AD 693874

BALLISTIC RESEARCH LABORATORIES

MEMORANDUM REPORT NO. 1987

JUNE 1969

AIR SHOCK AND FLOW IN MODEL ROOMS

George A. Coulter

Terminal Ballistics Laboratory

This document has been approved for public release and sale; its distribution is unlimited.

This work was supported by office of Civil Defense, Work Order No. DAHC-20-67-W-0153.

ABERDEEN PROVING GROUND, MARYLAND

p

BALLISTIC RESEARCH LABORATORIES

MEMORANDUM REPORT NO. 1987

GACoulter/lse
Aberdeen Proving Ground, Md.
June 1969

AIR SHOCK AND FLOW IN MODEL ROOMS

ABSTRACT

The results of model rooms with entrance baffles and chamber filling are given for two-and three-dimensional models exposed to shock waves 5 - 20 psi overpressure produced in the 5 x 15 inch, 24 inch and 5.5 ft. shock tubes. Additional results are given for a field experiment in which a test structure 8 x 8 x 12 feet size was exposed to a 5 psi overpressure blast wave from the explosion of 500 tons of TNT. The results are presented as pressure-time filling records and high speed photographs to illustrate the shock filling process and the effects from the entrance baffles. A smoke grid technique was used to illustrate the shock filling process. Flow vectors and dynamic pressure calculations are presented.

p

TABLE OF CONTENTS

		Page
	ABSTRACT	3
	LIST OF ILLUSTRATIONS	7
	LIST OF TABLES	11
	LIST OF SYMBOLS	13
I.	INTRODUCTION	15
II.	EXPERIMENTS	15
	A. Three-Dimensional Shock Tube Models	16
	B. Two Dimensional Models	16
	C. Field Model	30
III.	RESULTS	30
	A. Three-Dimensional Shock Tube Models	30
	B. Two-Dimensional Models	47
	C. Field Model	51
IV.	SUMMARY AND CONCLUSIONS	55
	A. Three-Dimensional Models	62
	B. Two-Dimensional Models	63
	C. Field Model	66
	ACKNOWLEDGEMENTS	69
	REFERENCES	71
	APPENDICES	
	A. High Speed Photographs, Two-Dimensional Models	73
	B. Pressure-Time Records - Three-Dimensional Models	123

TABLE OF CONTENTS

Page

C. Machine Program for Pressure-Time Fill Predictions 157

D. Air Flow Tables and Vector Plots 163

DISTRIBUTION LIST 457

LIST OF ILLUSTRATIONS

Figure		Page
1.	Model Chamber Filled from 5 1/2 Foot Shock Tube . . .	17
2.	Model Room Filled from 24-Inch Shock Tube	18
3.	Models with Single and Multiple Rooms	19
4.	Models Used to Compare Filling Through Multiple and Single Entrances	20
5.	Models with Protected Entrances	21
6.	Models of Tunnel Entrances	22
7.	Models Used for the Study of Shock Wave Diffraction Inside the Models	23
8.	Shock Tube Models of the Field Test Structure	24
9.	Two-Dimensional Model Smoke Grid Technique	25
10.	Two-Dimensional Models	26
11.	Field Test Structure	32
12.	Fill Record for Model 34	33
13.	Fill Record for Model 25 from Shock Waves Passing Side-On to the Entrance	34
14.	Predicted Filling Curves for Various Size Rooms . . .	35
15.	Comparison of Filling Through Single and Multiple Entrances - $P_s = 5$ psi	36
16.	Comparison of Filling Through Single and Multiple Entrances - $P_s = 10$ psi	37
17.	Comparison of Filling Through Single and Multiple Entrances - $P_s = 21$ psi	38

LIST OF ILLUSTRATIONS

Figure		Page
18.	Comparison of Filling for Regular Entrance and Baffled Entryway	40
19.	Comparison of Filling for Vortex Generator Entrance and Side-Tunnel Entrance	41
20.	Comparison of Filling for Regular Entrance and with Exterior Revetment	42
21.	Comparison of Filling for Single and Multiple Rooms	44
22.	Records from the Diffraction Models	45
23.	Reflected Pressure on Rear Wall from First Diffracted Shock Wave Inside Model	48
24.	Position of Nylon Balls as a Function of Frame Time-Model 30	52
25.	Comparison of Shock Tube Results with Field Results - Position 1	56
26.	Comparison of Shock Tube Results with Field Results - Position 2	57
27.	Comparison of Shock Tube Results with Field Results - Position 3	58
28.	Comparison of Shock Tube Fill-Model and Field Model Records	59
29.	Comparison of Filling for Shock Tube Model VI and Field Model XV - Reference 1	60
30.	Wire Drag Gage Plates from Interior of Field Test Structure - Model 26-A	61
31.	Generalized Filling Curves for Constant Ratio of Room Volume to Entrance Area	64
32.	Generalized Filling Curves for Variable Ratio of Room Volume to Entrance Area	65
A-1.	Front Grids for Model 32-A, 1/4 Inch Entrance	76
A-2.	Rear Grids for Model 32-A, 1/4 Inch Entrance	79
A-3.	Front Grids for Model 32-B, 1/4 Inch Entrance	82
A-4.	Rear Grids for Model 32-B, 1/4 Inch Entrance	85
A-5.	Front Grids for Model 33-A, 1/2 Inch Entrance	88

LIST OF ILLUSTRATIONS

Figure		Page
A-6.	Rear Grids for Model 33-A, 1/2 Inch Entrance	91
A-7.	Front Grids for Model 33-B, 1/2 Inch Entrance	94
A-8.	Rear Grids for Model 33-B, 1/2 Inch Entrance	97
A-9.	Front Grids for Model 31, Near 1/2 Inch Entryway	100
A-10.	Rear Grids for Model 31, Near 1/2 Inch Entryway	103
A-11.	Front Grids for Model 31, Away from 1/2 Inch Entryway	106
A-12.	Rear Grids for Model 31, Away from 1/2 Inch Entryway	109
A-13.	Front Grids for Model 30, 1/2 Inch Entryway With Exterior Baffle	112
A-14.	Rear Grids for Model 30, 1/2 Inch Entryway with Exterior Baffle	115
A-15.	Motion of Nylon Balls Inside of Model 30	118
B-1.	Records from Model 16 - Single Room	131
B-2.	Records from Model 17, Baffled Entryway	133
B-3	Records from Model 18, Filled from the Front, with a Revetment	134
B-4.	Records from Model 18, Filled from the Side, with A Revetment	135
B-5.	Records from Model 18, Filled from the Rear, with a Revetment	136
B-6.	Records from Model 19, Four Rooms	137
B-7.	Records from Model 20, Vortex Generator	139

LIST OF ILLUSTRATIONS

Figure		Page
B-8.	Records from Model 21 - Side Tunnel	140
B-9.	Records from Diffraction Models 22-A and 22-B	141
B-10.	Records from Diffraction Models 22-C and 23-A	142
B-11.	Records from Diffraction Models 23-B and 23-C	143
B-12.	Records from Diffraction Models 24-A and 24-B	144
B-13.	Records from Diffraction Model 24-C	145
B-14.	Records from Model 25, P_s = 5 psi	146
B-15.	Records from Model 25, P_s = 10 psi	147
B-16.	Records from Model 25, P_s = 19 psi	148
B-17.	Records from Model 26	149
B-18.	Records from Model 26, P_s = 5 psi	151
B-19.	Records from Model 27	152
B-20.	Records from Model 28, Four Entrances	154
B-21.	Records from Model 29, Single Entrance	156
D-1.	Smoke Paths and Flow Vectors from Model 32-A	416
D-2.	Smoke Paths and Flow Vectors from Model 32-B	421
D-3.	Smoke Paths and Flow Vectors from Model 33-A	427
D-4.	Smoke Paths and Flow Vectors from Model 33-B	433
D-5.	Smoke Paths and Flow Vectors from Model 31	439
D-6.	Smoke Paths and Flow Vectors from Model 30	451

LIST OF TABLES

Table		Page
I.	Experimental Models	27
II.	Results for the Diffraction Models	46
III.	Summary of Results from the Two-Dimensional Models	49
IV.	Comparison of Results from Shock Tube Models 26 and 27	53
V.	Comparison of Periods of Oscillation from the Fill Records	54
VI.	Number of Velocity Vectors or Q Exceeding Safe Values	67
A-I.	Data for High Speed Photographs	75
B-I.	Results for Three-Dimensional Models	125
D-I.	Front Smoke Grid Calculations - 1/2 Inch Entrance with Baffle Spaced 1/4 Inch	166
D-II.	Rear Smoke Grid Calculations - 1/2 Inch Entrance with Baffle Spaced 1/4 Inch	188
D-III.	Front Smoke Grid Calculations - 1/4 Inch Entrance with Baffle Spaced 1/2 Inch	206
D-IV.	Rear Smoke Grid Calculations - 1/4 Inch Entrance with Baffle Spaced 1/2 Inch	224
D-V.	Front Smoke Grid Calculations - 1/4 Inch Entrance with Baffle Spaced 1/2 Inch	244
D-VI.	Rear Smoke Grid Calculations - 1/2 Inch Entrance with Baffle Spaced 1/2 Inch	263
D-VII.	Front Smoke Grid Calculations - 1/2 Inch Entrance with Baffle Spaced 1 Inch	280
D-VIII.	Rear Smoke Grid Calculations - 1/2 Inch Entrance with Baffle Spaced 1 Inch	296

LIST OF TABLES

Table		Page
D-IX.	Front Smoke Grid Calculations - Near 1/2 Inch Entryway	312
D-X.	Rear Smoke Grid Calculations - Near 1/2 Inch Entryway	326
D-XI.	Front Smoke Grid Calculations - Away from 1/2 Inch Entryway	341
D-XII.	Rear Smoke Grid Calculations - Away from 1/2 Inch Entryway	357
D-XIII.	Front Smoke Grid Calculations - 1/2 Inch Entryway with Exterior Baffle	378
D-XIV.	Rear Smoke Grid Calculations - 1/2 Inch Entryway with Exterior Baffle	393

LIST OF SYMBOLS

A	Area of entrance to model, in.^{2}
A_F	Area of inside front wall of model, in.^{2}
A_1	Ambient sound speed, ft/sec
D	Width of entrance, in.
L	Length of model, in.
P_{av}	Average pressure through periodic oscillations, psi
P_{fill}	Pressure to which room or chamber fills, psi
P_{max}	Maximum pressure, psi
P_s	Side-on overpressure of input shock wave, psi
P_s'	Side-on overpressure of diffracted shock wave, psi
P_{stag}	Stagnation overpressure of input shock wave, psi
T	Time, sec
T_{max}	Time at which P_{max} occurs, sec
V	Internal volume of model, in.^{3}
W	Distance to nearest wall from gage position, in.
X	Distance along floor of model measured from the inside front wall, in.

I. INTRODUCTION

The work reported here is the second part of a study concerned with blast and shock wave filling of rooms and chambers. The work was sponsored by the Office of Civil Defense under contract No. DAHC-20-67-W0153 with the Ballistic Research Laboratories (BRL). The purpose of this work is to determine the effect of various entrances and baffle configurations upon the shock filling process.

As was reported in the earlier work, Reference 1,* the filling process for the two-dimensional model rooms was recorded by high speed photographs of smoke grids, Reference 2 and 3, moved by the air flow into the models. The filling of the three-dimensional models was recorded from pressure transducers mounted inside the models. Wire solder drag gages were used, in addition to the pressure transducers within the field model tested, to determine the air flow pattern within the room.

The results from the experiments are grouped at the end of the report in the Appendices. The high speed photographs of the smoke grid movement within the two-dimensional models are shown in Appendix A. The pressure-time records from the transducers inside the three-dimensional models are found in Appendix B. Appendices C and D, respectively, give the machine program for the filling predictions and the machine calculations for the smoke grid motion in the flow field within the two-dimensional models.

II. EXPERIMENTS

The three types of models used in the experiments were: (a) three-dimensional models exposed to shock waves from the various

*References are listed on page 71.

shock tubes, (b) two-dimensional models placed in the optical test section of the 4 x 15 inch shock tube, and (c) a one-room field model exposed to the blast wave produced by the detonation of 500 tons of TNT. Table I summarizes the experimental models used in the study.

A. Three-Dimensional Shock Tube Models

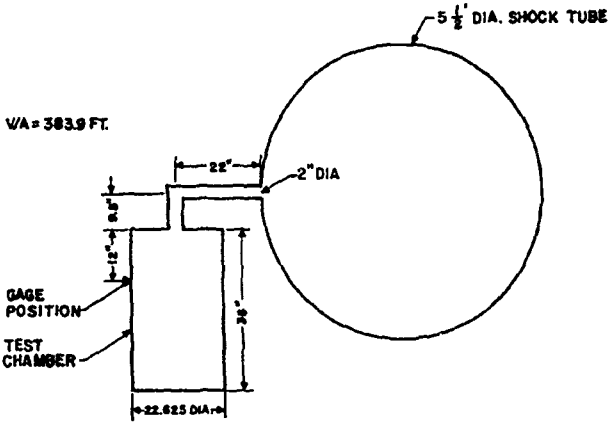
The three-dimensional models were designed with four broad purposes in mind. The first was to further verify the machine predictions of filling by changing the models volume to area (V/A) ratio. Models 34 and 25 are in this group. The second group of models were designed to show the effect on the filling by multiple entrances, shields or baffles at the entrances, and filling change from one room to the next. Models 16, 17, 18, 19, 20, 21, 28 and 29 were used for this purpose. Models 22, 23, 24 make up the third group which was used to study the incoming diffracted shock wave expanding inside a model. The purpose of the two models in the fourth group, Models 26 and 27, was to verify scaling parameters for the model used in the field test shot. Figures 1 - 8 show the three-dimensional shock tube models used. These models were exposed to shock overpressure in the 5 - 20 psi range during the testing.

B. Two-Dimensional Models

The two-dimensional basic model (4 x 4 in.) used in the earlier work was modified by baffles and entryway, Figures 9 and 10, to see if the internal shock caused air flow could be diverted or slowed in speed so as to cause a less dangerous interior with smaller forces available to cause damage by translation of objects inside the room. Models 30 and 33 were used with the smoke grid technique, References 2 and 3. Briefly, the technique is this. Cigarette smoke

p

(A) MODEL 34



(B) SKETCH OF MODEL 34

Figure 1. Model Chamber Filled from 5 1/2 Foot Shock Tube

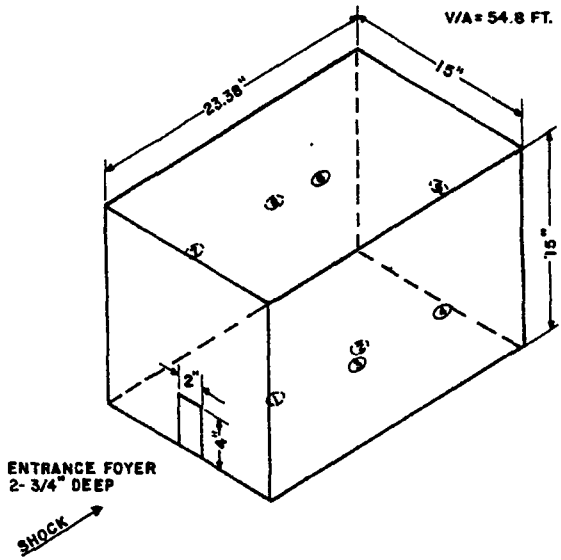


Figure 2. Model Room Filled from 24-Inch Shock Tube

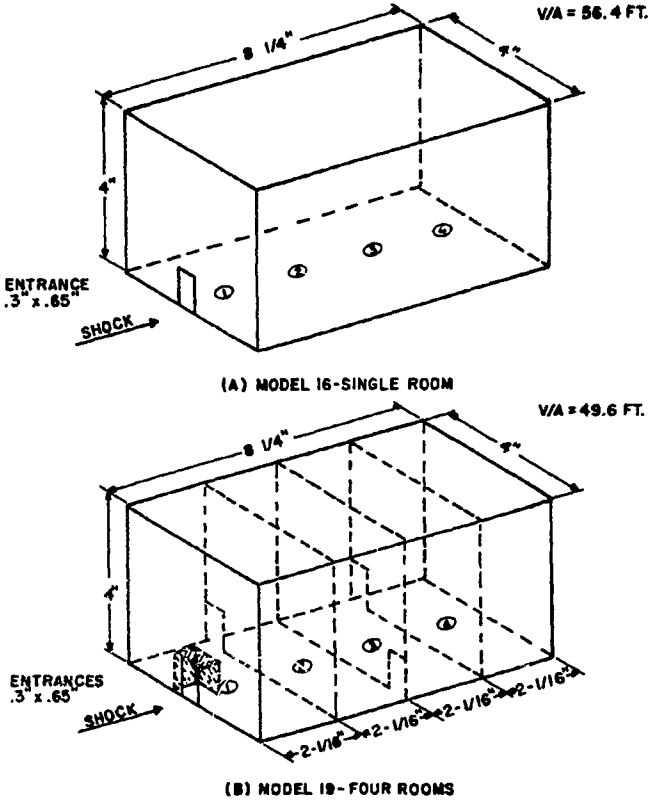
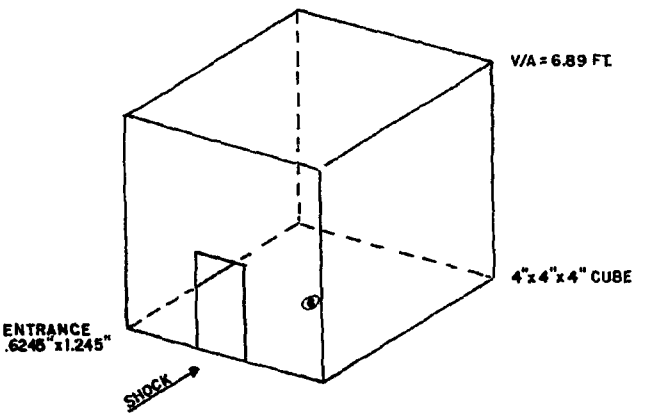
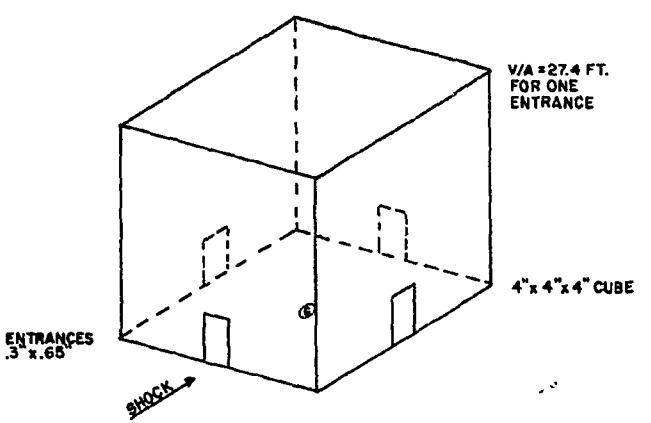


Figure 3. Models with Single and Multiple Rooms



(A) MODEL 29 - SINGLE ENTRANCE



(B) MODEL 28 - ENTRANCE ON EACH WALL

Figure 4. Models Used to Compare Filling Through Multiple and Single Entrances

p

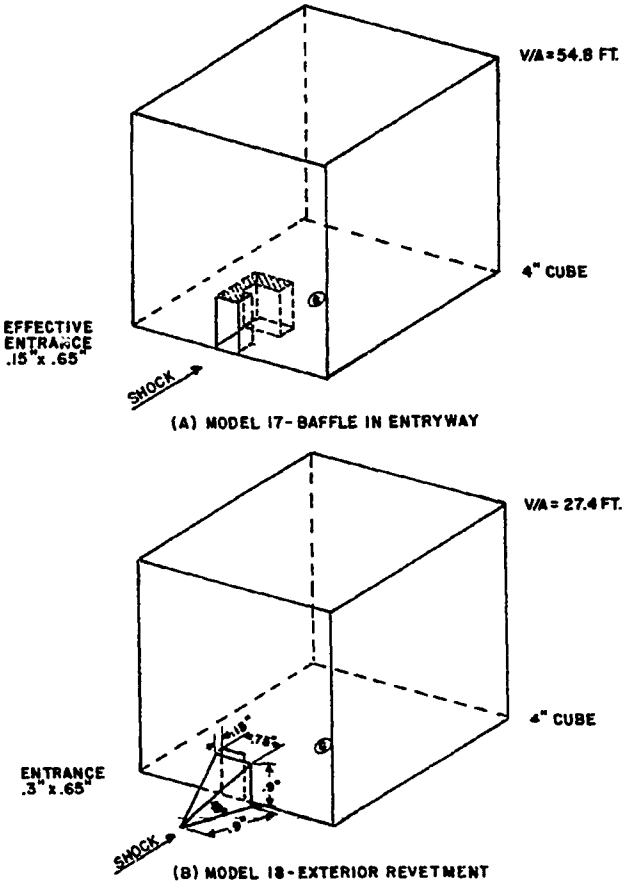
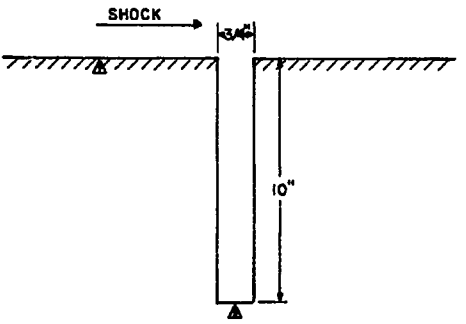
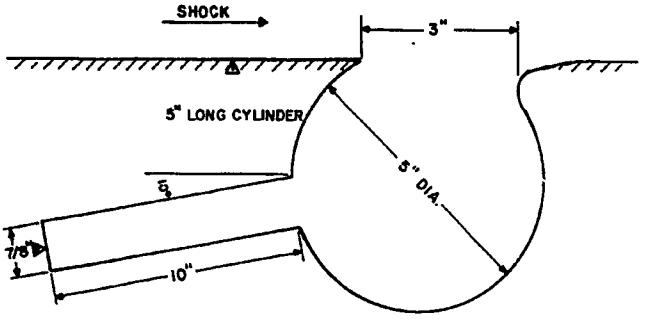


Figure 5. Models with Protected Entrances

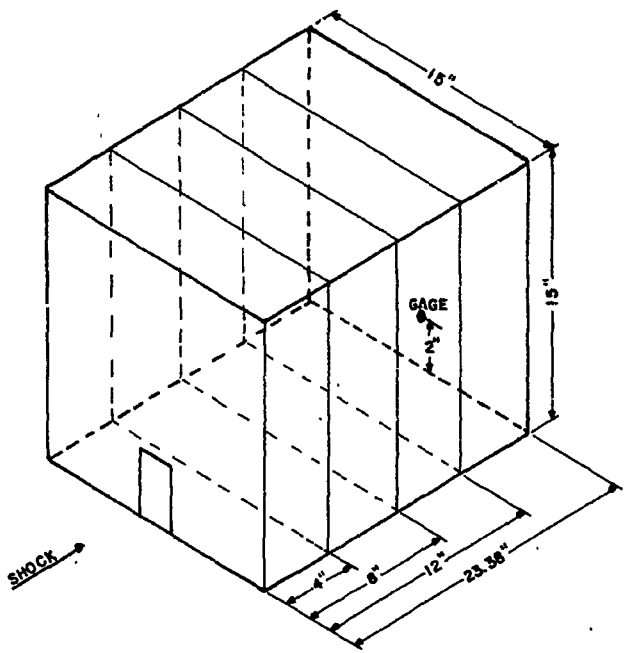


(A) MODEL-21 ENTRANCE TUNNEL



(B) MODEL-20 VORTEX GENERATOR WITH TUNNEL

Figure 6. Models of Tunnel Entrances



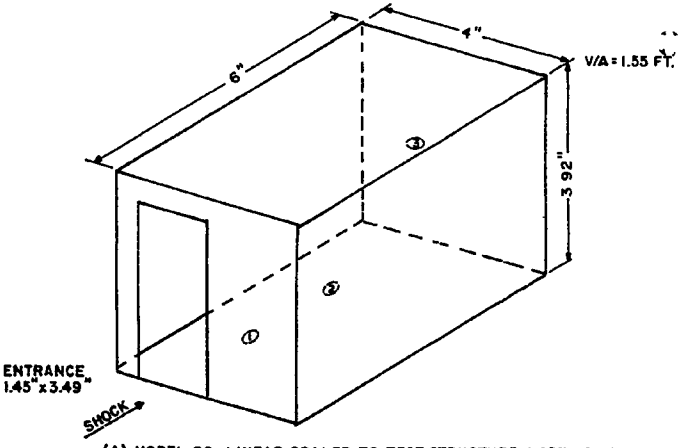
VARIABLE ENTRANCES

A - 1/2" x 1"
B - 1" x 2"
C - 2" x 4"

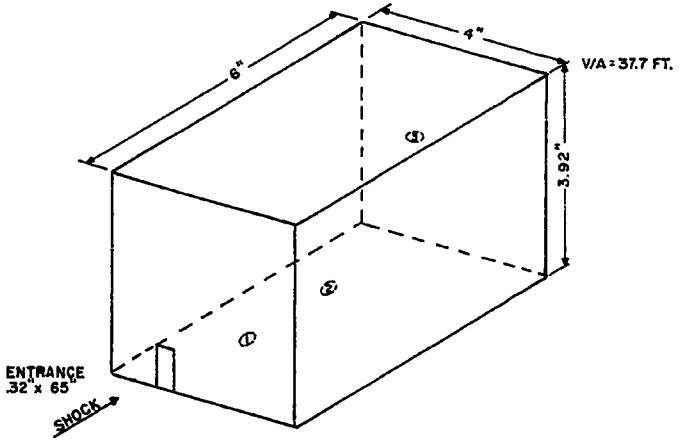
VARIABLE LENGTH MODEL

MODEL 22 - 15" x 15" x 12"
MODEL 23 - 15" x 15" x 8"
MODEL 24 - 15" x 15" x 4"

Figure 7. Models Used for the Study of Shock Wave Diffraction Inside the Models

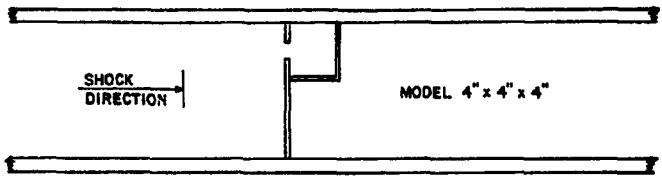


(A) MODEL 26-LINEAR SCALED TO TEST STRUCTURE, MODEL 26-A

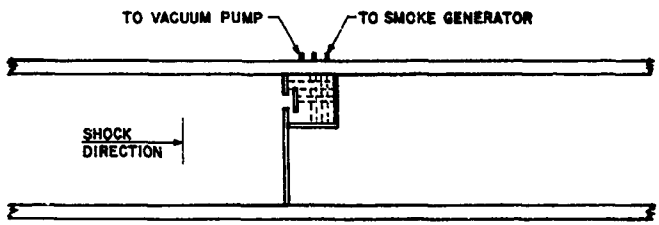


(B) MODEL 27-VOLUME TO AREA RATIO EQUAL TO TEST STRUCTURE, MODEL 26-A

Figure 8. Shock Tube Models of the Field Test Structure



(A) BASIC MODEL FOR TWO-DIMENSIONAL EXPERIMENTS



(B) SMOKE GRID GENERATOR

Figure 9. Two-dimensional Model Smoke Grid Technique

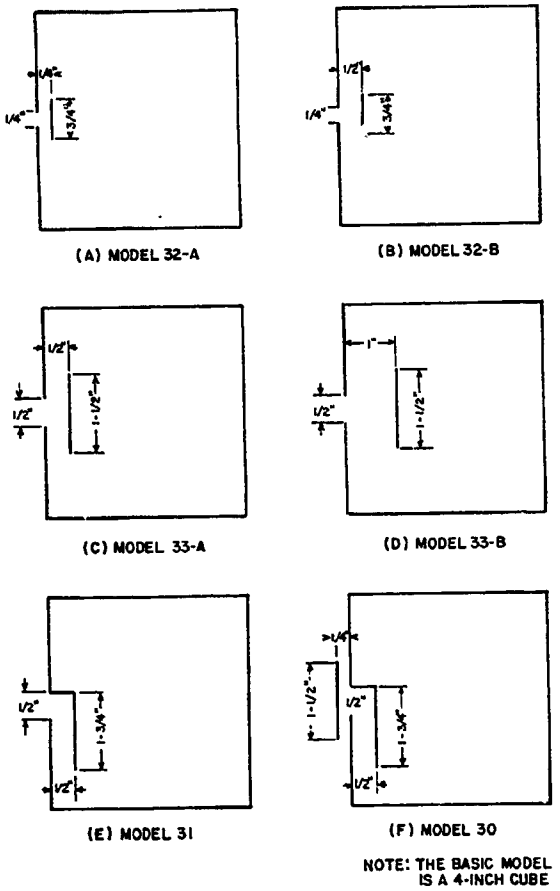


Figure 10. Two-Dimensional Models

Table I. Experimental Models

Three-Dimensional Models Inside Shock Tube

Model No.	Size	Type of Filling	Input Pressure psi	A/AF, %	V/A, ft	Entrances & Baffles
16	4x4x8 1/4 in.	front	5, 10, 20	1.2	56.4	0.3x0.65 in.
17	4 in. cube	front	5, 10, 20	0.6	54.8	0.15x0.65 in. w/baffle
18	4 in. cube	front, side or rear	5, 10, 20	1.2	27.4	0.3x0.65 in. with outside revetment
19	4x4x8 1/4 in.	front	5, 10, 20	1.2	49.6	0.3x0.65 in., placed at right wall, then at the left, alternating
26	4x3.92x6 in.	front	5, 10, 20	32.3	1.55	1.45x3.49 in., near wall
27	4x3.92x6 in.	front	5, 10, 20	1.3	37.7	0.32x0.65 in., near wall
28	4 in. cube	front, sides and rear	5, 10, 20	1.2	27.4	0.3x0.65 in., on each wall
29	4 in. cube	front	5, 10, 20	4.86	6.89	0.624x1.245 in.
		Three-Dimensional Models Outside Shock Tube				
20	5 in. dia. cylinder	side	5, 10, 20	60	NA	3x5 in.
21	3/4 in. dia x 10 in.	side	5, 10, 20	100	NA	3/4 in. dia

Table I. Experimental Models (Continued)

Three-Dimensional Models Outside Shock Tube

Model No.	Size	Type of Filling	Input Pressure psi	A/AF, %	V/A, ft	Entrances & Baffles
22-A	15x15x12 in.	front	5	.22	450	1/2 x 1 in.
22-B				.89	112.5	1x2 in.
22-C				3.55	28.1	2x4 in.
23-A	15x15x8 in.	front	5	.22	300	1/2 x 1 in.
23-B				.89	75	1 x 2 in.
23-C				3.55	18.75	2x4 in.
24-A	15x15x4 in.	front	5	.22	150	1/2 x 1 in.
24-B				.89	37.5	1 x 2 in.
24-C				3.55	9.38	2 x 4 in.
25	15x15x23.4	side	5, 10, 20	3.55	54.8	2 x 4 in.
34	22 5/8 in. dia x 36 in.	side	15	0.8	384	2 in. dia.

Two Dimensional Models Inside Shock Tube

30	4 in. cube	front (reflection)	5	12.5	2.67	1/2 x 4 in. w/ 1 1/2 in. baffle 1/4 in. away fm outside front wall, w/interior entryway
31		same	5	12.5	2.67	1/2 x 4 in. w/ interior entry-way 1/2 in. wide

Table I. Experimental Models (Continued)

Three-Dimensional Models Outside Shock Tube

Model No.	Size	Type of Filling	Input Pressure psi	A/AF, %	V/A, ft	Entrances & Baffles
32-A		front(reflection)	5	6.25	5.33	1/4x4 in. w/3/4 in. baffle 1/4 in. from front wall
32-B		same	5	6.25	5.33	1/4x4 in. w/ 3/4 in. baffle 1/2 in. fm inside front wall
33-A		same	5	12.5	2.67	1/2x4 in. w/1 1/2 in. baffle 1/2 in. fm inside front wall
33-B		same	5	12.5	2.67	1/2 x 4 in. w/1 1/2 in baffle 1 in. fm inside front wall
			Field Model			
26-A	8x8x12 ft.	front	5	31.7	37.8	2.9 x 7 ft.

is pulled through the model in vertical and horizontal directions, slightly off axis, by a vacuum pump. A Dynafax 326 framing camera photographs the grid movement caused by the shock wave entering the model. Average flow speed, direction and air density may be calculated from the smoke grid displacement and the known camera frame time separation and conditions of ambient density. A single shot is used to (No. 304 of Table A-I, Appendix A) illustrate the movement of nylon balls caught in the interior flow of the model. All shock overpressures were approximately 5 psi for these models.

C. Field Model

Figure 11-A shows a photograph of the one room field test structure called in this report Model 26-A. The sketch of 11-B shows the location of pressure gages.

A standard concrete instrumentation bunker, 8 x 8 x 12 ft., was selected and placed at the predicted 5 psi overpressure range from ground zero at the test site. The model was prepared by removal of the door which left an approximate opening of 2.9 x 7 ft. All other external openings were closed. Buried cables connected the pressure gages to the recording center. Complete details of the field model may be found in the Project Officer's Final Report for Project LN 111 of Operation Prairie Flat, Reference 4.

III. RESULTS

The results are presented in the same order as in the Experimental Section.

A. Three-Dimensional Shock Tube Models

Measurements from the recorded pressure time traces for the three-dimensional models are listed according to model and shot number

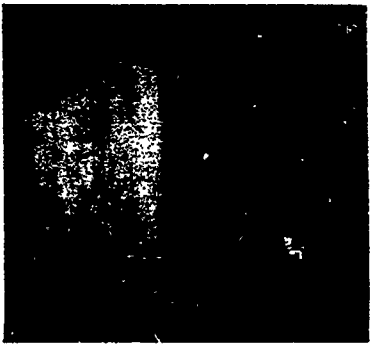
in Table B-I. Appendix B.

Figures 12 and 13 show filling records from shock waves going past the entrances of Models 34 and 25 The chamber volume to entrance area ratio (V/A) for Shot 234 on the large shock tube was 384 feet and for Shots 209 and 210 on the 24-inch shock tube the V/A ratio was 54.8 feet. The machine predictions from the theory, Reference 5, are somewhat higher than the experimental filling shows to be true. The theory predicts larger fill pressures as the input pressure increases. In the 5 - 15 psi input level, the prediction are perhaps 15% too high.

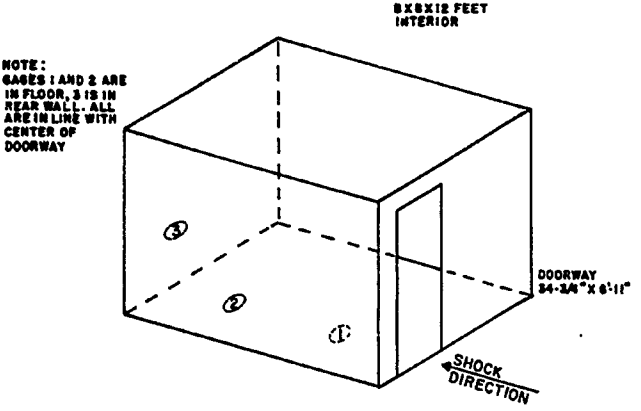
To illustrate the change in filling rate with the V/A ratio, several curves were plotted from the machine predictions obtained with the program listed as Appendix C. The curves represent the internal filling obtained for an input step shock wave of 5 psi overpressure, which has been totally reflected. The V/A ratios given are for typical room, basement, or blast shelter values. See References 6-8 for a description of the actual structures. Figure 14 shows the curves.

The results of the filling of Models 28 and 29 are shown in Figures 15-17. The figures show a comparison of the effect on filling by the entrance configurations. Model 28 had a single entrance centered in each of its four walls with the total area equal to that of the single front entrance of Model 29. The V/A ratio is about 6.9 feet for each model if the four entrance areas are added together for the calculation of Model 28. The filling occurs in a time range from 3.5 msec to 6.9 msec. The fill time for the four entrances is inversely proportional to the total entrance area, not the single entrance with a V/A of 27.4 feet.

The fill pressure for a front loaded model with a single entrance was found in the earlier work (Reference 1) to approach the



(A) PHOTOGRAPH OF TEST STRUCTURE



(B) ORIENTATION TO BLAST WAVE

Figure 11. Field Test Structure

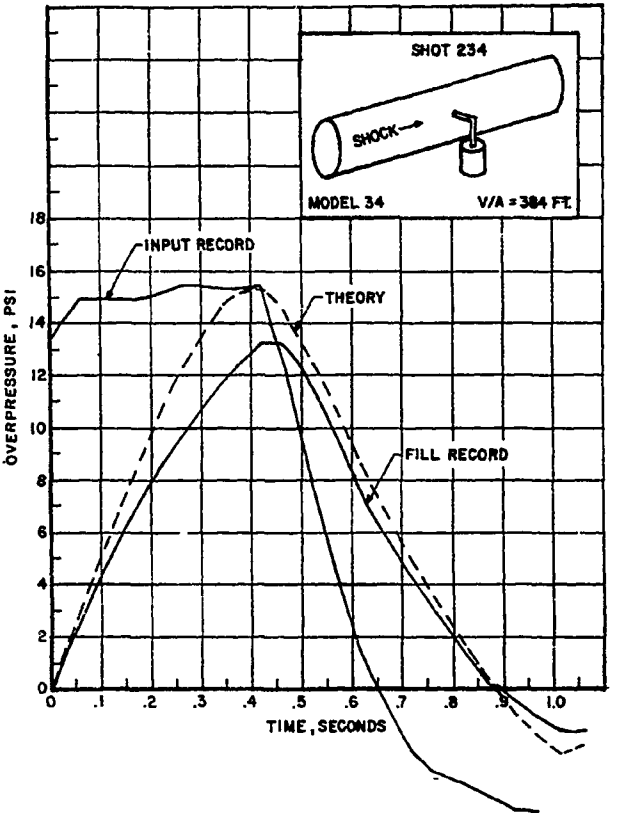


Figure 12. Fill Record for Model 34

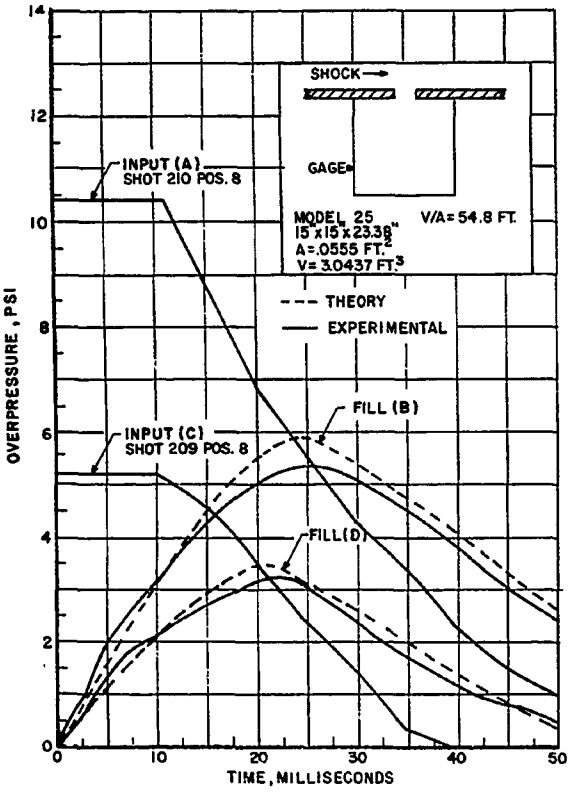


Figure 13. Fill Record for Model 25 from Shock Waves Passing Side-On to the Entrance

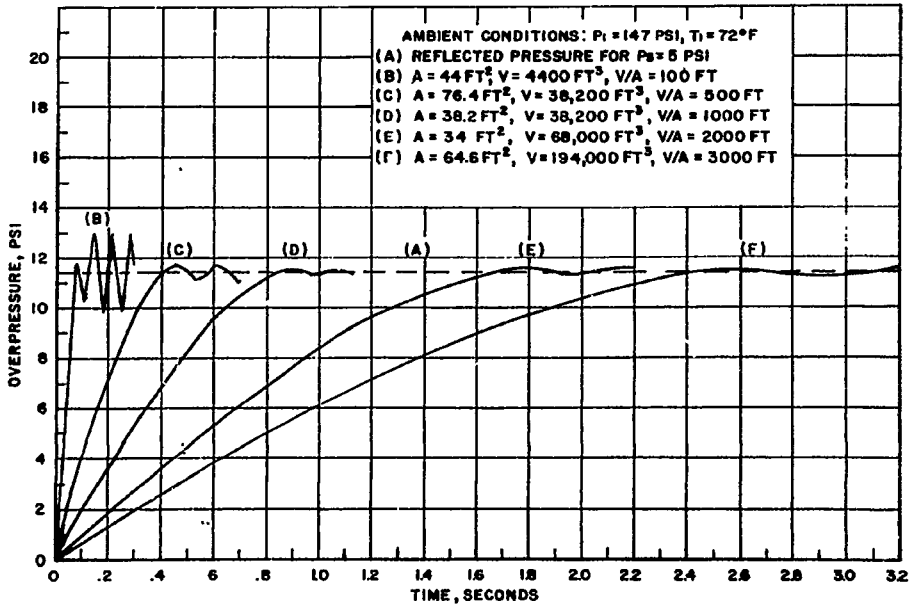


Figure 14. Predicted Filling Curves for Various Size Rooms

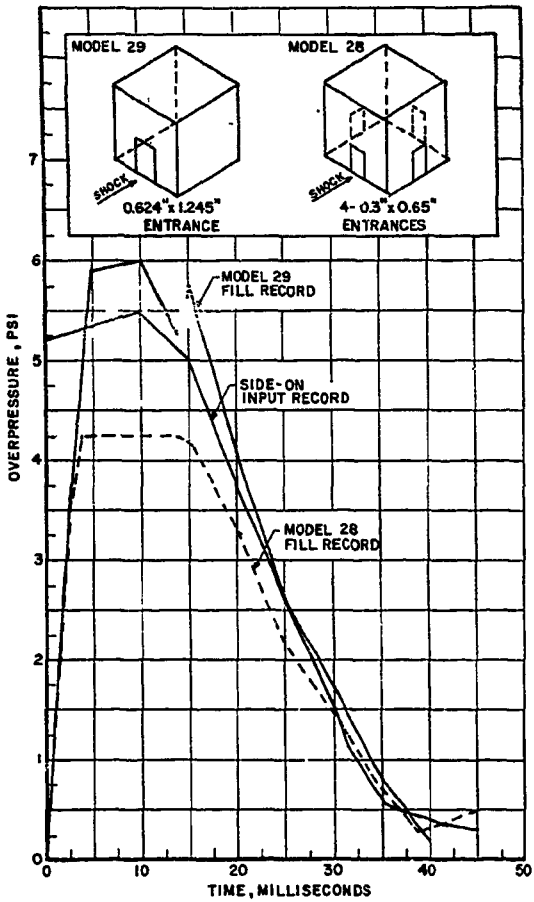


Figure 15. Comparison of Filling Through Single and Multiple Entrances - P_s = 5 psi

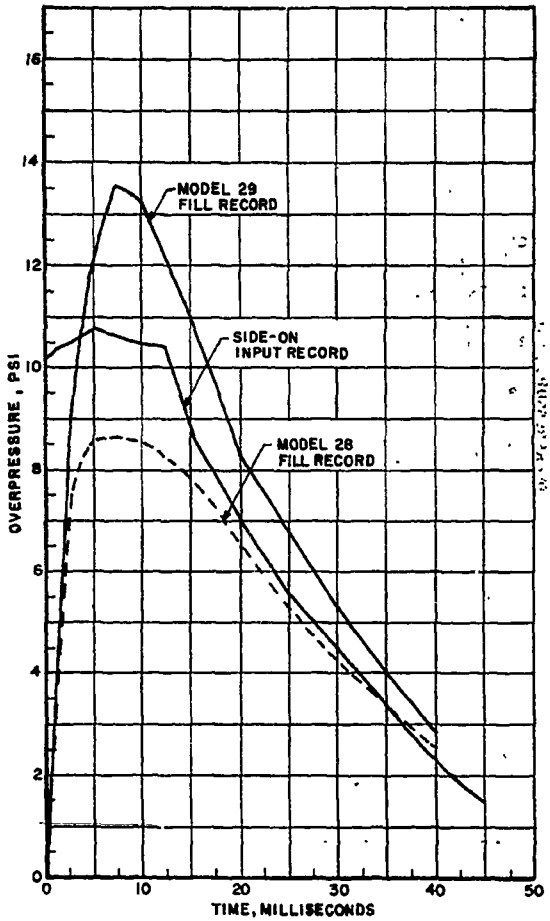


Figure 16. Comparison of Filling Through Single and Multiple Entrances - P_s = 10 psi

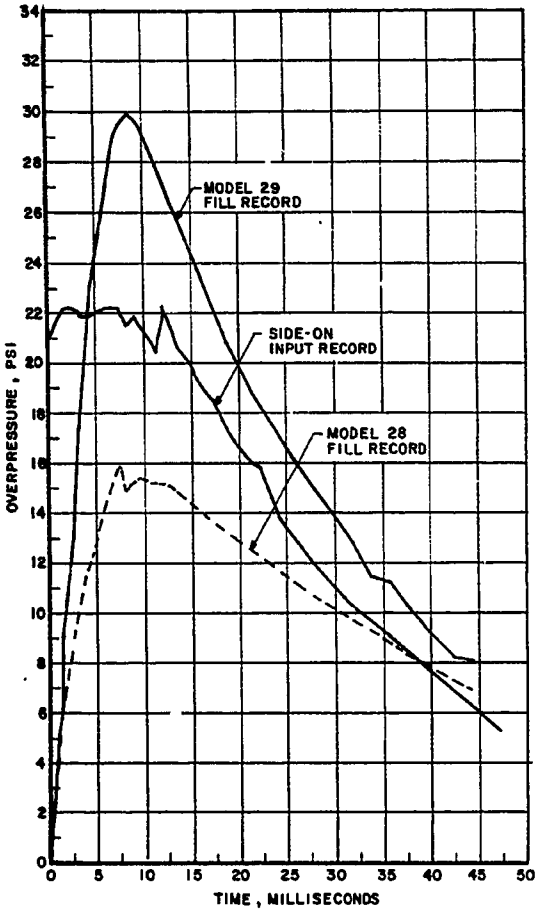


Figure 17. Comparison of Filling Through Single and Multiple Entrances - P_s = 21 psi

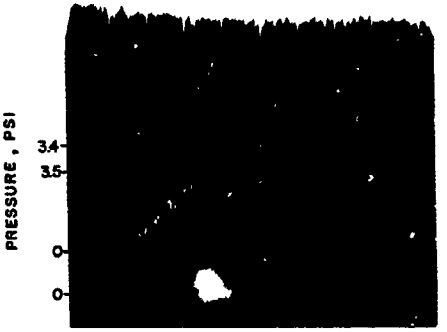
stagnation pressure of the input shock wave. The same result holds here for Model 29. However, records from Model 28 (multiple filling) show the fill pressures to be lower than the side-on input pressure P_s; the pressure did not reach stagnation pressure as it did for Model 29.

The effect of interior baffles, tunnel entrances, and external revetments on the fill time to maximum pressure are shown by the filling traces given in Figures 18-20.

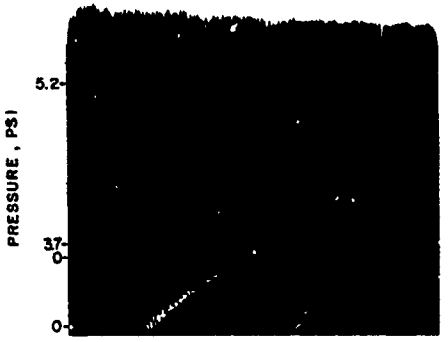
Figure 18 shows a comparison of the fill record from an unbaffled entrance, Model 16, with the record from Model 17 which had an interior entryway baffle. The result is an obvious deflection of the incoming flow, but the fill time and maximum pressure reached are about the same as for the unbaffled model.

Figure 19 shows a comparison of results from a vortex generator entrance and a straight side tunnel, Model 21. The oscillations of Figure 19-B follow quite well the results obtained by Jones and Muirhead, Reference 9. The measured period of oscillation was equal to approximately four tunnel lengths divided by the ambient sound velocity ($4L/A_1$), with the diameter correction neglected. The vortex generator did not reduce the incoming shock wave by vortex interaction as was hoped, but actually increased the initial peak pressure approximately 50% higher than the peak pressure of the straight side tunnel. The results from both models indicate the need for an entrance that does not channel the shock wave into the room area where where protection is sought.

Figure 20 illustrates the results obtained from Model 18 (with exterior revetment) as compared with those from Model VI, Reference 1. All orientations, and at all pressure levels used, showed some

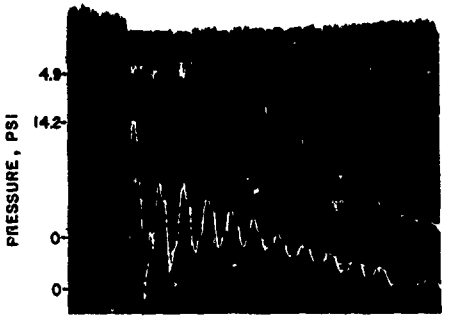


SHOT 215 TIME, 5 MSEC/DIV
UPPER TRACE-POS. 1
LOWER TRACE- POS 2
(A) FILL RECORD FROM MODEL 16



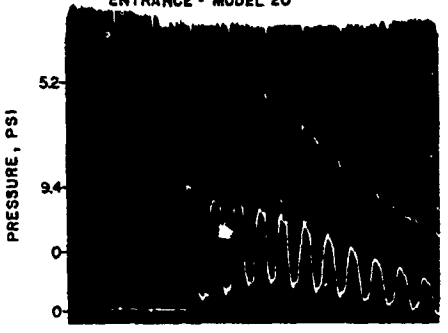
SHOT 159 TIME, 5 MSEC/DIV
UPPER TRACE-INPUT
LOWER TRACE - FILL
(B) FILL RECORD FROM MODEL 17

Figure 18. Comparison of Filling for Regular Entrance and Baffled Entryway



SHOT 173 TIME, 5 MSEC/DIV
UPPER TRACE - INPUT
LOWER TRACE - FILL

(A) FILL RECORD FOR VORTEX GENERATOR ENTRANCE - MODEL 20

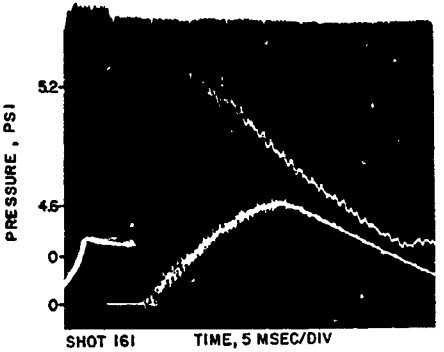


SHOT 176 TIME, 5 MSEC/SEC
UPPER TRACE - INPUT
LOWER TRACE - FILL

(B) FILL RECORD FOR SIDE TUNNEL ENTRANCE - MODEL 21

Figure 19. Comparison of Filling for Vortex Generator Entrance and Side-Tunnel Entrance.

(A) FILL RECORD FROM MODEL VI- REF. I



(B) FILL RECORD FROM MODEL 18

Figure 20. Comparison of Filling For Regular Entrance and with Exterior Revetment

measure of protection might be obtained with the use of the exterior revetment. Both a decrease in fill pressure and an increase in fill time were obtained by adding the revetment in front of the regular entrance of Model VI.

The last model in this group, Model 19, is Model 16 modified to include an entryway baffle and dividers to give four rooms instead of a single room. Figure 21 shows the results for the 5 psi input pressure level for the two models. The results are typical of the other shock pressure levels used. The single room, Model 16, gave maximum pressures with a slight increase as the gage position was near the back wall. The fill times are essentially the same. Model 19 gave results indicating the largest pressure in Room 1 and decreasing in value to the last room. The fill time was shorter, however, in Room 1, Model 19 than in the other three rooms. The fill times for the last three rooms were about the same as from Model 16. The initial diffracted peak shock wave attenuated before reaching Rooms 2, 3 and 4. The alternating sides for successive doorways may have helped to cause this result as was reported in References 10 and 11.

The third group of models consisted of a set where the length and the entrance size were varied for a constant value input shock wave. This group of models was primarily intended to give information about the shock diffraction inside a single room model. Figure 22 shows records from one of these models and Tabel II summarizes results obtained from the records.

The table shows the pressure of the diffracted shock wave (first peak) to be greater at a given position as the area of the entrance is larger and to decrease in pressure with distance from the entrance. The values of pressure shows were recorded from a position in the

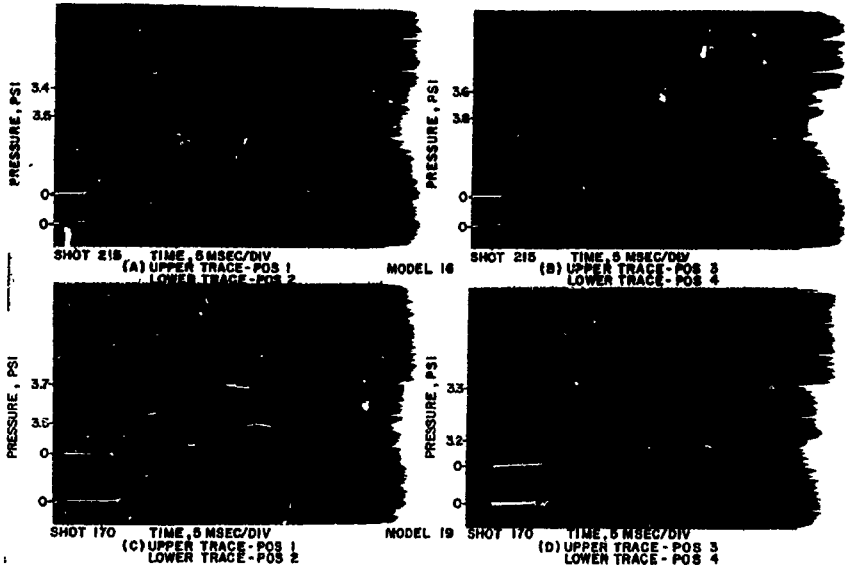
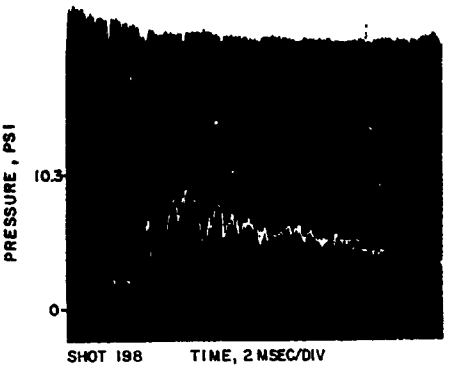
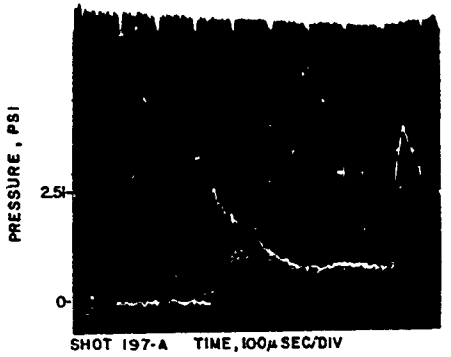


Figure 21. Comparison of Filling for Single and Multiple Rooms

p



(A) RECORD FROM MODEL 22-C



(B) DIFFRACTED PEAKS-FAST SWEEP

Figure 22. Records from the Diffraction Models

Table II. Results for the Diffraction Models - P_s = 4.7 psi

Model No.	A/AF	Shot No.	Pressure of First Peak, psi	Maximum Pressure, psi	Negative Pressure, psi	Remarks
22-A	.002	195	0.48	1.5		model 51x15x 12 in.
		196-A	0.52			1/2x1 In. entrance
22-B	.009	180	1.28	6.1		1x2 in.
		181-A	1.02			
22-C	.036	198	3.22	10.3		2x4 in.
		197-A	2.51			
23-A	.002	192	0.77	1.7	0.36	model 15x15x8 in.
		191-A	0.62		0.36	1/2 x 1 in. entrance
23-B	.009	183	1.61	3.5		1 x 2 in.
		184-A	1.39			
23-C	.036	201	2.57	11.9		2x4 in
		202-A	3.60			
24-A	.002	189	0.94	2.0	1.2	model 15x15x4 in.
		190-A	1.03			1/2 x 1 in. entrance
24-B	.009	186	2.63	4.6	4.9	1 x 2 in.
		185-A	2.30			
24-C	.036	204	7.69	14.0		2 x 4 in.
		203-A	6.88			
25	.036	212-A	0.38			model 15x15x23.4 in. 2 x 4 in. entrance

inside center of the back wall of the model. Figure 23 is a graph of the variation of the pressure of the first peak with distance to the rear wall measured in entrance widths. The ratio of entrance area to frontal area, A/AF, is shown for the curves for comparison.

Two other important results are shown in Table II. The first is that even though the first pressure peak is small at a position the multiple peaks caused by other internal reflections, build the pressure to a maximum value larger than the input wave reflected (10.6 psi) at a blank wall. The other result is that negative phase pressure (below ambient) appears because of the vortices from the entrance edges. As the measurement position was moved away from the entrance, the negative phase pressure was smaller than near to the entrance.

The fourth group of three-dimensional shock tube models will be discussed as compared to the field model in the Field Model Section of Results.

B. Two-Dimensional Models

The high speed photographs of Models 30-33B are shown in Appendix A with an explanation of the calculations made. Table A-I lists and describes briefly the model and smoke grid location for each model photographed.

Appendix D consists of the air flow machine calculations and selected vector plots of data. The tables and plots are grouped according to the type of baffle or entryway in order to show the effect in the internal flow caused by the entrance size-baffle spacing, or by a directional entryway, and last, the effect of an exterior baffle in combination with the internal entryway. Table III summarizes the results.

A study of the tables and vector plots show the following effects upon the flow by the entrance configurations. The 3/4 inch baffle (Model 32-B) spaced two entrance widths away (Figure B-10) slows

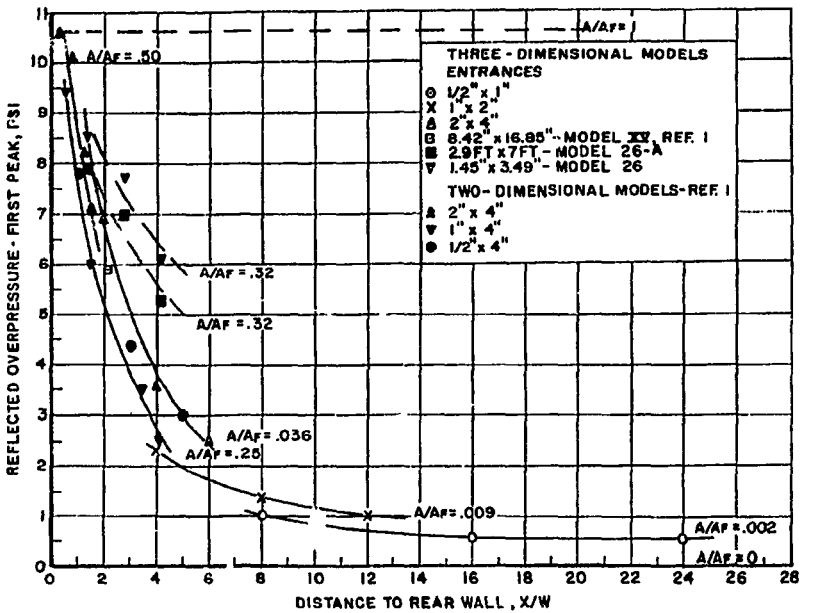


Figure 23. Reflected Pressure on Rear Wall from First Diffracted Shock Wave Inside Model

Table III. Summary of Results from the Two-Dimensional Models

Model No.	Entrance	Shot No.	Grid Position	Time, μsec	Velocity ft/sec	Q lb/ft^2
32-A	1/in.	315	front	138-305	9-83	.3-8
				347-639	4-158	.02-32
				681-849	6-128	.05-12
				889-1890	6-313	.36-70
	baffle - 1/4 in.	317	rear	221-386	0-105	0-13
				428-800	0- 70	0- 6
				842-1421	0- 97	0-16
				1463-1670	2-174	.05-22
32-B	1/4 in.	321	front	60-927	2-124	0-19
				968-1518	4-308	.03->52
	baffle - 1/2 in.	318	rear	142-349	0-100	0-13
				390-1629	0- 84	0-10
				1670-1752	12-131	.2-26
33-A	1/2 in.	310	front	85-461	3-215	.01-61
				503-1628	6-241	.05->61
	baffle - 1/2 in.	311	rear	168-419	2-132	0-22
				460-961	0-99	0-13
				1002-1545	4-213	.03->51
33-B	1/2 in.	313	front	2-504	0-195	0-48
				588-1091	0-135	0-24
				1133-1301	35-218	2->31
	baffle - 1 in.	314	rear	229-396	4-137	.02-24
				438-1146	2-83	.01-10
				1188-1522	4-173	.02-24
31	1/2 in. entryway	306	front	91-1224	2-478	0->200
		308	near rear entrance	232-1436	0-358	0-137
		326	front away from rear entrance	312-437	2-145	0-26
				479-1022	2-95	0-14
				1064-1607	6-102	.05-38
				328-537	0-132	0-24

Table III. Summary of Results from the Two-Dimensional Models (Continued)

Model No.	Entrance	Shot No.	Grid Position	Time, μ sec	Velocity ft/sec	Q lb/ft^2
30	1/2 in. entryway	323	front away fm rear entrance	325-698	0-159	0-31
				739-1029	0-87	0-9
				1070-1277	12-130	12-25
				1319-1526	2-94	.01-13
	exterior baffle	324		313-605	2-138	0-27
				646-938	0-87	0-11
				980-1230	0-148	0-31
				1272-1522	0-97	0-13
				1564-2064	3-155	.01->30
		304	none-nylon balls			

the internal flow the most efficiently in most areas of the model. Model 33-B, 1/2 inch baffle spaced 1 inch, similar in scale to model 32-B allowed larger flows to enter at the earlier times shown. The entryway of Model 31 directed large flows into the portion of the model near the entryway which swept around the interior and created areas of flow throughout most of the model. The external baffle when used with the internal entryway did not appear to change the entryway effect.

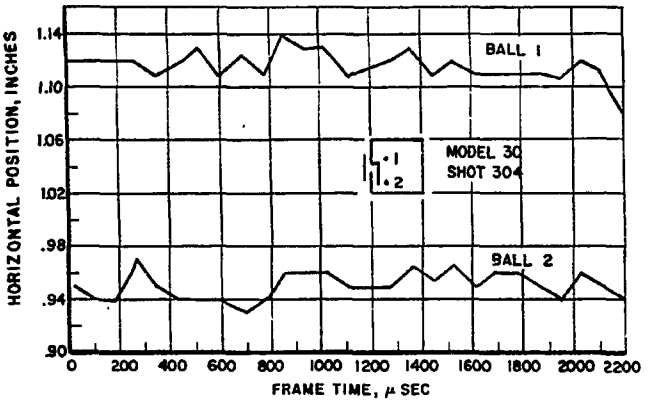
Lastly, there appeared to be flow fields set up inside the models at later times corresponding to times of outflow from the model. The magnitude in some of the models equaled the flows set up during the time of earlier shock interactions.

The results from Shot 304, Model 30 are shown as time-position (Figure 24) plots for the horizontal and vertical coordinates of the two nylon balls photographed during the shot. Some oscillation about the average coordinates of the balls can be seen. Also an average velocity of 4-5 ft./sec. begins after 600 - 800 μsec in a direction towards the entryway. Reference 12 shows machine flow predictions which indicates the presence of significant flow fields during the outflow which may account for this movement. The flow vectors and tables of Appendix D also show that larger flows were present during the time of outflow from the models than during intermediate times.

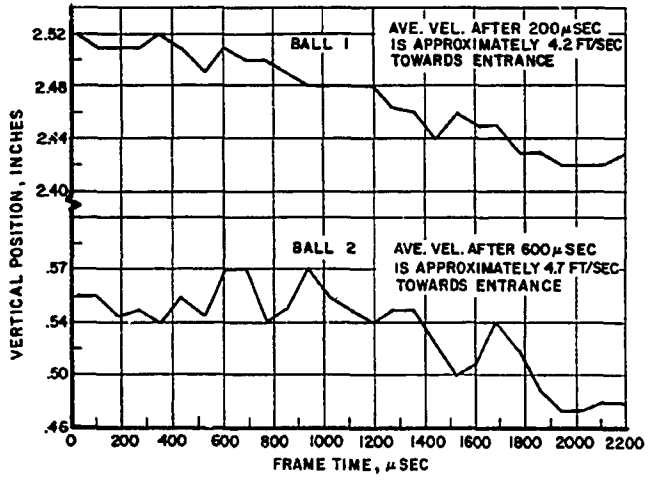
C. Field Model

The results from the field model are reported in detail in Reference 4 and will be only summarized here, and compared with the results from the shock tube Models 26 and 27. See Tables IV and V.

Pressure-time records were obtained from two positions on the floor of Model 26-A and one at the back wall. The records indicated that the diffracted peak wave, which entered the open doorway, decayed



(A) HORIZONTAL POSITION



(B) VERTICAL POSITION

Figure 24. Position of Nylon Balls as a Function of Frame Time-Model 30

Table IV Comparison of Results from Shock Tube Models 26 and 27 with Results from Field Model 26-A

Model No.	Shot No.	Gage Position, ft.	X/L	P_s, psi	Peak 1, psi	P_{av} psi	P_{max}, msec	T_{max}, sec	Remarks
26	236	.17	.33	5.2	4.2	5.9	7.1	.82	1/24 scale
	235	.33	.67	5.2	3.9	5.8	9.1	1.00	V/A = 1.55 ft
	237	.50	1.00	5.1	6.4	5.9	11.8	.95	A/A_F = 32%
	219	.17	.33	4.7	3.9	5.1	6.4		Position 3
		.33	.67		3.5	4.8	7.9		face-on gage
		.50	1.00		6.1	5.5	10.7		
27	224	.17	.33	5.3			4.1	17.2	not scaled
		.33	.67				4.1	17.7	V/A = 37.7 ft.
		.50	1.00				4.4	17.5	A/A_F=1.3% Rarifaction occurred be - fore model filled.
26-A	233	4	.33	4.8	3.6		5.9	22.2	field model
		8	.67		3.2		7.0	26.2	V/A = 37.7 ft.
		12	1.00		5.3		9.3	23.9	A/AF = 32%

Table V. Comparison of Periods of Oscillation
From the Film Records

Model No.	P_s, psi	A_1, ft/sec	Major Period, msec	L, ft.	$2L/A_1$, msec	Remarks
21	5.2	1133	3.1	0.83	1.5	side-on, V/A = 0.83 ft. A/A_F = 100%
25	4.8	1134	2.7	1.95	3.4	side-on, V/A = 54.8 ft A/A_F = 3.6%
26	4.7	1137	3.0	0.50	0.9	face-on, V/A = 1.55 ft. A/A_F = 32%
26-A	4.8	1130	18.6 (average, Position 3)	12	21.2	face-on, V/A = 37.7 ft. A/A_F = 32%
27	5.4	1131	2.2	0.50	0.9	face-on, V/A = 37.7 ft. A/A_F = 1.3%
XV (Ref. 1)	5.0	1152	4.8	3.00	5.2	face-on, V/A = 27.4 ft. A/A = 10.9%

Notes for Model 26-A: D=2.89 ft, W = 1.78 ft.

A. Duration of first peak ≈ $3D/A_1$ = 7.7 msec; Position 1 - experimental extrapolated ≈ 8.5 msec

B. Reflected repeat from back wall ≈ $2(L-X_1)/A_1$ = 14.2 msec; Position 1 - experimental ≈ 13.8 msec
L = 12 ft, X_1 = 4 ft.

C. Reflected repeat from back wall ≈ $2(L-X_2)/A_1$ = 7.1 msec; Position 2 - experimental ≈ 7.0 msec
L= 12 ft, X_2 = 8 ft.

D. Reflection repeat from side wall ≈ $2W/A_1$ = 3.6 msec; Position 3 - experimental ≈ 4.2 msec

E. Reflection repeat from front wall ≈ $2L/A_1$ = 21.2 msec; Position 3 - experimental ≈ 23.9 msec

in pressure from 3.6 psi at Position 1, to 3.2 psi at Position 2, and gave a reflected first peak of 5.3 psi at the back wall at Position 3. Later, multiple reflections caused a large maximum pressure of 9.3 psi at approximately 24 msec.

The wire solder drag gage plates showed appreciable air flows had been present at the front two-thirds of the test structure, in line with the entrance.

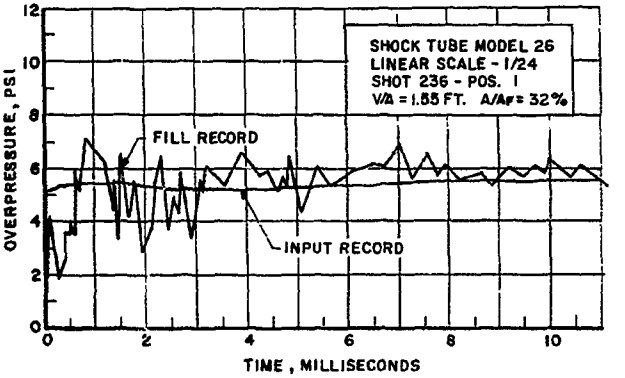
Comparison of the pressure-time results from the shock tube models with those of the field test structure are shown in Figures 25 - 28. Figure 29 shows a similar comparison of pressure time records taken from Reference 1.

Figure 30 shows sets of wire drag gage plates taken from the interior of the field model after exposure to a 5 psi overpressure blast wave from the detonation of 500 tons of TNT. Many of the wire gages are quite bent and twisted near the doorway. Shock tube calibration of the wire gages (Reference 4) indicate bending equivalent to or greater than that caused by a shock overpressure of 10.4 psi in the shock tube. This suggests that flows equal to 450 ft/sec were experienced inside the doorway.

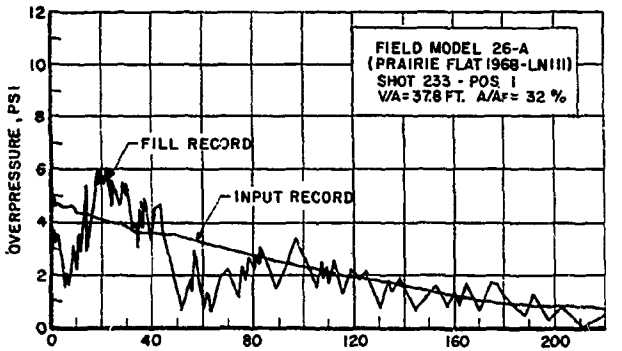
Generally, the pressure-time records from the field model were quite similar to those obtained from the linear scaled shock tube model, if the input pressure difference and the exponential decay of the field blast wave were considered.

IV. SUMMARY AND CONCLUSIONS

The following conclusions are believed to be valid concerning filling predictions, effects of entrance and baffle configurations, and the filling process of multiple rooms for the 5 - 20 psi overpressure range tested.

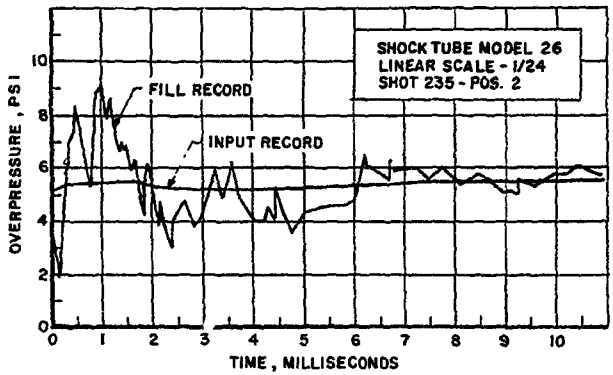


(A) SHOCK TUBE RECORD

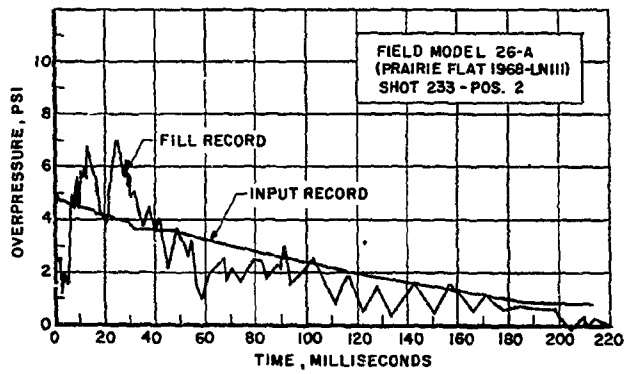


(B) FIELD RECORD

Figure 25. Comparison of Shock Tube Results with Field Results - Position 1



(A) SHOCK TUBE RECORDS



(B) FIELD RECORDS

Figure 26. Comparison of Shock Tube Results with Field Results - Position 2

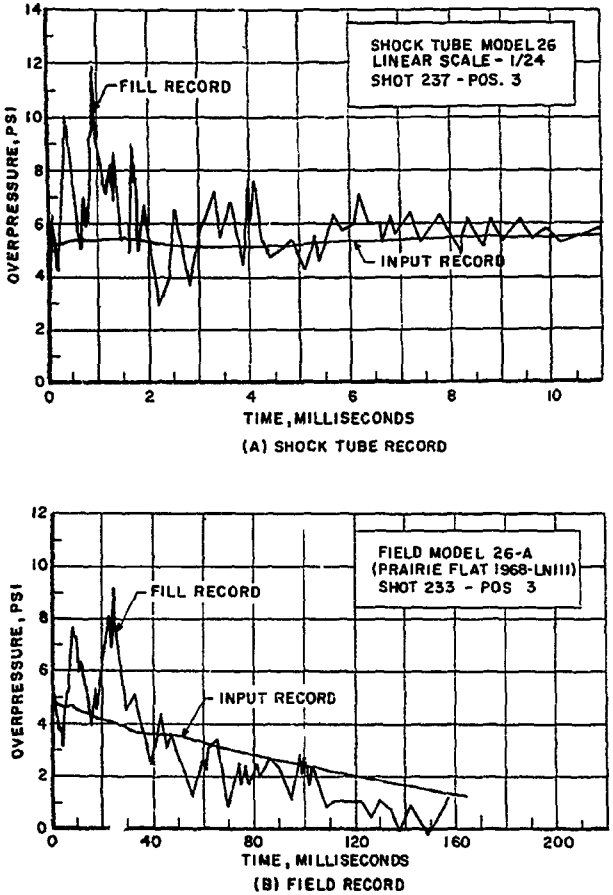
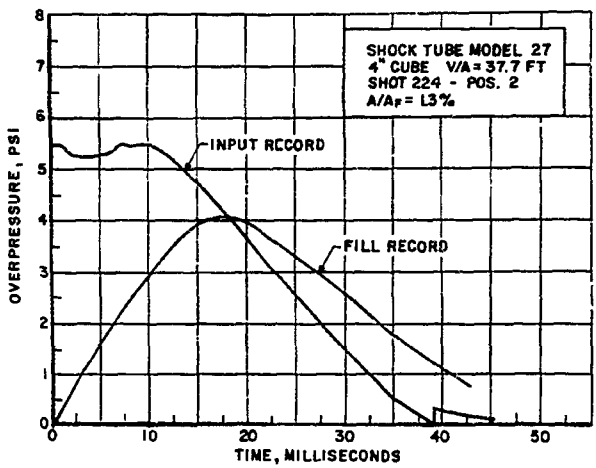
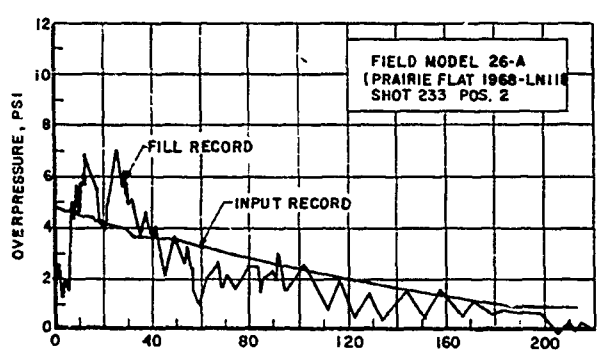


Figure 27. Comparison of Shock Tube Results with Field Results - Position 3

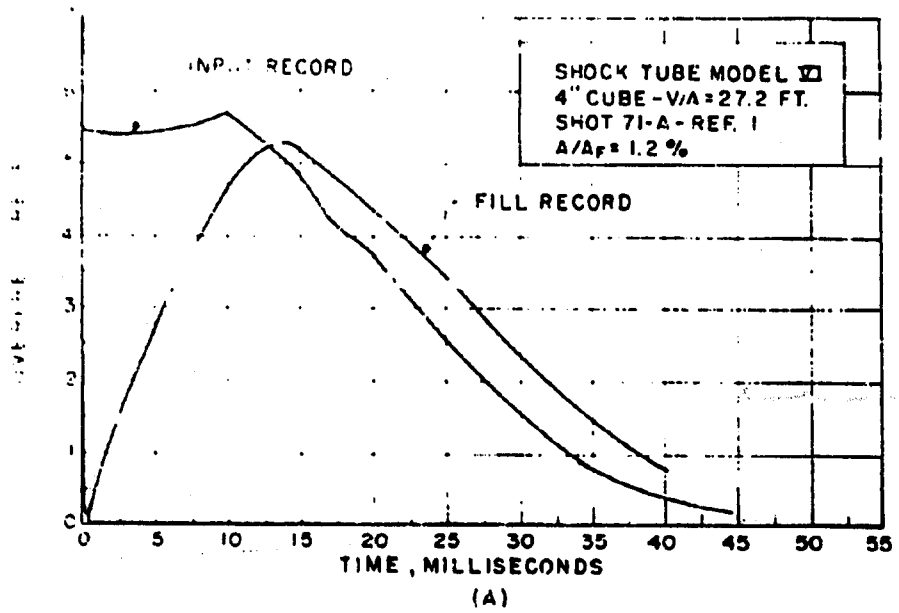


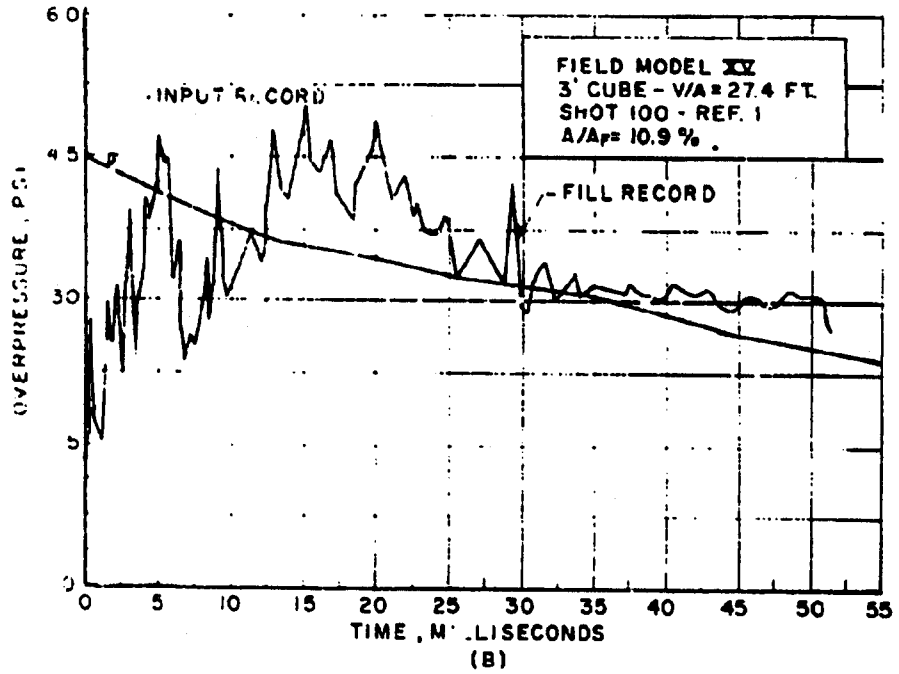
(A) SHOCK TUBE MODEL 27



(B) FIELD MODEL 26-A

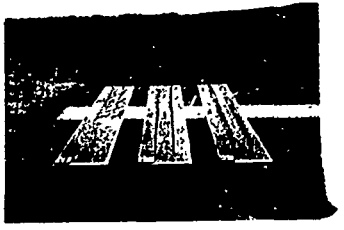
Figure 28. Comparison of Shock Tube Fill-Model and Field Model Records



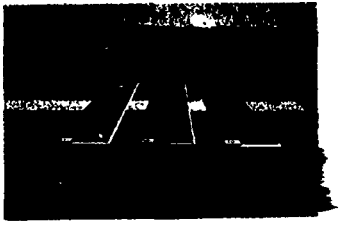


[illegible] Comparison of Filling for Shock Tube Model VI and Field Model XV - Reference 1

Best Available Copy



(A) DRAG PLATES FROM THE FLOOR



(B) DRAG PLATES FROM LEFT SIDE WALL

(C) DRAG PLATES FROM CEILING

Figure 30. Wire Drag Gage Plates from Interior of Field Test Structure - Model 26-A.

A. Three-Dimensional Models

1. The present series of experiments has extended the scale size of the fill-model by a factor of 24 and the duration of the input wave by about 10 times more than that reported in the first part of this work. The machine predictions throughout this range were within about 15 % of the experimental values found. The fill predictions given by the machine code will be adequate for a wide range of room sizes and input waves for cases of subsonic filling.

2. Figures 31 and 32 illustrate the relative fill curves for the various orientation and entrance configurations. Figure 31 shows that slowest fill conditions is met if the input shock wave approaches side-on or if the model is filled from a side entrance. For a given entrance area need, the minimum fill condition occurs for equal division of the area on all sides, since the direction of the input shock wave may not be anticipated for a real situation. Figure 32 illustrates the general dependence of filling upon the entrance areas, and indicates the area should be as small as the situation allows.

3. Comparison of records from models with entrances with and without internal baffles showed little, if any, effect on the maximum pressure to which the model filled. If an internal baffle were to decrease the entrance area, then a corresponding change in filling rate would occur, just as for an area change (Figure 32).

4. A revetment outside the entrance of the model in a front-fill position caused the fill-time to be increased and also lowered the value of the pressure to which the model filled. The pressure values recorded were between the values for an unreveted entrance filled from the front and for one filled from the side.

5. Results from the four-room model show the first room fills

faster than the last room. A pressure differential across the first partition wall may well cause objectional loading. It may be necessary to increase the size of the first room in a shelter design to compensate for this. As the full size shelter becomes longer and longer, a similar effect will probably occur for all rooms. The model used did not show this effect because of the time scale is small and any time differences in loading would be hard to resolve.

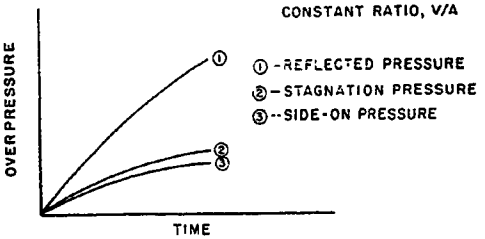
For interconnecting rooms such as are represented by the four room model, it seems very desirable to alternate doors so that no direct path allows the shock wave to move directly through the structure. The partition walls will then give a baffle effect and cause the transmitted shock wave to be minimized.

6. The diffraction model study indicated that the area of the entrance to the inside frontal area of a room determines the peak diffracted pressure at the side walls. Since the duration of the diffracted depends upon the entrance width, the duration of the diffracted pulse is short and the peak decays to about 30 - 50% fits initial value after travel of about four door widths distance away from the entrance.

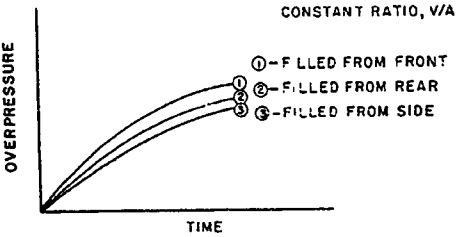
Multiple internal reflections cause the initial diffracted peak to increase three or four times in value at the back wall. The walls of a room may also experience increased differential loading across its surface because of vortices created at the entrance striking the walls and causing localized very low pressure. Values of a few psi below ambient were recorded.

B. Two-Dimensional Models

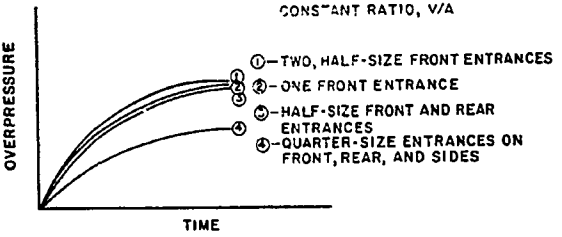
The criteria used for evaluation of the baffle effect on the flow within the two-dimensional models is that used in Reference 13. There a "mostly safe" flow is defined as one in which a 168 lb man standing



(A) EFFECT ON FILLING BY TYPE OF INPUT PRESSURE

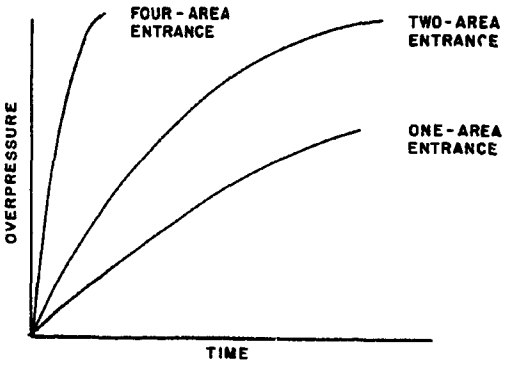


(B) EFFECT ON FILLING BY MODEL ORIENTATION

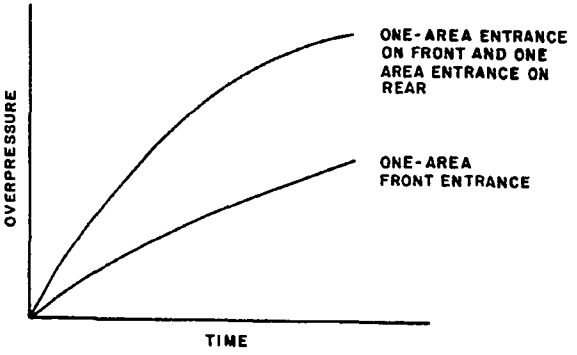


(C) EFFECT OF EQUAL AREA ENTRANCES

Figure 31. Generalized Filling Curves for Constant Ratio of Room Volume to Entrance Area



(A) EFFECT OF FRONT ENTRANCE SIZE FOR A CONSTANT ROOM VOLUME



(B) EFFECT OF FRONT AND REAR ENTRANCES FOR A CONSTANT ROOM VOLUME

Figure 32. Generalized Filling Curves for Variable Ratio of Room Volume to Entrance Area

broadside to the flow will not exceed in translation, an impact velocity of 10 ft/sec at the reflecting wall he hits. It was shown in Reference 13 that for an acceleration coefficient of .052 ft^2/lb about 2.1 g's of acceleration for about 150 msec were needed to reach an impact velocity of 10 ft/sec. This corresponds to about 40 lbs/ft^2 steady drag force, or for transient flows, the same translation velocity is obtained by an impulse loading of about 44 psi-msec. Therefore, a drag force of 40 lbs/ft^2 (0.278 psi) should not exceed 160 msec, accordingly a "mostly safe" criteria of a force of Q less than 40 lb/ft^2, or air flow velocities less than 170 ft/sec (at the densities measured within the models) were chosen. Flows under these conditions, with durations of 160 msec, would be allowed in a full scale room of about 100 times that of the model.

Table VI summarizes the number and percentage of velocity vectors or Q's exceeding, as defined above, the safe values in each zone of the room models. (See Remark column for zones.) When compared to the model without a baffle, XIV-C, Model 33-B showed all zones to be 98% or more safe. The directed entryway (Model 31) gave an unsafe area throughout the half near to the entrance, but was safe in the half-area away from the entrance. The simple baffle of Model 33-B would probably give the greatest useable room area which is safe.

C. Field Model

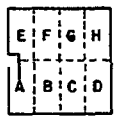
1. As the field blast wave expanded from the entrance into the model, rarefaction waves behind the shock front caused the transmitted pulse to become of short duration. Empirically, the duration approximated the ratio, $3D/A_1$ where D is the entrance width and A_1 is ambient sound speed. By a distance of about X/D = 5, the peak pressure had decayed in the field model to about half the peak pressure of the input blast wave. Reflections from the walls and ceiling

Table VI. Number of Velocity Vectors or Q Exceeding Safe Values

Model No.	Shot No.	Number Exceeding Safe Limits In Zones A	B	C	D	Remarks
32-A	315+317	3/90 3.3%	19/326 5.8%	2/431 0.5%	0/301 0%	1/4 in. entrance, baffle spaced 1/4 in.
32-B	321+318	7/43 16.3%	9/379 2.4%	0/368 0%	0/367 0%	1/4 in. entrance, baffle spaced 1/2 in.
33-A	310+311	0/42 0%	14/252 5.6%	5/353 1.4%	0/361 0%	1/2 in. entrance, baffle spaced 1/2 in.
33-B	313+314	0/81 0%	2/101 2.0%	3/393 0.8%	0/320 0%	1/2 in. entrance baffle spaced 1 in.
31	306+308	3/38 7.9%	91/261 34.9%	68/282 24.1%	28/327 8.6%	1/2 in. entryway
XIV-C	120+122	31/371 8.4%	58/343 16.9%	66/322 20.5%	6/65 9.2%	1/2 in. entrance, no baffle (Ref. 1)
		Zones E	F	G	H	
31	326+328	0/153 0%	0/359 0%	0/393 0%	0/245 0%	1/2 in. entryway
30	323+324	0/134 0%	0/316 0%	0/368 0%	0/257 0%	1/2 in. entryway, exterior baffle

Note: Values of Q over 40 lb/ft^2, or flow velocities over 170 ft/sec were considered unsafe when model is scaled to a full size room which will allow flows up to 150 milliseconds duration. See Reference 13.

Sketch of Zones



modified the diffracted wave at any given position. Pressure was increased by the reflections to about twice that of the input wave. Also, the duration between reflection peaks depended on the transducer position with respect to which surfaces the reflections came from.

2. The wire drag gages indicated that near the entrance strong flows were set up by the blast wave entering into the room. The gages indicated a part of the flow to have come from vortices, particularly at the edges and corners of the doorway. The floor had a damage potential as shown by shock tube calibration of the wire gages.

3. A comparison of shock tube results obtained from the linear scaled model with results from the field model showed that the recorded pressure-time waveforms at scaled positions and times compared quite well. Peak pressures, pulse durations, the reflection arrival times, and the fill-time oscillations compared favorably when the exponential decay and pressure differences of the field blast wave were considered.

4. The results from Model 27 gave pressure-time filling records with no significant internal diffraction peak or reflection of the input shock wave. Instead, the linear scaled shock tube model predicted more realistically the results from field model. As the model entrance area to interior cross sectional front area ratio (A/A_F) increases, larger diffracted peaks reach the side walls of the model which are capable of larger and larger reflections at positions inside the model.

For area ratios of A/A_F less than 5% it is clear that the machine fill code of Appendix C may be used to predict the maximum fill pressure. For ratios between 5 - 20%, transition occurs from a fill model to the diffraction model. Above perhaps an A/A_F of 20%, a diffraction model is needed and a more sophisticated two-dimensional hydrodynamic code might give better results.

ACKNOWLEDGEMENTS

The author wishes to thank Mr. Harry Pearce and Mr. Robert Peterson for their assistance with the experiments. Mrs. Buckner Pamill for processing the data for the computer, and Mr. William Matthews for design of the diffraction models and for assisting in the preparation of the many figures needed for the report.

REFERENCES

1. George A. Coulter, "The Air Shock Filling of Model Rooms," Ballistic Research Laboratories Memorandum Report No. 1916, March 1968.

2. J. C. Muirhead and others, "A Method for the Observation of Air Movement in Shock Tube Flows Using Smoke Stream as Tracers," Suffield Experimental Station, Ralston, Alberta, Canada, Suffield Technical Paper No. 153, 9 January 1959.

3. George A. Coulter and Robert L. Peterson, "Design of Aircraft Revetments," Ballistic Research Laboratories Memorandum Report No. 1440, October 1962.

4. George A. Coulter and Robert L. Peterson, "Blast Fill Time of a One-Room Structure," Project Officers Report, Operation Prairie Flat, Project LN111, August 1968. To be published as a Weapons Test Report to DASA.

5. Joseph Melichar, "The Propagation of Blast Waves Into Chambers," Ballistic Research Laboratories Memorandum Report No. 1920, March 1968.

6. Carl K. Wiehle and William L. Durbin, "Combined Effects of Nuclear Weapons on NFSS Type Structures," URS Corporation, 1811 Trousdale Drive, Burlingame, Calif., URS 658-3, June 1966.

7. Charles Curione, "Cost Trends of Mass Production as Applied to 5-10 psi Shelters-Final Report," SRI, Menlo Park, California, Final Report, Contract No. OCD-PS-64-201, OCD Work Unit No. 1150A, February 1967.

8. "Final Study Report for Protective Blast Shelter System Analysis," Bechtel Corporation Washington Office, Gaithersburg, Maryland, April 1967.

9. G.H.S. Jones and J.C. Muirhead, "Model Studies of Blast Effects Part IV. A Study of Blast Induced Resonance in Simple Air Columns," Suffield Experimental Station, Ralston, Alberta, Canada, Suffield Technical Paper No. 174, February 1960.

10. L. F. Ingram, "Attenuation of Airblast in Protective Structures," U.S. Army Engineer Waterways Experiment Station, CE, Vicksburg, Mississippi, Miscellaneous Paper No. 1-608, November 1963.

REFERENCES

11. J. M. Ross, and others, "A Shock Tube Study of Attenuation of Air Flow Through Chokes," Suffield Experimental Station, Ralston, Alberta, Canada, Suffield Technical Note No. 152, May 1966.

12. Joseph F. Melichar, "Air Blast Induced Aerodynamic Effects in Blast Slanted Basement Shelters," URS Corporation, 1811 Trousdale Drive, Burlingame, California URS 692-1, Quarterly Progress Report July-September 1968.

13. "Advisory Committee on Civil Defense ad Hoc Subcommittee on Blast and Thermal Effects," National Academy of Sciences National Research Council, 2101 Constitution Avenue, N.W., Washington, D.C. 20418, Notes on 4th Meeting 31 July - 1 August 1967.

APPENDIX A

High Speed Photographs - Two Dimensional Models

USE OF APPENDIX A

Table A-I shows the order in which the photographs of the two-dimensional models are shown. They have been grouped according to the entrance type, shot number, and the model number which is used as part of the titles for the photographs.

The photographs may be followedin time by alternating from left to right for each succeeding frame. The frame number and the time measured from the arrival of the shock wave at the inside of the entrance are listed near each frame of the photographs.

Each intersection of the smoke grid was followed from frame to frame and average direction angles and velocities were calculated using two odd frames or two even frames (every other frame). The average values, for example between Frames 1 and 3, were printed out at Frame 2 for each particular shot as listed in the tables of Appendix D. From a comparison of the changed smoke grid size with the undisturbed grid size at ambient density, air densities were calculated. A measure of average drag force present inside the model as a function of frame time was calculated from a product of one-half the grid density and the average grid intersection point velocity squared. Appendix D lists tables of these values as functions of frame time and position coordinates of the smoke grid intersections as measured from an origin at the front lower left corner of the model.

When obscured or missing grid intersections readings were used in the computer program, "no reading" or "reading invalid" were printed, and appear as such in the tables of Appendix D.

Table A-I. Data for High Speed Photographs

Entrance Type	Shot No.	Model	P_s, psi	Smoke Grid Position	Remarks
1/4 in, with 3/4 in.	315	32-A	4.9	front	baffle 1/4 in
wide interior baffle	317		4.8	rear	away fm inside
	321	32-B	4.8	front	baffle 1/2 in.
	318		4.9	rear	away fm inside
1/2 in., with 11/2	310	33-A	4.8	front	baffle 1/2 in.
in. wide interior	311		4.8	rear	away fm inside
baffle	313	33-B	4.9	front	baffle 1 in.
	314		4.8	rear	away fm inside
1/2 inch	306	31	5.2	front	interior entry-
	308		4.9	rear	way 1/2 inch
	326		4.8	front	wide
	328		4.8	rear	
1/2 in with	323	30	4.8	front	1 1/2 in wide
exterior baffle	324		4.9	rear	baffle, 1/4 in.
	304		4.9	nylon balls	in front of Model 31

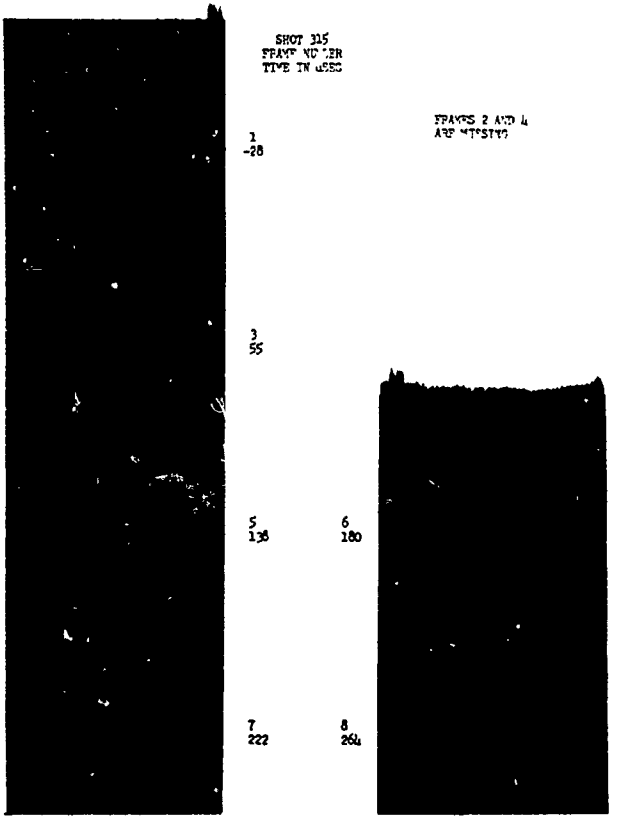


Figure A-1. Front Grids for Model 32-A, 1/4 Inch Entrance

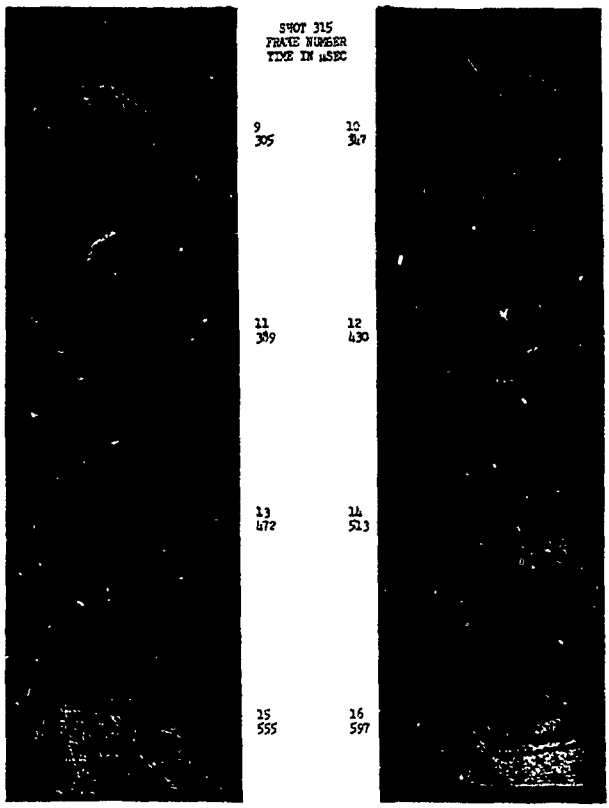


Figure A-1. Front Grids for Model 32-A, 1/4 Inch Engrance (Continued)

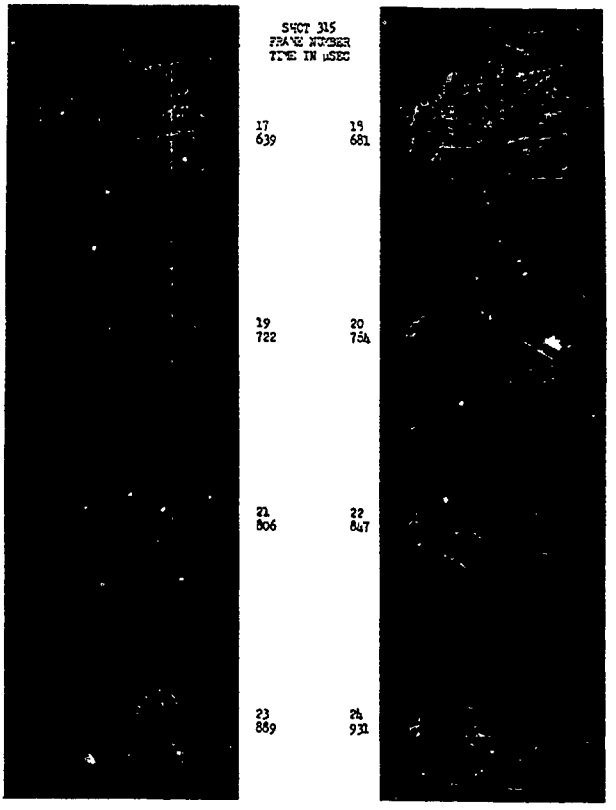


Figure A-1. Front Grids for Model 32-A, 1/4 Inch Entrance (Continued)

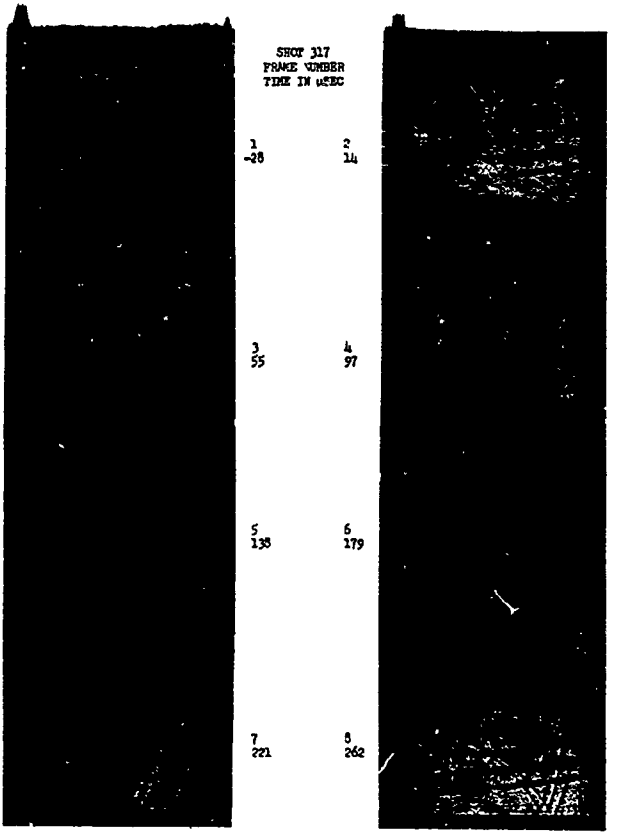


Figure A-2. Rear Grids for Model 32-A, 1/4 Inch Entrance

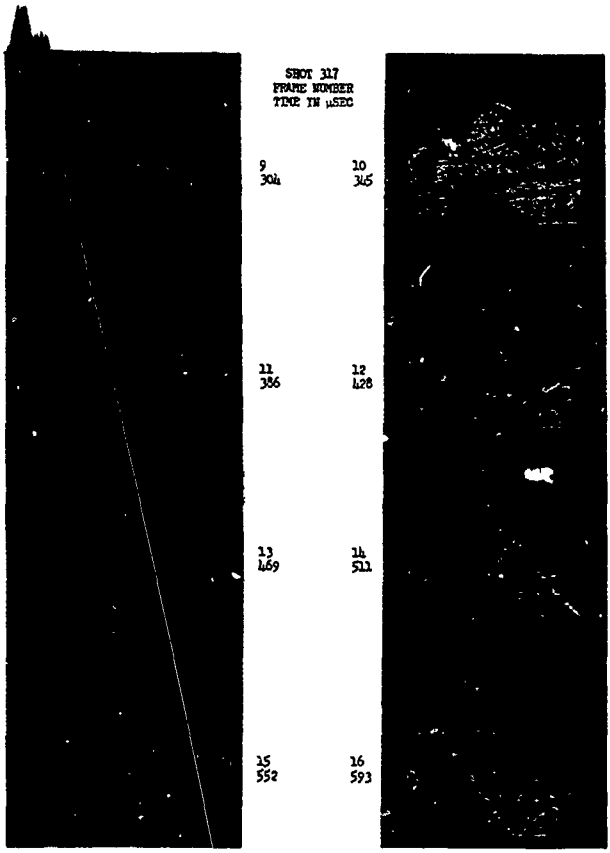


Figure A-2. Rear Grids for Model 32-A, 1/4 Inch Entrance (Continued)

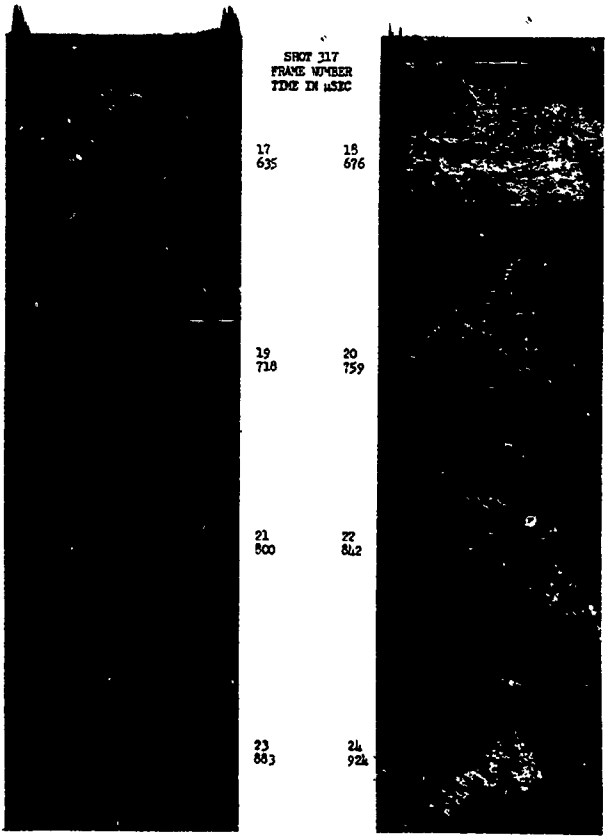


Figure A-2. Rear Grids for Model 32-A, 1/4 Inch Entrance (Continued)

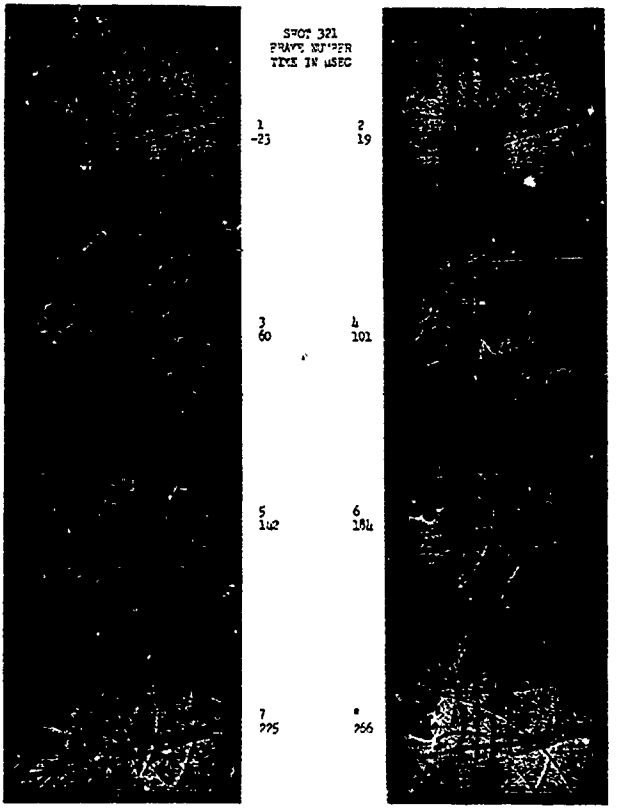


Figure A-3. Front Grids for Model 32-B, 1/4 Inch Entrance

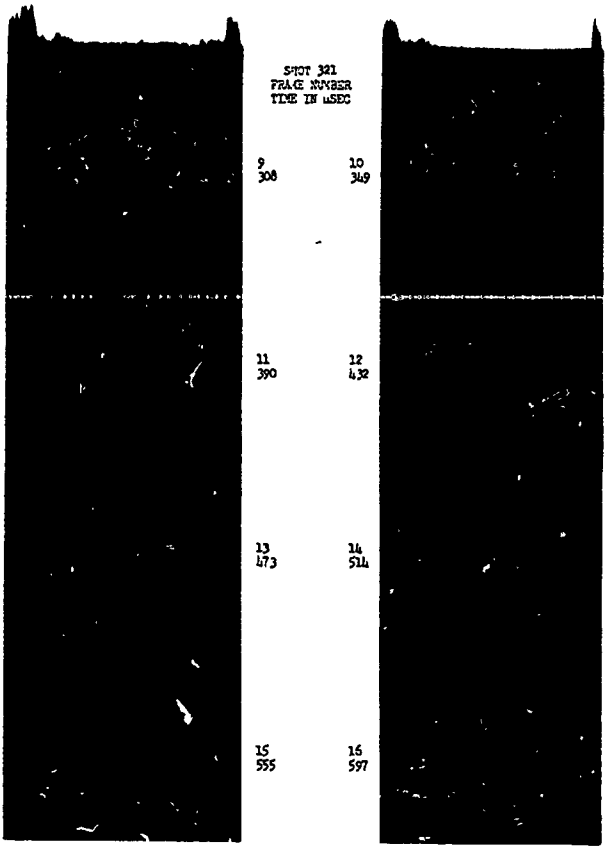


Figure A-3. Front Grids for Model 32-B, 1/4 Inch Entrance (Continued)

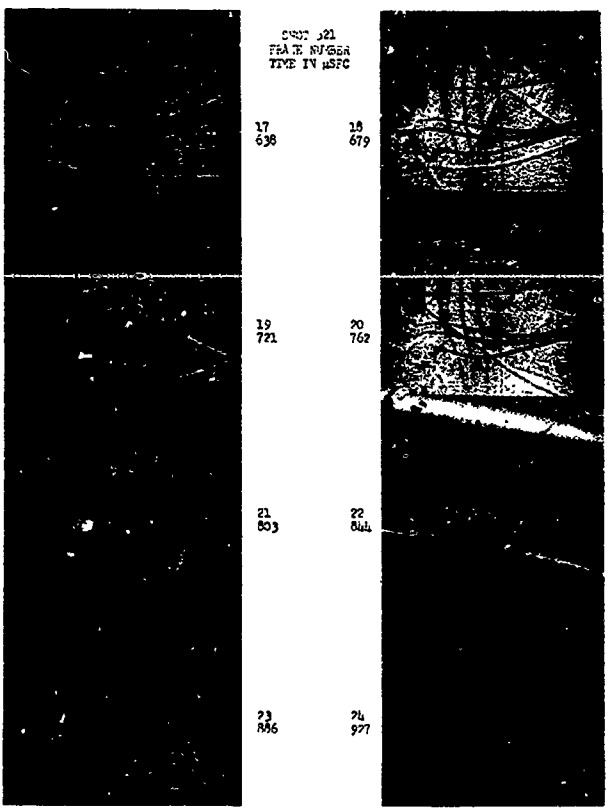


Figure A-3. Front Grids for Model 32-B, 1/4 Inch Entrance (Continued)

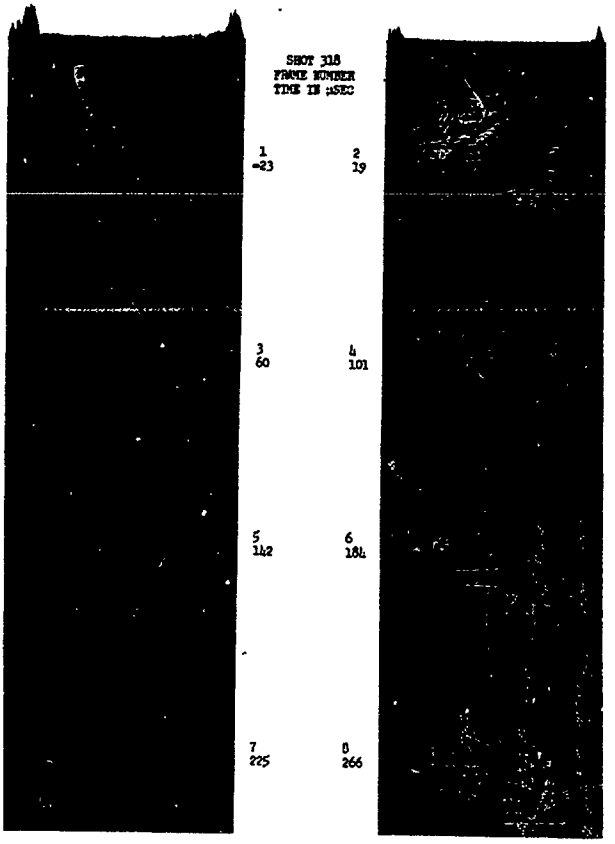


Figure A-4. Rear Grids for Model 32-B, 1/4 Inch Entrance

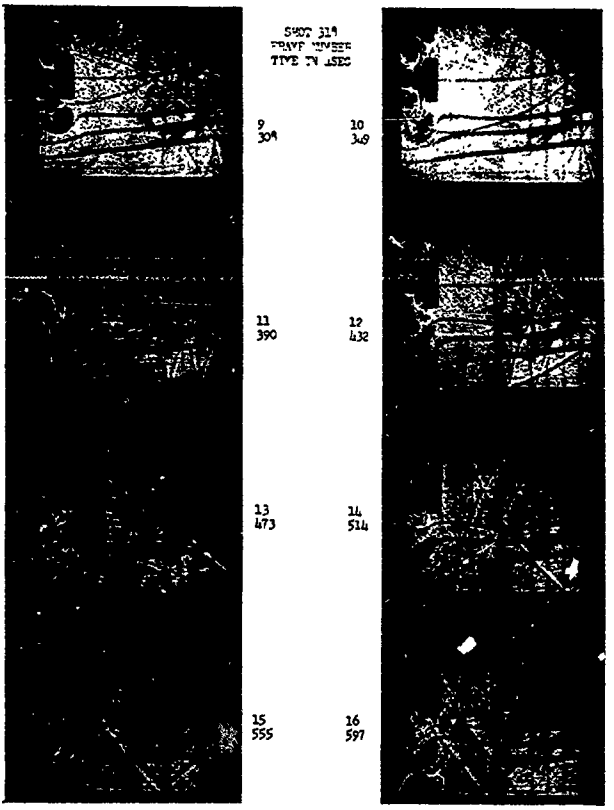


Figure A-4. Rear Grids for Model 32-B, 1/4 Inch Entrance (Continued)

