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RESEARCH MEMORANDUM

TABULATED PRESSURE COEFFICIENTS AND AERODYNAMIC
CHARACTERISTICS MEASURED ON THE WING OF THE
BELL X-1 AIRPLANE IN AN UNACCELERATED STALL
AND IN PULL-UPS AT MACH NUMBERS
OF 0.74, 0.75, 0.94, AND 0.97

By Lawrence A. Smith

Langley Aeronautical Laboratory
Langley Field, Va.

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NATIONAL ADVISORY COMMITTEE FOR AERONAUTICS

WASHINGTON

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SUMMARY

Tabulated pressure coefficients and aerodynamic characteristics are presented for six spanwise stations on the left wing of the Bell X-1 research airplane. The data were obtained in an unaccelerated stall and in pull-ups at Mach numbers of 0.74, 0.75, 0.94, and 0.97.

INTRODUCTION

Flight tests are being conducted to determine the spanwise and chordwise loading on the wing of the Bell X-1 research airplane throughout the transonic and low-supersonic range. The purpose of the present paper is to present the data obtained in pull-ups at Mach numbers of 0.74, 0.75, 0.94, and 0.97. In addition, the data obtained in an unaccelerated stall are presented. In order to expedite the presentation of the data to interested parties, it is reported unanalyzed in a tabular form. This paper supplements similar published data (references 1 and 2). Reference 3 presents analyzed data for a midspan station (64.4 percent semispan) for the Mach number and normal-force coefficient range of reference 2.

SYMBOLS

M free-stream Mach number
 S wing area, including area projected through fuselage (130 sq ft)

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- S' area of wing panel outboard of station A (99.4 sq ft)
 δ_{aL} left aileron angle, degrees
 $b/2$ wing semispan (14 ft)
 $b'/2$ spanwise distance from station A to wing tip (11.42 ft)
 c local wing chord parallel to plane of symmetry, feet
 \bar{c} average chord of wing panel, feet (S'/b')
 c' mean aerodynamic chord of the wing panel (M.A.C.), feet

$$\left(\frac{2}{S'} \int_0^{b'/2} c^2 dy' \right)$$

 x chordwise distance from leading edge of local chord, feet
 y spanwise distance outboard of airplane center line, feet
 y' spanwise distance outboard of station A, feet
 q free-stream dynamic pressure, pounds per square foot
 P_0 free-stream static pressure, pounds per square foot
 p local static pressure, pounds per square foot
 P_u local static pressure on upper surface, pounds per square foot
 P_l local static pressure on lower surface, pounds per square foot
 P pressure coefficient $\left(\frac{p - P_0}{q} \right)$
 P_R resultant pressure coefficient $\left(\frac{P_l - P_u}{q} \right)$
 c_n section normal-force coefficient $\left(\int_0^1 P_R d \frac{x}{c} \right)$
 $c_{m_c}/4$ section pitching-moment coefficient about 0.25-local-chord
point $\left(\int_0^1 - P_R \left(\frac{x}{c} - 0.25 \right) d \frac{x}{c} \right)$

C_m section pitching-moment coefficient about a line perpendicular to longitudinal axis of airplane, passing through 0.25-chord point of mean aerodynamic chord of wing panel

$$\left(\int_0^1 -P_R \left(\frac{x}{c} - \frac{0.40c - 0.15c'}{c} \right) d \frac{x}{c} \right)$$

C_N' wing panel normal-force coefficient $\left(\int_0^1 c_n \frac{c}{c'} d \frac{2y'}{b'} \right)$

C_B' wing panel bending-moment coefficient about station A

$$\left(\int_0^1 c_n \frac{c}{c'} \frac{2y'}{b'} d \frac{2y'}{b'} \right)$$

C_M' wing panel pitching-moment coefficient about 0.25 panel mean aerodynamic chord $\left(\frac{c}{c'} \int_0^1 c_m \left(\frac{c}{c'} \right)^2 d \frac{2y'}{b'} \right)$

C.P._x wing panel chordwise center of pressure, percent of c'

C.P._y wing panel lateral center of pressure, percent of $b'/2$

DESCRIPTION OF AIRPLANE AND TEST PANEL

The Bell X-1 research airplane used in these tests is shown in figure 1. A three-view drawing of the airplane showing the general over-all dimensions is given as figure 2. The airplane has a 10-percent-thick wing and incorporates an NACA 65-110 airfoil section with slight modifications. The ordinates of the airfoil section are given in table 1. Over the landing flap the section is modified aft of the 0.85-wing-chord point to give a finite trailing-edge thickness. Over the ailerons the cusp is replaced by a straight taper from the 0.85-wing-chord point to the trailing edge (reference 4). The wing has an incidence angle with respect to the fuselage axis of 2.5° at the root and 1.5° at the tip, an aspect ratio of 6, and a taper ratio of 0.5. A line passing through the 0.40-chord point of the local chords is perpendicular to the longitudinal axis of the airplane. The skin thickness is approximately 0.40 inch at the root and 0.15 inch at the tip. The wing was painted and polished during the tests, but no refined filling or smoothing was attempted.

The test panel considered in these tests is that portion of the wing outboard of station A and is shown in table 2(a). Station A is approximately 3 inches outboard of the wing-fuselage juncture and 31 inches outboard of the center line of the airplane.

INSTRUMENTATION

Standard NACA recording instruments were used to obtain airspeed, pressure altitude, and control positions. During these tests the accelerometer failed to operate satisfactorily. Wing surface pressures were measured by two NACA recording multiple manometers. All records were synchronized by a common timer.

Free-stream static and dynamic pressures were measured from an NACA high-speed pitot-static head located ahead of the fuselage nose. The static vents were located at a distance of 0.6 maximum fuselage diameter ahead of the fuselage nose.

Wing surface pressures were measured from flush-type orifices installed in the wing skin. The spanwise and chordwise locations of the orifices are shown in table 2. The orifices were connected to the instrument compartment by $\frac{1}{8}$ -inch-inside-diameter aluminum tubing. The length of aluminum tubing varied from about 2 feet at the root station to about 14 feet at the tip station. The aluminum tubing was connected to the manometer cells by $\frac{3}{16}$ -inch-inside-diameter rubber tubing. Approximately 3 feet of rubber tubing was used on each line.

ACCURACY

Estimations based on the recording pressure instruments and methods of calibration indicate that the accuracies of the reported quantities are as follows:

Mach number	± 0.01
P	± 0.02

The accuracy of the integrated quantities, based on the accuracies of the pressure recorders, integrative methods, and the coverage of the test data is estimated to be:

c_n	± 0.05
$c_{mC}/4$	± 0.006

TESTS

The data presented herein were obtained in an unaccelerated stall and in four pull-ups at Mach numbers of approximately 0.74, 0.75, 0.94, and 0.97. During all maneuvers the ailerons were held close to neutral.

METHODS

The test panel is treated herein as an isolated lifting surface and the coefficients obtained from the pressure distributions are based on the geometric properties of this test panel (table 2(a)).

Pressure differentials were measured at stations A, B, C, E, and F (table 2(a)). At station D, individual surface pressures were measured relative to instrument compartment pressure. Static pressure at the pitot-static head was also measured relative to compartment pressure. The measured static pressure was corrected to free-stream static pressure by use of the radar tracking method of reference 5.

Ground checks made during previous tests (references 1 and 2) showed that lag present in measuring wing surface pressures was negligible. The effects of lag have therefore been neglected in the present tests.

In several instances, the manometer cell did not have a sufficient range to measure all pressures encountered. Wherever possible, values were estimated by extrapolating the film trace and by interpolating between the time histories of values of surrounding orifices.

Section coefficients were obtained by the mechanical integration of the chordwise pressure distributions. Panel coefficients were obtained by the mechanical integration of the spanwise load distributions.

PRESENTATION OF RESULTS

Table 3 presents the measured pressure coefficients and aerodynamic characteristics obtained in an unaccelerated stall. Tables 4 to 7 present similar data for pull-ups at approximate Mach numbers of 0.74, 0.75, 0.94, and 0.97. Wherever estimated values are entered in the tables, they are indicated by a double asterisk.

The lack of a satisfactorily operating accelerometer prevented the reporting of airplane normal-force coefficients.

Langley Aeronautical Laboratory
National Advisory Committee for Aeronautics
Langley Field, Va.

REFERENCES

1. Knapp, Ronald J., and Wilken, Gertrude V.: Tabulated Pressure Coefficients and Aerodynamic Characteristics Measured on the Wing of the Bell X-1 Airplane in Pull-Ups at Mach Numbers from 0.53 to 0.99. NACA RM L50H28, 1950.
2. Carner, H. Arthur, and Payne, Mary M.: Tabulated Pressure Coefficients and Aerodynamic Characteristics Measured on the Wing of the Bell X-1 Airplane in Level Flight at Mach Numbers from 0.79 to 1.00 and in a Pull-Up at a Mach Number of 0.96. NACA RM L50H25, 1950.
3. Carner, H. Arthur, and Knapp, Ronald J.: Flight Measurements of the Pressure Distribution on the Wing of the X-1 Airplane (10-Percent-Thick Wing) over a Chordwise Station near the Midspan, in Level Flight at Mach Numbers from 0.79 to 1.00 and in a Pull-Up at a Mach Number of 0.96. NACA RM L50H04, 1950.
4. Ormsby, C. A.: Aerodynamic Design of the MX-653 Wing. Rep. No. 44-943-008, Bell Aircraft Corp., June 5, 1945.
5. Zalovcik, John A.: A Radar Method of Calibrating Airspeed Installations on Airplanes in Maneuvers at High Altitudes and at Transonic and Supersonic Speeds. NACA Rep. 985, 1950.

TABLE 1

AIRFOIL ORDINATES OF THE BELL X-1 WING

[Abscissa and ordinates in percent of local chord, c]

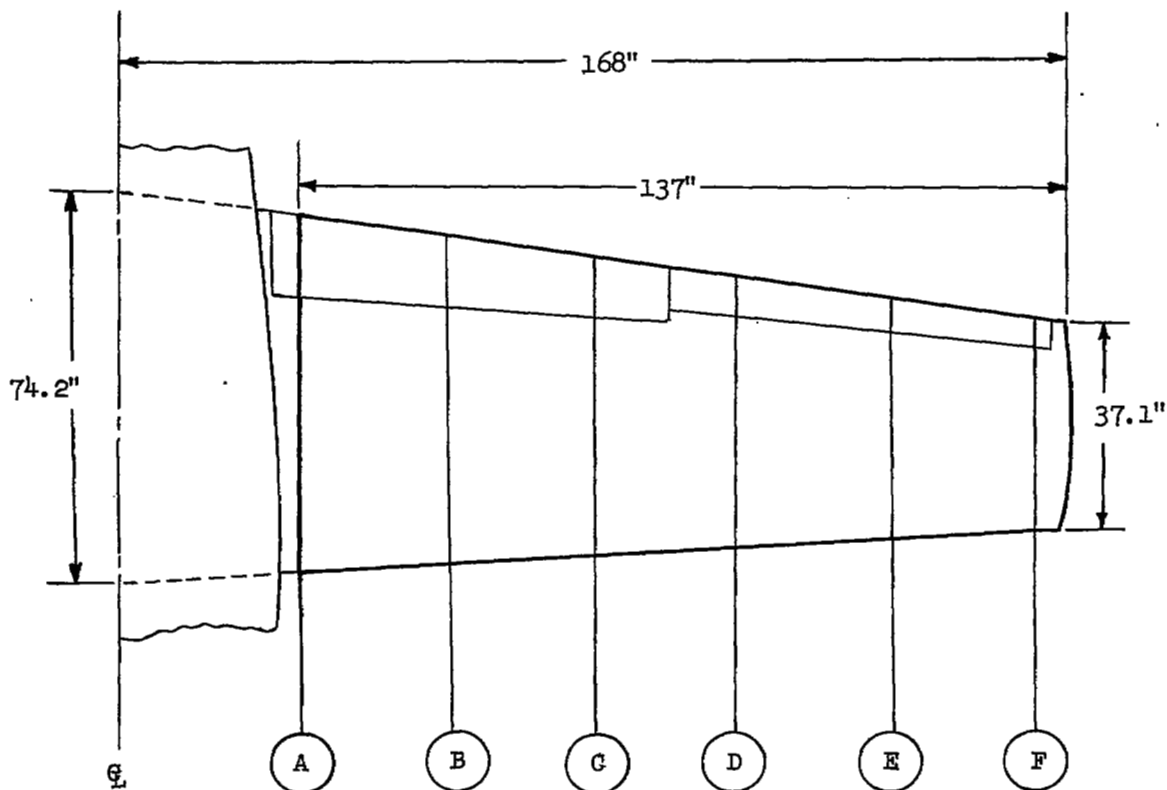
Abscissa (percent chord, c)	Ordinate, percent chord, c			
	Flap stations		Aileron stations	
	Upper surface	Lower surface	Upper surface	Lower surface
0	0	0	0	0
.50	.796	-.746	.796	-.746
.75	.966	-.896	.966	-.896
1.25	1.222	-1.115	1.222	-1.115
2.50	1.667	-1.481	1.667	-1.481
5.00	2.334	-2.018	2.334	-2.018
7.50	2.859	-2.435	2.859	-2.435
10.00	3.298	-2.781	3.298	-2.781
15.00	4.002	-3.329	4.002	-3.329
20.00	4.541	-3.745	4.541	-3.745
25.00	4.951	-4.056	4.951	-4.056
30.00	5.246	-4.274	5.246	-4.274
35.00	5.439	-4.409	5.439	-4.409
40.00	5.532	-4.461	5.532	-4.461
45.00	5.511	-4.416	5.511	-4.416
50.00	5.364	-4.261	5.364	-4.261
55.00	5.078	-3.983	5.078	-3.983
60.00	4.682	-3.611	4.682	-3.611
65.00	4.197	-3.167	4.197	-3.167
70.00	3.642	-2.670	3.642	-2.670
75.00	3.032	-2.137	3.032	-2.137
80.00	2.385	-1.589	2.385	-1.589
85.00	1.721	-1.048	1.721	-1.048
90.00	1.100	-.687	1.148	-.698
95.00	.525	-.295	.574	-.349
100.00	0	0	0	0

