

AD 615273

AD

TM-65-17

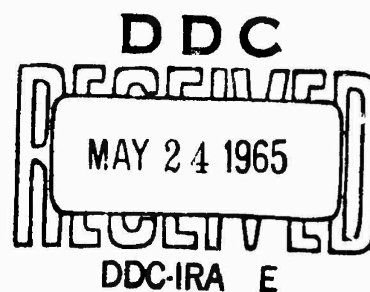
EQUILIBRIUM THERMODYNAMIC PROPERTIES OF AIR
BEHIND INCIDENT NORMAL SHOCK WAVES

by
Harry J. Davis

COPY	2	OF	3	by
HARD COPY	\$. 2 . 0 0			
MICROFICHE	\$. 0 . 5 0			

30 March 1965

418



U.S. ARMY MATERIEL COMMAND
HARRY DIAMOND LABORATORIES
WASHINGTON, D.C. 20438

ARCHIVE COPY

The findings in this report are not to be construed as an official Department of the Army position, unless so designated by other authorized documents.

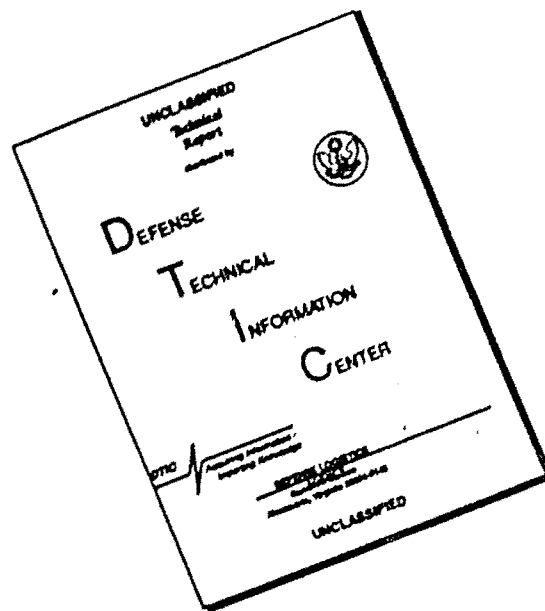
Reproduction of this document in whole or in part is prohibited except with permission of Harry Diamond Laboratories. However, DDC is authorized to reproduce the document for United States Government purposes.

Destroy this report when it is no longer needed. Do not return it to the originator.

AVAILABILITY/LIMITATION NOTICES

Qualified requesters may obtain copies of this report from DDC. DDC release to Clearinghouse for Federal Scientific and Technical Information is authorized.

DISCLAIMER NOTICE



THIS DOCUMENT IS BEST QUALITY AVAILABLE. THE COPY FURNISHED TO DTIC CONTAINED A SIGNIFICANT NUMBER OF PAGES WHICH DO NOT REPRODUCE LEGIBLY.

AD

DA-1P010501A008
AMCMS Code 5011.11.82600
HDL Proj 30300

TM-65-17

**EQUILIBRIUM THERMODYNAMIC PROPERTIES OF AIR
BEHIND INCIDENT NORMAL SHOCK WAVES**

by
Harry J. Davis

30 March 1965



U.S. ARMY MATERIEL COMMAND
HARRY DIAMOND LABORATORIES
WASHINGTON, D.C. 20438

ABSTRACT

The equilibrium temperature, density, and pressure of air behind incident normal shock waves have been calculated. The resulting tables include the effects of chemical reactions, excitation, dissociation, ionization, van der Waal and Coulomb forces. The tables are presented as functions of the ratio of the density behind the shock wave ρ_2 to the density at standard conditions ρ_0 ; $-7.0 \leq \log (\rho_2/\rho_0) \leq 2.4$, in steps of 0.2. The temperature behind the shock wave T_2 is a parameter which ranges from 2000°K to $16,000^\circ\text{K}$ in 1000°K steps. Two sets of tables, for initial conditions of 273.15° and 300.0°K , are presented. The densities of air, as a real and as an ideal gas, are compared.

The equilibrium thermodynamic properties of air behind normal incident shock waves were calculated as part of the work reported in reference 1. This memorandum is published in order to increase the availability of the tables generated in that work.

The thermodynamic properties used in the calculation were those of Hilsenrath and Klein (ref 2). These properties include the effects of chemical reactions, excitation, dissociation, ionization, intermolecular and Coulomb-type forces. The gas model thus represents a real gas.

The computing technique used was similar to that reported in reference 3; i.e., the conditions behind the shock wave were specified, the shock velocity and initial conditions necessary to generate these conditions then being calculated. Complete details are given in reference 1.

The shock wave tables calculated by Hochstim (ref 3) used the thermodynamic data of reference 4. These data were for an ideal gas, i.e., while chemical reactions, excitation, dissociation, and ionization were accounted for, interparticle forces were not considered. The difference between Hochstim's density ratios for air at 273.15°K and those calculated here are given in figure 1. As might be expected, the interparticle interactions cause the largest differences at the higher temperatures and densities.

ACKNOWLEDGMENT

The author gratefully acknowledges the advice of Professor S. I. Pai, University of Maryland, and the generosity of Mr. J. Hilsenrath of the National Bureau of Standards, who made available the thermodynamic data used in this calculation.

REFERENCES

1. Davis, H. J., "Equilibrium Properties of Air Behind Normal Shock Waves," M. S. Thesis, University of Maryland, 1964.
2. Hilsenrath, J. and Klein, M., "Tables of Thermodynamic Properties of Air in Chemical Equilibrium Including Second Virial Corrections from 1500° to $15,000^{\circ}\text{K}$," Arnold Engineering Development Center Report AEDC-TDR-63-161.
3. Hochstim, A., "Gas Properties Behind Shocks at Hypersonic Speeds—1. Normal Shocks in Air," Convair Physics Group Report Z ph (GP)-002 (1957).
4. Hilsenrath, J., Klein, M. and Wooley, H., "Tables of Thermodynamic Properties of Air Including Dissociation and Ionization from 1500° to $15,000^{\circ}\text{K}$," Arnold Engineering Development Center Report AEDC-TR-59-20, 1959.

NOMENCLATURE

P = pressure

T = temperature

V = shock velocity (kilometers/second)

ρ = density

Subscripts

0 = reference conditions

($T_0 = 273.15^\circ\text{K}$, $\rho_0 = 1.29304 \times 10^{-3} \text{ gm/cm}^3$)

1 = conditions in front of the shock wave

2 = conditions behind the shock wave

A combined subscript indicates the ratio of the quantities involved, for example: $\text{RHO } 21 = \rho_{21} = \rho_2/\rho_1$

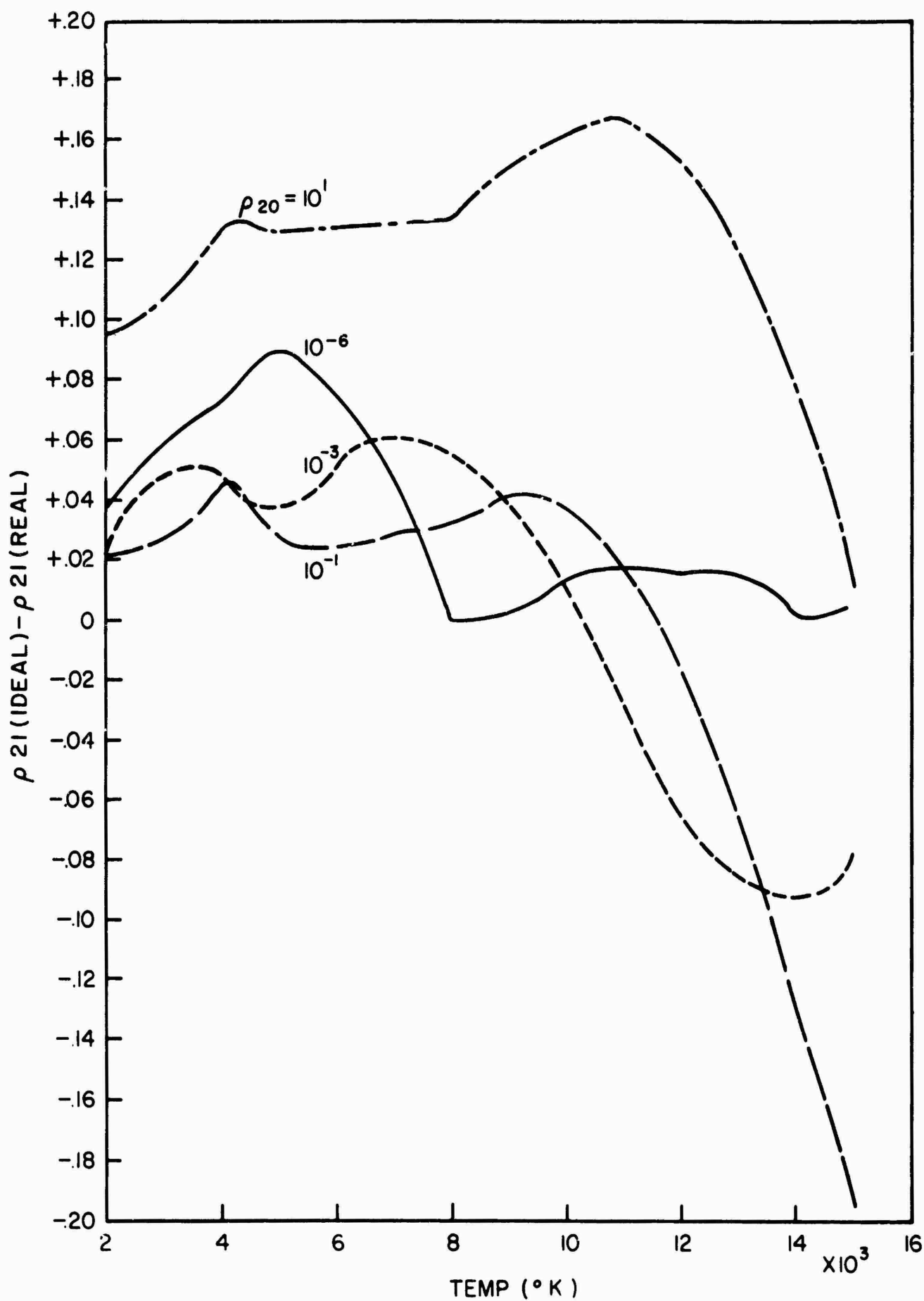


Figure 1. Difference in density ratios of air when considered as a real gas and an ideal gas.

TABLE I

$T_1 = 273.15$ Degrees Kelvin

T1= 273.15 DEGREES KELVIN

T2= 2000. DEGREES KELVIN

LOG RHO20	RHO 21	RHO 10	P2/P0	P2/P1	V-KM/SEC
-7.0	11.7743	8.4931E-09	8.1759E-07	9.6265E 01	2.8569
-6.8	11.0655	1.4323E-08	1.2770E-06	8.9162E 01	2.7566
-6.6	10.3787	2.4202E-08	1.9960E-06	8.2472E 01	2.6587
-6.4	9.7375	4.0884E-08	3.1232E-06	7.6392E 01	2.5666
-6.2	9.1574	6.8901E-08	4.8935E-06	7.1022E 01	2.4825
-6.0	8.6456	1.1567E-07	7.6785E-06	6.6385E 01	2.4077
-5.8	8.2034	1.9320E-07	1.2066E-05	6.2453E 01	2.3424
-5.6	7.8276	3.2090E-07	1.8986E-05	5.9163E 01	2.2865
-5.4	7.5175	5.2992E-07	2.9910E-05	5.6442E 01	2.2392
-5.2	7.2513	8.7013E-07	4.7169E-05	5.4209E 01	2.1998
-5.0	7.0365	1.4212E-06	7.4456E-05	5.2391E 01	2.1672
-4.8	6.8611	2.3100E-06	1.1761E-04	5.0916E 01	2.1404
-4.6	6.7187	3.7386E-06	1.8591E-04	4.9727E 01	2.1186
-4.4	6.6037	6.0286E-06	2.9401E-04	4.8770E 01	2.1009
-4.2	6.5110	9.6906E-06	4.6517E-04	4.8002E 01	2.0866
-4.0	6.4366	1.5536E-05	7.5622E-04	4.7387E 01	2.0750
-3.8	6.3769	2.4854E-05	1.1655E-03	4.6896E 01	2.0658
-3.6	6.3292	3.9687E-05	1.8456E-03	4.6504E 01	2.0584
-3.4	6.2911	6.3281E-05	2.9230E-03	4.6191E 01	2.0525
-3.2	6.2606	1.0078E-04	4.6301E-03	4.5941E 01	2.0477
-3.0	6.2364	1.6035E-04	7.3348E-03	4.5743E 01	2.0440
-2.8	6.2171	2.5493E-04	1.1621E-02	4.5585E 01	2.0410
-2.6	6.2017	4.0503E-04	1.8412E-02	4.5459E 01	2.0386
-2.4	6.1895	6.4320E-04	2.9175E-02	4.5359E 01	2.0367
-2.2	6.1797	1.0210E-03	4.6231E-02	4.5280E 01	2.0352
-2.0	6.1720	1.6202E-03	7.3262E-02	4.5217E 01	2.0340
-1.8	6.1658	2.5705E-03	1.1610E-01	4.5167E 01	2.0330
-1.6	6.1609	4.0772E-03	1.8399E-01	4.5127E 01	2.0322
-1.4	6.1569	6.4661E-03	2.9159E-01	4.5096E 01	2.0316
-1.2	6.1536	1.0253E-02	4.6213E-01	4.5071E 01	2.0312
-1.0	6.1509	1.6258E-02	7.3243E-01	4.5051E 01	2.0308
-0.8	6.1485	2.5777E-02	1.1609E 00	4.5036E 01	2.0305
-0.6	6.1463	4.0868E-02	1.8400E 00	4.5025E 01	2.0303
-0.4	6.1440	6.4796E-02	2.9168E 00	4.5017E 01	2.0302
-0.2	6.1413	1.0274E-01	4.6243E 00	4.5013E 01	2.0302
0.	6.1379	1.6292E-01	7.3327E 00	4.5012E 01	2.0302
0.2	6.1330	2.5842E-01	1.1631E 01	4.5015E 01	2.0304
0.4	6.1257	4.1006E-01	1.8458E 01	4.5024E 01	2.0308
0.6	6.1145	6.5108E-01	2.9315E 01	4.5042E 01	2.0314
0.8	6.0972	1.0348E 00	4.6615E 01	4.5072E 01	2.0324
1.0	6.0701	1.6474E 00	7.4265E 01	4.5121E 01	2.0341
1.2	6.0279	2.6293E 00	1.1867E 02	4.5202E 01	2.0368
1.4	5.9626	4.2127E 00	1.9052E 02	4.5331E 01	2.0411
1.6	5.8624	6.7908E 00	3.0807E 02	4.5538E 01	2.0478
1.8	5.7117	1.1047E 01	5.0362E 02	4.5874E 01	2.0586
2.0	5.4912	1.8211E 01	8.3673E 02	4.6420E 01	2.0757
2.2	5.1813	3.0588E 01	1.4227E 03	4.7323E 01	2.1028
2.4	4.7711	5.2648E 01	2.4962E 03	4.8853E 01	2.1456

T2= 3000. DEGREES KELVIN

LOG RHO20	RHO 21	RHO 10	P2/P0	P2/P1	V-KM/SEC
-7.0	12.7693	7.8313E-09	1.3348E-06	1.7045E 02	3.7966
-6.8	12.7061	1.2474E-08	2.1134E-06	1.6943E 02	3.7859
-6.6	12.6552	1.9849E-08	3.3466E-06	1.6861E 02	3.7773
-6.4	12.6141	3.1561E-08	5.3003E-06	1.6794E 02	3.7703
-6.2	12.5806	5.0153E-08	8.3952E-06	1.6739E 02	3.7646
-6.0	12.5527	7.9664E-08	1.3298E-05	1.6693E 02	3.7597
-5.8	12.5287	1.2650E-07	2.1065E-05	1.6652E 02	3.7554
-5.6	12.5073	2.0083E-07	3.3368E-05	1.6615E 02	3.7514
-5.4	12.4867	3.1883E-07	5.2852E-05	1.6577E 02	3.7474
-5.2	12.4648	5.0619E-07	8.3704E-05	1.6536E 02	3.7430
-5.0	12.4398	8.0387E-07	1.3254E-04	1.6488E 02	3.7378
-4.8	12.4084	1.2773E-06	2.0980E-04	1.6426E 02	3.7312
-4.6	12.3664	2.0312E-06	3.3195E-04	1.6342E 02	3.7222
-4.4	12.3082	3.2345E-06	5.2487E-04	1.6227E 02	3.7098
-4.2	12.2264	5.1606E-06	8.2914E-04	1.6067E 02	3.6923
-4.0	12.1119	8.2564E-06	1.3082E-03	1.5844E 02	3.6681
-3.8	11.9544	1.3258E-05	2.0606E-03	1.5543E 02	3.6349
-3.6	11.7450	2.1387E-05	3.2399E-03	1.5149E 02	3.5912
-3.4	11.4783	3.4683E-05	5.0838E-03	1.4658E 02	3.5359
-3.2	11.1563	5.6556E-05	7.9624E-03	1.4079E 02	3.4697
-3.0	10.7881	9.2695E-05	1.2453E-02	1.3434E 02	3.3945
-2.8	10.3699	1.5254E-04	1.9460E-02	1.2757E 02	3.3137
-2.6	9.9807	2.5167E-04	3.0406E-02	1.2082E 02	3.2311
-2.4	9.5789	4.1561E-04	4.7532E-02	1.1437E 02	3.1503
-2.2	9.1994	6.8587E-04	7.4377E-02	1.0844E 02	3.0742
-2.0	8.8525	1.1296E-03	1.1653E-01	1.0316E 02	3.0049
-1.8	8.5439	1.8550E-03	1.8282E-01	9.8558E 01	2.9432
-1.6	8.2754	3.0354E-03	2.8724E-01	9.4631E 01	2.8895
-1.4	8.0457	4.9480E-03	4.5190E-01	9.1329E 01	2.8438
-1.2	7.8522	8.0354E-03	7.1182E-01	8.8586E 01	2.8052
-1.0	7.6910	1.3002E-02	1.1224E 00	8.6329E 01	2.7730
-0.8	7.5578	2.0970E-02	1.7717E 00	8.4484E 01	2.7465
-0.6	7.4483	3.3724E-02	2.7986E 00	8.2987E 01	2.7248
-0.4	7.3586	5.4101E-02	4.4241E 00	8.1778E 01	2.7072
-0.2	7.2850	8.6611E-02	6.9984E 00	8.0807E 01	2.6930
0.	7.2241	1.3843E-01	1.1077E 01	8.0031E 01	2.6816
0.2	7.1727	2.2096E-01	1.7546E 01	7.9416E 01	2.6726
0.4	7.1276	3.5241E-01	2.7812E 01	7.8934E 01	2.6657
0.6	7.0854	5.6187E-01	4.4130E 01	7.8566E 01	2.6605
0.8	7.0420	8.9599E-01	7.0120E 01	7.8299E 01	2.6570
1.0	6.9922	1.4302E 00	1.1165E 02	7.8129E 01	2.6553
1.2	6.9290	2.2873E 00	1.7832E 02	7.8062E 01	2.6555
1.4	6.8424	3.6711E 00	2.8618E 02	7.8116E 01	2.6582
1.6	6.7187	5.9254E 00	4.6262E 02	7.8335E 01	2.6645
1.8	6.5395	9.6484E 00	7.5610E 02	7.8791E 01	2.6759
2.0	6.2829	1.5916E 01	1.2559E 03	7.9616E 01	2.6952
2.2	5.9273	2.6739E 01	2.1345E 03	8.1043E 01	2.7267

