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EXPERIMENTAL INVESTIGATION OF EFFECTS OF JET DECAY RATE ON JET-INDUCED PRESSURES ON A FLAT PLATE: TABULATED DATA

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Langley Research Center Hampton, Virginia 23665



## EXPERIMENTAL INVESTIGATION OF EFFECTS OF JET DECAY RATE ON JET-INDUCED PRESSURES ON A FLAT PLATE: TABULATED DATA

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#### SUMMARY

This report consists of tabulated data values for all results presented in graphical form in NASA CR-2979, and together with that report comprises the final report for grant NGL-47-003-039. Data are presented for a small scale experimental model study of a single round jet exiting perpendicular to a flat plate into a uniform subsonic crossflow. The data are grouped into four main sections. Section 1 presents the static, or no-crossflow, nozzle calibration data. Section 2 lists the individual plate surface static pressure measurements, as well as the integrated loads, for each jet nozzle configuration and velocity ratio. Section 3 lists the jet centerline location data and the appropriate power law curve fit equation, and section 4 lists the jet dynamic pressure decay data.

#### INTRODUCTION

An experimental study has been undertaken to determine the effects of jet decay rate upon the pressure distribution induced by the jet on an adjacent flat plate. This simplified geometry of a single circular jet issuing at right angles to a flat rectangular plate into a uniform subsonic crossflow has been utilized as a simplified model of the interaction of the exiting engine efflux with a fuselage or wing of a jet VTOL aircraft. Such an interaction between propulsive and aerodynamic loads is particularly important during transition from hover to forward flight, and has been found to be strongly configuration dependent (refs. 1,2, and 3). The current data have been summarized previously in references 4 and 5, but in those reports only graphical comparisons of the data were made. The present report presents all data from references 4 and 5 in tabular form. The experimental configuration studied was the previously mentioned simplified model of a jet VTOL aircraft engine exhaust. Decay rates of the jet have been varied through use of axisymmetric centerbodies, or plugs, placed along the jet centerline in the jet nozzle and plenum. These centerbodies, having either a flat or a hemispherical tip, caused nonuniform jet exit plane dynamic pressure profiles, and increased the jet decay rate over that of a uniform jet having no plug. Details of the experimental apparatus and procedure have been given in references 4 and 5.

#### SYMBOLS

Data are presented in nondimensional coefficient form or in both SI and U.S. customary units where appropriate. Measurements and calculations have been made in U.S. customary units.

Aeff	effective jet exit area, $m^2$ (ft <sup>2</sup> )
D <sub>eff</sub>	effective jet diameter, m (ft)
D <sub>n</sub>	nominal jet diameter, m (ft)
K	constant in equation (3-1)
Δ1.	jet-induced lift loss, N (lb)
m	jet mass flow rate, kg/sec (slug/sec)
М	jet-induced pitch moment, N-m (lb-ft)
n	exponent in equation (2-1)
<sup>p</sup> e	jet exit static pressure, $N/m^2$ (lb/ft <sup>2</sup> )
q	dynamic pressure, N/m <sup>2</sup> (lb/ft <sup>2</sup> )

ď	crossflow dynamic pressure, $N/m^2$ (lb/ft <sup>2</sup> )
Q	jet volume flow rate $m^3/sec$ (ft <sup>3</sup> /sec, or CFM)
r	radial coordinate measured from jet centerline,
	m (ft)
R	$v_{eff}^{}/v_{\infty}^{}$ , jet-to-crossflow velocity ratio, also ideal
	gas constant, J/kg-K (ft lb/slug R)
S	arc length measured along jet trajectory, m (ft)
Т	jet thrust, N (lb)
Те	jet exit temperature, K (R)
$v_{eff}$	effective jet exit velocity, m/sec (ft/sec)
V <sub>∞</sub>	crossflow velocity, m/sec (ft/sec)
X	streamwise plate coordinate, origin a center of jet
	orifice, m (ft)
У	transverse plate coordinate, origin at center of jet
	orifice, m (ft)
Z	coordinate perpendicular to plate, origin at center
	of jet orifice on plate surface, m (ft)
$\mathbf{Y} = 1^{\mathbf{Y}}$	specific heat ratio
	crossflow density, $k \alpha / m^3 (s) u \alpha / f + 3$
β <sup>∞</sup>	erossitow density, kg/m (sidg/it)

## PRESENTATION OF RESULTS

Data for static or no crossflow nozzle calibration are presented in section 1, while the tables of jet-induced plate surface static pressures and total jet-induced lift loss and pitching moment are presented in section 2. Section 3 displays all jet centerline trajectory data. Section 4 lists the jet centerline

dynamic pressure decay data. These data have been obtained for the following jet-centerbody configurations: no centerbody, flat ended centerbody flush with the nozzle exit, flat centerbody submerged 0.375  $D_n$  below the nozzle exit, flat centerbody submerged 0.875  $D_n$  below the nozzle exit, flat centerbody submerged 1.375  $D_n$  below the nozzle exit, round ended centerbody flush with the nozzle exit, round centerbody submerged 0.5  $D_n$  below the nozzle exit, and round centerbody submerged 1.0  $D_n$  below the nozzle exit. At the beginning of each section of the current report, a brief description of the data presented is given, as well as a table which lists how the data are organized in that section. No detailed discussion of these results is given in the current report, since it is intended merely as a data tabulation. Such discussion of results appears in references 4 and 5.

### SECTION I: STATIC NOZZLE CALIBRATION DATA

Nozzles used in the current work and in references 4 and 5 have been calibrated in the static, or no crossflow case only, using the following procedure, first developed by Ziegler and Wooler in reference 6:

1. Record barometric pressure, nozzle exit pressure and exit temperature, and jet flow rate.

2. Traverse 0.25 in. above nozzle exit plane across jet and record q versus r.

3. Integrate product of r times q graphically to calculate jet thrust.

4. Calculate effective jet dynamic pressure from

$$q = \frac{p_{e} \left(\frac{T}{m}\right)^{2}}{2RT_{e} - \frac{\gamma - 1}{\gamma} \left(\frac{T}{m}\right)^{2}}$$
(1-1)

where  $(p_e, T_e)$  are exit plane pressure and temperature, T is the measured jet thrust,  $\dot{m}$  is the jet mass flow rate, and  $\gamma$  equals the specific heat ratio.

5. Calculate effective jet velocity and effective jet area from

 $A_{eff} = T/2q \qquad (1-2)$ 

$$V_{eff} = \frac{mRTe}{p_e A_{eff}}$$
(1-3)

5

$$D_{\text{eff}} = \sqrt{\frac{4 A_{\text{eff}}}{\pi}}$$
(1-4)

The calculated effective exit plane velocity, V<sub>eff</sub>, has been used to calculate the nondimensional velocity ratio, R, for the crossflow data using

and

$$R = V_{eff} / \sqrt{2q_{\omega}/\rho_{\omega}}$$

where the subscript  $\infty$  refers to crossflow free-stream conditions. This generally leads to no more than a 5 percent difference between R values in the current work and values calculated as the square root of the ratio of the dynamic pressures. Since the estimated accuracy of the computed R values in the current work is no better than 5 percent, largely due to the measurement of the jet thrust, T, the current R values may be considered equivalent to R values calculated in the more traditional manner. One exception to this is for the flat-ended centerbody flush case, where it is estimated that inaccuracies in measurement of T, and hence in R, are at least 10 percent. This is due to the size of the pitot static probe used [0.159-cm (1/16-in.) diameter probe body], which is of the same order as the width of the annular jet exit region, 0.318 cm (1/8 in.). Thus, it is believed that q values are reduced due to a blockage effect of the probe, as well as being averaged spatially in the shear layers at the edges of the jet.

Nozzle exit plane dynamic pressure profiles are shown in figures 1 to 8, and calibration data are tabulated in table 1. The local dynamic pressure in figures 1 to 8 is actually proportional to the vertical distance between the total pressure curve and the static pressure curve. Both curves were recorded at a distance of 0.635 cm (1/4 inch) above the nozzle exit plane, by first recording the static pressure distribution, and then moving the pitot static probe upwards 0.635 cm (1/4 inch) and recording the total pressure curve.

(1-5)

Table l.	Tabulated	Static	Nozzle	Calibration	Data.

· · · · · · · · · · · · · · · · · · ·					•			
Nozzle Configuration	Ω m <sup>3</sup> /sec (CFM)	те К (R)	Pe kPa (1b <sub>f</sub> /ft <sup>2</sup> )	т N (lb <sub>f</sub> )	m kg/sec (lb_/sec)	q kPa (lb <sub>f</sub> /ft <sup>2</sup> )	V eff m/sec (ft/sec)	D <sub>eff</sub> m (ft)
No plug	0.0779 (165)	292 (525)	102.1 (2132)	12.7 (2.86)	0.0936 (0.2063)	11.6 (242.9)	140.2 (460.0)	0.0264 (0.0865)
Round plug flush	0.0375 (79.5)	292 (526)	100.7 (2103)	6.14 (1.38)	0.0452 (0.0996)	11.4 (238.3)	140.1 (459.6)	0.0185 (0.0607)
Round plug 0.5 D down n	0.0632 (134)	293 (527)	102.4 (2139)	11.2 (2.51)	0.0761 (0.1678)	13.6 (284.8)	15?.1 (499.0)	0.0228 (0.0749)
Round plug 1.0 D <sub>n</sub> down	0.0778 (164.8)	299 (538)	102.1 (2132)	13.3 (2.99)	0.0936 (0.2063)	12.57 (262.6)	147.5 (484.0)	0.0260 (0.0852)
Square plug flush	0.0269 (57.0)	291 (524)	101.4 (2119)	4.08 (0.918)	0.0324 (0.0714)	9.91 (206.9)	129.5 (425.0)	0.0162 (0.0531)
്റ്റോare plug 0.375 D <sub>n</sub> down	0.0318 (67.4)	295 (531)	100.0 (2088)	4.89 (1.099)	0.0383 (0.0844)	9.90 (206.7)	131.4 (431.0)	0.0177 (0.0582)
Square plug 0.875 D down n	0.0589 (124.7)	293 (527)	104.2 (2177)	9.70 (2.18)	0.0709 (0.1562)	12.0 (250.9)	141.5 (464.1)	0.0228 (0.0749)
Square plug 1.375 D down n	0.0698 (147.8)	296 (533)	101.2 (2113)	11.5 (2.59)	0.0840 (0.1851)	11.6 (241.4)	141.6 (464.5)	0.0252 (0.0826)

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Figure 3. Static nozzle exit plane dynamic pressure profile; hemispherical tipped plug down 0.50 D.



Figure 4. Static nozzle exit plane dynamic pressure profile; hemispherical tipped plug down 1.0 D.





q(r), kPa



Figure 6. Static nozzle exit plane dynamic pressure profile; flat tipped plug down 0.375  $D_n$ .





8. Static nozzle exit plane dynamic pressure profile; flat tipped plug down 1.375  $D_n$ .

#### SECTION 2: PRESSURE COEFFICIENTS AND INTEGRATED LOAD DATA

In this section the experimentally measured plate surface pressures and integrated loads are presented in tabular form. All pressures have been non-dimensionalized by the crossflow dynamic pressure,  $q_{\infty}$ , and have been calculated as the difference between the static pressures with the jet flow on and off. The integrated lift loss and pitching moment data have been calculated by integration of the pressure data. These have been calculated assuming the pressure to be constant on each panel. centered around the individual pressure ports. In figure 9 the port locations on the plate are shown, and table 2 lists the radial locations of each port.

At the top of each pressure distribution table, pertinent data defining each nozzle configuration have been listed, including the jet-to-crossflow velocity ratio, R, the plug submergence depth and centerbody diameter, in nominal jet diameters, the effective jet diameter,  $D_{eff}$ , in inches, the plug diameter, in inches, the jet volume flow rate, Q, in m<sup>3</sup>/sec and CFM, the crossflow velocity,  $V_{\infty}$ , in m/sec and ft/sec, and the jet thrust, T, in N and lb. Also included are the dates each data run was made.

The data for each configuration may be found in the following tables.

Configuration	R	Table (part b. for load	a. for pressures, s)
No Plug	9.11		2-1
	7.81		2-2
	6.51		2-3
· · · · · · · · · · · · · · · · · · ·	5.21		2-4
	3.91		2-5
	2.61		2-6
Round Plug			
Flush	9.08		2-7
	6.81		2-8
	4.54		2-9
	2.27		2-10

		•		-
Configuration	R	Table (part b. for loads	a. for p: )	ressures,
Round Plug Down 0.5 D	10.35		2-11	
11	7.76		2-12	
	5.18		2-13	•
	2.59	• •	2-14	· · · · ·
Dound Plug				
Down 1.0 D	9.98	••	2-15	
11	7.49		2-16	
	4.49		2-17	· · · ·
	2.5		2-18	
			•	
Flat Plug Flush	8.78	•	2-19	
	6.58		2-20	
	4.42		2-21	•
	2.21	•	2-22	•
Flat Plug	0.70		0 00	•
Down 0.375 D n	8.72		2-23	
	6.53	•	2-24	
	4.36		2-25	
	2.18		2-26	
Flat Plug		· ·		
Down 0.875 D n	9.49		2-27	
	7.11		2-28	
	4.74		2-29	
	2.37		2-30	
Flat Plug		ана — — — — — — — — — — — — — — — — — —		
Down 1.375 D <sub>n</sub>	9.48		2-31	
	7.1		2-32	· · · ·
	4.74		2-33	
	2.37		2-34	



Figure 9. Plate pressure port distribution.

Droceuro	Badial	Dictanco
Port No.	CM	(in.)
1	1.905	(0.750)
2	2.223	(0.875)
3	2.540	(1.000)
4	3.493	(1.375)
5	4.445	(1.750)
б	5.398	(2.125)
7	6.350	(2.500)
8	7.303	(2.875)
9	8.255	(3.250)
10	9.208	(3.625)
11	10.160	(4.000)
12	11.430	(4.500)
13	12.700	(5.000)
14	13.970	(5.500)
15	15.240	(6.000)
16	16.510	(6.500)
17	17.780	(7.000)
18	19.050	(7.500)
19	20.320	(8.000)
20	20.638	(8.125)
21	20.955	(8.250)
22	21.273	(8.375)
23	21.590	(8.500)

# Table 2. Flat plate pressure port locations.

Table 2-1a. Pressure coefficient data for no plug configuration, R = 9.11

	NO PLUG	6-28-76	
R 🔳	9.11		PLUG DEPTH
JET	FLOW PATE	= 4.672 CMM (	165.00 CFM )
JET	EFFECTIVE	VFLOCITY = 140.2	2 M/S ( 460.0 F/S )

EFFECTIVE JET DIAMETER = 1.04 CENTERROUY DIAMETER = 0.00 FREE STREAM VELOCITY = 15.4 M/S ( 50.5 F/S ) JET EFFECTIVE THRUST =12.727 N (2.8610 LE )

NON-DIMENSIONALIZED PRESSURES

						ANGLE	C (DEGREI	ES)							
PORT	Ø	19	20	30	45	69	75	96	105	120	135	150	160	170	191
1	Ø.Ø811	0.0762	0.0885	-0.2901	-0.7104	-1+1529	-1,4749	-1-5584	<b>=1</b> ,4749	-1.2217	-1.0152	-0.8653	-0.7497	-0.7979	-4.6391
2	9.0000	a ,900a	-0,0885	-0.2778	-Ø.6219	_0,9832	-1,1799	-1.2758	<b>∞1,135</b> 6	-1,0054	=0,8087	-0.6760	-0.5531	•Ø.5359	-0,5482
3	-0.0737	-0.0615	-W-1672	-0.2778	-0.5113	-0.830A	-1.0004	-1=0521	-0.9390	<b>*</b> @.8456	-0.6735	-0.5285	=Ø.4007	-a.4u31	-0.4326
4	-9.1524	-0,1450	-0.1917	-0.2704	-0.395R	<b>-</b> @_5555	-8,6981	-0.7399	<i>∎\$</i> ,6981	-0.5506	-0.4130	-0,3196	-0,2458	-0.2483	-0.2286
5	-0.1622	-0.1745	-0.1991	-0.2581	-9.3549	-0.4474	-0.5359	-0.567A	-0.5408	-0.4228	-0-3245	-0.2737	-0.1917	-0,1794	-N.1819
6	-9.1647	-0,1745	-9,1917	-0.2237	-0,3097	=0.4007	-0,4425	-0,4572	-A.3933	-2.3318	-0,2458	-0,1770	-0,1278	-0,1426	-0.1499
7	-0.1425	-0.1549	-0.1919	-0.2114	-0.2606	=(1.3171	-0.3835	-0.3908	-0,363A	-0.2753	=0+1917	-0.159A	-0.1131	-0.1254	-0.1082
8	-0,1450	-0,1549	-0.1696	-0.1917	-0,2409	-Ø,2655	-0.3269	=Ø,3417	-0,3245	-0,2360	-0.1549	-0,1303	-0,1057	-0.1082	-0.0959
9	=0+1131	-0.1475	-0.1426	-0.1672	-0.2139	-0.2409	-0.2704	-0.2827	-1.2507	-0.2040	-0.1377	-0.10CA	-0.0959	-0.0836	-0.0983
10	0.0000	a <b>.</b> aaaa	0.0000	0 . 0000	a.0000	-0,2237	-0.2532	-0.2630	-0.2409	-0.1A44	-Ø.1278	-0,0787	ů.0664	-0.0836	-0.0639
11	0.0000	A.0000	<b>A.</b> 0000	0.0000	<i>.</i>	-0.1770	-0.2761	-0.23R4	-0.2188	-8-1721	-1.1180	-0.0516	.70.0565	-0.0885	=0+0615
12	a.eaaa	a aaaa	a .aaaa	a . aaaa	ดูดดดด	0_0000	-0.1966	-0.2188	-0.1844	-0.1524	-0.0983	-0.0664	-4.0418	-0.0615	-0.0516
13	0.0000	0.0000	0.0000	0.0000	a.0000	0.0000	-0.1672	-0.1647	-0.1573	=0.1327	-0.0664	-0.0295	-0.0197	-0.0442	-0+6393
14	0.0000	0,0000	0.0000	0,0000	ด ู่ งกุดล	<b>0</b> ,0000	0,0000	-0.1819	-0,1573	-8.1204	-0.0664	<b>8.</b> 8088	-0.009R	=Ø_0369	-0,1442
15	0,0000	a .aaaa	0.0000	0.0000	a.aaaa	0,0000	0,0400	-0.1524	-0,1475	-0.1057	-0.0596	<b>U.</b> 0000	-0.0123	-0,0320	-0.0270
16	0.9990	9.0000	a	0.0000	A.0000	0.0000	a.aaaa	a.acae	0.0000	6.0000	<b>0.0000</b>	0.0000	R. 4066	H.0000	-11.1467
17	0,0000	<b>0,000</b>	ด_สสสส	<b>a</b> .aaaa	.a., anaa	Ø.2000	ด ผิงผิด	4.0000	0.000e	P.0080	<b>4.499</b> 0	e.0000	0.0000	0.0000	-0.0320
18	0.0000	<b>A.</b> ØØØØ	0.0000	<b>a.</b> aaaa	a.aaaa	0.0000	8.0000	0.0000	0.0000	6.0000	Ø.0940	0.0000	0.0000	a.uuau	-0.0098
19	4.9996		<b>0</b> _0000	<b>A</b> .89980	ด ูตถดด	0.0000	ด ดเวลุต	Ø.0000	0.0000	e.0000	0.0000	0.0000	0.0000	<b>и</b> , епон	-0.0221
28	a.aaaa	0.0000	0.0000	0.0000	<b>a.</b> 0000	a	0.0000	0.0000	a. 4040	e.0000	a.aaaa	0.0000	Ø.6000	a.auna	-0.0344
21	<b>a</b> ,auaa	e.0000	a.acaa	a.aaaa	<b>ต</b> ุถุดผูล	a.eena	0.0000	<b>0.000</b>	0.0000	a.0000	ศ.ศงคน		0.0000	0.0000	-0.0295
22	a.aaaa	<b>a</b> .aaaa	a.aaaa	6.0000	ด ดาลล	a	0.0000	0 . UGAG	0.0000	e.0000	a.aaaa	a.0000	0.00C0	0,0000	a.uuea
23	9.9999	a.aaaa	a.0000	a.0000	0.9949	0.0000	- a,uaru	0.0000	и, анну	u	a.0000	A.0060	a.u.e.a		-0.4197

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Table 2-1b. Lift loss and pitching moment data for no plug configuration, R = 9.11.

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NON=DIMENSIONAL		м		MITO		1.77	
PORT	AREA	N -M	J.R-FT		Ň	LB	
1	1.5194	0.000348	9.000257	0.001035	-0.101922	-0.022912	•0.00800R
2	2.3297	0.004486	0,000358	6.001447	-0.146834	-0.03300A	-0.011537
3	4,2977	0.000726	0.000536	0.002162	=R.238577	-0.053632	-0.018746
4	B.1179	Ø,000868	0.000640	0_0025A4	-Ø,364467	-0.081932	-0,028638
- 5	12.9800	0.000794	0.000586	0.002364	-0.493712	-0.110986	-0.038793
6	18.8840	0.000409	0,000301	9.001217	■0.622041	-0.139835	-0,048876
7	25,8298	-0.000107	-a,aaaa79	-0.000319	=2.751503	-N.168938	-0.059049
ß	33,8175	-0.000871	-0.000642	-0,002593	-0.882218	-0,198323	-0.069319
9	42.8471	-0.001912	-0.001336	-0.005394	-1.007883	-1.226572	-4.079193
10	52,9185	-0.000388	-9,000286	-0:001155	-1.101816	-0,247688	-0,086574
11	62.1073	0.000987	0.000728	0.002939	-1.177864	-0.264784	-0.092549
12	78,3142	0,004192	a_an3a92	0.012480	-1.279168	-0.287557	-0.100589
13	101,1776	0.007636	0.005632	0.022734	-1.390100	-0,312495	-0.109226
14	121.5520	0.011178	0.008245	0.033280	-1.464216	-0,329156	-4.115049
15	143,7786	0.014902	0,010991	0,044366	-1,535350	-0.345147	-0,120638
16	167.9575	0.015290	0.01127A	a.045523	-1.537704	-0,345676	-0.120823
17	193,7886	0_01559R	0,011505	9.046441	-1.539438	-0,346066	-0.120960
18	221.5719	0.015707	0.011586	0.046765	-1.540010	₩Ø,346194	-0.121005
19	239,8771	0.015080	0,011713	0.047278	-1,54085R	-9.346305	-0,121071
20	247.4017	0.015991	0.011795	0.047611	-1.541400	=0.346507	-0.121114
21	255,0421	0.016090	Ø.Ø11868	0.047905	-1.541871	-0,346613	-0,121151
22	262.7983	0.016090	0.011868	Ø.047905	=1+541871	=0,346613	-0.121151
23	270 6702	0.016160	0.011920	0.048113	-1,542195	-0,346686	-0,121176

Table 2-2a. Pressure coefficient data for no plug configuration, R = 7.81.

S		NO PLUG	6-28-76	· · ·	
	R	7,81		PLUG DEPTH # ,000	
	JET	FLOW RATE	# 4.672 CHM (	165,00 CF4 )	
	JET	FFFECTIVE	VFLOCITY # 140.	2 M/8 ( 460,0 F/8 )	

PFFECTIVE JET DIAMETER = 1.04 CENTERRODY DIAMETER = 0.00 PFFE BTFFAM VELOCITY = 18.0 M/S ( 58.9 f/S ) JET EFFECTIVE THEUST = 12.727 N (2.8610 LH )

#### NON+DIMENSIONALIZED PRESSURES ANGLE (DEGREES)

90 105 120 135 150 170 180 PORT 10 20 30 45 60 75 160 0.0632 -0.0524 -0.3343 -0.7571 -1.4275 -1.8847 -2.0545 -1.8196 -1.3468 -1.3101 -1.2071 -0.9727 -0.8746 -0.8821 1 0.1048 2 0.0253 0.0000 -0.1211 -0.2873 -0.6812 -1.1655 -1.4908 -1.6064 -1.5486 -1.2631 -1.0625 -0.8818 -0.7644 -0.7138 -0.7083 3 +0.0488 +0.0651 -0.1372 -0.3126 -0.6216 -0.9559 +1.2414 -1.3607 -1.3083 -1.0842 -0.8547 -0.7427 -0.6288 -0.5891 -0.5891 -0.5949 4 -0\_1464 -0\_1626 -0\_2078 -0\_3090 -0\_4662 -0\_7101 -0\_8330 -0.9125 -0.8746 -0.7571 -0.5547 -0.4445 -0.3632 -0.3447 -0.3546 5 =0.1771 =0.1843 =0.2313 =0.2656 =0.4102 =0.5475 =0.6722 =0.7192 =0.6921 =0.5927 =0.4355 =0.3367 =0.2861 =0.2837 6 = 0.1825 = 0.1789 = 0.2223 = 0.2530 = 0.3433 = 0.4301 = 0.5764 = 0.5945 = 0.5714 = 0.4698 = 0.3433 = 2.2692 = 0.2331 = 0.2403 = 0.2331 7 -0.1662 -0.1735 -0.1861 -0.2168 -0.2873 -0.3777 -0.4698 -0.5078 -0.4734 -0.4011 -0.2620 -0.2132 -0.1717 -0.1717 -0.2006 8 -0.1536 -0.1554 -0.1662 -0.1933 -0.2476 -0.3343 -0.3903 -0.4174 -0.4102 -0.3433 -0.2421 -0.1933 -0.1482 -0.1717 -0.1771 9 -0.1355 -0.1391 -0.1590 -0.1771 -0.2277 -0.2801 -0.3469 -0.3614 -0.3542 -0.3000 -0.2042 -0.1500 -0.1536 -0.1608 -0.1409 0.88080 0.88080 -0.2565 -0.2982 -0.3216 -0.3144 -0.2584 -0.1861 -0.1156 -0.1030 -0.1229 -0.1391 0.0000 0.0000 0.0000 10 B.0000 A.0000 -0.2241 -0.2602 -0.2927 -0.2710 -0.2476 -0.1644 -0.1138 -0.0958 -0.0976 -0.1229 11 0 0000 0 0000 0 0000 a.aaaa a.aaaa -a.2223 -a.2638 -a.2421 -a.2168 -a.1391 -a.a723 -a.a777 -a.a944 -a.138 12 0.0000 0.0000 9.9999 9.9999 13 0,0000 0,0000 **0,0000** 0.0000 0.0000 0.0000 -0.1843 -0.1807 -0.1626 -0.1247 -0.0596 -0.0470 -0.0560 -0.0449 14 0,0000 0.0000 0.0000 0.0000 0.0000 a anna a anna -a 1861 -a 1662 -e 1464 -a 1012 -a 1416 -a 1361 -a 1474 -a 1687 15 0.0000 0.0000 ଗ୍ରୁ ଗ୍ରମ୍ମ ମ 0,0000 0,0000 8.8888 8.8888 8.8088 -0.8651 0.0000 0.0000 *a uada a acaa a uuua c auaa a aaaa* 16 0,0000 0,0000 6,0000 0,0000 6,6666 0,0000 0,0000 0,0000 ମ ମଣ୍ଡମ 0.0000 0.0000 0,0000 6 6666 6,0000 0.0000 0.0000 0.0000 0.0000 -0.0651 17 0.0000 18 0,0000 9,0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 6. 4000 4.0000 0.0000 0.0082 M.MMAR =0.0452 0.0000 N. HURH B BOBB -0 0478 **8,0000 0,0000** 0,0000 ด แลดด 0,0000 0.0000 0,0000 0.0400 6.0960 0.0000 19 0.0000 0.0500 0.0000 20 0.0000 0,0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 -0.0578 N. AMAN -N. 0361 21 0,0000 0.0000 0,0000 0.0000 0,0000 0.0000 0.0000 0.0000 0.0000 0,0000 0,0000 0.0000 0.0000 0.0000 · 0.0000 -0.0416 22 0.0000 0.0000 0.0000 0.9000 0.0000 0.0000 0.0000 0.0000 0.0000 6.0000 0.0000 0.0000 a amag a upan a aman a apan a amap a pada a unda A. 0040 A. 0000 - 0.0542 23 0,0000 0,0000 0,0000 8.8988 9. 0000

Table 2-2b. Lift loss and pitching moment data for no plug configuration, R = 7.81.

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	NON-DIMENSIONAL	M		H/TD		L		
POP1	AREA	N wH	LB-FT		И	- [β	571	
1	1.5194	0.000627	0,000463	0.001867	-0.176763	-0,039736	=0,013889	
2	2,3297	8,000912	0,000673	0.002715	-0,253945	-0,057087	-0,019953	
3	4.2977	0.001490	0.001099	0.004436	-0.414092	-1.093088	-4.932537	
4	8,1179	0.002033	0,001499	P. PA6052	-0.631208	-0,141896	-0,049597	
5	12.9800	0.002407	0.001776	4.007167	-0.85480P	-4.192161	-0.067166	
6	18.8840	0.002660	0.001962	Ø.007918	-1.081935	-0,243219	-0,085012	
7	25,8298	0.002528	0.001939	0.007825	-1.303940	=11.293126	-9.102456	
8	33, <sup>8</sup> 175	0,002691	0.001985	a.008012	-1.526162	-11,343091	-0,119916	
9	42.8471	0.002621	0.001934	0.007805	-1.746698	-0.392658	-0.137245	
10	52,9185	0,005910	0,004360	0.017597.	-1,913300	-0.430110	-0,150335	
11	62.1973	0.008940	0,006594	0.02661B	-2.049123	-0,460643	-0.16100P	
12	78,3142	0.015529	0.011454	0,046234	-2.229698	-0.501234	-0,175195	
13	101.1776	0.023827	0.017575	0.070940	=2.441398	-0.548826	-0-191R30	
14	121.5520	Ø.Ø32528	0.023992	0.096843	-2.5R1715	-0,580370	-0.202855	
15	143,7786	0,041152	a a3a354	A.122528	-2,718321	=0.61107B	-0,213589	
16	167.8575	0.041888	0.030897	0-124712	-2.722781	-0.6120R1	-0=213940	
17	193 7886	0.042742	0,031527	0.127254	=2,727584	-0,613161	-0.214317	
1 B	221.5719	0.043423	0.032029	0.129281	=2.73115B	-0.613964	-0-21459R	
19	239 8771	0.043921	0,032396	0.130762	-2,733607	=0,614515	-0.214790	
20	247.4017	0.944176	0.032584	0.131524	-2.734845	-0.614793	70.21488R	
21	255 .0421	0.044341	0,032706	0,132014	-2,735632	-0.614970	-0,214949	
22	262+7983	0.044536	0.032850	0,132595	=2.736550	-0,615176	-0.215021	
23	270,6702	0.044798	0,033043	0.133376	-2,737765	=0.61545B	-0,215117	

1	NO PI R = 6.51 JET FLOW JET FFFFC	UG RATE = TIVE VEL	6-28-7 4.672 C	6 PLU MM ( 165 140,2 M	G DFPTH .00 CFM /5 ( 460	■ .000 ) .0 F/S	)	FFFEC Frff Jet e	TIVE JET Streap v FFFCTIVE	DIAMETE ELOCITY THRUST	'R = 1,04 = 21,5 =12,727	CENTERA M/S ( N (2.8	00Y DIAM 70.7 F/ 610 TE	F.TER ± \$ 5 ) )	. (36)
					NON	-DIMENSI	ONALIZED	PPESSUP	FS			• •			
PORI	Г Ø	10	20	30	45	60 60	E (Undern 75	.e.oj 90	105	120	135	150	160	170	180
1	0.1430	0.1204	0.1066	-Ø+2935	=0.7588	-1.4498	=2.0029	-2.2311	-2.0041	-1.6968	-1.5125	-1.3582	=1.1721	-1.6547	-1-0746
2	0 0 0564	0,0188	-0.0752	-0.255R	•0.6572	-1,1739	-1,5677	-1.7470	-1,6943	-1,4335	-1.2040	-1.0673	-0.9256	-8.8754	-0-8478
3	Ø.0000	-9.0251	-0.1179	-0.2734	-0.5932	-0.9669	-1,3005	-1.4936	-1,4435	-1.2366	-1.9221	-0.8415	-0.7487	-0.6998	-0.6973
	=0.0953	-0.1191	-Ø.158Ø	=Ø.2546	-0.4440	-0.6622	-a.8704	-1.0008	-1.0196	-2.8704	-0.6634	-4.5531	-0.4828	-0.4678	-0.4603
5	-0,1317	-0.1354	-0.1756	-0.2546	-0.3750	-0.5129	-0.6434	-0.7475	-2.7801	-0.6572	-0.5004	-18.4277	-0.3675	-6 3737	-0.3597
6	-0.1229	-8.1417	-0.1505	-0.1994	-0.2922	-0.4302	-0.5205	=0.5932	-0.5221	-2.5543	-9.4114	-M. 3311	=4.2972	-2.2947	=0.3960
7	-0.1166	-0.1279	-0.1430	-9.1919	-0.2508	-0.3424	-0.4440	-0.4979	-0.5205	-0.4703	-0.3512	=4.2659	-0.2370	-0. 2646	=0.2671
9	-9,1166	-0.1229	-0,1191	-0.1580	-9,2107	-0,2859	-0.3612	-0.4126	-0.4490	=8-4114	-0.3098	-0 2132	-0 2092	-0 2257	-0.2011
9	-0.1028	-0.0978	-0.1141	-0.1354	-Ø.1856	-0.2483	-0.3123	-0.3637	-0.3963	=0.3549	=4-2621	-0.1956			-4 4085
10	a .eaau	0.0000	0,0000	0.0000	0.0000	-0.2220	-0.2621	=0.304B	-0 3374	-0 3148	-0 2358	-0+1900	-a. +380		-0.0054
11	0.0000	6.0000	a.aaaa	0.0000	9.0000	-0.1844	-0.2370	-0.2584	-0.304R	-0.0935	-H-2504	-0,1760	-0.1372	ей, 1973	=0,1000
12	0.0000	0,0000	0.0000	a aaaa	0 0000	и алиа	-0 2057	-0 2245	-0.2525	-0 -0458	-0 1010	- Nº 1401	-0.1274	-И.1430	-0.1001
13	0.0000	9.9999	0.0000	0.0000	0.0000		-9 1655			-4 - 22-23	-n 17(n	-0,1229		=0,1360	=(1 <sub>0</sub> ]46/
14	0.0000	0.0000	0.0000	0.0000	а аана	5 6000	a aàca	-0 1669	-0.2132	- 2007	-0.1/04	-0.1129	-0.0478	-0.1928	=0.1304
15	0.0000	0.0090	9.9999		0.0000	0 0000	a aaou	-0.1000	-0 (K90	-6.2007	•0.1643	-0-0418	=0.0He3	-0.0974	=0,1397
16	0.0000	0 0000	a aaaa	a aada	a aava	0.0000	0.0000	-0.1407	-N*1260	-1.100	•0 • 1 3 9 Z	=0.0H53	-0.0715	-4.0941	-0.1229
17	0.0000	0 0000	6 0000	0 . 0000	0 0000	N. KUNU	0.0000	0.0000	и <b>.</b> икиа	e . Haaa	<i>ผ</i> ู่ ตถุดส	0.0000	0.0000	0.0000	-0.1166
	6 000g		0.0000	N	и	0.0000	0 <b>.</b> 0000	0.0000	0.0000	6.0000	0.0000	0,0460	0.0069	0 <b>,</b> 0060	-0,1066
10	*******	0.0000	0.0000	0.0000	A•0000	A. AAAA	9 <b>.</b> 0000	0.0000	0.0400	6 • NOKO	0.0000	K.0060	0.0000	0.0000	-0.1028
17	4. <b>9</b> 0.00	0.0000	0.0000	0.0000	a.0000	A.49990	0.0000	0.0000	0.000 N	6.0060	0.0060	8,0064	0.0000	0.0000	-0.0953
20	0.0000		0.0000	<b>0.</b> 8898	9.0000	N. 6694	0,0000	0000	G • NONG	e.0000	A.044N	0,0000	а, наса	0.0000	-0.0916
21	0.0000	а•алаа	0.0000	0.0000	a.aaaa	0.000N	0.0000	0.0000	0.0000	6.0060	ବ • ମସ୍ଟାର	0.0000	0.0000	0.0000	-0.0890
22	0.2000	0.0000	a 6000	a aaaa	a, aaaa	и <b>,</b> ааиа	a°anba	a.,0000	6.0000	0.0000	a•0000	0.0000	0.0080	a	-0.0890
23	0.0000	0.0000	0.0000	a.aaaa	0.0000	N.AGNO	a.auea	0.0000	a.0000	0.0000	6.0000	e. uaea.	0.0000	0.0000	-0.1016

Table 2-3a. Pressure coefficient data for no plug configuration, R = 6.51.

Table 2-3b. Lift loss and pitching moment data for no plug configuration, R = 6.51.

	NON-DIMENSIONAL		м	MITD	•	Ŀ	L/T
PORT	AREA	N -M	LB-FT		N	- LB	
1	1.5194	0.001191	0.000878	0.003545	-2.275484	-0,061911	-0.021640
2	2,3297	0.001749	a.au129a	Ø.005208	-0.396504	-0,089134	-0.031155
3	4,2977	0,002940	0,002168	A. AN8752	-0.646586	-0,145352	-0.050805
4	8.1179	0.004673	0.003447	0.013914	#©.987040	-W.221887	=0.077556
5	12,9800	0.006446	0.004755	0.019192	-1,326425	=0,298180	-0.104222
ę	18.8840	0.00R464	0.006243	0.02519R	-1.661716	-1,373554	-0.130568
7	25.829R	9.010677	0.007875	0.031787	-1,995755	-0,448646	-0.156814
8	33.8175	Ø.013267	0.009786	N. 039498	•2.323597	=0.522342	-0.182573
9	42,8471	9,016050	0.011838	0.047785	-2,645552	-0.594720	-0.207871
10	52,9185	0.023028	0.016986	0.068561	-2.904256	-0.652877	-0.228199
11	62,1073	0.029498	0.021758	0.0B7824	-3,114582	-0.70015R	-0,244725
12	78,3142	0.042520	0.031363	0.126592	=3.402719	-0.764931	-0.267365
13	101,1776	. 0.06054A	M.94466A	0.1P0267	-3,754222	=0,043949	-0,294984
14	121.5520	0.078015	0.057544	0.232272	-3,998760	-0.898921	-0.314198
15	143.7786	0.096312	a.a7104a	0.286746	-4.230724	-0.951067	-0.332425
16	167,8575	0,098214	0,072443	0.292409	-4,242246	-0,953657	-0.333330
17	193.7886	0.100231	0.073930	0.798412	+4.253587	-0.956206	-0.334221
18	221,5719	0.102463	a a75577	a <b>.</b> 305060	=4,265309	-0,958841	-0,335142
19	239,8771	0.103918	8.076650 ·	0.309390	-4.272467	=0_9694%1	-0.335704
20	247,4017	0,104501	0.077080	0.311126	-4,275293	-0,961086	-0,335927
21	255,0421	0.105086	a.077511	0.312867	-4.278085	-0,961713	-0.336146
22	262,7983	.0.105689	0.077956	0,314662	-4,280918	-0,962350	-0,336368
23	270.6702	0.196397	0.078478	0.316770	-4.284199	-0,9630AB	-0.336626

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NO PLUG6=29=76EFFECTIVE JET DIAMETER = 1.04 CENTERRODY DIAMETER = 0.00R = 5.21PLUG DEPTH = .000EFFECTIVE JET DIAMETER = 1.04 CENTERRODY DIAMETER = 0.00JET FLOW PATE = 4.672CMM ( 165.00CFM )JET EFFECTIVE VELOCITY = 140.4M/S ( 460.8F/S )JET EFFECTIVE VELOCITY = 140.4M/S ( 460.8F/S )

Table 2-4a. Pressure coefficient data for no plug configuration, R = 5.21.

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NON-DIMENSIONALIZE	D PRESSURES
ANGLE COFGR	FESI

PORT	ø	10	20	30	45	67	75	90	105	120	135	150	160	170	180
1	0.2345	0.1899	0.0446	-0-1940	-0.6873	-1.4461	=2+1935	=2+6131	-2.4921	-2.0775	=1:6969	-1.5857	=1,4023	-1+2984	-1.2715
2	0,1339	0,1039	0.0179	-0.1720	-0.5883	-1,1556	-1,6839	-2,9296	-2,0361	-1,7131	-1,4169	-1,2757	=1,1288	-1.4671	-1;9647
3	0.0665	0.0454	-0.0203	-0.1745	-0.5064	•Ø.9129	-1.3471	=1.6433	-1,6993	-1.4680	-1.1945	-1.0290	-0.9129	-Ø.8878	-0.8724
4	-0.0073	-0.0219	-0.0682	-0.1688	-0.3457	=Ø.5794	-0.9375	-1.0347	-1,1174	-1.0030	-0.7888	-0.6476	-0.5862	-0.5567	-0.5827
-5	-0.0316	-0,0454	-0.0714	-0,1300	-0,2597	-0.4269	=Ø <sub>*</sub> 5948	-0.7336	-Ø.RR34	-2,7466	-0,5745	-0.4609	-0,4439		-N.4358
6	-0.0398	-0.0414	-0.0649	-0.1096	-0.2045	-0.3287	-0.4536	-0.5478	-0,5997	-0.5713	-0.4593	-0.3400	-0.3343	-0.3700	-0.3522
7	-0.0414	-0.0406	<b>∞0.0633</b>	-0,0893	=Ø.1639	-0,2516	∞Ø <b>,3</b> 465	-0.4374	-0,4820	-0,4723	-0,3554	-0,2637	-0,2572	-W.3116	-0,2978
8	-0,0333	-0.0414	=0.0511	-0.0755	-0,1355	-0.1972	-0,2775	-0.3489	-0,3895	-0.3814	-0.2954	-0,2013	-0,1923	-0,2508	-0,2516
9	-0.0276	-0.0390	-0.0414	-0.9649	-0.1128	-a.1729	-0.2337	-0.2840	-0.3246	-0.3157	-a,2532	-0.1607	-0.1623	-0.2126	-0.2175
10	0.0000	0.0000	a <b>,</b> aaaa	8.9000	0,0000	•Ø.1363	-0,1915	-0.2337	-0.2646	-€.267B	-0,2126	-0,1307	-0.1185	<b>■0</b> ,1858	-0,2053
11	0.0000	a <b>.</b> anaa	a.anaa	<b>a.</b> 0000	0.0000	-0.1128	-0.1623	-0.2021	=0:22Ba	-0-2280	-Ø.1866	-0.1079	-0.0844	•n.155n	-0.1923
12	0.0000	0.0000	a .abaa	<b>0.0</b> 000	a.0000	a_6666	-Ø.1282	-0.1623	-0,1964	-0.1907	-0.1607	-0.0771	-0,0665	=0,1169	-4,1615
13	8.0000	8.0000	୶୶୶ଡ଼୶୶	8.0000	a . Guaa	<b>0.</b> 0000	-0.0941	-Ø.1298	-0.1582	-0.1591	-0.1307	-0,0617	-0.0552	-0.1063	-0.1493
14	a.aaaa	a <u>,</u> aaaa	0,0000	0.0000	а•ачач	a <b>,</b> aaaa	a <b>.</b> aaaa	-0.1096	-0,1290	=Ø.1298	-0,1039	-9,0552	-0.0316	-Ø.0852	-0,1242
15	a <b>.</b> aaaa	<b>.</b>	0 <b>.</b> 0000	<b>a</b> .0000	a .0000	0.0000	<b>6</b> .0000	-0.0998	-0.0990	-0.1120	-0.0852	-0.0496	-0.0162	=0,0682	-0.1289
16	0.0000	a .aaaa	a•0484	a.0000	a.aaaa	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0060	0.00ca	a.aaru	-0+1144
17	a.aaaa	0.0000	a <b>.</b> 0009	0.0000	ด ดูดดดด	<i>a</i> .aaaa	0 .0000	0.0000	a.apaa	0.0000	0 <b>.</b> 0000	<b>U.</b> aaca	0.0000	0.0000	-0,1055
18	0.0000	0.0000	<b>a.</b> aaaa	9.0000	e.0000	0.0000	a <b>.</b> aaaa	0.0000	0.0000	e <b>.</b> aaea		0.0000	0.0000	0.0000	-0.0917
19	0.0000	a <b>.</b> aaaa	a.aaa0	<b>0.</b> 9999	a.aaaa	0.0000	ด ดาวอง	0.0000	а, авае	0.0000	a <b>,</b> aaaa	0.0000	0.0000	0.0000	-0.0917
29	0.0000	0.0000	0 <b>.</b> 0000	a	a.uuaa	a.aaaa	a.aaaa	a.agaa	0.0000	6.0000	a. 4999	0.0000	0.0000	<b>0.</b> 6000	-0.0933
21	<b>0.000</b> 0	0.0000	0,0000	ิด ดูดดดด	a.auaa	<i>a</i> .	.0.0000	a.aeea	a.araa	и <b>.</b> Ораа	<b>0.</b> 0900	0.0000	0.0000	0.0404	-0.0812
22	0.0000	a <b>.</b> aaaa	a.gaaa	<b>a</b> .aaaa	a•naan	a.eaaa	a.aaar	0.0000	<b>0.070</b> 0	e.4040	a . 0000	0,0000	0.00Kb	и пари	-8,0917
23	0.0000	0.0000	0.0000	0.0900	a . 0000	a.000C	0.0000	0.0000	0.0000	0.0000	0.0000	4.4020	0.0000	8.0000	=0.0868.

