24" HST section Cone.

RM No. L7K26

28

Comp. Flow (Theo. + Exp.)

NACA

RESEARCH MEMORANDUM

COMPRESSIBLE FLOW TABLES FOR AIR

By

Marie A. Burcher

Langley Memorial Aeronautical Laboratory
Langley Field, Va.

NATIONAL ADVISORY COMMITTEE
FOR AERONAUTICS
WASHINGTON

NATIONAL ADVISORY COMMITTEE FOR AERONAUTICS

RESEARCH MEMORANDUM

COMPRESSIBLE FLOW TABLES FOR AIR

By Marie A. Burcher

SUMMARY

This paper contains a tabulation of functions of the Mach number which are frequently used in high-speed aerodynamics. The tables extend from $M = 0$ to $M = 10.0$ in increments of 0.01 and are based on the assumption that air is a perfect gas having a specific heat ratio of 1.400.

INTRODUCTION

In high-speed research, frequent use must be made of the theoretical relationships existing between the Mach number and various flow parameters, for example, the stream-tube area ratio, pressure, temperature, and density ratios referred to stagnation conditions, and the normal shock relations. The objective of the present paper is to present tabulated values of the most commonly needed functions for small enough Mach number increments (0.01) so that linear interpolation is possible without loss of accuracy for the Mach number range from 0 to 10.0. The quantities shown are functions solely of the Mach number with the exception of a few dimensional quantities computed for specified stagnation conditions. Tables 1 and 2 cover the subsonic and supersonic Mach number ranges, respectively.

An earlier unpublished compressible flow table which has been in use at the Langley Laboratory since 1945 was computed by Miss Vivian P. Adair of the Fluid and Gas Dynamics Analysis Section. The present tabulation extended this previous work from $M = 3.0$ to $M = 10.0$ and added a number of functions not included in the earlier table.

SYMBOLS

A cross-sectional area of stream tube

A_{cr} cross-sectional area of stream tube for $M_1 = 1.0$

a speed of sound in air

F_c compressibility factor $\left(\frac{p_o - p_1}{q_1} = 1 + \frac{1}{4} M_1^2 + \frac{1}{40} M_1^4 + \frac{1}{1600} M_1^6\right)$

M Mach number $\left(\frac{V}{a}\right)$

μ Mach angle $\left(\sin^{-1} \frac{1}{M}\right)$

p absolute pressure

q dynamic pressure $\left(\frac{1}{2}\rho V^2\right)$, pounds per square foot, computed for an arbitrary stagnation pressure, p_o = 2121 lb/sq ft

T absolute temperature, $^\circ R$

V airspeed computed for T_o = 520 $^\circ R$, feet per second

β angle between oblique shock and flow direction behind shock (see fig. 2)

γ ratio of specific heats, taken as 1.400

δ_{max} maximum possible flow deflection angle (see fig. 2) for oblique shock, degrees

ϵ acute angle between oblique shock and direction of undisturbed stream (see fig. 2)

ν expansion angle required to change Mach number from 1.0 to M_1 (see fig. 3), degrees

ρ mass density

Subscripts:

o, 1, 2, 3, cr — Stations in assumed stream tube, figure 1

For use of the tables in subsonic flight problems M_1 should be taken as the flight Mach number; then subscript 1 refers to atmospheric conditions and subscript o refers to stagnation conditions on the aircraft. Similarly for supersonic flight problems M_1 is the flight Mach number, and subscripts o and 1 are, respectively, the ideal stagnation and the atmospheric conditions.

ACCURACY

The values given in the tables were computed individually. Most of the steps in the various calculations were carried to seven significant figures on computing machines. Over half of the values given have been checked by recalculation. The rest of the values were checked by an examination of the differences between readings. The values are believed to be correct to the number of places shown, with the possible exception of the values of δ_{max}, which may occasionally be in error by one point in the last place (0.01°).

DISCUSSION

The formulas used in calculating the tables are, in general, well known and their derivation may be found in modern text books on fluid mechanics. A possible exception is the equation for δ_{max} which was first given in reference 3. For the sake of convenience, all of the equations are listed in the appendix.

It has been found convenient to use the stream-tube notation shown in figure 1. The theoretical relations involved are, of course, equally applicable either to stream-tube problems such as those encountered in wind tunnels and internal-flow systems or to flight problems. Attention is called to the fact that the subscript o refers to the ideal stagnation conditions (stagnation conditions for isentropic deceleration to zero velocity). For subsonic flight application, the stagnation conditions at an impact tube, for example, are represented by the subscript o. In the supersonic case, however, because of the presence of a normal compression shock ahead of the impact tube, the stagnation pressure shown by an impact tube will not correspond to the value represented by this subscript o but rather to that represented by the subscript 3, which refers to the stagnation condition behind a normal shock. The atmospheric conditions (p, T, and ρ) in the flight case are represented by the subscript 1.

The assumption that air is a perfect gas with a value of γ of 1.400 is valid for the conditions usually encountered in the subsonic and lower supersonic speed regions for normal stagnation conditions. For Mach numbers greater than about 4.0, however, or for unusual stagnation conditions the behavior of air will depart appreciably from that of a perfect gas if the liquefaction condition is approached, and caution should be used in applying the results in the tables at the higher Mach numbers. The data of reference 1 afford a means of estimating the conditions under which the constituents of air will liquefy at the relatively low pressures usually encountered in supersonic aerodynamic problems. The analytical methods of reference 2 may

be used to estimate the departure of the behavior of air from a perfect gas at extreme stagnation conditions.

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

Marie A. Burcher

Marie A. Burcher
Engineering Aide

Approved:

Clinton H. Dearborn

Clinton H. Dearborn
Chief of Full-Scale Research Division

CGB

APPENDIX

FORMULAS USED FOR SUBSONIC CALCULATIONS

For subsonic calculation (see fig. 1), the following formulas apply:

$$\frac{p_1}{p_o} = \left(1 + \frac{\gamma - 1}{2} M_1^2\right)^{\frac{\gamma}{1-\gamma}}$$

In flight applications, if M_1 is the flight Mach number, p_1 represents the atmospheric pressure, and p_o the stagnation pressure indicated by an ideal pitot tube. Similarly, in the following formulas T_1 and ρ_1 are the atmospheric temperature and density, respectively.

$$\frac{\rho_1}{\rho_o} = \left(1 + \frac{\gamma - 1}{2} M_1^2\right)^{\frac{1}{1-\gamma}}$$

$$\frac{T_1}{T_o} = \left(1 + \frac{\gamma - 1}{2} M_1^2\right)^{-1}$$

$$\frac{A_{cr}}{A_1} = M_1 \left(\frac{1 + \frac{\gamma - 1}{2}}{1 + \frac{\gamma - 1}{2} M_1^2}\right)^{\frac{\gamma+1}{2(\gamma-1)}}$$

$$\frac{a_1}{a_o} = \left(1 + \frac{\gamma - 1}{2} M_1^2\right)^{-\frac{1}{2}}$$

$$V_{1_{(T_o=520^\circ R)}} = M_1\left(\frac{a_1}{a_o}\right)a_{o_{(T_o=520^\circ R)}}$$

$$q_{1_{(p_o=2121\ \text{lb/sq ft})}} = \frac{\gamma}{2} M_1^2 p_o\left(p_1/p_o\right)$$

$$= 1484.7 M_1^2\left(p_1/p_o\right)$$

where p_o was arbitrarily taken as 2121 lb/sq ft. Obviously the dynamic pressure for any other p_o (regardless of the value of T_o) can be obtained by multiplying the tabulated values by the ratio $\frac{p_o}{2121}$.

$$F_c = \frac{p_o - p_1}{\frac{1}{2}\rho_1 V_1^2}$$

For small values of M_1, F_c was computed from

$$F_c = 1 + \frac{1}{4} M_1^2 + \frac{1}{40} M_1^4 + \frac{1}{1600} M_1^6$$

FORMULAS USED FOR SUPERSONIC CALCULATIONS

For supersonic calculations, the following formulas apply:

$$\frac{p_1}{p_o} = \left(1 + \frac{\gamma - 1}{2} M_1^2\right)^{\frac{\gamma}{1-\gamma}}$$

In flight problems M_1 should be considered the flight Mach number, p_1 the atmospheric pressure, and p_o the ideal stagnation pressure. Similarly, in the following formulas ρ_1 and T_1 are the atmospheric density and temperature, respectively.

$$\frac{\rho_1}{\rho_o} = \left(1 + \frac{\gamma - 1}{2} M_1^2\right)^{\frac{1}{1-\gamma}}$$

$$\frac{T_1}{T_o} = \left(1 + \frac{\gamma - 1}{2} M_1^2\right)^{-1}$$

$$\frac{A_1}{A_{cr}} = \frac{1}{M_1} \left(\frac{1 + \frac{\gamma - 1}{2} M_1^2}{1 + \frac{\gamma - 1}{2}}\right)^{\frac{\gamma+1}{2(\gamma-1)}}$$

$$\frac{a_1}{a_o} = \left(1 + \frac{\gamma - 1}{2} M_1^2\right)^{-\frac{1}{2}}$$

$$\frac{q_1}{q_{cr}} = M_1^2 \left(\frac{T_1}{T_{cr}}\right) \frac{\rho_1}{\rho_o} \left(\frac{\rho_o}{\rho_{cr}}\right)_{(M_1=1.0)}$$

$$V_{1_{(T_o=520^\circ R)}} = M_1\left(\frac{a_1}{a_o}\right)a_{o_{(T_o=520^\circ R)}}$$

The value of a_o for $T_o = 520^\circ R$ was taken as 1117.372 feet per second.

$$q_1 = \frac{1}{2}\rho_1 V_1^2 = \frac{\gamma M_1^2}{2}\frac{p_1}{p_o}p_o$$

where p_o was taken as 2121 pounds per square foot

$$\mu = \sin^{-1}\left(\frac{1}{M_1}\right)$$

$$\nu = \left(\frac{\gamma+1}{\gamma-1}\right)^{\frac{1}{2}}\cos^{-1}\left[\frac{\gamma+1}{2\left(1+\frac{\gamma-1}{2}M_1^2\right)}\right]^{\frac{1}{2}} + \mu - 90^\circ$$

$$\delta_{max} = \epsilon_{max} - \beta$$

where

$$\epsilon_{max} = \sin^{-1}\sqrt{\frac{1}{\gamma M_1^2}\left[\frac{\gamma+1}{4}M_1^2 - 1 + \sqrt{(\gamma+1)\left(1+\frac{\gamma-1}{2}M_1^2+\frac{\gamma+1}{16}M_1^4\right)}\right]}$$

$$\beta = \tan^{-1}\left[\frac{2}{\gamma+1}\left(\frac{1}{M_1^2\sin^2\epsilon_{max}} + \frac{\gamma-1}{2}\right)\tan\epsilon_{max}\right]$$

$$\frac{p_2}{p_1} = \frac{2\gamma}{\gamma + 1} M_1^2 - \frac{\gamma - 1}{\gamma + 1}$$

$$\frac{p_2}{p_o} = \left(\frac{p_2}{p_1}\right)\left(\frac{p_1}{p_o}\right)$$

$$\frac{p_3}{p_2} = \left(\frac{\gamma - 1}{2} M_2^2 + 1\right)^{\frac{\gamma}{\gamma - 1}}$$

$$\frac{p_3}{p_o} = \left(\frac{p_2}{p_o}\right)\left(\frac{p_3}{p_2}\right)$$

$$M_2 = \sqrt{\left(\frac{\gamma + 1}{2\gamma}\right)^2 \left(\frac{1}{M_1^2 - \frac{\gamma - 1}{2\gamma}}\right) + \frac{\gamma - 1}{2\gamma}}$$

$$\frac{\rho_2}{\rho_1} = \left(\frac{M_1}{M_2}\right)^2 \left(\frac{p_1}{p_2}\right)$$

$$\frac{V_2}{V_1} = \frac{\rho_1}{\rho_2}$$

REFERENCES

1. Dodge, Barnett F., and Dunbar, Atherton K.: An Investigation of the Coexisting Liquid and Vapor Phases of Solutions of Oxygen and Nitrogen. Jour. Amer. Chem. Society, vol. 49, no. , 1927, pp. 591–610.

2. Tsien, Hsue-Shen: One-Dimensional Flows of a Gas Characterized by van der Waal's Equation of State. Jour. Math. and Phys., vol. XXV, no. 4, Jan. 1947, pp. 301–324.

3. Crocco, Luigi: Singolarita della corrente gassosa imperacustica nell'intorno di una prora a diedro. L'Aerotecnica, vol. XVII, fasc. 6, June 1937, pp. 519–534.

TABLE I – SUBSONIC FLOW

M_1	$\frac{p_1}{p_o}$	$\frac{\rho_1}{\rho_o}$	$\frac{T_1}{T_o}$	$\frac{A_{cr}}{A_1}$	$\frac{a_1}{a_i}$	V_1 T_o=520°R	q_1 p_o = 2121 lb/sq ft	F_c	$\frac{1}{\sqrt{1-M_1^2}}$
0	1.000	1.000	1.000	0	1.000	0	0	1.000	1.000
.01	.9999	.9999	1.000	.0173	1.000	11.17	.1484	1.000	1.000
.02	.9997	.9998	.9999	.0346	1.000	22.35	.5936	1.000	1.000
.03	.9994	.9995	.9998	.0518	.9999	33.52	1.335	1.000	1.000
.04	.9989	.9992	.9997	.0691	.9998	44.69	2.373	1.000	1.001
.05	.9983	.9988	.9995	.0863	.9998	55.85	3.705	1.001	1.001
.06	.9975	.9982	.9993	.1035	.9996	67.02	5.331	1.001	1.002
.07	.9966	.9976	.9990	.1206	.9995	78.18	7.249	1.001	1.002
.08	.9955	.9968	.9987	.1377	.9994	89.33	9.458	1.002	1.003
.09	.9944	.9960	.9984	.1548	.9992	100.5	11.96	1.002	1.004
.10	.9930	.9950	.9980	.1718	.9990	111.6	14.74	1.003	1.005
.11	.9916	.9940	.9976	.1887	.9988	122.8	17.81	1.003	1.006
.12	.9900	.9928	.9971	.2056	.9986	133.9	21.16	1.004	1.007
.13	.9883	.9916	.9966	.2224	.9983	145.0	24.79	1.004	1.009
.14	.9864	.9903	.9961	.2391	.9980	156.1	28.70	1.005	1.010
.15	.9844	.9888	.9955	.2557	.9978	167.2	32.88	1.006	1.011
.16	.9823	.9873	.9949	.2723	.9974	178.3	37.33	1.006	1.013
.17	.9800	.9857	.9943	.2887	.9971	189.4	42.05	1.007	1.015
.18	.9776	.9840	.9936	.3051	.9968	200.5	47.02	1.008	1.017
.19	.9751	.9822	.9928	.3213	.9964	211.5	52.26	1.009	1.019
.20	.9725	.9803	.9921	.3374	.9960	222.6	57.75	1.010	1.021
.21	.9697	.9783	.9913	.3534	.9956	233.6	63.48	1.011	1.023
.22	.9668	.9762	.9904	.3693	.9952	244.6	69.47	1.012	1.025
.23	.9638	.9740	.9895	.3851	.9948	255.6	75.69	1.013	1.028
.24	.9607	.9718	.9886	.4007	.9943	266.6	82.15	1.014	1.030
.25	.9575	.9694	.9877	.4162	.9938	277.6	88.83	1.016	1.033
.26	.9541	.9670	.9867	.4315	.9933	288.6	95.74	1.017	1.036
.27	.9506	.9645	.9856	.4468	.9928	299.5	102.9	1.018	1.039
.28	.9470	.9619	.9846	.4618	.9923	310.4	110.2	1.020	1.042
.29	.9433	.9592	.9835	.4767	.9917	321.3	117.8	1.021	1.045
.30	.9395	.9564	.9823	.4914	.9911	332.2	125.5	1.023	1.048
.31	.9355	.9535	.9811	.5059	.9905	343.1	133.5	1.024	1.052
.32	.9315	.9506	.9799	.5203	.9899	354.0	141.6	1.026	1.056
.33	.9274	.9476	.9787	.5345	.9893	364.8	149.9	1.028	1.059
.34	.9231	.9445	.9774	.5486	.9886	375.6	158.4	1.029	1.063
.35	.9188	.9413	.9761	.5624	.9880	386.4	167.1	1.031	1.068
.36	.9143	.9380	.9747	.5761	.9873	397.1	175.9	1.033	1.072
.37	.9098	.9347	.9733	.5896	.9866	407.9	184.9	1.035	1.076
.38	.9052	.9313	.9719	.6029	.9859	418.6	194.0	1.037	1.081
.39	.9004	.9278	.9705	.6159	.9851	429.3	203.3	1.039	1.086
.40	.8956	.9243	.9690	.6288	.9844	440.0	212.7	1.041	1.091
.41	.8907	.9207	.9675	.6415	.9836	450.6	222.3	1.043	1.096
.42	.8857	.9170	.9659	.6541	.9828	461.2	231.9	1.045	1.102
.43	.8807	.9132	.9643	.6664	.9820	471.8	241.7	1.047	1.108
.44	.8755	.9094	.9627	.6784	.9812	482.4	251.6	1.049	1.114
.45	.8703	.9055	.9611	.6903	.9803	492.9	261.6	1.052	1.120
.46	.8650	.9016	.9594	.7019	.9795	503.4	271.7	1.054	1.126
.47	.8596	.8976	.9577	.7134	.9786	513.9	281.9	1.056	1.133
.48	.8541	.8935	.9559	.7246	.9777	524.4	292.1	1.059	1.140
.49	.8486	.8894	.9542	.7356	.9768	534.8	302.5	1.061	1.147

TABLE I – SUBSONIC FLOW – Concluded

M_1	$\frac{p_1}{p_c}$	$\frac{\rho_1}{\rho_o}$	$\frac{T_1}{T_o}$	$\frac{A_{cr}}{A_1}$	$\frac{a_1}{a_o}$	V_1 T_o=520°R	q_1 p_o = 2121 lb/sq ft	F_c	$\frac{1}{\sqrt{1-M_1^2}}$
0.50	0.8430	0.8852	0.9524	0.7464	0.9759	545.2	312.9	1.064	1.155
.51	.8374	.8809	.9506	.7569	.9750	555.6	323.3	1.067	1.163
.52	.8317	.8766	.9487	.7672	.9740	565.9	333.8	1.069	1.171
.53	.8259	.8723	.9468	.7773	.9730	576.2	344.4	1.072	1.179
.54	.8201	.8679	.9449	.7872	.9721	586.5	355.0	1.075	1.188
.55	.8142	.8634	.9430	.7969	.9711	596.8	365.6	1.078	1.197
.56	.8082	.8589	.9410	.8063	.9700	607.0	376.3	1.081	1.207
.57	.8022	.8544	.9390	.8155	.9690	617.2	386.9	1.084	1.217
.58	.7962	.8498	.9370	.8244	.9680	627.3	397.6	1.087	1.228
.59	.7901	.8451	.9349	.8331	.9669	637.4	408.3	1.090	1.239
.60	.7840	.8405	.9328	.8416	.9658	647.5	419.0	1.093	1.250
.61	.7778	.8357	.9307	.8499	.9647	657.6	429.7	1.097	1.262
.62	.7716	.8310	.9286	.8579	.9636	667.6	440.3	1.100	1.275
.63	.7654	.8262	.9265	.8657	.9625	677.6	451.0	1.103	1.288
.64	.7591	.8213	.9243	.8733	.9614	687.5	461.6	1.107	1.301
.65	.7528	.8164	.9221	.8806	.9603	697.4	472.2	1.110	1.316
.66	.7465	.8115	.9199	.8877	.9591	707.3	482.7	1.114	1.331
.67	.7401	.8066	.9176	.8945	.9579	717.1	493.2	1.117	1.347
.68	.7338	.8016	.9153	.9011	.9567	726.9	503.7	1.121	1.364
.69	.7274	.7966	.9131	.9076	.9555	736.7	514.1	1.125	1.382
.70	.7209	.7916	.9107	.9138	.9543	746.4	524.4	1.129	1.400
.71	.7145	.7865	.9084	.9197	.9531	756.1	534.7	1.132	1.420
.72	.7080	.7814	.9061	.9255	.9519	765.8	544.9	1.136	1.441
.73	.7016	.7763	.9037	.9309	.9506	775.4	555.0	1.140	1.463
.74	.6951	.7712	.9013	.9362	.9494	785.0	565.0	1.144	1.487
.75	.6886	.7660	.8989	.9413	.9481	794.5	575.0	1.149	1.512
.76	.6821	.7609	.8964	.9461	.9468	804.0	584.8	1.153	1.539
.77	.6756	.7557	.8940	.9507	.9455	813.5	594.6	1.157	1.567
.78	.6691	.7505	.8915	.9551	.9442	822.9	604.3	1.161	1.598
.79	.6625	.7452	.8890	.9592	.9429	832.3	613.8	1.166	1.631
.80	.6560	.7400	.8865	.9632	.9416	841.7	623.3	1.170	1.667
.81	.6495	.7347	.8840	.9669	.9402	851.0	632.6	1.175	1.705
.82	.6430	.7295	.8815	.9704	.9389	860.2	641.8	1.180	1.747
.83	.6365	.7242	.8789	.9737	.9375	869.5	650.9	1.184	1.793
.84	.6300	.7189	.8763	.9769	.9361	878.6	659.9	1.189	1.843
.85	.6235	.7136	.8737	.9797	.9347	887.8	668.7	1.194	1.898
.86	.6170	.7083	.8711	.9824	.9333	896.9	677.5	1.199	1.960
.87	.6106	.7030	.8685	.9849	.9319	906.0	686.0	1.204	2.028
.88	.6041	.6977	.8659	.9872	.9305	915.0	694.5	1.209	2.105
.89	.5977	.6924	.8632	.9893	.9291	924.0	702.8	1.214	2.193
.90	.5913	.6870	.8606	.9912	.9277	932.9	711.0	1.219	2.294
.91	.5849	.6817	.8579	.9929	.9262	941.8	719.0	1.225	2.412
.92	.5785	.6764	.8552	.9944	.9248	950.7	726.8	1.230	2.552
.93	.5721	.6711	.8525	.9958	.9233	959.5	734.6	1.235	2.721
.94	.5658	.6658	.8498	.9969	.9219	968.3	742.1	1.241	2.931
.95	.5595	.6604	.8471	.9979	.9204	977.0	749.5	1.246	3.203
.96	.5532	.6551	.8444	.9987	.9189	985.7	756.8	1.252	3.571
.97	.5469	.6498	.8416	.9992	.9174	994.3	763.9	1.258	4.113
.98	.5407	.6445	.8389	.9997	.9159	1003.	770.8	1.264	5.025
.99	.5345	.6392	.8361	.9999	.9144	1011	777.6	1.270	7.089
1.00	.5283	.6339	.8333	1.0000	.9129	1020	784.2	1.276	------

TABLE II.- SUPERSONIC FLOW

M_1	$\frac{p_1}{p_o}$	$\frac{\rho_1}{\rho_o}$	$\frac{T_1}{T_o}$	$\frac{A_1}{A_{cr}}$	$\frac{a_1}{a_o}$	$\frac{q_1}{q_{cr}}$	V_1, $T_o = 520^\circ R$	q_1, $p_o = 2121$ lb/sq ft	$\frac{1}{\sqrt{M_1^2 - 1}}$
1.00	0.5283	0.6339	0.8333	1.000	0.9129	1.000	1020	784.2	∞
1.01	.5221	.6287	.8306	1.000	.9113	1.008	1028	790.7	7.053
1.02	.5160	.6234	.8278	1.000	.9098	1.016	1037	797.0	4.975
1.03	.5099	.6181	.8250	1.001	.9083	1.024	1045	803.1	4.052
1.04	.5039	.6129	.8222	1.001	.9067	1.032	1054	809.1	3.501
1.05	.4979	.6077	.8193	1.002	.9052	1.039	1062	814.9	3.123
1.06	.4919	.6024	.8165	1.003	.9036	1.046	1070	820.5	2.844
1.07	.4860	.5972	.8137	1.004	.9020	1.053	1078	825.9	2.627
1.08	.4800	.5920	.8108	1.005	.9005	1.060	1087	831.2	2.451
1.09	.4742	.5869	.8080	1.006	.8989	1.066	1095	836.3	2.306
1.10	.4684	.5817	.8052	1.008	.8973	1.073	1103	841.3	2.182
1.11	.4626	.5766	.8023	1.010	.8957	1.079	1111	846.1	2.076
1.12	.4568	.5714	.7994	1.011	.8941	1.085	1119	850.7	1.983
1.13	.4511	.5663	.7966	1.013	.8925	1.090	1127	855.1	1.900
1.14	.4455	.5612	.7937	1.015	.8909	1.096	1135	859.4	1.827
1.15	.4398	.5562	.7908	1.017	.8893	1.101	1143	863.5	1.761
1.16	.4343	.5511	.7879	1.020	.8877	1.106	1151	867.4	1.701
1.17	.4287	.5461	.7851	1.022	.8860	1.111	1158	871.2	1.646
1.18	.4232	.5411	.7822	1.025	.8844	1.116	1166	874.8	1.596
1.19	.4178	.5361	.7793	1.026	.8828	1.120	1174	878.2	1.550
1.20	.4124	.5311	.7764	1.030	.8811	1.124	1181	881.5	1.508
1.21	.4070	.5262	.7735	1.033	.8795	1.128	1189	884.6	1.468
1.22	.4017	.5213	.7706	1.037	.8778	1.132	1197	887.6	1.431
1.23	.3964	.5164	.7677	1.040	.8762	1.135	1204	890.4	1.396
1.24	.3912	.5115	.7648	1.043	.8745	1.139	1212	893.0	1.364

M_1	μ	ν	δ_{max}	$\frac{p_2}{p_1}$	$\frac{p_2}{p_o}$	$\frac{p_3}{p_o}$	$\frac{\rho_2}{\rho_1}$	M_2	$\frac{V_2}{V_1}$
1.00	90.00	0	0	1.000	0.5283	1.000	1.000	1.000	1.000
1.01	81.93	.04	.05	1.023	.5344	1.000	1.017	.9901	.9836
1.02	78.64	.13	.14	1.047	.5403	1.000	1.033	.9805	.9676
1.03	76.14	.23	.26	1.071	.5462	1.000	1.050	.9712	.9522
1.04	74.06	.35	.40	1.095	.5519	.9999	1.067	.9620	.9371
1.05	72.25	.49	.56	1.120	.5574	.9999	1.084	.9531	.9225
1.06	70.63	.64	.73	1.144	.5628	.9997	1.101	.9444	.9083
1.07	69.16	.80	.91	1.169	.5681	.9996	1.118	.9360	.8945
1.08	67.81	.97	1.10	1.194	.5732	.9994	1.135	.9277	.8811
1.09	66.55	1.15	1.30	1.219	.5782	.9992	1.152	.9196	.8681
1.10	65.38	1.34	1.52	1.245	.5831	.9989	1.169	.9118	.8554
1.11	64.28	1.53	1.73	1.271	.5878	.9986	1.186	.9041	.8430
1.12	63.23	1.74	1.96	1.297	.5924	.9982	1.203	.8966	.8310
1.13	62.25	1.94	2.19	1.323	.5968	.9978	1.221	.8892	.8193
1.14	61.31	2.16	2.43	1.350	.6012	.9973	1.238	.8820	.8079
1.15	60.41	2.38	2.67	1.376	.6053	.9967	1.255	.8750	.7968
1.16	59.55	2.61	2.92	1.403	.6093	.9961	1.272	.8682	.7860
1.17	58.73	2.84	3.17	1.430	.6132	.9953	1.290	.8615	.7754
1.18	57.94	3.07	3.42	1.458	.6170	.9946	1.307	.8549	.7652
1.19	57.18	3.31	3.68	1.485	.6206	.9937	1.324	.8485	.7551
1.20	56.44	3.56	3.94	1.513	.6241	.9928	1.342	.8422	.7454
1.21	55.74	3.81	4.21	1.541	.6274	.9918	1.359	.8360	.7358
1.22	55.05	4.06	4.47	1.570	.6306	.9907	1.376	.8300	.7266
1.23	54.39	4.31	4.74	1.598	.6337	.9896	1.394	.8241	.7175
1.24	53.75	4.57	5.01	1.627	.6366	.9884	1.411	.8183	.7086

TABLE II.- SUPERSONIC FLOW - Continued

M_1	$\frac{p_1}{p_o}$	$\frac{\rho_1}{\rho_o}$	$\frac{T_1}{T_o}$	$\frac{A_1}{A_{cr}}$	$\frac{a_1}{a_o}$	$\frac{q_1}{q_{cr}}$	V_1 $T_o=520^\circ R$	q_1 $p_o = 2121$ lb/sq ft	$\frac{1}{\sqrt{M_1^2 - 1}}$
1.25	0.3861	0.5067	0.7619	1.047	0.8729	1.142	1219	895.5	1.333
1.26	.3809	.5019	.7590	1.050	.8712	1.145	1227	897.8	1.305
1.27	.3759	.4971	.7561	1.054	.8695	1.148	1234	899.9	1.277
1.28	.3708	.4923	.7532	1.058	.8679	1.150	1241	901.9	1.252
1.29	.3658	.4876	.7503	1.062	.8662	1.152	1249	903.8	1.227
1.30	.3609	.4829	.7474	1.066	.8645	1.155	1256	905.5	1.204
1.31	.3560	.4782	.7445	1.071	.8628	1.157	1263	907.0	1.182
1.32	.3512	.4736	.7416	1.075	.8611	1.158	1270	908.4	1.161
1.33	.3464	.4690	.7387	1.080	.8595	1.160	1277	909.6	1.140
1.34	.3417	.4644	.7358	1.084	.8578	1.161	1284	910.7	1.121
1.35	.3370	.4598	.7329	1.089	.8561	1.163	1291	911.7	1.103
1.36	.3323	.4553	.7300	1.094	.8544	1.164	1298	912.5	1.085
1.37	.3277	.4508	.7271	1.099	.8527	1.164	1305	913.1	1.068
1.38	.3232	.4463	.7242	1.104	.8510	1.165	1312	913.7	1.052
1.39	.3187	.4418	.7213	1.109	.8493	1.166	1319	914.1	1.036
1.40	.3142	.4374	.7184	1.115	.8476	1.166	1326	914.3	1.021
1.41	.3098	.4330	.7155	1.120	.8459	1.166	1333	914.4	1.006
1.42	.3055	.4287	.7126	1.126	.8442	1.166	1339	914.4	.9919
1.43	.3012	.4244	.7097	1.132	.8425	1.166	1346	914.3	.9783
1.44	.2969	.4201	.7069	1.138	.8407	1.165	1353	914.0	.9651
1.45	.2927	.4158	.7040	1.144	.8390	1.165	1359	913.6	.9524
1.46	.2886	.4116	.7011	1.150	.8373	1.164	1366	913.1	.9401
1.47	.2845	.4074	.6982	1.156	.8356	1.164	1373	912.5	.9281
1.48	.2804	.4032	.6954	1.163	.8339	1.163	1379	911.7	.9165
1.49	.2764	.3991	.6925	1.169	.8322	1.161	1385	910.8	.9053

