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FORCE AND MOMENT DATA FROM A WIND TUNNEL TEST OF A TILT-NACELLE V/STOL PROPULSION SYSTEM WITH AN ATTITUDE CONTROL VANE

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Summary

A large-scale, tilt-nacelle V/STOL propulsion system, with an attitude control vane assembly mounted in the exhaust, was tested in the Ames 40- by 80-Foot Wind Tunnel. The purpose of the test was to determine the effectiveness of the control vane as well as the aerodynamic characteristics of the entire propulsion system. This report presents the results in the form of tabulated coefficients for both the vane forces and moments and the total forces and moments produced by the propulsion system.

Nomenclature

A_F	fan area, 1.206 m^2 (12.98 ft^2)
ALPHA	nacelle angle of attack, deg
C_D	wind axis drag coefficient, $\frac{D}{qA_F}$
CD	notation for C_D on tabulated data
C_{D_V}	vane wind axis drag coefficient, $\frac{D_V \cos \alpha + L_V \sin \alpha}{qA_F}$
CDV	notation for C_{D_V} on tabulated data
C_J	thrust coefficient, $\frac{T}{qA_F}$
CJ	notation for C_J on tabulated data
C_L	wind axis lift coefficient, $\frac{L}{qA_F}$
CL	notation for C_L on tabulated data
C_{L_V}	vane wind axis lift coefficient, $\frac{L_V \cos \alpha - D_V \sin \alpha}{qA_F}$

CLV	notation for C_{L_V} on tabulated data
C_m	pitching-moment coefficient about the nacelle pivot axis, $\frac{M}{qA_F d}$
CM	notation for Cm on tabulated data
C_{m_V}	vane pitching moment coefficient about the nacelle pivot axis, $\frac{M_V - 2.405\ L_V + 0.34\ D_V}{qA_F d}$
CMV	notation for C_{m_V} on tabulated data
d	fan diameter, 1.397 m (4.583 ft)
D	total measured wind axis drag, N
DELV	vane deflection angle, deg
D_V	measured vane drag in nacelle body axis, N
GTT	total gross thrust, lbs
L	total measured wind axis lift, N
L_V	measured vane lift in nacelle body axis, N
M	total measured pitching moment about the nacelle pivot axis, J
M_V	measured vane pitching moment about the vane pivot axis, J
N_2	core engine power turbine speed, rpm
q	free-stream dynamic pressure, N/m^2
Q	free-stream dynamic pressure, psf
T	total gross thrust, N
VKTS	free-stream velocity, knots
V_∞	free-stream velocity, m/sec
α	nacelle angle of attack, deg
δ_V	vane deflection angle, deg

Introduction

One possible technique for obtaining longitudinal control on tilt-nacelle V/STOL airplane is the use of a variable incidence vane mounted in the propulsion system exhaust. Large forces and moments can be produced by deflecting the vane without depending on forward speed of the aircraft. A test was performed in the Ames 40- by 80-Foot Wind Tunnel on a large-scale, tilt-nacelle V/STOL propulsion system consisting of (1) the Hamilton Standard 1.4-m (55 in.) variable pitch Q-Fan driven by a Lycoming T55-L-11A gas generator, (2) a Boeing designed asymmetric inlet, and (3) a Grumman designed control vane assembly. The purpose of the test was to determine the effectiveness of the control vane as well as the aerodynamic characteristics of the entire propulsion system. A test of the propulsion system without the control vane assembly was made previously in the Ames 40- by 80-Foot Wind Tunnel (Ref. 1, 2, 3). Ref. 4 presents an analysis of the aerodynamic effects of the control vane. Results of static tests of this propulsion system and control vane are available in Ref. 5.

Forces and moments produced by the vane were measured by strain-gage balances and the total forces and moments were measured by the wind-tunnel balance system. These data were reduced to coefficients based on the fan annulus area and fan diameter. The results are presented here in tabulated form along with descriptions of the propulsion system, test procedure, and data reduction.

Propulsion System

The propulsion sytem consisted of the Hamilton Standard Q-Fan, which is a 1.4-m (55 in.), 13-bladed, variable-pitch fan driven by a Lycoming

T55-L-11A, 2800 kW (3750 hp) gas turbine core engine with a bypass ratio of 17:1. The fan was driven through a 4.75:1 gear reduction to a maximum speed of 3365 rpm. Additional information on the fan and core engine is available in Ref. 6. The inlet was an asymmetric inlet designed by the Boeing Company for a tilt-nacelle lift/cruise fan propulsion system, which allowed testing at angles of attack up to 95° without separating the inlet flow or stalling the fan. The cowling was designed to provide a nacelle suitable for wind-tunnel testing. The components of the propulsion system and its major dimensions are shown in Fig. 1. A more detailed description of the propulsion system and inlet is available in Ref. 1.

The attitude control vane assembly, designed by the Grumman Aerospace Corporation, consisted of a two-dimensional airfoil with a 0.772-m (30.4 in.) chord, 1.619-m (63.75 in.) span and a 10% thickness-to-chord ratio. The vane was supported by a boom on each end which was attached to the nacelle. The vane pivoted about the 45% chord station, and it incorporated a geared trailing edge flap pivoted about the 70% chord station. The flap was controlled by two links attached to the boom so that the flap deflection relative to the vane was equal to the vane deflection relative to the nacelle axis. Vane deflection was controlled by an electric actuator mounted on one boom. The vane was offset from the engine centerline as shown in Fig. 1.

The nacelle was mounted approximately 4 m (13 ft.) above the wind-tunnel floor on a single strut which was shielded from the wind by a fairing. The nacelle rotated in a horizontal plane about the strut centerline for angle-of-attack variation. Fig. 2 shows the propulsion system in the Ames 40- by 80-Foot Wind Tunnel.

Test Procedure

The data were acquired by varying vane deflection angle at constant thrust, angle of attack, and velocity. Angle of attack varied from 0° to 95°, and velocity varied to a maximum of 93 m/sec (180 knots). Vane deflection angle varied from -30° to 30°. Gross thrust was varied up to a maximum of 31,600 N (7100 lb) by changing engine speed. The fan blade angle was held constant at 56° throughout the test. The acceptable operating limits of the propulsion system were determined during a previous test (Ref. 2). All of the data presented here were obtained with unseparated flow in the inlet.

Data Reduction

Force and moment data obtained from the wind-tunnel balance system were used to compute coefficients for the total nacelle forces and moments in the wind-axis system. The fan annulus area, 1.206 m^2, and fan diameter, 1.397 m, were used for the reference area and length, respectively. The moment center was located on the engine centerline at the axis of rotation, 1.928 m aft of the inlet leading edge. Thrust coefficients were computed from gross thrust, which was determined from the total and static pressure and total temperature measurements in the inlet, fan duct, and core engine inlet. Vane forces and moments were measured with two balances mounted at the attachment points of the vane to the boom. The vane flap links were strain gaged to provide corrections to the vane balance data. Vane coefficients were computed in the wind-axis system, normalized by the fan area and diameter, and transferred to the nacelle moment center. The axis system and sign convention are shown in Fig. 3.

Results

The data are presented without analysis in the form of tabulated coefficients. Table 1 is an index of tabulated data presented in tables 2-33. Each table is for one combination of free-stream velocity and nacelle angle of attack. Each page of a table is a sweep of vane deflection angles at a nominally constant engine speed.

References

1. Shain, W. M.: "Test Data Report, Low Speed Wind Tunnel Tests of a Full Scale Lift/Cruise - Fan Inlet, with Engine at High Angles of Attack", NASA CR-152072, January 1978.

2. Syberg, J.: "Low Speed Test of a High-Bypass-Ratio Propulsion System with an Asymmetric Inlet Designed for a Tilt-Nacelle V/STOL Airplane", NASA CR-152055, January 1978.

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4. Betzina, M. D. and Kita, R.: "Aerodynamic Effects of an Attitude Control Vane on a Tilt-Nacelle V/STOL Propulsion System", AIAA Paper No. 79-1855, August 1979.

5. Grumman Aerospace Corporation: "Large-Scale Static Tests of a Tilt-Nacelle V/STOL Propulsion/Attitude Control System", NASA CR-152181, July 1978.

6. Demers, W. J., Metzger, F. B., Smith, L. W., and Wainauski, H. S.: "Testing of the Hamilton Standard Q-Fan Demonstrator (Lycoming T55-L-11A Core Engine)", NASA CR-121265, March 1973.

TABLE 1.- INDEX OF TABULATED DATA

Table	VKTS	ALPHA	N_2
2 (a)	23	60	9600
(b)	23	60	9600
(c)	23	60	11800
(d)	23	60	14000
3 (a)	23	75	9600
(b)	23	75	11800
(c)	23	75	14000
4 (a)	23	90	9600
(b)	23	90	11800
(c)	23	90	14000
5 (a)	40	45	9600
(b)	40	45	11800
(c)	40	45	14000
6 (a)	40	60	9600
(b)	40	60	11800
(c)	40	60	14000
7 (a)	40	75	9600
(b)	40	75	11800
(c)	40	75	14000
8 (a)	40	95	9600
(b)	40	95	11800
(c)	40	95	14000
9 (a)	60	33	9600
(b)	60	33	11800
(c)	60	33	14000
10(a)	60	45	9600
(b)	60	45	11800
(c)	60	45	14000
11(a)	60	55	9600
(b)	60	55	11800
(c)	60	55	14000

TABLE 1.- CONTINUED.

Table	VKTS	ALPHA	N_2
12(a)	60	65	9600
(b)	60	65	11800
(c)	60	65	14000
13	60	75	9600
14(a)	80	20	9600
(b)	80	20	11800
(c)	80	20	14000
15(a)	80	60	9600
(b)	80	60	10700
(c)	80	60	11800
16(a)	100	5	9600
(b)	100	5	11800
(c)	100	5	14000
17(a)	100	20	9600
(b)	100	20	11800
(c)	100	20	14000
(d)	100	20	14000
18(a)	100	45	9600
(b)	100	45	11800
(c)	100	45	13000
19(a)	100	60	9600
(b)	100	60	10700
(c)	100	60	11800
20	100	75	9600
21(a)			
(b)	120	0	9600
(c)	120	0	11800
	120	0	14000
22(a)	120	25	9600
(b)	120	25	11800
(c)	120	25	14000
23(a)	120	51	9600
(b)	120	51	11000

TABLE 1.- CONCLUDED.

Table	VKTS	ALPHA	N_2
24(a)	140	0	9600
(b)	140	0	11800
(c)	140	0	14000
25(a)	140	20	9600
(b)	140	20	11800
26(a)	140	33	9600
(b)	140	33	11800
(c)	140	33	11800
(d)	140	33	14000
27(a)	140	45	9600
(b)	140	45	11800
(c)	140	45	13600
(d)	140	45	13600
28(a)	160	0	9600
(b)	160	0	11800
(c)	160	0	14000
29	160	20	9600
30(a)	160	45	9600
(b)	160	45	11800
(c)	160	45	12800
(d)	160	45	14000
31(a)	180	0	9600
(b)	180	0	11800
(c)	180	0	11800
(d)	180	0	11800
(e)	180	0	14000
32(a)	180	20	9600
(b)	180	20	11800
33	180	33	9600

TABLE 2(a)

ALPHA	VKTS	U	DELV	GIT	CJ	CL	CD	CM	CLV	CDV	CMV
60.0	21.5	1.6	-30.0	2812	135.39	79.55	-68.52	99.78	-41.92	-19.24	70.45
60.0	21.5	1.6	-25.2	2799	134.76	85.16	-71.65	97.97	-36.07	-22.56	68.29
60.0	21.7	1.6	-20.3	2820	135.77	91.05	-71.50	91.03	-28.39	-23.78	60.90
60.0	21.7	1.6	-10.3	2808	135.18	108.20	-61.49	59.90	-11.87	-14.15	30.84
60.0	20.7	1.5	-0.1	2788	143.20	129.22	-48.54	24.69	0.53	2.14	-5.02
60.0	18.9	1.2	9.9	2766	177.56	171.87	-34.22	-19.39	10.44	30.76	-52.10
60.0	23.0	1.8	20.0	2774	118.75	118.64	8.05	-39.10	8.02	45.73	-69.53
60.0	23.5	1.9	24.9	2772	112.40	108.51	15.77	-40.21	5.52	51.19	-71.73
60.0	23.0	1.8	30.1	2752	117.78	104.69	19.13	-39.55	-5.69	58.70	-75.28

TABLE 2(b)

ALPHA	VKTS	Q	DELV	GTT	CJ	CL	CD	CM	CLV	CDV	CMV
60.0	21.9	1.6	-30.2	2656	127.89	75.65	-65.44	95.02	-59.54	-19.05	67.68
60.0	22.6	1.6	-25.2	2702	130.12	82.05	-67.94	96.11	-54.70	-22.71	67.01
60.0	22.4	1.6	-20.2	2717	130.84	88.21	-68.95	87.64	-26.77	-23.49	58.80
60.0	23.6	1.8	-10.2	2698	115.49	94.29	-51.45	52.89	-9.61	-12.39	26.19
60.0	21.9	1.6	0.0	2659	128.05	117.73	-44.25	22.17	1.23	2.10	-4.33
60.0	22.2	1.6	9.9	2700	129.99	127.65	-21.19	-13.55	8.76	23.96	-41.28
60.0	22.4	1.6	20.0	2665	128.33	128.08	4.00	-43.12	8.94	48.05	-73.65

TABLE 2(c)

ALPHA	VKTS	U	DELV	GTT	CJ	CL	CD	CM	CLV	CDV	CMV
60.0	22.8	1.7	-30.1	4099	185.75	107.22	-97.62	129.09	-56.08	-27.18	96.16
60.0	22.7	1.7	-25.2	4090	185.34	113.39	-102.15	126.58	-48.05	-31.82	93.06
60.0	23.0	1.7	-20.2	4114	186.46	123.22	-101.79	115.71	-37.09	-32.50	81.37
60.0	23.0	1.7	-10.2	4159	188.48	148.10	-90.09	75.29	-15.33	-19.55	41.46
60.0	22.7	1.7	0.0	4124	186.89	165.37	-66.53	27.28	1.42	2.91	-5.67
60.0	21.5	1.5	10.0	4098	210.45	199.59	-44.79	-24.48	12.73	35.30	-60.56
60.0	23.2	1.7	20.0	4090	185.36	178.74	-2.65	-61.15	12.05	65.09	-99.60
60.0	23.5	1.6	25.0	4066	174.02	161.87	10.40	-62.76	4.82	73.60	-105.34
60.0	23.3	1.7	30.1	4045	183.30	157.94	16.99	-63.59	-7.79	86.55	-109.00

TABLE 2(d)

ALPHA	VKTS	W	DELV	GIT	CJ	CL	CD	CM	CLV	CDV	CMV
60.0	22.9	1.7	-30.0	5706	258.61	148.24	-140.08	170.68	-76.35	-37.86	131.90
60.0	23.0	1.7	-25.2	5712	258.86	156.30	-144.39	167.19	-65.94	-45.23	127.16
60.0	23.7	1.8	-20.2	5721	244.85	159.95	-134.82	143.02	-47.45	-41.30	103.73
60.0	24.0	1.9	-10.2	5767	233.85	179.43	-112.44	86.59	-18.67	-25.46	49.99
60.0	21.0	1.4	-0.1	5692	313.23	268.82	-122.28	55.84	1.01	3.00	-5.53
60.0	24.4	1.9	10.0	5653	229.23	214.74	-49.27	-28.03	13.34	37.12	-64.52
60.0	21.5	1.5	19.9	5608	288.02	270.01	-16.49	-94.25	17.33	94.76	-144.53
60.0	24.0	1.9	25.0	5601	227.09	205.21	4.54	-82.77	5.28	91.12	-127.50
60.0	22.0	1.6	30.1	5572	268.41	224.53	13.34	-94.25	-11.04	120.23	-151.54

