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Reply to Attn of: ED34-35-93

September 7, 1993

TO: Distribution

FROM: ED34/Anthony M. Springer

SUBJECT: Posttest Report for the Advanced Solid Rocket Motor (ASRM) Igniter Discharge Port Flow Test: SAF0006

REF: Springer, Anthony M., "Pretest Report for the Advanced Solid Rocket Motor (ASRM) Igniter Discharge Port Flow Test," ED34-22-93, July 28,1993

INTRODUCTION:

This memo documents the Advanced Solid Rocket Motor (ASRM) Igniter discharge port flow test, SAF0006, run at the Solid Rocket Motor Air Flow Test Equipment (SRMAFTE) facility during the week of August 9, 1993. The primary purpose of this test was to determine discharge coefficients for both the center axial and radial 2:1 aspect ratio exhaust ports of the ASRM multi-port igniter. In addition, both ports were tested with chamfered leading edge to assess how much improvement in discharge coefficient could potentially be achieved.

FACILITY:

The SRMAFTE configuration is shown in figure 1. The air supply for the SRMAFTE is a pressure blowdown system discharging to atmosphere through the solid rocket model test section. The air storage is comprised of eight storage tanks having a combined capacity of 9100 ft^3. The storage tanks are charged up to a maximum pressure of 1900 psig from a 3500 psig dry air supply system. The inlet air is filtered through a bonded fiberglass filter with cylindrical canisters that have a 0.3 micron filter rating. The Remote Operation Valve (ROV) isolation valve is downstream of the filter and is rated for a maximum pressure of 1960 psig. This valve can be shut down at maximum speed in case of emergency. The actual test model inlet pressure is controlled by a quiet trim valve. The valve uses a hydraulic operator for actuation and will hold the test model stagnation pressure constant at a set-point as the supply tank pressure decays. Downstream of the quiet valve, a pilot operated safety relief valve is located to discharge 100% of the flow operating at 1320 psia. The normal air weight flow range for system design is 20 to 320 lbm/sec which can be precisely metered by a sub-critical venturi which is located at a minimum of 10 equivalent L/D's downstream of the control valve. In mode A of operation metering nozzles are inserted upstream of the adapter chamber reducing the pressure seen by the model.

The test configuration for this model makes use of the SRMAFTE facility checkout model, Model 538. Model 538 consists of three model chamber spool pieces with a converging/diverging nozzle. The nozzle throat and exit diameters are scaled to 10% RSRM/ASRM size at motor ignition. Normally, mass flow through the system is determined by sonic flow through the SRM model nozzle. For this test neither the metering nozzles nor the SRMAFTE checkout model nozzle were choked. A diffuser downstream of the checkout model enables the full scale booster nozzle

booster nozzle expansion ratio to be modeled without inducing flow separation. Air passes from the diffuser in to an exhaust duct which leads to an 85db silencer which is located outside of building 4777. Figure 2 describes the nomenclature used for specific model components while figure 3 describes the models axial stations and radial locations.

MODEL:

The model consisted of four test "plates" each with one of the test orifices in the center of the plate. The test orifices were the existing full scale ASRM igniter discharge ports with and without leading edge chamfer. The circular orifice is to be present at the center of the actual igniter while the elliptical orifices are spaced around the aft dome of the igniter. A circular orifice with a diameter of 2.55 in and an area of 5.11 in^2, a chamfered circular orifice of the same diameter and area, an ellipse with an area of 3.464 in^2, a length of 2.786 in and a width of 1.393 in, and a chamfered ellipse of the same dimensions as the previous ellipse. The term ellipse is used to describe the 2:1 aspect ratio port. The test plates are shown in figure 4 which correspond to the drawings in figures 5 through 7. Each of these small test plates was mounted in the center of the larger test plate holder fixture, figure 8. The plates were .065 inches thick which approximates the average thickness of the igniter chamber aft dome. This fixture was built to fit between spool piece 2 and 1 of the checkout model. A photograph of the model mounted in the facility is shown in figure 9. The fixture had the necessary gaskets, flanges, and bolt holes to accommodate it in the facility. The SAF0006 test models were built according to the following NASA MSFC drawing numbers: 80M54212, test plate assembly; 80M54213, test plate mount details; and 80M54214, test plate details. The model components are shown in figure 10. This photograph does not include the fixture sealing gasket, the plate holding screws, or the longer studs required to mount the fixture to the checkout model.

TEST :

The test consisted of running each of the test plates for a range of predetermined operation pressures. The test conditions were based on bounding the current full scale Reynolds number the igniter orifices should see. The Reynolds number was based on the effective hydraulic diameter for each orifice, 2.55 inches for the circles and 1.94 inches for the ellipses. The operating pressures were calculated from these full scale Reynolds numbers. Operating pressures ranged from 250 psia to 25 psia in 25 psia increments. The flow was choked through the orifices for all conditions except at the low pressure of 25 psia. The run schedule is presented in table I. Initially, six frames of data were taken for each run, including all unchamfered circular orifice runs, runs 1 to 10. This was subsequently increased to 12 frames of data for all further test orifices, runs 11 through 40.

INSTRUMENTATION:

The instrumentation and data acquisition for this test consisted of four pressure taps, two temperature probes, and the facility mass flow calculation. Static pressure taps were located both upstream and downstream of the test plate. Two taps were located in both spool piece 1 and spool piece 3. A temperature probe was also located in each of these spool pieces. The mass flow calculation was based on facility instrumentation which consisted of venturi upstream and downstream pressure taps and a venturi temperature probe. These were the required instrumentation for the test. Other parameters were measured during the test but were not required for the analysis of the data and will not be mentioned. A list of parameters is located in the database along with their corresponding locations.

DATA:

All data from this test currently resides on the NASA MSFC Aero Fluids Analysis System (AFAS) Vax in the database under the SAF0006 test heading. The relevant parameters were subsequently transferred to the Macintosh for data analysis. The data transferred from the Vax to the Macintosh are in comma separated variable, csv, format. The final data are in Excel 4.0 format. All plots of the data were done in KaleidaGraph V2.0.

Discharge coefficient = measured mass flow/theoretical isentropic mass flow

Reynolds Number = (Density*Velocity*Diameter)/Viscosity

RESULTS:

The relevant data are presented in tables 2 through 5. Each table is for one of the four configurations and is divided up by run number as shown in column 1. These tables contain the raw test data necessary to perform the data analysis and all subsequent data calculations based on these data. Pressure ratio, theoretical mass flow (based on 1-D isentropic flow equations), discharge coefficient, and Reynolds number were calculated. For each run, all the frames of data taken during that run are listed down the rows. The columns list the parameter that was measured or calculated. The nomenclature for the data tables is presented in table 6.

Nomenclature	Description
TAF-S30A	Temperature in spool piece 3 at 0 degrees, upstream of plate
PS-S30G	Static pressure in spool piece 3 at 90 degrees, upstream of plate
PS-S30U	Static pressure in spool piece 3 at 90 degrees, upstream of plate
PAVG	Average of Pressure Taps PS-S30G and PS-S30G
PS-S10G	Static pressure in spool piece 1 at 90 degrees, downstream of plate
PS-S10U	Static pressure in spool piece 1 at 90 degrees, downstream of plate
PS-1 AVG	Average of Pressure Taps PS-S10G and PS-S10G
P1/P3	Pressure ratio of downstream to upstream
ACTUAL M DOT	Facility mass flow
THEO M DOT	Theoretical mass flow using isentropic 1-D calculations
Cd	Discharge Coefficient
REYNOLDS #	Reynolds number based on experimental information

Table 6: Test Nomenclature

Graphs of discharge coefficient verses Reynolds number are presented in figures 11 and 12. In each of these graphs the orifices with and without chamfer are compared. Figure 13 presents discharge coefficient verses upstream to downstream pressure ratio for the four discharge ports.

CONCLUSIONS:

It can be seen from figures 11 and 12 that chamfer greatly improves the discharge coefficient of each orifice. It is also seen that the ellipse has a much better discharge coefficient than the circle. The effect of Reynolds number on discharge coefficient is seen to be almost negligible for numbers greater than $4x10^6$. It should be noted that the difference in discharge coefficient at low Reynolds number, below $4X10^6$, does not totally result from Reynolds number effects. Figure 13 shows the effect of pressure ratio on discharge

coefficient neglecting Reynolds number effects. A pressure ratio above .5283 signifies that the flow through the orifice is not choked.

The discharge coefficient matching the full scale Reynolds number for the circle and ellipse along with the full scale Reynolds number are shown in table 7.

Orifice	Reynolds Number	Discharge Coefficient
Circle	$6.22X10^6$	.873
Chamfered Circle	$6.22X10^6$	.938
Ellipse	$4.72X10^6$	.909
Chamfered Ellipse	$4.72X10^6$	.966

Table 7: Discharge Coefficient at Full Scale Reynolds Number

Based on repeated runs, the discharge coefficient is estimated to be accurate within 1.0%.

Questions concerning this report should be directed to the undersigned at (205) 544-1571.

Anthony M. Springer

APPROVED:

C. Dale Andrews
Chief, Fluid Dynamics Division

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SOLID ROCKET MOTOR AIR FLOW TEST EQUIPMENT (SRMAFTE)

PHASE I CONFIGURATION

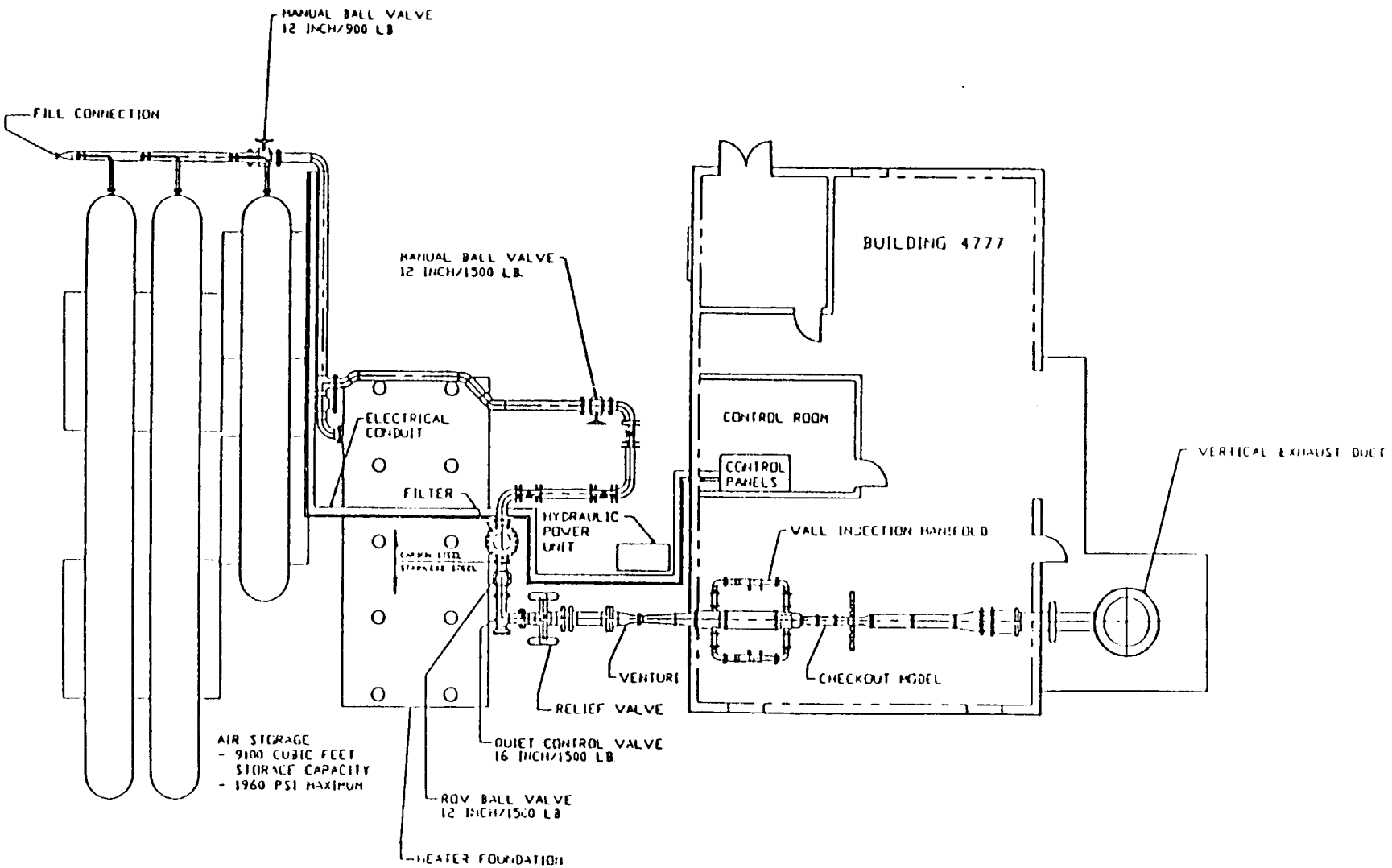
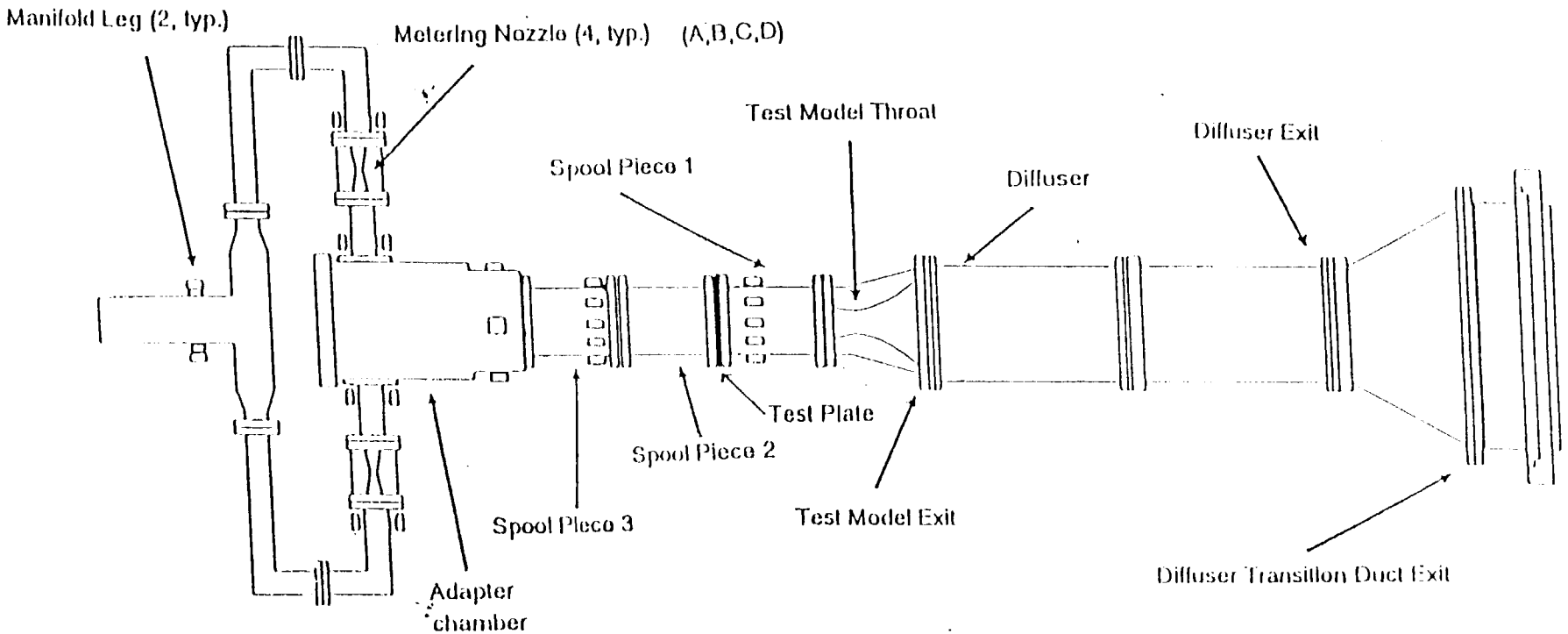


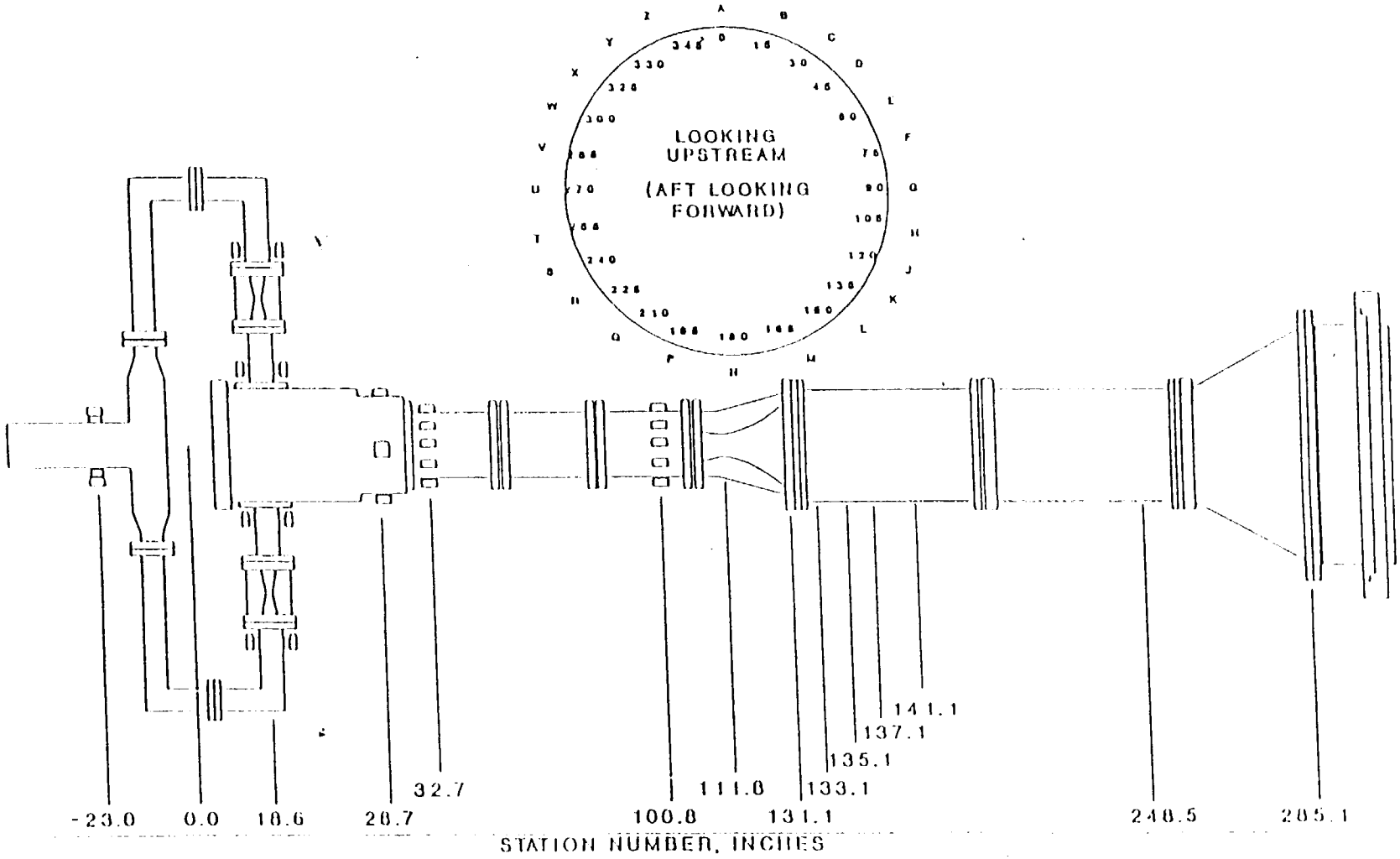
Figure 1.