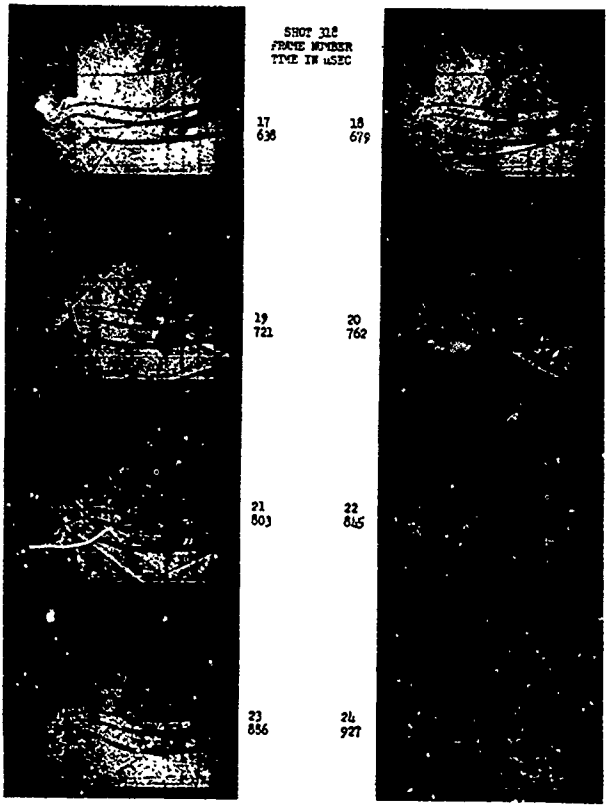


Figure A-4. Rear Grids for Model 32-B, 1/4 Inch Entrance (Continued)

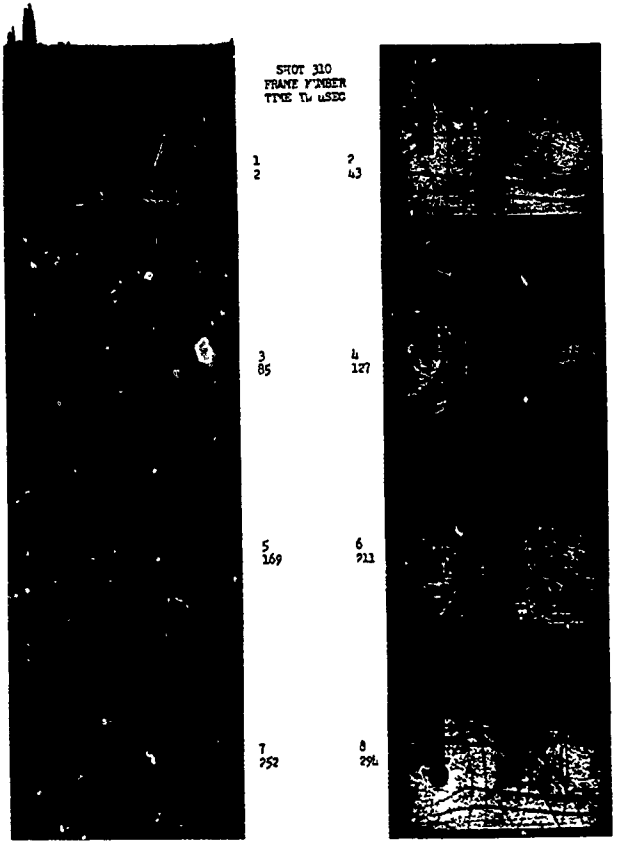


Figure A-5. Front Grids for Model 33-A, 1/2 Inch Entrance

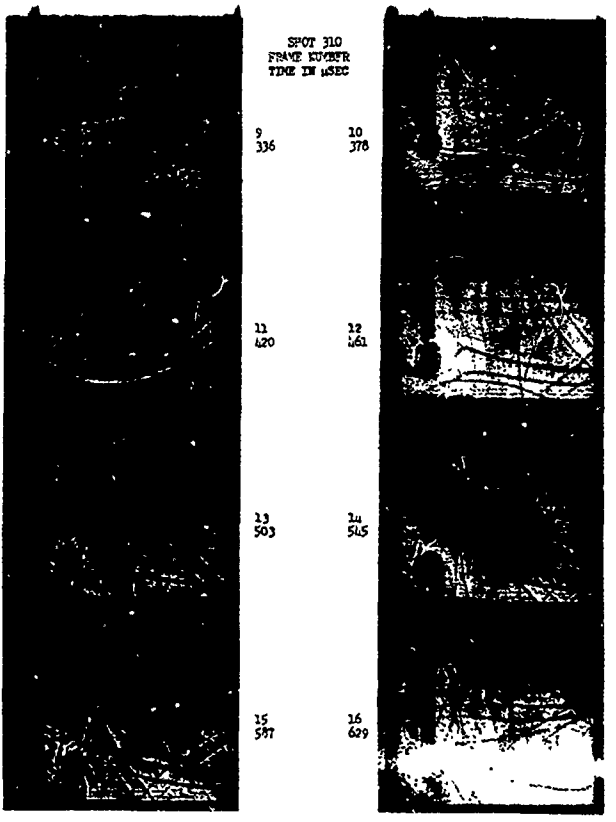


Figure A-5. Front Grids for Model 33-A, 1/4 Inch Entrance (Continued)

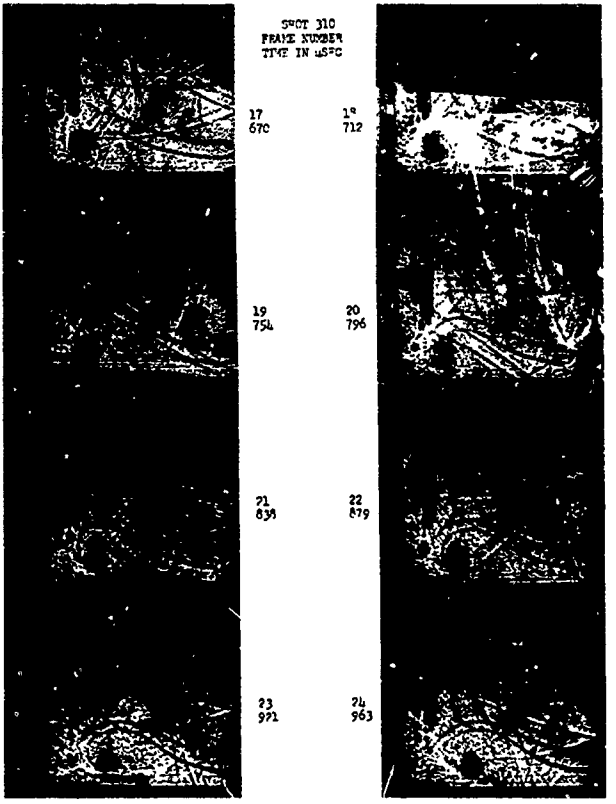


Figure A-5. Front Grids for Model 33-A, 1/2 Inch Entrance (Continued)

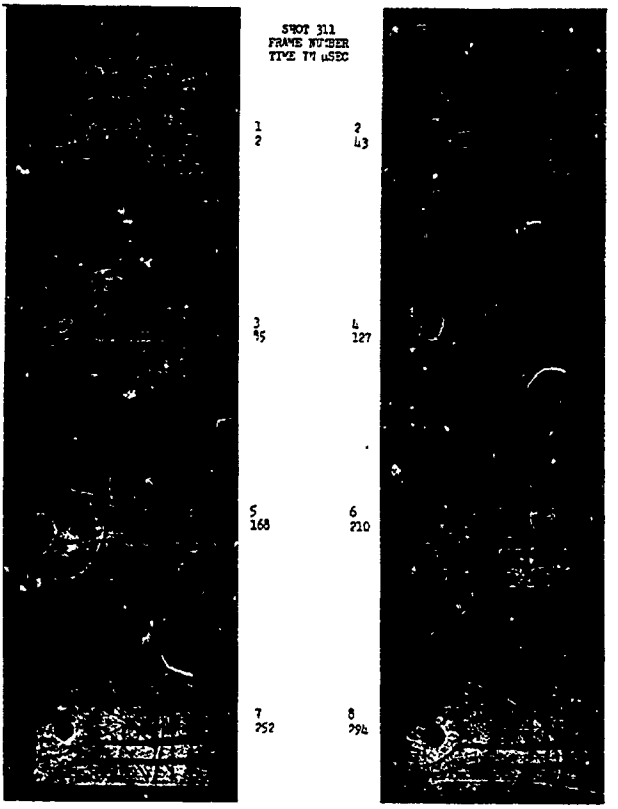


Figure A-6. Rear Grids for Model 33-A, 1/2 Inch Entrance

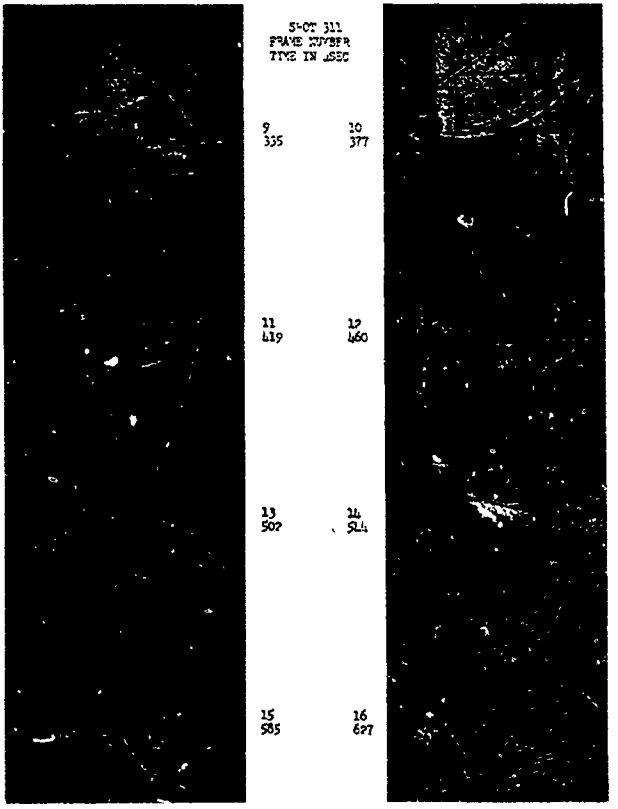


Figure A-6. Rear Grids for Model 33-A, 1/2 Inch Entrance (Continued)

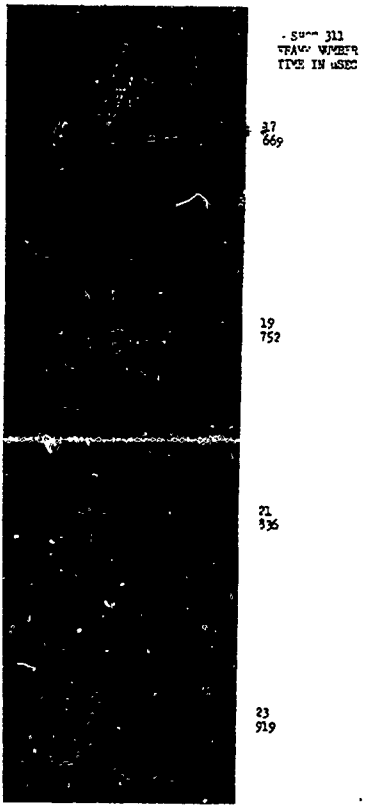


Figure A-6. Rear Grids for Model 33-A, 1/2 Inch Entrance (Continued)

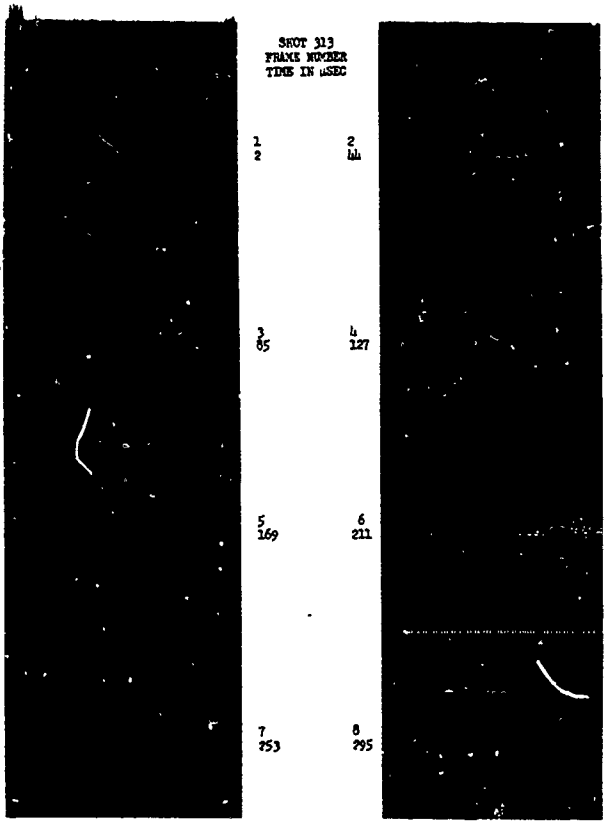


Figure A-7. Front Grids for Model 33-B, 1/2 Inch Entrance

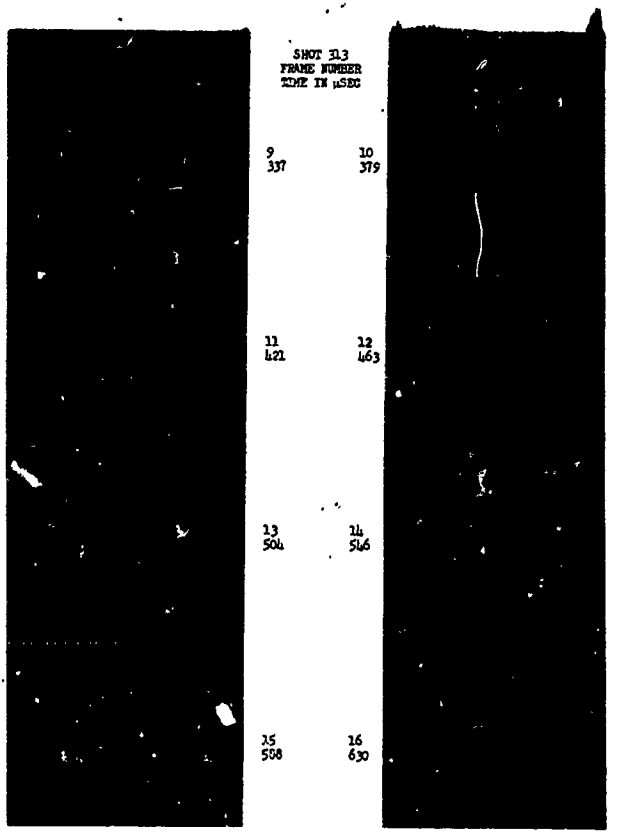


Figure A-7. Front Grids for Model 33-B, 1/2 Inch Entrance (Continued)

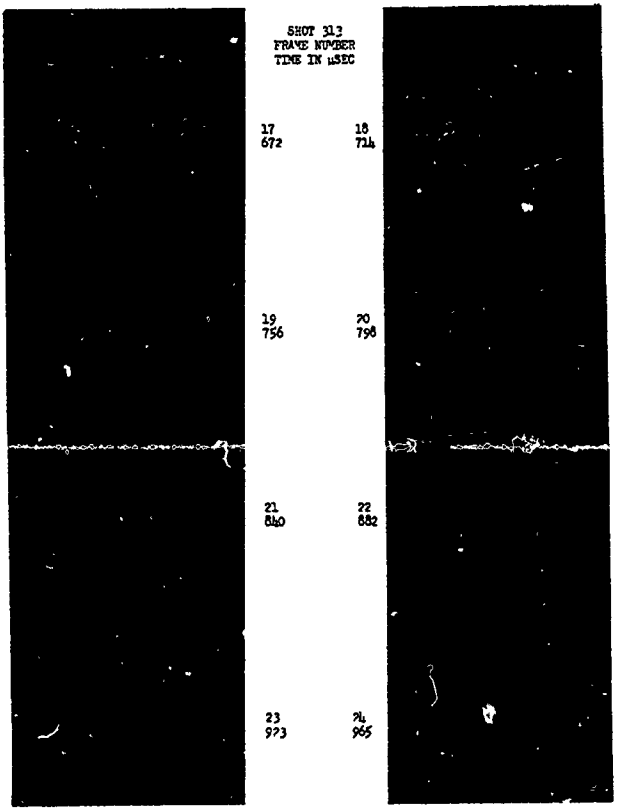


Figure A-7. Front Grids for Model 33-B, 1/2 Inch Entrance (Continued)

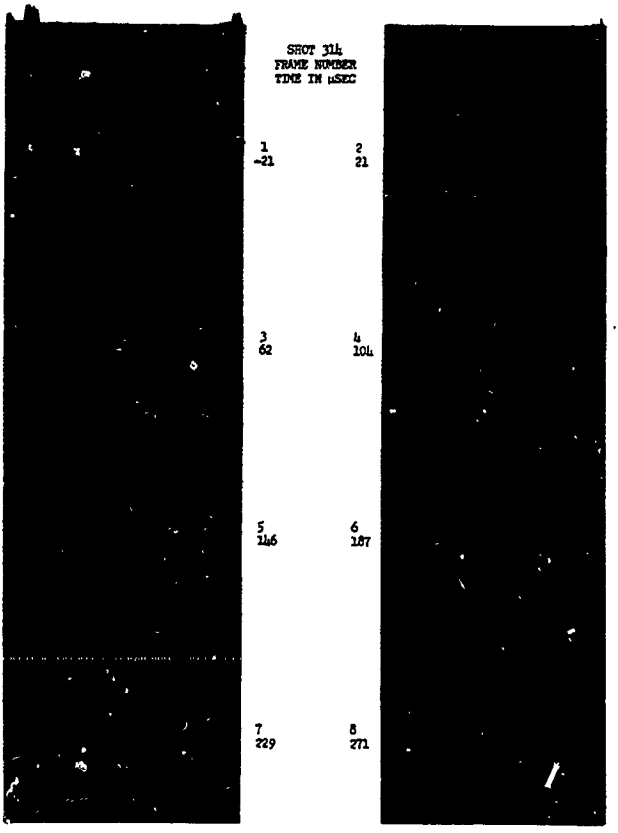


Figure A-8. Rear Grids for Model 33-B, 1/2 Inch Entrance

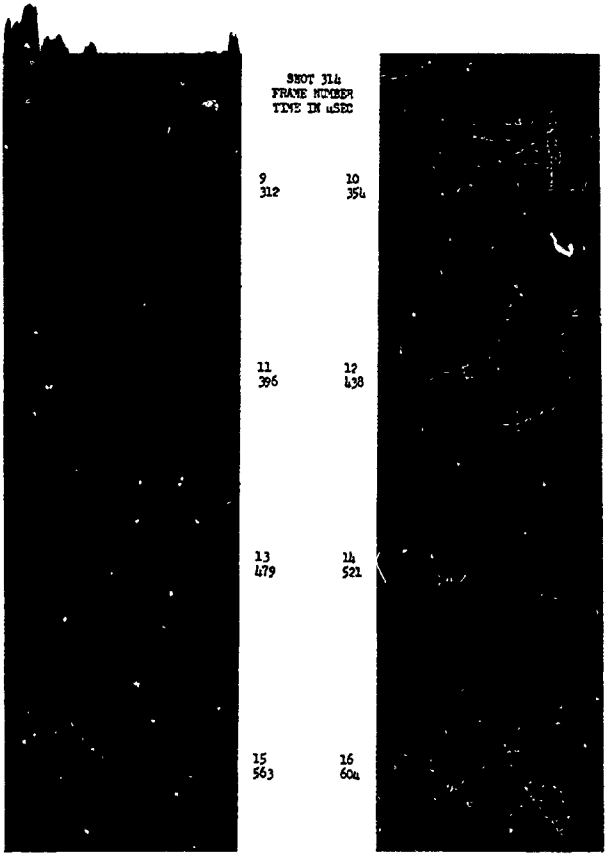


Figure A-8. Rear Grids for Model 33-B, 1/2 Inch Entrance (Continued)

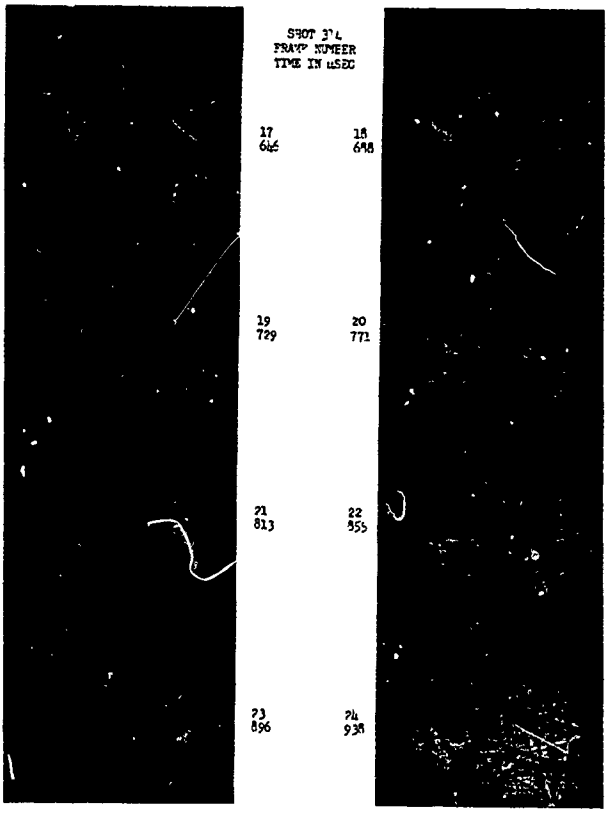


Figure A-8. Rear Grids for Model 33-B, 1/2 Inch Entrance (Continued)

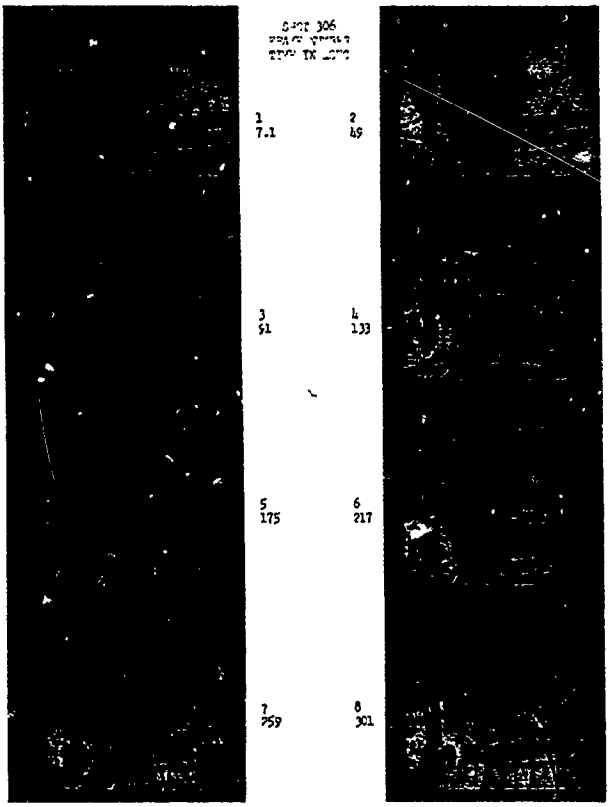


Figure A-9. Front Grids for Model 31, Near 1/2 Inch Entryway

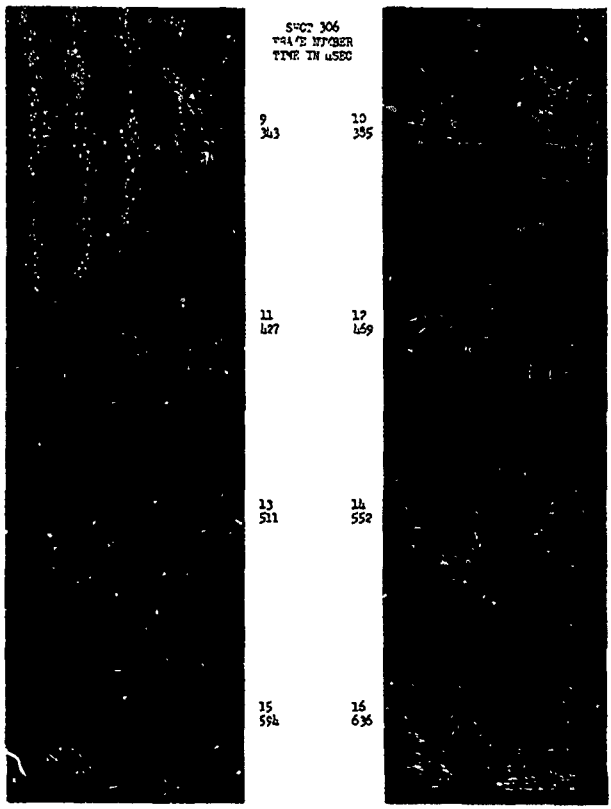


Figure A-9. Front Grids for Model 31, Near 1/2 Inch Entryway (Continued)

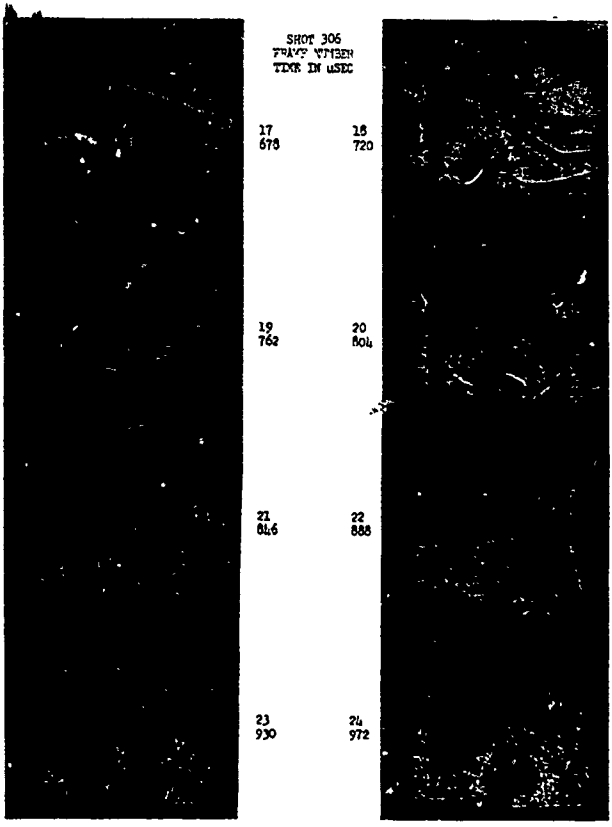


Figure A-10. Rear Grids for Model 31, Near 1/2 Inch Entryway

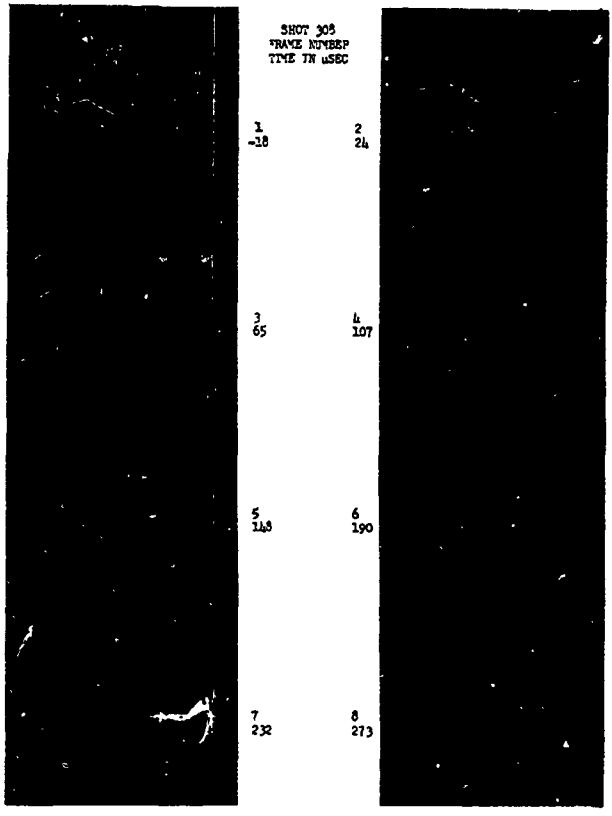


Figure A-10. Rear Grids for Model 31, Near 1/2 Inch Entryway

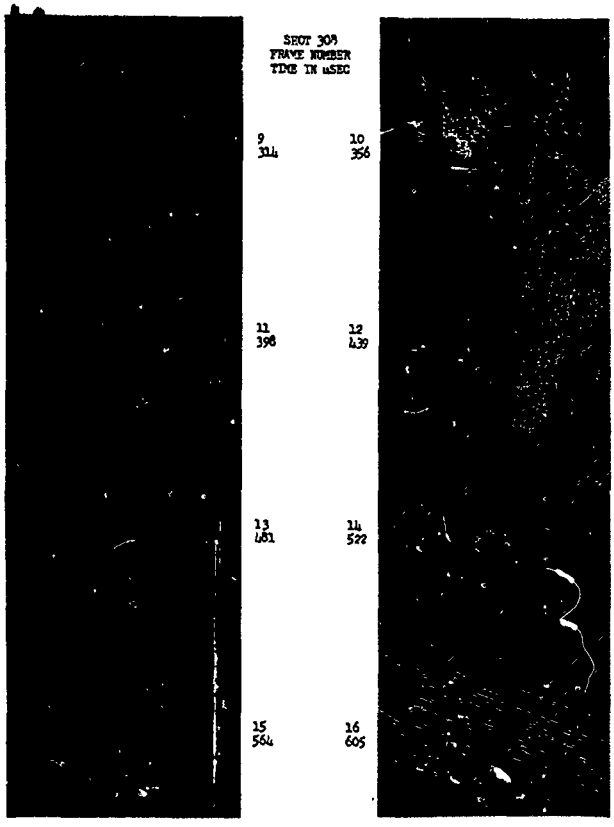


Figure A-10. Rear Grids for Model 31, Near 1/2 Inch Entryway (Continued)

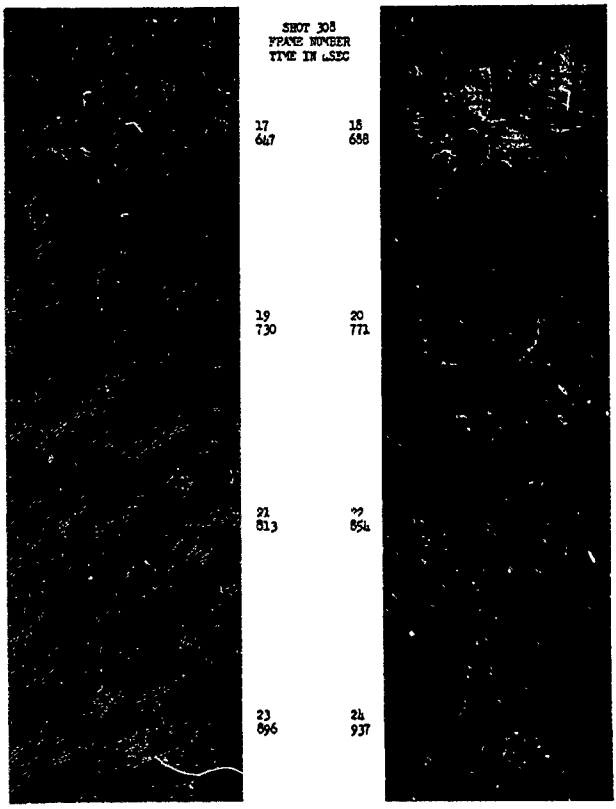


Figure A-10. Rear Grids for Model 31, Near 1/2 Inch Entryway (Continued)

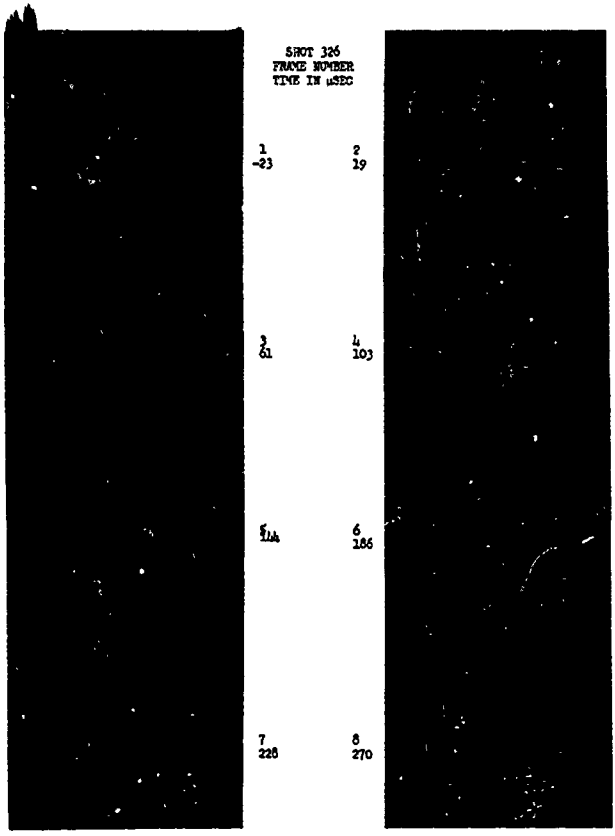


Figure A-11. Front Grids for Model 31, Away from 1/2 Inch Entry-way

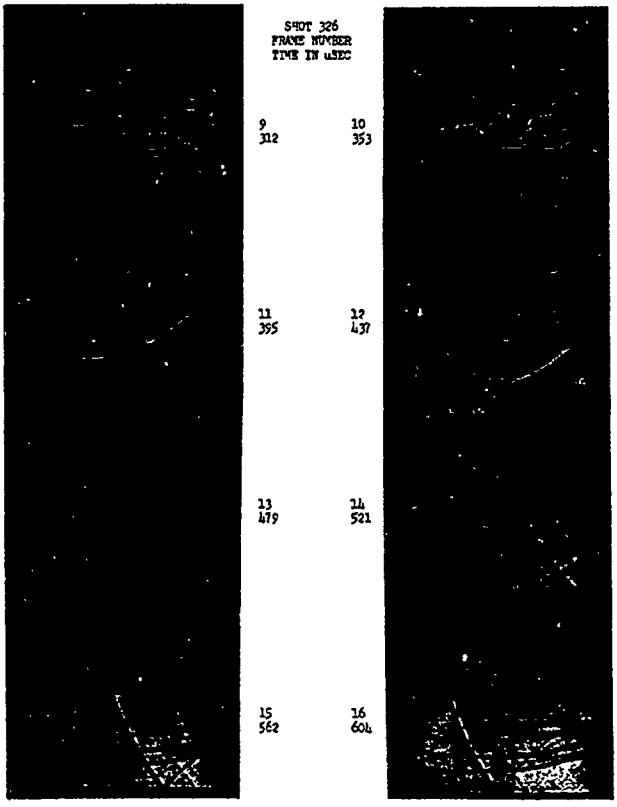


Figure A-11. Front Grids for Model 31, Away from 1/2 Inch Entry-way (Continued)

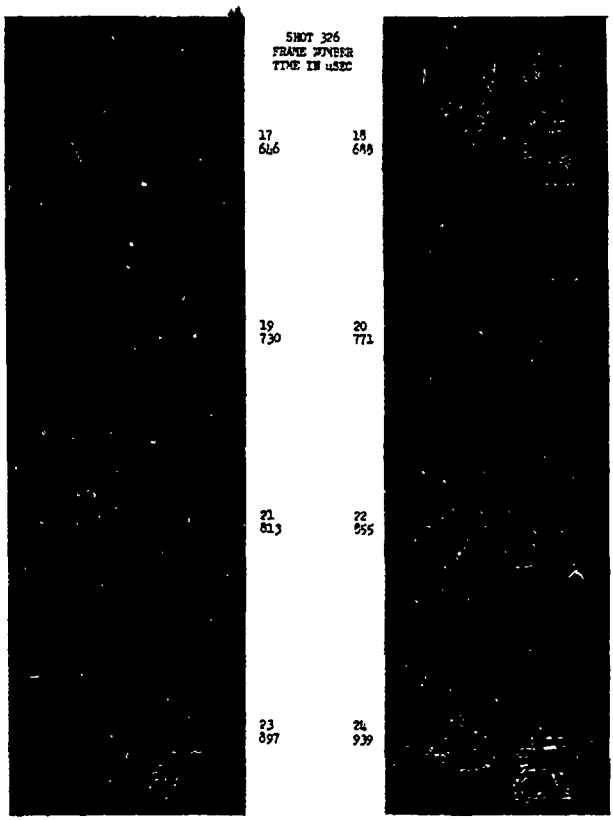


Figure A-11. Front Grids for Model 31, Away from 1/2 Inch Entry-way (Continued)

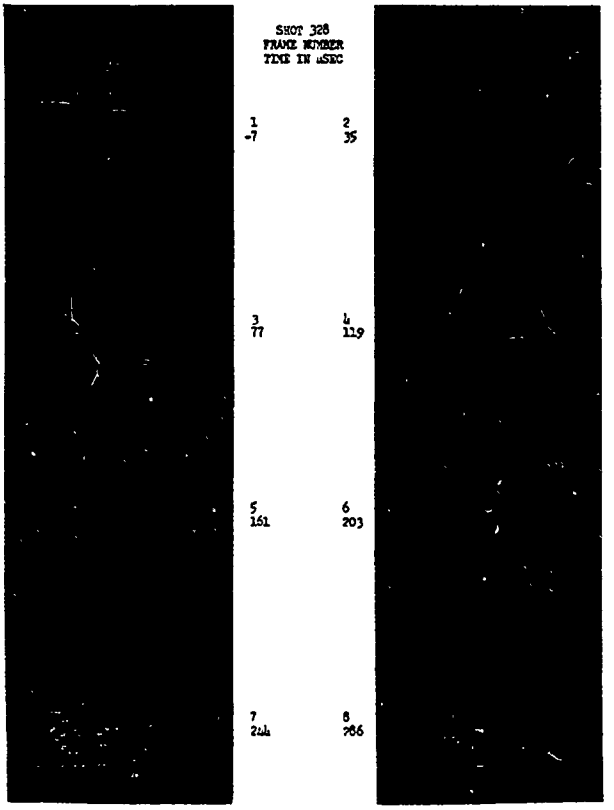


Figure A-12. Rear Grids for Model 31, Away from 1/2 Inch Entry-way

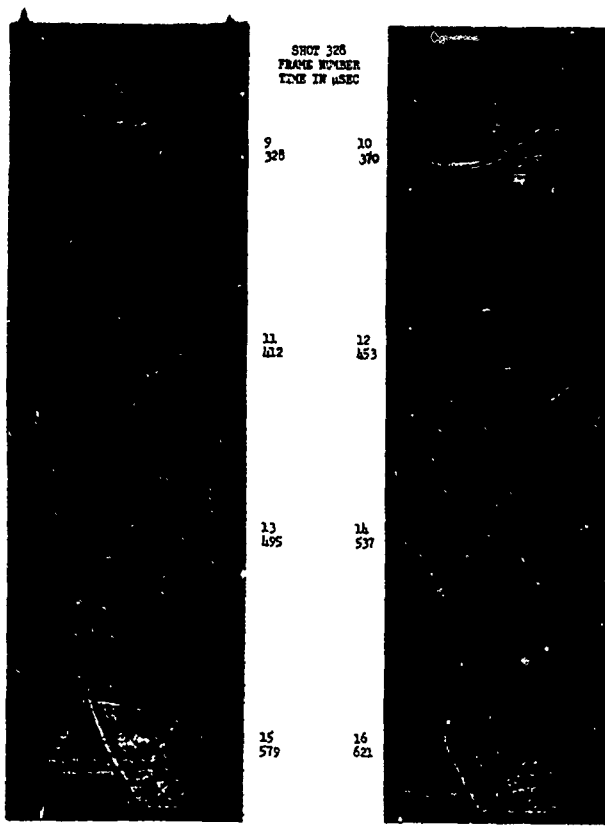


Figure A-12. Rear Grids for Model 31, Away from 1/2 Inch Entry-way (Continued)

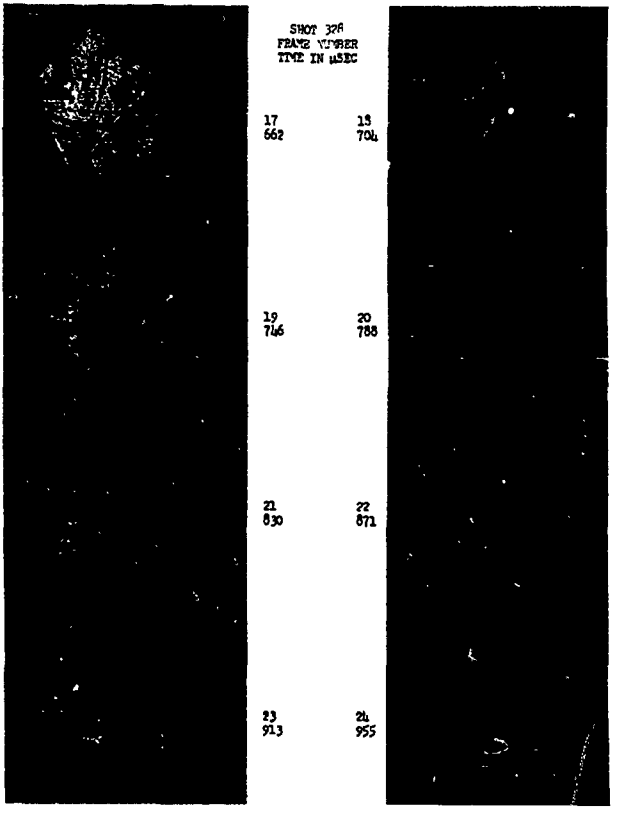


Figure A-12. Rear Grids for Model 31, Away from 1/2 Inch Entry-way (Continued)

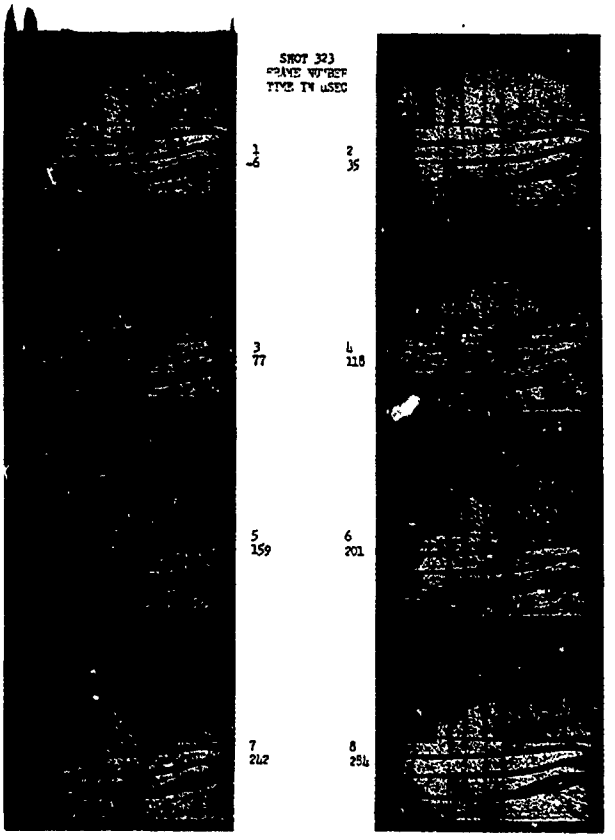


Figure A-13. Front Grids for Model 30, 1/2 Inch Entryway with Exterior Baffle

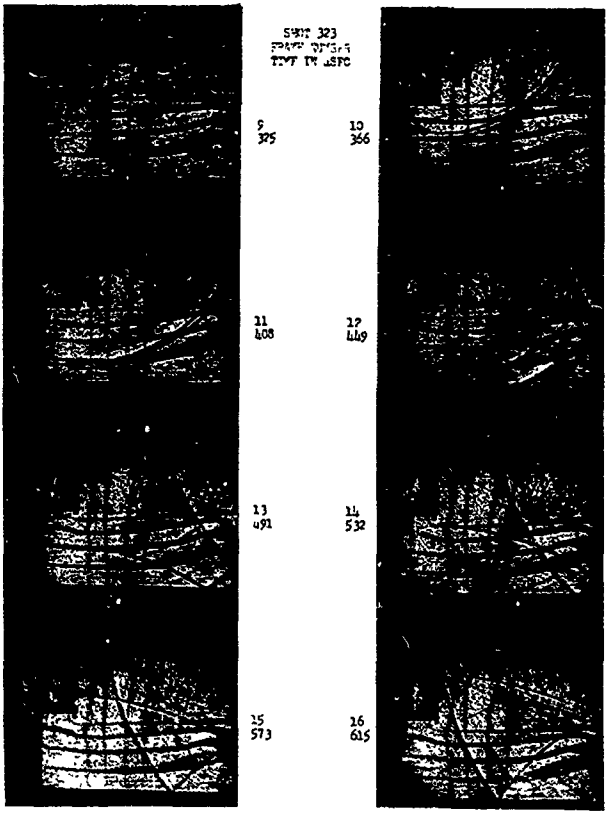


Figure A-13. Front Grids for Model 30, 1/2 Inch Entryway with Exterior Baffle (Continued)

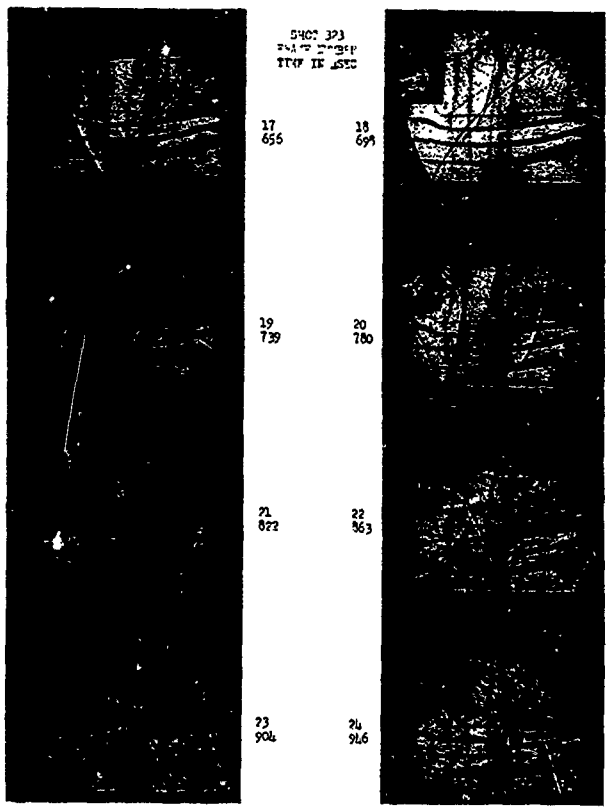


Figure A-13. Front Grids for Model 30, 1/2 Inch Entryway with Exterior Baffle (Continued)

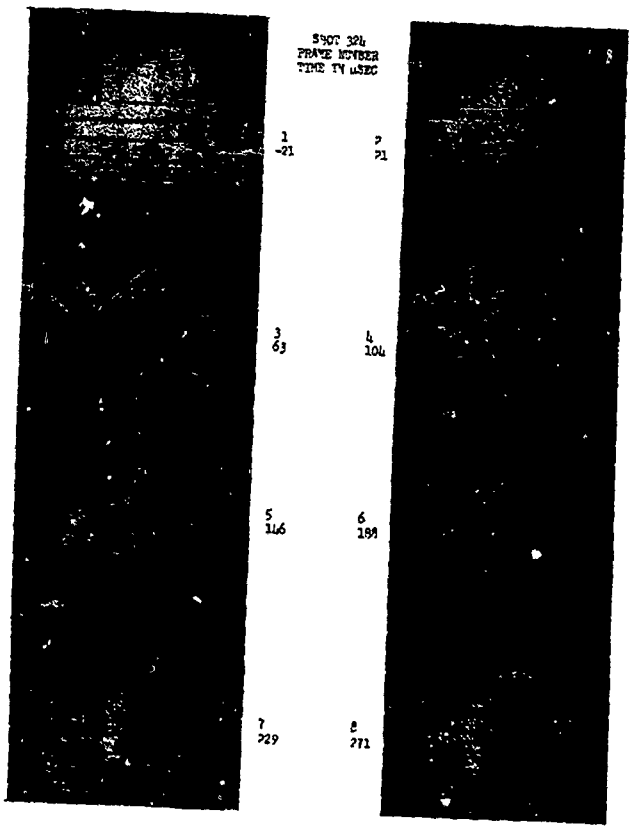


Figure A-14. Rear Grids for Model 30, 1/2 Inch Entryway with Exterior Baffle

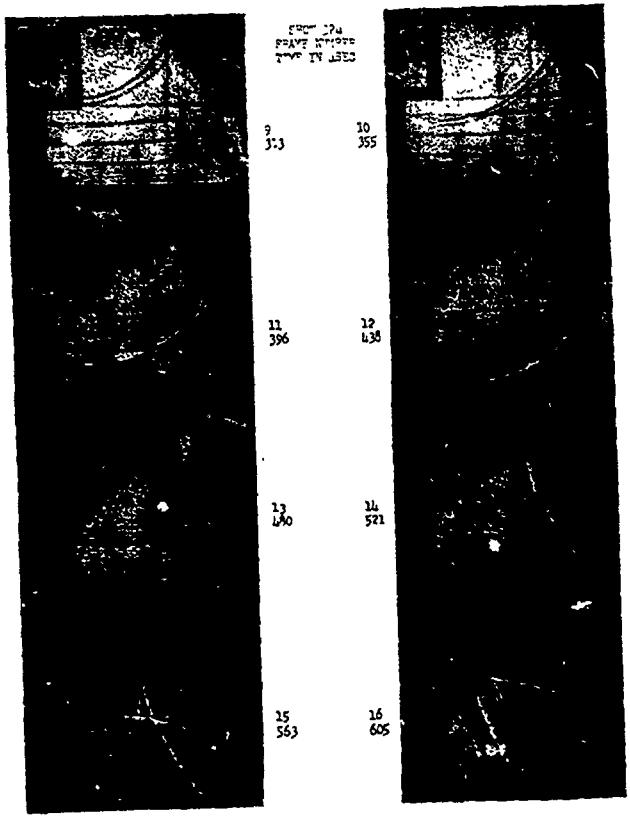


Figure A-14. Rear Grids for Model 30, 1/2 Inch Entryway with Exterior Baffle (Continued)

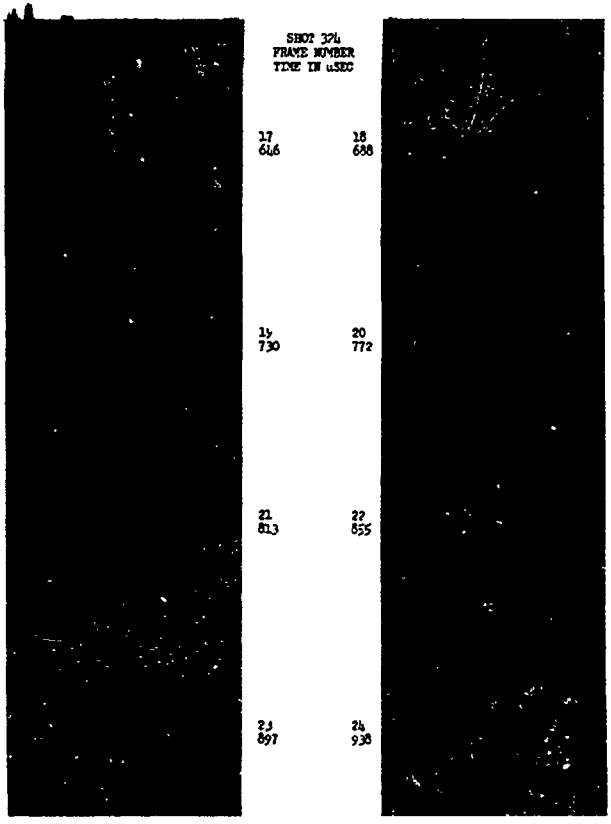


Figure A-14. Rear Grids for Model 30, 1/2 Inch Entryway with Exterior Baffle. (Continued)

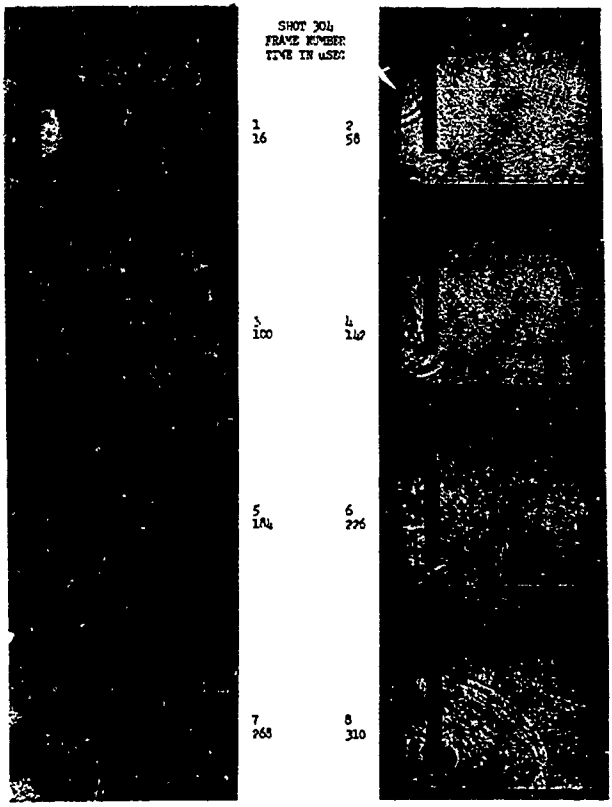


Figure A-15. Motion of Nylon Balls Inside of Model 30

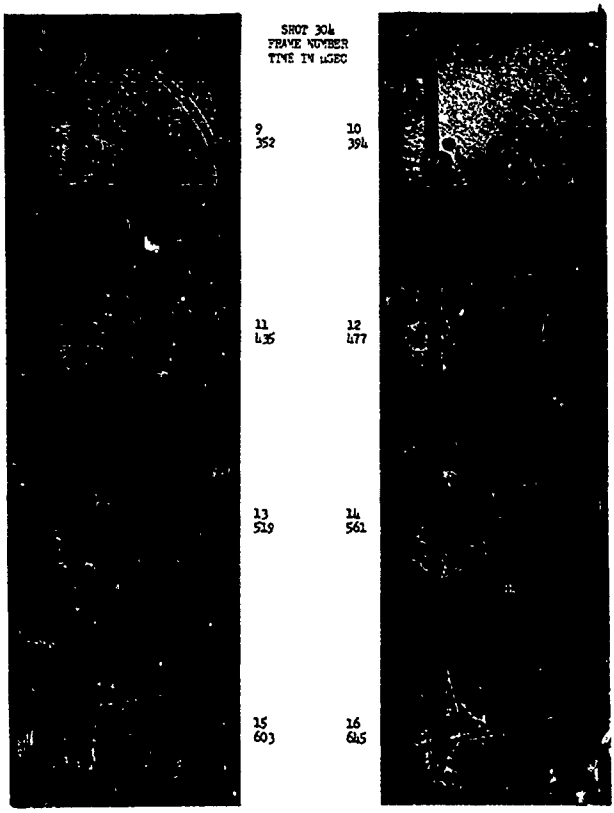


Figure A-15. Motion of Nylon Balls Inside of Model 30 (Continued)

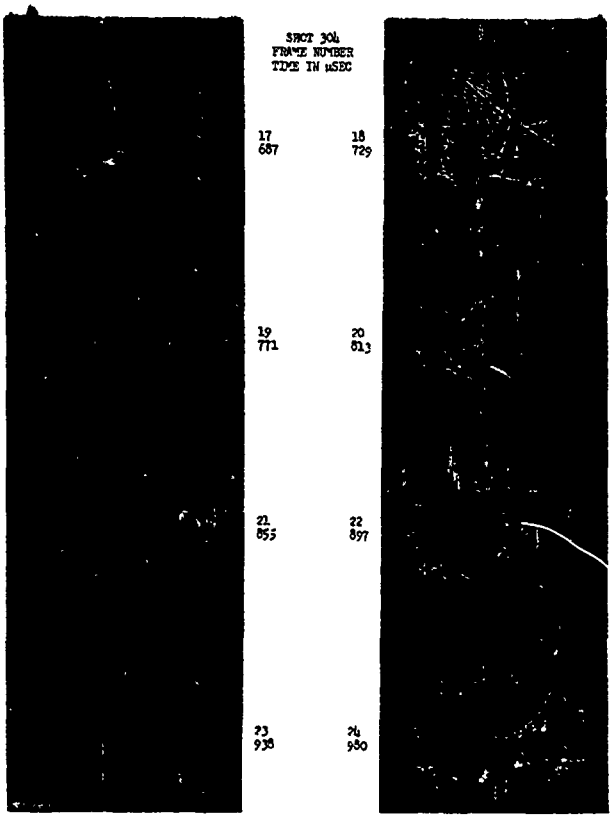


Figure A-15. Motion of Nylon Balls Inside of Model 30 (Continued)

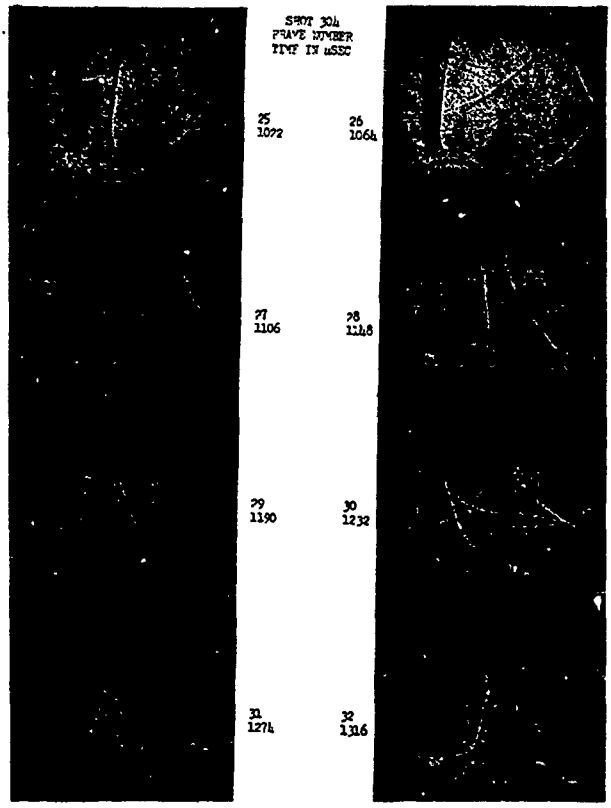


Figure A-15. Motion of Nylon Balls Inside of Model 30 (Continued)

APPENDIX B

PRESSURE-TIME RECORDS - THREE-DIMENSIONAL MODELS

USE OF APPENDIX B

Table B-I lists according to model number the several models and results of the filling of the three-dimensional models used for the experiments. The shot number, input overpressure (P_s), maximum pressure to which a model filled, time of filling, type of fill, and entrance size or other remarks are tabulated for comparison between models tested.

Figures showing the pressure-time records obtained for the different models are shown ordered in a simular manner as in Table B-I.

Table B-I. Results for Three Dimensional Models

Model No.	Shot No.	P_o, psi	Gage Position	Pressure of 1st Peak, psi	P_{max}, or P_{fill}, psi	Fill Time msec	Negative Pressure, psi	P_{av}, psi	Type of Fill	Remarks
16	215	5.2	1		3.4	21.3			Front	0.3 x 0.65 entrance
			2		3.5	20.9				one room, V/A = 56.4 ft
			3		3.6	20.7				see Figure 3 in body of
			4		3.8	21.3				report for gage positions
	216	9.7	1		5.3	23.8				
			2		5.5	25.3				
			3		5.5	26.0				
			4		5.8	24.9				
	217	20.8	1		12.1	27.8				
			2		12.5	28.7				
			3		12.6	28.7				
			4		13.0	27.4				
17	159	5.2	Center		3.7	22.0			Front	0.15 x .65 in. effective
	160	10.1	of		6.6	24.6				entrance, V/A = 54.8 ft
	158	20.2	Floor		14.3	30.0				internal baffled entryway
18	161	5.2	Center		4.6	17.9			Front	0.3 x 0.65 in. entrance
	162	9.6	of		7.9	19.9				with exterior revetment
	163	19.2	Floor		13.6	24.5				V/A = 27.4 ft.

Table B-I. Results for Three Dimensional Models
(Continued)

Model No.	Shot No.	P_e, psi	Gage Position	Pressure of 1st Peak, psi	P_{max}, or P_{fill}, psi	Fill Time msec	Negative Pressure, psi	P_{av}, psi	Type of Fill	Remarks
	166	5.6			8.4	19.2			Side	
	165	10.4			5.5	22.4				
	164	21.2			9.9	26.8				
	167	5.5			3.9	18.0			Rear	
	168	10.1			6.2	20.6				
	169	20.9			11.4	28.2				
19	170	5.4	1		3.7	17.1			Front	0.3 x 0.65 in. entrance
			2		3.5	20.7				four rooms with interior
			3		3.3	21.1				baffle, V/A = 49.7 ft.
			4		3.2	21.1				See Figure 3 in body of
	171	9.3	1		6.1	18.8				report for gage positions.
			2		5.9	23.5				
			3		5.8	23.7				
			4		5.1	23.9				
	172	18.4	1		13.0	19.4				
			2		12.3	24.6				
			3		11.9	28.3				
			4		7.9	30.2				
20	173	4.9	End		14.2	by initial peak		5.3	Side	Vortex generator
	174	9.3			24.0			8.8		Entrance to tunnel,
	175	18.3			51.2			19.2		3/4 in. dia x 10 in.

Table B-I. Results for Three Dimensional Models
(Continued)

Model No.	Shot No.	P_s, psi	Gage Position	Pressure of 1st Peak, psi	P_{max}, or P_{fill}, psi	Fill Time msec	Negative Pressure, psi	P_{av}, psi	Type of Fill	Remarks
21	176	5.2	End		9.4	by initial peak		4.6	Side	3/4 in. dia. x 10 in.
	177	9.7			17.3			9.1		side tunnel
	178	19.2			32.6			13.1		
22-A	195	4.7	End	0.48	1.52			0.64	Front	Model 15 x 15 x 12 in.
	196-A	4.7		0.52						1/2 x 1/in. entrance
22-B	180	4.7		1.28	6.09			1.92		1 x 2 in.
	181-A	4.8		1.02						
22-C	198	4.8		3.22	10/3					2 x 4 in.
	197-A	4.7		2.51						
23-A	192	4.6	End	0.77	1.67		0.36		Front	Model 15 x 15 x 8 in.
	191-A	4.9		0.62						1/2 x 1 in. entrance
23-B	183	4.7		1.61	3.49			2.66		1 x 2 in.
	184-A	4.8		1.39						
23-C	201	4.8		2.57	11.9					2 x 4 in.
	202-A	4.7		3.60						
24-A	189	4.8	End	0.94	2.02		1.22		Front	Model 15 x 15 x 4 in.
	190-A	4.8		1.03						1/2 x 1 in. entrance
24-B	186	4.6		2.63	4.60		4.87	4.12		1 x 2 in
	185-A	4.7		2.30						
24-C	204	4.8		7.69	14.0			10.4		2 x 4 in.

Table B-I. Results for Three Dimensional Models (Continued)

Model No.	Shot No.	P_s, psi	Gage Position	Pressure of 1st Peak, psi	P_{max}, or P_{fill}, psi	Fill Time msec	Negative Pressure, psi	P_{av}, psi	Type of Fill	Remarks
	203-A	4.7		6.88						
25	206	5.5	1		3.0	21.3			Side	Model 15 x 15 x 23.4 in.
			2		3.2	21.3				2 x 4 in. entrance
			3		3.2	21.1				V/A = 54.8 ft.
			4		3.2	22.6				See Figure 2 in body
	209	5.2	5		2.9	21.3				of report for gage
			6		3.0	21.3				positions
			7		3.1	22.1				
			8		3.3	22.1				
25	207	10.3	1		4.9	26.0			Side	Model 15 x 15 x 23.4 in.
			2		5.2	26.0				2 x 4 in. entrance
			3		5.3	25.5				V/A = 54.8
			4		5.3	25.5				See Figure 3 in body
	210	9.8	5		4.8	26.0				of report for gage
			6		5.1	27.4				positions
			7		5.0	26.4				
			8		5.4	25.6				
	208	19.3	1		8.3	32.6				
			2		9.4	34.5				

Table B-I. Results for Three Dimensional Models (Continued)

Model No.	Shot No.	P_s, psi	Gage Position	Pressure of 1st Peak, psi	P_{max}, or P_{fill}, psi	Fill Time msec	Negative Pressure, psi	P_{av}, psi	Type of Fill	Remarks
			3		9.3	34 0				
			4		9.6	31.9				
	211	19.1	5		8.8	33.5				
			6		10.2	31.7				
			7		10.0	34.0				
			8		10.3	31.9				
	212-A	4.8	5	0.38						
26	219	4.7	1	3.9	6.4			5.1	Front	Model 4 x 3.92 x 6 in.
			2	3.5	7.9			4.8		1.45 x 3 49 in. entrance
			3	6.1	10.7			5.5		V/A = 1.55 ft
	220	9.9	1		13.9			11.1		See Figure 8 in body
			2		15.8			11.5		of report for gage
			3		20.3			12.8		positions
	221	21.1	1		34.2			29.0		
			2		38.1			30.1		
			3		48.1			31.1		
	236	5.2	1	4.2	7.1			5.9		
	235	5.2	2	3.9	9.1			5.8		
	237	5.1	3	6.4	11.8			5.9		
26-A	233	4.8	1	3.6	5.9	22.2			Front	Field structure 8 x 8 x 12 ft,
			2	3.2	7.0	26.2				V/A = 37.8 ft, 2.9 x 7 ft.

Table B-I. Results for Three Dimensional Models
(Continued)

Model No.	Shot No.	P_r, psi	Gage Position	Pressure of 1st Peak, psi	P_{max}, or P_{fill}, psi	Fill Time msec	Negative Pressure, psi	P_{av}, psi	Type of Fill	Remarks
			3	5.3	9.3	23.9				entrance (recorded on
27	224	5.3	1		4.1	17.2				tape) Model 4 x 3.92 x 6 in.
			2		4.1	17.7				0.32 x 0.65 in. entrance
			3		4.4	17.5				V/A = 37.7 ft.
	223	10.4	1		7.0	19.7				
			2		7.0	20.2				
			3		7.5	20.4				
	222	20.9	1		15.2	24.1				
			2		14.8	24.7				
			3		15.8	24.6				
28	225	5.0	Center	1.0	4.6	3.5			Front,	4 in. cube, V/A = 27.4 ft.
	226	9.7	of	1.9	8.7	5.3			side	0.3 in. x 0.65 in. entrance
	227	20.9	Floor	5.1	15.4	6.5			& rear	in center of each wall, V/A=
										6.87, entrances included
29	228	5.4	Center		5.9	4.7			Front	4 in. cube, V/A = 6.89 ft.
	231	10.7	of		13.9	5.8				0.624 in. x 1.24 in. entrance
	230	20.9	Floor		29.9	6.9				
34	234	15.0	Side		13.3	424			Side	22 5/8 in. dia x 3 ft long
										2 in. dia pipe entrance,
										349/16 in. long V/A=384 ft.
										(recorded on direct write
										oscillograph)

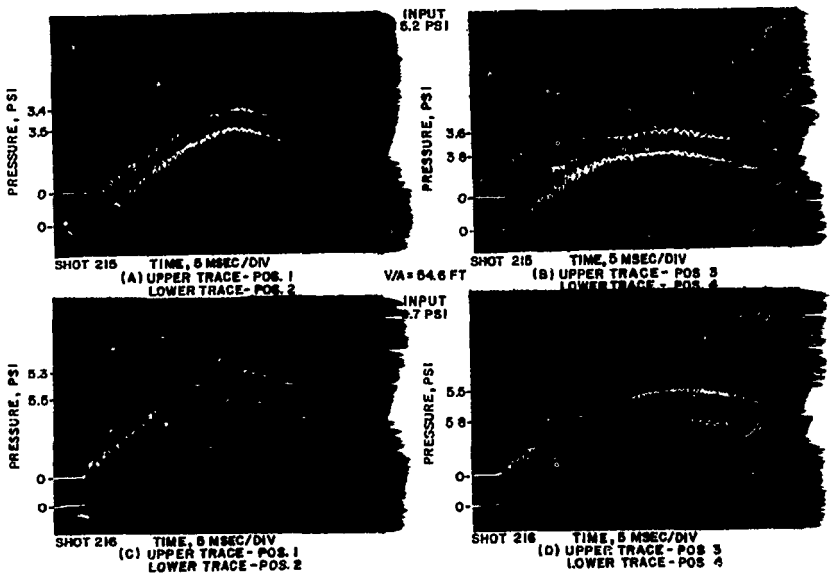
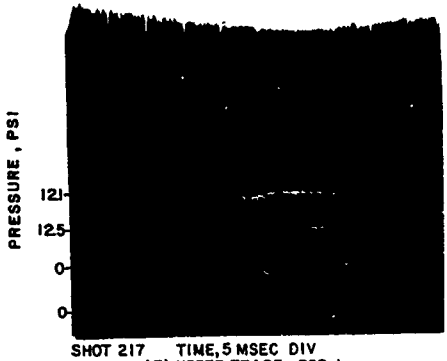
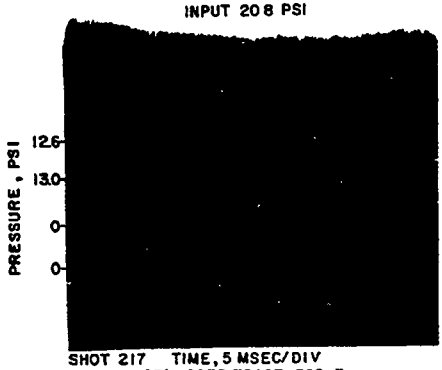


Figure B-1. Records from Model 16 - Single Room



SHOT 217 TIME, 5 MSEC DIV
(E) UPPER TRACE - POS 1
LOWER TRACE - POS 2

INPUT 20.8 PSI



SHOT 217 TIME, 5 MSEC/DIV
(F) UPPER TRACE - POS 3
LOWER TRACE - POS 4

Figure B-1. Records from Model 16 - Single Room (Continued)

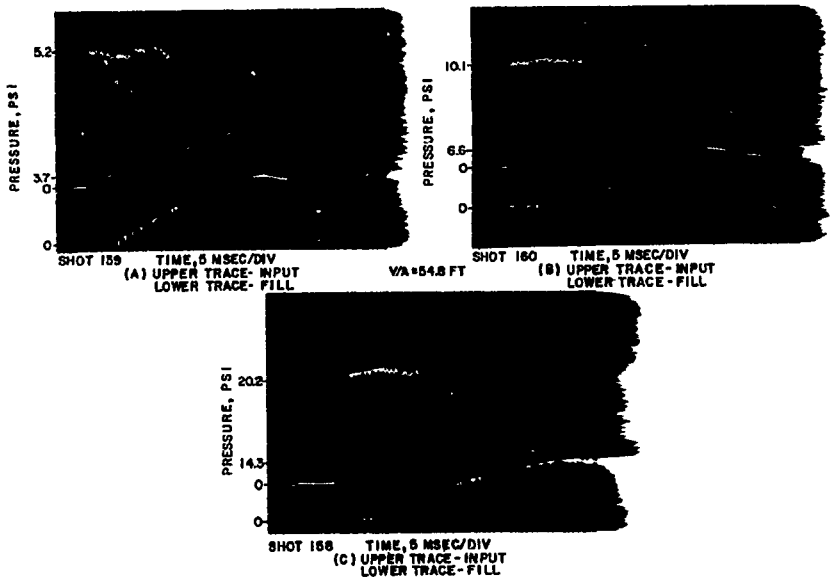


Figure B-2. Records from Model 17, Baffled Entryway

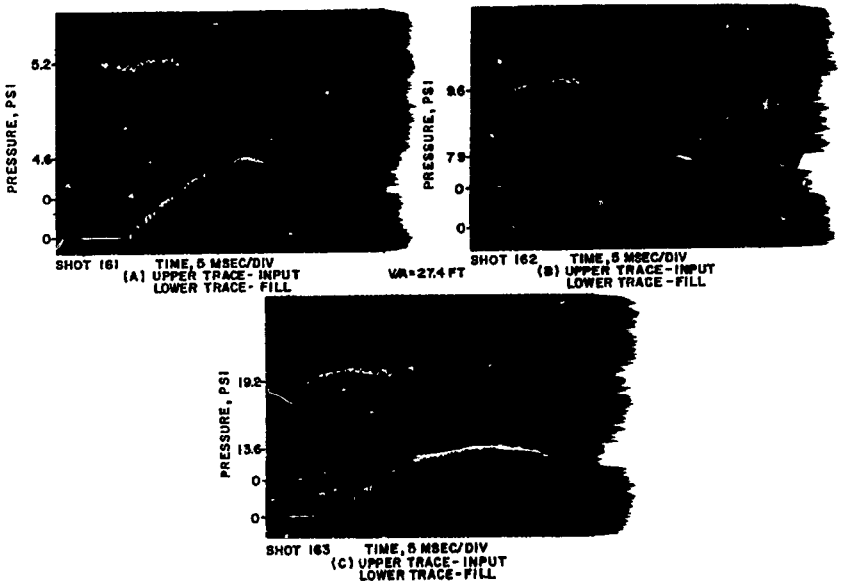


Figure B-3. Records from Model 18, Filled from the Front with a Revetment

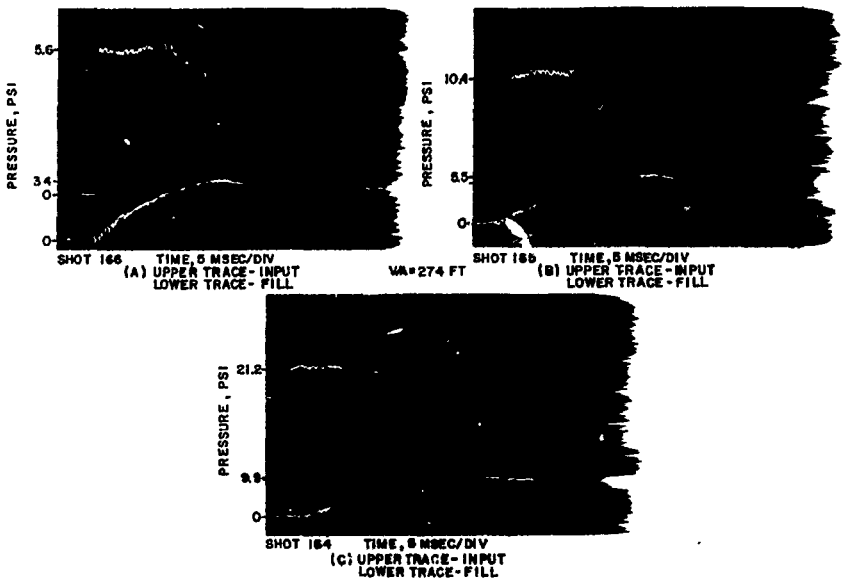


Figure B-4. Records from Model 18, Filled from the Side, with a Revetment

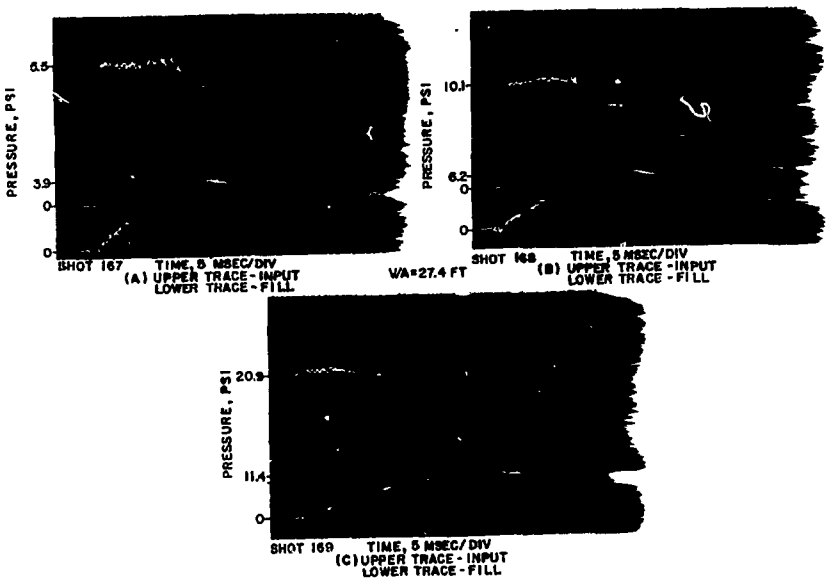


Figure B-5. Records from Model 18, Filled from the Rear with a Revetment

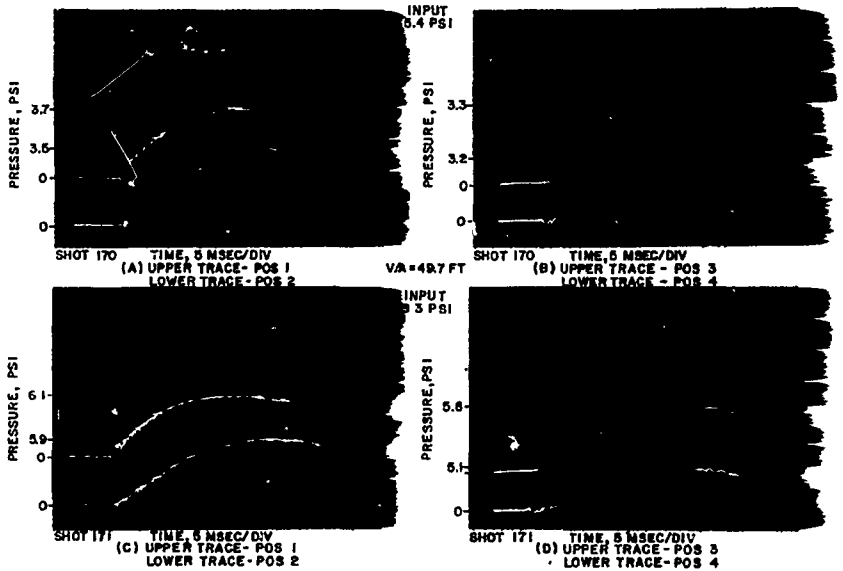


Figure B-6. Records from Model 19, Four Rooms

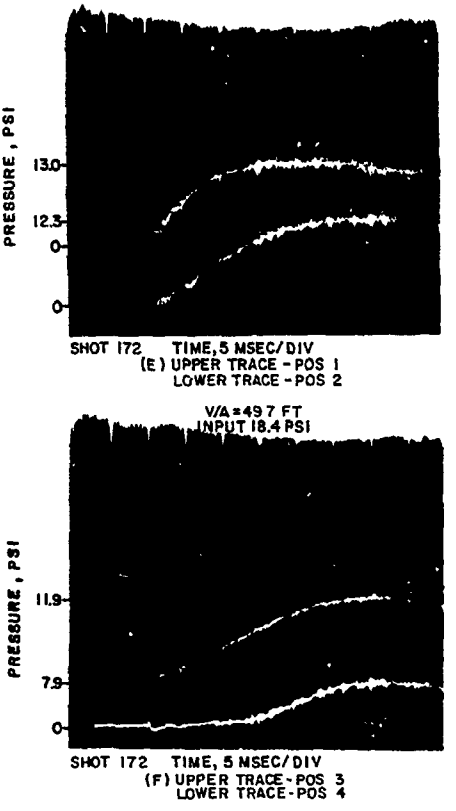


Figure B-6. Records from Model 19 - Four Rooms (Continued)

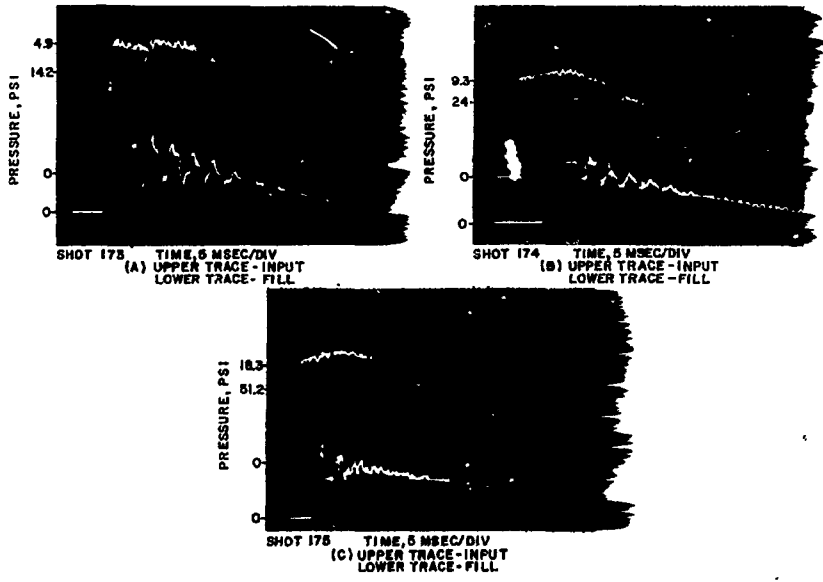


Figure B-7. Records from Model 20, Vortex Generator

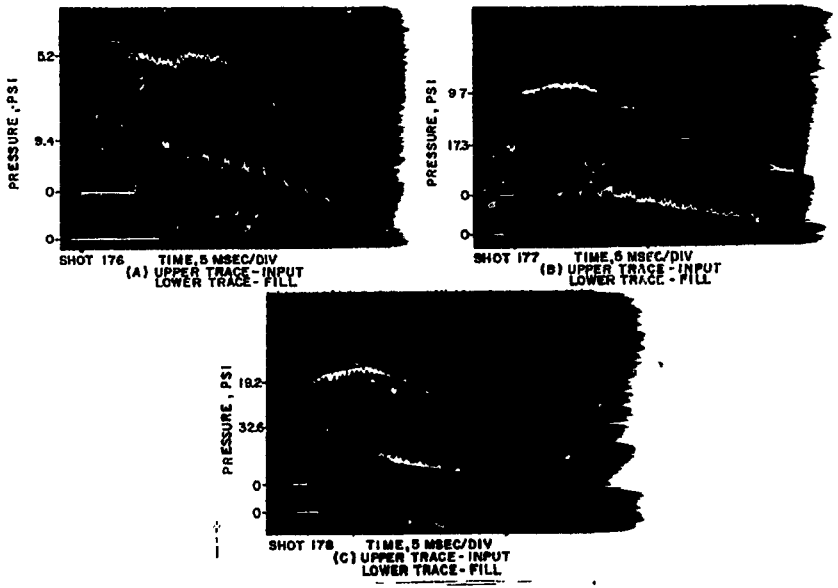


Figure B-3. Records from Model 1 - Side Tunnel

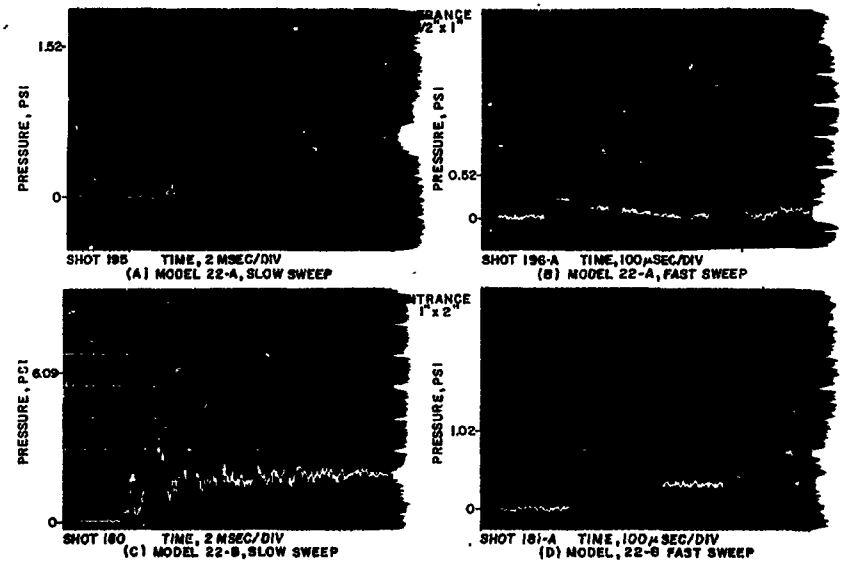


Figure B-9. Records from Diffraction Models 22A and 22-B

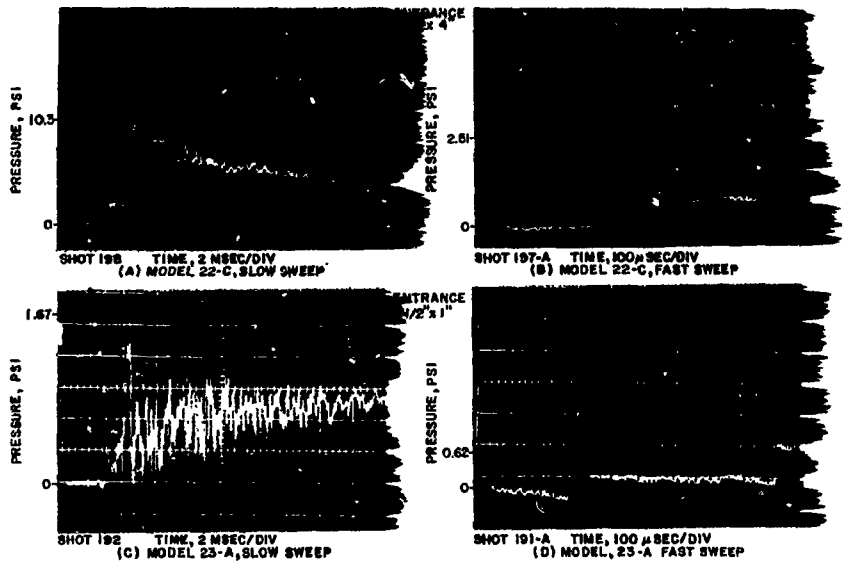


Figure B-10. Records from Diffraction Models 22-C and 23-A

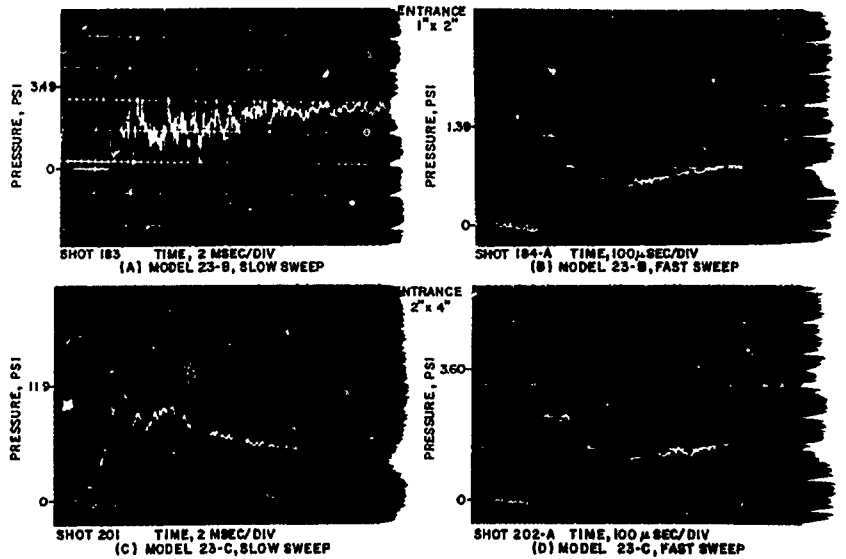


Figure B-11. Records from Diffraction Models 23-B and 23-C

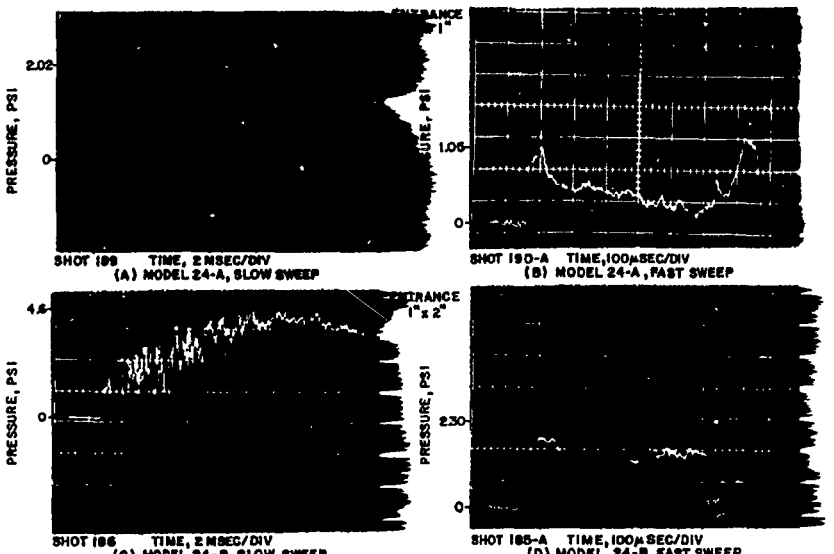
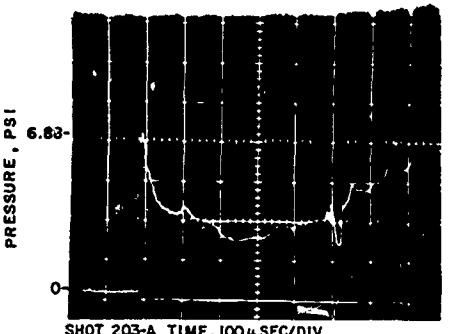


Figure B-12. Records from Diffraction Models 24-A and 24-B

SHOT 204 TIME, 2 MSEC/DIV
(A) MODEL 24-C, SLOW SWEEP



SHOT 203-A TIME, 100μ SEC/DIV
(B) MODEL 24-C, FAST SWEEP

Figure B-13. Records from Diffraction Model 24-C.

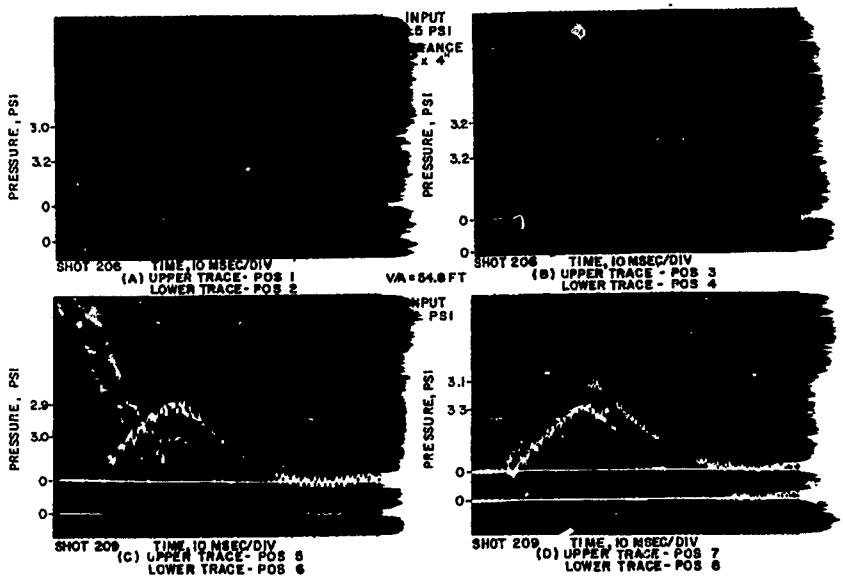


Figure B-14. Records from Model 25, P_s = 5 psi

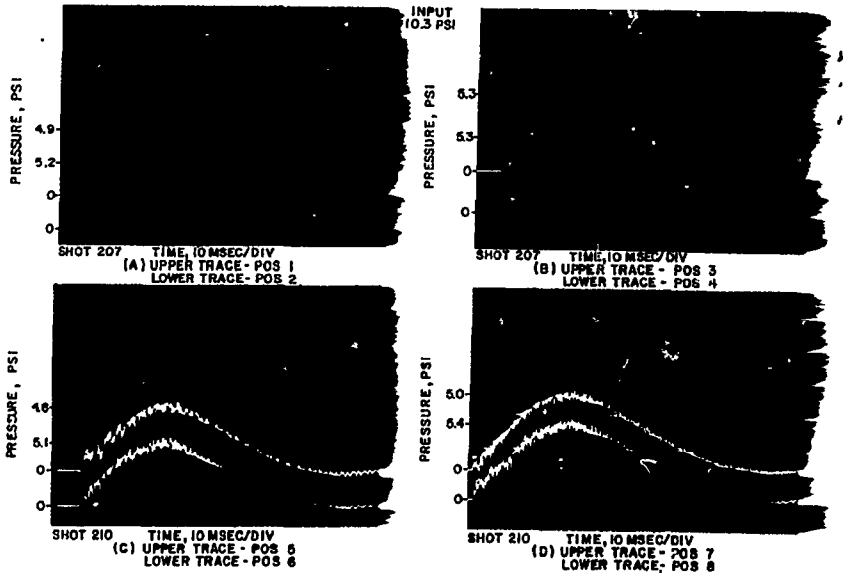


Figure B-15. Records from Model 25, P_s = 10 psi

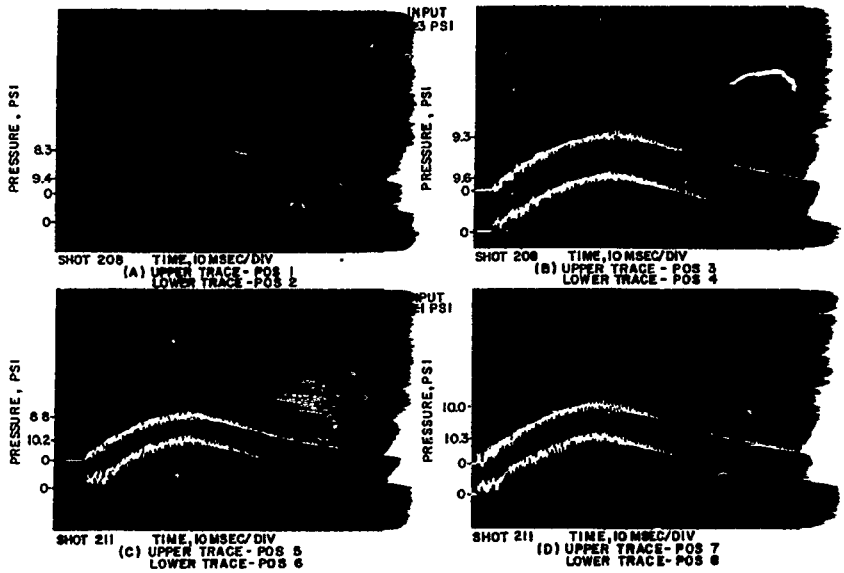


Figure B-16. Records from Model 25, P_s = 19 psi

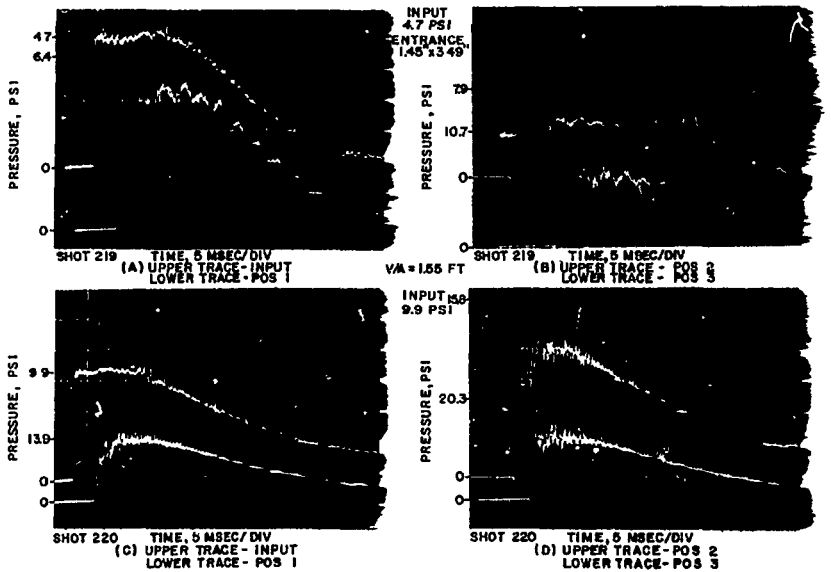
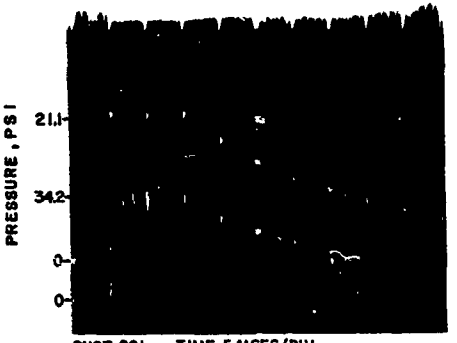
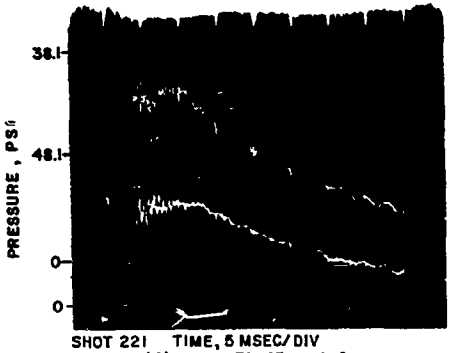


Figure B-17. Records from Model 26



SHOT 221 TIME, 5 MSEC/DIV
(E) UPPER TRACE - INPUT
LOWER TRACE - POS 1

INPUT 21.1 PSI



SHOT 221 TIME, 5 MSEC/DIV
(F) UPPER TRACE - POS 2
LOWER TRACE - POS 3

Figure B-17. Records from Model 26 (Continued)

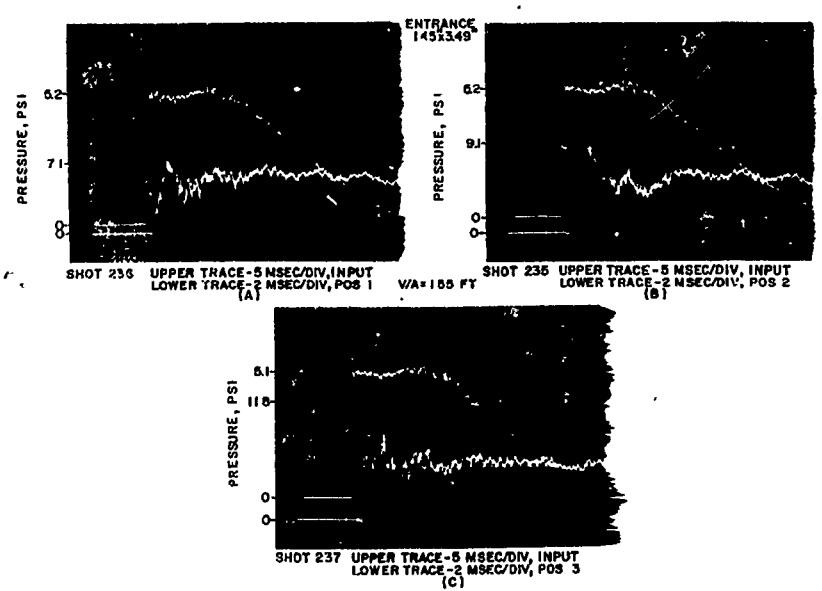


Figure B-18. Records from Model 26, P_s = 5 psi

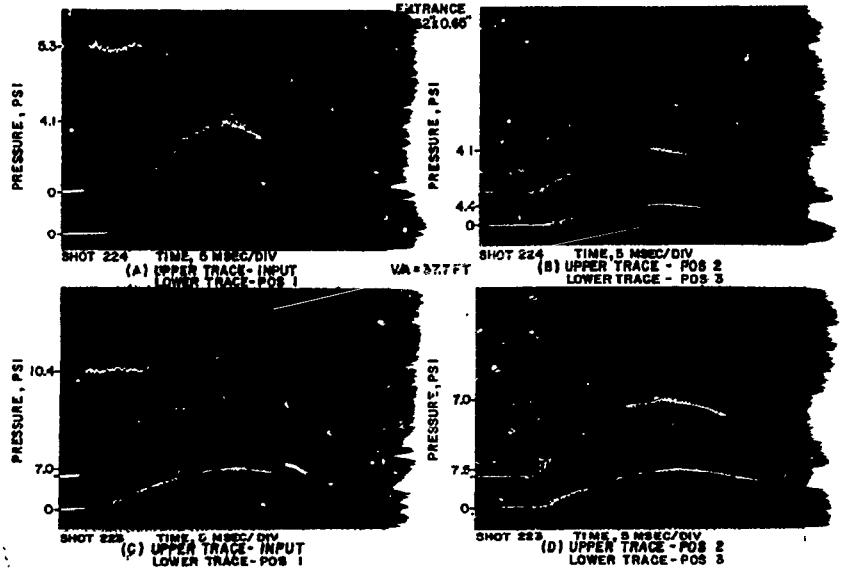
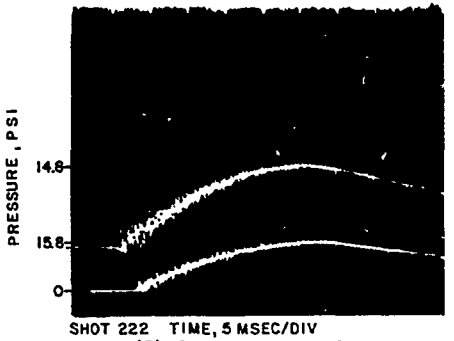


Figure B-19. Records from Model 27

SHOT 222 TIME, 5 MSEC/DIV
(E) UPPER TRACE - INPUT
LOWER TRACE - POS 1



SHOT 222 TIME, 5 MSEC/DIV
(F) UPPER TRACE - POS 2
LOWER TRACE - POS 3

Figure B-19. Records from Model 27 (Continued)

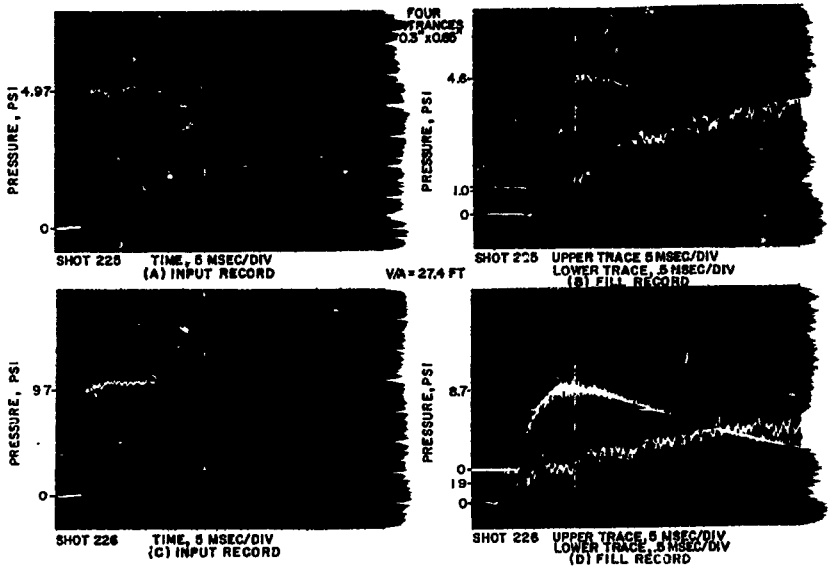
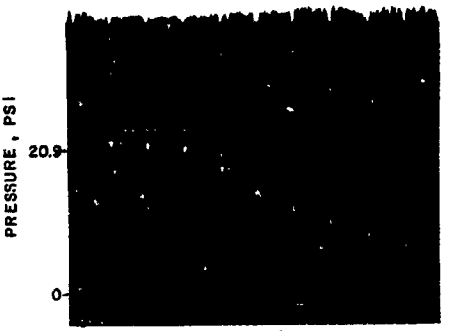
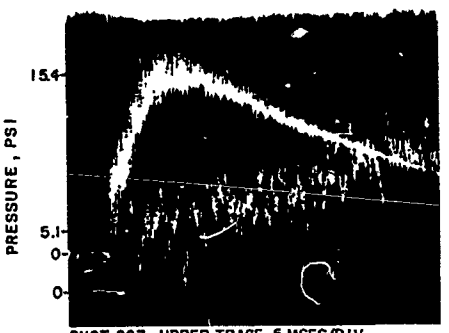


Figure B-20. Records from Model 28, Four Entrances



SHOT 227 TIME, 5 MSEC/DIV
(E) INPUT RECORD



SHOT 227 UPPER TRACE-5 MSEC/DIV
LOWER TRACE-.5 MSEC/DIV
(F) FILL RECORDS

Figure B-20. Records from Model 28, Four Entrances (Continued)

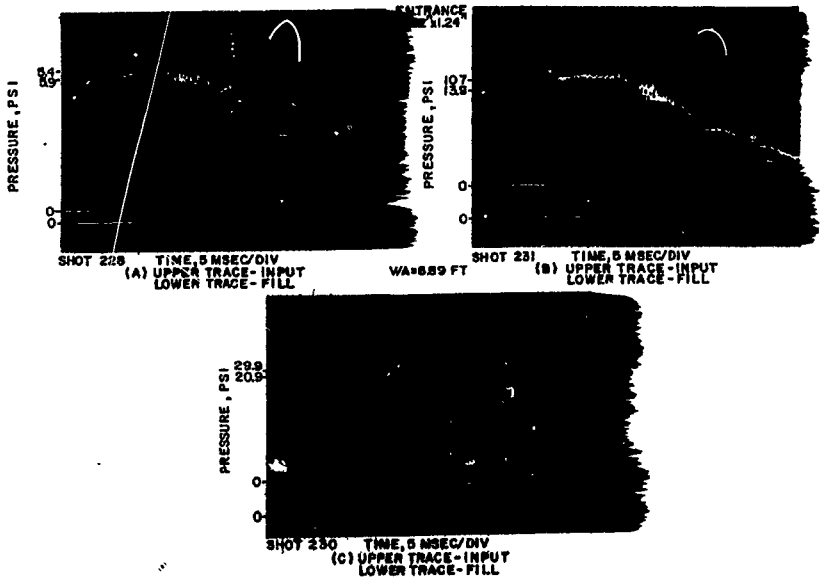


Figure B-21. Records from Model 29, Single Entrance

APPENDIX C

MACHINE PROGRAM FOR PRESSURE-TIME FILL PREDICTIONS

USE OF APPENDIX C

The chamber-fill program is listed in Fortran IV with some minor modifications for the Ballistic Research Laboratories' computer.

The input data needed for the program are shown at the end. In the order listed, they are: the area (square feet) of the entrance to the room or chamber, the volume of the room (cubic feet), a characteristic time (seconds) equivalent to two crossing times of the room length for ambient sound speed, ambient pressure before shock wave enters room, and the density (slugs per cubic feet) of the initial undiffracted input shock wave. Depending on the room or chambers position the correct density may be for side-on, stagnation, or a reflected shock.

The second set of input data needed are pressure-time coordinates for the input shock wave in units of pounds per square inch and milliseconds, respectively.

The ambient density before the shock wave enters the room is shown as D3, Line 27, of the program. This value would be changed as needed according to the standard conditions of the test site.

The program is quite useful for true filling problems, however, for large room openings compared to frontal area, filling occurs in less than the characteristic time put into the program. The output data (pressure-time for the filling) are large oscillations, or the program may stop. The program should not be used if this happens.

```
*       T-175  FORTRAN CHAMBER-F-4  PANNILL-COULTER  FEB 68
$       MAXT( 1) MINS
        DIMENSION X(200) ,Y(200)
1       FORMAT(6E12.6)
2       FORMAT(E12.3,4E16.6)
3       FORMAT(80X)
4       FORMAT(3X,5HAREA1,5X,6HVOLUME,12X,4HTIME,11X,8HPRESSURE,
     1  8X,7HDENSITY)
5       FORMAT(3X,4HTIME,10X,8HPRESSURE,10X,4HDEN3,13X,2HU2,
     1  13X,3HDPT)
6       FORMAT(3X,7HSECONDS,10X,3HPSI,10X,8HUE-S2/F4,11X,3HFPS,
     1  12X,3HPSI)
        G1=.714286
        G2=.285714
        G3=7.
10      READ(5,1)A2,V3,TI,P30A,D1
        WRITE(6,3)
        WRITE(6,4)
        WRITE(6,2)A2,V3-TI,P30A,D1
        WRITE(6,3)
        WRITE(6,5)
        WRITE(6,6)
        WRITE(6,3)
        I=1
        T=0.
        P30=P30A*144.
        D3=.00233
        P3=P30
20      READ(5,1)RT,RP,A,B,C,H
        IF(RT.LT.0.0) GO TO 30
        X (I)=RT
        X(I+1)=A
        X(I+2)=C
        Y(I)=RP
         Y(I+1)=B
         Y(I+2)=H
         I=I+3
        GO TO 20
30      N=I-1
        NN=N
        I=1
        DO 40 K=1,NN
         X( I)=X (I)/1000.
        Y(I)=Y(I)*144.+P30
40      I=I+1
50      TA=T+TI
        CALL DVDINT(T,PA,X,Y,NN,2)
        CALL DVDINT(TA,PB,X,Y,NN,2)
        P1=(PA+PB)/2.
        D1T=((P1/Y(1))**G1)*D1
        IF(P1.GT.P3)GO TO 60
        P13=P1/P3
        UE2=(G3*P3/D3)*(1.-P13**G2)
        UE=SQRT(UE2)
        DE=(P13**G1)*D3
        RE=UE*DE*A2*TI
        R3N=D3*V3-RE
        D3N=R3N/V3
        P3N=P3-(RE/V3)*(UE2/G3+P1/DE)
        U2=-UE
```

```
      D2=DE
      GO TO 70
60    P31=P3/P1
      U22=(G3*P1/D1T)*(1.-P31**G2)
      U2=SQRT(U22)
      D2=(P31**G1)*D1T
      R2=U2*A2*D2*TI
      R3=D3*V3
      R32=R3/R2
      D3N=(R2+R3)/V3
      P3N=D3N*(U22/G3+P3/D2+P3*R32/D3)/(1.+R32)
70    T=T+TI
      P3NA=(P3N-P30)/144.
      PDT=D2*U2*U2/288.
      WRITE(6,2)T,P3NA,D3N,U2,PDT
      P3=P3N
      D3=D3N
      IF(T.LT.X(N))    GOTO 50
      GO TO 10
    SUBROUTINE DVDINT(X,FX,XT,FT,NP,ND)                          DDIN   1
      DIMENSION XT(1),FT(1),T(16)                                DDIN   2
      N=ND                                                       DDIN   3
31    N1=(N-1)/2                                                 DDIN   4
      N2=N/2                                                     DDIN   5
      N3=NP-N2+1                                                 DDIN   6
      IF(NP-N)30,41,41                                           DDIN   7
41    N4=N1+2                                                    DDIN   8
      IF(XT(1)-XT(2))22,80,60                                    DDIN   9
22    CONTINUE                                                   DDIN  10
     IF(X-2.*XT(1)+XT(2))20,20,21                                DDIN  11
21    IF(X-2.*XT(NP)+XT(NP-1))42,42,20                           DDIN  12
42    IF(X-XT(N4))45,43,43                                       DDIN  13
43    IF(N4-N3)44,45,44                                          DDIN  14
44    N4=N4+1                                                    DDIN  15
      GOTO 42                                                    DDIN  16
45    N4=N4-1                                                    DDIN  17
      N5=N4-N1                                                   DDIN  18
      DO46I=1,N                                                  DDIN  20
      T(I)=FT(N5)                                                DDIN  21
46    N5=N5+1                                                    DDIN  22
      L=(N+1)/2                                                  DDIN  23
      TR=T(L)                                                    DDIN  24
      N6=N4                                                      DDIN  25
      N7=N4+1                                                    DDIN  26
      JU=1                                                       DDIN  27
      N2=N-1                                                     DDIN  28
       UN=1.0                                                    DDIN  29
      DO12J=1,N2                                                 DDIN  30
      N5=N4-N1                                                   DDIN  31
      N3=N-J                                                     DDIN  32
      DO9I=1,N3                                                  DDIN  33
      N8=N5+J                                                    DDIN  34
      T(I)=(T(I+1)-T(I))/(XT(N8)-XT(N5))                         DDIN  35
9     N5=N5+1                                                    DDIN  36
      GOTO(10,11),JU                                             DDIN  37
10    UN=UN*(X-XT(N6))                                           DDIN  38
      JU=2                                                       DDIN  39
      N6=N6-1                                                    DDIN  40
      GOTO 12                                                    DDIN  41
11    UN=UN*(X-XT(N7))                                           DDIN  42
```

```
      JU=1                                                              DDIN  43
      N7=N7+1                                                           DDIN  44
      L=L-1                                                             DDIN  45
12    TR=TR+UN*T(L)                                                     DDIN  46
      FX=TR                                                             DDIN  47
      RETURN                                                            DDIN  48
20    PRINT50,X,XT(1),XT(NP)                                            DDIN  49
      STOP                                                              DDIN  50
50    FORMAT(23H ARG. NOT IN TABLE  X= ,E14.7,9H  XT(1)= ,              DDIN  51
    1 E14.7,10H  XT(NP)= ,E14.7,6H  DDIN)                               DDIN  52
30    PRINT51,NP,ND                                                     DDIN  53
51  FORMAT(22H TABLE TOO SMALL  NP= ,I5,6H  ND= ,I5,6H  DDIN)           DDIN  54
      STOP                                                              DDIN  55
60    IF(X-2.*XT(1)+XT(2))61,20,20                                      DDIN  56
61    IF(X-2.*XT(NP)+XT(NP-1))20,72,72                                  DDIN  57
72    IF(X-XT(N4))73,73,43                                              DDIN  58
73    IF(N4-N3)74,45,74                                                 DDIN  59
74    N4=N4+1                                                           DDIN  60
      GOTO 72                                                           DDIN  61
80    PRINT 52 ,XT(1)                                                   DDIN  62
      STOP                                                              DDIN  63
52    FORMAT(23H CONSTANT TABLE XT(1)= ,E14.7,6H  DDIN)                 DDIN  64
*     LIST
    END                                                                       65
*     DATA                                                                    77
  .764E 02   .382E 05   .755E-01   .114E 02    .35E-02
   .0E 00    .114E 02     .2E 04   .114E 02     .4E 04   .114E 02
-4E 01
```

APPENDIX D

AIR FLOW TABLES AND VECTOR PLOTS

USE OF APPENDIX D

Appendix D consists of two parts. The first consists of tables of results of the calculations made from measurements from the smoke grids and the second consists of time plots of the first vertical row of grid intersections taken from the photographs of Appendix A. Additional plots of velocity vector fields computed from several grid intersections are shown for a few discrete frame times to illustrate the many directions of flow throughout the model.

