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SUBSONIC WIND-TUNNEL INVESTIGATION OF THE PROPOSED MCDONNELL-DOUGLAS SPECIALIZED CLOSE AIR SUPPORT (A-X) AIRPLANE MODEL

By Vernard E. Lockwood
and W. Pelham Phillips

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1967

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SUBSONIC WIND-TUNNEL INVESTIGATION OF THE PROPOSED MCDONNELL-DOUGLAS SPECIALIZED CLOSE AIR SUPPORT (A-X) AIRPLANE MODEL

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GROUP 4
Downgraded at 3 year intervals;
declassified after 12 years

Approved by Thomas A. Toll
for Mark R. Nichols
Full-Scale Research Division

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axis only. The moments are referred to the point shown on the diagram of figure 1. The symbols are defined as follows:

b	wing span, 60.00 in.
C_D	drag coefficient, $\frac{\text{Drag}}{qS}$
C_{D_o}	drag coefficient at zero lift
C_L	lift coefficient, $\frac{\text{Lift}}{qS}$
C_{L_α}	lift-curve slope, $\partial C_L/\partial\alpha$, per degree
C_l	rolling-moment coefficient, $\frac{\text{Rolling moment}}{qSb}$
C_{l_β}	effective dihedral parameter, $\partial C_l/\partial\beta$, per degree
C_m	pitching-moment coefficient, $\frac{\text{Pitching moment}}{qSb}$
$C_{m_{C_L}}$	longitudinal stability parameter, $\partial C_m/\partial C_L$
C_n	yawing moment coefficient, $\frac{\text{Yawing moment}}{qSb}$
C_{n_β}	directional stability parameter, $\partial C_n/\partial\beta$, per degree
C_Y	side force coefficient, $\frac{\text{Side force}}{qS}$
$\bar{c}$	reference chord, 13.10 in.
M	free-stream Mach number
q	free-stream dynamic pressure
R	Reynolds number per foot
S	wing reference area, 5.00 sq ft
α	angle of attack, degrees
$\alpha_{,C_L = 0}$	angle of attack for zero lift
β	angle of sideslip, degrees
δ_H	horizontal-tail deflection

Model Part Designations:

W	wing
B_1	body without gun bulge

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SUBSONIC WIND-TUNNEL INVESTIGATION OF THE PROPOSED MCDONNELL-DOUGLAS SPECIALIZED CLOSE AIR SUPPORT (A-X) AIRPLANE MODEL

By Vernard E. Lockwood
and W. Pelham Phillips

SUMMARY

A subsonic wind-tunnel investigation of an unpowered 0.11593-scale model of the proposed McDonnell-Douglas A-X airplane has been made in the Langley High-Speed 7- by 10-Foot Tunnel. The results indicate that for the range of angles of attack and Mach numbers investigated, the model possessed static longitudinal, lateral and directional stability.

INTRODUCTION

At the request of the Department of the Air Force, the National Aeronautics and Space Administration has conducted a series of wind-tunnel tests on unpowered scale models of airframe manufacturers proposed specialized close air support aircraft (A-X). These tests were made in order to investigate critical aerodynamic problems, to provide information for use in verification of the contractor's estimated performance data, and to provide credibility to the A-X concept formulation studies.

The purpose of this paper is to present the results obtained on the 0.11593-scale model of the McDonnell-Douglas A-X airplane. The tests were conducted in the Langley High-Speed 7- by 10-Foot Wind Tunnel at Mach numbers varying from approximately 0.30 to 0.71 which corresponded to average Reynolds numbers (per foot) of 1.91×10^6 to 3.56×10^6. The maximum angles of attack tested depended on Mach number and configuration varying from about 17° at $M \approx 0.30$ to about 5° at $M \approx 0.71$.

SYMBOLS

The coefficients of forces and moments for the plotted data are referred to the stability axis system for the longitudinal characteristics and to the body axis system for the lateral and directional characteristics. In addition, a tabulation of the longitudinal characteristics utilizing both axis systems is included. The tabulated sideslip characteristics are presented for the body

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The angle-of-attack range through which the model was studied depended on the test Mach number. At the low Mach number ($M = 0.3$) the test angle-of-attack range varied from -2° to about 17° and at the high Mach number ($M = 0.71$) from -2° to about 5°. The sideslip range varied between -4° to 4° at angles of attack of about 6°.

MEASUREMENTS AND CORRECTIONS

Aerodynamic forces and moments were measured by means of a six-component, electrical strain-gage balance (729) housed within the model. In order to insure turbulent flow in the model boundary layer for the test, a 0.10 inch wide transition strip of No. 90 Carborundum grains were placed 0.90 inches behind the leading edge of all model components. (See reference 1.)

The angles of attack and sideslip measured in the tunnel vertical plane were obtained by accelerometers mounted in the model. Angles in the tunnel lateral plane were corrected for sting and balance deflections under load.

Pressures were measured in the balance cavity and at the model sting aperture. The balance axial force, normal force and pitching moment were adjusted to the condition of free-stream static pressures and data presented includes these corrections.

From a comparison of data obtained from upright and inverted model tests (see figure 5), it was determined that an insignificant flow misalignment angle existed in the region of the High-Speed 7- by 10-Foot Tunnel occupied by the model. No corrections were therefore applied to the angles of attack or sideslip for flow misalignment.

Jet-boundary and blockage corrections calculated by the methods of references 2 and 3, respectively, have been applied.

ACCURACY

The accuracy of the individual measured quantities, based on balance calibration and repeatability of data, is estimated to be within the following limits:

$M = 0.60$

$C_A = \pm .0005$	$C_Y = \pm .001$
$C_N = \pm .005$	$\alpha = \pm 0.05$
$C_l = \pm .0002$	$\beta = \pm 0.1$
$C_M = \pm .005$	$M = \pm .001$
$C_n = \pm .0003$	

B_2	body with gun bulge
N	engine nacelle
H	horizontal tail
V	vertical tail
D	dorsal fin
Y	pylons, see figure 2
J	triple ejection rack, see figure 2
T	bombs, see figure 2

MODEL

The model used in the investigation was an 0.11593-scale model of a proposed twin engine, propeller-driven attack airplane. A three-view drawing of the model is presented in figure 1. Drawings of the bombs, pylon, racks and their locations on the model are presented in figures 2 and 3. Photographs of the model mounted in the Langley 7- by 10-Foot High-Speed Tunnel are presented in figure 4. Additional information on the geometric characteristics of the model are presented in Table I.

The model, which was unpowered, incorporated a twisted and cambered high wing of aspect ratio 5.0 and taper ratio 0.30. Except for an all moving tail, the model was void of control surfaces. (Some slight differences exist between the model and the proposed A-X airplane configuration; these differences are: (1) the airplane wing location and center of gravity will be five inches further aft than that represented by the model and (2) the airplane will have no dorsal fin.)

TEST CONDITIONS

The average test conditions for the investigation were as follows:

M	Stagnation Temperature, °F	Dynamic Pressure, lb/sq ft	R/Ft
.302	90	127.6	1.91×10^6
.403	92	216.2	2.46×10^6
.505	95	319.9	2.92×10^6
.606	100	427.1	3.27×10^6
.713	110	541.9	3.56×10^6

moment slope at Mach numbers below 0.71. However, at a Mach of 0.71 (see figure 10(e)) adding the pylons and bomb racks to the configuration resulted in a significant increase in the stability level of the configuration. The reason for this increase in stability is not fully understood, however, it could possibly be the result of interference on the wing (and horizontal tail).

The effect of various store loadings on the longitudinal aerodynamic characteristics of the configuration is presented in figures 8 and 9 and the drag characteristics are summarized in figures 11 and 12. In general, adding the stores in various combination had only a slight effects on the lift and pitching-moment characteristics of the configuration. However, as shown in figure 11, adding the pylons, racks and seven bombs nearly doubled the drag of the clean configuration at low lift coefficients. It should be noted, however, that the drag increments for various configurations tend to decrease as the lift coefficients increases which result in the drag increments for higher lift being considerably less than that shown in figure 12 for $C_L = 0$. The data presented in figure 11 also shows the effect of location of the bombs on the variation of the drag with lift coefficient. As can be seen, the bombs mounted out near the wing tips results in substantially less drag than when the bombs are mounted between nacelle and fuselage.

The effect of deflecting the horizontal tail on the longitudinal aerodynamic characteristics is presented in figure 7 for the clean configuration and in figure 10 for the configuration with seven bombs. Adequate control power appears to be available to trim the configuration over the entire lift coefficient range, as horizontal-tail deflection angles of 0° and -5° (see figures 7 and 10) will trim the model over a range of lift coefficients from 0.2 to 1.05. (The proposed limits of the horizontal-tail deflection on the airplane are 2° to -8°.)

Estimations of the longitudinal aerodynamic characteristics of this configuration have been made and the results are compared with experiment in figures 13 and 14. Figure 13 presents the variation of the longitudinal stability parameter, the lift-curve slope, and the angle of attack for zero lift for several configurations. The lift-curve slope and the longitudinal stability parameter $C_{m_{C_L}}$ for the wing-body configuration was estimated by the method presented in reference 4. The planform used for the calculations was assumed to be the combined planforms of the wing and fuselage. The horizontal-tail contribution to the stability was estimated by reference 4 (for the lift-curve slope and aerodynamic center location) and reference 5 for the flow field characteristics (downwash rate $d\epsilon/d\alpha$ and the dynamic pressure ratio). The angle of attack for zero lift was calculated by the method presented in reference 6. The estimated data presented in figure 13 are seen to agree reasonably with the experimentally determined data.

Figure 14 shows a comparison of experimental and estimated drag polars for the configuration without pylons, racks or bombs. The skin-friction drag was computed by equations given in reference 7 and is presented in Table IV. The form factors which account for wing thickness and body fineness ratio was estimated

PRESENTATION OF RESULTS

Table II presents a test log for the data obtained in the Langley High-Speed 7- by 10-Foot Tunnel. The tabulated results are presented in Table III.

The figure content is outlined in the following table:

	Figure
Longitudinal characteristics	
Comparison of model upright and inverted	5
Effect of bomb racks and pylons	6
Effect of horizontal-tail deflections for configuration WB_2NVD, $(Y_1J_1Y_4)$	7
Effect of bomb configuration	8
Effect of number of bombs	9
Effect of horizontal-tail deflection for configuration WB_2NVD,(Y_1JT_{1-6},Y_4T_7)	10
Summary characteristics	11-15
Lateral characteristics	
Effect of bomb configuration	16
Effect of vertical-tail configuration	17

SUMMARY OF RESULTS

In order to expedite publication, the data are presented without detailed analysis. A few pertinent remarks concerning the aerodynamic characteristics are appropriate, however.

Due to the critical timing of these tests in relation to the USAF evaluation schedule, no extrapolation of these data to full-scale Reynolds numbers or surface condition have been included in this paper. The data presented herein also do not include power effects.

Longitudinal Characteristics

The basic longitudinal aerodynamic characteristics for the configuration without stores or pylons (figure 6) indicate that the lift and moment characteristics are relatively linear up to a lift coefficient of about 0.90. Above this lift coefficient, a slight nose down pitching-moment variation is evident. Adding the pylons and bomb racks to the configuration (see figure 6) resulted in a material increase in drag coefficient and a negative increment in the pitching-moment coefficient with essentially no change in pitching-

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11. General Dynamics/Fort Worth Aerospace Handbook

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by reference 8. No increment in drag due to interference of one component on another is accounted for in these estimates.

The Reynolds numbers based on an average leading-edge radius of 0.018 feet for this configuration at all the test Mach numbers were greater than 20,000. As indicated by reference 9, leading-edge suction values of about 95 percent can be obtained at Reynolds numbers, based on leading-edge radius, of above 20,000. In view of these results, plane wing drag-due-to-lift values corresponding to 95 percent suction were used in estimating the model drag polars. Reasonably good agreement is demonstrated between the estimated and calculated drag polars at all the Mach numbers up to 0.70. The lack of agreement at a Mach number of 0.71 can probably be attributed to shock-induced flow separation, which is not accounted for in the calculation.

No critical longitudinal aerodynamic problems are apparent in the results for the range of variables tested.

Lateral-Directional Characteristics

The lateral-directional tests were directed towards determining the high-speed, low angle-of-attack characteristics associated with the attack phase of the mission where power effects are expected to be small. The data which are shown in figures 15 and 16 and summarized in figure 17 show the model possesses positive directional stability and positive dihedral effect for the range of Mach numbers from 0.3 to 0.6. Actually, little effect of the bomb configuration is noted on the characteristics. The effect of the dorsal fin is likewise small. The various configurations tested show an increase in directional stability with Mach number as is indicated in figure 17.

CONCLUDING REMARKS

A subsonic wind-tunnel investigation of an unpowered 0.11593-scale model of the proposed McDonnell-Douglas A-X airplane has been made in the Langley High-Speed 7- by 10-Foot Tunnel. The results indicate that for the range of angles of attack and Mach numbers investigated, the model possessed static longitudinal, lateral, and directional stability.

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TABLE I - CONCLUDED

Wetted Areas	
Fuselage, sq ft	6.727
Nacelle (2), sq ft	3.293
Wing, sq ft	7.607
Vertical tail, sq ft	2.305
Horizontal tail, sq ft	2.527
Pylons (3), sq ft	0.322

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TABLE I - PHYSICAL CHARACTERISTICS OF MODEL

Wing	
Root airfoil section	NACA 63A017 Modified
Tip airfoil section	NACA 63A013 Modified
Taper ratio	0.30
Aspect ratio	5.00
Area, sq ft	5.00
Span, ft	5.00
Root chord, in.	18.46
Tip chord, in.	5.54
Mean aerodynamic chord	13.16
Wing incidence, degrees	3.00
Geometric twist, degrees washout	4.00
Leading-edge sweep, degrees	6.00
Quarter chord sweep, degrees	0.00
Fuselage	
Frontal area, sq ft	0.293
Length, in.	64.00
Depth (maximum) in.	8.35
Width (maximum) in.	7.07
Horizontal Tail	
Root airfoil section	NACA 63A013
Tip airfoil section	NACA 63A011
Taper ratio	0.30
Aspect ratio	4.00
Area, sq ft	1.36
Span, in.	27.94
Mean aerodynamic chord, in.	7.73
Tail length (0.25 wing MAC to 0.25 tail MAC) in.	32.69
Quarter chord sweep, degrees	15.00
Vertical Tail	
Root airfoil section	NACA 63A013
Tip airfoil section	NACA 63A011
Taper ratio	0.45
Aspect ratio	1.20
Area, sq ft	1.03
Span, in.	13.44
Mean aerodynamic chord, in.	11.59
Tail length (0.25 wing MAC to 0.25 tail MAC) in.	30.03
Quarter chord sweep, degrees	21.00

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TABLE II- Continued

Run	Mach	α	β	Body	V	D	δ_H, deg	B Left Outboard	O Left Inboard	M Center-line	B Right Inboard	S Right Outboard
24.	.302	Vary	0°	B_2	On	On	-2		Y_1J	Y_4	Y_1J	
25.	.503											
26.	.711											
27.	.605											
28.	.302								Y_1JT_{123}	Y_4T_7	Y_1JT_{456}	
29.	.504											
30.	.606											
31.	.301						0		Y_1J	Y_4	Y_1J	
32.	.504											
33.	.606											
34.	.712											
35.	.302								Y_1JT_1	Y_4T_7	Y_1JT_6	
36.	.504											
37.	.607											
38.	.712											
39.	.302								Y_1JT_{13}	Y_4T_7	Y_1JT_{46}	
40.	.505											
41.	.607											
42.	.713											
43.	.302								Y_1JT_{123}	Y_4T_7	Y_1J	
44.	.505											
45.	.601											
46.	.712											

TABLE II- TEST PROGRAM

Run	Mach	α	β	Body	V	D	δ_H, deg	B Left Outboard	O Left Inboard	M Center-line	B Right Inboard	S Right Outboard
1.	.302	Vary	0°	B_1	On	On	0					
2.	.403											
3.	.504											
4.	.606											
5.	.606											
6.	.713											
7.	.302			B_2					Y_1JT_{123}	Y_4 T_7	Y_1JT_{456}	
8.	.403											
9.	.505											
10.	.607											
11.	.713											
12.	.302						-5					
13.	.505						-5					
14.	.302						Off					
15.	.403											
16.	.505											
17.	.607											
18.	.713											
19.	.301								Y_1J	Y_4	Y_1J	
20.	.403											
21.	.505											
22.	.607											
23.	.712											

TABLE II- Concluded

Run	Mach	α	β	Body	V	D	δ_H, deg	B Left Outboard	O Left Inboard	M Center-line	B Right Inboard	S Right Outboard
47.	.301	Vary	0°	B_2	On	On	0	Y_3JT_{123}		Y_4T_7		Y_3T_{456}
48.	.505											
49.	.607											
50.	.301							Y_3J		Y_4		Y_3J
51.	.505											
52.	.606											
53.	.301											
54.	.504											
55.	.607											
56.	.302	5.25	Vary						Y_1J	Y_4	Y_1J	
57.	.505	6.21										
58.	.607	7.22										
59.	.302	5.36							Y_1JT_{123}	Y_4T_7	Y_1J	
60.	.505	6.25										
61.	.607	7.11										
62.	.302	5.42							Y_1JT_{123}	Y_4T_7	Y_1JT_{456}	
63.	.505	6.23										
64.	.607	7.00										
65.	.302	5.42				Off						
66.	.505	6.23										
67.	.607	7.00										
68.	.302	5.42			Off							
69.	.505	6.23										
70.	.607	7.00										

Model inverted

TABLE III - TABULATED DATA

The symbols used on the data tabulation are defined as follows:

Stability Axis

Mach	Mach number
Q	Free-stream dynamic pressure, lbs/ft^2
Beta	Angle of sideslip, deg
Alpha	Angle of attack, deg
CL	Lift coefficient
CD	Drag coefficient
CPM	Pitching-moment coefficient
CRM	Rolling-moment coefficient
CYM	Yawing-moment coefficient
CSF	Side force coefficient
L/D	Lift-drag ratio

Body Axis

CNF	Normal force coefficient
CAF	Axial force coefficient

Reference dimensions used for data reduction:

Area, sq ft	5.00
Span, in.	60.00
Chord, in.	13.10

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TABLE IV - MODEL SKIN-FRICTION DRAG COEFFICIENT

Component	Wetted Area, Sq Ft.	Reference Length, Ft.	Mach Number				
			0.3	0.4	0.5	0.6	0.7
Wing	7.607	1.096	0.00562	0.00533	0.00513	0.00498	0.00486
Horizontal	2.526	0.645	.00201	.00190	.00183	.00177	.00173
Vertical	2.305	.966	.00174	.00164	.00158	.00154	.00150
Fuselage	6.726	5.333	.00388	.00370	.00358	.00348	.00340
Nacelle	3.293	2.082	.00220	.00210	.00202	.00196	.00192

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HIGH SPEED TUNNEL TEST 789 RUN 1 BALANCE 731 09/14/67.

STABILITY AXIS COEFFICIENTS

MACH	Q	BETA	ALPHA	CL	CD	CPM	CRM	CYM	CSF	L/D
.302	127.682	.00	3.25	.1637	.0226	.0238	.0011	-.0009	.0041	7.238
.302	127.507	.00	-1.19	-.1862	.0263	.0857	.0013	-.0011	.0045	-7.087
.302	127.502	.00	-.10	-.0977	.0235	.0688	.0015	-.0011	.0042	-4.148
.301	126.915	.00	1.01	-.0109	.0218	.0520	.0014	-.0009	.0040	-.500
.302	127.589	.00	2.12	.0752	.0216	.0381	.0014	-.0008	.0038	3.477
.301	127.198	.00	3.23	.1614	.0225	.0236	.0012	-.0008	.0038	7.177
.301	127.196	.00	4.36	.2500	.0248	.0103	.0010	-.0010	.0041	10.098
.301	126.903	.00	5.48	.3369	.0281	-.0029	.0010	-.0010	.0048	12.002
.302	127.481	.00	6.63	.4288	.0328	-.0163	.0011	-.0011	.0047	13.063
.301	127.092	.00	7.75	.5169	.0386	-.0288	.0009	-.0012	.0052	13.405
.301	126.993	.00	8.92	.6107	.0459	-.0426	.0009	-.0012	.0052	13.303
.302	127.472	.00	10.09	.7061	.0544	-.0564	.0008	-.0013	.0056	12.988
.302	127.564	.00	12.32	.8788	.0735	-.0819	.0008	-.0013	.0054	11.950
.302	127.672	.00	14.50	1.0386	.0979	-.1252	.0011	-.0014	.0062	10.612
.302	127.429	.00	16.66	1.1961	.1320	-.1892	.0014	-.0009	.0065	9.059
.301	127.295	.00	3.34	.1691	.0227	.0227	.0010	-.0008	.0037	7.452

BODY AXIS COEFFICIENTS

MACH	Q	BETA	ALPHA	CNF	CAF	CPM	CRM	CYM	CSF
.302	127.682	.00	3.25	.1647	.0133	.0238	.0011	-.0008	.0041
.302	127.507	.00	-1.19	-.1867	.0224	.0857	.0013	-.0011	.0045
.302	127.502	.00	-.10	-.0977	.0234	.0688	.0015	-.0011	.0042
.301	126.915	.00	1.01	-.0105	.0220	.0520	.0014	-.0009	.0040
.302	127.589	.00	2.12	.0760	.0188	.0381	.0015	-.0007	.0038
.301	127.198	.00	3.23	.1624	.0133	.0236	.0013	-.0007	.0038
.301	127.196	.00	4.36	.2511	.0057	.0103	.0011	-.0009	.0041
.301	126.903	.00	5.48	.3380	-.0042	-.0029	.0011	-.0009	.0048
.302	127.481	.00	6.63	.4298	-.0169	-.0163	.0012	-.0009	.0047
.301	127.092	.00	7.75	.5173	-.0315	-.0288	.0010	-.0010	.0052
.301	126.993	.00	8.92	.6102	-.0493	-.0426	.0011	-.0010	.0052
.302	127.472	.00	10.09	.7044	-.0701	-.0564	.0010	-.0011	.0056
.302	127.564	.00	12.32	.8737	-.1156	-.0819	.0010	-.0011	.0054
.302	127.672	.00	14.50	1.0292	-.1652	-.1252	.0014	-.0011	.0062
.302	127.429	.00	16.66	1.1824	-.2161	-.1892	.0016	-.0005	.0065
.301	127.295	.00	3.34	.1701	.0128	.0227	.0011	-.0008	.0037

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HIGH SPEED TUNNEL TEST 789 RUN 2 BALANCE 731 09/14/67.

STABILITY AXIS COEFFICIENTS

MACH	Q	BETA	ALPHA	CL	CD	CPM	CRM	CYM	CSF	L/D
.402	216.188	.00	3.44	.1820	.0223	.0213	.0010	-.0012	.0045	8.172
.402	216.036	.00	-1.25	-.1925	.0257	.0843	.0014	-.0015	.0047	-7.482
.403	216.213	.00	-.13	-.1011	.0228	.0676	.0015	-.0014	.0047	-4.433
.403	216.203	.00	1.05	-.0062	.0212	.0505	.0013	-.0014	.0048	-.290
.403	216.662	.00	2.24	.0873	.0210	.0356	.0012	-.0013	.0047	4.151
.403	216.282	.00	3.41	.1796	.0223	.0214	.0011	-.0012	.0045	8.069
.403	216.370	.00	4.64	.2796	.0251	.0071	.0010	-.0012	.0049	11.137
.402	216.179	.00	5.87	.3777	.0295	-.0070	.0009	-.0012	.0050	12.807
.402	215.709	.00	7.13	.4793	.0354	-.0211	.0010	-.0011	.0050	13.525
.402	215.425	.00	8.32	.5759	.0426	-.0343	.0010	-.0013	.0052	13.532
.403	216.345	.00	10.76	.7752	.0611	-.0615	.0009	-.0012	.0051	12.695
.402	215.880	.00	13.09	.9595	.0846	-.0897	.0008	-.0013	.0056	11.342
.403	217.028	.00	3.62	.1962	.0227	.0190	.0010	-.0012	.0047	8.656
.401	215.233	.00	13.12	.9515	.0840	-.0894	.0010	-.0013	.0058	11.326
.403	216.267	.00	3.61	.1938	.0211	.0192	.0011	-.0011	.0049	9.199

BODY AXIS COEFFICIENTS

MACH	Q	BETA	ALPHA	CNF	CAF	CPM	CRM	CYM	CSF
.402	216.188	.00	3.44	.1830	.0113	.0213	.0011	-.0011	.0045
.402	216.036	.00	-1.25	-.1930	.0215	.0843	.0014	-.0015	.0047
.403	216.213	.00	-.13	-.1011	.0226	.0676	.0015	-.0014	.0047
.403	216.203	.00	1.05	-.0058	.0213	.0505	.0013	-.0014	.0048
.403	216.662	.00	2.24	.0880	.0176	.0356	.0013	-.0013	.0047
.403	216.282	.00	3.41	.1807	.0115	.0214	.0012	-.0011	.0045
.403	216.370	.00	4.64	.2807	.0024	.0071	.0011	-.0011	.0049
.402	216.179	.00	5.87	.3786	-.0093	-.0070	.0010	-.0011	.0050
.402	215.709	.00	7.13	.4799	-.0243	-.0211	.0012	-.0010	.0050
.402	215.425	.00	8.32	.5758	-.0412	-.0343	.0012	-.0011	.0052
.403	216.345	.00	10.76	.7726	-.0847	-.0615	.0011	-.0010	.0051
.402	215.880	.00	13.09	.9531	-.1348	-.0897	.0010	-.0011	.0056
.403	217.028	.00	3.62	.1972	.0102	.0190	.0011	-.0011	.0047
.401	215.233	.00	13.12	.9451	-.1339	-.0894	.0012	-.0010	.0058
.403	216.267	.00	3.61	.1947	.0088	.0192	.0012	-.0010	.0049

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HIGH SPEED TUNNEL TEST 789 RUN 4 BALANCE 731 09/14/67.

STABILITY AXIS COEFFICIENTS

MACH	Q	BETA	ALPHA	CL	CD	CPM	CRM	CYM	CSF	L/D
.607	427.743	.00	4.25	.2743	.0247	.0127	.0013	-.0012	.0049	11.085
.605	426.720	.00	-1.68	-.2282	.0277	.0828	.0016	-.0017	.0055	-8.235
.606	427.012	.00	-.31	-.1133	.0232	.0646	.0015	-.0016	.0058	-4.886
.607	427.902	.00	1.10	.0047	.0211	.0469	.0015	-.0013	.0054	.224
.607	428.131	.00	2.63	.1332	.0215	.0301	.0012	-.0013	.0052	6.193
.606	427.858	.00	4.22	.2700	.0248	.0135	.0012	-.0013	.0053	10.873
.606	427.848	.00	5.03	.3403	.0276	.0051	.0010	-.0013	.0053	12.327
.607	428.010	.00	5.74	.4010	.0307	-.0020	.0012	-.0013	.0056	13.071
.605	426.243	.00	6.45	.4650	.0344	-.0093	.0013	-.0013	.0058	13.499
.605	426.658	.00	7.24	.5339	.0394	-.0165	.0011	-.0014	.0059	13.543
.606	427.082	.00	7.94	.5977	.0449	-.0230	.0010	-.0014	.0059	13.304
.606	426.847	.00	8.66	.6591	.0513	-.0291	.0008	-.0014	.0060	12.840
.605	426.377	.00	9.33	.7108	.0579	-.0345	.0009	-.0014	.0061	12.270
.606	427.284	.00	9.99	.7614	.0661	-.0383	.0008	-.0014	.0063	11.511
.606	427.328	.00	10.63	.7996	.0757	-.0420	.0013	-.0013	.0064	10.563
.606	427.436	.00	4.45	.2898	.0256	.0108	.0012	-.0013	.0056	11.338

BODY AXIS COEFFICIENTS

MACH	Q	BETA	ALPHA	CNF	CAF	CPM	CRM	CYM	CSF
.607	427.743	.00	4.25	.2753	.0044	.0127	.0014	-.0011	.0049
.605	426.720	.00	-1.68	-.2288	.0210	.0828	.0015	-.0018	.0055
.606	427.012	.00	-.31	-.1134	.0226	.0646	.0015	-.0017	.0058
.607	427.902	.00	1.10	.0051	.0210	.0469	.0015	-.0013	.0054
.607	428.131	.00	2.63	.1340	.0154	.0301	.0013	-.0012	.0052
.606	427.858	.00	4.22	.2710	.0049	.0135	.0012	-.0012	.0053
.606	427.848	.00	5.03	.3414	-.0023	.0051	.0011	-.0012	.0053
.607	428.010	.00	5.74	.4020	-.0095	-.0020	.0013	-.0012	.0056
.605	426.243	.00	6.45	.4658	-.0180	-.0093	.0014	-.0012	.0058
.605	426.658	.00	7.24	.5344	-.0281	-.0165	.0012	-.0012	.0059
.606	427.082	.00	7.94	.5980	-.0380	-.0230	.0012	-.0013	.0059
.606	426.847	.00	8.66	.6591	-.0485	-.0291	.0010	-.0013	.0060
.605	426.377	.00	9.33	.7104	-.0581	-.0345	.0011	-.0012	.0061
.606	427.284	.00	9.99	.7610	-.0668	-.0383	.0010	-.0013	.0063
.606	427.328	.00	10.63	.7994	-.0730	-.0420	.0015	-.0010	.0064
.606	427.436	.00	4.45	.2908	.0030	.0108	.0013	-.0012	.0056

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HIGH SPEED TUNNEL TEST 789 RUN 3 BALANCE 731 09/14/67.

STABILITY AXIS COEFFICIENTS

MACH	Q	BETA	ALPHA	CL	CD	CPM	CRM	CYM	CSF	L/D
.504	318.566	.00	3.75	.2179	.0229	.0172	.0011	-.0012	.0046	9.501
.504	318.720	.00	-1.41	-.2044	.0261	.0832	.0015	-.0014	.0047	-7.817
.504	318.255	.00	-.23	-.1058	.0228	.0657	.0014	-.0014	.0046	-4.636
.504	318.592	.00	1.07	-.0013	.0209	.0479	.0015	-.0013	.0048	-.060
.504	318.578	.00	2.36	.1044	.0209	.0324	.0013	-.0012	.0046	4.990
.504	318.387	.00	3.75	.2172	.0228	.0166	.0012	-.0012	.0048	9.506
.504	318.468	.00	5.12	.3317	.0271	.0018	.0010	-.0011	.0052	12.257
.504	318.369	.00	6.38	.4377	.0324	-.0119	.0008	-.0012	.0056	13.502
.504	318.182	.00	7.76	.5506	.0401	-.0265	.0009	-.0012	.0058	13.731
.504	318.349	.00	9.08	.6636	.0495	-.0407	.0009	-.0012	.0054	13.404
.503	317.882	.00	11.64	.8812	.0728	-.0670	.0009	-.0013	.0056	12.107
.503	317.913	.00	13.82	1.0024	.1021	-.1176	.0021	-.0009	.0055	9.820
.504	318.919	.00	3.98	.2354	.0234	.0142	.0012	-.0012	.0050	10.041

BODY AXIS COEFFICIENTS

MACH	Q	BETA	ALPHA	CNF	CAF	CPM	CRM	CYM	CSF
.504	318.566	.00	3.75	.2189	.0086	.0172	.0012	-.0011	.0046
.504	318.720	.00	-1.41	-.2049	.0211	.0832	.0015	-.0015	.0047
.504	318.255	.00	-.23	-.1059	.0224	.0657	.0014	-.0014	.0046
.504	318.592	.00	1.07	-.0009	.0209	.0479	.0015	-.0013	.0048
.504	318.578	.00	2.36	.1052	.0166	.0324	.0014	-.0012	.0046
.504	318.387	.00	3.75	.2182	.0086	.0166	.0013	-.0011	.0048
.504	318.468	.00	5.12	.3327	-.0026	.0018	.0011	-.0010	.0052
.504	318.369	.00	6.38	.4384	-.0164	-.0119	.0009	-.0011	.0056
.504	318.182	.00	7.76	.5508	-.0346	-.0265	.0011	-.0011	.0056
.504	318.349	.00	9.08	.6626	-.0558	-.0407	.0011	-.0011	.0054
.503	317.882	.00	11.64	.8772	-.1064	-.0670	.0011	-.0011	.0056
.503	317.913	.00	13.82	.9969	-.1401	-.1176	.0022	-.0004	.0055
.504	318.919	.00	3.98	.2365	.0071	.0142	.0013	-.0011	.0050

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HIGH SPEED TUNNEL TEST 789 RUN 6 BALANCE 731 09/14/67.

STABILITY AXIS COEFFICIENTS

MACH	Q	BETA	ALPHA	CL	CD	CPM	CRM	CYM	CSF	L/D
.705	532.992	.00	4.80	.3357	.0352	.0010	.0009	-.0011	.0045	9.542
.714	544.026	.00	-1.99	-.2650	.0336	.0864	.0006	-.0012	.0039	-7.891
.715	544.727	.00	-.54	-.1395	.0257	.0628	.0005	-.0010	.0035	-5.430
.714	543.605	.00	1.29	.0295	.0224	.0432	.0005	-.0010	.0038	1.319
.713	542.395	.00	3.19	.2009	.0271	.0208	.0006	-.0010	.0038	7.417
.713	542.975	.00	3.97	.2667	.0323	.0070	.0008	-.0009	.0039	8.267
.714	543.153	.00	4.64	.3100	.0386	-.0066	.0012	-.0008	.0039	8.033
.713	543.014	.00	5.23	.3402	.0445	-.0168	.0015	-.0007	.0039	7.637
.714	543.299	.00	5.84	.3657	.0511	-.0261	.0015	-.0009	.0040	7.154
.715	544.226	.00	4.69	.3110	.0395	-.0091	.0013	-.0008	.0039	7.877

BODY AXIS COEFFICIENTS

MACH	Q	BETA	ALPHA	CNF	CAF	CPM	CRM	CYM	CSF
.705	532.992	.00	4.80	.3374	.0070	.0010	.0010	-.0010	.0045
.714	544.026	.00	-1.99	-.2659	.0244	.0864	.0006	-.0012	.0039
.715	544.727	.00	-.54	-.1397	.0244	.0628	.0005	-.0010	.0035
.714	543.605	.00	1.29	.0300	.0217	.0432	.0005	-.0010	.0038
.713	542.395	.00	3.19	.2021	.0159	.0208	.0006	-.0009	.0038
.713	542.975	.00	3.97	.2682	.0137	.0070	.0008	-.0008	.0039
.714	543.153	.00	4.64	.3120	.0134	-.0066	.0013	-.0007	.0039
.713	543.014	.00	5.23	.3427	.0133	-.0168	.0016	-.0006	.0039
.714	543.299	.00	5.84	.3688	.0137	-.0261	.0015	-.0007	.0040
.715	544.226	.00	4.69	.3131	.0140	-.0091	.0013	-.0007	.0039

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HIGH SPEED TUNNEL TEST 789 BALANCE 731 09/14/67

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STABILITY AXIS COEFFICIENTS

MACH	Q	BETA	ALPHA	CL	CD	CPM	CRM	CYM	CSF	L/D
.606	427.283	.00	4.33	.2740	.0250	.0128	.0009	-.0013	.0049	10.964
.605	426.131	.00	-1.62	-.2334	.0274	.0841	.0015	-.0015	.0050	-8.525
.606	427.604	.00	-.28	-.1172	.0230	.0651	.0014	-.0016	.0056	-5.103
.606	427.742	.00	1.17	.0039	.0209	.0469	.0012	-.0013	.0049	.189
.606	427.806	.00	2.71	.1350	.0215	.0296	.0011	-.0012	.0047	6.279
.606	427.871	.00	4.29	.2728	.0250	.0129	.0008	-.0014	.0050	10.927
.606	427.779	.00	5.04	.3368	.0276	.0053	.0009	-.0014	.0052	12.215
.606	427.185	.00	5.82	.4056	.0311	-.0027	.0008	-.0015	.0055	13.055
.607	428.183	.00	6.54	.4697	.0350	-.0098	.0009	-.0015	.0058	13.428
.607	428.767	.00	7.29	.5376	.0400	-.0167	.0009	-.0016	.0060	13.435
.606	427.766	.00	8.04	.6038	.0458	-.0237	.0008	-.0016	.0062	13.183
.606	427.786	.00	8.77	.6647	.0523	-.0296	.0008	-.0016	.0062	12.702
.604	425.143	.00	9.41	.7134	.0587	-.0347	.0008	-.0016	.0064	12.161
.606	428.082	.00	10.08	.7644	.0671	-.0391	.0008	-.0017	.0067	11.391
.606	427.852	.00	10.77	.8091	.0764	-.0420	.0010	-.0016	.0067	10.595
.607	428.395	.00	4.52	.2917	.0258	.0109	.0007	-.0014	.0051	11.297

BODY AXIS COEFFICIENTS

MACH	Q	BETA	ALPHA	CNF	CAF	CPM	CRM	CYM	CSF
.606	427.283	.00	4.33	.2751	.0042	.0128	.0010	-.0012	.0049
.605	426.131	.00	-1.62	-.2340	.0208	.0841	.0014	-.0015	.0050
.606	427.604	.00	-.28	-.1173	.0224	.0651	.0014	-.0016	.0056
.606	427.742	.00	1.17	.0044	.0208	.0469	.0012	-.0012	.0049
.606	427.806	.00	2.71	.1358	.0151	.0296	.0011	-.0012	.0047
.606	427.871	.00	4.29	.2739	.0045	.0129	.0009	-.0013	.0050
.606	427.779	.00	5.04	.3378	-.0021	.0053	.0010	-.0013	.0052
.606	427.185	.00	5.82	.4065	-.0102	-.0027	.0010	-.0014	.0055
.607	428.183	.00	6.54	.4705	-.0187	-.0098	.0010	-.0014	.0058
.607	428.767	.00	7.29	.5381	-.0285	-.0167	.0011	-.0015	.0060
.606	427.766	.00	8.04	.6040	-.0391	-.0237	.0010	-.0015	.0062
.606	427.786	.00	8.77	.6647	-.0495	-.0296	.0011	-.0015	.0062
.604	425.143	.00	9.41	.7131	-.0586	-.0347	.0011	-.0015	.0064
.606	428.082	.00	10.08	.7639	-.0677	-.0391	.0011	-.0015	.0067
.606	427.852	.00	10.77	.8086	-.0761	-.0420	.0013	-.0014	.0067
.607	428.395	.00	4.52	.2928	.0028	.0109	.0009	-.0013	.0051

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HIGH SPEED TUNNEL TEST 789 RUN 8 BALANCE 731 09/14/67.

STABILITY AXIS COEFFICIENTS

MACH	Q	BETA	ALPHA	CL	CD	CPM	CRM	CYM	CSF	L/D
.403	216.452	.00	3.41	.1646	.0389	.0076	.0010	-.0012	.0076	4.230
.403	216.257	.00	-1.36	-.2096	.0482	.0750	.0011	-.0013	.0080	-4.345
.403	216.508	.00	-.20	-.1188	.0433	.0567	.0012	-.0012	.0078	-2.744
.403	216.207	.00	.96	-.0257	.0403	.0392	.0015	-.0011	.0080	-.637
.403	216.562	.00	2.17	.0682	.0388	.0232	.0014	-.0011	.0080	1.757
.403	216.732	.00	3.37	.1632	.0389	.0077	.0013	-.0012	.0078	4.195
.402	216.159	.00	4.60	.2587	.0407	-.0070	.0009	-.0012	.0077	6.360
.403	216.612	.00	5.85	.3602	.0440	-.0224	.0013	-.0012	.0081	8.190
.403	216.695	.00	7.10	.4598	.0489	-.0367	.0009	-.0013	.0078	9.393
.403	216.218	.00	8.29	.5554	.0550	-.0503	.0009	-.0014	.0081	10.093
.402	215.928	.00	9.51	.6524	.0626	-.0634	.0008	-.0014	.0080	10.413
.402	215.640	.00	10.72	.7472	.0716	-.0748	.0004	-.0016	.0079	10.440
.403	216.658	.00	11.94	.8420	.0819	-.0878	.0004	-.0017	.0089	10.286
.403	216.570	.00	13.09	.9287	.0936	-.1068	.0004	-.0017	.0089	9.924
.402	216.060	.00	14.16	.9965	.1083	-.1321	.0016	-.0017	.0097	9.217
.403	216.265	.00	3.41	.1659	.0389	.0076	.0010	-.0012	.0077	4.264

BODY AXIS COEFFICIENTS

MACH	Q	BETA	ALPHA	CNF	CAF	CPM	CRM	CYM	CSF
.403	216.452	.00	3.41	.1666	.0291	.0076	.0011	-.0011	.0076
.403	216.257	.00	-1.36	-.2106	.0433	.0750	.0011	-.0013	.0080
.403	216.508	.00	-.20	-.1190	.0429	.0567	.0012	-.0012	.0078
.403	216.207	.00	.96	-.0250	.0407	.0392	.0015	-.0011	.0080
.403	216.562	.00	2.17	.0696	.0362	.0232	.0014	-.0011	.0080
.403	216.732	.00	3.37	.1652	.0293	.0077	.0014	-.0011	.0078
.402	216.159	.00	4.60	.2610	.0198	-.0070	.0010	-.0011	.0077
.403	216.612	.00	5.85	.3627	.0071	-.0224	.0014	-.0011	.0081
.403	216.695	.00	7.10	.4621	-.0082	-.0367	.0010	-.0012	.0078
.403	216.218	.00	8.29	.5572	-.0256	-.0503	.0011	-.0013	.0081
.402	215.928	.00	9.51	.6534	-.0459	-.0634	.0010	-.0013	.0080
.402	215.640	.00	10.72	.7471	-.0685	-.0748	.0007	-.0015	.0079
.403	216.658	.00	11.94	.8402	-.0939	-.0878	.0007	-.0016	.0089
.403	216.570	.00	13.09	.9250	-.1191	-.1068	.0007	-.0016	.0089
.402	216.060	.00	14.16	.9938	-.1390	-.1321	.0019	-.0012	.0097
.403	216.265	.00	3.41	.1679	.0290	.0076	.0010	-.0011	.0077

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HIGH SPEED TUNNEL TEST 789 RUN 7 BALANCE 731 09/14/67.

STABILITY AXIS COEFFICIENTS

MACH	Q	BETA	ALPHA	CL	CD	CPF	CRM	CYM	CSF	L/D
.302	127.484	.00	3.22	.1436	.0389	.0099	.0010	-.0011	.0073	3.694
.301	127.231	.00	-1.23	-.2004	.0468	.0734	.0014	-.0012	.0075	-4.287
.302	127.799	.00	-.13	-.1116	.0426	.0556	.0016	-.0011	.0073	-2.622
.302	127.693	.00	.98	-.0285	.0401	.0400	.0016	-.0011	.0077	-.710
.302	127.491	.00	2.10	.0580	.0388	.0245	.0018	-.0010	.0076	1.495
.302	127.484	.00	3.23	.1458	.0389	.0096	.0016	-.0010	.0074	3.750
.301	127.186	.00	4.36	.2316	.0400	-.0044	.0010	-.0012	.0072	5.789
.301	127.278	.00	5.48	.3217	.0428	-.0183	.0009	-.0012	.0073	7.508
.302	127.756	.00	6.61	.4098	.0465	-.0317	.0009	-.0012	.0073	8.813
.301	127.364	.00	7.80	.5031	.0518	-.0456	.0010	-.0013	.0076	9.720
.301	127.064	.00	10.08	.6818	.0656	-.0720	.0009	-.0013	.0071	10.398
.301	127.152	.00	12.34	.8560	.0836	-.0978	.0006	-.0017	.0082	10.243
.302	127.743	.00	14.53	1.0128	.1070	-.1391	.0009	-.0017	.0083	9.462
.301	127.213	.00	16.69	1.1657	.1404	-.1983	.0013	-.0016	.0093	8.303
.302	127.676	.00	3.30	.1493	.0388	.0092	.0012	-.0012	.0084	3.849

BODY AXIS COEFFICIENTS

MACH	Q	BETA	ALPHA	CNF	CAF	CPM	CRM	CYM	CSF
.302	127.484	.00	3.22	.1455	.0308	.0099	.0011	-.0010	.0073
.301	127.231	.00	-1.23	-.2013	.0424	.0734	.0014	-.0012	.0075
.302	127.799	.00	-.13	-.1116	.0423	.0556	.0016	-.0011	.0073
.302	127.693	.00	.98	-.0277	.0406	.0400	.0016	-.0011	.0077
.302	127.491	.00	2.10	.0593	.0366	.0245	.0019	-.0009	.0076
.302	127.484	.00	3.23	.1477	.0306	.0096	.0016	-.0009	.0074
.301	127.186	.00	4.36	.2339	.0223	-.0044	.0010	-.0011	.0072
.301	127.278	.00	5.48	.3242	.0119	-.0183	.0010	-.0011	.0073
.302	127.756	.00	6.61	.4123	-.0010	-.0317	.0011	-.0011	.0073
.301	127.364	.00	7.80	.5052	-.0170	-.0456	.0012	-.0012	.0076
.301	127.064	.00	10.08	.6824	-.0548	-.0720	.0011	-.0011	.0071
.301	127.152	.00	12.34	.8535	-.1012	-.0978	.0009	-.0015	.0082
.302	127.743	.00	14.53	1.0064	-.1502	-.1391	.0013	-.0014	.0083
.301	127.213	.00	16.69	1.1555	-.1999	-.1983	.0017	-.0012	.0093
.302	127.676	.00	3.30	.1512	.0301	.0092	.0012	-.0011	.0084

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HIGH SPEED TUNNEL TEST 789 RUN 9 BALANCE 731 09/14/67.