M_1	μ	ν	δ_{max}	$\frac{p_2}{p_1}$	$\frac{p_2}{p_o}$	$\frac{p_3}{p_o}$	$\frac{\rho_2}{\rho_1}$	M_2	$\frac{V_2}{V_1}$
1.25	53.13	4.83	5.29	1.656	0.6394	0.9871	1.429	0.8126	0.7000
1.26	52.53	5.09	5.56	1.686	.6421	.9857	1.446	.8071	.6916
1.27	51.94	5.36	5.83	1.715	.6446	.9842	1.463	.8016	.6833
1.28	51.38	5.63	6.11	1.745	.6470	.9827	1.481	.7963	.6753
1.29	50.82	5.90	6.39	1.775	.6493	.9811	1.498	.7911	.6674
1.30	50.28	6.17	6.66	1.805	.6514	.9794	1.516	.7860	.6598
1.31	49.76	6.45	6.94	1.835	.6535	.9776	1.533	.7809	.6523
1.32	49.25	6.72	7.22	1.866	.6554	.9758	1.551	.7760	.6449
1.33	48.75	7.00	7.49	1.897	.6571	.9738	1.568	.7712	.6378
1.34	48.27	7.28	7.77	1.928	.6588	.9718	1.585	.7664	.6308
1.35	47.79	7.56	8.05	1.960	.6603	.9697	1.603	.7618	.6239
1.36	47.33	7.84	8.33	1.991	.6617	.9676	1.620	.7572	.6172
1.37	46.88	8.13	8.60	2.023	.6630	.9653	1.638	.7527	.6107
1.38	46.44	8.41	8.88	2.055	.6642	.9630	1.655	.7483	.6043
1.39	46.01	8.70	9.15	2.087	.6652	.9607	1.672	.7440	.5980
1.40	45.58	8.99	9.43	2.120	.6662	.9582	1.690	.7397	.5918
1.41	45.17	9.28	9.70	2.153	.6670	.9557	1.707	.7355	.5858
1.42	44.77	9.57	9.97	2.186	.6677	.9531	1.724	.7314	.5799
1.43	44.37	9.86	10.25	2.219	.6683	.9504	1.742	.7274	.5742
1.44	43.98	10.15	10.52	2.253	.6688	.9476	1.759	.7235	.5685
1.45	43.60	10.44	10.79	2.286	.6692	.9448	1.776	.7196	.5630
1.46	43.23	10.73	11.05	2.320	.6695	.9420	1.793	.7157	.5576
1.47	42.86	11.02	11.32	2.354	.6697	.9390	1.811	.7120	.5523
1.48	42.51	11.32	11.59	2.389	.6698	.9360	1.828	.7083	.5471
1.49	42.16	11.61	11.85	2.423	.6698	.9329	1.845	.7047	.5420

TABLE II.- ISENTROPIC FLOW -- Concluded

M_1	$\frac{p_1}{p_o}$	$\frac{\rho_1}{\rho_o}$	$\frac{T_1}{T_o}$	$\frac{A_1}{A_{cr}}$	$\frac{a_1}{a_o}$	$\frac{q_1}{q_{cr}}$	V_1 $T_o=520^\circ R$	q_1 $p_o = 2121$ lb/sq ft	$\frac{1}{\sqrt{M_1^2 - 1}}$
1.50	0.2724	0.3950	0.6897	1.176	0.8305	1.160	1392	909.9	0.8944
1.51	.2685	.3909	.6868	1.183	.8287	1.159	1398	908.8	.8838
1.52	.2646	.3869	.6840	1.190	.8270	1.157	1405	907.5	.8736
1.53	.2608	.3829	.6811	1.197	.8253	1.156	1411	906.2	.8636
1.54	.2570	.3789	.6783	1.204	.8236	1.154	1417	904.8	.8539
1.55	.2533	.3750	.6754	1.212	.8219	1.152	1423	903.3	.8444
1.56	.2496	.3710	.6726	1.219	.8201	1.150	1430	901.6	.8352
1.57	.2459	.3672	.6698	1.227	.8184	1.147	1436	899.9	.8262
1.58	.2423	.3633	.6670	1.234	.8167	1.145	1442	898.1	.8175
1.59	.2388	.3595	.6642	1.242	.8150	1.143	1448	896.1	.8090
1.60	.2353	.3557	.6614	1.250	.8133	1.140	1454	894.1	.8006
1.61	.2318	.3520	.6586	1.258	.8115	1.137	1460	892.0	.7925
1.62	.2284	.3483	.6558	1.267	.8098	1.135	1466	889.8	.7846
1.63	.2250	.3446	.6530	1.275	.8081	1.132	1472	887.5	.7769
1.64	.2217	.3409	.6502	1.284	.8064	1.129	1478	885.1	.7693
1.65	.2184	.3373	.6475	1.292	.8046	1.125	1484	882.6	.7619
1.66	.2151	.3337	.6447	1.301	.8029	1.122	1489	880.1	.7547
1.67	.2119	.3302	.6419	1.310	.8012	1.119	1495	877.5	.7477
1.68	.2088	.3266	.6392	1.319	.7995	1.115	1501	874.8	.7408
1.69	.2057	.3232	.6364	1.328	.7978	1.112	1506	872.0	.7340
1.70	.2026	.3197	.6337	1.338	.7961	1.108	1512	869.2	.7274
1.71	.1996	.3163	.6310	1.347	.7943	1.105	1518	866.2	.7209
1.72	.1966	.3129	.6283	1.357	.7926	1.101	1523	863.3	.7146
1.73	.1936	.3095	.6256	1.367	.7909	1.097	1529	860.2	.7084
1.74	.1907	.3062	.6229	1.376	.7892	1.093	1534	857.1	.7023

M_1	μ	ν	δ_{max}	$\frac{p_2}{p_1}$	$\frac{p_2}{p_o}$	$\frac{p_3}{p_o}$	$\frac{\rho_2}{\rho_1}$	M_2	$\frac{V_2}{V_1}$
1.50	41.81	11.91	12.11	2.458	0.6697	0.9298	1.862	0.7011	0.5370
1.51	41.47	12.20	12.37	2.493	.6694	.9266	1.879	.6976	.5321
1.52	41.14	12.49	12.63	2.529	.6691	.9233	1.896	.6941	.5274
1.53	40.81	12.78	12.89	2.564	.6687	.9200	1.913	.6907	.5227
1.54	40.49	13.09	13.48	2.600	.6682	.9166	1.930	.6874	.5180
1.55	40.18	13.38	13.40	2.636	.6677	.9132	1.947	.6841	.5135
1.56	39.87	13.68	13.66	2.673	.6670	.9097	1.964	.6809	.5091
1.57	39.56	13.97	13.91	2.709	.6662	.9061	1.981	.6777	.5047
1.58	39.27	14.27	14.16	2.746	.6654	.9026	1.998	.6746	.5005
1.59	38.97	14.58	14.41	2.783	.6645	.8989	2.015	.6715	.4963
1.60	38.68	14.86	14.65	2.820	.6635	.8952	2.032	.6684	.4922
1.61	38.40	15.16	14.90	2.857	.6624	.8915	2.049	.6655	.4882
1.62	38.12	15.45	15.14	2.895	.6612	.8877	2.065	.6625	.4842
1.63	37.84	15.75	15.38	2.933	.6600	.8838	2.082	.6596	.4803
1.64	37.57	16.04	15.62	2.971	.6587	.8799	2.099	.6568	.4765
1.65	37.31	16.34	15.86	3.010	.6573	.8760	2.115	.6540	.4728
1.66	37.04	16.63	16.09	3.048	.6558	.8720	2.132	.6512	.4691
1.67	36.78	16.93	16.32	3.087	.6543	.8680	2.148	.6485	.4655
1.68	36.53	17.22	16.55	3.126	.6527	.8640	2.165	.6458	.4619
1.69	36.28	17.52	16.78	3.165	.6510	.8598	2.181	.6431	.4584
1.70	36.03	17.81	17.01	3.205	.6493	.8557	2.198	.6405	.4550
1.71	35.79	18.10	17.24	3.245	.6475	.8516	2.214	.6380	.4517
1.72	35.55	18.40	17.46	3.285	.6457	.8474	2.230	.6355	.4484
1.73	35.31	18.69	17.68	3.325	.6438	.8431	2.247	.6330	.4451
1.74	35.08	18.98	17.90	3.366	.6418	.8389	2.263	.6305	.4419

TABLE II.- SUPERSONIC FLOW - Continued

M_1	$\frac{p_1}{p_o}$	$\frac{\rho_1}{\rho_o}$	$\frac{T_1}{T_o}$	$\frac{A_1}{A_{cr}}$	$\frac{a_1}{a_o}$	$\frac{q_1}{q_{cr}}$	V_1 $T_o=520^\circ R$	q_1 $p_o = 2121$ lb/sq ft	$\frac{1}{\sqrt{M_1^2 - 1}}$
1.75	0.1878	0.3029	0.6202	1.386	0.7875	1.089	1540	853.9	0.6963
1.76	.1850	.2996	.6175	1.397	.7858	1.085	1545	850.6	.6905
1.77	.1822	.2964	.6148	1.407	.7841	1.080	1551	847.3	.6847
1.78	.1794	.2931	.6121	1.418	.7824	1.076	1556	844.0	.6791
1.79	.1767	.2900	.6095	1.428	.7807	1.072	1561	840.6	.6736
1.80	.1740	.2868	.6068	1.439	.7790	1.067	1567	837.1	.6682
1.81	.1714	.2837	.6041	1.450	.7773	1.063	1572	833.6	.6628
1.82	.1688	.2806	.6015	1.461	.7756	1.058	1577	830.0	.6576
1.83	.1662	.2776	.5989	1.472	.7739	1.054	1582	826.4	.6525
1.84	.1637	.2745	.5963	1.484	.7722	1.049	1588	822.7	.6474
1.85	.1612	.2715	.5936	1.495	.7705	1.044	1593	819.0	.6425
1.86	.1587	.2686	.5910	1.507	.7688	1.040	1598	815.2	.6376
1.87	.1563	.2656	.5884	1.519	.7671	1.035	1603	811.4	.6328
1.88	.1539	.2627	.5859	1.531	.7654	1.030	1608	807.6	.6281
1.89	.1516	.2598	.5833	1.543	.7637	1.025	1613	803.7	.6235
1.90	.1492	.2570	.5807	1.555	.7620	1.020	1618	799.8	.6190
1.91	.1470	.2542	.5782	1.568	.7604	1.015	1623	795.8	.6145
1.92	.1447	.2514	.5756	1.580	.7587	1.010	1628	791.8	.6101
1.93	.1425	.2486	.5731	1.593	.7570	1.005	1633	787.8	.6058
1.94	.1403	.2459	.5705	1.606	.7553	.9994	1637	783.8	.6015
1.95	.1381	.2432	.5680	1.619	.7537	.9942	1642	779.7	.5973
1.96	.1360	.2405	.5655	1.633	.7520	.9890	1647	775.6	.5932
1.97	.1339	.2378	.5630	1.646	.7503	.9837	1652	771.4	.5892
1.98	.1318	.2352	.5605	1.660	.7487	.9784	1656	767.3	.5852
1.99	.1298	.2326	.5580	1.674	.7470	.9731	1661	763.1	.5812

M_1	μ	ν	δ_{max}	$\frac{p_2}{p_1}$	$\frac{p_2}{p_o}$	$\frac{p_2}{p_o}$	$\frac{\rho_2}{\rho_1}$	M_2	$\frac{V_2}{V_1}$
1.75	34.85	19.27	18.12	3.406	0.6398	0.8346	2.279	0.6281	0.4388
1.76	34.62	19.56	18.34	3.447	.6377	.8302	2.295	.6257	.4357
1.77	34.40	19.86	18.55	3.488	.6356	.8259	2.311	.6234	.4327
1.78	34.18	20.15	18.76	3.530	.6334	.8215	2.327	.6210	.4297
1.79	33.96	20.44	18.97	3.571	.6311	.8171	2.343	.6188	.4268
1.80	33.75	20.73	19.18	3.613	.6289	.8127	2.359	.6165	.4239
1.81	33.54	21.01	19.39	3.655	.6265	.8082	2.375	.6143	.4210
1.82	33.33	21.30	19.59	3.698	.6242	.8038	2.391	.6121	.4182
1.83	33.12	21.59	19.80	3.740	.6217	.7993	2.407	.6099	.4155
1.84	32.92	21.88	20.00	3.783	.6193	.7948	2.422	.6078	.4128
1.85	32.72	22.16	20.20	3.826	.6168	.7902	2.438	.6057	.4102
1.86	32.52	22.45	20.40	3.870	.6142	.7857	2.454	.6036	.4075
1.87	32.33	22.73	20.59	3.913	.6116	.7811	2.469	.6016	.4050
1.88	32.13	23.02	20.78	3.957	.6090	.7765	2.485	.5996	.4024
1.89	31.94	23.30	20.98	4.001	.6064	.7720	2.500	.5976	.4000
1.90	31.76	23.59	21.17	4.045	.6037	.7674	2.516	.5956	.3975
1.91	31.57	23.87	21.36	4.089	.6009	.7627	2.531	.5937	.3951
1.92	31.39	24.15	21.54	4.134	.5982	.7581	2.546	.5918	.3927
1.93	31.21	24.43	21.73	4.179	.5954	.7535	2.562	.5899	.3904
1.94	31.03	24.71	21.91	4.224	.5926	.7488	2.577	.5880	.3881
1.95	30.85	24.99	22.09	4.270	.5897	.7442	2.592	.5862	.3858
1.96	30.68	25.27	22.27	4.315	.5869	.7395	2.607	.5844	.3836
1.97	30.51	25.55	22.45	4.361	.5840	.7349	2.622	.5826	.3814
1.98	30.33	25.83	22.63	4.407	.5810	.7302	2.637	.5808	.3792
1.99	30.17	26.10	22.80	4.453	.5781	.7255	2.652	.5791	.3771

TABLE II.- SUPERSONIC FLOW - Continued

M_1	$\frac{p_1}{p_o}$	$\frac{\rho_1}{\rho_o}$	$\frac{T_1}{T_o}$	$\frac{A_1}{A_{cr}}$	$\frac{a_1}{a_o}$	$\frac{q_1}{q_{cr}}$	V_1 $T_o=520^\circ R$	q_1 $p_o = 2121$ lb/sq ft	$\frac{1}{\sqrt{M_1^2 - 1}}$
2.00	0.1278	0.2300	0.5556	1.688	0.7454	0.9677	1666	758.9	0.5774
2.01	.1258	.2275	.5531	1.702	.7437	.9623	1670	754.7	.5735
2.02	.1239	.2250	.5506	1.716	.7420	.9569	1675	750.4	.5698
2.03	.1220	.2225	.5482	1.730	.7404	.9515	1679	746.2	.5661
2.04	.1201	.2200	.5458	1.745	.7388	.9460	1684	741.9	.5624
2.05	.1182	.2176	.5433	1.760	.7371	.9405	1688	737.6	.5588
2.06	.1164	.2152	.5409	1.775	.7355	.9350	1693	733.3	.5552
2.07	.1146	.2128	.5385	1.790	.7338	.9295	1697	728.9	.5517
2.08	.1128	.2104	.5361	1.806	.7322	.9240	1702	724.6	.5483
2.09	.1111	.2081	.5337	1.821	.7306	.9184	1706	720.3	.5449
2.10	.1094	.2058	.5313	1.837	.7289	.9129	1710	715.9	.5415
2.11	.1077	.2035	.5290	1.853	.7273	.9073	1715	711.5	.5382
2.12	.1060	.2013	.5266	1.869	.7257	.9017	1719	707.1	.5350
2.13	.1043	.1990	.5243	1.885	.7241	.8961	1723	702.8	.5317
2.14	.1027	.1968	.5219	1.902	.7225	.8905	1728	698.4	.5285
2.15	.1011	.1946	.5196	1.919	.7208	.8849	1732	694.0	.5254
2.16	$.9956\times10^{-1}$	.1925	.5173	1.935	.7192	.8793	1736	689.6	.5223
2.17	.9802	.1903	.5150	1.953	.7176	.8737	1740	685.2	.5193
2.18	.9649	.1882	.5127	1.970	.7160	.8681	1744	680.8	.5162
2.19	.9500	.1861	.5104	1.987	.7144	.8624	1748	676.4	.5133
2.20	.9352	.1841	.5081	2.005	.7128	.8568	1752	671.9	.5103
2.21	.9207	.1820	.5059	2.023	.7112	.8512	1756	667.5	.5074
2.22	.9064	.1800	.5036	2.041	.7097	.8456	1760	663.1	.5045
2.23	.8923	.1780	.5014	2.059	.7081	.8400	1764	658.7	.5017
2.24	.8785	.1760	.4991	2.078	.7065	.8344	1768	654.3	.4989

M_1	μ	ν	δ_{max}	$\frac{p_2}{p_1}$	$\frac{p_2}{p_o}$	$\frac{p_3}{p_o}$	$\frac{\rho_2}{\rho_1}$	M_2	$\frac{V_2}{V_1}$
2.00	30.00	26.38	22.97	4.500	0.5751	0.7209	2.667	0.5774	0.3750
2.01	29.84	26.66	23.14	4.547	.5721	.7162	2.681	.5757	.3729
2.02	29.67	26.93	23.31	4.594	.5691	.7115	2.696	.5740	.3709
2.03	29.51	27.20	23.48	4.641	.5661	.7069	2.711	.5723	.3689
2.04	29.35	27.48	23.65	4.689	.5630	.7022	2.725	.5707	.3669
2.05	29.20	27.75	23.81	4.736	.5600	.6975	2.740	.5691	.3650
2.06	29.04	28.02	23.98	4.784	.5569	.6928	2.755	.5675	.3630
2.07	28.89	28.29	24.14	4.832	.5538	.6882	2.769	.5659	.3611
2.08	28.74	28.56	24.30	4.881	.5507	.6835	2.783	.5643	.3593
2.09	28.59	28.83	24.46	4.929	.5475	.6789	2.798	.5628	.3574
2.10	28.44	29.10	24.61	4.978	.5444	.6742	2.812	.5613	.3556
2.11	28.29	29.36	24.77	5.027	.5412	.6696	2.826	.5598	.3538
2.12	28.14	29.63	24.92	5.077	.5381	.6649	2.840	.5583	.3521
2.13	28.00	29.90	25.08	5.126	.5349	.6603	2.854	.5568	.3503
2.14	27.86	30.16	25.23	5.176	.5317	.6556	2.868	.5554	.3486
2.15	27.72	30.43	25.38	5.226	.5285	.6511	2.882	.5540	.3469
2.16	27.58	30.69	25.52	5.277	.5253	.6464	2.896	.5525	.3453
2.17	27.44	30.95	25.67	5.327	.5221	.6419	2.910	.5511	.3436
2.18	27.30	31.21	25.82	5.378	.5189	.6373	2.924	.5498	.3420
2.19	27.17	31.47	25.96	5.429	.5157	.6327	2.938	.5484	.3404
2.20	27.04	31.73	26.10	5.480	.5125	.6281	2.951	.5471	.3388
2.21	26.90	31.99	26.24	5.531	.5093	.6236	2.965	.5457	.3373
2.22	26.77	32.25	26.38	5.583	.5061	.6191	2.978	.5444	.3358
2.23	26.64	32.51	26.52	5.635	.5028	.6145	2.992	.5431	.3342
2.24	26.51	32.76	26.66	5.687	.4996	.6100	3.005	.5418	.3327

TABLE II.- SUPERSONIC FLOW - Continued

M_1	$\frac{p_1}{p_o}$	$\frac{\rho_1}{\rho_o}$	$\frac{T_1}{T_o}$	$\frac{A_1}{A_{cr}}$	$\frac{a_1}{a_o}$	$\frac{q_1}{q_{cr}}$	V_1 $T_o=520^\circ R$	q_1 $p_o = 2121$ lb/sq ft	$\frac{1}{\sqrt{M_1^2 - 1}}$
2.25	0.8649×10^{-1}	0.1740	0.4969	2.096	0.7049	0.8287	1772	649.9	0.4961
2.26	.8514	.1721	.4947	2.115	.7033	.8231	1776	645.5	.4934
2.27	.8382	.1702	.4925	2.134	.7018	.8176	1780	641.1	.4907
2.28	.8251	.1683	.4903	2.154	.7002	.8120	1784	636.8	.4880
2.29	.8123	.1664	.4881	2.173	.6986	.8064	1788	632.4	.4854
2.30	.7997	.1646	.4859	2.193	.6971	.8008	1791	628.0	.4828
2.31	.7873	.1628	.4837	2.213	.6955	.7953	1795	623.7	.4802
2.32	.7751	.1609	.4816	2.233	.6940	.7897	1799	619.3	.4777
2.33	.7631	.1592	.4794	2.254	.6924	.7842	1803	615.0	.4752
2.34	.7512	.1574	.4773	2.274	.6909	.7786	1806	610.6	.4727
2.35	.7396	.1556	.4752	2.295	.6893	.7731	1810	606.3	.4702
2.36	.7281	.1539	.4731	2.316	.6878	.7676	1814	602.0	.4678
2.37	.7168	.1522	.4709	2.338	.6863	.7621	1817	597.7	.4654
2.38	.7057	.1505	.4688	2.359	.6847	.7567	1821	593.4	.4630
2.39	.6948	.1488	.4668	2.381	.6832	.7512	1824	589.1	.4607
2.40	.6840	.1472	.4647	2.403	.6817	.7458	1828	584.9	.4583
2.41	.6734	.1456	.4626	2.425	.6802	.7404	1832	580.6	.4561
2.42	.6630	.1439	.4606	2.448	.6786	.7350	1835	576.4	.4538
2.43	.6527	.1424	.4585	2.471	.6771	.7296	1839	572.1	.4515
2.44	.6426	.1408	.4565	2.494	.6756	.7242	1842	567.9	.4493
2.45	.6327	.1392	.4544	2.517	.6741	.7189	1845	563.7	.4471
2.46	.6229	.1377	.4524	2.540	.6726	.7135	1849	559.6	.4449
2.47	.6133	.1362	.4504	2.564	.6711	.7082	1852	555.4	.4428
2.48	.6038	.1346	.4484	2.588	.6696	.7029	1856	551.3	.4406
2.49	.5945	.1332	.4464	2.612	.6682	.6977	1859	547.1	.4385

M_1	μ	ν	δ_{max}	$\frac{p_2}{p_1}$	$\frac{p_2}{p_o}$	$\frac{p_3}{p_o}$	$\frac{\rho_2}{\rho_1}$	M_2	$\frac{V_2}{V_1}$
2.25	26.39	33.02	26.79	5.740	0.4964	0.6055	3.019	0.5406	0.3313
2.26	26.26	33.27	26.93	5.792	.4931	.6011	3.032	.5393	.3298
2.27	26.14	33.53	27.06	5.845	.4899	.5966	3.045	.5381	.3284
2.28	26.01	33.78	27.19	5.898	.4867	.5921	3.058	.5368	.3270
2.29	25.89	34.03	27.32	5.951	.4835	.5877	3.071	.5356	.3256
2.30	25.77	34.28	27.45	6.005	.4802	.5833	3.085	.5344	.3242
2.31	25.65	34.53	27.58	6.059	.4770	.5789	3.098	.5332	.3228
2.32	25.53	34.78	27.71	6.113	.4738	.5745	3.110	.5321	.3215
2.33	25.42	35.03	27.83	6.167	.4706	.5702	3.123	.5309	.3202
2.34	25.30	35.28	27.96	6.222	.4674	.5658	3.136	.5297	.3189
2.35	25.18	35.53	28.08	6.276	.4642	.5615	3.149	.5286	.3176
2.36	25.07	35.77	28.20	6.331	.4610	.5572	3.162	.5275	.3163
2.37	24.96	36.02	28.33	6.386	.4578	.5529	3.174	.5264	.3150
2.38	24.85	36.26	28.45	6.442	.4546	.5486	3.187	.5253	.3138
2.39	24.73	36.50	28.56	6.497	.4514	.5444	3.199	.5242	.3126
2.40	24.62	36.75	28.68	6.553	.4482	.5401	3.212	.5231	.3113
2.41	24.52	36.99	28.80	6.609	.4451	.5359	3.224	.5221	.3101
2.42	24.41	37.23	28.91	6.666	.4419	.5317	3.237	.5210	.3090
2.43	24.30	37.47	29.03	6.722	.4388	.5276	3.249	.5200	.3078
2.44	24.19	37.71	29.14	6.779	.4356	.5234	3.261	.5189	.3066
2.45	24.09	37.95	29.25	6.836	.4325	.5193	3.273	.5179	.3055
2.46	23.99	38.18	29.36	6.894	.4294	.5152	3.285	.5169	.3044
2.47	23.88	38.42	29.47	6.951	.4263	.5111	3.298	.5159	.3033
2.48	23.78	38.66	29.58	7.009	.4232	.5071	3.310	.5149	.3022
2.49	23.68	38.89	29.69	7.067	.4201	.5030	3.321	.5140	.3011

TABLE II.- SUPERSONIC FLOW - Continued

M_1	$\frac{p_1}{p_o}$	$\frac{\rho_1}{\rho_o}$	$\frac{T_1}{T_o}$	$\frac{A_1}{A_{cr}}$	$\frac{a_1}{a_o}$	$\frac{q_1}{q_{cr}}$	V_1 $T_o=520°R$	q_1 $p_o = 2121$ lb/sq ft	$\frac{1}{\sqrt{M_1^2 - 1}}$
2.25	0.8648×10^{-1}	0.1740	0.4969	2.096	0.7049	0.8287	1772	649.9	0.4961
2.26	.8514	.1721	.4947	2.115	.7033	.8231	1776	645.5	.4934
2.27	.8382	.1702	.4925	2.134	.7018	.8176	1780	641.1	.4907
2.28	.8251	.1683	.4903	2.154	.7002	.8120	1784	636.8	.4880
2.29	.8123	.1664	.4881	2.173	.6986	.8064	1788	632.4	.4854
2.30	.7997	.1646	.4859	2.193	.6971	.8008	1791	628.0	.4828
2.31	.7873	.1628	.4837	2.213	.6955	.7953	1795	623.7	.4802
2.32	.7751	.1609	.4816	2.233	.6940	.7897	1799	619.3	.4777
2.33	.7631	.1592	.4794	2.254	.6924	.7842	1803	615.0	.4752
2.34	.7512	.1574	.4773	2.274	.6909	.7786	1806	610.6	.4727
2.35	.7396	.1556	.4752	2.295	.6893	.7731	1810	606.3	.4702
2.36	.7281	.1539	.4731	2.316	.6878	.7676	1814	602.0	.4678
2.37	.7168	.1522	.4709	2.338	.6863	.7621	1817	597.7	.4654
2.38	.7057	.1505	.4688	2.359	.6847	.7567	1821	593.4	.4630
2.39	.6948	.1488	.4668	2.381	.6832	.7512	1824	589.1	.4607
2.40	.6840	.1472	.4647	2.403	.6817	.7458	1828	584.9	.4583
2.41	.6734	.1456	.4626	2.425	.6802	.7404	1832	580.6	.4561
2.42	.6630	.1439	.4606	2.448	.6786	.7350	1835	576.4	.4538
2.43	.6527	.1424	.4585	2.471	.6771	.7296	1839	572.1	.4515
2.44	.6426	.1408	.4565	2.494	.6756	.7242	1842	567.9	.4493
2.45	.6327	.1392	.4544	2.517	.6741	.7189	1845	563.7	.4471
2.46	.6229	.1377	.4524	2.540	.6726	.7135	1849	559.6	.4449
2.47	.6133	.1362	.4504	2.564	.6711	.7082	1852	555.4	.4428
2.48	.6038	.1346	.4484	2.588	.6696	.7029	1856	551.3	.4406
2.49	.5945	.1332	.4464	2.612	.6682	.6977	1859	547.1	.4385

M_1	μ	ν	δ_{max}	$\frac{p_2}{p_1}$	$\frac{p_2}{p_o}$	$\frac{p_3}{p_o}$	$\frac{\rho_2}{\rho_1}$	M_2	$\frac{V_2}{V_1}$
2.25	26.39	33.02	26.79	5.740	0.4964	0.6055	3.019	0.5406	0.3313
2.26	26.26	33.27	26.93	5.792	.4931	.6011	3.032	.5393	.3298
2.27	26.14	33.53	27.06	5.845	.4899	.5966	3.045	.5381	.3284
2.28	26.01	33.78	27.19	5.898	.4867	.5921	3.058	.5368	.3270
2.29	25.89	34.03	27.32	5.951	.4835	.5877	3.071	.5356	.3256
2.30	25.77	34.28	27.45	6.005	.4802	.5833	3.085	.5344	.3242
2.31	25.65	34.53	27.58	6.059	.4770	.5789	3.098	.5332	.3228
2.32	25.53	34.78	27.71	6.113	.4738	.5745	3.110	.5321	.3215
2.33	25.42	35.03	27.83	6.167	.4706	.5702	3.123	.5309	.3202
2.34	25.30	35.28	27.96	6.222	.4674	.5658	3.136	.5297	.3189
2.35	25.18	35.53	28.08	6.276	.4642	.5615	3.149	.5286	.3176
2.36	25.07	35.77	28.20	6.331	.4610	.5572	3.162	.5275	.3163
2.37	24.96	36.02	28.33	6.386	.4578	.5529	3.174	.5264	.3150
2.38	24.85	36.26	28.45	6.442	.4546	.5486	3.187	.5253	.3138
2.39	24.73	36.50	28.56	6.497	.4514	.5444	3.199	.5242	.3126
2.40	24.62	36.75	28.68	6.553	.4482	.5401	3.212	.5231	.3113
2.41	24.52	36.99	28.80	6.609	.4451	.5359	3.224	.5221	.3101
2.42	24.41	37.23	28.91	6.666	.4419	.5317	3.237	.5210	.3090
2.43	24.30	37.47	29.03	6.722	.4388	.5276	3.249	.5200	.3078
2.44	24.19	37.71	29.14	6.779	.4356	.5234	3.261	.5189	.3066
2.45	24.09	37.95	29.25	6.836	.4325	.5193	3.273	.5179	.3055
2.46	23.99	38.18	29.36	6.894	.4294	.5152	3.285	.5169	.3044
2.47	23.88	38.42	29.47	6.951	.4263	.5111	3.298	.5159	.3033
2.48	23.78	38.66	29.58	7.009	.4232	.5071	3.310	.5149	.3022
2.49	23.68	38.89	29.69	7.067	.4201	.5030	3.321	.5140	.3011