TABLE 3(a)

ALPHA	VKTS	Q	DELV	GIT	CJ	CL	CD	CM	CLV	CDV	CMV
75.0	21.8	1.6	-30.1	2763	133.04	100.11	-39.56	102.67	-34.22	-28.54	68.13
75.0	22.1	1.6	-25.2	2769	133.35	104.92	-41.07	101.46	-26.21	-30.53	66.76
75.0	22.0	1.6	-20.3	2777	133.73	112.72	-38.76	92.82	-20.14	-28.77	57.15
75.0	20.5	1.4	-10.2	2771	152.49	143.63	-29.77	69.85	-8.34	-17.80	32.90
75.0	18.7	1.2	0.0	2745	176.25	178.09	-10.72	35.32	0.29	3.88	-6.39
75.0	22.7	1.7	10.0	2755	125.93	131.15	24.15	-8.16	2.02	26.51	-42.63
75.0	21.1	1.5	19.9	2712	139.29	141.14	44.99	-37.62	-3.98	51.44	-77.55
75.0	20.3	1.4	24.9	2699	148.50	140.88	51.56	-41.23	-13.41	66.98	-86.52
75.0	20.6	1.4	30.1	2684	147.71	129.26	48.48	-30.14	-24.50	59.87	-78.97

TABLE 3(b)

ALPHA	VKTS	C	DELV	GIT	CJ	CL	CD	CM	CLV	CDV	CMV
75.0	19.6	1.3	-30.2	4148	24 .80	178.86	-86.82	168.10	-60.92	-52.13	125.27
75.0	19.8	1.3	-25.2	4170	247.11	189.29	-87.29	169.59	-50.63	-56.33	121.84
75.0	24.7	2.0	-20.3	4182	161.10	132.78	-48.73	106.42	-23.54	-34.27	68.44
75.0	21.2	1.5	-10.3	4160	213.67	195.07	-49.92	88.64	-11.54	-25.14	46.07
75.0	19.3	1.2	0.0	4171	267.78	265.03	-20.54	45.36	0.67	5.70	-4.53
75.0	20.9	1.4	10.0	4120	226.71	230.41	24.76	-19.63	3.52	43.27	-69.75
75.0	25.1	1.8	19.9	4134	176.94	174.76	52.00	-46.69	-4.90	63.12	-94.93
75.0	21.9	1.6	25.0	4111	197.97	183.94	60.33	-55.68	-16.76	77.51	-110.07
75.0	24.9	2.0	30.0	4113	158.45	135.40	50.04	-33.03	-25.14	62.66	-82.99

TABLE 3(c)

ALPHA	VKTS	Q	DELV	GTT	CJ	CL	CD	CM	CLV	CDV	CMV
75.0	21.1	1.5	-30.1	5818	298.82	215.00	-106.27	196.80	-72.75	-62.86	148.01
75.0	20.9	1.5	-25.3	5828	299.35	226.04	-110.43	193.05	-60.24	-66.48	144.15
75.0	21.0	1.5	-20.3	5848	300.35	240.01	-105.34	175.20	-42.86	-62.37	124.53
75.0	18.6	1.2	-10.2	5834	374.57	334.10	-99.45	139.06	-19.63	-43.29	79.28
75.0	20.0	1.3	0.0	5808	344.18	331.16	-34.61	49.94	0.49	6.50	-10.75
75.0	19.7	1.3	10.0	5704	338.05	333.53	19.73	-33.59	4.40	59.51	-95.68
75.0	22.9	1.7	19.9	5701	258.35	248.35	62.95	-69.15	-7.17	87.22	-130.77
75.0	20.2	1.3	24.9	5648	334.73	304.85	89.01	-99.84	-27.11	127.72	-181.56
75.0	27.4	2.5	30.0	5649	174.07	147.89	52.91	-39.95	-26.80	68.38	-90.85

TABLE 4(a)

ALPHA	VKTS	U	DELV	GTT	CJ	CL	CD	CM	CLV	CDV	CMV
90.0	20.2	1.3	-30.2	2694	159.64	136.36	-18.49	125.15	-30.20	-45.00	83.47
90.0	21.1	1.5	-25.2	2707	139.05	123.88	-13.87	110.38	-19.82	-39.56	71.23
90.0	21.9	1.6	-20.3	2720	130.95	122.21	-7.27	94.73	-11.59	-32.67	57.10
90.0	21.1	1.5	-10.2	2709	139.15	140.42	7.96	68.56	-2.87	-18.01	30.50
90.0	21.7	1.5	0.0	2708	139.07	144.89	33.69	33.78	-0.38	3.64	-0.18
90.0	21.5	1.5	10.0	2711	139.24	142.58	57.94	-2.70	-5.18	27.71	-45.37
90.0	21.6	1.5	19.9	2696	138.45	133.08	80.59	-27.69	-16.37	46.37	-73.80
90.0	21.8	1.6	25.0	2657	127.95	119.03	78.53	-28.68	-25.17	46.33	-72.43
90.0	21.8	1.6	30.1	2671	128.61	108.10	72.03	-20.98	-32.99	43.97	-67.52

TABLE 4(b)

ALPHA	VKTS	Q	DELV	GTT	CJ	CL	CD	CM	CLV	CDV	CMV
90.0	22.3	1.6	-30.1	4180	201.28	165.69	-25.57	148.52	-37.10	-55.23	102.55
90.0	22.0	1.6	-25.3	4187	201.62	173.44	-26.05	144.16	-27.66	-55.06	94.10
90.0	21.9	1.6	-20.2	4176	201.06	182.64	-19.74	130.79	-17.07	-48.62	84.87
90.0	19.9	1.3	-10.2	4161	246.59	239.48	4.80	107.02	-5.06	-30.75	52.07
90.0	21.2	1.5	0.0	4160	213.64	214.48	43.14	46.49	-0.71	4.55	-7.68
90.0	19.9	1.3	10.0	4114	243.82	239.36	91.68	-8.61	-8.49	44.74	-75.08
90.0	20.6	1.4	19.9	4108	226.03	204.55	108.74	-50.58	-25.29	71.10	-113.24
90.0	19.4	1.2	24.9	4132	265.28	227.14	141.56	-67.87	-47.33	92.95	-145.19
90.0	23.2	1.8	30.1	4124	176.50	142.23	93.18	-33.42	-43.77	59.06	-90.75

TABLE 4(c)

ALPHA	VKTS	Q	DELV	GTT	CJ	CL	CD	CM	CLV	CDV	CMV
90.0	23.2	1.8	-30.1	5667	242.56	198.30	-32.61	173.15	-44.00	-66.54	122.94
90.0	20.9	1.4	-25.3	5619	309.23	264.25	-43.31	209.06	-41.44	-82.78	149.00
90.0	22.2	1.6	-20.2	5649	272.00	243.40	-27.21	167.96	-22.33	-63.73	111.16
90.0	20.4	1.4	-10.3	5650	310.90	296.67	2.26	126.79	-6.19	-37.87	64.05
90.0	20.9	1.4	0.0	5622	309.36	296.00	44.08	48.73	-0.90	4.83	-8.23
90.0	20.6	1.4	10.0	5532	304.42	281.42	68.18	-35.72	-8.89	47.18	-77.04
90.0	22.8	1.7	19.9	5515	249.95	214.04	89.73	-74.82	-25.42	71.16	-113.16
90.0	21.5	1.5	24.9	5396	277.15	226.66	107.04	-94.57	-45.40	89.91	-140.36
90.0	23.8	1.9	30.2	5469	221.77	163.37	89.77	-66.61	-53.05	72.81	-111.76

TABLE 5(a)

ALPHA	VATS	Q	DELV	GTT	CJ	CL	CD	CM	CLV	CDV	CMV
45.0	40.1	5.2	-30.1	2796	41.43	18.05	-21.23	37.58	-15.26	-2.75	23.62
45.0	40.4	5.3	-25.2	2728	39.65	19.33	-22.25	36.58	-13.40	-4.11	22.58
45.0	40.8	5.4	-20.2	2840	40.51	20.80	-22.54	33.51	-10.91	-5.12	19.90
45.0	40.7	5.4	-10.1	2833	40.41	27.72	-20.77	22.78	-4.65	-5.32	9.60
45.0	40.5	5.3	-0.1	2810	40.84	34.67	-16.64	10.23	0.94	1.09	-2.39
45.0	39.5	5.1	10.0	2803	42.55	41.21	-9.67	-5.84	5.88	8.50	-16.63
45.0	40.2	5.3	20.1	2801	40.71	43.20	0.51	-14.89	8.25	17.51	-26.76
45.0	40.7	5.4	25.0	2778	39.03	40.96	3.98	-15.75	6.87	20.44	-30.03
45.0	40.6	5.4	30.2	2774	39.57	36.84	4.09	-11.49	3.21	21.53	-26.81
45.0	40.6	5.4	25.0	2794	39.86	40.86	3.84	-15.44	6.86	20.41	-29.97

TABLE 5(b)

ALPHA	VKTS	Q	DELV	GTT	CJ	CL	CD	CM	CLV	CDV	CMV
45.0	40.7	5.4	-29.9	4353	62.11	25.48	-34.91	49.90	-21.64	-3.99	33.91
45.0	40.7	5.4	-25.1	4227	60.31	27.42	-36.72	48.69	-19.12	-5.91	32.25
45.0	40.8	5.4	-20.2	4357	62.16	30.33	-37.75	45.70	-15.93	-7.54	29.07
45.0	40.3	5.3	-10.1	4270	62.07	39.79	-35.09	30.18	-6.91	-4.96	14.26
45.0	40.4	5.3	0.0	4256	61.86	48.77	-28.78	12.75	0.93	1.19	-2.53
45.0	40.0	5.2	10.0	4230	62.67	57.00	-19.38	-6.35	7.58	11.06	-21.55
45.0	40.8	5.4	20.0	4251	60.64	59.31	-5.49	-21.01	10.78	22.87	-37.87
45.0	40.7	5.4	25.0	4209	60.05	56.98	-1.10	-22.84	9.14	27.59	-40.41
45.0	39.5	5.1	30.3	4210	63.60	54.67	0.00	-20.24	4.81	32.01	-39.93

TABLE 5(c)

ALPHA	VKTS	U	DELV	GIT	CJ	CL	CD	CM	CLV	CDV	CMV
45.0	40.6	5.5	-29.9	6055	84.82	33.98	-49.78	63.05	-28.68	-5.57	45.01
45.0	40.1	5.5	-25.1	6010	87.36	37.66	-54.26	62.60	-25.91	-8.10	43.76
45.0	40.1	5.5	-20.2	6018	87.48	41.37	-55.59	58.05	-21.55	-10.06	38.89
45.0	40.0	5.3	-10.1	6034	87.71	53.54	-52.20	37.42	-9.45	-6.77	14.43
45.0	39.4	5.1	0.0	5971	90.20	66.78	-45.88	14.65	0.91	1.55	-2.69
45.0	38.6	4.9	10.0	5971	93.88	80.19	-34.67	-10.54	10.02	14.73	-28.58
45.0	36.1	4.3	20.0	5883	105.40	94.73	-22.31	-35.89	16.14	34.64	-57.10
45.0	40.4	5.4	25.0	5882	83.91	75.36	-7.20	-30.57	11.58	35.80	-52.17
45.0	40.1	5.3	30.2	5817	84.55	69.69	-4.45	-27.76	6.23	40.26	-50.46
45.0	39.2	5.0	-0.2	5870	90.45	67.13	-45.89	16.02	0.61	0.99	-1.84

TABLE 6(a)

ALPHA	VKTS	Q	DELV	GTT	CJ	CL	CD	CM	CLV	CDV	CMV
60.0	40.7	5.4	-30.0	2791	39.82	25.78	-13.94	40.02	-13.69	-6.67	23.51
60.0	39.7	5.1	-24.9	2790	42.14	28.91	-16.21	40.04	-12.11	-7.86	23.32
60.0	39.7	5.1	-20.0	2802	42.33	31.41	-16.00	36.68	-9.51	-7.85	20.11
60.0	39.3	5.0	-10.0	2801	43.16	38.23	-12.40	25.64	-3.53	-4.22	9.27
60.0	39.7	5.1	0.0	2807	42.40	43.34	-4.74	11.82	1.18	2.26	-4.22
60.0	39.0	4.9	10.1	2778	43.68	48.10	5.71	-2.60	4.03	11.12	-14.01
60.0	38.9	4.9	20.2	2772	43.58	48.28	12.12	-12.36	3.74	19.87	-30.29
60.0	39.4	5.0	25.1	2771	42.69	44.45	14.90	-11.86	0.48	22.07	-30.26
60.0	39.7	5.1	30.3	2761	41.71	40.27	14.26	-8.68	-2.65	22.10	-27.26

TABLE 6(b)

ALPHA	VKTS	Q	DELV	GTT	CJ	CL	CD	CM	CLV	CDV	LMV
60.0	40.6	5.4	-29.9	4284	61.12	37.25	-25.24	52.07	-19.35	-9.55	33.17
60.0	40.2	5.3	-25.0	4251	61.80	40.61	-27.07	51.92	-16.89	-10.85	32.58
60.0	40.2	5.3	-20.1	4277	62.17	43.64	-26.98	47.95	-13.08	-11.12	28.32
60.0	39.6	5.1	-10.0	4292	64.83	54.19	-23.14	34.02	-5.44	-6.52	14.27
60.0	40.4	5.3	0.0	4268	62.05	59.09	-13.33	14.45	0.92	2.05	-3.71
60.0	39.6	5.1	10.1	4228	63.67	65.59	-1.51	-4.93	4.91	13.88	-23.64
60.0	40.8	5.4	20.1	4214	60.12	63.02	11.70	-17.92	4.62	25.42	-38.62
60.0	40.4	5.3	25.1	4205	61.13	60.56	14.93	-19.62	1.54	30.07	-41.65
60.0	40.3	5.3	30.2	4189	60.90	55.69	16.54	-17.01	-3.43	31.49	-39.16

TABLE 6(c)

ALPHA	VKTS	Q	DELV	GTT	CJ	CL	CD	CM	CLV	CDV	CMV
60.0	40.9	5.6	-29.9	5888	81.01	49.27	-35.22	64.36	-24.76	-11.93	42.40
60.0	40.7	5.5	-25.0	5881	82.37	52.77	-37.37	63.04	-21.35	-13.64	40.85
60.0	40.2	5.3	-20.0	6014	87.42	59.18	-40.28	60.67	-17.69	-15.00	38.25
60.0	39.9	5.2	-10.1	5992	88.78	71.16	-34.79	41.61	-7.40	-8.88	19.36
60.0	40.4	5.4	0.1	5928	84.58	78.00	-21.49	17.87	0.87	2.22	-3.91
60.0	39.7	5.2	10.1	5885	87.19	85.96	-7.78	-6.17	5.78	16.76	-28.39
60.0	40.9	5.5	20.2	5835	81.73	81.50	9.92	-23.88	5.44	31.75	-47.93
60.0	40.6	5.4	25.1	5805	82.81	78.88	14.45	-26.61	1.99	37.85	-52.51
60.0	40.2	5.3	30.3	5743	83.48	73.46	17.09	-25.19	-4.30	41.66	-51.92

TABLE 7(a)