STABILITY AXIS COEFFICIENTS

MACH	Q	BETA	ALPHA	CL	CD	CPM	CRM	CYM	CSF	L/D
.506	320.194	.00	3.57	.1927	.0402	.0040	.0008	-.0012	.0061	4.794
.505	319.681	.00	-1.61	-.2132	.0525	.0749	.0013	-.0014	.0077	-4.058
.505	319.975	.00	-.39	-.1186	.0465	.0560	.0010	-.0013	.0071	-2.551
.505	319.029	.00	.91	-.0161	.0422	.0370	.0015	-.0012	.0069	-.382
.505	320.053	.00	2.22	.0875	.0401	.0199	.0014	-.0012	.0069	2.181
.505	319.393	.00	3.56	.1928	.0401	.0037	.0009	-.0012	.0065	4.805
.504	318.734	.00	4.95	.3069	.0422	-.0133	.0010	-.0012	.0069	7.266
.505	319.327	.00	6.28	.4161	.0463	-.0287	.0009	-.0013	.0071	8.995
.505	319.307	.00	7.64	.5259	.0526	-.0432	.0008	-.0014	.0075	9.999
.505	319.109	.00	8.93	.6331	.0606	-.0563	.0007	-.0015	.0077	10.451
.505	319.979	.00	10.24	.7404	.0703	-.0682	.0006	-.0016	.0076	10.530
.504	318.399	.00	11.47	.8317	.0821	-.0851	.0011	-.0015	.0078	10.135
.505	319.201	.00	12.53	.8877	.0946	-.1150	.0011	-.0009	.0074	9.388
.504	318.898	.00	13.10	.9227	.1024	-.1241	.0018	-.0010	.0077	9.014
.505	319.586	.00	13.64	.9486	.1098	-.1380	.0021	-.0012	.0080	8.642
.504	318.854	.00	3.60	.1974	.0401	.0028	.0009	-.0013	.0067	4.922

BODY AXIS COEFFICIENTS

MACH	Q	BETA	ALPHA	CNF	CAF	CPM	CRM	CYM	CSF
.506	320.194	.00	3.57	.1948	.0281	.0040	.0009	-.0011	.0061
.505	319.681	.00	-1.61	-.2144	.0465	.0749	.0013	-.0015	.0077
.505	319.975	.00	-.39	-.1188	.0457	.0560	.0010	-.0013	.0071
.505	319.029	.00	.91	-.0154	.0424	.0370	.0015	-.0011	.0069
.505	320.053	.00	2.22	.0889	.0367	.0199	.0014	-.0011	.0069
.505	319.393	.00	3.56	.1948	.0281	.0037	.0010	-.0012	.0065
.504	318.734	.00	4.95	.3093	.0156	-.0133	.0011	-.0011	.0069
.505	319.327	.00	6.28	.4185	.0005	-.0287	.0011	-.0012	.0071
.505	319.307	.00	7.64	.5280	-.0177	-.0432	.0010	-.0013	.0075
.505	319.109	.00	8.93	.6345	-.0384	-.0563	.0009	-.0014	.0077
.505	319.979	.00	10.24	.7406	-.0624	-.0682	.0008	-.0014	.0076
.504	318.399	.00	11.47	.8309	-.0848	-.0851	.0014	-.0012	.0078
.505	319.201	.00	12.53	.8864	-.1001	-.1150	.0013	-.0007	.0074
.504	318.898	.00	13.10	.9211	-.1093	-.1241	.0019	-.0006	.0077
.505	319.586	.00	13.64	.9469	-.1168	-.1380	.0023	-.0007	.0080
.504	318.854	.00	3.60	.1994	.0276	.0028	.0010	-.0012	.0067

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HIGH SPEED TUNNEL TEST 789 RUN 10 BALANCE 731 09/14/67.

STABILITY AXIS COEFFICIENTS

MACH	Q	BETA	ALPHA	CL	CD	CPM	CRM	CYM	CSF	L/D
.607	427.989	.00	4.02	.2536	.0438	-.0019	.0008	-.0014	.0070	5.789
.606	427.302	.00	-1.96	-.2103	.0613	.0766	.0016	-.0018	.0082	-3.429
.608	429.256	.00	-.58	-.1061	.0533	.0551	.0014	-.0017	.0081	-1.992
.606	427.367	.00	.88	.0047	.0475	.0351	.0012	-.0014	.0070	.099
.607	427.753	.00	2.42	.1238	.0440	.0164	.0009	-.0014	.0067	2.811
.607	428.153	.00	4.00	.2546	.0438	-.0025	.0008	-.0014	.0068	5.815
.607	428.025	.00	4.81	.3221	.0449	-.0123	.0007	-.0015	.0070	7.172
.606	427.576	.00	5.49	.3780	.0466	-.0201	.0007	-.0015	.0071	8.107
.607	427.633	.00	6.27	.4430	.0495	-.0279	.0007	-.0016	.0075	8.953
.606	427.530	.00	7.01	.5075	.0533	-.0352	.0005	-.0017	.0075	9.520
.607	427.610	.00	7.71	.5636	.0577	-.0426	.0006	-.0017	.0076	9.773
.607	427.883	.00	8.40	.6159	.0631	-.0491	.0005	-.0017	.0074	9.761
.607	427.951	.00	9.02	.6634	.0688	-.0558	.0002	-.0017	.0072	9.643
.609	430.121	.00	9.75	.7163	.0771	-.0563	.0002	-.0017	.0072	9.292
.607	428.534	.00	4.01	.2535	.0440	-.0028	.0004	-.0014	.0063	5.760

BODY AXIS COEFFICIENTS

MACH	Q	BETA	ALPHA	CNF	CAF	CPM	CRM	CYM	CSF
.607	427.989	.00	4.02	.2560	.0260	-.0019	.0009	-.0014	.0070
.606	427.302	.00	-1.96	-.2122	.0541	.0766	.0016	-.0019	.0082
.608	429.256	.00	-.58	-.1066	.0522	.0551	.0014	-.0017	.0081
.606	427.367	.00	.88	.0054	.0474	.0351	.0012	-.0014	.0070
.607	427.753	.00	2.42	.1255	.0388	.0164	.0010	-.0013	.0067
.607	428.153	.00	4.00	.2570	.0259	-.0025	.0009	-.0014	.0068
.607	428.025	.00	4.81	.3246	.0178	-.0123	.0008	-.0014	.0070
.606	427.576	.00	5.49	.3806	.0102	-.0201	.0008	-.0014	.0071
.607	427.633	.00	6.27	.4456	.0009	-.0279	.0008	-.0015	.0075
.606	427.530	.00	7.01	.5100	-.0090	-.0352	.0007	-.0016	.0075
.607	427.610	.00	7.71	.5659	-.0184	-.0426	.0008	-.0016	.0076
.607	427.883	.00	8.40	.6182	-.0275	-.0491	.0007	-.0016	.0074
.607	427.951	.00	9.02	.6656	-.0360	-.0558	.0005	-.0016	.0072
.609	430.121	.00	9.75	.7186	-.0452	-.0563	.0005	-.0016	.0072
.607	428.534	.00	4.01	.2559	.0262	-.0028	.0005	-.0014	.0063

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HIGH SPEED TUNNEL TEST 789 RUN 12 BALANCE 731 09/14/67.

STABILITY AXIS COEFFICIENTS

MACH	Q	BETA	ALPHA	CL	CD	CPM	CRM	CYM	CSF	L/D
.302	127.592	.00	3.38	.0852	.0401	.1906	.0012	-.0019	.0088	2.123
.301	126.959	.00	-1.07	-.2611	.0523	.2561	.0012	-.0022	.0091	-4.988
.302	127.915	.00	.01	-.1762	.0475	.2388	.0013	-.0021	.0089	-3.714
.303	128.291	.00	1.12	-.0897	.0439	.2225	.0013	-.0021	.0093	-2.044
.302	127.892	.00	2.23	-.0040	.0413	.2063	.0012	-.0020	.0088	-.097
.302	127.495	.00	3.36	.0836	.0401	.1904	.0012	-.0019	.0087	2.083
.301	127.100	.00	4.48	.1716	.0403	.1760	.0012	-.0018	.0084	4.253
.302	127.770	.00	5.61	.2601	.0419	.1613	.0009	-.0018	.0080	6.209
.302	127.376	.00	6.76	.3488	.0446	.1474	.0005	-.0019	.0076	7.822
.302	127.562	.00	7.90	.4395	.0485	.1328	.0006	-.0019	.0079	9.067
.301	126.968	.00	10.21	.6230	.0604	.1028	.0005	-.0020	.0077	10.309
.301	127.152	.00	12.43	.7913	.0761	.0777	.0003	-.0021	.0079	10.397
.302	127.545	.00	14.64	.9505	.0975	.0393	.0007	-.0019	.0080	9.753
.302	127.593	.00	16.75	1.0987	.1283	-.0193	.0010	-.0017	.0085	8.566
.302	127.591	.00	3.39	.0853	.0400	.1899	.0013	-.0019	.0090	2.133

BODY AXIS COEFFICIENTS

MACH	Q	BETA	ALPHA	CNF	CAF	CPM	CRM	CYM	CSF
.302	127.592	.00	3.38	.0874	.0351	.1906	.0013	-.0019	.0088
.301	126.959	.00	-1.07	-.2619	.0475	.2561	.0011	-.0022	.0091
.302	127.915	.00	.01	-.1762	.0475	.2388	.0013	-.0021	.0089
.303	128.291	.00	1.12	-.0888	.0457	.2225	.0013	-.0021	.0093
.302	127.892	.00	2.23	-.0024	.0414	.2063	.0012	-.0019	.0088
.302	127.495	.00	3.36	.0858	.0352	.1904	.0013	-.0018	.0087
.301	127.100	.00	4.48	.1741	.0268	.1760	.0013	-.0017	.0084
.302	127.770	.00	5.61	.2629	.0163	.1613	.0010	-.0017	.0080
.302	127.376	.00	6.76	.3515	.0032	.1474	.0008	-.0018	.0076
.302	127.562	.00	7.90	.4418	-.0124	.1328	.0009	-.0018	.0079
.301	126.968	.00	10.21	.6235	-.0509	.1028	.0008	-.0019	.0077
.301	127.152	.00	12.43	.7887	-.0959	.0777	.0007	-.0020	.0079
.302	127.545	.00	14.64	.9435	-.1457	.0393	.0011	-.0017	.0080
.302	127.593	.00	16.75	1.0879	-.1935	-.0193	.0014	-.0013	.0085
.302	127.591	.00	3.39	.0875	.0349	.1899	.0014	-.0018	.0090

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HIGH SPEED TUNNEL TEST 789 RUN 11 BALANCE 731 09/14/67.

STABILITY AXIS COEFFICIENTS

MACH	Q	BETA	ALPHA	CL	CD	CPM	CRM	CYM	CSF	L/D
.713	542.027	.00	4.23	.2877	.0691	-.0319	.0013	-.0008	.0053	4.161
.713	541.760	.00	3.68	.2647	.0655	-.0169	.0009	-.0009	.0054	4.039
.713	542.374	.00	3.03	.2220	.0634	-.0000	.0008	-.0010	.0055	3.501
.714	542.801	.00	2.27	.1683	.0625	.0166	.0008	-.0011	.0059	2.692
.713	542.478	.00	1.34	.1059	.0630	.0329	.0006	-.0012	.0062	1.680
.713	541.892	.00	.44	.0427	.0655	.0477	.0005	-.0011	.0060	.653
.713	541.886	.00	4.22	.2867	.0695	-.0323	.0013	-.0007	.0051	4.124

BODY AXIS COEFFICIENTS

MACH	Q	BETA	ALPHA	CNF	CAF	CPM	CRM	CYM	CSF
.713	542.027	.00	4.23	.2919	.0477	-.0319	.0014	-.0007	.0053
.713	541.760	.00	3.68	.2682	.0484	-.0169	.0009	-.0009	.0054
.713	542.374	.00	3.03	.2249	.0516	-.0000	.0009	-.0010	.0055
.714	542.801	.00	2.27	.1706	.0558	.0166	.0009	-.0010	.0059
.713	542.478	.00	1.34	.1072	.0605	.0329	.0006	-.0011	.0062
.713	541.892	.00	.44	.0432	.0651	.0477	.0005	-.0011	.0060
.713	541.886	.00	4.22	.2909	.0482	-.0323	.0013	-.0007	.0051

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HIGH SPEED TUNNEL TEST 789 RUN 14 BALANCE 731 09/14/67.

STABILITY AXIS COEFFICIENTS

MACH	Q	BETA	ALPHA	CL	CD	CPM	CRM	CYM	CSF	L/D
.301	127.277	.00	3.20	.1468	.0362	-.0026	.0011	-.0013	.0076	4.051
.302	127.891	.00	-1.31	-.1661	.0426	-.0235	.0014	-.0015	.0083	-3.903
.302	127.977	.00	-.19	-.0891	.0392	-.0185	.0014	-.0014	.0078	-2.272
.301	127.098	.00	.93	-.0115	.0372	-.0133	.0015	-.0013	.0080	-.309
.302	127.863	.00	2.05	.0665	.0361	-.0079	.0014	-.0013	.0079	1.844
.301	127.373	.00	3.20	.1476	.0363	-.0026	.0011	-.0013	.0078	4.070
.302	127.658	.00	4.35	.2280	.0374	.0026	.0008	-.0014	.0078	6.089
.302	127.652	.00	5.49	.3080	.0396	.0073	.0007	-.0015	.0075	7.776
.301	127.357	.00	6.66	.3932	.0430	.0124	.0010	-.0015	.0077	9.144
.302	127.739	.00	7.82	.4773	.0475	.0172	.0008	-.0016	.0079	10.048
.301	126.859	.00	10.14	.6423	.0594	.0272	.0005	-.0017	.0072	10.817
.301	126.852	.00	12.42	.7999	.0747	.0364	.0000	-.0020	.0074	10.708
.302	127.635	.00	14.63	.9415	.0946	.0424	.0000	-.0020	.0081	9.956
.300	126.428	.00	16.81	1.0764	.1235	.0370	.0007	-.0017	.0087	8.714
.301	127.373	.00	3.23	.1488	.0363	-.0026	.0012	-.0013	.0077	4.102

BODY AXIS COEFFICIENTS

MACH	Q	BETA	ALPHA	CNF	CAF	CPM	CRM	CYM	CSF
.301	127.277	.00	3.20	.1486	.0280	-.0026	.0012	-.0013	.0076
.302	127.891	.00	-1.31	-.1669	.0387	-.0235	.0014	-.0016	.0083
.302	127.977	.00	-.19	-.0892	.0389	-.0185	.0014	-.0014	.0078
.301	127.098	.00	.93	-.0109	.0374	-.0133	.0016	-.0013	.0080
.302	127.863	.00	2.05	.0678	.0337	-.0079	.0015	-.0012	.0079
.301	127.373	.00	3.20	.1493	.0280	-.0026	.0012	-.0012	.0078
.302	127.658	.00	4.35	.2301	.0201	.0026	.0009	-.0014	.0078
.302	127.652	.00	5.49	.3103	.0100	.0073	.0008	-.0014	.0075
.301	127.357	.00	6.66	.3954	-.0029	.0124	.0012	-.0014	.0077
.302	127.739	.00	7.82	.4791	-.0179	.0172	.0010	-.0015	.0079
.301	126.859	.00	10.14	.6424	-.0546	.0272	.0008	-.0016	.0072
.301	126.852	.00	12.42	.7967	-.0990	.0364	.0004	-.0020	.0074
.302	127.635	.00	14.63	.9341	-.1461	.0424	.0005	-.0020	.0081
.300	126.428	.00	16.81	1.0650	-.1928	.0370	.0012	-.0014	.0087
.301	127.373	.00	3.23	.1506	.0278	-.0026	.0012	-.0012	.0077

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HIGH SPEED TUNNEL TEST 789 RUN 13 BALANCE 731 09/14/67.

STABILITY AXIS COEFFICIENTS

MACH	Q	BETA	ALPHA	CL	CD	CPM	CRM	CYM	CSF	L/D
.505	319.673	.00	8.39	.5138	.0530	.1356	.0006	-.0018	.0077	9.686
.505	318.941	.00	9.48	.6069	.0595	.1236	.0005	-.0019	.0079	10.207
.504	318.745	.00	10.72	.7075	.0682	.1105	.0004	-.0019	.0076	10.373
.505	318.894	.00	11.85	.7824	.0801	.0872	.0014	-.0017	.0078	9.766
.505	319.021	.00	12.38	.8107	.0857	.0687	.0012	-.0014	.0075	9.460
.504	318.523	.00	12.96	.8453	.0920	.0592	.0017	-.0012	.0076	9.191
.506	320.364	.00	13.52	.8728	.0991	.0489	.0020	-.0013	.0075	8.805
.505	319.537	.00	14.02	.8959	.1059	.0346	.0022	-.0014	.0078	8.458
.506	320.024	.00	8.41	.5178	.0530	.1349	.0006	-.0018	.0075	9.762

BODY AXIS COEFFICIENTS

MACH	Q	BETA	ALPHA	CNF	CAF	CPM	CRM	CYM	CSF
.505	319.673	.00	8.39	.5158	-.0224	.1356	.0008	-.0017	.0077
.505	318.941	.00	9.48	.6081	-.0412	.1236	.0008	-.0018	.0079
.504	318.745	.00	10.72	.7074	-.0644	.1105	.0008	-.0018	.0076
.505	318.894	.00	11.85	.7816	-.0821	.0872	.0017	-.0014	.0078
.505	319.021	.00	12.38	.8096	-.0900	.0687	.0015	-.0012	.0075
.504	318.523	.00	12.96	.8438	-.0998	.0592	.0019	-.0008	.0076
.506	320.364	.00	13.52	.8710	-.1074	.0489	.0022	-.0009	.0075
.505	319.537	.00	14.02	.8941	-.1141	.0346	.0024	-.0008	.0078
.506	320.024	.00	8.41	.5197	-.0233	.1349	.0008	-.0017	.0075

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HIGH SPEED TUNNEL TEST 789 RUN 16 BALANCE 731 09/14/67.

STABILITY AXIS COEFFICIENTS

MACH	Q	BETA	ALPHA	CL	CD	CPM	CRM	CYM	CSF	L/D
.505	319.268	.00	3.62	.1890	.0377	.0008	.0009	-.0016	.0079	5.013
.505	319.199	.00	-1.88	-.1992	.0497	-.0245	.0013	-.0019	.0093	-4.010
.506	320.117	.00	-.59	-.1107	.0440	-.0185	.0014	-.0017	.0087	-2.515
.505	319.885	.00	.79	-.0146	.0399	-.0123	.0013	-.0015	.0081	-.367
.505	319.485	.00	2.17	.0845	.0378	-.0058	.0011	-.0015	.0080	2.234
.504	319.001	.00	3.58	.1869	.0376	.0008	.0009	-.0016	.0079	4.971
.505	319.059	.00	5.03	.2973	.0397	.0075	.0007	-.0016	.0076	7.486
.504	318.768	.00	6.41	.4026	.0436	.0140	.0008	-.0016	.0077	9.237
.504	318.747	.00	7.84	.5113	.0496	.0212	.0009	-.0017	.0080	10.300
.504	318.816	.00	9.20	.6160	.0571	.0284	.0006	-.0017	.0078	10.788
.504	318.805	.00	10.53	.7179	.0664	.0355	.0008	-.0018	.0080	10.816
.504	318.766	.00	11.75	.7921	.0777	.0393	.0015	-.0018	.0084	10.189
.505	319.892	.00	3.61	.1899	.0378	.0009	.0009	-.0016	.0078	5.030

BODY AXIS COEFFICIENTS

MACH	Q	BETA	ALPHA	CNF	CAF	CPM	CRM	CYM	CSF
.505	319.268	.00	3.62	.1909	.0257	.0008	.0010	-.0015	.0079
.505	319.199	.00	-1.88	-.2006	.0431	-.0245	.0013	-.0019	.0093
.506	320.117	.00	-.59	-.1111	.0429	-.0185	.0014	-.0017	.0087
.505	319.885	.00	.79	-.0141	.0401	-.0123	.0013	-.0015	.0081
.505	319.485	.00	2.17	.0858	.0346	-.0058	.0012	-.0015	.0080
.504	319.001	.00	3.58	.1889	.0259	.0008	.0010	-.0015	.0079
.505	319.059	.00	5.03	.2995	.0135	.0075	.0009	-.0016	.0076
.504	318.768	.00	6.41	.4048	-.0016	.0140	.0010	-.0015	.0077
.504	318.747	.00	7.84	.5130	-.0206	.0212	.0011	-.0016	.0080
.504	318.816	.00	9.20	.6169	-.0421	.0284	.0008	-.0016	.0078
.504	318.805	.00	10.53	.7175	-.0658	.0355	.0011	-.0017	.0080
.504	318.766	.00	11.75	.7908	-.0850	.0393	.0018	-.0015	.0084
.505	319.892	.00	3.61	.1918	.0257	.0009	.0010	-.0015	.0078

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HIGH SPEED TUNNEL TEST 789 RUN 15 BALANCE 731 09/14/67.

STABILITY AXIS COEFFICIENTS

MACH	Q	BETA	ALPHA	CL	CD	CPM	CRM	CYM	CSF	L/D
.403	216.802	.00	3.36	.1619	.0364	-.0013	.0009	-.0014	.0074	4.450
.402	216.133	.00	-1.52	-.1850	.0443	-.0247	.0013	-.0016	.0086	-4.172
.403	216.669	.00	-.35	-.1015	.0403	-.0193	.0014	-.0014	.0079	-2.517
.403	216.368	.00	.87	-.0140	.0375	-.0130	.0016	-.0014	.0079	-.373
.403	216.818	.00	2.10	.0734	.0363	-.0071	.0014	-.0013	.0078	2.020
.403	216.429	.00	3.36	.1627	.0364	-.0013	.0010	-.0014	.0077	4.474
.402	215.857	.00	4.59	.2512	.0379	.0043	.0008	-.0015	.0077	6.630
.402	216.126	.00	5.89	.3472	.0411	.0102	.0008	-.0016	.0079	8.454
.403	216.769	.00	7.18	.4424	.0455	.0157	.0008	-.0016	.0078	9.722
.403	216.572	.00	8.40	.5324	.0510	.0210	.0010	-.0016	.0081	10.442
.403	216.375	.00	9.63	.6247	.0578	.0267	.0006	-.0017	.0078	10.804
.402	215.807	.00	10.88	.7139	.0658	.0321	.0004	-.0018	.0078	10.856
.403	216.359	.00	12.09	.8023	.0748	.0378	.0004	-.0019	.0081	10.722
.402	215.713	.00	13.26	.8762	.0846	.0426	.0004	-.0020	.0080	10.352
.403	216.243	.00	3.38	.1635	.0364	-.0012	.0008	-.0014	.0076	4.487

BODY AXIS COEFFICIENTS

MACH	Q	BETA	ALPHA	CNF	CAF	CPM	CRM	CYM	CSF
.403	216.802	.00	3.36	.1637	.0268	-.0013	.0010	-.0014	.0074
.402	216.133	.00	-1.52	-.1861	.0394	-.0247	.0013	-.0017	.0086
.403	216.669	.00	-.35	-.1017	.0397	-.0193	.0014	-.0014	.0079
.403	216.368	.00	.87	-.0134	.0377	-.0130	.0016	-.0013	.0079
.403	216.818	.00	2.10	.0746	.0336	-.0071	.0014	-.0013	.0078
.403	216.429	.00	3.36	.1645	.0268	-.0013	.0011	-.0013	.0077
.402	215.857	.00	4.59	.2533	.0177	.0043	.0009	-.0014	.0077
.402	216.126	.00	5.89	.3495	.0053	.0102	.0009	-.0015	.0079
.403	216.769	.00	7.18	.4445	-.0101	.0157	.0010	-.0015	.0078
.403	216.572	.00	8.40	.5340	-.0273	.0210	.0012	-.0015	.0081
.403	216.375	.00	9.63	.6252	-.0474	.0267	.0009	-.0016	.0078
.402	215.807	.00	10.88	.7131	-.0701	.0321	.0008	-.0017	.0078
.403	216.359	.00	12.09	.7997	-.0947	.0378	.0008	-.0018	.0081
.402	215.713	.00	13.26	.8716	-.1185	.0426	.0008	-.0018	.0080
.403	216.243	.00	3.38	.1653	.0268	-.0012	.0009	-.0014	.0076

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HIGH SPEED TUNNEL TEST 789 RUN 18 BALANCE 731 09/14/67.

STABILITY AXIS COEFFICIENTS

MACH	Q	BETA	ALPHA	CL	CD	CPM	CRM	CYM	CSF	L/D
.713	541.482	.00	4.48	.2741	.0684	.0122	.0013	-.0008	.0050	4.009
.714	542.984	.00	3.85	.2531	.0650	.0104	.0010	-.0010	.0055	3.895
.714	542.352	.00	3.11	.2173	.0619	.0082	.0008	-.0012	.0059	3.509
.713	541.541	.00	2.25	.1615	.0601	.0049	.0009	-.0016	.0070	2.688
.713	541.570	.00	1.19	.0932	.0613	-.0003	.0007	-.0016	.0070	1.520
.713	542.121	.00	.25	.0315	.0643	-.0052	.0005	-.0014	.0069	.490
.713	542.419	.00	-.66	-.0232	.0695	-.0104	.0001	-.0015	.0076	-.334
.714	542.703	.00	4.46	.2720	.0686	.0113	.0014	-.0005	.0047	3.966

BODY AXIS COEFFICIENTS

MACH	Q	BETA	ALPHA	CNF	CAF	CPM	CRM	CYM	CSF
.713	541.482	.00	4.48	.2784	.0468	.0122	.0014	-.0007	.0050
.714	542.984	.00	3.85	.2568	.0479	.0104	.0011	-.0009	.0055
.714	542.352	.00	3.11	.2202	.0500	.0082	.0008	-.0012	.0059
.713	541.541	.00	2.25	.1637	.0537	.0049	.0010	-.0016	.0070
.713	541.570	.00	1.19	.0944	.0593	-.0003	.0007	-.0016	.0070
.713	542.121	.00	.25	.0318	.0642	-.0052	.0005	-.0014	.0069
.713	542.419	.00	-.66	-.0240	.0693	-.0104	.0001	-.0015	.0076
.714	542.703	.00	4.46	.2764	.0473	.0113	.0014	-.0004	.0047

HIGH SPEED TUNNEL TEST 789 RUN 17 BALANCE 731 09/14/67.

UNCLASSIFIED

STABILITY AXIS COEFFICIENTS

MACH	Q	BETA	ALPHA	CL	CD	CPM	CRM	CYM	CSF	L/D
.607	428.222	.00	4.06	.2457	.0414	.0055	.0008	-.0016	.0071	5.931
.608	429.254	.00	-2.42	-.2090	.0608	-.0247	.0014	-.0019	.0094	-3.435
.608	429.342	.00	-.92	-.1097	.0520	-.0164	.0014	-.0018	.0089	-2.108
.607	428.947	.00	.71	.0003	.0455	-.0089	.0012	-.0015	.0078	.006
.607	428.659	.00	2.36	.1175	.0418	-.0018	.0010	-.0015	.0074	2.809
.606	427.468	.00	4.06	.2452	.0414	.0055	.0008	-.0016	.0073	5.921
.607	428.771	.00	4.86	.3087	.0425	.0096	.0007	-.0016	.0073	7.260
.607	428.238	.00	5.65	.3706	.0444	.0138	.0006	-.0017	.0076	8.353
.607	428.299	.00	6.48	.4359	.0473	.0188	.0007	-.0017	.0077	9.210
.606	427.946	.00	7.24	.4958	.0508	.0238	.0007	-.0018	.0077	9.757
.607	428.293	.00	7.97	.5477	.0553	.0297	.0006	-.0017	.0074	9.907
.607	428.751	.00	8.72	.5998	.0612	.0359	.0005	-.0018	.0075	9.800
.605	426.680	.00	9.41	.6484	.0668	.0409	.0006	-.0018	.0076	9.710
.606	427.428	.00	10.14	.7003	.0751	.0455	.0006	-.0019	.0077	9.326
.607	428.136	.00	4.09	.2491	.0415	.0058	.0008	-.0015	.0074	6.003

BODY AXIS COEFFICIENTS

MACH	Q	BETA	ALPHA	CNF	CAF	CPM	CRM	CYM	CSF
.607	428.222	.00	4.06	.2479	.0239	.0055	.0009	-.0015	.0071
.608	429.254	.00	-2.42	-.2113	.0520	-.0247	.0014	-.0020	.0094
.608	429.342	.00	-.92	-.1105	.0503	-.0164	.0014	-.0018	.0089
.607	428.947	.00	.71	.0008	.0455	-.0089	.0012	-.0015	.0078
.607	428.659	.00	2.36	.1191	.0370	-.0018	.0011	-.0014	.0074
.606	427.468	.00	4.06	.2474	.0240	.0055	.0009	-.0015	.0073
.607	428.771	.00	4.86	.3111	.0162	.0096	.0008	-.0015	.0073
.607	428.238	.00	5.65	.3731	.0077	.0138	.0007	-.0016	.0076
.607	428.299	.00	6.48	.4383	-.0021	.0188	.0009	-.0016	.0077
.606	427.946	.00	7.24	.4981	-.0120	.0238	.0009	-.0017	.0077
.607	428.293	.00	7.97	.5498	-.0212	.0297	.0008	-.0016	.0074
.607	428.751	.00	8.72	.6019	-.0303	.0359	.0008	-.0017	.0075
.605	426.680	.00	9.41	.6502	-.0401	.0409	.0009	-.0017	.0076
.606	427.428	.00	10.14	.7021	-.0492	.0455	.0009	-.0017	.0077
.607	428.136	.00	4.09	.2513	.0236	.0058	.0009	-.0015	.0074

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GROUP 4 - DOWNGRADED AT 3-YR INTERVALS, DECLASSIFIED AFTER 12 YRS

HIGH SPEED TUNNEL TEST 789 RUN 20 BALANCE 731 09/14/67.

STABILITY AXIS COEFFICIENTS

MACH	Q	BETA	ALPHA	CL	CD	CPM	CRM	CYM	CSF	L/D
.402	216.311	.00	3.42	.1753	.0243	.0003	.0009	-.0011	.0052	7.216
.402	216.258	.00	-1.49	-.1829	.0283	-.0246	.0013	-.0011	.0066	-6.467
.403	216.619	.00	-.29	-.0935	.0253	-.0186	.0015	-.0011	.0063	-3.694
.403	216.607	.00	.94	-.0042	.0236	-.0122	.0014	-.0010	.0061	-.180
.403	216.412	.00	2.16	.0848	.0233	-.0058	.0015	-.0010	.0059	3.642
.403	216.405	.00	3.42	.1758	.0243	.0004	.0011	-.0011	.0056	7.231
.403	216.584	.00	4.72	.2709	.0268	.0063	.0010	-.0012	.0056	10.108
.402	216.205	.00	5.96	.3650	.0307	.0118	.0008	-.0013	.0057	11.896
.402	216.106	.00	7.24	.4606	.0359	.0172	.0010	-.0014	.0059	12.834
.403	216.381	.00	8.46	.5525	.0422	.0225	.0010	-.0015	.0061	13.084
.403	216.655	.00	9.70	.6434	.0497	.0280	.0007	-.0015	.0061	12.956
.402	216.092	.00	10.94	.7356	.0587	.0334	.0004	-.0017	.0062	12.539
.402	216.182	.00	12.15	.8233	.0684	.0390	.0002	-.0018	.0063	12.039
.402	216.000	.00	13.33	.9029	.0790	.0442	.0002	-.0019	.0067	11.433
.403	216.870	.00	3.45	.1769	.0244	.0003	.0009	-.0012	.0056	7.257

BODY AXIS COEFFICIENTS

MACH	Q	BETA	ALPHA	CNF	CAF	CPM	CRM	CYM	CSF
.402	216.311	.00	3.42	.1764	.0138	.0003	.0009	-.0010	.0052
.402	216.258	.00	-1.49	-.1835	.0235	-.0246	.0013	-.0012	.0066
.403	216.619	.00	-.29	-.0936	.0248	-.0186	.0014	-.0011	.0063
.403	216.607	.00	.94	-.0039	.0237	-.0122	.0014	-.0010	.0061
.403	216.412	.00	2.16	.0856	.0201	-.0058	.0015	-.0010	.0059
.403	216.405	.00	3.42	.1769	.0138	.0004	.0011	-.0011	.0056
.403	216.584	.00	4.72	.2721	.0044	.0063	.0011	-.0011	.0056
.402	216.205	.00	5.96	.3661	-.0074	.0118	.0010	-.0012	.0057
.402	216.106	.00	7.24	.4613	-.0224	.0172	.0011	-.0012	.0059
.403	216.381	.00	8.46	.5525	-.0395	.0225	.0012	-.0013	.0061
.403	216.655	.00	9.70	.6423	-.0594	.0280	.0009	-.0014	.0061
.402	216.092	.00	10.94	.7330	-.0819	.0334	.0007	-.0016	.0062
.402	216.182	.00	12.15	.8188	-.1063	.0390	.0005	-.0017	.0063
.402	216.000	.00	13.33	.8962	-.1312	.0442	.0007	-.0018	.0067
.403	216.870	.00	3.45	.1780	.0137	.0003	.0010	-.0011	.0056

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GROUP 4 - DOWNGRADED AT 3-YR INTERVALS, DECLASSIFIED AFTER 12 YRS

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HIGH SPEED TUNNEL TEST 789 RUN 19 BALANCE 731 09/14/67.

STABILITY AXIS COEFFICIENTS

MACH	Q	BETA	ALPHA	CL	CD	CPM	CRM	CYM	CSF	L/D
.302	127.792	.00	3.23	.1564	.0244	-.0011	.0009	-.0011	.0055	6.415
.301	127.425	.00	-1.29	-.1630	.0279	-.0228	.0014	-.0011	.0063	-5.847
.302	127.709	.00	-.17	-.0820	.0254	-.0174	.0015	-.0010	.0063	-3.231
.302	127.704	.00	.95	-.0032	.0240	-.0123	.0016	-.0010	.0061	-.132
.302	127.699	.00	2.09	.0773	.0236	-.0064	.0015	-.0010	.0058	3.275
.301	127.406	.00	3.24	.1585	.0244	-.0011	.0010	-.0011	.0056	6.488
.302	127.692	.00	4.39	.2408	.0263	.0041	.0010	-.0012	.0056	9.170
.301	127.206	.00	5.54	.3250	.0293	.0091	.0010	-.0013	.0059	11.107
.301	127.106	.00	6.70	.4089	.0333	.0139	.0010	-.0013	.0059	12.286
.301	127.490	.00	7.86	.4928	.0383	.0189	.0009	-.0014	.0059	12.871
.301	127.098	.00	10.21	.6634	.0518	.0286	.0006	-.0016	.0063	12.797
.300	126.225	.00	12.46	.8225	.0685	.0375	-.0001	-.0019	.0064	12.000
.302	127.589	.00	14.67	.9647	.0891	.0442	.0003	-.0019	.0065	10.829
.301	126.962	.00	16.88	1.1015	.1187	.0398	.0007	-.0016	.0072	9.278
.301	127.405	.00	3.27	.1598	.0243	-.0010	.0013	-.0010	.0053	6.564

BODY AXIS COEFFICIENTS

MACH	Q	BETA	ALPHA	CNF	CAF	CPM	CRM	CYM	CSF
.302	127.792	.00	3.23	.1574	.0155	-.0011	.0009	-.0010	.0055
.301	127.425	.00	-1.29	-.1636	.0242	-.0228	.0014	-.0011	.0063
.302	127.709	.00	-.17	-.0821	.0251	-.0174	.0015	-.0010	.0063
.302	127.704	.00	.95	-.0028	.0241	-.0123	.0016	-.0010	.0061
.302	127.699	.00	2.09	.0781	.0208	-.0064	.0016	-.0009	.0058
.301	127.406	.00	3.24	.1596	.0154	-.0011	.0011	-.0010	.0056
.302	127.692	.00	4.39	.2421	.0077	.0041	.0011	-.0011	.0056
.301	127.206	.00	5.54	.3262	-.0022	.0091	.0012	-.0012	.0059
.301	127.106	.00	6.70	.4098	-.0146	.0139	.0011	-.0012	.0059
.301	127.490	.00	7.86	.4932	-.0294	.0189	.0010	-.0013	.0059
.301	127.098	.00	10.21	.6618	-.0666	.0286	.0009	-.0015	.0063
.300	126.225	.00	12.46	.8174	-.1104	.0375	.0003	-.0019	.0064
.302	127.589	.00	14.67	.9551	-.1580	.0442	.0008	-.0017	.0065
.301	126.962	.00	16.88	1.0875	-.2058	.0398	.0011	-.0013	.0072
.301	127.405	.00	3.27	.1609	.0152	-.0010	.0013	-.0009	.0053

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HIGH SPEED TUNNEL TEST 789 RUN 22 BALANCE 731 09/14/67.

STABILITY AXIS COEFFICIENTS

MACH	Q	BETA	ALPHA	CL	CD	CPM	CRM	CYM	CSF	L/D
.607	428.190	.00	4.19	.2545	.0271	.0069	.0009	-.0014	.0063	9.386
.606	427.388	.00	-2.14	-.2324	.0341	-.0325	.0014	-.0016	.0078	-6.825
.608	429.910	.00	-.71	-.1234	.0283	-.0227	.0014	-.0016	.0073	-4.356
.606	427.511	.00	.83	-.0088	.0250	-.0133	.0013	-.0013	.0068	-.352
.607	428.487	.00	2.46	.1170	.0245	-.0030	.0009	-.0013	.0062	4.777
.607	428.287	.00	4.20	.2557	.0271	.0071	.0006	-.0014	.0060	9.420
.606	427.520	.00	5.00	.3211	.0294	.0117	.0007	-.0015	.0061	10.913
.606	427.844	.00	5.84	.3892	.0326	.0166	.0006	-.0016	.0062	11.952
.606	427.499	.00	6.62	.4528	.0362	.0213	.0005	-.0016	.0063	12.515
.606	427.834	.00	7.41	.5160	.0407	.0264	.0007	-.0017	.0065	12.681
.606	427.601	.00	8.15	.5717	.0460	.0321	.0006	-.0017	.0064	12.435
.606	427.295	.00	8.90	.6252	.0519	.0381	.0005	-.0017	.0064	12.040
.606	427.264	.00	9.62	.6786	.0592	.0433	.0006	-.0017	.0067	11.460
.607	428.524	.00	10.34	.7325	.0684	.0480	.0005	-.0017	.0067	10.715
.605	426.276	.00	4.20	.2563	.0272	.0071	.0007	-.0014	.0062	9.408

BODY AXIS COEFFICIENTS

MACH	Q	BETA	ALPHA	CNF	CAF	CPM	CRM	CYM	CSF
.607	428.190	.00	4.19	.2558	.0085	.0069	.0010	-.0013	.0063
.606	427.388	.00	-2.14	-.2335	.0254	-.0325	.0014	-.0017	.0078
.608	429.910	.00	-.71	-.1237	.0268	-.0227	.0014	-.0016	.0073
.606	427.511	.00	.83	-.0084	.0251	-.0133	.0013	-.0013	.0068
.607	428.487	.00	2.46	.1179	.0194	-.0030	.0010	-.0013	.0062
.607	428.287	.00	4.20	.2569	.0083	.0071	.0007	-.0013	.0060
.606	427.520	.00	5.00	.3224	.0013	.0117	.0008	-.0014	.0061
.606	427.844	.00	5.84	.3904	-.0072	.0166	.0008	-.0015	.0062
.606	427.499	.00	6.62	.4538	-.0163	.0213	.0007	-.0016	.0063
.606	427.834	.00	7.41	.5168	-.0261	.0264	.0009	-.0016	.0065
.606	427.601	.00	8.15	.5723	-.0355	.0321	.0008	-.0016	.0064
.606	427.295	.00	8.90	.6255	-.0454	.0381	.0008	-.0016	.0064
.606	427.264	.00	9.62	.6787	-.0549	.0433	.0009	-.0016	.0067
.607	428.524	.00	10.34	.7325	-.0641	.0480	.0008	-.0016	.0067
.605	426.276	.00	4.20	.2575	.0064	.0071	.0008	-.0013	.0062

HIGH SPEED TUNNEL TEST 789 RUN 21 BALANCE 731 09/14/67.

STABILITY AXIS COEFFICIENTS

MACH	Q	BETA	ALPHA	CL	CD	CPM	CRM	CYM	CSF	L/D
.505	319.425	.00	3.74	.2055	.0250	.0027	.0007	-.0012	.0056	8.206
.505	319.774	.00	-1.80	-.2098	.0299	-.0278	.0011	-.0013	.0072	-7.012
.505	319.926	.00	-.49	-.1115	.0261	-.0204	.0012	-.0012	.0067	-4.279
.505	319.992	.00	.88	-.0068	.0238	-.0125	.0014	-.0012	.0064	-.287
.505	319.619	.00	2.29	.0972	.0235	-.0047	.0012	-.0012	.0060	4.139
.505	319.514	.00	3.70	.2028	.0250	.0025	.0008	-.0013	.0058	8.116
.504	318.967	.00	5.14	.3142	.0284	.0097	.0009	-.0013	.0059	11.072
.504	319.221	.00	6.53	.4221	.0335	.0163	.0008	-.0015	.0063	12.599
.505	319.299	.00	7.95	.5327	.0406	.0232	.0009	-.0015	.0062	13.106
.505	319.290	.00	9.29	.6376	.0491	.0299	.0008	-.0017	.0068	12.985
.505	319.280	.00	10.65	.7427	.0593	.0370	.0005	-.0017	.0066	12.534
.504	318.332	.00	11.92	.8281	.0710	.0432	.0012	-.0017	.0072	11.670
.503	318.182	.00	3.73	.2049	.0252	.0026	.0007	-.0013	.0056	8.139

BODY AXIS COEFFICIENTS

MACH	Q	BETA	ALPHA	CNF	CAF	CPM	CRM	CYM	CSF
.505	319.425	.00	3.74	.2066	.0116	.0027	.0008	-.0012	.0056
.505	319.774	.00	-1.80	-.2106	.0233	-.0278	.0011	-.0014	.0072
.505	319.926	.00	-.49	-.1117	.0251	-.0204	.0012	-.0012	.0067
.505	319.992	.00	.88	-.0065	.0239	-.0125	.0014	-.0012	.0064
.505	319.619	.00	2.29	.0980	.0196	-.0047	.0013	-.0011	.0060
.505	319.514	.00	3.70	.2039	.0119	.0025	.0008	-.0012	.0058
.504	318.967	.00	5.14	.3154	.0001	.0097	.0011	-.0013	.0059
.504	319.221	.00	6.53	.4230	-.0147	.0163	.0009	-.0014	.0063
.505	319.299	.00	7.95	.5331	-.0334	.0232	.0011	-.0014	.0062
.505	319.290	.00	9.29	.6369	-.0545	.0299	.0010	-.0015	.0068
.505	319.280	.00	10.65	.7405	-.0789	.0370	.0008	-.0016	.0066
.504	318.332	.00	11.92	.8244	-.1015	.0432	.0015	-.0015	.0072
.503	318.182	.00	3.73	.2061	.0118	.0026	.0008	-.0012	.0056

UNCLASSIFIED

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HIGH SPEED TUNNEL TEST 789 RUN 24 BALANCE 731 09/14/67.

DECLASSIFIED

STABILITY AXIS COEFFICIENTS

MACH	Q	BETA	ALPHA	CL	CD	CPM	CRM	CYM	CSF	L/D
.301	127.132	.00	3.30	.1332	.0266	.0882	.0011	-.0014	.0060	5.010
.301	126.872	.00	-1.16	-.2143	.0338	.1504	.0014	-.0015	.0061	-6.339
.301	127.541	.00	-.08	-.1273	.0302	.1343	.0013	-.0016	.0063	-4.209
.301	127.242	.00	1.03	-.0424	.0276	.1180	.0014	-.0015	.0064	-1.534
.301	127.333	.00	2.13	.0432	.0266	.1034	.0012	-.0015	.0060	1.626
.301	127.423	.00	3.26	.1305	.0266	.0884	.0012	-.0014	.0061	4.913
.301	127.030	.00	4.41	.2207	.0279	.0739	.0010	-.0014	.0058	7.910
.301	127.123	.00	5.52	.3071	.0305	.0605	.0009	-.0014	.0054	10.059
.301	127.022	.00	6.68	.3981	.0345	.0473	.0010	-.0014	.0056	11.541
.301	127.018	.00	7.82	.4901	.0398	.0333	.0007	-.0015	.0055	12.303
.300	126.429	.00	10.14	.6732	.0540	.0047	.0007	-.0014	.0054	12.474
.300	126.711	.00	12.35	.8461	.0717	-.0201	.0005	-.0015	.0050	11.794
.299	125.754	.00	14.50	1.0041	.0949	-.0571	.0007	-.0013	.0049	10.578
.301	127.350	.00	16.72	1.1627	.1288	-.1194	.0008	-.0010	.0052	9.025
.301	126.938	.00	3.37	.1397	.0267	.0873	.0011	-.0014	.0054	5.240

BODY AXIS COEFFICIENTS

MACH	Q	BETA	ALPHA	CNF	CAF	CPM	CRM	CYM	CSF
.301	127.132	.00	3.30	.1345	.0189	.0882	.0011	-.0013	.0060
.301	126.872	.00	-1.16	-.2149	.0295	.1504	.0014	-.0015	.0061
.301	127.541	.00	-.08	-.1273	.0301	.1343	.0013	-.0016	.0063
.301	127.242	.00	1.03	-.0419	.0284	.1180	.0015	-.0015	.0064
.301	127.333	.00	2.13	.0442	.0250	.1034	.0013	-.0015	.0060
.301	127.423	.00	3.26	.1317	.0191	.0884	.0013	-.0013	.0061
.301	127.030	.00	4.41	.2221	.0108	.0739	.0011	-.0013	.0058
.301	127.123	.00	5.52	.3085	.0009	.0605	.0010	-.0013	.0054
.301	127.022	.00	6.68	.3993	-.0120	.0473	.0012	-.0012	.0056
.301	127.018	.00	7.82	.4907	-.0272	.0333	.0009	-.0014	.0055
.300	126.429	.00	10.14	.6719	-.0653	.0047	.0010	-.0013	.0054
.300	126.711	.00	12.35	.8413	-.1108	-.0201	.0008	-.0013	.0050
.299	125.754	.00	14.50	.9950	-.1594	-.0571	.0010	-.0011	.0049
.301	127.350	.00	16.72	1.1493	-.2108	-.1194	.0011	-.0008	.0052
.301	126.938	.00	3.37	.1410	.0184	.0873	.0012	-.0013	.0054

DECLASSIFIED

HIGH SPEED TUNNEL [redacted] TEST 789 RUN 23 BALANCE 731 09/14/67.

STABILITY AXIS COEFFICIENTS

MACH	Q	BETA	ALPHA	CL	CD	CPM	CRM	CYM	CSF	L/D
.713	540.395	.00	4.67	.2893	.0435	.0113	.0007	-.0013	.0057	6.644
.713	540.793	.00	4.03	.2571	.0382	.0079	.0007	-.0013	.0058	6.726
.712	539.980	.00	3.19	.2001	.0338	.0033	.0007	-.0013	.0059	5.920
.712	539.816	.00	2.26	.1319	.0319	-.0029	.0006	-.0012	.0057	4.137
.712	540.143	.00	1.26	.0603	.0330	-.0099	.0005	-.0011	.0058	1.825
.711	538.819	.00	.38	.0011	.0356	-.0157	.0003	-.0010	.0060	.030
.712	539.445	.00	-.42	-.0472	.0395	-.0204	.0005	-.0010	.0059	-1.195
.712	540.148	.00	4.67	.2902	.0435	.0115	.0006	-.0013	.0055	6.677

BODY AXIS COEFFICIENTS

MACH	Q	BETA	ALPHA	CNF	CAF	CPM	CRM	CYM	CSF
.713	540.395	.00	4.67	.2918	.0198	.0113	.0008	-.0013	.0057
.713	540.793	.00	4.03	.2590	.0201	.0079	.0008	-.0013	.0058
.712	539.980	.00	3.19	.2016	.0226	.0033	.0007	-.0013	.0059
.712	539.816	.00	2.26	.1330	.0267	-.0029	.0007	-.0012	.0057
.712	540.143	.00	1.26	.0610	.0317	-.0099	.0005	-.0011	.0058
.711	538.819	.00	.38	.0013	.0356	-.0157	.0003	-.0010	.0060
.712	539.445	.00	-.42	-.0475	.0392	-.0204	.0005	-.0011	.0059
.712	540.148	.00	4.67	.2927	.0197	.0115	.0007	-.0012	.0055

UNCLASSIFIED

UNCLASSIFIED

[redacted]

UNCLASSIFIED

GROUP 4 - DOWNGRADED AT 3-YR INTERVALS, DECLASSIFIED AFTER 12 YRS

HIGH SPEED TUNNEL TEST 789 RUN 26 BALANCE 731 09/14/67.