T2= 4000. DEGREES KELVIN

LOG RHO20	RHO 21	RHO 10	P2/P0	P2/P1	V-KM/SEC
-7.0	23.1786	4.3143E-09	2.4029E-06	5.5695E 02	6.7493
-6.8	21.8737	7.2457E-09	3.6683E-06	5.0627E 02	6.4430
-6.6	20.5556	1.2220E-08	5.6055E-06	4.5872E 02	6.1417
-6.4	19.2742	2.0655E-08	8.5851E-06	4.1565E 02	5.8556
-6.2	18.0693	3.4919E-08	1.3189E-05	3.7771E 02	5.5915
-6.0	16.9684	5.8933E-08	2.0333E-05	3.4502E 02	5.3535
-5.8	15.9866	9.9139E-08	3.1460E-05	3.1733E 02	5.1435
-5.6	15.1291	1.6603E-07	4.8847E-05	2.9420E 02	4.9613
-5.4	14.3930	2.7660E-07	7.6087E-05	2.7508E 02	4.8055
-5.2	13.7702	4.5821E-07	1.1886E-04	2.5940E 02	4.6739
-5.0	13.2494	7.5475E-07	1.8614E-04	2.4663E 02	4.5640
-4.8	12.8179	1.2365E-06	2.9214E-04	2.3627E 02	4.4728
-4.6	12.4633	2.0154E-06	4.5930E-04	2.2789E 02	4.3978
-4.4	12.1734	3.2703E-06	7.2317E-04	2.2113E 02	4.3363
-4.2	11.9373	5.2856E-06	1.1400E-03	2.1568E 02	4.2860
-4.0	11.7456	8.5138E-06	1.7988E-03	2.1128E 02	4.2450
-3.8	11.5898	1.3675E-05	2.8404E-03	2.0771E 02	4.2115
-3.6	11.4627	2.1913E-05	4.4875E-03	2.0478E 02	4.1838
-3.4	11.3582	3.5050E-05	7.0927E-03	2.0236E 02	4.1606
-3.2	11.2708	5.5982E-05	1.1213E-02	2.0030E 02	4.1408
-3.0	11.1956	8.9321E-05	1.7728E-02	1.9848E 02	4.1232
-2.8	11.1281	1.4242E-04	2.8026E-02	1.9678E 02	4.1067
-2.6	11.0635	2.2704E-04	4.4295E-02	1.9509E 02	4.0902
-2.4	10.9971	3.6201E-04	6.9972E-02	1.9329E 02	4.0723
-2.2	10.9232	5.7763E-04	1.1046E-01	1.9122E 02	4.0517
-2.0	10.8358	9.2287E-04	1.7418E-01	1.8874E 02	4.0268
-1.8	10.7284	1.4773E-03	2.7431E-01	1.8568E 02	3.9960
-1.6	10.5948	2.3709E-03	4.3132E-01	1.8192E 02	3.9577
-1.4	10.4310	3.8166E-03	6.7704E-01	1.7740E 02	3.9110
-1.2	10.2359	6.1642E-03	1.0610E 00	1.7213E 02	3.8561
-1.0	10.0128	9.9872E-03	1.6606E 00	1.6627E 02	3.7941
-0.8	9.7695	1.6223E-02	2.5967E 00	1.6007E 02	3.7274
-0.6	9.5160	2.6396E-02	4.0598E 00	1.5380E 02	3.6588
-0.4	9.2630	4.2978E-02	6.3498E 00	1.4775E 02	3.5913
-0.2	9.0199	6.9952E-02	9.9406E 00	1.4211E 02	3.5274
0.	8.7934	1.1372E-01	1.5582E 01	1.3703E 02	3.4688
0.2	8.5872	1.8457E-01	2.4465E 01	1.3257E 02	3.4167
0.4	8.4020	2.9896E-01	3.8482E 01	1.2874E 02	3.3713
0.6	8.2362	4.8336E-01	6.0653E 01	1.2551E 02	3.3329
0.8	8.0854	7.8037E-01	9.5828E 01	1.2285E 02	3.3010
1.0	7.9431	1.2589E 00	1.5185E 02	1.2070E 02	3.2755
1.2	7.8005	2.0318E 00	2.4156E 02	1.1902E 02	3.2560
1.4	7.6449	3.2857E 00	3.8633E 02	1.1780E 02	3.2428
1.6	7.4597	5.3368E 00	6.2269E 02	1.1703E 02	3.2363
1.8	7.2237	8.7345E 00	1.0150E 03	1.1678E 02	3.2379
2.0	6.9118	1.4468E 01	1.6818E 03	1.1719E 02	3.2502
2.2	6.4998	2.4384E 01	2.8512E 03	1.1855E 02	3.2775
2.4	5.9757	4.2035E 01	4.9819E 03	1.2137E 02	3.3264

T2= 5000. DEGREES KELVIN

LOG RHO20	RHO 21	RHO 10	P2/P0	P2/P1	V-KM/SEC
-7.0	24.2434	4.1248E-09	3.6420E-06	8.8294E 02	8.4924
-6.8	24.2050	6.5478E-09	5.7637E-06	8.8025E 02	8.4797
-6.6	24.1547	1.0399E-08	9.1160E-06	8.7661E 02	8.4625
-6.4	24.0840	1.6530E-08	1.4404E-05	8.7139E 02	8.4378
-6.2	23.9812	2.6310E-08	2.2726E-05	8.6376E 02	8.4015
-6.0	23.8302	4.1964E-08	3.5777E-05	8.5258E 02	8.3480
-5.8	23.6100	6.7128E-08	5.6151E-05	8.3647E 02	8.2704
-5.6	23.2961	1.0782E-07	8.7770E-05	8.1401E 02	8.1609
-5.4	22.8643	1.7412E-07	1.3652E-04	7.8406E 02	8.0126
-5.2	22.2966	2.8298E-07	2.1120E-04	7.4632E 02	7.8217
-5.0	21.5880	4.6322E-07	3.2502E-04	7.0165E 02	7.5895
-4.8	20.7502	7.6380E-07	4.9804E-04	6.5206E 02	7.3232
-4.6	19.8110	1.2679E-06	7.6105E-04	6.0023E 02	7.0341
-4.4	18.8091	2.1166E-06	1.1617E-03	5.4888E 02	6.7355
-4.2	17.7874	3.5472E-06	1.7745E-03	5.0025E 02	6.4400
-4.0	16.7856	5.9575E-06	2.7158E-03	4.5587E 02	6.1580
-3.8	15.8364	1.0008E-05	4.1686E-03	4.1653E 02	5.8969
-3.6	14.9635	1.6787E-05	6.4202E-03	3.8246E 02	5.6611
-3.4	14.1807	2.8074E-05	9.9235E-03	3.5348E 02	5.4527
-3.2	13.4935	4.6760E-05	1.5392E-02	3.2917E 02	5.2715
-3.0	12.9008	7.7515E-05	2.3952E-02	3.0899E 02	5.1163
-2.8	12.3970	1.2785E-04	3.7379E-02	2.9238E 02	4.9849
-2.6	11.9736	2.0978E-04	5.8479E-02	2.7876E 02	4.8745
-2.4	11.6208	3.4258E-04	9.1681E-02	2.6762E 02	4.7824
-2.2	11.3285	5.5696E-04	1.4398E-01	2.5850E 02	4.7057
-2.0	11.0869	9.0197E-04	2.2640E-01	2.5100E 02	4.6415
-1.8	10.8864	1.4559E-03	3.5635E-01	2.4477E 02	4.5875
-1.6	10.7187	2.3435E-03	5.6126E-01	2.3950E 02	4.5412
-1.4	10.5759	3.7643E-03	8.8426E-01	2.3491E 02	4.5004
-1.2	10.4504	6.0376E-03	1.3932E 00	2.3075E 02	4.4630
-1.0	10.3356	9.6753E-03	2.1942E 00	2.2678E 02	4.4269
-0.8	10.2246	1.5501E-02	3.4535E 00	2.2280E 02	4.3903
-0.6	10.1110	2.4843E-02	5.4307E 00	2.1860E 02	4.3512
-0.4	9.9892	3.9854E-02	8.5300E 00	2.1404E 02	4.3082
-0.2	9.8550	6.4024E-02	1.3382E 01	2.0902E 02	4.2603
0.	9.7060	1.0303E-01	2.0971E 01	2.0356E 02	4.2076
0.2	9.5424	1.6609E-01	3.2840E 01	1.9774E 02	4.1508
0.4	9.3663	2.6818E-01	5.1420E 01	1.9176E 02	4.0916
0.6	9.1812	4.3361E-01	8.0564E 01	1.8584E 02	4.0323
0.8	8.9900	7.0184E-01	1.2642E 02	1.8020E 02	3.9751
1.0	8.7932	1.1372E 00	1.9891E 02	1.7502E 02	3.9223
1.2	8.5882	1.8454E 00	3.1422E 02	1.7045E 02	3.8756
1.4	8.3672	3.0021E 00	4.9922E 02	1.6657E 02	3.8364
1.6	8.1163	4.9050E 00	7.9970E 02	1.6349E 02	3.8065
1.8	7.8158	8.0728E 00	1.2962E 03	1.6129E 02	3.7876
2.0	7.4407	1.3440E 01	2.1365E 03	1.6017E 02	3.7826
2.2	6.9660	2.2752E 01	3.6040E 03	1.6045E 02	3.7960

T2= 6000. DEGREES KELVIN

LOG RH020	RHO 21	RHO 10	P2/P0	P2/P1	V-KM/SEC
-7.0	21.8791	4.5706E-09	4.4783E-06	9.7982E 02	8.9675
-6.8	21.6993	7.3039E-09	7.0636E-06	9.6710E 02	8.9108
-6.6	21.5541	1.1654E-08	1.1152E-05	9.5691E 02	8.8652
-6.4	21.4370	1.8571E-08	1.7619E-05	9.4872E 02	8.8283
-6.2	21.3423	2.9564E-08	2.7852E-05	9.4211E 02	8.7984
-6.0	21.2649	4.7026E-08	4.4049E-05	9.3669E 02	8.7738
-5.8	21.2007	7.4757E-08	6.9683E-05	9.3214E 02	8.7531
-5.6	21.1456	1.1879E-07	1.1025E-04	9.2814E 02	8.7349
-5.4	21.0955	1.8872E-07	1.7445E-04	9.2438E 02	8.7176
-5.2	21.0461	2.9980E-07	2.7595E-04	9.2047E 02	8.6997
-5.0	20.9918	4.7638E-07	4.3633E-04	9.1593E 02	8.6787
-4.8	20.9254	7.5740E-07	6.8934E-04	9.1014E 02	8.6519
-4.6	20.8373	1.2055E-06	1.0876E-03	9.0222E 02	8.6150
-4.4	20.7143	1.9219E-06	1.7125E-03	8.9105E 02	8.5628
-4.2	20.5397	3.0719E-06	2.6887E-03	8.7525E 02	8.4883
-4.0	20.2938	4.9276E-06	4.2049E-03	8.5334E 02	8.3838
-3.8	19.9563	7.9418E-06	6.5448E-03	8.2409E 02	8.2423
-3.6	19.5114	1.2874E-05	1.0132E-02	7.8702E 02	8.0594
-3.4	18.9528	2.1005E-05	1.5602E-02	7.4279E 02	7.8356
-3.2	18.2879	3.4501E-05	2.3919E-02	6.9327E 02	7.5773
-3.0	17.5372	5.7022E-05	3.6556E-02	6.4109E 02	7.2951
-2.8	16.7310	9.4728E-05	5.5795E-02	5.8901E 02	7.0022
-2.6	15.9035	1.5795E-04	8.5191E-02	5.3937E 02	6.7113
-2.4	15.0874	2.6387E-04	1.3030E-01	4.9381E 02	6.4327
-2.2	14.3105	4.4091E-04	1.9984E-01	4.5324E 02	6.1742
-2.0	13.5926	7.3570E-04	3.0749E-01	4.1796E 02	5.9402
-1.8	12.9459	1.2242E-03	4.7478E-01	3.8781E 02	5.7328
-1.6	12.3757	2.0297E-03	7.3556E-01	3.6240E 02	5.5520
-1.4	11.8817	3.3506E-03	1.1431E 00	3.4117E 02	5.3964
-1.2	11.4592	5.5061E-03	1.7814E 00	3.2354E 02	5.2636
-1.0	11.1016	9.0078E-03	2.7824E 00	3.0890E 02	5.1506
-0.8	10.8002	1.4675E-02	4.3539E 00	2.9670E 02	5.0545
-0.6	10.5461	2.3818E-02	6.8220E 00	2.8642E 02	4.9721
-0.4	10.3302	3.8538E-02	1.0699E 01	2.7763E 02	4.9002
-0.2	10.1437	6.2202E-02	1.6787E 01	2.6990E 02	4.8360
0.	9.9780	1.0022E-01	2.6344E 01	2.6288E 02	4.7767
0.2	9.8249	1.6131E-01	4.1337E 01	2.5627E 02	4.7201
0.4	9.6771	2.5957E-01	6.4846E 01	2.4986E 02	4.6644
0.6	9.5275	4.1785E-01	1.0172E 02	2.4348E 02	4.6082
0.8	9.3699	6.7339E-01	1.5961E 02	2.3711E 02	4.5514
1.0	9.1984	1.0871E 00	2.5075E 02	2.3079E 02	4.4945
1.2	9.0063	1.7598E 00	3.9495E 02	2.2466E 02	4.4391
1.4	8.7851	2.8593E 00	6.2493E 02	2.1892E 02	4.3873
1.6	8.5221	4.6715E 00	9.9615E 02	2.1380E 02	4.3419
1.8	8.1992	7.6953E 00	1.6058E 03	2.0957E 02	4.3062
2.0	7.7939	1.2831E 01	2.6314E 03	2.0657E 02	4.2844
2.2	7.2830	2.1762E 01	4.4127E 03	2.0528E 02	4.2822
2.4	6.6551	3.7744E 01	7.6282E 03	2.0647E 02	4.3076

T2= 7000. DEGREES KELVIN

LOG RHO20	RHO 21	RHO 10	P2/P0	P2/P1	V-KM/SEC
-7.0	23.6613	4.2263E-09	6.0109E-06	1.4223E 03	10.7864
-6.8	22.8438	6.9379E-09	9.2539E-06	1.3338E 03	10.4536
-6.6	22.1325	1.1349E-08	1.4310E-05	1.2608E 03	10.1709
-6.4	21.5234	1.8496E-08	2.2217E-05	1.2011E 03	9.9337
-6.2	21.0090	3.0033E-08	3.4615E-05	1.1526E 03	9.7364
-6.0	20.5795	4.8592E-08	5.4096E-05	1.1133E 03	9.5738
-5.8	20.2241	7.8366E-08	8.4758E-05	1.0816E 03	9.4406
-5.6	19.9324	1.2602E-07	1.3308E-04	1.0561E 03	9.3321
-5.4	19.6942	2.0214E-07	2.0933E-04	1.0356E 03	9.2439
-5.2	19.5004	3.2356E-07	3.2974E-04	1.0191E 03	9.1725
-5.0	19.3430	5.1698E-07	5.2000E-04	1.0058E 03	9.1146
-4.8	19.2149	8.2483E-07	8.2078E-04	9.9509E 02	9.0674
-4.6	19.1098	1.3144E-06	1.2964E-03	9.8627E 02	9.0284
-4.4	19.0223	2.0928E-06	2.0485E-03	9.7883E 02	8.9954
-4.2	18.9468	3.3302E-06	3.2378E-03	9.7228E 02	8.9662
-4.0	18.8780	5.2972E-06	5.1174E-03	9.6607E 02	8.9384
-3.8	18.8099	8.4259E-06	8.0853E-03	9.5959E 02	8.9092
-3.6	18.7350	1.3407E-05	1.2765E-02	9.5207E 02	8.8752
-3.4	18.6441	2.1353E-05	2.0126E-02	9.4254E 02	8.8319
-3.2	18.5251	3.4060E-05	3.1667E-02	9.2975E 02	8.7733
-3.0	18.3628	5.4458E-05	4.9677E-02	9.1222E 02	8.6923
-2.8	18.1402	8.7369E-05	7.7621E-02	8.8842E 02	8.5811
-2.6	17.8402	1.4080E-04	1.2069E-01	8.5718E 02	8.4328
-2.4	17.4502	2.2814E-04	1.8665E-01	8.1813E 02	8.2437
-2.2	16.9663	3.7189E-04	2.8714E-01	7.7211E 02	8.0152
-2.0	16.3962	6.0990E-04	4.3983E-01	7.2115E 02	7.7542
-1.8	15.7584	1.0057E-03	6.7179E-01	6.6795E 02	7.4722
-1.6	15.0787	1.6658E-03	1.0249E 00	6.1526E 02	7.1819
-1.4	14.3857	2.7674E-03	1.5645E 00	5.6534E 02	6.8957
-1.2	13.7061	4.6035E-03	2.3925E 00	5.1972E 02	6.6234
-1.0	13.0617	7.6559E-03	3.6687E 00	4.7919E 02	6.3717
-0.8	12.4681	1.2712E-02	5.6433E 00	4.4396E 02	6.1446
-0.6	11.9342	2.1048E-02	8.7095E 00	4.1380E 02	5.9434
-0.4	11.4632	3.4729E-02	1.3484E 01	3.8827E 02	5.7675
-0.2	11.0535	5.7082E-02	2.0935E 01	3.6677E 02	5.6150
0.	10.7002	9.3456E-02	3.2583E 01	3.4866E 02	5.4832
0.2	10.3960	1.5245E-01	5.0813E 01	3.3333E 02	5.3690
0.4	10.1320	2.4792E-01	7.9375E 01	3.2021E 02	5.2691
0.6	9.8985	4.0219E-01	1.2417E 02	3.0879E 02	5.1805
0.8	9.6848	6.5149E-01	1.9450E 02	2.9866E 02	5.1004
1.0	9.4792	1.0549E 00	3.0521E 02	2.8948E 02	5.0269
1.2	9.2686	1.7100E 00	4.8015E 02	2.8107E 02	4.9588
1.4	9.0381	2.7792E 00	7.5846E 02	2.7333E 02	4.8959
1.6	8.7693	4.5398E 00	1.2060E 03	2.6633E 02	4.8394
1.8	8.4401	7.4757E 00	1.9375E 03	2.6027E 02	4.7919
2.0	8.0250	1.2461E 01	3.1615E 03	2.5549E 02	4.7575
2.2	7.4994	2.1134E 01	5.2752E 03	2.5260E 02	4.7424