TABLE II.— SUPERSONIC FLOW — Continued

M_1	$\frac{p_1}{p_o}$	$\frac{\rho_1}{\rho_o}$	$\frac{T_1}{T_o}$	$\frac{A_1}{A_{cr}}$	$\frac{a_1}{a_o}$	$\frac{q_1}{q_{cr}}$	V_1 T_o=520°R	q_1 p_o = 2121 lb/sq ft	$\frac{1}{\sqrt{M_1^2 - 1}}$
2.25	0.8648x10^{-1}	0.1740	0.4969	2.096	0.7049	0.8287	1772	649.9	0.4961
2.26	.8514	.1721	.4947	2.115	.7033	.8231	1776	645.5	.4934
2.27	.8382	.1702	.4925	2.134	.7018	.8176	1780	641.1	.4907
2.28	.8251	.1683	.4903	2.154	.7002	.8120	1784	636.8	.4880
2.29	.8123	.1664	.4881	2.173	.6986	.8064	1788	632.4	.4854
2.30	.7997	.1646	.4859	2.193	.6971	.8008	1791	628.0	.4828
2.31	.7873	.1628	.4837	2.213	.6955	.7953	1795	623.7	.4802
2.32	.7751	.1609	.4816	2.233	.6940	.7897	1799	619.3	.4777
2.33	.7631	.1592	.4794	2.254	.6924	.7842	1803	615.0	.4752
2.34	.7512	.1574	.4773	2.274	.6909	.7786	1806	610.6	.4727
2.35	.7396	.1556	.4752	2.295	.6893	.7731	1810	606.3	.4702
2.36	.7281	.1539	.4731	2.316	.6878	.7676	1814	602.0	.4678
2.37	.7168	.1522	.4709	2.338	.6863	.7621	1817	597.7	.4654
2.38	.7057	.1505	.4688	2.359	.6847	.7567	1821	593.4	.4630
2.39	.6948	.1488	.4668	2.381	.6832	.7512	1824	589.1	.4607
2.40	.6840	.1472	.4647	2.403	.6817	.7458	1828	584.9	.4583
2.41	.6734	.1456	.4626	2.425	.6802	.7404	1832	580.6	.4561
2.42	.6630	.1439	.4606	2.448	.6786	.7350	1835	576.4	.4538
2.43	.6527	.1424	.4585	2.471	.6771	.7296	1839	572.1	.4515
2.44	.6426	.1408	.4565	2.494	.6756	.7242	1842	567.9	.4493
2.45	.6327	.1392	.4544	2.517	.6741	.7189	1845	563.7	.4471
2.46	.6229	.1377	.4524	2.540	.6726	.7135	1849	559.6	.4449
2.47	.6133	.1362	.4504	2.564	.6711	.7082	1852	555.4	.4428
2.48	.6038	.1346	.4484	2.588	.6696	.7029	1856	551.3	.4406
2.49	.5945	.1332	.4464	2.612	.6682	.6977	1859	547.1	.4385

M_1	μ	ν	δ_{max}	$\frac{p_2}{p_1}$	$\frac{p_2}{p_o}$	$\frac{p_3}{p_o}$	$\frac{\rho_2}{\rho_1}$	M_2	$\frac{V_2}{V_1}$
2.25	26.39	33.02	26.79	5.740	0.4964	0.6055	3.019	0.5406	0.3313
2.26	26.26	33.27	26.93	5.792	.4931	.6011	3.032	.5393	.3298
2.27	26.14	33.53	27.06	5.845	.4899	.5966	3.045	.5381	.3284
2.28	26.01	33.78	27.19	5.898	.4867	.5921	3.058	.5368	.3270
2.29	25.89	34.03	27.32	5.951	.4835	.5877	3.071	.5356	.3256
2.30	25.77	34.28	27.45	6.005	.4802	.5833	3.085	.5344	.3242
2.31	25.65	34.53	27.58	6.059	.4770	.5789	3.098	.5332	.3228
2.32	25.53	34.78	27.71	6.113	.4738	.5745	3.110	.5321	.3215
2.33	25.42	35.03	27.83	6.167	.4706	.5702	3.123	.5309	.3202
2.34	25.30	35.28	27.96	6.222	.4674	.5658	3.136	.5297	.3189
2.35	25.18	35.53	28.08	6.276	.4642	.5615	3.149	.5286	.3176
2.36	25.07	35.77	28.20	6.331	.4610	.5572	3.162	.5275	.3163
2.37	24.96	36.02	28.33	6.386	.4578	.5529	3.174	.5264	.3150
2.38	24.85	36.26	28.45	6.442	.4546	.5486	3.187	.5253	.3138
2.39	24.73	36.50	28.56	6.497	.4514	.5444	3.199	.5242	.3126
2.40	24.62	36.75	28.68	6.553	.4482	.5401	3.212	.5231	.3113
2.41	24.52	36.99	28.80	6.609	.4451	.5359	3.224	.5221	.3101
2.42	24.41	37.23	28.91	6.666	.4419	.5317	3.237	.5210	.3090
2.43	24.30	37.47	29.03	6.722	.4388	.5276	3.249	.5200	.3078
2.44	24.19	37.71	29.14	6.779	.4356	.5234	3.261	.5189	.3066
2.45	24.09	37.95	29.25	6.836	.4325	.5193	3.273	.5179	.3055
2.46	23.99	38.18	29.36	6.894	.4294	.5152	3.285	.5169	.3044
2.47	23.88	38.42	29.47	6.951	.4263	.5111	3.298	.5159	.3033
2.48	23.78	38.66	29.58	7.009	.4232	.5071	3.310	.5149	.3022
2.49	23.68	38.89	29.69	7.067	.4201	.5030	3.321	.5140	.3011

TABLE II.- SUPERSONIC FLOW - Continued

M_1	$\frac{p_1}{p_o}$	$\frac{\rho_1}{\rho_o}$	$\frac{T_1}{T_o}$	$\frac{A_1}{A_{cr}}$	$\frac{a_1}{a_o}$	$\frac{q_1}{q_{cr}}$	V_1 T_o=520°R	q_1 p_o=2121 lb/sq ft	$\frac{1}{\sqrt{M_1^2 - 1}}$
2.50	0.5853x10⁻¹	0.1317	0.4444	2.637	0.6667	0.6924	1862	543.0	0.4364
2.51	.5762	.1302	.4425	2.661	.6652	.6872	1866	538.9	.4344
2.52	.5674	.1288	.4405	2.686	.6637	.6820	1869	534.9	.4323
2.53	.5586	.1274	.4386	2.712	.6622	.6768	1872	530.8	.4303
2.54	.5500	.1260	.4366	2.737	.6608	.6717	1875	526.8	.4283
2.55	.5415	.1246	.4347	2.763	.6593	.6666	1879	522.7	.4263
2.56	.5332	.1232	.4328	2.789	.6578	.6615	1882	518.7	.4243
2.57	.5250	.1218	.4309	2.815	.6564	.6564	1885	514.7	.4224
2.58	.5169	.1205	.4289	2.842	.6549	.6513	1888	510.8	.4205
2.59	.5090	.1192	.4271	2.869	.6535	.6463	1891	506.8	.4186
2.60	.5012	.1179	.4252	2.896	.6521	.6413	1894	502.9	.4167
2.61	.4935	.1166	.4233	2.923	.6506	.6363	1897	499.0	.4148
2.62	.4859	.1153	.4214	2.951	.6492	.6314	1900	495.1	.4129
2.63	.4784	.1140	.4196	2.979	.6477	.6264	1904	491.3	.4111
2.64	.4711	.1128	.4177	3.007	.6463	.6215	1907	487.4	.4093
2.65	.4639	.1115	.4159	3.036	.6449	.6166	1910	483.6	.4075
2.66	.4568	.1103	.4141	3.065	.6435	.6118	1913	479.8	.4057
2.67	.4498	.1091	.4122	3.094	.6421	.6070	1916	476.0	.4039
2.68	.4429	.1079	.4104	3.123	.6406	.6022	1918	472.3	.4022
2.69	.4362	.1067	.4086	3.153	.6392	.5974	1921	468.5	.4004
2.70	.4295	.1056	.4068	3.183	.6378	.5927	1924	464.8	.3987
2.71	.4229	.1044	.4051	3.213	.6364	.5880	1927	461.1	.3970
2.72	.4165	.1033	.4033	3.244	.6350	.5833	1930	457.4	.3953
2.73	.4102	.1022	.4015	3.275	.6337	.5786	1933	453.8	.3937
2.74	.4039	.1010	.3998	3.306	.6323	.5740	1936	450.2	.3920

M_1	ν	ν	δ_{max}	$\frac{p_2}{p_1}$	$\frac{p_2}{p_o}$	$\frac{p_3}{p_o}$	$\frac{\rho_2}{\rho_1}$	M_2	$\frac{V_2}{V_1}$
2.50	23.58	39.12	29.80	7.125	0.4170	0.4990	3.333	0.5130	0.3000
2.51	23.48	39.36	29.90	7.183	.4139	.4950	3.345	.5120	.2989
2.52	23.38	39.59	30.01	7.242	.4109	.4911	3.357	.5111	.2979
2.53	23.28	39.82	30.11	7.301	.4078	.4871	3.369	.5102	.2969
2.54	23.19	40.05	30.21	7.360	.4048	.4832	3.380	.5092	.2958
2.55	23.09	40.28	30.32	7.420	.4018	.4793	3.392	.5083	.2948
2.56	22.99	40.51	30.42	7.479	.3988	.4754	3.403	.5074	.2938
2.57	22.90	40.74	30.52	7.539	.3958	.4715	3.415	.5065	.2928
2.58	22.81	40.96	30.62	7.599	.3928	.4677	3.426	.5056	.2919
2.59	22.71	41.19	30.72	7.659	.3898	.4639	3.438	.5047	.2909
2.60	22.62	41.41	30.81	7.720	.3869	.4601	3.449	.5039	.2899
2.61	22.53	41.64	30.91	7.781	.3839	.4564	3.460	.5030	.2890
2.62	22.44	41.86	31.01	7.842	.3810	.4526	3.471	.5022	.2881
2.63	22.35	42.09	31.10	7.903	.3781	.4489	3.483	.5013	.2871
2.64	22.26	42.31	31.19	7.965	.3752	.4452	3.494	.5005	.2862
2.65	22.17	42.53	31.29	8.026	.3723	.4416	3.505	.4996	.2853
2.66	22.08	42.75	31.38	8.088	.3695	.4379	3.516	.4988	.2844
2.67	22.00	42.97	31.47	8.150	.3666	.4343	3.527	.4980	.2836
2.68	21.91	43.19	31.56	8.213	.3638	.4307	3.537	.4972	.2827
2.69	21.82	43.40	31.65	8.275	.3609	.4271	3.548	.4964	.2818
2.70	21.74	43.62	31.74	8.338	.3581	.4236	3.559	.4956	.2810
2.71	21.65	43.84	31.83	8.401	.3553	.4201	3.570	.4949	.2801
2.72	21.57	44.05	31.92	8.465	.3526	.4166	3.580	.4941	.2793
2.73	21.49	44.27	32.00	8.528	.3498	.4131	3.591	.4933	.2785
2.74	21.41	44.48	32.09	8.592	.3470	.4097	3.601	.4926	.2777

M_1	$\frac{p_1}{p_o}$	$\frac{\rho_1}{\rho_o}$	$\frac{T_1}{T_o}$	$\frac{A_1}{A_{cr}}$	$\frac{a_1}{a_o}$	$\frac{q_1}{q_{cr}}$	V_1, T_o=520°R	q_1, p_o = 2121 lb/sq ft	$\frac{1}{\sqrt{M_1^2 - 1}}$
2.75	0.3973×10^{-1}	0.9994×10^{-1}	0.3980	3.338	0.6309	0.5694	1939	446.6	0.3904
2.76	.3917	.9985	.3963	3.370	.6295	.5648	1941	443.0	.3887
2.77	.3858	.9978	.3945	3.402	.6281	.5603	1944	439.4	.3871
2.78	.3799	.9971	.3928	3.434	.6268	.5558	1947	435.9	.3855
2.79	.3742	.9966	.3911	3.467	.6254	.5513	1950	432.3	.3839
2.80	.3685	.9963	.3894	3.500	.6240	.5468	1952	428.9	.3824
2.81	.3629	.9960	.3877	3.534	.6227	.5424	1955	425.4	.3808
2.82	.3574	.9959	.3860	3.567	.6213	.5380	1958	421.9	.3793
2.83	.3520	.9958	.3844	3.601	.6200	.5337	1960	418.5	.3777
2.84	.3467	.9959	.3827	3.636	.6186	.5293	1963	415.1	.3762
2.85	.3415	.8962	.3810	3.671	.6173	.5250	1966	411.7	.3747
2.86	.3363	.8865	.3794	3.706	.6159	.5207	1968	408.4	.3732
2.87	.3312	.8767	.3777	3.741	.6146	.5165	1971	405.0	.3717
2.88	.3263	.8675	.3761	3.777	.6133	.5122	1974	401.7	.3703
2.89	.3213	.8581	.3745	3.813	.6119	.5080	1976	398.4	.3688
2.90	.3165	.8489	.3729	3.850	.6106	.5037	1979	395.2	.3674
2.91	.3118	.8398	.3712	3.887	.6093	.4997	1981	391.9	.3659
2.92	.3071	.8307	.3696	3.924	.6080	.4956	1984	388.7	.3645
2.93	.3025	.8218	.3681	3.961	.6067	.4915	1986	385.5	.3631
2.94	.2980	.8130	.3665	3.999	.6054	.4875	1989	382.3	.3617
2.95	.2935	.8043	.3649	4.038	.6041	.4835	1991	379.2	.3603
2.96	.2891	.7957	.3633	4.076	.6028	.4795	1994	376.0	.3589
2.97	.2848	.7872	.3618	4.115	.6015	.4755	1996	372.9	.3576
2.98	.2805	.7788	.3602	4.155	.6002	.4716	1998	369.8	.3562
2.99	.2764	.7705	.3587	4.194	.5989	.4677	2001	366.8	.3549

M_1		ν	δ_{max}	$\frac{p_2}{p_1}$	$\frac{p_2}{p_o}$	$\frac{p_3}{p_o}$	$\frac{\rho_2}{\rho_1}$	M_2	$\frac{V_2}{V_1}$
2.75	21.32	44.69	32.17	8.656	0.3443	0.4062	3.612	0.4913	0.2769
2.76	21.24	44.91	32.26	8.721	.3416	.4028	3.622	.4911	.2761
2.77	21.16	45.12	32.34	8.785	.3389	.3994	3.633	.4903	.2753
2.78	21.08	45.33	32.42	8.850	.3362	.3961	3.643	.4896	.2745
2.79	21.00	45.54	32.51	8.915	.3335	.3928	3.653	.4889	.2737
2.80	20.92	45.75	32.59	8.980	.3309	.3895	3.664	.4882	.2730
2.81	20.85	45.95	32.67	9.045	.3283	.3862	3.674	.4875	.2722
2.82	20.77	46.16	32.75	9.111	.3256	.3829	3.684	.4868	.2715
2.83	20.69	46.37	32.83	9.177	.3230	.3797	3.694	.4861	.2707
2.84	20.62	46.57	32.91	9.243	.3205	.3765	3.704	.4854	.2700
2.85	20.54	46.78	32.98	9.310	.3179	.3733	3.714	.4847	.2693
2.86	20.47	46.98	33.06	9.376	.3153	.3701	3.724	.4840	.2685
2.87	20.39	47.19	33.14	9.443	.3129	.3670	3.734	.4833	.2678
2.88	20.32	47.39	33.21	9.510	.3103	.3639	3.743	.4827	.2671
2.89	20.24	47.59	33.29	9.577	.3078	.3608	3.753	.4820	.2664
2.90	20.17	47.79	33.36	9.645	.3053	.3577	3.763	.4814	.2658
2.91	20.10	47.99	33.44	9.713	.3028	.3547	3.773	.4807	.2651
2.92	20.03	48.19	33.51	9.781	.3004	.3517	3.782	.4801	.2644
2.93	19.96	48.39	33.58	9.849	.2979	.3487	3.792	.4795	.2637
2.94	19.89	48.59	33.65	9.918	.2958	.3457	3.801	.4788	.2631
2.95	19.81	48.78	33.73	9.986	.2931	.3428	3.811	.4782	.2624
2.96	19.75	48.98	33.80	10.06	.2907	.3398	3.820	.4776	.2618
2.97	19.68	49.18	33.87	10.12	.2883	.3369	3.829	.4770	.2611
2.98	19.61	49.37	33.94	10.19	.2860	.3340	3.839	.4764	.2605
2.99	19.54	49.56	34.01	10.26	.2836	.3312	3.843	.4758	.2599

M_1	$\frac{p_1}{p_o}$	$\frac{\rho_1}{\rho_o}$	$\frac{T_1}{T_o}$	$\frac{A_1}{A_{cr}}$	$\frac{a_1}{a_o}$	$\frac{q_1}{q_{cr}}$	V_1 $T_o=520°R$	q_1 $p_o = 2121$ lb/sq ft	$\frac{1}{\sqrt{M_1^2 - 1}}$
3.00	0.2722×10^{-1}	0.7623×10^{-1}	0.3571	4.235	0.5976	0.4638	2003	363.7	0.3536
3.01	.2682	.7541	.3556	4.275	.5965	.4599	2006	360.7	.3522
3.02	.2642	.7461	.3541	4.316	.5951	.4561	2008	357.7	.3509
3.03	.2603	.7382	.3526	4.357	.5938	.4523	2010	354.7	.3496
3.04	.2564	.7303	.3511	4.399	.5925	.4486	2013	351.8	.3483
3.05	.2526	.7226	.3496	4.441	.5913	.4448	2015	348.8	.3471
3.06	.2489	.7149	.3481	4.483	.5900	.4411	2017	345.9	.3458
3.07	.2452	.7074	.3466	4.526	.5887	.4374	2020	343.0	.3445
3.08	.2416	.6999	.3452	4.570	.5875	.4338	2022	340.2	.3433
3.09	.2380	.6925	.3437	4.613	.5862	.4302	2024	337.3	.3420
3.10	.2345	.6852	.3422	4.657	.5850	.4266	2026	334.5	.3408
3.11	.2310	.6779	.3408	4.702	.5838	.4230	2029	331.7	.3396
3.12	.2276	.6708	.3393	4.747	.5825	.4194	2031	328.9	.3384
3.13	.2243	.6637	.3379	4.792	.5813	.4159	2033	326.2	.3372
3.14	.2210	.6568	.3365	4.838	.5801	.4124	2035	323.4	.3360
3.15	.2177	.6499	.3351	4.884	.5788	.4090	2037	320.7	.3348
3.16	.2146	.6430	.3337	4.930	.5776	.4055	2040	318.0	.3336
3.17	.2114	.6363	.3323	4.977	.5764	.4021	2042	315.4	.3324
3.18	.2083	.6296	.3309	5.025	.5752	.3988	2044	312.7	.3313
3.19	.2053	.6231	.3295	5.073	.5740	.3954	2046	310.1	.3301
3.20	.2023	.6165	.3281	5.121	.5728	.3921	2048	307.5	.3289
3.21	.1993	.6101	.3267	5.170	.5716	.3888	2050	304.9	.3278
3.22	.1964	.6037	.3253	5.219	.5704	.3855	2052	302.3	.3267
3.23	.1936	.5975	.3240	5.268	.5692	.3823	2054	299.8	.3256
3.24	.1908	.5912	.3226	5.319	.5680	.3790	2056	297.3	.3245

M_1	μ	ν	δ_{max}	$\frac{p_2}{p_1}$	$\frac{p_2}{p_o}$	$\frac{p_3}{p_o}$	$\frac{\rho_2}{\rho_1}$	M_2	$\frac{V_2}{V_1}$
3.00	19.47	49.76	34.07	10.33	0.2813	0.3283	3.857	0.4772	0.2593
3.01	19.40	49.95	34.14	10.40	.2790	.3255	3.866	.4746	.2586
3.02	19.34	50.14	34.21	10.47	.2767	.3227	3.875	.4740	.2580
3.03	19.27	50.33	34.27	10.54	.2744	.3200	3.884	.4734	.2574
3.04	19.20	50.52	34.34	10.62	.2722	.3172	3.893	.4729	.2568
3.05	19.14	50.71	34.41	10.69	.2699	.3145	3.902	.4723	.2562
3.06	19.07	50.90	34.47	10.76	.2677	.3118	3.911	.4717	.2557
3.07	19.01	51.09	34.54	10.83	.2655	.3091	3.920	.4712	.2551
3.08	18.95	51.28	34.60	10.90	.2633	.3065	3.929	.4706	.2545
3.09	18.88	51.46	34.66	10.97	.2611	.3038	3.938	.4701	.2539
3.10	18.82	51.65	34.73	11.05	.2590	.3012	3.947	.4695	.2534
3.11	18.76	51.84	34.79	11.12	.2568	.2986	3.955	.4690	.2528
3.12	18.69	52.02	34.85	11.19	.2547	.2960	3.964	.4685	.2523
3.13	18.63	52.20	34.91	11.26	.2526	.2935	3.973	.4679	.2517
3.14	18.57	52.39	34.97	11.34	.2505	.2910	3.981	.4674	.2512
3.15	18.51	52.57	35.03	11.41	.2484	.2885	3.990	.4669	.2507
3.16	18.45	52.75	35.09	11.48	.2464	.2860	3.998	.4664	.2501
3.17	18.39	52.93	35.15	11.56	.2443	.2835	4.006	.4659	.2496
3.18	18.33	53.11	35.21	11.63	.2423	.2811	4.015	.4654	.2491
3.19	18.27	53.29	35.27	11.71	.2403	.2786	4.023	.4648	.2486
3.20	18.21	53.47	35.33	11.78	.2383	.2762	4.031	.4643	.2480
3.21	18.15	53.65	35.39	11.85	.2363	.2738	4.040	.4639	.2475
3.22	18.09	53.83	35.44	11.93	.2343	.2715	4.048	.4634	.2470
3.23	18.04	54.00	35.50	12.01	.2324	.2691	4.056	.4629	.2465
3.24	17.98	54.18	35.55	12.08	.2304	.2668	4.064	.4624	.2460

TABLE II.- SUPERSONIC FLOW - Concluded

M_1	$\frac{p_1}{p_o}$	$\frac{\rho_1}{\rho_o}$	$\frac{T_1}{T_o}$	$\frac{A_1}{A_{cr}}$	$\frac{a_1}{a_o}$	$\frac{q_1}{q_{cr}}$	$\frac{V_1}{T_o=520^\circ R}$	$\frac{q_1}{p_o = 2161 \frac{lb}{sq\ ft}}$	$\frac{1}{\sqrt{M_1^2 - 1}}$
3.25	0.1880×10^{-1}	0.5851×10^{-1}	0.3213	5.369	0.5668	0.3759	2058	294.8	0.3234
3.26	.1853	.5790	.3199	5.420	.5656	.3727	2060	292.3	.3223
3.27	.1826	.5730	.3186	5.472	.5645	.3695	2062	289.8	.3212
3.28	.1799	.5671	.3173	5.523	.5633	.3664	2064	287.4	.3201
3.29	.1773	.5612	.3160	5.576	.5621	.3633	2066	284.9	.3190
3.30	.1748	.5554	.3147	5.629	.5609	.3603	2068	282.5	.3180
3.31	.1722	.5497	.3134	5.682	.5598	.3572	2070	280.1	.3169
3.32	.1698	.5440	.3121	5.736	.5586	.3542	2072	277.8	.3159
3.33	.1673	.5384	.3108	5.790	.5575	.3512	2074	275.4	.3148
3.34	.1649	.5329	.3095	5.845	.5563	.3482	2076	273.1	.3138
3.35	.1625	.5274	.3082	5.900	.5552	.3453	2078	270.8	.3128
3.36	.1602	.5220	.3069	5.956	.5540	.3424	2080	268.5	.3117
3.37	.1579	.5166	.3057	6.012	.5529	.3395	2082	266.2	.3107
3.38	.1557	.5113	.3044	6.069	.5517	.3366	2084	264.0	.3097
3.39	.1534	.5061	.3032	6.126	.5506	.3338	2086	261.8	.3087
3.40	.1512	.5009	.3019	6.184	.5495	.3310	2088	259.5	.3077
3.41	.1491	.4958	.3007	6.242	.5484	.3282	2089	257.4	.3067
3.42	.1470	.4908	.2995	6.301	.5472	.3254	2091	255.2	.3058
3.43	.1449	.4858	.2982	6.360	.5461	.3226	2093	253.0	.3048
3.44	.1428	.4808	.2970	6.420	.5450	.3199	2095	250.9	.3038
3.45	.1408	.4759	.2958	6.480	.5439	.3172	2097	248.8	.3029
3.46	.1388	.4711	.2946	6.541	.5428	.3145	2098	246.7	.3019
3.47	.1368	.4663	.2934	6.602	.5417	.3119	2100	244.6	.3010
3.48	.1349	.4616	.2922	6.664	.5406	.3092	2102	242.5	.3000
3.49	.1330	.4569	.2910	6.727	.5395	.3066	2104	240.5	.2991

M_1	μ	ν	δ_{max}	$\frac{p_2}{p_1}$	$\frac{p_2}{p_o}$	$\frac{p_3}{p_o}$	$\frac{\rho_2}{\rho_1}$	M_2	$\frac{V_2}{V_1}$
3.25	17.92	54.35	35.61	12.16	0.2285	0.2645	4.072	0.4619	0.2456
3.26	17.86	54.53	35.67	12.23	.2266	.2622	4.080	.4614	.2451
3.27	17.81	54.70	35.72	12.31	.2247	.2600	4.088	.4610	.2446
3.28	17.75	54.88	35.77	12.38	.2228	.2577	4.096	.4605	.2441
3.29	17.70	55.05	35.83	12.46	.2210	.2555	4.104	.4600	.2437
3.30	17.64	55.22	35.88	12.54	.2191	.2533	4.112	.4596	.2432
3.31	17.58	55.39	35.93	12.62	.2173	.2511	4.120	.4591	.2427
3.32	17.53	55.56	35.99	12.69	.2155	.2489	4.128	.4587	.2423
3.33	17.48	55.73	36.04	12.77	.2137	.2468	4.135	.4582	.2418
3.34	17.42	55.90	36.09	12.85	.2119	.2446	4.143	.4578	.2414
3.35	17.37	56.07	36.14	12.93	.2101	.2425	4.151	.4573	.2409
3.36	17.31	56.24	36.19	13.00	.2084	.2404	4.158	.4569	.2405
3.37	17.26	56.41	36.24	13.08	.2066	.2383	4.166	.4565	.2400
3.38	17.21	56.58	36.29	13.16	.2049	.2363	4.173	.4560	.2396
3.39	17.16	56.74	36.34	13.24	.2032	.2342	4.181	.4556	.2392
3.40	17.10	56.91	36.39	13.32	.2015	.2322	4.188	.4552	.2388
3.41	17.05	57.07	36.44	13.40	.1998	.2302	4.196	.4548	.2383
3.42	17.00	57.24	36.49	13.48	.1981	.2282	4.203	.4544	.2379
3.43	16.95	57.40	36.54	13.56	.1964	.2263	4.211	.4540	.2375
3.44	16.90	57.56	36.59	13.64	.1948	.2243	4.218	.4535	.2371
3.45	16.85	57.73	36.63	13.72	.1932	.2224	4.225	.4531	.2367
3.46	16.80	57.89	36.68	13.80	.1915	.2205	4.232	.4527	.2363
3.47	16.75	58.05	36.73	13.88	.1899	.2186	4.240	.4523	.2359
3.48	16.70	58.21	36.78	13.96	.1883	.2167	4.247	.4519	.2355
3.49	16.65	58.37	36.82	14.04	.1868	.2148	4.254	.4515	.2351

TABLE II.- SUPERSONIC FLOW - Concluded

M_1	$\frac{p_1}{p_o}$	$\frac{\rho_1}{\rho_o}$	$\frac{T_1}{T_o}$	$\frac{A_1}{A_{cr}}$	$\frac{a_1}{a_o}$	$\frac{q_1}{q_{cr}}$	V_1 $T_o=520^\circ R$	$\frac{q_1}{p_o}=2121$ lb/sq ft	$\frac{1}{\sqrt{M_1^2-1}}$
3.50	0.1311×10^{-1}	0.4523×10^{-1}	0.2899	6.790	0.5384	0.3040	2106	234.4	0.2981
3.51	.1293	.4478	.2887	6.853	.5373	.3015	2107	236.4	.2972
3.52	.1274	.4433	.2875	6.917	.5362	.2989	2109	234.4	.2963
3.53	.1256	.4388	.2864	6.982	.5351	.2964	2111	232.4	.2954
3.54	.1239	.4344	.2852	7.047	.5340	.2939	2112	230.5	.2945
3.55	.1221	.4300	.2841	7.113	.5330	.2914	2114	228.5	.2936
3.56	.1204	.4257	.2829	7.179	.5319	.2889	2116	226.6	.2927
3.57	.1188	.4214	.2818	7.246	.5308	.2865	2117	224.7	.2918
3.58	.1171	.4172	.2806	7.313	.5298	.2841	2119	222.8	.2909
3.59	.1155	.4131	.2795	7.382	.5287	.2817	2121	220.9	.2900
3.60	.1138	.4089	.2784	7.450	.5276	.2793	2122	219.0	.2892
3.61	.1123	.4049	.2773	7.519	.5266	.2769	2124	217.2	.2883
3.62	.1107	.4008	.2762	7.589	.5255	.2746	2126	215.4	.2874
3.63	.1092	.3968	.2751	7.659	.5245	.2723	2127	213.5	.2866
3.64	.1076	.3929	.2740	7.730	.5234	.2700	2129	211.7	.2857
3.65	.1062	.3890	.2729	7.802	.5224	.2677	2131	209.9	.2849
3.66	.1047	.3852	.2718	7.874	.5213	.2655	2132	208.2	.2840
3.67	.1032	.3813	.2707	7.947	.5203	.2632	2134	206.4	.2832
3.68	.1018	.3776	.2697	8.020	.5193	.2610	2135	204.7	.2824
3.69	.1004	.3739	.2686	8.094	.5183	.2588	2137	203.0	.2815
3.70	$.9903\times10^{-2}$	.3702	.2675	8.169	.5172	.2566	2138	201.3	.2807
3.71	.9767	.3665	.2665	8.244	.5162	.2545	2140	199.6	.2799
3.72	.9633	.3629	.2654	8.320	.5152	.2523	2141	197.9	.2791
3.73	.9500	.3594	.2644	8.397	.5142	.2502	2143	196.2	.2783
3.74	.9370	.3558	.2633	8.474	.5132	.2481	2144	194.6	.2775