26

Table 2-4b. Lift loss and pitching moment data for no plug configuration, R = 5.21.

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	NON-DIMENSIONAL	N	4	MITD		h.	L/T
PORT	APEA	N = M	LH≁FT		, N	Ĺμ	•
1	1.5170	0.002466	0,001819	0,007323	-0.487979	=0,10969H	-0.038281
2	2.3260	0.00370P	0.002735	0.011014	-0,699101	-0.157158	-0,054843
3	4.2908	0.006516	0.004806	0.019352	-1,124911	-0.252880	-0.088247
4	8.1049	0.011109	0,008194	a_a32996	-1,669765	-0,375363	-0.130949
5	12.9591	0.016463	0.012143	0.048897	-2.181609	•0.490426	-0,171142
6	18.8536	Ø.022526	0,016615	0,066905	-2,661961	-0.598206	-0,208754
7	25,7883	4.02920R	0.021544	0.086749	-3,111756	-699523	-0.244110
8	33,7631	0,036188	0.026692	0.107481	-3,529236	-0.793372	-0,276860
9	42.7792	0.043595	0.032156	8.129480	=3,925043	-0.882350	-0.307910
10	52,8335	0.054230	a.040000	Ø.161068	-4,252594	-4,955983	=0,333606
: <b>11</b>	62.0074	0.063316	0,046702	Ø.188054	-4.506755	-1.013119	-0.353544
12	78.1883	a. 079646	0.058747	0.236554	-4,844899	-1,089133	-0.380071
13	101.0149	0.101444	0.474R25	a.301297	-5,234450	-1.176784	-0.410630
14	121,3566	0,119543	Ø. #RA175	0,355053	-5,485691	=1,233183	-(1,430339
15	143.5475	Ø.137028	0.101072	a.406982	=5.712190	-1.28410M	-0.44810A
16	167.5877	0.139935	0.103216	0.415618	=5.729R03	-1.288060	-0,449489
17	193,4771	0.143044	A.105509	0,474852	-5,747291	-1,291991	-0.450861
18	221.2157	0.146147	Ø.107798	0.434067	-5.763578	=1.295652	-0.452139
19	239,4914	Ø 148327	0,109406	0.440542	-5,77430R	-1,298065	-0,452981
20	247.0040	0.149253	0.110089	0,443294	-5,779797	-1.299074	-0.453333
21	254,6321	0.150084	0,110702	u,44576a	-5,782761	-1,299965	-0,453644
22	262.3758	0.151051	0.111415	0.448633	-5.787308	-1,300987	-0.454000
23	270,2351	0.151994	0,112111	0.451434	-5,791677	-1,301969	-0,454343

Table 2.5a. Pressure coefficient data for no plug configuration, R = 3.91.

NO PLUG 6-29-76 R = 3.91 PLUG DEPTH = .000 JET FLOW RATE # 4.672 CMM ( 165.00 CFM ) JET EFFECTIVE VELOCITY = 140.4 M/S ( 460.8 F/S )

0.0000

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0.0000

0 0000

FFFFCTIVE JET DIAMETER = 1.04 CENTERPODY DIAMETER = 0.00 FREE STREAM VELOCITY = 35.9 M/S ( 117.9 F/S ) JFT FFFECTIVE THRUST =12:747 N (2.8656 T.B.)

170

180

#### NON-DIMENSIONALIZED PRESSURES ANGLE (DEGPEES) 10 20 30 45 60 75 90 105 120 135 150 160 0.1708 -0.0167 -0.4215 -1.0986 -1.8797 -2.5564 -2.8716 -2.5198 -1.9560 -1.7930 -1.7379 -1.6736 -1.5675 0.2882 2 0.2462 0.2249 0.0072 -0.3289 -0.8285 -1.3742 -1.9344 -2.1720 -2.0306 -1.6353 -1.4551 -1.4049 -1.3177 -1.3200 0.1378 0.1699 0.1053 0.0072 -0.2665 -0.6275 -1.0607 -1.4605 -1.7293 -1.6701 -1.3814 -1.2080 -1.1361 -1.0977 +1.1257 0.0926 0.0583 0.0000 -0.1540 -0.3551 -0.5886 -0.8127 -0.9988 -1.0309 -0.8615 -0.7540 -0.7409 -0.7680 -0.7377 0.0000 -0.0922 -0.2218 -0.3975 -0.5181 -0.6514 -0.6997 -0.6067 -0.5032 -0.5389 -0.5936 -0.5832 0.0619 0.0379 0.0452 0.0298 0.0045 =0.0551 -0.1518 -0.2670 -0.3677 -0.4535 -0.4974 -0.4504 -0.3637 -0.3840 -0.5141 -0.5005 a. ua99 -u. a343 -a. 1039 -a. 1897 -u. 2683 -u. 3356 -a. 3763 -u. 3533 -u. 2756 -u. 2959 -u. 4165 -u. 4292 0.0352 0.0244 0.0325 0.0126 -0.0244 -0.0831 -0.1459 -0.2006 -0.2598 -0.2923 -0.2670 -0.2078 -0.2732 -0.3325 -0.3763 0.0235 0.0299 0.0253 0,0000 a\_aaaa 0.0000 0.0000 0.0000 0.0000 0.0000 0,0000 0.0000 ดูเหตุด

9 0.0303 0.0126 -0.0181 -0.0596 -0.1071 -0.1581 -0.1992 -0.2313 -0.2195 -0.1590 -0.1613 -0.2828 -0.3094 10 0.0000 0.0000 -0.4416 -0.0840 -0.1287 -0.1608 -0.1843 -0.1811 -0.1265 -0.1274 -0.2494 -0.2918 0.0000 11 a.uaua -a.o316 -a.a7au -a.1a34 -a.1328 -a.1527 -a.1455 -a.u994 -a.u935 -a.1988 -u.2575 12 0.0000 0.0000 -0.0542 -0.0754 -0.1057 -C.1247 -0.1161 -0.0759 -0.0619 -0.1608 -0.2263 0.0000 13 0.0000 0.0000 0.0000 0.0000 0.20110 -0.0361 -0.0605 -0.0840 -0.0967 -0.0935 -0.6520 -0.0447 -0.1197 -0.1979 0.0000 14 0.0000 0,0000 0.0000 0.0000 0.0000 0.0000 -0.0520 -0.0651 -0.0745 -0.0714 +0.0398 -0.0762 -0.1012 -0.1789 0.0000 15 6.0000 0,0000 0.0000 ด ูสดดด a anau -0.0375 -0.0515 -0.0678 -0.0610 -0.0352 -0.0154 -0.0881 -0.1662 0.0000 0.0000 16 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 *<i><i><i>a.*иоди а.иоли и.иола и.ииии и.ииии -и.1554 0,0000 17 0,0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 a , no da 0.0000 0.0000 0.0000 0.0000 0.0000 -0.1455 18 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0,0000 0.0000 0.0000 0.0000 0.0000 0.00000 0.0000 -0.1337 19 0.0000 0.0000 0.0000 0.0000 a\_aaaa 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 -0.1170 20 0,3000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 6.0000 0.0000 0.0020 0.0000 0.0000 -0.1188 21 0.0000 0,0000 0,0000 0.0000 0,0000 0.0000 0.0000 0.0000 a.aouv 0.0000 ៧ ពីពីឲ្យ 0.0000 0.0000 0.0000 -0.1152 22 0.0000 9.0000 9.99999 0.0000 a uaga 0.0000 4.0404 0.0000 6.0000 8.0000 0.0000 8.0000 0.0000 6.0000 -0.1165 23 0.0000 0.0000 0,0000

0.0000

0.0000

0.0400 0.0000 0.0000 0.0000 -0.1170

0.0000

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PORT

1 0.3189

3 0,1884

4 0.0989

5 0.0637

6 0.0510

0.0393

0.0384

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Table 2-5b. Lift loss and pitching moment for no plug configuration, R = 3.91.

	NON-DIMENSIONAL		<b>ч</b>	MITO		ն հեր	Ъ/Т
POPT	APEA	N - M	LR-FT		Ň	LA	
1	1.5170	P.006270	8.004625	0.019623	-0.890271	-0.200133	-0,069R40
2	2.3260	0,009495	a.uu7004	0.028202	-1.263434	-4,284420	-0.099113
3	4.2988	0.016961	0.012510	0.050374	=1.992827	=0.44798R	-0.156332
4	F.1049	0.029776	0.021963	0.0AR437	-2,949968	=0,610673	-0.223573
5	12,9591	0.044749	0.033007	M.132908	-3,574731	-0.848095	-# 2R1998
6	18,8536	Ø.061852	0.045622	0.193706	-4.249705	=0,955334	-0.333379
7	25.7883	a_080756	0.059566	0.239851	-4.832962	-1.0R6450	-0.379134
8	33.7631	0.100551	0.074167	0.298645	-5.348525	-1,202348	=0.419579
9	42,77R2	0.121164	a ur937a	и,359866	=5,803611	=1,304652	=0,45527 <u>9</u>
10	52.8335	0,141835	0.104617	4.421260	+6.229826	-1,400465	-Ø.488715
11	62.0074	0.158653	0.117023	0.471212	=6.544754	-1,471261	=0.513420
.: <b>12</b>	78.1883	0.186086	0,137257	0.552690	-6,969232	=1,5666R3	-0,546719
13	101.0149	0.219436	0.161856	0.651741	-7.430696	=1.670420	-0.582920
14	121.3566	a.24638a	Ø.191730	0.731769	-7,739375	-1,739812	-0,607135
15	143.5475	0.274115	0.202187	Ø.814142	-8.023215	-1,803619	-4.629402
16	167 5877	0.281139	0.20736R	Ø.835004	-A.065764	-1,813184	-0.632740
17	193,4771	0 288765	0,212993	0.857652	-8 <sub>.</sub> 108656	-1_822826	-0.636105
18	221.2157	0.296811	0.218928	0.881552	-8.150901	-1.832322	=0.639419
19	239 4914	0.301760	0.222578	0,896249	-R.175255	-1,837797	-0,541329
20	247.0040	Ø.303857	0.224125	a.902480	-8.185420	=1.8400R2	-0.642127
21	254.6321	0,305954	0,225572	a 908708	-8,195429	-1,842332	-0.642912
27	262,3758	0.308141	a.227285	0.915702	-8.205708	-1,844643	-0.643718
23	270.2351	0.310402	0,228952	0.971917	=R,2161R1	=1.846997	-0,644540

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29

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		Table	2-6a. Pressure	coefficient	. data for	no plug	configurat	10n, R = 2	2.61.	
	NO PLUG	6-29-76								
P	= 2,61		PLUG DEPTH = . no	<b>*</b>	FFFFCTIVF	JET DIAMET	ER = 1.04 CE	ENTERNONY D	TANFTER =	0.00
J	ET FLOW PATE = 4	4,672 CMM (	165,00 CFM )		PPFE STPFA	VELOCITY	l = 53.9 M	5. ( 176.8	F/S )	•
ų	ET REFECTIVE VELO	DCITY = 140.4	4 M/S ( 460.8 F)	(5)	JET EFFECT	IVE THPUST	=12.747 N	(2.8656	1.P )	

N=DIMENSION	ALIZEN	PPESSUPES
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					NON	-DIMENST	ONALIZED	PPESSUP	F S						
PORT	Ø	10	20	30	45	60	75	90	105	120	135	150	169	170	180
- 1	0.3668	0.3457	0.2947	0.1782	<u. 0745<="" td=""><td>-0.4909</td><td>-1.0547</td><td>-1.7039</td><td>-2.3002</td><td>-2.5734</td><td>-2.0699</td><td>-1.5776</td><td>-1.2760</td><td>-1.1085</td><td>-1.0539</td></u.>	-0.4909	-1.0547	-1.7039	-2.3002	-2.5734	-2.0699	-1.5776	-1.2760	-1.1085	-1.0539
2	0.3220	0,3043	0.2614	0.1780	-0.0115	-0.3240	-0,7075	-1.1993	+1,6632	-1.8906	-1.7268	-1,3026	-1.0263	-Ø.8379	-H.7975
3	0.2786	0.2704	0.2300	Ø.1657	0.0173	-0.2641	-0.5022	-0.8361	-1+2011	=1.4367	-1+4167	-1.1197	-0.857R	-0.6929	-#.6463
4	0,1961	0.1880	0.1655	0.1296	a,0436	-0,0751	-0.2294	-0.3992	-0,593A	-4.7839	-0.8964	-0.8712	-0.6428	-0.49R4	-0.4747
5	0.1475	Ø.1429	0.1276	0.1053	0,0472	-0.0295	-0,1296	=Ø.2387	-0.3845	-8.5490	-1.6513	-8,6465	-0.4783	=0.3R85	-11.3724
6	0.1175	0.1131	0.1021	Ø.0854	a.043a	-0.0068	-0.0R04	-0.1591	-0.2521	-0.3592	-0.4661	-8.4931	-4.3576	+0.2935	-0.2987
7	0,8936	0.0908	0.0824	a.a679	0.0400	ด ดอนแ	-0,0546	-0,1135	-0.1886	-0.26R0	-4.3487	-0.3648	-4.2684	-0.2109	-0.2174
Ą	0.0771	0.0773	0.0709	0.0583	0.0368	0.0056	-0.0416	-a.a876	-0.1448	-0.2077	-0.2666	-2.2744	-0.1941	-4.1444	-0.1517
9	0.2671	0,0645	a.0597	0.0512	0.0307	0_00A2	-0,0299	-0.0693	wØ.1173	-0.1655	-0.2041	-0.2125	-6.1511	-0.1041	-0.1049
10	0.0000	0.0000	0.0000	0.0000	0.0000	4.007R	-0.0233	-0.0556	-0.092B	-2.1788	-0.1643	-0.1661	=0.1119	-0.0691	-0.0771
11	9.9999	a.aaaa	a.aaaa	a.aagu	ด สิตสุด	0.0060	-0,0153	-0.0460	-0_0755	-0.1101	-0.1304	-4.1282	-0.0882	-0-8452	-0.0478
12	0.0000	a anaa	a.aaaa	<b>a.</b> aaaa	ดูดเดดต	0.0000	-0,009A	-0.0346	-0.0583	-P.0834	-0.1008	= 4. 6974	=0.0653	-0.0267	-0.0376
13	0.0000	0.0000	0.0000	Ø.ØØØ9	a.a0aa	a.0000	-0.0064	-0.0285	-0.0498	-0.4687	-0.0783	-4.0747	-0-0512	-0.0145	-0.0159
14	ส_สสุดย	<b>6.666</b>	a <b>.</b> aaaa	0.0000	<b>a</b> .aaaa	0_0000	0.0060	-0.0243	-0.0402	-0.0544	=0.0635	-0 0591	-0 0352	-0 0040	-0 0067
15	0.0000	0.0000	ล ดดดด	a.aaaa	0,0000	a.0000	0.0000	-9.9177	-0.0795	-8.0436	-0.0490	•U. 0432	-10.0063	-0 2014	=0.0030
16	a.aagu	a.0000	9.9000	0.0000	- 0.0000		0.0000	0.0000	0.00MC	0.0000	0.0000	W 3040	0 0400	A 6660	- · • • · · · · · · · · · · · · · · · ·
17	9.9994	0,0000	0.0000	a.aaau	a.a0aa	0 0000	0 0000	0 0000	N N000	0 0000	a aaaa		6 ugug		0 0000
18	0.0000	0.0000	0.0000	0.0000	0.0000	6 CC40	a anaga	13 0000	w: 1100.0	a 4000			0	N	N
19	A.0000	9.9999	a	0.0000	0 0000	a acaa	0 0100	a aaaa	a naga	0.0040		N. N. N.	1	N	N*NNKN
20	0.0000	0.0000	0 0000	a auaa	. a . a . a . a	d 0000	0.0000	n gano	1	· · · · · · · · · · · · · · · · · · ·	N. NNNN	0.0000	0.0000	0.0000	0.0086
21	9.0000	0.0000	0 0000	0 0000	a aaaa	n. 0000	0,0000	0.0000	0,0000	0.0000	0.0000	0.0000	A • 8966	<i>a</i> . <i>aa</i> .aa	0.0040
22	a aaaa	0.0000	a aaaa	a aaaa		1 0 0 0 0 0 0	N.NNN0	N.NV.00	0.000P	и • амер	и. аида	0.0000	N.NG80	0.0064	0.008t
22	0 0000	n nnac	N. NNNN	n . n n n n	N. NORA	N. 0000	<i>u</i> , <i>aa</i> aa	<i>и</i> <sub>*</sub> 90000	a.naa6	6.0469	0 . 0000	<b>к.</b> аава	0.0000	<b>а</b> •исми	6.00PP
23	A1 8 4 6 1 1 1	N SUNNO	N. 0000	N • NNNN	N. NO46	0.0000	a.auau	0.0000	0.0000	0.0000	0.0000	8.0000	0.0000	a. 6660	0.0000

Table 2-6b. Lift loss and pitching moment for no plug configuration, R = 2.61.

	NON-DIMENSIONAL	1	M	MID		<b>I</b>	L/T
PORT	APEA	N =M	LB-FT		N	LB .	27.
1	1.5170	0.014306	0.010552	0.042491	-1.503636	-0,338017	-0.117957
2	2.3260	0,021532	0.015882	0,063951	-2.097196	-0.471450	-0.164520
3	4.2908	0.03R196	0.02B173	0.113444	- 7. 1920RB	-0.717581	-0.250412
4	8.1049	0.068515	0.050536	0.203494	-4.407234	-0,990746	-4.345737
5	12,9591	0.105423	0.077760	0.313114	=5,461272	-1,227694	-1,428424
6	18.R536	0.146173	0,107817	0.434144	-6,350453	-1,427582	=0.49817R
7	25,7883	0.189011	0.139414	0.561377	-7.111133	-1,598583	*0.557851
8	33,7631	0.232307	0.171349	Ø.689968	-7.747932	-1,741735	-0.607807
9	42.7782	0.275716	0,203368	Ø.818898	-8.289531	-1,863486	-0.650294
10	52,8335	0.308471	0.227528	0.916183	=8,862529	-1,992296	-0.695244
51	62.0074	0.334044	Ø.246391	0.992136	=9,2735R9	-2.084703	-0.727491
12	78.1883	0,371748	0.274202	1.104121	-9,823488	.2.208320	-0.770629
13	101.0149	0.416462	0.307182	1.236923	-10.426102	-2.343788	=0.817903
1.4	121,3566	0.449467	0.331527	1.334949	-10,832953	-2.43524R	=Ø_849819
15	143.5475	0.479029	0,353332	1.422751	-11-167734	-2.514547	-0.876082
16	167.5877	0.479029	0,353332	1,422751	-11,167734	-2,510507	-0,876082
17	193.4771	0.479029	0.353332	1.472751	-11-167734	-2.510507	=0.876082
18	221,2157	H 479029	0.353332	1.422751	-11,167734	-2,510507	-0.876082
19	239.4914	0.479029	0.353332	1.422751	-11.167734	-2.510507	-0.876082
20	247.0040	0.479029	0,353332	1,422751	-11,167734	-2,510507	-0.876082
21	254.6321	0.479029	0.353332	1.422751	-11.167734	=2,510507	-0.876082
22	262,3758	0.479029	Ø,353332	1,422751	-11,167734	-2,510507	-0,876082
23	270.2351	0.479029	Ø.353332	1.422751	-11-167734	-2,510507	-0.876082

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Table 2-7a. Pressure coefficient data for round ended plug flush configuration, R = 9.08.

ROUND END PLUG 6=30=76	
R = 9.08 PLUG DEPTH = .000	EFFECTIVE JET DIAMETER = $0.73$ CENTERBODY DIAMETER = $0.75$
JET FLOW RATE = 2,252 CMM ( 79,53 CFM )	FREE STHFAM VELOCITY = $15.4$ M/S ( $50.6$ F/S )
JET EFFECTIVE VELOCITY = 140.1 M/S ( 459.6 F/S )	JET EFFECTIVE THRUST = 6,130 N (1,3779 LB)

....

					NON	-D1~ENSIG	JNALLERI	PPF SOURI							
PORT	Ø	10	20	30	45	ANGLI 6P	- (DEGRE) - 75	90	105	120	135	159	160	174	180
1	a.aaaa	-0.0372	-0.1415	-Ø.3178	•a.6009	-1.1050	-1.5222	=1.7432	-1.571A	=1+2664	=ø,7698	-0.5714	-0.4721	•Ø.4122	-0.4345
2	-0.0596	-0.1068	-0.1664	-0.3054	-0.5885	-0.9312	-1,2142	~1,3558	-1,2490	-1.01R1	-0.6456	-K.4196	-0.3005	-0.26P2	-0.2945
3	-0.1117	-0.1266	-0.2036	-0.29.80	-0.5165	-0.7400	-a.9957	-1+1199	-1.0975	=0:+R716	=#.5190	-0.3283	-0.255P	-0.2011	-0.20H6
- 4	-0,1540	-0.1664	-0.2219	-Ø.2582	-0,4470	-0,5413		-0.7524	-0,7325	-0.5662	-0,3675	-0,1986	-0,1564	-0,1192	-0.1093
5	-0.1440	-0.1540	-0.1938	-0.2250	-0.3178	-0.4196	-0.4867	=0.5513	-4.5339	-0.4395	=Ø.2756	-0,1465	<b>*</b> Ø.1465	-0.0944	-0.1018
6	-9,1564	-0,1664	-0,1664	-0.1962	=Ø_255R	-0.3402	-0.4172	-0.4470	-0.4420	-0.3650	-0,2111	-0.1291	-0.106R	-0.0770	-0.0919
. 7	-9.1242	-0.1316	-9.1364	-0.1689	-0.2260	-0.2806	-0.3352	-0.3650	-0.3551	-0.322R	-0-1986	-0.1117	-0.ИН44	-0,0195	-0.0646
8	-0.1192	-0.1117	-0.1316	=0.1515	=Ø.1887	-0.2433	-0.2856	-0.3154	-0.317A	-2.2533	-0.1689	-0.0R69	-0.0813	-0.0546	-0.0447
9	-4-0993	-0.1068	-0.1142	-0,1291	=Ø,1614	-0.1937	-0,2185	-0,2533	-0,2582	-6.2409	-0.1614	-0,0795	-0,0596	-0.0447	-0.0447
10	0.0000	a.aaaa	0.0000		a <b>.</b> acaa	-0.173R	-0.1986	-0.2185	-0.2309	-0.1912	-0.1415	-0.0770	-0.0521	-0.0472	-0.0472
11	0.0000	a.aaaa	a.aaaa	<b>0.0</b> 000	A.0000	-0,1515	-0.173R	-Ø.1962	-0.1887	-0.1763	-0,1366	-е,и571	-0.0472	-0.0372	-0.0447
12	Ø.0000	a <b>.</b> aaaa	a.eaaa	0.0000	<b>a</b> .aqua	9.0999	-0.1415	-Ø.1788	-0.1664	=0.1564	-0.1117	-0.0521	a.uapa	-11.0323	-0.0298
13	e.auaa	a <b>.</b> aaaa	a.aaaa	a <b>.</b> aaaa	a.0909	a.aoaa	-0.1242	-0.1266	-0,1391	-0,1391	-0,1117	-4.9447	0.0000	-0,024H	-0.0298
14	0.0000	0.0000	a.aaaa	a.aaaa	a.aaaa	<i>и</i> .иааа	a.aaca	-0.1242	-0,1391	-9.1242	•Ø.1943	-0.0372	N. NOSG	а•аные	=0.0∛22
15	0.4040	0.0000	a_aaaa	a.aaaa	a anna	0.0000	a <b>.</b> aaaa	-0,1117	-0,1117	-0.1018	-0.0869	-0,0397	a.noea	<b>0.0000</b>	и виси
16	R.0000	a.aaaa	a.aaaa	a.0000	୍ଷ , ଗାଓରଗ	<i>.</i>	ค.ศกสด	a.aaaa	a.adaa	N. 00000	0.0000	0.0000	N. 9080	0.0000	=0.024B
17	A.4044	0.0000	A.4444	a.aaaa	а,аааа	и, аиаи	<i></i>	a,aeea	0.0000	0.0000	0.0000	6.0000	a.0000	ត•ំចំពីចំព	.ព. <mark>.</mark> ៨៨៦ ៧
18	0.0000	A.0000	0.0000	a.aaaa	a <b>.</b> aaaa	0.0000	0.0000	4.0000	Ø.0000	P .0000	a.auan	0.0000	0.0000	<b>ต.ถ</b> ดดส	и•нини
19	0.0000	9.9999	0.0000	a.aaaa	a auaa	a_aaaa	0.0000	a • 4468	a.aaaa	0.0000	0.0000	0.0000	0.0000	ด ุคลุคะ	0.0000
20	9.0000	0.0000	a.aaaa	0.0000	a .aoaa	0.0000	и. онаи		0.0000	a.adaa	a . anaa	0.0000	0.0464		0.0000
21	0.0000	e.0000	a.aaaa	<b>ø</b> .øaaø	a.aaaa	0.0000	а ачаа	<b>0.000</b> 0	0,0000	e.0000	น. ถทุดห	0.0000	0.0000	a. 0000	а <b>.</b> инра
22	a • anan	0.0000	0.0000	a .uaga	a <b>.</b> ønnø	a <b>.</b> aana	и <b>.</b> июан	и <b>.</b> иааа	e.000e	e.anep	4.0004	a.0000	0.0000	a.ccae	0.0000
23	0.0000	0.0900	a_0000	a_0000	9.0000	0.0000	0.0000	0.0000	0,0000	0.0000	0.0000	0.0000	0.0000	0.0000	e.0008

Table 2-7b. Lift loss and pitching moment data for round ended plug flush configuration, R = 9.08.

	NON-DIMENSIONAL		M	MITD		L/T	
PORT	APFA	N -M	1,R=FT		พ	Lp	
n n <b>t</b> s	3.0751	0.000168	0.000124	0.001479	-0,096563	-0.021707	-0.015753
2	4,7458	0,000217	0.000160	0.001712	-0.138822	-1.031207	=0.07264R
3	9.7547	0.000286	0.000211	0.002524	-0.225606	-0,050716	-0.036806
4	16,5366	0.000149	a.000110	0.001313	-9,346336	-W. 077856	-0,056502
5	26.4409	-1.000037	-0.000027	-0.000324	-0.462672	-0.104009	-0.075481
6	38,4675	-0,000393	-a_948290	-0.003470	-0,580375	-0,13046R	-0.094683
7	52.6165	-0.000787	-a.0005A1	-0.006946	-0.697511	=0.156P00	-0.113793
R	59.897A	-0,001294	•Ø.000947	-0,011325	-0.812010	-0,182540	-0,132472
9	87.2814	-0.001795	-0.001257	-0.015041	-8.921461	-0.207144	-0.150328
10	197.7974	-0.000222	·0.000164	-0,001959	-1.003418	-11,225659	-0,163764
11	126,5153	0.001110	0.000R19	0.009791	-1-069921	-0.240518	-0.174548
12	159.5296	0.003845	0.002836	0.033922	-1+154672	-M.25957A	-0.188375
13	206.1033	0.007754	a. 005720	0.068413	=1,256423	-1,282444	-0.204974
14	247.6069	9.011622	0,008572	9.102538	-1.325747	-0.298028	*6.216284
15	292,8836	0,015285	0,011274	0.134852	=1,388357	-0.312103	-Ø.226498
16	341.9333	0.015490	0,011426	0.136667	-1.389603	-4,312383	-0.226707
17	394,7561	0,015490	0.011426	0.136667	-1,389603	-4,312383	-0.226782
18	451.3520	0.015490	0.011425	4.136667	-1.389603	-0,312383	-0.226702
19	488.6404	0,015490	0.011426	0,136667	-1,389603	+0,312383	-0,225762
20	503.9685	0.015490	0.011426	0.136667	-1.389603	-0,312383	-0.226782
21	519,5323	A. N1549A	0.011426	0,136567	-1,389603	-0,312383	=0,226782
22	535.3320	A.015490	0.011426	0.136667	=1.3896N3	-0,317383	-0.276722
23	551,3675	Ø.015490	0.011426	0.136667	-1,389683	+0,312383	-4,226702

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Table 2-8a. Pressure coefficient data for round ended plug flush configuration, R = 6.81.

ROUND FND PLUG 6-30-76	
P = 6,81 PLUG DEPTH = .098	EFFECTIVE DET DIARETER = $\theta_{*}$ 74 CENTERRODY DIAMETER = $\theta_{*}$ 75
JET PLOW RATE # 2,252 CMM ( 79,53 CFM )	FREE STREAM VELOCITY = 24.6 M/5 ( 67.5 E/8 )
JET EFFECTIVE VELOCITY = 140.1 M/8 ( 459.6 F/S )	) JET FFFECTIVE THRUBT = 6.130 N (1.3779 1.8 )

NON-DIMENSIONALIZED PRESSURES	
ANGLE (DEGREES)	

PORT	\$3	10	2.0	30	45	64	75	90	105	129	135	150	160	170	1.មហ
1	0.0879	0.0488	-0,0371	-0.1870	-Ø.4884	-1.0228	-1.5140	-1.8531	-1.883R	-1-5600	-0.9629	-0.6684	-0.5582	-0.5121	-0.5493
2	0,0293	a .aaaa	-0.0447	-0.1758	-0,4326	-0,8191	-1,1679	-1,4526	-1,4526	=1,2419	-0.7730	-0.5344	-0.436R	=0.362H	-P.3H51
3	0.0000	-9.0223	-0.0837	-0.1814	=0.3823	=Ø.6544	-0.9447	-1+1624	-1.7321	=1,0465	=U°6638	-6.4326	-0.3363	-0.2791	-11-2944
4	-0.2642	-0.0586	-0.1005	-0.1605	-Ø.2791		-0.6094	-0.7214	-4.7675	-8,6879	-0.4465	-0.2567	=0,2051	-0.1647	-0.1633
5	-0.0614	-0,0754	-0,0893	-0,1437	-0,2023	-0,3154	-0,4186	-0.5023	-9.5490	-8,4549	-0.3200	-0.1998	-11,1489	-0.1074	-0.1130
6	-0.0572	-0.0656	-0.0740	-0.1074	=0.1744	-0.7442	-0.3209	-0.3809	=n.413e	₩ <b>₽</b> .3698	-0.2609	-4.179R	-0.1005	-0.1047	-0-0837
7	-0.0516	-0,0460	-0.0726	-0.0993	-0.1312	-0.1870	-9,2470	-0.3056	-0.3279	-2.2930	-0,2121	-0.1130	=# <sub>#</sub> 8684	-0.4530	-0-0488
R	-0.0419	-0.0405	-ต. 6538	-0.0767	-0.1005	-0.1492	-0.2065	*0.2512	-0.2581	-0.2470	-0.1814	-0.0754	-0.0460	=H. H572	•Ø.0572
9	•9.9321	-0.0391	-0.04RB	•0.0530	-0.0893	-0,1200	-0.1647	-и,1995	-9,2163	-8,2093	-0,1591	-0.0795	=0,0377	-0.0307	-0,И265
10	9.0000	0.0000	0.0000	a.aaaa	<i>a</i> .anna	-0.1019	-0.1326	-0.1619	-9.1772	-0.1814	-0.1298	•0.4530	-0.0335	-0.0223	-11-11419
11	0,0000	0.0000	<b>a</b> ,anaa	a.aaaa	a.aaaa	-0.0879	-0.1144	-0.1395	-0,1507	-0,1521	-11.1242	-8.0425	-H.H251	-0.0181	0.0000
12	<b>a</b> .aaaa	a.aaaa	Ø.9009	6.0000	a.aaaa	0.0000	-0,0991	-0.1144	-0,1298	-8.1312	-0.0921	-0.0405	0.0000	a cont	-0,0321
13	a.0000	0.0000	0.0000	Ø.0000	a.auga	<b>u.a</b> uaa	-0.0670	-0.0921	-0.0991	-0.0977	=0.0949	-0.0419	9.0008	<b>ต.</b> ศุภ <sub>ั</sub> ย	N. 0040
14	0,0000	a.uaua	ศ. ดังถุด	0.0000	ดุดเหตุ	0.0000	ค.ผมดด	-0,0837	-0.0940	-0,0740	-0.0684	-9,9349	и, инее	a.0000	a. aaka
15	<b>8.0000</b>	a . aaaa	<b>0</b> ,9999	a.aaaa	a_aaaa	0.0000	0.0000	-0.0586	-0,0726	-0.0865	-0,0572	-0,0279	n"Bobb	e.0000	и апри
16	ø.0000	a.0000	A.0000	Ø.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.000H	N.0000	6.0000	N. NOVO	и. Пани	si.ouua
17	0,0000	a <b>,</b> anaa	0.0000	<b>0.00</b> 40	a.auaa	0.0000	0.0000		a acae	е, анер	a.0000	e.aava	a.0000	<b>е.</b> ииии	N. HOER
18	0.0000	a.aaaa	a,aaaa	a.0000	<b>0.000</b> 0	0.0000	0.0000	P.0000	0.0000	a.aaaa	a.aaaa	e.0000	0.0000	0.0000	<b>N.</b> ANEN
19	9.0000	e.aaaa	<i></i>		a, aaaa	<b>0.</b> 0000		a.aeaa	0.0000	a.,000a	и. писл	R. 0000	0.00°P0	a.acas	D. ONKR
20	0.0000	a.aaaa	a.aaaa	a . aaaa	ส.สหเรล	0.0000		M. 99944	<b>6.660</b> 0	a.0000	a.aaaa	6,0000	0.0000	Ørstade	N.0000
21	0.0000	8.9998	0,0000	a .aaaa	ø <b>.</b> øøøø	# . QUAR	0.0000	0.0000	a. 00.00	a. 400a	a.acaa	и	a.udea	0.0000	0 • 0 0 0 0 0
2.2	0.0006	a .aaaa	0.0000	A.0000	a.aaaa	0.0000	0.0000	Ø.0000	а, нипр	<b>г.</b> анан	<b>u.</b> 0000	<b>4.</b> 0020	0.0000	0.0000	N. 19960
23	0.0000	0.0000	ด่ ดดดด	a.anau	0.0000	e.eepe	а, анга	a.aapa	а паве	e.ecee	A. 6866	8.008P	N. NPPP	n_urun	и. нире
Table 2-8b. Lift loss and pitching moment data for round plug flush configuration, R = 6.81.

	NON-DIMENSIONAL		M	MZTD		L	I / I
POPT	лнга	N = "	I.H.FT		21	LB	
ана <b>1</b> 1	3.4951	0.000623	0.000460	0.005497	-0.184373	-0.041447	=0.030079
2	4.7458	0,000903	a.000666	a.au797a	-9,262521	-0,259015	=(1.042R2R
3	8.7547	9.001503	0.001103	0.013261	=0.420861	-0.094610	-0.068660
4	16,5366	a', aa2289	0,001689	0.020195	-C.622847	-0,140016	-0,101612
5	26.4449	Ø. 992995	0.002209	0.026427	-0. R06064	-0.181263	-0.131502
6	38,4675	0.003774	0.002784	0.033297	-0.980834	-1.220491	-0.168014
7	52,6165	0=004527	0.001339	0.039939	-1.141689	=0.256652	-0.186257
R	68,8878	0.005414	Ø. 003993	0,047766	-1.292697	-0.290598	-0,210892
9	87.2814	0.006368	0.004697	0.056184	-1.433867	-0.322333	=0.233923
10	107,7974	0.00P803	0,006493	0,077668	-1.544637	-0,347235	-0,251994
11	126.5153	0.010797	0.007964	Ø.095262	-1.630586	-0.366556	-0.265016
12	159 5296	0,014546	0,010729	Ø.128333	-1.741783	-0,391553	-0,284157
13	206.1033	0.019646	a.014491	a.173327	=j.866803	-0.419657	-0.304553
14	247,6069	Ø,973986	0.017692	0,211621	=1.9469R7	-0.4376R3	-0.317634
15	292.8936	Ø.928675	0.021151	0.252994	-2.021521	=0.45443R	-11.329793
16	341,9333	4.028675	0,021151	0.252994	-2.021521	-W.45443R	-14.329793
17	394,7561	0.028675	0.021151	0.252994	-2.021521	-4.454438	-0.329793
19	451,3520	0.029675	0.021151	u,252994	-2,021521	-0.45413R	-0.329793
19	499.6404	0.029675	0.021151	0.252994	72+021521	-0.454438	-(1.329793
20	503,9685	0.029675	0,021151	0.252994	+2,021521	-0,454438	-0.329793
21	519.5323	0.028675	0.021151	0.252994	-2.021521	-0.454438	-9.329793
22	535,3370	0,028675	a.021151	0,252994	-2.021571	-0,45443R	-4,329793
23	551.3675	0.028675	0.021151	0.252994	-2+421521	-Ø,454438	-0.329793

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ω G Table 2-9a. Pressure coefficient data for round ended plug flush configuration, R = 4.54.

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01	ROUND END FLUG	6-30-76	
P	= 4,54	PLUG DEPTH = . 4PR	EFFECTIVE JET DIAMETER = 0.73 CENTERBODY DIAMETER - 14 75
J	T FLOW HATE = 2.252 CMM (	79,53 CFM )	FREE STREAM VELOCITY = 30.9 M/S ( 101.3 E/S )
ា	ET EFFECTIVE VELOCITY = 140.	1 M/S ( 459.6 F/S )	JET EFFECTIVE THEUSI = 6.130 N (1.3779 LB )

NON-DIMENSIONALIZED	PRESSURES
	I PEGGUPLA

ORT	Ø	10	20	30	45	60 60	E (DEGPE 75	ES) 90.	105	120	135	150	160	170	រទេព	
1	0.2045	Ø.1983	0.1258	0.0142	-0.2249	-0.6347	-1.1759	-1.7403	-2.1852	-7.2329	-1+4721	-0.9442	-0.8085	-4.7323	=0.7267	
2	0.1580	.9.1425	a_9929	0.0130	=0,1840	-0.4907	=G_8469	-1,2775	-1.6034	=1.6536	=1.1889	-2.7453	-M. 5886	-0-5159		
3	0.1190	0.1134	0.0700	6.0000	=0.1549	-0.3736	- -0.6598	-0.9516	-1.2125	-1.2645	=0.9628	-0.6072	-0.4529	#0. 1996		
4	a. a657	0.0539	0.0341	0.0000	-0.0892	=0.2125	-0.3581	-0.5142	-0.6505	-0 6939	-4 5811	-0.3414	-0. 35/3		- 4 4054	
5	0.0390	Ø.0341	1.024A	0.0000	-0.0564	-0.1382	-0.2317	-0.3079	-0.4077	•0.44AB	-0.3829	-0.3414	-0,2503		-4 -1220	
6	0,0316	0.0285	0.9294	0.0000	-0.0409	=0.0936	-0.1617	=0.2243	-8 2751	-0. 0997		-0.1330	-4 -40,151	-0.0014		
7	9.9297	0.0198	Ø_9161	0.0000	-0 0248	-0 0700	-0.1010	-0 1524		-0.0047	-0 -0454	-0.1042	-0,6973	=0.VH74	=N. (HHO	
8	0.0265	0.0273	0.0173	0.0000	= 0.0211	•Ø.6508	-0 0874	-W.1.524	-0 + 413	-0 +685	-0.2051	-0,1782	-0.0034	-0,0558	-0.0688	
9	0.0223	4 9204	0 0124	a aaaa	-0 4149	-0 0353		-4 4040	a (179	-V . 1005	- 1001	-4.4464	-0.04//	=0.N465	-0.0576	
19	6.0000	0.0000	0 0000	a anaa	a anga	-0.0035			=N . 1125	-4,1752	-01,1227	-0,0793	-0.0324	-0.0347	=0 + 04 <u>6</u> 9	
11	0.0000	a uaaa	0 0000	8 0000	a	-0.0499		-0.0725	*/*/00h	-0.1059	-0.104/	₩ر0525	-0.0167	-0.0229	-0.0378	
12	9.9999	0.0000	0 0000	<i>n</i>	0.0000	-0-01-00	-N. N465		-0.0725	-0.0/8/	-0,0405	-2.0533	-0.0124	-0,0142	-0.0297	
• • • •	0 0000	0 0000	0.0000	0.0000	и	N.0000	*0.0255	=0,04//	-0,0545	•e.0675	=0.0663	-0.0514	-0.0124	-0.0124	=0.0204	
1.5	0 . a a a a	0 0000	0,0000	0.0000	0.0000	0 <u>0</u> 000	-0,0242	-0.0316	-0.0458	=e.0576	-0.0502	-0,0285	-0.0125	<b>0.000</b> 0	-0.0167	
. 14 	0	и <b>.</b> ииии	0.0000	0.0000	0.0000	0.0000	0.0000	•0.0279	■Я.0359	= M = M 4 0 9	-0.0427	-0.0266	-0.0087	ต.ศมกต	-0.0235	
.15	0.0000	ମ <b>୍</b> ମମ୍ମମ -	a.aaaa	a . 4090	а,аана	a.aauu	a . aapa	-0.0167	-0.0310	-0;032B	-0,0335	-0.0723	0.0000	0.0000	-0.0155	
16	0.0000	a.aaaa	0.0000	0.0000	a•aaaa	<b>0.0000</b>	Ø.0000	A.4000	0.0000	8.0090	0.0000	8.0089	a <b>.</b> 000a	0.0000	-0.0173	
17	0.000	0.0000	<b>0.000</b> 0	a,aaaa	0.0000	0.0000	0.0000	0.0000	P.9449	e.unea	а, ааси	0.0060	0.00KB	0.0000	-0.0155	
1,8	<b>0.0000</b>	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	a°aaaa	6.0000	a•nana	0.0000	0.0050	0.0000	-0.0105	
19	0 <b>.</b> 0 6 6 0	0.0000	9.9999	0.0000	<b>a_</b> aaaa	a <b>.</b> aeaa	<b>ต</b> . สดงน	0.0000	0.0000	8.0080	0.0000	H. HABA	<b>о.</b> енеа	N. FORM	-0.0112	
29	0.0000	0.0000	A.4044	a .acaa	a <b>.</b> acaa	<b>a</b> .6666	<b>6</b> 0000	a.0000	N, NP (50	e.4046	0.0000	0.0000	0.0000		-0.0068	
21	0.0000	0.0000	a.aaaa	<b>a.</b> aaaa	0,0000	a <b>.</b> 0000	<b>6.</b> 0000	a <b>.</b> aeaa	и <b>.</b> ание	e	а.иииа		a	0.6400	-0.0173	
22	0.0000	0.0000	0.0000	a <u>,</u> aaaa	a anna	0.0000	e.aaca	0.0000	0.0000	0.0000	0.0000	ø <b>.</b> 0000	0,0000	0.0000	-0.0105	
23	0.0000	a.000a	0,0000	a.aaaa	4.0000	a.eena	0.0000	a.u00a	a.0000	0.0000	0.0000	<b>0.</b> 6980	0.0000	0.0000	-0.0155	

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Table 2-9b. Lift loss and pitching moment data for round ended plug flush configuration, R = 4.54.