T2= 8000. DEGREES KELVIN

LOG RHO20	RHO 21	RHO 10	P2/P0	P2/P1	V-KM/SEC
-7.0	27.6965	3.6106E-09	9.3346E-06	2.5854E 03	14.4986
-6.8	26.7872	5.9166E-09	1.4069E-05	2.3779E 03	13.9133
-6.6	25.8178	9.7293E-09	2.1191E-05	2.1781E 03	13.3253
-6.4	24.8252	1.6036E-08	3.1962E-05	1.9931E 03	12.7568
-6.2	23.8454	2.6460E-08	4.8350E-05	1.8273E 03	12.2249
-6.0	22.9095	4.3650E-08	7.3437E-05	1.6824E 03	11.7406
-5.8	22.0408	7.1907E-08	1.1206E-04	1.5584E 03	11.3094
-5.6	21.2548	1.1818E-07	1.7182E-04	1.4539E 03	10.9330
-5.4	20.5591	1.9364E-07	2.6469E-04	1.3669E 03	10.6096
-5.2	19.9549	3.1619E-07	4.0954E-04	1.2952E 03	10.3354
-5.0	19.4383	5.1445E-07	6.3616E-04	1.2366E 03	10.1057
-4.8	19.0025	8.3404E-07	9.9160E-04	1.1889E 03	9.9150
-4.6	18.6390	1.3477E-06	1.5502E-03	1.1503E 03	9.7578
-4.4	18.3382	2.1709E-06	2.4295E-03	1.1191E 03	9.6291
-4.2	18.0910	3.4877E-06	3.8155E-03	1.0940E 03	9.5240
-4.0	17.8886	5.5902E-06	6.0022E-03	1.0737E 03	9.4384
-3.8	17.7231	8.9426E-06	9.4547E-03	1.0573E 03	9.3683
-3.6	17.5869	1.4283E-05	1.4908E-02	1.0438E 03	9.3105
-3.4	17.4736	2.2783E-05	2.3524E-02	1.0325E 03	9.2618
-3.2	17.3767	3.6311E-05	3.7134E-02	1.0227E 03	9.2191
-3.0	17.2897	5.7838E-05	5.8620E-02	1.0135E 03	9.1791
-2.8	17.2054	9.2116E-05	9.2506E-02	1.0042E 03	9.1383
-2.6	17.1159	1.4676E-04	1.4585E-01	9.9379E 02	9.0921
-2.4	17.0107	2.3403E-04	2.2958E-01	9.8096E 02	9.0349
-2.2	16.8775	3.7385E-04	3.6048E-01	9.6424E 02	8.9597
-2.0	16.7012	5.9876E-04	5.6404E-01	9.4201E 02	8.8587
-1.8	16.4667	9.6248E-04	8.7858E-01	9.1282E 02	8.7241
-1.6	16.1606	1.5543E-03	1.3614E 00	8.7585E 02	8.5507
-1.4	15.7757	2.5235E-03	2.0981E 00	8.3139E 02	8.3373
-1.2	15.3141	4.1201E-03	3.2178E 00	7.8100E 02	8.0886
-1.0	14.7875	6.7625E-03	4.9176E 00	7.2719E 02	7.8144
-0.8	14.2157	1.1149E-02	7.5009E 00	6.7280E 02	7.5270
-0.6	13.6224	1.8439E-02	1.1439E 01	6.2034E 02	7.2391
-0.4	13.0311	3.0551E-02	1.7465E 01	5.7168E 02	6.9614
-0.2	12.4619	5.0631E-02	2.6727E 01	5.2790E 02	6.7017
0.	11.9298	8.3824E-02	4.1022E 01	4.8940E 02	6.4648
0.2	11.4438	1.3849E-01	6.3165E 01	4.5612E 02	6.2527
0.4	11.0071	2.2821E-01	9.7581E 01	4.2765E 02	6.0653
0.6	10.6182	3.7493E-01	1.5123E 02	4.0344E 02	5.9013
0.8	10.2705	6.1434E-01	2.3512E 02	3.8285E 02	5.7581
1.0	9.9544	1.0046E 00	3.6675E 02	3.6528E 02	5.6331
1.2	9.6564	1.6413E 00	5.7426E 02	3.5020E 02	5.5238
1.4	9.3591	2.6839E 00	9.0363E 02	3.3719E 02	5.4283
1.6	9.0410	4.4034E 00	1.4319E 03	3.2599E 02	5.3458
1.8	8.6758	7.2726E 00	2.2924E 03	3.1651E 02	5.2768
2.0	8.2339	1.2145E 01	3.7263E 03	3.0892E 02	5.2241
2.2	7.6869	2.0618E 01	6.1898E 03	3.0372E 02	5.1930
2.4	7.0192	3.5786E 01	1.0588E 04	3.0192E 02	5.1922

T2= 9000. DEGREES KELVIN

LOG	RHO 21	RHO 10	P2/P0	P2/P1	V-KM/SEC
-7.0	27.7126	3.6085E-09	1.2595E-05	3.4903E 03	16.8466
-6.8	27.4632	5.7710E-09	1.9579E-05	3.3928E 03	16.6123
-6.6	27.1193	9.2623E-09	3.0235E-05	3.2643E 03	16.2986
-6.4	26.6662	1.4929E-08	4.6355E-05	3.1049E 03	15.9008
-6.2	26.0980	2.4176E-08	7.0581E-05	2.9194E 03	15.4249
-6.0	25.4206	3.9338E-08	1.0687E-04	2.7167E 03	14.8873
-5.8	24.6521	6.4291E-08	1.6122E-04	2.5076E 03	14.3119
-5.6	23.8190	1.0546E-07	2.4285E-04	2.3028E 03	13.7249
-5.4	22.9533	1.7344E-07	3.6605E-04	2.1105E 03	13.1500
-5.2	22.0872	2.8567E-07	5.5310E-04	1.9362E 03	12.6062
-5.0	21.2495	4.7060E-07	8.3881E-04	1.7824E 03	12.1064
-4.8	20.4637	7.7449E-07	1.2778E-03	1.6498E 03	11.6582
-4.6	19.7458	1.2721E-06	1.9558E-03	1.5374E 03	11.2643
-4.4	19.1051	2.0838E-06	3.0078E-03	1.4434E 03	10.9241
-4.2	18.5445	3.4024E-06	4.6465E-03	1.3657E 03	10.6344
-4.0	18.0623	5.5364E-06	7.2075E-03	1.3018E 03	10.3906
-3.8	17.6532	8.9779E-06	1.1220E-02	1.2498E 03	10.1875
-3.6	17.3103	1.4511E-05	1.7522E-02	1.2075E 03	10.0196
-3.4	17.0253	2.3383E-05	2.7436E-02	1.1733E 03	9.8816
-3.2	16.7898	3.7580E-05	4.3051E-02	1.1456E 03	9.7683
-3.0	16.5958	6.0256E-05	6.7671E-02	1.1231E 03	9.6753
-2.8	16.4356	9.6430E-05	1.0652E-01	1.1046E 03	9.5983
-2.6	16.3018	1.5409E-04	1.6782E-01	1.0891E 03	9.5334
-2.4	16.1875	2.4593E-04	2.6455E-01	1.0757E 03	9.4766
-2.2	16.0854	3.9226E-04	4.1709E-01	1.0633E 03	9.4238
-2.0	15.9877	6.2548E-04	6.5730E-01	1.0509E 03	9.3704
-1.8	15.8854	9.9770E-04	1.0348E 00	1.0371E 03	9.3109
-1.6	15.7678	1.5930E-03	1.6258E 00	1.0206E 03	9.2385
-1.4	15.6220	2.5484E-03	2.5471E 00	9.9951E 02	9.1454
-1.2	15.4343	4.0880E-03	3.9745E 00	9.7224E 02	9.0234
-1.0	15.1911	6.5828E-03	6.1714E 00	9.3751E 02	8.8655
-0.8	14.8829	1.0649E-02	9.5309E 00	8.9501E 02	8.6683
-0.6	14.5071	1.7315E-02	1.4643E 01	8.4567E 02	8.4336
-0.4	14.0694	2.8296E-02	2.2400E 01	7.9165E 02	8.1689
-0.2	13.5837	4.6450E-02	3.4173E 01	7.3572E 02	7.8854
0.	13.0688	7.6518E-02	5.2080E 01	6.8066E 02	7.5960
0.2	12.5445	1.2634E-01	7.9420E 01	6.2865E 02	7.3122
0.4	12.0289	2.0882E-01	1.2135E 02	5.8117E 02	7.0431
0.6	11.5352	3.4512E-01	1.8595E 02	5.3891E 02	6.7946
0.8	11.0710	5.6992E-01	2.8601E 02	5.0200E 02	6.5700
1.0	10.6374	9.4008E-01	4.4178E 02	4.7019E 02	6.3703
1.2	10.2286	1.5495E 00	6.8563E 02	4.4301E 02	6.1948
1.4	9.8324	2.5547E 00	1.0713E 03	4.1993E 02	6.0425
1.6	9.4298	4.2218E 00	1.6867E 03	4.0048E 02	5.9120
1.8	8.9950	7.0145E 00	2.6852E 03	3.8431E 02	5.8033
2.0	8.4977	1.1768E 01	4.3414E 03	3.7136E 02	5.7177
2.2	7.9078	2.0042E 01	7.1727E 03	3.6194E 02	5.6595

T2= 10000. DEGREES KELVIN

LOG RHO20	RHO 21	RHO 10	P2/P0	P2/P1	V-KM/SEC
-7.0	25.7718	3.8802E-09	1.4483E-05	3.7326E 03	17.4464
-6.8	25.7328	6.1590E-09	2.2872E-05	3.7135E 03	17.4021
-6.6	25.6727	9.7843E-09	3.6048E-05	3.6843E 03	17.3344
-6.4	25.5810	1.5563E-08	5.6658E-05	3.6406E 03	17.2326
-6.2	25.4445	2.4797E-08	8.8700E-05	3.5770E 03	17.0831
-6.0	25.2466	3.9609E-08	1.3815E-04	3.4877E 03	16.8712
-5.8	24.9703	6.3471E-08	2.1379E-04	3.3683E 03	16.5835
-5.6	24.6008	1.0211E-07	3.2851E-04	3.2174E 03	16.2128
-5.4	24.1303	1.6498E-07	5.0126E-04	3.0383E 03	15.7614
-5.2	23.5605	2.6780E-07	7.6024E-04	2.8388E 03	15.2430
-5.0	22.9040	4.3661E-07	1.1481E-03	2.6295E 03	14.6795
-4.8	22.1821	7.1449E-07	1.7300E-03	2.4213E 03	14.0965
-4.6	21.4220	1.1726E-06	2.6069E-03	2.2232E 03	13.5187
-4.4	20.6520	1.9277E-06	3.9357E-03	2.0417E 03	12.9666
-4.2	19.8991	3.1708E-06	5.9616E-03	1.8802E 03	12.4549
-4.0	19.1857	5.2122E-06	9.0686E-03	1.7399E 03	11.9928
-3.8	18.5281	8.5540E-06	1.3860E-02	1.6203E 03	11.5843
-3.6	17.9366	1.4004E-05	2.1283E-02	1.5198E 03	11.2296
-3.4	17.4155	2.2859E-05	3.2832E-02	1.4363E 03	10.9263
-3.2	16.9645	3.7193E-05	5.0863E-02	1.3675E 03	10.6701
-3.0	16.5799	6.0314E-05	7.9091E-02	1.3113E 03	10.4559
-2.8	16.2559	9.7497E-05	1.2338E-01	1.2655E 03	10.2781
-2.6	15.9852	1.5714E-04	1.9301E-01	1.2283E 03	10.1313
-2.4	15.7602	2.5260E-04	3.0262E-01	1.1980E 03	10.0102
-2.2	15.5735	4.0515E-04	4.7530E-01	1.1732E 03	9.9098
-2.0	15.4175	6.4861E-04	7.4751E-01	1.1525E 03	9.8254
-1.8	15.2849	1.0369E-03	1.1766E 00	1.1347E 03	9.7523
-1.6	15.1681	1.6560E-03	1.8526E 00	1.1187E 03	9.6857
-1.4	15.0590	2.6436E-03	2.9160E 00	1.1030E 03	9.6202
-1.2	14.9486	4.2208E-03	4.5853E 00	1.0863E 03	9.5495
-1.0	14.8263	6.7448E-03	7.1959E 00	1.0669E 03	9.4663
-0.8	14.6797	1.0796E-02	1.1259E 01	1.0428E 03	9.3623
-0.6	14.4961	1.7328E-02	1.7544E 01	1.0125E 03	9.2290
-0.4	14.2632	2.7911E-02	2.7200E 01	9.7452E 02	9.0598
-0.2	13.9731	4.5155E-02	4.1944E 01	9.2891E 02	8.8518
0.	13.6241	7.3399E-02	6.4354E 01	8.7680E 02	8.6081
0.2	13.2217	1.1987E-01	9.8349E 01	8.2052E 02	8.3369
0.4	12.7778	1.9658E-01	1.4996E 02	7.6292E 02	8.0499
0.6	12.3077	3.2346E-01	2.2856E 02	7.0673E 02	7.7597
0.8	11.8260	5.3353E-01	3.4884E 02	6.5403E 02	7.4774
1.0	11.3440	8.8152E-01	5.3406E 02	6.0614E 02	7.2114
1.2	10.8669	1.4585E 00	8.2145E 02	5.6369E 02	6.9676
1.4	10.3923	2.4171E 00	1.2715E 03	5.2678E 02	6.7490
1.6	9.9091	4.0176E 00	1.9852E 03	4.9524E 02	6.5575
1.8	9.3979	6.7138E 00	3.1355E 03	4.6879E 02	6.3944
2.0	8.8321	1.1322E 01	5.0322E 03	4.4729E 02	6.2615
2.2	8.1852	1.9363E 01	8.2544E 03	4.3097E 02	6.1632
2.4	7.4467	3.3731E 01	1.3929E 04	4.2089E 02	6.1079

TZ= 11000. DEGREES KELVIN

LOG RHO20	RHO 21	RHO 10	P2/P0	P2/P1	V-KM/SEC
-7.0	23.8838	4.1869E-09	1.6014E-05	3.8246E 03	17.6884
-6.8	23.8770	6.6378E-09	2.5360E-05	3.8206E 03	17.6792
-6.6	23.8661	1.0525E-08	4.0145E-05	3.8143E 03	17.6647
-6.4	23.8489	1.6693E-08	6.3507E-05	3.8044E 03	17.6421
-6.2	23.8219	2.6486E-08	1.0036E-04	3.7891E 03	17.6071
-6.0	23.7798	4.2053E-08	1.5835E-04	3.7656E 03	17.5531
-5.8	23.7149	6.6831E-08	2.4929E-04	3.7301E 03	17.4711
-5.6	23.6168	1.0636E-07	3.9115E-04	3.6776E 03	17.3492
-5.4	23.4723	1.6961E-07	6.1099E-04	3.6024E 03	17.1731
-5.2	23.2661	2.7119E-07	9.4892E-04	3.4991E 03	16.9284
-5.0	22.9835	4.3509E-07	1.4639E-03	3.3645E 03	16.6041
-4.8	22.6138	7.0085E-07	2.2422E-03	3.1993E 03	16.1972
-4.6	22.1536	1.1339E-06	3.4116E-03	3.0089E 03	15.7153
-4.4	21.6087	1.8423E-06	5.1635E-03	2.8027E 03	15.1761
-4.2	20.9939	3.0054E-06	7.7888E-03	2.5916E 03	14.6036
-4.0	20.3312	4.9185E-06	1.1735E-02	2.3859E 03	14.0234
-3.8	19.6450	8.0677E-06	1.7698E-02	2.1936E 03	13.4584
-3.6	18.9607	1.3248E-05	2.6758E-02	2.0198E 03	12.9262
-3.4	18.3007	2.1754E-05	4.0608E-02	1.8667E 03	12.4390
-3.2	17.6828	3.5682E-05	6.1902E-02	1.7348E 03	12.0035
-3.0	17.1190	5.8415E-05	9.4811E-02	1.6231E 03	11.6216
-2.8	16.6163	9.5382E-05	1.4590E-01	1.5296E 03	11.2924
-2.6	16.1764	1.5528E-04	2.2550E-01	1.4522E 03	11.0124
-2.4	15.7979	2.5200E-04	3.4992E-01	1.3886E 03	10.7768
-2.2	15.4762	4.0769E-04	5.4489E-01	1.3365E 03	10.5802
-2.0	15.2056	6.5765E-04	8.5103E-01	1.2940E 03	10.4170
-1.8	14.9792	1.0581E-03	1.3324E 00	1.2593E 03	10.2815
-1.6	14.7898	1.6984E-03	2.0901E 00	1.2306E 03	10.1683
-1.4	14.6302	2.7211E-03	3.2831E 00	1.2065E 03	10.0722
-1.2	14.4929	4.3536E-03	5.1615E 00	1.1856E 03	9.9878
-1.0	14.3702	6.9589E-03	8.1160E 00	1.1663E 03	9.9092
-0.8	14.2533	1.1119E-02	1.2755E 01	1.1471E 03	9.8301
-0.6	14.1327	1.7774E-02	2.0015E 01	1.1261E 03	9.7431
-0.4	13.9970	2.8442E-02	3.1330E 01	1.1015E 03	9.6395
-0.2	13.8341	4.5609E-02	4.8861E 01	1.0713E 03	9.5107
0.	13.6320	7.3357E-02	7.5849E 01	1.0340E 03	9.3487
0.2	13.3811	1.1844E-01	1.1713E 02	9.8899E 02	9.1493
0.4	13.0765	1.9209E-01	1.7996E 02	9.3695E 02	8.9134
0.6	12.7192	3.1300E-01	2.7537E 02	8.7993E 02	8.6474
0.8	12.3158	5.1232E-01	4.2035E 02	8.2072E 02	8.3622
1.0	11.8752	8.4209E-01	6.4152E 02	7.6218E 02	8.0706
1.2	11.4058	1.3896E 00	9.8122E 02	7.0669E 02	7.7844
1.4	10.9113	2.3021E 00	1.5080E 03	6.5589E 02	7.5134
1.6	10.3887	3.8321E 00	2.3354E 03	6.1074E 02	7.2652
1.8	9.8264	6.4210E 00	3.6578E 03	5.7172E 02	7.0452
2.0	9.2058	1.0863E 01	5.8206E 03	5.3911E 02	6.8587
2.2	8.5087	1.8627E 01	9.4642E 03	5.1345E 02	6.7121