L.E. radius = 0.687 percent chord, c



TABLE 2
SPANWISE AND CHORDWISE LOCATIONS OF PRESSURE MEASURING ORIFICES

(a) Spanwise



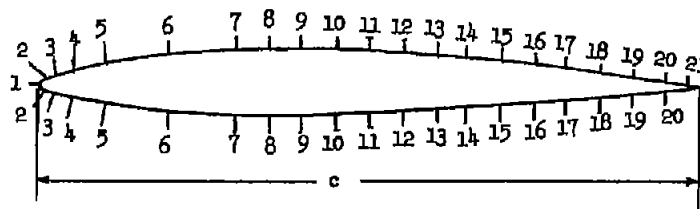
Span station	A	B	C	D	E	F
Distance from airplane center line, percent $b/2$	18.5	33.8	49.1	64.4	79.8	95.1
Distance from station A, percent $b'/2$	0	18.8	37.6	56.4	75.2	94.0

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TABLE 2

SPANWISE AND CHORDWISE LOCATIONS OF PRESSURE MEASURING ORIFICES - Concluded

(b) Chordwise



Orifice station location (percent chord)												
Chord station	A		B		C		D		E		F	
Orifice	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower
1	0		0		0		0		0		0	
2	1.16	1.16	1.43	1.26	1.18	1.28	1.29	1.38	1.17	1.17	1.16	1.23
3	2.40	2.40	2.72	2.59	2.40	2.40	2.66	2.66	2.27	2.27	2.64	2.39
4	4.79	4.79	5.21	5.06	5.04	5.04	5.16	5.16	4.90	4.90	5.49	5.03
5	9.85	9.98	10.45	10.45	9.64	9.64	10.95	10.95	8.91	8.91	10.42	10.16
6	19.75	19.92	20.00	20.00	20.00	20.00	19.76	20.10	20.00	19.90	19.92	19.66
7	29.80	30.00	29.40	30.00	29.32	30.00	30.00	30.00	30.00	30.00	29.75	29.62
8	34.85	35.05	34.45	35.20	34.78	35.20	34.80	35.10	35.00	34.92	35.05	35.05
9	40.00	40.10	39.90	40.00	39.58	40.00	40.00	40.15	40.00	40.00	40.07	40.07
10	45.10	45.00	45.17	45.38	44.40	45.92	45.15	45.35	45.15	44.52	45.00	45.00
11	50.20	49.70	50.10	49.95	49.52	50.18	50.18	50.30	50.08	49.90	50.02	50.00
12	54.90	54.90	55.00	54.92	55.10	55.20	55.28	55.28	55.50	54.90	55.05	54.95
13	60.38	60.00	61.08	59.82	59.90	60.00	60.80	60.60	59.50	60.50	59.70	60.00
14	65.00	65.00	65.20	65.00	65.00	65.00	65.40	65.60	64.95	65.00	64.95	64.95
15	70.00	70.00	70.15	70.15	70.00	70.00	69.85	69.95	69.90	70.00	70.05	70.05
16	74.10	74.42	74.00	74.00	74.00	74.38	74.40	74.20	73.70	74.60	73.85	74.30
17	78.60	78.60	78.60	78.60	78.00	78.20	79.50	79.70	81.00	80.50	79.85	80.05
18	84.90	85.08	85.10	85.00	84.95	84.95	85.62	85.40	85.70	85.70	85.70	85.70
19	90.00	90.00	90.30	89.96	90.00	90.00	90.00	90.00	89.95	89.95	89.60	89.60
20	94.80	94.80	95.00	94.50	95.00	95.10	95.00	95.00	95.00	95.30	95.10	95.30
21	97.65	-----	97.60	-----	97.30	-----	97.10	-----	96.70	-----	96.10	-----

TABLE 3

TABULATION OF PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF
THE BELL X-1 WING PANEL; UNACCELERATED STALL

(a) $M = 0.417$; $\delta_{aL} = 0.50^\circ$ down

Orifice	Pressure coefficients						
	Station A*	Station B*	Station C*	Station D		Station E*	Station F*
				Upper	Lower		
1	-----	-----	-----	-----	-----	-----	-----
2	2.593	2.444	2.306	-1.313	0.868	2.625	1.810
3	2.037	1.903	1.880	-1.197	.706	1.917	1.171
4	1.458	1.505	1.454	-1.054	.474	1.329	.870
5	.968	1.088	1.102	-----	.275	.972	.648
6	.662	.759	.755	-.642	.131	.648	.426
7	-----	.583	.551	-.549	.006	-----	.315
8	.431	.482	.491	-.568	-----	.509	.259
9	-----	-----	-----	-.521	-.054	-----	-----
10	.352	.366	.463	-.531	-.063	.398	.204
11	.264	.310	.375	-.438	-.081	.352	.185
12	.259	.250	.319	-.387	-----	-----	.157
13	.171	.273	.250	-.304	-----	.287	.134
14	.167	.176	-----	-.271	-.054	.236	.083
15	.134	.171	.176	-.202	-.017	.185	.102
16	.079	.097	.120	-----	.048	.157	-----
17	.102	.023	.125	-.091	.090	.107	.056
18	0	.056	-----	-.026	-----	-----	-----
19	-----	.056	-----	.048	.127	-----	.069
20	-----	-----	-----	.099	-----	-.019	-.019
21	-----	-----	-----	.122	-----	-----	-----

Integrated section aerodynamic characteristics						
C_N	0.430	0.470	0.486	0.502	0.453	0.279
$C_{mC}/4$	0.008	0.006	-0.005	-0.006	-0.003	0.004

Integrated panel aerodynamic characteristics	
$C_N' = 0.446$	C.P. _{y'} (percent panel span) = 42.9 C.P. _x (percent M.A.C.) = 24.8
$C_B' = 0.191$	
$C_M' = 0.001$	

*Resultant pressure coefficient.



TABLE 3

TABULATION OF PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF
THE BELL X-1 WING PANEL; UNACCELERATED STALL - Continued

(b) $M = 0.389$; $\delta_{aL} = 0.03^\circ$ up

Orifice	Pressure coefficients						
	Station A*	Station B*	Station C*	Station D		Station E*	Station F*
				Upper	Lower		
1	-----	-----	-----	-----	-----	-----	-----
2	3.578	3.305	3.123	-2.072	0.981	3.182	2.487
3	2.781	2.540	2.503	-1.687	.821	2.471	1.636
4	1.947	1.973	1.914	-1.372	.607	1.727	1.193
5	1.300	1.433	1.439	-----	.366	1.267	.856
6	.866	.989	.979	-.783	.168	.861	.524
7	-----	.733	.733	-.655	.051	-----	.390
8	.556	.620	.604	-.644	-----	.610	.305
9	-----	-----	-----	-.586	-.024	-----	-----
10	.449	.460	.556	-.596	-.045	.449	.289
11	.342	.449	.465	-.505	-.088	.406	.230
12	.337	.326	.390	-.452	-----	-----	.214
13	.209	.326	.305	-.334	-----	.316	.177
14	.230	.219	-----	-.297	-.061	.241	.118
15	.187	.225	.225	-.249	-.040	.230	.139
16	.123	.128	.155	-----	.056	.193	-----
17	.128	.059	.182	-.110	.083	.123	.064
18	0	.086	-----	-.051	-----	-----	-----
19	-----	.064	-----	.024	.110	-----	.091
20	-----	-----	-----	.072	-----	.032	0
21	-----	-----	-----	.094	-----	-----	-----

Integrated section aerodynamic characteristics						
c_n	0.572	0.612	0.632	0.618	0.560	0.367
$c_{m_c}/4$	0.015	0.011	-0.005	0	0.002	0.006

Integrated panel aerodynamic characteristics	
C_N^* = 0.569	C.P. y , (percent panel span) = 42.3 C.P. x (percent M.A.C.) = 24.0
C_B^* = 0.241	
C_M^* = 0.006	

*Resultant pressure coefficient.



TABLE 3

TABULATION OF PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF
THE BELL X-1 WING PANEL; UNACCELERATED STALL - Continued

(c) $M = 0.365$; $\delta_{aL} = 0.55^\circ$ down

Orifice	Pressure coefficients						
	Station A*	Station B*	Station C*	Station D		Station E*	Station F*
				Upper	Lower		
1	-----	-----	-----	-----	-----	-----	-----
2	3.282	3.724	3.583	-2.588	1.001	3.522	2.828
3	3.258	2.859	2.816	-2.509	.896	2.773	1.853
4	2.779	2.203	2.166	-1.441	.669	1.957	1.368
5	1.491	1.589	1.614	-----	.430	1.411	.969
6	.908	1.080	1.092	-.809	.252	.957	.583
7	-----	.810	.804	-.680	.093	-----	.448
8	.595	.687	.693	-.662	-----	.650	.344
9	-----	-----	-----	-.582	.007	-----	-----
10	.466	.515	.614	-.594	-.006	.515	.301
11	.374	.460	.497	-.503	-.030	.454	.221
12	.344	.350	.423	-.447	-----	-----	.227
13	.239	.344	.350	-.337	-----	.337	.178
14	.221	.252	-----	-.282	-.024	.276	.129
15	.215	.227	.233	-.226	.007	.221	.160
16	.141	.147	.178	-----	.050	.221	-----
17	.153	.080	.178	-.116	.142	.141	.074
18	.025	.074	-----	-.048	-----	-----	-----
19	-----	.086	-----	.025	.136	-----	.117
20	-----	-----	-----	.068	-----	-.037	.006
21	-----	-----	-----	.068	-----	-----	-----

Integrated section aerodynamic characteristics						
c_n	0.627	0.686	0.700	0.687	0.621	0.406
$c_{m_c}/4$	0.017	0.012	-0.003	0	0.007	0.005

Integrated panel aerodynamic characteristics	
$C_N' = 0.635$	C.P. _y : (percent panel span) = 42.2 C.P. _x (percent M.A.C.) = 23.8
$C_B' = 0.268$	
$C_M' = 0.008$	

*Resultant pressure coefficient.



TABLE 3

TABULATION OF PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF

THE BELL X-1 WING PANEL; UNACCELERATED STALL - Continued

(d) $M = 0.338$; $\delta_{aL} = 0.55^\circ$ down.

Orifice	Pressure coefficients						
	Station A*	Station B*	Station C*	Station D		Station E*	Station F*
				Upper	Lower		
1	-----	-----	-----	-----	-----	-----	-----
2	3.348	4.015	3.848	-2.475	1.033	3.768	3.116
3	3.254	3.044	3.044	-2.591	.960	3.000	1.986
4	2.920	2.355	2.304	-2.076	.728	2.102	1.493
5	1.870	1.703	1.725	-----	.453	1.522	1.015
6	.957	1.159	1.159	-.823	.301	1.015	.630
7	-----	.862	.841	-.649	.134	-----	.478
8	.630	.754	.703	-.670	-----	.703	.362
9	-----	-----	-----	-.612	.040	-----	-----
10	.478	.551	.645	-.576	.018	.522	.319
11	.370	.486	.544	-.496	-.004	.464	.246
12	.348	.370	.442	-.446	-----	-----	.225
13	.246	.362	.348	-.330	-----	.355	.188
14	.261	.275	-----	-.257	.018	.297	.152
15	.210	.268	.217	-.214	.011	.246	.167
16	.145	.152	.181	-----	.062	.196	-----
17	.174	.094	.196	-.112	.127	.167	.087
18	0	.087	-----	-.069	-----	-----	-----
19	-----	.087	-----	.018	.141	-----	.138
20	-----	-----	-----	.062	-----	-.029	.007
21	-----	-----	-----	.062	-----	-----	-----

Integrated section aerodynamic characteristics						
c_n	0.678	0.734	0.743	0.743	0.661	0.439
$c_{mC/4}$	0.024	0.013	-0.001	0	0.005	0.007

Integrated panel aerodynamic characteristics	
$C_N^i = 0.677$	C.P. _y : (percent panel span) = 42.1 C.P. _x (percent M.A.C.) = 23.6
$C_B^i = 0.285$	
$C_M^i = 0.010$	

*Resultant pressure coefficient.



