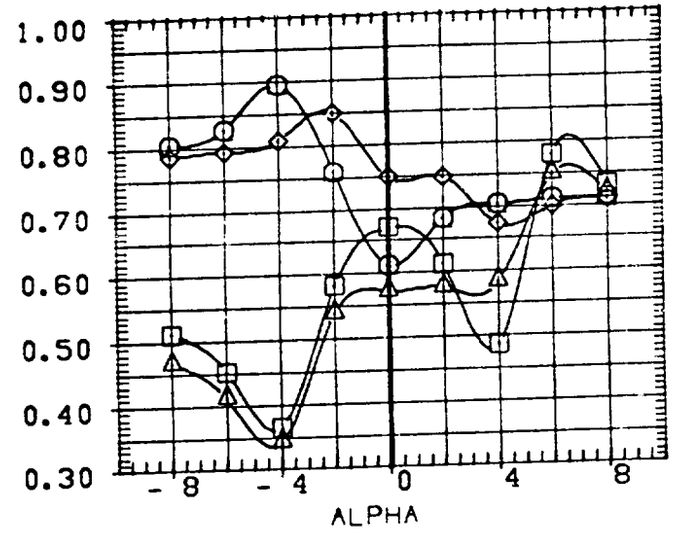
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION
(CT80I4)	○	MSFC 558 (MA9F) NR ATP (O1)/(T3)(S1)
(CT8TI4)	△	MSFC 558 (MA9F) NR ATP (T3)(S1)/(O1)
(CT80I7)	◇	MSFC 558 (MA9F) NR ATP (O1)/(T3)(S1)
(CT8TI7)	□	MSFC 558 (MA9F) NR ATP (T3)(S1)/(O1)

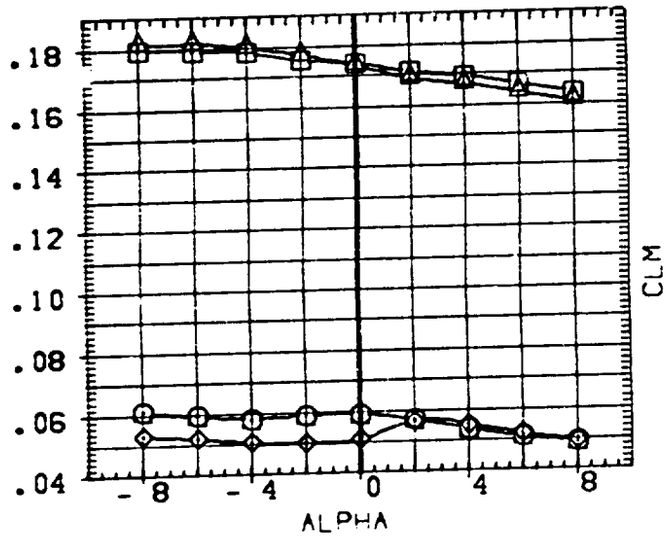
ORBINC	MACH	ELEVON	DELZ/D
.000	1.200	.000	-1.000
.000	1.200	.000	-1.000
2.000	1.200	.000	-1.000
2.000	1.200	.000	-1.000

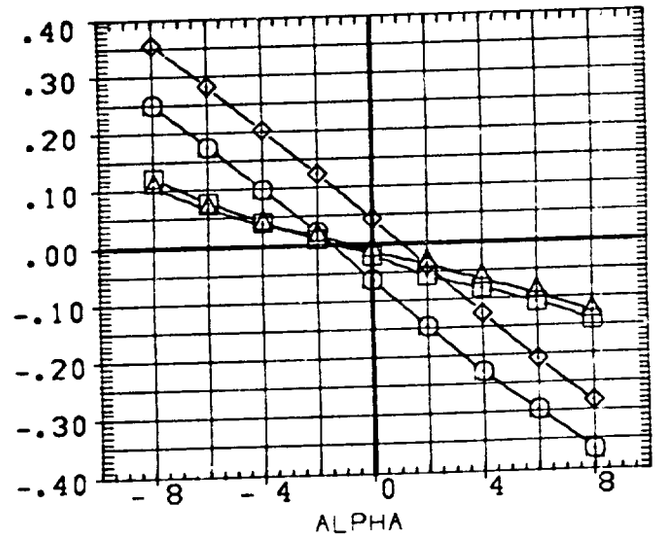
REFERENCE INFORMATION

SREF	3220.0000	SQ.FT.
LREF	1328.0000	INCHES
BREF	1328.0000	INCHES
XMRP	.0000	
YMRP	.0000	
ZMRP	-61.5000	INCHES
SCALE	100.0000	PER









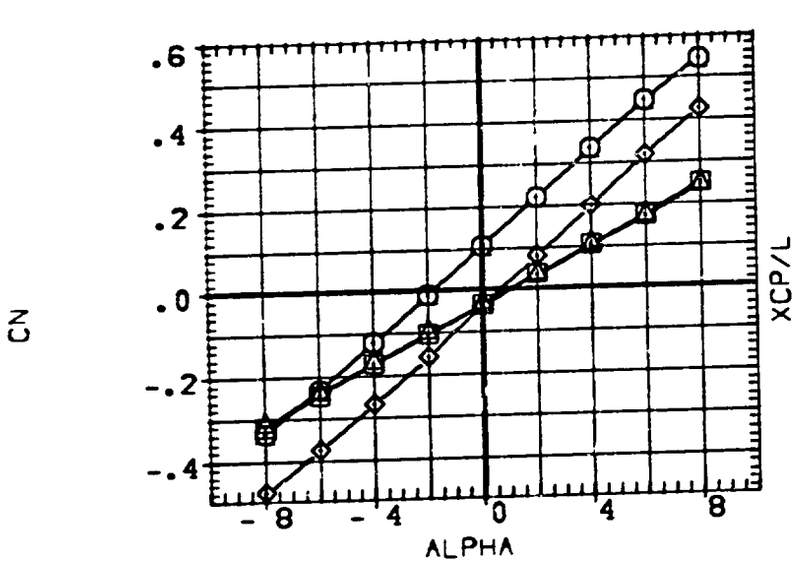
EFFECT OF INCIDENCE ANGLE ON ORBITER AND TANK / SRB, LONGITUDINAL STABILITY

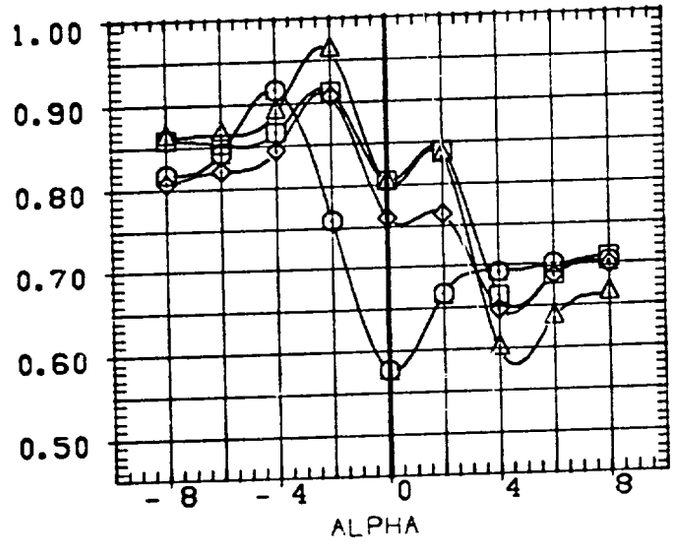
(E)DELX/D= 1.00

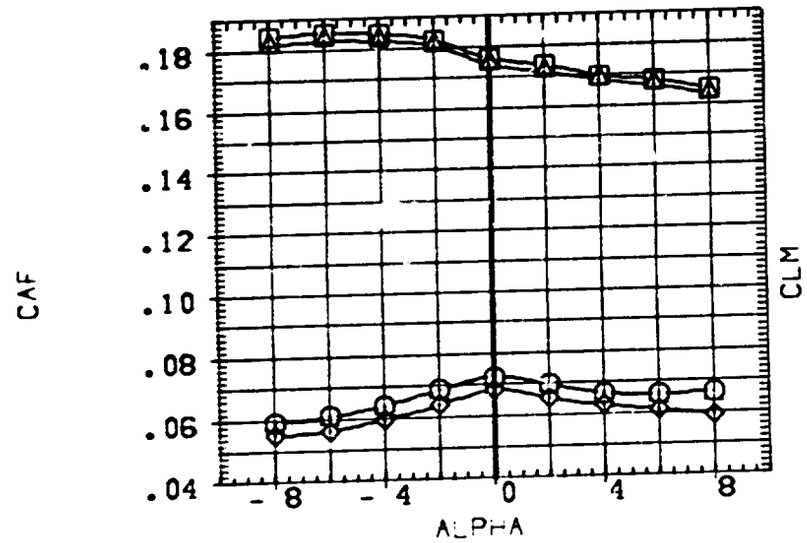
DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(C78013)	MSFC 556 (MA9F) NR ATP (01)/(T3)(S1)
(C78T13)	MSFC 556 (MA9F) NR ATP (T3)(S1)/(01)
(C78016)	MSFC 556 (MA9F) NR ATP (01)/(T3)(S1)
(C78T16)	MSFC 556 (MA9F) NR ATP (T3)(S1)/(01)

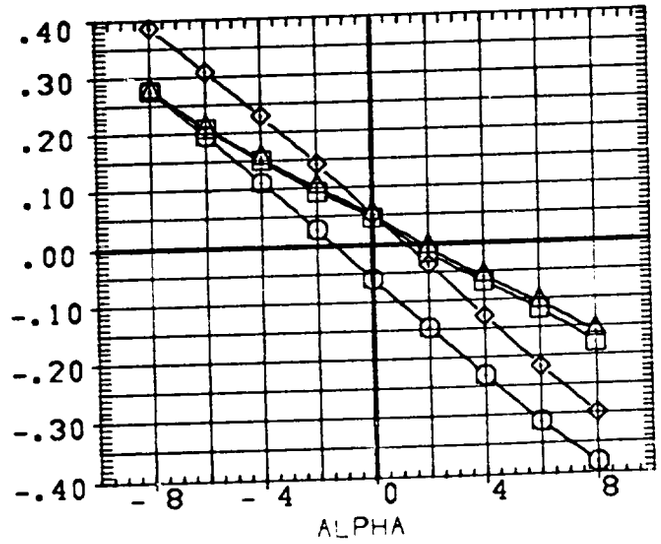
ORBINC	MACH	ELEVON	DELZ/D
.000	1.200	.000	-1.500
.000	1.200	.000	-1.500
2.000	1.200	.000	-1.500
2.000	1.200	.000	-1.500

REFERENCE INFORMATION		
SREF	3220.0000	SQ.FT.
LREF	1328.0000	INCHES
BREF	1328.0000	INCHES
XMRP	.0000	
YMRP	.0000	
ZMRP	-61.5000	INCHES
SCALE	100.0000	PER









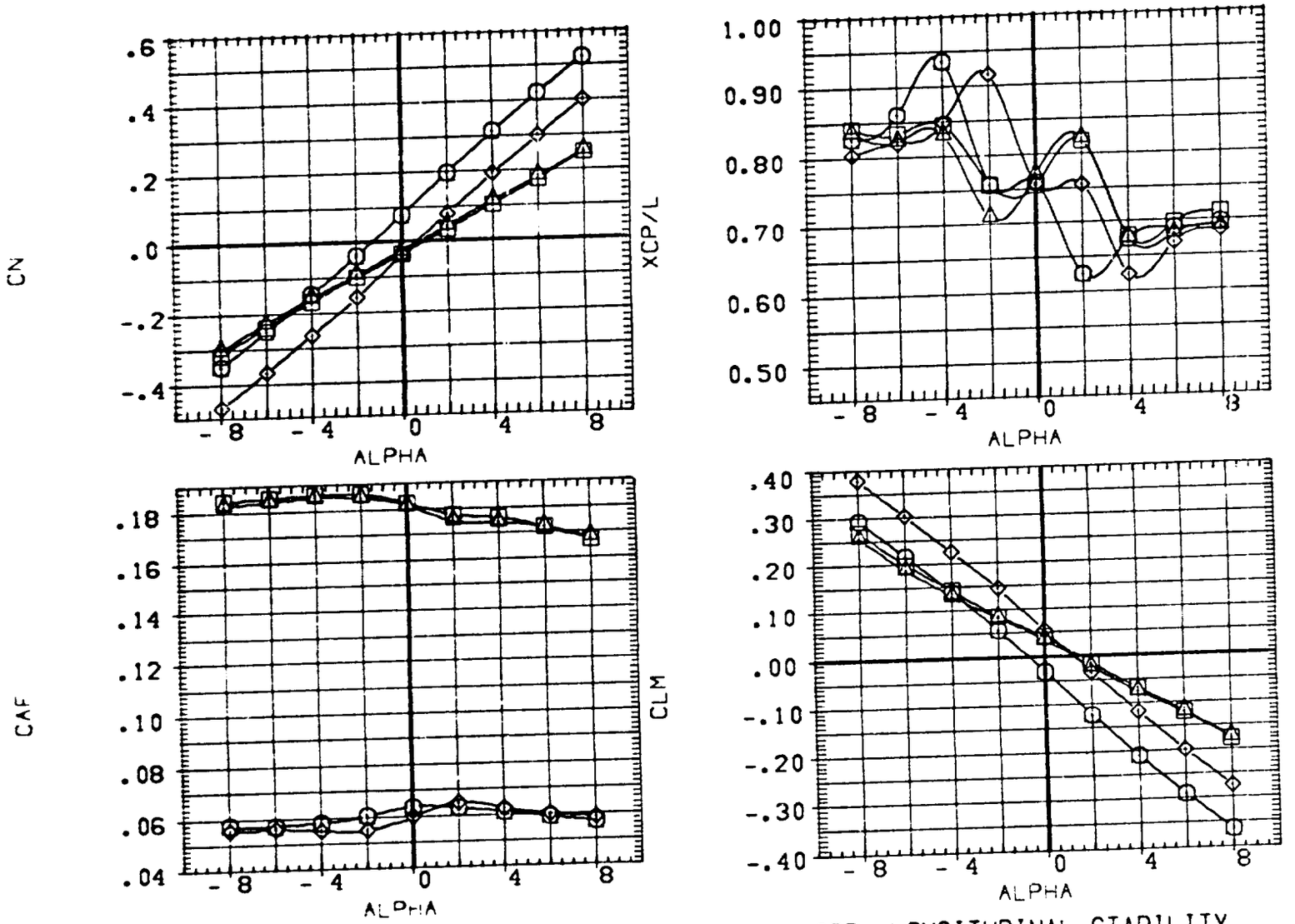
EFFECT OF INCIDENCE ANGLE ON ORBITER AND TANK / SRB, LONGITUDINAL STABILITY

(A)DELX/D= -1.00

DATA SET SYMBOL		CONFIGURATION DESCRIPTION
(C78015)	○	MSFC 558 (MASF) NR ATP (O1)/(T3)(S1)
(C78T15)	⊠	MSFC 558 (MASF) NR ATP (T3)(S1)/(O1)
(C78O18)	◇	MSFC 558 (MASF) NR ATP (O1)/(T3)(S1)
(C78T18)	□	MSFC 558 (MASF) NR ATP (T3)(S1)/(O1)

ORBINC	MACH	ELEVON	DELZ/D
.000	1.200	.000	-1.500
.000	1.200	.000	-1.500
2.000	1.200	.000	-1.500
2.000	1.200	.000	-1.500

REFERENCE INFORMATION		
SREF	3220.0000	SQ.FT.
LREF	1328.0000	INCHES
BREF	1328.0000	INCHES
XMRP	.0000	
YMRP	.0000	
ZMRP	-61.5000	INCHES
SCALE	100.0000	PER



EFFECT OF INCIDENCE ANGLE ON ORBITER AND TANK / SRB, LONGITUDINAL STABILITY

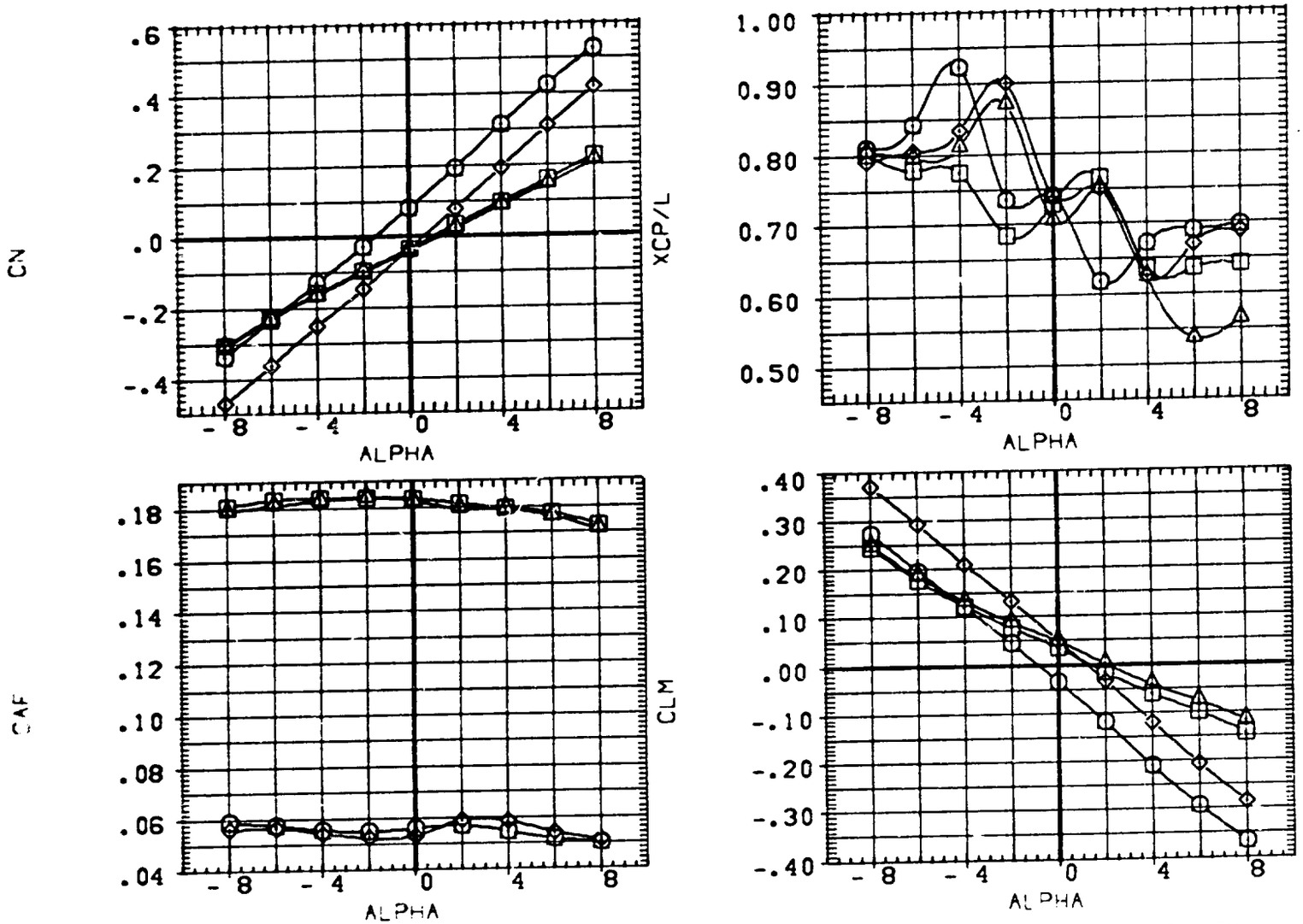
(B)DELX/D= -.50

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION
(CY80I5)	○	MSFC 558 (MA9F) NR ATP (O1)/(T3)(S1)
(CY80T5)	◇	MSFC 558 (MA9F) NR ATP (T3)(S1)/(O1)
(CY80I6)	□	MSFC 558 (MA9F) NR ATP (O1)/(T3)(S1)
(CY80T6)	△	MSFC 558 (MA9F) NR ATP (T3)(S1)/(O1)

ORBINC	MACH	ELEVON	DELZ/D
.000	1.200	.000	-1.500
.000	1.200	.000	-1.500
2.000	1.200	.000	-1.500
2.000	1.200	.000	-1.500

REFERENCE INFORMATION

SREF	3220.0000	SQ.FT.
LREF	1328.0000	INCHES
BREF	1328.0000	INCHES
XMRP	.0000	
YMRP	.0000	
ZMRP	-81.5000	INCHES
SCALE	100.0000	PER



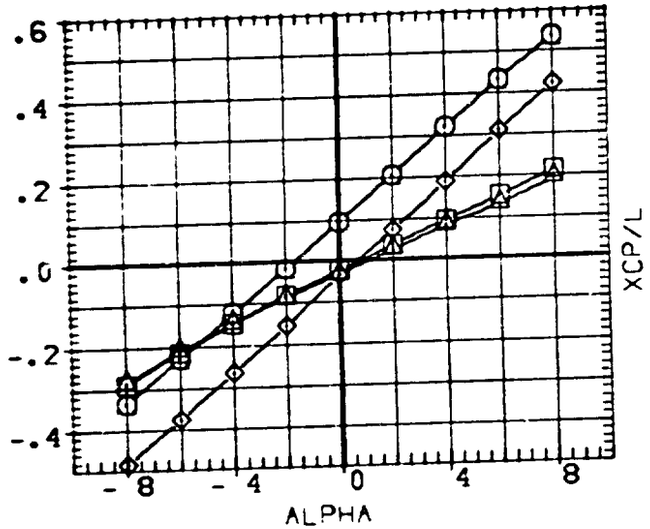
EFFECT OF INCIDENCE ANGLE ON ORBITER AND TANK / SRB, LONGITUDINAL STABILITY

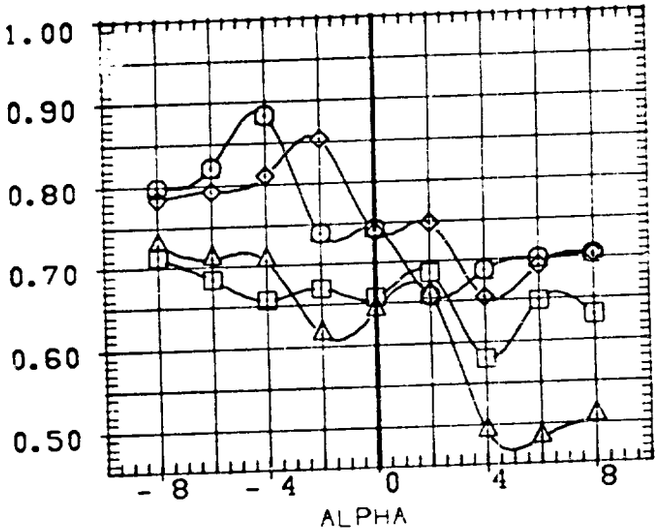
(C)DEL X/D= .00

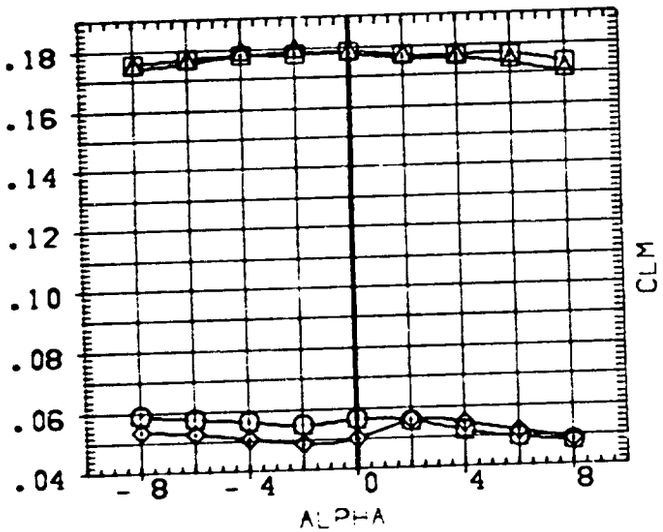
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION
(C78015)	○	MSFC 558 (MA9F) NR ATP (O1)/(T3)(S1)
(C78T15)	⊠	MSFC 558 (MA9F) NR ATP (T3)(S1)/(O1)
(C78018)	◇	MSFC 558 (MA9F) NR ATP (O1)/(T3)(S1)
(C78T18)	□	MSFC 558 (MA9F) NR ATP (T3)(S1)/(O1)

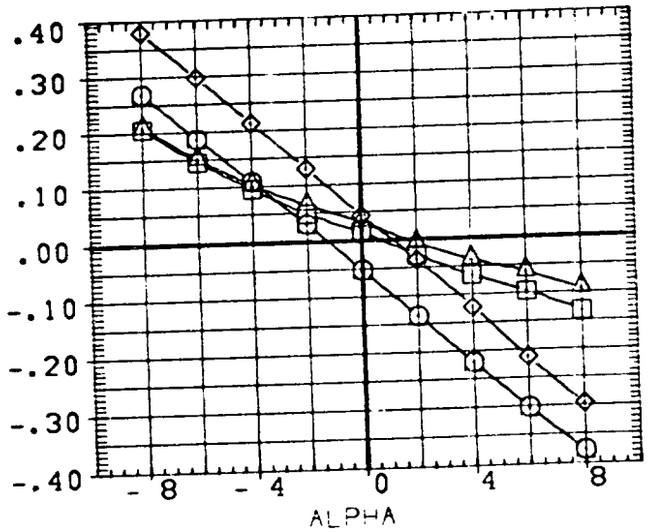
ORBINC	MACH	ELEVON	DELZ/D
.000	1.200	.000	-1.500
.000	1.200	.000	-1.500
2.000	1.200	.000	-1.500
2.000	1.200	.000	-1.500

REFERENCE INFORMATION		
SREF	3220.0000	SQ.FT.
LREF	1328.0000	INCHES
BREF	1328.0000	INCHES
XMRP	.0000	
YMRP	.0000	
ZMRP	-81.5000	INCHES
SCALE	100.0000	PER









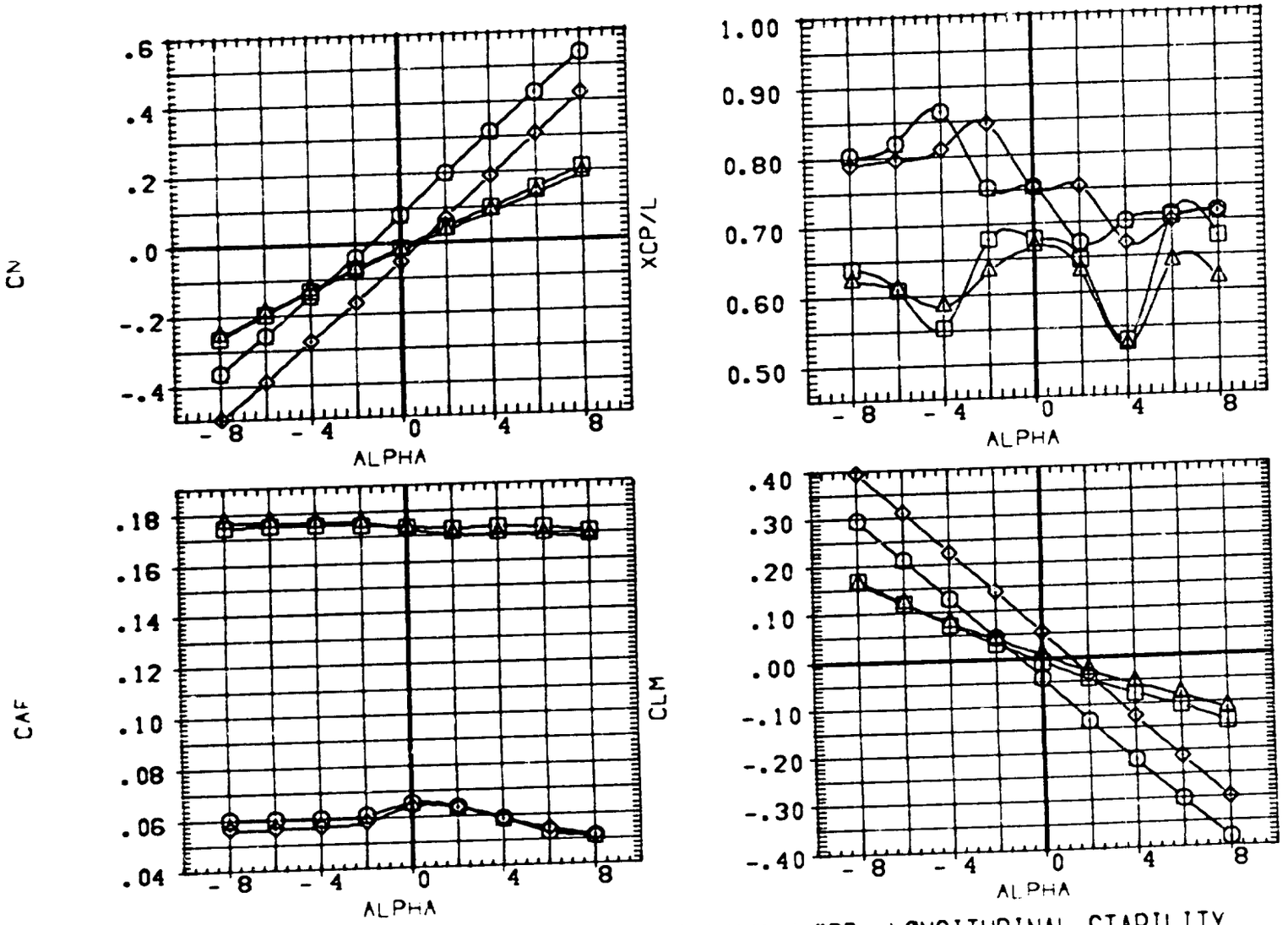
EFFECT OF INCIDENCE ANGLE ON ORBITER AND TANK / SRB, LONGITUDINAL STABILITY

(C)DELX/D= .50

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION
(C79015)	○	MSFC 55B (MASF) NR ATP (O1)/(T3)(S1)
(C79T15)	◇	MSFC 55A (MASF) NR ATP (T3)(S1)/(O1)
(C79016)	□	MSFC 55B (MASF) NR ATP (O1)/(T3)(S1)
(C79T16)	△	MSFC 55B (MASF) NR ATP (T3)(S1)/(O1)

ORBINC	MACH	ELEVON	DELZ/D
.000	1.200	.000	-1.500
.000	1.200	.000	-1.500
2.000	1.200	.000	-1.500
2.000	1.200	.000	-1.500

REFERENCE INFORMATION		
SREF	3220.0000	SQ.FT.
LREF	1328.0000	INCHES
BREF	1328.0000	INCHES
XMRP	.0000	
YMRP	.0000	
ZMRP	-61.5000	INCHES
SCALE	100.0000	PER



EFFECT OF INCIDENCE ANGLE ON ORBITER AND TANK / SRB, LONGITUDINAL STABILITY

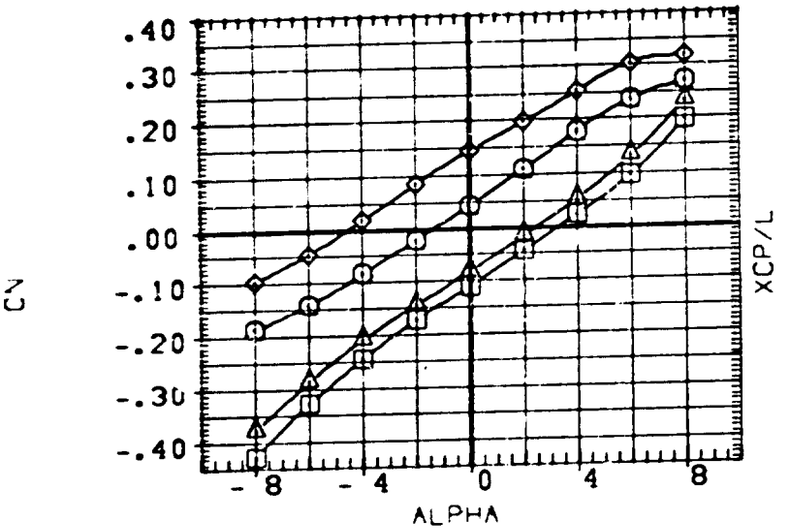
(ED)DELX/D= 1.00

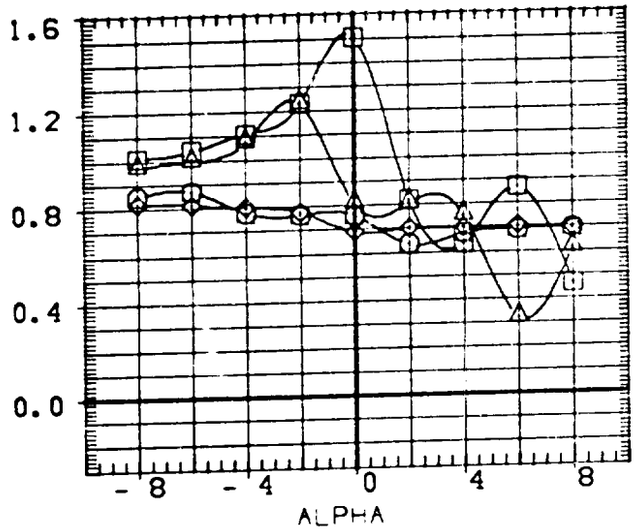
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION
(C78QES)	◇	MSFC 358 (MA9F) NR ATP (O1)/(T3)(S1)
(C78TES)	○	MSFC 358 (MA9F) NR ATP (T3)(S1)/(O1)
(C78QES)	△	MSFC 358 (MA9F) NR ATP (O1)/(T3)(S1)
(C78TES)	□	MSFC 358 (MA9F) NR ATP (T3)(S1)/(O1)

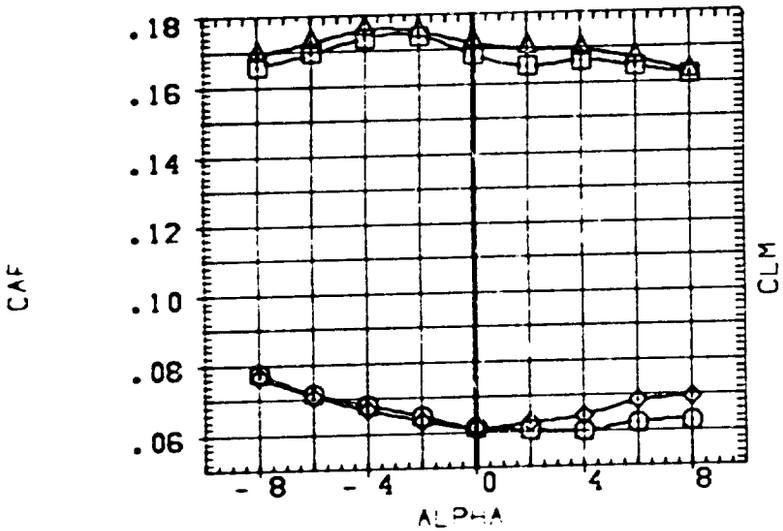
ORBINC	MACH	ELEVON	DELZ/D
.000	2.000	.000	-.520
.000	2.000	.000	-.520
2.000	2.000	.000	-.520
2.000	2.000	.000	-.520

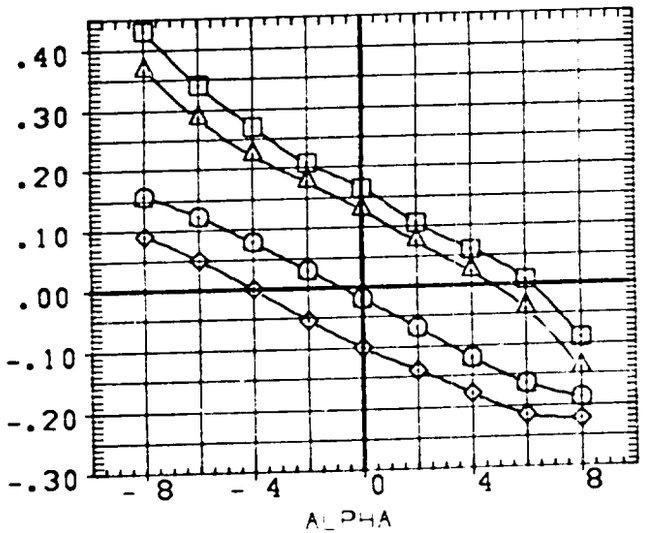
REFERENCE INFORMATION

SREF	3220.0000	SQ.FT.
LREF	1328.0000	INCHES
BREF	1328.0000	INCHES
XMRP	.0000	
YMRP	.0000	
ZMRP	-61.5000	INCHES
SCALE	100.0000	PER









EFFECT OF INCIDENCE ANGLE ON ORBITER AND TANK / SRB, LONGITUDINAL STABILITY

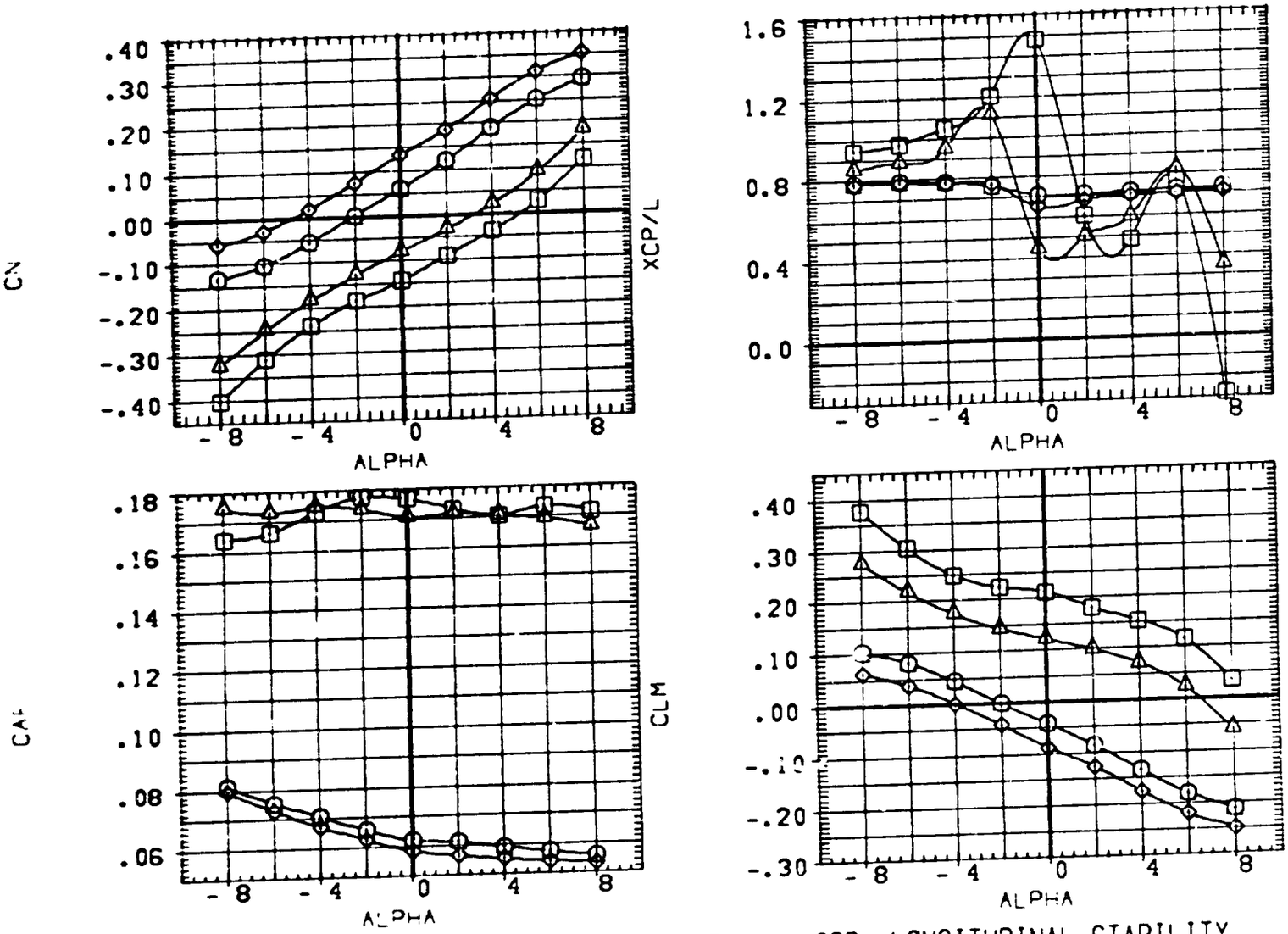
(A)DELX/D= -1.00

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION
(C78029)	□	MSFC 558 (MA9F) NR ATP (O1)/(T3)(S1)
(C78T25)	○	MSFC 558 (MA9F) NR ATP (T3)(S1)/(O1)
(C78028)	◇	MSFC 558 (MA9F) NR ATP (O1)/(T3)(S1)
(C78T24)	△	MSFC 558 (MA9F) NR ATP (T3)(S1)/(O1)

ORBINC	MACH	ELEVON	DELZ/D
.000	2.000	.000	-.520
.000	2.000	.000	-.520
2.000	2.000	.000	-.520
2.000	2.000	.000	-.520

REFERENCE INFORMATION

SREF	3220.0000	SQ.FT.
LREF	1328.0000	INCHES
BREF	1328.0000	INCHES
XMRP	.0000	
YMRP	.0000	
ZMRP	-81.5000	INCHES
SCALE	100.0000	PER



EFFECT OF INCIDENCE ANGLE ON ORBITER AND TANK / SRB, LONGITUDINAL STABILITY

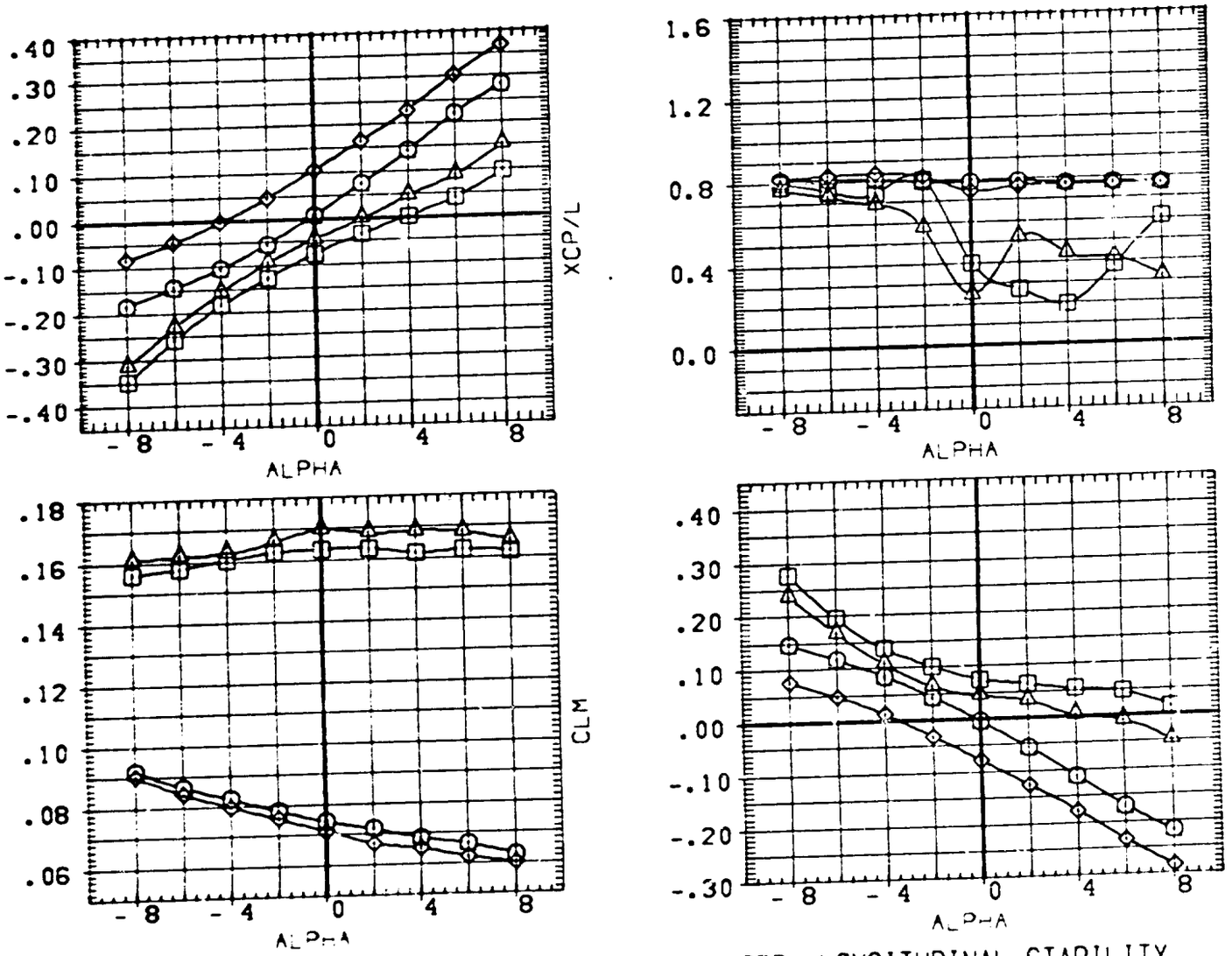
(BODY X/D= .00

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION
(C70C2S)	◇	MSFC 550 (MA9F) NR ATP (O1)/(T3)(S1)
(C70T2S)	○	MSFC 550 (MA9F) NR ATP (T3)(S1)/(O1)
(C70C2B)	△	MSFC 550 (MA9F) NR ATP (O1)/(T3)(S1)
(C70T2B)	□	MSFC 550 (MA9F) NR ATP (T3)(S1)/(O1)

ORBINC	MACH	ELEVON	DELZ/D
.000	2.000	.000	-.520
.000	2.000	.000	-.520
2.000	2.000	.000	-.520
2.000	2.000	.000	-.520

REFERENCE INFORMATION

SREF	3220.0000	SQ.FT.
LREF	1328.0000	INCHES
BREF	1328.0000	INCHES
XMRP	.0000	
YMRP	.0000	
ZMRP	-81.5000	INCHES
SCALE	100.0000	PER



EFFECT OF INCIDENCE ANGLE ON ORBITER AND TANK / SRB, LONGITUDINAL STABILITY

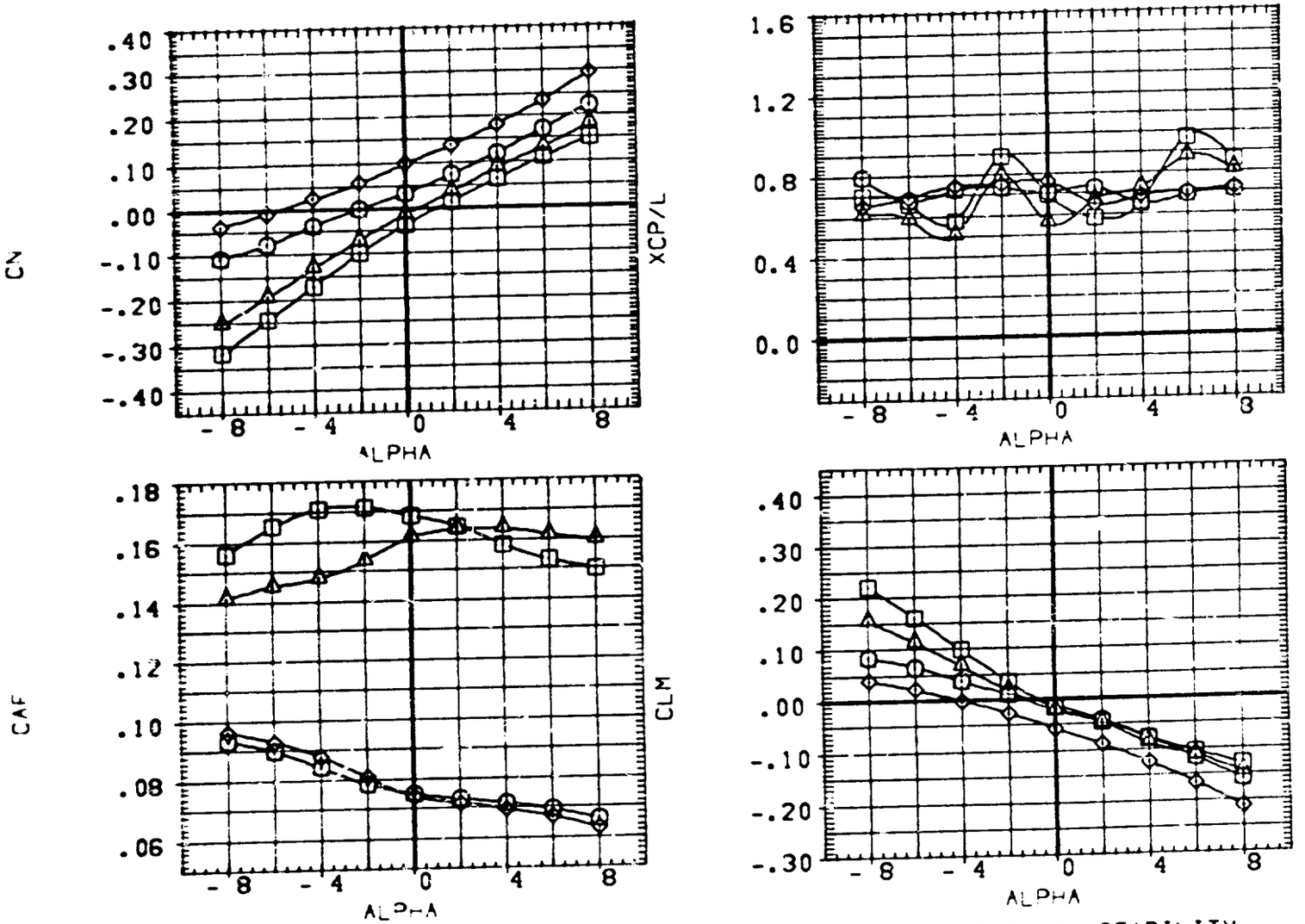
(CGBELX/C= 1.00

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION
(C79QES)	○	MSFC 55B (MA9F) NR ATP (O1)/(T3)(S1)
(C79TES)	◇	MSFC 55B (MA9F) NR ATP (T3)(S1)/(O1)
(C78QE8)	□	MSFC 55B (MA9F) ATP (O1)/(T3)(S1)
(C78TE8)	△	MSFC 55B (MA9F) ATP (T3)(S1)/(O1)

ORBINC	MACH	ELEVON	DELZ/D
.000	2.000	.000	-.520
.000	2.000	.000	-.520
2.000	2.000	.000	-.520
2.000	2.000	.000	-.520

REFERENCE INFORMATION

SREF	3220.0000	SQ FT.
LREF	1328.0000	INCHES
BREF	1328.0000	INCHES
XMRP	.0000	
YMRP	.0000	
ZMRP	-81.3000	INCHES
SCALE	100.0000	PER



EFFECT OF INCIDENCE ANGLE ON ORBITER AND TANK / SRB, LONGITUDINAL STABILITY

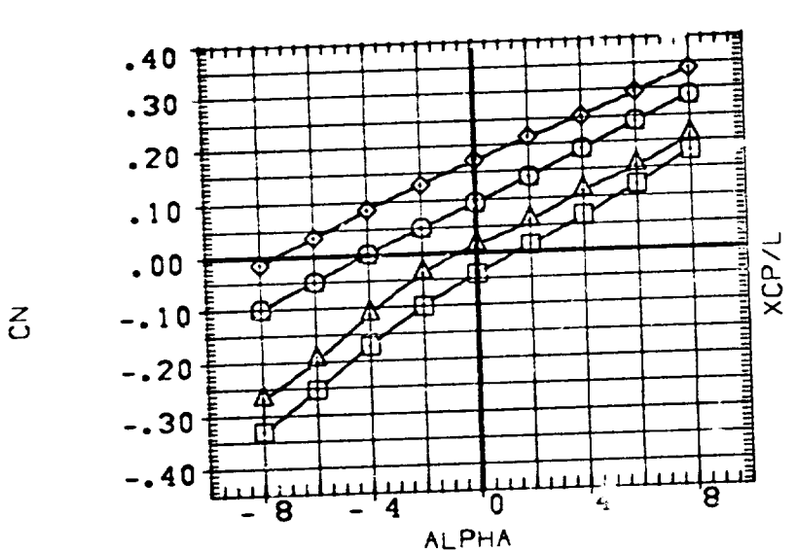
(DELX/D= 2.00

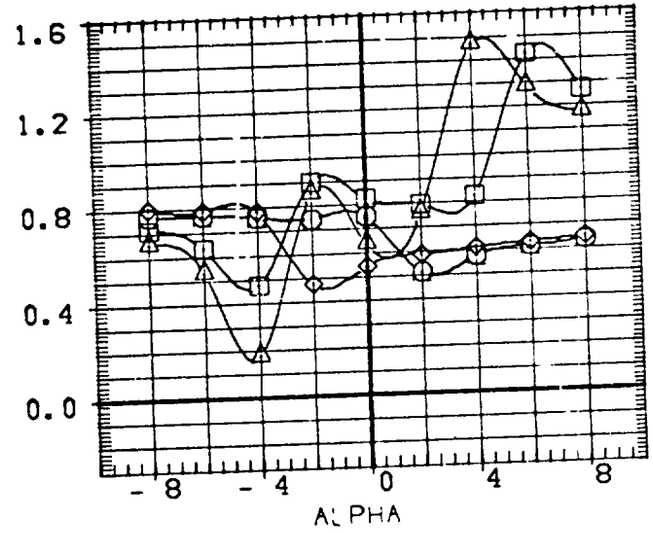
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION
(C78085)	○	MSFC 558 (MA9F) NR ATP (O1)/(T3)(S1)
(C78T25)	⊠	MSFC 558 (MA9F) NR ATP (T3)(S1)/(O1)
(C78025)	◇	MSFC 558 (MA9F) NR ATP (O1)/(T3)(S1)
(C78TE3)	□	MSFC 558 (MA9F) NR ATP (T3)(S1)/(O1)

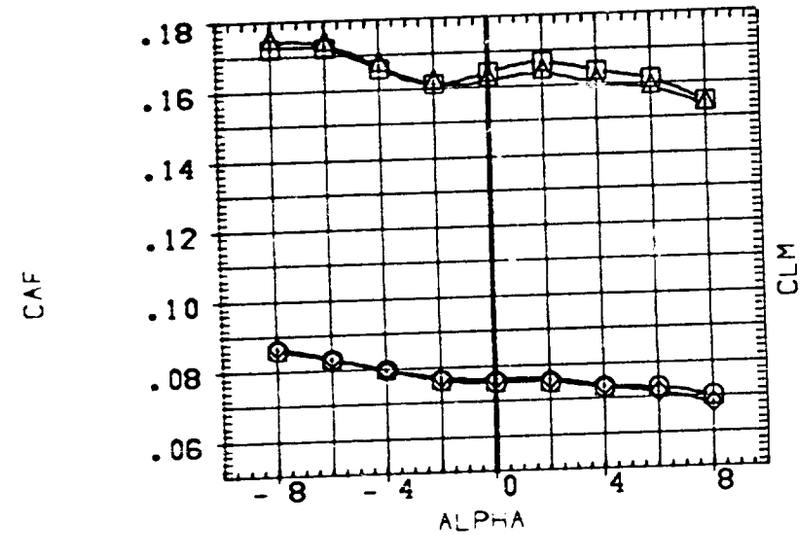
ORBINC	MACH	ELEVON	DELZ/D
.000	2.000	.000	-.520
.000	2.000	.000	-.520
2.000	2.000	.000	-.520
2.000	2.000	.000	-.520

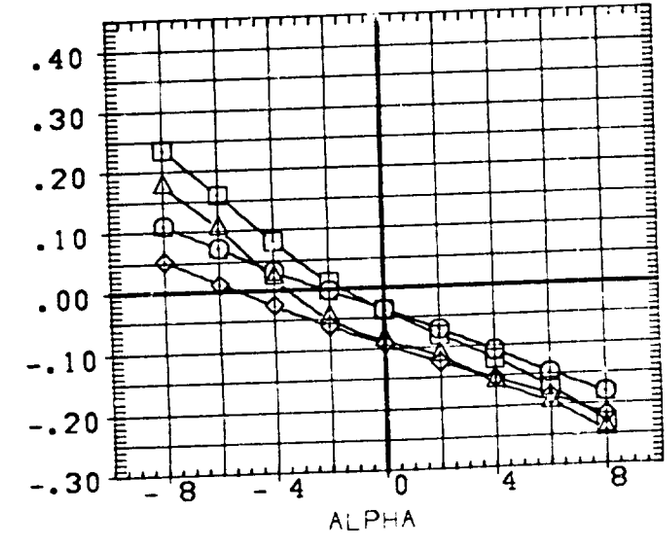
REFERENCE INFORMATION

SREF	3220.0000	SQ.FT.
LREF	1328.0000	INCHES
BREF	1328.0000	INCHES
XMRP	.0000	
YMRP	.0000	
ZMRP	-61.5000	INCHES
SCALE	100.0000	PER









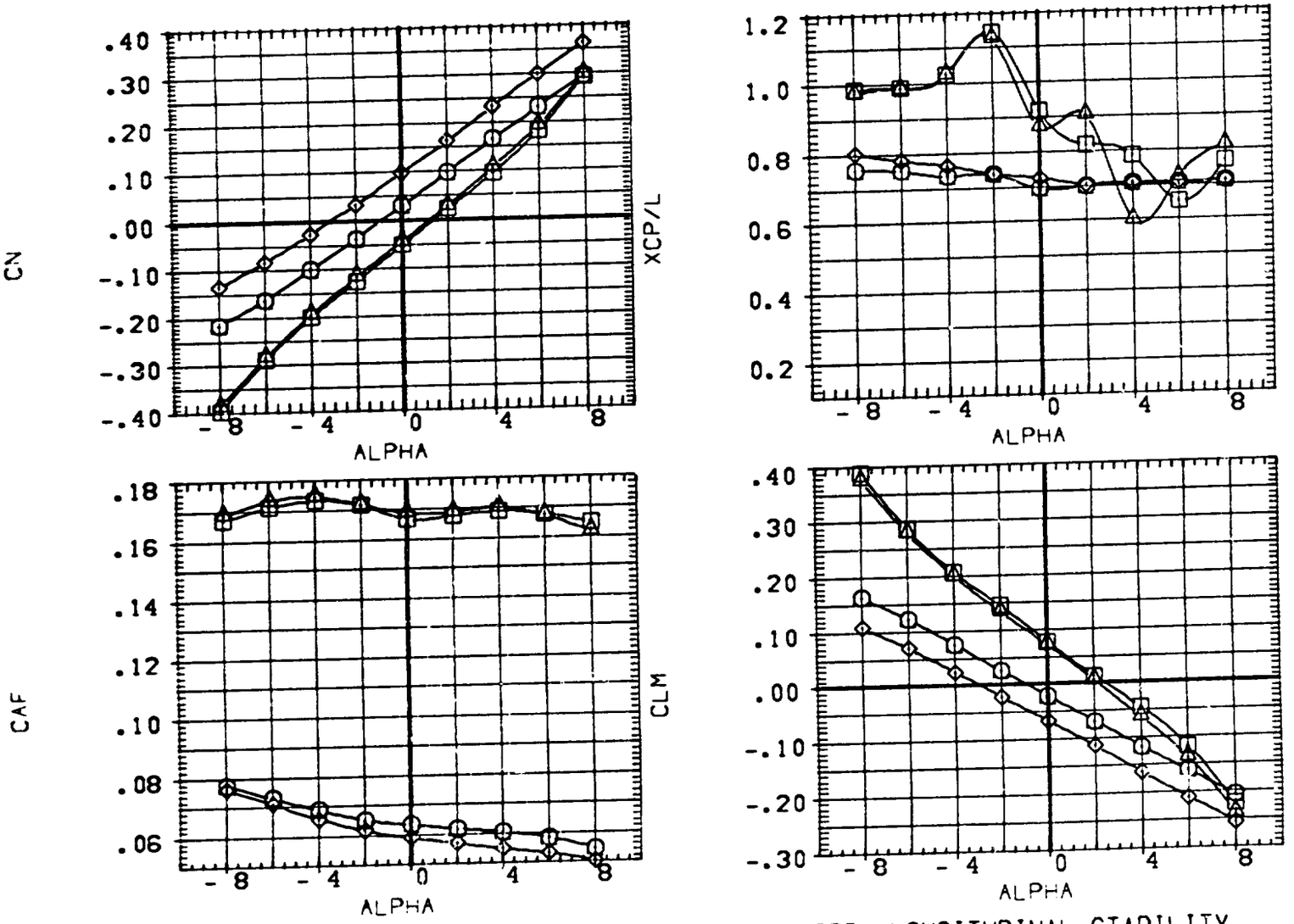
EFFECT OF INCIDENCE ANGLE ON ORBITER AND TANK / SRB, LONGITUDINAL STABILITY

(E)DELX/D= 3.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(C79026)	MSFC 558 (MA9F) NR ATP (O1)/(T3)(S1)
(C78T26)	MSFC 558 (MA9F) NR ATP (T3)(S1)/(O1)
(C78029)	MSFC 558 (MA9F) NR ATP (O1)/(T3)(S1)
(C78T29)	MSFC 559 (MA9F) NR ATP (T3)(S1)/(O1)

ORBINC	MACH	ELEVON	DELZ/D
.000	2.000	.000	-1.000
.000	2.000	.000	-1.000
2.000	2.000	.000	-1.000
2.000	2.000	.000	-1.000

REFERENCE INFORMATION		
SREF	3220.0000	SQ.FT.
LREF	1328.0000	INCHES
BREF	1328.0000	INCHES
XMRP	.0000	
YMRP	.0000	
ZMRP	-61.3000	INCHES
SCALE	100.0000	PER



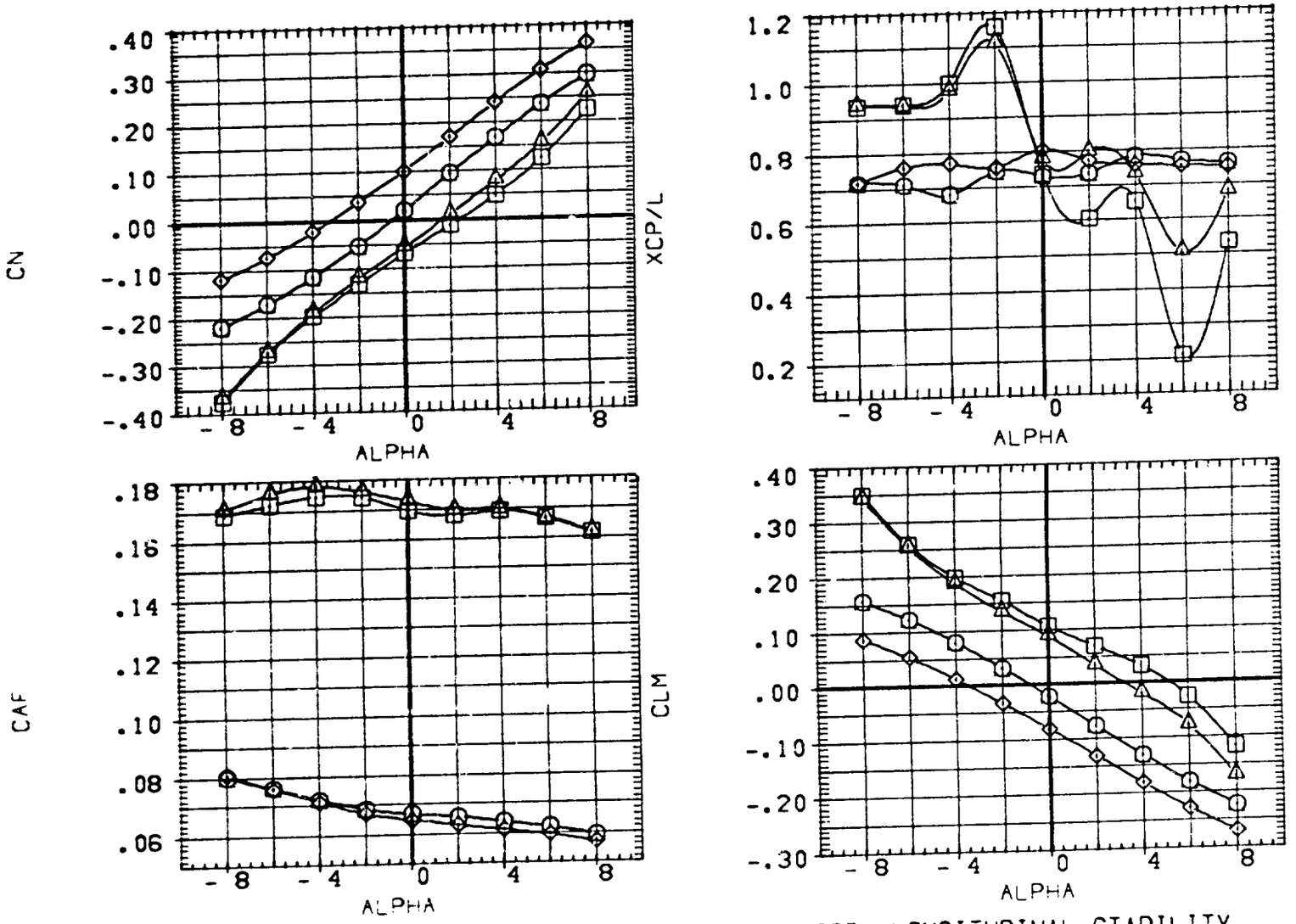
EFFECT OF INCIDENCE ANGLE ON ORBITER AND TANK / SRB, LONGITUDINAL STABILITY

(A)DELX/D= -1.00

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION
(C78Q26)	◇	MSFC 558 (MA9F) NR ATP (O1)/(T3)(S1)
(C78T26)	□	MSFC 558 (MA9F) NR ATP (T3,(S1)/(O1)
(C78Q29)	△	MSFC 558 (MA9F) NR ATP (O1)/(T3)(S1)
(C78T29)	○	MSFC 558 (MA9F) NR ATP (T3)(S1)/(O1)