T2= 12000. DEGREES KELVIN

LOG RH020	RHO 21	RHO 10	P2/P0	P2/P1	V-KM/SEC
-7.0	22.2792	4.4885E-09	1.7488E-05	3.8962E 03	17.8813
-6.8	22.2752	7.1147E-09	2.7709E-05	3.8947E 03	17.8779
-6.6	22.2730	1.1278E-08	4.3901E-05	3.8927E 03	17.8734
-6.4	22.2687	1.7877E-08	6.9541E-05	3.8899E 03	17.8670
-6.2	22.2624	2.8342E-08	1.1013E-04	3.8856E 03	17.8573
-6.0	22.2526	4.4939E-08	1.7432E-04	3.8791E 03	17.8424
-5.8	22.2373	7.1272E-08	2.7574E-04	3.8689E 03	17.8193
-5.6	22.2130	1.1308E-07	4.3572E-04	3.8532E 03	17.7836
-5.4	22.1751	1.7953E-07	6.8744E-04	3.8291E 03	17.7286
-5.2	22.1166	2.8529E-07	1.0820E-03	3.7928E 03	17.6455
-5.0	22.0280	4.5397E-07	1.6975E-03	3.7392E 03	17.5220
-4.8	21.8974	7.2378E-07	2.6510E-03	3.6627E 03	17.3442
-4.6	21.7109	1.1570E-06	4.1164E-03	3.5579E 03	17.0977
-4.4	21.4556	1.8555E-06	6.3489E-03	3.4217E 03	16.7720
-4.2	21.1218	2.9872E-06	9.7233E-03	3.2549E 03	16.3644
-4.0	20.7068	4.8293E-06	1.4793E-02	3.0632E 03	15.8829
-3.8	20.2158	7.8399E-06	2.2390E-02	2.8559E 03	15.3454
-3.6	19.6625	1.2775E-05	3.3778E-02	2.6440E 03	14.7757
-3.4	19.0657	2.0881E-05	5.0901E-02	2.4377E 03	14.1991
-3.2	18.4481	3.4202E-05	7.6775E-02	2.2448E 03	13.6381
-3.0	17.8320	5.6079E-05	1.1610E-01	2.0703E 03	13.1102
-2.8	17.2377	9.1943E-05	1.7623E-01	1.9167E 03	12.6272
-2.6	16.6808	1.5059E-04	2.6869E-01	1.7843E 03	12.1955
-2.4	16.1725	2.4616E-04	4.1159E-01	1.6720E 03	11.8172
-2.2	15.7187	4.0141E-04	6.3342E-01	1.5780E 03	11.4909
-2.0	15.3212	6.5269E-04	9.7908E-01	1.5001E 03	11.2132
-1.8	14.9784	1.0581E-03	1.5193E 00	1.4359E 03	10.9793
-1.6	14.6865	1.7103E-03	2.3658E 00	1.3832E 03	10.7836
-1.4	14.4398	2.7570E-03	3.6944E 00	1.3400E 03	10.6203
-1.2	14.2323	4.4333E-03	5.7826E 00	1.3044E 03	10.4837
-1.0	14.0568	7.1140E-03	9.0670E 00	1.2745E 03	10.3679
-0.8	13.9063	1.1397E-02	1.4233E 01	1.2488E 03	10.2670
-0.6	13.7730	1.8238E-02	2.2352E 01	1.2256E 03	10.1747
-0.4	13.6485	2.9169E-02	3.5089E 01	1.2030E 03	10.0840
-0.2	13.5232	4.6658E-02	5.5014E 01	1.1791E 03	9.9870
0.	13.3862	7.4704E-02	8.6047E 01	1.1519E 03	9.8748
0.2	13.2255	1.1984E-01	1.3411E 02	1.1192E 03	9.7383
0.4	13.0293	1.9279E-01	2.0809E 02	1.0795E 03	9.5695
0.6	12.7873	3.1133E-01	3.2129E 02	1.0322E 03	9.3642
0.8	12.4930	5.0505E-01	4.9378E 02	9.7797E 02	9.1234
1.0	12.1442	8.2344E-01	7.5638E 02	9.1899E 02	8.8540
1.2	11.7417	1.3498E 00	1.1574E 03	8.5808E 02	8.5672
1.4	11.2870	2.2255E 00	1.7741E 03	7.9817E 02	8.2759
1.6	10.7786	3.6935E 00	2.7340E 03	7.4175E 02	7.9927
1.8	10.2096	6.1800E 00	4.2536E 03	6.9067E 02	7.7288
2.0	9.5691	1.0450E 01	6.7148E 03	6.4633E 02	7.4945
2.2	8.8519	1.7904E 01	1.0816E 04	6.1019E 02	7.3009
2.4	8.1369	3.0870E 01	1.7775E 04	5.8592E 02	7.1679

T2= 13000. DEGREES KELVIN

LOG RHO20	RHO 21	RHO 10	P2/P0	P2/P1	V-KM/SEC
-7.0	20.9505	4.7732E-09	1.8970E-05	3.9742E 03	18.0865
-6.8	20.9353	7.5704E-09	3.0050E-05	3.9693E 03	18.0757
-6.6	20.9254	1.2004E-08	4.7607E-05	3.9659E 03	18.0681
-6.4	20.9186	1.9031E-08	7.5424E-05	3.9632E 03	18.0621
-6.2	20.9135	3.0170E-08	1.1949E-04	3.9607E 03	18.0564
-6.0	20.9088	4.7827E-08	1.8929E-04	3.9578E 03	18.0500
-5.8	20.9036	7.5819E-08	2.9979E-04	3.9540E 03	18.0415
-5.6	20.8963	1.2021E-07	4.7464E-04	3.9485E 03	18.0290
-5.4	20.8854	1.9062E-07	7.5106E-04	3.9402E 03	18.0103
-5.2	20.8685	3.0235E-07	1.1875E-03	3.9274E 03	17.9815
-5.0	20.8418	4.7980E-07	1.8750E-03	3.9079E 03	17.9373
-4.8	20.8004	7.6196E-07	2.9551E-03	3.8783E 03	17.8700
-4.6	20.7366	1.2113E-06	4.6443E-03	3.8341E 03	17.7693
-4.4	20.6410	1.9287E-06	7.2711E-03	3.7699E 03	17.6220
-4.2	20.5017	3.0776E-06	1.1326E-02	3.6801E 03	17.4136
-4.0	20.3063	4.9246E-06	1.7532E-02	3.5600E 03	17.1315
-3.8	20.0440	7.9071E-06	2.6951E-02	3.4084E 03	16.7684
-3.6	19.7089	1.2745E-05	4.1146E-02	3.2284E 03	16.3266
-3.4	19.3015	2.0626E-05	6.2442E-02	3.0274E 03	15.8189
-3.2	18.8300	3.3508E-05	9.4354E-02	2.8158E 03	15.2665
-3.0	18.3094	5.4617E-05	1.4225E-01	2.6046E 03	14.6942
-2.8	17.7582	8.9248E-05	2.1445E-01	2.4028E 03	14.1261
-2.6	17.1973	1.4606E-04	3.2385E-01	2.2172E 03	13.5823
-2.4	16.6458	2.3916E-04	4.9059E-01	2.0513E 03	13.0775
-2.2	16.1205	3.9140E-04	7.4624E-01	1.9066E 03	12.6207
-2.0	15.6337	6.3964E-04	1.1403E 00	1.7827E 03	12.2162
-1.8	15.1933	1.0432E-03	1.7506E 00	1.6782E 03	11.8643
-1.6	14.8031	1.6969E-03	2.6997E 00	1.5910E 03	11.5624
-1.4	14.4631	2.7526E-03	4.1806E 00	1.5188E 03	11.3064
-1.2	14.1708	4.4525E-03	6.4974E 00	1.4593E 03	11.0910
-1.0	13.9220	7.1829E-03	1.0129E 01	1.4102E 03	10.9103
-0.8	13.7108	1.1559E-02	1.5832E 01	1.3696E 03	10.7584
-0.6	13.5311	1.8564E-02	2.4791E 01	1.3355E 03	10.6289
-0.4	13.3759	2.9763E-02	3.8868E 01	1.3060E 03	10.5155
-0.2	13.7374	4.7665E-02	6.0968E 01	1.2791E 03	10.4112
0.	13.1069	7.6296E-02	9.5596E 01	1.2530E 03	10.3084
0.2	12.9747	1.2215E-01	1.4968E 02	1.2254E 03	10.1984
0.4	12.8293	1.9579E-01	2.3378E 02	1.1942E 03	10.0719
0.6	12.6584	3.1450E-01	3.6384E 02	1.1571E 03	9.9195
0.8	12.4493	5.0682E-01	5.6384E 02	1.1128E 03	9.7342
1.0	12.1907	8.2030E-01	8.7006E 02	1.0612E 03	9.5134
1.2	11.8736	1.3348E 00	1.3383E 03	1.0033E 03	9.2600
1.4	11.4911	2.1859E 00	2.0563E 03	9.4183E 02	8.9830
1.6	11.0370	3.6070E 00	3.1669E 03	8.7975E 02	8.6952
1.8	10.5039	6.0069E 00	4.9103E 03	8.2021E 02	8.4111
2.0	9.8865	1.0115E 01	7.7050E 03	7.6609E 02	8.1459
2.2	9.2003	1.7226E 01	1.2295E 04	7.2065E 02	7.9178

T2* 14000. DEGREES KELVIN

LOG RHO20	RHO 21	RHO 10	P2/P0	P2/P1	V-KM/SEC
-7.0	20.0122	4.9969E-09	2.0571E-05	4.1167E 03	18.4295
-6.8	19.9188	7.9568E-09	3.2508E-05	4.0856E 03	18.3621
-6.6	19.8580	1.2649E-08	5.1423E-05	4.0653E 03	18.3179
-6.4	19.8187	2.0087E-08	8.1395E-05	4.0520E 03	18.2890
-6.2	19.7934	3.1877E-08	1.2889E-04	4.0433E 03	18.2697
-6.0	19.7769	5.0564E-08	2.0414E-04	4.0372E 03	18.2564
-5.8	19.7660	8.0183E-08	3.2334E-04	4.0325E 03	18.2462
-5.6	19.7580	1.2713E-07	5.1214E-04	4.0284E 03	18.2370
-5.4	19.7512	2.0156E-07	8.1106E-04	4.0239E 03	18.2270
-5.2	19.7438	3.1957E-07	1.2841E-03	4.0181E 03	18.2141
-5.0	19.7342	5.0673E-07	2.0320E-03	4.0100E 03	18.1958
-4.8	19.7200	8.0370E-07	3.2130E-03	3.9977E 03	18.1684
-4.6	19.6981	1.2752E-06	5.0743E-03	3.9793E 03	18.1269
-4.4	19.6639	2.0246E-06	7.9997E-03	3.9513E 03	18.0639
-4.2	19.6112	3.2173E-06	1.2579E-02	3.9097E 03	17.9697
-4.0	19.5313	5.1200E-06	1.9707E-02	3.8490E 03	17.8316
-3.8	19.4140	8.1637E-06	3.0724E-02	3.7636E 03	17.6355
-3.6	19.2478	1.3050E-05	4.7615E-02	3.6486E 03	17.3681
-3.4	19.0225	2.0928E-05	7.3291E-02	3.5020E 03	17.0211
-3.2	18.7315	3.3684E-05	1.1204E-01	3.3261E 03	16.5950
-3.0	18.3741	5.4424E-05	1.7022E-01	3.1276E 03	16.1008
-2.8	17.9564	8.8263E-05	2.5742E-01	2.9165E 03	15.5582
-2.6	17.4907	1.4361E-04	3.8828E-01	2.7036E 03	14.9913
-2.4	16.9934	2.3427E-04	5.8537E-01	2.4987E 03	14.4245
-2.2	16.4829	3.8280E-04	8.8376E-01	2.3087E 03	13.8785
-2.0	15.9772	6.2589E-04	1.3381E 00	2.1380E 03	13.3689
-1.8	15.4920	1.0230E-03	2.0340E 00	1.9882E 03	12.9056
-1.6	15.0394	1.6702E-03	3.1057E 00	1.8595E 03	12.4935
-1.4	14.6273	2.7217E-03	4.7641E 00	1.7504E 03	12.1335
-1.2	14.2600	4.4247E-03	7.3409E 00	1.6591E 03	11.8237
-1.0	13.9382	7.1745E-03	1.1358E 01	1.5832E 03	11.5599
-0.8	13.6600	1.1602E-02	1.7640E 01	1.5204E 03	11.3371
-0.6	13.4215	1.8715E-02	2.7481E 01	1.4684E 03	11.1492
-0.4	13.2176	3.0119E-02	4.2920E 01	1.4250E 03	10.9900
-0.2	13.0422	4.8378E-02	6.7156E 01	1.3882E 03	10.8530
0.	12.8882	7.7590E-02	1.0520E 02	1.3559E 03	10.7310
0.2	12.7476	1.2433E-01	1.6484E 02	1.3259E 03	10.6166
0.4	12.6111	1.9918E-01	2.5813E 02	1.2961E 03	10.5011
0.6	12.4675	3.1931E-01	4.0356E 02	1.2641E 03	10.3750
0.8	12.3042	5.1280E-01	6.2924E 02	1.2274E 03	10.2289
1.0	12.1072	8.2595E-01	9.7780E 02	1.1844E 03	10.0542
1.2	11.8618	1.3361E 00	1.5142E 03	1.1341E 03	9.8461
1.4	11.5539	2.1741E 00	2.3392E 03	1.0773E 03	9.6054
1.6	11.1707	3.5638E 00	3.6135E 03	1.0160E 03	9.3394
1.8	10.7020	5.8957E 00	5.6031E 03	9.5352E 02	9.0611
2.0	10.1478	9.8543E 00	8.7617E 03	8.9405E 02	8.7887
2.2	9.5741	1.6554E 01	1.3841E 04	8.4391E 02	8.5503

T2= 15000. DEGREES KELVIN

LOG RHO20	RHO 21	RHO 10	P2/P0	P2/P1	V-KM/SEC
-7.0	19.8650	5.0340E-09	2.2705E-05	4.5103E 03	19.2945
-6.8	19.5018	8.1269E-09	3.5549E-05	4.3742E 03	19.0104
-6.6	19.2435	1.3053E-08	5.5858E-05	4.2792E 03	18.8098
-6.4	19.0659	2.0881E-08	8.8006E-05	4.2147E 03	18.6722
-6.2	18.9468	3.3302E-08	1.3893E-04	4.1717E 03	18.5799
-6.0	18.8684	5.2999E-08	2.1959E-04	4.1434E 03	18.5188
-5.8	18.8175	8.4225E-08	3.4740E-04	4.1247E 03	18.4784
-5.6	18.7846	1.3372E-07	5.4989E-04	4.1122E 03	18.4512
-5.4	18.7631	2.1218E-07	8.7064E-04	4.1034E 03	18.4320
-5.2	18.7487	3.3653E-07	1.3786E-03	4.0965E 03	18.4169
-5.0	18.7380	5.3367E-07	2.1828E-03	4.0901E 03	18.4029
-4.8	18.7287	8.4624E-07	3.4551E-03	4.0829E 03	18.3870
-4.6	18.7183	1.3419E-06	5.4665E-03	4.0736E 03	18.3662
-4.4	18.7044	2.1284E-06	8.6419E-03	4.0602E 03	18.3365
-4.2	18.6838	3.3770E-06	1.3645E-02	4.0404E 03	18.2923
-4.0	18.6519	5.3614E-06	2.1504E-02	4.0109E 03	18.2261
-3.8	18.6029	8.5196E-06	3.3798E-02	3.9671E 03	18.1277
-3.6	18.5287	1.3557E-05	5.2922E-02	3.9037E 03	17.9844
-3.4	18.4196	2.1613E-05	8.2458E-02	3.8152E 03	17.7822
-3.2	18.2654	3.4544E-05	1.2770E-01	3.6968E 03	17.5083
-3.0	18.0568	5.5381E-05	1.9643E-01	3.5469E 03	17.1554
-2.8	17.7881	8.9099E-05	3.0011E-01	3.3683E 03	16.7250
-2.6	17.4591	1.4387E-04	4.5578E-01	3.1680E 03	16.2290
-2.4	17.0759	2.3314E-04	6.8918E-01	2.9561E 03	15.6874
-2.2	16.6498	3.7896E-04	1.0396E 00	2.7434E 03	15.1243
-2.0	16.1957	6.1745E-04	1.5678E 00	2.5392E 03	14.5634
-1.8	15.7306	1.0075E-03	2.3680E 00	2.3503E 03	14.0248
-1.6	15.2705	1.6449E-03	3.5873E 00	2.1808E 03	13.5233
-1.4	14.8293	2.6846E-03	5.4560E 00	2.0323E 03	13.0681
-1.2	14.4179	4.3762E-03	8.3350E 00	1.9046E 03	12.6637
-1.0	14.0433	7.1208E-03	1.2792E 01	1.7964E 03	12.3106
-0.8	13.7090	1.1561E-02	1.9718E 01	1.7056E 03	12.0066
-0.6	13.4155	1.8724E-02	3.0519E 01	1.6300E 03	11.7474
-0.4	13.1610	3.0249E-02	4.7406E 01	1.5672E 03	11.5278
-0.2	12.9415	4.8754E-02	7.3857E 01	1.5149E 03	11.3415
0.	12.7519	7.8419E-02	1.1534E 02	1.4708E 03	11.1820
0.2	12.5859	1.2593E-01	1.8041E 02	1.4328E 03	11.0423
0.4	12.4357	2.0199E-01	2.8244E 02	1.3985E 03	10.9147
0.6	12.2923	3.2387E-01	4.4218E 02	1.3656E 03	10.7906
0.8	12.1447	5.1953E-01	6.9161E 02	1.3316E 03	10.6607
1.0	11.9797	8.3475E-01	1.0798E 03	1.2941E 03	10.5151
1.2	11.7818	1.3452E 00	1.6817E 03	1.2511E 03	10.3450
1.4	11.5344	2.1777E 00	2.6131E 03	1.2014E 03	10.1449
1.6	11.2210	3.5479E 00	4.0557E 03	1.1454E 03	9.9150
1.8	10.8307	5.8256E 00	6.3035E 03	1.0856E 03	9.6631
2.0	10.3784	9.6354E 00	9.8383E 03	1.0266E 03	9.4075
2.2	10.1148	1.5669E 01	1.5254E 04	9.8215E 02	9.1986

