21,074

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part 1
general information

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LIST OF ILLUSTRATIONS

GENERAL INFORMATION.

The information in this Appendix is presented to assist the operating personnel in a better understanding of the performance capabilities and limitations of the aircraft. The objective of the Appendix is to provide specific performance values in graphical form covering all reasonable conditions under which the aircraft will be operated to enable the operating personnel to utilize the aircraft efficiently.

DISCUSSION OF CHARTS.

The performance charts are based on data obtained during flight tests.

The takeoff charts are presented in such a manner that the performance may be determined for any set of atmospheric conditions. The climb data are presented for Standard Day and Army Hot Day atmospheric conditions. Range performance may be determined for any atmospheric temperature condition by considering the altitude specified in the charts to be density altitude.

The performance charts are identified according to their type and condition of operation by colored page borders conforming to the following code:

Normal Operation.....Neutral
Emergency Operation .....Red

ATMOSPHERIC DATA.

The following charts of atmospheric data are included to aid in the use of this Appendix.

Temperature Correction for Compressibility
Density Altitude Chart
Standard Altitude Table
Psychrometric Chart

The Temperature Correction for Compressibility chart *(figure A1-1)* is important for cruise speeds at high altitudes when determining true airspeed. Careful navigation requires that the indicated temperature be corrected for compressibility in order to obtain $1/\sqrt{\sigma}$ accurately. A sample problem on the chart illustrates its use. The corrected value of OAT is used to enter the Density Altitude Chart *(figure A1-2)*.

A sample problem on the Density Altitude Chart shows how density altitude and the quantity $1/\sqrt{\sigma}$ are obtained from the pressure altitude and corrected outside air temperature. Values of sigma (σ), the density ratio of ambient air to standard sea level air, are tabulated for thousands of feet of altitude in the Standard Altitude Table *(figure A1-3)* and $1/\sqrt{\sigma}$ for hundreds of feet of altitude *(figure A1-3, sheet 2)*. The value $1/\sqrt{\sigma}$ is chiefly used in obtaining the true airspeed (TAS) from equivalent airspeed (EAS) by the relationship, $TAS = EAS \times 1/\sqrt{\sigma}$.

The Psychrometric Chart *(figure A1-4)* graphically relates the various measures of water vapor in the atmosphere. This chart is valuable primarily in obtaining specific humidity from the dew point and pressure altitude. The specific humidity is the measure of humidity used in determining takeoff performance. Although it is the dew point which is commonly furnished the pilot, occasionally humidity may be available as wet and dry bulb temperatures, and less often, as relative humidity. To meet all such situations the psychrometric chart provides a means of converting any of these variables into specific humidity. Directions for using the psychrometric chart and a sample problem are given on the chart itself.

AIRSPEED AND ALTIMETER CALIBRATION.

The Airspeed Position Error Correction charts *(figures A1-5 and A1-6)* and the Altimeter Position Error Correction charts *(figures A1-7 through A1-10)* are presented for use with aircraft with or without radome nose installation, in the clean configuration or with 40 degrees flaps and landing gear down.

The Calibrated Airspeed Correction for Compressibility chart *(figure A1-11)* is used to determine equivalent airspeed from calibrated airspeed. This is illustrated by a sample problem on the chart.

The Mph-Knots Conversion Chart *(figure A1-12)* is also provided to facilitate use of speed data given or needed in miles per hour.

AIRSPEED TERMINOLOGY.

Airspeed terminology used in this Appendix is defined as follows:

Term	*Abbreviation*	*Definition*
Indicated Airspeed	IAS	*Airspeed indicator reading uncorrected.
Calibrated Airspeed	CAS	Indicated airspeed corrected for position error.
Equivalent Airspeed	EAS	Calibrated airspeed corrected for compressibility.
True Airspeed	TAS	$TAS = EAS \times 1/\sqrt{\sigma}$

*IAS is used in this Appendix as though the mechanical error in the instrument is zero.

All airspeed data of importance in takeoff and landing procedures are shown in this Appendix as indicated airspeed (IAS). IAS for the ground run is based on an estimated position error equal to zero. Since all cruise and climb data is given in CAS, the airspeed position error charts are included to obtain the corresponding IAS. The Characteristic Takeoff Speeds charts *(figure A3-11)* and Characteristic Landing Speeds chart *(figure A6-2)* give IAS based on the inflight calibrations. The charts of Takeoff Performance Ground Run and Refusal Speed for the ground run *(figures A3-2 and A3-6)* give IAS based on negligible ground run position error.

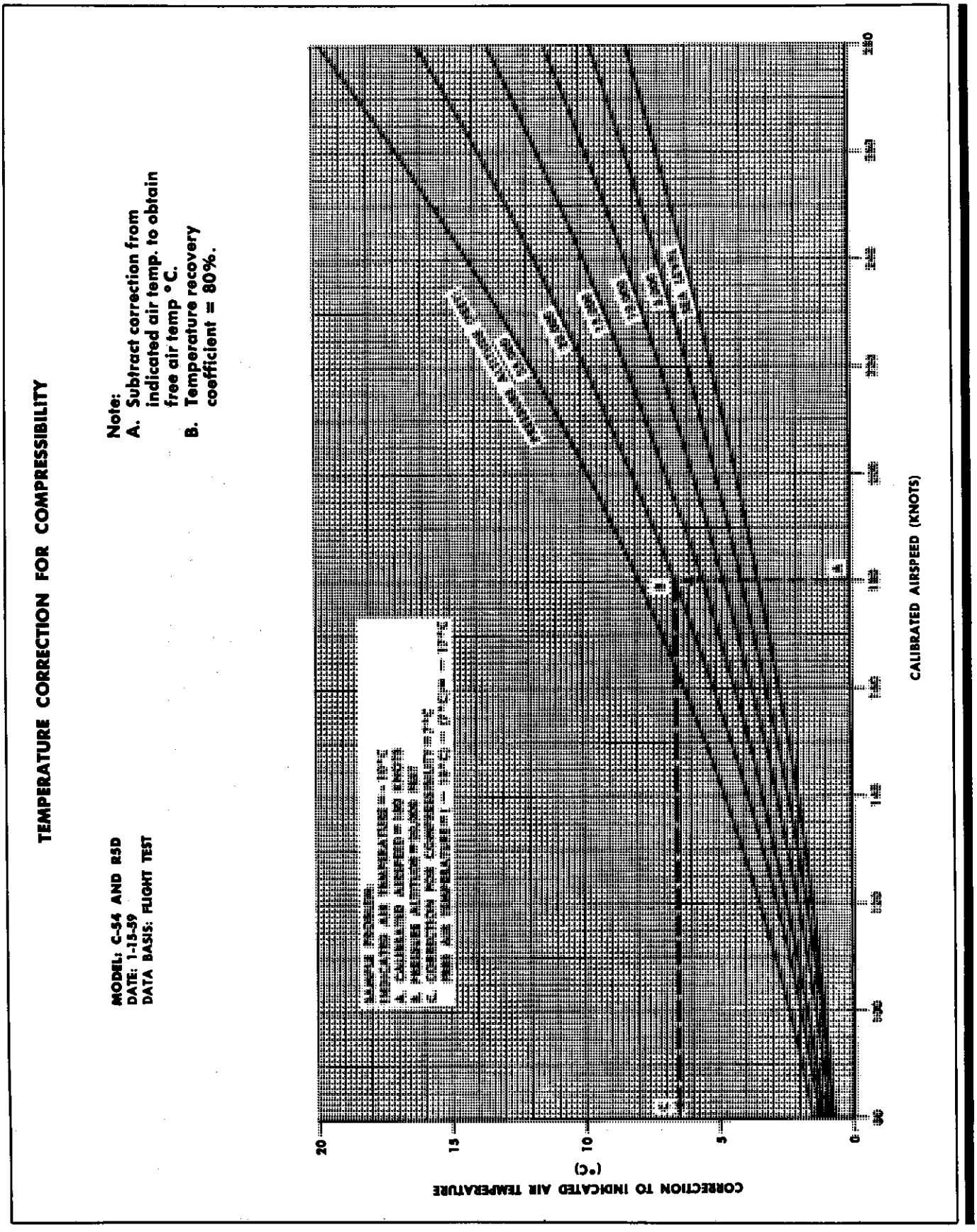

Figure A1-1. Temperature Correction for Compressibility

DENSITY ALTITUDE CHART

SAMPLE PROBLEM:
A. OUTSIDE AIR TEMPERATURE = 25°C
B. PRESSURE ALTITUDE = 1500 FEET
C. $\frac{1}{\sqrt{\sigma}} = 1.045$
D. DENSITY ALTITUDE = 3000 FEET

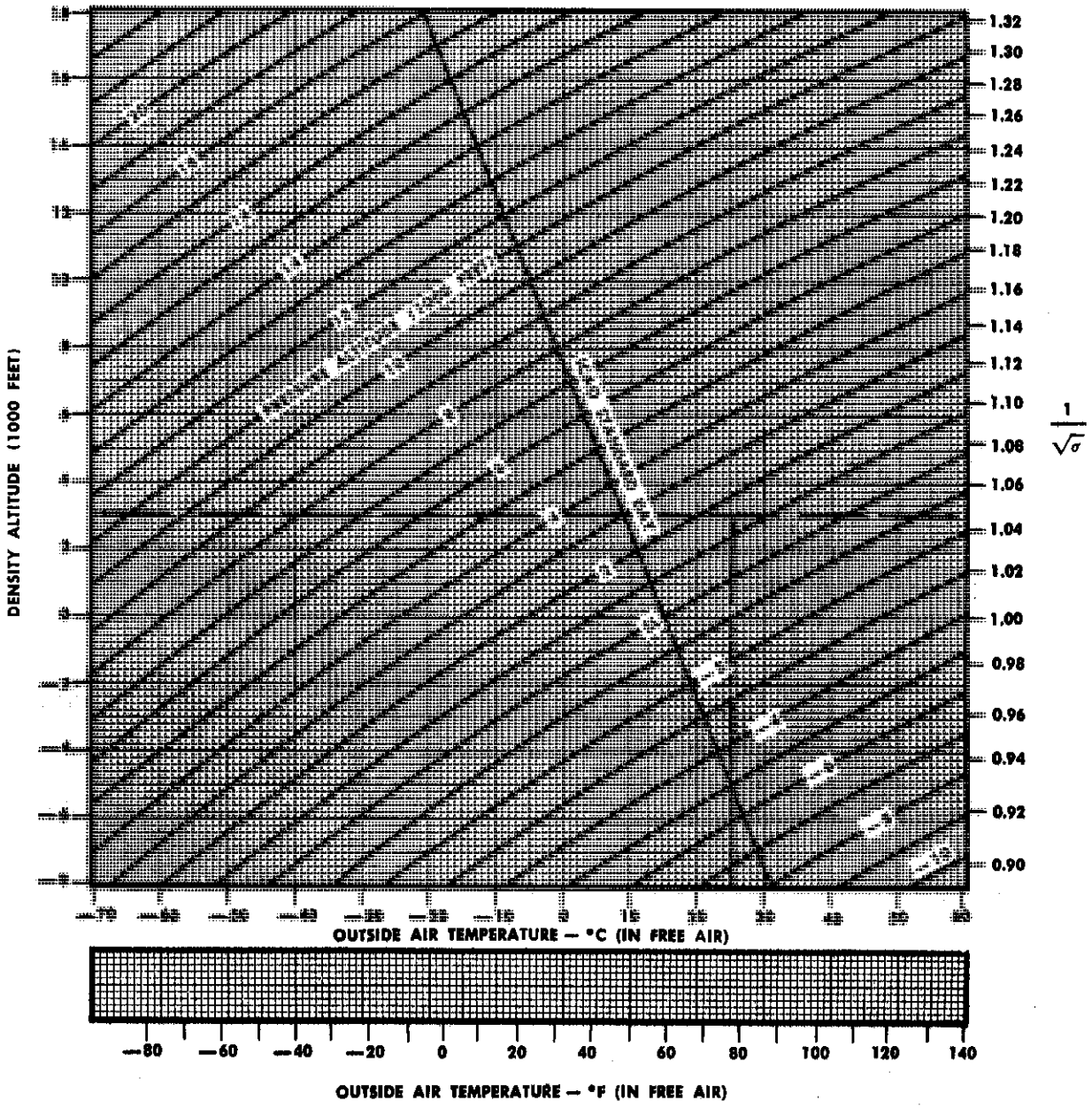

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Figure A1-2. Density Altitude Chart (Sheet 1 of 2)

DENSITY ALTITUDE CHART

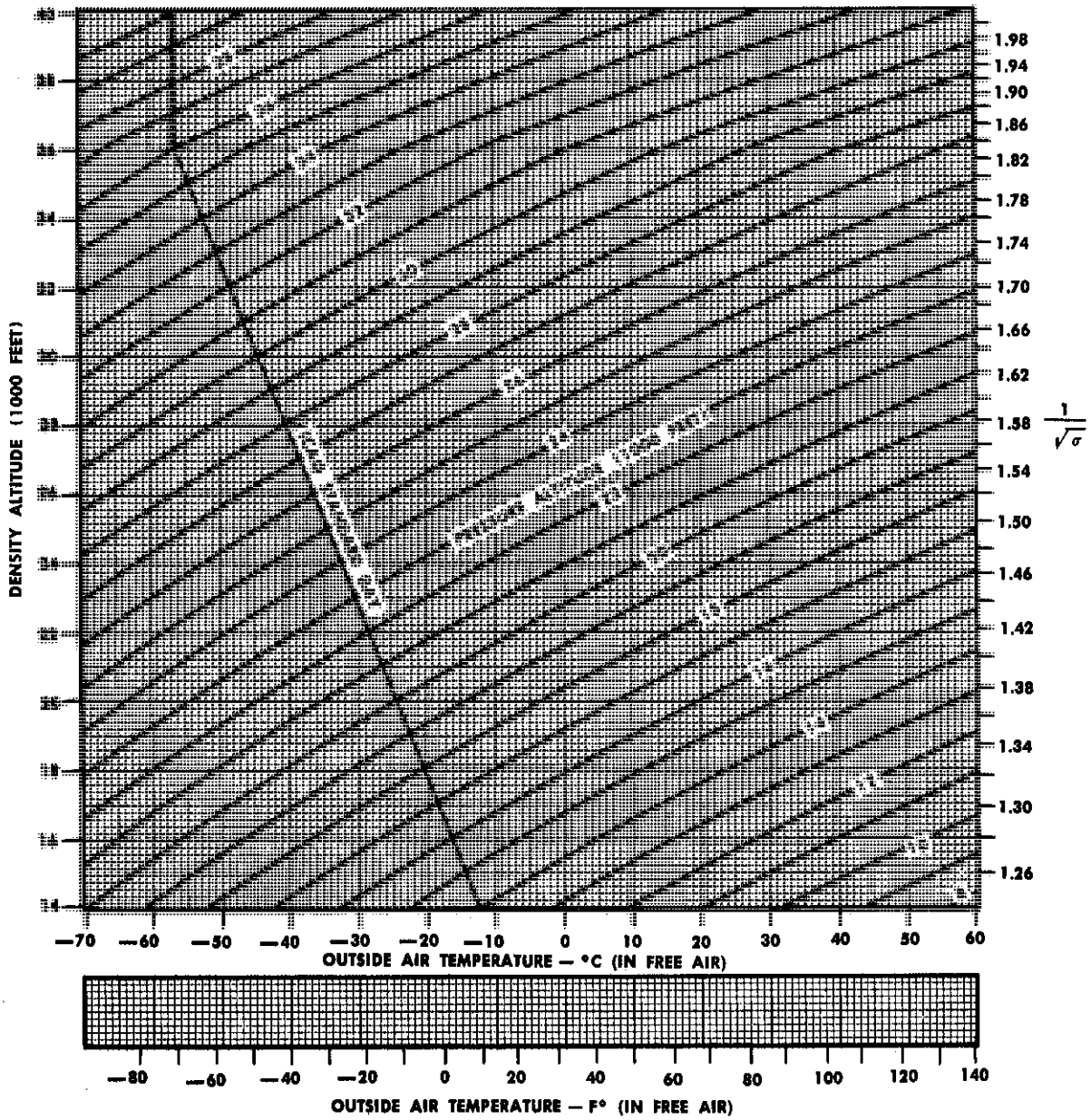

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Figure A1-2. Density Altitude Chart (Sheet 2 of 2)

ICAO STANDARD ALTITUDE TABLE

STANDARD S. L. CONDITIONS:

Temperature = 15°C (59°F)
Pressure = 29.921 in. Hg (2116.216 lb/sq. ft.)
Density = .0023769 slugs/cu. ft.
Speed of sound = 1116.89 ft/sec. (661.7 knots)

CONVERSION FACTORS:

1 in. Hg = 70.727 lb/sq. ft.
1 in. = 0.49116 lb/sq. in.
1 Knot = 1.151 mph
1 Knot = 1.688 ft. sec.