M_1	μ	ν	δ_{max}	$\frac{p_2}{p_1}$	$\frac{p_2}{p_3}$	$\frac{p_3}{p_o}$	$\frac{\rho_2}{\rho_1}$	M_2	$\frac{V_2}{V_1}$
3.50	16.60	58.53	36.87	14.13	0.1852	0.2129	4.261	0.4512	0.2347
3.51	16.55	58.69	36.91	14.21	.1836	.2111	4.268	.4508	.2343
3.52	16.50	58.85	36.96	14.29	.1821	.2093	4.275	.4504	.2339
3.53	16.46	59.00	37.00	14.37	.1806	.2075	4.282	.4500	.2335
3.54	16.41	59.16	37.05	14.45	.1791	.2057	4.289	.4496	.2332
3.55	16.36	59.32	37.09	14.54	.1776	.2039	4.296	.4492	.2328
3.56	16.31	59.47	37.13	14.62	.1761	.2022	4.303	.4489	.2324
3.57	16.27	59.63	37.18	14.70	.1746	.2004	4.309	.4485	.2321
3.58	16.22	59.78	37.22	14.79	.1731	.1987	4.316	.4481	.2317
3.59	16.17	59.94	37.26	14.87	.1717	.1970	4.323	.4478	.2313
3.60	16.13	60.09	37.31	14.95	.1702	.1953	4.330	.4474	.2310
3.61	16.08	60.24	37.35	15.04	.1688	.1936	4.336	.4471	.2306
3.62	16.04	60.40	37.39	15.12	.1674	.1920	4.343	.4467	.2303
3.63	15.99	60.55	37.43	15.21	.1660	.1903	4.350	.4463	.2299
3.64	15.95	60.70	37.47	15.29	.1646	.1887	4.356	.4460	.2296
3.65	15.90	60.85	37.51	15.38	.1632	.1871	4.363	.4456	.2292
3.66	15.86	61.00	37.55	15.46	.1619	.1855	4.369	.4453	.2289
3.67	15.81	61.15	37.59	15.55	.1605	.1839	4.376	.4450	.2285
3.68	15.77	61.30	37.63	15.63	.1592	.1823	4.382	.4446	.2282
3.69	15.72	61.45	37.67	15.72	.1578	.1807	4.388	.4443	.2279
3.70	15.68	61.60	37.71	15.81	.1565	.1792	4.395	.4439	.2275
3.71	15.64	61.74	37.75	15.89	.1552	.1777	4.401	.4436	.2272
3.72	15.59	61.89	37.79	15.98	.1539	.1761	4.408	.4433	.2269
3.73	15.55	62.04	37.83	16.07	.1526	.1746	4.414	.4430	.2266
3.74	15.51	62.18	37.87	16.15	.1513	.1731	4.420	.4426	.2262

TABLE II.- SUPERSONIC FLOW - Continued

M_1	$\frac{p_1}{p_o}$	$\frac{\rho_1}{\rho_o}$	$\frac{T_1}{T_o}$	$\frac{A_1}{A_{cr}}$	$\frac{a_1}{a_o}$	$\frac{q_1}{q_{cr}}$	V_1 T_o=520°R	q_1 p_c = 2121 lb/sq ft	$\frac{1}{\sqrt{M_1^2 - 1}}$
3.75	0.9242×10^{-2}	0.3524×10^{-1}	0.2623	8.552	0.5121	0.2460	2146	192.9	0.2767
3.76	.9116	.3489	.2613	8.630	.5111	.2439	2147	191.3	.2759
3.77	.8991	.3455	.2602	8.709	.5101	.2419	2149	189.7	.2751
3.78	.8869	.3421	.2592	8.789	.5091	.2399	2150	188.1	.2743
3.79	.8748	.3388	.2582	8.870	.5081	.2379	2152	186.5	.2735
3.80	.8629	.3355	.2572	8.951	.5072	.2359	2153	185.0	.2728
3.81	.8512	.3322	.2562	9.032	.5062	.2339	2155	183.4	.2720
3.82	.8396	.3290	.2552	9.115	.5052	.2319	2156	181.9	.2712
3.83	.8283	.3258	.2542	9.198	.5042	.2300	2158	180.4	.2705
3.84	.8171	.3227	.2532	9.282	.5032	.2281	2159	178.8	.2697
3.85	.8060	.3195	.2522	9.366	.5022	.2261	2161	177.4	.2690
3.86	.7951	.3165	.2513	9.451	.5013	.2243	2162	175.9	.2682
3.87	.7844	.3134	.2503	9.537	.5003	.2224	2163	174.4	.2675
3.88	.7739	.3104	.2493	9.624	.4993	.2205	2165	172.9	.2667
3.89	.7635	.3074	.2484	9.711	.4984	.2187	2166	171.5	.2660
3.90	.7532	.3044	.2474	9.799	.4974	.2169	2168	170.1	.2653
3.91	.7431	.3015	.2464	9.888	.4964	.2150	2169	168.6	.2646
3.92	.7332	.2986	.2455	9.977	.4955	.2133	2170	167.2	.2638
3.93	.7233	.2958	.2446	10.07	.4945	.2115	2172	165.8	.2631
3.94	.7137	.2929	.2436	10.16	.4936	.2097	2173	164.5	.2624
3.95	.7042	.2902	.2427	10.25	.4926	.2080	2174	163.1	.2617
3.96	.6948	.2874	.2418	10.34	.4917	.2062	2176	161.7	.2610
3.97	.6855	.2846	.2408	10.44	.4908	.2045	2177	160.4	.2603
3.98	.6764	.2819	.2399	10.53	.4898	.2028	2178	159.1	.2596
3.99	.6675	.2793	.2390	10.62	.4889	.2011	2180	157.7	.2589

M_1	μ	ν	δ_{max}	$\frac{p_2}{p_1}$	$\frac{p_2}{p_o}$	$\frac{p_3}{p_o}$	$\frac{\rho_2}{\rho_1}$	M_2	$\frac{V_2}{V_1}$
3.75	15.47	62.33	37.91	16.24	0.1501	0.1717	4.426	0.4423	0.2259
3.76	15.42	62.47	37.94	16.33	.1488	.1702	4.432	.4420	.2256
3.77	15.38	62.61	37.98	16.42	.1476	.1687	4.439	.4417	.2253
3.78	15.34	62.76	38.02	16.50	.1464	.1673	4.445	.4414	.2250
3.79	15.30	62.90	38.06	16.59	.1451	.1659	4.451	.4410	.2247
3.80	15.26	63.04	38.09	16.68	.1439	.1645	4.457	.4407	.2244
3.81	15.22	63.19	38.13	16.77	.1427	.1631	4.463	.4404	.2241
3.82	15.18	63.33	38.16	16.86	.1415	.1617	4.469	.4401	.2238
3.83	15.14	63.47	38.20	16.95	.1404	.1603	4.475	.4398	.2235
3.84	15.09	63.61	38.24	17.04	.1392	.1589	4.481	.4395	.2232
3.85	15.05	63.75	38.27	17.13	.1380	.1576	4.487	.4392	.2229
3.86	15.01	63.89	38.31	17.22	.1369	.1563	4.492	.4389	.2226
3.87	14.98	64.03	38.34	17.31	.1358	.1549	4.498	.4386	.2223
3.88	14.94	64.16	38.38	17.40	.1346	.1536	4.504	.4383	.2220
3.89	14.90	64.30	38.41	17.49	.1335	.1523	4.510	.4380	.2217
3.90	14.86	64.44	38.44	17.58	.1324	.1510	4.516	.4377	.2215
3.91	14.82	64.58	38.48	17.67	.1313	.1497	4.521	.4375	.2212
3.92	14.78	64.71	38.51	17.76	.1302	.1485	4.527	.4372	.2209
3.93	14.74	64.85	38.55	17.85	.1291	.1472	4.533	.4369	.2206
3.94	14.70	64.98	38.58	17.94	.1281	.1460	4.538	.4366	.2203
3.95	14.66	65.12	38.61	18.04	.1270	.1448	4.544	.4363	.2201
3.96	14.63	65.25	38.65	18.13	.1260	.1435	4.549	.4360	.2198
3.97	14.59	65.39	38.68	18.22	.1249	.1423	4.555	.4358	.2195
3.98	14.55	65.52	38.71	18.31	.1239	.1411	4.560	.4355	.2193
3.99	14.51	65.65	38.74	18.41	.1229	.1399	4.566	.4352	.2190

TABLE II.- SUPERSONIC FLOW - Continued

M_1	$\frac{p_1}{p_o}$	$\frac{\rho_1}{\rho_o}$	$\frac{T_1}{T_o}$	$\frac{A_1}{A_{cr}}$	$\frac{a_1}{a_o}$	$\frac{q_1}{q_{cr}}$	V_1 T_o=520°R	$\frac{q_1}{p_o}$ = 2121 lb/sq ft	$\frac{1}{M_1^2 - 1}$
4.00	0.6586x10^{-2}	0.2766x10^{-1}	0.2381	10.72	0.4880	0.1995	2181	156.4	0.2582
4.01	.6499	.2740	.2372	10.81	.4870	.1978	2182	155.1	.2575
4.02	.6413	.2714	.2363	10.91	.4861	.1962	2183	153.8	.2568
4.03	.6328	.2688	.2354	11.01	.4852	.1946	2185	152.6	.2562
4.04	.6245	.2663	.2345	11.11	.4843	.1929	2186	151.3	.2555
4.05	.6163	.2638	.2336	11.21	.4833	.1913	2187	150.1	.2548
4.06	.6082	.2613	.2327	11.31	.4824	.1898	2189	148.8	.2541
4.07	.6002	.2589	.2319	11.41	.4815	.1882	2190	147.6	.2535
4.08	.5923	.2564	.2310	11.51	.4806	.1866	2191	146.4	.2528
4.09	.5845	.2540	.2301	11.61	.4797	.1851	2192	145.2	.2522
4.10	.5769	.2516	.2293	11.71	.4788	.1836	2194	144.0	.2515
4.11	.5694	.2493	.2284	11.82	.4779	.1821	2195	142.8	.2508
4.12	.5619	.2470	.2275	11.92	.4770	.1806	2196	141.6	.2502
4.13	.5546	.2447	.2267	12.03	.4761	.1791	2197	140.4	.2496
4.14	.5474	.2424	.2258	12.14	.4752	.1776	2198	139.3	.2489
4.15	.5403	.2401	.2250	12.24	.4743	.1761	2200	138.1	.2483
4.16	.5333	.2379	.2242	12.35	.4735	.1747	2201	137.0	.2476
4.17	.5264	.2357	.2233	12.46	.4726	.1733	2202	135.9	.2470
4.18	.5195	.2335	.2225	12.57	.4717	.1718	2203	134.8	.2464
4.19	.5128	.2313	.2217	12.68	.4708	.1704	2204	133.7	.2458
4.20	.5062	.2292	.2208	12.79	.4699	.1690	2205	132.6	.2451
4.21	.4997	.2271	.2200	12.90	.4691	.1676	2207	131.5	.2445
4.22	.4932	.2250	.2192	13.02	.4682	.1663	2208	130.4	.2439
4.23	.4869	.2229	.2184	13.13	.4673	.1649	2209	129.3	.2433
4.24	.4806	.2209	.2176	13.25	.4665	.1636	2210	128.3	.2427

M_1	μ	ν	ϵ_{max}	$\frac{p_2}{p_1}$	$\frac{p_2}{p_o}$	$\frac{p_3}{p_o}$	$\frac{\rho_2}{\rho_1}$	M_2	$\frac{V_2}{V_1}$
4.00	14.48	65.78	38.77	18.50	0.1218	0.1388	4.571	0.4350	0.2188
4.01	14.44	65.92	38.81	18.59	.1208	.1376	4.577	.4347	.2185
4.02	14.40	66.05	38.84	18.69	.1198	.1364	4.582	.4344	.2182
4.03	14.37	66.18	38.87	18.78	.1189	.1353	4.588	.4342	.2180
4.04	14.33	66.31	38.90	18.88	.1179	.1342	4.593	.4339	.2177
4.05	14.29	66.44	38.93	18.97	.1169	.1330	4.598	.4336	.2175
4.06	14.26	66.57	38.96	19.06	.1159	.1319	4.604	.4334	.2172
4.07	14.22	66.70	38.99	19.16	.1150	.1308	4.609	.4331	.2170
4.08	14.19	66.83	39.02	19.25	.1140	.1297	4.614	.4329	.2167
4.09	14.15	66.95	39.05	19.35	.1131	.1286	4.619	.4326	.2165
4.10	14.12	67.08	39.08	19.45	.1122	.1276	4.624	.4324	.2162
4.11	14.08	67.21	39.11	19.54	.1113	.1265	4.630	.4321	.2160
4.12	14.05	67.34	39.14	19.64	.1103	.1254	4.635	.4319	.2158
4.13	14.01	67.46	39.17	19.73	.1094	.1244	4.640	.4316	.2155
4.14	13.98	67.59	39.20	19.83	.1085	.1234	4.645	.4314	.2153
4.15	13.94	67.71	39.23	19.93	.1077	.1223	4.650	.4311	.2151
4.16	13.91	67.84	39.26	20.02	.1068	.1213	4.655	.4309	.2148
4.17	13.88	67.96	39.28	20.12	.1059	.1203	4.660	.4306	.2146
4.18	13.84	68.09	39.31	20.22	.1050	.1193	4.665	.4304	.2144
4.19	13.81	68.21	39.34	20.32	.1042	.1183	4.670	.4302	.2141
4.20	13.77	68.33	39.37	20.41	.1033	.1173	4.675	.4299	.2139
4.21	13.74	68.45	39.40	20.51	.1025	.1164	4.680	.4297	.2137
4.22	13.71	68.58	39.42	20.61	.1017	.1154	4.685	.4295	.2135
4.23	13.67	68.70	39.45	20.71	.1008	.1144	4.690	.4292	.2132
4.24	13.64	68.82	39.48	20.81	.1000	.1135	4.694	.4290	.2130

TABLE II.- SUPERSONIC FLOW - Continued

M_1	$\frac{p_1}{p_o}$	$\frac{\rho_1}{\rho_o}$	$\frac{T_1}{T_o}$	$\frac{A_1}{A_{cr}}$	$\frac{a_1}{a_o}$	$\frac{q_1}{q_{cr}}$	V_1 $T_o=520^\circ R$	$\frac{q_1}{p_o}=2121$ lb/sq ft	$\frac{1}{\sqrt{M_1^2-1}}$
4.25	0.4745×10^{-2}	0.2189×10^{-1}	0.2168	13.36	0.4656	0.1622	2211	127.2	0.2421
4.26	.4684	.2169	.2160	13.48	.4648	.1609	2212	126.2	.2415
4.27	.4624	.2149	.2152	13.60	.4639	.1596	2213	125.2	.2409
4.28	.4565	.2129	.2144	13.72	.4631	.1583	2215	124.1	.2403
4.29	.4507	.2110	.2136	13.83	.4622	.1570	2216	123.1	.2397
4.30	.4449	.2090	.2129	13.95	.4614	.1557	2217	122.1	.2391
4.31	.4393	.2071	.2121	14.08	.4605	.1545	2218	121.1	.2385
4.32	.4337	.2052	.2113	14.20	.4597	.1532	2219	120.2	.2379
4.33	.4282	.2034	.2105	14.32	.4588	.1520	2220	119.2	.2374
4.34	.4228	.2015	.2098	14.45	.4580	.1507	2221	118.2	.2368
4.35	.4174	.1997	.2090	14.57	.4572	.1495	2222	117.3	.2362
4.36	.4121	.1979	.2083	14.70	.4563	.1483	2223	116.3	.2356
4.37	.4069	.1961	.2075	14.82	.4555	.1471	2224	115.4	.2351
4.38	.4018	.1944	.2067	14.95	.4547	.1459	2225	114.4	.2345
4.39	.3968	.1926	.2060	15.08	.4539	.1447	2226	113.5	.2339
4.40	.3918	.1909	.2053	15.21	.4531	.1436	2227	112.6	.2334
4.41	.3868	.1892	.2045	15.34	.4522	.1424	2228	111.7	.2328
4.42	.3820	.1875	.2038	15.47	.4514	.1413	2229	110.8	.2323
4.43	.3772	.1858	.2030	15.61	.4506	.1401	2230	109.9	.2317
4.44	.3725	.1841	.2023	15.74	.4498	.1390	2232	109.0	.2312
4.45	.3678	.1825	.2016	15.87	.4490	.1379	2233	108.1	.2306
4.46	.3633	.1808	.2009	16.01	.4482	.1368	2234	107.3	.2301
4.47	.3587	.1792	.2002	16.15	.4474	.1357	2235	106.4	.2295
4.48	.3543	.1776	.1994	16.28	.4466	.1346	2236	105.6	.2290
4.49	.3499	.1761	.1987	16.42	.4458	.1335	2237	104.7	.2285

M_1	μ	ν	δ_{max}	$\frac{p_2}{p_1}$	$\frac{p_2}{p_o}$	$\frac{p_3}{p_o}$	$\frac{\rho_2}{\rho_1}$	M_2	$\frac{V_2}{V_1}$
4.25	13.61	68.94	39.51	20.91	0.9920×10^{-1}	0.1126×10^{-1}	4.699	0.4288	0.2128
4.26	13.58	69.05	39.53	21.01	.9833	.1116	4.704	.4285	.2126
4.27	13.54	69.18	39.56	21.11	.9746	.1107	4.709	.4283	.2124
4.28	13.51	69.30	39.58	21.20	.9660	.1098	4.713	.4281	.2122
4.29	13.48	69.42	39.61	21.30	.9602	.1089	4.718	.4279	.2119
4.30	13.45	69.54	39.64	21.41	.9524	.1080	4.723	.4277	.2117
4.31	13.42	69.66	39.66	21.51	.9447	.1071	4.728	.4275	.2115
4.32	13.38	69.78	39.69	21.61	.9371	.1062	4.732	.4272	.2113
4.33	13.35	69.89	39.71	21.71	.9295	.1054	4.737	.4270	.2111
4.34	13.32	70.01	39.74	21.81	.9220	.1045	4.741	.4268	.2109
4.35	13.29	70.13	39.77	21.91	.9145	.1036	4.746	.4266	.2107
4.36	13.26	70.24	39.79	22.01	.9072	.1028	4.751	.4264	.2105
4.37	13.23	70.36	39.82	22.11	.8999	.1020	4.755	.4262	.2103
4.38	13.20	70.48	39.84	22.22	.8926	.1011	4.760	.4260	.2101
4.39	13.17	70.59	39.87	22.32	.8854	.1003	4.764	.4258	.2099
4.40	13.14	70.71	39.89	22.42	.8783	$.9948\times10^{-1}$	4.768	.4255	.2097
4.41	13.11	70.82	39.91	22.52	.8713	.9867	4.773	.4253	.2095
4.42	13.08	70.93	39.94	22.63	.8643	.9787	4.777	.4251	.2093
4.43	13.05	71.05	39.96	22.73	.8574	.9707	4.782	.4249	.2091
4.44	13.02	71.16	39.98	22.83	.8505	.9628	4.786	.4247	.2089
4.45	12.99	71.27	40.01	22.94	.8437	.9550	4.790	.4245	.2087
4.46	12.96	71.39	40.03	23.04	.8369	.9473	4.795	.4243	.2086
4.47	12.93	71.50	40.06	23.14	.8303	.9396	4.799	.4241	.2084
4.48	12.90	71.61	40.08	23.25	.8236	.9320	4.803	.4239	.2082
4.49	12.87	71.72	40.10	23.35	.8171	.9244	4.808	.4237	.2080

M_1	$\frac{p_1}{p_o}$	$\frac{\rho_1}{\rho_o}$	$\frac{T_1}{T_o}$	$\frac{A_1}{A_{cr}}$	$\frac{a_1}{a_o}$	$\frac{q_1}{q_{cr}}$	V_1 $T_o=520^\circ R$	q_1 $p_o = 2116$ lb/sq ft	$\frac{1}{\sqrt{M_1^2-1}}$
4.50	0.3455×10^{-2}	0.1745×10^{-1}	0.1980	16.56	0.4450	0.1324	2233	103.5	0.2279
4.51	.3412	.1729	.1973	16.70	.4442	.1314	2238	103.0	.2274
4.52	.3370	.1714	.1966	16.84	.4434	.1303	2239	102.2	.2269
4.53	.3329	.1699	.1959	16.99	.4426	.1293	2240	101.4	.2263
4.54	.3288	.1684	.1952	17.13	.4418	.1283	2241	100.6	.2258
4.55	.3247	.1669	.1945	17.28	.4411	.1272	2242	99.79	.2253
4.56	.3207	.1654	.1938	17.42	.4403	.1262	2243	98.99	.2248
4.57	.3168	.1640	.1932	17.57	.4395	.1252	2244	98.21	.2243
4.58	.3129	.1625	.1925	17.72	.4387	.1242	2245	97.43	.2237
4.59	.3090	.1611	.1918	17.87	.4380	.1232	2246	96.65	.2232
4.60	.3053	.1597	.1911	18.02	.4372	.1223	2247	95.89	.2227
4.61	.3015	.1583	.1905	18.17	.4364	.1213	2248	95.13	.2222
4.62	.2978	.1569	.1898	18.32	.4357	.1203	2249	94.37	.2217
4.63	.2942	.1556	.1891	18.48	.4349	.1194	2250	93.63	.2212
4.64	.2906	.1542	.1885	18.63	.4341	.1184	2251	92.89	.2207
4.65	.2871	.1529	.1878	18.79	.4334	.1175	2252	92.15	.2202
4.66	.2836	.1515	.1872	18.94	.4326	.1166	2253	91.43	.2197
4.67	.2802	.1502	.1865	19.10	.4319	.1157	2254	90.70	.2192
4.68	.2768	.1489	.1859	19.26	.4311	.1147	2254	89.99	.2187
4.69	.2734	.1476	.1852	19.42	.4304	.1138	2255	89.28	.2182
4.70	.2701	.1464	.1846	19.58	.4296	.1130	2256	88.58	.2178
4.71	.2669	.1451	.1839	19.75	.4289	.1121	2257	87.88	.2173
4.72	.2637	.1438	.1833	19.91	.4281	.1112	2258	87.19	.2168
4.73	.2605	.1426	.1827	20.07	.4274	.1103	2259	86.51	.2163
4.74	.2573	.1414	.1820	20.24	.4267	.1094	2260	85.83	.2158

M_1		ν	θ_{max}	$\frac{p_2}{p_1}$	$\frac{p_c}{p_o}$	$\frac{p_2}{p_o}$	$\frac{\rho_c}{\rho_1}$	M_c	$\frac{V_2}{V_1}$
4.50	12.84	71.83	40.13	23.46	0.8105×10^{-1}	0.9170×10^{-1}	4.812	0.4236	0.2078
4.51	12.81	71.94	40.15	23.56	.8041	.9096	4.816	.4234	.2076
4.52	12.78	72.05	40.17	23.67	.7977	.9022	4.820	.4232	.2075
4.53	12.75	72.16	40.19	23.77	.7913	.8950	4.824	.4230	.2073
4.54	12.72	72.27	40.22	23.88	.7851	.8878	4.829	.4228	.2071
4.55	12.70	72.38	40.24	23.99	.7788	.8806	4.833	.4226	.2069
4.56	12.67	72.49	40.26	24.09	.7727	.8735	4.837	.4224	.2067
4.57	12.64	72.60	40.28	24.20	.7665	.8665	4.841	.4222	.2066
4.58	12.61	72.70	40.31	24.31	.7605	.8596	4.845	.4220	.2064
4.59	12.58	72.81	40.33	24.41	.7544	.8527	4.849	.4219	.2062
4.60	12.56	72.92	40.35	24.52	.7485	.8459	4.853	.4217	.2060
4.61	12.53	73.03	40.37	24.63	.7426	.8391	4.857	.4215	.2059
4.62	12.50	73.13	40.39	24.74	.7367	.8324	4.861	.4213	.2057
4.63	12.47	73.24	40.41	24.84	.7309	.8257	4.865	.4211	.2055
4.64	12.45	73.34	40.43	24.95	.7252	.8192	4.869	.4210	.2054
4.65	12.42	73.45	40.46	25.06	.7194	.8126	4.873	.4208	.2052
4.66	12.39	73.55	40.48	25.17	.7138	.8062	4.877	.4206	.2050
4.67	12.36	73.66	40.50	25.28	.7082	.7998	4.881	.4204	.2049
4.68	12.34	73.76	40.52	25.39	.7026	.7934	4.885	.4203	.2047
4.69	12.31	73.87	40.54	25.50	.6971	.7871	4.889	.4201	.2046
4.70	12.28	73.97	40.56	25.61	.6917	.7809	4.893	.4199	.2044
4.71	12.26	74.07	40.58	25.71	.6862	.7747	4.896	.4197	.2042
4.72	12.23	74.18	40.60	25.82	.6809	.7685	4.900	.4196	.2041
4.73	12.21	74.28	40.62	25.94	.6756	.7625	4.904	.4194	.2039
4.74	12.18	74.38	40.64	26.05	.6703	.7564	4.908	.4192	.2038

TABLE II.- COMPRESSIBLE FLOW - Continued

M_1	$\frac{p_1}{p_o}$	$\frac{\rho_1}{\rho_o}$	$\frac{T_1}{T_o}$	$\frac{A_1}{A_{cr}}$	$\frac{a_1}{a_o}$	$\frac{q_1}{q_{cr}}$	V_1 $T_o=520°R$	$\frac{q_1}{p_o}$ = 2121 lb/sq ft	$\frac{1}{\sqrt{M_1^2-1}}$
4.75	0.2543×10^{-2}	0.1402×10^{-1}	0.1814	20.41	0.4259	0.1086	2261	85.16	0.2154
4.76	.2512	.1390	.1808	20.58	.4252	.1077	2261	84.50	.2149
4.77	.2482	.1378	.1802	20.75	.4245	.1069	2262	83.84	.2144
4.78	.2452	.1366	.1795	20.92	.4237	.1061	2263	83.18	.2139
4.79	.2423	.1354	.1789	21.09	.4230	.1052	2264	82.53	.2135
4.80	.2394	.1343	.1783	21.26	.4223	.1044	2265	81.89	.2130
4.81	.2366	.1331	.1777	21.44	.4216	.1036	2266	81.25	.2125
4.82	.2338	.1320	.1771	21.61	.4208	.1028	2267	80.62	.2121
4.83	.2310	.1309	.1765	21.79	.4201	.1020	2267	79.99	.2116
4.84	.2283	.1298	.1759	21.97	.4194	.1012	2268	79.37	.2112
4.85	.2255	.1287	.1753	22.15	.4187	.1004	2269	78.76	.2107
4.86	.2229	.1276	.1747	22.33	.4180	$.9965\times10^{-1}$	2270	78.15	.2103
4.87	.2202	.1265	.1741	22.51	.4173	.9888	2271	77.54	.2098
4.88	.2177	.1254	.1735	22.70	.4166	.9811	2271	76.94	.2094
4.89	.2151	.1244	.1729	22.88	.4159	.9736	2272	76.35	.2089
4.90	.2126	.1233	.1724	23.07	.4152	.9661	2273	75.76	.2085
4.91	.2101	.1223	.1718	23.25	.4145	.9586	2274	75.18	.2080
4.92	.2076	.1213	.1712	23.44	.4138	.9512	2275	74.60	.2076
4.93	.2052	.1202	.1706	23.63	.4131	.9439	2275	74.02	.2071
4.94	.2028	.1192	.1700	23.82	.4124	.9367	2276	73.46	.2067
4.95	.2004	.1182	.1695	24.02	.4117	.9295	2277	72.89	.2063
4.96	.1981	.1173	.1689	24.21	.4110	.9223	2278	72.33	.2058
4.97	.1957	.1163	.1683	24.41	.4103	.9153	2279	71.78	.2054
4.98	.1935	.1153	.1678	24.60	.4096	.9083	2279	71.23	.2050
4.99	.1912	.1144	.1672	24.80	.4089	.9013	2280	70.68	.2046

M_1	ν	δ_{max}	$\frac{p_2}{p_1}$	$\frac{p_2}{p_o}$	$\frac{p_3}{p_o}$	$\frac{\rho_2}{\rho_1}$	M_2	$\frac{V_2}{V_1}$
4.75	74.48	40.66	26.16	0.6651×10^{-1}	0.7505×10^{-1}	4.912	0.4191	0.2036
4.76	74.58	40.68	26.27	.6599	.7445	4.915	.4189	.2034
4.77	74.69	40.70	26.38	.6547	.7387	4.919	.4187	.2033
4.78	74.79	40.72	26.49	.6496	.7329	4.923	.4186	.2031
4.79	74.89	40.74	26.60	.6446	.7271	4.926	.4184	.2030
4.80	74.99	40.76	26.71	.6396	.7214	4.930	.4183	.2028
4.81	75.09	40.77	26.83	.6346	.7157	4.934	.4181	.2027
4.82	75.19	40.79	26.94	.6297	.7101	4.937	.4179	.2025
4.83	75.28	40.81	27.05	.6248	.7046	4.941	.4178	.2024
4.84	75.38	40.83	27.16	.6200	.6991	4.945	.4176	.2022
4.85	75.48	40.85	27.28	.6152	.6936	4.948	.4175	.2021
4.86	75.58	40.87	27.39	.6105	.6882	4.952	.4173	.2019
4.87	75.68	40.89	27.50	.6058	.6828	4.955	.4172	.2018
4.88	75.78	40.91	27.62	.6011	.6775	4.959	.4170	.2017
4.89	75.87	40.92	27.73	.5965	.6722	4.962	.4169	.2015
4.90	75.97	40.94	27.85	.5919	.6670	4.966	.4167	.2014
4.91	76.07	40.96	27.96	.5873	.6618	4.969	.4165	.2012
4.92	76.16	40.98	28.07	.5828	.6567	4.973	.4164	.2011
4.93	76.26	41.00	28.19	.5783	.6516	4.976	.4163	.2010
4.94	76.35	41.01	28.30	.5739	.6465	4.980	.4161	.2008
4.95	76.45	41.03	28.42	.5695	.6415	4.983	.4160	.2007
4.96	76.54	41.05	28.54	.5652	.6366	4.987	.4158	.2005
4.97	76.64	41.07	28.65	.5608	.6317	4.990	.4157	.2004
4.98	76.73	41.08	28.77	.5566	.6268	4.993	.4155	.2003
4.99	76.83	41.10	28.88	.5523	.6220	4.997	.4154	.2001