STABILITY AXIS COEFFICIENTS

MACH	Q	BETA	ALPHA	CL	CD	CPM	CRM	CYM	CSF	L/D
.711	539.698	.00	3.71	.2193	.0380	.0845	.0003	-.0012	.0053	5.763
.710	539.391	.00	4.34	.2699	.0423	.0699	.0004	-.0012	.0051	6.377
.711	539.949	.00	4.92	.3013	.0478	.0567	.0005	-.0012	.0051	6.303
.711	539.955	.00	5.51	.3288	.0535	.0472	.0007	-.0013	.0053	6.150
.711	540.275	.00	4.94	.3018	.0480	.0562	.0005	-.0012	.0051	6.289

BODY AXIS COEFFICIENTS

MACH	Q	BETA	ALPHA	CNF	CAF	CPM	CRM	CYM	CSF
.711	539.698	.00	3.71	.2212	.0238	.0845	.0003	-.0012	.0053
.710	539.391	.00	4.34	.2722	.0218	.0699	.0005	-.0011	.0051
.711	539.949	.00	4.92	.3042	.0218	.0567	.0006	-.0012	.0051
.711	539.955	.00	5.51	.3322	.0217	.0472	.0008	-.0012	.0053
.711	540.275	.00	4.94	.3046	.0218	.0562	.0005	-.0011	.0051

UNCLASSIFIED

UNCLASSIFIED

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HIGH SPEED TUNNEL TEST 789 RUN 25 BALANCE 731 09/14/67.

STABILITY AXIS COEFFICIENTS

MACH	Q	BETA	ALPHA	CL	CD	CPM	CRM	CYM	CSF	L/D
.504	318.668	.00	3.96	.1987	.0273	.0834	.0011	-.0015	.0066	7.290
.503	317.436	.00	-1.24	-.2264	.0341	.1522	.0014	-.0017	.0071	-6.633
.504	318.652	.00	-.00	-.1213	.0297	.1333	.0014	-.0017	.0069	-4.098
.504	318.356	.00	1.28	-.0164	.0269	.1150	.0013	-.0016	.0066	-.609
.504	318.422	.00	2.60	.0882	.0262	.0993	.0013	-.0016	.0070	3.367
.503	318.223	.00	3.97	.2001	.0273	.0830	.0011	-.0016	.0068	7.315
.503	318.029	.00	5.32	.3110	.0305	.0674	.0009	-.0015	.0065	10.188
.503	317.926	.00	6.65	.4229	.0357	.0529	.0010	-.0015	.0064	11.854
.503	318.001	.00	8.00	.5341	.0427	.0382	.0007	-.0015	.0060	12.517
.503	317.985	.00	9.28	.6419	.0510	.0242	.0008	-.0014	.0061	12.574
.503	317.525	.00	10.57	.7514	.0614	.0106	.0005	-.0014	.0060	12.248
.503	317.872	.00	11.86	.8577	.0734	-.0037	.0004	-.0016	.0062	11.681
.504	318.399	.00	4.12	.2115	.0276	.0813	.0011	-.0015	.0068	7.664

BODY AXIS COEFFICIENTS

MACH	Q	BETA	ALPHA	CNF	CAF	CPM	CRM	CYM	CSF
.504	318.668	.00	3.96	.2001	.0135	.0834	.0012	-.0015	.0066
.503	317.436	.00	-1.24	-.2271	.0292	.1522	.0013	-.0017	.0071
.504	318.652	.00	-.00	-.1213	.0297	.1333	.0014	-.0017	.0069
.504	318.356	.00	1.28	-.0158	.0273	.1150	.0014	-.0016	.0066
.504	318.422	.00	2.60	.0893	.0222	.0993	.0013	-.0016	.0070
.503	318.223	.00	3.97	.2014	.0134	.0830	.0012	-.0015	.0068
.503	318.029	.00	5.32	.3124	.0016	.0674	.0010	-.0014	.0065
.503	317.926	.00	6.65	.4241	-.0135	.0529	.0012	-.0013	.0064
.503	318.001	.00	8.00	.5346	-.0321	.0382	.0009	-.0013	.0060
.503	317.985	.00	9.28	.6414	-.0530	.0242	.0010	-.0013	.0061
.503	317.525	.00	10.57	.7496	-.0774	.0106	.0007	-.0013	.0060
.503	317.872	.00	11.86	.8539	-.1043	-.0037	.0007	-.0015	.0062
.504	318.399	.00	4.12	.2129	.0123	.0813	.0012	-.0014	.0068

UNCLASSIFIED

HIGH SPEED TUNNEL TEST 789 RUN 27 BALANCE 731 09/14/67.

STABILITY AXIS COEFFICIENTS

MACH	Q	BETA	ALPHA	CL	CD	CPM	CRM	CYM	CSF	L/D
.605	427.508	.00	4.48	.2545	.0296	.0816	.0004	-.0014	.0059	8.585
.606	427.888	.00	.03	-.1234	.0310	.1346	.0007	-.0014	.0064	-3.982
.606	428.089	.00	1.40	-.0078	.0279	.1162	.0006	-.0014	.0064	-.278
.605	427.627	.00	2.91	.1202	.0273	.0987	.0007	-.0014	.0063	4.398
.605	427.254	.00	4.50	.2575	.0297	.0808	.0004	-.0014	.0058	8.678
.605	427.814	.00	5.98	.3872	.0348	.0651	.0002	-.0015	.0058	11.133
.605	427.800	.00	6.80	.4593	.0387	.0572	.0002	-.0016	.0059	11.855
.605	427.625	.00	7.49	.5196	.0429	.0510	.0001	-.0016	.0061	12.119
.605	427.723	.00	8.18	.5770	.0481	.0440	.0002	-.0016	.0060	12.004
.606	428.839	.00	8.85	.6280	.0537	.0367	.0002	-.0016	.0059	11.701
.606	427.953	.00	9.53	.6832	.0604	.0300	.0001	-.0016	.0059	11.309
.605	427.767	.00	10.21	.7369	.0686	.0258	.0001	-.0016	.0060	10.736
.606	428.005	.00	4.74	.2775	.0303	.0787	.0003	-.0014	.0059	9.148

BODY AXIS COEFFICIENTS

MACH	Q	BETA	ALPHA	CNF	CAF	CPM	CRM	CYM	CSF
.605	427.508	.00	4.48	.2560	.0097	.0816	.0006	-.0014	.0059
.606	427.888	.00	.03	-.1234	.0311	.1346	.0007	-.0014	.0064
.606	428.089	.00	1.40	-.0071	.0281	.1162	.0007	-.0014	.0064
.605	427.627	.00	2.91	.1214	.0212	.0987	.0008	-.0013	.0063
.605	427.254	.00	4.50	.2590	.0094	.0808	.0005	-.0014	.0058
.605	427.814	.00	5.98	.3886	-.0057	.0651	.0003	-.0015	.0058
.605	427.800	.00	6.80	.4605	-.0159	.0572	.0004	-.0016	.0059
.605	427.625	.00	7.49	.5206	-.0252	.0510	.0003	-.0016	.0061
.605	427.723	.00	8.18	.5777	-.0345	.0440	.0005	-.0016	.0060
.606	428.839	.00	8.85	.6285	-.0435	.0367	.0004	-.0016	.0059
.606	427.953	.00	9.53	.6835	-.0535	.0300	.0003	-.0016	.0059
.605	427.767	.00	10.21	.7370	-.0630	.0258	.0004	-.0016	.0060
.606	428.005	.00	4.74	.2790	.0073	.0787	.0004	-.0014	.0059

HIGH SPEED TUNNEL TEST 789 RUN 28 BALANCE 731 09/14/67.

UNCLASSIFIED

STABILITY AXIS COEFFICIENTS

MACH	Q	BETA	ALPHA	CL	CD	CPM	CRM	CYM	CSF	L/D
.302	128.262	.00	3.27	.1197	.0386	.0791	.0011	-.0011	.0063	3.099
.302	127.625	.00	-1.15	-.2193	.0481	.1438	.0013	-.0015	.0073	-4.562
.302	127.903	.00	-.07	-.1362	.0438	.1275	.0013	-.0014	.0069	-3.111
.302	127.602	.00	1.03	-.0523	.0406	.1104	.0012	-.0011	.0066	-1.288
.302	127.593	.00	2.13	.0321	.0391	.0946	.0015	-.0011	.0065	.821
.302	127.682	.00	3.28	.1202	.0386	.0790	.0013	-.0011	.0065	3.113
.302	127.675	.00	4.39	.2069	.0395	.0643	.0011	-.0011	.0064	5.244
.302	127.766	.00	5.52	.2935	.0417	.0501	.0008	-.0011	.0060	7.038
.302	127.566	.00	6.67	.3833	.0450	.0359	.0006	-.0012	.0059	8.523
.301	127.463	.00	7.79	.4727	.0495	.0222	.0009	-.0011	.0058	9.546
.301	127.354	.00	10.13	.6592	.0628	-.0063	.0007	-.0011	.0057	10.491
.301	127.442	.00	12.37	.8311	.0800	-.0311	.0005	-.0015	.0062	10.392
.301	127.063	.00	14.58	.9916	.1028	-.0708	.0009	-.0014	.0069	9.649
.302	128.179	.00	16.72	1.1431	.1358	-.1308	.0015	-.0013	.0078	8.420
.302	127.778	.00	3.38	.1276	.0386	.0776	.0013	-.0011	.0063	3.307

BODY AXIS COEFFICIENTS

MACH	Q	BETA	ALPHA	CNF	CAF	CPM	CRM	CYM	CSF
.302	128.262	.00	3.27	.1216	.0317	.0791	.0011	-.0011	.0063
.302	127.625	.00	-1.15	-.2201	.0437	.1438	.0013	-.0016	.0073
.302	127.903	.00	-.07	-.1362	.0436	.1275	.0013	-.0014	.0069
.302	127.602	.00	1.03	-.0516	.0416	.1104	.0012	-.0011	.0066
.302	127.593	.00	2.13	.0335	.0379	.0946	.0015	-.0010	.0065
.302	127.682	.00	3.28	.1222	.0317	.0790	.0014	-.0010	.0065
.302	127.675	.00	4.39	.2093	.0235	.0643	.0012	-.0010	.0064
.302	127.766	.00	5.52	.2960	.0133	.0501	.0009	-.0011	.0060
.302	127.566	.00	6.67	.3858	.0002	.0359	.0008	-.0011	.0059
.301	127.463	.00	7.79	.4749	-.0150	.0222	.0010	-.0010	.0058
.301	127.354	.00	10.13	.6597	-.0540	-.0063	.0009	-.0010	.0057
.301	127.442	.00	12.37	.8284	-.0997	-.0311	.0008	-.0013	.0062
.301	127.063	.00	14.58	.9847	-.1499	-.0708	.0012	-.0012	.0069
.302	128.179	.00	16.72	1.1326	-.1984	-.1308	.0017	-.0008	.0078
.302	127.778	.00	3.38	.1297	.0310	.0776	.0014	-.0010	.0063

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HIGH SPEED TUNNEL TEST 789 RUN 30 BALANCE 731 09/14/67.

STABILITY AXIS COEFFICIENTS

MACH	Q	BETA	ALPHA	CL	CD	CPM	CRM	CYM	CSF	L/D
.606	427.823	.00	4.38	.2531	.0435	.0687	.0005	-.0014	.0059	5.813
.606	428.188	.00	-.21	-.1093	.0538	.1252	.0008	-.0014	.0066	-2.032
.606	427.973	.00	1.22	-.0001	.0478	.1062	.0007	-.0014	.0063	-.002
.606	428.278	.00	2.71	.1175	.0442	.0879	.0006	-.0013	.0059	2.657
.605	427.419	.00	4.25	.2440	.0437	.0700	.0005	-.0014	.0059	5.579
.605	426.952	.00	5.02	.3088	.0446	.0605	.0003	-.0014	.0058	6.923
.606	427.760	.00	5.82	.3765	.0467	.0519	.0003	-.0016	.0060	8.057
.605	427.227	.00	6.53	.4377	.0492	.0446	.0003	-.0016	.0060	8.887
.605	427.549	.00	7.21	.4948	.0526	.0375	.0003	-.0016	.0058	9.415
.606	427.643	.00	7.97	.5525	.0575	.0288	.0003	-.0016	.0059	9.612
.605	427.413	.00	8.66	.6031	.0626	.0218	.0003	-.0016	.0059	9.628
.605	427.197	.00	9.35	.6577	.0692	.0161	.0003	-.0016	.0061	9.501
.606	427.677	.00	10.00	.7087	.0767	.0130	.0002	-.0016	.0061	9.243
.605	427.141	.00	4.47	.2623	.0436	.0671	.0005	-.0014	.0059	6.012

BODY AXIS COEFFICIENTS

MACH	Q	BETA	ALPHA	CNF	CAF	CPM	CRM	CYM	CSF
.606	427.823	.00	4.38	.2556	.0241	.0687	.0007	-.0014	.0059
.606	428.188	.00	-.21	-.1094	.0534	.1252	.0008	-.0014	.0066
.606	427.973	.00	1.22	.0009	.0478	.1062	.0008	-.0013	.0063
.606	428.278	.00	2.71	.1195	.0386	.0879	.0006	-.0013	.0059
.605	427.419	.00	4.25	.2465	.0255	.0700	.0006	-.0013	.0059
.605	426.952	.00	5.02	.3114	.0174	.0605	.0004	-.0014	.0058
.606	427.760	.00	5.82	.3791	.0084	.0519	.0004	-.0015	.0060
.605	427.227	.00	6.53	.4403	-.0008	.0446	.0005	-.0015	.0060
.605	427.549	.00	7.21	.4973	-.0099	.0375	.0005	-.0015	.0058
.606	427.643	.00	7.97	.5548	-.0196	.0288	.0005	-.0015	.0059
.605	427.413	.00	8.66	.6053	-.0288	.0218	.0005	-.0015	.0059
.605	427.197	.00	9.35	.6598	-.0385	.0161	.0005	-.0015	.0061
.606	427.677	.00	10.00	.7107	-.0475	.0130	.0005	-.0015	.0061
.605	427.141	.00	4.47	.2648	.0231	.0671	.0006	-.0014	.0059

[redacted]

*** NASA [redacted] *** 7 X 10 FT TUNNELS *** NASA PRELIMINARY ***

GROUP 4 - DOWNGRADED AT 3-YR INTERVALS, DECLASSIFIED AFTER 12 YRS

HIGH SPEED TUNNEL [redacted] TEST 789 [redacted] RUN 29 BALANCE 731 09/14/67.

STABILITY AXIS COEFFICIENTS

MACH	Q	BETA	ALPHA	CL	CD	CPM	CRM	CYM	CSF	L/D
.504	318.629	.00	3.85	.1845	.0396	.0735	.0008	-.0013	.0059	4.633
.504	318.747	.00	-1.37	-.2234	.0532	.1457	.0009	-.0015	.0066	-4.201
.504	318.954	.00	-.21	-.1334	.0472	.1279	.0006	-.0014	.0060	-2.824
.504	318.982	.00	1.12	-.0304	.0425	.1086	.0013	-.0012	.0062	-.715
.503	318.581	.00	2.41	.0716	.0401	.0912	.0012	-.0012	.0062	1.786
.504	318.985	.00	3.82	.1842	.0397	.0733	.0012	-.0013	.0062	4.634
.503	318.420	.00	5.20	.2955	.0419	.0566	.0007	-.0014	.0060	7.051
.503	318.216	.00	6.51	.4029	.0458	.0415	.0009	-.0014	.0062	8.792
.503	318.101	.00	7.84	.5131	.0517	.0266	.0009	-.0014	.0065	9.930
.503	318.347	.00	9.12	.6194	.0592	.0123	.0008	-.0014	.0066	10.456
.503	318.153	.00	10.46	.7293	.0692	-.0012	.0007	-.0015	.0069	10.540
.504	318.629	.00	11.64	.8139	.0806	-.0198	.0012	-.0014	.0070	10.094
.504	318.715	.00	3.97	.1959	.0401	.0719	.0008	-.0013	.0058	4.891

BODY AXIS COEFFICIENTS

MACH	Q	BETA	ALPHA	CNF	CAF	CPM	CRM	CYM	CSF
.504	318.629	.00	3.85	.1867	.0273	.0735	.0009	-.0013	.0059
.504	318.747	.00	-1.37	-.2245	.0478	.1457	.0008	-.0015	.0066
.504	318.954	.00	-.21	-.1335	.0467	.1279	.0006	-.0014	.0060
.504	318.982	.00	1.12	-.0295	.0431	.1086	.0013	-.0012	.0062
.503	318.581	.00	2.41	.0732	.0371	.0912	.0012	-.0012	.0062
.504	318.985	.00	3.82	.1864	.0274	.0733	.0012	-.0012	.0062
.503	318.420	.00	5.20	.2980	.0150	.0566	.0009	-.0013	.0060
.503	318.216	.00	6.51	.4053	-.0001	.0415	.0010	-.0013	.0062
.503	318.101	.00	7.84	.5151	-.0188	.0266	.0011	-.0013	.0065
.503	318.347	.00	9.12	.6206	-.0396	.0123	.0010	-.0013	.0066
.503	318.153	.00	10.46	.7293	-.0642	-.0012	.0010	-.0014	.0069
.504	318.629	.00	11.64	.8129	-.0851	-.0198	.0014	-.0012	.0070
.504	318.715	.00	3.97	.1982	.0264	.0719	.0009	-.0013	.0058

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[redacted] *** 7 X 10 FT TUNNELS *** NASA [redacted] ***

HIGH SPEED TUNNEL TEST 789 RUN 32 BALANCE 731 09/14/67.

STABILITY AXIS COEFFICIENTS

MACH	Q	BETA	ALPHA	CL	CD	CPM	CRM	CYM	CSF	L/D
.505	319.168	.00	3.72	.2086	.0271	.0016	.0008	-.0014	.0058	7.690
.505	319.259	.00	-1.49	-.2151	.0326	.0685	.0014	-.0015	.0070	-6.599
.505	319.854	.00	-.26	-.1137	.0285	.0506	.0012	-.0015	.0069	-3.988
.505	319.030	.00	1.02	-.0098	.0262	.0334	.0011	-.0014	.0063	-.374
.505	319.720	.00	2.33	.0979	.0257	.0172	.0012	-.0013	.0061	3.811
.504	319.190	.00	3.71	.2108	.0271	.0011	.0010	-.0013	.0057	7.768
.504	319.172	.00	5.08	.3252	.0306	-.0147	.0008	-.0013	.0059	10.632
.504	318.891	.00	6.40	.4357	.0359	-.0291	.0009	-.0015	.0062	12.147
.505	319.411	.00	7.75	.5481	.0432	-.0431	.0009	-.0015	.0065	12.695
.503	318.153	.00	9.05	.6580	.0521	-.0569	.0009	-.0017	.0068	12.622
.505	319.385	.00	10.36	.7691	.0630	-.0700	.0007	-.0017	.0070	12.209
.505	320.005	.00	11.63	.8697	.0749	-.0844	.0008	-.0017	.0070	11.611
.505	319.814	.00	3.75	.2130	.0272	.0008	.0009	-.0013	.0057	7.841

BODY AXIS COEFFICIENTS

MACH	Q	BETA	ALPHA	CNF	CAF	CPM	CRM	CYM	CSF
.505	319.168	.00	3.72	.2099	.0135	.0016	.0009	-.0013	.0058
.505	319.259	.00	-1.49	-.2158	.0270	.0685	.0014	-.0015	.0070
.505	319.854	.00	-.26	-.1138	.0280	.0506	.0012	-.0015	.0069
.505	319.030	.00	1.02	-.0093	.0264	.0334	.0011	-.0013	.0063
.505	319.720	.00	2.33	.0988	.0217	.0172	.0012	-.0013	.0061
.504	319.190	.00	3.71	.2120	.0135	.0011	.0011	-.0012	.0057
.504	319.172	.00	5.08	.3265	.0017	-.0147	.0010	-.0013	.0059
.504	318.891	.00	6.40	.4368	-.0129	-.0291	.0010	-.0014	.0062
.505	319.411	.00	7.75	.5488	-.0311	-.0431	.0011	-.0014	.0065
.503	318.153	.00	9.05	.6577	-.0520	-.0569	.0011	-.0015	.0068
.505	319.385	.00	10.36	.7675	-.0763	-.0700	.0009	-.0015	.0070
.505	320.005	.00	11.63	.8664	-.1018	-.0844	.0011	-.0015	.0070
.505	319.814	.00	3.75	.2143	.0132	.0008	.0010	-.0012	.0057

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HIGH SPEED TUNNEL TEST 789 RUN 31 BALANCE 731 09/14/67.

STABILITY AXIS COEFFICIENTS

MACH	Q	BETA	ALPHA	CL	CD	CPM	CRM	CYM	CSF	L/D
.302	127.510	.00	3.23	.1597	.0263	.0066	.0010	-.0011	.0054	6.072
.301	127.342	.00	-1.23	-.1886	.0315	.0680	.0013	-.0013	.0065	-5.990
.301	127.237	.00	-.12	-.1018	.0283	.0517	.0010	-.0012	.0059	-3.603
.301	126.941	.00	.98	-.0140	.0265	.0359	.0013	-.0012	.0060	-.530
.302	127.418	.00	2.11	.0717	.0257	.0211	.0013	-.0011	.0059	2.787
.302	127.413	.00	3.23	.1603	.0263	.0068	.0014	-.0011	.0055	6.092
.301	127.312	.00	4.36	.2467	.0281	-.0066	.0009	-.0012	.0056	8.768
.301	127.211	.00	5.50	.3377	.0313	-.0201	.0009	-.0013	.0058	10.787
.301	126.918	.00	6.67	.4314	.0361	-.0337	.0008	-.0014	.0059	11.960
.301	127.302	.00	7.80	.5214	.0418	-.0467	.0009	-.0015	.0061	12.467
.301	127.003	.00	10.10	.7050	.0568	-.0739	.0006	-.0015	.0063	12.405
.301	126.901	.00	12.32	.8751	.0755	-.0983	.0006	-.0017	.0066	11.594
.301	126.718	.00	14.51	1.0374	.1000	-.1405	.0007	-.0016	.0068	10.371
.301	127.348	.00	16.66	1.1949	.1348	-.2044	.0010	-.0015	.0072	8.865
.302	127.412	.00	3.27	.1607	.0262	.0068	.0011	-.0010	.0053	6.123

BODY AXIS COEFFICIENTS

MACH	Q	BETA	ALPHA	CNF	CAF	CPM	CRM	CYM	CSF
.302	127.510	.00	3.23	.1609	.0173	.0066	.0011	-.0010	.0054
.301	127.342	.00	-1.23	-.1891	.0274	.0680	.0013	-.0013	.0065
.301	127.237	.00	-.12	-.1019	.0281	.0517	.0010	-.0012	.0059
.301	126.941	.00	.98	-.0136	.0267	.0359	.0013	-.0012	.0060
.302	127.418	.00	2.11	.0725	.0231	.0211	.0014	-.0010	.0059
.302	127.413	.00	3.23	.1615	.0172	.0068	.0014	-.0010	.0055
.301	127.312	.00	4.36	.2481	.0093	-.0066	.0010	-.0012	.0056
.301	127.211	.00	5.50	.3390	-.0012	-.0201	.0010	-.0012	.0058
.301	126.918	.00	6.67	.4325	-.0142	-.0337	.0010	-.0013	.0059
.301	127.302	.00	7.80	.5220	-.0293	-.0467	.0010	-.0013	.0061
.301	127.003	.00	10.10	.7037	-.0676	-.0739	.0009	-.0013	.0063
.301	126.901	.00	12.32	.8705	-.1129	-.0983	.0009	-.0015	.0066
.301	126.718	.00	14.51	1.0285	-.1629	-.1405	.0011	-.0014	.0068
.301	127.348	.00	16.66	1.1621	-.2131	-.2044	.0014	-.0011	.0072
.302	127.412	.00	3.27	.1619	.0170	.0068	.0012	-.0010	.0053

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GROUP 4 - DOWNGRADED AT 3-YR INTERVALS, DECLASSIFIED AFTER 12 YRS

HIGH SPEED TUNNEL TEST 789 RUN 34 BALANCE 731 09/14/67.

STABILITY AXIS COEFFICIENTS

MACH	Q	BETA	ALPHA	CL	CD	CPM	CRM	CYM	CSF	L/D
.711	540.829	.00	4.51	.2998	.0442	-.0222	.0005	-.0012	.0051	6.785
.712	541.848	.00	3.90	.2590	.0399	-.0114	.0004	-.0012	.0052	6.496
.712	541.450	.00	3.18	.2026	.0360	.0036	.0004	-.0013	.0050	5.624
.711	540.629	.00	2.41	.1382	.0337	.0179	.0004	-.0013	.0052	4.097
.712	541.015	.00	1.54	.0689	.0342	.0321	.0003	-.0013	.0052	2.013
.711	540.964	.00	.76	.0091	.0366	.0475	.0002	-.0012	.0052	.250
.712	541.323	.00	.03	-.0451	.0399	.0632	.0001	-.0013	.0054	-1.130
.713	542.044	.00	4.45	.2955	.0445	-.0231	.0006	-.0012	.0051	6.642

BODY AXIS COEFFICIENTS

MACH	Q	BETA	ALPHA	CNF	CAF	CPM	CRM	CYM	CSF
.711	540.829	.00	4.51	.3022	.0205	-.0222	.0006	-.0012	.0051
.712	541.848	.00	3.90	.2610	.0222	-.0114	.0005	-.0012	.0052
.712	541.450	.00	3.18	.2043	.0247	.0036	.0004	-.0012	.0050
.711	540.629	.00	2.41	.1395	.0279	.0179	.0005	-.0013	.0052
.712	541.015	.00	1.54	.0698	.0324	.0321	.0004	-.0013	.0052
.711	540.964	.00	.76	.0096	.0365	.0475	.0002	-.0012	.0052
.712	541.323	.00	.03	-.0450	.0399	.0632	.0001	-.0013	.0054
.713	542.044	.00	4.45	.2980	.0214	-.0231	.0007	-.0011	.0051

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[redacted] HIGH SPEED TUNNEL [redacted] TEST 789 RUN 33 BALANCE 731 [redacted] 09/14/67.

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STABILITY AXIS COEFFICIENTS

MACH	Q	BETA	ALPHA	CL	CD	CPM	CRM	CYM	CSF	L/D
.606	428.405	.00	4.14	.2572	.0293	-.0026	.0003	-.0015	.0056	8.791
.606	428.195	.00	-.33	-.1214	.0302	.0495	.0008	-.0014	.0062	-4.016
.606	428.669	.00	.35	-.0637	.0284	.0403	.0008	-.0014	.0062	-2.243
.606	428.565	.00	1.03	-.0067	.0273	.0318	.0008	-.0014	.0062	-.244
.607	428.965	.00	1.78	.0577	.0267	.0227	.0006	-.0014	.0057	2.156
.607	428.946	.00	2.54	.1213	.0269	.0144	.0006	-.0014	.0056	4.516
.606	428.170	.00	3.41	.1956	.0278	.0049	.0005	-.0014	.0056	7.031
.606	428.487	.00	4.14	.2581	.0293	-.0029	.0003	-.0014	.0055	8.806
.606	428.307	.00	4.88	.3232	.0314	-.0110	.0002	-.0015	.0056	10.279
.607	429.464	.00	5.64	.3899	.0343	-.0188	.0002	-.0016	.0058	11.353
.606	428.614	.00	6.40	.4560	.0380	-.0263	.0003	-.0016	.0060	11.994
.606	427.937	.00	7.13	.5200	.0423	-.0327	.0003	-.0017	.0062	12.287
.607	429.122	.00	7.85	.5794	.0477	-.0393	.0003	-.0017	.0063	12.152
.607	429.654	.00	8.57	.6388	.0542	-.0466	.0004	-.0018	.0066	11.792
.607	429.270	.00	9.23	.6887	.0605	-.0519	.0004	-.0018	.0066	11.390
.606	427.895	.00	9.91	.7435	.0682	-.0557	.0003	-.0017	.0066	10.902
.606	428.402	.00	4.20	.2619	.0294	-.0032	.0003	-.0015	.0055	8.905

BODY AXIS COEFFICIENTS

MACH	Q	BETA	ALPHA	CNF	CAF	CPM	CRM	CYM	CSF
.606	428.405	.00	4.14	.2586	.0106	-.0026	.0004	-.0015	.0056
.606	428.195	.00	-.33	-.1215	.0295	.0495	.0008	-.0014	.0062
.606	428.669	.00	.35	-.0635	.0288	.0403	.0008	-.0014	.0062
.606	428.565	.00	1.03	-.0062	.0274	.0318	.0008	-.0014	.0062
.607	428.965	.00	1.78	.0584	.0249	.0227	.0007	-.0014	.0057
.607	428.946	.00	2.54	.1223	.0215	.0144	.0006	-.0014	.0056
.606	428.170	.00	3.41	.1968	.0161	.0049	.0006	-.0014	.0056
.606	428.487	.00	4.14	.2595	.0106	-.0029	.0004	-.0014	.0055
.606	428.307	.00	4.88	.3246	.0039	-.0110	.0003	-.0015	.0056
.607	429.464	.00	5.64	.3912	-.0041	-.0188	.0003	-.0016	.0058
.606	428.614	.00	6.40	.4573	-.0130	-.0263	.0004	-.0016	.0060
.606	427.937	.00	7.13	.5210	-.0225	-.0327	.0005	-.0016	.0062
.607	429.122	.00	7.85	.5803	-.0319	-.0393	.0005	-.0017	.0063
.607	429.654	.00	8.57	.6395	-.0416	-.0466	.0006	-.0017	.0066
.607	429.270	.00	9.23	.6891	-.0508	-.0519	.0006	-.0017	.0066
.606	427.895	.00	9.91	.7437	-.0607	-.0557	.0006	-.0017	.0066
.606	428.402	.00	4.20	.2632	.0102	-.0032	.0004	-.0014	.0055

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HIGH SPEED TUNNEL TEST 789 RUN 36 BALANCE 731 09/14/67.

STABILITY AXIS COEFFICIENTS

MACH	Q	BETA	ALPHA	CL	CD	CPM	CRM	CYM	CSF	L/D
.505	318.869	.00	3.64	.1978	.0307	-.0010	.0008	-.0014	.0069	6.435
.504	318.456	.00	-1.57	-.2222	.0385	.0680	.0014	-.0016	.0081	-5.765
.505	319.397	.00	-.35	-.1229	.0338	.0497	.0012	-.0017	.0082	-3.635
.505	319.455	.00	.94	-.0202	.0309	.0319	.0012	-.0014	.0076	-.654
.505	318.895	.00	2.24	.0860	.0298	.0154	.0010	-.0014	.0070	2.886
.505	318.870	.00	3.66	.2000	.0308	-.0013	.0008	-.0014	.0070	6.493
.503	317.334	.00	5.03	.3141	.0337	-.0177	.0010	-.0014	.0072	9.307
.505	319.540	.00	6.35	.4256	.0387	-.0325	.0011	-.0015	.0075	10.987
.505	318.992	.00	7.72	.5400	.0459	-.0472	.0009	-.0015	.0072	11.762
.504	318.797	.00	9.01	.6513	.0546	-.0615	.0009	-.0015	.0074	11.920
.504	318.516	.00	10.33	.7606	.0651	-.0741	.0009	-.0014	.0073	11.680
.504	318.523	.00	11.58	.8552	.0767	-.0886	.0010	-.0014	.0074	11.146
.505	318.872	.00	3.67	.2010	.0309	-.0014	.0008	-.0014	.0070	6.501

BODY AXIS COEFFICIENTS

MACH	Q	BETA	ALPHA	CNF	CAF	CPM	CRM	CYM	CSF
.505	318.869	.00	3.64	.1993	.0181	-.0010	.0009	-.0014	.0069
.504	318.456	.00	-1.57	-.2231	.0324	.0680	.0014	-.0017	.0081
.505	319.397	.00	-.35	-.1230	.0331	.0497	.0012	-.0017	.0082
.505	319.455	.00	.94	-.0197	.0312	.0319	.0012	-.0014	.0076
.505	318.895	.00	2.24	.0871	.0264	.0154	.0011	-.0013	.0070
.505	318.870	.00	3.66	.2015	.0180	-.0013	.0009	-.0014	.0070
.503	317.334	.00	5.03	.3157	.0061	-.0177	.0011	-.0014	.0072
.505	319.540	.00	6.35	.4271	-.0086	-.0325	.0012	-.0014	.0075
.505	318.992	.00	7.72	.5410	-.0270	-.0472	.0011	-.0014	.0072
.504	318.797	.00	9.01	.6515	-.0480	-.0615	.0011	-.0013	.0074
.504	318.516	.00	10.33	.7595	-.0722	-.0741	.0011	-.0013	.0073
.504	318.523	.00	11.58	.8526	-.0964	-.0886	.0013	-.0012	.0074
.505	318.872	.00	3.67	.2025	.0180	-.0014	.0009	-.0014	.0070

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HIGH SPEED TUNNEL TEST 789 RUN 35 BALANCE 731 09/14/67.

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STABILITY AXIS COEFFICIENTS

MACH	Q	BETA	ALPHA	CL	CD	CPM	CRM	CYM	CSF	L/D
.302	127.432	.00	3.22	.1525	.0297	.0042	.0010	-.0011	.0061	5.132
.302	127.559	.00	-1.23	-.1951	.0360	.0662	.0013	-.0013	.0067	-5.417
.302	127.550	.00	-.13	-.1087	.0326	.0498	.0009	-.0013	.0066	-3.338
.302	128.025	.00	.97	-.0222	.0304	.0336	.0011	-.0012	.0066	-.731
.302	127.728	.00	2.10	.0643	.0294	.0188	.0014	-.0011	.0063	2.188
.301	127.045	.00	3.23	.1534	.0298	.0039	.0013	-.0011	.0061	5.155
.301	127.137	.00	4.35	.2413	.0315	-.0094	.0010	-.0011	.0064	7.657
.302	127.422	.00	5.50	.3303	.0344	-.0233	.0009	-.0013	.0065	9.591
.301	127.225	.00	6.65	.4211	.0387	-.0366	.0009	-.0013	.0064	10.869
.301	126.641	.00	7.79	.5133	.0445	-.0503	.0008	-.0013	.0067	11.538
.300	126.536	.00	10.07	.6947	.0590	-.0773	.0006	-.0013	.0063	11.766
.302	127.689	.00	12.32	.8708	.0778	-.1011	.0004	-.0017	.0073	11.195
.301	127.023	.00	14.52	1.0316	.1021	-.1423	.0009	-.0016	.0074	10.101
.301	126.977	.00	16.68	1.1849	.1363	-.2038	.0012	-.0015	.0083	8.693
.302	127.721	.00	3.26	.1538	.0297	.0041	.0012	-.0011	.0059	5.185

BODY AXIS COEFFICIENTS

MACH	Q	BETA	ALPHA	CNF	CAF	CPM	CRM	CYM	CSF
.302	127.432	.00	3.22	.1539	.0211	.0042	.0010	-.0011	.0061
.302	127.559	.00	-1.23	-.1958	.0318	.0662	.0012	-.0013	.0067
.302	127.550	.00	-.13	-.1088	.0323	.0498	.0009	-.0013	.0066
.302	128.025	.00	.97	-.0217	.0308	.0336	.0011	-.0012	.0066
.302	127.728	.00	2.10	.0653	.0270	.0188	.0015	-.0010	.0063
.301	127.045	.00	3.23	.1548	.0211	.0039	.0013	-.0010	.0061
.301	127.137	.00	4.35	.2429	.0131	-.0094	.0011	-.0011	.0064
.302	127.422	.00	5.50	.3320	.0026	-.0233	.0010	-.0012	.0065
.301	127.225	.00	6.65	.4226	-.0103	-.0366	.0010	-.0012	.0064
.301	126.641	.00	7.79	.5144	-.0255	-.0503	.0010	-.0012	.0067
.300	126.536	.00	10.07	.6940	-.0633	-.0773	.0008	-.0012	.0063
.302	127.689	.00	12.32	.8668	-.1097	-.1011	.0008	-.0015	.0073
.301	127.023	.00	14.52	1.0234	-.1596	-.1423	.0012	-.0013	.0074
.301	126.977	.00	16.68	1.1729	-.2091	-.2038	.0016	-.0011	.0083
.302	127.721	.00	3.26	.1552	.0209	.0041	.0012	-.0010	.0059

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HIGH SPEED TUNNEL TEST 789 RUN 38 BALANCE 731 09/14/67.

STABILITY AXIS COEFFICIENTS.

MACH	Q	BETA	ALPHA	CL	CD	CPM	CRM	CYM	CSF	L/D
.712	540.918	.00	4.48	.2911	.0528	-.0246	.0005	-.0011	.0056	5.512
.712	541.526	.00	3.89	.2582	.0487	-.0110	.0004	-.0011	.0058	5.301
.712	541.652	.00	3.22	.2113	.0461	.0037	.0005	-.0012	.0061	4.579
.713	542.376	.00	2.46	.1523	.0447	.0205	.0005	-.0013	.0061	3.406
.712	540.906	.00	1.58	.0822	.0446	.0378	.0005	-.0014	.0064	1.843
.712	541.520	.00	.77	.0178	.0473	.0528	.0004	-.0013	.0062	.376
.712	541.908	.00	-.02	-.0429	.0511	.0684	.0003	-.0010	.0055	-.840
.711	540.213	.00	4.38	.2871	.0529	-.0246	.0006	-.0011	.0057	5.425

BODY AXIS COEFFICIENTS

MACH	Q	BETA	ALPHA	CNF	CAF	CPM	CRM	CYM	CSF
.712	540.918	.00	4.48	.2942	.0299	-.0246	.0006	-.0010	.0056
.712	541.526	.00	3.89	.2608	.0311	-.0110	.0005	-.0011	.0058
.712	541.652	.00	3.22	.2135	.0342	.0037	.0006	-.0012	.0061
.713	542.376	.00	2.46	.1540	.0381	.0205	.0005	-.0013	.0061
.712	540.906	.00	1.58	.0833	.0423	.0378	.0005	-.0014	.0064
.712	541.520	.00	.77	.0184	.0470	.0528	.0004	-.0013	.0062
.712	541.908	.00	-.02	-.0429	.0511	.0684	.0003	-.0010	.0055
.711	540.213	.00	4.38	.2901	.0308	-.0246	.0006	-.0010	.0057

HIGH SPEED TUNNEL TEST 789 RUN 37 BALANCE 731 09/14/67

UNCLASSIFIED

STABILITY AXIS COEFFICIENTS

MACH	Q	BETA	ALPHA	CL	CD	CPM	CRM	CYM	CSF	L/D
.606	427.932	.00	4.08	.2521	.0332	-.0062	.0006	-.0015	.0070	7.538
.607	428.119	.00	-.45	-.1265	.0369	.0494	.0012	-.0016	.0083	-3.422
.607	428.299	.00	.92	-.0133	.0330	.0309	.0010	-.0015	.0076	-.404
.607	428.688	.00	1.68	.0497	.0320	.0214	.0008	-.0014	.0072	1.555
.607	428.410	.00	2.44	.1134	.0316	.0124	.0009	-.0014	.0070	3.587
.606	428.043	.00	3.32	.1881	.0321	.0022	.0007	-.0015	.0070	5.851
.607	428.103	.00	4.05	.2493	.0333	-.0061	.0007	-.0015	.0071	7.495
.607	428.336	.00	4.79	.3134	.0351	-.0143	.0004	-.0015	.0069	8.926
.607	428.064	.00	5.57	.3815	.0378	-.0227	.0004	-.0016	.0073	10.098
.606	427.966	.00	6.31	.4455	.0411	-.0300	.0004	-.0017	.0075	10.835
.606	427.788	.00	7.07	.5108	.0454	-.0372	.0004	-.0018	.0078	11.259
.607	428.136	.00	7.79	.5682	.0504	-.0441	.0004	-.0018	.0077	11.267
.606	427.732	.00	8.46	.6204	.0557	-.0511	.0004	-.0018	.0078	11.133
.607	428.358	.00	9.15	.6770	.0626	-.0573	.0003	-.0017	.0075	10.816
.606	427.655	.00	9.83	.7288	.0701	-.0609	.0003	-.0017	.0076	10.395
.607	428.431	.00	4.25	.2660	.0336	-.0080	.0006	-.0015	.0071	7.920

BODY AXIS COEFFICIENTS

MACH	Q	BETA	ALPHA	CNF	CAF	CPM	CRM	CYM	CSF
.606	427.932	.00	4.08	.2521	.0153	-.0062	.0007	-.0014	.0070
.607	428.119	.00	-.45	-.1265	.0339	.0494	.0012	-.0016	.0083
.607	428.299	.00	.92	-.0128	.0332	.0309	.0010	-.0015	.0076
.607	428.688	.00	1.68	.0506	.0305	.0214	.0009	-.0014	.0072
.607	428.410	.00	2.44	.1147	.0268	.0124	.0009	-.0014	.0070
.606	428.043	.00	3.32	.1896	.0212	.0022	.0008	-.0014	.0070
.607	428.103	.00	4.05	.2510	.0156	-.0061	.0008	-.0014	.0071
.607	428.336	.00	4.79	.3151	.0088	-.0143	.0006	-.0015	.0069
.607	428.064	.00	5.57	.3832	.0006	-.0227	.0006	-.0016	.0073
.606	427.966	.00	6.31	.4472	-.0081	-.0300	.0006	-.0017	.0075
.606	427.788	.00	7.07	.5123	-.0178	-.0372	.0006	-.0018	.0078
.607	428.136	.00	7.79	.5695	-.0270	-.0441	.0006	-.0017	.0077
.606	427.732	.00	8.46	.6216	-.0361	-.0511	.0007	-.0017	.0078
.607	428.358	.00	9.15	.6780	-.0459	-.0573	.0005	-.0016	.0075
.606	427.655	.00	9.83	.7297	-.0553	-.0609	.0006	-.0016	.0076
.607	428.431	.00	4.25	.2677	.0138	-.0080	.0007	-.0015	.0071

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HIGH SPEED TUNNEL TEST 789 RUN 40 BALANCE 731 09/14/67.

STABILITY AXIS COEFFICIENTS

MACH	Q	BETA	ALPHA	CL	CD	CPM	CRM	CYM	CSF	L/D
.505	319.312	.00	3.57	.1988	.0359	-.0082	.0008	-.0015	.0067	5.543
.505	319.787	.00	-1.69	-.2157	.0487	.0606	.0013	-.0017	.0079	-4.428
.505	319.814	.00	-.43	-.1183	.0427	.0425	.0013	-.0016	.0078	-2.772
.505	319.495	.00	.86	-.0148	.0385	.0243	.0012	-.0014	.0069	-.385
.505	319.804	.00	2.16	.0904	.0363	.0078	.0012	-.0014	.0069	2.490
.504	318.778	.00	3.59	.1998	.0359	-.0084	.0009	-.0015	.0069	5.564
.505	319.101	.00	4.93	.3111	.0381	-.0243	.0010	-.0014	.0069	8.174
.504	318.802	.00	6.28	.4215	.0421	-.0389	.0010	-.0015	.0073	10.020
.505	319.049	.00	7.67	.5373	.0490	-.0532	.0009	-.0014	.0069	10.958
.505	319.296	.00	8.97	.6454	.0572	-.0665	.0010	-.0014	.0072	11.280
.504	318.386	.00	10.23	.7530	.0671	-.0783	.0007	-.0015	.0072	11.228
.505	319.193	.00	11.48	.8471	.0785	-.0928	.0010	-.0014	.0070	10.796
.505	319.045	.00	3.64	.2045	.0360	-.0089	.0009	-.0015	.0071	5.675

BODY AXIS COEFFICIENTS

MACH	Q	BETA	ALPHA	CNF	CAF	CPM	CRM	CYM	CSF
.505	319.312	.00	3.57	.2006	.0234	-.0082	.0009	-.0014	.0067
.505	319.787	.00	-1.69	-.2169	.0423	.0606	.0012	-.0018	.0079
.505	319.814	.00	-.43	-.1186	.0418	.0425	.0013	-.0016	.0078
.505	319.495	.00	.86	-.0142	.0387	.0243	.0012	-.0013	.0069
.505	319.804	.00	2.16	.0917	.0329	.0078	.0012	-.0013	.0069
.504	318.778	.00	3.59	.2016	.0233	-.0084	.0010	-.0014	.0069
.505	319.101	.00	4.93	.3131	.0112	-.0243	.0011	-.0013	.0069
.504	318.802	.00	6.28	.4234	-.0043	-.0389	.0012	-.0013	.0073
.505	319.049	.00	7.67	.5388	-.0231	-.0532	.0011	-.0013	.0069
.505	319.296	.00	8.97	.6461	-.0440	-.0665	.0012	-.0013	.0072
.504	318.386	.00	10.23	.7525	-.0677	-.0783	.0010	-.0013	.0072
.505	319.193	.00	11.48	.8452	-.0916	-.0928	.0012	-.0011	.0070
.505	319.045	.00	3.64	.2063	.0230	-.0089	.0010	-.0015	.0071

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HIGH SPEED TUNNEL TEST 789 RUN 39 BALANCE 731 09/14/67.

STABILITY AXIS COEFFICIENTS

MACH	Q	BETA	ALPHA	CL	CD	CPM	CRM	CYM	CSF	L/D
.302	128.034	.00	3.21	.1526	.0337	-.0027	.0010	-.0011	.0061	4.526
.302	127.589	.00	-1.24	-.1945	.0415	.0594	.0011	-.0013	.0065	-4.683
.302	127.771	.00	-.15	-.1085	.0375	.0428	.0011	-.0012	.0063	-2.892
.302	127.953	.00	.96	-.0227	.0348	.0270	.0011	-.0011	.0061	-.651
.302	127.558	.00	2.08	.0648	.0337	.0119	.0013	-.0011	.0063	1.923
.301	127.260	.00	3.20	.1535	.0338	-.0028	.0012	-.0011	.0064	4.548
.302	127.544	.00	4.34	.2401	.0351	-.0161	.0009	-.0012	.0062	6.837
.302	127.636	.00	5.46	.3294	.0380	-.0293	.0009	-.0012	.0061	8.667
.302	127.533	.00	6.65	.4222	.0420	-.0429	.0012	-.0013	.0065	10.046
.301	127.336	.00	7.78	.5141	.0476	-.0562	.0008	-.0013	.0065	10.798
.301	127.036	.00	10.07	.6919	.0616	-.0817	.0007	-.0013	.0063	11.228
.300	126.546	.00	12.30	.8643	.0800	-.1055	.0004	-.0015	.0068	10.803
.302	127.910	.00	14.49	1.0293	.1048	-.1477	.0008	-.0016	.0072	9.820
.302	127.769	.00	16.65	1.1771	.1381	-.2060	.0013	-.0015	.0082	8.523
.301	127.162	.00	3.24	.1541	.0335	-.0028	.0012	-.0011	.0055	4.601

BODY AXIS COEFFICIENTS

MACH	Q	BETA	ALPHA	CNF	CAF	CPM	CRM	CYM	CSF
.302	128.034	.00	3.21	.1542	.0251	-.0027	.0011	-.0010	.0061
.302	127.589	.00	-1.24	-.1953	.0373	.0594	.0010	-.0013	.0065
.302	127.771	.00	-.15	-.1085	.0372	.0428	.0011	-.0012	.0063
.302	127.953	.00	.96	-.0221	.0352	.0270	.0011	-.0011	.0061
.302	127.558	.00	2.08	.0660	.0313	.0119	.0014	-.0011	.0063
.301	127.260	.00	3.20	.1551	.0251	-.0028	.0013	-.0011	.0064
.302	127.544	.00	4.34	.2420	.0169	-.0161	.0010	-.0011	.0062
.302	127.636	.00	5.46	.3314	.0065	-.0293	.0011	-.0011	.0061
.302	127.533	.00	6.65	.4241	-.0071	-.0429	.0014	-.0011	.0065
.301	127.336	.00	7.78	.5156	-.0224	-.0562	.0009	-.0012	.0065
.301	127.036	.00	10.07	.6917	-.0602	-.0817	.0009	-.0011	.0063
.300	126.546	.00	12.30	.8610	-.1058	-.1055	.0007	-.0014	.0068
.302	127.910	.00	14.49	1.0219	-.1559	-.1477	.0011	-.0014	.0072
.302	127.769	.00	16.65	1.1660	-.2045	-.2060	.0016	-.0010	.0082
.301	127.162	.00	3.24	.1557	.0247	-.0028	.0013	-.0010	.0055

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HIGH SPEED TUNNEL TEST 789 RUN 42 BALANCE 731 09/14/67.