ALPHA	VKTS	Q	DELV	GTT	CJ	CL	CD	CM	CLV	CDV	LMV
75.0	39.0	4.9	-30.0	2781	43.72	34.98	-6.70	44.64	-12.33	-10.75	25.27
75.0	39.1	4.9	-25.2	2776	43.65	37.03	-6.95	43.69	-9.92	-11.16	24.07
75.0	38.9	4.9	-20.1	2805	44.10	39.92	-5.72	39.28	-6.96	-9.85	19.92
75.0	38.9	4.9	-10.1	2785	43.78	44.98	0.49	27.35	-2.19	-4.49	8.47
75.0	39.1	4.9	0.0	2778	43.67	48.98	9.75	15.21	0.79	3.36	-5.69
75.0	38.5	4.8	10.1	2767	44.41	50.49	18.67	-0.50	1.14	12.35	-19.93
75.0	39.1	4.9	20.1	2786	43.81	48.21	26.10	-8.75	-1.45	19.41	-29.16
75.0	39.1	4.9	25.1	2774	43.62	44.42	26.07	-6.97	-4.93	20.15	-28.33
75.0	39.1	4.9	30.2	2774	43.62	40.97	24.75	-3.34	-8.01	19.36	-25.48
75.0	39.3	5.0	10.1	2794	43.06	48.98	18.43	-0.58	1.12	11.99	-19.34

TABLE 7(b)

ALPHA	VKTS	Q	DELV	GTT	CJ	CL	CD	CM	CLV	CDV	CMV
75.0	39.0	4.9	-30.0	4188	65.84	50.63	-13.95	58.23	-17.31	-14.95	35.28
75.0	39.2	4.9	-25.1	4173	65.61	55.19	-14.39	56.50	-13.98	-15.40	33.53
75.0	39.2	4.9	-20.1	4197	65.99	56.74	-13.21	51.75	-9.96	-14.36	28.82
75.0	38.8	4.9	-10.0	4187	65.83	65.74	-5.94	36.12	-3.46	-7.45	15.78
75.0	38.7	4.8	0.0	4193	67.30	70.14	6.75	16.47	0.65	3.32	-5.57
75.0	38.8	4.8	10.1	4154	66.67	71.14	19.79	-3.11	1.35	16.08	-25.89
75.0	39.0	4.9	20.2	4168	65.55	67.91	30.20	-15.54	-2.29	26.49	-39.61
75.0	39.0	4.9	25.1	4139	65.08	63.30	31.04	-13.49	-6.75	28.04	-39.47
75.0	39.1	4.9	30.4	4118	64.74	57.45	29.57	-8.23	-11.57	27.50	-36.17

TABLE 7(c)

ALPHA	VKTS	Q	DELV	GTT	CJ	CL	CD	CM	CLV	CDV	CMV
75.0	39.2	5.1	-30.0	5824	87.97	65.77	-22.01	71.02	-22.12	-19.06	45.02
75.0	39.5	5.2	-20.1	5869	86.95	72.49	-19.90	62.22	-12.62	-18.16	36.42
75.0	38.7	4.9	-10.1	5775	90.79	84.86	-13.14	45.63	-4.84	-10.37	19.18
75.0	40.0	5.2	0.0	5817	86.19	87.49	4.30	19.70	0.57	3.49	-5.78
75.0	40.5	5.3	10.1	5758	83.70	87.19	20.42	-4.18	1.53	18.79	-30.18
75.0	39.2	5.0	20.1	5739	88.43	88.03	33.84	-20.96	-3.10	33.55	-50.02
75.0	39.7	5.1	25.0	5721	86.42	81.32	35.61	-19.60	-8.55	35.50	-50.01
75.0	40.9	5.4	30.3	5203	74.23	70.86	33.17	-12.55	-13.49	33.38	-44.04
75.0	39.6	5.1	-25.1	5720	86.41	68.57	-21.93	67.79	-17.66	-19.39	42.27
75.0	39.6	5.1	-20.1	5752	86.84	73.08	-20.51	62.72	-12.75	-18.41	36.89

TABLE 8(a)

ALPHA	VKTS	Q	DELV	GIT	CJ	CL	CD	CM	CLV	CDV	CMV
95.0	39.6	5.1	-30.1	2728	41.21	37.21	6.57	43.29	-7.37	-13.45	25.71
95.0	39.8	5.1	-25.2	2743	41.44	39.09	6.53	43.47	-5.21	-13.82	25.84
95.0	39.7	5.1	-20.2	2759	41.67	41.32	8.61	39.34	-3.02	-11.52	19.70
95.0	38.1	4.7	-10.2	2747	45.03	47.13	15.75	28.77	-0.42	-5.35	9.03
95.0	39.2	4.9	0.0	2731	42.94	46.70	24.97	15.01	-0.29	3.09	-5.21
95.0	39.4	5.0	10.0	2757	42.49	44.79	31.49	5.01	-2.46	9.92	-16.52
95.0	37.4	4.5	20.0	2710	46.39	46.00	38.93	-3.04	-7.20	16.07	-26.45
95.0	39.5	5.1	24.9	2698	40.75	38.45	35.51	-1.13	-8.90	14.07	-23.12
95.0	42.1	5.7	30.1	2686	36.30	32.63	30.98	2.87	-10.00	11.06	-16.24

TABLE 8(b)

ALPHA	VKTS	Q	DELV	GTT	CJ	CL	CD	CM	CLV	CDV	CMV
95.0	40.0	5.2	-30.0	3979	58.96	51.48	5.07	54.68	-10.03	-18.23	32.17
95.0	39.9	5.1	-25.2	3999	60.41	55.20	4.68	55.12	-7.08	-18.45	31.89
95.0	39.5	5.0	-20.2	4018	61.90	59.15	7.67	50.38	-4.05	-15.83	26.96
95.0	40.1	5.2	-10.2	4013	59.46	60.98	16.95	34.74	-0.60	-7.07	11.91
95.0	37.4	4.5	0.0	3978	68.10	70.45	29.81	19.22	-0.39	3.08	-5.23
95.0	39.5	5.0	10.0	3983	61.38	61.86	39.00	3.07	-3.49	13.24	-22.05
95.0	39.5	5.0	20.0	3967	61.12	58.35	45.82	-5.58	-9.13	20.09	-33.07
95.0	39.0	4.9	24.9	3934	61.86	55.74	46.40	-6.67	-13.01	20.43	-33.60
95.0	39.0	4.9	30.1	3926	61.73	50.93	43.50	-3.22	-17.07	19.02	-31.41

TABLE 8(c)

ALPHA	VKTS	Q	DELV	GTT	CJ	CL	CD	CM	CLV	CDV	CMV
95.0	40.0	5.2	-30.1	5612	85.15	71.56	3.08	70.60	-13.66	-24.84	43.79
95.0	39.6	5.1	-25.2	5633	85.09	76.09	2.81	69.36	-9.69	-24.55	42.47
95.0	39.2	5.0	-20.2	5645	86.98	81.39	6.56	63.58	-5.52	-21.56	36.33
95.0	40.2	5.2	-10.2	5615	83.19	82.88	17.75	45.16	-0.80	-9.71	16.32
95.0	41.1	5.5	0.0	5572	78.05	79.59	31.01	19.94	-0.54	3.50	-5.57
95.0	41.7	5.6	10.0	5522	75.96	75.50	44.62	1.91	-4.18	15.57	-25.90
95.0	41.2	5.5	19.9	5526	77.40	72.08	53.78	-9.04	-11.05	23.95	-39.36
95.0	40.7	5.3	24.8	5521	80.26	70.22	55.40	-10.49	-10.35	25.20	-41.59
95.0	39.4	5.0	30.1	5489	84.57	67.63	54.73	-9.26	-22.95	25.76	-42.54

TABLE 9(a)

ALPHA	VKTS	Q	DELV	GTT	CJ	CL	CD	CM	CLV	CDV	CMV
33.0	60.7	11.7	-30.0	2816	18.54	5.44	-8.42	18.94	-7.56	0.21	11.54
33.0	60.1	11.5	-25.1	2831	18.96	6.09	-9.36	18.89	-6.93	-0.62	11.23
33.0	60.1	11.5	-20.1	2843	19.04	6.60	-10.02	17.95	-5.98	-1.40	10.14
33.0	60.0	11.5	-10.1	2813	18.85	10.56	-9.61	12.28	-2.59	-1.13	4.77
33.0	60.0	11.4	-0.1	2828	19.11	14.58	-7.96	5.71	0.71	0.51	-1.45
33.0	59.8	11.4	10.0	2811	19.00	18.23	-4.68	-1.61	3.90	3.61	-8.55
33.0	59.7	11.4	20.1	2793	18.87	20.54	-0.20	-7.58	5.93	7.80	-14.67
33.0	59.8	11.4	25.1	2785	18.82	20.34	1.78	-8.12	5.65	9.74	-15.60
33.0	60.1	11.5	30.3	2770	18.56	17.50	1.22	-4.35	3.48	9.64	-12.50

TABLE 9(b)

ALPHA	VKTS	Q	DELV	GTT	CJ	CL	CD	CM	CLV	CDV	CMV
33.0	60.0	11.4	-29.9	4179	28.24	7.28	-14.80	24.96	-10.59	0.27	16.33
33.0	60.0	11.5	-25.1	4206	28.17	8.13	-15.76	24.53	-9.63	-0.86	15.59
33.0	60.2	11.5	-20.1	4236	28.38	9.10	-16.71	23.32	-8.37	-1.99	14.22
33.0	60.0	11.4	-10.1	4221	28.53	14.21	-16.52	15.88	-3.83	-1.69	7.03
33.0	59.6	11.3	-0.1	4189	28.56	19.40	-14.44	7.14	0.61	0.49	-1.29
33.0	60.2	11.5	10.1	4181	28.01	24.06	-9.72	-2.52	4.86	4.61	-10.76
33.0	59.4	11.2	20.1	4162	28.63	27.54	-4.40	-10.55	7.74	10.25	-19.20
33.0	58.3	10.8	25.1	4162	29.69	28.13	-2.06	-12.06	7.80	13.46	-21.55
33.0	60.2	11.5	30.2	4141	27.74	23.90	-0.98	-7.98	5.04	13.71	-17.93

TABLE 9(c)

ALPHA	VKTS	Ω	DELV	GTT	CJ	CL	CD	CM	CLV	CDV	CMV
33.0	60.8	11.8	-30.0	5716	37.32	9.17	-20.99	30.36	-13.44	0.32	20.75
33.0	61.0	11.9	-25.0	5733	37.12	10.00	-22.15	29.50	-12.18	-1.18	19.76
33.0	61.0	11.9	-20.1	5607	36.30	11.52	-23.33	27.84	-10.44	-2.47	17.72
33.0	60.9	11.8	-10.1	5724	37.37	17.52	-22.86	18.67	-4.79	-2.12	8.79
33.0	61.0	11.8	0.0	5686	37.13	23.75	-20.07	8.09	0.65	0.56	-1.41
33.0	60.8	11.8	10.1	5675	37.05	29.37	-15.06	-3.55	5.76	5.50	-12.76
33.0	60.3	11.6	20.2	5414	35.96	33.38	-8.53	-13.10	9.15	12.29	-22.80
33.0	60.5	11.6	25.2	5616	37.30	33.25	-4.95	-14.54	9.04	15.78	-25.13
33.0	60.8	11.8	30.3	5581	36.44	29.78	-3.49	-11.32	6.42	17.28	-22.71

TABLE 10(a)

ALPHA	VKTS	U	DELV	GTT	CJ	CL	CD	CM	CLV	CDV	CMV
45.0	60.4	11.6	-30.0	2804	18.63	9.66	-6.52	21.31	-7.36	-1.44	11.59
45.0	60.4	11.6	-25.1	2818	18.71	10.39	-6.95	20.66	-6.49	-2.08	11.01
45.0	60.4	11.6	-20.1	2798	18.58	11.64	-7.05	19.08	-5.12	-2.38	9.33
45.0	60.2	11.5	-10.1	2791	18.70	15.16	-5.75	13.27	-1.90	-1.33	3.93
45.0	59.7	11.3	0.0	2803	19.11	19.34	-3.28	6.41	1.14	1.16	-2.69
45.0	59.7	11.4	10.1	2803	18.94	22.13	0.80	-1.11	3.66	5.05	-10.06
45.0	59.6	11.3	20.1	2787	19.00	23.41	5.45	-6.24	4.55	9.61	-15.86
45.0	59.9	11.4	25.1	2780	18.79	22.18	7.22	-6.82	3.53	11.46	-16.53
45.0	59.8	11.4	30.2	2777	18.77	19.71	5.66	-2.51	1.50	10.27	-12.72

TABLE 10(b)

ALPHA	VKTS	Q	DELV	GTT	CJ	CL	CD	CM	CLV	CDV	CMV
45.0	60.0	11.4	-29.9	4180	28.25	13.18	-12.15	27.53	-10.41	-2.02	10.40
45.0	60.1	11.4	-25.1	4178	28.23	14.42	-13.04	27.07	-9.23	-2.93	15.03
45.0	60.3	11.5	-20.1	4204	28.16	15.70	-13.28	25.08	-7.45	-3.49	15.59
45.0	60.1	11.4	-10.1	4213	28.47	20.71	-11.93	17.47	-3.04	-2.15	6.27
45.0	60.0	11.4	-0.1	4176	28.22	25.58	-8.36	8.19	1.00	1.09	-2.44
45.0	59.6	11.3	10.1	4170	28.43	29.40	-3.03	-1.69	4.43	6.30	-12.38
45.0	59.9	11.4	20.1	4161	28.12	30.95	3.39	-8.93	5.80	12.32	-20.30
45.0	59.8	11.4	25.2	4150	28.04	29.90	5.95	-10.08	4.80	15.11	-21.89
45.0	60.4	11.6	30.2	4143	27.51	26.69	5.25	-6.17	2.18	14.65	-18.20
45.0	59.6	11.3	-10.1	4212	28.72	20.81	-12.01	17.66	-3.12	-2.14	6.44

TABLE 10(c)

ALPHA	VKTS	Q	DELV	GTT	CJ	CL	CD	CM	CLV	CDV	CMV
45.0	60.4	11.6	-29.9	5701	37.86	16.80	-18.06	33.47	-13.29	-2.59	20.95
45.0	60.3	11.6	-25.1	5697	37.89	18.21	-19.02	32.50	-11.74	-3.69	19.86
45.0	60.6	11.7	-20.1	5746	37.85	19.91	-19.54	30.37	-9.59	-4.52	17.50
45.0	60.4	11.6	-10.1	5726	38.03	25.84	-17.97	20.77	-4.06	-2.88	8.37
45.0	59.4	11.2	-0.1	5665	38.97	32.52	-14.46	9.90	0.91	1.07	-2.52
45.0	59.8	11.4	10.1	5065	38.28	36.91	-7.49	-2.56	5.12	1.41	-14.44
45.0	59.9	11.4	20.1	5621	37.99	39.14	0.46	-11.80	6.98	14.98	-24.60
45.0	59.6	11.3	25.1	5606	38.22	38.12	3.70	-13.49	6.08	18.66	-27.16
45.0	60.1	11.4	30.2	5579	37.70	34.84	4.68	-10.67	5.12	19.76	-24.80

TABLE 11(a)