TABLE 3

TABULATION OF PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF
THE BELL X-1 WING PANEL; UNACCELERATED STALL - Continued

(e) $M = 0.317$; $\delta_{aL} = 0.03^\circ$ up

Orifice	Pressure coefficients						
	Station A*	Station B*	Station C*	Station D		Station E*	Station F*
				Upper	Lower		
1	-----	-----	-----	-----	-----	-----	-----
2	2.893	3.868	3.653	-1.538	1.032	4.058	3.455
3	2.727	3.099	3.835	-1.695	.925	3.223	2.157
4	2.488	2.612	2.959	-1.769	.768	2.298	1.636
5	2.198	2.182	1.769	-----	.503	1.653	1.099
6	1.223	1.256	1.215	-1.084	.346	1.074	.694
7	-----	.851	.851	-.621	.181	-----	.529
8	.587	.736	.694	-.579	-----	.752	.380
9	-----	-----	-----	-.497	.074	-----	-----
10	.488	.471	.620	-.472	.057	.537	.331
11	.364	.422	.479	-.406	.024	.479	.265
12	.306	.322	.405	-.348	-----	-----	.256
13	.223	.339	.273	-.290	-----	.380	.215
14	.231	.215	-----	-.232	.024	.281	.165
15	.198	.256	.223	-.183	.016	.215	.190
16	.165	.149	.174	-----	.074	.141	-----
17	.182	.116	.223	-.117	.123	.149	.074
18	.033	.132	-----	-.075	-----	-----	-----
19	-----	.116	-----	-.001	.123	-----	.141
20	-----	-----	-----	.032	-----	-.033	.008
21	-----	-----	-----	.032	-----	-----	-----

Integrated section aerodynamic characteristics						
C_n	0.688	0.769	0.779	0.758	0.694	0.472
$C_{mC/4}$	0.020	0.023	0.007	0.007	0.011	0.011

Integrated panel aerodynamic characteristics	
$C_N' = 0.707$	C.P. _{y'} (percent panel span) = 42.4 C.P. _x (percent M.A.C.) = 23.0
$C_B' = 0.299$	
$C_M' = 0.014$	

*Resultant pressure coefficient.



TABLE 3

TABULATION OF PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF

THE BELL X-1 WING PANEL; UNACCELERATED STALL - Continued

(f) $M = 0.306$; $\delta_{a_L} = 0.35^\circ$ down

Orifice	Pressure coefficients						
	Station A*	Station B*	Station C*	Station D		Station E*	Station F*
				Upper	Lower		
1	-----	-----	-----	-----	-----	-----	-----
2	2.920	3.354	2.522	-1.543	1.033	2.434	3.620
3	2.327	2.664	2.593	-1.675	.962	2.416	2.416
4	2.257	2.549	2.655	-1.737	.741	2.310	1.788
5	2.080	2.239	2.195	-----	.511	2.106	1.177
6	1.602	1.496	1.575	-1.445	.342	1.504	.743
7	-----	.929	.956	-.755	.165	-----	.566
8	.540	.699	.690	-.649	-----	.770	.443
9	-----	-----	-----	-.560	.050	-----	-----
10	.425	.451	.611	-.481	.024	.460	.354
11	.319	.389	.443	-.392	-.003	.398	.301
12	.292	.301	.416	-.321	-----	-----	.274
13	.212	.292	.301	-.277	-----	.345	.257
14	.221	.230	-----	-.242	-.003	.301	.195
15	.212	.248	.212	-.224	-.012	.266	.204
16	.150	.159	.186	-----	.050	.212	-----
17	.212	.150	.239	-.215	.104	.204	.159
18	.080	.150	-----	-.162	-----	-----	-----
19	-----	.106	-----	-.100	.104	-----	.168
20	-----	-----	-----	-.047	-----	.018	.035
21	-----	-----	-----	-.029	-----	-----	-----

Integrated section aerodynamic characteristics

C_n	0.715	0.776	0.804	0.816	0.750	0.537
$C_{m_{c/4}}$	0.015	0.020	0.002	-0.006	0.004	0.005

Integrated panel aerodynamic characteristics

C_N^* = 0.742	C.P. _y : (percent panel span) = 43.1 C.P. _x (percent M.A.C.) = 23.9
C_B^* = 0.320	
C_M^* = 0.009	

*Resultant pressure coefficient



TABLE 3

TABULATION OF PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF
THE BELL X-1 WING PANEL; UNACCELERATED STALL - Continued

(g) $M = 0.301$; $\delta_{aL} = 0.40^\circ$ down

Orifice	Pressure coefficients						
	Station A*	Station B*	Station C*	Station D		Station E*	Station F*
				Upper	Lower		
1	-----	-----	-----	-----	-----	-----	-----
2	2.569	1.697	2.615	-1.355	1.012	2.266	3.551
3	2.413	1.651	2.596	-1.483	.994	2.339	2.532
4	2.376	1.477	2.477	-1.639	.764	2.376	1.890
5	2.083	1.413	2.229	-----	.544	2.037	1.257
6	1.156	1.367	1.468	-1.502	.361	1.633	.798
7	-----	1.229	.945	-.814	.195	-----	.606
8	.853	.908	.771	-.676	-----	.954	.486
9	-----	-----	-----	-.584	.076	-----	-----
10	.697	.826	.633	-.502	.049	.596	.367
11	.587	.615	.514	-.410	.021	.468	.330
12	.477	.651	.431	-.364	-----	-----	.284
13	.339	.606	.395	-.291	-----	.358	.266
14	.330	.459	-----	-.254	.012	.312	.220
15	.376	.312	.303	-.236	-.016	.275	.239
16	.211	.330	.239	-----	.049	.193	-----
17	.220	.275	.266	-.199	.076	.147	.165
18	.083	.312	-----	-.162	-----	-----	-----
19	-----	.211	-----	-.107	.049	-----	.156
20	-----	-----	-----	-.080	-----	0	.055
21	-----	-----	-----	-.098	-----	-----	-----

Integrated section aerodynamic characteristics						
c_n	0.758	0.772	0.818	0.837	0.796	0.557
$c_{m_c}/4$	-0.010	-0.055	-0.010	-0.005	0.001	0.002

Integrated panel aerodynamic characteristics	
$C_N' = 0.765$	C.P. _y ' (percent panel span) = 43.5 C.P. _x ' (percent M.A.C.) = 27.5
$C_B' = 0.333$	
$C_M' = 0.019$	

*Resultat pressure coefficient.



TABLE 3

TABULATION OF PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF
THE BELL X-1 WING PANEL; UNACCELERATED STALL - Continued

(h) $M = 0.300$; $\delta_{aL} = 2.55^\circ$ up

Orifice	Pressure coefficients						
	Station A*	Station B*	Station C*	Station D		Station E*	Station F*
				Upper	Lower		
1	-----	-----	-----	-----	-----	-----	-----
2	2.407	2.407	2.556	-1.174	1.030	2.445	3.500
3	2.167	2.389	2.574	-1.267	.974	2.407	2.472
4	2.102	2.269	2.500	-1.331	.780	2.269	1.870
5	2.037	2.157	2.204	-----	.539	2.130	1.232
6	1.676	1.713	1.611	-1.359	.363	1.491	.778
7	-----	.926	.843	-.989	.206	-----	.565
8	.657	.796	.694	-.813	-----	.694	.426
9	-----	-----	-----	-.646	.113	-----	-----
10	.444	.472	.565	-.526	.057	.426	.333
11	.398	.472	.398	-.406	.002	.361	.296
12	.370	.333	.435	-.331	-----	-----	.287
13	.259	.324	.380	-.257	-----	.306	.222
14	.259	.315	-----	-.230	.002	.259	.167
15	.241	.259	.278	-.193	-.007	.176	.148
16	.213	.130	.139	-----	.030	.130	-----
17	.232	.130	.222	-.156	.085	.074	.028
18	.037	.148	-----	-.109	-----	-----	-----
19	-----	.130	-----	-.100	.039	-----	.019
20	-----	-----	-----	-.091	-----	-.037	.009
21	-----	-----	-----	-.035	-----	-----	-----

Integrated section aerodynamic characteristics						
C_N	0.727	0.774	0.794	0.798	0.701	0.507
$C_{mC/4}$	0.009	0.007	0.001	-0.005	0.023	0.023

Integrated panel aerodynamic characteristics	
$C_N^1 = 0.727$	C.P. _y , (percent panel span) = 42.5 C.P. _x (percent M.A.C.) = 23.9
$C_B^1 = 0.309$	
$C_M^1 = 0.008$	

*Resultant pressure coefficient.



TABLE 3

TABULATION OF PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF
THE BELL X-1 WING PANEL; UNACCELERATED STALL - Concluded

(1) $M = 0.290$; $\delta_{aL} = 0.10^\circ$ up

Orifice	Pressure coefficients						
	Station A*	Station B*	Station C*	Station D		Station E*	Station F*
				Upper	Lower		
1	-----	-----	-----	-----	-----	-----	-----
2	2.451	2.255	1.559	-1.373	1.000	2.108	3.755
3	2.069	1.814	1.471	-1.431	.941	1.961	2.765
4	2.137	1.627	1.373	-1.500	.784	1.971	2.020
5	1.990	1.314	1.206	-----	.529	1.627	1.343
6	1.510	.961	1.059	-1.245	.343	1.529	.853
7	-----	.814	1.010	-.833	.196	-----	.647
8	.735	.814	.863	-.755	-----	1.167	.520
9	-----	-----	-----	-.657	.078	-----	-----
10	.510	.745	1.088	-.569	.049	.706	.431
11	.431	.657	.980	-.490	-.010	.569	.353
12	.363	.618	.912	-.441	-----	-----	.333
13	.314	.608	.598	-.412	-----	.480	.284
14	.333	.520	-----	-.412	-.039	.392	.235
15	.363	.500	.647	-.382	-.049	.353	.255
16	.226	.471	.559	-----	.020	.265	-----
17	.157	.451	.686	-.343	.049	.226	.147
18	.039	.382	-----	-.275	-----	-----	-----
19	-----	.343	-----	-.225	-.039	-----	.186
20	-----	-----	-----	-.206	-----	.020	.059
21	-----	-----	-----	-.177	-----	-----	-----

Integrated section aerodynamic characteristics						
c_n	0.739	0.748	0.841	0.834	0.812	0.606
$c_{mC/4}$	-0.002	-0.078	-0.124	-0.026	-0.027	0.002

Integrated panel aerodynamic characteristics	
$C_N' = 0.768$	C.P. _y (percent panel span) = 44.1 C.P. _x (percent M.A.C.) = 32.4
$C_B' = 0.339$	
$C_M' = 0.057$	

*Resultant pressure coefficient.



TABLE 4

TABULATION OF PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF
THE BELL X-1 WING PANEL; PULL-UP AT $M \approx 0.74$

(a) $M = 0.737$; $\delta_{a_L} = 0^\circ$

Orifice	Pressure coefficients						
	Station A*	Station B*	Station C*	Station D		Station E*	Station F*
				Upper	Lower		
1	-----	-----	-----	1.058	-----	-----	-----
2	0.871	0.789	0.763	-.214	0.395	0.953	0.588
3	.768	.689	.649	-.404	.250	.694	.343
4	.617	.702	.676	-.586	.108	.525	.319
5	.385	.517	.602	-----	-.014	.483	.319
6	.367	.446	.451	-.581	-.169	.369	.216
7	-----	.362	.406	-.613	-.262	-----	.179
8	.259	.290	.269	-.655	-----	.377	.150
9	-----	-----	-----	-.621	-.309	-----	-----
10	.222	.238	.367	-.615	-.288	.272	.166
11	.135	.198	.240	-.534	-.317	.277	.148
12	.166	.135	.182	-.460	-----	-----	.114
13	.066	.116	.114	-.338	-----	.190	.087
14	.082	.069	-----	-.280	-.172	.121	.026
15	.037	.066	.063	-.217	-.109	.095	.026
16	0	.011	.045	-----	-.045	.079	-----
17	-.201	-.045	.053	-.059	.028	.034	.008
18	-.008	-.034	-----	.047	-----	-----	-----
19	-----	0	-----	.084	.108	-----	.034
20	-----	-----	-----	.150	-----	-.032	-.058
21	-----	-----	-----	.153	-----	-----	-----

Integrated section aerodynamic characteristics						
C_n	0.188	0.227	0.265	0.261	0.252	0.134
$C_{m_c}/4$	0.008	0.005	-0.006	-0.006	-0.009	-0.002

Integrated panel aerodynamic characteristics	
$C_N^r = 0.229$	C.P. _y (percent panel span) = 44.3 C.P. _x (percent M.A.C.) = 25.4
$C_B^r = 0.102$	
$C_M^r = -0.001$	

*Resultant pressure coefficient.



