part 5 cruise

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LIST OF ILLUSTRATIONS

INTRODUCTION.

The information provided in this part is for cruising in level flight. The charts are based on standard atmospheric conditions. However, they are applicable to non-standard conditions at the same density altitude if allowance is made for the change in cowl flap setting required to maintain proper engine cooling. The cruise charts for four engines operating are based on a cowl flap setting of −2 degrees. For each degree that the cowl flaps are opened beyond −2 degrees, the aircraft will lose approximately 3 knots EAS. Or, if the power is increased to maintain a constant speed, each degree that the cowl flaps are opened beyond −2 degrees will require approximately 15 additional brake horsepower per engine at sea level. To obtain true brake horsepower at altitude, multiply the sea level brake horsepower by $1/\sqrt{\sigma}$.

MAXIMUM RANGE OPERATION.

The amount of range that may be obtained from a given amount of fuel will vary considerably, depending on the cruise technique used. Unless high speed is the primary consideration, it is generally desirable to cruise in such a manner that maximum range may be obtained from a given amount of fuel (or a minimum of fuel will be required to fly a given distance). In doing this there are two techniques that must be used. The first is to set engine powers so that a minimum fuel flow results from a given brake horsepower. The second technique is to cruise at the speed which results in the most miles per pound of fuel.

In setting up engine powers for minimum fuel flow, the first step is to use the lowest RPM allowable for a given brake horsepower. This minimum RPM may be obtained from the Power Settings for Cruise Tables (the even numbered figures from A5-28 through A5-52) or from the BHP-RPM Schedules *(figures A2-16 and A2-18)*. The power setting tables show only the even 100 RPM's, while the BHP-RPM Schedules show a continuous variation of RPM. The second step is to adjust the mixture to obtain the minimum fuel flow for a given brake horsepower. The fuel flow curves on the Estimated Fuel Consumption for Cruise Power charts (*figures A2-14 and A2-15*) indicate the fuel flows which will result in best economy mixture settings. However, it is difficult to obtain best economy mixture settings and any error on the lean side may result in unstable operation. In addition, operation at lean mixture settings is restricted to brake horsepowers of 1240 BHP or less in low blower and 1200 BHP or less in high blower. Manual lean mixture settings using a 12 BMEP drop from best power mixture, or manual rich mixture settings are used, depending on the requirements of the cruise performance charts. A description of the method used in settings cruise mixtures for both 12 BMEP drop and manual rich is included in Part 2 of this Appendix.

On the Nautical Miles per Pound of Fuel Charts *(figures A5-1 through A5-12)* the highest point on any gross weight curve shows the speed (and brake horsepower) for obtaining the maximum range per pound of fuel. Generally, however, to obtain better handling characteristics, and to obtain a substantial increase in speed for only a slight loss in miles per pound of fuel, aircraft are flown at a higher speed which still results in 99% of the maximum miles per pound of fuel. For the C-118A this speed for 99% of maximum range is very near to 110% of the speed for maximum ratio of lift to drag (110% of $V_{L/D}$). For this reason 110% of $V_{L/D}$ is also referred to as long range cruise speed. This speed varies with gross weight and is shown on the Nautical Miles per Pound of Fuel Charts *(figures A5-1 through A5-12)*, Long Range Summary Charts *(figures A5-13 through A5-15)* and the Level Flight Performance Charts *(figures A5-19 and A5-20)*. As fuel is consumed the gross weight decreases and, hence, the power required and the speed for long range cruise both decrease also. If the power is not adjusted periodically the aircraft will increase in speed as the gross weight decreases. For this reason it is recommended that at least once an hour the gross weight be computed and the power reduced to the appropriate value.

DISCUSSION OF CHARTS.

NAUTICAL MILES PER POUND OF FUEL CHARTS.

The Nautical Miles per Pound of Fuel Charts *(figures A5-1 through A5-12)* indicate the nautical miles that can be travelled for each pound of fuel consumed and the airspeeds that can be expected for various altitudes, gross weights and brake horsepowers. Both calibrated airspeed and true airspeed can be read. Graphs are included at 1000-foot intervals for four-engine operation, and at 5000-foot intervals for three-engine and two-engine operation.

Each graph consists of a set of curves for constant gross weights intersected by a set of straight lines for constant values of brake horsepower per engine. Any given combination of gross weight and brake horsepower determines a point on the graph. From this point one projects horizontally to the left to read nautical miles per pound of fuel and vertically downward to read calibrated and true airspeeds.

In addition, two curves are shown on each graph to indicate values for long range operation. One of these curves is identified as "Recommended Long Range Cruise Speed (110% of $V_{L/D}$)" and the other as "110% of the Speed for Maximum Range."

The recommended long range cruise speed curve (110% of $V_{L/D}$) provides a type of operation which is practical for long flights. Furthermore, the recommended long range cruise speed is in the vicinity of the speed for maximum miles per pound (which would be drawn through the peaks of the gross weight curves), and has the advantage of being generally on the fast side of this speed. The result is to reduce the flight time as compared to that for maximum miles per pound at only a very slight sacrifice in range. It is therefore recommended that long range flights be conducted at "Recommended Long Range Cruise Speed (110% of $V_{L/D}$)." It may be noted that operation at 110% of $V_{L/D}$ results in maintaining a constant angle of attack throughout the flight.

The 110% of speed for Maximum Range curve provides a type of operation which is practical when operating with headwinds over 50 knots. The speeds obtained by the use of this curve result in a decreased mission time, thereby offsetting the increased fuel flow required. It must be remembered, however, that use

of this curve is recommended only when operating under headwind conditions.

In this appendix, the Long Range Summary Graphs *(figures A5-13 through A5-15)* and the Range Prediction Charts *(figures A5-22 through A5-29)* are based on operation at the "Recommended Long Range Cruise Speed (110% of $V_{L/D}$)." The brake horsepower required to fly at the recommended long range cruise speed is read (by interpolation if necessary) on each chart of nautical miles per pound of fuel. Since these charts are furnished only for altitudes in 1000-foot steps, the brake horsepower for four-engine operation at intermediate altitudes can be obtained from the Power Required to Maintain 1.1 $V_{L/D}$ Chart *(figure A5-21)*.

It will be observed in the nautical miles per pound of fuel charts that both manual lean and manual rich mixture settings are used, depending upon the brake horsepower. The use of low blower or bigh blower is also indicated. In some charts a note should be observed requiring the use of 115/145 grade fuel when the brake horsepower exceeds specified values.

Sample Problem:

GIVEN: Cruise altitude = 20,000 feet density altitude.