T2= 16000. DEGREES KELVIN

LOG RHO20	RHO 21	RHO 1C	P2/P0	P2/P1	V-KM/SEC
-7.0	20.8966	4.7855E-09	2.6078E-05	5.4495E 03	21.1812
-6.8	20.1577	7.8625E-09	4.0185E-05	5.1111E 03	20.5317
-6.6	19.5323	1.2860E-08	6.2226E-05	4.8387E 03	19.9937
-6.4	19.0346	2.0915E-08	9.6847E-05	4.6305E 03	19.5726
-6.2	18.6596	3.3814E-08	1.5143E-04	4.4784E 03	19.2592
-6.0	18.3900	5.4377E-08	2.3770E-04	4.3714E 03	19.0354
-5.8	18.2030	8.7068E-08	3.7422E-04	4.2980E 03	18.8807
-5.6	18.0769	1.3896E-07	5.9040E-04	4.2488E 03	18.7760
-5.4	17.9936	2.2125E-07	9.3281E-04	4.2161E 03	18.7061
-5.2	17.9393	3.5172E-07	1.4752E-03	4.1943E 03	18.6593
-5.0	17.9040	5.5854E-07	2.3343E-03	4.1793E 03	18.6269
-4.8	17.8807	8.8637E-07	3.6945E-03	4.1681E 03	18.6028
-4.6	17.8644	1.4061E-06	5.8474E-03	4.1587E 03	18.5822
-4.4	17.8516	2.2301E-06	9.2526E-03	4.1490E 03	18.5609
-4.2	17.8391	3.5369E-06	1.4633E-02	4.1372E 03	18.5349
-4.0	17.8238	5.6105E-06	2.3121E-02	4.1211E 03	18.4992
-3.8	17.8020	8.9029E-06	3.6481E-02	4.0977E 03	18.4473
-3.6	17.7691	1.4136E-05	5.7441E-02	4.0634E 03	18.3709
-3.4	17.7189	2.2468E-05	9.0169E-02	4.0132E 03	18.2587
-3.2	17.6433	3.5762E-05	1.4096E-01	3.9417E 03	18.0976
-3.0	17.5333	5.7034E-05	2.1921E-01	3.8434E 03	17.8738
-2.8	17.3793	9.1194E-05	3.3874E-01	3.7145E 03	17.5761
-2.6	17.1738	1.4626E-04	5.1990E-01	3.5546E 03	17.1997
-2.4	16.9128	2.3539E-04	7.9275E-01	3.3678E 03	16.7498
-2.2	16.5978	3.8015E-04	1.2022E 00	3.1626E 03	16.2408
-2.0	16.2359	6.1592E-04	1.8165E 00	2.9492E 03	15.6944
-1.8	15.8382	1.0007E-03	2.7400E 00	2.7381E 03	15.1347
-1.6	15.4193	1.6291E-03	4.1344E 00	2.5379E 03	14.5840
-1.4	14.9943	2.6551E-03	6.2513E 00	2.3545E 03	14.0606
-1.2	14.5774	4.3283E-03	9.4832E 00	2.1910E 03	13.5773
-1.0	14.1806	7.0519E-03	1.4445E 01	2.0484E 03	13.1415
-0.8	13.8126	1.1474E-02	2.2102E 01	1.9263E 03	12.7563
-0.6	13.4789	1.8636E-02	3.3971E 01	1.8229E 03	12.4213
-0.4	13.1820	3.0201E-02	5.2437E 01	1.7363E 03	12.1332
-0.2	12.9213	4.8831E-02	8.1253E 01	1.6640E 03	11.8877
0.	12.6945	7.8774E-02	1.2633E 02	1.6037E 03	11.6788
0.2	12.4972	1.2682E-01	1.9694E 02	1.5530E 03	11.5001
0.4	12.3237	2.0383E-01	3.0765E 02	1.5095E 03	11.3447
0.6	12.1666	3.2721E-01	4.8124E 02	1.4710E 03	11.2048
0.8	12.0170	5.2505E-01	7.5317E 02	1.4349E 03	11.0719
1.0	11.8635	8.4292E-01	1.1784E 03	1.3987E 03	10.9368
1.2	11.6925	1.3555E 00	1.8420E 03	1.3600E 03	10.7899
1.4	11.4884	2.1865E 00	2.8752E 03	1.3166E 03	10.6227
1.6	11.2362	3.5431E 00	4.4826E 03	1.2677E 03	10.4305

TABLE II

$T_1 = 300.0$ Degrees Kelvin

T1= 300.0 DEGREES KELVIN
T2=2000.0 DEGREES KELVIN

LOG RHO20	RHO 21	RHO 10	P2/P0	P2/P1	V-KM/SEC
-7.0	11.7038	8.5443E-09	8.1759E-07	8.7124E 01	2.8476
-6.8	10.9941	1.4416E-08	1.2770E-06	8.0658E 01	2.7469
-6.6	10.3063	2.4372E-08	1.9960E-06	7.4567E 01	2.6487
-6.4	9.6643	4.1193E-08	3.1232E-06	6.9032E 01	2.5562
-6.2	9.0835	6.9462E-08	4.8935E-06	6.4143E 01	2.4718
-6.0	8.5710	1.1667E-07	7.6785E-06	5.9922E 01	2.3966
-5.8	8.1283	1.9499E-07	1.2066E-05	5.6342E 01	2.3311
-5.6	7.7520	3.2403E-07	1.8986E-05	5.3348E 01	2.2749
-5.4	7.4366	5.3534E-07	2.9910E-05	5.0871E 01	2.2274
-5.2	7.1750	8.7938E-07	4.7169E-05	4.8839E 01	2.1878
-5.0	6.9600	1.4368E-06	7.4456E-05	4.7183E 01	2.1550
-4.8	6.7845	2.3361E-06	1.1761E-04	4.5841E 01	2.1281
-4.6	6.6419	3.7819E-06	1.8591E-04	4.4758E 01	2.1061
-4.4	6.5267	6.0997E-06	2.9401E-04	4.3887E 01	2.0883
-4.2	6.4339	9.8067E-06	4.6517E-04	4.3188E 01	2.0740
-4.0	6.3594	1.5725E-05	7.3622E-04	4.2629E 01	2.0624
-3.8	6.2996	2.5158E-05	1.1655E-03	4.2182E 01	2.0531
-3.6	6.2519	4.0178E-05	1.8456E-03	4.1825E 01	2.0457
-3.4	6.2138	6.4068E-05	2.9230E-03	4.1540E 01	2.0397
-3.2	6.1833	1.0204E-04	4.6301E-03	4.1313E 01	2.0349
-3.0	6.1591	1.6236E-04	7.3348E-03	4.1132E 01	2.0312
-2.8	6.1397	2.5814E-04	1.1621E-02	4.0989E 01	2.0281
-2.6	6.1244	4.1015E-04	1.8412E-02	4.0874E 01	2.0257
-2.4	6.1121	6.5135E-04	2.9175E-02	4.0783E 01	2.0238
-2.2	6.1023	1.0340E-03	4.6231E-02	4.0711E 01	2.0223
-2.0	6.0946	1.6408E-03	7.3262E-02	4.0654E 01	2.0211
-1.8	6.0884	2.6031E-03	1.1610E-01	4.0608E 01	2.0201
-1.6	6.0835	4.1290E-03	1.8399E-01	4.0572E 01	2.0193
-1.4	6.0794	6.5484E-03	2.9159E-01	4.0543E 01	2.0187
-1.2	6.0762	1.0384E-02	4.6213E-01	4.0520E 01	2.0183
-1.0	6.0735	1.6465E-02	7.3243E-01	4.0503E 01	2.0179
-0.8	6.0711	2.6105E-02	1.1609E 00	4.0489E 01	2.0176
-0.6	6.0689	4.1389E-02	1.8400E 00	4.0479E 01	2.0174
-0.4	6.0666	6.5623E-02	2.9168E 00	4.0471E 01	2.0173
-0.2	6.0640	1.0405E-01	4.6243E 00	4.0467E 01	2.0173
0.	6.0606	1.6500E-01	7.3327E 00	4.0465E 01	2.0173
0.2	6.0557	2.6172E-01	1.1631E 01	4.0467E 01	2.0175
0.4	6.0486	4.1529E-01	1.8458E 01	4.0474E 01	2.0179
0.6	6.0375	6.5939E-01	2.9315E 01	4.0487E 01	2.0185
0.8	6.0204	1.0480E 00	4.6615E 01	4.0510E 01	2.0195
1.0	5.9937	1.6684E 00	7.4265E 01	4.0549E 01	2.0212
1.2	5.9522	2.6627E 00	1.1867E 02	4.0612E 01	2.0239
1.4	5.8879	4.2662E 00	1.9052E 02	4.0712E 01	2.0283
1.6	5.7893	6.8766E 00	3.0807E 02	4.0873E 01	2.0351
1.8	5.6408	1.1186E 01	5.0362E 02	4.1131E 01	2.0460
2.0	5.4237	1.8438E 01	8.3673E 02	4.1547E 01	2.0632
2.2	5.1185	3.0964E 01	1.4227E 03	4.2224E 01	2.0905
2.4	4.7146	5.3279E 01	2.4962E 03	4.3342E 01	2.1337

T1= 300.0 DEGREES KELVIN

T2=3000.0 DEGREES KELVIN

LOG					
RHO 20	RHO 21	RHO 10	P2/P0	P2/P1	V-KM/SEC
-7.0	12.7260	7.8579E-09	1.3348E-06	1.5467E 02	3.7895
-6.8	12.6628	1.2516E-08	2.1134E-06	1.5374E 02	3.7789
-6.6	12.6119	1.9917E-08	3.3466E-06	1.5299E 02	3.7703
-6.4	12.5707	3.1669E-08	5.3003E-06	1.5238E 02	3.7633
-6.2	12.5372	5.0327E-08	8.3952E-06	1.5188E 02	3.7575
-6.0	12.5093	7.9941E-08	1.3298E-05	1.5146E 02	3.7526
-5.8	12.4853	1.2694E-07	2.1065E-05	1.5109E 02	3.7483
-5.6	12.4638	2.0153E-07	3.3368E-05	1.5075E 02	3.7443
-5.4	12.4432	3.1994E-07	5.2852E-05	1.5041E 02	3.7403
-5.2	12.4213	5.0796E-07	8.3704E-05	1.5004E 02	3.7359
-5.0	12.3963	8.0670E-07	1.3254E-04	1.4959E 02	3.7307
-4.8	12.3648	1.2818E-06	2.0980E-04	1.4903E 02	3.7240
-4.6	12.3227	2.0384E-06	3.3195E-04	1.4827E 02	3.7150
-4.4	12.2645	3.2460E-06	5.2487E-04	1.4723E 02	3.7026
-4.2	12.1825	5.1792E-06	8.2914E-04	1.4576E 02	3.6851
-4.0	12.0678	8.2865E-06	1.3082E-03	1.4374E 02	3.6608
-3.8	11.9100	1.3307E-05	2.0606E-03	1.4099E 02	3.6276
-3.6	11.7003	2.1469E-05	3.2399E-03	1.3741E 02	3.5838
-3.4	11.4332	3.4820E-05	5.0838E-03	1.3293E 02	3.5284
-3.2	11.1106	5.6789E-05	7.9624E-03	1.2766E 02	3.4620
-3.0	10.7418	9.3094E-05	1.2453E-02	1.2180E 02	3.3966
-2.8	10.3430	1.5323E-04	1.9460E-02	1.1563E 02	3.3056
-2.6	9.9332	2.5288E-04	3.0406E-02	1.0948E 02	3.2228
-2.4	9.5308	4.1771E-04	4.7532E-02	1.0361E 02	3.1418
-2.2	9.1507	6.8952E-04	7.4377E-02	9.8213E 01	3.0656
-2.0	8.8033	1.1359E-03	1.1653E-01	9.3402E 01	2.9960
-1.8	8.4942	1.8658E-03	1.8282E-01	8.9215E 01	2.9342
-1.6	8.2253	3.0539E-03	2.8724E-01	8.5640E 01	2.8804
-1.4	7.9953	4.9792E-03	4.5190E-01	8.2634E 01	2.8345
-1.2	7.8015	8.0876E-03	7.1182E-01	8.0137E 01	2.7957
-1.0	7.6401	1.3089E-02	1.1224E 00	7.8081E 01	2.7635
-0.8	7.5066	2.1113E-02	1.7717E 00	7.6402E 01	2.7369
-0.6	7.3970	3.3958E-02	2.7986E 00	7.5039E 01	2.7151
-0.4	7.3073	5.4481E-02	4.4241E 00	7.3938E 01	2.6975
-0.2	7.2335	8.7227E-02	6.9984E 00	7.3053E 01	2.6832
0.	7.1726	1.3942E-01	1.1077E 01	7.2346E 01	2.6718
0.2	7.1212	2.2256E-01	1.7546E 01	7.1784E 01	2.6628
0.4	7.0761	3.5498E-01	2.7812E 01	7.1343E 01	2.6558
0.6	7.0339	5.6598E-01	4.4130E 01	7.1005E 01	2.6506
0.8	6.9907	9.0257E-01	7.0120E 01	7.0755E 01	2.6471
1.0	6.9412	1.4407E 00	1.1165E 02	7.0591E 01	2.6454
1.2	6.8783	2.3042E 00	1.7832E 02	7.0513E 01	2.6456
1.4	6.7924	3.6981E 00	2.8618E 02	7.0537E 01	2.6483
1.6	6.6697	5.9689E 00	4.6262E 02	7.0694E 01	2.6546
1.8	6.4920	9.7190E 00	7.5610E 02	7.1038E 01	2.6661
2.0	6.2377	1.6032E 01	1.2559E 03	7.1668E 01	2.6855
2.2	5.8852	2.6930E 01	2.1345E 03	7.2749E 01	2.7171

T1= 300.0 DEGREES KELVIN
T2=4000.0 DEGREES KELVIN

LOG RHO 20	RHO 21	RHO 10	P2/P0	P2/P1	V-KM/SEC
-7.0	23.1544	4.3188E-09	2.4029E-06	5.0658E 02	6.7453
-6.8	21.8486	7.2540E-09	3.6683E-06	4.6043E 02	6.4388
-6.6	20.5296	1.2235E-08	5.6055E-06	4.1713E 02	6.1274
-6.4	19.2473	2.0684E-08	8.5851E-06	3.7792E 02	5.8510
-6.2	18.0416	3.4972E-08	1.3189E-05	3.4337E 02	5.5867
-6.0	16.9399	5.9032E-08	2.0333E-05	3.1361E 02	5.3485
-5.8	15.9574	9.9320E-08	3.1460E-05	2.8840E 02	5.1383
-5.6	15.0994	1.6636E-07	4.8847E-05	2.6735E 02	4.9559
-5.4	14.3627	2.7718E-07	7.6087E-05	2.4924E 02	4.8000
-5.2	13.7395	4.5923E-07	1.1886E-04	2.3566E 02	4.6682
-5.0	13.2183	7.5653E-07	1.8614E-04	2.2403E 02	4.5581
-4.8	12.7866	1.2395E-06	2.9214E-04	2.1460E 02	4.4669
-4.6	12.4317	2.0205E-06	4.5930E-04	2.0697E 02	4.3917
-4.4	12.1417	3.2789E-06	7.2317E-04	2.0082E 02	4.3301
-4.2	11.9054	5.2998E-06	1.1400E-03	1.9585E 02	4.2798
-4.0	11.7136	8.5371E-06	1.7988E-03	1.9184E 02	4.2388
-3.8	11.5576	1.3713E-05	2.8404E-03	1.8859E 02	4.2051
-3.6	11.4305	2.1975E-05	4.4875E-03	1.8593E 02	4.1774
-3.4	11.3258	3.5150E-05	7.0927E-03	1.8372E 02	4.1542
-3.2	11.2383	5.6143E-05	1.1213E-02	1.8185E 02	4.1344
-3.0	11.1631	8.9581E-05	1.7728E-02	1.8019E 02	4.1168
-2.8	11.0955	1.4284E-04	2.8026E-02	1.7864E 02	4.1002
-2.6	11.0308	2.2772E-04	4.4295E-02	1.7711E 02	4.0837
-2.4	10.9644	3.6309E-04	6.9972E-02	1.7546E 02	4.0658
-2.2	10.8903	5.7938E-04	1.1046E-01	1.7358E 02	4.0452
-2.0	10.8028	9.2569E-04	1.7418E-01	1.7132E 02	4.0202
-1.8	10.6952	1.4819E-03	2.7431E-01	1.6854E 02	3.9893
-1.6	10.5613	2.3784E-03	4.3132E-01	1.6512E 02	3.9509
-1.4	10.3972	3.8290E-03	6.7704E-01	1.6099E 02	3.9042
-1.2	10.2016	6.1849E-03	1.0610E 00	1.5620E 02	3.8492
-1.0	9.9782	1.0022E-02	1.6606E 00	1.5067E 02	3.7871
-0.8	9.7344	1.6281E-02	2.5967E 00	1.4522E 02	3.7202
-0.6	9.4805	2.6495E-02	4.0598E 00	1.3951E 02	3.6515
-0.4	9.2270	4.3146E-02	6.3498E 00	1.3400E 02	3.5839
-0.2	8.9834	7.0236E-02	9.9406E 00	1.2887E 02	3.5178
0.	8.7566	1.1420E-01	1.5582E 01	1.2424E 02	3.4612
0.2	8.5500	1.8537E-01	2.4465E 01	1.2018E 02	3.4089
0.4	8.3646	3.0030E-01	3.8482E 01	1.1669E 02	3.3635
0.6	8.1986	4.8558E-01	6.0653E 01	1.1374E 02	3.3250
0.8	8.0477	7.8402E-01	9.5828E 01	1.1131E 02	3.2930
1.0	7.9055	1.2649E 00	1.5185E 02	1.0934E 02	3.2674
1.2	7.7629	2.0416E 00	2.4156E 02	1.0779E 02	3.2479
1.4	7.6077	3.3018E 00	3.8633E 02	1.0664E 02	3.2346
1.6	7.4231	5.3631E 00	6.2269E 02	1.0588E 02	3.2281
1.8	7.1882	8.7776E 00	1.0150E 03	1.0556E 02	3.2238
2.0	6.8779	1.4539E 01	1.6818E 03	1.0578E 02	3.2421
2.2	6.4682	2.4503E 01	2.8512E 03	1.0672E 02	3.2695
2.4	5.8401	4.3011E 01	3.7364E 03	8.0118E 01	2.8435

