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RESEARCH MEMORANDUM

for the

Bureau of Aeronautics, Department of the Navy

PRELIMINARY ALTITUDE PERFORMANCE DATA FOR THE J71-A2 (X-26) TURBOJET ENGINE

By James W. Useller and William E. Mallett

Lewis Flight Propulsion Laboratory
Cleveland, Ohio

NATIONAL ADVISORY COMMITTEE FOR AERONAUTICS

WASHINGTON

AUG 27 1954 CANCELLED

FORWARD

To permit expeditious transmittal of performance data to those concerned, figures and a tabulation of "Preliminary Data" are presented herein. Preliminary Data are test data that have not received the complete analysis and extensive cross-checking normally given a set of NACA data before release.

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SUMMARY

An investigation of the performance of the J71-A2 (X-26) turbojet engine and control system was conducted in an NACA Lewis laboratory altitude test chamber. Data were obtained for a range of altitudes from 20,000 to 58,000 feet at a flight Mach number of 0.9 and for several flight Mach numbers at an altitude of 45,000 feet. Data approximating sea-level operation are also included. Engine component performance data are presented in addition to windmilling, exhaust-nozzle, and ejector performance.

INTRODUCTION

At the request of the Bureau of Aeronautics, Department of the Navy, an exploratory investigation of the performance of the J71-A2 turbojet engine was made in an altitude test chamber at the NACA Lewis laboratory. The data reported herein were obtained using an engine control system to control the fuel flow and exhaust-nozzle area.

The engine performance was obtained for a range of engine rotor speeds for a series of altitudes from 20,000 to 58,000 feet at a flight Mach number of 0.9 and at several flight Mach numbers at an altitude of 45,000. Engine performance was also obtained at conditions approximating sea-level operation. All operation was within the schedule of engine speeds and exhaust-gas temperatures imposed by the control system. Engine-component performance data are also presented in addition to windmilling, exhaust-nozzle, and ejector performance data.

APPARATUS AND PROCEDURE

Engine. - The J71-A2 (X-26) turbojet engine (fig. 1) has a bifurcated inlet, a 16-stage axial-flow compressor, a cannular-type combustor with 10 circular inner liners, a three-stage turbine, an afterburner, and a variable-area iris-type exhaust nozzle provided with an ejector. The engine has a military thrust rating (nonafterburning) of 10,200 pounds during operation at 6100 rpm and a turbine discharge gas temperature of 1210° F at sea-level, zero-ram conditions.

To facilitate acceleration in the engine-speed range below 85 percent of rated speed, the engine is equipped with two-position compressor inlet guide vanes and four air-bleed ports at the compressor discharge. The guide vanes are closed and the bleed ports are open up to 85 percent of rated rotor speed. At higher rotor speeds, the ports are closed and the guide vanes assume their normal position.

The engine is equipped with an ejector. The ejector inlet operated at altitude ambient pressure and no outside air flow was provided.

Instrumentation. - Instrumentation for measuring temperatures and pressures was installed at various stations throughout the engine as shown in figure 2. The table accompanying figure 2 indicates the number and type of measurements obtained. Air flow to the engine was measured by means of a 27-inch-throat-diameter venturi section upstream of the engine inlet.

Installation. - The engine was mounted on a thrust-measuring platform in an altitude test chamber. Engine-inlet temperatures and pressures were regulated to simulate altitude flight conditions and the engine exhaust operated at the simulated altitude pressure. A photograph of the engine installed in the test chamber is shown in figure 1.

Procedure. - Steady-state, nonafterburning engine performance was obtained at the following simulated flight conditions for a range of engine rotor speeds from 4200 to the maximum permitted by the J71-A2 (X-26) engine control system:

Altitude, ft	Flight Mach number
3,000	0.4
20,000	.9
35,000	.9
45,000	.9, 1.2, 1.3
50,000	.9
58,000	.9

The engine control system was used throughout this investigation to establish engine speed and exhaust-gas temperature. The control varied the engine speed through fuel-flow adjustment and the exhaust-gas temperature by exhaust-nozzle area adjustment according to a predetermined schedule established by the manufacturer.

The fuel used throughout this investigation conformed to the specifications for MIL-F-5624a, grade JP-4, and had a lower heating value of 18,700 Btu per pound and a hydrogen-carbon ratio of 0.171.

A list of the symbols used herein is contained in the appendix and a tabulation of the data obtained is presented in table I.

DATA PRESENTATION

Engine Performance

The engine performance characteristics of the J71-A2 (X-26) turbojet engine operating without the afterburner were determined for a range of altitudes from 20,000 to 58,000 feet at a flight Mach number of 0.9 and are presented in figure 3 as a function of engine rotor speed. Data obtained at conditions approximating sea-level operation (altitude of 3000 ft at a flight Mach number of 0.4) have been included for comparative purposes. Data are also shown for engine control throttle settings greater than standard (90°) in order to determine if the control will maintain engine operation at the 90° rated performance condition. These data have been adjusted to NACA standard altitude conditions of pressure and temperature for the flight conditions indicated to eliminate small deviations in setting test conditions. The use of the variable-area exhaust nozzle precluded generalization of these data at sea-level, static conditions, and the fact the the engine control operation was based on actual rotor speed made it desirable to consider the performance as a function of the actual rotor speed at altitude.

It will be noted that no engine performance data were obtained at rated speed and exhaust-gas temperature. The engine control system limited operation to the speeds and temperatures shown in the figures presenting performance data.

The effect of varying flight Mach number on the normal engine performance is shown in figure 4 for flight Mach numbers from 0.9 to 1.3 during operation at an altitude of 45,000 feet.

Component Performance

The performance of the major engine components is presented in figure 5 for a range of altitudes and a flight Mach number of 0.9. The

compressor and combustor performance have been corrected to sea-level conditions to permit generalization of the data. The turbine performance was corrected to standard pressure and temperature conditions at the turbine inlet.

The variation of the exhaust-nozzle area as governed by the engine control system is shown in figure 6. The engine configuration investigated included the afterburner (inoperative) and the ejector. No outside air flow was supplied to the ejector, but it was allowed to ingest air at the altitude ambient pressure conditions. The quantity of ejector air flow as determined during nonafterburning operation is shown in figure 7. The fraction of the compressor air flow that was diverted from the engine by the compressor discharge bleeds when the bleed ports were open (below rotor speeds of 5170 rpm) is shown in figure 8. The windmilling speeds of the engine at each of several flight Mach numbers up to 1.0 are shown in figure 9 for three altitudes.

Lewis Flight Propulsion Laboratory
National Advisory Committee for Aeronautics
Cleveland, Ohio, August 19, 1954

APPENDIX - SYMBOLS

The following symbols are used on the table and the figures:

A	area, sq ft
F_j	jet thrust, lb
F_n	net thrust, lb
M	Mach number
N	engine rotor speed, rpm
P	total pressure, lb/sq ft
sfc	specific fuel consumption, lb/(hr)(lb)
T	total temperature, $^{\circ}R$
W_a	air flow, lb/sec
W_f	fuel flow, lb/hr
W_g	weight flow, lb/sec
β	correction factor for variation of specific heats, $\frac{\gamma^*}{\gamma} \frac{\left(\frac{\gamma+1}{2}\right)^{\frac{\gamma}{\gamma-1}}}{\left(\frac{\gamma^*+1}{2}\right)^{\frac{\gamma^*}{\gamma^*-1}}}$
δ_a	ratio of total pressure to NACA standard static pressure at indicated flight condition
$\delta_{s.l.}$	ratio of total pressure to static sea-level pressure, P/2116
η	efficiency, percent
θ_a	ratio of total temperature to NACA standard static temperature at indicated flight condition
$\theta_{s.l.}$	ratio of total temperature to static sea-level temperature, T/519
γ	ratio of specific heats

Subscripts:

a	altitude
b	combustor
c	compressor
s.l.	sea level
t	turbine
0	free stream
2	compressor inlet
3	compressor discharge
4	turbine inlet
5	turbine discharge
9	exhaust-nozzle inlet

Superscript:

*	NACA standard sea-level condition

TABLE I. - PRELIMINARY ALTITUDE PERFORMANCE DATA OF J71-A-2 (X-26) TURBOJET ENGINE

Run	Altitude, ft	Flight Mach number, M_O	Exhaust-nozzle area, sq ft	Engine speed, N, rpm	Throttle angle, deg	Engine-inlet total pressure, P_2, lb/sq ft	Engine-inlet total temperature, T_2, °R	Compressor-outlet total pressure, P_3, lb/sq ft	Compressor-outlet total temperature, T_3, °R	Turbine-inlet total pressure, P_4, lb/sq ft	Turbine-inlet temperature, (calculated) T_4, °R	Turbine-outlet total pressure, P_5, lb/sq ft	Turbine-outlet total temperature, (Mf), T_5, °R	Nozzle-outlet pressure, P_9, lb/sq ft	Nozzle-outlet temperature, T_9, °R	Engine air flow, W_a, lb/sec	Bleed air flow, $W_{a,\ bleed}$, lb/sec	Overboard air flow, $W_{a,\ overboard}$, lb/sec	Engine fuel flow, W_f, lb/hr	Jet thrust, F_j, lb	Net thrust, F_n, lb	Corrected engine speed, $\frac{N}{N/\sqrt{\theta_{s.l.}}}$, rpm	Corrected air flow, $\frac{W_a\sqrt{\theta_{s.l.}}}{\delta_{s.l.}}$, lb/sec
1	3000	0.383	2.74	6045	97	2069	510	16,328	999	15,657	2042	4783	1657	4535	1608	156.16	1.68	2.78	8150	9826	7591	6074	158.98
2	3000	.387	2.74	5903	(a)	2079	510	15,592	981	14,942	1938	4507	1574	4285	1517	151.70	1.65	2.75	7455	8787	6791	5931	153.69
3	3000	.391	2.85	5729	|	2084	511	14,347	954	13,717	1765	3987	1416	3761	1368	146.28	0	2.69	6100	7600	5656	5751	147.89
4	3000	.378	3.19	5551	|	2087	511	12,960	923	12,541	1568	3321	1202	3095	1175	139.97	1.68	2.58	4500	5546	3739	5578	141.25
5	3000	.376	3.73	5319	↓	2083	512	11,407	890	10,854	1388	2785	1052	2560	1027	129.94	0	2.34	3265	3700	2032	5340	131.50
6	3000	0.374	4.42	5314	(a)	2088	512	9698	848	9170	1417	2337	1090	2148	1046	121.86	13.77	2.04	3000	1793	241	5335	122.96
7	3000	.372	4.42	5002	|	2089	513	8626	821	8159	1332	2247	1037	2102	1001	110.98	12.61	1.87	2563	1498	89	5022	111.98
8	3000	.376	4.42	4643	|	2092	513	7344	784	6950	1289	2160	1033	2051	994	96.79	10.80	1.69	2159	1001	-242	4661	97.47
9	3000	.376	4.42	4260	|	2099	514	6139	747	5834	1263	2083	1049	2010	1012	82.32	9.19	1.47	1846	794	-261	4277	82.85
10	3000	.391	4.42	3563	↓	2103	515	4443	692	4267	1178	2022	1039	1971	1008	53.26	0	1.11	1261	486	-224	3573	53.42
11	23,000	0.899	2.85	6102	107	1491	537	11,209	1028	----	----	3033	1585	2859	1533	107.79	0	2.18	5280	7257	4042	5976	156.17
12	21,700	.890	2.84	6013	104	1496	523	11,390	1008	10,889	1979	3243	1591	3057	1551	109.72	0	1.92	5500	7593	4418	5971	156.23
13	21,800	.897	2.91	5889	(a)	1502	523	10,757	990	10,245	1861	2945	1476	2758	1440	106.87	0	2.01	4720	6950	3834	5848	151.63
14	22,200	.908	2.76	5885	|	1498	514	11,106	985	10,619	1918	3169	1540	2979	1499	108.66	0	1.86	5180	7408	4236	5891	153.35
15	21,750	.886	3.025	5707	↓	1499	515	10,011	951	9527	1659	2554	1268	2366	1239	104.44	0	1.65	3640	5900	2914	5707	147.47
16	21,800	0.897	3.12	5703	(a)	1502	524	9689	957	9227	1643	2446	1270	2261	1241	101.64	0	2.13	3545	5627	2663	5658	144.36
17	21,900	.893	3.505	5530	|	1501	515	9011	921	8549	1454	2073	1083	1819	1068	99.85	0	1.50	2630	4538	1668	5536	140.66
18	23,000	.896	4.42	5198	|	1507	544	6923	896	6557	----	1461	919	1174	889	80.34	.78	1.58	1456	1853	-528	5066	115.73
19	23,000	.894	4.42	5192	|	1505	544	6039	865	5681	----	1280	953	1055	916	75.85	8.65	1.46	1466	992	-1251	5060	109.42
20	21,900	.896	4.47	5060	↓	1508	515	6158	827	5765	1231	1330	903	1105	889	81.63	8.76	1.16	1431	1580	-772	5070	114.28
21	21,900	0.900	4.47	4980	(a)	1513	514	5946	818	5581	1200	1288	884	1083	871	80.17	8.04	1.17	1329	1411	-906	4994	111.87
22	21,950	.902	4.47	4622	|	1514	515	4929	778	4611	1083	1142	796	1016	791	69.92	6.88	1.04	897	1024	-1002	4631	97.56
23	21,950	.902	4.47	4296	|	1516	514	4142	742	3877	992	1051	743	983	737	61.35	5.92	.93	643	661	-1112	4313	85.31
24	34,800	.894	2.76	6036	↓	830	460	7104	943	6815	1954	2022	1577	1905	1543	68.27	0	1.39	3620	4913	3051	6377	164.71
25	34,900	.897	2.76	5980	104	831	452	7134	924	6849	1918	2052	1576	1943	1505	68.91	0	1.16	3640	4935	3065	6373	164.62
26	34,900	0.897	2.86	5894	(a)	830	458	6764	917	6489	1807	1841	1441	1725	1411	67.75	0	1.41	3128	4567	2720	6247	162.94
27	34,900	.904	2.84	5854	|	836	456	6909	910	6620	1807	1987	1457	1877	1405	68.30	0	1.15	3210	4760	2890	6218	162.74
28	34,900	.897	3.04	5709	|	834	456	6398	881	6125	1636	1841	1270	1519	1243	66.57	.41	1.00	2552	4006	2194	6064	158.99
29	34,800	.893	3.07	5701	|	831	462	6180	892	5911	1600	1558	1256	1435	1218	65.35	0	1.36	2404	3798	2017	6016	157.68
30	34,900	.896	3.46	5533	↓	831	460	5761	861	5476	1454	1311	1092	1150	1074	63.60	0	1.29	1873	3116	1380	5852	153.08
31	34,800	0.896	4.33	5195	(a)	836	457	4991	813	4741	1246	1069	921	808	914	59.39	0	1.16	1299	2042	427	5518	141.49
32	34,800	.893	4.46	5184	|	837	460	4060	777	3827	1181	844	928	658	915	51.65	5.56	.95	1128	1227	-175	5494	123.22
33	34,800	.899	4.46	5089	|	838	465	3937	776	3696	1150	827	888	652	882	52.34	5.04	.62	1005	1128	-309	5365	125.40
34	34,800	.898	4.46	4983	|	836	455	3800	751	3581	1108	787	868	634	860	51.45	5.25	.93	973	1036	-357	5311	121.89
35	35,000	.911	4.42	4962	↓	837	457	4010	761	3781	1046	837	763	372	750	50.78	0	.580	756	1262	-137	5276	120.72
36	34,800	0.896	4.46	4728	(a)	840	460	3361	733	3157	1038	712	809	597	804	47.23	4.69	0.84	760	849	-438	5011	112.28
37	35,000	.904	4.46	4227	|	841	451	2540	702	2376	915	605	700	553	696	38.95	3.64	.65	447	482	-575	4530	91.45
38	45,300	.910	2.81	6039	102	508	457	4425	940	4250	1971	1231	1592	1155	1549	42.17	0	.93	2303	3070	1923	6401	165.39
39	45,000	.907	2.835	6019	99	515	462	4396	949	4216	1986	1207	1601	1131	1559	42.10	0	.74	2281	3042	1878	6352	163.93
40	44,300	.872	2.79	5998	104	514	456	4454	940	4273	2000	1266	1634	1196	1573	42.16	0	.83	2393	3008	1888	6371	163.40
41	45,300	0.910	2.74	5892	---	510	456	4331	924	4163	1954	1227	1582	1156	1542	41.67	0	0.97	2270	3022	1891	6259	162.76
42	45,300	.907	2.98	5712	(a)	509	455	3968	892	3807	1700	1026	1348	947	1304	40.69	0	.91	1720	2550	1434	6074	159.07
43	45,200	.904	3.46	5525	|	508	454	3801	858	3431	1489	814	1136	715	1107	39.34	0	.85	1251	1969	895	5881	153.94
44	45,300	.908	4.33	5179	|	511	453	3092	811	2940	1261	639	949	481	936	36.69	0	.76	854	1272	267	5525	142.41
45	45,200	.915	4.47	5162	↓	515	453	2517	770	2378	1285	530	965	408	942	35.51	3.47	.64	765	753	-169	5513	128.92
46	45,100	1.207	2.79	5887	(a)	739	511	5585	988	5349	1964	1610	1600	1514	1542	53.52	0	1.01	2765	4088	2122	5910	152.63
47	45,100	1.206	2.91	5796	|	741	511	5328	970	5089	1825	1434	1457	1334	1412	52.77	0	.95	2531	3780	1843	5819	150.12
48	44,250	1.178	3.04	5709	|	747	511	5058	955	4822	1715	1317	1350	1224	1311	51.70	0	.90	2008	3464	1601	5731	145.89
49	44,250	1.175	3.51	5523	|	743	510	4540	921	4311	1504	1039	1129	908	1111	49.77	0	.85	1417	2783	996	5555	140.92
50	44,250	1.178	4.33	5172	↓	746	510	3787	872	3580	1273	791	935	586	923	44.62	0	.69	877	1764	159	5202	125.81
51	44,600	1.291	2.760	5931	(a)	845	508	6479	991	6205	1993	1857	1606	1746	1566	62.22	0.25	1.16	3226	4896	2496	5972	154.74
52	44,800	1.294	2.74	5889	|	844	509	6395	986	6133	1986	1834	1598	1726	1560	61.42	0	1.28	3170	4841	2467	5923	153.11
53	44,600	1.291	2.810	5851	|	846	509	6250	979	5978	1911	1754	1523	1643	1492	61.17	.25	1.12	2914	4649	2298	5885	152.11
54	44,600	1.296	3.00	5709	|	847	509	5747	952	5477	1696	1473	1335	1369	1293	59.44	0	1.18	2281	4069	1768	5742	147.64
55	44,600	1.290	3.475	5526	↓	848	509	5142	919	4884	1492	1176	1123	1030	1103	56.63	0	1.09	1610	3255	1072	5564	140.34
56	45,000	1.304	4.160	5283	(a)	848	510	4512	884	4279	1327	950	976	724	963	53.45	0	1.00	1132	2427	349	5514	132.63
57	49,400	.874	2.86	6021	100	406	456	3482	951	3338	2007	963	1608	901	1569	33.02	0	.68	1826	2436	1557	6396	162.01
58	50,600	.902	2.86	6018	101	398	458	3449	946	3316	1982	933	1598	879	1553	32.65	0	.73	1820	2376	1480	6372	163.97
59	51,300	.959	2.86	6014	104	405	457	3442	947	3292	2004	948	1612	887	1574	32.84	0	.72	1830	2428	1482	6381	161.75
60	48,600	.848	2.79	5993	104	408	456	3548	945	3409	2034	1012	1670	957	1606	33.17	0	.64	1956	2374	1514	6366	161.94
61	48,600	0.849	2.76	5894	(a)	408	459	3504	933	3365	1996	989	1621	933	1579	32.71	0	0.63	1862	2333	1481	6240	160.22
62	50,700	.907	2.76	5892	|	397	466	3348	939	3215	1961	923	1593	874	1545	31.97	0	.75	1755	2314	1427	6192	162.15
63	50,300	.902	3.48	5526	|	399	457	2817	867	2686	1531	645	1171	570	1144	30.64	0	.68	1029	1567	729	5863	153.14
64	50,700	.902	4.29	5223	↓	398	454	2451	820	2330	1327	511	990	387	975	28.45	0	.59	730	1017	241	5566	141.94
65	57,500	.904	2.76	6005	104	289	445	2599	940	2496	2120	734	1751	692	1694	23.70	0	.51	1545	1801	1180	6457	161.40
66	56,600	0.921	2.76	5978	91	305	458	2638	956	2533	2126	742	1738	702	1694	24.38	0	0.53	1545	1808	1129	6336	159.59
67	56,600	.940	2.84	5871	(a)	310	458	2568	937	2465	1975	697	1600	655	1557	24.41	0	.48	1368	1692	999	6223	157.20
68	56,600	.938	3.04	5701	↑	312	459	2457	906	2352	1768	645	1404	598	1368	24.09	0	.44	1104	1553	869	6036	154.31

[a] Throttle setting angle less than 90°.