Figure 2. ASRM Igniter Discharge Port Test Names of Model Components



SCHEMATIC ONLY - NOT TO SCALE

Figure 3. Checkout Model Axial Stations and Angle Designations



SCHEMATIC ONLY - NOT TO SCALE

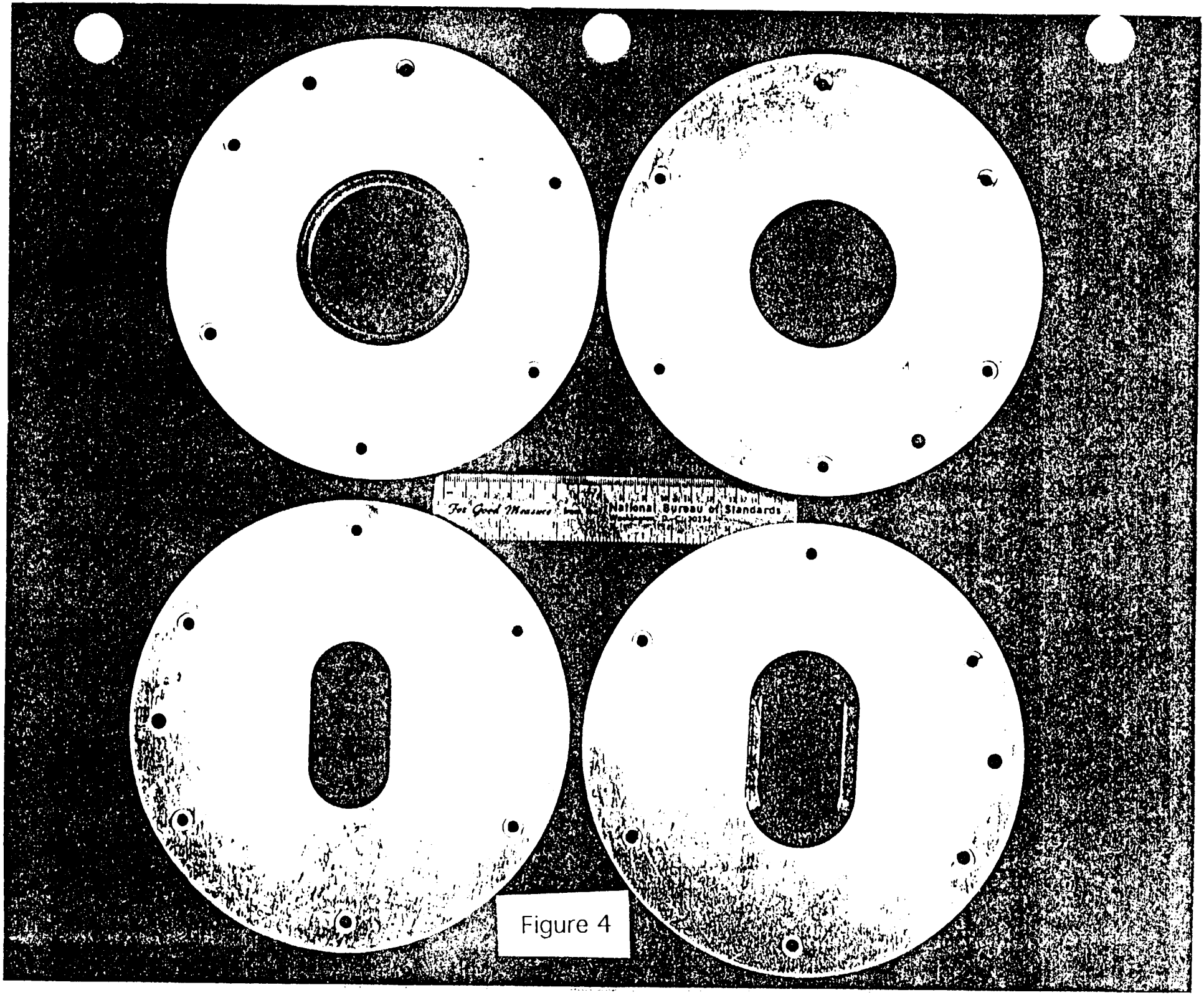
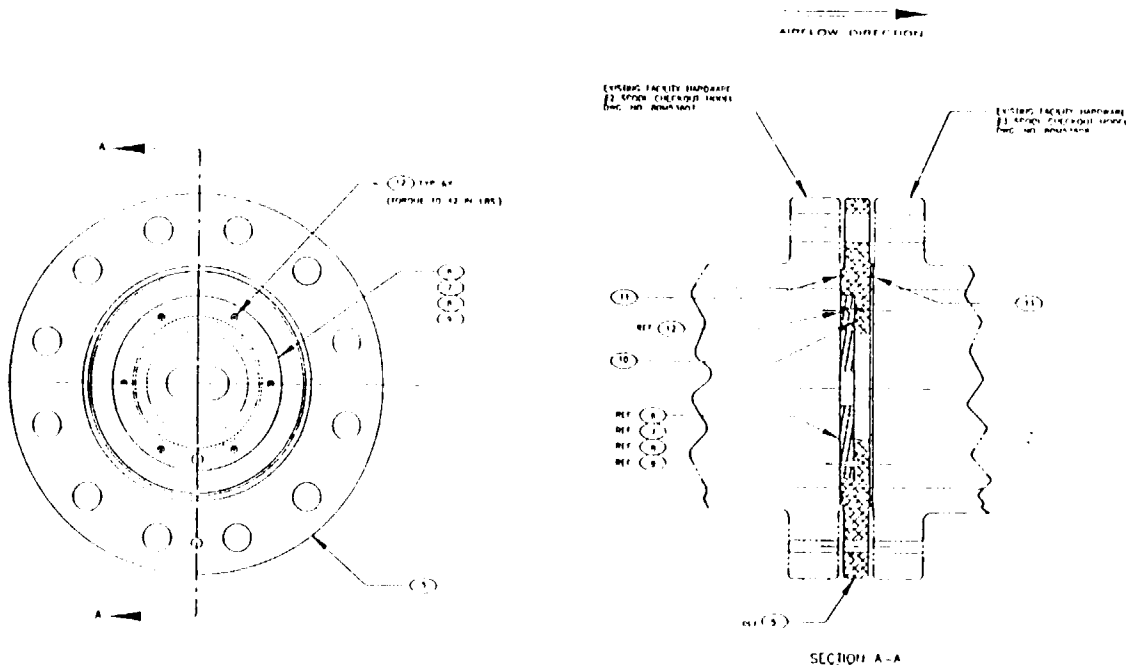


Figure 4



1 CONFIG. 1 TEST PLATE ASSEMBLY
2 CONFIG. 2 TEST PLATE ASSEMBLY (QTY 10 -1)
3 CONFIG. 3 TEST PLATE ASSEMBLY (QTY 10 -1)
4 CONFIG. 4 TEST PLATE ASSEMBLY (QTY 10 -1)

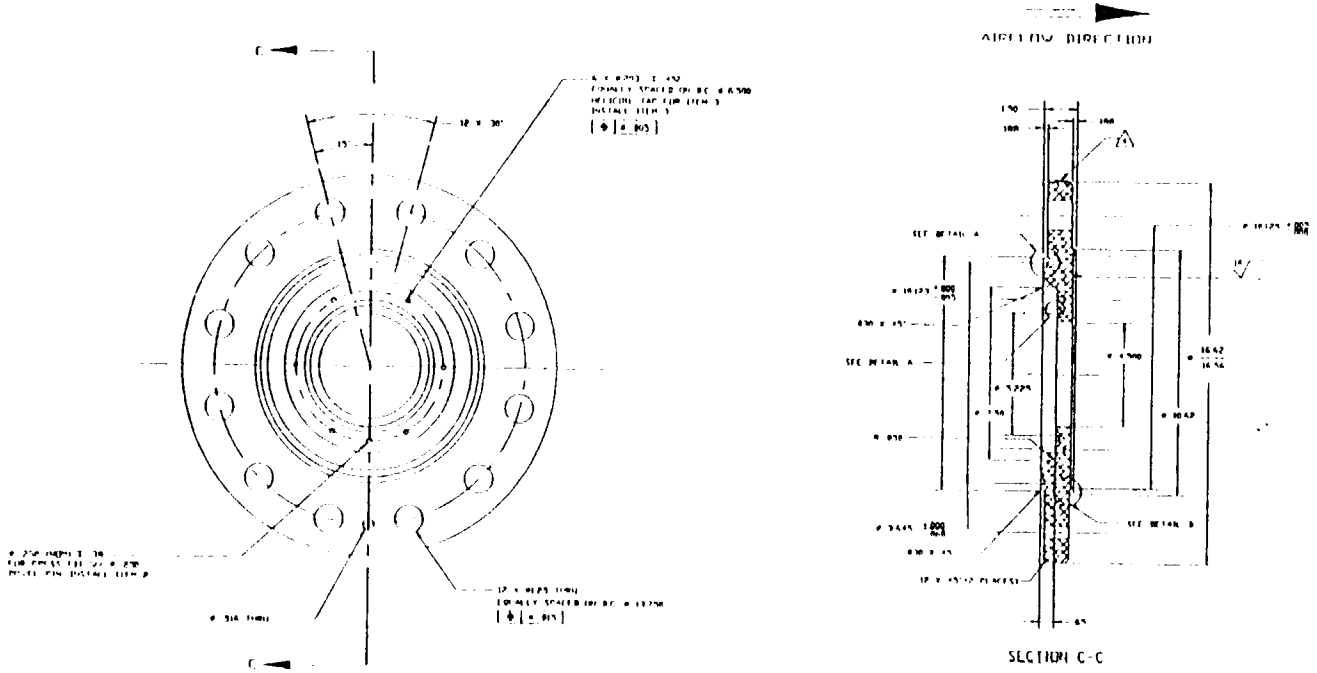
GENERAL NOTES

6	6	6	6	10-24 X .75 LG		UNIFRAC OR EQUIV	
1	1	1	1	2-334	O-RING	PARKER SEALS	
1	1	1	1	2-355	O-RING	PARKER SEALS	
1				BOM54214-4	CONFIG. 4 TEST PLATE		
	1			BOM54214-3	CONFIG. 3 TEST PLATE		
		1		BOM54214-2	CONFIG. 2 TEST PLATE		
			1	BOM54214-1	CONFIG. 1 TEST PLATE		
1	1	1	1	BOM54215-1	TEST PLATE WELD		
X				- 4	CONFIG. 4 TEST PLATE ASSY		
	X			- 3	CONFIG. 3 TEST PLATE ASSY		
		X		- 2	CONFIG. 2 TEST PLATE ASSY		
			X	- 1	CONFIG. 1 TEST PLATE ASSY		
QTY	QTY	QTY	QTY	PART OR IDENTIFICATION NO.	NOMENCLATURE OR DESCRIPTION	MATERIAL AND SPECIFICATION	HEAT TREAT

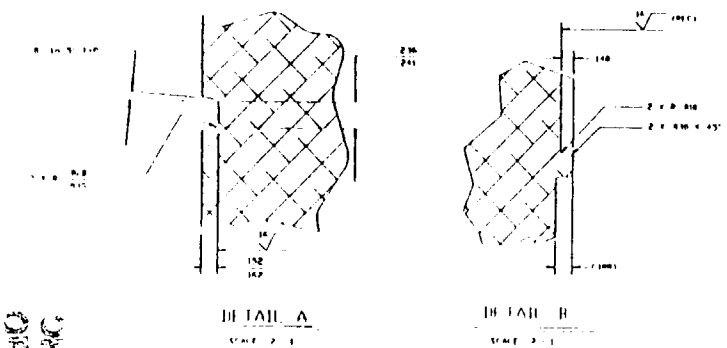
TEST PLATE ASSEMBLY

ORIGINAL PAGE IS
OF POOR QUALITY

Figure 5

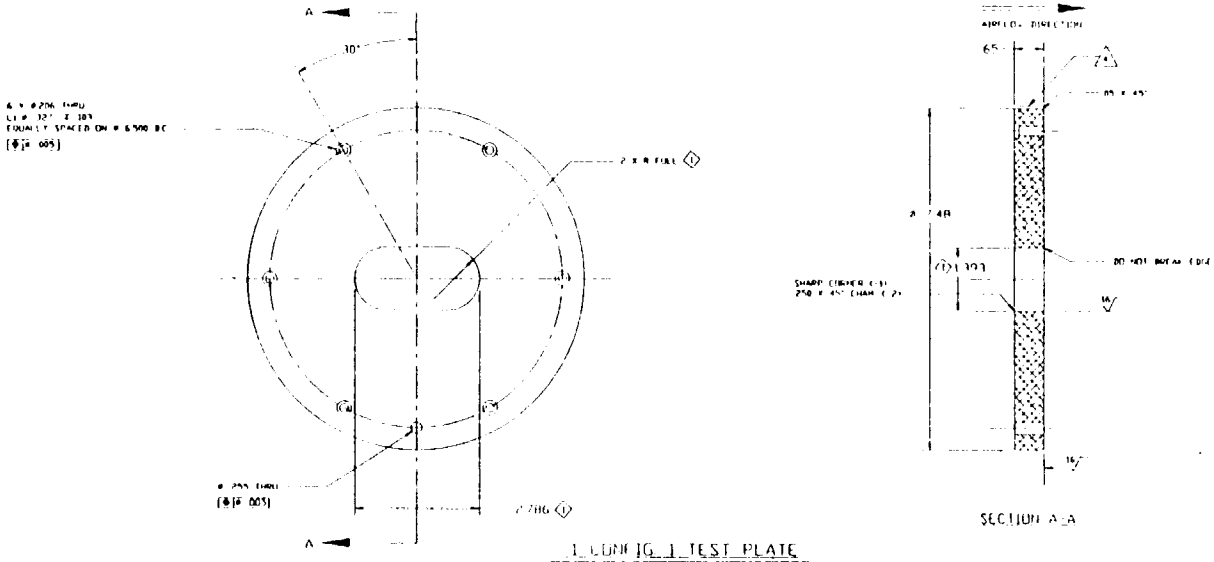


TEST PLATE MOUNT



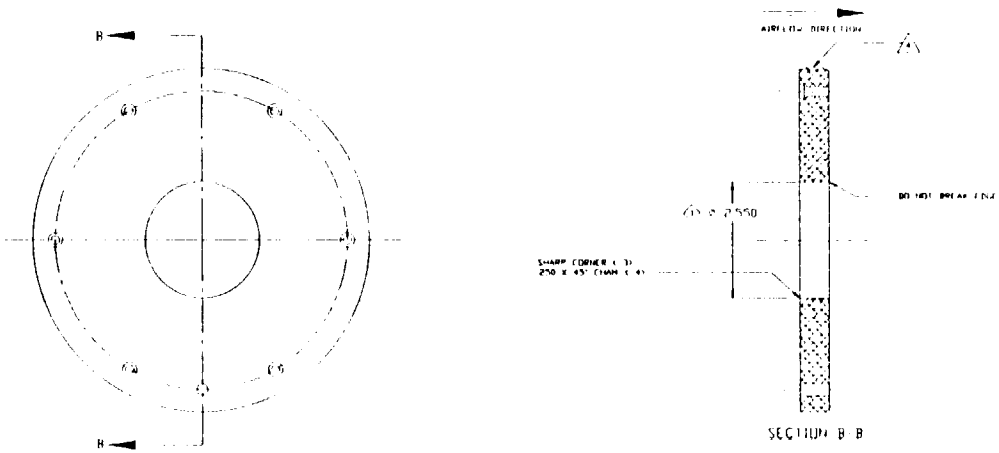
GENERAL NOTES

Figure 6



-1 CONFIG 1 TEST PLATE

-2 CONFIG 2 TEST PLATE (SAME AS -1 EXCEPT AS NOTED)



-3 CONFIG 3 TEST PLATE (SAME AS -1 EXCEPT AS NOTED)

-4 CONFIG 4 TEST PLATE (SAME AS -3 EXCEPT AS NOTED)