TABLE 4

TABULATION OF PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF

THE BELL X-1 WING PANEL; PULL-UP AT $M \approx 0.74$ - Continued(b) $M = 0.744$; $\delta_{aL} = 0.10^\circ$ down

Orifice	Pressure coefficients						
	Station A*	Station B*	Station C*	Station D		Station E*	Station F*
				Upper	Lower		
1	-----	-----	-----	0.989	-----	-----	-----
2	1.354	1.160	1.119	-.383	0.533	1.327	0.891
3	1.220	1.013	.957	-.566	.348	1.023	.592
4	.813	.980	.856	-.697	.199	.734	.486
5	.565	.722	.901	-----	.052	.676	.448
6	.504	.572	.590	-.649	-.115	.486	.271
7	-----	.615	.666	-.725	-.219	-----	.238
8	.352	.349	.311	-.783	-----	.496	.192
9	-----	-----	-----	-.667	-.277	-----	-----
10	.273	.286	.499	-.662	-.269	.327	.190
11	.175	.246	.281	-.555	-.297	.319	.162
12	.200	.160	.205	-.477	-----	-----	.139
13	.094	.149	.132	-.358	-----	.203	.099
14	.091	.084	-----	-.290	-.166	.144	.038
15	.061	.071	.076	-.219	-.105	.117	.041
16	.010	.023	.043	-----	-.044	.091	-----
17	-.203	-.041	.061	-.064	.027	.041	.023
18	-.010	-.033	-----	.039	-----	-----	-----
19	-----	0	-----	.080	.110	-----	.043
20	-----	-----	-----	.133	-----	-.030	-.046
21	-----	-----	-----	.153	-----	-----	-----

Integrated section aerodynamic characteristics						
c_n	0.267	0.312	0.357	0.339	0.320	0.184
$c_{mC/4}$	0.012	0.008	-0.004	-0.008	-0.006	0.002

Integrated panel aerodynamic characteristics	
$C_N' = 0.308$ $C_B' = 0.134$ $C_M' = 0.001$	C.P. _y ' (percent panel span) = 43.4 C.P. _x ' (percent M.A.C.) = 24.6

*Resultant pressure coefficient.



TABLE 4

TABULATION OF PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF

THE BELL X-1 WING PANEL; PULL-UP AT $M \approx 0.74$ - Continued(c) $M = 0.747$; $\delta_{aL} = 0.70^\circ$ down

Orifice	Pressure coefficient						
	Station A*	Station B*	Station C*	Station D		Station E*	Station F*
				Upper	Lower		
1	-----	-----	-----	0.860	-----	-----	-----
2	1.896	1.682	1.710	-.579	0.671	1.829	1.412
3	1.836	1.598	1.529	-.743	.498	1.608	1.010
4	1.551	1.320	1.174	-.897	.314	1.161	.740
5	1.047	1.216	1.166	-----	.150	.881	.675
6	.692	.926	.945	-.951	-.033	.824	.405
7	-----	.735	.950	-.865	-.160	-----	.328
8	.529	.635	.623	-.817	-----	.613	.263
9	-----	-----	-----	-.661	-.232	-----	-----
10	.340	.362	.449	-.666	-.237	.405	.241
11	.241	.288	.338	-.569	-.267	.370	.204
12	.243	.208	.248	-.492	-----	-----	.169
13	.134	.184	.181	-.368	-----	.236	.119
14	.122	.109	-----	-.299	-.147	.164	.072
15	.082	.097	.104	-.227	-.090	.134	.072
16	.022	.027	.065	-----	-.023	.107	-----
17	-.213	-.030	.084	-.075	.049	.057	.037
18	-.007	-.015	-----	.011	-----	-----	-----
19	-----	.007	-----	.071	.113	-----	.072
20	-----	-----	-----	.140	-----	-.037	-.035
21	-----	-----	-----	.150	-----	-----	-----

Integrated section aerodynamic characteristics						
C_N	0.407	0.464	0.503	0.465	0.443	0.265
$C_{m_c}/4$	0.021	0.014	-0.003	-0.003	-0.002	0.003

Integrated panel aerodynamic characteristics	
$C_N^r = 0.431$	C.P. _y (percent panel span) = 42.7 C.P. _x (percent M.A.C.) = 23.6
$C_B^r = 0.184$	
$C_M^r = 0.006$	

*Resultant pressure coefficient.



TABLE 4

TABULATION OF PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF

THE BELL X-1 WING PANEL; PULL-UP AT $M \approx 0.74$ - Continued(d) $M = 0.750$; $\delta_{aL} = 0.70^\circ$ down

Orifice	Pressure coefficients						
	Station A*	Station B*	Station C*	Station D		Station E*	Station F*
				Upper	Lower		
1	-----	-----	-----	0.659	-----	-----	-----
2	2.442	2.184	2.140	-1.189	0.846	2.177	1.828
3	2.366	2.039	1.975	-1.110	.681	1.988	1.541
4	2.219	1.897	1.708	-1.068	.492	1.668	1.288
5	1.629	1.641	1.639	-----	.286	1.401	.919
6	1.324	1.383	1.295	-1.248	.104	1.170	.597
7	-----	1.371	1.332	-1.164	-.051	-----	.452
8	1.081	1.292	1.165	-1.243	-----	.983	.391
9	-----	-----	-----	-1.226	-.142	-----	-----
10	.359	.580	.678	-.818	-.152	.437	.346
11	.219	.391	.592	-.707	-.184	.359	.280
12	.231	.260	.408	-.518	-----	-----	.231
13	.118	.096	.194	-.287	-----	.251	.182
14	.120	.052	-----	-.201	-.093	.179	.113
15	.086	.069	.044	-.147	-.054	.145	.123
16	.049	.027	.030	-----	.015	.118	-----
17	-.221	-.015	.071	-.044	.072	.079	.096
18	0	0	-----	.030	-----	-----	-----
19	-----	.030	-----	.082	.131	-----	.133
20	-----	-----	-----	.148	-----	-.030	.005
21	-----	-----	-----	.155	-----	-----	-----

Integrated section aerodynamic characteristics

c_n	0.649	0.688	0.703	0.683	0.609	0.390
$c_{mC/4}$	0.034	0.018	0.002	-0.004	0.006	-0.003

Integrated panel aerodynamic characteristics

C_N^* = 0.631	
C_B^* = 0.263	$C.P._y$, (percent panel span) = 41.7
C_M^* = 0.011	$C.P._x$ (percent M.A.C.) = 23.3

*Resultant pressure coefficient.

TABLE 4

TABULATION OF PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF

THE BELL X-1 WING PANEL; PULL-UP AT $M \approx 0.74$ - Concluded(e) $M = 0.747$; $\delta_{aL} = 0.55^\circ$ down

Orifice	Pressure coefficients						
	Station A*	Station B*	Station C*	Station D		Station E*	Station F*
				Upper	Lower		
1	-----	-----	-----	0.403	-----	-----	-----
2	2.990	2.660	2.567	** -1.545	1.002	2.547	2.217
3	2.857	2.535	2.429	-1.548	.822	2.372	1.980
4	2.692	2.379	2.200	-1.407	.635	2.108	1.786
5	2.244	2.069	2.010	-----	.406	1.840	1.505
6	1.825	1.360	1.692	-1.250	.221	1.576	.921
7	-----	.983	1.453	-.902	-.051	-----	.690
8	.749	.860	1.175	-.875	-----	1.256	.606
9	-----	-----	-----	-.821	-.062	-----	-----
10	.411	.682	.672	-.811	-.087	.677	.402
11	.305	.579	.557	-.762	-.134	.402	.288
12	.318	.503	.362	-.745	-----	-----	.261
13	.237	.471	.323	-.666	-----	.219	.212
14	.217	.387	-----	-.592	-.094	.192	.192
15	.182	.355	.192	-.538	-.065	.197	.214
16	.131	.298	.207	-----	-.016	.170	-----
17	-.084	.264	.241	-.314	.034	.133	.170
18	-.007	.182	-----	-.230	-----	-----	-----
19	-----	.172	-----	-.176	.120	-----	-----
20	-----	-----	-----	-.099	-----	-.010	.047
21	-----	-----	-----	.109	-----	-----	-----

Integrated section aerodynamic characteristics						
c_n	0.787	0.823	0.870	0.839	0.788	0.562
$c_{m_c}/4$	0.040	-0.019	-0.016	-0.052	0.006	-0.006

Integrated panel aerodynamic characteristics	
$C_N^r = 0.792$	$C.P._y$ (percent panel span) = 42.8 $C.P._x$ (percent M.A.C.) = 26.4
$C_B^r = 0.339$	
$C_M^r = -0.011$	

*Resultant pressure coefficient

**Estimated value.



TABLE 5

TABULATION OF PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF
THE BELL X-1 WING PANEL; PULL-UP AT $M \approx 0.75$

(a) $M = 0.750$; $\delta_{aL} = 0.10^\circ$ down

Orifice	Pressure coefficients						
	Station A*	Station B*	Station C*	Station D		Station E*	Station F*
				Upper	Lower		
1	-----	-----	-----	0.987	-----	-----	-----
2	1.373	1.213	1.149	-.386	0.542	1.422	0.955
3	1.294	1.046	.981	-.576	.361	1.085	.656
4	.921	.990	.857	-.692	.225	.756	.534
5	.592	.890	.940	-----	.065	.735	.495
6	.532	.598	.594	-.628	-.098	.505	.300
7	-----	.658	.694	-.732	-.216	-----	-----
8	.408	.331	.441	-.823	-----	.536	.205
9	-----	-----	-----	-.802	-.270	-----	-----
10	.284	.331	.495	-.630	-.333	.350	.201
11	.184	.255	.282	-.549	-.293	.344	.170
12	.203	.168	.207	-.471	-----	-----	.151
13	.099	.153	.141	-.347	-----	.205	.099
14	.101	.091	-----	-.284	-.156	.137	.052
15	.054	.081	.079	-.214	-.104	.112	.048
16	.012	.023	.052	-----	-.031	.089	-----
17	-.174	-.033	.060	-.059	.034	.033	.025
18	-.006	.027	-----	.045	-----	-----	-----
19	-----	.006	-----	.086	.113	-----	.052
20	-----	-----	-----	.150	-----	-.035	-.046
21	-----	-----	-----	.157	-----	-----	-----

Integrated section aerodynamic characteristics						
c_n	0.285	0.336	0.377	0.349	0.343	0.201
$c_{mC/4}$	0.011	0.008	-0.008	-0.008	-0.007	0.002

Integrated panel aerodynamic characteristics	
$C_N' = 0.323$	C.P. _y : (percent panel span) = 43.4 C.P. _x : (percent M.A.C.) = 24.9
$C_B' = 0.140$	
$C_M' = 0$	

*Resultant pressure coefficient.



TABLE 5

TABULATION OF PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF

THE BELL X-1 WING PANEL; PULL-UP AT $M \approx 0.75$ - Continued(b) $M = 0.756$; $\delta_{aL} = 0.15^\circ$ down

Orifice	Pressure coefficients						
	Station A*	Station B*	Station C*	Station D		Station E*	Station F*
				Upper	Lower		
1	-----	-----	-----	0.904	-----	-----	-----
2	1.767	1.527	1.586	-.523	0.634	1.759	1.328
3	1.706	1.404	1.376	-.684	.471	1.533	.960
4	1.421	1.240	1.029	-.821	.298	1.107	.722
5	.857	1.121	1.105	-----	.129	.837	.674
6	.664	.901	.899	-.919	-.052	.845	.386
7	-----	.696	.889	-.895	-.173	-----	.330
8	.539	.654	.763	-.889	-----	.588	.266
9	-----	-----	-----	-.881	-.247	-----	-----
10	.316	.264	.411	-.595	-.243	.374	.231
11	.215	.254	.278	-.515	-.273	.368	.199
12	.221	.189	.213	-.475	-----	-----	.169
13	.119	.173	.153	-.354	-----	.217	.111
14	.109	.107	-----	-.288	-.149	.147	.060
15	.066	.093	.089	-.213	-.090	.119	.064
16	.018	.028	.058	-----	-.028	.097	-----
17	-.181	-.028	.077	-.058	.032	.050	.044
18	-.014	.020	-----	.042	-----	-----	-----
19	-----	.012	-----	.083	.115	-----	.052
20	-----	-----	-----	.145	-----	-.042	-.032
21	-----	-----	-----	.163	-----	-----	-----

Integrated section aerodynamic characteristics						
c_n	0.374	0.433	0.476	0.448	0.430	0.260
$c_{mC/4}$	0.019	0.012	-0.004	-0.004	-0.002	0.002

Integrated panel aerodynamic characteristics	
$C_N' = 0.415$	C.P. _y : (percent panel span) = 43.0 C.P. _x : (percent M.A.C.) = 23.9
$C_B' = 0.178$	
$C_M' = 0.005$	

*Resultant pressure coefficient.