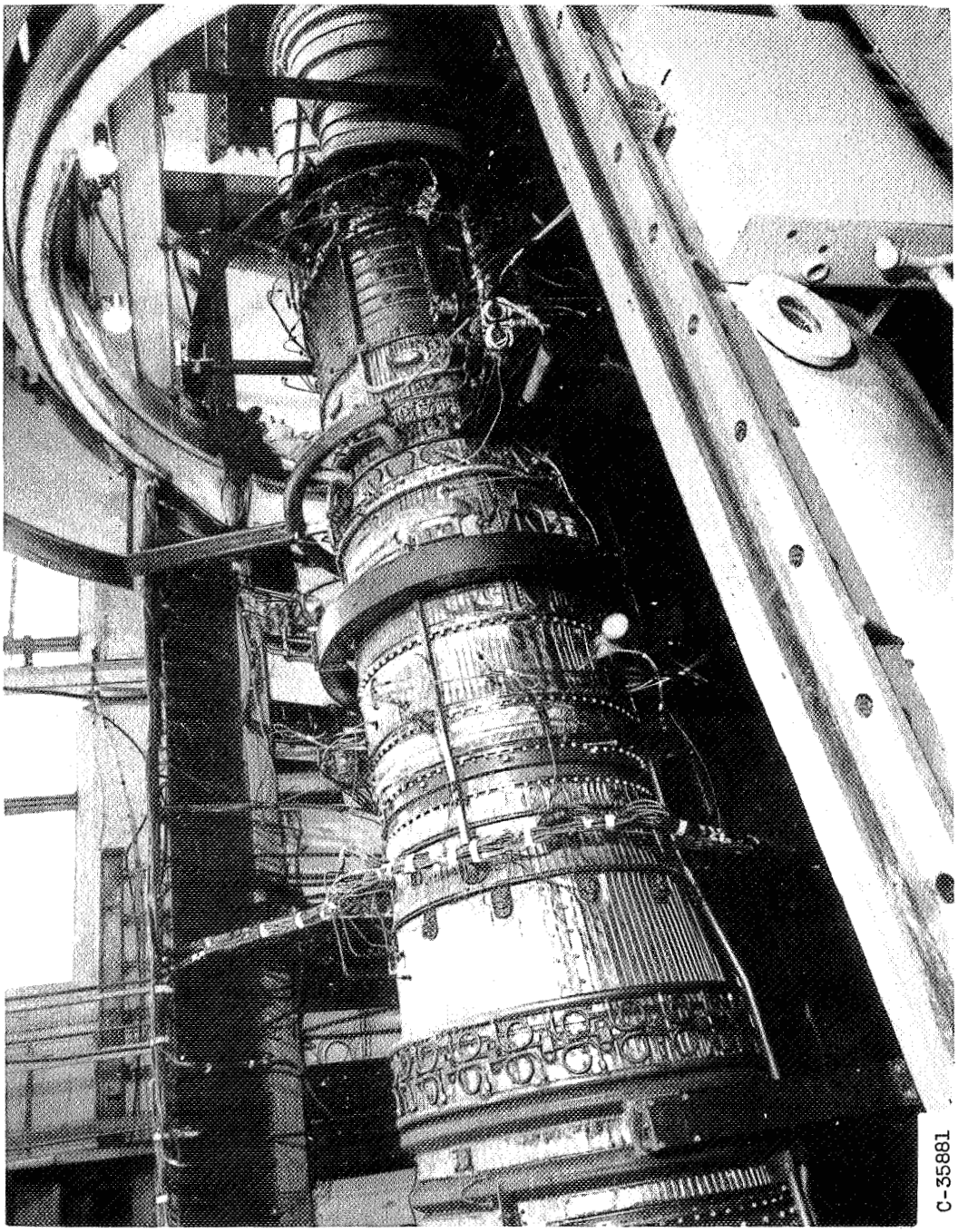

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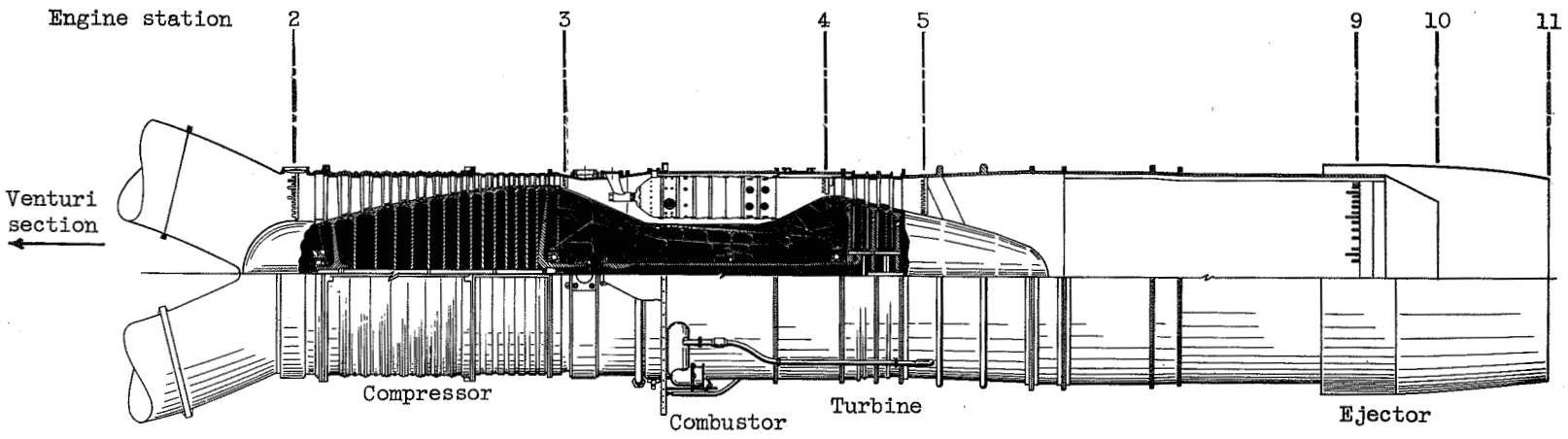
Figure 1. - J71-A2 turbojet engine installed in altitude test chamber.

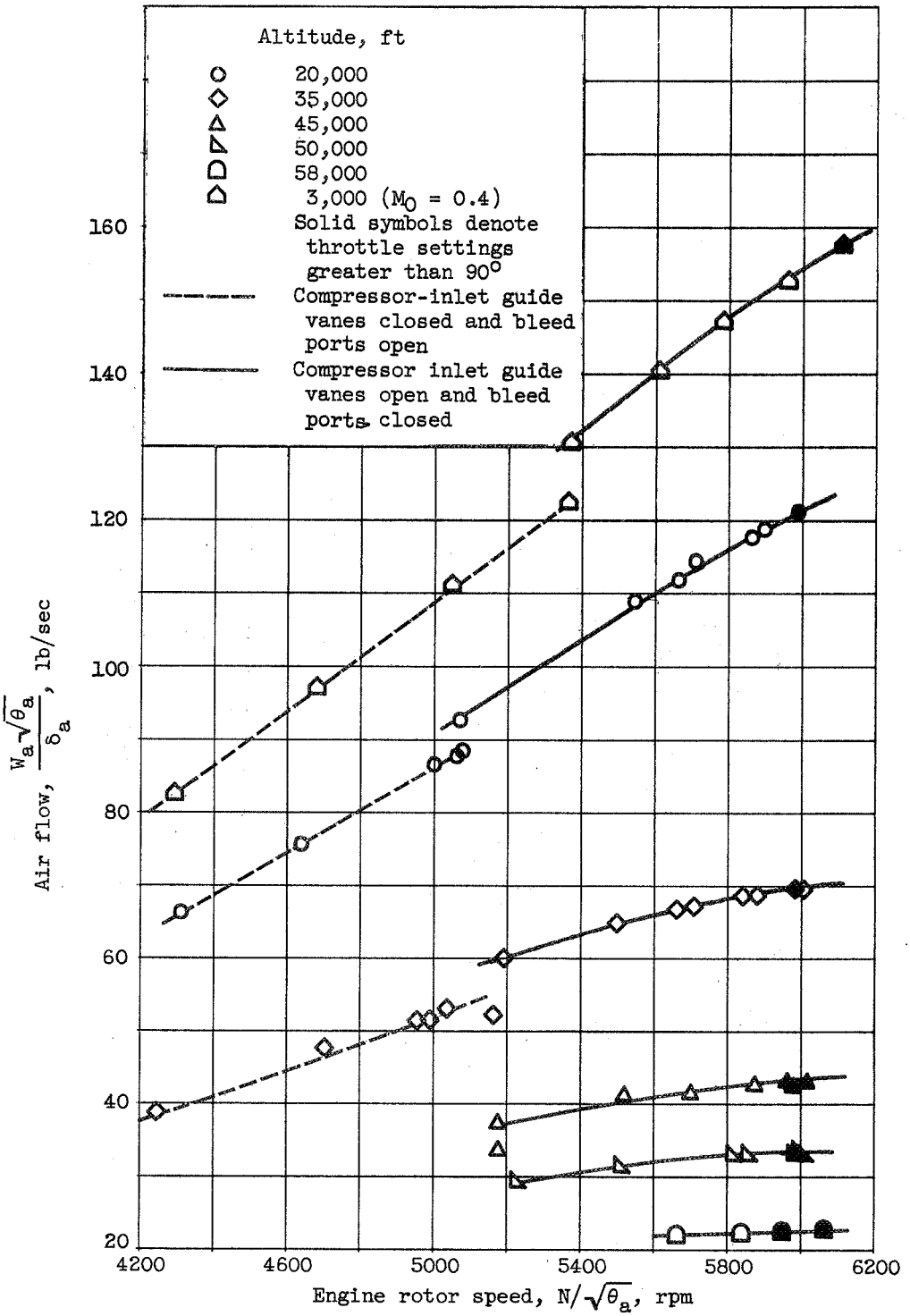


Station	Total pressures	Static pressures	Temperatures
Venturi	12	4	12
2	38	4	-
3	8	2	20
4	20	-	5
5	25	-	37a
9	18b	3b	17c
10	-	4	-
11	-	4	-

a - 12 Allison and 25 NACA thermocouples.
b - 9 Total- and 3 static-pressure probes in ejector passage.
c - 14 In primary passage and 3 in ejector.

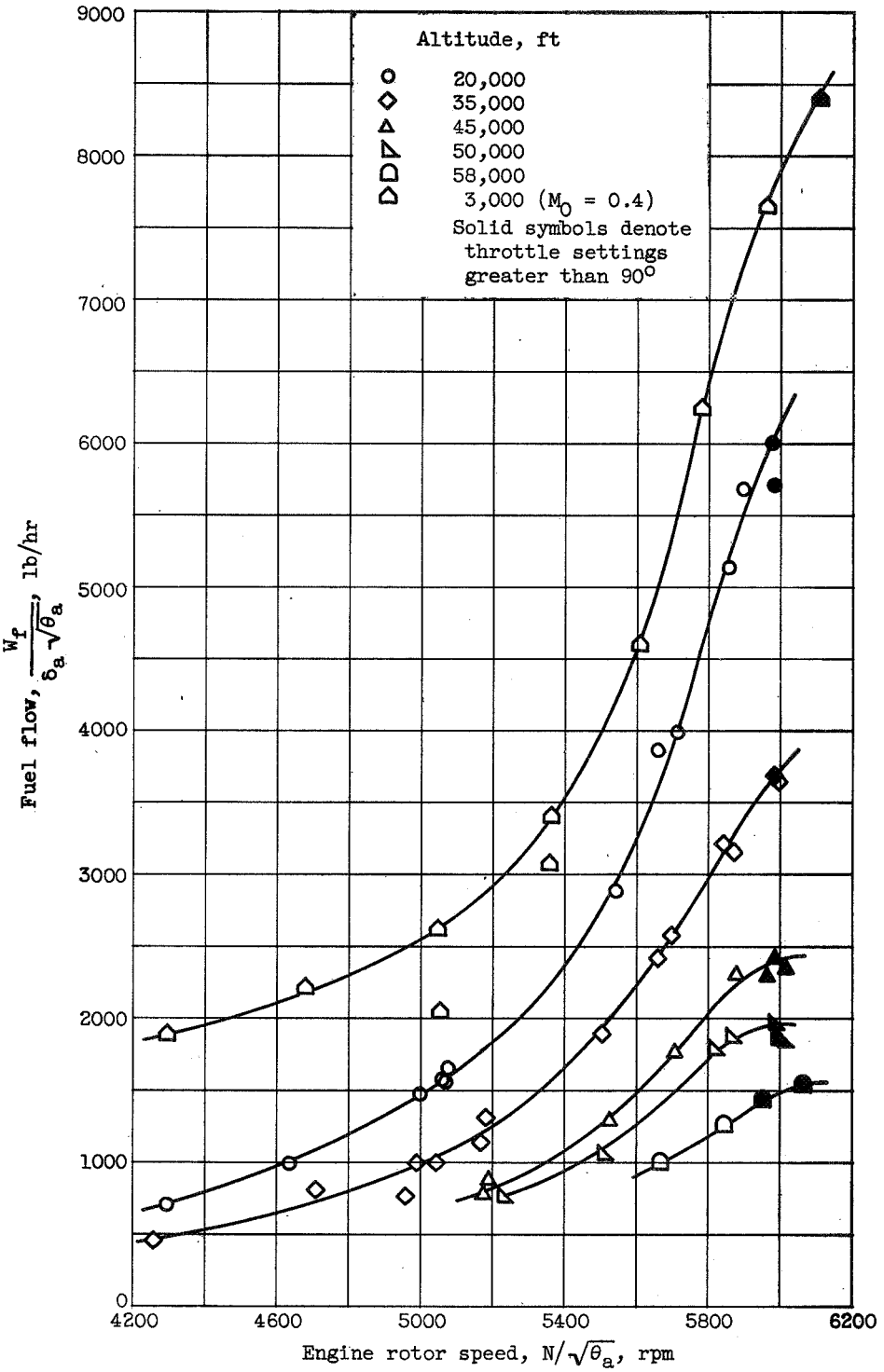
CD-3812

Figure 2. - Schematic diagram of J71-A2 turbojet engine showing instrumentation stations.