Gross weight = 90,000 pounds.

Four engines operating.

FIND: Power required to cruise at long range cruise speed.

Nautical miles per pound of fuel.

1. Enter the chart *(figure A5-5)* at the intersection of 90,000 pounds and the curve labeled "Recommended Long Range Cruise Speed."
2. By interpolation, read the power required, 1075 BHP/engine, high blower, manual lean.
3. Go horizontally to the left hand scale and read the nautical miles per pound of fuel, 0.1145.
4. From the point described in step A, drop straight down to the scale at the bottom of the chart and read the calibrated airspeed, 183 knots.
5. Continue down to the next scale and read the true airspeed, 248 knots.

LONG RANGE SUMMARY CHARTS.

These charts show the nautical miles per pound of fuel, fuel flow, calibrated airspeed and engine settings for maintaining long range cruise speed with either four engines operating *(figure A5-13)*, three engines operating *(figure A5-14)*, or two engines operating *(figure A5-15)*. For this aircraft, long range cruise speed is 110% of the speed for maximum lift to drag ratio (110% of $V_{L/D}$).

These charts are based on standard atmospheric conditions. However, the calibrated airspeed and BHP/engine will remain unchanged for non-standard conditions at the same density altitude. The RPM and fuel flow will increase slightly as temperature increases, while the BMEP and nautical miles per pound of fuel will decrease slightly.

Sample Problem:

GIVEN: Engines operating = Four.

Cruise altitude = 15,000 feet.

Gross weight = 100,000 pounds.

FIND: CAS, BHP/Engine, RPM, BMEP, fuel flow for four-engine operation, and nautical miles per pound of fuel.

1. Enter the Four-Engine Long Range Summary chart *(figure A5-13)* at a gross weight of 100,000 pounds (A) and procede vertically through the chart.
2. At the intersection of the 100,000 gross weight line and the 15,000 foot altitude curves, read across to the appropriate scale at the side of the chart to find: CAS of 193 knots (B), BHP/engine of 1160 (C), RPM 2150 (D), BMEP 153 (E), fuel flow of 2250 pounds per hour (F), and nautical miles per pound of fuel of 0.108 (G).
3. Since the gross weight line intersects the altitude curve in the solid portion of the curves, operation would be in low blower with mixture set for manual lean.

MAXIMUM ENDURANCE POWER CONDITIONS CHARTS.

These charts show the calibrated airspeed, engine settings and fuel flow for maintaining maximum endurance speed with either four engines operating *(figure A5-16)*, three engines operating *(figure A5-17)* or two engines operating *(figure A5-18)*. Maximum endurance speed is slower than long range cruise speed, and is the speed which requires the minimum power to maintain level flight.

The charts are based on standard atmospheric conditions. However, the calibrated airspeed and BHP/engine will remain unchanged for non-standard conditions at the same density altitude. The RPM and fuel flow will increase slightly as temperature increases, while the BMEP will decrease slightly.

Sample Problem:

GIVEN: Engines operating = Four.

Gross weight = 100,000 pounds.

Cruise altitude = 15,000 feet.

FIND: CAS, BHP/engine, RPM, BMEP, and fuel flow for four engines.

1. Enter the Four-Engine Maximum Endurance Power Conditions chart *(figure A5-16)* at a gross weight of 100,000 pounds (A) and read vertically through the chart.
2. At the intersection of the 100,000 pound line and the 15,000 foot altitude curves read across to the appropriate scale to find: CAS of 144 knots (B), BHP/engine of 965 BHP (B), RPM of 2040 (D), BMEP of 134 (E), and Fuel flow of 1750 pounds per hour (F).
3. The gross weight curve intersects the altitude curves in the solid portion of the curve, therefore, all operation would be in low blower with the mixture set for manual lean.

LEVEL FLIGHT PERFORMANCE CHARTS.

These charts show the power required to maintain level flight at any given airspeed and altitude with four engines operating *(figure A5-19)*, three engines operating *(figure A5-19)* and two engines operating *(figure A5-20)*. The charts are based on a clean configuration with cowl flaps set for adequate engine cooling on a standard day. They are applicable to non-standard conditions if allowance is made for the small effect of a change in cowl flap setting on speed. On figure A5-19 chase-around lines illustrate the example.

Sample Problem:

GIVEN: Gross weight = 94,000 pounds.

Density altitude = 20,000 feet.

FIND: Power required to maintain long range cruise speed (110% of $V_{L/D}$) with four engines operating.

1. Near center of chart locate intersection of 94,000 pounds and the curve labeled "110% Speed For Maximum L/D."
2. Proceed horizontally to the left to 20,000 feet density altitude and read the power required to maintain level flight, 1140 BHP per engine.
3. On the scale directly below point A, read the equivalent airspeed, 185 knots.
4. Continue straight down to 20,000 feet density altitude and read the true airspeed, 253 knots.

POWER REQUIRED TO MAINTAIN 1.1 $V_{L/D}$ CHART.

A chart is provided *(figure A5-21)* to show the power required to maintain 110% of $V_{L/D}$ (long range cruise speed) in level flight at any given temperature, pressure altitude and gross weight. The chart is based on all engines operating. A chase-around line on the chart illustrates the example.

Sample Problem:

GIVEN: Outside air temperature = −16°C.

Pressure altitude = 15,000 feet.

Gross weight = 100,000 pounds.

FIND: Power required to maintain 1.1 $V_{L/D}$.

1. Enter air temperature scale at −16°C.
2. Proceed vertically upwards to 15,000 feet pressure altitude.
3. Turn horizontally to the right to the density altitude scale and note density altitude, 14,900 feet.
4. Enter gross weight scale at 100,000 pounds.
5. At intersection of 14,900 feet density altitude and 100,000 pounds gross weight, read the power required to maintain 1.1 $V_{L/D}$, 1160 brake horsepower per engine.

RANGE PREDICTION CHARTS.

The range prediction charts *(figures A5-22 through A5-27)* are provided to determine the amount of fuel and the time required to cruise a given distance at various gross weights and cruise altitudes. The charts are based on cruise at the recommended long range cruise speeds and are not corrected for wind. Figures A5-22 and A5-23 are based on four engines operating at density altitudes of 5,000 to 20,000 feet. Figures A5-24 and A5-25 are based on three engines operating at density altitudes of 5,000 to 15,000 feet. Figures A5-26 and A5-27 are based on two engines operating and density altitudes of sea level to 10,000 feet.

The charts may also be used to determine the range that may be obtained from a given amount of fuel. The following example illustrates the use of the chart to determine cruise fuel and cruise time for initial flight planning.