1

POPI	NON-DIMENSIONAL Arfa	N -M	H LB-FT	M/TD	N	LB	L/T
1	3,4951	0.003008	0,002219	0.026542	+Ø.438127	- <i>n</i> .0,98490	-0.071476
2	4,7458	0.004427	0,003265	0.03905R	-0.613647	-0,137948	-0.100111
3	R.7547	0.007475	0.005513	и=065947	-0.942826	-0.211947	-0.153R14
4	16,5366	0.011997	<b>៨</b> ្ខលព៌មិនិង។	0,105850	-1.297990	-0.29178R	-0,211756
5	26.4409	0.016770	0.012370	0.147956	-1,586958	-0.356748	-0.258898
6	38,4675	0.021585	0 015921	0,190433	-1,926881	=0,410683	-0.298040
7	52+6165	0.026661	0.019665	0.235224	-2.03194R.	-4.456782	-0.331494
R	68,8878	0.031874	0.023510	0,281213	-2,206789	-0.496PR6	-0.360012
9	87.2814	0.037029	0.027313	a. 326697	-2.359790	=0.530481	-4.384979
. 19	107.7974	0.041943	0.030937	A.378448	-2,495620	-0.561015	-0.407139
11	126.5153	Ø.0456R1	a.a33694	0.403026	-2.595366	=0.583438~	-0.423411
12	159,5296	9.052547	Ø,038759	Ø_463608	-2,729599	-0,613614	-0,445359
13	206.1033	0.060103	0.044332	0.530266	-2.871776	=0.645575	-0.468505
14	247.6069	9.066755	4.04923R	Ø.588956	-2.966264		-0.483920
15	292,8836	0.072692	0,053610	W.641248	-3,043673	=0,684218	-0,496549
16	341.9333	0.073258	0,054035	Ø=646330	-3.047162	-N.685002	-p.497118
17	394,7561	0,073854	0,054475	0.651592	-3,050516	•0.685756	-11,497665
18	451.3520	0.074320	a. 454818	8.655699	-3.052961	-W.6R6306	-0.498064
19	488 6404	Ø.074666	0.035074	Ø.658756	-3,054666	-0.686689	-#.498342
20	503.9685	0.074754	0,055139	0.659536	=3.U55V94	-N.685785	-0.498412
21	519,5323	0,074986	0,055310	0,6615F2	-3,056201	-0.687034	-0,498592
27	535.3320	0.075132	a.ø55417	Ø.662863	-3.056884	-M.687187	-0.498704
23	551,3675	0,075351	u,055579	0.664802	-3,057902	-0.687416	-0.498870

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3

	Table 2-10a.	Pressure coeffi	icient data	for round	ended plug	flush	configuratio	on, R =	2.27.
R = 2.27	ROUND END PLUG	6=30=76 PLUG DEPTH = _0	00	FFFFCTLVF	- ЛЕТ ПІАМЕТЕ	R = 0.7	3 CENTERBODY 1	TAMETER	= 4,75

JET FLOW RATE = 2,252 CMM ( 79,53 CFM ) JET FFFECTIVE VELOCITY = 140,1 M/S ( 459,7 F/S ) FFFFCTIVE JET DIAMFIFR = 0.73 CENTERBODY DIAMFIFR = 0.75FRFF STHFAM VELOCITY = 61.7 M/S ( 207.5 E/S ) JET EFFECTIVE THRUST = 6.131 N (1.3782 LH)

# NON-DIMENSIONALIZED FRESSUPES

PORT	Ø1 .	10	20	30	45	60	75	90	105	120	135	150	160	170	180
1	0.2406	0.2384	0.2227	0.1901	Ø,0993	-0.0374	-0.2637	-0.5824	=1,016B	-1.5232	-1.5502	-1,0736	-0.6384	-4.4371	-0.4083
2	0.2047	0.1984	Ø.1869	0.1628	Ø.0983	-0.0115	₩0.1582	-0.3750	-4.6446	-0.9396	=1:0565	-0,8786	-0.5573	-0.3342	=0.2998
3	0.1749	0.1754	A,1625	0.1418	0.0876	0.0073	-0.1041	-0.2424	-0.4125	-1.5921	-0,7697	-0.741B	-0.4766	-0.2767	-0.2449
4	0.1177	Ø.1149	0.107A	Ø.0948	0.0667	0.0223	-0.0354	-0.0993	-0.1701	-0.2482	-0.352R	-8.4739	-1.3761	-0.1652	-11.1342
5	0,0851	0.0822	Ø,0803	0,0729	a_4516	0.0205	-0,0121	-0.0496	<b>-0</b> ,0954	=0.1388	-4.1948	-1,2485	-0,2139	-0.1442	-0.0755
6	0.0613	0.0617	0.0586	0:0515	Ø.Ø383	0.0205	-0.0043	-0.0306	-0.0589	-0.0P93	-0.1233	-0.1582	-0.1495	-0.2696	-0.0581
7	Ø <u>,</u> ø485	0.0462	0.0462	a.a4aa	0,0301	0_0161	а инси	-0.0188	-0.0427	-0,0656	-0.0848	-0.1069	-0,1092	-0.0501	-0.0337
A	0.0306	0.03P6	0.0363	0.0326	0.0259	0.0150	0.0000	-0.0124	-0,0315	-0.0485	=0:0631	-U.U76P	-0.0774	-0.0351	-0.0217
Q	0.0310	a.a3a1	0.0304	0.0265	0.0209	0.0107	0.0000	-0.0101	-0,0225	-0.0386	=0,0396	-8.0579	-0.0596	-0.0295	-0.0144
19	0.0000	Ø.0000	0.0000	<b>A.</b> 0000	<b>0.</b> 0000	0.0124	0.0000	-0.0092	-0.0177	-0.0307	-0.0392	-0.045R	-0.0451	-0.0219	-0.0199
11	0.0000	a .øøøø	0.0000	<b>0.</b> 0000	6.0000	6,6687	a <b>.</b> aueu	-0,0065	-#.c147	-0.0247	-0.0310	-0,038R	-0,0352	-0.6180	•и. <u>669</u> 2
12	A.0400	a.4000	0.0000	a.aaaa	9.0000	0.0000	0.0000	-0.0045	-0.0105	-0.0195	-0.0251	-0.0278	-0.0254	-0.0138	-0.0050
13	0,0000	а <b>.</b> арии	0.0000	<b>a</b> .aaaa	a <b>.</b> aaaa	a <b>.</b> ac.aa	a	-0.0034	-0.0101	-0.0152	-9,0202	-0.0217	-0,0192	-0.000R	-0.0029
14	0.0000	0.0000	a.0000	0.0000	0.0000	0.0000	0.0000	-0.0019	-0.0085	-0.0136	-0.0175	-0.0203	-0.0136	-4.4474	=0.002B
15	A 99999	0.0000	0.0000	a <b>.</b> aaaa	a <b>.</b> acau	N. 9499	Ø.0000	0.0031	-0,0070	-0.0115	-0,0130	-0.0149	-0.0115	-0.1068	0.0000
16	a .aaaa	a.auaa	a.aaaa	a . aaaa	a.aaaa	a.0000	.0 <b>.</b> 0400	0.0000	0.0000	<b>0.0</b> 000	и.пиии	0.0000	0.0000	a	0.03P0
17	0.0000	0.0000	0.0000	0.0000	0.0000	a.aaaa	0.0000	a•6000	0.0000	K.0000	a.aapa	0.0000	0.0000	0.ener	n nuer
18	0,0000	0.0000	a <b>.</b> aaaa	0.0000	a aaaa	<b>а</b> ,асаа	a_0000	0.0000	a araa	0.0000	0.0000	0,0000	0.0000	<b>n.</b> eace	0.0066
19	0.0000	0.0000	a.0000	0.0040	a.a00a	a.epaa	a.anaa	6.0000	a.acae	a . aaga	0.0000	R. 1990	0.0000	0.0000	N. NORN
20	0.0000	a adaa	<b>0.000</b> 0	<b>a</b> .aaaa	a.auuu	0.0000	<b>0,0</b> 000	0.0000	0.0000	<u>e</u> .0000	a.acau	е.ипер	0.0000	0.0000	0.0000
21	<b>e</b> .aaaa	a.aaaa	0.0000	<b>a.</b> avaa	0.0000	и. араа	0,0000	0.0000	0.0000	4.0000	и.анна	0.0000	0.004.0	a.u.uu	N. 9089
22	a .aaaa	0.0000	a , aana	0.0000	a.auna	<b>и, и</b> даа	a . aaaa	0.0000	и опис	v.aaaa	0.0000	0.0000	0.0000	0.0000	0.0000
23	0.0000	0.0000	a.acaa	а"фила	a.anna	0.0000	a.aaur	и.иева	0.0000	<b>0.0000</b>	6.0000	a.uaga	0.00VC	0.0000	0.0000

Table 2-10b. Lift loss and pitching moment data for round ended plug flush configuration, R = 2.27.

	NON-DIMENSIONAL	T	Ч	MZ D		t.	L/T	
POPT	APEA	N - M	LN-FT		n	t N		
1	3.4946	Ø.012228	0.000019	0.107855	=0.93125R	+0,209797	-0.15222R	
2	4.7450	0.017875	0.013184	0.15766%	-1,264172	-M.284186	-0,206265	
3	8.7532	0.030097	4.072199	0,265470	-1.822781	-0.409761	-0.297322	
4	16.5339	0.048308	0,035632	0,426104	-2.308682	-W.518992	-0.376580	
5	26.4366	0.066828	Ø.Ø49297	0.589459	-2.630698	-0.571381	-0.479185	
6	38,4612	Ø_ØR5363	0,062963	0.752944	-2.864730	-0_643991	-0.467279	
7	52.6079	0.103994	0.076706	0.917286	-3+045223	=Ø.684566	-0.496723	
R	68.8766	Ø.122558	0.090399	1.081031	-3,181197	•0,715133	-1,518900	
	87.2672	0.141157	0.10411R	1.245084	=3,797330	=W.741240	-0.537843	
10	107.7799	Ø.153364	0,113122	1,352757	=3,468462	-0.779710	-0,565757	
1 5	126.4947	0.163272	0.120429	1.440143	=3.595501	-0.808287	-0.586492	
12	159,5036	0.177410	0.130858	1,564854	=3,774629	=10,049537	=Ø,615697	
13	206.0697	Ø.194579	0.143522	1.716293	-3,973951	•N.893344	=0.648210	
14	247,5666	0.208766	0,153985	1,841425	=4,122563	-0,926752	-0.672450	
15	292.R359	0.221908	0.163679	1.957346	=4.240000	-0,953152	=0.691606	
16	341,8776	0.221908	Ø,163679	1,957346	-4.240000	-0,953152	=0,691686	
17	394.691R	ؕ221948	ؕ153679	1.957346	-4.240000	-N.953152	-0.691686	
18	451,2785	Ø.221908	Ø,163679	1,957346	=4,240000	-v.953152	-0.691606	
19	488,5608	9.221908	0.163679	1.957346	-4.240000	-0.953152	-0.691686	
20	503.8R64	Ø.22190A	Ø,163679	1,957346	-4.24MMRA	-0,953152	=Ø.691666	
21	519,4477	0.22190A	И.163679	1.957346	-4.240000	-0.953152	-0.691686	
22	535,2448	0,22190R	Ø.163679	1,957346	-4.240000	-0,953152	-0.691686	
23	551+2777	Ø.221908	0.163679	1.957346	-4.248009	-0,953152	-0.691686	

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Table 2-11a. Pressure coefficient data for round ended plug down 0.5 D configuration, R = 10.35.

ROUND END PLUG 7-6-76	
R = 10,35 PLUG DEPTH = .500	FFFFCTIVE JET DIAMPTER = 0.90 CENTERPODY DIAMFTER = 0.75
JET FLOW PATE = 3.794 CHM ( 134.00 CFM )	FREE STREAM VELOCITY = $14.7$ M/S ( $48.2$ E/S )
JET FEFECTIVE VELOCITY = 152.1 M/S ( 499.0 F/S	) JFT EFFECTIVE THENST #11,153 N (2,5072 BB)

					101-	DIMENSI(	NALIZED E (DECRES	PRESSURI	FS							
PORT	P.	10	20	30	45	60	75	90	105	124	135	159	160	170	1.80	
1	=0.2625	-0.2950	-0.4357	-0.6089	-1.0121	-1.5317	-2.0026	-2.0135	=1.650B	-1+2395	-a.7036	*11.51134	-1.4005	-0.3651	=u.3572	
2	•Ø.3383	-0,3464	-0.4411	-0.6116	-0.9201	-1.3044	-1,54PG	-1,5615	-1,3450	-0.9797	-0.5413	-0.4114	=N_324R	-0.259B	-11.2652	
3	=0.3789	-0.4059	-0.4465	-0.5710	=0.8389	-1.1285	-1.2774	-1.3315	-1.1691	-0.8335	-11.5434	-0.3183	-11.2598	-0.1976	=0+2057	
4.	∎Ø <sub>1</sub> 4059	-0.4032	-0.4303	-0.5142	•a_6468	-0.7902	-0.9337	-0.9093	-0,7983	-0.5764	-0,3653	-8,2382	-0.1678	-0,0785	-0.0731	
5	-0.3708	-0.3R97	-0.4141	-0.4384	•0.5413	-0.6143	-0.6982	-0.7090	-0.6360	-0.4655	-0.2787	-0.1813	-0.1326	-0.0514	-0.0466	
6	-0,3356	≈¤.3518	-0,3545	-0,3843	-9,4601	-0,5061	-0,5656	-0.5791	-M.5277	-0.4276	-0.2463	-0.1488	-0,1245	<b>-0</b> ,0650	-0,6244	
7	-0,3103	-0.3112	-0,3275	-0.351R	-0.4249	-0,4519	-0.5061	-0.4871	-e.4655	-4.3762	-0.2246	-0,1427	-0.0974	-4.1433	0.0000	
8	-0,2652	-0,2787	-0,2895	-0,3139	-N.370B	-0,3924	-0.4465	-0.4438	-0,4276	-0.3410	-0.2219	-0.1055	-0,0974	₩ <b>0</b> ,0595	4.0060	
9	-2.2354	-0.2598	-0.2815	-0.2787	-0,3193	-0.3518	-0.3951	-0.4195	-4.3767	-0.3031	-0.2111	-0.1137	-0,0817	-0.0595	0.0000	
10	6.0000	0.0000	0.0000	ଜ ଶ୍ରେଟ	a, aaaa	-0.3193	-0.3437	•R.3762	-0.351R	-P.7896	-0.1949	-0.1137	-0.0731	-0.0298	0.0366	
11	Ø <b>.</b> ØØØØ	a.aaaa	a <b>.</b> aaaa	ด. หลัดห	ค.ศษทศ	-0.2977	-0.3459	-0.3464	-0,3139	-0.7733	-0,1949	-0.1083	-0.0785	-N.#352	0.0066	
12	0.0000	0.0000	a.asaa	ø.øaan	0.0000	0.0000	-0.2869	-0.3231	*0.2869	-8.2463	=0.1786	-6.6947	=v.v758	-0.0460	14 • 0.0 P.M	
13	A. 0000	<b>0.</b> 0000	a°uunu	0.0000	<b>0.000</b> 0	0.0000	-0,2436	-a.2787	-0,2544	-4.2273	-Ø,1732	-0.0839	-0.0650	0.0000	0.0000	
14	H. CAAA	a.aaaa	a.0000	0.0000	a.aaaa	0.0000	0.0000	-0.2409	-0,2354	-1.2030	-0.1651	-0.0812	-0.0785	-0.0433	0.0000	
15	0.0000	a <b>.</b> auga	P.0000	0.0000	a.aaaa	a.uuaa	<b>ឲ</b> ្ខ៨៨៨៨	-0.2327	-0,2111	-0,1894	-0,165;	-0.0866	-0.0487	-0,0352	0.00KB	
16	0.0000	a . 4000	a.aana	a.000a	a.uauu	0.000M	0.0000	0.0000	N. 4444	a.acaa	a_0600	и.0000	0.4000	ø	n•noku	
17	<b>0.000</b> 0	e.aaaa	a_aaaa	<b>0.000</b> 0	6.0000	<b>ต</b> ั้งหลุ่น	0.0000	u.aaaa	a,anao	e.0000	តុំំំពេលផ្ទ	0.0000	0.000C	0.0400	a . over	
18	0.0000	0.0000	a.aaga	0.0000	a.0000	а анаа	6,0000	и.агар	<b>0.0000</b>	6.0000	0.0000	6.4064	и <b>.</b> Иира	G.4040	N. HARD	
19	0.0000	a.0000	ดูดดดด	<b>0</b> _0000	a.a0aa	a ecan	a	a <b>,</b> aeya	a anac	e.0049	a•4446	a.µara	0. HL60	e.cepe	0.0000	
20	Ø.ØUØØ	0.0000	a <b>.</b> aaaa	a.øøøa	<b>a</b> .aaaa	a.eeea	a . raau	0.0000	<b>ឲ</b> ្សពេល	e.apaa	a.aaaa	6.0060	ด.เลยะ	а. напи	u.aava	
21	0.0000	0.0000	<b>0.0000</b>	Ø.Ø000	<b>0.</b> 0000	0.0000	0.0000	a.aaaa	ด. เนตอ	6 • ยณลท	a.aaaa	0.0000	0.U000	0.e000	0.000C	
22	0.0000	a.0000	a.aaaa	<b>a.</b> aaaa	0.0000	<b>a.</b> aaaa	<b>0.000</b> 0	п. есен	<b></b>	e.000a	៧ , អហគគ	e	N. 4060	а.ссоя	N. 6088	
23	0.0000	6.0660	a, agaa	<b>0.0</b> 000	a <b>.</b> aaaa	и, асаи	a paen	0.0000	ត,លេខខ	e.aaaa	a.naaa	<b>N.</b> 2420	r.0460	а,сисс	<b>0.000</b> 0	

Table 2-11b. Lift loss and pitching moment data for round ended plug down 0.5 D configuration, R = 10.35.

	NON-DIMENSIONAL		м	MZTO		1.	t /T
PORT	ARFA	м_ и	J.B-FT		19 - 19 - C	ι, η L'Η	1.7 1
1.	2,0327	-0,0000R1	-u.aaaa6a	-0.000319	-0.10719R	-4.274143	-0.009629
2	3,1168	-0,000163	-0,000120	-0,000640	=# + 154777	=0.034794	-0.013877
3	5.7496	-0,000419	-0.000309	=0,001547	=R. 255639	-0.057468	-0.022921
4	10.8603	-0.001201	-0.000886	-0,004720	-0.398948	-0.089684	-0.035770
5	17,3649	-0_002396	<ul><li>■Ø.001767</li></ul>	-0.009414	-0.5457R1	-1,122692	-0.048935
6	25.2633	-0.003855	-0.002844	-0.015149	-0.697582	-0.156817	-0.062546
7	34,5555	-0.005784	•0,004266	•0.022728	-0.856183	=0,192470	-0.076766
Ŕ	45.2416	-9.007889	•0.005819	-0.030798	-1.020040	-0.229305	-0.091457
9	57,3215	-0.010247	-0,00755R	-0.040266	-1.188053	-0,267074	-0,106521
10	70.7953	-0.008779	≈a.ua6475	-0.034497	-1.306072	-0.293605	-4.117103
11	A3.08A1	-0,007267	-0.005360	-0,028557	-1.406379	-0.316154	-0.126096
12	104.7700	-0.003023	-0.002230	-0.011880	-1.542819	-0.346P26	-0.138330
13	135,3570	0.002720	0.002007	a.a1a69u	=1,712951	-0.385071	-0,153584
1.4	162.6142	0.009569	0.007058	a.u376aa	=1.R29R37	-0.411347	*0.164064
15	197.3494	0.017066	0 01258R	ñ,067062	-1,948781	-0.438086	-0.174728
16	224,5625	0.017066	0.012588	0.067062	-1,948781	■C.438086	-0.174728
17	259,2535	0.017066	Ø.412588	0,067062	-1,948781	-0.438086	-0.17472R
1 P	296.4725	a.a17a66	4.412588	0.067062	=1.948781	-0.438086	-0.174728
19	320,9114	0.017066	0,012588	Ø.067062	-1,948781	-0.438086	-0.174728
20	330.9780	0.017066	0.012588	0.067062	-1.948781	-0.438086	-0.17472R
21	341 . 1995	0.017066	0.0125AA	0,067062	-1.948781	-0.438086	-0.174728
22	351,5758	0.017066	Ø.012588	0.067062	=1.948781		-0.174728
23	362.1070	0.017066	P.0125AA	0,067062	=1.948781	-0.438086	-0.174728
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Ð.		Tal	ole 2-1:	2a. Pre	essure c	oeffici	ent dat	a for r	ound en	ded plu	g down (	0.5 D_ (	configu	ration,	R = 7.7	6.
	R Je Je	= 7.76 T FLOW T EFFFC	ROUND F RATE = TIVE VEL	ND PLUG 3.794 C ACITY =	7=6 PLU MM ( 134 152.1 M	=76 G DEPTH •40 CFM /S ( 499	± .500 ) .0 F/S	)	FFFFC FREF Jet f	TEVE JET Stefan v Fffctjve	DIAMETE ELCCITY THRUST	R = 0.90 = 19.6 =11.153	CEPTERP N/S ( N (7.5	001 010M 64.3 F/ 072 DH	FTER # 41 S ) )	.75
	t.					NON	-DIMENSI	ONALTZEN	PPESSUP	L.S						
PO	RT	Ø	10	20	30	45	60	75 (PEGRE	r.8] 90	105	120	135	150	160	176	1 # 03
	1	-Ø,Ø60R	-0.1064	-0.2464	<b>≈</b> Ø.4729	-0.901P	-1,5389	-2,1316	-2.1776	-1,9146	=1.4477	-0.8333	-0.5779	-4.4547	-4.4395	-0.425B
	2	-0.1521	• 9 + 1734	-Ø.2828	-0.4456	-Ø.7938	-1,2622	-1.5876	-1+7473	-1.5922	-1.1P61	=0.6797	-8.4775	-1.3984	-4.3346	-0.3315
	3	-9,1916	-9,2129	-0,3133	-0,4197	-0,7102	-1.0371	-1.3124	-1,4386	-1,3139	-1.0097	-0.5809	-0.3878	-0.3769	-4,2555	-0.2000
	4	•0.2266	-9.2433	-0,2965	-0.3619	-0,5140	-0.7132	-0.8774	-0,9672	-0.9322	-%.7799	-0.4060	-0.2585	-0.2053	-0.1551	=0.133H
	5	-0.2266	-0.2266	-0.2524	-0.3117	-0.4091	-0.533R	-0.6569	-0.7117	-0.7178	-0.5505	-0.3467	-0.1916	-0.1521	-0.1049	-0.0776
	6	•0.2853	-0.2053	-0.2220	-0.2752	-0.3346	-0.4243	-0,5186	-0,5672	-0.5551	-0.4653	-0,3011	-0.1399	∞0 <b>,1</b> ₹Η6	-0.0852	-0.0623
	7	-8.1703	-0.1734	-0.1962	-0.2205	-0.2844	-0.3574	-0.4288	= 11 . 4577	=11 = 46 3 R	-0.4060	=(1.2555	-0.1262	-U.0867	-0.0730	-0.0411
	8	-0,1566	-0,1673	-0.1794	-0,1916	-0,2524	-0.3041	-0.3574	-0,3954	-0.4030	-0.3406	-0.2357	-0.1186	-N.NH36	-0,0456	-11.1354
	9	-0.1460	-9.1399	-0.1521	-0.1703	-0.2175	-0.2585	-0.3193	-0:3376	-0.3498	-8.3041	-0.2175	-N.0836	-0.0578	-0.0441	-0.0274
	10	<b>0</b> .0000	0,0000	0,0000	0.0000	<b>ต</b> ูดดุดด	-0.2235	-0.2737	-0.3117	-0,3193	-0,2768	-0.1901	-0,0821	-0.0517	-0,0395	0,0000
÷.,	11	0.0000	0.0000	a.aaaa	<b>a.</b> aaaa	0.0000	-0.2007	-0.2403	-0.2692	-0.2768	-0.2570	-0.1718	-0.0852	-0.0456	=u.0259	0.0000
	12	0.0004	a	a_acaa	0 <u>.</u> 0000	a.0000	0.0000	-0.206B	-0,2251	-0,2311	-0,2235	-0.1475	-0.0836	-0.0411	-0.0274	a
5	13	0.0000	0.0000	a•8a8a	a.aaaa	Ø.Ø000	a.aaap	-0.1658	-0.2053	-0.2083	-0.1931	-0.1338	-0.0684	-0.0350	-0.0304	и-висе
1	L 4. j	0 <b>.</b> 0000	<b>a</b> .aaaa	a.aaaa	<b>0.00</b> 00	0.0000	0,0000	a.auaa	-9.1793	-0.1886	-0.1673	=0,1293	-0,6532	=0.0259	0.0000	о,сига
. 1	5	0,0000	0.0000	a.aaaa	ø <b>.</b> 9000	a	0.0000	0 <b>.</b> 0000	-0.1460	-0.1566	-0.1521	-0.1217	-1,9608	-0.0289	0.0000	n.nner
.1	1,6	0.0000	a.acaa	0.0000	a.aaaa	a•aaaa	a.acaa	a . aaaa	a.4448	0.000P	e.0000	<b>0.000</b>	N. NOEP	a.pare	e	0.0000
1	7	0.0000	a.aaaa	0.0090	a.aaaa	a.0000	a	a <b>.</b> aaan	a.aaaa	0, 0°08	<b>6.</b> 0000	P. 0000	6.0000	0.0000	0.0000	0.0000
1	8	и. анаи	0.0900	a.aaaa	a.aaaa	a.aaaa	0 <b>.</b> 0000	ด ูดับดด	Ø.Ø900	<b>6</b> _6006	0.0000	<b>0.000</b> 0	8.0480	a.0000	a.aaaaa	6.0000
1	9	0.0000	a.aaaa	0.0000	0.0000	a.anaa	0.0000	a. 0000	a	0.0000	e.0000	a.0440	6.0020	P.408P	0.0000	0.0000

**0.0000** 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000

23 6.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000

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0.0000

Table 2-12b. Lift loss and pitching moment data for round ended plug down 0.5 D configuration, R = 7.76.

1.1.1	NON-DIMENSIONAL		М	MITD		L	L/T
PORT	AREA	N - M	LB-FT	- /	N.	18	
, <b>1</b> ,	2.0327	0.000120	a.000088	0.000471	-0.197916	-0.044492	-0.017745
2	3,1168	0.000144	0.000106	0.000566	-0.285667	+0,064218	-0.025613
3	5,7496	0.000104	a.adaa76	0.000407	-0.466341	-0.104833	-0.041812
4	10.8603	•0.000267	-0.000197	-0.001050	-0.715740	-0.160898	-0.064173
5	17,3649	-0,000911	-0,000672	-0,003579	-0.961629	-0,216174	=0,086220
6	25.2633	-0.001794	-0.001323	-0.007051	-1.244923	-V.270867	-0.108034
. 7	34,5555	-0.002809	-0.002072	-0,011037	-1,444522	-D.324728	-0.129516
R	45.2416	-0.004051	-0.002988	=0.015919	=1:684338	-0.378639	-0.15101A
<b>Q</b>	57,3215	-0.005456	-0.004024	=0.02143R	=1,919411	-0.431484	-0.172095
16	70.7953	-0.002647	-0.001952	-0.010400	-2.097513	-0.471521	-Ø.188064
11	83,0881	-0,000067	-9,000049	-0.000262	-2.241996	-0.504001	=0.201018
1.2	104.7700	0.005158	Ø . ØØ4542	0.024196	-2.432R73	-0.546910	-0.218132
13	135,3570	0,014951	0.01102R	0.058750	-2.669020	-0.500006	-0.239305
14	167.6142	0.023168	Ø.017088	0.091036	=2.819545	-0.633834	-0.252P01
15	192,3494	Ø.032422	0.023914	0.127402	-2,967365	=0 <sub>+</sub> 667064	-0,266055
16	224.5625	9.032422	0.023914	0.127402	-2.967365	-0.667064	-0.266055
17	259,2535	0.032422	0.023914	9.127442	-2,967365	•N.667064	-0,266055
18	296.4225	0.032422	0.023914	0.127402	-2.967365	=0.667064	-0=266055
19	328,9114	0.032422	a.073914	0.127402	-2,967365	-0.667064	-0,266055
20	330.97Aa	0.032422	0.023914	0.127402	-2.947365	-0.667064	-0.266055
21	341,1995	0.032422	0.023914	0.127402	+2,967365	-1,667464	-0.266055
22	351.5758	0.032422	0.423914	0.127402	<b>*2.967365</b>	-0.667064	-0.266955
23	362 1970	A.A32422	0.023914	0,127462	-2,967365	=P_667064	-1,266455

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43

Table 2-13a. Pressure coefficient	data for round ended plug down 0.5 D configuration, $R = 5.18$ .
ROUND END PLUG         7=6=76           P = 5.18         PLUG DFPTH = .5           JET FLOW FATE = 3.794         CMM ( 134.60 CFH )	;00 FFFFCTIVE JET DIAMETER = 0.90 CENIFRPODY DIAMETER = 0.75 FREF STREAM VELOCITY = 29.4 M/S ( 96.4 F/S )

						10.01	-DIMENSIC	NALITED	PRESSUR	1.5						
P	ORT	Ø	10	20	30	45	60	75	96	105	120	135	150	160	170	180
	1	0.1800	a.1468	0.0196	=Ø.1962	-4.6384	-1,3572	=2.u642	-2.5364	-2,5283	-2.1237	*1+2557	-0.9383	-11,7943	-0.7584	-0.7523
	2	0.0934	0.0737	-0.0203	-0,1739	-0.5318	-1.0466	-1,5351	-1.9620	-2,0324	-1,7401	-1.0906	-0.763R	=0.6691	-0.5974	-0,6123
	3	0.0521	0.031R	-0.0413	=Ø+1516	-0.4452	-0.8153	-1.2212	-1-5514	-1.6603	-1.4499	-0.9472	-0.6224	-0.510P	-0.4621	-1.4695
	4	<b>0_0</b> 000	-0.0176	-0.0514	-0.123B	-0,2815	=0.4892	-0.7192	=0.9039	-1,0155	-0.9445	=0.6597	-0.351R	-0,2672	-0,2327	-0.2266
	5	-0.0169	-0.0223	-0.0514	-0.0954	=@.1921	-01.3234	-0.4904	-0.6103	-0.7043	-0.6745	-0.4831	-0.2476	-0.1725	-0.1130	-0.1231
	6	-0.0189	-0.0210	-0.0386	-9.9719	-0,1455	-0.2341	-0,3423	-0.4404	-0.5074	-0.5034	=0.3816	-0.1874	-0,1055	=0,075H	-0,0710
	7	-0.0169	-0.0135	-0.0304	-0.0555	-0.1042	-0.1759	-0.2591	-0.3193	-0.3P02	-0.3816	-0.2970	-0.1394	-0.0677	-0.5467	-0.0419
	ß	-0.0169	-0.0135	-0.0271	-0.0447	-0.0852	-0.0656	-0.1962	-0,2551	-4,2997	-8,3065	-(1,2469	-0.1130	=0,052R	=0.0318	-0.0283
	9	0.0000	0.0000	-0.0183	-0.0318	-0.0677	+0.1035	-0.1576	-0.2043	-0.23R2	-9.7483	-0.2064	-0.0961	-0.0281	-0.0183	u.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
	10	0.0000	a .0000	สุดดดด	a <b>.</b> aaaa	a.anaa	-0,0839	-0.1204	-0.1549	-0,1915	-0.7043	-0.1678	-0.0819	-1.4189	а, асна	0.0101
	11	0.0000	а.алиа	a.uaaa	<b>0.000</b> 0	<b>0.000</b>	-0.0731	-0.1001	-0.1313	-0,1576	-0.1685	-0.1137	-0.0722	-0.U149	a	0.0135
	12	0.0000	a.aaaa	ล ุดดดด	<b>0</b> .0000	<b>ผ</b> ูเสสเส	ดูดดดด	-0,0812	-0.1015	=0,1258	-0.1319	-0.0947	-0.0609	0.000e	0.0149	0.0189
	13	a.auau	0.0000	0.0000	0.0000	<b></b>	a.0000	-0.0636	-0.0839	-0,0974	-0.1035	⇔0 <sub>∎</sub> 0អ5q	-0_0480	0.00x0	0.6122	0.0189
	14	0.0000	0.0000	a.aaaa	a.0000	a.auau	4.0000	0.0000	-0.0683	-0.0852	-V. 0873	<b>₩</b> ر0656	-0.0426	0.0000	6.0162	0.0750
	15	0.0000	6.0000	a_aaua	0,0000	0.0000	0,0000	0,0000	=Ø.0562	-0.0704	-e.0758	a.0000	-0.0359	N. 0000	8,0162	0.0237
	16	0.0000	9.0000	a_aaaa	a.aaga	0.0040	0.0000	a	0.0000	a.0000	e.0000	0.0000	0.0000	P.NPER	C.0000	0.0244
	17	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	4.0466	0.0000	P. DOVC	e. 8000	4.4196
	18	9.9990	4.0040	0 0000	a	0.0000	0 0000	0 0000	13-21990	0.0000	0.0000	a.0300	4-0000	0.0000	a	0.0210
	19	0.0000	0.0000	a aaaa	0.0000	a aaaa	a eeae	0 0000	0.0000	0.0040	0.0000	0.0000	0.0000	0.0000	a	0.0223
	20	0 0000	a 0000	a	a acao	a. 4044	a aaaa	0 0000	0 0000	0 4040	0 4888	0.03000	4 9020	8 (S820	A DIGAN	0.0196
	21	0 0000	a 4000			~				0 4000	0 0000	a aoaa	0 0000	4 307 a	a	- M. M. HQ
	21	a acoc	n.0000	N.NONN	N.NUVU	8. 0000	N. PF 110	N. NILLA	M. M. M.	a agaa	e	0 0000	A 0000	12	VI . PRINT	11 010E
	~2	. ю • и и и и и	n . nnnn	n . 0000	. N . () () () ()	N. 11000	N. N. M. M.	N. NNNN	N. NVVR	N . N N N P	4.0000	W. 00000	N. NULU	N. NORG	4. 0.101	0.00170

Table 2-13b. Lift loss and pitching moment data for round ended plug down 0.5  $D_n$  configuration, R = 5.18.

POPT	NON+DIMENSIONAL APEA	N -M	M LB-FT	MITD	N	1. 1. 13	1./1
<b>t</b> .	2.0327	a.aa1897	0,001399	N. NO7452	-2.509252	-0.1144RM	-0,045660
: 2	3,1168	0.002872	0.047118	0.0117R5	-0.727718	-0,163591	-0.065247
3	5.7496	0.905861	0.003733	0.019947	-1.160023	-0,260773	-0.10400B
- 4.	10.8603	4.00R402	0,006197	0.033415	-1.677191	-0.377033	-0.150378
5	17.3649	0.011997	0.00AA49	0.047143	-2.130782	-4.479000	-0.191047
6	25,2633	a.a1587a	0.011706	0,062360	-2.534919	-0 569850	-1,227282
7	34,5555	0.019823	0.014621	0.077893	-2. R89124	-1.649475	-0.259040
я	45,2416	0.024445	0.01R031	0,096056	-3,200295	-1.719426	-0.286940
9	57.3215	0.028893	0.021312	0.113537	-3.488009	-0.784104	-11.312736
10	79,7953	0.034627	0.025541	0.136065	-3.720R14	-0,836439	-0.333610
11	A3.0AA1	0.038940	0.028722	0.153012	=3.892166	-0.874945	#Ø+348968
12	104 7700	0.046314	0,034161	0.181991	-4.104833	=0,922766	-0.368041
13	135.3570	Ø.055868	0.041208	0.219532	=4.347746	-0.977373	-#.3R9821
14	167,6142	9.064006	0,047211	0,251510	=4,499498	-1,011487	-0.403427
15	192.3494	Ø.068655	0.050640	Ø.269780	=4.606070	-1.035445	-0.412982
16	224 5625	0,067917	0.050095	Ø.266878	-4,601596	-1,034439	-0.412581
17	259.2535	9.967226	0.049586	A.264166	-4.597714	-1.033566	-0.412233
18	296,4225	0.066380	0,048967	0,260A3A	=4,54326R	-1,032567	-0.411834
19	320.9114	Ø. 965746	0.048494	0.258348	=4.590149	-1.031866	-0.411555
20	330,9780	0,065514	Ø_04P323	0,257435	-4 589023	-1,031612	=0,411454
21	341.1995	0.065282	0.048152	0.256525	-4.587918	-1.031364	-0.411355
22	351,5758	0,065035	0.047970	0,255555	•4 <b>.</b> 586757	-1.031103	-0,411250
23	362.1070	0.064754	0.047763	0.254452	-4.585457	-1.030811	-0.411134
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Table 2-14a. Pressure coefficient data for round ended plug down 0.5 D, R = 2.59.