GENERAL NOTES

Figure 7

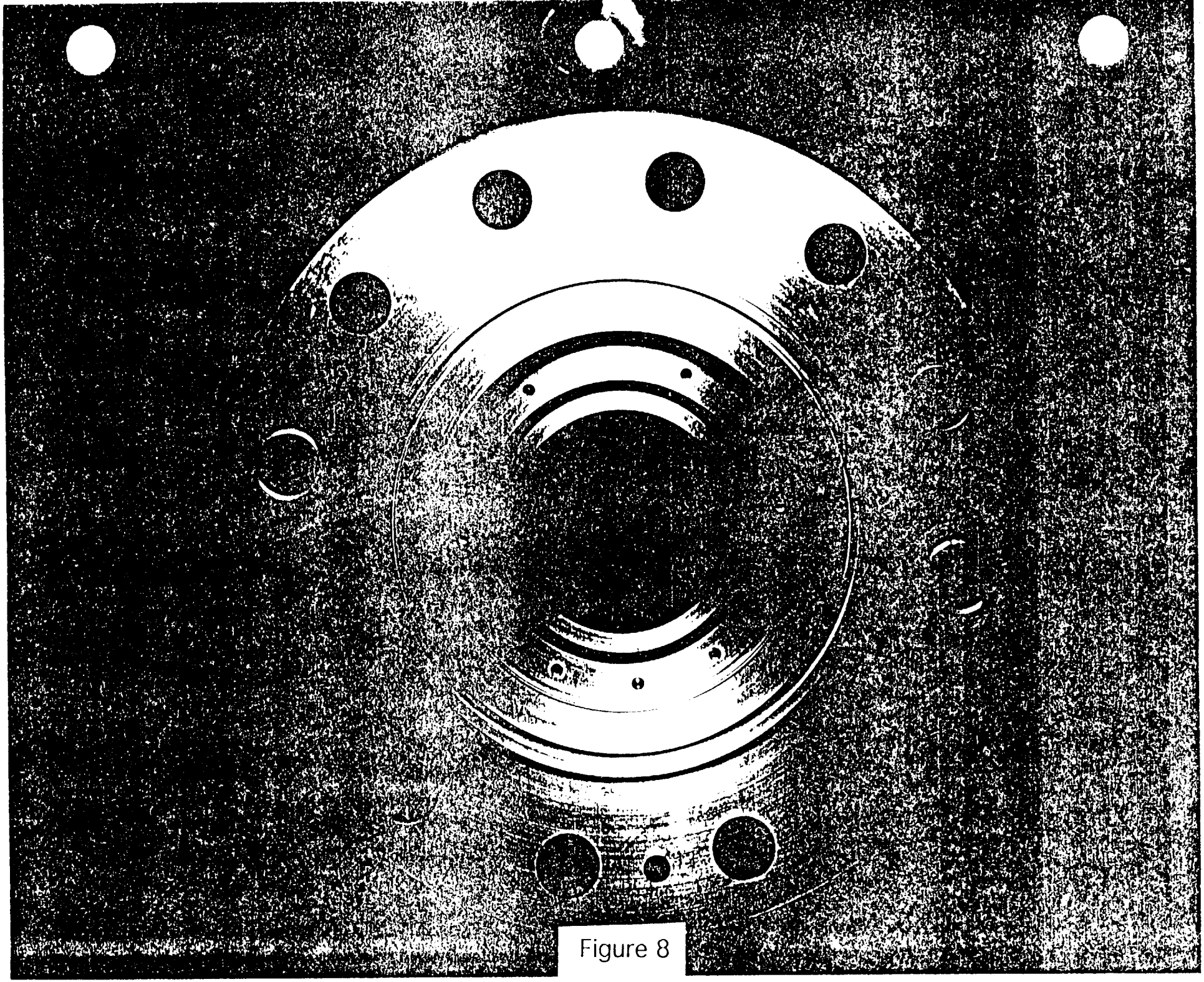


Figure 8

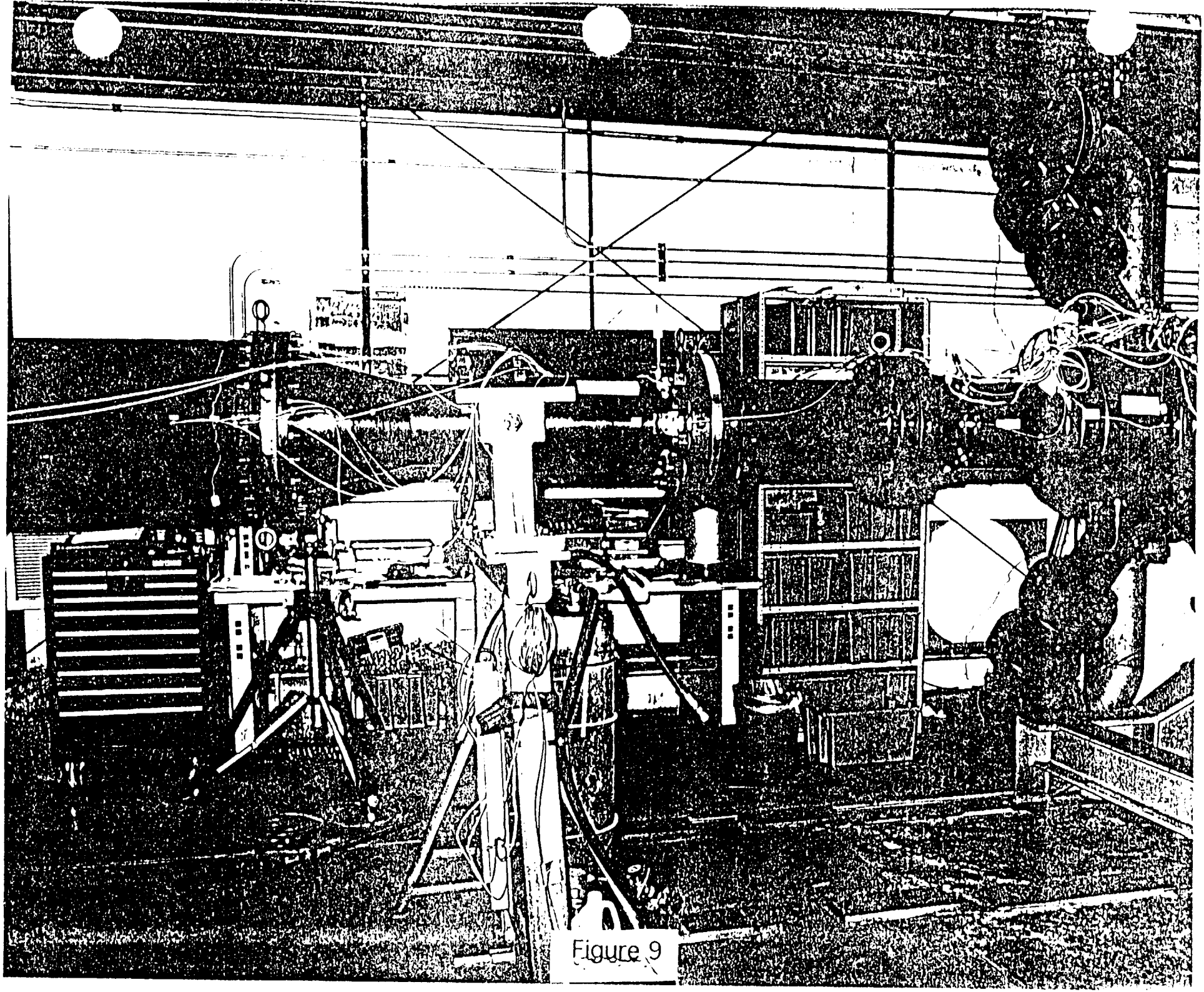


Figure 9

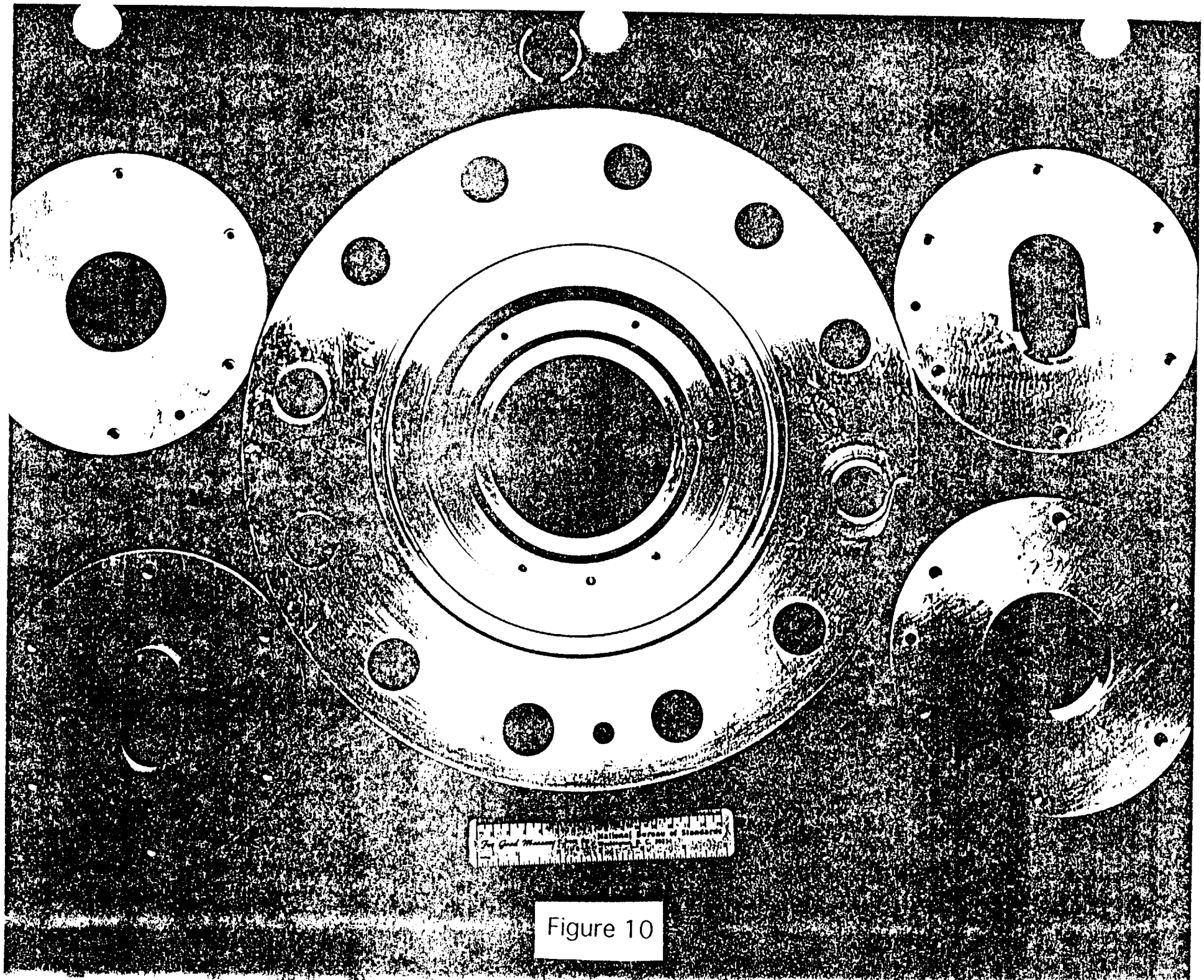


Figure 10

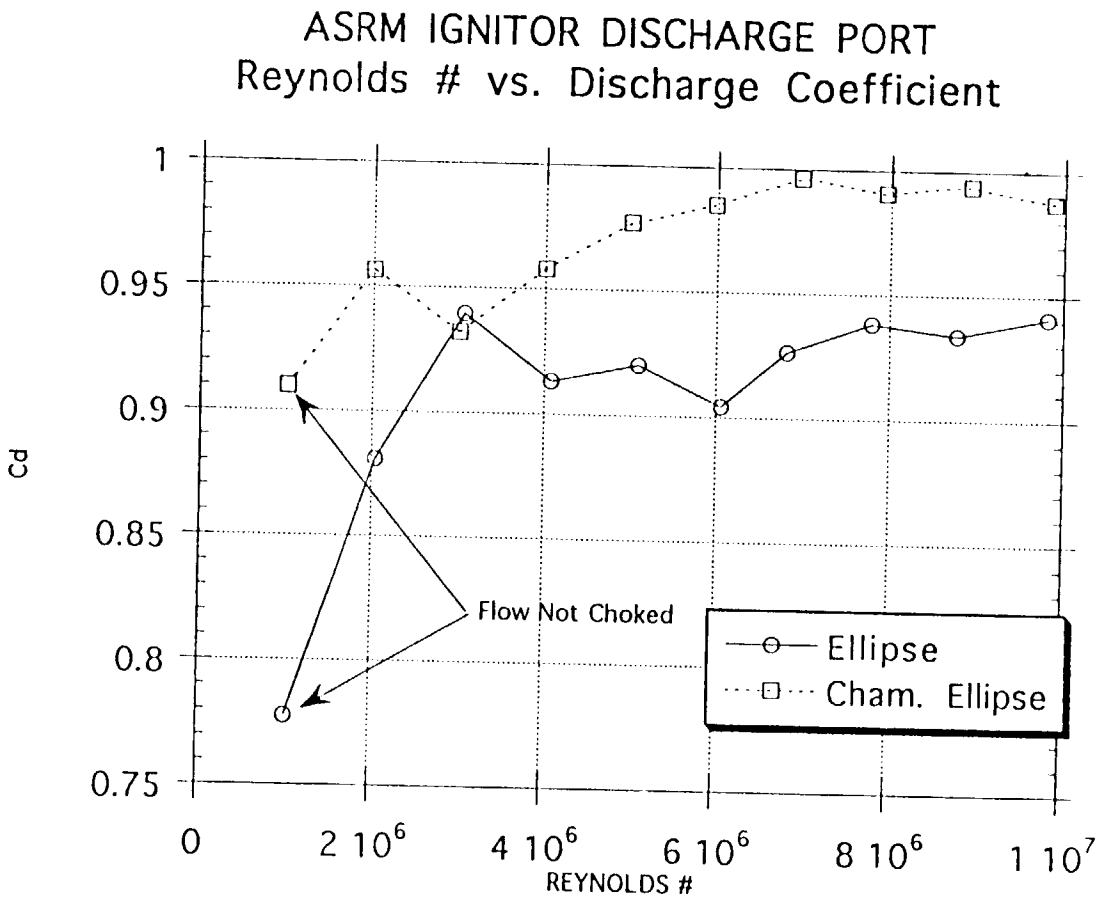

ASRM IGNITOR DISCHARGE PORT
Reynolds # vs. Discharge Coefficient
Cd
1
0.95
0.9
0.85
0.8
0.75
0
2 10^6
4 10^6
6 10^6
8 10^6
1 10^7
REYNOLDS #
Flow Not Choked
Ellipse
Cham. Ellipse

Figure 11

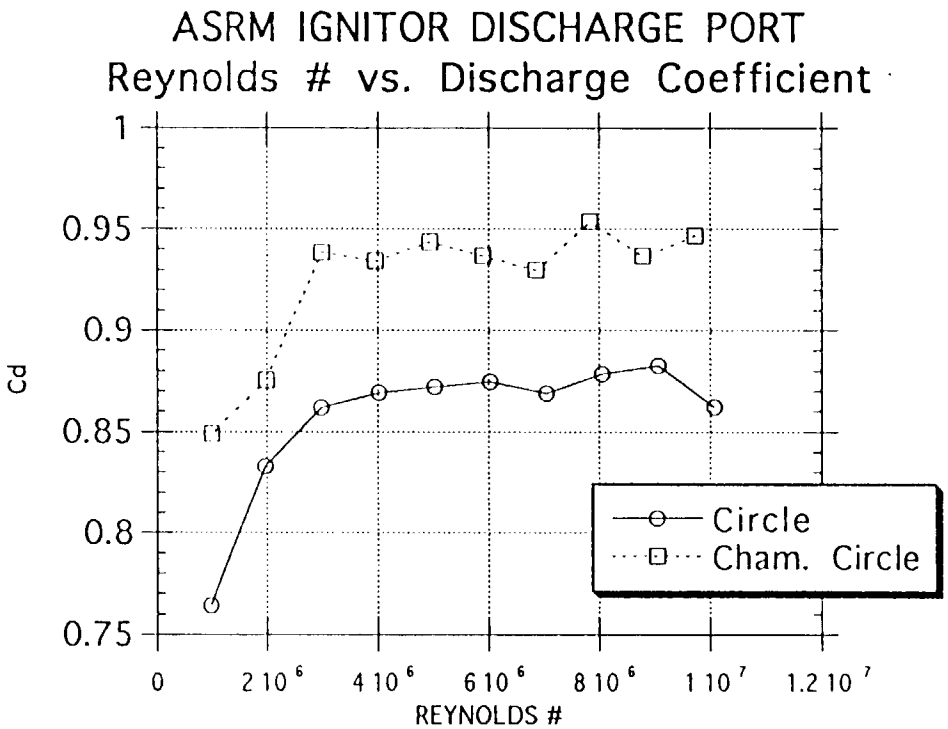

ASRM IGNITOR DISCHARGE PORT
Reynolds # vs. Discharge Coefficient
Cd
1
0.95
0.9
0.85
0.8
0.75
0
2 10 6
4 10 6
6 10 6
8 10 6
1 10 7
1.2 10 7
REYNOLDS #
Circle
Cham. Circle

Figure 12

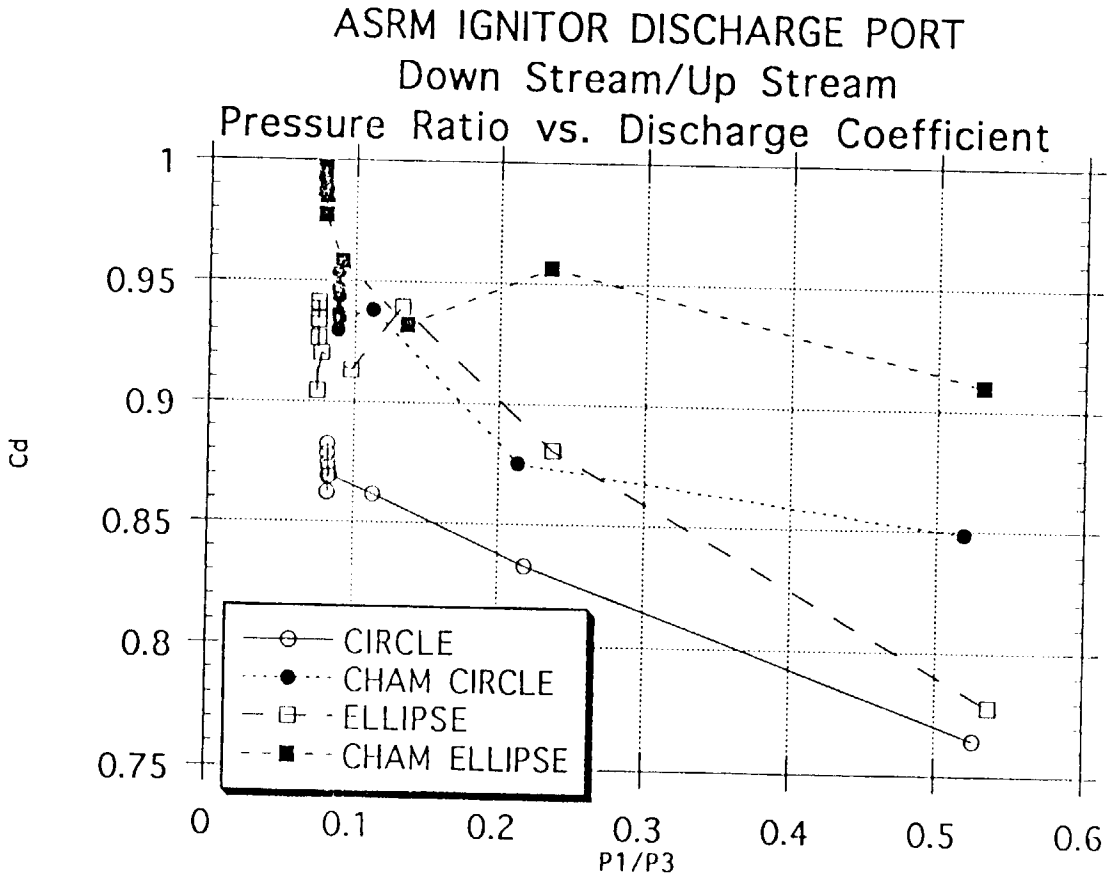

ASRM IGNITOR DISCHARGE PORT
Down Stream/Up Stream
Pressure Ratio vs. Discharge Coefficient
Cd
1
0.95
0.9
0.85
0.8
0.75
0
0.1
0.2
0.3
0.4
0.5
0.6
P1/P3
CIRCLE
CHAM CIRCLE
ELLIPSE
CHAM ELLIPSE