The tables list the frame time in microseconds, the x-y coordinates in inches as measured from an origin at the inside, lower left bottom of the model, the average velocity of a particular smoke grid intersection (positions in frames behind and ahead of the given frame in time are used to find the average for the known camera framing speed), average angle of flow direction measured from a horizontal axis, the density obtained fromthe grid size and ambient grid area (density), and Q (equal to one-half the density times the velocity squared).

The first plot of each of the figures shows the path of smoke grid intersections followed from some initial time labled "start" to end times "T." Each path of the plot starts at a dot and ends at a time symbol, circled number. The remainder of the plots for each figure show average velocity vectors for many grid intersections for discrete times "T." The vector magnitudes are scaled at 1 in. = 200 ft/sec. Again, they are listed according to the entrance size to the model and position of the smoke grid within the model. The shot number is also given for a reference with the photographs of Appendix A.

APPENDIX D.

I. AIR FLOW TABLES

Table D-L. Front Smoke Grid Calculations - 1/4 Inch Entrance with Baffle Spaced 1/4 Inch

Model 32-A, Shot 315

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
138.40	.9126	1.9301	READINGS	INVALID		
	1.0155	1.1553	READINGS	INVALID		
	1.0078	.7903	READINGS	INVALID		
	.9689	.4621	READINGS	INVALID		
	.9456	.0000	READINGS	INVALID		
	1.3146	1.9398	READINGS	INVALID		
	1.3689	1.1534	READINGS	INVALID		
	1.3340	.7806	READINGS	INVALID		
	1.3204	.4757	READINGS	INVALID		
	1.3146	.0000	READINGS	INVALID		
	1.6447	1.9417	READINGS	INVALID		
	1.7204	1.1650	READINGS	INVALID		
	1.7146	.7786	READINGS	INVALID		
	1.7068	.5107	READINGS	INVALID		
	1.6757	.0000	READINGS	INVALID		
	2.1049	1.9748	READINGS	INVALID		
	2.1223	1.1689	READINGS	INVALID		
	2.1165	.8097	READINGS	INVALID		
	2.0990	.5631	READINGS	INVALID		
	2.0563	.0000	READINGS	INVALID		
180.10	.9251	1.9281	70.0	3.2	.002460	6.02
	1.0549	1.1429	83.3	- 12.1	.002568	8.92
	1.0450	.7712	81.9	- 31.4	.002563	8.59
	1.0210	.4336	81.6	- 28.4	.002836	9.44
	.9990	.0000	60.1	.0	.002836	5.13
	1.3646	1.9261	70.3	- 6.3	.002542	6.28
	1.4046	1.1369	66.3	- 20.6	.002544	5.59
	1.3746	.7792	87.7	- 5.1	.002196	8.43
	1.3606	.4615	65.5	- 12.0	.002267	4.86
	1.3187	.0000	56.3	.0	.002267	3.59
	1.6583	1.9461	28.2	15.9	.002512	1.00
	1.7403	1.1588	58.2	- 1.9	.002556	4.34
	1.7443	.8032	44.8	17.7	.002312	2.32
	1.7423	.5115	47.2	- 9.5	.002411	2.69
	1.7183	.0000	54.3	.0	.002411	3.56
	2.0739	1.9680	33.2	- 20.6	.002512	1.38
	2.1259	1.1808	46.7	4.8	.002556	2.79
	2.1319	.8192	16.6	- 20.6	.002312	.32
	2.0999	.5514	26.4	- 36.0	.002411	.84
	2.0899	.0000	34.9	.0	.002411	1.47

Table D-I. Front Smoke Grid Calculations - 1/4 Inch Entrance with Baffle Spaced 1/4 Inch (Continued)

Model 32-A, Shot 315

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
221.80	.9825	1.9340	48.6	19.2	.002600	3.07
	1.0971	1.1379	66.0	- 3.5	.002513	5.47
	1.0777	.7476	64.2	- 5.4	.002596	5.34
	1.0408	.4233	49.9	- 16.3	.002667	3.32
	1.0058	.0000	33.9	.0	.002667	1.54
	1.3845	1.9320	49.4	14.0	.002494	3.04
	1.4311	1.1301	56.8	10.1	.002574	4.15
	1.4214	.7728	71.9	.0	.002384	6.16
	1.3845	.4621	68.3	- 6.7	.002447	5.71
	1.3709	.0000	75.9	.0	.002447	7.04
	1.6718	1.9495	44.3	- 7.8	.002357	2.32
	1.7786	1.1631	63.4	- 24.1	.002512	5.06
	1.7573	.7922	61.7	- 29.1	.002376	4.52
	1.7534	.5029	60.2	5.7	.002447	4.43
	1.7301	.0000	63.9	.0	.002447	4.99
	2.1359	1.9631	31.9	- 1.4	.002357	7.90
	2.1689	1.1728	61.5	- 13.1	.002512	4.75
	2.1320	.8039	58.1	- 15.9	.002376	4.02
	2.1204	.5476	59.1	- 11.7	.002447	4.28
	2.0913	.0000	47.9	.0	.002447	2.81
263.50	.9710	1.9441	23.4	-138.4	.002448	.67
	1.1209	1.1389	53.9	37.7	.002536	3.69
	1.1089	.7652	56.6	31.0	.002409	3.85
	1.0689	.4196	59.8	13.1	.002659	4.75
	1.0330	.0000	13.6	.0	.002659	.25
	1.4126	1.9381	11.8	- 99.5	.002532	.18
	1.4605	1.1469	40.0	29.1	.002546	2.03
	1.4466	.7792	35.6	- 29.4	.002382	1.51
	1.4286	.4535	50.4	- 15.6	.002332	2.96
	1.3946	.0000	48.5	.0	.002332	2.74
	1.7023	1.9401	45.3	- 9.9	.002343	2.40
	1.7982	1.1329	29.6	- 31.6	.002523	1.11
	1.7982	.7732	53.7	- 12.5	.002487	3.58
	1.8022	.5175	42.9	- 5.2	.002485	2.28
	1.7822	.0000	46.6	.0	.002485	2.69
	2.1558	1.9660	33.0	- 3.4	.002343	1.28
	2.1858	1.1668	30.7	- 18.4	.002523	1.19
	2.1878	.8032	53.0	- 8.4	.002487	3.49
	2.1578	.5395	54.3	.0	.002485	3.67
	2.1379	.0000	60.1	.0	.002485	4.49

Table D-1. Front Smoke Grid Calculations - 1/4 Inch Entrance with Baffle Spaced 1/4 Inch (Continued)

Model 32-A, Shot 315

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
305.20	.9650	1.9184	8.9	-116.6	.002716	.11
	1.1398	1.1709	76.3	47.1	.002467	7.13
	1.1262	.7767	75.2	17.0	.002623	7.41
	1.0990	.4369	78.0	2.9	.002572	7.82
	1.0194	.0000	47.9	.0	.002572	2.95
	1.3825	1.9204	54.3	- 17.1	.002403	3.54
	1.4660	1.1495	59.0	24.0	.002414	4.20
	1.4524	.7553	60.2	5.7	.002380	4.31
	1.4330	.4485	63.4	12.7	.002519	5.07
	1.4194	.0000	69.9	.0	.002519	6.15
	1.7165	1.9417	36.0	- 3.2	.002354	1.52
	1.8039	1.1476	72.0	33.7	.002515	6.52
	1.8097	.7806	69.0	22.1	.002412	5.73
	1.7961	.4990	59.1	11.7	.002373	4.15
	1.7767	.0000	41.9	.0	.002373	2.09
	2.1689	1.9612	40.1	5.7	.002354	1.90
	2.1981	1.1631	69.0	22.1	.002515	5.98
	2.1845	.7961	43.1	13.4	.002412	2.24
	2.1748	.5476	72.7	20.9	.002373	6.26
	2.1515	.0000	65.9	.0	.002373	5.15
346.90	.9670	1.9361	20.0	119.1	.002457	.49
	1.1728	1.1948	70.6	52.8	.002403	5.99
	1.1808	.7372	109.8	32.0	.002469	14.89
	1.1469	.4236	99.8	26.6	.002591	12.90
	1.0809	.0000	100.9	.0	.002591	13.18
	1.4645	1.9221	79.1	11.3	.002698	8.45
	1.5145	1.1708	82.5	41.2	.002405	8.19
	1.5065	.7852	97.9	39.4	.002361	11.31
	1.4905	.4675	92.2	30.3	.002372	10.08
	1.4645	.0000	60.1	.0	.002372	4.29
	1.7383	1.9381	69.9	- 1.6	.002414	5.89
	1.8581	1.1728	62.5	25.8	.002483	4.85
	1.8621	.7992	65.0	17.4	.002531	5.35
	1.8601	.5295	90.9	33.7	.002293	9.48
	1.8242	.0000	66.0	.0	.002293	4.99
	2.1958	1.9700	47.7	26.6	.002414	2.75
	2.2498	1.1928	70.0	46.1	.002483	6.08
	2.2298	.8132	57.7	19.7	.002531	4.21
	2.2258	.5654	53.4	19.1	.002293	3.27
	2.2038	.0000	42.7	.0	.002293	2.09

Table D-I. Front Smoke Grid Calculations - 1/4 Inch Entrance with Baffle Spaced 1/4 Inch (Continued)

Model 32-A, Shot 315

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
388.60	.9553	1.9359	15.2	-156.8	.002506	.29
	1.1825	1.2272	70.8	68.5	.002503	6.28
	1.2194	.8350	114.2	36.5	.002619	17.08
	1.1883	.4816	123.3	29.1	.002504	19.05
	1.1204	.0000	113.8	.0	.002504	16.22
	1.4602	1.9359	25.0	28.6	.002581	.81
	1.5282	1.2039	67.9	28.1	.002485	5.73
	1.5282	.8175	96.8	21.8	.002494	11.67
	1.5126	.4951	89.7	16.8	.002284	9.18
	1.4796	.0000	71.9	.0	.002284	5.90
	1.7864	1.9398	104.7	7.7	.002539	13.93
	1.8602	1.1748	78.3	19.4	.002436	7.47
	1.8718	.8000	83.8	12.4	.002662	9.35
	1.8718	.5495	64.4	- 7.1	.002378	4.93
	1.8427	.0000	79.9	.0	.002378	7.58
	2.2117	1.9825	88.2	5.2	.002539	9.88
	2.2466	1.2136	75.9	- 1.5	.002436	7.01
	2.2388	.3155	87.2	15.9	.002662	10.12
	2.2252	.5650	70.0	3.3	.002378	5.82
	2.1942	.0000	59.9	.0	.002378	4.26
430.30	.9530	1.9301	13.6	.0	.002433	.22
	1.1988	1.2607	49.1	80.9	.002348	2.83
	1.2727	.8551	66.1	40.2	.002479	5.41
	1.2547	.4835	85.9	6.5	.002578	9.52
	1.1948	.0000	126.1	.0	.002578	20.50
	1.4865	1.9341	9.9	- 11.3	.002388	.12
	1.5744	1.2028	49.5	11.3	.002373	2.90
	1.5964	.8212	65.2	22.8	.002318	4.93
	1.5764	.4935	78.0	5.7	.002369	7.20
	1.5365	.0000	104.8	.0	.002369	13.00
	1.8422	1.9520	35.0	19.4	.002470	1.51
	1.9321	1.1988	54.7	27.5	.002528	3.78
	1.9441	.8172	87.2	16.8	.002312	8.78
	1.9241	.5215	97.5	5.7	.002346	11.15
	1.9041	.0000	READINGS	INVALID		
	2.2837	1.9780	56.5	- 15.9	.002470	3.94
	2.3257	1.1908	60.7	- 26.6	.002528	4.66
	2.3137	.8372	62.2	- 3.6	.002312	4.47
	2.2957	.5694	66.4	15.3	.002346	5.17
	2.2637	.0000	READINGS	INVALID		

Table D.I. Front Smoke Grid Calculations - 1/4 Inch Entrance with Baffle Spaced 1/4 Inch (Continued)

Model 32-A, Shot 315

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
472.00	.9689	1.9359	18.9	71.6	.002536	.45
	1.1903	1.2757	64.9	135.0	.002386	5.03
	1.2699	.8777	108.7	134.3	.002432	14.37
	1.2738	.4913	50.0	92.3	.002566	3.20
	1.2466	.0000	157.7	.0	.002566	31.92
	1.4699	1.9340	8.2	14.0	.002525	.09
	1.5767	1.2136	46.1	72.3	.002458	2.61
	1.5883	.8427	53.8	31.3	.002217	3.20
	1.5903	.5029	90.7	39.6	READINGS	INVALID
	1.5845	.0000	111.8	.0	READINGS	INVALID
	1.8194	1.9525	10.0	- 36.9	.002477	.12
	1.9087	1.2000	6.3	- 18.4	.002571	.05
	1.9553	.8252	28.0	- 4.1	.002910	1.14
	1.9689	.5592	40.4	32.9	READINGS	INVALID
	NO READING					
	2.2660	1.9670	6.0	.0	.002477	.04
	2.3010	1.1864	16.0	90.0	.002571	.33
	2.3010	.8117	26.0	- 57.5	.002910	.99
	2.2893	.5825	16.5	14.0	READINGS	INVALID
	NO READING					
513.70	.9590	1.9481	64.0	180.0	.002402	4.92
	1.1528	1.3067	36.9	93.0	.001911	1.30
	1.1968	.9331	66.4	83.3	.001929	4.25
	1.2527	.5335	92.2	40.7	.002226	9.45
	1.3526	.0000	91.2	.0	.002226	9.25
	1.4945	1.9361	25.3	175.6	.002516	.81
	1.5884	1.2468	37.3	117.9	.002446	1.70
	1.6424	.8492	46.7	85.2	.002742	2.99
	1.6464	.5514	48.7	66.5	.002622	3.10
	1.6484	.0000	29.1	.0	.002622	1.11
	1.8501	1.9461	28.2	-164.1	.002521	1.01
	1.9381	1.1968	29.4	97.6	.002467	1.06
	1.9720	.8152	33.0	180.0	.002641	1.44
	1.9580	.5435	35.1	-173.7	.002459	1.52
	1.9341	.0000	READINGS	INVALID		
	2.2897	1.9780	54.6	-173.9	.002521	3.76
	2.3257	1.2068	41.5	127.4	.002467	2.13
	2.3277	.8152	19.1	114.0	.002641	.48
	2.3117	.5734	13.7	45.0	.002459	.23
	2.2617	.0000	READINGS	INVALID		

Table D-I. Front Smoke Grid Calculations - 1/4 Inch Entrance with Baffle Spaced 1/4 Inch (Continued)

Model 32-A, Shot 315

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
555.40	.9049	1.9359	58.7	-170.2	.002612	4.51
	1.1883	1.3126	57.6	33.7	.002633	4.37
	1.2777	.9437	146.5	17.4	.002661	28.55
	1.3437	.5515	136.1	22.4	.002802	25.94
	1.3379	.0000	26.0	.0	.002802	.94
	1.4447	1.9359	53.3	167.0	.002610	3.70
	1.5592	1.2466	25.3	108.4	.002503	.80
	1.5922	.8893	54.1	94.2	.002515	3.67
	1.6097	.5476	24.0	41.6	.002413	.70
	1.6136	.0000	35.9	.0	.002413	1.56
	1.7922	1.9437	82.7	171.7	.002763	9.45
	1.9049	1.2291	45.6	118.8	.002409	2.50
	1.9223	.8252	40.4	98.5	.002568	2.09
	1.9340	.5553	23.4	20.0	.002329	.64
	1.9340	.0000	39.9	.0	.002329	1.86
	2.2117	1.9612	40.1	174.3	.002763	2.22
	2.2757	1.2194	18.4	139.4	.002409	.41
	2.2932	.8291	26.0	85.6	.002568	.87
	2.2990	.5922	38.1	42.9	.002329	1.69
	2.2680	.0000	53.9	.0	.002329	3.38
597.10	.9011	1.9381	92.2	-171.5	.002654	11.28
	1.2008	1.3387	100.2	148.5	.002710	13.59
	1.3367	.9770	65.5	102.0	.002663	5.70
	1.3786	.5854	72.6	69.6	.002448	6.42
	1.3786	.0000	89.2	.0	.002448	9.75
	1.4426	1.9481	17.6	-159.4	.002761	.38
	1.5804	1.2707	[illegible]	138.6	.002616	2.53
	1.6384	.9031	31.3	82.9	.002453	1.20
	1.6643	.5674	46.3	33.0	.002534	2.71
	1.6843	.0000	67.9	.0	.002534	5.84
	1.7682	1.9580	68.6	-171.9	.002442	5.75
	1.9161	1.2368	29.2	-176.2	.002470	1.05
	1.9660	.8551	29.6	66.8	.002427	1.06
	1.9800	.5514	15.6	- 7.1	.002316	.28
	1.9740	.0000	34.9	.0	.002316	1.41
	2.2498	1.9820	18.3	-148.0	.002442	.41
	2.3117	1.2188	4.3	-153.4	.002470	.02
	2.3297	.8412	8.2	135.0	.002427	.08
	2.3397	.5994	9.7	-143.1	.002316	.11
	2.3157	.0000	3.9	.0	.002316	.02

Table D-I. Front Smoke Grid Calculations - 1/4 Inch Entrance with Baffle Spaced 1/4 Inch (Continued)

Model 32-A, Shot 315

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
638.80	.8136	1.9223	48.3	172.9	.002488	2.90
	1.1029	1.3650	92.1	150.1	.002557	10.85
	1.2641	1.0078	87.5	117.1	.002613	10.00
	1.3689	.6194	99.1	62.4	.002638	12.96
	1.4272	.0000	99.8	.0	.002638	13.14
	1.4291	1.9301	53.8	-164.9	.002926	4.23
	1.5262	1.2757	49.3	121.8	.002622	3.19
	1.5961	.9204	47.0	77.7	.002463	2.72
	1.6485	.5728	84.9	66.4	.002593	9.35
	1.6816	.0000	49.9	.0	.002593	3.23
	1.7243	1.9340	14.1	- 45.0	.002542	.25
	1.8757	1.2272	26.0	94.4	.002508	.85
	1.9340	.8524	33.2	57.3	.002519	1.39
	1.9495	.5534	67.1	67.2	.002539	5.72
	1.9689	.0000	43.9	.0	.002539	2.45
	2.1961	1.9515	12.6	-108.4	.002542	.20
	2.2718	1.2175	22.8	105.3	.002508	.65
	2.2874	.8350	4.5	63.4	.002519	.03
	2.2913	.5864	14.1	98.1	.002539	.25
	2.2718	.0000	4.0	.0	.002539	.02
680.50	.8531	1.9441	7.0	56.3	.002748	.07
	1.1209	1.3846	31.3	119.7	.002562	1.25
	1.2967	1.0549	75.8	103.3	.002769	7.95
	1.4246	.6733	91.2	66.2	.002398	9.98
	1.4785	.0000	25.2	.0	.002398	.76
	1.3906	1.9341	58.5	-174.3	.002625	4.42
	1.5544	1.3127	51.4	100.9	.002565	3.38
	1.6484	.9491	58.4	74.6	.002771	4.72
	1.6983	.6454	80.0	67.2	.002309	7.39
	1.7343	.0000	42.7	.0	.002309	2.10
	1.7782	1.9481	30.7	- 18.4	.002619	1.23
	1.9141	1.2627	45.1	64.5	.002501	2.55
	1.9840	.8831	48.6	61.4	.002826	3.34
	2.0060	.6134	72.2	53.7	.002401	6.26
	2.0180	.0000	42.7	.0	.002401	2.19
	2.2458	1.9700	18.3	58.0	.002619	.44
	2.3057	1.2408	27.4	45.0	.002501	.94
	2.3317	.8452	41.8	68.2	.002826	2.47
	2.3377	.6134	53.9	59.7	.002401	3.49
	2.3197	.0000	15.5	.0	.002401	.29

Table D-I. Front Smoke Grid Calculations - 1/4 Inch Entrance with Baffle Spaced 1/4 Inch (Continued)

Model 32-A, Shot 315

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
722.20	.8175	1.9282	29.1	-164.1	.002814	1.19
	1.0874	1.3922	36.0	146.3	.002645	1.71
	1.2466	1.0816	64.5	111.8	.002694	5.60
	1.4058	.7029	69.9	53.1	.002282	5.57
	1.4524	.0000	READINGS	INVALID		
	1.3709	1.9243	18.9	-108.4	.002702	.48
	1.5165	1.3262	44.9	122.3	.002548	2.56
	1.6117	.9767	40.4	81.5	.002558	2.09
	1.6796	.6466	49.4	14.0	.002279	2.78
	1.7243	.0000	81.9	.0	.002279	7.64
	1.7534	1.9243	74.3	-173.8	.002700	7.45
	1.8951	1.2680	38.8	101.9	.002618	1.97
	1.9573	.8951	36.8	49.4	.002724	1.85
	1.9922	.6117	39.4	30.5	.002491	1.93
	2.0117	.0000	97.8	.0	.002491	11.92
	2.2058	1.9670	24.3	-170.5	.002700	.80
	2.2913	1.2369	6.3	18.4	.002618	.05
	2.3029	.8738	60.2	84.3	.002724	4.94
	2.3184	.6330	14.4	33.7	.002491	.26
	2.2874	.0000	22.0	.0	.002491	.60
763.90	.8252	1.9361	22.6	-121.0	.002866	.73
	1.0909	1.4046	58.1	154.3	.002650	4.48
	1.2727	1.1149	76.5	125.7	.002683	7.84
	1.4665	.7293	125.4	68.2	READINGS	INVALID
	NO READING		READINGS	INVALID		
	1.3846	1.9161	35.0	176.8	.003059	1.87
	1.5305	1.3506	45.8	126.4	.002460	2.58
	1.6543	.9890	61.7	77.3	.002625	4.99
	1.7463	.6573	85.8	37.6	.002250	8.28
	1.8162	.0000	READINGS	INVALID		
	1.7043	1.9401	72.2	173.8	.002550	6.65
	1.9061	1.3007	30.3	140.2	.002694	1.24
	2.0080	.9111	47.2	70.8	.002679	2.99
	2.0400	.6334	56.3	46.4	.002781	4.40
	2.1159	.0000	64.0	.0	.002781	5.70
	2.2218	1.9660	16.7	-144.5	.002550	.36
	2.3117	1.2428	27.6	129.3	.002694	1.02
	2.3377	.9051	17.9	49.4	.002679	.43
	2.3497	.6214	21.4	- 5.2	.002781	.64
	2.3417	.0000	73.7	.0	.002781	7.56

Table D-I. Front Smoke Grid Calculations - 1/4 Inch Entrance with Baffle Spaced 1/4 Inch (Continued)

Model 32-A, Shot 315

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
805.60	.8058	1.9087	10.2	-168.7	.002982	.15
	1.0350	1.4175	57.1	143.5	.002662	4.34
	1.2019	1.1437	75.3	122.0	.002867	8.14
	1.4524	.8194	127.7	80.1	READINGS	INVALID
	NO READING		READINGS	INVALID		
	1.3359	1.9262	40.4	147.1	.002963	2.42
	1.4893	1.3531	51.8	117.6	.002831	3.80
	1.6252	1.0369	89.9	88.7	.002720	10.98
	1.7476	.6990	104.6	66.4	READINGS	INVALID
	NO READING					
	1.6816	1.9320	21.2	41.2	.002598	.59
	1.8718	1.2874	35.3	42.7	.002714	1.69
	1.9728	.9398	59.4	70.3	.002761	4.86
	2.0211	.6524	62.2	42.4	.002451	4.74
	2.0757	.0000	26.0	.0	.002451	.83
	2.1922	1.9573	39.5	45.0	.002598	2.03
	2.2738	1.2583	46.0	43.3	.002714	2.95
	2.3146	.8874	43.1	- 13.4	.002761	2.56
	2.3398	.6311	58.0	26.6	.002451	4.13
	2.3612	.0000	63.9	.0	.002451	5.00
847.30	.8152	1.9341	32.5	162.6	.002996	1.58
	1.0450	1.4386	48.6	151.4	.002746	3.25
	1.2328	1.1788	88.7	113.2	.002864	11.25
	1.4885	.8551	91.2	91.2	READINGS	INVALID
	NO READING		READINGS	INVALID		
	1.3506	1.9381	20.9	158.2	.002784	.61
	1.5065	1.3966	40.8	92.7	.002589	2.15
	1.6563	1.0789	71.8	88.5	.002658	6.85
	1.7882	.7532	79.8	64.1	.002618	8.34
	1.9680	.0000	READINGS	INVALID		
	1.7203	1.9540	22.7	20.0	.002509	.65
	1.9321	1.3247	72.7	43.9	.002587	6.84
	2.0280	.9670	63.1	45.0	.002726	5.43
	2.0859	.6753	61.9	41.2	.002440	4.67
	2.1419	.0000	79.5	.0	.002440	7.72
	2.2498	1.9940	30.1	- 14.9	.002509	1.14
	2.3457	1.2747	68.9	32.3	.002587	6.14
	2.3796	.8951	76.5	30.5	.002726	7.98
	2.4016	.6474	79.8	18.4	.002440	7.76
	2.4056	.0000	54.3	.0	.002440	3.60

Table D-I. Front Smoke Grid Calculations - 1/4 Inch Entrance with Baffle Spaced 1/4 Inch (Continued)

Model 32-A, Shot 315

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
889.00	.7748	1.9184	52.1	175.6	.002946	3.99
	.9922	1.4408	77.9	178.5	.002893	8.77
	1.1670	1.2252	108.7	135.7	.002772	16.38
	1.4505	.9107	108.5	102.8	READINGS	INVALID
	NO READING		READINGS	INVALID		
	1.3165	1.9340	34.2	173.3	.002790	1.63
	1.4874	1.4039	30.0	86.2	.002595	1.17
	1.6272	1.1087	52.1	57.5	.002586	3.50
	1.7825	.7709	78.0	50.2	READINGS	INVALID
	NO READING		READINGS	INVALID		
	1.7029	1.9398	14.1	- 45.0	.002762	.28
	1.9243	1.3379	25.0	29.6	.002615	.82
	2.0175	.9845	62.1	45.0	.002497	4.82
	2.0777	.6932	81.3	24.7	.002320	7.67
	2.1553	.0000	97.8	.0	.002320	11.10
	2.2214	1.9495	29.9	- 36.9	.002762	1.24
	2.3320	1.2951	38.3	38.7	.002615	1.92
	2.3806	.9262	73.5	47.2	.002497	6.74
	2.4155	.6503	81.1	38.0	.002320	7.62
	2.4155	.0000	71.9	.0	.002320	5.99
930.70	.7632	1.9381	39.0	174.3	.002763	2.10
	.9670	1.4406	73.9	-166.3	.002699	7.37
	1.1548	1.2547	111.7	172.0	.002699	16.83
	1.4645	.9610	116.8	122.1	READINGS	INVALID
	NO READING		READINGS	INVALID		
	1.3167	1.9421	30.7	-161.6	.002731	1.28
	1.5085	1.4266	35.7	135.0	.002746	1.75
	1.6843	1.1229	59.4	101.3	.002628	4.63
	1.8382	.8132	116.4	36.9	READINGS	INVALID
	NO READING		READINGS	INVALID		
	1.7303	1.9441	14.0	- 33.7	.002572	.25
	1.9540	1.3367	41.5	127.4	.002787	2.40
	2.0719	1.0110	52.8	72.9	.002681	3.73
	2.1598	.7093	90.3	28.2	.002444	9.96
	2.2398	.0000	95.1	.0	.002444	11.05
	2.2737	1.9760	26.4	17.1	.002572	.90
	2.3756	1.2987	38.3	30.5	.002787	2.04
	2.4296	.9491	54.8	22.9	.002681	4.02
	2.4655	.6973	66.8	35.5	.002444	5.45
	2.4775	.0000	83.4	.0	.002444	8.51

Table D-I. Front Smoke Grid Calculations - 1/4 Inch Entrance with Baffle Spaced 1/4 Inch (Continued)

Model 32-A, Shot 315

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
972.40	.7359	1.9223	16.0	180.0	.002802	.36
	.9204	1.4233	73.2	-162.6	.002707	7.26
	1.0563	1.2408	110.1	175.8	.002550	15.46
	1.3883	1.0097	226.0	144.3	READINGS	INVALID
	NO READING		READINGS	INVALID		
	1.2874	1.9243	26.0	-175.6	.002833	.96
	1.4621	1.4291	58.2	157.8	.002799	4.74
	1.6155	1.1670	113.5	129.3	.002898	18.66
	1.8757	.8408	97.2	70.8	READINGS	INVALID
	NO READING		READINGS	INVALID		
	1.7146	1.9320	41.2	166.0	.002670	2.26
	1.8990	1.3709	58.2	84.1	.002452	4.15
	2.0330	1.0350	78.0	76.7	.002586	7.86
	2.1573	.7359	95.1	51.0	.002338	10.57
	2.2505	.0000	59.9	.0	.002338	4.19
	2.2466	1.9573	13.4	-116.6	.002670	.24
	2.3650	1.3146	39.6	49.1	.002452	1.93
	2.4311	.9476	57.6	33.7	.002586	4.29
	2.4699	.6951	58.2	31.0	.002338	3.96
	2.4990	.0000	87.8	.0	.002338	9.02
1014.10	.7473	1.9381	33.2	159.4	.002719	1.49
	.8971	1.4186	105.9	-171.6	.002917	16.36
	1.0450	1.2627	105.9	166.2	.002596	14.55
	1.2807	1.0929	177.1	145.3	READINGS	INVALID
	NO READING		READINGS	INVALID		
	1.2907	1.9401	33.0	151.9	.002714	.48
	1.4545	1.4486	84.2	151.1	.002633	9.34
	1.6124	1.2108	75.6	119.2	.002452	7.00
	1.8701	.9051	98.8	109.5	READINGS	INVALID
	NO READING		READINGS	INVALID		
	1.6903	1.9540	39.0	174.3	.002664	2.03
	1.9600	1.3946	55.6	77.9	.002793	4.31
	2.0899	1.0869	65.2	59.6	.002713	5.77
	2.2198	.7832	82.2	70.7	.002219	7.50
	2.2997	.0000	READINGS	INVALID		
	2.2677	1.9640	27.4	-171.9	.002664	1.00
	2.4016	1.3287	38.2	114.0	.002793	2.04
	2.4775	.9810	50.4	67.4	.002713	3.45
	2.5155	.7273	54.4	55.2	.002219	3.28
	2.5654	.0000	38.8	.0	.002219	1.67

Table D-I. Front Smoke Grid Calculations - 1/4 Inch Entrance with Baffle Spaced 1/4 Inch (Continued)

Model 32-A, Shot 315

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
1055.80	.7049	1.9340	52.9	-169.1	.002683	3.75
	.8155	1.4078	129.8	-165.8	.002746	23.12
	.9534	1.2660	129.3	-166.6	.002544	21.26
	1.2427	1.1107	160.5	174.3	READINGS	INVALID
	NO READING		READINGS	INVALID		
	1.2583	1.9398	82.1	-175.8	.002804	9.44
	1.3883	1.4699	99.1	161.2	.002494	12.25
	1.5786	1.2330	116.2	155.6	.002653	17.90
	1.6427	.9340	285.2	146.4	READINGS	INVALID
	NO READING		READINGS	INVALID		
	1.6757	1.9359	29.7	-132.3	.002965	1.31
	1.9107	1.4252	96.5	155.6	.002712	12.62
	2.0660	1.0913	87.5	135.0	.002789	10.68
	2.1845	.8136	67.0	100.3	READINGS	INVALID
	NO READING		READINGS	INVALID		
	2.2194	1.9534	62.0	-176.3	.002965	5.70
	2.3495	1.3495	59.0	151.7	.002712	4.71
	2.4505	.9942	51.5	144.5	.002789	3.70
	2.5010	.7398	34.0	93.4	READINGS	INVALID
	2.5379	.0000	6.0	.0	READINGS	INVALID
1097.50	.6953	1.9281	66.2	-165.2	.002726	6.35
	.7712	1.3866	106.0	-156.3	.002665	14.97
	.9191	1.2328	159.1	-150.0	.003251	41.14
	1.1209	1.1089	375.1	-166.5	READINGS	INVALID
	NO READING		READINGS	INVALID		
	1.2088	1.9341	102.7	-169.1	.002790	14.73
	1.3606	1.4805	130.2	176.6	.002676	22.69
	1.5065	1.2587	154.9	167.7	.002255	27.05
	1.6324	1.0629	221.6	142.8	READINGS	INVALID
	NO READING		READINGS	INVALID		
	1.6703	1.9321	136.9	-172.7	.002899	27.18
	1.8721	1.4346	116.8	168.5	.002800	19.11
	2.0280	1.1489	102.8	144.2	.002875	15.21
	2.2078	.8492	71.2	107.4	READINGS	INVALID
	NO READING		READINGS	INVALID		
	2.2058	1.9600	64.3	-174.8	.002899	5.99
	2.3497	1.3566	53.0	156.3	.002800	3.93
	2.4356	1.0110	45.3	136.7	.002875	2.95
	2.5135	.7612	44.8	95.0	READINGS	INVALID
	2.5714	.0000	77.6	.0	READINGS	INVALID

Table D-I. Front Smoke Grid Calculations - 1/4 Inch Entrance with Baffle Spaced 1/4 Inch (Continued)

Model 32-A, Shot 315

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
1139.20	.6388	1.9165	81.1	-170.1	.002846	9.35
	.7184	1.3650	136.3	-148.2	.002541	23.60
	.8155	1.1864	163.6	-160.0	.002064	27.61
	.8777	1.0233	173.1	-168.7	READINGS	INVALID
	NO READING		READINGS	INVALID		
	1.1573	1.9204	154.8	173.3	.003058	36.63
	1.2583	1.4777	160.2	175.7	.002528	32.42
	1.4272	1.2660	153.5	167.2	.002737	32.26
	1.6660	1.0680	67.8	103.6	READINGS	INVALID
	NO READING		READINGS	INVALID		
	1.5398	1.9184	168.5	174.6	.002761	39.17
	1.7961	1.4485	103.8	157.4	.002616	14.10
	1.9825	1.1515	117.4	130.4	.002868	19.76
	2.1631	.8816	134.2	126.5	READINGS	INVALID
	NO READING		READINGS	INVALID		
	2.1553	1.9476	77.1	163.4	.002761	8.20
	2.3010	1.3709	69.2	136.2	.002616	6.26
	2.4175	1.0252	79.7	112.1	.002868	9.11
	2.4971	.7845	76.5	105.1	READINGS	INVALID
	2.6155	.0000	READINGS	INVALID		
1180.90	.6154	1.9141	17.9	139.4	.002819	.45
	.6553	1.3147	169.0	-145.8	.002753	39.31
	.7652	1.1768	129.3	-152.3	.002736	22.88
	.9510	1.0749	37.5	68.7	READINGS	INVALID
	NO READING		READINGS	INVALID		
	1.0549	1.9520	129.2	172.2	.002681	22.39
	1.2008	1.4925	120.9	-174.5	.002596	18.96
	1.3566	1.2927	170.9	167.5	.002722	39.74
	1.6164	1.1289	281.0	157.7	READINGS	INVALID
	NO READING		READINGS	INVALID		
	1.5025	1.9481	68.6	171.9	.002662	6.26
	1.7762	1.4745	106.8	155.3	.002815	16.05
	1.9401	1.2268	145.4	136.1	.002673	28.27
	2.1279	.9570	167.6	127.0	READINGS	INVALID
	NO READING		READINGS	INVALID		
	2.1319	1.9820	56.4	176.1	.002662	4.23
	2.2997	1.4046	75.6	131.9	.002815	8.04
	2.4056	1.0849	113.1	112.2	.002673	17.10
	2.4935	.8352	110.4	100.1	READINGS	INVALID
	NO READING					

Table D-I. Front Smoke Grid Calculations - 1/4 Inch Entrance with Baffle Spaced 1/4 Inch (Continued)

Model 32-A, Shot 315

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
1222.60	.6252	1.9282	61.1	168.7	.002773	5.17
	.5786	1.2699	135.7	-153.8	.002928	26.96
	.7010	1.1262	136.3	-140.9	.003627	33.66
	.8913	1.0583	142.0	-154.2	READINGS	INVALID
	NO READING		READINGS	INVALID		
	1.0291	1.9379	67.3	-168.0	.002767	6.27
	1.1379	1.4660	128.0	-169.2	.002723	22.32
	1.2602	1.3029	182.2	175.6	.002533	42.05
	1.4058	1.1748	273.6	166.1	READINGS	INVALID
	NO READING		READINGS	INVALID		
	1.4718	1.9282	102.0	-176.6	.002857	14.86
	1.6990	1.4932	133.9	153.4	.002799	25.10
	1.8777	1.2524	118.5	147.4	.002650	18.61
	2.0621	1.0155	133.5	121.6	READINGS	INVALID
	NO READING		READINGS	INVALID		
	2.0990	1.9515	87.3	-169.5	.002857	10.89
	2.2505	1.4272	99.6	144.1	.002799	13.61
	2.3748	1.1301	77.8	119.2	.002650	8.01
	2.4777	.8932	95.3	109.6	READINGS	INVALID
	2.6447	.0000	READINGS	INVALID		
1264.30	.5554	1.9261	103.8	-159.2	.002710	14.59
	.5335	1.2547	109.1	-141.5	.002883	17.15
	.6593	1.0909	129.2	-131.3	.003366	28.10
	.8232	1.0130	170.1	-135.0	READINGS	INVALID
	NO READING		READINGS	INVALID		
	.9890	1.9381	104.6	-169.3	.002832	15.51
	1.0749	1.4685	146.6	-173.2	.002456	26.38
	1.1748	1.3067	172.6	-171.6	.002505	37.31
	1.3506	1.1948	211.7	177.4	READINGS	INVALID
	NO READING		READINGS	INVALID		
	1.4006	1.9421	141.8	-176.9	.002946	29.63
	1.6563	1.5345	147.4	170.9	.002656	28.84
	1.8402	1.2907	178.6	161.0	.002923	46.60
	2.0579	1.0709	219.3	149.1	READINGS	INVALID
	NO READING		READINGS	INVALID		
	2.0460	1.9660	149.7	-176.3	.002946	33.01
	2.2198	1.4625	116.0	162.5	.002656	17.86
	2.3676	1.1528	75.3	145.5	.002923	8.30
	2.4615	.9251	62.6	119.7	READINGS	INVALID
	NO READING		READINGS	INVALID		

Table D-I. Front Smoke Grid Calculations - 1/4 Inch Entrance with Baffle Spaced 1/4 Inch (Continued)

Model 32-A, Shot 315

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
1306.00	.5282	1.3913	8.9	- 63.4	.002913	.12
	.4932	1.2019	84.2	-112.3	.002871	10.17
	.6155	1.0291	130.1	-122.5	.003809	32.26
	.7709	.9379	134.8	-117.3	READINGS	INVALID
	NO READING		READINGS	INVALID		
	.9262	1.9184	66.4	-158.8	.002935	6.46
	.9922	1.4485	87.2	-159.9	.002716	10.31
	1.0893	1.2777	149.7	-163.7	.002849	31.94
	1.1942	1.1845	219.3	-169.5	READINGS	INVALID
	NO READING		READINGS	INVALID		
	1.3301	1.9204	93.9	178.8	.003027	13.33
	1.5534	1.5165	139.8	178.4	.002696	26.35
	1.7067	1.3107	161.3	158.2	.002495	32.44
	1.8738	1.1282	225.0	148.4	READINGS	INVALID
	NO READING		READINGS	INVALID		
	1.9495	1.9417	92.2	175.0	.003027	12.86
	2.1398	1.4621	84.0	151.6	.002696	9.50
	2.3126	1.1728	111.7	131.4	.002495	15.58
	2.4466	.9476	80.7	98.5	READINGS	INVALID
	NO READING		READINGS	INVALID		
1347.70	.5594	1.9181	14.8	- 23.2	.002915	.32
	.5015	1.1768	88.6	-118.8	.003075	12.06
	.5894	.9810	115.5	-119.1	.003597	24.00
	.7612	.8931	130.4	-104.7	READINGS	INVALID
	NO READING		READINGS	INVALID		
	.9271	1.9141	37.1	174.0	.003048	2.09
	.9930	1.4386	103.3	-145.7	.002734	14.59
	1.0310	1.2647	130.2	-155.3	.002437	20.66
	1.1349	1.1548	171.8	-154.6	READINGS	INVALID
	NO READING		READINGS	INVALID		
	1.3067	1.9441	59.8	166.9	.002849	5.09
	1.5165	1.5385	96.0	166.0	.002777	12.79
	1.6903	1.3506	103.6	141.8	.002605	13.99
	1.8661	1.1888	130.5	138.0	READINGS	INVALID
	NO READING		READINGS	INVALID		
	1.9540	1.9740	44.2	164.7	.002849	2.79
	2.1459	1.5025	69.1	141.8	.002777	6.63
	2.2937	1.2368	138.6	134.4	.002605	25.01
	2.4496	1.0050	115.4	117.0	READINGS	INVALID
	NO READING		READINGS	INVALID		

Table D-I. Front Smoke Grid Calculations - 1/4 Inch Entrance with Baffle Spaced 1/4 Inch (Continued)

Model 32-A, Shot 315

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
1389.40	.5417	1.8654	16.1	-172.9	.003002	.39
	.4505	1.1243	92.3	-141.1	.003086	13.14
	.5592	.9282	113.8	-105.3	.003618	23.43
	.7379	.8117	136.1	- 94.2	READINGS	INVALID
	NO READING		READINGS	INVALID		
	.8893	1.9223	62.0	165.1	.002816	5.41
	.9068	1.3903	120.9	-149.2	.002710	19.79
	.9709	1.2233	130.0	-137.5	.002306	19.49
	1.0388	1.1107	180.1	-148.6	READINGS	INVALID
	NO READING		READINGS	INVALID		
	1.2718	1.9340	87.8	180.0	.003014	11.63
	1.4602	1.5398	93.9	178.8	.003209	14.13
	1.6272	1.3748	127.7	170.1	.002587	21.08
	1.7767	1.2155	170.6	159.4	READINGS	INVALID
	NO READING		READINGS	INVALID		
	1.9068	1.9534	79.5	-168.4	.003014	9.52
	2.0854	1.5049	89.1	146.0	.003209	12.75
	2.2155	1.2718	99.2	130.1	.002587	12.72
	2.3942	1.0505	108.9	116.1	READINGS	INVALID
	NO READING		READINGS	INVALID		
1431.10	.5435	1.9161	37.7	168.1	.002956	2.10
	.4296	1.1189	74.2	-130.8	.002690	7.42
	.5594	.8711	84.7	-105.9	.003947	14.17
	.7512	.7572	116.8	- 85.2	READINGS	INVALID
	NO READING		READINGS	INVALID		
	.8671	1.9301	69.9	178.4	.002857	6.97
	.8891	1.3766	112.5	-144.1	.002579	16.34
	.9351	1.1768	137.2	-136.1	.002526	23.79
	.9810	1.0609	153.0	-140.7	READINGS	INVALID
	NO READING		READINGS	INVALID		
	1.2188	1.9441	138.2	175.2	.002981	28.49
	1.4226	1.5405	124.2	178.2	.002721	20.99
	1.5644	1.3726	162.0	173.8	.002464	32.32
	1.7063	1.2488	226.8	165.1	READINGS	INVALID
	NO READING		READINGS	INVALID		
	1.8761	1.9580	121.4	167.[illegible]	.002981	21.98
	2.0719	1.5524	127.6	153.8	.002721	22.13
	2.2298	1.3127	80.9	120.3	.002464	8.06
	2.4016	1.[illegible]029	122.2	126.0	READINGS	INVALID
	NO READING		READINGS	INVALID		

Table D-I. Front Smoke Grid Calculations - 1/4 Inch Entrance with Baffle Spaced 1/4 Inch (Continued)

Model 32-A, Shot 315

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
1472.80	.5049	1.8932	44.6	- 63.4	.003032	3.02
	.4019	1.0680	77.9	- 91.5	.003063	9.29
	.5359	.8466	76.5	- 82.5	.003846	11.26
	.7476	.6951	154.5	- 63.1	READINGS	INVALID
	NO READING		READINGS	INVALID		
	.8194	1.9243	40.1	174.3	.002866	2.31
	.8155	1.3243	92.0	-130.6	.002674	11.32
	.8718	1.1292	136.8	-123.7	.002784	26.03
	.9204	1.0136	11[illegible].7	-118.9	READINGS	INVALID
	NO READING		READINGS	INVALID		
	1.1340	1.9456	61.6	155.1	.002950	5.60
	1.3359	1.5437	96.0	-176.4	.002911	13.42
	1.4660	1.3922	133.0	172.2	.002306	20.39
	1.5573	1.2738	169.0	165.6	READINGS	INVALID
	NO READING		READINGS	INVALID		
	1.7883	1.9806	96.5	162.3	.002950	14.31
	1.9709	1.5612	124.5	164.2	.002911	22.56
	2.1748	1.3417	139.4	142.0	.002306	22.40
	2.3223	1.1495	99.1	115.0	READINGS	INVALID
	NO READING		READINGS	INVALID		
1514.50	.563[illegible]	1.8761	30.7	18.4	.003284	1.55
	.4276	1.0410	29.6	-113.2	.002957	1.29
	.5694	.7952	84.2	- 75.3	.003691	13.06
	.8212	.6194	124.0	- 72.7	READINGS	INVALID
	NO READING		READINGS	INVALID		
	.8272	1.9341	43.1	172.2	.002727	2.53
	.8292	1.3067	67.2	-136.2	.002603	5.88
	.8591	1.0629	121.6	-114.5	.002832	20.92
	.9271	.9630	112.0	- 99.0	READINGS	INVALID
	NO READING		READINGS	INVALID		
	1.1628	1.9700	58.3	-176.2	.002988	5.08
	1.3267	1.5345	101.7	-166.8	.003140	16.22
	1.4326	1.3906	142.0	-176.1	.002240	22.57
	1.5425	1.2907	144.4	173.8	READINGS	INVALID
	NO READING		READINGS	INVALID		
	1.7822	1.9880	66.4	-173.3	.002988	6.59
	1.9520	1.5864	112.3	161.9	.003140	19.79
	2.1199	1.3986	176.9	158.8	.002240	35.05
	2.3596	1.1928	133.9	141.5	READINGS	INVALID
	NO READING		READINGS	INVALID		

Table D-I. Front Smoke Grid Calculations - 1/4 Inch Entrance with Baffle Spaced 1/4 Inch (Continued)

Model 32-A, Shot 315

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
1556.20	.5340	1.9029	32.5	132.5	.003402	1.80
	.3903	1.0408	56.3	-117.5	.002815	4.45
	.5573	.7650	78.0	- 92.9	.003806	11.57
	.7845	.5767	READINGS	INVALID		
	NO READING		READINGS	INVALID		
	.7767	1.9301	58.1	-164.1	.002933	4.96
	.7670	1.2777	120.4	-130.3	.002697	19.55
	.8214	1.0175	86.7	-104.7	.002958	11.11
	.9029	.9029	107.0	- 98.6	READINGS	INVALID
	NO READING		READINGS	INVALID		
	1.0757	1.9417	110.3	-174.8	.003035	18.45
	1.2369	1.5204	127.3	-166.4	.003126	25.35
	1.3243	1.3825	144.5	-168.3	.002484	25.92
	1.4136	1.2893	185.2	-172.6	READINGS	INVALID
	NO READING		READINGS	INVALID		
	1.7223	1.9728	116.7	-167.2	.003035	20.67
	1.8641	1.5961	137.2	171.6	.003126	29.43
	2.0097	1.4058	164.2	166.6	.002484	33.46
	2.2175	1.2330	226.0	162.5	READINGS	INVALID
	NO READING		READINGS	INVALID		
1597.90	.5415	1.9001	34.9	180.0	.003410	2.08
	.4016	.9910	65.9	-137.4	.002905	6.31
	.5654	.7173	81.7	- 94.1	READINGS	INVALID
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	.7712	1.9161	74.1	-174.0	.002839	7.80
	.7512	1.2148	136.2	-125.7	.002783	25.82
	.8372	.9790	99.2	-120.6	.003247	15.96
	.9111	.8571	111.7	-110.3	READINGS	INVALID
	NO READING		READINGS	INVALID		
	1.0529	1.9600	104.9	176.8	.003098	17.05
	1.2028	1.5045	148.8	-168.0	.003220	35.65
	1.2907	1.3626	138.7	-159.5	.002327	22.40
	1.3586	1.2667	181.0	-162.5	READINGS	INVALID
	NO READING		READINGS	INVALID		
	1.6683	1.9620	175.0	176.2	.003098	47.43
	1.8162	1.6064	167.1	167.3	.003220	44.96
	1.9600	1.4366	168.0	166.0	.002327	32.84
	2.1439	1.2607	180.4	163.1	READINGS	INVALID
	NO READING		READINGS	INVALID		

Table D-I. Front Smoke Grid Calculations - 1/4 Inch Entrance with Baffle Spaced 1/4 Inch (Continued)

Model 32-A, Shot 315

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
1639.60	.4990	1.9029	46.1	-107.7	.003468	3.68
	.3417	.9961	58.0	-116.6	.002941	4.95
	.5515	.6835	62.5	- 73.3	READINGS	INVALID
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	.7029	1.9223	72.7	-164.1	.002976	7.86
	.6874	1.1670	91.8	-135.9	.002789	11.74
	.7709	.9320	119.7	-109.7	.003301	23.26
	.8641	.7981	119.2	- 81.3	READINGS	INVALID
	NO READING		READINGS	INVALID		
	.9709	1.9476	76.5	164.9	.003152	9.23
	1.0913	1.4893	145.0	-157.3	.002866	30.12
	1.1942	1.3340	143.9	-150.9	.002291	23.71
	1.2408	1.2350	159.0	-151.5	READINGS	INVALID
	NO READING		READINGS	INVALID		
	1.5476	1.9845	156.0	163.7	.003152	38.37
	1.7010	1.6330	152.1	176.2	.002866	33.13
	1.8466	1.4466	175.1	172.3	.002291	35.11
	2.0447	1.2854	270.2	161.0	READINGS	INVALID
	NO READING		READINGS	INVALID		
1661.30	.5275	1.8561	53.7	- 77.5	.004007	5.77
	.3756	.9391	65.7	-109.0	.002952	6.36
	.5934	.6573	26.4	- 72.9	READINGS	INVALID
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	.7013	1.8981	38.4	-135.0	.002901	2.14
	.6853	1.1508	76.5	-125.7	.002137	7.77
	.7972	.8671	83.5	- 92.7	.003193	11.14
	.9291	.7393	116.6	- 71.6	READINGS	INVALID
	NO READING		READINGS	INVALID		
	.9790	1.9800	65.0	162.6	.002918	6.17
	1.0689	1.4486	117.6	-142.4	.003123	21.59
	1.1648	1.2927	168.5	-141.5	.002964	42.06
	1.2188	1.1908	146.1	-140.4	READINGS	INVALID
	NO READING		READINGS	INVALID		
	1.5185	2.0060	127.9	170.4	.002918	23.87
	1.6643	1.6164	161.8	-174.5	.003123	40.86
	1.7862	1.4585	217.9	171.3	.002964	70.34
	1.8881	1.3487	312.6	164.2	READINGS	INVALID
	NO READING		READINGS	INVALID		

Table D-I. Front Smoke Grid Calculations - 1/4 Inch Entrance with Baffle Spaced 1/4 Inch (Continued)

Model 32-A, Shot 315

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
1723.00	.5107	1.8505	RE DINGS	INVALID		
	.3204	.9340	21.6	-129.7	.003078	1.01
	.5592	.6583	46.6	- 80.1	READINGS	INVALID
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	.6757	1.8951	26.3	171.3	.003130	1.08
	.6427	1.1049	90.8	-123.3	.003042	12.54
	.7670	.8485	84.1	- 85.9	.003378	11.93
	.9010	.6874	132.7	- 74.3	READINGS	INVALID
	NO READING		READINGS	INVALID		
	.9087	1.9670	99.1	-170.7	.003065	15.06
	.9981	1.4175	94.7	-152.4	.003282	14.70
	1.0621	1.2291	139.6	-143.8	.003018	28.97
	1.1282	1.1417	150.3	-129.6	READINGS	INVALID
	NO READING		READINGS	INVALID		
	1.4214	2.0058	155.5	164.4	.003065	37.06
	1.5398	1.6175	137.8	-178.3	.003282	31.16
	1.6311	1.4796	186.1	176.3	.003018	52.23
	1.7427	1.3709	192.9	173.5	READINGS	INVALID
	NO READING		READINGS	INVALID		
1764.70	NO READING		READINGS	INVALID		
	.3590	.9191	48.2	-130.1	.003005	3.49
	.5914	.6114	68.1	-110.0	READINGS	INVALID
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	.6753	1.9021	63.4	-156.6	.003187	6.41
	.6354	1.0749	93.5	-138.4	.002720	11.88
	.8032	.7832	94.4	- 99.5	.003020	13.46
	.9650	.6114	READINGS	INVALID		
	NO READING		READINGS	INVALID		
	.8811	1.9640	109.8	-171.9	.002894	17.43
	.9850	1.4046	143.6	-141.6	.003285	33.89
	1.0529	1.2108	145.5	-132.8	.002693	28.51
	1.1229	1.0749	173.5	-126.4	READINGS	INVALID
	NO READING		READINGS	INVALID		
	1.3686	2.0480	162.4	172.5	.002894	38.18
	1.5265	1.6124	162.7	-171.6	.003285	43.49
	1.6004	1.4705	186.3	-171.6	.002693	46.73
	1.6963	1.3706	181.9	-172.6	READINGS	INVALID
	NO READING		READINGS	INVALID		

Table D-I. Front Smoke Grid Calculations - 1/4 Inch Entrance with Baffle Spaced 1/4 Inch (Continued)

Model 32-A, Shot 315

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
1806.40	NO READING		READINGS INVALID			
	.2893	.8971	58.2	-121.0	.002992	5.07
	.5359	.5942	41.9	- 90.0	READINGS INVALID	
	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			
	.6175	1.8699	29.7	-137.7	.003457	1.52
	.5728	1.0427	88.7	-121.2	.002999	11.79
	.7515	.7553	114.9	-107.2	READINGS INVALID	
	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			
	.8000	1.9515	52.8	-164.9	.002956	4.27
	.8854	1.3282	158.5	-130.9	.003328	41.81
	.9631	1.1223	173.4	-118.9	.002736	41.11
	1.0252	1.0019	155.4	-110.3	READINGS INVALID	
	NO READING		READINGS INVALID			
	1.2602	2.0272	126.2	-175.5	.002956	24.28
	1.3786	1.5942	178.2	-167.1	.003328	52.85
	1.4466	1.4524	171.4	-165.2	.002736	40.20
	1.5631	1.3476	148.4	-160.3	READINGS INVALID	
	NO READING		READINGS INVALID			
1848.10	NO READING		READINGS INVALID			
	.3297	.8691	READINGS INVALID			
	.5914	.5694	75.8	- 39.8	READINGS INVALID	
	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			
	.6533	1.8821	19.8	-168.7	.003522	.69
	.5894	.9990	69.3	-101.3	.002833	6.79
	.7692	.6733	66.8	- 64.2	READINGS INVALID	
	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			
	.8292	1.9500	15.5	180.0	.003003	.36
	.8811	1.2847	101.9	-130.4	.003087	16.01
	.9690	1.0589	100.6	-109.1	.002441	12.36
	1.0689	.9291	130.0	- 90.0	READINGS INVALID	
	NO READING		READINGS INVALID			
	1.2408	2.0390	92.8	-169.2	.003003	12.94
	1.3526	1.5724	119.0	-155.9	.003087	21.85
	1.4346	1.4266	115.5	-155.2	.002441	16.27
	1.5564	1.3207	READINGS INVALID			
	NO READING		READINGS INVALID			

Table D-I. Front Smoke Grid Calculations - 1/4 Inch Entrance with Baffle Spaced 1/4 Inch (Continued)

Model 32-A, Shot 315

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
1889.80	NO READING		READINGS	INVALID		
	NO READING					
	.5942	.5456	READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	.5981	1.8660	38.4	-171.0	.003572	2.63
	.5592	.9746	65.2	-130.0	.003131	6.65
	.7806	.6951	READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	.7845	1.9515	27.2	-162.9	.003119	1.15
	.8194	1.2505	103.6	-117.6	.003244	17.40
	.9301	1.0272	69.4	-113.7	READINGS	INVALID
	1.0252	.8718	READINGS	INVALID		
	NO READING		READINGS	INVALID		
	1.1689	2.0097	79.6	-162.[illegible]	.003119	9.87
	1.2699	1.5456	119.1	-145.2	.003244	22.99
	1.3417	1.4039	162.3	-148.1	READINGS	INVALID
	NO READING					
	NO READING		READINGS	INVALID		

Table D-II. Rear Smoke Grid Calculations - 1/4 Inch Entrance with Line Spaced 1/4 Inch

Model 32-A, Shot 317

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
220.80	2.4806	2.0252	50.1	- 4.6	.002383	2.99
	2.4981	1.2694	55.3	49.4	.002209	3.37
	2.4884	.8953	39.4	30.5	.002424	1.88
	2.4671	.5329	29.1	15.9	.002308	.98
	2.4593	.0000	30.0	.0	.002308	1.04
	2.8159	2.0426	15.2	66.8	.002172	.25
	2.8314	1.2752	24.1	- 65.6	.002129	.62
	2.8372	.9070	12.6	- 71.6	.002438	.19
	2.8314	.6066	10.0	- 36.9	.002309	.12
	2.8295	.0000	16.0	180.0	.002309	.29
	3.3566	2.0891	23.3	- 31.0	.002326	.63
	3.2713	1.4050	31.3	- 63.4	.002246	1.10
	3.2403	.9903	42.0	- 87.3	.002346	2.07
	3.2171	.6066	14.5	-164.1	.002259	.24
	3.2112	.0000	12.0	.0	.002259	.16
	3.6938	2.1202	7.2	- 56.3	.002326	.06
	3.6221	1.4089	14.1	81.9	.002246	.22
	3.6163	1.0368	8.5	- 45.0	.002346	.08
	3.6085	.7229	14.1	- 98.1	.002[illegible]	.23
	3.6066	.0000	.0	.0	.002259	.00
262.20	2.5251	2.0010	33.2	- 28.1	.002505	1.38
	2.5390	1.2725	45.7	- 39.8	.002440	2.55
	2.5270	.9052	38.9	17.5	.002431	1.84
	2.5012	.5241	43.0	- 2.6	.002583	2.38
	2.4933	.0000	54.6	.0	.002583	3.85
	2.8486	2.0407	63.5	- 10.6	.002257	4.55
	2.8566	1.2625	48.2	- 21.4	.002319	2.69
	2.8506	.9171	29.0	- 42.3	.002582	1.09
	2.8467	.5935	31.5	- 7.1	.002395	1.18
	2.8189	.0000	35.1	.0	.002395	1.48
	3.3509	2.0764	13.8	- 81.9	.002309	.22
	3.2734	1.3638	33.3	- 69.4	.002319	1.29
	3.2496	.9648	13.8	45.0	.002618	.25
	3.2000	.6094	4.4	63.4	.002343	.02
	3.2119	.0000	11.7	180.0	.002343	.16
	3.6903	2.1002	9.9	- 78.7	.002309	.11
	3.6149	1.3896	21.8	63.4	.002319	.55
	3.5970	.9866	28.1	-123.7	.002618	1.04
	3.5931	.6908	26.5	-126.0	.002343	.82
	3.5931	.0000	27.3	180.0	.002343	.87

Table D-II. Rear Smoke Grid Calculations - 1/4 Inch Entrance with Baffle Spaced 1/4 Inch (Continued)

Model 32-A, Shot 317

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
303.60	2.5097	2.0097	14.1	- 45.0	.002212	.22
	2.5329	1.2403	36.7	- 29.4	.002350	1.58
	2.5252	.9070	52.7	- 24.6	.002519	3.50
	2.5097	.5310	61.1	- 11.3	.002419	4.52
	2.5136	.0000	59.9	.0	.002419	4.34
	2.8779	2.0310	40.0	- 2.9	.002364	1.89
	2.8760	1.2578	53.9	.0	.002392	3.48
	2.8585	.8876	58.0	- 2.0	.002613	4.39
	2.8624	.6027	74.2	- 4.6	.002562	7.05
	2.8643	.0000	101.9	.0	.002562	13.30
	3.3585	2.0756	43.8	24.2	.002370	2.28
	3.2829	1.3740	53.8	71.8	.002338	3.38
	3.2500	1.0000	57.9	46.4	.002467	4.14
	3.2190	.6105	64.2	5.4	.002395	4.94
	3.1996	.0000	55.9	.0	.002395	3.75
	3.6957	2.1105	14.1	45.0	.002370	.24
	3.6318	1.4283	55.1	43.5	.002338	3.55
	3.6008	1.0155	READINGS	INVALID		
	3.5930	.7016	65.4	12.3	.002395	5.13
	3.5795	.0000	28.0	.0	.002395	.94
345.00	2.5350	1.9911	74.3	4.5	.002304	6.37
	2.5707	1.2546	91.2	41.5	.002306	9.59
	2.5747	.8834	63.2	8.9	.002357	4.70
	2.5608	.5122	80.3	25.9	.002417	7.79
	2.5529	.0000	56.6	.0	.002417	3.87
	2.8883	2.0387	88.1	5.1	.002271	8.82
	2.9122	1.2625	83.3	20.6	.002463	8.55
	2.9082	.9151	88.1	27.7	.002524	9.80
	2.9201	.5876	72.8	- 7.7	.002587	6.86
	2.9201	.0000	74.1	.0	.002587	7.10
	3.3906	2.0943	64.4	- 1.7	.002504	5.19
	3.3231	1.3836	71.5	25.9	READINGS	INVALID
	3.2893	1.0065	71.0	20.9	READINGS	INVALID
	3.2635	.6154	85.8	17.2	.002403	8.84
	3.2675	.0000	READINGS	INVALID		
	3.7002	2.1102	32.0	37.6	.002504	1.28
	3.6546	1.4273	46.0	- 53.6	READINGS	INVALID
	NO READING					
	3.6566	.7047	56.6	.0	.002403	3.84
	3.6208	.0000	60.5	.0	.002403	4.39

Table D-II. Rear Smoke Grid Calculations - 1/4 Inch Entrance with Baffle Spaced 1/4 Inch (Continued)

Model 32-A, Shot 317

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
366.40	2.5833	2.0155	62.7	9.2	.002254	4.44
	2.6008	1.3004	41.2	14.0	.002447	1.82
	2.5872	.9167	63.6	43.7	.002371	4.79
	2.5814	.3659	104.7	48.1	.002311	12.66
	2.5698	.0000	READINGS	INVALID		
	2.9651	2.0388	34.5	- 10.0	.002565	1.53
	2.9535	1.2868	16.1	- 7.1	.002487	.32
	2.9360	.9283	33.3	57.3	.002433	1.35
	2.9341	.5930	24.4	55.0	READINGS	INVALID
	2.9380	.0000	10.0	.0	READINGS	INVALID
	3.4225	2.0736	8.9	- 26.6	.002603	.10
	3.3469	1.4050	4.0	.0	.002627	.02
	3.3159	1.0252	43.0	68.2	.002591	2.40
	3.3004	.6357	20.6	29.1	READINGS	INVALID
	NO READING					
	3.7209	2.1298	7.2	146.3	.002603	.07
	3.6589	1.3915	21.2	-131.2	.002627	.59
	3.6492	1.0194	READINGS	INVALID		
	3.6492	.7016	41.2	157.2	READINGS	INVALID
	3.6395	.0000	10.0	180.0	READINGS	INVALID
427.80	2.5965	2.0010	11.9	- 80.5	.002502	.16
	2.6104	1.2645	42.1	- 76.6	.002738	2.43
	2.6203	.9270	33.1	- 45.0	.002777	1.52
	2.6303	.5896	32.5	- 32.7	READINGS	INVALID
	NO READING					
	2.9221	2.0328	19.5	- 90.0	.002390	.45
	2.9280	1.2605	8.0	-104.0	.002764	.09
	2.9261	.9429	5.9	180.0	.002392	.04
	2.9340	.6074	6.2	108.4	.002525	.05
	2.9300	.0000	9.8	180.0	.002525	.12
	3.3985	2.0903	32.7	162.6	.002604	1.39
	3.3270	1.3836	21.8	-116.6	.002894	.69
	3.3052	1.0462	21.5	- 90.0	.002559	.59
	3.2814	.6253	27.6	171.9	.002604	.99
	3.2734	.0000	READINGS	INVALID		
	3.6943	2.1141	22.2	- 52.1	.002604	.64
	3.6407	1.4114	27.4	85.9	.002694	1.08
	3.6228	1.0481	41.3	109.3	.002559	2.19
	3.6189	.7206	17.6	180.0	.002604	.40
	3.6109	.0000	23.4	180.0	.002604	.71

Table D-II. Rear Smoke Grid Calculations - 1/4 Inch Entrance with Baffle Spaced 1/4 Inch (Continued)

Model 32-A, Shot

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
469.20	2.5853	2.0039	12.6	71.6	.002269	.18
	2.6105	1.2597	13.4	26.6	.002366	.21
	2.6105	.8934	28.6	- 65.2	.002628	1.08
	2.6085	.5484	34.0	- 93.4	.002615	1.51
	2.6085	.0000	READINGS INVALID			
	2.9651	2.0194	15.2	- 23.2	.002652	.31
	2.9516	1.2791	14.5	15.9	.002501	.26
	2.9302	.9283	18.1	- 6.3	.002622	.43
	2.9322	.5989	5.7	45.0	.002671	.04
	2.9283	.0000	14.0	.0	.002671	.26
	3.3915	2.0833	6.3	71.6	.002414	.05
	3.3372	1.3857	6.3	- 18.4	.002696	.05
	3.3159	1.0039	22.1	- 84.8	.002580	.63
	3.2733	.6395	26.3	81.3	.002398	.83
	3.2384	.0000	14.0	.0	.002398	.23
	3.7345	2.1124	36.2	6.3	.002414	1.58
	3.6609	1.4186	34.9	13.2	.002696	1.64
	3.6357	1.0581	30.2	- 7.6	.002580	1.18
	3.6318	.7016	34.0	- 61.9	.002398	1.38
	3.6163	.0000	6.0	.0	.002398	.04
510.60	2.6005	2.0129	5.9	180.0	.002464	.04
	2.6223	1.2705	14.9	113.2	.002555	.28
	2.6323	.9012	8.0	166.0	.002725	.09
	2.6283	.5558	16.1	76.0	.002620	.34
	2.6223	.0000	5.9	180.0	.002620	.04
	2.9360	2.0268	52.0	167.0	.002448	3.32
	2.9419	1.2645	15.7	119.7	.002739	.34
	2.9439	.9409	11.9	- 99.5	.002641	.19
	2.9380	.6114	11.4	- 31.0	.002464	.16
	2.9439	.0000	21.5	.0	.002464	.57
	3.4005	2.0963	29.5	-172.4	.002359	1.03
	3.3330	1.3816	8.3	-135.0	.002551	.09
	3.3072	1.0243	39.2	84.3	.002483	1.91
	3.2854	.6511	35.2	- 19.4	.002594	1.60
	3.2873	.0000	46.8	.0	.002594	2.84
	3.7300	2.1181	15.2	129.8	.002359	.27
	3.6744	1.4194	18.5	-108.4	.002551	.44
	3.6526	1.0442	31.5	- 60.3	.002483	1.23
	3.6347	.6908	9.9	- 11.3	.002594	.13
	3.6169	.0000	11.7	.0	.002594	.15

Table D-II. Rear Smoke Grid Calculations - 1/4 Inch Entrance with Baffle Spaced 1/4 Inch (Continued)

Model 32-A, Shot

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
552.00	2.5795	2.0039	12.2	- 80.5	.002446	.18
	2.6047	1.2733	26.7	- 13.0	.002235	.79
	2.6027	.8953	15.6	50.2	.002651	.32
	2.6124	.5640	19.7	24.0	.002467	.48
	2.6027	.0000	14.0	.0	.002467	.24
	2.9147	2.0310	10.8	111.8	.002553	.15
	2.9438	1.2926	19.8	45.0	.002535	.50
	2.9283	.9167	28.3	- 45.0	.002347	.94
	2.9419	.5930	41.0	- 43.0	.002518	2.12
	2.9496	.0000	20.0	.0	.002518	.50
	3.3624	2.0795	15.2	-113.2	.002291	.27
	3.3314	1.3798	28.0	- 85.9	.002756	1.08
	3.3198	1.0426	36.5	- 80.5	.002516	1.67
	3.3062	.6279	42.3	- 70.7	.002630	2.36
	3.2849	.0000	14.0	180.0	.002630	.26
	3.7248	2.1240	8.0	- 89.9	.002291	.07
	3.6550	1.4012	10.2	-168.7	.002756	.14
	3.6512	1.0310	26.0	- 90.0	.002516	.85
	3.6415	.6996	24.1	24.4	.002630	.77
	3.6279	.0000	2.0	.0	.002630	.01
593.40	2.6025	2.0010	13.8	45.0	.002541	.24
	2.6481	1.2645	10.5	68.2	.002507	.14
	2.6422	.9132	20.7	48.8	.002580	.55
	2.6462	.5638	17.4	116.6	.002592	.39
	2.6362	.0000	13.7	.0	.002592	.24
	2.9320	2.0367	3.9	160.0	.002458	.02
	2.9558	1.2784	2.8	-135.0	.002658	.01
	2.9638	.9211	37.5	62.1	.002697	1.90
	2.9677	.5836	15.7	119.7	.002809	.35
	2.9638	.0000	7.8	180.0	.002809	.09
	3.3945	2.0824	15.7	20.6	.002378	.33
	3.3350	1.3538	14.1	56.3	.002512	.25
	3.3132	.9886	19.5	-143.1	.002584	.49
	3.2993	.6114	45.2	-172.6	.002577	2.64
	3.2734	.0000	21.5	180.0	.002577	.59
	3.7300	2.1102	3.9	180.0	.002578	.02
	3.6645	1.4174	35.6	80.5	.002512	1.59
	3.6526	1.0184	13.1	-153.4	.002584	.22
	3.6566	.7007	26.5	144.0	.002577	.91
	3.6189	.0000	9.8	180.0	.002577	.12

Table D-II. Rear Smoke Grid Calculations - 1/4 Inch Entrance with Baffle Spaced 1/4 Inch (Continued)

Model 32-A, Shot 317

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
634.80	2.5891	2.0136	.0	.0	.002518	.00
	2.6085	1.2829	24.3	170.5	.002363	.70
	2.6163	.9109	35.7	116.6	.002575	1.64
	2.6047	.5795	8.2	104.0	.002483	.08
	2.6163	.0000	2.0	.0	.002483	.00
	2.9109	2.0310	20.6	-119.1	.002475	.52
	2.9419	1.2907	12.0	180.0	.002657	.19
	2.9457	.9496	58.8	99.8	.002565	4.43
	2.9341	.6066	28.4	129.3	.002695	1.09
	2.9419	.0000	16.0	180.0	.002695	.34
	3.3779	2.0853	7.2	-123.7	.002439	.06
	3.3391	1.3915	34.5	80.0	.002530	1.50
	3.3043	1.0310	70.4	96.5	.002529	6.26
	3.2616	.6221	25.4	135.0	.002476	.80
	3.2636	.0000	12.0	.0	.002476	.18
	3.7209	2.1240	17.2	-125.5	.002439	.36
	3.6609	1.4360	26.9	-132.0	.002530	.91
	3.6395	1.0252	18.1	173.7	.002529	.41
	3.6202	.7151	24.3	170.5	.002476	.73
	3.6182	.0000	6.0	180.0	.002476	.04
676.20	2.6025	2.0010	21.5	-174.8	.002577	.60
	2.6243	1.2685	12.3	18.4	.002769	.21
	2.6263	.9449	15.2	39.8	.002408	.28
	2.6442	.5717	19.5	- 36.9	.002665	.51
	2.6382	.0000	31.2	.0	.002665	1.30
	2.9221	2.0189	9.9	- 11.3	.002487	.12
	2.9439	1.2784	30.5	50.2	.002991	1.39
	2.9538	.9787	17.7	83.7	.002404	.38
	2.9499	.6055	33.6	54.5	.002603	1.47
	2.9479	.0000	19.5	.0	.002603	.50
	3.3906	2.0764	19.9	- 11.3	.002529	.50
	3.3409	1.3876	42.8	65.8	.002836	2.59
	3.3052	1.0581	38.7	49.1	.002466	1.85
	3.2814	.6293	51.8	19.8	.002611	3.51
	3.2854	.0000	23.4	.0	.002611	.72
	3.7201	2.0963	23.8	- 55.0	.002529	.72
	3.6467	1.3975	31.5	- 68.2	.002836	1.41
	3.6347	1.0203	17.4	26.6	.002466	.38
	3.6328	.7047	25.4	- 22.6	.002611	.84
	3.6129	.0000	31.2	.0	.002611	1.27

Table D-II. Rear Smoke Grid Calculations - 1/4 Inch Entrance with Baffle Spaced 1/4 Inch (Continued)

Model 32-A, Shot 317

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
717.60	2.5678	2.0116	2.8	45.0	.002422	.01
	2.6202	1.2868	26.8	63.4	.002375	.85
	2.6279	.9205	35.3	- 42.7	.002546	1.59
	2.6202	.5678	20.1	84.3	.002474	.50
	2.6473	.0000	10.0	.0	.002474	.12
	2.9205	2.0291	28.0	.0	.002573	1.01
	2.9612	1.3140	19.0	71.6	.002540	.46
	2.9477	.9671	52.6	- 81.3	.002359	3.26
	2.9535	.6337	22.6	45.0	.002475	.63
	2.9612	.0000	18.0	.0	.002475	.40
	3.3973	2.0814	17.1	20.6	.002520	.37
	3.3566	1.4302	12.0	.0	.002662	.19
	3.3295	1.0601	28.4	- 50.7	.002538	1.02
	3.3101	.6395	31.0	14.9	.002527	1.22
	3.2868	.0000	17.0	.0	.002527	.18
	3.7345	2.1047	24.4	35.0	.002520	.75
	3.6725	1.4070	28.4	50.7	.002662	1.07
	3.6550	1.0329	31.6	18.4	.002538	1.27
	3.6434	.7054	23.4	20.0	.002527	.69
	3.6492	.0000	20.0	.0	.002527	.50
759.00	2.6045	2.0030	3.9	.0	.002570	.02
	2.6362	1.2923	9.9	168.7	.002422	.12
	2.6521	.9211	35.7	100.0	.002853	1.62
	2.6462	.5916	18.0	40.6	.002497	.40
	2.6481	.0000	.0	.0	.002497	.00
	2.9499	2.0189	7.0	-146.3	.002533	.06
	2.9499	1.2963	27.2	-111.0	.002548	.94
	2.9618	.9270	18.0	- 49.4	.002635	.43
	2.9658	.6213	6.2	108.4	.002524	.05
	2.9658	.0000	.0	.0	.002524	.00
	3.4065	2.0824	16.1	.0	.002505	.32
	3.3529	1.3876	33.2	- 3.4	.002644	1.46
	3.3231	1.0362	29.8	-121.6	.002550	1.13
	3.3112	.6372	34.9	-116.6	.002584	1.57
	3.2973	.0000	7.8	180.0	.002584	.08
	3.7400	2.1102	19.9	-168.7	.002505	.50
	3.6645	1.4194	16.1	-104.0	.002644	.34
	3.6645	1.0303	33.4	- 96.7	.002550	1.42
	3.6546	.7127	12.3	- 71.6	.002584	.20
	3.6328	.0000	.0	.0	.002584	.00

Table D-II. Rear Smoke Grid Calculations - 1/4 Inch Entrance with Baffle Spaced 1/4 Inch (Continued)

Model 32-A, Shot 317

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
800.40	2.5717	2.0116	14.1	81.9	.002431	.24
	2.6105	1.2888	24.3	9.5	.002459	.73
	2.6221	.9535	44.2	71.6	.002529	2.47
	2.6337	.5795	46.0	- 2.5	.002502	2.65
	2.6473	.0000	16.0	.0	.002502	.32
	2.9147	2.0252	25.3	71.6	.002395	.76
	2.9516	1.2888	14.0	.0	.002668	.26
	2.9593	.9535	46.5	64.5	.002543	2.75
	2.9516	.6395	34.0	.0	.002606	1.50
	2.9612	.0000	2.0	.0	.002606	.01
	3.4128	2.0853	24.1	- 48.4	.002581	.75
	3.3547	1.3973	20.6	60.9	.002588	.55
	3.3140	1.0349	4.0	.0	.002475	.02
	3.2946	.6085	33 1	- 65.0	.002511	1.37
	3.2791	.0000	4.0	180.0	.002511	.02
	3.7151	2.1008	25.0	61.4	.002581	.81
	3.6686	1.3915	24.1	4.8	.002588	.75
	3.6512	1.0000	37.7	- 58.0	.002475	1.76
	3.6473	.6938	4.5	- 63.4	.002511	.03
	3.6492	.0000	8.0	180.0	.002511	.08
841.60	2.6065	2.0169	41.0	- 25.3	.002524	2.12
	2.6600	1.2963	47.5	9.5	.002731	3.07
	2.6660	.9628	54.9	6.1	.002530	3.82
	2.6918	.5896	79.0	15.8	.002614	8.15
	2.6640	.0000	58.5	.0	.002614	4.47
	2.9578	2.0427	30.3	- 14.9	.002541	1.16
	2.9638	1.2963	18.4	- 32.0	.002704	.46
	2.9816	.9687	24.7	- 18.4	.002511	.76
	2.9995	.6213	40.2	- 22.8	.002684	2.17
	2.9677	.0000	29.3	.0	.002684	1.15
	3.4223	2.0645	19.5	-143.1	.002503	.48
	3.3620	1.4055	26.5	107.1	.002357	.83
	3.3270	1.0362	17.7	- 6.3	.002530	.39
	3.3251	.6074	42.2	33.7	.002726	2.43
	3.2933	.0000	44.9	.0	.002726	2.74
	3.7519	2.1320	47.5	9.5	.002503	2.[illegible]
	3.6883	1.4215	41.0	92.7	.002357	1.98
	3.6844	.9985	18.4	58.0	.002530	.43
	3.6566	.7087	16.7	69.4	.002726	.38
	3.6248	.0000	7.8	180.0	.002726	.08

Table D-II. Rear Smoke Grid Calculations - 1/4 Inch Entrance with Baffle Spaced 1/4 Inch (Continued)

Model 32.A, Shot 317

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
883.20	2.6085	1.9942	58.2	- 22.2	.002620	4.44
	2.6570	1.2965	46.6	46.7	.002713	2.95
	2.6764	.9593	60.1	3.8	.002862	5.16
	2.7093	.6008	46.6	31.0	.002795	3.03
	2.7054	.0000	READINGS	INVALID		
	2.9438	2.0174	39.4	- 24.0	.002660	2.06
	2.9671	1.2791	72.7	69.1	.002646	7.00
	2.9826	.9457	33.9	45.0	.002624	1.51
	2.9884	.6240	40.5	20.2	.002538	2.08
	2.9903	.0000	81.9	.0	.002538	8.52
	3.3973	2.0736	55.4	25.6	.002462	3.78
	3.3469	1.4225	79.0	69.3	.002438	7.62
	3.3314	1.0329	READINGS	INVALID		
	3.3295	.6318	READINGS	INVALID		
	3.3236	.0000	READINGS	INVALID		
	3.7616	2.1085	31.3	- 63.4	.002462	1.20
	3.6667	1.4322	34.1	20.6	.002438	1.42
	3.6609	1.0155	50.5	71.6	.002704	3.45
	3.6531	.7093	17.2	- 35.5	.002749	.41
	3.6415	.0000	24.0	.0	.002749	.79
924.60	2.6600	1.9950	19.5	36.9	.002891	.55
	2.6918	1.3300	36.3	36.3	.002618	1.72
	2.7256	.9667	63.0	73.8	.002728	5.41
	2.7315	.6134	54.2	37.7	READINGS	INVALID
	NO READING					
	2.9935	2.0268	34.6	16.4	.002777	1.66
	2.9896	1.3638	68.2	59.0	READINGS	INVALID
	3.0055	.9926	43.3	54.2	READINGS	INVALID
	3.0372	.6352	48.2	31.8	READINGS	INVALID
	3.0491	.0000	46.8	.0	READINGS	INVALID
	3.4720	2.0883	48.8	- 2.3	.002769	3.30
	3.3906	1.4789	19.6	5.7	READINGS	INVALID
	NO READING					
	NO READING					
	NO READING					
	3.7658	2.1042	27.9	155.2	.002769	1.08
	3.7201	1.4333	27.7	- 39.3	READINGS	INVALID
	3.7002	1.0462	52.7	92.1	READINGS	INVALID
	3.6705	.6988	14.2	74.1	READINGS	INVALID
	3.6486	.0000	15.6	.0	READINGS	INVALID

Table D-II. Rear Smoke Grid Calculations - 1/4 Inch Entrance with Baffle Spaced 1/4 Inch (Continued)

Model 32-A, Shot 317

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
966.00	2.6240	2.0058	7.2	- 56.3	.002627	.07
	2.6860	1.3178	34.0	40.2	.002712	1.57
	2.6938	1.0194	36.7	22.4	.002702	1.82
	2.7519	.6337	63.5	24.1	.002904	5.85
	2.7965	.0000	READINGS	INVALID		
	2.9767	2.0271	10.0	180.0	.002769	.14
	3.0019	1.3372	35.6	- 51.8	.002674	1.69
	3.0078	.9806	25.0	- 28.6	.002875	.90
	3.0291	.6492	21.2	48.8	.002766	.62
	3.0368	.0000	24.0	.0	.002766	.80
	3.4457	2.0717	25.6	-141.3	.002696	.88
	3.3663	1.4244	69.4	-101.6	.002734	6.58
	3.3450	1.0349	READINGS	INVALID		
	3.3333	.6570	READINGS	INVALID		
	3.3275	.0000	READINGS	INVALID		
	3.7364	2.1202	32.0	176.4	.002696	1.38
	3.6880	1.4147	46.6	-133.3	.002734	2.97
	3.6589	1.0678	14.1	171.9	.002715	.27
	3.6570	.7229	27.8	69.0	.002621	1.01
	3.6570	.0000	34.0	.0	.002621	1.51
1007.40	2.6640	1.9891	12.5	141.3	.002976	.23
	2.7176	1.3519	33.2	130.2	.002746	1.51
	2.7593	.9806	27.9	- 12.1	.003201	1.25
	2.7891	.6392	40.0	43.0	.002896	2.32
	2.8189	.0000	READINGS	INVALID		
	2.9836	2.0268	11.4	149.0	.002734	.18
	3.0114	1.3360	13.1	-153.4	.002753	.24
	3.0273	.9806	2.0	.0	.002875	.01
	3.0511	.6511	19.6	- 5.7	.002893	.52
	3.0730	.0000	27.3	.0	.002693	1.00
	3.4521	2.0725	9.9	-168.7	.002744	.14
	3.3767	1.4114	9.8	- 36.9	.002950	.14
	3.3787	1.0640	12.3	- 18.4	.002865	.22
	3.3608	.6928	38.4	- 24.0	.002582	1.91
	3.3568	.0000	44.9	.0	.002582	2.60
	3.7340	2.1062	15.7	- 60.3	.002744	.34
	3.6883	1.3995	27.3	- 90.0	.002950	1.10
	3.6864	1.0481	55.1	- 67.1	.002865	4.34
	3.6804	.7246	21.0	21.8	.002582	.57
	3.6824	.0000	13.7	.0	.002582	.24

Table D-II. Rear Smoke Grid Calculations - 1/4 Inch Entrance with Baffle Spaced 1/4 Inch (Continued)

Model 32-A, Shot 317

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
1048.80	2.6143	2.0136	50.9	168.7	.002609	3.38
	2.6647	1.3430	49.9	126.9	.002698	3.37
	2.7209	1.0136	12.2	99.5	.003025	.22
	2.7810	.6609	28.6	65.2	READINGS	INVALID
	NO READING		READINGS	INVALID		
	2.9671	2.0329	20.6	-150.9	.002659	.56
	2.9903	1.3314	27.8	-120.3	.002583	.99
	3.0097	.9806	20.9	106.7	.002705	.59
	3.0494	.6473	14.1	45.0	.002657	.27
	3.0640	.0000	14.0	.0	.002657	.26
	3.4360	2.0698	20.0	143.1	.002607	.52
	3.3740	1.4186	16.4	49.4	.002636	.45
	3.3566	1.0310	8.0	- 89.9	.002916	.09
	3.3682	.6415	36.5	- 60.5	.002838	1.89
	3.3721	.0000	10.0	.0	.002838	.14
	3.7442	2.1066	14.4	- 56.3	.002607	.27
	3.6880	1.3876	.0	.0	.002636	.00
	3.6802	1.0174	17.9	153.4	.002916	.47
	3.6764	.7306	17.2	144.5	.002838	.42
	3.6705	.0000	26.0	180.0	.002838	.96
1090.20	2.6144	1.9990	45.7	-160.0	.002822	2.94
	2.6878	1.3916	32.3	115.0	.002789	1.45
	2.7573	.9926	30.3	75.1	.003259	1.49
	2.8010	.6650	32.3	65.0	READINGS	INVALID
	NO READING		READINGS	INVALID		
	2.9658	2.0169	31.2	180.0	.002615	1.27
	2.9975	1.3122	20.7	138.8	.002723	.59
	3.0213	1.0005	7.8	- 89.9	.002667	.08
	3.0610	.6610	42.6	74.1	.002786	2.53
	3.0868	.0000	5.9	.0	.002786	.05
	3.4362	2.0844	16.6	135.0	.002703	.37
	3.3886	1.4253	17.6	90.0	.003023	.47
	3.3787	1.0561	34.6	73.6	.002936	1.75
	3.3667	.6571	16.1	104.0	.002881	.37
	3.3667	.0000	3.9	180.0	.002881	.02
	3.7419	2.0943	5.9	180.0	.002703	.05
	3.6883	1.3995	28.4	74.1	.003023	1.22
	3.6705	1.0561	70.6	83.7	.002936	7.33
	3.6665	.7345	37.0	71.6	.002881	1.97
	3.6566	.0000	2.0	.0	.002881	.01

Table D-II. Rear Smoke Grid Calculations - 1/4 Inch Entrance With Baffle Spaced 1/4 Inch (Continued)

Model 32-A, Shot 317

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
1131.60	2.5717	1.9931	34.5	-170.0	.002685	1.60
	2.6512	1.3721	26.0	180.0	.002706	.91
	2.7287	1.0426	97.3	109.2	.003353	15.87
	2.7946	.6899	73.5	67.6	.002963	8.00
	2.8624	.0000	READINGS	INVALID		
	2.9360	2.0329	26.8	153.4	.002594	.93
	2.9748	1.3450	52.1	94.4	.002457	3.33
	3.0097	.9729	46.6	80.1	.002847	3.10
	3.0601	.6880	53.8	42.0	.002653	3.83
	3.0698	.0000	42.0	.0	.002653	2.34
	3.4244	2.0814	10.2	- 78.7	.002613	.14
	3.3740	1.4360	36.7	67.6	.002836	1.91
	3.3663	1.0640	12.2	80.5	.002655	.20
	3.3643	.6570	34.1	20.6	.002647	1.54
	3.3682	.0000	40.0	.0	.002647	2.11
	3.7384	2.1066	14.1	45.0	.002613	.26
	3.6957	1.4247	46.5	64.5	.002836	3.06
	3.6880	1.0872	41.1	29.1	.002655	2.25
	3.6880	.7655	24.4	55.0	.002647	.79
	3.6725	.0000	22.0	.0	.002647	.64
1173.00	2.5806	1.9931	31.2	180.0	.002765	1.35
	2.6620	1.3916	39.0	90.0	.002862	2.18
	2.7256	1.0839	78.4	93.7	.002920	8.97
	2.8288	.7325	71.0	52.8	READINGS	INVALID
	NO READING		READINGS	INVALID		
	2.9419	2.0288	27.2	-111.0	.002640	.97
	2.9935	1.3638	48.9	94.6	.002579	3.09
	3.0293	1.0462	72.8	69.6	.002699	7.16
	3.1007	.6968	52.5	21.8	.002738	3.78
	3.1285	.0000	70.2	.0	.002738	6.75
	3.4382	2.0744	15.6	- 90.0	.002807	.34
	3.4025	1.4591	44.6	66.8	.002673	2.65
	3.3806	1.0680	43.6	63.4	.002855	2.72
	3.3985	.6690	49.7	25.6	.002993	3.70
	3.4065	.0000	56.6	.0	.002993	4.79
	3.7519	2.1042	9.9	-101.3	.002807	.14
	3.7082	4412	61.1	73.3	.002673	4.99
	3.7062	1.0759	29.5	7.6	.002855	1.24
	3.6804	.7543	19.9	- 11.3	.002993	.59
	3.6784	.0000	.0	.0	.002993	.00

Table D-II. Rear Smoke Grid Calculations - 1/4 Inch Entrance with Baffle Spaced 1/4 Inch (Continued)

Model 32-A, Shot 317

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	C LB/SQFT
1214.40	2.5407	1.9981	68.2	175.0	.002870	6.67
	2.6512	1.4109	83.4	136.0	.002833	9.84
	2.7209	1.1202	90.7	97.6	.002912	11.98
	2.8372	.7461	54.3	72.9	READINGS	INVALID
	NO READING		READINGS	INVALID		
	2.9264	2.0078	49.0	-168.2	.002769	3.32
	2.9709	1.3934	54.5	118.4	.002450	3.64
	3.0349	1.0407	73.9	91.5	.002638	7.21
	3.1085	.7074	54.5	81.6	.002655	3.95
	3.1395	.0000	READINGS	INVALID		
	3.4244	2.0659	74.0	-176.9	.002894	7.93
	3.3915	1.4767	23.4	160.0	.002586	.71
	3.3857	1.1027	30.0	90.0	.002622	1.18
	3.4089	.6783	38.2	96.0	.003007	2.19
	3.4244	.0000	18.0	180.0	.003007	.49
	3.7364	2.0969	34.0	151.9	.002894	1.67
	3.7132	1.4729	39.6	135.0	.002586	2.02
	3.7171	1.0911	44.0	129.5	.002622	2.54
	3.7074	.7616	26.0	94.4	.003007	1.02
	3.6725	.0000	10.0	.0	.003007	.15
1255.80	2.5132	1.9990	76.2	-177.1	.002822	8.19
	2.6025	1.4491	97.1	157.6	.003024	14.25
	2.7136	1.1732	55.2	135.0	.002718	4.14
	2.8447	.7841	45.9	77.7	READINGS	INVALID
	NO READING		READINGS	INVALID		
	2.8943	2.0189	76.3	175.6	.002840	8.27
	2.9677	1.4114	58.0	160.3	.002741	4.61
	3.0273	1.1196	72.8	110.4	.002730	7.24
	3.1087	.7504	60.5	110.8	READINGS	INVALID
	NO READING					
	3.3648	2.0705	44.9	-177.5	.002698	2.72
	3.3806	1.4670	34.6	163.6	.002933	1.75
	3.3806	1.0978	21.5	174.8	.002969	.69
	3.3945	.7067	86.6	104.3	.002720	10.19
	3.3886	.0000	9.8	180.0	.002720	.13
	3.7221	2.1201	9.9	-168.7	.002698	.13
	3.6804	1.4690	41.3	-160.7	.002933	2.50
	3.6784	1.1097	34.6	163.6	.002969	1.77
	3.6784	.7801	27.9	155.2	.002720	1.06
	3.6883	.0000	15.6	.0	.002720	.33

Table D-II. Rear Smoke Grid Calculations - 1/4 Inch Entrance with Baffle Spaced 1/4 Inch (Continued)

Model 32-A, Shot 317,

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
1297.20	2.4621	1.9942	78.1	-175.6	.002669	8.76
	2.5620	1.4477	30.5	145.4	.002894	1.35
	2.6822	1.1589	7.2	123.7	.002953	.08
	2.9469	.7907	56.9	18.4	READINGS	INVALID
	NO READING		READINGS	INVALID		
	2.5508	2.0136	19.0	161.6	.002667	.48
	2.9167	1.4126	32.8	127.5	.002519	1.35
	3.0097	1.1085	12.6	59.0	.002910	.20
	3.0872	.7636	32.5	47.5	.002885	1.26
	3.1240	.0000	READINGS	INVALID		
	3.2798	2.0640	64.1	3.5	.002762	5.67
	3.3595	1.4864	15.4	153.4	.002716	.24
	3.3643	1.1047	44.1	94.8	.003028	2.95
	3.3876	.7626	46.6	43.3	.002708	1.95
	3.4147	.0000	READINGS	INVALID		
	3.7267	2.0950	26.0	32.5	.002762	.94
	3.6744	1.4593	18.1	83.7	.002716	.44
	3.6841	1.1008	20.4	11.3	.003028	.63
	3.6522	.7733	25.3	- 8.7	.002708	.94
	3.6880	.0000	READINGS	INVALID		
1318.60	2.4357	1.9931	68.7	-173.5	.002679	6.32
	2.5767	1.4650	47.2	150.3	.002828	3.15
	2.7097	1.1792	25.5	126.0	.002962	1.04
	2.8983	.3020	39.2	84.3	READINGS	INVALID
	NO READING		READINGS	INVALID		
	2.8764	2.0249	24.7	-161.6	.002849	.31
	2.9479	1.4372	34.6	106.4	.002797	1.67
	3.0333	1.1295	4.7	25.6	.002679	.10
	3.1305	.7742	51.3	4.7	READINGS	INVALID
	NO READING		READINGS	INVALID		
	3.4283	2.0744	12.3	15.4	.002858	.22
	3.3687	1.4730	17.5	-108.4	.002891	.22
	3.3846	1.1414	25.4	4.4	.002855	.92
	3.4283	.7385	29.3	- 3.5	READINGS	INVALID
	NO READING		READINGS	INVALID		
	3.7439	2.1340	5.9	- 89.9	.002858	.05
	3.6824	1.4868	52.5	- 74.9	.002891	3.99
	3.6983	1.1136	27.6	8.1	.002855	1.09
	3.7042	.7762	22.1	45.0	READINGS	INVALID
	NO READING					

Table D-II. Rear Smoke Grid Calculations - 1/4 Inch Entrance with Baffle Spaced 1/4 Inch (Continued)

Model 32-A, Shot 317

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
1380.00	2.3973	1.9864	44.1	-174.8	.002772	2.70
	2.5213	1.4709	83.1	152.8	.002566	8.86
	2.6667	1.1802	69.2	133.6	.002931	6.79
	2.8508	.8295	95.7	119.7	READINGS	INVALID
	NO READING		READINGS	INVALID		
	2.8275	2.0058	65.1	-162.1	.002619	5.55
	2.9070	1.4457	52.8	150.5	.002410	3.36
	3.0174	1.1124	14.5	74.1	.002941	.31
	3.1376	.7713	53.1	70.2	READINGS	INVALID
	NO READING		READINGS	INVALID		
	3.3915	2.0678	44.0	177.4	.002598	2.31
	3.3547	1.4748	21.2	131.2	.002924	.66
	3.3895	1.1066	6.3	161.6	.003121	.06
	3.4167	.7597	13.4	63.4	READINGS	INVALID
	NO READING		READINGS	INVALID		
	3.7267	2.0891	50.4	-146.3	.002598	3.30
	3.6880	1.4089	2.0	89.7	.002924	.01
	3.7112	1.1047	10.2	-168.7	.003121	.16
	3.6977	.7889	40.7	101.3	READINGS	INVALID
	3.6996	.0000	READINGS	INVALID		
1421.40	2.3921	1.9891	45.9	-167.7	.002891	3.05
	2.5032	1.5027	74.5	132.9	.002645	7.35
	2.6620	1.2288	86.6	112.5	.002847	10.67
	2.8526	.8854	69.8	54.1	READINGS	INVALID
	NO READING		READINGS	INVALID		
	2.8149	2.0050	18.4	-122.0	.002642	.45
	2.9022	1.4630	39.2	95.7	.002620	2.01
	3.0372	1.1434	58.2	39.6	.003013	5.10
	3.1484	.8238	84.4	56.3	READINGS	INVALID
	NO READING		READINGS	INVALID		
	3.3846	2.0764	24.1	-104.0	.002861	.83
	3.3548	1.4888	36.0	102.5	.002778	1.80
	3.3787	1.1434	23.4	90.0	.003151	.86
	3.4342	.7504	9.8	.0	READINGS	INVALID
	NO READING		READINGS	INVALID		
	3.7022	2.1062	13.8	-135.0	.002861	.27
	3.6824	1.4888	62.4	90.0	.002778	5.41
	3.6883	1.1117	26.2	116.6	.003151	1.08
	3.6963	.8159	41.7	79.2	READINGS	INVALID
	NO READING					

Table D-II. Rear Smoke Grid Calculations - 1/4 Inch Entrance with Baffle Spaced 1/4 Inch (Continued)

Model 32-A, Shot 317

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	G LB/SQFT
1462.80	2.3527	1.9767	70.2	-160.0	.002646	7.00
	2.4709	1.5252	55.5	170.3	.002388	3.68
	2.5337	1.2537	47.2	126.4	.002634	2.93
	2.5915	.8857	62.5	108.4	READINGS	INVALID
	NO READING		READINGS	INVALID		
	2.2178	1.9903	2.0	.0	.002902	.01
	2.4031	1.4845	47.2	36.4	.002522	2.80
	3.0620	1.1492	70.0	91.6	.003536	8.65
	3.1841	.9411	74.3	35.1	READINGS	INVALID
	NO READING		READINGS	INVALID		
	3.3857	2.0446	14.4	- 33.7	.002887	.30
	3.3469	1.5097	67.6	71.0	.002725	6.23
	3.3895	1.1293	35.8	40.6	.003145	2.13
	3.4264	.7597	56.8	39.3	READINGS	INVALID
	NO READING		READINGS	INVALID		
	3.7171	2.0795	38.6	- 21.3	.002887	2.15
	3.6880	1.4709	30.0	36.9	.002725	1.22
	3.6996	1.1279	59.4	70.3	.003145	5.55
	3.7054	.8295	53.2	55.7	READINGS	INVALID
	3.7132	.0000	READINGS	INVALID		
1504.20	2.3266	1.9633	109.9	173.9	.002755	-5.62
	2.4754	1.3504	64.6	151.1	.002445	3.10
	2.5342	1.2663	100.9	131.2	.002545	12.96
	2.9248	.9067	154.3	147.[illegible]	READINGS	INVALID
	NO READING		READINGS	INVALID		
	2.9169	2.0050	80.0	180.0	.002692	9.25
	2.9400	1.4909	40.0	137.0	.002593	2.08
	3.0352	1.2129	77.9	121.7	.003012	9.15
	3.2079	.8675	64.6	61.1	READINGS	INVALID
	NO READING		READINGS	INVALID		
	3.3965	2.0685	34.1	121.0	.002999	1.75
	3.3767	1.5524	15.6	90.0	.002800	.34
	3.4065	1.1672	60.5	69.2	.003238	3.93
	3.4779	.7861	61.2	30.7	READINGS	INVALID
	NO READING		READINGS	INVALID		
	3.7380	2.0923	20.7	48.5	.002999	.64
	3.7062	1.5067	23.5	94.9	.002600	.77
	3.7082	1.1672	26.0	103.0	.003238	1.10
	3.7261	.8596	34.9	63.4	READINGS	INVALID
	NO READING					

Table D-II. Rear Smoke Grid Calculations - 1/4 Inch Entrance with Baffle Spaced 1/4 Inch (Continued)

Model 32-A, Shot 317

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
1545.60	2.2442	1.9884	124.3	175.4	.002840	22.93
	2.4147	1.3552	60.4	145.8	.002645	4.82
	2.5678	1.3353	89.3	116.6	.002828	8.34
	2.7616	.9690	28.0	175.9	READINGS	INVALID
	NO READING		READINGS	INVALID		
	2.7384	1.9903	93.6	-168.9	.002880	11.75
	2.9740	1.5116	84.2	157.7	.002558	9.07
	3.0213	1.2151	75.9	116.6	.003044	8.78
	3.2151	.8973	19.0	108.4	READINGS	INVALID
	NO READING		READINGS	INVALID		
	3.3682	2.0736	22.3	-153.4	.002752	.69
	3.3469	1.5252	22.3	169.7	.003050	.76
	3.4109	1.1860	74.2	85.4	.003420	9.41
	3.4787	.7907	26.0	67.4	READINGS	INVALID
	NO READING		READINGS	INVALID		
	3.7306	2.0950	6.3	71.6	.002752	.05
	3.6860	1.4942	21.6	146.3	.003050	.71
	3.6938	1.1531	10.0	.0	.003420	.17
	3.7209	.8605	16.0	.0	READINGS	INVALID
	3.7306	.0000	READINGS	INVALID		
1587.00	2.2035	1.9752	116.1	-172.3	.003027	20.41
	2.4258	1.5841	109.1	151.1	.003054	18.18
	2.5945	1.3459	112.3	159.7	.002020	12.74
	2.7970	.9707	122.4	149.3	READINGS	INVALID
	NO READING		READINGS	INVALID		
	2.7256	1.9871	66.3	-178.3	.002743	6.04
	2.8625	1.5226	85.5	145.2	.002773	10.13
	3.0015	1.2804	114.7	138.4	.002409	15.84
	3.2020	.8854	63.5	169.4	READINGS	INVALID
	NO READING		READINGS	INVALID		
	3.3767	2.0586	33.3	-159.4	.002946	1.64
	3.3548	1.5563	59.9	109.0	.003064	5.48
	3.4124	1.2407	47.0	94.8	.003036	3.35
	3.4878	.8099	56.9	67.8	READINGS	INVALID
	NO READING		READINGS	INVALID		
	3.7400	2.0983	14.9	156.8	.002946	.33
	3.6883	1.5186	51.8	70.2	.003064	4.12
	3.7181	1.1672	50.3	54.5	.003036	3.85
	3.7419	.8596	27.6	8.1	READINGS	INVALID
	3.7280	.0000	READINGS	INVALID		

Table D-II. Rear Smoke Grid Calculations - 1/4 Inch Entrance with Baffle Spaced 1/4 Inch (Continued)

Model 32-A, Shot 317

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
1628.40	2.1298	1.9729	91.7	-159.6	.003023	12.70
	2.2198	1.6085	118.0	177.1	.002507	7.46
	2.4632	1.3740	103.1	171.1	.001845	9.82
	2.6570	1.0310	174.5	150.5	READINGS	INVALID
	NO READING		READINGS	INVALID		
	2.6725	1.9884	113.7	-169.9	.002809	18.14
	2.5043	1.3601	87.6	152.9	.002297	8.81
	2.9360	1.2907	86.1	158.2	.002211	8.19
	3.1531	.9089	READINGS	INVALID		
	NO READING		READINGS	INVALID		
	3.3372	2.0620	10.0	180.0	.002828	.36
	3.3275	1.5814	34.9	113.6	.002688	1.64
	3.4070	1.2326	53.8	74.9	.003093	4.48
	3.5000	.8430	131.8	40.7	READINGS	INVALID
	NO READING		READINGS	INVALID		
	3.7171	2.1008	6.3	161.6	.002828	.06
	3.7035	1.5426	20.0	57.5	.002688	.91
	3.7229	1.1938	41.2	50.9	.003093	2.62
	3.7481	.8643	25.6	51.3	READINGS	INVALID
	NO READING					
1669.30	2.1151	1.9434	145.2	-173.8	.003300	34.77
	2.3087	1.5901	81.1	-152.8	.002740	9.02
	2.4933	1.3618	50.6	-152.4	READINGS	INVALID
	2.6462	1.0561	107.7	137.9	READINGS	INVALID
	NO READING		READINGS	INVALID		
	2.6144	1.9672	107.1	-169.5	.002648	15.19
	2.7851	1.5623	72.2	178.5	.002403	6.26
	2.9221	1.3122	85.6	149.9	READINGS	INVALID
	NO READING					
	NO READING		READINGS	INVALID		
	3.3608	2.0586	24.8	-135.0	.002933	.90
	3.3409	1.5881	2.0	89.7	.003078	.01
	3.4263	1.2923	70.7	65.6	.003771	9.43
	3.5871	.8953	99.0	32.1	READINGS	INVALID
	NO READING		READINGS	INVALID		
	3.7340	2.1002	24.7	-161.6	.002933	.89
	3.7022	1.5404	26.0	103.0	.003078	1.04
	3.7439	1.1990	56.7	63.4	.003771	6.06
	3.7578	.8794	61.2	59.3	READINGS	INVALID
	3.7459	.0000	READINGS	INVALID		

Table D-III. Front Smoke Grid Calculations - 1/4 Inch Entrance with Baffle Spaced 1/2 Inch

Model 32-B, Shot 321

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	G LB/SQFT
59.80	1.0338	1.9344	8.0	104.0	.002223	.07
	1.0358	1.1531	21.0	- 21.6	.002335	.52
	1.0099	.8509	10.0	- 78.7	.002227	.11
	.9901	.4930	37.1	87.0	.002363	1.63
	.9602	.0000	13.7	.0	.002363	.22
	1.4095	1.9463	18.5	161.6	.002276	.39
	1.3936	1.1292	3.5	89.9	.002333	.02
	1.3678	.8728	2.8	-135.0	.002258	.01
	1.3479	.5288	8.3	135.0	.002327	.08
	1.3340	.0000	9.8	180.0	.002327	.11
	1.7018	1.9483	14.1	56.3	.002386	.24
	1.7435	1.1014	12.3	71.6	.002454	.19
	1.7356	.8907	8.0	-104.0	.002295	.07
	1.7237	.5805	3.9	180.0	.002294	.02
	1.7157	.0000	2.0	180.0	.002294	.00
	2.0736	1.9662	9.8	143.1	.002386	.11
	2.0835	1.0915	12.5	141.3	.002454	.19
	2.0855	.9105	8.7	-153.4	.002295	.09
	2.0915	.6759	8.3	135.0	.002294	.08
	2.1034	.0000	2.0	.0	.002294	.00
101.10	1.0063	1.9313	34.2	- 3.4	.002397	1.40
	1.0431	1.1398	59.0	- 9.8	.002507	4.37
	1.0005	.8341	33.2	- 25.0	.002469	1.36
	.9753	.5206	35.5	- 47.3	.002396	1.51
	.9579	.0000	6.0	180.0	.002396	.04
	1.3643	1.9410	14.2	8.1	.002282	.23
	1.3624	1.1263	16.5	- 14.0	.002274	.31
	1.3449	.8689	23.5	- 20.0	.002335	.64
	1.3256	.5302	7.2	- 56.3	.002284	.06
	1.3082	.0000	16.0	180.0	.002284	.29
	1.6642	1.9468	4.0	89.9	.002394	.02
	1.7088	1.1127	16.2	150.3	.002313	.30
	1.7107	.8863	2.8	-135.0	.002484	.01
	1.7010	.5902	8.0	89.9	.002303	.07
	1.6971	.0000	6.0	180.0	.002303	.04
	2.0339	1.9631	16.2	-150.3	.002394	.31
	2.0532	1.0914	4.5	-116.6	.002313	.02
	2.0552	.9018	8.5	135.0	.002484	.09
	2.0648	.6889	10.0	143.1	.002303	.12
	2.0726	.0000	8.0	180.0	.002303	.07

Table D-III. Front Smoke Grid Calculations - 1/4 Inch Entrance with Baffle Spaced 1/2 Inch (Continued)

Model 32-B, Shot 321

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
142.40	1.0676	1.9324	52.7	2.1	.002406	3.35
	1.0934	1.1431	71.6	- 11.0	.002480	6.36
	1.0398	.8370	82.3	- 22.3	.002300	7.79
	1.0139	.4672	83.9	- 65.2	.002556	8.94
	.9543	.0000	11.7	.0	.002556	.18
	1.4235	1.9483	72.3	- 3.1	.002439	6.38
	1.4095	1.1252	47.0	- 4.8	.002453	2.71
	1.3897	.8648	50.9	- 32.5	.002401	3.11
	1.3519	.5229	39.1	- 2.9	.002311	1.77
	1.3181	.0000	35.1	.0	.002311	1.43
	1.7018	1.9523	28.0	12.1	.002406	.94
	1.7296	1.1093	22.3	- 15.3	.002426	.60
	1.7336	.8887	18.0	- 12.5	.002377	.39
	1.7237	.5885	23.8	- 35.0	.002301	.65
	1.7097	.0000	7.8	.0	.002301	.07
	2.0596	1.9583	8.7	- 26.6	.002406	.09
	2.0815	1.0875	19.6	- 5.7	.002426	.47
	2.0795	.9165	19.2	24.0	.002377	.44
	2.0835	.6819	22.1	- 45.0	.002301	.56
	2.0954	.0000	7.8	.0	.002301	.07
183.70	1.0585	1.9332	24.8	14.0	.002387	.73
	1.1127	1.1263	77.4	- 16.6	.002560	7.67
	1.0760	.8031	95.1	- 34.7	.002553	11.56
	1.0102	.4451	54.2	.0	.002507	3.68
	.9695	.0000	44.1	.0	.002507	2.44
	1.4359	1.9371	57.4	- 12.1	.002539	4.19
	1.4088	1.1224	53.5	- 13.0	.002347	3.36
	1.3875	.8418	59.8	- 13.6	.002550	4.57
	1.3643	.5283	60.2	1.9	.002467	4.47
	1.3430	.0000	72.2	.0	.002467	6.43
	1.6913	1.9526	59.4	- 11.7	.002454	4.33
	1.7300	1.1069	53.1	- 10.9	.002386	3.36
	1.7281	.8824	41.3	- 22.8	.002346	2.01
	1.7204	.5767	45.7	- 15.3	.002374	2.48
	1.7049	.0000	32.1	.0	.002374	1.22
	2.0416	1.9642	40.6	8.5	.002454	2.02
	2.0726	1.0895	40.6	- 8.5	.002386	1.96
	2.0726	.9095	48.5	- 29.7	.002346	2.76
	2.0803	.6734	43.8	- 15.9	.002374	2.28
	2.0803	.0000	16.0	.0	.002374	.31

Table D-III. Front Smoke Grid Calculations - 1/4 Inch Entrance with Baffle Spaced 1/2 Inch (Continued)

Model 32-B, Shot 321

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
225.00	1.0915	1.9384	23.8	- 9.5	.002332	.66
	1.1670	1.1213	62.5	1.8	.002517	4.92
	1.1173	.7833	47.2	- 7.1	.002639	2.94
	1.0676	.4672	66.6	5.0	.002433	5.40
	.9980	.0000	56.6	.0	.002433	3.90
	1.4791	1.9364	32.2	- 14.0	.002433	1.26
	1.4612	1.1133	67.1	- 8.4	.002488	5.60
	1.4473	.8509	67.1	8.4	.002602	5.86
	1.4115	.5249	74.2	- 26.6	.002513	6.92
	1.3897	.0000	56.6	.0	.002513	4.03
	1.7594	1.9404	61.6	- 11.0	.002495	4.74
	1.7813	1.0994	68.7	- 14.8	.002313	5.45
	1.7714	.8728	68.6	- 4.9	.002439	5.74
	1.7674	.5765	68.4	1.6	.002412	5.63
	1.7416	.0000	70.3	.0	.002412	5.96
	2.0994	1.9642	64.4	.0	.002495	5.18
	2.1213	1.0815	50.2	- 13.5	.002313	2.91
	2.1213	.8926	50.7	- 15.6	.002439	3.13
	2.1252	.6700	45.6	- 9.9	.002412	2.50
	2.1113	.0000	52.7	.0	.002412	3.35
266.30	1.0818	1.9294	2.0	.0	.002356	.00
	1.1746	1.1282	64.2	51.3	.002519	5.19
	1.1224	.7973	86.3	35.5	.002348	8.74
	1.0760	.4509	43.3	- 13.4	.002573	2.41
	1.0256	.0000	52.1	.0	.002573	3.50
	1.4669	1.9294	17.1	20.6	.002407	.35
	1.4746	1.1127	61.9	24.9	.002489	4.77
	1.4533	.8515	64.1	20.1	.002403	4.94
	1.4301	.4954	67.7	- 12.0	.002491	5.70
	1.3991	.0000	20.1	.0	.002491	.50
	1.7513	1.9410	43.1	27.8	.002476	2.30
	1.7958	1.0895	61.1	23.2	.002583	4.82
	1.7958	.8766	76.4	23.2	.002564	7.48
	1.7881	.5786	79.3	16.1	.002521	7.94
	1.7746	.0000	88.3	.0	.002521	9.82
	2.1055	1.9642	58.2	- 2.0	.002476	4.19
	2.1209	1.0779	40.1	.0	.002583	2.08
	2.1209	.8960	69.3	22.1	.002564	6.15
	2.1248	.6657	56.7	8.1	.002521	4.06
	2.1326	.0000	66.2	.0	.002521	5.52

Table D-III. Front Smoke Grid Calculations - 1/4 Inch Entrance with Baffle Spaced 1/2 Inch (Continued)

Model 32-3, Shot 321

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	C LB/SQFT
307.60	1.0934	1.9384	19.2	-24.0	.002340	.43
	1.2068	1.1710	87.5	51.3	.002454	9.39
	1.1869	.8330	96.9	27.6	.002239	10.52
	1.1093	.4573	78.4	18.9	.002526	7.77
	1.0497	.0000	60.5	.0	.002526	4.63
	1.4950	1.9423	35.2	19.4	.002381	1.48
	1.5169	1.1392	60.8	42.4	.002459	4.55
	1.5070	.8728	69.3	32.3	.002362	5.68
	1.4771	.5109	73.8	37.5	.002260	6.16
	1.4095	.0000	46.9	.0	.002260	2.48
	1.7972	1.9602	43.3	7.8	.002493	2.34
	1.8370	1.1233	56.9	31.0	.002594	4.20
	1.8410	.9026	60.1	35.8	.002412	4.36
	1.8429	.5984	63.6	17.9	.002492	5.04
	1.8290	.0000	43.0	.0	.002492	2.30
	2.1571	1.9622	37.3	- 6.0	.002493	1.73
	2.1610	1.0815	70.4	19.4	.002594	6.43
	2.1849	.9185	76.0	29.7	.002412	6.97
	2.1809	.6779	80.3	18.4	.002492	8.03
	2.1769	.0000	68.3	.0	.002492	5.82
348.90	1.0992	1.9371	18.2	- 6.3	.002482	.41
	1.2288	1.1959	47.7	14.6	.002539	2.89
	1.2075	.8418	91.9	36.1	.002476	10.45
	1.1495	.4761	113.1	25.7	.002507	16.02
	1.0856	.0000	100.3	.0	.002507	12.61
	1.4998	1.9410	34.2	- 3.4	.002434	1.42
	1.5191	1.1534	56.8	32.0	.002520	4.06
	1.5114	.8882	51.6	13.5	.002392	3.18
	1.4881	.5399	91.5	37.9	.002358	9.87
	1.4456	.0000	96.3	.0	.002358	10.93
	1.7939	1.9468	36.3	- 6.3	.002509	1.66
	1.8442	1.1185	51.1	11.3	.002578	3.37
	1.8442	.9115	50.2	- 2.3	.002309	2.91
	1.8481	.5980	62.8	26.6	.002306	4.54
	1.8171	.0000	50.1	.0	.002306	2.90
	2.1422	1.9603	44.8	10.3	.002509	2.52
	2.1867	1.1011	66.4	25.0	.002578	5.68
	2.1867	.9328	57.4	24.8	.002309	3.81
	2.2003	.6909	77.4	31.2	.002306	6.91
	2.2003	.0000	62.2	.0	.002306	4.46