ORBINC	MACH	ELEVON	DELZ/D
.000	2.000	.000	-1.000
.000	2.000	.000	-1.000
2.000	2.000	.000	-1.000
2.000	2.000	.000	-1.000

REFERENCE INFORMATION		
SREF	3220.0000	SQ.FT.
LREF	1328.0000	INCHES
BREF	1328.0000	INCHES
XMRP	.0000	
YMRP	.0000	
ZMRP	-61.3000	INCHES
SCALE	100.0000	PER



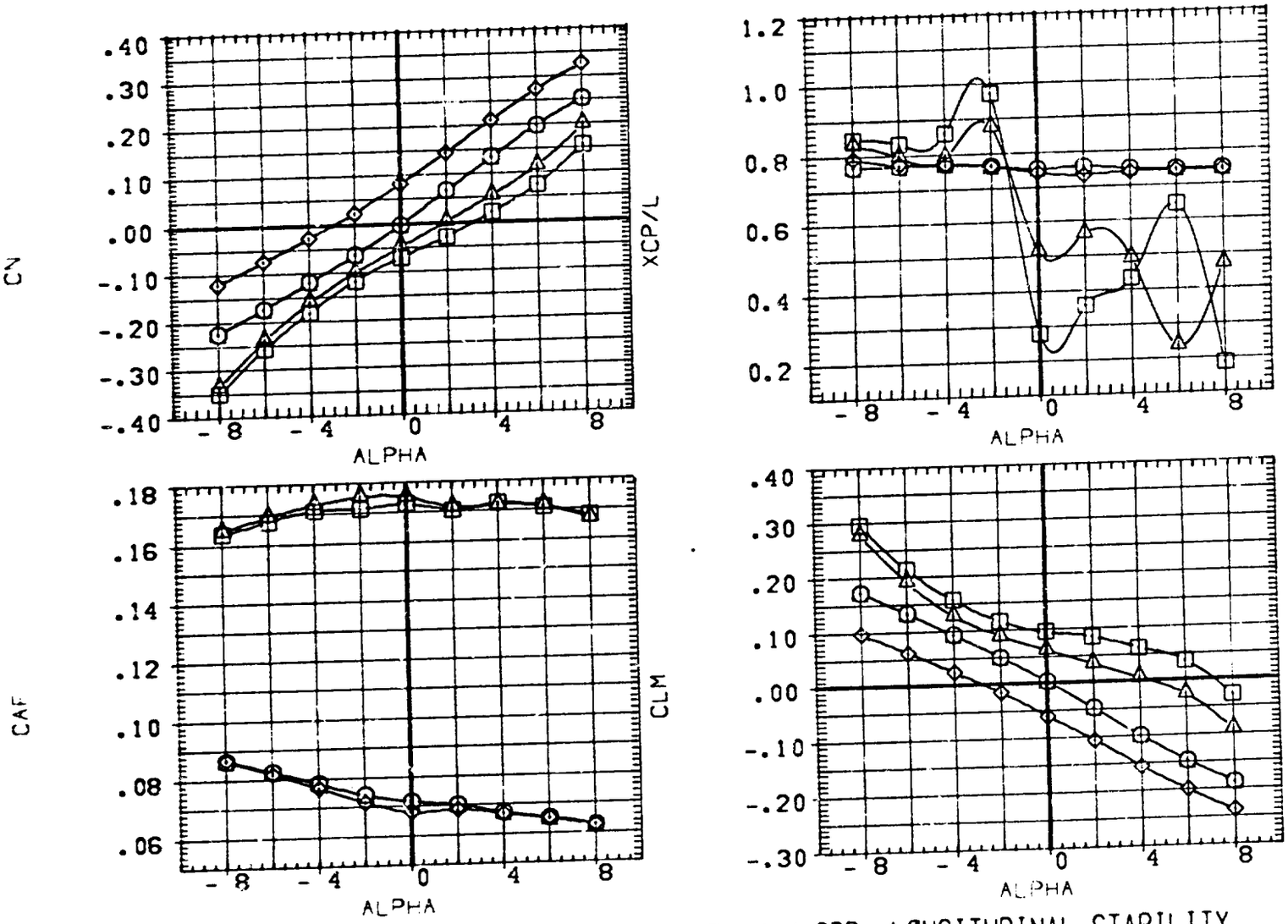
EFFECT OF INCIDENCE ANGLE ON ORBITER AND TANK / SRB, LONGITUDINAL STABILITY

(B)DELX/D= .00

DATA SET SYMBOL		CONFIGURATION DESCRIPTION
(C78G26)	⊗	MSFC 558 (MA9F) NR ATP (O1)/(T3)(S1)
(C78T26)	⊠	MSFC 55 (MA9F) NR ATP (T3)(S1)/(O1)
(C78G29)	◇	MSFC 558 (MA9F) NR ATP (O1)/(T3)(S1)
(C78T29)	□	MSFC 558 (MA9F) NR ATP (T3)(S1)/(O1)

ORBINC	MACH	ELEVON	DELZ/D
.000	2.000	.000	-1.000
.000	2.000	.000	-1.000
2.000	2.000	.000	-1.000
2.000	2.000	.000	-1.000

REFERENCE INFORMATION		
SREF	3220.0000	SQ.FT.
LREF	1328.0000	INCHES
BREF	1328.0000	INCHES
XMRP	.0000	
YMRP	.0000	
ZMRP	-61.5000	INCHES
SCALE	100.0000	PER



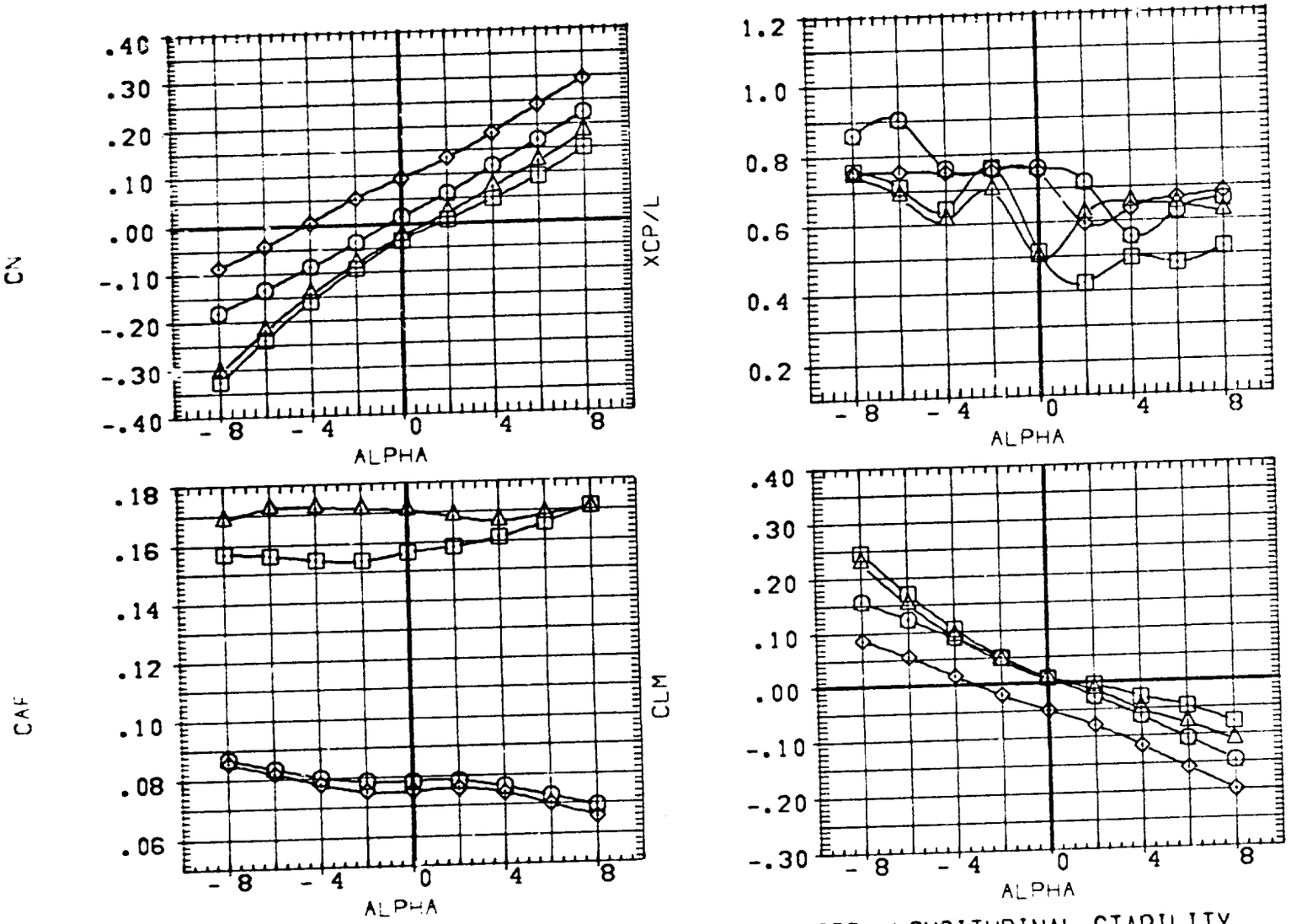
EFFECT OF INCIDENCE ANGLE ON ORBITER AND TANK / SRB, LONGITUDINAL STABILITY

(C)DELX/D= 1.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(C79026)	MSFC 558 (MA9F) NR ATP (O1)/(T3)(S1)
(C78T26)	MSFC 558 (MA9F) NR ATP (T3)(S1)/(O1)
(C79029)	MSFC 558 (MA9F) NR ATP (O1)/(T3)(S1)
(C78T29)	MSFC 558 (MA9F) NR ATP (T3)(S1)/(O1)

ORBINC	MACH	ELEVON	DELZ/D
.000	2.000	.000	-1.000
.000	2.000	.000	-1.000
2.000	2.000	.000	-1.000
2.000	2.000	.000	-1.000

REFERENCE INFORMATION		
SREF	3220.0000	SQ.FT.
LREF	1328.0000	INCHES
BREF	1328.0000	INCHES
XMRP	.0000	
YMRP	.0000	
ZMRP	-61.5000	INCHES
SCALE	100.0000	PER



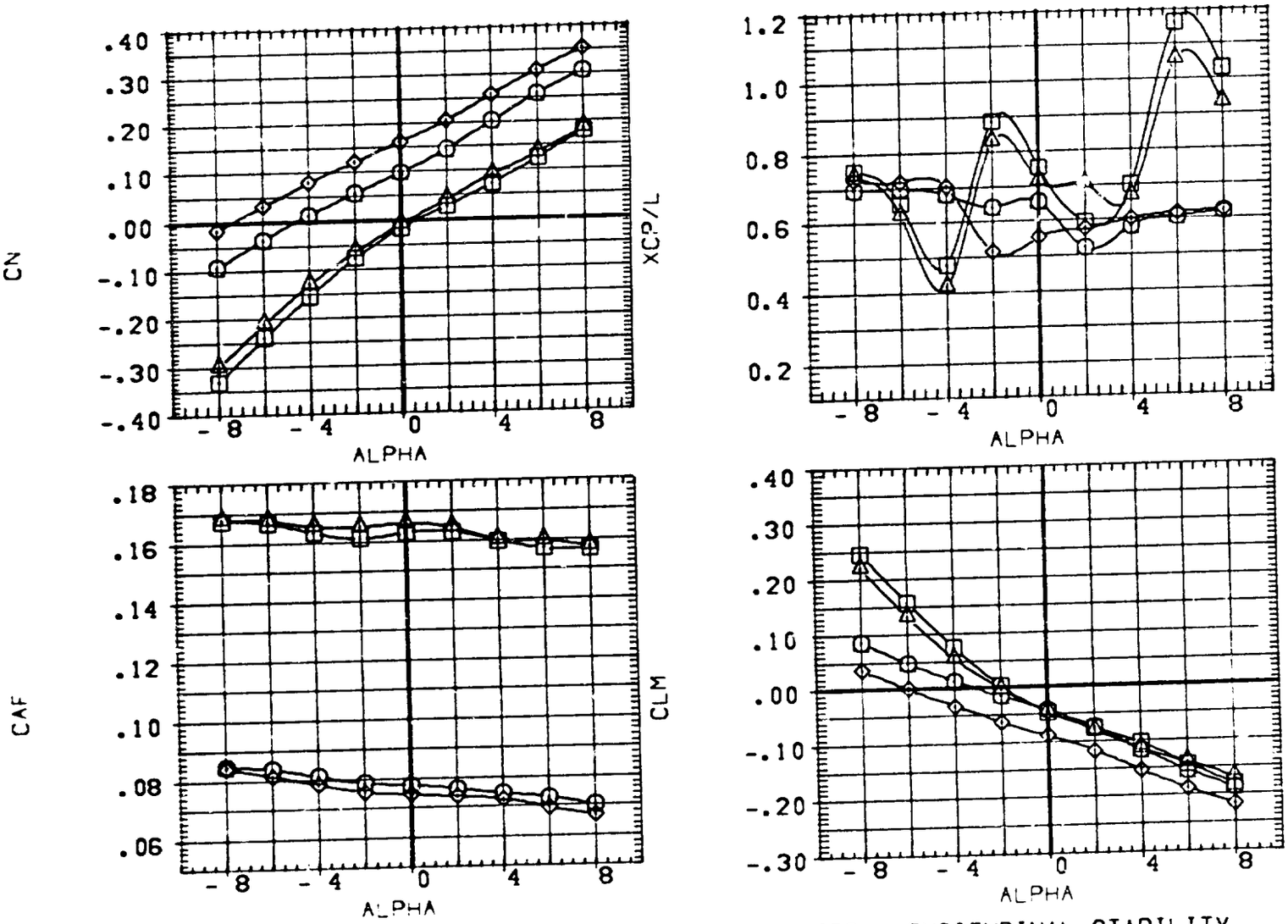
EFFECT OF INCIDENCE ANGLE ON ORBITER AND TANK / SRB, LONGITUDINAL STABILITY

CD DELX/D= 2.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(C?8QB6)	MSFC 558 (MA9F) NR ATP (O1)/(T3)(S1)
(C?8TZ6)	MSFC 558 (MA9F) NR ATP (T3)(S1)/(O1)
(C?8QZ9)	MSFC 558 (MA9F) NR ATP (O1)/(T3)(S1)
(C?8TZ9)	MSFC 558 (MA9F) NR ATP (T3)(S1)/(O1)

ORBINC	MACH	ELEVON	DELZ/D
.000	2.000	.000	-1.000
.000	2.000	.000	-1.000
2.000	2.000	.000	-1.000
2.000	2.000	.000	-1.000

REFERENCE INFORMATION		
SREF	3220.0000	SQ.FT.
LREF	1328.0000	INCHES
BREF	1328.0000	INCHES
XMRP	.0000	
YMRP	.0000	
ZMRP	-61.5000	INCHES
SCALE	100.0000	PER



EFFECT OF INCIDENCE ANGLE ON ORBITER AND TANK / SRB, LONGITUDINAL STABILITY

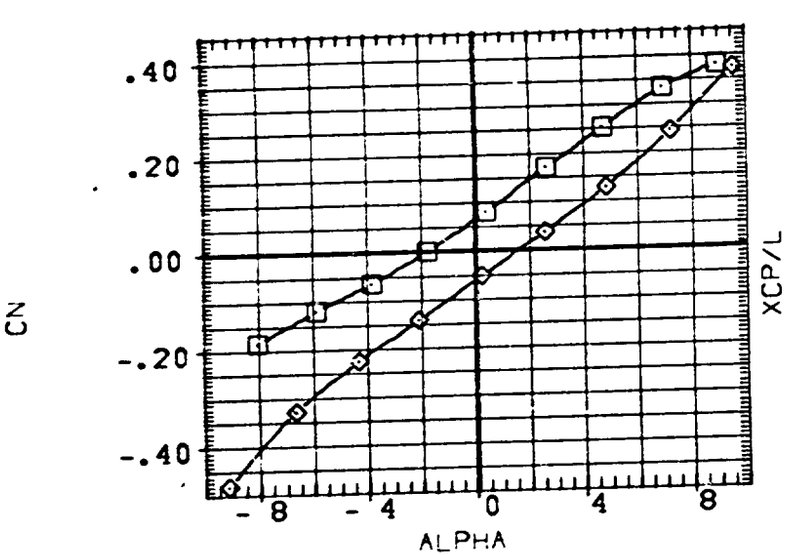
(ED)DELX/D= 3.00

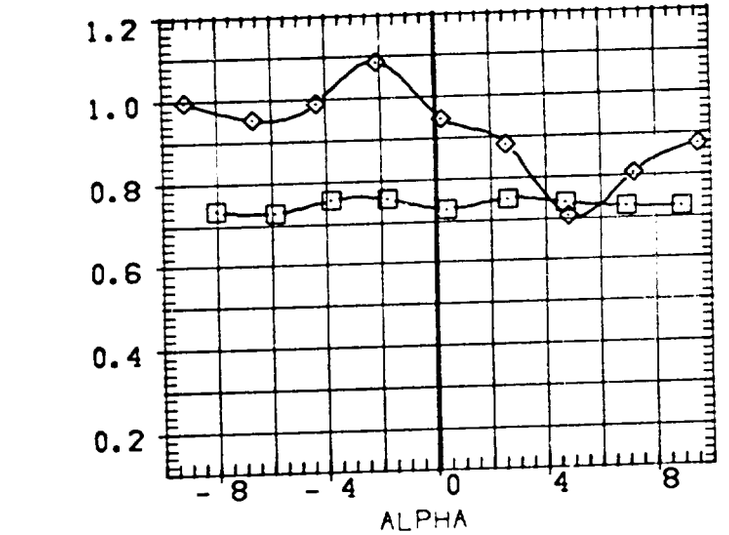
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION
(C76027)		DATA NOT AVAILABLE
(C76T27)		DATA NOT AVAILABLE
(C76030)		MSFC 556 (MA9F) NR ATP (O1)/(T3)(S1)
(C76T30)		MSFC 556 (MA9F) NR ATP (T3)(S1)/(O1)

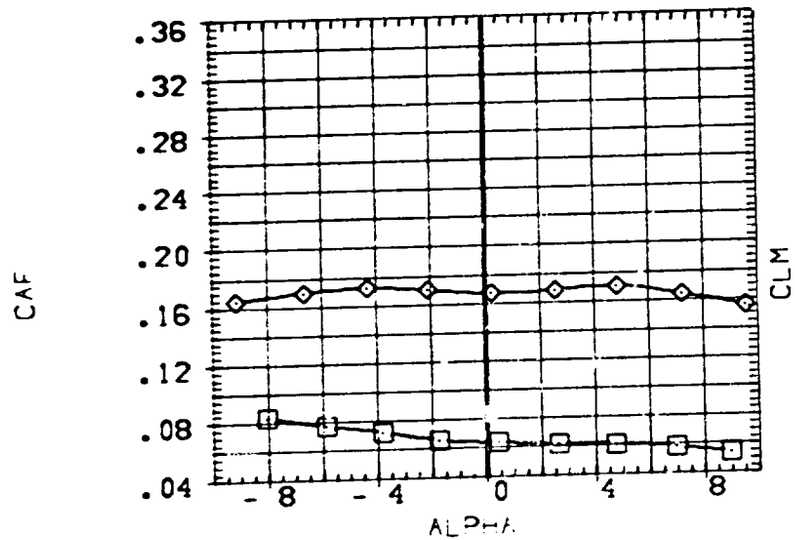
ORBINC	MACH	ELEVON	DELZ/D
.000	2.000	.000	-1.500
.000	2.000	.000	-1.500
2.000	2.000	.000	-1.500
2.000	2.000	.000	-1.500

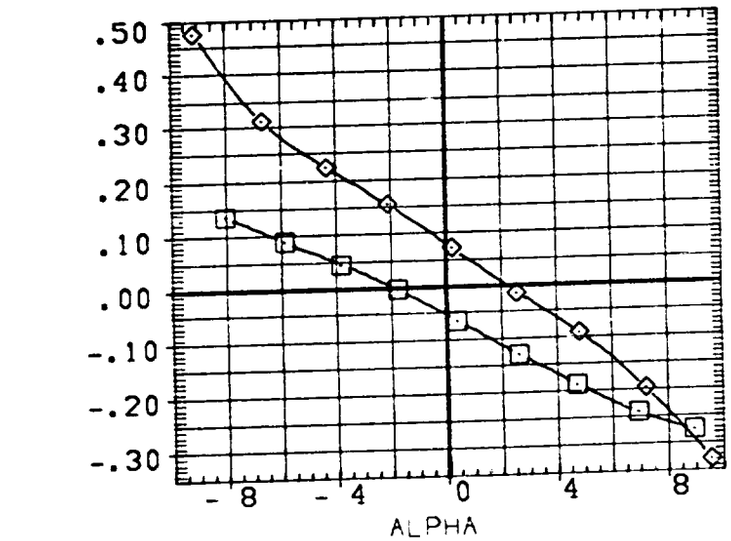
REFERENCE INFORMATION

SREF	3220.0000	SQ.FT.
LREF	1328.0000	INCHES
BREF	1328.0000	INCHES
XMRP	.0000	
YMRP	.0000	
ZMRP	-61.5000	INCHES
SCALE	100.0000	PER









EFFECT OF INCIDENCE ANGLE ON ORBITER AND TANK / SRB, LONGITUDINAL STABILITY

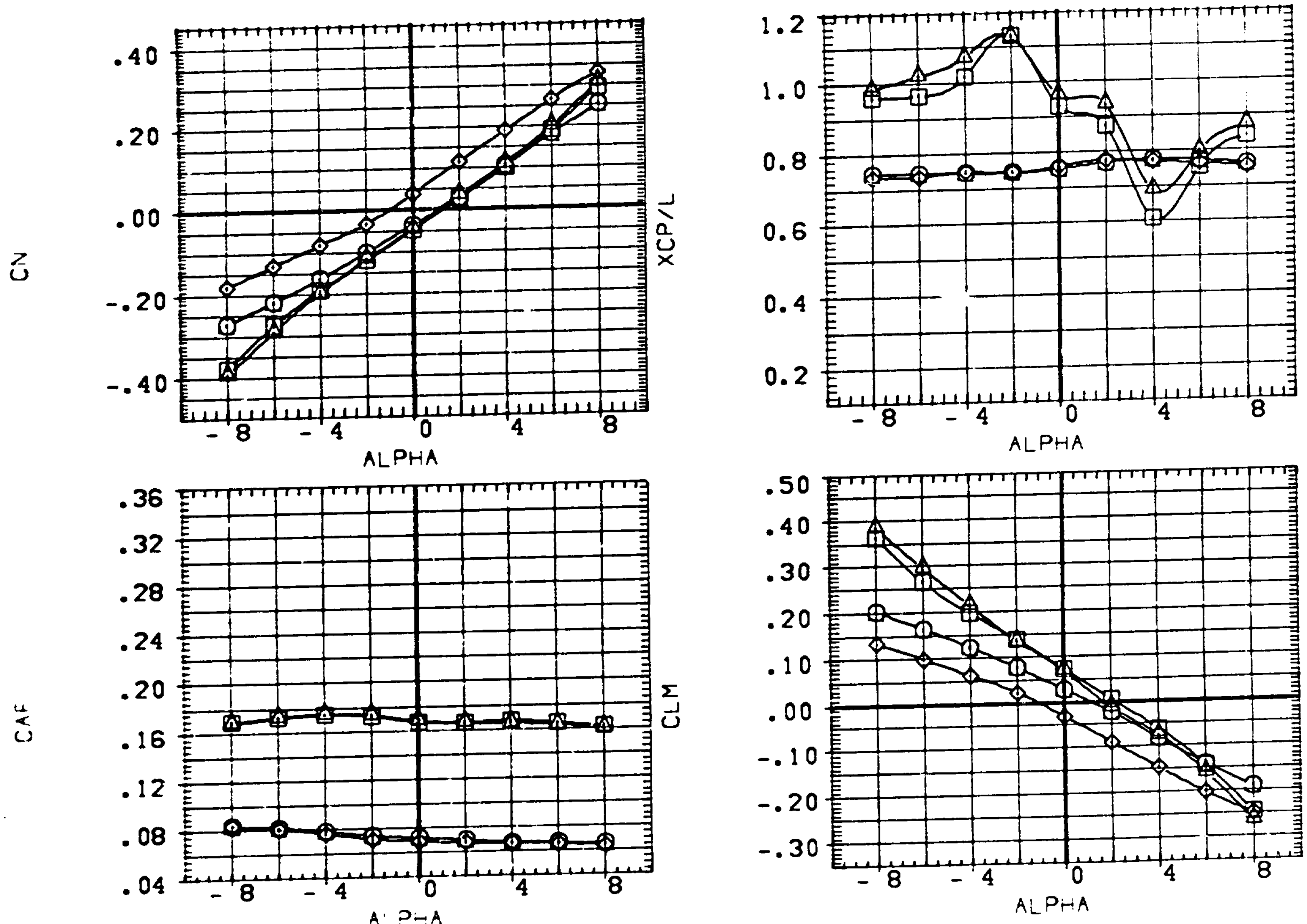
(A)DELX/D= -1.00

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION
(C78027)	○	MSFC 558 (MA9F) NR ATP (O1)/(T3)(S1)
(C78T27)	□	MSFC 558 (MA9F) NR ATP (T3)(S1)/(O1)
(C78O30)	◇	MSFC 558 (MA9F) NR ATP (O1)/(T3)(S1)
(C78T30)	△	MSFC 558 (MA9F) NR ATP (T3)(S1)/(O1)

ORBINC	MACH	ELEVON	DELZ/D
.000	2.000	.000	-1.500
.000	2.000	.000	-1.500
2.000	2.000	.000	-1.500
2.000	2.000	.000	-1.500

REFERENCE INFORMATION

SREF	3220.0000	SQ.FT.
LREF	1328.0000	INCHES
BREF	1328.0000	INCHES
XMRP	.0000	
YMRP	.0000	
ZMRP	-61.5000	INCHES
SCALE	100.0000	PER



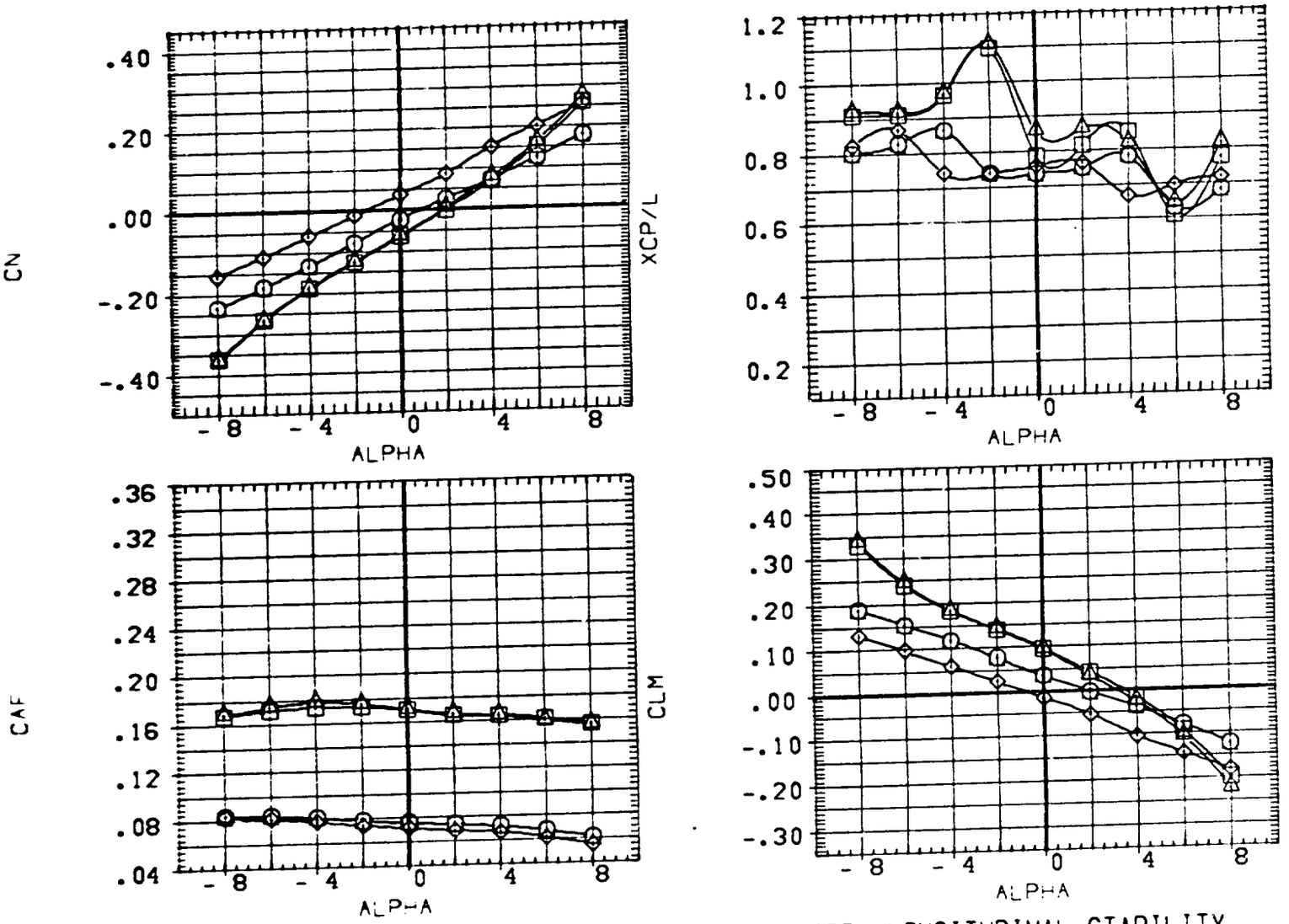
EFFECT OF INCIDENCE ANGLE ON ORBITER AND TANK / SRB, LONGITUDINAL STABILITY

(B)DELX/D= .00

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION
(C78027)	○	MSFC 558 (MA9F) NR ATP (O1)/(T3)(S1)
(C78T27)	△	MSFC 558 (MA9F) NR ATP (T3)(S1)/(O1)
(C78030)	◇	MSFC 558 (MA9F) NR ATP (O1)/(T3)(S1)
(C78T30)	▽	MSFC 558 (MA9F) NR ATP (T3)(S1)/(O1)

ORBINC	MACH	ELEVON	DELZ/D
.000	2.000	.000	-1.500
.000	2.000	.000	-1.500
2.000	2.000	.000	-1.500
2.000	2.000	.000	-1.500

REFERENCE INFORMATION		
SREF	3228.0000	SQ.FT.
LREF	1328.0000	INCHES
BREF	1328.0000	INCHES
XMRP	.0000	
YMRP	.0000	
ZMRP	-61.5000	INCHES
SCALE	100.0000	PER



EFFECT OF INCIDENCE ANGLE ON ORBITER AND TANK / SRB, LONGITUDINAL STABILITY

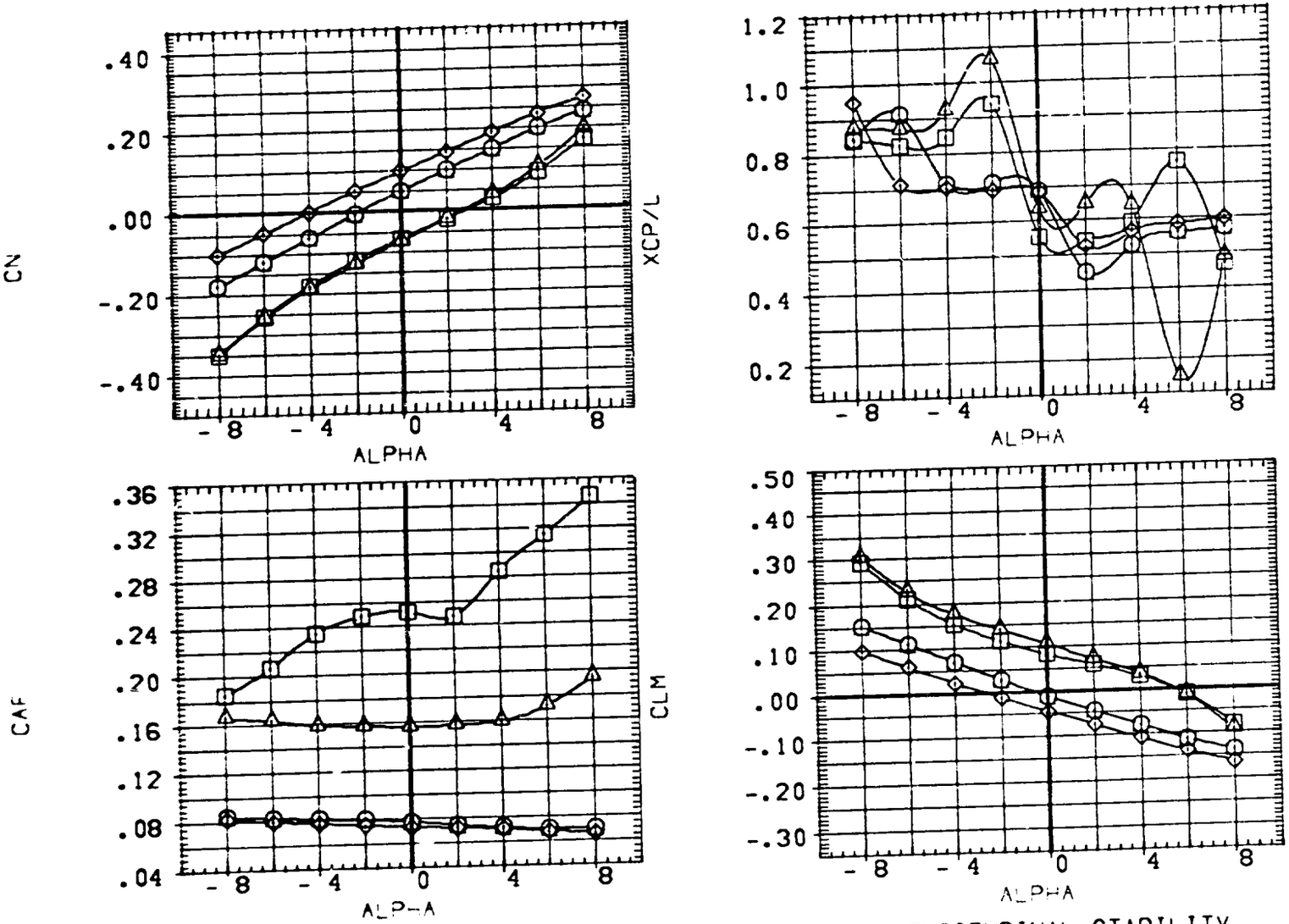
CODELX/D= 1.00

DATA SET SYMBOL		CONFIGURATION DESCRIPTION
(C78027)	○	MSFC 558 (MA9F) NR ATP (O1)/(T3)(S1)
(C78T27)	△	MSFC 558 (MA9F) NR ATP (T3)(S1)/(O1)
(C78030)	◇	MSFC 558 (MA9F) NR ATP (O1)/(T3)(S1)
(C78T30)	—	MSFC 558 (MA9F) NR ATP (T3)(S1)/(O1)

ORBINC	MACH	ELEVON	DELZ/D
.000	2.000	.000	-1.500
.000	2.000	.000	-1.500
2.000	2.000	.000	-1.500
2.000	2.000	.000	-1.500

REFERENCE INFORMATION

SREF	3220.0000	SQ.FT.
LREF	1328.0000	INCHES
BREF	1328.0000	INCHES
XMRP	.0000	
YMRP	.0000	
ZMRP	-61.5000	INCHES
SCALE	100.0000	PER



EFFECT OF INCIDENCE ANGLE ON ORBITER AND TANK / SRB, LONGITUDINAL STABILITY

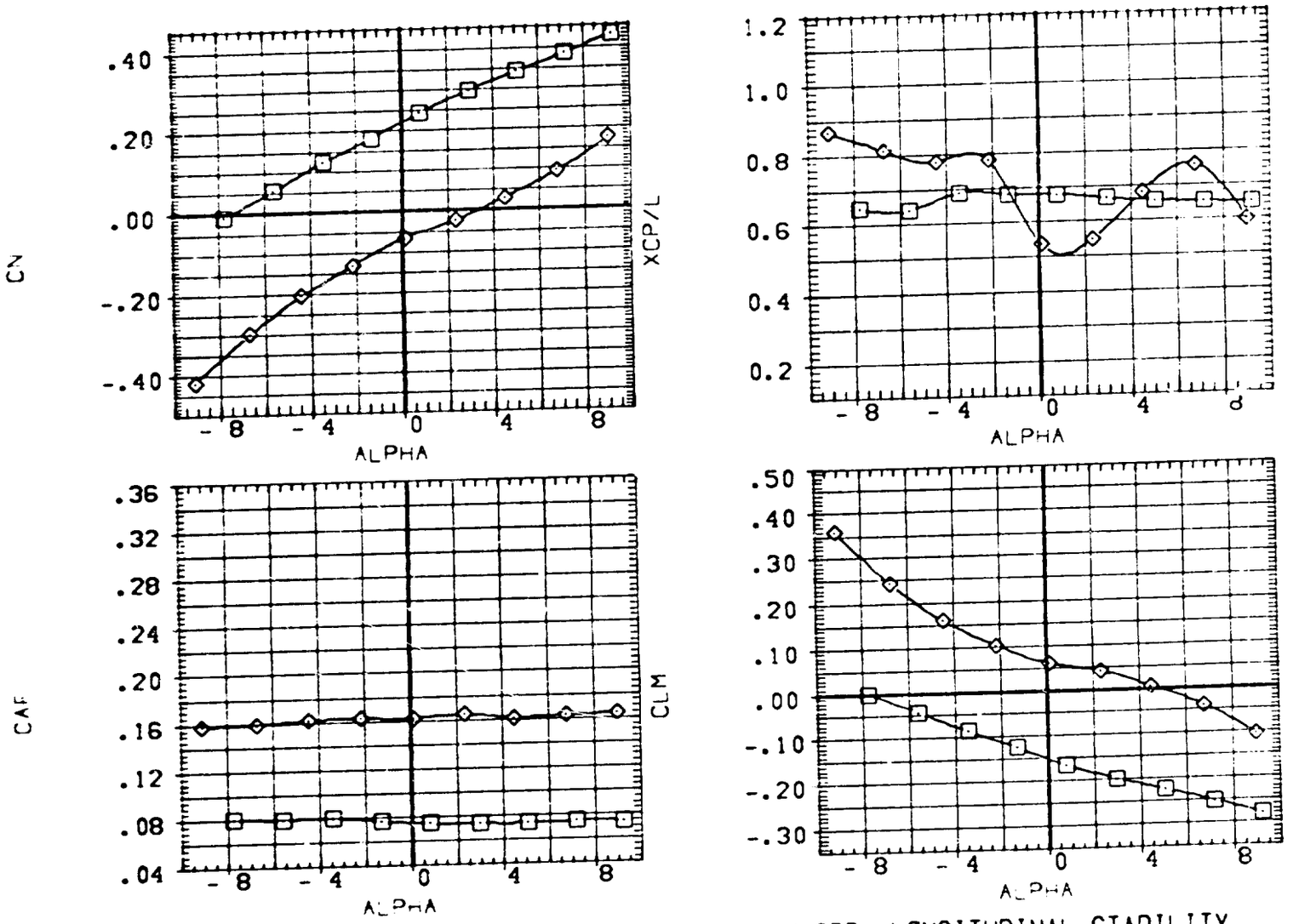
CODE X/D= 2.00

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION
(C78087)	○	DATA NOT AVAILABLE
(C78129)	□	DATA NOT AVAILABLE
(C78030)	◇	MSFC 558 (MASF) NR ATP (O1)/(T3)(S1)
(C78130)	△	MSFC 558 (MASF) NR ATP (T3)(S1)/(O1)

ORBINC	MACH	ELEVON	DELZ/D
.000	2.000	.000	-1.500
.000	2.000	.000	-1.500
2.000	2.000	.000	-1.500
2.000	2.000	.000	-1.500

REFERENCE INFORMATION

SREF	3220.0000	SQ.FT.
LREF	1328.0000	INCHES
BREF	1328.0000	INCHES
XMRP	.0000	
YMRP	.0000	
ZMRP	-61.5000	INCHES
SCALE	100.0000	PER



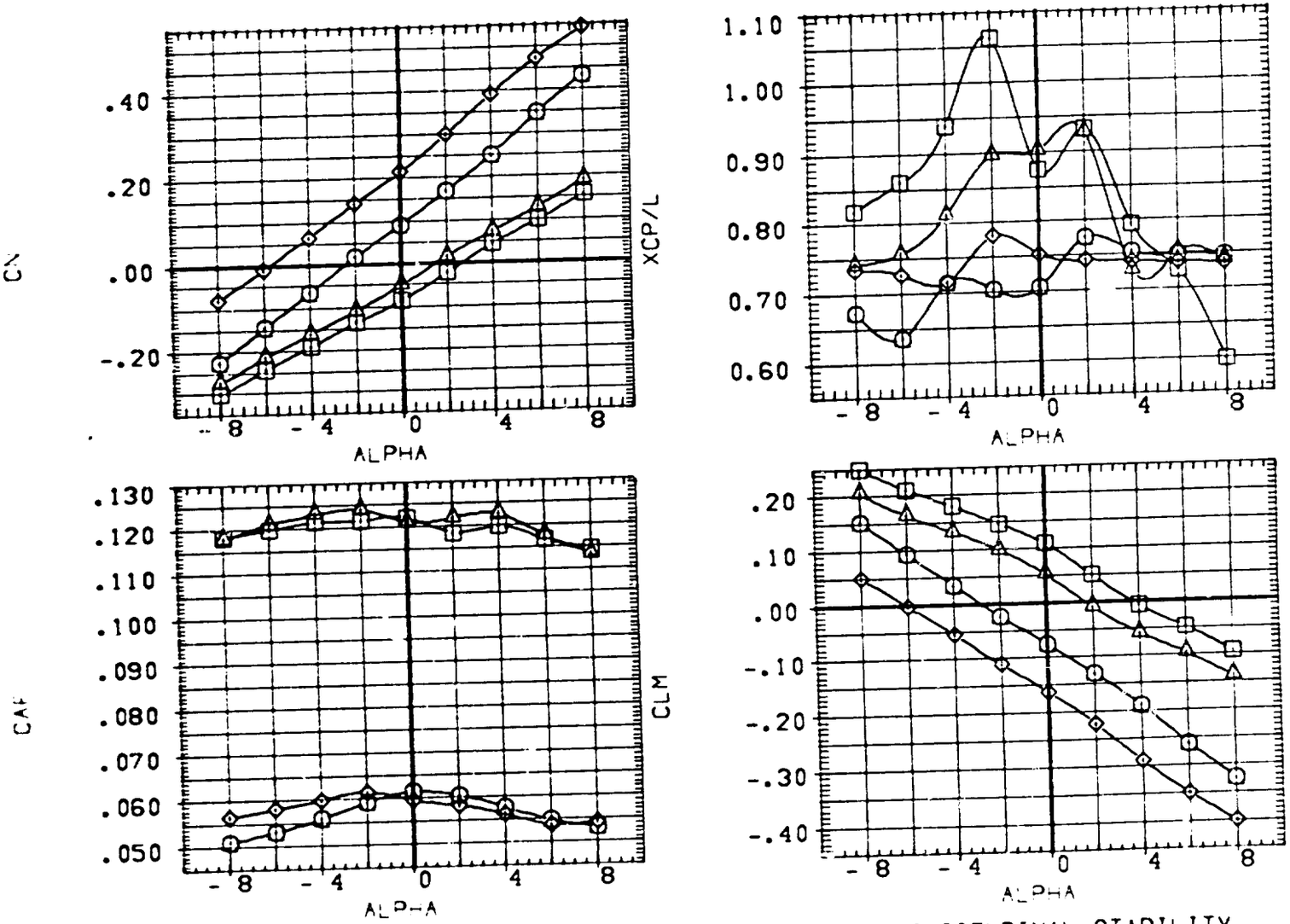
EFFECT OF INCIDENCE ANGLE ON ORBITER AND TANK / SRB, LONGITUDINAL STABILITY

(EDDELX/D= 3.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(CP9C09)	MSFC 556 (MA9F) NR ATP (O1)/(T3)(S1)
(CP9I09)	MSFC 556 (MA9F) NR ATP (T3)(S1)/(O1)
(CP9O11)	MSFC 556 (MA9F) NR ATP (O1)/(T3)(S1)
(CP9T11)	MSFC 556 (MA9F) NR ATP (T3)(S1)/(O1)

ORBINC	MACH	ELEVON	DELZ/D
.000	.900	10.000	-.520
.000	.900	10.000	-.520
2.000	.900	10.000	-.520
2.000	.900	10.000	-.520

REFERENCE INFORMATION		
SREF	3220.0000	SQ.FT.
LREF	1328.0000	INCHES
BREF	1328.0000	INCHES
XMRP	.0000	
YMRP	.0000	
ZMRP	-81.5000	INCHES
SCALE	100.0000	PER



EFFECT OF INCIDENCE ANGLE ON ORBITER AND TANK / SRB, LONGITUDINAL STABILITY

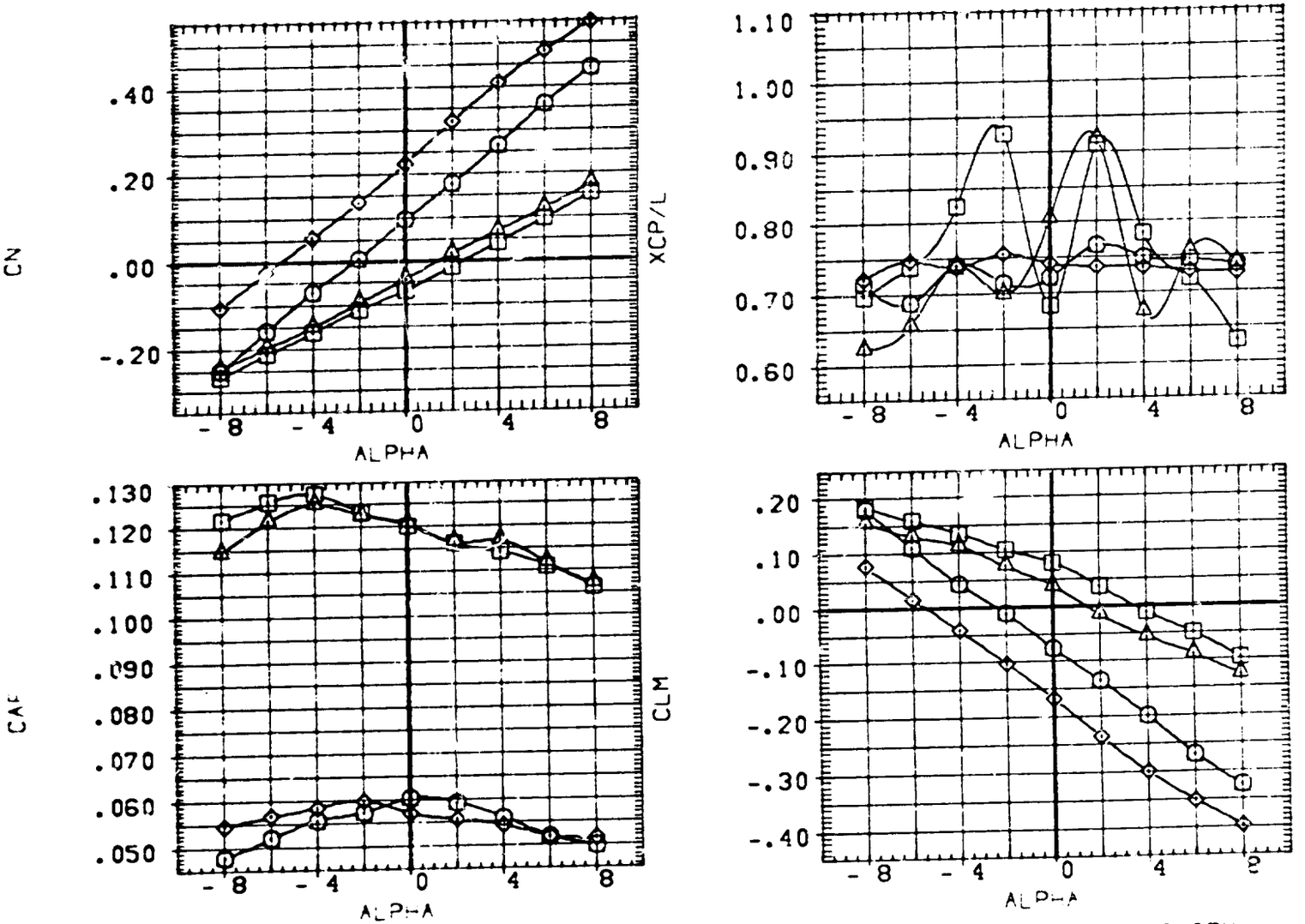
CA DELX/D= .00

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION
(CPA007)	○	MSFC 55P (MASF) NR ATP (O1)/(T3)(S1)
(CPA707)	⊡	MSFC 55R (MASF) NR ATP (T3)(S1)/(O1)
(CPA911)	◇	MSFC 55R (MASF) NR ATP (O1)/(T3)(S1)
(CPA111)	△	MSFC 55R (MASF) NR ATP (T3)(S1)/(O1)

ORBINC	MACH	ELEVON	DELZ/D
.000	.900	10.000	-.520
.000	.500	10.000	-.520
2.000	.900	10.000	-.520
2.000	.900	10.000	-.520

REFERENCE INFORMATION

SREF	3220.0000	SQ.FT.
LREF	1328.0000	INCHES
BREF	1328.0000	INCHES
XMRP	.0000	
YMRP	.0000	
ZMRP	-61.5000	INCHES
SCALE	100.0000	PER



EFFECT OF INCIDENCE ANGLE ON ORBITER AND TANK / SRB, LONGITUDINAL STABILITY

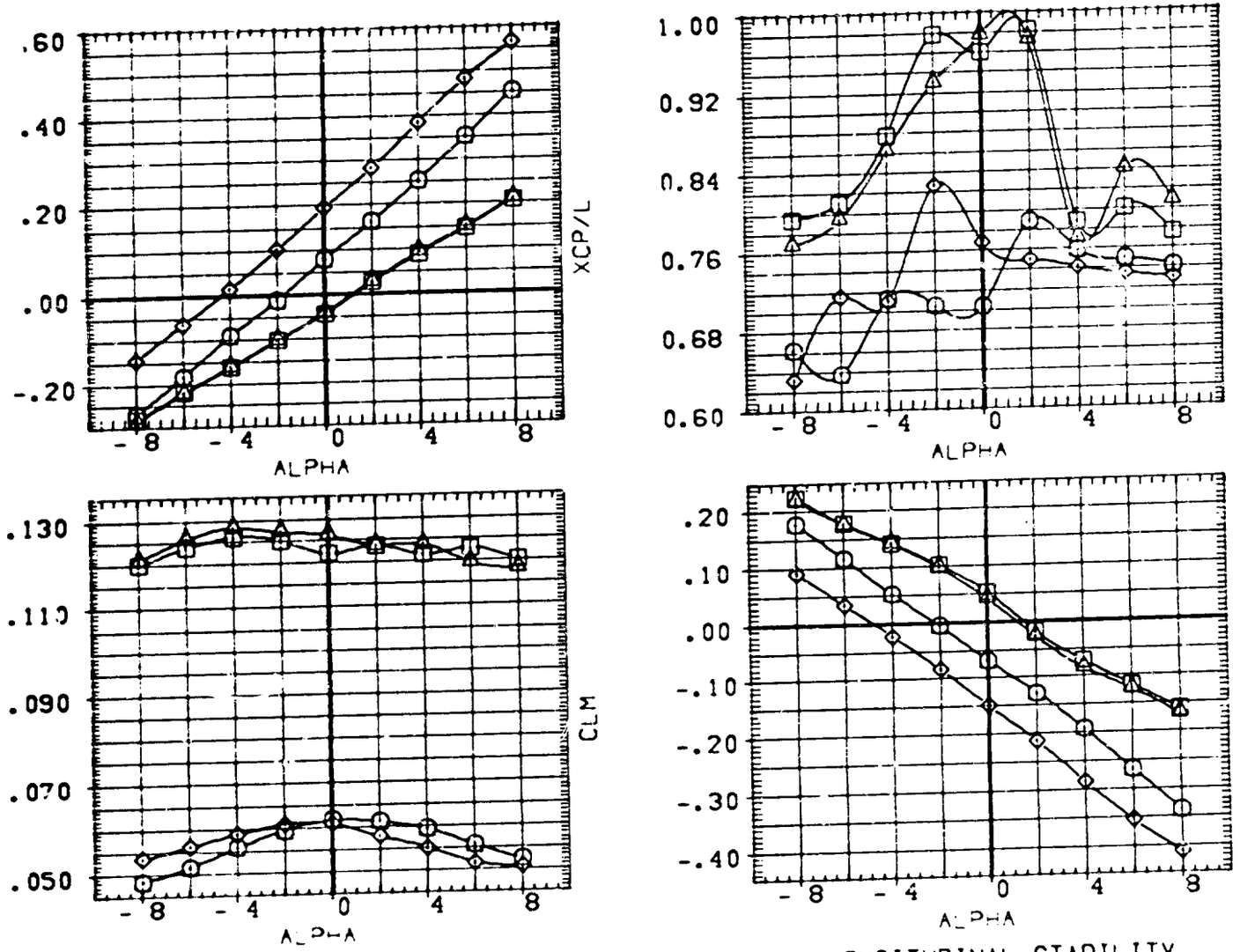
(BODY AX/C= .50

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION
(CP8008)	○	MSFC 558 (MASF) NR ATP (O1)/(T3)(S1)
(CP8108)	◇	MSFC 558 (MASF) NR ATP (T3)(S1)/(O1)
(CP8012)		MSFC 558 (MASF) NR ATP (O1)/(T3)(S1)
(CP8112)		MSFC 558 (MASF) NR ATP (T3)(S1)/(O1)

ORBINC	MACH	ELEVON	DELZ/D
.000	.900	10.000	-1.000
.000	.900	10.000	-1.000
2.000	.900	10.000	-1.000
2.000	.900	10.000	-1.000

REFERENCE INFORMATION

SREF	3220.0000	SQ.FT.
LREF	1328.0000	INCHES
BREF	1328.0000	INCHES
XMRP	.0000	
YMRP	.0000	
ZMRP	-81.5000	INCHES
SCALE	100.0000	PER



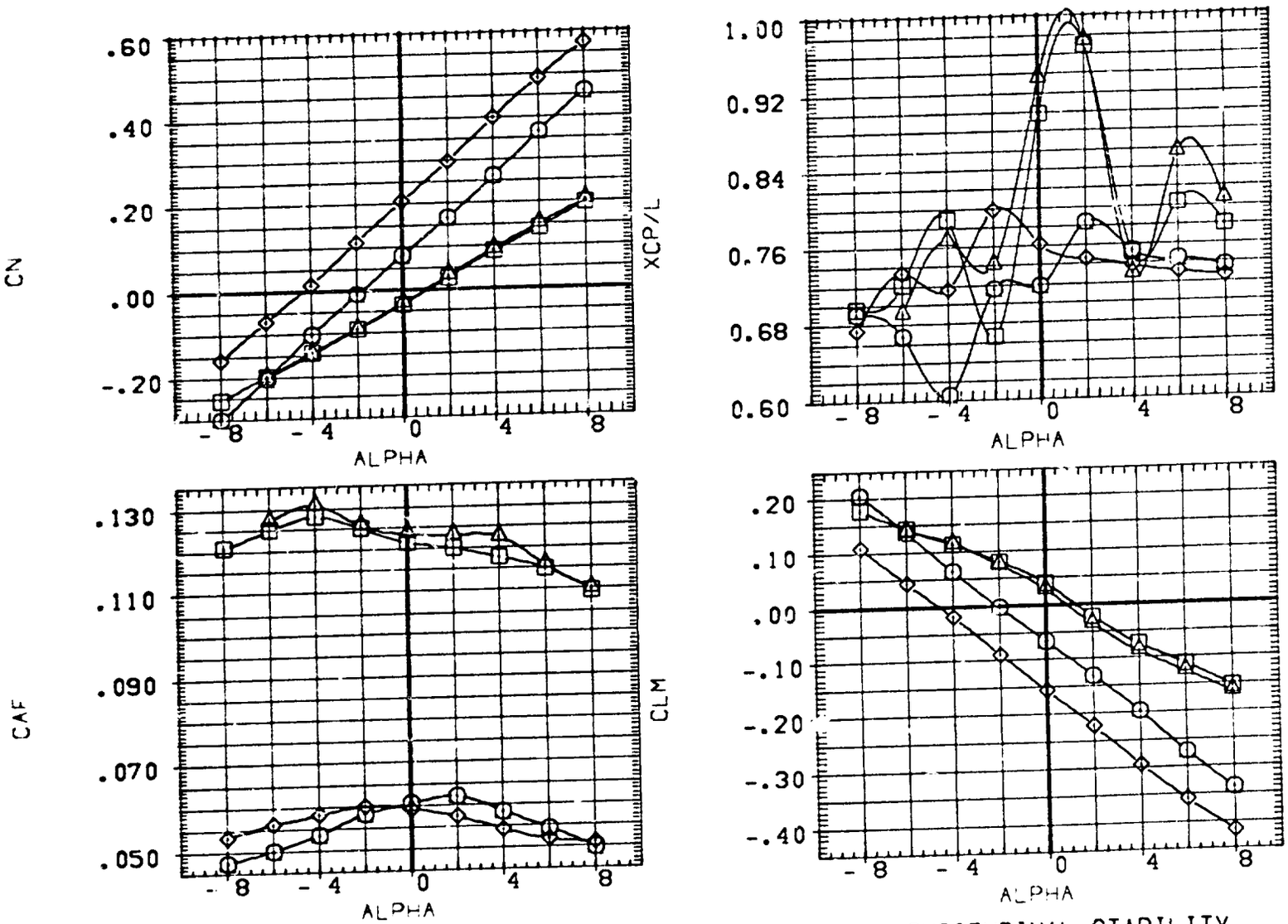
EFFECT OF INCIDENCE ANGLE ON ORBITER AND TANK / SRB, LONGITUDINAL STABILITY

(ADELX/D= .00

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION
(CP8008)	○	MSFC 558 (MA9F) NR ATP (O1)/(T3)(S1)
(CP3T08)	◇	MSFC 558 (MA9F) NR ATP (T3)(S1)/(O1)
(CP8012)	△	MSFC 558 (MA9F) NR ATP (O1)/(T3)(S1)
(CP8T12)	□	MSFC 558 (MA9F) NR ATP (T3)(S1)/(O1)

ORBINC	MACH	ELEVON	DELZ/D
.000	.900	10.000	-1.000
.000	.900	10.000	-1.000
2.000	.900	10.000	-1.000
2.000	.900	10.000	-1.000

REFERENCE INFORMATION		
SREF	3220.0000	SQ.FT.
LREF	1328.0000	INCHES
BREF	1328.0000	INCHES
XMRP	.0000	
YMRP	.0000	
ZMRP	-81.3000	INCHES
SCALE	100.0000	PER



EFFECT OF INCIDENCE ANGLE ON ORBITER AND TANK / SRB, LONGITUDINAL STABILITY

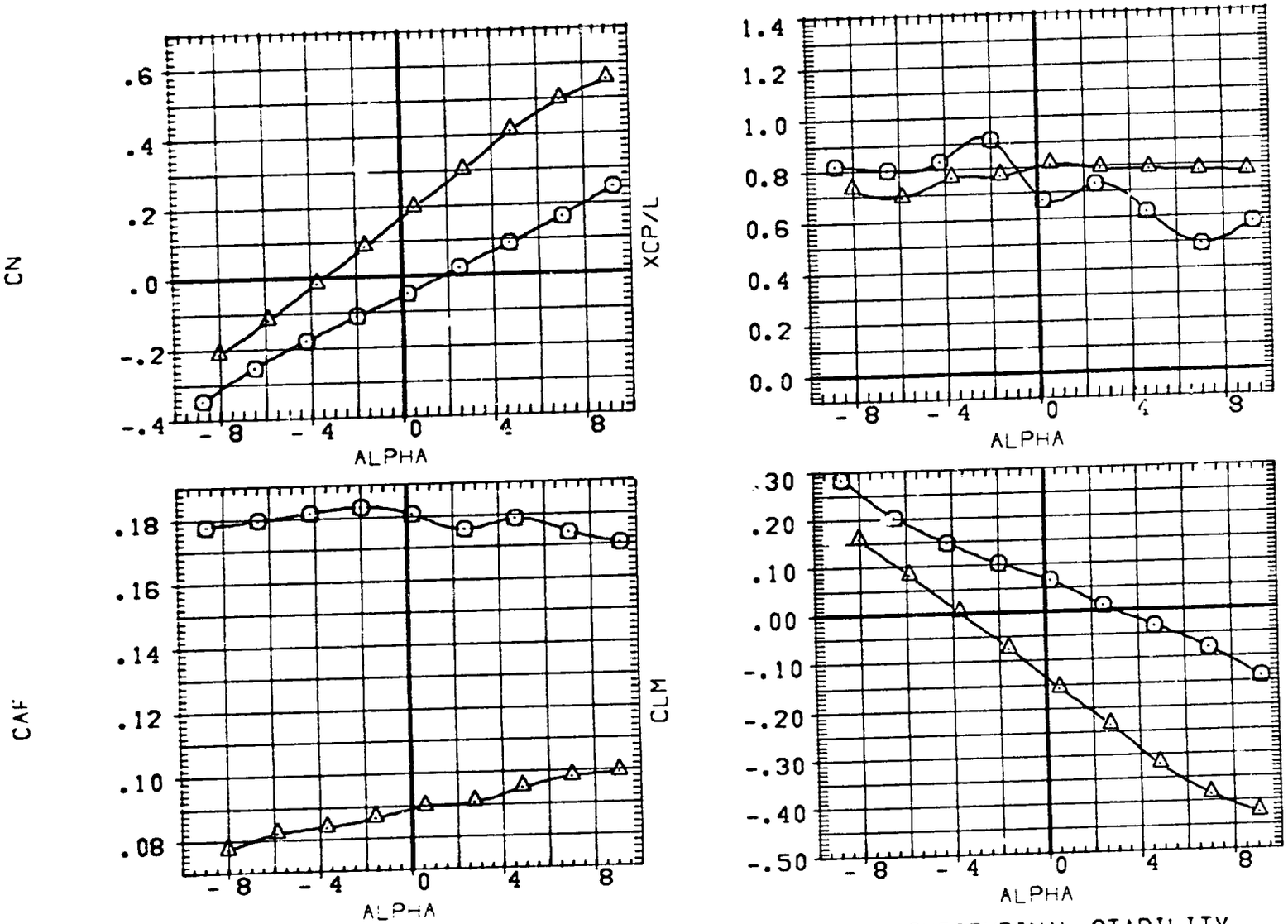
(B)DELX/D= .50

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION
(C78019)	○	MSFC 558 (MA9F) NR ATP (01)/(T3)(S1)
(C78019)	◇	MSFC 558 (MA9F) NR ATP (T3)(S1)/(01)
(C78023)		DATA NOT AVAILABLE
(C78T23)		DATA NOT AVAILABLE

ORBINC	MACH	ELEVON	DELZ/D
.000	1.200	10.000	-.520
.000	1.200	10.000	-.520
2.000	1.200	10.000	-.520
2.000	1.200	10.000	-.520

REFERENCE INFORMATION

SREF	3220.0000	SQ.FT.
LREF	1328.0000	INCHES
BREF	1328.0000	INCHES
XMRP	.0000	
YMRP	.0000	
ZMRP	-61.5000	INCHES
SCALE	100.0000	PER