Figure 13

SAF0006: ASRM IGNITER PORT DISCHARGE COEFFICIENT						
DATE	TIME	RUN	SET Po (fac.)	EXPECTED Po (fac.)	EXPECTED Po (model)	TYPE PORT
8/10/93	10:00	1/1	256	250	250	circle
	10:10	2/3	230.4	225	225	circle
	10:15	3/1	204.8	200	200	circle
	10:20	4/1	179.2	175	175	circle
	10:30	5/0	153.6	150	150	circle
	10:35	6/0	128	125	125	circle
	10:50	7/0	102.4	100	100	circle
	12:30	8/0	76.8	75	75	circle
	2:20	9/0	51.2	50	50	circle
	2:30	10/0	25.6	25	25	circle
8/11/93	12:30	11/0	256	250	250	ellipse
	3:00	12/0	230.4	225	225	ellipse
	3:05	13/0	204.8	200	200	ellipse
	3:15	14/0	179.2	175	175	ellipse
8/12/93	8:05	15/0	153.6	150	150	ellipse
	8:15	16/0	128	125	125	ellipse
	8:35	17/0	102.4	100	100	ellipse
	8:45	18/0	76.8	75	75	ellipse
	8:55	19/0	51.2	50	50	ellipse
	9:05	20/0	25.6	25	25	ellipse

Table 1

SAF0006: ASRM IGNITER PORT DISCHARGE COEFFICIENT						
DATE	TIME	RUN	SET Po (lac.)	EXPECTED Po (lac.)	EXPECTED Po (model)	TYPE PORT
8/12/93	1:00	21/0	256	250	250	cham circle
	1:25	22/0	230.4	225	225	cham circle
	1:30	23/0	204.8	200	200	cham circle
	1:35	24/0	179.2	175	175	cham circle
	1:45	25/0	153.6	150	150	cham circle
	1:50	26/0	128	125	125	cham circle
	2:00	27/0	102.4	100	100	cham circle
	2:05	28/0	76.8	75	75	cham circle
	2:15	29/0	51.2	50	50	cham circle
	2:30	30/0	25.6	25	25	cham circle
8/12/93	3:25	31/0	256	250	250	cham ellipse
	3:30	32/0	230.4	225	225	cham ellipse
	3:35	33/0	204.8	200	200	cham ellipse
	3:45	34/0	179.2	175	175	cham ellipse
	3:50	35/0	153.6	150	150	cham ellipse
	4:00	36/0	128	125	125	cham ellipse
	4:05	37/0	102.4	100	100	cham ellipse
	4:15	38/0	76.8	75	75	cham ellipse
	4:25	39/0	51.2	50	50	cham ellipse
	4:30	40/0	25.6	25	25	cham ellipse

Table 1: Continued

Dia.	5.11		SAF0006 ASRM IGNITOR DISCHARGE PORT FLOW TEST CIRCULAR ORIFICE										
RUN	FRAME	TAF-S30A	PS-S30G	PS-S30U	PAVG	PS-S10G	PS-S10U	PS-1 avg	P1/P3	ACTUAL M DOT	THEO M DOT	Cd	REYNOLDS #
1\1	1	74.7	248.122	248.245	248.1835	20.369301	20.3762	20.3727505	0.08208745	25.004	29.163941	0.85736012	10058170.4
	2	73.8	248.053	248.105	248.079	20.333099	20.3496	20.3413495	0.08199545	25.838	29.1762261	0.88558403	10075485.1
	3	73.6	248.424	248.547	248.4855	20.3934	20.256399	20.3248995	0.08179511	24.492	29.2295103	0.8379203	10096803.4
	4	73.4	248.505	248.513	248.509	20.3934	20.243099	20.3182495	0.08176062	25.409	29.2377545	0.86904759	10102571.8
	5	73.2	248.169	248.35	248.2595	20.333099	20.3762	20.3546495	0.08198941	24.517	29.2138776	0.83922444	10097242
	6	73	248.215	248.14	248.1775	20.514099	20.216499	20.365299	0.08205941	25.836	29.2097069	0.88450049	10098722.8
	average ALL	73.6166667	248.248	248.316667	248.282333	20.3893997	20.3029995	20.3461996	0.08194791	25.1826667	29.2051694	0.86227283	10088152.3
	average	73.575	248.25275	248.312	248.282375	20.4024748	20.3029995	20.3527371	0.08197422	25.1915	29.20632	0.86253316	10089157.3
RUN	FRAME	TAF-S30A	PS-S30G	PS-S30U	PAVG	PS-S10G	PS-S10U	PS-1 avg	P1/P3	ACTUAL M DOT	THEO M DOT	Cd	REYNOLDS #
2\3	1	75.1	223.432	223.571	223.5015	18.207399	18.218399	18.212899	0.08148893	23.221	26.2537512	0.88448313	9049275.83
	2	73.9	223.456	223.466	223.461	18.340099	18.2318	18.2859495	0.08183061	23.366	26.2784761	0.88916876	9073488.48
	3	73.6	223.479	223.582	223.5305	18.448601	18.2983	18.3734505	0.08219662	22.827	26.2940375	0.86814359	9082797.65
	4	73.4	223.548	223.594	223.571	18.3521	18.285	18.31855	0.08193616	22.094	26.3037315	0.83995687	9088773.79
	5	73.2	223.572	223.687	223.6295	18.2558	18.205099	18.2303495	0.08152032	24.031	26.3155482	0.91318637	9095487.54
	6	73.1	223.757	223.711	223.734	18.521	18.218399	18.3696995	0.08210509	23.713	26.3303144	0.90059692	9101908.05
	average ALL	73.7166667	223.54067	223.601833	223.57125	18.3541332	18.2428328	18.298483	0.08184629	23.2086667	26.2959765	0.88258927	9081936.09
	average	73.925	223.531	223.5825	223.55675	18.3792748	18.2417245	18.3104996	0.08190531	23.28175	26.2891448	0.8855981	9076844.45
RUN	FRAME	TAF-S30A	PS-S30G	PS-S30U	PAVG	PS-S10G	PS-S10U	PS-1 avg	P1/P3	ACTUAL M DOT	THEO M DOT	Cd	REYNOLDS #
3\1	1	75.4	198.458	198.513	198.4855	16.3132	16.2887	16.30095	0.08212665	20.465	23.3086972	0.87799845	8030690.32
	2	73.8	198.481	198.536	198.5085	16.252899	16.182199	16.217549	0.081697	20.616	23.3463086	0.88305181	8062227.91
	3	73.4	198.492	198.559	198.5255	16.240801	16.1423	16.1915505	0.08155905	20.33	23.3570608	0.87040061	8070605.59
	4	73.2	198.725	198.781	198.753	16.421801	16.328699	16.37525	0.08238995	20.427	23.388212	0.8733887	8083707.36
	5	73.1	198.679	198.769	198.724	16.3615	16.355301	16.3584005	0.08231719	20.593	23.3869926	0.8805322	8084455.54
	6	72.9	198.551	198.407	198.479	16.516299	16.195601	16.35595	0.08241149	20.717	23.3625424	0.88678137	8078341.72
	average ALL	73.6333333	198.564333	198.594167	198.57925	16.3514167	16.2488	16.3001083	0.08208355	20.5246667	23.3583023	0.87868886	8068312.53
	average	73.875	198.58575	198.64975	198.61775	16.33735	16.2887248	16.3130374	0.0821327	20.52525	23.3575526	0.87874279	8065236.99
RUN	FRAME	TAF-S30A	PS-S30G	PS-S30U	PAVG	PS-S10G	PS-S10U	PS-1 avg	P1/P3	ACTUAL M DOT	THEO M DOT	Cd	REYNOLDS #
4\1	1	75.7	173.791	173.578	173.6845	14.407	14.2917	14.34935	0.08261733	18.341	20.3905358	0.89948593	7022246.41
	2	73.7	173.537	173.731	173.634	14.3587	14.1851	14.2719	0.08219531	18.355	20.4227663	0.8987519	7053654.21
	3	73.3	173.712	173.824	173.768	14.4432	14.2917	14.36745	0.08268179	17.57	20.4461908	0.85932877	7065829.43
	4	73.1	173.712	173.859	173.7855	14.3346	14.1718	14.2532	0.08201605	17.684	20.4520853	0.86465511	7069911.78
	5	73	173.817	174.011	173.914	14.3949	14.2917	14.3433	0.08247352	17.377	20.4691278	0.848937	7076827.17
	6	72.8	173.735	173.707	173.721	14.3829	13.9587	14.1708	0.08157218	17.253	20.4502485	0.84365719	7072347.82
	average ALL	73.6	173.717333	173.785	173.751167	14.3868833	14.19845	14.2926667	0.08225936	17.7633333	20.4384926	0.86913598	7060106.03
	average	73.275	173.6945	173.85625	173.775375	14.38285	14.235075	14.3089625	0.08234167	17.7465	20.4475426	0.86791819	7066552.09
RUN	FRAME	TAF-S30A	PS-S30G	PS-S30U	PAVG	PS-S10G	PS-S10U	PS-1 avg	P1/P3	ACTUAL M DOT	THEO M DOT	Cd	REYNOLDS #
5\0	1	75.4	148.827	149.911	148.869	12.1872	12.2683	12.22775	0.08213765	14.682	17.4820954	0.83983088	6023214.98
	2	73.8	148.593	148.724	148.6585	12.1872	12.2816	12.2344	0.08229869	15.305	17.4835194	0.87539583	6037619.09
	3	73.4	148.78	148.888	148.834	12.2113	12.2816	12.24645	0.08228261	15.446	17.5107217	0.88208814	6050509.94
	4	73.2	148.722	148.817	148.7695	12.3319	12.2949	12.3134	0.08276831	15.504	17.5064155	0.88561819	6050772.07
	5	73.1	148.955	149.028	148.9915	12.1751	12.2683	12.2217	0.08202951	15.461	17.5341836	0.88176332	6061246.54
	6	73	149.002	148.958	148.98	12.1992	12.0552	12.1272	0.08140153	15.511	17.5344749	0.8846002	6062224.5
	average ALL	73.65	148.813167	148.887667	148.850417	12.2153167	12.24165	12.2284833	0.08215305	15.3181667	17.5085684	0.87488273	6047579.91
	average	73.325	148.8325	148.8995	148.866	12.1932	12.221675	12.2074375	0.08200309	15.43075	17.5157249	0.88096187	6052895.17

Table 2

RUN	FRAME	TAF-S30A	PS-S30G	PS-S30U	PAVG	PS-S10G	PS-S10U	PS-1 avg	P1/P3	ACTUAL M DOT	THEO M DOT	Cd	REYNOLDS #
6\0	1	76.1	124.098	124.269	124.1835	10.293	10.3121	10.30255	0.08296231	12.927	14.5736854	0.88700968	5016110.42
	2	74.3	123.958	124.093	124.0255	10.1482	10.2456	10.1969	0.08221616	12.468	14.5796399	0.85516515	5031183.14
	3	73.9	124.051	124.164	124.1075	10.3172	10.3654	10.3413	0.08332534	12.77	14.5947435	0.87497256	5039304.27
	4	73.7	123.923	124.034	123.9785	10.2448	10.2988	10.2718	0.08285146	12.817	14.5823049	0.87894198	5036464.45
	5	73.6	124.028	124.117	124.0725	10.1844	10.2855	10.23495	0.08249169	12.689	14.5947285	0.8694235	5041483.88
	6	73.5	124.004	124.023	124.0135	10.3896	10.1524	10.271	0.08282163	12.671	14.5891554	0.86852183	5040287.28
	average ALL	74.1833333	124.010333	124.116667	124.0635	10.2628667	10.2766333	10.26975	0.0827781	12.7236667	14.5857096	0.87233912	5034125.21
	average	73.675	124.0015	124.0845	124.043	10.284	10.275525	10.2797625	0.08287253	12.73675	14.5902331	0.87296497	5039384.75
RUN	FRAME	TAF-S30A	PS-S30G	PS-S30U	PAVG	PS-S10G	PS-S10U	PS-1 avg	P1/P3	ACTUAL M DOT	THEO M DOT	Cd	REYNOLDS #
7\1	1	75.8	99.302	99.382	99.347	8.32235	8.49063	8.40649	0.08481745	10.528	11.6622353	0.90274289	4015750.98
	2	74.2	99.232	99.357	99.2945	8.18953	8.30432	8.246925	0.0830552	10.193	11.6735151	0.87317315	4028910.81
	3	73.8	99.22	99.263	99.2415	8.27405	8.39747	8.33576	0.0839947	9.905	11.6716548	0.84863716	4030596.13
	4	73.6	99.325	99.392	99.3585	8.21368	8.34424	8.27896	0.08332412	10.033	11.6876047	0.85843081	4037270.76
	5	73.5	99.15	99.31	99.23	8.26198	8.39747	8.329725	0.08394362	9.871	11.6735831	0.84558442	4033010.17
	6	73.4	99.185	99.204	99.1945	8.31028	8.14462	8.22745	0.0829426	10.351	11.6705006	0.8869371	4032528.24
	average ALL	74.05	99.2356667	99.3196667	99.2776667	8.26197833	8.34645833	8.30421833	0.08364628	10.1468333	11.6731823	0.86925092	4029668.4
	average	73.75	99.2405	99.304	99.27225	8.246885	8.2976625	8.27227375	0.08332916	10.1205	11.6758188	0.86679456	4032325.37
RUN	FRAME	TAF-S30A	PS-S30G	PS-S30U	PAVG	PS-S10G	PS-S10U	PS-1 avg	P1/P3	ACTUAL M DOT	THEO M DOT	Cd	REYNOLDS #
8\0	1	80.1	74.621	74.687	74.654	8.52987	8.56932	8.549595	0.11452293	7.709	8.72859599	0.89235428	2987153.87
	2	80	74.363	74.475	74.419	8.46953	8.46284	8.466185	0.11376376	7.503	8.70192526	0.86222299	2978450.46
	3	80	74.691	74.758	74.7245	8.42126	8.50277	8.462015	0.11324285	7.51	8.73764783	0.85949905	2990677.4
	4	80	74.667	74.734	74.7005	8.45747	8.44953	8.4535	0.11318524	7.381	8.73484147	0.84500675	2989718.85
	5	80	74.468	74.557	74.5125	8.4092	8.52939	8.469295	0.11366274	7.403	8.71285835	0.84966376	2982192.58
	6	79.9	74.585	74.51	74.5475	8.5178	8.38298	8.45039	0.11335578	7.523	8.71775819	0.86295121	2984294.61
	average ALL	80	74.5658333	74.6201667	74.593	8.46752167	8.482805	8.47516333	0.11361808	7.51816667	8.72227118	0.86194967	2985414.36
	average	79.975	74.52675	74.575	74.550875	8.4544475	8.469495	8.46197125	0.11350628	7.48475	8.71754741	0.85858425	2983903.74
RUN	FRAME	TAF-S30A	PS-S30G	PS-S30U	PAVG	PS-S10G	PS-S10U	PS-1 avg	P1/P3	ACTUAL M DOT	THEO M DOT	Cd	REYNOLDS #
9\0	1	83.7	50.069	50.089	50.079	10.9426	11.0828	11.0127	0.21990655	4.988	5.83585349	0.85471645	1987015.29
	2	83.6	49.787	49.865	49.826	10.8943	10.8431	10.8687	0.2181331	4.751	5.8069047	0.81816394	1977437.86
	3	83.6	50.092	50.065	50.0785	10.9184	11.0295	10.97395	0.21913496	4.544	5.83633197	0.7785712	1987458.79
	4	83.6	50.01	50.101	50.0555	10.8098	10.923	10.8664	0.21708703	4.762	5.83365147	0.81629834	1986545.99
	5	83.6	49.81	49.868	49.849	10.8822	11.0295	10.95585	0.21978074	5.055	5.8095852	0.87011378	1978350.86
	6	83.6	49.869	49.711	49.79	11.0512	10.8564	10.9538	0.22	4.986	5.80270912	0.85925382	1976009.13
	average ALL	83.6166667	49.9395	49.9531667	49.9463333	10.9164167	10.9607167	10.9385667	0.21900706	4.84766667	5.82083932	0.83285292	1982136.4
	average	83.625	49.93375	49.9415	49.937625	10.924475	10.926325	10.9254	0.21878167	4.87175	5.81977969	0.83710814	1981752.25
RUN	FRAME	TAF-S30A	PS-S30G	PS-S30U	PAVG	PS-S10G	PS-S10U	PS-1 avg	P1/P3	ACTUAL M DOT	THEO M DOT	Cd	REYNOLDS #
10\0	1	84.1	25.239	25.318	25.2785	13.3191	13.2532	13.28615	0.52559092	2.083	2.94469511	0.70737374	1002056.11
	2	83.4	25.11	25.082	25.096	13.2467	13.1734	13.21005	0.5263807	2.183	2.92531803	0.74624365	996446.325
	3	83	25.169	25.105	25.137	13.2467	13.2399	13.2433	0.52684489	2.523	2.93117622	0.86074661	999006.408
	4	82.8	25.145	25.176	25.1605	13.295	13.2399	13.26745	0.52731265	2.276	2.93445698	0.77561198	1000407.5
	5	82.8	25.145	25.176	25.1605	13.2829	13.2799	13.2814	0.52786709	2.142	2.93445698	0.72994766	1000407.5
	6	82.8	25.063	24.987	25.025	13.3312	13.0003	13.16575	0.5261039	2.236	2.91865368	0.76610665	995019.877
	average ALL	83.15	25.1451667	25.1406667	25.1429167	13.2869333	13.1977667	13.24235	0.52668336	2.2405	2.9314595	0.76433838	998891.105
	average	82.95	25.11575	25.10525	25.1105	13.28095	13.173375	13.2311625	0.52691609	2.20925	2.92822141	0.75447749	998069.912