ALPHA	VKTS	Q	DELV	GIT	CJ	CL	CD	CM	CLV	CDV	CMV
55.0	60.8	12.1	-29.9	2949	18.77	12.84	-3.86	22.19	-6.90	-2.70	11.46
55.0	60.6	12.0	-25.1	2969	19.06	15.76	-4.35	22.02	-6.03	-3.20	10.98
55.0	60.4	12.0	-20.0	2958	18.99	15.29	-3.94	19.67	-4.43	-2.98	8.82
55.0	59.5	11.6	-10.0	2946	19.57	19.27	-2.19	13.90	-1.50	-1.20	5.03
55.0	59.0	11.4	0.0	2937	19.85	22.71	1.14	6.64	1.40	2.00	-4.04
55.0	60.3	11.9	10.1	2944	19.06	24.30	5.95	-0.65	3.20	6.25	-11.32
55.0	59.6	11.6	20.1	2931	19.46	24.06	9.30	-3.72	2.48	9.92	-15.15
55.0	59.4	11.6	25.1	2958	19.51	22.85	11.10	-4.77	1.22	11.65	-16.01
55.0	60.5	12.0	30.2	2955	18.84	20.44	9.12	-0.29	-0.36	9.89	-12.06

TABLE 11(b)

ALPHA	VKTS	Q	DELV	GTT	CJ	CL	CD	CM	CLV	CDV	CMV
55.0	59.9	11.8	-29.9	4480	29.25	17.69	-9.53	29.89	-10.30	-3.95	17.04
55.0	60.2	11.9	-25.1	4496	29.10	18.99	-9.91	28.93	-8.71	-4.60	15.87
55.0	60.1	11.9	-20.0	4542	29.41	20.94	-9.91	26.36	-6.65	-4.60	13.35
55.0	58.9	11.4	-10.1	4518	30.53	26.23	-7.95	18.65	-2.45	-2.36	5.75
55.0	59.5	11.6	0.0	4496	29.86	30.29	-2.81	8.68	1.30	2.00	-3.93
55.0	59.0	11.4	10.1	4468	30.19	33.60	3.22	-1.42	3.83	8.03	-14.29
55.0	60.7	12.1	20.2	4481	28.53	32.29	8.78	-6.49	3.54	13.04	-20.06
55.0	59.4	11.6	25.1	4449	29.55	31.59	11.51	-8.53	1.79	16.08	-22.16
55.0	60.7	12.1	30.2	4454	28.56	28.09	9.94	-5.87	-0.45	14.60	-17.90

TABLE 11(c)

ALPHA	VKTS	U	DELV	GIT	CJ	CL	CD	CM	CLV	CDV	CMV
55.0	59.2	11.7	-29.8	6113	40.25	23.33	-15.47	36.67	-13.37	-5.10	22.10
55.0	59.2	11.7	-25.1	6071	39.98	24.92	-16.20	35.76	-11.46	-5.95	20.78
55.0	59.2	11.7	-20.0	6139	40.42	27.16	-16.19	32.75	-8.62	-6.14	17.72
55.0	59.2	11.7	-10.0	6113	40.25	32.92	-13.04	22.53	-3.37	-3.26	7.90
55.0	58.3	11.5	0.0	6166	42.04	34.64	-8.27	10.69	1.19	2.00	-3.81
55.0	60.0	11.9	10.1	6105	39.53	41.60	0.78	-2.70	4.39	9.41	-16.64
55.0	59.5	11.7	20.1	6079	40.03	42.41	7.93	-10.07	4.55	16.98	-26.08
55.0	59.2	11.5	25.1	6051	40.54	40.95	11.21	-12.02	2.37	20.43	-28.21
55.0	59.5	11.6	30.3	6044	40.14	37.56	10.93	-8.75	-0.49	20.50	-25.27

TABLE 12(a)

ALPHA	VKTS	Q	DELV	GTT	CJ	CL	CD	CM	CLV	CDV	CMV
65.0	60.0	11.7	-29.9	2889	19.02	15.55	-0.80	23.14	-6.23	-3.86	11.35
65.0	60.1	11.7	-25.0	2896	19.07	16.67	-0.73	22.10	-4.98	-3.89	10.16
65.0	60.0	11.7	-20.0	2888	19.02	18.38	-0.01	19.79	-3.42	-3.24	7.80
65.0	59.4	11.4	-10.0	2877	19.44	21.69	2.45	13.82	-0.73	-0.92	2.05
65.0	59.5	11.5	0.0	2893	19.38	23.97	6.11	7.12	1.26	2.50	-4.60
65.0	59.1	11.4	10.2	2887	19.51	25.06	10.23	0.82	2.09	6.60	-11.18
65.0	59.4	11.5	20.2	2889	19.35	23.72	13.16	-1.60	0.68	9.60	-14.28
65.0	59.5	11.5	25.1	2885	19.33	22.14	12.81	-0.17	-0.81	9.42	-12.83
65.0	60.2	11.8	30.3	2890	18.87	20.67	11.90	1.99	-1.89	8.67	-10.81

TABLE 12(b)

ALPHA	VKTS	Q	DELV	GTT	CJ	CL	CD	CM	CLV	CDV	CMV
65.0	60.6	11.9	-29.9	4350	28.16	20.85	-4.73	30.00	-8.86	-5.48	16.15
65.0	60.9	12.0	-25.0	4363	28.01	22.01	-4.82	28.56	-7.14	-5.71	14.75
65.0	60.7	12.0	-20.0	4388	28.17	24.01	-4.24	25.72	-5.12	-5.04	11.87
65.0	60.2	11.7	-10.1	4385	28.87	28.73	-1.12	18.55	-1.57	-2.11	4.47
65.0	58.8	11.2	0.0	4345	29.89	33.05	3.65	9.13	1.22	2.68	-4.85
65.0	59.2	11.4	10.1	4330	29.26	34.01	9.72	0.32	2.53	8.54	-14.32
65.0	59.7	11.6	20.0	4312	28.64	32.30	14.20	-4.13	1.15	12.96	-19.31
65.0	59.9	11.6	25.1	4324	28.72	30.13	14.84	-3.55	-1.16	13.61	-18.52
65.0	60.4	11.8	30.3	4311	28.15	28.15	13.64	-0.35	-2.71	12.67	-15.81

TABLE 12(c)

ALPHA	VKTS	Q	DELV	GTT	CJ	CL	CD	CM	CLV	CDV	CMV
65.0	59.7	11.7	-29.9	5971	39.32	27.41	-10.02	37.80	-12.05	-7.36	21.86
65.0	59.5	11.6	-25.0	5971	39.65	29.51	-10.52	36.63	-9.94	-7.85	20.41
65.0	59.9	11.7	-20.1	6026	39.68	31.86	-9.63	33.17	-7.23	-7.18	16.82
65.0	59.5	11.5	-10.0	6006	40.24	37.30	-5.67	23.04	-2.45	-3.32	6.95
65.0	60.4	11.9	0.0	5945	38.49	40.31	1.57	10.44	1.19	2.77	-4.95
65.0	59.7	11.6	10.2	5909	39.24	43.12	8.89	-0.89	2.92	10.32	-17.19
65.0	60.8	12.0	20.2	5870	37.68	40.40	14.82	-6.41	1.36	16.03	-23.80
65.0	59.9	11.7	25.1	5865	38.62	38.61	16.17	-6.79	-1.42	17.81	-24.29
65.0	60.4	11.8	30.2	5845	38.16	36.08	15.53	-3.68	-3.61	17.26	-21.61

TABLE 13

ALPHA	VKTS	Q	DELV	GTT	CJ	CL	CD	CM	CLV	CDV	CMV
75.0	60.0	11.4	-30.0	2844	19.22	16.99	2.15	24.73	-5.72	-5.17	11.97
75.0	60.1	11.5	-25.3	2857	19.14	18.09	2.49	23.56	-4.47	-5.02	10.84
75.0	59.9	11.4	-20.2	2874	19.42	20.06	3.83	20.81	-2.90	-3.91	8.07
75.0	59.2	11.1	-10.2	2839	19.70	23.15	7.38	14.18	-0.51	-0.87	1.76
75.0	59.4	11.2	0.0	2834	19.50	24.58	11.93	6.79	0.90	3.26	-5.61
75.0	59.9	11.4	9.9	2824	19.08	24.45	15.92	1.19	0.80	6.94	-11.29
75.0	60.3	11.5	24.8	2821	18.90	21.47	16.98	0.96	-2.27	8.99	-12.65
75.0	59.8	11.4	30.1	2791	18.86	20.33	15.77	3.18	-3.40	8.25	-10.87
75.0	59.8	11.4	24.9	2832	19.14	21.65	17.21	0.74	-2.33	9.19	-12.93
75.0	59.8	11.4	19.9	2836	19.17	23.28	17.52	-0.55	-0.70	9.21	-13.80

TABLE 14(a)

ALPHA	VKTS	Q	DELV	GIT	CJ	CL	CD	CM	CLV	CDV	CMV
20.0	79.7	20.5	-30.0	2959	11.12	0.74	-4.15	10.98	-4.38	1.14	6.98
20.0	79.8	20.5	-25.2	2990	11.24	0.88	-4.71	11.01	-4.27	0.61	6.96
20.0	80.1	20.7	-20.2	2997	11.16	0.99	-5.13	10.67	-3.96	-0.03	6.56
20.0	79.8	20.5	-10.2	2983	11.21	3.37	-5.60	7.14	-1.86	-0.38	3.19
20.0	79.8	20.5	0.0	2967	11.15	5.99	-5.07	2.97	0.38	0.15	-0.69
20.0	79.5	20.3	10.0	2951	11.20	8.71	-5.67	-1.51	2.69	1.54	-4.99
20.0	78.9	20.1	20.0	2920	11.19	11.02	-1.28	-5.45	4.56	3.78	-8.86
20.0	79.5	20.3	25.0	2922	11.09	10.98	-0.13	-5.71	4.57	4.88	-9.27
20.0	79.4	20.4	30.2	2934	11.08	9.09	-0.20	-3.23	3.29	5.13	-7.44

TABLE 14(b)

ALPHA	VKTS	Q	DELV	GIT	CJ	CL	CD	CM	CLV	CDV	CMV
20.0	80.2	20.6	-30.1	4189	15.67	0.77	-7.06	13.79	-5.87	1.54	9.36
20.0	80.0	20.5	-25.1	4222	15.87	0.89	-7.84	13.76	-5.72	0.79	9.32
20.0	80.2	20.6	-20.3	4253	15.91	1.22	-8.53	13.42	-5.24	-0.05	8.65
20.0	80.0	20.5	-10.2	4242	15.94	4.24	-9.05	8.72	-2.47	-0.51	4.22
20.0	79.6	20.3	0.0	4247	16.12	7.53	-8.58	3.53	0.36	0.16	-0.67
20.0	80.0	20.5	10.0	4223	15.87	10.83	-6.65	-2.13	3.30	1.91	-6.15
20.0	80.2	20.6	20.0	4194	15.69	13.48	-3.65	-6.90	5.62	4.67	-10.94
20.0	80.1	20.5	25.0	4189	15.74	13.70	-2.15	-7.47	5.77	6.18	-11.72
20.0	80.1	20.5	30.2	4175	15.69	11.67	-1.89	-4.93	4.40	6.81	-9.92

TABLE 14(c)

ALPHA	VKTS	Q	DELV	GIT	CJ	CL	CD	CM	CLV	CDV	CMV
20.0	79.8	20.5	-30.0	5741	21.58	0.76	-11.04	17.31	-7.78	1.99	12.41
20.0	80.1	20.6	-25.2	5758	21.53	1.05	-11.93	17.21	-7.43	1.02	12.11
20.0	79.4	20.2	-20.2	5786	22.07	1.65	-13.19	16.70	-6.78	-0.05	11.19
20.0	78.2	19.6	-10.2	5744	22.58	5.50	-14.13	10.82	-3.29	-0.67	5.61
20.0	80.1	20.6	0.1	5724	21.41	9.30	-12.46	3.96	0.42	0.21	-0.80
20.0	79.8	20.4	10.0	5698	21.52	13.37	-10.46	-2.91	4.02	2.34	-7.47
20.0	79.3	20.1	20.0	5647	21.64	16.72	-6.90	-8.83	6.95	5.83	-13.54
20.0	79.6	20.3	25.0	5651	21.45	16.75	-4.91	-9.47	7.11	7.72	-14.53
20.0	80.1	20.5	30.1	5599	21.04	14.60	-4.09	-6.85	5.65	8.65	-12.72

TABLE 15(a)

ALPHA	VKTS	Q	DELV	GIT	CJ	CL	CD	CM	CLV	CDV	CMV
60.0	80.5	20.7	-30.1	2950	10.98	10.23	1.82	15.17	-3.71	-1.75	6.51
60.0	80.2	20.5	-25.3	2965	11.14	11.11	1.86	14.27	-2.90	-1.77	5.45
60.0	79.8	20.3	-20.3	2925	11.10	12.17	2.45	12.45	-1.85	-1.36	3.81
60.0	78.8	19.8	-10.2	2897	11.27	14.60	4.02	8.52	0.04	0.09	-0.07
60.0	78.8	19.9	0.0	2938	11.38	16.29	6.05	4.55	1.40	2.05	-4.07
60.0	79.9	20.4	9.9	2953	11.08	16.40	8.37	1.26	1.76	4.55	-7.56
60.0	80.2	20.5	19.8	2807	10.55	15.01	9.73	0.68	0.79	5.54	-8.31
60.0	80.1	20.5	24.9	2821	10.60	14.30	9.75	1.20	0.08	5.82	-7.98
60.0	80.3	20.6	30.1	2811	10.51	13.49	9.16	2.52	-0.62	5.34	-6.65

TABLE 15(b)

ALPHA	VKTS	Q	DELV	GTT	CJ	CL	CD	CM	CLV	CDV	CMV
60.0	80.4	20.5	-25.3	3415	12.83	12.41	0.54	16.77	-3.73	-2.34	7.06
60.0	80.3	20.5	-20.2	3677	13.82	13.77	1.00	14.90	-2.49	-1.91	5.20
60.0	79.7	20.2	-10.3	3530	15.46	16.44	2.93	10.11	-0.26	-0.22	0.64
60.0	79.0	19.8	-0.1	3626	14.11	18.55	5.40	5.27	1.40	2 16	-4.22
60.0	80.6	20.6	9.9	3624	13.55	18.86	8.18	1.22	2.10	4.79	-8.45
60.0	79.8	20.2	19.9	3611	13.77	17.99	10.17	-0.34	0.99	6.98	-10.45
60.0	80.3	20.5	24.9	3625	13.62	17.02	10.63	-0.01	0.11	7.39	-10.14

TABLE 15(c)

ALPHA	VKTS	U	DELV	GTT	CJ	CL	CD	CM	CLV	CDV	CMV
60.0	80.3	20.6	-30.1	4430	16.57	13.07	-0.78	19.87	-5.48	-2.71	9.47
60.0	80.2	20.5	-25.2	4470	16.80	14.15	-0.97	19.26	-4.55	-2.92	8.69
60.0	80.2	20.5	-20.2	4497	16.90	15.57	-0.42	17.12	-3.14	-2.47	6.61
60.0	79.1	20.0	-10.3	4463	17.19	18.70	1.49	11.97	-0.63	-0.63	1.56
60.0	80.5	20.6	0.0	4458	16.67	20.58	4.79	5.81	1.37	2.21	-4.27
60.0	79.9	20.3	9.9	4424	16.79	21.81	7.92	1.04	2.56	5.51	-9.67
60.0	79.6	20.1	19.9	4405	16.88	20.92	10.58	-1.28	1.19	8.18	-12.22
60.0	80.1	20.4	24.9	4397	16.61	19.63	11.15	-1.02	0.11	8.78	-12.00
60.0	80.9	20.8	30.0	4378	16.21	18.23	10.12	1.47	-0.91	7.88	-9.76