STABILITY AXIS COEFFICIENTS

MACH	Q	BETA	ALPHA	CL	CD	CPM	CRM	CYM	CSF	L/D
.713	542.087	.00	3.61	.2606	.0610	-.0209	.0008	-.0010	.0054	4.275
.713	542.452	.00	2.99	.2177	.0585	-.0035	.0006	-.0011	.0051	3.724
.713	542.303	.00	2.23	.1635	.0573	.0146	.0007	-.0012	.0056	2.862
.712	541.736	.00	1.32	.0996	.0578	.0325	.0007	-.0012	.0056	1.723
.712	541.304	.00	.55	.0424	.0603	.0511	.0008	-.0011	.0048	.703
.713	542.270	.00	3.46	.2528	.0611	-.0191	.0007	-.0010	.0051	4.135

BODY AXIS COEFFICIENTS

MACH	Q	BETA	ALPHA	CNF	CAF	CPM	CRM	CYM	CSF
.713	542.087	.00	3.61	.2638	.0445	-.0209	.0008	-.0010	.0054
.713	542.452	.00	2.99	.2203	.0470	-.0035	.0006	-.0011	.0051
.713	542.303	.00	2.23	.1655	.0509	.0146	.0007	-.0012	.0056
.712	541.736	.00	1.32	.1009	.0555	.0325	.0007	-.0012	.0056
.712	541.304	.00	.55	.0429	.0599	.0511	.0008	-.0011	.0048
.713	542.270	.00	3.46	.2559	.0458	-.0191	.0008	-.0010	.0051

UNCLASSIFIED

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GROUP 4 - DOWNGRADED AT 3-YR INTERVALS, DECLASSIFIED AFTER 12 YRS

UNCLASSIFIED

[redacted] TEST 789 RUN 41 BALANCE 731 [redacted] 09/14/67.

STABILITY AXIS COEFFICIENTS

MACH	Q	BETA	ALPHA	CL	CD	CPM	CRM	CYM	CSF	L/D
.607	428.678	.00	3.72	.2547	.0394	-.0134	.0007	-.0015	.0068	6.465
.607	428.453	.00	-.69	-.1156	.0497	.0440	.0013	-.0015	.0074	-2.327
.607	428.794	.00	-.08	-.0587	.0459	.0317	.0011	-.0015	.0073	-1.280
.607	428.986	.00	.65	-.0024	.0433	.0223	.0010	-.0014	.0070	-.055
.608	429.527	.00	1.38	.0547	.0416	.0136	.0010	-.0013	.0067	1.316
.608	429.381	.00	2.09	.1205	.0400	.0046	.0009	-.0014	.0066	3.014
.607	428.306	.00	2.90	.1902	.0391	-.0047	.0008	-.0014	.0067	4.863
.607	428.264	.00	3.72	.2525	.0395	-.0133	.0006	-.0015	.0066	6.391
.607	428.711	.00	4.54	.3198	.0401	-.0221	.0005	-.0017	.0071	7.983
.607	428.842	.00	5.28	.3832	.0417	-.0300	.0004	-.0017	.0072	9.186
.606	427.730	.00	6.09	.4457	.0447	-.0372	.0005	-.0018	.0075	9.967
.607	428.392	.00	6.96	.5104	.0491	-.0444	.0004	-.0018	.0077	10.397
.607	428.233	.00	7.72	.5641	.0537	-.0513	.0004	-.0018	.0077	10.510
.606	427.999	.00	8.42	.6180	.0591	-.0580	.0004	-.0018	.0077	10.456
.606	427.360	.00	9.09	.6704	.0655	-.0627	.0004	-.0017	.0075	10.238
.609	431.271	.00	3.92	.2703	.0398	-.0152	.0005	-.0015	.0066	6.797

BODY AXIS COEFFICIENTS

MACH	Q	BETA	ALPHA	CNF	CAF	CPM	CRM	CYM	CSF
.607	428.678	.00	3.72	.2567	.0228	-.0134	.0008	-.0015	.0068
.607	428.453	.00	-.69	-.1161	.0483	.0440	.0013	-.0015	.0074
.607	428.794	.00	-.08	-.0587	.0458	.0317	.0011	-.0015	.0073
.607	428.986	.00	.65	-.0019	.0433	.0223	.0010	-.0014	.0070
.608	429.527	.00	1.38	.0557	.0403	.0136	.0011	-.0013	.0067
.608	429.381	.00	2.09	.1219	.0356	.0046	.0010	-.0013	.0066
.607	428.306	.00	2.90	.1919	.0294	-.0047	.0009	-.0014	.0067
.607	428.264	.00	3.72	.2544	.0231	-.0133	.0007	-.0014	.0066
.607	428.711	.00	4.54	.3218	.0146	-.0221	.0007	-.0016	.0071
.607	428.842	.00	5.28	.3853	.0063	-.0300	.0005	-.0017	.0072
.606	427.730	.00	6.09	.4478	-.0028	-.0372	.0006	-.0017	.0075
.607	428.392	.00	6.96	.5124	-.0131	-.0444	.0006	-.0018	.0077
.607	428.233	.00	7.72	.5659	-.0225	-.0513	.0006	-.0017	.0077
.606	427.999	.00	8.42	.6197	-.0320	-.0580	.0006	-.0017	.0077
.606	427.360	.00	9.09	.6719	-.0412	-.0627	.0007	-.0016	.0075
.609	431.271	.00	3.92	.2723	.0212	-.0152	.0006	-.0015	.0066

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HIGH SPEED TUNNEL TEST 789 RUN 44 BALANCE 731 09/14/67.

STABILITY AXIS COEFFICIENTS

MACH	Q	BETA	ALPHA	CL	CD	CPM	CRM	CYM	CSF	L/D
.505	319.189	.00	3.64	.2002	.0338	-.0045	.0005	-.0020	.0054	5.925
.505	319.512	.00	-1.55	-.2140	.0427	.0641	.0018	-.0023	.0074	-5.016
.505	319.200	.00	-.32	-.1174	.0376	.0468	.0015	-.0021	.0072	-3.120
.505	318.984	.00	.95	-.0150	.0344	.0286	.0012	-.0020	.0064	-.437
.505	319.219	.00	2.27	.0905	.0331	.0119	.0010	-.0019	.0057	2.736
.504	318.835	.00	3.62	.1986	.0337	-.0044	.0007	-.0020	.0054	5.890
.505	318.986	.00	4.98	.3125	.0365	-.0206	.0006	-.0020	.0054	8.563
.504	318.431	.00	6.33	.4251	.0413	-.0358	.0008	-.0020	.0059	10.296
.504	318.147	.00	7.69	.5362	.0481	-.0502	.0005	-.0021	.0055	11.158
.505	318.931	.00	9.01	.6484	.0568	-.0645	.0004	-.0021	.0056	11.414
.504	318.470	.00	10.29	.7545	.0669	-.0765	.0003	-.0020	.0055	11.282
.505	319.632	.00	11.56	.8516	.0786	-.0926	.0000	-.0022	.0055	10.835
.505	319.010	.00	3.67	.2026	.0338	-.0050	.0006	-.0020	.0056	5.993

BODY AXIS COEFFICIENTS

MACH	Q	BETA	ALPHA	CNF	CAF	CPM	CRM	CYM	CSF
.505	319.189	.00	3.64	.2018	.0210	-.0045	.0007	-.0019	.0054
.505	319.512	.00	-1.55	-.2150	.0368	.0641	.0017	-.0023	.0074
.505	319.200	.00	-.32	-.1176	.0370	.0468	.0015	-.0021	.0072
.505	318.984	.00	.95	-.0144	.0346	.0286	.0012	-.0020	.0064
.505	319.219	.00	2.27	.0918	.0295	.0119	.0010	-.0018	.0057
.504	318.835	.00	3.62	.2002	.0211	-.0044	.0008	-.0019	.0054
.505	318.986	.00	4.98	.3143	.0093	-.0206	.0007	-.0019	.0054
.504	318.431	.00	6.33	.4269	-.0058	-.0358	.0010	-.0019	.0059
.504	318.147	.00	7.69	.5376	-.0241	-.0502	.0008	-.0020	.0055
.505	318.931	.00	9.01	.6490	-.0454	-.0645	.0007	-.0020	.0056
.504	318.470	.00	10.29	.7539	-.0689	-.0765	.0006	-.0020	.0055
.505	319.632	.00	11.56	.8495	-.0935	-.0926	.0005	-.0021	.0055
.505	319.010	.00	3.67	.2042	.0208	-.0050	.0007	-.0020	.0056

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HIGH SPEED TUNNEL TEST 789 RUN 43 BALANCE 731 09/14/67.

UNCLASSIFIED

STABILITY AXIS COEFFICIENTS

MACH	Q	BETA	ALPHA	CL	CD	CPM	CRM	CYM	CSF	L/D
.302	127.544	.00	3.22	.1526	.0325	.0008	.0009	-.0018	.0055	4.698
.301	127.094	.00	-1.24	-.1945	.0393	.0635	.0014	-.0018	.0070	-4.947
.302	128.051	.00	-.13	-.1079	.0356	.0468	.0010	-.0019	.0065	-3.028
.302	127.559	.00	.97	-.0227	.0333	.0308	.0012	-.0018	.0065	-.681
.301	127.068	.00	2.09	.0657	.0323	.0155	.0012	-.0016	.0059	2.031
.302	127.835	.00	3.21	.1537	.0326	.0009	.0011	-.0017	.0059	4.718
.302	127.636	.00	4.34	.2405	.0341	-.0127	.0008	-.0018	.0058	7.050
.301	127.341	.00	5.48	.3296	.0370	-.0263	.0007	-.0019	.0057	8.899
.302	127.433	.00	6.65	.4220	.0413	-.0400	.0005	-.0019	.0052	10.211
.301	127.139	.00	7.78	.5106	.0466	-.0534	.0007	-.0020	.0054	10.954
.301	126.644	.00	10.07	.6936	.0608	-.0802	.0002	-.0019	.0048	11.409
.302	127.799	.00	12.31	.8653	.0794	-.1058	-.0000	-.0022	.0050	10.894
.301	127.036	.00	14.48	1.0249	.1034	-.1478	.0002	-.0021	.0052	9.909
.301	127.180	.00	16.64	1.1828	.1375	-.2084	.0005	-.0021	.0058	8.600
.302	127.931	.00	3.25	.1557	.0325	.0008	.0012	-.0017	.0055	4.792

BODY AXIS COEFFICIENTS

MACH	Q	BETA	ALPHA	CNF	CAF	CPM	CRM	CYM	CSF
.302	127.544	.00	3.22	.1542	.0239	.0008	.0010	-.0017	.0055
.301	127.094	.00	-1.24	-.1953	.0351	.0635	.0013	-.0019	.0070
.302	128.051	.00	-.13	-.1079	.0354	.0468	.0010	-.0019	.0065
.302	127.559	.00	.97	-.0221	.0337	.0308	.0012	-.0018	.0065
.301	127.068	.00	2.09	.0668	.0299	.0155	.0013	-.0016	.0059
.302	127.835	.00	3.21	.1552	.0239	.0009	.0012	-.0017	.0059
.302	127.636	.00	4.34	.2423	.0158	-.0127	.0010	-.0017	.0058
.301	127.341	.00	5.48	.3315	.0054	-.0263	.0009	-.0018	.0057
.302	127.433	.00	6.65	.4238	-.0078	-.0400	.0007	-.0018	.0052
.301	127.139	.00	7.78	.5120	-.0229	-.0534	.0009	-.0019	.0054
.301	126.644	.00	10.07	.6932	-.0613	-.0802	.0006	-.0019	.0048
.302	127.799	.00	12.31	.8618	-.1067	-.1058	.0004	-.0021	.0050
.301	127.036	.00	14.48	1.0173	-.1559	-.1478	.0007	-.0020	.0052
.301	127.180	.00	16.64	1.1713	-.2065	-.2084	.0011	-.0018	.0058
.302	127.931	.00	3.25	.1573	.0236	.0008	.0012	-.0016	.0055

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HIGH SPEED TUNNEL TEST 789 RUN 46 BALANCE 731 09/14/67.

STABILITY AXIS COEFFICIENTS

MACH	Q	BETA	ALPHA	CL	CD	CPM	CRM	CYM	CSF	L/D
.712	541.760	.00	2.99	.2050	.0506	-.0019	.0010	-.0017	.0041	4.048
.713	542.088	.00	2.22	.1499	.0492	.0125	.0012	-.0018	.0049	3.044
.712	541.120	.00	1.37	.0848	.0497	.0281	.0010	-.0019	.0055	1.708
.712	541.888	.00	.64	.0289	.0523	.0439	.0010	-.0019	.0064	.552
.712	541.706	.00	-.11	-.0300	.0559	.0596	.0008	-.0019	.0071	-.536
.712	541.616	.00	-.84	-.0862	.0604	.0745	.0007	-.0021	.0080	-1.427
.712	541.757	.00	2.91	.2008	.0504	-.0007	.0011	-.0016	.0041	3.983
.712	541.223	.00	3.69	.2547	.0529	-.0171	.0010	-.0016	.0038	4.814
.712	541.688	.00	4.34	.2908	.0580	-.0332	.0008	-.0016	.0035	5.011

BODY AXIS COEFFICIENTS

MACH	Q	BETA	ALPHA	CNF	CAF	CPM	CRM	CYM	CSF
.712	541.760	.00	2.99	.2072	.0399	-.0019	.0011	-.0016	.0041
.713	542.088	.00	2.22	.1516	.0434	.0125	.0013	-.0017	.0049
.712	541.120	.00	1.37	.0860	.0476	.0281	.0010	-.0019	.0055
.712	541.888	.00	.64	.0295	.0520	.0439	.0010	-.0019	.0064
.712	541.706	.00	-.11	-.0301	.0558	.0596	.0008	-.0019	.0071
.712	541.616	.00	-.84	-.0870	.0591	.0745	.0007	-.0021	.0080
.712	541.757	.00	2.91	.2030	.0402	-.0007	.0012	-.0016	.0041
.712	541.223	.00	3.69	.2574	.0364	-.0171	.0011	-.0015	.0038
.712	541.688	.00	4.34	.2942	.0359	-.0332	.0009	-.0015	.0035

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HIGH SPEED TUNNEL UNCLASSIFIED TEST 789 RUN 45 BALANCE 731 [redacted] 09/14/67.

STABILITY AXIS COEFFICIENTS

MACH	Q	BETA	ALPHA	CL	CD	CPM	CRM	CYM	CSF	L/D
.607	428.444	.00	4.03	.2527	.0367	-.0093	.0005	-.0020	.0048	6.893
.607	428.437	.00	-.45	-.1153	.0423	.0459	.0019	-.0021	.0071	-2.725
.607	428.891	.00	.24	-.0579	.0397	.0361	.0018	-.0020	.0068	-1.460
.607	428.682	.00	.95	.0001	.0377	.0268	.0014	-.0020	.0062	.002
.607	428.557	.00	1.71	.0616	.0364	.0176	.0011	-.0019	.0056	1.694
.607	428.600	.00	2.45	.1217	.0357	.0090	.0010	-.0019	.0054	3.409
.606	427.806	.00	3.26	.1891	.0358	-.0005	.0007	-.0019	.0049	5.285
.606	427.691	.00	4.01	.2509	.0366	-.0092	.0005	-.0019	.0047	6.863
.607	428.336	.00	4.79	.3172	.0383	-.0181	.0003	-.0020	.0047	8.274
.606	427.807	.00	5.56	.3834	.0407	-.0264	.0003	-.0021	.0052	9.410
.606	427.368	.00	6.28	.4461	.0437	-.0338	.0001	-.0022	.0052	10.198
.607	428.619	.00	7.01	.5095	.0480	-.0410	-.0001	-.0023	.0052	10.617
.607	428.711	.00	7.74	.5651	.0527	-.0483	-.0002	-.0023	.0052	10.713
.607	428.140	.00	8.44	.6193	.0582	-.0551	-.0002	-.0023	.0051	10.633
.607	428.520	.00	9.12	.6731	.0651	-.0600	-.0003	-.0023	.0054	10.336
.606	427.731	.00	9.81	.7279	.0728	-.0631	-.0005	-.0024	.0052	10.002
.607	428.275	.00	4.08	.2569	.0367	-.0098	.0004	-.0019	.0048	6.991

BODY AXIS COEFFICIENTS

MACH	Q	BETA	ALPHA	CNF	CAF	CPM	CRM	CYM	CSF
.607	428.444	.00	4.03	.2546	.0188	-.0093	.0006	-.0019	.0048
.607	428.437	.00	-.45	-.1156	.0414	.0459	.0019	-.0021	.0071
.607	428.891	.00	.24	-.0577	.0399	.0361	.0018	-.0020	.0068
.607	428.682	.00	.95	.0007	.0377	.0268	.0014	-.0020	.0062
.607	428.557	.00	1.71	.0626	.0345	.0176	.0012	-.0019	.0056
.607	428.600	.00	2.45	.1231	.0305	.0090	.0011	-.0019	.0054
.606	427.806	.00	3.26	.1908	.0250	-.0005	.0008	-.0018	.0049
.606	427.691	.00	4.01	.2527	.0189	-.0092	.0006	-.0019	.0047
.607	428.336	.00	4.79	.3192	.0117	-.0181	.0004	-.0020	.0047
.606	427.807	.00	5.56	.3854	.0034	-.0264	.0005	-.0021	.0052
.606	427.368	.00	6.28	.4480	-.0053	-.0338	.0004	-.0021	.0052
.607	428.619	.00	7.01	.5113	-.0146	-.0410	.0002	-.0022	.0052
.607	428.711	.00	7.74	.5668	-.0238	-.0483	.0001	-.0023	.0052
.607	428.140	.00	8.44	.6209	-.0332	-.0551	.0001	-.0023	.0051
.607	428.520	.00	9.12	.6745	-.0423	-.0600	.0001	-.0024	.0054
.606	427.731	.00	9.81	.7292	-.0522	-.0631	-.0001	-.0025	.0052
.607	428.275	.00	4.08	.2588	.0184	-.0098	.0005	-.0019	.0048

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HIGH SPEED TUNNEL TEST 789 RUN 47 BALANCE 731 [redacted] 09/14/67.

STABILITY AXIS COEFFICIENTS

MACH	Q	BETA	ALPHA	CL	CD	CPM	CRM	CYM	CSF	L/D
.302	127.758	.00	3.23	.1521	.0362	.0100	.0007	-.0010	.0068	4.206
.301	127.012	.00	-1.24	-.2056	.0424	.0733	.0006	-.0012	.0074	-4.847
.302	127.680	.00	-.13	-.1155	.0388	.0567	.0007	-.0012	.0073	-2.979
.301	127.285	.00	.97	-.0278	.0365	.0402	.0007	-.0011	.0071	-.763
.302	127.376	.00	2.10	.0632	.0357	.0245	.0012	-.0010	.0072	1.772
.302	127.371	.00	3.22	.1522	.0362	.0099	.0009	-.0010	.0071	4.209
.301	127.268	.00	4.36	.2419	.0378	-.0038	.0006	-.0012	.0072	6.393
.302	127.457	.00	5.49	.3312	.0407	-.0171	.0005	-.0012	.0075	8.132
.301	127.061	.00	7.80	.5177	.0507	-.0436	.0005	-.0013	.0076	10.203
.301	127.341	.00	10.08	.6998	.0651	-.0696	.0007	-.0012	.0070	10.749
.301	127.236	.00	12.33	.8703	.0833	-.0937	.0003	-.0015	.0078	10.450
.302	127.440	.00	14.52	1.0290	.1072	-.1366	.0008	-.0015	.0081	9.600
.301	127.102	.00	16.67	1.1898	.1421	-.2047	.0012	-.0013	.0090	8.372
.302	127.563	.00	3.27	.1548	.0361	.0097	.0009	-.0010	.0067	4.294

BODY AXIS COEFFICIENTS

MACH	Q	BETA	ALPHA	CNF	CAF	CPM	CRM	CYM	CSF
.302	127.758	.00	3.23	.1538	.0275	.0100	.0008	-.0010	.0068
.301	127.012	.00	-1.24	-.2064	.0380	.0733	.0006	-.0012	.0074
.302	127.680	.00	-.13	-.1156	.0385	.0567	.0007	-.0012	.0073
.301	127.285	.00	.97	-.0272	.0369	.0402	.0007	-.0011	.0071
.302	127.376	.00	2.10	.0644	.0333	.0245	.0012	-.0010	.0072
.302	127.371	.00	3.22	.1539	.0276	.0099	.0010	-.0010	.0071
.301	127.268	.00	4.36	.2440	.0194	-.0038	.0006	-.0011	.0072
.302	127.457	.00	5.49	.3334	.0089	-.0171	.0007	-.0012	.0075
.301	127.061	.00	7.80	.5196	-.0199	-.0436	.0007	-.0012	.0076
.301	127.341	.00	10.08	.7000	-.0583	-.0696	.0009	-.0011	.0070
.301	127.236	.00	12.33	.8674	-.1043	-.0937	.0006	-.0014	.0078
.302	127.440	.00	14.52	1.0221	-.1539	-.1366	.0011	-.0012	.0081
.301	127.102	.00	16.67	1.1792	-.2048	-.2047	.0015	-.0009	.0090
.302	127.563	.00	3.27	.1566	.0272	.0097	.0009	-.0009	.0067

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HIGH SPEED TUNNEL TEST 789 RUN 48 BALANCE 731 09/14/67.

STABILITY AXIS COEFFICIENTS

MACH	Q	BETA	ALPHA	CL	CD	CPM	CRM	CYM	CSF	L/D
.505	319.593	.00	3.69	.2084	.0373	.0043	.0004	-.0013	.0075	5.593
.505	319.815	.00	-1.58	-.2219	.0455	.0732	.0011	-.0016	.0080	-4.880
.506	320.041	.00	-.32	-.1155	.0404	.0545	.0009	-.0016	.0083	-2.857
.505	319.116	.00	.97	-.0117	.0374	.0368	.0009	-.0014	.0081	-.313
.505	319.264	.00	2.28	.0940	.0363	.0204	.0005	-.0013	.0078	2.593
.504	318.792	.00	3.66	.2057	.0372	.0046	.0004	-.0013	.0077	5.532
.504	318.501	.00	5.04	.3212	.0402	-.0112	.0004	-.0013	.0076	7.989
.505	318.837	.00	6.37	.4326	.0451	-.0258	.0005	-.0014	.0080	9.585
.504	318.728	.00	7.74	.5483	.0523	-.0399	.0009	-.0015	.0085	10.491
.504	318.533	.00	9.04	.6586	.0611	-.0530	.0007	-.0014	.0082	10.787
.504	318.781	.00	10.35	.7670	.0713	-.0650	.0007	-.0014	.0080	10.758
.505	319.231	.00	11.59	.8536	.0819	-.0745	.0014	-.0013	.0079	10.426
.506	320.837	.00	3.74	.2136	.0374	.0038	.0004	-.0013	.0078	5.711

BODY AXIS COEFFICIENTS

MACH	Q	BETA	ALPHA	CNF	CAF	CPM	CRM	CYM	CSF
.505	319.593	.00	3.69	.2103	.0238	.0043	.0004	-.0012	.0075
.505	319.815	.00	-1.58	-.2229	.0393	.0732	.0010	-.0017	.0080
.506	320.041	.00	-.32	-.1157	.0398	.0545	.0009	-.0016	.0083
.505	319.116	.00	.97	-.0111	.0375	.0368	.0009	-.0013	.0081
.505	319.264	.00	2.28	.0953	.0325	.0204	.0006	-.0013	.0078
.504	318.792	.00	3.66	.2075	.0240	.0046	.0005	-.0013	.0077
.504	318.501	.00	5.04	.3234	.0119	-.0112	.0005	-.0012	.0076
.505	318.837	.00	6.37	.4348	-.0031	-.0258	.0006	-.0013	.0080
.504	318.728	.00	7.74	.5501	-.0220	-.0399	.0011	-.0014	.0085
.504	318.533	.00	9.04	.6597	-.0431	-.0530	.0009	-.0013	.0082
.504	318.781	.00	10.35	.7668	-.0676	-.0650	.0010	-.0013	.0080
.505	319.231	.00	11.59	.8521	-.0911	-.0745	.0016	-.0010	.0079
.506	320.837	.00	3.74	.2155	.0234	.0038	.0005	-.0013	.0078

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HIGH SPEED TUNNEL [redacted] RUN 50 BALANCE 731 [redacted] 09/14/67.

STABILITY AXIS COEFFICIENTS

MACH	Q	BETA	ALPHA	CL	CD	CPM	CRM	CYM	CSF	L/D
.301	128.102	.00	3.25	.1661	.0256	.0103	.0008	-.0012	.0059	6.491
.302	128.224	.00	-1.20	-.1873	.0304	.0716	.0011	-.0013	.0065	-6.152
.301	127.926	.00	-.10	-.0988	.0273	.0558	.0010	-.0013	.0063	-3.611
.302	128.306	.00	1.00	-.0110	.0255	.0396	.0010	-.0013	.0061	-.431
.302	128.494	.00	2.13	.0773	.0249	.0245	.0011	-.0011	.0054	3.107
.301	128.102	.00	3.25	.1648	.0256	.0104	.0009	-.0011	.0054	6.449
.301	128.097	.00	4.38	.2532	.0274	-.0034	.0008	-.0013	.0059	9.231
.301	127.899	.00	5.52	.3460	.0307	-.0171	.0009	-.0012	.0054	11.266
.302	128.283	.00	6.67	.4363	.0353	-.0300	.0009	-.0013	.0056	12.351
.302	128.183	.00	7.83	.5254	.0411	-.0423	.0007	-.0012	.0053	12.772
.301	127.885	.00	10.12	.7105	.0564	-.0690	.0005	-.0012	.0049	12.607
.302	128.169	.00	12.34	.8747	.0744	-.0932	.0004	-.0015	.0060	11.756
.302	128.661	.00	14.54	1.0433	.0996	-.1388	.0005	-.0014	.0063	10.479
.301	127.738	.00	16.66	1.1953	.1324	-.2032	.0008	-.0010	.0068	9.029
.302	128.584	.00	3.34	.1708	.0255	.0092	.0009	-.0012	.0053	6.697

BODY AXIS COEFFICIENTS

MACH	Q	BETA	ALPHA	CNF	CAF	CPM	CRM	CYM	CSF
.301	128.102	.00	3.25	.1672	.0161	.0103	.0009	-.0012	.0059
.302	128.224	.00	-1.20	-.1878	.0265	.0716	.0011	-.0013	.0065
.301	127.926	.00	-.10	-.0988	.0272	.0558	.0010	-.0013	.0063
.302	128.306	.00	1.00	-.0105	.0256	.0396	.0010	-.0013	.0061
.302	128.494	.00	2.13	.0781	.0220	.0245	.0011	-.0011	.0054
.301	128.102	.00	3.25	.1660	.0162	.0104	.0009	-.0011	.0054
.301	128.097	.00	4.38	.2545	.0080	-.0034	.0009	-.0012	.0059
.301	127.899	.00	5.52	.3473	-.0027	-.0171	.0010	-.0011	.0054
.302	128.283	.00	6.67	.4373	-.0156	-.0300	.0010	-.0012	.0056
.302	128.183	.00	7.83	.5260	-.0308	-.0423	.0009	-.0011	.0053
.301	127.885	.00	10.12	.7090	-.0693	-.0690	.0007	-.0010	.0049
.302	128.169	.00	12.34	.8699	-.1141	-.0932	.0007	-.0014	.0060
.302	128.661	.00	14.54	1.0340	-.1653	-.1388	.0008	-.0012	.0063
.301	127.738	.00	16.66	1.1818	-.2155	-.2032	.0011	-.0008	.0068
.302	128.584	.00	3.34	.1720	.0155	.0092	.0009	-.0011	.0053

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HIGH SPEED TUNNEL TEST 789 RUN 49 BALANCE 731 09/14/67.

STABILITY AXIS COEFFICIENTS

MACH	Q	BETA	ALPHA	CL	CD	CPM	CRM	CYM	CSF	L/D
.607	428.918	.00	4.16	.2762	.0403	-.0015	-.0005	-.0014	.0075	6.862
.607	428.621	.00	-.41	-.1068	.0434	.0514	.0006	-.0014	.0074	-2.461
.608	429.047	.00	.99	.0125	.0396	.0324	.0004	-.0014	.0076	.315
.607	428.144	.00	2.55	.1419	.0385	.0150	.0000	-.0013	.0075	3.682
.606	427.743	.00	4.16	.2775	.0403	-.0017	-.0005	-.0014	.0075	6.893
.607	427.948	.00	5.64	.4003	.0446	-.0163	-.0005	-.0015	.0082	8.975
.608	429.196	.00	7.12	.5203	.0524	-.0282	-.0005	-.0018	.0086	9.935
.606	427.221	.00	8.54	.6351	.0637	-.0424	-.0003	-.0018	.0084	9.974
.608	429.833	.00	4.20	.2803	.0402	-.0022	-.0005	-.0014	.0076	6.967

BODY AXIS COEFFICIENTS

MACH	Q	BETA	ALPHA	CNF	CAF	CPM	CRM	CYM	CSF
.607	428.918	.00	4.16	.2783	.0201	-.0015	-.0004	-.0014	.0075
.607	428.621	.00	-.41	-.1071	.0426	.0514	.0006	-.0014	.0074
.608	429.047	.00	.99	.0132	.0394	.0324	.0004	-.0014	.0076
.607	428.144	.00	2.55	.1434	.0322	.0150	.0001	-.0013	.0075
.606	427.743	.00	4.16	.2796	.0200	-.0017	-.0004	-.0014	.0075
.607	427.948	.00	5.64	.4026	.0050	-.0163	-.0004	-.0016	.0082
.608	429.196	.00	7.12	.5225	-.0125	-.0282	-.0003	-.0018	.0086
.606	427.221	.00	8.54	.6372	-.0313	-.0424	-.0001	-.0018	.0084
.608	429.833	.00	4.20	.2824	.0196	-.0022	-.0004	-.0015	.0076

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HIGH SPEED TUNNEL TEST 189 RUN 52 BALANCE /31 09/14/67.

STABILITY AXIS COEFFICIENTS

MACH	Q	BETA	ALPHA	CL	CD	CPM	CRM	CYM	CSF	L/D
.606	430.189	.00	4.24	.2777	.0289	-.0003	.0007	-.0014	.0063	9.616
.606	430.057	.00	-.28	-.1071	.0286	.0526	.0013	-.0013	.0060	-3.740
.607	430.601	.00	1.14	.0126	.0261	.0346	.0011	-.0013	.0063	.483
.606	429.977	.00	2.66	.1419	.0261	.0167	.0009	-.0015	.0067	5.432
.606	429.935	.00	4.23	.2765	.0288	-.0002	.0007	-.0014	.0062	9.598
.606	429.656	.00	5.72	.4070	.0342	-.0156	.0010	-.0013	.0063	11.899
.607	430.812	.00	7.22	.5392	.0427	-.0293	.0009	-.0014	.0063	12.619
.606	430.083	.00	8.64	.6547	.0539	-.0406	.0009	-.0015	.0064	12.141
.606	430.018	.00	4.24	.2772	.0289	-.0002	.0007	-.0014	.0064	9.598

BODY AXIS COEFFICIENTS

MACH	Q	BETA	ALPHA	CNF	CAF	CPM	CRM	CYM	CSF
.606	430.189	.00	4.24	.2790	.0083	-.0003	.0008	-.0013	.0063
.606	430.057	.00	-.28	-.1073	.0281	.0526	.0013	-.0014	.0060
.607	430.601	.00	1.14	.0132	.0259	.0346	.0011	-.0013	.0063
.606	429.977	.00	2.66	.1430	.0195	.0167	.0009	-.0014	.0067
.606	429.935	.00	4.23	.2778	.0084	-.0002	.0008	-.0013	.0062
.606	429.656	.00	5.72	.4083	-.0065	-.0156	.0011	-.0012	.0063
.607	430.812	.00	7.22	.5401	-.0254	-.0293	.0010	-.0013	.0063
.606	430.083	.00	8.64	.6551	-.0450	-.0406	.0011	-.0013	.0064
.606	430.018	.00	4.24	.2785	.0083	-.0002	.0008	-.0013	.0064

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HIGH-SPEED-TUNNEL TEST 789 RUN 51 BALANCE 731 09/14/67

STABILITY AXIS COEFFICIENTS

MACH	Q	BETA	ALPHA	CL	CD	CPM	CRM	CYM	CSF	L/D
.505	321.140	.00	3.82	.2272	.0268	.0038	.0007	-.0014	.0063	8.483
.505	321.768	.00	-1.48	-.2100	.0317	.0719	.0011	-.0014	.0061	-6.621
.505	321.384	.00	-.24	-.1046	.0276	.0542	.0011	-.0014	.0060	-3.789
.504	320.292	.00	1.07	.0029	.0254	.0365	.0010	-.0015	.0064	.115
.504	320.539	.00	2.39	.1108	.0250	.0200	.0008	-.0015	.0066	4.429
.504	320.340	.00	3.76	.2238	.0267	.0039	.0006	-.0015	.0067	8.390
.505	321.477	.00	5.15	.3373	.0303	-.0117	.0008	-.0013	.0062	11.144
.505	320.841	.00	6.47	.4470	.0357	-.0257	.0007	-.0014	.0062	12.503
.504	319.847	.00	7.81	.5595	.0431	-.0396	.0008	-.0014	.0061	12.994
.505	320.897	.00	9.10	.6687	.0519	-.0532	.0007	-.0014	.0061	12.878
.505	320.792	.00	10.39	.7763	.0624	-.0657	.0005	-.0014	.0061	12.438
.506	322.383	.00	11.69	.8865	.0752	-.0794	.0008	-.0014	.0063	11.783
.504	319.907	.00	3.79	.2210	.0267	.0045	.0005	-.0014	.0060	8.269

BODY AXIS COEFFICIENTS

MACH	Q	BETA	ALPHA	CNF	CAF	CPM	CRM	CYM	CSF
.505	321.140	.00	3.82	.2284	.0116	.0038	.0008	-.0014	.0063
.505	321.768	.00	-1.48	-.2107	.0263	.0719	.0011	-.0014	.0061
.505	321.384	.00	-.24	-.1047	.0272	.0542	.0011	-.0014	.0060
.504	320.292	.00	1.07	.0034	.0253	.0365	.0010	-.0015	.0064
.504	320.539	.00	2.39	.1117	.0204	.0200	.0009	-.0015	.0066
.504	320.340	.00	3.76	.2250	.0119	.0039	.0007	-.0015	.0067
.505	321.477	.00	5.15	.3386	-.0001	-.0117	.0009	-.0012	.0062
.505	320.841	.00	6.47	.4480	-.0148	-.0257	.0008	-.0013	.0062
.504	319.847	.00	7.81	.5600	-.0333	-.0396	.0010	-.0012	.0061
.505	320.897	.00	9.10	.6682	-.0544	-.0532	.0009	-.0012	.0061
.505	320.792	.00	10.39	.7744	-.0786	-.0657	.0007	-.0013	.0061
.506	322.383	.00	11.69	.8828	-.1058	-.0794	.0011	-.0012	.0063
.504	319.907	.00	3.79	.2223	.0121	.0045	.0006	-.0013	.0060

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HIGH SPEED TUNNEL TEST 789 RUN 54 BALANCE 731 09/14/67

STABILITY AXIS COEFFICIENTS

MACH	Q	BETA	ALPHA	CL	CD	CPM	CRM	CYM	CSF	L/D
.505	320.689	.00	3.75	.2115	.0260	.0075	.0003	.0004	-.0016	8.123
.505	321.399	.00	-1.38	-.2117	.0311	.0738	-.0000	.0003	.0002	-6.797
.505	321.640	.00	-.10	-.1026	.0272	.0556	.0002	.0004	-.0004	-3.775
.505	321.259	.00	1.22	.0056	.0250	.0373	.0001	.0003	-.0005	.223
.504	320.172	.00	2.48	.1083	.0247	.0214	.0002	.0003	-.0010	4.392
.504	320.332	.00	3.76	.2141	.0261	.0070	.0003	.0004	-.0016	8.208
.504	320.411	.00	5.04	.3189	.0295	-.0074	.0002	.0003	-.0017	10.806
.504	320.398	.00	6.30	.4266	.0347	-.0212	.0003	.0004	-.0022	12.310
.503	319.317	.00	7.56	.5341	.0413	-.0341	.0005	.0005	-.0027	12.933
.505	320.726	.00	8.81	.6361	.0492	-.0470	.0004	.0005	-.0029	12.921
.505	320.691	.00	3.85	.2204	.0265	.0064	.0001	.0004	-.0014	8.313

BODY AXIS COEFFICIENTS

MACH	Q	BETA	ALPHA	CNF	CAF	CPM	CRM	CYM	CSF
.505	320.689	.00	3.75	.2127	.0122	.0075	.0003	.0004	-.0016
.505	321.399	.00	-1.38	-.2123	.0260	.0738	-.0000	.0003	.0002
.505	321.640	.00	-.10	-.1027	.0270	.0556	.0002	.0004	-.0004
.505	321.259	.00	1.22	.0061	.0249	.0373	.0001	.0003	-.0005
.504	320.172	.00	2.48	.1093	.0199	.0214	.0002	.0003	-.0010
.504	320.332	.00	3.76	.2153	.0120	.0070	.0003	.0005	-.0016
.504	320.411	.00	5.04	.3202	.0014	-.0074	.0002	.0004	-.0017
.504	320.398	.00	6.30	.4277	-.0124	-.0212	.0003	.0004	-.0022
.503	319.317	.00	7.56	.5347	-.0293	-.0341	.0004	.0005	-.0027
.505	320.726	.00	8.81	.6359	-.0487	-.0470	.0003	.0006	-.0029
.505	320.691	.00	3.85	.2216	.0116	.0064	.0001	.0004	-.0014

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HIGH SPEED TUNNEL TEST 789 RUN 53 BALANCE 731 09/14/67.

STABILITY AXIS COEFFICIENTS

MACH	Q	BETA	ALPHA	CL	CD	CPM	CRM	CYM	CSF	L/D
.301	127.712	.00	3.26	.1589	.0248	.0124	.0006	.0006	-.0022	6.396
.301	127.931	.00	-1.14	-.1909	.0301	.0729	-.0000	.0005	-.0001	-6.335
.301	128.117	.00	-.04	-.1010	.0269	.0567	.0002	.0005	-.0006	-3.760
.301	128.110	.00	1.08	-.0114	.0249	.0404	.0003	.0005	-.0010	-.457
.301	127.621	.00	2.17	.0740	.0243	.0256	.0003	.0004	-.0015	3.043
.302	128.583	.00	3.29	.1628	.0250	.0115	.0007	.0005	-.0020	6.505
.301	128.094	.00	4.40	.2492	.0268	-.0019	.0007	.0006	-.0023	9.302
.302	128.188	.00	5.49	.3337	.0298	-.0143	.0007	.0006	-.0025	11.194
.301	127.993	.00	6.61	.4227	.0344	-.0266	.0007	.0006	-.0023	12.271
.301	127.701	.00	7.67	.5070	.0399	-.0381	.0004	.0005	-.0022	12.709
.302	128.389	.00	3.34	.1643	.0250	.0112	.0007	.0006	-.0019	6.578

BODY AXIS COEFFICIENTS

MACH	Q	BETA	ALPHA	CNF	CAF	CPM	CRM	CYM	CSF
.301	127.712	.00	3.26	.1600	.0158	.0124	.0005	.0006	-.0022
.301	127.931	.00	-1.14	-.1914	.0263	.0729	-.0000	.0005	-.0001
.301	128.117	.00	-.04	-.1010	.0268	.0567	.0002	.0005	-.0006
.301	128.110	.00	1.08	-.0109	.0251	.0404	.0003	.0005	-.0010
.301	127.621	.00	2.17	.0749	.0215	.0256	.0003	.0005	-.0015
.302	128.583	.00	3.29	.1639	.0156	.0115	.0006	.0006	-.0020
.301	128.094	.00	4.40	.2505	.0076	-.0019	.0006	.0006	-.0023
.302	128.188	.00	5.49	.3349	-.0022	-.0143	.0006	.0007	-.0025
.301	127.993	.00	6.61	.4237	-.0144	-.0266	.0006	.0006	-.0023
.301	127.701	.00	7.67	.5077	-.0281	-.0381	.0004	.0006	-.0022
.302	128.389	.00	3.34	.1654	.0154	.0112	.0007	.0006	-.0019

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HIGH SPEED TUNNEL TEST 789 RUN 55 BALANCE 731 09/14/67.

STABILITY AXIS COEFFICIENTS

MACH	Q	BETA	ALPHA	CL	CD	CPM	CRM	CYM	CSF	L/D
.607	430.233	.00	4.23	.2680	.0283	.0031	.0003	.0003	-.0015	9.478
.606	429.388	.00	-1.61	-.2304	.0333	.0730	.0003	.0004	-.0000	-6.919
.607	430.451	.00	-.10	-.0952	.0281	.0518	.0001	.0004	-.0006	-3.391
.606	429.734	.00	1.35	.0270	.0257	.0337	.0001	.0004	-.0010	1.050
.607	430.114	.00	2.77	.1459	.0257	.0177	.0003	.0004	-.0013	5.680
.607	430.180	.00	3.48	.2069	.0266	.0104	.0004	.0004	-.0015	7.787
.607	430.251	.00	4.19	.2669	.0281	.0030	.0003	.0004	-.0015	9.486
.607	430.159	.00	4.89	.3273	.0304	-.0041	.0003	.0004	-.0017	10.770
.607	430.055	.00	6.32	.4505	.0366	-.0181	.0004	.0004	-.0021	12.302
.605	428.033	.00	7.67	.5674	.0448	-.0299	.0006	.0004	-.0025	12.660
.607	430.748	.00	4.26	.2724	.0282	.0026	.0004	.0004	-.0016	9.654

BODY AXIS COEFFICIENTS

MACH	Q	BETA	ALPHA	CNF	CAF	CPM	CRM	CYM	CSF
.607	430.233	.00	4.23	.2693	.0085	.0031	.0002	.0003	-.0015
.606	429.388	.00	-1.61	-.2311	.0268	.0730	.0003	.0004	-.0000
.607	430.451	.00	-.10	-.0952	.0279	.0518	.0001	.0004	-.0006
.606	429.734	.00	1.35	.0276	.0250	.0337	.0001	.0004	-.0010
.607	430.114	.00	2.77	.1470	.0186	.0177	.0003	.0004	-.0013
.607	430.180	.00	3.48	.2081	.0140	.0104	.0004	.0004	-.0015
.607	430.251	.00	4.19	.2682	.0086	.0030	.0002	.0004	-.0015
.607	430.159	.00	4.89	.3286	.0024	-.0041	.0002	.0004	-.0017
.607	430.055	.00	6.32	.4516	-.0131	-.0181	.0004	.0004	-.0021
.605	428.033	.00	7.67	.5681	-.0313	-.0299	.0005	.0005	-.0025
.607	430.748	.00	4.26	.2737	.0079	.0026	.0004	.0004	-.0016

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*** NASA [redacted] *** 7 X 10 FT TUNNELS *** NASA PRELIMINARY ***

GROUP 4 - DOWNGRADED AT 3-YR INTERVALS, DECLASSIFIED AFTER 12 YRS

HIGH SPEED TUNNEL TEST 789 RUN 56 BALANCE 731 09/14/67.

BODY AXIS COEFFICIENTS

PT	H	MACH	Q	BETA	ALPHA	CNF	CAF	CPM	CRM	CYM	CSF
930	.0	.302	128.274	-.02		.3165	.0013	-.0183	.0008	.0008	-.0004
931	.0	.301	127.899	-3.96		.3208	-.0013	-.0241	.0088	-.0175	.0667
932	.0	.302	128.280	-2.99		.3191	-.0002	-.0209	.0069	-.0126	.0492
933	.0	.302	128.470	-2.00		.3204	.0005	-.0194	.0048	-.0083	.0337
934	.0	.302	128.564	-1.01		.3217	.0009	-.0186	.0029	-.0039	.0175
935	.0	.302	128.853	-.03	5.25°	.3196	.0011	-.0185	.0009	.0009	-.0002
936	.0	.302	128.855	.96		.3185	.0012	-.0187	-.0012	.0054	-.0166
937	.0	.302	128.857	1.94		.3177	.0008	-.0197	-.0033	.0100	-.0335
938	.0	.301	127.896	2.94		.3151	.0003	-.0212	-.0053	.0151	-.0517
939	.0	.301	127.805	3.91		.3138	-.0006	-.0235	-.0074	.0197	-.0679
940	.0	.302	128.660	-.02		.3197	.0010	-.0185	.0009	.0010	-.0004

*** NASA [redacted] *** 7 X 10 FT TUNNELS *** NASA [redacted] ***

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UNCLASSIFIED

*** NASA [redacted] *** 7 X 10 FT TUNNELS *** NASA PRELIMINARY ***

GROUP 4 - DOWNGRADED AT 3-YR INTERVALS, DECLASSIFIED AFTER 12 YRS

HIGH SPEED TUNNEL TEST 789 RUN 58 BALANCE 731 09/14/67.