Sample Problem:

GIVEN: Final cruise weight at destination = 72,500 pounds.

Cruise altitude = 10,000 feet.

Cruise distance = 1500 nautical miles.

FIND: Fuel and time required to cruise 1500 nautical miles.

1. Enter the distance chart *(figure A5-22)* at final cruise weight of 72,500 pounds (A).
2. Read up to cruise altitude of 10,000 feet (B).
3. Read across to range scale for range at final cruise weight of 6780 nautical miles (C).
4. Subtract cruise distance of 1500 nautical miles (D) from (C) to obtain range at initial cruise weight of 5280 nautical miles (E).
5. Read across from (E) to cruise altitude of 10,000 feet (F), and down to find initial gross weight of 82,500 pounds (G).
6. Fuel required is the final cruise weight (A) subtracted from the initial cruise weight (G), or 82,500 −72,500 = 10,000 pounds of fuel required.
7. To find the time required for cruise, enter the time chart *(figure A5-23)* with the final cruise weight of 72,500 pounds (A) and read up to the cruise altitude of 10,000 feet (B).
8. Read across to the time scale to time at final cruise weight of 28.5 hours (C).
9. Enter with the initial cruise weight obtained from the distance chart of 82,500 pounds (D).
10. Read up to cruise altitude of 10,000 feet (E) and across to the time at initial cruise weight of 20.7 hours (F).
11. Cruise time is initial time (F) subtracted from the final time (C) or 28.5 − 20.7 = 7.8 hours (G).

POWER SETTINGS FOR CRUISE TABLES.

The even numbered tables *(figures A5-28 through A5-52)* show the engine settings necessary to develop a given brake horsepower for various pressure altitudes and carburetor air temperatures. Power settings shown above the heavy line on the table are for operation in high blower and those below the heavy line are for operation in low blower.

Each table is for a single brake horsepower. Tables are provided for each 50 brake horsepower from 700 to 1200 based on a 12 BMEP drop from best power mixture setting. Two additional tables are provided for 1240 BHP (maximum cruise power in low blower), one based on 12 BMEP drop, and one based on 2 BMEP drop from best power mixture. Fuel flows are lower on the 12 BMEP table than on the 2 BMEP table, however, the use of the 2 BMEP drop permits operation at higher altitudes. Facing each power setting table is a table showing the cruise speeds for that brake horsepower.

The following example illustrates the method of using the table and the different power settings that may be expected due to a difference in carburetor air temperature.

Sample Problem:

GIVEN: Desired cruise power = 950 BHP/Engine.

Cruise pressure altitude = 17,000 feet.

Carburetor air temperature = 0° C.

FIND: Power settings necessary to maintain 950 BHP.

1. Select table for 950 BHP/Engine *(figure A5-38)*.
2. Enter the table at 17,000 ft. pressure altitude (A) and carburetor air temperature of 0° C (B).
3. Read across and down, disregarding the guide lines on the table, to the intersection of altitude and temperature, to find the manifold pressure for these conditions of 27.9 in. Hg (C).
4. Follow between the guide lines, reading to the right, to find RPM of 2200 in LOW blower, BMEP drop of 12 psi, fuel flow of 461 lb/hr/eng, and a nominal BMEP of 122 psi at (D).

Note

To illustrate power settings changes necessary for a change in CAT, assume a carburetor air temperature of +20° C for the same conditions.

5. Entering the table with the same altitude, but with a CAT of +20° C (E), find manifold pressure of 31.2 in. Hg (F) as in steps 2 and 3.
6. Follow between the guide lines to find RPM of 2100 in HIGH blower, BMEP drop of 12 psi, fuel flow of 476 lb/hr/eng, and nominal BMEP of 128 psi at (G).

From these examples it is noted that the guide lines are used only after manifold pressure has been determined from the altitude and CAT.

CRUISE SPEED TABLES.

The odd numbered tables *(figures A5-29 through A5-51)* show the indicated airspeed and the true airspeed resulting from any given cruise power at any given density altitude and gross weight. Each chart is for a single brake horsepower. There is a chart for each 50 brake horsepower from 700 to 1200. An additional chart for 1240 BHP (maximum cruise power in low blower) is included. Cruise speeds for 1240 BHP are the same for both 12 BMEP and 2 BMEP drop. Facing each cruise speed table is a table showing the engine settings necessary to develop that brake horsepower.

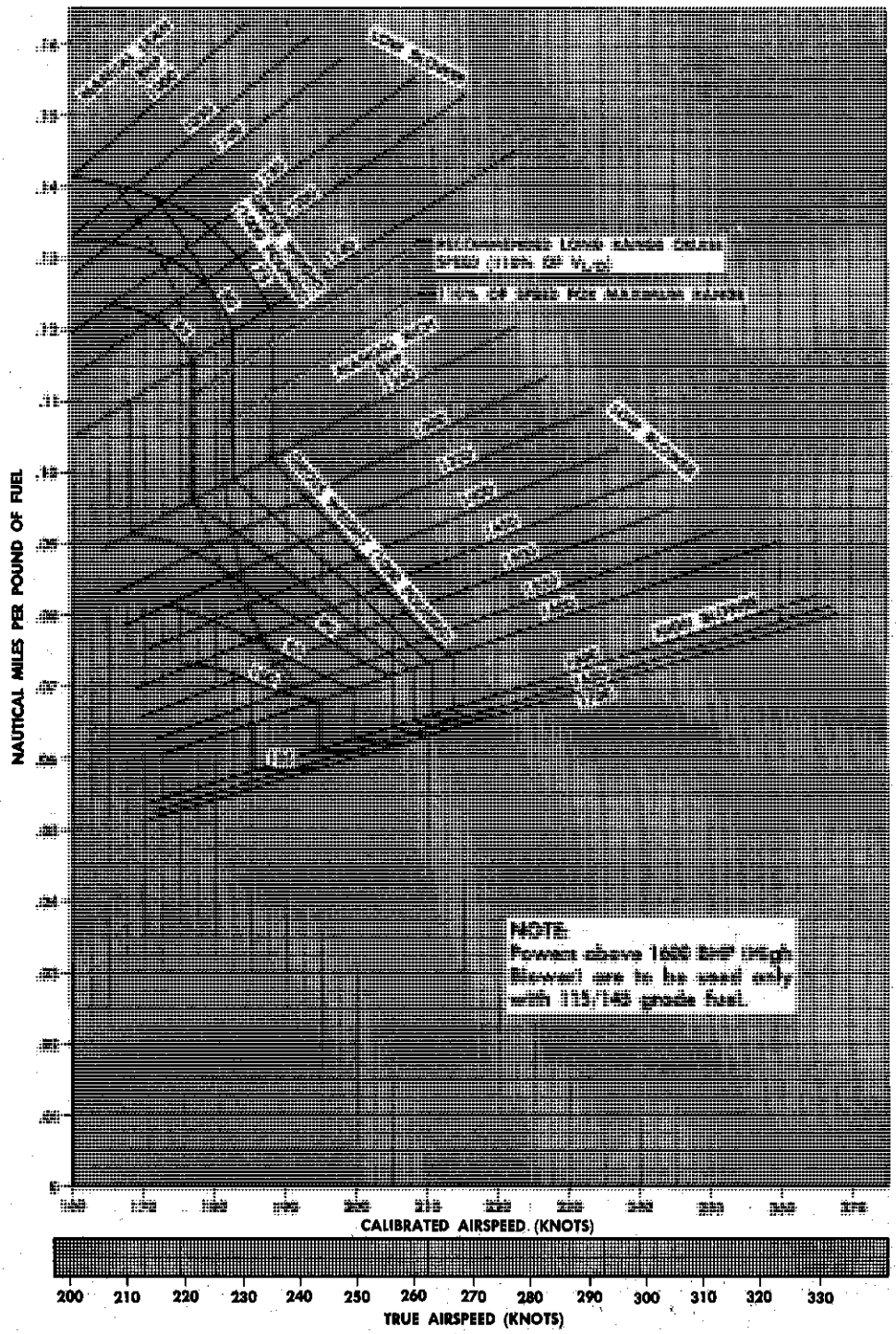
NAUTICAL MILES PER POUND OF FUEL — THREE-ENGINE