TABLE 5

TABULATION OF PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF
THE BELL X-1 WING PANEL; PULL-UP AT $M \approx 0.75$ - Continued

(c) $M = 0.760$; $\delta_{a_L} = 0.20^\circ$ down

Orifice	Pressure coefficients						
	Station A*	Station B*	Station C*	Station D		Station E*	Station F*
				Upper	Lower		
1	-----	-----	-----	0.800	-----	-----	-----
2	2.126	1.929	1.922	-.880	0.753	2.006	1.671
3	2.086	1.786	1.739	-.710	.573	1.804	1.437
4	1.839	1.563	1.480	-.996	.412	1.549	1.241
5	1.288	1.400	1.371	-----	.208	1.269	.820
6	1.026	1.188	1.071	-1.133	.024	1.028	.498
7	-----	1.145	1.129	-1.090	-.112	-----	.453
8	.828	1.071	.988	-1.186	-----	.906	.359
9	-----	-----	-----	-1.215	-.192	-----	-----
10	.343	.429	1.078	-1.284	-.194	.733	.328
11	.214	.178	.449	-.612	-.231	.298	.269
12	.216	.100	.306	-.455	-----	-----	.214
13	.110	.129	.120	-.298	-----	.208	.163
14	.110	.086	-----	-.221	-.127	.143	.100
15	.069	.077	.043	-.159	-.072	.116	.096
16	.033	.028	.029	-----	-.008	.102	-----
17	-.190	-.028	.067	-.035	.053	.053	.071
18	-.006	-.012	-----	.049	-----	-----	-----
19	-----	.012	-----	.088	.135	-----	.094
20	-----	-----	-----	.149	-----	-.033	-.012
21	-----	-----	-----	.161	-----	-----	-----

Integrated section aerodynamic characteristics						
C_N	0.516	0.581	0.636	0.620	0.571	0.352
$C_{mC/4}$	0.026	0.019	-0.010	-0.008	0.004	0.004

Integrated panel aerodynamic characteristics	
$C_N^* = 0.561$	C.P. _y : (percent panel span) = 43.0 C.P. _x (percent M.A.C.) = 23.7
$C_B^* = 0.241$	
$C_M^* = 0.007$	

*Resultant pressure coefficient.



TABLE 5

TABULATION OF PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF
THE BELL X-1 WING PANEL; FULL-UP AT $M \approx 0.75$ - Continued

(d) $M = 0.756$; $\delta_{aL} = 0.40^\circ$ down

Orifice	Pressure coefficients						
	Station A*	Station B*	Station C*	Station D		Station E*	Station F*
				Upper	Lower		
1	-----	-----	-----	0.642	-----	-----	-----
2	**2.490	2.339	2.263	** -1.266	0.860	2.222	1.928
3	2.429	2.188	2.069	-1.189	.685	2.098	1.716
4	2.247	1.929	1.857	-1.107	.497	1.845	1.526
5	1.700	1.712	1.665	-----	.297	1.596	1.145
6	1.388	1.465	1.396	-1.303	.103	1.229	.712
7	-----	1.439	1.367	-1.281	-.042	-----	.571
8	1.137	1.320	1.263	-1.368	-----	1.208	.524
9	-----	-----	-----	-1.411	-.134	-----	-----
10	.463	.653	.933	-.832	-.144	.869	.369
11	.214	.577	.467	-.709	-.185	.371	.324
12	.208	.353	.377	-.575	-----	-----	.249
13	.106	.194	.265	-.426	-----	.186	.200
14	.106	.080	-----	-.291	-.107	.135	.137
15	.069	.067	.198	-.238	-.062	.116	.131
16	.039	.022	.143	-----	-.009	.108	-----
17	-.184	-.008	.155	-.101	.048	.069	.110
18	-.006	0	-----	-.026	-----	-----	-----
19	-----	.028	-----	.030	.136	-----	.141
20	-----	-----	-----	.085	-----	-.029	.018
21	-----	-----	-----	.111	-----	-----	-----

Integrated section aerodynamic characteristics						
c_n	0.665	0.751	0.787	0.748	0.696	0.463
$c_{m_c}/4$	0.031	0.012	-0.020	-0.021	0.001	0

Integrated panel aerodynamic characteristics	
$C_N' = 0.703$	C.P. y' (percent panel span) = 42.5 C.P. x (percent M.A.C.) = 24.7
$C_B' = 0.299$	
$C_M' = 0.002$	

*Resultant pressure coefficient

**Estimated value.



TABLE 5

TABULATION OF PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF

THE BELL X-1 WING PANEL; PULL-UP AT $M \approx 0.75$ - Concluded(e) $M = 0.746$; $\delta_{aL} = 0.30^\circ$ up

Orifice	Pressure coefficients						
	Station A*	Station B*	Station C*	Station D		Station E*	Station F*
				Upper	Lower		
1	-----	-----	-----	0.463	-----	-----	-----
2	**2.766	**2.766	**2.405	** -1.463	0.956	2.533	2.257
3	**2.756	**2.555	2.411	-1.513	.785	2.389	2.024
4	**2.565	2.297	2.190	-1.463	.599	2.152	1.868
5	2.078	2.032	1.982	-----	.374	1.918	1.617
6	1.750	1.465	1.683	-1.495	.178	1.581	.932
7	-----	.976	1.575	-1.365	.020	-----	.730
8	.838	.894	1.070	-1.237	-----	1.473	.637
9	-----	-----	-----	-.926	-.091	-----	-----
10	.419	.770	.513	-.710	-.111	.736	.407
11	.289	.687	.449	-.600	-.159	.497	.313
12	.275	.507	.385	-.560	-----	-----	.251
13	.170	.399	.379	-.519	-----	.154	.204
14	.158	.275	-----	-.465	-.113	.120	.158
15	.118	.239	.289	-.389	-.091	.108	.166
16	.058	.132	.267	-----	-.038	.096	-----
17	-.130	.084	.309	-.291	.016	.050	.126
18	-.006	.072	-----	-.193	-----	-----	-----
19	-----	.092	-----	-.133	.070	-----	.126
20	-----	-----	-----	-.044	-----	-.048	.024
21	-----	-----	-----	-.055	-----	-----	-----

Integrated section aerodynamic characteristics						
c_n	0.739	0.801	0.874	0.859	0.808	0.576
$c_{m_c/4}$	0.039	-0.002	-0.025	-0.029	0.012	0.004

Integrated panel aerodynamic characteristics	
$C_N' = 0.785$	C.P. _{y'} (percent panel span) = 43.5 C.P. _x (percent M.A.C.) = 25.4
$C_B' = 0.342$	
$C_M' = -0.003$	

*Resultant pressure coefficient.

**Estimated value.

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TABLE 6

TABULATION OF PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF

THE BELL X-1 WING PANEL; PULL-UP AT $M \approx 0.94$ (a) $M = 0.943$; $\delta_{a_L} = 1.20^\circ$ down

Orifice	Pressure coefficients						
	Station A*	Station B*	Station C*	Station D		Station E*	Station F*
				Upper	Lower		
1	-----	-----	-----	1.164	-----	-----	-----
2	0.854	0.688	0.629	.116	0.556	0.836	0.585
3	.875	.633	.538	-.057	.428	.642	.380
4	.686	.601	.540	-.209	.296	.437	.362
5	.476	.624	.613	-----	.164	.424	.319
6	.376	.469	.488	-.437	.020	.367	.289
7	-----	.488	.451	-.531	-.157	-----	.289
8	.355	.401	.351	-.613	-----	.394	.226
9	-----	-----	-----	-.644	-.314	-----	-----
10	.344	.283	.378	-.699	-.303	.362	.214
11	.328	.294	.387	-.704	-.401	.310	.166
12	.390	.248	.378	-.781	-----	-----	.169
13	.264	.337	.349	-.820	-----	.333	.169
14	.355	.312	-----	-.840	-.574	.335	.150
15	.246	.360	.303	-.884	-.615	.333	.107
16	.246	.333	.262	-----	-.592	.310	-----
17	.515	.412	.426	-.922	-.567	.292	.089
18	.305	.107	-----	-.879	-----	-----	-----
19	-----	.139	-----	-.886	-.428	-----	-----
20	-----	-----	-----	-.831	-----	.191	.032
21	-----	-----	-----	-.856	-----	-----	-----

Integrated section aerodynamic characteristics						
c_n	0.363	0.360	0.386	0.387	0.339	0.203
$c_{m_c}/4$	-0.067	-0.047	-0.070	-0.079	-0.061	-0.025

Integrated panel aerodynamic characteristics	
C_N^* = 0.345	C.P. _y (percent panel span) = 42.1 C.P. _x (percent M.A.C.) = 42.1
C_B^* = 0.145	
C_M^* = -0.059	

*Resultant pressure coefficient.



TABLE 6

TABULATION OF PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF

THE BELL X-1 WING PANEL; PULL-UP AT $M \approx 0.94$ - Continued(b) $M = 0.949$; $\delta_{aL} = 0.80^\circ$ down

Orifice	Pressure coefficients						
	Station A*	Station B*	Station C*	Station D		Station E*	Station F*
				Upper	Lower		
1	-----	-----	-----	1.127	-----	-----	-----
2	1.214	1.007	0.960	-.006	0.689	1.146	0.894
3	1.193	.924	.849	-.170	.547	.953	.641
4	1.000	.825	.728	-.329	.399	.726	.591
5	.692	.805	.757	-----	.244	.571	.449
6	.569	.649	.629	-.516	.062	.517	.391
7	-----	.632	.591	-.574	-.093	-----	.351
8	.479	.571	.479	-.660	-----	.506	.279
9	-----	-----	-----	-.705	-.240	-----	-----
10	.463	.409	.490	-.761	-.235	.456	.258
11	.443	.414	.508	-.761	-.325	.416	.223
12	.483	.353	.483	-.828	-----	-----	.216
13	.362	.436	.463	-.864	-----	.436	.209
14	.425	.387	-----	-.882	-.516	.411	.184
15	.324	.452	.398	-.909	-.568	.400	.148
16	.344	.418	.369	-----	-.541	.391	-----
17	.530	.528	.553	-.954	-.505	.378	.121
18	.369	.191	-----	-.896	-----	-----	-----
19	-----	.238	-----	-.909	-.401	-----	.211
20	-----	-----	-----	-.858	-----	.189	.110
21	-----	-----	-----	-.871	-----	-----	-----

Integrated section aerodynamic characteristics

c_n	0.491	0.490	0.507	0.491	0.449	0.272
$c_{mC/4}$	-0.078	-0.068	-0.086	-0.092	-0.074	-0.030

Integrated panel aerodynamic characteristics

$C_N' = 0.456$						
$C_B' = 0.191$						
$C_M' = -0.073$						
				C.P. _y (percent panel span) = 41.9		
				C.P. _x (percent M.A.C.) = 41.1		

*Resultant pressure coefficient.



TABLE 6

TABULATION OF PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF

THE BELL X-1 WING PANEL; PULL-UP AT $M \approx 0.94$ - Continued(c) $M = 0.954$; $\delta_{aL} = 0.55^\circ$ down

Orifice	Pressure coefficients						
	Station A*	Station B*	Station C*	Station D		Station E*	Station F*
				Upper	Lower		
1	-----	-----	-----	1.068	-----	-----	-----
2	1.449	1.244	1.204	-.101	0.770	1.298	1.058
3	1.440	1.151	1.096	-.224	.636	1.156	.844
4	1.238	1.027	.927	-.415	.485	.931	.749
5	.856	.956	.891	-----	.310	.731	.569
6	.727	.769	.700	-.599	.119	.609	.464
7	-----	.747	.693	-.630	-.039	-----	.404
8	.571	.680	.591	-.699	-----	.560	.353
9	-----	-----	-----	-.741	-.175	-----	-----
10	.562	.542	.569	-.806	-.170	.500	.313
11	.524	.518	.587	-.810	-.286	.464	.260
12	.556	.458	.562	-.872	-----	-----	.249
13	.433	.498	.542	-.895	-----	.489	.233
14	.502	.458	-----	-.899	-.488	.478	.200
15	.391	.520	.482	-.932	-.524	.473	.169
16	.451	.491	.469	-----	-.504	.436	-----
17	.542	.591	.638	-.972	-.461	.444	.147
18	.393	.251	-----	-.912	-----	-----	-----
19	-----	.320	-----	-.928	-.377	-----	.209
20	-----	-----	-----	-.866	-----	.251	.124
21	-----	-----	-----	-.877	-----	-----	-----

Integrated section aerodynamic characteristics						
c_n	0.581	0.604	0.600	0.581	0.531	0.328
$c_{m_c}/4$	-0.084	-0.085	-0.104	-0.103	-0.085	-0.032

Integrated panel aerodynamic characteristics	
C_N^* = 0.549	$C.P._y^*$ (percent panel span) = 41.6 $C.P._x$ (percent M.A.C.) = 40.5
C_B^* = 0.228	
C_M^* = -0.085	

*Resultant pressure coefficient.