EFFECT OF INCIDENCE ANGLE ON ORBITER AND TANK / SRB, LONGITUDINAL STABILITY

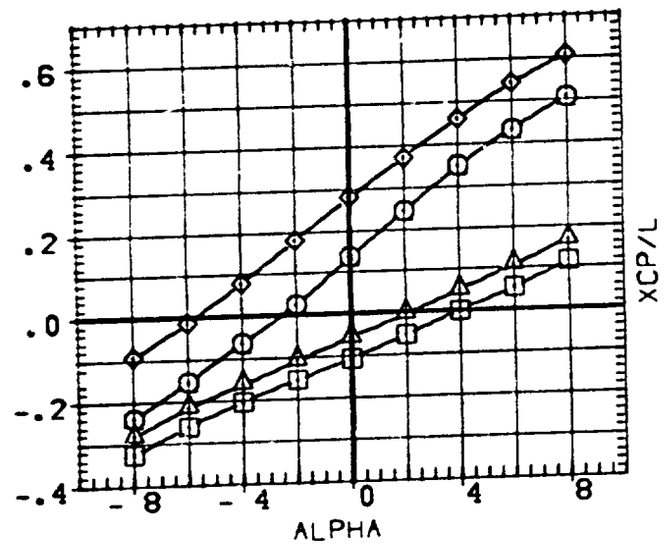
(ADDELX/D= -.50

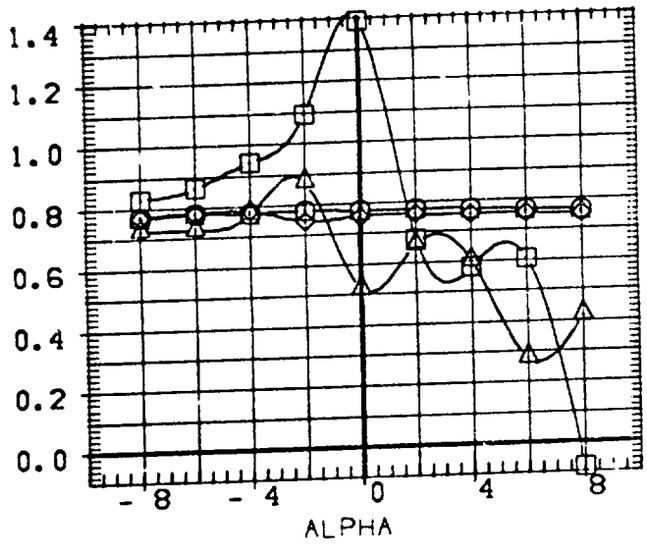
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION
(C78019)	□	MSFC 558 (MA9F) NR ATP (O1)/(T3)(S1)
(C78T19)	◇	MSFC 558 (MA9F) NR ATP (T3)(S1)/(O1)
(C78023)	○	MSFC 558 (MA9F) NR ATP (O1)/(T3)(S1)
(C78T23)	△	MSFC 558 (MA9F) NR ATP (T3)(S1)/(O1)

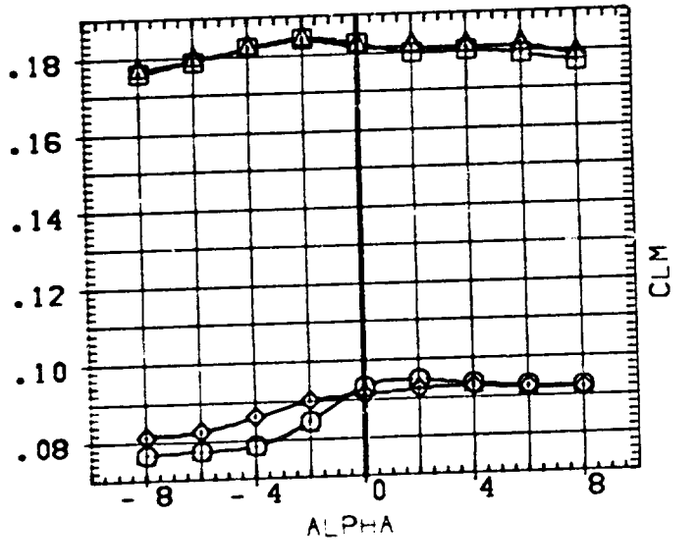
ORBINC	MACH	ELEVON	DELZ/D
.000	1.200	10.000	-.520
.000	1.200	10.000	-.520
2.000	1.200	10.000	-.520
2.000	1.200	10.000	-.520

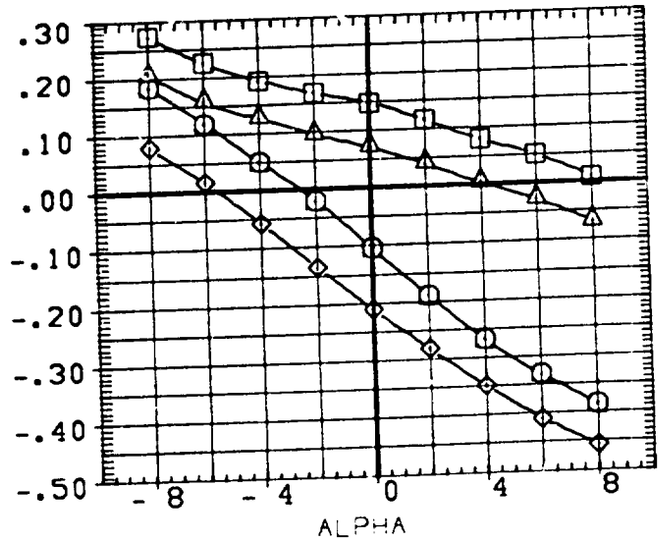
REFERENCE INFORMATION

SREF	3220.0000	SQ.FT.
LREF	1328.0000	INCHES
BREF	1328.0000	INCHES
XMRP	.0000	
YMRP	.0000	
ZMRP	-61.5000	INCHES
SCALE	100.0000	PER









EFFECT OF INCIDENCE ANGLE ON ORBITER AND TANK / SRB, LONGITUDINAL STABILITY

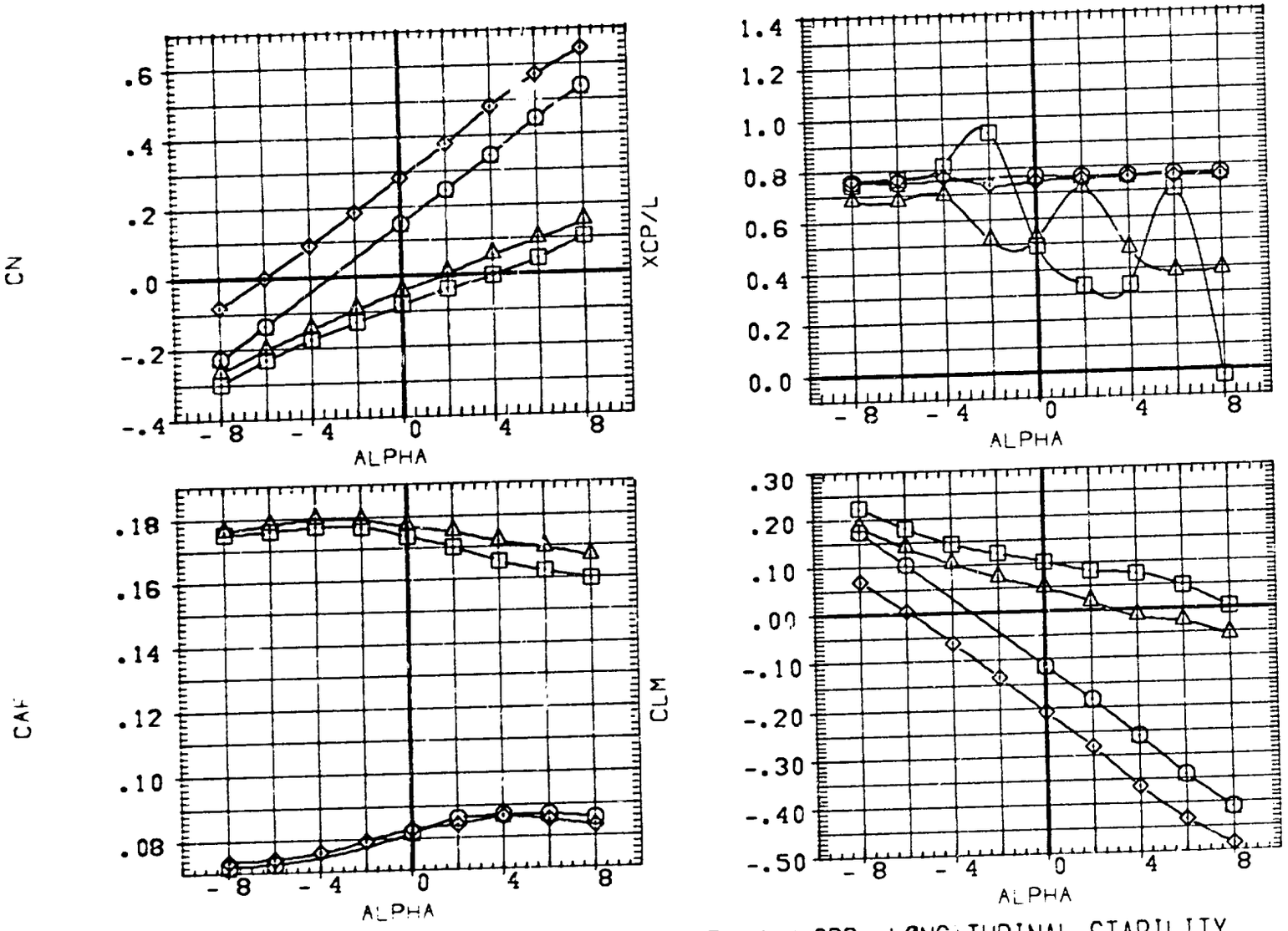
(B)DELX/D= .00

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION
(C78019)	◇	MSFC 558 (MA9F) NR ATP (O1)/(T3)(S1)
(C78T19)	◇	MSFC 558 (MA9F) NR ATP (T3)(S1)/(O1)
(C78023)	◇	MSFC 558 (MA9F) NR ATP (O1)/(T3)(S1)
(C78T23)	◇	MSFC 558 (MA9F) NR ATP (T3)(S1)/(O1)

ORBINC	MACH	ELEVON	DELZ/D
.000	1.200	10.000	-.520
.000	1.200	10.000	-.520
2.000	1.200	10.000	-.520
2.000	1.200	10.000	-.520

REFERENCE INFORMATION

SREF	3220.0000	SQ.FT.
LREF	1328.0000	INCHES
BREF	1328.0000	INCHES
XMRP	.0000	
YMRP	.0000	
ZMRP	-61.5000	INCHES
SCALE	100.0000	PER



EFFECT OF INCIDENCE ANGLE ON ORBITER AND TANK / SRB, LONGITUDINAL STABILITY

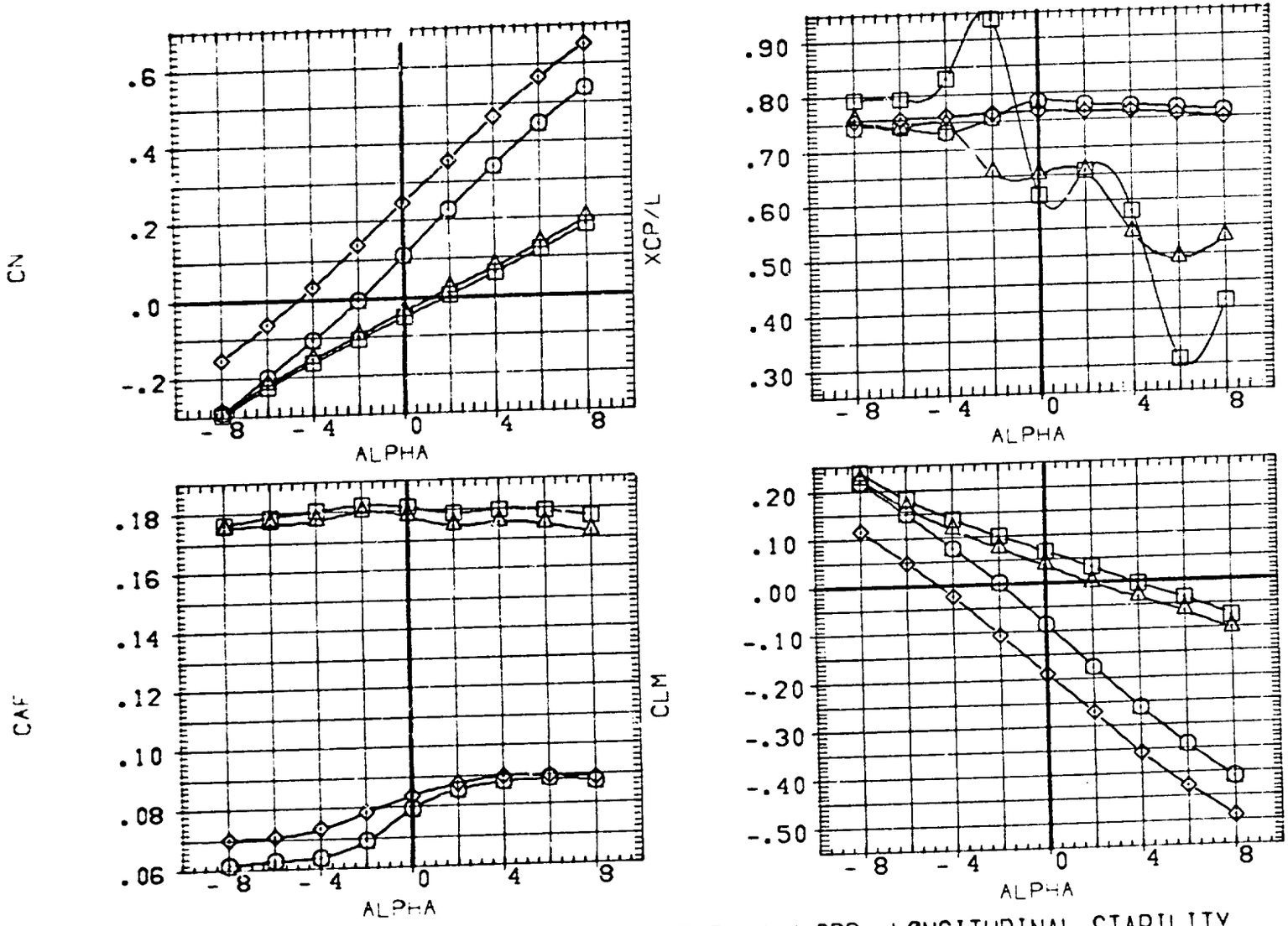
CODE X/C= .50

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION
(C78020)	○	MSFC 558 (MA9F) NR ATP (O1)/(T3)(S1)
(C78T20)	⊗	MSFC 558 (MA9F) NR ATP (T3)(S1)/(O1)
(C78024)	◇	MSFC 558 (MA9F) NR ATP (O1)/(T3)(S1)
(C78T24)	△	MSFC 558 (MA9F) NR ATP (T3)(S1)/(O1)

ORBINC	MACH	ELEVON	DELZ/D
.000	1.200	10.000	-1.000
.000	1.200	10.000	-1.000
2.000	1.200	10.000	-1.000
2.000	1.200	10.000	-1.000

REFERENCE INFORMATION

SREF	3220.0000	SQ.FT.
LREF	1328.0000	INCHES
BREF	1328.0000	INCHES
XMRP	.0000	
YMRP	.0000	
ZMRP	-61.5000	INCHES
SCALE	100.0000	PER



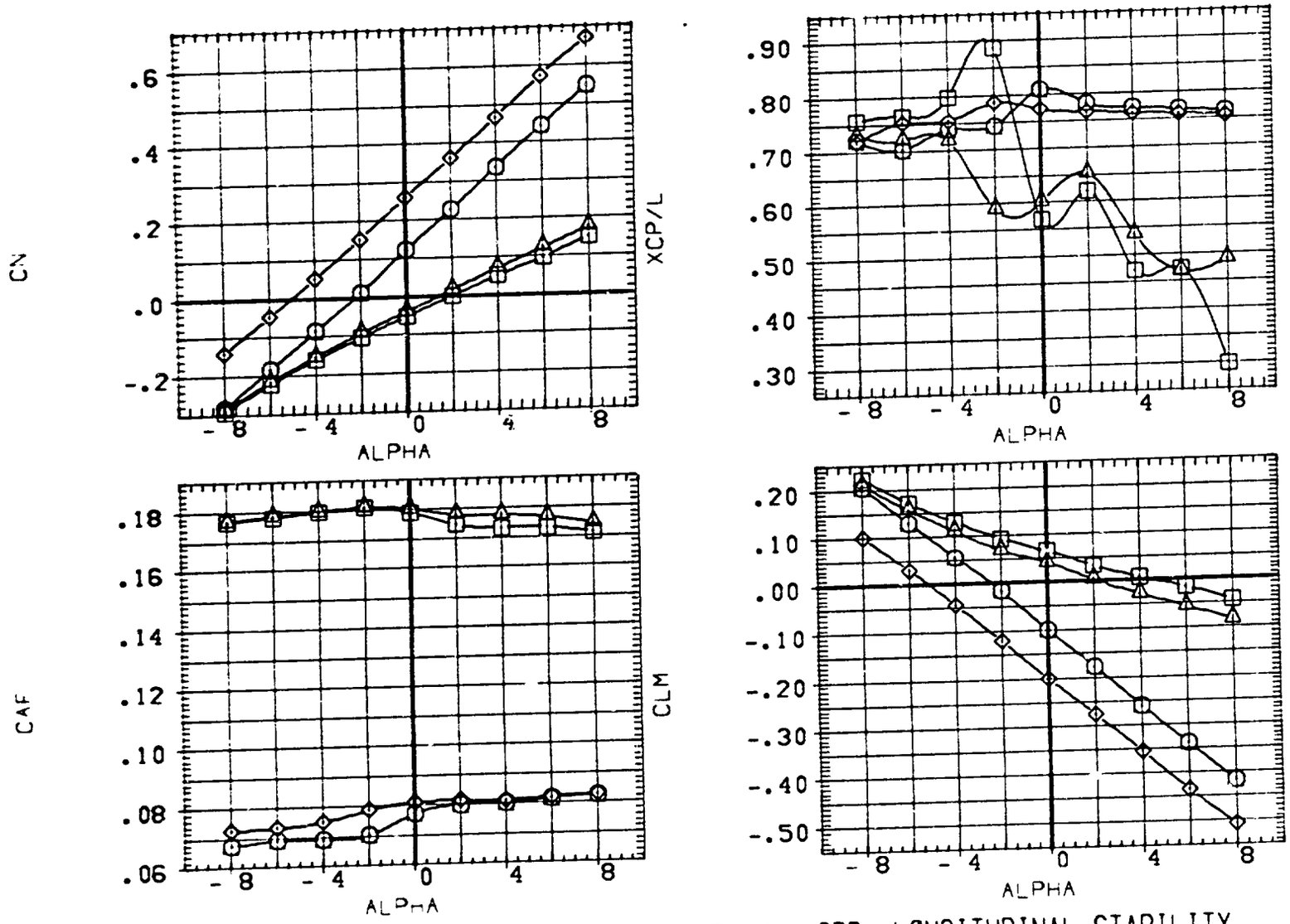
EFFECT OF INCIDENCE ANGLE ON ORBITER AND TANK / SRB, LONGITUDINAL STABILITY

(ADDELX/D= .00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(C78020)	MSFC 558 (MA9F) NR ATP (O1)/(T3)(S1)
(C78T20)	MSFC 558 (MA9F) NR ATP (T3)(S1)/(O1)
(C78024)	MSFC 558 (MA9F) NR ATP (O1)/(T3)(S1)
(C78T24)	MSFC 558 (MA9F) NR ATP (T3)(S1)/(O1)

ORBINC	MACH	ELEVON	DELZ/D
.000	1.200	10.000	-1.000
.000	1.200	10.000	-1.000
2.000	1.200	10.000	-1.000
2.000	1.200	10.000	-1.000

REFERENCE INFORMATION		
SREF	3220.0000	SQ.FT.
LREF	1328.0000	INCHES
BREF	1328.0000	INCHES
XMRP	.0000	
YMRP	.0000	
ZMRP	-61.5000	INCHES
SCALE	100.0000	PER



EFFECT OF INCIDENCE ANGLE ON ORBITER AND TANK / SRB, LONGITUDINAL STABILITY

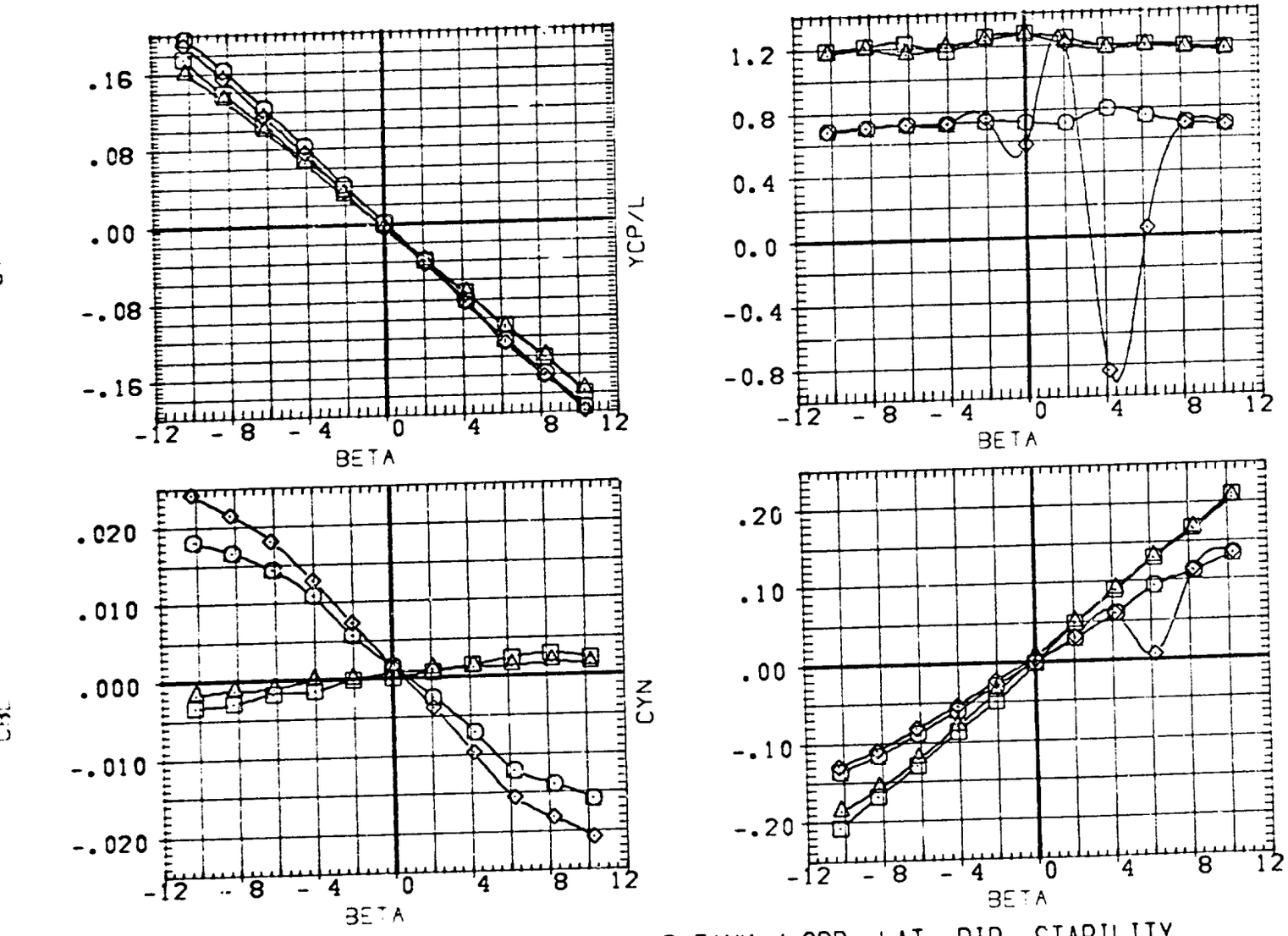
(BODY X/C= .50

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION
(C78033)	○	MSFC 558 (MA9F) NR ATP (O1)/(T3)(S1)
(C78T33)	△	MSFC 558 (MA9F) NR ATP (T3)(S1)/(O1)
(C78O33)	◇	MSFC 558 (MA9F) NR ATP (O1)/(T3)(S1)
(C78T33)	□	MSFC 558 (MA9F) NR ATP (T3)(S1)/(O1)

ORBINC	MACH	ELEVON	DELZ/D
.000	.900	.000	-.520
.000	.900	.000	-.520
2.000	.900	.000	-.520
2.000	.900	.000	-.520

REFERENCE INFORMATION

SREF	3220.0000	SQ.FT.
LREF	1328.0000	INCHES
BREF	1328.0000	INCHES
XMRP	.0000	
YMRP	.0000	
ZMRP	-61.5000	INCHES
SCALE	100.0000	PER



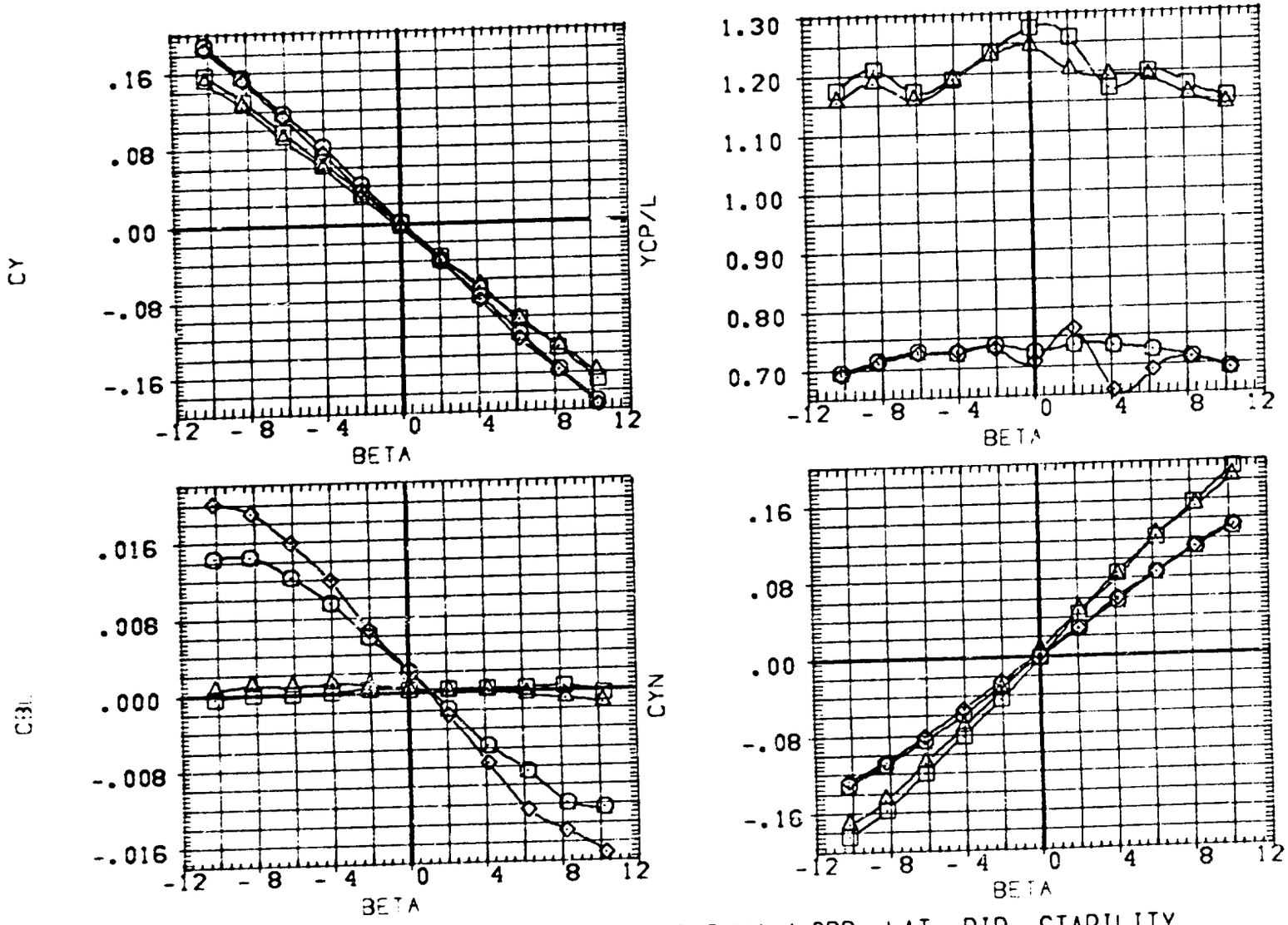
EFFECT OF INCIDENCE ANGLE ON ORBITER AND TANK / SRB, LAT.-DIR. STABILITY

(ADDELX/D= .00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(CY9034)	MSFC 556 (MA9F) NR ATP (O1)/(T3)(S1)
(CY9T34)	MSFC 556 (MA9F) NR ATP (T3)(S1)/(O1)
(CY9036)	MSFC 556 (MA9F) NR ATP (O1)/(T3)(S1)
(CY9T36)	MSFC 556 (MA9F) NR ATP (T3)(S1)/(O1)

ORBINC	MACH	ELEVON	DELZ/D
.000	.900	.000	-1.000
.000	.900	.000	-1.000
2.000	.900	.000	-1.000
2.000	.900	.000	-1.000

REFERENCE INFORMATION		
SREF	3220.0000	SQ.FT.
LREF	1328.0000	INCHES
BREF	1328.0000	INCHES
XMRP	.0000	
YMRP	.0000	
ZMRP	-61.5000	INCHES
SCALE	100.0000	PER



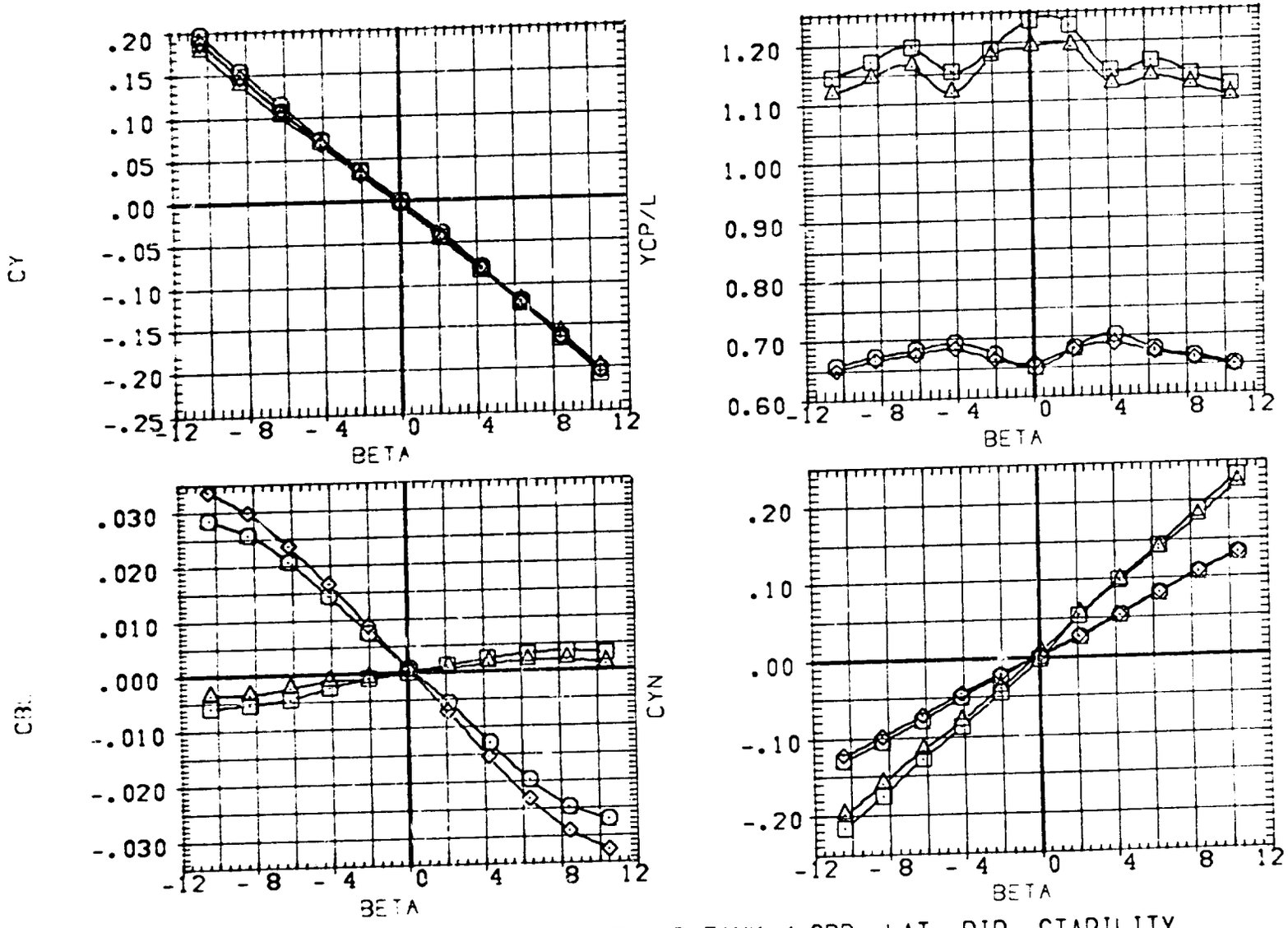
EFFECT OF INCIDENCE ANGLE ON ORBITER AND TANK / SRB, LAT.-DIR. STABILITY

(A)DELX/D= .00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(C78037)	MSFC 558 (MA9F) NR ATP (O1)/(T3)(S1)
(C78T37)	MSFC 558 (MA9F) NR ATP (T3)(S1)/(O1)
(C78039)	MSFC 558 (MA9F) NR ATP (O1)/(T3)(S1)
(C78T39)	MSFC 558 (MA9F) NR ATP (T3)(S1)/(O1)

ORBINC	MACH	ELEVON	DELZ/D
.000	1.200	.000	-.520
.000	1.200	.000	-.520
2.000	1.200	.000	-.520
2.000	1.200	.000	-.520

REFERENCE INFORMATION		
SREF	3220.0000	SQ.FT.
LREF	1328.0000	INCHES
BREF	1328.0000	INCHES
XMRP	.0000	
YMRP	.0000	
ZMRP	-61.5000	INCHES
SCALE	100.0000	PER



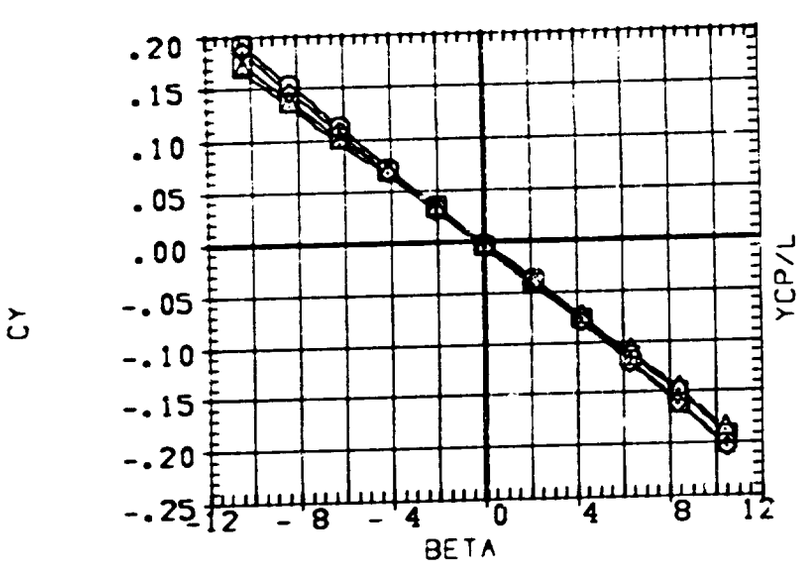
EFFECT OF INCIDENCE ANGLE ON ORBITER AND TANK / SRB, LAT.-DIR. STABILITY

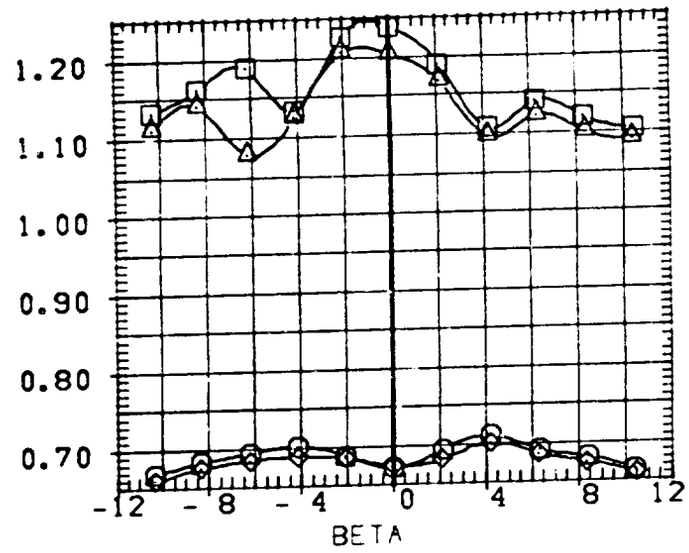
CADELX/D= .00

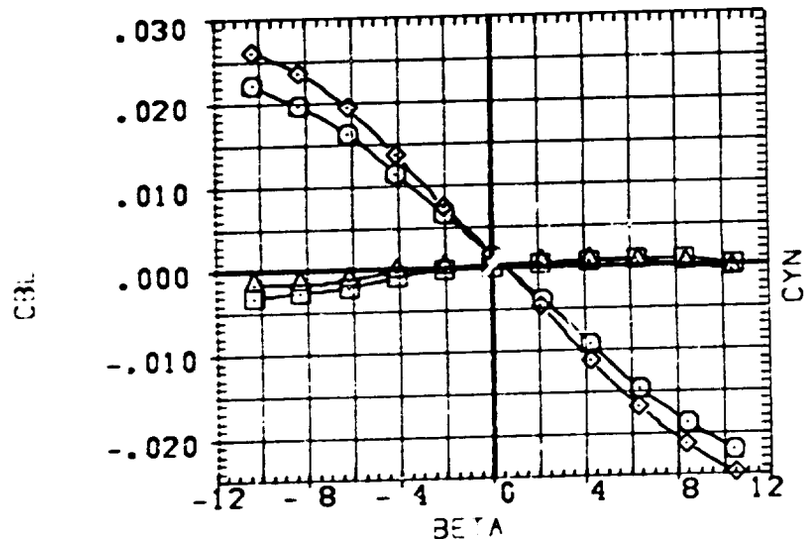
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION
(C79038)	△	MSFC 558 (MA9F) NR ATP (O1)/(T3)(S1)
(C78T3R)	□	MSFC 558 (MA9F) NR ATP (T3)(S1)/(O1)
(C79040)	◇	MSFC 558 (MA9F) NR ATP (O1)/(T3)(S1)
(C78T40)	○	MSFC 558 (MA9F) NR ATP (T3)(S1)/(O1)

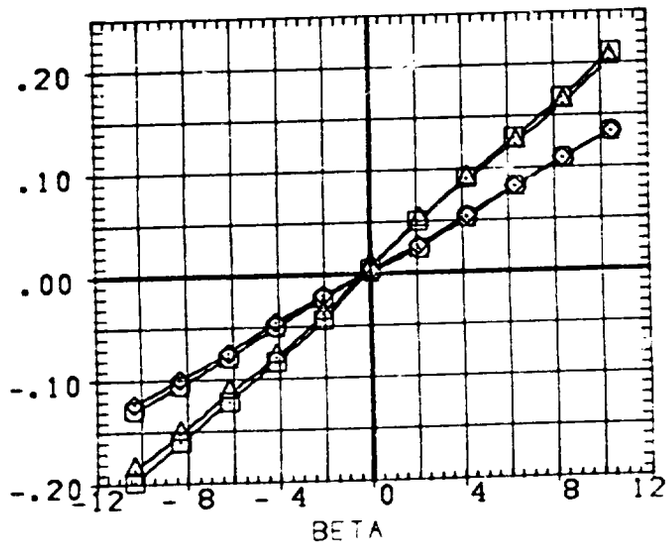
ORBINC	MACH	ELEVON	DELZ/D
.000	1.200	.000	-1.000
.000	1.200	.000	-1.000
2.000	1.200	.000	-1.000
2.000	1.200	.000	-1.000

REFERENCE INFORMATION		
SREF	3220.0000	SQ.FT.
LREF	1328.0000	INCHES
BREF	1328.0000	INCHES
XMRP	.0000	
YMRP	.0000	
ZMRP	-81.5000	INCHES
SCALE	100.0000	PER









EFFECT OF INCIDENCE ANGLE ON ORBITER AND TANK / SRB, LAT.-DIR. STABILITY

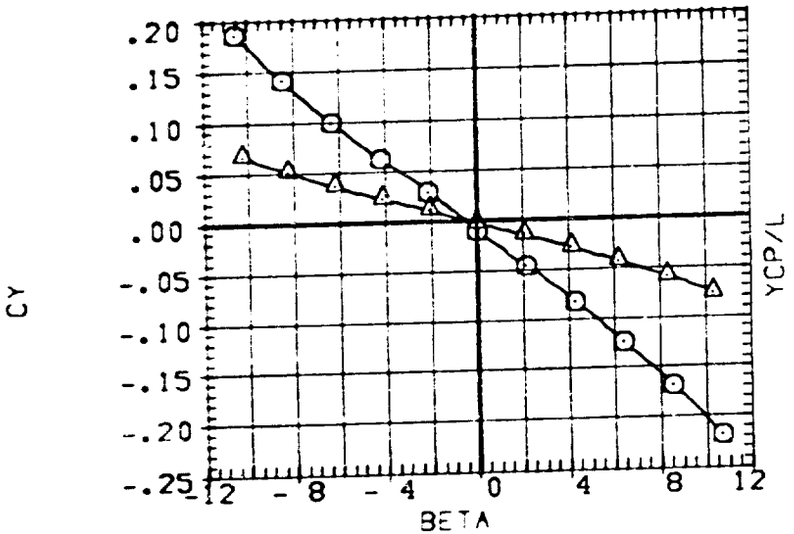
CADELX/D= .00

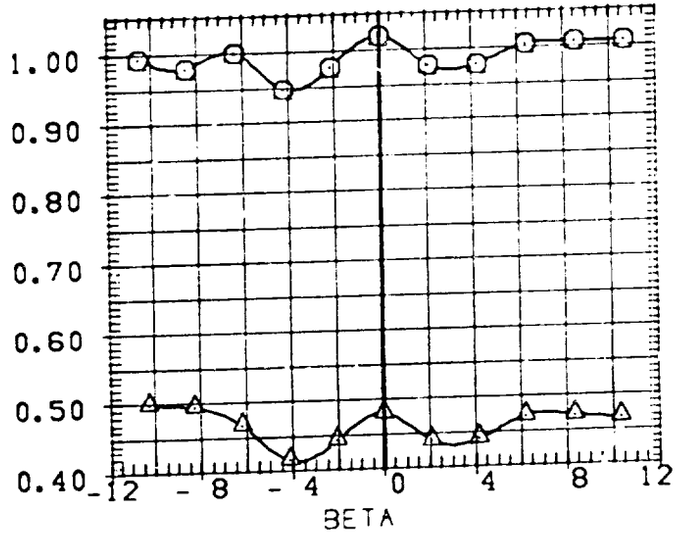
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION
(CT9C41)	○	MSFC 55B (MA9F) NR ATP (O1)/(TS).S1)
(CT9T41)	△	MSFC 55B (MA9F) NR ATP (TS)(S1)/(O1)

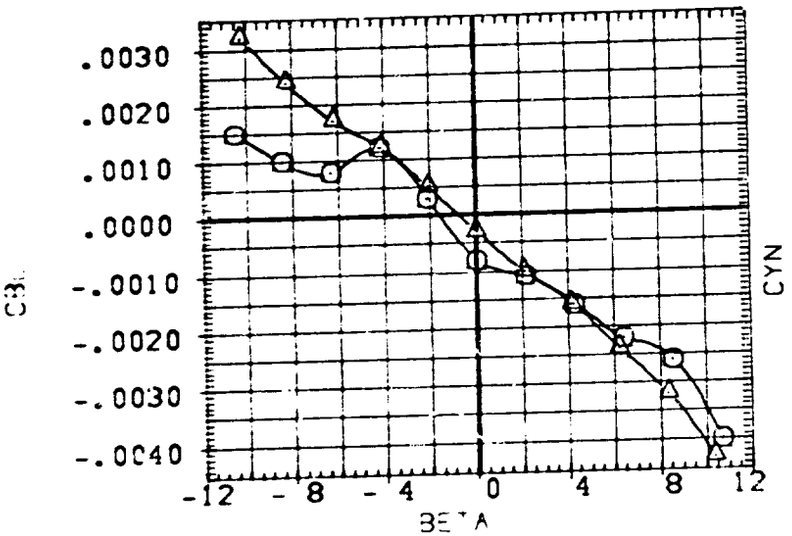
ORBINC	MACH	ELEVON	DELZ/D
2.000	2.000	.000	-.520
2.000	2.000	.000	-.520

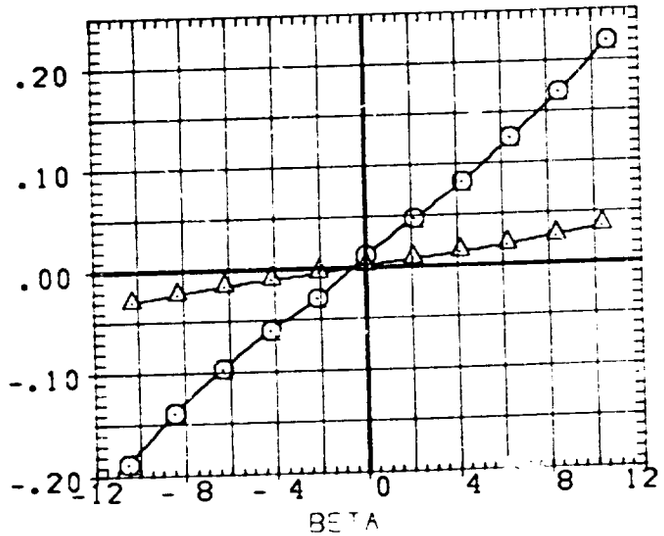
REFERENCE INFORMATION

SREF	3220.0000	SQ.FT.
LREF	1328.0000	INCHES
BREF	1328.0000	INCHES
XMRP	.0000	
YMRP	.0000	
ZMRP	-61.5000	INCHES
SCALE	100.0000	PER









EFFECT OF INCIDENCE ANGLE ON ORBITER AND TANK / SRB, LAT.-DIR. STABILITY

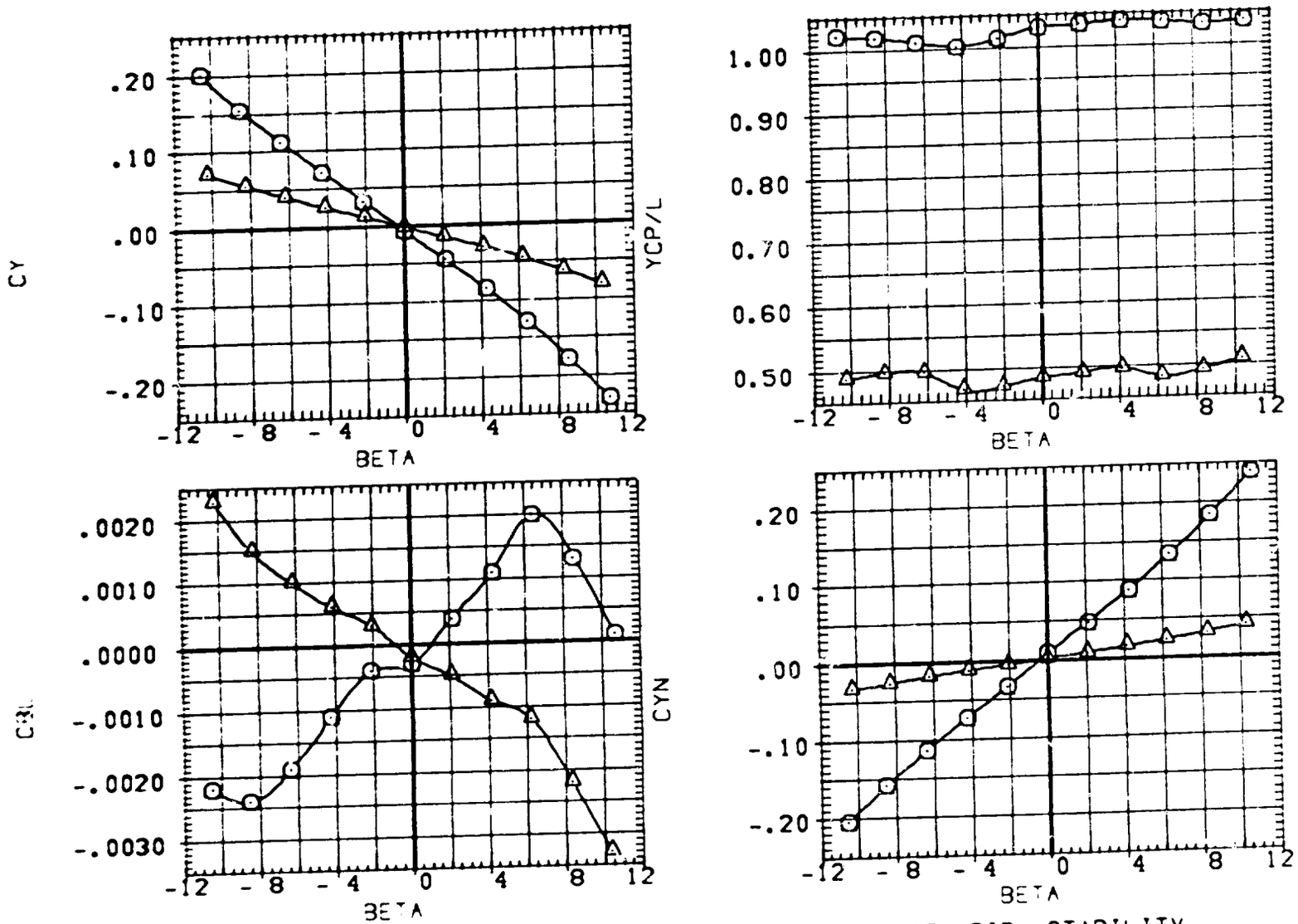
CASE: X/C= .00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(CP4042)	MSFC 358 (MA9F) NR ATP (O1)/(T3)(S1)
(CP8T42)	MSFC 358 (MA9F) NR ATP (T3)(S1)/(O1)

ORBINC	MACH	ELEVON	DELZ/D
2.000	2.000	.000	-1.000
2.000	2.000	.000	-1.000

REFERENCE INFORMATION

SREF	3220.0000	SQ.FT.
LREF	1328.0000	INCHES
BREF	1328.0000	INCHES
XMRP	.0000	
YMRP	.0000	
ZMRP	-61.5000	INCHES
SCALE	100.0000	PER



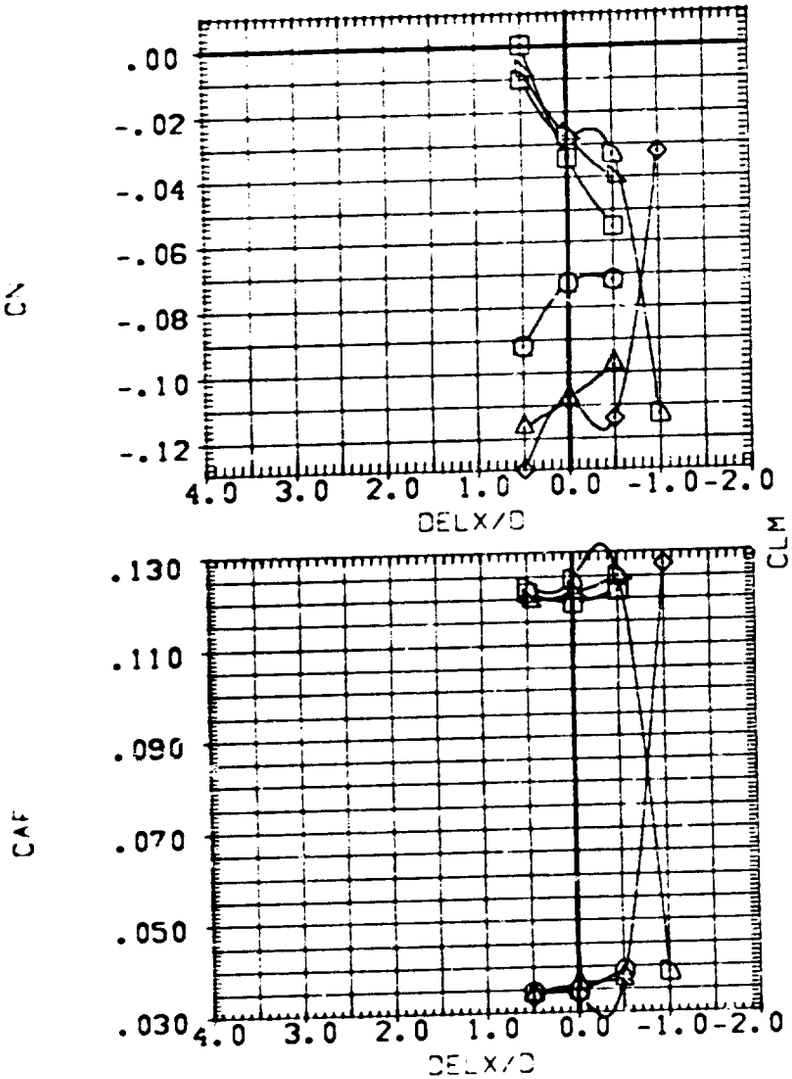
EFFECT OF INCIDENCE ANGLE ON ORBITER AND TANK / SRB, LAT.-DIR. STABILITY

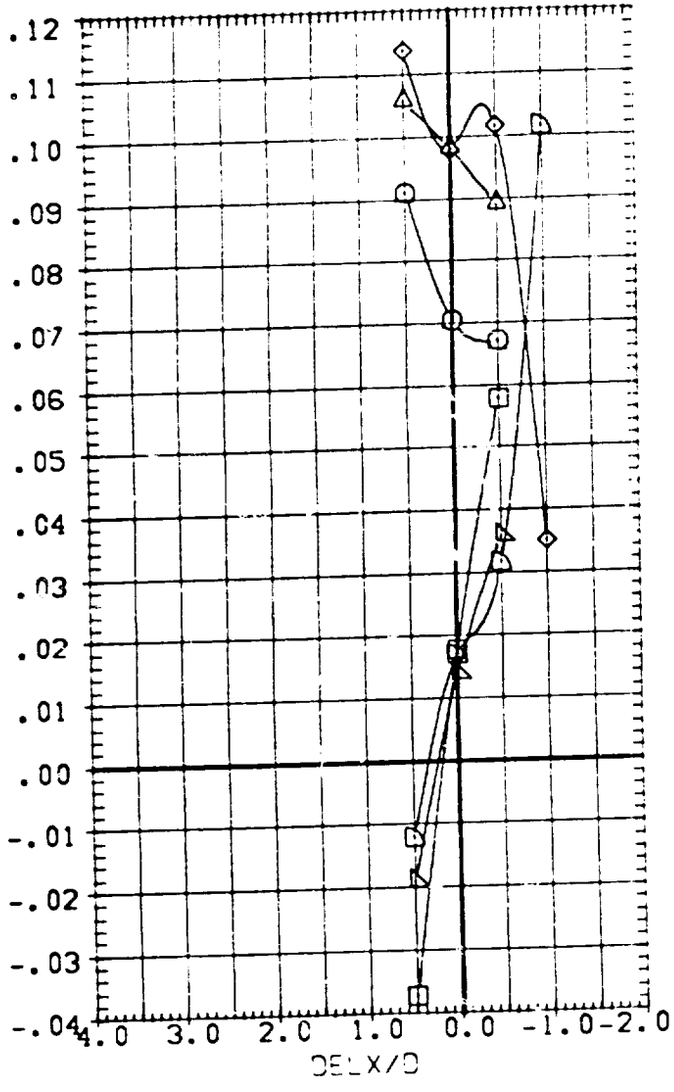
CODE K/D= .00

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION
(D79G01)	△	MSFC 558 (MASF) NR ATP (O1)/(T3)(S1)
(D79G02)	□	MSFC 558 (MASF) NR ATP (O1)/(T3)(S1)
(D79G03)	◇	MSFC 558 (MASF) NR ATP (O1)/(T3)(S1)
(D79T01)	○	MSFC 558 (MASF) NR ATP (T3)(S1)/(O1)
(D79T02)	▽	MSFC 558 (MASF) NR ATP (T3)(S1)/(O1)
(D79T03)	◇	MSFC 558 (MASF) NR ATP (T3)(S1)/(O1)

MACH	DELZ/D	ORBINC	ELEVON
.900	-.520	.000	.000
.900	-1.000	.000	.000
.900	-1.500	.000	.000
.900	-.520	.000	.000
.900	-1.000	.000	.000
.900	-1.500	.000	.000

REFERENCE INFORMATION		
SREF	3220.0000	SQ.FT.
LREF	1328.0000	INCHES
BREF	1328.0000	INCHES
XMRP	.0000	
YMRP	.0000	
ZMRP	-61.5000	INCHES
SCALE	100.0000	PER





LONGITUDINAL STABILITY CHARACTERISTICS - EFFECTS OF VARYING DELX/D

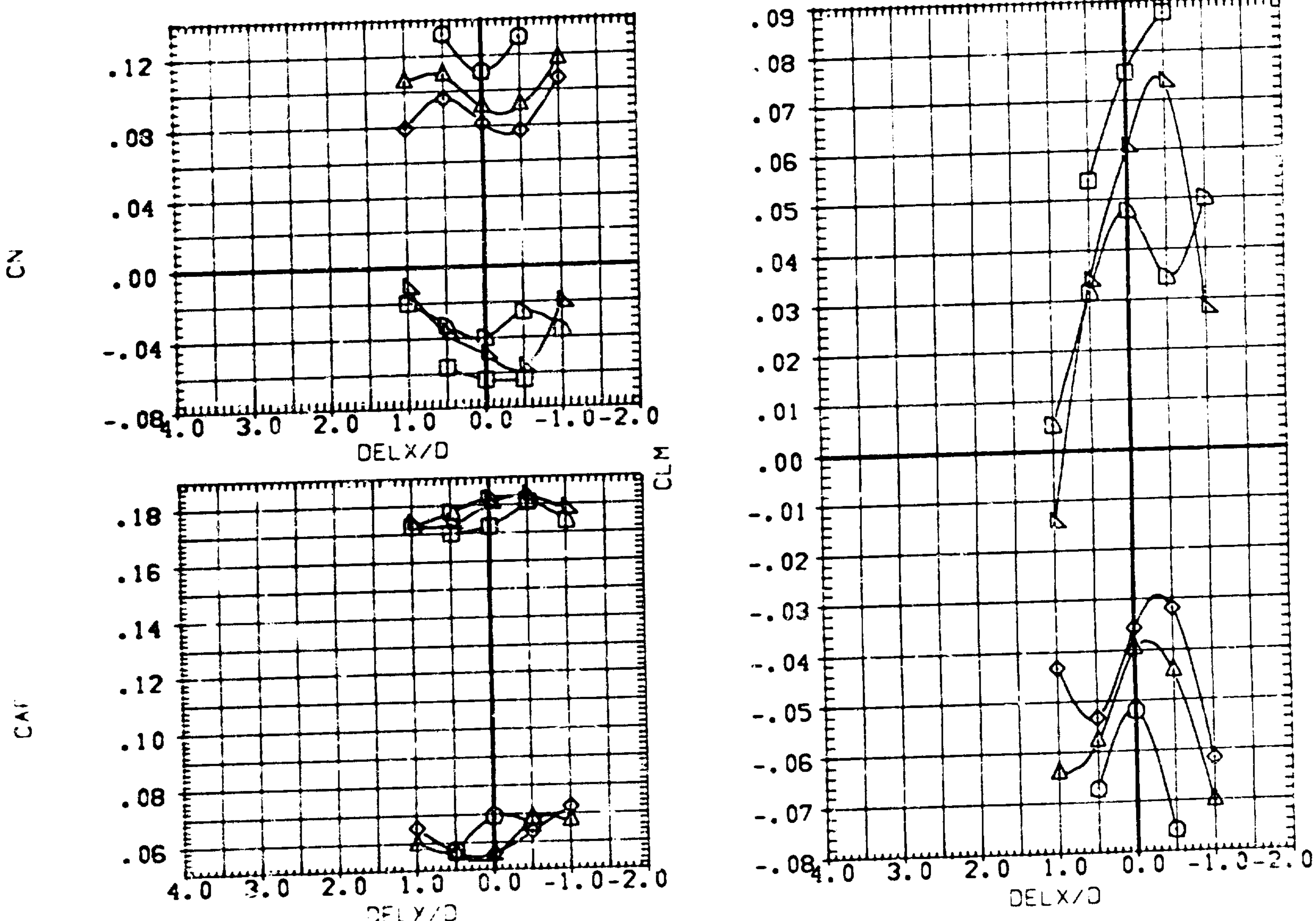
[illegible] = .00

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION
(D780013)	○	MSFC 558 (MA9F) NR ATP (O1)/(T3)(S1)
(D780014)	◇	MSFC 558 (MA9F) NR ATP (O1)/(T3)(S1)
(D780015)	△	MSFC 558 (MA9F) NR ATP (O1)/(T3)(S1)
(D78T13)	□	MSFC 558 (MA9F) NR ATP (T3)(S1)/(O1)
(D78T14)	◇	MSFC 558 (MA9F) NR ATP (T3)(S1)/(O1)
(D78T15)	△	MSFC 558 (MA9F) NR ATP (T3)(S1)/(O1)

MACH	DELZ/D	ORBINC	ELEVON
1.200	-.520	.000	.000
1.200	-1.000	.000	.000
1.200	-1.500	.000	.000
1.200	-.520	.000	.000
1.200	-1.000	.000	.000
1.200	-1.500	.000	.000

REFERENCE INFORMATION

SREF	3220.0000	SQ.FT.
LREF	1328.0000	INCHES
BREF	1328.0000	INCHES
XMRP	.0000	
YMRP	.0000	
ZMRP	-61.5000	INCHES
SCALE	100.0000	PER



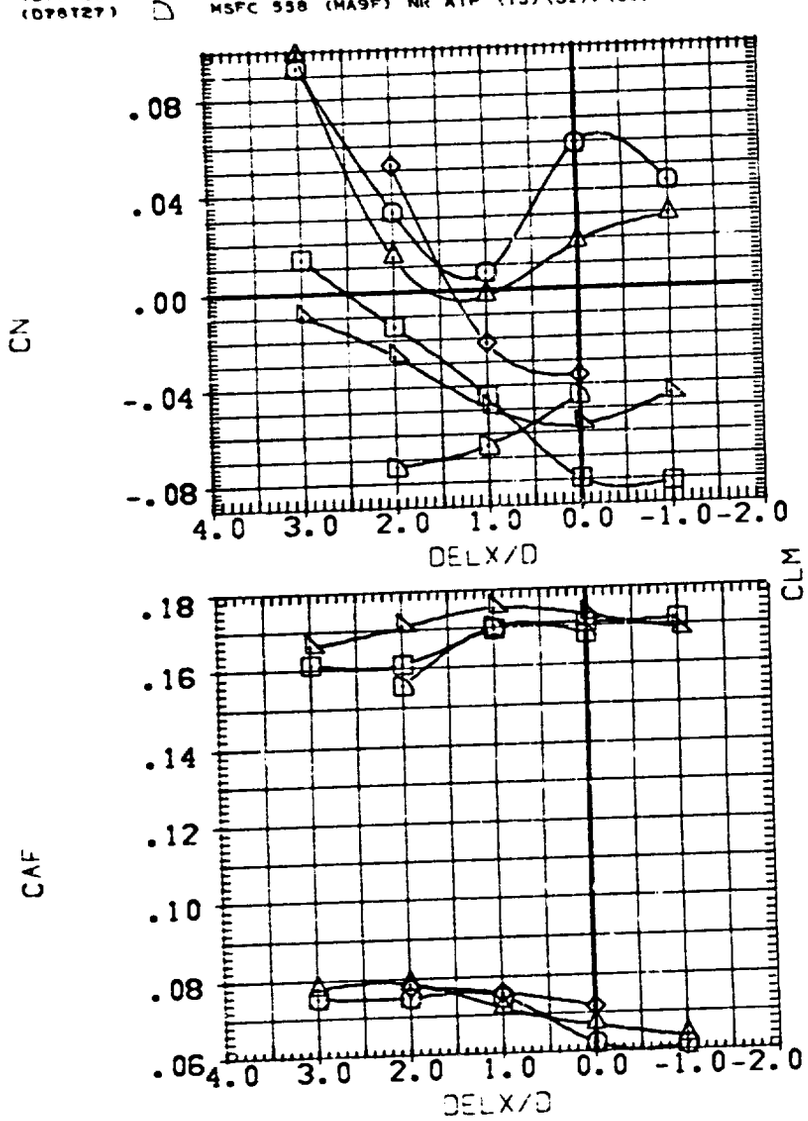
LONGITUDINAL STABILITY CHARACTERISTICS - EFFECTS OF VARYING DELX/D

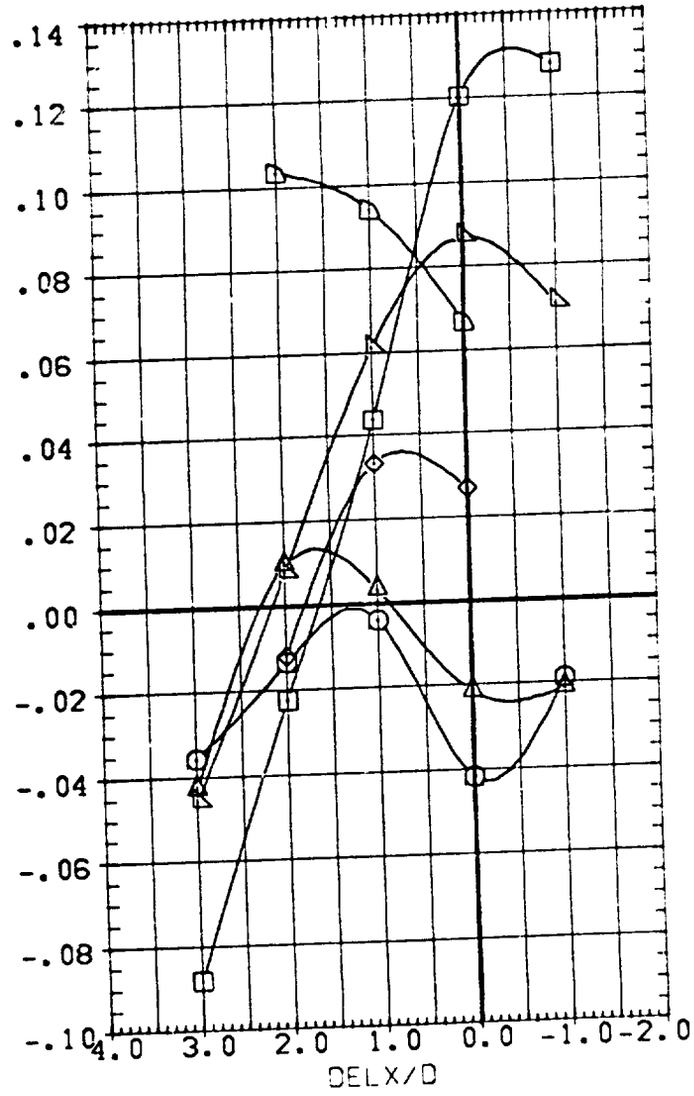
(A)ALPHA = .00

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION
(D78025)		MSFC 558 (MA9F) NR ATP (O1)/(T3)(S1)
(D78026)		MSFC 558 (MA9F) NR ATP (O1)/(T3)(S1)
(D78027)		MSFC 558 (MA9F) NR ATP (O1)/(T3)(S1)
(D78T25)		MSFC 558 (MA9F) NR ATP (T3)(S1)/(O1)
(D78T26)		MSFC 558 (MA9F) NR ATP (T3)(S1)/(O1)
(D78T27)		MSFC 558 (MA9F) NR ATP (T3)(S1)/(O1)