15,000 FEET — STANDARD DAY

$1/\sqrt{\sigma} = 1.2608$

MODEL: C-118A
DATA AS OF: 2-15-59
BASED ON: LEAN-FLIGHT TEST
RICH-CALCULATED DATA

ENGINES: R2800-52W
FUEL GRADE: 115/145
ALTERNATE FUEL GRADE: 100/130



AA1-68

Figure A5-9. Nautical Miles Per Pound of Fuel — Three-Engine — 15,000 Feet

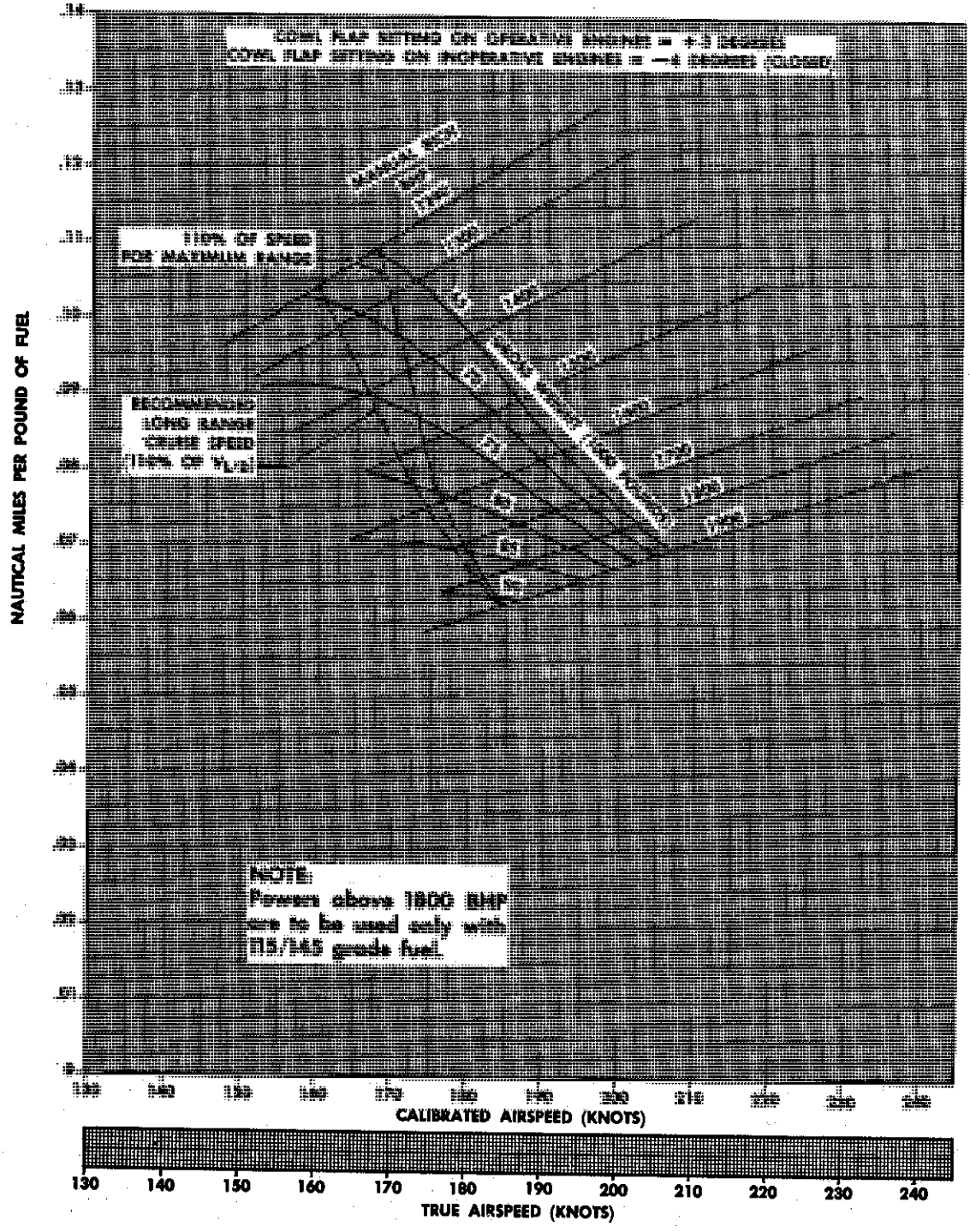
NAUTICAL MILES PER POUND OF FUEL — TWO-ENGINE