BODY AXIS COEFFICIENTS

PT	H	MACH	Q	BETA	ALPHA	CNF	CAF	CPM	CRM	CYM	CSF
952	.0	.606	428.766	-.04		.5189	-.0219	-.0355	.0015	.0012	-.0016
953	.0	.606	428.940	-2.86		.5285	-.0241	-.0382	.0069	-.0136	.0510
954	.0	.606	429.084	-1.93		.5253	-.0233	-.0368	.0051	-.0084	.0352
955	.0	.606	429.403	-.99		.5242	-.0230	-.0366	.0032	-.0037	.0162
956	.0	.606	429.394	-.06	7.22°	.5271	-.0231	-.0365	.0014	.0013	-.0014
957	.0	.606	428.812	.88		.5280	-.0232	-.0363	-.0005	.0061	-.0183
958	.0	.606	428.911	1.82		.5260	-.0234	-.0364	-.0026	.0110	-.0355
959	.0	.606	428.745	2.33		.5258	-.0238	-.0372	-.0035	.0138	-.0449
960	.0	.606	428.873	-.04		.5327	-.0236	-.0368	.0015	.0012	-.0011

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*** NASA [redacted] *** 7 X 10 FT TUNNELS *** NASA [redacted] ***

[redacted]

HIGH SPEED TUNNEL TEST 789 RUN 57 BALANCE 731 09/14/67.

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BODY AXIS COEFFICIENTS

PT	H	MACH	Q	BETA	ALPHA	CNF	CAF	CPM	CHM	CYM	CSF
941	.0	.505	320.860	-.03		.4190	-.0103	-.0285	.0011	.0011	-.0014
942	.0	.504	320.541	-3.85		.4223	-.0127	-.0334	.0090	-.0180	.0673
943	.0	.505	320.878	-2.91		.4208	-.0118	-.0306	.0071	-.0131	.0499
944	.0	.505	321.215	-1.94		.4210	-.0112	-.0292	.0051	-.0083	.0325
945	.0	.506	322.093	-1.00		.4221	-.0110	-.0290	.0031	-.0037	.0159
946	.0	.505	320.760	-.04	6.21°	.4205	-.0107	-.0289	.0012	.0012	-.0017
947	.0	.504	320.231	.91		.4201	-.0107	-.0288	-.0009	.0058	-.0179
948	.0	.505	321.218	1.87		.4198	-.0110	-.0291	-.0028	.0107	-.0353
949	.0	.504	320.167	2.82		.4182	-.0115	-.0309	-.0049	.0157	-.0526
950	.0	.504	320.271	3.77		.4190	-.0124	-.0334	-.0070	.0204	-.0692
951	.0	.505	321.199	-.02		.4232	-.0110	-.0291	.0010	.0011	-.0015

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GROUP 4 - DOWNGRADED AT 3-YR INTERVALS, DECLASSIFIED AFTER 12 YRS

HIGH SPEED TUNNEL TEST 789 RUN 60 BALANCE 731 09/14/67.

BODY AXIS COEFFICIENTS

PT	H	MACH	Q	BETA	ALPHA	CNF	CAF	CPM	CRM	CYM	CSF
984	.0	.505	320.301	.00		.4153	-.0039	-.0353	.0008	.0004	-.0022
985	.0	.504	320.075	-3.83		.4203	-.0066	-.0410	.0090	-.0190	.0741
986	.0	.505	320.233	-2.89		.4185	-.0055	-.0379	.0070	-.0139	.0548
987	.0	.505	320.835	-1.92		.4216	-.0051	-.0369	.0050	-.0091	.0357
988	.0	.504	320.118	-.97		.4188	-.0046	-.0360	.0029	-.0044	.0168
989	.0	.505	320.469	-.01	6.25°	.4207	-.0046	-.0361	.0009	.0003	-.0018
990	.0	.505	320.474	.95		.4199	-.0046	-.0358	-.0012	.0052	-.0209
991	.0	.504	320.129	1.91		.4184	-.0050	-.0361	-.0032	.0100	-.0400
992	.0	.505	320.411	2.88		.4182	-.0057	-.0375	-.0052	.0151	-.0595
993	.0	.505	320.520	3.83		.4177	-.0067	-.0399	-.0074	.0198	-.0779
994	.0	.505	320.289	.02		.4219	-.0047	-.0362	.0008	.0003	-.0021

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GROUP 4 - DOWNGRADED AT 3-YR INTERVALS, DECLASSIFIED AFTER 12 YRS

HIGH SPEED TUNNEL TEST 789 RUN 59 BALANCE 731 09/14/67.

BODY AXIS COEFFICIENTS

PT	H	MACH	Q	BETA	ALPHA	CNF	CAF	CPM	CRM	CYM	CSF
973	.0	.302	128.108	-.01		.3205	.0072	-.0255	.0008	-.0001	-.0002
974	.0	.302	128.217	-3.95		.3224	.0043	-.0315	.0089	-.0185	.0738
975	.0	.302	128.212	-2.96		.3213	.0056	-.0283	.0069	-.0136	.0543
976	.0	.302	128.111	-1.98		.3225	.0063	-.0266	.0049	-.0090	.0363
977	.0	.302	128.012	-.99		.3228	.0070	-.0258	.0028	-.0046	.0188
978	.0	.302	128.012	-.00	5.36°	.3216	.0072	-.0255	.0007	-.0000	-.0000
979	.0	.302	128.109	.98		.3218	.0070	-.0256	-.0014	.0047	-.0190
980	.0	.302	127.919	1.97		.3208	.0066	-.0264	-.0035	.0095	-.0379
981	.0	.301	127.826	2.96		.3197	.0058	-.0281	-.0056	.0144	-.0577
982	.0	.302	128.122	3.94		.3178	.0047	-.0297	-.0078	.0191	-.0761
983	.0	.302	128.398	.01		.3240	.0070	-.0257	.0009	.0002	-.0007

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GROUP 4 - DOWNGRADED AT 3-YR INTERVALS, DECLASSIFIED AFTER 12 YRS

HIGH SPEED TUNNEL TEST 789 RUN 62 BALANCE 731 09/14/67.

BODY AXIS COEFFICIENTS

PT	H	MACH	Q	BETA	ALPHA	CNF	CAF	CPM	CRM	CYM	CSF
1017	.0	.302	127.947	-.01		.3184	.0130	-.0308	.0009	.0005	.0011
1018	.0	.302	128.251	-3.95		.3226	.0100	-.0363	.0090	-.0182	.0773
1019	.0	.302	128.342	-2.98		.3209	.0113	-.0334	.0071	-.0132	.0571
1020	.0	.302	128.047	-1.99		.3196	.0121	-.0321	.0051	-.0086	.0386
1021	.0	.302	128.141	-1.00		.3197	.0127	-.0310	.0028	-.0040	.0200
1022	.0	.302	128.237	-.02	5.42°	.3189	.0129	-.0309	.0010	.0006	.0010
1023	.0	.301	127.852	.97		.3192	.0129	-.0311	-.0010	.0052	-.0178
1024	.0	.301	127.757	1.96		.3174	.0123	-.0318	-.0032	.0100	-.0373
1025	.0	.301	127.860	2.95		.3171	.0117	-.0333	-.0053	.0150	-.0579
1026	.0	.302	128.156	3.93		.3161	.0106	-.0353	-.0075	.0196	-.0769
1027	.0	.302	128.334	-.00		.3204	.0128	-.0308	.0011	.0009	.0003

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HIGH SPEED TUNNEL TEST 789 RUN 61 BALANCE 731 09/14/67.

BODY AXIS COEFFICIENTS

PT	H	MACH	Q	BETA	ALPHA	CNF	CAF	CPM	CRM	CYM	CSF
995	.0	.607	429.293	-.02		.5179	-.0151	-.0429	.0012	.0007	-.0033
996	.0	.606	428.658	-2.83		.5172	-.0164	-.0452	.0068	-.0142	.0542
997	.0	.606	428.715	-1.90		.5164	-.0159	-.0439	.0051	-.0091	.0354
998	.0	.607	430.034	-.97		.5219	-.0159	-.0439	.0031	-.0042	.0161
999	.0	.607	429.863	-.02	7.11°	.5196	-.0157	-.0434	.0012	.0007	-.0031
1001	.0	.607	429.532	.91		.5200	-.0159	-.0431	-.0007	.0057	-.0223
1002	.0	.607	429.384	1.85		.5178	-.0161	-.0430	-.0026	.0106	-.0414
1003	.0	.607	429.156	2.81		.5200	-.0170	-.0450	-.0048	.0159	-.0615
1004	.0	.605	427.686	-.01		.5190	-.0158	-.0434	.0012	.0007	-.0031

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HIGH SPEED TUNNEL TEST 789 RUN 64 BALANCE 731 09/14/67.

BODY AXIS COEFFICIENTS

PT	H	MACH	Q	BETA	ALPHA	CNF	CAF	CPM	CRM	CYM	CSF
1039	.0	.606	428.825	-.04		.5066	-.0075	-.0479	.0014	.0012	-.0023
1040	.0	.606	428.841	-2.88		.5140	-.0099	-.0502	.0070	-.0139	.0578
1041	.0	.606	428.901	-1.95		.5141	-.0091	-.0493	.0053	-.0087	.0377
1042	.0	.607	429.308	-1.00		.5138	-.0086	-.0489	.0034	-.0038	.0179
1043	.0	.607	429.807	-.06	7.00°	.5110	-.0084	-.0484	.0015	.0012	-.0017
1044	.0	.607	429.307	.88		.5119	-.0087	-.0482	-.0003	.0060	-.0208
1045	.0	.607	429.993	1.82		.5116	-.0090	-.0486	-.0023	.0110	-.0405
1046	.0	.607	429.753	2.33		.5132	-.0094	-.0491	-.0035	.0138	-.0515
1047	.0	.606	428.963	-.04		.5152	-.0089	-.0489	.0013	.0012	-.0023

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HIGH SPEED TUNNEL TEST 789 RUN 63 BALANCE 731 09/14/67.

BODY AXIS COEFFICIENTS

PT	H	MACH	Q	BETA	ALPHA	CNF	CAF	CPM	CRM	CYM	CSF
1028	.0	.505	320.677	-.03		.4118	.0024	-.0409	.0011	.0009	-.0011
1029	.0	.505	320.539	-3.86		.4167	-.0005	-.0454	.0091	-.0186	.0771
1030	.0	.505	320.699	-2.91		.4151	.0007	-.0426	.0072	-.0133	.0566
1031	.0	.505	320.681	-1.96		.4156	.0012	-.0417	.0051	-.0085	.0373
1032	.0	.505	320.849	-.99		.4152	.0016	-.0413	.0030	-.0038	.0182
1033	.0	.505	321.114	-.03	6.23°	.4154	.0018	-.0414	.0012	.0009	-.0008
1034	.0	.505	320.851	.91		.4141	.0018	-.0412	-.0009	.0058	-.0202
1035	.0	.505	320.330	1.87		.4136	.0015	-.0415	-.0029	.0106	-.0396
1036	.0	.504	320.168	2.85		.4130	.0009	-.0429	-.0049	.0157	-.0596
1037	.0	.504	319.923	3.80		.4107	.0000	-.0455	-.0072	.0206	-.0787
1038	.0	.505	320.847	-.01		.4162	.0018	-.0413	.0011	.0010	-.0013

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HIGH SPEED TUNNEL TEST 789 RUN 66 BALANCE 731 09/14/67.

BODY AXIS COEFFICIENTS

PT	M	MACH	Q	BETA	ALPHA	CNF	CAF	CPM	CRM	CYM	CSF
1071	.0	.505	320.769	-.02		.4139	.0021	-.0392	.0012	.0009	-.0014
1072	.0	.505	321.162	-3.85		.4183	-.0009	-.0438	.0090	-.0186	.0759
1073	.0	.505	321.145	-2.91		.4184	.0002	-.0413	.0072	-.0138	.0571
1074	.0	.505	321.127	-1.96		.4173	.0009	-.0396	.0051	-.0085	.0370
1075	.0	.504	320.321	-.99		.4167	.0014	-.0391	.0031	-.0039	.0180
1076	.0	.504	320.229	-.03	6.23°	.4170	.0016	-.0396	.0012	.0009	-.0010
1077	.0	.505	320.855	.91		.4165	.0015	-.0393	-.0009	.0057	-.0197
1078	.0	.505	320.866	1.87		.4154	.0013	-.0401	-.0029	.0107	-.0398
1079	.0	.505	320.794	2.85		.4143	.0007	-.0414	-.0050	.0160	-.0597
1080	.0	.505	320.728	3.79		.4131	-.0001	-.0435	-.0069	.0204	-.0779
1081	.0	.505	320.584	-.01		.4195	.0015	-.0397	.0012	.0011	-.0016

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GROUP 4 - DOWNGRADED AT 3-YR INTERVALS, DECLASSIFIED AFTER 12 YRS

HIGH SPEED TUNNEL [redacted] TEST 789 RUN 65 BALANCE 731 [redacted] 09/14/67.

BODY AXIS COEFFICIENTS

PT	H	MACH	Q	BETA	ALPHA	CNF	CAF	CPM	CRM	CYM	CSF
1060	.0	.302	128.336	-.01		.3198	.0130	-.0290	.0009	.0005	.0004
1061	.0	.301	127.671	-3.94		.3235	.0099	-.0344	.0091	-.0185	.0771
1062	.0	.302	128.052	-2.97		.3227	.0112	-.0317	.0071	-.0135	.0569
1063	.0	.302	128.145	-1.99		.3212	.0120	-.0297	.0049	-.0086	.0381
1064	.0	.302	128.626	-1.01		.3221	.0126	-.0290	.0030	-.0040	.0192
1065	.0	.302	128.336	-.01	5.42°	.3219	.0129	-.0291	.0008	.0006	.0006
1066	.0	.301	127.950	.97		.3206	.0128	-.0292	-.0012	.0053	-.0184
1067	.0	.302	128.435	1.95		.3192	.0123	-.0302	-.0031	.0100	-.0374
1068	.0	.302	128.634	2.96		.3192	.0116	-.0317	-.0053	.0152	-.0576
1069	.0	.301	127.964	3.92		.3177	.0106	-.0337	-.0075	.0198	-.0765
1070	.0	.302	128.335	-.00		.3227	.0127	-.0294	.0011	.0007	.0001

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HIGH SPEED TUNNEL TEST 789 RUN 68 BALANCE 731 09/14/67.

BODY AXIS COEFFICIENTS

PT	H	MACH	Q	BETA	ALPHA	CNF	CAF	CPM	CRM	CYM	CSF
1103	.0	.302	128.229	-.01		.3102	.0115	.0069	.0010	.0001	.0020
1104	.0	.301	127.654	-4.06		.3110	.0101	.0048	.0045	.0024	.0356
1105	.0	.302	128.039	-3.06		.3118	.0106	.0060	.0038	.0019	.0272
1106	.0	.302	128.229	-2.04		.3107	.0109	.0066	.0029	.0013	.0188
1107	.0	.302	128.519	-1.02		.3106	.0113	.0073	.0019	.0007	.0105
1108	.0	.302	128.229	-.01	5.42°	.3114	.0114	.0072	.0009	.0001	.0021
1109	.0	.301	127.939	1.01		.3098	.0115	.0071	-.0000	-.0005	-.0061
1110	.0	.302	128.037	2.02		.3088	.0114	.0071	-.0008	-.0011	-.0148
1111	.0	.302	128.137	3.06		.3083	.0112	.0069	-.0017	-.0017	-.0241
1112	.0	.302	128.141	4.06		.3058	.0110	.0064	-.0026	-.0023	-.0325
1113	.0	.302	128.034	.00		.3110	.0113	.0068	.0011	.0001	.0020

HIGH SPEED TUNNEL [redacted] (ES) 789 RUN 67 BALANCE 731 [redacted] 09/14/67

BODY AXIS COEFFICIENTS

PT	H	MACH	Q	BETA	ALPHA	CNF	CAF	CPM	CRM	CYM	CSF
1082	.0	.607	429.670	-.05		.5098	-.0079	-.0457	.0014	.0011	-.0019
1083	.0	.606	429.019	-2.88		.5156	-.0101	-.0486	.0072	-.0141	.0572
1084	.0	.607	429.494	-1.96		.5190	-.0097	-.0473	.0052	-.0087	.0372
1085	.0	.607	429.983	-1.01		.5189	-.0091	-.0464	.0034	-.0039	.0180
1086	.0	.607	429.483	-.06	7.00°	.5159	-.0088	-.0465	.0015	.0011	-.0019
1087	.0	.606	429.233	.89		.5154	-.0090	-.0462	-.0004	.0061	-.0210
1088	.0	.607	429.669	1.82		.5144	-.0092	-.0472	-.0024	.0112	-.0404
1089	.0	.607	429.599	2.30		.5126	-.0094	-.0476	-.0036	.0141	-.0510
1090	.0	.606	429.142	-.05		.5176	-.0091	-.0465	.0013	.0012	-.0022

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GROUP 4 - DOWNGRADED AT 3-YR INTERVALS, DECLASSIFIED AFTER 12 YRS

HIGH SPEED TUNNEL TEST 789 RUN 70 BALANCE 731 [redacted] 09/14/67.

BODY AXIS COEFFICIENTS

PT	H	MACH	Q	BETA	ALPHA	CNF	CAF	CPM	CRM	CYM	CSF
1125	.0	.606	429.330	-.03		.5127	-.0116	-.0043	.0016	.0002	.0005
1126	.0	.607	430.335	-4.21		.5195	-.0142	-.0057	.0047	.0024	.0361
1127	.0	.607	429.485	-3.18		.5179	-.0136	-.0050	.0043	.0020	.0274
1128	.0	.606	429.392	-2.14		.5182	-.0131	-.0054	.0033	.0013	.0186
1129	.0	.607	430.138	-1.10		.5184	-.0129	-.0054	.0024	.0008	.0096
1130	.0	.606	429.386	-.05	7.00°	.5181	-.0127	-.0052	.0016	.0002	.0004
1131	.0	.607	429.479	1.00		.5166	-.0125	-.0045	.0008	-.0003	-.0086
1132	.0	.606	429.070	2.05		.5156	-.0125	-.0042	-.0001	-.0009	-.0173
1133	.0	.606	429.336	3.13		.5167	-.0127	-.0037	-.0010	-.0015	-.0269
1134	.0	.606	429.276	4.16		.5164	-.0129	-.0043	-.0018	-.0020	-.0360
1135	.0	.606	429.132	-.03		.5192	-.0128	-.0053	.0016	.0002	.0004

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HIGH SPEED TUNNEL TEST 789 RUN 69 BALANCE 731 09/14/67.

BODY AXIS COEFFICIENTS

PT	H	MACH	Q	BETA	ALPHA	CNF	CAF	CPM	CRM	CYM	CSF
1114	.0	.504	320.369	-.01		.4120	-.0007	-.0009	.0012	.0001	.0010
1115	.0	.504	320.034	-4.14		.4128	-.0019	-.0018	.0048	.0025	.0357
1116	.0	.504	320.112	-3.13		.4121	-.0015	-.0009	.0040	.0020	.0269
1117	.0	.505	320.814	-2.09		.4141	-.0013	-.0009	.0030	.0013	.0183
1118	.0	.505	320.898	-1.05		.4140	-.0012	-.0009	.0021	.0007	.0098
1119	.0	.505	320.455	-.02	6.23°	.4145	-.0010	-.0011	.0012	.0001	.0012
1120	.0	.505	320.458	1.02		.4138	-.0010	-.0006	.0005	-.0004	-.0076
1121	.0	.505	320.734	2.05		.4125	-.0008	-.0002	-.0005	-.0010	-.0167
1122	.0	.504	320.390	3.11		.4117	-.0008	-.0001	-.0013	-.0016	-.0257
1123	.0	.504	320.315	4.14		.4085	-.0009	-.0006	-.0024	-.0022	-.0346
1124	.0	.504	320.276	.00		.4154	-.0011	-.0012	.0013	.0001	.0009

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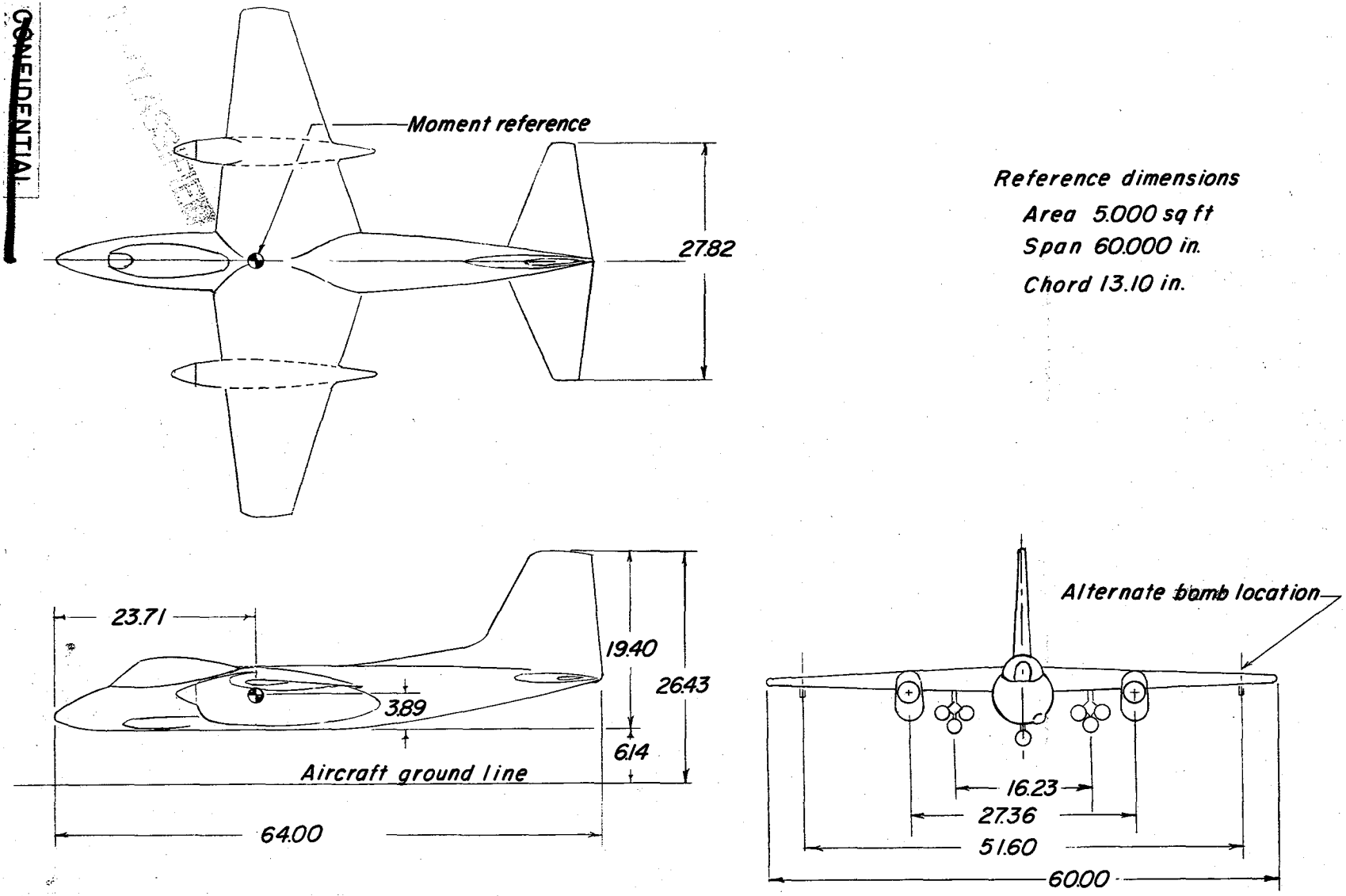

Figure 1.- Three-view drawing of model tested. (Dimensions in inches.)

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Configuration	x, in.	y, in.
Y_1 J T_{1-6}	18.48	2.16
Y_4 J T_{1-6}	20.28	.16
Y_3 T_7	19.82	-2.68

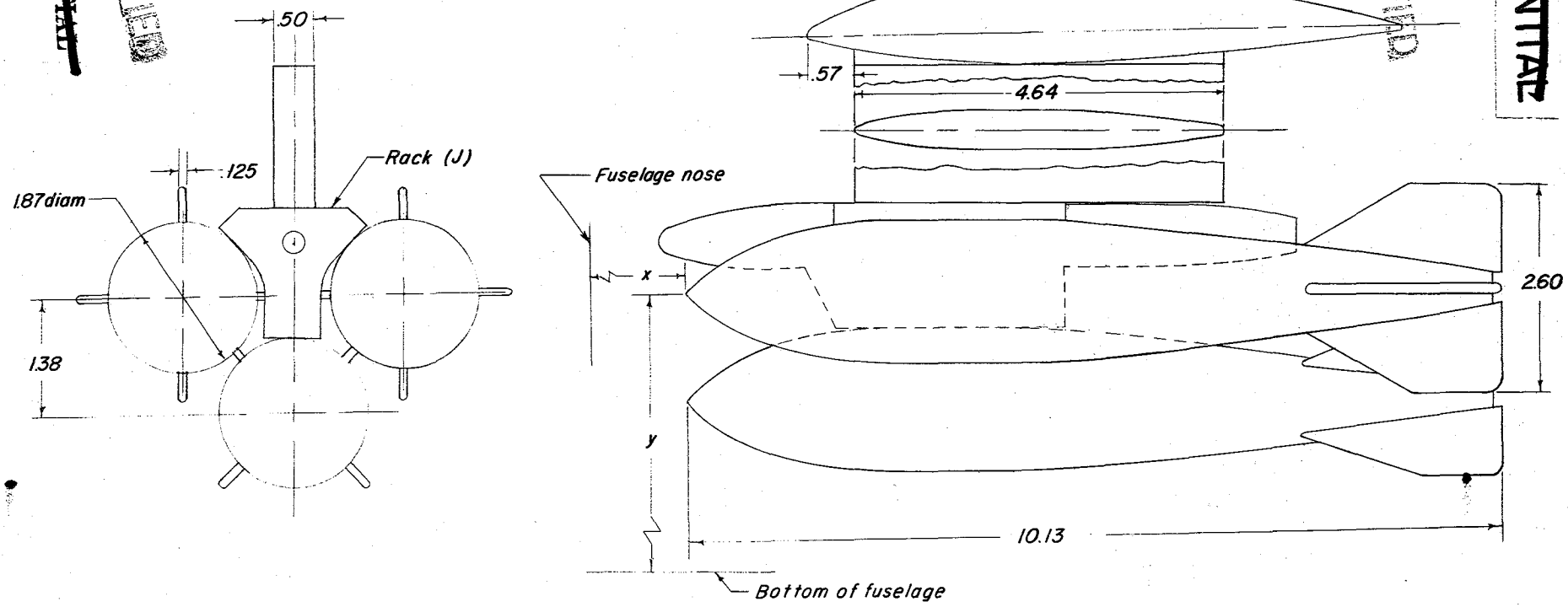

Figure 2.- Drawing of bomb, pylons, and triple ejection rack.

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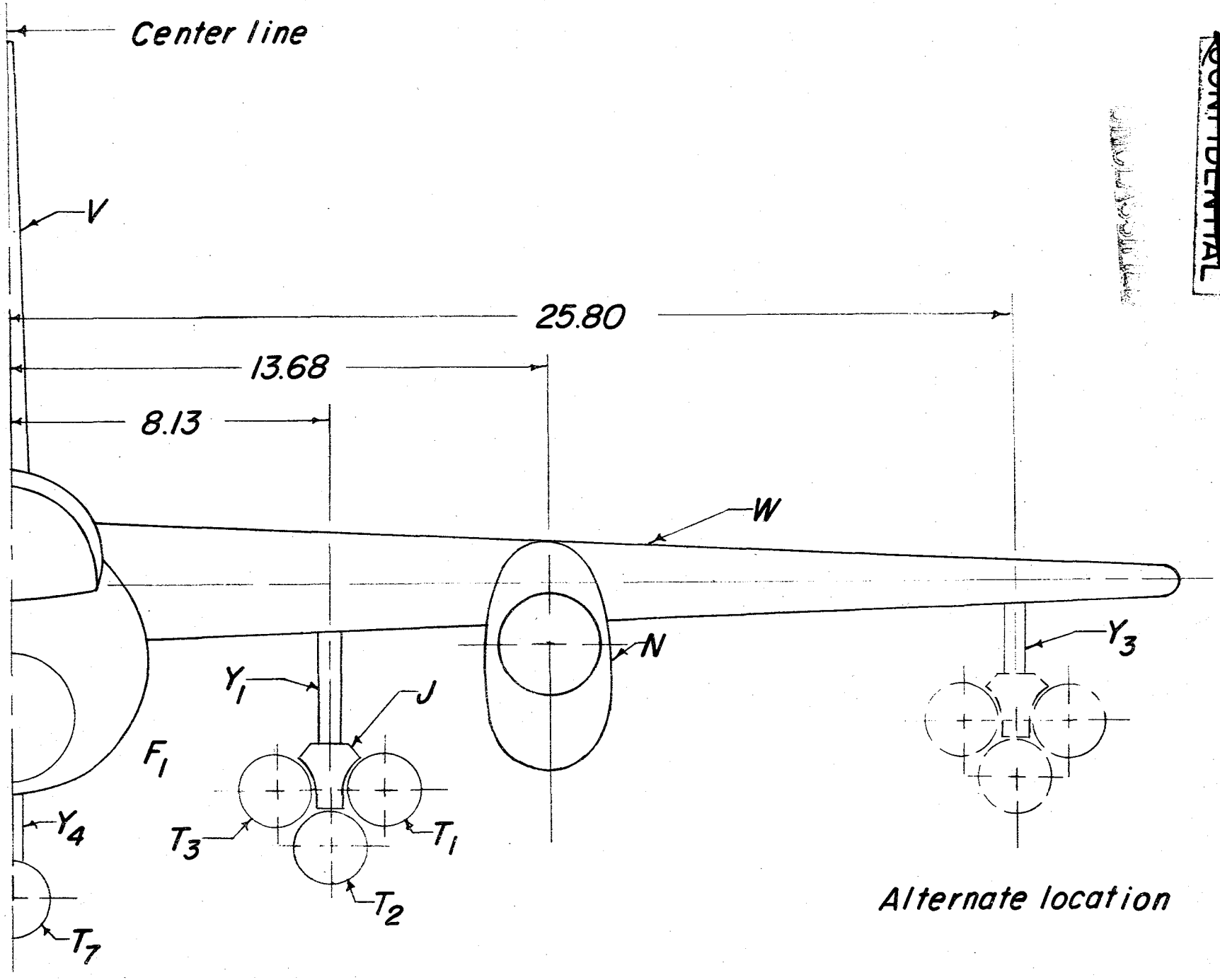

Figure 3.- Drawing showing designation and location of various bomb components.

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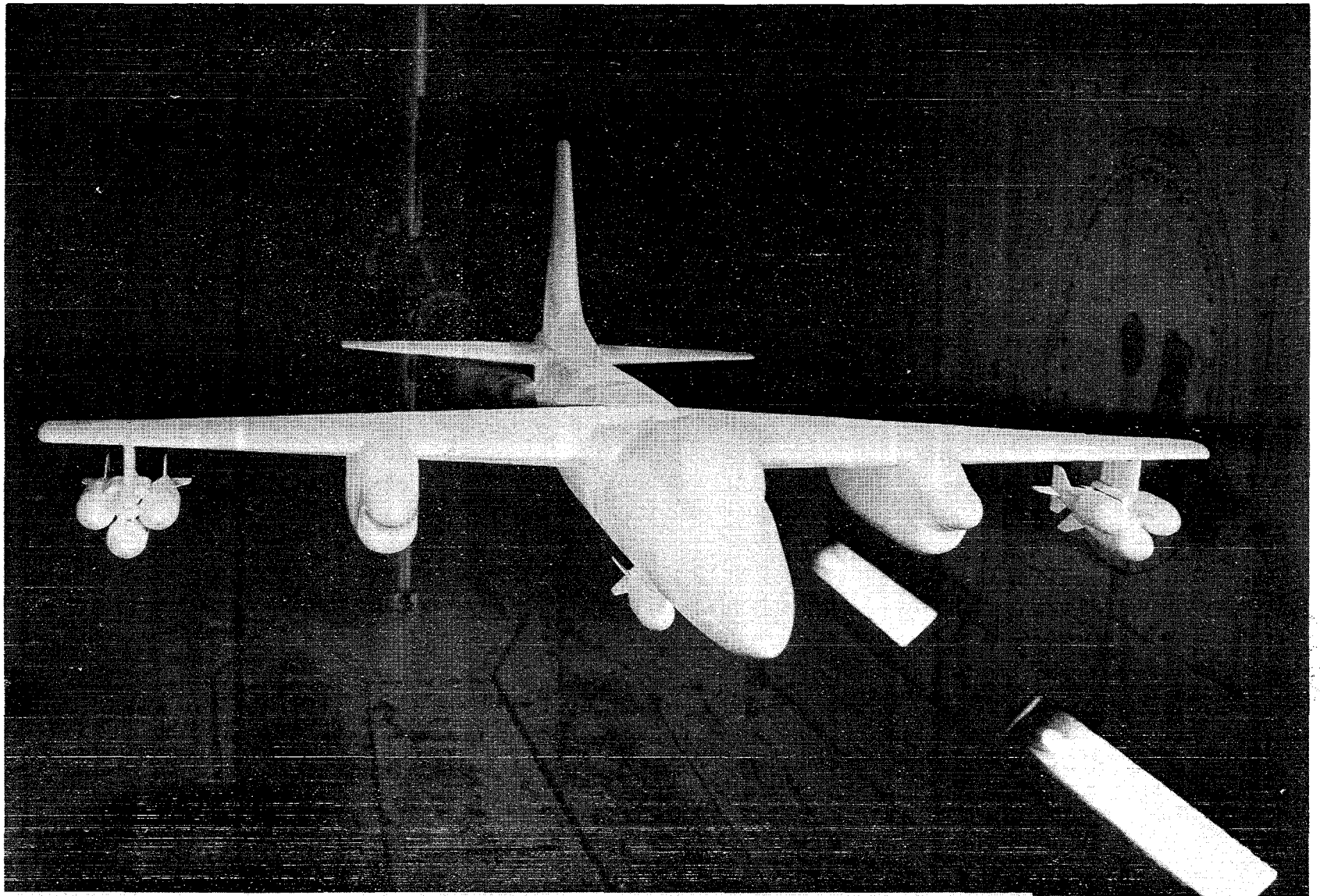

(a) Front view

Figure 4.- Photographs of model mounted in the Langley 7- by 10-Foot High-Speed Tunnel.

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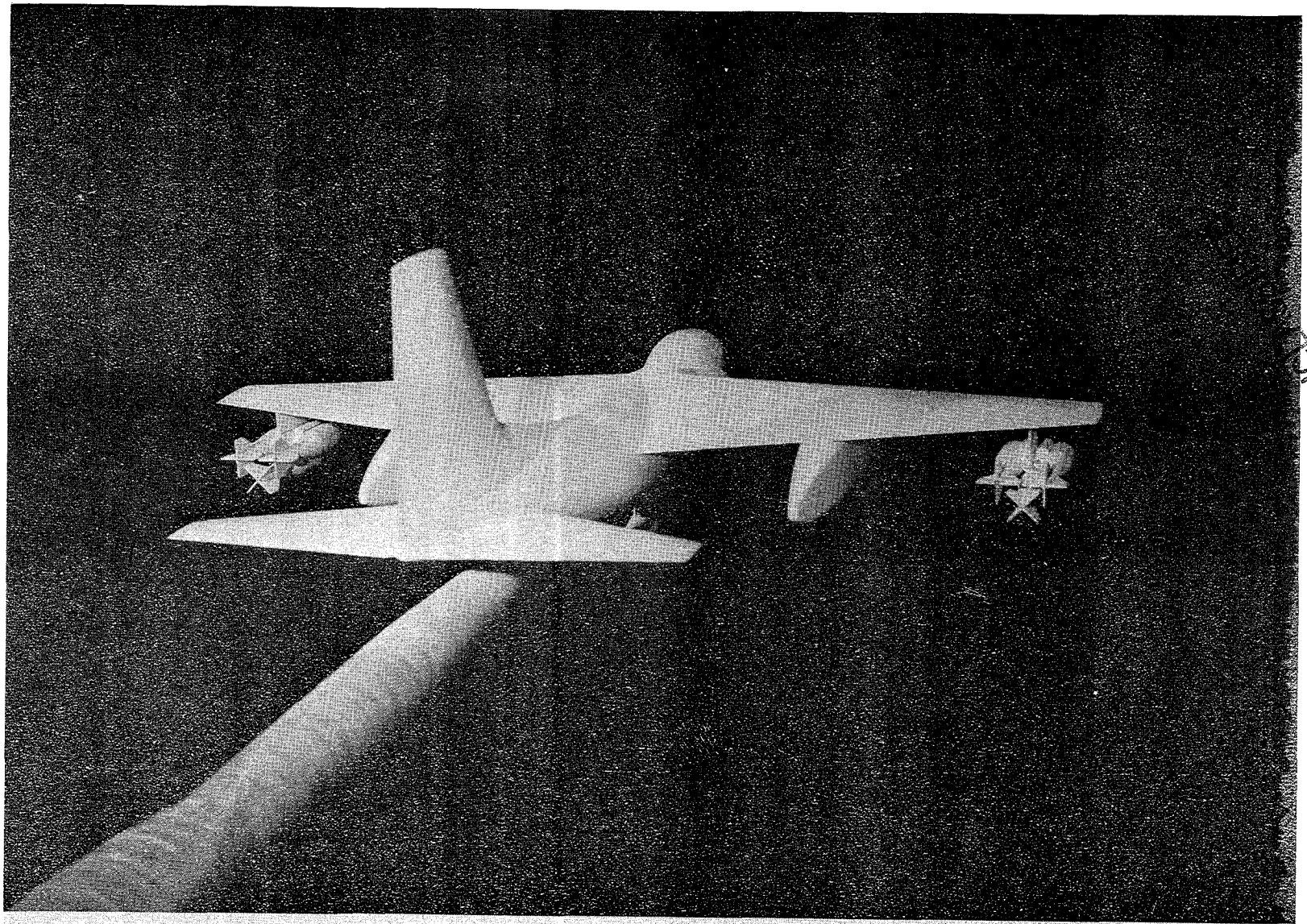

(b) Rear view
Figure 4.- Continued.

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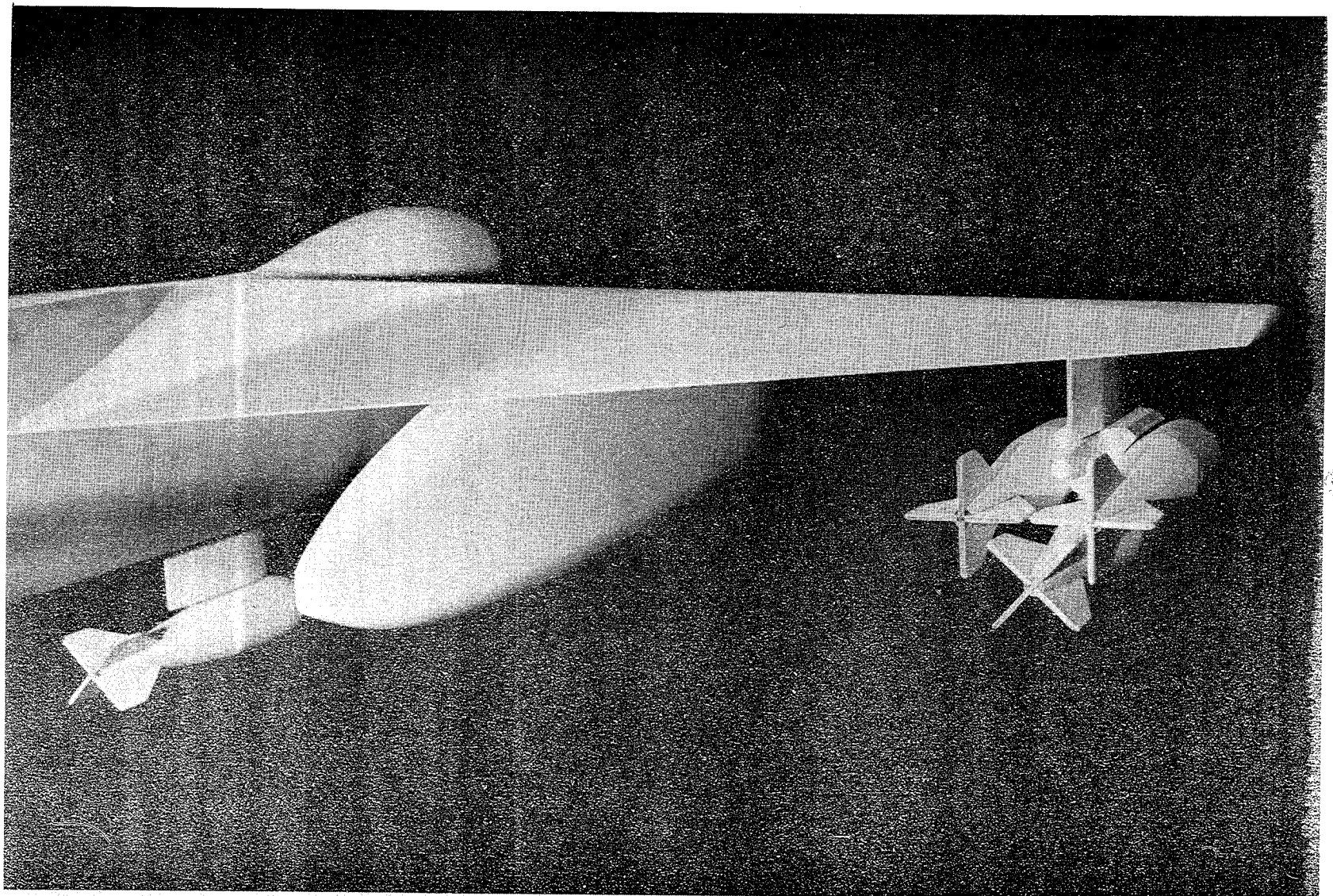

(c) Close up of bombs and rack

Figure 4.- Concluded.

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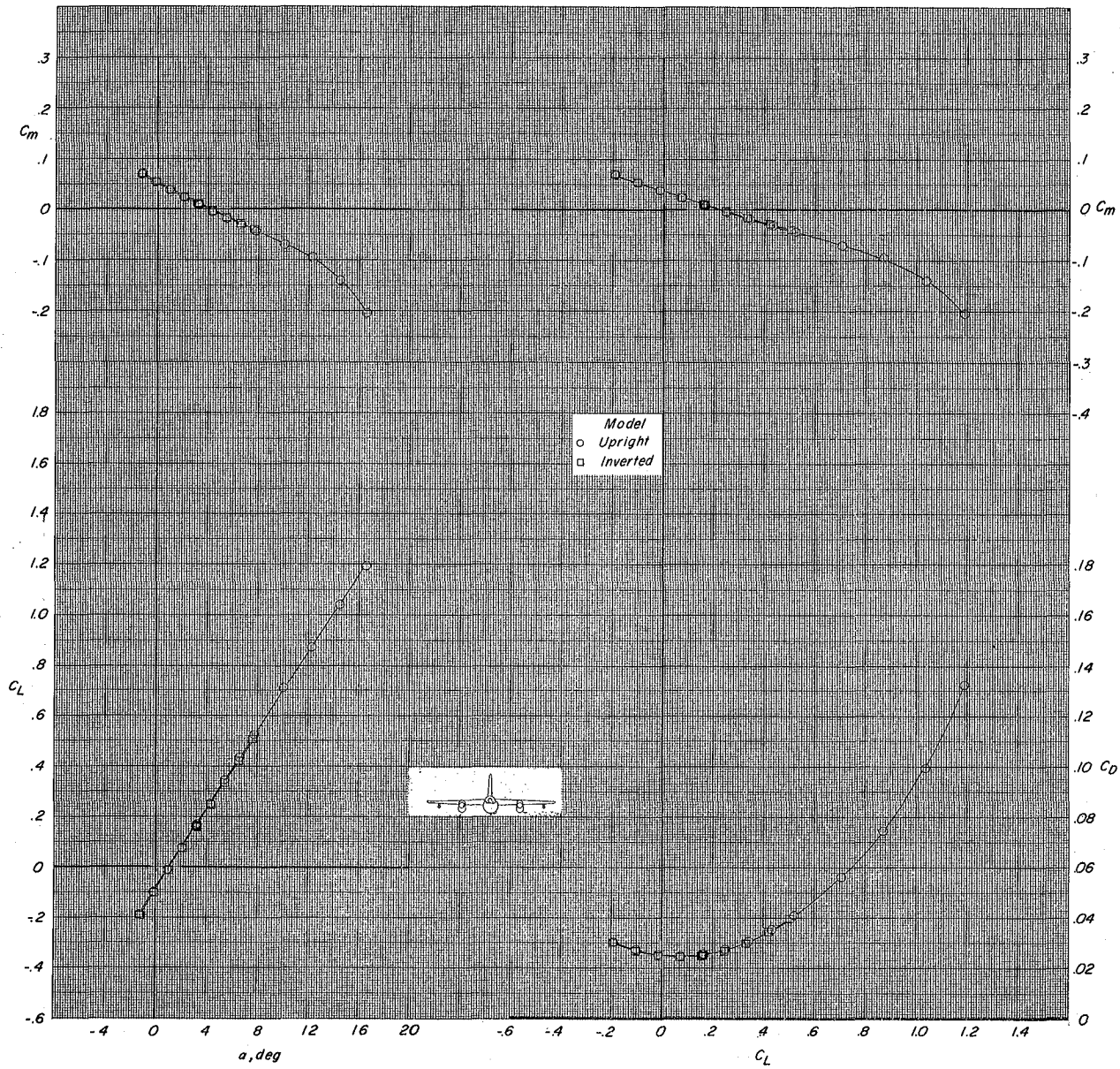

(a) M = 0.301

Figure 5.- Comparison of the aerodynamic characteristics of the model upright and inverted. WB_2WHVD, $\delta_H = 0^\circ$. Bombs off (Y_3JY_4).