Table D-III. Front Smoke Grid Calculations - 1/4 Inch Entrance with Baffle Spaced 1/2 Inch (Continued)

Model 32-B, Shot 321

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
390.20	1.1113	1.9364	24.1	-106.0	.002347	.68
	1.2525	1.1829	39.5	69.8	.002645	2.07
	1.2604	.8867	89.9	55.6	.002529	10.22
	1.2107	.5050	94.5	18.1	.002392	10.67
	1.1491	.0000	113.2	.0	.002392	15.33
	1.5288	1.9404	11.0	- 45.0	.002439	.15
	1.5646	1.1690	43.7	26.6	.002309	2.20
	1.5567	.8847	61.1	26.6	.002698	5.04
	1.5487	.5666	71.1	15.9	.002273	5.74
	1.5050	.0000	99.6	.0	.002273	11.27
	1.8330	1.9563	15.7	29.7	.002476	.31
	1.8867	1.1332	50.0	20.6	.002437	3.05
	1.8907	.9006	49.2	6.8	.002569	3.10
	1.8986	.6262	52.1	13.0	.002296	3.12
	1.8787	.0000	66.4	.0	.002296	5.06
	2.2008	1.9702	46.0	12.3	.002476	2.61
	2.2207	1.1093	31.5	7.1	.002437	1.21
	2.2366	.9423	38.9	- 17.5	.002569	1.94
	2.2465	.7177	37.6	9.0	.002296	1.62
	2.2386	.0000	29.3	.0	.002296	.98
431.50	1.0760	1.9313	2.0	- 89.7	.002420	.00
	1.2424	1.2327	70.5	75.2	.002618	6.51
	1.2579	.9153	64.0	48.8	.002333	4.77
	1.2385	.5051	97.6	9.5	.002505	11.93
	1.1979	.0000	104.3	.0	.002505	13.67
	1.5075	1.9332	14.0	.0	.002438	.24
	1.5578	1.1727	53.8	26.6	.002496	3.61
	1.5656	.9153	79.0	35.7	.002461	7.69
	1.5559	.5593	74.9	- 7.7	.002457	6.89
	1.5443	.0000	124.4	.0	.002457	19.00
	1.8075	1.9545	19.8	24.0	.002463	.48
	1.8907	1.1359	46.5	7.4	.002505	2.71
	1.8926	.9173	49.6	14.0	.002501	3.08
	1.8984	.6096	50.8	- 9.1	.002440	3.15
	1.8829	.0000	74.2	.0	.002440	6.72
	2.1867	1.9700	9.0	26.6	.002463	.10
	2.2177	1.1050	32.3	7.1	.002505	1.31
	2.2235	.9211	23.5	- 20.0	.002501	.69
	2.2371	.6967	29.6	- 28.3	.002440	1.07
	2.2293	.0000	18.1	.0	.002440	.40

Table D-III. Front Smoke Grid Calculations - 1/4 Inch Entrance with Baffle Spaced 1/2 Inch (Continued)

Model 32-B, Shot 321

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
472.80	1.1113	1.9344	29.0	19.7	.002381	1.00
	1.2704	1.2505	34.8	51.8	.002462	1.49
	1.3022	.9344	79.3	38.0	.002230	7.01
	1.3062	.5209	120.2	32.4	.002370	17.13
	1.2525	.0000	109.3	.0	.002370	14.16
	1.5427	1.9404	14.1	33.7	.002472	.24
	1.6123	1.1928	36.3	36.3	.002517	1.66
	1.6203	.9304	53.9	43.5	.002537	3.68
	1.6223	.5567	77.2	20.7	.002555	7.62
	1.6282	.0000	44.9	.0	.002555	2.58
	1.8509	1.9642	27.4	- 4.1	.002563	.96
	1.9324	1.1392	25.4	67.4	.002554	.82
	1.9384	.9125	35.9	45.0	.002629	1.69
	1.9483	.6183	33.4	20.6	.002626	1.46
	1.9523	.0000	60.5	.0	.002626	4.81
	2.2087	1.9742	7.0	33.7	.002563	.06
	2.2525	1.1133	25.0	38.7	.002554	.80
	2.2584	.9344	25.0	38.7	.002629	.82
	2.2724	.7038	16.7	20.6	.002626	.37
	2.2565	.0000	25.4	.0	.002626	.85
514.10	1.1030	1.9410	15.3	66.8	.002505	.29
	1.2637	1.2598	44.0	114.2	.002908	2.81
	1.3198	.9637	68.7	83.3	.002555	6.07
	1.3391	.5689	88.5	57.0	.002678	10.48
	1.3062	.0000	108.3	.0	.002678	15.71
	1.5191	1.9410	21.6	158.2	.002517	.59
	1.5868	1.1940	51.1	115.6	.002732	3.58
	1.6043	.9521	36.6	99.5	.002580	1.73
	1.6275	.5864	59.0	72.2	.002468	4.29
	1.5888	.0000	18.1	.0	.002468	.40
	1.8345	1.9526	15.3	-156.8	.002560	.30
	1.9003	1.1592	49.5	111.4	.002510	3.08
	1.9178	.9424	36.3	96.3	.002476	1.63
	1.9294	.6212	34.3	69.4	.002589	1.52
	1.9429	.0000	16.0	.0	.002589	.33
	2.1925	1.9739	10.2	-168.7	.002560	.13
	2.2371	1.1205	22.9	105.3	.002510	.66
	2.2429	.9366	22.1	90.0	.002476	.60
	2.2525	.7025	30.7	78.7	.002589	1.22
	2.2545	.0000	30.1	.0	.002589	1.17

Table D-III. Front Smoke Grid Calculations - 1/4 Inch Entrance with Baffle Spaced 1/2 Inch (Continued)

Model 32-B, Shot 321

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
555.40	1.1173	1.9483	23.5	175.7	.002590	.72
	1.2525	1.2903	90.6	127.1	.002647	10.86
	1.3101	1.0020	80.9	109.7	.002484	8.13
	1.3539	.5944	63.1	68.7	.002550	5.07
	1.3598	.0000	60.5	.0	.002550	4.67
	1.5229	1.9483	28.4	164.1	.002586	1.04
	1.5905	1.2386	70.0	113.0	.002412	5.91
	1.6143	.9662	43.0	92.6	.002612	2.41
	1.6402	.6123	41.4	70.7	.002408	2.06
	1.6461	.0000	68.3	.0	.002408	5.62
	1.8370	1.9583	24.7	-161.6	.002628	.80
	1.9145	1.1849	23.6	114.4	.002444	.68
	1.9344	.9483	22.3	105.3	.002645	.66
	1.9602	.6501	50.4	54.5	.002471	3.14
	1.9682	.0000	27.3	.0	.002471	.92
	2.1988	1.9722	28.8	-151.7	.002628	1.09
	2.2465	1.1352	15.2	140.2	.002444	.28
	2.2584	.9563	18.4	58.0	.002645	.45
	2.2783	.7336	32.7	72.6	.002471	1.32
	2.2863	.0000	17.6	.0	.002471	.38
596.70	1.0798	1.9429	58.5	-174.1	.002661	4.55
	1.2095	1.3314	66.4	151.1	.002656	5.86
	1.2927	1.0392	58.6	128.0	.002448	4.20
	1.3624	.6270	79.3	69.3	.002475	7.79
	1.3662	.0000	58.2	.0	.002475	4.19
	1.4920	1.9487	40.6	-159.8	.002602	2.15
	1.5597	1.2579	39.6	149.5	.002605	2.04
	1.6023	.9947	58.5	95.9	.002593	4.43
	1.6410	.6251	27.0	48.0	.002403	.87
	1.6565	.0000	32.1	.0	.002403	1.24
	1.8113	1.9448	20.9	163.3	.002666	.58
	1.8907	1.1805	12.0	180.0	.002515	.18
	1.9119	.9637	48.5	82.9	.002643	3.11
	1.9584	.6618	12.7	108.4	.002573	.21
	1.9700	.0000	16.0	.0	.002573	.33
	2.1674	1.9603	9.0	-116.6	.002666	.11
	2.2254	1.1301	16.0	- 90.0	.002515	.32
	2.2525	.9521	18.2	83.7	.002643	.44
	2.2622	.7334	11.3	- 45.0	.002573	.17
	2.2719	.0000	4.0	.0	.002573	.02

Table D-III. Front Smoke Grid Calculations - 1/4 Inch Entrance with Baffle Spaced 1/2 Inch (Continued)

Model 32-B, Shot 321

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
638.00	1.0596	1.9423	62.5	-178.2	.002592	5.06
	1.1948	1.3221	64.9	-173.1	.002726	5.74
	1.2744	1.0477	72.5	152.7	.002414	6.34
	1.3817	.6680	90.1	95.0	.002533	10.29
	1.4175	.0000	64.4	.0	.002533	5.26
	1.4851	1.9344	27.6	-171.9	.002481	.95
	1.5567	1.2584	42.1	158.2	.002817	2.49
	1.6083	1.0239	39.5	122.9	.002390	1.87
	1.6581	.6322	56.3	76.0	.002492	3.96
	1.6779	.0000	37.1	.0	.002492	1.71
	1.8171	1.9642	10.5	111.8	.002514	.14
	1.9026	1.1849	17.7	96.3	.003051	.48
	1.9404	.9960	14.9	66.8	.002354	.26
	1.9563	.6620	20.1	119.1	.002462	.50
	1.9841	.0000	19.5	.0	.002462	.47
	2.1948	1.9642	11.9	99.5	.002514	.18
	2.2465	1.1193	16.8	54.5	.003051	.43
	2.2604	.9742	15.2	140.2	.002354	.27
	2.2863	.7256	7.8	- 89.9	.002462	.08
	2.2903	.0000	7.8	.0	.002462	.08
679.30	1.0179	1.9410	47.7	-157.8	.002480	2.82
	1.1456	1.3237	60.3	158.6	.002681	4.88
	1.2288	1.0721	72.7	114.4	.002513	6.64
	1.3546	.7160	72.5	75.6	.002255	5.92
	1.4301	.0000	READINGS	INVALID		
	1.4649	1.9448	10.6	158.2	.002418	.14
	1.5210	1.2733	35.1	121.0	.002468	1.52
	1.5810	1.0276	40.1	126.9	.002716	2.19
	1.6546	.6792	56.8	58.0	.002436	3.92
	1.6933	.0000	50.1	.0	.002436	3.06
	1.8075	1.9545	26.2	-122.5	.002632	.90
	1.8887	1.1979	22.2	95.2	.002482	.61
	1.9178	.9773	9.0	153.4	.002621	.11
	1.9487	.6792	28.4	45.0	.002560	1.03
	1.9894	.0000	20.1	.0	.002560	.51
	2.1655	1.9719	32.1	180.0	.002632	1.36
	2.2351	1.1437	27.9	69.0	.002482	.97
	2.2409	.9618	8.0	.0	.002621	.08
	2.2622	.7257	26.8	77.0	.002560	.92
	2.2796	.0000	34.1	.0	.002560	1.49

Table D-III. Front Smoke Grid Calculations - 1/4 Inch Entrance with Baffle Spaced 1/2 Inch (Continued)

Model 32-B, Shot 321

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
720.60	1.0159	1.9245	8.7	63.4	.002485	.09
	1.1392	1.3439	79.8	111.5	.002870	9.13
	1.2445	1.1133	99.9	94.5	.002518	12.56
	1.3996	.7376	109.5	50.1	READINGS	INVALID
	NO READING					
	1.4751	1.9384	2.8	135.0	.002576	.01
	1.5388	1.2883	46.4	67.8	.002600	2.80
	1.5845	1.0557	72.4	76.0	.002522	6.62
	1.6879	.6799	72.3	51.6	.002540	6.63
	1.7276	.0000	87.9	.0	.002540	9.80
	1.8032	1.9423	19.3	-135.0	.002646	.49
	1.9006	1.2068	34.1	66.4	.002575	1.50
	1.9324	1.0000	66.7	69.4	.002519	5.61
	1.9761	.6819	59.8	38.4	.002378	4.25
	2.0040	.0000	37.1	.0	.002378	1.64
	2.1630	1.9642	5.9	- 89.9	.002646	.05
	2.2565	1.1451	40.2	76.0	.002575	2.09
	2.2684	.9742	44.3	48.6	.002519	2.47
	2.2922	.7515	54.7	55.2	.002378	3.56
	2.3241	.0000	27.3	.0	.002378	.89
761.90	1.0218	1.9487	25.7	38.7	.002591	.85
	1.1166	1.3972	65.3	100.6	.002828	6.03
	1.2211	1.1708	68.9	81.6	.002551	6.06
	1.4243	.7992	101.8	57.9	.002268	11.76
	1.5404	.0000	READINGS	INVALID		
	1.4630	1.9468	12.8	-141.3	.002654	.22
	1.5385	1.3159	35.1	59.0	.002857	1.76
	1.5985	1.0972	58.3	49.2	.002569	4.37
	1.6991	.7354	92.4	55.6	.002490	10.62
	1.7804	.0000	84.2	.0	.002490	8.84
	1.7939	1.9410	12.2	170.5	.002748	.20
	1.9023	1.2288	35.9	63.4	.002678	1.72
	1.9410	1.0392	54.6	54.0	.002603	3.87
	1.9952	.7160	73.7	45.0	.002526	6.87
	2.0261	.0000	78.2	.0	.002526	7.73
	2.1655	1.9661	10.2	168.7	.002748	.14
	2.2448	1.1824	32.7	100.6	.002678	1.43
	2.2700	.9947	31.4	63.4	.002603	1.28
	2.2932	.7702	51.1	41.8	.002526	3.30
	2.3067	.0000	44.1	.0	.002526	2.46

Table D-III, Front Smoke Grid Calculations - 1/4 Inch Entrance with Baffle Spaced 1/2 Inch (Continued)

Model 32-B, Shot 321

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	C LB/SCFT
803.20	1.0358	1.9404	READINGS	INVALID		
	1.1272	1.4076	READINGS	INVALID		
	1.2545	1.1809	READINGS	INVALID		
	1.4533	.8231	READINGS	INVALID		
	NO READING		READINGS	INVALID		
	1.4652	1.9304	READINGS	INVALID		
	1.5567	1.3181	READINGS	INVALID		
	1.6223	1.0994	READINGS	INVALID		
	1.7396	.7555	READINGS	INVALID		
	1.8111	.0000	READINGS	INVALID		
	1.7913	1.9443	READINGS	INVALID		
	1.9165	1.2386	READINGS	INVALID		
	1.9642	1.0437	READINGS	INVALID		
	2.0278	.7336	READINGS	INVALID		
	2.0815	.0000	READINGS	INVALID		
	2.1531	1.9062	READINGS	INVALID		
	2.2505	1.1769	READINGS	INVALID		
	2.2823	1.0020	READINGS	INVALID		
	2.3300	.7853	READINGS	INVALID		
	2.3678	.0000	READINGS	INVALID		
844.50	NO READING					
	NO READING					
	NO READING					
	NO READING					
	NO READING		READINGS	INVALID		
	NO READING					
	NO READING					
	NO READING					
	NO READING					
	NO READING					
	NO READING					
	NO READING					
	NO READING					
	NO READING					
	NO READING					
	NO READING					
	NO READING					
	NO READING					
	NO READING					

Table D-III/ Front Smoke Grid Calculations - 1/4 Inch Entrance with Baffle Spaced 1/2 Inch (Continued)

Model 32-B, Shot 321

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
885.80	1.0159	1.9463	READINGS	INVALID		
	1.0736	1.4115	READINGS	INVALID		
	1.1789	1.2326	READINGS	INVALID		
	1.4453	.9304	READINGS	INVALID		
	NO READING		READINGS	INVALID		
	1.4632	1.9483	READINGS	INVALID		
	1.5368	1.3479	READINGS	INVALID		
	1.6421	1.1412	READINGS	INVALID		
	1.7873	.8012	READINGS	INVALID		
	1.9344	.0000	READINGS	INVALID		
	1.8151	1.9523	READINGS	INVALID		
	1.9443	1.2644	READINGS	INVALID		
	1.9980	1.0596	READINGS	INVALID		
	2.0835	.7594	READINGS	INVALID		
	2.1650	.0000	READINGS	INVALID		
	2.2187	1.9563	READINGS	INVALID		
	2.3002	1.1869	READINGS	INVALID		
	2.3221	1.0199	READINGS	INVALID		
	2.3579	.7793	READINGS	INVALID		
	2.4215	.0000	READINGS	INVALID		
927.10	.9521	1.9410	26.2	-147.5	.002456	.84
	.9966	1.4146	48.1	180.0	.003168	3.67
	1.0934	1.2675	94.2	153.4	.002421	10.74
	1.3933	.9676	60.2	91.9	READINGS	INVALID
	NO READING		READINGS	INVALID		
	1.4088	1.9487	25.4	-161.6	.002589	.83
	1.4978	1.3604	38.1	108.4	.002845	2.06
	1.5810	1.1843	66.7	105.7	.002854	6.34
	1.7823	.8379	79.9	61.5	.002495	7.93
	1.9352	.0000	94.3	.0	.002485	11.04
	1.7533	1.9487	30.6	-121.6	.002699	1.27
	1.9178	1.2830	39.4	75.3	.002810	2.18
	1.9681	1.0895	55.7	59.7	.002806	4.36
	2.0552	.7954	54.2	39.0	.002592	3.81
	2.1500	.0000	86.2	.0	.002592	9.64
	2.1616	1.9661	8.0	- 89.9	.002699	.09
	2.2816	1.2075	38.3	42.9	.002810	2.06
	2.2951	1.0489	56.8	32.0	.002806	4.52
	2.3319	.8089	71.9	30.1	.002592	6.70
	2.3957	.0000	42.1	.0	.002592	2.30

Table D-III. Front Smoke Grid Calculations - 1/4 Inch Entrance with Baffle Spaced 1/2 Inch (Continued)

Model 32-B, Shot 321

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
968.40	.5940	1.9324	12.3	161.6	.002568	.20
	1.0258	1.4115	64.5	176.5	.003028	6.31
	1.0954	1.2744	117.2	169.4	.002425	16.64
	1.4433	.9901	126.2	124.9	READINGS	INVALID
	NO READING		READINGS	INVALID		
	1.4394	1.9404	23.5	-138.4	.002674	.74
	1.5249	1.3837	56.9	112.2	.002797	4.53
	1.6243	1.2048	40.8	73.3	.002717	2.26
	1.8250	.8708	69.8	72.1	.002312	5.63
	2.0278	.0000	109.3	.0	.002312	13.82
	1.7992	1.9264	4.4	63.4	.002757	.03
	1.9543	1.3022	33.2	86.6	.002761	1.53
	2.0258	1.1074	43.0	39.5	.002597	2.40
	2.1252	.7932	75.1	27.9	.002660	7.50
	2.2505	.0000	70.3	.0	.002660	6.57
	2.2187	1.9483	8.3	- 45.0	.002757	.09
	2.3280	1.2127	33.1	45.0	.002761	1.52
	2.3698	1.0497	39.8	11.3	.002597	2.06
	2.4195	.8151	69.2	21.5	.002660	6.38
	2.4632	.0000	78.1	.0	.002660	8.11
1009.70	.9405	1.9448	47.0	140.2	.002507	2.77
	.9328	1.4185	122.4	178.1	.002610	19.55
	.9792	1.2888	119.3	160.3	.002417	17.19
	1.3217	1.0701	137.4	123.7	READINGS	INVALID
	NO READING		READINGS	INVALID		
	1.3914	1.9332	52.1	157.4	.002658	3.61
	1.4765	1.4127	69.6	131.5	.002691	6.52
	1.5926	1.2230	80.2	121.7	.002877	9.24
	1.8036	.9037	82.6	84.4	.002351	8.02
	2.0435	.0000	100.3	.0	.002351	11.82
	1.7552	1.9526	42.6	138.8	.002743	2.49
	1.9197	1.3159	45.1	110.9	.002629	2.67
	2.0010	1.1166	69.6	101.6	.002995	7.26
	2.1209	.8302	69.2	73.1	.002476	5.92
	2.2196	.0000	42.1	.0	.002476	2.20
	2.1674	1.9603	24.2	131.6	.002743	.80
	2.3048	1.2308	40.2	87.1	.002629	2.12
	2.3338	1.0566	27.9	59.7	.002995	1.16
	2.3957	.8341	38.9	78.1	.002476	1.88
	2.4731	.0000	48.1	.0	.002476	2.87

Table D-III. Front Smoke Grid Calculations - 1/4 Inch Entrance with Baffle Spaced 1/2 Inch (Continued)

Model 32-B, Shot 321

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
1051.00	.9583	1.9622	14.1	146.3	.002412	.24
	.9046	1.4155	84.8	-172.1	.003051	10.96
	.9841	1.3141	52.7	177.9	.002518	3.50
	1.3678	1.1034	127.8	141.2	READINGS	INVALID
	NO READING		READINGS	INVALID		
	1.3917	1.9602	51.9	160.2	.002634	3.54
	1.4791	1.4354	55.5	140.7	.002994	4.61
	1.5825	1.2724	90.4	122.7	.002743	11.22
	1.8330	.9523	78.1	91.4	.002373	7.24
	2.1272	.0000	READINGS	INVALID		
	1.7674	1.9543	21.8	-169.7	.002729	.65
	1.9384	1.3439	35.6	99.5	.002750	1.75
	2.0119	1.1750	62.0	102.7	.002697	5.19
	2.1451	.8588	46.0	102.3	.002544	2.69
	2.2922	.0000	95.7	.0	.002544	11.64
	2.2028	1.9662	20.1	-150.9	.002729	.55
	2.3300	1.2525	13.8	98.1	.002750	.26
	2.3837	1.0736	45.1	107.7	.002697	2.74
	2.4274	.8529	30.6	63.4	.002544	1.19
	2.5109	.0000	33.2	.0	.002544	1.40
1092.30	.9289	1.9526	44.2	-177.4	.002488	2.43
	.8495	1.4069	92.0	-163.5	.002850	12.07
	.9269	1.2908	111.5	-171.7	.002423	15.06
	1.2230	1.1495	307.9	166.1	READINGS	INVALID
	NO READING		READINGS	INVALID		
	1.3430	1.9507	52.8	-171.3	.002608	3.63
	1.4340	1.4475	70.5	165.2	.003034	7.55
	1.5443	1.2985	79.0	144.3	.002883	9.01
	1.8016	.9811	70.4	110.0	READINGS	INVALID
	NO READING					
	1.7339	1.9487	34.1	180.0	.002880	1.67
	1.9139	1.3507	30.6	121.6	.003101	1.45
	1.9874	1.1766	43.1	117.8	.002788	2.59
	2.1113	.8747	49.2	101.8	.002576	3.11
	2.3145	.0000	38.1	.0	.002576	1.87
	2.1500	1.9507	20.7	-150.9	.002880	.61
	2.3029	1.2443	23.4	121.0	.003101	.85
	2.3203	1.0992	50.1	126.9	.002788	3.50
	2.4093	.8612	33.1	76.0	.002576	1.41
	2.5060	.0000	24.1	.0	.002576	.75

Table D-III. Front Smoke Grid Calculations - 1/4 Inch Entrance with Baffle Spaced 1/2 Inch (Continued)

Model 32-B, Shot 321

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
1133.60	.9145	1.9602	22.8	-149.0	.002393	.62
	.8171	1.3897	143.2	-152.4	.003171	32.52
	.8748	1.2982	126.6	-163.0	.002164	17.34
	1.0716	1.1769	236.9	175.7	READINGS	INVALID
	NO READING		READINGS	INVALID		
	1.3400	1.9523	68.6	-175.1	.002535	5.96
	1.4115	1.4533	117.9	160.7	.003081	21.43
	1.5189	1.3181	93.3	164.2	.002798	12.18
	1.8091	1.0179	196.0	135.0	.002316	44.50
	2.1849	.0000	READINGS	INVALID		
	1.7336	1.9543	70.3	180.0	.002802	6.92
	1.9225	1.3698	75.9	136.0	.003031	8.74
	1.9920	1.2127	80.5	129.1	.002740	8.88
	2.1352	.9066	72.3	91.5	.002426	6.33
	2.3300	.0000	3.9	180.0	.002426	.02
	2.1849	1.9563	40.2	157.2	.002802	2.27
	2.3181	1.2724	71.7	119.4	.003031	7.79
	2.3539	1.1133	45.1	95.0	.002740	2.78
	2.4354	.8847	48.8	92.3	.002426	2.89
	2.5348	.0000	17.6	.0	.002426	.37
1174.90	.9095	1.9410	28.4	171.9	.002603	1.05
	.7238	1.3411	199.2	-152.4	.002611	51.78
	.8070	1.2540	177.6	-154.6	.002819	44.47
	.9889	1.1669	203.6	-174.3	READINGS	INVALID
	NO READING		READINGS	INVALID		
	1.2753	1.9448	73.0	164.1	.002672	7.12
	1.3237	1.4862	109.5	166.2	.002631	15.76
	1.4552	1.3237	115.5	159.7	.003012	20.09
	1.6642	1.1185	224.7	139.3	READINGS	INVALID
	NO READING		READINGS	INVALID		
	1.6642	1.9487	52.1	157.4	.002907	3.95
	1.8597	1.4030	92.7	141.1	.002839	12.21
	1.9371	1.2385	92.7	128.9	.002782	11.96
	2.1093	.9463	93.2	108.8	.002326	10.11
	2.3106	.0000	34.1	.0	.002326	1.35
	2.1132	1.9661	89.4	171.0	.002907	11.61
	2.2680	1.3062	70.9	135.0	.002839	7.14
	2.3164	1.1437	63.3	101.0	.002782	5.58
	2.4074	.9095	74.9	105.5	.002326	6.53
	2.5235	.0000	32.1	.0	.002326	1.20

Table D-III. Front Smoke Grid Calculations - 1/4 Inch Entrance with Baffle Spaced 1/2 Inch (Continued)

Model 32-B, Shot 321

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SCFT
1216.20	.8867	1.9642	60.6	165.1	.002219	4.08
	.6421	1.2982	179.2	-147.0	.002881	46.28
	.7157	1.2227	202.6	-152.4	.002556	52.45
	.8708	1.1571	277.5	-166.2	READINGS	INVALID
	NO READING		READINGS	INVALID		
	1.2704	1.9722	72.0	167.5	.002459	6.37
	1.3062	1.4791	93.8	177.6	.003028	13.32
	1.4115	1.3579	149.4	162.5	.002859	31.92
	1.6402	1.1630	156.6	144.1	READINGS	INVALID
	NO READING		READINGS	INVALID		
	1.6859	1.9742	71.0	172.1	.003066	7.77
	1.8509	1.4274	94.8	147.6	.003222	14.47
	1.9344	1.2843	74.8	130.8	.002720	7.60
	2.1054	.9940	84.5	123.7	.002212	7.89
	2.3638	.0000	37.1	.0	.002212	1.52
	2.0974	1.9702	59.7	-168.7	.003066	5.47
	2.2684	1.3221	69.0	135.0	.003222	7.68
	2.3419	1.1750	41.9	117.8	.002720	2.39
	2.4155	.9563	58.9	95.7	.002212	3.83
	2.5666	.0000	58.0	.0	.002212	3.79
1257.50	.8515	1.9585	34.3	-159.4	.002304	1.35
	.5747	1.2443	118.1	-139.8	.002769	19.32
	.6289	1.1611	159.2	-139.1	.002599	32.96
	.7218	1.1011	245.8	-152.8	READINGS	INVALID
	NO READING		READINGS	INVALID		
	1.2056	1.9603	101.2	-166.2	.002679	13.72
	1.2308	1.4901	106.3	-178.9	.002661	15.04
	1.3140	1.3682	135.1	174.0	.002921	26.66
	1.5385	1.2095	191.8	158.5	READINGS	INVALID
	NO READING		READINGS	INVALID		
	1.5946	1.9584	105.3	-162.3	.003051	16.91
	1.7804	1.4533	89.7	153.4	.002733	10.99
	1.8887	1.2946	62.3	146.8	.002782	5.40
	2.0629	1.0160	51.1	115.6	.001956	2.56
	2.3474	.0000	READINGS	INVALID		
	2.0552	1.9545	42.5	-160.7	.003051	2.76
	2.2196	1.3546	42.9	127.4	.002733	2.52
	2.2970	1.1805	27.3	144.0	.002782	1.04
	2.4015	.9676	33.6	107.4	.001956	1.11
	2.5815	.0000	86.2	.0	.001956	7.27

Table D-III. Front Smoke Grid Calculations - 1/4 Inch Entrance with Baffle Spaced 1/2 Inch

Model 32-B, Shot 321

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
1298.80	.8549	1.9523	11.4	-121.0	.002389	.15
	.5527	1.2227	123.1	-138.2	.002754	20.85
	.5964	1.1193	159.1	-138.5	.002628	33.24
	.6541	1.0457	124.2	-126.7	READINGS INVALID	
	NO READING		READINGS INVALID			
	1.1730	1.9483	62.6	-176.4	.002620	5.13
	1.2008	1.4771	84.6	-161.1	.002729	9.76
	1.2783	1.3718	84.0	178.7	.002626	9.26
	1.4632	1.2326	152.6	159.0	READINGS INVALID	
	NO READING		READINGS INVALID			
	1.5865	1.9423	74.2	178.5	.002991	8.24
	1.7714	1.4672	61.3	149.3	.002759	5.18
	1.8827	1.3181	88.8	146.7	.002851	11.24
	2.0835	1.0398	98.1	121.2	READINGS INVALID	
	NO READING		READINGS INVALID			
	2.0577	1.9563	31.8	169.4	.002991	1.51
	2.2425	1.3559	27.2	111.0	.002759	1.02
	2.3201	1.1909	47.5	109.2	.002851	3.22
	2.4056	.9881	55.9	119.2	READINGS INVALID	
	2.6521	.0000	48.8	.0	READINGS INVALID	
1340.10	.8457	1.9468	18.9	148.0	.002320	.42
	.4838	1.1630	READINGS INVALID			
	.5109	1.0566	READINGS INVALID			
	.6483	1.0024	READINGS INVALID			
	NO READING		READINGS INVALID			
	1.1437	1.9565	53.1	169.1	.002613	3.68
	1.1514	1.4630	105.5	-171.3	.002891	16.10
	1.2308	1.3701	102.9	-174.4	.003118	16.47
	1.3972	1.2637	121.1	153.4	READINGS INVALID	
	NO READING		READINGS INVALID			
	1.5210	1.9603	49.5	158.6	.002925	3.59
	1.7281	1.4843	79.9	154.7	.002701	8.61
	1.8152	1.3430	120.8	144.5	.002828	20.63
	2.0126	1.0992	137.6	126.7	READINGS INVALID	
	NO READING		READINGS INVALID			
	2.0242	1.9603	44.2	177.4	.002925	2.85
	2.2100	1.3798	68.1	135.0	.002701	6.26
	2.2816	1.2250	97.4	122.4	.002828	13.41
	2.3745	1.0160	76.6	96.0	READINGS INVALID	
	2.6299	.0000	12.0	.0	READINGS INVALID	

Table D-III. Front Smoke Grid Calculations - 1/4 Inch Entrance with Baffle Spaced 1/2 Inch (Continued)

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
1381.40	.8390	1.9622	34.1	156.4	READINGS INVALID	
	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			
	1.1213	1.9583	68.4	-176.7	.002473	5.79
	1.0974	1.4612	131.7	-168.0	.002918	25.32
	1.1769	1.3618	149.7	-164.9	.003123	34.98
	1.3559	1.2863	177.7	-178.7	READINGS INVALID	
	NO READING		READINGS INVALID			
	1.5408	1.9602	57.8	-168.3	.003085	5.16
	1.6998	1.5010	99.0	158.0	.003228	15.81
	1.7853	1.3877	96.9	145.7	.002768	13.00
	2.0020	1.1491	94.4	119.7	READINGS INVALID	
	NO READING		READINGS INVALID			
	2.0139	1.9583	55.5	169.9	.003085	4.76
	2.1948	1.4036	65.0	138.7	.003228	6.82
	2.2684	1.2724	91.8	128.1	.002768	11.66
	2.3976	1.0636	85.3	105.9	READINGS INVALID	
	2.6640	.0000	15.6	.0	READINGS INVALID	
1435.75	.8147	1.9603	READINGS INVALID			
	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			
	1.0760	1.9526	49.3	-153.4	.002542	3.09
	1.0237	1.4359	122.9	-146.3	.002505	18.93
	1.0876	1.3314	178.5	-154.0	.002755	43.89
	1.2211	1.2598	194.1	-161.9	READINGS INVALID	
	NO READING		READINGS INVALID			
	1.4649	1.9487	74.9	-159.6	.002996	8.40
	1.6372	1.5210	94.0	168.9	.003003	13.27
	1.7358	1.3972	99.8	157.6	.003001	14.95
	1.9661	1.1305	130.2	146.3	READINGS INVALID	
	NO READING		READINGS INVALID			
	1.9700	1.9700	53.5	-167.0	.002996	4.29
	2.1616	1.4224	44.5	125.8	.003003	2.98
	2.2254	1.2966	51.1	115.6	.003001	3.92
	2.3512	1.0972	78.2	112.6	READINGS INVALID	
	2.6454	.0000	READINGS INVALID			

Table D-III. Front Smoke Grid Calculations - 1/4 Inch Entrance with Baffle Spaced 1/2 Inch (Continued)

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
1477.05	NO READING					
	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			
	1.0775	1.9364	57.2	172.1	.002504	4.09
	.9960	1.3936	119.9	-142.9	.002702	19.41
	1.0179	1.2843	105.7	-154.9	.002635	14.71
	1.1730	1.2266	159.3	-160.7	READINGS INVALID	
	NO READING		READINGS INVALID			
	1.4712	1.9344	82.2	-175.9	.003088	10.43
	1.6083	1.5189	119.2	177.2	.003178	22.60
	1.6938	1.4254	146.4	163.7	.002669	28.61
	1.8946	1.2207	191.2	154.0	READINGS INVALID	
	NO READING		READINGS INVALID			
	1.9622	1.9463	63.6	-169.4	.003088	6.24
	2.1690	1.4394	95.7	140.8	.003178	14.57
	2.2465	1.3181	79.0	130.0	.002669	8.33
	2.3678	1.1352	106.6	118.4	READINGS INVALID	
	NO READING		READINGS INVALID			
1518.35	.8147	1.9390	READINGS INVALID			
	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			
	1.0198	1.9603	74.3	176.9	.002501	6.91
	.9289	1.3643	156.3	-146.5	.003223	39.38
	.9927	1.2869	112.9	-146.6	.002773	17.68
	1.0721	1.2075	166.5	-148.8	READINGS INVALID	
	NO READING		READINGS INVALID			
	1.3836	1.9429	108.6	168.3	.003026	17.84
	1.5191	1.5269	118.8	175.2	.002936	20.70
	1.5965	1.4378	124.4	179.1	.002810	21.73
	1.7958	1.2637	161.8	160.4	READINGS INVALID	
	NO READING		READINGS INVALID			
	1.9081	1.9584	88.5	176.1	.003026	11.84
	2.0881	1.4823	118.8	158.2	.002936	20.72
	2.1751	1.3566	144.4	152.7	.002810	29.30
	2.3009	1.1901	135.3	140.4	READINGS INVALID	
	NO READING		READINGS INVALID			

Table D-IV. Rear Smoke Grid Calculations - 1/4 Inch Entrance with Baffle Spaced 1/2 Inch

Model 32-B, Shot 318

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
142.40	2.5393	2.0139	4.4	26.6	.002414	.02
	2.5214	1.2179	4.4	- 26.6	.002347	.02
	2.5015	.9473	3.9	89.9	.002486	.02
	2.4915	.5751	17.5	63.4	.002380	.36
	2.4776	.0000	7.8	.0	.002380	.07
	2.8537	2.0657	10.0	78.7	.002298	.11
	2.8577	1.2577	3.9	- 89.9	.002232	.02
	2.8498	.9970	12.5	-128.7	.002342	.19
	2.8517	.6289	8.1	166.0	.002321	.09
	2.8458	.0000	19.5	180.0	.002321	.44
	3.2856	2.1174	17.7	- 96.3	.002272	.36
	3.2438	1.2975	16.8	35.5	.002168	.31
	3.2498	1.0229	6.2	-108.4	.002498	.05
	3.2279	.6687	4.4	63.4	.002350	.02
	3.2279	.0000	.0	.0	.002350	.00
	3.6299	2.1791	13.1	- 63.4	.002272	.20
	3.6139	1.3512	9.8	-126.9	.002168	.10
	3.6100	1.1005	15.8	- 60.3	.002498	.31
	3.6119	.7045	15.3	39.8	.002350	.27
	3.6060	.0000	3.9	.0	.002350	.02
183.70	2.5182	2.0165	17.3	- 54.5	.002384	.36
	2.4949	1.2126	32.9	- 37.6	.002469	1.34
	2.4794	.9530	25.2	- 28.6	.002533	.80
	2.4678	.5869	8.0	.0	.002430	.05
	2.4659	.0000	2.0	.0	.002430	.00
	2.8339	2.0552	20.1	.0	.002269	.46
	2.8320	1.2397	16.6	- 76.0	.002239	.31
	2.8223	.9918	48.6	- 82.9	.002314	2.73
	2.8223	.6199	16.2	- 97.1	.002264	.30
	2.8223	.0000	10.0	180.0	.002264	.11
	3.2581	2.1133	38.1	-161.6	.002310	1.68
	3.2407	1.3114	4.0	180.0	.002064	.02
	3.2194	1.0344	17.0	-135.0	.002419	.35
	3.2174	.6760	8.3	-104.0	.002281	.08
	3.2058	.0000	12.0	180.0	.002281	.17
	3.6048	2.1772	14.2	171.9	.002310	.23
	3.6068	1.3617	24.1	- 90.0	.002064	.60
	3.6068	1.1002	10.8	-111.8	.002419	.14
	3.6010	.7128	18.5	-167.5	.002281	.39
	3.5990	.0000	4.0	180.0	.002281	.02

Table D-IV. Rear Smoke Grid Calculations - 1/4 Inch Entrance with Baffle Spaced 1/2 Inch (Continued)

Model 32.B, Shot 318

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
225.00	2.5493	2.0000	33.4	- 20.6	.002426	1.35
	2.5473	1.1980	41.2	5.4	.002372	2.02
	2.5234	.9353	41.8	- 10.6	.002747	2.40
	2.4995	.5751	37.3	- 6.0	.002487	1.73
	2.4796	.0000	19.5	.0	.002487	.47
	2.8736	2.0657	21.8	10.3	.002483	.59
	2.8617	1.2418	37.3	6.0	.002138	1.49
	2.8557	.9493	35.7	- 9.5	.002580	1.64
	2.8498	.6129	37.1	18.4	.002373	1.63
	2.8358	.0000	21.5	.0	.002373	.55
	3.2498	2.1055	10.5	21.8	.002164	.12
	3.2398	1.2975	15.8	- 82.9	.002149	.27
	3.2378	1.0109	22.8	31.0	.002562	.67
	3.2259	.6607	7.0	- 56.3	.002396	.06
	3.2159	.0000	2.0	180.0	.002396	.00
	3.6159	2.1811	2.8	- 45.0	.002164	.01
	3.6139	1.3274	7.0	-123.7	.002149	.05
	3.6060	1.0905	19.9	-168.7	.002562	.51
	3.5940	.7005	25.5	-175.6	.002396	.78
	3.6020	.0000	13.7	180.0	.002396	.22
266.30	2.5492	2.0048	66.4	3.5	.002454	5.41
	2.5356	1.2165	46.9	9.9	.002405	2.64
	2.5201	.9453	52.5	6.6	.002641	3.65
	2.5046	.5831	57.1	- 10.1	.002418	3.94
	2.4852	.0000	88.3	.0	.002418	9.44
	2.8552	2.0591	41.4	- 22.8	.002373	2.03
	2.8688	1.2436	58.5	15.9	.002461	4.21
	2.8571	.9860	50.6	6.8	.002465	3.15
	2.8571	.6315	60.2	.0	.002424	4.40
	2.8436	.0000	72.3	.0	.002424	6.33
	3.2678	2.1172	82.5	19.4	.002325	7.92
	3.2426	1.2959	48.8	- 9.5	.002319	2.77
	3.2387	1.0460	50.8	- 18.4	.002608	3.36
	3.2213	.6702	54.5	6.3	.002420	3.60
	3.2039	.0000	24.1	.0	.002420	.70
	3.6068	2.1753	48.2	2.4	.002325	2.70
	3.6029	1.3559	36.9	29.4	.002319	1.58
	3.5874	1.0964	16.2	- 60.3	.002608	.34
	3.5758	.7109	32.4	- 7.1	.002420	1.27
	3.5855	.0000	18.1	.0	.002420	.40

Table D-IV. Rear Smoke Grid Calculations - 1/4 Inch Entrance with Baffle Spaced 1/2 Inch (Continued)

Model 32-B, Shot 318

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
307.60	2.6149	2.0040	66.9	6.7	.002553	3.71
	2.5930	1.2060	74.9	15.1	.002295	6.44
	2.5751	.9413	84.8	14.7	.002652	9.55
	2.5552	.5652	82.4	- 5.4	.002546	8.65
	2.5672	.0000	99.7	.0	.002546	12.64
	2.9114	2.0495	74.3	- 1.5	.002383	6.57
	2.9174	1.2577	66.8	15.3	.002101	4.69
	2.9055	.9552	64.6	- 3.5	.002661	5.55
	2.9095	.6129	72.7	- 6.3	.002546	6.73
	2.9075	.0000	84.0	.0	.002546	8.99
	3.3274	2.1315	74.7	6.0	.002292	6.39
	3.2876	1.2696	72.5	4.6	.002179	5.73
	3.2856	.9950	66.5	- 1.7	.002902	6.41
	3.2796	.5667	82.1	- 1.4	.002487	8.38
	3.2398	.0000	84.0	.0	.002487	8.78
	3.6637	2.1831	30.6	26.6	.002292	1.07
	3.6458	1.3453	35.7	- 9.3	.002279	1.39
	3.6139	1.0766	51.0	4.4	.002902	3.77
	3.6259	.6965	81.3	- 9.7	.002487	8.22
	3.6199	.0000	64.5	.0	.002487	5.17
348.90	2.6150	2.0124	20.7	29.1	.002503	.53
	2.6073	1.2358	34.4	6.7	.002403	1.43
	2.6015	.9666	40.0	17.5	.002624	2.10
	2.5860	.5753	68.7	15.3	.002536	5.98
	2.5840	.0000	36.1	.0	.002536	1.66
	2.9288	2.0571	44.2	.0	.002377	2.32
	2.9327	1.2610	44.4	- 5.2	.002300	2.26
	2.9211	.9821	46.6	7.4	.002404	2.61
	2.9288	.6237	46.4	5.0	.002409	2.59
	2.9269	.0000	48.2	.0	.002409	2.80
	3.3414	2.1249	31.4	- 63.4	.002604	1.29
	3.3143	1.3017	26.2	32.5	.002506	.86
	3.3046	1.0441	41.2	47.0	.002595	2.20
	3.3027	.6683	13.5	- 26.6	.002521	.23
	3.2872	.0000	75.3	.0	.002521	7.34
	3.6339	2.1889	14.6	-164.1	.002604	.26
	3.6378	1.3501	17.2	-110.6	.002506	.37
	3.6378	1.1002	28.7	24.9	.002595	1.07
	3.6552	.6973	15.3	- 23.2	.002521	.29
	3.6494	.0000	14.1	.0	.002521	.25

Table D-IV. Rear Smoke Grid Calculations - 1/4 Inch Entrance with Baffle Spaced 1/2 Inch (Continued)

Model 32-B, Shot 318

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
390.20	2.6328	2.0139	16.7	20.6	.002395	.33
	2.6269	1.2100	10.0	- 78.7	.002303	.11
	2.6129	.9532	2.8	-135.0	.002706	.01
	2.6209	.5831	33.6	35.5	.002532	1.43
	2.6030	.0000	READINGS	INVALID		
	2.9552	2.0498	26.2	63.4	.002609	.90
	2.9612	1.2537	2.8	- 45.0	.002318	.01
	2.9512	.9612	26.6	- 17.1	.002715	.96
	2.9552	.6169	14.2	- 74.1	.002562	.26
	2.9552	.0000	3.9	.0	.002562	.02
	3.3413	2.1035	17.5	-153.4	.002533	.39
	3.3095	1.3035	7.8	180.0	.002438	.07
	3.3134	1.0249	12.5	-141.3	.002712	.21
	3.2915	.6607	21.6	174.8	.002728	.64
	3.3154	.0000	15.6	180.0	.002728	.33
	3.6498	2.1791	37.2	- 3.0	.002533	1.75
	3.6398	1.3294	27.4	90.0	.002438	.91
	3.6398	1.0886	8.1	-166.0	.002712	.09
	3.6398	.6903	48.1	153.4	.002728	3.15
	3.6338	.0000	35.2	180.0	.002728	1.69
431.50	2.6305	2.0184	13.5	- 63.4	.002461	.22
	2.6092	1.2262	30.6	66.8	.002309	1.08
	2.5995	.9646	28.4	45.0	.002661	1.07
	2.6131	.5947	4.5	- 26.6	READINGS	INVALID
	NO READING					
	2.9404	2.0804	11.7	59.0	.002465	.17
	2.9346	1.2591	16.6	104.0	.002369	.32
	2.9462	.9743	14.2	98.1	.002645	.27
	2.9327	.6102	11.7	-149.0	.002587	.18
	2.9308	.0000	12.0	180.0	.002587	.19
	3.3259	2.1172	14.2	135.0	.002437	.25
	3.3065	1.3017	12.2	-170.5	.002312	.17
	3.2949	1.0363	25.2	-118.6	.002814	.89
	3.2814	.6702	16.2	82.9	.002628	.34
	3.2717	.0000	36.1	180.0	.002628	1.72
	3.6707	2.1869	29.0	-123.7	.002437	1.02
	3.6378	1.3772	32.7	100.6	.002312	1.24
	3.6300	1.0983	6.0	180.0	.002814	.05
	3.6126	.7186	24.4	99.5	.002628	.78
	3.6145	.0000	6.0	180.0	.002628	.05

Table D-IV. Rear Smoke Grid Calculations - 1/4 Inch Entrance with Baffle Spaced 1/2 Inch (Continued)

Model 32-B, Shot 318

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
472.80	2.6388	2.0070	3.9	180.0	.002527	.02
	2.6388	1.2378	15.6	90.0	.002392	.29
	2.6328	.9731	34.2	59.0	.002705	1.58
	2.6249	.5811	7.8	.0	.002721	.08
	2.6209	.0000	READINGS	INVALID		
	2.9612	2.0597	31.8	-137.5	.002669	1.36
	2.9572	1.2697	11.9	80.5	.002288	.16
	2.9492	.9751	31.5	119.7	.002773	1.38
	2.9453	.6109	24.2	76.0	.002593	.76
	2.9433	.0000	5.9	.0	.002593	.04
	3.3313	2.1134	5.5	135.0	.002601	.04
	3.2975	1.3055	11.4	149.0	.002177	.14
	3.3015	1.0030	11.4	-121.0	.002944	.19
	3.2935	.6765	21.1	56.3	.002562	.57
	3.2796	.0000	13.7	.0	.002562	.24
	3.6338	2.4552	32.3	-155.0	.002601	1.36
	3.6338	1.3612	11.9	- 80.5	.002177	.15
	3.6338	1.0866	21.0	68.2	.002944	.65
	3.6358	.7144	23.9	- 35.0	.002562	.73
	3.6279	.0000	17.6	.0	.002562	.40
514.10	2.6266	2.0184	25.7	141.3	.002602	.86
	2.6092	1.2416	9.0	-153.4	.002556	.10
	2.6169	.9937	12.2	- 99.5	.002684	.20
	2.6208	.5947	24.5	35.0	.002680	.80
	2.6208	.0000	34.1	.0	.002680	1.56
	2.9172	2.0591	30.2	176.2	.002491	1.13
	2.9366	1.2707	22.4	-116.6	.002381	.60
	2.9308	1.0015	8.0	89.9	.002650	.09
	2.9385	.6334	17.3	54.5	.002459	.37
	2.9366	.0000	12.0	.0	.002459	.18
	3.3220	2.1211	26.2	122.5	.002483	.85
	3.2969	1.3075	14.5	- 33.7	.002286	.24
	3.2891	1.0266	30.2	- 93.5	.002689	1.22
	3.2930	.6877	18.9	- 32.0	.002575	.46
	3.2852	.0000	22.1	.0	.002575	.65
	3.6416	2.1734	18.0	116.6	.002483	.40
	3.6397	1.3656	4.5	- 63.4	.002286	.02
	3.6378	1.1177	6.3	-108.4	.002689	.05
	3.6320	.7051	13.5	- 63.4	.002575	.23
	3.6320	.0000	8.0	.0	.002575	.08

Table D-IV. Rear Smoke Grid Calculations - 1/4 Inch Entrance with Baffle Spaced 1/2 Inch (Continued)

Model 32-B, Shot 318

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
555.40	2.6189	2.0179	9.8	180.0	.002503	.12
	2.6308	1.2338	16.8	35.5	.002476	.35
	2.6308	.9612	22.9	- 70.0	.002851	.75
	2.6448	.5950	18.0	49.4	.002795	.45
	2.6547	.0000	11.7	.0	.002795	.19
	2.9313	2.0617	7.0	- 33.7	.002464	.06
	2.9473	1.2498	11.7	.0	.002247	.15
	2.9493	.9631	20.1	- 60.9	.002855	.58
	2.9552	.6249	11.4	31.0	.002524	.16
	2.9552	.0000	17.6	.0	.002524	.39
	3.3174	2.1353	8.1	-166.0	.002529	.08
	3.3095	1.2935	8.1	166.0	.002137	.07
	3.2995	.9731	2.0	- 89.7	.003025	.01
	3.3095	.6667	10.5	- 68.2	.002696	.15
	3.3015	.0000	13.7	.0	.002696	.25
	3.6259	2.1711	23.8	99.5	.002529	.71
	3.6358	1.3572	14.9	-156.8	.002137	.24
	3.6318	1.0826	6.2	161.6	.003025	.06
	3.6418	.7025	16.6	45.0	.002696	.37
	3.6358	.0000	15.6	180.0	.002696	.33
596.70	2.6169	2.0184	38.2	- 3.0	.002564	1.87
	2.6228	1.2513	15.3	23.2	.002339	.27
	2.6247	.9724	21.6	68.2	.002903	.68
	2.6324	.6082	12.7	- 71.6	.002621	.21
	2.6324	.0000	10.0	180.0	.002621	.13
	2.9230	2.0552	33.4	- 32.7	.002614	1.46
	2.9482	1.2707	25.2	61.4	.002387	.76
	2.9404	.9840	20.1	- 67.4	.002768	.94
	2.9482	.6392	2.8	- 45.0	.002498	.01
	2.9540	.0000	4.0	180.0	.002498	.02
	3.3143	2.1191	58.4	- 49.2	.002456	4.18
	3.2891	1.3094	10.0	126.9	.002327	.12
	3.2891	1.0247	10.2	101.3	.002674	.14
	3.2969	.6780	8.5	135.0	.002657	.10
	3.2988	.0000	2.0	.0	.002657	.01
	3.6378	2.1966	24.5	- 35.0	.002456	.74
	3.6262	1.3598	15.3	-156.8	.002327	.27
	3.6320	1.1196	12.9	38.7	.002674	.22
	3.6436	.7167	11.7	121.0	.002657	.18
	3.6165	.0000	8.0	180.0	.002657	.09

Table D-IV. Rear Smoke Grid Calculations - 1/4 Inch Entrance with Baffle Spaced 1/2 Inch (Continued)

Model 32-B, Shot 318

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
638.00	2.6567	2.0159	13.8	-135.0	.002636	.25
	2.6448	1.2398	20.4	-163.3	.002339	.49
	2.6388	.9811	14.1	146.3	.002818	.28
	2.6488	.5831	26.1	167.0	.002812	.96
	2.6448	.0000	17.6	180.0	.002812	.43
	2.9592	2.0439	16.1	166.0	.002648	.34
	2.9592	1.2716	29.9	-168.7	.002183	.98
	2.9592	.9592	19.5	143.1	.003020	.58
	2.9572	.6229	29.8	113.2	.002523	1.12
	2.9512	.0000	19.5	180.0	.002523	.46
	3.3552	2.0915	7.8	180.0	.002761	.08
	3.3035	1.3035	34.1	156.4	.002157	1.26
	3.2975	.9831	30.6	153.4	.002981	1.39
	3.3035	.6726	36.4	143.7	.002705	1.79
	3.3035	.0000	29.3	180.0	.002705	1.16
	3.6458	2.1572	9.8	143.1	.002761	.13
	3.6219	1.3512	21.1	123.7	.002157	.48
	3.6418	1.0905	14.1	123.7	.002981	.30
	3.6358	.7124	34.6	127.3	.002705	1.62
	3.6279	.0000	3.9	.0	.002705	.02
679.30	2.6073	2.0087	21.3	-138.8	.002622	.60
	2.6034	1.2455	20.1	90.0	.002523	.51
	2.6131	.9801	11.4	45.0	.002917	.19
	2.6073	.6140	34.1	90.0	.002508	1.46
	2.6150	.0000	10.0	.0	.002508	.13
	2.9075	2.0591	40.2	180.0	.002609	2.10
	2.9191	1.2649	5.0	180.0	.002501	.05
	2.9249	.9956	32.4	111.2	.002988	1.57
	2.9366	.6663	4.5	116.6	.002509	.03
	2.9346	.0000	14.1	.0	.002509	.25
	3.3065	2.1191	34.5	144.5	.002432	1.45
	3.2581	1.3230	4.0	89.9	.002171	.02
	3.2620	1.0383	15.7	50.2	.002668	.33
	3.2678	.6993	12.0	90.0	.002436	.18
	3.2697	.0000	14.1	180.0	.002436	.24
	3.6300	2.2024	14.2	-171.9	.002432	.25
	3.6145	1.3772	34.2	49.6	.002171	1.27
	3.6242	1.1312	2.0	180.0	.002668	.01
	3.6164	.7400	4.5	26.6	.002436	.02
	3.6203	.0000	4.0	.0	.002436	.02

Table D-IV. Rear Smoke Grid Calculations - 1/4 Inch Entrance with Baffle Spaced 1/2 Inch (Continued)

Model 32-B, Shot 318

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
720.60	2.6408	2.0020	13.8	- 81.9	.002824	.27
	2.6448	1.2597	14.9	23.2	.002517	.28
	2.6468	.9891	18.5	71.6	.002920	.50
	2.6488	.6169	19.9	- 11.3	.002716	.54
	2.6547	.0000	25.4	.0	.002716	.88
	2.9194	2.0438	14.2	-105.9	.002548	.26
	2.9532	1.2716	17.5	26.6	.002229	.34
	2.9473	.9891	21.1	33.7	.002807	.63
	2.9552	.6269	13.8	- 61.9	.002589	.25
	2.9652	.0000	15.6	.0	.002589	.32
	3.3274	2.1114	11.4	-121.0	.002607	.17
	3.3035	.3055	24.5	- 28.6	.002073	.62
	3.3075	.9950	29.3	- 36.9	.003029	1.30
	3.3025	.6846	33.6	- 54.5	.002592	1.47
	3.2896	.0000	3.9	.0	.002592	.02
	3.6318	2.1552	35.4	- 83.7	.002607	1.63
	3.6438	1.3771	29.6	- 82.4	.002073	.91
	3.6398	1.0905	29.1	-109.7	.003029	1.28
	3.6398	.7144	39.1	- 92.9	.002592	1.98
	3.6318	.0000	9.8	180.0	.002592	.12
761.90	2.6092	1.9952	11.4	135.0	.002702	.17
	2.6169	1.2513	10.2	101.3	.002545	.13
	2.6189	.9976	6.3	- 18.4	.002760	.06
	2.6266	.6102	29.0	- 28.3	.002650	1.16
	2.6402	.0000	20.1	.0	.002650	.53
	2.9036	2.0455	32.9	37.6	.002616	1.42
	2.9346	1.2726	12.2	9.5	.002452	.18
	2.9424	1.0073	15.9	- 32.0	.002753	.49
	2.9385	.6528	25.2	28.6	.002563	.81
	2.9501	.0000	6.0	.0	.002563	.05
	3.3007	2.1094	12.2	-170.5	.002454	.18
	3.2794	1.3114	6.0	.0	.002329	.04
	3.2852	1.0208	21.7	33.7	.002804	.66
	3.2872	.6722	16.2	- 7.1	.002689	.35
	3.2736	.0000	14.1	.0	.002689	.27
	3.6339	2.1676	32.9	37.6	.002454	1.33
	3.6184	1.3482	32.2	- 93.6	.002329	1.21
	3.5145	1.1041	8.5	- 45.0	.002804	.10
	3.6165	.7012	21.3	- 41.2	.002689	.61
	3.6107	.0000	15.1	.0	.002689	.44

Table D-IV. Rear Smoke Grid Calculations - 1/4 Inch Entrance with Baffle Spaced 1/2 Inch (Continued)

Model 32-B, Shot 318

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
803.20	2.6328	2.0100	25.7	6.7	.002596	.85
	2.6428	1.2697	30.6	26.6	.002322	1.09
	2.6527	.9671	44.6	15.3	.002925	2.90
	2.6746	.6030	56.4	14.0	.002803	4.46
	2.6746	.0000	15.6	.0	.002803	.34
	2.9453	2.0637	37.1	.0	.002677	1.85
	2.9652	1.2736	25.0	51.3	.002237	.70
	2.9632	.9791	14.9	23.2	.002854	.32
	2.9771	.6388	41.0	.0	.002564	2.16
	2.9711	.0000	2.0	.0	.002564	.00
	3.3154	2.1095	46.1	36.4	.002418	2.57
	3.3095	1.3035	21.6	5.2	.002266	.52
	3.3254	1.0070	50.1	51.3	.002983	3.74
	3.3194	.6826	23.6	24.4	.002606	.73
	3.3035	.0000	5.9	.0	.002606	.04
	3.6577	2.1751	24.2	76.0	.002418	.71
	3.6418	1.3453	28.0	12.1	.002266	.89
	3.6458	1.0846	23.5	4.8	.002983	.83
	3.6557	.7005	30.5	50.2	.002606	1.21
	3.6498	.0000	21.5	.0	.002606	.60
544.50	2.6344	1.9990	36.6	- 9.5	.002759	1.85
	2.6441	1.2649	39.4	14.7	.002635	2.05
	2.6615	1.0092	55.2	19.1	.002935	4.48
	2.6809	.6237	43.1	27.8	.002751	2.56
	2.6557	.0000	44.2	.0	.002751	2.68
	2.9404	2.0453	25.7	- 38.7	.002595	.86
	2.9501	1.2920	25.4	18.4	.002471	.80
	2.9559	1.0131	35.1	31.0	.002623	1.62
	2.9792	.6528	38.6	27.9	.002610	1.95
	2.9521	.0000	48.2	.0	.002610	3.03
	3.3375	2.1366	37.5	- 15.5	.002483	1.75
	3.3007	1.3133	30.6	66.8	.002485	1.16
	3.3162	1.0596	8.3	104.0	.002824	.10
	3.3065	.6818	20.1	36.9	.002576	.52
	3.2794	.0000	26.1	.0	.002576	.88
	3.6397	2.1908	37.7	- 64.8	.002483	1.77
	3.6455	1.3540	26.9	63.4	.002485	.90
	3.6378	1.1061	29.7	77.9	.002824	1.17
	3.6358	.7245	21.6	68.2	.002576	.60
	3.6320	.0000	12.0	.0	.002576	.19

Table D-IV. Rear Smoke Grid Calculations - 1/4 Inch Entrance with Baffle Spaced 1/2 Inch (Continued)

Model 32-B, Shot 318

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
885.90	2.6687	2.0040	25.5	32.5	.002785	.90
	2.6806	1.2796	49.8	41.8	.002541	3.15
	2.7045	1.0050	41.5	41.2	.003064	2.64
	2.7124	.6229	34.2	31.0	.002718	1.59
	2.7164	.0000	84.0	.0	.002718	9.59
	2.9652	2.0478	24.5	28.6	.002773	.83
	2.9891	1.2816	42.9	30.1	.002348	2.16
	2.9930	.9970	48.5	40.1	.003082	3.63
	3.0109	.6567	35.2	33.7	.002661	1.65
	3.0189	.0000	70.4	.0	.002661	6.59
	3.3512	2.0995	36.0	- 49.4	.002650	1.72
	3.3214	1.3333	34.6	47.3	.002191	1.31
	3.3234	1.0149	9.8	- 53.1	.002950	.14
	3.3353	.6945	30.9	55.3	.002631	1.26
	3.3294	.0000	48.9	.0	.002631	3.14
	3.6736	2.1413	34.2	- 59.0	.002650	1.55
	3.6537	1.3692	40.3	76.0	.002191	1.78
	3.6517	1.1124	25.0	51.3	.002950	.92
	3.6637	.7204	19.5	53.1	.002631	.50
	3.6617	.0000	17.6	.0	.002631	.41
927.10	2.6557	2.0126	42.2	2.7	.002809	2.50
	2.6809	1.2978	46.8	31.0	.002631	2.89
	2.6925	1.0363	41.2	43.0	.002827	2.40
	2.7099	.6412	64.1	32.2	.002726	5.59
	2.7390	.0000	70.3	.0	.002726	6.73
	2.9617	2.0571	32.4	21.8	.002739	1.44
	2.9869	1.3133	44.1	30.1	.002534	2.46
	2.9927	1.0441	41.4	39.1	.002881	2.47
	3.0082	.6722	36.6	9.5	.002652	1.78
	3.0219	.0000	40.2	.0	.002652	2.14
	3.3608	2.1094	23.4	31.0	.002763	.76
	3.3240	1.3385	38.2	3.0	.002272	1.66
	3.3220	1.0518	66.9	41.3	.002915	6.52
	3.3259	.7070	27.3	36.0	.002642	.99
	3.3278	.0000	18.1	.0	.002642	.43
	3.6571	2.1617	8.5	45.0	.002763	.10
	3.6552	1.3927	11.7	- 31.0	.002272	.16
	3.6533	1.1254	21.0	16.7	.002915	.64
	3.6475	.7400	14.2	81.9	.002642	.27
	3.6494	.0000	12.0	180.0	.002642	.19

Table D-IV. Rear Smoke Grid Calculations - 1/4 Inch Entrance with Baffle Spaced 1/2 Inch (Continued)

Model 32-B, Shot 318

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
968.40	2.7104	2.0060	19.6	- 5.7	.002911	.56
	2.7204	1.3035	10.5	22.8	.002577	.14
	2.7343	1.0328	33.7	10.0	.003097	1.76
	2.7662	.6567	49.8	25.6	.002865	3.56
	2.7881	.0000	58.6	.0	.002865	4.92
	2.9950	2.0597	13.1	62.4	.002806	.24
	3.0269	1.3035	16.8	- 35.5	.002471	.35
	3.0249	1.0229	26.2	- 26.6	.002865	.98
	3.0468	.6627	33.2	.0	.002775	1.53
	3.0587	.0000	39.1	.0	.002775	2.12
	3.3711	2.1114	28.2	56.3	.002786	1.11
	3.3592	1.3353	16.1	14.0	.002632	.34
	3.3731	1.0587	31.8	42.5	.003138	1.59
	3.3572	.7104	37.9	- 11.9	.002786	2.01
	3.3473	.0000	19.5	.0	.002788	.53
	3.6796	2.1473	20.8	-138.8	.002786	.60
	3.6637	1.3632	7.0	- 56.3	.002632	.07
	3.6716	1.1184	13.7	- 90.0	.003138	.29
	3.6657	.7343	13.8	- 45.0	.002788	.27
	3.6498	.0000	9.8	.0	.002788	.13
1009.70	2.6751	2.0107	40.0	-162.5	.002824	2.26
	2.6906	1.3017	11.4	-135.0	.002664	.17
	2.7254	1.0421	7.2	123.7	.003047	.08
	2.7545	.6625	9.0	- 26.6	.002836	.11
	2.7971	.0000	20.1	.0	.002836	.57
	2.9676	2.0688	14.6	-105.9	.002624	.28
	3.0005	1.3036	30.1	-143.1	.002588	1.17
	3.0160	1.0324	19.8	-114.0	.002784	.54
	3.0412	.6722	9.0	-153.4	.002736	.11
	3.0605	.0000	22.1	180.0	.002736	.67
	3.3763	2.1327	6.3	-108.4	.002934	.06
	3.3395	1.3424	26.1	-112.6	.002437	.83
	3.3453	1.0731	54.2	-129.0	.003042	4.48
	3.3627	.6993	22.2	- 84.8	.002839	.70
	3.3472	.0000	12.0	180.0	.002839	.21
	3.6416	2.1482	11.4	-135.0	.002934	.19
	3.6591	1.3869	14.1	- 90.0	.002437	.24
	3.6533	1.1119	44.4	- 84.8	.003042	2.99
	3.6571	.7303	28.4	- 98.1	.002839	1.14
	3.6591	.0000	14.1	180.0	.002839	.28

Table D-IV. Rear Smoke Grid Calculations - 1/4 Inch Entrance with Baffle Spaced 1/2 Inch (Continued)

Model 32-B, Shot 318

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
1051.00	2.6726	1.9940	41.1	-177.3	.002826	2.39
	2.7124	1.2955	17.5	116.6	.002747	.42
	2.7303	1.0388	40.2	119.1	.003239	2.62
	2.7741	.6527	19.5	53.1	.003219	.61
	2.8080	.0000	7.8	.0	.003219	.10
	2.9910	2.0458	21.1	-123.7	.002712	.61
	3.0030	1.2856	26.6	162.9	.002441	.86
	3.0169	1.0050	18.0	167.5	.003074	.50
	3.0388	.6587	9.8	143.1	.002740	.13
	3.0368	.0000	3.9	180.0	.002740	.05
	3.3692	2.1055	33.3	-130.2	.002727	1.51
	3.3493	1.3114	3.9	.0	.002247	.04
	3.3393	1.0169	31.5	- 97.1	.003119	1.55
	3.3592	.6686	12.5	141.3	.002927	.23
	3.3353	.0000	15.6	180.0	.002927	.36
	3.6716	2.1393	23.9	55.0	.002727	.78
	3.6637	1.3493	8.1	104.0	.002247	.07
	3.6756	1.0746	13.1	- 63.4	.003119	.27
	3.6617	.7065	8.1	76.0	.002927	.10
	3.6358	.0000	9.8	180.0	.002927	.14
1092.30	2.6344	2.0087	26.1	157.4	.002855	.97
	2.6828	1.3172	18.5	139.4	.002833	.49
	2.7061	1.0770	21.0	106.7	.003098	.68
	2.7661	.6760	22.4	79.7	.002972	.75
	2.8048	.0000	6.0	.0	.002972	.05
	2.9559	2.0513	18.2	173.7	.002634	.44
	2.9753	1.3114	30.6	121.6	.002286	1.07
	2.9965	1.0363	13.5	153.4	.002903	.26
	3.0334	.6780	28.4	81.9	.002763	1.11
	3.0547	.0000	32.1	.0	.002763	1.43
	3.3550	2.1075	12.2	- 80.5	.002827	.21
	3.3453	1.3424	44.2	129.3	.002225	2.18
	3.3414	1.0421	28.1	90.0	.003186	1.26
	3.3530	.7070	20.2	84.3	.002731	.56
	3.3317	.0000	4.0	.0	.002731	.02
	3.6552	2.1676	31.7	71.6	.002827	1.42
	3.6571	1.3947	26.4	98.7	.002225	.78
	3.6591	1.1002	24.5	125.0	.003186	.96
	3.6591	.7380	30.2	86.2	.002731	1.24
	3.6494	.0000	18.1	.0	.002731	.45

Table D-IV. Rear Smoke Grid Calculations - 1/4 Inch Entrance with Baffle Spaced 1/2 Inch (Continued)

Model 32-B, Shot 318

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
1133.60	2.6488	2.0040	2.0	.0	.002855	.01
	2.6985	1.3075	30.3	104.9	.002729	1.26
	2.7244	1.0587	4.4	-116.6	.003398	.03
	2.7781	.6746	27.1	59.7	.002945	1.09
	2.8139	.0000	2.0	180.0	.002945	.01
	2.9731	2.0478	3.1	-166.0	.002814	.09
	2.9871	1.3114	20.4	73.3	.002323	.48
	3.0050	1.0109	15.8	7.1	.003079	.38
	3.0428	.6866	38.9	72.5	.002778	2.11
	3.0687	.0000	29.3	.0	.002778	1.19
	3.3711	2.0935	4.4	-153.4	.002678	.03
	3.3214	1.3453	12.5	141.3	.002160	.17
	3.3393	1.0448	32.1	37.6	.003187	1.64
	3.3612	.7085	30.9	18.4	.002762	1.32
	3.3393	.0000	54.7	.0	.002762	4.13
	3.6816	2.1692	29.4	- 3.8	.002678	1.16
	3.6597	1.3751	29.9	11.3	.002160	.96
	3.6617	1.0945	35.2	- 19.4	.003187	1.98
	3.6637	.7363	25.5	4.4	.002762	.90
	3.6537	.0000	9.8	.0	.002762	.13
1174.90	2.6363	2.0087	10.2	168.7	.002942	.15
	2.6751	1.3462	44.4	109.4	.002456	2.43
	2.7041	1.0731	41.4	76.0	.003272	2.80
	2.7797	.7012	45.1	57.7	.002692	2.74
	2.8029	.0000	66.3	.0	.002692	5.91
	2.9482	2.0494	7.2	-123.7	.002730	.07
	2.9811	1.3308	18.5	77.5	.002271	.39
	3.0140	1.0383	48.6	51.7	.002897	3.42
	3.0450	.7148	45.4	45.0	.002495	2.57
	3.0838	.0000	38.1	.0	.002495	1.81
	3.3511	2.1056	10.0	126.9	.002561	.13
	3.3356	1.3501	39.0	- 11.9	.002037	1.55
	3.3666	1.0615	26.1	- 22.6	.003189	1.09
	3.3821	.7167	35.1	31.0	.002936	1.81
	3.3860	.0000	44.2	.0	.002936	2.86
	3.6843	2.1656	16.2	- 97.1	.002561	.34
	3.6862	1.4005	7.2	- 56.3	.002037	.05
	3.6920	1.0886	15.7	50.2	.003189	.39
	3.6843	.7400	22.9	52.1	.002936	.77
	3.6591	.0000	22.1	.0	.002936	.72

Table D-IV. Rear Smoke Grid Calculations - 1/4 Inch Entrance with Baffle Spaced 1/2 Inch (Continued)

Model 32-B, Shot 318

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
1216.20	2.6388	2.0060	50.2	166.5	.002882	3.64
	2.6846	1.3493	39.1	143.1	.002683	2.05
	2.7343	1.0985	39.6	110.2	.003207	2.51
	2.8020	.7124	37.1	108.4	.002914	2.00
	2.8796	.0000	9.8	180.0	.002914	.14
	2.9692	2.0418	43.0	180.0	.002701	2.50
	2.9910	1.3294	18.5	161.6	.002314	.40
	3.0348	1.0488	22.3	164.7	.003252	.81
	3.0746	.7184	22.3	74.7	.002664	.66
	3.1065	.0000	27.4	180.0	.002664	1.00
	3.3652	2.1015	22.3	-142.1	.002780	.69
	3.3592	1.3373	20.8	131.2	.002395	.52
	3.3632	1.0348	21.8	169.7	.003503	.84
	3.3910	.7264	27.6	135.0	.002869	1.10
	3.3821	.0000	23.5	180.0	.002869	.79
	3.6796	2.1532	58.3	166.4	.002780	4.73
	3.6637	1.3692	44.1	-167.2	.002395	2.33
	3.6716	1.1065	54.3	127.7	.003503	5.17
	3.6776	.7542	30.4	135.0	.002869	1.33
	3.6756	.0000	11.7	180.0	.002869	.20
1257.50	2.5879	2.0203	24.8	-166.0	.002897	.89
	2.6441	1.3695	16.2	82.9	.002525	.33
	2.6906	1.1099	9.0	89.9	.003338	.11
	2.7680	.7361	19.9	45.0	.002592	.51
	2.7932	.0000	8.0	.0	.002592	.08
	2.9056	2.0494	5.7	135.0	.002688	.04
	2.9637	1.3366	10.2	78.7	.002215	.12
	2.9927	1.0441	9.0	116.6	.003149	.13
	3.0508	.7361	8.3	14.0	.002509	.09
	3.0567	.0000	4.0	.0	.002509	.02
	3.3327	2.0920	18.5	-167.5	.002849	.49
	3.3220	1.3656	28.2	85.9	.002318	.92
	3.3453	1.0654	32.7	100.6	.003220	1.72
	3.3627	.7361	2.8	135.0	.002809	.01
	3.3627	.0000	22.1	.0	.002809	.69
	3.6281	2.1792	10.2	- 78.7	.002849	.15
	3.6436	1.3908	32.7	47.5	.002318	1.24
	3.6591	1.1312	20.7	60.9	.003220	.69
	3.6630	.7613	7.2	- 33.7	.002809	.07
	3.6475	.0000	20.1	.0	.002809	.57

Table D-IV. Rear Smoke Grid Calculations - 1/4 Inch Entrance with Baffle Spaced 1/2 Inch (Continued)

Model 32-B, Shot 318

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
1298.80	2.6149	2.0000	35.7	-170.5	.002850	1.81
	2.6666	1.3652	29.1	137.7	.002650	1.12
	2.7343	1.1065	40.8	106.7	.003287	2.74
	2.8159	.7264	37.6	62.1	.002945	2.08
	2.8876	.0000	87.9	.0	.002945	11.39
	2.9652	2.0458	3.9	180.0	.002818	.02
	2.9930	1.3393	25.5	85.6	.002320	.75
	3.0308	1.0567	31.5	119.7	.003124	1.55
	3.0826	.7204	7.0	33.7	.002621	.07
	3.1104	.0000	39.1	.0	.002621	2.00
	3.3473	2.0975	29.8	113.2	.002719	1.20
	3.3612	1.3652	18.4	122.0	.002267	.39
	3.3572	1.0667	11.7	90.0	.003131	.22
	3.3891	.7284	16.7	20.6	.002841	.40
	3.4050	.0000	23.5	.0	.002841	.78
	3.6816	2.1433	10.0	- 78.7	.002719	.14
	3.6856	1.3930	20.1	60.9	.002267	.46
	3.6816	1.1244	33.7	80.0	.003131	1.78
	3.6836	.7502	7.0	146.3	.002841	.07
	3.6955	.0000	9.8	.0	.002841	.14
1340.10	2.5530	2.0145	34.1	151.9	.002768	1.61
	2.6228	1.3889	44.4	108.4	.002545	2.51
	2.6789	1.1487	50.2	92.3	.003381	4.27
	2.7855	.7690	64.2	69.9	.002856	5.88
	2.8804	.0000	READINGS	INVALID		
	2.9017	2.0494	30.4	172.4	.002778	1.28
	2.9656	1.3617	47.3	77.7	.002204	2.46
	2.9772	1.0712	49.7	76.0	.002907	3.59
	3.0567	.7400	54.6	54.0	.002516	3.75
	3.0954	.0000	22.1	.0	.002516	.61
	3.3220	2.1191	30.6	31.6	.002730	1.28
	3.3123	1.3811	20.7	119.1	.002267	.48
	3.3453	1.0770	25.2	28.6	.003141	.99
	3.3782	.7419	43.0	37.4	.002966	2.74
	3.3860	.0000	40.2	.0	.002966	2.39
	3.6300	2.1695	26.8	77.0	.002730	.98
	3.6533	1.4082	8.5	135.0	.002267	.08
	3.6649	1.1642	24.1	- 90.0	.003141	.91
	3.6571	.7651	14.5	56.3	.002966	.31
	3.6571	.0000	.0	.0	.002966	.00

Table D-IV. Rear Smoke Grid Calculations - 1/4 Inch Entrance with Baffle Spaced 1/2 Inch (Continued)

Model 52-B, Shot 318

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
1381.40	2.5851	2.0159	6.2	-161.6	.002897	.06
	2.6726	1.4070	55.0	73.5	.002545	3.85
	2.7323	1.1562	54.3	52.3	.003222	4.76
	2.8378	.7861	65.1	57.3	READINGS	INVALID
	NO READING					
	2.9353	2.0498	3.9	89.9	.002775	.02
	3.0030	1.3851	51.4	81.3	.002356	3.11
	3.0428	1.1045	92.9	67.8	.003153	13.61
	3.1144	.7642	63.0	60.3	.002422	4.81
	3.1323	.0000	15.6	.0	.002422	.30
	3.3731	2.1134	15.3	- 39.8	.002763	.32
	3.3512	1.3831	35.9	60.6	.002182	1.40
	3.3791	1.0786	73.6	73.0	.003654	9.89
	3.4229	.7542	58.8	74.6	.003122	5.39
	3.4448	.0000	27.4	.0	.003122	1.17
	3.6876	2.1692	27.8	50.7	.002763	1.07
	3.6796	1.3990	41.0	90.0	.002182	1.84
	3.6816	1.1005	7.8	89.9	.003654	.11
	3.6915	.7622	55.3	58.0	.003122	4.77
	3.6955	.0000	23.5	.0	.003122	.86
1422.70	2.5472	2.0126	13.3	-113.2	.003002	.35
	2.6383	1.4412	30.1	90.0	.002700	1.22
	2.7119	1.1913	32.2	86.4	.003232	1.67
	2.8203	.8232	62.7	50.2	.002576	5.07
	2.8765	.0000	READINGS	INVALID		
	2.9017	2.0533	4.0	.0	.002881	.02
	2.9734	1.4121	21.3	41.2	.002540	.58
	3.0121	1.1564	35.5	42.7	.002854	1.80
	3.0877	.7942	50.2	53.1	.002357	2.97
	3.1109	.0000	28.1	.0	.002357	.93
	3.3337	2.1094	22.4	-116.6	.002899	.73
	3.3298	1.4121	34.3	69.4	.002447	1.44
	3.3666	1.1457	40.7	57.1	.003301	2.73
	3.3927	.7981	40.6	81.5	.002729	2.25
	3.4131	.0000	4.0	.0	.002729	.02
	3.6475	2.1908	14.5	-146.3	.002899	.30
	3.6533	1.4489	41.4	112.8	.002447	2.10
	3.6649	1.1719	89.7	95.2	.003301	12.99
	3.6862	.8116	39.0	78.1	.002729	2.07
	3.6804	.0000	20.1	.0	.002729	.55

Table D-IV. Rear Smoke Grid Calculations - 1/4 Inch Entrance with Baffle Spaced 1/2 Inch (Continued)

Model 32-B, Shot 318

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
1464.00	2.5791	2.0020	20.8	- 48.8	.002923	.63
	2.6726	1.4308	23.5	85.2	.002475	.69
	2.7343	1.1881	45.5	64.5	.003353	3.46
	2.8776	.8338	59.1	34.2	READINGS	INVALID
	NO READING					
	2.9393	2.0498	16.7	- 20.6	.002974	.41
	3.0189	1.3990	26.6	17.1	.002422	.86
	3.0687	1.1284	37.6	9.0	.003398	2.40
	3.1443	.8040	47.1	48.4	.002493	2.76
	3.1602	.0000	66.5	1.7	.002493	5.51
	3.3632	2.0935	16.6	- 45.0	.003096	.43
	3.3632	1.4149	26.1	13.0	.002597	.88
	3.4010	1.1124	62.2	- 46.3	.003578	6.92
	3.4289	.7940	70.4	.0	.002871	7.10
	3.4488	.0000	82.1	.0	.002871	9.67
	3.6756	2.1612	34.6	- 42.7	.003096	1.85
	3.6627	1.4368	36.0	- 12.5	.002597	1.69
	3.6736	1.1881	43.0	2.6	.003578	3.21
	3.6995	.8000	27.4	.0	.002871	1.07
	3.7154	.0000	54.7	.0	.002871	4.30
1505.30	2.5608	1.4971	26.1	180.0	.003031	1.03
	2.6402	1.4644	58.4	116.6	.002690	4.58
	2.7312	1.2320	56.8	81.9	.003405	5.49
	2.8688	.8562	37.3	53.7	.002771	[illegible].93
	2.9772	.0000	READINGS	INVALID		
	2.9172	2.0475	31.4	-153.4	.002962	1.46
	2.9985	1.4199	26.2	94.4	.002322	.80
	3.0489	1.1622	39.4	75.3	.003055	2.38
	3.1186	.8291	27.0	42.0	.002126	.78
	3.1768	.0019	READINGS	INVALID		
	3.3453	2.0978	15.7	129.8	.002856	.35
	3.3550	1.4179	6.3	161.6	.002219	.04
	3.4092	1.1022	16.6	104.0	.003750	.51
	3.4634	.7981	12.7	- 18.4	.003115	.25
	3.4944	.0000	46.2	.0	.003115	3.32
	3.6726	2.1676	29.8	- 19.7	.002856	1.27
	3.6881	1.4412	28.4	8.1	.002219	.89
	3.7075	1.1738	36.2	- 33.7	.003750	2.46
	3.7133	.8116	18.1	.0	.003115	.51
	3.7346	.0000	16.1	180.0	.003115	.40

Table D-IV. Rear Smoke Grid Calculations - 1/4 Inch Entrance with Baffle Spaced 1/2 Inch (Continued)

Model 32-B, Shot 318

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
1546.60	2.5532	2.0020	78.2	179.6	.003095	9.46
	2.6468	.4886	52.6	148.7	.002542	3.52
	2.7423	1.2438	55.6	140.7	.003203	4.94
	2.8995	.8637	45.3	97.4	READINGS	INVALID
	NO READING					
	2.9114	2.0358	39.9	-168.7	.002982	2.37
	3.0169	1.4249	44.6	142.1	.002639	2.62
	3.0786	1.1662	25.4	112.6	.003370	1.09
	3.1642	.8219	22.9	20.0	READINGS	INVALID
	NO READING					
	3.3532	2.1055	29.9	-168.7	.002778	1.24
	3.3572	1.4169	30.5	129.8	.002294	1.07
	3.3970	1.1284	39.1	143.1	.003349	2.56
	3.4408	.7900	22.1	135.0	.003210	.78
	3.4945	.0000	3.9	180.0	.003210	.02
	3.7035	2.1512	24.5	-151.4	.002778	.83
	3.6915	1.4406	24.7	161.6	.002294	.70
	3.7035	1.1682	39.1	143.1	.003349	2.56
	3.7174	.8000	18.0	130.6	.003210	.52
	3.6995	.0000	29.3	180.0	.003210	1.38
1587.90	2.4833	1.9990	88.5	-176.1	.002999	11.76
	2.5956	1.4915	62.3	159.2	.002583	5.01
	2.6886	1.2666	63.9	136.3	.003185	6.50
	2.8630	.9007	54.1	105.1	.002517	3.68
	2.9772	.0000	READINGS	INVALID		
	2.8783	2.0397	26.2	-175.6	.003016	1.03
	2.9637	1.4470	40.4	153.4	.002333	1.90
	3.0392	1.1855	36.9	150.6	.003239	2.20
	3.1400	.8368	30.6	121.6	.002250	1.06
	3.1826	.0000	READINGS	INVALID		
	3.3162	2.0920	57.9	-148.0	.002940	2.11
	3.3356	1.4412	25.4	108.4	.002309	.74
	3.3762	1.1254	20.1	143.1	.003604	.73
	3.4479	.8136	34.3	69.4	.003199	1.88
	3.4906	.0000	8.0	.0	.003199	.10
	3.6513	2.1559	30.1	-143.1	.002940	1.33
	3.6649	1.4489	18.0	153.4	.002309	.37
	3.6765	1.1971	40.0	107.5	.003604	2.88
	3.7017	.8252	43.3	103.4	.003199	3.00
	3.7056	.0000	READINGS	INVALID		

Table D-IV. Rear Smoke Grid Calculations - 1/4 Inch Entrance with Baffle Spaced 1/2 Inch (Continued)

Model 32-B, Shot 318

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
1629.20	2.4657	1.9960	75.5	-169.6	.002900	8.27
	2.5891	1.5104	67.8	146.8	.002586	5.94
	2.6965	1.2876	77.5	123.7	.003385	10.17
	2.8856	.9154	51.7	100.9	READINGS	INVALID
	NO READING					
	2.8856	2.0338	51.0	175.6	.003052	3.96
	2.9811	1.4428	35.9	135.0	.002418	1.56
	3.0468	1.1841	32.5	122.7	.003295	1.74
	3.1483	.8478	41.1	87.3	READINGS	INVALID
	NO READING		READINGS	INVALID		
	3.3214	2.0856	35.2	160.6	.002918	1.81
	3.3493	1.4408	32.3	155.0	.002382	1.25
	3.3811	1.1403	54.7	90.0	.003532	5.29
	3.4527	.8219	36.5	74.5	READINGS	INVALID
	3.5025	.0000	21.5	.0	READINGS	INVALID
	3.6796	2.1333	15.8	150.3	.002918	.36
	3.6756	1.4488	11.9	99.5	.002382	.17
	3.6915	1.2060	32.8	72.6	.003532	1.90
	3.7075	.8418	31.8	42.5	READINGS	INVALID
	NO READING					
1670.50	2.4097	1.9855	50.2	177.7	.002991	3.77
	2.5395	1.5283	86.7	132.2	.002640	9.92
	2.6460	1.3308	91.6	127.9	.003158	13.24
	2.8533	.9511	112.5	105.5	READINGS	INVALID
	2.9540	.0000	READINGS	INVALID		
	2.8281	2.0436	59.3	-156.0	.003020	5.31
	2.9385	1.4722	62.9	116.6	.002475	4.89
	3.0218	1.2126	42.2	115.3	.003073	2.74
	3.1419	.8775	61.0	72.8	READINGS	INVALID
	NO READING		READINGS	INVALID		
	3.2833	2.1036	23.4	149.0	.002757	.76
	3.3065	1.4547	40.7	122.9	.002432	2.01
	3.3782	1.1797	66.2	76.0	.003342	7.33
	3.4576	.8484	59.6	57.4	.003033	5.39
	3.5119	.0000	16.1	.0	.003033	.39
	3.6378	2.1637	17.2	159.4	.002757	.41
	3.6630	1.4605	34.4	83.3	.002432	1.44
	3.6862	1.2281	38.6	81.0	.003342	2.49
	3.7249	.8465	50.7	56.3	.003033	3.89
	3.7230	.0000	READINGS	INVALID		

Table D-IV. Rear Smoke Grid Calculations - 1/4 Inch Entrance with Baffle Spaced 1/2 Inch (Continued)

Model 32-B, Shot 318

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
1711.80	2.4159	1.9960	91.9	177.6	.003274	13.84
	2.5313	1.5741	112.7	146.3	.002364	15.02
	2.6408	1.3592	125.2	145.8	.003554	27.86
	2.6557	1.0229	104.2	120.[illegible]	READINGS	INVALID
	NO READING		READINGS	INVALID		
	2.8318	2.0100	57.2	-172.1	.003157	5.17
	2.9532	1.4985	56.7	136.4	.002347	3.77
	3.0289	1.2219	102.5	124.9	.003085	16.19
	3.1662	.9055	75.2	117.9	READINGS	INVALID
	NO READING		READINGS	INVALID		
	3.3015	2.0975	32.3	-155.0	.002902	1.52
	3.3274	1.4746	19.5	143.1	.002473	.47
	3.3970	1.2040	35.5	114.0	.003578	2.65
	3.4846	.8716	41.1	87.3	READINGS	INVALID
	3.5184	.0000	21.5	.0	READINGS	INVALID
	3.6637	2.1393	57.0	-149.0	.002902	4.71
	3.6796	1.4826	57.7	114.0	.002473	4.12
	3.6975	1.2435	57.0	112.2	.003578	5.81
	3.7353	.8836	44.6	118.8	READINGS	INVALID
	NO READING					
1753.10	2.3186	1.9893	130.7	-169.4	.003041	25.99
	2.4465	1.5903	113.1	173.9	.002625	16.78
	2.5433	1.4005	94.1	146.3	.002978	13.19
	2.5010	1.0402	60.2	115.7	READINGS	INVALID
	NO READING		READINGS	INVALID		
	2.7719	2.0358	74.3	-178.5	.003029	8.36
	2.8978	1.5109	58.4	153.4	.002664	4.54
	2.9637	1.2959	102.0	126.2	.002806	14.59
	3.1070	.9433	70.6	104.8	READINGS	INVALID
	NO READING		READINGS	INVALID		
	3.2542	2.0901	28.0	-159.0	.003094	1.21
	3.2910	1.4663	30.1	143.1	.002553	1.16
	3.3627	1.2145	58.4	116.6	.003455	5.88
	3.4596	.8891	44.0	65.8	.003086	2.99
	3.5332	.0000	READINGS	INVALID		
	3.5893	2.1346	26.2	175.6	.003094	1.06
	3.6397	1.5128	22.2	174.8	.002553	.63
	3.6649	1.2804	30.1	90.0	.003455	1.57
	3.7036	.8852	22.1	90.0	.003086	.75
	3.7385	.0000	READINGS	INVALID		

Table D-V. Front Smoke Grid Calculations - 1/2 Inch Entrance with Baffle Spaced 1/2 Inch

Model 33-A, Shot 310

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
85.20	1.0268	1.9106	31.2	150.3	.002375	1.16
	1.0407	1.5472	9.9	-168.7	.002310	.11
	.9891	.7349	14.0	- 33.7	.002308	.22
	.9732	.4052	4.3	-153.4	.002302	.02
	.9513	.0000	5.8	180.0	.002302	.04
	1.3644	1.9285	1.9	180.0	.002335	.00
	1.3724	1.5452	11.3	-149.0	.002271	.14
	1.3585	.6852	11.6	180.0	.002312	.16
	1.3426	.3992	5.8	.0	.002473	.04
	1.3386	.0000	15.5	180.0	.002473	.30
	1.6802	1.9126	16.5	159.4	.002385	.33
	1.7120	1.5551	22.1	142.1	.002338	.57
	1.7319	.6614	15.6	119.7	.002327	.28
	1.7219	.3595	8.7	153.4	.002414	.09
	1.7080	.0000	11.6	180.0	.002414	.16
	2.0497	1.9186	8.0	-166.0	.002385	.08
	2.0735	1.5492	17.3	116.6	.002338	.35
	2.0874	.6177	2.7	45.0	.002327	.01
	2.1053	.3257	13.5	180.0	.002414	.22
	2.0775	.0000	17.4	180.0	.002414	.37
127.00	.9903	1.9340	12.0	- 9.5	.002287	.17
	1.0136	1.5456	21.4	56.3	.002392	.55
	.9942	.7301	73.7	- 36.3	.002383	6.46
	.9612	.4078	58.2	- 17.8	.002413	4.09
	.9379	.0000	READINGS INVALID			
	1.3456	1.9204	42.1	-138.8	.002410	2.13
	1.3476	1.5553	17.8	90.0	.002270	.36
	1.3340	.6874	12.0	-170.5	.002324	.17
	1.3243	.3845	27.5	-120.3	.002469	.93
	1.3068	.0000	11.9	180.0	.002469	.17
	1.6524	1.9146	13.9	180.0	.002371	.23
	1.6854	1.5495	12.5	161.6	.002278	.18
	1.7049	.6524	19.8	- 53.1	.002417	.47
	1.7010	.3650	10.1	-168.7	.002481	.13
	1.6893	.0000	4.0	.0	.002481	.02
	2.0291	1.9087	11.5	-121.0	.002371	.16
	2.0524	1.5553	22.1	-116.6	.002278	.56
	2.0680	.6136	12.0	- 80.5	.002417	.18
	2.0602	.3184	4.4	153.4	.002481	.02
	2.0660	.0000	11.9	.0	.002481	.18

Table D-Y. Front Smoke Grid Calculations - 1/2 Inch Entrance with Baffle Spaced 1/2 Inch (Continued)

Model 33-A, Shot 310

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
168.80	1.0387	1.9086	30.1	- 45.0	.002845	1.29
	1.0526	1.5650	39.9	50.9	.002507	2.00
	1.0487	.6912	68.4	- 8.1	.002876	6.73
	1.0288	.3873	92.0	- 22.2	READINGS	INVALID
	NO READING					
	1.3327	1.9007	21.3	.0	.002476	.56
	1.3724	1.5631	42.3	15.9	.002185	1.95
	1.3466	.6832	78.4	- 15.8	.002195	6.75
	1.3287	.3754	54.3	- 4.1	.002497	3.69
	1.3267	.0000	50.3	.0	.002497	3.16
	1.6663	1.9126	27.7	- 24.8	.002341	.90
	1.7001	1.5591	23.9	14.0	.002355	.67
	1.7438	.6455	36.2	- 15.5	.002442	1.60
	1.7120	.3575	37.2	- 51.3	.002375	1.64
	1.7120	.0000	READINGS	INVALID		
	2.0437	1.9086	7.7	180.0	.002341	.07
	2.0636	1.5293	7.0	- 33.7	.002355	.06
	2.0894	.6058	6.1	- 71.6	.002442	.05
	2.1013	.3277	13.7	98.1	.002375	.22
	2.0894	.0000	3.9	180.0	.002375	.02
210.60	1.0117	1.9126	16.0	60.3	.002445	.31
	1.0388	1.5767	42.8	56.3	.002223	2.04
	1.0621	.7204	147.2	17.2	.002437	26.39
	1.0466	.3728	101.3	4.5	.002803	14.38
	1.0252	.0000	READINGS	INVALID		
	1.3670	1.9204	83.5	5.4	.002571	8.97
	1.3883	1.5670	64.1	8.9	.002411	4.96
	1.4097	.6660	143.2	5.6	.002546	26.11
	1.3786	.3806	153.1	5.2	READINGS	INVALID
	1.3573	.0000	124.7	.0	READINGS	INVALID
	1.6777	1.9029	47.5	.0	.002592	2.93
	1.7087	1.5553	60.2	- 9.5	.002425	4.40
	1.7398	.6427	64.5	17.9	.002628	5.46
	1.7243	.3359	97.7	7.0	READINGS	INVALID
	NO READING					
	2.0214	1.9087	10.7	68.2	.002592	.15
	2.0583	1.5515	53.9	36.0	.002425	3.52
	2.0699	.6078	50.1	18.4	.002628	3.30
	2.0583	.3320	37.8	6.0	READINGS	INVALID
	2.0621	.0000	45.5	.0	READINGS	INVALID

Table D-V. Front Smoke Grid Calculations - 1/2 Inch Entrance with Baffle Spaced 1/2 Inch (Continued)

Model 33-A, Shot 310

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
252.40	1.0467	1.9225	74.5	62.1	.002489	6.90
	1.0765	1.6008	86.2	44.1	.002388	8.88
	1.1897	.7349	206.9	17.4	.002481	53.11
	1.1301	.3952	176.1	12.1	READINGS	INVALID
	NO READING					
	1.4161	1.9086	58.6	7.6	.002616	4.49
	1.4359	1.5730	79.0	36.0	.002536	7.91
	1.4896	.6971	140.2	26.2	.002642	25.98
	1.4816	.3893	140.5	11.9	.002726	26.89
	1.4518	.0000	162.6	.0	.002726	36.03
	1.7140	1.9126	65.8	24.3	.002570	5.57
	1.7597	1.5492	78.6	9.9	.002472	7.64
	1.8054	.6653	126.3	15.1	.002634	21.01
	1.8093	.3694	143.9	17.2	.002690	27.84
	1.8034	.0000	READINGS	INVALID		
	2.0477	1.9186	78.0	7.1	.002570	7.82
	2.1072	1.5611	68.7	9.7	.002472	5.84
	2.1370	.6216	120.6	18.7	.002634	19.15
	2.1390	.3317	123.2	8.1	.002690	20.41
	2.1351	.0000	READINGS	INVALID		
294.20	1.0466	1.9786	21.3	- 21.8	.002510	.57
	1.1010	1.6369	68.7	48.5	.002533	5.98
	1.2602	.7825	156.3	22.3	.002640	32.22
	1.2194	.4097	171.4	6.6	.002599	38.17
	1.1592	.0000	READINGS	INVALID		
	1.4252	1.9282	64.1	8.9	.002613	5.37
	1.4524	1.6136	90.5	23.2	.002450	10.03
	1.5359	.7282	135.5	25.1	.002474	22.71
	1.5165	.4097	134.0	12.8	.002639	23.69
	1.5204	.0000	106.9	.0	.002639	15.08
	1.7379	1.9301	81.8	- 7.0	.002529	8.46
	1.7864	1.5689	105.9	20.8	.002560	14.35
	1.8621	.6757	122.8	1.8	.002676	20.18
	1.8621	.3786	120.4	9.5	READINGS	INVALID
	1.8505	.0000	138.6	.0	READINGS	INVALID
	2.0990	1.9184	98.5	- 15.2	.002529	12.26
	2.1262	1.5631	95.1	12.0	.002560	11.58
	2.1845	.6466	103.6	6.6	.002676	14.37
	2.1806	.3495	109.5	12.5	READINGS	INVALID
	NO READING					

Table D-V. Front Smoke Grid Calculations - 1/2 Inch Entrance with Baffle Spaced 1/2 Inch

Model 33-A, Shot 310

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
336.00	1.0665	1.9146	87.6	- 46.8	.002584	9.92
	1.1221	1.6524	31.0	3.6	.002403	1.16
	1.3347	.7944	150.2	21.9	.002492	28.12
	1.3009	.4151	154.5	15.3	.002758	32.91
	1.2612	.0000	READINGS INVALID			
	1.4796	1.9186	65.8	1.7	.002791	6.05
	1.5194	1.6087	88.5	10.1	.002483	9.72
	1.6127	.7547	141.6	21.7	.002641	26.49
	1.6127	.4191	134.4	11.6	.002484	22.43
	1.5591	.0000	133.6	.0	.002484	22.15
	1.7954	1.9027	93.9	- 8.3	.002942	12.97
	1.8590	1.5869	101.4	13.2	.002517	12.94
	1.9285	.6693	125.7	9.8	.002904	22.94
	1.9285	.3893	127.0	7.9	.002651	21.38
	1.9424	.0000	106.5	.0	.002651	15.02
	2.1430	1.8928	97.7	- 8.0	.002942	14.05
	2.2006	1.5809	107.3	7.3	.002517	14.49
	2.2403	.6336	133.8	- 3.3	.002904	25.99
	2.2463	.3555	124.0	- 2.7	.002651	20.38
	2.2582	.0000	READINGS INVALID			
377.80	1.1068	1.9146	69.5	- 4.9	.002597	6.28
	1.1320	1.6388	42.0	19.3	.002499	2.20
	1.4000	.8386	169.2	20.6	.002606	37.27
	1.3689	.4505	190.7	9.6	READINGS INVALID	
	NO READING					
	1.4913	1.9301	89.6	- 6.3	.002677	10.75
	1.5398	1.6291	74.9	12.2	.002512	7.05
	1.6680	.7806	150.5	- 1.5	.002408	27.28
	1.6485	.4369	146.8	10.1	.002622	28.25
	1.6544	.0000	178.2	.0	.002622	41.62
	1.8311	1.9165	87.1	- 1.3	.002740	10.40
	1.8854	1.5922	91.1	.0	.002480	10.28
	1.9864	.6971	147.2	10.9	.002628	28.45
	1.9883	.3961	152.8	3.7	.002603	30.38
	1.9573	.0000	142.5	.0	.002603	26.43
	2.1961	1.9049	127.0	10.8	.002740	22.08
	2.2330	1.5767	109.3	- 5.2	.002480	14.82
	2.3184	.6388	151.3	6.0	.002628	30.08
	2.3049	.3437	147.0	4.6	.002603	28.12
	2.2854	.0000	134.6	.0	.002603	23.59

Table D-V. Front Smoke Grid Calculations - 1/2 Inch Entrance with Baffle Spaced 1/2 Inch (Continued)

Model 33-A, Shot 310

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
419.60	1.1360	1.9086	41.2	41.2	.002624	2.22
	1.1619	1.6663	59.0	41.0	.002449	4.26
	1.4935	.8540	140.2	35.4	.002739	26.91
	1.4896	.4469	159.7	6.3	.002673	34.07
	1.4181	.0000	READINGS INVALID			
	1.5690	1.9086	75.9	- 5.9	.002854	8.22
	1.5929	1.6246	68.7	9.7	.002469	5.83
	1.7637	.7507	147.7	5.3	.002686	29.31
	1.7577	.4449	167.6	6.6	.002479	34.81
	1.7378	.0000	162.6	.0	.002479	32.77
	1.8828	1.9007	82.1	- 8.1	.002580	8.70
	1.9503	1.5869	96.9	2.3	.002518	11.81
	2.0735	.6971	135.9	10.7	.002798	25.84
	2.0814	.3992	156.6	8.5	.002629	32.22
	2.0854	.0000	READINGS INVALID			
	2.2681	1.9166	109.5	8.1	.002580	15.46
	2.3098	1.5710	110.9	6.0	.002518	15.49
	2.3913	.6495	118.8	6.5	.002798	19.76
	2.3932	.3674	145.6	4.6	.002629	27.86
	2.3932	.0000	214.8	.0	.002629	60.67
461.40	1.1379	1.9417	33.7	93.4	.002555	1.45
	1.1767	1.6777	25.7	22.6	.002503	.83
	1.5146	.9204	126.8	34.2	.002276	18.31
	1.5282	.4680	142.6	27.3	.002586	26.27
	1.5184	.0000	READINGS INVALID			
	1.5670	1.9223	40.4	11.3	.002709	2.21
	1.6078	1.6408	59.3	25.7	.002515	4.43
	1.8155	.7942	112.4	26.1	.002548	16.11
	1.8155	.4563	127.0	10.8	READINGS INVALID	
	1.8175	.0000	READINGS INVALID			
	1.9126	1.9049	44.7	- 12.8	.002620	2.61
	1.9825	1.5961	36.5	17.5	.002529	1.68
	2.1204	.7223	98.0	8.1	.002762	13.26
	2.1437	.4194	86.0	7.9	READINGS INVALID	
	NO READING					
	2.3049	1.9204	33.7	3.4	.002620	1.49
	2.3437	1.5883	57.1	14.0	.002529	4.13
	2.4369	.6524	53.5	2.1	.002762	3.95
	2.4505	.3553	72.0	- 7.9	READINGS INVALID	
	2.5010	.0000	READINGS INVALID			

Table D-V. Front Smoke Grid Calculations - 1/2 Inch Entrance with Baffle Spaced 1/2 Inch (Continued)

Model 33-A, Shot 310

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
503.20	1.1341	1.9424	33.4	- 80.0	.002408	1.34
	1.1857	1.6763	18.3	- 32.0	.002543	.42
	1.5988	.9255	89.2	93.7	.002699	10.75
	1.6167	.5124	136.9	28.7	READINGS INVALID	
	NO READING		READINGS INVALID			
	1.6087	1.9166	33.8	13.2	.003135	1.79
	1.6465	1.6504	28.8	42.3	.002677	1.11
	1.8649	.8004	68.4	61.3	.002772	6.49
	1.8828	.4687	97.4	21.0	READINGS INVALID	
	NO READING		READINGS INVALID			
	1.9265	1.8908	37.6	34.5	.002654	1.97
	1.9861	1.5946	READINGS INVALID			
	2.1709	.7110	27.9	33.7	.003017	1.18
	2.1668	.4111	15.6	7.1	READINGS INVALID	
	2.1907	.0000	READINGS INVALID			
	2.3019	1.9186	25.2	-147.5	.002654	.85
	2.3654	1.5849	6.1	-161.6	.002614	.05
	2.4449	.6514	23.2	90.0	.003017	.81
	2.4647	.3575	32.4	72.6	READINGS INVALID	
	NO READING		READINGS INVALID			
545.00	1.1437	1.9087	83.3	-151.6	.002598	9.01
	1.1922	1.6680	33.7	130.2	.002588	1.47
	1.5087	1.0097	73.4	93.1	.002279	6.13
	1.6485	.5340	READINGS INVALID			
	NO READING		READINGS INVALID			
	1.6000	1.9301	49.7	-175.4	READINGS INVALID	
	1.6291	1.6602	40.4	168.7	READINGS INVALID	
	1.8485	.8544	86.0	104.7	.002866	10.59
	1.9068	.4913	READINGS INVALID			
	NO READING		READINGS INVALID			
	1.9437	1.9262	37.6	108.4	READINGS INVALID	
	NO READING					
	2.1437	.7379	36.1	80.5	.002862	1.87
	2.1592	.4214	61.1	29.1	READINGS INVALID	
	NO READING		READINGS INVALID			
	2.2835	1.9068	28.3	-167.9	READINGS INVALID	
	2.3379	1.5864	31.3	-161.6	READINGS INVALID	
	2.4369	.6757	21.9	95.2	.002862	.68
	2.4602	.3864	18.7	32.0	READINGS INVALID	
	NO READING		READINGS INVALID			

Table D-V. Front Smoke Grid Calculations - 1/2 Inch Entrance with Baffle Spaced 1/2 Inch (Continued)

Model 33-A, Shot 310

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
586.80	1.0606	1.9027	92.4	160.4	.002807	12.00
	1.1639	1.7021	86.9	163.2	.002968	11.22
	1.5948	.9990	74.8	111.3	READINGS INVALID	
	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			
	1.5591	1.9126	108.7	-175.9	.002758	16.29
	1.6068	1.6584	97.1	175.4	.002671	12.59
	1.8431	.8838	56.3	116.6	READINGS INVALID	
	NO READING					
	NO READING		READINGS INVALID			
	1.9146	1.9265	84.5	-159.9	.002705	9.66
	1.9742	1.6068	READINGS INVALID			
	2.1768	.7468	52.4	85.8	.003288	4.51
	2.2205	.4409	41.6	62.2	READINGS INVALID	
	NO READING		READINGS INVALID			
	2.2741	1.9126	67.3	161.6	.002705	6.13
	2.3357	1.5750	57.5	147.4	.002848	4.70
	2.4429	.6733	33.0	139.8	.003288	1.79
	2.4806	.3674	22.6	121.0	READINGS INVALID	
	NO READING		READINGS INVALID			
628.60	1.0563	1.9398	34.6	66.4	.002788	1.67
	1.1087	1.6932	64.5	-169.4	.002951	6.13
	1.4816	1.0796	143.5	129.4	READINGS INVALID	
	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			
	1.4913	1.9223	48.2	170.5	.002846	3.30
	1.5320	1.6680	56.3	161.6	.002681	4.26
	1.8233	.9049	75.4	103.7	.002662	7.56
	1.9087	.5476	READINGS INVALID			
	NO READING		READINGS INVALID			
	1.8641	1.8971	81.4	175.8	.002974	9.85
	1.9243	1.6214	80.2	147.1	.002860	9.19
	2.1476	.7903	62.9	118.2	.003156	6.24
	2.1786	.4583	38.1	117.9	READINGS INVALID	
	NO READING		READINGS INVALID			
	2.2194	1.9292	59.4	180.0	.002974	5.25
	2.2893	1.6175	43.2	164.1	.002860	2.67
	2.4117	.6971	39.0	114.0	.003156	2.40
	2.4485	.4058	41.3	106.7	READINGS INVALID	
	NO READING		READINGS INVALID			

Table D-V. Front Smoke Grid Calculations - 1/2 Inch Entrance with Baffle Spaced 1/2 Inch (Continued)

Model 33-A, Shot 310

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
670.40	1.0745	1.9345	READINGS INVALID			
	1.1003	1.6902	READINGS INVALID			
	1.5035	1.1102	READINGS INVALID			
	1.6802	.7130	READINGS INVALID			
	NO READING		READINGS INVALID			
	1.5114	1.9206	READINGS INVALID			
	1.3531	1.6763	READINGS INVALID			
	1.8252	.9573	READINGS INVALID			
	1.9166	.6117	READINGS INVALID			
	NO READING		READINGS INVALID			
	1.8332	1.9325	READINGS INVALID			
	1.9067	1.6504	READINGS INVALID			
	2.1470	.8024	READINGS INVALID			
	2.2026	.4747	READINGS INVALID			
	2.2165	.0000	READINGS INVALID			
	2.2145	1.9126	READINGS INVALID			
	2.2939	1.5869	READINGS INVALID			
	2.4270	.7090	READINGS INVALID			
	2.4687	.4071	READINGS INVALID			
	NO READING		READINGS INVALID			
712.20	NO READING					
	NO READING					
	NO READING					
	NO READING					
	NO READING		READINGS INVALID			
	NO READING					
	NO READING					
	NO READING					
	NO READING		READINGS INVALID			
	NO READING					
	NO READING					
	NO READING					
	NO READING		READINGS INVALID			
	NO READING					
	NO READING					
	NO READING					
	NO READING		READINGS INVALID			

Table D-V. Front Smoke Grid Calculations - 1/2 Inch Entrance with Baffle Spaced 1/2 Inch (Continued)

Model 33-A, Shot 310

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
754.00	1.0546	1.9206	READINGS INVALID			
	1.1341	1.6822	READINGS INVALID			
	1.4618	1.1162	READINGS INVALID			
	1.6802	.7905	READINGS INVALID			
	NO READING		READINGS INVALID			
	1.4757	1.9206	READINGS INVALID			
	1.5174	1.6783	READINGS INVALID			
	1.8232	.9911	READINGS INVALID			
	1.9583	.6395	READINGS INVALID			
	NO READING		READINGS INVALID			
	1.8669	1.8987	READINGS INVALID			
	1.9186	1.6564	READINGS INVALID			
	2.1569	.8640	READINGS INVALID			
	2.2463	.5204	READINGS INVALID			
	NO READING		READINGS INVALID			
	2.2205	1.9245	READINGS INVALID			
	2.3078	1.6246	READINGS INVALID			
	2.4727	.7388	READINGS INVALID			
	2.5005	.4211	READINGS INVALID			
	NO READING		READINGS INVALID			
795.80	1.0097	1.9223	47.9	150.3	.002662	3.05
	1.0330	1.6485	95.2	-163.1	.002977	13.50
	1.3942	1.1534	130.3	136.6	.003094	26.24
	1.6117	.8913	189.0	112.8	READINGS INVALID	
	NO READING		READINGS INVALID			
	1.4311	1.9282	44.3	153.4	.002818	2.76
	1.4757	1.6893	38.1	152.1	.003051	2.21
	1.7922	1.0466	115.3	105.9	.002978	19.79
	1.9670	.7029	138.7	80.1	READINGS INVALID	
	NO READING		READINGS INVALID			
	1.8058	1.9223	35.2	141.8	.002780	1.73
	1.8816	1.6369	25.7	-157.4	.003013	1.00
	2.1417	.8816	72.8	42.8	.003109	8.25
	2.2524	.5301	93.1	23.8	.002614	11.32
	2.2505	.0000	READINGS INVALID			
	2.1942	1.9243	7.9	- 89.9	.002780	.09
	2.2544	1.6058	8.9	153.4	.003013	.12
	2.4427	.7437	39.6	36.9	.003109	2.44
	2.5010	.4233	62.0	16.7	.002614	5.03
	2.5029	.0000	READINGS INVALID			

Table D-V. Front Smoke Grid Calculations - 1/2 Inch Entrance with Baffle Spaced 1/2 Inch (Continued)

Model 33-A, Shot 310

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
837.60	1.0129	1.9444	23.3	85.2	.002557	.69
	1.0427	1.6544	15.6	119.7	.003144	.38
	1.3664	1.2056	101.9	141.2	.003221	16.71
	1.6068	.9652	140.0	95.6	READINGS	INVALID
	NO READING		READINGS	INVALID		
	1.4359	1.9404	13.5	.0	.002731	.25
	1.4836	1.6961	28.8	109.7	.002980	1.23
	1.7915	1.1023	95.8	98.1	.002589	11.88
	1.9821	.7766	117.7	62.6	READINGS	INVALID
	NO READING		READINGS	INVALID		
	1.8391	1.9206	25.2	22.6	.002885	.91
	1.8947	1.6465	72.6	80.8	.002967	7.81
	2.2105	.9136	104.6	39.0	.003320	18.16
	2.3317	.5581	116.3	44.3	READINGS	INVALID
	NO READING					
	2.2205	1.9166	29.1	- 3.8	.002885	1.22
	2.2999	1.6286	58.2	68.6	.002967	5.03
	2.5045	.7627	103.1	34.3	.003320	17.64
	2.5601	.4389	102.2	37.3	READINGS	INVALID
	NO READING					
879.40	1.0117	1.9456	13.3	-116.6	.002737	.24
	1.0252	1.6621	21.3	-158.2	.002987	.68
	1.3146	1.2175	81.2	180.0	.003462	11.40
	1.5981	1.0311	120.7	131.0	READINGS	INVALID
	NO READING		READINGS	INVALID		
	1.4447	1.9282	43.2	-105.9	.003213	3.00
	1.4660	1.7165	32.0	158.2	.002744	1.40
	1.7786	1.1417	96.0	111.8	.002777	12.70
	2.0214	.8078	178.5	93.2	.002523	40.17
	2.2951	.0000	READINGS	INVALID		
	1.8291	1.9320	20.4	-150.9	.003422	.71
	1.8932	1.7087	44.5	110.9	.003055	3.02
	2.2233	.9476	90.3	74.7	.003242	13.22
	2.3359	.6117	115.6	38.0	.002584	17.28
	2.4233	.0000	READINGS	INVALID		
	2.2233	1.9223	23.8	4.8	.003422	.97
	2.2757	1.6602	READINGS	INVALID		
	2.5282	.8019	106.4	43.5	.003242	18.36
	2.5825	.4854	117.6	36.1	.002584	17.87
	2.6330	.0000	READINGS	INVALID		

Table D-V. Front Smoke Grid Calculations - 1/2 Inch Entrance with Baffle Spaced 1/2 Inch (Continued)