MACH	DELZ/D	ORBINC	ELEVON
2.000	-.520	.000	.000
2.000	-1.000	.000	.000
2.000	-1.500	.000	.000
2.000	-.520	.000	.000
2.000	-1.000	.000	.000
2.000	-1.500	.000	.000

REFERENCE INFORMATION		
SREF	3220.0000	SQ.FT.
LREF	1328.0000	INCHES
BREF	1328.0000	INCHES
XMRP	.0000	
YMRP	.0000	
ZMRP	-61.5000	INCHES
SCALE	100.0000	PER





LONGITUDINAL STABILITY CHARACTERISTICS - EFFECTS OF VARYING DELX/D

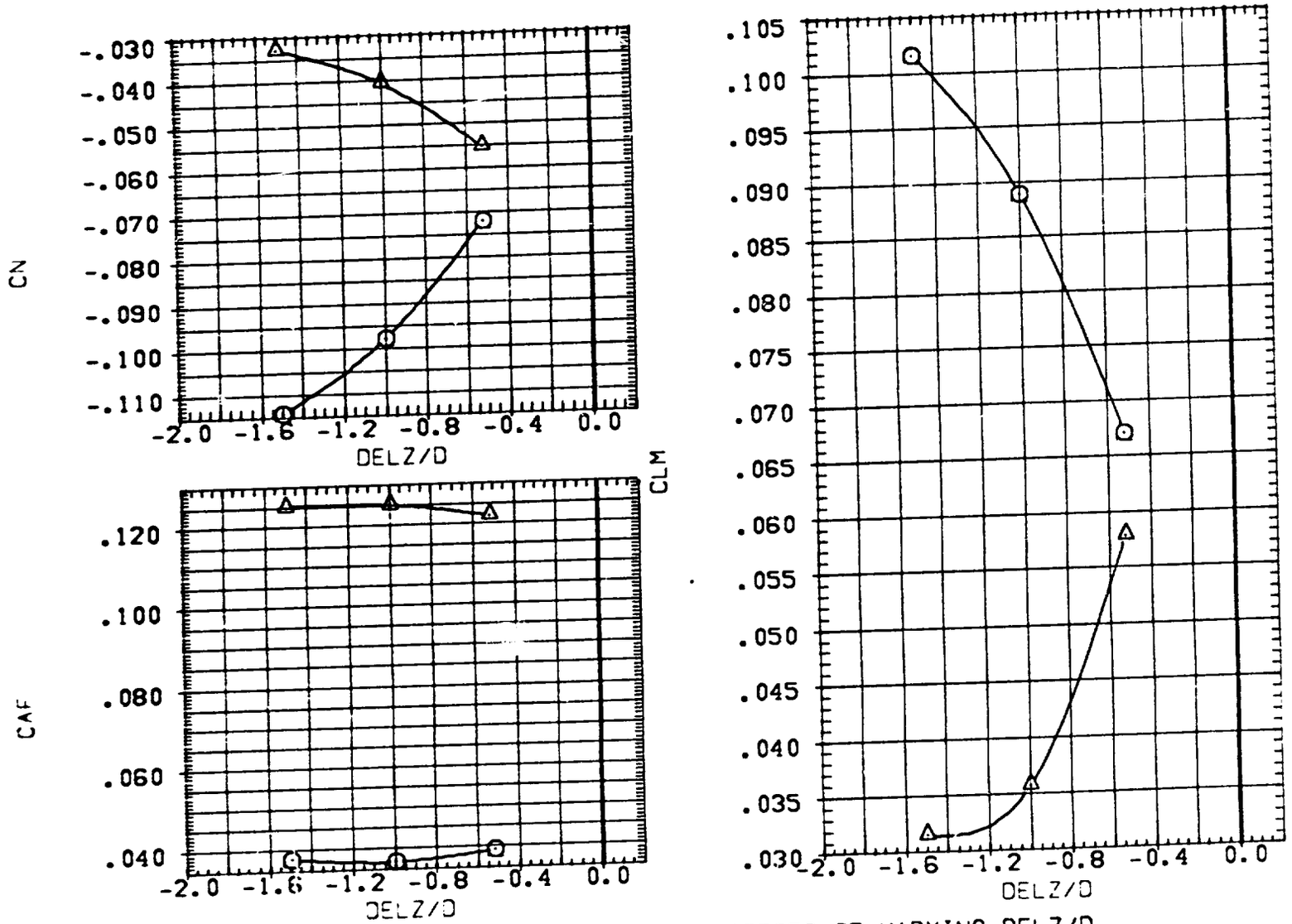
PAGE 56

CA(ALPHA = .00

DATA SET SYMBOL		CONFIGURATION DESCRIPTION
(1T9C01)	○	MSFC 556 (MA9F) NR ATP (O1)/(T3)(S1)
(1T8T01)	△	MSFC 556 (MA9F) NR ATP (T3)(S1)/(O1)

MACH	DELX/D	ORBINC	ELEVON
.900	-.500	.000	.000
.900	-.500	.000	.000

REFERENCE INFORMATION		
SREF	3220.0000	SQ.FT.
LREF	1328.0000	INCHES
BREF	1328.0000	INCHES
XMRP	.0000	
YMRP	.0000	
ZMRP	-61.5000	INCHES
SCALE	100.0000	PER



LONGITUDINAL STABILITY CHARACTERISTICS - EFFECTS OF VARYING DELZ/D

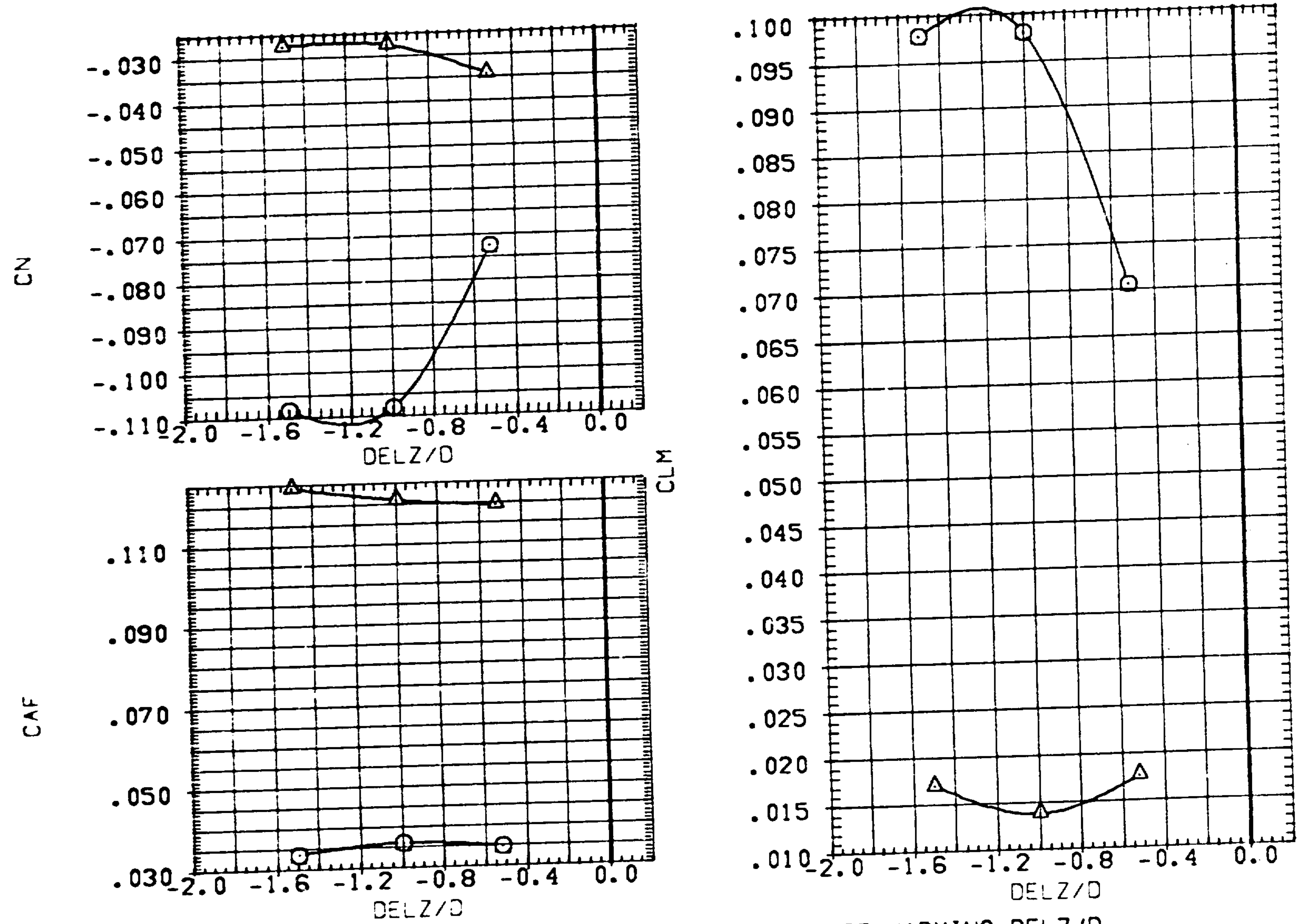
(A)ALPHA = .00

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION
(179C02)	⊙	MSFC 558 (MA9F) NR ATP (O1)/(T3)(S1)
(178T02)	△	MSFC 558 (MA9F) NR ATP (T3)(S1)/(O1)

MACH	DELX/D	ORBINC	ELEVON
.900	.000	.000	.000
.900	.000	.000	.000

REFERENCE INFORMATION

SREF	3220.0000	SQ.FT.
LREF	1328.0000	INCHES
BREF	1328.0000	INCHES
XMRP	.0000	
YMRP	.0000	
ZMRP	-61.5000	INCHES
SCALE	100.0000	PER



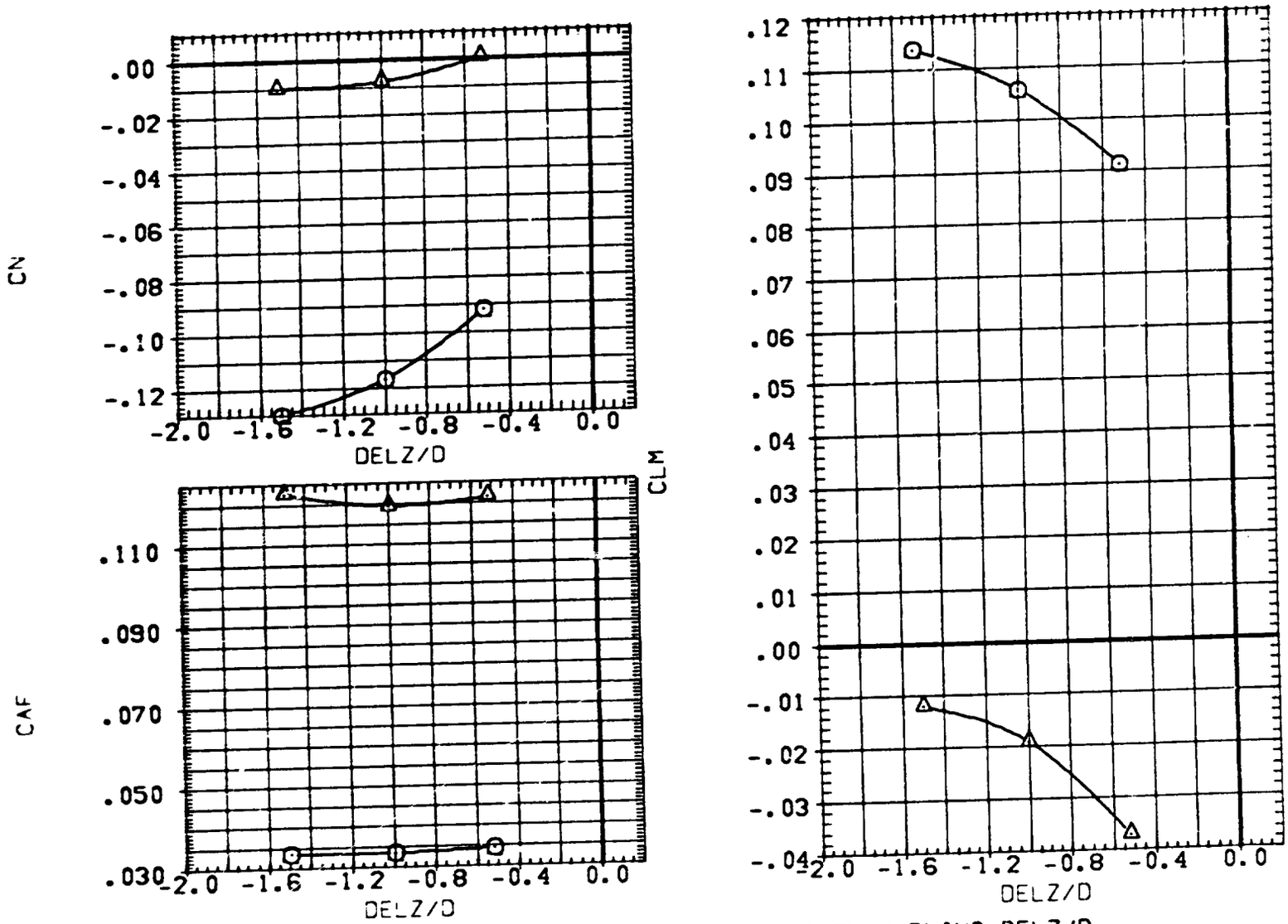
LONGITUDINAL STABILITY CHARACTERISTICS - EFFECTS OF VARYING DELZ/D

(A)ALP-A = .00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
(179003)	MSFC 558 (MA9F) NR ATP (O1)/(T3)(S1)
(179703)	MSFC 558 (MA9F) NR ATP (T3)(S1)/(O1)

MACH	DELX/D	ORBINC	ELEVON
.900	.500	.000	.000
.900	.500	.000	.000

REFERENCE INFORMATION		
SREF	3220.0000	SQ.FT.
LREF	1328.0000	INCHES
BREF	1328.0000	INCHES
XMRP	.0000	
YMRP	.0000	
ZMRP	-61.5000	INCHES
SCALE	100.0000	PER



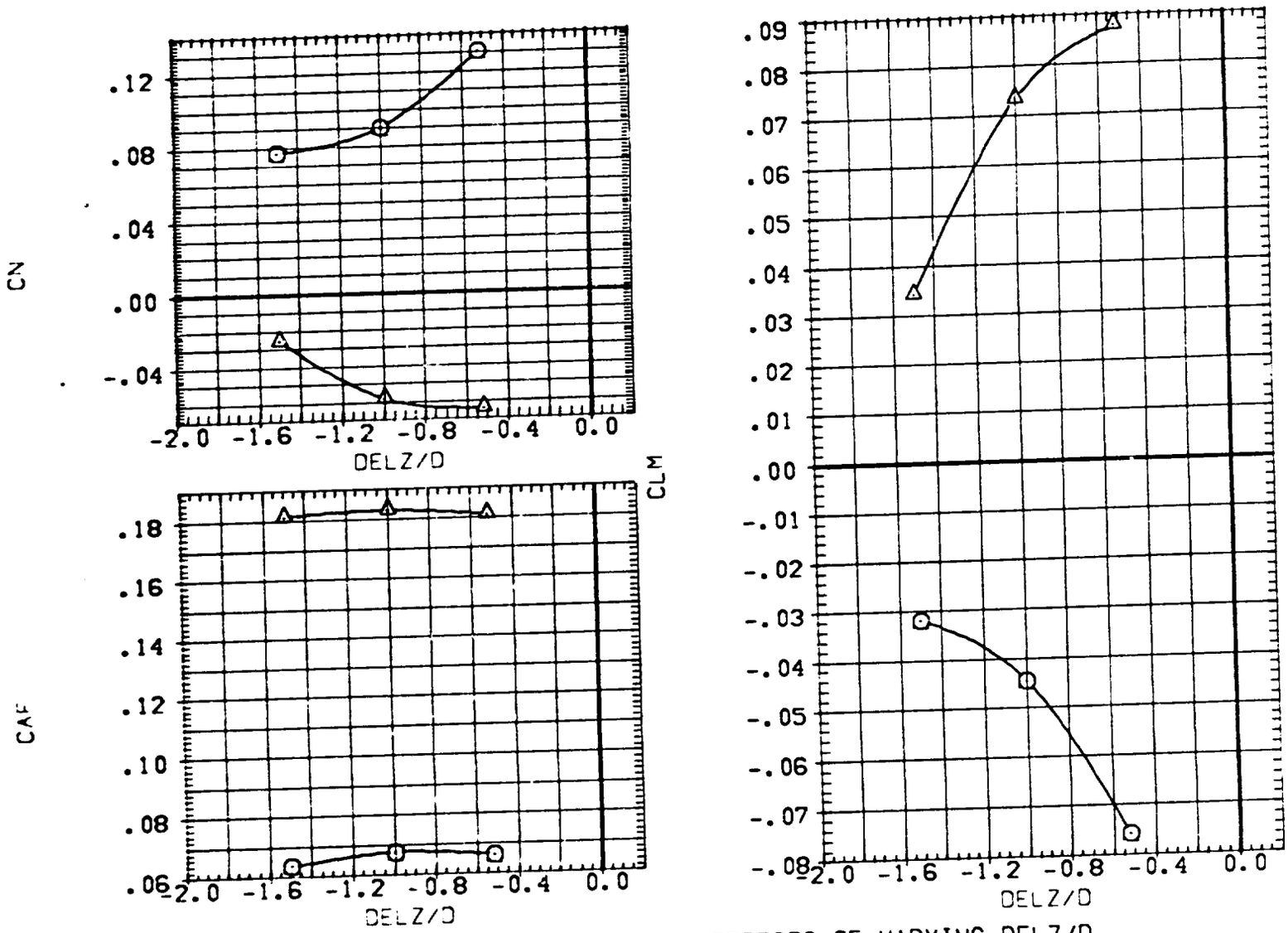
LONGITUDINAL STABILITY CHARACTERISTICS - EFFECTS OF VARYING DELZ/D

(A)ALPHA = .00

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION
(179013)		MSFC 558 (MASF) NR ATP (O1)/(T3)(S1)
(179713)		MSFC 558 (MASF) NR ATP (T3)(S1)/(O1)

MACH	DELX/D	ORBINC	ELEVON
1.200	-.500	.000	.000
1.200	-.500	.000	.000

REFERENCE INFORMATION		
SREF	3220.0000	SQ.FT.
LREF	1328.0000	INCHES
BREF	1328.0000	INCHES
XMRP	.0000	
YMRP	.0000	
ZMRP	-81.5000	INCHES
SCALE	100.0000	PER



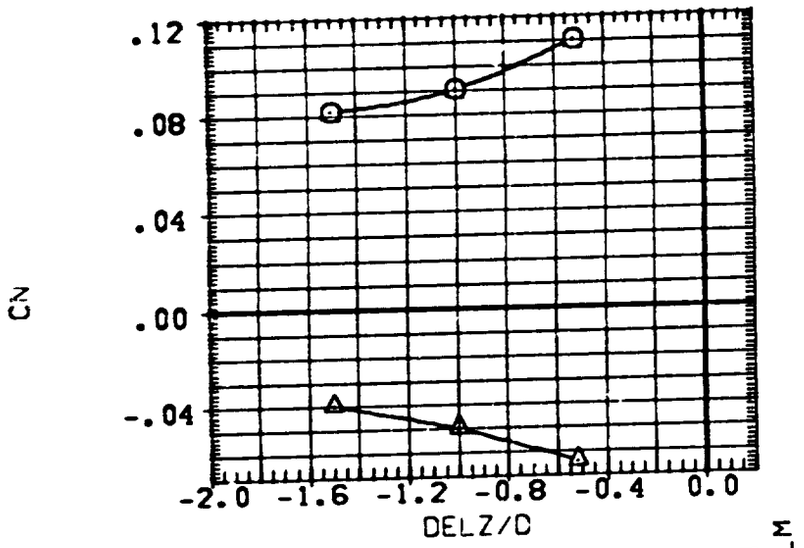
LONGITUDINAL STABILITY CHARACTERISTICS - EFFECTS OF VARYING DELZ/D

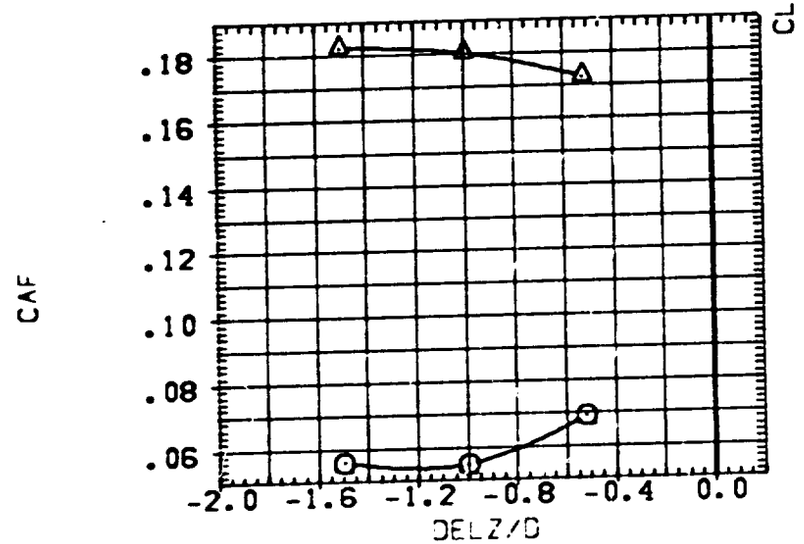
(A)ALPHA = .00

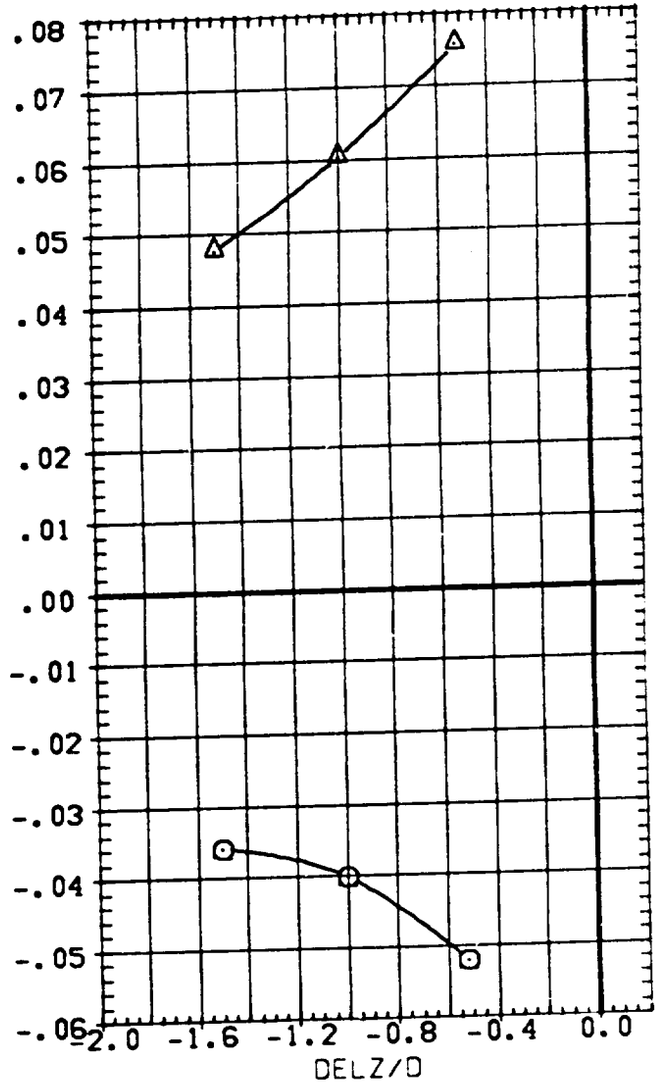
DATA SET SYMBOL		CONFIGURATION DESCRIPTION
(19801A)	○	MSFC 55B (MASF) NR ATP (O1)/(T3)(S1)
(19A71A)	△	MSFC 55B (MASF) NR ATP (T3)(S1)/(O1)

MACH	DELX/D	ORBINC	ELEVON
1.200	.000	.000	.000
1.200	.000	.000	.000

REFERENCE INFORMATION		
SREF	3220.0000	SQ.FT.
LREF	1328.0000	INCHES
BREF	1328.0000	INCHES
XMRP	.0000	
YMRP	.0000	
ZMRP	-61.5000	INCHES
SCALE	100.0000	PER







LONGITUDINAL STABILITY CHARACTERISTICS - EFFECTS OF VARYING DELZ/D

(A)ALPHA = .00

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION
(179015)	⊠	MSFC 338 (MA9F) NR ATP (01)/(T3)(S1)
(179T15)	⊠	MSFC 338 (MA9F) NR ATP (T3)(S1)/(01)

MACH	DELX/D	ORBINC	ELEVON
1.200	.500	.000	.000
1.200	.500	.000	.000

REFERENCE INFORMATION

SREF	3220.0000	SQ.FT.
LREF	1328.0000	INCHES
BREF	1328.0000	INCHES
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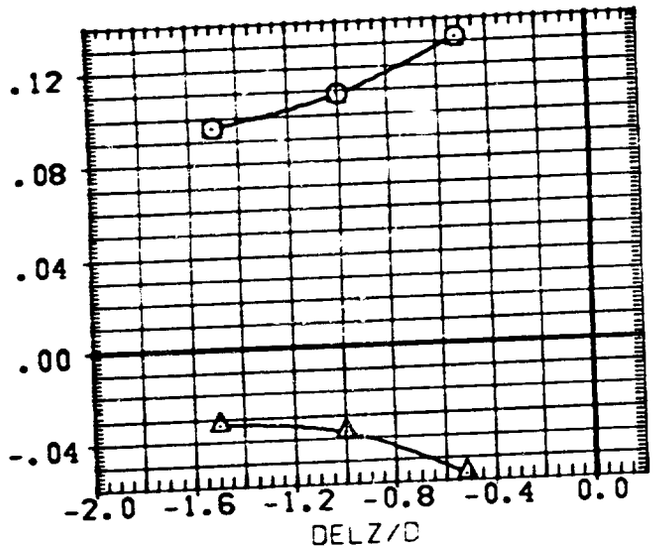
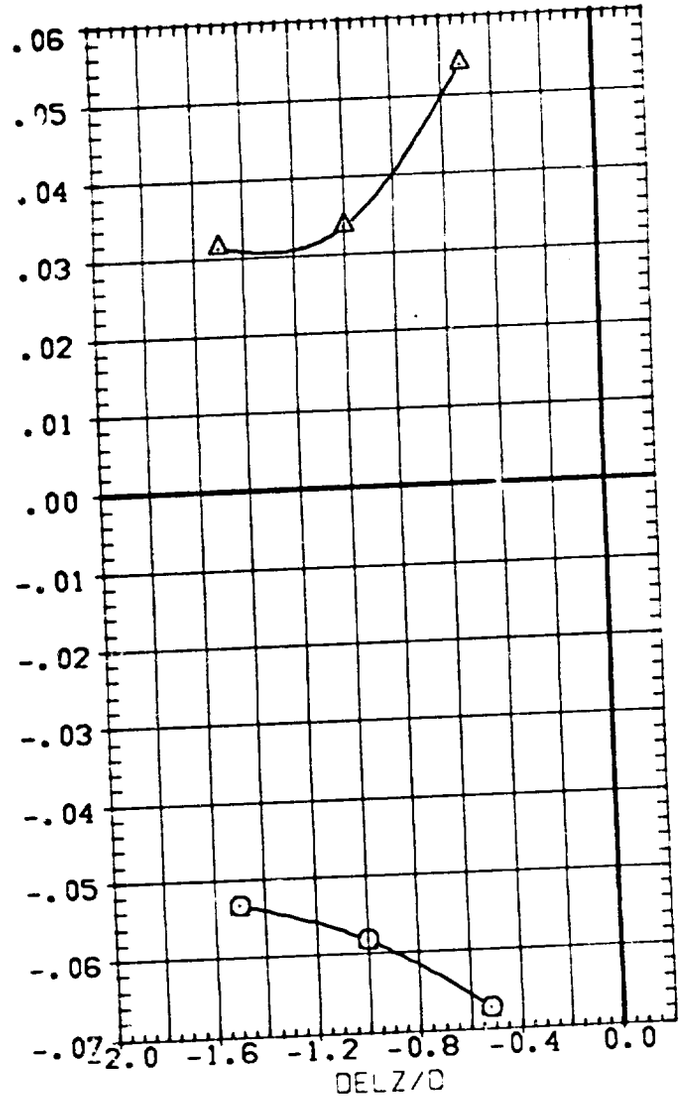
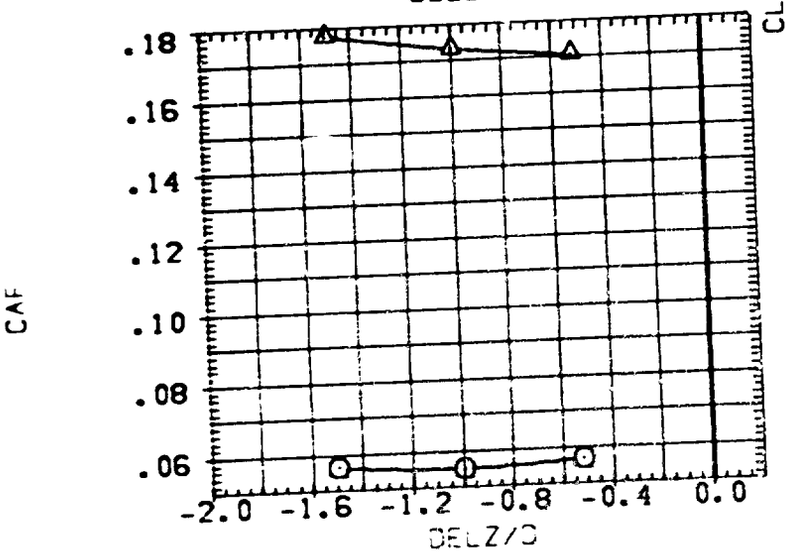
YMRP	.0000	
ZMRP	-61.5000	INCHES
SCALE	100.0000	PER







LONGITUDINAL STABILITY CHARACTERISTICS - EFFECTS OF VARYING DELZ/D

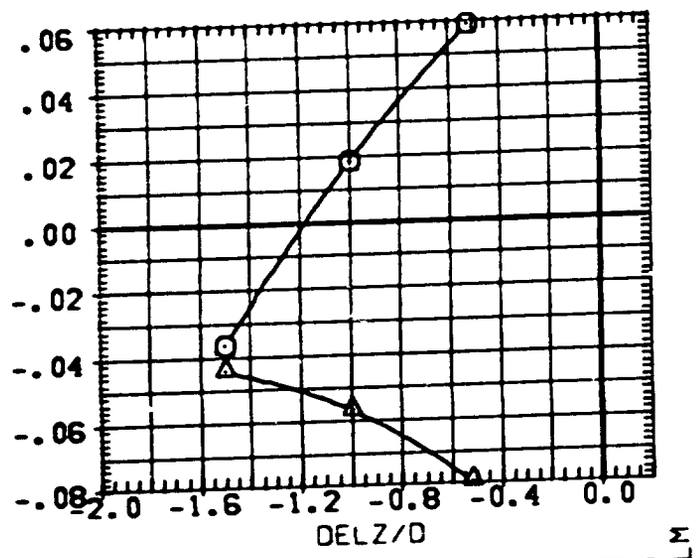
(A)A_P-A = .00

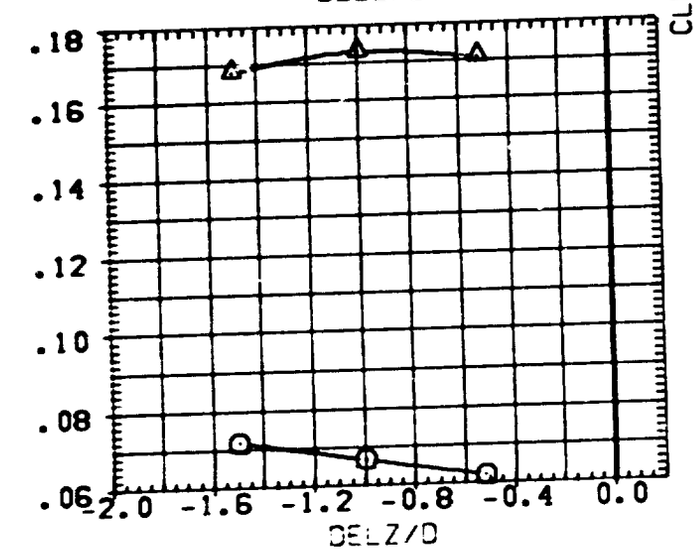
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION
(179025)	○	MSFC 558 (HA9F) NR ATP (01)/(T3)(81)
(179125)	△	MSFC 558 (HA9F) NR ATP (T3)(81)/(01)

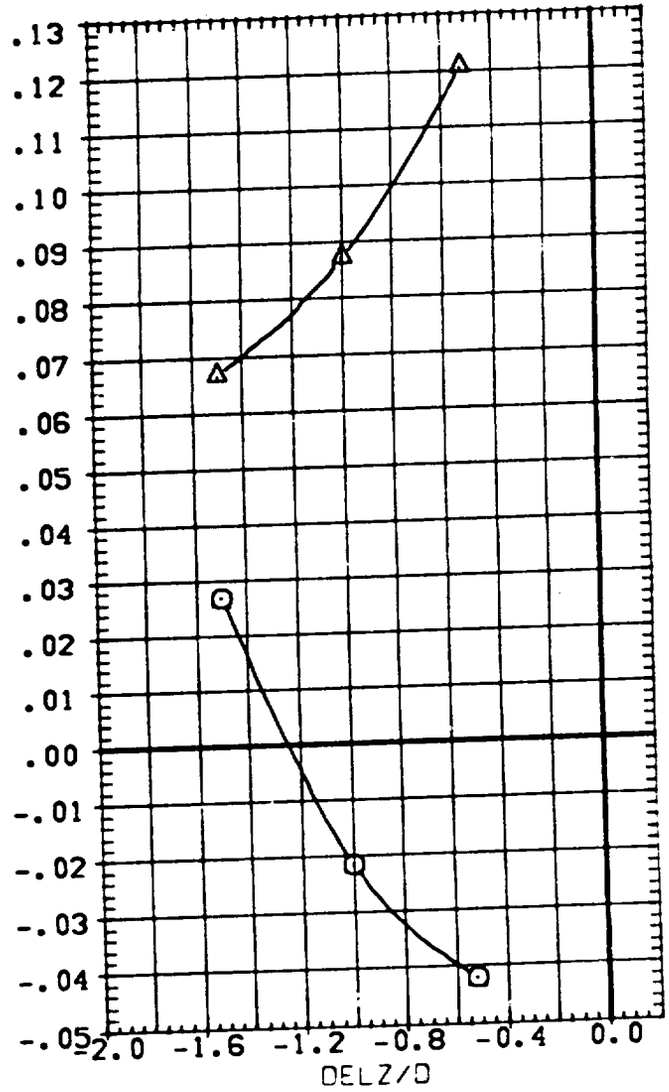
MACH	DELX/D	ORBINC	ELEVON
2.000	.000	.000	.000
2.000	.000	.000	.000

REFERENCE INFORMATION

SREF	3220.0000	SQ.FT.
LREF	1328.0000	INCHES
BREF	1328.0000	INCHES
XMRP	.0000	
YMRP	.0000	
ZMRP	-61.5000	INCHES
SCALE	100.0000	PER







LONGITUDINAL STABILITY CHARACTERISTICS - EFFECTS OF VARYING DELZ/D

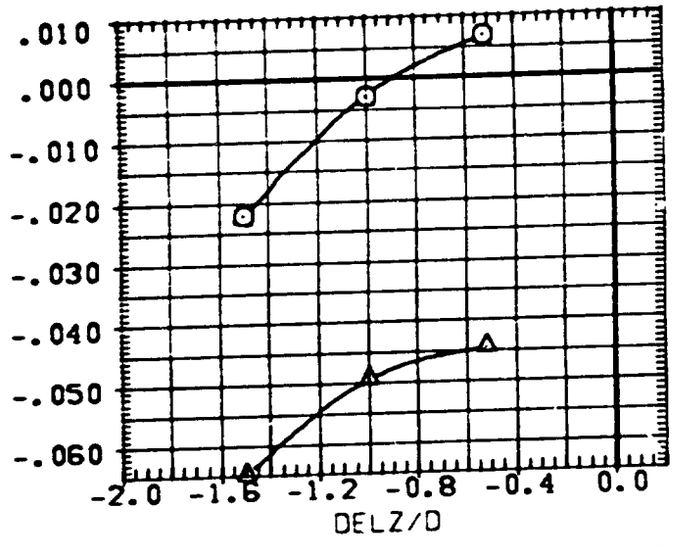
(A)ALPHA = .00

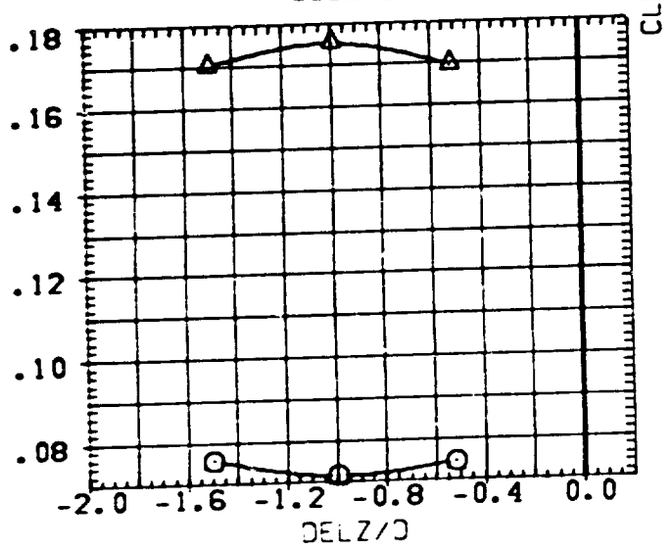
DATA SET SYMBOL		CONFIGURATION DESCRIPTION
(I79026)	○	MSFC 338 (MASF) NR ATP (O1)/(T3)(S1)
(I79TZ6)	△	MSFC 338 (MASF) NR ATP (T3)(S1)/(O1)

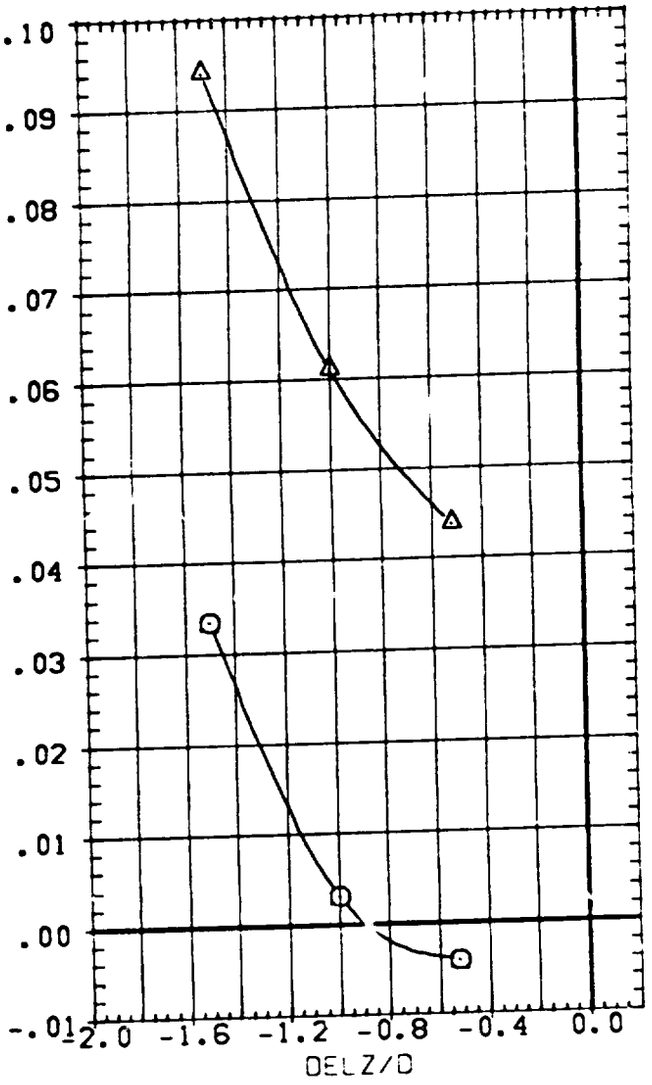
MACH	DELX/D	ORBINC	ELEVON
2.000	1.000	.000	.000
2.000	1.000	.000	.000

REFERENCE INFORMATION

SREF	3220.0000	SQ.FT.
LREF	1328.0000	INCHES
BREF	1328.0000	INCHES
XMRP	.0000	
YMRP	.0000	
ZMRP	-81.5000	INCHES
SCALE	100.0000	PER







LONGITUDINAL STABILITY CHARACTERISTICS - EFFECTS OF VARYING DELZ/D

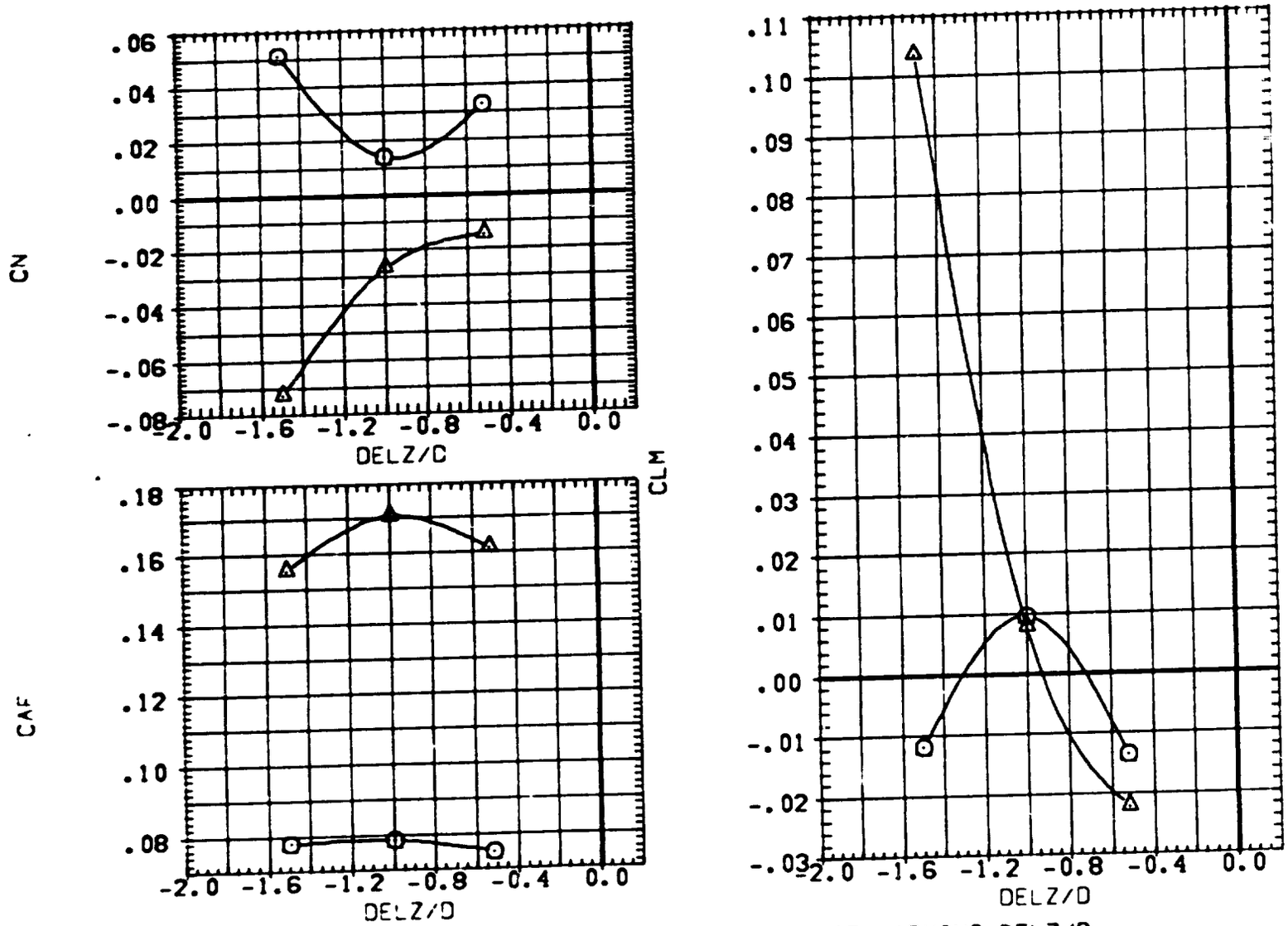
(A)ALP-A = .00

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION
(170027)	○	HSPC 558 (HA9F) NR ATP (01)/(T3)(S1)
(170727)	△	HSPC 558 (HA9F) NR ATP (T3)(S1)/(01)

MACH	DELX/D	ORBINC	ELEVON
2.000	2.000	.000	.000
2.000	2.000	.000	.000

REFERENCE INFORMATION

SREF	3220.0000	SQ.FT.
LREF	1320.0000	INCHES
BREF	1320.0000	INCHES
XMRP	.0000	
YMRP	.0000	
ZMRP	-61.5000	INCHES
SCALE	100.0000	PER



LONGITUDINAL STABILITY CHARACTERISTICS - EFFECTS OF VARYING DELZ/D

(A)A_P-A = .00

APPENDIX

TABULATED SOURCE DATA

Plotted data tabulations available from DMS on request.

DATE 28 MAR 73

SOURCE DATA TABULATION, MSFC-TWT-558

MSFC 558 (MASF) NR ATP (01)/(T3)(S1)

(R78001) (29 JAN 73)

REFERENCE DATA

BREF =	3220.0000 SQ.FT.	XMRP =	.0000
LREF =	1328.0000 INCHES	YMRP =	.0000
BREF =	1328.0000 INCHES	ZMRP =	-61.5000 INCHES
SCALE =	100.0000 PER		

PARAMETRIC DATA

BETA =	.000	ORBINC =	.000
MACH =	.900	ELEVON =	.000
DELZ/D =	-.320		

RUN NO. 1018/ 0 RN/L = 6.21 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
-.900	-8.000	-.35290	.26700	-.00160	.00010	.00150	.03470	.04150
-.900	-6.000	-.27890	.21290	-.00370	.00100	.00100	.03600	.03820
-.900	-4.000	-.21080	.16390	-.00340	.00050	.00080	.03990	.03670
-.900	-2.000	-.14200	.11590	-.00130	-.00090	.00120	.03990	.03700
-.900	.000	-.07170	.06710	-.00230	-.00020	.00110	.03910	.03710
-.900	2.000	.00040	.01620	-.00190	-.00020	.00140	.03730	.03560
-.900	4.000	.07060	-.03360	-.00130	-.00040	.00140	.03390	.03470
-.900	6.000	.15480	-.09310	-.00030	-.00080	.00140	.02920	.03360
-.900	8.000	.23550	-.15140	.00100	-.00160	.00170	.02750	.03250
	GRADIENT	.03526	-.02473	.00018	-.00005	.00007	-.00073	-.00027

RUN NO. 1017/ 0 RN/L = 6.20 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
.000	-8.000	-.34980	.26290	-.00360	.00120	.00080	.03360	.03780
.000	-6.000	-.29260	.22650	-.00270	.00030	.00070	.03260	.03710
.000	-4.000	-.21650	.17110	.00000	-.00060	.00080	.03420	.03660
.000	-2.000	-.14370	.11920	-.00010	-.00190	.00100	.03490	.03640
.000	.000	-.07250	.07090	.00020	-.00220	.00100	.03480	.03620
.000	2.000	-.00240	.02220	.00000	-.00190	.00120	.03360	.03550
.000	4.000	.07490	-.03130	-.00040	-.00130	.00130	.02920	.03590
.000	6.000	.15700	-.08000	.00020	-.00170	.00160	.02410	.03580
.000	8.000	.23730	-.14830	.00040	-.00160	.00150	.02170	.03540
	GRADIENT	.03620	-.02509	-.00004	.00003	.00005	-.00057	-.00011

RUN NO. 1016/ 0 RN/L = 6.22 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
.900	-8.000	-.38420	.30800	-.00280	.00000	.00080	.03790	.03410
.900	-6.000	-.32720	.26060	-.00200	-.00090	.00090	.03560	.03390
.900	-4.000	-.25270	.20630	-.00120	-.00100	.00090	.03500	.03350
.900	-2.000	-.17870	.15320	-.00040	-.00140	.00090	.03560	.03300
.900	.000	-.09200	.09120	-.00160	-.00100	.00090	.03450	.03280
.900	2.000	-.01340	.03900	-.00020	-.00170	.00080	.03280	.03310
.900	4.000	.06670	-.02120	.00020	-.00160	.00150	.02660	.03280
.900	6.000	.13740	-.06670	-.00020	-.00130	.00080	.02300	.03230
.900	8.000	.23980	-.14540	-.00030	-.00120	.00080	.02030	.03320
	GRADIENT	.04020	-.02966	.00019	-.00009	.00013	-.00076	-.00006

MSFC 558 (MA9F) NR ATP (O1)/(T3)(S1) (R78C02) (29 JAN 73)

REFERENCE DATA

SREF = 3220.0000 SQ.FT. XMRP = .0000
LREF = 1328.0000 INCHES YMRP = .0000
BRE = 1328.0000 INCHES ZMRP = -61.9000 INCHES
SCALE = 100.0000 PER

PARAMETRIC DATA

BETA = .000 ORBINC = .000
MACH = .900 ELEVON = .000
DELZ/D = -1.000

RUN NO. 1019/ 0 RN/L = 6.19 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
-.900	-8.000	-.42360	.31750	.00870	-.00720	.00230	.03110	.03650
-.900	-6.000	-.34130	.25840	.00840	-.00830	.00250	.03250	.03520
-.900	-4.000	-.25850	.19950	.00890	-.00840	.00230	.03470	.03460
-.900	-2.000	-.17420	.14130	.00830	-.00780	.00200	.03650	.03390
-.900	.000	.09780	.08890	.00940	-.00850	.00150	.03660	.03300
-.900	2.000	-.01620	.03310	.00880	-.00780	.00130	.03480	.03260
-.900	4.000	.06620	-.02420	.00910	-.00780	.00120	.03120	.03150
-.900	6.000	.16130	-.09120	.00770	-.00650	.00100	.02620	.03160
-.900	8.000	.25110	-.15390	.00790	-.00840	.00130	.02310	.03140
	GRADIENT	.04037	-.02778	.00003	.00008	-.00014	-.00044	-.00038

RUN NO. 1020/ 0 RN/L = 6.19 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
.000	-8.000	-.43730	.32780	.00880	-.00790	.00230	.03230	.03650
.000	-6.000	-.35820	.27130	.00850	-.00890	.00230	.03280	.03510
.000	-4.000	-.27120	.20990	.00790	-.00830	.00190	.03380	.03330
.000	-2.000	-.18750	.15150	.00870	-.00840	.00210	.03440	.03470
.000	.000	-.10810	.09600	.00830	-.00880	.00180	.03610	.03410
.000	2.000	-.03150	.04520	.00890	-.00790	.00170	.03370	.03340
.000	4.000	.05400	-.01920	.00860	-.00780	.00240	.02820	.03300
.000	6.000	.13070	-.08300	.00840	-.00720	.00200	.02180	.03390
.000	8.000	.24470	-.14970	.00800	-.00870	.00200	.01940	.03360
	GRADIENT	.04032	-.02782	.00006	.00010	.00015	-.00039	-.00030

RUN NO. 1021/ 0 RN/L = 6.18 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
.900	-8.000	-.41990	.34280	.00890	-.00800	.00300	.03420	.03640
.900	-6.000	-.37060	.28480	.00910	-.00930	.00290	.03120	.03440
.900	-4.000	-.28130	.22050	.00750	-.00790	.00200	.03220	.03240
.900	-2.000	-.20190	.16430	.00790	-.00810	.00140	.03280	.03290
.900	.000	-.11660	.10580	.01050	-.00960	.00150	.03360	.03140
.900	2.000	-.03370	.04810	.00840	-.00800	.00170	.03290	.03120
.900	4.000	.05550	-.01400	.00700	-.00680	.00180	.02780	.03150
.900	6.000	.13870	-.08650	.00860	-.00980	.00170	.02180	.03200
.900	8.000	.25310	-.15300	.00870	-.00980	.00160	.01820	.03270
	GRADIENT	.04209	-.02926	-.00003	.00014	-.00001	-.00044	-.00019

MSFC 558 (MA9F) NR ATP (01)/(T3)(S1) (R78003) (29 JAN 73)

REFERENCE DATA

SREF = 3220.0000 SQ.FT. XMRP = .0000
LREF = 1328.0000 INCHES YMRP = .0000
BREF = 1328.0000 INCHES ZMRP = -61.5000 INCHES
SCALE = 100.0000 PER

PARAMETRIC DATA

BETA = .000 ORBINC = .000
MACH = .900 ELEVON = .000
DELZ/D = -1.500

RUN NO. 1041/ 0 RN/L = 6.18 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
-1.000	-8.530	-.33520	.30070	-.00130	.00320	-.00050	.11770	.08000
-1.000	-6.290	-.25510	.23130	-.00210	.00460	-.00010	.12260	.07440
-1.000	-4.070	-.17860	.17160	-.00040	.00240	.00010	.12660	.07150
-1.000	-1.890	-.10720	.11160	-.00540	.00760	.00000	.12890	.06690
-1.000	.270	-.02130	.02330	-.00570	.00860	-.00030	.12720	.06490
-1.000	.280	-.01620	.01670	-.00910	.01220	-.00070	.12560	.06570
-1.000	2.480	.06300	-.06360	-.00680	.01060	-.00120	.12510	.06290
-1.000	4.640	.13840	-.13240	-.00850	.01280	-.00230	.12510	.05850
-1.000	6.890	.21540	-.19280	-.00550	.00790	-.00250	.12000	.05560
-1.000	9.050	.29090	-.25590	-.00920	.01210	-.00310	.11210	.05460
	GRADIENT	.03691	-.03595	-.00081	.00109	-.00028	-.00033	-.00138

RUN NO. 1040/ 0 RN/L = 6.19 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
-.500	-8.000	-.46690	.34660	.01860	-.01540	.00260	.03130	.03340
-.500	-6.000	-.37950	.28520	.02010	-.01640	.00260	.03160	.03220
-.500	-4.000	-.29130	.22350	.01970	-.01590	.00230	.03310	.03240
-.500	-2.000	-.19770	.15640	.01870	-.01460	.00210	.03510	.03150
-.500	.000	-.11400	.10170	.01970	-.01520	.00150	.03760	.03040
-.500	2.000	-.02500	.04000	.01630	-.01410	.00040	.03570	.03040
-.500	4.000	.06810	-.02420	.01830	-.01350	.00060	.03060	.03030
-.500	6.000	.16690	-.09320	.01650	-.01220	.00120	.02610	.02930
-.500	8.000	.26260	-.16010	.01500	-.01110	.00180	.02260	.02960
	GRADIENT	.04457	-.03069	-.00016	.00027	-.00023	-.00020	-.00027

RUN NO. 1037/ 0 RN/L = 6.18 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
.000	-8.000	-.46180	.34270	.01930	-.01580	.00270	.03110	.03420
.000	-6.000	-.37810	.28400	.02030	-.01640	.00260	.03030	.03310
.000	-4.000	-.28680	.22050	.02030	-.01620	.00230	.03150	.03280
.000	-2.000	-.19470	.15650	.02120	-.01640	.00240	.03270	.03260
.000	.000	-.10660	.09790	.01900	-.01480	.00180	.03370	.03210
.000	2.000	-.01850	.03690	.01710	-.01320	.00160	.03220	.03230
.000	4.000	.07620	-.02910	.01670	-.01240	.00160	.02750	.03180
.000	6.000	.17490	-.09930	.01520	-.01140	.00110	.02170	.03160
.000	8.000	.27550	-.16970	.01400	-.01050	.00150	.01950	.03220
	GRADIENT	.04911	-.03094	-.00055	.00054	-.00011	-.00043	-.00013

MSFC 556 (MA9F) NR ATP (O1)/(T3)(S1) (R76003) (29 JAN 73)

REFERENCE DATA

SREF = 3220.0000 SQ.FT. XMRP = .0000
LREF = 1328.0000 INCHES YMRP = .0000
BREF = 1328.0000 INCHES ZMRP = -61.5000 INCHES
SCALE = 100.0000 PER

PARAMETRIC DATA

BETA = .000 ORBINC = .000
MACH = .900 ELEVON = .000
DELZ/D = -1.500

RUN NO. 1036/ 0 RN/L = 6.19 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
.500	-8.000	-.47470	.35490	.02020	-.01650	.00290	.03170	.03430
.500	-6.000	-.39460	.29870	.02100	-.01670	.00290	.03080	.03260
.500	-4.000	-.30110	.23270	.02000	-.01600	.00240	.03080	.03170
.500	-2.000	-.20940	.16840	.02030	-.01590	.00220	.03250	.03100
.500	.000	-.12960	.11390	.02050	-.01580	.00170	.03350	.03140
.500	2.000	-.03440	.04850	.01810	-.01380	.00110	.03250	.03060
.500	4.000	.06080	-.01680	.01690	-.01260	.00140	.02820	.03090
.500	6.000	.16260	-.08920	.01610	-.01190	.00150	.02300	.03050
.500	8.000	.26360	-.16230	.01370	-.01030	.00170	.01960	.03100
	GRADIENT	.04494	-.03095	-.00042	.00045	-.00015	-.00026	-.00010

MSFC 556 (MA9F) NR ATP (O1)/(T3)(S1) (R78004) (29 JAN 73)

REFERENCE DATA

SREF = 3220.0000 SQ.FT. XMRP = .0000
LREF = 1326.0000 INCHES YMRP = .0000
BREF = 1326.0000 INCHES ZMRP = -61.5000 INCHES
SCALE = 100.0000 PER

PARAMETRIC DATA

BETA = .000 ORBINC = 2.000
MACH = .900 ELEVON = .000
DELZ/D = -.320

RUN NO. 1073/ 0 RN/L = 6.19 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
-.900	-8.000	-.21320	.16880	-.01760	.00120	-.00010	.04020	.04140
-.900	-6.000	-.14400	.11610	-.00630	.00460	.00000	.04090	.04010
-.900	-4.000	-.07220	.06570	-.00870	.00430	.00000	.04090	.03880
-.900	-2.000	-.00480	.01720	-.00730	.00350	.00050	.04080	.03770
-.900	.000	.05560	-.02430	-.00750	.00360	.00000	.03920	.03630
-.900	2.000	.12980	-.07620	-.00830	.00440	.00020	.03550	.03470
-.900	4.000	.20940	-.13310	-.00970	.00570	.00050	.02950	.03430
-.900	6.000	.29150	-.19230	-.00830	.00440	.00040	.02620	.03430
-.900	8.000	.36120	-.24590	-.00790	.00420	.00090	.02770	.03480
	GRADIENT	.03489	-.02455	-.00015	.00018	.00005	-.00150	-.00058

RUN NO. 1070/ 0 RN/L = 6.16 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
.000	-8.000	-.22450	.17950	-.00550	.00250	-.00020	.03380	.03990
.000	-6.000	-.15330	.12750	-.00560	.00260	-.00020	.03380	.03920
.000	-4.000	-.08550	.07900	-.00560	.00250	-.00010	.03450	.03800
.000	-2.000	-.01970	.03380	-.00490	.00160	.00000	.03350	.03640
.000	.000	.04690	-.01250	-.00610	.00260	-.00020	.03180	.03770
.000	2.000	.12150	-.06420	-.00560	.00240	.00010	.02740	.03710
.000	4.000	.20270	-.12190	-.00640	.00330	.00040	.02430	.03630
.000	6.000	.28440	-.18070	-.00730	.00390	.00050	.02190	.03720
.000	8.000	.35460	-.23260	-.00810	.00480	.00090	.02180	.03810
	GRADIENT	.03588	-.02499	-.00011	.00011	.00005	-.00133	-.00024

RUN NO. 1074/ 0 RN/L = 6.18 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
.900	-8.000	-.27060	.22490	-.00570	.00210	-.00050	.03790	.03530
.900	-6.000	-.20360	.17610	-.00800	.00230	-.00070	.03650	.03540
.900	-4.000	-.12980	.12270	-.00620	.00250	-.00070	.03520	.03500
.900	-2.000	-.05710	.07070	-.00680	.00290	-.00070	.03500	.03460
.900	.000	.02370	.01320	-.00680	.00270	-.00040	.03320	.03380
.900	2.000	.11260	-.03120	-.00690	.00330	-.00020	.02880	.03390
.900	4.000	.20220	-.11600	-.00810	.00420	-.00010	.02440	.03350
.900	6.000	.27820	-.17020	-.00850	.00450	.00000	.02220	.03540
.900	8.000	.34930	-.22150	-.00890	.00490	.00020	.02220	.03720
	GRADIENT	.04168	-.02996	-.00019	.00019	.00006	-.00139	-.00019

MSFC 558 (MA9F) NR ATP (01)/(T3)(S1) (R78005) (29 JAN 73)

REFERENCE DATA

SREF = 3220.0000 SQ.FT. XMRP = .0000
LREF = 1328.0000 INCHES YMRP = .0000
BREF = 1328.0000 INCHES ZMRP = -61.5000 INCHES
SCALE = 100.0000 PER

PARAMETRIC DATA

BETA = .000 ORBINC = 2.000
MACH = .900 ELEVON = .000
DELZ/D = -1.000

RUN NO. 1069/ 0 RN/L = 6.18 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
-.500	-8.000	-.30300	.23210	.00320	-.00480	.00130	.03360	.03780
-.500	-6.000	-.21920	.17250	.00400	-.00530	.00130	.03620	.03660
-.500	-4.000	-.13900	.11620	.00760	-.00750	.00160	.03890	.03620
-.500	-2.000	-.05980	.05990	.00390	-.00470	.00070	.04000	.03500
-.500	.000	.02160	.00350	.00280	-.00380	.00060	.03830	.03510
-.500	2.000	.09960	-.05000	.00220	-.00320	.00070	.03440	.03300
-.500	4.000	.19270	-.11520	.00040	-.00150	.00070	.02880	.03200
-.500	6.000	.28510	-.18010	.00090	-.00170	.00080	.02480	.03290
-.500	8.000	.36850	-.23850	.00100	-.00160	.00120	.02340	.03380
	GRADIENT	.04114	-.02863	-.00060	.00067	-.00009	-.00129	-.00052

RUN NO. 1066/ 0 RN/L = 6.18 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
.000	-8.000	-.31280	.24100	.00380	-.00490	.00110	.03370	.03610
.000	-6.000	-.23100	.18280	.00390	-.00510	.00120	.03470	.03570
.000	-4.000	-.14900	.12470	.00340	-.00470	.00120	.03550	.03550
.000	-2.000	-.06980	.07020	.00360	-.00460	.00100	.03460	.03500
.000	.000	.00800	.01790	.00270	-.00370	.00150	.03440	.03490
.000	2.000	.08720	-.03660	.00240	-.00310	.00160	.03100	.03370
.000	4.000	.18670	-.10750	.00070	-.00160	.00130	.02490	.03370
.000	6.000	.27980	-.17290	.00150	-.00210	.00140	.02360	.03330
.000	8.000	.36660	-.23610	.00090	-.00130	.00160	.02300	.03460
	GRADIENT	.04142	-.02858	-.00033	.00036	.00004	-.00124	-.00025