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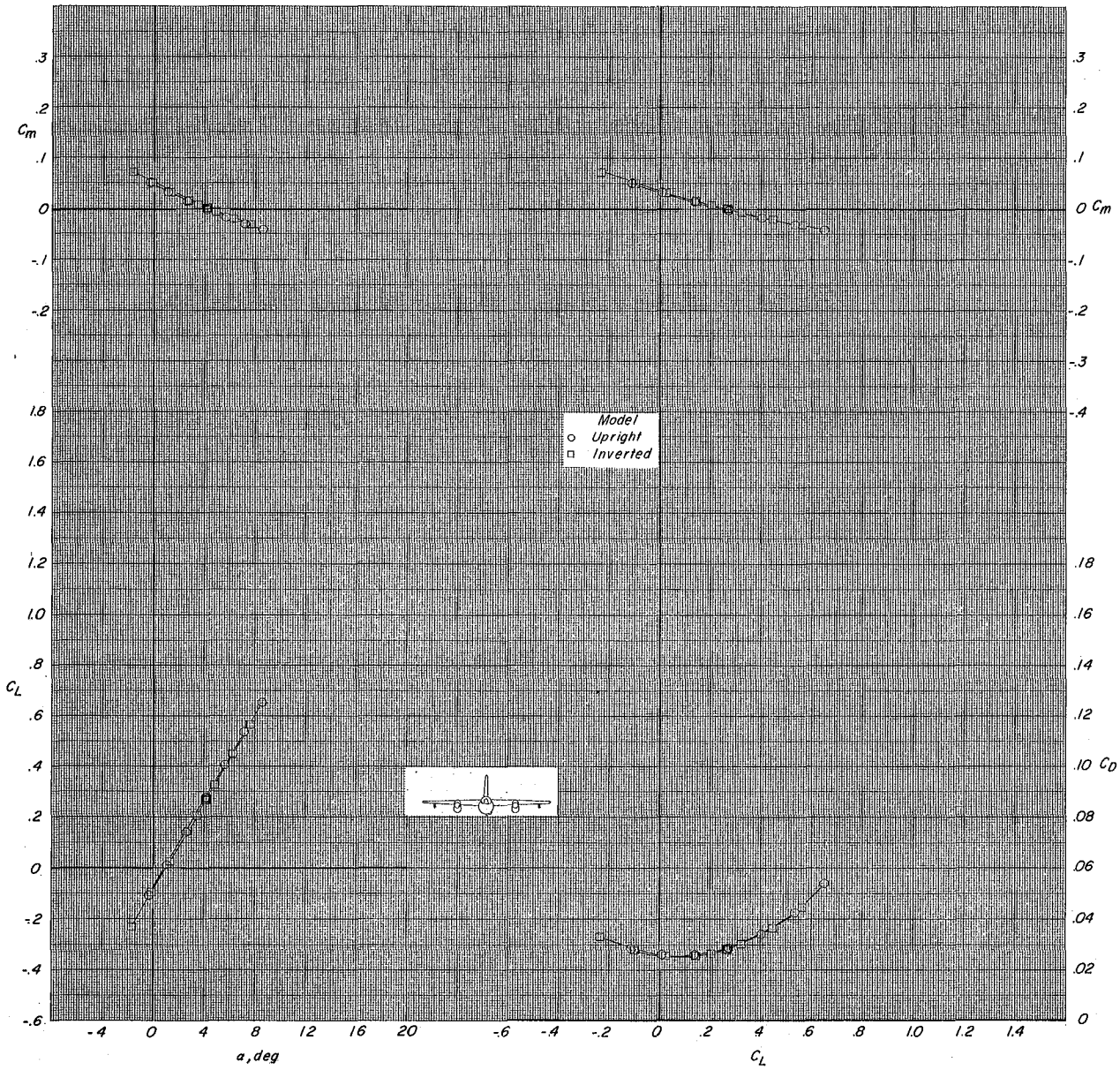

(c) M = 0.606
Figure 5.- Concluded.

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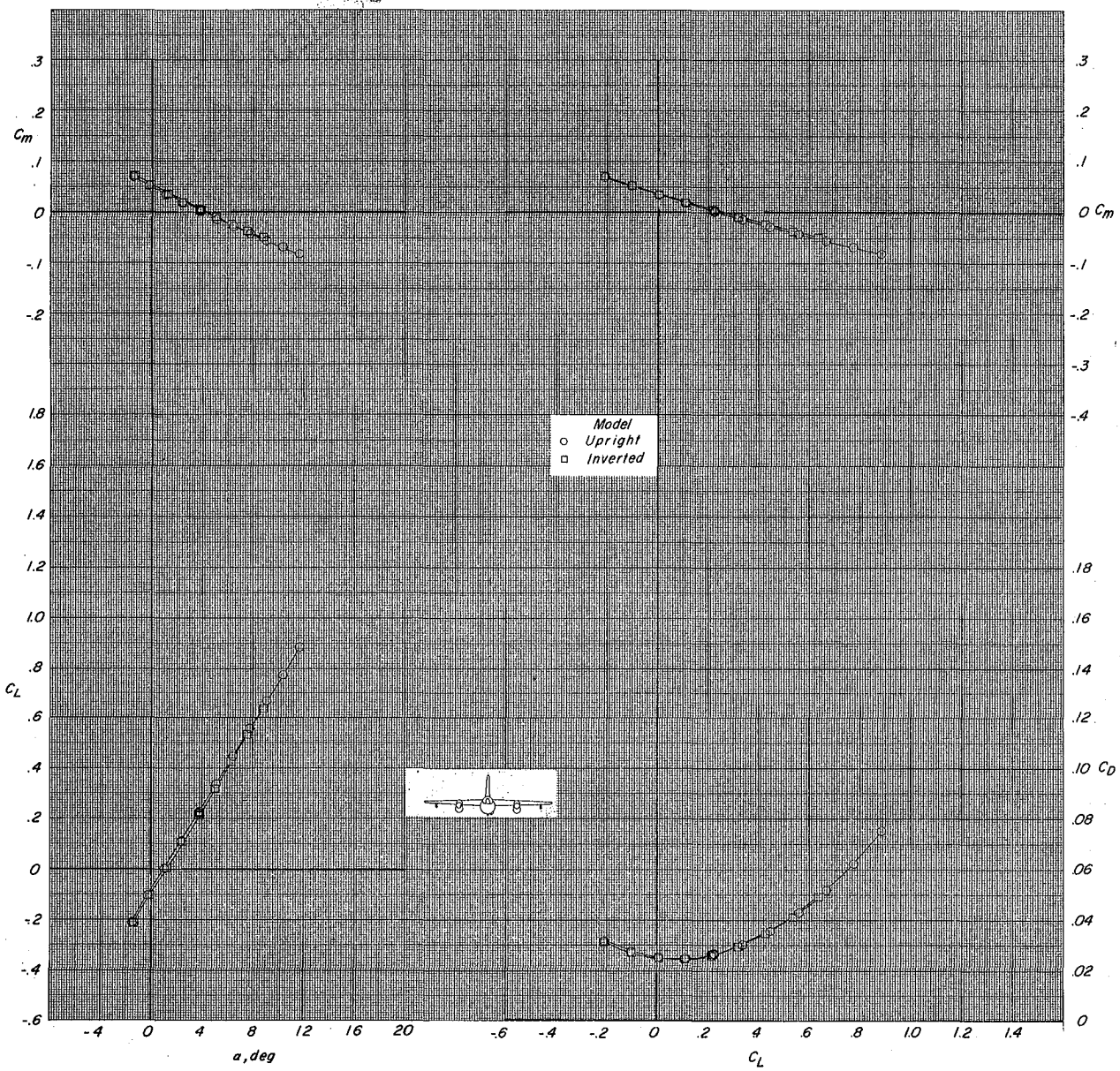

(b) M = 0.505
Figure 5 .- Continued.

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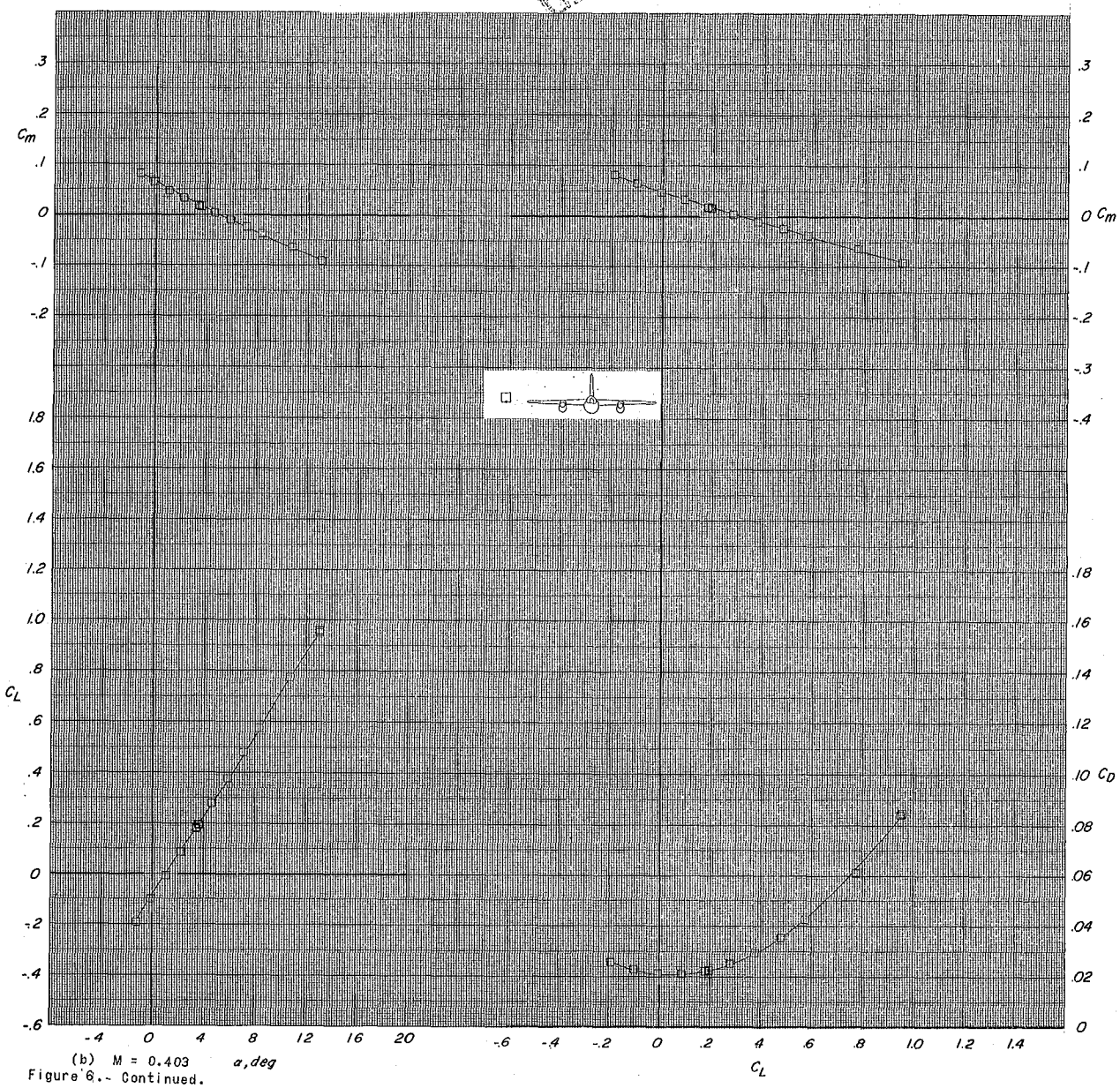

(b) M = 0.403

Figure 6.- Continued.

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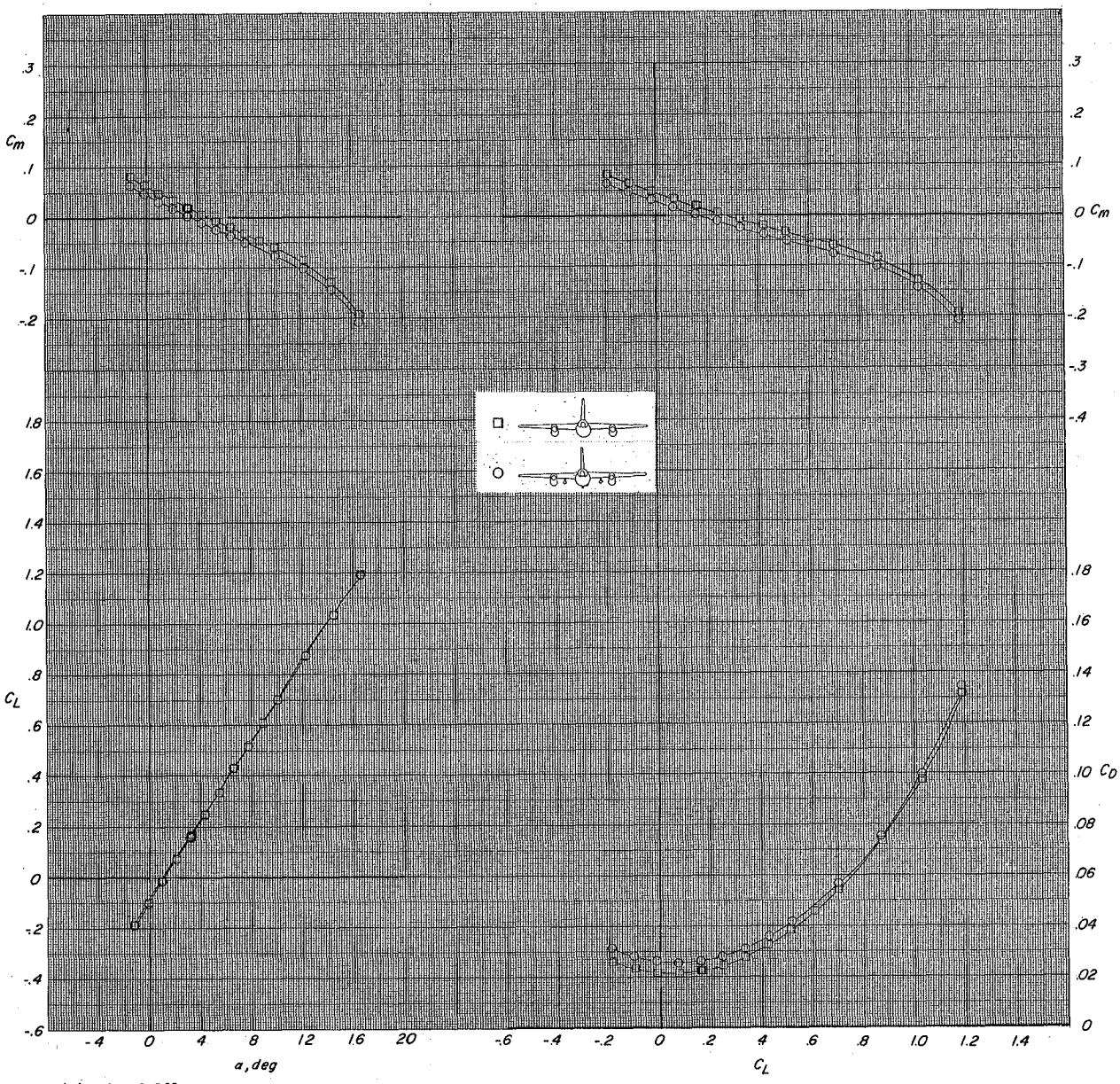

(a) M = 0.302

Figure 6.- Effect of bomb racks and pylons on the aerodynamic characteristics in pitch. WBNHVD, $\delta_H = 0^{\circ}$.

[redacted]

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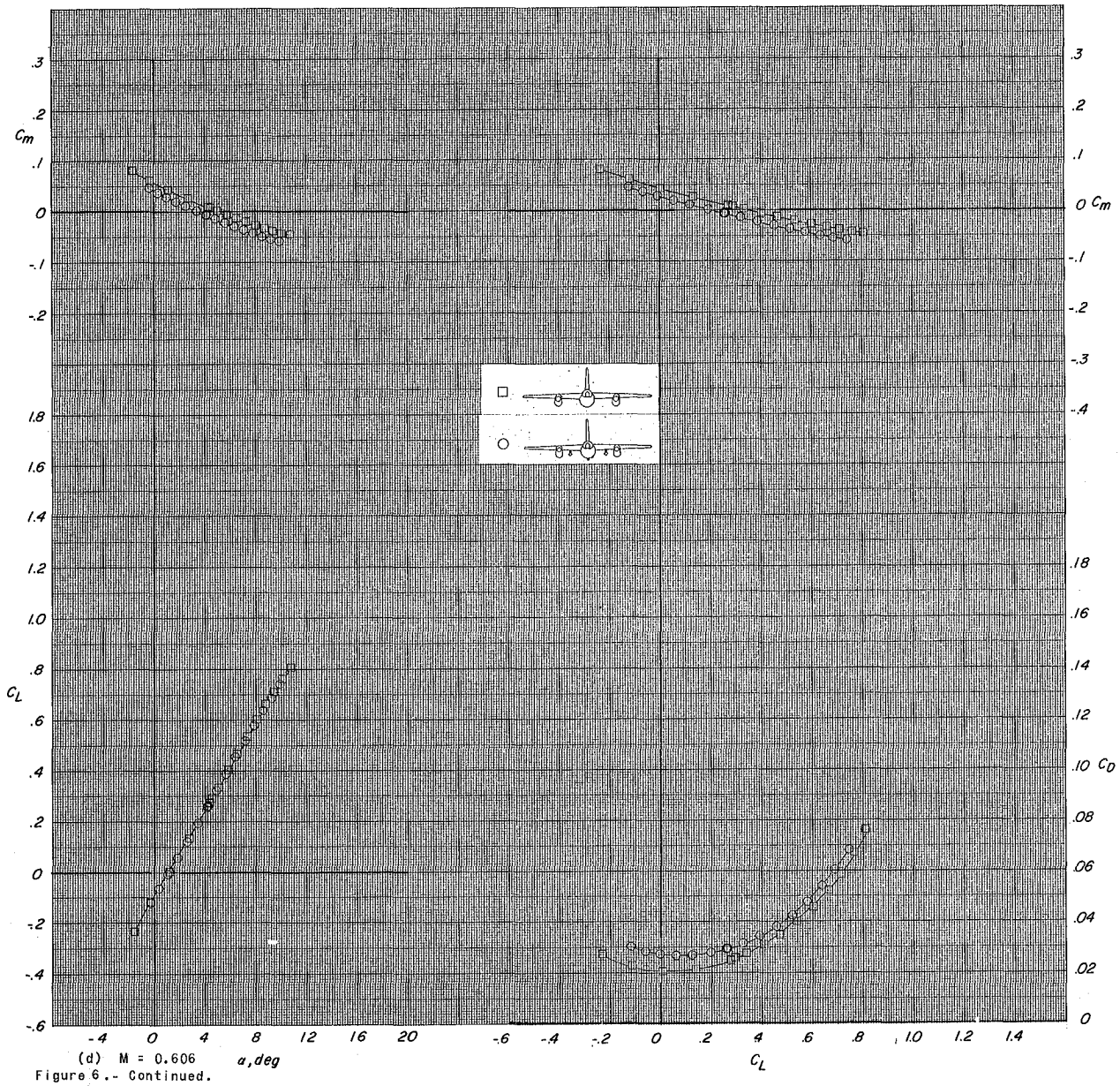

(d) M = 0.606

Figure 6.- Continued.

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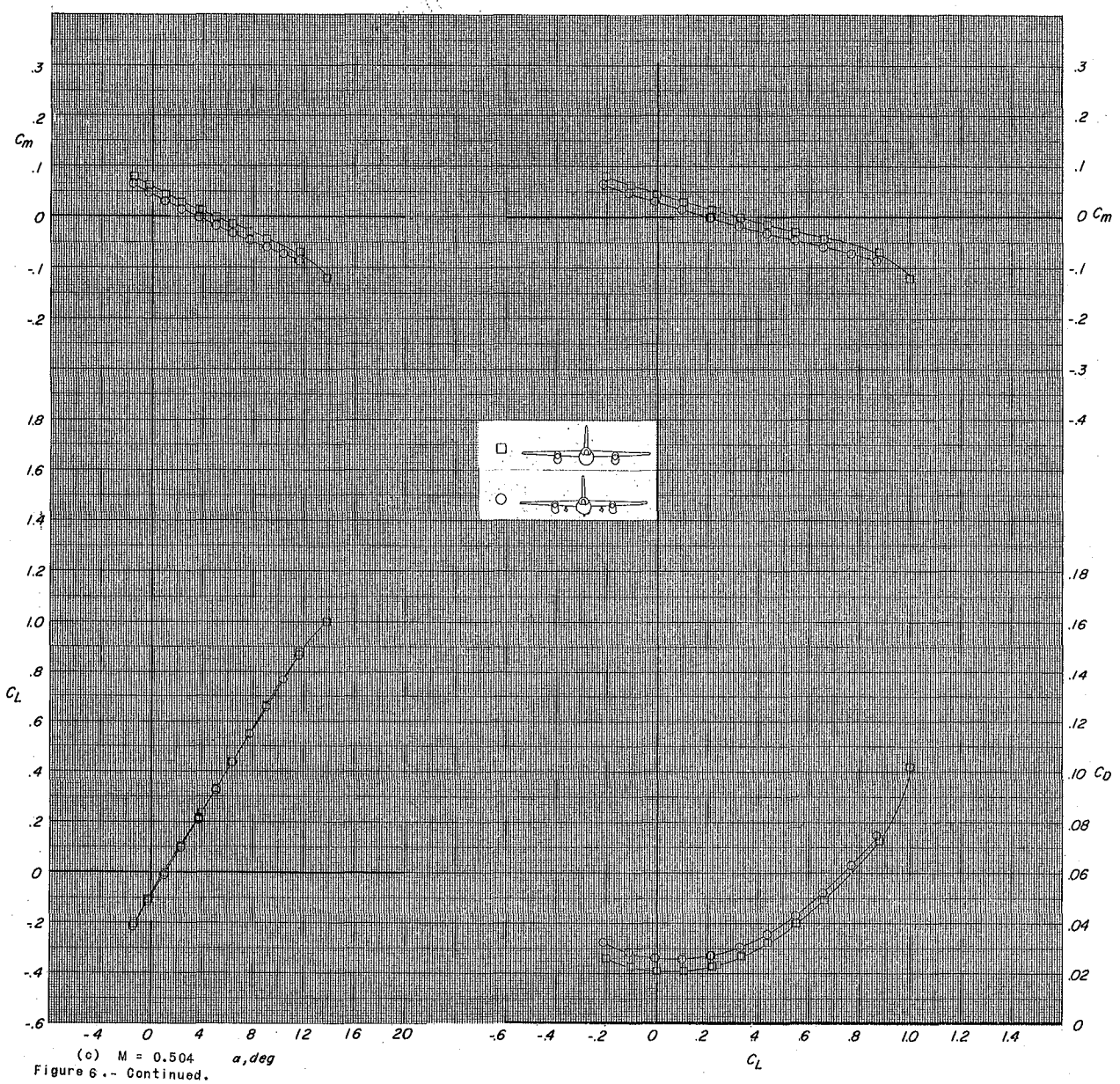
[redacted]



(c) M = 0.504

Figure 6.- Continued.

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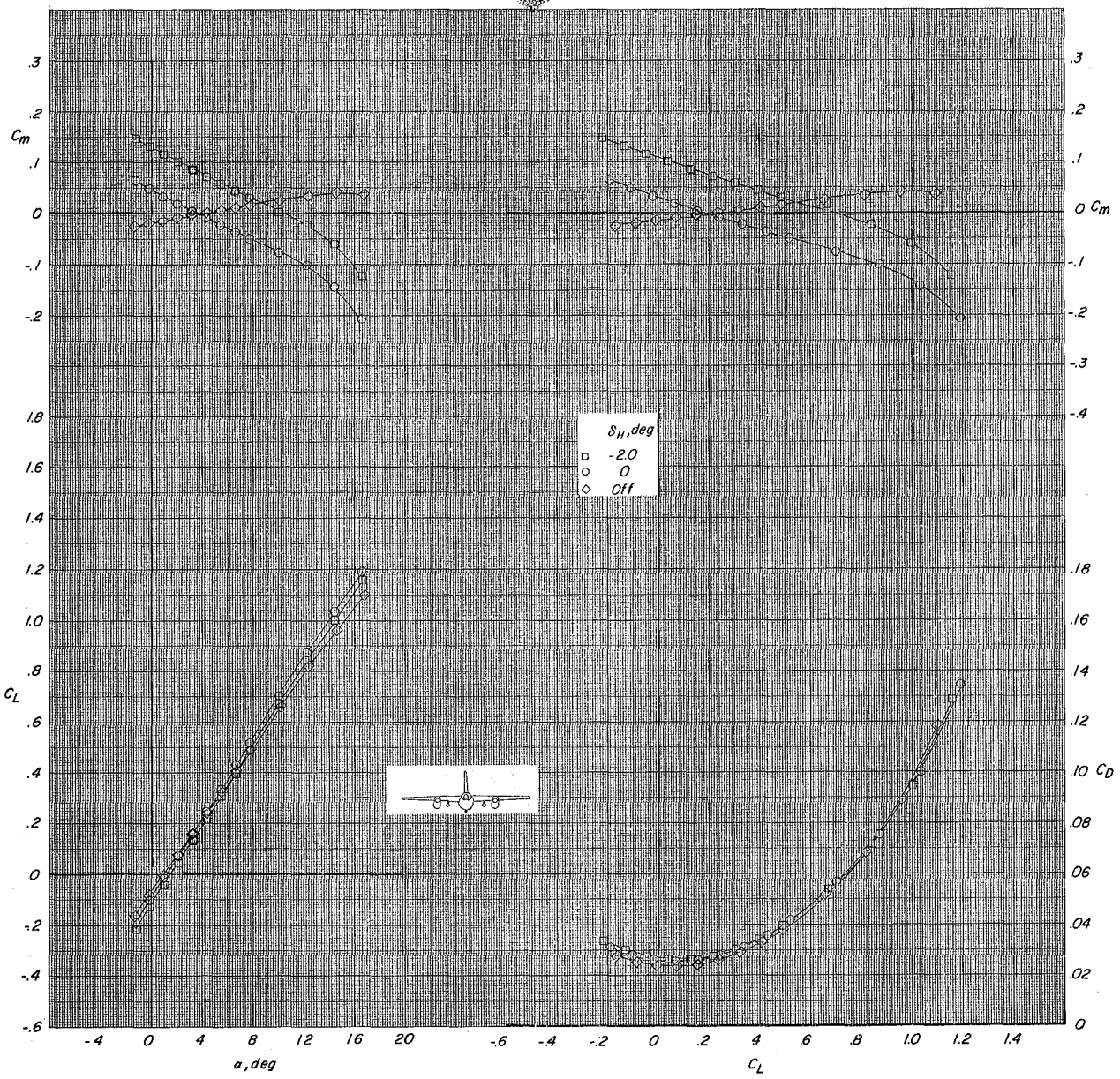

(a) M = 0.301

Figure 7.- Effect of horizontal tail on the aerodynamic characteristics in pitch. WB_2NVD, Bombs off, (Y_1J, Y_4)

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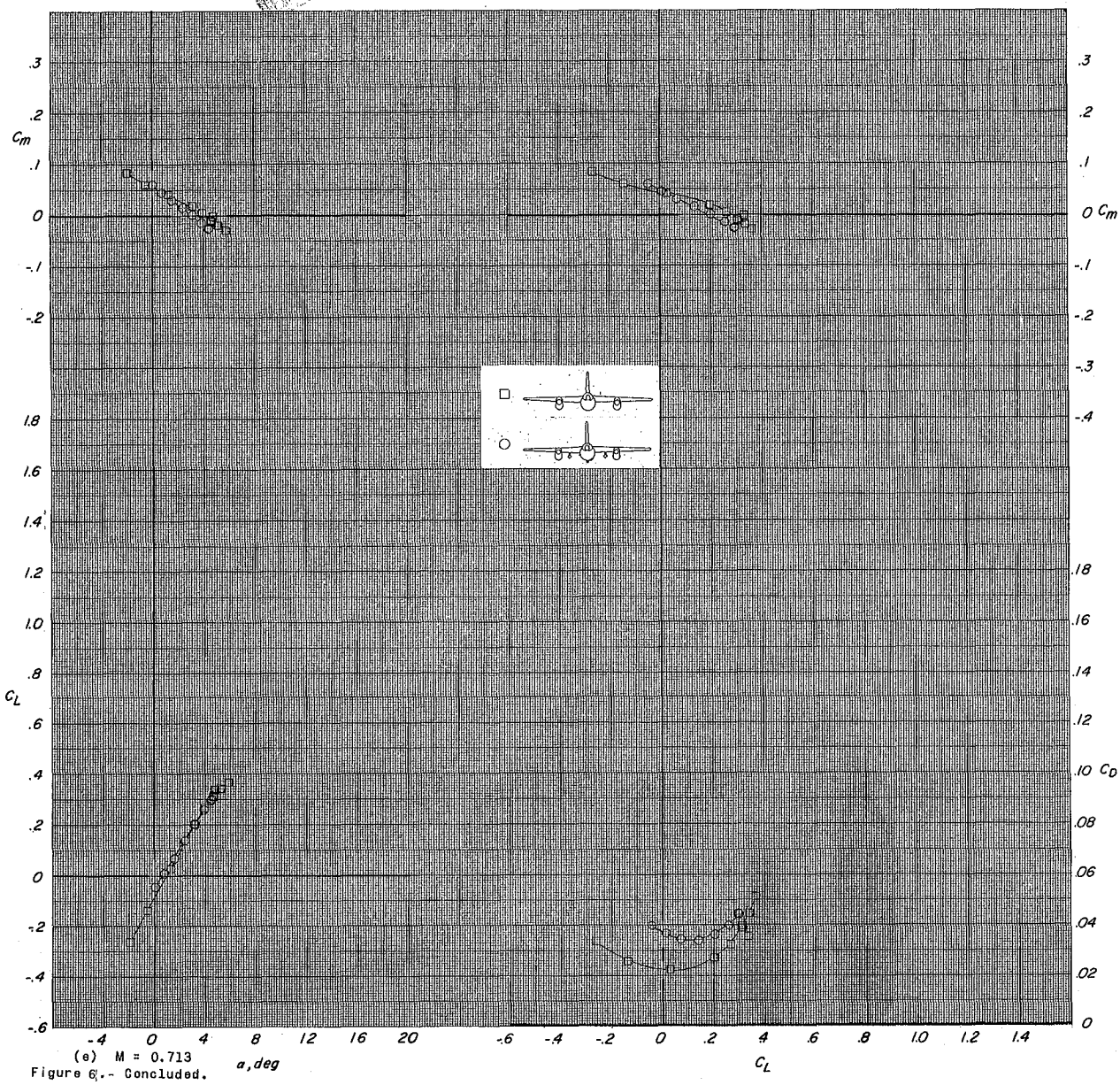

(e) M = 0.713

Figure 6.- Concluded.

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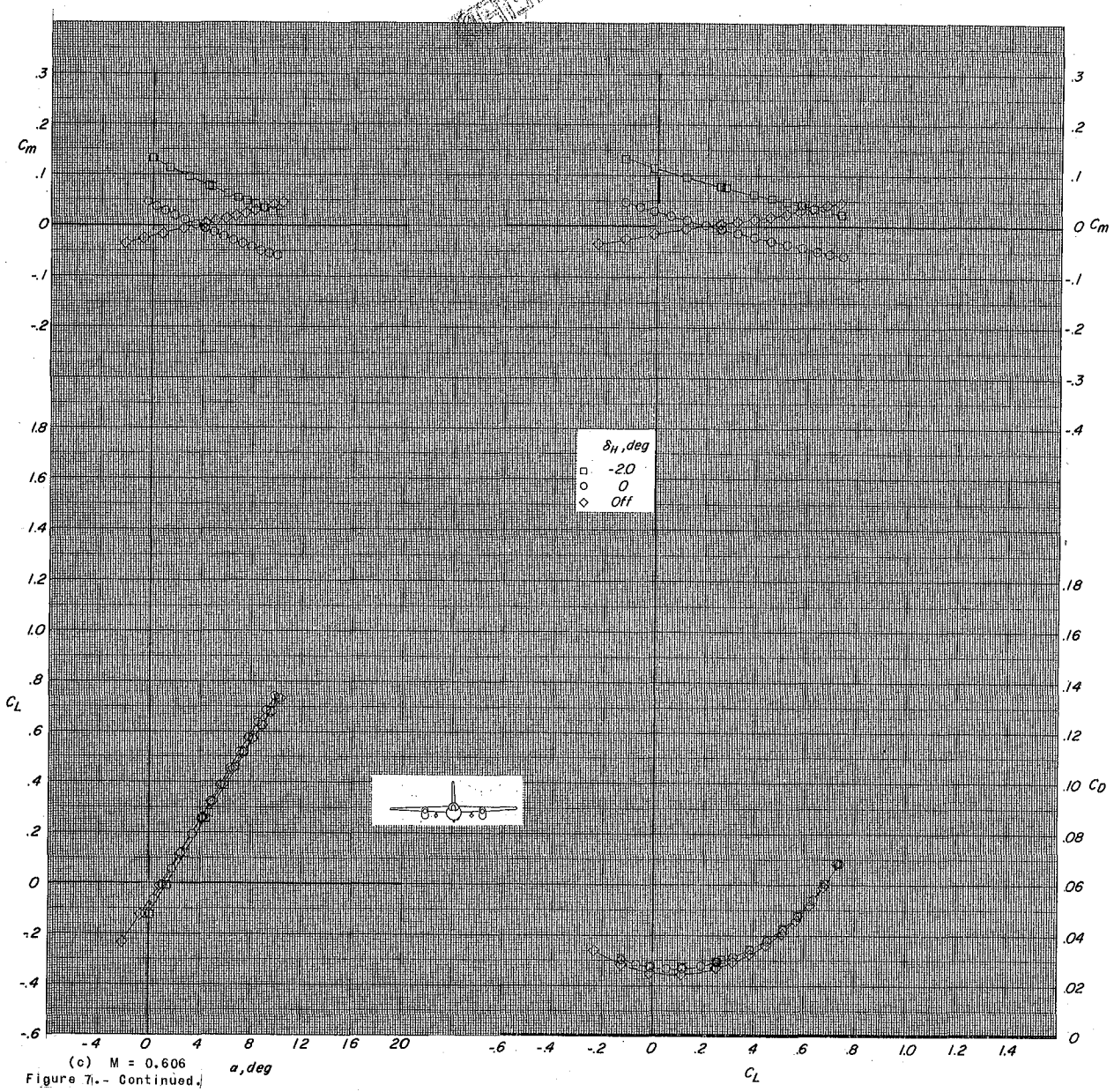

(c) M = 0.606

Figure 7.- Continued.

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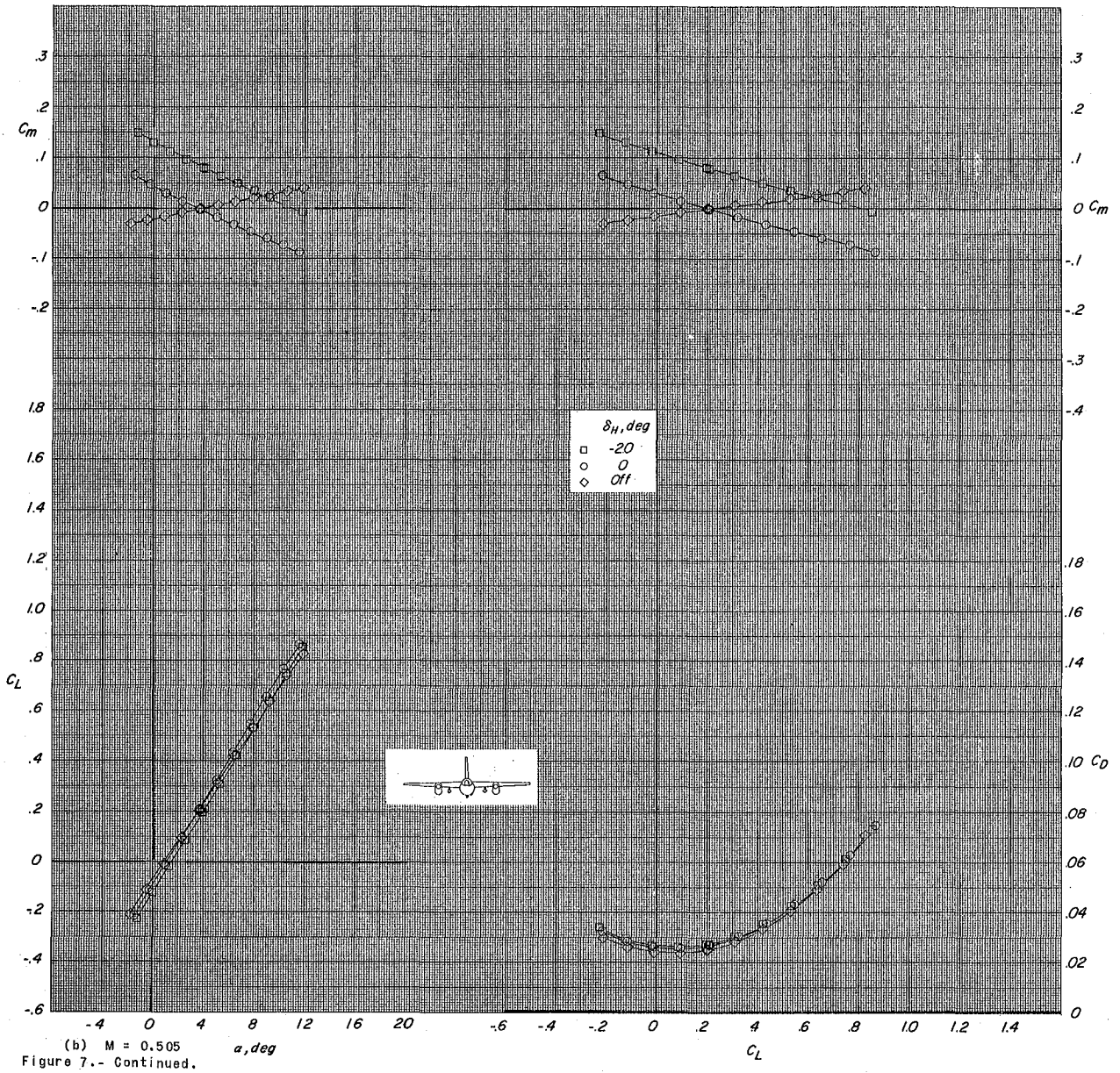
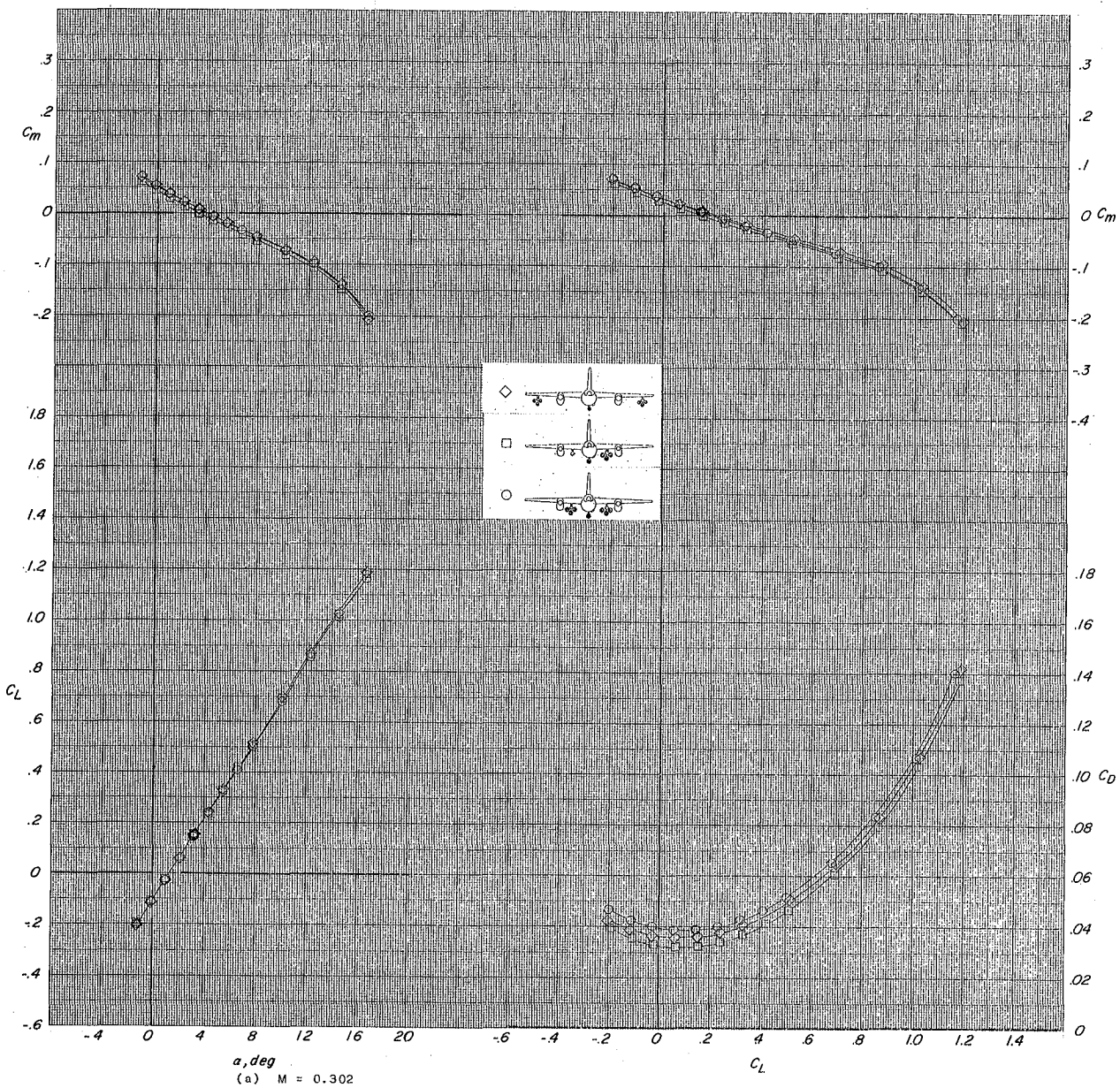


(b) M = 0.505

Figure 7.- Continued.

[redacted]



(a) M = 0.302

Figure 8.- Effect of bomb configuration on the aerodynamic characteristics in pitch. WB_2NHVD, $\delta_H = 0^o$.

[redacted]

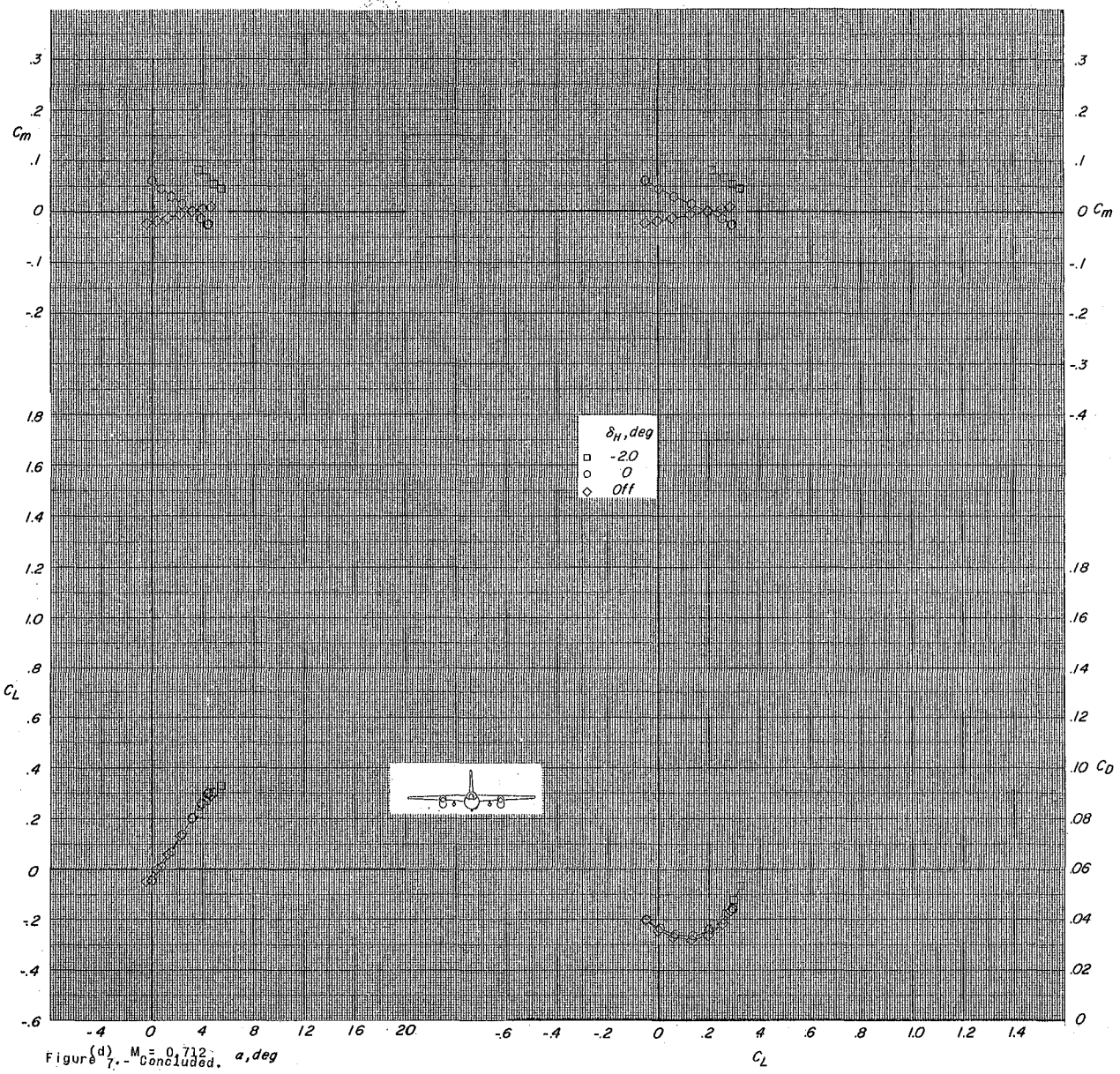


Figure 7.- (d) $M = 0.712$. Concluded.

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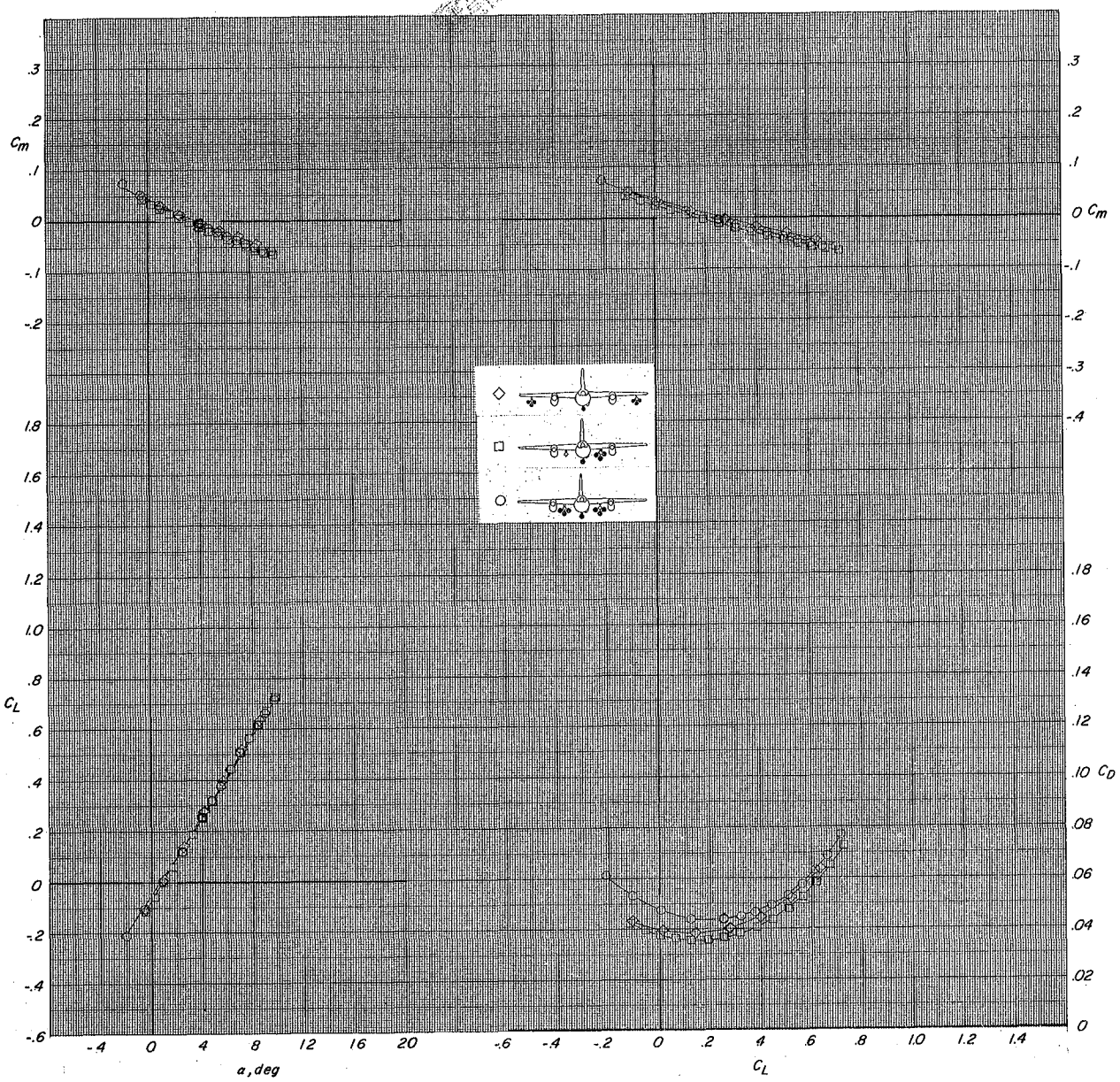

(c) M = 0.607
Figure 8.- Continued.