Altitude Feet	*Density Ratio* σ	$\frac{1}{\sqrt{\sigma}}$	*Temperature* °C	*Temperature* °F	*Speed of Sound (Knots)*	*Pressure In. Hg*	*Pressure Ratio* Δ
0	1.000	1.0000	15.000	59.000	661.7	29.921	1.0000
1000	.9711	1.0148	13.019	55.434	659.5	28.856	.9644
2000	.9428	1.0299	11.038	51.868	657.2	27.821	.9298
3000	.9151	1.0454	9.056	48.302	654.9	26.817	.8962
4000	.8881	1.0611	7.076	44.735	652.6	25.842	.8637
5000	.8617	1.0773	5.094	41.169	650.3	24.896	.8320
6000	.8359	1.0938	3.113	37.603	648.7	23.978	.8014
7000	.8106	1.1107	1.132	34.037	645.6	23.088	.7716
8000	.7860	1.1279	— 0.850	30.471	643.3	22.225	.7428
9000	.7620	1.1456	— 2.831	26.905	640.9	21.388	.7148
10,000	.7385	1.1637	— 4.812	23.338	638.6	20.577	.6877
11,000	.7155	1.1822	— 6.793	19.772	636.2	19.791	.6614
12,000	.6932	1.2011	— 8.774	16.206	633.9	19.029	.6360
13,000	.6713	1.2205	—10.756	12.640	631.5	18.292	.6113
14,000	.6500	1.2403	—12.737	9.074	629.0	17.577	.5875
15,000	.6292	1.2606	—14.718	5.508	626.6	16.886	.5643
16,000	.6090	1.2815	—16.699	1.941	624.2	16.216	.5420
17,000	.5892	1.3028	—18.680	— 1.625	621.8	15.569	.5203
18,000	.5699	1.3246	—20.662	— 5.191	619.4	14.942	.4994
19,000	.5511	1.3470	—22.643	— 8.757	617.0	14.336	.4791
20,000	.5328	1.3700	—24.624	—12.323	614.6	13.750	.4595
21,000	.5150	1.3935	—26.605	—15.889	612.1	13.184	.4406
22,000	.4976	1.4176	—28.587	—19.456	609.6	12.636	.4223
23,000	.4800	1.4424	—30.568	—23.022	607.1	12.107	.4046
24,000	.4642	1.4678	—32.549	—26.588	604.6	11.597	.3876
25,000	.4481	1.4938	—34.530	—30.154	602.1	11.103	.3711
26,000	.4325	1.5206	—36.511	—33.720	599.6	10.627	.3552
27,000	.4173	1.5480	—38.492	—37.286	597.1	10.168	.3398
28,000	.4025	1.5762	—40.474	—40.852	594.6	9.725	.3250
29,000	.3881	1.6052	—42.455	—44.419	592.1	9.297	.3107
30,000	.3741	1.6349	—44.436	—47.985	589.5	8.885	.2970
31,000	.3605	1.6654	—46.417	—51.551	586.9	8.488	.2837
32,000	.3473	1.6968	—48.398	—55.117	584.4	8.106	.2709
33,000	.3345	1.7291	—50.379	—58.683	581.8	7.737	.2586
34,000	.3220	1.7623	—52.361	—62.249	579.2	7.382	.2467
35,000	.3099	1.7964	—54.342	—65.816	576.6	7.041	.2353
36,000	.2981	1.8315	—56.323	—69.382	574.0	6.712	.2243
36,089	.2971	1.8347	—56.500	—69.700	573.7	6.683	.2234
37,000	.2843	1.8753	—56.500	—69.700	573.7	6.397	.2138
38,000	.2710	1.9209	—56.500	—69.700	573.7	6.097	.2038
39,000	.2583	1.9677	—56.500	—69.700	573.7	5.811	.1942
40,000	.2462	2.0058	—56.500	—69.700	573.7	5.538	.1851
41,000	.2346	2.0645	—56.500	—69.700	573.7	5.278	.1764
42,000	.2236	2.1148	—56.500	—69.700	573.7	5.030	.1681
43,000	.2131	2.1662	—56.500	—69.700	573.7	4.794	.1602
44,000	.2031	2.2189	—56.500	—69.700	573.7	4.569	.1527
45,000	.1936	2.2728	—56.500	—69.700	573.7	4.355	.1455

Figure A1-3. ICAO Standard Altitude Table (Sheet 1 of 2)

ICAO STANDARD ALTITUDE TABLE

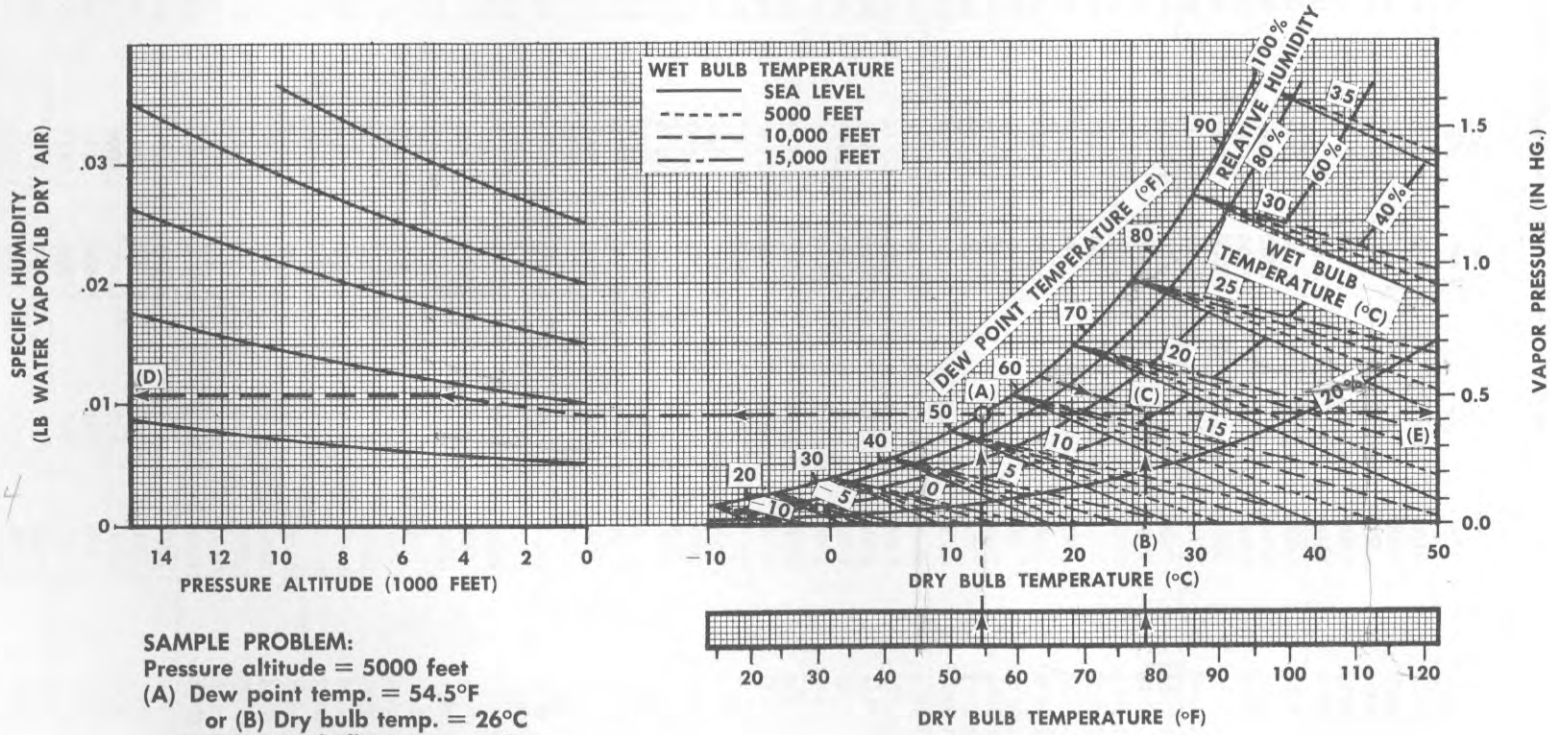
ALTITUDE IN 100-FOOT INCREMENTS AND $\frac{1}{\sqrt{\sigma}}$

Altitude Feet	$\frac{1}{\sqrt{\sigma}}$	Altitude Feet	$\frac{1}{\sqrt{\sigma}}$	Altitude Feet	$\frac{1}{\sqrt{\sigma}}$	Altitude Feet	$\frac{1}{\sqrt{\sigma}}$	Altitude Feet	$\frac{1}{\sqrt{\sigma}}$
100	1.0014	6100	1.0954	12100	1.2031	18100	1.3267	24100	1.4706
200	1.0029	6200	1.0971	12200	1.2050	18200	1.3292	24200	1.4732
300	1.0044	6300	1.0988	12300	1.2070	18300	1.3314	24300	1.4758
400	1.0059	6400	1.1005	12400	1.2089	18400	1.3337	24400	1.4784
500	1.0074	6500	1.1022	12500	1.2109	18500	1.3360	24500	1.4810
600	1.0088	6600	1.1039	12600	1.2128	18600	1.3382	24600	1.4836
700	1.0103	6700	1.1056	12700	1.2147	18700	1.3405	24700	1.4862
800	1.0118	6800	1.1073	12800	1.2167	18800	1.3427	24800	1.4888
900	1.0133	6900	1.1090	12900	1.2186	18900	1.3450	24900	1.4914
1000	1.0148	7000	1.1107	13000	1.2206	19000	1.3473	25000	1.4940
1100	1.0163	7100	1.1124	13100	1.2225	19100	1.3493	25100	1.4966
1200	1.0178	7200	1.1141	13200	1.2245	19200	1.3518	25200	1.4993
1300	1.0193	7300	1.1158	13300	1.2265	19300	1.3541	25300	1.5020
1400	1.0208	7400	1.1176	13400	1.2285	19400	1.3564	25400	1.5047
1500	1.0223	7500	1.1193	13500	1.2305	19500	1.3587	25500	1.5074
1600	1.0238	7600	1.1210	13600	1.2324	19600	1.3609	25600	1.5111
1700	1.0253	7700	1.1228	13700	1.2337	19700	1.3632	25700	1.5128
1800	1.0268	7800	1.1245	13800	1.2364	19800	1.3655	25800	1.5155
1900	1.0283	7900	1.1262	13900	1.2385	19900	1.3678	25900	1.5182
2000	1.0299	8000	1.1280	14000	1.2404	20000	1.3701	26000	1.5209
2100	1.0314	8100	1.1297	14100	1.2424	20100	1.3724	26100	1.5236
2200	1.0329	8200	1.1315	14200	1.2444	20200	1.3748	26200	1.5264
2300	1.0344	8300	1.1332	14300	1.2465	20300	1.3771	26300	1.5291
2400	1.0360	8400	1.1350	14400	1.2495	20400	1.3795	26400	1.5319
2500	1.0375	8500	1.1368	14500	1.2506	20500	1.3819	26500	1.5346
2600	1.0390	8600	1.1385	14600	1.2526	20600	1.3842	26600	1.5374
2700	1.0406	8700	1.1403	14700	1.2546	20700	1.3866	26700	1.5401
2800	1.0421	8800	1.1420	14800	1.2567	20800	1.3889	26800	1.5429
2900	1.0436	8900	1.1438	14900	1.2587	20900	1.3913	26900	1.5456
3000	1.0454	9000	1.1456	15000	1.2608	21000	1.3937	27000	1.5484
3100	1.0469	9100	1.1474	15100	1.2628	21100	1.3961	27100	1.5512
3200	1.0485	9200	1.1492	15200	1.2649	21200	1.3985	27200	1.5540
3300	1.0501	9300	1.1510	15300	1.2670	21300	1.4009	27300	1.5569
3400	1.0516	9400	1.1528	15400	1.2691	21400	1.4033	27400	1.5597
3500	1.0531	9500	1.1546	15500	1.2712	21500	1.4068	27500	1.5626
3600	1.0548	9600	1.1564	15600	1.2732	21600	1.4082	27600	1.5654
3700	1.0563	9700	1.1582	15700	1.2753	21700	1.4106	27700	1.5682
3800	1.0579	9800	1.1600	15800	1.2774	21800	1.4130	27800	1.5711
3900	1.0595	9900	1.1618	15900	1.2795	21900	1.4154	27900	1.5739
4000	1.0611	10000	1.1637	16000	1.2816	22000	1.4179	28000	1.5768
4100	1.0627	10100	1.1655	16100	1.2837	22100	1.4203	28100	1.5796
4200	1.0643	10200	1.1674	16200	1.2858	22200	1.4228	28200	1.5825
4300	1.0659	10300	1.1692	16300	1.2879	22300	1.4253	28300	1.5854
4400	1.0675	10400	1.1711	16400	1.2901	22400	1.4277	28400	1.5883
4500	1.0692	10500	1.1729	16500	1.2922	22500	1.4302	28500	1.5912
4600	1.0707	10600	1.1748	16600	1.2943	22600	1.4327	28600	1.5940
4700	1.0724	10700	1.1756	16700	1.2965	22700	1.4351	28700	1.5969
4800	1.0740	10800	1.1765	16800	1.2986	22800	1.4376	28800	1.5998
4900	1.0756	10900	1.1803	16900	1.3007	22900	1.4401	28900	1.6027
5000	1.0773	11000	1.1822	17000	1.3029	23000	1.4426	29000	1.6056
5100	1.0789	11100	1.1841	17100	1.3050	23100	1.4451	29100	1.6085
5200	1.0806	11200	1.1860	17200	1.3072	23200	1.4477	29200	1.6115
5300	1.0822	11300	1.1879	17300	1.3094	23300	1.4502	29300	1.6144
5400	1.0839	11400	1.1898	17400	1.3116	23400	1.4528	29400	1.6174
5500	1.0855	11500	1.1917	17500	1.3138	23500	1.4553	29500	1.6204
5600	1.0872	11600	1.1926	17600	1.3159	23600	1.4579	29600	1.6233
5700	1.0888	11700	1.1955	17700	1.3181	23700	1.4604	29700	1.6263
5800	1.0901	11800	1.1974	17800	1.3203	23800	1.4630	29800	1.6292
5900	1.0921	11900	1.1993	17900	1.3225	23900	1.4656	29900	1.6322
6000	1.0938	12000	1.2012	18000	1.3247	24000	1.4681	30000	1.6352

Figure A1-3. ICAO Standard Altitude Table (Sheet 2 of 2)

PSYCHROMETRIC CHART

Note:
This chart is entered with the dew point or with dry and wet bulb temperatures. To find the intersection of the dry bulb ordinate and the wet bulb line, enter on the dew point scale with the wet bulb temperature and parallel the appropriate altitude line to the dry bulb temperature ordinate. From this intersection, or from the dew point, go horizontally right to obtain the vapor pressure or left, following the guide lines to the appropriate altitude, to obtain the specific humidity.