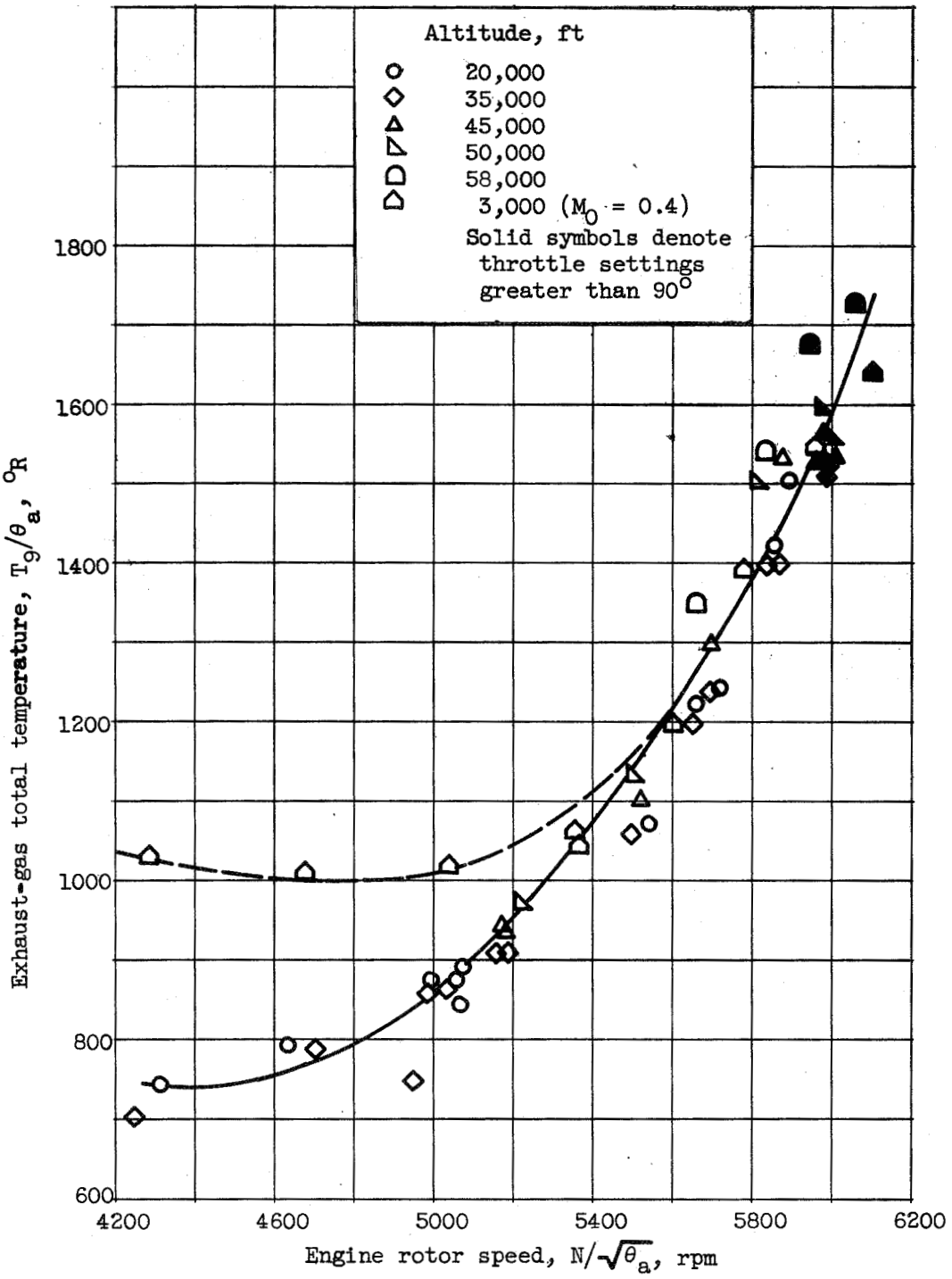
(a) Air flow.

Figure 3. - Variation of engine parameters with rotor speed for a range of altitudes. Flight Mach number, 0.9.



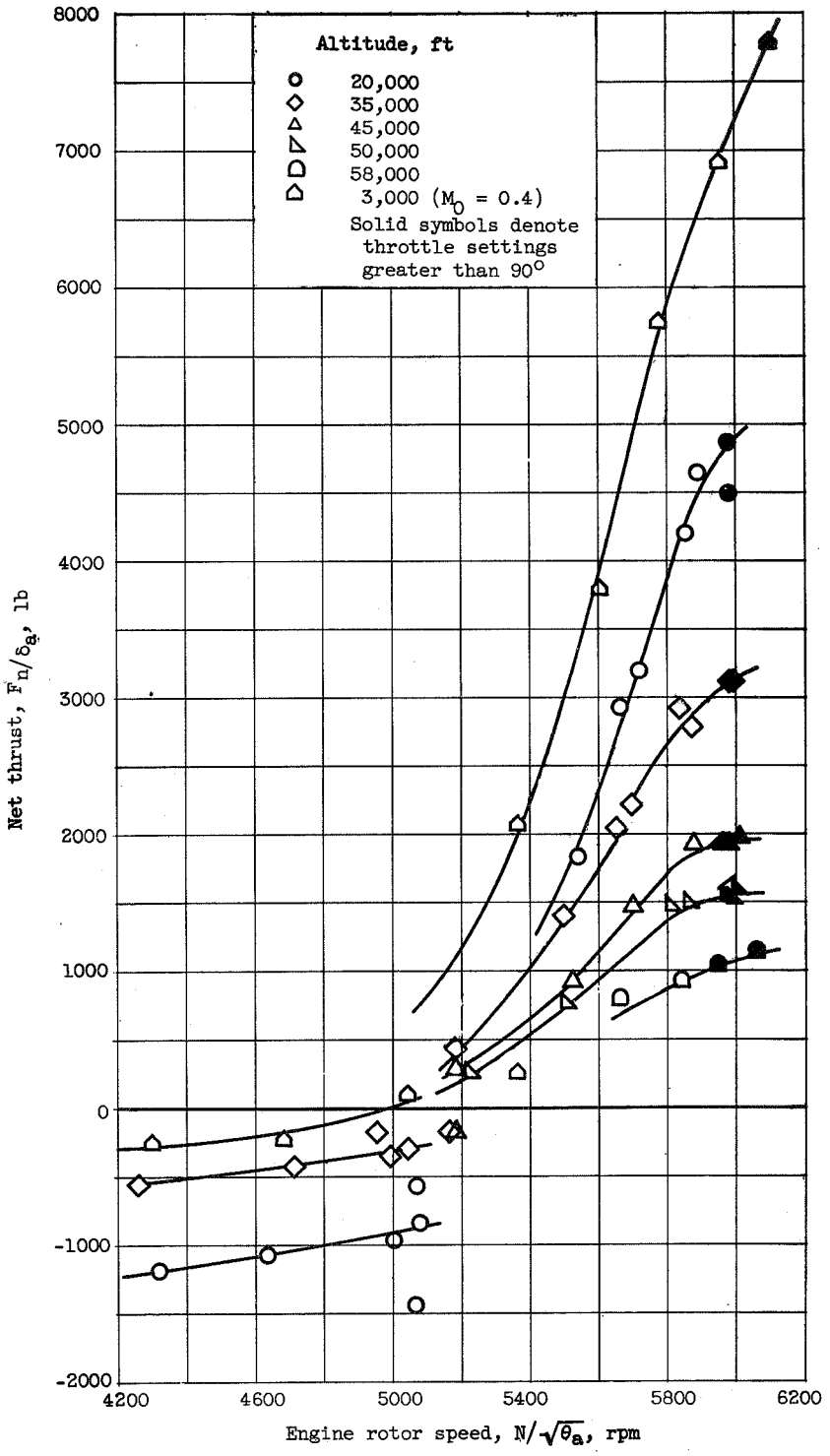
(b) Fuel flow.

Figure 3. - Continued. Variation of engine parameters with rotor speed for a range of altitudes. Flight Mach number, 0.9.



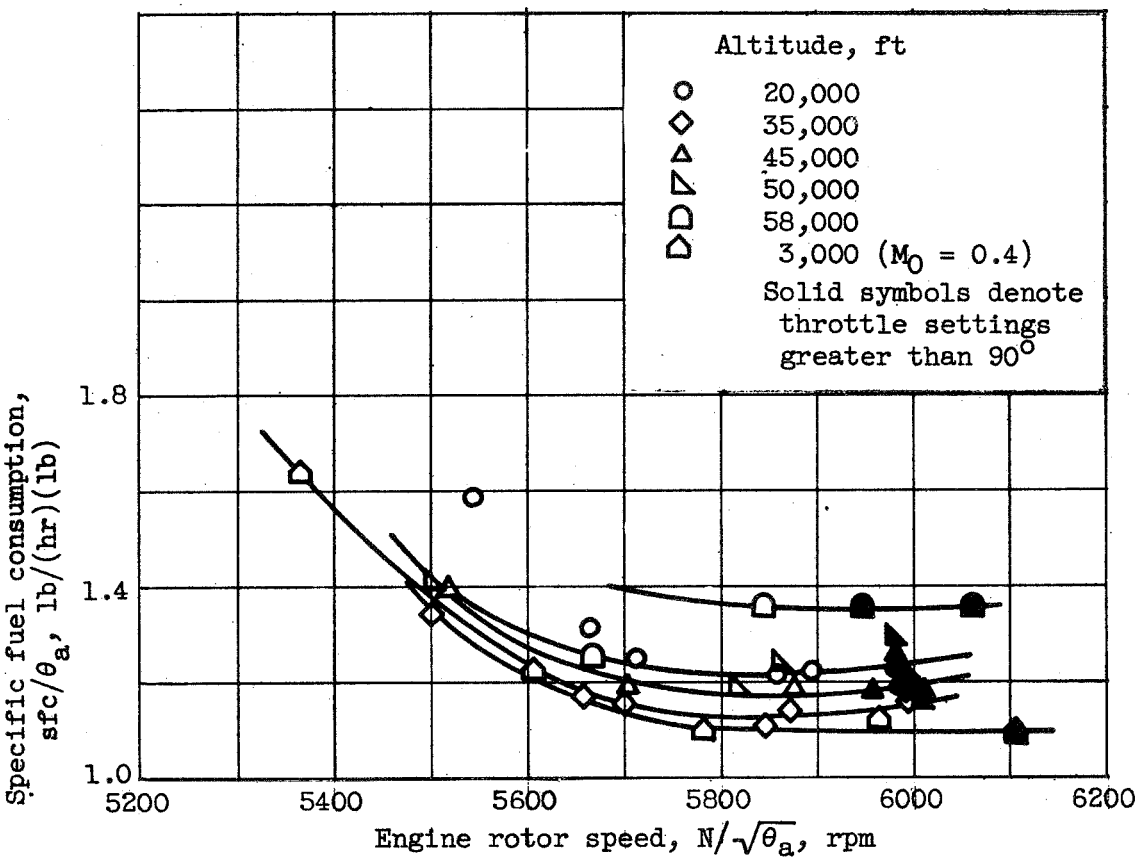
(c) Exhuast-gas temperature.

Figure 3. - Continued. Variation of engine parameters with rotor speed for a range of altitudes. Flight Mach number, 0.9.