Model 33-A, Shot 310

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
921.20	1.0070	1.9325	29.5	-121.6	.002929	1.28
	1.0228	1.6465	50.5	-147.5	.003052	3.89
	1.2850	1.2056	73.8	-175.5	.003514	9.56
	1.5273	1.0566	READINGS INVALID			
	NO READING		READINGS INVALID			
	1.4240	1.8987	50.9	-171.3	.003343	4.33
	1.4538	1.7080	21.6	-169.7	.002991	.70
	1.7557	1.1917	76.7	100.2	.002888	8.49
	1.9722	.9553	READINGS INVALID			
	NO READING		READINGS INVALID			
	1.8213	1.9106	17.8	- 77.5	READINGS INVALID	
	1.8788	1.6882	32.0	-155.0	READINGS INVALID	
	2.2344	1.0010	READINGS INVALID			
	2.4230	.6296	READINGS INVALID			
	2.5283	.0000	READINGS INVALID			
	2.2443	1.9186	14.7	- 23.2	READINGS INVALID	
	NO READING					
	2.5819	.8361	97.7	82.0	.003085	14.73
	2.6554	.5084	READINGS INVALID			
	NO READING		READINGS INVALID			
963.00	.9961	1.9204	15.1	156.8	.002781	.32
	.9825	1.6350	12.5	108.4	.002847	.22
	1.2408	1.2117	62.2	-170.8	READINGS INVALID	
	NO READING					
	NO READING		READINGS INVALID			
	1.3942	1.9204	47.9	141.7	.003107	3.57
	1.4447	1.7126	39.8	-174.3	READINGS INVALID	
	1.7650	1.2175	83.2	141.8	READINGS INVALID	
	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			
	1.8330	1.9146	20.4	150.9	.003383	.70
	1.8641	1.6951	32.5	142.4	READINGS INVALID	
	NO READING					
	NO READING					
	NO READING		READINGS INVALID			
	2.2369	1.9165	12.0	9.5	.003383	.25
	2.3029	1.6913	READINGS INVALID			
	2.[illegible]17	.8990	71.7	39.4	READINGS INVALID	
	NO READING					
	NO READING		READINGS INVALID			

Table D-V. Front Smoke Grid Calculations - 1/2 Inch Entrance with Baffle Spaced 1/2 Inch (Continued)

Model 33-A, Shot 310

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
1004.80	.9930	1.9384	25.2	-175.6	.002972	.95
	1.0189	1.6584	49.3	-131.8	.003230	3.93
	1.2234	1.1956	107.1	-139.4	READINGS INVALID	
	1.3565	1.0645	READINGS INVALID			
	NO READING		READINGS INVALID			
	1.3863	1.9285	83.6	-174.7	.003033	10.59
	1.4141	1.7041	90.2	-157.3	.002799	11.39
	1.6902	1.2433	147.1	-179.2	READINGS INVALID	
	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			
	1.8034	1.9206	101.9	165.7	.003140	16.29
	1.8530	1.7080	38.1	156.0	.002876	2.09
	2.2761	1.0487	READINGS INVALID			
	2.5521	.6713	READINGS INVALID			
	NO READING		READINGS INVALID			
	2.2562	1.9206	31.2	-172.9	.003140	1.53
	2.3118	1.6882	60.8	-170.8	.002876	5.31
	2.6375	.8818	73.3	12.2	.003578	9.61
	2.7488	.5462	READINGS INVALID			
	2.8620	.0000	READINGS INVALID			
1046.60	.9709	1.9184	47.9	141.7	.002832	3.25
	.9495	1.5981	123.0	-123.2	.003121	23.61
	1.1592	1.1417	188.1	-130.7	.003451	61.05
	1.2738	1.0214	167.5	-122.9	READINGS INVALID	
	NO READING		READINGS INVALID			
	1.3107	1.9126	51.4	-152.4	.002683	3.54
	1.3612	1.6777	70.8	-153.4	.002711	6.80
	1.6175	1.2155	121.0	-164.8	READINGS INVALID	
	1.8117	1.0660	READINGS INVALID			
	NO READING		READINGS INVALID			
	1.7340	1.9398	87.1	180.0	.003167	12.02
	1.8291	1.7107	60.1	-162.8	.003221	5.82
	2.1864	1.1340	208.3	151.0	READINGS INVALID	
	NO READING					
	NO READING		READINGS INVALID			
	2.2058	1.9126	87.9	-172.2	.003167	12.24
	2.2427	1.6816	89.4	-174.9	.003221	12.88
	2.6136	.9146	63.2	122.2	READINGS INVALID	
	2.7767	.5631	50.7	51.3	READINGS INVALID	
	NO READING		READINGS INVALID			

Table D-V. Front Smoke Grid Calculations - 1/2 Inch Entrance with Baffle Spaced 1/2 Inch (Continued)

Model 33-A, Shot 310

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
1088.40	.9553	1.9086	74.5	-171.0	.002580	7.15
	.9513	1.5551	67.7	-149.0	.002883	6.61
	1.1003	1.0526	190.0	-146.6	READINGS INVALID	
	1.2651	.9235	READINGS INVALID			
	NO READING		READINGS INVALID			
	1.3406	1.9047	69.1	168.7	.002962	7.07
	1.3505	1.6723	108.7	-175.9	.003010	17.77
	1.5730	1.2115	133.6	180.0	READINGS INVALID	
	NO READING					
	NO READING		READINGS INVALID			
	1.7160	1.9206	69.9	-175.2	.003162	7.73
	1.7954	1.6902	157.4	175.1	.002904	35.96
	2.0933	1.1500	160.4	160.3	.002268	29.18
	2.1787	.9573	READINGS INVALID			
	NO READING		READINGS INVALID			
	2.1688	1.9086	115.8	170.4	.003162	21.21
	2.2224	1.6802	109.9	165.7	.002904	17.52
	2.6038	.9355	READINGS INVALID			
	2.7805	.5859	READINGS INVALID			
	NO READING		READINGS INVALID			
1130.20	.8971	1.9068	50.1	161.6	.002797	3.51
	.8913	1.5631	48.9	-148.2	.002936	3.51
	1.0000	1.0369	149.3	-141.5	READINGS INVALID	
	NO READING					
	NO READING		READINGS INVALID			
	1.2427	1.9262	119.6	173.3	.002885	20.63
	1.2524	1.6699	119.6	-173.3	.002905	20.77
	1.4835	1.2155	139.3	-165.2	READINGS INVALID	
	1.6602	1.0505	READINGS INVALID			
	NO READING		READINGS INVALID			
	1.6641	1.9340	134.6	-179.2	.003291	29.83
	1.6718	1.7243	134.6	179.2	READINGS INVALID	
	2.0350	1.1883	139.1	155.6	READINGS INVALID	
	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			
	2.0913	1.9320	95.5	174.1	.003291	15.02
	2.1359	1.7087	126.3	171.0	READINGS INVALID	
	NO READING					
	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			

Table D-V. Front Smoke Grid Calculations - 1/2 Inch Entrance with Baffle Spaced 1/2 Inch (Continued)

Model 33-A, Shot 310

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
1172.00	.9076	1.9245	19.7	168.7	.002841	.55
	.9096	1.5293	75.2	-101.9	.002971	8.39
	.9831	.9593	152.4	-117.2	.002928	33.98
	1.1817	.8401	READINGS INVALID			
	NO READING		READINGS INVALID			
	1.2214	1.9186	66.1	-148.2	.002931	6.40
	1.2314	1.6584	66.9	-157.9	.002959	6.61
	1.4379	1.1758	177.5	-154.8	READINGS INVALID	
	1.5770	1.0348	205.2	-166.4	READINGS INVALID	
	NO READING		READINGS INVALID			
	1.5808	1.9186	163.0	-175.9	.003058	40.62
	1.6604	1.6922	106.0	-170.5	.003096	17.38
	1.9662	1.2075	220.4	172.9	READINGS INVALID	
	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			
	2.0735	1.9186	118.2	-177.2	.003058	21.37
	2.0973	1.7001	104.8	175.8	.003096	17.00
	2.4985	1.0765	READINGS INVALID			
	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			
1213.60	.8777	1.9107	20.4	-129.1	.002851	.59
	.8757	1.4893	90.5	-113.2	.003210	13.14
	.9301	.9010	155.5	-121.5	READINGS INVALID	
	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			
	1.1864	1.8913	71.4	-176.3	.003477	8.86
	1.1903	1.6447	79.6	-145.1	.003090	9.80
	1.3223	1.1398	151.8	-149.4	READINGS INVALID	
	1.4602	1.0019	180.0	-140.4	READINGS INVALID	
	NO READING		READINGS INVALID			
	1.5010	1.9223	81.4	-175.8	.003170	10.50
	1.5670	1.7068	112.9	-175.0	READINGS INVALID	
	1.8155	1.2155	READINGS INVALID			
	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			
	1.9728	1.9262	120.1	171.5	.003170	22.87
	2.0311	1.7165	92.7	160.0	READINGS INVALID	
	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			

Table D V Front Smoke Grid Calculations - 1/2 Inch Entrance with Baffle Spaced 1/2 Inch (Continued)

Model 33-A, Shot 310

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
1255.60	.8977	1.9067	24.5	161.6	.002871	.86
	.8739	1.4459	86.0	-125.8	.003142	11.60
	.9017	.8262	122.4	-129.2	READINGS	INVALID
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	1.1500	1.9146	86.3	160.3	.002921	10.88
	1.1658	1.6127	133.5	-150.5	READINGS	INVALID
	1.3069	1.0983	140.6	-141.7	READINGS	INVALID
	1.4379	.9196	162.2	-125.8	READINGS	INVALID
	NO READING		READINGS	INVALID		
	1.4995	1.9126	104.8	-163.9	.003179	17.44
	1.5472	1.6902	124.9	-167.5	READINGS	INVALID
	NO READING					
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	1.9543	1.9364	127.6	-170.4	.003179	25.88
	2.0099	1.7319	114.3	178.1	READINGS	INVALID
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
1297.40	.8544	1.9184	28.0	171.9	.002898	1.14
	.8252	1.4194	14.4	105.9	.003576	.37
	.8524	.8058	106.3	-114.2	.002437	13.78
	1.0602	.6117	READINGS	INVALID		
	NO READING		READINGS	INVALID		
	1.1049	1.9204	58.5	-151.7	.003056	5.22
	1.0738	1.5786	113.4	-135.7	.003154	20.28
	1.2117	1.0524	156.8	-127.3	READINGS	INVALID
	1.3650	.8699	170.6	-111.8	READINGS	INVALID
	NO READING		READINGS	INVALID		
	1.4000	1.8932	97.5	-167.1	.003410	16.20
	1.4447	1.6796	101.1	-156.9	READINGS	INVALID
	1.6350	1.1573	READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	1.8466	1.9049	120.8	-179.1	.003410	24.87
	1.9165	1.7204	120.8	-178.2	READINGS	INVALID
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		

Table D-V. Front Smoke Grid Calculations - 1/2 Inch Entrance with Baffle Spaced 1/2 Inch (Continued)

Model 33-A, Shot 310

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
1339.20	.8699	1.9106	21.3	180.0	.003340	.76
	.8699	1.4598	48.7	- 96.8	.003528	4.19
	.8580	.7289	117.2	-112.3	READINGS	INVALID
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	1.0983	1.8868	47.6	-153.4	.002796	3.17
	1.0844	1.5333	36.4	-115.2	.003021	2.00
	1.2115	.9732	123.0	-102.7	READINGS	INVALID
	1.3744	.7607	178.7	- 95.0	READINGS	INVALID
	NO READING		READINGS	INVALID		
	1.4042	1.8908	69.5	167.1	.003204	7.74
	1.4538	1.6504	76.2	-152.8	READINGS	INVALID
	1.6207	1.0924	136.9	-118.7	READINGS	INVALID
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	1.8332	1.9345	98.0	170.9	.003204	15.39
	1.8828	1.7279	110.9	-167.9	READINGS	INVALID
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
1381.00	.8330	1.9194	28.3	-102.1	.002835	1.14
	.8194	1.3709	53.8	- 96.3	.003236	4.68
	.8078	.6971	60.3	-113.2	READINGS	INVALID
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	1.0621	1.8990	16.0	-172.9	.003082	.39
	1.0583	1.5456	5.6	-135.0	.003075	.05
	1.1845	.9320	89.3	- 93.8	READINGS	INVALID
	1.3495	.6913	READINGS	INVALID		
	NO READING		READINGS	INVALID		
	1.3320	1.9087	62.0	163.3	.003016	5.80
	1.3767	1.6447	65.8	-164.3	READINGS	INVALID
	1.5689	1.0369	99.6	-111.0	READINGS	INVALID
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	1.7495	1.9204	77.8	-165.3	.003016	9.12
	1.8078	1.6971	94.6	-160.4	READINGS	INVALID
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		

Table D-V. Front Smoke Grid Calculations - 1/2 Inch Entrance with Baffle Spaced 1/2 Inch (Continued)

Model 33-A, Shot 310

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
1422.80	.8640	1.8828	22.6	- 31.0	.003284	.84
	.8640	1.4062	46.5	- 73.1	.003226	3.49
	.8342	.6733	29.5	- 58.4	READINGS INVALID	
	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			
	1.0824	1.8848	19.9	150.9	.003090	.61
	1.0804	1.5293	14.0	-146.3	.002985	.29
	1.2056	.9838	102.7	- 87.8	READINGS INVALID	
	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			
	1.3446	1.9086	23.9	-166.0	.003095	.89
	1.3903	1.6326	37.4	-158.7	READINGS INVALID	
	1.5849	.9990	119.8	-121.1	READINGS INVALID	
	1.7160	.8282	READINGS INVALID			
	NO READING		READINGS INVALID			
	1.7577	1.9146	79.7	174.4	.003095	9.84
	1.7934	1.6961	83.4	-176.0	READINGS INVALID	
	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			
1464.60	.8524	1.9068	42.0	98.1	.003106	2.74
	.8330	1.3262	48.2	- 99.5	.003244	3.76
	.8233	.6718	56.3	- 18.4	READINGS INVALID	
	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			
	1.0447	1.9087	40.8	150.9	.003127	2.60
	1.0465	1.5379	40.6	-137.0	.003075	2.54
	1.1883	.8291	50.5	-101.3	READINGS INVALID	
	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			
	1.3087	1.9029	56.7	-167.9	.003284	5.28
	1.3417	1.6311	65.1	-160.5	.002515	5.33
	1.5068	.9340	135.6	-118.8	READINGS INVALID	
	1.6913	.7825	152.5	- 91.5	READINGS INVALID	
	NO READING		READINGS INVALID			
	1.6699	1.9282	85.2	177.3	.003284	11.93
	1.7243	1.6913	97.2	176.5	.002515	11.88
	2.0485	1.2990	READINGS INVALID			
	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			

Table D-V. Front Smoke Grid Calculations - 1/2 Inch Entrance with Baffle Spaced 1/2 Inch (Continued)

Model 33-A, Shot 310

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
1506.40	.8580	1.9245	37.0	137.1	.003195	2.18
	.8560	1.3585	43.5	-122.3	.003644	3.45
	.8878	.6554	READINGS INVALID			
	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			
	1.0467	1.9047	39.2	-159.8	.003122	2.40
	1.0506	1.5015	62.3	-126.2	.003178	6.17
	1.1956	.8342	42.5	-136.8	READINGS INVALID	
	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			
	1.2890	1.8967	75.6	166.7	.003296	9.41
	1.3267	1.6107	81.6	-157.7	.002561	8.52
	1.5194	.8798	112.7	-105.9	READINGS INVALID	
	1.7120	.6753	READINGS INVALID			
	NO READING		READINGS INVALID			
	1.6773	1.9186	96.1	170.7	.003296	15.22
	1.6961	1.7021	120.3	-176.3	.002561	18.52
	1.9762	1.2473	244.1	-153.6	READINGS INVALID	
	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			
1548.20	.8252	1.9320	26.9	-107.1	.002972	1.08
	.8097	1.2893	READINGS INVALID			
	NO READING					
	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			
	1.0078	1.8951	35.4	-153.4	.003178	1.99
	1.0097	1.4874	74.7	-122.0	.003192	8.91
	1.1573	.8000	103.3	- 77.8	READINGS INVALID	
	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			
	1.2350	1.9204	67.6	175.0	.003169	7.23
	1.2660	1.6000	86.9	-149.9	.002851	10.77
	1.4757	.8252	139.6	-108.2	READINGS INVALID	
	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			
	1.5748	1.9437	103.6	173.4	.003169	17.01
	1.6039	1.6835	92.7	-160.0	.002851	12.25
	1.8291	1.1903	READINGS INVALID			
	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			

Table D-V. Front Smoke Grid Calculations - 1/2 Inch Entrance with Baffle Spaced 1/2 Inch (Continued)

Model 33-A, Shot 310

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
1590.00	.8500	1.8987	48.4	-106.3	READINGS INVALID	
	NO READING					
	.8421	.6077	READINGS INVALID			
	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			
	1.0149	1.8888	54.2	178.0	.003175	4.67
	1.0109	1.4379	83.5	-134.1	.003443	12.00
	1.2175	.7329	91.3	-111.[illegible]	READINGS INVALID	
	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			
	1.2214	1.9027	65.8	178.3	.002958	6.41
	1.2532	1.5670	76.4	-149.5	READINGS INVALID	
	1.4757	.7468	117.0	-106.[illegible]	READINGS INVALID	
	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			
	1.5690	1.9305	107.1	-173.8	.002958	16.96
	1.6087	1.6703	120.3	-154.3	READINGS INVALID	
	NO READING					
	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			
1627.90	.8117	1.8854	23.9	114.4	.003848	1.10
	.8175	1.2388	READINGS INVALID			
	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			
	.9534	1.8971	39.0	156.0	.002904	2.21
	.9515	1.4272	48.7	-116.6	.003021	3.58
	1.1243	.7146	87.7	-151.7	READINGS INVALID	
	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			
	1.1689	1.9223	55.2	165.5	.003183	4.85
	1.2000	1.5612	84.4	-140.7	.003203	11.41
	1.4427	.7126	80.8	-126.0	READINGS INVALID	
	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			
	1.4680	1.9320	95.1	177.6	.003183	14.40
	1.4951	1.6311	108.0	-166.2	.003203	18.69
	1.6913	1.0680	READINGS INVALID			
	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			

Table D-VI. Rear Smoke Grid Calculations - 1/2 Inch Entrance with Baffle Spaced 1/2 Inch

Model 33-A, Shot 311

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
168.40	2.5072	1.9871	17.5	6.3	.002260	.35
	2.4873	1.6139	2.7	- 45.0	.002348	.01
	2.4774	.7821	29.3	7.6	.002269	.97
	2.4615	.3970	11.8	- 9.5	.002427	.17
	2.4655	.0000	9.7	.0	.002427	.11
	2.8387	2.0328	41.4	37.4	.002346	2.01
	2.8308	1.6754	12.4	- 51.3	.002350	.18
	2.8308	.7960	17.8	- 40.6	.002346	.37
	2.8328	.3990	32.4	- 72.6	.002372	1.25
	2.8427	.0000	15.5	.0	.002372	.28
	3.3191	2.1002	27.5	39.3	.002457	.95
	3.2933	1.7945	21.4	- 5.2	.002494	.57
	3.2199	.8298	26.3	- 17.1	.002437	.84
	3.2060	.4447	26.3	17.1	.002369	.82
	3.2000	.0000	29.0	.0	.002369	1.00
	3.6705	2.1578	35.7	12.5	.002457	1.56
	3.6367	1.8839	23.3	4.8	.002494	.68
	3.5732	.8794	38.4	49.1	.002437	1.80
	3.5672	.4923	19.4	36.9	.002369	.44
	3.5732	.0000	36.8	.0	.002369	1.60
210.10	2.4833	1.9990	2.0	89.7	.002090	.00
	2.4697	1.6136	27.8	- 4.1	.002354	.91
	2.4755	.7748	38.5	11.9	.002333	1.73
	2.4600	.4068	75.5	23.2	.002360	6.73
	2.4504	.0000	READINGS INVALID			
	2.8397	2.0397	6.3	-108.4	.002190	.04
	2.8107	1.6600	28.1	- 81.9	.002289	.90
	2.8339	.8019	8.9	63.4	.002335	.09
	2.8300	.4126	23.2	70.0	.002170	.58
	2.8281	.0000	23.8	180.0	.002170	.61
	3.3220	2.1249	23.1	59.0	.002237	.60
	3.2969	1.8073	19.8	36.9	.002442	.48
	3.2252	.8310	8.9	- 26.6	.002350	.09
	3.2194	.4533	6.0	- 89.9	.002304	.04
	3.2174	.0000	23.8	.0	.002304	.65
	3.6765	2.1966	25.8	67.4	.002237	.74
	3.6416	1.8828	14.0	45.0	.002442	.24
	3.5932	.8969	10.7	- 68.2	.002350	.13
	3.5874	.4978	27.0	17.1	.002304	.84
	3.5932	.0000	6.0	.0	.002304	.04

Table D-VI. Rear Smoke Grid Calculations - 1/2 Inch Entrance with Baffle Spaced 1/2 Inch (Continued)

Model 33-A, Shot 311

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
251.80	2.5072	1.9891	52.1	15.1	.002254	3.06
	2.5151	1.6119	56.7	7.9	.002628	4.22
	2.5151	.7901	51.1	29.5	.002736	3.58
	2.5310	.4268	55.7	20.3	READINGS	INVALID
	NO READING					
	2.8367	2.0268	12.4	-128.7	.002183	.17
	2.8347	1.6476	31.7	37.6	.002338	1.18
	2.8347	.8040	11.8	80.5	.002394	.17
	2.8407	.4208	30.6	18.4	.002209	1.03
	2.8189	.0000	15.5	.0	.002209	.26
	3.3310	2.1201	4.3	116.6	.002391	.02
	3.3092	1.8065	10.9	-135.0	.002486	.15
	3.2278	.8258	30.6	124.7	.002409	1.13
	3.2060	.4387	23.3	175.2	.002338	.63
	3.2238	.0000	9.7	180.0	.002338	.11
	3.6804	2.1816	8.2	-135.0	.002391	.08
	3.6467	1.8938	21.3	90.0	.002486	.56
	3.5772	.8695	24.8	-141.3	.002409	.74
	3.5931	.5002	21.6	169.7	.002338	.55
	3.5792	.0000	17.4	180.0	.002338	.35
293.50	2.5337	2.0126	61.5	.0	.002456	4.64
	2.5259	1.6213	77.8	5.9	.002652	8.02
	2.5201	.8000	82.9	11.0	.002535	8.70
	2.5123	.4262	55.7	4.1	.002558	3.96
	2.5240	.0000	READINGS	INVALID		
	2.8320	2.0300	66.5	- 17.4	.002289	5.06
	2.8358	1.6794	65.4	14.0	.002477	5.30
	2.8350	.8136	81.5	4.2	.002493	8.25
	2.8591	.4223	70.1	- 8.1	.002377	5.85
	2.8436	.0000	107.1	.0	.002377	13.64
	3.3201	2.1288	32.7	- 14.0	.002268	1.22
	3.2891	1.7995	37.9	- 47.1	.002421	1.74
	3.2077	.8562	40.9	14.0	.002338	1.95
	3.1961	.4552	49.6	2.3	.002305	2.84
	3.2077	.0000	31.7	.0	.002305	1.16
	3.6707	2.1908	18.8	- 18.4	.002288	.41
	3.6416	1.9041	28.6	- 56.3	.002421	.99
	3.5738	.8814	28.1	8.1	.002338	.92
	3.5661	.5017	22.6	- 74.7	.002305	.59
	3.5758	.0000	13.9	.0	.002305	.22

Table D-VI. Rear Smoke Grid Calculations - 1/2 Inch Entrance with Baffle Spaced 1/2 Inch (Continued)

Model 33-A, Shot 311

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
335.20	2.5687	1.9892	96.9	- 3.4	.002432	11.43
	2.5926	1.6199	114.6	15.7	.002681	17.60
	2.5965	.8060	131.4	9.3	.002580	22.28
	2.5866	.4308	124.4	5.4	.002561	19.82
	2.5787	.0000	131.6	.0	.002561	22.18
	2.9002	2.0069	118.8	6.5	.002411	17.02
	2.8983	1.6635	133.6	10.0	.002602	23.23
	2.9161	.8099	132.5	6.7	.002529	22.21
	2.9102	.4109	124.1	3.6	.002542	19.58
	2.9261	.0000	127.7	.0	.002542	20.74
	3.3628	2.1122	87.2	2.5	.002339	8.89
	3.3350	1.7787	93.4	5.9	.002649	11.56
	3.2675	.8357	122.0	- 1.8	.002498	18.59
	3.2556	.4407	122.5	5.4	.002606	19.55
	3.2556	.0000	123.9	.0	.002606	19.99
	3.6983	2.1757	50.5	4.4	.002339	2.98
	3.6625	1.8700	62.2	5.4	.002649	5.13
	3.6050	.8734	59.4	19.0	.002498	4.40
	3.5990	.4784	80.9	11.0	.002606	8.52
	3.5931	.0000	73.5	.0	.002606	7.05
376.90	2.6305	2.0068	144.9	- 2.4	.002436	25.58
	2.6363	1.6523	129.3	4.4	.002528	21.13
	2.6499	.8213	119.8	12.4	.002472	17.75
	2.6363	.4378	141.2	10.5	.002515	25.08
	2.6557	.0000	READINGS	INVALID		
	2.9501	2.0436	128.8	9.8	.002513	20.85
	2.9676	1.7027	110.2	8.3	.002590	15.74
	2.9676	.8281	75.4	.0	.002552	7.25
	2.9831	.4300	89.9	22.0	.002343	9.47
	2.9714	.0000	READINGS	INVALID		
	3.4073	2.1327	103.2	2.2	.002551	13.59
	3.3821	1.8092	89.1	11.6	.002803	11.12
	3.3298	.8523	110.5	9.3	.002775	16.96
	3.3182	.4668	102.1	24.1	.002565	13.37
	3.3317	.0000	READINGS	INVALID		
	3.7211	2.1947	50.6	-11.3	.002551	3.26
	3.7036	1.9099	59.2	13.6	.002803	4.91
	3.6300	.9007	36.6	40.6	.002775	1.86
	3.6455	.5172	67.1	19.0	.002565	5.78
	3.6494	.0000	READINGS	INVALID		

Table D-VI. Rear Smoke Grid Calculations - 1/2 Inch Entrance with Baffle Spaced 1/2 Inch (Continued)

Model 33-A, Shot 311

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
418.60	2.7136	1.9831	100.9	- 4.4	.002636	13.43
	2.7216	1.6298	101.6	- 17.7	.002978	15.37
	2.7136	.8318	94.9	- 11.8	.003184	14.34
	2.7256	.4566	104.0	- 9.6	READINGS	INVALID
	NO READING					
	3.0273	2.0288	97.1	- 4.6	.002601	12.26
	3.0074	1.6794	61.5	- 12.7	.002545	4.81
	2.9916	.8099	65.3	- 12.0	.002571	5.48
	2.9935	.4447	60.3	5.5	READINGS	INVALID
	NO READING					
	3.4660	2.1161	47.6	- 26.6	.002774	3.14
	3.4223	1.7965	46.8	- 29.7	.003210	3.52
	3.3767	.8536	35.7	12.5	.003062	1.95
	3.3489	.4824	35.1	6.3	READINGS	INVALID
	NO READING					
	3.7479	2.1856	18.3	- 58.0	.002774	.46
	3.7201	1.8839	45.3	- 70.0	.003210	3.29
	3.6328	.8973	36.7	- 18.4	.003062	2.06
	3.6625	.5002	17.8	- 40.6	READINGS	INVALID
	NO READING					
460.30	2.7312	1.9990	24.9	28.6	.002516	.78
	2.7332	1.6213	19.9	- 5.7	.002831	.56
	2.7429	.8019	65.9	- 15.7	.002847	6.19
	2.7390	.4203	63.3	- 41.2	.002841	5.68
	2.7390	.0000	READINGS INVALID			
	3.0470	2.0358	6.3	- 71.6	.002747	.05
	3.0276	1.6891	31.8	- 3.6	.002813	1.42
	3.0313	.8155	57.7	3.9	.002824	4.69
	3.0431	.4358	48.3	- 9.5	.002633	5.07
	3.0295	.0000	READINGS INVALID			
	3.4499	2.1114	2.8	-135.0	.002674	.01
	3.4228	1.7860	19.8	- 36.9	.003003	.59
	3.3646	.8600	8.2	- 76.0	.002867	.10
	3.3530	.4707	31.0	- 26.6	.002716	1.31
	3.3337	.0000	READINGS INVALID			
	3.7308	2.1792	4.4	116.6	.002674	.03
	3.7191	1.8673	18.0	- 83.7	.003003	.48
	3.6649	.8891	32.0	- 21.8	.002867	1.47
	3.6591	.5056	7.2	- 33.7	.002716	.07
	3.6436	.0000	READINGS INVALID			

Table D-VI. Rear Smoke Grid Calculations - 1/2 Inch Encrance with Baffle Spaced 1/2 Inch (Continued)

Model 33-A, Shot 311

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
502.00	2.7355	1.9950	27.4	-171.9	.002619	.98
	2.7414	1.6278	29.6	168.7	.002921	1.28
	2.7772	.8139	8.0	104.0	.003069	.10
	2.7732	.4149	13.0	26.6	READINGS	INVALID
	NO READING					
	3.0293	2.0228	49.3	-168.7	.002594	3.16
	3.0392	1.6774	8.7	-153.4	.002806	.11
	3.0491	.8139	9.7	-126.9	.002788	.13
	3.0412	.4367	19.9	- 60.9	.002474	.49
	3.0511	.0000	.0	.0	.002474	.00
	3.4640	2.1141	20.2	-163.3	.002677	.55
	3.4382	1.7846	23.9	166.0	.003138	.90
	3.3787	.8457	18.4	-108.4	.003037	.51
	3.3767	.4685	33.3	-125.5	.002818	1.56
	3.3687	.0000	7.7	.0	.002818	.08
	3.7459	2.1896	19.5	- 84.3	.002677	.51
	3.7221	1.8660	20.9	146.3	.003138	.69
	3.6625	.8854	23.6	-145.0	.003037	.85
	3.6685	.4963	36.7	-108.4	.002818	1.90
	3.6764	.0000	9.7	.0	.002818	.13
543.70	2.7041	1.9952	46.7	-167.7	.002549	2.78
	2.7041	1.6271	44.4	169.7	.002743	2.70
	2.7409	.8097	43.3	164.1	.002836	2.66
	2.7506	.4262	32.3	169.4	.002945	1.54
	2.7506	.0000	READINGS	INVALID		
	2.9985	2.0262	40.7	-137.0	.002741	2.27
	3.0199	1.6852	30.0	172.4	.002825	1.27
	3.0257	.8077	14.3	146.3	.002885	.30
	3.0528	.4184	8.2	- 76.0	.002865	.10
	3.0295	.0000	6.0	180.0	.002865	.05
	3.4305	2.1056	37.9	-174.0	.002761	1.98
	3.3995	1.7918	46.0	172.6	.002965	3.14
	3.3588	.8426	19.8	180.0	.002785	.55
	3.3337	.4436	24.1	-170.5	.002848	.83
	3.3414	.0000	13.9	180.0	.002848	.27
	3.7327	2.1598	9.9	180.0	.002761	.14
	3.7017	1.8789	42.2	138.8	.002965	2.64
	3.6455	.8755	19.5	156.0	.002785	.53
	3.6475	.4707	20.7	-163.3	.002848	.61
	3.6533	.0000	25.8	180.0	.002840	.95

Table D-VI. Rear Smoke Grid Calculations - 1/2 Inch Entrance with Baffle Spaced 1/2 Inch (Continued)

Model 33-A, Shot 311

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
585.40	2.6898	1.9851	36.8	-177.0	.002682	1.82
	2.6978	1.6357	39.2	147.1	.002725	2.09
	2.7355	.8258	47.9	166.0	.002669	3.06
	2.7414	.4208	39.9	157.2	.002838	2.26
	2.7474	.0000	29.0	180.0	.002838	1.20
	2.9995	1.9950	31.2	172.9	.002860	1.39
	3.0094	1.6814	56.3	-176.1	.002884	4.56
	3.0372	.8218	52.0	135.0	.002858	3.86
	3.0432	.4288	44.6	-177.5	.002643	2.62
	3.0452	.0000	13.5	180.0	.002643	.24
	3.4263	2.1102	23.9	-166.0	.002694	.77
	3.3926	1.7906	14.1	105.9	.003003	.30
	3.3588	.8457	35.6	135.0	.002940	1.86
	3.3529	.4645	16.6	125.5	.002885	.40
	3.3548	.0000	19.4	180.0	.002885	.54
	3.7360	2.1896	10.4	158.2	.002694	.15
	3.6903	1.8938	23.6	-145.0	.003003	.84
	3.6447	.8933	15.6	172.9	.002940	.36
	3.6486	.4903	24.8	128.7	.002885	.89
	3.6506	.0000	23.2	180.0	.002885	.78
627.10	2.6673	1.9932	6.0	180.0	.002694	.05
	2.6712	1.6484	25.9	147.5	.002857	.96
	2.6944	.8213	25.1	108.4	.002703	.85
	2.7138	.4416	27.0	54.0	.002864	1.04
	2.7215	.0000	15.9	.0	.002864	.36
	2.9676	2.0300	18.7	122.0	.002604	.46
	2.9637	1.6814	17.7	116.6	.002670	.42
	2.9889	.8446	88.4	106.9	.002518	5.89
	3.0082	.4165	10.7	111.8	.002691	.15
	3.0160	.0000	15.9	180.0	.002691	.34
	3.4073	2.0998	12.1	- 99.5	.002761	.20
	3.3956	1.8053	15.5	39.8	.003027	.36
	3.3337	.8678	98.2	98.1	.002781	13.40
	3.3240	.4571	16.0	-150.3	.002794	.36
	3.3220	.0000	7.9	180.0	.002794	.09
	3.7230	2.1637	27.8	- 85.9	.002761	1.07
	3.6823	1.8654	39.7	- 36.9	.003027	2.38
	3.6300	.8775	READINGS INVALID			
	3.6320	.4901	.0	.0	.002794	.00
	3.6300	.0000	25.8	180.0	.002794	.93

Table D-VI. Rear Smoke Grid Calculations - 1/2 Inch Entrance with Baffle Spaced 1/2 Inch (Continued)

Model 33-A, Shot 311

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
668.80	2.6839	1.9851	17.5	173.7	.002701	.41
	2.6759	1.6496	14.0	123.7	.002808	.27
	2.7275	.8496	51.6	77.0	.002619	3.49
	2.7573	.4427	21.6	26.6	.002994	.70
	2.7633	.0000	READINGS	INVALID		
	2.9896	2.0109	7.0	- 33.7	.002843	.07
	3.0015	1.6975	8.0	76.0	.003026	.10
	3.0174	.8873	16.5	20.6	.002377	.32
	3.0392	.4387	19.4	53.1	.002646	.50
	3.0293	.0000	13.5	.0	.002646	.32
	3.4243	2.0983	9.7	89.9	.002635	.12
	3.4045	1.8005	16.0	166.0	READINGS	INVALID
	3.3449	.9429	13.7	98.1	READINGS	INVALID
	3.3390	.4566	21.6	- 26.6	.002933	.69
	3.3469	.0000	.0	.0	.002933	.00
	3.7380	2.1618	19.4	-143.1	.002635	.49
	3.7221	1.8700	37.0	84.0	READINGS	INVALID
	NO READING					
	3.6486	.4903	16.4	45.0	.002933	.40
	3.6248	.0000	9.7	.0	.002933	.14
710.50	2.6499	1.9952	11.6	59.0	.002631	.18
	2.6634	1.6600	4.0	7.8	.002862	2.78
	2.7061	.8717	28.6	56.3	.002629	1.08
	2.7332	.4513	9.3	61.7	READINGS	INVALID
	NO READING					
	2.9734	2.0262	9.9	.0	.002721	.13
	2.7656	1.6891	14.3	- 33.7	.002800	.29
	3.0044	.8504	35.7	- 90.0	.002512	1.60
	3.0199	.4320	22.4	- 45.0	.002709	.68
	3.0315	.0000	51.6	.0	.002709	3.60
	3.4073	2.1094	7.2	-146.3	.002961	.08
	3.3801	1.8092	6.3	-108.4	.002864	.06
	3.3317	.8814	98.5	- 80.7	.002659	12.89
	3.3433	.4475	29.3	28.3	.002786	1.19
	3.3225	.0000	6.0	.0	.002786	.05
	3.7075	2.1521	11.2	- 45.0	.002961	.19
	3.6862	1.9022	8.2	166.0	.002864	.10
	3.6397	.8949	READINGS	INVALID		
	3.6436	.5017	14.3	56.3	.002786	.28
	3.6397	.0000	21.8	.0	.002786	.66

Table D-VI. Rear Smoke Grid Calculations - 1/2 Inch Entrance with Baffle Spaced 1/2 Inch. (Continued)

Model 33-A, Shot 311

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
752.20	2.6898	1.9950	33.4	10.0	.002761	1.54
	2.7196	1.6556	30.6	34.7	.003041	1.42
	2.7434	.8734	46.5	.0	.002790	3.01
	2.7712	.4685	48.5	28.6	.002711	3.19
	2.7653	.0000	READINGS INVALID			
	2.9995	2.0109	7.0	- 56.3	.002894	.07
	3.0134	1.6893	27.9	33.7	.002809	1.09
	3.0174	.8516	36.4	- 25.2	.002651	1.75
	3.0551	.4228	42.5	30.1	.002811	2.54
	3.0809	.0000	38.7	.0	.002811	2.11
	3.4184	2.0943	38.9	- 5.7	.002651	2.01
	3.4025	1.7945	29.5	- 23.2	.002901	1.26
	3.3608	.8457	50.2	- 62.4	.003065	3.86
	3.3648	.4705	4.3	- 26.6	.002865	.03
	3.3529	.0000	13.5	.0	.002865	.26
	3.7459	2.1538	READINGS INVALID			
	3.7141	1.8720	26.0	- 42.0	.002901	.98
	3.6528	.8754	16.4	- 45.0	.003065	.41
	3.6566	.5022	READINGS INVALID			
	3.6467	.0000	READINGS INVALID			
793.90	2.6828	2.0010	19.6	- 45.0	.002907	.56
	2.6886	1.6775	27.6	-111.0	.002858	1.09
	2.7525	.8717	59.4	- 25.7	.002935	5.18
	2.7758	.4746	59.2	- 13.6	.002848	4.99
	2.8029	.0000	75.4	.0	.002848	8.09
	2.9772	2.0203	20.7	16.7	.002647	.57
	2.9889	1.7046	15.9	.0	.002721	.34
	3.0373	.8349	47.6	.0	.002972	3.37
	3.0567	.4533	31.4	18.4	.002927	1.44
	3.0702	.0000	7.9	.0	.002927	.09
	3.4460	2.1036	42.4	- 10.8	READINGS INVALID	
	3.4073	1.7976	32.8	- 25.0	.002927	1.58
	3.3550	.8368	22.2	- 63.4	READINGS INVALID	
	3.3472	.4455	16.8	- 45.0	READINGS INVALID	
	3.3356	.0000	21.8	.0	READINGS INVALID	
	NO READING					
	3.7056	1.8847	12.5	-108.4	.002927	.23
	3.6513	.8833	8.2	14.0	READINGS INVALID	
	NO READING					
	NO READING		READINGS INVALID			

Table D-VI. Rear Smoke Grid Calculations - 1/2 Inch Entrance with Baffle Spaced 1/2 Inch (Continued)

Model 33-A, Shot 311

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
835.60	2.7037	1.9811	READINGS INVALID			
	2.7097	1.6298	READINGS INVALID			
	2.7970	.8476	READINGS INVALID			
	2.8288	.4546	READINGS INVALID			
	2.8407	.0000	READINGS INVALID			
	3.0194	2.0169	READINGS INVALID			
	3.0293	1.6893	READINGS INVALID			
	3.0650	.8516	READINGS INVALID			
	3.0849	.4328	READINGS INVALID			
	3.0888	.0000	READINGS INVALID			
	3.4600	2.0864	READINGS INVALID			
	3.4323	1.7306	READINGS INVALID			
	3.3707	.8258	READINGS INVALID			
	3.3767	.4586	READINGS INVALID			
	3.3747	.0000	READINGS INVALID			
	3.7241	2.1400	READINGS INVALID			
	3.7102	1.8600	READINGS INVALID			
	3.6605	.8774	READINGS INVALID			
	3.6685	.4903	READINGS INVALID			
	NO READING		READINGS INVALID			
877.30	NO READING					
	NO READING					
	NO READING					
	NO READING					
	NO READING					
	NO READING		READINGS INVALID			
	NO READING					
	NO READING					
	NO READING					
	NO READING					
	NO READING		READINGS INVALID			
	NO READING					
	NO READING					
	NO READING					
	NO READING					
	NO READING					
	NO READING					
	NO READING					
	NO READING					
	NO READING					
	NO READING		READINGS INVALID			

Table D-VI. Rear Smoke Grid Calculations - 1/2 Inch Entrance with Baffle Spaced 1/2 Inch (Continued)

Model 33-A, Shot 311

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
919.00	2.7395	1.9851	READINGS INVALID			
	2.7553	1.6834	READINGS INVALID			
	2.8427	.9251	READINGS INVALID			
	2.9261	.5261	READINGS INVALID			
	NO READING		READINGS INVALID			
	3.0471	2.0069	READINGS INVALID			
	3.0412	1.7191	READINGS INVALID			
	3.1325	.8854	READINGS INVALID			
	3.1742	.4824	READINGS INVALID			
	NO READING		READINGS INVALID			
	3.4779	2.0983	READINGS INVALID			
	3.4462	1.8124	READINGS INVALID			
	3.4184	.8873	READINGS INVALID			
	3.4323	.4903	READINGS INVALID			
	3.4243	.0000	READINGS INVALID			
	3.7459	2.1677	READINGS INVALID			
	3.7261	1.8978	READINGS INVALID			
	3.6764	.9191	READINGS INVALID			
	3.6943	.5221	READINGS INVALID			
	3.6685	.0000	READINGS INVALID			
960.70	2.7196	2.0087	32.3	10.6	.002826	1.47
	2.7351	1.6969	23.9	41.6	.003242	.92
	2.8513	.9511	55.1	30.3	.003449	5.24
	2.9114	.5521	75.0	52.5	.003093	8.70
	2.9443	.0000	READINGS INVALID			
	3.0470	2.0320	16.8	43.0	.002929	.41
	3.0392	1.7240	30.8	14.9	.003082	1.46
	3.1051	.9220	45.8	72.3	.003184	3.34
	3.1380	.5366	50.8	39.7	.002640	3.41
	3.1477	.0000	READINGS INVALID			
	3.4654	2.1114	18.0	- 6.3	.003147	.51
	3.4460	1.8131	31.0	- 26.6	.003445	1.66
	3.3976	.9162	40.7	47.0	.002647	2.19
	3.4073	.5191	25.9	32.5	READINGS INVALID	
	3.4034	.0000	31.7	.0	READINGS INVALID	
	3.7521	2.1579	37.3	- 25.2	.003147	2.19
	3.7172	1.8925	38.1	- 51.3	.003445	2.50
	3.6959	1.0441	35.5	- 26.6	.002647	1.67
	3.6668	.5288	24.5	14.0	READINGS INVALID	
	NO READING		READINGS INVALID			

Table D-VI. Rear Smoke Grid Calculations - 1/2 Inch Entrance with Baffle Spaced 1/2 Inch (Continued)

Model 33-A, Shot 311

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
1002.40	2.7712	1.9911	32.4	162.6	.003233	1.70
	2.7732	1.6993	45.9	152.4	.003268	3.44
	2.8903	.9529	27.5	39.3	.003423	1.30
	2.9717	.5856	48.4	36.9	READINGS	INVALID
	NO READING		READINGS	INVALID		
	3.0591	2.0189	47.8	158.6	.002941	3.36
	3.0710	1.7270	41.6	152.2	.003098	2.68
	3.1464	.9290	16.4	45.0	.003136	.42
	3.2139	.5141	53.8	- 37.7	READINGS	INVALID
	NO READING					
	3.4958	2.0963	16.0	166.0	.003034	.39
	3.4739	1.7985	29.5	156.8	.003411	1.48
	3.4462	.9171	17.8	- 49.4	.003232	.51
	3.4541	.5042	23.6	- 35.0	READINGS	INVALID
	3.4561	.0000	42.6	.0	READINGS	INVALID
	3.7797	2.1519	20.2	106.7	.003034	.62
	3.7499	1.8680	6.1	161.6	.003411	.06
	3.7082	.9032	112.4	-100.9	.003232	20.40
	3.7181	.5280	26.3	- 17.1	READINGS	INVALID
	NO READING		READINGS	INVALID		
1044.10	2.6886	2.0184	89.6	174.9	.002935	11.78
	2.6944	1.7182	75.6	-175.5	.003261	9.32
	2.8726	.9635	62.1	106.7	.003455	6.67
	2.9501	.5811	29.3	- 61.7	READINGS	INVALID
	NO READING		READINGS	INVALID		
	3.0024	2.0494	56.8	167.9	.002842	4.58
	3.0024	1.7433	51.7	175.6	.002973	3.98
	3.1167	.9337	16.4	104.0	.003153	.42
	3.1806	.5036	6.3	-108.4	.003183	.06
	3.2368	.0000	READINGS	INVALID		
	3.4499	2.1153	51.6	180.0	.002943	3.91
	3.4189	1.8247	51.0	166.5	.003227	4.20
	3.4092	.9027	21.5	-146.3	.003107	.72
	3.4266	.5056	5.6	135.0	.003164	.05
	3.4460	.0000	9.9	.0	.003164	.16
	3.7462	2.1772	37.6	161.6	.002943	2.08
	3.7114	1.8944	42.1	135.0	.003227	2.86
	3.6746	.9337	29.3	151.7	.003107	1.33
	3.6920	.5211	18.3	130.6	.003164	.53
	3.6823	.0000	READINGS	INVALID		

Table D-VI. Rear Smoke Grid Calculations - 1/2 Inch Entrance with Baffle Spaced 1/2 Inch (Continued)

Model 33-A, Shot 311

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
1085.80	2.6819	1.9990	69.1	-168.7	.002828	6.75
	2.6978	1.6933	74.2	164.9	.003257	8.96
	2.8725	1.0124	72.7	115.2	.003063	8.10
	2.9856	.5598	23.3	- 4.8	READINGS	INVALID
	NO READING		READINGS	INVALID		
	3.0035	2.0308	45.6	-167.7	.002935	3.05
	3.0194	1.7310	37.2	152.1	.003123	2.16
	3.1424	.9449	52.3	90.0	.003223	4.40
	3.2119	.5082	40.3	54.8	READINGS	INVALID
	NO READING					
	3.4442	2.0963	32.9	180.0	.003008	1.63
	3.4243	1.8104	15.1	129.8	.003264	.37
	3.4283	.9052	49.3	78.7	.002384	4.12
	3.4501	.5082	30.2	50.2	.003074	1.40
	3.4660	.0000	25.2	.0	.003074	.97
	3.7439	2.1638	12.2	-108.4	.003008	.23
	3.7201	1.8978	13.0	116.6	.003264	.28
	3.6824	.9171	31.3	68.2	.003384	1.65
	3.7062	.5419	18.4	108.4	.003074	.52
	3.7141	.0000	31.0	.0	.003074	1.47
1127.50	2.6208	2.0048	87.6	174.8	.002959	11.36
	2.6228	1.7375	87.8	154.6	.003075	11.86
	2.8416	1.0344	59.7	111.4	.002939	5.23
	2.9734	.5792	67.4	76.4	READINGS	INVALID
	NO READING		READINGS	INVALID		
	2.9579	2.0397	54.0	-162.9	.002892	4.21
	2.9695	1.7608	55.1	142.3	.002961	4.50
	3.1167	.9860	50.8	110.6	.002974	3.84
	3.2039	.5366	62.1	106.7	.002883	5.56
	3.2368	.0000	READINGS	INVALID		
	3.4169	2.1153	20.2	-101.3	.002938	.60
	3.4092	1.8363	25.4	128.7	.003276	1.06
	3.4189	.9511	67.7	95.0	.003116	7.14
	3.4460	.5288	25.1	108.4	.003163	1.00
	3.4712	.0000	11.9	180.0	.003163	.22
	3.7424	2.1656	25.8	- 67.4	.002938	.98
	3.7056	1.9061	21.1	131.2	.003276	.73
	3.6862	.9627	48.0	97.1	.003116	3.59
	3.6862	.5385	17.1	144.5	.003163	.46
	3.7133	.0000	27.8	180.0	.003163	1.22

Table D-VI. Rear Smoke Grid Calculations - 1/2 Inch Entrance with Baffle Spaced 1/2 Inch (Continued)

Model 33-A, Shot 311

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
1169.20	2.5945	2.0069	91.5	-173.9	.002930	12.26
	2.6184	1.7310	62.2	174.6	.003143	6.08
	2.8506	1.0680	113.9	121.8	.003424	22.20
	3.0015	.6253	80.8	73.3	READINGS	INVALID
	NO READING		READINGS	INVALID		
	2.9519	2.0149	51.6	-167.0	.003183	4.24
	2.9757	1.7648	58.2	176.2	.003059	5.18
	3.1246	.9926	57.0	99.8	.002988	4.85
	3.1940	.5677	38.9	95.7	.002900	2.19
	3.2417	.0000	19.4	.0	.002900	.54
	3.4402	2.0764	29.3	-172.4	.003493	1.50
	3.4084	1.8303	37.6	168.1	.003389	2.39
	3.4223	.9727	49.8	103.5	.003111	3.85
	3.4422	.5320	16.0	76.0	.003117	.40
	3.4541	.0000	5.8	.0	.003117	.05
	3.7538	2.1400	15.6	-172.9	.003493	.43
	3.7052	1.9136	15.6	-150.3	.003389	.41
	3.6764	.9648	97.1	94.6	.003111	14.66
	3.6923	.5519	62.4	82.9	.003117	6.07
	3.6864	.0000	19.4	180.0	.003117	.58
1210.90	2.5298	1.9952	80.9	-162.9	.002936	9.62
	2.5608	1.7433	84.8	169.2	.003201	11.51
	2.7816	1.1312	97.4	123.4	.002886	13.68
	2.9966	.6567	67.7	- 5.0	.003066	7.03
	3.0683	.0000	READINGS	INVALID		
	2.9075	2.0281	59.5	178.1	.002917	5.17
	2.9114	1.7646	55.9	-163.5	.003051	4.76
	3.1070	1.0421	58.3	107.8	.002809	4.78
	3.2000	.5753	51.9	- 6.6	.002789	3.76
	3.2562	.0000	11.9	.0	.002789	.20
	3.3879	2.1114	32.7	166.0	.002802	1.50
	3.3724	1.8441	18.7	148.0	.003385	.59
	3.4073	.9995	34.6	103.2	.002805	1.68
	3.4499	.5443	50.6	11.3	.003080	3.94
	3.4770	.0000	53.6	.0	.003080	4.42
	3.7269	2.1637	14.4	-164.1	.002802	.29
	3.6920	1.8983	10.1	- 11.3	.003385	.17
	3.6785	1.0596	26.6	63.4	.002805	.99
	3.6939	.6005	89.6	84.9	.003080	12.37
	3.6939	.0000	21.8	.0	.003080	.73

Table D-VI. Rear Smoke Grid Calculations - 1/2 Inch Entrance with Baffle Spaced 1/2 Inch (Continued)

Model 33-A, Shot 311

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
1252.60	2.5171	1.9831	60.1	176.3	.002869	5.19
	2.5350	1.7469	74.8	158.7	.003252	9.09
	2.7970	1.1494	103.0	115.6	.002996	15.90
	3.0690	.6194	94.2	80.5	READINGS	INVALID
	NO READING					
	2.8923	2.0169	41.0	160.7	.002861	2.41
	2.9221	1.7489	50.8	130.4	.003043	3.93
	3.1067	1.0481	42.8	108.4	.002721	2.50
	3.2457	.5618	57.5	45.0	.002651	4.38
	3.2536	.0000	5.8	.0	.002651	.04
	3.4084	2.0844	13.0	153.4	.00[illegible]	.27
	3.3926	1.8402	27.4	135.0	.003215	1.20
	3.4144	1.0065	44.7	95.0	.003360	3.35
	3.4918	.5419	58.2	74.6	.003353	5.68
	3.5077	.0000	9.7	.0	.003353	.16
	3.7400	2.1360	12.2	161.6	.003206	.24
	3.7161	1.9117	36.0	126.3	.003215	2.08
	3.6883	.9886	25.5	- 98.7	.003360	1.09
	3.7002	.6412	27.7	102.1	.003353	1.29
	3.7082	.0000	READINGS	INVALID		
1294.30	2.4697	1.9990	73.4	-178.5	.002997	8.08
	2.4910	1.7705	65.4	166.0	.003136	6.71
	2.7370	1.2242	95.3	121.4	.002958	13.42
	3.0121	.7496	156.2	107.7	.002782	33.93
	3.0993	.0000	READINGS	INVALID		
	2.8688	2.0416	28.1	-171.9	.003016	1.19
	2.8785	1.8034	49.1	136.6	.003020	3.64
	3.0935	1.0828	62.7	71.6	.002938	5.78
	3.2407	.6160	56.4	50.7	.002679	4.26
	3.2620	.0000	READINGS	INVALID		
	3.3763	2.1172	25.2	135.0	.003058	.97
	3.3530	1.8634	37.3	154.8	.003337	2.32
	3.4034	1.0441	32.3	79.4	.003181	1.66
	3.4654	.6005	49.6	73.7	READINGS	INVALID
	3.4867	.0000	19.8	.0	READINGS	INVALID
	3.7153	2.1676	19.9	95.7	.003058	.61
	3.6707	1.9274	31.7	180.0	.003337	1.68
	3.6746	1.0344	28.4	65.2	.003181	1.28
	3.6881	.6276	54.0	- 54.0	READINGS	INVALID
	NO READING					

Table D-VI. Rear Smoke Grid Calculations - 1/2 Inch Entrance with Baffle Spaced 1/2 Inch (Continued)

Model 33-A, Shot 311

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
1336.00	2.4437	1.9811	69.8	-176.8	.002934	7.14
	2.4715	1.7628	76.4	171.3	.003091	9.02
	2.7474	1.2308	92.0	120.3	.002601	11.00
	3.0213	.7682	75.3	72.0	READINGS	INVALID
	NO READING		READINGS	INVALID		
	2.8645	2.0129	52.7	-162.9	.003062	4.24
	2.8864	1.7826	25.8	-167.0	.003201	1.07
	3.1266	1.1077	56.4	59.0	.002958	4.71
	3.2814	.6055	53.8	37.7	READINGS	INVALID
	NO READING		READINGS	INVALID		
	3.3906	2.1022	27.1	.0	.003019	1.11
	3.3588	1.8561	5.5	- 45.0	.003242	.05
	3.4203	1.0382	38.1	24.0	.003072	2.23
	3.5057	.5896	64.3	15.7	.003262	6.75
	3.5275	.0000	61.9	.0	.003262	6.26
	3.7380	2.1558	41.1	8.1	.003019	2.54
	3.6844	1.9117	27.7	- 24.8	.003242	1.24
	3.7002	1.0144	31.2	- 7.1	.003072	1.50
	3.7320	.5975	54.7	8.1	.003262	4.89
	3.7221	.0000	READINGS	INVALID		
1377.70	2.4000	1.9952	51.0	166.5	.002911	3.78
	2.4155	1.7821	61.2	155.1	.003074	5.76
	2.6906	1.3036	159.9	127.4	.002669	34.12
	3.0354	.8213	73.7	23.8	READINGS	INVALID
	NO READING		READINGS	INVALID		
	2.8184	2.0262	45.8	-162.3	.002752	2.89
	2.8533	1.7976	54.5	146.9	.003059	4.54
	3.1225	1.1312	75.8	96.0	.002841	8.16
	3.2833	.6489	70.4	40.4	READINGS	INVALID
	NO READING		READINGS	INVALID		
	3.4034	2.1172	9.9	.0	.002812	.14
	3.3569	1.8596	14.0	45.0	.003294	.32
	3.4383	1.0596	57.7	63.4	.003333	5.54
	3.5274	.6179	66.5	63.4	.003307	7.32
	3.5487	.0000	READINGS	INVALID		
	3.7559	2.1734	18.3	- 49.4	.002812	.47
	3.6959	1.9157	4.4	26.6	.003294	.03
	3.7056	1.0305	67.7	85.0	.003333	7.64
	3.7424	.6354	29.5	47.7	.003307	1.44
	3.7269	.0000	47.6	.0	.003307	3.75

Table D-VI. Rear Smoke Grid Calculations - 1/2 Inch Entrance with Baffle Spaced 1/2 Inch (Continued)

Model 33-A, Shot 311

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
1419.40	2.3940	1.9931	77.4	178.6	.003313	9.93
	2.4159	1.7886	71.0	169.0	.003217	8.10
	2.6501	1.3578	150.6	136.0	.002257	25.58
	3.0888	.7980	READINGS INVALID			
	NO READING		READINGS INVALID			
	2.8208	1.9990	46.5	-177.6	.003112	3.36
	2.8407	1.8124	58.2	158.6	.003084	5.23
	3.1186	1.1831	119.0	112.0	.002883	20.40
	3.3350	.6511	99.4	83.3	READINGS INVALID	
	NO READING		READINGS INVALID			
	3.4005	2.1022	45.9	-152.4	.003199	3.37
	3.3687	1.8660	34.2	137.3	.003605	2.11
	3.4462	1.0898	79.4	91.4	.003152	9.93
	3.5355	.6491	74.0	84.0	READINGS INVALID	
	NO READING					
	3.7499	2.1419	41.9	-146.3	.003199	2.80
	3.6883	1.9136	17.8	130.6	.003605	.57
	3.7062	1.0819	54.3	94.1	.003152	4.65
	3.7519	.6194	14.1	74.1	READINGS INVALID	
	3.7697	.0000	READINGS INVALID			
1461.10	2.3225	1.9971	156.9	-177.1	.002995	36.87
	2.3458	1.7956	175.3	-174.8	.003324	31.05
	2.5821	1.4082	131.0	148.0	READINGS INVALID	
	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			
	2.7719	2.0242	65.5	180.0	.003092	6.62
	2.7990	1.8189	76.0	-172.5	.003153	9.11
	3.0780	1.2416	102.9	117.6	.002721	14.41
	3.2949	.7477	164.7	92.1	READINGS INVALID	
	NO READING		READINGS INVALID			
	3.3627	2.0959	79.3	-148.3	.003210	10.08
	3.3317	1.8828	59.5	180.0	.003441	6.09
	3.4363	1.1390	21.4	68.2	.003293	.75
	3.5351	.6915	25.4	51.3	READINGS INVALID	
	3.5525	.0000	READINGS INVALID			
	3.7211	2.1501	28.1	-135.0	.003210	1.26
	3.6843	1.9293	22.6	164.7	.003441	.88
	3.7017	1.0847	5.6	135.0	.003293	.05
	3.7462	.6489	64.2	81.1	READINGS INVALID	
	NO READING					

Table D-VI. Rear Smoke Grid Calculations - 1/2 Inch Entrance with Baffle Spaced 1/2 Inch (Continued)

Model 33-A, Shot 311

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
1502.80	2.2372	1.9851	134.4	-173.4	.002595	23.45
	2.2412	1.7727	147.1	-179.2	.003299	35.70
	2.5390	1.4273	212.7	164.7	READINGS INVALID	
	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			
	2.7553	1.9990	110.7	-175.0	.003323	20.38
	2.7653	1.8025	106.0	170.5	.003201	17.97
	3.0710	1.2744	91.0	128.1	.003220	13.33
	3.3290	.8159	75.9	70.6	READINGS INVALID	
	3.3707	.0000	READINGS INVALID			
	3.3330	2.0605	25.2	-147.5	.003345	1.07
	3.3092	1.8660	27.7	-167.9	.003485	1.34
	3.4541	1.1097	26.3	17.1	.003479	1.21
	3.5514	.6690	49.5	- 30.6	READINGS INVALID	
	NO READING		READINGS INVALID			
	3.7300	2.1221	22.1	-164.7	.003345	.81
	3.6665	1.9196	19.4	-126.9	.003485	.65
	3.7022	1.0859	23.3	4.8	.003479	.94
	3.7618	.6829	27.4	8.1	READINGS INVALID	
	3.7261	.0000	READINGS INVALID			
1544.50	2.1889	1.9816	127.2	-169.2	.003095	25.04
	2.1985	1.7937	121.0	179.1	.003049	22.33
	2.3768	1.4644	208.4	177.8	READINGS INVALID	
	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			
	2.6615	2.0145	121.4	168.7	.002937	21.63
	2.6944	1.9363	144.5	171.3	.002921	30.48
	3.0218	1.5133	101.3	130.2	.002554	13.11
	3.3201	.8194	READINGS INVALID			
	NO READING		READINGS INVALID			
	3.3414	2.0823	26.7	132.0	.003120	1.11
	3.3046	1.8770	32.3	169.4	.003448	1.80
	3.4615	1.1467	65.9	105.7	.003288	7.15
	3.5777	.6663	51.7	- 57.5	READINGS INVALID	
	NO READING		READINGS INVALID			
	3.6998	2.1443	READINGS INVALID			
	3.6726	1.9138	14.4	-164.1	.003448	.36
	3.7249	1.0867	43.5	59.9	.003288	3.12
	3.7734	.6528	18.8	- 71.6	READINGS INVALID	
	NO READING		READINGS INVALID			

Table D-VII. Front Smoke Grid Calculations - 1/2 Inch Entrance with Baffle Spaced 1 Inch

Model 33-B, Shot 313

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
1.60	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			
	.1746	.8050	24.0	- 35.0	.002360	.68
	.1707	.4365	16.8	- 20.6	.002323	.33
	.1765	.0000	5.9	180.0	.002323	.04
	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			
	.5412	.8031	3.9	.0	.002300	.02
	.5393	.4365	8.1	- 14.0	.002286	.08
	.5529	.0000	.0	.0	.002286	.00
	1.7575	1.9205	12.0	- 99.5	.002392	.17
	1.7459	1.5480	11.5	- 59.0	.002325	.15
	1.7129	.8438	15.7	- 90.0	.002324	.29
	1.6877	.4888	7.9	.0	.002240	.07
	1.6838	.0000	5.9	.0	.002240	.04
	2.0388	1.9127	12.0	-170.5	.002392	.17
	2.0563	1.5403	3.9	89.9	.002325	.02
	2.0621	.8768	15.0	-113.2	.002324	.26
	2.0601	.5238	18.7	-108.4	.002240	.39
	2.0698	.0000	5.9	.0	.002240	.04
43.50	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			
	.2057	.7794	26.9	- 69.0	.002421	.87
	.1958	.4174	14.0	- 15.9	.002353	.23
	.1820	.0000	21.2	.0	.002353	.53
	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			
	.5658	.7834	15.4	.0	.002373	.28
	.5678	.4253	15.9	- 14.0	.002325	.29
	.5717	.0000	7.7	.0	.002325	.07
	1.7824	1.8971	19.3	36.9	.002413	.45
	1.7725	1.5331	13.6	- 45.0	.002329	.22
	1.7389	.8229	17.4	.0	.002429	.37
	1.7230	.4847	17.4	.0	.002409	.35
	1.6973	.0000	19.3	.0	.002409	.45
	2.0633	1.9031	12.9	26.6	.002413	.20
	2.0851	1.5312	11.7	- 80.5	.002329	.16
	2.0772	.8566	19.7	11.3	.002429	.47
	2.0811	.4946	15.1	- 39.8	.002409	.27
	2.0692	.0000	7.7	180.0	.002409	.07

Table D-VII. Front Smoke Grid Calculations - 1/2 Inch Entrance with Baffle Spaced 1 Inch (Continued)

Model 33-B, Shot 313

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
85.40	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			
	.1843	.7798	53.3	- 85.8	.002392	3.39
	.1843	.4326	35.5	- 70.6	.002381	1.50
	.1979	.0000	3.9	180.0	.002381	.02
	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			
	.5567	.8031	32.3	- 37.6	.002284	1.19
	.5548	.4326	40.6	- 39.1	.002282	1.88
	.5606	.0000	3.9	.0	.002282	.02
	1.7730	1.9321	14.2	123.7	.002318	.23
	1.7556	1.5383	14.2	146.3	.002389	.24
	1.7304	.8438	16.7	135.0	.002294	.32
	1.7051	.4888	17.8	-173.7	.002366	.38
	1.7032	.0000	5.9	.0	.002366	.04
	2.0504	1.9185	17.6	26.6	.002318	.36
	2.0592	1.5286	14.2	-123.7	.002389	.24
	2.0815	.8807	8.3	- 45.0	.002294	.08
	2.0718	.5141	10.6	- 68.2	.002366	.13
	2.0621	.0000	3.9	.0	.002366	.02
127.30	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			
	.2097	.7260	106.1	- 90.0	.002334	13.14
	.2077	.3838	104.2	- 87.9	.002446	13.29
	.1780	.0000	7.7	.0	.002446	.07
	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			
	.5915	.7636	122.6	- 70.7	.002398	18.03
	.5994	.3996	85.2	- 76.9	.002450	8.88
	.5757	.0000	17.4	.0	.002450	.37
	1.7745	1.9090	24.7	-141.3	.002232	.68
	1.7606	1.5410	9.6	126.9	.002266	.11
	1.7270	.8348	10.4	-111.8	.002240	.12
	1.7052	.4827	12.4	- 38.7	.002373	.18
	1.7033	.0000	11.6	180.0	.002373	.16
	2.0791	1.9110	8.6	-153.4	.002232	.08
	2.0772	1.5193	25.1	67.4	.002266	.71
	2.0831	.8506	8.6	153.4	.002240	.08
	2.0851	.4847	17.4	- 90.0	.002373	.36
	2.0732	.0000	.0	.0	.002373	.00

Table D-VII. Front Smoke Grid Calculations - 1/2 Inch Entrance with Baffle Spaced 1 Inch (Continued)

Model 33-B, Shot 313

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
169.20	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			
	.1843	.6731	130.2	- 85.7	.002340	19.84
	.1882	.3278	90.7	- 93.7	.002939	12.08
	.2056	.0000	9.8	.0	.002939	.14
	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			
	.5975	.6867	156.8	- 66.3	.002468	30.34
	.5742	.3492	76.8	- 76.7	.002580	7.61
	.5781	.0000	23.6	.0	.002580	.72
	1.7536	1.9166	18.7	- 18.4	.002367	.41
	1.7498	1.5461	45.6	- 7.4	.002286	2.38
	1.7265	.8341	63.0	- 14.5	.002271	4.50
	1.7148	.4811	54.3	- 43.5	.002422	3.57
	1.6916	.0000	31.5	.0	.002422	1.20
	2.0427	1.9146	7.1	56.3	.002367	.06
	2.0679	1.5519	23.6	.0	.002286	.64
	2.0727	.8846	26.2	- 13.0	.002271	.78
	2.0718	.4966	22.3	45.0	.002422	.60
	2.0621	.0000	25.6	.0	.002422	.79
211.10	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			
	.2196	.5955	83.8	- 75.3	.002525	8.86
	.2018	.2928	28.9	- 36.9	.002965	1.24
	.1879	.0000	11.6	.0	.002965	.20
	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			
	.6548	.6192	120.8	- 51.5	.002587	18.88
	.6172	.3244	66.5	- 29.5	.002774	6.14
	.5994	.0000	52.1	.0	.002774	3.76
	1.7923	1.9031	37.5	11.9	.002352	1.65
	1.8061	1.5351	52.7	28.4	.002450	3.40
	1.7883	.8190	81.9	15.0	.002456	8.23
	1.7448	.4451	82.9	.0	.002530	8.70
	1.7349	.0000	71.4	1.5	.002530	6.45
	2.0831	1.9169	54.6	8.1	.002352	3.50
	2.1009	1.5193	40.7	- 5.4	.002450	2.03
	2.1088	.8447	48.3	2.3	.002456	2.86
	2.1009	.5005	56.5	7.9	.002530	4.03
	2.0989	.0000	63.7	.0	.002530	5.13

Table D-VII. Front Smoke Grid Calculations - 1/2 Inch Entrance with Baffle Spaced 1 Inch (Continued)

Model 33-B, Shot 313

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
253.00	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	.2056	.5917	32.6	- 65.0	.002580	1.37
	.2114	.3104	35.5	- 19.4	.002890	1.82
	.2173	.0000	57.0	.0	.002890	4.70
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	.6731	.5917	110.1	- 41.4	.002610	15.82
	.6324	.3162	72.3	- 22.4	.002646	6.92
	.6305	.0000	110.2	.0	.002646	16.06
	1.7905	1.9243	44.0	- 10.3	.002344	2.27
	1.7963	1.5713	63.3	36.2	.002421	4.86
	1.8060	.8555	128.2	20.7	.002421	19.91
	1.7983	.4811	138.4	14.8	.002530	24.22
	1.7633	.0019	120.0	.0	.002530	18.22
	2.0970	1.9224	54.7	- 30.3	.002344	3.50
	2.1086	1.5480	55.4	6.1	.002421	3.71
	2.1222	.8865	100.3	28.1	.002421	12.19
	2.1280	.5044	92.5	1.2	.002530	10.82
	2.1261	.0000	90.5	.0	.002530	10.36
294.90	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	.2334	.5658	13.6	- 81.9	.002504	.23
	.2354	.2809	42.3	- 24.2	.002858	2.56
	.2453	.0000	13.5	.0	.002858	.26
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	.7379	.5460	101.3	- 40.4	.002640	13.54
	.6845	.2967	111.1	- 17.2	.002650	16.34
	.7102	.0000	81.0	.0	.002650	8.70
	1.8358	1.8952	65.5	13.6	.002604	5.59
	1.8576	1.5727	99.6	45.8	.002666	13.22
	1.9090	.8645	157.3	23.1	.002544	31.47
	1.8793	.4807	148.3	12.8	.002701	29.72
	1.8556	.0000	152.4	- .7	.002701	31.36
	2.1306	1.3892	63.7	- 1.7	.002604	5.28
	2.1563	1.5252	86.6	24.2	.002666	9.54
	2.1978	.8922	125.8	20.7	.002544	20.12
	2.1939	.5025	131.3	10.2	.002701	23.28
	2.1899	.0000	131.2	.0	.002701	23.23

Table D-VII. Front Smoke Grid Calculations - 1/2 Inch Entrance with Baffle Spaced 1 Inch (Continued)

Model 33-B, Shot 313

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
336.80	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	.2076	.3781	8.1	-166.0	.002351	.08
	.2502	.2929	16.7	- 45.0	.002701	.38
	.2308	.0000	2.0	180.0	.002701	.01
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	.7507	.5257	100.9	- 33.1	.002493	12.70
	.7391	.2032	110.1	- 18.8	.002527	15.32
	.7119	.0000	27.5	.0	.002527	.96
	1.8545	1.9399	53.7	8.4	.002672	3.85
	1.8661	1.6431	82.7	28.4	.002518	8.62
	1.9515	.9176	124.2	23.3	.002429	18.75
	1.9437	.5141	150.6	17.5	.002521	28.58
	1.9166	.0000	129.8	.0	.002521	21.25
	2.1610	1.9205	89.2	14.0	.002672	10.63
	2.1862	1.5829	105.1	17.4	.002518	13.92
	2.2405	.9311	132.9	27.3	.002429	21.43
	2.2580	.5276	140.3	14.6	.002521	24.81
	2.2580	.0000	127.9	.0	.002521	20.61
378.70	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	.2255	.5638	71.2	- 57.2	.002132	5.40
	.2473	.2690	44.0	- 74.7	.002746	2.66
	.2433	.0000	27.0	.0	.002746	1.00
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	.8229	.4906	151.9	- 40.4	.002598	29.97
	.7893	.2611	106.1	- 27.0	.002497	14.06
	.7379	.0000	69.4	.0	.002497	6.02
	1.8892	1.9032	63.2	- 12.3	.002519	5.03
	1.9308	1.6123	93.1	- 13.2	.002608	11.31
	2.0237	.9139	125.6	3.5	.002454	19.36
	2.0237	.5262	135.3	3.3	.002533	23.17
	1.9862	.0000	119.6	.0	.002533	18.12
	2.2176	1.9110	108.3	- 4.1	.002519	14.77
	2.2572	1.5569	104.2	2.1	.002608	14.17
	2.3165	.9535	101.2	7.7	.002454	12.57
	2.3304	.5381	123.8	18.2	.002533	19.42
	2.3185	.0000	194.8	.0	.002533	48.08

Table D-VII. Front Smoke Grid Calculations - 1/2 Inch Entrance With Baffle Spaced 1 Inch (Continued)

Model 33-B, Shot 313

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
420.60	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			
	.2464	.5179	89.9	-100.1	.002318	9.37
	.2619	.2502	32.0	-100.6	.002837	1.45
	.2580	.0000	3.9	.0	.002837	.02
	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			
	.8671	.4268	165.9	- 56.1	.002673	36.77
	.8341	.2347	97.7	- 40.1	.002586	12.35
	.7818	.0000	133.8	.0	.002586	23.14
	1.9166	1.9263	61.3	- 5.5	.002452	4.60
	1.9573	1.6217	55.2	4.1	.002630	4.01
	2.0776	.9253	101.9	10.0	.002685	13.93
	2.0795	.5218	110.2	2.0	.002211	13.43
	2.0369	.0000	READINGS INVALID			
	2.2696	1.9127	62.2	- 18.4	.002452	4.74
	2.2910	1.5868	67.6	8.4	.002630	6.01
	2.3414	.9447	97.2	- 21.4	.002685	12.68
	2.3763	.5664	91.0	- 6.2	.002211	9.16
	2.4539	.0000	110.2	.0	.002211	13.42
462.50	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			
	.2097	.4748	87.2	-174.9	.002435	9.25
	.2413	.2374	28.5	-118.3	.002783	1.13
	.2473	.0000	27.0	.0	.002783	1.01
	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			
	.9159	.3521	READINGS INVALID			
	.8645	.1978	READINGS INVALID			
	.8724	.0000	READINGS INVALID			
	1.9505	1.8971	15.6	29.7	.002650	.32
	1.9862	1.6162	19.3	90.0	.002574	.48
	2.1246	.9318	51.8	45.0	.002599	3.49
	2.1345	.5223	64.1	6.9	READINGS INVALID	
	NO READING					
	2.2770	1.8912	8.6	26.6	.002650	.10
	2.3244	1.5668	15.1	39.8	.002574	.29
	2.4075	.9179	62.8	- 17.9	.002599	5.13
	2.4214	.5282	47.6	- 21.4	READINGS INVALID	
	2.4293	.0000	23.1	180.0	READINGS INVALID	

Table D-VII. Front Smoke Grid Calculations - 1/2 Inch Entrance with Baffle Spaced 1 Inch (Continued)

Model 33-B, Shot 313

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
504.40	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			
	.1591	.5102	159.9	121.9	READINGS INVALID	
	.2483	.2250	12.0	-170.5	READINGS INVALID	
	.2852	.0000	15.7	.0	READINGS INVALID	
	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			
	1.9302	1.9340	17.8	-173.7	.002502	.40
	1.9573	1.6411	37.3	161.6	.002516	.75
	2.1145	.9622	47.4	41.6	.002596	2.91
	2.1425	.5296	63.0	51.3	.002779	5.51
	2.1339	.0000	READINGS INVALID			
	2.2774	1.9166	17.8	-173.7	.002502	.40
	2.3026	1.5965	33.6	159.4	.002516	1.42
	2.4016	.9253	47.3	87.6	.002596	2.90
	2.4210	.5490	48.4	26.6	.002779	3.25
	2.4306	.0000	27.5	.0	.002779	1.05
540.30	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			
	.1246	.6113	173.0	112.3	READINGS INVALID	
	.2295	.2354	100.0	129.5	READINGS INVALID	
	.2631	.0000	15.4	180.0	READINGS INVALID	
	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			
	1.9327	1.8952	50.7	-171.3	.002749	3.54
	1.9505	1.6281	54.4	152.5	.002831	4.18
	2.1602	.9634	66.5	106.9	.002723	6.02
	2.1741	.5717	77.7	75.6	READINGS INVALID	
	NO READING					
	2.2591	1.8892	52.1	177.9	.002749	3.73
	2.2928	1.5786	60.5	157.5	.002831	5.19
	2.4095	.9654	71.7	113.8	.002723	7.00
	2.4649	.5500	33.7	76.8	READINGS INVALID	
	2.4570	.0000	7.7	.0	READINGS INVALID	

Table D-VII. Front Smoke Grid Calculations - 1/2 Inch Entrance with Baffle Spaced 1 Inch- (Continued)

Model 33-B, Shot 313

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
588.20	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	.0931	.6712	READINGS	INVALID		
	.1843	.3026	READINGS	INVALID		
	.2696	.0000	READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	1.8797	1.9263	84.0	163.7	.002783	9.83
	1.9088	1.6663	61.0	159.2	.002777	5.17
	2.0951	1.0262	135.0	136.8	.002666	24.29
	2.1629	.6052	49.8	99.1	.002750	3.41
	2.1765	.0000	READINGS	INVALID		
	2.2250	1.9185	76.0	169.6	.002783	8.04
	2.2464	1.6198	70.9	146.3	.002777	6.99
	2.3725	.9913	59.0	143.1	.002666	4.64
	2.4287	.5820	78.1	130.9	.002750	8.39
	2.4384	.0000	19.7	180.0	.002750	.53
630.10	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	1.8516	1.9189	40.6	177.3	.002862	2.35
	1.8932	1.6499	34.9	-173.7	.002794	1.71
	2.0613	1.0564	63.0	140.0	.002673	5.30
	2.1662	.6212	103.1	107.4	.002764	14.69
	2.1780	.0000	.0	.0	.002764	.00
	2.1840	1.9031	40.6	154.7	.002862	2.35
	2.2334	1.6182	28.5	151.7	.002794	1.13
	2.3620	1.0010	42.3	123.2	.002673	2.39
	2.4135	.6093	65.3	109.0	.002764	5.89
	2.4372	.0000	1.9	180.0	.002764	.01

Table D-VII. Front Smoke Grid Calculations - 1/2 Inch Entrance with Baffle Spaced 1 Inch (Continued)

Model 33-B, Shot 313

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
672.00	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			
	1.9390	1.9182	14.3	- 74.1	.002673	.27
	1.8739	1.6625	16.9	144.9	.002775	.40
	2.0466	1.0669	7.1	33.7	.002897	.07
	2.1319	.7042	24.3	104.0	.002399	.71
	2.1765	.0000	25.6	.0	.002399	.78
	2.1882	1.9360	12.4	18.4	.002673	.21
	2.2211	1.6334	8.8	26.6	.002775	.11
	2.3434	1.0223	15.9	60.2	.002897	.36
	2.4074	.6440	31.5	93.6	.002399	.19
	2.4365	.0000	3.9	.0	.002399	.04
713.90	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			
	1.8556	1.9050	17.8	49.4	.002850	.45
	1.8793	1.6597	14.0	15.9	.002702	.27
	2.0673	1.0603	13.6	- 7.1	.002748	.33
	2.1602	.6449	52.5	- 36.0	.002730	3.76
	2.2028	.0000	67.5	.0	.002730	6.22
	2.1958	1.9070	26.0	- 48.0	.002850	.96
	2.2413	1.6222	24.6	- 45.0	.002702	.81
	2.3699	1.0148	25.2	4.4	.002748	.87
	2.4115	.6409	33.7	- 23.6	.002730	1.55
	2.4431	.0000	63.7	.0	.002730	5.53

Table D-VII. Front Smoke Grid Calculations - 1/2 Inch Entrance with Baffle Spaced 1 Inch (Continued)

Model 33-B, Shot 313

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
755.80	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	1.8506	1.9418	12.0	-170.5	.002625	.19
	1.8875	1.6663	15.0	-113.2	.002770	.31
	2.0621	1.0650	5.6	45.0	.002733	.04
	2.1746	.6731	28.0	39.3	.002561	1.00
	2.2444	.0000	72.8	.0	.002561	6.78
	2.2056	1.9166	7.1	146.3	.002625	.07
	2.2386	1.6159	14.2	-146.3	.002770	.28
	2.3686	1.0242	5.9	180.0	.002733	.05
	2.4384	.6305	35.9	- 9.5	.002561	1.65
	2.5005	.0000	74.8	.0	.002561	7.16
797.70	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	1.8457	1.9031	13.9	-123.7	.002721	.26
	1.8734	1.6459	7.0	123.7	.002835	.07
	2.0712	1.0643	43.1	63.4	.002810	2.61
	2.1820	.6627	59.4	35.8	.002637	4.66
	2.2770	.0000	48.2	.0	.002637	3.07
	2.1899	1.9110	27.6	77.9	.002721	1.04
	2.2295	1.6142	25.2	32.5	.002835	.90
	2.3640	1.0148	22.0	37.9	.002810	.68
	2.4471	.6350	53.0	10.5	.002637	3.70
	2.5183	.0000	61.7	.0	.002637	5.03

Table D-VII. Front Smoke Grid Calculations - 1/2 Inch Entrance with Baffle Spaced 1 Inch (Continued)

Model 33-B, Shot 313

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
839.60	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	1.8429	1.9302	60.3	19.0	.002489	4.53
	1.8836	1.6722	59.5	34.2	.002777	4.91
	2.0815	1.1038	84.0	57.4	.002810	9.92
	2.2231	.7081	113.5	62.1	.002408	15.51
	2.2979	.0000	READINGS	INVALID		
	2.2114	1.9437	39.2	17.5	.002488	1.91
	2.2593	1.6295	53.0	31.3	.002777	3.90
	2.3860	1.0378	94.5	31.4	.002810	12.54
	2.4908	.6402	87.7	43.3	.002405	9.27
	2.5626	.0000	110.2	.0	.002408	14.61
881.50	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	1.9011	1.9226	73.5	13.7	.002985	8.05
	1.9228	1.6795	49.3	30.6	.002896	3.52
	2.1167	1.1355	79.1	45.0	.002797	8.75
	2.2354	.7636	96.5	53.1	READINGS	INVALID
	NO READING					
	2.2275	1.9228	32.9	3.4	.002985	1.61
	2.2750	1.6419	52.7	61.6	.002896	4.01
	2.4451	1.0643	97.6	60.4	.002797	13.33
	2.5124	.6944	111.2	51.3	READINGS	INVALID
	2.6291	.0000	57.9	.0	READINGS	INVALID

Table D-VII. Front Smoke Grid Calculations - 1/2 Inch Entrance with Baffle Spaced 1 Inch (Continued)

Model 33-B, Shot 313

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
923.40	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	1.9146	1.9476	8.8	26.6	.002954	.11
	1.9263	1.6974	15.9	62.9	.003021	.38
	2.1377	1.1600	65.4	112.2	.002830	3.05
	2.2813	.7856	69.2	75.2	.002333	5.58
	2.4054	.0000	READINGS	INVALID		
	2.2444	1.9457	23.7	49.4	.002954	.83
	2.2852	1.6760	28.2	65.2	.003021	1.20
	2.4345	1.1232	70.8	98.4	.002830	7.10
	2.5606	.7274	73.7	55.9	.002333	6.33
	2.6208	.0000	45.2	.0	.002333	2.39
965.30	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	1.9090	1.9268	44.4	160.0	.003008	2.96
	1.9248	1.6954	21.8	135.0	.002957	.70
	2.0930	1.1968	53.5	115.6	.002618	3.75
	2.2532	.8309	92.0	99.7	READINGS	INVALID
	NO READING		READINGS	INVALID		
	2.2433	1.9407	2.7	- 45.0	.003008	.01
	2.2868	1.6677	4.3	- 63.4	.002957	.03
	2.4471	1.1355	28.9	53.1	.002618	1.10
	2.5539	.7557	44.9	25.5	READINGS	INVALID
	2.5746	.0000	READINGS	INVALID		

Table D-VII. Front Smoke Grid Calculations - 1/2 Inch Entrance with Baffle Spaced 1 Inch (Continued)

Model 33-B, Shot 313

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
1007.20	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	1.8700	1.9476	27.6	175.9	.002793	1.06
	1.9108	1.7129	34.0	-170.0	.003005	1.73
	2.1145	1.2085	12.6	141.2	.002722	.22
	2.2658	.8768	87.7	109.7	READINGS	INVALID
	NO READING		READINGS	INVALID		
	2.2464	1.9437	7.1	-123.7	.002793	.07
	2.2671	1.6722	30.0	148.4	.003005	1.35
	2.4520	1.1465	16.8	110.6	.002722	.38
	2.6014	.7468	71.6	74.1	READINGS	INVALID
	NO READING		READINGS	INVALID		
1049.10	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	1.8813	1.9288	.6	153.4	.002951	.11
	1.8912	1.6894	41.2	172.4	.002919	1.24
	2.0831	1.2047	76.9	162.5	.002971	3.78
	2.2235	.9139	110.8	148.5	READINGS	INVALID
	NO READING		READINGS	INVALID		
	2.2394	1.9347	42.5	177.4	.002951	2.66
	2.2611	1.6835	47.6	158.6	.002919	3.31
	2.4411	1.1513	54.6	137.9	.002971	4.43
	2.5737	.8249	121.5	110.4	READINGS	INVALID
	NO READING		READINGS	INVALID		

Table D-VII. Front Smoke Grid Calculations - 1/2 Inch Entrance with Baffle Spaced 1 Inch (Continued)

Model 33-B, Shot 313

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
1091.00	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	1.8623	1.9515	45.4	162.3	.003076	3.17
	1.8817	1.7163	47.4	-175.3	.002994	3.36
	2.0407	1.2318	90.6	-175.0	.002717	11.21
	2.1707	.9350	95.2	172.9	READINGS	INVALID
	NO READING		READINGS	INVALID		
	2.2037	1.9457	44.4	-167.2	.003076	3.03
	2.2425	1.6896	34.9	-163.6	.002994	1.82
	2.4113	1.1833	61.8	142.8	.002717	5.18
	2.5587	.8613	87.1	108.4	READINGS	INVALID
	NO READING		READINGS	INVALID		
1132.90	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	1.8378	1.9426	83.6	-161.1	.002803	9.79
	1.8437	1.6855	98.4	-154.4	.002771	13.41
	1.9921	1.1968	151.3	-169.0	.002668	70.55
	2.1286	.9258	188.8	168.8	READINGS	INVALID
	NO READING		READINGS	INVALID		
	2.1958	1.9248	79.5	-166.0	.002803	8.87
	2.2275	1.6736	82.5	-169.2	.002771	9.43
	2.3917	1.1889	134.8	160.8	.002668	24.25
	2.5460	.9080	133.7	136.2	READINGS	INVALID
	NO READING		READINGS	INVALID		

Table D-VII. Front Smoke Grid Calculations - 1/2 Inch Entrance with Baffle Spaced 1 Inch (Continued)

Model 33-B, Shot 313

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SCFT
1174.80	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	1.7827	1.9243	95.0	-166.3	.002946	13.28
	1.7924	1.6741	78.3	-169.4	.002980	9.14
	1.8914	1.2027	145.8	-176.9	.002686	28.54
	1.9845	.9719	217.5	174.[illegible]	READINGS	INVALID
	NO READING		READINGS	INVALID		
	2.1261	1.9263	106.2	178.9	.002946	16.63
	2.1610	1.6741	99.1	-173.2	.002980	14.62
	2.2832	1.2279	149.3	161.6	.002686	29.94
	2.4617	.9544	212.0	154.1	READINGS	INVALID
	NO READING		READINGS	INVALID		
1216.70	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	1.7448	1.9209	61.3	167.3	.002892	5.43
	1.7666	1.6696	73.2	161.6	.002988	8.00
	1.8457	1.1889	104.8	-173.7	.002811	15.44
	1.9110	.9476	161.2	-169.0	READINGS	INVALID
	NO READING		READINGS	INVALID		
	2.0890	1.9268	91.5	161.6	.002892	12.11
	2.1286	1.6617	99.4	161.9	.002988	14.77
	2.2493	1.2364	114.7	169.4	.002811	18.51
	2.3541	1.0010	151.5	148.5	READINGS	INVALID
	NO READING		READINGS	INVALID		

Table D-VII Front Smoke Grid Calculations - 1/2 Inch Entrance with Baffle Spaced 1 Inch (Continued)

Model 33-B, Shot 313

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
1258.60	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	1.7226	1.9379	51.2	177.8	.003249	4.26
	1.7226	1.6974	74.9	-166.3	.002966	8.32
	1.7866	1.1911	114.0	-158.7	.002583	16.78
	1.8254	.9408	164.8	-146.7	READINGS	INVALID
	NO READING		READINGS	INVALID		
	2.0388	1.9554	78.7	178.6	.003249	10.07
	2.0660	1.7051	94.5	177.6	.002966	13.25
	2.1726	1.2609	116.1	179.0	.002583	17.40
	2.3317	1.0339	42.6	123.7	READINGS	INVALID
	NO READING		READINGS	INVALID		
1300.50	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	1.6934	1.9228	44.4	145.6	.003001	2.96
	1.6934	1.6518	49.2	-138.2	.002999	3.63
	1.7389	1.1474	133.2	-128.5	.002226	19.74
	1.7725	.8566	190.8	-118.4	READINGS	INVALID
	NO READING		READINGS	INVALID		
	2.0099	1.9288	38.6	177.1	.003001	2.24
	2.0336	1.6657	59.9	-165.1	.002999	5.38
	2.1325	1.2384	109.5	-165.7	.002226	13.34
	2.3304	1.0366	74.5	-163.4	READINGS	INVALID
	NO READING		READINGS	INVALID		

Table D-VIII. Rear Smoke Grid Calculations - 1/2 Inch Entrance with Baffle Spaced 1 Inch

Model 33-B, Shot 314

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
239.00	2.5082	1.9294	39.2	- 32.0	.002440	1.87
	2.5201	1.6410	45.3	20.0	.002501	2.36
	2.5082	.6126	34.9	19.4	.002440	1.51
	2.5082	.4555	40.6	.0	.002572	2.12
	2.4684	.0000	38.7	.0	.002572	1.93
	2.8503	1.9354	13.0	- 26.6	.002467	.21
	2.8702	1.7146	22.1	15.7	.002313	.56
	2.8463	.6186	24.5	18.4	.002436	.73
	2.8483	.4774	19.9	- 60.9	.002401	.48
	2.8344	.0000	36.9	.0	.002401	1.30
	3.3436	1.9612	9.7	180.0	.002360	.11
	3.3277	1.7832	4.3	26.6	.002319	.02
	3.2243	.6146	17.8	40.6	.002394	.38
	3.2183	.4933	23.3	85.2	.002265	.61
	3.2064	.0020	13.5	180.0	.002266	.21
	3.7076	1.9851	9.9	101.3	.002360	.11
	3.6658	1.8100	12.4	-126.7	.002319	.13
	3.6101	.6206	4.3	153.4	.002394	.02
	3.5962	.4993	13.0	-153.4	.002266	.19
	3.5982	.0000	13.5	180.0	.002266	.21
270.70	2.5246	1.9167	92.5	8.7	.002693	7.51
	2.5324	1.6534	76.8	21.3	.002339	8.99
	2.5111	.6409	95.6	20.7	.002222	10.15
	2.5015	.4743	84.6	23.6	.002561	9.15
	2.4840	.0000	107.3	.0	.002561	14.75
	2.8461	1.9419	70.9	11.3	.002455	8.18
	2.8674	1.7173	47.7	2.4	.002410	2.75
	2.8616	.6331	80.5	9.0	.002400	9.41
	2.8364	.4705	73.8	4.8	.002544	6.56
	2.8480	.0000	81.5	.0	.002544	8.45
	3.3262	1.9710	42.7	27.8	.002232	2.03
	3.3185	1.7870	34.7	13.2	.002421	1.46
	3.2159	.6157	46.5	20.0	.002450	2.65
	3.1985	.4995	35.8	.0	.002269	1.45
	3.1849	.0000	33.8	- 3.2	.002269	1.46
	3.6941	2.0000	21.5	23.7	.002232	.52
	3.6476	1.8064	40.0	- 63.4	.002421	1.94
	3.5799	.6215	21.4	- 21.8	.002450	.56
	3.5760	.4937	22.7	15.9	.002269	.58
	3.5741	.0000	19.9	.0	.002269	.45

Table D-VIII. Rear Smoke Grid Calculations - 1/2 Inch Entrance with Baffle Spaced 1 Inch (Continued)

Model 33-B, Shot 314

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
312.40	2.5997	1.9433	76.0	14.7	.002646	7.65
	2.5917	1.6688	81.8	6.8	.002405	8.05
	2.5977	.8464	120.7	6.4	.002439	17.77
	2.5858	.4893	124.2	4.5	.002578	19.88
	2.5758	.0000	137.4	.0	.002578	24.32
	2.9199	1.9493	77.4	- 1.4	.002463	7.38
	2.9180	1.7166	60.0	.0	.002509	4.51
	2.9339	.6325	93.2	- 4.6	.002501	10.86
	2.9199	.4833	112.4	3.0	.002674	16.88
	2.9160	.0000	92.9	.0	.002674	11.53
	3.3814	1.9811	64.0	3.5	.002103	4.30
	3.3615	1.7902	52.3	2.1	.002476	3.38
	3.2680	.6305	85.9	7.5	.002493	9.20
	3.2541	.4933	93.4	- 13.2	.002339	10.20
	3.2422	.0000	96.7	.0	.002339	10.94
	3.7255	1.9970	40.7	- 25.2	.002103	1.74
	3.6837	1.7742	46.5	2.4	.002476	2.67
	3.6200	.6126	63.9	- 1.7	.002493	5.09
	3.6181	.5052	65.9	- 3.4	.002339	5.08
	3.6181	.0000	54.2	.0	.002339	3.43
354.10	2.6002	1.9361	94.8	- 9.7	.002735	12.28
	2.6137	1.6631	109.9	- 12.5	.002507	15.15
	2.6312	.6544	124.5	8.3	.002425	18.80
	2.6254	.4840	133.4	- 3.4	.002739	24.37
	2.6215	.0000	103.3	.0	.002739	14.63
	2.9235	1.9400	85.7	- 4.0	.002532	9.29
	2.9274	1.7173	87.7	- 3.9	.002456	9.44
	2.9545	.6254	99.7	4.6	.002334	11.60
	2.9487	.4763	113.6	4.0	.002651	17.09
	2.9409	.0000	85.5	.0	.002651	9.68
	3.3921	1.9748	53.5	- 17.6	.002447	4.16
	3.3708	1.7890	63.9	5.4	.002522	5.14
	3.3011	.6273	75.7	- 13.7	.002288	6.55
	3.2894	.4782	83.5	- 1.4	.002555	8.91
	3.2817	.0000	67.6	.0	.002555	5.83
	3.7309	1.9826	20.7	-106.7	.002447	.53
	3.6941	1.8083	41.8	64.7	.002522	2.20
	3.6438	.6196	26.7	26.6	.002288	.81
	3.6418	.4898	37.5	- 3.0	.002555	1.63
	3.6283	.0000	27.8	.0	.002555	.99

Table D-VIII. Rear Smoke Grid Calculations - 1/2 Inch Entrance with Baffle Spaced 1 Inch (Continued)

Model 33-B, Shot 314

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	P LB/SQFT
395.80	2.6932	1.9274	90.9	.0	.002714	11.22
	2.6992	1.6450	97.0	4.6	.002642	12.44
	2.7210	.6643	97.2	5.7	.002412	11.40
	2.7190	.4814	103.2	13.0	.002735	4.56
	2.0793	.0000	87.1	.0	.002735	10.36
	3.0055	1.9433	81.8	- 6.8	.002768	7.27
	3.0055	1.7106	81.5	- 4.1	.002566	8.84
	3.0323	.6405	56.9	17.8	.002893	4.67
	3.0323	.4913	62.4	16.2	.002865	5.59
	3.0015	.0000	65.8	.0	.002865	6.20
	3.4271	1.9632	46.0	- 22.2	.003137	3.32
	3.4252	1.7961	48.4	2.3	.002833	5.32
	3.3416	.6126	31.0	3.6	.002898	1.39
	3.3276	.4913	38.9	26.6	.002657	2.01
	3.3098	.0000	27.1	.0	.002657	.97
	3.7195	1.9771	42.3	15.9	.003137	2.80
	3.7016	1.8120	25.2	4.4	.002833	.90
	3.6539	.6246	19.3	32.0	.002898	.48
	3.6559	.5032	4.9	78.7	.002657	.13
	3.6459	.0000	READINGS INVALID			
437.50	2.6912	1.9381	38.6	11.9	.002927	2.17
	2.7106	1.6709	56.9	24.8	.002794	4.52
	2.7280	.6641	51.7	.0	.002912	2.89
	2.7260	.5073	53.8	- 4.2	.002908	4.21
	2.7086	.0000	69.6	.0	.002908	7.03
	3.0048	1.9203	44.8	12.8	.002910	2.93
	3.0087	1.7115	6.4	9.2	.002675	5.21
	3.0087	.6428	45.8	2.5	.002646	2.77
	3.0087	.4937	20.5	- 29.1	.002922	.59
	3.0068	.0000	67.6	.0	.002822	6.44
	3.4347	1.9574	18.0	- 6.3	.002642	.43
	3.4192	1.7909	20.5	- 29.1	.002699	.56
	3.3320	.6292	29.5	47.7	.002604	1.14
	3.3243	.4956	33.8	3.4	READINGS	INVALID
	3.3089	.0000	41.7	.0	READINGS	INVALID
	3.7715	1.9942	49.1	31.8	.002642	3.18
	3.7193	1.8103	27.8	.0	.002699	1.04
	3.6592	.6292	22.0	5.2	.002604	.65
	3.6438	.4995	16.0	60.3	READINGS	INVALID
	NO READING					

Table D-VIII. Rear Smoke Grid Calculations - 1/2 Inch Entrance with Baffle Spaced 1 Inch (Continued)

Model 33-B, Shot 314

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
479.20	2.7310	1.9354	3.9	180.0	.002712	.02
	2.7509	1.6698	20.9	-123.7	.002589	.57
	2.7727	.6643	25.2	4.4	.002460	.78
	2.7727	.4774	20.9	- 33.7	.002947	.65
	2.7489	.0000	31.0	.0	.002947	1.41
	3.0492	1.9533	9.7	- 36.9	.002940	.14
	3.0671	1.7205	19.1	- 24.0	.002982	.54
	3.0791	.6425	34.4	- 38.3	.002625	1.56
	3.0512	.4614	19.9	- 29.1	.002936	.58
	3.0691	.0000	23.2	.0	.002936	.79
	3.4550	1.9612	11.6	99.5	.002709	.19
	3.4431	1.7862	1.9	- 89.7	.002814	.01
	3.3615	.6345	25.2	- 94.4	.002916	.93
	3.3715	.4933	17.4	- 90.0	.002811	.43
	3.3516	.0000	13.5	.0	.002811	.26
	3.7613	2.0030	20.6	-138.8	.002709	.57
	3.7295	1.8120	12.2	-161.6	.002814	.21
	3.6758	.6266	19.9	-119.1	.002916	.58
	3.6638	.5172	23.3	- 85.2	.002811	.76
	3.6678	.0000	READINGS INVALID			
520.90	2.6873	1.9361	35.8	-176.8	.002630	1.69
	2.6989	1.6534	35.8	-160.6	.002659	1.71
	2.7531	.6660	15.9	160.0	.002867	.36
	2.7435	.4956	7.2	146.3	.003012	.08
	2.7396	.0000	9.9	.0	.003012	.15
	3.0126	1.9245	45.3	-164.7	.002880	2.96
	3.0261	1.7038	52.6	-169.1	.002811	3.89
	3.0358	.6215	22.7	-164.7	.003058	.79
	3.0261	.4840	4.4	26.6	.003035	.03
	3.0300	.0000	41.7	180.0	.003035	2.64
	3.4327	1.9690	28.5	155.2	.002697	1.09
	3.4192	1.7890	23.9	175.2	.002734	.78
	3.3301	.6041	8.4	-135.0	.002647	.09
	3.3243	.4782	29.1	171.9	.002842	1.12
	3.3224	.0000	4.0	.0	.002842	.02
	3.7561	1.9806	14.1	-171.9	.002697	.27
	3.7076	1.8064	20.5	150.9	.002734	.57
	3.6496	.6118	10.1	101.3	.002647	.14
	3.6457	.4763	11.9	.0	.002842	.20
	3.6379	.0000	2.0	180.0	.002842	.01

Table D-VIII. Rear Smoke Grid Calculations - 1/2 Inch Entrance with Baffle Spaced 1 Inch (Continued)

Model 33-B, Shot 314

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	U LB/SQFT
562.60	2.6952	1.9334	58.7	-167.6	.002788	4.84
	2.7171	1.6569	58.2	158.6	.002709	4.39
	2.7568	.6643	29.6	151.7	.002539	1.04
	2.7669	.4814	35.5	119.4	.003148	1.99
	2.7588	.0000	21.3	180.0	.003148	.71
	3.0055	1.9413	62.5	158.2	.002728	5.31
	3.0154	1.7106	52.6	162.9	.002786	3.86
	3.0572	.6365	27.5	129.3	.002866	1.05
	3.0352	.4833	15.1	129.8	.002653	.33
	3.0273	.0000	17.4	180.0	.002853	.47
	3.4291	1.9731	39.9	-157.2	.002641	2.10
	3.4192	1.7832	41.4	-169.2	.002762	2.36
	3.3555	.6285	31.3	111.8	.002724	1.33
	3.3436	.4973	18.3	127.0	.002651	.44
	3.3555	.0000	3.9	180.0	.002651	.02
	3.7474	2.0010	32.9	180.0	.002641	1.43
	3.7116	1.8220	19.7	-168.7	.002762	.54
	3.6738	.6365	13.0	115.6	.002724	.23
	3.6758	.5172	5.8	89.9	.002651	.04
	3.6658	.0000	5.8	180.0	.002651	.04
604.30	2.6312	1.9187	83.0	-169.0	.002779	9.58
	2.6447	1.6747	72.2	172.1	.002606	6.80
	2.7260	.6796	57.4	104.0	.002876	4.73
	2.7260	.5266	67.6	114.3	.002828	5.46
	2.7183	.0000	.0	.0	.002828	.00
	2.9545	1.9477	31.9	-176.4	.002772	1.41
	2.9758	1.7193	51.6	175.6	.002793	3.75
	3.0184	.6428	47.9	131.6	.002758	3.19
	3.0165	.4956	36.5	119.4	.002885	1.93
	3.0126	.0000	.0	.0	.002885	.00
	3.3959	1.9535	17.8	-153.4	.002627	.42
	3.3785	1.7812	15.9	180.0	.002671	.34
	3.3185	.6331	23.3	110.0	.002405	.65
	3.3146	.4937	4.4	116.6	.002746	.03
	3.3185	.0000	35.8	180.0	.002746	1.75
	3.7231	1.9606	34.7	-156.4	.002627	1.58
	3.6883	1.8025	26.1	-171.3	.002671	.91
	3.6438	.6234	13.9	180.0	.002405	.23
	3.6457	.4821	26.1	-171.3	.002746	.94
	3.6321	.0000	23.8	180.0	.002746	.78

Table D-VIII. Rear Smoke Grid Calculations - 1/2 Inch Entrance with Baffle Spaced 1 Inch. (Continued)

Model 33-B, Shot 314

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
646.00	2.6136	1.9175	9.7	36.9	.002674	.13
	2.6455	1.6668	16.4	45.0	.002810	.38
	2.7429	.7200	53.1	100.5	.002595	3.66
	2.7389	.5430	29.1	93.8	.002821	1.19
	2.7588	.0000	13.5	.0	.002821	.26
	2.9736	1.9393	14.0	- 33.7	.002672	.26
	2.9637	1.7146	11.8	80.5	.002628	.18
	3.0254	.6723	59.2	101.3	.002494	4.37
	3.0373	.5152	54.7	98.1	.002841	4.25
	3.0273	.0000	11.6	180.0	.002841	.19
	3.4132	1.9652	19.9	29.1	.002894	.57
	3.4033	1.7882	11.3	31.0	.002862	.18
	3.3476	.6504	25.4	81.3	.002620	.85
	3.3416	.5012	27.7	65.2	.002703	1.04
	3.3197	.0000	.0	.0	.002703	.00
	3.7156	1.9871	9.7	- 36.9	.002894	.14
	3.6857	1.8180	15.7	8.1	.002862	.27
	3.6599	.6365	21.6	63.4	.002620	.61
	3.6499	.5132	38.9	95.7	.002703	2.04
	3.6420	.0000	5.8	.0	.002703	.05
687.70	2.6389	1.9245	54.1	17.1	.002969	4.34
	2.6563	1.6864	31.1	26.6	.002771	1.34
	2.7183	.7318	17.1	35.5	.002682	.39
	2.7241	.5557	31.4	34.7	.002763	1.36
	2.7318	.0000	23.8	180.0	.002763	.79
	2.9661	1.9400	14.1	45.0	.002849	.28
	2.9777	1.7309	39.2	30.5	.002786	2.14
	3.0068	.7009	29.5	70.3	.002607	1.14
	3.0087	.5499	19.9	53.1	.002539	.50
	3.0010	.0000	6.0	.0	.002539	.05
	3.4134	1.9632	8.9	63.4	.002669	.11
	3.3882	1.7870	15.5	39.8	.002671	.32
	3.3224	.6583	28.5	114.8	.002621	1.06
	3.3262	.5189	38.6	101.9	.002617	1.95
	3.3185	.0000	13.9	.0	.002617	.25
	3.7309	1.9748	58.7	24.0	.002669	4.60
	3.7018	1.8045	45.9	5.0	.002671	2.81
	3.6534	.6428	39.9	84.3	.002621	2.09
	3.6418	.5208	56.9	65.2	.002617	4.24
	3.6379	.0000	11.9	180.0	.002617	.19

Table D-VIII. Rear Smoke Grid Calculations - 1/2 Inch Entrance with Baffle Spaced 1 Inch (Continued)

Model 33-B, Shot 314

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
729.40	2.6653	1.9334	16.0	166.0	.002870	.37
	2.6733	1.6808	16.6	-144.5	.002800	.39
	2.7568	.7300	15.1	- 50.2	.002656	.30
	2.7648	.5609	22.6	- 20.0	.002652	.68
	2.7350	.0000	23.2	.0	.002652	.71
	2.9836	1.9493	12.4	38.7	.002819	.22
	2.9975	1.7345	6.1	71.6	.002822	.05
	3.0353	.7001	37.6	- 78.1	.002672	1.89
	3.0492	.5311	38.5	- 72.5	.002756	2.05
	3.0333	.0000	21.3	.0	.002756	.62
	3.4172	1.9731	13.5	180.0	.002407	.22
	3.4152	1.7981	17.8	77.5	.002706	.43
	3.3357	.6763	15.5	- 90.0	.002664	.32
	3.3337	.5390	23.2	- 90.0	.002463	.66
	3.3337	.0000	1.9	.0	.002463	.00
	3.7693	2.0109	9.9	11.3	.002407	.12
	3.7315	1.8220	11.6	180.0	.002706	.18
	3.6638	.6763	17.8	167.5	.002664	.42
	3.6738	.5649	19.3	-143.1	.002463	.46
	3.6300	.0000	9.7	180.0	.002463	.12
771.10	2.6234	1.9284	23.1	8.1	.002701	1.07
	2.6428	1.6767	23.8	22.6	.002653	.89
	2.7280	.7202	46.5	- 20.0	.002798	3.03
	2.7454	.5479	50.7	- 25.6	.002943	3.78
	2.7551	.0000	READINGS	INVALID		
	2.9758	1.9477	17.8	- 26.6	.003038	.48
	2.9797	1.7367	17.8	- 26.6	.002715	.43
	3.0145	.6641	67.5	- 42.6	.002618	5.97
	3.0203	.5131	47.4	- 33.0	.002830	3.18
	3.0223	.0000	39.7	.0	.002830	2.24
	3.3998	1.9632	35.2	16.4	.002751	1.71
	3.3921	1.8045	14.1	- 45.0	.002780	.27
	3.3224	.6428	67.3	- 34.2	.002539	5.74
	3.3262	.4956	69.0	- 41.5	.002829	6.73
	3.3204	.0000	37.8	.0	.002829	2.02
	3.7406	1.9768	24.6	- 76.0	.002751	.83
	3.6902	1.8045	5.6	-135.0	.002780	.04
	3.6360	.6467	54.1	- 72.9	.002539	3.71
	3.6263	.5092	77.9	- 84.1	.002829	8.59
	3.6283	.0000	43.7	.0	.002829	2.70

Table D-VIII. Rear Smoke Grid Calculations - 1/2 Inch Entrance with Baffle Spaced 1 Inch (Continued)

Model 33-B, Shot 314

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
812.80	2.6932	1.9373	27.5	39.3	.003008	1.14
	2.6972	1.6907	35.5	29.4	.002738	1.73
	2.8006	.7141	64.6	8.6	.002771	5.78
	2.8105	.5390	69.8	3.2	READINGS	INVALID
	NO READING		READINGS	INVALID		
	2.9995	1.9413	14.1	105.9	.002663	.26
	3.0134	1.7265	12.4	- 38.7	.002733	.21
	3.0850	.6544	50.9	8.7	.002694	3.49
	3.0890	.5052	52.6	6.3	.002902	4.01
	3.0731	.0000	63.8	.0	.002902	5.91
	3.4510	1.9831	19.3	.0	.002570	.48
	3.4252	1.7882	11.6	.0	.002852	.19
	3.3913	.6385	46.4	.0	.002682	2.89
	3.3654	.4933	39.1	8.5	.002943	2.25
	3.3715	.0000	36.8	.0	.002943	1.99
	3.7752	1.9871	23.3	41.6	.002570	.70
	3.7275	1.8180	21.4	- 5.2	.002852	.65
	3.6798	.6246	36.0	- 36.3	.002682	1.74
	3.6818	.4873	39.1	- 8.5	.002943	2.25
	3.6738	.0000	27.1	.0	.002943	1.08
854.50	2.6447	1.9458	.0	.0	.002764	.00
	2.6738	1.6941	17.8	26.6	.002833	.45
	2.7919	.7299	56.5	39.3	.002905	4.64
	2.8151	.5518	46.4	9.9	READINGS	INVALID
	NO READING		READINGS	INVALID		
	2.9719	1.9613	21.4	68.2	.002784	.64
	2.9894	1.7289	25.5	51.3	.002736	.89
	3.0649	.6718	19.9	90.0	.002727	.54
	3.0726	.5189	29.9	93.8	.003000	1.34
	3.0862	.0000	19.9	.0	.003000	.59
	3.4192	1.9632	2.8	45.0	.002592	.01
	3.4037	1.8045	41.0	67.2	.002789	2.34
	3.3688	.6428	22.2	116.6	.002822	.70
	3.3650	.5015	27.0	72.9	.002875	1.05
	3.3572	.0000	2.0	.0	.002875	.01
	3.7580	1.9923	31.9	176.4	.002592	1.32
	3.7115	1.8035	35.8	109.4	.002789	1.79
	3.6651	.6254	16.4	76.0	.002822	.38
	3.6651	.5034	18.3	102.5	.002875	.48
	3.6554	.0000	15.9	.0	.002875	.36

Table D-VIII. Rear Smoke Grid Calculations - 1/2 Inch Entrance with Baffle Spaced 1 Inch (Continued)

Model 33-B, Shot 314

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
896.20	2.6937	1.9373	60.5	7.4	.002998	5.48
	2.7131	1.6987	51.1	37.3	.002997	3.91
	2.8444	.7499	78.1	48.0	.003137	9.56
	2.8563	.5470	71.6	38.4	READINGS	INVALID
	NO READING		READINGS	INVALID		
	3.0075	1.9612	54.3	4.1	.002918	4.30
	3.0293	1.7464	52.8	23.7	.002753	3.84
	3.0850	.6743	60.2	45.0	.002857	5.17
	3.0870	.5351	51.5	34.3	.002787	3.70
	3.0930	.0000	29.0	.0	.002787	1.17
	3.4520	1.9851	32.0	25.0	.003487	1.79
	3.4411	1.8260	39.0	14.7	.002876	2.08
	3.3814	.6584	48.1	49.9	.002755	3.18
	3.3933	.5191	49.2	45.0	.002808	3.40
	3.3734	.0000	44.5	.0	.002808	2.78
	3.7434	1.9891	23.6	35.0	.003487	.97
	3.7156	1.8519	53.8	52.3	.002876	4.16
	3.6837	.6405	48.8	56.3	.002755	3.28
	3.6778	.5052	39.2	57.1	.002808	2.15
	3.6897	.0000	25.1	.0	.002808	.89
937.90	2.7047	1.9535	14.5	15.9	.003022	.32
	2.7144	1.7251	15.1	23.2	.002925	.34
	2.8441	.7880	61.4	65.1	.002830	5.33
	2.8712	.5963	78.2	62.8	READINGS	INVALID
	NO READING		READINGS	INVALID		
	3.0261	1.9652	36.5	- 29.4	.003011	2.00
	3.0378	1.7502	25.8	22.6	.002892	.97
	3.1075	.7144	87.1	55.2	.002681	10.17
	3.1152	.5479	72.9	25.9	.002785	7.40
	3.1152	.0000	33.8	.0	.002785	1.59
	3.4482	1.9768	27.6	- 30.3	.002866	1.09
	3.4405	1.8141	25.9	- 32.5	.002862	.96
	3.3998	.6796	59.1	47.7	.002803	4.89
	3.3998	.5363	50.8	59.4	.002850	3.68
	3.4017	.0000	39.7	.0	.002850	2.25
	3.7773	2.0058	37.8	.0	.002866	2.04
	3.7444	1.8451	25.5	- 38.7	.002862	.93
	3.6922	.6660	63.2	77.3	.002803	5.59
	3.6864	.5363	56.0	73.5	.002850	4.46
	3.6805	.0000	4.0	180.0	.002850	.02

Table D-VIII. Rear Smoke Grid Calculations - 1/2 Inch Entrance with Baffle Spaced 1 Inch (Continued)

Model 33-B, Shot 314

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
979.60	2.7071	1.9413	19.7	-168.7	.003086	.60
	2.7270	1.7046	2.7	- 45.0	.002981	.01
	2.8702	.8056	40.7	64.7	.002658	2.20
	2.8921	.6166	44.2	61.2	READINGS	INVALID
	NO READING		READINGS	INVALID		
	3.0393	1.9433	1.9	- 89.7	.003200	.01
	3.0532	1.7562	21.3	90.0	.002956	.67
	3.1348	.7459	45.7	53.6	.002729	2.84
	3.1527	.5669	67.7	59.0	.002760	6.32
	3.1268	.0000	77.4	.0	.002760	8.26
	3.4769	1.9712	5.5	135.0	.003263	.05
	3.4630	1.8120	4.3	116.6	.003207	.03
	3.4212	.7021	30.6	34.7	.002848	1.33
	3.4192	.5629	34.9	33.7	.002816	1.71
	3.4132	.0000	27.1	.0	.002816	1.03
	3.7812	1.9891	12.2	-161.6	.003263	.24
	3.7355	1.8359	19.3	143.1	.003207	.60
	3.6977	.7021	12.2	71.6	.002848	.21
	3.6937	.5589	12.4	51.3	.002816	.22
	3.6857	.0000	13.5	.0	.002816	.26
1021.30	2.6854	1.9497	11.6	149.0	.003099	.21
	2.7164	1.7231	17.1	125.5	.002960	.43
	2.8616	.8248	38.0	47.1	.002904	2.09
	2.8925	.6350	44.1	35.8	.002831	2.76
	2.9661	.0000	READINGS	INVALID		
	3.0261	1.9632	21.5	146.3	.003230	.75
	3.0378	1.7715	16.0	172.9	.002950	.38
	3.1346	.7512	45.4	- 23.2	.002968	3.06
	3.1500	.6060	44.0	18.4	.002893	2.80
	3.1926	.0000	91.4	.0	.002893	12.09
	3.4443	1.9806	21.5	146.3	.003120	.72
	3.4385	1.8180	6.3	161.6	.003056	.06
	3.4250	.6970	16.0	- 29.7	.003028	.39
	3.4288	.5557	32.4	- 10.6	.002957	1.55
	3.4288	.0000	37.8	.0	.002957	2.11
	3.7657	2.0019	20.3	78.7	.003120	.64
	3.7289	1.8567	13.3	63.4	.003056	.27
	3.6960	.6776	57.2	- 69.7	.003028	4.96
	3.6941	.5460	48.1	- 51.7	.002957	3.42
	3.6941	.0000	37.8	.0	.002957	2.11