SEA LEVEL — STANDARD DAY
LOW BLOWER

MODEL: C-118A
DATA AS OF: 6-15-62
BASED ON: CALCULATED DATA

$\frac{1}{\sqrt{\sigma}} = 1.0000$

ENGINES: R2800-52W
FUEL GRADE: 115/145
ALTERNATE FUEL GRADE: 100/130



AA1-67

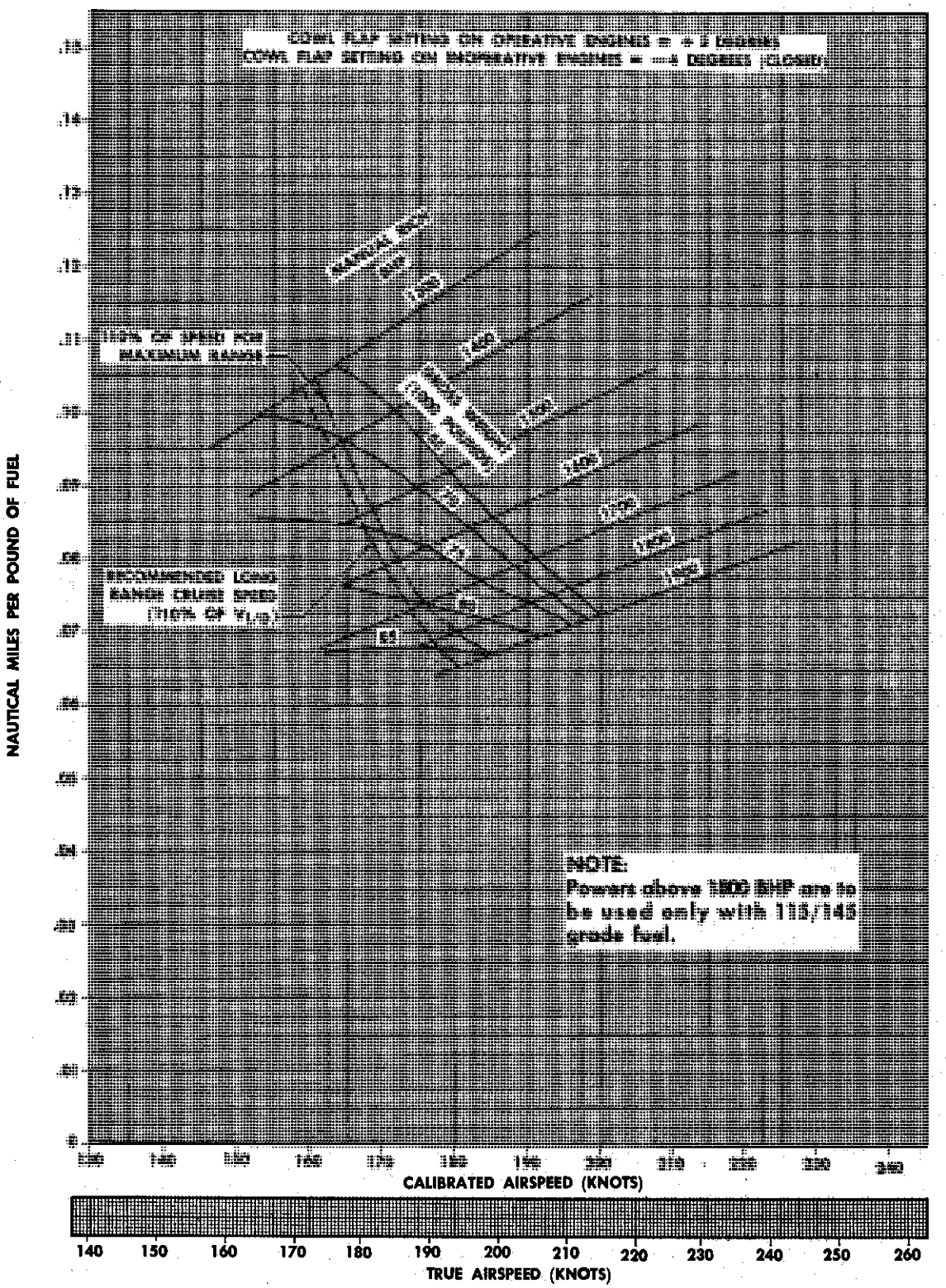
Figure A5-10. Nautical Miles Per Pound of Fuel — Two-Engine — Sea Level

NAUTICAL MILES PER POUND OF FUEL — TWO-ENGINE

5000 FEET — STANDARD DAY
LOW BLOWER
$1/\sqrt{\sigma} = 1.0773$

MODEL: C-118A
DATA AS OF: 6-15-62
BASED ON: CALCULATED DATA

ENGINES: R2800-52W
FUEL GRADE: 115/145
ALTERNATE FUEL GRADE: 100/130



AA1-66

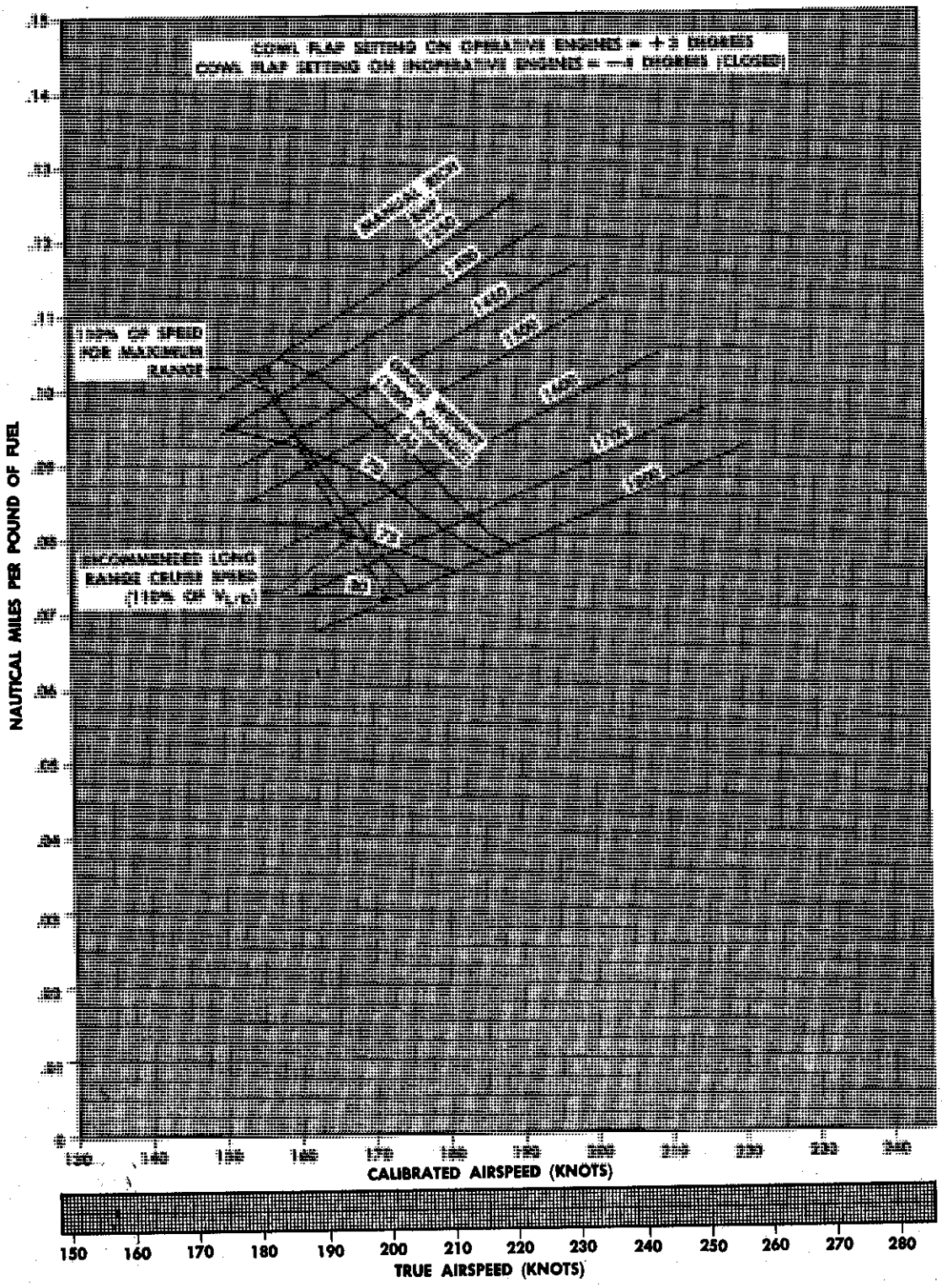
Figure A5-11. Nautical Miles Per Pound of Fuel — Two-Engine — 5000 Feet