TABLE 16(a)

ALPHA	VKTS	Q	DELV	GTT	CJ	CL	CD	CM	CLV	CDV	CMV
5.0	99.9	32.6	-29.9	3152	7.45	-2.13	-1.57	5.95	-2.84	1.67	5.06
5.0	100.2	32.8	-25.1	3172	7.45	-2.15	-1.96	5.88	-2.85	1.24	5.01
5.0	99.9	32.6	-20.2	3208	7.58	-2.43	-2.35	6.31	-3.03	0.79	5.17
5.0	100.1	32.7	-10.1	3207	7.55	-0.86	-3.15	3.64	-1.59	0.09	2.66
5.0	100.2	32.7	-0.1	3187	7.51	0.90	-3.30	0.83	0.00	0.03	-0.03
5.0	100.1	32.6	10.0	3164	7.48	2.80	-2.92	-2.26	1.75	0.51	-2.93
5.0	100.2	32.7	20.1	3128	7.37	4.54	-1.79	-4.99	3.37	1.53	-5.55
5.0	100.3	32.8	25.0	3137	7.37	4.54	-1.14	-4.89	3.56	2.20	-5.55
5.0	100.2	32.7	30.1	3111	7.33	5.63	-0.39	-3.53	2.70	2.52	-4.46

TABLE 16(b)

ALPHA	VKTS	Q	DELV	GTT	CJ	CL	CD	CM	CLV	CDV	CMV
5.0	100.8	33.3	-30.0	4575	10.58	-2.84	-3.36	7.87	-3.84	2.21	6.82
5.0	101.0	33.4	-25.1	4589	10.58	-2.86	-3.85	7.73	-3.81	1.65	6.69
5.0	101.2	33.5	-20.2	4620	10.62	-3.05	-4.35	8.01	-3.89	1.02	6.64
5.0	101.3	33.6	-10.1	4652	10.62	-1.04	-5.36	4.49	-1.98	0.12	3.31
5.0	101.9	33.6	-0.1	4603	10.55	1.15	-5.57	0.96	0.01	0.05	-0.05
5.0	101.3	33.5	10.0	4569	10.51	3.46	-5.03	-2.89	2.20	0.64	-3.67
5.0	100.8	33.2	20.1	4513	10.47	5.69	-3.70	-6.32	4.24	1.96	-6.98
5.0	101.2	33.4	25.0	4497	10.37	5.79	-2.76	-6.42	4.37	2.88	-7.20
5.0	101.0	33.3	30.2	4488	10.38	4.79	-2.33	-4.91	3.67	3.43	-6.09

TABLE 16(c)

ALPHA	VKTS	Q	DELV	GTT	CJ	CL	CD	CM	CLV	CDV	CMV
5.0	100.2	33.5	-29.9	6322	14.54	-3.52	-5.75	9.98	-4.97	2.83	8.82
5.0	100.2	33.4	-25.0	6308	14.55	-3.64	-6.40	9.95	-4.94	2.11	8.67
5.0	100.4	33.5	-20.1	6364	14.64	-3.76	-6.97	9.93	-4.88	1.29	8.53
5.0	100.3	33.4	-10.1	6323	14.58	-1.16	-8.33	5.50	-2.46	0.17	4.11
5.0	100.6	33.5	-0.1	6235	14.34	1.44	-8.46	1.00	0.05	0.08	-0.12
5.0	100.7	33.5	10.1	6181	14.22	4.28	-7.78	-3.70	2.76	0.80	-4.60
5.0	100.5	33.3	20.0	6143	14.21	6.96	-6.12	-7.78	5.21	2.44	-8.57
5.0	100.6	33.3	25.0	6125	14.17	7.22	-4.89	-8.28	5.53	3.66	-9.12
5.0	100.8	33.4	30.2	6065	13.99	6.11	-4.14	-6.50	4.77	4.41	-7.92

TABLE 17(a)

ALPHA	VKTS	U	DELV	TT	CJ	CL	CD	CM	CLV	CDV	CMV
20.0	100.3	32.8	-30.1	3202	7.52	0.84	-1.85	8.37	-3.12	0.85	4.96
20.0	100.1	32.7	-25.3	3193	7.52	0.91	-2.18	8.32	-3.00	0.46	4.88
20.0	100.2	32.7	-20.2	3227	7.60	0.99	-2.58	8.28	-2.86	0.00	4.73
20.0	100.4	32.9	-20.2	3216	7.53	0.99	-2.53	8.23	-2.85	0.00	4.69
20.0	100.6	33.0	-10.3	3211	7.50	2.73	-2.77	5.63	-1.30	-0.25	2.23
20.0	100.2	32.8	0.0	3178	7.46	4.72	-2.41	2.50	0.30	0.14	-0.64
20.0	100.1	32.7	10.0	3182	7.50	6.84	-1.27	-0.91	2.08	1.18	-3.84
20.0	100.3	32.8	19.9	3162	7.43	8.34	0.45	-3.56	3.29	2.73	-6.59
20.0	100.3	32.8	24.9	3155	7.41	8.08	1.17	-3.42	3.14	3.48	-6.46
20.0	100.4	32.9	30.1	3153	7.38	6.86	1.01	-1.74	2.30	3.55	-5.18

TABLE 17(b)

ALPHA	VKTS	W	DELV	GTT	CJ	CL	CD	CM	CLV	CDV	CMV
20.0	100.2	33.0	-30.1	4639	10.83	0.78	-3.82	10.59	-4.24	1.11	6.76
20.0	99.8	32.7	-25.2	4607	10.85	0.91	-4.32	10.54	-4.05	0.60	6.59
20.0	100.2	32.9	-20.2	4629	10.84	1.14	-4.73	10.22	-3.74	0.00	6.17
20.0	100.2	32.9	-10.2	4577	10.72	3.33	-5.01	6.80	-1.72	-0.35	2.95
20.0	100.0	32.8	0.0	4560	10.71	5.78	-4.53	2.93	0.35	0.10	-0.65
20.0	100.0	32.8	9.9	4615	10.84	8.38	-3.29	-1.29	2.51	1.45	-4.66
20.0	100.5	33.0	19.9	4577	10.69	10.30	-1.05	-4.73	4.13	3.45	-6.02
20.0	100.7	33.1	24.9	4563	10.62	10.23	0.01	-4.95	4.11	4.52	-8.43
20.0	100.2	32.8	30.1	4547	10.68	8.84	0.01	-3.01	3.13	4.81	-7.04

TABLE 17(c)

ALPHA	VKTS	W	DELV	GTT	CJ	CL	CD	CM	CLV	CDV	CMV
20.0	98.9	32.8	-30.0	6493	15.25	0.85	-6.66	13.33	-5.65	1.47	9.01
20.0	99.0	32.9	-25.2	6517	15.26	1.04	-7.29	13.17	-5.35	0.77	8.70
20.0	99.2	32.9	-20.3	6510	15.24	1.40	-7.84	12.67	-4.85	0.04	7.99
20.0	99.4	33.0	-10.2	6494	15.16	4.13	-8.22	8.18	-2.24	-0.42	5.82
20.0	99.5	33.0	-0.1	6419	14.99	7.09	-7.60	3.37	0.55	0.19	-0.65
20.0	99.6	32.9	9.9	6273	14.69	10.07	-5.75	-1.69	2.97	1.75	-5.51
20.0	99.9	33.0	19.9	6177	14.42	12.37	-2.97	-5.91	4.98	4.19	-9.67
20.0	99.7	32.8	24.9	6267	14.72	12.55	-1.78	-6.40	5.11	5.64	-10.50
20.0	100.1	33.0	30.1	6242	14.57	10.95	-1.3[illegible]	-4.48	4.03	6.16	-9.06

TABLE 17(d)

ALPHA	VKTS	Q	DELV	GTT	CJ	CL	CD	CM	CLV	CDV	CMV
20.0	100.0	32.5	-30.0	6162	14.61	0.84	-6.30	12.96	-5.48	1.42	8.74
20.0	100.4	32.7	-25.2	6198	14.60	1.02	-6.88	12.86	-5.16	0.74	8.40
20.0	100.5	32.7	-20.1	6232	14.68	1.32	-7.53	12.37	-4.72	0.00	7.80

TABLE 18(a)

ALPHA	VKTS	Q	DELV	GTT	CJ	CL	CD	CM	CLV	CDV	CMV
45.0	100.2	32.4	-30.1	3221	7.66	5.99	0.38	11.49	-3.10	-0.58	4.87
45.0	100.2	32.4	-25.2	3254	7.74	6.28	0.14	11.33	-2.78	-0.87	4.68
45.0	100.2	32.4	-20.2	3256	7.74	7.19	0.27	10.15	-1.97	-0.84	3.55
45.0	99.7	32.1	-10.2	3237	7.77	9.23	1.05	7.02	-0.27	-0.17	0.59
45.0	99.9	32.2	0.0	3242	7.76	11.22	2.67	3.25	1.35	1.20	-2.98
45.0	98.2	31.2	10.0	3216	7.94	12.73	4.72	-0.34	2.43	3.15	-6.45
45.0	96.5	30.1	20.0	3183	8.15	12.73	6.48	-1.82	2.23	5.09	-8.27
45.0	100.7	32.7	24.9	3233	7.62	11.24	6.13	-0.11	1.57	4.71	-6.74
45.0	101.3	33.1	30.2	3240	7.54	10.32	5.47	1.49	0.62	4.26	-5.30
45.0	100.4	32.6	19.9	3234	7.64	12.19	6.36	-1.44	2.08	4.77	-7.14

TABLE 18(b)

ALPHA	VKTS	Q	DELV	GTT	CJ	CL	CD	CM	CLV	CDV	CMV
45.0	100.3	32.6	-30.1	4528	10.70	7.10	-1.24	13.99	-4.14	-0.81	6.53
45.0	100.5	32.8	-25.2	4558	10.71	7.42	-1.55	13.80	-3.69	-1.19	6.25
45.0	100.6	32.8	-20.2	4558	10.70	8.40	-1.46	12.50	-2.77	-1.23	5.02
45.0	99.8	32.3	-10.2	4576	10.91	10.96	-0.55	8.66	-0.65	-0.42	1.54
45.0	100.1	32.5	0.0	4535	10.75	13.27	1.39	4.08	1.30	1.23	-2.96
45.0	98.3	31.3	20.0	4484	11.05	15.46	6.51	-2.94	2.80	6.31	-10.24
45.0	101.7	33.5	19.9	4523	10.40	14.80	6.50	-2.65	2.67	6.02	-9.77
45.0	100.5	32.6	25.0	4488	10.61	13.69	6.36	-1.34	1.79	6.24	-8.89
45.0	100.8	32.8	30.1	4464	10.49	12.82	5.67	0.52	0.88	5.78	-7.21
45.0	100.6	32.7	-25.2	4498	10.60	7.38	-1.50	13.74	-3.68	-1.19	6.25

TABLE 18(c)

ALPHA	VKTS	U	DELV	GTI	CJ	CL	CD	CM	CLV	CDV	CMV
45.0	100.3	32.8	-30.0	5221	12.26	7.67	-2.07	15.14	-4.70	-0.93	7.42
45.0	100.5	32.9	-25.2	5245	12.28	8.08	-2.48	14.88	-4.14	-1.34	7.02
45.0	100.1	32.6	-20.2	5263	12.44	9.18	-2.50	13.68	-3.18	-1.44	5.79
45.0	100.4	32.8	-10.2	5255	12.34	11.79	-1.39	9.45	-0.86	-0.56	1.75
45.0	99.4	32.1	0.0	5199	12.48	14.47	0.57	4.56	1.26	1.23	-2.91
45.0	99.9	32.4	10.0	5200	12.36	16.42	3.51	-0.57	2.97	3.89	-7.89
45.0	99.1	31.8	19.9	5172	12.53	16.72	6.33	-3.12	3.05	6.80	-11.04
45.0	99.8	32.3	24.9	5170	12.33	15.46	6.51	-2.25	2.07	7.17	-10.23
45.0	100.6	32.8	30.1	5157	12.11	14.10	5.67	0.02	0.99	6.52	-8.14
45.0	100.7	32.9	-20.2	5263	12.52	9.08	-2.41	13.67	-3.21	-1.44	5.82

TABLE 19(a)

ALPHA	VKTS	Q	DELV	GTT	CJ	CL	CD	CM	CLV	CDV	CMV
60.0	100.5	32.7	-30.1	3308	7.79	8.58	3.32	11.61	-2.42	-1.15	4.13
60.0	100.4	32.7	-25.2	3270	7.70	9.30	3.47	10.74	-1.74	-1.06	3.29
60.0	100.1	32.5	-20.2	3266	7.74	10.12	3.82	9.59	-1.02	-0.74	2.14
60.0	99.2	31.9	-10.2	3258	7.87	11.89	5.06	6.65	0.55	0.33	-0.71
60.0	100.5	32.7	0.0	3200	7.68	12.76	6.73	3.52	1.24	1.88	-3.73
60.0	99.2	31.8	10.0	3247	7.87	12.83	8.15	1.76	1.23	3.40	-5.85
60.0	98.8	31.6	20.0	3198	7.80	12.23	8.85	1.54	0.58	4.26	-6.36
60.0	99.9	32.3	25.0	3242	7.73	11.63	8.77	2.03	0.07	4.32	-5.94
60.0	100.5	32.7	30.1	3216	7.58	10.97	8.18	3.11	-0.45	3.88	-4.85
60.0	99.9	32.5	10.0	3256	7.76	12.74	8.13	1.78	1.22	3.38	-5.82

TABLE 19(b)

ALPHA	VKTS	Q	DELV	GTT	CJ	CL	CD	CM	CLV	CDV	CMV
60.0	99.9	30.5	-30.1	3819	9.65	9.46	2.45	13.68	-3.20	-1.55	5.49
60.0	99.7	30.4	-25.2	3815	9.67	10.36	2.62	12.66	-2.35	-1.46	4.47
60.0	100.3	30.8	-20.2	3825	9.57	11.31	3.09	11.19	-1.45	-1.09	3.05
60.0	99.5	30.4	-10.2	3814	9.66	13.33	4.53	7.58	0.22	0.22	-0.42
60.0	99.3	30.4	0.0	3815	9.67	14.64	6.30	4.13	1.34	1.92	-3.84
60.0	99.3	30.3	10.0	3798	9.66	14.78	8.54	1.41	1.51	3.97	-6.88
60.0	99.5	30.5	20.0	3788	9.57	13.88	9.26	1.05	0.66	5.01	-7.46
60.0	99.2	30.3	24.9	3805	9.67	13.38	9.39	1.57	0.08	5.27	-7.24
60.0	99.6	30.6	30.1	3780	9.52	12.63	8.76	2.75	-0.54	4.74	-5.98

TABLE 19(c)

ALPHA	VKTS	Q	DELV	GTT	CJ	CL	CD	CM	CLV	CDV	CMV
60.0	100.0	32.4	-30.1	4566	10.86	10.04	1.94	14.87	-3.63	-1.76	6.23
60.0	99.9	32.3	-25.3	4601	10.97	10.93	1.99	13.99	-2.80	-1.75	5.52
60.0	99.6	32.1	-20.2	4620	11.09	12.13	2.44	12.39	-1.79	-1.36	5.16
60.0	99.6	32.1	-10.2	4606	11.05	14.22	4.10	8.35	0.06	0.08	-0.08
60.0	101.1	33.0	0.0	4584	10.70	15.38	6.11	4.36	1.34	1.95	-3.88
60.0	99.7	32.1	9.9	4560	10.94	16.03	8.30	1.54	1.69	4.19	-7.51
60.0	100.6	32.7	19.9	4555	10.73	14.90	9.47	0.72	0.77	5.46	-8.18