TABLE 6

TABULATION OF PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF

THE BELL X-1 WING PANEL; PULL-UP AT $M \approx 0.94$ - Continued(d) $M = 0.955$; $\delta_{aL} = 0.40^\circ$ down

Orifice	Pressure coefficients						
	Station A*	Station B*	Station C*	Station D		Station E*	Station F*
				Upper	Lower		
1	-----	-----	-----	1.051	-----	-----	-----
2	1.443	1.226	1.199	-.086	0.744	1.285	1.053
3	1.412	1.131	1.086	-.228	.628	1.150	.832
4	1.219	.993	.923	-.403	.478	.936	.757
5	.852	.938	.887	-----	.303	.739	.566
6	.724	.759	.726	-.591	.113	.617	.474
7	-----	.732	.690	-.626	-.044	-----	.394
8	.562	.670	.569	-.701	-----	.606	.323
9	-----	-----	-----	-.735	-.179	-----	-----
10	.553	.540	.573	-.801	-.175	.520	.312
11	.516	.520	.591	-.805	-.272	.480	.270
12	.553	.447	.566	-.867	-----	-----	.248
13	.420	.496	.535	-.889	-----	.511	.232
14	.485	.460	-----	-.900	-.476	.502	.199
15	.385	.513	.478	-.934	-.515	.471	.173
16	.423	.480	.451	-----	-.498	.456	-----
17	.524	.575	.626	-.980	-.465	.456	.153
18	.392	.243	-----	-.914	-----	-----	-----
19	-----	.308	-----	-.912	-.374	-----	.197
20	-----	-----	-----	-.863	-----	.208	.120
21	-----	-----	-----	-.863	-----	-----	-----

Integrated section aerodynamic characteristics						
C_N	0.578	0.594	0.603	0.581	0.541	0.330
$C_{m_c}/4$	-0.085	-0.085	-0.104	-0.108	-0.089	-0.032

Integrated panel aerodynamic characteristics	
$C_N' = 0.547$	C.P. _y ' (percent panel span) = 41.8 C.P. _x ' (percent M.A.C.) = 41.0
$C_B' = 0.229$	
$C_M' = -0.087$	

*Resultant pressure coefficient.

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TABLE 6

TABULATION OF PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF
THE BELL X-1 WING PANEL; PULL-UP AT $M \approx 0.94$ - Continued

(e) $M = 0.951$; $\delta_{aL} = 0.20^\circ$ down

Orifice	Pressure coefficients						
	Station A*	Station B*	Station C*	Station D		Station E*	Station F*
				Upper	Lower		
1	-----	-----	-----	1.098	-----	-----	-----
2	1.677	1.459	1.401	-.303	0.864	1.448	1.209
3	1.637	1.365	1.296	-.272	.710	1.332	1.013
4	1.461	1.201	1.120	-.501	.543	1.109	.909
5	1.100	1.100	1.051	-----	.363	.900	.813
6	.889	.900	.849	-.686	.183	.739	.566
7	-----	.886	.813	-.697	.007	-----	.463
8	.688	.793	.702	-.751	-----	.713	.383
9	-----	-----	-----	-.806	-.129	-----	-----
10	.668	.650	.646	-.862	-.134	.628	.381
11	.613	.655	.659	-.864	-.261	.559	.305
12	.635	.590	.639	-.927	-----	-----	.292
13	.523	.633	.628	-.949	-----	.572	.261
14	.604	.572	-----	-.951	-.452	.570	.232
15	.481	.592	.570	-.980	-.497	.577	.189
16	.626	.548	.557	-----	-.463	.550	-----
17	.588	.664	.728	-1.011	-.425	.517	.165
18	.461	.341	-----	-.947	-----	-----	-----
19	-----	.486	-----	-.962	-.374	-----	.198
20	-----	-----	-----	-.900	-----	.198	.138
21	-----	-----	-----	-.851	-----	-----	-----

Integrated section aerodynamic characteristics						
c_n	0.706	0.718	0.713	0.679	0.623	0.392
$c_{m_c}/4$	-0.104	-0.110	-0.126	-0.121	-0.094	-0.032

Integrated panel aerodynamic characteristics	
$C_N' = 0.651$	C.P. _y : (percent panel span) = 41.5 C.P. _x (percent M.A.C.) = 40.9
$C_B' = 0.270$	
$C_M' = -0.104$	

*Resultant pressure coefficient.



TABLE 6

TABULATION OF PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF

THE BELL X-1 WING PANEL; PULL-UP AT $M \approx 0.94$ - Continued(f) $M = 0.947$; $\delta_{aL} = 0.20^\circ$ down

Orifice	Pressure coefficients						
	Station A*	Station B*	Station C*	Station D		Station E*	Station F*
				Upper	Lower		
1	-----	-----	-----	1.076	-----	-----	-----
2	1.874	1.648	1.576	-.532	0.920	1.582	1.368
3	1.828	1.533	1.465	-.507	.773	1.485	1.205
4	1.650	1.384	1.298	-.550	.620	1.289	1.079
5	1.307	1.244	1.183	-----	.416	1.093	.962
6	1.070	1.059	1.009	-.762	.231	.867	.646
7	-----	1.000	.923	-.780	.055	-----	.537
8	.804	.914	.822	-.830	-----	.824	.454
9	-----	-----	-----	-.872	-.080	-----	-----
10	.783	.743	.765	-.940	-.103	.722	.447
11	.698	.765	.756	-.933	-.234	.641	.373
12	.720	.702	.731	-.983	-----	-----	.357
13	.643	.783	.707	-1.006	-----	.650	.316
14	.713	.720	-----	-1.024	-.426	.650	.287
15	.607	.713	.657	-1.042	-.459	.650	.255
16	.691	.668	.625	-----	-.426	.646	-----
17	.646	.743	.824	-1.073	-.378	.598	.219
18	.533	.490	-----	-.992	-----	-----	-----
19	-----	.551	-----	-1.010	-.333	-----	.253
20	-----	-----	-----	-.960	-----	.212	.163
21	-----	-----	-----	-.886	-----	-----	-----

Integrated section aerodynamic characteristics						
c_n	0.836	0.839	0.817	0.785	0.726	0.464
$c_{mC/4}$	-0.128	-0.133	-0.141	-0.140	-0.109	-0.042

Integrated panel aerodynamic characteristics	
$C_N^i = 0.754$	C.P. _y : (percent panel span) = 41.2 C.P. _x (percent M.A.C.) = 41.4
$C_B^i = 0.311$	
$C_M^i = -0.123$	

*Resultant pressure coefficient.



TABLE 6

TABULATION OF PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF

THE BELL X-1 WING PANEL; PULL-UP AT $M \approx 0.94$ - Continued(g) $M = 0.939$; $\delta_{aL} = 0.20^\circ$ down

Orifice	Pressure coefficients						
	Station A*	Station B*	Station C*	Station D		Station E*	Station F*
				Upper	Lower		
1	-----	-----	-----	0.874	-----	-----	-----
2	1.984	1.753	1.693	-.638	0.955	1.681	1.467
3	1.933	1.661	1.580	-.638	.807	1.577	1.314
4	1.774	1.478	1.416	-.638	.639	1.379	1.171
5	1.443	1.330	1.268	-----	.438	1.185	1.046
6	1.157	1.146	1.092	-.807	.246	.945	.702
7	-----	1.069	.998	-.830	.071	-----	.587
8	.878	.989	.887	-.888	-----	.892	.499
9	-----	-----	-----	-.932	-.066	-----	-----
10	.845	.811	.838	-.987	-.100	.788	.469
11	.751	.848	.822	-.978	-.223	.700	.388
12	.788	.758	.783	-1.024	-----	-----	.365
13	.760	.841	.760	-1.052	-----	.698	.337
14	.769	.776	-----	-1.056	-.414	.704	.312
15	.681	.806	.707	-1.091	-.447	.725	.275
16	.723	.725	.688	-----	-.403	.718	-----
17	.702	.871	.898	-1.121	-.366	.672	.249
18	.570	.522	-----	-1.036	-----	-----	-----
19	-----	.589	-----	-1.049	-.308	-----	.282
20	-----	-----	-----	-.999	-----	.240	.180
21	-----	-----	-----	-.913	-----	-----	-----

Integrated section aerodynamic characteristics

C_N	0.905	0.911	0.890	0.844	0.790	0.505
$C_{m_c}/4$	-0.136	-0.149	-0.157	-0.150	-0.122	-0.046

Integrated panel aerodynamic characteristics

$C_N' = 0.822$	C.P. _y : (percent panel span) = 41.3 C.P. _x (percent M.A.C.) = 41.3
$C_B' = 0.340$	
$C_M' = -0.134$	

*Resultant pressure coefficient.



TABLE 6

TABULATION OF PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF
THE BELL X-1 WING PANEL; PULL-UP AT $M \approx 0.94$ - Continued

(h) $M = 0.928$; $\delta_{aL} = 0.20^\circ$ down

Orifice	Pressure coefficients						
	Station A*	Station B*	Station C*	Station D		Station E*	Station F*
				Upper	Lower		
1	-----	-----	-----	0.756	-----	-----	-----
2	2.220	1.983	1.897	-.839	1.018	1.859	1.644
3	2.167	1.883	1.783	-.839	.880	1.764	1.508
4	1.986	1.690	1.616	-.820	.696	1.558	1.346
5	1.723	1.527	1.453	-----	.488	1.346	1.193
6	1.356	1.317	1.258	-.925	.293	1.110	.826
7	-----	1.220	1.172	-.922	.109	-----	.675
8	1.053	1.119	1.033	-.982	-----	1.014	.587
9	-----	-----	-----	-1.030	-.032	-----	-----
10	.995	.986	.971	-1.084	-.073	.897	.525
11	.895	.981	.962	-1.077	-.201	.821	.444
12	.921	.862	.912	-1.123	-----	-----	.422
13	.933	.959	.874	-1.142	-----	.819	.394
14	.871	.902	-----	-1.139	-.385	.826	.375
15	.826	.955	.826	-1.163	-.409	.843	.348
16	.819	1.007	.816	-----	-.361	.816	-----
17	.642	1.112	1.038	-1.197	-.318	.797	.346
18	.406	.630	-----	-1.108	-----	-----	-----
19	-----	.609	-----	-1.132	-.278	-----	.372
20	-----	-----	-----	-1.065	-----	.325	.246
21	-----	-----	-----	-.939	-----	-----	-----

Integrated section aerodynamic characteristics						
c_n	1.019	1.056	1.034	0.983	0.921	0.599
$c_{m_c/4}$	-0.134	-0.171	-0.184	-0.178	-0.147	-0.062

Integrated panel aerodynamic characteristics	
$C_N' = 0.950$	C.P. _y (percent panel span) = 41.5 C.P. _x (percent M.A.C.) = 41.2
$C_B' = 0.394$	
$C_M' = -0.154$	

*Resultant pressure coefficient.



TABLE 6

TABULATION OF PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF

THE BELL X-1 WING PANEL; PULL-UP AT $M \approx 0.94$ - Continued(1) $M = 0.917$; $\delta_{aL} = 0.20^\circ$ down

Orifice	Pressure coefficients						
	Station A*	Station B*	Station C*	Station D		Station E*	Station F*
				Upper	Lower		
1	-----	-----	-----	0.679	-----	-----	-----
2	2.340	2.099	2.015	-.932	1.044	1.985	1.764
3	2.264	2.017	1.906	-.934	.908	1.889	1.618
4	2.104	1.820	1.724	-.905	.736	1.687	1.446
5	1.838	1.640	1.569	-----	.519	1.461	1.310
6	1.471	1.411	1.345	-.991	.315	1.217	.921
7	-----	1.310	1.251	-.986	.125	-----	.729
8	1.140	1.205	1.108	-1.050	-----	1.084	.643
9	-----	-----	-----	-1.094	-.030	-----	-----
10	1.074	1.059	1.037	-1.149	-.082	.953	.564
11	.971	.946	1.012	-1.146	-.203	.887	.485
12	.993	.631	.926	-1.190	-----	-----	.461
13	.995	.640	.857	-1.198	-----	.902	.441
14	.820	.584	-----	-1.203	-.390	.904	.419
15	.589	.663	.739	-1.222	-.397	.911	.419
16	.525	.675	.700	-----	-.358	.884	-----
17	.453	.778	.921	-1.252	-.289	.877	.402
18	.330	.387	-----	-1.173	-----	-----	-----
19	-----	.480	-----	-1.131	-.237	-----	.426
20	-----	-----	-----	-.971	-----	.379	.303
21	-----	-----	-----	-.910	-----	-----	-----

Integrated section aerodynamic characteristics

c_n	1.030	0.983	1.048	1.052	1.001	0.663
$c_{mC/4}$	-0.109	-0.116	-0.185	-0.187	-0.163	-0.074

Integrated panel aerodynamic characteristics

C_N' = 0.968	$C.P._y$: (percent panel span) = 42.9 $C.P._x$ (percent M.A.C.) = 39.7
C_B' = 0.415	
C_M' = -0.142	

*Resultant pressure coefficient.

TABLE 6

TABULATION OF PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF

THE BELL X-1 WING PANEL; FULL-UP AT $M \approx 0.94$ - Concluded(j) $M = 0.907$; $\delta_{aL} = 0.25^\circ$ down

Orifice	Pressure coefficients						
	Station A*	Station B*	Station C*	Station D		Station E*	Station F*
				Upper	Lower		
1	-----	-----	-----	0.496	-----	-----	-----
2	2.568	2.366	2.240	-1.123	1.117	2.215	1.965
3	2.518	2.253	2.152	-1.128	.998	2.094	1.828
4	2.356	2.091	1.962	-1.065	.804	1.894	1.644
5	2.086	1.876	1.677	-----	.605	1.659	1.450
6	1.644	1.634	1.551	-1.123	.395	1.389	1.096
7	-----	1.356	1.460	-1.082	.195	-----	.838
8	1.109	1.202	1.311	-1.143	-----	1.222	.768
9	-----	-----	-----	-1.181	.041	-----	-----
10	.924	.821	1.202	-1.244	-.022	1.094	.689
11	.816	.758	1.109	-1.196	-.128	1.015	.606
12	.793	.639	.970	-1.176	-----	-----	.561
13	.765	.692	.861	-1.173	-----	1.000	.528
14	.621	.641	-----	-1.133	-.259	.942	.545
15	.626	.710	.801	-1.049	-.234	.907	.540
16	.596	.692	.823	-----	-.186	.924	-----
17	.528	.775	.934	-1.080	-.133	.891	.533
18	.480	.341	-----	-.986	-----	-----	-----
19	-----	.492	-----	-.906	-.166	-----	.563
20	-----	-----	-----	-.842	-----	.465	.419
21	-----	-----	-----	-.845	-----	-----	-----

Integrated section aerodynamic characteristics						
c_n	1.058	1.025	1.158	1.145	1.110	0.792
$c_{m_c}/4$	-0.104	-0.109	-0.175	-0.177	-0.174	-0.101

Integrated panel aerodynamic characteristics	
$C_N' = 1.052$	$C.P._y$: (percent panel span) = 43.9 $C.P._x$ (percent M.A.C.) = 38.2
$C_B' = 0.462$	
$C_M' = -0.139$	

*Resultant pressure coefficient.