RUN NO. 1065/ 0 RN/L = 6.17 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
.900	-8.000	-.33300	.26210	.00390	-.00540	.00110	.03520	.03460
.900	-6.000	-.25150	.20360	.00360	-.00510	.00100	.03460	.03370
.900	-4.000	-.17050	.14590	.00370	-.00500	.00090	.03530	.03290
.900	-2.000	-.08990	.08950	.00250	-.00400	.00050	.03420	.03300
.900	.000	.00010	.02970	.00310	-.00390	.00100	.03360	.03230
.900	2.000	.09250	-.03690	.00000	-.00150	.00080	.02810	.03200
.900	4.000	.18730	-.10520	-.00060	-.00060	.00110	.02510	.03170
.900	6.000	.27820	-.16920	-.00010	-.00070	.00110	.02180	.03300
.900	8.000	.36240	-.22910	.00100	-.00190	.00100	.01800	.03620
	GRADIENT	.04490	-.03153	-.00055	.00057	.00003	-.00133	-.00017

MSFC 558 (MA9F) NR ATP (01)/(T3)(S1) (R78006) (29 JAN 73)

REFERENCE DATA

SREF = 3220.0000 SQ.FT. XMRP = .0000
LREF = 1328.0000 INCHES YMRP = .0000
BREF = 1328.0000 INCHES ZMRP = -61.5000 INCHES
SCALE = 100.0000 PER

PARAMETRIC DATA

BETA = .000 ORBINC = 2.000
MACH = .900 ELEVON = .000
DELZ/D = -1.500

RUN NO. 1051/ 0 RN/L = 6.28 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
-.900	-8.000	-.35540	.27010	.01380	-.01220	.00230	.03240	.03450
-.900	-6.000	-.26430	.20580	.01550	-.01310	.00220	.03420	.03380
-.900	-4.000	-.17510	.14350	.01580	-.01290	.00190	.03670	.03540
-.900	-2.000	-.09340	.08660	.01340	-.01090	.00090	.03710	.03300
-.900	.000	-.00290	.02440	.01170	-.00950	.00040	.03650	.03220
-.900	2.000	.08250	-.03440	.00970	-.00770	.00030	.03210	.03150
-.900	4.000	.18960	-.10880	.00990	-.00720	.00090	.02670	.03120
-.900	6.000	.28490	-.17530	.00970	-.00730	.00150	.02350	.03110
-.900	8.000	.37850	-.24090	.00750	-.00580	.00190	.02270	.03260
	GRADIENT	.04526	-.03128	-.00078	.00073	-.00013	-.00125	-.00090

RUN NO. 1050/ 0 RN/L = 6.31 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
.000	-8.000	-.35750	.27210	.01520	-.01300	.00230	.03230	.03460
.000	-6.000	-.27130	.21120	.01540	-.01260	.00210	.03310	.03370
.000	-4.000	-.18430	.15010	.01370	-.01150	.00180	.03440	.03340
.000	-2.000	-.09720	.09080	.01370	-.01130	.00120	.03530	.03330
.000	.000	-.00560	.02810	.01040	-.00880	.00090	.03370	.03270
.000	2.000	.07850	-.02900	.00990	-.00790	.00090	.02910	.03300
.000	4.000	.18340	-.10260	.00930	-.00720	.00140	.02430	.03240
.000	6.000	.29040	-.17660	.00690	-.00700	.00140	.02020	.03340
.000	8.000	.38560	-.24590	.00670	-.00510	.00190	.01910	.03460
	GRADIENT	.04555	-.03127	-.00063	.00060	-.00006	-.00132	-.00011

RUN NO. 1049/ 0 RN/L = 6.29 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
.900	-8.000	-.36600	.28020	.01530	-.01310	.00240	.03280	.03320
.900	-6.000	-.27620	.21640	.01420	-.01210	.00200	.03200	.03290
.900	-4.000	-.18480	.15280	.01360	-.01150	.00170	.03310	.03210
.900	-2.000	-.09660	.09310	.01280	-.01050	.00140	.03330	.03160
.900	.000	-.01170	.03310	.01170	-.00950	.00110	.03220	.03150
.900	2.000	.08230	-.03120	.01030	-.00810	.00100	.02750	.03160
.900	4.000	.18900	-.10640	.00750	-.00590	.00130	.02240	.03120
.900	6.000	.28330	-.17260	.00880	-.00690	.00130	.02190	.03240
.900	8.000	.36290	-.24230	.00620	-.00470	.00180	.02120	.03430
	GRADIENT	.04642	-.03211	-.00073	.00068	-.00006	-.00136	-.00009

MSFC 558 (MA9F) NR ATP (O1)/(T3)(81) (R78007) (29 JAN 73)

REFERENCE DATA

SREF = 3220.0000 SQ.FT. XMRP = .0000
LREF = 1328.0000 INCHES YMRP = .0000
BREF = 1328.0000 INCHES ZMRP = -61.5000 INCHES
SCALE = 100.0000 PER

PARAMETRIC DATA

BETA = .000 ORBINC = .000
MACH = .900 ELEVON = 10.000
DELZ/D = -.920

RUN NO. 1014/ 0 RN/L = 6.21 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
.000	-8.000	-.22710	.15290	-.00630	.00310	.00000	.05090	.04130
.000	-6.000	-.14640	.09310	-.00530	.00220	.00000	.05320	.04100
.000	-4.000	-.06560	.03440	-.00450	.00180	-.00040	.05590	.04190
.000	-2.000	.01570	-.02300	-.00340	.00120	-.00020	.05930	.04180
.000	.000	.09050	-.07560	-.00460	.00190	-.00100	.06140	.04100
.000	2.000	.16660	-.13070	-.00470	.00250	-.00040	.06050	.04110
.000	4.000	.25220	-.19020	-.00520	.00330	-.00070	.05770	.04050
.000	6.000	.34790	-.26050	-.00610	.00410	-.00050	.05460	.03980
.000	8.000	.43490	-.32440	-.00640	.00420	.00050	.05320	.04060
	GRADIENT	.03942	-.02794	-.00014	.00021	-.00004	.00024	-.00017

RUN NO. 1015/ 0 RN/L = 6.21 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
.900	-8.000	-.25190	.17990	-.00260	.00070	-.00070	.04790	.03920
.900	-6.000	-.15990	.10930	-.00220	.00050	-.00060	.05200	.03870
.900	-4.000	-.07110	.04290	-.00500	.00220	-.00060	.05580	.03840
.900	-2.000	.00530	-.01230	-.00440	.00150	-.00110	.05750	.03930
.900	.000	.09500	-.07670	-.00410	.00160	-.00120	.06050	.03930
.900	2.000	.17810	-.13650	-.00570	.00300	-.00060	.05940	.04060
.900	4.000	.26730	-.20020	-.00590	.00360	-.00140	.05610	.03920
.900	6.000	.36160	-.26930	-.00630	.00460	-.00010	.05190	.04060
.900	8.000	.44240	-.32620	-.00560	.00390	.00020	.05000	.04120
	GRADIENT	.04208	-.03052	-.00015	.00023	-.00004	.00013	.00016

MSFC 558 (MASF) NR ATP (O1)/(T3)(S1) (R76008) (29 JAN 73)

REFERENCE DATA

SREF = 3220.0000 SQ.FT. XMRP = .0000
LREF = 1328.0000 INCHES YMRP = .0000
BREF = 1328.0000 INCHES ZMRP = -61.9000 INCHES
SCALE = 100.0000 PER

PARAMETRIC DATA

BETA = .000 ORBINC = .000
MACH = .900 ELEVON = 10.000
DELZ/D = -1.000

RUN NO. 1023/ 0 RN/L = 6.21 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
.000	-8.000	-.26880	.17810	.00440	-.00490	.00100	.04810	.04320
.000	-6.000	-.16270	.11640	.00470	-.00490	.00080	.05140	.04210
.000	-4.000	-.09300	.05210	.00450	-.00460	.00080	.05570	.04050
.000	-2.000	-.01200	-.00530	.00570	-.00530	.00010	.05940	.04000
.000	.000	.07800	-.06870	.00500	-.00480	.00000	.06160	.04080
.000	2.000	.16200	-.12780	.00450	-.00370	.00000	.06090	.04110
.000	4.000	.25490	-.19340	.00480	-.00340	.00020	.05920	.03990
.000	6.000	.35360	-.26490	.00430	-.00250	.00060	.05540	.04060
.000	8.000	.45550	-.33810	.00290	-.00110	.00120	.05210	.04160
	GRADIENT	.04349	-.03067	-.00005	.00020	-.00004	.00043	-.00000

RUN NO. 1022/ 0 RN/L = 6.22 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
.900	-8.000	-.25400	.16740	-.01360	.01490	.00010	.12060	.08500
.900	-6.000	-.20410	.13610	.00610	-.00610	.00040	.05000	.03920
.900	-4.000	-.10350	.06270	.00820	-.00800	.00010	.05350	.03960
.900	-2.000	-.01120	-.00540	.00670	-.00600	.00000	.05810	.03970
.900	.000	.07850	-.06780	.00580	-.00510	.00000	.06030	.04050
.900	2.000	.16660	-.13050	.00520	-.00430	.00000	.06190	.03970
.900	4.000	.26240	-.19780	.00490	-.00320	.00040	.05820	.04030
.900	6.000	.36660	-.27270	.00350	-.00190	.00100	.05410	.03990
.900	8.000	.46180	-.34010	.00110	-.00010	.00140	.04980	.04020
	GRADIENT	.04548	-.03238	-.00024	.00036	.00003	.00066	.00007

MSFC 558 (MA9F) NR ATP (O1)/(T3)(81) (R78009) (29 JAN 73)

REFERENCE DATA

SREF = 3220.0000 SQ.FT. XMRP = .0000
LREF = 1328.0000 INCHES YMRP = .0000
BREF = 1328.0000 INCHES ZMRP = -61.5000 INCHES
SCALE = 100.0000 PER

PARAMETRIC DATA

BETA = .000 ORBINC = .000
MACH = .900 ELEVON = -20.000
DELZ/D = -.320

RUN NO. 1011/ 0 RN/L = 6.21 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
.000	-6.540	-.27040	.16110	-.01910	.02200	.00060	.11630	.10460
.000	-6.320	-.20370	.11550	-.01530	.01950	.00100	.12350	.09960
.000	-4.110	-.13910	.07800	-.01400	.02160	.00130	.12640	.09700
.000	-1.940	-.08300	.04050	-.01240	.01950	.00090	.12480	.09700
.000	.200	-.02180	-.00660	-.00630	.01270	.00030	.11750	.09600
.000	.210	-.01810	-.01120	-.01370	.01910	.00010	.11690	.09460
.000	2.360	.04590	-.07130	-.01470	.02110	-.00060	.11510	.09540
.000	4.540	.11560	-.13090	-.01100	.01780	-.00100	.11600	.09120
.000	6.760	.17690	-.17430	-.01260	.01690	-.00150	.11340	.08790
.000	8.920	.24580	-.22630	-.01450	.01970	-.00210	.10930	.08480
	GRADIENT	.02952	-.02450	.00017	-.00028	-.00029	-.00141	-.00061

RUN NO. 1010/ 0 RN/L = 6.20 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
.900	-6.510	-.21970	.08020	-.01160	.01700	.00090	.11470	.09730
.900	-6.290	-.14800	.02620	-.00910	.01530	.00140	.11690	.09260
.900	-4.080	-.08720	-.01240	-.00870	.01520	.00140	.12140	.09120
.900	-1.910	-.03610	-.03960	-.00640	.01340	.00100	.11750	.09320
.900	.230	.01990	-.07770	-.00620	.01130	.00060	.11450	.09270
.900	.240	.02390	-.08200	-.00690	.01230	.00060	.11290	.09340
.900	2.400	.07840	-.12900	-.00590	.00910	.00060	.11250	.09030
.900	4.510	.13550	-.17710	-.00970	.01440	-.00040	.11210	.08810
.900	6.730	.19340	-.21300	-.00660	.01210	-.00090	.10800	.08620
.900	8.900	.25590	-.25660	-.01290	.01610	-.00120	.10110	.08590
	GRADIENT	.02605	-.01948	.00002	-.00028	-.00019	-.00110	-.00042

MSFC 558 (MASF) NR ATP (O1)/(T3)(S1) (R78O10) (29 JAN 73)

REFERENCE DATA

SREF = 3220.0000 SQ.FT. XMRP = .0000
LREF = 1328.0000 INCHES YMRP = .0000
GREF = 1328.0000 INCHES ZMRP = -61.5000 INCHES
SCALE = 100.0000 PER

PARAMETRIC DATA

BETA = .000 ORBINC = .000
MACH = .900 ELEVON = -20.000
DELZ/D = -1.000

RUN NO. 1024/ 0 RN/L = 6.21 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
.000	-8.560	-.29390	.20780	-.01120	.01170	.00080	.12130	.10150
.000	-6.330	-.21720	.14820	-.00870	.01000	.00120	.12390	.09640
.000	-4.100	-.14930	.10450	-.00950	.01250	.00100	.12650	.09080
.000	-1.940	-.08610	.06210	-.01050	.01440	.00080	.13010	.08730
.000	.230	-.01920	.00020	-.00780	.01080	.00080	.12190	.08660
.000	.240	-.01660	-.00110	-.00640	.00820	.00080	.11920	.09130
.000	2.430	.05700	-.07410	-.00800	.01220	-.00010	.11690	.08660
.000	4.570	.12060	-.12950	-.00970	.01530	-.00090	.11990	.08230
.000	6.790	.18980	-.18010	-.00680	.01010	-.00140	.11490	.08150
.000	8.980	.25950	-.23320	-.00680	.01040	-.00190	.11050	.07710
	GRADIENT	.05157	-.02784	.00010	.00016	-.00022	-.00140	-.00070

RUN NO. 1025/ 0 RN/L = 6.20 GRADIENT INTERVAL = -3.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
.900	-8.510	-.24910	.13660	-.00640	.01090	.00080	.11690	.09210
.900	-6.300	-.17100	.08660	-.01010	.00990	.00070	.12420	.09820
.900	-4.100	-.11150	.03440	-.00690	.01120	.00090	.12660	.08400
.900	-1.900	-.05200	-.00260	-.01120	.01480	.00080	.12260	.08720
.900	.250	.01350	-.05560	-.00770	.00870	.00010	.11930	.08640
.900	2.420	.07990	-.12100	-.00870	.01120	-.00040	.11820	.08690
.900	4.580	.14700	-.17580	-.00500	.00860	-.00080	.11550	.08580
.900	6.790	.20720	-.21430	-.00680	.00980	-.00160	.11120	.08450
.900	8.940	.26420	-.25120	-.00920	.01210	-.00220	.10630	.08270
	GRADIENT	.02993	-.02484	.00047	-.00040	-.00020	-.00142	.00015

DATE 28 MAR 73

SOURCE DATA TABULATION, MSFC-TWT-558

MSFC 558 (MA9F) NR ATP (O1)/(T3)(S1)

(R78011) (25 JAN 73)

REFERENCE DATA

SREF = 3220.0000 SQ.FT. XMRP = .0000
LREF = 1328.0000 INCHES YMRP = .0000
BREF = 1328.0000 INCHES ZMRP = -61.5000 INCHES
SCALE = 100.0000 PER

PARAMETRIC DATA

BETA = .000 ORBINC = 2.000
MACH = .900 ELEVON = 10.000
DELZ/D = -.520

RUN NO. 1076/ 0 RN/L = 6.17 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
.000	-8.000	-.08170	.05030	-.01040	.00680	-.00150	.05640	.04440
.000	-6.000	-.01010	-.00210	-.01070	.00680	-.00150	.05610	.04410
.000	-4.000	.06450	-.05590	-.01190	.00750	-.00190	.05990	.04390
.000	-2.000	.14250	-.11120	-.01110	.00720	-.00200	.06150	.04440
.000	.000	.21900	-.16180	-.01110	.00710	-.00180	.05980	.04420
.000	2.000	.30050	-.22310	-.01230	.00630	-.00120	.05820	.04300
.000	4.000	.39320	-.29110	-.01350	.00930	-.00090	.05620	.04210
.000	6.000	.47550	-.35080	-.01350	.00910	-.00090	.05380	.04360
.000	8.000	.54460	-.40110	-.01330	.00890	-.00070	.05440	.04570
	GRADIENT	.04077	-.02911	-.00022	.00023	.00014	-.00053	-.00025

RUN NO. 1077/ 0 RN/L = 6.17 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
.900	-8.000	-.10630	.07860	-.00930	.00550	-.00210	.05470	.04090
.900	-6.000	-.02580	.01650	-.00930	.00560	-.00200	.05670	.04090
.900	-4.000	.05370	-.04250	-.01000	.00600	-.00200	.05660	.04090
.900	-2.000	.13670	-.10320	-.00930	.00550	-.00200	.05990	.04070
.900	.000	.22560	-.16740	-.01140	.00690	-.00180	.05720	.04240
.900	2.000	.32190	-.23690	-.01260	.00870	-.00200	.05570	.04260
.900	4.000	.40910	-.30080	-.01410	.00970	-.00130	.05440	.04260
.900	6.000	.48310	-.35200	-.01410	.00940	-.00140	.05190	.04350
.900	8.000	.54940	-.39660	-.01490	.00970	-.00100	.05140	.04550
	GRADIENT	.04478	-.03249	-.00058	.00033	.00007	-.00063	.00026

MSFC 558 (MA9F) NR ATP (01)/(T3)(S1) (R78012) (29 JAN 73)

REFERENCE DATA

SREF = 3220.0000 SQ.FT. XMRP = .0000
LREF = 1328.0000 INCHES YMRP = .0000
BREF = 1328.0000 INCHES ZMRP = -61.5000 INCHES
SCALE = 100.0000 PER

PARAMETRIC DATA

BETA = .000 ORBINC = 2.000
MACH = .900 ELEVON = 10.000
DELZ/D = -1.000

RUN NO. 1081/ 0 RN/L = 6.30 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
.000	-8.000	-.14440	.09120	.00030	-.00170	.00000	.05330	.04200
.000	-6.000	-.08520	.03450	.00010	-.00150	-.00020	.05800	.04160
.000	-4.000	.01430	-.02230	.00000	-.00120	-.00040	.05870	.04170
.000	-2.000	.10070	-.08330	-.00160	.00020	-.00080	.06070	.04140
.000	.000	.19490	-.14980	-.00170	.00070	-.00020	.06070	.04170
.000	2.000	.28410	-.21280	-.00190	.00090	-.00010	.05770	.04110
.000	4.000	.38650	-.28670	-.00460	.00340	.00020	.05490	.04080
.000	6.000	.48450	-.35600	-.00560	.00450	.00040	.05140	.04120
.000	8.000	.58600	-.41330	-.00610	.00490	.00030	.05040	.04290
	GRADIENT	.04639	-.03291	-.00047	.00049	.00008	-.00053	-.00012

RUN NO. 1082/ 0 RN/L = 6.29 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
.900	-8.000	-.16080	.10820	.00130	-.00270	-.00040	.05310	.03980
.900	-6.000	-.07180	.04270	.00140	-.00250	-.00080	.05800	.03990
.900	-4.000	.01490	-.01990	-.00080	-.00080	-.00080	.05800	.04010
.900	-2.000	.11180	-.08900	-.00090	-.00020	-.00070	.05990	.04080
.900	.000	.20830	-.15710	-.00240	.00100	-.00040	.05910	.04130
.900	2.000	.29990	-.22390	-.00360	.00250	-.00040	.05710	.04120
.900	4.000	.40010	-.29510	-.00470	.00340	.00040	.05400	.04080
.900	6.000	.49320	-.36040	-.00500	.00360	.00010	.05150	.04220
.900	8.000	.57430	-.41700	-.00570	.00410	.00010	.05070	.04420
	GRADIENT	.04797	-.03424	-.00053	.00053	.00014	-.00054	.00010

MSF 558 (MA9F) NR ATP (O1)/(T3)(S1) (R78013) (29 JAN 73)

REFERENCE DATA

SREF = 3220.0000 SQ.FT. XMRP = .0000
LREF = 1328.0000 INCHES YMRP = .0000
BREF = 1328.0000 INCHES ZMRP = -61.5000 INCHES
SCALE = 100.0000 PER

PARAMETRIC DATA

BETA = .000 ORBINC = .000
MACH = 1.200 ELEVON = .000
DELZ/D = -.520

RUN NO. 1072/ 0 RN/L = 6.56 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
-.900	-8.000	-.21120	.18320	-.00810	.00300	-.00080	.08640	.05280
-.900	-6.000	-.12750	.11890	-.00850	.00490	-.00080	.08440	.05400
-.900	-4.000	-.04710	.05600	-.00780	.00420	-.00080	.08340	.05310
-.900	-2.000	.03360	-.00300	-.00790	.00400	-.00100	.08500	.05390
-.900	.000	.13040	-.07550	-.00800	.00370	-.00080	.08620	.05410
-.900	2.000	.21790	-.13300	-.00820	.00410	-.00080	.08640	.05440
-.900	4.000	.31100	-.20450	-.00900	.00520	-.00020	.08490	.05390
-.900	6.000	.39740	-.27920	-.01010	.00680	.00000	.08410	.05350
-.900	8.000	.46900	-.33290	-.01030	.00710	.00020	.08350	.05340
	GRADIENT	.04501	-.03411	-.00014	.00011	.00008	.00022	.00011

RUN NO. 1071/ 0 RN/L = 6.57 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
.000	-8.000	-.22960	.21050	-.00740	.00460	-.00120	.08940	.05170
.000	-6.000	-.15620	.12480	-.00790	.00480	-.00140	.08690	.05280
.000	-4.000	-.07670	.08370	-.00840	.00480	-.00120	.08560	.05240
.000	-2.000	.01180	.02530	-.00880	.00510	-.00100	.08680	.05000
.000	.000	.11080	-.05210	-.00960	.00590	-.00090	.08880	.04740
.000	2.000	.20770	-.12710	-.00890	.00590	-.00070	.08880	.04430
.000	4.000	.30340	-.20020	-.00890	.00620	-.00080	.08430	.04550
.000	6.000	.38420	-.26050	-.01070	.00700	.00000	.08180	.04620
.000	8.000	.45380	-.31190	-.01130	.00780	-.00020	.08030	.04680
	GRADIENT	.04781	-.03701	-.00020	.00018	.00007	-.00005	-.00098

RUN NO. 1075/ 0 RN/L = 6.56 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
.900	-8.000	-.21200	.19500	-.00570	.00270	-.00140	.08590	.04900
.900	-6.000	-.13140	.13310	-.00570	.00230	-.00190	.08390	.05040
.900	-4.000	-.04960	.07110	-.00800	.00210	-.00230	.08190	.05090
.900	-2.000	.03540	.00860	-.00740	.00320	-.00160	.08060	.05090
.900	.000	.13210	-.06740	-.00830	.00400	-.00190	.08490	.05290
.900	2.000	.22110	-.13450	-.00870	.00340	-.00130	.08590	.05300
.900	4.000	.30790	-.20030	-.00980	.00610	-.00130	.08880	.04920
.900	6.000	.38610	-.26010	-.01130	.00740	-.00070	.08620	.04920
.900	8.000	.45460	-.31430	-.01200	.00830	-.00030	.08330	.04890
	GRADIENT	.04902	-.03419	-.00050	.00031	.00012	-.00056	-.00009

MSFC 558 (MA9F) NR ATP (O1)/(T3)(S1) (R78014) (29 JAN 73)

REFERENCE DATA

SREF = 3220.0000 SQ.FT. XMRP = .0000
LREF = 1328.0000 INCHES YMRP = .0000
BREF = 1328.0000 INCHES ZMRP = -81.5000 INCHES
SCALE = 100.0000 PER

PARAMETRIC DATA

BETA = .000 ORBINC = .000
MACH = 1.200 ELEVON = .000
DELZ/D = -1.000

RUN NO. 1094/ 0 RN/L = 6.55 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
-1.000	-8.000	-.28530	.23140	-.00020	-.00180	.00110	.06390	.05400
-1.000	-6.000	-.18510	.15540	.00090	-.00240	.00080	.06410	.05420
-1.000	-4.000	-.08630	.08270	.00000	-.00190	.00040	.06400	.05490
-1.000	-2.000	.00990	.00880	-.00150	-.00080	.00030	.06810	.05430
-1.000	.000	.11660	-.07050	-.00340	-.00120	.00070	.06860	.05470
-1.000	2.000	.21690	-.14470	-.00020	-.00080	.00080	.06730	.05550
-1.000	4.000	.31680	-.21880	-.00240	.00120	.00070	.06680	.05660
-1.000	6.000	.41250	-.28500	-.00330	.00250	.00080	.06820	.05730
-1.000	8.000	.49330	-.34140	-.00420	.00390	.00070	.06800	.05730
	GRADIENT	.09106	-.05780	-.00017	.00031	.00008	.00054	.00023

RUN NO. 1088/ 0 RN/L = 6.57 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
-.500	-8.000	-.31470	.26580	.00190	-.00510	.00070	.06120	.05200
-.500	-6.000	-.22000	.19330	.00120	-.00290	.00070	.06350	.05000
-.500	-4.000	-.12180	.11780	.00040	-.00210	.00050	.06690	.04870
-.500	-2.000	-.01940	.03980	.00000	-.00140	.00050	.06790	.04580
-.500	.000	.08090	-.04470	-.00100	-.00040	.00040	.06760	.04370
-.500	2.000	.20130	-.12930	-.00080	-.00030	.00080	.06630	.04760
-.500	4.000	.31600	-.21880	-.00180	.00070	.00130	.06460	.04980
-.500	6.000	.42010	-.29460	-.00330	.00250	.00130	.06310	.05100
-.500	8.000	.50950	-.35950	-.00430	.00360	.00110	.06180	.05190
	GRADIENT	.09479	-.06191	-.00024	.00053	.00008	-.00051	.00040

RUN NO. 1087/ 0 RN/L = 6.81 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
.000	-8.000	-.30390	.25630	.00190	-.00350	.00030	.06130	.05020
.000	-6.000	-.21160	.18720	.00200	-.00330	.00020	.05990	.05100
.000	-4.000	-.11710	.11610	.00140	-.00260	.00010	.05780	.05160
.000	-2.000	-.01790	.04130	.00040	-.00180	.00020	.05810	.05130
.000	.000	.09030	-.04020	.00020	-.00110	.00030	.05680	.05040
.000	2.000	.19410	-.12000	-.00020	-.00040	.00060	.05930	.04990
.000	4.000	.30300	-.20230	-.00150	.00100	.00080	.05860	.04870
.000	6.000	.40420	-.27760	-.00410	.00320	.00110	.05830	.04300
.000	8.000	.49430	-.34300	-.00520	.00420	.00100	.05730	.04320
	GRADIENT	.09261	-.03990	-.00032	.00043	.00011	.00004	-.00077

MSFC 550 (MA9F) NR ATP (01)/(T3)(S1) (R78014) (29 JAN 73)

REFERENCE DATA

SREF = 3220.0000 SQ.FT. XMRP = .0000
LREF = 1328.0000 INCHES YMRP = .0000
BREF = 1328.0000 INCHES ZMRP = -61.5000 INCHES
SCALE = 100.0000 PER

PARAMETRIC DATA

BETA = .000 ORBINC = .000
MACH = 1.200 ELEVON = .000
DELZ/D = -1.000

RUN NO. 1084/ 0 RN/L = 8.74 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
.900	-8.000	-.28090	.23170	.00180	-.00370	.00090	.08090	.05240
.900	-6.000	-.18510	.16000	.00180	-.00370	.00040	.05990	.05380
.900	-4.000	-.09130	.09000	.00140	-.00320	.00000	.05760	.05490
.900	-2.000	.00490	.01930	.00110	-.00240	-.00010	.05510	.05580
.900	.000	.10660	-.05830	-.00040	-.00070	.00000	.05320	.05540
.900	2.000	.21090	-.13420	-.00190	.00020	.00000	.05630	.05010
.900	4.000	.31310	-.20900	-.00230	.00150	.00010	.05410	.04910
.900	6.000	.40940	-.28090	-.00420	.00390	.00040	.05220	.04640
.900	8.000	.50020	-.34870	-.00640	.00550	.00060	.05120	.04790
	GRADIENT	.05076	-.03785	-.00090	.00060	.00001	-.00029	-.00087

RUN NO. 1095/ 0 RN/L = 8.96 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
1.000	-8.000	-.31000	.24970	.00340	-.00900	.00100	.08080	.05540
1.000	-6.000	-.21130	.17480	.00360	-.00510	.00080	.05920	.05630
1.000	-4.000	-.11070	.09910	.00310	-.00510	.00080	.05810	.05680
1.000	-2.000	-.00820	.02130	.00300	-.00440	.00100	.05690	.05460
1.000	.000	.10900	-.06430	.00280	-.00390	.00080	.05900	.05340
1.000	2.000	.21580	-.13750	.00210	-.00270	.00080	.05890	.05310
1.000	4.000	.32640	-.22990	.00080	-.00080	.00080	.05370	.05330
1.000	6.000	.41980	-.29700	-.00120	.00130	.00080	.05090	.05320
1.000	8.000	.51630	-.36740	-.00370	.00360	.00070	.04920	.05290
	GRADIENT	.05491	-.04134	-.00056	.00091	-.00004	-.00054	-.00043

MSFC 558 (MA9F) NR ATP (O1)/(T3)(S1) (R78015) (29 JAN 73)

REFERENCE DATA

SREF = 3220.0000 SQ.FT. XMRP = .0000
LREF = 1328.0000 INCHES YMRP = .0000
BREF = 1328.0000 INCHES ZMRP = -61.5000 INCHES
SCALE = 100.0000 PER

PARAMETRIC DATA

BETA = .000 ORBINC = .000
MACH = 1.200 ELEVON = .000
DELZ/D = -1.500

RUN NO. 1048/ 0 RN/L = 6.68 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
-1.000	-8.000	-.33670	.27530	.01030	-.00930	.00160	.05890	.05090
-1.000	-6.000	-.23090	.19470	.01010	-.00890	.00160	.06060	.04990
-1.000	-4.000	-.12170	.11150	.00920	-.00800	.00150	.06400	.04740
-1.000	-2.000	-.01090	.02710	.00750	-.00640	.00140	.06860	.04410
-1.000	.000	.10690	-.06170	.00610	-.00490	.00140	.07230	.04130
-1.000	2.000	.22080	-.14720	.00520	-.00390	.00130	.06960	.04420
-1.000	4.000	.33460	-.23180	.00450	-.00300	.00100	.06640	.04720
-1.000	6.000	.44590	-.31210	.00360	-.00230	.00130	.06570	.04870
-1.000	8.000	.54550	-.38330	.00200	-.00120	.00130	.06630	.04970
	GRADIENT	.05723	-.04304	-.00058	.00063	-.00005	.00029	-.00001

RUN NO. 1047/ 0 RN/L = 6.69 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
-.900	-8.000	-.35230	.29150	.01190	-.01070	.00150	.05720	.05060
-.900	-6.000	-.25140	.21620	.01170	-.01020	.00140	.05710	.05070
-.900	-4.000	-.14740	.13810	.01070	-.00910	.00150	.05810	.04930
-.900	-2.000	-.03880	.05600	.00830	-.00680	.00140	.06020	.04630
-.900	.000	.07730	-.03190	.00720	-.00560	.00150	.06350	.04230
-.900	2.000	.19680	-.12290	.00610	-.00450	.00180	.06260	.04250
-.900	4.000	.31250	-.21080	.00410	-.00240	.00150	.06100	.04320
-.900	6.000	.42120	-.29030	.00240	-.00120	.00110	.05870	.04450
-.900	8.000	.52400	-.36490	.00090	-.00020	.00080	.05670	.04600
	GRADIENT	.05777	-.04381	-.00077	.00078	.00002	.00041	-.00080

RUN NO. 1046/ 0 RN/L = 6.73 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
.000	-8.000	-.33650	.27290	.01180	-.01070	.00170	.05870	.05220
.000	-6.000	-.23240	.19570	.01120	-.00990	.00120	.05730	.05370
.000	-4.000	-.12960	.11980	.00980	-.00840	.00100	.05550	.05430
.000	-2.000	-.02780	.04460	.00830	-.00680	.00090	.05500	.05230
.000	.000	.08170	-.03590	.00710	-.00530	.00120	.05560	.04890
.000	2.000	.19310	-.11940	.00560	-.00360	.00130	.05680	.04570
.000	4.000	.31460	-.21150	.00360	-.00160	.00160	.05440	.04460
.000	6.000	.42710	-.29500	.00120	.00010	.00150	.05160	.04470
.000	8.000	.52810	-.36810	-.00070	.00160	.00100	.05000	.04920
	GRADIENT	.05546	-.04133	-.00076	.00064	.00008	-.00002	-.00130

MSFC 558 (MA9F) NR ATP (O1)/(T3)(S1) (R78O15) (29 JAN 73)

REFERENCE DATA

SREF = 3220.0000 SQ.FT. XMRP = .0000
LREF = 1328.0000 INCHES YMRP = .0000
BREF = 1328.0000 INCHES ZMRP = -61.5000 INCHES
SCALE = 100.0000 PER

PARAMETRIC DATA

BETA = .000 ORBINC = .000
MACH = 1.200 ELEVON = .000
DELZ/D = -1.500

RUN NO. 1045/ 0 RN/L = 6.69 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
.500	-8.000	-.33560	.26790	.01330	-.01190	.00240	.05870	.05480
.500	-6.000	-.22840	.18760	.01260	-.01110	.00200	.05740	.05600
.500	-4.000	-.12230	.10820	.01130	-.00970	.00150	.05620	.05650
.500	-2.000	-.01610	.02950	.00950	-.00780	.00110	.05480	.05590
.500	.000	.09610	-.05340	.00720	-.00570	.00080	.05640	.05200
.500	2.000	.20600	-.13690	.00580	-.00397	.00090	.05550	.04950
.500	4.000	.32090	-.22080	.00410	-.002[illegible]	.00070	.05200	.04810
.500	6.000	.43140	-.30250	.00220	-.00[illegible]	.00130	.04940	.04720
.500	8.000	.53710	-.37850	-.00020	.00170	.00130	.04800	.04700
	GRADIENT	.05552	-.04122	-.00090	.00096	-.00009	-.00038	-.00116

RUN NO. 1044/ 0 RN/L = 6.69 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
1.000	-8.000	-.36480	.29290	.01400	-.01230	.00210	.05970	.05560
1.000	-6.000	-.25630	.21010	.01340	-.01160	.00190	.05980	.05570
1.000	-4.000	-.14670	.12690	.01220	-.01040	.00180	.05990	.05570
1.000	-2.000	-.03720	.04420	.01100	-.00900	.00170	.06060	.05490
1.000	.000	.07910	-.04330	.00990	-.00770	.00180	.06530	.04920
1.000	2.000	.19930	-.13360	.00840	-.00620	.00140	.06350	.04920
1.000	4.000	.31360	-.21960	.00630	-.00430	.00080	.05840	.05040
1.000	6.000	.42660	-.30290	.00430	-.00230	.00110	.05300	.05050
1.000	8.000	.53660	-.38320	.00150	.00010	.00110	.05080	.04930
	GRADIENT	.05785	-.04355	-.00072	.00075	-.00011	-.00000	-.00062

MSFC 558 (MA9F) NR ATP (O1)/(T3)(S1) (R78016) (29 JAN 73)

REFERENCE DATA

SREF = 3220.0000 SQ.FT. XMRP = .0000
LREF = 1328.0000 INCHES YMRP = .0000
BREF = 1328.0000 INCHES ZMRP = -61.5000 INCHES
SCALE = 100.0000 PER

PARAMETRIC DATA

BETA = .000 ORBINC = 2.000
MACH = 1.200 ELEVON = .000
DELZ/D = -.520

RUN NO. 1001/ 0 RN/L = 6.56 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
-.500	-8.000	-.38620	.31740	-.00340	.00040	.00060	.06900	.04950
-.500	-6.000	-.29130	.24420	-.00340	.00020	-.00010	.06850	.04920
-.500	-4.000	-.20010	.17400	-.00390	.00040	-.00060	.06780	.05000
-.500	-2.000	-.11210	.10710	-.00410	.00010	-.00070	.06800	.04980
-.500	.000	-.01400	.03190	-.00400	.00040	-.00050	.07030	.04820
-.500	2.000	.07790	-.03830	-.00370	.00030	-.00070	.07110	.04820
-.500	4.000	.16420	-.12060	-.00270	.00000	-.00010	.06940	.05110
-.500	6.000	.26060	-.19420	-.00320	.00060	.00020	.06680	.05220
-.500	8.000	.36130	-.25460	-.00310	.00090	.00040	.06467	.05290
	GRADIENT	.04793	-.05673	.00014	-.00005	.00005	.00032	.00005

RUN NO. 1002/ 0 RN/L = 6.60 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
.000	-8.000	-.36490	.30470	-.00410	.00210	-.00020	.07160	.04570
.000	-6.000	-.28650	.24720	-.00360	.00160	-.00040	.06510	.05060
.000	-4.000	-.20630	.18640	-.00370	.00110	-.00030	.06130	.05260
.000	-2.000	-.12470	.12410	-.00400	.00150	-.00010	.06460	.04820
.000	.000	-.02590	.04820	-.00350	.00070	-.00020	.06940	.04300
.000	2.000	.07060	-.02640	-.00360	.00090	-.00010	.07300	.03630
.000	4.000	.16850	-.10220	-.00290	.00070	.00020	.06870	.03940
.000	6.000	.26700	-.17760	-.00330	.00120	.00010	.06430	.04100
.000	8.000	.35020	-.23960	-.00260	.00120	.00020	.06120	.04270
	GRADIENT	.04725	-.03638	.00010	-.00007	.00005	.00116	-.00165

RUN NO. 1003/ 0 RN/L = 6.61 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
.900	-8.000	-.36400	.30190	-.00340	.00070	.00040	.06510	.04450
.900	-6.000	-.27470	.23260	-.00310	.00010	-.00050	.06710	.04670
.900	-4.000	-.18500	.16490	-.00260	-.00040	-.00110	.06060	.04860
.900	-2.000	-.09600	.09880	-.00240	-.00060	-.00080	.06130	.04860
.900	.000	.00290	.02490	-.00240	.00000	-.00040	.05970	.04890
.900	2.000	.08910	-.03960	-.00190	-.00050	-.00050	.05900	.04860
.900	4.000	.17970	-.10650	-.00290	.00060	-.00010	.06190	.04560
.900	6.000	.27100	-.17830	-.00360	.00170	.00000	.05950	.04560
.900	8.000	.35460	-.24130	-.00410	.00240	.00000	.05810	.04620
	GRADIENT	.04372	-.03426	-.00000	.00013	.00011	-.00001	-.00029

MSFC 558 (MA9F) NR ATP (O1)/(T3)(S1) (R78017) (29 JAN 73)

REFERENCE DATA

SREF = 3220.0000 SQ.FT. XMRP = .0000
LREF = 1328.0000 INCHES YMRP = .0000
BREF = 1328.0000 INCHES ZMRP = -61.5000 INCHES
SCALE = 100.0000 PER

PARAMETRIC DATA

BETA = .000 ORBINC = 2.000
MACH = 1.200 ELEVON = .000
DELZ/D = -1.000

RUN NO. 1034/ 0 RN/L = 6.69 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
-1.000	-8.000	-.46660	.37470	.00350	-.00520	.00250	.05700	.05050
-1.000	-6.000	-.35710	.29030	.00480	-.00600	.00240	.05910	.05020
-1.000	-4.000	-.24280	.20200	.00570	-.00660	.00170	.05910	.05180
-1.000	-2.000	-.13640	.12190	.00600	-.00650	.00100	.06340	.04980
-1.000	.000	-.02910	.03920	.00560	-.00600	.00080	.06750	.04790
-1.000	2.000	.08270	-.04500	.00590	-.00570	.00140	.06950	.04800
-1.000	4.000	.19590	-.13100	.00450	-.00430	.00150	.06920	.04840
-1.000	6.000	.30260	-.21000	.00480	-.00380	.00130	.06720	.05050
-1.000	8.000	.39430	-.27650	.00470	-.00340	.00110	.06560	.05190
	GRADIENT	.05492	-.04164	-.00012	.00027	-.00000	.00131	-.00043

RUN NO. 1028/ 0 RN/L = 6.60 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
-.500	-8.000	-.44590	.36370	.00490	-.00630	.00140	.05710	.05050
-.500	-6.000	-.34980	.29090	.00530	-.00630	.00160	.06000	.04920
-.500	-4.000	-.24680	.21380	.00560	-.00630	.00160	.06510	.04490
-.500	-2.000	-.14520	.13460	.00610	-.00630	.00120	.07040	.04010
-.500	.000	-.03320	.04790	.00430	-.00490	.00070	.06970	.04100
-.500	2.000	.08160	-.03990	.00420	-.00420	.00130	.06750	.04380
-.500	4.000	.20010	-.12990	.00340	-.00320	.00190	.06460	.04660
-.500	6.000	.30900	-.21170	.00250	-.00200	.00160	.06340	.04720
-.500	8.000	.40540	-.28260	.00180	-.00110	.00130	.06180	.04810
	GRADIENT	.05625	-.04309	-.00032	.00042	.00004	-.00020	.00036

RUN NO. 1027/ 0 RN/L = 6.61 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
.000	-8.000	-.44680	.36120	.00350	-.00550	.00140	.05740	.05010
.000	-6.000	-.35120	.29010	.00520	-.00650	.00120	.05700	.05040
.000	-4.000	-.25320	.21670	.00610	-.00670	.00090	.05530	.05140
.000	-2.000	-.13210	.14120	.00610	-.00660	.00080	.05440	.05140
.000	.000	-.04620	.06260	.00620	-.00620	.00120	.05390	.05070
.000	2.000	.05550	-.01720	.00590	-.00560	.00170	.05360	.05010
.000	4.000	.17660	-.11010	.00420	-.00360	.00190	.06010	.04280
.000	6.000	.28640	-.19420	.00360	-.00290	.00160	.06130	.04090
.000	8.000	.38410	-.26450	.00340	-.00240	.00140	.05990	.04160
	GRADIENT	.05336	-.04060	-.00020	.00034	.00014	.00044	-.00093

MSFC 558 (MA9F) NR ATP (O1)/(T3)(S1) (R78017) (29 JAN 73)

REFERENCE DATA

SREF = 3220.0000 SQ.FT. XMRP = .0000
LREF = 1326.0000 INCHES YMRP = .0000
BREF = 1326.0000 INCHES ZMRP = -61.5000 INCHES
SCALE = 100.0000 PER

PARAMETRIC DATA

BETA = .000 ORBINC = 2.000
MACH = 1.200 ELEVON = .000
DELZ/D = -1.000

RUN NO. 1026/ 0 RN/L = 6.61 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
.500	-8.000	-.43040	.34050	.00600	-.00750	.00260	.05710	.05350
.500	-6.000	-.32660	.26440	.00580	-.00710	.00240	.05770	.05340
.500	-4.000	-.22740	.18860	.00510	-.00660	.00170	.05640	.05400
.500	-2.000	-.13100	.11740	.00670	-.00760	.00100	.05180	.05660
.500	.000	-.02770	.04240	.00580	-.00610	.00020	.05190	.05540
.500	2.000	.07450	-.03320	.00450	-.00460	.00070	.05810	.04700
.500	4.000	.18010	-.11250	.00450	-.00370	.00120	.05620	.04580
.500	6.000	.29050	-.19570	.00340	-.00240	.00100	.05570	.04430
.500	8.000	.39080	-.26990	.00200	-.00090	.00100	.05410	.04470
	GRADIENT	.05102	-.03764	-.00017	.00044	-.00007	.00030	-.00132

RUN NO. 1033/ 0 RN/L = 6.60 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
1.000	-8.000	-.45120	.35470	.00540	-.00690	.00250	.05290	.05690
1.000	-6.000	-.35360	.28060	.00690	-.00800	.00260	.05190	.05880
1.000	-4.000	-.24870	.20140	.00770	-.00850	.00260	.05040	.05900
1.000	-2.000	-.14600	.12420	.00810	-.00850	.00250	.05000	.05820
1.000	.000	-.03850	.04300	.00780	-.00790	.00150	.05090	.05680
1.000	2.000	.07420	-.04090	.00730	-.00690	.00150	.05650	.05020
1.000	4.000	.18800	-.12660	.00560	-.00500	.00130	.05510	.04980
1.000	6.000	.29860	-.20690	.00530	-.00380	.00080	.05180	.05040
1.000	8.000	.40200	-.28480	.00360	-.00180	.00090	.04950	.04970
	GRADIENT	.05468	-.04105	-.00025	.00043	-.00017	.00079	-.00132

MSFC 558 (MA9F) NR ATP (O1)/(T3)(S1) (R78018) (29 JAN 73)

REFERENCE DATA

REF = 3220.0000 SQ.FT. XMRP = .0000
LREF = 1328.0000 INCHES YMRP = .0000
BREF = 1328.0000 INCHES ZMRP = -61.5000 INCHES
SCALE = 100.0000 PER

PARAMETRIC DATA

BETA = .000 ORBINC = 2.000
MACH = 1.200 ELEVON = .000
DELZ/D = -1.500

RUN NO. 1042/ 0 RN/L = 6.61 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
-1.000	-8.000	-.47640	.38560	.01640	-.01400	.00240	.05500	.04830
-1.000	-6.000	-.37510	.30790	.01700	-.01410	.00210	.05610	.04810
-1.000	-4.000	-.26950	.22780	.01580	-.01300	.00210	.05950	.04590
-1.000	-2.000	-.15720	.14270	.01430	-.01140	.00210	.06360	.04210
-1.000	.000	-.03730	.05130	.01310	-.01000	.00210	.06810	.03850
-1.000	2.000	.07900	-.03700	.01070	-.00800	.00210	.06520	.04170
-1.000	4.000	.19830	-.12820	.00860	-.00590	.00190	.06260	.04470
-1.000	6.000	.31710	-.21740	.00690	-.00610	.00150	.06080	.04610
-1.000	8.000	.42660	-.29860	.00680	-.00630	.00120	.05890	.04800
	GRADIENT	.05859	-.04458	-.00090	.00088	-.00002	.00039	-.00014

RUN NO. 1039/ 0 RN/L = 6.59 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
-.500	-8.000	-.47000	.37740	.01620	-.01430	.00200	.05520	.04870
-.500	-6.000	-.36760	.30140	.01720	-.01450	.00200	.05580	.04860
-.500	-4.000	-.26330	.22320	.01690	-.01580	.00190	.05500	.04940
-.500	-2.000	-.15730	.14410	.01510	-.01210	.00180	.05490	.04880
-.500	.000	-.03710	.05310	.01320	-.00990	.00230	.05970	.04430
-.500	2.000	.07860	-.03400	.01240	-.00890	.00250	.06490	.03850
-.500	4.000	.19070	-.11890	.01050	-.00710	.00190	.06230	.03990
-.500	6.000	.29810	-.19920	.00800	-.00540	.00140	.05990	.04120
-.500	8.000	.40220	-.27570	.00650	-.00440	.00120	.05830	.04200
	GRADIENT	.05719	-.04311	-.00078	.00083	.00004	.00123	-.00146

RUN NO. 1038/ 0 RN/L = 6.58 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
.000	-8.000	-.46940	.37100	.01560	-.01390	.00300	.05580	.05120
.000	-6.000	-.36170	.29090	.01620	-.01390	.00260	.05640	.05130
.000	-4.000	-.25070	.20890	.01530	-.01290	.00190	.05420	.05310
.000	-2.000	-.14710	.13240	.01430	-.01170	.00110	.05230	.05410
.000	.000	-.03390	.04920	.01310	-.01000	.00130	.05310	.05070
.000	2.000	.07880	-.03480	.01170	-.00830	.00150	.05690	.04290
.000	4.000	.19330	-.12070	.01080	-.00710	.00150	.05830	.04110
.000	6.000	.30950	-.20730	.00810	-.00500	.00220	.05410	.04260
.000	8.000	.41750	-.28720	.00520	-.00290	.00220	.05110	.04360
	GRADIENT	.05568	-.04132	-.00080	.00075	-.00002	.00074	-.00176

MSFC 558 (MA9F) NR ATP (O1)/(T3)(S1) (R78018) (29 JAN 73)

REFERENCE DATA

SREF = 3220.0000 SQ.FT. XMRP = .0000
LREF = 1328.0000 INCHES YMRP = .0000
BREF = 1328.0000 INCHES ZMRP = -61.5000 INCHES
SCALE = 100.0000 PER

PARAMETRIC DATA

BETA = .000 ORBINC = 2.000
MACH = 1.200 ELEVON = .000
DELZ/D = -1.500

RUN NO. 1035/ 0 RN/L = 8.60 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
.900	-8.000	-.48260	.37800	.01670	-.01500	.00370	.05370	.05660
.900	-6.000	-.37470	.29710	.01780	-.01540	.00350	.05280	.05700
.900	-4.000	-.26410	.21380	.01820	-.01520	.00300	.05070	.05810
.900	-2.000	-.15260	.13030	.01650	-.01370	.00230	.04870	.05650
.900	.000	-.03560	.04410	.01440	-.01130	.00160	.05000	.05560
.900	2.000	.07350	-.03730	.01320	-.00980	.00150	.05570	.04770
.900	4.000	.16860	-.12330	.01130	-.00740	.00120	.05460	.04470
.900	6.000	.30940	-.21420	.00770	-.00440	.00110	.05170	.04390
.900	8.000	.42190	-.29750	.00480	-.00210	.00120	.04840	.04470
	GRADIENT	.05656	-.04209	-.00086	.00098	-.00022	.00074	-.00188

RUN NO. 1043/ 0 RN/L = 8.60 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
1.000	-8.000	-.49650	.39290	.01750	-.01530	.00300	.05620	.05480
1.000	-6.000	-.38950	.31000	.01790	-.01540	.00300	.05620	.05480
1.000	-4.000	-.27620	.22400	.01760	-.01490	.00250	.05670	.05430
1.000	-2.000	-.16600	.14030	.01760	-.01420	.00210	.05620	.05310
1.000	.000	-.05090	.05390	.01620	-.01230	.00210	.06390	.04600
1.000	2.000	.07060	-.03760	.01450	-.01070	.00180	.06320	.04740
1.000	4.000	.16970	-.12720	.01210	-.00900	.00110	.05880	.04900
1.000	6.000	.30550	-.21390	.00970	-.00640	.00100	.05430	.04880
1.000	8.000	.42140	-.30020	.00720	-.00380	.00100	.05150	.04790
	GRADIENT	.05643	-.04403	-.00070	.00077	-.00015	.00044	-.00081

MSFC 558 (MA9F) NR ATP (O1)/(T3)(S1) (R78019) (29 JAN 73)

REFERENCE DATA

SREF = 3220.0000 SQ.FT. XMRP = .0000
LREF = 1328.0000 INCHES YMRP = .0000
BREF = 1328.0000 INCHES ZMRP = -61.5000 INCHES
SCALE = 100.0000 PER

PARAMETRIC DATA

BETA = .000 ORBINC = .000
MACH = 1.200 ELEVON = 10.000
DELZ/D = -.320

RUN NO. 1006/ 0 RN/L = 6.61 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
-.900	-8.820	-.34680	.28430	-.00840	.00910	-.00030	.17780	.09500
-.900	-6.510	-.25340	.20250	-.00950	.01150	-.00040	.17950	.08690
-.900	-4.240	-.17760	.14690	-.00790	.01060	.00000	.18170	.08160
-.900	-2.000	-.11150	.10160	-.01080	.01390	-.00030	.18330	.07500
-.900	.240	-.04940	.06490	-.01050	.01360	-.00050	.18060	.06630
-.900	2.520	.02320	.01090	-.00800	.01200	-.00130	.17560	.05870
-.900	4.740	.08950	-.03260	-.00460	.00480	-.00170	.17870	.05150
-.900	7.050	.16430	-.08100	-.00370	.00290	-.00190	.17430	.04760
-.900	9.290	.24430	-.14040	-.00540	.00520	-.00240	.17060	.04350
	GRADIENT	.02976	-.02003	.00042	-.00080	-.00020	-.00081	-.00340

RUN NO. 1005/ 0 RN/L = 6.61 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
.000	-8.000	-.23850	.18410	-.00730	.00460	-.00120	.07650	.05550
.000	-6.000	-.15250	.11900	-.00830	.00370	-.00130	.07730	.05700
.000	-4.000	-.06300	.05020	-.00610	.00330	-.00130	.07850	.05710
.000	-2.000	.02640	-.01960	-.00550	.00310	-.00140	.08450	.05240
.000	.000	.13590	-.10520	-.00590	.00370	-.00110	.09310	.04590
.000	2.000	.24410	-.16970	-.00650	.00430	-.00070	.09450	.04600
.000	4.000	.34640	-.26910	-.00690	.00470	-.00090	.09320	.04700
.000	6.000	.43340	-.33230	-.00640	.00460	-.00050	.09240	.04680
.000	8.000	.50790	-.38690	-.00650	.00500	-.00030	.09230	.04680
	GRADIENT	.05202	-.04043	-.00013	.00020	.00007	.00197	-.00133

RUN NO. 1004/ 0 RN/L = 6.60 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
.900	-8.000	-.22930	.17340	-.00870	.00560	-.00160	.07190	.05600
.900	-6.000	-.13570	.10200	-.00600	.00490	-.00220	.07270	.05710
.900	.000	.14870	-.11370	-.00640	.00380	-.00280	.08180	.05230
.900	2.000	.24480	-.18800	-.00580	.00330	-.00230	.08580	.05050
.900	4.000	.34300	-.26090	-.00700	.00490	-.00200	.08650	.05130
.900	6.000	.44670	-.34160	-.00720	.00530	-.00160	.08670	.05020
.900	8.000	.53320	-.40940	-.00810	.00620	-.00100	.08540	.05010
	GRADIENT	.04657	-.03660	-.00015	.00027	.00020	.00123	-.00025

MSFC 558 (MA9F) NR ATP (O1)/(T3)(81) (R78C20) (29 JAN 73)

REFERENCE DATA

SREF = 3220.0000 SQ.FT. XMRP = .0000
LREF = 1328.0000 INCHES YMRP = .0000
BREF = 1328.0000 INCHES ZMRP = -61.5000 INCHES
SCALE = 100.0000 PER

PARAMETRIC DATA

BETA = .000 ORBINC = .000
MACH = 1.200 ELEVON = 10.000
DELZ/D = -1.000

RUN NO. 1029/ 0 RN/L = 8.61 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
.000	-8.000	-.29290	.21790	.00000	-.00160	-.00010	.06150	.06310
.000	-6.000	-.19990	.14830	.00140	-.00260	-.00020	.06270	.06350
.000	-4.000	-.10530	.07700	.00260	-.00340	-.00050	.06360	.06330
.000	-2.000	-.00530	.00180	.00320	-.00340	-.00060	.06900	.05940
.000	.000	.10920	-.08570	.00260	-.00240	-.00040	.07920	.05090
.000	2.000	.22730	-.17660	.00090	-.00050	-.00010	.08530	.04630
.000	4.000	.34050	-.26330	.00030	.00020	-.00030	.06770	.04820
.000	6.000	.44590	-.34240	-.00060	.00140	-.00030	.06850	.04850
.000	8.000	.53980	-.41100	-.00220	.00270	-.00040	.06760	.04930
	GRADIENT	.05621	-.04296	-.00034	.00050	.00005	.00321	-.00206

RUN NO. 1030/ 0 RN/L = 8.61 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
.900	-8.000	-.26400	.20440	.00190	-.00300	.00090	.06730	.06130
.900	-6.000	-.16440	.12960	.00310	-.00380	.00040	.06910	.06210
.900	-4.000	-.06640	.05640	.00410	-.00460	-.00030	.06900	.06330
.900	-2.000	.01240	-.01640	.00330	-.00350	-.00080	.07040	.06240
.900	.000	.12310	-.09960	.00190	-.00160	-.00120	.07720	.05530
.900	2.000	.22640	-.17710	.00210	-.00100	-.00090	.07990	.05230
.900	4.000	.33660	-.25990	.00210	-.00040	-.00050	.08020	.05090
.900	6.000	.44360	-.34060	.00020	.00120	-.00060	.06160	.04890
.900	8.000	.54730	-.41770	-.00190	.00310	-.00010	.06240	.04840
	GRADIENT	.05302	-.03966	-.00026	.00055	-.00005	.00159	-.00175

MSFC 558 (MA9F) NR ATP (O1)/(T3)(S1) (R78021) (29 JAN 73)

REFERENCE DATA

SREF = 3220.0000 SQ.FT. XMRP = .0000
LREF = 1328.0000 INCHES YMRP = .0000
BREF = 1328.0000 INCHES ZMRP = -61.5000 INCHES
SCALE = 100.0000 PER

PARAMETRIC DATA

BETA = .000 ORBINC = .000
MACH = 1.200 ELEVON = -20.000
DELZ/D = -.520

RUN NO. 1007/ 0 RN/L = 6.61 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
-.500	-8.840	-.35380	.29130	-.00680	.00660	-.00060	.18610	.10390
-.500	-6.520	-.25490	.20240	-.00570	.00640	-.00020	.18800	.10010
-.500	-4.250	-.17770	.14390	-.00690	.00640	.00000	.18960	.09490
-.500	-2.010	-.11150	.09630	-.00920	.01130	.00000	.19030	.09040
-.500	.200	-.04960	.05950	-.00940	.01160	-.00040	.18740	.08470
-.500	.220	-.04630	.05770	-.00880	.01130	-.00050	.18750	.08420
-.500	2.500	.02190	.00620	-.00580	.00640	-.00080	.18290	.07820
-.500	4.700	.08450	-.03330	-.00130	.00000	-.00090	.18540	.07280
-.500	7.010	.15730	-.08230	-.00370	.00160	-.00180	.18390	.07020
-.500	9.250	.23860	-.14360	-.00330	.00160	-.00210	.18030	.06890
	GRADIENT	.02936	-.01975	.00065	-.00068	-.00012	-.00071	-.00252

RUN NO. 1008/ 0 RN/L = 6.60 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
.000	-8.870	-.32570	.23340	-.01200	.01570	.00040	.17550	.10750
.000	-6.550	-.23320	.15550	-.00960	.01390	.00070	.17660	.10590
.000	-4.260	-.15750	.09990	-.00990	.01400	.00090	.17740	.10340
.000	-2.010	-.09240	.05760	-.00910	.01210	.00060	.17830	.09860
.000	.190	-.03710	.02610	-.00820	.01050	.00050	.17590	.09730
.000	.200	-.03490	.02770	-.00830	.01010	.00050	.17560	.09640
.000	2.470	.02600	-.01260	-.00790	.01190	-.00020	.17220	.08960
.000	4.660	.08570	-.04870	-.00550	.00830	-.00060	.17360	.08270
.000	6.950	.14810	-.08520	-.00520	.00770	-.00120	.17100	.08210
.000	9.170	.22090	-.13750	-.00210	.00360	-.00130	.16860	.08110
	GRADIENT	.02710	-.01646	.00045	-.00052	-.00017	-.00080	-.00227

RUN NO. 1009/ 0 RN/L = 6.61 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
.500	-8.830	-.26530	.12690	-.02040	.02610	.00030	.16470	.10960
.500	-6.520	-.16440	.06700	-.01830	.02610	.00090	.16470	.10740
.500	-4.250	-.11490	.01960	-.01680	.02520	.00070	.16560	.10590
.500	-2.010	-.05730	-.01290	-.01700	.02610	.00090	.16430	.10450
.500	.200	.00360	-.04940	-.01330	.02210	.00060	.16310	.10420
.500	2.440	.05870	-.08420	-.01580	.02570	-.00010	.15920	.10310
.500	4.560	.11000	-.11740	-.01500	.02410	-.00050	.16030	.10000
.500	6.860	.17000	-.15260	-.01210	.01940	-.00100	.15770	.09640
.500	9.090	.23910	-.20270	-.01070	.01740	-.00140	.15340	.09490
	GRADIENT	.02550	-.01962	.00022	-.00012	-.00014	-.00071	-.00060

MSFC 558 (MA9F) NR ATP (O1)/(T3)(S1) (R78022) (29 JAN 73)

REFERENCE DATA

SREF = 3220.0000 SQ.FT. XMRP = .0000
LREF = 1328.0000 INCHES YMRP = .0000
BREF = 1328.0000 INCHES ZMRP = -61.5000 INCHES
SCALE = 100.0000 PER

PARAMETRIC DATA

BETA = .000 ORBINC = .000
MACH = 1.200 ELEVON = -20.000
DELZ/D = -1.000

RUN NO. 1032/ 0 RN/L = 8.61 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
.000	-8.850	-.34080	.26830	-.00780	.00810	-.00030	.18340	.10280
.000	-6.530	-.24600	.18640	-.00730	.00680	.00010	.18590	.09900
.000	-4.240	-.16600	.12550	-.00680	.00620	.00020	.18590	.09630
.000	-1.990	-.09760	.07540	-.00700	.00640	.00010	.18670	.09250
.000	.230	-.03380	.03560	-.00400	.00390	-.00010	.18420	.08920
.000	.240	-.02930	.03230	-.00290	.00310	.00000	.18310	.08690
.000	2.490	.03480	-.01310	-.00410	.00840	-.00040	.18180	.08310
.000	4.890	.09560	-.04940	-.00220	.00300	-.00100	.18120	.07830
.000	7.010	.15990	-.08710	-.00310	.00280	-.00170	.18050	.07410
.000	9.260	.23790	-.13990	.00040	-.00200	-.00190	.17530	.07050
	GRADIENT	.02935	-.01962	.00054	-.00055	-.00013	-.00064	-.00203

RUN NO. 1031/ 0 RN/L = 8.61 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
.900	-8.630	-.29680	.19570	-.01340	.01850	.00080	.17570	.10130
.900	-6.490	-.21420	.13010	-.01200	.01540	.00070	.17680	.10220
.900	-4.220	-.13920	.07630	-.00930	.01310	.00080	.17730	.09990
.900	-1.990	-.07620	.03490	-.00800	.01280	.00080	.17680	.09590
.900	.220	-.01650	-.00080	-.00780	.01190	.00040	.17510	.09480
.900	.240	-.01320	-.00130	-.00760	.01160	.00050	.17380	.09520
.900	2.490	.04320	-.03930	-.00680	.01470	.00000	.17220	.09060
.900	4.670	.09690	-.06700	-.00590	.00990	-.00070	.16860	.08960
.900	6.940	.15830	-.10310	-.00510	.00760	-.00110	.16920	.08550
.900	9.170	.22860	-.15170	-.00430	.00550	-.00190	.16660	.08460
	GRADIENT	.02654	-.01821	.00031	-.00019	-.00017	-.00099	-.00116

MSFC 558 (MA9F) NR ATP (O1)/(T3)(S1) (R78023) (29 JAN 73)

REFERENCE DATA

SREF = 3220.0000 SQ.FT. XMRP = .0000
LREF = 1328.0000 INCHES YMRP = .0000
BREF = 1328.0000 INCHES ZMRP = -61.9000 INCHES
SCALE = 100.0000 PER

PARAMETRIC DATA

BETA = .000 ORBINC = 2.000
MACH = 1.200 ELEVON = 10.000
DELZ/D = -.520

RUN NO. 1079/ 0 RN/L = 8.59 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
.000	-8.000	-.09350	.07870	-.00920	.00620	-.00270	.08130	.05650
.000	-6.000	-.01240	.01600	-.00920	.00600	-.00250	.06240	.05860
.000	-4.000	.06060	-.05690	-.01000	.00670	-.00220	.08570	.05670
.000	-2.000	.18030	-.13460	-.01040	.00710	-.00200	.08970	.05380
.000	.000	.27990	-.21210	-.01150	.00800	-.00160	.09110	.05290
.000	2.000	.37230	-.28220	-.01160	.00830	-.00130	.09220	.05200
.000	4.000	.46220	-.34990	-.01290	.00950	-.00100	.09250	.05070
.000	6.000	.54200	-.40660	-.01270	.00940	-.00060	.09200	.05100
.000	8.000	.60980	-.45720	-.01290	.00970	-.00060	.09170	.05190
	GRADIENT	.04776	-.03667	-.00055	.00034	.00015	.00081	-.00069

RUN NO. 1076/ 0 RN/L = 8.56 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
.900	-8.000	-.06280	.06990	-.00850	.00510	-.00330	.07350	.05980
.900	-6.000	.00000	.00840	-.00860	.00510	-.00390	.07420	.06040
.900	-4.000	.06910	-.06200	-.00970	.00590	-.00420	.07390	.05950
.900	-2.000	.18420	-.13530	-.01020	.00630	-.00370	.07930	.05710
.900	.000	.28130	-.20940	-.01040	.00670	-.00310	.08280	.05490
.900	2.000	.37650	-.28290	-.01240	.00890	-.00300	.08400	.05500
.900	4.000	.46260	-.36560	-.01350	.01000	-.00180	.08610	.05350
.900	6.000	.57180	-.43330	-.01490	.01130	-.00120	.08500	.05310
.900	8.000	.64500	-.48080	-.01600	.01230	-.00100	.08330	.05320
	GRADIENT	.04698	-.03774	-.00049	.00052	.00028	.00126	-.00070

MSFC 558 (MA9F) NR ATP (O1)/(T3)(S1) (R78C24) (29 JAN 73)

REFERENCE DATA

SREF = 3220.0000 SQ.FT. XMRP = .0000
LREF = 1328.0000 INCHES YMRP = .0000
BREF = 1328.0000 INCHES ZMRP = -61.5000 INCHES
SCALE = 100.0000 PER