T1= 300.0 DEGREES KELVIN
T2=5000.0 DEGREES KELVIN

LOG					
RHO 20	RHO 21	RHO 10	P2/P0	P2/P1	V-KM/SEC
-7.0	24.2275	4.1276E-09	3.6420E-06	8.0329E 02	8.4892
-6.8	24.1890	6.5521E-09	5.7637E-06	8.0094E 02	8.4766
-6.6	24.1386	1.0406E-08	9.1160E-06	7.9762E 02	8.4593
-6.4	24.0679	1.6541E-08	1.4404E-05	7.9287E 02	8.4346
-6.2	23.9651	2.6328E-08	2.2726E-05	7.8592E 02	8.3983
-6.0	23.8139	4.1992E-08	3.5777E-05	7.7574E 02	8.3448
-5.8	23.5936	6.7175E-08	5.6151E-05	7.6108E 02	8.2672
-5.6	23.2795	1.0790E-07	8.7770E-05	7.4062E 02	8.1576
-5.4	22.8473	1.7425E-07	1.3652E-04	7.1336E 02	8.0092
-5.2	22.2792	2.8320E-07	2.1120E-04	6.7900E 02	7.8182
-5.0	21.5701	4.6360E-07	3.2502E-04	6.3833E 02	7.5860
-4.8	20.7317	7.6448E-07	4.9804E-04	5.9318E 02	7.3135
-4.6	19.7918	1.2692E-06	7.6105E-04	5.4598E 02	7.0303
-4.4	18.7893	2.1188E-06	1.1617E-03	4.9923E 02	6.7315
-4.2	17.7668	3.5513E-06	1.7745E-03	4.5495E 02	6.4359
-4.0	16.7642	5.9651E-06	2.7158E-03	4.1454E 02	6.1537
-3.8	15.8144	1.0022E-05	4.1686E-03	3.7872E 02	5.8924
-3.6	14.9409	1.6812E-05	6.4202E-03	3.4770E 02	5.6564
-3.4	14.1575	2.8120E-05	9.9235E-03	3.2131E 02	5.4478
-3.2	13.4698	4.6842E-05	1.5392E-02	2.9918E 02	5.2664
-3.0	12.8767	7.7660E-05	2.3952E-02	2.8081E 02	5.1111
-2.8	12.3725	1.2810E-04	3.7379E-02	2.6568E 02	4.9795
-2.6	11.9489	2.1022E-04	5.8479E-02	2.5328E 02	4.8691
-2.4	11.5958	3.4332E-04	9.1681E-02	2.4314E 02	4.7768
-2.2	11.3033	5.5821E-04	1.4398E-01	2.3484E 02	4.7000
-2.0	11.0614	9.0404E-04	2.2640E-01	2.2801E 02	4.6358
-1.8	10.8608	1.4593E-03	3.5635E-01	2.2234E 02	4.5817
-1.6	10.6929	2.3491E-03	5.6126E-01	2.1754E 02	4.5354
-1.4	10.5500	3.7735E-03	8.8426E-01	2.1336E 02	4.4945
-1.2	10.4244	6.0527E-03	1.3932E 00	2.0957E 02	4.4570
-1.0	10.3094	9.6999E-03	2.1942E 00	2.0596E 02	4.4209
-0.8	10.1982	1.5541E-02	3.4535E 00	2.0233E 02	4.3842
-0.6	10.0844	2.4909E-02	5.4307E 00	1.9851E 02	4.3451
-0.4	9.9624	3.9961E-02	8.5300E 00	1.9436E 02	4.3020
-0.2	9.8279	6.4201E-02	1.3382E 01	1.8979E 02	4.2541
0.	9.6786	1.0332E-01	2.0971E 01	1.8461E 02	4.2013
0.2	9.5147	1.6657E-01	3.2840E 01	1.7951E 02	4.1444
0.4	9.3383	2.6899E-01	5.1420E 01	1.7407E 02	4.0851
0.6	9.1528	4.3496E-01	8.0564E 01	1.6867E 02	4.0257
0.8	8.9613	7.0409E-01	1.2642E 02	1.6352E 02	3.9685
1.0	8.7644	1.1410E 00	1.9891E 02	1.5879E 02	3.9155
1.2	8.5593	1.8517E 00	3.1422E 02	1.5459E 02	3.8687
1.4	8.3383	3.0125E 00	4.9922E 02	1.5102E 02	3.8295
1.6	8.0878	4.9223E 00	7.9970E 02	1.4814E 02	3.7995
1.8	7.7880	8.1017E 00	1.2962E 03	1.4602E 02	3.7806
2.0	7.4139	1.3488E 01	2.1365E 03	1.4480E 02	3.7756
2.2	6.9410	2.2834E 01	3.6040E 03	1.4469E 02	3.7891

T1= 300.0 DEGREES KELVIN
T2=6000.0 DEGREES KELVIN

LOG	RHO 20	RHO 21	RHO 10	P2/P0	P2/P1	V-KM/SEC
-7.0	21.8661	4.5733E-09	4.4783E-06	8.9160E 02	8.9645	
-6.8	21.6862	7.3083E-09	7.0636E-06	9.8001E 02	8.9078	
-6.6	21.5411	1.1661E-08	1.1152E-05	8.7074E 02	8.8621	
-6.4	21.4239	1.8582E-08	1.7619E-05	8.6329E 02	8.8253	
-6.2	21.3292	2.9582E-08	2.7852E-05	8.5726E 02	8.7953	
-6.0	21.2518	4.7055E-08	4.4049E-05	8.5233E 02	8.7708	
-5.8	21.1875	7.4803E-08	6.9683E-05	8.4818E 02	8.7500	
-5.6	21.1324	1.1886E-07	1.1025E-04	8.4455E 02	8.7318	
-5.4	21.0823	1.8884E-07	1.7445E-04	8.4112E 02	8.7146	
-5.2	21.0328	2.9999E-07	2.7595E-04	8.3756E 02	8.6966	
-5.0	20.9784	4.7668E-07	4.3633E-04	8.3343E 02	8.6756	
-4.8	20.9120	7.5789E-07	6.8934E-04	8.2815E 02	8.6488	
-4.6	20.8239	1.2063E-06	1.0876E-03	8.2094E 02	8.6119	
-4.4	20.7008	1.9231E-06	1.7125E-03	8.1078E 02	8.5597	
-4.2	20.5261	3.0739E-06	2.6887E-03	7.9639E 02	8.4851	
-4.0	20.2800	4.9310E-06	4.2049E-03	7.7644E 02	8.3806	
-3.8	19.9423	7.9474E-06	6.5448E-03	7.4981E 02	8.2391	
-3.6	19.4970	1.2883E-05	1.0132E-02	7.1605E 02	8.0561	
-3.4	18.9380	2.1022E-05	1.5602E-02	6.7578E 02	7.8322	
-3.2	18.2726	3.4530E-05	2.3919E-02	6.3070E 02	7.5737	
-3.0	17.5213	5.7073E-05	3.6556E-02	5.8318E 02	7.2914	
-2.8	16.7146	9.4821E-05	5.5795E-02	5.3576E 02	6.9984	
-2.6	15.8864	1.5812E-04	8.5191E-02	4.9057E 02	6.7073	
-2.4	15.0697	2.6418E-04	1.3030E-01	4.4909E 02	6.4286	
-2.2	14.2922	4.4147E-04	1.9984E-01	4.1215E 02	6.1698	
-2.0	13.5738	7.3671E-04	3.0749E-01	3.8002E 02	5.9357	
-1.8	12.9266	1.2261E-03	4.7478E-01	3.5258E 02	5.7282	
-1.6	12.3560	2.0329E-03	7.3556E-01	3.2944E 02	5.5472	
-1.4	11.8616	3.3563E-03	1.1431E 00	3.1011E 02	5.3915	
-1.2	11.4388	5.5159E-03	1.7814E 00	2.9406E 02	5.2585	
-1.0	11.0808	9.0246E-03	2.7824E 00	2.8072E 02	5.1455	
-0.8	10.7792	1.4703E-02	4.3539E 00	2.6962E 02	5.0493	
-0.6	10.5249	2.3866E-02	6.8220E 00	2.6026E 02	4.9667	
-0.4	10.3088	3.8618E-02	1.0699E 01	2.5225E 02	4.8948	
-0.2	10.1221	6.2335E-02	1.6787E 01	2.4521E 02	4.8305	
0.	9.9562	1.0044E-01	2.6344E 01	2.3882E 02	4.7712	
0.2	9.8029	1.6168E-01	4.1337E 01	2.3280E 02	4.7145	
0.4	9.6548	2.6017E-01	6.4846E 01	2.2696E 02	4.6587	
0.6	9.5050	4.1884E-01	1.0172E 02	2.2114E 02	4.6024	
0.8	9.3472	6.7502E-01	1.5961E 02	2.1533E 02	4.5456	
1.0	9.1755	1.0899E 00	2.5075E 02	2.0955E 02	4.4886	
1.2	8.9833	1.7643E 00	3.9495E 02	2.0393E 02	4.4331	
1.4	8.7620	2.8668E 00	6.2493E 02	1.9865E 02	4.3813	
1.6	8.4992	4.6841E 00	9.9615E 02	1.9390E 02	4.3358	
1.8	8.1767	7.7165E 00	1.6058E 03	1.8991E 02	4.3000	
2.0	7.7722	1.2866E 01	2.6314E 03	1.8692E 02	4.2782	
2.2	7.2625	2.1823E 01	4.4127E 03	1.8531E 02	4.2761	
2.4	6.5312	3.8460E 01	5.0855E 03	1.2178E 02	3.4842	

T1= 300.0 DEGREES KELVIN
T2=7000.0 DEGREES KELVIN

LOG	RHO 20	RHO 21	RHO 10	P2/P0	P2/P1	V-KM/SEC
-7.0	23.6516	4.2280E-09	6.0109E-06	1.2944E 03	10.7339	
-6.8	22.8339	6.9410E-09	9.2539E-06	1.2139E 03	10.4510	
-6.6	22.1223	1.1355E-08	1.4310E-05	1.1475E 03	10.1683	
-6.4	21.5130	1.8505E-08	2.2217E-05	1.0931E 03	9.9310	
-6.2	20.9984	3.0048E-08	3.4615E-05	1.0489E 03	9.7337	
-6.0	20.5688	4.8617E-08	5.4096E-05	1.0131E 03	9.5710	
-5.8	20.2133	7.8409E-08	8.4758E-05	9.8424E 02	9.4378	
-5.6	19.9214	1.2609E-07	1.3308E-04	9.6101E 02	9.3292	
-5.4	19.6832	2.0226E-07	2.0933E-04	9.4235E 02	9.2410	
-5.2	19.4893	3.2375E-07	3.2974E-04	9.2736E 02	9.1696	
-5.0	19.3319	5.1728E-07	5.2000E-04	9.1529E 02	9.1117	
-4.8	19.2037	8.2531E-07	8.2078E-04	9.0551E 02	9.0644	
-4.6	19.0986	1.3152E-06	1.2964E-03	8.9747E 02	9.0255	
-4.4	19.0111	2.0941E-06	2.0485E-03	8.9070E 02	8.9925	
-4.2	18.9355	3.3321E-06	3.2378E-03	8.8473E 02	8.9632	
-4.0	18.8667	5.3004E-06	5.1174E-03	8.7908E 02	8.9354	
-3.8	18.7985	8.4310E-06	8.0853E-03	8.7317E 02	8.9062	
-3.6	18.7236	1.3416E-05	1.2765E-02	8.6633E 02	8.8722	
-3.4	18.6326	2.1366E-05	2.0126E-02	8.5765E 02	8.8288	
-3.2	18.5135	3.4081E-05	3.1667E-02	8.4601E 02	8.7702	
-3.0	18.3512	5.4492E-05	4.9677E-02	8.3005E 02	8.6892	
-2.8	18.1284	8.7426E-05	7.7621E-02	8.0838E 02	8.5780	
-2.6	17.8281	1.4089E-04	1.2069E-01	7.7993E 02	8.4296	
-2.4	17.4378	2.2830E-04	1.8665E-01	7.4438E 02	8.2404	
-2.2	16.9536	3.7217E-04	2.8714E-01	7.0248E 02	8.0118	
-2.0	16.3831	6.1039E-04	4.3983E-01	6.5608E 02	7.7508	
-1.8	15.7447	1.0066E-03	6.7179E-01	6.0764E 02	7.4686	
-1.6	15.0646	1.6674E-03	1.0249E 00	5.5967E 02	7.1782	
-1.4	14.3710	2.7702E-03	1.5645E 00	5.1422E 02	6.8918	
-1.2	13.6908	4.6086E-03	2.3925E 00	4.7268E 02	6.6194	
-1.0	13.0460	7.6652E-03	3.6687E 00	4.3578E 02	6.3676	
-0.8	12.4519	1.2728E-02	5.6433E 00	4.0370E 02	6.1403	
-0.6	11.9176	2.1077E-02	8.7095E 00	3.7624E 02	5.9389	
-0.4	11.4462	3.4781E-02	1.3484E 01	3.5299E 02	5.7629	
-0.2	11.0361	5.7172E-02	2.0935E 01	3.3341E 02	5.6102	
0.	10.6825	9.3611E-02	3.2583E 01	3.1692E 02	5.4783	
0.2	10.3780	1.5272E-01	5.0813E 01	3.0296E 02	5.3640	
0.4	10.1138	2.4836E-01	7.9375E 01	2.9101E 02	5.2640	
0.6	9.8801	4.0294E-01	1.2417E 02	2.8060E 02	5.1754	
0.8	9.6661	6.5275E-01	1.9450E 02	2.7136E 02	5.0952	
1.0	9.4603	1.0570E 00	3.0521E 02	2.6298E 02	5.0217	
1.2	9.2497	1.7135E 00	4.8015E 02	2.5527E 02	4.9534	
1.4	9.0191	2.7851E 00	7.5846E 02	2.4816E 02	4.8905	
1.6	8.7504	4.5496E 00	1.2060E 03	2.4168E 02	4.8339	
1.8	8.4214	7.4923E 00	1.9375E 03	2.3598E 02	4.7863	
2.0	8.0069	1.2489E 01	3.1615E 03	2.3134E 02	4.7519	
2.2	7.4822	2.1182E 01	5.2752E 03	2.2818E 02	4.7368	

T1= 300.0 DEGREES KELVIN

T2=8000.0 DEGREES KELVIN

LOG

RHO 20	RHO 21	RHO 10	P2/P0	P2/P1	V-KM/SEC
-7.0	27.6903	3.6114E-09	9.3346E-06	2.3534E 03	14.4967
-6.8	26.7806	5.9181E-09	1.4069E-05	2.1646E 03	13.9114
-6.6	25.8109	9.7319E-09	2.1191E-05	1.9826E 03	13.3233
-6.4	24.8179	1.6041E-08	3.1962E-05	1.8142E 03	12.7547
-6.2	23.8379	2.6469E-08	4.8350E-05	1.6632E 03	12.2227
-6.0	22.9015	4.3665E-08	7.3437E-05	1.5313E 03	11.7383
-5.8	22.0326	7.1934E-08	1.1206E-04	1.4184E 03	11.3071
-5.6	21.2463	1.1823E-07	1.7182E-04	1.3232E 03	10.9306
-5.4	20.5504	1.9372E-07	2.6469E-04	1.2440E 03	10.6071
-5.2	19.9459	3.1633E-07	4.0954E-04	1.1788E 03	10.3329
-5.0	19.4292	5.1469E-07	6.3616E-04	1.1254E 03	10.1031
-4.8	18.9932	8.3445E-07	9.9160E-04	1.0820E 03	9.9123
-4.6	18.6296	1.3483E-06	1.5502E-03	1.0468E 03	9.7551
-4.4	18.3287	2.1720E-06	2.4295E-03	1.0184E 03	9.6263
-4.2	18.0814	3.4895E-06	3.8155E-03	9.9556E 02	9.5212
-4.0	17.8789	5.5932E-06	6.0022E-03	9.7709E 02	9.4355
-3.8	17.7133	8.9475E-06	9.4547E-03	9.6212E 02	9.3655
-3.6	17.5771	1.4291E-05	1.4908E-02	9.4985E 02	9.3076
-3.4	17.4638	2.2796E-05	2.3524E-02	9.3956E 02	9.2589
-3.2	17.3668	3.6331E-05	3.7134E-02	9.3061E 02	9.2162
-3.0	17.2798	5.7871E-05	5.8620E-02	9.2228E 02	9.1762
-2.8	17.1955	9.2169E-05	9.2506E-02	9.1383E 02	9.1354
-2.6	17.1059	1.4684E-04	1.4585E-01	9.0432E 02	9.0892
-2.4	17.0006	2.3417E-04	2.2958E-01	8.9263E 02	9.0319
-2.2	16.8673	3.7407E-04	3.6048E-01	8.7741E 02	8.9567
-2.0	16.6909	5.9913E-04	5.6404E-01	8.5718E 02	8.8556
-1.8	16.4563	9.6309E-04	8.7858E-01	8.3060E 02	8.7211
-1.6	16.1499	1.5554E-03	1.3614E 00	7.9694E 02	8.5476
-1.4	15.7647	2.5253E-03	2.0981E 00	7.5645E 02	8.3341
-1.2	15.3027	4.1232E-03	3.2178E 00	7.1057E 02	8.0853
-1.0	14.7757	6.7679E-03	4.9176E 00	6.6158E 02	7.8109
-0.8	14.2035	1.1158E-02	7.5009E 00	6.1206E 02	7.5234
-0.6	13.6097	1.8457E-02	1.1439E 01	5.6429E 02	7.2354
-0.4	13.0179	3.0581E-02	1.7465E 01	5.1999E 02	6.9575
-0.2	12.4482	5.0686E-02	2.6727E 01	4.8012E 02	6.6977
0.	11.9158	8.3922E-02	4.1022E 01	4.4507E 02	6.4606
0.2	11.4293	1.3867E-01	6.3165E 01	4.1476E 02	6.2484
0.4	10.9923	2.2851E-01	9.7581E 01	3.8883E 02	6.0610
0.6	10.6030	3.7547E-01	1.5123E 02	3.6677E 02	5.8968
0.8	10.2551	6.1526E-01	2.3512E 02	3.4801E 02	5.7535
1.0	9.9388	1.0062E 00	3.6675E 02	3.3198E 02	5.6284
1.2	9.6405	1.6440E 00	5.7426E 02	3.1820E 02	5.5190
1.4	9.3432	2.6885E 00	9.0363E 02	3.0627E 02	5.4234
1.6	9.0250	4.4112E 00	1.4319E 03	2.9594E 02	5.3408
1.8	8.6600	7.2858E 00	2.2924E 03	2.8710E 02	5.2718
2.0	8.2186	1.2168E 01	3.7263E 03	2.7985E 02	5.2190
2.2	7.6723	2.0657E 01	6.1898E 03	2.7451E 02	5.1879
2.4	6.9146	3.6327E 01	6.6174E 03	1.6766E 02	4.0738