Table D-VIII. Rear Smoke Grid Calculations - 1/2 Inch Entrance with Baffle Spaced 1 Inch (Continued)

Model 33-B, Shot 314

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
1063.00	2.6972	1.9473	21.6	169.7	.003138	.73
	2.7171	1.7185	39.9	-166.0	.002972	2.36
	2.8961	.8334	19.9	60.9	.002842	.56
	2.9279	.6425	30.6	34.7	READINGS	INVALID
	NO READING					
	3.0214	1.9552	17.5	173.7	.002980	.46
	3.0373	1.7583	26.9	-149.7	.002988	1.08
	3.1765	.7280	27.4	8.1	.003307	1.24
	3.1944	.5808	35.6	- 22.4	.003101	1.96
	3.2183	.0000	31.0	.0	.003101	1.49
	3.4590	1.9831	6.1	- 18.4	.002914	.05
	3.4570	1.8140	13.5	180.0	.002999	.27
	3.4351	.6942	26.3	- 36.0	.003056	1.06
	3.4510	.5569	20.9	- 33.7	.002941	.64
	3.4510	.0000	21.3	.0	.002941	.67
	3.7852	2.0090	19.1	-114.0	.002914	.53
	3.7414	1.8478	31.3	-111.8	.002999	1.46
	3.7176	.6484	26.0	- 48.0	.003056	1.04
	3.7235	.5211	35.7	- 49.4	.002941	1.87
	3.7235	.0000	.0	.0	.002941	.00
1104.70	2.6641	1.9535	10.7	158.2	.002832	.16
	2.6776	1.7135	37.0	143.7	.002892	1.98
	2.8712	.8422	57.9	105.9	.002702	4.53
	2.9177	.6525	58.5	80.2	.002716	4.65
	2.9835	.0000	READINGS	INVALID		
	3.0087	1.9652	6.3	-161.6	.003009	.06
	3.0145	1.7580	15.5	129.8	.002940	.35
	3.1617	.7551	76.2	97.5	.002955	8.57
	3.1830	.5924	48.4	70.8	.003110	3.64
	3.2236	.0000	READINGS	INVALID		
	3.4501	1.9787	4.0	89.9	.003058	.02
	3.4250	1.8180	18.9	-161.6	.003058	.54
	3.4463	.6815	47.1	62.4	.002978	3.31
	3.4463	.5440	31.4	55.3	.003154	1.56
	3.4501	.0000	35.8	.0	.003154	2.02
	3.7580	1.9845	11.6	121.0	.003058	.21
	3.7173	1.8277	13.3	-153.4	.003058	.27
	3.7135	.6583	64.1	97.1	.002978	6.12
	3.7173	.5189	55.8	94.1	.003154	4.91
	3.6941	.0000	7.9	180.0	.003154	.10

Table D-VIII. Rear Smoke Grid Calculations - 1/2 Inch Entrance with Baffle Spaced 1 Inch (Continued)

Model 33-B, Shot 314

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
1146.40	2.6872	1.9513	42.6	177.4	.003287	2.98
	2.6872	1.7404	53.8	149.7	.002996	4.33
	2.8802	.8891	109.0	117.5	.002665	15.84
	2.9378	.7001	93.0	106.9	READINGS	INVALID
	NO READING					
	3.0154	1.9533	30.6	161.6	.003037	1.42
	3.0273	1.7703	38.4	130.9	.003059	2.26
	3.1666	.8036	73.2	102.2	.002731	7.32
	3.2103	.6266	63.9	91.7	READINGS	INVALID
	NO READING					
	3.4590	1.9871	13.0	153.4	.002723	.23
	3.4391	1.8081	14.0	146.3	.003299	.32
	3.4570	.7360	75.5	87.1	.003067	8.75
	3.4689	.5828	61.5	77.3	.003109	5.88
	3.4868	.0000	13.5	.0	.003109	.29
	3.7792	2.0189	27.7	65.2	.002723	1.04
	3.7295	1.8419	12.2	71.6	.003299	.25
	3.7096	.7121	69.8	86.8	.003067	7.46
	3.7195	.5768	79.7	84.4	.003109	9.87
	3.7156	.0000	21.3	.0	.003109	.70
1188.10	2.6215	1.9555	73.6	176.9	.002990	8.11
	2.6312	1.7406	69.1	161.6	.002842	6.79
	2.8209	.9390	137.2	128.5	.002439	22.95
	2.8906	.7415	99.8	135.8	.002408	11.99
	2.9971	.0000	READINGS	INVALID		
	2.9797	1.9748	64.1	172.9	.003075	6.32
	2.9894	1.7870	54.7	160.9	.002967	4.44
	3.1462	.8267	90.5	109.2	.002613	10.70
	3.1810	.6563	94.9	109.6	.002616	11.78
	3.2178	.0000	READINGS	INVALID		
	3.4385	1.9845	13.9	90.0	.002794	.27
	3.4134	1.8258	39.8	92.9	.003148	2.49
	3.4501	.7570	51.1	76.5	.002957	3.86
	3.4598	.6041	56.9	65.2	.002780	4.50
	3.4637	.0000	READINGS	INVALID		
	3.7696	2.0097	5.6	- 45.0	.002794	.04
	3.7212	1.8393	27.9	94.1	.003148	1.22
	3.7173	.7280	65.0	66.6	.002957	6.24
	3.7251	.5983	74.8	79.3	.002780	7.79
	3.7154	.0000	19.9	.0	.002780	.55

Table D-VIII. Rear Smoke Grid Calculations - 1/2 Inch Entrance with Baffle Spaced 1 Inch (Continued)

Model 33-B, Shot 314

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
1229.80	2.6136	1.9552	72.0	-173.8	.003406	8.83
	2.6216	1.7623	68.0	175.1	.002967	6.85
	2.7946	.9965	90.3	135.0	.002063	8.41
	2.8662	.7698	84.3	126.6	READINGS	INVALID
	NO READING					
	2.9518	1.9612	68.4	-171.9	.002968	6.94
	2.9756	1.7882	66.5	171.6	.002820	6.23
	3.1367	.8891	81.6	112.3	.002422	8.05
	3.1785	.7161	83.8	108.9	READINGS	INVALID
	NO READING					
	3.4590	2.0010	33.4	170.0	.003210	1.79
	3.4371	1.8478	29.5	148.4	.003278	1.43
	3.4689	.7857	41.0	81.9	.003206	2.70
	3.4928	.6345	45.5	77.7	READINGS	INVALID
	NO READING					
	3.7832	2.0149	41.4	-169.2	.003210	2.74
	3.7275	1.8697	28.8	137.7	.003278	1.36
	3.7355	.7718	29.3	97.6	.003206	1.37
	3.7335	.6504	25.1	90.0	READINGS	INVALID
	3.7355	.0000	9.7	.0	READINGS	INVALID
1271.50	2.5499	1.9477	69.6	178.4	.003223	7.80
	2.5634	1.7464	55.8	175.9	.002902	4.52
	2.7570	1.0029	81.9	140.9	.002275	7.64
	2.8403	.8093	124.8	120.7	.002134	16.61
	3.0339	.0000	READINGS	INVALID		
	2.9119	1.9652	39.0	165.3	.003088	2.35
	2.9235	1.7967	43.4	164.1	.002825	2.66
	3.1152	.9022	56.3	132.1	.002426	3.84
	3.1539	.7357	27.0	126.0	.002233	.82
	3.2469	.0000	READINGS	INVALID		
	3.4056	1.9903	41.9	-174.6	.003145	2.76
	3.3882	1.8412	38.4	158.7	.003235	2.38
	3.4560	.7977	27.8	90.0	.003091	1.20
	3.4695	.6486	32.0	60.3	.002810	1.44
	3.4966	.0000	READINGS	INVALID		
	3.7289	2.0019	20.7	163.3	.003145	.68
	3.6999	1.8587	10.7	-158.2	.003235	.19
	3.7135	.7570	4.0	- 89.9	.003091	.02
	3.7251	.6234	22.0	- 5.2	.002810	.68
	3.7251	.0000	6.0	180.0	.002810	.05

Table D-VIII. Rear Smoke Grid Calculations - 1/2 Inch Entrance with Baffle Spaced 1 Inch (Continued)

Model 33-B, Shot 314

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
1313.20	2.5440	1.9572	52.6	162.9	.003219	4.46
	2.5659	1.7663	54.6	157.1	.002944	4.39
	2.7310	1.0482	93.4	146.0	.002180	9.50
	2.8026	.8772	119.4	139.6	READINGS	INVALID
	NO READING		READINGS	INVALID		
	2.9140	1.9712	25.1	180.0	.003153	1.00
	2.9339	1.8001	31.0	-176.4	.002741	1.32
	3.0990	.9309	64.4	131.3	.002112	4.38
	3.1626	.7379	54.8	132.1	READINGS	INVALID
	NO READING		READINGS	INVALID		
	3.4172	1.9970	13.7	-171.9	.003041	.28
	3.4013	1.8618	4.3	- 63.4	.003162	.03
	3.4689	.8135	38.9	84.3	.003277	2.48
	3.5087	.6624	33.8	31.0	READINGS	INVALID
	NO READING					
	3.7633	2.0209	11.3	59.0	.003041	.19
	3.7176	1.8657	4.3	26.6	.003162	.03
	3.7355	.7678	20.6	41.2	.003277	.69
	3.7553	.6484	33.1	69.4	READINGS	INVALID
	3.7295	.0000	36.8	.0	READINGS	INVALID
1354.90	2.4995	1.9632	28.2	140.7	.003082	1.23
	2.5131	1.7677	43.6	149.9	.002856	2.72
	2.6796	1.0552	86.8	164.1	.002126	8.01
	2.7493	.8867	57.8	139.2	READINGS	INVALID
	NO READING		READINGS	INVALID		
	2.8867	1.9652	46.4	149.0	.002909	3.13
	2.8925	1.7948	55.2	149.7	.002703	4.12
	3.0726	.9506	103.1	115.1	.001942	10.33
	3.1171	.7764	118.3	114.8	READINGS	INVALID
	NO READING		READINGS	INVALID		
	3.3921	1.9884	32.9	115.0	.002947	1.59
	3.3901	1.8374	29.5	132.3	.003248	1.42
	3.4598	.8364	74.0	83.8	.003127	8.55
	3.4985	.6660	65.1	77.7	.002856	6.05
	3.5411	.0000	READINGS	INVALID		
	3.7348	2.0116	19.9	126.9	.002947	.58
	3.7038	1.8606	32.1	111.8	.003248	1.67
	3.7289	.7706	68.3	81.6	.003127	7.29
	3.7367	.6544	51.8	85.6	.002856	3.84
	3.7619	.0000	31.8	.0	.002856	1.44

Table D-VIII. Rear Smoke Grid Calculations - 1/2 Inch Entrance with Baffle Spaced 1 Inch (Continued)

Model 33-B, Shot 314

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
1396.60	2.5221	1.9751	63.0	-162.1	.003431	6.81
	2.5281	1.7882	74.8	-169.6	.002891	8.08
	2.6474	1.0721	91.3	158.9	.002125	8.85
	2.7588	.9150	69.2	153.4	READINGS	INVALID
	NO READING		READINGS	INVALID		
	2.8742	1.9950	44.9	172.6	.002961	2.98
	2.8861	1.8279	27.2	175.9	.002679	.99
	3.0552	1.0244	116.1	126.9	.001866	12.57
	3.1129	.8454	90.8	116.6	READINGS	INVALID
	NO READING		READINGS	INVALID		
	3.4033	2.0269	17.8	130.6	.003055	.49
	3.3814	1.8836	43.9	131.4	.003250	3.13
	3.4769	.8871	62.8	56.3	.003054	6.02
	3.5226	.7260	60.7	52.8	READINGS	INVALID
	NO READING					
	3.7514	2.0368	7.7	- 89.9	.003055	.09
	3.7056	1.8956	21.6	116.6	.003250	.76
	3.7454	.8354	57.7	76.4	.003054	5.09
	3.7593	.7001	45.0	64.5	READINGS	INVALID
	3.7613	.0000	READINGS	INVALID		
1438.30	2.4395	1.9439	72.9	-169.0	.002857	7.59
	2.4395	1.7541	78.7	-169.8	.002837	8.80
	2.5944	1.0881	112.8	165.7	.001882	11.97
	2.6873	.9177	140.7	156.7	READINGS	INVALID
	NO READING		READINGS	INVALID		
	2.8422	1.9710	48.1	-172.9	.002964	3.42
	2.8654	1.7967	50.7	168.7	.002581	3.31
	3.0029	1.0436	106.2	128.2	.001551	8.74
	3.0765	.8577	95.2	118.7	READINGS	INVALID
	NO READING		READINGS	INVALID		
	3.3804	2.0019	23.9	131.6	.003313	.95
	3.3611	1.8703	33.7	135.0	.003364	1.91
	3.4947	.8887	75.0	58.0	.003190	8.97
	3.5353	.7144	77.3	64.1	READINGS	INVALID
	3.5915	.0000	READINGS	INVALID		
	3.7348	2.0039	21.5	123.7	.003313	.77
	3.6941	1.8800	26.1	98.7	.003364	1.15
	3.7425	.8267	57.4	76.0	.003190	5.25
	3.7561	.6951	63.2	77.3	READINGS	INVALID
	NO READING		READINGS	INVALID		

Table D-VIII. Rear Smoke Grid Calculations - 1/2 Inch Entrance with Baffle Spaced 1 Inch (Continued)

Model 33-B, Shot 314

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
1480.00	2.4505	1.9612	80.8	169.0	.003351	10.94
	2.4505	1.7742	76.7	169.8	.002814	8.27
	2.5380	1.1000	141.2	-179.2	.001871	18.66
	2.6295	.9707	162.4	167.6	READINGS	INVALID
	NO READING		READINGS	INVALID		
	2.8265	1.9891	62.0	176.4	.003032	5.83
	2.8364	1.8379	83.9	157.5	.002508	9.24
	2.9896	1.1079	98.7	145.4	.001565	7.63
	3.0671	.9289	99.9	137.4	READINGS	INVALID
	NO READING		READINGS	INVALID		
	3.3874	2.0448	40.4	163.3	.003105	2.53
	3.3575	1.9075	49.3	154.4	.003412	4.15
	3.5167	.9508	116.1	100.6	.003527	23.77
	3.5564	.7956	127.7	88.3	READINGS	INVALID
	NO READING		READINGS	INVALID		
	3.7394	2.0547	32.9	118.1	.003105	1.68
	3.7016	1.9214	42.6	92.6	.003412	3.10
	3.7593	.8911	106.2	79.5	.003527	14.90
	3.7732	.7618	94.5	79.4	READINGS	INVALID
	NO READING		READINGS	INVALID		
1521.70	2.3601	1.9593	105.3	-176.8	.003045	16.95
	2.3640	1.7677	105.4	178.9	.002636	14.63
	2.4530	1.0862	146.2	-148.9	.001742	18.63
	2.5286	.9526	172.9	-160.5	READINGS	INVALID
	NO READING		READINGS	INVALID		
	2.7803	1.9746	83.5	178.6	.003239	11.29
	2.7861	1.8296	99.5	-177.7	.002506	12.39
	2.9216	1.0997	119.3	178.1	.001415	10.07
	3.0029	.9255	141.5	156.0	READINGS	INVALID
	NO READING		READINGS	INVALID		
	3.3417	2.0136	53.0	-167.0	.003363	4.73
	3.3166	1.8916	65.9	-174.8	.003183	6.90
	3.4734	1.0029	116.5	126.7	.002971	20.15
	3.5392	.8422	40.5	101.3	READINGS	INVALID
	NO READING		READINGS	INVALID		
	3.7193	2.0329	21.9	180.0	.003363	.80
	3.6922	1.9226	32.1	111.8	.003183	1.64
	3.7619	.9313	82.5	105.4	.002971	10.10
	3.7735	.7880	49.7	90.0	READINGS	INVALID
	NO READING		READINGS	INVALID		

Table D-IX. Front Smoke Grid Calculations - Near 1/2 Inch Entryway

Model 31, Shot 306

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
91.00	1.0464	1.5457	8.6	-153.4	.002323	.09
	1.0564	1.1583	7.0	- 56.3	.002352	.06
	1.0265	.7808	25.1	- 67.4	.002338	.73
	.9905	.3914	16.6	- 35.5	.002244	.31
	.9426	.0000	7.0	- 33.7	.002244	.05
	1.4319	1.5537	7.7	89.9	.002200	.07
	1.4159	1.1303	31.4	-132.5	.002312	1.14
	1.3899	.7728	20.1	-106.7	.002281	.46
	1.3600	.3834	17.5	173.7	.002357	.36
	1.3420	.0000	5.8	180.0	.002357	.04
	1.7454	1.5457	6.1	-108.4	.002384	.04
	1.7733	1.1023	11.7	99.5	.002383	.16
	1.7753	.7369	14.0	-105.9	.002307	.23
	1.7314	.3774	7.0	-146.3	.002255	.05
	1.7254	.0000	7.7	.0	.002255	.07
	2.1288	1.5676	7.0	56.3	.002384	.06
	2.1368	1.0684	16.4	- 45.0	.002383	.32
	2.1188	.7089	13.6	81.9	.002307	.21
	2.1188	.4054	17.8	-139.4	.002255	.36
	2.0969	.0000	17.3	180.0	.002255	.34
132.95	1.0189	1.5449	7.2	146.3	.002300	.06
	1.0228	1.1509	8.2	166.0	.002425	.08
	1.0053	.7705	23.1	31.0	.002570	.69
	.9588	.3862	40.2	- 20.2	.002326	1.88
	.9374	.0000	13.9	.0	.002326	.22
	1.4032	1.5488	27.0	162.9	.002190	.80
	1.3663	1.1063	6.3	108.4	.002161	.04
	1.3527	.7414	8.4	135.0	.002504	.09
	1.3178	.3920	10.1	101.3	.002241	.11
	1.3178	.0000	7.9	180.0	.002241	.07
	1.7021	1.5410	32.8	155.0	.002402	1.29
	1.7390	1.1140	4.4	153.4	.002190	.02
	1.7331	.7142	24.0	-155.6	.002508	.72
	1.7079	.3920	8.2	-166.0	.002294	.08
	1.6982	.0000	2.0	180.0	.002294	.00
	2.0941	1.5546	14.4	-105.9	.002402	.25
	2.1019	1.0539	16.4	- 76.0	.002190	.29
	2.0980	.6870	5.6	-135.0	.002508	.04
	2.0805	.4056	16.4	-166.0	.002294	.31
	2.0573	.0000	2.0	180.0	.002294	.00

Table D-IX. Front Smoke Grid Calculations - Near 1/2-Inch Entryway (Continued)

Model 31, Shot 306

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
174.90	1.0404	1.5497	24.7	38.7	.002357	.72
	1.0464	1.1603	54.0	55.2	.002456	3.58
	1.0464	.7928	83.2	44.1	.002503	8.66
	1.0285	.3774	206.7	14.0	.002462	52.58
	.9566	.0000	READINGS	INVALID		
	1.4059	1.5617	5.5	-135.0	.002191	.03
	1.4139	1.1363	46.0	33.0	.002321	2.45
	1.3839	.7788	63.1	31.3	.002383	4.75
	1.3580	.3934	93.2	7.1	.002331	10.13
	1.3340	.0000	92.5	.0	.002331	9.98
	1.7154	1.5597	15.9	- 14.0	.002258	.29
	1.7693	1.1043	7.7	.0	.002290	.07
	1.7534	.7269	31.1	60.3	.002305	1.11
	1.7234	.3754	27.0	.0	.002294	.84
	1.7234	.0000	32.8	.0	.002294	1.23
	2.1248	1.5537	3.9	- 89.9	.002258	.02
	2.1408	1.0524	6.1	- 71.6	.002290	.04
	2.1148	.7049	7.0	146.3	.002305	.06
	2.1028	.4014	13.5	- 90.0	.002294	.21
	2.0949	.0000	11.6	.0	.002294	.15
216.85	1.0383	1.5604	30.3	58.4	.002539	1.16
	1.0539	1.1955	106.0	72.6	.002509	14.10
	1.0655	.8287	181.8	50.8	.003019	49.91
	1.1606	.4367	273.5	24.0	READINGS	INVALID
	NO READING					
	1.3993	1.5449	32.0	21.8	.002320	1.19
	1.4051	1.1315	79.8	55.1	.002499	7.95
	1.4071	.7744	131.3	25.0	.002709	23.37
	1.4110	.4037	183.3	13.1	.002640	44.36
	1.4110	.0000	208.3	.0	.002640	57.26
	1.7176	1.5371	21.1	48.8	.002478	.55
	1.7467	1.1140	22.6	37.9	.002388	.61
	1.7487	.7414	76.6	10.4	.002496	7.33
	1.7351	.3920	127.5	21.0	.002497	20.28
	1.7312	.0000	READINGS	INVALID		
	2.0941	1.5507	6.3	161.6	.002478	.05
	2.1038	1.0480	2.8	45.0	.002388	.01
	2.0922	.6909	39.9	5.7	.002496	1.98
	2.0805	.3920	53.6	2.1	.002497	3.59
	2.0689	.0000	71.4	.0	.002497	6.37

Table D-IX. Front Smoke Grid Calculations - Near 1/2-Inch Entryway (Continued)

Model 31, Shot 306

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
258.80	1.0564	1.5756	98.3	91.1	.002715	13.13
	1.0804	1.2621	READINGS INVALID			
	1.1623	.9346	258.7	64.4	.002769	92.64
	1.2801	.4893	278.8	38.0	.002756	107.11
	1.2761	.0000	READINGS INVALID			
	1.4358	1.5736	119.0	63.0	.002517	17.81
	1.4598	1.2022	164.7	55.0	.002643	35.86
	1.5037	.8347	203.2	43.1	.002898	59.84
	1.5377	.4353	239.8	24.7	READINGS INVALID	
	1.5437	.0000	250.6	.0	READINGS INVALID	
	1.7294	1.5756	82.2	50.7	.002372	8.01
	1.7873	1.1183	123.8	37.4	.002512	19.24
	1.8293	.7409	166.6	23.9	.002805	38.90
	1.8432	.4214	200.7	16.2	READINGS INVALID	
	NO READING					
	2.1188	1.5557	50.1	27.6	.002372	2.98
	2.1428	1.0544	105.2	28.4	.002512	13.91
	2.1548	.7089	132.3	18.7	.002805	24.54
	2.1568	.4034	139.1	10.4	READINGS INVALID	
	2.1667	.0000	154.2	.0	READINGS INVALID	
300.75	1.0364	1.6594	192.6	78.1	READINGS INVALID	
	NO READING					
	1.1781	1.0636	261.7	76.0	.002839	97.23
	1.3819	.6094	318.0	40.4	.002437	123.23
	1.4129	.0000	293.6	.0	.002437	105.03
	1.4537	1.6516	182.1	66.2	.002502	41.47
	1.5002	1.2673	192.1	54.7	.002561	47.23
	1.5565	.9141	230.1	46.4	.002707	71.65
	1.6303	.5046	279.3	30.8	.002453	95.65
	1.6633	.0000	259.8	.0	.002453	82.80
	1.7700	1.6012	148.1	51.0	.002700	29.60
	1.8457	1.1897	204.8	45.8	.002525	52.94
	1.9020	.8093	230.1	35.9	.002745	72.69
	1.9292	.4483	231.5	19.5	.002731	73.17
	1.9466	.0000	READINGS INVALID			
	2.1407	1.5701	155.8	47.6	.002700	32.78
	2.1970	1.0985	175.0	38.6	.002525	38.67
	2.2183	.7336	181.0	26.0	.002745	44.95
	2.2183	.4173	193.8	22.9	.002731	51.27
	2.2242	.0000	170.6	.0	.002731	39.73

Table D-IX, Front Smoke Grid Calculations - Near 1/2-Inch Entryway (Continued).

Model 31, Shot 306

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
342.70	1.0964	1.7654	160.5	74.0	.002442	31.44
	1.1383	1.4538	READINGS	INVALID		
	1.2262	1.1902	220.7	75.8	.002627	63.97
	1.5237	.6970	289.8	40.7	.002173	91.26
	1.5716	.0000	306.5	.0	.002173	102.09
	1.5097	1.7414	144.9	64.8	.002466	25.87
	1.5716	1.3600	178.6	55.1	.002524	40.26
	1.6635	1.0025	217.1	48.2	.002726	64.22
	1.7793	.5791	267.2	26.6	.002312	82.57
	1.8053	.0000	250.6	.0	.002312	72.60
	1.8233	1.6915	152.7	65.4	.002466	28.74
	1.9311	1.2661	178.7	47.2	.002579	41.17
	2.0170	.8767	197.4	26.1	.002880	56.13
	2.0629	.4993	223.8	22.8	.002508	62.79
	2.0669	.0000	202.4	.0	.002508	51.38
	2.2247	1.6715	163.9	48.8	.002466	33.13
	2.2806	1.1643	180.2	34.5	.002579	41.87
	2.3185	.7888	190.5	27.1	.002880	52.27
	2.3365	.4793	212.4	23.5	.002508	56.56
	2.3385	.0000	210.1	.0	.002508	55.36
384.65	1.0810	1.8147	155.6	79.0	.002397	29.02
	1.1334	1.5158	154.8	87.8	.002615	31.34
	1.2324	1.2790	186.5	81.4	.002763	48.07
	1.6031	.7996	266.6	53.5	.002125	75.53
	1.7215	.0000	READINGS	INVALID		
	1.5158	1.7836	151.8	77.5	.002516	28.99
	1.6031	1.4148	180.1	64.6	.002446	39.68
	1.7021	1.0771	220.6	52.3	.002806	68.27
	1.8709	.6249	236.1	32.0	.002351	65.52
	1.9156	.0000	READINGS	INVALID		
	1.8341	1.7409	146.0	53.3	.002447	26.08
	1.9680	1.3217	179.7	47.7	.002340	37.70
	2.0805	.8967	195.8	39.7	.002872	55.00
	2.1368	.5357	207.7	24.9	.002293	49.45
	2.1504	.0000	208.3	.0	.002293	49.74
	2.2494	1.6943	154.4	47.1	.002447	29.10
	2.3464	1.2014	178.9	36.0	.002340	37.46
	2.3891	.8210	183.0	29.9	.002872	48.11
	2.4144	.5027	183.9	16.3	.002293	38.79
	2.4357	.0000	190.4	.0	.002293	41.58

Table D-IX. Front Smoke Grid Calculations - Near 1/2-Inch Entryway (Continued)

Model 31, Shot 306

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
426.60	1.1263	1.9191	171.8	86.8	.002279	33.64
	1.1443	1.6096	143.7	96.9	.002346	24.22
	1.2541	1.3759	181.9	105.4	.002468	40.85
	1.6835	.9126	250.0	70.2	READINGS	INVALID
	NO READING		READINGS	INVALID		
	1.5557	1.8872	157.3	78.7	.002372	29.34
	1.6495	1.5237	180.1	84.5	.002518	40.84
	1.7993	1.1782	203.5	62.9	.002644	54.72
	1.9810	.7049	211.3	45.4	READINGS	INVALID
	NO READING					
	1.9111	1.8093	158.9	54.4	.002409	30.40
	2.0529	1.3999	177.6	64.3	.002471	38.97
	2.1687	1.0025	205.4	57.7	.002690	56.73
	2.2526	.5871	181.1	27.9	.002331	38.21
	2.2766	.0000	192.8	.0	.002331	43.30
	2.3305	1.7853	135.8	55.4	.002409	22.21
	2.4264	1.2701	132.6	40.9	.002471	21.71
	2.4783	.8807	152.6	26.2	.002690	31.32
	2.5142	.5312	READINGS	INVALID		
	2.5302	.0000	READINGS	INVALID		
468.55	1.0907	1.9874	107.6	95.3	.002213	12.81
	1.1160	1.6594	111.7	96.1	.002327	14.52
	1.1839	1.4556	139.3	110.0	.002579	25.02
	1.6885	1.0364	256.4	75.2	READINGS	INVALID
	NO READING		READINGS	INVALID		
	1.5468	1.9389	109.3	74.2	.002305	13.76
	1.6206	1.5953	133.0	87.4	.002408	21.31
	1.7952	1.2596	185.6	79.5	.002526	43.49
	2.0204	.7763	210.4	45.8	.002123	47.00
	2.1465	.0000	READINGS	INVALID		
	1.9272	1.8709	130.2	82.1	.002523	21.37
	2.0456	1.4828	159.9	66.6	.002383	30.46
	2.1912	1.0713	150.6	40.2	READINGS	INVALID
	2.2979	.6211	148.7	43.9	READINGS	INVALID
	2.3445	.0000	119.0	.0	READINGS	INVALID
	2.3270	1.8069	109.4	67.6	.002523	15.10
	2.4474	1.2887	110.2	59.7	.002383	14.47
	2.5269	.8889	120.8	47.7	READINGS	INVALID
	NO READING					
	NO READING					

Table D-IX. Front Smoke Grid Calculations - Near 1/2-Inch Entryway (Continued)

Model 31, Shot 306

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
510.50	1.1163	2.0270	92.6	92.4	.002235	9.58
	1.1323	1.7214	99.2	97.8	.002353	11.59
	1.2062	1.5077	86.6	101.6	.002166	8.12
	1.7494	1.1623	220.1	93.0	READINGS	INVALID
	NO READING		READINGS	INVALID		
	1.5856	1.9930	91.1	96.1	.002355	9.78
	1.6555	1.6575	126.7	76.8	.002266	18.19
	1.8333	1.3620	157.1	83.7	.002790	34.43
	2.1288	.8567	194.7	68.5	READINGS	INVALID
	NO READING					
	1.9291	1.9391	149.2	115.2	.002509	27.92
	2.1168	1.5477	138.8	91.6	.002639	25.43
	2.2846	1.1003	125.8	72.1	.002941	23.19
	2.3605	.6910	151.1	60.2	.002082	23.78
	2.3964	.0000	106.0	.0	.002082	11.70
	2.3724	1.8872	134.7	99.1	.002509	22.76
	2.4823	1.3660	156.6	94.2	.002639	32.34
	2.5602	.9705	139.3	85.2	.002941	28.52
	2.6121	.6071	READINGS	INVALID		
	2.6440	.0000	READINGS	INVALID		
552.45	1.0869	2.0805	18.3	167.5	.002264	.38
	1.1024	1.7584	45.8	162.3	.002148	2.25
	1.1664	1.5410	READINGS	INVALID		
	1.6769	1.2576	258.5	131.9	READINGS	INVALID
	NO READING		READINGS	INVALID		
	1.5371	2.0301	77.5	129.8	.002756	8.27
	1.6497	1.7196	116.1	110.0	.002592	17.46
	1.8127	1.4168	118.6	107.5	.002926	20.57
	2.0922	.9588	226.7	98.6	.001902	48.85
	2.2843	.0000	READINGS	INVALID		
	1.8632	2.0068	112.8	129.3	.002540	16.15
	2.0417	1.6225	121.1	121.6	.002462	18.05
	2.2300	1.1917	182.0	106.5	.002866	47.48
	2.3736	.7530	138.4	64.5	.002149	20.58
	2.4512	.0000	150.7	.0	.002149	24.41
	2.3057	1.9408	137.7	126.2	.002540	24.07
	2.4357	1.4459	151.1	103.7	.002462	28.09
	2.5386	1.0286	113.7	84.0	.002866	18.52
	2.6123	.6482	99.2	73.7	.002149	10.57
	2.6667	.0000	43.6	.0	.002149	2.05

Table D-IX. Front Smoke Grid Calculations - Near 1/2-Inch Entryway (Continued)

Model 31, Shot 306

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
594.40	1.0984	2.0310	79.7	-147.8	.002487	7.90
	1.0884	1.7354	88.4	-159.6	READINGS INVALID	
	NO READING					
	1.5756	1.3560	READINGS INVALID			
	NO READING		READINGS INVALID			
	1.5357	2.0529	80.0	164.6	.002764	8.84
	1.6156	1.7673	150.0	159.7	.002661	29.95
	1.7973	1.4758	234.8	142.0	.003073	84.74
	2.0949	1.0824	236.0	107.1	READINGS INVALID	
	NO READING		READINGS INVALID			
	1.8572	2.0270	78.8	158.5	.002568	7.96
	2.0529	1.6515	101.5	128.8	.002501	12.87
	2.2327	1.2761	175.3	104.6	.002852	43.84
	2.4204	.8168	174.0	74.6	.002542	38.47
	2.5482	.0000	140.7	.0	.002542	25.17
	2.2906	1.9990	98.2	136.6	.002568	12.38
	2.4463	1.5137	113.1	103.8	.002501	16.01
	2.5721	1.0844	154.4	87.1	.002852	34.00
	2.6400	.7029	142.6	71.1	.002542	25.86
	2.6880	.0000	READINGS INVALID			
636.35	1.0189	2.0378	54.0	162.9	.002545	3.71
	1.0189	1.7273	81.4	-145.9	.002592	8.59
	1.0131	1.5080	READINGS INVALID			
	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			
	1.4595	2.0514	85.5	176.0	.002719	9.94
	1.5080	1.7720	138.9	-178.4	.002611	25.19
	1.6264	1.5623	246.6	153.2	.002657	80.79
	2.0223	1.1858	293.2	123.7	READINGS INVALID	
	NO READING		READINGS INVALID			
	1.7894	2.0359	45.3	151.2	.002683	2.75
	1.9777	1.7021	137.6	137.3	.002707	25.61
	2.1853	1.3624	176.9	107.6	.002837	44.39
	2.4202	.9219	197.3	77.2	READINGS INVALID	
	2.5929	.0000	READINGS INVALID			
	2.2339	2.0087	60.7	128.4	.002683	4.94
	2.4085	1.5565	104.8	108.8	.002707	14.85
	2.5463	1.1839	154.9	99.6	.002837	34.03
	2.6589	.7841	161.9	59.0	READINGS INVALID	
	NO READING					

Table D-IX. Front Smoke Grid Calculations - Near 1/2-Inch Entryway (Continued)

Model 31, Shot 306.

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
678.30	1.0464	2.0469	22.0	-164.7	.002502	.60
	1.0205	1.6895	88.8	-124.4	.002977	11.73
	1.0404	1.4638	169.7	-105.1	READINGS	INVALID
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	1.4498	2.0589	59.4	-166.9	.002555	4.50
	1.4758	1.7634	84.0	-170.8	.002706	9.54
	1.5756	1.5876	96.4	180.0	.002625	12.19
	1.9311	1.3280	READINGS	INVALID		
	NO READING		READINGS	INVALID		
	1.8173	2.0489	38.6	177.1	.002699	2.01
	1.9511	1.7454	81.1	154.7	.002802	9.20
	2.1787	1.4458	150.8	128.8	.003222	36.65
	2.4643	1.0105	160.4	85.9	READINGS	INVALID
	NO READING		READINGS	INVALID		
	2.2526	2.0469	41.2	169.2	.002699	2.29
	2.4124	1.6136	78.0	130.0	.002802	8.52
	2.5462	1.2381	91.6	98.5	.003222	13.52
	2.7239	.8427	133.1	55.6	READINGS	INVALID
	2.8278	.0000	READINGS	INVALID		
720.25.	.9976	2.0320	87.5	-147.0	.002483	9.50
	.9685	1.6536	111.7	-123.4	.002284	14.24
	.9685	1.3430	241.5	-114.2	READINGS	INVALID
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	1.4013	2.0378	78.0	-172.7	.002680	8.15
	1.4246	1.7584	93.6	-158.9	.002827	12.38
	1.5294	1.5623	114.4	-146.3	READINGS	INVALID
	NO READING					
	NO READING		READINGS	INVALID		
	1.7506	2.0378	80.5	170.1	.002877	9.33
	1.9039	1.7370	73.4	-178.5	.002925	7.88
	2.0902	1.4808	96.7	151.9	.003055	14.29
	2.4318	1.0830	206.2	120.0	READINGS	INVALID
	NO READING		READINGS	INVALID		
	2.1931	2.0165	60.8	-161.0	.002877	5.33
	2.3581	1.6167	74.3	145.9	.002925	8.07
	2.5328	1.2751	85.4	87.3	.003055	11.14
	2.7346	.8947	95.7	40.0	READINGS	INVALID
	2.9015	.0000	READINGS	INVALID		

Table D-IX. Front Smoke Grid Calculations - Near 1/2-Inch Entryway (Continued)

Model 31, Shot 306

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
762.20	.9725	1.9990	90.4	-123.7	.002341	9.55
	.9586	1.5956	154.4	-105.9	.002192	26.12
	.9406	1.2421	198.1	-107.6	READINGS INVALID	
	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			
	1.3719	2.0489	93.4	-158.2	.002322	10.14
	1.3879	1.7294	146.2	-138.7	.002498	26.68
	1.4798	1.5237	188.4	-149.2	.002977	52.86
	1.7494	1.3739	READINGS INVALID			
	NO READING		READINGS INVALID			
	1.7374	2.0629	135.0	179.2	.002766	25.19
	1.8772	1.7434	113.7	180.0	.002803	18.13
	2.0929	1.4918	62.8	162.1	.002718	5.36
	2.3605	1.1902	111.8	91.0	READINGS INVALID	
	NO READING		READINGS INVALID			
	2.1947	2.0270	50.9	155.4	.002766	3.58
	2.3505	1.6555	41.3	142.6	.002803	2.39
	2.5502	1.3240	58.8	49.0	.002718	4.69
	2.7978	.9046	109.9	52.1	READINGS INVALID	
	NO READING					
804.15	.9471	1.9563	97.2	- 88.8	.002359	11.14
	.9258	1.5041	190.2	- 97.8	.002616	47.31
	.9083	1.1528	144.9	- 88.4	.002953	30.98
	.9238	1.0170	READINGS INVALID			
	NO READING		READINGS INVALID			
	1.3139	2.0029	95.0	-118.7	.002459	11.09
	1.3139	1.6613	136.5	-122.5	.002370	22.07
	1.3663	1.4653	189.4	-134.6	.002141	38.38
	1.5856	1.3275	259.9	-154.2	READINGS INVALID	
	NO READING		READINGS INVALID			
	1.6148	2.0398	118.8	-165.5	.002358	16.65
	1.7894	1.7370	120.8	-165.7	.002615	19.07
	2.0301	1.5002	155.0	176.3	.003301	39.67
	2.4299	1.1955	119.1	137.9	READINGS INVALID	
	NO READING		READINGS INVALID			
	2.1465	2.0378	96.2	171.7	.002358	10.91
	2.3251	1.6419	87.5	147.0	.002615.	10.01
	2.5716	1.3197	127.2	121.0	.003301	26.71
	2.8025	.9820	181.4	84.4	READINGS INVALID	
	3.0315	.0000	READINGS INVALID			

Table D-IX. Front Smoke Grid Calculations - Near 1/2-Inch Entryway (Continued)

Model 31, Shot 306

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
846.10	.9745	1.9011	138.8	- 89.2	.002316	22.31
	.9326	1.4059	164.0	- 92.7	.002845	38.27
	.9446	1.0964	146.5	- 89.2	READINGS	INVALID
	NO READING					
	NO READING		READINGS	INVALID		
	1.3260	1.9651	108.1	-101.3	.002467	14.42
	1.3140	1.6136	133.6	-116.5	.002500	22.32
	1.3460	1.3879	176.2	-107.8	.002867	44.49
	1.5137	1.2601	158.5	-126.6	READINGS	INVALID
	NO READING		READINGS	INVALID		
	1.6216	2.0330	72.6	-107.0	.002570	6.77
	1.7594	1.7134	121.4	-147.3	.002537	18.69
	1.9371	1.5017	227.7	-177.6	.002745	71.13
	2.1967	1.3380	394.5	150.4	READINGS	INVALID
	NO READING		READINGS	INVALID		
	2.0989	2.0409	79.6	173.0	.002570	8.15
	2.2766	1.7034	115.5	154.3	.002537	16.93
	2.4843	1.4338	242.6	135.0	.002745	80.79
	2.8158	1.0864	358.7	112.4	READINGS	INVALID
	NO READING		READINGS	INVALID		
888.05	.9491	1.8166	143.7	- 83.7	.002570	26.54
	.9180	1.3392	165.4	- 95.5	.002779	38.00
	.9102	1.0053	180.6	- 88.1	.003223	52.56
	.9588	.8210	READINGS	INVALID		
	NO READING		READINGS	INVALID		
	1.2926	1.8962	114.2	-107.2	.002604	16.98
	1.2538	1.5410	129.5	-117.3	.002781	23.33
	1.3120	1.2965	164.6	-111.9	.003327	45.10
	1.4905	1.1994	164.4	-109.7	READINGS	INVALID
	NO READING		READINGS	INVALID		
	1.5934	1.9699	81.0	-111.5	.002455	8.06
	1.6866	1.6710	110.0	-146.0	.002798	16.94
	1.8011	1.4905	150.6	-167.1	.003934	44.62
	2.0844	1.3916	255.5	166.1	READINGS	INVALID
	NO READING		READINGS	INVALID		
	2.0670	2.0475	27.6	120.3	.002455	.93
	2.2203	1.6924	115.7	149.0	.002798	18.72
	2.3988	1.4925	227.5	137.8	.003934	101.81
	2.6647	1.3159	482.8	130.2	READINGS	INVALID
	NO READING		READINGS	INVALID		

Table D-IX. Front Smoke Grid Calculations - Near 1/2 Inch Entryway (Continued)

Model 31, Shot 306

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
930.00	.9905	1.7574	102.1	-100.9	.002703	14.08
	.9166	1.2401	147.8	-102.0	.002902	31.71
	.9506	.9146	185.3	- 87.0	.003118	53.54
	1.0684	.7309	223.3	- 62.8	READINGS INVALID	
	NO READING		READINGS INVALID			
	1.2921	1.8552	95.2	-121.8	.002650	12.02
	1.2541	1.4978	144.0	-117.9	.002651	27.49
	1.2841	1.2341	168.3	-110.1	.003494	49.49
	1.4578	1.1043	194.1	-105.6	READINGS INVALID	
	NO READING		READINGS INVALID			
	1.5916	1.9571	78.1	-147.1	.002599	7.92
	1.6675	1.6515	142.5	-150.0	.002832	28.76
	1.7893	1.4678	122.0	-148.6	.004066	30.25
	1.9471	1.3999	265.9	-170.4	READINGS INVALID	
	NO READING		READINGS INVALID			
	2.0849	2.0649	56.4	172.1	.002599	4.14
	2.1767	1.7634	185.4	152.1	.002832	48.68
	2.3145	1.5876	271.8	148.3	.004066	150.14
	2.5022	1.4578	478.0	146.2	READINGS INVALID	
	NO READING		READINGS INVALID			
971.95	.9296	1.7157	81.7	-119.1	.002631	8.78
	.8869	1.1936	95.2	- 88.8	.002694	12.21
	.9199	.8190	162.8	- 87.9	.002899	38.39
	1.0616	.6211	142.5	- 51.2	READINGS INVALID	
	NO READING		READINGS INVALID			
	1.2421	1.8147	82.8	-134.0	.002683	9.19
	1.1858	1.4129	149.1	-115.2	.002689	29.87
	1.2538	1.1373	187.1	- 94.9	.003585	62.73
	1.4381	1.0112	233.1	- 95.4	READINGS INVALID	
	NO READING		READINGS INVALID			
	1.5274	1.9272	96.1	-158.2	.002733	12.63
	1.5623	1.5992	178.3	-147.7	.003059	48.63
	1.6963	1.4265	219.5	-145.3	.005076	122.31
	1.8205	1.3469	251.1	-143.7	READINGS INVALID	
	NO READING		READINGS INVALID			
	2.0107	2.0553	140.9	170.3	.002733	27.12
	2.0553	1.7797	198.1	172.5	.003059	60.00
	2.1659	1.6361	281.0	162.3	.005076	200.43
	2.2649	1.5837	380.6	153.7	READINGS INVALID	
	NO READING		READINGS INVALID			

Table D-IX, Front Smoke Grid Calculations - Near 1/2 Inch Entryway (Continued)

Model 31, Shot 306

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
1013.90	.9506	1.6855	77.0	-112.1	.002719	8.05
	.9186	1.1443	140.7	- 90.0	.002653	26.26
	.9566	.7509	109.9	- 92.0	.003487	21.08
	1.1583	.6191	READINGS INVALID			
	NO READING		READINGS INVALID			
	1.2341	1.7953	79.1	-133.0	.002754	8.62
	1.1902	1.3620	139.2	-111.9	.002863	27.76
	1.2681	1.0464	190.2	-100.5	.003439	62.18
	1.4358	.8707	261.0	- 85.8	READINGS INVALID	
	NO READING		READINGS INVALID			
	1.5017	1.9211	117.1	-147.1	.002696	18.49
	1.5157	1.5557	154.0	-135.5	.003170	37.61
	1.6076	1.3420	258.3	-127.7	.003797	126.70
	1.7434	1.2501	294.6	-123.8	READINGS INVALID	
	NO READING		READINGS INVALID			
	1.9451	2.0889	142.7	-179.2	.002696	27.44
	1.9790	1.7893	193.3	-170.8	.003170	59.24
	2.0449	1.6735	266.4	-172.5	.003797	134.69
	2.1588	1.6276	READINGS INVALID			
	NO READING		READINGS INVALID			
1055.85	.9005	1.6439	95.7	-124.0	.002573	11.79
	.8869	1.0519	137.0	- 92.5	.002944	27.63
	.9161	.7084	READINGS INVALID			
	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			
	1.1878	1.7564	86.1	-128.5	.002760	10.23
	1.1334	1.2829	146.3	-102.5	.002672	28.59
	1.2188	.9491	184.5	- 89.4	.003352	57.04
	1.4575	.7492	235.2	- 61.3	READINGS INVALID	
	NO READING		READINGS INVALID			
	1.4284	1.8632	99.2	-143.1	.002870	14.12
	1.4517	1.4905	165.1	-118.7	.003050	41.57
	1.5371	1.2208	226.0	-100.6	READINGS INVALID	
	1.6555	1.1004	235.8	-100.2	READINGS INVALID	
	NO READING		READINGS INVALID			
	1.8671	2.0534	99.2	-178.9	.002870	14.12
	1.8632	1.7487	159.1	-157.3	.003050	38.62
	1.9000	1.6012	163.9	-158.7	READINGS INVALID	
	NO READING					
	NO READING		READINGS INVALID			

Table D-IX. Front Smoke Grid Calculations - Near 1/2 Inch Entryway (Continued)

Model 31, Shot 306

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
1097.80	.8967	1.6056	67.9	- 96.5	.002401	5.54
	.9126	1.0065	89.4	- 82.6	READINGS INVALID	
	NO READING					
	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			
	1.1802	1.7274	60.5	-127.2	.002577	4.72
	1.1583	1.2182	101.4	- 81.3	.002592	13.33
	1.2701	.8607	105.3	- 66.3	.003352	18.58
	1.5497	.6630	179.9	- 45.9	READINGS INVALID	
	NO READING		READINGS INVALID			
	1.4219	1.8612	64.2	-147.3	.002527	5.20
	1.4358	1.4099	107.1	-113.3	.002741	15.71
	1.5657	1.1183	164.0	- 88.0	.003821	51.36
	1.7014	1.0165	166.4	- 71.8	READINGS INVALID	
	NO READING		READINGS INVALID			
	1.8452	2.0869	118.2	155.9	.002527	17.66
	1.8313	1.7274	111.2	-171.0	.002741	16.96
	1.8912	1.6136	125.5	-169.4	.003821	30.10
	1.9471	1.5477	READINGS INVALID			
	NO READING		READINGS INVALID			
1139.75	.8928	1.5759	32.3	- 79.4	.002417	1.26
	.8986	.9626	51.6	- 87.8	.002771	3.69
	.9626	.6152	READINGS INVALID			
	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			
	1.1509	1.7079	60.7	-141.6	.002685	4.95
	1.1490	1.1820	48.3	- 99.5	.002694	3.14
	1.2615	.8520	88.8	- 60.6	.003273	12.91
	1.5837	.6191	188.2	- 34.7	READINGS INVALID	
	NO READING		READINGS INVALID			
	1.3741	1.8282	83.4	-154.7	.002771	9.64
	1.4090	1.3916	63.3	-122.2	.002931	5.87
	1.5429	1.0558	147.0	- 93.1	.003094	33.43
	1.7079	.9413	197.0	- 71.2	READINGS INVALID	
	NO READING		READINGS INVALID			
	1.7584	2.1019	111.2	164.5	.002771	17.12
	1.7525	1.7312	131.3	-175.7	.002931	25.26
	1.7758	1.5779	177.8	-144.5	.003094	48.89
	1.8748	1.5061	READINGS INVALID			
	NO READING		READINGS INVALID			

Table D-IX. Front Smoke Grid Calculations - Near 1/2 Inch Entryway (Continued)

Model 31, Shot 306

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
1181.70	.9026	1.5736	48.2	- 90.0	.002601	3.02
	.9146	.9546	16.6	- 54.5	.002666	.37
	.9925	.6490	READINGS INVALID			
	1.2122	.5112	READINGS INVALID			
	NO READING		READINGS INVALID			
	1.1323	1.6895	82.2	-140.7	.002643	8.93
	1.1503	1.1702	60.0	- 84.5	.002480	4.47
	1.3140	.7828	118.2	-114.1	.003346	23.38
	1.7054	.5552	READINGS INVALID			
	NO READING		READINGS INVALID			
	1.3460	1.8253	93.8	-170.5	.002749	12.10
	1.4019	1.3560	104.5	-119.9	.002606	14.23
	1.5577	.9705	131.6	- 85.0	READINGS INVALID	
	1.7654	.8288	READINGS INVALID			
	NO READING		READINGS INVALID			
	1.7374	2.1168	137.2	-176.0	.002749	25.88
	1.6995	1.7174	180.3	-155.4	.002606	42.35
	1.7454	1.5097	169.6	-148.5	READINGS INVALID	
	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			
1223.65	.8928	1.5274	103.4	- 85.6	.002724	14.58
	.9083	.9491	56.7	- 53.5	READINGS INVALID	
	NO READING					
	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			
	1.0869	1.6555	121.8	-102.2	.002765	20.50
	1.1548	1.1218	111.4	- 94.1	.002480	15.37
	1.2130	.7433	65.7	- 84.8	READINGS INVALID	
	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			
	1.2809	1.8127	117.1	-116.1	.002950	20.25
	1.3566	1.3003	143.7	-110.2	.003153	32.56
	1.5546	.9238	109.7	- 96.2	READINGS INVALID	
	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			
	1.6206	2.0922	157.9	-147.3	.002950	36.78
	1.5876	1.6555	178.6	-130.9	.003153	50.27
	1.6303	1.4886	READINGS INVALID			
	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			

Table D-X, Rear Smoke Grid Calculations - Near 1/2 Inch Entryway

Model 31, Shot 308

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
231.38	2.6488	1.5343	4.3	-153.4	.002681	.03
	2.5632	1.1403	15.6	- 60.3	.002521	.31
	2.5234	.7483	50.4	- 87.8	.002215	2.82
	2.4776	.4100	28.0	- 33.7	.002501	.98
	2.4597	.0000	13.6	.0	.002501	.23
	2.9095	1.5104	9.7	89.9	READINGS	INVALID
	2.8756	1.1602	17.9	-102.5	.002173	.35
	2.8398	.7124	18.4	-108.4	.002082	.35
	2.8418	.4697	7.8	.0	.002231	.07
	2.8239	.0000	19.4	180.0	.002231	.42
	NO READING					
	3.2776	1.1801	.0	.0	READINGS	INVALID
	3.2398	.7124	17.3	-153.4	.002224	.33
	3.2219	.5055	16.6	-159.4	.002380	.33
	3.2000	.0000	9.7	180.0	.002380	.11
	NO READING					
	NO READING					
	3.5821	.7164	22.1	-105.3	.002224	.54
	3.5542	.5672	8.2	135.0	.002380	.08
	3.5900	.0000	15.5	180.0	.002380	.29
272.91	2.6705	1.5633	58.2	31.0	.002251	3.81
	2.5816	1.1285	85.3	20.6	.002437	8.86
	2.5140	.7111	100.1	- 4.6	.002608	13.08
	2.4850	.4367	113.6	18.4	.002635	17.02
	2.4541	.0000	READINGS	INVALID		
	2.9488	1.5710	77.7	44.0	.002315	6.98
	2.8908	1.1362	51.9	2.2	.002349	3.17
	2.8386	.6918	43.9	.0	.002342	2.26
	2.8251	.4618	50.5	- 18.4	.002178	2.78
	2.7903	.0000	69.9	.0	.002178	5.32
	3.3527	1.5575	READINGS	INVALID		
	3.2812	1.1324	34.9	- 59.0	.002429	1.48
	3.2193	.6976	35.4	- 73.6	.002539	1.59
	3.2019	.5140	30.4	- 23.2	.002231	1.03
	3.1884	.0000	55.9	.0	.002231	3.49
	3.6464	1.5710	READINGS	INVALID		
	3.5961	1.1304	READINGS	INVALID		
	3.5787	.6957	20.1	- 95.7	.002539	.51
	3.5710	.5913	26.0	- 22.6	.002231	.75
	3.5691	.0000	6.0	180.0	.002231	.04

Table D.X, Rear Smoke Grid Calculations - Near 1/2 Inch Entryway (Continued)

Model 31, Shot 308

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
314.44	2.6985	1.5642	87.6	24.9	.002605	10.00
	2.6428	1.1701	157.0	32.9	.002769	34.14
	2.6229	.7403	171.1	19.9	.002789	40.83
	2.5851	.4458	185.7	13.9	READINGS	INVALID
	NO READING					
	2.9652	1.5642	54.6	16.5	.002526	3.76
	2.9274	1.1622	105.9	23.7	.002339	13.11
	2.8836	.7124	131.8	17.1	.002263	19.67
	2.8895	.4537	143.8	10.1	.002398	24.77
	2.8935	.0000	174.5	.0	.002398	36.50
	3.3731	1.5542	38.2	24.0	.002327	1.70
	3.2955	1.1502	58.9	17.2	.002396	4.15
	3.2498	.6786	77.6	- 2.9	.002472	7.45
	3.2498	.4935	97.9	8.0	.002672	12.80
	3.2557	.0000	READINGS	INVALID		
	3.6697	1.5682	25.2	.0	.002327	.74
	3.6219	1.1303	41.4	- 10.8	.002396	2.06
	3.5801	.6965	44.8	17.7	.002472	2.48
	3.5781	.5572	54.0	- 21.0	.002672	3.90
	3.5841	.0000	50.4	.0	.002672	3.39
355.97	2.7498	1.6000	160.6	32.3	.002727	35.18
	2.7130	1.2135	161.7	20.2	.002625	34.33
	2.6744	.7691	153.6	26.2	.002779	32.77
	2.6647	.4812	176.2	17.8	.002727	42.32
	2.6609	.0000	READINGS	INVALID		
	3.0010	1.5865	138.5	28.4	.002582	24.75
	2.9874	1.1787	150.6	14.6	.002563	29.07
	2.9643	.7304	195.2	13.6	.002678	51.00
	2.9662	.4870	191.1	10.8	READINGS	INVALID
	2.9643	.0000	READINGS	INVALID		
	3.3874	1.5729	111.0	30.3	.002391	14.72
	3.3372	1.1498	134.3	5.1	.002623	23.65
	3.2966	.6937	146.1	21.7	.002686	28.66
	3.2986	.5275	144.9	11.9	READINGS	INVALID
	NO READING					
	3.6715	1.5710	85.3	16.3	.002391	8.70
	3.6367	1.1227	READINGS	INVALID		
	3.6213	.7092	126.4	5.4	.002686	21.44
	3.6213	.5720	113.0	17.5	READINGS	INVALID
	3.6193	.0000	101.8	.0	READINGS	INVALID

Table D-X. Rear Smoke Grid Calculations - Near 1/2 Inch Entryway (Continued)

Model 31, Shot 308

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
397.50	2.8338	1.6498	141.2	44.4	.002510	25.03
	2.7940	1.2259	135.0	35.1	.002613	23.81
	2.7602	.8080	169.3	29.5	.002376	34.05
	2.7522	.4995	153.8	13.9	READINGS	INVALID
	2.7383	.0000	READINGS	INVALID		
	3.0866	1.6299	128.4	38.3	.002437	20.08
	3.0726	1.2000	130.7	32.3	.002718	23.22
	3.0726	.7582	129.4	29.6	.002436	20.38
	3.0766	.4896	127.8	22.3	READINGS	INVALID
	NO READING					
	3.4687	1.6100	104.3	42.0	READINGS	INVALID
	3.4289	1.1622	104.1	29.0	READINGS	INVALID
	3.3851	.7323	104.5	40.5	.002638	14.41
	3.3910	.5234	75.5	29.2	.002812	8.02
	3.3910	.0000	READINGS	INVALID		
	3.7512	1.5920	90.4	59.0	READINGS	INVALID
	NO READING					
	3.7055	.7085	71.3	42.8	.002638	6.71
	3.6856	.5910	84.2	51.5	.002812	9.96
	3.6856	.0000	44.6	.0	.002812	2.80
439.03	2.8502	1.6986	119.2	58.7	.002626	18.64
	2.8232	1.2908	142.6	44.4	.002809	28.56
	2.8213	.8522	138.7	30.3	.002803	26.95
	2.8135	.5179	146.2	32.2	READINGS	INVALID
	NO READING					
	3.1014	1.6657	108.1	64.9	.002647	15.46
	3.0976	1.2483	102.0	59.4	.002801	14.58
	3.0763	.7942	85.9	59.3	.002759	10.19
	3.0841	.5353	59.4	47.7	.002618	4.61
	3.0841	.0000	READINGS	INVALID		
	3.4647	1.6425	59.6	76.4	.002598	4.61
	3.4280	1.2000	88.4	71.6	.002777	10.85
	3.3758	.7614	58.0	49.2	.002756	4.64
	3.3643	.5643	41.9	90.0	.002564	2.25
	3.3739	.0000	18.0	180.0	.002564	.41
	3.7179	1.6483	94.2	111.1	.002598	11.52
	3.7082	1.2077	READINGS	INVALID		
	3.6734	.7575	93.2	99.9	.002756	11.98
	3.6734	.6377	46.0	87.5	.002564	2.71
	3.6638	.0000	14.0	180.0	.002564	.25

Table D-X. Rear Smoke Grid Calculations - Near 1/2 Inch Entryway . (Continued)

Model 31, Shot 308

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
480.56	2.8955	1.7512	93.8	82.9	.002837	12.47
	2.8955	1.3254	59.7	76.9	.003157	5.63
	2.8796	.8776	68.2	75.2	.003051	7.09
	2.8756	.5771	62.5	60.3	.002952	5.77
	2.8537	.0000	READINGS	INVALID		
	3.1323	1.7274	108.6	89.0	.002682	15.81
	3.1244	1.2876	54.3	88.0	.002674	3.95
	3.1164	.8318	53.8	64.4	.002458	3.55
	3.1164	.5333	45.3	46.7	.002726	2.79
	3.0985	.0000	15.5	.0	.002726	.33
	3.4826	1.6677	100.8	91.1	.002948	14.99
	3.4567	1.2458	74.1	96.0	.002971	8.15
	3.4229	.7761	49.0	71.6	.002544	3.06
	3.3910	.5652	47.7	63.4	.002590	2.94
	3.3731	.0000	.0	.0	.002590	.00
	3.7174	1.6796	91.1	88.8	.002948	12.25
	3.7114	1.2537	59.7	103.1	.002971	5.30
	3.6896	.8000	70.5	82.1	.002544	6.32
	3.6876	.6368	40.9	95.4	.002590	2.17
	3.6716	.0000	11.6	.0	.002590	.18
522.09	2.8618	1.7913	122.5	109.0	.002474	18.56
	2.8367	1.3488	116.8	110.0	.002862	19.54
	2.8386	.9179	98.0	93.5	.002665	12.80
	2.8444	.5720	55.9	92.0	.002725	4.26
	2.8560	.0000	20.0	.0	.002725	.54
	3.1034	1.7739	112.8	103.3	.002468	15.71
	3.0995	1.3024	99.5	100.4	.002798	13.84
	3.0995	.8425	67.9	91.7	.002728	6.29
	3.1150	.5681	71.3	72.1	.002568	6.54
	3.0995	.0000	47.9	.0	.002568	2.95
	3.4628	1.7430	148.8	96.9	.002434	26.96
	3.4203	1.2734	95.9	102.0	.002786	12.82
	3.3913	.8077	68.0	86.6	.002643	6.11
	3.3855	.6068	65.3	66.6	.002455	5.23
	3.3739	.0000	READINGS	INVALID		
	3.7198	1.7391	94.0	93.7	.002434	10.70
	3.6947	1.2657	72.3	118.0	.002786	7.29
	3.6831	.8271	44.1	95.2	.002643	2.57
	3.6696	.6783	55.9	92.0	.002455	3.84
	3.6754	.0000	12.0	.0	.002455	.18

Table D-λ. Rear Smoke Grid Calculations - Near 1/2 Inch Entryway (Continued)

Model 31, Shot 308

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
563.62	2.8557	1.8667	90.2	118.2	.002584	10.51
	2.8557	1.4348	110.5	105.3	.002892	17.66
	2.8736	.9751	102.8	90.0	.002719	14.36
	2.8736	.6328	93.6	84.1	.002410	10.55
	2.8736	.0000	27.1	.0	.002410	.89
	3.1065	1.8368	106.9	112.4	.002477	14.16
	3.1065	1.3851	106.8	105.8	.002523	14.39
	3.1144	.8995	65.0	107.4	.002389	5.05
	3.1383	.6010	79.1	101.3	READINGS	INVALID
	3.1463	.0000	15.5	.0	READINGS	INVALID
	3.4647	1.8149	84.0	108.9	.002668	9.41
	3.4368	1.3393	106.3	104.8	.002943	16.62
	3.4269	.8438	81.0	106.7	.002713	8.89
	3.4169	.6249	56.3	92.0	READINGS	INVALID
	NO READING					
	3.7114	1.7731	95.5	102.9	.002668	12.16
	3.6776	1.3174	64.0	125.1	.002943	6.03
	3.6856	.8438	65.0	116.6	.002713	5.74
	3.6856	.6925	56.8	97.9	READINGS	INVALID
	3.6836	.0000	17.4	180.0	READINGS	INVALID
605.15	2.8193	1.8705	67.6	109.0	.002560	5.84
	2.8077	1.4551	65.9	88.3	.002870	6.23
	2.8386	1.0203	71.3	78.7	.002967	7.53
	2.8541	.6647	119.6	56.6	.002557	18.29
	2.8831	.0000	79.9	.0	.002557	8.16
	3.0628	1.8725	62.0	93.7	.002484	4.78
	3.0705	1.4048	75.2	79.3	.002627	7.42
	3.0802	.9043	60.1	68.6	.002651	4.78
	3.0995	.6454	81.9	77.3	.002254	7.55
	3.1150	.0000	41.9	.0	.002254	1.98
	3.4357	1.8222	55.7	75.5	.002393	3.71
	3.3932	1.3758	95.9	91.2	.002792	12.83
	3.3681	.8850	74.5	82.3	.002488	6.91
	3.3836	.6628	64.7	81.1	.002408	5.03
	3.3874	.0000	READINGS	INVALID.		
	3.6986	1.8319	94.1	72.7	.002393	10.59
	3.6580	1.3179	95.7	66.6	.002792	12.78
	3.6541	.8850	58.0	86.1	.002488	4.19
	3.6618	.7343	52.9	79.1	.002408	3.36
	3.6580	.0000	18.0	.0	.002408	.39

Table D-X. Rear Smoke Grid Calculations - Near 1/2 Inch Entryway (Continued)

Model-31, Shot 308

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
646.68	2.8338	1.9303	41.1	98.1	.002494	2.11
	2.8577	1.5005	90.3	75.1	.002754	11.22
	2.8876	1.0448	121.4	70.4	.003319	24.47
	2.9393	.7323	129.6	51.1	.002511	21.09
	2.9532	.0000	102.8	.0	.002511	13.26
	3.1025	1.8985	22.7	70.0	.002624	.68
	3.1204	1.4587	81.0	69.0	.002540	8.34
	3.1363	.9552	123.1	63.8	.002539	19.24
	3.1562	.6806	99.3	38.7	.002334	11.51
	3.1881	.0000	89.2	.0	.002334	9.28
	3.4786	1.8687	33.0	61.9	.002519	1.37
	3.4348	1.4348	57.2	28.3	.002612	4.28
	3.4368	.9174	96.0	46.6	.002624	12.09
	3.4269	.6886	READINGS	INVALID		
	3.4308	.0000	58.2	.0	.002387	4.04
	3.7393	1.8627	11.8	9.5	.002519	.18
	3.7154	1.4050	82.3	55.6	.002612	8.84
	3.6896	.9015	76.8	43.0	.002624	7.74
	3.6955	.7443	READINGS	INVALID		
	3.7015	.0000	56.2	.0	.002387	3.77
688.21	2.8135	1.9111	12.1	80.5	.002808	.21
	2.8309	1.5420	69.3	101.6	.003017	7.25
	2.8792	1.1343	109.9	87.9	.002745	16.57
	2.9353	.7652	88.3	37.6	.002374	9.25
	2.9855	.0000	91.8	.0	.002374	10.01
	3.0705	1.8937	18.4	130.6	.002551	.43
	3.0995	1.4802	35.4	106.4	.002722	1.70
	3.1343	1.0145	99.8	70.1	READINGS	INVALID
	3.1768	.7072	93.4	48.5	READINGS	INVALID
	3.2039	.0000	79.9	.0	READINGS	INVALID
	3.4512	1.8512	7.2	146.3	.002619	.07
	3.4435	1.4029	6.3	- 71.6	.002958	.06
	3.4338	.9546	40.2	63.4	READINGS	INVALID
	NO READING					
	3.4454	.0000	49.9	.0	READINGS	INVALID
	3.7101	1.8338	26.3	-171.3	.002619	.90
	3.7043	1.3855	16.5	-104.0	.002958	.40
	3.7101	.9372	34.0	49.8	READINGS	INVALID
	NO READING					
	3.7140	.0000	10.0	.0	READINGS	INVALID

Table D-X. Rear Smoke Grid Calculations - Near 1/2 Inch Entryway (Continued)

Model 31, Shot 308

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
729.74	2.8358	1.9423	33.9	66.4	.002785	1.60
	2.8438	1.5682	16.7	144.5	.002977	.41
	2.8915	1.1542	19.8	78.7	.002896	.57
	3.0090	.7861	73.7	35.4	.002418	6.57
	3.0448	.0000	108.6	.0	.002418	14.25
	3.0905	1.9124	13.0	-153.4	.002586	.22
	3.1104	1.4925	30.7	124.7	.002898	1.36
	3.1701	1.0488	30.1	14.9	.002692	1.22
	3.2179	.7502	45.3	46.7	.002378	2.44
	3.2677	.0000	71.7	.0	.002378	6.12
	3.4726	1.8726	7.8	180.0	.002584	.08
	3.4368	1.4289	30.3	-140.2	.002868	1.32
	3.4547	.9532	18.4	- 71.6	.003012	.51
	3.4706	.7343	READINGS	INVALID		
	3.4806	.0000	46.5	.0	.002518	2.73
	3.7134	1.8587	9.7	180.0	.002584	.12
	3.7114	1.3891	31.6	-137.5	.002868	1.43
	3.7114	.9274	32.3	-147.3	.003012	1.57
	3.7174	.8000	READINGS	INVALID		
	3.7114	.0000	5.8	.0	.002518	.04
771.27	2.8271	1.9420	27.2	107.1	.002993	1.10
	2.8174	1.5517	26.3	8.7	.002939	1.01
	2.8831	1.1536	75.9	54.6	.003140	9.04
	2.9952	.8077	92.8	18.8	.002666	11.48
	3.0937	.0000	READINGS	INVALID		
	3.0589	1.8879	10.8	68.2	.002582	.15
	3.0821	1.5053	37.5	25.2	.002892	2.04
	3.1633	1.0222	64.2	5.4	.002883	5.94
	3.2077	.7401	74.5	7.7	.002422	6.73
	3.2754	.0000	87.9	.0	.002422	9.35
	3.4435	1.8512	31.1	135.0	.002509	1.21
	3.4203	1.3836	46.6	- 43.3	.003177	3.45
	3.4396	.9372	35.4	16.4	.003045	1.91
	3.4551	.7246	43.9	.0	.002593	2.50
	3.4918	.0000	59.9	.0	.002593	4.65
	3.7005	1.8338	18.4	- 40.6	.002509	.43
	3.6812	1.3643	24.3	80.5	.003177	.94
	3.6831	.9198	25.4	- 45.0	.003045	.98
	3.6986	.7787	33.2	- 32.7	.002593	1.43
	3.7198	.0000	31.9	.0	.002593	1.32

Table D-X. Rear Smoke Grid Calculations - Near 1/2 Inch Entryway (Continued)

Model 31, Shot 308

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
812.80	2.8279	1.9682	44.2	127.9	.002672	2.61
	2.8697	1.5721	48.5	87.7	.003108	3.66
	2.9353	1.2159	100.1	31.5	.002959	14.82
	3.0965	.8159	129.1	41.3	READINGS	INVALID
	NO READING					
	3.0945	1.9224	60.1	90.0	.002591	4.68
	3.1443	1.5085	44.6	34.4	.003223	3.21
	3.2338	1.0547	97.9	56.3	.003037	14.54
	3.2915	.7602	109.3	37.1	.002703	16.16
	3.3552	.0000	85.3	.0	.002703	9.83
	3.4507	1.8945	41.2	41.2	.002517	2.14
	3.4706	1.3970	78.7	52.0	.003139	9.73
	3.4886	.9632	90.5	45.0	.003146	12.88
	3.5144	.7343	91.1	38.1	.002801	11.63
	3.5403	.0000	38.8	.0	.002801	2.11
	3.7274	1.8468	57.0	35.3	.002517	4.09
	3.7154	1.4129	55.1	50.7	.003139	4.77
	3.7294	.9095	57.0	35.3	.003146	5.11
	3.7453	.7821	52.7	54.0	.002801	3.90
	3.7433	.0000	25.2	.0	.002801	.89
854.33	2.8000	1.9768	86.2	137.8	.002628	9.77
	2.8193	1.6000	138.5	118.4	.003269	31.34
	2.9681	1.2058	107.5	74.9	.003671	21.22
	3.0918	.8928	164.3	73.8	.002780	37.52
	3.2155	.0000	READINGS	INVALID		
	3.0589	1.9478	54.9	109.1	.002470	3.73
	3.1188	1.5304	117.2	98.8	.003009	20.66
	3.2174	1.1034	READINGS	INVALID		
	3.2947	.8058	READINGS	INVALID		
	3.3604	.0000	READINGS	INVALID		
	3.4744	1.8783	34.9	76.8	.002622	1.59
	3.4686	1.4454	135.8	88.3	.003383	31.21
	3.5034	1.0010	102.0	86.6	.003502	18.22
	3.5266	.7807	93.2	80.1	.002758	11.98
	3.5304	.0000	89.8	.0	.002758	11.13
	3.7469	1.8667	80.0	92.9	.002622	8.38
	3.7159	1.4068	90.2	95.1	.003383	13.76
	3.7295	.9527	78.8	81.3	.003502	10.87
	3.7295	.8213	63.9	88.2	.002758	5.63
	3.7449	.0000	16.0	.0	.002758	.35

Table D-X. Rear Smoke Grid Calculations - Near 1/2 Inch Entryway (Continued)

Model 31, Shot 308

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
895.86	2.7642	2.0259	119.0	142.9	.002710	19.20
	2.8040	1.6935	176.6	121.1	READINGS	INVALID
	2.9632	1.3194	166.6	102.1	READINGS	INVALID
	3.1423	.9731	162.9	90.0	READINGS	INVALID
	NO READING		READINGS	INVALID		
	3.0766	1.9741	102.2	123.4	.002960	15.45
	3.1264	1.6239	156.9	117.2	READINGS	INVALID
	NO READING					
	NO READING					
	NO READING					
	3.4587	1.9284	119.4	122.4	.002995	21.35
	3.4746	1.5323	113.8	113.1	.003060	19.81
	3.4945	1.0647	121.2	97.4	.003036	22.30
	3.5303	.8259	106.1	99.5	.003177	17.89
	3.6299	.0000	27.1	.0	.003177	1.17
	3.7234	1.9264	113.5	123.1	.002995	19.28
	3.7075	1.5025	85.2	107.2	.003060	11.12
	3.7413	.9871	102.3	99.8	.003036	15.89
	3.7473	.8458	87.4	93.8	.003177	12.14
	3.7592	.0000	1.9	180.0	.003177	.01
937.39	2.7053	2.0483	103.8	128.0	.002856	15.40
	2.7285	1.7507	165.0	128.1	.003445	46.87
	2.9333	1.3681	223.6	107.1	.003733	93.29
	3.0918	1.0551	225.9	93.0	READINGS	INVALID
	NO READING		READINGS	INVALID		
	3.0029	2.0329	149.3	119.6	.002595	28.93
	3.0473	1.6696	158.3	113.0	.003061	38.37
	3.1845	1.2580	READINGS	INVALID		
	3.3043	.9179	READINGS	INVALID		
	3.3797	.0000	READINGS	INVALID		
	3.4106	1.9787	128.7	113.8	.002510	20.80
	3.4242	1.5498	147.3	105.7	.003451	37.43
	3.4879	1.1208	108.5	77.2	.003189	18.77
	3.5092	.8850	125.7	79.9	.002568	20.29
	3.5575	.0000	53.9	180.0	.002568	3.73
	3.6850	1.9614	109.0	98.4	.002510	14.91
	3.6908	1.4879	119.9	91.9	.003451	24.79
	3.7121	1.0531	147.8	90.8	.003189	34.81
	3.7237	.9082	132.0	86.5	.002568	22.38
	3.7430	.0000	READINGS	INVALID		

Table D-X. Rear Smoke Grid Calculations - Near 1/2 Inch Entryway (Continued)

Model 31, Shot 308

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
978.92	2.7005	2.1075	128.9	102.2	.002808	23.33
	2.7025	1.8229	183.0	105.4	.003248	54.37
	2.8975	1.5323	268.6	107.7	.003799	136.98
	3.1303	1.1980	330.0	101.2	READINGS	INVALID
	NO READING		READINGS	INVALID		
	3.0030	2.1035	110.5	105.3	.002976	18.17
	3.0647	1.7692	182.9	94.9	.002909	48.66
	3.2299	1.3413	215.3	92.1	.003242	75.16
	3.3493	[illegible]	182.1	71.4	READINGS	INVALID
	NO READING		READINGS	INVALID		
	3.4070	2.0458	128.0	89.1	.002747	22.49
	3.4348	1.6736	200.1	86.1	.003002	60.13
	3.5184	1.1701	171.2	76.9	.003301	48.37
	3.5522	.9493	141.1	52.8	READINGS	INVALID
	3.5761	.0000	READINGS	INVALID		
	3.7075	2.0338	134.7	83.4	.002747	24.91
	3.7035	1.6219	192.4	86.0	.003002	55.57
	3.7393	1.1343	154.8	77.7	.003301	39.54
	3.7552	.9771	94.8	59.2	READINGS	INVALID
	NO READING					
1020.45	2.6783	2.1739	123.2	70.1	.003368	25.54
	2.6802	1.9266	131.8	90.9	.003424	29.74
	2.8522	1.6232	114.8	76.9	.003423	22.55
	3.0280	1.3778	239.5	97.2	READINGS	INVALID
	NO READING		READINGS	INVALID		
	2.9739	2.1391	128.3	69.0	.002972	24.46
	3.0319	1.8512	156.8	68.3	.002804	34.48
	3.1768	1.4725	190.4	80.3	.002274	41.22
	3.3623	1.0899	144.6	54.6	READINGS	INVALID
	NO READING		READINGS	INVALID		
	3.4126	2.1063	176.7	57.9	.002866	44.75
	3.4377	1.7488	158.5	58.9	.003278	41.19
	3.5266	1.2870	204.8	60.2	.002760	57.89
	3.5942	.9971	157.3	28.8	READINGS	INVALID
	NO READING		READINGS	INVALID		
	3.7005	2.0947	156.2	57.5	.002866	34.96
	3.7043	1.6792	193.3	54.7	.003278	61.26
	3.7449	1.2039	158.5	49.1	.002760	34.69
	3.7720	.9894	151.6	40.2	READINGS	INVALID
	3.7101	.0000	READINGS	INVALID		

Table D-K. Rear Smoke Grid Calculations - Near 1/2 Inch Entryway (Continued)

Model 31, Shot 308

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
1061.98	2.7423	2.2229	86.6	-164.4	.002732	10.23
	2.7005	1.9542	125.0	-156.2	.002819	22.03
	2.9234	1.6438	156.1	165.6	.003409	41.54
	3.1005	1.4348	READINGS INVALID			
	NO READING		READINGS INVALID			
	3.0488	2.2229	58.3	-176.2	.002757	4.68
	3.1224	1.9144	79.5	180.0	.002802	8.85
	3.2617	1.5284	84.5	143.4	.002015	7.20
	3.4328	1.1443	60.2	146.8	READINGS INVALID	
	NO READING		READINGS INVALID			
	3.5005	2.1950	79.2	158.5	.002700	8.47
	3.5164	1.8090	80.6	-170.3	.002859	9.30
	3.6199	1.3473	48.5	180.0	.002661	3.13
	3.6896	1.0249	93.4	138.4	READINGS INVALID	
	NO READING		READINGS INVALID			
	3.7910	2.1652	77.6	177.1	.002700	8.14
	3.8149	1.7791	86.6	164.4	.002859	10.71
	3.8428	1.2537	73.4	167.8	.002661	7.17
	3.8706	1.0746	127.6	133.2	READINGS INVALID	
	NO READING					
1103.51	2.5952	2.1507	117.9	141.2	.002901	20.15
	2.5662	1.8763	100.9	117.1	.003481	17.72
	2.7014	1.6618	277.1	132.1	READINGS INVALID	
	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			
	2.9159	2.1353	107.0	98.6	.002830	16.21
	2.9527	1.8512	129.1	121.7	.003154	26.28
	3.1092	1.5227	248.2	106.8	.002510	77.32
	3.3121	1.1227	357.5	100.6	.001840	117.59
	3.3314	.0000	READINGS INVALID			
	3.3391	2.1353	90.6	82.4	.002814	11.56
	3.3585	1.7353	113.6	79.9	.003482	22.46
	3.4783	1.2870	109.4	51.7	.004147	24.84
	3.5246	1.0589	108.8	47.2	.002639	15.62
	3.5285	.0000	READINGS INVALID			
	3.6232	2.0986	109.0	81.6	.002814	16.72
	3.6213	1.7024	75.2	79.3	.003482	9.84
	3.6734	1.2193	91.6	73.5	.004147	17.40
	3.6850	1.0821	58.2	22.2	.002639	4.47
	3.6947	.0000	READINGS INVALID			

Table D-X. Rear Smoke Grid Calculations - Near 1/2 Inch Entryway (Continued)

Model 31, Shot 308

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
1145.04	2.6507	2.2965	145.7	146.9	.002625	27.87
	2.6547	2.0438	160.4	136.5	.003668	47.21
	2.7383	1.8488	235.1	144.7	READINGS	INVALID
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	3.0328	2.3284	149.4	134.5	.002495	27.85
	3.0547	2.0239	170.5	123.9	.002628	38.17
	3.1900	1.7652	220.7	112.7	.002068	50.38
	3.3672	1.4945	READINGS	INVALID		
	NO READING		READINGS	INVALID		
	3.5124	2.2846	89.8	122.7	.002676	10.79
	3.5363	1.9204	165.1	99.5	.003219	43.87
	3.6876	1.4328	191.9	90.6	.002882	53.10
	3.7632	1.1045	77.5	58.3	READINGS	INVALID
	NO READING		READINGS	INVALID		
	3.8070	2.2726	114.8	101.7	.002676	17.64
	3.8289	1.8527	118.3	90.9	.003219	22.51
	3.8687	1.3413	98.8	74.1	.002882	14.07
	3.9244	1.0965	82.9	79.2	READINGS	INVALID
	NO READING					
1186.57	2.4734	2.2300	152.8	151.1	.003111	36.33
	2.4502	1.9865	184.1	155.7	.003291	55.75
	2.5101	1.7971	236.8	155.6	READINGS	INVALID
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	2.8116	2.2415	156.8	158.3	.003023	37.18
	2.8580	1.9923	176.5	134.5	.003012	46.90
	3.0242	1.7256	228.2	122.9	READINGS	INVALID
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	3.2908	2.2106	117.9	128.8	.002542	20.43
	3.3314	1.8976	135.8	109.8	.003398	31.33
	3.4763	1.4783	145.8	88.4	.003103	32.98
	3.5652	1.1246	126.6	96.3	READINGS	INVALID
	NO READING		READINGS	INVALID		
	3.6000	2.2106	91.1	118.8	.002942	12.22
	3.6193	1.8203	108.1	106.1	.003398	19.84
	3.7005	1.3140	165.2	78.1	.003103	42.36
	3.7005	1.1633	164.0	93.5	READINGS	INVALID
	3.7101	.0000	READINGS	INVALID		

Table D-X. Rear Smoke Grid Calculations - Near 1/2 Inch Entryway (Continued)

Model 31, Shot 308

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
1228.10	2.5174	2.3701	133.1	167.4	.002880	25.52
	2.4876	2.1194	167.0	176.7	.003624	50.54
	2.5234	1.9463	188.6	167.5	READINGS	INVALID
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	2.8876	2.3861	118.3	161.9	.002572	18.00
	2.9313	2.1493	149.1	153.8	.002554	28.40
	3.0667	1.9562	283.1	142.0	READINGS	INVALID
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	3.4388	2.3761	71.1	107.4	.002725	6.89
	3.4905	2.0478	82.5	119.6	.003324	11.31
	3.6915	1.5781	176.9	99.5	.002409	37.68
	3.7493	1.2299	122.7	95.4	READINGS	INVALID
	NO READING		READINGS	INVALID		
	3.7632	2.3522	38.1	104.7	.002725	1.98
	3.7990	1.9562	73.7	90.0	.003324	9.02
	3.9025	1.5025	134.1	85.9	.002409	21.66
	3.9144	1.2597	117.6	81.5	READINGS	INVALID
	NO READING		READINGS	INVALID		
1269.63	2.3440	2.2589	139.9	166.0	.002999	29.36
	2.2841	1.9961	182.2	175.6	.004374	72.62
	2.3266	1.8377	195.8	-178.2	READINGS	INVALID
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	2.6995	2.2783	130.2	144.4	.002655	22.51
	2.7246	2.0580	163.4	147.5	.003201	42.73
	2.8019	1.8995	222.7	147.5	READINGS	INVALID
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	3.2696	2.2783	96.6	108.1	.002875	13.41
	3.2908	1.9691	139.8	99.9	.003730	36.47
	3.4473	1.6522	308.1	108.9	.002341	111.11
	3.5536	1.2464	READINGS	INVALID		
	NO READING		READINGS	INVALID		
	3.5903	2.2473	101.9	87.8	.002875	14.93
	3.6193	1.8937	146.4	84.5	.003730	39.99
	3.7101	1.4473	152.7	101.3	.002341	27.29
	3.7179	1.2792	READINGS	INVALID		
	NO READING		READINGS	INVALID		

Table D-X. Rear Smoke Grid Calculations - Near 1/2 Inch Entryway (Continued)

Model 31, Shot 308

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
1311.16	2.3821	2.4040	89.4	176.3	.002665	10.64
	2.3065	2.1333	173.1	-175.5	.003390	50.77
	2.3284	1.9403	194.3	-161.4	READINGS	INVALID
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	2.7821	2.4617	122.6	140.8	.002418	18.18
	2.7940	2.2368	169.1	152.0	.002623	37.51
	2.8796	2.0756	209.2	150.6	READINGS	INVALID
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	3.4090	2.4677	119.4	122.4	.002795	19.92
	3.4667	2.1851	174.1	108.8	.003356	50.87
	3.5920	1.8687	232.9	112.5	READINGS	INVALID
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	3.7672	2.4537	119.5	98.4	.002795	19.97
	3.8129	2.1015	160.2	97.0	.003356	43.04
	3.8726	1.6517	125.3	98.0	READINGS	INVALID
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
1352.69	2.2551	2.2647	101.8	-168.7	.003137	16.26
	2.1121	1.9826	150.7	-148.0	.003806	43.21
	2.1430	1.7758	213.6	-127.4	READINGS	INVALID
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	2.6048	2.3556	109.4	158.6	.002715	16.24
	2.5758	2.1372	165.7	167.5	.002958	40.59
	2.6203	2.0019	244.5	171.1	READINGS	INVALID
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	3.2058	2.3787	142.1	114.0	.003027	30.56
	3.2348	2.1333	141.0	127.5	.003227	32.07
	3.3585	1.8667	84.7	98.1	READINGS	INVALID
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		
	3.5729	2.3652	113.3	104.3	.003027	19.43
	3.6000	2.0522	123.8	107.9	.003227	24.71
	3.6928	1.5710	113.9	92.0	READINGS	INVALID
	NO READING		READINGS	INVALID		
	NO READING		READINGS	INVALID		

Table D-X. Rear Smoke Grid Calculations - Near 1/2 Inch Entryway (Continued)

Model 31, Shot 308

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
1394.22	2.2826	2.3841	85.3	-178.7	.002691	9.80
	2.1791	2.0537	85.1	-149.9	.003260	11.81
	2.1990	1.7711	READINGS INVALID			
	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			
	2.6806	2.5015	75.4	162.0	.002118	6.02
	2.6328	2.2726	95.5	156.0	.001935	8.82
	2.6388	2.1134	READINGS INVALID			
	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			
	3.3512	2.5970	110.5	111.6	.002459	15.02
	3.3811	2.2965	143.9	115.5	.003050	31.60
	3.5801	1.9522	23.6	- 9.5	READINGS INVALID	
	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			
	3.7393	2.5632	111.6	107.2	.002459	15.31
	3.7751	2.2189	129.8	103.8	.003050	25.68
	3.8687	1.7652	182.5	104.8	READINGS INVALID	
	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			
1435.75	2.1700	2.2628	READINGS INVALID			
	2.0386	1.9401	73.9	-141.6	READINGS INVALID	
	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			
	2.5333	2.3787	72.3	152.0	.002898	7.59
	2.4889	2.1758	94.0	176.3	READINGS INVALID	
	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			
	3.1652	2.4812	74.1	76.0	.003122	8.57
	3.1729	2.2628	154.1	106.6	.002898	34.43
	3.3816	1.8628	102.4	110.6	READINGS INVALID	
	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			
	3.5401	2.4715	89.9	87.5	.003122	12.63
	3.5691	2.1778	111.0	81.7	.002898	17.85
	3.6464	1.7469	180.6	95.7	READINGS INVALID	
	NO READING		READINGS INVALID			
	NO READING		READINGS INVALID			

Table D-XI. Front Smoke Grid Calculations - Away from 1/2 Inch Entryway

Model 31, Shot 326

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
311.60	1.0109	1.5463	85.0	- 90.0	.002656	9.59
	.9871	1.1801	35.3	- 99.5	.002447	1.52
	.9771	.8100	21.3	- 84.8	.002233	.51
	.9731	.4299	19.3	90.0	.002307	.43
	.9711	.0000	7.7	.0	.002307	.07
	1.3075	1.5363	75.8	- 70.6	.002072	5.95
	1.3154	1.1423	38.9	- 63.4	.002264	1.71
	1.3234	.8119	17.4	- 90.0	.002193	.33
	1.3393	.4637	13.9	56.3	.002267	.22
	1.3473	.0000	11.6	.0	.002267	.15
	1.7572	1.5264	45.1	- 59.0	.002419	2.46
	1.7493	1.1682	12.4	- 51.3	.002433	.19
	1.7274	.8020	12.2	18.4	.002483	.19
	1.7413	.4776	8.2	135.0	.002473	.08
	1.7373	.0000	11.6	180.0	.002473	.17
	2.0816	1.5224	42.4	- 43.2	.002419	2.17
	2.0876	1.1841	10.4	21.8	.002433	.13
	2.0896	.8060	14.1	74.1	.002483	.25
	2.0975	.4955	2.7	45.0	.002473	.01
	2.1114	.0000	1.9	.0	.002473	.00
353.40	.9612	1.4787	145.3	-104.2	.002411	25.45
	.9477	1.1143	103.1	-101.1	.0025[illegible]	13.45
	.9554	.7907	50.6	- 78.7	.002412	3.08
	.9477	.4516	4.0	89.9	.002246	.02
	.9612	.0000	6.0	.0	.002246	.04
	1.3159	1.4748	113.3	- 86.0	.002481	15.94
	1.3159	1.1143	88.4	- 81.0	.002419	9.45
	1.3043	.8004	57.3	- 76.0	.002307	3.78
	1.3178	.4709	18.8	-108.4	.002327	.41
	1.3295	.0000	11.9	180.0	.002327	.16
	1.7422	1.4864	100.1	- 76.2	.002591	12.97
	1.7132	1.1705	66.5	- 79.7	.002411	5.34
	1.7151	.8081	33.8	- 49.8	.002466	1.41
	1.7054	.4922	12.7	-141.3	.002332	.19
	1.6957	.0000	4.0	180.0	.002332	.02
	2.0833	1.5058	91.4	- 62.9	.002591	10.82
	2.0640	1.1957	49.0	- 31.8	.002411	2.89
	2.0756	.8198	18.3	- 49.4	.002466	.41
	2.0775	.5078	10.1	11.3	.002332	.12
	2.0775	.0000	2.0	.0	.002332	.00

Table D-XI, Front Smoke Grid Calculations - Away from 1/2 Inch Entryway. (Continued)

Model 31, Shot 326

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
395.20	.9751	1.4050	142.5	-102.5	.002590	26.29
	.9672	1.0786	103.9	-108.4	.002636	14.22
	.9871	.7602	75.8	-109.4	.00256	7.36
	.9731	.4338	71.6	- 93.1	.002422	6.20
	.9771	.0000	9.7	180.0	.002422	.11
	1.3154	1.4229	125.8	- 93.5	.002211	17.49
	1.3294	1.0547	103.9	- 99.6	.002506	13.52
	1.3373	.7562	92.9	- 93.6	.002384	10.29
	1.3333	.4458	75.6	- 94.4	.002319	6.62
	1.3353	.0000	7.7	180.0	.002319	.07
	1.7811	1.4289	115.3	- 76.4	.002586	17.18
	1.7612	1.1025	131.8	- 79.0	.002555	22.21
	1.7493	.7761	84.9	- 78.2	.002593	9.34
	1.7313	.4697	61.4	- 77.3	.002403	4.53
	1.7333	.0000	25.1	.0	.002403	.76
	2.1234	1.4408	122.4	- 78.2	.002586	19.36
	2.1294	1.1582	133.9	- 69.7	.002555	22.89
	2.1015	.7920	75.3	- 67.4	.002593	7.36
	2.1075	.4975	66.6	- 60.5	.002403	5.33
	2.1134	.0000	25.1	.0	.002403	.76
437.00	.9302	1.3391	128.6	-116.6	.002511	20.77
	.9147	1.0155	111.0	-114.3	.002562	15.78
	.9302	.7190	80.0	-119.7	.002418	7.73
	.9438	.3798	50.8	-128.7	.002673	3.45
	.9516	.0000	13.9	180.0	.002673	.26
	1.3081	1.3488	123.4	- 85.4	.002288	17.42
	1.2984	1.0116	82.5	- 99.7	.002438	8.30
	1.2984	.7074	75.8	- 96.0	.002338	6.72
	1.3120	.3953	41.7	- 97.7	.002532	2.20
	1.3217	.0000	2.0	.0	.002532	.00
	1.7694	1.3740	111.5	- 84.9	.002424	15.07
	1.7384	1.0407	97.4	- 86.5	.002683	12.72
	1.7326	.7248	111.1	- 89.0	.002506	15.47
	1.7190	.4322	61.6	- 86.3	.002578	4.90
	1.7209	.0000	6.0	.0	.002578	.05
	2.1085	1.3857	121.0	- 79.6	.002424	17.75
	2.1105	1.0698	129.0	- 88.2	.002683	22.33
	2.1047	.7500	90.6	- 66.8	.002506	10.29
	2.1105	.4496	80.0	- 66.6	.002578	8.24
	2.1027	.0000	11.9	.0	.002578	.18

Table D-XI. Front Smoke Grid Calculations - Away from 1/2 Inch Entryway (Continued)

Model 31, Shot 326

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
478.80	.9174	1.2896	90.1	-112.7	.002466	10.00
	.9214	.9771	47.0	-109.2	.002577	2.85
	.9473	.6905	36.3	-115.2	.002621	1.73
	.9413	.3940	21.2	180.0	.002509	.57
	.9632	.0000	25.1	180.0	.002509	.79
	1.3254	1.2995	83.0	-102.1	.002357	8.11
	1.3154	.9731	53.8	-111.0	.002389	3.46
	1.3294	.6806	29.2	- 97.6	.002698	1.15
	1.3313	.4040	15.6	-119.7	.002582	.31
	1.3373	.0000	5.8	180.0	.002592	.04
	1.7910	1.3174	94.8	- 86.5	.002567	11.55
	1.7672	1.0050	54.4	- 83.9	.002555	3.78
	1.7512	.6647	36.7	- 90.0	.002656	1.79
	1.7353	.4080	32.9	- 93.4	.002675	1.45
	1.7393	.0000	7.7	180.0	.002675	.08
	2.1453	1.3214	86.5	- 86.3	.002567	9.60
	2.1333	1.0289	70.8	- 79.0	.002555	6.41
	2.1373	.7085	58.8	- 66.8	.002656	4.60
	2.1393	.4239	32.8	- 61.9	.002675	1.44
	2.1254	.0000	23.2	.0	.002675	.72
520.60	.8953	1.2558	40.9	-104.0	.002758	2.31
	.8992	.9709	16.9	-110.6	.002685	.39
	.9147	.6860	2.0	.0	.002527	.00
	.9225	.3798	19.9	- 84.3	.002605	.52
	.9264	.0000	9.9	180.0	.002605	.13
	1.2907	1.2674	56.5	-108.4	.002429	3.87
	1.2791	.9612	25.9	-122.5	.002515	.84
	1.2946	.6783	13.3	-116.6	.002389	.21
	1.3043	.3818	25.9	- 85.6	.002671	.89
	1.3159	.0000	6.0	.0	.002671	.05
	1.7752	1.2791	55.3	- 75.5	.002503	3.83
	1.7442	.9864	34.7	- 59.0	.002714	1.63
	1.7326	.6880	21.4	21.8	.002503	.57
	1.7171	.3992	25.1	- 18.4	.002610	.82
	1.7132	.0000	15.9	.0	.002610	.33
	2.1434	1.3062	45.8	- 95.0	.002503	2.63
	2.1240	1.0000	40.9	- 76.0	.002714	2.27
	2.1279	.6957	35.3	- 51.8	.002503	1.56
	2.1260	.4205	24.1	9.5	.002610	.76
	2.1260	.0000	23.8	.0	.002610	.74

Table D-XI. Front Smoke Grid Calculations - Away from 1/2 Inch Entryway (Continued)

Model 31, Shot 326

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
562.40	.9075	1.2498	13.9	-123.7	.002757	.27
	.9154	.9612	2.7	135.0	.002762	.01
	.9493	.6905	13.9	33.7	.002501	.24
	.9433	.3741	18.3	- 18.4	.002608	.44
	.9532	.0000	25.1	.0	.002608	.82
	1.3075	1.2458	33.3	-100.0	.002412	1.34
	1.3015	.9512	27.5	- 39.3	.002423	.91
	1.3234	.6687	11.6	.0	.002417	.16
	1.3333	.3781	19.3	.0	.002592	.48
	1.3433	.0000	21.2	.0	.002592	.59
	1.8050	1.2637	42.4	-149.9	.002798	2.52
	1.7851	.9751	33.7	-113.6	.002780	1.58
	1.7711	.6726	27.0	- 90.0	.002727	1.00
	1.7592	.4000	15.9	- 14.0	.002663	.34
	1.7552	.0000	21.2	.0	.002663	.60
	2.1413	1.2756	58.8	-133.7	.002798	4.83
	2.1433	.9891	30.1	-135.0	.002780	1.26
	2.1592	.6806	34.4	-128.2	.002727	1.61
	2.1632	.4279	15.1	-140.2	.002663	.30
	2.1493	.0000	11.6	180.0	.002663	.18
604.20	.8876	1.2442	26.1	-171.3	.002815	.96
	.8973	.9729	10.7	111.8	.002723	.16
	.9264	.6938	23.1	-149.0	.002466	.66
	.9399	.3740	18.3	40.6	.002631	.44
	.9516	.0000	17.9	.0	.002631	.42
	1.2849	1.2345	25.9	-147.5	.002627	.88
	1.3004	.9438	35.2	-106.4	.002753	1.70
	1.3062	.6783	25.4	-141.3	.002533	.82
	1.3236	.3818	2.8	135.0	.002697	.01
	1.3372	.0000	17.9	180.0	.002697	.43
	1.7384	1.2578	65.5	-144.9	.002583	5.54
	1.7306	.9554	67.6	-130.2	.002809	6.41
	1.7326	.6609	53.4	-148.7	.002866	4.09
	1.7326	.3953	50.2	-161.6	.002863	3.60
	1.7345	.0000	41.7	180.0	.002863	2.48
	2.1027	1.2636	63.1	-133.7	.002583	5.15
	2.1027	.9787	55.2	-142.3	.002809	4.27
	2.1066	.6686	72.8	-154.1	.002866	7.58
	2.1143	.4109	78.2	-149.5	.002863	8.76
	2.1143	.0000	49.6	180.0	.002863	3.52

Table D-XI. Front Smoke Grid Calculations - Away from 1/2 Inch Entryway (Continued)

Model 31, Shot 326

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
646.00	.8816	1.2458	32.4	-162.6	.002750	1.44
	.9114	.9711	36.9	-174.0	.002768	1.88
	.9294	.6786	43.2	-153.4	.002754	2.57
	.9572	.3861	51.1	169.1	.002743	3.59
	.9711	.0000	40.6	180.0	.002743	2.26
	1.2856	1.2318	49.3	168.7	.002439	2.96
	1.2915	.9174	50.4	175.6	.002789	3.54
	1.3035	.6527	51.3	-160.2	.002780	3.66
	1.3313	.3801	52.3	175.8	.002879	3.94
	1.3254	.0000	69.5	180.0	.002879	6.96
	1.7512	1.2259	39.4	-168.7	.002748	2.13
	1.7413	.9234	58.1	-164.6	.002988	5.05
	1.7254	.6448	69.8	-175.2	.002891	7.04
	1.7114	.3841	71.5	180.0	.002956	7.55
	1.7134	.0000	85.0	180.0	.002956	10.68
	2.0975	1.2299	58.7	-162.8	.002748	4.73
	2.0995	.9552	58.1	-164.6	.002988	5.05
	2.0935	.6488	63.7	180.0	.002891	5.88
	2.0955	.3881	64.2	-173.1	.002956	6.09
	2.0995	.0000	71.5	180.0	.002956	7.55
687.80	.8566	1.2345	68.4	-150.5	.002923	6.84
	.8605	.9690	90.3	-160.8	.002626	10.72
	.8876	.6744	65.6	176.5	.002727	5.86
	.8895	.3837	76.6	-163.4	.002694	7.90
	.9109	.0000	77.4	180.0	.002694	8.06
	1.2364	1.2442	60.7	-168.7	.002558	4.71
	1.2500	.9477	70.3	163.6	.002785	6.88
	1.2578	.6609	76.3	171.0	.002797	8.15
	1.2713	.3857	88.4	-171.0	.002806	10.96
	1.2674	.0000	79.3	180.0	.002806	8.83
	1.6996	1.2500	77.0	168.1	.002621	7.78
	1.6744	.9399	80.0	172.9	.002913	9.31
	1.6628	.6550	81.7	174.4	.002805	9.37
	1.6609	.3953	69.4	180.0	.002812	6.78
	1.6492	.0000	73.4	180.0	.002812	7.58
	2.0465	1.2461	71.9	155.6	.002621	6.78
	2.0465	.9632	80.9	162.9	.002913	9.34
	2.0426	.6686	74.7	163.0	.002805	7.82
	2.0504	.4031	68.4	163.1	.002812	6.58
	2.0426	.0000	63.5	180.0	.002812	5.67

Table D-XI. Front Smoke Grid Calculations - Away from 1/2 Inch Entryway (Continued)

Model 31, Shot 326

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
729.60	.8219	1.2119	81.1	-167.6	.002848	9.36
	.8259	.9413	85.1	-177.4	.002862	10.36
	.8637	.6826	70.0	173.7	.002599	6.36
	.8836	.3642	73.5	177.0	.002942	7.95
	.8935	.0000	92.7	180.0	.002942	12.65
	1.2259	1.2199	77.3	-178.6	.002627	7.85
	1.2239	.9373	98.5	-178.9	.002795	13.57
	1.2279	.6647	79.2	178.6	.002575	8.08
	1.2438	.3662	95.6	-171.9	.002844	13.00
	1.2458	.0000	75.3	180.0	.002844	8.07
	1.6756	1.2418	70.3	-164.1	.002655	6.56
	1.6617	.9333	54.9	169.9	.002922	4.41
	1.6438	.6527	58.0	178.1	.002783	4.68
	1.6418	.3841	54.1	-178.0	.002830	4.15
	1.6398	.0000	34.8	180.0	.002830	1.71
	2.0318	1.2597	54.4	-173.9	.002655	3.93
	2.0219	.9791	53.2	160.9	.002922	4.13
	2.0219	.6706	48.3	-177.7	.002783	3.25
	2.0299	.4080	64.0	-174.8	.002830	5.80
	2.0358	.0000	40.6	180.0	.002830	2.33
771.40	.7771	1.2171	45.7	-177.5	.003041	3. 7
	.7752	.9651	34.7	121.0	.002793	1.68
	.8178	.6822	35.8	160.6	.002748	1.76
	.8159	.3876	33.7	151.9	.002744	1.56
	.8178	.0000	59.5	180.0	.002744	4.86
	1.1589	1.2422	60.0	172.4	.002532	4.56
	1.1512	.9457	61.1	-166.9	.002563	4.79
	1.1783	.6628	49.1	-166.0	.002504	3.02
	1.1764	.3721	36.5	157.6	.002587	1.72
	1.1919	.0000	33.7	180.0	.002587	1.47
	1.6318	1.2306	33.8	-176.6	.002806	1.60
	1.6202	.9496	40.5	168.7	.002734	2.24
	1.6047	.6570	24.0	155.6	.002766	.79
	1.6066	.3934	49.0	158.6	.002896	3.48
	1.6143	.0000	41.7	180.0	.002896	2.51
	1.9922	1.2403	[illegible]	-151.9	.002806	1.60
	1.9961	.9806	12.1	-170.5	.002734	.20
	1.9942	.6667	8.2	-166.0	.002766	.09
	1.9864	.3973	21.8	180.0	.002896	.69
	2.0019	.0000	23.8	180.0	.002896	.82

Table D-XI. Front Smoke Grid Calculations - Away from 1/2 Inch Entryway (Continued)

Model 31, Shot 326

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	U LB/SQFT
813.20	.7761	1.2100	31.1	82.9	.003123	1.52
	.8080	.9711	34.8	19.4	.003018	1.83
	.8299	.6945	26.8	30.3	.002812	1.01
	.8537	.3801	35.0	- 6.3	.002742	1.68
	.8338	.0000	42.5	.0	.002742	2.48
	1.1662	1.2279	17.3	63.4	.002450	.37
	1.1642	.9234	23.9	- 14.0	.002671	.76
	1.1801	.6527	17.5	- 6.3	.002692	.41
	1.2100	.3801	39.8	22.8	.002798	2.22
	1.2119	.0000	23.2	.0	.002798	.75
	1.6418	1.2398	22.0	142.1	.002643	.64
	1.6219	.9413	23.3	-155.6	.002767	.75
	1.6219	.6627	9.7	-143.1	.002707	.13
	1.5960	.4020	8.6	-116.6	.002628	.10
	1.5980	.0000	15.5	180.0	.002628	.31
	2.0020	1.2438	25.1	180.0	.002643	.83
	2.0100	.9771	30.5	-145.3	.002767	1.29
	2.0139	.6687	19.4	174.3	.002707	.51
	2.0080	.4080	2.7	135.0	.002628	.01
	2.0119	.0000	READINGS	INVALID		
855.00	.7810	1.2481	84.9	52.6	.002858	10.30
	.8081	.9767	53.4	42.0	.002892	4.12
	.8411	.6957	41.8	- 5.4	.002769	2.42
	.8508	.3837	32.7	- 14.0	.002767	1.48
	.8605	.0000	61.5	.0	.002767	5.23
	1.1667	1.2578	92.7	48.5	.002538	10.92
	1.1744	.9399	90.9	36.1	.002819	11.64
	1.1957	.6609	71.7	14.4	.002793	7.18
	1.2132	.3876	47.6	.0	.002827	3.20
	1.2151	.0000	49.6	.0	.002827	3.48
	1.6143	1.2442	38.3	63.7	.002651	1.95
	1.5988	.9399	52.1	40.4	.002897	3.93
	1.5969	.6512	34.6	13.2	.002787	1.67
	1.6027	.3857	38.5	11.9	READINGS	INVALID
	1.5988	.0000	41.7	.0	READINGS	INVALID
	1.9671	1.2403	23.8	90.0	.002651	.75
	1.9709	.9632	11.9	90.0	.002897	.21
	1.9748	.6686	2.0	180.0	.002787	.01
	1.9845	.3992	20.2	- 11.3	READINGS	INVALID
	NO READING					

Table D-XI. Front Smoke Grid Calculations - Away from 1/2 Inch Entryway (Continued)

Model 31, Shot 326

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
896.80	.8279	1.2776	86.5	23.7	.002708	10.13
	.8478	1.0070	74.0	49.2	.002426	6.64
	.8716	.6905	51.0	24.6	.002540	3.30
	.8856	.3721	31.4	- 10.6	.002755	1.36
	.8955	.0000	42.5	.0	.002755	2.49
	1.2279	1.2975	71.2	49.4	.002606	6.61
	1.2378	.9771	61.5	46.3	.002605	4.92
	1.2498	.6706	58.4	34.2	.002761	4.71
	1.2577	.3801	43.2	10.3	.002835	2.64
	1.2617	.0000	50.2	.0	.002835	3.58
	1.6557	1.2756	48.4	61.4	.002775	3.25
	1.6617	.9751	54.6	45.0	.002880	4.30
	1.6557	.6706	49.9	35.5	.002876	3.57
	1.6338	.4100	45.2	20.0	.002741	2.80
	1.6398	.0000	44.4	.0	.002741	2.71
	2.0020	1.2677	20.9	56.3	.002775	.61
	2.0100	.9891	36.9	42.9	.002880	1.96
	2.0119	.6687	29.2	7.6	.002876	1.23
	2.0279	.4040	45.9	22.2	.002741	2.89
	2.0338	.0000	READINGS	INVALID		
938.60	.8605	1.2829	77.5	76.7	.003068	9.20
	.8566	1.0329	54.0	54.0	.002685	3.91
	.8876	.7171	68.4	60.5	.002490	5.82
	.8818	.3779	33.7	45.0	.002685	1.52
	.9031	.0000	11.9	.0	.002685	.19
	1.2132	1.3120	53.6	92.1	.002565	3.68
	1.2171	.9845	37.7	90.0	.002757	1.96
	1.2442	.6938	43.6	90.0	.002630	2.50
	1.2558	.3953	33.7	28.1	.002765	1.57
	1.2655	.0000	31.7	.0	.002765	1.39
	1.6376	1.2868	34.6	103.2	.002758	1.65
	1.6376	.9787	27.8	90.0	.002839	1.09
	1.6376	.6802	32.3	47.5	.002832	1.48
	1.6453	.4012	44.0	7.8	.002772	2.69
	1.6434	.0000	39.7	.0	.002772	2.18
	1.9787	1.2578	27.0	-107.1	.002758	1.00
	1.9981	.9884	24.5	14.0	.002839	.85
	2.0039	.6725	43.9	18.4	.002832	2.73
	2.0271	.4167	41.4	16.7	.002772	2.38
	2.0368	.0000	45.6	.0	.002772	2.89

Table D-XI. Front Smoke Grid Calculations - Away from 1/2 Inch Entryway (Continued)

Model 31, Shot 326

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
980.40	.8458	1.3532	56.2	130.8	.002689	4.24
	.8796	1.0507	8.0	164.0	.002757	.09
	.9055	.7502	23.3	131.6	.002394	.65
	.9095	.3960	14.1	74.1	.002529	.25
	.9075	.0000	17.4	180.0	.002529	.38
	1.2259	1.3512	41.1	138.8	.002540	2.14
	1.2378	1.0149	26.8	120.3	.002551	.92
	1.2498	.7144	21.6	153.4	.002435	.57
	1.2876	.3960	7.0	-146.3	.002681	.07
	1.2935	.0000	1[illegible].6	180.0	.002681	.18
	1.6478	1.3095	38.7	-177.1	.002838	2.12
	1.6617	1.0030	25.8	167.0	.002733	.91
	1.6776	.6945	9.9	-168.7	.002715	.13
	1.6776	.4159	31.0	86.4	.002675	1.28
	1.6796	.0000	READINGS	INVALID		
	1.9940	1.2418	39.8	-150.9	.002838	2.25
	2.0338	.9950	42.9	-144.2	.002733	2.51
	2.0537	.6826	4.3	-116.6	.002715	.03
	2.0677	.4159	4.3	- 26.6	.002675	.02
	2.0796	.0000	3.9	180.0	.002675	.02
1022.20	.8236	1.3256	72.9	-112.4	.002852	7.59
	.8488	1.0349	35.8	-160.6	.002721	1.74
	.8721	.7345	39.4	-130.9	.002476	1.92
	.8857	.3915	16.9	-159.4	.002669	.38
	.8857	.0000	4.0	.0	.002669	.02
	1.1822	1.3391	63.0	-167.3	.002655	5.28
	1.2035	1.0078	57.1	-159.7	.002674	4.36
	1.2248	.7035	43.7	-140.5	.002657	2.54
	1.2500	.3915	43.7	177.4	READINGS	INVALID
	1.2539	.0000	READINGS	INVALID		
	1.5988	1.2849	71.9	-155.6	.002803	7.25
	1.6124	.9845	83.7	-148.6	.002922	10.23
	1.6279	.6783	85.3	-144.5	.003003	10.93
	1.6473	.4322	71.9	-152.0	READINGS	INVALID
	NO READING					
	1.9438	1.2384	82.5	-170.3	.002803	9.54
	1.9632	.9632	87.1	-149.9	.002922	11.09
	2.0019	.6686	78.2	-144.3	.003003	9.18
	2.0310	.4147	74.6	-151.4	READINGS	INVALID
	2.0329	.0000	59.5	180.0	READINGS	INVALID

Table D-XI. Front Smoke Grid Calculations - Away from 1/2 Inch Entryway (Continued)

Model 31, Shot 326

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
1064.00	.8179	1.2856	72.6	-151.4	.003130	8.25
	.8458	1.0388	59.5	-166.9	.002768	4.90
	.8796	.7204	82.0	-145.6	.002736	9.20
	.8935	.3900	71.0	-157.6	READINGS	INVALID
	.9114	.0000	58.0	180.0	READINGS	INVALID
	1.1642	1.3373	61.9	-176.4	.002535	4.86
	1.1841	.9950	83.1	-144.5	.002678	9.24
	1.2159	.6866	75.2	-154.1	.002843	8.03
	1.2438	.3980	84.2	-170.8	READINGS	INVALID
	NO READING					
	1.5821	1.2796	98.5	-168.7	.002698	13.09
	1.5900	.9592	98.4	-164.1	.002691	13.04
	1.6080	.6448	90.4	-160.0	.002836	11.60
	1.6139	.3821	105.8	-158.6	.002919	16.35
	1.6179	.0000	READINGS	INVALID		
	1.9124	1.2279	103.1	-167.0	.002698	14.34
	1.9582	.9512	78.9	-158.5	.002691	8.38
	1.9900	.6368	81.3	-162.0	.002836	9.36
	2.0020	.3801	108.3	-164.5	.002919	17.11
	2.0199	.0000	77.3	180.0	.002919	8.72
1105.80	.7597	1.2907	105.3	-137.3	.002780	15.41
	.7907	1.0213	91.4	-152.9	.002682	11.20
	.8043	.6880	95.3	-168.0	.002691	12.22
	.8198	.3643	94.6	-170.3	.003005	13.44
	.8275	.0000	97.2	180.0	.003005	14.20
	1.1202	1.3353	80.3	-159.8	.002648	8.54
	1.1357	.9593	83.4	-154.7	.002881	10.02
	1.1570	.6705	106.6	-170.4	.002836	16.12
	1.1667	.3779	115.5	-175.1	.002855	19.04
	1.1667	.0000	READINGS	INVALID		
	1.5019	1.2655	96.2	-171.7	.002686	12.44
	1.5174	.9574	97.3	-163.4	.002809	13.29
	1.5426	.6473	87.4	177.4	.002918	11.14
	1.5484	.3934	77.5	-177.1	.002890	8.67
	1.5523	.0000	67.4	180.0	.002890	6.57
	1.8430	1.2151	86.6	-164.1	.002686	10.08
	1.8895	.9341	98.5	-170.7	.002809	13.62
	1.9244	.6434	102.1	-172.2	.002918	15.21
	1.9264	.3857	83.3	178.6	.002890	10.04
	1.9554	.0000	83.3	180.0	.002890	10.03

Table D-XI. Front Smoke Grid Calculations - Away from 1/2 Inch Entryway (Continued)