TABLE 20

ALPHA	VKTS	Q	DELV	GTT	CJ	CL	CD	CM	CLV	CDV	CMV
75.0	99.6	31.4	-30.2	3177	7.79	9.50	5.64	12.84	-2.11	-1.78	4.24
75.0	99.7	31.3	-25.2	3172	7.81	10.25	6.20	11.78	-1.41	-1.39	3.18
75.0	99.4	31.1	-20.3	3180	7.88	11.03	6.90	10.41	-0.73	-0.81	1.83
75.0	99.8	31.5	-10.2	3160	7.73	12.18	8.79	6.99	0.35	0.74	-1.29
75.0	100.3	31.8	0.0	3203	7.76	12.69	10.67	3.89	0.90	2.60	-4.56
75.0	99.7	31.4	9.9	3121	7.66	12.52	11.73	2.41	0.57	3.90	-6.38
75.0	100.0	31.5	19.9	3101	7.59	11.55	11.52	2.90	-0.52	3.98	-5.92
75.0	100.5	31.8	24.8	3097	7.50	10.98	10.85	4.01	-0.94	3.46	-4.86
75.0	100.8	32.0	30.0	3072	7.40	10.49	10.48	4.58	-1.32	3.29	-4.35
75.0	99.1	31.0	10.0	3123	7.76	12.67	11.82	2.39	0.58	3.91	-6.38

TABLE 21(a)

ALPHA	VKTS	U	DELV	GIT	CJ	CL	CD	CM	CLV	CDV	CMV
0.0	121.4	48.0	-30.1	3421	5.49	-2.53	-0.25	4.13	-2.13	1.53	4.03
0.0	121.0	47.6	-25.2	3422	5.54	-2.65	-0.57	4.19	-2.17	1.18	3.97
0.0	121.0	47.6	-20.2	3464	5.61	-2.89	-0.84	4.45	-2.35	0.84	4.12
0.0	120.8	47.5	-10.2	3449	5.59	-1.74	-1.60	2.48	-1.37	0.17	2.50
0.0	121.1	47.7	0.0	3435	5.55	-0.31	-1.90	0.13	-0.10	0.01	0.14
0.0	120.9	47.5	10.0	3408	5.53	1.19	-1.74	-2.28	1.27	0.25	-2.08
0.0	120.9	47.5	19.9	3366	5.46	2.66	-1.10	-4.40	2.60	0.89	-4.14
0.0	120.5	47.2	24.9	3371	5.50	2.65	-0.66	-4.35	2.63	1.37	-4.11
0.0	120.9	47.5	30.1	3350	5.43	1.94	-0.41	-3.18	2.10	1.62	-3.23

TABLE 21(b)

ALPHA	VKTS	Q	DELV	GTT	CJ	LL	CD	CM	CLV	CDV	CMV
0.0	120.4	47.5	-30.1	4906	7.96	-3.30	-1.46	5.56	-2.91	2.04	5.49
0.0	120.1	47.3	-25.2	4923	8.02	-3.32	-1.94	5.56	-2.87	1.54	5.25
0.0	120.3	47.4	-20.3	4968	8.07	-3.62	-2.29	5.79	-3.06	1.09	5.56
0.0	120.6	47.7	-10.2	4950	8.00	-2.08	-3.23	2.99	-1.68	0.22	2.81
0.0	120.6	47.5	0.0	4908	7.96	-0.29	-3.59	0.14	-0.07	0.03	0.10
0.0	120.6	47.4	10.0	4859	7.90	1.57	-3.38	-2.90	1.64	0.33	-2.09
0.0	119.9	46.9	19.9	4298	7.06	3.41	-2.60	-5.60	3.36	1.18	-5.35
0.0	120.5	47.4	25.0	4806	7.81	3.43	-1.90	-5.58	3.40	1.82	-5.32
0.0	120.3	47.2	30.2	4787	7.81	2.09	-1.55	-4.52	2.89	2.23	-4.45

TABLE 21(c)

ALPHA	VKTS	W	DELV	GTT	CJ	CL	CD	CM	CLV	CDV	CMV
0.0	120.2	48.5	-30.0	6801	10.80	-4.08	-3.04	7.00	-3.70	2.56	6.96
0.0	120.6	48.8	-25.2	6750	10.66	-4.09	-3.49	6.89	-3.61	1.93	6.00
0.0	120.6	48.6	-20.2	6763	10.72	-4.30	-3.93	7.09	-3.73	1.34	6.55
0.0	120.0	48.0	-10.2	6711	10.77	-2.42	-5.19	3.68	-2.01	0.29	3.57
0.0	120.5	48.3	0.0	6625	10.57	-0.30	-5.47	0.12	-0.08	0.05	0.10
0.0	120.6	48.3	10.0	6544	10.44	1.91	-5.18	-3.46	1.99	0.40	-3.26
0.0	121.1	48.4	19.9	6446	10.26	4.01	-4.13	-6.60	3.98	1.45	-6.33
0.0	120.6	48.0	25.0	6411	10.29	4.25	-3.31	-6.84	4.27	2.29	-6.68
0.0	121.6	48.6	30.1	6362	10.09	3.39	-2.70	-5.45	3.62	2.78	-5.59

TABLE 22(a)

ALPHA	VKTS	Q	DELV	GTT	CJ	CL	CD	CM	CLV	CDV	CMV
25.0	12^.2	44.5	-30.1	3245	5.62	1.79	-0.50	1.52	-2.44	0.45	3.80
25.0	120.2	44.5	-25.3	3277	5.67	1.93	-0.79	1.48	-2.32	0.17	3.73
25.0	120.2	44.6	-20.3	3294	5.69	2.03	-1.04	1.37	-2.16	-0.15	3.57
25.0	120.1	44.4	-10.3	3296	5.72	3.60	-1.07	5.21	-0.88	-0.22	1.53
25.0	119.8	44.2	0.0	3286	5.73	5.37	-0.53	2.42	0.55	0.27	-1.01
25.0	118.9	43.7	9.9	3174	5.60	7.05	0.66	-0.55	1.91	1.28	-3.70
25.0	118.1	43.1	19.8	3205	5.73	7.94	2.08	-2.37	2.62	2.67	-5.54
25.0	118.4	43.3	24.9	3208	5.71	7.19	2.22	-1.38	2.10	2.97	-4.93
25.0	118.5	43.4	30.1	3156	5.60	6.55	2.08	-0.44	1.57	2.99	-4.10

TABLE 22(b)

ALPHA	VKTS	Q	DELV	GIT	CJ	CL	CD	CM	CLV	CDV	CMV
25.0	120.6	44.7	-30.1	4580	7.89	1.95	-1.84	9.22	-3.27	0.58	5.10
25.0	120.5	44.6	-25.3	4585	7.92	2.14	-2.19	9.08	-3.05	0.20	4.92
25.0	120.2	44.4	-20.3	4609	8.00	2.35	-2.54	8.94	-2.80	-0.21	4.64
25.0	120.4	44.5	-10.3	4626	8.01	4.24	-2.58	6.19	-1.18	-0.30	2.05
25.0	120.1	44.3	-0.1	4574	7.95	6.31	-1.93	2.88	0.53	0.28	-0.98
25.0	119.5	44.0	10.0	4569	8.00	8.40	-0.57	-0.77	2.25	1.55	-4.38
25.0	118.7	43.4	19.9	4553	8.05	9.72	1.28	-3.31	3.30	3.31	-6.92
25.0	120.2	44.5	24.9	4532	7.85	8.44	1.84	-2.70	2.84	3.96	-6.65
25.0	120.2	44.4	30.0	4508	7.82	8.00	1.68	-1.26	2.08	3.93	-5.42

TABLE 22(c)

ALPHA	VKTS	Q	DELV	GIT	CJ	CL	CD	CM	CLV	CDV	CMV
25.0	120.3	44.7	-30.1	6031	10.39	2.15	-3.33	10.98	-4.09	0.70	0.40
25.0	120.3	44.7	-25.3	6084	10.49	2.41	-3.78	10.77	-3.85	0.24	0.17
25.0	120.6	44.8	-20.3	6102	10.49	2.70	-4.20	10.40	-3.41	-0.26	0.65
25.0	120.4	44.6	-10.3	6104	10.54	4.92	-4.27	7.14	-1.49	-0.39	2.59
25.0	119.6	44.0	0.0	6015	10.53	7.35	-3.54	3.24	0.55	0.30	-1.03
25.0	119.1	43.6	9.9	6012	10.62	9.83	-2.03	-0.99	2.57	1.79	-5.02
25.0	119.6	44.0	19.9	6008	10.52	11.54	0.29	-4.05	3.87	3.90	-8.13
25.0	119.0	43.6	24.9	5967	10.54	10.99	1.22	-4.03	3.67	4.97	-8.47

TABLE 23(a)

ALPH	VKTS	Q	DELV	GTT	CJ	CL	CD	CM	CLV	CDV	CMV
51.0	120.6	46.3	-30.1	3470	5.77	6.39	2.46	9.55	-2.12	-0.59	3.36
51.0	120.7	46.3	-25.2	3489	5.81	6.94	2.47	8.95	-1.60	-0.63	2.76
51.0	120.7	46.4	-20.3	3466	5.75	7.65	2.67	7.98	-0.94	-0.47	1.77
51.0	120.1	45.9	-10.3	3480	5.84	9.24	3.56	5.42	0.32	0.23	-0.57
51.0	119.9	45.7	-0.1	3457	5.83	10.41	4.93	2.65	1.29	1.45	-3.22
51.0	121.6	47.0	9.9	3456	5.67	10.55	6.37	0.75	1.55	2.79	-5.18
51.0	120.7	46.3	19.9	3421	5.69	9.98	6.92	0.82	1.06	3.51	-5.43
51.0	120.9	46.5	24.9	3394	5.65	9.45	6.81	1.49	0.61	3.55	-4.95
51.0	121.1	46.5	30.1	3340	5.53	8.78	6.40	2.44	0.13	3.22	-3.98

TABLE 23(b)

ALPHA	VKTS	Q	DELV	GTT	CJ	CL	CD	CM	CLV	CDV	CMV
51.0	120.0	46.3	-30.2	4195	6.98	6.80	1.92	10.78	-2.57	-0.72	4.09
51.0	119.9	46.3	-25.2	4175	6.95	7.40	1.91	10.09	-1.99	-0.79	3.43
51.0	120.1	46.4	-20.2	4194	6.96	8.23	2.14	9.00	-1.26	-0.65	2.35
51.0	119.4	45.8	-10.3	4155	6.99	9.99	3.12	6.09	0.20	0.17	-0.56
51.0	119.0	45.5	0.0	4113	6.96	11.43	4.69	2.77	1.41	1.54	-3.44
51.0	118.5	45.1	9.9	4089	6.98	11.93	6.46	0.29	1.80	3.23	-5.99
51.0	120.1	46.2	19.9	4097	6.83	11.17	7.24	0.21	1.25	4.12	-6.37
51.0	120.6	46.5	24.9	4076	6.75	10.52	7.09	1.00	0.72	4.14	-5.77
51.0	120.7	46.5	30.0	4049	6.71	9.83	6.52	2.23	0.16	3.77	-4.67

TABLE 24(a)

ALPHA	VKTS	W	DELV	GTT	CJ	CL	CD	CM	CLV	CDV	CMV
0.0	141.7	62.9	-29.8	3556	4.36	-2.23	0.25	3.49	-1.78	1.25	3.36
0.0	141.4	62.6	-25.1	3553	4.37	-2.31	0.01	3.48	-1.82	0.99	3.54
0.0	141.6	62.7	-20.0	3582	4.40	-2.48	-0.23	3.67	-1.93	0.69	3.41
0.0	141.3	62.4	-10.0	3591	4.39	-1.57	-0.88	2.08	-1.17	0.14	1.95
0.0	141.4	62.5	0.0	3571	4.40	-0.52	-1.12	0.11	-0.08	0.01	0.11
0.0	141.1	62.3	10.1	3544	4.38	1.00	-0.97	-2.04	1.12	0.22	-1.85
0.0	141.3	62.4	20.1	3494	4.31	2.17	-0.44	-3.70	2.18	0.76	-3.46
0.0	141.2	62.4	25.1	3526	4.35	2.03	-0.07	-3.47	2.09	1.14	-3.27
0.0	141.0	62.2	30.2	3497	4.33	1.50	0.09	-2.65	1.72	1.55	-2.65

TABLE 24(b)

ALPHA	VKTS	Q	DELV	GTT	CJ	CL	CD	CM	CLV	CDV	CMV
0.0	141.2	62.7	-29.9	4981	6.12	-2.74	-0.56	4.42	-2.32	1.61	4.37
0.0	141.3	62.7	-25.0	4990	6.13	-2.80	-0.90	4.44	-2.33	1.24	4.26
0.0	141.5	62.8	-20.0	5030	6.17	-3.03	-1.19	4.65	-2.46	0.87	4.31
0.0	141.1	62.4	-10.1	5038	6.22	-1.82	-2.01	2.51	-1.40	0.18	2.55
0.0	141.2	62.5	0.0	4993	6.15	-0.31	-2.30	0.10	-0.07	0.02	0.09
0.0	141.0	62.4	10.2	4964	6.13	1.31	-2.13	-2.47	1.40	0.28	-2.29
0.0	140.6	61.9	20.1	4917	6.12	2.77	-1.46	-4.65	2.76	0.99	-4.58
0.0	141.1	62.4	25.1	4915	6.07	2.63	-0.93	-4.46	2.70	1.48	-4.23
0.0	140.8	62.1	30.3	4883	6.06	2.06	-0.66	-3.47	2.30	1.78	-3.54

TABLE 24(c)

ALPHA	VKTS	Q	DELV	GTT	CJ	CL	CD	CM	CLV	CDV	CMV
0.0	140.0	62.4	-29.8	6449	7.96	-3.30	-1.52	5.46	-2.89	1.98	5.43
0.0	140.4	62.6	-25.1	6462	7.95	-3.28	-1.93	5.37	-2.83	1.52	5.18
0.0	140.7	62.8	-20.0	6521	8.00	-3.55	-2.25	5.64	-2.97	1.11	5.23
0.0	140.4	62.4	-10.0	6494	8.02	-2.04	-3.24	2.94	-1.63	0.22	2.72
0.0	141.2	63.0	0.0	6460	7.90	-0.30	-3.53	0.08	-0.06	0.03	0.08
0.0	141.2	62.9	10.1	6382	7.82	1.55	-3.28	-2.87	1.64	0.33	-2.69
0.0	141.0	62.7	20.1	6328	7.78	3.20	-2.46	-5.34	3.22	1.17	-5.11
0.0	140.9	62.5	25.1	6283	7.74	3.21	-1.82	-5.35	3.27	1.82	-5.12
0.0	140.6	62.3	30.2	6258	7.74	2.61	-1.47	-4.28	2.86	2.21	-4.40

TABLE 25(a)