TABLE II.- SUPERSONIC FLOW - Concluded

M_1	$\frac{p_1}{p_o}$	$\frac{\rho_1}{\rho_c}$	$\frac{T_1}{T_o}$	$\frac{A_1}{A_{cr}}$	$\frac{a_1}{a_c}$	$\frac{q_1}{q_{cr}}$	V_1 $T_o = 540°R$	q_1 $p_o = 2121$ lb/sq ft	$\frac{1}{\sqrt{M_1^2 - 1}}$
5.00	0.1890x10^{-2}	0.1134x10^{-1}	0.1667	25.00	0.4082	0.8944x10^{-1}	2281	70.14	0.2041
5.01	.1868	.1125	.1661	25.20	.4076	.8876	2283	69.61	.2037
5.02	.1847	.1115	.1656	25.40	.4069	.8808	2282	69.08	.2033
5.03	.1825	.1106	.1650	25.61	.4062	.8741	2283	68.55	.2029
5.04	.1804	.1097	.1645	25.81	.4055	.8675	2284	68.03	.2024
5.05	.1783	.1088	.1639	26.02	.4049	.8609	2285	67.51	.2020
5.06	.1763	.1079	.1634	26.22	.4042	.8543	2285	67.00	.2016
5.07	.1742	.1070	.1628	26.43	.4035	.8478	2286	66.49	.2012
5.08	.1722	.1061	.1623	26.64	.4029	.8414	2287	65.99	.2008
5.09	.1703	.1053	.1618	26.86	.4022	.8350	2286	65.49	.2004
5.10	.1683	.1044	.1612	27.07	.4015	.8287	2288	64.99	.2000
5.11	.1664	.1035	.1607	27.28	.4009	.8225	2289	64.50	.1996
5.12	.1645	.1027	.1602	27.50	.4002	.8163	2290	64.01	.1991
5.13	.1626	.1019	.1597	27.72	.3996	.8101	2290	63.53	.1987
5.14	.1608	.1010	.1591	27.94	.3989	.8040	2291	63.05	.1983
5.15	.1589	.1002	.1586	28.16	.3983	.7979	2292	62.58	.1979
5.16	.1571	.9939x10^{-2}	.1581	28.38	.3976	.7919	2293	62.11	.1975
5.17	.1553	.9858	.1576	28.60	.3970	.7860	2293	61.64	.1971
5.18	.1536	.9778	.1571	28.83	.3963	.7801	2294	61.18	.1968
5.19	.1518	.9699	.1566	29.06	.3957	.7742	2295	60.72	.1964
5.20	.1501	.9620	.1561	29.28	.3950	.7684	2295	60.26	.1960
5.21	.1484	.9543	.1555	29.51	.3944	.7627	2296	59.81	.1956
5.22	.1468	.9466	.1550	29.74	.3938	.7570	2297	59.37	.1952
5.23	.1451	.9389	.1545	29.98	.3931	.7513	2297	58.92	.1948
5.24	.1435	.9314	.1540	30.21	.3925	.7457	2298	58.48	.1944

M_1	μ	ν	δ_{max}	$\frac{p_2}{p_1}$	$\frac{p_2}{p_o}$	$\frac{p_3}{p_o}$	$\frac{\rho_2}{\rho_1}$	M_2	$\frac{V_2}{V_1}$
5.00	11.54	76.92	41.12	29.00	0.5481x10^{-1}	0.6172x10^{-1}	5.000	0.4152	0.2000
5.01	11.51	77.01	41.14	29.12	.5439	.6124	5.003	.4151	.1999
5.02	11.49	77.11	41.15	29.23	.5398	.6077	5.007	.4149	.1997
5.03	11.47	77.20	41.17	29.35	.5357	.6030	5.010	.4148	.1996
5.04	11.44	77.29	41.18	29.47	.5316	.5984	5.013	.4147	.1995
5.05	11.42	77.38	41.20	29.59	.5276	.5938	5.016	.4145	.1993
5.06	11.40	77.48	41.22	29.70	.5236	.5893	5.020	.4144	.1992
5.07	11.38	77.57	41.23	29.82	.5196	.5848	5.023	.4142	.1991
5.08	11.35	77.66	41.25	29.94	.5157	.5803	5.026	.4141	.1990
5.09	11.33	77.75	41.27	30.06	.5118	.5759	5.029	.4140	.1988
5.10	11.31	77.84	41.28	30.18	.5080	.5715	5.033	.4138	.1987
5.11	11.29	77.93	41.30	30.30	.5041	.5672	5.036	.4137	.1986
5.12	11.26	78.02	41.32	30.42	.5003	.5628	5.039	.4136	.1985
5.13	11.24	78.11	41.33	30.54	.4966	.5586	5.042	.4134	.1983
5.14	11.22	78.20	41.35	30.66	.4928	.5543	5.045	.4133	.1982
5.15	11.20	78.29	41.36	30.78	.4891	.5501	5.048	.4132	.1981
5.16	11.17	78.38	41.38	30.90	.4855	.5460	5.051	.4130	.1980
5.17	11.15	78.47	41.39	31.02	.4818	.5418	5.054	.4129	.1978
5.18	11.13	78.56	41.41	31.14	.4782	.5377	5.058	.4128	.1977
5.19	11.11	78.64	41.43	31.26	.4747	.5337	5.061	.4126	.1976
5.20	11.09	78.73	41.44	31.38	.4711	.5297	5.064	.4125	.1975
5.21	11.07	78.82	41.46	31.50	.4676	.5257	5.067	.4124	.1974
5.22	11.04	78.91	41.47	31.62	.4641	.5217	5.070	.4123	.1972
5.23	11.02	78.99	41.49	31.75	.4607	.5178	5.073	.4121	.1971
5.24	11.00	79.08	41.50	31.87	.4572	.5139	5.076	.4120	.1970

TABLE II.- SUPERSONIC FLOW - Continued

M_1	$\frac{p_1}{p_o}$	$\frac{\rho_1}{\rho_c}$	$\frac{T_1}{T_o}$	$\frac{A_1}{A_{cr}}$	$\frac{a_1}{a_c}$	$\frac{q_1}{q_{cr}}$	V_1 $T_c=520^\circ R$	$\frac{q_1}{p_o} = 2121$ lb/sq ft	$\frac{1}{\sqrt{M_1^2 - 1}}$
5.25	0.1419×10^{-2}	$0.9239\cdot10^{-2}$	0.1536	30.45	0.3919	0.7402×10^{-1}	2299	58.05	0.1940
5.26	.1403	.9165	.1531	30.68	.3912	.7347	2299	57.61	.1936
5.27	.1387	.9092	.1526	30.92	.3906	.7292	2300	57.19	.1933
5.28	.1372	.9019	.1521	31.16	.3900	.7238	2301	56.76	.1929
5.29	.1356	.8947	.1516	31.41	.3893	.7184	2301	56.34	.1925
5.30	.1341	.8875	.1511	31.65	.3887	.7131	2302	55.92	.1921
5.31	.1326	.8805	.1506	31.89	.3881	.7078	2303	55.51	.1918
5.32	.1311	.8734	.1501	32.14	.3875	.7026	2303	55.10	.1914
5.33	.1297	.8665	.1497	32.39	.3869	.6974	2304	54.69	.1910
5.34	.1282	.8596	.1492	32.64	.3862	.6922	2305	54.29	.1906
5.35	.1268	.8528	.1487	32.89	.3856	.6871	2305	53.89	.1903
5.36	.1254	.8461	.1482	33.14	.3850	.6821	2306	53.49	.1899
5.37	.1240	.8394	.1478	33.40	.3844	.6770	2307	53.10	.1895
5.38	.1227	.8327	.1473	33.66	.3838	.6721	2307	52.70	.1892
5.39	.1213	.8262	.1468	33.91	.3832	.6671	2308	52.32	.1888
5.40	.1200	.8197	.1464	34.17	.3826	.6622	2308	51.93	.1884
5.41	.1187	.8132	.1459	34.44	.3820	.6574	2309	51.55	.1881
5.42	.1174	.8068	.1454	34.70	.3814	.6526	2310	51.18	.1877
5.43	.1161	.8005	.1450	34.97	.3808	.6478	2310	50.80	.1874
5.44	.1148	.7942	.1445	35.23	.3802	.6430	2311	50.43	.1870
5.45	.1135	.7880	.1441	35.50	.3796	.6384	2312	50.06	.1867
5.46	.1123	.7818	.1436	35.77	.3790	.6337	2312	49.70	.1863
5.47	.1111	.7757	.1432	36.04	.3784	.6291	2313	49.33	.1859
5.48	.1099	.7697	.1427	36.32	.3778	.6245	2313	48.98	.1856
5.49	.1087	.7637	.1423	36.59	.3772	.6200	2314	48.62	.1852

M_1	ν	ν	δ_{max}	$\frac{p_2}{p_1}$	$\frac{p_2}{p_o}$	$\frac{p_3}{p_o}$	$\frac{p_2}{p_1}$	M_1	$\frac{V_2}{V_1}$
5.25	10.98	79.17	41.52	31.99	0.4538×10^{-1}	0.5100×10^{-1}	5.079	0.4119	0.1969
5.26	10.96	79.25	41.53	32.11	.4505	.5062	5.082	.4118	.1968
5.27	10.94	79.34	41.55	32.24	.4471	.5024	5.085	.4116	.1967
5.28	10.92	79.43	41.56	32.36	.4438	.4987	5.088	.4115	.1966
5.29	10.90	79.51	41.58	32.48	.4405	.4950	5.090	.4114	.1964
5.30	10.88	79.60	41.59	32.61	.4373	.4913	5.093	.4113	.1963
5.31	10.86	79.68	41.60	32.73	.4340	.4876	5.096	.4112	.1962
5.32	10.83	79.77	41.62	32.85	.4308	.4840	5.099	.4110	.1961
5.33	10.81	79.85	41.63	32.98	.4277	.4804	5.102	.4109	.1960
5.34	10.79	79.93	41.65	33.10	.4245	.4768	5.105	.4108	.1959
5.35	10.77	80.02	41.66	33.23	.4214	.4733	5.108	.4107	.1958
5.36	10.75	80.10	41.68	33.35	.4183	.4697	5.111	.4106	.1957
5.37	10.73	80.18	41.69	33.48	.4152	.4663	5.113	.4104	.1956
5.38	10.71	80.27	41.70	33.60	.4122	.4628	5.116	.4103	.1955
5.39	10.69	80.35	41.72	33.73	.4091	.4594	5.119	.4102	.1954
5.40	10.67	80.43	41.73	33.85	.4061	.4560	5.122	.4101	.1952
5.41	10.65	80.52	41.74	33.98	.4032	.4526	5.125	.4100	.1951
5.42	10.63	80.60	41.76	34.11	.4002	.4493	5.127	.4099	.1950
5.43	10.61	80.68	41.77	34.23	.3973	.4460	5.130	.4098	.1949
5.44	10.59	80.76	41.79	34.36	.3944	.4427	5.133	.4096	.1948
5.45	10.57	80.84	41.80	34.49	.3915	.4395	5.136	.4095	.1947
5.46	10.55	80.92	41.81	34.61	.3887	.4362	5.138	.4094	.1946
5.47	10.53	81.00	41.82	34.74	.3859	.4330	5.141	.4093	.1945
5.48	10.51	81.08	41.84	34.87	.3831	.4299	5.144	.4092	.1944
5.49	10.50	81.16	41.85	35.00	.3803	.4267	5.146	.4091	.1943

TABLE II.- SUPERSONIC FLOW - Continued

M_1	$\frac{p_1}{p_o}$	$\frac{\rho_1}{\rho_o}$	$\frac{T_1}{T_o}$	$\frac{A_1}{A_{cr}}$	$\frac{a_1}{a_o}$	$\frac{q_1}{q_{cr}}$	V_1 $T_o=520^\circ R$	q_1 $p_o = 2121$ lb/sq ft	$\frac{1}{\sqrt{M_1^2 - 1}}$
5.50	0.1075×10^{-2}	0.7578×10^{-2}	0.1418	36.87	0.3766	0.6155×10^{-1}	2315	48.27	0.1849
5.51	.1063	.7519	.1414	37.15	.3760	.6110	2315	47.92	.1846
5.52	.1052	.7460	.1410	37.43	.3754	.6066	2316	47.57	.1842
5.53	.1040	.7403	.1405	37.71	.3749	.6022	2316	47.22	.1839
5.54	.1029	.7345	.1401	38.00	.3743	.5978	2317	46.88	.1835
5.55	.1018	.7289	.1397	38.28	.3737	.5935	2317	46.54	.1832
5.56	.1007	.7232	.1392	38.57	.3731	.5892	2318	46.21	.1828
5.57	$.9961\times10^{-3}$	.7177	.1388	38.86	.3725	.5850	2319	45.87	.1825
5.58	.9853	.7121	.1384	39.15	.3720	.5808	2319	45.54	.1822
5.59	.9748	.7067	.1379	39.44	.3714	.5766	2320	45.22	.1818
5.60	.9643	.7012	.1375	39.74	.3708	.5724	2320	44.89	.1815
5.61	.9540	.6959	.1371	40.04	.3703	.5683	2321	44.57	.1812
5.62	.9438	.6905	.1367	40.34	.3697	.5642	2322	44.25	.1808
5.63	.9337	.6853	.1363	40.64	.3691	.5602	2322	43.93	.1805
5.64	.9237	.6800	.1358	40.94	.3686	.5562	2323	43.62	.1802
5.65	.9139	.6748	.1354	41.25	.3680	.5522	2323	43.31	.1798
5.66	.9041	.6697	.1350	41.55	.3674	.5483	2324	43.00	.1795
5.67	.8945	.6646	.1346	41.86	.3669	.5444	2324	42.69	.1792
5.68	.8850	.6596	.1342	42.17	.3663	.5405	2325	42.39	.1789
5.69	.8756	.6545	.1338	42.48	.3658	.5366	2325	42.08	.1785
5.70	.8663	.6496	.1334	42.80	.3652	.5328	2326	41.78	.1782
5.71	.8572	.6447	.1330	43.11	.3646	.5290	2326	41.49	.1779
5.72	.8481	.6398	.1326	43.43	.3641	.5253	2327	41.19	.1776
5.73	.8392	.6350	.1322	43.75	.3635	.5215	2328	40.90	.1772
5.74	.8303	.6302	.1318	44.07	.3630	.5179	2328	40.61	.1769

M_1	μ	ν	δ_{max}	$\frac{p_2}{p_1}$	$\frac{p_2}{p_o}$	$\frac{p_3}{p_o}$	$\frac{\rho_2}{\rho_1}$	M_2	$\frac{V_2}{V_1}$
5.50	10.48	81.24	41.86	35.13	0.3775×10^{-1}	0.4236×10^{-1}	5.149	0.4090	0.1942
5.51	10.46	81.32	41.88	35.25	.3748	.4205	5.152	.4089	.1941
5.52	10.44	81.40	41.89	35.38	.3721	.4175	5.154	.4088	.1940
5.53	10.42	81.48	41.90	35.51	.3694	.4144	5.157	.4086	.1939
5.54	10.40	81.56	41.92	35.64	.3667	.4114	5.159	.4085	.1938
5.55	10.38	81.64	41.93	35.77	.3641	.4084	5.162	.4084	.1937
5.56	10.36	81.72	41.94	35.90	.3615	.4054	5.165	.4083	.1936
5.57	10.34	81.80	41.95	36.03	.3589	.4025	5.167	.4082	.1935
5.58	10.32	81.88	41.97	36.16	.3563	.3996	5.170	.4081	.1934
5.59	10.31	81.95	41.98	36.29	.3537	.3967	5.172	.4080	.1933
5.60	10.29	82.03	41.99	36.42	.3512	.3938	5.175	.4079	.1932
5.61	10.27	82.11	42.00	36.55	.3487	.3910	5.177	.4078	.1931
5.62	10.25	82.19	42.02	36.68	.3462	.3882	5.180	.4077	.1931
5.63	10.23	82.26	42.03	36.81	.3437	.3854	5.182	.4076	.1930
5.64	10.21	82.34	42.04	36.94	.3413	.3826	5.185	.4075	.1929
5.65	10.19	82.42	42.05	37.08	.3388	.3798	5.187	.4074	.1928
5.66	10.18	82.49	42.06	37.21	.3364	.3771	5.190	.4073	.1927
5.67	10.16	82.57	42.08	37.34	.3340	.3744	5.192	.4072	.1926
5.68	10.14	82.64	42.09	37.47	.3316	.3717	5.195	.4071	.1925
5.69	10.12	82.72	42.10	37.61	.3293	.3691	5.197	.4070	.1924
5.70	10.10	82.80	42.11	37.74	.3269	.3664	5.200	.4069	.1923
5.71	10.09	82.87	42.12	37.87	.3246	.3638	5.202	.4068	.1922
5.72	10.07	82.95	42.14	38.00	.3223	.3612	5.205	.4067	.1921
5.73	10.05	83.02	42.15	38.14	.3200	.3586	5.207	.4066	.1920
5.74	10.03	83.09	42.16	38.27	.3178	.3561	5.209	.4065	.1920

TABLE II.- SUPERSONIC FLOW - Cont'nued

M_1	$\frac{p_1}{p_o}$	$\frac{\rho_1}{\rho_o}$	$\frac{T_1}{T_o}$	$\frac{A_1}{A_{cr}}$	$\frac{a_1}{a_c}$	$\frac{q_1}{q_{cr}}$	V_1 $T_o=520^\circ R$	q_1 $p_o = 2121$ lb/sq ft	$\frac{1}{\sqrt{M_1^2 - 1}}$
5.75	0.8216×10^{-3}	0.6254×10^{-2}	0.1314	44.40	0.3624	0.5142×10^{-1}	2329	40.32	0.1766
5.76	.8130 86	.6207 47	.1310	44.72	.3619	.5106	2329	40.04	.1763
5.77	.8044 84	.6161	.1306	45.05	.3613	.5070	2330	39.76	.1760
5.78	.7960	.6114	.1302	45.38	.3608	.5034	2330	39.48	.1757
5.79	.7876	.6069	.1298	45.72	.3603	.4998	2331	39.20	.1753
5.80	.7794	.6023	.1294	46.05	.3597	.4963	2331	38.92	.1750
5.81	.7713 81	.5978 45	.1290	46.39	.3592	.4928	2332	38.65	.1747
5.82	.7632 81	.5934	.1286	46.72	.3586	.4894	2332	38.38	.1744
5.83	.7553 79	.5889	.1282	47.07	.3581	.4859	2333	38.11	.1741
5.84	.7474 79	.5846	.1279	47.41	.3576	.4825	2333	37.84	.1738
5.85	.7396	.5802	.1275	47.75	.3570	.4791	2334	37.58	.1735
5.86	.7320	.5759	.1271	48.10	.3565	.4758	2334	37.31	.1732
5.87	.7244 76	.5716	.1267	48.45	.3560	.4725	2335	37.05	.1729
5.88	.7169	.5674	.1263	48.80	.3554	.4692	2335	36.79	.1726
5.89	.7095 74	.5632	.1260	49.15	.3549	.4659	2336	36.54	.1723
5.90	.7021	.5590	.1256	49.51	.3544	.4627	2336	36.28	.1720
5.91	.6949 72	.5549	.1252	49.86	.3539	.4594	2337	36.03	.1717
5.92	.6877 70	.5508	.1249	50.22	.3533	.4562	2337	35.78	.1714
5.93	.6807 70	.5468	.1245	50.59	.3528	.4531	2338	35.53	.1711
5.94	.6737 69	.5428	.1241	50.95	.3523	.4499	2338	35.29	.1708
5.95	.6668 69	.5388	.1238	51.32	.3518	.4468	2339	35.04	.1705
5.96	.6599 67	.5348	.1234	51.68	.3513	.4437	2339	34.80	.1702
5.97	.6532	.5309	.1230	52.05	.3508	.4407	2340	34.56	.1699
5.98	.6465	.5270	.1227	52.43	.3502	.4376	2340	34.32	.1696
5.99	.6399	.5232	.1223	52.80	.3497	.4346	2341	34.08	.1693

M_1	μ	ν	δ_{max}	$\frac{p_2}{p_1}$	$\frac{p_2}{p_c}$	$\frac{p_3}{p_c}$	$\frac{p_c}{p_1}$	M_2	$\frac{V_2}{V_1}$
5.75	10.02	83.17	42.17	38.41	0.3155×10^{-1}	0.3536×10^{-1}	5.212	0.4064	0.1919
5.76	10.00	83.24 7	42.18	38.54	.3133	.3510	5.214	.4063	.1918
5.77	9.98	83.32 8	42.19	38.68	.3111	.3486	5.217	.4062	.1917
5.78	9.96	83.39 7	42.20	38.81	.3089	.3461	5.219	.4061	.1916
5.79	9.95	83.46	42.22	38.94	.3067	.3436	5.221	.4060	.1915
5.80	9.93	83.54	42.23	39.08	.3046	.3412	5.224	.4059	.1914
5.81	9.91	83.61 7	42.24	39.22	.3025	.3388	5.226	.4059	.1914
5.82	9.89	83.68 7	42.25	39.35	.3003	.3364	5.228	.4058	.1913
5.83	9.88	83.76 8	42.26	39.49	.2982	.3340	5.231	.4057	.1912
5.84	9.86	83.83 7	42.27	39.62	.2961	.3317	5.233	.4056	.1911
5.85	9.84	83.90	42.28	39.76	.2941	.3293	5.235	.4055	.1910
5.86	9.83	83.97	42.29	39.90	.2920	.3270	5.237	.4054	.1909
5.87	9.81	84.04 7	42.30	40.03	.2900	.3247	5.240	.4053	.1909
5.88	9.79	84.11 7	42.31	40.17	.2880	.3225	5.242	.4052	.1908
5.89	9.78	84.19 8	42.32	40.31	.2860	.3202	5.244	.4051	.1907
5.90	9.76	84.26 7	42.34	40.45	.2840	.3180	5.246	.4050	.1906
5.91	9.74	84.33 7	42.35	40.58	.2820	.3157	5.249	.4049	.1905
5.92	9.73	84.40 7	42.36	40.72	.2801	.3135	5.251	.4049	.1904
5.93	9.71	84.47 7	42.37	40.86	.2781	.3113	5.253	.4048	.1904
5.94	9.69	84.54 7 7	42.38	41.00	.2762	.3092	5.255	.4047	.1903
5.95	9.68	84.61 7	42.39	41.14	.2743	.3070	5.257	.4046	.1902
5.96	9.66	84.68 7	42.40	41.28	.2724	.3049	5.260	.4045	.1901
5.97	9.64	84.75 7	42.41	41.41	.2705	.3028	5.262	.4044	.1900
5.98	9.63	84.82	42.42	41.55	.2686	.3007	5.264	.4043	.1900
5.99	9.61	84.89	42.43	41.69	.2668	.2986	5.266	.4042	.1899

TABLE II.- SUPERSONIC FLOW — Continued

M_1	$\frac{p_1}{p_o}$	$\frac{\rho_1}{\rho_o}$	$\frac{T_1}{T_o}$	$\frac{A_1}{A_{cr}}$	$\frac{a_1}{a_o}$	$\frac{q_1}{q_{cr}}$	V_1 T_o=520°R	q_1 p_o = 2121 lb/sq ft	$\frac{1}{\sqrt{M_1^2 - 1}}$
6.00	0.6334x10^{-3}	0.5194x10^{-4}	0.1220	53.18	0.3492	0.4316x10^{-1}	2341	33.85	0.1690
6.01	.6269	.5156	.1216	53.56	.3487	.4286	2342	33.61	.1687
6.02	.6205	.5118	.1212	53.94	.3482	.4257	2342	33.38	.1685
6.03	.6142	.5081	.1209	54.32	.3477	.4228	2343	33.15	.1682
6.04	.6080	.5044	.1205	54.71	.3472	.4199	2343	32.93	.1679
6.05	.6018	.5008	.1202	55.10	.3467	.4170	2344	32.70	.1676
6.06	.5957	.4971	.1198	55.49	.3462	.4141	2344	32.48	.1673
6.07	.5897	.4935	.1195	55.88	.3457	.4113	2345	32.26	.1670
6.08	.5838	.4900	.1191	56.28	.3452	.4085	2345	32.03	.1667
6.09	.5779	.4864	.1188	56.68	.3447	.4057	2345	31.82	.1665
6.10	.5721	.4829	.1185	57.08	.3442	.4029	2346	31.60	.1662
6.11	.5663	.4795	.1181	57.48	.3437	.4002	2346	31.38	.1659
6.12	.5606	.4760	.1178	57.88	.3432	.3975	2347	31.17	.1656
6.13	.5550	.4726	.1174	58.29	.3427	.3948	2347	30.96	.1653
6.14	.5494	.4692	.1171	58.70	.3422	.3921	2348	30.75	.1651
6.15	.5439	.4658	.1168	59.11	.3417	.3894	2348	30.54	.1648
6.16	.5385	.4625	.1164	59.53	.3412	.3868	2349	30.33	.1645
6.17	.5331	.4592	.1161	59.94	.3407	.3842	2349	30.13	.1642
6.18	.5278	.4559	.1158	60.36	.3402	.3816	2349	29.92	.1640
6.19	.5225	.4527	.1154	60.79	.3398	.3790	2350	29.72	.1637
6.20	.5173	.4495	.1151	61.21	.3393	.3764	2350	29.52	.1634
6.21	.5122	.4463	.1148	61.64	.3388	.3739	2351	29.32	.1632
6.22	.5071	.4431	.1144	62.07	.3383	.3714	2351	29.13	.1629
6.23	.5021	.4400	.1141	62.50	.3378	.3689	2352	28.93	.1626
6.24	.4971	.4369	.1138	62.93	.3373	.3664	2352	28.74	.1624

M_1	μ	ν	δ_{max}	$\frac{p_2}{p_1}$	$\frac{p_2}{p_o}$	$\frac{p_3}{p_o}$	$\frac{\rho_2}{\rho_1}$	M_2	$\frac{V_2}{V_1}$
6.00	9.59	84.96	42.44	41.83	0.2650x10^{-1}	0.2965x10^{-1}	5.268	0.4042	0.1898
6.01	9.58	85.02	42.45	41.97	.2631	.2945	5.270	.4041	.1897
6.02	9.56	85.09	42.46	42.11	.2613	.2924	5.273	.4040	.1897
6.03	9.55	85.16	42.47	42.25	.2595	.2904	5.275	.4039	.1896
6.04	9.53	85.23	42.48	42.40	.2578	.2884	5.277	.4038	.1895
6.05	9.51	85.30	42.49	42.54	.2560	.2864	5.279	.4037	.1894
6.06	9.50	85.37	42.50	42.68	.2542	.2844	5.281	.4037	.1894
6.07	9.48	85.43	42.51	42.82	.2525	.2825	5.283	.4036	.1893
6.08	9.47	85.50	42.52	42.96	.2508	.2806	5.285	.4035	.1892
6.09	9.45	85.57	42.53	43.10	.2491	.2786	5.287	.4034	.1891
6.10	9.44	85.63	42.54	43.25	.2474	.2767	5.289	.4033	.1891
6.11	9.42	85.70	42.55	43.39	.2457	.2748	5.291	.4033	.1890
6.12	9.40	85.77	42.56	43.53	.2440	.2730	5.293	.4032	.1889
6.13	9.39	85.83	42.57	43.67	.2424	.2711	5.295	.4031	.1888
6.14	9.37	85.90	42.58	43.82	.2407	.2692	5.297	.4030	.1888
6.15	9.36	85.97	42.59	43.96	.2391	.2674	5.299	.4029	.1887
6.16	9.34	86.03	42.60	44.10	.2375	.2656	5.301	.4029	.1886
6.17	9.33	86.10	42.61	44.25	.2359	.2638	5.303	.4028	.1886
6.18	9.31	86.16	42.61	44.39	.2343	.2620	5.305	.4027	.1885
6.19	9.30	86.23	42.62	44.54	.2327	.2602	5.307	.4026	.1884
6.20	9.28	86.29	42.63	44.68	.2312	.2584	5.309	.4025	.1883
6.21	9.27	86.36	42.64	44.82	.2296	.2567	5.311	.4025	.1883
6.22	9.25	86.42	42.65	44.97	.2281	.2550	5.313	.4024	.1882
6.23	9.24	86.49	42.66	45.12	.2265	.2532	5.315	.4023	.1881
6.24	9.22	86.55	42.67	45.26	.2250	.2515	5.317	.4022	.1881