Table 2: Continued

RUN	FRAME	TAF-S30A	PS-S30G	PS-S30U	PAVG	PS-S10G	PS-S10U	PS-1 avg	P1/P3	ACTUAL M DOT	THEO M DOT	Cd	REYNOLDS #
811	1	86.9	74.812	74.847	74.8295	8.95873	9.08499	9.02186	0.12056555	7.636	8.69455342	0.87825097	2947062.94
	2	84.2	74.578	74.635	74.6065	8.65675	8.85858	8.757665	0.11738475	7.073	8.69012046	0.81391277	2956761.22
	3	83.6	74.707	74.741	74.724	8.60843	8.79199	8.70021	0.11643127	7.501	8.70860889	0.8613316	2965561.48
	4	83.5	74.718	74.73	74.724	8.64467	8.79199	8.71833	0.11667376	7.513	8.70941001	0.86263019	2966253.16
	5	83.6	74.625	74.671	74.648	8.37892	8.69876	8.53884	0.11438806	7.69	8.69975157	0.88393329	2962545.28
	6	83.6	74.613	74.553	74.583	8.46347	8.32585	8.39466	0.1125546	7.308	8.69217623	0.84075608	2959965.64
	7	83.7	74.765	74.647	74.706	8.82586	9.12494	8.9754	0.12014296	7.405	8.70571039	0.85059113	2964155.92
	8	83.7	74.648	74.494	74.571	8.47555	8.49899	8.48727	0.11381462	7.714	8.68997845	0.8876892	2958799.44
	9	83.8	74.765	74.859	74.812	8.59635	8.85858	8.727465	0.11665862	7.387	8.71726126	0.84739917	2967669.88
	10	83.8	74.636	74.659	74.6475	8.43931	8.48567	8.46249	0.11336602	7.491	8.69809335	0.86122322	2961144.43
	11	83.8	74.718	74.73	74.724	8.64467	8.77867	8.71167	0.11658463	7.445	8.70700731	0.85505843	2964179.06
	12	83.9	74.718	74.73	74.724	8.41515	8.51231	8.46373	0.11326655	7.618	8.70620685	0.87500793	2963488.31
	average ALL	84.0083333	74.6919167	74.6913333	74.691625	8.59232167	8.73427667	8.66329917	0.11598595	7.48175	8.70157318	0.85981533	2961458.39
	average	84.02	74.7077	74.7167	74.7122	8.597556	8.745375	8.6714655	0.1160632	7.4994	8.70387793	0.8616182	2962194.03

Table 2: Continued

	RUN	Cd All	Cd -HVL	REYNOLDS #	P1/P3
	2\3	0.88258927	0.8855981	9081936.09	0.08184629
	3\1	0.87868886	0.87874279	8068312.53	0.08208355
	4\1	0.86913598	0.86791819	7060106.03	0.08225936
	5\0	0.87488273	0.88096187	6047579.91	0.08215305
	6\0	0.87233912	0.87296497	5034125.21	0.0827781
	7\1	0.86925092	0.86679456	4029668.4	0.08364628
	8\0	0.86194967	0.85858425	2985414.36	0.11361888
	9\0	0.83285292	0.83710814	1982136.4	0.21900706
	10\0	0.76433838	0.75447749	995019.877	0.5261039
	8\1	0.85981533	0.8616182	2961458.39	0.11598595

Table 2: Continued

Dia.	5.11	SAF0006 ASRM IGNITOR DISCHARGE PORT FLOW TEST CHAMFERED CIRCULAR ORIFICE											
RUN	FRAME	TAF-S30A	PS-S30G	PS-S30U	PAVG	PS-S10G	PS-S10U	PS-1 AVG	P1/P3	ACTUAL M DOT	THEO M DOT	Cd	REYNOLDS #
21\0	1	88.0812	247.520996	247.572998	247.546997	21.816299	21.737	21.7766495	0.08796976	26.506701	28.7318512	0.92255458	9727721.26
	2	88.039101	247.729004	247.735992	247.732498	21.973	21.8433	21.90815	0.0884347	26.0935	28.7544859	0.90745841	9730953.29
	3	88.104103	247.324005	247.386993	247.355499	22.0091	21.8566	21.93285	0.08866934	27.6056	28.7090249	0.96156523	9714686
	4	88.107597	247.636002	247.666	247.651001	21.960899	21.8699	21.9153995	0.08849308	26.819201	28.7432304	0.93306148	9726213.11
	5	88.107597	247.358002	247.432999	247.395501	21.9007	21.9231	21.9119	0.08857033	27.4531	28.7135761	0.95610174	9716178.62
	6	88.109398	247.531998	247.363007	247.447503	22.0212	21.7237	21.87245	0.08839228	27.9277	28.7195644	0.9724277	9718180.51
	7	88.075996	247.774994	247.712997	247.743996	21.8043	21.8034	21.80385	0.0880096	27.759501	28.7548526	0.96538492	9730575.59
	8	88.007401	247.856995	247.841003	247.848999	21.7922	21.590799	21.6914995	0.08751901	27.3074	28.7688403	0.94920058	9736242.43
	9	87.872101	247.809998	247.910004	247.860001	21.888599	21.8433	21.8659495	0.08821895	28.0716	28.7736696	0.97560027	9739718.91
	10	87.736702	247.832993	247.817001	247.824997	21.743999	21.630699	21.687349	0.08751074	27.370001	28.7731617	0.9512337	9741391.34
	11	87.713898	247.798996	247.712997	247.755997	21.852501	21.8167	21.8346005	0.08812945	27.3267	28.7657494	0.94997351	9739192.47
	12	87.536301	247.567001	247.595993	247.581497	21.973	21.8699	21.92145	0.08854236	26.356001	28.7501506	0.91672567	9736330.01
	average ALL	87.9576163	247.645082	247.645665	247.645374	21.8946498	21.7923665	21.8435081	0.08820497	27.2164171	28.7465131	0.94677398	9729363.29
RUN	FRAME	TAF-S30A	PS-S30G	PS-S30U	PAVG	PS-S10G	PS-S10U	PS-1 AVG	P1/P3	ACTUAL M DOT	THEO M DOT	Cd	REYNOLDS #
22\0	1	86.803299	222.843002	223.007996	222.925499	19.6873	19.667	19.67715	0.08826783	24.945999	25.9043431	0.9630045	8781598.41
	2	86.736504	222.992996	223.195007	223.094002	19.8923	19.7069	19.7996	0.08875003	23.857901	25.9255069	0.9202482	8789595.9
	3	86.685501	222.576004	222.774994	222.675499	19.639	19.5606	19.5998	0.08801956	23.388599	25.8780802	0.90379962	8774144.08
	4	86.557198	222.947006	223.089996	223.018501	19.4701	19.4275	19.4488	0.08720711	24.0425	25.9209839	0.92753038	8790272.2
	5	86.5186	222.785004	223.020004	222.902504	19.5184	19.4275	19.47295	0.08736084	23.989799	25.9084166	0.92594616	8786486.06
	6	86.407799	222.610001	222.647003	222.628502	19.795799	19.4541	19.6249495	0.08815111	24.627001	25.8791923	0.95161397	8777939.25
	7	86.297096	222.959	222.973007	222.966004	19.6269	19.6271	19.627	0.08802687	24.118299	25.9210507	0.93045221	8793502.95
	8	86.203903	222.889008	223.007996	222.948502	19.844101	19.760099	19.8021	0.08881917	24.1418	25.9212271	0.93135251	8794712.99
	9	86.077301	222.934998	223.136002	223.0355	19.4098	19.4142	19.412	0.08703547	24.940399	25.9343478	0.96167443	8800728.6
	10	85.950798	222.796005	223.020004	222.908005	19.458099	19.361	19.4095495	0.08707426	24.299601	25.9225255	0.93739327	8798279.49
	11	85.873398	222.923996	223.100998	223.012497	19.639	19.6138	19.6264	0.08800583	24.4596	25.9365158	0.94305651	8803984.93
	12	85.775002	222.714996	222.927002	222.820999	19.844101	19.839899	19.842	0.08904906	24.505199	25.9165803	0.94554138	8798434.07
	average ALL	86.3238666	222.831001	222.991667	222.911334	19.652075	19.5716415	19.6118583	0.0879806	24.2763914	25.9140642	0.93680109	8790802.58
RUN	FRAME	TAF-S30A	PS-S30G	PS-S30U	PAVG	PS-S10G	PS-S10U	PS-1 AVG	P1/P3	ACTUAL M DOT	THEO M DOT	Cd	REYNOLDS #
23\0	1	86.576599	197.957001	198.067001	198.012001	17.4935	17.5149	17.5042	0.08839969	23.278	23.0141211	1.01146596	7804290.37
	2	85.8787	198.095993	198.278	198.186997	17.577999	17.474899	17.526449	0.0884339	22.0744	23.04918	0.95770869	7823838.96
	3	85.611504	197.910004	198.056	197.983002	17.5177	17.4084	17.46305	0.08820479	22.0156	23.0310928	0.95590775	7820634.94
	4	85.462097	197.968002	198.020996	197.994499	17.4573	17.341801	17.3995505	0.08787896	22.8612	23.0355844	0.99242978	7823803.19
	5	85.335503	198.317001	198.358994	198.337998	17.5056	17.474899	17.4902495	0.08818406	21.586201	23.0782268	0.9353492	7839681.72
	6	85.340797	197.957001	197.822006	197.889504	17.5177	17.128799	17.3232495	0.08754001	22.598	23.0259291	0.98141534	7821857.94
	7	85.251198	198.061005	198.067001	198.064003	17.6625	17.5548	17.60865	0.08890384	21.420799	23.0481269	0.92939435	7830385.24
	8	85.1633	198.050003	197.856995	197.953499	17.4814	17.328501	17.4049505	0.08792444	21.424	23.0371248	0.92997716	7827615.25
	9	85.107002	198.352005	198.475998	198.414002	17.5177	17.328501	17.4231005	0.08781185	21.605801	23.0919088	0.93564379	7846851.46
	10	85.001602	198.026001	198.091003	198.058502	17.5177	17.395	17.45635	0.08813734	21.475	23.0527637	0.93155859	7834711.62
	11	84.9664	197.852005	197.845001	197.848503	17.5177	17.501499	17.5095995	0.08850004	22.044201	23.0290649	0.95723387	7827045.15
	12	84.894302	198.177002	198.253998	198.2155	17.5056	17.461599	17.4835995	0.08820501	21.3629	23.0733088	0.92587068	7842878.57
	average ALL	85.382417	198.060252	198.099416	198.079834	17.5226999	17.4094665	17.4660832	0.08817699	21.9788418	23.0472027	0.95366293	7828626.3

Table 3

RUN	FRAME	TAF-S30A	PS-S30G	PS-S30U	PAVG	PS-S10G	PS-S10U	PS-1 AVG	P1/P3	ACTUAL M DOT	THEO M DOT	Cd	REYNOLDS #
24\0	1	85.833	173.110992	173.214996	173.162994	15.3563	15.3178	15.33705	0.08857002	18.4163	20.1397275	0.91442647	6836690.07
	2	85.040199	173.110992	173.238998	173.174995	15.2598	15.1581	15.20895	0.08782417	18.924601	20.1557663	0.93891746	6849766.07
	3	84.734398	173.121994	173.261993	173.191994	15.3925	15.2513	15.3219	0.08846772	18.430201	20.163402	0.91404223	6855311.72
	4	84.562103	173.251007	173.401993	173.3265	15.3322	15.2113	15.27175	0.08810972	18.921101	20.1822536	0.93751181	6863386.56
	5	84.409203	173.227005	173.343994	173.2855	15.2839	15.2513	15.2676	0.08810662	18.345699	20.1803127	0.90908893	6864205.33
	6	84.326599	173.261993	173.25	173.255997	15.4046	15.0649	15.23475	0.08793202	19.4522	20.1784078	0.96401065	6864356.57
	7	84.242203	173.134003	173.179993	173.156998	15.3322	15.2912	15.3117	0.08842669	18.848499	20.1684414	0.93455407	6861782.57
	8	84.1455	173.296997	173.332001	173.314499	15.3805	15.1714	15.27595	0.08814006	18.623501	20.18858	0.92247701	6869570.87
	9	84.015404	173.274002	173.367004	173.320503	15.3081	15.1581	15.2331	0.08788977	18.7687	20.1916933	0.92952581	6871891.07
	10	83.959198	173.238998	173.238998	173.238998	15.2477	15.0915	15.1696	0.08756458	18.7178	20.1832407	0.92739319	6869559.07
	11	83.892403	173.309006	173.425995	173.367501	15.1633	15.0915	15.1274	0.08725626	19.140499	20.1994521	0.94757516	6875724.77
	12	83.7957	173.354996	173.438004	173.3965	15.2719	15.198	15.23495	0.08786192	18.5923	20.2046272	0.9202001	6878424.95
	average ALL	84.4129925	173.224332	173.307831	173.266081	15.3110833	15.1880333	15.2495583	0.08801246	18.7651168	20.1779921	0.92997691	6863379.31
RUN	FRAME	TAF-S30A	PS-S30G	PS-S30U	PAVG	PS-S10G	PS-S10U	PS-1 AVG	P1/P3	ACTUAL M DOT	THEO M DOT	Cd	REYNOLDS #
25\0	1	83.191002	148.468994	148.608994	148.538994	13.1602	13.0817	13.12095	0.08833337	16.213699	17.317795	0.936245	5900674.68
	2	83.133003	148.434006	148.539001	148.486504	12.9913	12.8954	12.94335	0.08716853	16.492399	17.3125995	0.95262407	5899388.05
	3	83.041603	148.550995	148.645004	148.598	13.0878	13.0684	13.0781	0.08800993	16.1311	17.3270572	0.93097747	5905077.59
	4	82.952003	148.376007	148.468994	148.422501	13.1361	13.0285	13.0823	0.0881423	16.387899	17.3080214	0.94683838	5899337.51
	5	82.901001	148.574005	148.679993	148.626999	13.1964	13.2015	13.19895	0.08880587	16.264	17.3326827	0.93834292	5908169.31
	6	82.776199	148.399002	148.363007	148.381005	13.124	12.7756	12.9498	0.08727397	16.306999	17.3059844	0.94227515	5900110.19
	7	82.767403	148.410995	148.375	148.392998	13.1481	13.0817	13.1149	0.08837951	16.2556	17.3075234	0.93922161	5900708.31
	8	82.616203	148.294006	148.315994	148.305	13.1119	12.8422	12.97705	0.08750244	15.8709	17.2996698	0.91741058	5899292.75
	9	82.602097	148.585999	148.679993	148.632996	13.2688	13.2281	13.24845	0.08913532	16.5979	17.3381556	0.95730482	5912534.7
	10	82.450996	148.328995	148.492004	148.4105	13.1361	13.0285	13.0823	0.08814942	16.2251	17.3146122	0.93707556	5905769.15
	11	82.401802	148.457993	148.539001	148.498497	13.1723	13.0817	13.127	0.0883982	15.5741	17.3256643	0.89890348	5909950.48
	12	82.306801	148.539001	148.667999	148.6035	13.2447	13.1882	13.21645	0.08893768	16.3943	17.3394338	0.94549223	5915443.15
	average ALL	82.7616761	148.451667	148.531249	148.491458	13.1481417	13.0417917	13.0949667	0.08818638	16.2261663	17.3190999	0.93689261	5904702.97
RUN	FRAME	TAF-S30A	PS-S30G	PS-S30U	PAVG	PS-S10G	PS-S10U	PS-1 AVG	P1/P3	ACTUAL M DOT	THEO M DOT	Cd	REYNOLDS #
26\0	1	81.779503	123.921997	123.964996	123.943497	11.0224	11.0697	11.04605	0.08912166	13.7709	14.469078	0.95174689	4939895.44
	2	81.686302	123.723	123.777	123.75	10.9862	10.9498	10.968	0.0886303	13.8853	14.4477321	0.96107125	4933259.73
	3	81.633598	123.688004	123.707001	123.697503	10.8896	10.9098	10.8997	0.08811576	13.8498	14.4423056	0.9589743	4931775.5
	4	81.566803	123.758003	123.883003	123.820503	11.0707	11.0164	11.04355	0.08918999	13.5948	14.4575581	0.94032477	4937451.74
	5	81.4842	123.769997	123.859001	123.814499	10.9983	11.0564	11.02735	0.08906348	13.2867	14.4579597	0.91898859	4938167.61
	6	81.413902	123.699997	123.578003	123.639	10.9379	10.6701	10.804	0.08738343	13.5828	14.4384037	0.94074111	4931980.18
	7	81.334801	123.688004	123.682999	123.685502	10.9379	11.0564	10.99715	0.0889122	13.6546	14.4448893	0.94528935	4934749.59
	8	81.243401	123.769997	123.753998	123.761998	11.0949	10.9631	11.029	0.08911459	13.7932	14.4550435	0.95421367	4938859.29
	9	81.172997	123.688004	123.789001	123.738503	10.9621	11.0297	10.9959	0.08886401	13.6726	14.4532394	0.94598862	4938736.56
	10	81.114998	123.665001	123.730003	123.697502	10.95	10.9098	10.9299	0.08835991	13.6256	14.4492246	0.9429987	4937771.38
	11	81.002502	123.665001	123.707001	123.686001	10.9862	11.0164	11.0013	0.08894539	13.4845	14.4493832	0.93322322	4938614.64
	12	80.919899	123.851997	123.917999	123.884998	10.9741	11.043	11.00855	0.08886104	13.4734	14.4737357	0.93088614	4947518.57
	average ALL	81.3627422	123.74075	123.779167	123.759959	10.9841917	10.9742167	10.9792042	0.08871348	13.6395167	14.4532127	0.94370389	4937397.26