ROUND END PLUG 7=6=76	
R = 2.59 PLUG DEPTH = .500	EFFECTIVE JET DIAMETER = 0.90 CENTERPORT DIAMETER = 0.75
JET FLOW RATE # 3,794 CMM ( 134,00 CFM )	FREE STREAM VELOCITY = 58.8 M/S ( 192.8 E/S )
JET FFFFCTIVE VELOCITY = 152.1 M/S ( 499.0 F/S )	JET EFFFCTIVE THRUST =11,153 N (2,5072 LE )

#### NON-DIMENSIONALIZED PRESSURES

46

ANGLE (DEGREES) 170 190 135 150 160 105 120 PORT Ø 10 20 30 45 60 75 98 0.3421 / 0.2832 0.1851 -0.0386 -0.3667 -0.8704 -1.4094 -1.8747 -2.1711 -1.8056 -1.2851 -0.9765 -0.8175 -0.7666 0.3540 1 0.1854 0.0194 -0.2386 -0.5498 -0.9562 -1.3538 -1.6781 -1.4468 -1.0339 -0.7544 -0.5901 -0.5447 0.2952 0.2568 2 0.3249 a 2600 a 2237 a 1736 a 0403 -0,1364 -0,3761 -0,6443 -0,9395 -1.1543 -1,1545 -0.8719 -0.6172 -0.4680 -0.4302 P. 2654 a.1787 a.161a a.130a a.4642 -a.4329 -a.1485 -a.2753 -a.4125 -e.5513 -a.6553 -e.6451 -v.4565 -a.3257 -d.2965 0.1848 0.1303 0.1212 0.1033 0.0593 0.0000 -0.0757 -0.1492 -0.2347 -0.3282 -0.4201 -0.4471 -0.3621 -0.2611 -0.2367 4.1355 a,1074 a,1032 a,0969 a,0821 a,0513 a,0131 -0,0383 -0,0932 -0,1517 -0,2180 -0,2905 -0,3259 -0,2736 -0,1993 -0,1866 0.0848 0.0796 0.0661 0.0448 0.0169 +0.0211 -0.0622 -0.1072 -0.1563 -0.2075 -0.2392 -0.2092 -0.1480 -0.1433 0.0865 0,0696 0,0652 0,0558 0,0396 0,0169 -0,0135 -0,0452 -0,0811 -0,1180 -0,1561 -0,1790 -0,1643 -0,1474 -0,1413 0\_070A 0.0577 0.0550 0.0491 0.0346 0.0169 -0.0067 -0.0351 -0.0632 -0.0922 -0.1189 -0.1381 -0.1232 -0.0782 -0.0777 0.0592 0.0000 117 0.0000 0.0000 0.0000 0.0000 0.0152 -0.0025 -0.0201 -0.0400 -0.0578 -0.0740 -0.0848 -0.0752 -0.0416 -0.0415 0.0000 11 0.0000 0.0000 0.0000 -0.0157 -0.0312 -0.0454 -0.0582 -0.0585 -0.0521 -0.0270 -0.0265 0.0000 0.0000 12 0.0000 9.9499 - a aaaa a roar a aaaa -a aa94 -a 11255 -a a357 -a u450 -a a474 -a a468 -a (169 -a 0174 13 0.0000 0,0000 0,0000 0.0000 1.4 1.0000 0.0000 0.0000 0.0000 0,0000 0,00000 -0,0061 -0,0157 -0,0248 -0,0293 -0,0293 -0,0239 -0,0274 -0,0066 0.0000 **9,6000 0,0000** 0.0000 0,0000 1.5 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 v.0000 -0.0034 16 0.0000 0.0000 0.0000 0.0000 0.0488 a'aaaa a'aaaa w'aaaa a'aaaa a'aaaa b'aaaa b'aaaa b'aaaa b'aaaa a'aaaa a'aaaa b'aaaa 0.0000 0 0000 0,0000 0.0000 17 . A GAGA A BABAA & BABAB A BABAB & BABAB & BABAB A BABABA 0.0000 18 0.0000 a.unua a.aunu **0.0**000 0.0000 - 4°4444 1°4444 1°4444 1°4444 1°4444 1°4444 1°4444 1°4444 1°4446 1°4446 1°4446 1°4446 19 0.0000 0,0000 0,0000 а.агаа а.алаа а.алаа а.олог с.олон а.алаа а.алаа а.лого 4. GIORA N. NYPH 0.0000 0.0000 0.0000 0.0000 0.0000 29 21 0.0000 0.0000 0,0000 0.0000 0.0000 B. BARA B. BERD D. NOVA B. COMP. B. POPP 0.0000 а алар а айлай 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 v.0000 22 23

POPT	NON-DIMENSIONAL APEA	N -N	и Ј.НР.Т	M/31	на на селото селото на селото н По селото на селото н По селото на селото н	L LB	LZT
- <b>1</b>	2.0327	0.014293	0.610543	6,056166	-1.454094	-1,326884	-0.130375
2	3,1164	0.021461	0.015830	0,084331	-2.016262	-0.453256	-0.1R0779
3	5,7496	0.037405	0,977590	0.146984	-2,998104	-0.673974	-0.268811
4	10,8603	0.064618	0.847663	0,253917	-3,962492	=0_89076A	-0,355279
5	17,3649	0.496476	0.071161	0.379103	=4,727507	-1.062744	-0.423870
6	25,2633	0.131403	0,096923	9.516347	-5.342498	-1.290994	-0.479010
7	34.5555	0.168087	0.123981	Ø.660496	-5.840610	-1.312969	-0.523671
R	45,2416	0.205495	0,151573	Ø.807491	-6,248770	-1,404724	-0.564267
9	57,3215	0.243224	0.179402	g.955746	-6.582846	-1,479824	-0.590220
10	70,7953	0,269625	A.198875	1,059487	-6,986051	-1,570464	-0,626372
11	83.0881	9.299619	0.214361	1.141985	-7.272425	-1.634841	-0.652048
12	184.7700	0.319823	P.235907	1,256743	-7,659169	-1,721781	-0.6867 <u>2</u> 4
13	135.3579	0.354979	0.26175B	1.394492	-8+075941	-1.815472	-0.724092
14	162.6142	0.381129	Ø.281121	1,497642	-A.364299	-1.880294	=0,749946
15	192.3494	0.40590B	a,299398	1.595011	-8.61543R	-1.936751	-0.772463
16	224,5625	0.406317	A . 544649	1.596618	-8,617916	-1,93730R	-0.772686
17	259.2535	0.406317	0.299699	1.596618	<b>-8.617916</b>	-1.937308	-0.772886
1.8	296,4225	0.406317	Ø <b>,</b> 299699	1,596618	-8,617916	-1,937308	-0.772686
19	320.9114	0.406317	M.299699	1.596618	-A.617916	=1,93730B	-0.772686
29	330,9780	0.496317	0.299699	1,596618	-8,617916	-1,937308	-0.772686
21	341 . 1995	0.406317	0.299699	1.596618	=R.617916	•1.937368	-0.772686
22	351,5758	9.496317	0.299699	1,596618	-8,617916	=1,93730R	-0.772686
23	362,1070	0.406317	0.299699	1.596518	=9.617916	-1,937308	-0.772686

Table 2-14b. Lift loss and pitching moment data for round ended plug down 0.5 D configuration, R = 2.59.

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												11				
	P JE JE	# 9.98 T FLOW 1 T FFFF("	ROUND E RATE = IIVF VEL	ND PLUG 4.666 CI OCITY =	7-6 PLU MM ( 164 147.9 N	+76 G DEPTH •76 CFM /S ( 485	=1.000 ) .7 F/S	, ,	EFFEC FRFE JET F	TTVF JFT STRFAM V FFFCTIVF	DIAHETE E.E.C.TTY THRUST	P = 1.02 = 14.8 = 13.372	CENTFHR M/S ( N (3.0	002 DIAM 49.6 EZ 060 UH	ЕТЕН = И, 5 ) )	75
						NON	-DIMENSI	0NAL17FD	PPESSUP	ES						
POI	P <b>T</b>	0	10	20	30	45	ANGLI 60	F (DEGRE) 75	83) 90	105	120	135	150	160	171	184
	1	0+1100	P .0725	-0.04R3	-4.2643	•a.6629	-1.1809	-1.4547	-1.4466	-1.2963	<b>-</b> 1,1863	-0.9716	=0.8105	-0.6978	=N.6549	-0.6334
	2	0.0000	a . aaaa	-0,1127	-0.2469	=0.595P	=0,9179	-1,1353	-1,2212	-1.0575	-0.9233	-0,8452	-0.6361	-0.5341	=0.4777	=0.4751
	3	•0.0483	-0.0725	-0.1127	-0.2389	•0.5234	-0.77R3	-0.9555	=0.95R2	-0.9313	-2.7434	+0.6307	-0.4428	₩ø,3596	-M.3355	+11.3744
	4	-0,1315	-0,1396	-0.1825	-0.2335	-0.3731	-0.5529	-0.6710	-0.6629	-0.5824	-4724	-0.3489	-0,2684	-0.1959	-0,1P25	-0,1798
	5	■Ø <b>,1</b> 261	-0.1557	-0,1610	-0.2147	-0,2899	-0.4133	-0.5019	=0,4965	-0.4196	-0.3194	#B.2389	-0,1637	-0.0865	-0,0966	-0.0966
	6	-0.120A	-0.1476	-0.1449	-0.1959	=a.2523	-0.3248	-0.3731	-0.3784	-4,3391	-e.2308	-0.1557	-6.1154	-0.0483	-W.0725	-1.1591
	7	-0.1100	-Ø,1154	-0.1449	-0.1557	-0,2120	-0,2630	=0,3113	-0.2979	-0.2684	-0,1879	-0.1181	-8.0939	N. 001.0	-0.04R3	-1.0590
	<b>6</b>	•0.1047	-9.1154	-0.120R	-0.1396	-0.1591	-0.2174	-0.2630	-0.2550	=N.2255	-0.1610	-0.0966	-4.0725	и. Нака	0.000P	-u.µ483
	9	.0.2859	-0.0886	-0.1074	-0.1208	-0,1530	-0.1906	-0,2228	=0,222R	=0_1745	-0.1449	-0,0590	-0,6590	0.0000	<b>0.666</b> 09	0 . aave
f	<u>я</u> ,	a.uaua	0.0000	A.0000	a.auaa	a.aaaa	-0.1557	-0.1946	-0.1959	-0.1771	-8.1315	-4.4594	e.aeeo	е.нека	0.0000	u
1	L I	0.0000	0.0000	0.0000	9.0000	0.0000	-0,1342	-0.1557	-0.1664	-0.1422	-0,0966	=0,0403	0.0000	e.uove	n	o, anea
. 1	12	a <b>.</b> aaaa	a.aaaa	0.0000	0.0000	a.aaaa	0.0000	-Ø,1369	=0.1342	-0.1181	-4.0966	o <b>.</b> ଖ୍ୟାର	0.0000	0.0040	e.euoa	n.nner
. 1	3	0.0000	0.0000	0.0000	9.0000	0.0000	0.0000	-0.1288	-0.1127	-0.1020	-0.0644	0.0000	0.0000	n.nopp	េ ៖ សូលសូន	0. 8NPV
1	4	9.0000	a,0000	0.0000	0.0000	0.0000	0.000P	a_aaaa	-0.1020	•Ø.0859	-2.0644	<b>a</b> .aaaa	e	e.0000	0.0000	e onee
1	15	e	a.auga	0.0000	0.0000	a.0000	0.0000	Ø. 0000	-0.0R59	=0.0644	-0.0537	<b>с.</b> иааа	0.0000	0.0020	0. 0000 P	`o*hat 6
1	6	a.eaaa	<b>e</b> _0000	a.auaa	a.aaaa	a <b>.</b> aaaa	a .ueaa	a .aaca	0.0000	a_anna	0.0000	a	6.0000	0.0000	¢.0000	0.0000
1	7	0.0000	0.0000	a.aaaa	0.0000	a.auau	0.0000	<b>a</b> .aaaa	а. араи	и. анни	К <sup>а</sup> либи	N. NANA	8,0000	0.0000	0.0000	N. NNV.0
1	R	0.0000	0.0404	a.aaaa	a.aaaa	9.0000	0 . V 0 0 U	0,0000	a.aeee	и <b>,</b> аане	Р. анес	a.aoga	e. anen	a. 11010	и исли	ส.ุดหยุ่
1	9	и.апаа	a_000a	0.0000	0.0000	a.aaaa	0.0000	0.0000	0.0000	ø, иние	\$ . anan	a.anaa	8.0086	N.0000	<b>់</b> រុ <sub>ំ</sub> ពេទនេះ	ы <u>т</u> ениен
:	20	0.0040	0.0000	0.0000	0.0000		0.0000	a	0.0000	0.0000	e.0000	0.0000	N. 0060	0.0000	លលេខលន	0.0000
	21	0.0000	0.0000	a.aaaa	0.0000	a.aaaa	0.0000	0.0000	0.0000	0.000e	и. анан	a. anaa	8.8020	0.0000	0.• U000	0.00060
2	22	9.0000	a .aaaa	a .aaaa	Ø.0000	ด_คุณหล	0 . 00 0C	<b>и</b> ,онси	N.0000	a_nana	а "ионо	a.aaaa	<b>0.0</b> 000	P.0000	a_cocc	0.0000
	23	0.0000	a.0000	0.0000	0.0000	0.0000	0,000	0.0000	6.0000	6,0000	0.0000	0.0300	8.0880	N. 1990	0.0004	0.0000

Table 2-15a. Pressure coefficient data for round ended plug down 1.0 D configuration, R = 9.98.

Table 2-15b. Lift loss and pitching moment data for round ended plug down 1.0 D configuration, R = 9.98.

	NON-DIMENSIONAL		M	M/TD		L	L/T
PORT	APEN	N .M	₽B=FT		N	LB	
• 1	1.5633	0.000283	0.000200	N. 000813	+0.090293	-0,274298	-0.006752
2	2,3971	0.000401	0.000296	0.001153	=C.129695	-4.829155	-0.009699
3	4.4220	Ø.000582	0.000429	4.001673	-0.208328	-14.046837	-0.015579
4	9,3527	0.000576	а. рин425	0.001656	-0.312277	-0.870280	-0.023353
5	13.3554		a.000201	a.0007A3	-0.40H624	=0.091859	-0.030558
6	19,4302	-0,000311	-0,000229	-0.000R94	-0.499675	-0,112327	-0.037367
7	26.5769	-0.001114	-0,000822	-0.003202	-0.586061	-0,131747	-0.043827
ß	34.7956	-0.002156	-0.001590	-0.006197	-0.668720	-0.150328	-0.050489
9	44.0864	-8.003464	-0.002555	=0,009958	₩8.746478	-0,16780B	-0.055H24
10	54,4491	-0.003278	-0.002433	-0.009480	-0.800174	-0.179879	-0.059839
11	63,9036	-0,003247	-0.002395	-0,009333	-C.839727	-0.188771	-0.062797
12	80.5793	-0.002779	-0.002050	-a.007988	-4.8R5532	-0.199068	-0.066222
13	104.1040	-0_002352	-0_011735	-0,006761	-e,139797	-0,211266	-1.070280
1.4	125,0677	-0.00145j	-Ø.001070	-0.004170	-0.969702	-N.217989	=Ø.072517
15	147.9372	-0.000594	-0.000438	-0.001706	-a.996079	-8.223918	-0+074489
16	172,7126	-0,000594	#0,00043R	-0.001706	•P.996879	=0.22391B	-0.074489
17	199.3937	-0.000594	=0.00043R	•0.0017¢6	<i>■0</i> .996079	=0+223918	-0.074489
18	227,9806	-0,000594	-0,000438	-0,001706	-P.996079	-0.223918	-0.074489
19	246,8152	-0-000594	•a.aua43a	-0.001706	-a:996079	-0.223918	-0.074489
20	254,5575	-0.000594	-0.00043R	-4-001706	-0.996079	-0.22391A	=0.074489
21	262.4189	-0.000594	-0.0043R	-0.901706	•0.996079	=0.223918	-0.074489
22	270,3994	=a_000594	-0,00043R	-0.001706	-P.996679	-0.223918	-0.074489
23	278.4990	-0.000594	=0.000438	-0.001706	=4.996079	-1.223918	-0.074480

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Table 2-16a. Pressure coefficient data for round ended plug down 1.0 D configuration, R = 7.49. POUND END PLUG 7-6-76

R = 7,49 DET FLOW PATE = 4,666 CMM ( 164,76 CFH ) JET FFFCTIVE VELOCITY = 148,0 M/S ( 485,5 F/S )

50

FFFECTIVE JET DIAMETER = 1.02 CENTERROUY DIAMETER = 0.75 FFFE STREAM VELOCITY = 19.8 M/S ( 64.8 M/S ) JET FEFECTIVE THRUST = 13.379 M (3.0075 LF)

1081-01467	STODALL	7የስ ድቦ	ESSUPES
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ANGLE (DEGREES) 90 105 174 135 PORT P 10 20 30 45 60 75 150 160 170 184 0.1079 0.0629 -0.0719 -0.3312 -0.7674 -1.4149 -1.8390 -1.9559 -1.7191 -1.4643 -1.2800 -1.1826 -0.9817 -0.9442 -0.91FB 2 ULUGAU -0\_0255 -0\_1259 -0\_3088 -0\_6895 -1\_1541 -1\_4478 -1\_6037 -1\_4718 -1\_2095 -1\_0612 -0\_9428 -0\_8124 -0\_7684 -0\_7849 3 =0.0585 =0.0779 =0.1694 =0.3162 =0.6190 =0.9517 =1.2350 =1.3309 =1.2800 =1.0267 =0.8723 =0.7509 =0.6700 =0.6385 =0.6325 4 -0.1439 -0.1739 -0.2158 -0.3073 -0.4796 -0.6625 -0.4758 -0.9203 -0.8828 -0.7164 -0.5680 -0.4736 -0.4127 -0.3912 5 -0.1724 -0.1769 -0.2158 -0.2743 -0.3807 -0.5141 -0.6460 -0.6895 -0.6805 -0.5725 -0.4257 -0.3537 -0.3028 -0.3043 -0.2923 6 =0.1694 =0.1724 =0.1978 =0.2338 =0.3297 =0.4272 =0.5216 =0.5830 =0.5576 =0.4616 =0.3387 =0.2773 =0.2533 =0.2548 =0.2533 7 -0.1559 -0.1649 -0.1829 -0.2038 -0.2743 -0.3627 -0.4272 -0.4811 -0.4751 -0.3852 -0.2788 -0.2398 -0.2173 -0.2158 -0.2278 R =0.1439 =0.1439 =0.1649 =0.1829 =0.2383 =0.3103 =0.3672 =0.4032 =0.3972 =0.3557 =0.2353 =0.1978 =0.1739 =0.1903 =0.1903 9 -0.1229 -0.1229 -0.1499 -0.1604 -0.2113 -0.2623 -0.3177 -0.3552 -0.3567 -0.3103 -0.2098 -0.1619 -0.1379 -0.1679 -0.1754 0.0000 0.0000 -0.2368 -0.2773 -0.3058 -0.3088 -C.2713 -0.1978 -0.1379 -0.1169 -0.1574 -0.1664 10 0 0000 0 0000 0 0000 9.0000 0.0000 -0.2083 -0.2043 -0.2713 -0.2608 -0.2743 -0.1754 -0.1124 -0.1169 -0.1349 -0.1574 0.0000 0.0000 0.0000 11 a anda a anda a cana - a 2143 - a 2368 - C 2428 - C 2068 - a 1529 - a 0899 - a 0444 - C 1259 - C 1424 12 0,0000 0,0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 -0.1784 -0.2038 -0.2068 -0.1874 -0.1370 -0.1749 -0.1764 -0.1184 -0.1384 13 14 9.9090 0.0000 0.0000 0.0000 -0.1724 -0.1874 -0.1784 -0.1304 -0.0629 -0.0644 -0.0869 -0.1169 0.0000 0.0000 0.0000 0,0000 0,0000 0,0000 0,0000 -0,1514 -0,1574 -0,1529 -0,1184 -0,0570 -0,0540 -0,0744 -0,1169 15 0 0000 0 0000 0,0000 0,0000 P,0020 0,0000 -0,1094 15 0.0000 0.0000 4.0000 8.0000 0.0000 0,0000 0,0000 C. Nece 0.0000 0.0000 0.0000 ดูดเหตุด 17 0.0000 0.0000 0.0000 ดุดหลด a\_aaaa 0.0000 0.0000 0.0000 0.0000 0.0000 6.0000 9.0000 0.0000 -0.1124 18 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0,0000 0.0000 0.0000 0.4000 0.0000 0.0000 +0.0914 19 0.0000 0.0000 0 0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.000,0 O BUCH 0.0000 0.0000 e\_00000 -0\_0884 0.0090 **a**,0000 0,0000 20 4.0000 0.0000 0.0000 0.0000 0.0000 0.0000 6.0000 0.0000 a.conc -0.0929 0,0000 0.0000 a\_00ca 21 0.0000 N.0600 N. 0000 0.0000 V. POPPO -0. 0869 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 22 0,0000 0,0000 0.0000 6 6666 6 6666 0 0000 0.0000 0.0000 N. 0000 0.0000 N. DUAR 0.0000 0.0000 0.0000 -0.0854 23 9.48499 9.6040 9.0046 9.6040 6.4060 6.6060 8.6468 6.4648 9.4660 9.4660 6.4660 8.4668 6.4046 6.4640 -P.4929 Table 2-16b. Lift loss and pitching moment data for round ended plug down 1.0 D configuration, R = 7.49.

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	NON-DIMENSIONAL	1	4	MITO		L	ե/Ծ
POPT	AREA	N -M	LB-FT	• • •	Ŋ	LH	
1	1,5626	0.000748	0,000552	0,002149	-0.209141	-0. 047015	-0.015633
2	2,3960	0.001102	A.000813	P.003165	=0.302511	•Ø,668065	-0.022612
3	4,4199	0.001821	0.001343	P.005231	-0.496085	-0,111520	-0.037081
4	8.3487	0.002602	0.001919	u.ea7474	-0.761047	-0.171083	-0.056886
5	13,3490	и, ряз275	0.042415	0.009405	-1.425970	-0,230638	-0.076688
6	19.4208	0.003859	0.002847	0.0110R5	-1.293727	-14,290830	-0.096702
7	26,5641	0,004446	0.403271	u.01277u	-1,560325	-11,351761	-0.116629
<b>R</b>	34.7789	0.004994	0.003683	0.014343	-1.R24125	=0.410063	-11,136347
q	44,0652	0.00555R	a_004100	a,a15965	-2.084244	-r.468538	-0,155790
10	54,4229	0.010340	a.au7627	u.029698	=2.287961	-0.514334	-0.171017
11	63,8729	0.014628	a.014790	0,042015	-7,451773	•** <b>.</b> 551159	-0,183262
12	80.5406	9.023746	0.017515	0.068204	-7.174484	+0,601224	-0.199989
13	104,0539	a.a3627a	a,u26753	a.104175	-2.945940	-*,662247	-1,221199
14	125,0076	a_a495a1	0.035774	0.139304	-3,12R736	-0.703340	=0,233R63
15	147.8661	0.061372	0.045269	0.176274	-3.303099	-1.742537	-Ø.246896
16	172,6295	0.062870	0,046373	0,180576	-3,312173	•P.744576	-0.247574
17	199.2978	0.064655	0.047690	0.185703	-3.322213	-0.746833	-0.248324
18 · · ·	227.8710	Ø.066322	0.048919	0.190489	-3,330961	=0,748820	-0.24897A
19	246.6965	0.067454	0.049754	A.193743	<b>73.336536</b>	-0.750053	-0.249395
20	254,4351	0,067951	0.050121	0,195170	-3,338945	-0,750595	-0,249575
21	267 . 2927	Ø.068431	0.05Ø474	0.196547	=3+341232	-0.751109	-0.249746
22	274,2694	0.068916	0.050832	0,197941	-3,343515	=W_751622	-0.249917
23	278.3651	0.069460	0.051234	0.199504	-3.346034	=0.752188	-0.250105

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Table 2-17a. Pressure coefficie	nt data for round ended plug down 1.0 D, $R = 4.99$ .
ROUND FND PLUG 7-6-76	n .
R = 4,99 PLUG DEPTH =1.000	FFFECTIVE JET DIAMETER = 1.02 CENTERRODY DIAMETER = 0.1
JET FLOW RATE = 4,666 CMM ( 164,76 CFM )	EPFE STREAM VELOCITY = 29.6 M/S ( 97.2 E/S ).
JET EFFECTIVE VELOCITY = 148.0 M/S ( 485.5 F/S )	JET FFFECTIVE THPUST =13.379 P (3.0075 DP)

NON-DIMENSIONALITED PRESSURES ANGLE (DEGREES)

PORT	ľ	ø	1 0	20	30	45	6.6	75	98	145	129	135	150	160	170	tiso
1		0.2531	0,2185	0.0786	-0.1466	-0.6722	-1.1589	-2.0890	-2.5187	-2.4600	-2.0570	-1.7113	-1.6247	-1,4688	-1.3742	-1,34%3
2	2	0,1659	0,1359	0.0413	-0.1219	-0,5147	-1.0548	-1,5741	=1_971A	=1,9858	-1,7043	-1.4147	-1,2923	-1,2°24	-1.1424	-1.135R
7		0.1052	0.0853	9.0000	-0.1192	+0.4290	-0.P260	-1.2503	-1.5641	-1.6474	-1.4389	=1 • 1 <sup>9</sup> 54	-1.065R	-0.9659	-0.9433	-u.93H6
.4	ŀ	0.0273	P.0149	-0,0353	-0,1086	-4,2878	-1,5109	-0.7607	-0.9479	-1,0372	-0,9692	-0.7631	-0.6608	-0.6308	=0,6348	-0.6042
5	5 -	u.0473	-4.0120	-0.0496	-0.0913	-4,2052	-0.3464	-0.5203	-0.657R	-0.7501	-8.6928	-0.5542	-0.4550	-0.4683	-W.4416	-0.4803
. 6		e,ø113	-0,0133	-0.0380	-0.0739	-0,1525	-0.2545	-0,3737	-0,4863	-0.5169	-0.5362	+0.417v	-8.3784	=0.3404	-0,4023	-1.3464
7	•	0.0113	-0.0147	-0,0320	-0.0600	₩Ø.1126	-0.1952	-0.2864	=0.35R4	-0.4137	-0.4130	-0.3224	-0.2491	+0.2731	-11,3324	-0.3284
8	- 1	0.0100	-0.097	-0.0280	-0.0440	-9,6926	-0,1479	-Ø.223H	-0.2871	=0 <u>3264</u>	=0.3271	-0,2678	-0,1872	-11,2012	-0,2511	-0.2871
9	- 1	0.0060	-0.0113	-0.0173	-0.0346	-a.0739	=0.1166	-0.1839	-0.2345	=v),2665	-0.2725	=11=271P	-0.1366	-0,1532	-0.2078	<del>-и,2</del> 558
10	1	0.0000	0.0000	a <b>.</b> aaaa	0,0000	a <b>.</b> aaaa	-0.0973	-0.1412	-0.1919	-0,2245	-8.227B	-0,1885	-0.1092	=Ø <sub>1</sub> 1132	-0,1959	-11.2265
11		и.онан	a.paga	0.0000	0.0000	a.0000	-0.0833	-0.1179	•0.1579	-0.1885	-1.1905	=0.1559	-0.0873	-6.0010	-0.1512	=0.203R
12	•	0.0000	а, анаа	a . aaaa	0.0000	0.0000	a_6680	-0.0906	-0.1219	-0.1432	-0.1446	-0.1179	-0.0673	-0.0679	-0,1119	-1-1952
13	<b>)</b>	a <b>.</b> aaaa	0,0000	a <b>.</b> aaaa	a . aaaa	<b>ต</b> ุลหลด	0.0000	-0.0733	-0.9946	-0.1199	-0.1199	-0.1973	-0,0553	-0.0546	-0,0986	-0+1739
1 1	I	0.0000	a.aaaa	0.0000	0.0000	0.0000	0.0000	<b>0.00</b> 00	-0.0819	-0.0906	=e.1919	-0.0846	-0.0426	-0,036P	-0.0913	-0.1625
ť 5	1 1	a	0.0000	a.aaaa	a	ห <b>ุ</b> ยหลด	0.0000	a . aaaa	-0.0653	=d_n799	=0.0846	-0.0733	-0.0366	-0,0260	N.GOOD	+0 <u>.1</u> 485
16		8.0000	0.0000	0.0000	0.0700	Ø.0000	0.0000	<b>៨</b> . សពសភ	G. 8000	• • • • • • • • • •	e.epa0	0,0000	<b>N.</b> 0966	0.0000	0.0000	-0+1419
17		<b>0.</b> 0000	a <b>.</b> aaaa	a .aaaa	Ø "ØØØØ	ด ูณาดด	e.cege	ផ <b>្</b> តូតថតត	и.пева	a"unde	6.0661	ត , សារសា	a*autu	n"nese	0.0000	====12/9
<u>1</u> A		0.0000	N. NOAG	a.0000	0.0000	a.anaa	0.0000	<b>ผ</b> ุนผนท	<b>u</b> • 0000	o*nanc	с. мини	0.0300	0.0060	0.0000	a.,0000	•4 • 1 259
19		a.aaaa	a.aaaa	а"аааа	a.0804	ត_តំពត់ខ	а сайа	ด ถูกเลก	a. <u>aeau</u>	0.0000	<b>*</b> 0464	0.0969	6,0066	8. 0480	<b>ព</b> ុខហេតុខ	-*.1159
20	ا	ด	a.0000	<b>я.</b> ваия	a.anau	ด.ผาผม	0.0000	0.0000	0.0000	0. <u>.</u> 0400	គ.មមល	0.0000	0.0000	N. 4040	0.0000	•v•1u92
21		0.0000	ด แถนด	0.0000	a.ava0	a.aua0	0.0000	e.eeea	0.0000	0 <b>.</b> 0000	e.0064	u*uaaa	8.0000	0,0000	0.6468	-0.1166
22		0.0000	a.,0000	0.0000	<b>0.0</b> 000	a, Anan	0.0000	a . a . a . a . a	0.0000	. A <b>,</b> OV AP	e.aaao	0.0000	0.0000	0.0000	<b>ឲ</b> ្ំទោលថ	-0.1166
23	I.	0.0000	a.anna	a aaca	0.0000	a_0400	0,0003	0,0000	0.0000	r.oror	e, area	0.0000	e.aaea	e.nove	a.caoa	-0,1052

Table 2-17b. Lift loss and pitching moment data for round ended plug down 1.0 D configuration, R = 4.99.

	NON#DIMENSIONAL		м	M/Tp		L	1.71
PORT	APEA	N — M	LA-FT		и	fB	
. 1	1,5626	9.003211	0.00236R	a.009721	-P.579845	-130349	-0.043341
2	2.3960	0.004853	0.043579	0.013938	-0.829161	-0.186395	-0.061977
3	4,4199	0.008607	a, uu6349	0,024722	-1,326977	-0,298304	-0.099187
4	8.3487	0,014901	0.010991	0.042R00	-1.948657	=1,43805R	-0.145656
5	13,3490	0.922278	0,016432	0.063987	-2.517389	•0,565909	-0.188166
6	19.4208	0.0305HA	4.022562	0,087855	-3,036542	₩.682615	-0.226971
7	26.5641	a.039717	0.029295	0.114076	-3,50R257	-0,788656	-0,262231
R	34.7789	0.049344	a.u36396	Ø.141727	=3,937467	-0.885143	-0.294313
9	44,0652	Ø_059336	a,043766	0.170426	=4,3306P0	=1,973537	-0,323764
10	54.4229	0.071661	0.052857	0.245P25	-4.669225	-1.049642	-0.349009
11	63,8729	0.081942	0.060441	0.235356	=4,92649R	-1,107477	-0,368239
12	80 = 5406	0.099241	a , a7 3200	0.285041	-5-252351	-1.180728	-0,392596
13	114.4539	0.122185	0.090123	0.354940	=5,632802	-1,266254	-0,421033
14	125.0076	0-141876	Ø.104648	0.407498	=5.884594	-1.322R57	-0.439854
15	147.8661	Ø.158354	Ø.116802	0.454827	-6.093627	-1,369R47	-0.455478
16	172,6295	Ø 162725	0.120026	и <b>, 467 3</b> 8a	-4-120103	-1.375799	-0.457457
17	199.2978	0.167294	0-123396	0.490504	-6.1458P4	=1.381577	-0.459378
18	227,8710	0.172458	0,127205	0,495334	=6,172911	-1,387670	-0.461485
19	246.6965	0.175798	Ø.179669	0.504930	-6.189353	-1.391367	-a.462634
20	254 4351	0.177113	0.130639	0,508705	-6,195723	-1,392799	-0.463110
21	262.2927	Ø.178559	0.131705	0.512859	=6.202625	-1.394350	-0.463626
22	279,2694	0,180049	0.132R04	0.517140	-6,209632	-1,395925	-0.464149
23	278.3651	Ø.181436	Ø.133827	0.521121	-6.216053	-1.397369	-0.464629

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RON	ND FND PLUG	7+6-76
P = 2.50		PHUG DEPTH =1.000
JET FLOW HATE	= 4.666 CMM (	164.76 CEM 1
JET FFFFCTIVF	VFLOCITY = 148	A H/S ( 485,5 E/S )

FEFECTIVE JET DIAMETER = 1.02 CENTERBODY DIAMETER = 0.75 FREE STREAP VELOCITY = 59.3 "/S ( 194.4 E/S ) JET FEFECTIVE THRUST =13.379 N (3.0075 LP )

Table 2-18a. Pressure coefficient data for round ended plug down 1.0 D configuration, R = 2.5.

					non	DIMENST	ONALTZED	PPFSSUP	FS						
PORT	0	10	20	30	45	6P	F (NFGNF 75	ES) 90	105	128	135	16/4	144	4.7/1	
t	0.3612	0.3456	0.2857	Ø.1837	=n.4549	-0.4177	•0.9851	-1.6350	-2.2151	-7.4177	*1+6825	=1.4735	-1.2124	-1-2760	-1-020H
2	0,3150	0,3008	0.2504	0.1957	-0.004A	~0,2822	-0.6391	-1.1161	-1,562B	-1.7605	-1.3053	-1-2132	-0.9840	-0.8047	-0.7594
. 3	Ø.2762	0.2672	0.2324	ؕ1667	0.0274	-0,1743	=0.4482	-ø.7714	-1.1115	-1.3163	-1.2665	-1.6417	-4-8447	-w.+R24	-u.6281
4	И.1965	0.1912	0,1711	Ø.1336	0,0549	-0.0515	=Ø,1937	-0.3586	-0.5189	-0,6903	=0.R014	-0.7750	-11.6367	-e.49H3	-4.4551
5	Ø.1481	0.1432	0.1293	0.1072	<u>и.0573</u>	-0.012R	-0.1029	-0.1974	-0,3114	-0.4382	-0.5567	-0.5685	-0.4578	-0.374H	-0.3531
6	Ø.1159	0,1122	0.1057	A.0895	0.0506	0.0000	-0.0596	-0,1305	-0.2098	-0.301R	-0.4007	-8.4236	-11.3449	-0.2767	-14,2633
7	0.0961	0.0939	0.097R	a.a745	0.0445	0.0085	-0.0395	-0.0915	-Ø.1554	-8.2743	-0.2921	-6.3170	-H.2450	-0.2453	-0.1899
R	0.0812	a.0787	a <b>.</b> a73a	9.0622	0.0393	0.0128	-0.0251	-0.4677	-9.1170	-0.1703	-0.2196	-0.2324	-0.1794	-0.1801	-0.1353
9	A, A672	0.0662	0,0603	0,0516	0.0362	0.0121	-9.0184	-0,0530	₩0.0925	-0.1336	-0.1710	-0.1866	-0,1356	-4,1353	-0.0963
10	0.0000	0.0000	0.0400	A. 8868	0.0000	0.0124	-0.0134	-0.0432	-0.0727	-0.1071	-0.1335	-6.1778	-0.1051	-0.1047	-11.0774
51	<b>a</b> .aaaa	a <b>.</b> aaaa	9.0000	a.aaaa	и араа	0.0128	-Ø_0110	•0.0349	-0,0601	-P.0863	-0.1071	-0,1057	-0.0820	-0. <sup>09</sup> 25	-0.0526
12	0.0000	a. aaaa	A.4944	<b>0.</b> 0000	0.0000	Изария	-0.0071	-0.0254	-0.0493	+12.0677	-0.0805	-0.08e3	-0.0583	=0,0586	-0.0310
13	a°auna	a <b>.</b> aaaa	0.0000	<b>a .</b> aaaa	ด ูด์ดดด	и реан	-0,0045	-0.0207	=0,0385	-0.0551	=0.0624	-6.0599	-0.0456	-R. P455	-11.1217
14	и. апан	0.0400	0.0000	ؕ0000	0.0000	0.0000	a <b>.</b> ageu	-0.0154	-0.0315	-0.0445	-a.0508	-0.0471	-0.0325	-0.0330	50-0156
15	0,0000	0.0900	A .0000	A•4444	ត_តតតត	0.0000	Ø.0000	-0.0138	-e.0247	-e.u36a	-0.0403	-0.0182	-0.0251	0.0000	-0.0168
16	0.0000	<b>ଗ</b> ୍ଣନ୍ମନ୍	0.0000	0.0000	<b>0</b> • 9000	9.0000	0.0000	a.acaa	0.0000	6.0000	0.0400	0.0000	4.0000	н.онни	-0.0066
17	A.8988	A.0000	0.0000	<b>0.0</b> 000	a°aaqa	0.0000	0.0000	0.0000	0.000r	<b></b>	ง.ถากด	8.0060	0.00ve	o.ra	-0,0055
18	0.0040	a.aaaa	a <u>a</u> aaa	a • 9688	0.0000	a.eaaa	Ø.0400	0.0000	ผ_ถตอด	e.0000	0.0000	0.0000	0.0000	ត_ពោធគ	-0.0028
19	п,риир	а <b>.</b> даее	a°acaa	8.8888	a_0000	<b>и.</b> еано	0.0000	0.0000	a.acae	e.aaaa	<b>.</b>		0.0000	N. NN00	-0.0035
2.11	и <b>.</b> анаа	a.uaaa	0.0000	0.0000	0.0400	a.aann	0.0000	a.a30a	а, онио	<i>е.аа</i> га	0.0000	6.0000	и. нога	0.0000	H. HNCP
21	0,0000	F.0000	а вада	Ø.0000	ព_រកពុធន	0.0000	0.0000	0.0000	a.acor	P.0000	o_0000	8.0000	n.uava	a.ecap	o.onee
22	0.0000	р <b>.</b> риаа	a.aaaa	0.0000	a.onaa	8.0000	0.0000	0.0000	а, вине	P.0000	ព.ពមធត	й.плеи	0.0020	0.0000	и.ипри
23	e	N . NOAP	0.0000	0.0000	a_0000	a_easa	р <b>.</b> риин	и, исси	a"ocac	0.0000	a.a.aa	8,0000	8.00VC	a.avea	0.0000

Table 2-18b. Lift loss and pitching moment data for round ended plug down 1.0 D configuration, R = 2.5.

	NON-DIMENSIONAL		м	MITD			· 1 . 4 m
PORT	APEA	NM	LB-FT		Ŋ	LR LR	671
1	1.5626	0.016012	0.011R10	0.045990	-1.676823	-N. 376950	-4.125337
2	2,3960	0.023947	9,017663	0.068780	-2.319200	-4.521356	-0,173353
3	4,4199	0.043071	0.031769	0.123709	-3,532991	-11.794216	-0.254079
4	9,3487	0.078065	0,057581	0.224219	-4,847032	-1,089613	-0,362380
5	13.3490	0.119195	0.0R791R	Ø.342352	-5.728259	-1.332785	-0.443155
6	19.420R	9.164435	0.121297	4,472292	-6.R33%92	-1,536124	-0,510766
7	26.5641	0.212924	0.157052	Ø:611561.	-7.641549	-1.708828	-0.568191
R	34.7789	0.261916	0.193189	0.752776	-R.230766	-1,850276	-9.615222
9	44.0652	0.311093	1.229462	0,093525	-R.763294	-1,969988	-0+655027
10	54,4229	0.347715	0.256475	0.998711	-9,358571	-2,103R07	-4.699522
11	63.8729	0.376789	0,277919	1.082217	-9,786923	-2.200100	-0.731540
12	80,5406	9.418747	Ø,308868	1,202729	-10.367598	-2,330634	-0.774943
13	104.0539	H. 469572	Ø.346357	1.348711	-11.003598	-2.473609	=#+R22482
14	125,0076	0.508495	Ø.375066	1,460505	-11.440992	-2,571935	-0,855176
15	147.8661	0.539765	0.39813a	1.550317	-11.786632	-2,649635	+0.881012
16	172.6295	0.5405R3	Ø.398734	1.552667	-11.7915RA	-2.650749	-0.881382
17	199,2978	0,541365	Ø.399311	1.554916	-11,795991	-2,651739	-0,881711
10	227.8710	0.541828	0.399653	1.556245	-11.798421	-2.652285	-0.881893
19	246 . 6965	9.542230	P.399949	1,557399	-11,800399	-2.652734	-0,892041
20	254.4351	4.542230	0.399949	1.557399	-11.R0#399	-2,652730	-0.882041
21	262.2927	0,542230	n,399940	1,557399	-11.800399	-2,652730	-0,882041
22	270.2694	0.542230	0.399949	1.557399	-11.800399	-2,652730	-N.882041
23	278,3651	0,542230	0.329949	1,557399	-11,800399	-2,652730	-0.882041

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	Table 2-	-19a. Pressure coefficient data	for flat ended plug flush configuration, $R = 8.78$ .
	SQUARE END	PLUG 7=9=76	
R N Jet Jet	8.78 FLOW RATE # 1.61 EEFFCTIVE VELOCIT	РЪЦС DEPTH = ,000 4 СММ ( 57,00 СРИ ) ¥ = 129,5 М/8 ( 424,9 Р/5 )	FFFFCTIVE JET DIAMETER = 0.64 CENTERRODY DIAMETER = 0.75 FREE STREAM VELOCITY = 14.8 M/S ( 44.4 F/S ) JET EFFECTIVE THRUST = 4.080 N ( .9172 LE )

	*				NON	-DJHFNST	ONALIZED	PRESSUP	ES						
PORT	. 0	10	эa	34	År	ANGL	E (DEGRE	E8)							
	•		20)	34	4.7	67	75	90	1.05	120	135	150	160	170	180
. 1	0.1239	0.1051	а <b>.</b> аааа	-0.1212	=\$,4606	-0.9370	-1.3145	=1.5064	-1.4789	=1.2607	=1+109B	-11,9644	-0.8ugp	-0.7677	-0.7354
2	0,0593	a,462a	<b>0</b> _0000	=0.1239	-0,4121	-4.7623	-1,0236	-1,1825	-1.1614	-1,0452	-0,8539	-0.7354	-0.6896	-0.5926	=0.56H4
. 3	0.0000	и. аара	-0.0512	-0+150A	=Ø,3556	-0.6196	-0.8539	-0.9724	-0.9832	-1.8674	-0.7004	-0.5899	-0.4876	=n. 4525	™11 <sub>8</sub> 4.199
4	-0,0835	-0.0700	-0,0997	-0.150P	±0,2828	-0.4256	-0.5576	-0.6438	-0.5600	-8,5711	-0.441R	-6.3744	-0.2990	=0,2451	-0.3#17
5	=0.0754	-0,1051	-0. <b>0997</b>	-0.1293	-0.2478	-0.3098	-0.4256	-0.4687	-0.4849	-0.4337	-Ø.344R	-0.2901	-0.2344	-0,1913	-1.2028
6	-9,0727	-0,0916	-0.0RAR	-0.1024	-0.2020	-4,7397	-0.3286	-0,3637	-0.3879	-8.3340	-0,2667	-0.1805	-0.1751	-0.1401	-0.1805
7	=0:0539	=0.0593	-0.0781	-9-1024	=Ø.1347	-0.1913	-0.2424	•Ø.2909	-0.3044	-0.2694	-0.2128	-6.1482	-0.1293	-0.1185	-11,1697
. 19	-0.0620	=0,0754	-9,0566	-0,0989	-0.1077	-0,1589	-0,2155	-0.2424	-0,2424	-0.2290	-0.1670	-0.1158	-0,1212	-0,1131	-0,1455
. 9	•0.0485	-0.0512	-0.0512	-0.0727	•a.u997	-4,1266	-0,1535	-0.1913	-0.1939	-0.2101	-0.1401	-0.1024	-0.0R62	-0.1024	-0.1185
10	0.0000	<b>0.0000</b>	<i></i>	0.0000	<i>a</i> _aaaa	-0.0970	-0.1320	-0,1589	•Ø,1724	-8,1535	-0,1320	-0.0862	-и.инся	-0.0970	-0.1185
17	0.0000	a.0000	a.aaaa	0.0000	<b>0.</b> 0000	-1.0862	-0.1158	-0,1347	-4.1441	-0.1401	#0+1158	-0,0A23	=Ø.∎Ø80.9	-0.0700	-0.1051
12	0.0000	и <b>.</b> ииии	и, апаа	a.aaaa	<i>a</i> , <i>a</i> () <i>aa</i>	и.сали	-0,0916	-0,1077	-0,1212	-0.1293	-0.0970	-8.4789	=й <mark>,</mark> 0593	-0.0700	-0.0976
13	0 0000	0.0000	0.0000	0.0000	a., 0400	a.acaa	-9.0754	-0.0943	•0.1024	-0.0997	=0.0H35	-0.0620	-8.0512	-0.0646	=0.0943
	0.0000	и <u>.</u> илии	и <b>.</b> инии	0.0000	0,0000	0,0000	<i>a</i> . <i>aaaa</i>	-0.0943	-0.0916	-0.0916	-0.0727	-0.0404	-0.0512	-0.0458	-0.0962
16	9.9949	0 0000	0 0000	0.0000	0.0000	0.0000	0.0000	-0.0154	=Ø.0P62	-0.0R35	-0.0673	-4.0377	₩.И <b>29</b> 6	-0.0350	-H.K64h
17	0.0000	4.9999	a aaaa	a 0000	a auga		0,0000	и и и и и и и	а <b>.</b> асад	e.4000	е <b>,</b> иини		n.0066	0.0000	=1.0546
18	0.0000	0.0000	0.0000	a . aaaa	0 0000	0.0000	0.0000	v.0000	4.4444	a.aaaa	a.0000	N. 8020	0.0000	a.ecue	+0.0520
19	0.0000	0_0000	a agaa	a.aaaa	0 0000	4 <b>4 4 4</b>	n anan	и а	0 0000	0.0000	0.00000	N. 9669	9 <b>.</b> 999 9	0. 0 0 0 0 0 0	-0,8727
20	0.0000	0.0000	0.0000	a_8888	a acau	a agaa	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	a anda	-0.0458
21	0.0000	a.aaaa	9,9999	9.0499	Ø . ØØØØ	0.0000	0.0000	0.0000	0 0000	v	51 - 51 - 60	N. 9969	N. 2020	0.0000	=0.0593
22	A.0000	0.0000	0.0000	0.0000	a anan	0.0000	0.0000	0.0000	0_0000	0.0000	и <sub>в</sub> улери 0. адря	e sove	N. NOK6	. N. BABA	-r.0323
					•					* • VIVIVIVI	A. M. 55 3. 2. 7.	10 2 201 40 40	N * N N N N N	N . N N N N	-6400 - 61-

23 0.0200 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 -0.0539

Table 2-19b. Lift loss and pitching moment data for flat ended plug flush configuration, R = 8.78.