SAMPLE PROBLEM:
Pressure altitude = 5000 feet
(A) Dew point temp. = 54.5°F
or (B) Dry bulb temp. = 26°C
and (C) Wet bulb temp. = 17°C
(D) Specific humidity = 0.0108
(E) Vapor pressure = 0.425 in. hg.

Figure A1-4. Psychrometric Chart

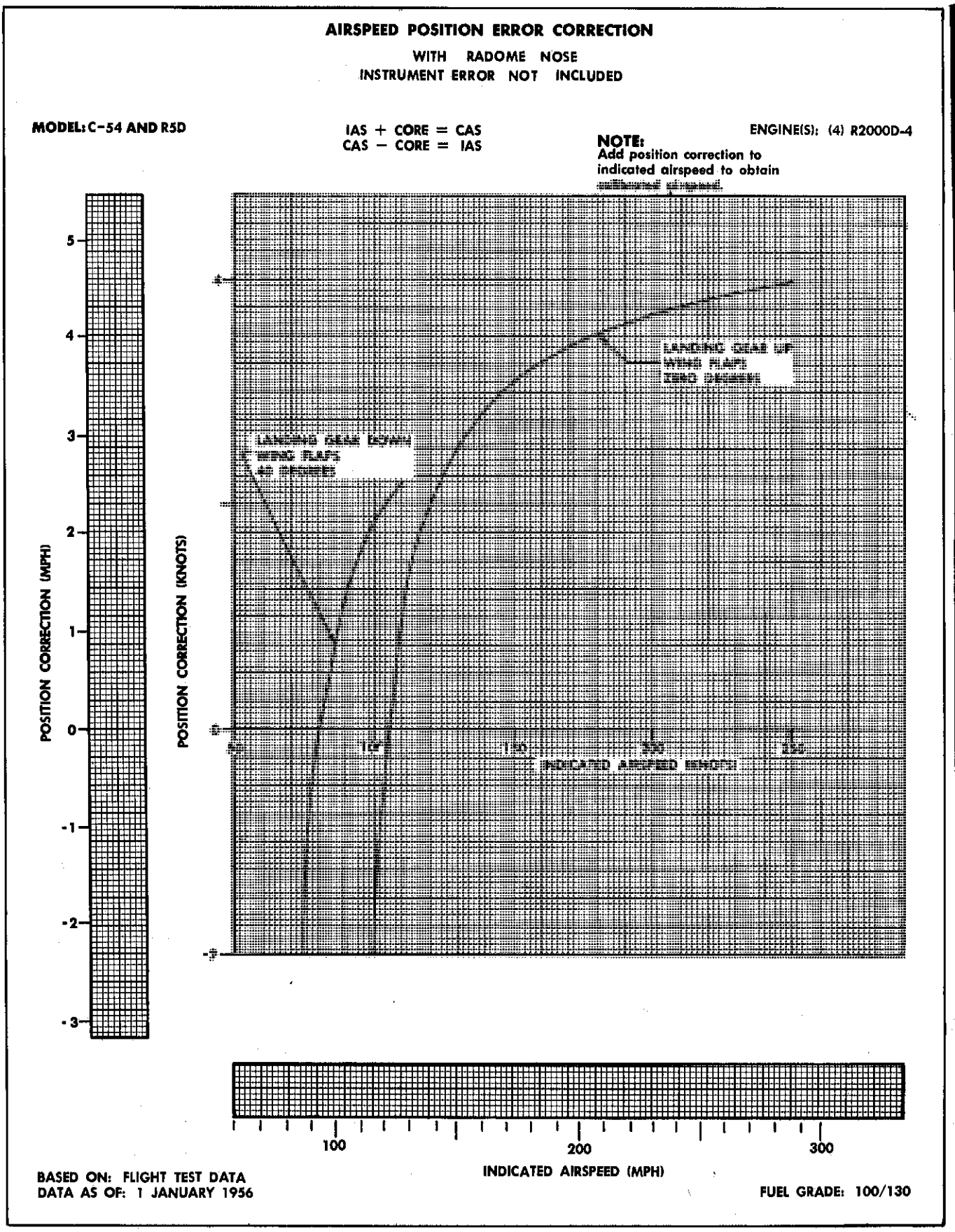


Figure A1-5. Airspeed Position Error Correction

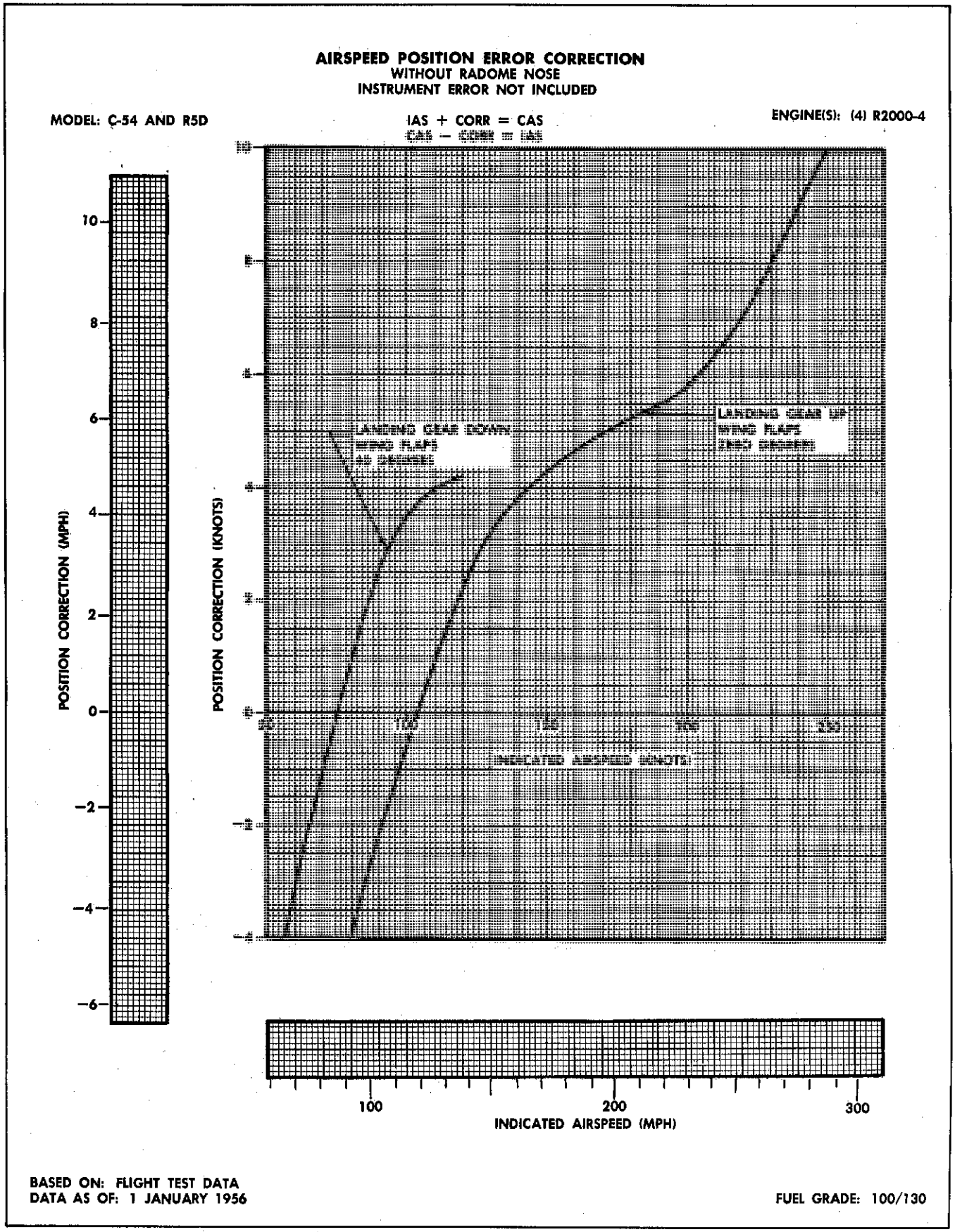


Figure A1-6. Airspeed Position Error Correction — No Radome Nose

ALTIMETER POSITION ERROR CORRECTION

WITH RADOME NOSE
GEAR UP — WING FLAPS ZERO DEGREES
INSTRUMENT ERROR NOT INCLUDED

MODEL: C-54 AND R5D

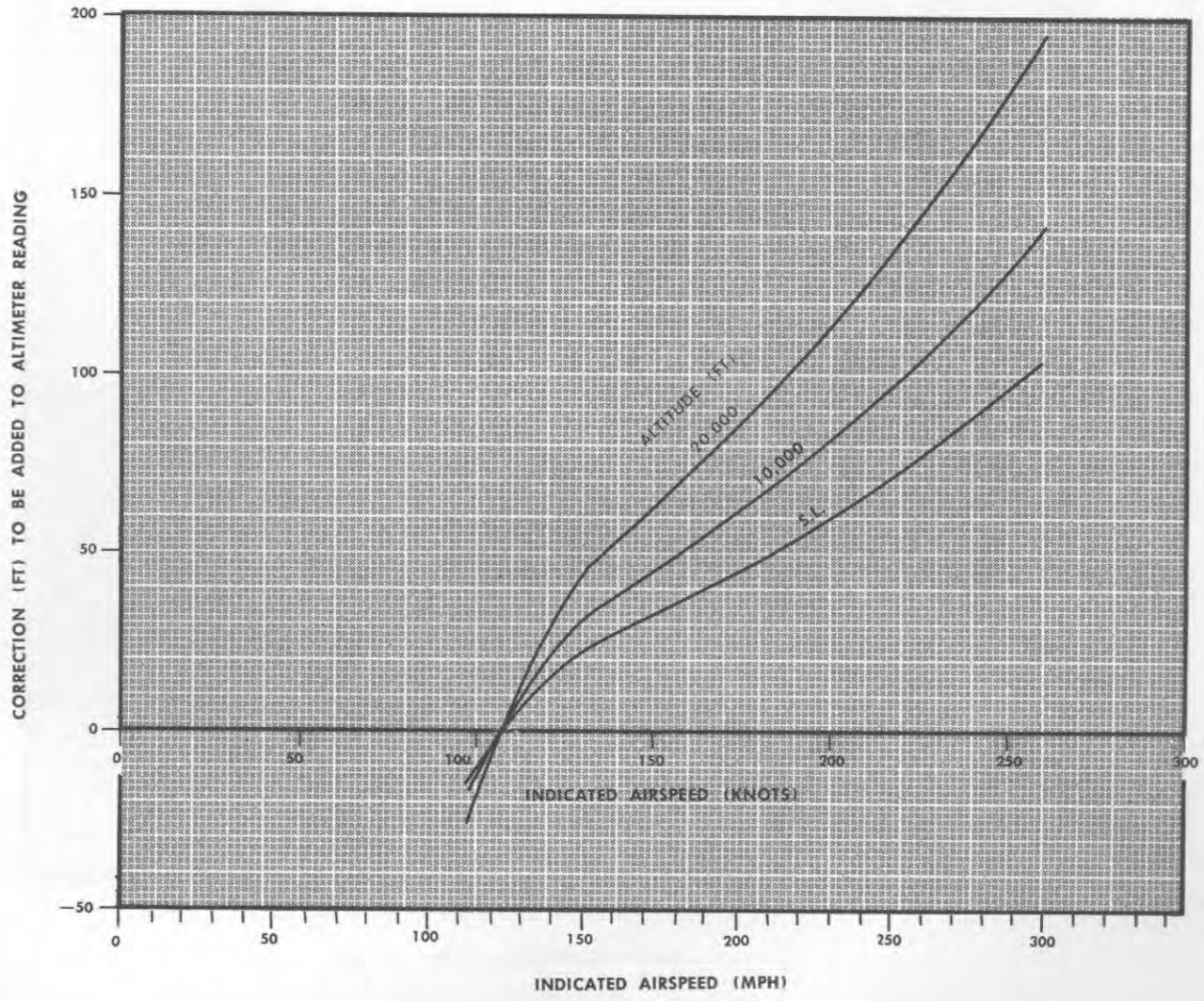


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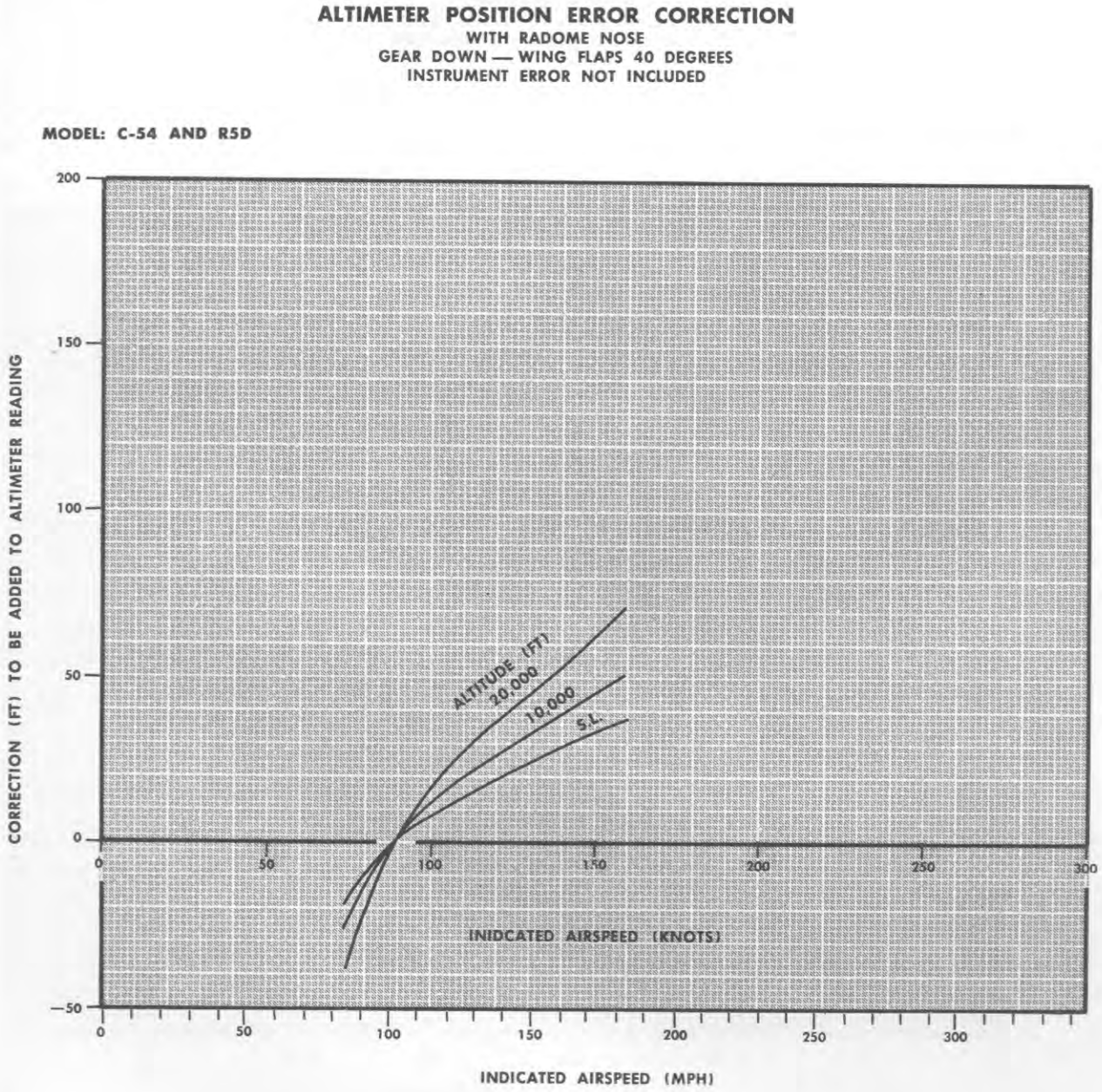
Figure A1-7. Altimeter Position Error Correction — Clean Configuration