Table 3: Continued

RUN	FRAME	TAF-S30A	PS-S30G	PS-S30U	PAVG	PS-S10G	PS-S10U	PS-1 AVG	P1/P3	ACTUAL M DOT	THEO M DOT	Cd	REYNOLDS #
27\0	1	80.475197	99.020599	99.215797	99.118198	8.81258	8.81763	8.815105	0.08893528	11.0146	11.5849433	0.95076857	3962554.56
	2	80.431297	99.043999	99.133499	99.088749	8.78843	8.81763	8.80303	0.08883985	10.8189	11.5819717	0.93411556	3961785.51
	3	80.318703	99.137604	99.121696	99.12965	8.84881	8.76434	8.806575	0.08883896	10.8217	11.5879596	0.9338745	3964468.74
	4	80.320503	99.079102	99.121696	99.100399	8.87296	8.81763	8.845295	0.0892559	10.1914	11.5845209	0.8797429	3963282.16
	5	80.278297	99.114197	99.2276	99.1708985	8.76427	8.83096	8.797615	0.08871166	10.9485	11.5932149	0.9443886	3966494.72
	6	80.214996	99.032303	98.945297	98.9888	8.86089	8.57781	8.71935	0.08808421	10.9924	11.5726053	0.9498639	3959800.05
	7	80.125397	99.102501	99.051201	99.076851	8.82466	8.87093	8.847795	0.08930234	10.4509	11.5838598	0.90219496	3964156.53
	8	80.102501	99.079102	98.992401	99.0357515	8.78843	8.69772	8.743075	0.08828201	10.7149	11.5793	0.92534955	3962725.24
	9	80.016403	99.079102	99.156998	99.11805	8.7522	8.83096	8.79158	0.08869807	11.1529	11.5898462	0.96229922	3966820.61
	10	79.954903	98.868599	99.004097	98.936348	8.70389	8.69772	8.700805	0.08794346	10.9794	11.5692586	0.949015	3960120.94
	11	79.870499	98.9972	99.074699	99.0359495	8.81258	8.84428	8.82843	0.08914369	10.6998	11.5818109	0.92384516	3964894.12
	12	79.8582	99.020599	99.145302	99.0829505	8.76427	8.72437	8.74432	0.08825252	11.101	11.5874395	0.95802011	3966890.48
	average ALL	80.163908	99.0479089	99.0991903	99.0735496	8.7994975	8.77433167	8.78691458	0.08869066	10.8238667	11.5830609	0.9344565	3963665.84
RUN	FRAME	TAF-S30A	PS-S30G	PS-S30U	PAVG	PS-S10G	PS-S10U	PS-1 AVG	P1/P3	ACTUAL M DOT	THEO M DOT	Cd	REYNOLDS #
28\0	1	79.575203	74.550903	74.616997	74.58395	9.06163	9.17833	9.11998	0.12227805	8.08418	8.72464545	0.92659123	2988034.68
	2	79.534798	74.421898	74.463799	74.4428485	8.46937	8.60553	8.53745	0.11468462	8.28672	8.70846581	0.9515706	2982665.21
	3	79.482002	74.386703	74.499199	74.442951	8.13092	8.25917	8.195045	0.1100849	8.27079	8.70890392	0.94969356	2983039.76
	4	79.4328	74.468803	74.5345	74.5016515	8.31223	8.44567	8.37895	0.11246663	8.2683	8.71616863	0.94861634	2985737.55
	5	79.388901	74.5392	74.593399	74.5662995	8.1551	8.31245	8.233775	0.1104222	7.95473	8.72408698	0.91181232	2988637.05
	6	79.401199	74.609497	74.310699	74.460098	8.27597	8.08599	8.18098	0.10987066	8.23848	8.71156233	0.94569489	2984294.12
	7	79.351997	74.410202	74.369598	74.3899	8.37267	8.63217	8.50242	0.11429535	8.16826	8.70374639	0.93847633	2981825.83
	8	79.297501	74.492302	74.381401	74.4368515	8.55398	8.55224	8.55311	0.11490424	8.24885	8.70967982	0.94708992	2984090.47
	9	79.213097	74.386703	74.475601	74.431152	8.16718	8.25917	8.213175	0.11034593	8.18055	8.70969453	0.93924649	2984454.78
	10	79.2043	74.386703	74.452003	74.419353	8.0584	8.11263	8.085515	0.10864802	8.14586	8.70838488	0.93540422	2984043.47
	11	79.183197	74.468803	74.581703	74.525253	8.04631	8.23253	8.13942	0.10921694	8.17042	8.72094772	0.93687295	2988438.25
	12	79.156799	74.433601	74.511002	74.4723015	8.16718	8.28581	8.226495	0.11046382	8.10279	8.71496468	0.92975592	2986500.49
	average ALL	79.3518162	74.4629432	74.4824918	74.4727175	8.314245	8.41347417	8.36385958	0.11230678	8.17666083	8.71343759	0.93840207	2985146.72
RUN	FRAME	TAF-S30A	PS-S30G	PS-S30U	PAVG	PS-S10G	PS-S10U	PS-1 AVG	P1/P3	ACTUAL M DOT	THEO M DOT	Cd	REYNOLDS #
29\0	1	79.404701	49.6213	49.601398	49.611349	10.5401	10.6455	10.5928	0.21351566	5.591	5.80432967	0.96324646	1988362.1
	2	79.4328	50.008598	50.096901	50.0527495	10.5401	10.6855	10.6128	0.21203231	4.62715	5.85581925	0.79017979	2005920.28
	3	79.413498	49.632999	49.6604	49.6466995	10.5642	10.6588	10.6115	0.21374029	4.78649	5.80841818	0.82406085	1989737.73
	4	79.402901	49.926399	49.884499	49.905449	10.6608	10.6988	10.6798	0.21400068	4.72292	5.83874794	0.8088926	2000157.74
	5	79.410004	50.020302	50.085098	50.0527	10.5521	10.6988	10.62545	0.21228525	6.23164	5.85593719	1.06415759	2006025.88
	6	79.362503	50.020302	49.943501	49.9819015	10.7332	10.5657	10.64945	0.21306612	5.228	5.84791158	0.89399436	2003412.3
	7	79.383598	49.949902	49.8727	49.911301	10.6004	10.8053	10.70285	0.21443741	4.86157	5.83953709	0.83252661	2000483.14
	8	79.3713	49.4687	49.3536	49.41115	10.6004	10.6588	10.6296	0.21512553	5.60823	5.78108618	0.97009971	1980494.01
	9	79.336098	49.585999	49.613201	49.5996	10.6608	10.8053	10.73305	0.21639388	4.78955	5.80332414	0.82531147	1988212.13
	10	79.323799	49.503899	49.4716	49.4877495	10.5642	10.6455	10.60485	0.21429243	4.73031	5.79030327	0.81693649	1983785.99
	11	79.322098	49.879501	49.896301	49.887901	10.6608	10.7254	10.6931	0.21434255	5.54691	5.83713211	0.95028002	1999834.63
	12	79.2939	49.9147	49.884499	49.8995995	10.6729	10.8053	10.7391	0.21521415	4.47133	5.83865353	0.76581526	2000436.32
	average ALL	79.3714333	49.7943834	49.7803082	49.7873458	10.6125	10.6998917	10.6561958	0.21403719	5.09959167	5.82510001	0.87545843	1995571.96

Table 3: Continued

RUN	FRAME	TAF-S30A	PS-S30G	PS-S30U	PAVG	PS-S10G	PS-S10U	PS-1 AVG	P1/P3	ACTUAL M DOT	THEO M DOT	Cd	REYNOLDS #
3010	1	81.035896	25.1446	25.172899	25.1587495	13.0264	13.0811	13.05375	0.51885528	2.49166	2.93903264	0.84778235	1004476.17
	2	80.3451	24.9564	25.031099	24.9937495	12.9902	13.0278	13.009	0.52049013	2.43813	2.92162319	0.83451213	999507.18
	3	79.989998	25.132799	25.1493	25.1410495	13.0747	13.0677	13.0712	0.51991465	2.47441	2.93980784	0.84169107	1006236.72
	4	79.838898	25.1446	25.243799	25.1941995	13.0506	13.0278	13.0392	0.5175477	2.52012	2.94643507	0.85531157	1008722.13
	5	79.7668	25.050501	25.137501	25.094001	12.9902	12.9878	12.989	0.51761375	2.36834	2.93491296	0.80695409	1004880.69
	6	79.698196	25.0858	25.0429	25.06435	13.0747	12.8147	12.9447	0.51645864	2.62202	2.93163138	0.89438939	1003855.23
	7	79.756203	25.0858	25.1493	25.11755	13.0264	13.0811	13.05375	0.51970634	2.5678	2.93769601	0.87408636	1005848.76
	8	79.717598	25.038799	24.972	25.0053995	12.954	12.9346	12.9443	0.5176602	2.52076	2.92468371	0.86189149	1001448.51
	9	79.733398	25.038799	25.1611	25.0999495	13.0385	13.0944	13.06645	0.52057674	2.36401	2.93569951	0.80526293	1005197.83
	10	79.750999	24.9564	25.031099	24.9937495	12.9781	12.9612	12.96965	0.51891574	2.39351	2.92323065	0.81878931	1000903.34
	11	79.775597	25.050501	25.137501	25.094001	13.0506	13.0411	13.04585	0.51987923	2.55502	2.93488904	0.87056784	1004859.91
	12	79.789597	25.1446	25.208401	25.1765005	13.0506	12.9878	13.0192	0.51711714	2.57578	2.94449965	0.87477681	1008130.33
	average ALL	79.93319	25.0691333	25.1197416	25.0944374	13.0254167	13.008925	13.0171708	0.51872796	2.49096333	2.9345118	0.84883461	1004505.25

Table 3: Continued

RUN	Cd	REYNOLDS #	P1/P3
22\0	0.93680109	8790802.58	0.0879806
23\0	0.95366293	7828626.3	0.08817699
24\0	0.92997691	6863379.31	0.08801246
25\0	0.93689261	5904702.97	0.08818638
26\0	0.94370389	4937397.26	0.08871348
27\0	0.9344565	3963665.84	0.08869066
28\0	0.93840207	2985146.72	0.11230678
29\0	0.87545843	1995571.96	0.21403719
30\0	0.84883461	1004505.25	0.51872796

Table 3: Continued

Dia.	3.464		SAF0006 ASRM IGNITOR DISCHARGE PORT FLOW TEST ELLIPTICAL ORIFICE										
RUN	FRAME	TAF-S30A	PS-S30G	PS-S30U	PAVG	PS-10G	PS-10U	PS-1 AVG	P1/P3	ACTUAL M DOT	THEO M DOT	Cd	REYNOLDS #
11\0	1	89.4	249.915	249.955	249.935	18.585501	18.6273	18.6064005	0.07444496	18.555	19.6412051	0.94469763	9786919.72
	2	88.6	249.903	249.897	249.9	18.621599	18.614	18.6177995	0.074501	18.073	19.6527684	0.91961599	9803613.33
	3	88.2	249.984	249.99	249.987	18.6457	18.760099	18.7028995	0.07481549	17.631	19.6667814	0.89648629	9816085.5
	4	88	249.984	250.025	250.0045	18.814199	18.813299	18.813749	0.07525364	17.975	19.6717469	0.91374701	9821308.55
	5	87.9	250.146	250.2	250.173	18.742001	18.614	18.6780005	0.07466034	18.206	19.6868018	0.924782	9830198.97
	6	87.9	250.031	249.99	250.0105	18.6457	18.3881	18.5169	0.07406449	18.924	19.6740142	0.96187793	9823813.76
	7	87.9	250.181	250.188	250.1845	18.717899	18.720301	18.7191	0.07482118	17.792	19.6877067	0.90371115	9830650.85
	8	87.9	250.019	249.979	249.999	18.561501	18.6273	18.5944005	0.0743779	18.494	19.6731092	0.94006493	9823361.89
	9	87.9	249.984	250.025	250.0045	18.561501	18.746799	18.65415	0.07461526	18.465	19.673542	0.93857019	9823578
	10	87.9	249.996	250.2	250.098	18.537399	18.5874	18.5623995	0.0742205	18.765	19.6808998	0.9534625	9827251.95
	11	87.8	250.042	250.165	250.1035	18.8263	18.614	18.72015	0.07484961	19.849	19.6831289	1.00842707	9829739.42
	12	87.9	250.343	250.386	250.3645	18.561501	18.746799	18.65415	0.07450797	19.504	19.7018714	0.98995672	9837723.7
	average ALL	88.1083333	250.044	250.083333	250.063667	18.6517334	18.6549498	18.6533416	0.07459436	18.5194167	19.6744647	0.94128328	9821178.26
RUN	FRAME	TAF-S30A	PS-S30G	PS-S30U	PAVG	PS-10G	PS-10U	PS-1 AVG	P1/P3	ACTUAL M DOT	THEO M DOT	Cd	REYNOLDS #
12\0	1	91.6	225.349	225.484	225.4165	17.0376	16.823799	16.9306995	0.07510852	16.025	17.6790513	0.90644004	8782312.93
	2	91.6	225.233	225.332	225.2825	16.989401	16.810499	16.89995	0.0750167	16.335	17.6685419	0.92452451	8777092.24
	3	91.6	225.546	225.542	225.544	17.025499	16.863701	16.9446	0.07512769	17.303	17.6890509	0.97817571	8787280.38
	4	91.7	225.511	225.565	225.538	17.0858	16.770599	16.9281995	0.07505697	15.611	17.6869772	0.8826268	8785032.33
	5	91.9	225.534	225.624	225.579	16.627501	16.664101	16.645801	0.07379145	17.006	17.6869868	0.96149786	8782602.69
	6	92	225.418	225.32	225.369	17.110001	16.531099	16.82055	0.0746356	16.472	17.6689207	0.93225842	8772416.5
	7	92	225.476	225.507	225.4915	17.0014	16.810499	16.9059495	0.07497378	16.18	17.6785247	0.91523474	8777184.77
	8	92.1	225.511	225.46	225.4855	16.844601	16.557699	16.70115	0.07406751	16.546	17.6764532	0.93604751	8774940.94
	9	92.2	225.604	225.717	225.6605	17.025499	16.810499	16.917999	0.07497103	16.681	17.6885701	0.94303835	8779740.23
	10	92.3	225.465	225.519	225.492	17.0376	16.637501	16.8375505	0.07467028	17.538	17.6737619	0.99231845	8771175.83
	11	92.4	225.558	225.647	225.6025	16.989401	16.797199	16.8933	0.07488082	16.432	17.6808221	0.92936855	8773465.37
	12	92.4	225.337	225.437	225.387	17.122	16.783899	16.9529495	0.07521707	15.98	17.663933	0.90466828	8765084.78
	average ALL	91.9833333	225.461833	225.512833	225.487333	16.9913586	16.7384245	16.8648915	0.07479312	16.5090833	17.6784661	0.93384994	8777358.35
RUN	FRAME	TAF-S30A	PS-S30G	PS-S30U	PAVG	PS-10G	PS-10U	PS-1 AVG	P1/P3	ACTUAL M DOT	THEO M DOT	Cd	REYNOLDS #
13\0	1	92.6	200.291	200.469	200.38	14.9487	14.9719	14.9603	0.07465965	15.087	15.7012531	0.96087872	7789020.58
	2	92.6	200.117	200.283	200.2	15.0452	14.8388	14.942	0.07463536	14.723	15.6871488	0.93853894	7782023.75
	3	92.5	200.314	200.434	200.374	15.0813	15.1847	15.133	0.07552377	14.909	15.7022038	0.94948456	7790569.85
	4	92.6	200.244	200.411	200.3275	15.0572	15.0118	15.0345	0.07504961	14.107	15.6971393	0.89869878	7786979.84
	5	92.5	200.059	200.271	200.165	14.9969	14.9852	14.99105	0.07489346	14.519	15.6858256	0.92561274	7782443.9
	6	92.6	200.43	200.423	200.4265	14.9728	14.5861	14.77945	0.07374	15.147	15.7048967	0.96447626	7790828.09
	7	92.6	200.57	200.621	200.5955	15.009	15.0783	15.04365	0.07499495	14.387	15.7181391	0.91531192	7797397.33
	8	92.5	200.314	200.294	200.304	15.009	14.8122	14.9106	0.07443985	15.36	15.6967182	0.97854849	7787848.24
	9	92.5	200.314	200.458	200.386	15.0813	15.0251	15.0532	0.07512102	14.518	15.7031441	0.92452823	7791036.42
	10	92.5	200.21	200.423	200.3165	14.9728	14.8388	14.9058	0.07441124	14.55	15.6976978	0.92688751	7788334.25
	11	92.5	200.407	200.528	200.4675	14.9487	14.9187	14.9337	0.07449437	14.799	15.7095308	0.94203959	7794205.15
	12	92.4	200.314	200.434	200.374	14.9728	14.8921	14.93245	0.07452289	14.665	15.703625	0.93386081	7792353.14
	average ALL	92.5333333	200.298667	200.42075	200.359708	15.007975	14.9286417	14.9683083	0.07470718	14.7309167	15.7006102	0.93823888	7789419.98

Table 4

RUN	FRAME	TAF-S30A	PS-S30G	PS-S30U	PAVG	PS-10G	PS-10U	PS-1 AVG	P1/P3	ACTUAL M DOT	THEO M DOT	Cd	REYNOLDS #
14\0	1	92.4	175.258	175.419	175.3385	13.1024	13.1751	13.13875	0.07493363	12.842	13.7415535	0.93453771	6818746.5
	2	92.4	175.246	175.337	175.2915	13.0662	13.0953	13.08075	0.07462284	12.713	13.7378701	0.92539818	6816918.71
	3	92.4	175.293	175.361	175.327	13.211	13.1086	13.1598	0.0750586	12.1	13.7406523	0.88059866	6818299.27
	4	92.3	175.409	175.548	175.4785	13.211	13.0819	13.14645	0.07491772	13.111	13.7537705	0.95326587	6825753.37
	5	92.3	175.362	175.443	175.4025	13.03	13.0819	13.05595	0.07443423	12.401	13.7478137	0.90203433	6822797.12
	6	92.3	175.293	175.174	175.2335	13.211	12.9089	13.05995	0.07452884	13.094	13.7345677	0.95336091	6816223.37
	7	92.3	175.246	175.197	175.2215	13.2714	13.2151	13.24325	0.07558005	12.863	13.7336272	0.93660617	6815756.6
	8	92.3	175.362	175.291	175.3265	13.1024	12.9888	13.0456	0.07440746	12.878	13.741857	0.93713681	6819840.88
	9	92.3	175.479	175.56	175.5195	13.1748	13.1618	13.1683	0.07502471	12.947	13.756984	0.94112198	6827348.18
	10	92.2	175.316	175.396	175.356	13.1507	13.1219	13.1363	0.07491218	12.944	13.7454136	0.94169593	6822550.37
	11	92.2	175.316	175.419	175.3675	13.199	13.1219	13.16045	0.07504498	12.726	13.746315	0.92577538	6822997.8
	12	92.2	175.456	175.56	175.508	13.1386	13.1618	13.1502	0.0749265	12.179	13.7573282	0.88527364	6828464.21
	average ALL	92.3	175.336333	175.392083	175.364208	13.1557083	13.1019167	13.1288125	0.07486598	12.7331667	13.7448127	0.92640046	6821307.78

RUN	FRAME	TAF-S30A	PS-S30G	PS-S30U	PAVG	PS-10G	PS-10U	PS-1 AVG	P1/P3	ACTUAL M DOT	THEO M DOT	Cd	REYNOLDS #
15\0	1	78.6418	149.673004	149.811996	149.7425	11.0194	11.2778	11.1486	0.07445181	10.5658	11.8844869	0.88904133	6012423.81
	2	76.029701	149.660995	149.776001	149.718498	11.0796	11.2379	11.15875	0.07453154	10.8666	11.9114989	0.91227813	6048684
	3	75.178902	149.684006	149.729996	149.707001	10.9953	11.3176	11.15645	0.0745219	10.3623	11.9200479	0.86931698	6060438.15
	4	74.851997	149.742004	149.917007	149.829506	11.0555	11.3176	11.18655	0.07466186	11.0359	11.9334472	0.92478726	6070108.57
	5	74.512703	149.649002	149.822998	149.736	10.9351	11.2645	11.0998	0.07412913	10.9006	11.9297844	0.91372984	6071214.42
	6	74.315804	149.753998	149.729996	149.741997	10.9712	11.0254	10.9983	0.07344833	11.2083	11.9324601	0.93931175	6074301.27
	7	74.090797	149.660995	149.658997	149.659996	11.0675	11.3973	11.2324	0.07505279	11.2407	11.9284376	0.9423447	6074225.87
	8	74.002899	149.789001	149.753006	149.771004	11.0194	11.1582	11.0888	0.07403836	10.7359	11.9382677	0.89928457	6080003.15
	9	73.809601	149.893997	149.940002	149.917	11.0314	11.2645	11.14795	0.07436081	11.0163	11.9520685	0.92170657	6088731.31
	10	73.697098	149.602997	149.835007	149.719002	10.9953	11.1981	11.0967	0.07411684	10.4834	11.9375412	0.87818754	6082319.29
	11	73.603897	149.824005	149.917007	149.870506	11.1037	11.3043	11.204	0.07475787	10.3822	11.9506646	0.86875503	6089826.02
	12	73.463303	149.811996	149.917007	149.864502	11.0555	11.3176	11.18655	0.07464443	10.6932	11.9517605	0.89469665	6091622.36
	average ALL	74.6832085	149.728833	149.817418	149.773126	11.0274083	11.2567333	11.1420708	0.07439297	10.7909333	11.9308721	0.90445336	6070275.36