	NON-DIMENSIONAL	M,	I	P/TD		l.	L/T
PORT	APEA	N = M	LA-FT		81	LB	
1	4,0379	0.000434	0.000324	0.006573	-0.0A4196	-0.020051	-0.021862
2.	6.1914	0.000639	0.000471	0.00967R	-0.127392	-0.028638	-0.031224
. 3	11,4215	0.001049	0.000774	0.015880	-C.204631	-0.946001	-0,050155
4	21,5739	0,001569	0,001157	0.023748	₩0.306856	₩ <sup>6</sup> ,868981	-0.075211
5	34.4951	0.002105	0.001553	Ø.031868	=0.40735R	-0.091574	=0.199H44
6	50,1852	0.002635	0.001944	a_a39895	-0.502161	-0.112886	-0.173080
7	68,6442	0.003282	0.002421	0.049688	=0.599025	=0.13263B	-0.144616
8	R9 R720	0.003949	0.002912	0.0597R1	=¢.675341	-0.151817	-0.165527
9	113.8686	0.004727	0.003497	0.071567	-0.75426B	=0.169560	-0.1R4872
10	140,6340	0,006597	0,004866	0.099874	-0.816950	-0.183650	-0,200235
11	165,0537	0.008244	a.ua6a81	9.124A10	• <i>2</i> .866664	-0.194825	-1.212420
12	208 1245	0.011526	0.008502	Ø.174507	-0.934486	-0.210072	-0.229043
13	268.8852	0.015992	0.011796	0.247117	-1.015840	-0.228361	-0.248983
14	323,0314	0.019971	a. a1473a	0.302357	-1.072255	-11.241043	-4,262810
15	382.1901	0.023943	0.017660	0.362497	-1+124968	-0.252893	+W.275730
16	446.0910	0,024436	0.018024	0,369966	-1,127956	-0,253564	-4,276463
17	515.0444	0.024985	0.018429	0.378266	-1.131040	-1.254258	-0,277219
18	588.8402	0.025724	0.019974	a.389452	-1.134918	-0.255130	-0.278169
19	637 4972	0.026050	A.019215	0. 194402	-1.136527	-0,255491	-0,278564
20	657.4844	Ø.026727	0.019345	u.397a76	-1+137383	-0.255684	=0.278774
21	677,7892	Ø,026326	a.019418	u.398580	-1,137857	-4,255794	=0.278890
22	698,4017	0.026514	0.019557	4.401421	-1.138740	-a,255989	-0.279106
23	719,3218	0.026690	0.019686	a.444982	-1,139554	-0,256172	-0,279305

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57

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Table 2-20a. Pressure coefficient data for flat ended plug flush configuration, R = 6.58.

 SCHARE END PLUG 7=9=76

 R = 6.5R
 PLUG DEPTH = .000

 JET FLOW RATE = 1.614
 CMM ( 57.00 CFM )

 JET FFECTIVE VELOCITY = 129.5
 H/S ( 424.9 F/S )

EFFECTIVE JET DIAMETER = 0.64 CENTERRODY DIAMETER = 0.75FRFE STRFAM VELOCITY = 19.7 H/S ( 64.6 E/S ) JET EFFFCTIVE THRUST = 4.080 N ( .9172 LH )

#### NON-DIMENSIONALIZED PRESSURES

ANGLE (DEGREES) PORT ø 10 20 30 45 66 75 90 105 120 135 150 160 170 140 0.1845 0.0832 -0.0529 -0.3705 -0.8226 -1.2611 -1.5257 -1.5000 -1.2974 -1.0766 -1.0040 -0.8846 -0.8135 -0.7712 1 0.1860 2 0,1255 0,1050 0.0711 -0.0514 -0.3054 -0.6608 -0.9511 -1.1946 -1.2172 -1.0978 -0.8921 -0.7002 -0.6653 -0.5988 -0.6245 3 0.0635 0.0690 0.0439 -0.0544 -0.2692 -0.5156 -0.7560 -0.9572 -1.0131 -0.9299 -0.7394 -0.6169 -0.5797 -0.4808 -0.477H 4 0.0257 0.0000 0\_0000 -0\_0786 -0\_1845 -0\_3206 -0\_4793 -0\_5897 -0\_6275 -0\_5806 -0\_4884 -0\_3916 -0\_3145 -0\_2767 -0\_2828 0.0000 +0.0620 -0.1406 -0.2434 -0.3251 -0.3931 -0.4536 -0.4279 -0.3296 -0.2737 -0.2072 -0.20H7 -0.2253 5 0.0000 0.0000 6 0.0000 0.0000 0.0000 -0.0454 -0.1058 -0.1784 -0.2313 -0.3024 -0.3145 -0.3281 -0.2571 -0.1815 -0.1724 -0.1573 -0.1739 7 0.0000 0.0000 0.0000 =0.0454 =0.0892 =0.1270 =0.1830 =0.2268 =0.2540 =0.2434 =0.2011 =0.1517 =0.1134 =0.1195 =0.1376 8 0.0000 6,0000 0.0000 -0.0378 -0.0635 -0.1089 -0.1421 -0.1618 -0.1920 -0.1920 -0.1557 -0.1225 -0.0847 -0.0994 -0.1240 9 0,0000 0,0000 0.0000 -0.0257 -0.0529 -0.0801 -0.1104 -0.1467 -0.1512 -0.1678 -0.1195 -0.0937 -0.0847 -0.0907 -0.1043 10 0.0000 9.0000 0.0000 0.0000 -0.0665 -0.0953 -0.1240 -0.1316 -0.1421 -0.1058 -0.0771 -0.0725 -0.0605 -0.04468 0.0000 11 6,0000 0.0000 0.0000 0.0000 0.0000 -0.0590 -0.0741 -0.0862 -0.1028 -0.1028 -0.0968 -0.0736 -0.0529 -0.0454 -0.0862 12 0.0000 0.0000 0-04-0400 -0-0726 -0-0801 -0-0877 -0-0968 -0-0786 -0.0559 -0.0529 -0.0544 -0-0862 0.0000 0.0000 0.0000 13 0.0000 0.0000 0,0000 9.0000 -0.0454 -0.0711 -0.0726 -0.0801 -0.0680 -0.0272 -0.0393 -0.0484 -0.0771 0.0000 0,0000 0.0000 0.0000 -0.0514 -0.0680 -0.0635 -0.0635 -0.0529 -0.0151 -0.0257 -0.0640 14 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 15 6.0000 9,0000 0,0000 6.0000 9.0000 0.0000 -0.0514 -0.0499 -0.0544 -0.0439 -0.0363 -0.0151 -0.0272 -0.0620 16 0.0000 0.0000 0.0000 0.0000 0.00000 0.0200 0.0000 0.0000 0.0000 N.NNAA N.AACA N.AACA 0.0000 0.0000 -0.0620 0.0000 17 0.0000 0.0000 0,0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 -0.0484 18 0.0000 0.0000 0.0000 0.0000 0.00000 4.0000 0,0000 0.0000 0.00000 0.0000 0.0000 0.0000 0.0000 0.0000 -0.0423 0.0000 19 0.0000 0.0000 0.0000 a\_aaaa 0.0800 0.0000 0.0000 0.0000 0.0000 0.0000 8.0000 0.0000 0.0000 -0.0454 29 0.0000 0.0000 0.0000 0.0000 0,0000 0.0000 0.0000 0.0000 0.9600 0.0000 0.0000 6.0000 0.0000 0.0000 -0.0559 0.0000 21 0.0000 0,0000 0.0000 0.0000 1.9040 0.0000 0.0000 0.0000 P. ANPN. 0.0000 6.0000 0,0000 0.0000 -0.0454 22 0.0000 0.0000 9.0000 0.0000 0.0000 0.0200 0.0000 0.00,00 0.0000 0,0000 0.0000 N. 0000 N. 0000 0\_0000 =0\_0378 23 0.0000 и\_илии a. 0000 0.0000 0.0000 0.0000 0,0000 0,0000 0,0000 0,0000 0,0000 0,0000 0,0000 0,0000 -0,0529

Table 2-20b. Lift loss and pitching moment data for flat ended plug flush configuration, R = 6.58.

PORT	NON-DIMENSIONAL Apea	N = M	M 68-FT	M/TD	N	L.B.	L/T
1	4.0379	0.000900	0.000664	0.013620	-0.154718	-0,234701	-0.037921
2	6,1914	0,001339	.0.040988	v. 020271	-6,220755	-0,049626	-0.054107
. 3	11.4215	0.002310	9.001704	0.034980	-0.352271	-4,079190	-N. NR6342
4	21,5739	0.003795	a_au2799	0.057451	-0.515493	-0.1158R3	-0.12634R
5	34 . 4951	0.005454	0.004073	0.082566	-0.663157	=0,149078	-N.162540
6	50,1852	0.007315	0,005396	0.110749	-0.796379	-0.179026	-0.195193
7	68,6442	0.009243	Ø.Ø06817	N.139933	-0.917506	-1.216255	-0.224881
8	89.8720	0.011276	0,008317	9,170717	-1.025717	-0.2305B1	-0.251464
9	113.8686	0.013544	0.009990	0.205056	-1.126292	-0.253190	-0.276055
16	140,6340	0.016360	0.012067	0.247688	-1,214500	-0.273020	-0.247675
11 .	165,0537	0.018700	0.013793	0.283114	=1.278720	-0.287456	-0.313415
12	208,1245	0.023397	0.017251	0,354084	-1,372703	-0_308584	-0,316450
13	268.9852	0.029336	0.021638	0.444137	-1.477917	-0.332236	-0.362239
14	323,0314	0.034632	0.025544	Ø.524319	-1,549326	-W.348289	-6,379741
15	382.1001	0.039680	a.a29269	0.600749	-1.613072	-0.362619	-0.395365
16	446,0910	0,040523	0,029889	0,613509	-1,618177	-a, 363766	-0,396616
17	515.0044	0.041285	0.030452	0.625056	-1.622467	-0,364731	-0.39766R
18	588,8402	0.042052	0.031017	0,636656	-1.626490	-4,365635	-0,398654
19	637.4872	Ø.042628	0.031443	0.645391	-1.629329	-0,366273	-0.399350
20	657,4844	0,042926	0.031662	0,649AB9	-1.630769	-0,366597	=0,399703
21	677,7892	0.043174	0.031845	0.653K48	=1+631954	-0.366863	• 1. 399993
22	698.4017	0,043387	a,032902	0.656877	•t.632957	-0.3670R9	-0.400239
23	719.3218	0.043695	0.032229	0.661533	-1.634381	-0.367409	-0.40058R

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Table 2-21a. Pressure coefficient data for flat ended plug flush configuration, R = 4.42.

## NON-DIMENSIONALIZED PRESSURES

ANGLE (DEGREES) PORT 10 20 30 45 60 75 90 145 120 1.35 150 160 170 180 0.2492 0.1891 0.0669 -0.1632 -0.5442 -0.9874 -1.4230 -1.6327 -1.5371 -1.1875 -1.0127 -0.9122 -0.8454 -0.8235 0.2731 1 2 9.2096 9.2042 9.1539 9.0669 -0.1072 -0.3995 -0.7026 -1.0345 -1.2264 -1.2025 -0.9406 -0.7846 -0.6828 -0.6316 -0.6241 0.1154 0.0519 -0.0751 -0.2868 -0.5353 -0.7614 -0.9396 -0.9580 -0.8023 -0.6357 -0.5408 -0.4869 -0.4882 3 9.1707 0.1584 0,0922 0,0806 0.0649 0.0307 -0.0376 -0.1516 -0.2704 -0.4042 -0.4978 -0.5463 -0.4930 -0.3960 -0.3167 -0.2800 -0.2813 4 5 0.0512 0.0539 0.0423 0.0253 -0.0096 -0.0813 -0.1700 -0.2356 -0.3032 -0.3353 -0.3196 -0.2581 -0.2090 -0.2049 -0.2178 0.0444 0.0300 0.0184 0.0000 -0.0458 -0.1052 -0.1550 -0.1912 -0.2226 -0.2219 -0.1782 -0.1530 -0.1536 -0.1646 6 0.0396 a. a2Ra a. a253 a. a171 a. uaau -a. 22R7 -a. a676 -a. 1113 -a. 1413 -a. 1550 -a. 1605 -a. 1311 -a. 1052 -a. 1147 -v. 1332 7 0.0307 8 0.0287 0.0280 0.0266 0.0171 0.0000 -0.0191 -0.0437 -0.0683 -0.0963 -0.1113 -0.1147 -0.0881 -0.0635 -0.0799 -0.1045 9 0.0259 0.0171 0.0000 -0.0055 -0.0362 -0.0567 +0.0656 -0.0826 -0.0833 -0.0710 -0.0471 -0.0560 -0.0806 0.0219 0.0259 10 9.0000 9.0000 0.0000 0.0100 0.0000 -0.0246 -0.0430 -0.0567 -0.0635 -0.0642 -0.0478 -0.0341 -0.1423 -0.0649 0.0000 0.0000 0,0000 0,0000 0.0000 0.0000 0.0000 -0.0198 -0.0294 -0.0410 -0.0458 -0.0478 -0.0369 -0.0273 -0.1341 -0.1594 11 12 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 -0.0096 -0.0253 -0.0300 -0.0396 -0.0355 -0.0287 -0.0178 -0.0266 -0.0444 13 0.0000 9.0000 a aaaa a aaaa a aaaa a aacaa a aacaa -a,a164 -a,a232 -a,a347 -a.a253 -a.u205 -a.a675 -a,a143 -a,a396 0,0000 14 0.0000 0.0000 0.0000 0.0000 0.0000 -0.0102 -0.0198 -0.0239 -0.0219 -0.0178 0.0000 -0.0130 -0.0280 0.0000 0.0000 15 0.0000 9.0000 *a*\_*aaaa* 0.0000 0.0000 0\_0000 0\_0000 0\_0000 -0\_0130 -0\_0198 -0\_0219 -0\_0109 0\_0000 0\_0000 -0\_0246 16 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 -0.0266 0.0000 0.0000 17 0.0000 0 0000 *a* aaaa A.4444 - A.4459 18 0.0000 0.0000 0.0000 9.0900 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 -0.0246 19 0.0000 0,0000 0,0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 -0.0266 2% 0.0000 0.0000 0.0000 0.0000 a.aaaa a.aaaa 0.0000 A.AAAA N.AAAA A.AAAA A.AAAA A.AAAA A.AAAA 4.0000 -0.0253 21 0.0000 0.0000 0,0000 A ADAG G AGGA G AGAGA G AGGA 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 -0.0259 22 0.0000 и анаа 0.0000 а. аааа а. анаа и. рила а. ален а. абас и. нино к. инен а. инии в. осес. 0.00va 0.CP00 -0.0239 23 0.00000 0.00000 0.0000 0.0000

60

SQUAPE END PLUG 7-12-76

Table 2-21b. Lift loss and pitching moment data for flat ended plug flush configuration, R = 4.42.

	NON+DIFFUSIONAL		M	M/TO		L/T	
POPT	APFA	N° ⇒M	1,8+FT		N :	LR.	
. <b>1</b>	4,0122	0,002577	0.001901	0.038644	-0.323672	-0.072161	-0.078828
2	6,1521	0,003A49	0,002839	0,057714	-0.453905	-0.142438	-0.110546
3	11.3489	0.006685	0.004931	0.100249	•0 + 679372	-0,157219	=0.17032R
4	21.4368	0.011177	a.au8244	4.167605	-0.967505	-0.217495	-4.235630
5	34.2760	0.016086	0.011865	1.241230	-1.180454	-0.265366	≈0,287497
6	49.8664	0.021297	0.01570R	0.319363	-1.352230	-0,303981	■0 <b>,</b> 329327
7	68.2081	0.026621	0.019636	0.399209	-1.495904	-0.336279	-0.364318
8	89.3010	Ø.031757	0.023424	0.476222	=1.645209	-0,360851	-0.396939
9	113.1452	0.036825	0.027162	0.552229	-1.694124	-0.3HUR39	-0.412593
10	139,7446	H. 940856	0.010135	0.612672	-1,777983	+0,399691	-0.433017
11	164.0051	0.044003	0.032457	u. <u>65987</u> 0	=1.835725	-0.412671	-0.447079
12	206 . F024	0.048819	0.036009	0.73207A	-1-912746	-0.429985	-0.465837
13	267 1771	0,054189	6,039970	0.812611	-1,986023	-0.44645B	-0,483683
14	320.9793	Ø.058278	0.042986	Ø. 873933	-2.036576	-0.457811	•P.495983
15	379 6727	0.061779	Ø,045568	0.926422	-2.073486	-0.466120	-0,504985
16	443.2571	0.062581	0.046160	a.938453	-2.078346	-0.467212	-0.59616R
17	511,7327	0.063487	Ø.046828	A.952047	=2.083445	•0.46R35R	-0,507410
1 R	585.0994	0.064473	0.047555	0.966832	=2.088621	-0.469522	-0.508671
19	633,4374	0.065224	0.048109	a 978089	-2,092316	-0,470353	-0.509570
20	653,3075	0.065521	0.048328	0.982547	-2.093756	-0.470676	-0.509921
21	673,4834	0_065836	0,048561	a.997268	-2.095259	-0,471014	-0,510287
27	693,9649	0.066135	0.048781	0.991749	-2.096664	-0.471330	-0.510629
23	714,7521	0.066407	0.048982	0,995837	-2.097926	-0.471614	-0.510937

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Table 2-22a. Pressure coefficient data for flat ended plug flush configuration, R = 2.21.SCHARE FND PLUG 7-12-76R = 2.21PLUG DEPTH = .000JFT FLOW PATE = 1.614CMM ( 57.00 CFM 3FFFECTIVE JET DIAMETER = 0.64 CENTERBORY DIAMETER = 0.75JFT FLOW PATE = 1.614 CMM ( 57.00 CFM 3FFFECTIVE JET DIAMETER = 0.64 CENTERBORY DIAMETER = 0.75JFT FLOW PATE = 1.614 CMM ( 57.00 CFM 3JFT EFFECTIVE VELOCITY = 59.0 M/S ( 193.7 F/S )JFT EFFECTIVE VELOCITY = 130.4 M/S ( 427.8 F/S )JFT EFFECTIVE THEUST = 4.106 M ( .9230 LH )

### HOM-DIMENSTONALIZED PRESSURES

						ANGL	E (DEGPF	FS)							
PORT	01	10	20	30	45	60	75	90	105	128	135	150	160	170	1 A M
<b>,</b> 1,	0.2959	0.2905	0.2650	9.2152	0.0958	=0.045R	-0.2457	-0.4905	-0.7P22	-V.9P34	-0.8620	-0.5990	-0.3512	-da1048	-1.1375
2	Ø "2526	0.2467	0.2269	0,1928	0,1099	-0.0027	-0.1440	-0,3223	-0.5077	-1.4389	-0.6662	-0.5090	-0.2950	-4,1560	-ព,រពទ័ទ
3	0,2117	0.2099	Ø.1936	0,1657	0.1017	0.0166	=0.0921	-0,2133	-0.3462	-0.4522	=4.5704	-0.4373	-0.2630	-0.1457	
4	Ø.1363	0.1350	0.1233	0.1085	0.0739	Ø.0253	-0.0285	-0.0914	-0.155R	-2.2175	-0.2601	-0.2618	=n.2031	-0.1090	-0.0875
٣	Ø.0936	P.0919	9.0872	0.0771	W.0553	u.0739	-0.0097	-0.0502	-0.0724	-0.1270	-0.1563	-0.1657	-4.1494	-0.5843	-0.0639
6	Ø,0685	0.0675	a_a632	0.0554	0.0404	0.0183	а алан	-0.0307	=0,05R0	-8.0829	-0.0985	-0,1077	-0.1139	-0,0716	-0.0532
7	0.0521	0.0510	0.0492	0.0412	0.0307	0.0154	0.0000	-0.0214	-0.0422	-2.0585	-0.4678	-0.0770	-0.0855	-0.0561	-0.0410
· P	0.0409	0,0402	A.0365	0.0327	0.0229	0.0144	<i>и</i> _ <i>а</i> ааа	-0.0156	-0.4314	-0.6453	-0.0509	-0,4534	-10,0644	-4.4504	-0.0327
9	0.0327	0.0305	a.a297	0.0749	Ø_4197	0.0125	0.0000	+0.0109	-0.0242	-0,0348	-0.0412	-0.0439	-0.0483	-p.0422	-0.0285
10	0.0000	a.anaa	a	0.0000	<b>ด</b> •ถดดด	6.0105	и. анеи	-0.0083	-0.0203	+0.0285	-0.0326	-0.0349	-4.6390	-0.0376	-0.0237
11	0.0000	e	ดุดดุดด	a.0000	ด ดูดุดเหตุ	9,0085	0,0000	oa,a068	-0.0161	-0.0241	-0.0281	-0.079R	-0.0314	-0.0305	-9.9283
12	0.0000	0.0000	a.aaaa	0.0200	a.aaaa	0.0000	a.acaa	-0.0059	-0.4141	-0.0190	-0.0215	-0.0726	-0.0246	-4.4265	-0.4164
13	a.acaa	<b>0.000</b>	a.aaaa	<b>a.</b> aaca	ดุกสุดด	a_acau	a.0000	-0.0053	-0.0102	-0.0146	-0.0193	-0.0207	-0.0193	-0.0210	-0.0110
14	0.0000	0.0000	0.0000	0.0000	0.0000	0.0444	Ø.0000	-0.0042	-0.0081	-0.0134	-0.0156	-0.015R	-0.0156	-a.a19a	-4.0490
15	A.0000	0.000A	a.aaaa	a.aana	a.unna	6.០៩៨០	0.0000	-0.0042	-0.0066	-0.0110	-0,0127	-0.0137	-0,0141	-2. 2151	-0.0085
16	0.0000	a	0 .000P	0.0000	a.aona	0.0000	<b>a</b> _0000	a.acaa	0,0000	<i></i>	0.0000	6,0000	H.0000	<b>*</b> .eana	-0.0051
17	0.4400	0.0000	0.0000	a.aaaa	a.aaaa	0.0000	a.uuda	0.0000	A.0000	0.0000	A.000A	0.0000	H. HCDV	8. PAGE	-0.0042
18	0.0000	0.0000	0,0000	<b>A</b> .0000	<b>ต</b> ุถตดด	0.0000	0.0000	A.8464	a.a.ae	e.0000	a.acaa	0.0000	0.0000	0_000	-0.0041
19	0.0000	a.avaa	0.0000	0.0000	a.0000	0.0000	0.0000	0.0000	N. 4000	0.0000	N. A440	2.40PC	0.0000	0.000	N. 0400
20	0.0000	6.0000	A.4000	a.aaaa	a.anaa	0.0000	0.0000	a.0000	0.0640	0.0000	0.0000	2.0000	Ø. NOVA	0.0000	0.0000
21	0.0000	a.0000	A. 4490	0.0000	a.uaga	0.0000	a	a.aaaa	ด.เสดเลค	K.000H	0.0000	0.0000	0.0000	0.0000	U. 11400
22	a.aeaa	0.0000	a.acaa	0.0000	a.aeaa	e	0.0000	р. и	а арис	6.0000	0.0000	0.0000	0.0000	0.8000	0.0000
23	0.0000	N.0000	0.0090	a.0990	a.aaaa	0.0000	0.0000	0.UP0U	6.0000	- 8-11460	0.0500	и. и оре	P.MORC	4-6000	0.0000

Table 2-22b. Lift loss and pitching moment data for flat ended plug flush configuration, R = 2.21.

POPT	NON-DIMENSIONAL APFA	N =M	18-FT	MITO	N	L L.B	L/1
1	4.0122	0.007163	0,0052R3	1.107411	-8.500316	-112471	-0,121849
2	6.1521	0.010724	0.007910	0,160819	-0.67727R	-0.152252	-0.164947
3	11.3489	0.018877	0,013924	0.283083	-0.984869	-1.221394	-0.239A59
. 4	21.4368	0.032087	P.023668	0.4P1177	-1.264982	-0.284350	-0.308059
5	34.2760	0.046475	0.0342P0	N.696929	-1.467654	-0.329929	-0.35743R
6	49,8664	0,061547	0,045397	1,972956	=1.621930	-0.364610	-0.395011
7	68.2081	0.076976	0.05677P	1,154325	-1.747341	-0.392802	-4.425554
R	89.3010	0.092727	Ø,468396	1.396526	-1,853514	-0.416670	-0,451412
9	113.1452	0.108865	0.080298	1.632518	-1.947037	-0.437694	-0.474189
10	139,7406	0.119775	Ø.ØAA346	1.796123	=2.100183	-0,472121	-0,511486
11	164.0051	0.129927	0.095096	1.933368	<b>*</b> 2•216756	-0,498327	-0.539877
12	206,8024	0.142923	0.105346	2,141759	=2,391915	-0,537702	-0.582536
13	267.1771	u.160700	Ø.118532	2.409839	=2.593821	-0,583091	-0.631709
14	370.9793	0,175250	Ø.129265	2,628032	-2,743724	-0,616677	-4.668/95
15	379.6727	0.189851	0.140034	2.846987	-2.981202	-0.647694	-0.701699
16	443,2571	0,190465	0.144487	2,856188	-2.884919	•0.648530	-0.702684
17	511.7327	0-191058	0.140924	2.965081	-2.88F254	-0.649280	-n.703416
18	585 0994	0,191712	0,141406	2.874881	-2.891685	-0,650051	-0,704252
19	633.4374	0-191712	0.141406	2.874881	-2.891685	-0.650051	-0.704252
20	653,3075	Ø 191712	0,141406	2.874881	-2.891685	-0,650051	-0.704252
21	673.4834	0.191712	0.141405	2.874881	-2.891685	-0.650051	-4.794252
22	693,9649	Ø.191712	0.141406	2.874881	-2.891685	-0.650051	-0.704252
23	714.7521	0.191712	0.141406	2.874881	-2.891685	-0.650051	-0.704252

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63

Table 2-23a. Pressure coefficient data for flat ended plug down 0.375  $D_n$  configuration, R = 8.72.

SGUARE FND PLUG 7-13-76	
. R ■ P,72	EFFECTIVE JET DIAMETER = 0.70 CENTERPORY DIAMETER = 0.75
JET FLOW RATE = 1.909 CMM ( 67.40 CFM )	FREE STREAM VETOCITY # 15.0 H/S ( 49.1 E/S )
JET EFFECTIVE VELOCITY = 131.1 M/S ( 430.0 F/S)	JET FEFECTIVE THOUSE # 4, HAD N (1, 0971 HE)

NON-DIMENSIONALIZED PRESSURES

ANGLE (DEGEFES) PORT 10 20 30 45 60 75 30 105 120 135 150 160 170 180 1 0.0000 0.0000 -0.0990 -0.2578 -0.5212 -0.9772 -1.4228 -1.6990 -1.6390 -1.4645 -1.0814 -0.7817 -0.6645 -0.6202 -0.6254 2 -0.0139 -0.0365 -0.1094 -0.2345 -0.4795 -0.8130 -1.1257 -1.3107 -1.3237 -1.1439 -0.8651 -0.6254 -0.5133 -0.4508 -0.4899 3 -0.0391 -0.0782 -0.1251 -0.2163 -0.4326 -0.7010 -0.8990 -1.0788 -1.1127 -0.9537 -0.7088 -0.4925 -0.4013 -0.3414 -0.3857 4 -0.1094 -0.1094 -0.1563 -0.1954 -0.3127 -0.4690 -0.6176 -0.7140 -0.7296 -0.6436 -0.4873 -0.3179 -0.2507 -0.2423 -0.2433 5 -0.1381 -0.1120 -0.1485 -0.1616 -0.2554 -0.3440 -0.4430 -0.5212 -0.5394 -0.4795 -0.3231 -0.2606 -0.2085 -0.2085 -0.1954 6 = 0.0886 = 0.1199 = 0.1381 = 0.1694 = 0.2189 = 0.2762 = 0.3205 = 0.3883 = 0.4091 = 0.3804 = 0.2762 = 0.1798 = 0.1694 = 0.1563 = 0.1616 7 -0,0756 -0,0990 -0,1068 -0,1381 -0,1668 -0,2502 -0,2736 -0,3309 -0,3205 -0,2971 -0,2267 -0,1537 -0,1251 -0,1694 -0,1511 R = 4.0756 = 4.0678 = 4.0834 = 4.1147 = 4.1355 = 4.2433 = 4.2397 = 4.2814 = 4.2844 = 4.2646 = 4.1798 = 4.1485 = 4.1199 = 4.1381 = 4.1511 9 -0.1042 -0.0547 -0.0678 -0.0834 -0.1147 -0.1537 -0.2033 -0.2241 -0.2345 -0.2371 -0.1563 -0.1199 -0.0938 -0.1016 -0.1068 1. 2009 10 0.0000 0,0000 0.0000 -0.1303 -0.1616 -0.1928 -0.2059 -0.2137 -0.1459 -0.0860 -0.0808 -0.0808 -0.1199 0.0000 11 0.0000 0.0000 0.0000 -0.1199 -0.1563 -0.1642 -0.1902 -0.1824 -0.1485 -0.0521 -0.0678 -0.0782 -0.1120 0.0000 0.0000 0,0000 12 0.0000 a ana a conn -0.1433 -0.1563 -0.1642 -0.1355 -0.1094 -0.0625 -0.0417 -0.0730 -0.0886 0,0000 0.0000 13 0.0000 0.0000 0.0000 0.0000 -0.0938 -0.1485 -0.1173 -0.1329 -0.0964 -0.0782 -0.0365 -0.0651 -0.1068 0.0000 0.0000 14 0.0000 0.0000 0.0000 0.0000 0,0000 0.0000 0.0000 -0.0964 -0.1016 -0.0938 -0.0678 -0.0339 -0.0391 -0.0521 -0.0756 15 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 -0.0860 -P.1116 -0.0912 -0.0834 0.0000 -0.0261 0.0000 -0.0443 16 9.99999 0.0000 0.0000 0.0000 0,0000 0,0000 0,0000 0.0000 0,0000 0,0000 0,0000 0,0000 0,0000 0,0000 -0,0756 17 0.0000 0.0000 9.9999 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 S. 0000 0.0000 -0.0730 18 0,0000 0.0000 0.0000 0.0000 0.0000 0.00,00 0.0000 0.0000 N. 0000 8. 0000 0. 0000 0.0000 0.0000 0\_0000 =0\_0834 0.0000 19 0.0000 0.0000 0.0000 0.0000 0.0000 0.0009 0.0000 a.0000 0.0000 0.0000 0.0000 a. 4004 -0. 4704 4.0000 20 0.0000 0.0000 0.0000 0.0000 0.0000 N\_0000 0.0000 0.0000 0.0000 8.0000 0.0000 0.0000 0.0000 в\_ссой =0.0495 0.0000 21 0.0000 0.0000 0.0000 0.0000 0,0000 0.0000 0.0000 0,0000 6.0000 0.0000 4.0000 0.0000 0.0000 -0.0417 0.0000 22 0.0000 0.0000 0.0000 0.0000 4.0040 0.0000 0.0000 0.0000 8.0000 9.0000 N. 6666 N. HOVE 0.0000 -0.0782 23 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 -0.0730 0.0000

Table 2-23b. Lift loss and pitching moment data for flat ended plug down 0.375 D configuration, R = 8.72.

	NON-DIMENSIONAL		м	MITO	•	L.	1.77
PORT	AFEA	N =M	1.B+FT		n	LP	.,, , , , , , , , , , , , , , , , , , ,
1	3,3721	0.000349	0.000257	0.004036	-0.097515	-0,021921	-0.019982
2	5,1706	0.000503	0.000371	0.005819	=0.139365	-0.031329	-0.028557
3	9.5383	0.00080R	0.000596	0.009347	-0.224227	-P.050406	-0.045946
. 4	18,0167	0.001208	0.000891	1.013974	-0,33A673	-0.075999	-0,069275
5	29 . BU74	0.001627	0.001200	0.018816	=0,448326	=0.1007B4	-0.191867
6	41,9105	0.001993	0.001470	0.023051	+0.554710	-0.124699	-0.113666
7	57.3259	0.002450	0.001807	0.028334	=0.658525	-0.148036	-0.134938
A	75.0535	0.003106	N_002291	4.035922	-0,760371	-0,170931	-0.155848
9	95.0935	0.003781	a.002789	4.043734	-0.855504	-13,192317	-0.175301
10	117,4457	0.005791	0.004272	Ø.066987	-0,931553	-0,209413	-0.190884
11	137.8390	0.007559	0.005575	Ø.087433	-2.994013	-0.223454	-0.203683
12	173,8081	0.010862	0.008012	0,125642	-1.077530	-1.242229	-11.2211797
13	224.5503	0.0159R2	Ø.011788	0.184858	=1+180133	=0.265294	-0.241821
14	269.7687	0.019875	0.014666	H.229895	-1+237632	-0.278220	-0.253683
15	319,0978	0.023248	0.017148	0.26P905	-1,290642	=0,290136	=Ø,264465
16	372.5377	0.023840	0.017584	4.275749	-1.294226	-1.290942	-0.265200
17	430,0R84	0.024502	P.018073	0,283412	•1.297953	-0.291780	•µ,265963
18	491.7498	0.025371	a.u10714	Ø.293466	-1.302516	-0.292P06	=0.266898
19	532,3757	Ø.025887	0.019094	0.299428	-1,305053	-0.293376	-0.26741P
20	549.0756	0.026038	0.019206	0.3011R0	-1-305787	-u.293541	-0.267569
21	566,0325	0,026170	0.019303	0.302700	-1,306414	-0,293682	=0,267697
22	583+2463	a.a26424	0.019490	9.345639	=1.307609	-0.293950	=0.267942
23	600.7171	0.02666A	ด. ต1967ต	u_308464	=1.30R740	-12,294285	-0,268174

Table 2-24a.	Pressure coefficient data for	flat ended plug down 0.375 D configuration, $R = 6.53$ .
SCHARE FNI	) PLUG 7=13=76	n
R = 6.53	PLUG DEPTH = .375	FFFECTIVE JET DIAMETER = 0.70 CENTERBODY DIAMETER = 0.75
JFT FIOW RATE = 1.9	ИЛЧ СММ ( 67.40 СЕМ )	FREE STPPAM VELOCITY = 20.1 M/S ( 65.8 F/S )
JET EFFECTIVE VELOCI	ТУ = 131.1 M/S ( 430.0 F/S )	JET EFFECTIVE THRUST = 4.880 M (1.0971 LB )

HON-DIMENSIONALIZED	PRESSUPES
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						ANGL	F (DEGRE	FSY							
PORT	Ø	10	20	30	45	62	75	90	105	124	135	150	160	170	180
1	0.0922	0.0819	0.0000	=Ø.0995	=0.400R	-0.8543	-1.3443	-1.7685	-1,971R	-1.7393	-1.1658	-6.9789	-0.7621	-0.7285	+0+7095
2	0.0439	8.0749	a .uaaa	-0.0995	-0.343R	-4.6944	-1,0430	-1,3853	-1,5140	-1,3746	-0.9567	-0,7153	-0.6114	-0,5398	-4,5251
3	0.0293	8.0000	0.0000	#Ø.+0995	-0.2926	-0.5515	-0.8411	-1.0838	-1-2170	-1.1483	~0.R309	-0.6912	-0.479A	-0.4315	-0.4037
4	<i>∎0</i> ,0366	-0.0322	-0,0527	-0,0995	-0,2106	-0,3584	<b>-</b> 0 <b>.</b> 5266	-0.6524	-0.7387	-0.7314	-0.5412	-0.3584	-4,2794	-0.2516	-0.2581
- 5	-0.2322	-0.0410	-0.0468	-0.0A34	-a.158a	-0.2662	-0.35R4	-0.4315	-0.5266	-0.5047	-0.3833	-0.2560	-0.1814	-0.1902	-1.1741
6	-0,0293	-9,0351	-0,0395	-0.0702	+G.1229	-P.1931	-0,2735	-0,3306	-0.3789	-4.3701	=0,2996	-0.1780	-4,1729	=0 <u>,</u> 13¢2	-0.1346
7	-0,2336	-9.0198	-0.0307	-0.0527	-0,0819	-0.1365	=0,2063	-0+2575	-4.2838	-8.2867	-1.2267	-0.1317	-0.0057	ай, баар	+0.1082
. 8	-0.0190	-0.0219	-0.0307	-0.0424	-0.0731	-0.0965	=0.1782	-0.2004	-0.2355	-0,2326	-0.1872	-6.0995	-0.065R	-0.0629	-0.0980
9	0.0000	-0.0234	-0.0249	-0.03R0	-0.0629	-0.0892	-0,1229	-0,1375	-0.1946	-0.1843	=0,1434	-0.0717	-0.0410	-U_U65H	-0.0878
10	0.0000	a.aaaa	9.0000	a.0000	а.нана	-0.9673	-0.0951	-0.1126	-0.1463	-0.1536	-0.1214	-4.4614	-0.0322	=0.(:483	-4.0746
11	0,0000	0.0000	ด_ถดดด	a.aaaa	a.0000	-0.0614	-0.0761	-0,0995	-0,1112	-0.1068	-0,1141	-0.046B	-0.027B	-0.1190	-0.0717
12	0.0000	A.0000	0.0000	0.0000	a.aaaa	0.0000	-0.0585	-0.0746	-0.0927	-0.0863	-0.0798	-0.0570	-0.0734	-4.4249	-n.0570
13	0.0044	a_aaaa	0.0000	0.0000	ด	0.0000	-9,0439	-0.0644	-0.0761	-4.0790	-0.0644	-0.0410	0.0000	-0.0307	-0.0410
14	a.0000	0.0000	<b>a.</b> aaau	0.0000	a_0000	a.acaa	A.0000	-0.0761	-0.0658	-V.U717	=0.0541	-0.0749	0.00VP	8.6464	-0.2717
15	0.0000	a <b>.</b> acaa	0,0000	a.aaaa	<b>ด</b> ูดถนด	a ecua	<b>a</b> _aaaa	-0.0439	-0.0570	-0.0629	-0.0380	-0.0219	0.0000	e	-0.0483
16	0.0000	a.auaa	a.aaaa	a.aaaa	a.aaaa	а.ения	0.0000	0.0000	P.0000	P.0000	<b>ព</b> ុត្តភគម	и.анеа	N. NOCA	6.0000	-0-0366
17	a.uaaa	0.0000	<b>0.0</b> 000	<b>a</b> _aaaa	и <b>.</b> ваай	0 <b>.</b> 0000	a_4444	0.0000	6.000g	0.0000	0.0000	0.0000	0.0000	a	-0.0336
18	0.0000	0.0000	a <b>.</b> acaa	0.0000	a*aaaa	0.2000	<i>a</i> _aaaa	<b>u.</b> 0000	<b>.</b>	0.0000	0.0000	6.0000	a_arec	a.coae	-0.0512
19.	0.0000	9.0000	0.0000	a.aaaa	ละถมหล	<i>и</i>	а <b>.</b> ииаи	a.aca	a.uove	0.0000	0.0000	8.0000	0.0000	a.roar	-0.0351
28	0.0000	a .aaaa	9.0000	a.0000	ล.อเบอล	<b>ឲ្</b> ធបូផ្ក	<i>и</i> ,и <i>л</i> ии	a.acan	a acap	e.0000	a.anaa	N. 8000	0.00PP	a ance	-0.0263
21	0.0000	0.0000	0.0000	0.0000	a.anaa	a_0000	a.auau	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	a.c	-0.0249
22	0.0000	0.0000	a.aaaa	Ø.0000	e.0000	0.0000	a	H.0000	a.0000	0.0000	ո, արդո	8.0000	0.0000	a	-0.0468
23	a.0600	a .aaaa	a.aaaa	9.0000	0.0000	0.0000	0.0000	n.acaa	0.0000	P.0000	8.0480	N. 64120	N=10000	ង.ខេត្តខ	=v.v263

\*

Table 2-24b. Lift loss and pitching moment data for flat ended plug down 0.375 D configuration, R = 6.53.