X1-37

Figure A1-8. Altimeter Position Error Correction — Gear and Flaps Down

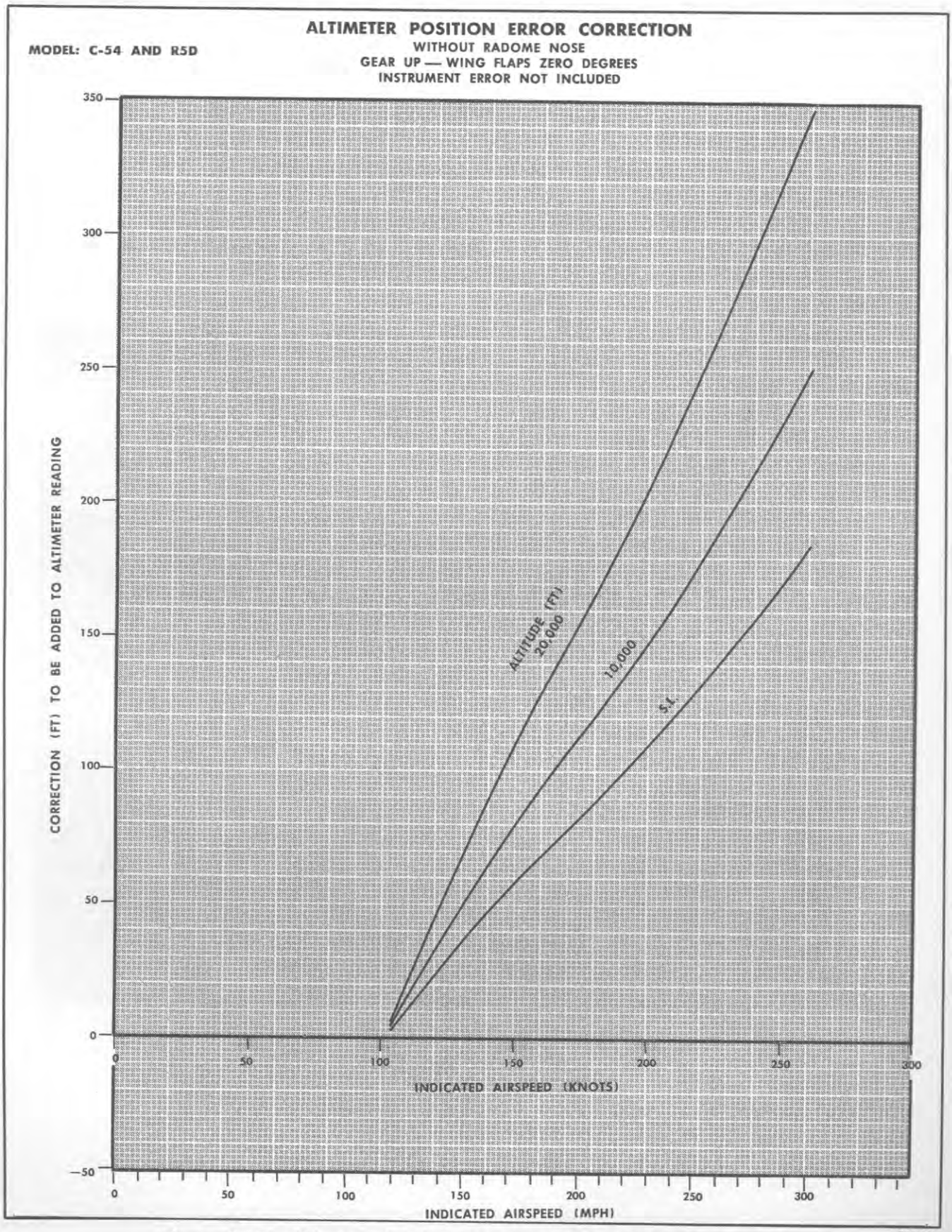
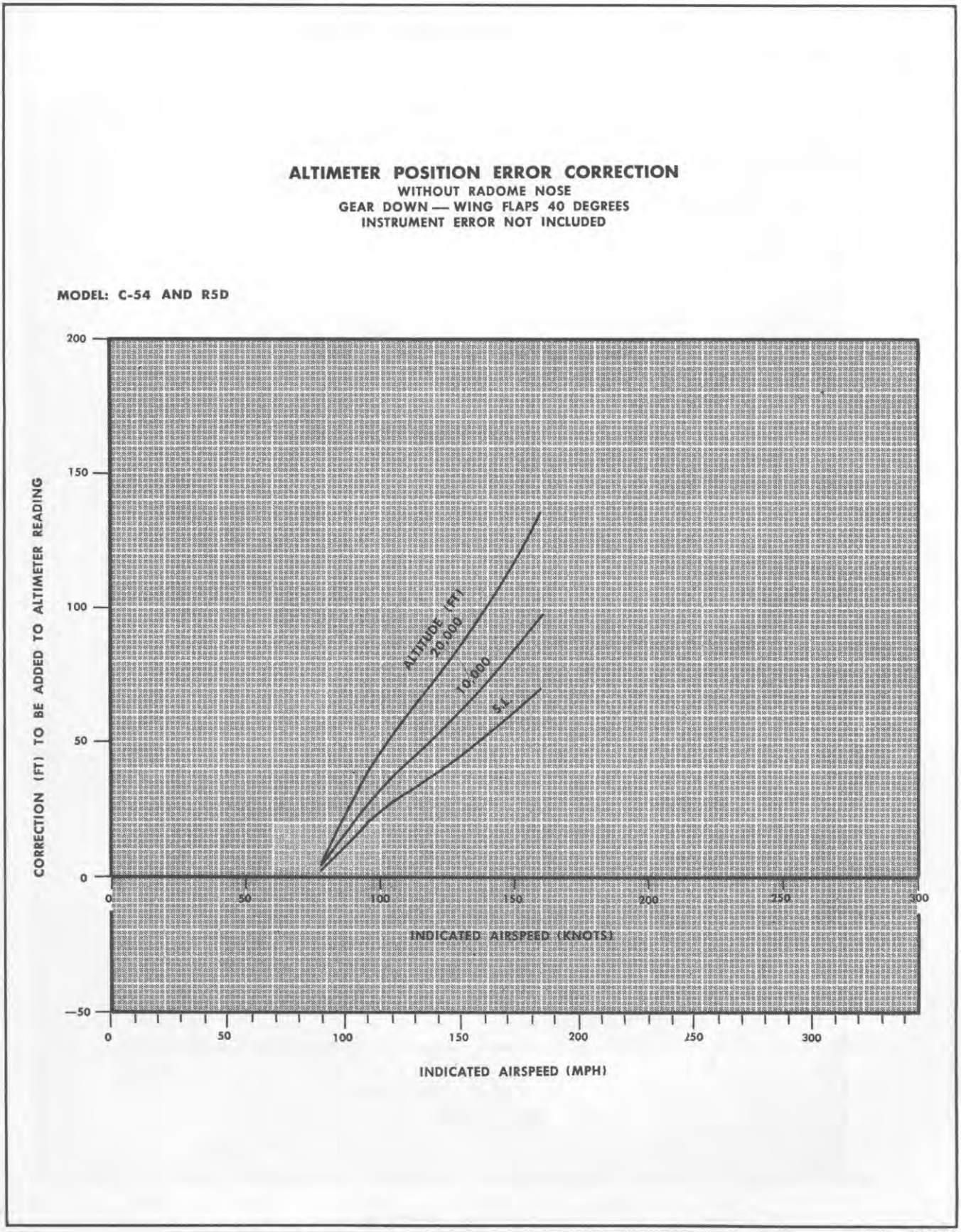


Figure A1-9. Altimeter Position Error Correction — No Radome Nose



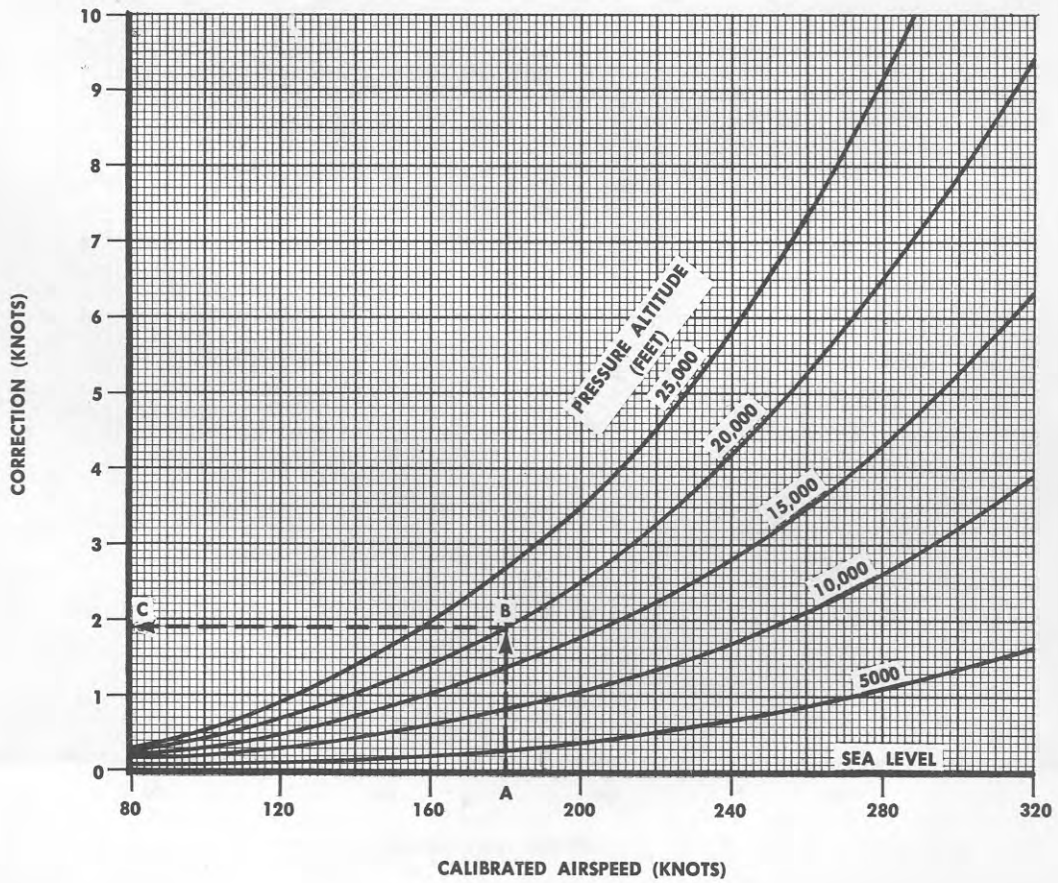
X1-39

Figure A1-10. Altimeter Position Error Correction — No Radome Nose — Gear and Flaps Down

CALIBRATED AIRSPEED CORRECTION FOR COMPRESSIBILITY

Note:
Subtract correction from calibrated airspeed to obtain equivalent airspeed.

SAMPLE PROBLEM
GIVEN: Pressure altitude = 20,000 feet
calibrated airspeed = 180 knots
A. Enter graph at 180 knots CAS
B. At 20,000 feet read correction
C. Correction = 1.9 knots (2.0)
Subtract correction from calibrated airspeed to obtain equivalent airspeed
180 knots CAS — 2 knots = 178 knots EAS



X1-134

Figure A1-11. Calibrated Airspeed Correction for Compressibility

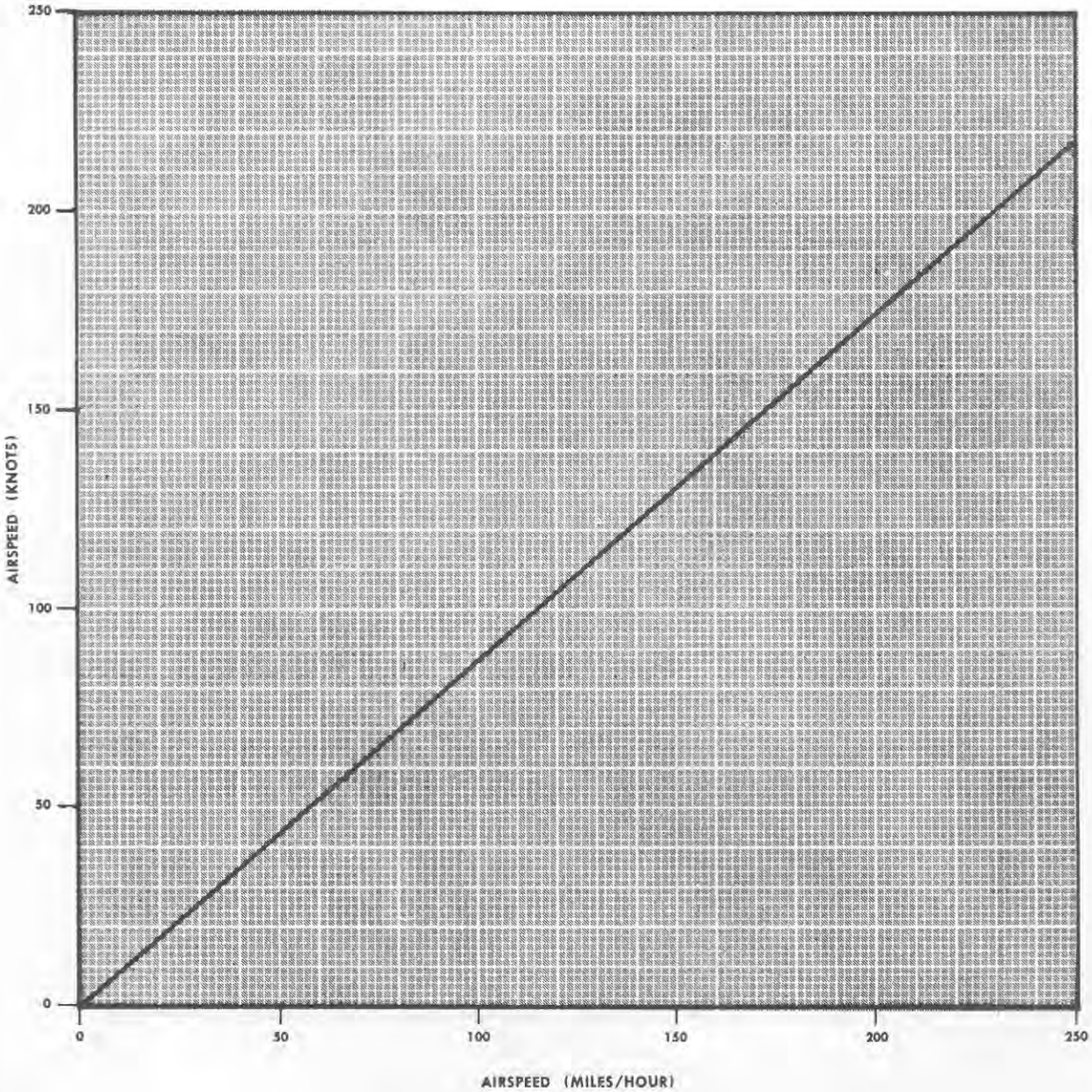


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Figure A1-12. MPH — Knots Conversion Chart

part 2
engine data

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ENGINE DATA.