T1= 300.0 DEGREES KELVIN
T2=9000.0 DEGREES KELVIN

LOG	RHO 20	RHO 21	RHO 10	P2/P0	P2/P1	V-KM/SEC
-7.0	27.7079	3.6091E-09	1.2595E-05	3.1774E 03	16.8450	
-6.8	27.4585	5.7720E-09	1.9579E-05	3.0886E 03	16.6107	
-6.6	27.1145	9.2640E-09	3.0235E-05	2.9716E 03	16.2970	
-6.4	26.6612	1.4932E-08	4.6355E-05	2.8265E 03	15.8991	
-6.2	26.0928	2.4181E-08	7.0581E-05	2.6576E 03	15.4231	
-6.0	25.4152	3.9347E-08	1.0687E-04	2.4730E 03	14.8855	
-5.8	24.6464	6.4305E-08	1.6122E-04	2.2826E 03	14.3100	
-5.6	23.8130	1.0548E-07	2.4285E-04	2.0962E 03	13.7229	
-5.4	22.9470	1.7349E-07	3.6605E-04	1.9211E 03	13.1480	
-5.2	22.0806	2.8575E-07	5.5310E-04	1.7624E 03	12.6040	
-5.0	21.2426	4.7075E-07	8.3881E-04	1.6224E 03	12.1042	
-4.8	20.4565	7.7476E-07	1.2778E-03	1.5017E 03	11.6559	
-4.6	19.7384	1.2726E-06	1.5558E-03	1.3993E 03	11.2620	
-4.4	19.0975	2.0846E-06	3.0078E-03	1.3137E 03	10.9216	
-4.2	18.5367	3.4038E-06	4.6465E-03	1.2429E 03	10.6319	
-4.0	18.0543	5.5389E-06	7.2075E-03	1.1848E 03	10.3881	
-3.8	17.6451	8.9821E-06	1.1220E-02	1.1374E 03	10.1849	
-3.6	17.3020	1.4518E-05	1.7522E-02	1.0989E 03	10.0170	
-3.4	17.0169	2.3395E-05	2.7436E-02	1.0678E 03	9.8789	
-3.2	16.7813	3.7599E-05	4.3051E-02	1.0425E 03	9.7656	
-3.0	16.5873	6.0287E-05	6.7671E-02	1.0220E 03	9.6726	
-2.8	16.4270	9.6481E-05	1.0652E-01	1.0052E 03	9.5956	
-2.6	16.2931	1.5417E-04	1.6782E-01	9.9111E 02	9.5306	
-2.4	16.1788	2.4607E-04	2.6455E-01	9.7889E 02	9.4737	
-2.2	16.0766	3.9247E-04	4.1709E-01	9.6761E 02	9.4210	
-2.0	15.9789	6.2582E-04	6.5730E-01	9.5630E 02	9.3676	
-1.8	15.8766	9.9826E-04	1.0348E 00	9.4379E 02	9.3080	
-1.6	15.7589	1.5940E-03	1.6258E 00	9.2871E 02	9.2356	
-1.4	15.6130	2.5498E-03	2.5471E 00	9.0952E 02	9.1425	
-1.2	15.4251	4.0905E-03	3.9745E 00	8.8470E 02	9.0205	
-1.0	15.1818	6.5869E-03	6.1714E 00	8.5308E 02	8.8625	
-0.8	14.8733	1.0656E-02	9.5309E 00	8.1437E 02	8.6653	
-0.6	14.4971	1.7327E-02	1.4643E 01	7.6945E 02	8.4305	
-0.4	14.0591	2.8317E-02	2.2400E 01	7.2026E 02	8.1656	
-0.2	13.5730	4.6486E-02	3.4173E 01	6.6934E 02	7.8820	
0.	13.0577	7.6583E-02	5.2080E 01	6.1920E 02	7.5925	
0.2	12.5330	1.2646E-01	7.9420E 01	5.7184E 02	7.3085	
0.4	12.0169	2.0903E-01	1.2135E 02	5.2860E 02	7.0393	
0.6	11.5228	3.4549E-01	1.8595E 02	4.9010E 02	6.7907	
0.8	11.0583	5.7058E-01	2.8601E 02	4.5648E 02	6.5660	
1.0	10.6243	9.4124E-01	4.4178E 02	4.2748E 02	6.3661	
1.2	10.2153	1.5515E 00	6.8583E 02	4.0267E 02	6.1905	
1.4	9.8189	2.5582E 00	1.0713E 03	3.8157E 02	6.0381	
1.6	9.4162	4.2279E 00	1.6867E 03	3.6371E 02	5.9075	
1.8	8.9816	7.0250E 00	2.6852E 03	3.4875E 02	5.7987	
2.0	8.4845	1.1786E 01	4.3414E 03	3.3655E 02	5.7131	
2.2	7.8951	2.0074E 01	7.1727E 03	3.2728E 02	5.6549	

T1= 300.0 DEGREES KELVIN
T2=10000.0 DEGREES KELVIN

LOG	RHO 20	RHO 21	RHO 10	P2/P0	P2/P1	V-KM/SEC
-7.0	25.7678	3.8808E-09	1.4483E-05	3.3980E 03	17.4448	
-6.8	25.7288	6.1600E-09	2.2872E-05	3.3806E 03	17.4006	
-6.6	25.6686	9.7858E-09	3.6048E-05	3.3540E 03	17.3329	
-6.4	25.5769	1.5565E-08	5.6658E-05	3.3143E 03	17.2310	
-6.2	25.4403	2.4801E-08	8.8700E-05	3.2563E 03	17.0816	
-6.0	25.2424	3.9616E-08	1.3815E-04	3.1750E 03	16.8696	
-5.8	24.9660	6.3482E-08	2.1379E-04	3.0663E 03	16.5819	
-5.6	24.5964	1.0212E-07	3.2851E-04	2.9289E 03	16.2111	
-5.4	24.1257	1.6501E-07	5.0126E-04	2.7658E 03	15.7537	
-5.2	23.5557	2.6786E-07	7.6024E-04	2.5842E 03	15.2413	
-5.0	22.8989	4.3670E-07	1.1481E-03	2.3936E 03	14.6776	
-4.8	22.1768	7.1466E-07	1.7300E-03	2.2040E 03	14.0946	
-4.6	21.4164	1.1729E-06	2.6069E-03	2.0237E 03	13.5167	
-4.4	20.6461	1.9282E-06	3.9357E-03	1.8584E 03	12.9645	
-4.2	19.8929	3.1718E-06	5.9616E-03	1.7114E 03	12.4528	
-4.0	19.1793	5.2140E-06	9.0686E-03	1.5836E 03	11.9906	
-3.8	18.5215	8.5571E-06	1.3860E-02	1.4747E 03	11.5820	
-3.6	17.9298	1.4010E-05	2.1283E-02	1.3832E 03	11.2272	
-3.4	17.4085	2.2869E-05	3.2832E-02	1.3072E 03	10.9238	
-3.2	16.9573	3.7209E-05	5.0863E-02	1.2446E 03	10.6676	
-3.0	16.5726	6.0341E-05	7.9091E-02	1.1934E 03	10.4533	
-2.8	16.2484	9.7541E-05	1.2338E-01	1.1517E 03	10.2755	
-2.6	15.9776	1.5721E-04	1.9301E-01	1.1178E 03	10.1287	
-2.4	15.7526	2.5272E-04	3.0262E-01	1.0902E 03	10.0076	
-2.2	15.5658	4.0535E-04	4.7530E-01	1.0676E 03	9.9071	
-2.0	15.4098	6.4804E-04	7.4751E-01	1.0488E 03	9.8227	
-1.8	15.2771	1.0374E-03	1.1766E 00	1.0326E 03	9.7496	
-1.6	15.1603	1.6569E-03	1.8526E 00	1.0180E 03	9.6829	
-1.4	15.0511	2.6450E-03	2.9160E 00	1.0038E 03	9.6174	
-1.2	14.9407	4.2231E-03	4.5853E 00	9.8859E 02	9.5467	
-1.0	14.8182	6.7404E-03	7.1959E 00	9.7087E 02	9.4635	
-0.8	14.6716	1.0802E-02	1.1259E 01	9.4898E 02	9.3594	
-0.6	14.4878	1.7338E-02	1.7544E 01	9.2131E 02	9.2261	
-0.4	14.2548	2.7928E-02	2.7200E 01	8.8677E 02	9.0568	
-0.2	13.9644	4.5183E-02	4.1944E 01	8.4523E 02	8.8488	
0.	13.6151	7.3448E-02	6.4354E 01	7.9778E 02	8.6050	
0.2	13.2124	1.1996E-01	9.8349E 01	7.4653E 02	8.3337	
0.4	12.7682	1.9673E-01	1.4996E 02	6.9408E 02	8.0466	
0.6	12.2976	3.2373E-01	2.2856E 02	6.4290E 02	7.7562	
0.8	11.8156	5.3401E-01	3.4884E 02	5.9488E 02	7.4738	
1.0	11.3332	8.8236E-01	5.3406E 02	5.5124E 02	7.2077	
1.2	10.8558	1.4600E 00	8.2145E 02	5.1252E 02	6.9638	
1.4	10.3809	2.4197E 00	1.2715E 03	4.7881E 02	6.7451	
1.6	9.8976	4.0223E 00	1.9852E 03	4.4991E 02	6.5535	
1.8	9.3863	6.7221E 00	3.1355E 03	4.2555E 02	6.3902	
2.0	8.8207	1.1337E 01	5.0322E 03	4.0551E 02	6.2573	
2.2	8.1742	1.9389E 01	8.2544E 03	3.8987E 02	6.1589	
2.4	7.3593	3.4132E 01	8.3574E 03	2.2522E 02	4.7028	

T1= 300.0 DEGREES KELVIN
T2=11000.0 DEGREES KELVIN

LOG					
RHO 21	RHO 21	RHO 10	P2/PO	P2/P1	V-KM/SEC
-7.0	23.8802	4.1876E-09	1.6014E-05	3.4818E 03	17.6869
-6.8	23.8733	6.6388E-09	2.5360E-05	3.4781E 03	17.6776
-6.6	23.8625	1.0527E-08	4.0145E-05	3.4724E 03	17.6632
-6.4	23.8452	1.6695E-08	6.3507E-05	3.4654E 03	17.6406
-6.2	23.8182	2.6491E-08	1.0036E-04	3.4495E 03	17.6055
-6.0	23.7761	4.2059E-08	1.5835E-04	3.4281E 03	17.5515
-5.8	23.7112	6.6842E-08	2.4929E-04	3.3957E 03	17.4696
-5.6	23.6131	1.0638E-07	3.9115E-04	3.3479E 03	17.3477
-5.4	23.4685	1.6963E-07	6.1099E-04	3.2794E 03	17.1716
-5.2	23.2623	2.7124E-07	9.4892E-04	3.1854E 03	16.9268
-5.0	22.9795	4.3517E-07	1.4639E-03	3.0628E 03	16.6025
-4.8	22.6097	7.0098E-07	2.2422E-03	2.9124E 03	16.1956
-4.6	22.1493	1.1341E-06	3.4116E-03	2.7390E 03	15.7136
-4.4	21.6042	1.8427E-06	5.1635E-03	2.5513E 03	15.1743
-4.2	20.9892	3.0061E-06	7.7888E-03	2.3591E 03	14.6012
-4.0	20.3263	4.9197E-06	1.1735E-02	2.1719E 03	14.0215
-3.8	19.6398	8.0698E-06	1.7698E-02	1.9968E 03	13.4564
-3.6	18.9553	1.3252E-05	2.6758E-02	1.8385E 03	12.9242
-3.4	18.2950	2.1760E-05	4.0608E-02	1.6991E 03	12.4369
-3.2	17.6769	3.5694E-05	6.1902E-02	1.5790E 03	12.0012
-3.0	17.1129	5.8435E-05	9.4811E-02	1.4773E 03	11.6193
-2.8	16.6100	9.5418E-05	1.4590E-01	1.3922E 03	11.2900
-2.6	16.1700	1.5534E-04	2.2550E-01	1.3217E 03	11.0099
-2.4	15.7913	2.5211E-04	3.4992E-01	1.2638E 03	10.7743
-2.2	15.4695	4.0787E-04	5.4489E-01	1.2164E 03	10.5777
-2.0	15.1988	6.5795E-04	8.5103E-01	1.1777E 03	10.4144
-1.8	14.9723	1.0586E-03	1.3324E 00	1.1461E 03	10.2789
-1.6	14.7828	1.6992E-03	2.0901E 00	1.1200E 03	10.1657
-1.4	14.6231	2.7224E-03	3.2831E 00	1.0980E 03	10.0696
-1.2	14.4858	4.3557E-03	5.1615E 00	1.0789E 03	9.9851
-1.0	14.3631	6.9623E-03	8.1160E 00	1.0614E 03	9.9065
-0.8	14.2462	1.1125E-02	1.2755E 01	1.0439E 03	9.8274
-0.6	14.1254	1.7783E-02	2.0015E 01	1.0248E 03	9.7403
-0.4	13.9896	2.8457E-02	3.1330E 01	1.0024E 03	9.6368
-0.2	13.8267	4.5633E-02	4.8861E 01	9.7492E 02	9.5079
0.	13.6244	7.3398E-02	7.5849E 01	9.4094E 02	9.3459
0.2	13.3733	1.1851E-01	1.1713E 02	8.9992E 02	9.1464
0.4	13.0684	1.9221E-01	1.7996E 02	8.5252E 02	8.9104
0.6	12.7109	3.1320E-01	2.7537E 02	8.0059E 02	8.6443
0.8	12.3071	5.1268E-01	4.2035E 02	7.4664E 02	8.3591
1.0	11.8662	8.4273E-01	6.4152E 02	6.9329E 02	8.0673
1.2	11.3965	1.3907E 00	9.8122E 02	6.4268E 02	7.7810
1.4	10.9017	2.3041E 00	1.5080E 03	5.9630E 02	7.5099
1.6	10.3788	3.8358E 00	2.3354E 03	5.5499E 02	7.2615
1.8	9.8165	6.4275E 00	3.6578E 03	5.1914E 02	7.0414
2.0	9.1959	1.0874E 01	5.8206E 03	4.8893E 02	6.8549
2.2	8.4991	1.8648E 01	9.4642E 03	4.6467E 02	6.7081

T1= 300.0 DEGREES KELVIN
T2=12000.0 DEGREES KELVIN

LOG						
RHO 20	RHO 21	RHO 10	P2/P0	P2/P1		V-KM-SEC
-7.0	22.2759	4.4892E-09	1.7488E-05	3.5470E 03		17.8798
-6.8	22.2729	7.1158E-09	2.7709E-05	3.5456E 03		17.8764
-6.6	22.2697	1.1279E-08	4.3901E-05	3.5438E 03		17.8719
-6.4	22.2654	1.7880E-08	6.9541E-05	3.5412E 03		17.8655
-6.2	22.2591	2.8346E-08	1.1013E-04	3.5373E 03		17.8558
-6.0	22.2493	4.4945E-08	1.7432E-04	3.5313E 03		17.8407
-5.8	22.2339	7.1283E-08	2.7574E-04	3.5221E 03		17.8178
-5.6	22.2097	1.1310E-07	4.3572E-04	3.5078E 03		17.7821
-5.4	22.1717	1.7956E-07	6.8744E-04	3.4859E 03		17.7271
-5.2	22.1132	2.8533E-07	1.0820E-03	3.4528E 03		17.6439
-5.0	22.0246	4.5404E-07	1.6975E-03	3.4040E 03		17.5205
-4.8	21.8939	7.2390E-07	2.6510E-03	3.3344E 03		17.3427
-4.6	21.7073	1.1572E-06	4.1164E-03	3.2389E 03		17.0961
-4.4	21.4519	1.8558E-06	6.3489E-03	3.1149E 03		16.7704
-4.2	21.1181	2.9878E-06	9.7233E-03	2.9631E 03		16.3628
-4.0	20.7028	4.8303E-06	1.4793E-02	2.7885E 03		15.8812
-3.8	20.2117	7.8415E-06	2.2390E-02	2.5998E 03		15.3436
-3.6	19.6582	1.2778E-05	3.3778E-02	2.4069E 03		14.7739
-3.4	19.0612	2.0886E-05	5.0901E-02	2.2190E 03		14.1972
-3.2	18.4433	3.4211E-05	7.6775E-02	2.0433E 03		13.6362
-3.0	17.8270	5.6095E-05	1.1610E-01	1.8845E 03		13.1082
-2.8	17.2325	9.1971E-05	1.7623E-01	1.7447E 03		12.6251
-2.6	16.6754	1.5063E-04	2.6869E-01	1.6241E 03		12.1934
-2.4	16.1669	2.4625E-04	4.1159E-01	1.5218E 03		11.8149
-2.2	15.7129	4.0155E-04	6.3342E-01	1.4362E 03		11.4886
-2.0	15.3153	6.5294E-04	9.7908E-01	1.3653E 03		11.2108
-1.8	14.9724	1.0585E-03	1.5193E 00	1.3068E 03		10.9768
-1.6	14.6803	1.7111E-03	2.3658E 00	1.2589E 03		10.7811
-1.4	14.4336	2.7582E-03	3.6944E 00	1.2195E 03		10.6178
-1.2	14.2260	4.4352E-03	5.7826E 00	1.1871E 03		10.4812
-1.0	14.0500	7.1172E-03	9.0670E 00	1.1599E 03		10.3653
-0.8	13.8999	1.1402E-02	1.4233E 01	1.1365E 03		10.2644
-0.6	13.7665	1.8246E-02	2.2352E 01	1.1154E 03		10.1721
-0.4	13.6419	2.9183E-02	3.5089E 01	1.0948E 03		10.0814
-0.2	13.5165	4.6680E-02	5.5014E 01	1.0731E 03		9.9843
0.	13.3795	7.4741E-02	8.6047E 01	1.0482E 03		9.8721
0.2	13.2187	1.1990E-01	1.3411E 02	1.0135E 03		9.7356
0.4	13.0223	1.9289E-01	2.0809E 02	9.8232E 02		9.5668
0.6	12.7802	3.1150E-01	3.2129E 02	9.3917E 02		9.3614
0.8	12.4856	5.0535E-01	4.9378E 02	8.8980E 02		9.1205
1.0	12.1366	8.2396E-01	7.5638E 02	8.3603E 02		8.8510
1.2	11.7338	1.3507E 00	1.1574E 03	7.8048E 02		8.5641
1.4	11.2788	2.2271E 00	1.7741E 03	7.2579E 02		8.2726
1.6	10.7702	3.6964E 00	2.7340E 03	6.7418E 02		7.9893
1.8	10.2011	6.1852E 00	4.2536E 03	6.2730E 02		7.7254
2.0	9.5605	1.0460E 01	6.7148E 03	5.8633E 02		7.4910
2.2	8.8435	1.7922E 01	1.0816E 04	5.5242E 02		7.2973
2.4	8.0640	3.1149E 01	1.0369E 04	3.0590E 02		5.4492