PARAMETRIC DATA

BETA = .000 ORBINC = 2.000
MACH = 1.200 ELEVON = 10.000
DELZ/D = -1.000

RUN NO. 1060/ 0 RN/L = 8.73 GRADIENT INTERVAL = -9.00/ 9.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
.000	-8.000	-.15340	.11990	-.00090	-.00070	-.00110	.07010	.06030
.000	-6.000	-.08420	.04840	-.00080	-.00090	-.00130	.07070	.06100
.000	-4.000	.03130	-.02410	-.00120	-.00010	-.00150	.07320	.05970
.000	-2.000	.13820	-.10560	-.00220	.00110	-.00140	.07840	.05510
.000	.000	.24780	-.18980	-.00410	.00290	-.00110	.08370	.05140
.000	2.000	.35660	-.27260	-.00530	.00420	-.00080	.08740	.04980
.000	4.000	.46730	-.35710	-.00650	.00580	-.00040	.08980	.04910
.000	6.000	.56620	-.42980	-.00740	.00650	-.00020	.08950	.04910
.000	8.000	.65410	-.49100	-.00830	.00740	-.00030	.08880	.04980
	GRADIENT	.05457	-.04165	-.00068	.00072	.00014	.00209	-.00133

RUN NO. 1063/ 0 RN/L = 8.71 GRADIENT INTERVAL = -9.00/ 9.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
.900	-8.000	-.14020	.10070	.00010	-.00160	-.00070	.07240	.06170
.900	-6.000	-.04650	.03020	-.00040	-.00110	-.00120	.07330	.06250
.900	-4.000	.05100	-.04320	-.00130	-.00020	-.00170	.07490	.06170
.900	-2.000	.15400	-.12100	-.00200	.00060	-.00160	.07870	.05790
.900	.000	.25930	-.20050	-.00290	.00200	-.00180	.08090	.05450
.900	2.000	.36200	-.27740	-.00490	.00390	-.00150	.08130	.05320
.900	4.000	.46660	-.35560	-.00610	.00550	-.00110	.08110	.05200
.900	6.000	.57370	-.43710	-.00790	.00710	-.00090	.08200	.05110
.900	8.000	.67110	-.50670	-.01000	.00800	-.00030	.08260	.05140
	GRADIENT	.05196	-.03906	-.00062	.00072	.00007	.00075	-.00120

MSFC 558 (MA9F) NR ATP (O1)/(T3)(S1) (R78025) (29 JAN 73)

REFERENCE DATA

SREF = 3220.0000 SQ.FT. XMRP = .0000
LREF = 1328.0000 INCHES YMRP = .0000
BREF = 1328.0000 INCHES ZMRP = -61.5000 INCHES
SCALE = 100.0000 PER

PARAMETRIC DATA

BETA = .000 ORBINC = .000
MACH = 2.000 ELEVON = .000
DELZ/D = -.320

RUN NO. 1121/ 0 RN/L = 6.81 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
-1.000	-8.000	-.18570	.15800	-.00230	.00210	-.00100	.07750	.02330
-1.000	-6.000	-.14070	.12280	-.00250	.00200	-.00090	.07150	.02500
-1.000	-4.000	-.08320	.07770	-.00300	.00200	-.00050	.06810	.02530
-1.000	-2.000	-.02050	.02930	-.00320	.00190	.00010	.06470	.02550
-1.000	.000	.04290	-.01900	-.00310	.00220	.00070	.06120	.02590
-1.000	2.000	.10950	-.06930	-.00440	.00330	.00080	.06050	.02920
-1.000	4.000	.17850	-.12080	-.00380	.00300	.00090	.06000	.02560
-1.000	6.000	.23650	-.16390	-.00370	.00330	.00110	.06230	.02450
-1.000	8.000	.27090	-.18910	-.00320	.00300	.00100	.06270	.02490
	GRADIENT	.03267	-.02476	-.00014	.00017	.00017	-.00102	.00001

RUN NO. 1122/ 0 RN/L = 6.81 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
.000	-8.000	-.13240	.10410	-.00440	.00450	-.00200	.06140	.02440
.000	-6.000	-.10350	.08190	-.00350	.00360	-.00120	.07540	.02560
.000	-4.000	-.05410	.04340	-.00340	.00340	-.00080	.07070	.02600
.000	-2.000	.00270	-.00080	-.00360	.00310	-.00030	.06580	.02670
.000	.000	.05920	-.04200	-.00340	.00270	.00000	.0620.0	.02730
.000	2.000	.12000	-.08480	-.00360	.00290	.00020	.06110	.02720
.000	4.000	.18980	-.13580	.00410	.00330	.00000	.05920	.02760
.000	6.000	.25030	-.18040	-.00380	.00310	.00030	.05730	.02780
.000	8.000	.29530	-.21410	-.00390	.00320	.00040	.05570	.02780
	GRADIENT	.03025	-.02211	-.00007	-.00002	.00008	-.00139	.00018

RUN NO. 1118/ 0 RN/L = 6.81 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
1.000	-8.000	-.19080	.14690	-.00270	.00210	-.00040	.09190	.02780
1.000	-6.000	-.14400	.11710	-.00240	.00270	-.00050	.08640	.02700
1.000	-4.000	-.10350	.08380	-.00310	.00290	-.00040	.08230	.02580
1.000	-2.000	-.05280	.04300	-.00360	.00310	-.00020	.07810	.02470
1.000	.000	.00890	-.00410	-.00360	.00310	.00010	.07450	.02410
1.000	2.000	.07260	-.05590	-.00340	.00220	.00040	.07170	.02400
1.000	4.000	.14300	-.11130	-.00270	.00260	.00010	.06850	.02490
1.000	6.000	.22000	-.17080	-.00310	.00250	.00010	.06620	.02540
1.000	8.000	.28240	-.21860	-.00320	.00270	.00020	.06260	.02610
	GRADIENT	.03092	-.02445	.00008	-.00011	.00008	-.00170	-.00014

MSFC 558 (MA9F) NR ATP (O1)/(T3)(S1) (R78025) (29 JAN 73)

REFERENCE DATA

SREF = 3220.0000 SQ.FT. XMRP = .0000
LREF = 1328.0000 INCHES YMRP = .0000
BREF = 1328.0000 INCHES ZMRP = -61.5000 INCHES
SCALE = 100.0000 PER

PARAMETRIC DATA

BETA = .000 ORBINC = .000
MACH = 2.000 ELEVON = .000
DELZ/D = -.520

RUN NO. 1119/ 0 RN/L = 6.80 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
2.000	-8.000	-.10590	.08400	.00140	-.00070	-.00080	.09320	.02590
2.000	-6.000	-.07650	.06500	-.00100	.00100	-.00010	.08980	.02510
2.000	-4.000	-.03730	.03730	-.00350	.00260	-.00030	.08410	.02510
2.000	-2.000	-.00090	.01060	-.00340	.00230	-.00070	.07840	.02590
2.000	.000	.03260	-.01360	-.00280	.00190	-.00040	.07490	.02670
2.000	2.000	.07280	-.04230	-.00290	.00220	.00000	.07310	.02650
2.000	4.000	.11930	-.07730	-.00260	.00200	.00000	.07140	.02550
2.000	6.000	.17080	-.11740	-.00260	.00200	.00020	.06920	.02540
2.000	8.000	.22490	-.15970	-.00280	.00220	.00040	.06580	.02540
	GRADIENT	.01934	-.01410	.00011	-.00007	.00006	-.00153	.00007

RUN NO. 1120/ 0 RN/L = 6.81 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
3.000	-8.000	-.09890	.10980	-.00250	.00110	-.00050	.08580	.02340
3.000	-6.000	-.04780	.07050	-.00730	.00550	-.00080	.08300	.02450
3.000	-4.000	.00250	.03190	-.00780	.00660	-.00050	.07940	.02470
3.000	-2.000	.04680	-.00300	-.00670	.00550	-.00030	.07620	.02540
3.000	.000	.09280	-.03590	-.00650	.00470	-.00020	.07510	.02680
3.000	2.000	.14000	-.07130	-.00620	.00460	-.00020	.07500	.02780
3.000	4.000	.18960	-.10830	-.00620	.00450	.00000	.07330	.02660
3.000	6.000	.23920	-.14600	-.00620	.00490	.00000	.07270	.02860
3.000	8.000	.28710	-.18130	-.00490	.00420	.00040	.07020	.02830
	GRADIENT	.02327	-.01743	.00019	-.00025	.00005	-.00067	.00051

MSFC 558 (KA9F) NR ATP (O1)/(T3)(S1) (R78026) (29 JAN 73)

REFERENCE DATA

SREF = 3220.0000 SQ.FT. XMRP = .0000
LREF = 1328.0000 INCHES YMRP = .0000
BREF = 1328.0000 INCHES ZMRP = -61.5000 INCHES
SCALE = 100.0000 PER

PARAMETRIC DATA

BETA = .000 ORBINC = .000
MACH = 2.000 ELEVON = .000
DELZ/D = -1.000

RUN NO. 1126/ 0 RN/L = 6.81 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
-1.000	-8.000	-.21460	.13240	-.00320	.00250	.00010	.07750	.02350
-1.000	-6.000	-.16260	.12210	-.00250	.00190	.00040	.07300	.02490
-1.000	-4.000	-.10160	.07460	-.00160	.00100	.00070	.06870	.02570
-1.000	-2.000	-.03680	.02550	-.00060	.00010	.00070	.06520	.02610
-1.000	.000	.02900	-.02140	.00030	-.00050	.00040	.06330	.02640
-1.000	2.000	.09820	-.06920	.00160	-.00130	.00050	.06180	.02660
-1.000	4.000	.16550	-.11700	.00090	-.00060	.00030	.06040	.02620
-1.000	6.000	.23030	-.16260	.00110	-.00060	.00030	.05840	.02600
-1.000	8.000	.29310	-.20780	.00130	-.00070	.00060	.05450	.02670
	GRADIENT	.03546	-.02389	.00036	-.00023	-.00005	-.00100	.00007

RUN NO. 1125/ 0 RN/L = 6.83 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
.000	-8.000	-.21870	.15690	-.00440	.00410	.00050	.08000	.02360
.000	-6.000	-.17190	.12180	-.00340	.00260	.00070	.07600	.02500
.000	-4.000	-.11620	.07900	-.00250	.00160	.00100	.07200	.02600
.000	-2.000	-.05240	.03070	-.00140	.00090	.00120	.06860	.02670
.000	.000	.01860	-.02160	-.00020	.00030	.00100	.06670	.02680
.000	2.000	.09490	-.07720	.00110	-.00060	.00070	.06570	.02620
.000	4.000	.16740	-.13090	.00100	-.00050	.00080	.06380	.02550
.000	6.000	.23690	-.18190	.00010	.00030	.00080	.06190	.02570
.000	8.000	.29610	-.22520	-.00020	.00080	.00060	.05930	.02630
	GRADIENT	.03572	-.02638	.00047	-.00028	-.00005	-.00096	-.00008

RUN NO. 1127/ 0 RN/L = 6.82 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
1.000	-8.000	-.22360	.17180	-.00250	.00220	.00070	.08650	.02320
1.000	-6.000	-.17280	.13260	-.00160	.00130	.00050	.08250	.02400
1.000	-4.000	-.12000	.09230	-.00040	.00030	.00060	.07810	.02500
1.000	-2.000	-.06430	.04970	.00020	-.00010	.00080	.07400	.02580
1.000	.000	-.00260	.00310	.00050	.00000	.00090	.07150	.02560
1.000	2.000	.06560	-.04630	.00110	-.00030	.00080	.07000	.02440
1.000	4.000	.13380	-.10010	.00160	-.00050	.00090	.06730	.02480
1.000	6.000	.19830	-.14810	.00090	.00000	.00090	.06490	.02540
1.000	8.000	.25260	-.18800	.00090	.00000	.00070	.06260	.02600
	GRADIENT	.03187	-.02414	.00024	-.00009	.00003	-.00128	-.00009

MSFC 558 (MA9F) NR ATP (O1)/(T3)(S1) (R76026) (29 JAN 73)

REFERENCE DATA

SREF = 3220.0000 SQ.FT. XMRP = .0000
LREF = 1328.0000 INCHES YMRP = .0000
BREF = 1328.0000 INCHES ZMRP = -61.5000 INCHES
SCALE = 100.0000 PER

PARAMETRIC DATA

BETA = .000 ORBINC = .000
MACH = 2.000 ELEVON = .000
DELZ/D = -1.000

RUN NO. 1129/ 0 RN/L = 6.81 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
2.000	-8.000	-.18060	.15530	-.00120	.00050	.00000	.08670	.02100
2.000	-6.000	-.13550	.12220	-.00050	.00010	.00010	.08340	.02250
2.000	-4.000	-.08630	.08670	.00070	-.00070	.00030	.08010	.02370
2.000	-2.000	-.03840	.04880	.00060	-.00050	.00060	.07850	.02390
2.000	.000	.01380	.00950	-.00050	.00060	.00070	.07840	.02360
2.000	2.000	.06120	-.02570	.00000	.00030	.00100	.07830	.02380
2.000	4.000	.11540	-.06420	-.00040	.00100	.00110	.07600	.02510
2.000	6.000	.16930	-.10600	.00040	.00040	.00130	.07280	.02650
2.000	8.000	.22250	-.14680	.00050	.00030	.00100	.06930	.02680
	GRADIENT	.02535	-.01881	-.00014	.00021	.00010	-.00042	.00013

RUN NO. 1128/ 0 RN/L = 6.81 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
3.000	-8.000	-.09320	.08580	.00030	-.00120	.00060	.08480	.02130
3.000	-6.000	-.03730	.04690	-.00050	.00000	.00060	.08380	.02260
3.000	-4.000	.01270	.01230	.00000	-.00020	.00060	.08110	.02360
3.000	-2.000	.05580	-.01620	.00020	-.00020	.00060	.07860	.02490
3.000	.000	.09760	-.04300	.00020	.00000	.00070	.07760	.02640
3.000	2.000	.14520	-.07560	.00050	.00000	.00090	.07620	.02720
3.000	4.000	.20210	-.11710	-.00070	.00100	.00040	.07430	.02760
3.000	6.000	.25690	-.15590	-.00150	.00180	.00040	.07280	.02880
3.000	8.000	.30530	-.18930	-.00190	.00220	.00050	.07000	.02920
	GRADIENT	.02541	-.01591	-.00005	.00013	-.00000	-.00080	.00051

MSFC 558 (MA9F) NR ATP (O1)/(T3) (S1) (R78027) (29 JAN 73)

REFERENCE DATA

SREF = 3220.0000 SQ.FT. XMRP = .0000
LREF = 1328.0000 INCHES YMRP = .0000
BREF = 1328.0000 INCHES ZMRP = -61.5000 INCHES
SCALE = 100.0000 PER

PARAMETRIC DATA

BETA = .000 ORBINC = .000
MACH = 2.000 ELEVON = .000
DELZ/D = -1.500

RUN NO. 1131/ 0 RN/L = 6.81 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
.000	-8.000	-.27050	.20120	.00070	-.00010	.00100	.08310	.02230
.000	-6.000	-.21960	.16340	.00260	-.00170	.00110	.08160	.02360
.000	-4.000	-.16380	.12180	.00390	-.00270	.00100	.07800	.02460
.000	-2.000	-.10160	.07560	.00460	-.00300	.00100	.07410	.02500
.000	.000	-.03630	.02680	.00480	-.00270	.00110	.07170	.02440
.000	2.000	.02980	-.02340	.00440	-.00230	.00110	.06960	.02360
.000	4.000	.10660	-.08270	.00380	-.00170	.00080	.06700	.02410
.000	6.000	.18190	-.14020	.00400	-.00190	.00050	.06620	.02550
.000	8.000	.25140	-.19140	.00360	-.00160	.00070	.06540	.02670
	GRADIENT	.03361	-.02540	-.00002	.00013	-.00001	-.00132	-.00012

RUN NO. 1130/ 0 RN/L = 6.81 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
1.000	-8.000	-.23410	.18620	.00130	-.00090	.00040	.08390	.02080
1.000	-6.000	-.18460	.15270	.00280	-.00180	.00050	.08300	.02230
1.000	-4.000	-.13410	.11600	.00390	-.00260	.00050	.08110	.02360
1.000	-2.000	-.07850	.07510	.00430	-.00270	.00050	.07820	.02450
1.000	.000	-.02210	.03340	.00440	-.00240	.00030	.07560	.02460
1.000	2.000	.02720	-.00290	.00450	-.00230	.00010	.07380	.02470
1.000	4.000	.07360	-.03850	.00470	-.00240	.00000	.07160	.02480
1.000	6.000	.12570	-.07940	.00450	-.00220	.00010	.06740	.02590
1.000	8.000	.17980	-.12240	.00420	-.00210	.00020	.06150	.02680
	GRADIENT	.02605	-.01935	.00009	.00004	-.00007	-.00117	.00013

RUN NO. 1132/ 0 RN/L = 6.80 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
2.000	-8.000	-.17960	.15200	.00360	-.00250	.00060	.06400	.01950
2.000	-6.000	-.12060	.11020	.00510	-.00390	.00070	.06260	.02190
2.000	-4.000	-.06190	.06850	.00630	-.00460	.00080	.08120	.02370
2.000	-2.000	-.00340	.02680	.00560	-.00370	.00070	.07980	.02460
2.000	.000	.05160	-.01190	.00450	-.00250	.00050	.07760	.02570
2.000	2.000	.10170	-.04570	.00360	-.00170	.00060	.07420	.02750
2.000	4.000	.15060	-.07910	.00360	-.00140	.00070	.07140	.02890
2.000	6.000	.19900	-.11150	.00330	-.00110	.00040	.06960	.03010
2.000	8.000	.23970	-.13720	.00270	-.00070	.00010	.07030	.02940
	GRADIENT	.02650	-.01838	-.00037	.00042	-.0000	-.00126	.00066

MSFC 558 (MA9F) NR ATP (O1)/(T3)(S1) (R78029) (29 JAN 73)

REFERENCE DATA

SREF = 3220.0000 SQ.FT. XMRP = .0000
LREF = 1328.0000 INCHES YMRP = .0000
BREF = 1328.0000 INCHES ZMRP = -61.5000 INCHES
SCALE = 100.0000 PER

PARAMETRIC DATA

BETA = .000 ORBINC = 2.000
MACH = 2.000 ELEVON = .000
DELZ/D = -.520

RUN NO. 1112/ 0 RN/L = 0.76 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
-1.000	-8.000	-.09650	.09210	-.00520	.00470	-.00070	.07650	.02300
-1.000	-6.000	-.04490	.04980	-.00590	.00500	-.00050	.07080	.02490
-1.000	-4.000	.01760	-.00080	-.00630	.00490	-.00020	.06670	.02580
-1.000	-2.000	.08420	-.05350	-.00580	.00440	.00010	.06340	.02560
-1.000	.000	.14620	-.10080	-.00630	.00510	.00030	.06120	.02590
-1.000	2.000	.19780	-.13860	-.00700	.00560	.00030	.06240	.02540
-1.000	4.000	.25370	-.17850	-.00720	.00570	.00040	.06440	.02650
-1.000	6.000	.30500	-.21530	-.00760	.00600	.00040	.06830	.02560
-1.000	8.000	.31730	-.22200	-.00690	.00550	.00040	.06920	.02630
	GRADIENT	.02929	-.02202	-.00015	.00014	.00007	-.00028	.00006

RUN NO. 1111/ 0 RN/L = 0.81 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
.000	-8.000	-.05830	.06140	-.00450	.00440	-.00200	.07950	.02680
.000	-6.000	-.02860	.03620	-.00480	.00440	-.00120	.07280	.02800
.000	-4.000	.01840	.00140	-.00520	.00460	-.00090	.06730	.02870
.000	-2.000	.07490	-.04210	-.00550	.00440	-.00070	.06250	.02930
.000	.000	.13400	-.08740	-.00600	.00440	-.00040	.05830	.03010
.000	2.000	.18740	-.12700	-.00700	.00500	.00020	.05650	.03010
.000	4.000	.25350	-.17590	-.00650	.00480	.00020	.05510	.02980
.000	6.000	.31370	-.22090	-.00710	.00510	.00030	.05410	.03050
.000	8.000	.35160	-.24890	-.00720	.00510	.00040	.05330	.03100
	GRADIENT	.02913	-.02197	-.00021	.00005	.00015	-.00152	.00015

RUN NO. 1110/ 0 RN/L = 0.82 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
1.000	-8.000	-.06300	.07700	-.00590	.00620	-.00130	.09010	.02390
1.000	-6.000	-.04700	.04730	-.00730	.00670	-.00130	.08420	.02390
1.000	-4.000	-.00500	.01200	-.00630	.00710	-.00110	.07970	.02340
1.000	-2.000	.04690	-.03110	-.00670	.00710	-.00070	.07550	.02260
1.000	.000	.10530	-.07870	-.00780	.00620	-.00040	.07120	.02250
1.000	2.000	.16560	-.12710	-.00650	.00530	.00000	.06690	.02310
1.000	4.000	.23010	-.17780	-.00650	.00510	-.00030	.06490	.02410
1.000	6.000	.30370	-.23460	-.00730	.00570	-.00030	.06210	.02540
1.000	8.000	.36900	-.28390	-.00640	.00660	.00000	.06010	.02580
	GRADIENT	.02944	-.02378	.00029	-.00029	.00011	-.00191	.00008

MSFC 556 (MA9F) NR ATP (01)/(T3)(S1) (R78028) (29 JAN 73)

REFERENCE DATA

SREF = 3220.0000 SQ.FT. XMRP = .0000
LREF = 1328.0000 INCHES YMRP = .0000
BREF = 1328.0000 INCHES ZMRP = -61.5000 INCHES
SCALE = 100.0000 PER

PARAMETRIC DATA

BETA = .000 ORBINC = 2.000
MACH = 2.000 ELEVON = .000
DELZ/D = -.520

RUN NO. 1109/ 0 RN/L = 6.76 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
2.000	-8.000	-.03660	.03990	-.00460	.00430	-.00140	.09630	.02580
2.000	-6.000	-.00900	.02150	-.00630	.00540	-.00090	.09280	.02500
2.000	-4.000	.02240	-.00120	-.00690	.00560	-.00100	.08780	.02510
2.000	-2.000	.05560	-.02640	-.00560	.00430	-.00110	.08060	.02640
2.000	.000	.09740	-.05790	-.00470	.00330	-.00070	.07390	.02740
2.000	2.000	.13710	-.08890	-.00570	.00410	-.00060	.07160	.02640
2.000	4.000	.18280	-.12480	-.00400	.00280	-.00020	.06950	.02530
2.000	6.000	.23540	-.16590	-.00430	.00330	.00020	.06680	.02510
2.000	8.000	.29570	-.21340	-.00550	.00440	.00040	.06300	.02560
	GRADIENT	.02011	-.01548	.00028	-.00029	.00010	-.00228	.00002

RUN NO. 1108/ 0 RN/L = 6.77 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
3.000	-8.000	-.01400	.05200	-.00830	.00610	-.00160	.08690	.02330
3.000	-6.000	.03430	.01350	-.01030	.00770	-.00170	.08320	.02430
3.000	-4.000	.08380	-.02540	-.01010	.00790	-.00150	.07960	.02480
3.000	-2.000	.13000	-.06120	-.00960	.00740	-.00130	.07700	.02560
3.000	.000	.17270	-.09370	-.00960	.00700	-.00120	.07610	.02670
3.000	2.000	.21410	-.12520	-.00850	.00620	-.00100	.07590	.02740
3.000	4.000	.25220	-.15330	-.00830	.00580	-.00080	.07340	.02990
3.000	6.000	.29490	-.18540	-.00780	.00580	-.00080	.07150	.02980
3.000	8.000	.33870	-.21830	-.00810	.00610	-.00020	.06810	.02920
	GRADIENT	.02104	-.01599	.00023	-.00027	.00008	-.00067	.00060

MSFC 558 (MA9F) NR ATP (O1)/(T3)(S1) (R78029) (29 JAN 73)

REFERENCE DATA

SREF = 3220.0000 SQ.FT. XMRP = .0000
LREF = 1328.0000 INCHES YMRP = .0000
BREF = 1328.0000 INCHES ZMRP = -61.5000 INCHES
SCALE = 100.0000 PER

PARAMETRIC DATA

BETA = .000 ORBINC = 2.000
MACH = 2.000 ELEVON = .000
DELZ/D = -1.000

RUN NO. 1104/ 0 RN/L = 6.75 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
-1.000	-8.000	-.13390	.10750	-.00250	.00170	.00000	.07620	.02480
-1.000	-6.000	-.08380	.06860	-.00210	.00120	.00010	.07090	.02630
-1.000	-4.000	-.02710	.02460	-.00150	.00070	.00030	.06570	.02720
-1.000	-2.000	.03380	-.02100	-.00100	.00040	.00040	.06160	.02780
-1.000	.000	.09730	-.06750	-.00100	.00060	.00040	.05900	.02760
-1.000	2.000	.16240	-.11410	-.00080	.00050	.00100	.05690	.02790
-1.000	4.000	.23310	-.16410	.00020	-.00010	.00130	.05470	.02850
-1.000	6.000	.29930	-.21110	.00030	-.00010	.00150	.05300	.02870
-1.000	8.000	.36210	-.25670	.00010	.00010	.00180	.05030	.02950
	GRADIENT	.03245	-.02352	.00018	-.00007	.00013	-.00133	.00014

RUN NO. 1102/ 0 RN/L = 6.74 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
.000	-8.000	-.11980	.08590	-.00390	.00310	.00000	.08090	.02500
.000	-6.000	-.07540	.05250	-.00360	.00250	.00020	.07590	.02660
.000	-4.000	-.02270	.01210	-.00300	.00190	.00050	.07110	.02780
.000	-2.000	.03690	-.03350	-.00190	.00110	.00080	.06700	.02840
.000	.000	.10130	-.08140	-.00180	.00130	.00040	.06480	.02780
.000	2.000	.17000	-.13090	-.00170	.00140	.00030	.06290	.02770
.000	4.000	.24180	-.18320	-.00200	.00150	.00060	.06110	.02770
.000	6.000	.30690	-.23080	-.00150	.00150	.00070	.05940	.02800
.000	8.000	.36250	-.27200	-.00110	.00160	.00070	.05690	.02850
	GRADIENT	.03310	-.02440	.00011	-.00003	-.00001	-.00121	-.00005

RUN NO. 1105/ 0 RN/L = 6.75 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
1.000	-8.000	-.12270	.09720	-.00260	.00220	.00010	.08660	.02430
1.000	-6.000	-.07570	.06060	-.00230	.00160	.00020	.08160	.02540
1.000	-4.000	-.02770	.02360	-.00130	.00090	.00040	.07640	.02640
1.000	-2.000	.02330	-.01540	-.00020	.00000	.00050	.07160	.02680
1.000	.000	.06300	-.06030	.00000	.00000	.00060	.06790	.02700
1.000	2.000	.14510	-.10620	-.00080	.00050	.00040	.06650	.02620
1.000	4.000	.21100	-.15610	-.00120	.00100	.00050	.06680	.02660
1.000	6.000	.27240	-.20160	-.00080	.00100	.00070	.06520	.02750
1.000	8.000	.32420	-.24010	.00000	.00050	.00080	.06260	.02830
	GRADIENT	.02996	-.02253	-.00001	.00004	.00000	-.00111	.00001

MSFC 558 (MA9F) NR ATP (C1)/(T3)(S1) (R78C29) (29 JAN 73)

REFERENCE DATA

SREF = 3220.0000 SQ.FT. XMRP = .0000
LREF = 1328.0000 INCHES YMRP = .0000
BREF = 1326.0000 INCHES ZMRP = -61.5000 INCHES
SCALE = 100.0000 PER

PARAMETRIC DATA

BETA = .000 ORBINC = 2.000
MACH = 2.000 ELEVON = .000
DELZ/D = -1.000

RUN NO. 1106/ 0 RN/L = 6.75 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
2.000	-8.000	-.08670	.08550	-.00150	.00030	-.00030	.08530	.02330
2.000	-6.000	-.04350	.05300	-.00140	.00060	-.00020	.08160	.02450
2.000	-4.000	.00500	.01650	-.00120	.00060	.00000	.07770	.02560
2.000	-2.000	.05490	-.02070	-.00150	.00090	.00000	.07520	.02580
2.000	.000	.09350	-.04970	-.00160	.00110	.00010	.07510	.02530
2.000	2.000	.13370	-.07930	-.00150	.00140	.00080	.07580	.02600
2.000	4.000	.18550	-.11790	-.00270	.00230	.00080	.07410	.02770
2.000	6.000	.24090	-.16020	-.00180	.00170	.00110	.07000	.02690
2.000	8.000	.29390	-.20020	-.00130	.00140	.00120	.06550	.02950
	GRADIENT	.02199	-.01637	-.00015	.00019	.00012	-.00033	.00022

RUN NO. 1107/ 0 RN/L = 6.75 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
3.000	-8.000	-.01640	.03510	-.00230	.00100	.00000	.08400	.02280
3.000	-6.000	.03230	.00000	-.00350	.00210	.00010	.08140	.02430
3.000	-4.000	.07860	-.03290	-.00350	.00230	.00030	.07820	.02540
3.000	-2.000	.12130	-.06240	-.00290	.00190	.00030	.07540	.02650
3.000	.000	.16150	-.08930	-.00270	.00170	.00050	.07440	.02750
3.000	2.000	.20460	-.11760	-.00260	.00190	.00080	.07340	.02920
3.000	4.000	.25690	-.15450	-.00270	.00220	.00080	.07240	.03030
3.000	6.000	.30680	-.18940	-.00350	.00310	.00080	.06930	.03120
3.000	8.000	.35130	-.21910	-.00430	.00390	.00090	.06660	.03190
	GRADIENT	.02199	-.01492	.00009	-.00001	.00004	-.00068	.00063

MSFC 558 (MA9F) NR ATP (O1)/(T3)(S1) (R78030) (29 JAN 73)

REFERENCE DATA

SREF = 3220.0000 SQ.FT. XMRP = .0000
LREF = 1328.0000 INCHES YMRP = .0000
BREF = 1328.0000 INCHES ZMRP = -61.5000 INCHES
SCALE = 100.0000 PER

PARAMETRIC DATA

BETA = .000 ORBINC = 2.000
MACH = 2.000 ELEVON = .000
DELZ/D = -1.500

RUN NO. 1096/ 0 RN/L = 6.74 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
-1.000	-9.170	-.47830	.47730	-.00980	.01510	-.00170	.16410	.04460
-1.000	-6.710	-.32710	.31190	-.00260	.00620	-.00090	.16960	.04090
-1.000	-4.360	-.22620	.22380	-.00010	.00240	-.00050	.17220	.03870
-1.000	-2.120	-.14060	.15300	.00270	-.00190	-.00040	.17020	.03780
-1.000	.210	-.05200	.07030	.00410	-.00450	-.00010	.16680	.03730
-1.000	.240	-.03880	.05860	.00370	-.00410	.00000	.16740	.03730
-1.000	2.550	.03950	-.01390	.00500	-.00630	-.00010	.16840	.03650
-1.000	4.820	.12830	-.09050	.00240	-.00400	-.00040	.17030	.03220
-1.000	7.240	.24420	-.19710	.00000	-.00080	-.00080	.16400	.03100
-1.000	9.570	.37490	-.32850	.00050	-.00110	-.00080	.15580	.03190
	GRADIENT	.03861	-.03455	.00052	-.00075	.00002	-.00024	-.00062

RUN NO. 1100/ 0 RN/L = 6.77 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
.000	-8.000	-.18120	.13320	.00190	-.00140	.00110	.06360	.02350
.000	-6.000	-.13160	.09690	.00300	-.00240	.00120	.06040	.02470
.000	-4.000	-.08250	.06020	.00380	-.00290	.00120	.07620	.02590
.000	-2.000	-.03140	.02200	.00440	-.00300	.00130	.07130	.02690
.000	.000	.03990	-.03130	.00460	-.00260	.00130	.06900	.02610
.000	2.000	.11530	-.08930	.00440	-.00260	.00110	.06730	.02610
.000	4.000	.19080	-.14670	.00390	-.00210	.00070	.06700	.02610
.000	6.000	.26610	-.20270	.00410	-.00210	.00110	.06580	.02730
.000	8.000	.33160	-.24950	.00370	-.00180	.00190	.06350	.02880
	GRADIENT	.03486	-.02625	.00001	.00010	-.00006	-.00112	-.00002

RUN NO. 1097/ 0 RN/L = 6.75 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
1.000	-8.000	-.15640	.12910	.00270	-.00230	.00060	.06330	.02310
1.000	-6.000	-.10910	.09460	.00360	-.00290	.00060	.06060	.02440
1.000	-4.000	-.06170	.05970	.00420	-.00320	.00070	.07780	.02560
1.000	-2.000	-.01220	.02300	.00440	-.00310	.00060	.07420	.02640
1.000	.000	.03900	-.01490	.00370	-.00220	.00060	.07150	.02690
1.000	2.000	.08890	-.05320	.00430	-.00230	.00040	.06870	.02750
1.000	4.000	.15470	-.10310	.00410	-.00230	.00050	.06690	.02750
1.000	6.000	.20470	-.14250	.00320	-.00300	.00070	.06190	.02790
1.000	8.000	.25590	-.18320	.00500	-.00260	.00090	.05500	.02830
	GRADIENT	.02669	-.02009	-.00002	.00013	-.00004	-.00137	.00025

MSFC 558 (MA9F) NR ATP (01)/(T3)(S1) (R78030) (29 JAN 73)

REFERENCE DATA

SREF = 3220.0000 SQ.FT. XMRP = .0000
LREF = 1328.0000 INCHES YMRP = .0000
BREF = 1328.0000 INCHES ZMRP = -61.5000 INCHES
SCALE = 100.0000 PER

PARAMETRIC DATA

BETA = .000 ORBINC = 2.000
MACH = 2.000 ELEVON = .000
DELZ/D = -1.500

RUN NO. 1098/ 0 RN/L = 6.76 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
2.000	-8.000	-.10130	.09620	.00360	-.00350	.00080	.08200	.02170
2.000	-6.000	-.04920	.05880	.00420	-.00360	.00080	.07960	.02370
2.000	-4.000	.00260	.02210	.00420	-.00330	.00100	.07730	.02520
2.000	-2.000	.05410	-.01370	.00370	-.00260	.00100	.07520	.02620
2.000	.000	.09960	-.04490	.00320	-.00170	.00110	.07340	.02700
2.000	2.000	.14530	-.07630	.00300	-.00160	.00090	.07190	.02920
2.000	4.000	.19120	-.10780	.00310	-.00130	.00090	.07070	.03070
2.000	6.000	.23570	-.13810	.00300	-.00110	.00080	.06810	.03130
2.000	8.000	.27450	-.16410	.00300	-.00100	.00060	.06600	.03060
	GRADIENT	.02340	-.01612	-.00015	.00025	-.00002	-.00082	.00070

RUN NO. 1099/ 0 RN/L = 6.78 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
3.000	-9.160	-.41620	.36030	-.01210	.01560	-.00100	.15800	.04930
3.000	-6.750	-.29810	.24270	-.00660	.00970	-.00080	.15910	.04960
3.000	-4.440	-.20450	.15910	-.00410	.00670	-.00030	.16170	.04970
3.000	-2.200	-.13150	.10260	-.00280	.00440	-.00030	.16270	.04970
3.000	.100	-.08560	.05960	-.00140	.00320	-.00030	.16230	.04920
3.000	2.330	-.02350	.04000	.00080	.00060	-.00020	.16450	.04910
3.000	4.520	.03080	.00460	.00360	-.00180	-.00030	.16130	.04970
3.000	6.810	.09380	-.03970	.00400	-.00300	.00010	.16280	.04920
3.000	9.040	.17520	-.10490	.00740	-.00720	.00060	.16340	.04810
	GRADIENT	.02578	-.01696	.00065	-.00093	.00000	.00005	-.00003

MSFC 558 (MA9F) NR ATP (O1)/(T3)(S1) (R78O31) (29 JAN 73)

REFERENCE DATA

SREF = 3220.0000 SQ.FT. XMRP = .0000
LREF = 1328.0000 INCHES YMRP = .0000
BREF = 1328.0000 INCHES ZMRP = -61.5000 INCHES
SCALE = 100.0000 PER

PARAMETRIC DATA

BETA = .000 ORBINC = 2.000
MACH = 2.000 ELEVON = 10.000
DELZ/D = -.520

RUN NO. 1103/ 0 RN/L = 6.82 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
.000	-9.290	-.51950	.52130	-.00400	.00770	-.00180	.16320	.04820
.000	-6.820	-.37160	.37260	.00010	.00240	-.00090	.16750	.04700
.000	-4.430	-.26420	.26210	.00220	-.00100	-.00050	.17430	.04530
.000	-2.120	-.18620	.23080	.00090	-.00070	-.00080	.17830	.04160
.000	.110	-.13280	.20560	.00190	-.00300	-.00030	.17590	.03770
.000	.140	-.12580	.19950	.00340	-.00500	-.00060	.17350	.03770
.000	2.360	-.07930	.17860	.00180	-.00430	-.00100	.17270	.03560
.000	4.670	-.02290	.15580	.00140	-.00580	-.00090	.17530	.03230
.000	6.980	.05500	.10610	.00320	-.00940	-.00130	.17540	.03190
.000	9.380	.17640	-.01280	-.00070	-.00820	-.00180	.17270	.03220
	GRADIENT	.02609	-.01345	-.00002	-.00058	-.00005	-.00016	-.00141

MSFC 558 (MA9F) NR ATP (O1)/(T3)(S1) (R78O32) (29 JAN 73)

REFERENCE DATA

SREF = 3220.0000 SQ.FT. XMRP = .0000
LREF = 1328.0000 INCHES YMRP = .0000
BREF = 1328.0000 INCHES ZMRP = -61.5000 INCHES
SCALE = 100.0000 PER

PARAMETRIC DATA

BETA = .000 ORBINC = 2.000
MACH = 2.000 ELEVON = 10.000
DELZ/D = -1.000

RUN NO. 1101/ 0 RN/L = 6.78 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
.000	-9.140	-.45430	.44130	-.01520	.02140	-.00210	.16720	.04930
.000	-6.670	-.31190	.29740	-.00510	.00500	-.00110	.17170	.04930
.000	-4.310	-.20660	.20930	.00030	.00060	-.00070	.17330	.04010
.000	-2.090	-.13780	.15870	-.00020	.00120	-.00090	.17240	.03970
.000	.240	-.06490	.10910	.00360	-.00400	-.00090	.16700	.03250
.000	.250	-.09350	.09340	.00280	-.00280	-.00080	.16930	.03260
.000	2.570	.00240	.06480	.00590	-.00870	-.00040	.16640	.03070
.000	4.800	.07590	.01470	.00620	-.00900	-.00070	.16570	.02940
.000	7.260	.17690	-.04630	.00670	-.00800	-.00110	.16200	.02760
.000	9.340	.29750	-.10570	.00630	-.00630	-.00090	.15640	.02460
	GRADIENT	.03099	-.02111	.00078	-.00120	.00002	-.00093	-.00119

MSFC 558 (MA9F) NR ATP (O1)/(T3)(S1) (R78033) (29 JAN 73)

REFERENCE DATA

SREF = 3220.0000 SQ.FT. XMRP = .0000
LREF = 1328.0000 INCHES YMRP = .0000
BREF = 1328.0000 INCHES ZMRP = -61.5000 INCHES
SCALE = 100.0000 PER

PARAMETRIC DATA

ALPHA = .000 ORBINC = .000
MACH = .900 ELEVON = .000
DELZ/D = -.520

RUN NO. 1066/ 0 RN/L = 6.19 GRADIENT INTERVAL = -5.00/ 5.00

DL.X/D	BETA	CN	CLM	CY	CYN	CBL	CAF	CAB
.000	-10.220	-.09050	.07600	.19720	-.13600	.01600	.03760	.03760
.000	-8.250	-.09010	.07750	.16400	-.11640	.01660	.03830	.03410
.000	-6.160	-.09020	.07990	.12350	-.08930	.01430	.04210	.03100
.000	-4.090	-.08670	.07860	.08270	-.06090	.01080	.04190	.03050
.000	-2.040	-.08380	.07750	.04080	-.02980	.00560	.03950	.03130
.000	.020	-.07740	.07390	.00040	-.00080	.00150	.03400	.03530
.000	2.090	-.07460	.07210	-.04000	.02880	-.00250	.03320	.03610
.000	4.180	-.06710	.06630	-.08200	.05960	-.00710	.03090	.03630
.000	6.230	-.07040	.06460	-.12380	.09330	-.01210	.03080	.03600
.000	8.300	-.05900	.05910	-.15890	.11210	-.01390	.02750	.03940
.000	10.290	-.05770	.05720	-.19400	.13350	-.01600	.02580	.04410
	GRADIENT	.03234	-.00145	-.01985	.01449	-.00212	-.00137	.00079

MSFC 558 (MA9F) NR ATP (O1)/(T3)(S1) (R78084) (29 JAN 73)

REFERENCE DATA

SREF = 3220.0000 SQ.FT. XMRP = .0000
LREF = 1328.0000 INCHES YMRP = .0000
BREF = 1328.0000 INCHES ZMRP = -61.5000 INCHES
SCALE = 100.0000 PER

PARAMETRIC DATA

ALPHA = .000 ORBINC = .000
MACH = .900 ELEVON = .000
DELZ/D = -1.000

RUN NO. 1063/ 0 RN/L = 6.21 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	BETA	CN	CLM	CY	CYN	CBL	CAF	CAB
.000	-10.230	-.09140	.07840	.16900	-.13160	.01440	.03510	.03610
.000	-8.280	-.09270	.08210	.15470	-.11060	.01450	.03900	.03250
.000	-6.150	-.09030	.08200	.11780	-.08570	.01230	.04030	.02930
.000	-4.040	-.08980	.08300	.08140	-.06000	.00950	.04120	.02780
.000	-2.040	-.08310	.07980	.04080	-.03000	.00580	.03880	.03000
.000	.030	-.08240	.08040	.00010	-.00030	.00210	.03540	.03420
.000	2.090	-.07790	.07700	-.03980	.02870	-.00180	.03460	.03330
.000	4.150	-.07020	.07100	-.07790	.05700	-.00580	.03150	.03400
.000	6.220	-.06520	.06810	-.11790	.08560	-.00850	.02850	.03460
.000	8.290	-.05840	.06120	-.15680	.11170	-.01190	.02870	.03700
.000	10.240	-.05360	.05360	-.18970	.13180	-.01250	.02490	.03970
	GRADIENT	.00814	-.00130	-.01938	.01422	-.00186	-.00113	.00076

MSFC 558 (MA9F) NR ATP (O1)/(T3)(S1) (R78CB5) (29 JAN 73)

REFERENCE DATA

SREF = 3220.0000 SQ.FT. XMRP = .0000
LREF = 1328.0000 INCHES YMRP = .0000
BREF = 1328.0000 INCHES ZMRP = -81.9000 INCHES
SCALE = 100.0000 PER

PARAMETRIC DATA

ALPHA = .000 ORBINC = 2.000
MACH = .900 ELEVON = .000
DELZ/D = -.320

RUN NO. 1091/ 0 RN/L = 6.17 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	BETA	CN	CLM	CY	CYN	CBL	CAF	CAB
.000	-10.270	.04560	-.01700	.19030	-.12990	.02420	.03000	.04710
.000	-8.260	.04830	-.01730	.15520	-.10950	.02190	.02920	.04370
.000	-6.190	.04730	-.01450	.11490	-.06290	.01810	.03080	.04230
.000	-4.110	.04780	-.01340	.07520	-.03450	.01290	.03180	.04070
.000	-2.080	.04930	-.01270	.03350	-.02410	.00720	.03280	.03930
.000	.000	.05140	-.01470	-.00420	.00280	.00160	.03230	.03740
.000	2.070	.05070	-.01420	-.04220	.03020	-.00380	.03150	.03710
.000	4.130	.05470	-.01740	-.08260	.05990	-.00980	.02790	.03900
.000	6.200	.05240	-.01620	-.12650	.00360	-.01360	.02890	.03910
.000	8.250	.05480	-.01920	-.16170	.11330	-.01830	.02540	.04190
.000	10.300	.05900	-.02450	-.19770	.13550	-.02060	.02280	.04630
	GRADIENT	.00074	-.00046	-.01099	.01374	-.00274	-.00043	-.00028

MSFC 558 (MA9F) NR ATP (O1)/(T3)(S1) (R78CB6) (29 JAN 73)

REFERENCE DATA

SREF = 3220.0000 SQ.FT. XMRP = .0000
LREF = 1328.0000 INCHES YMRP = .0000
BREF = 1328.0000 INCHES ZMRP = -81.9000 INCHES
SCALE = 100.0000 PER

PARAMETRIC DATA

ALPHA = .000 ORBINC = 2.000
MACH = .900 ELEVON = .000
DELZ/D = -1.000

RUN NO. 1092/ 0 RN/L = 6.17 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	BETA	CN	CLM	CY	CYN	CBL	CAF	CAB
.000	-10.230	.01930	.00360	.18480	-.12780	.02010	.02990	.04320
.000	-8.250	.01930	.00800	.15070	-.10720	.01910	.03080	.04040
.000	-6.180	.02070	.00740	.11300	-.08190	.01990	.03180	.03820
.000	-4.110	.01910	.00990	.07360	-.03370	.01190	.03290	.03650
.000	-2.090	.02650	.00550	.03430	-.02490	.00860	.03120	.03800
.000	.000	.02970	.00400	-.00530	.00220	.00230	.03180	.03490
.000	2.080	.03180	.00180	-.04000	.02870	-.00290	.03210	.03390
.000	4.120	.03240	.00130	-.08180	.05990	-.00760	.03070	.03470
.000	6.210	.03580	-.00190	-.12410	.08970	-.01280	.02900	.03620
.000	8.240	.03770	-.00450	-.15800	.11220	-.01400	.02700	.03760
.000	10.290	.03490	-.00570	-.19490	.13480	-.01710	.02430	.04270
	GRADIENT	.00159	-.00103	-.01072	.01365	-.00234	-.00017	-.00030

MSFC 558 (MASF) NR ATP (O1)/(T3)(S1) (R78C87) (29 JAN 73)

REFERENCE DATA

SREF = 3220.0000 SQ.FT. XMRP = .0000
LREF = 1328.0000 INCHES YMRP = .0000
BREF = 1328.0000 INCHES ZMRP = -61.5000 INCHES
SCALE = 100.0000 PER

PARAMETRIC DATA

ALPHA = .000 ORBINC = .000
MACH = 1.200 ELEVON = .000
DELZ/D = -.920

RUN NO. 1065/ 0 RN/L = 6.60 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	BETA	CN	CLM	CY	CYN	CBL	CAF	CAB
.000	-10.400	-.07960	.07820	.19710	-.12980	.02640	.05960	.04960
.000	-8.360	-.06980	.07360	.15570	-.10490	.02580	.06090	.04950
.000	-6.230	-.05890	.06450	.11520	-.07870	.02160	.06340	.04790
.000	-4.140	-.05590	.06880	.07260	-.04970	.01420	.06820	.04430
.000	-2.060	-.05210	.06800	.03430	-.02320	.00750	.07340	.03640
.000	.040	-.04690	.06430	-.00290	.00110	.00060	.07430	.03680
.000	2.140	-.04230	.06060	-.03880	.02500	-.00550	.07310	.03800
.000	4.250	-.03260	.05110	-.08030	.05360	-.01290	.06840	.04250
.000	6.330	-.02240	.04130	-.12030	.08150	-.01980	.06250	.04370
.000	8.450	-.02150	.03780	-.16210	.10860	-.02480	.05830	.04670
.000	10.460	-.02560	.03920	-.20220	.13150	-.02710	.05540	.04790
	GRADIENT	.00269	-.00204	-.01806	.01216	-.00320	-.00019	-.00019

MSFC 558 (MASF) NR ATP (O1)/(T3)(S1) (R78C88) (29 JAN 73)

REFERENCE DATA

SREF = 3220.0000 SQ.FT. XMRP = .0000
LREF = 1328.0000 INCHES YMRP = .0000
BREF = 1328.0000 INCHES ZMRP = -61.5000 INCHES
SCALE = 100.0000 PER

PARAMETRIC DATA

ALPHA = .000 ORBINC = .000
MACH = 1.200 ELEVON = .000
DELZ/D = -1.000

RUN NO. 1064/ 0 RN/L = 6.59 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	BETA	CN	CLM	CY	CYN	CBL	CAF	CAB
.. 0	-10.360	-.07860	.07690	.19310	-.12920	.02220	.05780	.04470
.000	-8.350	-.06740	.07090	.15390	-.10320	.01960	.05890	.04390
.000	-6.220	-.05730	.06560	.11280	.07840	.01630	.05870	.04440
.000	-4.130	-.04580	.05950	.07120	-.04960	.01140	.05700	.04710
.000	-2.060	-.04270	.05810	.03230	-.02240	.00650	.05840	.04760
.000	.030	-.03650	.05420	-.00330	.00170	.00140	.05980	.04380
.000	2.130	-.02870	.04770	-.03740	.02490	-.00380	.06190	.04030
.000	4.230	-.02290	.04120	-.07740	.05310	-.00930	.06430	.03630
.000	6.320	-.01840	.03730	-.11910	.08240	-.01470	.06460	.03780
.000	8.430	-.01350	.03230	-.16040	.10930	-.01880	.05900	.04000
.000	10.450	-.01460	.03000	-.20120	.13390	-.02210	.05490	.04220
	GRADIENT	.00246	-.00229	-.01759	.01208	-.00247	.00096	-.00138

MSFC 558 (MA9F) NR ATP (O1)/(T3)(S1) (R78039) (29 JAN 73)

REFERENCE DATA

SREF = 3220.0000 SQ.FT. XMRP = .0000
LREF = 1328.0000 INCHES YMRP = .0000
BREF = 1328.0000 INCHES ZMRP = -61.5000 INCHES
SCALE = 100.0000 PER

PARAMETRIC DATA

ALPHA = .000 ORBINC = 2.000
MACH = 1.200 ELEVON = .000
DELZ/D = -.520

RUN NO. 1090/ 0 RN/L = 6.57 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	BETA	CN	CLM	CY	CYN	CBL	CAF	CAB
.000	-10.410	.07850	-.03740	.18840	-.12250	.03380	.06010	.05160
.000	-8.370	.08360	-.03630	.14820	-.09880	.02980	.06060	.05240
.000	-6.230	.09000	-.04080	.10750	-.07270	.02360	.06080	.05220
.000	-4.150	.09400	-.04110	.06700	-.04540	.01650	.06460	.04960
.000	-2.070	.09510	-.04040	.03040	-.02050	.00880	.06830	.04690
.000	.010	.09310	-.03870	-.00530	.00280	.00060	.06970	.04560
.000	2.100	.09690	-.04190	-.04120	.02700	-.00720	.06980	.04460
.000	4.190	.10190	-.04750	-.08050	.05380	-.01550	.06580	.04590
.000	6.320	.10490	-.05210	-.12230	.08230	-.02330	.06250	.04650
.000	8.420	.10760	-.05660	-.16360	.10820	-.02910	.05880	.04920
.000	10.490	.10160	-.05550	-.20520	.13280	-.03250	.05590	.04920
	GRADIENT	.00084	-.00069	-.01758	.01179	-.00384	.00019	-.00046

MSFC 558 (MA9F) NR ATP (O1)/(T3)(S1) (R78040) (29 JAN 73)

REFERENCE DATA

SREF = 3220.0000 SQ.FT. XMRP = .0000
LREF = 1328.0000 INCHES YMRP = .0000
BREF = 1328.0000 INCHES ZMRP = -61.5000 INCHES
SCALE = 100.0000 PER

PARAMETRIC DATA

ALPHA = .000 ORBINC = 2.000
MACH = 1.200 ELEVON = .000
DELZ/D = -1.000

RUN NO. 1093/ 0 RN/L = 6.57 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	BETA	CN	CLM	CY	CYN	CBL	CAF	CAB
.000	-10.380	.06500	-.02910	.18690	-.12340	.02620	.05510	.04800
.000	-8.340	.07880	-.03780	.14680	-.09920	.02370	.05460	.04910
.000	-6.240	.08760	-.04180	.10740	-.07360	.01940	.05390	.05010
.000	-4.150	.09290	-.04380	.06620	-.04540	.01370	.05400	.05100
.000	-2.070	.09620	-.04480	.02940	-.02010	.00750	.05410	.05130
.000	.010	.09880	-.04590	-.00640	.00430	.00170	.05710	.04830
.000	2.090	.10000	-.04720	-.04140	.02790	-.00460	.05860	.04520
.000	4.190	.10430	-.05290	-.08020	.05460	-.01130	.05640	.04360
.000	6.310	.10700	-.05560	-.12070	.08290	-.01690	.05650	.04390
.000	8.380	.10630	-.05700	-.16160	.10910	-.02140	.05380	.04530
.000	10.470	.10030	-.05520	-.20410	.13480	-.02480	.05180	.04630
	GRADIENT	.00128	-.00099	-.01745	.01192	-.00298	.00065	-.00098

MSFC 558 (MA9F) NR ATP (O1)/(T3)(S1) (R78041) (29 JAN 73)

REFERENCE DATA

SREF = 3220.0000 SQ.FT. XMRP = .0000
LREF = 1328.0000 INCHES YMRP = .0000
BREF = 1328.0000 INCHES ZMRP = -61.5000 INCHES
SCALE = 100.0000 PER

PARAMETRIC DATA

ALPHA = .000 ORBINC = 2.000
MACH = 2.000 ELEVON = .000
DELZ/D = -.520

RUN NO. 1116/ 0 RN/L = 6.82 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	BETA	CN	CLM	CY	CYN	CBL	CAF	CAB
.000	-10.560	-.07570	.11530	.18780	-.18680	.00150	.17920	.04440
.000	-8.520	-.07060	.10650	.14230	-.13930	.00100	.17430	.04200
.000	-6.360	-.06690	.10320	.09960	-.09570	.00080	.17000	.04120
.000	-4.230	-.07170	.11410	.06280	-.05980	.00120	.16930	.03790
.000	-2.120	-.07520	.12170	.02930	-.02800	.00030	.16660	.03750
.000	.010	-.07600	.11870	-.01200	.01310	-.00070	.16490	.03760
.000	.030	-.08220	.12940	-.01090	.01250	-.00080	.16940	.03600
.000	2.130	-.08520	.13730	-.04620	.04800	-.00110	.17360	.03580
.000	4.260	-.08540	.14030	-.08240	.08290	-.00160	.17770	.03740
.000	6.430	-.07790	.12700	-.12490	.12540	-.00220	.17920	.03730
.000	8.590	-.07430	.12190	-.16910	.17010	-.00260	.18240	.03900
.000	10.680	-.08180	.13310	-.21810	.21960	-.00400	.18710	.04120
	GRADIENT	-.00176	.00320	-.01720	.01699	-.00033	.00112	-.00013

MSFC 558 (MA9F) NR ATP (O1)/(T3)(S1) (R78042) (29 JAN 73)

REFERENCE DATA

SREF = 3220.0000 SQ.FT. XMRP = .0000
LREF = 1328.0000 INCHES YMRP = .0000
BREF = 1328.0000 INCHES ZMRP = -61.5000 INCHES
SCALE = 100.0000 PER

PARAMETRIC DATA

ALPHA = .000 ORBINC = 2.000
MACH = 2.000 ELEVON = .000
DELZ/D = -1.000

RUN NO. 1117/ 0 RN/L = 6.77 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	BETA	CN	CLM	CY	CYN	CBL	CAF	CAB
.000	-10.560	-.11000	.15870	.20110	-.20570	-.00220	.17780	.04690
.000	-8.540	-.10490	.15540	.15500	-.15800	-.00240	.17290	.04530
.000	-6.400	-.11010	.16650	.11210	-.11340	-.00190	.17160	.04290
.000	-4.260	-.11420	.17560	.07140	-.07190	-.00110	.16990	.04330
.000	-2.110	-.11660	.18260	.03250	-.03290	-.00040	.16980	.04200
.000	.000	-.12130	.18630	-.00650	.00630	.00000	.16740	.04170
.000	.020	-.12070	.18500	-.00760	.00640	-.00030	.16930	.04170
.000	2.120	-.11750	.18060	-.04540	.04730	.00040	.17040	.04180
.000	4.270	-.11750	.18010	-.08460	.08810	.00110	.17350	.04070
.000	6.420	-.11180	.17060	-.12780	.13260	.00200	.17790	.04030
.000	8.590	-.10860	.16220	-.17780	.18370	.00130	.17940	.04180
.000	10.660	-.11060	.16700	-.23020	.23870	.00010	.18360	.04350
	GRADIENT	-.00026	.00033	-.01631	.01680	.00024	.00037	-.00025

MSFC 558 (MA9F) NR ATP (T3)(S1)/(O1) (R78T01) (29 JAN 73)

REFERENCE DATA

SREF = 3220.0000 SQ.FT. XMRP = .0000
LREF = 1328.0000 INCHES YMRP = .0000
BREF = 1328.0000 INCHES ZMRP = -61.5000 INCHES
SCALE = 100.0000 PER

PARAMETRIC DATA

BETA = .000 ORBINC = .000
MACH = .900 ELEVON = .000
DELZ/D = -.520

RUN NO. 2018/ 0 RN/L = 6.20 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
-.500	-8.000	-.30340	.24430	-.01210	.01900	.00010	.11630	.09280
-.500	-6.000	-.23790	.19540	-.01230	.01620	.00040	.12090	.08800
-.500	-4.000	-.17420	.15270	-.00580	.01040	.00090	.12230	.08580
-.500	-2.000	-.11620	.11320	-.00710	.01030	.00030	.12350	.08300
-.500	.000	-.05520	.05780	-.00790	.01030	.00000	.12180	.07940
-.500	2.000	.01650	-.01250	-.00810	.01220	-.00080	.11930	.07600
-.500	4.000	.08360	-.07220	-.00660	.01140	-.00140	.12220	.06910
-.500	6.000	.14420	-.11760	-.00630	.01100	-.00170	.12060	.06360
-.500	8.000	.20750	-.16560	-.00780	.01090	-.00230	.11660	.05960
	GRADIENT	.05251	-.02877	-.00013	.00019	-.00028	-.00022	-.00202

RUN NO. 2017/ 0 RN/L = 6.20 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
.000	-8.000	-.25470	.16300	-.01110	.01240	.00060	.11670	.08760
.000	-6.000	-.19620	.12740	-.01100	.01450	.00110	.12360	.08090
.000	-4.000	-.14440	.09890	-.01190	.01680	.00080	.12590	.07920
.000	-2.000	-.09120	.06380	-.00970	.01420	.00030	.12380	.07660
.000	.000	-.03420	.01760	-.00980	.01390	.00010	.11920	.07890
.000	2.000	.02920	-.04150	-.01130	.01660	-.00060	.11780	.07680
.000	4.000	.09090	-.09480	-.01000	.01600	-.00120	.11880	.07220
.000	6.000	.14740	-.13170	-.00490	.00840	-.00160	.11250	.07190
.000	8.000	.20560	-.17300	-.00640	.00870	-.00210	.10830	.06940
	GRADIENT	.02955	-.02463	.00011	.00004	-.00024	-.00101	-.00079

RUN NO. 2016/ 0 RN/L = 6.22 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
.500	-8.000	-.21290	.09340	-.01460	.01380	.00060	.11870	.07870
.500	-6.000	-.15740	.06060	-.00970	.01070	.00100	.12370	.07520
.500	-4.000	-.10690	.03610	-.00700	.00970	.00110	.12580	.07230
.500	-2.000	-.05350	.00260	-.00790	.01190	.00090	.12400	.07190
.500	.000	.00050	-.03730	-.00820	.01170	.00040	.12130	.07110
.500	2.000	.05420	-.08560	-.00670	.01280	-.00020	.11780	.07010
.500	4.000	.11050	-.13260	-.00720	.01190	-.00100	.11880	.06770
.500	6.000	.15640	-.15650	-.00770	.01160	-.00170	.11460	.06440
.500	8.000	.21000	-.19060	-.01070	.01440	-.00240	.10940	.06420
	GRADIENT	.02722	-.02129	-.00006	.00026	-.00026	-.00103	-.00055

MSFC 558 (MA9F) NR ATP (T3)(S1)/(O1) (R78T02) (29 JAN 73)

REFERENCE DATA

SREF = 3220.0000 SQ.FT. XMRP = .0000
LREF = 1328.0000 INCHES YMRP = .0000
BREF = 1328.0000 INCHES ZMRP = -61.5000 INCHES
SCALE = 100.0000 PER

PARAMETRIC DATA

BETA = .000 ORBINC = .000
MACH = .900 ELEVON = .000
DELZ/D = -1.000

RUN NO. 2019/ 0 RN/L = 6.19 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
-.500	-8.000	-.30470	.25640	-.00630	.01070	-.00020	.11720	.08700
-.500	-6.000	-.23570	.20090	-.00420	.00830	.00000	.12070	.08280
-.500	-4.000	-.17160	.15510	-.00390	.00800	.00010	.12520	.07690
-.500	-2.000	-.10700	.10460	-.00510	.00920	.00020	.12480	.07400
-.500	.000	-.04050	.03570	-.00760	.01170	-.00010	.12490	.07030
-.500	2.000	.03470	-.03620	-.00550	.00930	-.00100	.12410	.06700
-.500	4.000	.10050	-.09560	-.00640	.01120	-.00160	.12480	.06060
-.500	6.000	.17010	-.15140	-.00490	.00870	-.00230	.12170	.05800
-.500	8.000	.23650	-.20300	-.00640	.00910	-.00280	.11840	.05460
	GRADIENT	.03429	-.03211	-.00027	.00032	-.00023	-.00007	-.00198

RUN NO. 2020/ 0 RN/L = 6.19 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
.000	-8.000	-.27190	.19590	-.01200	.01310	.00030	.11690	.08880
.000	-6.000	-.20850	.15110	-.01050	.01280	.00040	.12250	.08310
.000	-4.000	-.14970	.11580	-.00710	.01050	.00030	.12450	.08010
.000	-2.000	-.09370	.07410	-.00800	.01130	.00000	.12330	.07870
.000	.000	-.02740	.01380	-.00840	.01120	-.00030	.12090	.07700
.000	2.000	.04320	-.05660	-.00630	.01010	-.00030	.12300	.07290
.000	4.000	.10750	-.11070	-.00460	.00890	-.00100	.12140	.06660
.000	6.000	.16570	-.15450	-.00570	.00910	-.00210	.11750	.06470
.000	8.000	.22870	-.20110	-.00600	.01090	-.00280	.11310	.06260
	GRADIENT	.03256	-.02918	.00033	-.00022	-.00014	-.00033	-.00194

RUN NO. 2021/ 0 RN/L = 6.18 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
.500	-8.000	-.24720	.15650	-.00640	.00850	.00020	.12160	.07360
.500	-6.000	-.18140	.10480	-.00920	.01270	.00050	.12200	.07060
.500	-4.000	-.12000	.06170	-.01150	.01620	.00080	.12280	.06870
.500	-2.000	-.06700	.03000	-.00870	.01340	.00050	.12250	.06740
.500	.000	-.00770	-.01920	-.00700	.01030	.00000	.11940	.06950
.500	2.000	.05600	-.08330	-.00740	.01090	-.00070	.12090	.06700
.500	4.000	.12290	-.14010	-.00730	.01120	-.00140	.11840	.06450
.500	6.000	.17680	-.17580	-.00620	.00940	-.00210	.11660	.06140
.500	8.000	.23370	-.21460	-.00670	.00930	-.00270	.11160	.06070
	GRADIENT	.03044	-.02984	.00048	-.00063	-.00028	-.00052	-.00044

MSFC 558 (MA9F) NR ATP (T3)(S1)/(O1) (R78T03) (29 JAN 73)

REFERENCE DATA

SREF = 3220.0000 SQ.FT. XMRP = .0000
LREF = 1328.0000 INCHES YMRP = .0000
BREF = 1328.0000 INCHES ZMRP = -61.5000 INCHES
SCALE = 100.0000 PER

PARAMETRIC DATA

BETA = .000 ORBINC = .000
MACH = .900 ELEVON = .000
DELZ/D = -1.500

RUN NO. 2041/ 0 RN/L = 6.18 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
-1.000	-8.340	-.48780	.36170	.02070	-.01690	.00250	.03140	.03380
-1.000	-6.160	-.39780	.29970	.02120	-.01680	.00260	.03340	.03200
-1.000	-4.010	-.29530	.22830	.02110	-.01680	.00200	.03620	.03040
-1.000	-1.860	-.19450	.15770	.01940	-.01520	.00210	.03750	.03050
-1.000	.250	-.10230	.09450	.01810	-.01390	.00120	.03870	.02980
-1.000	2.400	-.01390	.03340	.01600	-.01350	.00050	.03570	.02960
-1.000	4.550	.08930	-.03700	.01660	-.01230	.00090	.02940	.02900
-1.000	6.740	.19150	-.10790	.01550	-.01150	.00090	.02400	.02780
-1.000	8.830	.27940	-.16900	.01390	-.01050	.00130	.02320	.02800
	GRADIENT	.04443	-.03063	-.00049	.00050	-.00018	-.00072	-.00017

RUN NO. 2040/ 0 RN/L = 6.19 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
-.500	-8.000	-.30250	.25420	-.00780	.00900	-.00040	.11930	.08100
-.500	-6.000	-.23160	.19650	-.00670	.00120	.00000	.12420	.07550
-.500	-4.000	-.16680	.15400	-.00670	.00910	.00000	.12720	.07220
-.500	-2.000	-.10420	.10200	-.00530	.00810	.00020	.12710	.07060
-.500	.000	-.03270	.03150	-.00560	.00770	-.00020	.12500	.06890
-.500	2.000	.04670	-.05240	-.00600	.00940	-.00050	.12650	.06390
-.500	4.000	.11810	-.11850	-.00630	.01020	-.00110	.12590	.05960
-.500	6.000	.18400	-.17200	-.00440	.00730	-.00160	.12110	.05900
-.500	8.000	.25060	-.22510	-.00600	.00830	-.00250	.11570	.05770
	GRADIENT	.03623	-.03497	.00001	.00017	-.00014	-.00016	-.00160