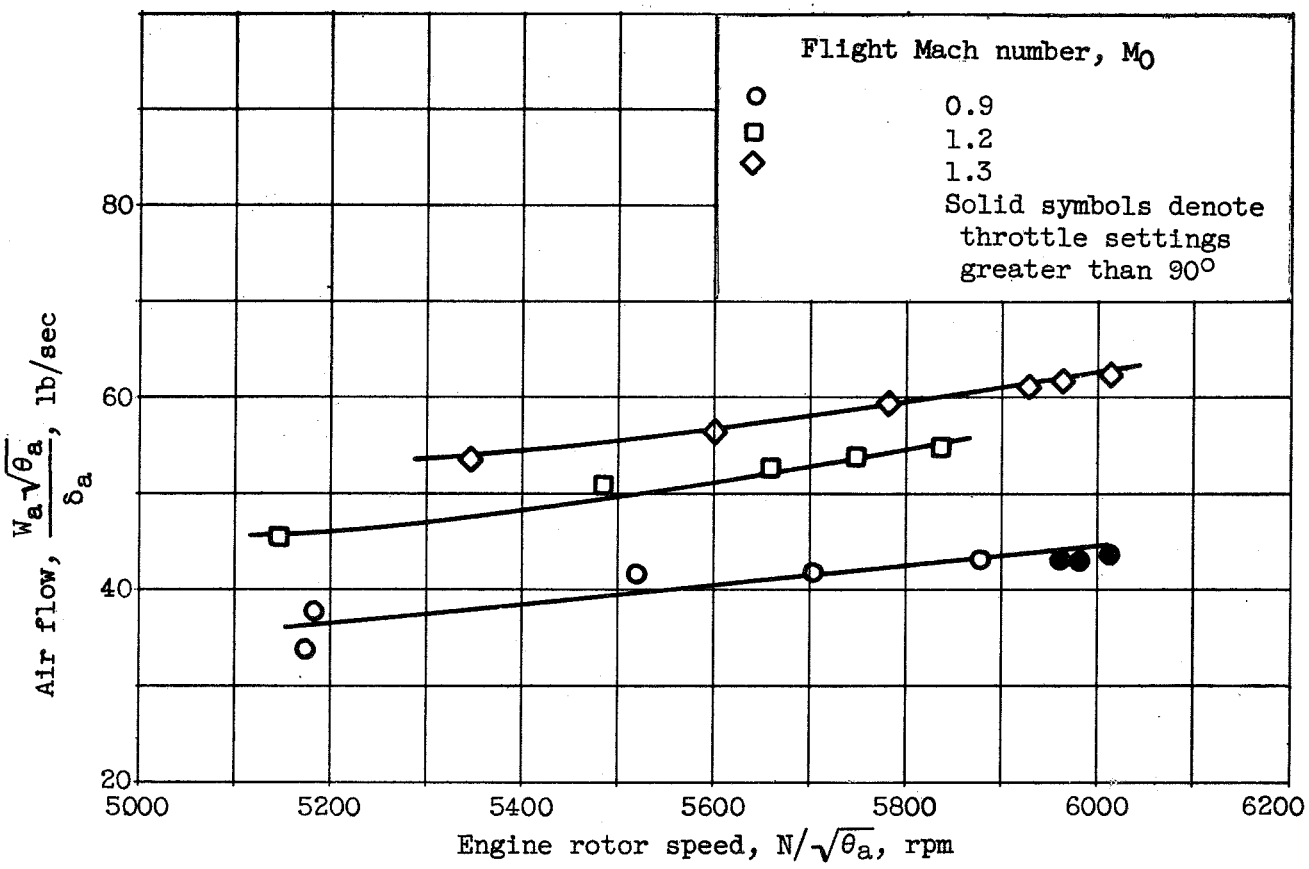
(d) Net thrust.

Figure 3. - Continued. Variation of engine parameters with rotor speed for a range of altitudes. Flight Mach number, 0.9.



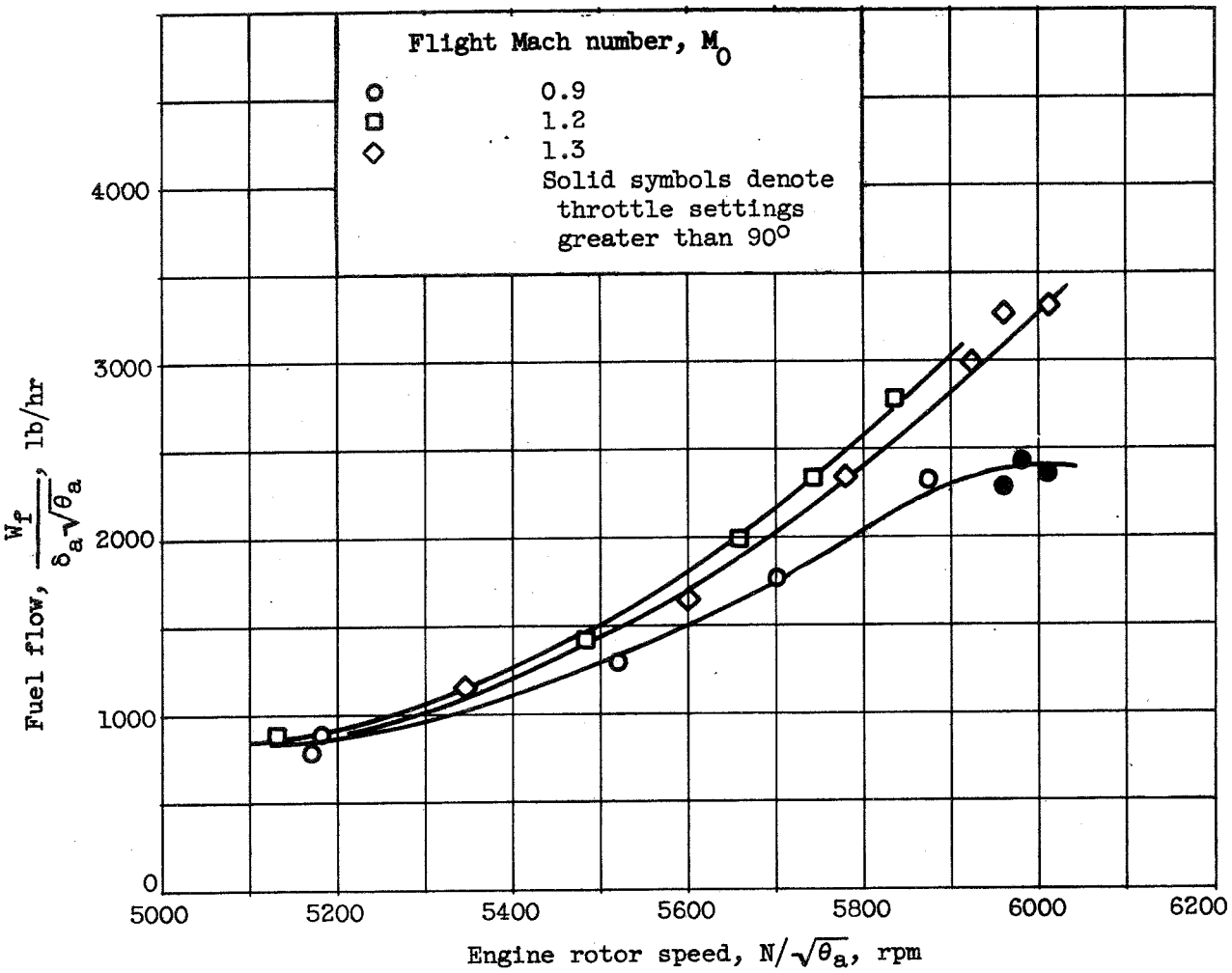
(e) Specific fuel consumption.

Figure 3. - Concluded. Variation of engine parameters with rotor speed for a range of altitudes. Flight Mach number, 0.9.



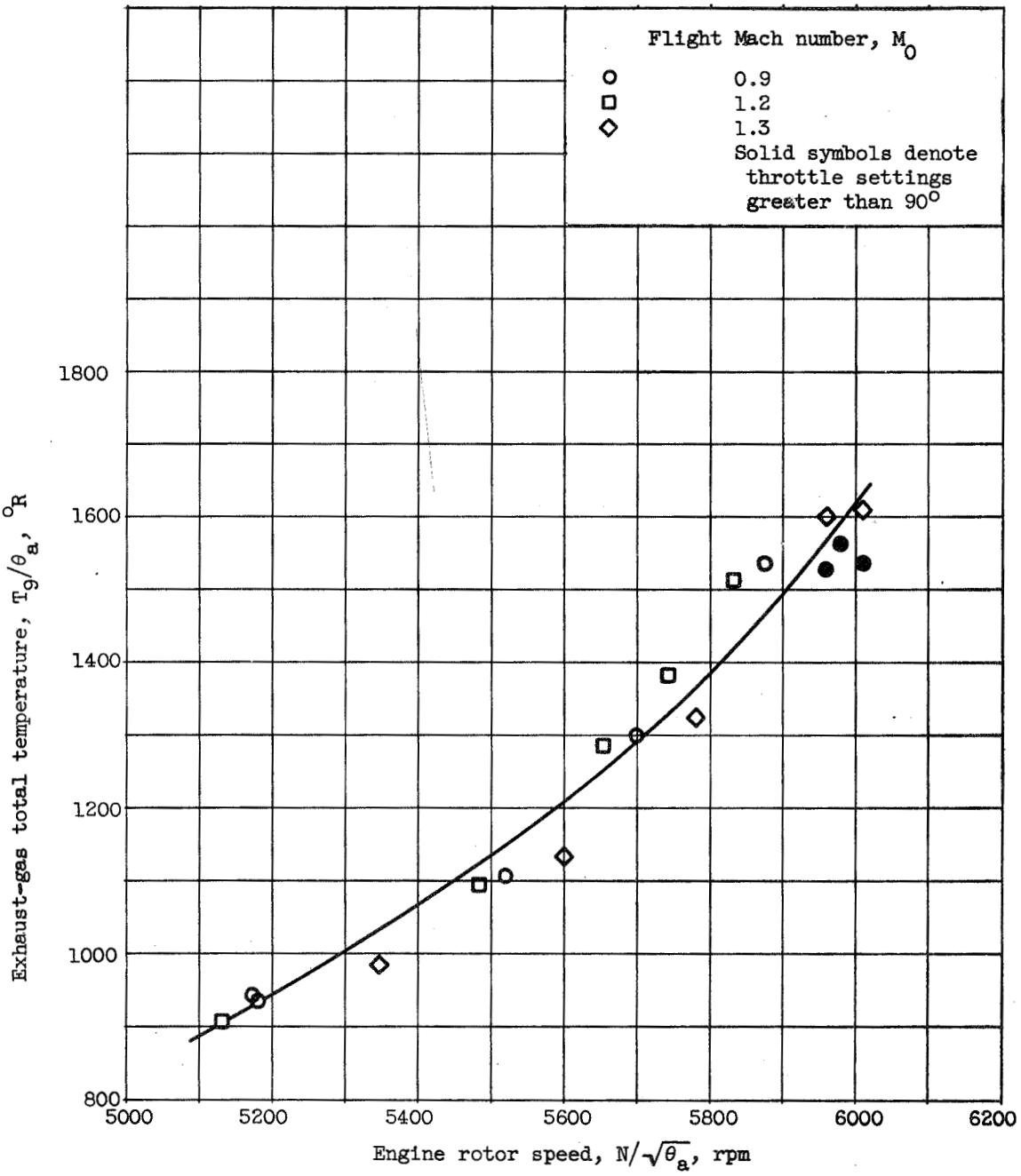
(a) Air flow.