RUN	FRAME	TAF-S30A	PS-S30G	PS-S30U	PAVG	PS-10G	PS-10U	PS-1 AVG	P1/P3	ACTUAL M DOT	THEO M DOT	Cd	REYNOLDS #
16\0	1	73.456299	124.816002	124.982002	124.899002	9.62376	9.68465	9.654205	0.07729609	9.43903	9.9608162	0.94761612	5076921.12
	2	73.2752	124.710999	124.851997	124.781498	9.63583	9.49817	9.567	0.07667002	9.09897	9.95313474	0.91418133	5074334.73
	3	73.162697	125.050003	125.098999	125.074501	9.67204	9.63137	9.651705	0.07716765	8.94887	9.9775585	0.89689978	5087614.47
	4	73.099403	125.272003	125.346001	125.309002	9.72032	9.64469	9.682505	0.07726903	9.13558	9.99685873	0.91384506	5097922.63
	5	73.034401	124.956001	125.168999	125.0625	9.63583	9.63137	9.6336	0.07703028	9.19377	9.9778017	0.9214224	5088683.12
	6	72.930702	125.038002	124.970001	125.004002	9.58754	9.36497	9.476255	0.07580761	9.60747	9.9741048	0.96324133	5087561.28
	7	72.8797	125.097	125.004997	125.050999	9.69618	9.73793	9.717055	0.07770474	8.58315	9.97833218	0.86017882	5090093.39
	8	72.863899	125.072998	125.075996	125.074497	9.61169	9.44489	9.52829	0.07618092	9.35764	9.98035519	0.93760591	5091241.83
	9	72.7883	125.097	125.227997	125.162499	9.52719	9.57809	9.55264	0.0763219	9.36403	9.98808584	0.93751998	5095743.22
	10	72.733803	124.980003	125.146004	125.063004	9.55133	9.56477	9.55805	0.07642588	9.22312	9.9806565	0.92409953	5092354.79
	11	72.702103	125.108002	125.205002	125.156502	9.65997	9.69797	9.67897	0.07733494	9.28553	9.98841534	0.92962994	5096547.51
	12	72.626602	125.072998	125.205002	125.139	9.57547	9.72461	9.65004	0.07711457	8.96177	9.98772636	0.89727829	5096753.35
	average ALL	72.9627591	125.022584	125.106916	125.06475	9.6247625	9.60029	9.61252625	0.0768603	9.18324417	9.97865384	0.92029321	5089645.45

Table 4: Continued

RUN	FRAME	TAF-S30A	PS-S30G	PS-S30U	PAVG	PS-10G	PS-10U	PS-1 AVG	P1/P3	ACTUAL M DOT	THEO M DOT	Cd	REYNOLDS #
17\0	1	72.800598	100.558998	100.574997	100.566998	9.57439	9.96414	9.769265	0.09714186	6.3884	8.02524896	0.79603761	4094265.94
	2	72.747902	99.986	99.999199	99.9925995	9.52609	9.72437	9.62523	0.09625942	7.88091	7.97980662	0.98760664	4071393.17
	3	72.737297	100.314003	100.328003	100.321003	9.85208	9.57784	9.71496	0.09683874	7.07644	8.00609421	0.88388168	4084868.15
	4	72.735497	100.021004	100.045998	100.033501	9.85208	9.61781	9.734945	0.09731685	7.79796	7.98316366	0.97680072	4073179.15
	5	72.652901	100.068001	100.164001	100.116001	9.81586	9.65777	9.736815	0.09725533	7.89497	7.99036701	0.988061	4077342.21
	6	72.656403	100.431	100.351997	100.391499	9.73134	9.68441	9.707875	0.09670017	6.34211	8.01232843	0.79154394	4088527.99
	7	72.631798	100.324997	100.198997	100.261997	9.57439	9.89754	9.735965	0.09710524	8.11508	8.00217763	1.01410896	4083493.79
	8	72.5756	100.290001	100.210999	100.2505	9.69512	9.64445	9.669785	0.09645623	7.10008	8.00168216	0.88732342	4083573.41
	9	72.570297	100.102997	100.152	100.127499	9.73134	9.8043	9.76782	0.09755382	7.2659	7.99190435	0.90915753	4078614.75
	10	72.507004	100.220001	100.234001	100.227001	9.81586	9.59117	9.703515	0.09681538	7.25907	8.00032178	0.90734725	4083284.99
	11	72.459602	100.290001	100.246002	100.268002	9.69512	9.85758	9.77635	0.09750219	7.05034	8.00395078	0.88085749	4085417.82
	12	72.468399	100.431	100.422997	100.426999	9.79171	9.63113	9.71142	0.09670129	7.48779	8.01657658	0.93403835	4091810.18
	average ALL	72.6286082	100.253167	100.244099	100.248633	9.72128167	9.7210425	9.72116208	0.09697054	7.30492083	8.00113518	0.91306372	4082980.7
RUN	FRAME	TAF-S30A	PS-S30G	PS-S30U	PAVG	PS-10G	PS-10U	PS-1 AVG	P1/P3	ACTUAL M DOT	THEO M DOT	Cd	REYNOLDS #
18\0	1	72.065804	74.9664	75.023598	74.994999	10.0341	10.0164	10.02525	0.13367891	6.06559	5.98873384	1.01283346	3058546.25
	2	72.053497	74.931297	74.941101	74.936199	10.01	9.98977	9.999885	0.13344532	5.73287	5.98410757	0.95801587	3056238.09
	3	72.0131	75.329803	75.306297	75.31805	10.0703	10.1097	10.09	0.13396523	5.79375	6.01482902	0.96324434	3072108.36
	4	71.979698	75.294601	75.341599	75.3181	10.0583	10.0964	10.07735	0.13379719	5.9162	6.01502184	0.98357083	3072355.73
	5	71.999001	75.036797	75.200302	75.1185495	9.87719	9.96313	9.92016	0.13206006	5.17497	5.99897659	0.86264214	3064074.32
	6	72.021896	75.411797	75.353401	75.382599	10.01	9.81657	9.913285	0.13150628	5.09017	6.01993408	0.84555245	3074676.57
	7	71.965599	75.165703	75.011803	75.088753	9.96169	10.0031	9.982395	0.13294128	5.73581	5.99678529	0.9564808	3063103.52
	8	71.951599	75.400101	75.294502	75.3473015	9.9134	9.89651	9.904955	0.13145733	5.4398	6.01751284	0.90399475	3073753.4
	9	71.9217	75.0485	75.094299	75.0713995	10.0945	10.1363	10.1154	0.13474372	5.78081	5.99564679	0.96416787	3062717.06
	10	71.919899	75.153999	75.223801	75.1889	9.82891	9.84321	9.83606	0.13081798	5.61091	6.00504124	0.93436661	3067523.99
	11	71.918198	75.118797	75.164902	75.1418495	9.92548	9.98977	9.957625	0.1325177	5.81287	6.0012931	0.96860292	3065616.91
	12	71.849602	75.329803	75.353401	75.341602	9.87719	9.90983	9.89351	0.13131537	5.54994	6.0176346	0.92227933	3074270.59
	average ALL	71.9716328	75.1822998	75.1924172	75.1873585	9.971755	9.98089083	9.97632292	0.1326872	5.64197417	6.0046264	0.93964595	3067081.83
RUN	FRAME	TAF-S30A	PS-S30G	PS-S30U	PAVG	PS-10G	PS-10U	PS-1 AVG	P1/P3	ACTUAL M DOT	THEO M DOT	Cd	REYNOLDS #
19\0	1	72.201202	50.0989	50.2164	50.15765	12.1095	12.3225	12.216	0.24355208	3.50792	4.00483509	0.87592121	2044934.45
	2	72.176598	49.946201	50.051201	49.998701	11.7353	11.8965	11.8159	0.23632414	3.50658	3.99223609	0.87834986	2038573.94
	3	72.1959	49.934502	50.027599	49.9810505	11.856	12.003	11.9295	0.23868046	3.48527	3.99075439	0.87333613	2037760.29
	4	72.197701	50.063702	50.145599	50.1046505	11.8681	11.9364	11.90225	0.23754781	3.86459	4.0006165	0.96599862	2042790.75
	5	72.190598	50.1106	50.204601	50.1576005	11.8198	11.9497	11.88475	0.23694814	3.64938	4.00487103	0.91123534	2044984.26
	6	72.185402	49.887501	49.886101	49.886801	11.8922	11.7633	11.82775	0.23709177	3.41318	3.98326829	0.85687926	2033968.7
	7	72.218697	50.251598	50.228199	50.2398985	11.8922	12.0962	11.9942	0.23873854	3.52103	4.01133628	0.87776984	2048202.11
	8	72.222298	50.345501	50.251801	50.298651	11.8318	11.8166	11.8242	0.23507986	3.81075	4.01601371	0.94888869	2050579.71
	9	72.213501	50.040199	50.192799	50.116499	11.8922	11.9764	11.9343	0.23813116	3.06346	4.00150315	0.76557731	2043196.67
	10	72.2258	49.934502	49.968601	49.9515515	11.8318	11.8832	11.8575	0.23738001	3.69926	3.98828699	0.92753104	2036412.09
	11	72.218697	50.063702	50.0984	50.081051	11.7956	11.963	11.8793	0.23720149	3.47598	3.99865332	0.86928766	2041726.15
	12	72.232803	50.0989	50.157398	50.128149	11.856	11.8698	11.8629	0.23665147	3.28384	4.00236075	0.82047576	2043577.37
	average ALL	72.2065998	50.0646507	50.1190583	50.0918545	11.8650417	11.9563833	11.9107125	0.23777724	3.52343667	3.9995613	0.88093756	2042225.59

Table 4: Continued

RUN	FRAME	TAF-S30A	PS-S30G	PS-S30U	PAVG	PS-10G	PS-10U	PS-1 AVG	P1/P3	ACTUAL M DOT	THEO M DOT	Cd	REYNOLDS #
20\0	1	76.284599	25.169001	25.2108	25.1899005	13.6182	13.5466	13.5824	0.53920022	1.56382	2.00361453	0.78049943	1017067.11
	2	74.739502	25.2278	25.187099	25.2074495	13.5337	13.4267	13.4802	0.53477049	1.53951	2.00790497	0.76672453	1021513.5
	3	73.857002	25.2631	25.222601	25.2428505	13.5941	13.5067	13.5504	0.5368015	1.6214	2.01238608	0.8057102	1025097.81
	4	73.291	25.239599	25.269899	25.254749	13.582	13.48	13.531	0.53578042	1.54795	2.01440278	0.76844116	1026964.94
	5	72.981598	25.0632	25.151699	25.1074495	13.6182	13.48	13.5491	0.53964462	1.43141	2.00323488	0.71454926	1021728.72
	6	72.784798	25.2043	25.0926	25.14845	13.5337	13.2136	13.37365	0.53178824	1.48678	2.00687671	0.74084272	1023877.89
	7	72.724998	25.0867	25.0098	25.04825	13.6182	13.52	13.5691	0.54171848	1.44401	1.99899281	0.72236878	1019943.97
	8	72.663498	25.1455	25.0453	25.0954	13.5699	13.3335	13.4517	0.53602254	1.5525	2.00287127	0.77513719	1022013.91
	9	72.640602	25.2043	25.2344	25.21935	13.582	13.48	13.531	0.53653246	1.70435	2.01280701	0.84675281	1027117.93
	10	72.601997	25.0867	25.116199	25.1014495	13.4733	13.3735	13.4234	0.53476593	1.70677	2.00346974	0.85190705	1022410.38
	11	72.594902	25.239599	25.246201	25.2429	13.5337	13.5067	13.5202	0.53560407	1.46841	2.01477302	0.72882155	1028189.23
	12	72.609001	25.169001	25.1989	25.1839505	13.6061	13.5067	13.5564	0.53829521	1.66928	2.01004133	0.83047048	1025753.58
	average ALL	73.3144581	25.1749	25.1654582	25.1701791	13.571925	13.4478333	13.5098792	0.53674368	1.56134917	2.00761459	0.77768543	1023469.52

Table 4: Continued

	RUN	Cd	REYNOLDS #	P1/P3
	12\0	0.93384994	8777358.35	0.07479312
	13\0	0.93823888	7789419.98	0.07470718
	14\0	0.92640046	6821307.78	0.07486598
	15\0	0.90445336	6070275.36	0.07439297
	16\0	0.92029321	5089645.45	0.0768603
	17\0	0.91306372	4082980.7	0.09697054
	18\0	0.93964595	3067081.83	0.1326872
	19\0	0.88093756	2042225.59	0.23777724
	20\0	0.77768543	1023469.52	0.53674368

Table 4: Continued

Dia.	3.464	SAF0006 ASRM IGNITOR DISCHARGE PORT FLOW TEST CHAMFERED ELLIPTICAL ORIFICE											
RUN	FRAME	TAF-S30A	PS-S30G	PS-S30U	PAVG	PS-S10G	PS-S10U	PS-1 AVG	P1/P3	ACTUAL M DOT	THEO M DOT	Cd	REYNOLDS #
31\0	1	89.612297	250.141006	250.192993	250.167	19.5319	19.5249	19.5284	0.07806146	19.2749	19.6556396	0.9806295	9791012.68
	2	87.1408	250.084	250.205002	250.144501	19.4233	19.3918	19.40755	0.07758536	20.357401	19.6982113	1.03346445	9846146.56
	3	86.420097	250.095001	250.227997	250.161499	19.6164	19.7379	19.67715	0.07865779	18.2547	19.712537	0.92604519	9863266.42
	4	85.945503	250.292007	250.332993	250.3125	19.725	19.7246	19.7248	0.0788007	19.858999	19.7330071	1.00638483	9880088.4
	5	85.674797	250.292007	250.345001	250.318504	19.544001	19.644699	19.59435	0.07827767	19.3734	19.7383747	0.98150939	9886535.05
	6	85.479698	250.304001	250.158005	250.231003	19.688801	19.3386	19.5137005	0.07798275	19.8396	19.7350033	1.00530006	9887557.52
	7	85.314499	250.304001	250.356003	250.330002	19.628401	19.7645	19.6964505	0.07868194	18.6541	19.7458013	0.94471223	9895265.92
	8	85.209	250.362	250.274994	250.318497	19.519899	19.3785	19.4491995	0.07769781	19.0256	19.746804	0.96347743	9897237.06
	9	85.036697	250.223007	250.332993	250.278	19.544001	19.485001	19.514501	0.0779713	20.2847	19.7467299	1.0272435	9899599.72
	10	84.984001	250.304001	250.378998	250.3415	19.375099	19.3785	19.3767995	0.07740147	18.754299	19.7526949	0.94945521	9903324.6
	11	84.908401	250.488998	250.531006	250.510002	19.3389	19.458401	19.3986505	0.07743663	20.1388	19.7673613	1.0187905	9911732.6
	12	84.866203	250.315002	250.320999	250.318001	19.4233	19.4184	19.42085	0.07758471	20.0802	19.7529756	1.01656583	9905107.77
	average ALL	85.8826661	250.267086	250.304749	250.285917	19.5299168	19.5204834	19.5252001	0.07801163	19.4913916	19.732095	0.98779818	9880503.68
RUN	FRAME	TAF-S30A	PS-S30G	PS-S30U	PAVG	PS-S10G	PS-S10U	PS-1 AVG	P1/P3	ACTUAL M DOT	THEO M DOT	Cd	REYNOLDS #
32\0	1	86.216202	225.078003	225.207993	225.142998	17.7577	17.780899	17.7692995	0.0789245	18.122801	17.7444089	1.02132458	8881044.33
	2	84.968201	224.951004	225.138	225.044502	17.6129	17.514601	17.5637505	0.07804568	18.276199	17.7569433	1.0292424	8902921.13
	3	84.602501	225.194	225.300995	225.247498	17.455999	17.3948	17.4253995	0.07736112	19.059299	17.7789268	1.07201628	8918534.73
	4	84.440804	225.240997	225.335999	225.288498	17.7094	17.5812	17.6453	0.07832313	17.2283	17.7848034	0.96870905	8923515.53
	5	84.280899	225.089996	225.242996	225.166496	17.5767	17.5679	17.5723	0.07804136	17.4216	17.7777832	0.9799647	8922003.89
	6	84.228104	225.194	225.091003	225.142502	17.7698	17.4214	17.5956	0.07815317	17.7169	17.7767509	0.99663319	8922149.94
	7	84.152496	225.240997	225.324997	225.282997	17.6129	17.541201	17.5770505	0.07802209	17.7612	17.7890798	0.99843276	8929289.79
	8	84.105103	225.264008	225.207993	225.236001	17.649099	17.3948	17.5219495	0.07779373	17.297001	17.7861434	0.97249868	8928412.58
	9	84.001404	225.216995	225.382996	225.299996	17.7215	17.7276	17.72455	0.07867088	17.8853	17.7928925	1.00519351	8933107.12
	10	83.927498	225.147995	225.335999	225.241997	17.5284	17.3815	17.45495	0.07749421	17.144699	17.7895206	0.96375273	8932345.53
	11	83.874802	225.298996	225.382996	225.340996	17.625	17.621099	17.6230495	0.07820614	17.009701	17.7982016	0.95569774	8937368.94
	12	83.811501	225.182999	225.335999	225.259499	17.6008	17.514601	17.5577005	0.07794433	17.150801	17.7928002	0.96391804	8935454.8
	average ALL	84.3841263	225.174999	225.273997	225.224498	17.6350165	17.5368001	17.5859083	0.0780817	17.6728168	17.7806879	0.99394864	8922163.26
RUN	FRAME	TAF-S30A	PS-S30G	PS-S30U	PAVG	PS-S10G	PS-S10U	PS-1 AVG	P1/P3	ACTUAL M DOT	THEO M DOT	Cd	REYNOLDS #
33\0	1	84.0998	200.134003	200.231995	200.182999	15.827	15.7968	15.8119	0.07898723	15.7436	15.8078676	0.99593445	7935403.22
	2	83.9627	199.994003	200.044998	200.019501	15.5253	15.5306	15.52795	0.07763218	15.4575	15.796947	0.97851186	7931454.93
	3	83.818604	200.052994	200.138	200.095497	15.7908	15.8234	15.8071	0.07899778	15.9769	15.8050425	1.01087359	7937133.3
	4	83.748199	200.134003	200.184998	200.159501	15.7667	15.7701	15.7684	0.07877917	15.3504	15.8111215	0.97086093	7940975.18
	5	83.695503	200.169006	200.255005	200.212006	15.7908	15.85	15.8204	0.07901824	14.9093	15.8160354	0.94266987	7944034.06
	6	83.591797	200.238998	200.126999	200.182999	15.7667	15.4774	15.62205	0.07803885	15.9006	15.8152523	1.00539654	7944803.96
	7	83.554901	200.134003	200.080002	200.107003	15.5736	15.677	15.6253	0.07808472	16.062799	15.8097849	1.01600364	7942471.19
	8	83.500397	200.098999	199.987	200.043	15.8391	15.7169	15.778	0.07887304	15.0667	15.8055207	0.95325553	7940940.18
	9	83.440598	200.238998	200.289993	200.264496	15.7184	15.7701	15.74425	0.07861728	15.5924	15.8238917	0.98537075	7950841.62
	10	83.335197	200.110992	200.220001	200.165497	15.6943	15.5838	15.63905	0.0781306	15.9988	15.8176033	1.01145538	7948865.48
	11	83.292999	200.343002	200.371994	200.357498	15.7064	15.7169	15.71165	0.07841808	16.001101	15.8333907	1.01059219	7957273.57
	12	83.249001	200.343002	200.395004	200.369003	15.5978	15.5572	15.5775	0.07774406	15.9783	15.8349411	1.00905333	7958547.53
	average ALL	83.6074747	200.166	200.193832	200.179916	15.7164083	15.6891833	15.7027958	0.07844344	15.6698667	15.8147832	0.99083151	7944392.43