NAUTICAL MILES PER POUND OF FUEL — TWO-ENGINE

10,000 FEET — STANDARD DAY
LOW BLOWER
$1/\sqrt{\sigma} = 1.1637$

MODEL: C-118A
DATA AS OF: 6-15-62
BASED ON: CALCULATED DATA

ENGINES: R2800-52W
FUEL GRADE: 115/145
ALTERNATE FUEL GRADE: 100/130



AA1-65

Figure A5-12. Nautical Miles Per Pound of Fuel — Two-Engine — 10,000 Feet

TWO ENGINE LONG RANGE SUMMARY

STANDARD DAY
LOW BLOWER MANUAL RICH

MODEL: C-118A
DATA AS OF: 2-15-59
BASED ON: CALCULATED DATA

ENGINES: R2800-52W
FUEL GRADE: 115/145
ALTERNATE FUEL GRADE: 100/130

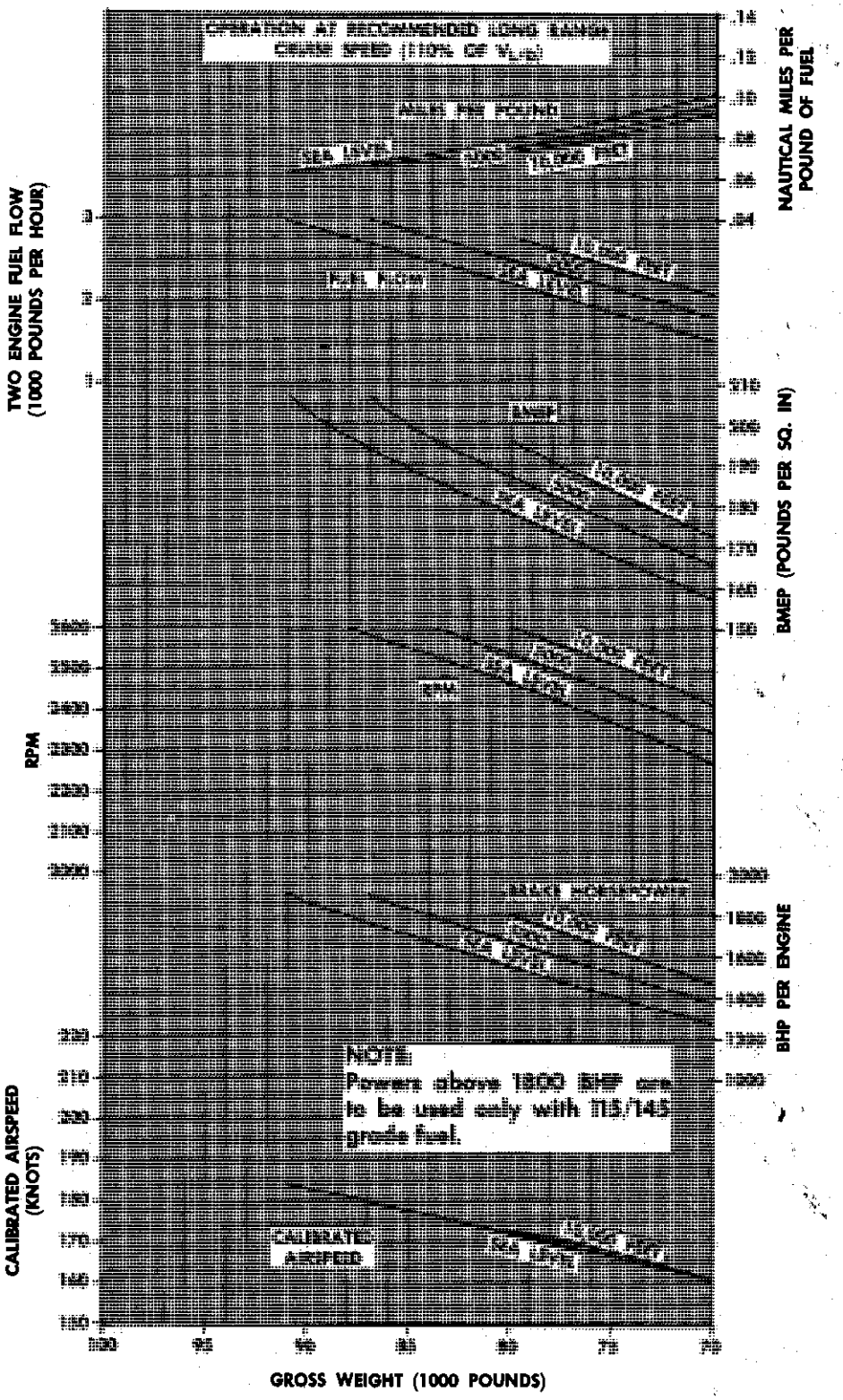