TABLE 7

TABULATION OF PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF
THE BELL X-1 WING PANEL; PULL-UP AT $M \approx 0.97$

(a) $M = 0.974$; $\delta_{aL} = 0.40^\circ$ up

Orifice	Pressure coefficients						
	Station A*	Station B*	Station C*	Station D		Station E*	Station F*
				Upper	Lower		
1	-----	-----	-----	1.165	-----	-----	-----
2	0.896	0.739	0.671	.134	0.623	0.893	0.646
3	.916	.683	.615	-.037	.496	.680	.429
4	.726	.644	.551	-.175	.354	.465	.388
5	.451	.642	.626	-----	.227	.422	.329
6	.386	.485	.485	-.404	.038	.386	.297
7	-----	.485	.463	-.463	-.100	-----	.279
8	.361	.388	.349	-.558	-----	.415	.243
9	-----	-----	-----	-.581	-.254	-----	-----
10	.356	.290	.356	-.640	-.234	.331	.220
11	.340	.293	.386	-.658	-.322	.302	.170
12	.386	.263	.376	-.721	-----	-----	.166
13	.281	.347	.349	-.762	-----	.331	.168
14	.354	.311	-----	-.776	-.497	.333	.138
15	.245	.372	.272	-.807	-.547	.331	.111
16	.270	.318	.254	-----	-.533	.304	-----
17	.318	.410	.424	-.851	-.499	.306	.075
18	.304	.141	-----	-.773	-----	-----	-----
19	-----	.168	-----	-.769	-.436	-----	.098
20	-----	-----	-----	-.730	-----	.172	.027
21	-----	-----	-----	-.762	-----	-----	-----

Integrated section aerodynamic characteristics						
c_n	0.368	0.374	0.397	0.372	0.347	0.197
$c_{m_c}/4$	-0.065	-0.052	-0.074	-0.068	-0.060	-0.014

Integrated panel aerodynamic characteristics	
$C_N' = 0.354$	C.P. _y : (percent panel span) = 41.6 C.P. _x (percent M.A.C.) = 41.6
$C_B' = 0.147$	
$C_M' = -0.059$	

*Resultant pressure coefficient.



TABLE 7

TABULATION OF PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF

THE BELL X-1 WING PANEL; FULL-UP AT. $M \approx 0.97$ - Continued(b) $M = 0.976$; $\delta_{aL} = 0.15^\circ$ down

Orifice	Pressure coefficients						
	Station A*	Station B*	Station C*	Station D		Station E*	Station F*
				Upper	Lower		
1	-----	-----	-----	0.736	-----	-----	-----
2	1.617	1.401	1.360	-.223	0.885	1.399	1.189
3	1.592	1.306	1.252	-.218	.736	1.270	.998
4	1.419	1.158	1.086	-.450	.581	1.070	.876
5	1.068	1.068	1.011	-----	.394	.869	.782
6	.867	.878	.827	-.613	.214	.707	.536
7	-----	.847	.788	-.615	.043	-----	.444
8	.671	.768	.676	-.687	-----	.689	.369
9	-----	-----	-----	-.741	-.092	-----	-----
10	.644	.622	.599	-.795	-.086	.595	.354
11	.608	.640	.644	-.804	-.205	.534	.302
12	.601	.579	.622	-.847	-----	-----	.282
13	.507	.617	.610	-.885	-----	.554	.257
14	.579	.547	-----	-.883	-.410	.554	.214
15	.453	.595	.536	-.910	-.444	.554	.191
16	.577	.534	.527	-----	-.414	.514	-----
17	.423	.640	.703	-.930	-.372	.500	.167
18	.435	.331	-----	-.872	-----	-----	-----
19	-----	.428	-----	-.890	-.356	-----	.189
20	-----	-----	-----	-.833	-----	.182	.122
21	-----	-----	-----	-.782	-----	-----	-----

Integrated section aerodynamic characteristics						
c_n	0.676	0.690	0.697	0.649	0.601	0.376
$c_{m_c}/4$	-0.093	-0.103	-0.121	-0.111	-0.092	-0.030

Integrated panel aerodynamic characteristics	
$C_N' = 0.629$	
$C_B' = 0.261$	C.P. _y (percent panel span) = 41.5
$C_M' = -0.097$	C.P. _x (percent M.A.C.) = 40.4

*Resultant pressure coefficient.



TABLE 7

TABULATION OF PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF

THE BELL X-1 WING PANEL; PULL-UP AT $M \approx 0.97$ - Continued(c) $M = 0.977$; $\delta_{aL} = 0.15^\circ$ down

Orifice	Pressure coefficients						
	Station A*	Station B*	Station C*	Station D		Station E*	Station F*
				Upper	Lower		
1	-----	-----	-----	1.005	-----	-----	-----
2	1.740	1.505	1.457	-.356	0.920	1.478	1.260
3	1.706	1.424	1.354	-.269	.765	1.368	1.083
4	1.538	1.247	1.186	-.464	.613	1.170	.971
5	1.204	1.148	1.099	-----	.426	.996	.848
6	.984	.957	.915	-.654	.243	.783	.588
7	-----	.926	.841	-.677	.074	-----	.484
8	.731	.823	.749	-.733	-----	.749	.417
9	-----	-----	-----	-.773	-.058	-----	-----
10	.702	.677	.644	-.827	-.065	.650	.395
11	.653	.695	.686	-.822	-.195	.588	.350
12	.657	.635	.679	-.887	-----	-----	.334
13	.558	.718	.664	-.912	-----	.596	.301
14	.641	.648	-----	-.917	-.374	.603	.265
15	.522	.670	.581	-.932	-.414	.574	.240
16	.640	.623	.567	-----	-.385	.558	-----
17	.464	.704	.756	-.964	-.340	.538	.211
18	.478	.366	-----	-.908	-----	-----	-----
19	-----	.489	-----	-.917	-.300	-----	.238
20	-----	-----	-----	-.845	-----	.188	.166
21	-----	-----	-----	-.748	-----	-----	-----

Integrated section aerodynamic characteristics						
C_N	0.742	0.759	0.753	0.713	0.650	0.426
$C_{m_c}/4$	-0.102	-0.119	-0.133	-0.126	-0.094	-0.040

Integrated panel aerodynamic characteristics	
$C_N^r = 0.686$	C.P. y^r (percent panel span) = 41.6 C.P. x (percent M.A.C.) = 40.8
$C_B^r = 0.285$	
$C_M^r = -0.109$	

*Resultant pressure coefficient.



TABLE 7

TABULATION OF PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF

THE BELL X-1 WING PANEL; PULL-UP AT $M \approx 0.97$ - Continued(d) $M = 0.976$; $\delta_{aL} = 0.15^\circ$ down

Orifice	Pressure coefficients						
	Station A*	Station B*	Station C*	Station D		Station E*	Station F*
				Upper	Lower		
1	-----	-----	-----	0.960	-----	-----	-----
2	1.814	1.568	1.515	-.452	0.946	1.528	1.311
3	1.790	1.497	1.423	-.432	.794	1.425	1.141
4	1.613	1.333	1.251	-.483	.638	1.217	1.011
5	1.262	1.204	1.154	-----	.450	1.022	.913
6	1.031	1.025	.971	-.678	.260	.830	.609
7	-----	.975	.890	-.705	.092	-----	.506
8	.770	.875	.792	-.752	-----	.788	.434
9	-----	-----	-----	-.790	-.038	-----	-----
10	.761	.720	.687	-.846	-.051	.680	.412
11	.669	.745	.725	-.848	-.186	.609	.356
12	.687	.680	.707	-.897	-----	-----	.333
13	.615	.756	.676	-.919	-----	.613	.307
14	.691	.700	-----	-.928	-.367	.622	.280
15	.573	.696	.631	-.951	-.398	.620	.253
16	.658	.642	.613	-----	-.374	.600	-----
17	.481	.716	.796	-.973	-.329	.566	.217
18	.488	.465	-----	-.915	-----	-----	-----
19	-----	.548	-----	-.931	-.282	-----	.244
20	-----	-----	-----	-.870	-----	.204	.166
21	-----	-----	-----	-.805	-----	-----	-----

Integrated section aerodynamic characteristics						
C_N	0.781	0.819	0.794	0.747	0.683	0.445
$C_{mC/4}$	-0.109	-0.132	-0.141	-0.130	-0.100	-0.041

Integrated panel aerodynamic characteristics	
$C_N' = 0.728$	C.P. _{y'} (percent panel span) = 41.3 C.P. _x (percent M.A.C.) = 41.0
$C_B' = 0.300$	
$C_M' = -0.116$	

* Resultant pressure coefficient.



TABLE 7

TABULATION OF PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF
THE BELL X-1 WING PANEL; PULL-UP AT $M \approx 0.97$ - Continued

(e) $M = 0.971$; $\delta_{aL} = 0.15^\circ$ down

Orifice	Pressure coefficients						
	Station A*	Station B*	Station C*	Station D		Station E*	Station F*
				Upper	Lower		
1	-----	-----	-----	0.722	-----	-----	-----
2	2.255	2.032	1.966	-.835	1.104	1.919	1.700
3	2.194	1.966	1.837	-.828	.964	1.810	1.569
4	2.036	1.774	1.677	-.795	.810	1.614	1.409
5	1.779	1.596	1.530	-----	.598	1.406	1.235
6	1.422	1.368	1.303	-.880	.402	1.172	.903
7	-----	1.275	1.233	-.860	.233	-----	.711
8	1.124	1.172	1.088	-.907	-----	1.059	.639
9	-----	-----	-----	-.957	.081	-----	-----
10	1.059	1.041	.986	-1.005	.036	.935	.564
11	.950	1.023	.991	-1.002	-.070	.867	.492
12	.962	.903	.964	-1.041	-----	-----	.445
13	.968	1.007	.928	-1.050	-----	.862	.413
14	.912	.948	-----	-1.050	-.269	.871	.406
15	.878	1.043	.876	-1.063	-.264	.874	.400
16	.822	1.047	.874	-----	-.217	.831	-----
17	.630	1.145	1.108	-1.095	-.174	.831	.386
18	.659	.736	-----	-1.020	-----	-----	-----
19	-----	.725	-----	-1.043	-.185	-----	.375
20	-----	-----	-----	-.982	-----	.375	.287
21	-----	-----	-----	-.856	-----	-----	-----

Integrated section aerodynamic characteristics						
C_N	1.082	1.111	1.079	1.031	0.962	0.639
$C_{m_c}/4$	-0.149	-0.187	-0.190	-0.182	-0.155	-0.066

Integrated panel aerodynamic characteristics	
C_N^* = 1.003	C.P. _y (percent panel span) = 41.7 C.P. _x (percent M.A.C.) = 41.4
C_B^* = 0.418	
C_M^* = -0.165	

*Resultant pressure coefficient.



TABLE 7

TABULATION OF PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF
THE BELL X-1 WING PANEL; FULL-UP AT $M \approx 0.97$ - Continued

(f) $M = 0.964$; $\delta_{aL} = 0.15^\circ$ down

Orifice	Pressure coefficients						
	Station A*	Station B*	Station C*	Station D		Station E*	Station F*
				Upper	Lower		
1	-----	-----	-----	0.779	-----	-----	-----
2	2.215	2.007	1.920	-.825	1.079	1.929	1.703
3	2.142	1.911	1.812	-.806	.949	1.806	1.570
4	1.991	1.709	1.638	-.800	.777	1.600	1.417
5	1.728	1.554	1.485	-----	.562	1.410	1.256
6	1.382	1.332	1.291	-.877	.372	1.188	.874
7	-----	1.217	1.176	-.884	.198	-----	.728
8	1.103	1.133	1.066	-.939	-----	1.066	.648
9	-----	-----	-----	-.978	.059	-----	-----
10	1.044	1.014	.970	-1.024	.006	.931	.590
11	.915	.986	.963	-1.015	-.095	.879	.536
12	.931	.870	.925	-1.067	-----	-----	.485
13	.936	.963	.886	-1.076	-----	.865	.426
14	.918	.915	-----	-1.076	-.296	.883	.439
15	.860	.963	.847	-1.090	-.280	.886	.426
16	.860	.984	.824	-----	-.250	.858	-----
17	.632	1.130	1.023	-1.138	-.207	.849	.444
18	.673	.762	-----	-1.047	-----	-----	-----
19	-----	.824	-----	-1.070	-.168	-----	.433
20	-----	-----	-----	-.987	-----	.311	.311
21	-----	-----	-----	-.861	-----	-----	-----

Integrated section aerodynamic characteristics						
c_n	1.060	1.098	1.059	1.027	0.968	0.654
$c_{mC}/4$	-0.150	-0.194	-0.190	-0.183	-0.152	-0.078

Integrated panel aerodynamic characteristics	
$C_N' = 0.996$	C.P. _y (percent panel span) = 41.7 C.P. _x (percent M.A.C.) = 41.8
$C_B' = 0.416$	
$C_M' = -0.167$	

*Resultant pressure coefficient.