PORT	NON-DIMENSIONAL ARFA	N	M LB-FT	MITO	N	1 L	I₁/T
1	3.3721	6.000914	0.000674	0.010577	-0.180835	-0.040552	-0.037055
2	5,1746	0.001345	0,00092	N. 015559	-0.257162	-0.057910	-0.052695
3	9 . 5 3 8 3	0.002324	0.001714	0.026882	-0.409099	-0.091966	-0.083828
4	18.0167	a, aa3757	a.042771	0.043457	-0,597286	-0.134270	-0,122390
5	28. P074	0.005298	Ø,003908	0.051277	=e.766633	-0.172339	-0.157091
6	41,9105	Ø.006854	u_045055	0.079277	-0,919320	-0,206663	-0.188378
7	57.3258	0.008602	0.006345	0.099499	-1.055054	-0.237176	-0+216191
R	75,0535	0.010342	a.007628	0,119625	-1.180751	-14,265433	-0.241947
9.	95.4935	0.012049	0.00BPR7	A.139365	-1+291911	-0,290422	-0.264725
10	117,4457	0.014654	N.010809	Ø.169503	<b>-1.380186</b>	-0,310266	-0.282814
11	137.8390	0.016663	0.012291	61.192742	-1.445051	-0.324847	-0.296105
12	173,8081	0,020555	0.015162	0.237760	=1,528943	-0.343706	-0.313295
13	224.5503	0.025379	Ø.018720	0.293554	=1.624R57	-0.365268	-4.332949
14	269,7687	0.029419	0.021599	0,340282	-1.692534	-0,390482	-0.346817
15	319.0978	0.033195	0.0244R4	0.383959	=1.748225	-0.393001	-0.358229
16	372,5377	0,033705	0,02496t	Ø,389859	-1,751315	-0,393696	-0,358862
17	430.0884	0.034249	0.025262	0,396154	-1.754376	-0.3943R4	-0.359489
18	491,7499	0.035200	<i>и</i> .025963	0.407151	-1,759367	=# 3955¢6	-0,360512
19	532.3757	Ø.03565A	0.025301	u.412450	-1.761622	=и <b>,</b> 396013	-0.360974
2.9	549,0756	0.035801	0.026407	0.414110	-1,762317	-0,396169	-0,361116
21	566-0325	0.035941	0.026510	0.415725	<b>=1=</b> 762984	-1.396319	-0.361253
22	583,2463	0.036212	0,026710	0.418860	=1.764258	-0,396685	-0.361514
23	600.7171	0.036369	Ø.026826	N.420676	<b>-1</b> ,764985	-N.396769	-0.361663

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0	Table 2-25a. Pressure coefficient data fo	or flat ended plug down 0.375 D configuration $R = 4.26$
	SQUARE END PLUG 7-13-76	n $n$ $n$ $n$ $n$ $n$ $n$ $n$ $n$ $n$
R	■ 4.36 PLUG DEPTH = .375	FFFECTIVE VET DIAMETER = 0,70 CENTERBODY DIAMETER = 0,75
ປ	T FLOW RATE # 1.949 CHM ( 67.40 CFM )	FREE STREAM VELOCITY = $30.1$ M/S ( $98.7$ F/S )
J	TEFFECTIVE VELOCITY = 131.1 M/S ( 430.0 F/S )	JET FFFFCTIVE THPUST = $4_{\mu}RRP = (1,0971)$ LB

	NON-DIMENSIONALIZED PRESSURES														
PORT	P	10	20	30	45	60 60	E (DEGFE 75	ES) 90	105	120	135	150	169	170	184
1	0.2235	0.2086	0.1623	a.a769	-0.1075	=4.4769	-0.8740	-1.4491	=2.1070	-2.5365	-2.4595	-1.1992	-0.8525	-0.7462	-0+7136
2	И,1792	0.1694	0.1382	Ø.065A	=Ø_0769	-4.3161	-Ø.6328	-1.0447	-1,5068	+1,7766	-1.5478	-0,9756	-4,6309	-0.4966	-0.4855
3	0.1473	A.1434	0.1134	0.0574	-0.0593	-0.2424	-0.4901	-0.7651	-1.0936	-1.3035	-1+2142	-0.7723	-0.475P	-0.3707	##+3083-
.4	0.0893	0.0R80	0.0717	Ø,0365	=Ø_0222	=Ø.1264	-0.2548	-0.3P71	-0,5422	-0.6563	=Ø,6592	-4,4634	-0,2555	-0.1864	-0.1551
5	0.0600	0.05A7	0.0156	0.0300	-0.0163	-0.0756	-0,1512	-0.2333	-0.3259	-0.3976	-0.4105	-0.2985	-0.1623	-0.1069	=ពក្ខម្មាំ41
6	N.0502	R.0455	a.a3au	0.0274	a"0006	-0.0450	-0,1069	-0,1532	-0.2177	-0.2500	=0.2802	-8,2066	-4,1154	-4.1710	-0.0640
7	0,9371	0.0326	Ø.Ø261	Ø,0261	<b>0</b> ,0000	-0.0293	-0,0694	-0.1069	-0,1558	-0,1857	-0.2053	-1499	-0-0925	-0,0365	-0.03/1
A	Ø.0267	0.0254	0.0235	6.0228	a•aaaa	-0.0241	-0,0521	-0.0886	-0.1121	-0.1408	-0.1564	-0.1186	-N.4652	-0.074H	-0.0282
9	Ø.0228	0,0267	0_0248	0,0163	<b>0.0</b> 200	-0.0169	-0_0332	≈a,a58µ	-0,0893	-0,1056	-0.1173	-0,095A	-0.0487	-0.0163	-4.0143
10	6.9449	0.0000	a.aaaa	0.0000	0.0000	0.000P	-0.0293	-0.0456	-0.0678	-1.0834	-0.0938	-0.0P@2	-0.8340	-0.0124	9.0000
11	A . 0000	a .aaaa	0.0000	0.0000	ด ุสสสผ	a.0000	-0.4228	-0.0385	-0,0541	-0.0678	=022789	-0,0587	-0,0248	N. 1000	0.0000
12	0.0000	0.0000	и.араи	0.0000	<b>H</b> . HAND	0.0000	-0.0163	-0.0313	-0.0443	-1.0554	=a.0534	-0.0495	-0.0182	0.0000	N=0000
13	0.0000	<b>0.0</b> 000	0.0000	a.aaaa	ดูเหตุดด	0.еери	-0,0111	-0.0248	-0.0371	-0.0437	-9.0495	-0.0385	-0.0189	R. 8000	0.0000
14	0.0000	0.0000	a.aaaa	0.0000	n.acta	0.0000	a.aaaa	-0.0156	-0.0248	-0.0332	-0.0391	-0.0371	-0.0111	0.0000	0.0444
15	и <b>,</b> аааа	A.4444	ดิตลอด	Ø.0000	ดุงหงด	6,0000	a agan	-0.0124	-0,0189	-0.0261	-0.02P7	-0.0339	-0.0085	a.eana	N. 0446
16	0.0000	a.aana	P.9999	A.0000	a.0000	Ø.C000	0.0000	a.aaga	0.000P	e.0468	a.0000	N.8080	P.0000	0.0000	0.0060
17	0.0000	a . Paaa	e.aaaa	a <b>.</b> aaaa	ดูลหลด	а, реал	P.0000	0.0000	<i>6.0000</i>	r.a40a	P.0000	o.aaca	N. 4000	0.0000	0.0000
19	a.arar	0.0000	0.0000	6.0000	a.aaaa	0.0000	<b>0.000</b> 0	0.0CPB	в, асир	e . augu	0.0000	0.0000	a	е.сеия	n.,
19	a	0.0000	<b>0.0000</b>	a.aaaa	<b>0_0</b> 000	0.0000	ด ุดคดง	0.0000	a.0000	0.0000	<b>ผ</b> ู ผมสผ	N. 8080	0.0000	0.0000	<b>0.000</b> 0
20	A.4000	8.0000	0.0000	a.aaay	a.aoua	0.0000	0.0000	0.0000	0.0000	e.uree	ครูสมุลล	6.4064	и. неве	0.0000	0.0044
21	0.0000	0.9000	a.aaaa	a.0000	a <b>.</b> aaaa	0.0000	<b>0.00</b> 00	a.aano	a.aaap	0.0000	а пона	8.4020	A.0066	0.0000	0.0000
22	0.0000	0.0000	0 <u>.</u> 0000	a.4999	a,auna	a.avav	е.анеа	0.0000	в. арар	e	a.uaua	6.0000	и.ипее	0.800G	0.0000
23	a.acae	r.øøøø	0.0000	ø.0009		a peau	a.0969	<i>и.аера</i>	a.acac	0.0000	a.anea	8.0000	N. NCCC		0.0000

Table 2-25b. Lift loss and pitching moment data for flat ended plug down 0.375 D configuration, R = 4.36.

POPT	NON-DIMENSIONAL Apea	N	4 <u>7</u> 8-Гт	M/Th	N	LB	[,/T
1	3.3721	0.003620	0.002670	0.041869	-0.417180	-0.093782	-0.085484
2	5.1708	A. AD5285	a.603898	0,061130	-0.578169	=0,129972	=0,118473
3	9.5383	Ø_008802	a.aa6492	0.101912	=0.870533	₩0.195696	-0.178385
4	18,0167	0,013915	0.010264	0.160957	-1.163804	-W.261623	-0,238475
5	28.8074	0.019076	0.014071	0.220653	-1.390630	-0.312614	-0.284954
6	41.9105	0.024412	0.018007	0,282375	-1,572505	•1,353499	-0.322727
7	57,3258	0.029808	Ø.021987	0.344789	-1.722307	-0.387175	-0.35291R
ß	75,0535	0.035186	0.025953	0.406995	-1.952077	-0,415347	-0.379569
9	95.0935	0.040614	0.029957	0.469772	-1,958299	-0.440226	-0.401275
10	117.4457	0.045060	0,033236	0.521198	-2.057664	-0,462563	-0.421636
11	137.R390	Ø. Ø48478	0.035757	0.560737	-2.128929	-0.478583	-0.436239
12	173.8081	0.053714	0,039619	0.621300	-2.226661	-0.500553	=0,456265
13	224.5503	0.060823	0.044863	0.703532	*2.341495	-P.526368	-0.479795
14	269,7687	0,066490	0.049036	0.768969	-2,414511	-0.542782	-0.494757
15	319.097P	0.071852	Ø.052998	0.831102	•2+477334	-0.556905	-0.507630
16	372,5377	0,071852	0,052998	0,831102	-2,477334	-0,556905	-0.507636
17	430.0BH4	0.071852	0.052998	Ø.831102	=2.477334	-0.556905	-0.507630
18	491,749B	0,071852	Ø.052998	0.831102	-2,477334	■0,556905	-0,507630
19	532.3757	0.071852	0.052998	6.831102	-2+477334	=0.556905	-0.50763P
20	549,0756	0.071852	0.05299A	Ø.831102	-7,477334	-0,556905	-0.507630
21	566.0325	0.071852	0.052998	0.831102	-2.477334	ти.556905	=4.507630
22	583,2463	0.071852	a.45299A	0.831102	-2,477334	-4,556905	-0,507630
23	600.7171	0.071852	0.052998	Ø.831102	-2.477334	-0.556905	-0.507630

t

70		Table	2-26a.	Press	ure coe	fficien	t data	for fla	t ended	plug d	own 0.3	75 D c	onfigur	ation,	R = 2.14	3.
	R JE JE	# 2,18 T FLOW F T FFFEC1	PATE = 1 TIVE VELO	1.909 CH DCTTY = 1	Рынс Ам. С. 67. 131.1 Ми	С DFPTH = ,40 СFM /5 ( 430,	) ) // F/S	)	FFPFC Frff Jet F	TIVE JET STRFAP V FFFCTIVE	NJAMETE ELCCJTY THEUSI	R = 0,70 = 60,1 = 4,840	CENTERA M/S ( 1 N (1.0	007 DTAM 97.3 F7 971 TE	FTFR = И S ) )	.75
						NON	DIMENSI	ONALIZED	PPESSUP	F .S						
P	ORT	Ø	10	21	30	45	ANGL: 60	F (PEGPE 75	es) 90	195	120	135	150	160	170	180
	1	Ø,2388	0.2336	0.2183	0.1911	0.1144	0.0170	-0,1358	-0.34KR	-8.6046	-0.9625	-1.1471	-1.0834	-0.776H	-0.4751	-4.3898
	2	0,2063	8,2014	0.1905	Ø.1686	0.1130	0.2291	-0.0809	-01.2282	-0.4474	-1.5979	-0.7879	-0.8750	-4.6776	-0,3829	-4,3253
	3	0,1771	R.1769	0.1647	0.1465	0.1010	0.0361	-0.0511	-0.1565	-M.2777	-2.4731	-0.5943	=8.6633	•u.5113	-0.3328	-0.2785
	4	0.1224	0,1169	0.1135	a.a993	0.0727	0.0138	-0,0123	-0.0701	+0,1379	-2.2109	=0,2981	-8.3687		-0.1991	-0.1645
	5	0.0863	0.0840	0.0789	0,0727	0,0554	0.0276	0.0000	-0.0412	-0.0866	-0.1331	-0.1822	-1.2217	-0.2111	-0.1376	-0.1127
	-6	0,8645	0,0614	Ø.0593	0.0523	0.0415	0,4229	ด สุดภาพ	-0.026B	-0.0588	-e.d912	-0.1274	+8.1470	-0,1495	-0,0985	-0.0833
	7	u.ø492	0.0502	0.0477	0.0400	0.0299	0.0168	0.0036	-0.0196	-0.0426	-0.0653	-0.0869	-0.1046	-0,1054	=0.6743	-0.0681
	8	0.0394	Ø.Ø381	0,0364	0.0330	0,0258	0.0152	0,0029	-0.0172	-0,0332	-0.0498	-0.0683	-0.0776	-0.0R17	-0.4529	-0.0441
	9	0.0310	0,0304	0.0309	0.0761	6.0704	0.0134	0,0029	-0.0111	-0,0268	-0.0400	-0.0519	-0,0588	-0,0596	-0.6421	-0.0320
	10	a,aaaa	0.0U00	0.0000	a.aaaa	0.0000	Ø.0118	A.0033	-0.0093	-0,0219	-0.0319	#Ø.6428	-0.0466	-0.0482	-0.0320	-0.0224
	11	a <b>.</b> 400a	a nana	n.0000	a .aaaa	0.0000	0,0116	a aaga	-0.0077	-0.0173	-8.0286	-0.0332	-0.43A2	-0.0392	-0.0256	-0.0185
	12	0.0000	0.0000	a • 0nun	A.0000	и <b>.</b> аааа	0.0000	0.0000	-0.9247	-0.0150	-0.0212	-0.0271	-0.0297	-4.0278	-0.191	-0.0114
	13	0.0000	6.0000	a aaaa	A.4444	<b>0</b> ,0000	a .uaua	a . 442.0	-0,0087	-0.0121	-0,0188	-0.0229	-0.0740	-1.0737	-0.0147	=a_aa,77
	14	0.0000	a.0000	a.0000	8.0000	a.aaaa	0.0000	A. AMAA	-0.0038	-0.4490	-2.0144	-0.0168	-0.0203	-0.0186	-0.6103	-0.0028
	15	0.0000	a.aaaa	0 0000	0.0000	<i>ผ</i> ูลดผด	0.0000	a <b>.</b> aaaa	-0.0021	-0,0083	-0.0131	-0.0157	-0,0175	-0.0158	-0,0078	-0.0036
	16	0.0000	0.4000	0.9000	a	a.auaa	0.0000	0.0000	0.0000	9.0000	0.9000	N.0000	0.0000	0.0000	n_nuae	-0.0826
	17	0.0000	0.0000	a.aaaa	<b>a</b> .aaaa	a.acaa	0.0000	0.0000	0.0000	a.0000	e.0000	0.0000	0.0000	N. 0000	6.000	-0.0021
	18	6.0000	0.0000	a.aaaa	a.acau	a.aaaa	0.0000	a	0.0000	A.0040	e.0000	0.0000	6.0000	A.400A	Ø.0000	N. NUCH
	19	0.0000	<b>0.0000</b>	a.aaaa	a <u>a</u> aaa	<b>a</b>	0.0000	0,0000	a.0000	0.0PMP	0.0000	а асаа	6.6699	0.0000	0.0000	0.0400
	20	0.0000	0.0000	0.0000	a.aaaa	a.auao	0.0000	a.uuru	0.0000	и.нинр	e.0000	a.00an	а. нава	0.0000	0.0000	0.000V
	21	0.0000	8.9999	A . 0000	ด ดูตุดด	a.auaa	0.0000	<b>в</b> ,иари	a, arac	и	e.0000	ព, ផងផង	R. 4080	ศ. ผกษต	a	и.пири
	27	a <b>.</b> 0000	0.0000	a.aana	a.auaa	a.aaaa	а., сиан	<b>6.</b> 0000	0.0000	0.0000	0.0000	a. annu	0.0000	8.8666	0.0000	a.0000
	23	0.0000	a aaaa	a <b>.</b> aaaa	Ø.ØC96	a . acaa	a	0,0000	a.acec	a	0.0000	6.0000	0.0000	0.0000	0.4004	<b>и.</b> ирер
Table 2-26b. Lift loss and pitching moment data for flat ended plug down 0.375 D configuration, R = 2.18.

PORT	NON=DIMENSIONAL AREA	N <b>–</b> M	I.R-FT	HZTP	۲ <b>ا</b>	ь LB	レノエ
1	3.3721	0.010042	0.007407	0,116159	-0.628257	-0.141237	-4.128736
2	5.1706	0.014916	0,010929	0.171371	-2.855370	-0.192287	-0,175274
3	9.5383	0.025451	0.018773	0.294391	•1+257657	-0.2A2721	-0.257706
4	18.0167	0.041937	0.030933	0.485075	-1,633675	-0,367250	-1.334756
5	28 . R474	0.05966R	0.044411	9.690166	-1,916393	=0.430P05	-0.392688
6	41.9105	N.079690	0.057604	0,903332	-2.141463	-0,481401	-0.438607
7	57.3258	Ø.096850	0.071437	1.120250	=2+37245B	-0.522088	-0.475894
8	75,0535	9.115978	0,085545	1,341497	=2,475973	•И,556599	-0,507351
9	,95 . 1935	0.135005	0.099579	1.561577	-2.602070	-4.584945	-0.533196
19	117,4457	Ø.148145	0.109272	1,713575	-2,783314	-0.625689	-0,576329
11	137.8390	0.158932	Ø.117228	1.838344	-2-918832	-0.656153	-0.59H097
12	173.8081	0.174389	0.128629	2.017127	=3,113920	-0.700009	-0.638073
13	224.5503	Ø.194328	Ø.143336	2.247759	-3.352901	-0,753732	-4.687842
14	269,7687	0.209076	Ø.154214	2.419348	-3,508411	-0.748691	-0.718908
15	319.097R	0.224533	0.165615	2.597135	<b>-3</b> +656848	-0.822059	-0.749324
16	372,5377	0.224861	a.165857	2.600927	-3,658834	-4 822506	-0,749731
17	430.0884	0.225169	0.166085	2.604499	=3.66 <b>0571</b>	•0,822896	-0.750087
18	491.749R	0.225169	A.1660A5	2.604499	=3,660571	-0.822896	-0.750087
19	532.3757	0.225169	0.166085	2.604499	-3,660571	-0.872896	-0.750087
20	549 0756	0.225169	0.166085	2,644499	-3,660571	-0,872896	•0.750087
21	566,4325	0.225169	Ø.1660A5	2.604499	=3,660571	+0.822896	-0.750087
22	5R3,2463	0,225169	0.166085	2,604499	-3,660571	-14.872896	-0.750087
23	600.7171	0.225169	N.166085	2.604499	-3.660571	-0.822896	=0+750087

OF POOR QUALITY

7		Tak	ole 2-27a	a. Pres	sure co	efficie	nt data	for fl	at ende	l plug d	lown 0.8	375 D c	onfigur	ation.	R = 9.4	a .
N	•	 	SCUAPE	END PLUG	7=15=7ñ	с. 1.						n		acton,	K - J.4	<i></i>
	   	R # 9,49 Jet Flow Jet FFFF	) PRATE # Ctive=ve1	3.531 C	РБО Омм с 124 143,5 м	G DEPTH .70 CFM 1/5 ( 470	≠ •875 ) •8 F/S	)	FFFEC Frfe Jet f	TIVE JET STRFAM V FFECTIVE	DIAMETE FLOCITY THPOST	P = 0.90 = 15.1 = 9.832	CENTERN M/S ( N (2.2	0DY DIAM 49.6 F/ 103 LH	ртев = и s ) )	.75
						NON	-DIMERST	ONALTZED	PRESSUR	ES					•	
Ē	ORI	r ø	10	20	30	45		E (DEGRE 75	(ES) 90	105	120	135	150	160	174	1 14 (4
	1	-0.044	N =0.082F	-0.2302	=Ø,4553	-0.8847	-1.5004	-1.9401	-2.0255	-1.7901	-1.3012	-0.7761	-4.5129	=Ø. 4346	=1.4242	=0.4368
	2	1139	7 -9.1604	-0,2639	-0.4553	-0.8097	-1,2520	-1.4900	-1.6090	-1.4254	-1.0451	-0.5946	-8.4191	-0.3363	-0.2871	-0.2846
	3	-0.186	3 -0.2044	-0.2768	-0.4294	-0.7036	-1.0011	-1.2701	-1.3219	-1.2003	-0.8899	-4967	-4.3311	-0.24ch	=0.1759	=0.1992
	4	-4.245	R =0.2742	2 -0.3104	-0.3880	-0.5381	-4.7217	-0.8589	-0.9235	-0.8381	-0.6338	-0.3544	-0. 2251	-0 1164	-0 1086	-0:1138
	. 5	-0.240	6 -0.2716	-a.2846	-0.3415	-0.4398	-0.5407	-0.6674	-0.677A		-0.4915	-4.2639		-4.1112	=0.6776	=0.0673
	6	-4,225	1 =0.2251	-0.2587	-0.2897	-0.3622	-0.4579	-0.5303	=0.54R4	-0.5174	-0,4061	-0.2432	-0,1319	-0.1035	-0.6724	0.0000
	7	-0.206	9 -0.2069	-0.2328	-Ø.2483	=0.320B	-0,3P29	-0.4501	-0.4708	-0.4346	-0.3441	-0.2121	-0.0905	-0.0776	0.0000	0.0000
	R	-0.183	7 -0,1837	-9.2121	-0,2225	-0,2768	-0.3285	-0,3751	-0.4113	-0.3725	-0.3027	-0.1888	-0,1164	-0,069R	и. <i>гини</i>	0.0000
•	. 9	-0,163	0 -0.1656	-0.1707	=Ø,1656	-0.2302	-0,2768	-0.3363	-0,3518	<b>•0.</b> 3415	=0,2535	-0.1526	-0,1293	-0.0802	0 france	0.0000
	10	0.000	a a.eada	9.0000	0.0000	a.aaaa	-0,2458	-0.2794	-0.2975	-0.2975	-0.2458	≖ຄ₊1423	-0.0698	=0.0362	0.0000	0.0000
	11	0,000	a a.aaaa	0,0000	0.0000	a,000a	=0,2225	-0,245R	-0,2716	-0,2664	-0.2199	-0,1475	-0,0621	0.0000	a	4.0020
	12	0.000	N N.NAAA	0.0000	0.0000	a	0.0000	-0.2069	-0.2432	-0.2328	-0.2018	-0.1242	-0.03AA	0.00ve	0.0000	0.0000
	13	0,000	u 0.0000	<i></i>	0.0000	a ,0000	0.0000	-0.1914	-0.2044	-0,2095	-0.1733	-0,1035	0.0000	P.0000	Ø,000P	8 • NO88
	14	0,000	r a <b>.</b> aaaa	a.aaaa	0.0000	a.0000	0.0000	<b>a</b> .auaa	-0.1811	-0.1785	= ? . 1681	-0.1035	6.9069	0.0FFF	0.0000	ស ្គមមនុស
	15	A.000	7 0.0000	a.aaaa	0.0000	a.aaaa	H.P., 40	0.0000	+0.1578	-0.1500	-0.1423	-0.1035	0.0000	0.0000	и.илиа	Инни
	16	0.000	a <b>0.0</b> 0000	a , aaaa	0.0000	a . uaaa	0,0000	ด ดูดเลต	a.aaaa	B.0000	e	a.0000		<b>0.0000</b>	0.000P	0.0000
	17	0.000	a c.aaaa	a.aaaa	a.aaaa		0.0000	a•aaaa	6.0000	0.000e	e.0000	0.0000	0.0020	0.0000	e.eooe	0.00KN
	<u>1</u> B	a.eaa	P	a aaaa	0.0000	ଗ୍ରୁ ଓଡ଼ ଗ୍ର	a_aaaa	<b>a</b> .aaaa	0.0000	a.0600	0.0000		e.uaeo	0.0000	a.«aaa	0.00 <u>0</u> 0
	19	0.000	a aaaa	0,0000	<b>a.</b> aaaa	<b>a</b> .avaa	a_ecaa	<b>a.</b> 0000	0.0000	0.0P90	0.0000	0.0000	e	0.0000	a.aaae	P.0060
	29	Ø.0900	a.aaaa	a.aaaa	0.0000	a•aaaa	0.0000	a.aaaa	0.0000	и.ение	9.0000	0.0000	0.0000	0.00e0	ด . แหละ	n.0460
	21	0.0000	e .0000	ด ดูดดดด	a.aaaa	a <b>.</b> aaaa	0.0000	a	<b>0.0000</b>	a.acae	0.0000	и.оана	<i>и.</i> Иаса	0.00PC	<b>и.</b> Окон	n. huer
	22	0.0000	6.0000	а.аана	a.0000	a.aaaa	a.aaaa	0.0000	0.0000	0.0000	0.0008	a.0000	и.нана	0.00VN	ø.,0000	N.0069
	23	0.0000	a .acea	9.0000	a.aaaa	a_aana	a.acaa	a.aaaa	N.0880	a.0000	e.acaa	e.0000	0.0000	a_neve	0.5000	<b>е.</b> имее

Тę	pre	2-2/D.	LLIT	LOSS	and	pitching	moment	data	for	flat	ended	plug	down	0.875	D	configuration	R =	9 19	
												T 2			n	coming and crom,	10.000	2.42.	

	NON-DIMENSIONAL		M	MITO		Ĺ	6/1
PORT	APEA	N =M	I,R⇔FT		N	LB	
1	2.0315	0.000053	a,anan39	0.000236	-0.109919	-0.024710	-0.011179
2	3,1150	0.000037	0.000028	0,000167	-0,1577B3	-0.435470	-0.016047
3	5.7464	-0.000063	*Ø•Ø40446	-0.000281	-0.255731	-v.257488	=0.026609
4	10,8543	-0,000519	-0.000383	·0.007313	-0.394896	-*.099773	-0.040163
5	17.3552	-9.001243	=0,000917	-0.045538	-4.534535	-0.120163	=N. 154365
. 6	25,2493	-0,002187	-0,001613	-0.009747	-0.674562	-0.15164t	-0.058607
7	34,5363	-0.003536	-0.042648	-0.015757	-0.813503	-9.182876	-0.082738
8	45,2165	-0,005006	-0.003692	-0.022308	-0.953666	-V.2143R4	-0.046993
9	57,2897	-0.006409	-0.004727	-a.a2856a	-1.090779	• . 245207	-0.110938
10	70,7560	=0,005392	-0.003977	-0.024026	-1,187399	-0.266927	-0.120765
11	83,4420	-0.004502	-0.003321	-0.020063	-1.266523	-0.284714	-0.128813
i 2	104,7119	-0,001952	-0.001440	-0.008699	-1,368718	=Ø.307688	-0.139767
13	135,2818	0.001056	0.000779	4.004706	-1.491333	-0.335252	-0,151677
ş 4	162,5739	0,094679	A 003444	0.020R09	-1,569918	-0,352918	-0,159670
15	192.2426	0.008558	0.006312	0.038134	*1.645295	-W.369862	-0-167336
16	224 4378	0_008558	Ø.006317	0.038134	+1.645295	-0,369862	-0,167336
1.7	259.1096	0.008558	0.006312	0.038134	-1.645295	=#+369862	-0.167336
18	296.2579	0.008558	0.006312	0.038134	-1.645295	•0,369R62	-0.167336
19	329,7333	0.008558	0,006312	0,038134	-1,645295	•0.369862	-0,167336
20	330,7943	0.008558	0.006312	0.038134	<b>*1</b> •645295	-0,369862	-0.167336
21	341,0101	0.00855R	0,006312	0.038134	-1.645295	=0,359862	-0.167336
22	351.3806	0.00855R	0.006312	0.038134	=1.645295	-0,369862	-0.167336
23	361,9060	0.008558	0.006312	0.038134	=1,645295	-0,369862	-0.167336

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Table 2-28a.	Pressure coefficient data for fla	at ended plug down 0.875 D configuration, $R = 7.11$ .
SCHAPE F	ND PLNG 7-15-76	**
P = 7,11	PLUG DEPTH = .875	PEFFCTIVE OFT DIAMETER = 0.90 CENTERRODY DIAMETER = 0.75
JET FLOW RATE = 3	531 CMM ( 124.70 CFM )	FREE STREAM VELOCITY = 20.2 M/S ( 66.2 F/S )
JET FFFECTIVE VELO	CITY = 143.5 M/S ( 470.8 F/S )	JET FEFECTIVE THENST = 9.832 M (7.2103 F.P.)

	PRESSURES
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						ANGL	F (DEGPE	ES)							
PORT	ç)	10	20	30	45	60	75	90	195	120	135	150	160	170	1 80
1	0.0651	0.0318	-0.1056	-0.3500	=0. <sup>8</sup> 215	-1,5431	-2.1404	-2.4051	=2:1332	-1.6299	=0,9646	#Ø.7159	-4.6291	-4.5785	-0.5742
2	N. 8890	-9.9376	-0,1359	-0,3167	-0.7072	-1,2307	-1.6487	-1_8989	-1,7456	-1,3754	-0.7983	-%,595R	-0.5120	-1.44H3	-0.4585
3	-0.0738	-0.0824	-0.1764	-0.3109	-0.6733	-1.0037	-1:3363	-1.5446	-1.4757	-1.1686	-0.7029	-0.4075	-9.3934	-a.35ea	-0.137%
4	-0.1302	-0,149ø	-0.1980	=Ø.2589	-0.4454	-0.6572	-0,8620	-0,9921	=0_9733	-0.7925	-0.5062	-6.3138	-11,2372	-11,1952	-0,1779
5	-0,1302	-0.1490	-0,1938	-0.2314	-0.3500	-0 4946	-0,6349	-0.7101	-0.7775	-4.6233	-0.3876	-0,2198	-0,1793	-0.1504	-0.1362
6	-0-1287	-0.1490	-0.1533	-0.2025	-0.2806	-0.3717	-0.4917	-0.5655	•Ø.5655	-0.5033	-0.3095	-0.1721	-1.1359	-W.1027	-0.1027
, · . 7	-0,1085	-2.1200	-0.1302	-0.1707	-0,2213	-0.2892	-0.3775	-0.4483	-Ø,462R	-0.4093	-0.2704	-0.1287	-0.0911	-0.0752	-0.0752
8	+0.0940	-0.1056	-0.1186	=Ø.1388	-0.1938	-4.7415	-0.3066	-0.3601	-0.376P	-8.3326	=0.2343	-0.1157	-0.0694	=0.0593	-n.n434
9	-0,0911	-0.0955	-0.1070	-9.1331	-0,1533	-6,2683	-0,2632	-0,3023	+0,3109	-8.2921	-0.2068	-0.1027	-1.1636	-0.0477	-0.0231
10	a.enuu	0.0000	0.0000	<b>a.</b> aaaa	a . 0000	-0.1R37	-0.2198	-0.2632	-0.2791	-8.2560	-0.1909	-0.0897	-0.0324	=0.0289	n-uner
11	0.0000	<b>9</b> ,0000	0.0000	a.aaan	a	-0,1591	-0.1895	-0.2140	-0.2314	-0.2198	-0.1822	-0.0767	n.nove	-0.0145	ต <b>ุ</b> ดดหต
12	0.0000	0.0000	A.0000	0.0000	a.aaaa	<b>б</b>	-0.1649	-0.1808	-0.1981	-2.1880	-0.1519	=0.0665	<b>и.</b> ипре	<b>0.0</b> 400	0.0000
13	0.0000	P.0000	0.0000	<b>a</b> .uana	a <b>.</b> auaa	и сара	-Ø.1287	=0,1576	-0,1R37	-8,1750	-0.1273	•0.0	0.0000	ច_ពេលខេត	a
14	0,0000	P.0000	0.0000	a.aaaa	0.0000	0.0000	a . aaca	-0+1417	-0,1475	-0.1417	-0.1215	-0.044R		ត, ខេតស្	0.000V
15	0.0000	0.0000	0.0000	0.0040	a.4444	u.uuua	<b>и.</b> Фина	-0.1157	-0.1229	-0.1171	-0.1041	-0.0390	0.0000	N. NNNG	а. оние
15	0.0000	a.aaaa	a.aaaa	0.0000	a.aaaa	0,0000	а. аааа	0.0000	A.0840	e. 9690	0.00M0	0.00PP	0.0000	9.9000	a
17	0.9400	0.0000	0.0000	a.aaaa	a.uaau	<i>a</i> .aaaa	0.0000	0.0000	<i>и.</i> ниан	e . 4000	а.рини	0.0000	е., вири	0.2000	N. 99466
18	0.0000	a .aaaa	6.0000	0.0000		0.0000	0.0000	A. 4646	0.0000	A.4040	а.ниас	0.0000	n.enen	0.0240	0.0464
19	0.0000	0.0000	0.0000	а.анаа	a.acaa	0.0000	0.0000	0.0000	<b>0,844</b> 0	e.0000	0.0000	0.0000	0.000C	a.acor	0.0000
20	0,0000	0 .0000	0.0000	a <b>.</b> aaaa	<i>а</i> . <i>нааа</i>	0.0000	0.0000	0.0000	0.0000	0.0000	a.0000	N.ecea	0.0000	p.cour	a. naga
21	0.0000	0.0000	a.aaaa	a	<i>ଌ</i> ୍ଗ ମ ୬ ଖ ମ	0.0000	0.0000	0.0000	и. Папс	e.0000	9.0000	K. NAGA	и. Каса	0.0P0P	N. 8088
22	0.0000	0.0000	a <b>.</b> aaaa	a.aaaa	и асан	9.0000	<i>а</i> .ааса	0.0000	a.0000	0.0000	a.aaaa	<i>e.eapp</i>	<b>0.606</b> 8	р,синс	a.aava
23	4.0000	0.0000	0.0000	a.0000	a.aaaa	a araa	0,0000	0.0000	0.0000	R	a.0000	N.NG86	N. Nove	0.Paur	0.0000

Table 2-28b. Lift loss and pitching moment data for flat ended plug down 0.875 D configuration, R = 7.11.

	NON=DIMENSIONAL		M	MITD		L L/		
PORT	APEA	N = M -	LB-FT		N	LB	•	
1	2:0315	0,000410	0.001302	0.001826	-0.221397	-0,049770	-0.022517	
2	3,1150	0,000603	0.000445	0,002686	-0.317903	-0,071465	-0,032333	
3	5.7464	0.000975	0.000719	0.004345	*0.515475	=0,115879	-0.052427	
4	10,8543	0.001343	0.000991	0.005985	-0.775169	-0.17425R	-0.078939	
. 5	17.3552	0.001580	0.001165	0.007041	-1.028352	=0,231174	-0,104589	
6	25.2493	0.001712	0,001263	0.00762R	-1.272080	-0,285963	-0,129378	
7	34.5363	0.001851	0.001365	0.008748	-1.501423	+++.337520	-0.152703	
R	45,2165	0.001868	Ø.Ø91378	0.008326	-1.719810	-0,3R6613	-0.174915	
9	57.2897	0.001838	0.001356	0.008190	=1.931649	-0.434235	-0.196460	
10	70.7560	Ø.ØØ4768	Ø.003517	0.021247	-2,495116	= 0,470982	-0.213085	
11.	83.0420	0.007181	a.aa5297	0.032001	-2.220980	-0.499276	-4.225886	
12	104,7119	0.012400	1.009146	0.055255	•2.385331	-0,536222	-0.242682	
13	135.2818	0.019671	0.014510	0.087659	-2.586743	=0.581500	-0.263087	
1.4	162,5239	0,026746	0,019728	0,119186	-2.717471	-0.610797	-0.276347	
15	192.2426	0.033866	0.0249Au	0.150913	<b>-2.</b> 835801	-0.637488	-0.288417	
16	224 437R	0.033866	0.0249B#	0,150913	=2.R35R01	-0.6374BB	-0,298417	
17	259.1096	0.033866	u.u2498a	0.150913	=2.83580t	-0.637488	-0.288417	
1 R	296 2579	Ø,033966	Ø.0249RØ	0,150913	-2.835801	-11 6374PR	+0.288417	
19	320.7333	0.033866	0.024980	0.150913	-2.835R01	=n 637488	-0.288417	
20	330,7943	0,033866	Ø.Ø2498(1	0,150913	=2,835801	-0.637488	-0.288417	
21	341.0101	0,033866	a.024980	0.150913	-2.835801	-0.637488	-W.288417	
22	351,3806	0.033866	0.0749RA	0,150913	-2,835801	-0.63748B	-0.288417	
23	361.9960	0.033866	A.024980	1.150913	=2,83580j	=0.637488	-0.288417	

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7		Table 2-29a.	Pressure coefficient data	for	flat ended	l plug	down	0.875 D	configuration, R	= 4.74.
01		SCHARE END F	PLUG 7-15-76					11		
	P 🙀 4	,74	PLUG DEPTH = _R75		FFFFCTI	FJET	DIAMETE	R = 0.90	CENTERRODY DIAMETER	= 0.75
	JET T	LOW RATE = 3,539	CMM ( 124.70 CFM )		FREE STR	EAR VE	LOCITY	= 30,3	M/S ( 99.3 +/S )	•

170

180

160

JET FFFECTIVE VELOCITY = 143.5 M/S ( 470.8 F/S ) JET EFFECTIVE THRUST = 9,832 b (2,2103 LB ) NON-DIMENSIONALIZED PRESSURES ANGLE (DEGPFFS) PORT Ø 10 20 30 45 75 90 614 105 120 135 1 0.2404 0.7102 0.0906 -0.1215 -0.5599 -1.2650 -2.0331 -2.6919 -2.30HB -1.4636 -1.1583 -1.0374 -0.9635 -0.9519 2 0.1594 0.1337 0.0533 -0.1003 -0.4435 -0.9558 -1.4842 -1.9817 -2.1724 -1.8364 -1.2656 -V.9481 -0.8189 -0.7668 -0.7829

3 0.1170 0.0AR1 0.0270 -0.0861 -0.3664 -0.7283 -1.1570 -1.5182 -1.7155 -1.5761 -1.0927 -0.7829 -0.6511 -0.5984 -0.6132 4 0.0379 0.0270 0.0000 -0.0713 -0.2211 -0.4217 -0.6582 -0.8780 -1.0149 -1.0046 -0.7430 -0.4609 -0.3722 -0.3323 -0.3150 0.0161 0.0154 0.0000 -0.0578 -0.1523 -0.2822 -0.4345 -0.5676 -0.6800 -0.6865 -0.5425 -0.3169 -0.2320 -0.2134 -0.2025 5 .251 9.0000 9.0000 -0.0386 -0.1099 -0.1954 -0.3027 -0.4075 -0.4776 -0.4936 -0.4069 -0.2391 -0.1613 -0.1504 -0.1446 6 0. 0.0148 -0.0071 0.0000 -0.0341 -0.0771 -0.1427 -0.2275 -0.2950 -0.3593 -V.3857 -0.3162 -0.1774 -0.1196 -0.1022 -0.1146 7 8 0.0090 -0.0116 0.0000 -0.0129 -0.0572 -0.1080 -0.1710 -0.2308 -0.2764 -0.2944 -0.2622 -0.1466 -0.0829 -0.0823 -0.0784 9 0.0129 -0.0148 0.0000 -0.0096 -0.0392 -0.0868 -0.1363 -0.1800 -0.2153 -0.2327 -0.2198 -0.1266 -0.0636 -0.0553 -0.0559 0,0000 0,0000 10 0,0000 0,0000 0,0000 -0,0630 -0,1106 -0,1408 -0,1768 -0,1941 -0,1723 -0,1022 -0,0469 -0,0463 -0,0411 A. 2000 A. 000A A.AAAA A.AAAA 0.0000 -0.0501 -0.0874 -0.1176 -0.1433 -0.1568 -0.1408 -0.0778 -0.0315 -0.0360 -0.0360 11 12 P. PPRA P. PORA 0,0000 0,0000 .0,0000 0,0000 -0,0688 -0,0900 -0,1106 -0,1183 -0,1176 -0,0630 -0,0706 -0,0193 -0,0296 0.0000 0.0000 13 0.0000 0.0000 -0.0463 -0.0713 -0.0847 -0.1009 -0.1016 -0.0463 -0.0161 -0.0135 -0.0244 A.4888 A.8888 0.0000 0.0000 14 6.0000 0.0000 a aaaa a aaaa a aaaa -a, a546 -a, a781 -e, afa3 -a, a726 -e, a485 -a, a189 -a, 8877 -0, 8286 0.0000 0.0000 15 A. AAAA . A. AAAAA 0.0000 0.0000 0.0000 -0.0450 -0.0578 -0.0688 -0.0604 -0.0373 0.0000 0.0000 -0.0148 A.4A44 A.4444 A.4444 A.4444 16 0.0000 0.0000 0.0000 0.0000 0.0000 c.0000 a.avaa e.vaca 0.0000 0.0000 -0.0174 17 0.0000 0.0000 0.0000 0 0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 N.NHON -0.0122 18 0.0000 0.0000 0.0000 0.0000 a auga a auga a gada a gada a bices 0.0000 0.0000 0.0000 0.0000 0.0000 -0.0109 19 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0100 0.0000 0.0000 0.0000 0.0000 N. COMM -0. 0141 20 0.0000 A.AAAA A.AAAAA 9.0000 и пана 0,0000 0.0000 0.0000 0,0000 0.0000 0.0000 0. VO00 0.0000 0.0000 -0.0096 A.4444 A.4444 A.4444 21 0.0000 a. 4444 A. 6464 0.0000 0.0000 A. HCHV N.000N 0.0000 9.0000 0.0000 0.0000 -0.0064 22 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 p.0000 0.0000 0.0000 0.0000 ៨ ូល៧៧៧ 0.0000 0 POPP 0 PONC -0 0135 23 0.0000 0.0000 0.0000 **0.0000 0.0000 0.0000 0.0000 0.0000 0.000** 0.0000 ស.ពេលអក 0.0000 P.0000 0.0000 -0.0116

Table 2-29b. Lift loss and pitching moment data for flat ended plug down 0.875 D configuration, R = 4.74.