DISCUSSION OF CHARTS.

Power plant characteristics are presented in the Engine Calibration Curves *(figures A2-2 through A2-5)* for the "no ram" condition. All data are based on engines having PD-12F13 carburetors. Recommended rpm and manifold pressure settings for desired cruising powers are given on the specific range graphs. These settings are based on standard atmospheric conditions.

Manifold Absolute Pressure (MAP) is intake manifold pressure given in inches of mercury absolute (based on zero pressure).

All performance charts specify engine operation with Auto-Rich or Auto-Lean, with a fuel grade of 100/130.

All flight performance is based on the carburetor air lever being in the COLD position. If carburetor heat is applied at constant manifold pressure, engine power will be decreased at constant manifold pressure because of the higher carburetor air temperature. In addition, the normal air induction system is partially restricted and the carburetor air is taken from a location behind the cylinders. This air, having passed over the engine section, has less ram energy remaining, so that lower manifold pressures will be obtained with a fixed throttle setting.

The power losses attributable to atmospheric conditions may be estimated. The effect of temperature on brake horsepower can be approximated by the following equations:

$$\frac{bhp_{std}}{bhpT_1} = \sqrt{\frac{T_1}{T_{std}}}$$ For part throttle constant manifold pressure operation.

$$\frac{bhp_{std}}{bhpT_1} = \sqrt{\frac{T_1}{T_{std}}}$$ For full throttle operation.

Where T_1 and T_{std} are absolute temperature.

Absolute temperature = ambient temperature (degrees centigrade) + 273.

The following rules of thumb may be used to quickly approximate the effect of temperature on power:

1. For part throttle constant manifold pressure operation, a 10°C temperature increase above standard results in approximately 1.7 percent power loss. Similarly, 10°C temperature decrease below standard results in approximately 1.7 percent power gain.

2. For full throttle operation, a 10°C temperature increase above standard results in approximately 3.5 percent power loss. Similarly, a 10°C temperature decrease below standard results in approximately 3.5 percent power gain.

3. The variation in manifold pressure with temperature in order to maintain constant power is approximately ½ inch Hg increase for every 10°C above standard. In order to maintain constant power for cold day cruise operation, the manifold pressure should be decreased approximately ½ inch Hg for every 10°C below standard OAT. During takeoff under cold temperature conditions, when overpowering is possible, reduce manifold pressure approximately 1.0 inch Hg for every 10°C below standard OAT.

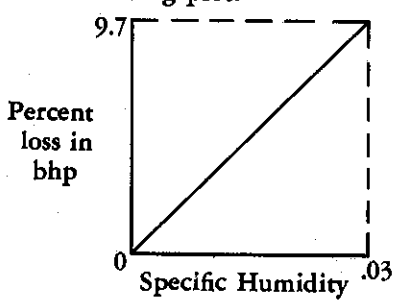
$$MAP_{corr} = MAP_{std} \sqrt{\frac{\text{CAT Absolute Temp.}}{\text{Std. Absolute Temp.}}}$$

The effect of humidity on engine power output is as follows:

1. Effective pressure and density altitudes are increased because of the presence of vapor pressure.

2. Fuel-air ratio is increased because fuel is metered on total flow through the venturi, and the total flow includes water vapor as well as air.

3. The thermal efficiency of the combustion process is reduced because of the presence of water vapor. The effect of humidity on power output for takeoff is shown on the following plot:



4. For cruise operation, the bhp loss associated with humidity is normally cancelled out by the gain in bhp due to increased ram effect with airspeed; therefore, although the engine calibration charts are labeled Zero Ram, data obtained will approximate actual performance.

Note

On all charts in this Appendix, the term METO (Maximum Except Takeoff) is substituted for normal rated power and the term MAXIMUM for takeoff power.

POWER SETTINGS.

Various permissible combinations of manifold pressure, rpm, and blower settings for pressure altitudes from sea level to 20,000 feet and carburetor air temperatures from −20°C to 20°C are presented in the

constant cruise power settings charts *(figures A2-1 through A2-1H)*, the METO power settings chart *(figure A2-1J)*, and the climb power settings chart *(figure A2-1K)*. The constant cruise power settings charts are based on auto lean operation and the METO power settings and climb power settings charts are based on auto rich operation. Resultant bmep, and resultant fuel flow in pounds per hour for one engine and for four engines are also indicated on the charts.

ENGINE CALIBRATION CURVES.

The Engine Calibration curves *(figures A2-2 through A2-5)* are presented in facing pairs of charts, which together provide the information necessary to determine both the engine power limits and the engine power settings for a range of powers up to the allowable limits. A pair of charts is included for each of four engine conditions:

Auto-Rich – Low Blower

Auto-Rich – High Blower

Auto-Lean – Low Blower

Auto-Lean – High Blower

These charts are the basis for takeoff, climb, and cruise data shown throughout this Appendix. They are intended to provide a graphic presentation of the two types of engine power limitations, those imposed by the engine manufacturer to prevent detonation and other effects of overboosting, and those due to the decreasing density of air with increasing altitude. From these charts, manifold pressure and rpm settings for desired brake horsepowers within the particular limiting bmep envelope are easily found in the event the required power and altitude conditions are not covered in the specific range or climb portion of this Appendix.

The first chart of each pair (sheet 1) shows the variation of bhp with MAP for several rpm's when maintaining a fixed altitude, while the second chart (sheet 2) shows the variation of bhp and MAP with altitude for several rpm's when maintaining full throttle. On both charts, the upper end of each rpm line is terminated at the bhp limit for that rpm. Sheet 2 shows the pressure altitude at which this bhp limit is obtained with full throttle; this altitude is known as the critical altitude for that particular rpm, blower ratio, mixture setting and atmospheric condition.

On sheet 2, the full throttle line extending from the critical altitude towards higher altitudes, together with the imaginary part throttle line extending from the critical altitude down to sea level (at constant bhp) forms the limiting power envelope for that rpm. To determine the rpm and MAP required to develop a given bhp at a given altitude, it is necessary to determine the rpm whose limiting power envelope passes through that bhp-altitude point; this will be the minimum rpm required to develop the required power. In the event the bhp-altitude point falls on the full throttle segment of the limiting power envelope, the MAP may be read directly from the graph. However, if it falls on the imaginary part-throttle segment of the limiting power envelope, or if it is desirable to use an rpm higher than the minimum, the MAP cannot be read directly from the graph. Instead, a line parallel to the guide lines showing the variation of brake horsepower with altitude for constant rpm and manifold pressure must be drawn through the bhp-altitude point and extended to the reference altitude at the left edge of the graph (sea level for low blower graphs and 10,000 feet altitude for high blower graphs). Note the value of bhp at this altitude.

Sheet 1 should then be entered at the bhp noted previously and the MAP for the desired rpm can be read from the scale at the bottom of the graph. Furthermore, the MAP for the same bhp at any higher rpm can also be read.

The values of MAP shown on both charts are based on standard atmospheric conditions. For temperatures above standard, the maximum and METO power MAP limits remain unchanged. However, for climb powers and cruise powers the MAP may be increased 0.5 inches of Hg for each 10°C that the CAT. is above standard.

For temperatures below standard, the maximum power MAP limit should be reduced 1 inch of Hg for each 10°C that the CAT. is below standard. For climb powers and cruise powers, the MAP should be reduced 0.5 inches of Hg for each 10°C below standard.

CONSTANT CRUISE POWER SETTINGS
400 BRAKE HORSEPOWER PER ENGINE— AUTO LEAN

MODEL: C-54 AND R5D

ENGINE(S): (4) R2000-4 AND -9M2

PRESSURE ALTITUDE (FEET)	MANIFOLD PRESSURE (IN. Hg) AT CARBURETOR AIR TEMPERATURE (°C)					RPM	BLOWER	BMEP (PSI)	FUEL FLOW LB/HR	
	—20°	—10°	0°	+10°	+20°				PER ENG	4 ENG
20,000										
19,000										
18,000										
17,000										
16,000										
15,000										
14,000										
13,000										
12,000										
11,000										
10,000	22.5	23.0	23.5	24.0	24.5	1600	LOW	99	180	720
9,000	22.7	23.2	23.7	24.2	24.7					
8,000	22.9	23.4	23.9	24.4	24.9					
7,000	23.1	23.6	24.1	24.6	25.1					
6,000	23.3	23.8	24.3	24.8	25.3					
5,000	23.5	24.0	24.5	25.0	25.5					
4,000	23.8	24.3	24.8	25.3	25.8					
3,000	24.0	24.5	25.0	25.5	26.0					
2,000	24.2	24.7	25.2	25.7	26.2					
1,000	24.4	24.9	25.4	25.9	26.4					
SEA LEVEL	24.7	25.2	25.7	26.2	26.7					

BASED ON: FLIGHT TEST DATA
DATA AS OF: 2 MARCH 1959

FUEL GRADE: 100/130
FUEL DENSITY: 6.0 LB/GAL

Figure A2-1

CONSTANT CRUISE POWER SETTINGS
450 BRAKE HORSEPOWER PER ENGINE—
AUTO LEAN

MODEL: C-54 AND R5D

ENGINE(S): (4) R2000-4 AND -9M2

PRESSURE ALTITUDE (FEET)	MANIFOLD PRESSURE (IN. Hg) AT CARBURETOR AIR TEMPERATURE (°C)					RPM	BLOWER	BMEP (PSI)	FUEL FLOW LB/HR	
	—20°	—10°	0°	+10°	+20°				PER ENG	4 ENG
20,000										
19,000										
18,000										
17,000										
16,000										
15,000										
14,000										
13,000										
12,000										
11,000										
10,000	24.6	25.1	25.6	26.1	25.5	1700	LOW	105	202	806
9,000	24.8	25.3	25.8	26.3	26.8	1600	LOW	111	198	792
8,000	25.0	25.5	26.0	26.5	27.0					
7,000	25.2	25.7	26.2	26.7	27.2					
6,000	25.4	25.9	26.4	26.9	27.4					
5,000	25.6	26.1	26.6	27.1	27.6					
4,000	25.8	26.3	26.8	27.3	27.8					
3,000	26.0	26.5	27.0	27.5	28.0					
2,000	26.3	26.8	27.3	27.8	28.3					
1,000	26.6	27.1	27.6	28.1	28.6					
SEA LEVEL	26.8	27.3	27.8	28.3	28.8					

BASED ON: FLIGHT TEST DATA
DATA AS OF: 2 MARCH 1959

FUEL GRADE: 100/130
FUEL DENSITY: 6.0 LB/GAL

CONSTANT CRUISE POWER SETTINGS
500 BRAKE HORSEPOWER PER ENGINE— AUTO LEAN

MODEL: C-54 AND R5D **ENGINE(S): (4) R2000-4 AND -9M2**

PRESSURE ALTITUDE (FEET)	MANIFOLD PRESSURE (IN. Hg) AT CARBURETOR AIR TEMPERATURE (°C)					RPM	BLOWER	BMEP (PSI)	FUEL FLOW LB/HR	
	—20°	—10°	0°	+10°	+20°				PER ENG	4 ENG
20,000										
19,000	F.T.									
18,000	21.6	F.T.								
17,000	21.7	22.2	F.T.							
16,000	22.5	22.2	22.7	F.T.						
15,000	22.6	23.1	22.9	23.4	F.T.					
14,000	23.6	24.1	23.8	23.5	24.0	2000	LOW	99	233	930
13,000	23.8	24.3	24.8	24.4	24.9	1900	LOW	104	228	911
12,000	25.0	25.5	24.9	25.4	25.1					
11,000	25.2	25.7	26.2	25.6	26.1	1800	LOW	110	224	894
10,000	26.7	25.9	26.4	26.9	26.3					
9,000	26.9	27.4	26.5	27.0	26.5	1700	LOW	116	220	879
8,000	27.1	27.6	28.1	27.2	27.7					
7,000	27.2	27.7	28.2	28.7	27.9					
6,000	27.4	27.9	28.4	28.9	29.4	1600	LOW	124	216	864
5,000	27.6	28.1	28.6	29.1	29.6					
4,000	27.8	28.3	28.8	29.3	29.8					
3,000	28.0	28.5	29.0	29.5	30.0					
2,000	28.3	28.8	29.3	29.8	30.3					
1,000	28.5	29.0	29.5	30.0	30.5					
SEA LEVEL	28.7	29.2	29.7	30.2	30.7					

BASED ON: FLIGHT TEST DATA
DATA AS OF: 2 MARCH 1959

FUEL GRADE: 100/130
FUEL DENSITY: 6.0 LB/GAL

Figure A2-1B

CONSTANT CRUISE POWER SETTINGS

550 BRAKE HORSEPOWER PER ENGINE—
AUTO LEAN

MODEL: C-54 AND R5D

ENGINE(S): (4) R2000-4 AND -9M2

PRESSURE ALTITUDE (FEET)	MANIFOLD PRESSURE (IN. Hg) AT CARBURETOR AIR TEMPERATURE (°C)					RPM	BLOWER	BMEP (PSI)	FUEL FLOW LB/HR	
	—20°	—10°	0°	+10°	+20°				PER ENG	4 ENG
20,000	26.1	25.9	26.4	26.2	26.7	2100	HIGH	104	264	1056
19,000	26.2	26.7	26.5	27.0	26.8					
18,000	26.3	26.8	27.3	27.0	27.5	2000	HIGH	109	259	1034
17,000	27.3	26.9	27.4	27.9	27.6					
16,000	23.4	27.9	28.4	28.0	28.5	1900	HIGH	115	254	1015
15,000	23.5	24.0	28.6	29.1	28.6					
14,000	24.5	24.2	24.7	29.2	29.7	1800	HIGH	121	249	994
13,000	25.5	25.1	24.8	25.3	29.8					
12,000	25.7	26.2	25.7	25.4	25.9	2000	LOW	109	250	1000
11,000	25.9	26.4	26.9	26.4	26.9	1900	LOW	115	245	980
10,000	27.3	26.6	27.1	27.6	27.1					
9,000	27.5	28.0	28.5	27.8	28.3	1800	LOW	121	241	964
8,000	29.1	28.2	28.7	29.2	28.4					
7,000	29.3	29.8	28.9	29.4	29.9	1700	LOW	128	238	952
6,000	29.5	30.0	30.5	29.6	30.1					
5,000	29.7	30.2	30.7	31.2	30.3					
4,000	29.9	30.4	30.9	31.4	31.9	1600	LOW	136	234	936
3,000	30.1	30.6	31.1	31.6	32.1					
2,000	30.3	30.8	31.3	31.8	32.3					
1,000	30.5	31.0	31.5	32.0	32.5					
SEA LEVEL	30.7	31.2	31.7	32.2	32.7					

Note: Do NOT operate high blower above +15°C CAT.