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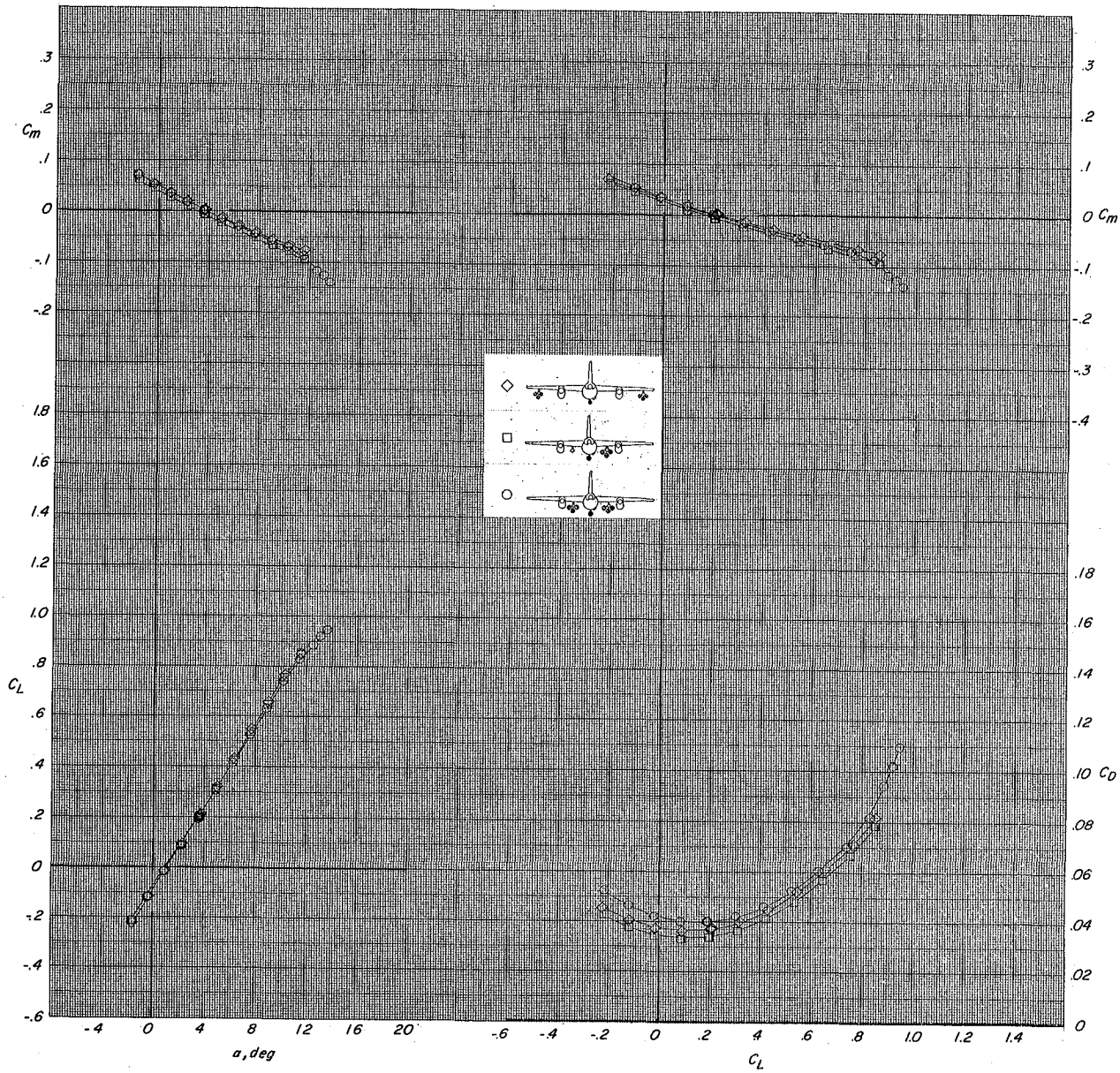

(b) M = 0.505
Figure 8.- Continued.

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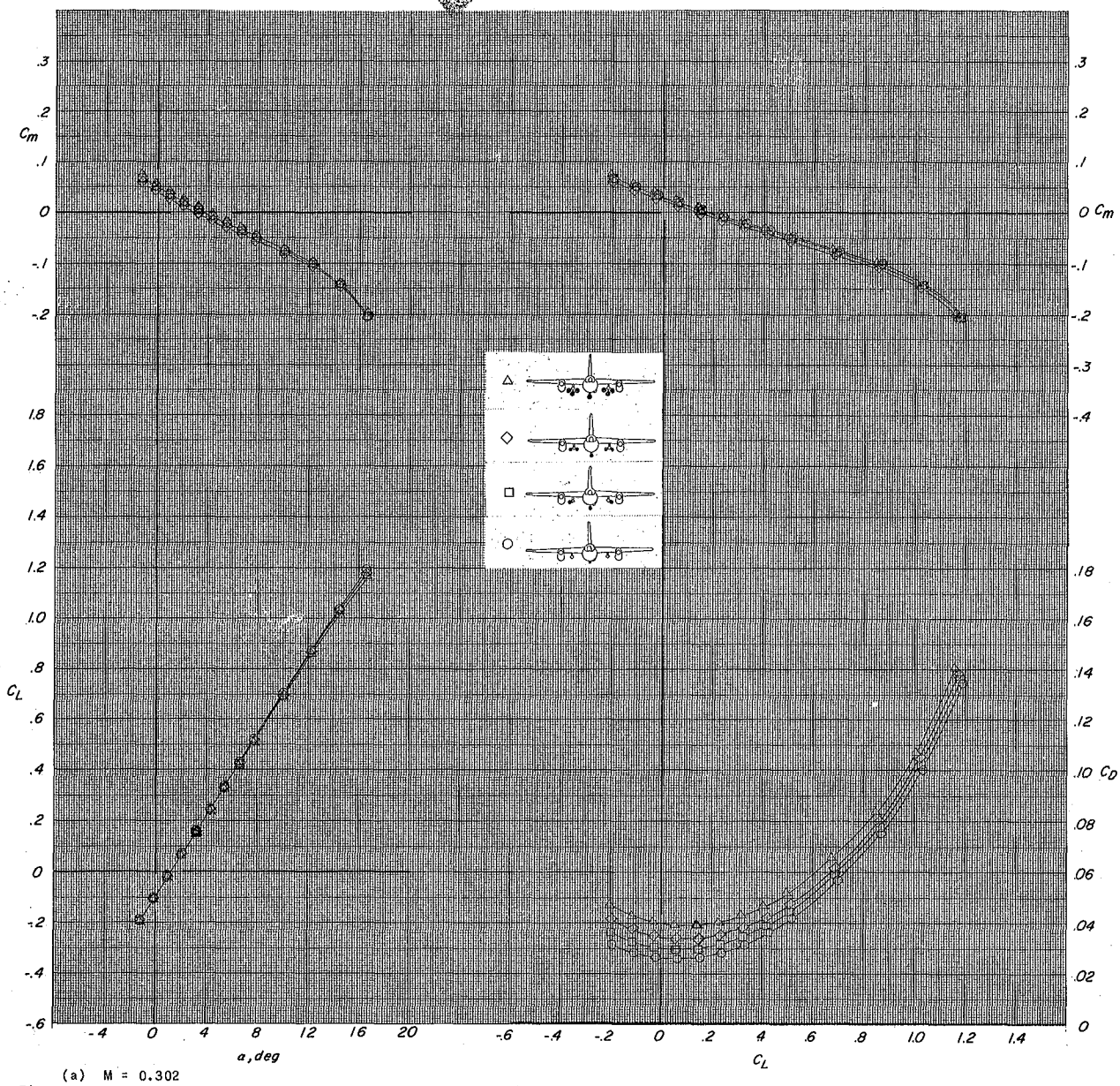

(a) M = 0.302

Figure 9.- Effect of number of bombs on the aerodynamic characteristics in pitch. WB_2NHVD, $\delta_H = 0^{\circ}$.

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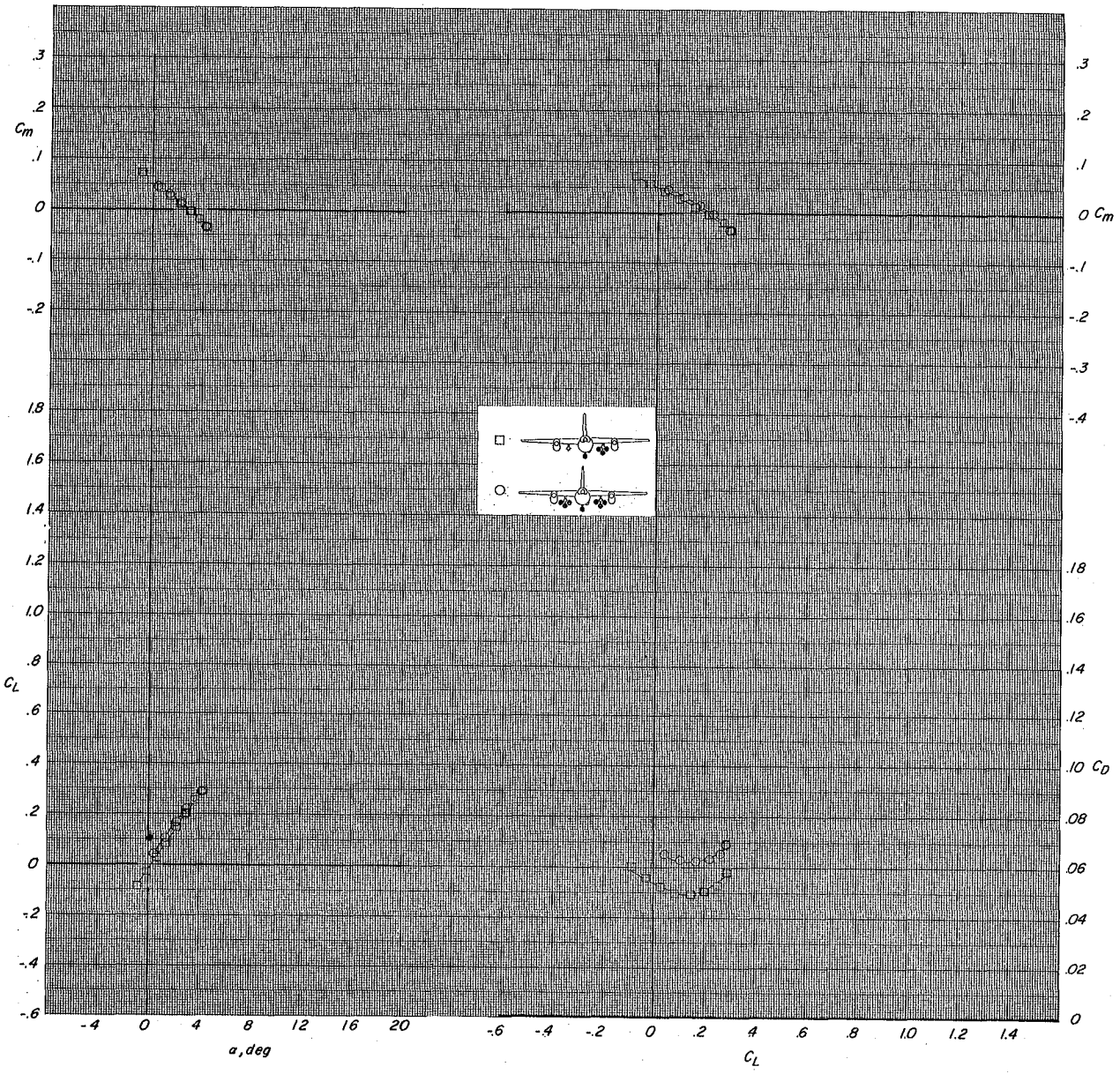

(d) M = 0.713
Figure 8 .- Concluded.

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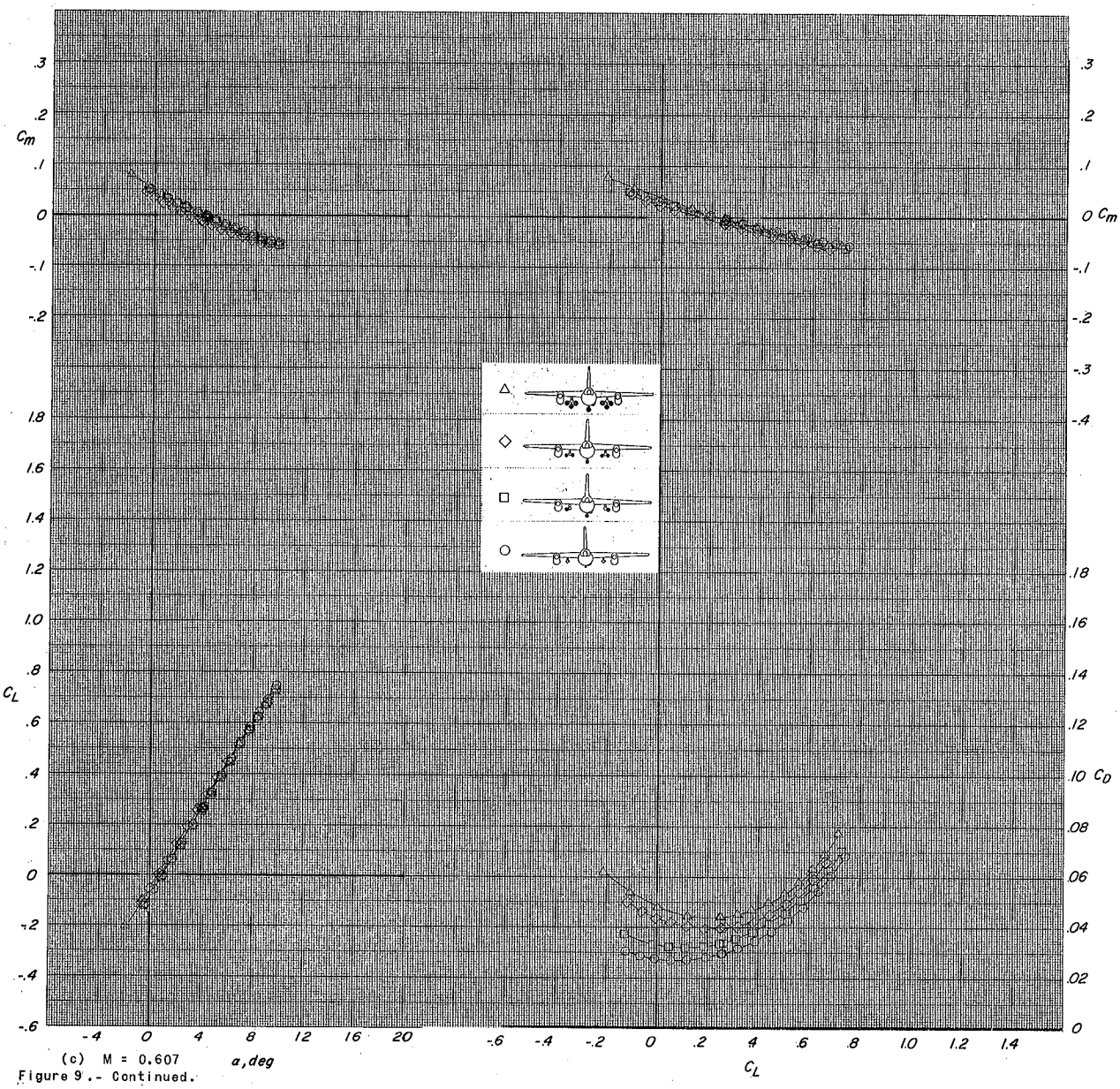

(c) M = 0.607

Figure 9.- Continued.

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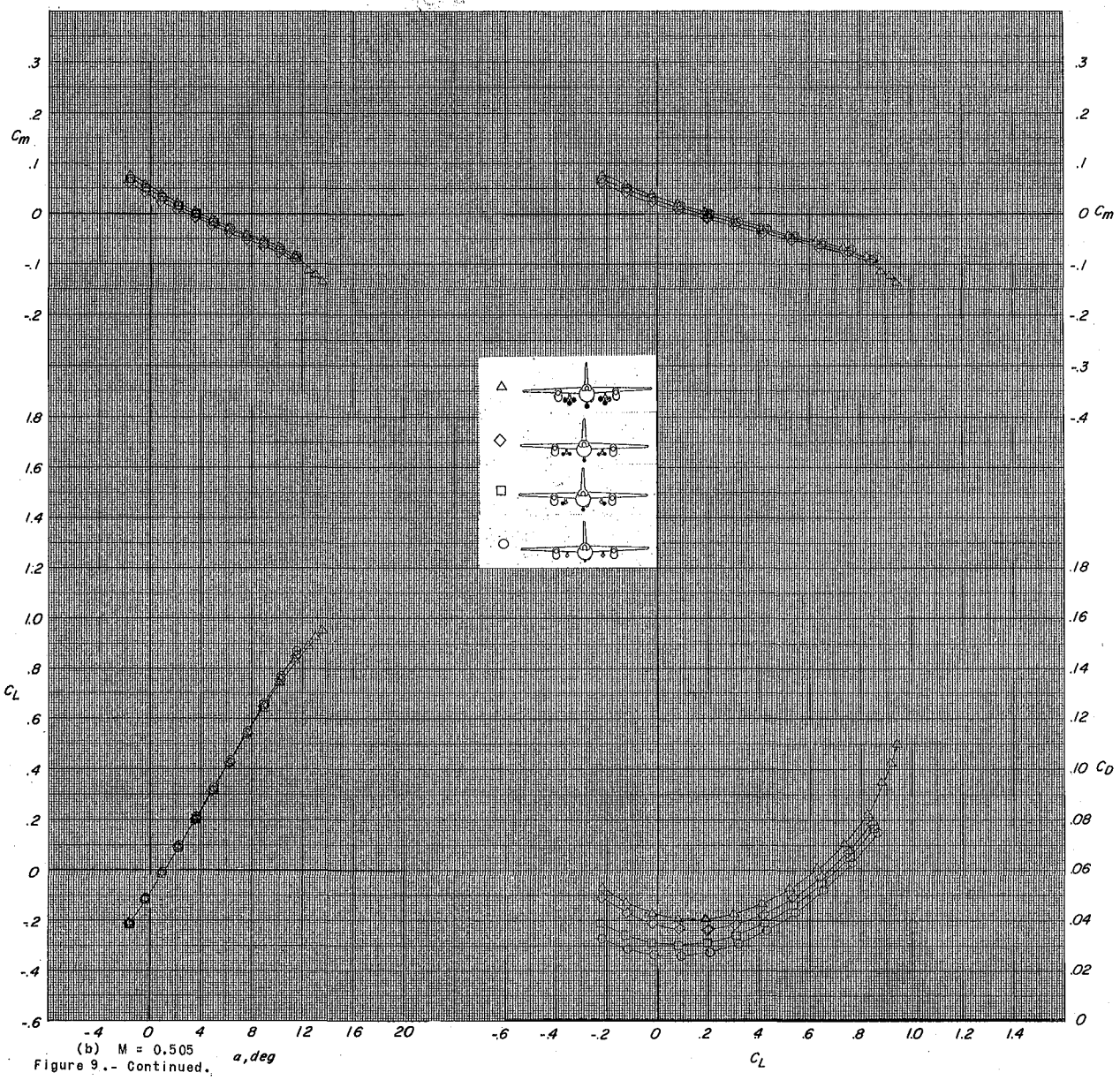

(b) M = 0.505

Figure 9.- Continued.

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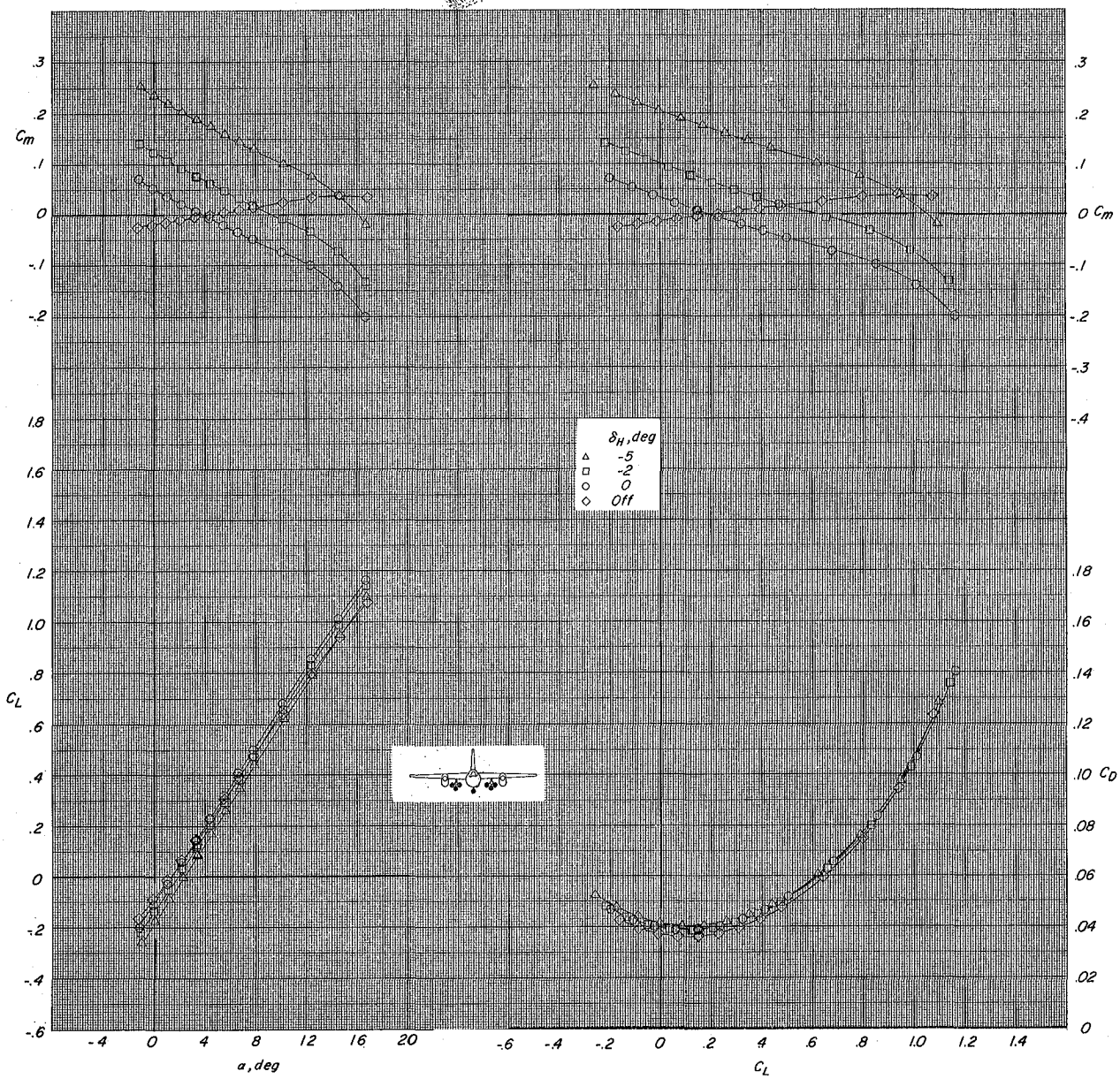
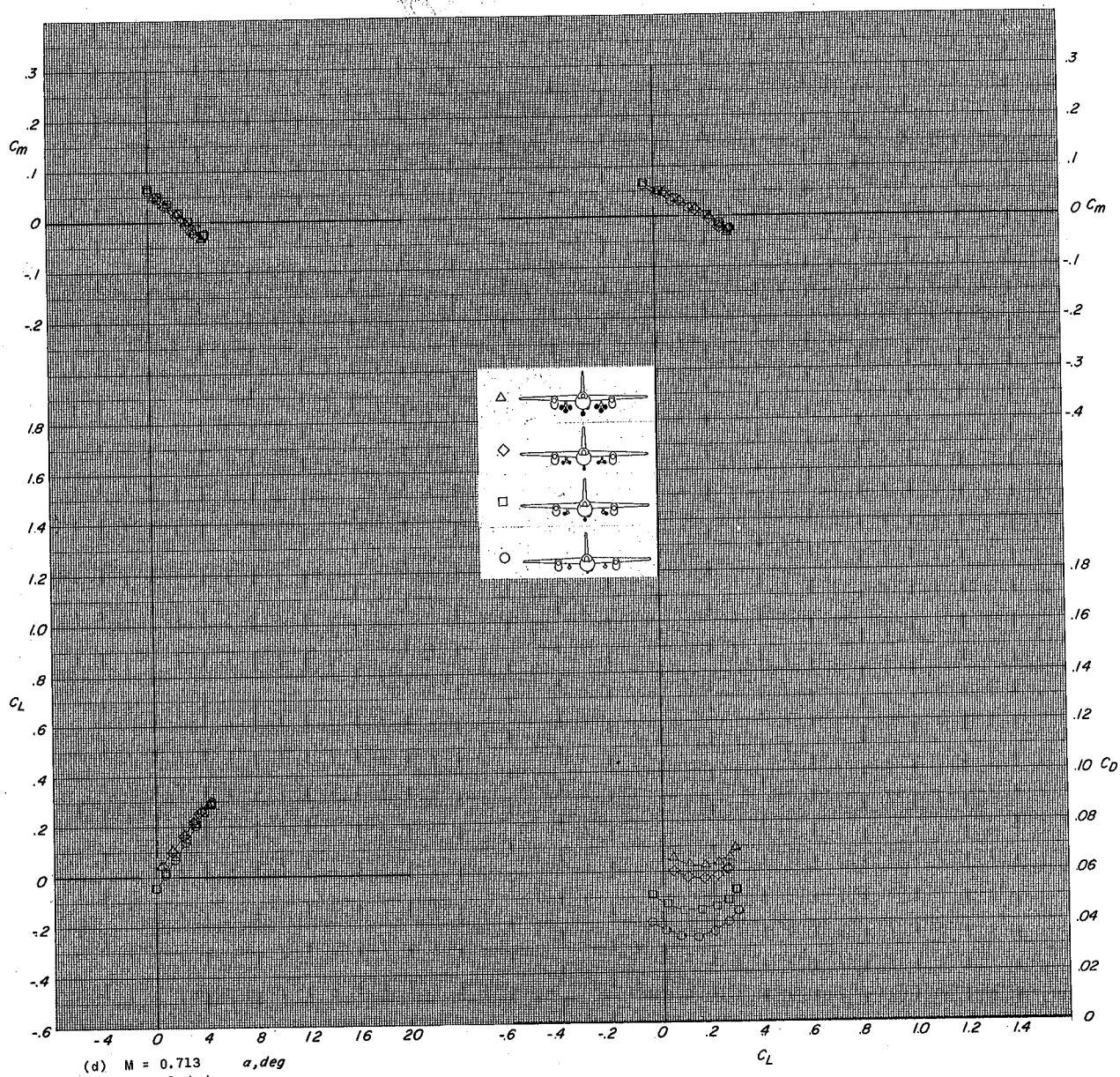


(a) M = 0.302

Figure 10.- Effect of horizontal tail on the aerodynamic characteristics in pitch. WB_2NVD, Bombs on (Y_1JT_{1-6}, Y_4T_7)



(d) M = 0.713

Figure 9.- Concluded.

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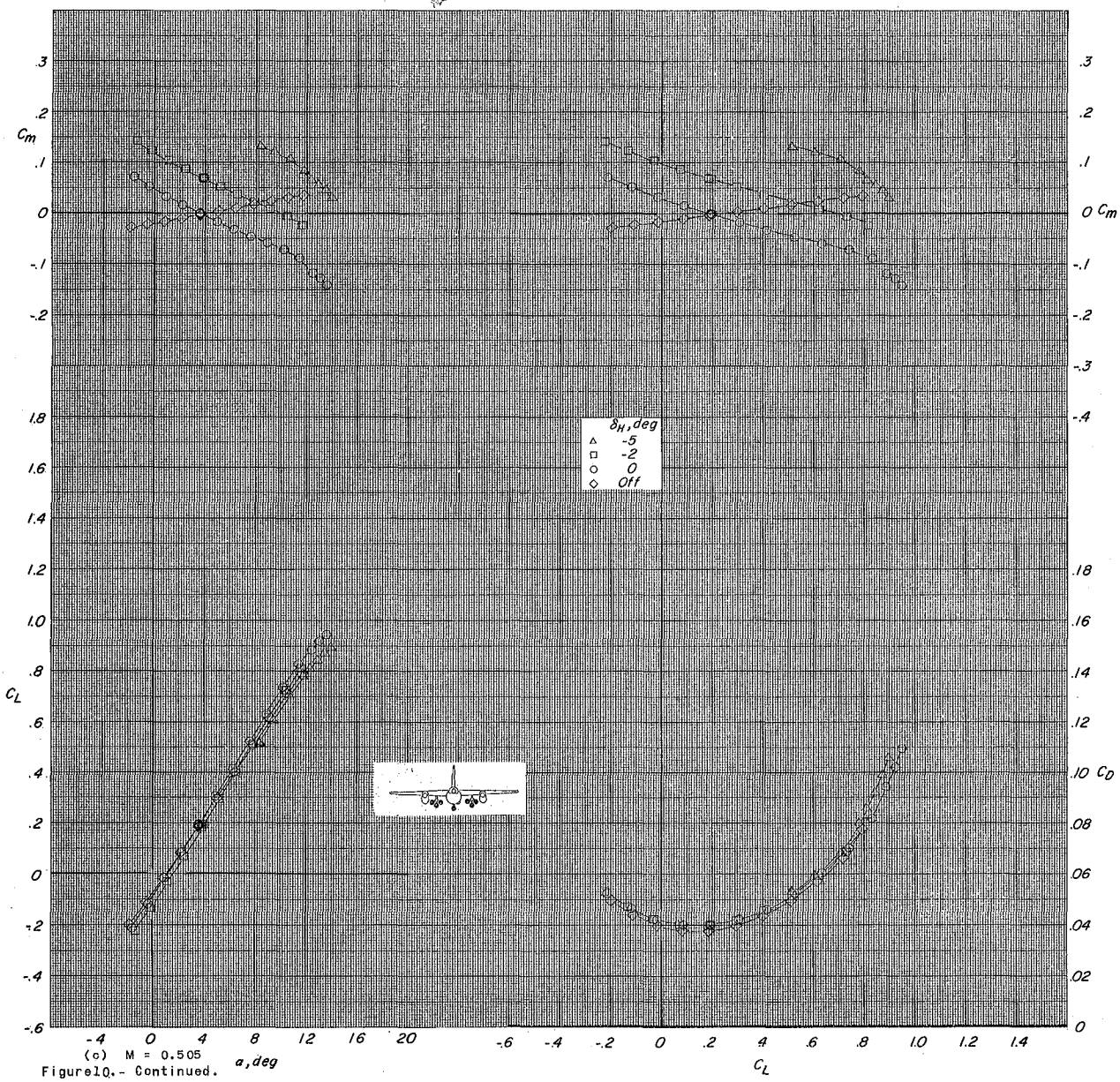

(c) M = 0.505

Figure 10.- Continued.

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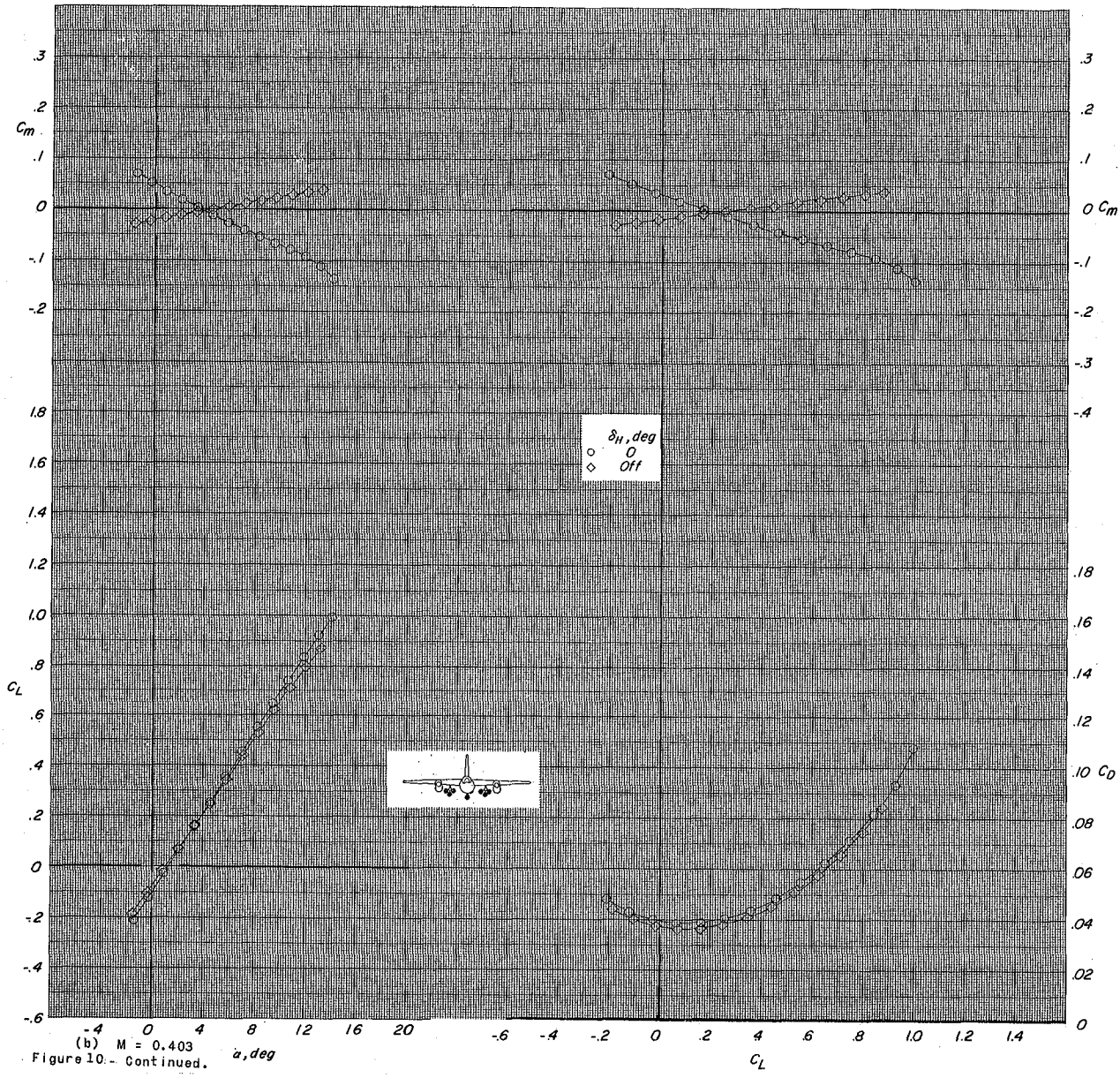

(b) M = 0.403

Figure 10.- Continued.

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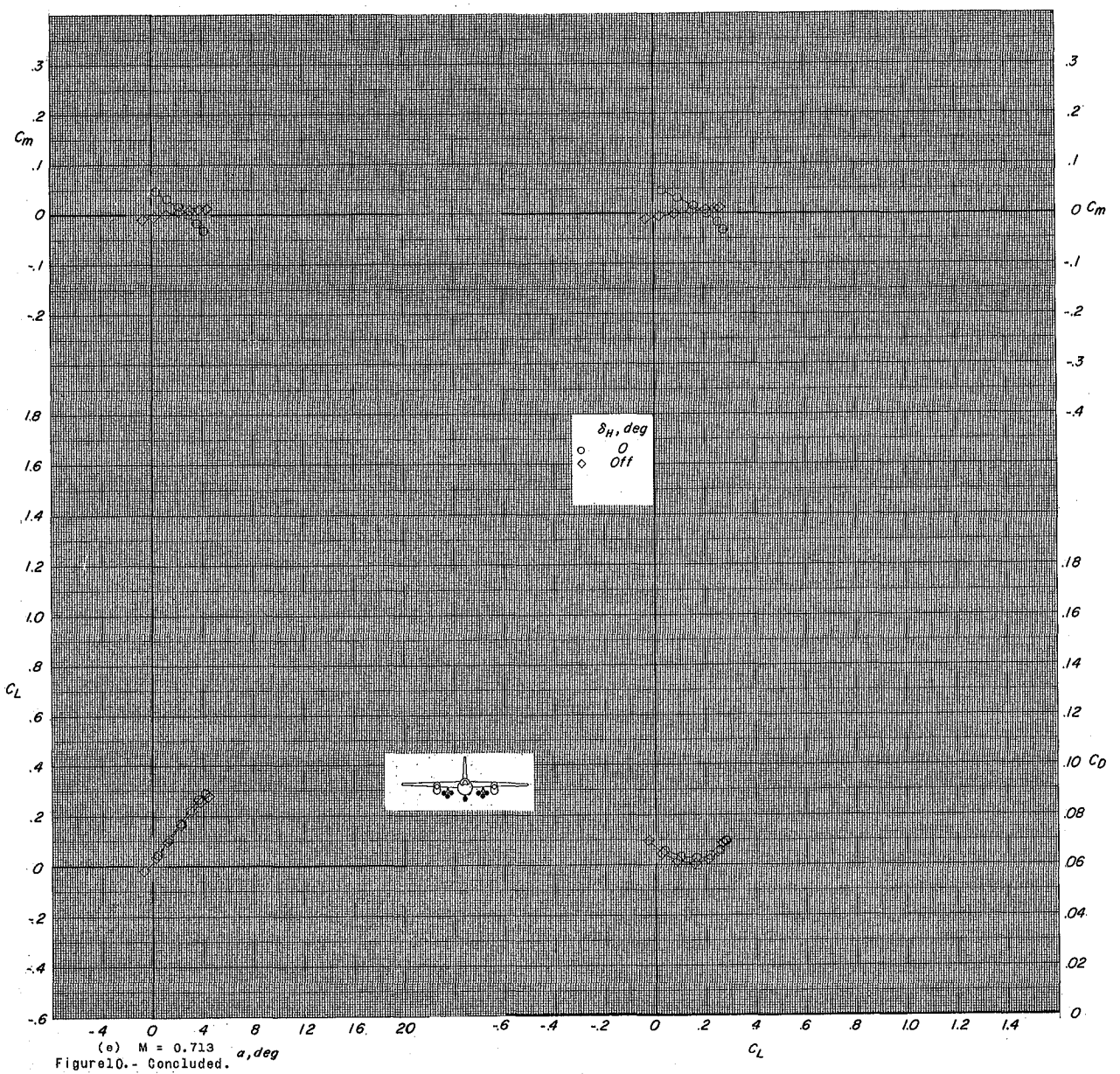

(e) M = 0.713

Figure10.- Concluded.

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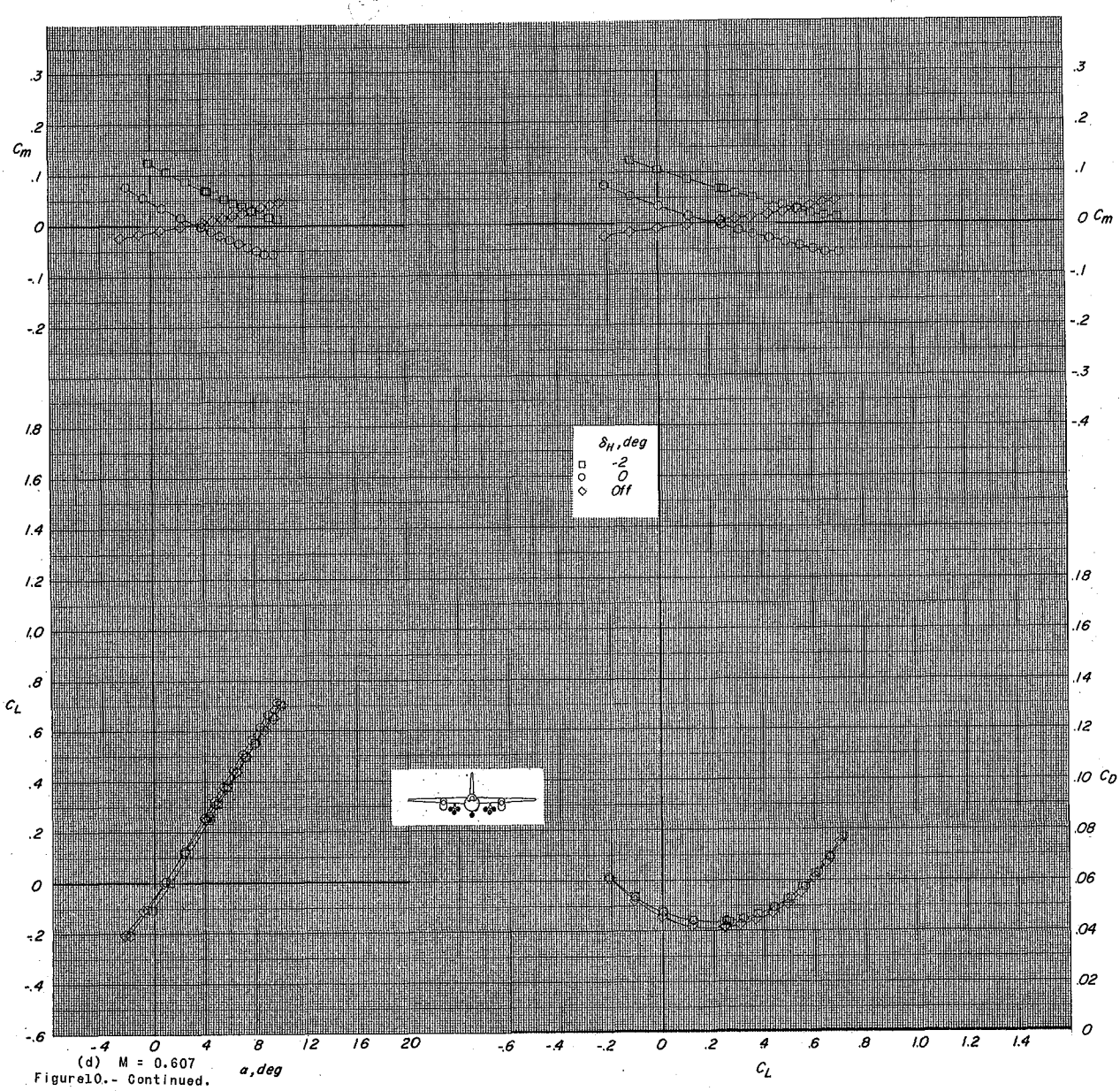

(d) M = 0.607

Figure10.- Continued.

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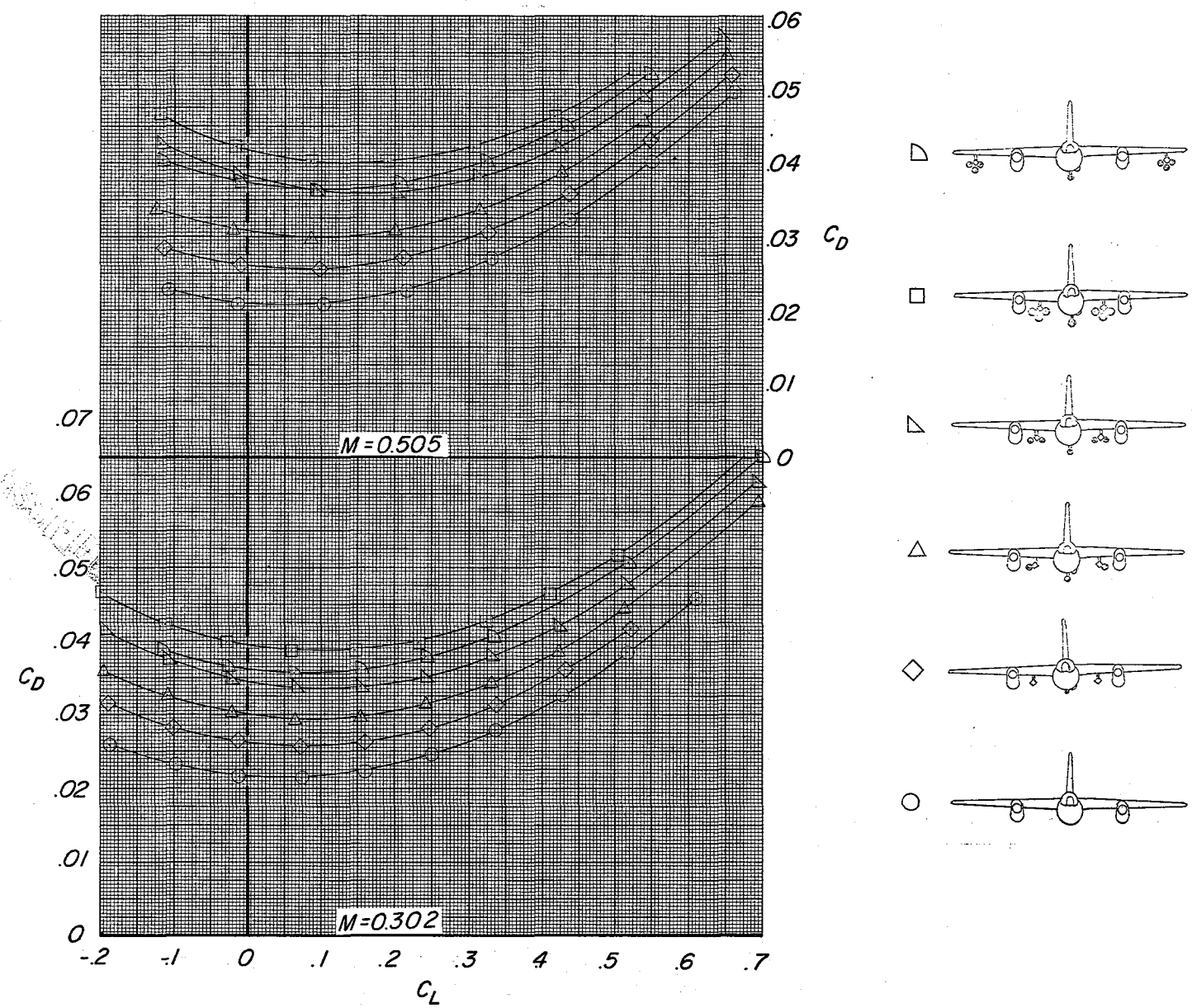

Figure 11.- Effect of model and bomb configuration on the drag characteristics. $\delta_H = 0^\circ$.