TABLE 7

TABULATION OF PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF

THE BELL X-1 WING PANEL; PULL-UP AT $M \approx 0.97$ - Continued(g) $M = 0.959$; $\delta_{aL} = 0.10^\circ$ down

Orifice	Pressure coefficients						
	Station A*	Station B*	Station C*	Station D		Station E*	Station F**
				Upper	Lower		
1	-----	-----	-----	0.654	-----	-----	-----
2	2.383	2.148	2.049	-.900	1.128	2.019	1.781
3	2.303	2.060	1.949	-.900	1.003	1.908	1.661
4	2.141	1.878	1.785	-.875	.844	1.700	1.497
5	1.968	1.679	1.631	-----	.622	1.483	1.326
6	1.536	1.453	1.402	-.923	.426	1.284	.935
7	-----	1.356	1.296	-.914	.243	-----	.702
8	1.273	1.240	1.164	-.962	-----	1.185	.686
9	-----	-----	-----	-1.006	.086	-----	-----
10	1.196	1.104	1.099	-1.059	.035	.986	.631
11	1.081	1.083	1.067	-1.052	-.073	.917	.561
12	1.079	.961	1.030	-1.089	-----	-----	.513
13	1.086	1.072	.998	-1.106	-----	.922	.490
14	1.012	1.049	-----	-1.108	-.244	.938	.474
15	.982	1.125	.945	-1.123	-.235	.933	.471
16	.933	1.157	.975	-----	-.191	.901	-----
17	.695	1.219	1.180	-----	-.149	.901	.527
18	.751	.818	-----	-1.073	-----	-----	-----
19	-----	.797	-----	-1.087	-.145	-----	.494
20	-----	-----	-----	-.930	-----	.356	.353
21	-----	-----	-----	-.838	-----	-----	-----

Integrated section aerodynamic characteristics						
c_n	1.194	1.192	1.148	1.097	1.034	0.708
$c_{mC/4}$	-0.173	-0.207	-0.202	-0.192	-0.165	-0.088

Integrated panel aerodynamic characteristics	
$C_N' = 1.075$	C.P. _{y'} (percent panel span) = 41.3 C.P. _x (percent M.A.C.) = 41.5
$C_B' = 0.444$	
$C_M' = -0.178$	

*Resultant pressure coefficient.



TABLE 7

TABULATION OF PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF
THE BELL X-1 WING PANEL; PULL-UP AT $M \approx 0.97$ - Concluded

(h) $M = 0.953$; $\delta_{aL} = 0.03^\circ$ up

Orifice	Pressure coefficients						
	Station A*	Station B*	Station C*	Station D		Station E*	Station F*
				Upper	Lower		
1	-----	-----	-----	0.471	-----	-----	-----
2	2.533	2.332	2.238	-1.057	1.170	2.192	1.965
3	2.460	2.276	2.154	-1.059	1.055	2.100	1.820
4	2.322	2.089	1.984	-.996	.915	1.879	1.671
5	2.075	1.874	1.820	-----	.693	1.671	1.479
6	1.738	1.631	1.558	-1.027	.499	1.421	1.105
7	-----	1.535	1.465	-.999	.310	-----	.855
8	1.446	1.397	1.322	-1.045	-----	1.255	.801
9	-----	-----	-----	-1.085	.156	-----	-----
10	1.381	1.266	1.213	-1.132	.097	1.122	.715
11	1.248	1.252	1.213	-1.141	.006	1.068	.645
12	1.243	1.124	1.180	-1.164	-----	-----	.598
13	1.208	1.255	1.173	-1.164	-----	1.065	.575
14	1.136	1.224	-----	-1.174	-.106	1.056	.580
15	1.070	1.278	1.171	-1.167	-.111	1.093	.598
16	1.047	1.271	1.229	-----	-.064	1.082	-----
17	.759	1.299	1.343	-----	-.038	1.065	.615
18	.832	.703	-----	-1.118	-----	-----	-----
19	-----	.780	-----	-1.069	-.097	-----	.601
20	-----	-----	-----	-.905	-----	.474	.446
21	-----	-----	-----	-.882	-----	-----	-----

Integrated section aerodynamic characteristics						
c_n	1.332	1.321	1.312	1.246	1.169	0.825
$c_{m_c/4}$	-0.197	-0.222	-0.237	-0.221	-0.199	-0.111

Integrated panel aerodynamic characteristics	
$C_N' = 1.206$	C.P. _{y'} (percent panel span) = 41.7 C.P. _x (percent M.A.C.) = 41.9
$C_B' = 0.502$	
$C_M' = -0.204$	

*Resultant pressure coefficient.

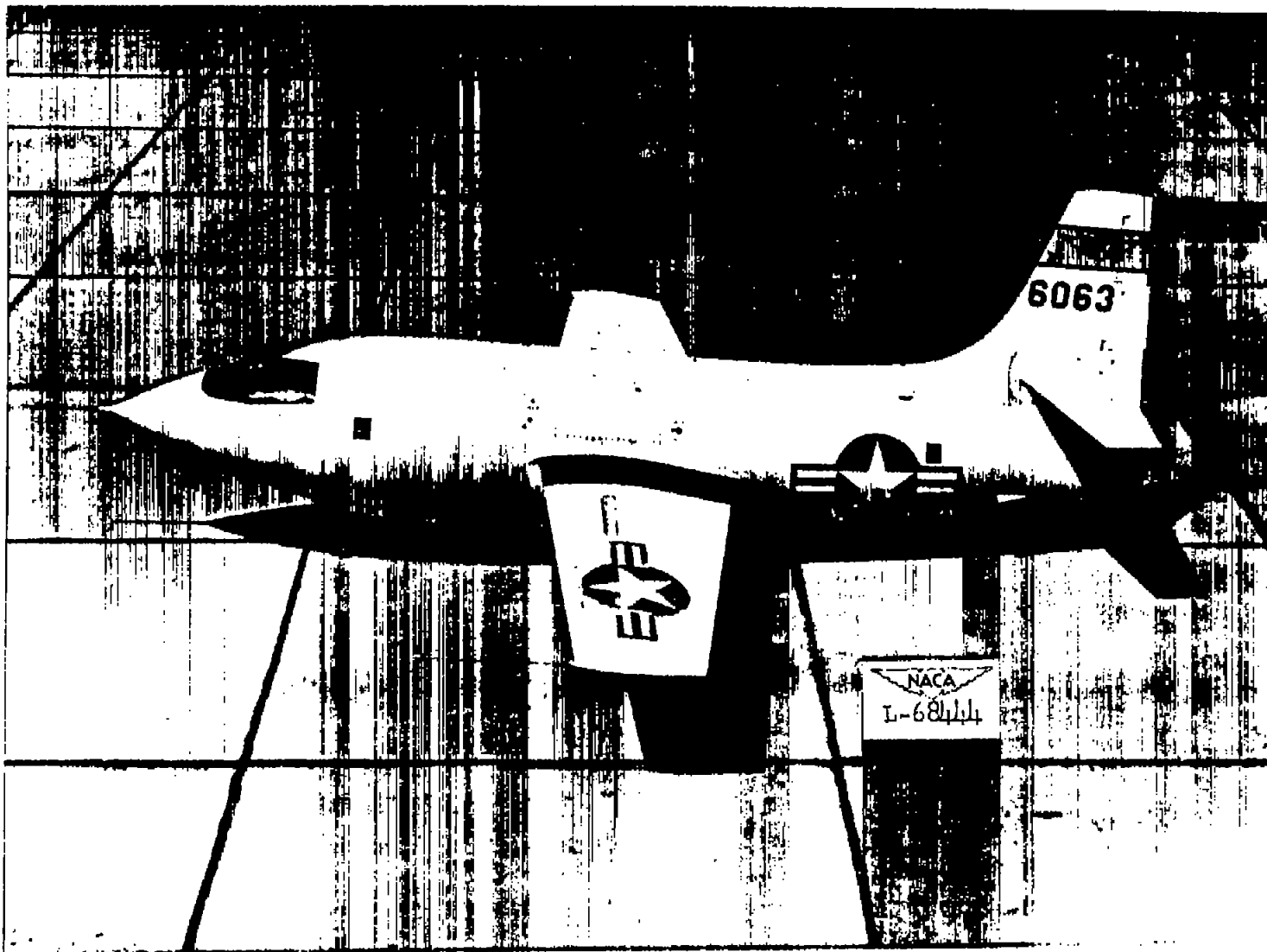


Figure 1.- Bell X-1 airplane.



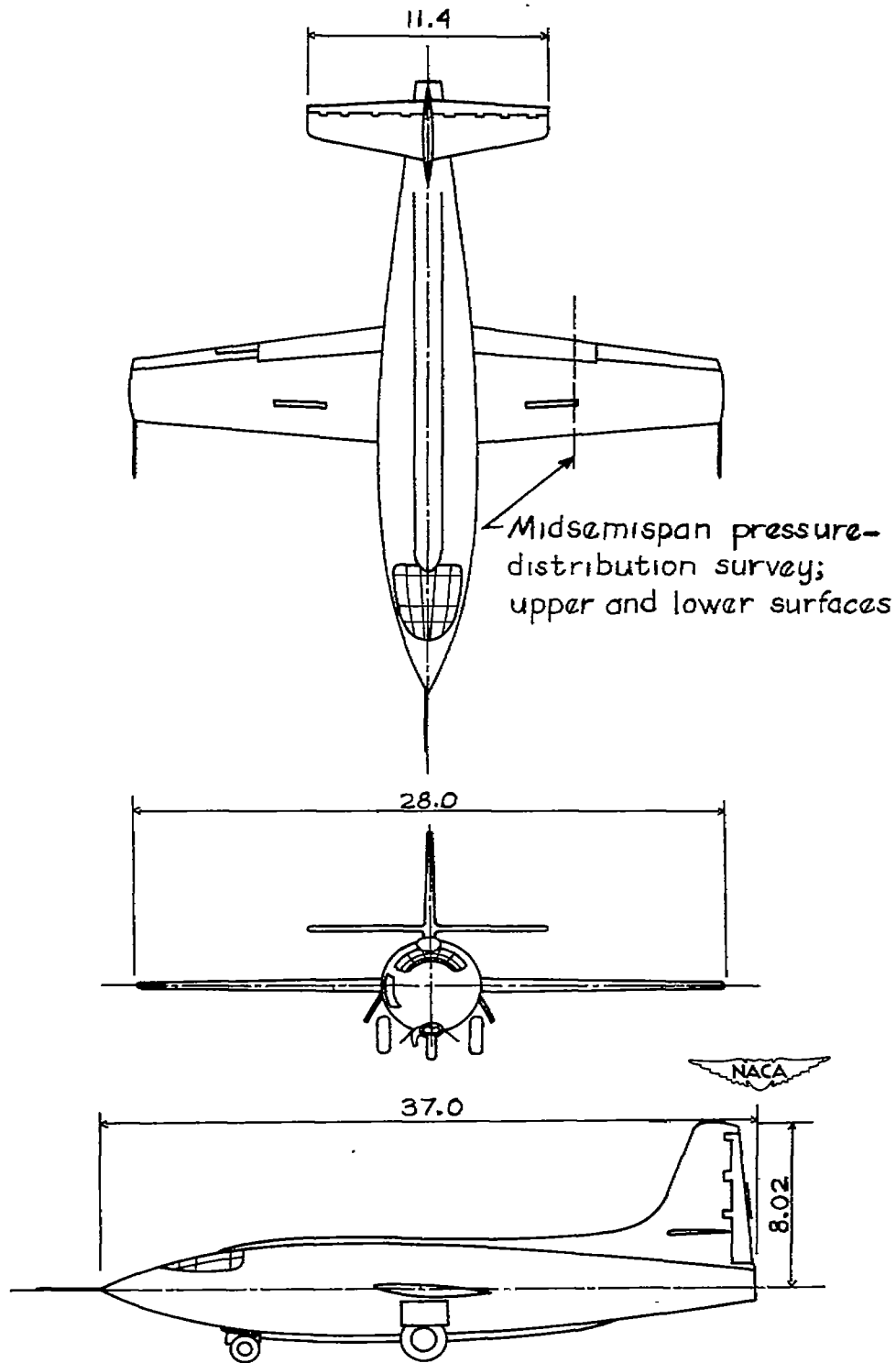


Figure 2.- Three-view drawing of the Bell-X-1 research airplane.

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