Figure 4. - Variation of engine parameters with rotor speed for a range of flight Mach numbers. Altitude, 45,000 feet.



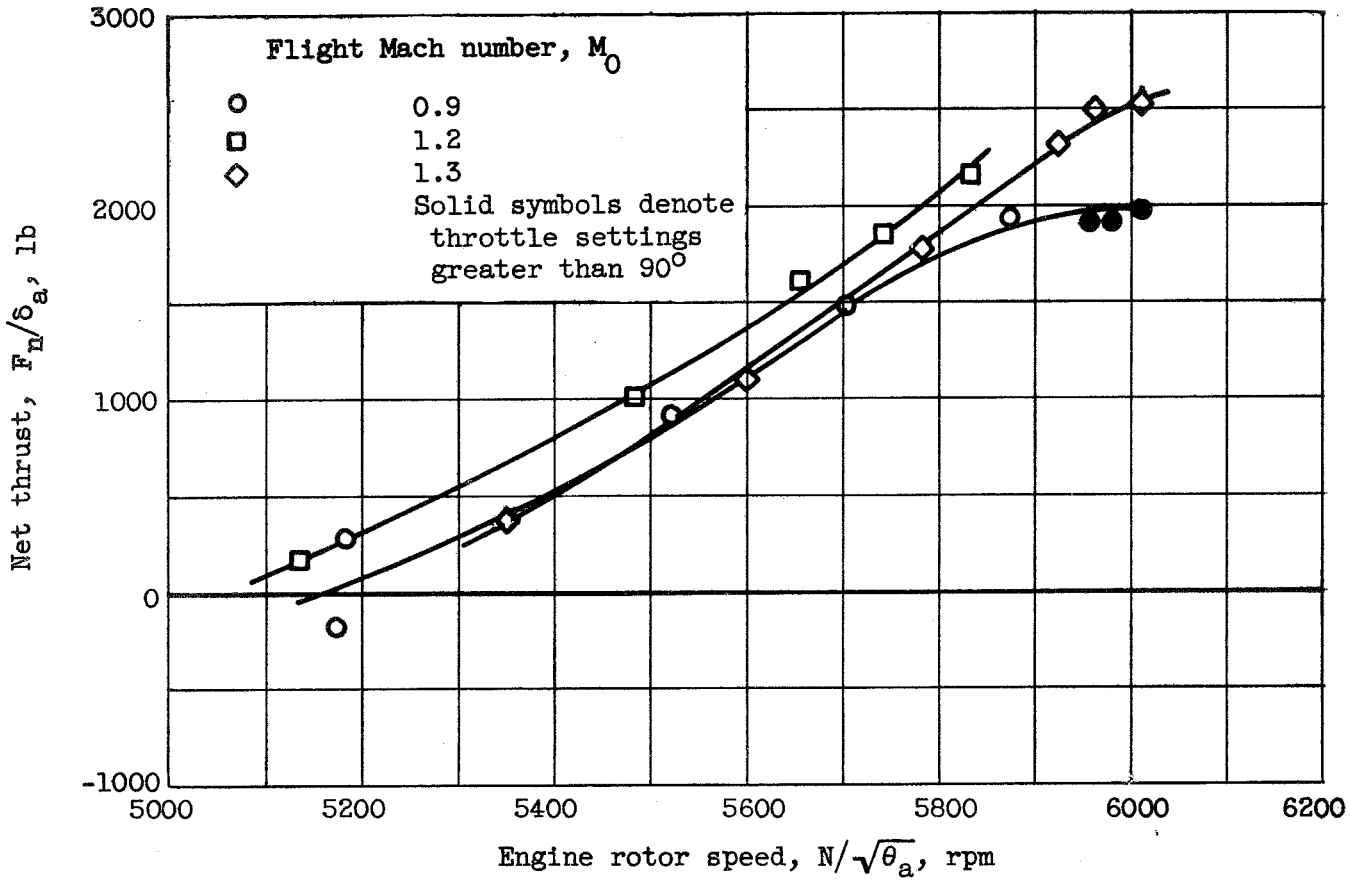
(b) Fuel flow.

Figure 4. - Continued. Variation of engine parameters with rotor speed for a range of flight Mach numbers. Altitude, 45,000 feet.



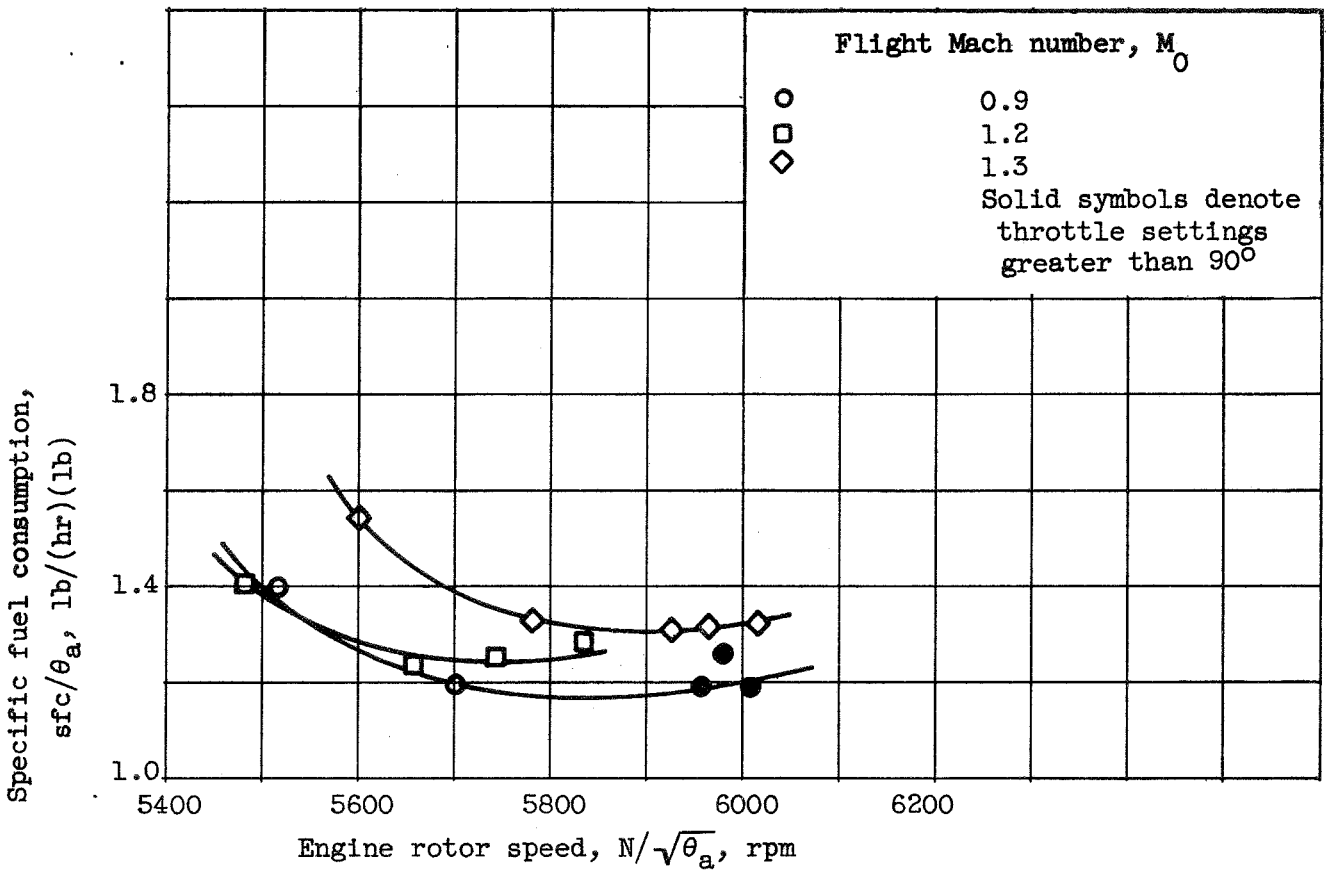
(c) Exhuast-gas temperature.

Figure 4. - Continued. Variation of engine parameters with rotor speed for a range of flight Mach numbers. Altitude, 45,000 feet.



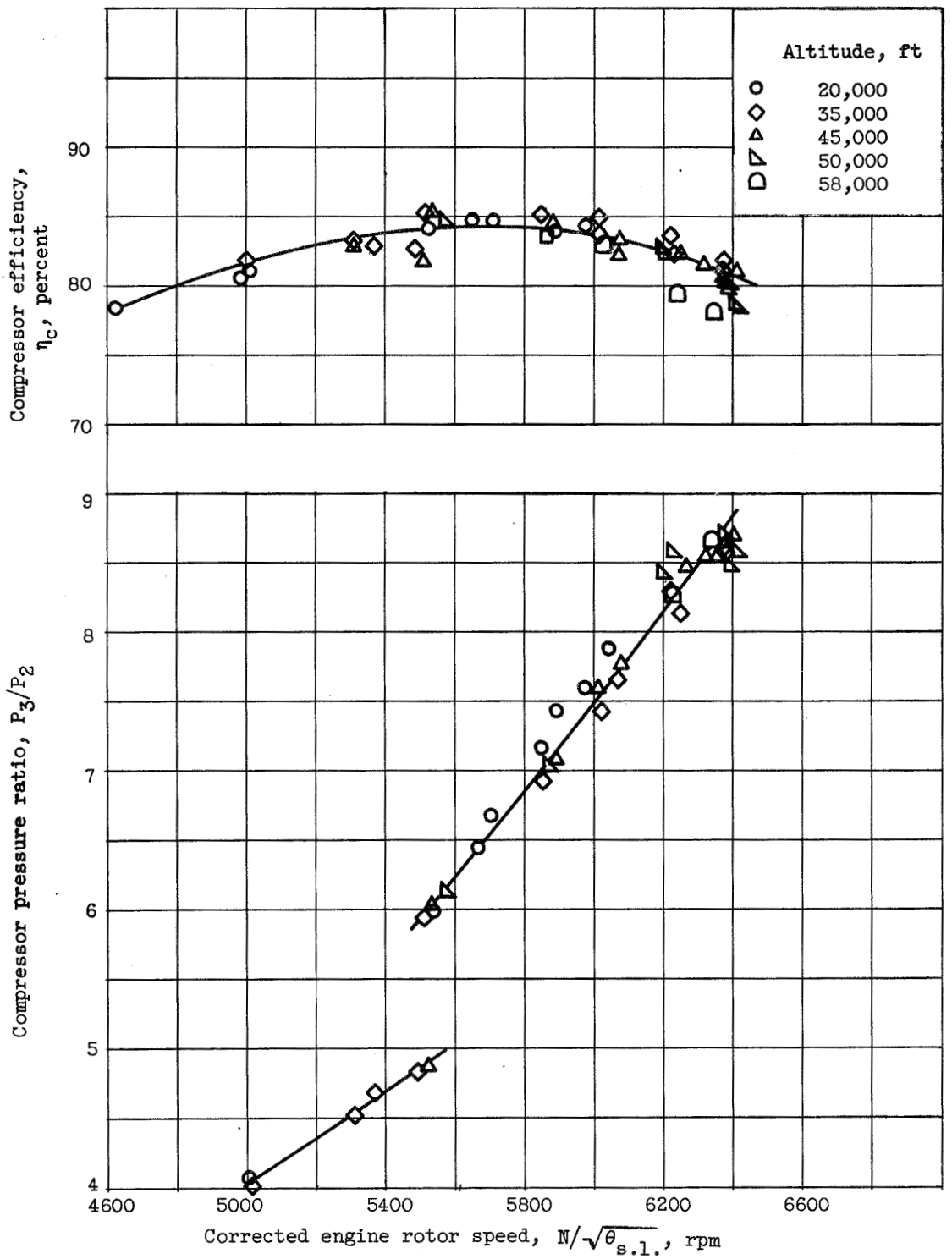
(d) Net thrust.