T1= 300.0 DEGREES KELVIN
T2=13000.0 DEGREES KELVIN

LOG					
RHO 20	RHO 21	RHO 10	P2/P0	P2/P1	V-KM/SEC
-7.0	20.9475	4.7739E-09	1.8970E-05	3.6180E 03	18.0850
-6.8	20.9323	7.5715E-09	3.0050E-05	3.6135E 03	18.0742
-6.6	20.9223	1.2006E-08	4.7607E-05	3.6104E 03	18.0666
-6.4	20.9156	1.9034E-08	7.5424E-05	3.6080E 03	18.0606
-6.2	20.9104	3.0174E-08	1.1949E-04	3.6057E 03	18.0549
-6.0	20.9058	4.7834E-08	1.8929E-04	3.6031E 03	18.0485
-5.8	20.9005	7.5830E-08	2.9979E-04	3.5996E 03	18.0400
-5.6	20.8932	1.2023E-07	4.7464E-04	3.5946E 03	18.0276
-5.4	20.8823	1.9064E-07	7.5106E-04	3.5870E 03	18.0088
-5.2	20.8654	3.0239E-07	1.1875E-03	3.5754E 03	17.9800
-5.0	20.8387	4.7988E-07	1.8750E-03	3.5576E 03	17.9358
-4.8	20.7972	7.6207E-07	2.9551E-03	3.5306E 03	17.8685
-4.6	20.7335	1.2115E-06	4.6443E-03	3.4904E 03	17.7678
-4.4	20.6378	1.9290E-06	7.2711E-03	3.4320E 03	17.6204
-4.2	20.4985	3.0781E-06	1.1326E-02	3.3502E 03	17.4121
-4.0	20.3030	4.9254E-06	1.7532E-02	3.2409E 03	17.1299
-3.8	20.0406	7.9084E-06	2.6951E-02	3.1029E 03	16.7668
-3.6	19.7053	1.2747E-05	4.1146E-02	2.9369E 03	16.3249
-3.4	19.2978	2.0630E-05	6.2442E-02	2.7559E 03	15.8172
-3.2	18.8261	3.3515E-05	9.4354E-02	2.5633E 03	15.2647
-3.0	18.3053	5.4629E-05	1.4225E-01	2.3710E 03	14.6924
-2.8	17.7539	8.9270E-05	2.1445E-01	2.1873E 03	14.1242
-2.6	17.1928	1.4610E-04	3.2385E-01	2.0182E 03	13.5803
-2.4	16.6411	2.3923E-04	4.9059E-01	1.8672E 03	13.0754
-2.2	16.1156	3.9152E-04	7.4624E-01	1.7354E 03	12.6186
-2.0	15.6286	6.3985E-04	1.1403E 00	1.6226E 03	12.2140
-1.8	15.1881	1.0435E-03	1.7506E 00	1.5275E 03	11.8620
-1.6	14.7977	1.6975E-03	2.6997E 00	1.4481E 03	11.5601
-1.4	14.4576	2.7536E-03	4.1806E 00	1.3823E 03	11.3041
-1.2	14.1652	4.4543E-03	6.4974E 00	1.3281E 03	11.0886
-1.0	13.9162	7.1858E-03	1.0129E 01	1.2835E 03	10.9079
-0.8	13.7050	1.1564E-02	1.5832E 01	1.2465E 03	10.7559
-0.6	13.5253	1.8572E-02	2.4791E 01	1.2154E 03	10.6264
-0.4	13.3700	2.9776E-02	3.8868E 01	1.1885E 03	10.5130
-0.2	13.2314	4.7686E-02	6.0968E 01	1.1641E 03	10.4087
0.	13.1009	7.6331E-02	9.5596E 01	1.1403E 03	10.3058
0.2	12.9686	1.2221E-01	1.4968E 02	1.1152E 03	10.1958
0.4	12.8231	1.9589E-01	2.3378E 02	1.0867E 03	10.0692
0.6	12.6520	3.1466E-01	3.6384E 02	1.0529E 03	9.9168
0.8	12.4428	5.0709E-01	5.6384E 02	1.0126E 03	9.7315
1.0	12.1841	8.2074E-01	8.7006E 02	9.6545E 02	9.5105
1.2	11.8668	1.3356E 00	1.3383E 03	9.1269E 02	9.2571
1.4	11.4841	2.1873E 00	2.0563E 03	8.5652E 02	8.9801
1.6	11.0297	3.6094E 00	3.1669E 03	7.9973E 02	8.6922
1.8	10.4965	6.0111E 00	4.9103E 03	7.4509E 02	8.4079
2.0	9.8790	1.0122E 01	7.7050E 03	6.9513E 02	8.1426
2.2	9.1929	1.7240E 01	1.2295E 04	6.5264E 02	7.9144

T1= 300.0 DEGREES KELVIN
T2=14000.0 DEGREES KELVIN

LOG RHO 20	RHO 21	RHO 10	P2/P0	P2/P1	V-KM/SEC
-7.0	20.0094	4.9976E-09	2.0571E-05	3.7477E 03	18.4281
-6.8	19.9160	7.9579E-09	3.2508E-05	3.7194E 03	18.3606
-6.6	19.8551	1.2651E-08	5.1423E-05	3.7009E 03	18.3164
-6.4	19.8158	2.0090E-08	8.1395E-05	3.6889E 03	18.2875
-6.2	19.7905	3.1882E-08	1.2889E-04	3.6809E 03	18.2683
-6.0	19.7741	5.0571E-08	2.0414E-04	3.6753E 03	18.2549
-5.8	19.7631	8.0195E-08	3.2334E-04	3.6711E 03	18.2447
-5.6	19.7552	1.2715E-07	5.1214E-04	3.6673E 03	18.2355
-5.4	19.7483	2.0159E-07	8.1106E-04	3.6632E 03	18.2255
-5.2	19.7410	3.1962E-07	1.2841E-03	3.6580E 03	18.2126
-5.0	19.7314	5.0681E-07	2.0320E-03	3.6505E 03	18.1943
-4.8	19.7172	8.0381E-07	3.2130E-03	3.6394E 03	18.1669
-4.6	19.6952	1.2754E-06	5.0743E-03	3.6226E 03	18.1254
-4.4	19.6611	2.0249E-06	7.9997E-03	3.5971E 03	18.0625
-4.2	19.6082	3.2178E-06	1.2579E-02	3.5592E 03	17.9632
-4.0	19.5284	5.1208E-06	1.9707E-02	3.5040E 03	17.8301
-3.8	19.4110	8.1649E-06	3.0724E-02	3.4262E 03	17.6340
-3.6	19.2448	1.3052E-05	4.7615E-02	3.3215E 03	17.3665
-3.4	19.0193	2.0932E-05	7.3291E-02	3.1881E 03	17.0135
-3.2	18.7283	3.3690E-05	1.1204E-01	3.0279E 03	16.5934
-3.0	18.3707	5.4434E-05	1.7022E-01	2.8471E 03	16.0992
-2.8	17.9528	8.8281E-05	2.5742E-01	2.6549E 03	15.5565
-2.6	17.4870	1.4364E-04	3.8828E-01	2.4611E 03	14.9836
-2.4	16.9895	2.3433E-04	5.8537E-01	2.2745E 03	14.4227
-2.2	16.4787	3.8289E-04	8.8376E-01	2.1016E 03	13.8766
-2.0	15.9729	6.2606E-04	1.3381E 00	1.9461E 03	13.3669
-1.8	15.4875	1.0233E-03	2.0340E 00	1.8098E 03	12.9035
-1.6	15.0347	1.6707E-03	3.1057E 00	1.6925E 03	12.4914
-1.4	14.6225	2.7226E-03	4.7641E 00	1.5932E 03	12.1313
-1.2	14.2551	4.4262E-03	7.3409E 00	1.5101E 03	11.8214
-1.0	13.9331	7.1771E-03	1.1358E 01	1.4410E 03	11.5576
-0.8	13.6548	1.1607E-02	1.7640E 01	1.3838E 03	11.3347
-0.6	13.4162	1.8723E-02	2.7481E 01	1.3364E 03	11.1463
-0.4	13.2123	3.0132E-02	4.2920E 01	1.2969E 03	10.9876
-0.2	13.0368	4.8398E-02	6.7156E 01	1.2634E 03	10.8505
0.	12.8827	7.7623E-02	1.0520E 02	1.2340E 03	10.7235
0.2	12.7421	1.2438E-01	1.6484E 02	1.2067E 03	10.6141
0.4	12.6055	1.9927E-01	2.5813E 02	1.1795E 03	10.4985
0.6	12.4618	3.1946E-01	4.0356E 02	1.1503E 03	10.3725
0.8	12.2985	5.1304E-01	6.2924E 02	1.1169E 03	10.2263
1.0	12.1013	8.2636E-01	9.7780E 02	1.0776E 03	10.0515
1.2	11.8558	1.3368E 00	1.5142E 03	1.0317E 03	9.8434
1.4	11.5477	2.1752E 00	2.3392E 03	9.7976E 02	9.6026
1.6	11.1644	3.5659E 00	3.6135E 03	9.2364E 02	9.3365
1.8	10.6955	5.8993E 00	5.6031E 03	8.6630E 02	9.0582
2.0	10.1412	9.8607E 00	8.7617E 03	8.1139E 02	8.7857
2.2	9.5675	1.6565E 01	1.3841E 04	7.6449E 02	8.5472

T1= 300.0 DEGREES KELVIN
T2=15000.0 DEGREES KELVIN

LOG	RHO 20	RHO 21	RHO 10	P2/P0	P2/P1	V-KM/SEC
-7.0	19.8625	5.0346E-09	2.2705E-05	4.1061E 03	19.2931	
-6.8	19.4992	8.1280E-09	3.5549E-05	3.9822E 03	19.0090	
-6.6	19.2409	1.3055E-08	5.5858E-05	3.8957E 03	18.8084	
-6.4	19.0633	2.0883E-08	8.8006E-05	3.8370E 03	18.6708	
-6.2	18.9441	3.3306E-08	1.3893E-04	3.7978E 03	18.5785	
-6.0	18.8658	5.3006E-08	2.1959E-04	3.7720E 03	18.5174	
-5.8	18.8148	8.4236E-08	3.4740E-04	3.7550E 03	18.4770	
-5.6	18.7819	1.3374E-07	5.4989E-04	3.7436E 03	18.4498	
-5.4	18.7605	2.1221E-07	8.7064E-04	3.7356E 03	18.4306	
-5.2	18.7460	3.3658E-07	1.3786E-03	3.7293E 03	18.4155	
-5.0	18.7354	5.3375E-07	2.1828E-03	3.7235E 03	18.4014	
-4.8	18.7260	8.4636E-07	3.4551E-03	3.7170E 03	18.3856	
-4.6	18.7156	1.3421E-06	5.4665E-03	3.7085E 03	18.3648	
-4.4	18.7017	2.1287E-06	8.6419E-03	3.6963E 03	18.3350	
-4.2	18.6811	3.3775E-06	1.3645E-02	3.6783E 03	18.2908	
-4.0	18.6492	5.3622E-06	2.1504E-02	3.6514E 03	18.2246	
-3.8	18.6002	8.5209E-06	3.3798E-02	3.6115E 03	18.1262	
-3.6	18.5259	1.3559E-05	5.2922E-02	3.5538E 03	17.9829	
-3.4	18.4168	2.1617E-05	8.2458E-02	3.4732E 03	17.7807	
-3.2	18.2625	3.4549E-05	1.2770E-01	3.3654E 03	17.5068	
-3.0	18.0538	5.5390E-05	1.9643E-01	3.2290E 03	17.1538	
-2.8	17.7850	8.9114E-05	3.0011E-01	3.0663E 03	16.7234	
-2.6	17.4559	1.4390E-04	4.5578E-01	2.8839E 03	16.2273	
-2.4	17.0725	2.3319E-04	6.8918E-01	2.6910E 03	15.6857	
-2.2	16.6462	3.7904E-04	1.0396E 00	2.4973E 03	15.1225	
-2.0	16.1920	6.1759E-04	1.5678E 00	2.3114E 03	14.5616	
-1.8	15.7267	1.0078E-03	2.3680E 00	2.1395E 03	14.0229	
-1.6	15.2664	1.6454E-03	3.5873E 00	1.9851E 03	13.5213	
-1.4	14.8251	2.6854E-03	5.4560E 00	1.8499E 03	13.0661	
-1.2	14.4135	4.3775E-03	8.3350E 00	1.7336E 03	12.6616	
-1.0	14.0388	7.1231E-03	1.2792E 01	1.6351E 03	12.3085	
-0.8	13.7044	1.1565E-02	1.9718E 01	1.5524E 03	12.0044	
-0.6	13.4108	1.8730E-02	3.0519E 01	1.4836E 03	11.7452	
-0.4	13.1561	3.0260E-02	4.7406E 01	1.4264E 03	11.5255	
-0.2	12.9366	4.8773E-02	7.3857E 01	1.3788E 03	11.3392	
0.	12.7469	7.8450E-02	1.1534E 02	1.3386E 03	11.1797	
0.2	12.5808	1.2598E-01	1.8041E 02	1.3040E 03	11.0399	
0.4	12.4306	2.0207E-01	2.8244E 02	1.2727E 03	10.9123	
0.6	12.2871	3.2400E-01	4.4218E 02	1.2427E 03	10.7881	
0.8	12.1394	5.1976E-01	6.9161E 02	1.2117E 03	10.6582	
1.0	11.9743	8.3512E-01	1.0798E 03	1.1775E 03	10.5125	
1.2	11.7764	1.3458E 00	1.6817E 03	1.1382E 03	10.3425	
1.4	11.5288	2.1788E 00	2.6131E 03	1.0927E 03	10.1423	
1.6	11.2153	3.5497E 00	4.0557E 03	1.0414E 03	9.9123	
1.8	10.8250	5.8287E 00	6.3035E 03	9.8637E 02	9.6604	
2.0	10.3726	9.6408E 00	9.8383E 03	9.3182E 02	9.4047	
2.2	10.1088	1.5678E 01	1.5254E 04	8.9002E 02	9.1957	

T1= 300.0 DEGREES KFLVIN
T2=16000.0 DEGREES KELVIN

LOG	RHO 20	RHO 21	RHO 10	P2/P0	P2/P1	V-KM/SEC
-7.0	20.8944	4.7860E-09	2.6078E-05	4.9613E 03	21.1799	
-6.8	20.1555	7.8633E-09	4.0185E-05	4.6531E 03	20.5304	
-6.6	19.5300	1.2862E-08	6.2226E-05	4.4051E 03	19.9924	
-6.4	19.0322	2.0918E-08	9.6847E-05	4.2156E 03	19.5713	
-6.2	18.6572	3.3818E-08	1.5143E-04	4.0771E 03	19.2578	
-6.0	18.3876	5.4385E-08	2.3770E-04	3.9796E 03	19.0340	
-5.8	18.2006	8.7079E-08	3.7422E-04	3.9128E 03	18.8792	
-5.6	18.0744	1.3897E-07	5.9040E-04	3.8680E 03	18.7746	
-5.4	17.9911	2.2128E-07	9.3281E-04	3.8383E 03	18.7047	
-5.2	17.9368	3.5177E-07	1.4752E-03	3.8184E 03	18.6578	
-5.0	17.9015	5.5861E-07	2.3343E-03	3.8047E 03	18.6255	
-4.8	17.8782	8.8650E-07	3.6945E-03	3.7945E 03	18.6013	
-4.6	17.8620	1.4063E-06	5.8474E-03	3.7859E 03	18.5807	
-4.4	17.8491	2.2304E-06	9.2526E-03	3.7771E 03	18.5595	
-4.2	17.8366	3.5374E-06	1.4633E-02	3.7664E 03	18.5335	
-4.0	17.8213	5.6113E-06	2.3121E-02	3.7517E 03	18.4977	
-3.8	17.7995	8.9041E-06	3.6481E-02	3.7304E 03	18.4459	
-3.6	17.7666	1.4138E-05	5.7441E-02	3.6992E 03	18.3694	
-3.4	17.7163	2.2471E-05	9.0169E-02	3.6535E 03	18.2572	
-3.2	17.6407	3.5767E-05	1.4096E-01	3.5884E 03	18.0962	
-3.0	17.5307	5.7043E-05	2.1921E-01	3.4989E 03	17.8723	
-2.8	17.3766	9.1208E-05	3.3874E-01	3.3815E 03	17.5745	
-2.6	17.1710	1.4629E-04	5.1990E-01	3.2359E 03	17.1982	
-2.4	16.9099	2.3543E-04	7.9275E-01	3.0659E 03	16.7482	
-2.2	16.5948	3.8021E-04	1.2022E 00	2.8790E 03	16.2392	
-2.0	16.2327	6.1604E-04	1.8165E 00	2.6847E 03	15.6927	
-1.8	15.8349	1.0009E-03	2.7400E 00	2.4925E 03	15.1329	
-1.6	15.4157	1.6294E-03	4.1344E 00	2.3103E 03	14.5822	
-1.4	14.9906	2.6557E-03	6.2513E 00	2.1432E 03	14.0587	
-1.2	14.5735	4.3295E-03	9.4832E 00	1.9944E 03	13.5753	
-1.0	14.1766	7.0539E-03	1.4445E 01	1.8646E 03	13.1395	
-0.8	13.8084	1.1478E-02	2.2102E 01	1.7533E 03	12.7543	
-0.6	13.4746	1.8642E-02	3.3971E 01	1.6592E 03	12.4191	
-0.4	13.1776	3.0211E-02	5.2437E 01	1.5804E 03	12.1310	
-0.2	12.9168	4.8848E-02	8.1253E 01	1.5145E 03	11.8854	
0.	12.6899	7.8803E-02	1.2633E 02	1.4596E 03	11.6765	
0.2	12.4926	1.2687E-01	1.9694E 02	1.4134E 03	11.4978	
0.4	12.3190	2.0390E-01	3.0765E 02	1.3738E 03	11.3423	
0.6	12.1619	3.2734E-01	4.8124E 02	1.3387E 03	11.2024	
0.8	12.0122	5.2527E-01	7.5317E 02	1.3058E 03	11.0695	
1.0	11.8586	8.4327E-01	1.1784E 03	1.2727E 03	10.9344	
1.2	11.6876	1.3561E 00	1.8420E 03	1.2373E 03	10.7874	
1.4	11.4833	2.1874E 00	2.8752E 03	1.1975E 03	10.6202	
1.6	11.2310	3.5447E 00	4.4826E 03	1.1526E 03	10.4279	