BASED ON: FLIGHT TEST DATA
DATA AS OF: 2 MARCH 1959

FUEL GRADE: 100/130
FUEL DENSITY: 6.0 LB/GAL

CONSTANT CRUISE POWER SETTINGS
600 BRAKE HORSEPOWER PER ENGINE— AUTO LEAN

MODEL: C-S4 AND R5D **ENGINE(S): (4) R2000-4 AND -9M2**

PRESSURE ALTITUDE (FEET)	MANIFOLD PRESSURE (IN. Hg) AT CARBURETOR AIR TEMPERATURE (°C)					RPM	BLOWER	BMEP (PSI)	FUEL FLOW LB/HR	
	—20°	—10°	0°	+10°	+20°				PER ENG	4 ENG
20,000	27.3	27.2	27.7	27.9	F. T.					
19,000	27.4	27.9	27.7	28.2	28.4	2150	HIGH	111	288	1152
18,000	28.3	27.9	28.4	28.3	28.7	2100	HIGH	113	285	1141
17,000	28.4	28.9	28.6	29.1	29.6	2000	HIGH	119	280	1120
16,000	24.3	29.0	29.5	29.1	29.6					
15,000	24.4	24.9	29.6	30.1	29.7					
14,000	25.3	25.0	25.5	30.2	30.7	1900	HIGH	125	274	1096
13,000	25.4	25.9	25.7	26.2	30.8					
12,000	26.5	26.1	26.6	26.4	26.9	2100	LOW	113	272	1088
11,000	26.6	27.1	26.7	27.2	27.1					
10,000	28.0	27.3	27.8	28.3	27.9	2000	LOW	119	268	1073
9,000	28.2	28.7	28.0	28.5	29.0	1900	LOW	125	264	1056
8,000	29.7	28.8	29.3	28.7	29.2					
7,000	29.9	30.4	29.5	30.1	30.6	1800	LOW	132	260	1040
6,000	32.0	30.6	31.1	30.3	30.8					
5,000	32.1	32.6	31.3	31.8	31.0					
4,000	32.2	32.7	33.2	32.0	32.5	1700	LOW	140	256	1024
3,000	32.3	32.8	33.3	33.8	32.7					
2,000	32.4	32.9	33.4	33.9	34.4	1600	LOW	149	252	1008
1,000	32.5	33.0	33.5	34.0	34.5					
SEA LEVEL	32.6	33.1	33.6	34.1	34.6					

Note: Do NOT operate high blower above +15°C CAT.

BASED ON: FLIGHT TEST DATA
DATA AS OF: 2 MARCH 1959

FUEL GRADE: 100/130
FUEL DENSITY: 6.0 LB/GAL

Figure A2-1D

CONSTANT CRUISE POWER SETTINGS

650 BRAKE HORSEPOWER PER ENGINE—
AUTO LEAN

MODEL: C-54 AND R5D

ENGINE(S): (4) R2000-4 AND -9M2

PRESSURE ALTITUDE (FEET)	MANIFOLD PRESSURE (IN. Hg) AT CARBURETOR AIR TEMPERATURE (°C)					RPM	BLOWER	BMEP (PSI)	FUEL FLOW LB/HR	
	—20°	—10°	0°	+10°	+20°				PER ENG	4 ENG
20,000	28.5	28.8	F.T.	F.T.						
19,000	28.6	29.1	29.3	29.8	F.T.					
18,000	29.3	29.2	29.6	30.0	30.4	2150	HIGH	120	312	1248
17,000	29.4	29.9	29.7	30.1	30.6	2100	HIGH	123	310	1240
16,000	25.0	30.0	30.5	30.9	30.7					
15,000	25.1	25.6	30.5	31.0	31.5	2000	HIGH	129	303	1212
14,000	26.0	25.8	26.3	31.1	31.6					
13,000	26.2	26.7	26.4	26.9	31.7					
12,000	27.2	26.9	27.4	27.1	27.6	2200	LOW	117	297	1188
11,000	28.5	27.9	27.6	28.1	27.7					
10,000	28.7	29.2	28.6	29.1	28.8	2100	LOW	123	292	1168
9,000	30.1	29.4	29.9	29.4	29.9	2000	LOW	129	287	1148
8,000	30.3	30.8	30.1	30.6	30.1					
7,000	30.4	30.9	31.4	30.8	31.3	1900	LOW	135	282	1129
6,000	30.6	31.1	31.6	32.1	31.5					
5,000	30.8	31.3	31.8	32.3	32.8	1800	LOW	143	278	1113
4,000	31.0	31.5	32.0	32.5	33.0					
3,000	31.2	31.7	32.2	32.7	33.2					
2,000	31.4	31.9	32.4	32.9	33.4					
1,000	31.6	32.1	32.6	33.1	33.6					
SEA LEVEL	31.8	32.3	32.8	33.3	33.8					

Note: Do NOT operate in high blower above +15°C CAT.

BASED ON: FLIGHT TEST DATA
DATA AS OF: 2 MARCH 1959

FUEL GRADE: 100/130
FUEL DENSITY: 6.0 LB/GAL

Figure A2-1E

CONSTANT CRUISE POWER SETTINGS

700 BRAKE HORSEPOWER PER ENGINE—
AUTO LEAN

MODEL: C-54 AND R5D

ENGINE(S): (4) R2000-4 AND -9M2

PRESSURE ALTITUDE (FEET)	MANIFOLD PRESSURE (IN. Hg) AT CARBURETOR AIR TEMPERATURE (°C)					RPM	BLOWER	BMEP (PSI)	FUEL FLOW LB/HR	
	—20°	—10°	0°	+10°	+20°				PER ENG	4 ENG
20,000	29.7	F.T.								
19,000	30.2	30.3	F.T.							
18,000	30.3	30.8	30.9	F.T.						
17,000	30.7	30.9	31.4	31.5	F.T.					
16,000	30.8	31.3	31.4	31.9	32.1	2150	HIGH	129	339	1356
15,000	26.2	31.3	31.8	32.0	32.5	2100	HIGH	132	336	1344
14,000	26.2	26.7	31.9	32.4	32.6					
13,000	27.5	26.8	27.3	32.5	33.0	2050	HIGH	135	332	1330
12,000	27.6	28.1	27.4	27.9	33.1					
11,000	29.0	28.2	28.7	28.0	28.5	2200	LOW	126	319	1276
10,000	29.1	29.6	28.8	29.3	28.6					
9,000	30.4	29.7	30.2	29.4	29.9	2100	LOW	132	314	1256
8,000	30.6	31.1	30.3	30.8	30.0					
7,000	30.8	31.3	31.8	30.9	31.4	2000	LOW	139	309	1236
6,000	31.0	31.5	32.0	32.5	31.6					
5,000	31.1	31.6	32.1	32.6	33.1	1900	LOW	146	304	1216
4,000	31.3	31.8	32.3	32.8	33.3					
3,000	31.4	31.9	32.4	32.9	33.4					
2,000	31.6	32.1	32.6	33.1	33.6					
1,000	31.7	32.2	32.7	33.2	33.7					
SEA LEVEL	31.9	32.4	32.9	33.4	33.9					

Note: Do NOT operate in high blower above +15°C CAT.

BASED ON: FLIGHT TEST DATA
DATA AS OF: 2 MARCH 1959

FUEL GRADE: 100/130
FUEL DENSITY: 6.0 LB/GAL

Figure A2-1F

CONSTANT CRUISE POWER SETTINGS

750 BRAKE HORSEPOWER PER ENGINE—
AUTO LEAN

MODEL: C-54 AND R5D

ENGINE(S): (4) R2000-4 AND -9M2

PRESSURE ALTITUDE (FEET)	MANIFOLD PRESSURE (IN. Hg) AT CARBURETOR AIR TEMPERATURE (°C)					RPM	BLOWER	BMEP (PSI)	FUEL FLOW LB/HR	
	—20°	—10°	0°	+10°	+20°				PER ENG	4 ENG
20,000	F.T.									
19,000	31.0	F.T.								
18,000	31.1	31.6	F.T.							
17,000	31.1	31.6	32.1	F.T.						
16,000	31.2	31.7	32.2	32.7	F.T.					
15,000	31.2	31.7	32.2	32.7	33.2	2150	HIGH	138	371	1484
14,000	27.2	31.7	32.2	32.7	33.2					
13,000	27.3	27.8	32.3	32.8	33.3					
12,000	28.7	27.9	28.4	32.8	33.3					
11,000	28.8	29.2	28.5	29.0	33.4					
10,000	29.9	29.3	29.8	29.1	29.6	2200	LOW	135	346	1384
9,000	30.1	30.6	29.9	30.5	29.7					
8,000	30.2	30.7	31.2	30.6	31.1	2100	LOW	141	340	1360
7,000	30.4	30.9	31.4	31.9	31.2					
6,000	30.5	31.0	31.5	32.0	32.5	2000	LOW	149	334	1336
5,000	30.6	31.1	31.6	32.1	32.6					
4,000	30.8	31.3	31.8	32.3	32.8					
3,000	30.9	31.4	31.9	32.4	32.9					
2,000	31.2	31.7	32.2	32.7	33.2					
1,000	31.4	31.9	32.4	32.9	33.4					
SEA LEVEL	31.6	32.1	32.6	33.1	33.6					

Note: Do NOT operate in high blower above +15°C CAT.

BASED ON: FLIGHT TEST DATA
DATA AS OF: 2 MARCH 1959

FUEL GRADE: 100/130
FUEL DENSITY: 6.0 LB/GAL

Figure A2-10

CONSTANT CRUISE POWER SETTINGS

800 BRAKE HORSEPOWER PER ENGINE—
AUTO LEAN

MODEL: C-54 AND R5D

ENGINE(S): (4) R2000-4 AND -9M2

PRESSURE ALTITUDE (FEET)	MANIFOLD PRESSURE (IN. Hg) AT CARBURETOR AIR TEMPERATURE (°C)					RPM	BLOWER	BMEP (PSI)	FUEL FLOW LB/HR	
	—20°	—10°	0°	+10°	+20°				PER ENG	4 ENG
20,000										
19,000										
18,000										
17,000										
16,000										
15,000										
14,000	F.T.									
13,000	28.4	F.T.								
12,000	28.6	29.1	F.T.	F.T.						
11,000	30.0	29.3	29.8	30.0	F.T.					
10,000	30.1	30.6	29.9	30.4	30.6	2230	LOW	142	382	1528
9,000	30.2	30.7	31.2	30.5	31.0	2200	LOW	144	380	1520
8,000	30.3	30.8	31.3	31.8	31.2					
7,000	30.4	30.9	31.4	31.9	32.4	2112	LOW	150	372	1488
6,000	30.6	31.1	31.6	32.1	32.6					
5,000	30.7	31.2	31.7	32.2	32.7					
4,000	30.9	31.4	31.9	32.4	32.9					
3,000	31.0	31.5	32.0	32.5	33.0					
2,000	31.3	31.8	32.3	32.8	33.3					
1,000	31.5	32.0	32.5	33.0	33.5					
SEA LEVEL	31.6	32.1	32.6	33.1	33.6					

BASED ON: FLIGHT TEST DATA
DATA AS OF: 2 MARCH 1959

FUEL GRADE: 100/130
FUEL DENSITY: 6.0 LB/GAL

Figure A2-1H

METO POWER SETTINGS

1200 BRAKE HORSEPOWER PER ENGINE (LOW BLOWER)
1100 BRAKE HORSEPOWER PER ENGINE (HIGH BLOWER)

MODEL: C-54 AND R5D — AUTO RICH — **ENGINE(S): (4) R2000-4 AND -9M2**

PRESSURE ALTITUDE (FEET)	MANIFOLD PRESSURE (IN. Hg) AT CARBURETOR AIR TEMPERATURE (°C)					RPM	BLOWER	BMEP (PSI)	FUEL FLOW LB/HR	
	−20°	−10°	0°	+10°	+20°				PER ENG	4 ENG
20,000										
19,000										
18,000										
17,000	F.T.									
16,000	42.7	F.T.								
15,000	42.7	43.2	F.T.							
14,000	42.7	43.2	43.7	F.T.						
13,000	42.7	43.2	43.7	44.2	F.T.	2550	HIGH		UNKNOWN	UNKNOWN
12,000	42.8	43.2	43.7	44.2	44.7			171		
11,000	42.8	43.3	43.7	44.2	44.7					
10,000	F.T.	43.2	43.8	44.2	44.7					
9,000	F.T.	F.T.	43.8	44.3	44.7					
8,000	38.8	F.T.	F.T.	44.3	44.8					
7,000	39.0	39.5	F.T.	F.T.	44.8					
6,000	39.2	39.7	40.2	F.T.	F.T.	2550	LOW	178	814	3256
5,000	39.3	39.8	40.3	40.8	F.T.			185	857	3428
4,000	39.5	40.0	40.5	41.0	41.5			186	862	3448
3,000	39.7	40.2	40.7	41.2	41.7					
2,000	39.9	40.4	40.9	41.4	41.9					
1,000	40.1	40.6	41.1	41.6	42.0					
SEA LEVEL	40.2	40.7	41.2	41.7	42.0					

Notes: 1. Do NOT operate in high blower above +15°C CAT.
2. Do NOT operate in low blower above +38°C CAT.

BASED ON: FLIGHT TEST DATA
DATA AS OF: 2 MARCH 1959

FUEL GRADE: 100/130
FUEL DENSITY: 6.0 LB/GAL

Figure A2-1J

CLIMB POWER SETTINGS
950 BRAKE HORSEPOWER PER ENGINE—
AUTO RICH

MODEL: C-54 AND RSD — **ENGINE(S): (4) R2000-4 AND -9M2**

PRESSURE ALTITUDE (FEET)	MANIFOLD PRESSURE (IN. Hg) AT CARBURETOR AIR TEMPERATURE (°C)					RPM	BLOWER	BMEP (PSI)	FUEL FLOW LB/HR	
	—20°	—10°	0°	+10°	+20°				PER ENG	4 ENG
20,000										
19,000										
18,000										
17,000	F.T.									
16,000	37.3	F.T.								
15,000	37.4	37.9	F.T.							
14,000	37.4	37.9	38.4	F.T.						
13,000	37.5	38.0	38.5	39.0	F.T.					
12,000	37.6	38.1	38.6	39.1	39.6	2300	HIGH	164	UNKNOWN	UNKNOWN
11,000	32.4	38.2	38.7	39.2	39.7					
10,000	32.5	33.0	38.9	39.4	39.9					
9,000	32.6	33.1	33.6	39.5	40.0					
8,000	32.7	33.2	33.7	34.2	40.1					
7,000	32.8	33.3	33.8	34.3	34.8	2300	LOW	164	614	2456
6,000	33.0	33.5	34.0	34.5	35.0					
5,000	33.1	33.6	34.1	34.6	35.1					
4,000	33.3	33.8	34.3	34.8	35.3					
3,000	33.4	33.9	34.4	34.9	35.4					
2,000	33.6	34.1	34.6	35.1	35.6					
1,000	33.8	34.3	34.8	35.3	35.8					
SEA LEVEL	34.0	34.5	35.0	35.5	36.0					

Notes: 1. Do NOT operate in high blower above +15°C CAT.
2. Do NOT operate in low blower above +38°C CAT.