Model 31, Shot 326

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
1147.60	.7403	1.2139	66.6	150.5	.003196	7.09
	.7642	.9970	60.0	176.3	.002959	5.33
	.7861	.7005	66.6	150.5	.002932	6.50
	.8000	.3741	74.2	141.3	.003094	8.52
	.8139	.0000	65.7	180.0	.003094	6.67
	1.0886	1.3095	85.7	-165.7	.002570	9.45
	1.1085	.9592	96.4	160.5	.002896	14.01
	1.1104	.6687	98.5	168.7	.002643	12.82
	1.1284	.3881	94.7	159.7	.002678	12.02
	1.1343	.0000	88.9	180.0	.002678	10.57
	1.4866	1.2657	100.4	168.9	.002636	13.28
	1.4965	.9313	100.4	168.9	.002916	14.70
	1.5204	.6488	119.1	171.6	.002963	21.02
	1.5363	.3781	108.2	-178.0	.003009	17.63
	1.5502	.0000	100.5	180.0	.003009	15.18
	1.8289	1.2040	127.5	180.0	.002636	21.42
	1.8607	.9353	119.9	-177.2	.002916	20.97
	1.8886	.6229	134.0	-174.2	.002963	26.59
	1.9184	.3821	110.4	176.0	.003009	18.33
	1.9363	.0000	141.0	180.0	.003009	29.92
1189.40	.7016	1.3236	54.0	144.0	.003159	4.60
	.7306	1.0252	56.8	155.2	.003063	4.94
	.7461	.7209	46.0	172.6	.003134	3.32
	.7616	.4109	37.9	-174.0	.002948	2.12
	.7616	.0000	51.6	180.0	.002948	3.92
	1.0368	1.3140	79.7	161.1	.002952	9.37
	1.0426	.9922	93.6	175.1	.002910	12.74
	1.0601	.6899	69.8	165.2	.002963	7.21
	1.0775	.4109	84.5	170.5	.002868	10.23
	1.0775	.0000	READINGS	INVALID		
	1.4031	1.2849	111.7	173.9	.002891	18.05
	1.4186	.9767	119.8	167.6	.002911	20.90
	1.4244	.6647	131.2	176.5	.002996	25.77
	1.4399	.3895	133.1	176.6	.003040	26.95
	1.4516	.0000	134.9	180.0	.003040	27.66
	1.7151	1.2151	161.7	173.7	.002891	37.79
	1.7694	.9283	148.8	179.2	.002911	32.22
	1.7907	.6298	133.4	174.9	.002996	26.67
	1.8159	.3934	141.5	174.4	.003040	30.45
	1.8140	.0000	140.8	180.0	.003040	30.16

Table D-XI. Front Smoke Grid Calculations - Away from 1/2 Inch Entryway (Continued)

Model 31, Shot 326

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	G LB/SQFT
1231.20	.6965	1.2458	71.7	-104.0	.003436	8.83
	.7124	1.0209	31.9	-166.0	.003250	1.65
	.7403	.7065	35.3	-170.5	.003190	1.98
	.7622	.3701	46.7	-155.6	READINGS	INVALID
	.7622	.0000	42.5	180.0	READINGS	INVALID
	1.0129	1.3353	49.5	141.3	.002756	3.37
	1.0149	.9672	44.6	-175.0	.003211	3.19
	1.0428	.6866	44.5	-177.5	.003045	3.01
	1.0448	.4020	49.5	-159.4	READINGS	INVALID
	NO READING					
	1.3751	1.2776	78.1	171.5	.002982	9.10
	1.3791	.9572	79.2	180.0	.003026	9.49
	1.3891	.6567	71.2	-167.5	.003010	7.64
	1.4030	.3861	75.3	180.0	.002978	8.45
	1.4149	.0000	85.0	180.0	.002978	10.76
	1.6677	1.2219	102.5	176.8	.002992	15.68
	1.7114	.9373	87.1	-176.2	.003026	11.48
	1.7552	.6348	76.0	-172.7	.003010	8.68
	1.7771	.3960	81.2	-177.3	.002978	9.83
	1.7950	.0000	67.6	180.0	.002978	6.81
1275.00	.6841	1.2539	46.7	77.7	.003470	3.78
	.6996	1.0174	29.5	137.7	.003198	1.39
	.7112	.7151	28.1	171.9	.003049	1.20
	.7190	.3915	57.2	146.3	.003106	5.08
	.7190	.0000	47.6	180.0	.003106	3.52
	.9981	1.3450	53.6	87.9	.003051	4.38
	.9981	.9884	45.2	105.3	.003105	3.18
	1.0155	.6880	37.9	174.0	.003199	2.30
	1.0310	.3934	40.2	-159.8	.003247	2.62
	1.0349	.0000	READINGS	INVALID		
	1.3256	1.2965	59.4	115.7	.002949	5.21
	1.3391	.9767	35.8	123.7	.002887	1.85
	1.3547	.6492	18.3	167.5	.003172	.53
	1.3643	.3895	20.7	163.3	.003008	.65
	1.3663	.0000	37.7	180.0	.003008	2.14
	1.6124	1.2209	42.1	135.0	.002949	2.61
	1.6822	.9225	23.1	149.0	.002887	.77
	1.7151	.6202	33.7	180.0	.003172	1.80
	1.7345	.3895	39.7	-143.1	.003008	2.37
	1.7461	.0000	31.7	180.0	.003008	1.52

Table D-XI. Front Smoke Grid Calculations - Away from 1/2 Inch Entryway (Continued)

Model 31, Shot 326

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
1314.80	.7065	1.2915	134.4	82.6	.003252	29.38
	.6905	1.0408	31.9	76.0	.002947	1.50
	.7124	.7104	27.7	65.2	.003246	1.24
	.7144	.4020	12.4	38.7	.003133	.24
	.7144	.0000	7.7	.0	.003133	.09
	1.0149	1.3891	67.6	91.6	.002760	6.31
	1.0030	1.0109	36.9	96.0	.002832	1.93
	1.0050	.6905	29.0	93.8	.002807	1.18
	1.0070	.3881	20.8	68.2	.003040	.66
	1.0408	.0000	5.8	.0	.003040	.05
	1.3493	1.3313	74.0	105.1	.002833	7.76
	1.3592	.9871	22.6	110.0	.002916	.75
	1.3711	.6607	38.8	95.7	.003008	2.27
	1.3831	.3920	12.2	71.6	.003075	.23
	1.3771	.0000	36.7	.0	.003075	2.07
	1.6378	1.2517	67.6	91.6	.002833	6.48
	1.6915	.9493	42.8	108.4	.002916	2.67
	1.7214	.6348	26.3	107.1	.003008	1.04
	1.7453	.3721	8.0	104.0	.003075	.10
	1.7632	.0000	17.4	180.0	.003075	.46
1356.60	.7016	1.3876	29.5	19.7	.002990	1.30
	.7074	1.0484	32.0	21.8	.003265	1.68
	.7229	.7403	39.4	49.1	.002994	2.32
	.7287	.3992	33.8	- 3.4	.003021	1.72
	.7267	.0000	43.6	.0	.003021	2.88
	.9961	1.4128	34.0	96.7	.002818	1.62
	.9942	1.0252	21.5	33.7	.003185	.73
	1.0136	.7171	38.2	27.9	.003031	2.21
	1.0388	.4128	51.5	27.6	.003003	3.98
	1.0407	.0000	37.7	.0	.003003	2.13
	1.3062	1.3682	32.0	119.7	.002556	1.31
	1.3314	.9981	22.6	105.3	.002940	.75
	1.3508	.6880	15.1	113.2	.002955	.34
	1.3682	.4012	14.3	33.7	.003192	.33
	1.4031	.0000	21.8	.0	.003192	.76
	1.6105	1.2888	20.4	119.1	.002556	.53
	1.6686	.9632	13.3	153.4	.002940	.26
	1.7074	.6453	8.2	- 14.0	.002955	.10
	1.7326	.3973	25.1	71.6	.003192	1.00
	1.7287	.0000	15.9	.0	.003192	.40

Table D-XI. Front Smoke Grid Calculations - Away from 1/2 Inch Entryway (Continued)

Model 31, Shot 326

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
1398.40	.7343	1.3015	60.0	33.2	.003378	6.08
	.7204	1.0527	59.6	65.1	.003088	5.49
	.7383	.7403	29.0	53.1	.003014	1.27
	.7483	.4000	27.5	39.3	.003014	1.14
	.7582	.0000	36.7	.0	.003014	2.03
	1.0109	1.4229	67.8	70.0	.002817	6.48
	1.0209	1.0229	37.1	51.3	.003101	2.14
	1.0388	.7085	35.6	49.4	.003130	1.99
	1.0527	.4119	11.8	9.5	.003143	.27
	1.0786	.0000	15.5	.0	.003143	.38
	1.3333	1.3592	67.7	93.3	.002774	6.36
	1.3532	1.0090	31.4	79.4	.002832	1.40
	1.3652	.6746	19.0	66.0	.003089	.56
	1.3950	.4000	25.9	26.6	.002992	1.00
	1.3990	.0000	5.8	180.0	.002992	.05
	1.6279	1.2697	42.7	95.2	.002774	2.53
	1.6796	.9552	36.3	115.2	.002832	1.87
	1.7294	.6328	19.9	60.9	.003089	.61
	1.7532	.3960	10.4	- 21.8	.002992	.16
	1.7791	.0000	27.0	.0	.002992	1.09
1440.20	.7519	1.4205	135.9	56.3	.003091	28.54
	.7326	1.1027	74.3	55.9	.003079	8.49
	.7403	.7636	35.5	63.4	.002876	1.81
	.7500	.4167	16.4	14.0	.003105	.42
	.7636	.0000	23.8	.0	.003105	.88
	1.0194	1.4767	92.5	67.3	.002767	11.83
	1.0174	1.0543	67.8	69.4	.003270	7.57
	1.0368	.7442	32.3	47.5	.002897	1.51
	1.0504	.4147	23.8	.0	.002994	.85
	1.0562	.0000	6.0	.0	.002994	.05
	1.3023	1.4360	118.7	99.6	.002486	17.51
	1.3372	1.0291	65.6	86.5	.002903	6.24
	1.3585	.7054	50.2	71.6	.002870	3.61
	1.3915	.4128	25.8	90.0	.003076	1.02
	1.3973	.0000	4.0	.0	.003076	.02
	1.6066	1.3314	92.6	99.9	.002486	10.66
	1.6531	.9961	40.9	104.0	.002903	2.43
	1.7171	.6628	53.6	90.0	.002870	4.12
	1.7422	.3934	11.6	31.0	.003076	.21
	1.7558	.0000	25.8	.0	.003076	1.02

Table D-XI. Front Smoke Grid Calculations - Away from 1/2 Inch Entryway (Continued)

Model 31, Shot 326

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	C LB/SCFT
1482.00	.8100	1.4149	79.4	71.6	.003397	10.71
	.7622	1.1144	43.2	79.7	.002823	2.63
	.7542	.7721	20.2	73.3	.002727	.55
	.7642	.4040	9.9	101.3	.003049	.15
	.7821	.0000	17.4	180.0	.003049	.46
	1.0468	1.5085	85.3	84.8	.002898	10.56
	1.0448	1.0866	73.6	94.5	.002960	8.03
	1.0607	.7323	35.3	99.5	.003016	1.87
	1.0766	.4119	23.3	131.6	.003166	.86
	1.0846	.0000	19.3	180.0	.003166	.59
	1.3134	1.4766	95.9	99.3	.002483	11.42
	1.3572	1.0746	89.8	108.8	.002969	11.97
	1.3811	.7224	53.7	120.3	.002742	3.95
	1.3950	.4259	46.7	150.3	.002762	3.02
	1.4030	.0000	36.7	180.0	.002762	1.86
	1.6119	1.3612	95.9	115.0	.002483	11.43
	1.6697	.9950	63.5	109.5	.002969	6.00
	1.7294	.6866	43.8	131.4	.002742	2.63
	1.7632	.4020	48.3	126.9	.002762	3.22
	1.8050	.0000	25.1	180.0	.002762	.87
1523.80	.7771	1.4961	65.0	102.3	.003107	6.56
	.7403	1.1453	25.8	112.6	.002928	.97
	.7461	.7829	31.0	140.2	.002884	1.38
	.7481	.4264	49.0	158.6	.003087	3.71
	.7461	.0000	45.7	177.5	.003087	3.22
	1.0271	1.5620	64.9	113.4	.002912	6.13
	1.0116	1.1279	42.2	131.2	.003124	2.78
	1.0310	.7791	59.2	140.4	.002915	5.10
	1.0349	.4322	52.4	150.5	.003043	4.18
	1.0368	.0000	25.8	180.0	.003043	1.01
	1.2868	1.5310	51.6	112.6	.002455	3.27
	1.3081	1.1143	70.4	130.4	.002626	6.50
	1.3314	.7519	55.1	149.7	.002739	4.16
	1.3508	.4360	50.2	161.6	.002764	3.48
	1.3605	.0000	39.7	180.0	.002764	2.18
	1.5659	1.4186	98.8	141.5	.002455	11.99
	1.6318	1.0562	93.3	128.1	.002626	11.42
	1.6880	.6957	59.4	154.3	.002739	4.84
	1.7132	.4322	87.8	154.6	.002764	10.67
	1.7306	.0000	63.5	180.0	.002764	5.57

Table D- . Front Smoke Grid Calculations - Away from 1/2 Inch Entryway (Continued)

Model 31, Shot 326

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	G LB/SQFT
1565.60	.7960	1.4786	29.4	113.2	.003295	1.43
	.7522	1.1383	49.9	125.5	.003024	5.76
	.7303	.7920	51.0	150.5	.002766	3.60
	.7184	.4219	48.4	151.4	.002808	3.29
	.7363	.0020	50.2	180.0	.002808	3.54
	1.0209	1.5682	66.9	133.8	.002874	6.44
	1.0169	1.1184	55.3	143.5	.002968	4.53
	1.0149	.7701	57.2	168.3	.002976	4.79
	1.0308	.4378	60.5	153.4	.003094	5.66
	1.0587	.0000	67.6	180.0	.003094	7.07
	1.2935	1.5244	60.5	153.4	.002857	5.27
	1.3114	1.1284	68.5	163.6	.002734	6.41
	1.3333	.7502	69.7	176.8	.002882	6.99
	1.3473	.4418	66.4	171.6	.002792	6.15
	1.3632	.0000	63.7	180.0	.002792	5.67
	1.5343	1.4229	101.4	162.3	.002857	14.69
	1.6119	1.0687	95.1	174.2	.002734	12.35
	1.6756	.7124	91.1	175.1	.002882	11.96
	1.6836	.4398	87.0	-177.5	.002792	10.57
	1.7413	.0000	94.7	180.0	.002792	12.51
1607.40	.7655	1.5233	READINGS	INVALID		
	.7112	1.1860	50.8	141.3	.002922	3.77
	.7016	.8081	38.2	171.0	.003066	2.23
	.7054	.4496	21.4	158.2	.003072	.70
	.6937	.0000	35.8	-176.8	.003072	1.96
	.9806	1.6105	77.2	134.0	.002988	8.89
	.9671	1.1609	63.9	154.2	.003154	6.44
	.9748	.7907	60.3	170.5	.003147	5.73
	.9806	.4593	55.7	-175.9	.002956	4.58
	.9690	.0000	71.4	180.0	.002956	7.54
	1.2326	1.5581	124.6	142.8	.002687	20.85
	1.2422	1.1337	87.4	177.4	.002775	10.59
	1.2616	.7558	91.8	173.8	.002891	12.18
	1.2849	.4457	85.9	-173.4	.002958	10.91
	1.2965	.0000	87.3	180.0	.002958	11.27
	1.4690	1.4496	112.8	145.8	.002687	17.09
	1.5368	1.0659	95.4	176.4	.002775	12.63
	1.5969	.7035	101.2	180.0	.002891	14.79
	1.6260	.4283	66.5	-153.4	.002958	6.55
	1.6357	.0000	READINGS	INVALID		

Table D-XII. Rear Smoke Grid Calculations - Away from 1/2 Inch Entryway

Model 31, Shot 328

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
327.90	2.5104	1.4818	66.4	- 22.8	.002428	5.36
	2.4794	1.2436	31.2	- 18.4	.002367	1.15
	2.4620	.9337	34.1	- 10.0	.002250	1.31
	2.4407	.6160	8.4	- 45.0	.002257	.08
	2.4465	.0000	13.8	.0	.002257	.22
	2.8571	1.4935	38.4	- 11.9	.002306	1.70
	2.8107	1.2765	33.6	3.4	.002239	1.27
	2.7661	.9511	33.6	28.1	.002302	1.30
	2.7971	.6973	8.1	-104.0	.002289	.08
	2.8087	.0000	2.0	180.0	.002289	.00
	3.2542	1.4838	21.0	41.2	.002095	.46
	3.2329	1.2707	30.2	78.7	.002220	1.01
	3.2174	1.0247	4.4	-153.4	.002261	.02
	3.2116	.7632	16.9	20.6	.002326	.33
	3.2039	.0000	23.7	.0	.002326	.65
	3.6571	1.4644	.0	.0	.002095	.00
	3.6107	1.2688	20.1	- 11.3	.002220	.45
	3.5700	1.0383	16.3	14.0	.002261	.30
	3.5797	.8000	36.9	74.5	.002326	1.58
	3.5777	.0000	15.8	.0	.002326	.29
369.70	2.5828	1.4628	90.2	- 43.3	.002577	10.47
	2.5352	1.2309	89.1	- 29.9	.002653	10.53
	2.5134	.9257	68.6	- 57.7	.002255	5.30
	2.4757	.6046	47.7	- 31.8	.002448	2.76
	2.4797	.0000	9.7	.0	.002448	.11
	2.9217	1.4827	96.2	- 38.5	.002469	11.43
	2.8404	1.2587	71.9	- 30.7	.002507	6.47
	2.8186	.9732	45.2	- 20.0	.002274	2.32
	2.7968	.6799	22.0	-105.3	.002313	.56
	2.8345	.0000	19.3	.0	.002313	.43
	3.2825	1.4866	71.2	- 37.8	.002209	5.60
	3.2507	1.2805	38.2	- 45.0	.002280	1.67
	3.2309	1.0248	7.0	- 33.7	.002307	.06
	3.2190	.7671	15.9	- 14.0	.002282	.29
	3.2190	.0000	23.2	.0	.002282	.61
	3.6333	1.4727	15.6	172.9	.002209	.27
	3.6075	1.2547	2.7	135.0	.002280	.01
	3.5996	1.0446	17.8	- 12.5	.002307	.37
	3.5897	.8226	10.9	- 45.0	.002282	.14
	3.5917	.0000	5.8	.0	.002282	.04

Table D-XII. Rear Smoke Grid Calculations - Away from 1/2 Inch Entryway (Continued)

Model 31, Shot 328

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	C LB/SQFT
411.50	2.5763	1.4199	98.8	- 73.7	.002701	13.18
	2.5569	1.1990	100.2	- 75.1	.002492	12.50
	2.4988	.8755	83.8	- 81.9	.002561	9.00
	2.4814	.5908	60.5	- 51.6	.002467	4.51
	2.4562	.0000	15.8	.0	.002467	.31
	2.9327	1.4334	100.7	- 64.4	.002698	13.69
	2.8726	1.2397	90.0	- 70.8	.002680	10.85
	2.8087	.9356	92.5	- 73.9	.002348	10.05
	2.7913	.6760	79.6	- 44.0	.002253	7.15
	2.8281	.0000	12.0	9.5	.002253	.16
	3.3143	1.4450	85.9	- 67.0	.002541	9.37
	3.2600	1.2436	84.9	- 65.2	.002373	8.55
	3.2232	1.0208	66.4	- 59.6	.002231	4.92
	3.2271	.7593	61.9	- 73.3	.002426	4.65
	3.2271	.0000	11.9	.0	.002426	.17
	3.6416	1.4663	61.0	- 65.1	.002541	4.73
	3.6087	1.2707	49.1	- 49.9	.002373	2.86
	3.5874	1.0344	56.6	- 77.9	.002231	3.57
	3.5874	.7923	46.1	- 80.1	.002426	2.56
	3.5835	.0000	15.8	180.0	.002426	.30
453.30	2.6105	1.3677	102.6	- 73.6	.002547	13.42
	2.5610	1.1338	102.2	- 79.1	.002634	13.77
	2.5253	.8424	74.3	- 62.1	.002367	6.53
	2.5134	.5570	57.6	- 50.4	.002621	4.35
	2.4955	.0000	52.1	.0	.002621	3.56
	2.9653	1.3915	110.9	- 58.5	.002551	15.70
	2.8702	1.1734	105.5	- 66.3	.002554	14.71
	2.8444	.8840	95.0	- 63.4	.002500	11.28
	2.8543	.6244	97.7	- 52.2	.002656	12.68
	2.8464	.0020	59.9	.0	.002656	4.76
	3.3162	1.4093	84.5	- 79.5	.002384	8.50
	3.2864	1.2032	107.5	- 72.7	.002389	13.79
	3.2646	.9673	108.7	- 56.6	.002468	14.58
	3.2369	.7076	86.5	- 66.3	.002579	9.64
	3.2309	.0000	38.6	.0	.002579	1.97
	3.6591	1.4172	127.0	- 81.3	.002384	19.22
	3.6392	1.2170	115.5	- 80.4	.002389	15.95
	3.6115	.9891	99.5	- 71.9	.002468	12.22
	3.5976	.7770	88.6	- 69.6	.002579	10.12
	3.5758	.0000	17.4	.0	.002579	.39

Table D-XII. Rear Smoke Grid Calculations - Away from 1/2 Inch Entryway (Continued)

Model 31, Shot 328

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
495.10	2.6053	1.3211	106.2	- 80.4	.002498	14.09
	2.5763	1.0983	65.9	- 81.4	.002545	5.53
	2.5337	.8097	65.8	- 48.7	.002549	5.52
	2.5182	.5462	54.6	- 40.6	.002610	3.90
	2.5085	.0000	33.6	.0	.002610	1.47
	2.9908	1.3385	103.1	-102.2	.002753	14.63
	2.9153	1.1429	95.5	- 65.6	.002757	12.57
	2.8513	.8504	92.6	- 50.2	.002468	10.58
	2.8513	.5985	69.2	- 53.1	.002677	6.40
	2.8881	.0000	71.2	- 1.6	.002677	6.78
	3.3298	1.3617	117.4	- 77.4	.002485	17.14
	3.2930	1.1409	93.0	- 77.7	.002692	11.64
	3.2833	.9298	92.0	- 75.1	.002458	10.41
	3.2620	.6799	76.0	- 62.1	.002809	6.12
	3.2659	.0000	37.5	.0	.002809	1.99
	3.6610	1.3404	116.7	- 92.9	.002485	16.93
	3.6281	1.1564	132.4	- 90.0	.002692	23.59
	3.6184	.9395	80.6	- 78.7	.002458	7.98
	3.6184	.7090	114.5	- 75.0	.002809	18.43
	3.6010	.0000	33.6	.0	.002809	1.58
536.90	2.6283	1.2626	66.0	-110.6	.002890	6.29
	2.5709	1.0684	73.4	-116.6	.002564	6.91
	2.5689	.7929	47.8	-104.0	.002454	2.80
	2.5550	.5213	53.4	-102.5	.002683	3.83
	2.5292	.0000	11.6	180.0	.002683	.19
	2.9435	1.2904	76.7	-130.9	.002671	7.85
	2.9098	1.0862	93.4	-119.7	.002812	12.27
	2.9039	.8127	54.4	-106.5	.002848	4.21
	2.8959	.5689	53.6	-120.3	.003073	4.42
	2.9177	.0000	15.4	180.0	.003073	.37
	3.3419	1.2944	95.9	- 99.3	.002605	11.97
	3.3062	1.1120	70.5	- 99.5	.002811	6.98
	3.2884	.8781	77.3	-103.0	.002444	7.30
	3.2725	.6402	47.3	-101.8	.002970	3.33
	3.2686	.0000	25.1	180.0	.002970	.94
	3.6531	1.3003	63.8	- 93.5	.002605	5.31
	3.6392	1.0842	77.6	- 95.7	.002811	8.47
	3.6274	.9098	64.3	-122.7	.002444	5.05
	3.6274	.6660	55.7	-146.3	.002970	4.61
	3.6095	.0000	READINGS INVALID			

Table D-XII. Rear Smoke Grid Calculations - Away from 1/2 Inch Entryway (Continued)

Model 31, Shot 328

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	U LB/SQFT
578.70	2.5821	1.2591	53.2	-139.0	.002478	3.50
	2.5433	1.0324	53.2	-111.[illegible]	.002812	3.98
	2.5220	.7632	62.0	-142.8	.002637	5.07
	2.5065	.4939	68.2	-157.9	.002932	6.83
	2.4969	.0000	67.2	180.0	.002932	6.67
	2.9404	1.2804	49.6	- 94.6	.002497	3.07
	2.8688	1.0615	40.0	-159.8	.002760	2.21
	2.8358	.7981	69.5	-165.2	.002606	6.29
	2.8242	.5521	75.7	-164.9	.002859	8.20
	2.8726	.0000	83.0	180.0	.002859	9.85
	3.3143	1.2668	64.1	-146.3	.002515	5.17
	3.2814	1.0712	54.5	-136.5	.002891	4.28
	3.2659	.8542	60.6	-161.0	.003007	5.52
	3.2523	.6334	49.4	-163.7	READINGS	INVALID
	3.2407	.0000	53.3	180.0	READINGS	INVALID
	3.6571	1.2765	43.9	-125.[illegible]	.002515	2.42
	3.6203	1.0789	29.7	176.2	.002881	1.27
	3.5835	.8852	53.7	-162.9	.003007	4.34
	3.5719	.6780	43.9	172.2	READINGS	INVALID
	NO READING					
620.60	2.5887	1.2270	39.8	-157.2	.003012	2.49
	2.5510	1.0188	39.0	171.5	.002795	2.13
	2.5193	.7552	66.7	-170.0	.002629	5.84
	2.4916	.4955	67.0	168.4	.002906	6.53
	2.4618	.0000	73.4	180.0	.002906	7.67
	2.9395	1.2408	45.9	-157.8	.003129	3.30
	2.8722	1.0723	43.6	167.2	.002881	2.73
	2.8365	.7948	56.1	176.1	.002739	4.31
	2.8226	.5491	34.2	163.6	.002941	1.72
	2.8345	.0000	71.4	180.0	.002941	7.51
	3.2884	1.2587	43.6	167.2	.002722	2.58
	3.2666	1.0743	42.2	164.1	.002778	2.47
	3.2309	.8583	48.3	163.7	.002549	2.97
	3.2250	.6264	53.1	160.9	.002825	3.99
	3.2151	.0000	40.5	180.0	.002825	2.32
	3.6274	1.2646	23.3	175.2	.002722	.74
	3.6095	1.0862	23.3	131.6	.002778	.75
	3.5758	.8940	15.6	97.1	.002549	.31
	3.5837	.6720	11.3	31.0	.002825	.18
	3.5917	.0000	READINGS	INVALID		

Table D-XXX. Rear Smoke Grid Calculations -- Away from 1/2 Inch Entryway (Continued)

Model 31, Shot 328

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
662.30	2.5453	1.2436	51.7	173.4	.002830	3.78
	2.5046	1.0383	61.5	174.5	.002703	5.12
	2.4562	.7516	69.4	175.1	.002611	6.29
	2.4407	.5075	49.4	177.7	.002741	3.35
	2.4232	.0000	43.5	180.0	.002741	2.59
	2.8978	1.2630	45.8	172.6	.002705	2.84
	2.8262	1.0712	40.0	-171.5	.002714	2.17
	2.7797	.8019	56.7	161.6	.002669	4.22
	2.7913	.5617	54.8	154.4	.002755	4.14
	2.8010	.0000	25.7	180.0	.002755	.91
	3.2717	1.2765	30.1	156.9	.002468	1.12
	3.2407	1.0828	27.7	180.0	.002603	1.00
	3.2194	.6676	26.0	171.3	.002539	.86
	3.2019	.6508	31.2	161.6	.002711	1.32
	3.2000	.0000	.0	.0	.002711	.00
	3.6339	1.2785	21.4	33.7	.002468	.56
	3.6048	1.0964	10.1	168.7	.002603	.13
	3.5816	.9007	8.1	-166.0	.002539	.08
	3.5816	.6838	7.1	-123.7	.002711	.07
	3.5661	.0000	13.8	180.0	.002711	.26
704.10	2.5372	1.2329	54.9	-169.9	.002788	4.20
	2.4896	1.0248	51.5	-167.0	.002777	3.69
	2.4500	.7611	35.5	157.6	.002564	1.62
	2.4420	.4975	27.3	171.9	.002759	1.03
	2.4182	.0000	25.1	180.0	.002759	.87
	2.8940	1.2468	31.8	166.0	.002825	1.43
	2.8325	1.0664	23.9	-166.0	.002908	.84
	2.7830	.8127	19.7	168.7	.002646	.51
	2.7730	.5728	29.5	-168.7	.002693	1.17
	2.8087	.0000	13.5	180.0	.002693	.25
	3.2607	1.2706	5.5	-135.0	.002353	.04
	3.2389	1.0743	13.7	135.0	.002635	.25
	3.2052	.8622	13.7	-171.9	.002411	.22
	3.1952	.6363	16.6	-125.5	.002770	.38
	3.2151	.0000	25.1	180.0	.002770	.87
	3.6452	1.2765	15.9	166.0	.002353	.30
	3.5996	1.0882	26.3	-162.9	.002635	.91
	3.5679	.8920	25.1	-157.4	.002411	.76
	3.5798	.6660	31.4	-169.4	.002770	1.37
	3.5778	.0000	READINGS INVALID			

Table D-XII. Rear Smoke Grid Calculations - Away from 1/2 Inch Entryway (Continued)

Model 31, Shot 3[illegible]8

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
745.90	2.4910	1.2339	12.5	161.6	.002544	.20
	2.4542	1.0266	8.1	166.0	.002697	.07
	2.4232	.7651	10.6	111.8	.002470	.14
	2.4136	.5114	21.4	146.3	.002707	.62
	2.3981	.0000	2.0	180.0	.002707	.01
	2.8668	1.2707	15.8	.0	.002574	.32
	2.8029	1.0654	4.0	89.9	.002646	.07
	2.7603	.8058	20.3	150.9	.002480	.51
	2.7622	.5559	16.9	110.6	.002774	.40
	2.7874	.0000	17.8	180.0	.002774	.44
	3.2678	1.2726	10.6	21.8	.002572	.15
	3.2310	1.0925	19.8	126.9	.002601	.51
	3.2058	.8659	8.1	76.0	.002606	.09
	3.1923	.6373	18.7	108.4	READINGS INVALID	
	3.1748	.0000	59.3	180.0	READINGS INVALID	
	3.6184	1.2823	43.3	155.8	.002572	2.47
	3.5797	1.0886	11.2	135.0	.002601	.16
	3.5584	.8910	18.2	-167.5	.002606	.43
	3.5506	.6780	35.2	128.2	READINGS INVALID	
	NO READING		READINGS INVALID			
787.70	2.5253	1.2369	23.3	-131.6	.002668	.72
	2.4817	1.0268	34.8	-109.4	.002894	1.75
	2.4460	.7711	25.2	-147.5	.002615	.83
	2.4242	.5094	27.8	-145.3	.002703	1.05
	2.4163	.0000	21.2	180.0	.002705	.61
	2.9098	1.2468	40.9	- 70.7	.003056	2.56
	2.8325	1.0704	22.0	-105.3	.002876	.70
	2.7651	.8226	16.5	-110.6	.002674	.36
	2.7671	.5887	7.0	-123.7	.002770	.07
	2.7909	.0000	17.4	180.0	.002770	.40
	3.2706	1.2745	20.8	-111.8	.002522	.5[illegible]
	3.2270	1.0902	9.8	- 78.7	.002557	.12
	3.2071	.8702	11.7	- 99.5	.002795	.19
	3.1893	.6541	4.3	-116.6	READINGS INVALID	
	3.1556	.0000	1.9	.0	READINGS INVALID	
	3.6056	1.2944	34.5	- 26.6	.002522	1.50
	3.5917	1.0961	37.1	- 27.9	.002557	1.76
	3.5500	.8880	7.7	180.0	.002795	.08
	3.5580	.6938	22.0	- 74.7	READINGS INVALID	
	NO READING		READINGS INVALID			

Table D-XII. Rear Smoke Grid Calculations - Away from 1/2 inch Entryway (Continued)

Model 31, Shot 328

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
829.50	2.4755	1.2165	47.5	-135.0	.002436	2.75
	2.4426	.9937	58.7	-137.7	.002762	4.77
	2.4019	.7516	43.4	-149.9	.002387	2.25
	2.3903	.4959	40.5	-133.0	.002679	2.20
	2.3768	.0000	27.7	180.0	.002679	1.03
	2.8804	1.2320	31.2	-161.6	.002454	1.39
	2.7971	1.0441	34.6	-151.9	.002642	1.49
	2.7545	.7903	32.2	- 79.4	.002556	1.32
	2.7584	.5501	33.6	- 86.6	.002727	1.54
	2.7700	.0000	4.0	.0	.002727	.02
	3.2600	1.2533	21.3	- 68.2	.002386	.54
	3.2329	1.0828	27.5	- 69.0	.002617	.99
	3.2039	.8542	33.8	- 83.3	.002514	1.44
	3.1903	.6334	25.8	- 57.5	.002567	.85
	3.1768	.0000	33.6	.0	.002567	1.45
	3.6494	1.2668	81.5	- 22.8	.002386	7.92
	3.6126	1.0712	21.8	- 84.8	.002617	.62
	3.5506	.8910	37.3	- 58.0	.002514	1.75
	3.5564	.6567	37.5	- 71.6	.002567	1.80
	3.6242	.0000	READINGS INVALID			
871.30	2.4916	1.2032	13.5	180.0	.002583	.24
	2.4381	.9871	17.8	130.6	.002647	.42
	2.4083	.7493	9.8	101.3	.002300	.11
	2.3964	.4797	15.6	- 7.1	.002642	.37
	2.3885	.0000	29.0	.0	.002642	1.11
	2.8801	1.2369	18.2	-148.0	.002655	.44
	2.8028	1.0545	19.7	-168.7	.002599	.50
	2.7711	.7909	4.3	-153.4	.002699	.03
	2.7691	.5550	13.9	33.7	.002749	.27
	2.7948	.0000	15.4	.0	.002749	.33
	3.2785	1.2547	12.2	- 71.6	.002355	.18
	3.2369	1.0644	33.1	- 96.7	.002427	1.33
	3.2111	.8365	18.2	-122.0	.002794	.46
	3.2032	.6323	18.3	- 71.6	READINGS INVALID	
	3.1893	.0000	11.6	.0	READINGS INVALID	
	3.6809	1.2626	41.1	-138.8	.002355	1.98
	3.5937	1.0743	38.3	-130.9	.002427	1.78
	3.5699	.8563	27.4	- 50.7	.002794	1.05
	3.5699	.6581	12.2	- 71.6	READINGS INVALID	
	NO READING		READINGS INVALID			

Table D-XII. Rear Smoke Grid Calculations - Away from 1/2 Inch Entryway (Continued)

Model 31, Shot 328

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
913.10	2.4620	1.2165	9.9	36.9	.002566	.13
	2.4310	1.0073	27.4	30.3	.002758	1.04
	2.4000	.7613	51.5	32.5	.002377	3.16
	2.4058	.4939	55.8	22.9	.002723	4.24
	2.4058	.0000	55.3	.0	.002723	4.17
	2.8649	1.2223	43.3	-133.2	.002593	2.43
	2.7777	1.0402	23.0	-121.0	.002700	.72
	2.7506	.7884	23.1	-110.0	.002610	.70
	2.7700	.5579	22.1	-169.7	.002780	.68
	2.7855	.0000	29.6	.0	.002780	1.22
	3.2639	1.2416	69.6	-124.6	.002413	5.85
	3.2291	1.0499	53.2	-132.0	.002758	3.90
	3.1942	.8387	21.4	-146.3	.002469	.56
	3.1961	.6160	32.4	-142.4	READINGS	INVALID
	3.1884	.0000	READINGS	INVALID		
	3.6184	1.2397	95.0	-136.7	.002413	10.90
	3.5874	1.0421	69.9	-132.7	.002758	6.74
	3.5680	.8697	28.8	-164.1	.002469	1.02
	3.5603	.6450	19.8	143.1	READINGS	INVALID
	NO READING		READINGS	INVALID		
954.90	2.4995	1.2091	47.0	- 99.6	.002912	3.21
	2.4618	1.0010	20.8	- 68.2	.003033	.66
	2.4519	.7770	30.0	- 14.9	.002833	1.27
	2.4480	.5015	26.3	17.1	.002966	1.02
	2.4440	.0000	23.2	.0	.002966	.80
	2.8503	1.2052	54.6	- 98.1	.002957	4.41
	2.7909	1.0343	37.9	- 75.3	.002843	2.05
	2.7631	.7692	33.3	-100.0	.002825	1.57
	2.7473	.5510	29.5	-168.7	READINGS	INVALID
	2.8246	.0000	1.9	.0	READINGS	INVALID
	3.2389	1.1972	87.1	-102.8	.002695	10.23
	3.2012	1.0248	47.8	-104.0	.002969	3.39
	3.1933	.8246	53.9	-104.5	.002879	4.17
	3.1774	.6125	35.5	-112.4	READINGS	INVALID
	NO READING					
	3.6115	1.1972	99.7	- 98.9	.002695	13.39
	3.5461	1.0228	52.7	-113.7	.002969	4.13
	3.5421	.8484	56.8	- 80.2	.002879	4.65
	3.5540	.6700	23.3	- 41.6	READINGS	INVALID
	NO READING		READINGS	INVALID		

Table D-XII. Rear Smoke Grid Calculations - Away from 1/2 Inch Entryway (Continued)

Model 31, Shot 328

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	ρ LB/SQFT
996.70	2.4542	1.1700	90.1	-127.9	.002836	11.60
	2.4387	.9879	60.5	-128.4	.002966	5.43
	2.4291	.7535	73.5	-126.3	.002990	8.08
	2.4310	.5017	53.4	-129.0	.003020	4.30
	2.4291	.0000	31.6	180.0	.003020	1.51
	2.8571	1.1680	101.6	-103.5	.003125	16.13
	2.7874	1.0034	72.5	-101.0	.002771	7.27
	2.7448	.7554	44.2	-116.6	.002900	2.83
	2.7409	.5521	43.6	- 84.8	.002826	2.69
	2.7874	.0000	37.5	180.0	.002826	1.99
	3.2446	1.1564	90.3	- 79.9	.003139	12.80
	3.2174	1.0034	72.9	- 77.5	.002607	6.92
	3.1806	.7864	76.2	- 58.8	.002653	7.71
	3.1826	.5831	READINGS INVALID			
	3.1884	.0000	READINGS INVALID			
	3.6029	1.1409	83.8	- 81.9	.003139	11.03
	3.5661	.9937	82.3	- 65.9	.002607	8.82
	3.5777	.8136	82.9	- 77.6	.002653	9.12
	3.5777	.6295	68.6	- 78.4	READINGS INVALID	
	NO READING		READINGS INVALID			
1038.50	2.4440	1.1378	71.8	-126.3	.003062	7.90
	2.4242	.9534	62.3	-119.7	.002944	5.71
	2.4083	.7175	57.0	-118.3	.002634	4.28
	2.4143	.4599	66.9	-123.2	.003092	6.93
	2.4123	.0000	19.3	180.0	.003092	.58
	2.8266	1.1060	98.3	-109.5	.003149	15.22
	2.7770	.9633	75.9	-104.7	.002787	8.02
	2.7433	.7294	50.7	-107.7	READINGS INVALID	
	2.7512	.5074	50.5	- 96.6	READINGS INVALID	
	2.7869	.0000	7.7	160.0	READINGS INVALID	
	3.2547	1.1080	86.7	-101.6	.002858	10.75
	3.2170	.9534	77.8	- 97.1	.002984	9.04
	3.2329	.7592	51.5	- 77.0	READINGS INVALID	
	NO READING					
	NO READING					
	3.6234	1.1140	83.4	- 76.6	.002858	9.93
	3.5798	.9475	83.0	- 72.4	.002984	10.29
	3.5600	.7671	73.8	- 96.0	READINGS INVALID	
	3.5679	.6026	76.9	-101.6	READINGS INVALID	
	NO READING		READINGS INVALID			

Table D-XII. Rear Smoke Grid Calculations - Away from 1/2 Inch Entryway (Continued)

Model 31, Shot 328

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
1080.30	2.4116	1.1119	117.8	-157.3	.002935	20.36
	2.4077	.9337	82.3	-155.9	.003041	10.29
	2.4019	.7031	91.0	-152.9	.002752	11.40
	2.3942	.4455	78.0	-171.3	.003152	9.58
	2.4097	.0000	69.2	180.0	.003152	7.54
	2.8242	1.0751	95.6	-150.3	.003321	15.17
	2.7680	.9298	102.0	-148.5	.002987	15.54
	2.7293	.7070	79.5	-145.1	.002930	9.25
	2.7351	.5017	82.5	-163.3	.003017	10.27
	2.7797	.0000	61.3	180.0	.003017	5.66
	3.2271	1.0712	92.4	-131.5	.002952	12.60
	3.2077	.9259	86.8	-131.3	.002778	10.47
	3.1923	.7361	99.3	-148.8	.002871	14.15
	3.1768	.5501	READINGS	INVALID		
	3.1884	.0000	READINGS	INVALID		
	3.6223	1.0596	88.9	-126.9	.002952	11.67
	3.5917	.9143	75.0	-108.4	.002778	7.81
	3.5700	.7400	READINGS	INVALID		
	3.5622	.5540	75.6	-109.9	.003002	8.58
	3.6165	.0000	READINGS	INVALID		
1122.10	2.3350	1.0922	131.3	-160.2	.003058	26.36
	2.3489	.9197	133.0	-166.6	.002916	25.80
	2.3271	.6759	126.5	-167.7	.002897	23.18
	2.3370	.4480	114.5	-174.2	.003181	20.86
	2.3429	.0000	113.9	180.0	.003181	20.64
	2.7433	1.0585	66.7	-157.9	.002922	6.50
	2.6898	.9098	84.8	-149.9	.002904	10.44
	2.6779	.6838	101.2	-166.8	.002930	14.99
	2.6720	.4836	101.6	-165.7	.003026	15.63
	2.7255	.0000	117.8	180.0	.003026	20.99
	3.1933	1.0387	74.3	-152.1	.002734	7.54
	3.1596	.8880	95.1	-156.0	READINGS	INVALID
	3.1477	.7076	84.8	-168.2	READINGS	INVALID
	3.1338	.5273	76.4	-159.3	READINGS	INVALID
	3.1457	.0000	85.0	180.0	READINGS	INVALID
	3.5699	1.0426	53.3	-136.5	.002734	3.88
	3.5560	.8761	64.8	-153.4	READINGS	INVALID
	NO READING					
	3.5421	.5312	36.6	-161.6	READINGS	INVALID
	NO READING					

Table D-XII. Rear Smoke Grid Calculations - Away from 1/2 Inch Entryway (Continued)

Model 31, Shot 328

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	D LB/SQFT
1163.90	2.2877	1.0673	99.8	-172.0	.002516	12.53
	2.2780	.9027	110.5	-159.7	.002662	17.46
	2.2780	.6760	98.8	180.0	.002669	13.02
	2.2799	.4339	104.5	-164.6	.003235	17.66
	2.2954	.0000	104.7	180.0	.003235	17.74
	2.7622	1.0499	76.3	-169.6	.003149	9.19
	2.6944	.8872	105.6	-177.5	.003321	19.53
	2.6305	.6838	90.9	-178.8	.002711	11.20
	2.6363	.4765	63.4	-176.4	.002971	5.96
	2.6615	.0000	92.9	180.0	.002971	12.81
	3.1613	1.0363	53.9	-171.6	.002788	4.05
	3.1206	.8872	69.0	-166.8	.002812	6.70
	3.1090	.7186	68.6	-168.4	.002560	6.02
	3.1051	.5230	53.5	-175.3	.002833	4.05
	3.1031	.0000	47.4	180.0	.002833	3.18
	3.5835	1.0228	26.0	- 98.7	.002788	.94
	3.5332	.8852	29.9	-177.4	.002812	1.26
	3.5293	.7245	READINGS	INVALID		
	3.5274	.5424	45.1	142.1	.002833	2.84
	3.5738	.0000	READINGS	INVALID		
1205.70	2.2359	1.0783	130.1	174.0	.002882	24.35
	2.2398	.8999	127.0	-175.5	.003075	22.90
	2.2279	.6759	116.0	177.1	.002527	17.00
	2.2359	.4202	112.1	-177.0	.003084	19.39
	2.2379	.0000	113.[illegible]	180.0	.003084	20.01
	2.6680	1.0446	165.1	-169.2	.002665	36.33
	2.5847	.8959	147.7	-178.5	.002821	31.20
	2.5867	.6819	116.5	-168.5	.002867	19.38
	2.6085	.4797	101.1	-173.4	.002873	14.66
	2.6373	.0000	38.6	180.0	.002873	2.14
	3.1397	1.0307	77.8	-156.6	.002561	7.76
	3.0922	.8722	77.1	-157.9	.002652	7.88
	3.0803	.6938	83.2	-158.2	.003062	10.59
	3.0803	.5233	81.2	-162.0	.002700	8.90
	3.0981	.0000	38.6	180.0	.002700	2.01
	3.5659	1.0168	77.2	-126.9	.002561	7.64
	3.5263	.8722	58.7	-117.4	.002652	4.57
	3.4906	.7056	76.5	-137.0	.003062	8.96
	3.5064	.5590	47.1	-145.0	.002700	3.00
	3.5917	.0000	READINGS	INVALID		

Table D-XII. Rear Smoke Grid Calculations - Away from 1/2 Inch Entryway (Continued)

Model 31, Shot 328

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
1247.50	2.1579	1.0809	114.8	177.0	.002716	17.88
	2.1559	.8930	101.2	-167.6	.002931	14.99
	2.1617	.6818	67.9	-171.6	.002619	6.04
	2.1676	.4281	95.0	163.1	.002935	13.25
	2.1811	.0000	128.4	180.0	.002935	24.21
	2.5995	1.0189	144.2	-170.5	.002863	29.77
	2.5453	.8833	101.2	-167.6	.002767	14.16
	2.5162	.6605	75.7	-172.5	.002659	7.63
	2.5356	.4649	83.3	-157.7	.002998	10.40
	2.6228	.0000	21.7	180.0	.002998	.71
	3.0896	1.0053	107.5	-144.0	.002645	15.78
	3.0489	.8581	66.4	-149.6	.002572	5.67
	3.0315	.6877	63.8	-158.2	.002602	5.50
	3.0276	.4978	71.4	-131.6	READINGS	INVALID
	3.0644	.0000	65.2	180.0	READINGS	INVALID
	3.5370	.9608	104.3	-127.3	.002645	14.39
	3.5061	.8329	80.6	-126.0	.002572	8.36
	3.4731	.6722	50.6	-110.6	.002602	3.34
	3.4886	.5153	66.9	-109.0	READINGS	INVALID
	NO READING		READINGS	INVALID		
1289.30	2.1209	1.0842	38.8	174.3	.002789	2.10
	2.1407	.8781	35.0	173.7	.003288	2.01
	2.1606	.6660	31.1	-172.9	.002612	1.27
	2.1447	.4480	31.8	166.0	.002681	1.36
	2.1090	.0000	25.1	180.0	.002681	.84
	2.5253	1.0208	88.6	-168.7	.002702	10.61
	2.4856	.8741	64.0	-174.8	.002828	5.79
	2.5114	.6720	42.9	-172.2	.002410	2.21
	2.5312	.4480	37.5	-168.1	.003187	2.24
	2.6105	.0000	57.9	180.0	.003187	5.35
	3.0525	.9673	90.8	-141.9	.002902	11.96
	3.0347	.8385	68.6	-147.7	.002705	6.36
	3.0208	.6700	57.4	-132.3	.002482	4.09
	3.0327	.4698	36.3	-154.8	READINGS	INVALID
	3.0327	.0000	9.7	180.0	READINGS	INVALID
	3.5025	.9336	48.6	- 96.8	.002902	3.43
	3.4787	.8067	70.9	-119.4	.002705	6.80
	3.4727	.6581	48.0	-130.1	.002482	2.85
	3.4846	.4955	45.4	-167.7	READINGS	INVALID
	NO READING		READINGS	INVALID		

Table D-XII. Rear Smoke Grid Calculations - Away from 1/2 Inch Entryway (Continued)

Model 3L, Shot 328

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	LB/S.FT
1331.10	2.1191	1.0847	9.9	-126.9	.003114	.15
	2.1211	.8969	27.4	120.3	.003053	1.15
	2.1308	.6780	29.4	160.3	.002745	1.16
	2.1366	.4358	16.3	- 14.0	.003091	.41
	2.1559	.0000	53.3	.0	.003091	4.40
	2.5123	1.0015	25.7	- 90.0	.003112	1.03
	2.4814	.8775	4.0	- 89.9	.002698	.02
	2.4736	.6547	20.1	- 11.5	.002827	.57
	2.4988	.4571	12.7	38.7	.002913	.23
	2.5646	.0000	33.6	180.0	.002913	1.54
	3.0179	.9492	52.5	-109.8	.002440	3.36
	2.9908	.8213	39.0	-120.5	.002644	2.01
	2.9927	.6450	30.2	- 78.7	.003098	1.41
	2.9947	.4823	21.0	138.8	.003042	.67
	3.0547	.0000	2.0	180.0	.003042	.01
	3.5312	.9123	40.0	- 98.5	.002440	1.95
	3.4712	.7709	53.2	-105.1	.002644	3.74
	3.4421	.6354	29.7	- 86.2	.003098	1.37
	3.4441	.5056	20.3	-150.9	.003042	.63
	3.5002	.0000	READINGS	INVALID		
1372.90	2.1150	1.0763	10.9	-135.0	.003176	.19
	2.1269	.9019	7.0	146.3	.002943	.07
	2.1328	.6759	9.8	101.3	.002460	.12
	2.1606	.4440	8.6	153.4	.002981	.11
	2.1675	.0000	.0	.0	.002981	.00
	2.5253	.9950	45.2	-160.0	.003189	3.26
	2.4856	.8702	38.3	-139.1	.002992	2.20
	2.5312	.6680	22.6	- 20.0	.002890	.74
	2.5411	.4559	23.9	166.0	.003094	.88
	2.5768	.0000	36.7	180.0	.003094	2.08
	3.0347	.9177	53.4	- 77.5	.002877	4.10
	3.0149	.8048	35.6	- 77.5	.002962	1.83
	3.0268	.6402	20.5	- 48.9	.003029	.64
	3.0168	.4836	16.5	- 69.4	READINGS	INVALID
	3.0307	.0000	46.3	180.0	READINGS	INVALID
	3.4965	.8940	87.3	-114.9	.002877	10.45
	3.4648	.7552	35.0	- 83.7	.002962	1.81
	3.4747	.6283	51.0	- 65.4	.003029	3.94
	3.4668	.4856	51.3	- 70.2	READINGS	INVALID
	NO READING					

Table D-XII. Rear Smoke Grid Calculations - Away from 1/2 Inch Entryway (Continued)

Model 31, Shot 328

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Σ LB/SQFT
1414.70	2.1114	1.0770	27.5	111.0	.003408	1.29
	2.1153	.9007	6.2	108.4	.003278	.06
	2.1288	.6877	7.1	33.7	.002762	.07
	2.1288	.4397	4.0	- 89.9	.003279	.03
	2.1559	.0000	19.8	.0	.003279	.64
	2.4697	.9860	18.2	-167.5	.002937	.49
	2.4523	.8523	32.2	-137.5	.002925	1.51
	2.4949	.6470	71.8	-148.5	.002878	7.43
	2.4755	.4630	41.1	-144.8	.002901	2.45
	2.5278	.0000	13.8	180.0	.002901	.25
	3.0295	.8969	49.4	-126.9	.003342	4.08
	2.9985	.7864	54.5	-133.5	.002712	4.03
	3.0063	.6295	61.4	-146.8	.003009	5.67
	3.0005	.4668	40.0	-147.1	.002969	2.36
	3.0063	.0000	READINGS	INVALID		
	3.4944	.8329	70.5	- 78.7	.003342	8.31
	3.4751	.7361	58.1	- 72.2	.002712	4.58
	3.4634	.5889	56.6	-102.1	.003009	4.82
	3.4615	.4571	45.6	-107.7	.002969	3.09
	3.5293	.0000	READINGS	INVALID		
1456.50	2.1051	1.1021	87.8	129.6	.002923	11.76
	2.1249	.9078	61.1	124.7	.003207	5.98
	2.1388	.6799	41.3	142.6	.002900	2.45
	2.1606	.4400	20.5	138.8	.003366	.71
	2.1824	.0000	3.9	180.0	.003366	.03
	2.5074	.9911	20.2	73.3	.002981	.61
	2.4618	.8484	32.9	130.2	.002888	1.56
	2.4698	.6303	58.1	158.6	.003074	5.15
	2.5074	.4321	8.0	- 14.0	READINGS	INVALID
	2.5629	.0000	15.4	180.0	READINGS	INVALID
	3.0050	.8781	59.9	-178.2	.002717	4.87
	2.9772	.7651	31.8	-166.0	.002699	1.37
	2.9752	.6065	40.6	-177.3	.003087	2.54
	2.9832	.4618	21.6	169.7	READINGS	INVALID
	NO READING					
	3.5104	.8246	38.5	162.5	.002717	2.01
	3.4827	.6997	40.7	-148.6	.002699	2.24
	3.4628	.5728	38.8	-174.3	.003087	2.32
	3.4529	.4420	26.8	149.7	READINGS	INVALID
	NO READING					

Table D-XII. Rear Smoke Grid Calculations - Away from 1/2 Inch Entryway (Continued)

Model 31, Shot 328

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	LB/SQ FT
1448.40	2.0552	1.1449	83.9	124.4	.002940	10.44
	2.0804	.7511	104.4	119.5	.003076	16.76
	2.0959	.7126	79.5	124.9	.002568	8.11
	2.1133	.4533	66.0	141.1	.003193	6.97
	2.1521	.0000	25.7	180.0	.003193	1.05
	2.4755	1.0053	113.2	155.2	.003120	19.77
	2.4310	.8775	93.3	143.6	.002906	12.64
	2.4407	.6683	85.2	134.1	.002797	10.16
	2.4833	.4610	78.4	130.9	.002894	9.46
	2.5123	.0000	49.4	180.0	.002894	3.53
	2.9695	.8949	71.6	152.0	.002814	7.21
	2.9676	.7787	31.2	145.3	.002925	1.43
	2.9656	.6276	31.7	93.6	.003287	1.05
	2.9792	.4707	29.7	93.8	.003147	1.37
	3.0199	.0000	READINGS INVALID			
	3.4576	.8446	33.6	-176.6	.002814	1.69
	3.4402	.7146	41.5	-177.3	.002925	2.52
	3.4247	.5850	41.1	144.3	.003287	2.78
	3.4383	.4707	15.8	90.0	.003147	.37
	3.4712	.0000	READINGS INVALID			
1540.10	2.0575	1.1715	69.8	165.6	.003646	8.81
	2.0733	.9990	87.3	155.1	.003301	12.57
	2.0932	.7451	78.2	159.6	.002778	8.52
	2.1090	.4817	64.2	148.7	.003110	6.27
	2.1566	.0000	69.5	180.0	.003110	7.51
	2.4044	1.0387	107.7	165.5	.002786	16.15
	2.3865	.9039	99.3	166.5	.002810	13.46
	2.4103	.6918	80.7	169.0	.002763	9.97
	2.4559	.4916	50.0	165.1	.002734	4.91
	2.5134	.0000	57.9	180.0	.002734	4.59
	2.9415	.9118	85.0	180.0	.002538	7.16
	2.9514	.7830	78.1	-171.5	.003336	10.17
	2.9732	.6383	69.8	-165.6	.003104	7.56
	2.9812	.4916	60.0	-165.1	READINGS INVALID	
	2.9950	.0000	61.8	180.0	READINGS INVALID	
	3.4767	.8226	52.5	-107.1	.002548	3.50
	3.4410	.6977	47.1	-125.0	.003336	3.71
	3.4291	.5966	36.9	-132.9	.003104	2.11
	3.4529	.4579	54.4	-157.5	READINGS INVALID	
	NO READING		READINGS INVALID			

Table D-XII. Rear Smoke Grid Calculations - Away from 1/2 Inch Entryway (Continued)

Model 31, Shot 328

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
1581.90	1.9874	1.1622	125.1	164.4	.003302	25.85
	2.0010	.9879	104.8	177.8	.003102	17.04
	2.0223	.7400	97.3	-174.2	.002673	12.60
	2.0591	.4862	108.7	180.0	.003005	17.74
	2.0823	.0000	122.5	180.0	.003005	22.55
	2.3709	1.0324	93.8	168.5	.002850	13.91
	2.3341	.9007	103.4	173.4	.002763	14.74
	2.3613	.6838	97.0	-176.5	.002830	13.31
	2.4252	.4765	96.5	-169.4	.002911	13.55
	2.4542	.0000	106.7	180.0	.002911	16.57
	2.8843	.8949	110.8	-168.7	.002483	15.25
	2.8901	.7671	115.5	-167.2	.002727	18.20
	2.8978	.6102	116.6	-169.3	.003150	21.43
	2.9211	.4552	127.0	-159.0	READINGS	INVALID
	2.9579	.0000	65.2	180.0	READINGS	INVALID
	3.4421	.7942	103.4	-151.5	.002483	13.29
	3.4131	.6760	79.5	-153.4	.002727	8.62
	3.3995	.5579	89.5	-149.5	.003150	12.60
	3.3898	.4455	101.7	-150.9	READINGS	INVALID
	NO READING		READINGS	INVALID		
1623.70	1.9366	1.2052	121.6	159.6	.003158	21.34
	1.9683	1.0030	110.3	176.0	.003090	18.81
	1.9960	.7354	105.1	-172.6	.002721	15.04
	2.0000	.4817	132.2	-173.3	.003047	26.63
	2.0337	.0000	96.5	180.0	.003047	14.20
	2.3072	1.0585	139.1	177.6	.002686	26.00
	2.2834	.9158	100.7	-175.6	.002796	14.16
	2.3132	.6858	133.5	176.7	.002618	23.31
	2.3608	.4737	160.3	-179.3	.002882	37.01
	2.4063	.0000	137.1	180.0	.002882	27.09
	2.8325	.8900	123.2	-166.4	.002520	19.11
	2.8385	.7572	120.4	-168.0	.002992	21.70
	2.8583	.6165	101.9	-170.2	.002628	13.64
	2.8622	.4460	108.6	-174.9	READINGS	INVALID
	2.9296	.0000	71.4	180.0	READINGS	INVALID
	3.3855	.7730	97.6	-155.5	.002520	12.01
	3.3697	.6620	84.5	-169.5	.002992	10.67
	3.3518	.5510	68.5	-158.5	.002628	6.16
	3.3637	.4083	52.5	-144.0	READINGS	INVALID
	NO READING		READINGS	INVALID		

Table D-XII. Rear Smoke Grid Calculations - Away from 1/2 Inch Entryway (Continued)

Model 31, Shot 328

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	P LB/SQFT
1665.50	1.8731	1.2048	123.3	158.4	.003045	23.14
	1.4906	.9956	136.1	170.8	.003115	23.85
	1.9177	.7264	133.6	172.3	.002797	24.95
	1.9274	.4707	106.8	-177.9	.003375	19.24
	1.9955	.0000	118.6	180.0	.003375	23.71
	2.2315	1.0383	118.8	176.2	.002857	20.16
	2.2334	.8930	134.4	-179.7	.002889	26.00
	2.2276	.6915	126.7	-176.4	.002585	20.75
	2.2644	.4746	128.5	178.7	.002642	21.81
	2.3167	.0000	100.8	180.0	.002642	13.41
	2.7642	.8659	125.5	-172.8	.002666	20.99
	2.7714	.7419	107.2	-174.7	.002576	14.79
	2.7971	.5927	113.7	-172.0	.002885	16.60
	2.5126	.4455	87.1	-176.2	.003034	12.06
	2.2862	.0000	71.1	180.0	.003034	7.69
	3.3530	.7535	91.1	-155.7	.002666	11.06
	3.3298	.6605	82.3	-155.9	.002576	8.71
	3.3356	.5327	65.4	-151.1	.002885	6.13
	3.3472	.4145	49.5	-151.4	.003034	3.72
	3.4879	.0000	READINGS	INVALID		
1707.30	1.8216	1.2567	102.8	145.7	.002782	14.71
	1.8335	1.0248	99.0	159.4	.003045	14.92
	1.8632	.7532	98.4	164.1	.002757	13.12
	1.8930	.4777	76.4	159.3	.003061	8.93
	1.9148	.0000	96.5	180.0	.003061	14.27
	2.1883	1.0664	113.6	162.2	.002598	16.76
	2.1487	.9138	109.1	166.7	.002613	15.56
	2.1863	.6779	71.7	175.4	.002664	6.84
	2.2319	.4777	58.1	176.2	.002712	4.57
	2.3053	.0000	57.9	180.0	.002712	4.55
	2.7076	.8741	96.9	175.4	.002517	11.81
	2.7314	.7473	91.1	175.1	.002738	11.36
	2.7453	.6006	87.7	172.4	.002574	9.89
	2.7730	.4400	93.4	-172.9	READINGS	INVALID
	2.9583	.0000	67.6	180.0	READINGS	INVALID
	3.3023	.7354	54.1	-145.2	.002517	3.65
	3.2944	.6283	45.0	-149.0	.002738	2.78
	3.2944	.5193	71.5	-176.9	.002574	6.59
	3.3201	.3845	72.7	-163.0	READINGS	INVALID
	NO READING					

Table D-XII. Rear Smoke Grid Calculations - Away from 1/2 Inch Entryway (Co ntinued)

Model 31, Shot 328

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
1749.10	1.7079	1.2630	77.6	165.3	.002925	8.82
	1.7976	1.0305	83.4	166.3	.002956	10.28
	1.8228	.7535	91.1	167.5	.002675	11.10
	1.8557	.4978	88.0	171.0	.003040	11.78
	1.8886	.0000	83.0	180.0	.003040	10.47
	2.1230	1.0731	154.8	166.0	.002717	32.55
	2.1269	.9182	106.9	163.9	.002839	16.23
	2.1559	.6973	87.7	157.5	.002541	9.77
	2.2063	.4785	105.2	174.6	.002784	15.40
	2.2586	.0000	85.0	180.0	.002784	10.05
	2.6673	.8736	79.5	-153.4	.002554	8.08
	2.6809	.7496	93.6	-172.7	.002613	11.45
	2.7099	.6044	88.7	-168.4	.002413	9.50
	2.7196	.4339	87.7	-172.2	.002939	11.31
	2.8184	.0000	122.5	180.0	.002939	22.05
	3.3085	.7225	102.0	-148.5	.002554	13.29
	3.2910	.6373	91.2	-150.1	.002613	10.36
	3.7639	.5288	72.7	-157.6	.002413	6.37
	3.2775	.3932	86.1	-170.8	.002939	10.89
	3.3801	.0000	READINGS	INVALID		
1790.90	1.7463	1.2706	129.8	157.2	.003333	28.09
	1.7522	1.0446	100.9	174.5	.003148	16.01
	1.7740	.7730	101.4	162.3	.002610	13.41
	1.8057	.4916	78.4	-170.1	.003072	9.44
	1.8315	.0000	92.7	180.0	.003072	13.20
	2.0377	1.1041	94.6	-178.8	.002635	11.80
	2.0456	.9435	100.5	-177.8	.002678	13.52
	2.1051	.7116	114.5	174.2	.002514	16.46
	2.1269	.4876	100.7	-175.6	.002776	14.07
	2.2200	.0000	100.4	180.0	.002776	13.99
	2.6363	.8385	130.7	-167.2	.002881	24.60
	2.6383	.7354	114.2	-176.1	.002839	18.51
	2.6581	.5828	113.3	-171.2	.002691	17.28
	2.6858	.4281	94.7	-163.4	READINGS	INVALID
	2.7354	.0000	88.8	180.0	READINGS	INVALID
	3.2151	.6819	142.4	-159.4	.002881	29.20
	3.2151	.5828	140.8	-154.8	.002839	28.14
	3.2270	.4916	103.9	-138.0	.002691	14.53
	3.2349	.3707	92.7	-144.3	READINGS	INVALID
	NO READING					

Table D-XII. Rear Smoke Grid Calculations - Away from 1/2 Inch Entryway (Continued)

Model 31, Shot 328

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	G LB/SQFT
1832.70	1.6678	1.3133	67.2	118.1	.002596	5.84
	1.6969	1.0402	34.6	121.0	.003287	1.96
	1.7259	.7845	22.5	142.1	.002534	.64
	1.7782	.4843	28.8	164.1	.003244	1.34
	1.7956	.0000	27.7	180.0	.003244	1.24
	2.0281	1.0712	46.5	167.7	.003099	3.35
	2.0262	.9143	63.8	163.8	.002907	5.91
	2.0416	.7090	58.1	-170.2	.002386	4.03
	2.1056	.4707	29.6	180.0	.002848	1.25
	2.1579	.0000	47.4	180.0	.002848	3.20
	2.5395	.8446	126.4	170.1	.002818	22.50
	2.5666	.7419	89.0	-177.5	.002504	9.92
	2.5976	.5869	85.5	173.4	.002397	9.77
	2.6286	.4068	109.3	173.8	.003246	19.39
	2.7793	.0000	READINGS	INVALID		
	3.1748	.6722	47.0	-165.4	.002818	3.11
	3.1632	.5772	78.0	-171.3	.002504	7.61
	3.1864	.4591	78.2	-163.9	.002397	7.37
	3.2019	.3390	77.1	178.5	.003246	9.64
	3.2872	.0000	READINGS	INVALID		
1874.50	1.7146	1.3300	24.4	71.6	.003506	1.05
	1.7344	1.0743	63.2	102.3	.003396	6.79
	1.7562	.7869	15.6	172.9	.002845	.34
	1.7780	.4995	49.2	154.4	.003148	3.91
	1.8038	.0000	READINGS	INVALID		
	1.9921	1.1140	99.7	125.5	.002803	13.92
	1.9841	.9613	103.9	138.0	.002738	14.78
	2.0476	.7017	58.1	164.6	.002874	4.85
	2.0971	.4876	38.1	149.5	READINGS	INVALID
	2.1724	.0000	44.4	180.0	READINGS	INVALID
	2.5114	.8803	67.4	166.8	.002380	5.41
	2.5491	.7314	79.6	166.0	.002862	9.07
	2.5728	.5927	67.8	175.1	.002831	6.51
	2.5768	.4400	62.9	169.4	READINGS	INVALID
	NO READING					
	3.1695	.6700	74.0	-172.5	.002380	6.52
	3.1378	.5709	64.4	-171.4	.002862	5.94
	3.1516	.4698	96.6	168.5	.002831	13.20
	3.1576	.3726	89.0	176.3	READINGS	INVALID
	NO READING		READINGS	INVALID		

Table D-XII. Rear Smoke Grid Calculations - Away from 1/2 Inch Entrance Way (Continued)

Model 31, Shot 328

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
1916.30	1.6755	1.3366	89.9	123.3	.003227	13.03
	1.6833	1.1022	99.0	116.1	.003166	15.51
	1.7104	.7864	72.4	145.0	.002765	7.24
	1.7337	.5056	64.5	152.7	READINGS	INVALID
	NO READING					
	1.9700	1.1525	134.9	129.1	.002889	26.27
	1.9487	.9840	69.9	132.7	.002537	6.20
	1.9855	.7245	83.9	145.6	.002593	9.12
	2.0726	.4901	73.1	161.1	.002894	7.73
	2.1133	.0000	READINGS	INVALID		
	2.4736	.8600	47.7	155.6	.002863	3.26
	2.4891	.7613	77.3	147.5	.002642	7.89
	2.5298	.5927	58.5	168.3	.002466	4.22
	2.5666	.4184	33.8	-159.4	READINGS	INVALID
	2.6596	.0000	READINGS	INVALID		
	3.1012	.6625	122.5	169.8	.002863	21.47
	3.0993	.5676	71.2	178.4	.002642	6.69
	3.0915	.4785	85.1	177.3	.002466	8.92
	3.1128	.3448	81.6	-173.0	READINGS	INVALID
	NO READING		READINGS	INVALID		
1958.10	1.6650	1.4054	133.1	114.0	.003710	32.87
	1.6908	1.1635	119.3	119.1	.003111	22.13
	1.6967	.8285	100.4	128.0	.002754	13.89
	1.7205	.5292	69.8	138.4	READINGS	INVALID
	1.7463	.0000	READINGS	INVALID		
	1.9068	1.2190	151.9	138.6	.002542	29.31
	1.9366	1.0129	131.2	132.6	.002517	21.66
	1.9782	.7493	123.4	129.9	.002471	18.81
	2.0278	.5114	112.3	153.4	READINGS	INVALID
	NO READING		READINGS	INVALID		
	2.4678	.8801	106.6	144.6	.002687	15.27
	2.4836	.7730	91.7	149.7	.002632	11.07
	2.5154	.6046	88.9	152.9	.002686	10.62
	2.5451	.4281	77.7	153.4	READINGS	INVALID
	2.6501	.0000	READINGS	INVALID		
	3.0486	.6918	95.5	166.0	.002687	12.26
	3.0664	.5728	72.4	170.8	.002632	6.89
	3.0664	.4737	61.8	-178.2	.002686	5.13
	3.0763	.3627	61.4	-167.3	READINGS	INVALID
	NO READING		READINGS	INVALID		

Table D-XII. Rear Smoke Grid Calculations - Away from 1/2 Inch Entryway (Continued)

Model 31, Shot 328

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
1999.90	1.6213	1.4586	145.0	114.1	.002775	19.71
	1.6252	1.2068	120.3	132.3	.003333	24.11
	1.6484	.8659	106.3	132.0	.002667	15.08
	1.6814	.5521	81.1	145.9	READINGS	INVALID
	1.6910	.0000	READINGS	INVALID		
	1.8557	1.2533	99.9	117.1	.002777	13.84
	1.8596	1.0809	123.1	132.4	.002537	19.21
	1.9061	.8194	86.1	143.4	.002249	8.35
	1.9719	.5404	71.2	146.3	READINGS	INVALID
	NO READING		READINGS	INVALID		
	2.3864	.9220	129.0	140.0	.002644	22.00
	2.4097	.8077	109.6	152.0	.002446	14.69
	2.4504	.6334	107.0	154.3	.002328	13.31
	2.4969	.4533	111.5	150.3	READINGS	INVALID
	NO READING		READINGS	INVALID		
	3.0082	.6857	28.3	- 12.1	.002644	1.06
	3.0276	.5792	76.3	163.4	.002446	7.11
	3.0295	.4765	86.9	167.8	.002328	8.78
	3.0528	.3312	76.0	171.0	READINGS	INVALID
	NO READING		READINGS	INVALID		

Table D-XIII. Front Smoke Grid Calculations - 1/2 Inch Entry-way with Exterior Baffle

Model 30, Shot 323

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
324.90	.9796	1.5579	83.9	- 88.7	.002245	7.89
	.9856	1.1664	19.6	- 84.3	.002238	.43
	.9737	.8028	3.9	- 89.9	.002280	.02
	.9836	.3934	31.4	- 7.1	.002296	1.13
	.9816	.0000	21.4	.0	.002296	.53
	1.3115	1.5400	88.3	- 68.0	.002356	8.19
	1.3254	1.1942	40.6	- 54.8	.002335	1.92
	1.3393	.8187	29.7	- 66.8	.002309	1.02
	1.3512	.3875	19.9	- 11.3	.002303	.46
	1.3631	.0000	17.5	.0	.002303	.35
	1.7447	1.5320	55.0	- 67.1	.002474	3.75
	1.7387	1.2181	28.1	- 33.7	.002294	.91
	1.7367	.8246	9.9	-101.3	.002253	.11
	1.7387	.3696	11.9	9.5	.002394	.17
	1.7327	.0000	21.4	.0	.002394	.55
	2.0964	1.5360	33.5	- 54.5	.002474	1.39
	2.1043	1.2499	21.8	- 26.6	.002294	.54
	2.1103	.8385	8.7	26.6	.002253	.09
	2.1143	.3915	23.6	24.4	.002394	.66
	2.1063	.0000	25.3	.0	.002394	.77
366.30	.9646	1.4838	158.6	- 95.1	.002427	30.53
	.962[illegible]	1.1448	94.1	- 92.4	.002355	10.42
	.9550	.8058	42.8	- 79.2	.002399	2.19
	.9743	.3874	22.4	- 79.7	.002500	.62
	.9801	.0000	6.0	.0	.002500	.04
	1.3017	1.4760	136.5	- 85.0	.002541	23.68
	1.3153	1.1506	104.5	- 84.5	.002450	13.37
	1.3172	.7961	60.0	- 88.1	.002423	4.36
	1.3211	.3874	30.3	- 97.6	.002178	1.00
	1.3269	.0000	10.0	180.0	.002178	.11
	1.7337	1.4818	112.6	- 70.3	.002590	16.42
	1.7240	1.1913	94.1	- 77.7	.002399	10.63
	1.7085	.8019	59.5	- 70.3	.002365	4.18
	1.7220	.3738	28.3	- 81.9	.002360	.94
	1.7220	.0000	10.0	180.0	.002360	.12
	2.0901	1.5051	107.0	- 69.2	.002590	14.82
	2.0862	1.2223	88.8	- 75.7	.002399	9.45
	2.0804	.8349	41.2	- 76.0	.002365	2.01
	2.0939	.3990	7.2	- 33.7	.002360	.06
	2.0978	.0000	12.0	.0	.002360	.17

Table D-XIII. Front Smoke Grid Calculations - 1/2 Inch Entry-way with Exterior Baffle (Continued)

Model 30, Shot 323

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
407.70	.9657	1.4009	137.7	-102.3	.002432	23.05
	.9816	1.0730	116.0	-106.6	.002541	17.08
	.9816	.7611	87.8	- 88.7	.002472	9.52
	.9876	.3716	36.4	-105.5	.002540	1.68
	.9876	.0000	21.4	180.0	.002540	.58
	1.3234	1.4049	124.8	- 89.1	.002433	18.94
	1.3353	1.0909	113.7	- 95.9	.002518	16.27
	1.3413	.7591	87.8	- 91.3	.002390	9.20
	1.3472	.3577	56.8	- 84.1	.002466	3.98
	1.3532	.0000	11.7	.0	.002466	.17
	1.7824	1.4267	120.6	- 76.0	.002597	18.88
	1.7586	1.1267	115.3	- 71.3	.002583	17.17
	1.7566	.7690	85.8	- 68.7	.002455	9.04
	1.7427	.3418	47.8	- 78.2	.002425	2.77
	1.7228	.0000	5.8	.0	.002425	.04
	2.1341	1.4367	126.7	- 67.4	.002597	20.85
	2.1262	1.1644	111.6	- 70.6	.002583	16.09
	2.1202	.7988	95.2	- 67.1	.002455	11.13
	2.1202	.3875	70.9	- 82.1	.002425	6.09
	2.1182	.0000	11.7	.0	.002425	.17
449.10	.9356	1.3501	108.3	-115.1	.002381	13.95
	.9298	1.0344	82.5	-129.1	.002473	8.41
	.9569	.7186	68.9	-115.8	.002626	6.23
	.9646	.3525	31.1	-135.0	.002648	1.28
	.9588	.0000	18.0	180.0	.002648	.43
	1.3036	1.3521	104.9	- 97.7	.002408	13.26
	1.3036	1.0383	79.7	-107.5	.002399	7.62
	1.3153	.7090	61.6	-103.1	.002506	4.76
	1.3269	.3312	24.0	- 90.0	.002524	.73
	1.3385	.0000	16.0	180.0	.002524	.32
	1.7627	1.3656	104.5	- 95.5	.002612	14.25
	1.7608	1.0828	86.2	- 86.0	.002533	9.41
	1.7395	.7225	54.0	- 92.1	.002500	3.65
	1.7317	.3274	17.1	- 69.4	.002757	.40
	1.7278	.0000	30.0	.0	.002757	1.24
	2.1365	1.3889	92.1	- 62.9	.002612	11.08
	2.1230	1.1177	92.2	- 77.5	.002533	10.77
	2.1172	.7477	84.1	- 72.0	.002500	8.84
	2.1036	.3293	64.6	- 68.2	.002757	5.76
	2.1094	.0000	26.0	.0	.002757	.93

Table D-XIII. Front Smoke Grid Calculations - 1/2 Inch Entry-way with Exterior Baffle (Continued)

Model 30, Shot 323

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
490.50	.9200	1.3035	105.9	-102.8	.002486	13.95
	.9300	1.0094	51.8	-109.8	.002462	3.30
	.9518	.6995	33.1	-135.0	.002599	1.42
	.9657	.3497	16.7	-159.4	.002622	.36
	.9697	.0000	3.9	180.0	.002622	.02
	1.3095	1.3015	84.2	-103.4	.002529	8.96
	1.3115	1.0154	49.3	-108.4	.002577	3.13
	1.3274	.6995	25.0	-128.7	.002566	.80
	1.3472	.3338	5.5	-135.0	.002450	.04
	1.3373	.0000	19.5	180.0	.002450	.47
	1.7725	1.3234	76.9	- 98.7	.002427	7.18
	1.7645	1.0412	62.9	-106.2	.002592	5.13
	1.7546	.7154	26.5	-107.1	.002479	.87
	1.7486	.3259	5.5	- 45.0	.002652	.04
	1.7526	.0000	17.5	.0	.002652	.41
	2.1759	1.3552	73.5	- 68.2	.002427	6.55
	2.1461	1.0750	64.8	- 74.3	.002592	5.44
	2.1461	.7193	26.2	- 63.4	.002479	.85
	2.1441	.3279	22.2	15.3	.002652	.66
	2.1441	.0000	23.4	.0	.002652	.73
531.90	.9123	1.2475	50.6	-108.4	.002751	3.52
	.9123	.9860	34.1	-139.8	.002655	1.54
	.9337	.6954	.0	.0	.002678	.00
	.9492	.3467	12.2	- 99.5	.002700	.20
	.9550	.0000	16.0	180.0	.002700	.35
	1.2843	1.2707	53.8	-132.0	.002614	3.78
	1.2881	.9918	44.3	-108.4	.00261[illegible]	2.56
	1.2998	.6896	16.1	-150.3	.002583	.34
	1.3230	.3274	21.3	-131.2	.002418	.55
	1.3191	.0000	24.0	.0	.002418	.70
	1.7511	1.2901	43.9	- 65.8	.002476	2.38
	1.7433	1.0228	43.2	- 76.6	.002624	2.45
	1.7317	.6973	26.3	- 81.3	.002538	.88
	1.7356	.3235	27.9	- 69.0	.002666	1.03
	1.7453	.0000	8.0	.0	.002666	.09
	2.1656	1.3211	64.5	- 97.1	.002476	5.15
	2.1404	1.0557	35.4	- 73.6	.002624	1.65
	2.1288	.7245	8.9	- 63.4	.002538	.10
	2.1249	.3351	4.5	26.6	.002666	.03
	2.1327	.0000	4.0	.0	.002666	.02

Table D-XIII. Front Smoke Grid Calculations - 1/2 Inch Entry-way with Exterior Baffle (Continued)

Model 30, Shot 323

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
573.30	.9041	1.2558	63.5	-162.1	.002621	5.28
	.9041	.9876	42.8	-136.8	.002720	2.49
	.9518	.6995	45.5	-170.1	.002619	2.71
	.9637	.3378	32.3	-155.0	.002638	1.37
	.9538	.0000	READINGS	INVALID		
	1.2737	1.2618	64.8	-158.8	.002313	4.86
	1.2976	.9737	49.8	-149.4	.002668	3.31
	1.3135	.6915	48.9	-158.5	.002419	2.89
	1.3333	.3179	52.5	-164.9	.002593	3.57
	1.3612	.0000	35.1	180.0	.002593	1.60
	1.7904	1.2837	88.7	-146.7	.002634	10.36
	1.7745	.9995	87.3	-156.3	.002767	10.54
	1.7586	.6895	76.6	-165.3	.002530	7.42
	1.7586	.3000	76.4	-174.1	.002787	6.14
	1.7606	.0000	79.9	180.0	.002787	8.90
	2.1679	1.2916	113.3	-153.4	.002634	16.92
	2.1560	1.0412	94.9	-170.5	.002767	12.45
	2.1500	.7114	105.5	-163.9	.002530	14.08
	2.1480	.3299	93.7	-177.6	.002787	12.23
	2.1480	.0000	101.4	180.0	.002787	14.32
614.70	.8523	1.2281	34.0	-151.9	.002727	1.59
	.8814	.9569	23.4	-110.0	.002827	.77
	.8891	.6877	28.0	180.0	.002762	1.08
	.9201	.3332	READINGS	INVALID		
	NO READING		READINGS	INVALID		
	1.2742	1.2475	22.8	-127.9	.002823	.71
	1.2455	.9666	30.0	-126.9	.002924	1.32
	1.2552	.6702	19.0	-108.4	.002826	.51
	1.2726	.3138	8.0	- 89.9	.002726	.09
	1.2843	.0000	10.0	180.0	.002726	.14
	1.6775	1.2416	85.9	-152.2	.002672	10.59
	1.6639	.9879	65.4	-156.6	.002776	5.94
	1.6581	.6780	49.4	-158.6	.002826	3.45
	1.6600	.3157	53.7	-153.4	.002857	4.11
	1.6659	.0000	44.0	180.0	.002857	2.77
	2.0649	1.2707	79.6	-151.5	.002872	9.11
	2.0475	1.0402	69.3	-146.8	.002776	6.67
	2.0281	.6954	66.3	-158.8	.002826	6.24
	2.0320	.3312	63.2	-161.6	.002857	5.71
	2.0320	.0000	68.0	180.0	.002857	6.60

Table D.XIII. Front Smoke Grid Calculations - 1/2 Inch Entry-way with Exterior Baffle (Continued)

Model 30, Shot 323

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
656.10	.8743	1.2399	11.9	99.5	.002548	.18
	.8962	.9657	16.7	110.6	.002821	.39
	.9240	.6995	15.7	- 97.1	READINGS	INVALID
	NO READING					
	NO READING		READINGS	INVALID		
	1.2598	1.2439	6.2	18.4	.002617	.05
	1.2797	.9498	8.0	-104.0	.002993	.10
	1.3075	.6736	6.2	108.4	.002706	.05
	1.3333	.3100	8.0	-104.0	.003036	.10
	1.3512	.0000	11.7	180.0	.003036	.21
	1.7149	1.2439	8.3	125.0	.002667	.09
	1.7149	.9737	8.3	-135.0	.002913	.10
	1.7129	.6716	13.8	81.9	.002617	.25
	1.7109	.2762	17.4	-116.6	.003141	.48
	1.7168	.0000	1.9	180.0	.003141	.01
	2.0984	1.2538	4.4	-116.6	.002667	.03
	2.0984	1.0035	19.6	- 95.7	.002913	.56
	2.0884	.6875	11.4	31.0	.002617	.17
	2.0884	.3100	18.4	- 58.0	.003141	.53
	2.0805	.0000	3.9	.0	.003141	.02
697.50	.8504	1.2397	54.3	-173.7	.002667	3.94
	.8755	.9724	49.4	-158.6	.002728	3.33
	.8872	.6722	64.0	178.2	.002719	5.57
	.9143	.3254	READINGS	INVALID		
	NO READING		READINGS	INVALID		
	1.2300	1.2494	50.6	170.9	.002765	3.54
	1.2436	.9588	62.6	153.4	.003090	6.06
	1.2533	.6760	79.2	169.8	.002675	8.40
	1.2707	.3061	94.3	175.1	.002817	12.54
	1.2726	.0000	110.0	180.0	.002817	17.04
	1.6717	1.2475	43.9	149.9	.002687	2.59
	1.6581	.9821	62.6	153.4	.002925	5.73
	1.6600	.6915	70.9	158.5	.002557	6.43
	1.6523	.3002	75.1	154.8	.002909	8.21
	1.6639	.0000	66.0	180.0	.002909	6.33
	2.0630	1.2668	66.6	147.3	.002687	5.95
	2.0455	1.0208	87.7	152.9	.002925	11.24
	2.0378	.7012	60.0	150.0	.002557	4.61
	2.0416	.3157	49.5	166.0	.002909	3.58
	2.0358	.0000	36.0	180.0	.002909	1.88

Table D-XIII. Front Smoke Grid Calculations - 1/2 Inch Entry-way with Exterior Baffle (Continued)

Model 30, Shot 323

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
738.90	.8207	1.2340	68.3	176.7	.002588	6.05
	.8505	.9478	60.9	172.6	.002926	5.43
	.8604	.7014	62.2	147.8	.002672	5.17
	.8843	.3438	80.5	173.0	.002931	9.50
	.9041	.0000	READINGS	INVALID		
	1.2101	1.2519	84.4	-173.4	.002710	9.65
	1.2240	.9776	72.2	176.9	.002877	7.51
	1.2300	.6875	68.9	171.9	.002578	6.12
	1.2399	.3179	60.7	174.5	.002595	4.78
	1.2419	.0000	50.7	180.0	.002595	3.33
	1.6771	1.2658	28.4	164.1	.002888	1.16
	1.6592	1.0015	43.3	144.2	.002883	2.70
	1.6473	.6975	33.4	173.3	.002466	1.37
	1.6433	.3080	37.2	137.1	.002738	1.90
	1.6513	.0000	29.2	180.0	.002738	1.17
	2.0427	1.2896	29.2	143.1	.002888	1.23
	2.0209	1.0432	25.4	175.6	.002883	.93
	2.0368	.7173	22.7	149.0	.002466	.64
	2.0407	.3219	25.6	171.3	.002738	.90
	2.0447	.0000	15.6	180.0	.002738	.33
748.30	.7826	1.2436	2.8	-135.0	.002865	.01
	.8155	.9801	28.4	140.7	.003000	1.21
	.8349	.7051	17.9	-153.4	.002607	.42
	.8349	.3351	21.5	-158.2	READINGS	INVALID
	NO READING					
	1.1467	1.2397	38.2	-174.0	.002640	1.93
	1.1719	.9627	47.1	-167.7	.002765	3.06
	1.1855	.6857	50.1	-151.4	.002519	3.16
	1.2107	.3119	41.2	-166.0	.002503	2.13
	1.2223	.0000	38.0	180.0	.002503	1.81
	1.6446	1.2552	26.1	-147.5	.002651	.90
	1.6232	1.0073	11.7	-149.0	.002784	.19
	1.6271	.6954	47.7	-147.0	.002551	2.90
	1.6252	.3254	30.1	-176.2	.002723	1.23
	1.6349	.0000	28.0	180.0	.002723	1.07
	2.0397	1.2843	18.4	- 49.4	.002651	.45
	2.0203	1.0228	26.7	- 13.0	.002784	.99
	2.0184	.7128	16.1	-119.7	.002551	.33
	2.0165	.3196	17.9	153.4	.002723	.44
	2.0203	.0000	30.0	180.0	.002723	1.23

Table D-XIII. Front Smoke Grid Calculations - 1/2 Inch Entry-way with Exterior Baffle (Continued)

Model 30, Shot 323

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
821.70	.8187	1.2320	28.1	33.7	.002891	1.14
	.8286	.9657	11.7	.0	.002934	.20
	.8445	.6935	21.1	- 56.3	.002920	.65
	.8644	.3358	39.2	- 5.7	.003137	2.41
	.8743	.0000	READINGS	INVALID		
	1.1724	1.2479	39.5	32.9	.002572	2.00
	1.1783	.9677	21.0	21.8	.002606	.57
	1.1863	.6637	28.4	- 15.9	.002667	1.07
	1.2002	.3080	25.6	- 8.7	.002582	.85
	1.2042	.0000	7.8	.0	.002592	.08
	1.6552	1.2519	23.5	131.6	.002709	.75
	1.6493	.9955	16.8	-125.5	.002555	.36
	1.6076	.6716	13.6	180.0	.002475	.23
	1.6135	.3060	5.8	- 89.9	.002673	.05
	1.6234	.0000	5.8	.0	.002673	.05
	2.0546	1.2757	29.8	-168.7	.002708	1.20
	2.0467	1.0373	7.8	180.0	.002555	.08
	2.0288	.7034	17.4	-116.6	.002475	.38
	2.0248	.3299	19.9	-168.7	.002673	.53
	2.0149	.0000	23.4	180.0	.002673	.73
863.10	.8058	1.2591	60.0	53.1	.002648	4.77
	.8271	.9801	46.2	17.7	.002738	2.92
	.8465	.6877	45.1	- 12.8	.002666	2.71
	.8736	.3312	38.5	- 9.0	.002998	2.22
	.8910	.0000	40.0	.0	.002998	2.40
	1.1797	1.2610	70.5	34.6	.002652	6.58
	1.1913	.9705	65.8	19.5	.002989	6.47
	1.2126	.6780	72.8	15.9	.002720	7.21
	1.2358	.3080	85.9	12.1	.002628	9.70
	1.2300	.0000	80.0	.0	.002628	8.41
	1.6291	1.2726	37.7	58.0	.002555	1.82
	1.6136	.9937	21.6	33.7	.002749	.64
	1.6136	.6954	52.5	17.7	.002615	3.60
	1.6252	.3196	54.9	10.5	.002949	4.45
	1.6407	.0000	52.0	.0	.002949	3.99
	2.0107	1.2785	7.2	123.7	.002555	.07
	2.0126	1.0228	6.0	180.0	.002749	.05
	2.0107	.6973	28.4	- 39.3	.002615	1.06
	1.9971	.3157	34.5	- 10.0	.002949	1.76
	1.9971	.0000	48.0	.0	.002949	3.40

Table D-XIII. Front Smoke Grid Calculations - 1/2 Inch Entry-way with Exterior Baffle (Continued)

Model 30, Shot 323

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
[illegible]	.8544	1.2797	86.9	42.3	.002499	9.45
	.8723	.9796	66.2	42.6	.002635	5.78
	.8882	.6836	59.3	46.3	.002639	4.64
	.9021	.3299	49.9	38.7	.002727	3.40
	.9141	.0000	27.3	.0	.002727	1.02
	1.2300	1.2876	80.7	52.9	.002627	8.56
	1.2399	.9896	71.7	47.2	.002808	7.27
	1.2558	.6836	43.2	18.4	.002806	2.61
	1.2837	.3259	48.9	28.6	.002654	3.17
	1.2837	.0000	54.6	.0	.002654	3.95
	1.6751	1.2837	56.7	26.6	.002734	4.39
	1.6672	1.0075	77.3	33.7	.002649	7.92
	1.6572	.6875	57.7	11.7	.002646	4.41
	1.6672	.3159	45.5	- 9.9	.002737	2.83
	1.6751	.0000	33.1	.0	.002737	1.50
	2.0507	1.2817	53.6	19.1	.002734	3.93
	2.0407	1.0373	58.5	36.9	.002649	4.53
	2.0507	.6855	58.0	19.7	.002646	4.45
	2.0546	.3239	58.6	15.4	.002737	4.71
	2.0626	.0000	66.3	.0	.002737	6.01
345.90	.8697	1.3172	45.6	74.7	.002588	2.69
	.8755	1.0247	51.1	59.4	.002561	3.34
	[illegible]	.7303	60.0	60.0	.002654	4.78
	.9123	.3622	54.4	36.0	.002647	3.92
	.9182	.0000	6.0	.0	.002647	.05
	1.2281	1.3249	25.3	71.6	.002627	.84
	1.2397	1.0228	45.6	61.2	.002581	2.69
	1.2533	.6915	38.2	47.1	.002632	1.92
	1.2785	.3312	36.5	27.9	.002630	1.95
	1.2843	.0000	36.0	.0	.002630	1.70
	1.6794	1.2978	12.2	80.5	.002793	.21
	1.6775	1.0363	26.9	42.0	.002622	.95
	1.6697	.7070	47.5	22.2	.002507	2.83
	1.6697	.3119	28.3	8.1	.002743	1.10
	1.6736	.0000	26.0	.0	.002743	.93
	2.0610	1.2959	19.0	18.4	.002793	.50
	2.0591	1.0576	37.4	15.5	.002622	1.83
	2.0649	.7167	50.5	33.7	.002507	3.19
	2.0533	.3312	40.2	- 5.7	.002743	2.22
	2.0630	.0000	34.0	.0	.002743	1.59

Table D-XIII. Front Smoke Grid Calculations - 1/2 Inch Entry-way with Exterior Baffle (Continued)

Model 30, Shot 323

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
987.30	.8664	1.3234	51.5	119.5	.002600	3.45
	.8982	1.0233	16.8	35.5	.002653	.37
	.9180	.7352	41.4	- 8.1	.002593	2.22
	.9459	.3616	37.0	- 18.4	.002468	1.69
	.9200	.0000	39.0	.0	.002468	1.88
	1.2380	1.3115	3.9	180.0	.002760	.02
	1.2618	1.0293	22.2	52.1	.002706	.67
	1.2817	.7114	29.0	19.7	.002680	1.13
	1.3174	.3438	30.3	14.9	.002621	1.20
	1.3194	.0000	46.8	.0	.002621	2.87
	1.6771	1.2956	20.8	-148.4	.002669	1.18
	1.6870	1.0253	20.1	-119.1	.002669	.54
	1.7009	.7054	11.4	- 31.0	.002460	.16
	1.6950	.3199	32.7	17.4	.002669	1.43
	1.7009	.0000	39.0	.0	.002669	2.03
	2.0686	1.2876	57.9	-122.6	.002669	4.47
	2.0765	1.0472	47.1	-114.4	.002669	2.96
	2.0924	.7134	11.4	- 59.0	.002460	.16
	2.0984	.3199	37.2	- 6.0	.002669	1.85
	2.0964	.0000	29.2	.0	.002669	1.14
1028.70	.8446	1.3617	21.5	-111.8	.002455	.57
	.8891	1.0344	21.6	-146.3	.002516	.59
	.9278	.7245	26.3	- 98.7	.002688	.93
	.9472	.3506	21.3	-131.2	.002655	.60
	.9569	.0000	.0	.0	.002655	.00
	1.2242	1.3249	36.5	-170.5	.002860	1.90
	1.2533	1.0402	49.7	-139.9	.002731	3.37
	1.2804	.7012	39.6	-135.0	.002736	2.14
	1.3075	.3390	31.3	-116.6	.002582	1.27
	1.3308	.0000	6.0	.0	.002582	.05
	1.6542	1.2823	55.7	-159.0	.002880	4.47
	1.6678	1.0189	49.2	-153.4	.002858	3.46
	1.6794	.7012	59.1	-118.3	.002568	4.48
	1.7007	.3215	30.6	-101.3	.002734	1.28
	1.7123	.0000	10.0	180.0	.002734	.14
	2.0300	1.2475	76.6	-130.8	.002880	8.44
	2.0397	1.0150	78.2	-122.5	.002858	8.74
	2.0707	.7070	66.6	-122.7	.002568	5.69
	2.0901	.3274	45.3	-135.0	.002734	2.80
	2.0920	.0000	38.0	180.0	.002734	1.97

Table D-XIII. Front Smoke Grid Calculations - 1/2 Inch Entry-way with Exterior Baffle (Continued)

Model 30, Shot 323

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	G LB/SQFT
1070.10	.8584	1.3035	93.0	-123.0	.002699	11.67
	.8803	1.0114	74.4	-135.0	.002789	7.73
	.9141	.7094	85.6	-149.9	.002722	9.97
	.9319	.3458	70.0	-167.1	.002614	6.40
	.9200	.0000	74.1	180.0	.002614	7.17
	1.2022	1.3055	89.9	-139.4	.002697	10.89
	1.2240	.9975	111.7	-132.9	.002624	16.38
	1.2538	.6836	90.7	-154.5	.002746	11.29
	1.3035	.3159	94.5	-158.2	.002904	12.96
	1.3254	.0000	113.1	180.0	.002904	18.56
	1.6254	1.2757	83.9	-149.3	.002621	9.23
	1.6433	1.0035	82.3	-148.6	.002619	8.86
	1.6731	.6538	85.5	-155.8	.002729	9.98
	1.6890	.2901	93.6	-178.8	.003166	13.87
	1.6910	.0000	105.3	180.0	.003166	17.55
	2.0189	1.2300	66.7	-142.1	.002621	5.83
	2.0348	.9816	70.6	-152.0	.002619	6.53
	2.0566	.6577	73.7	-142.5	.002729	7.41
	2.0666	.2881	77.6	-154.7	.003166	9.54
	2.0586	.0000	68.2	180.0	.003166	7.37
1111.50	.7942	1.2843	123.5	-150.9	.002608	19.90
	.9368	.9821	107.6	-144.8	.002865	16.60
	.8542	.6818	109.2	-156.3	.002922	17.44
	.8794	.3351	83.0	-164.6	.003109	10.70
	.8833	.0000	60.0	180.0	.003109	5.59
	1.1564	1.2668	96.5	-140.0	.002723	12.69
	1.1777	.9588	102.2	-139.8	.002915	15.21
	1.1990	.6625	91.8	-159.6	.002879	12.12
	1.2203	.3041	102.0	-168.7	.002725	14.17
	1.2184	.0000	116.0	180.0	.002725	18.33
	1.5826	1.2397	93.3	-149.0	.002819	12.27
	1.5981	.9763	107.4	-155.8	.002743	15.82
	1.6019	.6663	102.0	180.0	.002590	13.47
	1.6077	.3196	81.2	170.1	.002680	8.84
	1.6077	.0000	READINGS	INVALID		
	1.9777	1.2068	90.0	-143.1	.002819	11.42
	1.9777	.9821	70.9	-163.6	.002743	6.89
	2.0126	.6625	76.2	-175.5	.002590	7.53
	2.0203	.2944	76.9	171.0	.002680	7.93
	2.0242	.0000	68.0	180.0	.002680	6.20

Table D-XIII. Front Smoke Grid Calculations - 1/2 Inch Entry-way with Exterior Baffle (Continued)

Model 30, Shot 323

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
1152.90	.7511	1.2439	105.7	-157.2	.002515	14.06
	.7928	.9498	102.9	-170.2	.002934	15.53
	.8147	.6657	88.0	-167.2	.002876	11.13
	.8525	.3239	80.8	-171.7	.003091	10.09
	.8604	.0000	78.0	180.0	.003091	9.40
	1.1287	1.2439	103.8	-154.4	.002776	14.95
	1.1465	.9319	105.3	180.0	.003086	17.10
	1.1684	.6518	93.7	-163.1	.002811	12.35
	1.2042	.2961	81.9	-178.6	READINGS	INVALID
	1.2101	.0000	62.4	180.0	READINGS	INVALID
	1.5460	1.2280	106.1	-162.9	.002688	15.17
	1.5460	.9598	105.9	-167.2	.002667	14.97
	1.5718	.6538	104.5	-166.0	.002747	15.00
	1.6095	.3040	95.6	-163.4	READINGS	INVALID
	NO READING					
	1.9473	1.1764	114.0	-167.2	.002688	17.46
	1.9672	.9617	99.9	-163.0	.002667	13.31
	1.9811	.6518	121.2	-168.9	.002747	20.18
	1.9911	.3000	112.2	-172.0	READINGS	INVALID
	1.9911	.0000	91.6	180.0	READINGS	INVALID
1194.30	.6973	1.2436	46.4	- 82.6	.002926	3.15
	.7361	.9646	64.5	150.3	.002767	5.75
	.7690	.6625	33.3	147.3	.003096	1.72
	.8000	.3235	39.3	165.3	.003117	2.41
	.8058	.0000	44.0	180.0	.003117	3.02
	1.0634	1.2223	80.1	-177.1	.003019	9.68
	1.0731	.9588	72.0	180.0	.002818	7.30
	1.1099	.6354	81.0	164.2	.003063	10.06
	1.1390	.3022	90.5	173.7	.002963	12.15
	1.1564	.0000	READINGS	INVALID		
	1.4818	1.2087	88.4	-174.8	.002852	11.13
	1.4954	.9530	82.6	-173.0	.002795	9.53
	1.5012	.6412	86.0	-178.7	.002734	10.12
	1.5167	.2925	130.1	177.4	.002995	25.36
	1.5283	.0000	READINGS	INVALID		
	1.8673	1.1816	104.0	178.9	.002852	15.43
	1.8828	.9530	116.6	-174.1	.002795	19.00
	1.8944	.6392	118.0	180.0	.002734	19.03
	1.9099	.2789	118.0	180.0	.002995	20.85
	1.9332	.0000	106.0	180.0	.002995	16.82

Table D-XIII. Front Smoke Grid Calculations - 1/2 Inch Entry-way with Exterior Baffle (Continued)

Model 30, Shot 323

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
1235.70	.7571	1.1982	23.6	114.4	.003366	.93
	.7372	.9816	15.7	119.7	.003305	.41
	.7869	.6836	36.8	122.0	.003259	2.20
	.8147	.3338	29.3	176.2	READINGS	INVALID
	.8167	.0000	15.6	180.0	READINGS	INVALID
	1.0492	1.2399	45.7	129.8	.002850	2.97
	1.0750	.9319	18.5	161.6	.003337	.57
	1.0909	.6736	48.3	133.4	.002976	3.47
	1.1148	.3060	41.0	154.7	READINGS	INVALID
	NO READING					
	1.4585	1.2201	68.2	149.0	.002767	6.44
	1.4645	.9498	54.4	165.5	.002993	4.42
	1.4863	.6518	66.6	159.4	.002849	6.32
	1.4804	.3100	73.5	158.2	READINGS	INVALID
	NO READING					
	1.8440	1.1783	81.8	167.6	.002767	9.26
	1.8520	.9498	88.9	164.7	.002993	11.83
	1.8639	.6518	82.7	171.9	.002849	9.75
	1.8738	.3000	READINGS	INVALID		
	1.8857	.0000	READINGS	INVALID		
1277.10	.6877	1.2649	120.0	126.9	.002858	20.58
	.7283	.9782	12.2	- 99.5	.003091	.23
	.7496	.6935	41.2	166.0	.002979	2.53
	.7709	.3254	80.0	178.6	.003219	10.31
	.7903	.0000	READINGS	INVALID		
	1.0344	1.2571	10.8	111.8	.002978	.17
	1.0557	.9646	52.0	112.6	.003257	4.40
	1.0770	.6702	22.8	-164.7	.003258	.85
	1.1022	.3196	22.8	142.1	.002978	.77
	1.1061	.0000	READINGS	INVALID		
	1.4237	1.2436	44.4	144.2	.002974	2.93
	1.4431	.9666	36.8	135.0	.002986	2.02
	1.4392	.6644	44.2	174.8	READINGS	INVALID
	1.4489	.3196	32.3	-158.2	READINGS	INVALID
	1.4528	.0000	READINGS	INVALID		
	1.7879	1.1990	57.3	155.2	.002974	4.88
	1.7976	.9763	53.7	135.0	.002986	4.31
	1.8131	.6508	30.1	176.2	READINGS	INVALID
	NO READING					
	NO READING					

Table D-XIII. Front Smoke Grid Calculations - 1/2 Inch Entry-way with Exterior Baffle (Continued)

Model 30, Shot 323

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
1318.50	.6855	1.2936	54.3	111.0	.002768	4.08
	.7352	.9697	25.0	141.3	.003096	.96
	.7471	.6935	27.7	140.7	.002920	1.12
	.7352	.3358	7.0	123.7	READINGS	INVALID
	NO READING					
	1.0452	1.2499	22.1	135.0	.003201	.78
	1.0551	.9796	25.4	147.5	.003047	.98
	1.0691	.6677	26.0	-167.0	.003137	1.06
	1.0969	.3199	27.2	-159.0	READINGS	INVALID
	NO READING					
	1.4228	1.2459	34.7	141.3	.002958	1.78
	1.4386	.9757	35.1	160.6	.002721	1.68
	1.4426	.6557	20.1	-119.1	.002752	.55
	1.4506	.2981	33.2	-139.8	.002784	1.53
	1.4605	.0000	15.6	180.0	.002784	.34
	1.7923	1.2022	34.0	156.4	.002958	1.71
	1.8142	.9876	9.9	-101.3	.002721	.13
	1.8341	.6538	1.9	.0	.002752	.01
	1.8500	.3120	READINGS	INVALID		
	1.8639	.0000	READINGS	INVALID		
1359.90	.6683	1.3153	66.2	25.0	.002692	5.90
	.7090	.9937	42.2	58.6	.003033	2.70
	.7283	.7109	45.1	12.8	.003052	3.11
	.7671	.3312	76.7	- 7.5	.003312	9.73
	.7748	.0000	READINGS	INVALID		
	1.0189	1.2726	26.1	4.4	.003007	1.02
	1.0344	.9782	18.0	.0	.003001	.49
	1.0518	.6644	39.4	24.0	.003156	2.45
	1.0770	.3099	20.1	5.7	.003168	.64
	1.0983	.0000	READINGS	INVALID		
	1.3966	1.2649	13.4	26.6	.002704	.24
	1.4102	.9782	26.1	- 4.4	.002738	.93
	1.4295	.6470	34.2	1.6	.002732	1.60
	1.4237	.2983	36.1	- 3.2	.002707	1.76
	1.4373	.0000	44.0	.0	.002707	2.62
	1.7569	1.2126	6.3	161.6	.002704	.05
	1.7956	.9666	41.6	- 54.8	.002738	2.37
	1.8150	.6508	62.8	9.2	.002732	5.39
	1.8441	.3080	86.4	- 5.3	.002707	10.10
	1.8479	.0000	92.0	.0	.002707	11.45

Table D-XIII. Front Smoke Grid Calculations - 1/2 Inch Entry-way with Exterior Baffle (Continued)

Model 30, Shot 323

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
1401.30	.7452	1.3214	94.1	34.0	.002956	13.08
	.7571	1.0055	73.1	43.0	.003123	8.34
	.7909	.7034	57.1	7.9	.003073	5.00
	.8107	.3259	48.2	14.0	.003231	3.76
	.8107	.0000	37.0	.0	.003231	2.22
	1.0710	1.2519	72.4	66.2	.003168	8.31
	1.0730	.9796	54.2	30.3	.003185	4.67
	1.1048	.6836	56.7	26.6	.002968	4.77
	1.1167	.3219	48.9	23.5	.002945	3.52
	1.1465	.0000	60.4	.0	.002945	5.38
	1.4347	1.2519	46.5	57.0	.002819	3.05
	1.4645	.9737	44.5	37.9	.002890	2.86
	1.4744	.6677	42.9	39.5	.002393	2.21
	1.4863	.2961	64.4	1.7	.002524	5.23
	1.5042	.0000	54.6	.0	.002524	3.76
	1.7864	1.2042	23.6	- 24.4	.002819	.78
	1.8381	.9538	11.0	45.0	.002890	.18
	1.8957	.6637	33.1	28.1	.002393	1.31
	1.9354	.3040	35.9	- 49.4	.002524	1.63
	1.9553	.0000	21.4	.0	.002524	.58
1442.70	.7458	1.3676	67.2	67.2	.002746	6.20
	.7613	1.0441	43.9	46.8	.002878	2.77
	.7845	.7186	19.0	71.6	.003067	.55
	.8136	.3429	46.6	59.0	.003055	3.32
	.8116	.0000	READINGS	INVALID		
	1.0479	1.3385	88.2	86.1	.002836	11.03
	1.0809	1.0053	40.5	57.1	.003112	2.55
	1.1022	.6896	27.2	36.0	.003022	1.12
	1.1215	.3293	22.8	37.9	.003007	.78
	1.1584	.0000	4.0	180.0	.003007	.02
	1.4218	1.3036	72.1	86.8	.002877	7.48
	1.4450	1.0053	34.2	83.3	.002899	1.70
	1.4625	.6741	22.4	63.4	.002641	.66
	1.4877	.3002	10.0	36.9	.003101	.16
	1.4915	.0000	6.0	180.0	.003101	.06
	1.7782	1.2029	36.9	77.5	.002877	1.96
	1.8034	.9743	33.3	122.7	.002899	1.61
	1.8441	.6663	23.4	-160.0	.002641	.72
	1.8673	.2809	52.3	173.4	.003101	4.25
	1.8692	.0000	68.0	180.0	.003101	7.17

Table D-XIII. Front Smoke Grid Calculations - 1/2 Inch Entry-way with Exterior Baffle (Continued)

Model 30, Shot 323

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
1484.10	.7710	1.3830	60.2	65.1	.002712	4.91
	.7869	1.0373	12.5	128.7	.002919	.21
	.7968	.7213	38.4	114.0	.003119	.30
	.8346	.3656	29.8	148.4	READINGS	INVALID
	NO READING					
	1.0770	1.3393	39.5	110.2	.002795	2.18
	1.0949	1.0134	37.7	111.3	.003148	2.23
	1.1267	.6995	35.3	96.3	.002993	1.87
	1.1346	.3358	13.8	135.0	.002895	.28
	1.1426	.0000	READINGS	INVALID		
	1.4386	1.3234	55.5	108.4	.002662	4.10
	1.4685	1.0075	44.1	135.0	.002875	2.80
	1.4844	.6875	34.5	132.7	.002676	1.59
	1.4943	.3020	34.0	156.4	.002861	1.66
	1.4983	.0000	23.4	180.0	.002861	.78
	1.7943	1.2399	86.3	115.4	.002662	9.92
	1.8202	.9816	49.8	120.6	.002875	3.57
	1.8738	.6557	16.5	135.0	.002676	.37
	1.8838	.3100	8.0	76.0	.002861	.09
	1.8877	.0000	READINGS	INVALID		
1525.50	.7709	1.4218	56.9	100.1	.002746	4.44
	.7535	1.0538	29.5	151.7	.002962	1.29
	.7690	.7535	16.1	172.9	.002768	.36
	.7884	.3584	47.5	-157.8	READINGS	INVALID
	.7961	.0000	READINGS	INVALID		
	1.0344	1.3753	50.2	113.5	.002811	3.54
	1.0673	1.0402	59.4	122.6	.003257	5.74
	1.0983	.7245	28.6	167.9	.003046	1.25
	1.1119	.3390	41.6	-144.8	READINGS	INVALID
	NO READING					
	1.4044	1.3559	50.9	135.0	.002634	3.41
	1.4140	1.0363	56.8	140.7	.002682	4.33
	1.4392	.6993	44.3	161.6	.002450	2.40
	1.4567	.3138	27.8	149.7	READINGS	INVALID
	1.4683	.0000	14.0	180.0	READINGS	INVALID
	1.7414	1.2804	59.7	140.4	.002634	4.69
	1.7782	1.0169	53.7	135.0	.002682	3.87
	1.8324	.6780	84.1	154.7	.002450	8.66
	1.8692	.2886	86.1	-177.3	READINGS	INVALID
	NO READING					

Table D-XIV. Rear Smoke Grid Calculations - 1/2 Inch Entryway with Exterior Baffle

Model 30, Shot 324

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
312.80	2.4732	1.5109	17.8	- 40.6	.002407	.38
	2.4751	1.2008	9.7	- 53.1	.002283	.11
	2.4791	.8052	18.2	- 58.0	.002450	.41
	2.4851	.3996	8.2	135.0	.002252	.08
	2.4851	.0000	9.7	.0	.002252	.11
	2.8549	1.5089	8.2	45.0	.002088	.07
	2.8549	1.2207	6.1	108.4	.002280	.04
	2.8549	.8708	19.3	.0	.002310	.43
	2.8509	.4553	22.0	52.1	.002337	.57
	2.8648	.0000	11.6	.0	.002337	.16
	3.2247	1.4911	16.5	110.6	.002643	.36
	3.2286	1.2306	8.0	14.0	.002470	.08
	3.2306	.9245	15.6	119.7	.002633	.32
	3.2306	.4911	13.5	- 90.0	.002311	.21
	3.2326	.0000	19.3	.0	.002311	.43
	3.5348	1.4990	12.2	18.4	.002643	.20
	3.5567	1.2704	4.3	-153.4	.002470	.02
	3.5805	.9483	2.7	-135.0	.002633	.01
	3.6044	.4235	33.0	- 69.4	.002311	1.26
	3.6024	.0000	1.9	180.0	.002311	.00
354.50	2.4565	1.5087	54.5	- 33.1	.002337	3.48
	2.4681	1.1934	32.1	- 21.8	.002407	1.24
	2.4584	.8259	18.8	18.4	.002393	.42
	2.4584	.4120	14.5	74.1	.002196	.23
	2.4642	.0000	2.0	180.0	.002196	.00
	2.8453	1.5203	40.0	- 26.6	.002007	1.60
	2.8395	1.2186	32.3	10.6	.002277	1.19
	2.8298	.8646	6.0	- 89.9	.002260	.04
	2.8395	.4507	8.9	153.4	.002354	.09
	2.8414	.0000	23.8	180.0	.002354	.67
	3.1954	1.5203	34.0	96.7	.002282	1.32
	3.2108	1.2340	36.6	102.5	.002511	1.68
	3.2166	.9381	11.2	45.0	.002321	.15
	3.2147	.4932	29.5	137.7	.002439	1.06
	3.2108	.0000	7.9	180.0	.002439	.08
	3.5435	1.5222	32.0	82.9	.002282	1.17
	3.5435	1.2766	21.5	123.7	.002511	.58
	3.5706	.9632	32.0	97.1	.002321	1.19
	3.5996	.3404	18.3	139.4	.002439	.41
	3.5977	.0000	2.0	180.0	.002439	.00

Table D-XIV. Rear Smoke Grid Calculations - 1/2 Inch Entryway With Exterior Baffle

Model 30, Shot 324

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
396.20	2.5189	1.4811	108.2	- 48.6	.002620	15.33
	2.5050	1.1889	74.6	- 58.8	.002368	6.59
	2.4970	.8111	60.5	- 63.4	.002620	4.79
	2.4891	.4135	32.9	- 61.9	.002315	1.25
	2.4831	.0000	15.5	.0	.002315	.28
	2.8907	1.4911	104.0	- 54.8	.002455	13.28
	2.8867	1.2266	70.0	- 50.6	.002252	5.52
	2.8549	.8648	49.5	- 69.4	.002408	2.96
	2.8429	.4592	13.5	90.0	.002273	.21
	2.8410	.0000	7.7	180.0	.002273	.07
	3.2207	1.5249	95.7	- 45.0	.002573	11.77
	3.2207	1.2664	41.4	- 52.6	.002464	2.11
	3.2386	.9324	49.7	- 76.5	.002620	3.23
	3.2087	.5109	18.2	-148.0	.002198	.37
	3.2247	.0000	9.7	180.0	.002198	.10
	3.5388	1.5308	60.7	- 52.8	.002573	4.74
	3.5447	1.2883	26.3	- 36.0	.002464	.85
	3.5765	.9801	59.5	- 76.9	.002620	4.64
	3.5905	.4354	37.3	111.3	.002198	1.53
	3.6004	.0000	5.8	180.0	.002198	.04
437.90	2.5280	1.4275	116.4	- 64.7	.002567	17.39
	2.5068	1.1296	121.0	- 66.8	.002496	18.28
	2.4855	.7718	84.2	- 70.7	.002775	9.83
	2.4739	.3830	63.5	- 69.9	.002357	4.75
	2.4797	.0000	29.8	.0	.002357	1.05
	2.9052	1.4352	113.0	- 55.8	.002314	14.76
	2.8839	1.1644	121.0	- 66.8	.002350	17.21
	2.8472	.8182	98.6	- 62.4	.002645	12.87
	2.8395	.4642	86.5	- 80.8	.002400	8.99
	2.8337	.0000	13.9	.0	.002400	.23
	3.2631	1.4526	128.4	- 50.6	.002794	23.04
	3.2360	1.2012	117.3	- 63.9	.002307	15.86
	3.2282	.8897	84.9	- 69.4	.002613	9.41
	3.1992	.4836	74.4	- 55.9	.002356	6.52
	3.2012	.0000	21.9	.0	.002356	.56
	3.5803	1.4739	138.3	- 54.9	.002794	26.73
	3.5648	1.2611	117.9	- 57.4	.002307	16.04
	3.5841	.9052	67.8	- 58.7	.002613	6.01
	3.5861	.3752	60.8	- 78.7	.002356	4.35
	3.5919	.0000	6.0	.0	.002356	.04