	NON-DIMENSIONAL		м	MITD		D.	1,/T
PORT	APFA	N, <b>-</b> M	LR-FT		N	LB.	
- 1	2,0315	0.002733	0.002016	0.01217B	-0.565068	-0.127027	=0.057475
2	3,1150	0,004134	0.003049	0.018420	-0.802470	-0.180384	-0.081611
3	5.7464	0.007372	0.00543R	A.032852	-1.269437	-0,285369	-0.129109
. 4	10.8543	0,012584	0,009282	0.056077	#1,818679	=(1,40R839	-0.194970
5	17.3552	0.018316	0.013510	W.081619	-2+291430	+11,515114	-0.233052
6	25,2493	0.024520	0.018086	0,109267	-2.703172	-0.607673	-0.27492R
7	34.5363	0.031015	0.022877	0.138248	-3.#6R149	-0.689720	-0.31204P
8	45.2165	0.03792P	M.027975	0.169011	=3,393157	=0.762782	-0.345164
9	57,2897	g.045060	0.033237	9.6249797	-3.684362	-0.828245	-0.374721
10	79.7569	0.052988	0.039084	0,236125	=3,932979	-P. 884134	-0.400007
11	83.0429	0.059330	0.043762	0.264384	-4.115308	-0,925121	=0.418551
12	104.7119	0,069897	0.051556	0.311471	-1,349292	-1.977721	-W. 442348
. 13 .	135,2R1A	0.083591	0.061656	0.372493	-4.611544	=1,036675	-0.469021
<u>1</u> 4	162,5739	Ø_094507	0.069709	Ø.421139	-4,775367	-1,073503	-0,485682
15	19202426	0.104697	0.077225	0.466548	=4.920043	-1.106026	-u.5au397
16	224.4378	0,105251	n_077633	0,469013	-4,923394	-1,106779	-0.500737
17	259.1096	0.105702	A.477966	0.471025	-4,925933	-1.107350	-n.500996
18	296 . 2573	0.106166	0.078308	0.473091	-4,928367	-1,107897	-0.501243
19	320.7333	0.106587	0.078519	9.474979	-4.930443	=1.10R364	-0.501454
20	330,7943	0.105707	0.078707	0,475505	-4,931924	-1,108494	-0,501514
21	341.0101	0.106790	Ø.Ø79768	Ø.475873	=4.93141P	-1.108583	-0.501554
22	351,3806	0.106968	0.078900	Ø.47666R	-4,93225R	-1,108772	-0,501639
23	361.9060	0.107126	u.079016	0.477371	-1.932988	-1.108936	-0.501713

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~1	T	able 2-3	30a. Pi	ressure	coeffic	cient da	ata for	flat er	nded plu	ıg down	0.875 c	confi	guratio	$n \cdot R = 3$	2.37.
ວວີ ເ ເ ເ ເ ເ ເ ເ ເ ເ ເ ເ ເ ເ ເ ເ ເ ເ ເ	ET FLOW	SGUARE E RATE # 3 TIVF VFLC	END PLUG 1.531 CH DCITY = 1	7-15-76 PLUG 4M ( 124. 143.4 M/	) 70 срн 'S ( 470	= .875 ) •5 F/S	)	RFFEC Free Jet F	TIVE JET Stream v FFFCTIVF	DIAMETE FLCCITY THRUST	R = 0,90 = 60,5 = 9,826	n CENTERP M/S ( 1 N (2,2	001 DIAM 98,5 F7 989 T.H	ЕТЕР = И 5 ) )	.75
					NDN	DIMENST	ONALIZED	PRESSUR	E S						
PORT	Ø.	10	20	30	45	66	75	90	145	120	135	150	160	170	180
* • <b>1</b>	Ø.3624	A.3494	0.2996	0=2096	0.0114	-0.2832	-0.7129	-1.2130	-1:6777	=j.9543	=1.6734	-1.2822	-0.9368	-Ø.7656	=0.6684
7	0,3234	0,3124	Ø.2758	0.2159	Ø,0622	-0.1610	-0.4357	-0,7931	-1,1437	-1.3776	-1,3163	-1.0340	-0.7913	-0.6716	-0,5068
3	0.2855	2.2782	0.2466	Ø+1958	a.0203	-0.0792	-0.2822	-0.5144	-0,7683	-2.9746	-1.0512	-0.8P06	-N.6867	-0.5234	-0.4385
4	0.19R4	0,1937	0,1798	0,1516	Ø,ØR59	0 . 1. 9. 45	-0.1017	-0,2066	-8.3266	-0.4594	-0.6303	-0.6451	=0,5571	-0.4405	-0.3683
- 5	0.1468	e • 1473	0.1317	0.1194	0.0753	0.0196	-0.0442	-0.1100	-0.1899	=P.7837	-0.4053	-0.4847	-0.4554	-0.3671	-1.3123
6	9.1141	9.1100	0.1043	0.0911	a.9631	0.0243	-0,0204	-0.0691	-0.1295	-0.1981	-0.2838	-8,3569	-0.3473	-0.2802	-0.2482
7	0,0912	a a a a a a a	0.0832	0.0750	0.0509	0.0243	-0,0093	-0.0485	-0.0957	-0.1454	-0,2053	-0.2618	-1,2525	-0.2006	-0.1891
R	0.0742	0.0724	0,0662	0.0599	a <b>.</b> a45a	0.0215	0.0000	-0.0344	-0.0726	-0.1110	-0.1542	-0.1916	-0.1886	=Ø.1455	-0+1393
9	0.0623	0.0594	a_0559	0.0503	0.03R6	0.0196	<b>ตุ</b> ตตุล	-0,027R	-0,0593	-1,0893	-0.124R	-0,1426	-1417	-0.1097	-0.0980
10	0.0000	a • aaaa	0.0000	a.0000	0.0000	0.0167	0.0000	-0.422P	-0.0464	-e, a715	-0.0937	-0.1083	-0.1078	-0.0776	-0.0755
11	0.0000	a <b>.</b> aaaa	a <b>.</b> aaaa	<b>a</b> ,0000	0.0000	0,0149	e.0000	■0.017B	-0.0387	-2.4567	-0.0755	-0.0851	-0,0840	+Ø,P556	-0.0535
12	0.0000	a.aaaa	9.0000	0.0000	a.aaaa	0.0000	<b>a</b> .auca	-0.0129	-0.0310	<i>-0</i> .ø456	=0.0591	-0.0617	-0.0599	=0.0358	-V. 0378
13	0.0000	0.0000	<i>a</i> .aaaa	Ø.0000	a <b>.</b> aaaa	0.0000	ดุเกลดด	-0.0100	-0.0249	-0,038t	-0,0466	-0.0474	-0,0448	-0.0255	-0.0243
14	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	-0.0088	-0.0185	-0.0299	-0.0352	-0.0361	-0.032A	-0.0177	-0.0194
15	0,0000	a	9.0000	0.0000	0.0000	0.0000	a <b>.</b> aqaa	-0,0069	-0,0169	-0.0257	-0.0294	=#,478R	-0.0763	-0.0117	-0.0141
16	0.0000	0.0000	0.0000	0.0000	a.aaaa	0.0000	0.0000	0.0000	a acae	e.ueuu	a.aaaa	0.0000	a•868a	a.0000	-0.0120
17	a.aaga	9.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.000U	0.0000	0.0000	a.angu	2.049.0	и.нире	И. Рана	-0.0069
18	0.0000	0.0000	0.0000	<b>0.</b> 0000	a_aaaa	6,0000	0.0000	<b>0.</b> 00c0	a	e.aaaa	a.aaaa	e.0000	0.0000	e.0000	-0.6043
19	0.0000	a.aaee	a.aaga	a.aaaa	0.0000	0.0000	ด.แผลม	u.apea	а.агиа	0.0000	a•0499	8.0000	9.0040	<b>0.0000</b>	-0.0051
20	0.0000	0.0000	a <b>.</b> 0000	0.0000	a . auaa	a.acaa	6.0000	a	0.0000	0.0000	a.0000	e.acea.	0.0000	0.0000	-0-0039
21	0.0000	a	0.0000	<b>0.000</b> 0	a.a000	0.2000	и.аани	0.0000	и.ивис	8.0000	0.0000	K. NAR0	n.0000	a.aana	0.0000
22	0.0000	0.0000	a	<b>0.000</b>	a.aaaa	a	а анга	0.0000	n.orae	e.0000	0.0100	0.0000	0.0000	а, аара	-0.0026
23	0.0000	и. Пион	a.aaaa	a.aaaa	ค.แลนด	0.0000	a. 4000	A. 4044	ด. สเรละ	e.0000	0.0000	e	a	a.0000	-0.0024

Table 2-30b. Lift loss and pitching moment data for flat ended plug down 0.875 D configuration, R = 2.37.

PORT	NON-DIMENSIONAL AFEA	N -M	LH-FT	MZTD	N	L LB	L/I
1	2.0329	0.014464	0.01066R	0,064515	-1,355133	-0.304634	-0.137914
2	3,1171	8.021747	0.016041	0.097404	-1_861496	-0,418464	-0.189447
3	5.7501	0.038527	0.028418	0.171851	-2.751737	=0.618590	-0.290048
4	10,8613	0.069578	0.051320	0,310349	-3,679695	+0.827195	-0.374488
5	17,3664	0.107005	0.078927	W.477295	-4,455836	-1.001672	-0.453477
6	25,2656	0.148471	0.109512	0.662250	-5,109499	-1,148615	-0.520001
7	34,5587	0.191474	0.141231	0.854065	-5.645024	-1,269001	-0.574502
R	45,2457	0,234855	0,173229	1,047565	-6.0793R3	-1,366645	-0.61870R
ġ	57,3267	Ø.278179	0.205185	1.240811	-6.442199	-1.448206	+0.655632
10	70.8017	0.308615	0,227635	1,376572	-6,R83273	-1,547360	-0. 700521
<b>3 1</b> .	83,0956	0.332458	P.245221	1.482919	-7.196865	=1.617R55	-0.732435
12	104,7795	0.366264	Ø.270156	1,633711	•7.627857	=1,714742	-0.77629R
13	135,3692	0.406686	0.299971	1.814012	-8,098572	-1,820559	-0.824204
14	162.6290	0.436428	P.321909	1.946675	-8.417206	-1.892188	-0.856631
15	192,3668	0.464859	Ø.342880	2.073490	-A.70172A	-1,956149	-H,885588
16	224.5828	0.466129	Ø.343817	2.079156	-9.709422	-1.957878	-0.886371
17	259,2770	0,467150	0.344570	2.083713	=8,7 <u>15</u> 169	-1,959170	-0,886955
18	296.4493	0.467897	0.345113	2.086997	-R.719035	=1.960039	-0. RR7349
19	320,9405	0.468500	Ø,345566	2.089733	≈8,722054	=1,96И718	-H. 887656
20	331.0080	0.468692	a.3457a7	2.090590	•R.727984	=1.960°27	-0.887751
21	341,2304	0.468692	Ø 345707	2,090590	■R.7.229R4	-1,960927	-0,897751
22	351.6077	0.468828	9.345R09	2.091197	=R.723624	-1.961071	-0.887816
23	362,139R	0.469960	0,345905	2.091783	-8,724232	-1,961207	-0.RA7878

.79

Table 2-31a. Pressure coefficient data for flat ended plug down 1.375 D Configuration, R = 9.48.

SQUAPP FND PUNG 7-15-76	
R = 9,48	ΕΡΕΕСΤΙVE JET DIAMETER = 0.49 CEPTERBODY DIAMETER = 0.75
DET FLOW RATE = 4,185 CMM ( 147,80 CPH )	Εκές στρέλη νειοσίτη = 14.9 π/5 ( 49.0 ε/5 )
UPT FFFFCTIVE VELOCITY = 141,6 M/S ( 464,5 F/S )	Jet fepective thrust =11.510 δ (2.5875 μP )

					NON	-DIMENSI	OUALIZED	PPE8SUP	ES -							
POPT	ę,	10	20	30	45	64	75	90	105	120	135	150	160	170	184	
1	0.0900	0.0953	-0.0503	-0.2913	=a_6567	-1.1227	-1,3907	-1.4484	-1.3001	-1.1227	-1.0221	-6.8977	-0.7626	=и.6964	-0.6832	ļ
2	0.0000	e.0000	-0,0927	-0,2595	=Ø.5878	-0.9321	-1.1783	-1.1916	-1,0459	-8.9533	=0,8235	-4.7149	=0,609a	-0.5455	-0.500	}
3	=0.0900	-0.0662	-0.1509	-0-2701	-0.5296	-0.8050	=0.9638	-1.0009	-4,9456	-8.7785	-0.6726	-8.5375	-0.4290	-4.4714	-0.4343	ļ
4	-0.1350	-0.1377	-0.2171	-1.2674	-0.4157	-0.5561	-0.6885	-0.6885	-0.6170	-0.4872	-0.3892	-8.2992	-0.2171	-4.2330	-0.2171	
5	-0.1430	-Ø,1589	-9,2277	-0,2410	=Ø_3230	-0,4528	-0,5296	=0,5534	-0,4713	-0.3840	<b>⊷</b> (1,2542	-1.2463	-0.1430	-0.1192	-1271	
6	-0.1324	•0.1456	-0.1959	-0.2224	=0.2754	-0.3P40	-0.4710	-0.4790	-0.3919	-0.2833	-0.1854	-0.1721	-4.4821	-N.1006	-4.4794	l
7	-0.1745	-0.1271	~0.1589	-0.1933	=Ø.2357	=Ø.317P	-0,3151	-0.3760	-0.3736	-0.211R	-0.1430	-0.1086	-0.0556	-0,0583	-1.0669	)
я	-0.0900	-6,1139	-0.1324	-0,1562	-0.2145	-9,2727	=Ø.2780	-0.3017	-0,256A	-0.1854	-0.1112	-10,0794	-0.0583	-0,0556	-0,0530	1.
9	-0.0874	-8.1112	-0.1245	-0.121R	-0.1827	=#.2224	-0.2436	-0.2357	-0.2304	-V.174R	-0.1165	-N.0530	9.0000	-0.0604	-11-11397	
10	a .eaaa	e	a <b>.</b> aaaa	<b>6.</b> 0000	0.0000	-0.1880	-0.2065	-0.211B	-0.2039	-8.1615	-0.0530	-0.0397	0.0000	-0.0291	0.0000	1.
. 11	a . 8000	a .ucaa	<b>a</b> .aaaa	0,0000	a.abna	-0.1774	-0.1854	-0.2065	-0.1907	-0.1350	-0.0609	<b>4.0000</b>	0.0000	a.enna	0.00PC	
12	ด.ผสมผ	a	4.9999	a.aaaa	a.0000	0.0000	-0.1642	-0.1721	-0.1430	-0.0980	N. UNAA	N	0.10PP	<b>и.</b> енна	6.4000	i
13	a	0.0000	a <b>.</b> acaa	a.aaaa	ด่างสมุด	<b>а.</b> реаа	-0.1324	-0.1192	-0,1192	-0.0794		<i>и</i> , дада	0.0460	0.0000	e nuge	
14	0.0000	a.aaaa	0.0000	<b>a.</b> aaaa	a.aaaa	0 . KABA	a.uaaa	-0.1033	-0.1059	-0.0662	a.aann	N. 4000	4.4400	0.0000	0.0JPH	
15	0.0000	a.aaaa	a.aaaa	0.0000	ด ูงถดถ	0.000U	a.aaca	-0.0927	-0.0980	-0.0662	6.8080	0.0000	0.0000	4.0000	0.0000	
16	и, иаиа	a.aaaa	0.0000	a.aaaa	0.0000	<b>0.0</b> 000	a.aaca	0.0000	0.0000	8.0080	a.0000	8.0000	4.0000	0.0000	0.2020	
17	a.aaaa	a,aaae	0.0000	0.0000	0.0000	а.раия	<i>a</i> .aaaa	a.0000	a.eeaa	e. 0000	0.0000	2.0000	0.00ga	a.0000	0.0000	
. 1B	0.0000	0.0000	0.0000	<b>a</b> .aaaa	ถ.สงหม	ø.eepa	a.aaaa	0.0000	0.0000	0.0000	0.0000	8.0000	0.0000	0.0000	0.0000	
19	0.0000	0.0000	a	a.0000	a.auva	a.aeaa	a	0.0000	a.auao	e	a. 4444	K. 4080	0.0000	6.0000	илини	
20	0.0000	a.aaaa	a <b>.</b> agaa	a.aaau	a.øuaa	0.0000	0.0000	0.0000	6.0000	0.0000	9.9900	e. 40ee	0.000	6.000	и	
21	и. анаа	A.9449	a.aaaa	A.0000	<b>ด</b> •ดเลด	0.0000	a.aaau.	0.0000	0.0000	e.a0a0	0.0000	<b>N</b> . NPP0	0.0000	0.0000	0.0000	
22	0.0000	4.0000	<b>a</b> ,aaaa	<b>0.000</b> 0	a_øøøa	0,0000	C . 0004	0.0000	0.0000	6.0000	a.auaa	0.0000	0.0000	Ø.2002	a	
23	0.0000	9.9049	0.0000	0.0000	0.0000	0.0000	- 0 0000	0.0000	- a arne	0 0000	a aana	0 4000		······		

0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000

0.0000

	NON-DIMENSIONAL		м	N/TD		ī.	n L/T	
POPT	APEA	N -H	J.B-FT		rj	LP	111 1	
ł	1.6694	0.000317	0.000234	0.001093	-0,091296	•0,020523	-0.007932	
2	2.5597	0.000455	0.000336	0.001571	-0.13204R	-0,879696	-0.011477	
3	4,7219	Ø, PØØ682	0,0005,03	И.И02353	-0.215854	-1, P48574	-0.018754	
4	8,9191	9.000710	0.000524	0.007450	···· 327728	=v.v73673	-0.028473	
5	14,2611	9,000476	0.000351	0.001642	-0.439/499	=0,098709	-0.038149	
6	20.7477	-0.000444	-0*100033	-0.000153	-0.547310	-0.123035	-0.047551	
7	28,3791	-0.000840	-0,000620	-0,002960	-0.649559	•0,146021	-0.056434	
R	37+1551	-0.0017R2	-0.001314	-0.006149	-0.748592	-0.168284	-0.065038	
9	47,0759	-0,002871	=0,00211B	-0,009007	-C.844181	-0.189772	-0.473313	
10	58.1413	-0.002482	-0.001830	-0.008563	-P.907879	-1.204091	-0.078877	
11	68.2369	-0.002328	-0.001717	-0.008034	-0,959741	-0,215750	-0,083383	
12	86.0434	#0.001856	-u.uu1369	-u.006493	=1.014592	•0.2280BD	=0.088149	
13	111,1632	-0,00123P	-0.000913	-0.004272	=1,074933	-11,241645	-0.093391	
14	133.54A5	-0.00022B	-0.00016P	-0.000797	-1.107829	-0.249040	-0.096249	OF
15	157,9688	0.000933	0.000688	0.00321B	=1+141309	=0.256564	-4.499157	GIN
16	184,4241	a.uaa933	Ø,000688	0,003218	-1,141300	-0,256564	=4,099157	OR
17	212.9145	0.000933	0.000688	6.00321R	<b>*1.1413</b> 00	-0.256564	-0.099157	QU
18	243,4398	0.000933	и <b>₊</b> иои68 п	0.003218	=1,141360	-0,256564	-9,099157	ALI
19	263.5516	9.000933	и.инибяя	0.00321R	=1+141380	≈H+256564	-0.099157	TY
20	271,8189	0_000933	0.0006RA	0.003718	-1.141300	-9.256564	-0,099157	· · ·
21	280.2134	0.000933	0.000688	u.au3218	+1.141300	-0.256564	-0.099157	
22	288.7350	a.uaa933	a.000688	0.003218	-1.141300	-4,256564	+8,699157	
23	297.3839	0.000933	a.000698	0.003218	-1.141300	-1.256564	-0.499157	

Table 2-32a. Pressure coefficient data for	flat ended plug down 1.375 D configuration, $R = 7.1$ .
SCUARE FND PLUG 7=15=76 P = 7.10 PLUG DEPTH =1.375 JET FLOW HAIF = 4.195 CHM ( 147.80 CFM ) JET FFFECTIVE VELOCITY = 141.6 M/S ( 464.5 E/S )	FFFFCTIVE JET DIAMETER = $0.99$ CENTERBODY DIAMETER = $0.75$ ERFE STREAM VELOCITY = $19.9$ M/S ( $65.4$ E/S ) JET EFFECTIVE THENST = $11.510$ N ( $2.5875$ LH )

					101	-DIMENSI	04711210	PRESSUR	ES						
PORT	P	10	29	30	45	60 60	E (DEGRE 75	(FS) 90	145	120	135	150	160	179	ក្រែច
1	P•1338	0.0931	+0.0532	=Ø.2867	-0.7360	-1.4870	-1,8770	-2.0395	=1.8356	=1.6139	<b>~</b> j.3434	-1.26Rø	=1.0597	-1-8198	-0-9616
2	0 <u>.</u> 0399	P.0000	-0,1035	<b>•0,2838</b>	-0,6532	-1.1498	-1,4617	-1,6523	-1.5341	-1.3301	-1.1336		-0 9882		-0.7084
3	=0.0384	-0.0488	-0.1404	-Ø:2793	+0.5823	-0.9281	-1.2341	-1.3567	•1.3227	-1.1469	-0.9503			-4 44.94	
. 4	-0,1094	-0,1192	-0.1788	-0.2690	-M. 4227	-0.6444	-0 8069	-0.9193	-0.9089	4V 7670	=/3 5971				
5	-8.1315	-0.1345	-0.1700	-0.2291	-0.3256	-0.5040	-4.6445	-0.6798	-4-6887		an A36n			-6,4301	-0.4049
6	-0.1345	-0.1360	-0.1640	-0.1936	-0_269g	-0 3828	-0 4971	-4 5370			-064300	-6.3424	-0.3680	-0.2926	-0.1133
7	-0.116R	-0.1271	-0.1478	-9-1714	•0-2379	-0.3074	-0 3946	-0.0120	-0.44+0			ей,2557	₩W <sub>2</sub> 2483	₩И <u>,2542</u>	=N,2586
8	-0.1064	-0.1192	-0.1360	-0.1360	-0 2425	-4 3575		-0.300		-1.9410	-4.277H	-0.2029	-0.1995	+0.2276	-4.2187
Ģ	-0.0990	-0.1108	-0 1197	-a 1197	-4 1750			-N+3h21	=11.03/24	-0.3311	≈0,2498	-0.1714	-0.1700	-0.2010	-0.1862
10	0.0000	0 0000	0 0000	- 0 0 0 0 0 0	-v. 113-	-0.2207	-0.2411	-0.3104	=0,3133	-0.2911	-P,2353	-0,1478	-0.1463	-0.1685	≠0 <sub>€</sub> 1526 ′
11	0 0000	0.0000	0,0000	N . NY NN	ที่คุณหมุ่	-0.1921	=0.249R	-0.2693	-0,2868 -0,2868	-0.2690	-0.1921	-6.1227	-4.1717	-0.1537	-1:1478
	N. 0000	N.0000	n	<b>0.0000</b>	а.алан	**# <b>.</b> 1626	-0.2217	-0.2365	-0.2483	-0.7335	-0.1685	-0.1040	-0.1020	≈0.133¢	-0+1478
17	и,инии	N. 6006	ดูดผลส	0 <mark>.</mark> 0000	0.0000	0,0000	-0,1833	-0.2099	-0,2143	-2.2173	-0.1507	-0,0°87	⊷И.@857	=0.11 <sup>8</sup> 2	+0,1330
13	0.0000	0.0000	a.aaan	9.9099	a.aaaa	0.0000	-0.164V	*0.1833	-0.1977	-0.1847	=0.1345	-8.0739	=#.@695	-0.0907	-M.1419
14	и <u>.</u> апии	e.0000	<b>a</b> ,aaaa	a.auae	៨ ៨០០៨	и ароя	<b>4</b> ,0000	-0.1493	-V,1626	-P.1596	-0.1241	-0,0576	-0,0517	-0,19112	+r.1241
15	A . AV AU	0.0000	9.9999	8.9099	<b>a.</b> aaaa	0.0000	а айлай	-0.1345	-0.144R	-0.1448	-a.1182	-0.0502	=0.0325	-0.8621	-0.1078
16	a.acaa	0.0400	a.aaca	a*0000	ଜ୍ମ ଜନ୍ମର	a <b>,</b> rkar	ด_เดอด	0.0000	a_4660	e,0000	a <b>.</b> 0000	8.0000	0,0000	и,исон	-0,1123
17	0.0000	0.0000	a <b>.</b> aaaa	a.0000	a <b>.</b> aaaa	0.0000	0.0000	a.anee	8.0000	0.0000	и.аваи	0.0000	H. 4060	0.0000	-0.1025
1 R	0.0000	9.0000	0.0000	a.aaac	ด ดดตด	0.0000	0.0000	0.0000	a.0000	0.0000	a	6.0000	9.0000	0.0000	-4.1476
19	A.4444	а "аааи	a <b>.</b> aaya	a.6666	a.anan	а,есие	A	a,0000	<i>и</i> ,	V.0000	0.0000	0.0000	9 . AGPC	# POGP	-0 0902
20	a.aaaa	и. випа	a.aaaa	0.0000	a.aaaa	и.ания	a.uaru	4.0000	0.0000	e	0.0000	0.0000	И. ишев	A PAAP	-0.075A
21	<b>а.</b> аада	8,0000	a .aaaa	0.0000	0.0000	<i>a</i> .a.aa	a.aaaa	0.0000	a.aeoe	e.000c	<i>и.иси</i> о	U 1000	6 4646	0 6300	
22	0.0000	a.uaaa	0.0000	Ø.0800	a.aaaa	0.0000	и инен	0.0000	a.uuau	0.0000	0.0300		0 4045		
23	а анаа	a.0000	a <b>.</b> aaaa	a.aaaa	a_0000	0.0000	0,0000	0.0000	0.0000	P 0000	(1. (3(5)))	0 000EP	* • ØUVD	N+0000	-11.01Ha2
					-	-				· · · · · · · · ·	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	N . N N	M . KUK ()	v	<b>≈</b> 0_0695

Table 2-32b.	Lift los	ss and	pitching	moment	data	for	flat	ended	plug	down	1.375	D	configuration,	R :	= 7	.1
												n				

FORT	NON-DIMENSIONAL Affa	N →M	н 1,8-рт	MZTD	N State	LB.	LIT
1	1.6694	A.aacraa	0.000649	0.003036	-0.219673	-0.049382	-0.019085
2	2,5597	0_00129A	0.000957	0.004478	-0.316805	-0.071218	-0.027524
3	4,7219	0.002189	0.001614	0,007551	#0.516908	-0,116201	-0.044989
4	6.9191	0.003334	0.002459	0.011504	-0.782997	-0.176018	-0.068027
5	14,2611	0.004502	0,003321	1,015535	-1.043584	-0.234620	-0.094676
6	20.7477	0.005585	0.044119	0.019771	-1.296596	-0.291475	-0.112644
7	28,3791	0.006700	N. NN4942	0.023119	-1.544309	-0.347161	+0.134171
A	37,1551	0.007986	0,005891	0.027557	-1.785012	-0.401271	-0.155083
9	47 .0758	0,009394	0.006929	0.032416	-2,023295	-0.454837	-0.175786
10	58.1413	0.014239	0.010502	0.049133	-2.212137	-(1.497288	-0.192192
.11	68,2369	0.018537	0,013673	0.063964	-2.36294R	-0.531191	-0.205295
12	86.9434	0.027556	0.070325	N.095086	-2.572254	-0.578243	-0.273480
13	111.1632	0,039697	0.0292Ru	Ø.1369RØ	-2,929254	-0,636016	-0.245808
14	133.5485	0.951243	4.037797	0.176823	-2.996723	=N.673663	-0.26035P
15	157,9688	0.062894	0,046391	0.217024	-3,156639	-0,709613	oØ,274252
16	184.4241	Ø.06444R	0.047537	4.2223RB	-3.166955	-0.711729	-0.275070
17	212,9145	0,066061	Ø. 048727	Ø.227954	-3,175128	-0,713769	-0.275858
19	243.4398	0.067940	0.050113	0.234437	-3.184992	=n.715986	-0.276715
19	263,5516	0.069107	0.050974	0,238465	-3,190737	-0.717278	-0,277214
2.6	271.8189	ر069515	0.051274	0.239871	-3.192711	-0.717722	-0.277386
21	280.2134	а, аб9935	0.051584	0,241321	=3,194716	-0.718172	-0.277560
22	288.7350	0.070419	0.051941	0.242990	-3.196991	-0.718584	-4.277757
23	297.3839	0,070830	0.052244	0.244408	=3,198895	•0,719112	-0,277923

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	Table	2-33a.	Pressure coefficient data for flat	ended plug down 1.375 D configuration, $R = 4.74$ .
P = JET JET	4.74 FLOW I FFFEC	RAJE = TIVE VEL	РЪНС РИСС № 13-75 РЪНС DEPTH ±1.375 1.185 СММ ( 147.80 СЕМ ) ЭСІТУ = 141.6 М/S ( 464.5 F/S )	FFFECTIVE JET DIAMETER = $0.99$ CENTERBODY DIAMETER = $0.15$ FPFE STHEAM VELOCITY = 29.9 M/S ( 98.0 E/S ) JET EFFECTIVE THEUST =11.510 P (2.5875 LH )

					NON	+DIMENST	ONALIZED	PRESSUR	FS						
POPT	Ņ	10	20	30	45	64 7061	75 CDEGRE	8.5) 90	105	120	135	150	160	170	1.80
1	0.2633	Ø.23A3	0.1047	-0.1073	-0.5529	-1.2756	-2.0081	-2.5617	-2.5630	-2.7721	-1.7660	-1.7021	=1.571R	-1.5066	-1.4493
2	0.1910	4.1652	0,0685	-0.0936	ua 4463	-0,9641	-1,4895	-1,9535	-2,0574	-1.8107	-1,4869	-1,3750	-1,3/132	-1,2275	-1.2374
3	e.1316	0.1139	0.03AB	-0.0731	-4.3725	-0.7470	-1.1716	-1.5106	=1+6823	-1.5112	*1+2591	-1+1295	-1.0623	-1.6353	-1-0248
4	0.0533	0.0401	0 <b>.</b> 0000	-0,0724	-Ø,2337	-0.4410	-0,6911	=0.8965	-1.0241	-0.9787	=()_R()//4	-0.6770	-4.6872		-0.6924
5	0.0230	8.0244	Ø.Ø9999	-0.0559	-0.1696	-0.2916	-0.4786	-0.5904	-4.7449	-0.5990	-a.5707	-0.4746	-0.4950	-4.5671	-U.5358
6	0.0184	0.0211	<b>0</b> _0000	-0.0395	-0,1711	-0.2086	-0,3357	-0,4344	-9.5675	-0.5075	=0,4239	-0.3377	-0.3719	-0.4911	-0.4667
7	0.0178	0.0204	0.0000	-0.0263	-0.0869	=4.15Ra	-Ø.2521	-9.3212	-0.3916	-8.3923	=0.3291	-0.244B	-0.2699	=11,4(187	-0.3910
R	0,0178	0,0171	0,0000	-0.0197	-0.065R	-0,1152	-0,1902	-0.2488	•0,304 <u>1</u>	-0.3067	-0.2613	-0.1830	-0,2073	-1.3219	-0.3337
. 9	0.0191	0.0178	a .aaaa	-0.0159	-0.0474	-0,0908	-0.1321	-0.2047	-0.2416	-0,2481	-0.2218	-0.144R	-0.1514	=0.2745	-0.3080
10	и <b>.</b> ииаи	a.uaau	9.9999	a.auau	a.aaaa	-0.0717	-0.1165	-0.1626	-0.2007	=e.1994	+0.1863	-1.1099	-4,1185	-0.2389	-1.2764
11	0.0000	0.0000	<b>a</b> .aaaa	0.0000	<b>а.</b> аааа	-0,0533	-0,0935	-0,1330	-0,1593	-0.1619	-0.1468	-0.0R62	-0,0895	=n_2093	-0,2317
12	4.9999	0.0000	0.0000	Ø.9090	a.anan	a	-0.0810	*0.1066	-0.1231	-0.1270	-0.1158	-0.065B	-3.9612	-0.1665	-0.2159
13	a <b>.</b> aaaa	0.0000	0.0000	0.0000	a <b>.</b> aaaa	a_eeaa	-0.0619	-0.0823	-0,6974	- <u>P</u> .1#33	-0.0954	-0,4507	-0.0448	-0,1349	-0,2086
14	0.0000	0.0000	a.aaya	0.0000	a.aaaa	a.ucaa	a.0000	-0.0645	-0.0740	-0.0823	-0.0724	-0.0428	-0.0270	-0.1007	-0.1463
15	a .adaa	a°aaaa	a <b>.</b> aaaa	0.0000	a aaaa	и, рале	0.0000	-0.0527	-0,0625	-0.0678	+a,0625	-0,0309	-0.0250	-0.0902	-0.1685
16	и.ааан	A • 4046	A.4444	9.0000	0.0000	0.0000	и, вира	0.0000	0.0000	a.uaaa	и.паиа	F.4484	0.00K0	R. 600P	-11.1507
17	0.0000	a .aaaa	a.auaa	A.4444	0.0000	и <b>,</b> анил	a	0.0000	a <b>.</b> uane	e	a	0.0000	0,0000	a . nont	-1.1507
18	a <b>.</b> aaaa	0.0000	9.0000	0.0000	a.aaaa	a_acaa	a.uuau	0.0000	9.0000	0.0000	a.0000	0.0000	e.000a	<b>0.</b> 0000	-1.1409
19	a.aaaa	ର କର୍ଯ୍ୟ ବ	A.4944	0 . ØØØØ	a.auna	a.e.au	a <b>.</b> 0000	a.aaaa	a.0000	e	а, ниар	8.0000	a gave	а.сане	-0.1264
20	9.0000	и.на <i>р</i> а	a.aaaa	<b>0.00</b> 00	a <b>.</b> aaaa	0.0000	0.000u	0.000P	0.0000	a.uuua	а.ааса	6.0000	9.0000	0.0000	-0.1185
21	0.0000	0.0000	a <b>.</b> aaaa	a <b>.</b> 0006	a .0000	0,0000	<b>а.</b> иааи	a.0000	0,0000	0.0000	a.0000	0.0000	0.0000	0.0000	
22	0.0000	0.0000	H.0000	0.0000	ด.ดิติสิต	H. 0800	0.0000	a.ueea	а <b>.</b> иеие	6.0006	0.0000	0.0000	N. NOUR	a	-0.1165
23	a.aaaa	A. 6000	0.0000	a_aaso	n.anaa	0.0000	a <b>,</b> 8888	a <b>.</b> aaua	а, прис	e	(),0000	0.0000	0,0000	<b>0.0</b> 404	-0,1257

	NON-DIMENSIONAL		M	MZTD		L	h/i	0011.1
POPT	APFA	N =M	1/8+84		N	LH		
i	1.6694	4.03617	0.002668	N.0124H2	-0.595996	-0,13398и	-0.051781	
2	2.5597	a.a05494	0_004053	0.018959	-0.850083	-0,191099	-0.073856	
3	4.7219	M.009833	0.0.17251	0.033930	-1.353081	+0,304173	-0.117557	
4	8,9191	0.017191	0.012680	u_059321	-1,966141	•0.441989	-0.170820	
5	14,2611	P. 425957	0.019146	И,089569	-2,514774	=0,565321	-0.218486	
6	26.7477	N.035990	0.026546	6.124189	-3.009850	-0,676614	-0.261498	
7	28,3791	1,147829	0.034688	M.162280	-3,455508	-0.776816	-0,300224	
R	37.1551	0.058662	0.043269	0.202422	-3.853014	•H.866158	-0.334753	
9	47.0758	1.071183	1.0525114	H.245626	-4.216561	-0.947883	-0.366338	
10	58,1413	0.984751	062513	0.292447	-4,539617	-1.020506	-0.394406	
11	68.2369	1.195945	0.070769	4.331072	-4,777247	-1.473925	-0.415051	
12	86.0434	Ø.114460	0.084426	N. 394962	-5,095654	=1,145503	-0.442715	
13	111.1432	0.138545	0.102191	0.478070	-5,458587	=1.227090	-0.474247	
14	133,5485	0.157923	0.116484	0,544937	-5,690004	-1.278113	-0,494352	
15	157.9688	M.177749	0.131108	W.613348	=5.902546	-1-326892	-0.512818	
16	184,4241	182433	0.134562	6,629514	-5,930917	•1,33327Ø	-0,515283	
17	212,9145	0.187865	0,138569	0,648254	=5,961471	-1,340139	-0,517938	
18	243,4398	0.193692	0.142Ab7	0.668361	-5.992063	=1.347016	-0.520596	
19	263,5516	197194	4,145150	0.686445	-6,009298	-1,350890	-0.522093	
24	271.8189	N-198637	0.146511	0.685468	=6.016267	-1.352457	-0.522698	
21	280.2134	4.200065	u_147568	0.690353	+6 .02310B	-1,353995	-0.523293	
22	288.7350	4.201568	0.148676	N.695538	-6.030171	<b>n1</b> ,355583	-4.523906	
23	297, 3839	4.243238	Ø.149911H	0.701301	=6.037907	-1,357322	-0,524579	

Table 2-33b. Lift loss and pitching moment data for flat ended plug down 1.375  $U_{\perp}$  configuration, R = 4.74.

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Table 2-34a.	Pressure coefficient data fo	r flat ended plug down 1.375 D configuration. $R = 2.37$
SQUARE END P R = 2,37 Jet flow rate = 4,185 Jet fffective velocity	LUG 7-15-76 PLUG DEPTH =1,375 CMM ( 147,80 CFM ) = 141,6 M/S ( 464,5 F/S )	The stress velocity $=$ 59.8 M/5 (196.1 F/S) Jet effective thrust $=$ 11.510 N (2.575 LH )

HON-DIMENSION	ALIZED	PRESSURES
ANGLE	CDEGREF	SI

POH	T	61	1 12	20	30	45	60	75	90	105	120	135	150	160	170	180
	1.	0.3611	£.3526	0.3018	0.2109	0.0043	-1.3399	-0,816p	-1.3885	+1+9323	-2.1162	-1.6706	-1.3285	-1.0739	-0.9539	-0.9110
	2	0.3202	4.3090	0,2763	0.2073	0.0482	-0,2827	-0.5129	-4.9279	=1,3333	•1.4991	~1,3412	-1.0752	-0,8671	-0.7672	-0,7233
	3	U.2822	И.2744	0.2428	4.1940	0.0672	-4.1067	-4.3145	-11.6151	-0.9215	-1.1646	=1+1249	-0,9746	-0.8147	-0.6759	-11+6483
	4	0.21124	0.1973	0.1908	0.1522	0.0807	-0_0117	-0,1343	-4.2622	-0,4126	-8.5711	-0,7116	-0,7392	-0,6626	-0.5448	-0.50.92
10 L	5	1.1542	0.1507	0.1409	0.1211	0.0759	0.4123	-0.0674	-0.1455	-0.2472	-0.3657	-0.5061	-9.5740	-0,4977	-0.4320	-0.3978
	6	11,1236	P. 1165	0,1138	0.0970	0,0648	0_0207	-0,0362	-0.0950	-0,1698	-8,2582	-0,3630	-0,4193	-0,3759	-0.3085	-8,2982
	7	4.1039	0.0970	0.0896	0.0776	N. 11536	0.0202	-0.0187	-0.0664	-0.1276	-6.1912	-0.2661	-0.3033	-0.2728	-0.2173	-0.2152
	8	0.0H22	0.0822	1. 1745	0.0659	0.0462	0,0191	-0.0113	-0.0534	-0.0978	-2,1476	-0.1984	-0,2144	-0,1920	-0,1517	-0,1519
	9	1. 1695	0.0664	0.0626	0.0541	0.0406	0.0179	-0.0371	-0.0408	-0.0779	-0.1151	-0.1527	-1660	-0.1473	-0,1034	-0.1080
1	6	<b>0.0000</b>	e.0000	и адали	0.0000	<b>ด</b> . เหตุลูล	0.8164	-0,0033	-0.0316	-0,1623	-0.0937	-0.1174	-8,1244	-0.1060	-0.0750	-0.0774
1	1	H. HHHH	а <b>.</b> анаа	и.ириа	0.0000	и.илии	0.0161	0.0000	-0.0247	-0.4518	-0.0756	-0.0965	-0.0991	-0.0850	-0.0564	-0.0562
1	2	<b>ហ</b> ុពពព័រ	0.0000	ត <b>្</b> ពទួតព	0.0000	0.0000	0 <b>.</b> 9400	0.0000	-0.0199	-0,0391	-0.0582	-0.0745	-0.0710	-0.0607	-0,0350	-0,0463
1	3	0.0000	<b>N. NOOO</b>	ហ • លលល់ស	0.0000	0.0000	0.0000	0.0000	-0.0145	-0.0319	-8.0472	-0.0554	-0.0542	-0.0444	-0.0225	-0.0283
1	4	0.0000	6,0000	ด ถอลด	0.0000	៧ ៧០៨០	A 89900	ດູ ທິ່ງ ທີ່	-0.0130	-0,0271	-0.0383	-0.0447	-0.0436	-0.0344	-0.0148	-0.0189
1	5	0.0000	и.нинн	0.0003	N • NGHH	<b>и.</b> онио	0.0000	0.0000	-0.0094	-0.0209	-8.0324	-0+0380	-0.0347	-0.0263	-8.0089-	-0-0133
10	6	0.0000	0.0446	и, анал	ดุเหตุลเล	់ខ <sub>្</sub> ពេកគេ	ø <b>_</b> 08888	0.0000	0.0000	0.0008	0.0000	0.0900	0.0000	0.0048	8.8088	-0.0087
1	7	0.0000	<b>0.0000</b>	а., нови	0.0000	0.0000	0. 1000	៧	0.0000	0.0440	0.0000	ัดะยางห	. 0.0000	0.0050	8.0000	-11-11154
11	9	0.00000	0.0000	0.0000	0.0000	0.0000	0.000M	ø_øថពថ	0.0300	0.0000	6.0000	0.0000	0.0000	6.0060	0.0000	-0.0043
19	) :	0,0000	<b>6.0000</b>	и. чони	0.0000	0.0000	0.2000	и, анен	0.0200	0.0000	6.0000	0.0000	6.0060	0.0000	0.0000	-0.0028
-28	A.	ម,ពេលព	<b>ค.</b> ออลค	<b>ด</b>	0.0000	9.0000	0.0000	ย. แหะย	0.0000	0.0009	6.0000	0.0000	<b>ต</b> •ดหธุด	0.0000	0.0000	-0.0046
21	<b>I</b>	и.аири	и.виив	0.0000	0.0000	ថ, សិចមថ	ถ. ผสุดด	и	n.novo	0.0000	6.0060	0.0000	6.0409	A.000N	0.0000	-0.0436
22	2	0,6466	0.0000	0.01100	<b>0.000</b>	a.0900	0.0300	ย. และเก	0.0000	0.0000	<b>K</b> .0000	0.0004	8.0368	0,0000	0.0000	-0.6836
23	)	и. анни	и. чири	0.4466	A.0000	n.0000	0.0000	и,виев	0.0000	ท.ยหยุด	0.0000	4.0000	0.0000	0.0000	0.0000	N- NNKM

Table 2-34b. Lift loss and pitching moment data for flat ended plug down 1.375 D configuration, R = 2.37.