RUN NO. 2037/ 0 RN/L = 6.18 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
.000	-8.000	-.28660	.22610	-.00930	.01200	.00000	.12060	.07470
.000	-6.000	-.21940	.17340	-.00630	.01150	.00010	.12390	.07070
.000	-4.000	-.15760	.13090	-.00570	.00910	.00040	.12440	.07030
.000	-2.000	-.09720	.08440	-.00790	.01110	.00000	.12500	.06830
.000	.000	-.02730	.01700	-.00770	.01010	-.00010	.12420	.06830
.000	2.000	.05130	-.06350	-.00680	.00990	-.00050	.12320	.06410
.000	4.000	.11730	-.12280	-.00850	.01260	-.00130	.12360	.06060
.000	6.000	.18110	-.17180	-.00860	.01220	-.00190	.12020	.05910
.000	8.000	.24810	-.22360	-.00720	.00940	-.00250	.11400	.05850
	GRADIENT	.03491	-.03275	-.00023	.00029	-.00019	-.00017	-.00118

MSFC 558 (MA9F) NR ATP (T3)(S1)/(O1) (R78T03) (29 JAN 73)

REFERENCE DATA

SREF = 3220.0000 SQ.FT. XMRP = .0000
LREF = 1328.0000 INCHES YMRP = .0000
BREF = 1328.0000 INCHES ZMRP = -61.5000 INCHES
SCALE = 100.0000 PER

PARAMETRIC DATA

BETA = .000 ORBINC = .000
MACH = .900 ELEVON = .000
DELZ/D = -1.500

RUN NO. 2036/ 0 RN/L = 8.19 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
.500	-8.000	-.25540	.17250	-.01120	.01140	.00000	.12010	.06610
.500	-6.000	-.19250	.12530	-.01040	.01150	.00020	.12490	.06220
.500	-4.000	-.13300	.08840	-.00910	.01190	.00050	.12800	.05900
.500	-2.000	-.07380	.04610	-.00800	.01090	.00030	.12540	.06010
.500	.000	-.00970	-.01210	-.00760	.00970	.00000	.12270	.06330
.500	2.000	.06130	-.08580	-.00900	.01220	-.00060	.12400	.06010
.500	4.000	.12650	-.14270	-.00530	.00850	-.00120	.12120	.05930
.500	6.000	.18560	-.18650	-.00550	.00760	-.00170	.11690	.05900
.500	8.000	.24700	-.23110	-.00680	.00880	-.00200	.11360	.05690
	GRADIENT	.03271	-.02970	.00033	-.00027	-.00021	-.00075	.00003

MSFC 558 (MA9F) NR ATP (T3)(S1)/(O1) (R78T04) (29 AN 73)

REFERENCE DATA

SREF = 3220.0000 SQ.FT. XMRP = .0000
LREF = 1328.0000 INCHES YMRP = .0000
BREF = 1328.0000 INCHES ZMRP = -61.5000 INCHES
SCALE = 100.0000 PER

PARAMETRIC DATA

BETA = .000 ORBINC = 2.000
MACH = .900 ELEVON = .000
DELZ/D = -.520

RUN NO. 2073/ 0 RN/L = 6.19 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
-.500	-8.000	-.31240	.26280	-.01040	.01280	.00050	.11880	.09120
-.500	-6.000	-.25150	.22200	-.01020	.01300	.00060	.12200	.08660
-.500	-4.000	-.19060	.16280	-.00810	.01110	.00050	.12340	.08270
-.500	-2.000	-.13330	.14160	-.00330	.00470	.00040	.12540	.07760
-.500	.000	-.07290	.09050	-.00250	.00230	.00030	.12280	.07560
-.500	2.000	.00060	.01490	-.00700	.00960	-.00060	.12470	.06730
-.500	4.000	.06550	-.04150	-.00580	.00900	-.00110	.12530	.06170
-.500	6.000	.12330	-.08400	-.00590	.00900	-.00160	.12120	.05710
-.500	8.000	.18830	-.13550	-.00780	.00970	-.00210	.11940	.05320
	GRADIENT	.03230	-.02876	.00004	.00003	-.00022	.00016	-.00262

RUN NO. 2070/ 0 RN/L = 6.16 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
.000	-8.000	-.28750	.21920	-.00390	.00690	.00040	.11690	.08450
.000	-6.000	-.22790	.17870	-.00490	.00900	.00090	.11880	.08220
.000	-4.000	-.17540	.14660	-.00590	.00970	.00090	.11610	.08450
.000	-2.000	-.12420	.11510	-.00580	.00810	.00050	.11710	.08160
.000	.000	-.06610	.06930	-.00490	.00670	.00020	.11620	.07890
.000	2.000	-.00700	.01450	-.00520	.00710	-.00060	.11500	.07550
.000	4.000	.05460	-.03720	-.00340	.00570	-.00110	.11500	.07320
.000	6.000	.11090	-.07720	-.00550	.00780	-.00130	.11320	.06850
.000	8.000	.17170	-.12290	-.00760	.00920	-.00190	.10960	.06540
	GRADIENT	.02888	-.02341	.00026	-.00045	-.00025	-.00022	-.00143

RUN NO. 2074/ 0 RN/L = 6.18 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
.500	-8.000	-.24150	.13940	-.00910	.01120	.00120	.12410	.07290
.500	-6.000	-.18460	.10200	-.00860	.01210	.00140	.12620	.06980
.500	-4.000	-.13110	.06950	-.00840	.01260	.00110	.12910	.06630
.500	-2.000	-.07660	.03670	-.00610	.00950	.00090	.12580	.07020
.500	.000	-.02640	.00160	-.00810	.01100	.00040	.12260	.06930
.500	2.000	.02240	-.03690	-.00690	.00960	-.00010	.12160	.06640
.500	4.000	.07740	-.08250	-.00520	.00850	-.00100	.11880	.06590
.500	6.000	.13030	-.11550	-.00610	.00770	-.00140	.11530	.06420
.500	8.000	.18790	-.15810	-.00730	.00770	-.00180	.11060	.06610
	GRADIENT	.02590	-.01898	.00026	-.00040	-.00026	-.00124	-.00043

MSFC 558 (MA9F) NR ATP (T3)(S1)/(O1) (R78T05) (29 JAN 73)

REFERENCE DATA

SREF = 3220.0000 SQ.FT. XMRP = .0000
LREF = 1328.0000 INCHES YMRP = .0000
BREF = 1328.0000 INCHES ZMRP = -61.5000 INCHES
SCALE = 100.0000 PER

PARAMETRIC DATA

BETA = .000 ORBINC = 2.000
MACH = .900 ELEVON = .000
DELZ/D = -1.000

RUN NO. 2089/ 0 RN/L = 6.18 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
-.500	-8.000	-.30970	.26230	-.01270	.01470	-.00020	.11750	.08360
-.500	-6.000	-.24030	.21010	-.01090	.01350	.00030	.12290	.07770
-.500	-4.000	-.18000	.17130	-.01110	.01500	.00020	.12740	.07360
-.500	-2.000	-.11970	.12510	-.00840	.01110	.00000	.12680	.07060
-.500	.000	-.04960	.05730	-.00830	.01050	-.00040	.12640	.06680
-.500	2.000	.02470	-.01850	-.00870	.01360	-.00080	.12870	.06380
-.500	4.000	.09220	-.08020	-.01110	.01760	-.00160	.12550	.05770
-.500	6.000	.15830	-.13250	-.00930	.01450	-.00220	.12300	.05450
-.500	8.000	.22080	-.17900	-.01030	.01370	-.00280	.11810	.05140
	GRADIENT	.03444	-.03233	-.00001	.00038	-.00022	-.00010	-.00193

RUN NO. 2086/ 0 RN/L = 6.18 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
000	-8.000	-.27840	.20720	-.01460	.01590	.00000	.12130	.08070
.000	-6.000	-.21550	.16410	-.01240	.01450	.00010	.12510	.07620
.000	-4.000	-.15640	.12780	-.00920	.01290	.00020	.12660	.07380
.000	-2.000	-.09830	.08680	-.00680	.00990	.00010	.12620	.07260
.000	.000	-.03840	.03530	-.00640	.00800	.00000	.12190	.07290
.000	2.000	.03240	-.03690	-.00950	.01280	-.00110	.12050	.07040
.000	4.000	.09490	-.09010	-.00890	.01380	-.00160	.12010	.06370
.000	6.000	.14620	-.12640	-.00900	.01400	-.00190	.12080	.06030
.000	8.000	.20990	-.17500	-.00950	.01320	-.00220	.11600	.05890
	GRADIENT	.03166	-.02797	-.00011	.00023	-.00024	-.00093	-.00112

RUN NO. 2085/ 0 RN/L = 6.17 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
.500	-8.000	-.24610	.15620	-.01100	.01140	.00040	.12200	.07420
.500	-6.000	-.18490	.11310	-.01070	.01220	.00050	.12600	.07040
.500	-4.000	-.12850	.08060	-.00990	.01320	.00050	.12700	.06810
.500	-2.000	-.07510	.04440	-.01030	.01440	.00050	.12410	.06960
.500	.000	-.01750	-.00080	-.00890	.01190	-.00020	.12240	.06920
.500	2.000	.04620	-.06220	-.01040	.01430	-.00090	.12060	.06680
.500	4.000	.10420	-.11120	-.00980	.01510	-.00130	.11910	.06290
.500	6.000	.15990	-.15130	-.00880	.01330	-.00190	.11610	.06160
.500	8.000	.21540	-.18520	-.00730	.00910	-.00260	.11090	.06440
	GRADIENT	.02933	-.02491	.00000	.00018	-.00024	-.00097	-.00066

MSFC 558 (MA9F) NR ATP (T3)(S1)/(O1) (R78T06) (29 JAN 73)

REFERENCE DATA

SREF = 3220.0000 SQ.FT. XMRP = .0000
LREF = 1328.0000 INCHES YMRP = .0000
BREF = 1328.0000 INCHES ZMRP = -61.5000 INCHES
SCALE = 100.0000 PER

PARAMETRIC DATA

BETA = .000 ORBINC = 2.000
MACH = .900 ELEVON = .000
DELZ/D = -1.500

RUN NO. 2051/ 0 RN/L = 6.28 GRADIENT INTERVAL = -5.00/ 5.00

DELY/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
-.900	-8.000	-.29730	.25050	-.01040	.01150	-.00030	.11920	.07900
-.900	-6.000	-.22950	.19860	-.00860	.01020	-.00010	.12390	.07380
-.900	-4.000	-.16330	.15290	-.00590	.00830	.00010	.12500	.07180
-.900	-2.000	-.09950	.10270	-.00240	.00430	.00010	.12560	.06910
-.900	.000	-.02910	.03180	-.00150	.00280	-.00020	.12390	.06670
-.900	2.000	.05050	-.05400	-.00670	.01040	-.00110	.12610	.06090
-.900	4.000	.12060	-.11870	-.00440	.00850	-.00150	.12610	.05510
-.900	6.000	.18550	-.16920	-.00090	.00290	-.00190	.12110	.05440
-.900	8.000	.25310	-.22270	-.00180	.00220	-.00240	.11600	.05320
	GRADIENT	.03569	-.03499	-.00007	.00033	-.00022	.00014	-.00206

RUN NO. 2050/ 0 RN/L = 6.31 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
.000	-8.000	-.26780	.20130	-.01090	.01140	-.00010	.12010	.07700
.000	-6.000	-.20140	.15200	-.00920	.01040	.00000	.12470	.07190
.000	-4.000	-.13930	.11120	-.00600	.00880	.00020	.12780	.06850
.000	-2.000	-.08220	.06910	-.00500	.00770	.00000	.12490	.07080
.000	.000	-.01410	.00490	-.00510	.00670	-.00030	.12270	.06970
.000	2.000	.06120	-.07480	-.00730	.01080	-.00090	.12420	.06590
.000	4.000	.13030	-.13690	-.00400	.00800	-.00110	.12110	.06330
.000	6.000	.19300	-.18480	-.00510	.00880	-.00190	.11800	.06030
.000	8.000	.25600	-.23280	-.00810	.00810	-.00250	.11350	.05740
	GRADIENT	.05413	-.05200	.00009	.00008	-.00017	-.00071	-.00077

RUN NO. 2049/ 0 RN/L = 6.29 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
.900	-8.000	-.25160	.17070	-.00950	.00920	.00010	.11960	.06860
.900	-6.000	-.18690	.12510	-.01030	.01120	.00030	.12360	.06300
.900	-4.000	-.13050	.09050	-.00750	.01000	.00040	.12590	.06290
.900	-2.000	-.07480	.05070	-.00770	.01100	.00030	.12450	.06350
.900	.000	-.01370	-.00210	-.00650	.00690	-.00010	.12050	.06520
.900	2.000	.05630	-.07690	-.00780	.01130	-.00070	.12140	.06240
.900	4.000	.12640	-.13580	-.00320	.00700	-.00110	.12030	.05940
.900	6.000	.17930	-.17360	-.00110	.00420	-.00130	.11430	.06010
.900	8.000	.23940	-.21930	-.00480	.00730	-.00200	.11030	.06000
	GRADIENT	.03234	-.02699	.00042	-.00029	-.00020	-.00072	-.00041

MSFC 558 (MA9F) NR ATP (T3)(S1)/(O1) (R78T07) (09 JAN 73)

REFERENCE DATA

SREF = 3220.0000 SQ.FT. XMRP = .0000
LREF = 1328.0000 INCHES YMRP = .0000
BREF = 1328.0000 INCHES ZMRP = -61.5000 INCHES
SCALE = 100.0000 PER

PARAMETRIC DATA

BETA = .000 ORBINC = .000
MACH = .900 ELEVON = 10.000
DELZ/D = -.520

RUN NO. 2014/ 0 RN/L = 8.21 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
.000	-8.000	-.27630	.20480	-.01050	.01550	.00050	.11790	.07740
.000	-6.000	-.21670	.16390	-.00860	.01320	.00080	.12110	.07280
.000	-4.000	-.16310	.13250	-.00750	.01260	.00090	.12310	.07090
.000	-2.000	-.10950	.09820	-.00910	.01330	.00030	.12400	.06890
.000	.000	-.05140	.05120	-.01020	.01410	-.00010	.12110	.06840
.000	2.000	.01410	-.01030	-.00860	.01340	-.00060	.12190	.06380
.000	4.000	.07240	-.05930	-.01070	.01710	-.00110	.12250	.05760
.000	6.000	.12880	-.09680	-.00830	.01370	-.00180	.11750	.05580
.000	8.000	.18990	-.14040	-.00990	.01360	-.00250	.11330	.05450
	GRADIENT	.02973	-.02460	-.00030	.00046	-.00024	-.00017	-.00159

RUN NO. 2015/ 0 RN/L = 8.21 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
.900	-8.000	-.24960	.15550	-.01170	.01290	.00040	.11470	.07350
.900	-6.000	-.19870	.13030	-.01080	.01350	.00060	.12150	.06960
.900	-4.000	-.15230	.11260	-.00980	.01400	.00080	.12510	.06580
.900	-2.000	-.09660	.07410	-.01290	.01880	.00080	.12270	.06470
.900	.000	-.04360	.03720	-.01130	.01650	.00010	.12070	.06720
.900	2.000	.01540	-.01640	-.01110	.01720	-.00040	.11640	.06580
.900	4.000	.06640	-.05760	-.01260	.02080	-.00120	.11670	.06160
.900	6.000	.11840	-.08950	-.00440	.00980	-.00110	.11170	.06230
.900	8.000	.17490	-.12910	-.00300	.00680	-.00170	.10700	.06200
	GRADIENT	.02748	-.02154	-.00021	.00060	-.00023	-.00115	-.00035

MSFC 558 (MA9F) NR ATP (T3)(S1)/(O1) (R78TO8) (29 JAN 73)

REFERENCE DATA

SREF = 3220.0000 SQ.FT. XMRP = .0000
LREF = 1328.0000 INCHES YMRP = .0000
BREF = 1328.0000 INCHES ZMRP = -61.5000 INCHES
SCALE = 100.0000 PER

PARAMETRIC DATA

BETA = .000 ORBINC = .000
MACH = .900 ELEVON = 10.000
DELZ/D = -1.000

RUN NO. 2023/ 0 RN/L = 6.21 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
.000	-8.000	-.28530	.21900	-.01220	.01410	.00010	.12110	.07460
.000	-6.000	-.22200	.17620	-.01120	.01390	.00030	.12580	.06820
.000	-4.000	-.16380	.14120	-.00790	.01140	.00090	.12620	.06470
.000	-2.000	-.10510	.09780	-.00630	.01240	.00010	.12710	.06430
.000	.000	-.04200	.04080	-.00610	.00690	.00000	.12620	.06230
.000	2.000	.02640	-.02750	-.00730	.01110	-.00100	.12380	.06050
.000	4.000	.09140	-.06500	-.00730	.01220	-.00180	.12360	.05580
.000	6.000	.14760	-.12390	-.00650	.01100	-.00180	.11950	.05310
.000	8.000	.21120	-.17060	-.00600	.01160	-.00250	.11800	.05080
	GRADIENT	.03209	-.02868	.00011	.00001	-.00028	-.00060	-.00108

RUN NO. 2022/ 0 RN/L = 6.22 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
.900	-8.000	-.20050	.13850	-.01320	.01570	.00030	.12720	.06170
.900	-4.000	-.14990	.11490	-.01140	.01510	.00030	.13070	.05880
.900	-2.000	-.09180	.07420	-.00690	.01290	.00020	.12560	.05990
.900	.000	-.03370	.02750	-.00520	.00810	.00000	.12360	.06150
.900	2.000	.03040	-.03710	-.00970	.01440	-.00060	.12300	.05920
.900	4.000	.09080	-.08820	-.00810	.01340	-.00160	.12250	.05660
.900	6.000	.14820	-.12680	-.00480	.00870	-.00170	.11360	.05720
.900	8.000	.20410	-.16490	-.00700	.01000	-.00230	.10990	.05630
	GRADIENT	.03019	-.02587	.00027	-.00007	-.00024	-.00085	-.00025

MSFC 558 (MA9F) NR ATP (T3)(S1)/(O1) (R78T09) (29 JAN 73)

REFERENCE DATA

SREF = 3220.0000 SQ.FT. XMRP = .0000
LREF = 1328.0000 INCHES YMRP = .0000
BREF = 1328.0000 INCHES ZMRP = -61.5000 INCHES
SCALE = 100.0000 PER

PARAMETRIC DATA

BETA = .000 ORBINC = .000
MACH = .900 ELEVON = -20.000
DELZ/D = -.320

RUN NO. 2011/ 0 RN/L = 6.20 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
.000	-8.390	-.73160	.60350	.00480	-.00690	.00110	.09880	.04940
.000	-6.260	-.64880	.54250	.00730	-.00900	.00070	.09970	.04800
.000	-4.150	-.56800	.48430	.00810	-.00790	-.00080	.10140	.04760
.000	-2.040	-.48440	.42230	.00700	-.00880	-.00080	.09950	.04530
.000	.050	-.40150	.36320	.00710	-.00840	-.00060	.09790	.04520
.000	2.160	-.32100	.30480	.00700	-.00810	-.00090	.09320	.04450
.000	4.270	-.24720	.25170	.00700	-.00790	-.00010	.08630	.04320
.000	6.420	-.16590	.19230	.00800	-.00730	-.00100	.08070	.04030
.000	8.470	-.09390	.13720	.00740	-.00880	-.00230	.07810	.03580
	GRADIENT	.03622	-.02787	.00009	.00002	.00006	-.00173	-.00046

RUN NO. 2010/ 0 RN/L = 6.20 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
.900	-8.360	-.69780	.57600	.00320	-.00580	.00020	.09320	.05150
.900	-6.230	-.63930	.53330	.00520	-.00730	.00000	.09530	.04780
.900	-4.130	-.56240	.48170	.00490	-.00720	-.00110	.09570	.04630
.900	-2.030	-.48520	.42360	.00800	-.00790	-.00140	.09580	.04470
.900	.080	-.39620	.36010	.00540	-.00700	-.00040	.09410	.04440
.900	2.200	-.31050	.29710	.00460	-.00680	-.00200	.08950	.04470
.900	4.270	-.23010	.23970	.00460	-.00630	-.00080	.08250	.04370
.900	6.430	-.14200	.17540	.00390	-.00560	-.00150	.07500	.04130
.900	8.520	-.06060	.11360	.00520	-.00680	-.00180	.07180	.03670
	GRADIENT	.03991	-.02913	-.00010	.00015	.00002	-.00155	-.00025

MSFC 558 (MA9F) NR ATP (T3)(S1)/(O1) (R78T10) (29 JAN 73)

REFERENCE DATA

SREF = 3220.0000 SQ.FT. XMRP = .0000
LREF = 1328.0000 INCHES YMRP = .0000
BREF = 1328.0000 INCHES ZMRP = -61.5000 INCHES
SCALE = 100.0000 PER

PARAMETRIC DATA

BETA = .000 ORBINC = .000
MACH = .900 ELEVON = -20.000
DELZ/D = -1.000

RUN NO. 2024/ 0 RN/L = 8.21 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
.000	-8.510	-.79950	.64960	.01500	-.01480	.00110	.09590	.05070
.000	-6.390	-.72370	.59660	.01690	-.01590	.00160	.10070	.04630
.000	-4.230	-.62860	.52870	.01660	-.01600	.00000	.10510	.04530
.000	-2.120	-.53270	.43950	.01600	-.01550	.00000	.10260	.04460
.000	.000	-.44070	.39260	.01590	-.01500	.00020	.10000	.04340
.000	2.150	-.35440	.33120	.01650	-.01510	.00040	.09540	.04330
.000	4.250	-.26740	.27000	.01540	-.01390	.00000	.08880	.04280
.000	6.410	-.18690	.19630	.01420	-.01290	.00000	.08050	.03970
.000	8.530	-.06320	.11960	.01390	-.01240	-.00060	.07280	.03670
	GRADIENT	.04242	-.03041	-.00008	.00022	-.00000	-.00169	-.00050

RUN NO. 2025/ 0 RN/L = 8.20 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
.900	-8.480	-.76760	.62350	.01540	-.01490	.00210	.09240	.05030
.900	-6.360	-.70110	.57890	.01760	-.01640	.00160	.09680	.04640
.900	-4.240	-.62010	.52120	.01690	-.01620	.00060	.09660	.04420
.900	-2.090	-.52360	.45170	.01620	-.01550	.00040	.09620	.04370
.900	.010	-.43640	.39200	.01750	-.01610	.00060	.09610	.04470
.900	2.170	-.34030	.32170	.01750	-.01550	.00080	.09400	.04470
.900	4.270	-.25280	.25940	.01740	-.01510	.00060	.08830	.04220
.900	6.440	-.14980	.18480	.01370	-.01280	-.00010	.08000	.03960
.900	8.570	-.03680	.10210	.01430	-.01290	-.00080	.07050	.03670
	GRADIENT	.04314	-.03072	.00011	.00010	.00004	-.00116	-.00014

MSFC 558 (MA9F) NF ATP (T3)(S1)/(O1) (R70T11) (29 JAN 73)

REFERENCE DATA

SREF = 3220.0000 SQ.FT. XMRP = .0000
LREF = 1328.0000 INCHES YMRP = .0000
BREF = 1328.0000 INCHES ZMRP = -61.5000 INCHES
SCALE = 100.0000 PER

PARAMETRIC DATA

BETA = .000 JRBINC = 2.000
MACH = .900 ELEVON = 10.000
DELZ/D = -.520

RUN NO. 2078/ 0 RN/L = 8.17 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
.000	-8.000	-.30290	.24820	-.01090	.01500	.00020	.11830	.07390
.000	-6.000	-.24570	.21110	-.01080	.01510	.00050	.11990	.07180
.000	-4.000	-.19170	.18000	-.00830	.01270	.00060	.12140	.06990
.000	-2.000	-.13790	.14650	-.00560	.00820	.00030	.12160	.06780
.000	.000	-.08690	.10830	-.00930	.01090	-.00030	.12210	.06710
.000	2.000	-.02320	.04870	-.00870	.01190	-.00120	.11860	.06530
.000	4.000	.04250	-.00840	-.00670	.01100	-.00130	.11980	.05790
.000	6.000	.09790	-.04900	-.00630	.00980	-.00170	.11680	.05460
.000	8.000	.15700	-.09370	-.00910	.01130	-.00240	.11470	.05200
	GRADIENT	.02915	-.02373	.00000	.00003	-.00026	-.00031	-.00133

RUN NO. 2077/ 0 RN/L = 8.17 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
.900	-8.000	-.26660	.18580	-.01430	.01500	.00080	.12180	.06940
.900	-6.000	-.21480	.15850	-.01230	.01380	.00070	.12560	.06890
.900	-4.000	-.16460	.13580	-.00930	.01280	.00070	.12730	.06530
.900	-2.000	-.11250	.10420	-.00940	.01340	.00080	.12330	.06700
.900	.000	-.06990	.08080	-.00880	.01160	.00010	.12020	.06840
.900	2.000	-.01940	.03580	-.00700	.00980	-.00050	.11620	.06620
.900	4.000	.04000	-.01270	-.00580	.00810	-.00130	.11420	.06620
.900	6.000	.09430	-.05150	-.00470	.00580	-.00140	.11110	.06430
.900	8.000	.15310	-.09650	-.00570	.00560	-.00180	.10830	.06460
	GRADIENT	.02531	-.01826	.00049	-.00055	-.00029	-.00166	.00005

MSFC 558 (MA9F) NR ATP (T3)(S1)/(O1) (R78T12) (29 JAN 73)

REFERENCE DATA

SREF = 3220.0000 SQ.FT. XMRP = .0000
LREF = 1328.0000 INCHES YMRP = .0000
BREF = 1328.0000 INCHES ZMRP = -61.5000 INCHES
SCALE = 100.0000 PER

PARAMETRIC DAT.

BETA = .000 ORB.NC = 2.000
MACH = .900 ELEVON = 10.000
DELZ/D = -1.000

RUN NO. 2081/ 0 RN/L = 6.30 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
.000	-8.000	-.28230	.22420	-.00900	.01150	.00040	.12000	.07050
.000	-6.000	-.21870	.17720	-.00850	.01060	.00050	.12390	.06720
.000	-4.000	-.16210	.14220	-.00560	.00860	.00070	.12610	.06460
.000	-2.000	-.10370	.10150	-.00520	.00740	.00020	.12420	.06270
.000	.000	-.04560	.05300	-.00550	.00740	-.00010	.12210	.06220
.000	2.000	.02500	-.01850	-.00720	.01100	-.00080	.12370	.05680
.000	4.000	.08640	-.07240	-.00790	.01320	-.00100	.12160	.05270
.000	6.000	.14610	-.11700	-.00850	.01360	-.00170	.12290	.04950
.000	8.000	.20780	-.16120	-.00790	.01110	-.00210	.12000	.04700
	GRADIENT	.03128	-.02746	-.00031	.00064	-.00022	-.00052	-.00149

RUN NO. 2082/ 0 RN/L = 6.23 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
.500	-8.000	-.25520	.17760	-.01280	.01320	.00060	.12100	.06620
.500	-6.000	-.19790	.14260	-.01080	.01170	.00070	.12500	.06340
.500	-4.000	-.14460	.11400	-.01070	.01390	.00060	.12800	.06050
.500	-2.000	-.09220	.08040	-.00960	.01340	.00040	.12500	.06260
.500	.000	-.03650	.03890	-.00750	.01000	.00000	.12160	.06440
.500	2.000	.02630	-.02350	-.00940	.01340	-.00080	.12010	.06140
.500	4.000	.08610	-.07450	-.01560	.00990	-.00110	.11770	.05930
.500	6.000	.13970	-.11230	-.00440	.00800	-.00140	.11480	.05930
.500	8.000	.19710	-.15380	-.00800	.00620	-.00180	.10970	.06010
	GRADIENT	.02699	-.02404	.00052	-.00040	-.00023	-.00123	-.00019

MSFC 558 (MA9F) NR ATP (T3)(S1)/(O1) (R78T13) (29 JAN 73)

REFERENCE DATA

SREF = 3220.0000 SQ.FT. XMRP = .0000
LREF = 1328.0000 INCHES YMRP = .0000
BREF = 1328.0000 INCHES ZMRP = -61.5000 INCHES
SCALE = 100.0000 PER

PARAMETRIC DATA

BETA = .000 ORBINC = .000
MACH = 1.200 ELEVON = .000
DELZ/D = -.520

RUN NO. 2072/ 0 RN/L = 6.58 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
-.500	-8.000	-.31340	.25120	-.00840	.00910	.00010	.17380	.10220
-.500	-6.000	-.24020	.19790	-.00860	.00960	.00010	.17710	.09520
-.500	-4.000	-.17650	.15260	-.00800	.00880	.00000	.17950	.08990
-.500	-2.000	-.11820	.11550	-.00760	.00840	.00000	.18260	.08400
-.500	.000	-.06390	.08760	-.00610	.00670	-.00020	.18100	.07790
-.500	2.000	-.00730	.04810	-.00620	.00790	-.00090	.17610	.07230
-.500	4.000	.05130	.00730	-.00480	.00410	-.00110	.17790	.06580
-.500	6.000	.10630	-.02220	-.00260	.00040	-.00140	.17790	.06130
-.500	8.000	.17120	-.06430	-.00190	-.00050	-.00160	.17530	.05820
	GRADIENT	.02832	-.01790	.00039	-.00049	-.00015	-.00048	-.00300

RUN NO. 2071/ 0 RN/L = 6.57 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
.000	-8.000	-.29130	.20520	-.01150	.01450	.00040	.16770	.10930
.000	-6.000	-.22100	.15320	-.01100	.01500	.00060	.16990	.10510
.000	-4.000	-.16120	.11720	-.01030	.01490	.00050	.17190	.10140
.000	-2.000	-.11010	.09320	-.00830	.01200	.00040	.17370	.09710
.000	.000	-.06390	.07570	-.00480	.00670	.00020	.17250	.09210
.000	2.000	-.01340	.04560	-.00390	.00840	-.00010	.17140	.08390
.000	4.000	.04090	.01390	-.00320	.00400	-.00050	.17090	.07860
.000	6.000	.09190	-.01240	-.00160	.00130	-.00110	.17110	.07520
.000	8.000	.15280	-.05270	-.00050	-.00020	-.00150	.16970	.07320
	GRADIENT	.02504	-.01271	.00083	-.00127	-.00012	-.00022	-.00294

RUN NO. 2075/ 0 RN/L = 6.58 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
.500	-8.000	-.27390	.17610	-.01590	.02090	.00030	.17160	.09450
.500	-6.000	-.20980	.13340	-.01430	.01930	.00040	.17350	.09290
.500	-4.000	-.15180	.09780	-.01160	.01630	.00030	.17370	.09190
.500	-2.000	-.10040	.07100	-.00990	.01510	.00000	.17300	.09090
.500	.000	-.05690	.05390	-.00860	.01360	-.00010	.17090	.09050
.500	2.000	-.00560	.02080	-.00880	.01420	-.00070	.16600	.08840
.500	4.000	.04610	-.01370	-.00740	.01100	-.00140	.16550	.08450
.500	6.000	.10020	-.05050	-.00380	.00520	-.00190	.16150	.08400
.500	8.000	.16120	-.09550	-.00150	.00170	-.00150	.15910	.08330
	GRADIENT	.02453	-.01368	.00047	-.00054	-.00020	-.00117	-.00087

MSFC 558 (MA9F) NR ATP (T3)(S1)/(O1) (R78T14) (29 JAN 73)

REFERENCE DATA

SREF = 3220.0000 SQ.FT. XMRP = .0000
LREF = 1328.0000 INCHES YMRP = .0000
BREF = 1328.0000 INCHES ZMRP = -61.5000 INCHES
SCALE = 100.0000 PER

PARAMETRIC DATA

BETA = .000 ORBINC = .000
MACH = 1.200 ELEVON = .000
DELZ/D = -1.000

RUN NO. 2094/ 0 RN/L = 6.55 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
-1.000	-8.000	-.30760	.25700	-.00720	.00960	-.00040	.16470	.06890
-1.000	-6.000	-.22790	.18600	-.00800	.01120	-.00020	.16520	.06320
-1.000	-4.000	-.15580	.12700	-.00880	.01250	-.00040	.16400	.07820
-1.000	-2.000	-.08720	.07380	-.00890	.01230	-.00040	.16350	.07160
-1.000	.000	-.02110	.02760	-.00660	.00950	-.00010	.17780	.06620
-1.000	2.000	.04720	-.02810	-.00460	.00770	-.00070	.17050	.06170
-1.000	4.000	.10980	-.07070	-.00370	.00490	-.00130	.17060	.05510
-1.000	6.000	.17550	-.11430	-.00570	.00700	-.00160	.16910	.05040
-1.000	8.000	.24680	-.16630	-.00610	.00760	-.00190	.16670	.04550
	GRADIENT	.03328	-.02486	.00072	-.00099	-.00010	-.00199	-.00262

RUN NO. 2068/ 0 RN/L = 6.57 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
-.500	-8.000	-.31870	.26340	-.00620	.00980	-.00020	.18180	.09410
-.500	-6.000	-.24300	.20010	-.00760	.00980	.00000	.18370	.08890
-.500	-4.000	-.17540	.14940	-.00800	.01060	.00000	.18540	.08330
-.500	-2.000	-.11380	.10730	-.00850	.01060	-.00020	.18540	.07830
-.500	.000	-.05790	.07320	-.00960	.01270	-.00050	.18300	.07200
-.500	2.000	.00580	.02740	-.00630	.00920	-.00100	.17720	.06540
-.500	4.000	.06790	-.01530	-.00450	.00520	-.00120	.17830	.05790
-.500	6.000	.12870	-.05410	-.00540	.00600	-.00160	.17680	.05270
-.500	8.000	.19780	-.10090	-.00660	.00750	-.00190	.17310	.04840
	GRADIENT	.03031	-.02046	.00046	-.00061	-.00018	-.00112	-.00319

RUN NO. 2067/ 0 RN/L = 6.61 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
.000	-8.000	-.30480	.23530	-.00910	.01180	.00000	.17690	.09810
.000	-6.000	-.22860	.17430	-.00770	.01080	.00010	.17880	.09380
.000	-4.000	-.16340	.12800	-.00730	.01070	.00020	.17990	.09030
.000	-2.000	-.10710	.09310	-.00770	.01080	.00000	.18130	.08630
.000	.000	-.05010	.06040	-.00450	.00610	-.00030	.18030	.08160
.000	2.000	.00510	.02360	-.00390	.00620	-.00100	.17830	.07610
.000	4.000	.06080	-.00910	-.00230	.00310	-.00110	.17820	.07090
.000	6.000	.11390	-.04000	-.00270	.00320	-.00150	.17760	.06560
.000	8.000	.17640	-.07830	-.00260	.00350	-.00200	.17570	.06060
	GRADIENT	.02803	-.01719	.00069	-.00098	-.00018	-.00032	-.00245

MSFC 558 (MA9F) NR ATP (T3)(S1)/(O1) (R78T14) (29 JAN 73)

REFERENCE DATA

SREF = 3220.0000 SQ.FT. XMRP = .0000
LREF = 1328.0000 INCHES YMRP = .0000
BREF = 1328.0000 INCHES ZMRP = -61.5000 INCHES
SCALE = 100.0000 PER

PARAMETRIC DATA

BETA = .000 ORBINC = .000
MACH = 1.200 ELEVON = .000
DELZ/D = -1.000

RUN NO. 2084/ 0 RN/L = 6.74 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
.500	-8.000	-.27390	.18750	-.01310	.01750	.00020	.17360	.09910
.500	-6.000	-.20360	.13560	-.01170	.01610	.00030	.17470	.09720
.500	-4.000	-.14220	.09450	-.01210	.01660	.00030	.17530	.09520
.500	-2.000	-.08790	.06130	-.01140	.01580	.00010	.17410	.09460
.500	.000	-.03760	.03360	-.00940	.01340	-.00010	.17320	.09150
.500	2.000	.01580	.00040	-.00850	.01350	-.00040	.16980	.08720
.500	4.000	.06680	-.02700	-.00760	.01160	-.00060	.16870	.08420
.500	6.000	.12060	-.05870	-.00480	.00760	-.00090	.16760	.08090
.500	8.000	.17920	-.09610	-.00430	.00600	-.00160	.16550	.07840
	GRADIENT	.02608	-.01519	.00059	-.00061	-.00011	-.00088	-.00147

RUN NO. 2095/ 0 RN/L = 6.56 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
1.000	-8.000	-.22490	.10490	-.01140	.01570	.00000	.18140	.08350
1.000	-6.000	-.16240	.06660	-.01180	.01670	.00000	.18150	.08320
1.000	-4.000	-.10850	.03710	-.01250	.01800	.00000	.18000	.08400
1.000	-2.000	-.06360	.01500	-.01220	.01770	.00000	.17720	.08460
1.000	.000	-.01240	-.01460	-.01180	.01700	-.00020	.17340	.08600
1.000	2.000	.03150	-.03890	-.00850	.01310	-.00050	.16890	.08690
1.000	4.000	.07860	-.06700	-.00730	.01100	-.00100	.16680	.08530
1.000	6.000	.12590	-.09410	-.00530	.00840	-.00120	.16380	.08440
1.000	8.000	.17960	-.12870	-.00360	.00570	-.00140	.16070	.08340
	GRADIENT	.02346	-.01310	.00070	-.00093	-.00012	-.00173	.00024

MSFC 558 (MA9F) NR ATP (T3)(S1)/(O1) (R78T15) (29 JAN 73)

REFERENCE DATA

SREF = 3220.0000 SQ.FT. XMRP = .0000
LREF = 1328.0000 INCHES YMRP = .0000
BREF = 1328.0000 INCHES ZMRP = -61.5000 INCHES
SCALE = 100.0000 PER

PARAMETRIC DATA

BETA = .000 ORBINC = .000
MACH = 1.200 ELEVON = .000
DELZ/D = -1.500

RUN NO. 2048/ 0 RN/L = 6.68 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
-1.000	-8.000	-.31830	.27370	-.00370	.00470	-.00060	.18160	.08340
-1.000	-6.000	-.24140	.20880	-.00450	.00640	-.00050	.18270	.07800
-1.000	-4.000	-.17100	.15220	-.00680	.00990	-.00040	.18240	.07370
-1.000	-2.000	-.10410	.10010	-.00580	.00840	-.00020	.18030	.06950
-1.000	.000	-.03590	.05010	-.00260	.00420	-.00010	.17430	.06590
-1.000	2.000	.03320	-.00910	-.00370	.00650	-.00060	.17130	.05930
-1.000	4.000	.10200	-.06100	-.00310	.00540	-.00090	.16830	.05580
-1.000	6.000	.16910	-.10740	-.00220	.00330	-.00150	.16600	.05160
-1.000	8.000	.24270	-.16030	-.00300	.00370	-.00200	.16290	.04700
	GRADIENT	.03416	-.02678	.00047	-.00054	-.00007	-.00186	-.00230

RUN NO. 2047/ 0 RN/L = 6.69 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
-.500	-8.000	-.30490	.25450	-.00570	.00790	-.00050	.18260	.08620
-.500	-6.000	-.22720	.18690	-.00520	.00760	-.00030	.18380	.08360
-.500	-4.000	-.15740	.13070	-.00630	.00890	-.00030	.18510	.07800
-.500	-2.000	-.09240	.08150	-.00620	.00800	-.00030	.18470	.07240
-.500	.000	-.02600	.03440	-.00700	.00940	-.00060	.18150	.06600
-.500	2.000	.04450	-.02360	-.00450	.00760	-.00100	.17490	.06070
-.500	4.000	.11320	-.07640	-.00280	.00400	-.00120	.17390	.05480
-.500	6.000	.17990	-.12250	-.00250	.00290	-.00160	.17190	.05050
-.500	8.000	.25470	-.17580	-.00250	.00250	-.00200	.16750	.04770
	GRADIENT	.03390	-.02597	.00044	-.00051	-.00012	-.00161	-.00291

RUN NO. 2046/ 0 RN/L = 6.73 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
.000	-8.000	-.30800	.24790	-.00810	.01100	-.00030	.17900	.09360
.000	-6.000	-.23070	.18350	-.00740	.01080	-.00010	.18120	.08640
.000	-4.000	-.16310	.13220	-.00760	.01100	-.00010	.18260	.08370
.000	-2.000	-.10090	.08780	-.00720	.01020	-.00020	.18400	.07880
.000	.000	-.04010	.04770	-.00540	.00790	-.00010	.18250	.07340
.000	2.000	.02190	.00100	-.00500	.00780	-.00090	.17930	.06790
.000	4.000	.08630	-.04350	-.00200	.00370	-.00090	.17880	.06130
.000	6.000	.14550	-.07800	-.00190	.00260	-.00140	.17600	.05660
.000	8.000	.21030	-.11840	-.00160	.00140	-.00190	.17090	.05630
	GRADIENT	.03108	-.02191	.00067	-.00065	-.00011	-.00064	-.00277

MSFC 558 (MA9F) NR ATP (T3)(S1)/(O1) (R78T15) (29 JAN 73)

REFERENCE DATA

SREF = 3220.0000 SQ.FT. XMRP = .0000
LREF = 1328.0000 INCHES YMRP = .0000
BREF = 1328.0000 INCHES ZMRP = -61.5000 INCHES
SCALE = 100.0000 PER

PARAMETRIC DATA

ETA = .000 ORBINC = .000
MACH = 1.200 ELEVON = .000
DELZ/D = -1.500

RUN NO. 2045/ 0 RN/L = 6.69 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
.500	-8.000	-.28700	.20860	-.00990	.01350	.00000	.17390	.09940
.500	-6.000	-.21240	.15080	-.00890	.01300	.00010	.17560	.09590
.500	-4.000	-.14680	.10360	-.00900	.01350	.00010	.17780	.09120
.500	-2.000	-.08760	.06440	-.00850	.01240	.00000	.17830	.08730
.500	.000	-.03270	.03140	-.00680	.01060	-.00020	.17770	.08310
.500	2.000	.02590	-.00820	-.00590	.01090	-.00060	.17580	.07710
.500	4.000	.08070	-.04010	-.00320	.00670	-.00100	.17550	.07300
.500	6.000	.13220	-.06370	-.00200	.00410	-.00150	.17340	.07100
.500	8.000	.19060	-.09650	-.00180	.00290	-.00200	.17010	.06870
	GRADIENT	.02642	-.01800	.00071	-.00075	-.00014	-.00036	-.00233

RUN NO. 2044/ 0 RN/L = 6.69 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
1.000	-8.000	-.25890	.16110	-.00990	.01380	.00000	.17640	.08980
1.000	-6.000	-.19390	.11820	-.00900	.01280	.00010	.17630	.08910
1.000	-4.000	-.13230	.07720	-.00820	.01210	.00020	.17610	.08800
1.000	-2.000	-.07580	.04030	-.00900	.01390	.00000	.17570	.08730
1.000	.000	-.02030	.00520	-.00690	.01160	.00000	.17290	.08810
1.000	2.000	.03340	-.03120	-.00610	.01110	-.00040	.17020	.08590
1.000	4.000	.08330	-.05890	-.00520	.00970	-.00080	.16960	.08280
1.000	6.000	.13430	-.08600	-.00300	.00660	-.00110	.16920	.08000
1.000	8.000	.18810	-.11560	-.00180	.00400	-.00150	.16800	.07740
	GRADIENT	.02702	-.01719	.00044	-.00038	-.00012	-.00092	-.00059

MSFC 558 (MA9F) NR ATP (T3)(S1)/(O1) (R76T16) (29 JAN 73)

REFERENCE DATA

SREF = 3220.0000 SQ.FT. XMRP = .0000
LREF = 1328.0000 INCHES YMRP = .0000
BREF = 1328.0000 INCHES ZMRP = -61.5000 INCHES
SCALE = 100.0000 PER

PARAMETRIC DATA

BETA = .000 ORBINC = 2.000
MACH = 1.200 ELEVON = .000
DELZ/D = -.520

RUN NO. 2001/ 0 RN/L = 6.56 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
-.500	-8.000	-.29860	.23340	-.00640	.00630	.00040	.17650	.10540
-.500	-6.000	-.22320	.17160	-.00610	.00630	.00050	.17920	.09760
-.500	-4.000	-.16050	.12550	-.00550	.00560	.00020	.18060	.09250
-.500	-2.000	-.10240	.08750	-.00710	.00680	.00000	.18240	.08760
-.500	.000	-.04680	.05530	-.00520	.00710	-.00020	.18050	.08320
-.500	2.000	.01220	.01180	-.00710	.01330	-.00080	.17740	.07590
-.500	4.000	.07540	-.03250	-.00330	.00520	-.00100	.17940	.06910
-.500	6.000	.13600	-.07160	-.00190	.00970	-.00130	.17750	.06320
-.500	8.000	.20200	-.11580	-.00160	.00080	-.00160	.17380	.06160
	GRADIENT	.02932	-.01958	.00022	.00004	-.00016	-.00037	-.00292

RUN NO. 2002/ 0 RN/L = 6.60 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
.000	-8.000	-.27990	.18400	-.01500	.01470	.00050	.17210	.10360
.000	-6.000	-.20780	.13030	-.01200	.01270	.00060	.17410	.10100
.000	-4.000	-.14490	.08980	-.00960	.01140	.00050	.17470	.10030
.000	-2.000	-.09030	.05900	-.00590	.00680	.00020	.17430	.09760
.000	.000	-.03830	.03390	-.00230	.00210	.00030	.17480	.09180
.000	2.000	.01390	.00060	-.00520	.00730	-.00030	.17450	.08420
.000	4.000	.06660	-.02900	-.00380	.00470	-.00060	.17540	.07980
.000	6.000	.12170	-.05920	.00040	-.00090	-.00090	.17430	.07630
.000	8.000	.18220	-.09840	.00230	-.00350	-.00130	.17210	.07370
	GRADIENT	.02636	-.01480	.00061	-.00064	-.00013	.00008	-.00272

RUN NO. 2003/ 0 RN/L = 6.61 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
.900	-8.000	-.25490	.15060	-.01810	.02150	.00050	.17000	.09720
.900	-6.000	-.19020	.10640	-.01580	.01970	.00050	.17210	.09470
.900	-4.000	-.12880	.06550	-.01260	.01640	.00050	.17250	.09250
.900	-2.000	-.07650	.03390	-.01340	.01820	.00010	.17160	.09070
.900	.000	-.03130	.01510	-.00950	.01460	.00030	.17030	.08980
.900	2.000	.01920	-.01830	-.01010	.01570	-.00070	.16900	.08640
.900	4.000	.07170	-.05140	-.00640	.01040	-.00080	.16700	.08590
.900	6.000	.12610	-.08560	-.00380	.00610	-.00110	.16410	.08420
.900	8.000	.18460	-.12560	-.00270	.00430	-.00150	.16160	.08260
	GRADIENT	.02483	-.01430	.00081	-.00072	-.00017	-.00068	-.00087

MSFC 558 (MA9F) NR ATP (T3)(S1)/(O1) (R78T17) (29 JAN 73)

REFERENCE DATA

SREF = 3220.0000 SQ.FT. XMRP = .0000
LREF = 1328.0000 INCHES YMRP = .0000
BREF = 1328.0000 INCHES ZMRP = -61.5000 INCHES
SCALE = 100.0000 PER

PARAMETRIC DATA

BETA = .000 ORBINC = 2.000
MACH = 1.200 ELEVON = .000
DELZ/D = -1.000

RUN NO. 2034/ 0 RN/L = 6.69 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
-1.000	-8.000	-.32740	.27390	-.00580	.00540	-.00060	.18750	.09810
-1.000	-6.000	-.24740	.20510	-.00590	.00710	-.00030	.18870	.09080
-1.000	-4.000	-.17620	.14830	-.00670	.01000	-.00020	.18790	.08580
-1.000	-2.000	-.10670	.09290	-.00820	.01160	-.00010	.18540	.08180
-1.000	.000	-.04330	.04700	-.00[illegible]1	.00890	-.00020	.18090	.07590
-1.000	2.000	.02760	-.01240	-.00[illegible]40	.01040	-.00090	.17610	.06820
-1.000	4.000	.09210	-.05720	-.00520	.00730	-.00140	.17490	.06110
-1.000	6.000	.15680	-.09920	-.00540	.00660	-.00180	.17180	.05720
-1.000	8.000	.23030	-.15130	-.00560	.00650	-.00220	.16720	.05410
	GRADIENT	.03354	-.02581	.00024	-.00033	-.00016	-.00176	-.00315

RUN NO. 2028/ 0 RN/L = 6.60 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
-.500	-8.000	-.31270	.25530	-.00590	.00620	-.00020	.18490	.09630
-.500	-6.000	-.23450	.18640	-.00450	.00600	.00000	.18580	.09260
-.500	-4.000	-.16440	.13010	-.00590	.00820	.00000	.18690	.08810
-.500	-2.000	-.09850	.07900	-.00850	.01120	.00000	.18620	.08300
-.500	.000	-.03860	.03870	-.00760	.01060	-.00020	.18440	.07870
-.500	2.000	.02700	-.00960	-.00780	.01210	-.00090	.17850	.06960
-.500	4.000	.09040	-.05340	-.00480	.00740	-.00110	.17840	.06270
-.500	6.000	.15120	-.09110	-.00390	.00470	-.00180	.17590	.05800
-.500	8.000	.21960	-.13720	-.00460	.00470	-.00230	.17120	.05420
	GRADIENT	.03175	-.02278	.00016	-.00003	-.00015	-.00123	-.00321

RUN NO. 2027/ 0 RN/L = 6.61 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
.000	-8.000	-.29640	.22300	-.00500	.00580	.00000	.17720	.09880
.000	-6.000	-.22000	.16020	-.00570	.00740	.00000	.17960	.09430
.000	-4.000	-.15440	.11130	-.00670	.00880	.00000	.18010	.09140
.000	-2.000	-.09170	.06790	-.00430	.00570	.00010	.18000	.08870
.000	.000	-.03730	.03600	-.00610	.00730	-.00030	.18160	.08250
.000	2.000	.02440	-.00880	-.00390	.00650	-.00080	.17940	.07880
.000	4.000	.08200	-.04390	-.00350	.00510	-.00110	.17830	.07350
.000	6.000	.13830	-.07590	-.00210	.00250	-.00150	.17790	.06840
.000	8.000	.20190	-.11640	-.00140	.00090	-.00200	.17490	.06370
	GRADIENT	.02944	-.01935	.00034	-.00033	-.00015	-.00021	-.00228

MSFC 558 (MA9F) NR ATP (T3)(S1)/(O1) (R70T17) (29 JAN 73)

REFERENCE DATA

SREF = 3220.0000 SQ.FT. XMRP = .0000
LREF = 1328.0000 INCHES YMRP = .0000
BREF = 1328.0000 INCHES ZMRP = -61.5000 INCHES
SCALE = 100.0000 PER

PARAMETRIC DATA

BETA = .000 ORBINC = 2.000
MACH = 1.200 ELEVON = .000
DELZ/D = -1.000

RUN NO. 2026/ 0 RN/L = 6.61 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
.500	-8.000	-.27790	.18420	-.00950	.01310	-.00010	.17570	.10010
.500	-6.000	-.20300	.12660	-.00770	.01140	.00020	.17580	.09650
.500	-4.000	-.13780	.08040	-.00710	.01120	.00040	.17630	.09590
.500	-2.000	-.07940	.04090	-.00700	.01080	.00000	.17550	.09360
.500	.000	-.02960	.01420	-.00570	.00930	.00010	.17630	.09000
.500	2.000	.02810	-.02400	-.00660	.01170	-.00050	.17290	.08590
.500	4.000	.07860	-.04930	-.00620	.01040	-.00110	.17200	.08310
.500	6.000	.13130	-.07790	-.00480	.00820	-.00150	.17020	.07940
.500	8.000	.18920	-.11330	-.00340	.00590	-.00190	.16770	.07690
	GRADIENT	.02701	-.01623	.00011	-.00004	-.00017	-.00056	-.00167

RUN NO. 2033/ 0 RN/L = 6.60 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
1.000	-8.000	-.23930	.12240	-.00980	.01310	.00020	.17950	.08780
1.000	-6.000	-.17220	.07800	-.00920	.01270	.00020	.17920	.08730
1.000	-4.000	-.11390	.04170	-.01100	.01610	.00020	.17830	.08660
1.000	-2.000	-.06010	.00890	-.00970	.01500	.00030	.17550	.08750
1.000	.000	-.00950	-.02130	-.00980	.01480	-.00010	.17400	.08710
1.000	2.000	.04420	-.05860	-.00760	.01270	-.00030	.17110	.08670
1.000	4.000	.09200	-.08250	-.00720	.01270	-.00100	.16930	.08500
1.000	6.000	.14070	-.10950	-.00620	.01060	-.00160	.16670	.08340
1.000	8.000	.19380	-.14160	-.00510	.00880	-.00180	.16350	.08230
	GRADIENT	.02580	-.01579	.00057	-.00045	-.00015	-.00112	-.00022

MSFC 558 (MA9F) NR ATP (T3)(S1)/(O1) (R78T18) (29 JAN 73)

REFERENCE DATA

SREF = 3220.0000 SQ.FT. XMRP = .0000
LREF = 1328.0000 INCHES YMRP = .0000
BREF = 1328.0000 INCHES ZMRP = -61.5000 INCHES
SCALE = 100.0000 PER

PARAMETRIC DATA

BETA = .000 ORBINC = 2.000
MACH = 1.200 ELEVON = .000
DELZ/D = -1.500

RUN NO. 2042/ 0 RN/L = 8.61 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
-1.000	-8.000	-.32180	.27620	-.00700	.00900	-.00050	.18430	.08410
-1.000	-6.000	-.24480	.20880	-.00820	.01100	-.00040	.18550	.08000
-1.000	-4.000	-.17230	.14920	-.00770	.01070	-.00030	.18490	.07620
-1.000	-2.000	-.10310	.09410	-.00610	.00830	-.00010	.18240	.07220
-1.000	.000	-.03590	.04500	-.00400	.00550	-.00020	.17620	.06800
-1.000	2.000	.03590	-.01710	-.00600	.00910	-.00060	.17370	.06140
-1.000	4.000	.10440	-.06920	-.00510	.00730	-.00120	.16980	.05920
-1.000	6.000	.17480	-.12010	-.00450	.00570	-.00190	.16800	.05600
-1.000	8.000	.25130	-.17780	-.00540	.00630	-.00250	.16470	.05250
	GRADIENT	.03462	-.02740	.00027	-.00030	-.00011	-.00194	-.00224

RUN NO. 2039/ 0 RN/L = 8.59 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
-.500	-8.000	-.31800	.26730	-.00620	.00670	-.00040	.18420	.08930
-.500	-6.000	-.23830	.19850	-.00500	.00680	-.00010	.18520	.08480
-.500	-4.000	-.16730	.14130	-.00550	.00780	.00000	.18620	.07960
-.500	-2.000	-.09960	.08600	-.00780	.01010	.00000	.18620	.07340
-.500	.000	-.03480	.03960	-.00570	.00760	-.00020	.18250	.06850
-.500	2.000	.03390	-.01630	-.00670	.00980	-.00110	.17760	.06190
-.500	4.000	.10330	-.07010	-.00700	.00990	-.00100	.17590	.05770
-.500	6.000	.17330	-.12070	-.00440	.00560	-.00150	.17200	.05600
-.500	8.000	.25000	-.17800	-.00260	.00250	-.00210	.16670	.05340
	GRADIENT	.03373	-.02625	-.00010	.00019	-.00015	-.00146	-.00277

RUN NO. 2038/ 0 RN/L = 8.58 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
.000	-8.000	-.30510	.24470	-.00830	.01150	.00000	.18100	.09400
.000	-6.000	-.22650	.17620	-.00850	.01180	.00000	.18340	.08890
.000	-4.000	-.15840	.12260	-.00660	.01150	.00000	.18400	.08500
.000	-2.000	-.09620	.07600	-.00610	.01040	.00000	.18410	.08130
.000	.000	-.03340	.03420	-.00570	.00780	.00000	.18350	.07440
.000	2.000	.03310	-.01810	-.00640	.00970	-.00070	.18150	.06700
.000	4.000	.09650	-.06170	-.00410	.00810	-.00100	.17940	.06250
.000	6.000	.15870	-.10080	-.00270	.00390	-.00130	.17740	.05820
.000	8.000	.22500	-.14430	-.00330	.00420	-.00160	.17260	.05370
	GRADIENT	.03195	-.02313	.00053	-.00058	-.00013	-.00039	-.00297

MSFC 558 (MA9F) NR ATP (T3)(S1)/(O1) (R78T16) (29 JAN 73)

REFERENCE DATA

SREF = 3220.0000 SQ.FT. XMRP = .0000
LREF = 1328.0000 INCHES YMRP = .0000
BREF = 1328.0000 INCHES ZMRP = -61.5000 INCHES
SCALE = 100.0000 PER

PARAMETRIC DATA

BETA = .000 ORBINC = 2.000
MACH = 1.200 ELEVON = .000
DELZ/D = -1.500

RUN NO. 2035/ 0 RN/L = 6.60 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
.900	-8.000	-.28650	.20560	-.00940	.01340	.00000	.17570	.09980
.900	-6.000	-.21300	.14570	-.00950	.01390	.00020	.17700	.09670
.900	-4.000	-.14580	.09580	-.00990	.01450	.00030	.17780	.09320
.900	-2.000	-.08190	.04910	-.00970	.01400	.00020	.17780	.08860
.900	.000	-.02460	.01320	-.00820	.01180	.00000	.17850	.08230
.900	2.000	.03690	-.02980	-.00650	.01120	-.00030	.17890	.07610
.900	4.000	.09470	-.06610	-.00550	.00970	-.00080	.17660	.07050
.900	6.000	.15150	-.09830	-.00600	.00840	-.00160	.17670	.06550
.900	8.000	.21230	-.13380	-.00470	.00560	-.00200	.17350	.06310
	GRADIENT	.02999	-.02013	.00060	-.00062	-.00013	-.00016	-.00289

RUN NO. 2043/ 0 RN/L = 6.60 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
1.000	-8.000	-.26470	.16950	-.01090	.01430	.00000	.17460	.09310
1.000	-6.000	-.19600	.11930	-.01120	.01500	.00000	.17500	.09240
1.000	-4.000	-.13120	.07270	-.01060	.01530	.00000	.17510	.09170
1.000	-2.000	-.07060	.03010	-.01010	.01550	.00000	.17480	.08990
1.000	.000	-.01290	-.00640	-.00890	.01310	.00000	.17360	.08870
1.000	2.000	.04360	-.04700	-.00890	.01200	-.00050	.17280	.08410
1.000	4.000	.09800	-.07870	-.00760	.01250	-.00100	.17310	.08000
1.000	6.000	.15080	-.10660	-.00570	.01000	-.00150	.17240	.07660
1.000	8.000	.21070	-.14280	-.00290	.00620	-.00190	.17070	.07330
	GRADIENT	.02664	-.01899	.00048	-.00046	-.00012	-.00030	-.00146

MSFC 558 (MA9F) NR ATP (T3)(S1)/(O1) (R78T19) (29 JAN 73)

REFERENCE DATA

SREF = 3220.0000 SQ.FT. XMRP = .0000
LREF = 1328.0000 INCHES YMRP = .0000
BREF = 1328.0000 INCHES ZMRP = -61.5000 INCHES
SCALE = 100.0000 PER

PARAMETRIC DATA

BETA = .000 ORBINC = .000
MACH = 1.200 ELEVON = 1.000
DELZ/D = -.520

RUN NO. 2006/ 0 RN/L = 6.60 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
-.500	-8.070	-.21570	.15720	-.00690	.00430	.00000	.07720	.06260
-.500	-5.910	-.11790	.08170	-.00620	.00380	.00000	.08190	.06190
-.500	-3.760	-.01640	.00390	-.00650	.00390	-.00050	.08370	.06270
-.500	-1.610	.08550	-.07400	-.00690	.00420	-.00150	.08620	.06230
-.500	.530	.20620	-.16660	-.00490	.00320	-.00060	.08990	.05970
-.500	.540	.19500	-.15790	-.00600	.00390	-.00130	.08940	.06120
-.500	2.720	.30020	-.23710	-.00570	.00370	-.00110	.09050	.06160
-.500	4.880	.41040	-.32160	-.00630	.00450	-.00060	.09480	.06060
-.500	7.020	.49600	-.38510	-.00720	.00510	-.00060	.09800	.05740
-.500	9.060	.55350	-.42650	-.00610	.00470	-.00030	.09920	.05650
	GRADIENT	.04952	-.03774	.00007	.00003	.00001	.00123	-.00023

RUN NO. 2005/ 0 RN/L = 6.61 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
.000	-8.000	-.28390	.20570	-.00470	.00810	-.00010	.17660	.09050
.000	-6.000	-.21620	.15710	-.00590	.00830	.00050	.17920	.08670
.000	-4.000	-.16180	.12530	-.00810	.00860	.00030	.18190	.08250
.000	-2.000	-.10820	.09470	-.00570	.00780	.00000	.18390	.07800
.000	.000	-.05570	.07030	-.00300	.00430	-.00010	.18180	.07440
.000	2.000	-.00420	.03660	-.00780	.01140	-.00120	.18140	.06860
.000	4.000	.05170	.00310	-.00430	.00560	-.00140	.18100	.06190
.000	6.000	.10690	-.02930	-.00170	.00180	-.00180	.18120	.05680
.000	8.000	.16770	-.06860	-.00040	.00000	-.00230	.17850	.05390
	GRADIENT	.02655	-.01502	.00007	-.00010	-.00023	-.00022	-.00263

RUN NO. 2004/ 0 RN/L = 6.60 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
.500	-8.000	-.26860	.18300	-.00720	.00890	.00020	.17820	.08980
.500	-6.000	-.20450	.13890	-.00780	.01080	.00050	.17900	.08740
.500	-4.000	-.14790	.10300	-.01030	.01390	.00090	.17960	.08480
.500	-2.000	-.09370	.07080	-.00790	.01200	.00030	.17920	.08350
.500	.000	-.04440	.04750	-.00590	.01030	.00000	.17680	.08200
.500	2.000	.00280	.01730	-.00920	.01610	-.00100	.17490	.07860
.500	4.000	.05400	-.01590	-.00780	.01260	-.00150	.17160	.07320
.500	6.000	.09610	-.02920	-.00330	.00640	-.00180	.16960	.07250
.500	8.000	.14810	-.05660	-.00100	.00310	-.00210	.16670	.07210
	GRADIENT	.02501	-.01495	.00018	.00009	-.00026	-.00102	-.00148

MSFC 558 (MA9F) NR ATP (T3)(S1)/(O1) (R70T20) (29 JAN 73)

REFERENCE DATA

SREF = 3220.0000 SQ.FT. XMRP = .0000
LREF = 1328.0000 INCHES YMRP = .0000
BREF = 1328.0000 INCHES ZMRP = -61.5000 INCHES
SCALE = 100.0000 PER

PARAMETRIC DATA

BETA = .000 ORBINC = .000
MACH = 1.200 ELEVON = 10.000
DELZ/D = -1.000

RUN NO. 2029/ 0 RN/L = 6.61 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
.000	-8.000	-.29480	.22350	-.00970	.01270	.00010	.17500	.09600
.000	-6.000	-.21960	.16260	-.00940	.01230	.00010	.17610	.09240
.000	-4.000	-.15480	.11520	-.00850	.01120	.00010	.17710	.08790
.000	-2.000	-.09630	.07430	-.00670	.00900	.00020	.17980	.08200
.000	.000	-.03530	.03580	-.00450	.00520	.00000	.17780	.07590
.000	2.000	.02150	-.00240	-.00360	.00800	-.00090	.17450	.08990
.000	4.000	.07590	-.03470	-.00630	.00920	-.00120	.17550	.08200
.000	6.000	.13390	-.06570	-.00370	.00520	-.00160	.17430	.09690
.000	8.000	.19710	-.10400	-.00180	.00240	-.00190	.17150	.09170
	GRADIENT	.02896	-.01682	.00028	-.00020	-.00018	-.00043	-.00319

RUN NO. 2030/ 0 RN/L = 6.61 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
.900	-8.000	-.28770	.20970	-.01000	.01370	-.00010	.17670	.09180
.900	-6.000	-.21750	.15660	-.01090	.01900	.00000	.17840	.08680
.900	-4.000	-.15300	.10970	-.01020	.01470	.00000	.17980	.08510
.900	-2.000	-.09360	.06870	-.00940	.01480	.00000	.18080	.08040
.900	.000	-.04000	.04000	-.00720	.01210	-.00010	.18010	.07570
.900	2.000	.01320	.00250	-.00710	.01260	-.00080	.17770	.07120
.900	4.000	.06890	-.02870	-.00500	.00880	-.00110	.17740	.06660
.900	6.000	.12160	-.05690	-.00370	.00670	-.00160	.17650	.06150
.900	8.000	.17540	-.08580	-.00310	.00550	-.00210	.17420	.05640
	GRADIENT	.02774	-.01715	.00063	-.00060	-.00015	-.00038	-.00231

REFERENCE DATA

SREF = 3220.0000 SQ.FT. XMRP = .0000
LREF = 1328.0000 INCHES YMRP = .0000
BREF = 1328.0000 INCHES ZMRP = -61.5000 INCHES
SCALE = 100.0000 PER