TABLE II.- SUPERSONIC FLOW - Continued

M_1	$\frac{p_1}{p_o}$	$\frac{\rho_1}{\rho_o}$	$\frac{T_1}{T_o}$	$\frac{A_1}{A_{cr}}$	$\frac{a_1}{a_o}$	$\frac{q_1}{q_{cr}}$	V_1 $T_o=520^\circ R$	q_1 $p_o = 2121$ lb/sq ft	$\frac{1}{\sqrt{M_1^2 - 1}}$
6.25	0.4922×10^{-3}	0.4338×10^{-2}	0.1135	63.37	0.3369	0.3640×10^{-1}	2352	28.54	0.1621
6.26	.4874	.4307	.1132	63.81	.3364	.3615	2353	28.35	.1618
6.27	.4825	.4277	.1128	64.25	.3359	.3591	2353	28.16	.1616
6.28	.4778	.4246	.1125	64.69	.3354	.3567	2354	27.97	.1613
6.29	.4731	.4217	.1122	65.14	.3350	.3543	2354	27.79	.1610
6.30	.4684	.4187	.1119	65.59	.3345	.3519	2355	27.60	.1608
6.31	.4638	.4158	.1116	66.04	.3340	.3496	2355	27.42	.1605
6.32	.4593	.4128	.1113	66.50	.3335	.3472	2355	27.23	.1602
6.33	.4548	.4100	.1109	66.95	.3331	.3450	2356	27.05	.1600
6.34	.4504	.4071	.1106	67.41	.3326	.3427	2356	26.87	.1597
6.35	.4460	.4042	.1103	67.88	.3321	.3404	2357	26.69	.1595
6.36	.4416	.4014	.1100	68.34	.3317	.3381	2357	26.52	.1592
6.37	.4373	.3986	.1097	68.81	.3312	.3359	2357	26.34	.1590
6.38	.4331	.3958	.1094	69.28	.3308	.3336	2358	26.17	.1587
6.39	.4288	.3931	.1091	69.75	.3303	.3315	2358	25.99	.1584
6.40	.4247	.3904	.1088	70.23	.3298	.3293	2359	25.82	.1582
6.41	.4206	.3877	.1085	70.57	.3294	.3271	2359	25.65	.1579
6.42	.4165	.3850	.1082	71.19	.3289	.3249	2359	25.48	.1577
6.43	.4125	.3823	.1079	71.67	.3285	.3228	2360	25.32	.1574
6.44	.4085	.3797	.1076	72.16	.3280	.3207	2360	25.15	.1572
6.45	.4045	.3771	.1073	72.65	.3276	.3186	2361	24.98	.1569
6.46	.4006	.3745	.1070	73.14	.3271	.3165	2361	24.82	.1567
6.47	.3968	.3719	.1067	73.63	.3266	.3144	2361	24.66	.1564
6.48	.3930	.3693	.1064	74.13	.3262	.3124	2362	24.50	.1562
6.49	.3892	.3668	.1061	74.63	.3257	.3103	2362	24.34	.1559

M_1	μ	ν	δ_{max}	$\frac{p_2}{p_1}$	$\frac{p_2}{p_o}$	$\frac{p_3}{p_o}$	$\frac{\rho_2}{\rho_1}$	M_2	$\frac{V_2}{V_1}$
6.25	9.21	86.62	42.68	45.41	0.2235×10^{-1}	0.2498×10^{-1}	5.319	0.4022	0.1880
6.26	9.19	86.68	42.69	45.55	.2220	.2482	5.321	.4021	.1879
6.27	9.18	86.75	42.70	45.70	.2205	.2465	5.323	.4020	.1879
6.28	9.16	86.81	42.71	45.84	.2190	.2448	5.325	.4019	.1878
6.29	9.15	86.87	42.71	45.99	.2176	.2432	5.327	.4019	.1877
6.30	9.13	86.94	42.72	46.14	.2161	.2416	5.329	.4018	.1877
6.31	9.12	87.00	42.73	46.29	.2147	.2399	5.331	.4017	.1876
6.32	9.10	87.06	42.74	46.43	.2133	.2383	5.332	.4016	.1875
6.33	9.09	87.13	42.75	46.58	.2119	.2367	5.334	.4016	.1875
6.34	9.08	87.19	42.76	46.73	.2104	.2352	5.336	.4015	.1874
6.35	9.06	87.25	42.77	46.88	.2090	.2336	5.338	.4014	.1873
6.36	9.05	87.31	42.78	47.02	.2077	.2320	5.340	.4014	.1873
6.37	9.03	87.38	42.78	47.17	.2063	.2305	5.342	.4013	.1872
6.38	9.02	87.44	42.79	47.32	.2049	.2290	5.344	.4012	.1871
6.39	9.00	87.50	42.80	47.47	.2036	.2274	5.345	.4011	.1871
6.40	8.99	87.56	42.81	47.62	.2022	.2259	5.347	.4011	.1870
6.41	8.98	87.62	42.82	47.77	.2009	.2244	5.349	.4010	.1869
6.42	8.96	87.68	42.83	47.92	.1996	.2230	5.351	.4009	.1869
6.43	8.95	87.74	42.84	48.07	.1983	.2215	5.353	.4009	.1868
6.44	8.93	87.81	42.84	48.23	.1970	.2200	5.354	.4008	.1868
6.45	8.92	87.87	42.85	48.37	.1957	.2186	5.356	.4007	.1867
6.46	8.91	87.93	42.86	48.52	.1944	.2171	5.358	.4007	.1866
6.47	8.89	87.99	42.87	48.67	.1931	.2157	5.360	.4006	.1866
6.48	8.88	88.05	42.88	48.82	.1919	.2143	5.362	.4005	.1865
6.49	8.86	88.11	42.88	48.97	.1906	.2129	5.363	.4004	.1865

TABLE II.- SUPERSONIC FLOW - Continued

M_1	$\frac{p_1}{p_o}$	$\frac{\rho_1}{\rho_o}$	$\frac{T_1}{T_o}$	$\frac{A_1}{A_{cr}}$	$\frac{a_1}{a_o}$	$\frac{q_1}{q_{cr}}$	V_1 T_o=520°R	q_1 p_c = 2121 lb/sq ft	$\frac{1}{\sqrt{M_1^2 - 1}}$
6.50	0.3855×10^{-3}	0.3643×10^{-2}	0.1058	75.13	0.3253	0.3083×10^{-1}	2363	24.18	0.1557
6.51	.3818	.3618	.1055	75.65	.3249	.3063	2363	24.02	.1555
6.52	.3781	.3593	.1052	76.15	.3244	.3043	2363	23.86	.1552
6.53	.3745	.3568	.1050	76.66	.3240	.3023	2364	23.71	.1550
6.54	.3709	.3544	.1047	77.18	.3235	.3003	2364	23.55	.1547
6.55	.3674	.3520	.1044	77.69	.3231	.2984	2365	23.40	.1545
6.56	.3639	.3496	.1041	78.21	.3226	.2964	2365	23.25	.1542
6.57	.3604	.3472	.1038	78.74	.3222	.2945	2365	23.10	.1540
6.58	.3570	.3449	.1035	79.26	.3218	.2926	2366	22.95	.1538
6.59	.3536	.3425	.1032	79.79	.3213	.2907	2366	22.80	.1535
6.60	.3503	.3402	.1030	80.32	.3209	.2888	2366	22.65	.1533
6.61	.3470	.3379	.1027	80.86	.3204	.2870	2367	22.50	.1530
6.62	.3437	.3356	.1024	81.40	.3200	.2851	2367	22.36	.1528
6.63	.3404	.3333	.1021	81.94	.3196	.2833	2367	22.22	.1526
6.64	.3372	.3311	.1019	82.48	.3191	.2815	2368	22.07	.1523
6.65	.3341	.3289	.1016	83.03	.3187	.2796	2368	21.93	.1521
6.66	.3309	.3267	.1013	83.58	.3183	.2778	2369	21.79	.1519
6.67	.3278	.3245	.1010	84.13	.3179	.2761	2369	21.65	.1516
6.68	.3247	.3223	.1008	84.68	.3174	.2743	2369	21.51	.1514
6.69	.3217	.3201	.1005	85.24	.3170	.2725	2370	21.37	.1512
6.70	.3187	.3180	.1002	85.80	.3166	.2708	2370	21.24	.1509
6.71	.3157	.3158	0.9995×10^{-1}	86.37	.3162	.2691	2370	21.10	.1507
6.72	.3127	.3137	.9968	86.94	.3157	.2673	2371	20.97	.1505
6.73	.3098	.3116	.9942	87.51	.3153	.2656	2371	20.83	.1503
6.74	.3069	.3096	.9915	88.08	.3149	.2639	2371	20.70	.1500

M_1	μ	ν	δ_{max}	$\frac{p_2}{p_1}$	$\frac{p_2}{p_o}$	$\frac{p_3}{p_o}$	$\frac{\rho_2}{\rho_1}$	M_2	$\frac{V_2}{V_1}$
6.50	8.85	88.17	42.89	49.13	0.1894×10^{-1}	0.2115×10^{-1}	5.365	0.4004	0.1864
6.51	8.84	88.23	42.90	49.28	.1881	.2101	5.367	.4003	.1863
6.52	8.83	88.29	42.91	49.43	.1869	.2087	5.369	.4002	.1863
6.53	8.81	88.35	42.92	49.58	.1857	.2073	5.370	.4002	.1862
6.54	8.80	88.41	42.92	49.73	.1845	.2060	5.372	.4001	.1861
6.55	8.78	88.47	42.93	49.89	.1833	.2047	5.374	.4000	.1861
6.56	8.77	88.52	42.94	50.04	.1821	.2033	5.375	.4000	.1860
6.57	8.75	88.58	42.95	50.19	.1809	.2020	5.377	.3999	.1860
6.58	8.74	88.64	42.96	50.35	.1797	.2007	5.379	.3999	.1859
6.59	8.73	88.70	42.96	50.50	.1786	.1994	5.381	.3998	.1859
6.60	8.71	88.76	42.97	50.65	.1774	.1981	5.382	.3997	.1858
6.61	8.70	88.82	42.98	50.81	.1763	.1968	5.384	.3997	.1857
6.62	8.69	88.88	42.99	50.96	.1752	.1955	5.386	.3996	.1857
6.63	8.68	88.93	42.99	51.12	.1740	.1943	5.387	.3995	.1856
6.64	8.66	88.99	43.00	51.27	.1729	.1930	5.389	.3995	.1856
6.65	8.65	89.05	43.01	51.43	.1718	.1918	5.391	.3994	.1855
6.66	8.64	89.11	43.02	51.58	.1707	.1905	5.392	.3993	.1855
6.67	8.62	89.16	43.02	51.74	.1696	.1893	5.394	.3993	.1854
6.68	8.61	89.22	43.03	51.89	.1685	.1881	5.395	.3992	.1853
6.69	8.60	89.28	43.04	52.05	.1674	.1869	5.397	.3992	.1853
6.70	8.58	89.33	43.05	52.21	.1664	.1857	5.399	.3991	.1852
6.71	8.57	89.39	43.05	52.36	.1653	.1845	5.400	.3990	.1852
6.72	8.56	89.45	43.06	52.52	.1643	.1833	5.402	.3990	.1851
6.73	8.55	89.50	43.07	52.68	.1632	.1821	5.403	.3989	.1851
6.74	8.53	89.56	43.08	52.83	.1622	.1810	5.405	.3988	.1850

TABLE II.- ISENTROPIC FLOW - Continued

M_1	$\frac{p_1}{p_o}$	$\frac{\rho_1}{\rho_o}$	$\frac{T_1}{T_o}$	$\frac{A_1}{A_{cr}}$	$\frac{a_1}{a_c}$	$\frac{q_1}{q_{cr}}$	V_1 $T_o=520^\circ R$	q_1 $p_o = 2116$ lb/sq ft	$\frac{1}{\sqrt{M_1^2 - 1}}$
6.75	0.3041×10^{-3}	0.3075×10^{-2}	0.9889×10^{-1}	88.66	0.3145	0.2623×10^{-1}	2372	20.57	0.1498
6.76	.3013	.3055	.9862	89.24	.3140	.2606	2372	20.44	.1496
6.77	.2985	.3034	.9836	89.82	.3136	.2589	2372	20.31	.1493
6.78	.2957	.3014	.9810	90.41	.3132	.2573	2373	20.18	.1491
6.79	.2930	.2994	.9784	91.00	.3128	.2557	2373	20.05	.1489
6.80	.2902	.2974	.9758	91.59	.3124	.2540	2373	19.92	.1487
6.81	.2876	.2955	.9732	92.19	.3120	.2524	2374	19.80	.1485
6.82	.2849	.2935	.9706	92.79	.3116	.2508	2374	19.67	.1482
6.83	.2823	.2916	.9681	93.39	.3111	.2493	2375	19.55	.1480
6.84	.2797	.2897	.9655	94.00	.3107	.2477	2375	19.42	.1478
6.85	.2771	.2878	.9630	94.61	.3103	.2461	2375	19.30	.1476
6.86	.2746	.2859	.9604	95.22	.3099	.2446	2376	19.18	.1473
6.87	.2720	.2840	.9579	95.83	.3095	.2430	2376	19.06	.1471
6.88	.2696	.2821	.9554	96.45	.3091	.2415	2376	18.94	.1469
6.89	.2671	.2803	.9529	97.08	.3087	.2400	2377	18.82	.1467
6.90	.2646	.2785	.9504	97.70	.3083	.2385	2377	18.70	.1465
6.91	.2622	.2766	.9479	98.33	.3079	.2370	2377	18.59	.1463
6.92	.2598	.2748	.9454	98.96	.3075	.2355	2377	18.47	.1460
6.93	.2575	.2730	.9430	99.60	.3071	.2341	2378	18.36	.1458
6.94	.2551	.2713	.9405	100.2	.3067	.2326	2378	18.24	.1456
6.95	.2528	.2695	.9380	100.9	.3063	.2311	2378	18.13	.1454
6.96	.2505	.2677	.9356	101.5	.3059	.2297	2379	18.01	.1452
6.97	.2482	.2660	.9332	102.2	.3055	.2283	2379	17.90	.1450
6.98	.2460	.2643	.9307	102.8	.3051	.2269	2379	17.79	.1448
6.99	.2438	.2626	.9283	103.5	.3047	.2254	2380	17.68	.1445

M_1	μ	ν	δ_{max}	$\frac{p_2}{p_1}$	$\frac{p_2}{p_o}$	$\frac{p_3}{p_o}$	$\frac{\rho_2}{\rho_1}$	M_2	$\frac{V_2}{V_1}$
6.75	8.52	89.62	43.08	52.99	0.1611×10^{-1}	0.1798×10^{-1}	5.407	0.3988	0.1850
6.76	8.51	89.67	43.09	53.15	.1601	.1786	5.408	.3987	.1849
6.77	8.49	89.73	43.10	53.31	.1591	.1775	5.410	.3987	.1848
6.78	8.48	89.78	43.10	53.46	.1581	.1764	5.411	.3986	.1848
6.79	8.47	89.84	43.11	53.62	.1571	.1753	5.413	.3986	.1847
6.80	8.46	89.90	43.12	53.78	.1561	.1741	5.415	.3985	.1847
6.81	8.44	89.95	43.13	53.94	.1551	.1730	5.416	.3984	.1846
6.82	8.43	90.01	43.13	54.10	.1541	.1719	5.418	.3984	.1846
6.83	8.42	90.06	43.14	54.26	.1532	.1709	5.419	.3983	.1845
6.84	8.41	90.12	43.15	54.42	.1522	.1698	5.421	.3983	.1845
6.85	8.39	90.17	43.15	54.58	.1512	.1687	5.422	.3982	.1844
6.86	8.38	90.22	43.16	54.74	.1503	.1676	5.424	.3981	.1844
6.87	8.37	90.28	43.17	54.90	.1493	.1666	5.425	.3981	.1843
6.88	8.36	90.33	43.17	55.06	.1484	.1655	5.427	.3980	.1843
6.89	8.35	90.39	43.18	55.22	.1475	.1645	5.428	.3980	.1842
6.90	8.33	90.44	43.19	55.38	.1466	.1634	5.430	.3979	.1842
6.91	8.32	90.49	43.19	55.54	.1456	.1624	5.431	.3979	.1841
6.92	8.31	90.55	43.20	55.70	.1447	.1614	5.433	.3978	.1841
6.93	8.30	90.60	43.21	55.86	.1438	.1604	5.434	.3977	.1840
6.94	8.28	90.66	43.22	56.02	.1429	.1594	5.436	.3977	.1840
6.95	8.27	90.71	43.22	56.19	.1420	.1584	5.437	.3976	.1839
6.96	8.26	90.76	43.23	56.35	.1412	.1574	5.439	.3976	.1839
6.97	8.25	90.81	43.24	56.51	.1403	.1564	5.440	.3975	.1838
6.98	8.24	90.87	43.24	56.67	.1394	.1554	5.442	.3975	.1838
6.99	8.23	90.92	43.25	56.84	.1385	.1545	5.443	.3974	.1837

TABLE II.- SUPERSONIC FLOW - Continued

M_1	$\frac{p_1}{p_o}$	$\frac{\rho_1}{\rho_o}$	$\frac{T_1}{T_o}$	$\frac{A_1}{A_{cr}}$	$\frac{a_1}{a_o}$	$\frac{q_1}{q_{cr}}$	V_1 $T_o=520^\circ R$	q_1 p_o = 2121 lb/sq ft	$\frac{1}{\sqrt{M_1^2 - 1}}$
7.00	0.2416×10^{-3}	0.2609×10^{-2}	0.9259×10^{-1}	104.1	0.3043	0.2241×10^{-1}	2380	17.57	0.1443
7.01	.2394	.2592	.9235	104.8	.3039	.2227	2380	17.46	.1441
7.02	.2372	.2575	.9211	105.5	.3035	.2213	2381	17.35	.1439
7.03	.2351	.2559	.9188	106.1	.3031	.2199	2381	17.25	.1437
7.04	.2330	.2542	.9164	106.8	.3027	.2186	2381	17.14	.1435
7.05	.2309	.2526	.9140	107.5	.3023	.2172	2382	17.03	.1433
7.06	.2288	.2510	.9117	108.2	.3019	.2159	2382	16.93	.1431
7.07	.2267	.2494	.9093	108.9	.3016	.2145	2382	16.83	.1429
7.08	.2247	.2478	.9070	109.5	.3012	.2132	2383	16.72	.1427
7.09	.2227	.2462	.9047	110.2	.3008	.2119	2383	16.62	.1425
7.10	.2207	.2446	.9024	110.9	.3004	.2106	2383	16.52	.1423
7.11	.2187	.2430	.9001	111.6	.3000	.2093	2383	16.42	.1421
7.12	.2168	.2415	.8978	112.3	.2996	.2080	2384	16.32	.1419
7.13	.2149	.2400	.8955	113.0	.2992	.2068	2384	16.22	.1417
7.14	.2130	.2384	.8932	113.7	.2989	.2055	2384	16.12	.1415
7.15	.2111	.2369	.8909	114.5	.2985	.2042	2385	16.02	.1412
7.16	.2092	.2354	.8886	115.2	.2981	.2030	2385	15.92	.1410
7.17	.2073	.2339	.8864	115.9	.2977	.2018	2385	15.82	.1408
7.18	.2055	.2324	.8841	116.6	.2973	.2005	2386	15.73	.1406
7.19	.2037	.2310	.8819	117.3	.2970	.1993	2386	15.63	.1404
7.20	.2019	.2295	.8797	118.1	.2966	.1981	2386	15.54	.1402
7.21	.2001	.2281	.8774	118.8	.2962	.1969	2386	15.44	.1400
7.22	.1983	.2266	.8752	119.6	.2958	.1957	2387	15.35	.1399
7.23	.1966	.2252	.8730	120.3	.2955	.1945	2387	15.26	.1397
7.24	.1949	.2238	.8708	121.0	.2951	.1934	2387	15.16	.1395

M_1	μ	ν	δ_{max}	$\frac{p_2}{p_1}$	$\frac{p_2}{p_o}$	$\frac{p_3}{p_o}$	$\frac{\rho_2}{\rho_1}$	M_2	$\frac{V_2}{V_1}$
7.00	8.21	90.97	43.25	57.00	0.1377×10^{-1}	0.1535×10^{-1}	5.444	0.3974	0.1837
7.01	8.20	91.03	43.26	57.16	.1368	.1526	5.446	.3973	.1836
7.02	8.19	91.08	43.27	57.33	.1360	.1516	5.447	.3973	.1836
7.03	8.18	91.13	43.27	57.49	.1351	.1507	5.449	.3972	.1835
7.04	8.17	91.18	43.28	57.66	.1343	.1497	5.450	.3971	.1835
7.05	8.15	91.23	43.29	57.82	.1335	.1488	5.452	.3971	.1834
7.06	8.14	91.29	43.29	57.98	.1327	.1479	5.453	.3970	.1834
7.07	8.13	91.34	43.30	58.15	.1319	.1470	5.454	.3970	.1833
7.08	8.12	91.39	43.31	58.31	.1310	.1461	5.456	.3969	.1833
7.09	8.11	91.44	43.31	58.48	.1302	.1452	5.457	.3969	.1832
7.10	8.10	91.49	43.32	58.65	.1294	.1443	5.459	.3968	.1832
7.11	8.09	91.54	43.32	58.81	.1286	.1434	5.460	.3968	.1832
7.12	8.07	91.59	43.33	58.98	.1279	.1425	5.461	.3967	.1831
7.13	8.06	91.64	43.34	59.14	.1271	.1416	5.463	.3967	.1831
7.14	8.05	91.70	43.34	59.31	.1263	.1408	5.464	.3966	.1830
7.15	8.04	91.75	43.35	59.48	.1255	.1399	5.465	.3966	.1830
7.16	8.03	91.80	43.36	59.64	.1248	.1390	5.467	.3965	.1829
7.17	8.02	91.85	43.36	59.81	.1240	.1382	5.468	.3965	.1829
7.18	8.01	91.90	43.37	59.98	.1233	.1374	5.470	.3964	.1828
7.19	7.99	91.95	43.37	60.15	.1225	.1365	5.471	.3964	.1828
7.20	7.98	92.00	43.38	60.31	.1218	.1357	5.472	.3963	.1827
7.21	7.97	92.05	43.39	60.48	.1210	.1349	5.474	.3963	.1827
7.22	7.96	92.10	43.39	60.65	.1203	.1340	5.475	.3962	.1827
7.23	7.95	92.15	43.40	60.82	.1196	.1332	5.476	.3962	.1826
7.24	7.94	92.20	43.40	60.99	.1188	.1324	5.478	.3961	.1826

M_1	$\frac{p_1}{p_c}$	$\frac{\rho_1}{\rho_c}$	$\frac{T_1}{T_c}$	$\frac{A_1}{A_{cr}}$	$\frac{a_1}{a_o}$	$\frac{q_1}{q_{cr}}$	$\frac{V_1}{T_c = 520^\circ R}$	q_1 $p_c = 2121$ lb/sq ft	$\frac{1}{\sqrt{M_1^2 - 1}}$
7.25	0.1932×10^{-3}	0.2284×10^{-2}	0.8686×10^{-1}	121.8	0.2947	0.1922×10^{-1}	2388	15.07	0.1393
7.26	.1915	.2270	.8664	122.5	.2944	.1910	2388	14.98	.1391
7.27	.1898	.2256	.8643	123.3	.2940	.1899	2388	14.89	.1389
7.28	.1881	.2242	.8621	124.1	.2936	.1887	2388	14.80	.1387
7.29	.1865	.2229	.8599	124.8	.2932	.1876	2389	14.71	.1385
7.30	.1848	.2215	.8578	125.6	.2929	.1865	2389	14.62	.1383
7.31	.1832	.2202	.8556	126.4	.2925	.1853	2389	14.54	.1381
7.32	.1816	.2188	.8535	127.2	.2921	.1842	2390	14.45	.1379
7.33	.1801	.2175	.8514	127.9	.2918	.1831	2390	14.36	.1377
7.34	.1785	.2162	.8492	128.7	.2914	.1820	2390	14.28	.1375
7.35	.1769	.2089	.8471	129.5	.2911	.1809	2390	14.19	.1373
7.36	.1754	.2076	.8450	130.3	.2907	.1799	2391	14.11	.1371
7.37	.1739	.2063	.8429	131.1	.2903	.1788	2391	14.02	.1370
7.38	.1724	.2050	.8408	131.9	.2900	.1777	2391	13.94	.1368
7.39	.1709	.2037	.8388	132.7	.2896	.1767	2391	13.85	.1366
7.40	.1694	.2025	.8367	133.5	.2893	.1756	2392	13.77	.1364
7.41	.1680	.2012	.8346	134.3	.2889	.1746	2392	13.69	.1362
7.42	.1665	.2000	.8326	135.2	.2885	.1735	2392	13.61	.1360
7.43	.1651	.1988	.8305	136.0	.2882	.1725	2393	13.53	.1358
7.44	.1637	.1975	.8285	136.8	.2878	.1715	2393	13.45	.1356
7.45	.1623	.1963	.8264	137.6	.2875	.1705	2393	13.37	.1355
7.46	.1609	.1951	.8244	138.5	.2871	.1695	2393	13.29	.1353
7.47	.1595	.1939	.8224	139.7	.2868	.1685	2394	13.21	.1351
7.48	.1581	.1927	.8203	140.1	.2864	.1675	2394	13.13	.1349
7.49	.1568	.1916	.8183	141.0	.2861	.1665	2394	13.06	.1347

M_1	.	ν	δ_{max}	$\frac{p_2}{p_1}$	$\frac{p_2}{p_o}$	$\frac{p_3}{p_o}$	$\frac{\rho_2}{\rho_1}$	μ_2	$\frac{V_2}{V_1}$
7.25	7.93	92.24	43.41	61.16	0.1181×10^{-1}	0.1316×10^{-1}	5.479	0.3961	0.1825
7.26	7.92	92.29	43.42	61.33	.1174	.1308	5.480	.3960	.1825
7.27	7.91	92.34	43.42	61.50	.1167	.1300	5.481	.3960	.1824
7.28	7.90	92.39	43.43	61.66	.1160	.1292	5.483	.3959	.1824
7.29	7.89	92.44	43.43	61.83	.1153	.1285	5.484	.3959	.1823
7.30	7.87	92.49	43.44	62.01	.1146	.1277	5.485	.3958	.1823
7.31	7.86	92.54	43.44	62.18	.1139	.1269	5.487	.3958	.1823
7.32	7.85	92.59	43.45	62.35	.1132	.1262	5.488	.3957	.1822
7.33	7.84	92.64	43.46	62.52	.1126	.1254	5.489	.3957	.1822
7.34	7.83	92.68	43.46	62.69	.1119	.1246	5.490	.3956	.1821
7.35	7.82	92.73	43.47	62.86	.1112	.1239	5.492	.3956	.1821
7.36	7.81	92.78	43.47	63.03	.1106	.1232	5.493	.3955	.1821
7.37	7.80	92.83	43.48	63.20	.1099	.1224	5.494	.3955	.1820
7.38	7.79	92.88	43.48	63.38	.1092	.1217	5.495	.3955	.1820
7.39	7.78	92.92	43.49	63.55	.1086	.1210	5.497	.3954	.1819
7.40	7.77	92.97	43.49	63.72	.1080	.1202	5.498	.3954	.1819
7.41	7.76	93.02	43.50	63.89	.1073	.1195	5.499	.3953	.1818
7.42	7.75	93.07	43.51	64.07	.1067	.1188	5.500	.3953	.1818
7.43	7.73	93.11	43.51	64.24	.1060	.1181	5.502	.3952	.1818
7.44	7.72	93.16	43.52	64.41	.1054	.1174	5.503	.3952	.1817
7.45	7.71	93.21	43.52	64.59	.1048	.1167	5.504	.3951	.1817
7.46	7.70	93.25	43.53	64.76	.1042	.1160	5.505	.3951	.1816
7.47	7.69	93.30	43.53	64.93	.1036	.1153	5.507	.3950	.1816
7.48	7.68	93.35	43.54	65.11	.1029	.1146	5.508	.3950	.1816
7.49	7.67	93.39	43.54	65.28	.1023	.1140	5.509	.3950	.1815

M_1	$\frac{p_1}{p_o}$	$\frac{\rho_1}{\rho_o}$	$\frac{T_1}{T_o}$	$\frac{A_1}{A_{cr}}$	$\frac{a_1}{a_o}$	$\frac{q_1}{q_{cr}}$	V_1 $T_o=520^\circ R$	q_1 $p_c = 2121$ lb/sq ft.	$\frac{1}{\sqrt{M_1^2 - 1}}$
7.50	0.1554×10^{-3}	0.1904×10^{-2}	0.8163×10^{-1}	141.8	0.2857	0.1655×10^{-1}	2394	12.98	0.1345
7.51	.1541	.1892	.8143	142.7	.2854	.1645	2395	12.90	.1344
7.52	.1528	.1881	.8123	143.6	.2850	.1636	2395	12.83	.1342
7.53	.1515	.1869	.8104	144.4	.2847	.1626	2395	12.75	.1340
7.54	.1502	.1858	.8084	145.3	.2843	.1616	2395	12.68	.1338
7.55	.1489	.1847	.8064	146.2	.2840	.1607	2396	12.60	.1336
7.56	.1477	.1836	.8045	147.0	.2836	.1597	2396	12.53	.1334
7.57	.1464	.1824	.8025	147.9	.2833	.1588	2396	12.45	.1333
7.58	.1452 13	.1813	.8006	148.8	.2829	.1579	2396	12.38	.1331
7.59	.1439	.1802	.7986	149.7	.2826	.1570	2397	12.31	.1329
7.60	.1427	.1792	.7967	150.6	.2823	.1561	2397	12.24	.1327
7.61	.1415	.1781	.7948	151.5	.2819	.1551	2397	12.17	.1326
7.62	.1403	.1770	.7928	152.4	.2816	.1542	2397	12.10	.1324
7.63	.1391	.1759	.7909	153.3	.2812	.1533	2398	12.03	.1322
7.64	.1380	.1749	.7890	154.2	.2809	.1525	2398	11.96	.1320
7.65	.1368 11	.1738	.7871	155.1	.2806	.1516	2398	11.89	.1319
7.66	.1357	.1728	.7852	156.0	.2802	.1507	2398	11.82	.1317
7.67	.1345	.1717	.7833	157.0	.2799	.1498	2399	11.75	.1315
7.68	.1334	.1707	.7815	157.9	.2795	.1489	2399	11.68	.1313
7.69	.1323	.1697	.7796	158.8	.2792	.1481	2399	11.61	.1312
7.70	.1312	.1687	.7777	159.8	.2789	.1472	2399	11.55	.1310
7.71	.1301 11	.1677	.7759	160.7	.2785	.1464	2400	11.48	.1308
7.72	.1290	.1667	.7740	161.7	.2782	.1455	2400	11.41	.1306
7.73	.1279 10	.1657	.7722	162.6	.2779	.1447	2400	11.35	.1305
7.74	.1269 11	.1647	.7703	163.6	.2775	.1439	2400	11.28	.1303