Table D-XIV. Rear Smoke Grid Calculations - 1/2 Inch Entryway With Exterior Baffle (Continued)

Model 30, Shot 324

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
479.60	2.5686	1.3757	113.1	- 70.0	.002473	15.82
	2.5527	1.0775	93.4	- 62.9	.002509	10.93
	2.5249	.7316	71.3	- 57.2	.002665	6.77
	2.5109	.3539	70.8	- 35.0	.002871	7.19
	2.5129	.0000	46.4	.0	.002871	3.09
	2.9543	1.3976	83.0	- 77.9	.002293	7.90
	2.9344	1.1153	85.0	- 72.8	.002484	8.97
	2.9006	.7773	90.9	- 51.9	.002447	10.10
	2.8569	.3738	101.4	- 59.0	.002561	13.17
	2.8549	.0000	63.8	.0	.002561	5.21
	3.3022	1.4254	78.3	-105.8	.002582	7.92
	3.2724	1.1610	92.4	- 74.2	.002704	11.54
	3.2684	.8529	88.7	- 69.6	.002757	10.84
	3.2505	.4493	78.7	- 27.8	.002676	8.28
	3.2465	.0000	63.8	.0	.002676	5.44
	3.6183	1.4175	93.0	- 93.6	.002582	11.15
	3.6083	1.1889	108.5	- 85.9	.002704	15.92
	3.6123	.9225	63.0	- 72.1	.002757	5.46
	3.6024	.3757	READINGS	INVALID		
	3.6064	.0000	34.8	.0	.002676	1.62
521.30	2.5667	1.3211	59.6	- 88.1	.002825	5.02
	2.5493	1.0464	51.7	- 87.8	.002606	3.48
	2.5242	.7118	40.8	- 43.0	.002735	2.27
	2.5319	.3424	41.5	- 16.7	.002731	2.35
	2.5261	.0000	27.8	.0	.002731	1.06
	2.9226	1.3540	99.8	-102.7	.002366	11.77
	2.9091	1.0832	71.3	-102.9	.002471	6.28
	2.9033	.7466	43.4	- 74.1	.002772	2.61
	2.8917	.3772	47.8	- 16.9	.002696	3.07
	2.8975	.0000	81.4	.0	.002696	8.94
	3.2418	1.3772	118.6	- 98.7	.002600	18.28
	3.2611	1.1122	89.6	- 93.8	.002612	10.48
	3.2592	.8066	54.0	- 83.7	READINGS	INVALID
	3.2689	.4468	39.1	- 66.0	READINGS	INVALID
	3.2650	.0000	21.9	.0	READINGS	INVALID
	3.5745	1.3810	91.1	-110.4	.002600	10.80
	3.5725	1.1528	91.7	- 95.0	.002612	10.99
	3.6035	.8453	98.3	- 81.9	READINGS	INVALID
	NO READING					
	3.6267	.0000	6.0	.0	READINGS	INVALID

Table D-XIV. Rear Smoke Grid Calculations - 1/2 Inch Entryway with Exterior Baffle (Continued)

Model 30, Shot 324

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
563.00	2.5706	1.3161	71.0	-150.6	.002775	6.99
	2.5547	1.0258	51.9	-135.0	.002822	3.81
	2.5547	.7038	43.2	-116.6	.002855	2.67
	2.5507	.3419	22.5	-149.0	.002737	.70
	2.5408	.0000	3.9	180.0	.002737	.02
	2.9324	1.3002	59.9	-110.8	.002486	4.47
	2.9185	1.0457	75.8	-109.4	.002711	7.79
	2.9125	.7356	62.9	-135.0	.002690	5.37
	2.9026	.3598	55.3	-155.2	.003063	4.69
	2.9364	.0000	56.0	180.0	.003063	4.81
	3.2843	1.3082	77.3	- 91.4	.002765	8.27
	3.2664	1.0716	62.2	-115.8	.002814	5.45
	3.2744	.7992	51.1	-119.5	.002865	3.74
	3.2664	.4135	54.9	-140.7	.003010	4.54
	3.2684	.0000	36.[illegible]	180.0	.003010	2.03
	3.5865	1.3320	73.2	-102.2	.002765	7.40
	3.6004	1.0974	71.7	- 85.4	.002814	7.24
	3.6262	.8250	19.1	-135.0	.002865	.52
	3.6302	.3221	READINGS	INVALID		
	3.6123	.0000	21.3	180.0	.003010	.68
604.70	2.5048	1.2863	81.7	-131.1	.002538	8.46
	2.5126	1.0097	65.1	-148.7	.002752	5.83
	2.5048	.6731	62.3	-157.5	.003169	6.16
	2.5126	.3308	82.3	-171.7	.003237	10.97
	2.5222	.0000	79.5	180.0	.003237	10.22
	2.9014	1.2979	44.4	-169.7	.002340	2.31
	2.8839	1.0116	54.7	-160.9	.002577	3.85
	2.8588	.7021	76.4	-155.4	.002806	8.20
	2.8414	.3540	71.6	-176.8	.002798	7.18
	2.8414	.0000	109.3	180.0	.002798	16.70
	3.2398	1.2998	38.0	-174.0	.002641	1.90
	3.2340	1.0561	41.0	-166.0	.002767	2.32
	3.2340	.7621	51.1	-166.5	.002996	3.91
	3.2263	.4120	65.1	-167.7	.002713	5.74
	3.2282	.0000	59.6	180.0	.002713	4.82
	3.5590	1.3095	45.3	-142.1	.002641	2.71
	3.5783	1.0812	43.9	-174.8	.002767	2.66
	3.5899	.8317	59.5	-154.3	.002996	5.31
	3.6054	.3540	45.7	177.5	.002713	2.84
	3.6054	.0000	21.9	180.0	.002713	.65

Table D-XIV. Rear Smoke Grid Calculations - 1/2 Inch Entryway With Exterior Baffle. (Continued)

Model 30, Shot 324

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
646.40	2.5169	1.2545	54.1	-178.0	.002836	4.16
	2.4990	.9920	66.4	-171.6	.002844	6.27
	2.4970	.6799	77.2	157.9	.003034	9.03
	2.4692	.3300	84.2	170.8	.002881	10.21
	2.4612	.0000	87.0	180.0	.002881	10.90
	2.8887	1.2922	41.3	169.2	.002353	2.01
	2.8668	1.0278	52.6	144.0	.002545	3.52
	2.8429	.7038	55.3	155.2	.002693	4.12
	2.8310	.3559	49.7	166.5	.002906	3.59
	2.8270	.0000	36.7	180.0	.002906	1.96
	3.2465	1.3042	43.2	153.4	.002885	2.69
	3.2266	1.0616	27.9	146.3	.002736	1.06
	3.2247	.7873	46.5	138.4	.002893	3.13
	3.2028	.3996	31.0	-176.4	.002849	1.37
	3.2087	.0000	25.1	180.0	.002849	.90
	3.5507	1.3042	27.1	-175.9	.002885	1.06
	3.5567	1.0934	29.4	156.8	.002736	1.19
	3.5726	.7992	51.4	-160.2	.002893	3.81
	3.5845	.3241	36.7	+161.6	.002849	1.92
	3.5905	.0000	25.1	180.0	.002849	.90
688.10	2.4507	1.2843	54.9	139.4	.002498	3.77
	2.4468	1.0000	32.3	137.5	.002735	1.43
	2.4333	.7021	51.8	147.5	.002819	3.78
	2.4294	.3443	22.2	-169.7	.002759	.68
	2.4352	.0000	23.8	180.0	.002759	.78
	2.8607	1.3056	39.2	149.5	.002352	1.81
	2.8414	1.0426	28.1	171.9	.002500	.99
	2.8085	.7253	23.9	131.6	.002523	.72
	2.7930	.3656	25.1	161.6	.002660	.84
	2.8046	.0000	13.9	180.0	.002660	.26
	3.2012	1.3191	26.7	138.0	.002667	.95
	3.2108	1.0716	8.9	153.4	.002784	.11
	3.1992	.7930	23.9	-138.4	.002978	.85
	3.1954	.4101	12.7	38.7	.002781	.22
	3.2031	.0000	4.0	180.0	.002781	.02
	3.5319	1.3075	24.6	76.0	.002667	.80
	3.5513	1.0928	12.6	71.6	.002784	.22
	3.5416	.8143	27.9	85.9	.002978	1.16
	3.5706	.3424	13.3	- 26.6	.002781	.25
	3.5803	.0000	.0	.0	.002781	.00

Table D-XIV. Rear Smoke Grid Calculations - 1/2 Inch Entryway With Exterior Baffle (Continued)

Model 30, Shot 324

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
729.80	2.4751	1.2903	25.8	167.0	.002654	.88
	2.4751	1.0139	39.8	150.9	.002838	2.25
	2.4533	.7078	42.4	-155.8	.002757	2.48
	2.4473	.3260	26.9	-159.0	.002833	1.03
	2.4374	.0000	21.3	180.0	.002833	.64
	2.8549	1.3121	27.7	167.9	.002117	.81
	2.8390	1.0318	36.7	180.0	.002454	1.65
	2.8270	.7217	26.3	162.9	.002619	.90
	2.8072	.3638	16.5	-110.6	.002691	.37
	2.8131	.0000	19.3	180.0	.002691	.50
	3.2266	1.3221	8.0	166.0	.002574	.08
	3.2187	1.0656	19.4	174.3	.002598	.43
	3.2068	.7714	22.5	-121.0	.002784	.71
	3.2127	.4076	9.7	-126.9	.002808	.13
	3.2048	.0000	11.6	180.0	.002808	.19
	3.5567	1.3280	27.1	85.9	.002574	.95
	3.5606	1.1054	19.3	90.0	.002598	.49
	3.5746	.8270	25.2	57.5	.002784	.88
	3.5964	.3181	6.1	-161.6	.002808	05
	3.5905	.0000	11.6	180.0	.002808	.19
771.50	2.4255	1.2901	9.9	180.0	.002549	.13
	2.4120	1.0193	15.1	156.8	.002571	.29
	2.3946	.6847	13.9	180.0	.002634	.25
	2.4043	.3346	19.7	135.0	.002781	.54
	2.4139	.0000	7.9	180.0	.002781	.09
	2.8337	1.3114	4.4	63.4	.002216	.02
	2.8046	1.0426	34.0	83.3	.002335	1.35
	2.7834	.7331	27.0	126.0	.002432	.89
	2.7872	.3501	33.1	147.3	.002720	1.49
	2.7853	.0000	11.9	180.0	.002720	.19
	3.1934	1.3211	25.3	135.0	.002510	.80
	3.1915	1.0735	36.5	119.4	.002520	1.68
	3.1876	.7737	25.1	108.4	.002833	.89
	3.1896	.4023	24.9	118.6	.002813	.87
	3.1915	.0000	4.0	.0	.002813	.02
	3.5338	1.3346	40.9	150.9	.002510	2.10
	3.5513	1.1122	42.8	111.8	.002520	2.31
	3.5551	.8356	8.9	63.4	.002833	.11
	3.5648	.3404	24.2	125.0	.002813	.83
	3.5687	.0000	2.0	.0	.002813	.01

Table D-XIV. Rear Smoke Grid Calculations - 1/2 Inch Entryway With Extera Baffle (Continued)

Model 30, Shot 324

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
813.20	2.4652	1.2903	9.7	- 53.1	.002731	.13
	2.4612	1.0199	18.2	- 32.0	.002718	.45
	2.4394	.7078	19.9	- 29.1	.002866	.57
	2.4334	.3400	7.7	.0	.002770	.08
	2.4294	.0000	9.7	180.0	.002770	.13
	2.8569	1.3161	11.8	- 99.5	.002442	.17
	2.8429	1.0656	17.5	- 6.3	.002424	.37
	2.8111	.7435	12.4	-128.7	.002528	.19
	2.7793	.3817	4.3	-153.4	.002455	.02
	2.8012	.0000	11.6	.0	.002455	.17
	3.2087	1.3400	19.9	29.1	.002826	.56
	3.2008	1.0974	10.9	45.0	.002369	.14
	3.1988	.7952	5.5	45.0	.002776	.04
	3.2008	.4294	12.2	108.4	.002683	.20
	3.2087	.0000	5.8	.0	.002683	.05
	3.5209	1.3479	29.5	31.6	.002826	1.23
	3.5447	1.1451	9.7	143.1	.002369	.11
	3.5785	.8350	18.3	- 71.6	.002776	.47
	3.5825	.3380	5.8	180.0	.002683	.05
	3.5924	.0000	3.9	180.0	.002683	.02
854.90	2.4313	1.2824	23.9	-138.4	.002597	.74
	2.4275	1.0097	17.9	180.0	.002630	.42
	2.4120	.6750	32.1	-111.8	.002834	1.46
	2.4120	.3346	12.7	-128.7	.002754	.22
	2.4043	.0000	READINGS	INVALID		
	2.8317	1.2998	6.3	161.6	.002222	.04
	2.8221	1.0406	34.3	- 80.0	.002302	1.35
	2.7756	.7234	35.8	- 33.7	.002449	1.57
	2.7834	.3482	50.9	- 38.7	.002697	3.49
	2.7969	.0000	6.0	.0	.002697	.05
	3.2108	1.3308	30.3	- 58.4	.002494	1.15
	3.1992	1.0812	14.0	- 45.0	.002448	.24
	3.1915	.7776	23.9	- 41.6	.002916	.83
	3.1857	.4139	36.0	- 83.7	.002818	1.82
	3.1973	.0000	.0	.0	.002818	.00
	3.5590	1.3501	44.4	- 10.3	.002494	2.46
	3.5435	1.1180	48.9	- 26.6	.002448	2.92
	3.5609	.8182	22.2	- 79.7	.002916	.72
	3.5590	.3404	2.8	135.0	.002818	.01
	3.5648	.0000	9.9	180.0	.002818	.14

Table D-XIV. Rear Smoke Grid Calculations.- 1/2 Inch Entryway With Exterior Baffle (Continued)

Model 30, Shot 324

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
896.60	2.4473	1.2744	4.3	63.4	.002508	.02
	2.4433	1.0199	9.7	- 36.9	.002423	.11
	2.4274	.6779	22.0	74.7	.002569	.62
	2.4254	.3300	25.4	- 8.7	READINGS INVALID	
	NO READING					
	2.8509	1.3181	11.6	90.0	.002262	.15
	2.8489	1.0318	17.4	- 90.0	.002468	.37
	2.8410	.7237	29.6	11.3	.002576	1.13
	2.8191	.3499	42.4	43.2	.002828	2.54
	2.8072	.0000	17.4	.0	.002828	.43
	3.2247	1.3141	29.2	- 97.6	.002598	1.11
	3.2107	1.0875	13.9	123.7	.002297	.22
	3.2167	.7793	25.2	85.6	.002862	.91
	3.2048	.3936	READINGS INVALID			
	3.2087	.0000	READINGS INVALID			
	3.5646	1.3400	51.0	-155.4	.002598	3.38
	3.5885	1.1233	34.4	-141.8	.002297	1.36
	3.5825	.8131	8.0	- 14.0	.002862	.09
	3.5805	.3400	26.9	21.0	.002859	1.04
	3.5825	.0000	19.3	.0	.002859	.53
938.30	2.4333	1.2863	21.9	5.2	.002449	.59
	2.4352	1.0039	39.6	17.5	.002776	2.17
	2.4178	.6963	79.1	25.3	.002711	8.48
	2.4371	.3308	67.0	12.0	.002717	6.10
	2.4449	.0000	READINGS INVALID			
	2.8317	1.3114	26.7	- 48.0	.002310	.82
	2.8221	1.0232	30.8	14.9	.002545	1.21
	2.8046	.7292	24.2	55.0	READINGS INVALID	
	2.8143	.3772	READINGS INVALID			
	2.8143	.0000	READINGS INVALID			
	3.2070	1.3017	45.7	- 87.5	.002982	3.12
	3.1915	1.0928	38.2	- 62.1	.002637	1.93
	3.1934	.8027	8.4	45.0	READINGS INVALID	
	NO READING					
	NO READING					
	3.5126	1.3288	72.9	-107.4	.002982	7.92
	3.5164	1.0967	63.2	-133.7	.002637	5.27
	3.5687	.8162	37.5	-148.0	READINGS INVALID	
	3.5841	.3501	14.5	- 15.9	READINGS INVALID	
	3.5841	.0000	6.0	.0	READINGS INVALID	

Table D-XIV. Rear Smoke Grid Calculations.- 1/2 Inch Entryway With Exterior Baffle. (Continued)

Model 30, Shot 324

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
980.00	2.4692	1.2763	71.6	- 93.1	.002730	7.00
	2.4811	1.0318	29.2	- 97.6	.002772	1.19
	2.4990	.7117	48.4	- 61.4	READINGS	INVALID
	2.4911	.3439	32.9	- 86.6	READINGS	INVALID
	2.4911	.0000	21.3	.0	READINGS	INVALID
	2.8688	1.2982	108.4	- 86.9	.002544	14.95
	2.8787	1.0398	41.3	- 79.2	.002779	2.37
	2.8549	.7435	55.3	- 65.2	READINGS	INVALID
	NO READING					
	NO READING					
	3.2266	1.2684	81.4	- 85.9	.003213	10.64
	3.2286	1.0537	104.1	- 74.9	.002967	16.07
	3.2227	.7853	78.7	- 65.3	.003161	9.79
	3.2147	.4235	READINGS	INVALID		
	3.2207	.0000	READINGS	INVALID		
	3.5427	1.2704	118.3	- 78.7	.003213	22.47
	3.5447	1.0775	83.3	- 68.2	.002967	10.28
	3.5507	.7932	84.5	-100.5	.003161	11.29
	3.5944	.3360	64.8	- 79.7	.002768	5.82
	3.5885	.0000	5.8	.0	.002768	.05
1021.70	2.4294	1.2147	66.3	- 98.6	.002953	6.49
	2.4313	.9749	81.5	- 88.6	.002621	8.70
	2.4410	.6538	67.2	-109.0	.002942	6.65
	2.4391	.2979	34.3	-100.0	.003046	1.79
	2.4662	.0000	11.9	180.0	.003046	.22
	2.8375	1.2031	92.3	-108.8	.002484	10.59
	2.8298	.9826	71.6	-123.7	.002520	6.46
	2.8279	.6789	73.6	- 86.9	.002723	7.38
	2.8027	.3559	READINGS	INVALID		
	2.8201	.0000	READINGS	INVALID		
	3.2128	1.2205	71.6	- 70.6	.003009	7.72
	3.2186	.9923	86.0	- 96.6	.002939	10.87
	3.2263	.7311	71.8	- 75.6	.003295	8.49
	3.2205	.3849	98.8	- 74.8	.003094	15.10
	3.2108	.0000	17.9	.0	.003094	.49
	3.5358	1.2128	86.2	- 64.0	.003009	11.17
	3.5474	1.0193	99.9	- 72.6	.002939	14.67
	3.5532	.7331	68.9	- 56.8	.003295	7.82
	3.5957	.2863	14.5	-105.9	.003094	.32
	3.5899	.0000	9.9	180.0	.003094	.15

Table D-XIV. Rear Smoke Grid Calculations - 1/2 Inch Entryway with Exterior Baffle (Continued)

Model 30, Shot 324

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
1063.40	2.4592	1.2107	58.7	-107.2	.003030	5.22
	2.4831	.9503	65.4	-109.0	.002845	6.08
	2.4771	.6481	31.7	-127.6	.002945	1.48
	2.4851	.3101	13.7	81.9	.003019	.28
	2.4791	.0000	36.7	180.0	.003019	2.04
	2.8390	1.2107	69.0	-101.3	.002319	5.52
	2.8390	.9801	76.0	- 97.3	.002609	7.53
	2.8588	.6700	40.8	-121.4	.002640	2.19
	2.8509	.3300	30.0	-104.9	.003259	1.47
	2.8569	.0000	7.7	180.0	.003259	.10
	3.2505	1.2008	88.7	-106.5	.002725	10.71
	3.2187	.9682	72.9	-111.8	.002997	7.95
	3.2406	.7157	50.4	-122.5	.003261	4.14
	3.2406	.3280	83.1	-107.6	.003503	12.10
	3.2386	.0000	13.5	180.0	.003503	.32
	3.5805	1.1928	75.6	- 94.4	.002725	7.79
	3.5746	.9821	66.6	- 73.1	.002997	6.66
	3.5885	.7356	33.8	- 66.4	.003261	1.86
	3.5905	.3221	31.2	158.2	.003503	1.71
	3.5785	.0000	25.1	180.0	.003503	1.11
1105.10	2.4120	1.1586	92.6	-144.6	.002814	12.06
	2.4101	.9130	100.9	-169.8	.002957	15.06
	2.4217	.6286	82.4	-164.6	.003182	10.80
	2.4410	.3114	105.8	-174.6	.003054	17.08
	2.4294	.0000	85.4	180.0	.003054	11.14
	2.8240	1.1354	66.2	-131.3	.002639	5.77
	2.8201	.9072	78.7	-137.0	.002944	9.12
	2.8066	.6441	108.1	-162.9	.002669	15.59
	2.7950	.3269	70.0	-173.5	.003334	8.16
	2.8124	.0000	65.6	180.0	.003334	7.16
	3.1876	1.1354	98.7	-139.9	.002925	14.24
	3.1915	.9246	50.6	-135.0	.002903	3.71
	3.1992	.6886	66.8	-149.6	.003135	6.99
	3.1954	.3056	68.5	163.1	.003524	8.27
	3.1973	.0000	55.6	180.0	.003524	5.45
	3.5300	1.1373	89.4	-143.1	.002925	11.69
	3.5567	.9555	54.8	-136.5	.002903	4.36
	3.5667	.7021	47.4	-147.0	.003135	3.52
	3.5667	.2979	32.0	-119.7	.003524	1.81
	3.5648	.0000	13.9	180.0	.003524	.34

Table D-XIV. Rear Smoke Grid Calculations - 1/2 Inch Entryway with Exterior Baffle (Continued)

Model 30, Shot 324

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
1146.80	2.3837	1.1571	128.3	-173.9	.002951	24.28
	2.3837	.9324	110.6	175.0	.002866	17.52
	2.3976	.6262	121.8	-178.2	.003058	22.69
	2.3797	.3002	147.5	-169.4	.002886	31.38
	2.3936	.0000	135.3	180.0	.002886	26.41
	2.7952	1.1610	90.2	170.1	.002480	10.10
	2.7813	.9264	97.3	173.2	.002518	11.93
	2.7555	.6382	90.9	178.8	.002768	11.42
	2.7813	.3221	96.7	-177.7	.003142	14.69
	2.7913	.0000	129.5	180.0	.003142	26.34
	3.1750	1.1372	56.2	-176.1	.003016	4.76
	3.1829	.9324	58.1	164.6	.003029	5.12
	3.1829	.6819	68.0	-165.2	.003181	7.35
	3.1750	.3479	83.9	141.5	.003131	11.02
	3.1829	.0000	77.3	180.0	.003131	9.36
	3.5089	1.1392	44.5	-177.5	.003016	2.99
	3.5348	.9443	56.6	-172.1	.003029	4.85
	3.5487	.7097	58.4	145.8	.003181	5.43
	3.5746	.2942	36.3	-154.8	.003131	2.06
	3.5646	.0000	21.3	180.0	.003131	.71
1188.50	2.2843	1.1451	128.4	-172.0	.002759	22.74
	2.2998	.9226	113.8	-163.8	.002687	17.40
	2.2998	.6248	117.6	-175.2	.002756	19.06
	2.2959	.2843	84.6	-170.5	.002995	10.71
	2.2940	.0000	95.4	180.0	.002995	13.61
	2.7350	1.1509	109.5	-168.5	.002487	14.90
	2.7234	.9188	95.7	-175.2	.002498	11.43
	2.7157	.6460	83.5	-177.3	.002747	9.58
	2.6983	.3230	115.2	180.0	.002802	18.60
	2.6828	.0000	115.2	180.0	.002802	18.60
	3.1315	1.1315	45.9	-162.3	.002992	3.15
	3.1354	.9400	62.2	-163.3	.002882	5.58
	3.1335	.6712	60.8	168.7	.003017	5.57
	3.1296	.3578	60.1	172.4	.002965	5.36
	3.1199	.0000	75.5	180.0	.002965	8.45
	3.4855	1.1354	28.4	-167.9	.002992	1.21
	3.5106	.9478	46.1	-172.6	.002882	3.06
	3.5184	.7350	40.5	-168.7	.003017	2.48
	3.5338	.2824	42.9	-166.6	.002965	2.73
	3.5435	.0000	29.8	180.0	.002965	1.32

Table D-XIV. Rear Smoke Grid Calculations - 1/2 Inch Entryway with Exterior Baffle (Continued)

Model 30, Shot 324

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
1230.20	2.2565	1.1392	102.7	168.1	.002831	14.94
	2.2744	.9006	91.2	-175.1	.002819	11.72
	2.2803	.6163	83.9	172.1	.003049	10.73
	2.2962	.2863	71.5	161.1	.003157	8.07
	2.2982	.0000	58.0	180.0	.003157	5.31
	2.6879	1.1392	96.3	-169.6	.002251	10.43
	2.6859	.9185	79.2	180.0	.002503	7.86
	2.6720	.6342	85.1	177.4	.002535	9.18
	2.6660	.3221	63.9	176.5	.002771	5.66
	2.6759	.0000	44.5	180.0	.002771	2.74
	3.1312	1.1233	65.4	-161.0	.002867	6.13
	3.1233	.9145	75.9	-165.3	.003068	8.85
	3.1233	.6938	56.9	170.2	.003010	4.87
	3.1153	.3559	44.5	180.0	.002903	2.87
	3.1074	.0000	40.6	180.0	.002903	2.39
	3.4811	1.1332	38.3	-135.0	.002867	2.10
	3.4891	.9384	49.5	-141.3	.003068	3.76
	3.5089	.7018	51.2	-100.9	.003010	3.94
	3.5328	.2843	13.0	-116.6	.002903	.24
	3.5348	.0000	36.7	180.0	.002903	1.96
1271.90	2.1838	1.1663	65.6	-178.3	.002644	5.69
	2.2089	.9149	63.6	178.2	.002769	5.60
	2.2166	.6364	47.7	-177.6	.002789	3.18
	2.2282	.3075	READINGS	INVALID		
	2.2360	.0000	READINGS	INVALID		
	2.6402	1.1335	56.8	-143.5	.002486	4.01
	2.6441	.9188	54.0	-144.0	.002549	3.72
	2.6306	.6499	41.9	-174.6	.002551	2.24
	2.6344	.3269	26.7	-132.0	.002710	.97
	2.6383	.0000	31.8	180.0	.002710	1.37
	3.0696	1.1103	62.4	-142.8	.002721	5.29
	3.0619	.9207	56.3	-132.1	.002660	4.21
	3.0774	.6809	43.7	-129.5	.002840	2.72
	3.0851	.3578	21.5	-123.7	.002859	.66
	3.0793	.0000	6.0	180.0	.002859	.05
	3.4584	1.1083	68.3	- 98.4	.002721	6.34
	3.4720	.9168	39.8	- 87.1	.002660	2.10
	3.5087	.6847	38.2	- 81.0	.002840	2.07
	3.5280	.2708	51.6	- 67.4	.002859	3.81
	3.5068	.0000	23.8	.0	.002859	.81

Table D-XIV. Rear Smoke Grid Calculations - 1/2 Inch Entryway with Exterior Baffle (Continued)

Model 30, Shot 324

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	C LB/SQFT
1313.60	2.1909	1.1372	44.1	-118.8	.002747	2.67
	2.2107	.9026	23.3	-131.6	.002849	.77
	2.2326	.6143	29.1	- 93.8	READINGS	INVALID
	NO READING					
	NO READING					
	2.6421	1.1054	71.9	-126.3	.002237	5.78
	2.6421	.8867	67.6	-121.0	.002631	6.01
	2.6302	.6302	54.4	-106.5	.002468	3.65
	2.6481	.3022	38.7	- 92.9	.002833	2.12
	2.6441	.0000	3.9	180.0	.002833	.02
	3.0815	1.0855	89.5	-103.7	.002741	10.99
	3.0855	.8728	77.5	- 85.7	.002854	8.58
	3.0954	.6600	50.3	- 92.2	.002819	3.56
	3.1034	.3380	50.6	-136.5	.003019	3.86
	3.1014	.0000	21.3	180.0	.003019	.68
	3.4712	1.0656	96.6	-106.3	.002741	12.80
	3.4911	.8986	83.3	-111.8	.002854	9.89
	3.5149	.6640	52.2	-129.0	.002819	3.84
	3.5527	.2366	31.2	-111.8	.003019	1.47
	3.5586	.0000	5.8	.0	.003019	.05
1355.30	2.1625	1.1277	15.1	-113.2	.002926	.33
	2.1934	.8975	32.1	- 68.2	.002858	1.47
	2.2147	.6074	27.0	- 54.0	.002913	1.06
	2.2302	.2785	READINGS	INVALID		
	2.2379	.0000	READINGS	INVALID		
	2.5977	1.0754	38.2	- 99.0	.002388	1.74
	2.6093	.8607	22.2	- 79.7	.002564	.63
	2.6151	.5977	38.2	- 81.0	.002742	2.00
	2.6325	.2882	9.9	- 53.1	.003222	.16
	2.6344	.0000	15.9	.0	.003222	.41
	3.0484	1.0232	89.3	-122.3	.003081	12.28
	3.0677	.8433	62.8	-145.3	.003341	6.59
	3.0754	.6306	63.4	-122.2	.002962	5.95
	3.0484	.3230	8.9	- 63.4	.003018	.12
	3.0580	.0000	.0	.0	.003018	.00
	3.4313	1.0155	82.1	-122.2	.003081	10.39
	3.4410	.8395	68.9	-123.2	.003341	7.92
	3.4758	.6441	46.5	-160.0	.002962	3.20
	3.5164	.2418	READINGS	INVALID		
	3.5126	.0000	READINGS	INVALID		

Table D-XIV. Rear Smoke Grid Calculations - 1/2 Inch Entryway with Exterior Baffle (Continued)

Model 30, Shot 324

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
1397.00	2.1849	1.1233	6.1	-161.6	.002787	.05
	2.2227	.8728	30.6	- 55.3	.002871	1.34
	2.2485	.5924	15.9	14.0	.003269	.42
	2.2763	.2942	24.4	18.4	.003284	.98
	2.2942	.0000	29.0	.0	.003284	1.38
	2.6362	1.0676	36.8	- 87.0	.002894	1.96
	2.6461	.8648	26.0	- 48.0	.002744	.93
	2.6362	.5924	31.5	- 42.5	.002915	1.44
	2.6541	.2942	9.9	- 11.3	.002962	.14
	2.6600	.0000	7.7	.0	.002962	.09
	3.0338	1.0099	31.0	- 86.4	.003108	1.49
	3.0338	.8370	38.7	- 92.9	.002991	2.24
	3.0616	.6064	58.0	- 90.0	READINGS	INVALID
	3.1074	.3300	45.1	- 31.0	READINGS	INVALID
	3.1014	.0000	30.9	.0	READINGS	INVALID
	3.4274	.9960	71.5	- 91.5	.003108	7.95
	3.4533	.8410	42.4	- 59.9	.002991	2.69
	3.4712	.6481	62.2	- 64.2	READINGS	INVALID
	NO READING					
	NO READING					
1438.70	2.1567	1.1257	8.9	153.4	.002905	.11
	2.2108	.8723	22.2	79.7	.002982	.74
	2.2302	.6112	10.1	78.7	.003050	.16
	2.2534	.2863	24.2	- 9.5	.003285	.96
	2.2669	.0000	7.9	.0	.003285	.10
	2.5996	1.0387	9.9	-143.1	.002513	.12
	2.6267	.8414	29.5	- 70.3	.002580	1.12
	2.6383	.5764	42.1	- 19.3	.002982	2.64
	2.6422	.2863	16.4	- 14.0	.003166	.42
	2.6422	.0000	.0	.0	.003166	.00
	3.0503	.9923	69.9	- 14.8	.003278	8.00
	3.0658	.8046	67.9	- 20.6	.002864	6.60
	3.0754	.5725	42.1	- 19.3	.003311	2.93
	3.0870	.2998	READINGS	INVALID		
	3.0890	.0000	READINGS	INVALID		
	3.4294	.9439	77.4	- 48.1	.003278	9.81
	3.4623	.8027	54.2	- 61.6	.002864	4.21
	3.5029	.5880	63.4	- 57.8	.003311	6.65
	3.5338	.2282	READINGS	INVALID		
	3.5435	.0000	READINGS	INVALID		

Table D-XIV. Rear Smoke Grid Calculations - 1/2 Inch Entryway with Exterior Baffle (Continued)

Model 30, Shot 324

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
1480.40	2.1769	1.1272	29.1	93.8	.002789	1.18
	2.2266	.8946	15.9	76.0	.002754	.35
	2.2505	.6024	13.9	- 56.3	.003132	.30
	2.3002	.2903	16.5	- 20.6	.003402	.46
	2.3022	.0000	23.2	.0	.003402	.91
	2.6287	1.0616	9.7	-126.9	.002321	.11
	2.6561	.8370	11.3	149.0	.002702	.17
	2.6759	.5785	17.8	-167.5	READINGS	INVALID
	2.6700	.2903	4.3	63.4	READINGS	INVALID
	2.6600	.0000	3.9	180.0	READINGS	INVALID
	3.1014	.9920	7.7	- 89.9	.003361	.10
	3.0974	.8131	2.7	-135.0	.003211	.01
	3.1014	.5924	19.4	84.3	READINGS	INVALID
	NO READING					
	NO READING					
	3.4791	.9384	32.9	- 40.2	.003361	1.82
	3.4791	.7932	7.0	146.3	.003211	.08
	3.5050	.5944	30.9	180.0	READINGS	INVALID
	3.5368	.2286	45.0	115.5	READINGS	INVALID
	NO READING					
1522.10	2.1547	1.1547	48.7	168.2	.003000	3.56
	2.2147	.8878	55.2	149.7	.002923	4.45
	2.2379	.5996	37.0	143.7	.003279	2.24
	2.2689	.2805	46.8	167.7	.003480	3.80
	2.2901	.0000	15.9	180.0	.003480	.44
	2.5938	1.0309	70.2	171.9	.002605	6.43
	2.6170	.8472	78.3	156.0	.002560	7.84
	2.6209	.5725	67.6	155.7	.002843	6.49
	2.6441	.2901	44.1	125.8	.003092	3.01
	2.6383	.0000	READINGS	INVALID		
	3.0503	.9845	83.5	-178.6	.003502	12.20
	3.0638	.8027	45.3	-164.7	.003124	3.21
	3.0774	.5919	50.9	159.4	.003567	4.62
	3.0812	.2921	READINGS	INVALID		
	3.1199	.0000	READINGS	INVALID		
	3.4545	.9226	46.1	-172.6	.003502	3.72
	3.4565	.8066	11.6	-121.0	.003124	.21
	3.4720	.5880	21.9	- 90.0	.003567	.85
	3.5145	.2689	13.9	.0	.003383	.33
	3.5164	.0000	READINGS	INVALID		

Table D-XIV. Rea - Smoke Grid Calculations - 1/2 Inch Entryway with Exterior Baffle (Continued)

Model 30, Shot 324

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
1563.80	2.1292	1.1372	124.1	175.5	.003229	24.85
	2.1789	.9225	113.1	163.1	.002905	18.58
	2.2207	.6243	73.2	167.8	.003149	8.43
	2.2545	.3002	59.9	178.2	READINGS	INVALID
	2.2863	.0000	46.4	180.0	READINGS	INVALID
	2.5586	1.0716	110.3	168.9	.002403	14.62
	2.5845	.8688	89.1	167.5	.002736	10.86
	2.6143	.6064	69.6	180.0	.003129	7.57
	2.6441	.3260	50.4	-175.6	READINGS	INVALID
	NO READING					
	3.0179	.9901	83.4	-166.6	.002995	10.43
	3.0537	.8012	21.6	-116.6	.003036	.71
	3.0537	.6103	17.3	-153.4	.003071	.46
	3.0457	.3280	31.2	-158.2	READINGS	INVALID
	NO READING					
	3.4334	.9324	63.1	-152.7	.002995	5.96
	3.4732	.7833	51.0	-127.3	.003036	3.95
	3.5050	.5726	13.0	-116.6	.003071	.26
	3.5507	.2286	43.7	-135.0	READINGS	INVALID
	NO READING					
1605.50	2.0309	1.1644	84.2	160.7	.003071	10.88
	2.1064	.9207	76.1	-172.5	.002698	7.82
	2.1663	.6151	73.9	-173.8	.003154	8.62
	2.2089	.2824	65.7	-176.5	.003366	7.26
	2.2437	.0000	63.6	180.0	.003366	6.80
	2.4855	1.0522	73.3	-122.8	.002445	6.57
	2.5300	.8665	66.8	-149.6	.002206	4.92
	2.5513	.5725	64.2	-158.2	.002589	5.33
	2.5938	.2863	84.5	-156.4	.003146	11.23
	2.6093	.0000	READINGS	INVALID		
	2.9691	.9652	72.9	-154.1	.003482	9.24
	3.0542	.7834	72.3	-159.1	.003517	9.19
	3.0619	.5841	54.2	-151.6	.003400	5.00
	3.0522	.2805	45.3	-118.8	.003645	3.75
	3.0793	.0000	READINGS	INVALID		
	3.3985	.8936	51.8	-147.5	.003482	4.67
	3.4255	.7660	50.6	-168.7	.003517	4.51
	3.4662	.5764	60.1	-172.4	.003400	6.15
	3.4836	.2379	53.5	-164.9	.003645	5.21
	3.4816	.0000	READINGS	INVALID		

Table D-XIV. Rear Smoke Grid Calculations - 1/2 Inch Entryway with Exterior Baffle (Continued)

Model 30, Shot 324

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	G LB/SQFT
1647.20	2.0497	1.1650	81.5	-174.6	.002986	9.93
	2.1034	.9125	107.0	-163.2	.002872	16.44
	2.1471	.6163	122.8	-167.3	.003127	23.59
	2.1889	.2962	129.7	-176.6	READINGS	INVALID
	2.2227	.0000	154.6	180.0	READINGS	INVALID
	2.5189	1.0099	88.3	-156.8	.002705	10.55
	2.5268	.8350	98.6	-145.4	.002797	13.61
	2.5547	.5825	91.0	-167.7	.002779	11.50
	2.5466	.2922	108.3	-178.0	READINGS	INVALID
	NO READING					
	2.9523	.9583	94.2	-151.9	.003056	13.57
	2.9861	.7753	140.8	-171.3	.003023	29.95
	3.0060	.5845	116.3	-164.6	.003121	21.10
	3.0239	.2883	96.8	-176.6	READINGS	INVALID
	3.0457	.0000	110.2	180.0	READINGS	INVALID
	3.3897	.9046	79.6	-150.9	.003056	9.68
	3.4235	.7734	86.8	-163.2	.003023	11.39
	3.4453	.5646	61.8	-159.9	.003121	5.95
	3.4990	.2147	89.2	-119.9	READINGS	INVALID
	NO READING		READINGS	INVALID		
1688.90	1.9497	1.1567	103.3	180.0	.002710	14.46
	2.0039	.8897	101.5	-176.6	.002711	13.96
	2.0464	.5880	85.4	-178.7	.003118	11.38
	2.0793	.2747	91.7	-162.3	.003151	13.26
	2.0890	.0000	107.3	180.0	.003151	18.13
	2.4043	1.0174	134.0	168.0	.002536	22.78
	2.4487	.8104	107.7	174.7	.002536	14.72
	2.4623	.5532	95.5	176.4	.002817	12.85
	2.4855	.2824	83.5	-177.3	.003167	11.05
	2.5010	.0000	READINGS	INVALID		
	2.8859	.9207	84.3	-165.0	.003544	12.60
	2.9149	.7621	68.5	-163.1	.003038	7.13
	2.9497	.5532	67.6	-155.7	.002894	6.61
	2.9555	.2747	67.5	166.4	READINGS	INVALID
	2.9691	.0000	READINGS	INVALID		
	3.3288	.8549	67.7	-130.2	.003544	8.11
	3.3424	.7408	67.5	-137.4	.003038	6.92
	3.4081	.5551	33.8	176.6	.002894	1.66
	3.4391	.1605	39.6	-162.5	READINGS	INVALID
	NO READING		READINGS	INVALID		

Table D-XIV. Rear Smoke Grid Calculations - 1/2 Inch Entryway with Exterior Baffle (Continued)

Model 30, Shot 324

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
1730.60	1.9463	1.1650	91.2	158.9	.002955	12.26
	2.0020	.9066	83.8	154.0	.002934	10.31
	2.0616	.6143	64.9	143.5	.002966	6.25
	2.1014	.2684	23.5	80.5	.003288	.91
	2.1153	.0000	READINGS	INVALID		
	2.3877	1.0378	96.7	178.9	.002418	11.29
	2.4195	.8449	92.1	170.3	.002542	10.79
	2.4592	.5885	67.2	161.6	.002794	6.31
	2.4831	.2883	58.5	172.4	READINGS	INVALID
	2.5169	.0000	40.6	177.3	READINGS	INVALID
	2.8708	.9364	63.1	-157.7	.003005	5.98
	2.9205	.7555	72.9	-158.2	.003199	6.49
	2.9443	.5567	60.2	-174.5	.003079	5.58
	2.9583	.3042	15.9	-166.0	READINGS	INVALID
	NO READING					
	3.3459	.8529	50.4	-147.5	.003005	3.82
	3.3738	.7276	58.8	-117.4	.003199	5.53
	3.4115	.3666	62.2	-126.2	.003079	5.96
	3.4612	.2028	27.3	- 81.9	READINGS	INVALID
	NO READING		READINGS	INVALID		
1772.30	1.8646	1.1896	103.7	163.3	.002986	16.05
	1.9284	.9265	79.7	175.7	.002903	9.22
	1.9942	.6267	95.7	175.2	.003302	15.12
	2.0832	.2979	105.6	160.2	READINGS	INVALID
	NO READING		READINGS	INVALID		
	2.3075	1.0193	109.7	-174.8	.002509	15.10
	2.3578	.8259	84.9	-159.4	.002665	9.60
	2.3985	.5745	79.1	-154.7	.002681	8.39
	2.4275	.2901	39.1	-156.0	.002821	2.16
	2.4603	.0019	READINGS	INVALID		
	2.8298	.8917	90.8	-169.9	.003084	12.71
	2.8472	.7350	83.8	-166.3	.003071	10.79
	2.8897	.5474	50.9	-141.3	.003001	3.88
	2.9400	.2785	READINGS	INVALID		
	2.9845	.0000	READINGS	INVALID		
	3.2863	.8279	81.1	-107.1	.003084	10.13
	3.3153	.6886	58.5	- 99.8	.003071	5.25
	3.3714	.5048	47.2	-112.2	.003001	3.35
	3.4429	.1335	36.0	-173.7	.003996	2.59
	3.4565	.0000	READINGS	INVALID		

Table D-XIV. Rear Smoke Grid Calculations - 1/2 Inch Entryway with Exterior Baffle (Continued)

Model 30, Shot 324

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	G LB/SQFT
1814.00	1.8469	1.1948	38.7	-177.1	.002856	2.14
	1.9225	.9125	32.2	-147.3	.002879	1.49
	1.9662	.6223	47.9	-136.6	.002921	3.34
	2.0020	.3042	108.2	180.0	READINGS	INVALID
	NO READING		READINGS	INVALID		
	2.2783	1.0278	54.4	-163.5	.002264	3.35
	2.3400	.8151	77.9	-150.3	.002405	7.30
	2.3877	.5547	69.8	-165.6	READINGS	INVALID
	2.4473	.2724	48.5	175.4	READINGS	INVALID
	NO READING		READINGS	INVALID		
	2.7813	.9205	75.8	-160.6	.002872	8.25
	2.8390	.7356	58.8	-152.6	.002964	5.12
	2.9046	.5249	53.6	-154.4	READINGS	INVALID
	NO READING					
	NO READING		READINGS	INVALID		
	3.3221	.7753	68.4	-132.7	.002872	6.72
	3.3638	.6700	47.7	-148.2	.002964	3.38
	3.3936	.5229	62.2	-143.8	READINGS	INVALID
	3.4254	.1988	50.4	122.5	READINGS	INVALID
	NO READING		READINGS	INVALID		
1855.70	1.8259	1.1876	22.5	-135.0	.002952	.75
	1.9014	.9091	32.3	169.4	.003225	1.69
	1.9594	.5938	29.5	-137.7	.003[illegible]3	1.51
	1.9749	.2979	18.8	- 71.6	READINGS	INVALID
	NO READING		READINGS	INVALID		
	2.2553	1.0039	23.3	-110.0	.002348	.63
	2.2901	.7872	33.1	-122.7	.002731	1.49
	2.3308	.5571	31.8	180.0	.002725	1.38
	2.3791	.2940	43.4	164.1	READINGS	INVALID
	NO READING		READINGS	INVALID		
	2.7582	.8665	68.8	-133.8	.003278	7.77
	2.7950	.7079	77.9	-160.6	.002980	9.04
	2.8414	.5242	63.6	178.2	.003322	6.72
	2.8936	.2495	READINGS	INVALID		
	NO READING		READINGS	INVALID		
	3.2398	.7776	60.1	-172.4	.003278	5.92
	3.2747	.6634	48.1	-141.7	.002980	3.45
	3.3211	.4681	READINGS	INVALID		
	3.4159	.1760	READINGS	INVALID		
	NO READING		READINGS	INVALID		

Table D-XIV. Rear Smoke Grid Calculations - 1/2 Inch Entryway with Exterior Baffle (Continued)

Model 30, Shot 324

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
1897.40	1.8310	1.1789	2.7	-135.0	.002861	.01
	1.8907	.9185	26.3	-162.9	.002880	.99
	1.9443	.6024	41.0	135.0	.003182	2.67
	2.0080	.2863	10.4	111.8	READINGS	INVALID
	NO READING		READINGS	INVALID		
	2.2704	1.0060	41.0	171.9	.002608	2.19
	2.3221	.7873	17.5	173.7	.002997	.46
	2.3559	.5547	26.3	-126.0	READINGS	INVALID
	2.4056	.2843	19.9	-119.1	READINGS	INVALID
	NO READING		READINGS	INVALID		
	2.7336	.8708	40.8	-148.6	.002783	2.31
	2.7654	.7097	31.2	-119.7	READINGS	INVALID
	2.8410	.5268	31.5	-137.5	READINGS	INVALID
	NO READING					
	NO READING		READINGS	INVALID		
	3.2624	.7674	93.3	- 50.0	.002783	12.11
	3.3260	.6402	72.4	- 46.1	READINGS	INVALID
	NO READING					
	NO READING					
	NO READING		READINGS	INVALID		
1939.10	1.8240	1.1857	54.7	109.1	.002999	4.48
	1.8762	.9014	4.0	89.9	.003246	.03
	1.9304	.6228	8.9	63.4	.003401	.13
	1.9710	.3075	15.1	156.8	READINGS	INVALID
	1.9981	.0000	READINGS	INVALID		
	2.2147	1.0097	40.8	137.0	.002367	1.97
	2.2727	.7892	28.2	129.[illegible]	.002645	1.05
	2.3153	.5358	35.8	160.6	.002822	1.81
	2.3694	.2766	READINGS	INVALID		
	NO READING		READINGS	INVALID		
	2.7234	.8453	17.8	-116.6	.003025	.48
	2.7795	.6809	28.2	- 50.7	.002908	1.16
	2.8182	.5029	41.9	-148.6	.003337	2.93
	2.8723	.2321	READINGS	INVALID		
	NO READING		READINGS	INVALID		
	3.2998	.7060	READINGS	INVALID		
	3.3250	.6112	READINGS	INVALID		
	3.3520	.4449	READINGS	INVALID		
	3.3694	.1779	READINGS	INVALID		
	NO READING		READINGS	INVALID		

Table D-XIV. Rear Smoke Grid Calculations - 1/2 Inch Entryway with Exterior Baffle (Continued)

Model 30, Shot 324

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
1980.80	1.8131	1.2306	111.7	120.1	.002712	16.93
	1.8907	.9225	68.4	132.7	.003029	7.08
	1.9483	.6103	69.7	160.6	READINGS	INVALID
	1.9940	.2922	19.7	101.3	READINGS	INVALID
	1.9821	.0000	READINGS	INVALID		
	2.2406	1.0338	34.6	116.6	.002496	1.49
	2.3042	.8091	26.8	120.3	.002789	1.01
	2.3221	.5666	51.0	114.6	READINGS	INVALID
	NO READING					
	NO READING		READINGS	INVALID		
	2.7256	.8549	38.1	149.5	READINGS	INVALID
	2.7833	.6879	30.6	145.3	READINGS	INVALID
	2.8052	.5050	23.9	-166.0	READINGS	INVALID
	NO READING					
	NO READING		READINGS	INVALID		
	NO READING					
	NO READING					
	NO READING					
	NO READING					
	NO READING		READINGS	INVALID		
2022.50	1.7679	1.2824	126.8	125.4	.002523	20.27
	1.8298	.9516	77.6	140.2	.002885	8.68
	1.8646	.6460	70.2	151.3	.003092	7.63
	1.9671	.3269	77.6	166.7	READINGS	INVALID
	NO READING		READINGS	INVALID		
	2.1992	1.0406	81.2	158.5	.002410	7.94
	2.2592	.8124	80.9	152.2	.002705	8.84
	2.2940	.5822	67.6	155.7	.002595	5.92
	2.3443	.2824	READINGS	INVALID		
	2.3424	.0000	READINGS	INVALID		
	2.6905	.8646	47.8	163.1	.002934	3.35
	2.7544	.6983	42.7	152.2	.002842	2.58
	2.7950	.4971	19.7	135.0	.003305	.64
	2.8801	.2282	READINGS	INVALID		
	NO READING		READINGS	INVALID		
	3.2263	.7157	READINGS	INVALID		
	3.2998	.5880	READINGS	INVALID		
	3.3269	.4333	READINGS	INVALID		
	3.3772	.1470	READINGS	INVALID		
	NO READING		READINGS	INVALID		

Table D-XIV. Rear Smoke Grid Calculations - 1/2 Inch Entryway with Exterior Baffle (Continued)

Model 30, Shot 324

TIME MICROSEC	X INCHES	Y INCHES	U FT/SEC	THETA DEGREES	DENSITY SLUGS/CUFT	Q LB/SQFT
2064.20	1.7396	1.3340	99.0	128.7	.002639	12.93
	1.8310	.9722	91.6	134.1	.002955	12.39
	1.8867	.6441	30.6	145.3	.002929	1.37
	1.9185	.3101	91.6	-172.7	READINGS	INVALID
	NO READING		READINGS	INVALID		
	2.1650	1.0636	105.6	145.4	.002477	13.82
	2.2326	.8469	93.5	150.3	.002521	11.02
	2.2604	.5944	74.4	155.4	.002522	6.98
	2.3380	.2744	69.8	165.6	READINGS	INVALID
	NO READING					
	2.6799	.8688	91.9	165.4	READINGS	INVALID
	2.7455	.7078	91.8	171.5	READINGS	INVALID
	2.7913	.5108	58.5	172.4	READINGS	INVALID
	2.8270	.2525	100.7	-176.7	READINGS	INVALID
	NO READING		READINGS	INVALID		
	NO READING					
	NO READING					
	NO READING					
	NO READING					
	NO READING		READINGS	INVALID		

APPENDIX D

II. PLOTS OF AIR FLOW VECTORS

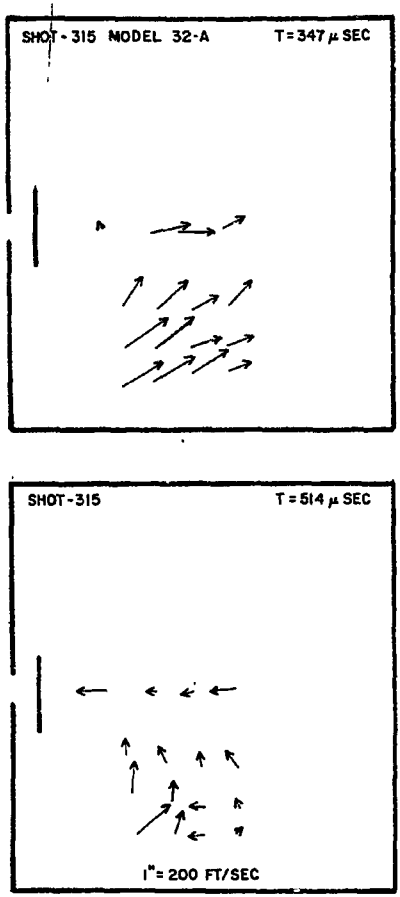


Figure D-1. Smoke Paths and Flow Vectors from Model 32-A

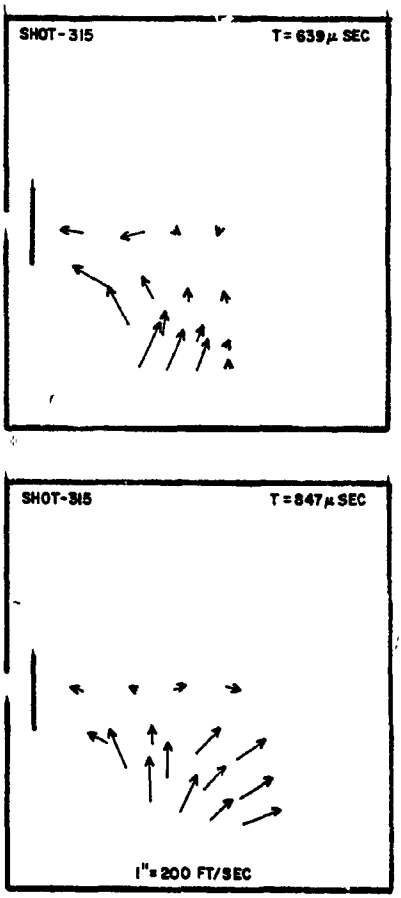
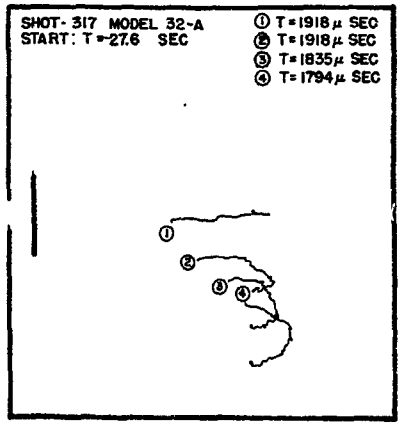


Figure D-1. Smoke Paths and Flow Vectors from Model 32-A (Continued)



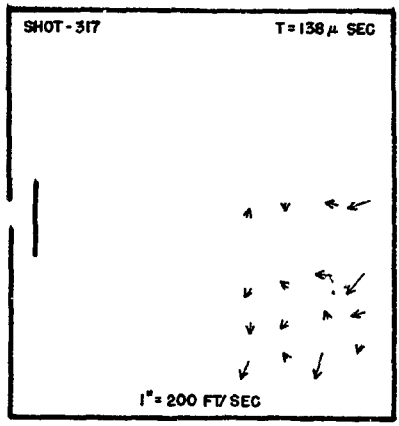
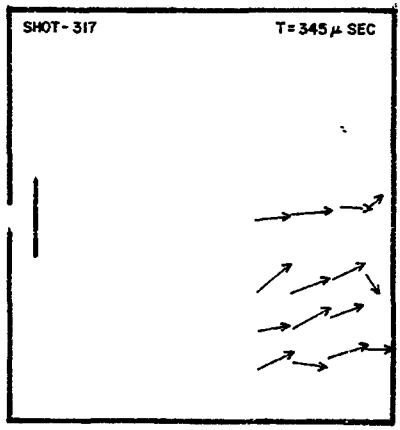


Figure D-1. Smoke Paths and Flow Vectors from Model 32-A (Continued)



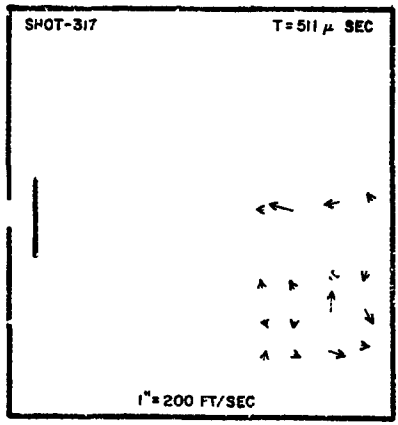
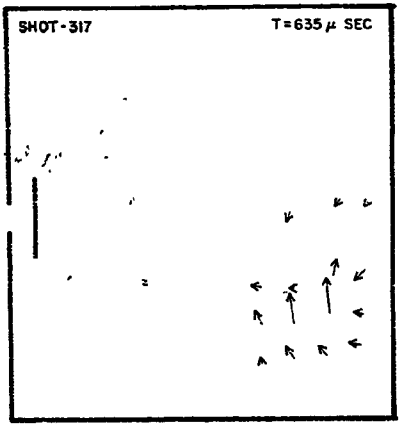


Figure D-1. Smoke Paths and Flow Vectors from Model 32-A. (Continued)



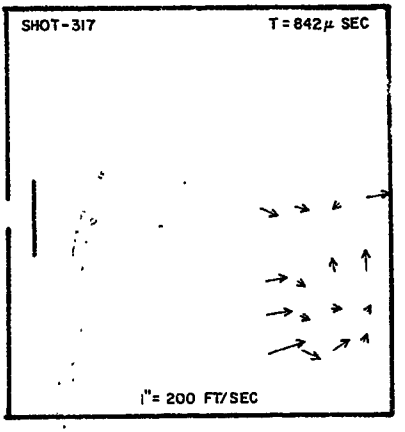
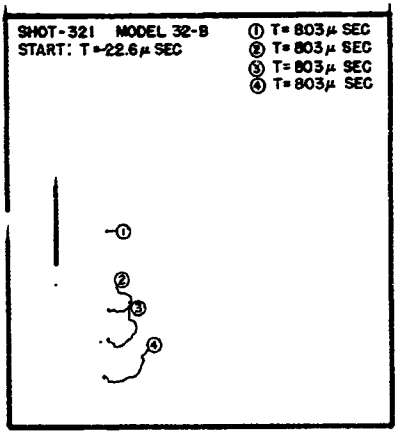


Figure D-1. Smoke Paths and Flow Vectors from Model 32-A (Continued)



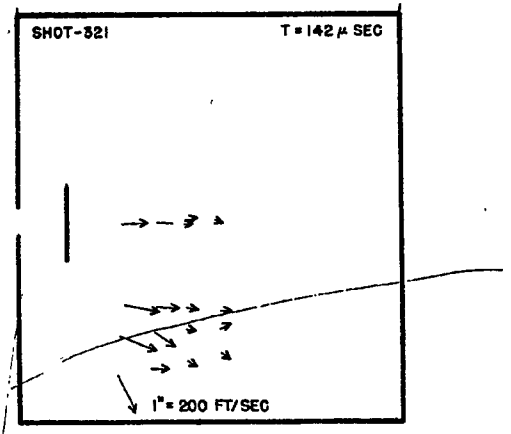
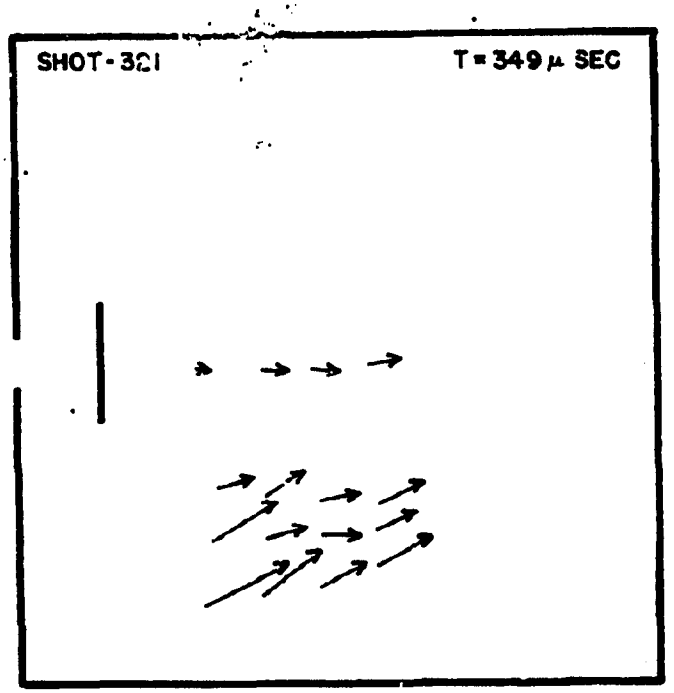


Figure D-2. Smoke Paths and Flow Vectors from Model 32-B



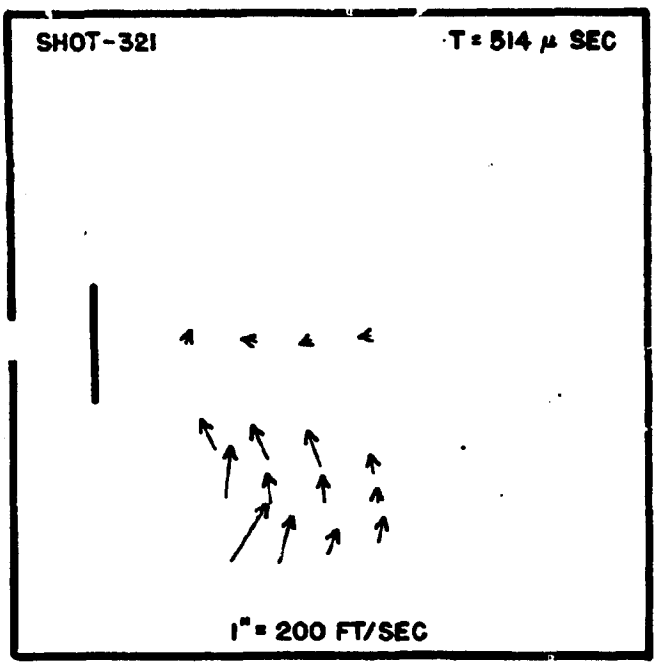


Figure D-2. Smoke Paths and Flow Vectors from Model 32-B (Continued)

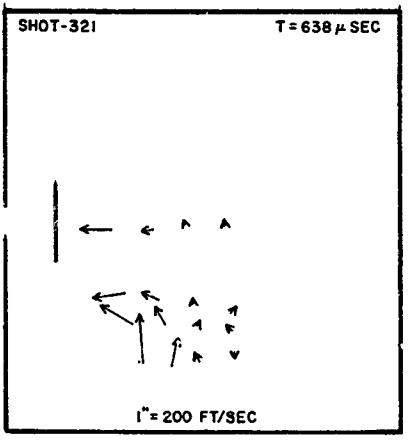
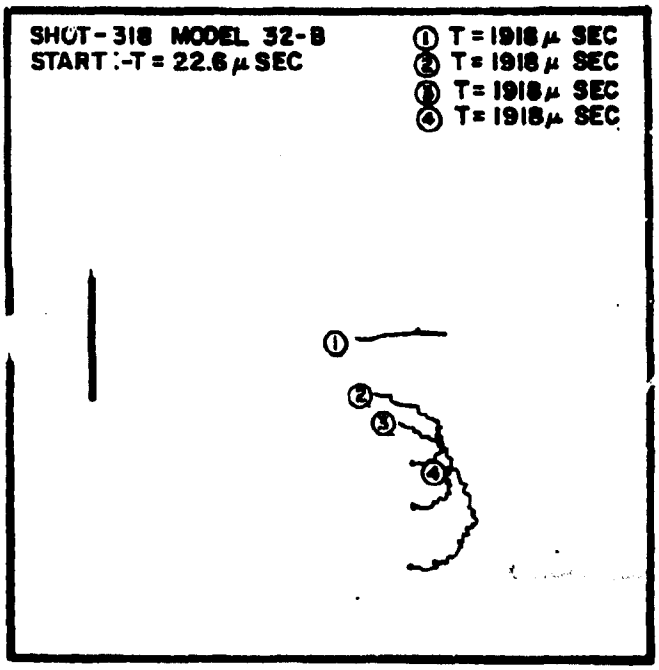


Figure D-2. Smoke Paths and Flow Vectors from Model 32-B (Continued)



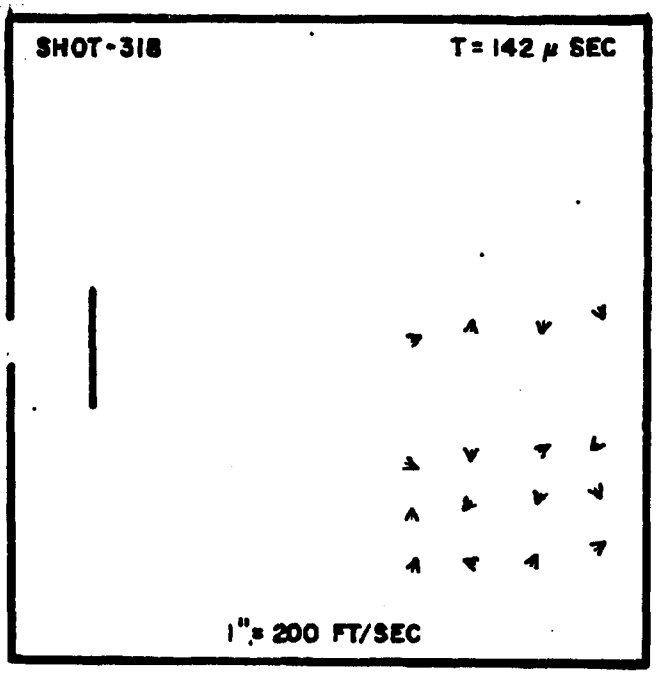
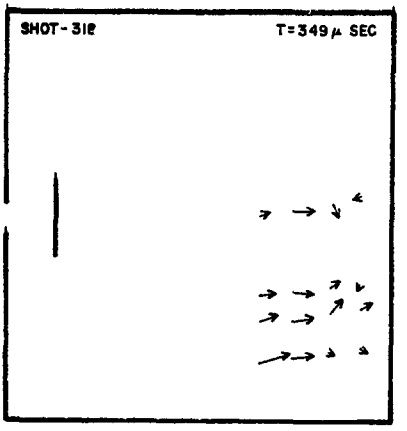


Figure D-2. Smoke Paths and Flow Vectors from Model 32-B (Continued)



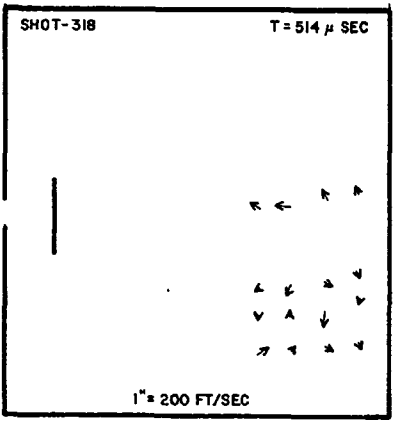


Figure D-2. Smoke Paths and Flow Vectors from Model 32-B (Continued)

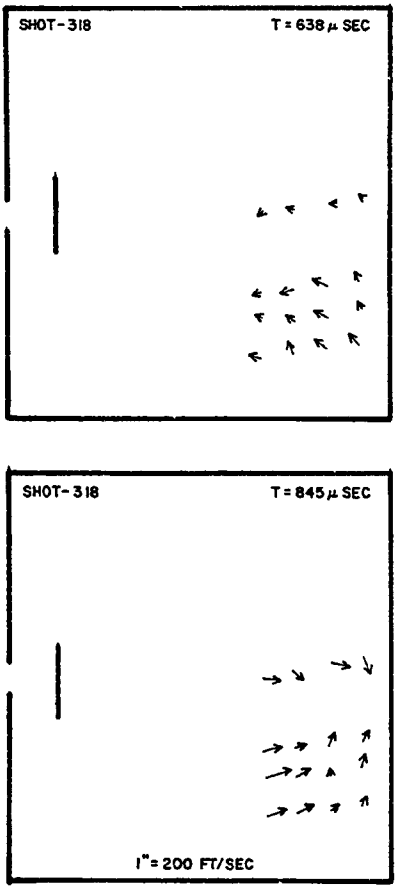
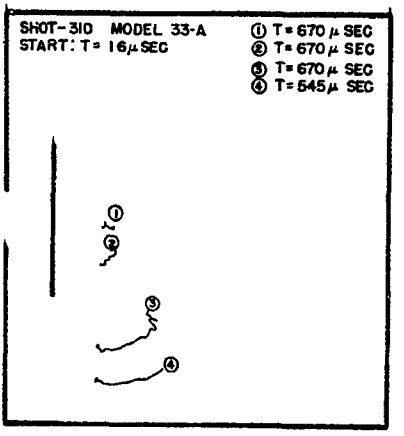


Figure D-2. Smoke Paths and Flow Vectors from Model 32-B (Continued)



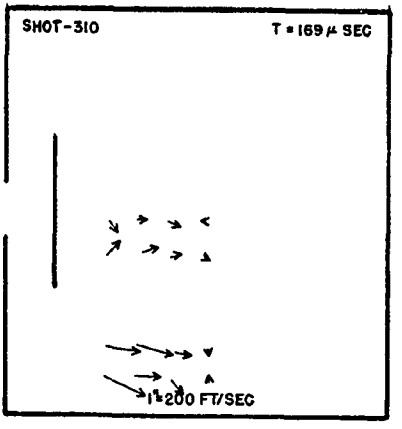


Figure D-3. Smoke Paths and Flow Vectors from Model 33-A

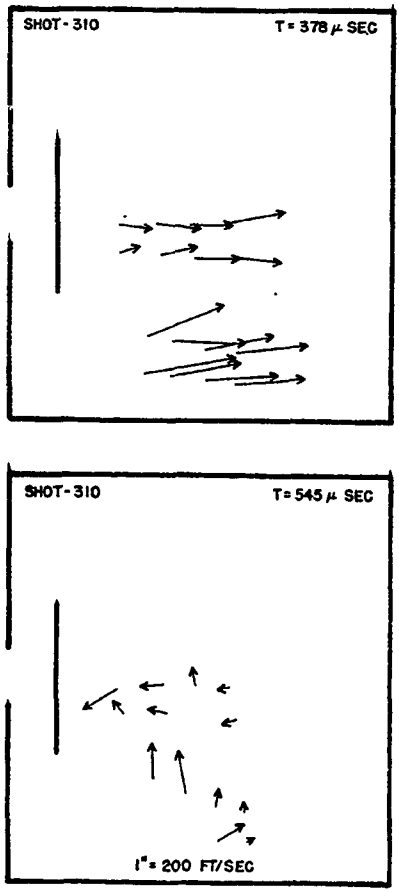


Figure D-3. Smoke Paths and Flow Vectors from Model 33-A (Continued)

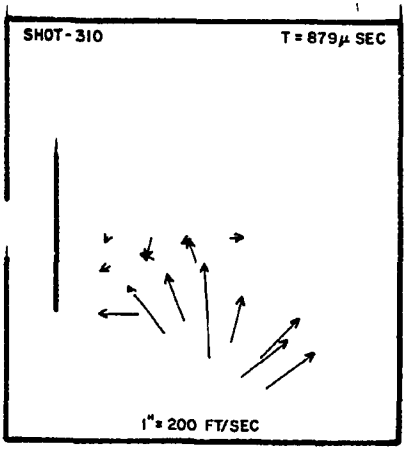


Figure D-3. Smoke Paths and Flow Vectors from Model 33-A (Continued)

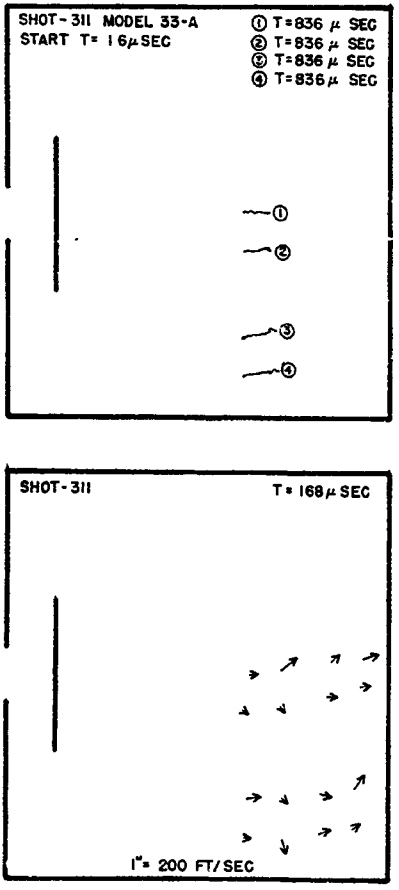


Figure D-3. Smoke Paths and Flow Vectors from Model 33-A (Continued)

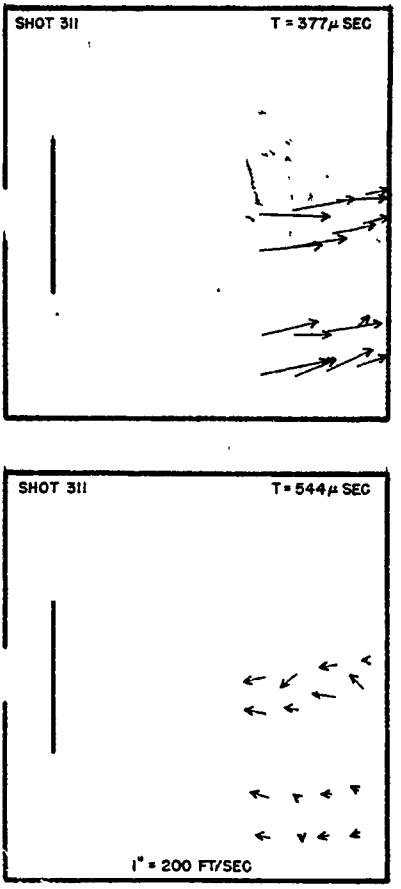


Figure D-3. Smoke Paths and Flow Vectors from Model 33-A (Continued)

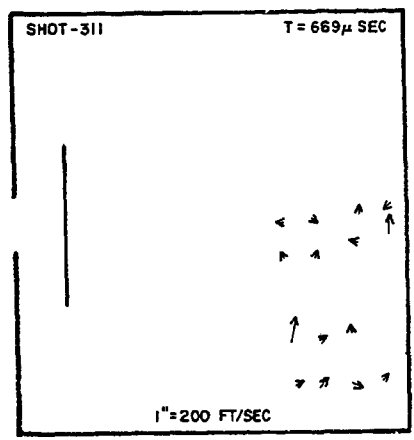


Figure D-3. Smoke Paths and Flow Vectors from Model 33-A (Continued)

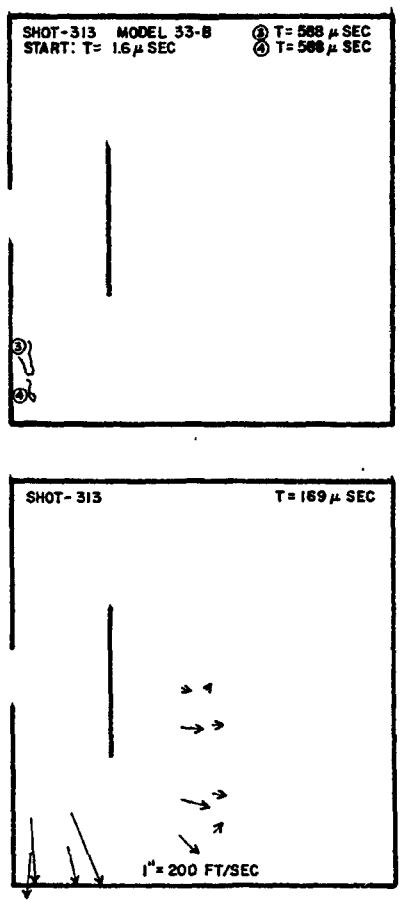
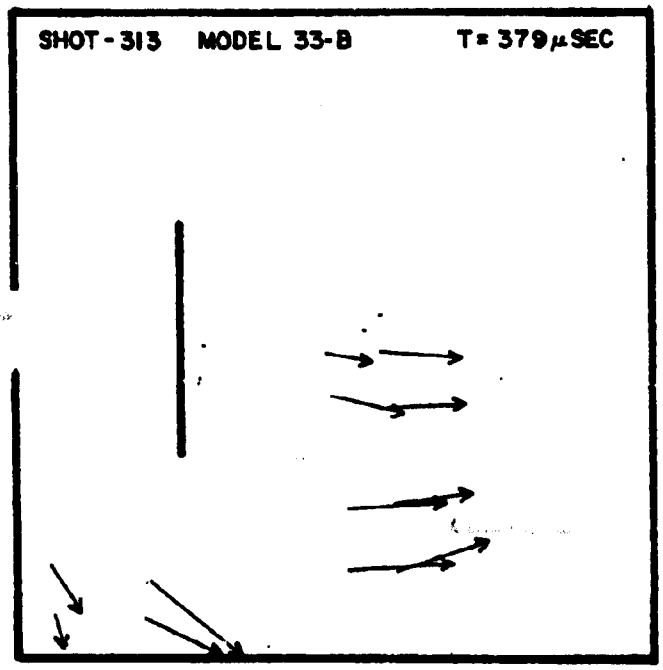


Figure D-4. Smoke Paths and Flow Vectors from Model 33-B



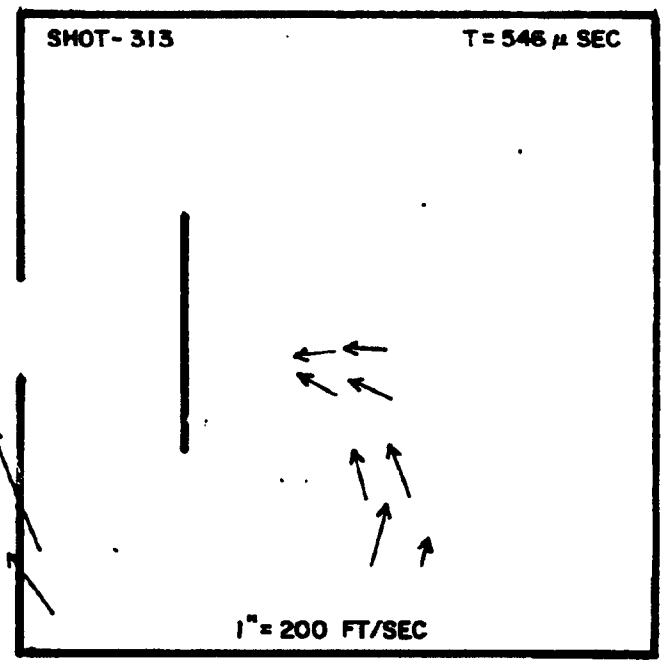


Figure D-4. Smoke Paths and Flow Vectors from Model 33-B (Continued)

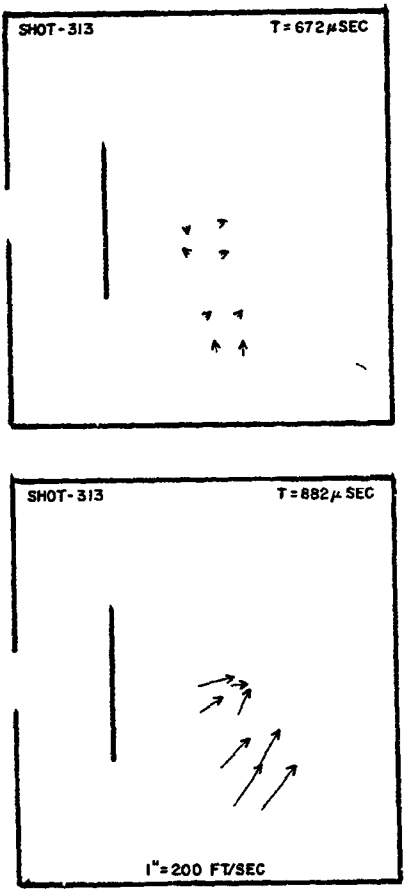
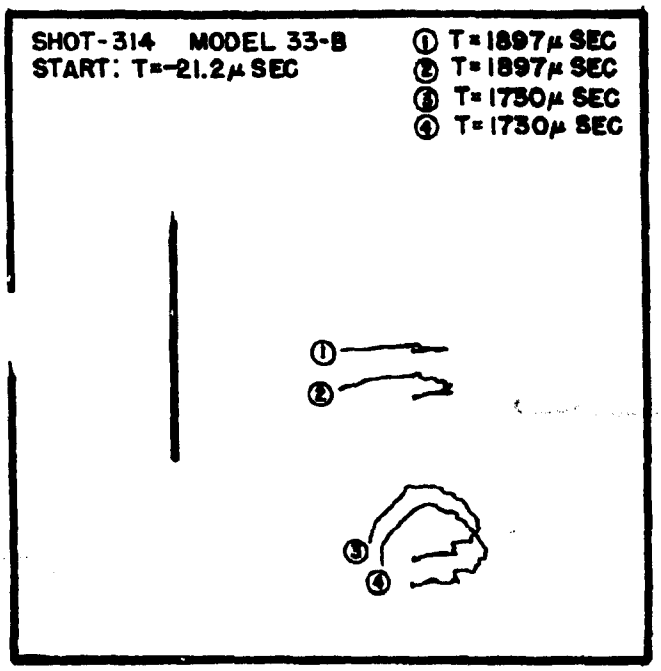


Figure D-4. Smoke Paths and Flow Vectors from Model 33-B (Continued)



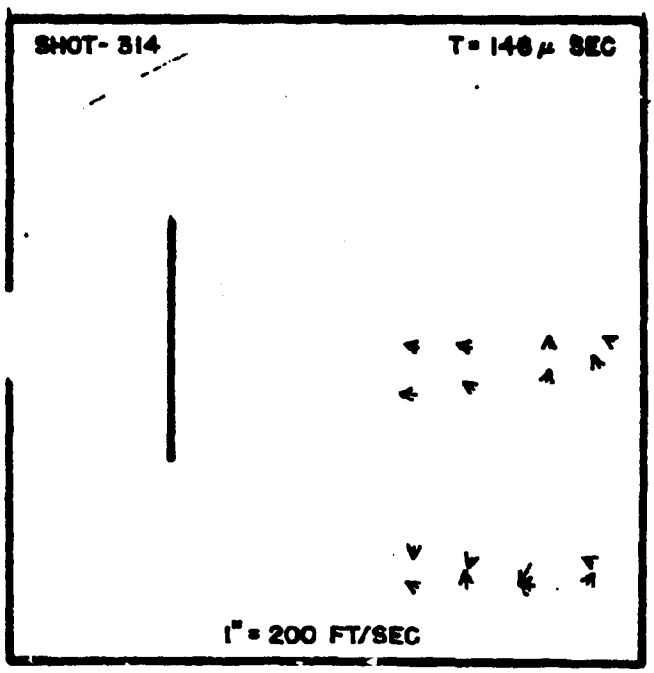


Figure D-4. Smoke Paths and Flow Vectors from Model 33-B (Continued)

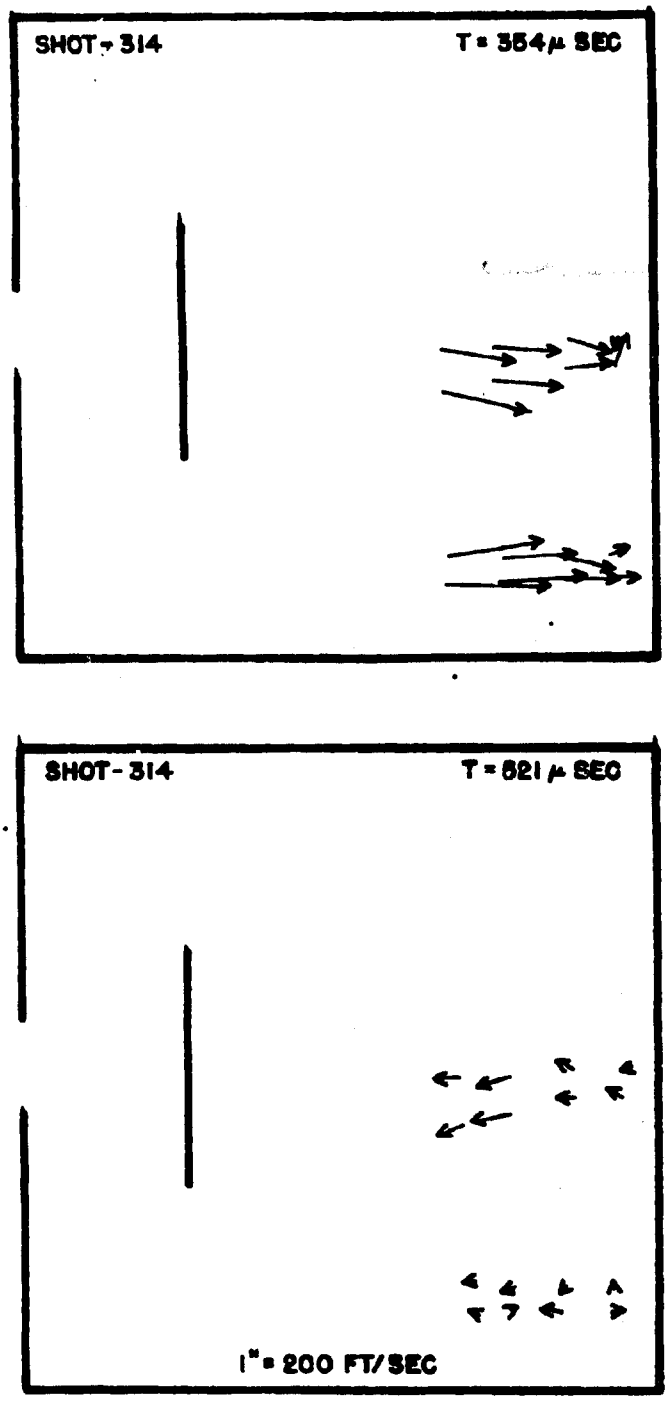
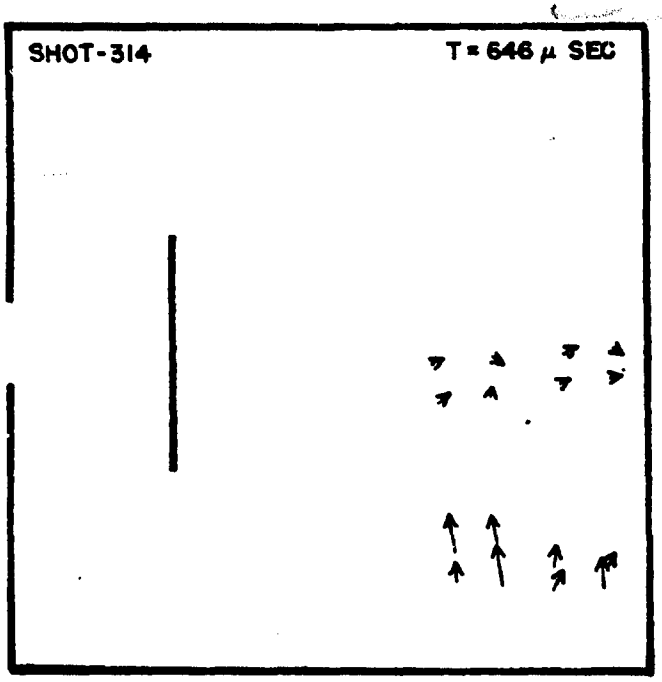


Figure D-4. Smoke Paths and Flow Vectors from Model 33-B (Continued)



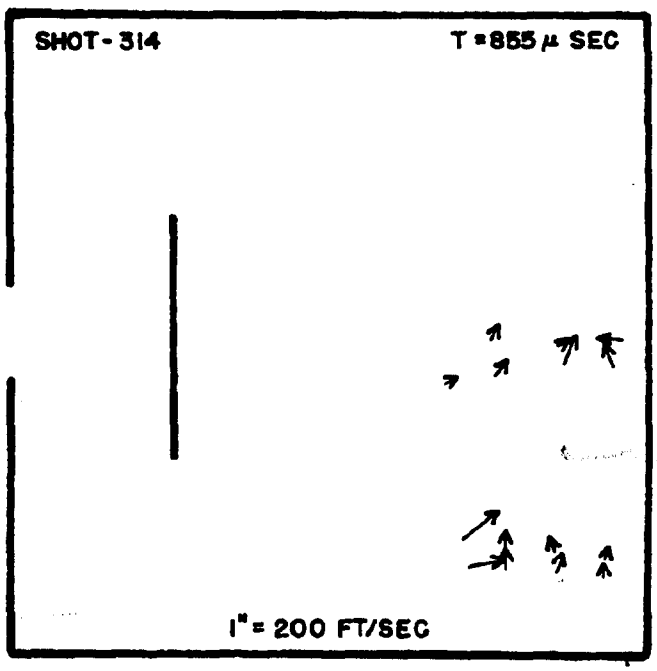


Figure D-4. Smoke Paths and Flow Vectors from Model 33-B (Continued)

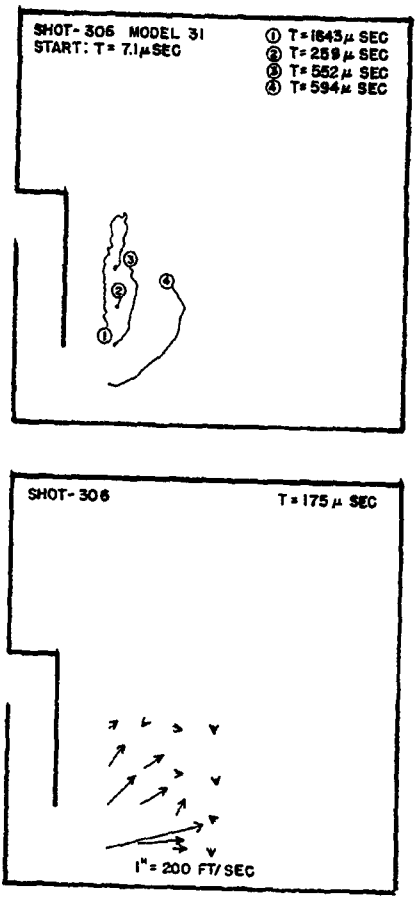


Figure D-5. Smoke Paths and Flow Vectors from Model 31

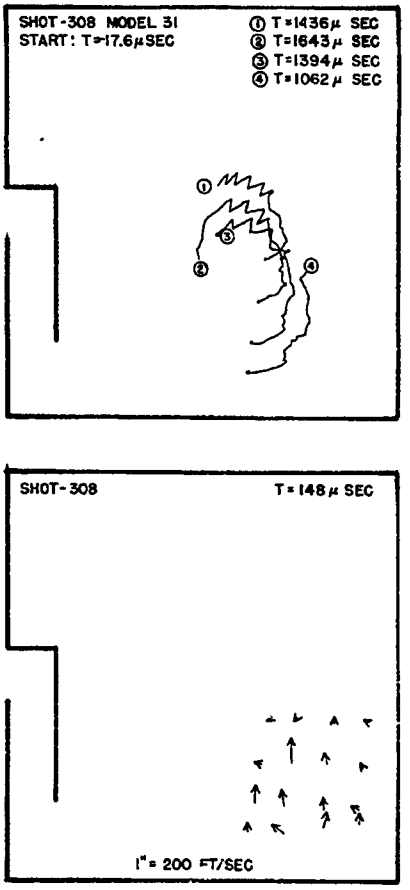


Figure D-5. Smoke Paths and Flow Vectors from Model 31 (Continued)

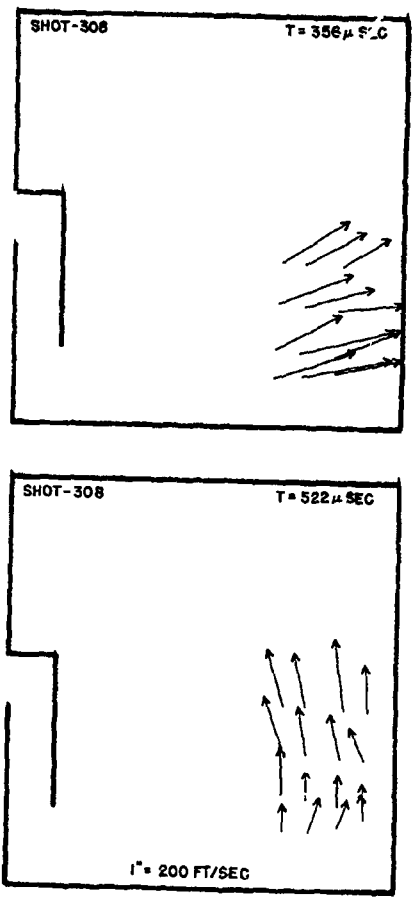


Figure D-5. Smoke Paths and Flow Vectors from Model 31 (Continued)

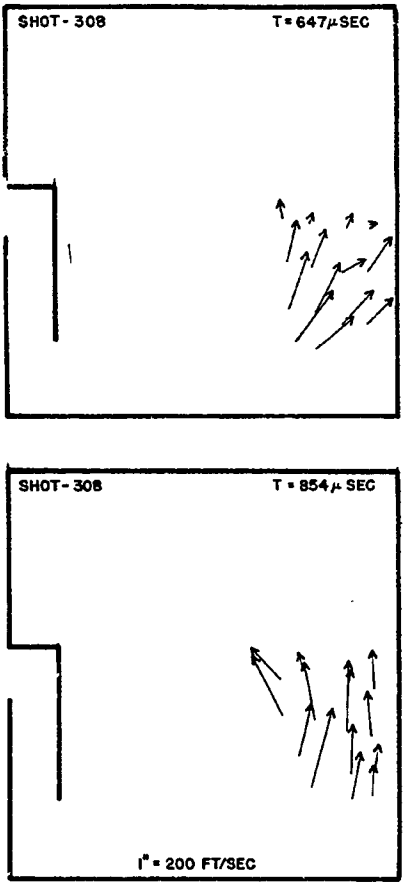
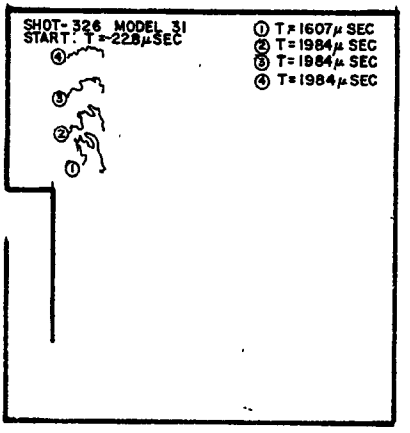


Figure D-5. Smoke Paths and Flow Vectors from Model 31 (Continued)



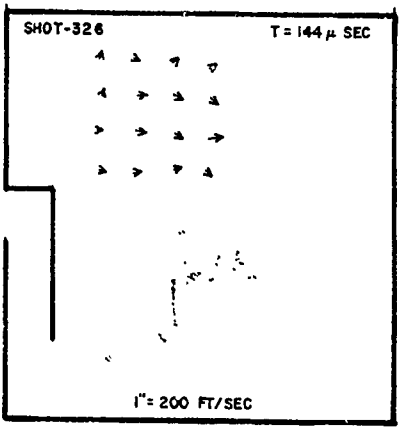


Figure D-5. Smoke Paths and Flow Vectors from Model 31 (Continued)

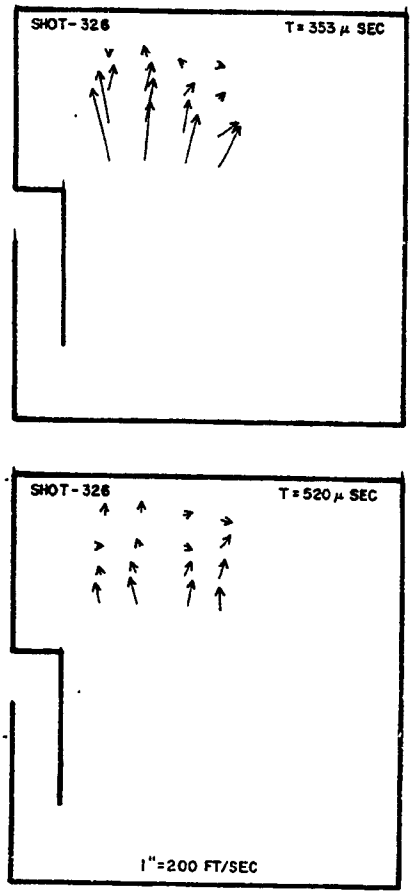


Figure D-5. Smoke Paths and Flow Vectors from Model 31 (Continued)

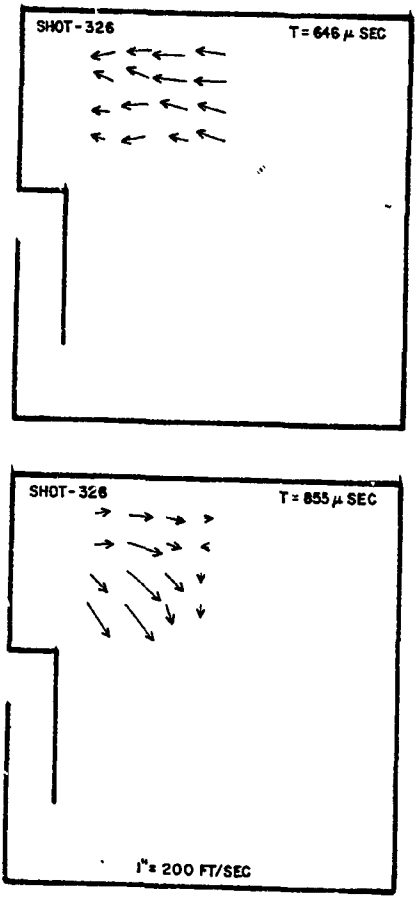
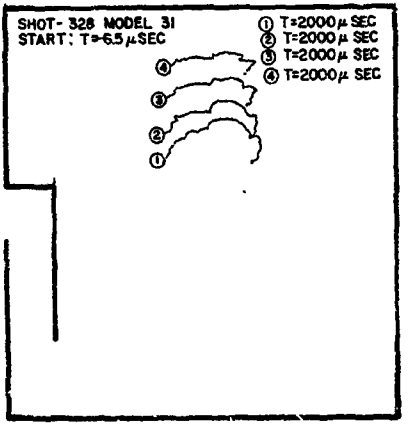


Figure D-5. Smoke Paths and Flow Vectors from Model 31 (Continued)



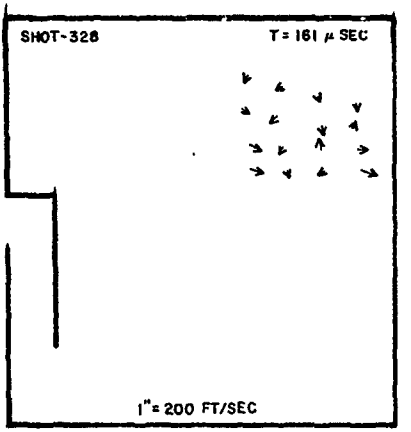


Figure D-5. Smoke Paths and Flow Vectors from Model 31 (Continued)

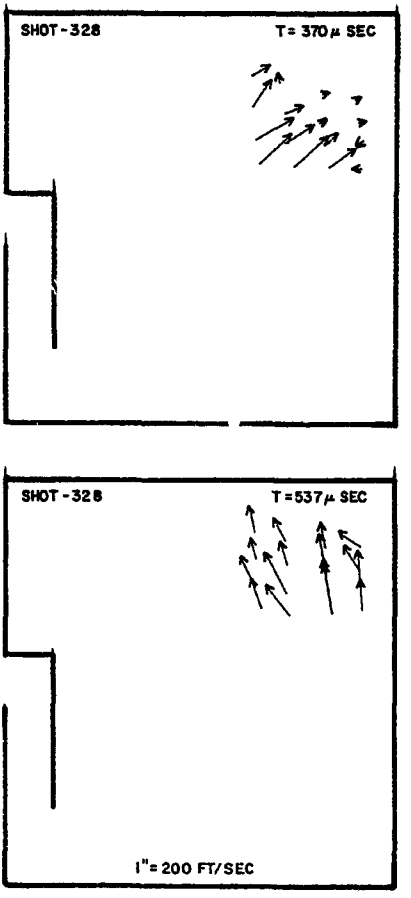


Figure D-5. Smoke Paths and Flow Vectors from Model 31 (Continued)

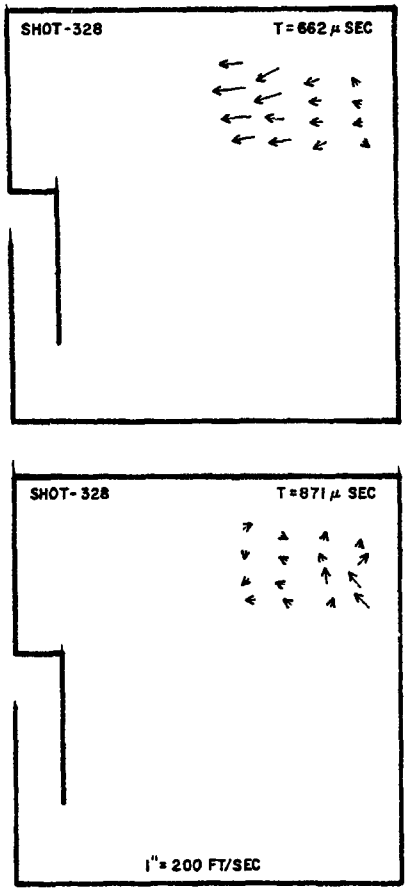


Figure D-5. Smoke Paths and Flow Vectors from Model 31 (Continued)

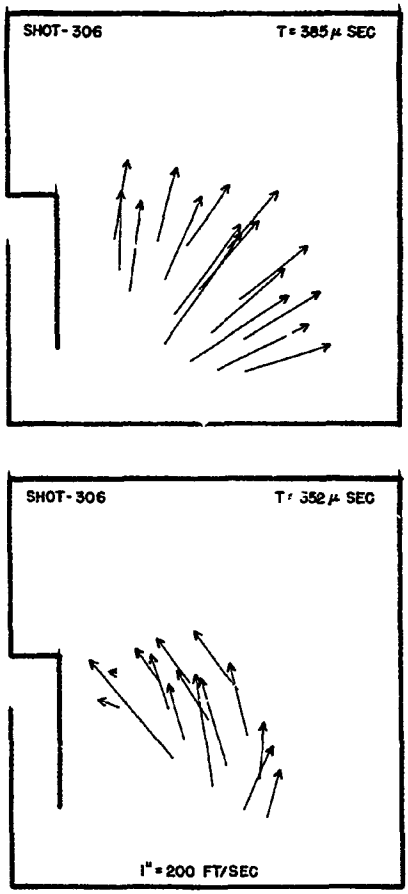


Figure D-5. Smoke Paths and Flow Vectors from Model 31 (Continued)

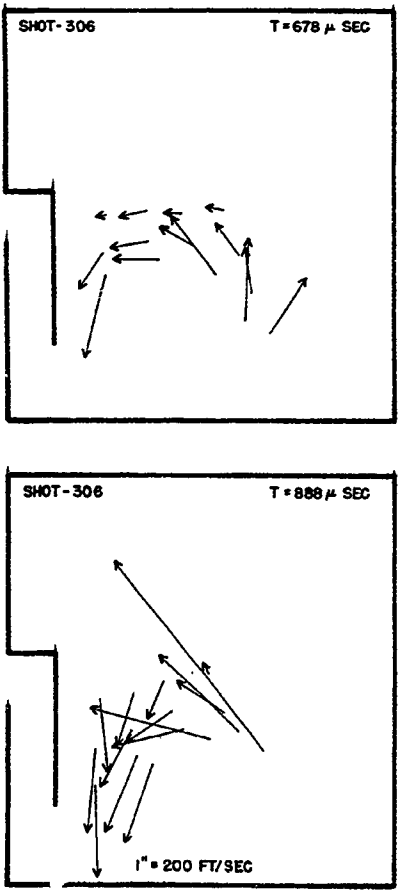


Figure D-5. Smoke Paths and Flow Vectors from Model 31 (Continued)

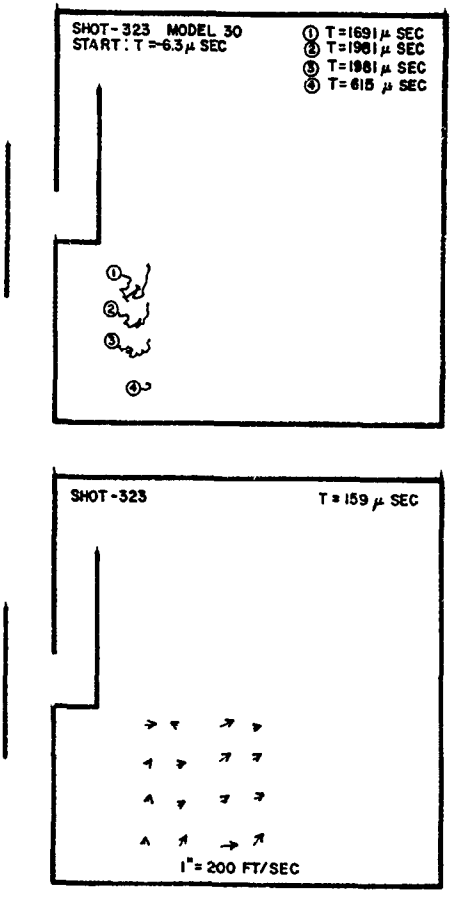
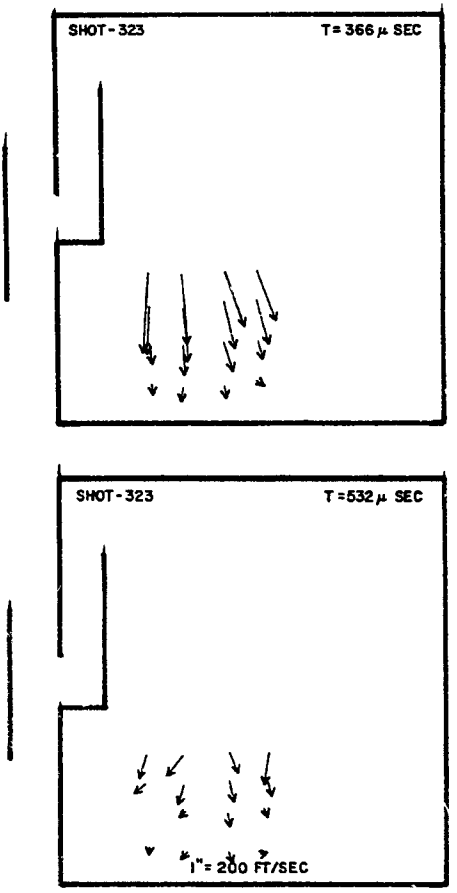
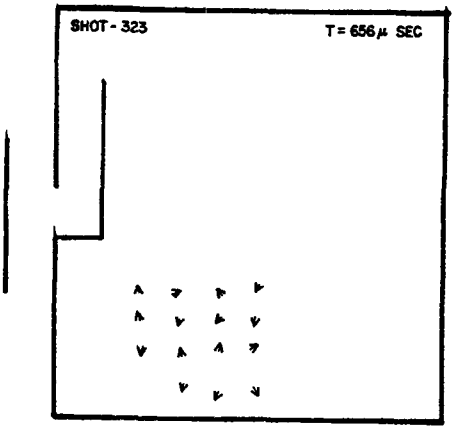


Figure D-6. Smoke Paths and Flow Vectors from Model 30



FigureD-6. Smoke Paths and Flow Vectors from Model 30 (Continued)



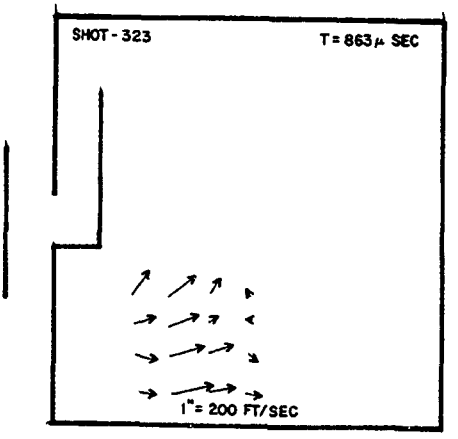


Figure D-6. Smoke Paths and Flow Vectors from Model 30 (Continued)

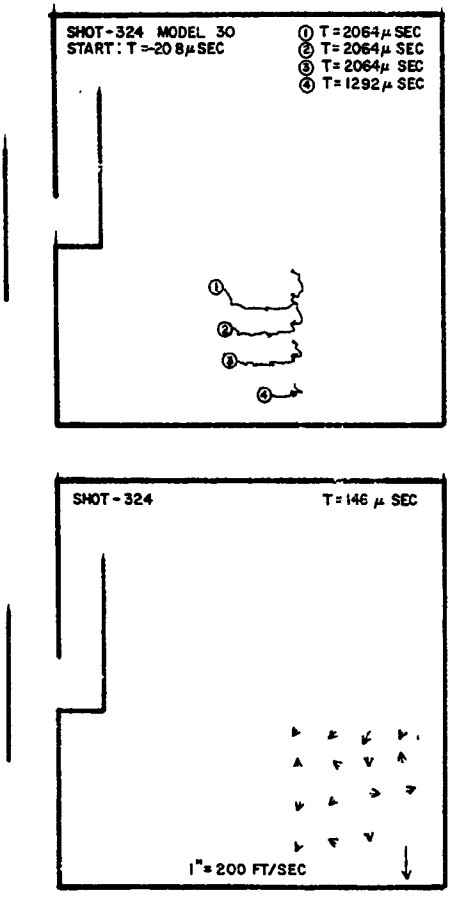


Figure D-6. Smoke Paths and Flow Vectors from Model 30 (Continued)

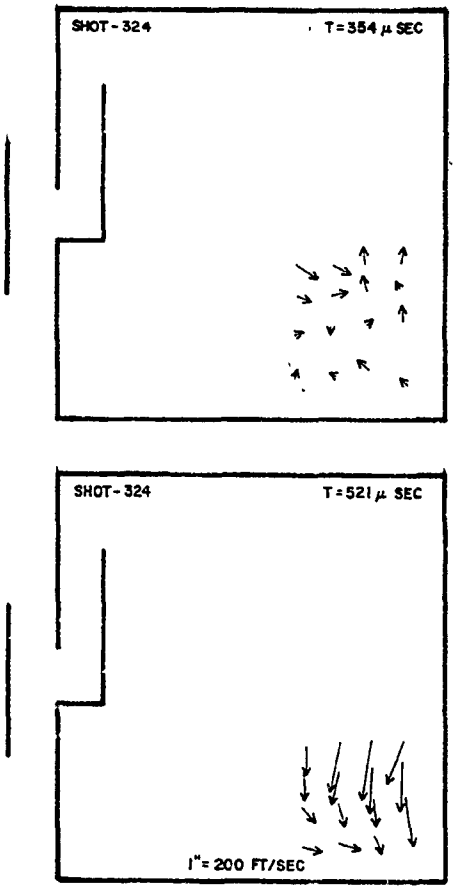
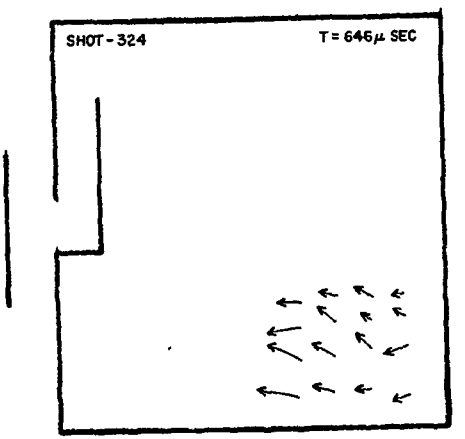


Figure D-6. Smoke Paths and Flow Vectors from Model 30 (Continued)



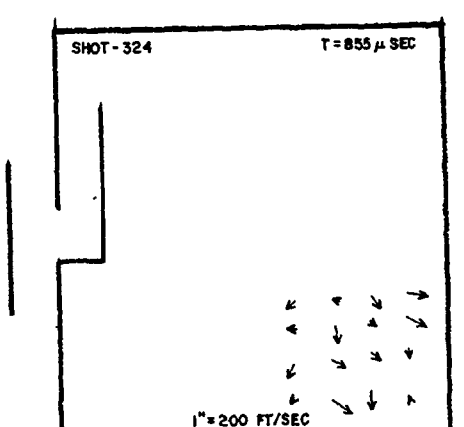


Figure D-6. Smoke Paths and Flow Vectors from Model 30 (Continued)

UNCLASSIFIED
Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author) U.S. Army Aberdeen Research & Development Ctr. Ballistic Research Laboratories Aberdeen Proving Ground, Maryland 21005	2a. REPORT SECURITY CLASSIFICATION UNCLASSIFIED 2b. GROUP

3. REPORT TITLE

AIR SHOCK AND FLOW IN MODEL ROOMS

4. DESCRIPTIVE NOTES (Type of report and inclusive dates)

5. AUTHOR(S) (First name, middle initial, last name)

George A. Coulter

6. REPORT DATE June 1969	7a. TOTAL NO. OF PAGES 461	7b. NO. OF REFS 13
8a. CONTRACT OR GRANT NO. DAHC-20-67-W-0153 b. PROJECT NO c. d.	9a. ORIGINATOR'S REPORT NUMBER(S) Memorandum Report No. 1987 9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report) None	

10. DISTRIBUTION STATEMENT

This document has been approved for public release and sale; its distribution is unlimited.

11. SUPPLEMENTARY NOTES	12. SPONSORING MILITARY ACTIVITY Office of Civil Defense Washington, D.C.

13. ABSTRACT

The results of model rooms with entrance baffles and chamber filling are given for two and three-dimensional models exposed to shock waves 5-20 psi overpressure produced in the 5 x 15 inch, 24 inch and 5.5 ft. shock tubes. Additional results are given for a field experiment in which a test structure 8 x 8 x 12 feet size was exposed to a 5 psi overpressure blast wave from the explosion of 500 tons of TNT. The results are presented as pressure-time filling records and high speed photographs to illustrate the shock filling process and the effects from the entrance baffles. A smoke grid technique was used to illustrate the shock filling process.

DD FORM 1 NOV 65 1473 REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

UNCLASSIFIED
Security Classification

UNCLASSIFIED

Security Classification

14. KEY WORDS	LINK A ROLE	LINK A WT	LINK B ROLE	LINK B WT	LINK C ROLE	LINK C WT
Chamber Filling						
Blast Loading						
Transient Flows						

UNCLASSIFIED

Security Classification