PARAMETRIC DATA

BETA = .000 ORBINC = .000
MACH = 1.200 ELEVON = -20.000
DELZ/D = -.520

RUN NO. 2007/ 0 RN/L = 5.61 GRADIENT INTERVAL = -5.00/ 5.00

DEL X/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
-.500	-8.400	-.66290	.56290	.00500	-.00670	.00050	.13520	.04510
-.500	-6.250	-.58120	.50250	.00460	-.00690	.00010	.13190	.04620
-.500	-4.110	-.49580	.43840	.00500	-.00740	-.00050	.12860	.04680
-.500	-1.970	-.40720	.37260	.00560	-.00790	-.00100	.12500	.04780
-.500	.150	-.30850	.29880	.00510	-.00750	-.00150	.12240	.04850
-.500	.180	-.30520	.29660	.00640	-.00850	-.00140	.12300	.04840
-.500	2.350	-.21050	.22520	.00500	-.00750	-.00160	.11960	.04970
-.500	4.460	-.10660	.14580	.00780	-.00960	-.00190	.11530	.05020
-.500	6.650	-.00430	.06660	.00630	-.00810	-.00250	.10750	.05040
-.500	8.710	.08130	.01600	.00600	-.00720	-.00200	.10140	.05050
	GRADIENT	.04544	-.03414	.00023	-.00019	-.00016	-.00149	.00042

RUN NO. 2008/ 0 RN/L = 6.60 GRADIENT INTERVAL = -5.00/ 5.00

DEL X/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
.000	-8.400	-.65910	.56270	.00520	-.00710	-.00020	.13990	.04390
.000	-6.240	-.57440	.50080	.00660	-.00830	-.00090	.13630	.04550
.000	-4.080	-.49190	.44040	.00590	-.00800	-.00140	.13410	.04570
.000	-1.950	-.40830	.37660	.00600	-.00810	-.00170	.12940	.04720
.000	.170	-.31430	.30830	.00660	-.00860	-.00180	.12570	.04740
.000	2.340	-.20670	.22890	.00610	-.00810	-.00190	.11930	.04770
.000	4.490	-.10240	.14640	.00600	-.00820	-.00200	.11250	.04820
.000	6.690	.00960	.05940	.00510	-.00890	-.00240	.10410	.04870
.000	8.790	.09400	-.00510	.00460	-.00830	-.00220	.09910	.04890
	GRADIENT	.04565	-.03446	.00001	-.00002	-.00005	-.00248	.00026

RUN NO. 2009/ 0 RN/L = 6.61 GRADIENT INTERVAL = -5.00/ 5.00

DEL X/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
.500	-8.370	-.62960	.53720	.00450	-.00650	.00010	.13920	.04590
.500	-6.210	-.54070	.47050	[illegible]	-.00720	-.00090	.13640	.04700
.500	-4.040	-.44770	.40190	.00650	-.00870	-.00140	.13270	.04830
.500	-1.900	-.36640	.34310	.00680	-.00910	-.00200	.12880	.05030
.500	.220	-.27040	.27220	.00640	-.00890	-.00220	.12540	[illegible]
.500	2.420	-.17550	.20190	.00720	-.00920	-.00200	.11900	.05090
.500	4.510	-.07910	.12840	.00590	-.00790	-.00270	.11050	.05210
.500	6.700	.02680	.04610	.00510	-.00700	-.00300	.10070	.05240
.500	8.810	.11780	-.02420	.00480	-.00620	-.00250	.09230	.05200
	GRADIENT	.04333	-.03213	-.00004	.00007	-.00012	-.00253	.00038

MSFC 558 (MA9F) NR ATP (T3)(S1)/(O1) (R78T22) (29 JAN 73)

REFERENCE DATA

SREF = 3220.0000 SQ.FT. XMRP = .0000
LREF = 1328.0000 INCHES YMRP = .0000
BREF = 1328.0000 INCHES ZMRP = -61.5000 INCHES
SCALE = 100.0000 PER

PARAMETRIC DATA

BETA = .000 ORBINC = .000
MACH = 1.200 ELEVON = -20.000
DELZ/D = -1.000

RUN NO. 2032/ 0 RN/L = 6.61 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
.000	-8.540	-.71710	.59640	.01190	-.01250	.00070	.13550	.04410
.000	-6.360	-.62540	.53070	.01270	-.01340	.00040	.13280	.04530
.000	-4.170	-.52460	.45740	.01330	-.01350	.00000	.12890	.04740
.000	-2.000	-.42280	.38270	.01320	-.01330	-.00060	.12430	.04750
.000	.130	-.32120	.30730	.01290	-.01310	-.00080	.12070	.04910
.000	.140	-.31740	.30450	.01460	-.01430	-.00090	.12090	.04920
.000	2.340	-.20600	.22190	.01290	-.01280	-.00040	.11550	.05030
.000	4.480	-.08750	.13310	.01300	-.01270	-.00060	.10980	.05110
.000	6.740	.04210	.05470	.01180	-.01140	-.00130	.10170	.05070
.000	8.880	.15380	-.04930	.00860	-.00840	-.00080	.09430	.05010
	GRADIENT	.09042	-.05741	-.00004	.00010	-.00006	-.00217	.00047

RUN NO. 2031/ 0 RN/L = 6.61 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
.500	-8.570	-.71860	.59340	.01180	-.01260	.00170	.13630	.04690
.500	-6.370	-.62470	.52570	.01450	-.01490	.00100	.13430	.04700
.500	-4.190	-.52000	.44950	.01560	-.01580	.00100	.12980	.04840
.500	-2.010	-.41320	.37110	.01500	-.01540	.00020	.12540	.04990
.500	.140	-.30420	.29220	.01550	-.01540	-.00030	.11750	.05160
.500	.150	-.29900	.28800	.01700	-.01650	-.00070	.11790	.05100
.500	2.360	-.18640	.20610	.01440	-.01440	-.00080	.11180	.05270
.500	4.510	-.07830	.12150	.01470	-.01390	-.00070	.10470	.05350
.500	6.740	.05770	.02250	.01140	-.01120	-.00110	.09610	.05440
.500	8.910	.17420	-.06420	.00960	-.00890	-.00100	.08930	.05370
	GRADIENT	.09095	-.05731	-.00011	.00022	-.00020	-.00284	.00060

MSFC 558 (MA9F) NR ATP (T3)(S1)/(O1) (R78T23) (29 JAN 73)

REFERENCE DATA

SREF = 3220.0000 SQ.FT. XMRP = .0000
LREF = 1328.0000 INCHES YMRP = .0000
BREF = 1328.0000 INCHES ZMRP = -61.5000 INCHES
SCALE = 100.0000 PER

PARAMETRIC DATA

BETA = .000 ORBINC = 2.000
MACH = 1.200 ELEVON = 10.000
DELZ/D = -.520

RUN NO. 2079/ 0 RN/L = 6.59 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
.000	-8.000	-.32790	.27180	-.00760	.01040	.00000	.17590	.09440
.000	-6.000	-.26030	.22430	-.00850	.01200	.00020	.17900	.08970
.000	-4.000	-.20410	.19230	-.00900	.01270	.00010	.18230	.08420
.000	-2.000	-.15310	.16770	-.00850	.01170	.00000	.18440	.07930
.000	.000	-.10600	.14780	-.00530	.00710	-.00030	.18270	.07490
.000	2.000	-.05380	.11480	-.00600	.00850	-.00090	.18010	.06760
.000	4.000	.00190	.07900	-.00500	.00620	-.00120	.18040	.06050
.000	6.000	.05410	.05010	-.00270	.00230	-.00160	.17910	.05740
.000	8.000	.11430	.00920	-.00160	.00060	-.00200	.17690	.05460
	GRADIENT	.02556	-.01397	.00052	-.00081	-.00017	-.00040	-.00296

RUN NO. 2076/ 0 RN/L = 6.56 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
00	-8.000	-.29950	.22380	-.01240	.01680	.00010	.17510	.09170
.900	-6.000	-.23340	.17870	-.01250	.01760	.00040	.17600	.09010
.900	-4.000	-.17710	.14460	-.01270	.01820	.00030	.17710	.08780
.900	-2.000	-.13010	.12270	-.01240	.01860	.00000	.17700	.08610
.900	.000	-.08360	.10350	-.01160	.01810	.00000	.17370	.08500
.900	2.000	-.04050	.08210	-.01210	.01950	-.00050	.17030	.07920
.900	4.000	-.00390	.07450	-.00890	.01300	-.00140	.16550	.07970
.900	6.000	.04340	.04720	-.00490	.00720	-.00170	.16220	.07990
.900	8.000	.10390	.00230	-.00240	.00340	-.00180	.15970	.07840
	GRADIENT	.02180	-.00904	.00039	-.00048	-.00019	-.00149	-.00115

MSFC 558 (MA9F) NR ATP (T3)(S1)/(O1) (R78T24) (29 JAN 73)

REFERENCE DATA

SREF = 3220.0000 SQ.FT. YMRP = .0000
LREF = 1328.0000 INCHES YMRP = .0000
BREF = 1328.0000 INCHES ZMRP = -61.5000 INCHES
SCALE = 100.0000 PER

PARAMETRIC DATA

BETA = .000 ORBINC = 2.000
MACH = 1.200 ELEVON = 10.000
DELZ/D = -1.000

RUN NO. 2080/ 0 RN/L = 6.73 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
.000	-8.000	-.25970	.23780	-.00930	.01340	.00010	.17630	.09220
.000	-6.000	-.22770	.18060	-.01020	.01460	.00010	.17850	.08770
.000	-4.000	-.16470	.13650	-.01020	.01450	.00000	.18040	.08210
.000	-2.000	-.10600	.09940	-.00740	.01070	.00000	.18200	.07560
.000	.000	-.04960	.06660	-.00670	.00980	-.00020	.18110	.06960
.000	2.000	.00450	.03130	-.00610	.00970	-.00090	.17880	.06250
.000	4.000	.06200	-.00440	-.00430	.00670	-.00100	.17980	.05520
.000	6.000	.11870	-.03650	-.00290	.00420	-.00150	.17910	.04950
.000	8.000	.18080	-.07470	-.00200	.00260	-.00190	.17710	.04370
	GRADIENT	.028:9	-.01749	.00066	-.00084	-.00014	-.00022	-.00335

RUN NO. 2083 / 0 RN/L = 6.71 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
.500	-8.000	-.25400	.22280	-.01220	.01650	.00010	.17670	.09000
.500	-6.000	-.22360	.17090	-.01240	.01740	.00040	.17810	.08730
.500	-4.000	-.16140	.12990	-.01220	.01770	.00040	.17970	.08390
.500	-2.000	-.10490	.09300	-.01210	.01790	.00020	.18080	.07960
.500	.000	-.05200	.06460	-.01050	.01630	-.00010	.17880	.07600
.500	2.000	-.00030	.03250	-.00890	.01490	-.00070	.17430	.07140
.500	4.000	.05020	.00450	-.00750	.01210	-.00090	.17300	.06780
.500	6.000	.09680	-.01580	-.00640	.01000	-.00130	.17290	.06500
.500	8.000	.15080	-.04470	-.00440	.00680	-.00160	.17100	.06270
	GRADIENT	.02639	-.01546	.00063	-.00071	-.00017	-.00099	-.00202

MSFC 558 (MA9F) NR ATP (T3)(S1)/(O1) (R78T25) (29 JAN 73)

REFERENCE DATA

SREF = 3220.0000 SQ.FT. XMRP = .0000
LREF = 1326.0000 INCHES YMRP = .0000
BREF = 1326.0000 INCHES ZMRP = -61.5000 INCHES
SCALE = 100.0000 PER

PARAMETRIC DATA

BETA = .000 ORBINC = .000
MACH = 2.000 ELEVON = .000
DELZ/D = -.520

RUN NO. 2121/ 0 RN/L = 6.81 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
-1.000	-8.000	-.37670	.36660	-.00740	.01150	.00030	.16930	.05060
-1.000	-6.000	-.28440	.28440	-.00080	.00280	.00030	.17250	.04910
-1.000	-4.000	-.20720	.22270	.00060	.00110	.00030	.17590	.04660
-1.000	-2.000	-.14290	.17560	.00030	.00030	.00040	.17530	.04330
-1.000	.000	-.08090	.12810	.00010	-.00090	.00040	.17160	.04040
-1.000	2.000	-.01440	.07350	-.00110	.00010	.00020	.16990	.03880
-1.000	4.000	.05260	.02160	-.00130	-.00200	.00010	.16920	.03750
-1.000	6.000	.13090	-.04180	-.00310	-.00120	.00000	.16680	.03460
-1.000	8.000	.23260	-.14170	-.00650	.00320	.00000	.16240	.03300
	GRADIENT	.03240	-.02522	-.00026	-.00032	-.00003	-.00194	-.00113

RUN NO. 2122/ 0 RN/L = 6.81 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
.000	-8.000	-.32430	.27570	-.01160	.01930	-.00170	.17450	.05200
.000	-6.000	-.24630	.21790	.00230	.00060	-.00080	.17280	.05270
.000	-4.000	-.18300	.17420	.00120	-.00010	-.00050	.17450	.05050
.000	-2.000	-.12880	.14350	.00110	-.00110	-.00020	.17350	.04800
.000	.000	-.07930	.12050	.00290	-.00430	-.00030	.17060	.04620
.000	2.000	-.03210	.09870	.00210	-.00530	-.00070	.17140	.04360
.000	4.000	.02120	.06940	.00410	-.00950	-.00050	.17050	.04170
.000	6.000	.06900	.02230	.00060	-.00650	-.00110	.16920	.03990
.000	8.000	.18100	-.06170	-.00210	-.00310	-.00120	.16640	.03800
	GRADIENT	.02525	-.01272	.00034	-.00115	-.00002	-.00050	-.00110

RUN NO. 2118/ 0 RN/L = 6.81 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
1.000	-8.000	-.31160	.23900	-.00700	.00730	-.00110	.16070	.06230
1.000	-6.000	-.22680	.16730	.00150	-.00260	-.00020	.16180	.06050
1.000	-4.000	-.15530	.10690	-.00010	.00120	.00000	.16260	.05790
1.000	-2.000	-.09260	.06340	-.00310	.00580	.00000	.16600	.05560
1.000	.000	-.04460	.04360	-.00130	.00300	-.00010	.16950	.05420
1.000	2.000	-.00250	.03120	.00230	-.00290	-.00030	.16820	.05240
1.000	4.000	.04540	.00220	.00170	-.00200	-.00050	.16850	.05050
1.000	6.000	.08810	-.00920	.00200	-.00560	-.00050	.16790	.04920
1.000	8.000	.15060	-.04820	.00210	-.00730	-.00050	.16500	.04750
	GRADIENT	.02457	-.01208	.00045	-.00075	-.00007	.00070	-.00090

MSFC 558 (MA9F) NR ATP (T3)(S1)/(C1) (R78T25) (29 JAN 73)

REFERENCE DATA

SREF = 3220.0000 SQ.FT. XMRP = .0000
LREF = 1328.0000 INCHES YMRP = .0000
BREF = 1328.0000 INCHES ZMRP = -61.5000 INCHES
SCALE = 100.0000 PER

PARAMETRIC DATA

BETA = .000 ORBINC = .000
MACH = 2.000 ELEVON = .000
DELZ/D = -.520

RUN NO. 2119/ 0 RN/L = 6.80 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
2.000	-8.000	-.25270	.15420	-.00140	.00440	.00060	.14120	.07670
2.000	-6.000	-.19240	.11280	-.00510	.01070	.00020	.14510	.07530
2.000	-4.000	-.13040	.06580	-.00150	.00500	.00000	.14750	.06720
2.000	-2.000	-.06960	01660	-.00020	.00220	-.00010	.15360	.05670
2.000	.000	-.01470	-.02230	.00030	.00170	.00000	.16100	.05160
2.000	2.000	.03380	-.04760	.00360	-.00190	.00030	.16350	.05110
2.000	4.000	.08660	-.08890	.00200	-.00060	.00010	.16360	.04990
2.000	6.000	.12990	-.11380	.00210	-.00140	.00010	.16130	.05070
2.000	8.000	.18110	-.14660	.00070	-.00060	.00010	.15930	.05150
	GRADIENT	.02687	-.01868	.00054	-.00076	.00003	.00210	-.00201

RUN NO. 2120/ 0 RN/L = 6.81 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
3.000	-8.000	-.26880	.17510	-.01230	.02120	-.00030	.17390	.04110
3.000	-6.000	-.19600	.10390	-.01170	.01920	-.00030	.17310	.04080
3.000	-4.000	-.11180	.01930	-.00520	.00870	.00000	.16650	.04120
3.000	-2.000	-.03740	-.05000	.00010	.00090	.00000	.16110	.04200
3.000	.000	.01580	-.08820	.00130	-.00070	-.00010	.16150	.04180
3.000	2.000	.05660	-.11610	.00110	-.00030	-.00010	.16330	.04120
3.000	4.000	.10990	-.16100	.00110	.00010	.00000	.16010	.04170
3.000	6.000	.15400	-.19750	-.00110	.00360	.00000	.15830	.04250
3.000	8.000	.20840	-.24380	-.00050	.00390	.00000	.15290	.04390
	GRADIENT	.02687	-.02133	.00068	-.00092	-.00000	-.00053	.00001

MSFC 558 (MA9F) NR ATP (13)(S1)/(O1) (R78T26) (29 JAN 73)

REFERENCE DATA

SREF = 3220.0000 SQ.FT. XMRP = .0000
LREF = 1328.0000 INCHES YMRP = .0000
BREF = 1328.0000 INCHES ZMRP = -61.5000 INCHES
SCALE = 100.0000 PER

PARAMETRIC DATA

BETA = .000 ORBINC = .000
MACH = 2.000 ELEVON = .000
DELZ/D = -1.000

RUN NO. 2126/ 0 RN/L = 6.81 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
-1.000	-8.000	-.38600	.37690	-.00310	.00710	.00040	.16890	.04990
-1.000	-6.000	-.28320	.27960	.00080	.00150	.00020	.17350	.04850
-1.000	-4.000	-.19480	.19960	.00070	.00100	.00000	.17460	.04690
-1.000	-2.000	-.11750	.13240	.00040	.00020	.00000	.17170	.04430
-1.000	.000	-.04470	.07070	.00200	-.00290	.00020	.16860	.04140
-1.000	2.000	.02820	.00540	.00110	-.00240	.00020	.16860	.03900
-1.000	4.000	.10690	-.06410	-.00090	-.00150	.00000	.17000	.03610
-1.000	6.000	.19260	-.13870	-.00170	-.00110	.00030	.16690	.03440
-1.000	8.000	.29760	-.24110	-.00390	.00240	.00030	.16140	.03250
	GRADIENT	.03745	-.03272	-.00012	-.00038	.00001	-.00061	-.00135

RUN NO. 2125/ 0 RN/L = 6.83 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
.000	-8.000	-.36750	.34470	.00000	.00450	.00000	.17050	.05310
.000	-6.000	-.27200	.25430	-.00260	.00680	.00000	.17600	.05040
.000	-4.000	-.19030	.18620	-.00240	.00530	.00000	.17820	.04820
.000	-2.000	-.12010	.13360	-.00040	.00160	.00010	.17620	.04550
.000	.000	-.05690	.08690	-.00130	.00130	.00010	.17280	.04200
.000	2.000	.01000	.03320	-.00080	.00000	.00000	.16970	.03950
.000	4.000	.07940	-.01980	.00120	-.00370	.00020	.16980	.03670
.000	6.000	.15560	-.07860	-.00080	-.00170	.00030	.16840	.03580
.000	8.000	.25440	-.17190	-.00380	.00270	.00040	.16140	.03360
	GRADIENT	.03347	-.02560	.00034	-.00098	.00002	-.00117	-.00145

RUN NO. 2127/ 0 RN/L = 6.82 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
1.000	-8.000	-.33470	.27780	-.00590	.01140	.00000	.16440	.05930
1.000	-6.000	-.23900	.19020	.00010	.00340	.00010	.16920	.05660
1.000	-4.000	-.16120	.12740	.00100	.00130	.00010	.17300	.05340
1.000	-2.000	-.10090	.08840	.00030	.00100	.00000	.17540	.05010
1.000	.000	-.04940	.06100	.00100	-.00100	.00000	.17510	.04680
1.000	2.000	.00230	.03340	.00060	-.00220	.00000	.17150	.04420
1.000	4.000	.05460	.00460	.00270	-.00580	.00020	.17190	.04200
1.000	6.000	.11390	-.02660	.00110	-.00490	.00020	.17110	.04090
1.000	8.000	.19640	-.09230	-.00120	-.00170	.00010	.16680	.03940
	GRADIENT	.02674	-.01503	.00019	-.00087	.00001	-.00030	-.00136

MSFC 558 (MA9F) NR ATP (T3)(S1)/(01) (R78T26) (29 JAN 73)

REFERENCE DATA

SREF = 3220.0000 SQ.FT. XMRP = .0000
LREF = 1328.0000 INCHES YMRP = .0000
BREF = 1328.0000 INCHES ZMRP = -61.5000 INCHES
SCALE = 100.0000 PER

PARAMETRIC DATA

BETA = .000 ORBINC = .000
MACH = 2.000 ELEVON = .000
DELZ/D = -1.000

RUN NO. 2129/ 0 RN/L = 6.61 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
2.000	-8.000	-.30610	.22670	-.00690	.01270	.00020	.16820	.05380
2.000	-6.000	-.22020	.15030	.00030	.00270	.00000	.17230	.05080
2.000	-4.000	-.14630	.08940	.00120	.00100	.00000	.17230	.05020
2.000	-2.000	-.08220	.04180	.00090	.00160	.00000	.17150	.05130
2.000	.000	-.02680	.00770	.00270	-.00070	.00010	.17060	.05160
2.000	2.000	.01990	-.01490	.00300	-.00230	.00030	.16820	.05130
2.000	4.000	.07240	-.05230	.00370	-.00440	.00010	.16640	.05080
2.000	6.000	.12240	-.07880	.00310	-.00510	.00020	.16850	.04810
2.000	8.000	.18220	-.11270	.00110	-.00340	.00020	.17020	.04420
	GRADIENT	.02697	-.01700	.00036	-.00073	.00002	-.00076	.00006

RUN NO. 2128/ 0 RN/L = 6.61 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
3.000	-8.000	-.29900	.21950	-.00370	.00990	.00000	.16810	.04660
3.000	-6.000	-.21130	.13170	-.00120	.00560	.00000	.16740	.04690
3.000	-4.000	-.13060	.05440	.00000	.00330	.00010	.16520	.04740
3.000	-2.000	-.06470	-.00310	.00100	.00160	.00000	.16490	.04780
3.000	.000	-.00950	-.04600	.00240	-.00070	.00000	.16590	.04820
3.000	2.000	.04090	-.08040	.00160	.00050	.00030	.16430	.04890
3.000	4.000	.09110	-.11620	-.00080	.00350	.00010	.16000	.05010
3.000	6.000	.13480	-.14210	.00040	.00180	.00000	.15930	.05100
3.000	8.000	.18330	-.17020	-.00090	.00310	.00020	.15710	.05200
	GRADIENT	.02745	-.02092	-.00005	-.00003	.00001	-.00055	.00032

MSFC 558 (MA9F) NR ATP (T3)(S1)/(O1) (R78T27) (29 JAN 73)

REFERENCE DATA

SREF = 3220.0000 SQ.FT. XMRP = .0000
LREF = 1328.0000 INCHES YMRP = .0000
BREF = 1328.0000 INCHES ZMRP = -61.5000 INCHES
SCALE = 100.0000 PER

PARAMETRIC DATA

BETA = .000 ORBINC = .000
MACH = 2.000 ELEVON = .000
DELZ/D = -1.500

RUN NO. 2131/ 0 RN/L = 6.81 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
.000	-8.000	-.39280	.38540	.00270	.00120	.00070	.16780	.05280
.000	-6.000	-.28900	.29520	.01140	-.01070	.00040	.17190	.05060
.000	-4.000	-.19760	.21220	.01080	-.01140	.00020	.17400	.04910
.000	-2.000	-.11770	.13310	.00060	-.00040	.00000	.17320	.04710
.000	.000	-.04430	.06680	.00020	-.00080	.00000	.16790	.04540
.000	2.000	.03650	-.01370	.00230	-.00360	.00010	.16570	.04420
.000	4.000	.11080	-.07610	.00200	-.00440	.00000	.16480	.04430
.000	6.000	.20010	-.15900	-.00120	-.00050	.00000	.16330	.04170
.000	8.000	.30600	-.26640	-.00420	.00250	-.00020	.15930	.03920
	GRADIENT	.03855	-.03617	-.00080	.00054	-.00002	-.00130	-.00062

RUN NO. 2130/ 0 RN/L = 6.81 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
1.000	-8.000	-.36540	.33670	-.00210	.00860	.00040	.16770	.05660
1.000	-6.000	-.26730	.24530	.00120	.00300	.00020	.17420	.05420
1.000	-4.000	-.18900	.18270	.00180	.00040	.00010	.17750	.05160
1.000	-2.000	-.12520	.13890	.00120	-.00040	.00000	.17540	.04920
1.000	.000	-.06480	.09410	.00010	-.00010	.00000	.17020	.04710
1.000	2.000	.00430	.03170	-.00140	.00180	.00000	.16570	.04540
1.000	4.000	.07800	-.02740	.00110	-.00210	.00030	.16350	.04650
1.000	6.000	.16360	-.10360	-.00180	.00010	.00000	.15	.04480
1.000	8.000	.27410	-.22280	-.00490	.00430	.00000	.15460	.04000
	GRADIENT	.03317	-.02637	-.00020	-.00014	.00002	-.00189	-.00070

RUN NO. 2132/ 0 RN/L = 6.80 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
2.000	-8.000	-.34690	.30540	-.00470	.01140	.00020	.16550	.05700
2.000	-6.000	-.25890	.22520	.00190	.00120	.00000	.16250	.06250
2.000	-4.000	-.18660	.17400	.00110	.00160	.00000	.15810	.06950
2.000	-2.000	-.12660	.13740	.00050	.00180	.00010	.15670	.06990
2.000	.000	-.07280	.10350	.00200	-.00050	.00030	.15550	.06540
2.000	2.000	-.01890	.06640	.00350	-.00280	.00040	.15640	.05930
2.000	4.000	.03730	.03280	.00400	-.00470	.00040	.15880	.05540
2.000	6.000	.10470	-.01500	.00070	-.00220	.00030	.17110	.04240
2.000	8.000	.19430	-.09430	-.00240	.00060	.00030	.19480	.01470
	GRADIENT	.02610	-.01757	.00044	-.00066	.00005	.00005	-.00194

MSFC 558 (MA9F) NR ATP (T3)(S1)/(O1) (R78T28) (29 JAN 73)

REFERENCE DATA

SREF = 3220.0000 SQ.FT. XMRP = .0000
LREF = 1328.0000 INCHES YMRP = .0000
BREF = 1328.0000 INCHES ZMRP = -61.5000 INCHES
SCALE = 100.0000 PER

PARAMETRIC DATA

BETA = .000 ORBINC = 2.000
MACH = 2.000 ELEVON = .000
DELZ/D = -.520

RUN NO. 2112/ 0 RN/L = 6.76 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
-1.000	-8.000	-.42500	.43070	-.00270	.00640	-.00070	.16590	.04540
-1.000	-6.000	-.32650	.34040	.00070	.00100	-.00050	.16940	.04450
-1.000	-4.000	-.24320	.26970	.00220	-.00090	-.00030	.17360	.04190
-1.000	-2.000	-.16960	.20820	.00290	-.00210	-.00010	.17400	.03750
-1.000	.000	-.10990	.16540	.00090	-.00220	-.00010	.16830	.03460
-1.000	2.000	-.04200	.10530	.00000	-.00120	-.00060	.16490	.03240
-1.000	4.000	.02330	.06000	.00120	-.00440	-.00070	.16630	.03160
-1.000	6.000	.09590	.00650	-.00200	-.00160	-.00170	.16440	.02930
-1.000	8.000	.19740	-.09090	-.00500	.00220	-.00240	.16210	.02800
	GRADIENT	.03303	-.02612	-.00024	-.00030	-.00007	-.00116	-.00128

RUN NO. 2111/ 0 RN/L = 6.81 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
.000	-8.000	-.40030	.37870	-.00480	.01060	-.00150	.16420	.05310
.000	-6.000	-.31000	.30320	.00580	-.00400	-.00060	.16610	.05250
.000	-4.000	-.23750	.24880	.00430	-.00380	-.00020	.17310	.05070
.000	-2.000	-.16530	.22380	.00140	-.00130	-.00010	.17750	.04980
.000	.000	-.14320	.21210	.00020	-.00180	-.00050	.17670	.04730
.000	2.000	-.08970	.16020	.00080	-.00410	-.00100	.17320	.04440
.000	4.000	-.03770	.15300	.00290	-.00790	-.00050	.17050	.04230
.000	6.000	.02600	.11500	.00310	-.00780	-.00080	.17350	.03960
.000	8.000	.11790	.03360	.00270	-.00740	-.00090	.17150	.03790
	GRADIENT	.02476	-.01176	-.00017	-.00055	-.00007	-.00046	-.00111

RUN NO. 2110/ 0 RN/L = 6.82 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
1.000	-8.000	-.34870	.27720	-.00880	.01420	-.00130	.15590	.05690
1.000	-6.000	-.25730	.19520	-.00240	.00640	-.00060	.15780	.05410
1.000	-4.000	-.18310	.13640	-.00130	.00510	-.00030	.16030	.05200
1.000	-2.000	-.12550	.10140	-.00170	.00520	-.00040	.16270	.05060
1.000	.000	-.07510	.07490	-.00350	.00650	-.00040	.16330	.04940
1.000	2.000	-.03540	.06410	-.00010	.00100	-.00020	.16340	.04790
1.000	4.000	.00240	.05310	.00040	.00080	-.00090	.16160	.04850
1.000	6.000	.03980	.04570	.00070	-.00170	-.00060	.16250	.04910
1.000	8.000	.09500	.01560	.00120	-.00430	-.00060	.16170	.04920
	GRADIENT	.02305	-.01019	.00025	-.00064	-.00005	.00016	-.00050

MSFC 558 (MA9F) NR ATP (T3)(S1)/(O1) (R78T28) (29 JAN 73)

REFERENCE DATA

SREF = 3220.0000 SQ.FT. XMRP = .0000
LREF = 1328.0000 INCHES YMRP = .0000
BREF = 1328.0000 INCHES ZMRP = -61.5000 INCHES
SCALE = 100.0000 PER

PARAMETRIC DATA

BETA = .000 ORBINC = 2.000
MACH = 2.000 ELEVON = .000
DELZ/D = -.520

RUN NO. 2109/ 0 RN/L = 6.76 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
2.000	-8.000	-.31530	.22140	.00050	.00340	-.00030	.15610	.05380
2.000	-6.000	-.24300	.16060	-.00210	.00700	-.00030	.16520	.04630
2.000	-4.000	-.16980	.09750	-.00080	.00460	-.00030	.17090	.03750
2.000	-2.000	-.09950	.03520	-.00190	.00570	-.00010	.17150	.03450
2.000	.000	-.03690	-.01690	.00030	.00310	.00000	.16850	.03720
2.000	2.000	.01310	-.04570	.00150	.00160	.00000	.16460	.04110
2.000	4.000	.06240	-.07760	.00290	-.00050	-.00010	.15810	.04270
2.000	6.000	.10840	-.10540	.00300	-.00140	.00000	.15290	.04650
2.000	8.000	.15210	-.13040	.00240	-.00150	-.00010	.14980	.05080
	GRADIENT	.02885	-.02155	.00054	-.00071	.00002	-.00162	.00085

RUN NO. 2108/ 0 RN/L = 6.77 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
3.000	-8.000	-.33030	.23630	-.00400	.01020	-.00010	.17220	.04020
3.000	-6.000	-.25130	.15940	-.00330	.00830	.00000	.17200	.03940
3.000	-4.000	-.17010	.08020	-.00020	.00300	.00000	.16570	.03910
3.000	-2.000	-.09850	.01230	.00140	.00030	.00000	.16110	.03940
3.000	.000	-.04090	-.03690	.00230	-.00090	.00000	.16410	.04000
3.000	2.000	.01230	-.08030	.00170	-.00040	.00000	.16650	.03950
3.000	4.000	.06410	-.12160	.00250	-.00150	.00010	.16380	.04050
3.000	6.000	.12090	-.17170	.00160	-.00080	.00030	.16090	.04180
3.000	8.000	.18270	-.23140	.00260	-.00170	.00030	.15430	.04340
	GRADIENT	.02896	-.02481	.00028	-.00048	.00001	.00008	.00014

MSFC 558 (MA9F) NR ATP (T3)(S1)/(O1) (R78T29) (29 JAN 73)

REFERENCE DATA

SREF = 3220.0000 SQ.FT. XMRP = .0000
LREF = 1328.0000 INCHES YMRP = .0000
BREF = 1328.0000 INCHES ZMRP = -61.5000 INCHES
SCALE = 100.0000 PER

PARAMETRIC DATA

BETA = .000 ORBINC = 2.000
MACH = 2.000 ELEVON = .000
DELZ/D = -1.000

RUN NO. 2104/ 0 RN/L = 6.75 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
-1.000	-8.000	-.39570	.39010	-.00430	.00790	-.00060	.16890	.04520
-1.000	-6.000	-.28980	.29660	-.00060	.00260	-.00050	.17120	.04290
-1.000	-4.000	-.20130	.20640	-.00060	.00230	-.00040	.17330	.03980
-1.000	-2.000	-.12590	.14390	.00070	.00000	-.00010	.17160	.03630
-1.000	.000	-.05220	.07700	.00270	-.00310	.00000	.16660	.03350
-1.000	2.000	.02130	.01270	.00350	-.00510	-.00020	.16750	.03160
-1.000	4.000	.09480	-.04480	.00410	-.00620	-.00040	.16860	.03070
-1.000	6.000	.18140	-.11800	.00430	-.00830	-.00040	.16760	.02800
-1.000	8.000	.29180	-.22340	.00760	-.00920	-.00030	.16430	.02430
	GRADIENT	.03697	-.03168	.00061	-.00110	-.00000	-.00067	-.00115

RUN NO. 2102/ 0 RN/L = 6.74 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
.000	-8.000	-.37490	.35140	-.00600	.01030	-.00110	.16880	.04880
.000	-6.000	-.27620	.25940	-.00320	.00610	-.00090	.17230	.04640
.000	-4.000	-.19760	.19790	-.00190	.00390	-.00060	.17480	.04350
.000	-2.000	-.13320	.15410	.00020	.00070	-.00030	.17440	.03910
.000	.000	-.06980	.10550	.00210	-.00160	-.00020	.16950	.03650
.000	2.000	-.01200	.06760	.00350	-.00370	-.00030	.16780	.03400
.000	4.000	.04930	.02970	.00410	-.00580	-.00070	.16910	.03200
.000	6.000	.12410	-.02620	.00500	-.00680	-.00020	.16680	.03020
.000	8.000	.22300	-.11850	.00790	-.00950	-.00010	.16150	.02740
	GRADIENT	.03075	-.02114	.00076	-.00119	-.00001	-.00090	-.00145

RUN NO. 2105/ 0 RN/L = 6.75 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
1.000	-8.000	-.34940	.29590	-.01030	.01570	-.00060	.16350	.05320
1.000	-6.000	-.25690	.21370	-.00370	.00670	-.00030	.16760	.05060
1.000	-4.000	-.18160	.15620	-.00210	.00420	-.00020	.17090	.04790
1.000	-2.000	-.11800	.11460	.00000	.00130	.00000	.17130	.04480
1.000	.000	-.07060	.09350	.00000	.00040	-.00010	.17280	.04270
1.000	2.000	-.02980	.04340	.00140	-.00160	-.00050	.17050	.04220
1.000	4.000	.01970	.06110	.00350	-.00470	-.00020	.17240	.04090
1.000	6.000	.07520	.03440	.00590	-.00770	-.00040	.17080	.03980
1.000	8.000	.15540	-.02640	.00810	-.00750	-.00090	.16780	.03790
	GRADIENT	.02454	-.01107	.00063	-.00103	-.00002	.00011	-.00062

MSFC 558 (MA9F) NR ATP (T3)(S1)/(O1) (R78T29) (29 JAN 73)

REFERENCE DATA

SREF = 3220.0000 SQ.FT. XMRP = .0000
LREF = 1328.0000 INCHES YMRP = .0000
BREF = 1328.0000 INCHES ZMRP = -61.5000 INCHES
SCALE = 100.0000 PER

PARAMETRIC DATA

BETA = .000 ORBINC = 2.000
MACH = 2.000 ELEVON = .000
DELZ/D = -1.000

RUN NO. 2106/ 0 RN/L = 6.75 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
2.000	-8.000	-.32560	.24600	-.00730	.01120	-.00010	.15690	.05880
2.000	-6.000	-.23690	.16940	-.00340	.00580	-.00010	.15600	.05930
2.000	-4.000	-.16070	.10350	-.00160	.00330	.00000	.15420	.05960
2.000	-2.000	-.09180	.04940	.00060	.00060	.00000	.15370	.05790
2.000	.000	-.03430	.00990	.00170	-.00060	.00000	.15630	.05480
2.000	2.000	.00590	-.00490	.00190	-.00120	.00000	.15820	.05250
2.000	4.000	.04940	-.02790	.00260	-.00210	-.00010	.16090	.05120
2.000	6.000	.09310	-.04670	.00420	-.00420	.00000	.16560	.04830
2.000	8.000	.14920	-.07600	.00650	-.00690	.00020	.17130	.04730
	GRADIENT	.02589	-.01585	.00049	-.00063	-.00001	.00090	-.00111

RUN NO. 2107/ 0 RN/L = 6.75 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
3.000	-8.000	-.32950	.24660	-.00770	.01250	-.00040	.16760	.04310
3.000	-6.000	-.24010	.15730	-.00430	.00730	-.00030	.16660	.04250
3.000	-4.000	-.15440	.07420	-.00190	.00330	-.00010	.16320	.04240
3.000	-2.000	-.07750	.00280	-.00030	.00160	.00010	.16110	.04290
3.000	.000	-.01710	-.04710	.00210	-.00090	.00000	.16280	.04320
3.000	2.000	.02830	-.07780	.00190	-.00040	-.00010	.16300	.04410
3.000	4.000	.07280	-.10490	.00390	-.00320	.00000	.15960	.04430
3.000	6.000	.12460	-.14460	.00520	-.00400	.00010	.15680	.04600
3.000	8.000	.17780	-.18310	.00630	-.00520	.00010	.15630	.04720
	GRADIENT	.02601	-.02193	.00088	-.00077	.00000	-.00027	.00025

MSFC 359 (MA9F) NR ATP (T3)(S1)/(O1) (R78T30) (29 JAN 73)

REFERENCE DATA

SREF = 3220.0000 SQ.FT. XMRP = .0000
LREF = 1328.0000 INCHES YMRP = .0000
BREF = 1328.0000 INCHES ZMRP = -61.5000 INCHES
SCALE = 100.0000 PER

PARAMETRIC DATA

BETA = .000 ORBINC = 2.000
MACH = 2.000 ELEVON = .000
DELZ/D = -1.500

RUN NO. 2096/ 0 RN/L = 6.. GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
-1.000	-8.070	-.18470	.13580	.00630	-.00500	.00130	.08340	.02210
-1.000	-5.920	-.12070	.08780	.00530	-.00400	.00120	.07730	.02370
-1.000	-3.820	-.06260	.04420	.00500	-.00370	00130	.07220	.02470
-1.000	-1.780	.00180	-.00470	.00430	-.00280	.00130	.06600	.02620
-1.000	.410	.06190	-.06420	.00390	-.00250	.00100	.06350	.02570
-1.000	2.620	.17290	-.12970	.00300	-.00220	.00070	.06150	.02590
-1.000	4.740	.25290	-.18660	.00320	-.00150	.00050	.06090	.02630
-1.000	6.940	.33220	-.24140	.00200	-.00050	.00070	.05830	.02760
-1.000	8.980	.38000	-.27460	.00140	.00010	.00050	.05410	.02600
	GRADIENT	.03729	-.02727	-.00019	.00023	-.00010	-.00125	.00013

RUN NO. 2100/ 0 RN/L = 6.77 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
.000	-8.000	-.37840	.36300	-.00870	.01130	-.00060	.16870	.04800
.000	-6.000	-.27440	.26430	-.00190	.00430	-.00050	.17230	.04580
.000	-4.000	-.19200	.19520	-.00030	.00200	-.00050	.17450	.04310
.000	-2.000	-.12070	.13680	.00100	.00080	.00000	.17220	.04010
.000	.000	-.04790	.07000	.00060	.00000	-.00010	.16660	.03680
.000	2.000	.02480	.00440	.00160	-.00190	.00000	.16590	.03680
.000	4.000	.10170	-.06180	.00250	-.00310	-.00020	.16730	.03470
.000	6.000	.19030	-.14300	.00340	-.00480	-.00070	.16470	.03210
.000	8.000	.29400	-.24650	.00430	-.00830	-.00100	.16180	.02910
	GRADIENT	.03664	-.03232	.00032	-.00061	.00001	-.00103	-.00101

RUN NO. 2097/ 0 RN/L = 8.75 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
1.000	-8.000	-.36260	.32990	-.01060	.01660	-.00050	.16720	.05190
1.000	-6.000	-.26330	.24150	-.00430	.00760	-.00040	.17100	.04990
1.000	-4.000	-.18090	.18240	-.00240	.00440	-.00020	.17350	.04720
1.000	-2.000	-.12520	.13760	-.00200	.00370	-.00020	.17330	.04490
1.000	.000	-.06340	.09170	-.00130	.00240	-.00010	.16970	.04320
1.000	2.000	-.00100	.04110	-.00110	.00210	-.00040	.16450	.04250
1.000	4.000	.07040	-.01780	.00090	-.00090	.00000	.16400	.04040
1.000	6.000	.13340	-.09320	.00190	-.00140	-.00050	.16100	.03620
1.000	8.000	.25850	-.19990	.00450	-.00360	-.00040	.15600	.03010
	GRADIENT	.03214	-.02462	.00037	-.00061	.00001	-.00139	-.00079

MSFC 558 (MA) : NR ATP (T3)(S1)/(O1) (R70T30) (29 JAN 73)

REFERENCE DATA

SREF = 3220.0000 SQ.FT. XMRP = .0000
LREF = 1328.0000 INCHES YMRP = .0000
BREF = 1328.0000 INCHES ZMRP = -61.5000 INCHES
SCALE = 100.0000 PER

PARAMETRIC DATA

BETA = .000 ORBINC = 2.000
MACH = 2.000 ELEVON = .000
DELZ/D = -1.900

RUN NO. 2098/ 0 RN/L = 6.76 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
2.000	-8.000	-.34790	.29340	-.01050	.01550	-.00020	.18480	.03280
2.000	-6.000	-.25570	.21080	-.00320	.00940	-.00010	.20730	.01100
2.000	-4.000	-.16070	.15260	-.00170	.00340	-.00010	.23540	-.01600
2.000	-2.000	-.11940	.11210	-.00030	.00180	-.00010	.24850	-.02980
2.000	.000	-.06630	.06090	.00070	.00040	.00000	.25180	-.03510
2.000	2.000	-.01950	.03570	.00220	-.00100	-.00010	.24770	-.03330
2.000	4.000	.02940	.02810	.00410	-.00420	.00000	.28430	-.07080
2.000	6.000	.09120	-.01310	.00400	-.00530	.00000	.31420	-.10300
2.000	8.000	.17300	-.08110	.00390	-.00510	-.00040	.34560	-.13950
	GRADIENT	.02600	-.01527	.00070	-.00090	.00001	.00485	-.00566

RUN NO. 2099/ 0 RN/L = 6.78 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
3.000	-7.790	-.00[illegible]	-.00020	.00540	-.00430	.00140	.06070	.02100
3.000	-5.600	.05760	-.04260	.00580	-.00470	.00110	.07950	.02430
3.000	-3.450	.12460	-.08580	.00580	-.00420	.00110	.08010	.02560
3.000	-1.360	.18250	-.12450	.00460	-.00310	.00080	.07700	.02740
3.000	.790	.24310	-.16500	.00270	-.00150	.00050	.07480	.02800
3.000	2.980	.29690	-.19740	.00230	-.00130	.00050	.07360	.03070
3.000	5.080	.34180	-.22430	.00210	-.00110	.00070	.07360	.03130
3.000	7.210	.38620	-.25130	.00110	-.00020	.00090	.07480	.03140
3.000	9.290	.43080	-.27980	.00010	.00040	.00010	.07440	.02940
	GRADIENT	.02693	-.01750	-.00055	.00048	-.00010	-.00102	.00074

MSFC 558 (MA9F) NR ATP (T3)(S1)/(O1) (R78T31) (29 JAN 73)

REFERENCE DATA

SREF = 3220.0000 SQ.FT. XMRP = .0000
LREF = 1328.0000 INCHES YMRP = .0000
BREF = 1328.0000 INCHES ZMRP = -61.5000 INCHES
SCALE = 100.0000 PER

PARAMETRIC DATA

BETA = .000 ORBINC = 2.000
MACH = 2.000 ELEVON = 10.000
DELZ/D = -.520

RUN NO. 2103/ 0 RN/L = 6.82 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
.000	-8.410	-.22120	.11540	.00110	.00070	-.00020	.04720	.02590
.000	-6.190	-.15880	.08400	.00190	.00000	.00000	.04960	.02760
.000	-4.000	-.11310	.06620	.00200	-.00040	.00010	.05350	.02880
.000	-1.850	-.07990	.05690	.00090	-.00030	.00000	.05670	.02870
.000	.250	-.05630	.05420	.00090	-.00050	-.00010	.05690	.02900
.000	.260	-.05340	.05300	.00140	-.00090	-.00020	.05550	.02960
.000	2.370	-.03280	.05030	.00040	-.00070	-.00040	.05780	.02860
.000	4.540	-.00820	.04800	-.00010	-.00090	-.00050	.06100	.02830
.000	6.660	.02520	.03980	.00000	-.00150	-.00080	.06330	.02920
.000	8.870	.07790	.01380	-.00200	-.00080	-.00100	.06420	.03000
	GRADIENT	.01206	-.00202	-.00022	-.00007	-.00008	.00076	-.00005

MSFC 558 (MA9F) NR ATP (T3)(S1)/(O1) (R78T32) (29 JAN 73)

REFERENCE DATA

SREF = 3220.0000 SQ.FT. XMRP = .0000
LREF = 1328.0000 INCHES YMRP = .0000
BREF = 1328.0000 INCHES ZMRP = -61.5000 INCHES
SCALE = 100.0000 PER

PARAMETRIC DATA

BETA = .000 ORBINC = 2.000
MACH = 2.000 ELEVON = 10.000
DELZ/D = .000

RUN NO. 2101/ 0 RN/L = 6.78 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	ALPHA	CN	CLM	CY	CYN	CBL	CAF	CAB
.000	-7.950	-.05320	.02160	-.00260	.00250	.00010	.09490	.02480
.000	-5.830	-.00770	-.01210	-.00240	.00200	.00000	.08960	.02660
.000	-3.740	.04520	-.05320	-.00240	.00170	.00020	.08470	.02790
.000	-1.700	.10920	-.10230	-.00160	.00160	.00010	.08090	.02880
.000	.460	.16630	-.16000	-.00110	.00130	.00010	.08010	.02790
.000	.480	.16100	-.15530	-.00120	.00120	.00020	.07980	.02810
.000	2.670	.26410	-.21520	-.00240	.00230	.00000	.07930	.02830
.000	4.750	.34130	-.27160	-.00260	.00300	.00010	.08020	.02790
.000	6.970	.41310	-.32370	-.00360	.00370	.00010	.07910	.02870
.000	8.950	.45400	-.35410	-.00420	.00440	-.00010	.07710	.02900
	GRADIENT	.03500	-.02577	-.00007	.00016	-.00001	-.00049	-.00002

MSFC 558 (MA9F) NR ATP (T3)(S1)/(O1) (R78T33) (29 JAN 73)

REFERENCE DATA

SREF = 3220.0000 SQ.FT. XMRP = .0000
LREF = 1328.0000 INCHES YMRP = .0000
BREF = 1328.0000 INCHES ZMRP = -61.5000 INCHES
SCALE = 100.0000 PER

PARAMETRIC DATA

ALPHA = .000 ORBINC = .000
MACH = .900 ELEVON = .000
DELZ/D = -.520

RUN NO. 2066/ 0 RN/L = 6.19 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	BETA	CN	CLM	CY	CYN	CBL	CAF	CAB
.000	-10.220	-.02920	.00240	.16060	-.18790	-.00170	.09740	.11120
.000	-8.250	-.02810	.00380	.13220	-.15830	-.00120	.10260	.10300
.000	-6.160	-.03330	.01370	.09910	-.12220	-.00100	.10680	.09640
.000	-4.090	-.03830	.02370	.06450	-.08040	-.00010	.10870	.09150
.000	-2.040	-.04200	.03070	.02960	-.03860	-.00010	.11080	.08710
.000	.020	-.04260	.03420	-.00470	.00530	.00080	.11650	.08060
.000	2.090	-.04370	.03610	-.03990	.04850	.00100	.11840	.07930
.000	4.160	-.03490	.02570	-.07380	.08900	.00130	.11940	.07790
.000	6.230	-.03360	.01970	-.11020	.13070	.00130	.12370	.08120
.000	8.300	-.03370	.01780	-.14240	.16630	.00170	.12000	.08490
.000	10.290	-.05070	.03880	-.17750	.20470	.00140	.11720	.09440
	GRADIENT	.00025	.00045	-.01674	.02060	.00019	.00140	-.00169

MSFC 558 (MA9F) NR ATP (T3)(S1)/(O1) (R78T34) (29 JAN 73)

REFERENCE DATA

SREF = 3220.0000 SQ.FT. XMRP = .0000
LREF = 1328.0000 INCHES YMRP = .0000
BREF = 1328.0000 INCHES ZMRP = -61.5000 INCHES
SCALE = 100.0000 PER

PARAMETRIC DATA

ALPHA = .000 ORBINC = .000
MACH = .900 ELEVON = .000
DELZ/D = -1.000

RUN NO. 2063/ 0 RN/L = 6.21 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	BETA	CN	CLM	CY	CYN	CBL	CAF	CAB
.000	-10.230	.01100	-.04130	.14910	-.17240	.00050	.10110	.[illegible]90
.000	-8.260	.01790	-.04680	.12420	-.14730	.00090	.10960	.[illegible]80
.000	-6.150	.01430	-.03810	.08940	-.10870	.00060	.11090	.08350
.000	-4.040	.01640	-.03740	.05870	-.07230	.00100	.11270	.08090
.000	-2.040	.01150	-.03050	.02680	-.03420	.00060	.11750	.07650
.000	.030	.00710	-.02290	-.00550	.00640	.00030	.12040	.07370
.000	2.090	.00900	-.02270	-.03800	.04580	.00000	.12030	.07270
.000	4.150	.01070	-.02770	-.06740	.08110	.00000	.12350	.06970
.000	6.220	.02070	-.04060	-.10380	.12330	-.00050	.12330	.07180
.000	8.290	.02170	-.04690	-.13270	.15350	-.00090	.12150	.08070
.000	10.240	.00830	-.03230	-.16050	.18260	-.00140	.11780	.08390
	GRADIENT	-.00067	.00132	-.01540	.01879	-.00014	.00116	-.00127

MSFC 558 (MA9F) NR ATP (T3)(S1)/(O1) (R78T35) (29 JAN 73)

REFERENCE DATA

SREF = 3220.0000 SQ.FT. XMRP = .0000
LREF = 1328.0000 INCHES YMRP = .0000
BREF = 1328.0000 INCHES ZMRP = -61.5000 INCHES
SCALE = 100.0000 PER

PARAMETRIC DATA

ALPHA = .000 ORBINC = 2.000
MACH = .900 ELEVON = .000
DELZ/D = -.520

RUN NO. 2091/ 0 RN/L = 6.17 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	BETA	CN	CLM	CY	CYN	CBL	CAF	CAB
.000	-10.270	-.04930	.04140	.17570	-.20890	-.00330	.10510	.10300
.000	-8.260	-.04510	.03770	.13890	-.16870	-.00290	.10750	.09520
.000	-6.190	-.04360	.04050	.10490	-.12940	-.00170	.10810	.09190
.000	-4.110	-.05030	.04950	.06870	-.08740	-.00140	.11100	.08770
.000	-2.060	-.05220	.05500	.03760	-.04950	-.00010	.11380	.08410
.000	.000	-.05440	.06110	.00120	-.00300	.00010	.11930	.07760
.000	2.070	-.05310	.05810	-.03910	.04780	.00080	.12160	.07580
.000	4.130	-.04500	.04850	-.07270	.08890	.00150	.12200	.07610
.000	6.200	-.04110	.04080	-.10770	.12950	.00240	.12460	.07930
.000	8.250	-.04410	.03990	-.14170	.16740	.00290	.11840	.08650
.000	10.300	-.05470	.05400	-.18020	.21010	.00220	.11900	.09090
	GRADIENT	.00047	.00005	-.01744	.02183	.00033	.00145	-.00153

MSFC 558 (MA9F) NR ATP (T3)(S1)/(O1) (R78T36) (29 JAN 73)

REFERENCE DATA

SREF = 3220.0000 SQ.FT. XMRP = .0000
LREF = 1328.0000 INCHES YMRP = .0000
BREF = 1328.0000 INCHES ZMRP = -61.5000 INCHES
SCALE = 100.0000 PER

PARAMETRIC DATA

ALPHA = .000 ORBINC = 2.000
MACH = .900 ELEVON = .000
DELZ/D = -1.000

RUN NO. 2092/ 0 RN/L = 6.17 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	BETA	CN	CLM	CY	CYN	CBL	CAF	CAB
.000	-10.250	-.02790	.01210	.15740	-.18490	-.00040	.10710	.09360
.000	-8.250	-.02130	.00840	.13030	-.15760	.00000	.11010	.09000
.000	-6.180	-.02360	.01460	.09730	-.11970	.00000	.11210	.08350
.000	-4.110	-.02540	.01890	.06440	-.08110	.00010	.11550	.07920
.000	-2.050	-.02890	.02670	.03360	-.04360	.00040	.11520	.07650
.000	.000	-.02980	.02920	.00070	-.00240	.00030	.12200	.07160
.000	2.060	-.02790	.02660	-.03550	.04390	.00020	.12200	.07020
.000	4.120	-.02690	.02470	-.06960	.08530	.00010	.12180	.07010
.000	6.210	-.01880	.01310	-.10230	.12260	.00030	.12330	.07280
.000	8.240	-.01760	.00720	-.13360	.15710	.00040	.12070	.07990
.000	10.290	-.02400	.01440	-.16840	.19430	-.00040	.11920	.08620
	GRADIENT	-.00010	.00066	-.01639	.02043	.00001	.00094	-.00119

MSFC 558 (MA9F) NR ATP (T3)(S1)/(O1) (R78T37) (29 JAN 73)

REFERENCE DATA

SREF = 3220.0000 SQ.FT. XMRP = .0000
LREF = 1328.0000 INCHES YMRP = .0000
BREF = 1328.0000 INCHES ZMRP = -61.5000 INCHES
SCALE = 100.0000 PER

PARAMETRIC DATA

ALPHA = .000 ORBINC = .000
MACH = 1.200 ELEVON = .000
DELZ/D = -.520

RUN NO. 2065/ 0 RN/L = 6.60 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	BETA	CN	CLM	CY	CYN	CBL	CAF	CAB
.000	-10.400	-.02840	-.00040	.17810	-.19930	-.00360	.16820	.10550
.000	-8.360	-.03600	.01200	.13860	-.15880	-.00350	.16830	.10280
.000	-6.230	-.03870	.01870	.10040	-.11680	-.00240	.16630	.09940
.000	-4.140	-.03560	.02040	.06680	-.08010	-.00120	.16750	.09740
.000	-2.060	-.04010	.02870	.03010	-.03780	-.00060	.17040	.09660
.000	.040	-.04090	.03220	-.00620	.00530	.00030	.17060	.09650
.000	2.140	-.04270	.03150	-.04710	.05400	.00070	.16950	.09660
.000	4.250	-.03340	.02310	-.08380	.09700	.00140	.17200	.09600
.000	6.330	-.03250	.02260	-.12070	.13730	.00180	.17450	.09330
.000	8.450	-.02690	.01680	-.15990	.17970	.00190	.17660	.09640
.000	10.480	-.02560	.01660	-.20060	.22130	.00110	.18030	.09520
	GRADIENT	.00009	.00039	-.01804	.02126	.00032	.00039	-.00013

MSFC 558 (MA9F) NR ATP (T3)(S1)/(O1) (R78T38) (29 JAN 73)

ROFERENCE DATA

SREF = 3220.0000 SQ.FT. XMRP = .0000
LREF = 1328.0000 INCHES YMRP = .0000
BREF = 1328.0000 INCHES ZMRP = -61.5000 INCHES
SCALE = 100.0000 PER

PARAMETRIC DATA

ALPHA = .000 ORBINC = .000
MACH = 1.200 ELEVON = .000
DELZ/D = -1.000

RUN NO. 2064/ 0 RN/L = 6.59 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	BETA	CN	CLM	CY	CYN	CBL	CAF	CAB
.000	-10.380	-.01380	-.01410	.16690	-.18570	-.00160	.17310	.09790
.000	-8.350	-.01820	-.00230	.13290	-.15160	-.00160	.17340	.09400
.000	-6.220	-.02380	.00870	.09670	-.11310	-.00110	.17310	.08990
.000	-4.130	-.02150	.01060	.06510	-.07850	-.00020	.17320	.08810
.000	-2.060	-.02160	.01550	.03050	-.03810	.00000	.17660	.08690
.000	.030	-.02680	.02220	-.00730	.00600	.00040	.17960	.08440
.000	2.130	-.02340	.01800	-.04400	.05120	.00040	.18060	.08210
.000	4.230	-.02430	.01690	-.07780	.09000	.00060	.18090	.08340
.000	6.320	-.02180	.01620	-.11100	.12460	.00050	.18200	.08240
.000	8.430	-.01400	.00500	-.14770	.16250	.00000	.18350	.08400
.000	10.490	-.00910	-.00010	-.18710	.20360	-.00070	.18500	.08460
	GRADIENT	-.00035	.00091	-.01723	.02039	.00010	.00094	-.00068

MSFC 558 (MA9F) NR ATP (T3)(S1)/(O1) (R78T39) (29 JAN 73)

REFERENCE DATA

SREF = 3220.0000 SQ.FT. XMRP = .0000
LREF = 1328.0000 INCHES YMRP = .0000
BREF = 1328.0000 INCHES ZMRP = -61.5000 INCHES
SCALE = 100.0000 PER

PARAMETRIC DATA

ALPHA = .000 ORBINC = 2.000
MACH = 1.200 ELEVON = .000
DELZ/D = -.520

RUN NO. 2090/ 0 RN/L = 6.57 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	BETA	CN	CLM	CY	CYN	CBL	CAF	CAB
.000	-10.410	-.07430	.07160	.18870	-.21630	-.00590	.16900	.10420
.000	-8.370	-.07310	.07200	.14920	-.17500	-.00530	.16900	.10130
.000	-6.230	-.07610	.07790	.10700	-.12790	-.00440	.16710	.09820
.000	-4.150	-.07380	.07890	.07170	-.08810	-.00250	.16790	.09610
.000	-2.070	-.07600	.08510	.03540	-.04530	-.00090	.17200	.09610
.000	.010	-.07510	.08340	-.00050	-.00200	.00000	.17400	.09460
.000	2.100	-.07110	.07760	-.04450	.05280	.00120	.17360	.09290
.000	4.190	-.06830	.07430	-.08300	.09840	.00230	.17450	.09360
.000	6.320	-.06720	.07440	-.12230	.14270	.00320	.17720	.09160
.000	8.420	-.06560	.07220	-.16520	.18890	.00350	.17930	.09410
.000	10.490	-.06900	.06000	-.20790	.23360	.00310	.18190	.09330
	GRADIENT	.00076	-.00060	-.01867	.02260	.00056	.00071	-.00039

MSFC 558 (MA9F) NR ATP (T3)(S1)/(O1) (R78T40) (29 JAN 73)

REFERENCE DATA

SREF = 3220.0000 SQ.FT. XMRP = .0000
LREF = 1328.0000 INCHES YMRP = .0000
BREF = 1328.0000 INCHES ZMRP = -61.5000 INCHES
SCALE = 100.0000 PER

PARAMETRIC DATA

ALPHA = .000 ORBINC = 2.000
MACH = 1.200 ELEVON = .000
DELZ/D = -1.000

RUN NO. 2093/ 0 RN/L = 6.57 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	BETA	CN	CLM	CY	CYN	CBL	CAF	CAB
.000	-10.380	-.05390	.04520	.17450	-.19790	-.00310	.17550	.09170
.000	-8.340	-.05490	.05010	.13780	-.16010	-.00260	.17430	.09000
.000	-6.240	-.05840	.05860	.10190	-.12120	-.00200	.17350	.08750
.000	-4.150	-.05540	.05940	.06780	-.08350	-.00090	.17400	.08550
.000	-2.070	-.05560	.06440	.03390	-.04340	-.00010	.17610	.08540
.000	.010	-.05520	.06430	-.00530	.00540	.00010	.17960	.08160
.000	2.090	-.05560	.06420	-.04200	.09000	.00040	.18020	.08100
.000	4.190	-.05490	.06300	-.07790	.09150	.00070	.18100	.08120
.000	6.310	-.04920	.05860	-.11360	.12980	.00060	.18260	.07910
.000	8.380	-.04510	.05010	-.14990	.16780	.00060	.18380	.08150
.000	10.470	-.04710	.05270	-.19170	.21150	.00000	.18590	.08200
	GRADIENT	.00005	.00034	-.01762	.02126	.00016	.00067	-.00062

MSFC 558 (MA9F) NR ATP (T3)(S1)/(O1) (R78T41) (29 JAN 73)

REFERENCE DATA

SREF = 3220.0000 SQ.FT. XMRP = .0000
LREF = 1328.0000 INCHES YMRP = .0000
BREF = 1328.0000 INCHES ZMRP = -61.5000 INCHES
SCALE = 100.0000 PER

PARAMETRIC DATA

ALPHA = .000 ORBINC = 2.000
MACH = 2.000 ELEVON = .000
DELZ/D = -.520

RUN NO. 2116/ 0 RN/L = 6.82 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	BETA	CN	CLM	CY	CYN	CBL	CAF	CAB
.000	-10.260	-.06740	.06120	.06660	-.03030	.00320	.05930	.03010
.000	-8.310	-.05750	.05250	.05050	-.02230	.00240	.05720	.02930
.000	-6.210	-.04840	.04550	.03540	-.01500	.00170	.05560	.02890
.000	-4.130	-.04340	.04240	.02230	-.00920	.00120	.05420	.02900
.000	-2.060	-.03790	.03860	.01050	-.00430	.00050	.05260	.02920
.000	.000	-.03050	.03120	-.00390	.00230	-.00030	.05240	.02840
.000	.010	-.03350	.03430	-.00350	.00230	-.00030	.05270	.02930
.000	2.060	-.02830	.03110	-.01600	.00810	-.00100	.05370	.03000
.000	4.160	-.02120	.02610	-.02880	.01360	-.00160	.05480	.03100
.000	6.240	-.01000	.01620	-.04380	.02050	-.00240	.05490	.03090
.000	8.330	-.00050	.00840	-.05940	.02790	-.00320	.05660	.03080
.000	10.350	.00520	.00390	-.07670	.03600	-.00430	.05940	.03030
	GRADIENT	.00261	-.00194	-.00621	.00280	-.00034	.00011	.00023

MSFC 558 (MA9F) NR ATP (T3)(S1)/(O1) (R78T42) (29 JAN 73)

REFERENCE DATA

SREF = 3220.0000 SQ.FT. XMRP = .0000
LREF = 1328.0000 INCHES YMRP = .0000
BREF = 1328.0000 INCHES ZMRP = -61.5000 INCHES
SCALE = 100.0000 PER

PARAMETRIC DATA

ALPHA = .000 ORBINC = 2.000
MACH = 2.000 ELEVON = .000
DELZ/D = -1.000

RUN NO. 2117/ 0 RN/L = 6.77 GRADIENT INTERVAL = -5.00/ 5.00

DELX/D	BETA	CN	CLM	CY	CYN	CBL	CAF	CAB
.000	-10.290	-.06160	.07150	.07150	-.03430	.00230	.05900	.03070
.000	-8.320	-.07160	.06430	.05520	-.02630	.00150	.05740	.03000
.000	-6.240	-.06680	.06120	.04000	-.01870	.00100	.05640	.02970
.000	-4.160	-.06140	.05760	.02550	-.01170	.00060	.05630	.02940
.000	-2.080	-.05620	.05340	.01170	-.00530	.00030	.05600	.02910
.000	.000	-.05020	.04810	-.00240	.00150	-.00020	.05560	.02890
.000	2.080	-.04240	.04170	-.01560	.00800	-.00050	.05520	.02960
.000	4.150	-.03580	.03600	-.02970	.01490	-.00090	.05500	.03030
.000	6.230	-.02600	.02750	-.04500	.02240	-.00120	.05550	.03100
.000	8.330	-.01590	.01800	-.06260	.03090	-.00220	.05630	.03070
.000	10.350	-.00790	.01210	-.08110	.04020	-.00330	.05810	.03100
	GRADIENT	.00313	-.00265	-.00665	.00321	-.00018	-.00016	.00011