M_1		ν	δ_{max}	$\frac{p_2}{p_1}$	$\frac{p_2}{p_c}$	$\frac{p_2}{p_o}$	$\frac{\rho_2}{\rho_1}$	M_2	$\frac{V_2}{V_1}$
7.50	7.66	93.44	43.55	65.46	0.1017×10^{-1}	0.1133×10^{-1}	5.510	0.3949	0.1815
7.51	7.65	93.49	43.55	65.63	.1011	.1126	5.511	.3949	.1814
7.52	7.64	93.53	43.56	65.81	.1005	.1120	5.513	.3948	.1814
7.53	7.63	93.58	43.56	65.99	$.9996\times10^{-2}$	.1113	5.514	.3946	.1814
7.54	7.62	93.62	43.57	66.16	.9937	.1106	5.515	.3947	.1813
7.55	7.61	93.67	43.57	66.34	.9879	.1100	5.516	.3947	.1813
7.56	7.60	93.72	43.58	66.51	.9821	.1093	5.517	.3946	.1812
7.57	7.59	93.76	43.59	66.69	.9764	.1087	5.518	.3946	.1812
7.58	7.58	93.81	43.59	66.87	.9707	.1081	5.520	.3946	.1812
7.59	7.57	93.85	43.60	67.04	.9650	.1074	5.521	.3945	.1811
7.60	7.56	93.90	43.60	67.22	.9594	.1068	5.522	.3945	.1811
7.61	7.55	93.94	43.61	67.40	.9538	.1062	5.523	.3944	.1811
7.62	7.54	93.99	43.61	67.59	.9483	.1056	5.524	.3944	.1810
7.63	7.53	94.03	43.62	67.75	.9428	.1049	5.525	.3943	.1810
7.64	7.52	94.08	43.62	67.93	.9372	.1043	5.527	.3943	.1809
7.65	7.51	94.12 5	43.63	68.11	.9319	.1037	5.528	.3943	.1809
7.66	7.50	94.17	43.63	68.29	.9265	.1031	5.529	.3942	.1809
7.67	7.49	94.21	43.64	68.47	.9211	.1025	5.530	.3942	.1808
7.68	7.48	94.26	43.64	68.65	.9158	.1019	5.531	.3941	.1808
7.69	7.47	94.30	43.65	68.83	.9105	.1013	5.532	.3941	.1808
7.70	7.46	94.34	43.65	69.01	.9053	.1008	5.533	.3941	.1807
7.71	7.45	94.39 4	43.66	69.18	.9000	.1002	5.534	.3940	.1807
7.72	7.44	94.43	43.66	69.36	.8949	$.9959\times10^{-2}$	5.536	.3940	.1806
7.73	7.43	94.48	43.67	69.55	.8897	.9902	5.537	.3939	.1806
7.74	7.42	94.52 4	43.67	69.73	.8846	.9845	5.538	.3939	.1806

TABLE II.- SUPERSONIC FLOW - Continued

M_1	$\frac{p_1}{p_c}$	$\frac{\rho_1}{\rho_o}$	$\frac{T_1}{T_o}$	$\frac{A_1}{A_{cr}}$	$\frac{a_1}{a_o}$	$\frac{q_1}{q_{cr}}$	V_1 $T_o=520^\circ R$	q_1 $p_o = 2121$ lb/sq ft	$\frac{1}{\sqrt{M_1^2 - 1}}$
7.75	0.1258×10^{-3}	0.1637×10^{-2}	0.7685×10^{-1}	164.5	0.2772	0.1430×10^{-1}	2401	11.22	0.1301
7.76	.1248	.1627	.7667	165.5	.2769	.1422	2401	11.15	.1299
7.77	.1237	.1618	.7648	166.5	.2766	.1414	2401	11.09	.1298
7.78	.1227	.1608	.7630	167.4	.2762	.1406	2401	11.03	.1296
7.79	.1217	.1599	.7612	168.4	.2759	.1398	2402	10.96	.1294
7.80	.1207	.1589	.7594	169.4	.2756	.1390	2402	10.90	.1293
7.81	.1197	.1580	.7576	170.4	.2752	.1382	2402	10.84	.1291
7.82	.1187	.1571	.7558	171.4	.2749	.1374	2402	10.78	.1289
7.83	.1177	.1561	.7540	172.4	.2746	.1366	2402	10.72	.1288
7.84	.1168	.1552	.7523	173.4	.2743	.1359	2403	10.65	.1286
7.85	.1158	.1543	.7505	174.4	.2740	.1351	2403	10.59	.1284
7.86	.1149	.1534	.7487	175.4	.2736	.1343	2403	10.53	.1283
7.87	.1139	.1525	.7470	176.4	.2733	.1336	2403	10.47	.1281
7.88	.1130	.1516	.7452	177.5	.2730	.1328	2404	10.41	.1279
7.89	.1121	.1507	.7435	178.5	.2727	.1320	2404	10.36	.1278
7.90	.1111	.1498	.7417	179.5	.2723	.1313	2404	10.30	.1276
7.91	.1102	.1490	.7400	180.5	.2720	.1306	2404	10.24	.1274
7.92	.1093	.1481	.7383	181.6	.2717	.1298	2405	10.18	.1273
7.93	.1084	.1472	.7365	182.6	.2714	.1291	2405	10.12	.1271
7.94	.1076	.1464	.7348	183.7	.2711	.1284	2405	10.07	.1270
7.95	.1067	.1455	.7331	184.7	.2708	.1276	2405	10.01	.1268
7.96	.1058	.1447	.7314	185.8	.2704	.1269	2405	9.953	.1266
7.97	.1050	.1438	.7297	186.9	.2701	.1262	2406	9.897	.1265
7.98	.1041	.1430	.7280	188.0	.2698	.1255	2406	9.842	.1263
7.99	.1033	.1422	.7263	189.0	.2695	.1248	2406	9.786	.1261

M_1	ν	ν	θ_{max}	$\frac{p_2}{p_1}$	$\frac{p_2}{p_o}$	$\frac{p_3}{p_o}$	$\frac{\rho_2}{\rho_1}$	M_2	$\frac{V_2}{V_1}$
7.75	7.41	94.56	43.68	69.91	0.8795×10^{-2}	0.9788×10^{-2}	5.539	0.3939	0.1805
7.76	7.40	94.61	43.68	70.09	.8745	.9732	5.540	.3938	.1805
7.77	7.39	94.65	43.69	70.27	.8695	.9676	5.541	.3938	.1805
7.78	7.38	94.69	43.69	70.45	.8645	.9620	5.542	.3937	.1804
7.79	7.38	94.74	43.69	70.63	.8596	.9565	5.543	.3937	.1804
7.80	7.37	94.78	43.70	70.81	.8547	.9510	5.544	.3937	.1804
7.81	7.36	94.82	43.70	71.00	.8498	.9456	5.545	.3936	.1803
7.82	7.35	94.87	43.71	71.18	.8449	.9402	5.547	.3936	.1803
7.83	7.34	94.91	43.71	71.36	.8401	.9348	5.548	.3935	.1803
7.84	7.33	94.95	43.72	71.54	.8354	.9295	5.549	.3935	.1802
7.85	7.32	95.00	43.72	71.73	.8306	.9242	5.550	.3935	.1802
7.86	7.31	95.04	43.73	71.91	.8259	.9189	5.551	.3934	.1802
7.87	7.30	95.08	43.73	72.09	.8212	.9137	5.552	.3934	.1801
7.88	7.29	95.12	43.74	72.28	.8166	.9085	5.553	.3933	.1801
7.89	7.28	95.17	43.74	72.46	.8119	.9033	5.554	.3933	.1801
7.90	7.27	95.21	43.75	72.65	.8074	.8982	5.555	.3933	.1800
7.91	7.26	95.25	43.75	72.83	.8028	.8931	5.556	.3932	.1800
7.92	7.25	95.29	43.76	73.01	.7983	.8880	5.557	.3932	.1800
7.93	7.24	95.33	43.76	73.20	.7938	.8830	5.558	.3932	.1799
7.94	7.24	95.38	43.76	73.38	.7893	.8783	5.559	.3931	.1799
7.95	7.23	95.42	43.77	73.57	.7849	.8731	5.560	.3931	.1799
7.96	7.22	95.46	43.77	73.76	.7805	.8682	5.561	.3930	.1798
7.97	7.21	95.50	43.78	73.94	.7761	.8633	5.562	.3930	.1798
7.98	7.20	95.54	43.78	74.13	.7717	.8584	5.563	.3930	.1798
7.99	7.19	95.58	43.79	74.31	.7674	.8536	5.564	.3929	.1797

M_1	$\frac{p_1}{p_c}$	$\frac{\rho_1}{\rho_c}$	$\frac{T_1}{T_o}$	$\frac{A_1}{A_{cr}}$	$\frac{a_1}{a_o}$	$\frac{q_1}{q_{cr}}$	V_1 $T_c=520^\circ R$	$\frac{q_1}{p_o}=2121$ lb/sq ft	$\frac{1}{\sqrt{M_1^2-1}}$
8.00	0.1024×10^{-3}	0.1414×10^{-2}	0.7246×10^{-1}	190.1	0.2692	0.1241×10^{-1}	2406	9.732	0.1260
8.01	.1016	.1405	.7230	191.2	.2689	.1234	2407	9.677	.1258
8.02	.1008	.1397	.7213	192.3	.2686	.1227	2407	9.623	.1257
8.03	$.9997\times10^{-4}$	.1389	.7196	193.4	.2683	.1220	2407	9.569	.1255
8.04	.9916	.1381	.7180	194.5	.2679	.1213	2407	9.516	.1254
8.05	.9837	.1373	.7163	195.6	.2676	.1207	2407	9.463	.1252
8.06	.9758	.1365	.7147	196.7	.2673	.1200	2408	9.410	.1250
8.07	.9679	.1358	.7130	197.8	.2670	.1193	2408	9.358	.1249
8.08	.9602	.1350	.7114	199.0	.2667	.1187	2408	9.306	.1247
8.09	.9525	.1342	.7097	200.1	.2664	.1180	2408	9.254	.1246
8.10	.9449	.1334	.7081	201.2	.2661	.1173	2408	9.203	.1244
8.11	.9373	.1327	.7065	202.4	.2658	.1167	2409	9.152	.1243
8.12	.9298	.1319	.7049	203.5	.2655	.1160	2409	9.101	.1241
8.13	.9224	.1312	.7033	204.6	.2652	.1154	2409	9.051	.1239
8.14	.9150	.1304	.7017	205.8	.2649	.1148	2409	9.001	.1238
8.15	.9078	.1297	.7001	207.0	.2646	.1141	2409	8.951	.1236
8.16	.9005	.1289	.6985	208.1	.2643	.1135	2410	8.901	.1235
8.17	.8934	.1282	.6969	209.3	.2640	.1129	2410	8.852	.1233
8.18	.8863	.1275	.6953	210.5	.2637	.1123	2410	8.804	.1232
8.19	.8793	.1267	.6937	211.7	.2634	.1116	2410	8.755	.1230
8.20	.8723	.1260	.6921	212.8	.2631	.1110	2411	8.707	.1229
8.21	.8654	.1253	.6906	214.0	.2628	.1104	2411	8.659	.1227
8.22	.8586	.1246	.6890	215.2	.2625	.1098	2411	8.612	.1226
8.23	.8518	.1239	.6874	216.4	.2622	.1092	2411	8.565	.1224
8.24	.8451	.1232	.6859	217.7	.2619	.1086	2411	8.518	.1223

M_1		ν	δ_{max}	$\frac{p_2}{p_1}$	$\frac{p_2}{p_o}$	$\frac{p_3}{p_o}$	$\frac{\rho_2}{\rho_1}$	M_2	$\frac{V_2}{V_1}$
8.00	7.18	95.62	43.79	74.50	$0.7631\cdot10^{-2}$	0.8488×10^{-2}	5.565	0.3929	0.1797
8.01	7.17	95.67	43.80	74.69	.7588	.8440	5.566	.3929	.1797
8.02	7.16	95.71	43.80	74.87	.7546	.8393	5.567	.3928	.1796
8.03	7.15	95.75	43.80	75.06	.7504	.8346	5.568	.3928	.1796
8.04	7.14	95.79	43.81	75.25	.7462	.8299	5.569	.3927	.1796
8.05	7.14	95.83	43.81	75.44	.7420	.8253	5.570	.3927	.1795
8.06	7.13	95.87	43.82	75.62	.7379	.8207	5.571	.3927	.1795
8.07	7.12	95.91	43.82	75.81	.7338	.8161	5.572	.3926	.1795
8.08	7.11	95.95	43.83	76.00	.7297	.8115	5.573	.3926	.1794
8.09	7.10	95.99	43.83	76.19	.7257	.8070	5.574	.3926	.1794
8.10	7.09	96.03	43.83	76.38	.7217	.8025	5.575	.3925	.1794
8.11	7.08	96.07	43.84	76.57	.7177	.7981	5.576	.3925	.1793
8.12	7.07	96.11	43.84	76.76	.7137	.7937	5.577	.3925	.1793
8.13	7.07	96.15	43.85	76.95	.7098	.7893	5.578	.3924	.1793
8.14	7.06	96.19	43.85	77.14	.7058	.7849	5.579	.3924	.1792
8.15	7.05	96.23	43.86	77.33	.7019	.7805	5.580	.3924	.1792
8.16	7.04	96.27	43.86	77.52	.6981	.7762	5.581	.3923	.1792
8.17	7.03	96.31	43.86	77.71	.6942	.7719	5.582	.3923	.1792
8.18	7.02	96.35	43.87	77.90	.6904	.7677	5.583	.3923	.1791
8.19	7.01	96.39	43.87	78.09	.6866	.7634	5.584	.3922	.1791
8.20	7.00	96.43	43.88	78.28	.6828	.7592	5.585	.3922	.1791
8.21	7.00	96.47	43.88	78.47	.6791	.7551	5.586	.3921	.1790
8.22	6.99	96.51	43.88	78.66	.6754	.7509	5.587	.3921	.1790
8.23	6.98	96.55	43.89	78.86	.6717	.7468	5.588	.3921	.1790
8.24	6.97	96.59	43.89	79.05	.6680	.7427	5.588	.3920	.1789

TABLE II.- SUPERSONIC FLOW - Continued

M_1	$\frac{p_1}{p_o}$	$\frac{\rho_1}{\rho_o}$	$\frac{T_1}{T_o}$	$\frac{A_1}{A_{cr}}$	$\frac{a_1}{a_o}$	$\frac{q_1}{q_{cr}}$	V_1 T_o=520°R	q_1 p_o = 2121 lb/sq ft	$\frac{1}{\sqrt{M_1^2 - 1}}$
8.25	0.8384×10^{-4}	0.1225×10^{-2}	0.6843×10^{-1}	218.9	0.2616	0.1080×10^{-1}	2412	8.471	0.1221
8.26	.8318	.1218	.6828	220.1	.2613	.1074	2412	8.425	.1220
8.27	.8253	.1211	.6813	221.3	.2610	.1068	2412	8.379	.1218
8.28	.8188	.1205	.6797	222.5	.2607	.1063	2412	8.333	.1217
8.29	.8124	.1198	.6782	223.8	.2604	.1057	2412	8.288	.1215
8.30	.8060	.1191	.6767	225.0	.2601	.1051	2413	8.243	.1214
8.31	.7997	.1184	.6752	226.3	.2598	.1045	2413	8.198	.1212
8.32	.7935	.1178	.6737	227.5	.2595	.1040	2413	8.154	.1211
8.33	.7873	.1171	.6721	228.8	.2593	.1034	2413	8.109	.1209
8.34	.7811	.1165	.6706	230.0	.2590	.1028	2413	8.065	.1208
8.35	.7750	.1158	.6691	231.3	.2587	.1023	2413	8.022	.1206
8.36	.7690	.1152	.6676	232.6	.2584	.1017	2414	7.978	.1205
8.37	.7630	.1145	.6662	233.9	.2581	.1012	2414	7.935	.1203
8.38	.7571	.1139	.6647	235.2	.2578	.1006	2414	7.892	.1202
8.39	.7512	.1133	.6632	236.5	.2575	.1001	2414	7.850	.1200
8.40	.7454	.1126	.6617	237.8	.2572	$.9956\times10^{-2}$	2414	7.807	.1199
8.41	.7396	.1120	.6603	239.1	.2570	.9902	2415	7.765	.1198
8.42	.7339	.1114	.6588	240.4	.2567	.9849	2415	7.724	.1196
8.43	.7282	.1108	.6573	241.7	.2564	.9796	2415	7.682	.1195
8.44	.7226	.1102	.6559	243.0	.2561	.9743	2415	7.641	.1193
8.45	.7170	.1096	.6544	244.4	.2558	.9691	2415	7.600	.1192
8.46	.7115	.1090	.6530	245.7	.2555	.9639	2416	7.559	.1190
8.47	.7060	.1084	.6515	247.0	.2553	.9587	2416	7.519	.1189
8.48	.7006	.1078	.6501	248.4	.2550	.9536	2416	7.479	.1188
8.49	.6952	.1072	.6487	249.7	.2547	.9485	2416	7.439	.1186

M_1	μ	ν	δ_{max}	$\frac{p_2}{p_1}$	$\frac{p_2}{p_o}$	$\frac{p_3}{p_o}$	$\frac{\rho_2}{\rho_1}$	M_2	$\frac{V_2}{V_1}$
8.25	6.96	96.63	43.90	79.24	0.6644×10^{-2}	0.7386×10^{-2}	5.589	0.3920	0.1789
8.26	6.95	96.66	43.90	79.43	.6607	.7346	5.590	.3920	.1789
8.27	6.95	96.70	43.90	79.63	.6571	.7306	5.591	.3919	.1789
8.28	6.94	96.74	43.91	79.82	.6536	.7266	5.592	.3919	.1788
8.29	6.93	96.78	43.91	80.01	.6500	.7226	5.593	.3919	.1788
8.30	6.92	96.82	43.92	80.21	.6465	.7187	5.594	.3918	.1788
8.31	6.91	96.86	43.92	80.40	.6430	.7147	5.595	.3918	.1787
8.32	6.90	96.90	43.92	80.59	.6395	.7109	5.596	.3918	.1787
8.33	6.89	96.93	43.93	80.79	.6360	.7070	5.597	.3917	.1787
8.34	6.89	96.97	43.93	80.98	.6326	.7031	5.598	.3917	.1786
8.35	6.88	97.01	43.94	81.18	.6291	.6993	5.599	.3917	.1786
8.36	6.87	97.05	43.94	81.37	.6257	.6955	5.599	.3917	.1786
8.37	6.86	97.09	43.94	81.57	.6224	.6918	5.600	.3916	.1786
8.38	6.85	97.12	43.95	81.76	.6190	.6880	5.601	.3916	.1785
8.39	6.85	97.16	43.95	81.96	.6157	.6843	5.602	.3916	.1785
8.40	6.84	97.20	43.95	82.15	.6123	.6806	5.603	.3915	.1785
8.41	6.83	97.24	43.96	82.35	.6091	.6769	5.604	.3915	.1784
8.42	6.82	97.28	43.96	82.55	.6058	.6733	5.605	.3915	.1784
8.43	6.81	97.31	43.97	82.74	.6025	.6697	5.606	.3914	.1784
8.44	6.80	97.35	43.97	82.94	.5993	.6661	5.606	.3914	.1784
8.45	6.80	97.39	43.97	83.14	.5961	.6625	5.607	.3914	.1783
8.46	6.79	97.42	43.98	83.33	.5929	.6589	5.608	.3913	.1783
8.47	6.78	97.46	43.98	83.53	.5897	.6554	5.609	.3913	.1783
8.48	6.77	97.50	43.99	83.73	.5866	.6519	5.610	.3913	.1783
8.49	6.76	97.54	43.99	83.93	.5834	.6484	5.611	.3912	.1782

M_1	$\frac{p_1}{p_o}$	$\frac{\rho_1}{\rho_c}$	$\frac{T_1}{T_o}$	$\frac{A_1}{A_{cr}}$	$\frac{a_1}{a_c}$	$\frac{q_1}{q_{cr}}$	V_1 T_o=520°R	q_1 p_c = 2121 lb/sq ft	$\frac{1}{\sqrt{M_1^2 - 1}}$
8.50	0.6898×10^{-4}	0.1066×10^{-2}	0.6472×10^{-1}	251.1	0.2544	0.9435×10^{-2}	2416	7.399	0.1185
8.51	.6846	.1060	.6458	252.5	.2541	.9384	2416	7.359	.1183
8.52	.6793	.1054	.6444	253.8	.2539	.9334	2417	7.320	.1182
8.53	.6741	.1048	.6430	255.2	.2536	.9285	2417	7.281	.1180
8.54	.6690	.1043	.6416	256.6	.2533	.9235	2417	7.242	.1179
8.55	.6638	.1037	.6402	258.0	.2530	.9186	2417	7.204	.1178
8.56	.6588	.1031	.6388	259.4	.2527	.9137	2417	7.166	.1176
8.57	.6538	.1026	.6374	260.8	.2525	.9089	2418	7.128	.1175
8.58	.6488	.1020	.6360	262.2	.2522	.9041	2418	7.090	.1173
8.59	.6438	.1015	.6346	263.6	.2519	.8993	2418	7.053	.1172
8.60	.6390	.1009	.6332	265.0	.2516	.8945	2418	7.016	.1171
8.61	.6341	.1004	.6319	266.4	.2514	.8898	2418	6.978	.1169
8.62	.6293	$.9981\times10^{-3}$	.6305	267.9	.2511	.8851	2418	6.941	.1168
8.63	.6245	.9927	.6291	269.3	.2508	.8805	2419	6.905	.1167
8.64	.6198	.9873	.6277	270.8	.2505	.8758	2419	6.868	.1165
8.65	.6151	.9820	.6264	272.2	.2503	.8712	2419	6.832	.1164
8.66	.6105	.9767	.6250	273.7	.2500	.8666	2419	6.796	.1163
8.67	.6059	.9714	.6237	275.1	.2497	.8621	2419	6.761	.1161
8.68	.6013	.9662	.6223	276.6	.2495	.8576	2420	6.725	.1160
8.69	.5968	.9610	.6210	278.1	.2492	.8531	2420	6.690	.1158
8.70	.5923	.9558	.6197	279.6	.2489	.8486	2420	6.655	.1157
8.71	.5878	.9507	.6183	281.1	.2487	.8442	2420	6.620	.1156
8.72	.5834	.9456	.6170	282.6	.2484	.8397	2420	6.585	.1154
8.73	.5790	.9405	.6157	284.1	.2481	.8354	2420	6.551	.1153
8.74	.5747	.9355	.6143	285.6	.2479	.8310	2421	6.517	.1152

M_1	-	ν	δ_{max}	$\frac{p_2}{p_1}$	$\frac{p_2}{p_o}$	$\frac{p_3}{p_o}$	$\frac{\rho_2}{\rho_1}$	M_2	$\frac{V_2}{V_1}$
8.50	6.76	97.57	43.99	84.13	0.5803×10^{-2}	0.6449×10^{-2}	5.612	0.3912	0.1782
8.51	6.75	97.61	44.00	84.32	.5772	.6415	5.613	.3912	.1782
8.52	6.74	97.65	44.00	84.52	.5742	.6380	5.613	.3911	.1781
8.53	6.73	97.68	44.00	84.72	.5711	.6346	5.614	.3911	.1781
8.54	6.72	97.72	44.01	84.92	.5681	.6313	5.615	.3911	.1781
8.55	6.72	97.76	44.01	85.12	.5651	.6279	5.616	.3911	.1781
8.56	6.71	97.79	44.01	85.32	.5621	.6246	5.617	.3910	.1780
8.57	6.70	97.83	44.02	85.52	.5591	.6212	5.618	.3910	.1780
8.58	6.69	97.86	44.02	85.72	.5561	.6179	5.618	.3910	.1780
8.59	6.69	97.90	44.03	85.92	.5532	.6147	5.619	.3909	.1780
8.60	6.68	97.94	44.03	86.12	.5503	.6114	5.620	.3909	.1779
8.61	6.67	97.97	44.03	86.32	.5474	.6082	5.621	.3909	.1779
8.62	6.66	98.01	44.04	86.52	.5445	.6050	5.622	.3909	.1779
8.63	6.65	98.04	44.04	86.72	.5416	.6018	5.623	.3908	.1779
8.64	6.65	98.08	44.04	86.92	.5388	.5986	5.623	.3908	.1778
8.65	6.64	98.12	44.05	87.13	.5359	.5954	5.624	.3908	.1778
8.66	6.63	98.15	44.05	87.33	.5331	.5923	5.625	.3907	.1778
8.67	6.62	98.19	44.05	87.53	.5303	.5892	5.626	.3907	.1778
8.68	6.62	98.22	44.06	87.73	.5275	.5861	5.627	.3907	.1777
8.69	6.61	98.26	44.06	87.94	.5248	.5830	5.627	.3906	.1777
8.70	6.60	98.29	44.06	88.14	.5220	.5799	5.628	.3906	.1777
8.71	6.59	98.33	44.07	88.34	.5193	.5769	5.629	.3906	.1777
8.72	6.59	98.36	44.07	88.54	.5166	.5739	5.630	.3906	.1776
8.73	6.58	98.40	44.07	88.75	.5139	.5709	5.631	.3905	.1776
8.74	6.57	98.43	44.08	88.95	.5112	.5679	5.631	.3905	.1776

TABLE II.- SUPERSONIC FLOW - Continued

M_1	$\frac{p_1}{p_o}$	$\frac{\rho_1}{\rho_o}$	$\frac{T_1}{T_o}$	$\frac{A_1}{A_{cr}}$	$\frac{a_1}{a_o}$	$\frac{q_1}{q_{cr}}$	$\frac{V_1}{T_o=520^\circ R}$	$\frac{q_1}{P_c = 2121 \text{ lb/sq ft}}$	$\frac{1}{\sqrt{M_1^2 - 1}}$
8.75	0.5704×10^{-4}	0.9305×10^{-3}	0.6130×10^{-1}	287.1	0.2476	0.8267×10^{-2}	2421	6.483	0.1150
8.76	.5661	.9255	.6117	288.6	.2473	.8224	2421	6.449	.1149
8.77	.5619	.9205	.6104	290.1	.2471	.8181	2421	6.416	.1148
8.78	.5577	.9156	.6091	291.7	.2468	.8138	2421	6.382	.1146
8.79	.5536	.9108	.6078	293.2	.2465	.8096	2421	6.349	.1145
8.80	.5494	.9059	.6065	294.8	.2463	.8054	2422	6.316	.1144
8.81	.5453	.9011	.6052	296.3	.2460	.8012	2422	6.283	.1142
8.82	.5413	.8963	.6039	297.9	.2457	.7971	2422	6.251	.1141
8.83	.5373	.8915	.6026	299.5	.2455	.7930	2422	6.219	.1140
8.84	.5333	.8868	.6014	301.0	.2452	.7889	2422	6.186	.1139
8.85	.5293	.8821	.6001	302.6	.2450	.7848	2422	6.154	.1137
8.86	.5254	.8774	.5988	304.2	.2447	.7807	2423	6.123	.1136
8.87	.5215	.8728	.5975	305.8	.2444	.7767	2423	6.091	.1135
8.88	.5177	.8682	.5963	307.4	.2442	.7727	2423	6.060	.1133
8.89	.5139	.8636	.5950	309.0	.2439	.7687	2423	6.029	.1132
8.90	.5101	.8590	.5938	310.6	.2437	.7648	2423	5.998	.1131
8.91	.5063	.8545	.5925	312.3	.2434	.7609	2423	5.967	.1129
8.92	.5026	.8500	.5913	313.9	.2432	.7569	2424	5.936	.1128
8.93	.4989	.8456	.5900	315.5	.2429	.7531	2424	5.906	.1127
8.94	.4952	.8411	.5888	317.2	.2426	.7492	2424	5.876	.1126
8.95	.4916	.8367	.5875	318.8	.2424	.7454	2424	5.845	.1124
8.96	.4880	.8323	.5863	320.5	.2421	.7416	2424	5.816	.1123
8.97	.4844	.8280	.5851	322.1	.2419	.7378	2424	5.786	.1122
8.98	.4809	.8236	.5838	323.8	.2416	.7340	2424	5.756	.1121
8.99	.4773	.8193	.5826	325.5	.2414	.7303	2425	5.727	.1119

M_1		ν	δ_{max}	$\frac{p_2}{p_1}$	$\frac{p_2}{p_o}$	$\frac{p_3}{p_o}$	$\frac{\rho_2}{\rho_1}$	M_2	$\frac{V_2}{V_1}$
8.75	6.56	98.47	44.08	89.16	0.5085×10^{-2}	0.5649×10^{-2}	5.632	0.3905	0.1776
8.76	6.55	98.50	44.08	89.36	.5059	.5620	5.633	.3904	.1775
8.77	6.55	98.54	44.09	89.57	.5033	.5590	5.634	.3904	.1775
8.78	6.54	98.57	44.09	89.77	.5007	.5561	5.635	.3904	.1775
8.79	6.53	98.61	44.09	89.97	.4981	.5532	5.635	.3904	.1775
8.80	6.53	98.64	44.10	90.18	.4955	.5504	5.636	.3903	.1774
8.81	6.52	98.68	44.10	90.39	.4929	.5475	5.637	.3903	.1774
8.82	6.51	98.71	44.10	90.59	.4904	.5447	5.638	.3903	.1774
8.83	6.50	98.75	44.11	90.80	.4878	.5418	5.638	.3903	.1774
8.84	6.50	98.78	44.11	91.00	.4853	.5390	5.639	.3902	.1773
8.85	6.49	98.81	44.11	91.21	.4828	.5362	5.640	.3902	.1773
8.86	6.48	98.85	44.12	91.42	.4803	.5335	5.641	.3902	.1773
8.87	6.47	98.88	44.12	91.62	.4778	.5307	5.641	.3901	.1773
8.88	6.47	98.92	44.12	91.83	.4754	.5280	5.642	.3901	.1772
8.89	6.46	98.95	44.13	92.04	.4729	.5253	5.643	.3901	.1772
8.90	6.45	98.98	44.13	92.25	.4705	.5226	5.644	.3901	.1772
8.91	6.44	99.02	44.13	92.45	.4681	.5199	5.645	.3900	.1772
8.92	6.44	99.05	44.14	92.66	.4657	.5172	5.645	.3900	.1771
8.93	6.43	99.08	44.14	92.87	.4633	.5145	5.646	.3900	.1771
8.94	6.42	99.12	44.14	93.08	.4609	.5119	5.647	.3900	.1771
8.95	6.42	99.15	44.15	93.29	.4586	.5093	5.647	.3899	.1771
8.96	6.41	99.19	44.15	93.50	.4562	.5067	5.648	.3899	.1770
8.97	6.40	99.22	44.15	93.70	.4539	.5041	5.649	.3899	.1770
8.98	6.39	99.25	44.16	93.91	.4516	.5015	5.650	.3899	.1770
8.99	6.39	99.29	44.16	94.12	.4493	.4989	5.650	.3898	.1770