Figure 4. - Continued. Variation of engine parameters with rotor speed for a range of flight Mach numbers. Altitude, 45,000 feet.



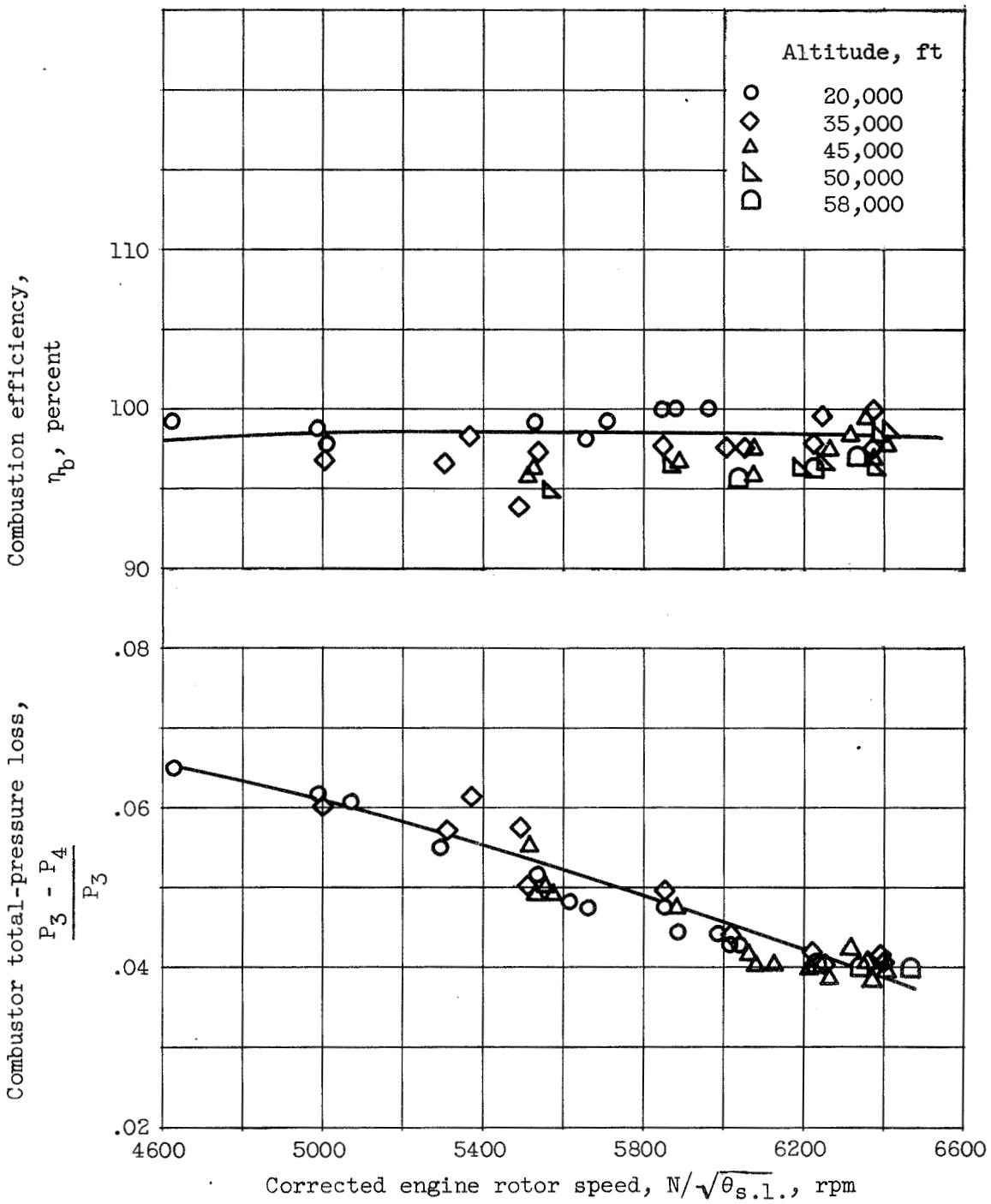
(e) Specific fuel consumption.

Figure 4. - Concluded. Variation of engine parameters with rotor speed for a range of flight Mach numbers. Altitude, 45,000 feet.



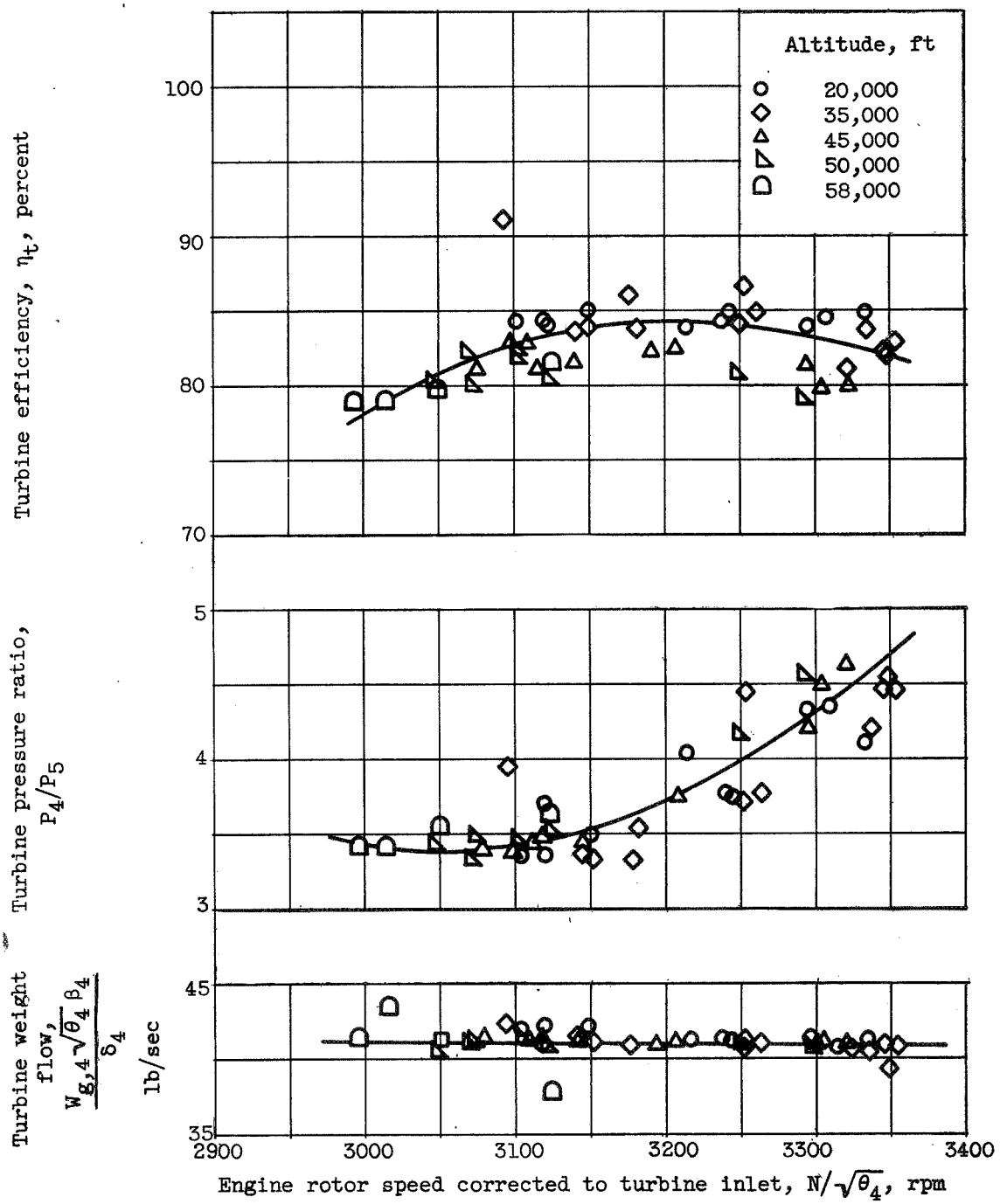
(a) Compressor.

Figure 5. - Component performance characteristics for a range of corrected rotor speeds and altitude flight conditions. Flight Mach number, 0.9.



(b) Engine combustor.

Figure 5. - Continued. Component performance characteristics for a range of corrected rotor speeds and altitude flight conditions. Flight Mach number, 0.9.



(c) Turbine

Figure 5. - Concluded. Component performance characteristics for a range of corrected rotor speeds and altitude flight conditions. Flight Mach number, 0.9.

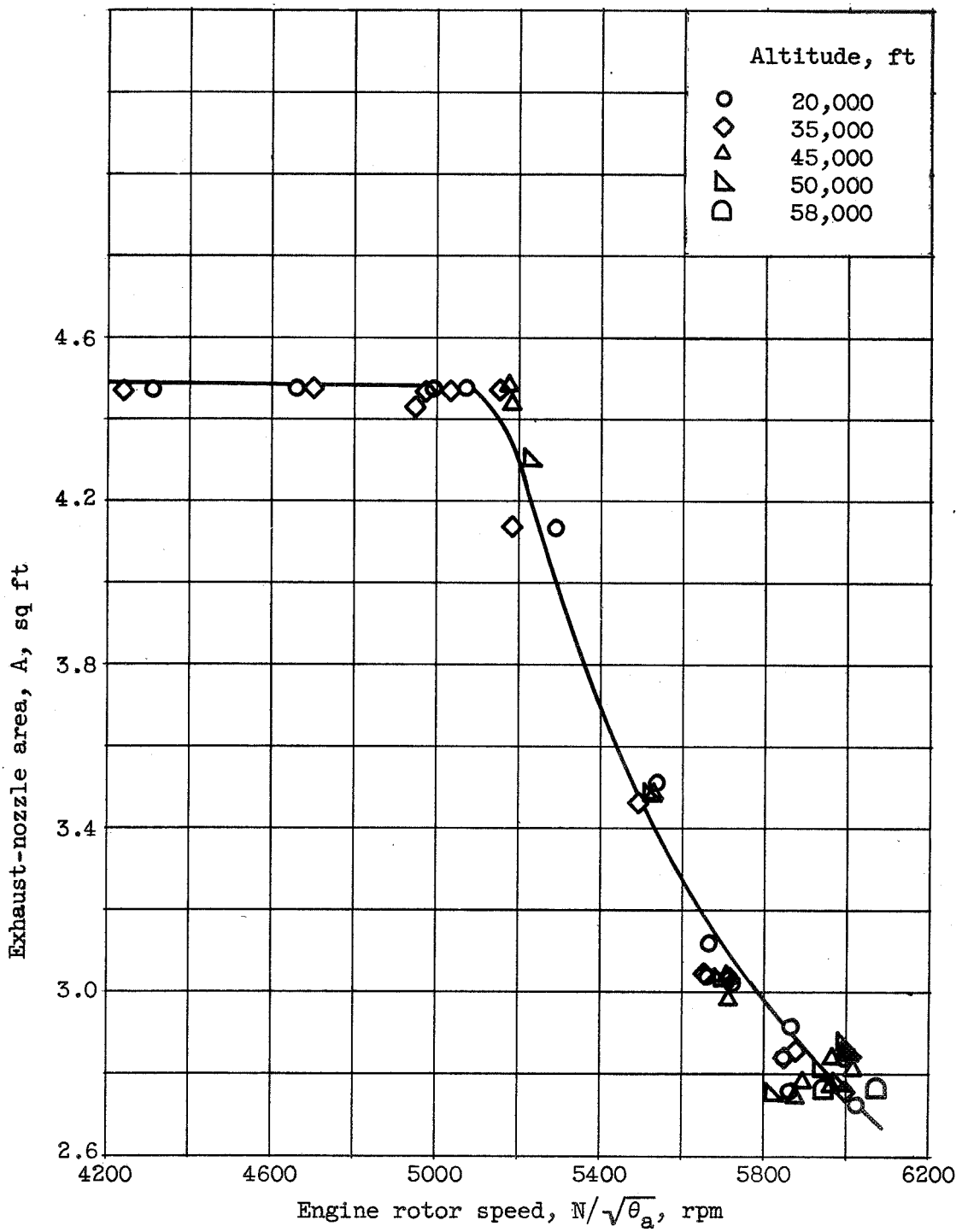


Figure 6. - Variation of exhaust-nozzle area with rotor speed as governed by X-26 engine control system for range of altitudes. Flight Mach number, 0.9.