ALPHA	VKTS	Q	DELV	GTT	CJ	CL	CD	CM	CLV	CDV	CMV
20.0	139.3	59.9	-30.1	3505	4.51	0.93	-0.11	6.00	-2.00	0.53	3.18
20.0	139.0	59.8	-25.2	3515	4.53	1.00	-0.33	5.98	-1.95	0.30	3.14
20.0	139.1	59.9	-20.3	3560	4.58	1.03	-0.57	5.95	-1.86	0.02	3.07
20.0	139.0	59.8	-10.3	3570	4.60	2.26	-0.73	4.18	-0.80	-0.15	1.39
20.0	139.1	60.0	0.0	3555	4.56	3.74	-0.37	1.90	0.38	0.14	-0.67
20.0	138.1	59.1	10.0	3524	4.59	5.26	0.42	-0.56	1.60	0.89	-2.94
20.0	138.5	59.6	19.9	3511	4.54	6.02	1.53	-2.06	2.21	1.92	-4.34
20.0	138.5	59.6	24.8	3502	4.53	5.50	1.70	-1.37	1.87	2.21	-3.93
20.0	138.5	59.6	30.1	3503	4.53	5.04	1.73	-0.70	1.51	2.33	-3.59

TABLE 25(b)

ALPHA	VKTS	Q	DELV	GTT	CJ	CL	CD	CM	CLV	CDV	CMV
20.0	139.0	59.2	-30.0	4899	6.38	0.91	-1.13	7.38	-2.67	0.69	4.26
20.0	139.0	59.4	-25.3	4939	6.41	1.06	-1.45	7.23	-2.52	0.37	4.10
20.0	139.1	59.4	-20.3	4807	6.23	1.11	-1.60	7.08	-2.32	0.01	3.84
20.0	139.2	59.6	-10.3	4815	6.22	2.59	-1.77	4.86	-1.02	-0.19	1.74
20.0	139.0	59.4	0.0	4802	6.23	4.36	-1.40	2.14	0.42	0.17	-0.74
20.0	138.8	59.4	10.0	4802	6.23	6.08	-0.43	-0.79	1.85	1.04	-3.41
20.0	139.1	59.7	20.0	4759	6.14	7.21	0.97	-2.78	2.74	2.33	-5.32
20.0	139.1	59.7	25.0	4924	6.35	6.85	1.29	-2.37	2.48	2.91	-5.21
20.0	139.0	59.7	30.1	4901	6.33	6.14	1.31	-1.41	1.99	3.05	-4.46

TABLE 26(a)

ALPHA	VKTS	U	DELV	GTT	CJ	CL	CD	CM	CLV	CDV	CMV
35.0	139.4	60.6	-30.0	3564	4.53	3.09	0.68	7.49	-2.04	0.06	3.15
33.0	139.3	60.6	-25.3	3595	4.57	3.18	0.48	7.51	-1.96	-0.15	3.16
35.0	139.2	60.6	-20.3	3560	4.53	3.57	0.43	6.91	-1.54	-0.30	2.60
33.0	139.1	60.4	-10.2	3590	4.58	5.04	0.64	4.92	-0.37	-0.14	0.69
33.0	138.9	60..	0.0	3555	4.54	6.58	1.41	2.32	0.86	0.51	-1.64
33.0	139.2	60.5	10.0	3570	4.55	7.87	2.64	-0.18	1.87	1.62	-3.99
33.0	139.1	60.5	19.9	3541	4.51	7.64	3.48	-0.48	1.75	2.53	-4.53
33.0	139.3	60.6	24.9	3544	4.51	7.12	3.42	0.21	1.36	2.61	-4.01
33.0	139.3	60.6	30.1	3523	4.48	6.63	3.32	0.97	0.95	2.59	-3.39
33.0	139.3	60.6	0.0	3562	4.53	6.59	1.41	2.34	0.83	0.49	-1.58

TABLE 26(b)

ALPHA	VKTS	U	DELV	GTT	CJ	CL	CD	CM	CLV	CDV	CMV
33.0	140.1	62.7	-30.0	4969	6.11	3.40	-0.14	8.74	-2.61	0.05	4.03
33.0	140.2	62.8	-25.2	4956	6.08	3.57	-0.34	8.59	-2.38	-0.14	3.85
33.0	140.4	62.8	-20.2	4992	6.12	3.97	-0.51	8.19	-1.99	-0.42	3.37
33.0	140.2	62.5	-10.1	4954	6.11	5.67	-0.21	5.71	-0.58	-0.22	1.07
33.0	141.0	63.2	0.0	5016	6.11	7.36	0.69	2.74	0.85	0.52	-1.64
33.0	140.0	62.3	10.0	4875	6.03	8.95	2.09	-0.24	2.10	1.80	-4.46

TABLE 26(c)

ALPHA	VKTS	Q	DELV	GTT	CJ	CL	CD	CM	CLV	CDV	CMV
33.0	139.4	60.4	0.1	4838	[illegible]	7.50	0.61	2.72	0.86	0.54	-1.67
33.0	139.2	60.2	9.9	4799	6.14	9.03	2.03	-0.30	2.12	1.82	-4.51
33.0	139.2	60.2	19.8	4773	6.11	9.25	3.52	-1.61	2.55	3.30	-6.00
33.0	139.7	60.9	24.9	4910	6.21	8.55	3.35	-0.44	1.76	3.37	-5.18
33.0	139.7	60.9	30.0	4868	6.16	7.91	3.19	0.53	1.23	3.32	-4.35

TABLE 26(d)

ALPHA	VKTS	Q	DELV	GTT	CJ	CL	CD	CM	CLV	CDV	CMV
33.0	140.6	65.0	-30.0	6668	7.90	3.83	-1.13	10.05	-3.18	0.06	4.41
33.0	141.0	65.0	-25.1	6602	7.82	4.07	-1.35	9.81	-2.83	-0.25	4.60
33.0	141.1	64.7	-20.1	6603	7.86	4.49	-1.55	9.31	-2.40	-0.52	4.07
33.0	141.9	65.3	-10.1	6604	7.79	6.33	-1.19	6.42	-0.75	-0.30	1.58
33.0	140.8	64.4	-0.1	6746	8.07	8.46	-0.39	3.22	0.83	0.54	-1.63
33.0	142.3	65.3	10.0	6646	7.90	10.17	1.36	-0.33	2.33	2.06	-4.99
33.0	142.8	65.5	20.0	6605	7.77	10.62	3.20	-2.16	2.69	3.74	-6.79
33.0	142.6	65.2	25.0	6574	7.77	9.80	3.26	-1.07	2.13	4.06	-6.26
33.0	142.9	65.3	30.2	6505	7.67	8.96	3.02	0.11	1.47	3.95	-5.18

TABLE 27(a)

ALPHA	VKTS	Q	DEL	GTT	CJ	CL	CD	CM	CLV	CDV	CMV
45.0	140.5	59.8	-30.0	3494	4.50	4.99	2.04	8.24	-1.87	-0.34	2.93
45.0	140.2	59.5	-25.3	3524	4.56	5.39	1.97	7.92	-1.51	-0.44	2.54
45.0	140.4	59.7	-20.2	3510	4.53	5.96	2.07	7.09	-0.95	-0.38	1.72
45.0	140.0	59.4	-10.2	3505	4.55	7.38	2.68	4.93	0.18	0.09	-0.26
45.0	139.8	59.3	0.0	3501	4.55	8.63	3.78	2.39	1.15	1.03	-2.5
45.0	140.4	59.8	9.9	3483	4.49	9.01	4.97	0.76	1.52	2.17	-4.29
45.0	139.6	59.2	20.0	3465	4.51	8.65	5.55	0.72	1.21	2.88	-4.62
45.0	139.7	59.3	24.9	3435	4.46	8.16	5.52	1.26	0.84	2.93	-4.19
45.0	140.2	59.6	30.1	3419	4.42	7.60	5.15	2.17	0.40	2.74	-3.43

TABLE 27(b)

ALPHA	VKTS	Q	DELV	GTT	CJ	CL	CD	CM	CLV	CDV	CMV
45.0	140.6	59.7	-30.0	4966	6.41	5.69	1.15	10.02	-2.55	-0.48	3.99
45.0	140.7	59.8	-25.2	5000	6.44	6.02	0.99	9.79	-2.18	-0.67	3.68
45.0	140.5	59.6	-20.3	5009	6.47	6.79	1.08	8.79	-1.50	-0.62	2.69
45.0	140.1	59.3	-10.2	5015	6.52	8.56	1.84	6.06	-0.04	-0.02	0.12
45.0	140.6	59.7	0.0	4827	6.23	10.02	3.28	2.79	1.29	1.12	-2.80
45.0	140.6	59.7	10.0	4836	6.24	10.84	4.97	0.28	1.93	2.68	-5.35
45.0	140.5	59.7	20.0	4810	6.21	10.39	5.84	-0.05	1.57	3.70	-5.94
45.0	140.5	59.6	25.0	4811	6.22	9.81	5.84	0.63	1.10	3.84	-5.49
45.0	140.6	59.8	30.2	4790	6.17	9.09	5.32	1.84	0.53	3.51	-4.40

TABLE 27(c)

ALPHA	VKTS	Q	DELV	GTT	CJ	CL	CD	CM	CLV	CDV	CMV
45.0	140.5	59.8	-30.0	6248	8.05	6.28	0.35	11.54	-3.07	-0.61	4.87
45.0	140.4	59.8	-25.3	6404	8.25	6.70	0.04	11.21	-2.73	-0.87	4.63
45.0	140.3	59.6	-20.2	6439	8.32	7.61	0.12	10.21	-1.95	-0.84	3.53
45.0	140.6	59.8	-10.2	6159	7.93	9.37	1.18	6.81	-0.20	-0.11	0.45
45.0	140.5	59.6	0.0	6127	7.92	11.16	2.65	3.27	1.29	1.16	-2.86

TABLE 27(d)

ALPHA	VKTS	Q	DELV	GTT	CJ	CL	CD	CM	CLV	CDV	CMV
45.0	140.5	59.7	0.0	6189	7.99	11.20	2.60	3.33	1.27	1.15	-2.81
45.0	140.8	59.9	10.0	6170	7.94	12.38	4.59	0.10	2.26	2.97	-6.02
45.0	140.9	59.9	19.9	6159	7.90	12.04	6.05	-0.91	1.94	4.49	-7.25
45.0	141.0	60.0	24.9	6084	7.81	11.23	5.94	0.11	1.32	4.57	-6.53
45.0	141.5	60.4	30.2	6070	7.74	10.38	5.44	1.57	0.63	4.20	-5.26

TABLE 28(a)

ALPHA	VKTS	Q	DELV	GTT	CJ	CL	CD	CM	CLV	CDV	CMV
0.0	160.2	80.2	-30.1	3661	3.52	-1.88	0.61	2.97	-1.51	1.06	2.85
0.0	160.6	80.4	-25.2	3728	3.57	-1.95	0.40	2.99	-1.56	0.85	2.86
0.0	160.3	80.1	-20.2	3788	3.64	-2.10	0.18	3.14	-1.64	0.61	2.90
0.0	160.5	80.3	-10.3	3820	3.66	-1.56	-0.35	1.81	-1.02	0.12	1.71
0.0	160.5	80.3	0.0	3763	3.61	-0.26	-0.57	0.07	-0.07	0.01	0.10
0.0	160.4	80.2	10.0	3735	3.59	0.89	-0.46	-1.78	0.97	0.18	-1.59
0.0	160.3	79.9	20.0	3646	3.52	1.84	0.00	-3.17	1.84	0.63	-2.91
0.0	160.2	79.9	24.8	3582	3.45	1.70	0.33	-2.93	1.73	0.92	-2.70
0.0	160.2	79.7	30.1	3500	3.38	1.27	0.50	-2.24	1.42	1.07	-2.18

TABLE 28(b)

ALPHA	VKTS	Q	DELV	GTT	CJ	CL	CD	CM	CLV	CDV	CMV
0.0	160.1	81.5	-30.1	5122	4.84	-2.27	0.04	3.64	-1.89	1.55	3.58
0.0	160.0	81.5	-25.3	5146	4.86	-2.35	-0.21	3.73	-1.93	1.04	3.54
0.0	160.2	81.3	-20.2	5181	4.91	-2.51	-0.46	3.83	-2.02	0.74	3.56
0.0	160.6	81.6	-10.3	5182	4.89	-1.53	-1.11	2.12	-1.19	0.15	2.00
0.0	160.7	81.4	0.0	5149	4.87	-0.26	-1.38	0.07	-0.08	0.02	0.10
0.0	160.6	81.2	9.9	5080	4.82	1.09	-1.23	-2.11	1.15	0.22	-1.88
0.0	161.3	81.7	20.0	5030	4.74	2.24	-0.65	-3.84	2.23	0.78	-3.53
0.0	160.7	81.1	24.9	5002	4.75	2.15	-0.28	-3.61	2.16	1.18	-3.39
0.0	160.7	81.0	50.1	4943	4.70	1.64	-0.07	-2.80	1.61	1.38	-2.79
0.0	161.3	81.4	10.0	4995	4.73	1.04	-1.18	-2.07	1.12	0.22	-1.83

TABLE 28(c)

ALPHA	VKTS	Q	DELV	GIT	CJ	CL	CD	CM	CLV	CDV	CMV
0.0	159.2	83.1	-30.1	6772	6.28	-2.66	-0.64	4.45	-2.32	1.63	4.39
0.0	159.8	83.4	-25.2	6768	6.25	-2.70	-0.95	4.40	-2.30	1.25	4.22
0.0	160.2	83.5	-20.2	6812	6.29	-2.88	-1.22	4.54	-2.40	0.88	4.24
0.0	160.2	83.1	-10.3	6722	6.23	-1.72	-1.97	2.45	-1.36	0.19	2.26
0.0	160.3	83.1	-0.1	6603	6.18	-0.26	-2.23	0.07	-0.07	0.03	0.09
0.0	160.6	83.1	10.0	6620	6.14	1.23	-2.05	-2.45	1.33	0.27	-2.18
0.0	161.2	83.2	19.9	6656	6.16	2.65	-1.47	-4.47	2.63	0.94	-4.17
0.0	161.1	83.0	25.0	6611	6.14	2.60	-0.96	-4.38	2.61	1.45	-4.09
0.0	162.2	83.8	30.1	6571	6.04	2.07	-0.64	-3.45	2.25	1.72	-3.47

TABLE 29

ALPHA	VKTS	Q	DELV	GTT	LJ	CL	CD	CM	CLV	CDV	CMV
20.0	157.8	76.5	-30.0	3814	3.84	0.99	0.26	5.43	-1.74	0.48	2.77
20.0	157.8	76.5	-25.3	3820	3.85	1.06	0.06	5.34	-1.66	0.27	2.70
20.0	158.3	76.6	-20.2	3855	3.88	1.08	-0.12	5.34	-1.59	0.05	2.63
20.0	158.4	76.7	-10.4	3838	3.85	2.19	-0.24	5.84	-0.70	-0.12	1.20
20.0	158.2	76.4	-0.1	3795	3.83	3.51	0.07	1.82	0.34	0.14	-0.60
20.0	158.2	76.5	9.9	3761	3.79	4.81	0.80	-0.57	1.38	0.77	-2.53
20.0	157.6	75.8	19.9	3707	3.77	5.35	1.70	-1.44	1.84	1.05	-3.05
20.0	157.8	75.9	24.8	3605	3.72	4.91	1.85	-0.90	1.54	1.83	-3.25
20.0	157.7	75.7	30.1	3638	3.70	4.56	1.89	-0.42	1.28	1.99	-2.87

TABLE 30(a)