BASED ON: FLIGHT TEST DATA
DATA AS OF: 2 MARCH 1959

FUEL GRADE: 100/130
FUEL DENSITY: 6.0 LB/GAL

Figure A2-1K

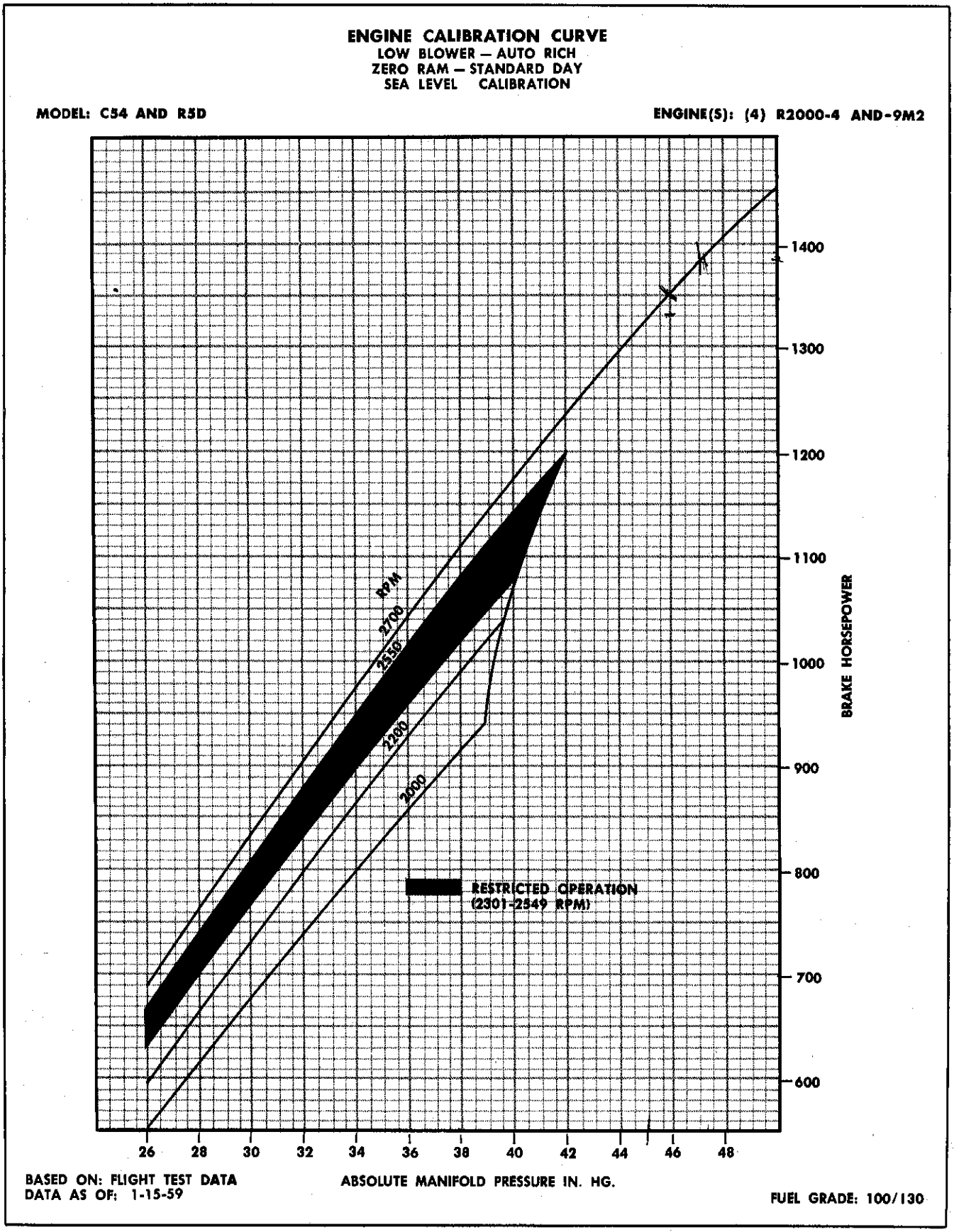
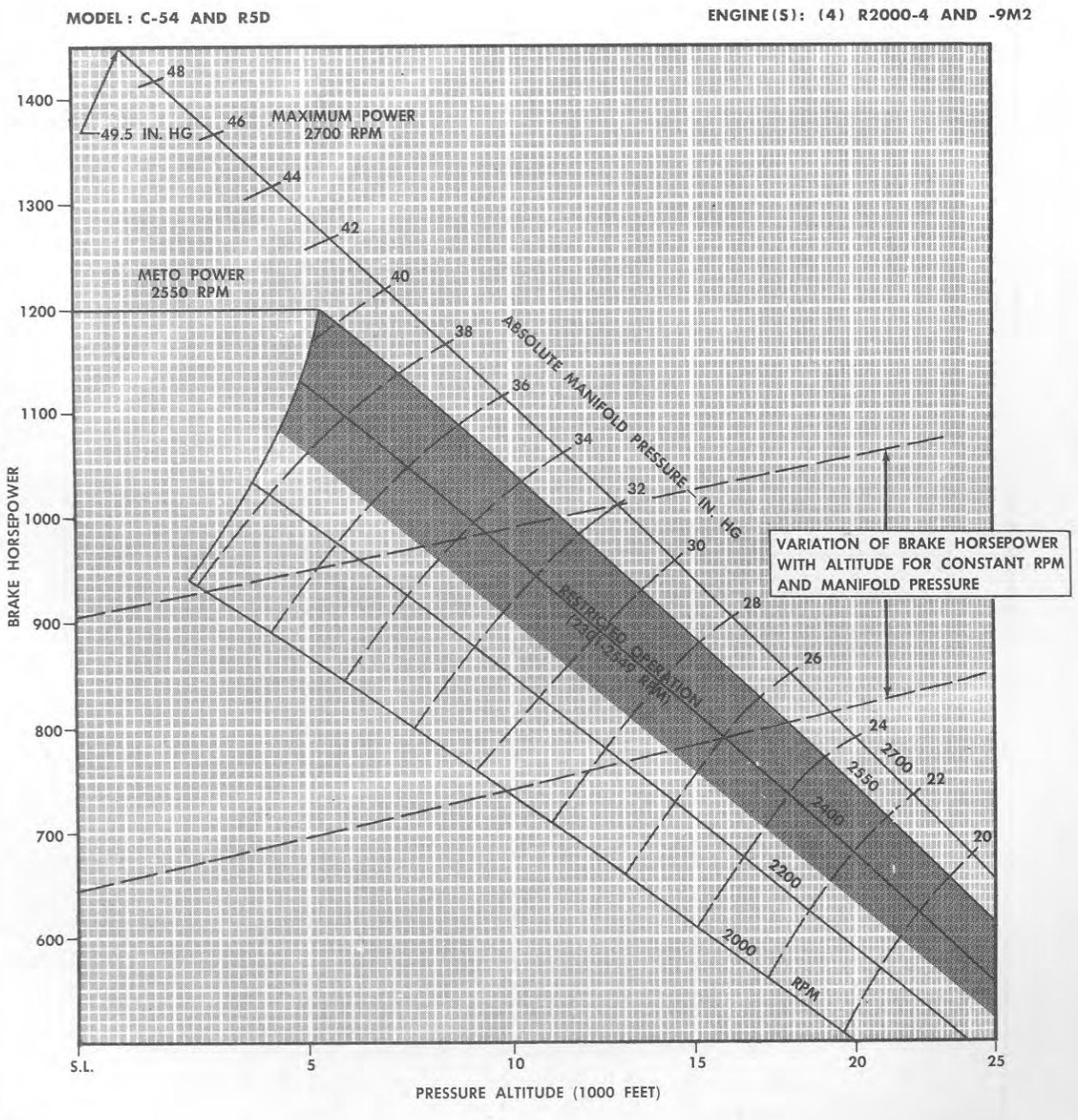


Figure A2-2. Engine Calibration Curve — Low Blower — Auto-Rich (Sheet 1 of 2)



X1-B2

Figure A2-2. Engine Calibration Curve — Low Blower — Auto-Rich (Sheet 2 of 2)

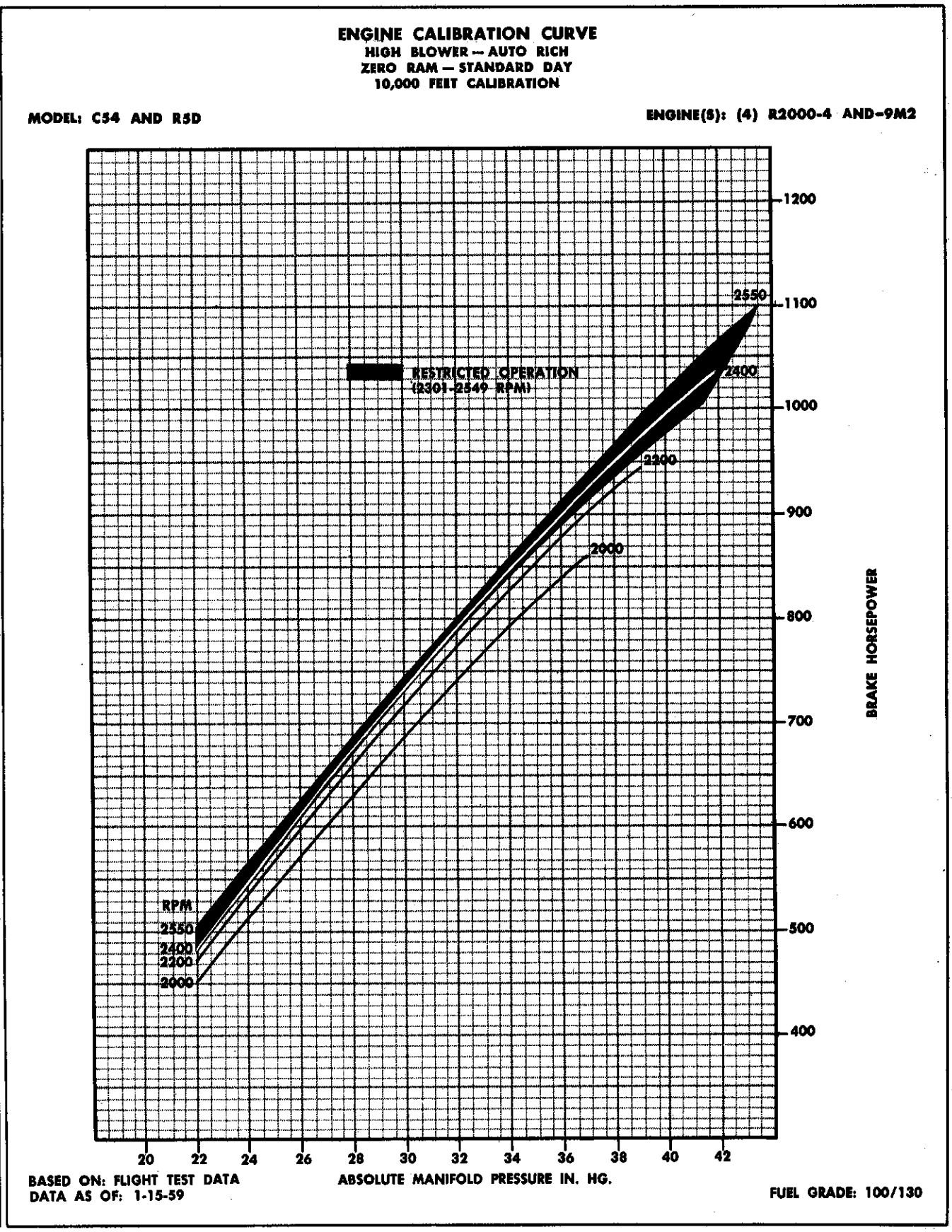


Figure A2-3. Engine Calibration Curve — High Blower — Auto-Rich (Sheet 1 of 2)

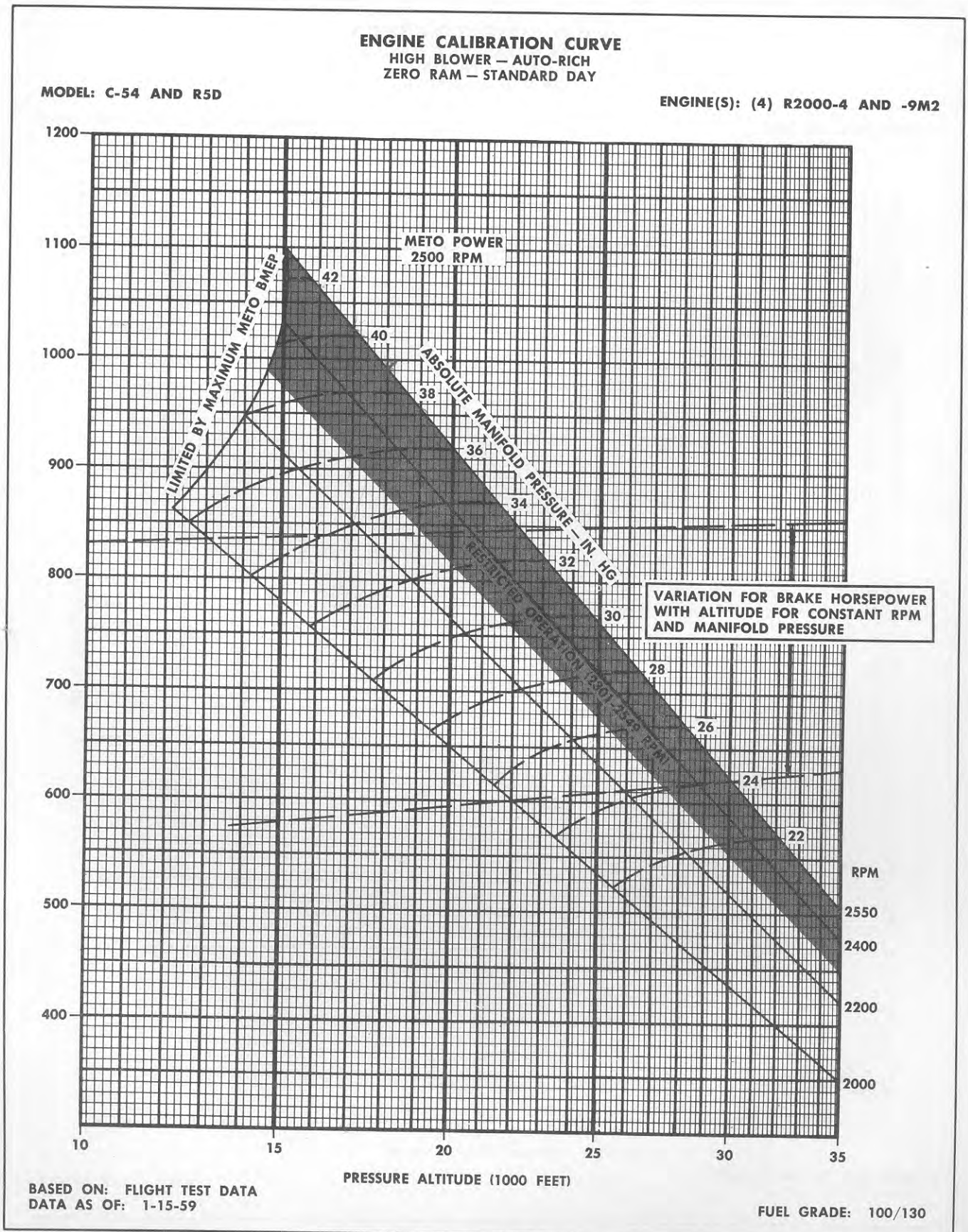


Figure A2-3. Engine Calibration Curve — High Blower — Auto-Rich (Sheet 2 of 2)