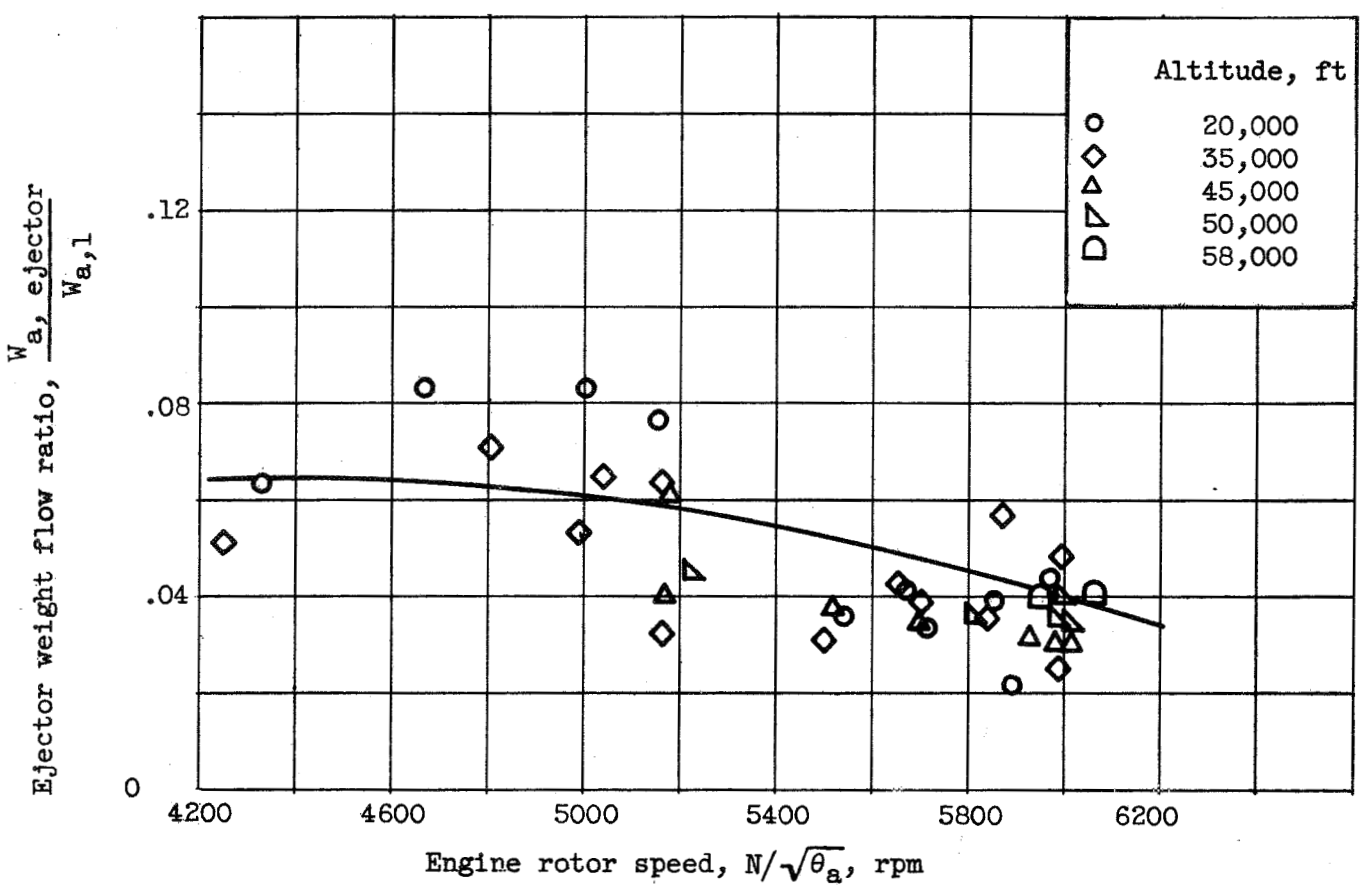


Figure 7. - Ratio of ejector inducted air flow to engine air flow during nonafterburning operation of engine at various altitudes. Flight Mach number, 0.9.

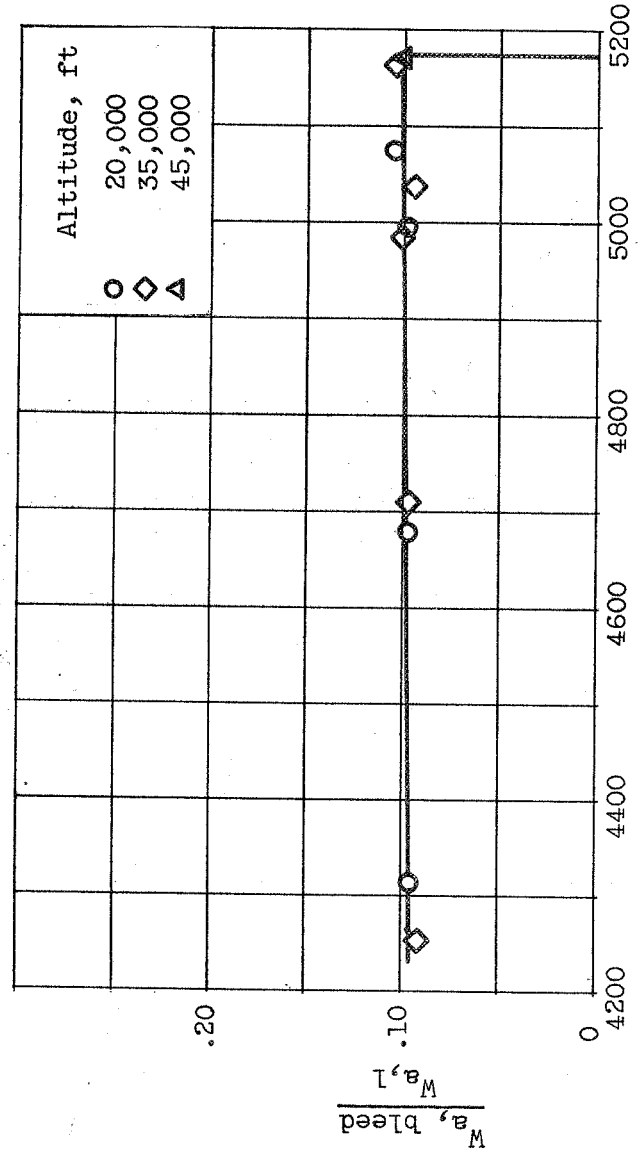


Figure 8. - Ratio of compressor air flow bled from compressor with variation of rotor speed. Flight Mach number, 0.9.

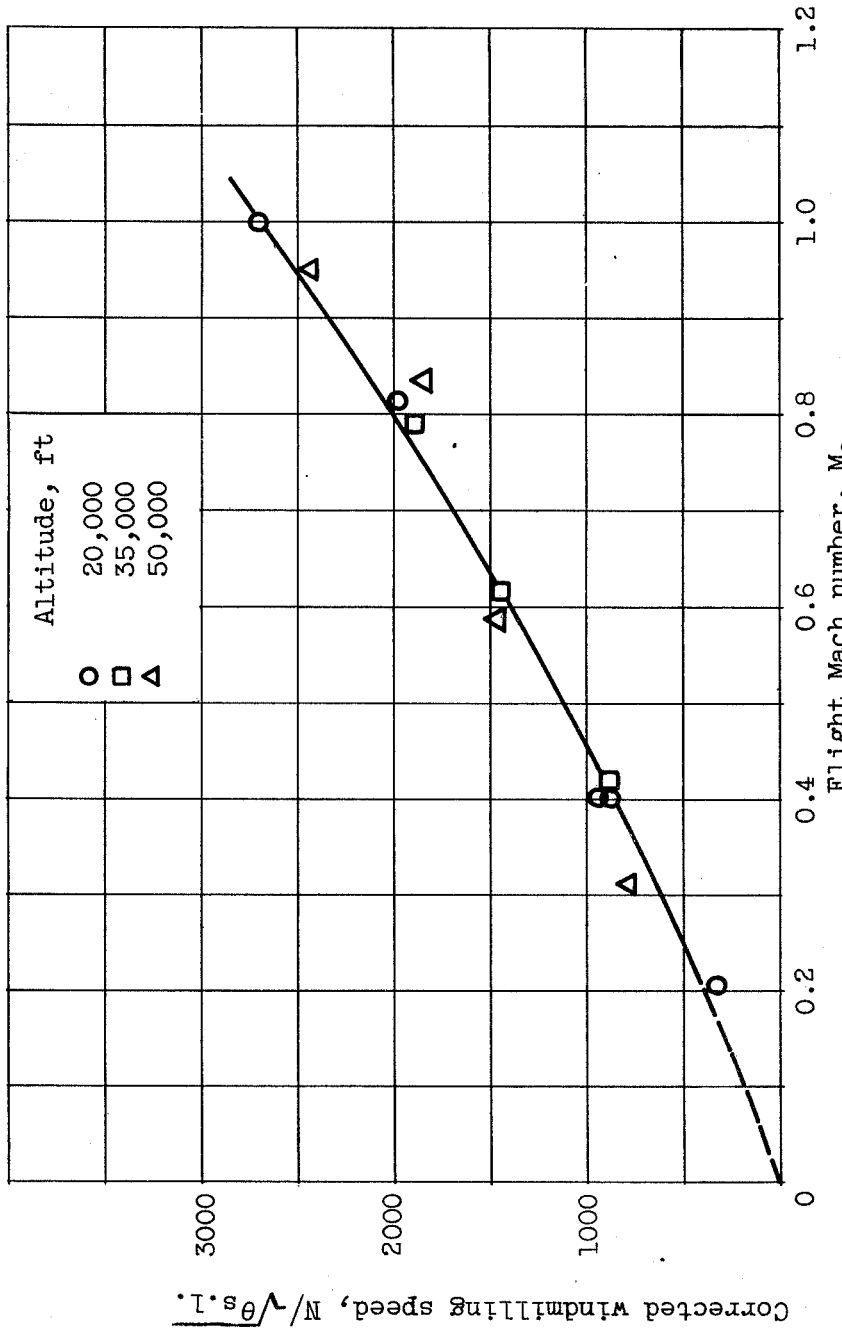


Figure 9. - Corrected engine windmilling speed for a range of flight Mach numbers and altitudes.

PRELIMINARY ALTITUDE PERFORMANCE DATA FOR THE J71-A2 (X-26) TURBOJET ENGINE

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PRELIMINARY ALTITUDE PERFORMANCE DATA FOR THE J71-A2 (X-26) TURBOJET ENGINE

Abstract

Data were obtained in an altitude test chamber for a range of altitudes from 20,000 to 58,000 feet at a flight Mach number of 0.9, and for several flight Mach numbers at an altitude of 45,000 feet. Data approximating sea-level operation are also included. Engine component performance data are presented in addition to windmilling, exhaust-nozzle, and ejector performance.