TABLE II.- ISENTROPIC FLOW - Continued

M_1	$\frac{p_1}{p_o}$	$\frac{\rho_1}{\rho_o}$	$\frac{T_1}{T_o}$	$\frac{A_1}{A_{cr}}$	$\frac{a_1}{a_o}$	$\frac{q_1}{q_{cr}}$	V_1 T_o=520°R	q_1 p_o = 2161 lb/sq ft	$\frac{1}{\sqrt{M_1^2 - 1}}$
9.00	0.4739×10^{-4}	0.8150×10^{-3}	0.5814×10^{-1}	327.2	0.2411	0.7266×10^{-2}	2429	5.698	0.1119
9.01	.4704	.8108	.5802	328.9	.2409	.7229	2428	5.669	.1117
9.02	.4670	.8066	.5790	330.6	.2406	.7192	2427	5.640	.1116
9.03	.4636	.8024	.5778	332.3	.2404	.7155	2426	5.611	.1114
9.04	.4602	.7982	.5766	334.0	.2401	.7119	2425	5.583	.1113
9.05	.4569	.7940	.5754	335.7	.2399	.7083	2426	5.555	.1112
9.06	.4535	.7899	.5742	337.5	.2396	.7047	2426	5.527	.1111
9.07	.4503	.7858	.5730	339.2	.2394	.7011	2426	5.499	.1109
9.08	.4470	.7816	.5718	340.9	.2391	.6976	2426	5.471	.1108
9.09	.4438	.7777	.5706	342.7	.2389	.6941	2426	5.443	.1107
9.10	.4405	.7737	.5694	344.5	.2386	.6906	2426	5.416	.1106
9.11	.4374	.7697	.5682	346.2	.2384	.6871	2426	5.388	.1104
9.12	.4342	.7657	.5671	348.0	.2381	.6836	2427	5.361	.1103
9.13	.4311	.7618	.5659	349.8	.2379	.6802	2427	5.334	.1102
9.14	.4280	.7578	.5647	351.6	.2376	.6768	2427	5.307	.1101
9.15	.4249	.7539	.5636	353.4	.2374	.6734	2427	5.281	.1099
9.16	.4218	.7501	.5624	355.2	.2371	.6700	2427	5.254	.1098
9.17	.4188	.7462	.5612	357.0	.2369	.6666	2427	5.228	.1097
9.18	.4158	.7424	.5601	358.8	.2367	.6633	2428	5.202	.1096
9.19	.4128	.7386	.5589	360.6	.2364	.6600	2428	5.176	.1095
9.20	.4099	.7348	.5578	362.5	.2362	.6567	2428	5.150	.1093
9.21	.4069	.7310	.5566	364.3	.2359	.6534	2428	5.124	.1092
9.22	.4040	.7273	.5555	366.2	.2357	.6501	2428	5.099	.1091
9.23	.4011	.7236	.5544	368.0	.2355	.6469	2428	5.073	.1090
9.24	.3983	.7199	.5532	369.9	.2352	.6437	2429	5.048	.1089

M_1	μ	ν	δ_{max}	$\frac{p_2}{p_1}$	$\frac{p_2}{p_o}$	$\frac{p_3}{p_o}$	$\frac{\rho_2}{\rho_1}$	M_2	$\frac{V_2}{V_1}$
9.00	6.38	99.32	44.16	94.33	0.4470×10^{-2}	0.4964×10^{-2}	5.651	0.3898	0.1770
9.01	6.37	99.35	44.16	94.54	.4447	.4939	5.652	.3898	.1769
9.02	6.37	99.38	44.17	94.75	.4425	.4913	5.653	.3897	.1769
9.03	6.36	99.42	44.17	94.96	.4402	.4888	5.653	.3897	.1769
9.04	6.35	99.45	44.17	95.18	.4380	.4864	5.654	.3897	.1769
9.05	6.34	99.48	44.18	95.39	.4358	.4839	5.655	.3897	.1768
9.06	6.34	99.52	44.18	95.60	.4336	.4814	5.656	.3896	.1768
9.07	6.33	99.55	44.18	95.81	.4314	.4790	5.656	.3896	.1768
9.08	6.32	99.58	44.19	96.02	.4292	.4766	5.657	.3896	.1768
9.09	6.32	99.61	44.19	96.23	.4270	.4742	5.658	.3896	.1768
9.10	6.31	99.65	44.19	96.45	.4249	.4718	5.658	.3895	.1767
9.11	6.30	99.68	44.20	96.66	.4227	.4694	5.659	.3895	.1767
9.12	6.30	99.71	44.20	96.87	.4206	.4670	5.660	.3895	.1767
9.13	6.29	99.74	44.20	97.08	.4185	.4646	5.660	.3895	.1767
9.14	6.28	99.77	44.20	97.30	.4164	.4623	5.661	.3894	.1766
9.15	6.27	99.81	44.21	97.51	.4143	.4600	5.662	.3894	.1766
9.16	6.27	99.84	44.21	97.72	.4122	.4577	5.663	.3894	.1766
9.17	6.26	99.87	44.21	97.94	.4102	.4554	5.663	.3894	.1766
9.18	6.25	99.90	44.22	98.15	.4081	.4531	5.664	.3893	.1766
9.19	6.25	99.93	44.22	98.37	.4061	.4508	5.665	.3893	.1765
9.20	6.24	99.97	44.22	98.58	.4040	.4486	5.665	.3893	.1765
9.21	6.23	100.0	44.23	98.79	.4020	.4463	5.666	.3893	.1765
9.22	6.23	100.0	44.23	99.01	.4000	.4441	5.667	.3892	.1765
9.23	6.22	100.1	44.23	99.23	.3980	.4419	5.667	.3892	.1764
9.24	6.21	100.1	44.23	99.44	.3960	.4397	5.668	.3892	.1764

TABLE I.- ONE-DIMENSIONAL FLOW - Continued

M_1	$\frac{p_1}{p_o}$	$\frac{\rho_1}{\rho_o}$	$\frac{T_1}{T_o}$	$\frac{A_1}{A_{cr}}$	$\frac{a_1}{a_o}$	$\frac{q_1}{q_{cr}}$	V_1 $T_o=520°R$	$\frac{q_1}{p_o}=2121$ lb/sq ft	$\frac{1}{\sqrt{M_1^2-1}}$
9.25	0.3954×10^{-4}	0.7162×10^{-3}	0.5521×10^{-1}	371.7	0.2350	0.6405×10^{-2}	2429	5.023	0.1087
9.26	.3926	.7126	.5510	373.6	.2347	.6373	2429	4.998	.1086
9.27	.3899	.7090	.5499	375.5	.2345	.6341	2429	4.973	.1085
9.28	.3871	.7054	.5487	377.4	.2343	.6310	2429	4.948	.1084
9.29	.3843	.7018	.5476	379.3	.2340	.6278	2429	4.924	.1083
9.30	.3816	.6982	.5465	381.2	.2338	.6247	2429	4.899	.1082
9.31	.3789	.6947	.5454	383.1	.2335	.6216	2429	4.875	.1080
9.32	.3762	.6912	.5443	385.1	.2333	.6186	2430	4.851	.1079
9.33	.3735	.6877	.5432	387.0	.2331	.6155	2430	4.827	.1078
9.34	.3709	.6842	.5421	389.0	.2328	.6125	2430	4.803	.1077
9.35	.3683	.6807	.5410	390.9	.2326	.6094	2430	4.779	.1076
9.36	.3657	.6773	.5399	392.9	.2324	.6064	2430	4.756	.1075
9.37	.3631	.6739	.5388	394.8	.2321	.6034	2430	4.732	.1073
9.38	.3605	.6705	.5377	396.8	.2319	.6005	2430	4.709	.1072
9.39	.3580	.6671	.5366	398.8	.2317	.5975	2431	4.686	.1071
9.40	.3555	.6638	.5356	400.8	.2314	.5946	2431	4.663	.1070
9.41	.3530	.6604	.5345	402.8	.2312	.5917	2431	4.640	.1069
9.42	.3505	.6571	.5334	404.8	.2310	.5888	2431	4.617	.1068
9.43	.3481	.6538	.5323	406.8	.2307	.5859	2431	4.595	.1066
9.44	.3456	.6506	.5313	408.8	.2305	.5830	2431	4.572	.1065
9.45	.3432	.6473	.5302	410.9	.2303	.5802	2431	4.550	.1064
9.46	.3408	.6441	.5291	412.9	.2300	.5773	2432	4.528	.1063
9.47	.3384	.6409	.5281	414.9	.2298	.5745	2432	4.506	.1062
9.48	.3361	.6377	.5270	417.0	.2296	.5717	2432	4.484	.1061
9.49	.3337	.6345	.5260	419.1	.2293	.5689	2432	4.462	.1060

M_1	θ	ν	θ_{max}	$\frac{p_2}{p_1}$	$\frac{p_2}{p_o}$	$\frac{p_3}{p_o}$	$\frac{\rho_2}{\rho_1}$	M_2	$\frac{V_2}{V_1}$
9.25	6.21	100.1	44.24	99.66	0.3941×10^{-2}	0.4375×10^{-2}	5.669	0.3892	0.1764
9.26	6.20	100.1	44.24	99.87	.3921	.4353	5.669	.3892	.1764
9.27	6.19	100.1	44.24	100.1	.3902	.4331	5.670	.3891	.1764
9.28	6.19	100.2	44.25	100.3	.3882	.4310	5.671	.3891	.1763
9.29	6.18	100.2	44.25	100.5	.3863	.4288	5.671	.3891	.1763
9.30	6.17	100.2	44.25	100.7	.3844	.4267	5.672	.3891	.1763
9.31	6.17	100.3	44.25	101.0	.3825	.4246	5.673	.3890	.1763
9.32	6.16	100.3	44.26	101.2	.3806	.4225	5.673	.3890	.1763
9.33	6.15	100.3	44.26	101.4	.3787	.4204	5.674	.3890	.1762
9.34	6.15	100.4	44.26	101.6	.3769	.4183	5.675	.3890	.1762
9.35	6.14	100.4	44.27	101.8	.3750	.4162	5.675	.3889	.1762
9.36	6.13	100.4	44.27	102.0	.3732	.4142	5.676	.3889	.1762
9.37	6.13	100.5	44.27	102.3	.3713	.4121	5.677	.3889	.1762
9.38	6.12	100.5	44.27	102.5	.3695	.4101	5.677	.3889	.1761
9.39	6.11	100.5	44.28	102.7	.3677	.4081	5.678	.3888	.1761
9.40	6.11	100.5	44.28	102.9	.3659	.4061	5.679	.3888	.1761
9.41	6.10	100.6	44.28	103.1	.3641	.4041	5.679	.3888	.1761
9.42	6.09	100.6	44.28	103.4	.3623	.4021	5.680	.3888	.1761
9.43	6.09	100.6	44.29	103.6	.3605	.4001	5.681	.3888	.1760
9.44	6.08	100.7	44.29	103.8	.3588	.3982	5.681	.3887	.1760
9.45	6.07	100.7	44.29	104.0	.3570	.3962	5.682	.3887	.1760
9.46	6.07	100.7	44.30	104.2	.3553	.3943	5.683	.3887	.1760
9.47	6.06	100.8	44.30	104.5	.3535	.3924	5.683	.3887	.1760
9.48	6.06	100.8	44.30	104.7	.3518	.3904	5.684	.3886	.1759
9.49	6.05	100.8	44.30	104.9	.3501	.3885	5.684	.3886	.1759

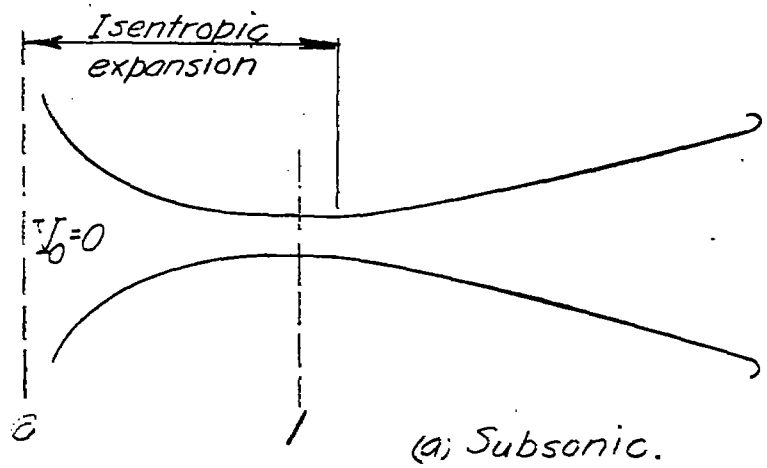
TABLE II.- SUPERSONIC FLOW - Continued

M_1	$\frac{p_1}{p_o}$	$\frac{\rho_1}{\rho_o}$	$\frac{T_1}{T_o}$	$\frac{A_1}{A_{cr}}$	$\frac{a_1}{a_o}$	$\frac{q_1}{q_{cr}}$	$\frac{V_1}{T_o=520^\circ R}$	$\frac{q_1}{p_o = 2121}$ lb/sq ft	$\frac{1}{\sqrt{M_1^2 - 1}}$
9.50	0.3314×10^{-4}	0.6313×10^{-3}	0.5249×10^{-1}	421.1	0.2291	0.5662×10^{-2}	2432	4.940	.1059
9.51	.3291	.6282	.5239	423.2	.2289	.5634	2432	4.919	.1057
9.52	.3268	.6251	.5228	425.3	.2287	.5607	2432	4.897	.1056
9.53	.3246	.6220	.5218	427.4	.2284	.5580	2432	4.876	.1055
9.54	.3223	.6189	.5208	429.5	.2282	.5553	2433	4.854	.1054
9.55	.3201	.6158	.5197	431.6	.2280	.5526	2433	4.833	.1053
9.56	.3179	.6128	.5187	433.7	.2278	.5499	2433	4.812	.1052
9.57	.3157	.6098	.5177	435.9	.2275	.5472	2433	4.792	.1051
9.58	.3135	.6067	.5167	438.0	.2273	.5446	2433	4.771	.1050
9.59	.3113	.6037	.5156	440.2	.2271	.5420	2433	4.750	.1048
9.60	.3092	.6008	.5146	442.3	.2269	.5393	2433	4.730	.1047
9.61	.3070	.5978	.5136	444.5	.2266	.5367	2434	4.709	.1046
9.62	.3049	.5949	.5126	446.7	.2264	.5342	2434	4.689	.1045
9.63	.3028	.5919	.5116	448.8	.2262	.5316	2434	4.669	.1044
9.64	.3007	.5890	.5106	451.0	.2260	.5290	2434	4.649	.1043
9.65	.2987	.5861	.5096	453.2	.2257	.5265	2434	4.629	.1042
9.66	.2966	.5833	.5086	455.4	.2255	.5240	2434	4.609	.1041
9.67	.2946	.5804	.5076	457.7	.2253	.5215	2434	4.089	.1040
9.68	.2926	.5776	.5066	459.9	.2251	.5190	2434	4.070	.1039
9.69	.2906	.5747	.5056	462.1	.2249	.5165	2435	4.050	.1038
9.70	.2886	.5719	.5046	464.4	.2246	.5140	2435	4.031	.1036
9.71	.2866	.5691	.5036	466.6	.2244	.5116	2435	4.012	.1035
9.72	.2847	.5664	.5026	468.9	.2242	.5091	2435	3.993	.1034
9.73	.2827	.5636	.5016	471.2	.2240	.5067	2435	3.974	.1033
9.74	.2808	.5609	.5007	473.4	.2238	.5043	2435	3.955	.1032

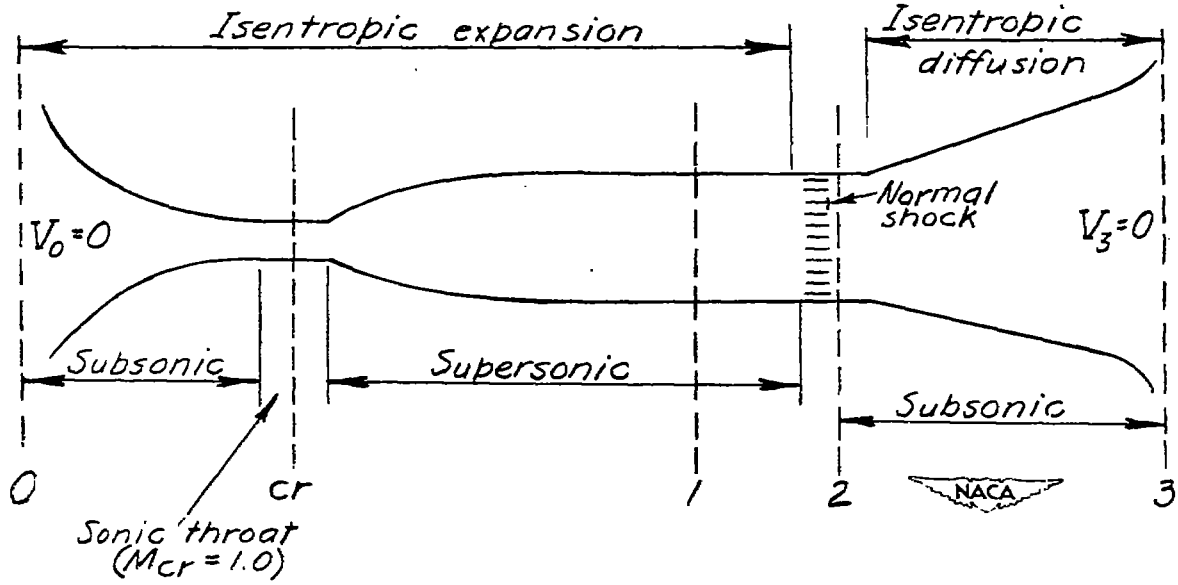
M_1	ν	V	δ_{max}	$\frac{p_2}{p_1}$	$\frac{p_2}{p_o}$	$\frac{p_3}{p_o}$	$\frac{\rho_2}{\rho_1}$	M_2	$\frac{V_2}{V_1}$
9.50	6.04	100.9	44.31	105.1	0.3484×10^{-2}	0.3866×10^{-2}	5.685	0.3886	0.1759
9.51	6.04	100.9	44.31	105.3	.3467	.3848	5.686	.3886	.1759
9.52	6.03	101.0	44.31	105.6	.3450	.3829	5.686	.3886	.1759
9.53	6.02	101.0	44.31	105.8	.3433	.3810	5.687	.3885	.1758
9.54	6.02	101.0	44.32	106.0	.3417	.3792	5.688	.3885	.1758
9.55	6.01	101.0	44.32	106.2	.3400	.3773	5.688	.3885	.1758
9.56	6.00	101.1	44.32	106.5	.3384	.3755	5.689	.3885	.1758
9.57	6.00	101.1	44.32	106.7	.3367	.3737	5.689	.3884	.1758
9.58	5.99	101.1	44.33	106.9	.3351	.3719	5.690	.3884	.1757
9.59	5.99	101.2	44.33	107.1	.3335	.3701	5.691	.3884	.1757
9.60	5.98	101.2	44.33	107.4	.3319	.3683	5.691	.3884	.1757
9.61	5.97	101.2	44.33	107.6	.3303	.3665	5.692	.3884	.1757
9.62	5.97	101.2	44.34	107.8	.3287	.3647	5.692	.3883	.1757
9.63	5.96	101.3	44.34	108.0	.3271	.3630	5.693	.3883	.1757
9.64	5.95	101.3	44.34	108.3	.3256	.3612	5.694	.3883	.1756
9.65	5.95	101.3	44.34	108.5	.3240	.3595	5.694	.3883	.1756
9.66	5.94	101.4	44.35	108.7	.3224	.3578	5.695	.3883	.1756
9.67	5.94	101.4	44.35	108.9	.3209	.3560	5.695	.3882	.1756
9.68	5.93	101.4	44.35	109.2	.3194	.3543	5.696	.3882	.1756
9.69	5.92	101.4	44.35	109.4	.3178	.3526	5.697	.3882	.1755
9.70	5.92	101.5	44.36	109.6	.3163	.3510	5.697	.3882	.1755
9.71	5.91	101.5	44.36	109.8	.3148	.3493	5.698	.3882	.1755
9.72	5.91	101.5	44.36	110.1	.3133	.3476	5.698	.3881	.1755
9.73	5.90	101.6	44.36	110.3	.3118	.3459	5.699	.3881	.1755
9.74	5.89	101.6	44.37	110.5	.3103	.3443	5.700	.3881	.1755

M_1	$\frac{p_1}{p_o}$	$\frac{\rho_1}{\rho_o}$	$\frac{T_1}{T_o}$	$\frac{A_1}{A_{cr}}$	$\frac{a_1}{a_o}$	$\frac{q_1}{q_{cr}}$	V_1 $T_o=520^\circ R$	q_1 $p_o = 2116$ lb/sq ft	$\frac{1}{\sqrt{M_1^2 - 1}}$
9.75	0.2739×10^{-4}	0.5581×10^{-3}	0.4997×10^{-1}	475.7	0.2235	0.5019×10^{-2}	2435	3.936	.1031
9.76	.2770	.5594	.4987	478.6	.2233	.4995	2435	3.917	.1030
9.77	.2751	.5607	.4977	480.3	.2231	.4971	2436	3.896	.1029
9.78	.2733	.5621	.4968	482.6	.2229	.4947	2436	3.880	.1028
9.79	.2714	.5634	.4958	485.0	.2227	.4924	2436	3.862	.1027
9.80	.2696	.5647	.4949	487.3	.2225	.4901	2436	3.843	.1026
9.81	.2677	.5661	.4939	489.6	.2223	.4877	2436	3.825	.1025
9.82	.2659	.5674	.4929	492.0	.2221	.4854	2436	3.807	.1024
9.83	.2641	.5688	.4920	494.4	.2218	.4831	2436	3.789	.1023
9.84	.2624	.5701	.4910	496.7	.2216	.4809	2436	3.771	.1022
9.85	.2606	.5715	.4901	499.1	.2214	.4786	2437	3.753	.1021
9.86	.2588	.5728	.4891	501.5	.2212	.4763	2437	3.736	.1019
9.87	.2571	.5742	.4882	503.9	.2210	.4741	2437	3.718	.1018
9.88	.2554	.5756	.4872	506.3	.2207	.4719	2437	3.700	.1017
9.89	.2537	.5769	.4863	508.7	.2205	.4696	2437	3.683	.1016
9.90	.2520	.5783	.4854	511.2	.2203	.4674	2437	3.666	.1015
9.91	.2503	.5796	.4845	513.6	.2201	.4652	2437	3.649	.1014
9.92	.2486	.5810	.4835	516.0	.2199	.4631	2437	3.631	.1013
9.93	.2469	.5824	.4826	518.5	.2197	.4609	2437	3.614	.1012
9.94	.2453	.5838	.4817	521.0	.2195	.4587	2438	3.598	.1011
9.95	.2436	.5852	.4808	523.4	.2193	.4566	2438	3.581	.1010
9.96	.2420	.5866	.4798	525.9	.2191	.4545	2438	3.564	.1009
9.97	.2404	.5880	.4789	528.4	.2188	.4523	2438	3.547	.1008
9.98	.2388	.4996	.4780	530.9	.2186	.4502	2438	3.531	.1007
9.99	.2372	.4972	.4771	533.4	.2184	.4481	2438	3.514	.1006
10.00	.2356	.4948	.4762	535.9	.2182	.4460	2438	3.498	.1005

M_1		ν	δ_{max}	$\frac{p_2}{p_1}$	$\frac{p_2}{p_o}$	$\frac{p_3}{p_o}$	$\frac{\rho_2}{\rho_1}$	M_2	$\frac{V_2}{V_1}$
9.75	5.89	101.6	44.37	110.7	0.3089×10^{-2}	0.3427×10^{-2}	5.700	0.3381	0.1754
9.76	5.88	101.6	44.37	111.0	.3074	.3410	5.701	.3380	.1754
9.77	5.87	101.7	44.37	111.2	.3059	.3394	5.701	.3380	.1754
9.78	5.87	101.7	44.38	111.4	.3045	.3378	5.702	.3380	.1754
9.79	5.86	101.7	44.38	111.7	.3030	.3362	5.703	.3380	.1754
9.80	5.86	101.8	44.38	111.9	.3016	.3346	5.703	.3380	.1753
9.81	5.85	101.8	44.38	112.1	.3002	.3330	5.704	.3379	.1753
9.82	5.84	101.8	44.39	112.3	.2987	.3314	5.704	.3379	.1753
9.83	5.84	101.8	44.39	112.6	.2973	.3298	5.705	.3379	.1753
9.84	5.83	101.9	44.39	112.8	.2959	.3283	5.705	.3379	.1753
9.85	5.83	101.9	44.39	113.0	.2945	.3267	5.706	.3379	.1753
9.86	5.82	101.9	44.40	113.3	.2931	.3252	5.707	.3378	.1752
9.87	5.82	102.0	44.40	113.5	.2917	.3237	5.707	.3378	.1752
9.88	5.81	102.0	44.40	113.7	.2904	.3221	5.708	.3378	.1752
9.89	5.80	102.0	44.40	113.9	.2890	.3206	5.708	.3378	.1752
9.90	5.80	102.0	44.41	114.2	.2877	.3191	5.709	.3378	.1752
9.91	5.79	102.1	44.41	114.4	.2863	.3176	5.709	.3377	.1752
9.92	5.79	102.1	44.41	114.6	.2850	.3161	5.710	.3377	.1751
9.93	5.78	102.1	44.41	114.8	.2836	.3146	5.710	.3377	.1751
9.94	5.77	102.2	44.42	115.1	.2823	.3132	5.711	.3377	.1751
9.95	5.77	102.2	44.42	115.3	.2810	.3117	5.712	.3377	.1751
9.96	5.76	102.2	44.42	115.6	.2797	.3102	5.712	.3377	.1751
9.97	5.76	102.2	44.42	115.8	.2784	.3088	5.713	.3376	.1751
9.98	5.75	102.3	44.42	116.0	.2771	.3073	5.713	.3376	.1750
9.99	5.74	102.3	44.43	116.3	.2758	.3059	5.714	.3376	.1750
10.00	5.74	102.3	44.43	116.5	.2745	.3045	5.714	.3376	.1750



(a) Subsonic.



(b) Supersonic.

Figure 1.- Sketch showing notation.

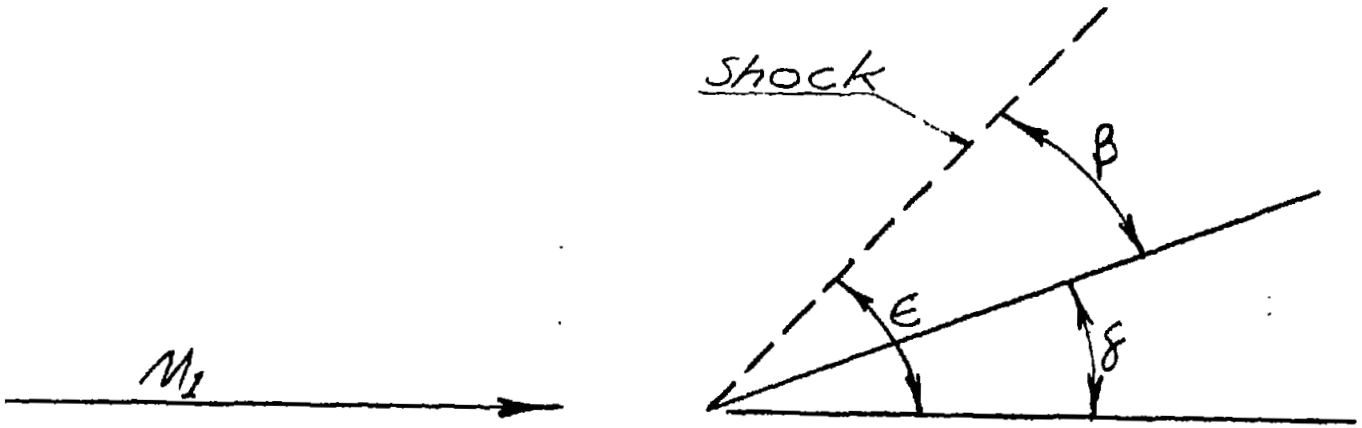


Fig. 2 - Oblique shock notation

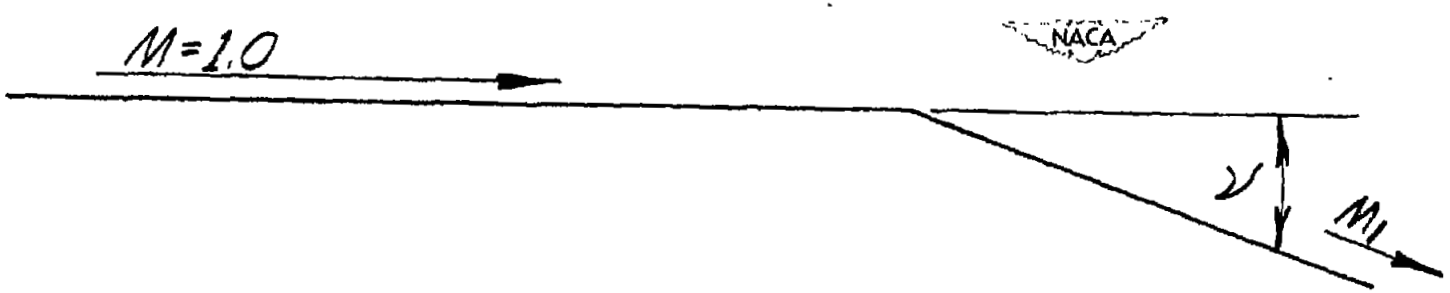


Fig. 3 - Expansion angle notation

INDEX

Subject	Number
Flow, Subsonic	1.1.2.1
Flow, Supersonic	1.1.2.3 S

ABSTRACT

Contains a tabulation of functions of the Mach number which are frequently used in high-speed aerodynamics. The tables extend from M = 0 to M = 10.0 in increments of 0.01 and are based on the assumption that air is a perfect gas having a specific heat ratio of 1.400.