X1-84

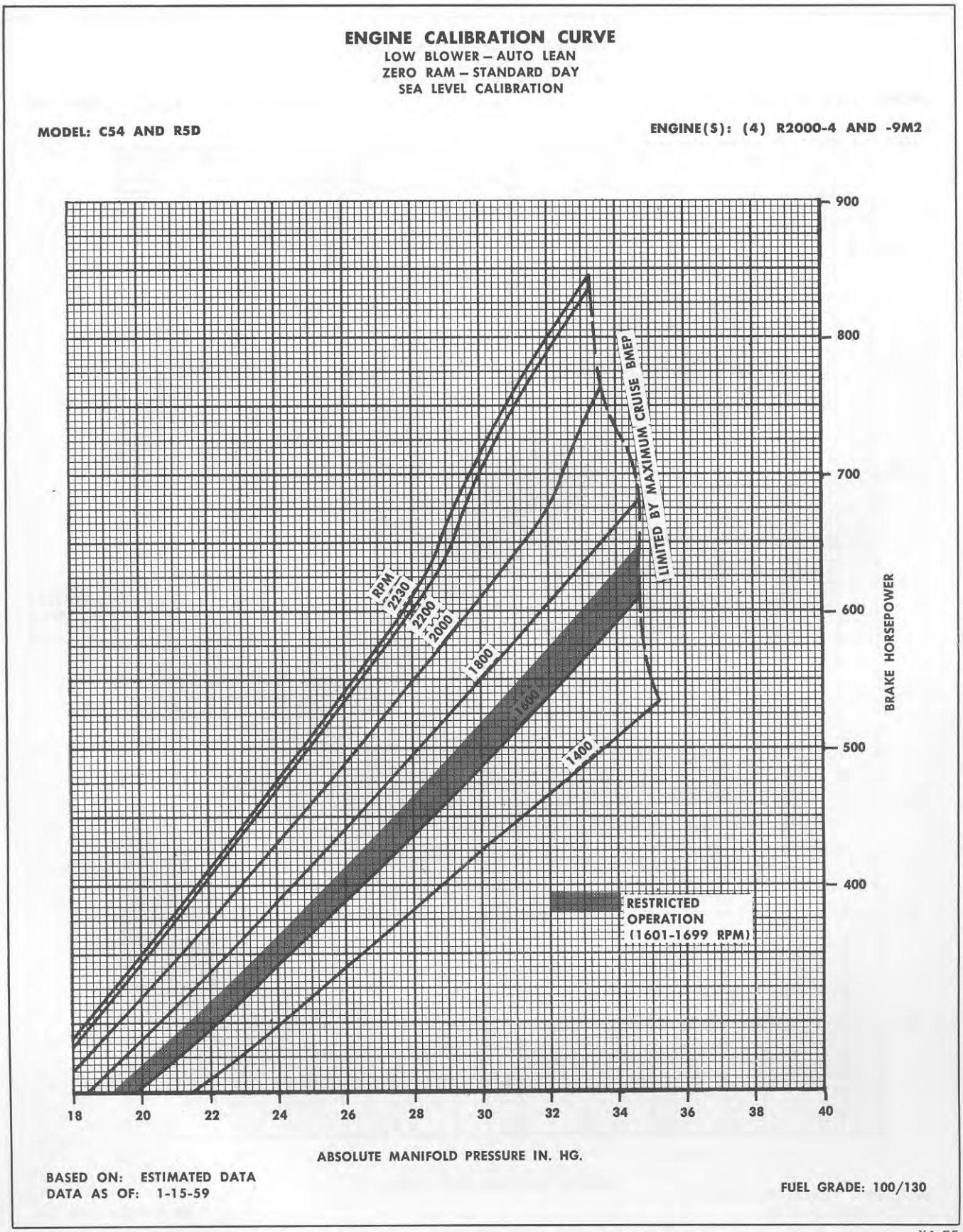


Figure A2-4. Engine Calibration Curve – Low Blower – Auto-Lean (Sheet 1 of 2)

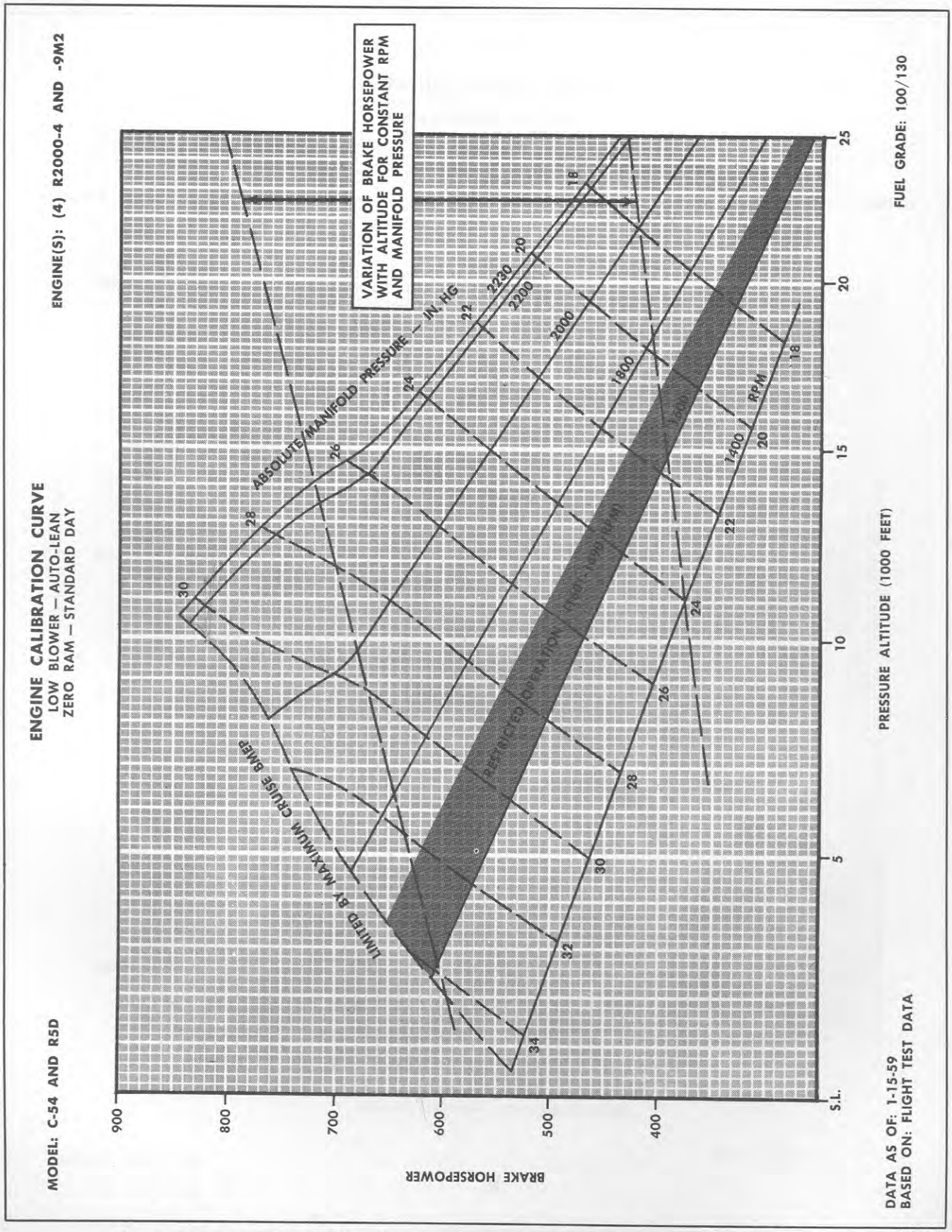
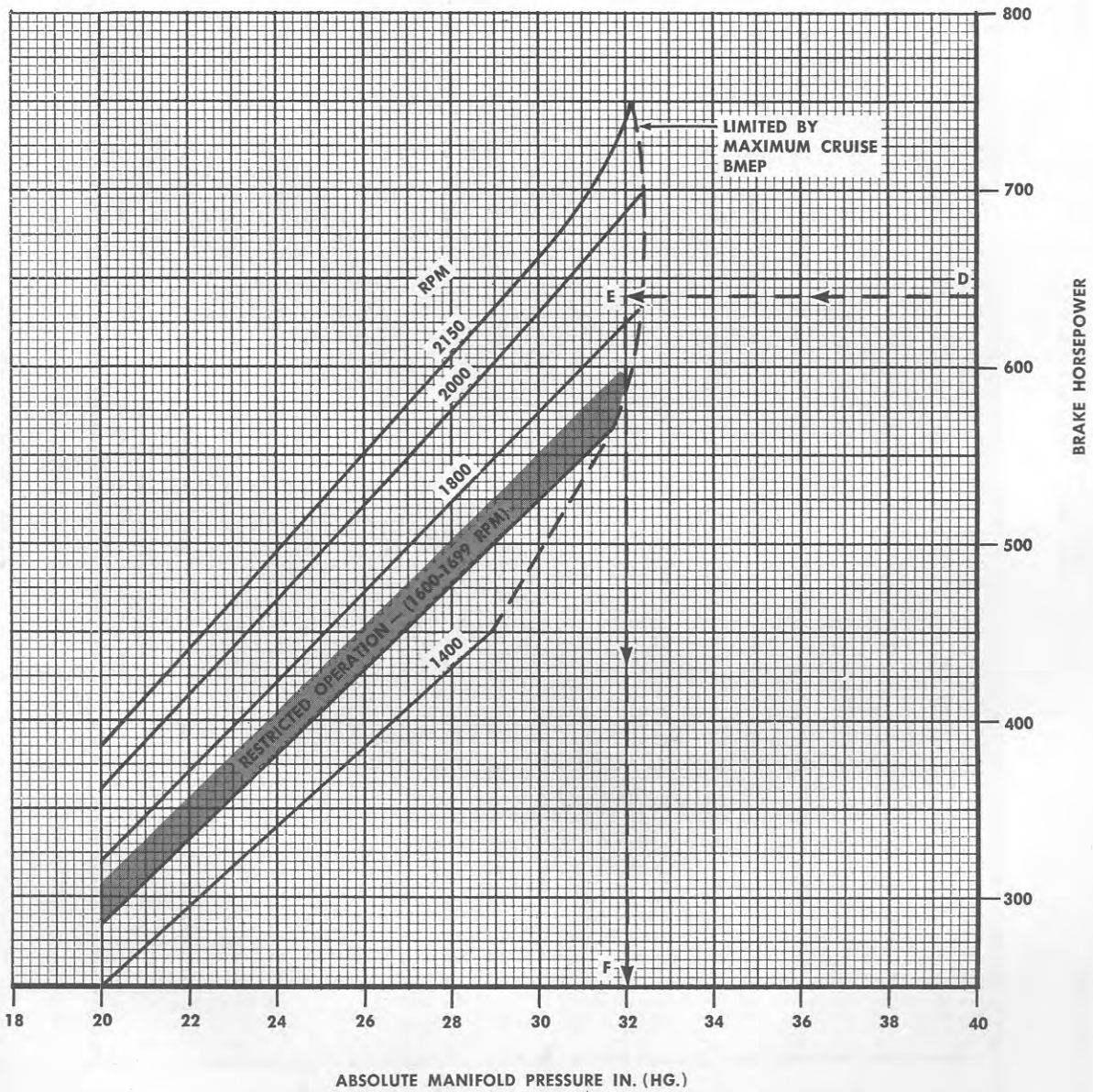


Figure A2-4. Engine Calibration Curve — Low Blower — Auto-Lean (Sheet 2 of 2)

ENGINE CALIBRATION CURVE
HIGH BLOWER – AUTO LEAN
ZERO RAM – STANDARD DAY
10,000 FEET CALIBRATION

MODEL: C54 AND R5D

ENGINE(S): (4) R2000-4 AND-9M2



BASED ON: ESTIMATED DATA
DATA AS OF: 1-15-59

FUEL GRADE: 100/130

X1-86

Figure A2-5. Engine Calibration Curve – High Blower – Auto-Lean (Sheet 1 of 2)

ENGINE CALIBRATION CURVE

HIGH BLOWER — AUTO LEAN
ZERO RAM — STANDARD DAY

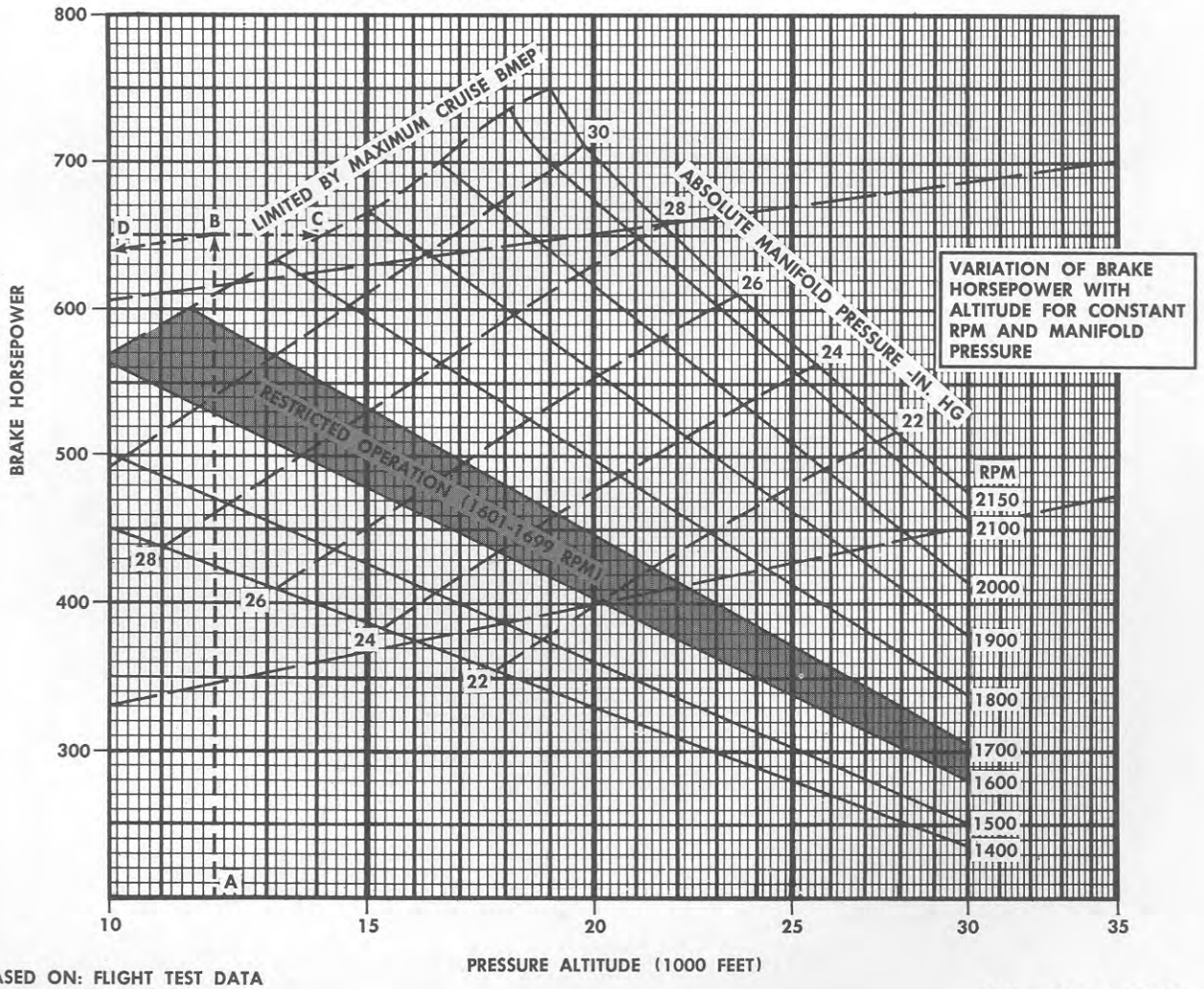
MODEL: C-54 AND R5D **ENGINE(S): (4) R2000-4 AND -9M2**

Sample Problem:
Given:

A. Pressure altitude = 12,000 feet outside air temperature = 2°C (10°C above STD)
B. Required BHP = 650

Find:

C. Minimum RPM = 1850 (RPM for maximum BMEP)
D. BHP at 10,000 feet that requires same map at 1850 RPM as 650 BHP at 12,000 feet = 640 BHP
Parallel line of constant RPM — map down to 10,000 feet pressure altitude
E. 1850 at 640 BHP (opposite page)
F. Map setting for a standard day 32 in. hg
MAP setting for 10°C above standard = 32 + (10/10 × 1/2) 32 1/2 in. hg.



BASED ON: FLIGHT TEST DATA
DATA AS OF: 1-15-59

FUEL GRADE: 100/130

X1-87

Figure A2-5. Engine Calibration Curve — High Blower — Auto-Lean (Sheet 2 of 2)