ALPHA	VKTS	Q	DELV	GIT	CJ	CL	CD	CM	CLV	CDV	CMV
45.0	160.0	77.5	-30.0	3890	3.87	4.74	2.45	7.41	-1.55	-0.28	2.44
45.0	160.1	77.7	-25.2	3894	3.86	5.11	2.44	7.03	-1.18	-0.34	1.98
45.0	160.5	77.9	-20.2	3868	3.83	5.62	2.53	6.37	-0.73	-0.29	1.33
45.0	160.2	77.6	-10.2	3843	3.82	6.86	3.09	4.48	0.24	0.12	-0.58
45.0	160.9	78.0	-0.1	3868	3.82	7.82	4.03	2.42	1.02	0.95	-2.51
45.0	160.2	77.3	10.1	3822	3.81	8.15	4.93	1.10	1.29	1.85	-3.66
45.0	159.7	76.9	19.9	3855	3.86	7.76	5.40	1.15	1.01	2.43	-3.90
45.0	160.3	77.5	24.9	[illegible]	3.74	7.34	5.36	1.61	0.70	2.49	-3.56
45.0	160.8	77.7	30.1	3724	3.69	6.86	5.13	2.24	0.35	2.35	-2.94
45.0	160.8	77.7	-30.0	3819	3.79	4.74	2.50	7.36	-1.52	-0.27	2.38

TABLE 30(b)

ALPHA	VKTS	Q	DELV	GTT	CJ	CL	CD	CM	CLV	CDV	C
45.0	160.1	78.5	-30.0	5056	4.96	5.18	1.92	8.48	-1.96	-0.35	3.08
45.0	160.4	78.6	-25.2	5123	5.02	5.58	1.79	8.23	-1.62	-0.48	2.71
45.0	160.0	78.5	-20.2	5138	5.06	6.23	1.90	7.42	-1.04	-0.41	1.88
45.0	160.3	78.4	-10.2	5101	5.01	7.03	2.54	5.16	0.14	0.08	-0.20
45.0	160.6	78.7	0.0	5084	4.98	8.93	3.70	2.54	1.17	1.06	-2.60
45.0	160.7	78.6	10.0	5033	4.93	9.37	4.93	0.76	1.57	2.23	-4.42
45.0	160.7	78.5	20.0	5016	4.92	8.96	5.55	0.68	1.25	2.99	-4.79
45.0	160.8	78.4	25.0	4991	4.90	8.52	5.54	1.19	0.87	3.09	-4.41
45.0	161.1	78.7	30.1	4963	4.86	7.94	5.17	2.09	0.43	2.86	-3.59

TABLE 30(c)

ALPHA	VKTS	Q	DELV	GTT	CJ	CL	CD	CM	CLV	CDV	CMV
45.0	161.2	81.4	-30.1	5802	5.49	5.39	1.68	8.99	-2.13	-0.37	3.33
45.0	161.2	81.3	-25.4	5830	5.52	5.73	1.57	8.72	-1.79	-0.52	2.99
45.0	161.3	81.1	-20.3	5822	5.53	6.44	1.70	7.80	-1.16	-0.46	2.08
45.0	161.6	81.2	-10.3	5775	5.48	7.92	2.39	5.36	0.10	0.07	-0.15
45.0	160.8	80.3	0.0	5728	5.50	9.42	3.60	2.57	1.22	1.09	-2.69
45.0	161.0	80.3	9.9	5666	5.44	9.90	4.94	0.69	1.67	2.36	-4.67
45.0	160.8	79.9	19.9	5626	5.42	9.49	5.67	0.48	1.35	3.20	-5.14
45.0	161.5	80.3	24	596	5.37	8.97	5.65	1.06	0.95	3.51	-4.73
45.0	162.0	[illegible]	30.6	58	5.29	8.29	5.20	2.02	0.46	3.01	-3.78
45.0	162.0	80.3		5759	5.52	9.12	5.67	1.00	0.97	3.37	-4.82

TABLE 30(d)

ALPHA	VKTS	Q	DELV	GTT	CJ	CL	CD	CM	CLV	CDV	CMV
45.0	160.9	80.6	-29.9	6512	6.[illegible]	5.67	1.35	9.61	-2.37	-0.45	3.73
45.0	161.1	80.8	-25.2	6520	6.22	5.99	1.22	9.32	-2.00	-0.61	3.37
45.0	161.5	80.9	-20.1	6497	6.19	6.68	1.38	8.33	-1.32	-0.54	2.38
45.0	162.9	81.6	-10.2	6425	6.07	7.77	2.12	5.15	0.03	0.03	-0.01

TABLE 31(a)

ALPHA	VKTS	Q	DELV	GIT	CJ	CL	CD	CM	CLV	CDV	CMV
0.0	179.8	100.0	-30.1	4057	3.13	-1.82	0.76	2.70	-1.37	0.98	2.59
0.0	179.9	100.1	-25.2	4083	3.14	-1.86	0.58	2.75	-1.39	0.77	2.57
0.0	179.7	99.7	-20.2	4035	3.12	-1.93	0.44	2.79	-1.44	0.55	2.55
0.0	180.4	100.1	-10.3	4039	3.11	-1.29	-0.03	1.61	-0.91	0.12	1.53
0.0	179.9	99.4	0.0	3997	3.10	-0.30	-0.24	0.01	-0.06	0.01	0.08
0.0	179.6	99.1	10.0	3883	3.02	0.74	-0.11	-1.66	0.88	0.17	-1.44
0.0	179.8	99.3	20.0	4021	3.12	1.61	0.22	-2.90	1.67	0.58	-2.64
0.0	179.6	98.9	24.7	3984	3.10	1.38	0.47	-2.57	1.52	0.84	-2.38
0.0	179.8	98.9	30.1	3955	3.08	1.10	0.62	-2.09	1.32	1.00	-2.03

TABLE 31(b)

ALPHA	VKTS	Q	DELV	GTT	CJ	CL	CD	CM	CLV	CDV	CMV
0.0	178.9	101.5	-30.1	5536	4.20	-2.12	0.31	3.27	-1.69	1.20	3.18
0.0	179.8	101.9	-25.3	5265	3.98	-2.16	0.11	3.32	-1.71	0.94	3.13
0.0	179.1	101.0	-20.3	5500	4.19	-2.29	-0.09	3.40	-1.78	0.67	3.15
0.0	179.8	101.2	-10.3	5510	4.19	-1.46	-0.67	1.89	-1.07	0.15	1.79
0.0	180.1	101.3	0.0	5434	4.13	-0.30	-0.88	0.05	-0.06	0.02	0.09
0.0	179.8	100.7	9.9	5345	4.09	0.90	-0.75	-1.92	1.02	0.20	-1.68
0.0	179.8	100.7	19.9	5449	4.17	1.96	-0.33	-3.45	2.00	0.71	-3.17
0.0	180.0	100.6	25.0	5423	4.15	1.77	0.01	-3.15	1.88	1.05	-2.95
0.0	179.8	100.3	30.1	4244	3.26	1.37	0.19	-2.51	1.61	1.23	-2.47

TABLE 31(c)

ALPHA	VKTS	Q	DELV	GTT	CJ	CL	CD	CM	CLV	CDV	CMV
3.0	179.0	102.1	-30.1	5540	4.18	-2.13	0.33	3.24	-1.69	1.19	3.18
0.0	179.4	102.1	-25.2	5551	4.19	-2.20	0.12	3.38	-1.71	0.93	3.14

TABLE 31(d)

ALPHA	VKTS	Q	DELV	GTT	CJ	CL	CD	CM	CLV	CDV	CMV
0.0	178.5	99.9	-30.0	5514	4.25	-2.13	0.30	3.29	-1.71	1.19	3.23
0.0	178.9	100.3	-25.2	5543	4.26	-2.20	0.07	3.35	-1.75	0.94	3.20
0.0	179.3	100.2	-20.2	5456	4.19	-2.29	-0.10	3.40	-1.78	0.66	3.14
0.0	179.7	100.3	-10.2	5441	4.18	-1.42	-0.67	1.87	-1.06	0.14	1.77

TABLE 31(e)

ALPHA	VKTS	Q	DELV	GTT	CJ	CL	CD	CM	CLV	CDV	CMV
0.0	179.7	102.9	-30.1	7068	5.29	-2.40	-0.16	3.87	-2.01	1.40	3.80
0.0	180.6	103.7	-25.2	7066	5.25	-2.45	-0.42	3.84	-2.00	1.08	3.67
0.0	180.7	103.1	-20.2	7113	5.32	-2.62	-0.67	4.04	-2.10	0.82	3.73
0.0	181.6	103.8	-10.3	7099	5.27	-1.59	-1.31	2.17	-1.20	0.17	2.01
0.0	179.8	101.2	-0.1	7147	5.44	-0.28	-1.70	0.06	-0.06	0.03	0.07
0.0	179.6	100.6	9.9	7059	5.41	1.09	-1.56	-2.23	1.21	0.24	-1.99
0.0	180.0	100.9	19.9	6932	5.29	2.30	-0.95	-4.01	2.33	0.84	-3.69
0.0	179.8	100.5	24.9	6891	5.28	2.18	-0.53	-3.76	2.27	1.26	-3.57
0.0	179.5	100.0	30.1	6868	5.29	1.79	-0.29	-3.12	1.99	1.52	-3.07

TABLE 32(a)

ALPHA	VKTS	Q	DELV	GTT	CJ	CL	CD	CM	CLV	CDV	CMV
20.0	180.1	98.2	-30.1	3859	3.03	0.92	0.57	4.94	-1.51	0.40	2.40
20.0	180.3	98.4	-25.2	4087	3.20	1.01	0.41	4.82	-1.43	0.22	2.33
20.0	180.5	98.6	-20.2	4105	3.21	1.04	0.26	4.83	-1.37	0.01	2.27
20.0	180.1	98.2	-10.2	4004	3.14	2.03	0.21	3.40	-0.56	-0.10	0.97
20.0	179.5	97.4	0.1	3972	3.14	3.17	0.49	1.55	0.37	0.13	-0.64
20.0	179.7	97.6	10.0	3994	3.15	4.37	1.10	-0.33	1.29	0.71	-2.37
20.0	179.9	97.8	19.9	3985	3.14	4.72	1.84	-1.09	1.60	1.44	-3.17
20.0	179.7	97.5	24.9	3966	3.13	4.34	1.91	-0.62	1.34	1.59	-2.82
20.0	179.6	97.4	30.1	3934	3.11	4.05	1.98	-0.25	1.12	1.72	-2.50
20.0	180.5	98.3	-30.0	4024	3.15	0.94	0.59	4.88	-1.50	0.40	2.39
20.0	180.0	97.7	-25.1	4045	3.19	1.02	0.43	4.82	-1.43	0.21	2.33
20.0	179.8	97.5	-10.3	3888	3.07	2.03	0.18	3.41	-0.57	-0.10	0.98

TABLE 32(b)

ALPHA	VKTS	Q	DELV	GTT	CJ	CL	CD	CM	CLV	CDV	CMV
20.0	180.1	98.7	-30.0	5294	4.13	0.92	0.10	5.70	-1.85	0.47	2.95
20.0	180.3	98.9	-25.2	5343	4.16	1.04	-0.09	5.58	-1.74	0.26	2.84
20.0	179.7	98.1	-20.2	5341	4.19	1.10	-0.31	5.56	-1.67	0.02	2.76
20.0	179.9	98.3	-10.3	5351	4.19	2.22	-0.42	3.86	-0.70	-0.12	1.20
20.0	179.6	98.0	0.0	5314	4.18	3.56	-0.10	1.78	0.40	0.15	-0.70
20.0	180.0	98.2	9.9	5342	4.19	4.92	0.62	-0.44	1.45	0.81	-2.67
20.0	180.4	98.6	19.9	5298	4.14	5.55	1.60	-1.69	1.99	1.74	-3.90
20.0	180.3	98.4	24.9	5278	4.13	5.08	1.74	-1.06	1.66	1.98	-3.50

TABLE 33

ALPHA	VKTS	Q	DELV	GIT	CJ	CL	CD	CM	CLV	CDV	CMV
33.0	179.4	97.3	-30.1	4047	3.20	2.92	1.35	6.14	-1.51	0.05	2.34
33.0	179.9	97.7	-25.4	4083	3.22	2.95	1.19	6.20	-1.46	-0.13	2.36
33.0	180.2	97.8	-20.3	4151	3.27	3.37	1.16	5.69	-1.10	-0.20	1.85
33.0	180.1	97.5	-20.3	4130	3.26	3.36	1.18	5.65	-1.08	-0.20	1.82
33.0	180.5	97.8	-10.3	4114	3.24	4.53	1.38	4.10	-0.18	-0.07	0.56
33.0	179.8	97.0	-0.1	4049	3.22	5.76	2.00	2.00	0.80	0.45	-1.50
33.0	179.9	97.0	9.9	3885	3.09	6.38	2.90	0.48	1.36	1.24	-2.98
33.0	180.9	97.9	24.9	3952	3.11	5.87	3.36	0.81	0.99	1.90	-2.93
33.0	180.8	97.7	30.1	3892	3.07	5.49	3.34	1.30	0.70	1.90	-2.49
33.0	180.3	97.3	19.9	4064	3.22	6.30	3.40	0.54	1.28	1.86	-3.32

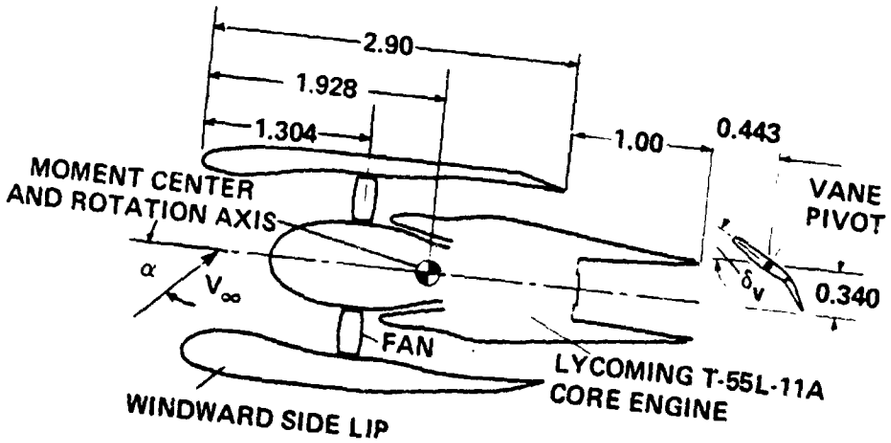

Figure 1.- Nacelle schematic.

Figure 2.- Tilt-nacelle V/STOL propulsion system with control vane in the Ames 40- by 80-Foot Wind Tunnel.

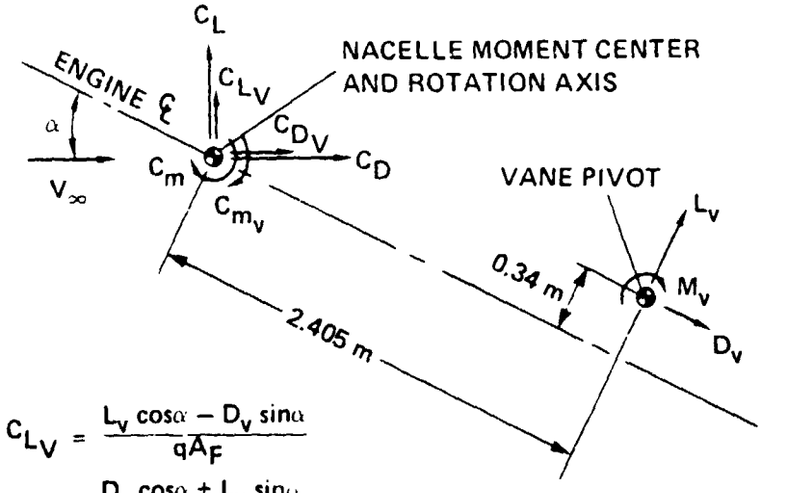

Figure 3.- Axis system and sign convention.