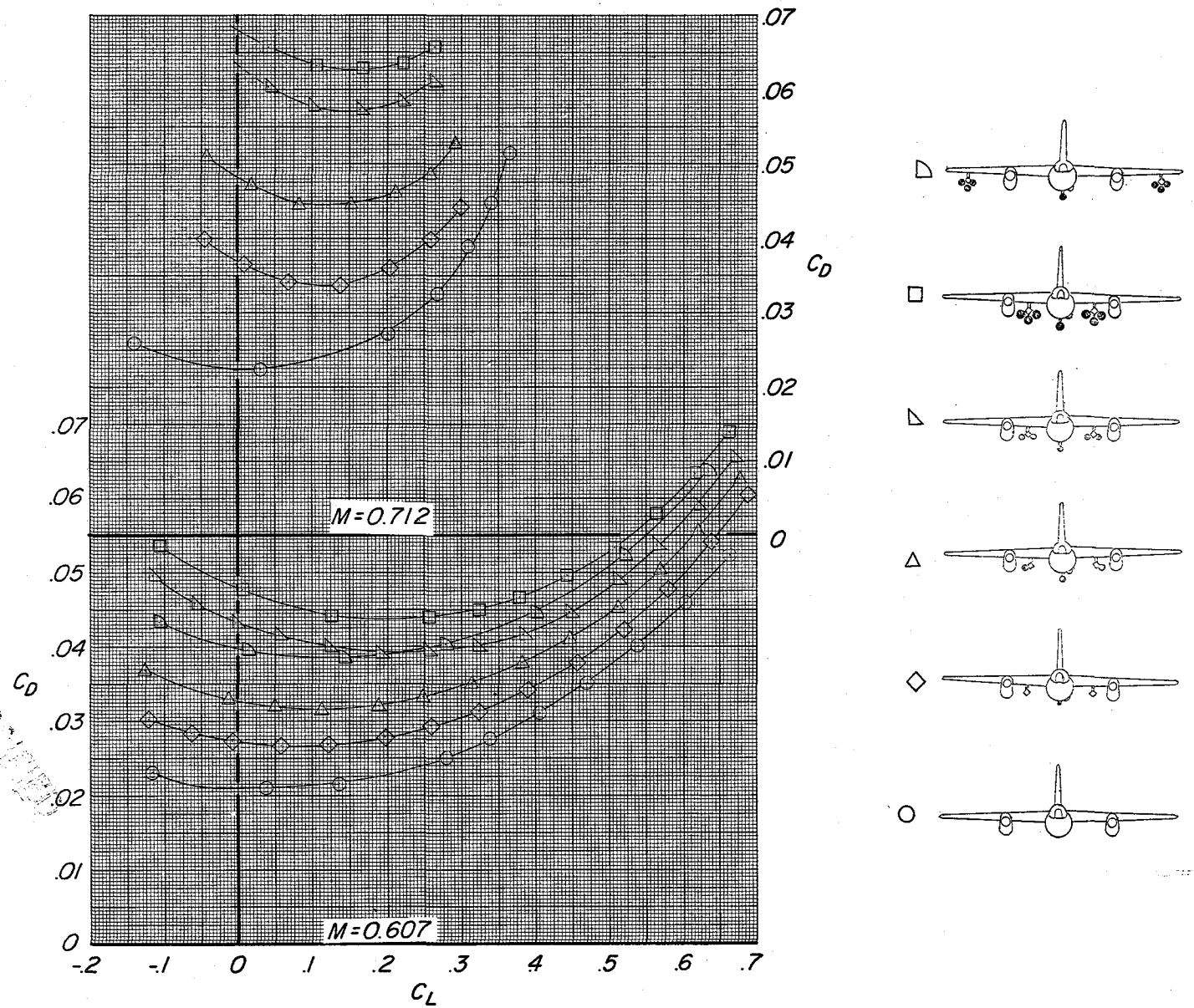

Figure 11.- Concluded.

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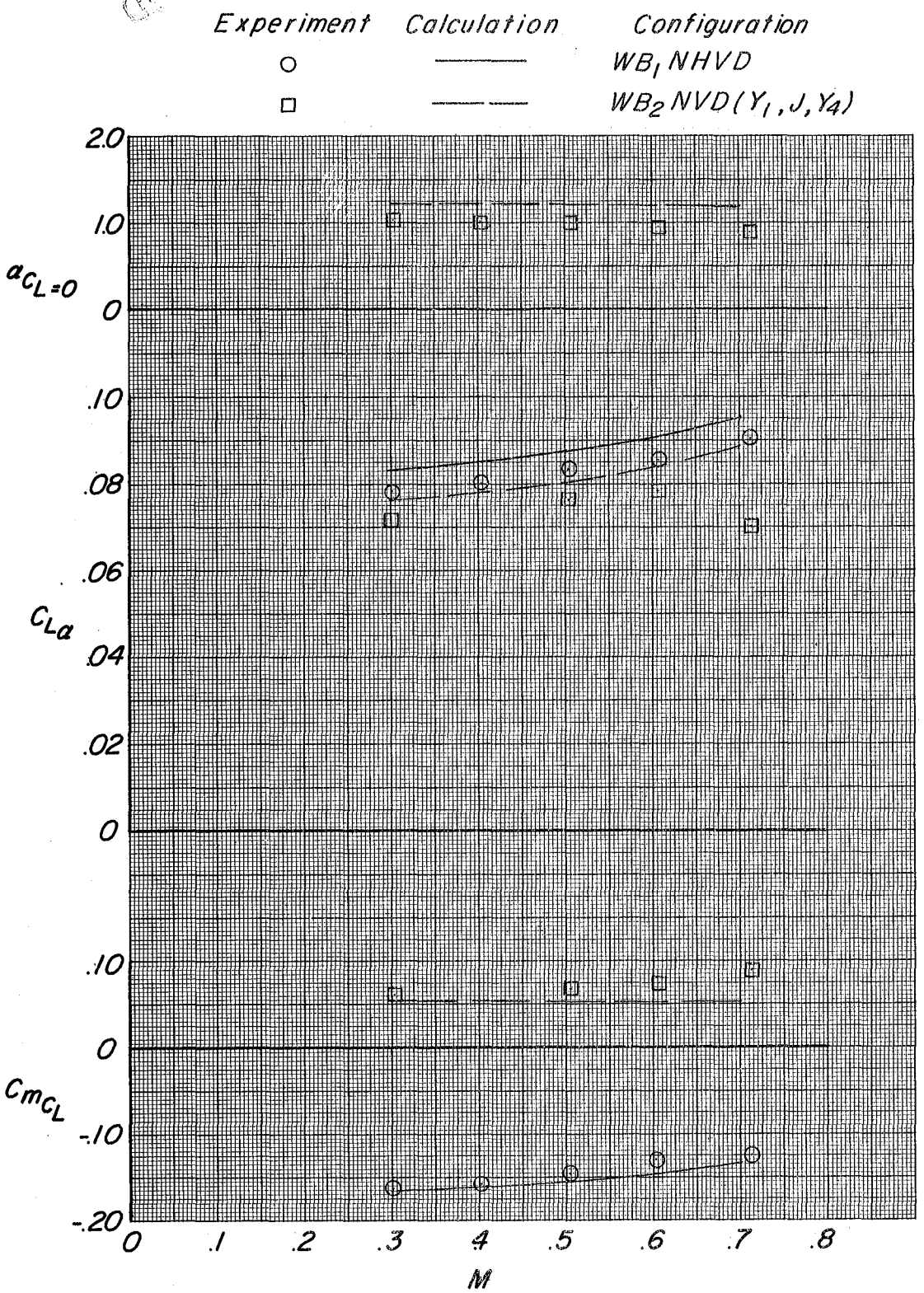

Figure 13.- Comparison of experimental and calculated variation of lift-curve slope, longitudinal stability and angle for zero lift with Mach number.

[redacted]

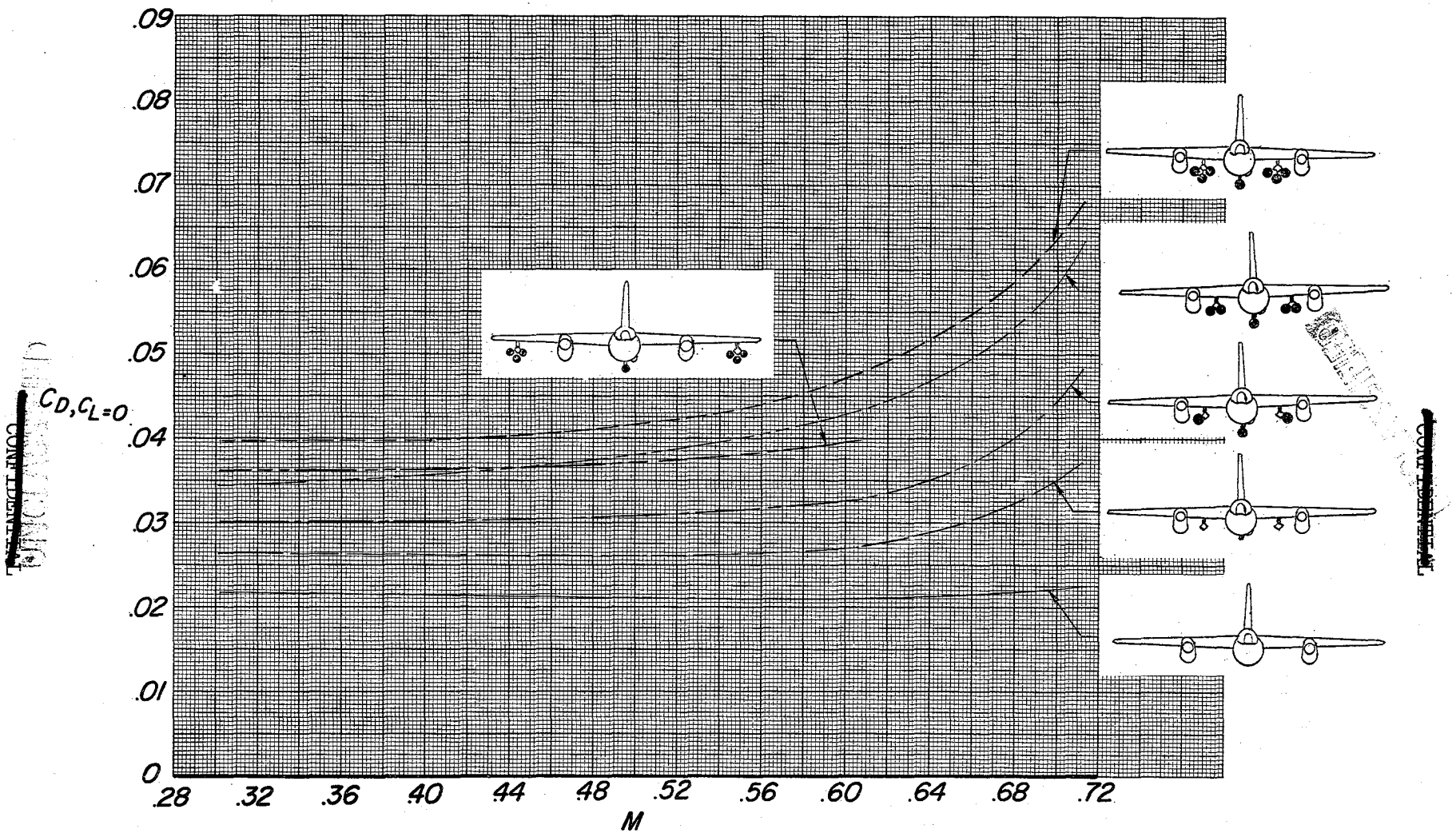

Figure 12.- Comparison of the drag characteristics of various model and bomb configurations at $C_L = 0$. $\delta_H = 0^o$.

[redacted]

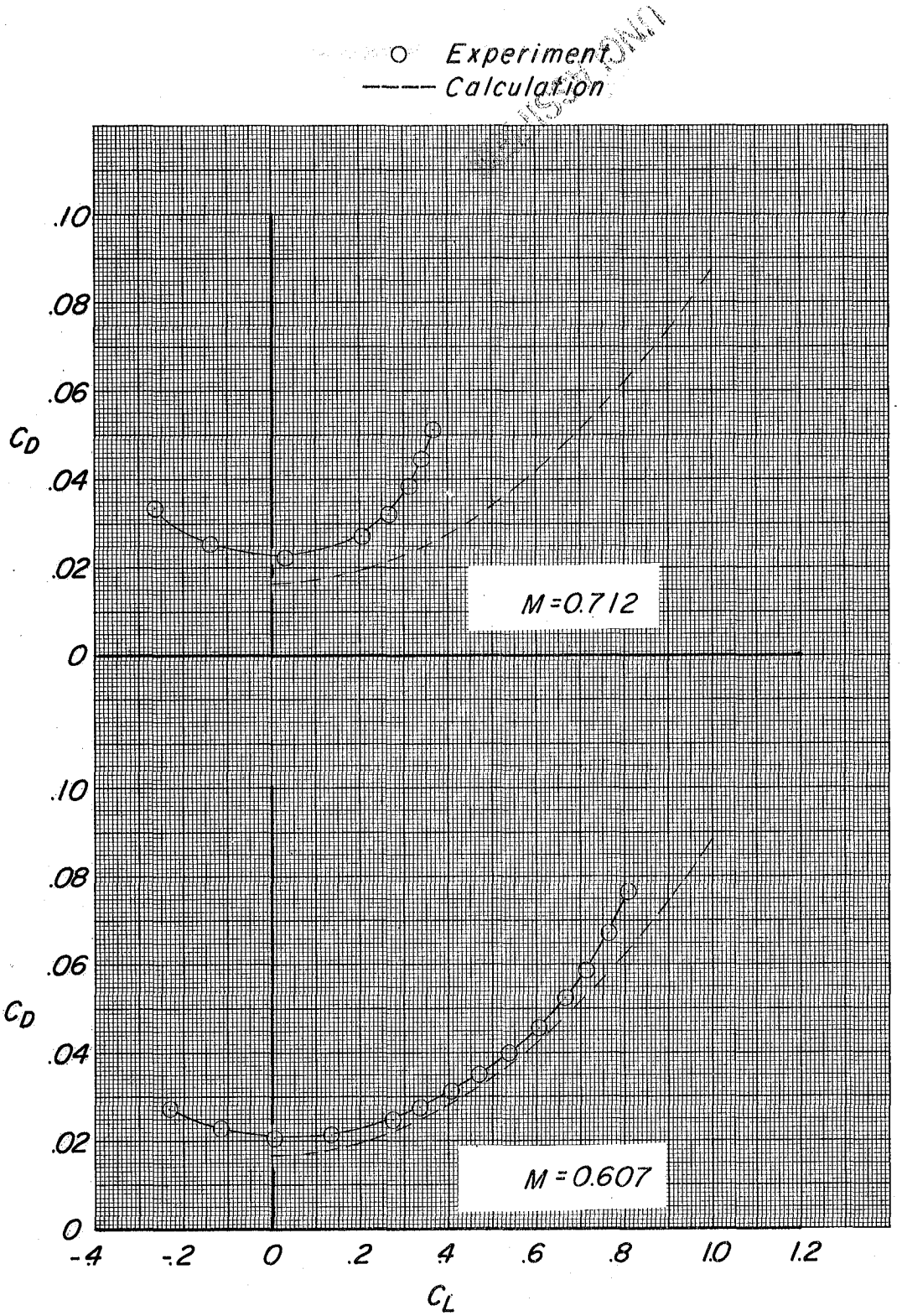

Figure 14.- Concluded.

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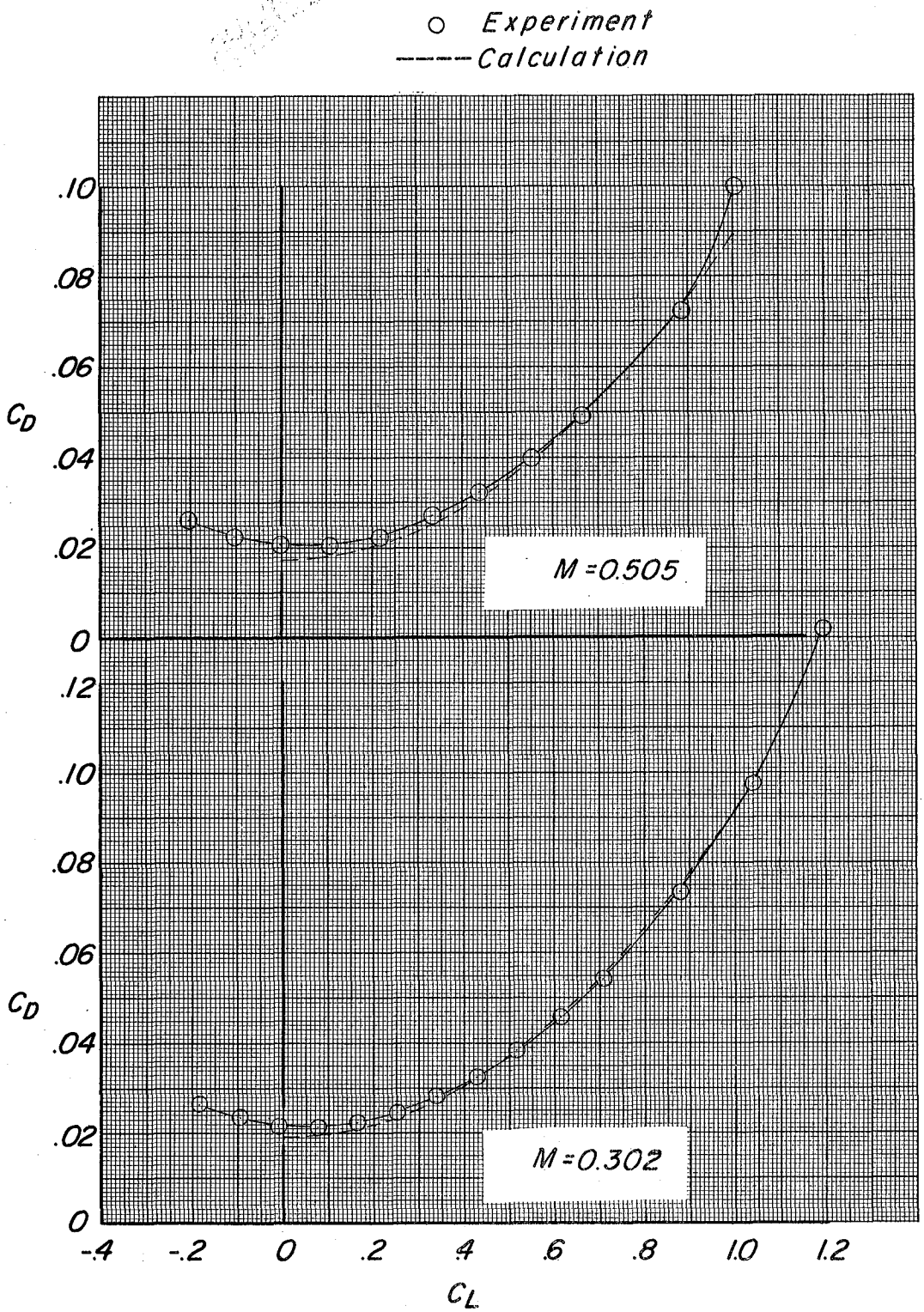

Figure 14.- Comparison of the experimental calculated drag characteristics of the clean model. (WB_1NHVD)

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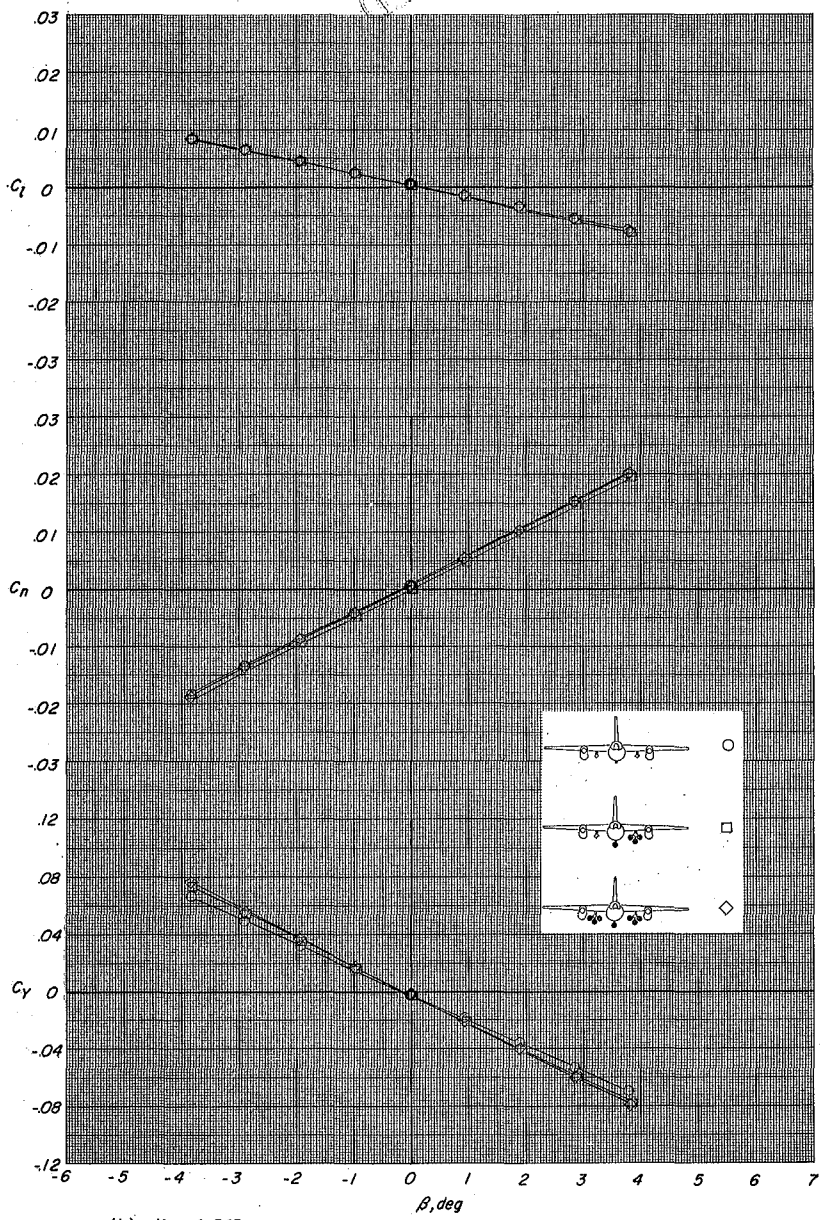
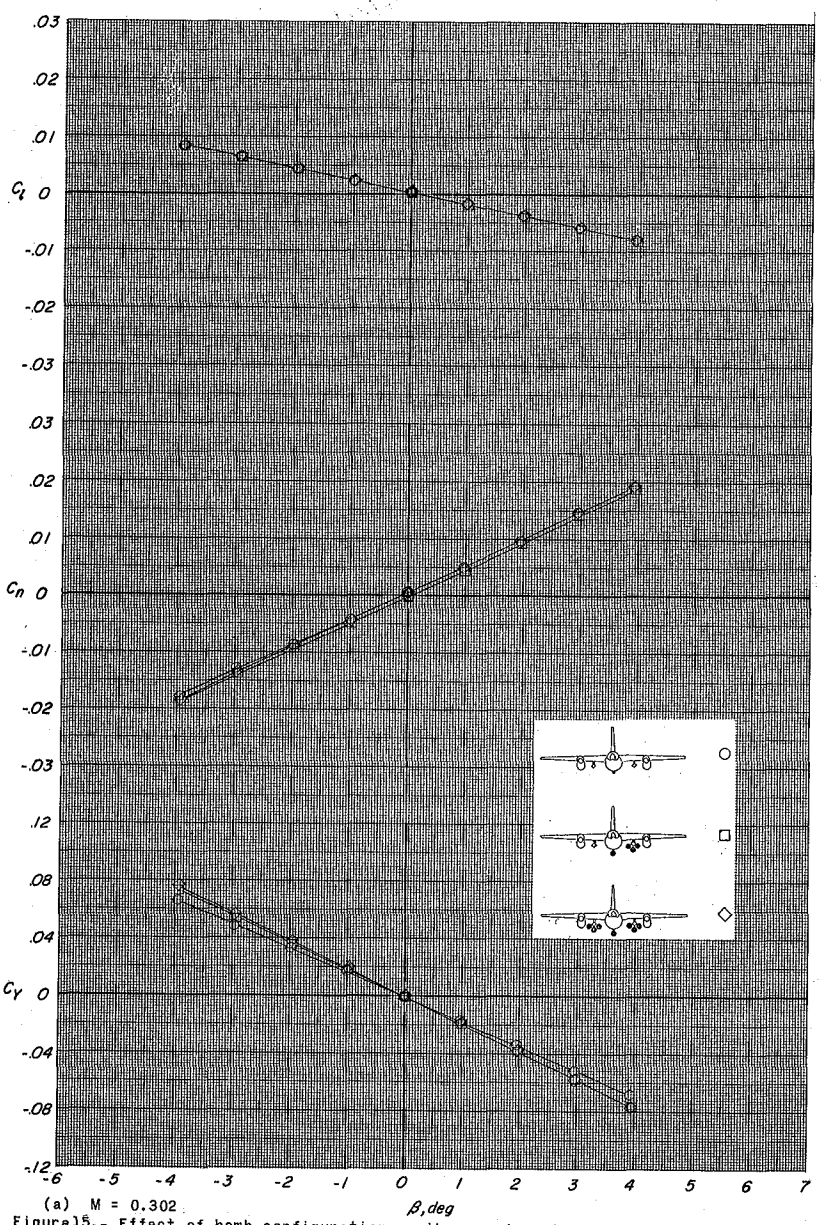


(b) M = 0.505
Figure 15.- Continued.



(a) M = 0.302

Figure 15.- Effect of bomb configuration on the aerodynamic characteristics in sideslip. WB_2VDH, $\delta_H = 0^\circ$.

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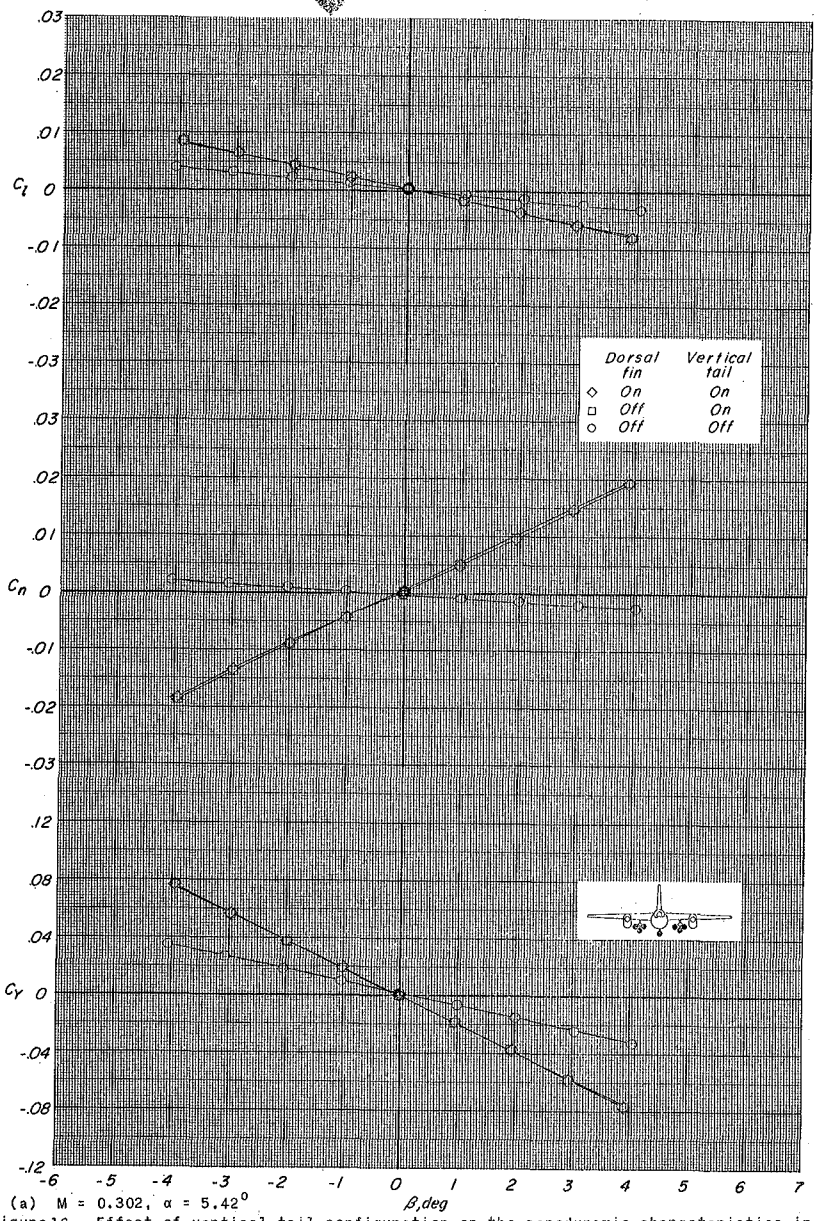

(a) M = 0.302, α = 5.42°

Figure 16.- Effect of vertical-tail configuration on the aerodynamic characteristics in sideslip. WB_2NH, $\delta_H = 0^\circ$, Bombs on (Y_1JT_{1-6}, Y_4T_7).

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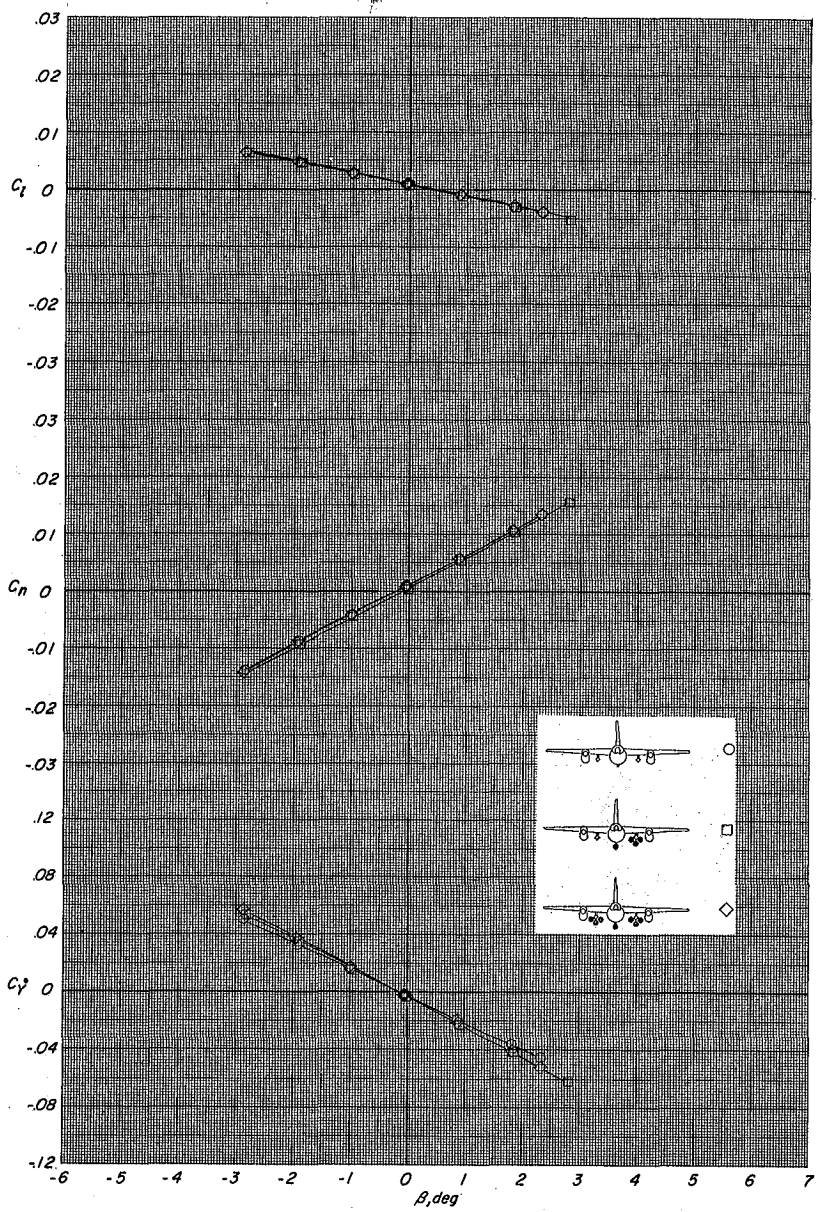
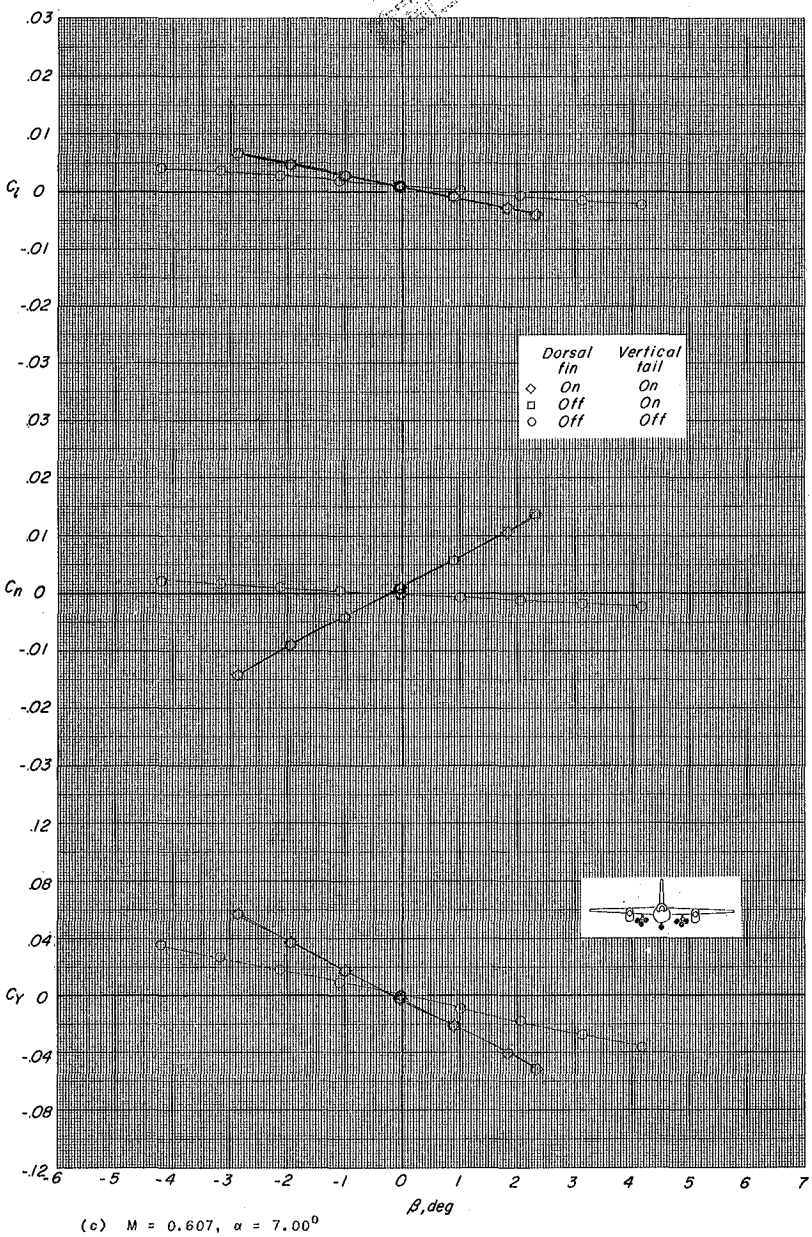


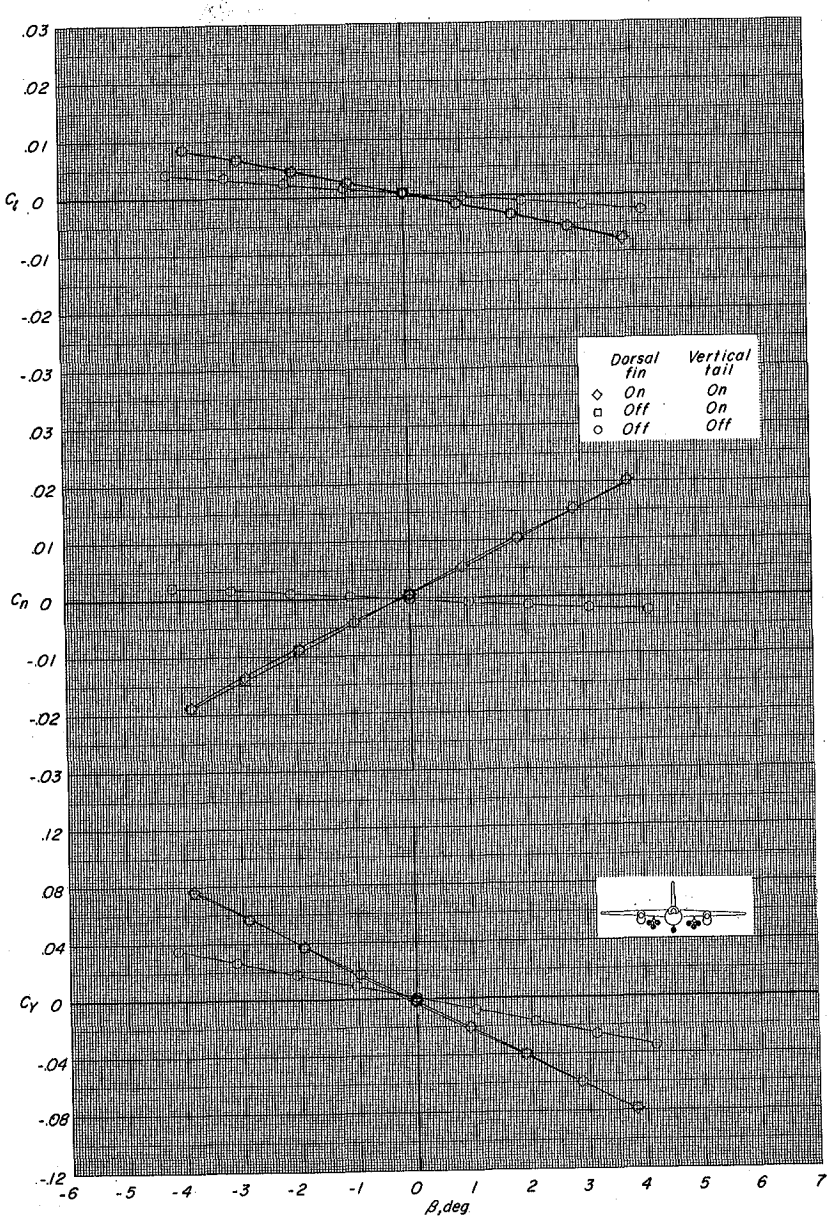
(c) M = 0.607

Figure 15.- Concluded.



(c) M = 0.607, α = 7.00°

Figure 16.- Concluded.



(b) M = 0.505, α = 6.23°

Figure 16.- Continued.

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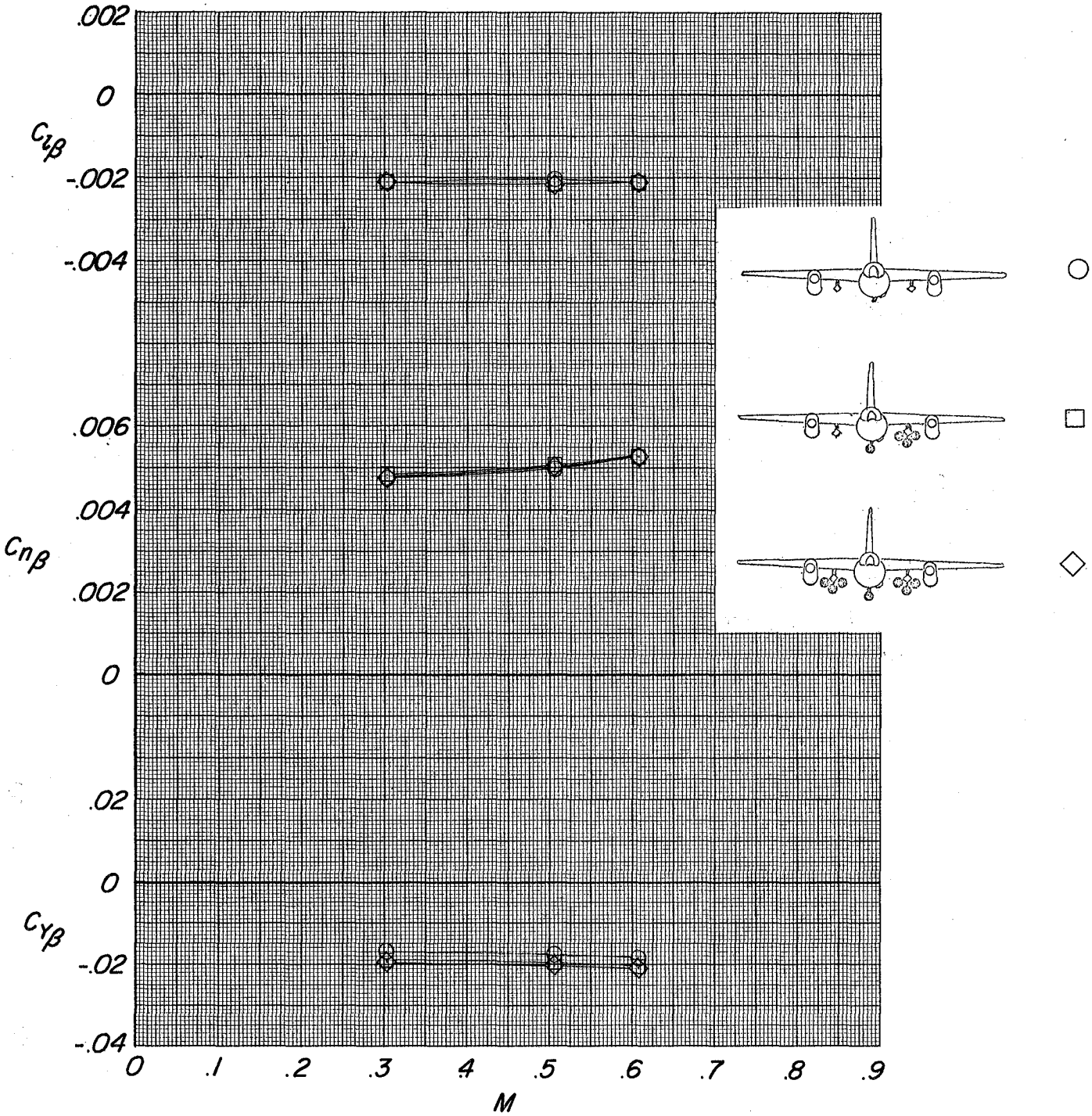

(a) Effect of bomb configuration.

Figure 17.- Variation of the lateral-directional stability parameters with Mach number. (Parameters measured from figures 15 and 16.)

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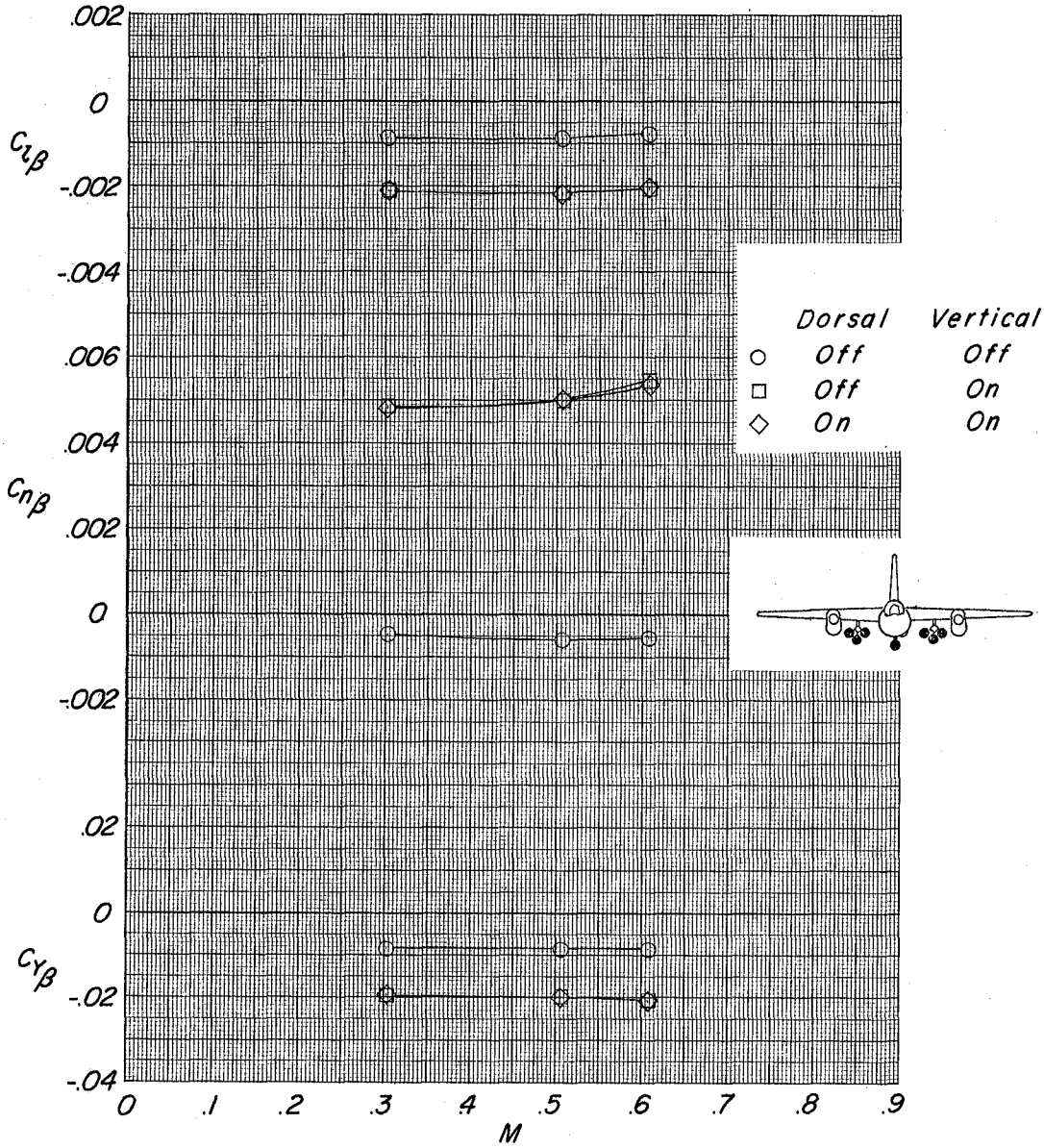

(b) Effect of vertical tail configuration.
Figure 17.-Concluded.

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