Table 5

RUN	FRAME	TAF-S30A	PS-S30G	PS-S30U	PAVG	PS-S10G	PS-S10U	PS-1 AVG	P1/P3	ACTUAL M DOT	THEO M DOT	Cd	REYNOLDS #
34\0	1	83.129501	175.238007	175.352005	175.295006	13.8958	13.8269	13.86135	0.07907441	14.0949	13.8548947	1.01732278	6964564.17
	2	83.062698	175.145004	175.235001	175.190003	13.8596	13.8669	13.86325	0.07913265	13.1147	13.8474471	0.94708432	6961477.82
	3	83.032799	175.261002	175.317001	175.289002	13.7871	13.7204	13.75375	0.07846328	13.0924	13.8556536	0.94491392	6965897.92
	4	82.934402	175.248993	175.246994	175.247994	13.8716	13.7204	13.796	0.07872273	14.563	13.8536674	1.05120179	6965868.48
	5	82.871101	175.132996	175.246994	175.189995	13.5939	13.6006	13.59725	0.07761431	14.1756	13.8498899	1.02351716	6964592.59
	6	82.869301	175.225998	175.141998	175.183998	13.6905	13.3877	13.5391	0.07728503	14.0349	13.8494387	1.01339125	6964383.46
	7	82.804298	175.248993	175.223007	175.236	13.7388	13.8136	13.7762	0.07861512	13.5961	13.8543793	0.98135757	6967508.53
	8	82.788498	175.283997	175.153	175.218499	13.7509	13.5474	13.64915	0.07789788	13.5639	13.8531973	0.97911693	6967069.78
	9	82.677696	175.190994	175.270004	175.230499	13.7267	13.7604	13.74355	0.07843127	13.6198	13.8555603	0.98298443	6969350.71
	10	82.623199	175.132996	175.223007	175.178002	13.606	13.5474	13.5767	0.07750231	13.4892	13.8521049	0.97380146	6968149.98
	11	82.561699	175.307999	175.339996	175.323998	13.7026	13.6938	13.6982	0.07813078	14.2505	13.8644351	1.0278457	6974959.68
	12	82.5336	175.343002	175.410995	175.376999	13.6301	13.6273	13.6287	0.07771087	14.0655	13.8689855	1.01416935	6977526.42
	average ALL	82.824066	175.229998	175.263334	175.246666	13.7378	13.6760667	13.7069333	0.07821505	13.8050417	13.8549712	0.99639222	6967611.32
RUN	FRAME	TAF-S30A	PS-S30G	PS-S30U	PAVG	PS-S10G	PS-S10U	PS-1 AVG	P1/P3	ACTUAL M DOT	THEO M DOT	Cd	REYNOLDS #
35\0	1	82.507202	150.257996	150.354996	150.306496	11.9648	12.0573	12.01105	0.07991039	11.8356	11.8866747	0.9957032	5980443.64
	2	82.486099	150.153	150.179001	150.166001	11.7716	11.911	11.8413	0.07885473	12.0698	11.8757949	1.01633618	5975148.27
	3	82.431602	150.270004	150.354996	150.3125	11.9285	11.9642	11.94635	0.07947676	11.7271	11.8879779	0.98646718	5981739.47
	4	82.415802	150.235001	150.261002	150.248002	11.8078	11.8843	11.84605	0.07884331	11.6539	11.8830499	0.98071624	5979393.58
	5	82.310402	150.212006	150.261002	150.236504	11.8078	11.9775	11.89265	0.07915952	11.9953	11.8832951	1.0094254	5980409.54
	6	82.280502	150.177002	150.061996	150.119499	11.9044	11.7912	11.8478	0.07892246	11.2073	11.8743677	0.94382289	5976169.78
	7	82.277	150.281998	150.238007	150.260003	11.9527	12.0839	12.0183	0.07998336	11.342	11.8855198	0.95427042	5981812.12
	8	82.181999	150.235001	150.074005	150.154503	11.7354	11.7113	11.72335	0.07807525	11.2384	11.8782154	0.9461354	5978940.43
	9	82.150398	150.281998	150.330994	150.306496	11.9889	12.0706	12.02975	0.0800348	11.6289	11.8905856	0.97799221	5985434.96
	10	82.088898	150.048004	150.074005	150.061005	11.7475	11.7646	11.75605	0.07834181	11.8288	11.8718384	0.99637475	5976518.83
	11	82.111702	150.246994	150.320007	150.283501	11.9285	11.9908	11.95965	0.07958059	11.9547	11.8891907	1.00550999	5985060.96
	12	81.999199	150.281998	150.261002	150.2715	11.8561	11.9642	11.91015	0.07925754	11.9979	11.8894751	1.0091194	5986158.39
	average ALL	82.2700671	150.223417	150.230918	150.227167	11.8661667	11.9309083	11.8985375	0.07920338	11.7066417	11.8829988	0.9851561	5980602.03
RUN	FRAME	TAF-S30A	PS-S30G	PS-S30U	PAVG	PS-S10G	PS-S10U	PS-1 AVG	P1/P3	ACTUAL M DOT	THEO M DOT	Cd	REYNOLDS #
36\0	1	81.8498	125.144997	125.272003	125.2085	9.97041	10.177	10.073705	0.08045544	9.95918	9.90785714	1.00518002	4989502.35
	2	81.793602	125.039001	125.166	125.102501	9.82545	9.93725	9.88135	0.07898603	9.51924	9.89998271	0.96154107	4985934.13
	3	81.746101	125.237999	125.306999	125.272499	9.98249	10.0971	10.039795	0.08014365	9.77688	9.91387014	0.98618197	4993264.59
	4	81.7145	125.25	125.365997	125.307999	9.81337	10.0172	9.915285	0.07912731	9.46618	9.91696875	0.9545437	4995049.1
	5	81.691597	125.191002	125.306999	125.249001	9.76505	10.0039	9.884475	0.07891859	9.74832	9.91250916	0.98343617	4992965.04
	6	81.649399	125.18	125.141998	125.160999	9.74089	9.6575	9.699195	0.07749375	9.56996	9.90593035	0.96608392	4989949.92
	7	81.580902	125.214996	125.166	125.190498	9.80129	10.0571	9.929195	0.07931269	9.66474	9.90889162	0.97536035	4991926.63
	8	81.580902	125.214996	125.096001	125.155499	9.81337	9.79072	9.802045	0.07831893	9.31993	9.90612139	0.94082534	4990531.04
	9	81.524597	125.273003	125.282997	125.278	9.70465	9.85732	9.780985	0.07807424	10.0244	9.91633293	1.01089789	4996074.52
	10	81.478897	125.144997	125.236	125.190499	9.83753	9.99053	9.91403	0.07919155	9.88484	9.90982495	0.99747877	4993119.41
	11	81.422699	125.225998	125.282997	125.254498	9.89793	10.0438	9.970865	0.07960485	9.76399	9.91540553	0.98472926	4996329.65
	12	81.399803	125.203003	125.272003	125.237503	9.76505	9.87064	9.817845	0.07839381	9.52533	9.91426984	0.96076969	4995919.72
	average ALL	81.6193999	125.193333	125.241333	125.217333	9.82645667	9.95833833	9.8923975	0.07900174	9.68524917	9.91066371	0.97725235	4992546.72

Table 5: Continued

RUN	FRAME	TAF-S30A	PS-S30G	PS-S30U	PAVG	PS-S10G	PS-S10U	PS-1 AVG	P1/P3	ACTUAL M DOT	THEO M DOT	Cd	REYNOLDS #
37\0	1	81.1045	100.436996	100.538002	100.487499	9.11337	9.21824	9.165805	0.09121339	7.94963	7.9571372	0.99905655	4011378.48
	2	81.030701	100.285004	100.327003	100.306004	9.10129	9.15163	9.12646	0.09098618	7.60794	7.94330711	0.95777991	4004826.17
	3	81.006104	100.390999	100.362	100.3765	9.05298	9.20492	9.12895	0.09094708	7.56386	7.94907044	0.95154019	4007871.94
	4	80.991997	100.390999	100.456001	100.4235	8.9805	9.07171	9.026105	0.08988041	7.69101	7.95289622	0.96707033	4009881.23
	5	80.955101	100.308998	100.374001	100.3415	8.96842	9.15163	9.060025	0.0902919	7.33238	7.94667329	0.92269806	4006953.63
	6	80.928703	100.32	100.162003	100.241002	8.99258	8.89853	8.945555	0.08924048	7.36831	7.93890793	0.92812639	4003188.24
	7	80.8619	100.296997	100.267998	100.282498	9.01674	9.15163	9.084185	0.09058595	7.97179	7.94268481	1.0036644	4005472.91
	8	80.837303	100.262001	100.162003	100.212002	9.06506	9.08503	9.075045	0.09055846	7.71443	7.93728183	0.97192341	4002888.12
	9	80.833801	100.332001	100.432999	100.3825	8.99258	9.07171	9.032145	0.08997729	7.77608	7.95081185	0.9780234	4009731.46
	10	80.777496	100.192001	100.209	100.200501	8.92011	9.0051	8.962605	0.08944671	7.44631	7.9368097	0.93819939	4002990.24
	11	80.763496	100.296997	100.349998	100.323498	9.07713	9.20492	9.141025	0.09111549	7.42151	7.94665507	0.93391621	4008035.58
	12	80.766998	100.378998	100.397003	100.388001	9.02882	9.07171	9.050265	0.09015286	7.52732	7.95173863	0.94662568	4010579.6
	average ALL	80.9048417	100.324333	100.336501	100.330417	9.02579833	9.10723	9.06651417	0.09036635	7.61421417	7.94616451	0.95821866	4006983.21
RUN	FRAME	TAF-S30A	PS-S30G	PS-S30U	PAVG	PS-S10G	PS-S10U	PS-1 AVG	P1/P3	ACTUAL M DOT	THEO M DOT	Cd	REYNOLDS #
38\0	1	80.933998	75.298897	75.337898	75.3183975	10.1062	10.2714	10.1888	0.13527638	6.50933	5.9650531	1.09124427	3007850.82
	2	80.930496	75.3106	75.4086	75.3596	10.408	10.4445	10.42625	0.13835331	6.40449	5.96833557	1.07307807	3009520.97
	3	80.8936	75.697403	75.679398	75.6884005	10.0579	10.1249	10.0914	0.13332822	6.1344	5.99458038	1.02332434	3022913.33
	4	80.888298	74.947197	74.972801	74.959999	10.1183	10.2447	10.1815	0.13582578	5.04036	5.93691951	0.84898574	2993858.98
	5	80.824997	75.005798	75.090599	75.0481985	10.0338	10.1249	10.07935	0.13430502	5.25071	5.94425286	0.88332548	2997826.68
	6	80.8162	75.076202	75.019897	75.0480495	10.3114	10.045	10.1782	0.13562245	4.85361	5.9442894	0.81651644	2997882.59
	7	80.830299	74.994102	74.961098	74.9776	10.4201	10.6176	10.51885	0.14029323	6.41427	5.93863194	1.08009219	2994969.35
	8	80.802101	75.216797	75.149498	75.1831475	9.98549	9.9917	9.988595	0.13285683	4.79773	5.95506766	0.80565499	3003378.57
	9	80.812698	75.427803	75.514503	75.471153	10.0941	10.1781	10.1361	0.1343043	5.44003	5.97782128	0.91003557	3014808.72
	10	80.807404	75.322304	75.373199	75.3477515	10.5166	10.5244	10.5205	0.13962593	4.834	5.96807627	0.80997624	3009916.64
	11	80.779297	75.1465	75.208397	75.1774485	10.0338	10.0583	10.04605	0.13363116	6.07398	5.9547418	1.02002408	3003311.56
	12	80.744102	75.205101	75.337898	75.2714995	10.5408	10.6975	10.61915	0.14107797	4.9178	5.96238553	0.8248041	3007317.16
	average ALL	80.8386242	75.2207253	75.2544822	75.2376038	10.2188742	10.2769167	10.2478954	0.13620838	5.5558925	5.95917961	0.93225512	3005296.39
RUN	FRAME	TAF-S30A	PS-S30G	PS-S30U	PAVG	PS-S10G	PS-S10U	PS-1 AVG	P1/P3	ACTUAL M DOT	THEO M DOT	Cd	REYNOLDS #
39\0	1	72.201202	50.0989	50.2164	50.15765	11.7363	11.8841	11.8102	0.23546159	3.50792	4.00483509	0.87592121	2044891.95
	2	80.993797	50.2719	50.298199	50.2850495	11.7001	11.751	11.72555	0.23318163	3.86418	3.98224633	0.97035183	2007858.97
	3	81.000801	50.1898	50.180199	50.1849995	11.7363	11.7776	11.75695	0.2342722	3.62649	3.9742973	0.91248584	2003831.11
	4	81.011299	50.119301	50.097599	50.10845	12.0983	12.2301	12.1642	0.24275746	3.84694	3.96819662	0.96944289	2000725.32
	5	81.007797	50.260201	50.274601	50.267401	11.7001	11.8442	11.77215	0.23419054	3.96656	3.98079718	0.99642354	2007088.38
	6	80.958603	50.354099	50.4161	50.3850995	11.7604	11.5913	11.67585	0.2317322	3.98224	3.99029943	0.99798024	2012019.96
	7	80.976196	50.107601	50.014999	50.0613	11.7604	11.8974	11.8289	0.23628831	3.47869	3.96459133	0.87743974	1999007.25
	8	80.991997	50.1898	50.132999	50.1613995	11.7121	11.6844	11.69825	0.23321219	3.88027	3.97246067	0.97679255	2002930.13
	9	80.9832	50.2015	50.121201	50.1613505	11.7966	11.8308	11.8137	0.23551399	4.00967	3.97248909	1.0093596	2002969.49
	10	80.979698	50.224998	50.3218	50.273399	11.8328	11.8308	11.8318	0.23534912	3.70524	3.98137557	0.93064317	2007460.13
	11	80.960403	50.154499	50.180199	50.167349	11.7242	11.7776	11.7509	0.23423402	3.81166	3.97304785	0.95937933	2003316.11
	12	80.991997	50.3894	50.4161	50.40275	11.7604	11.8841	11.82225	0.23455565	3.99812	3.99157408	1.00163993	2012567.19
	average ALL	80.988503	50.283699	50.298199	50.2180165	11.7765	11.83195	11.804225	0.23506241	3.7898	3.97968421	0.95648832	2006582.23

Table 5: Continued

RUN	FRAME	TAF-S30A	PS-S30G	PS-S30U	PAVG	PS-S10G	PS-S10U	PS-1 AVG	P1/P3	ACTUAL M DOT	THEO M DOT	Cd	REYNOLDS #
4010	1	82.964302	25.312599	25.350599	25.331599	13.5217	13.5073	13.5145	0.53350363	1.83198	2.00245308	0.91486788	1006826.18
	2	82.087097	25.2773	25.350599	25.3139495	13.413	13.3475	13.38025	0.5285722	1.87877	2.00267629	0.93812965	1008189.53
	3	81.568604	25.312599	25.279699	25.296149	13.5217	13.454	13.48785	0.53319776	1.96854	2.0022258	0.98317582	1008704.01
	4	81.292603	25.4655	25.5396	25.50255	13.5096	13.4274	13.4685	0.52812366	2.17478	2.01907729	1.07711578	1017592.14
	5	81.158997	25.3008	25.2915	25.29615	13.4613	13.4141	13.4377	0.53121522	1.76893	2.00298348	0.88314757	1009672.55
	6	81.060501	25.3479	25.2915	25.3197	13.4976	13.1877	13.34265	0.52696714	2.09371	2.00503068	1.04422841	1010845.91
	7	81.0271	25.2185	25.1024	25.16045	13.4734	13.5206	13.497	0.53643715	1.70353	1.9924814	0.85497912	1004566.79
	8	80.990196	25.3361	25.208799	25.2724495	13.4976	13.2676	13.3826	0.52953316	1.57766	2.00141902	0.78827072	1009125.84
	9	80.955101	25.230301	25.279699	25.255	13.6062	13.5339	13.57005	0.53732132	1.53716	2.000102	0.7685408	1008512.08
	10	80.970901	25.253799	25.2442	25.2489995	13.3768	13.2809	13.32885	0.52789616	1.53237	1.99959758	0.76633919	1008235.1
	11	80.9674	25.3479	25.338699	25.3432995	13.5096	13.454	13.4818	0.53196704	1.65779	2.00707218	0.82597428	1012008.97
	12	80.944504	25.4655	25.5515	25.5085	13.4855	13.454	13.46975	0.52804947	2.17022	2.02019805	1.07426101	1018660.45
	average ALL	81.3322755	25.3223998	25.3190662	25.320733	13.4895	13.4040833	13.4467917	0.53106533	1.82462	2.00460974	0.90991919	1010243.76

Table 5: Continued

RUN	Cd	Reynolds #	P1/P3
32\0	0.99394864	8922163.26	0.0780817
33\0	0.99083151	7944392.43	0.07844344
34\0	0.99639222	6967611.32	0.07821505
35\0	0.9851561	5980602.03	0.07920338
36\0	0.97725235	4992546.72	0.07900174
37\0	0.95821866	4006983.21	0.09036635
38\0	0.93225512	3005296.39	0.13620838
39\0	0.95648832	2006582.23	0.23506241
40\0	0.90991919	1010243.76	0.53106533

Table 5: Continued