PORT	NON-DIMENSIONAL Area	N <b>→</b> M	M LA⇒FT	MUTD	14	Li J.N	L/T
5	1.6694	0,015218	011225	0.052511	-1,476769	-0.33(978	-0,178383
2	2,5597	0.022870	Ø.016869	Ø.079915	-2.037814	-0.458101	-0.177047
3	4.7219	0.041232	0.030413	A.142278	-3,073139	-0.690842	-0.256997
4	8,9191	0,076115	0,056143	W. 262646	-4.210994	-0.946631	-0,365855
5	14.2611	0.118623	0.087496	0.409326	-5.1814R0	-1.164797	-0,450171
6	20.7477	0.165301	0,121926	0.570393	-5,993205	-1,347277	-0,520695
7	28.3791	0.213444	0.157437	W.736520	-6.659644	-1.497088	-0.578596
8	37,1551	0.261182	Ø.19264A	0.901244	+7,196327	-1,617734	-0,675723
9	47.075R	0.308531	0.227573	1.064631	-7+639125	-1.717275	-0.663694
10	58,1413	0,341815	0.252122	1.1794B0	-8,151326	-1.832418	=0.708194
11	68.2369	0.368701	0.271954	1 + 272256	-8,520958	+1,915511	-0.74030B
12	86.0434	0.106367	0,299736	1.402228	-9.020791	-2,027874	-0.783734
13	111.1632	0.450346	0.332175	1.553981	=9,553849	-2.147705	-0.830047
14	133,5485	Ø.484041	0.357029	1.670252	<b>#99</b> 33847	-2,233129	-0,863061
15	157,968R	0.515803	N. 340456	1.779851	-10.263114	=2.34714R	-0.891668
15	184,4241	0.516887	Ø.381256	1.783592	-10,269681	-2,308624	-0.892239
17	212.9145	0.517670	0.381833	1.786293	-10.274084	=2.349614	-0.892621
1 R	243,4398	0.51R37R	Ø.382355	1,788736	-10,277801	-2.310449	-0.892944
19	263.5516	0.5187a3	0.382595	1.789858	-10.279402	-2.310P09	-0.893083
20	271,8189	0.518927	0.3P2760	1.790630	-10,280486	-2,311053	-0.893177
21	280.2134	4.51910A	0.392894	1.791256	-10.281351	-2.31124R	=0,893253
27	289,7350	0,519261	0.383007	1.791783	-10,282869	-2,311449	-0,893315
23	297.3R39	0.519261	0.383007	1.791783	-10.282069	-2,311409	-0.893315

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## SECTION 3: JET CENTERLINE TRAJECTORY DATA AND RESULTANT POWER LAW CURVE FIT EQUATIONS

Data for each nozzle configuration are presented for the location of the jet centerline at values of R equal to 8, 6, 4 and 2.5. These data were taken using a Kiel total pressure probe. Also listed for each configuration are predicted nondimensional z coordinates calculated using a least squares curve fit power law equation, and a local slope of the curve, in degrees. These slopes were then used to orient a pitot-static probe to obtain the dynamic pressure data presented in Section 4. The power law equation was of the form

$$z/D_{eff} = K(x/D_{eff})^n$$

3-1

The trajectory data may be found in the following tables (also listed below are the appropriate values of K and n):

Configuration	R	Table	K	n
No Plug	8	3-1	7.0	0.325
	6	3-2	5.37	0.333
	4	3-3	3.66	0.324
	2.5	3-4	2.55	0.328
Round Plug Flush	8	3-5	6.04	0.337
	6	3-6	4.73	0.345
	4	3-7	3.15	0.370
	2.5	3-8	2.07	0.398
Round Plug Down 0.5 D n	8	3-9	6.14	0.334
	6	3-10	4.73	0.350
	4	3-11	3.33	0.353
	2.5	3-12	2.35	0.343
Round Plug Down 1.0 D n	8	3-13	6.64	0.326
	6	3-14	5.02	0.335
	4	3-15	3.44	0.329
	2.5	3-16	2.41	0.330
Flat Plug Flush	8	3-17	6.13	0.320
	6	3-18	4.85	0.322
	4	3-19	2.97	0.373
	2.5	3-20	2.23	0.377

Configuration	R	Table	К	n
Flat Plug Down 0.375 D n	8 6 4 2.5	3-21 3-22 3-23 3-24	6.01 4.59 2.83 2.15	0.319 0.332 0.396 0.384
Flat Plug Down 0.875 D n	8 6 4 2.5	3-25 3-26 3-27 3-28	6.36 4.79 3.38 2.41	0.330 0.349 0.348 0.342
Flat Plug Down 1.375 D n	8 6 4 2.5	3-29 3-30 3-31 3-32	6.45 4.78 3.43 2.42	0.332 0.348 0.312 0.318

Table 3-1. Jet centerline trajectory data for no plug configuration, R = b.

x/D <sub>eff</sub>	z/D <sub>eff</sub>	PREDICTED z/D eff	SLOPE (DEGREES)
0.955826E+00	0.698789E+01	0.689708F+01	Ø.668780E+02
0.287714E+01	4.969885F+01	U.996266F+01	0.480502E+02
0.473901F.+01	0.115550E+02	n.116447E+07	H.3A22A5F+H2
0.672117E+01	0.129713E+02	0.179P94E+02	0.326979E+02
a. 864357E+01	0.140095F+02	0.14094&E+02	0.278893E+02
0.105659E+02	0.151696F+02	0.1504365+02	0.248019E+02
0.124884E+02	a.1604898+02	N. 158824E+07	Ø.274292F+07

Table 3-2. Jet centerline trajectory data for no plug configuration, R = 6.

x/D <sub>eff</sub>	z/D eff	PREDICTED z/D eff	SLOPE (DEGREES)
0,952518F+60	a.527691F+01	0.528013E+01	0.615825E+02
Ø.287261E+01	4.762143F+01	a.762911E+81	0.415226F+02
Ø.479394E+01	Ø.898912E+01	a.904957F+01	0.321841E+02
0.671540E+01	0.147591E+02	0.101258E+02	0.266888F+02
0.863745E+01	u.110651E+02	9.110121E+02	0.2302P0F+02
0.105597E+02	9.1174R9E+02	Ø.117751E+02	0.203935F+02
0.124820F+02	0.1235955+02	0.124503E+02	0.183944F+02

ORIGINAL PAGE IS OF POOR QUALITY Table 3-3. Jet centerline trajectory data for no plug configuration, R = 4.

×/D eff	z/D eff	PREDICTED z/D eff	SLOPE (DEGREES)
0.943921E+00	0.356256E+01	u. 359642F+01	0.509914E+82
W.286171E+01	0.517447F+01	u.515161E+01	7.302544E+02
0.478142E+01	0.6711024F+01	0.60P3R1F+01	H•224049E+H2
0.678249F.+41	0.6R1081E+01	0.67873RE+01	Ø.181655E+02
0.862380E+01	1.734R12F+11	u.736494F+01	Ø.154676F+02
N.105454F+02	0.778773E+01	a.786098E+01	0.135787F+02
0.124670E+02	0.925176F+01	a. #79911E+01	Ø+121717E+02

Table 3-4. Jet centerline trajectory data for no plug configuration, R = 2.5.

x/D eff	z/D eff	PREDICTED z/D eff	SLOPE (DEGREES)
0.919157E+00	0.249795E+01	¢.247767E+01	0.414518F+02
Ø.283165F+01	Ø.357251E+Ø1	0=358222E+01	Ø.275143E+02
0.474848E+01	0.47478E+01	0.424342E+01	A•163283F+82
и.666675E+01	a.469592F+01	a • 474241E+#1	a . 1 31 202E+02
0.858622t+01	0.506225F+01	Ø#515234E+01	0+111234E+02
0.105038E+02	0.562395E+01	0.5504136+01	0.974749\$ #01
0.124214E+02	0.586817E+01	0.581547E+01	0.871923E+01

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Table 3-5. Jet centerline trajectory data for round plug flush configuration, R = 8.

x/D <sub>eff</sub>	z/D <sub>eff</sub>	PREDICTED z/D eff	SLOPE (DEGREES)
0.136762E+11	0.666814F+01	0.679725E+01	0.588423E+02
0.411283E+01	(1.984825F+(1)	0.972312E+01	0.3856458402
0.6838911+01	0.116725E+02	0.115535E+02	0.295996F+02
A.964532E+01	0.129135E+02	0.129430E+02	Ø.244385E+#2
P.123519E+02	0.119951F+02	0.140887E+02	ؕ210399E+02
0.150984E+02	W.151115F+02	@.150757E+02	0.186103F+02
0.178451E+#2	0.159140F+02	u.159499F+02	Ø.167742E+47

Table 3-6. Jet centerline trajectory data for round plug flush configuration, R = 6.

x/D <sub>eff</sub>	z/D eff	PREDICTED z/D eff	SLOPE (DEGREES)
0.136363E+01	0.527045E+01	0.526605F+01	0.531303F+02
414777E+01	0.771275E+01	0.770611E+01	0.329316E+02
0.6853248+01	0.910836E+01	0.919569E+01	0.248572E+92
Ø.959872E+01	0.185040F+07	0.103300E+02	0.203836E+02
Ø • 123451E+02	0.112018F+02	0.132676E+02	0.174913E+02
0.1509141+02	0.118996E+02	4.17076RE+42	0.154453E+02
Ø.178374E+02	129463F+92	(1.127944E+02	0.139095E+02

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95

Table 3-7. Jet centerline trajectory data for round plug flush configuration, R = 4.

×/D <sub>eff</sub>	z/D eff	PREDICTED z/D eff	SLOPE (DEGREES)
0.135373E+01	a,348443E+01	60。352026氯+01	0.43A873E+H2
a.449479E+41	0.536849E+01	0.530133E+01	Ø.255893E+02
Ø.683838E+Ø\$	u.648497E+01	0.640889E+01	Ø.191192E+02
0.9583066+01	и.726999E+И1	a.726474E+a1	0.156559E+02
0.123283E+02	a .788056E+01	0.796976E+01	0 <b>.</b> 1344A3E+02
0.150733E+02	и <b>.</b> 857936E+01	0.858497E+01	0.1189698+02
Ø.1791882+02	0.910171E+01	P.913313E+01	4.107355F+02

Table 3-8. Jet centerline trajectory data for round plug flush configuration, R = 2.5.

x/D <sub>eff</sub>	z/D <sub>eff</sub>	PREDICTED z/D eff	SLOPE (DEGREES)
Ø.132648E+#1	0.220785E+01	4.231990E+H1	Ø.3488995+02
0.405862E+U1	0.374294F+01	0.362346E+01	0.195947E+02
0.679625E+41	0.4719R2F+01	a.445037E+01	Ø.146332E+02
0.953664E+01	0.54175RF+01	0.509401 E+01	0.170234E+02
#=172939E+02	0.541758E+01	0.563503F+01	4.103655F+02
Ø.150743E+62	0.611535F+01	Ø.610617E+01	Ø.920491E+01
Ø.177715E+02	4.611535F+01	Ø.652903F+01	0.833392F+01

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Table 3-9. Jet centerline trajectory data for round plug down 0.5 D configuration, R = 8.

×/D eff	z/D <sub>eff</sub>	PREDICTED z/D eff	SLOPE (DEGREES)
0,110691F+01	u.639540E+01	P.635313E+01	0.674844E+42
A.333197E+A1	U . 908248F +U1	0.918463E+01	Ø.426753E+02
0.555781E+01	N.117796E+02	0.108989E+02	0.332609F+02
Ø.778375E+01	0.123353F+02	a.171986F+07	Ø.276626F+02
9.188191E+02	a.133252E+A2	Ø.132694E+02	0.239113E+02
0.122365E+42	0.143157E+02	0.141914E+07	0.212015E+02
A.144633E+02	a.148809E+02	0.150075F+02	Ø.191397F+02

Table 3-10. Jet centerline trajectory data for round plug down 0.5 D configuration, R = 6.

x/D <sub>eff</sub>	z/D eff	PREDICTED z/D eff	SLOPE (DEGREES)
0.110270E+01	Ø.497911E+Ø1	U.488947E+01	0.571709E+02
Ø.332664F+01	(1.707220F+01	Ø.71926AE+Ø1	0.370A15E+02
0.555172E+01	N. R42988E+01	0.R60279E+01	8.284426E+02
¢.777702F+01	N.964614E+01	0.967R52E+01	0.235101F+02
0.100029E+02	0.104947E+47	4.1056R6E+07	ؕ202745F+02
0.172285E+02	0.114847F+47	0.113375E+02	Ø.179567E+02
0.144546E+02	0.122201E+02	a.179240E+02	0.1620R1E+02

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Table 3-11. Jet centerline trajectory data for round plug down 0.5 D configuration, R = 4.

×/D <sub>eff</sub>	z/D eff	PREDICTED z/D eff	SLOPE (DEGREES)
0.10914RE+01	0.347353E+01	0.343521E+01	0.480215E+02
W.331247E+01	4.502920E+01	0.50A413E+01	0=284587E+02
0.553559F+01	4.64745F+01	a.60949RE+U1	0.212476E+02
0.775973E+01	0.681114E+01	0.686708E+01	0.173551E+02
0.99R4U9E+01	0.751R26F+01	0.750634E+01	#+148692F+P2
Ø.122092E+02	4.R#2739E+#1	0.845909E+01	Ø.131215E+02
0.144337E+02	0.R70623E+01	0.854979E+01	Ø.118150E+02

Table 3-12. Jet centerline trajectory data for round plug down 0.5 D configuration, R = 2.5.

×/D <sub>eff</sub>	z/D <sub>eff</sub>	PREDICTED z/D eff	SLOPE (DEGREES)
Ø.145937E+41	0.246377F+01	W.239597E+01	Ø.378189E+02
Ø.327504E+01	0.342534E+01	0.352939F+01	0.202966E+02
0.549413E+M1	0.410413E+01	u.421510E+01	Ø.147589F+02
Ø.7713B9E+01	9.472636E+01	0.473571E+01	A.118977E+02
A.993601F+01	0.515051E+01	u.516554F+41	Ø.101161F+02
Ø.121588E+42	0.551R29E+01	a.553612E+01	0.888125E+01
0.143792E+02	0.608395E+01	0.586416E+01	P. 796737E+Ø1

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Table 3-13. Jet centerline trajectory data for round plug down 1.0 D configuration, R = 8.

x/D <sub>eff</sub>	z/D <sub>eff</sub>	PREDICTED z/D eff	SLOPE (DEGREES)
		N-6577925401	0.6559985+02
0.292447E+01	a.971428F+01	0.941692E+01	9.463467E+02
0,497919E+01	a.114020F.+02	9.111235E+02	Ø.365842E+02
0.6A3221E+01	a.173924E+02	4.124126E+02	0+30599PE+02
Ø. 878639E+01	0.135593E+42	9.134718E+02	Ø.265231E+02
Ø.107408E+02	0.1445328+02	4.143R19E+02	Ø.235592E+02
a,126952E+02	a.152974E+02	4.151862E+02	4+212749E+02

Table 3-14. Jet centerline trajectory for round plug down 1.0 D configuration, R = 6.

SLOPE PREDICTED z/D eff z/D<sub>eff</sub> (DEGREES)

x/D<sub>eff</sub>

0.967725E+00	0,499169E+01		4.496674E+01	0.598073E+02
0.291973E+01	a.710214E+01		0.718904E+01	A.395863E+02
Ø.487263E+Ø1	0.85918AE+01		0.853399E+01	4.303913F+02
Ø.682631F+#1	4.953538E+01	in an ann an Airtean An Airtean Airtean Airtean Airtean	4.955398E+01	0.251113E+02
K.878010F+01	(1.104014F+07		0.103942E+02	Ø.216247E+92
«.107342E+02	0.110748F+02		4.111177E+02	0.1912R1E+02
A.126881E+02	0.118196E+02		P.1175R0E+02	N. 172402E+02

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Table 3-15. Jet centerline trajectory for round plug down 1.0 D configuration, R = 4.

x/D <sub>eff</sub>	z/D <sub>eff</sub>	PREDICTED z/D eff	SLOPE (DEGREES)
0.958267E+40	0.337251F+01	0.339333E+01	0.493211F+02
0.294752E+01	a.493672F+01	0.4PR658E+01	0.289077E+02
0.485952E+01	4.575607E+01	a.578492E+01	0.213619E+02
0.681198E+01	a.647611E+01	0.6463A2E+01	a.173161E+02
Ø.876454E+Ø1	0.712166E+U1	a.7u2189E+a1	0.147476E+02
0.107183E+02	u.746926F+01	0.7501R6E+01	0.129508E+02
e . 126720t +02	0.7P4169E+R1	0.792613E+01	Ø.116132E+Ø2

Table 3-16. Jet centerline trajectory data for round plug down 1.0 D configuration, R = 2.5.

×/D <sub>eff</sub>	z/D <sub>eff</sub>	PREDICTED z/D eff	SLOPE (DEGREES)
0.936945E+110	a.216302E+01	0.2354R6E+01	Ø.398876E+Ø2
Ø.287414E+#1	0.343060E+01	a.341771E+01	0.214507E+02
0.4A2312E+01	0.397680E+01	0.4/15529E+/1	Ø+155265F+92
6.5771822+41	Ø.454783F+01	0.453648E+01	Ø.124814F+02
0.872218E+01	0.496389E+01	W.493218E+W1	Ø.105835E+02
Ø.106739E+02	0.526782E+01	0.577258E+01	Ø.926993E+01
0.126254E+02	0.559058E+01	Ø.557329E+01	9.829872F+01

105

ORIGINAL PAGE IS OF POOR QUALITY Table 3-17. Jet centerline trajectory data for flat plug flush configuration, R = 8.

x/D <sub>eff</sub>	z/D eff	PREDICTED z/D eff	SLOPE (DEGREES)
Ø.156203E+01	0.701203F+01	4.707447E+01	a.554197e+92
Ø.469517E+01	0.1007755+02	4.100642E+02	9.344718E+02
Ø.782889E+01	0.174681E+02	0 • 1 1 8550F+02	A.258737E+02
0.109630F+02	P.133819E+02	9 • 1 32050E+02	0.210963E+02
0.140973E+02	4.1417825+02	4.143125E+02	Ø.180135E+02
0.172316E+02	0.151735E+02	0.1526318+02	Ø.158387E+82
a.243664E+47	0.159697E+07	0.161023E+02	0.142107E+02
Table 3-18. Jet centerline trajectory data for flat plug flush configuration, R = 6.

Ff PREDICTED z/D (DEGREES)

z/D eff

x/D<sub>eff</sub>

0.155840E+01	0.557683F+01	u.559429E+01	0.491772E+02
0.469463E+01	0.844535F+41	0.79810RE+01	u.287524E+02
0.782395F+01	4.939877F+01	0.941266F+01	4.212035E+02
a.149575E+02	0.105931E+02	4.104926E+02	4.171599E+02
0.140914E+02	N.114690E+02	4.113792E+02	Ø.145957E+02
0.172257E+02	9.118671E+02	4.171405E+02	4.178942E+92
0.203594E+02	0.179022F+02	0.12812RE+02	W.114717E+02

Table 3-19. Jet centerline trajectory data for flat plug flush configuration, R = 4.

x/D eff	z/D <sub>eff</sub>	PREDICTED z/D eff	SLOPE (DEGREES)
0.154984E+01	Ø.350031E+01	4.349R56F+01	0.400822E+02
0.467976E+01	0.5791R3F+01	Ø.528214E+01	Ø.228208E+42
0.781151E+01	0.644656E+01	0.639385E+01	0.169692E+42
0.149441E+07	0.720280F+01	0.725033F+01	0.138734E+02
Ø.140770E+02	0.791941E+01	0.796371E+01	0.119893E+02
Ø.172039E+02	Ø.859621E+01	Ø.858321E+01	0.1053278+02
0.203431E+02	Ø.919339E+01	a.913543E+01	0.950392E+01

Table 3-20. Jet centerline trajectory data for flat plug flush configuration, R = 2.5.

x/D <sub>eff</sub>	z/D <sub>eff</sub>	PREDICTED z/D eff	SLOPE (DEGREES)
e.152116E+#1	0.264419E+01	0.261165E+01	0.328954F+02
0.464575E+W1	a.347831E+01	0.397730E+01	Ø.178762F+02
G.777297E+01	0.479395E+01	0.4R2R37E+01	a.131714F+02
0.1090126+02	A.559016F+01	0.549452E+01	H.107326E+07
Ø.144320E+#2	A.606789F+01	0.60318aE+01	0.919883F+01
P.171639E+02	0.64261RE+01	0.654743E+01	0.812887E+01
0.20294NE+07	0.698353E+01	0.693136E+01	0,733218E+01

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60T

Table 3-21. Jet centerline trajectory data for flat plug down 0.375 D<sub>n</sub> configuration, R = 8.

×/D <sub>eff</sub>	z/D eff	PREDICTED z/D eff	SLOPE (DEGREES)
0.142738E+01	0.677311E+01	0.673584E+01	9.564190E+02
Ø.429118E+#1	0.95H233E+01	0.95712AE+01	9 <b>.</b> 354475E+02
0.715556E+01	4.112126F+87	0-11268AE+07	ؕ266849F+02
0.102201E+02	0.125955E+02	9.125465E+02	ؕ217842E+02
Ø.128849E+02	4.135057E+07	4.135950E+02	Ø.186118F+02
a.157497E+0?	145969E+02	g.144946E+02	4.163698E+02
8.186146F+02	Ø.153247E+02	0.152888E+42	Ø.146896E+02

Table 3-22. Jet centerline trajectory data for flat plug down 0.375 D configuration, R = 6.

x/D <sub>eff</sub>	z/D <sub>eff</sub>	PREDICTED z/D eff	SLOPE (DEGREES)
0,142413E+01	4.513371E+01	0.516570F+01	Ø.502942E+02
0.428687E+01	1.749904F+01	0.744769E+01	0.299760E+02
0.715869E+01	4.98H184F+01	4.842662E+01	0.272844E+02
0.190149F+47	0.9R6437E+01	a.9A7111E+01	0.191197E+02
Ø.128793F+02	Ø.107741E+02	0.107309E+02	0.1546248+02
0.157439E+02	0.113927F+02	0.114708E+02	0.1359APE+02
Ø.186085E+02	1.120941E+02	9.171254E+07	Ø.122068E+02

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Table 3-23, Jet centerline trajectory data for flat plug down 0.375  $D_n$  configuration, R = 4.



Table 3-24. Jet centerline trajectory data for flat plug down 0.375 D configuration, R = 2.5.

PREDICTED z/D eff  $z/D_{eff}$ (DEGREES) x/D<sub>eff</sub> 0.339R00E+02 0.243487E+01 A.138892E+01 0.248912F+01 0.187195E+02 0.374119E+01 0.474473E+01 0.361716F+01 0-138654E+02 0.456001E+01 0.710268E+01 0.449048E+01 0.113337E+02 0.519346E+01 0.518186F+01 0.996217E+01 0.973679F+01 0.572262F+01 0.178220E+02 0,583685E+01 Ø.861931E+01 0.618352E+01 0.673712E+01 0.156839E+02 0.778522E+01 0.659516E+01 0.185462E+02 H.660101E+01

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Table 3-25. Jet centerline trajectory data for flat plug down 0.876 D configuration, R = 8.

PREDICTED z/D eff

SLOPE (DEGREES)

z/D<sub>eff</sub>

0.111405E+01	a.660721F+01	a.658655E+01	0.6283468+02
Ø.335177E+01	0.950344E+01	0.946953F+01	Ø.429597F+02
a.559037E+01	0.11067RE+07	0.1120R7E+02	Ø.334587E+02
0.782901E+01	0.125753E+02	11.175246E+07	0.278024E+02
a.100680E+02	9.135424E+02	0.136472E+#2	9.249113F+92
0.123070E+02	0.145379E+02	0.1453R3E+02	Ø.212738E+02
0.145460E+02	1.154766E+02	0.153617E+02	A.191921E+82

114

x/D<sub>eff</sub>

Table 3-26. Jet centerline trajectory data for flat plug down 0.875 D configuration, R = 6.

SLOPE (DEGREES)

PREDICTED z/D eff

z/D eff

/			
X/D cc			
eff		-	

0.111057F+01	0.500764F+01	0.196890F+U1	0.573826E+92-
4.3347251+01	u.728311E+01	Ø.734467E+01	0.373133E+02
0.558523E+41	0.8563065+01	0.873488E+01	U.286434E+02
0.782320E+01	0.984307E+01	4.9H2579F+01	0+236#47E+92
a.100615F+02	4.10R385E+02	4.107284E+02	0.204251E+02
0.123005E+02	Ø.114074E+02	Ø.1150R7E+02	Ø.180951E+02
n.145389E+42	4.123460E+02	0.172942E+42	0.1633432+02

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Table 3-27. Jet centerline trajectory data for flat plug down 0.875 D configuration, R = 4.

×/D <sub>eff</sub>	z/D eff	PREDICTED z/D eff	SLOPE (DEGREES)
0.110098E+01	0,3523478+41	0.349643F+01	0.478611E+02
Ø.333519F.+01	0.514434E+01	A.514211E+01	0.2A7163F+#2
0.557178++01	0.645453F+81	0.614759E+01	0.21005AE+02
H.744866E+01	4.6A79 JAE +01	0.691381E+01	0.171258E+02
0.100462E+02	0.754513E+41	0.754743E+01	0.146522E+02
P.122839E+H2	(1.81)74NDE+01	0. R09456E+01	H.129161E+02
0.145713E+02	0.875664F+01	0.857991E+01	0.116195E+02

Table 3-28. Jet centerline trajectory data for flat plug down 0.875 D configuration, R = 2.5.

x/D eff	z/D eff	PREDICTED z/D eff	SLOPE (DEGREES)
g_197311E+81	# 253887F4Ø1	n 217205-01	
0.330246E+01	0.356279E+01	0.363304F+41	0.206273E+02
Ø.553552E+01	0.421695E+01	0.433536E+01	H.150017E+02
Ø.776972E+01	a • 475735F+01	0.486865E+01	0.121014F+02
0.100036E+02	4.532619E+01	0.530838E+01	0.102910E+62
0.172396E+02	0.569594E+01	0.568772E+41	0.903467E+H1
0.144735E+02	H.676479E+01	a.602357E+01	0.810453E+01

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Table 3-29. Jet centerline trajectory data for flat plug down 1.375 D configuration, R = 8.

×/D <sub>eff</sub>	z/D <sub>eff</sub>	PREDICTED z/D eff	SLOPE (Degrees)
Ø.106249E.01	0.64H1V2E+01	0.645941E+A1	0.649194E+02
Ø.301681E+01	0.919513F+01	0.930797E+01	Ø.456548F+02
0.503171E+01	(1.1103R7E+02	0.1102RAF+07	4.369197E+112
Ø.704687E+01	0.124982E+02	Ø.17332ØE+07	0.301269E+02
0.906240F+41	0.133943E+42	0 <b>.1</b> 34048E+02	₽•261279E+02
a.110779E+02	0.143673E+02	Ø.143279E+\$*2	0.232140E+02
Ø.130936E+02	0.150330E+02	0.151445E+07	Ø • 209847E+42

Table 3-30. Jet centerline trajectory data for flat plug down 1.375 D configuration, R = 6.

×/D <sub>eff</sub>	z/D eff	PREDICTED z/D eff	SLOPE (DEGREES)
8.999371E+09	u.478954E+01	0.477988E+01	0.589822E+02
A.341263E+#1	a.699155E+41	9.74153RE+01	Ø.389978E+A2
0.502700E+61	0.834860F+01	0.838245E+01	0.301060E+02
0.704163E+01	0.950082E+01	0.942464E+41	0.249571E+02
a.905676E+01	0.102690F+42	4.102866F+02	0.215509E+02
Ø.116720E+02	0.109859E+02	4.114349E+02	0.191 <b>0</b> 76E+02
Ø.130871E+02	a.117284F+92	4.116912E+02	Ø.172565E+02

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119

Table 3-31. Jet centerline trajectory data for flat plug down 1.375 D configuration, R = 4.

x/D <sub>eff</sub>	z/D eff	PREDICTED z/D eff	(DEGREES)
0.990297F.+04	n,340190E401	0.342340E+01	0.471310E+02
0.300153E+01	a.486137F+01	0.493652E+01	Ø.266635F+92
0.3014922+01	0.570637E+01	0.567544F+W1	0.19427ØE+02
0.702880E+01	0,634644F+01	Ø •630511E+01	0.156182E+#2
0.904338E+01	0.680733F+01	0.6R2026F+01	Ø.132259E+02
0.110580E+02	a.776821E+01	4.726140E+01	0+115653E+02
Ø.130731E+02	0.757547E+01	a.765a27E+a1	A.103352E+02

			SLOPE
x/D <sub>eff</sub>	z/D eff	PREDICTED z/D eff	(DEGREES)
N.964677E+NP	U.241349F+01	W.239414F+01	Ø.382874E+02
Ø.297101E+01	0.33R642E+01	Ø.342401E+01	Ø.201315E+02
a.498869E+#1	Ø.492651E+01	a.403558E+01	0.144517E+02
0.699243E+01	0.446177F+01	a.449542F+#1	Ø.115570F+02
0.900418F+01	9.4897/JE+01	a.487192F+01	0.976500F+01
0.110172E+02	0.5204278+01	@.5194A4E+01	Ø.F52954E+41
A.130302F+07	0.551152E+01	0.347966E+01	0.761870E+01
and the second			

Table 3-32. Jet centerline trajectory data for flat plug down 1.375 D configuration, R = 2.5.

#### SECTION 4: JET CENTERLINE DYNAMIC PRESSURE DECAY DATA

In this section the dynamic pressure decay data along the jet centerline are presented in tabular form. These data have been taken using a pitot static probe attached to a three dimensional traverse. The probe was oriented to be tangent to the local jet centerline using data from Section 3, and then the probe was traversed in the z-direction at various x locations to find the maximum q values. The x and z locations of the pitot static probe tip have been corrected for deflections of the probe traverse. These q data are listed in non-dimensional form versus  $s/D_{eff}$ , where s is the arc length along the jet centerline path.

These dynamic pressure data are found in the following tables:

Configuration	R	Tab	le
No Plug	8	4-	1
	6	4-	2
	4	4-	3
	2.5	4	4
Round Plug Flush	8	4-!	5
	6	4-0	б
	4	4-	7
	2.5	4-8	3 -
Round Plug Down 0.5 D <sub>n</sub>	8	4-9	9
	6	4-	LO
	4	4-1	L1
	2.5	4-]	L2
Round Plug Down 1.0 D <sub>n</sub>	8	4-]	L3
	6	4-1	L 4
	4	4-1	L5
	2.5	4-1	L6

Configuration	R	Table
Flat Plug Flush	8	4-17
	6	4-18
	4	4-19
	2.5	4-20
Flat Plug Down 0.375 D <sub>n</sub>	8	4-21
••	6	4-22
	4	4-23
	2.5	4-24
Flat Plug Down 0.875 D <sub>n</sub>	8	4-25
	6	4-26
	<b>4</b>	4-27
	2.5	4-28
Flat Plug Down 1.375 D	8	4-29
11	6	4-30
	4	4-31
	2.5	4-32

## Table 4-1 Jet Centerline Decay Data for No Plug, R = 8

	q(s) - q <sub>∞</sub>
eff	$\underline{q(0)} - \underline{q}_{\infty}$
0	1.000
2	0.992
3	0.997
4	0.929
5	0.636
6	0.358
7	0.217
8	0.148
9	0.107
10	0.076
11	0.058
12	0.045
13	0.035
14	0.029
15	0.024

## Table 4-2 Jet Centerline Decay Data for No Plug, R = 6

- 17	$q(s) - q_{\infty}$	
eff	$\overline{q(0)} - q_{\infty}$	
0	1.000	
2	0.986	
3	0.986	
4	0.7305	
5	0.378	
6	0.212	
7	0.123	
8	0.0829	
9	0.061	
10	0.0427	
11	0.033	
12	0.027	
14	0.022	

Jet Centerline Decay Data for No Plug, R = 4

s/Deff		$\frac{q(s) - q_{\infty}}{q(0) - q_{\infty}}$	
0		1.000	
1		0.9652	
2		0.9248	
3		0.7752	
4	an an an Araba Araba an Araba Araba an Araba	0.3745	
5		0.1896	
6		0.1114	
<b>7</b>		0.0705	
8		0.0507	
9		0.0393	
10		0.0306	

## Table 4-4 Jet Centerline Decay Data for No Plug, R = 2.5

na series de la companya de la comp	
s/D <sub>eff</sub>	$\frac{q(s) - q_{\infty}}{q(0) - q_{\infty}}$
0	1.000
1	0.7366
2	0.6865
<b>3</b> - 11	0.4307
4	0.2194
5	0.1269
· · · · · · · · · · · · · · · · · · ·	0.0515
10	0.0183

## Table 4-5 Jet Centerline Decay Data for Round Plug Flush, R = 8

	$q(s) - q_{\infty}$	
s/D <sub>eff</sub>	$\overline{q(0)} - q_{\infty}$	
<b>0</b>	1.0000	
2	0.8297	
3	0.7998	
4	0.7455	
5	0.4668	
6	0.2696	
7	0.1661	
8	0.1046	
9	0.0731	
10	0.0521	

## Table 4-6 Jet Centerline Decay Data for Round Plug Flush, R = 6

s/D <sub>eff</sub>	$\frac{q(s) - q_{\infty}}{\overline{q(0) - q_{\infty}}}$	
0	1.0000	
2	0.8366	
3	0.7420	
<b>4</b>	0.4840	
5 · · · · · · · ·	0.2726	
6	0.1514	
7	0.0936	
8	0.0613	
9	0.040	
10	0.03	

## Table 4-7 Jet Centerline Decay Data for Round Plug Flush, R = 4

s/D <sub>eff</sub>	$\frac{q(s) - q_{\infty}}{q(0) - q_{\infty}}$
0	1.0000
1	0.7932
2	0.7321
3	0.364
4	0.2128
5	0.1293
6	0.0773
7	0.0576
8	0.039
10	0.022

## Table 4-8 Jet Centerline Decay Data for Round Plug Flush, R = 2.5

s/D	q(s) - q <sub>∞</sub>	······································
eff	<b>q(0) -</b> q <sub>∞</sub>	
0	1.0000	di neg
1	0.5044	
2	0.2654	
3	0.1313	
4	0.0715	
6	0.0291	
8	0.0170	
10	0.013	

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Jet Centerline Decay Data for Round Plug Down 0.5  $D_n$ , R = 8

s/D_ef	<u>f</u>	$\frac{q(s) - q_{\infty}}{q(0) - q_{\infty}}$	
0		1.0000	
2		0.6944	
3		0.693	
<b>4</b>		0.5751	
5		0.3941	
6		0.2346	
		0.1588	
8		0.1015	
9		0.0754	
10		0.0562	

## Table 4-10 Jet Centerline Decay Data for Round Plug Down 0.5 $D_n$ , R = 6

	i.	
s/D <sub>off</sub>	$\frac{q(s) - q_{\infty}}{q(0) - q_{\infty}}$	
		•
0	1.0000	
2	0.6972	
3	0.6262	
4	0.3705	
5	0.2066	
6	0.1175	
7	0.0764	
8	0.052	
9	0.038	
10	0.0266	

Jet Centerline Decay Data for Round Plug Down 0.5  $D_n$ , R = 4

	$q(s) - q_{\infty}$
s/D <sub>eff</sub>	$\overline{q(0 - q_{\infty})}$
0	1.0000
1	0.6978
2	0.6445
3	0.4344
4	0.2205
5	0.1226
6	0.0719
7	0.0508
8	0.0367
9	0.0265
10	0.020

Jet Centerline Decay Data for Round Plug Down 0.5  $D_n$ , R = 2.5

s/D <sub>eff</sub>	$\frac{q(s) - q_{\infty}}{q(0) - q_{\infty}}$
0	1.0000
1 (1) (1) (1) (1) (1) (1) (1) (1) (1) (1	0.6272
2	0.5565
3 3 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	0.3465
4	0.1748
6	0.062
8	0.0352
10	0.0234

Jet Centerline Decay Data for

Round Plug Down 1.0  $D_n$ , R = 8

s/D <sub>eff</sub>	$\frac{q(s) - q_{\infty}}{q(0) - q_{\infty}}$
	1 0700
ura Q	<b>T•0709</b>
3	0.9902
4	0.908
5	0.5385
6	0.3295
7	0.1745
8	0.1159
9	0.0892
10	0.0638
12	0.0413
15	0.0206

 $\odot$ 

Jet Centerline Decay Data for Round Plug Down 1.0  $D_n$ , R = 6

s/D <sub>eff</sub>	$\frac{q(s) - q_{\infty}}{q(0) - q_{\infty}}$
0	1.0000
2	1.0007
3	0.981
4	0.624
5	0.3611
6	0.2086
7	0.1410
8	0.0931
9	0.0706
10	0.0508

Jet Centerline Decay Data for Round Plug Down 1.0  $D_n$ , R = 4

	<u> </u>	1 - C
s/D eff	$\frac{q(s) - q_{\infty}}{q(0) - q_{\infty}}$	
0	1.0000	
1	0.9585	
2	0.9539	
3	0.7124	
4	0.3683	
5	0.2039	
6	0.1287	
7	0.0865	
8	0.0640	
9	0.0490	
10	0.0410	

Jet Centerline Decay Data for

Round Plug Down 1.0  $D_n$ , R = 2.5

s/D	$\frac{q(s) - q_{\infty}}{\alpha(0)}$	
<u>eff</u>	$q(0) - q_{\infty}$	<b>-</b>
0	1.0000	
1	0.7054	
2	0.6557	
3	0.4000	
4	0.2327	
5	0.1281	
6	0.0886	
7	0.060	
8	0.047	
10	0.030	

## Table 4-17 Jet Centerline Decay Data for Square Plug Flush, R = 8

s/D <sub>eff</sub>	$\frac{q(s) - q_{\infty}}{q(0) - q_{\infty}}$
0	1.0000
2	0.7166
3	0.7166
4	0.4881
5	0.3839
6	0.2067
7	0.1536
8	0.1134
9	0.077
10	0.0596
<u> </u>	

## Table 4-18 Jet Centerline Decay Data for Square Plug Flush, R = 6



## Table 4-19 Jet Centerline Decay Data for Square Plug Flush, R = 4

s/D <sub>eff</sub>	$\frac{q(s) - q_{\infty}}{\overline{q(0) - q_{\infty}}}$
0	1.0000
1	0.6851
2	0.6216
3	0.3377
4	0.1906
5	0.1179
6	0.0763
7	0.0574
8	0.042
10	0.025
### Table 4-20 Jet Centerline Decay Data for Square Plug Flush, R = 2.5

s/D <sub>eff</sub>	$\frac{q(s) - q_{\infty}}{\overline{q(0) - q_{\infty}}}$
0	1.0000
1	0.409
2	0.500
3	0.2024
4	0.108
6	0.039
8	0.0201
10	0.0180

## Table 4-21 Jet Centerline Decay Data for Square Plug Down 0.375 $D_n$ , R = 8

s/Deff	$\frac{q(s) - q_{\infty}}{q(0) - q_{\infty}}$	
0	1.0000	
2	0.7415	
3	0.7688	
4	0.6385	
••••••••••••••••••••••••••••••••••••••	0.40725	•
6	0.2298	
7	0.1406	
8	0.0922	e filozofie († 1949) 1949 - Alexandre († 1949) 1949 - Alexandre († 1949)
9	0.0586	
10	0.0428	

Jet Centerline Decay Data for Square Plug Down 0.375  $D_n$ , R = 6

s/D <sub>eff</sub>	$\frac{q(s) - q_{\infty}}{q(0) - q_{\infty}}$	
<b>0</b>	1.0000	· · .
2	0.8288	
3	0.7675	
4	0.4520	
5	0.2534	
6	0.1344	
7	0.0842	
8	0.0575	
9	0.042	
10	0.033	

Jet Centerline Decay Data for Square Plug Down 0.375  $D_n$ , R = 4

s/D_eff	$\frac{q(s) - q_{\infty}}{q(0) - q_{\infty}}$	
0	1 0000	
<b>.</b>	0.7863	
2	0.6744	
3	0.4134	
<b>4</b>	0.218	
5	0.1265	
6	0.081	
8	0.038	
10	0.024	

# Table 4-24 Jet Centerline Decay Data for Square Plug Down 0.375 $D_n$ , R = 2.5

s/	D <sub>eff</sub>	$\frac{q(s) - q_{\infty}}{q(0) - q_{\infty}}$	•
	0	1.0000	
	1	0.4781	
	2	0.3328	
	3	0.1309	
	4	0.0782	
	6	0.032	

Jet Centerline Decay Data for Square Plug Down 0.875  $D_n$ , R = 8

	q(s) - q <sub>∞</sub>
s/D <sub>eff</sub>	$q(0) - q_{\infty}$
0	1.0000
2	0.6538
3	0.6439
4	0.549
5	0.4746
6	0.3447
7	0.1692
8	0.1082
9	0.0765
10	0.0531

# Table 4-26 Jet Centerline Decay Data for Square Plug Down 0.875 $D_n$ , R = 6

s/D ff	$\frac{q(s) - q_{\infty}}{q(0) - q_{\infty}}$	
0	1.0000	
2	0.6461	
3	0.644	
4	0.6036	
5	0.2771	
6	0.1359	
7	0.0875	
8	0.0609	
9	0.0420	
10	0.0323	

Jet Centerline Decay Data for Square Plug Down 0.875  $D_n$ , R = 4

- 17	q(s) - q <sub>w</sub>
s/D <sub>eff</sub>	$\overline{q(0)} - q_{\infty}$
0	1.0000
1	0.6405
2 <b>2</b>	0.6160
3	0.4647
4	0.2366
5	0.1248
6	0.0791
7	0.052
8	0.0383
9 	0.027
10	0.018

Jet Centerline Decay Data for Square Plug Down 0.875  $D_n$ , R = 2.5

s/D <sub>eff</sub>	$\frac{q(s) - q_{\infty}}{\overline{q(0) - q_{\infty}}}$	
0	1.0000	
1	0.6149	
2	0.5542	
3	0.3415	
4	0.1809	
6	0.0642	
	0.0312	
10	0.022	

Jet Centerline Decay Data for Square Plug Down 1.375  $D_n$ , R = 8

s/D <sub>eff</sub>	$\frac{q(s) - q_{\infty}}{q(0) - q_{\infty}}$
• <b>0</b>	1.0000
2	0.8740
3	0.8564
4	0.6636
5	0.6019
6	0.3412
7	0.2147
8. 	0.1607
9	0.1110
10	0.083

Jet Centerline Decay Data for Square Plug Down 1.375  $D_n$ , R = 6

	$q(s) - q_{\infty}$
s/D <sub>eff_</sub>	$q(0) - q_{\infty}$
0	1.0000
2	0.8266
3	0.758
4	0.557
5	0.3383
6	0.1830
7	0.125
8	0.0881
9	0.066
10	0.051

153

Jet Centerline Decay Data for Square Plug Down 1.375  $D_n$ , R = 4

s/D <sub>eff</sub>	$\frac{q(s) - q_{\infty}}{q(0) - q_{\infty}}$	
0	1.0000	
en di si serie di se Serie di serie di seri	0.7405	
2	0.7030	
3	0.602	
4	0.3294	
5	0.1901	
6	0.115	
<b>7</b>	0.080	۰.
8	0.0573	
9	0.0465	
10	0.035	

Jet Centerline Decay Data for Square Plug Down 1.375  $D_n$ , R = 2.5

s/D_eff_	$\frac{q(s) - q_{\infty}}{q(0) - q_{\infty}}$
0	1.0000
2	0.655
3	0.404
4	0.2192
5	0.1348
6	0.0888
7	0.0628
8	0.046
9	0.035
10	0.028

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