Figure A5-15. Two Engine Long Range Summary

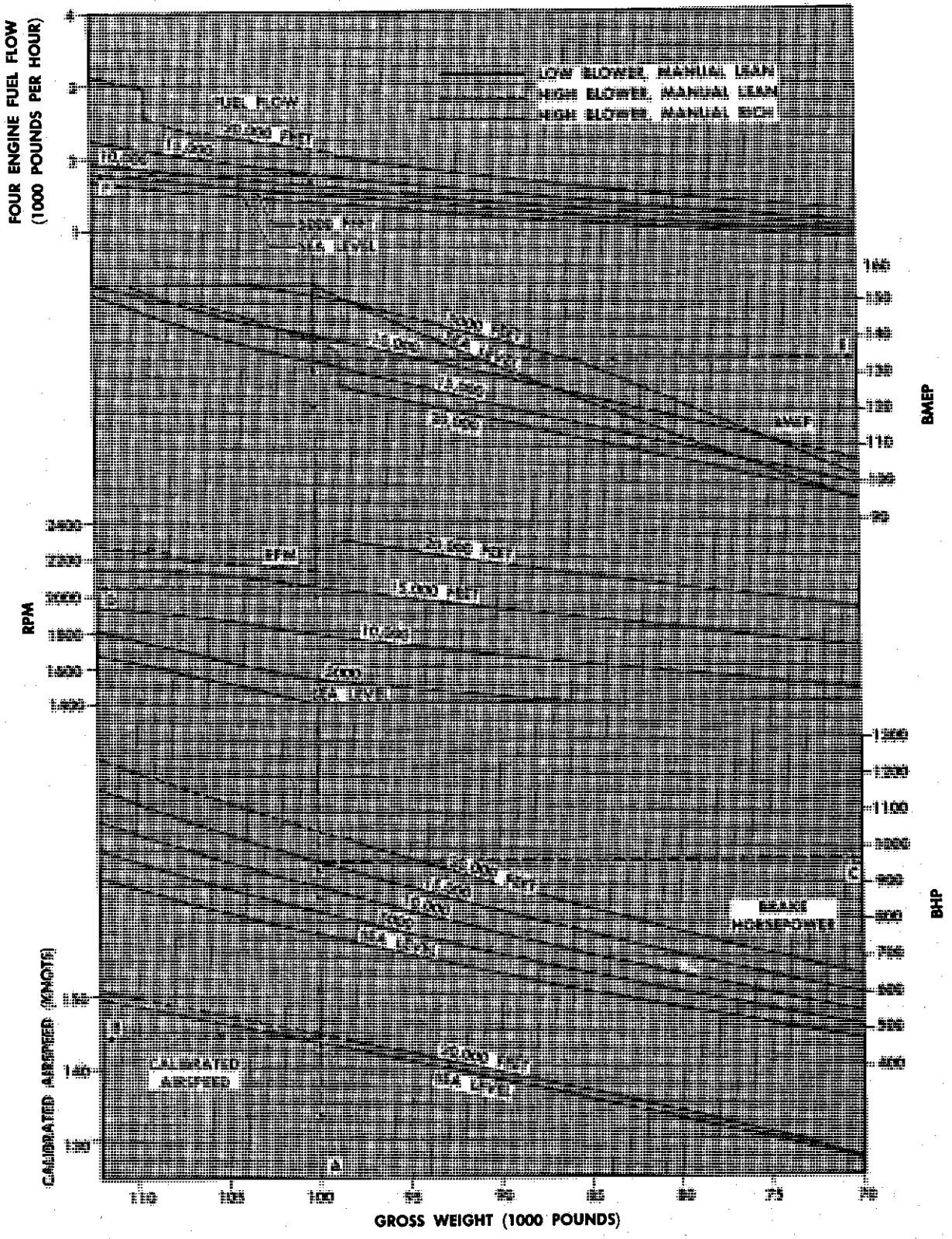
AA1-191

FOUR ENGINE MAXIMUM ENDURANCE POWER CONDITIONS

STANDARD DAY

MODEL: C-118A
DATA AS OF: 2-15-59
BASED ON: LEAN — FLIGHT TEST
RICH — CALCULATED DATA

ENGINE(S): R2800-52W
FUEL GRADE: 115/145
ALTERNATE FUEL GRADE: 100/130



AA1-79

Figure A5-16. Four Engine Maximum Endurance Power Conditions

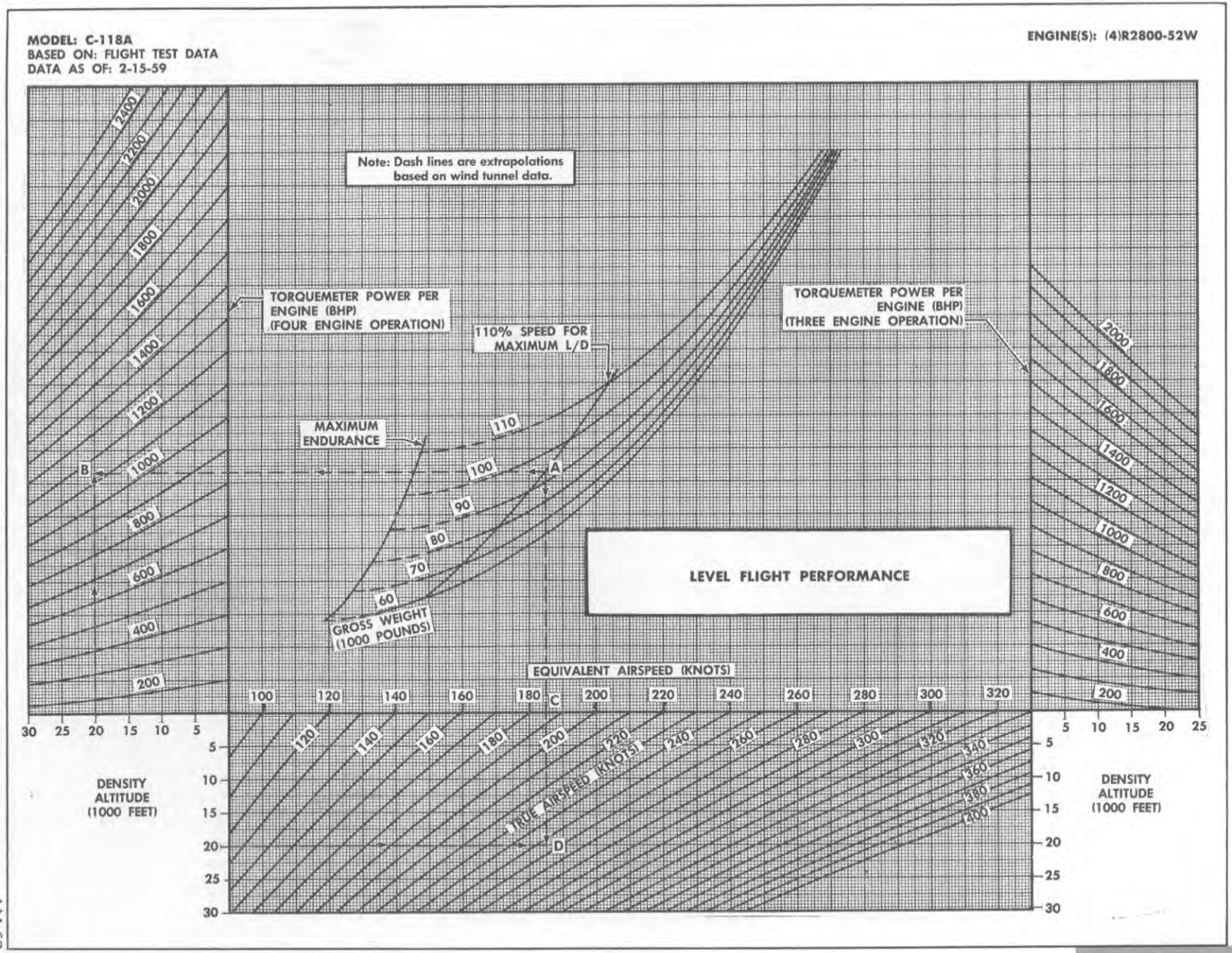


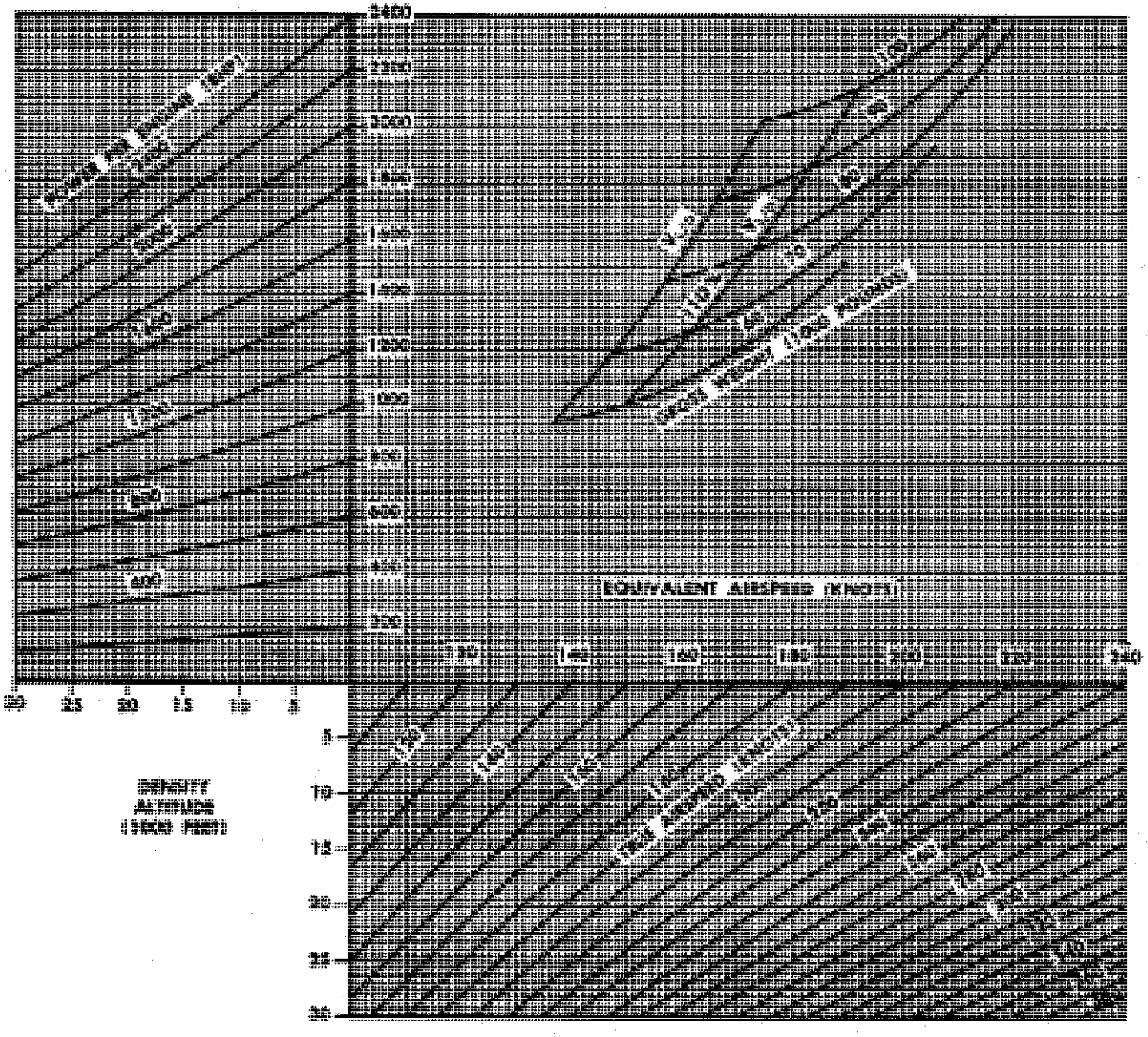
Figure A5-19. Level Flight Performance — Four-Engine and Three-Engine Operation

APPROXIMATE TWO ENGINE LEVEL FLIGHT PERFORMANCE
TWO ENGINES INOPERATIVE ON ONE SIDE

INOPERATIVE PROPELLER FEATHERED
COWL FLAPS ON OPERATING ENGINES OPEN (+ 3 DEGREES)
COWL FLAPS ON INOPERATIVE ENGINES CLOSED (−4 DEGREES)

MODEL: C-118A
DATA AS OF: 6-15-62
BASED ON: FLIGHT TEST DATA

ENGINE(S): (4) R2800-52W



Note: When using chart brake horsepower the torquemeter brake horsepower per engine should be taken as the chart brake horsepower per engine minus power required for cabin supercharging which is an average of 17.5 BHP per engine for this two engine operation.

AA1-74

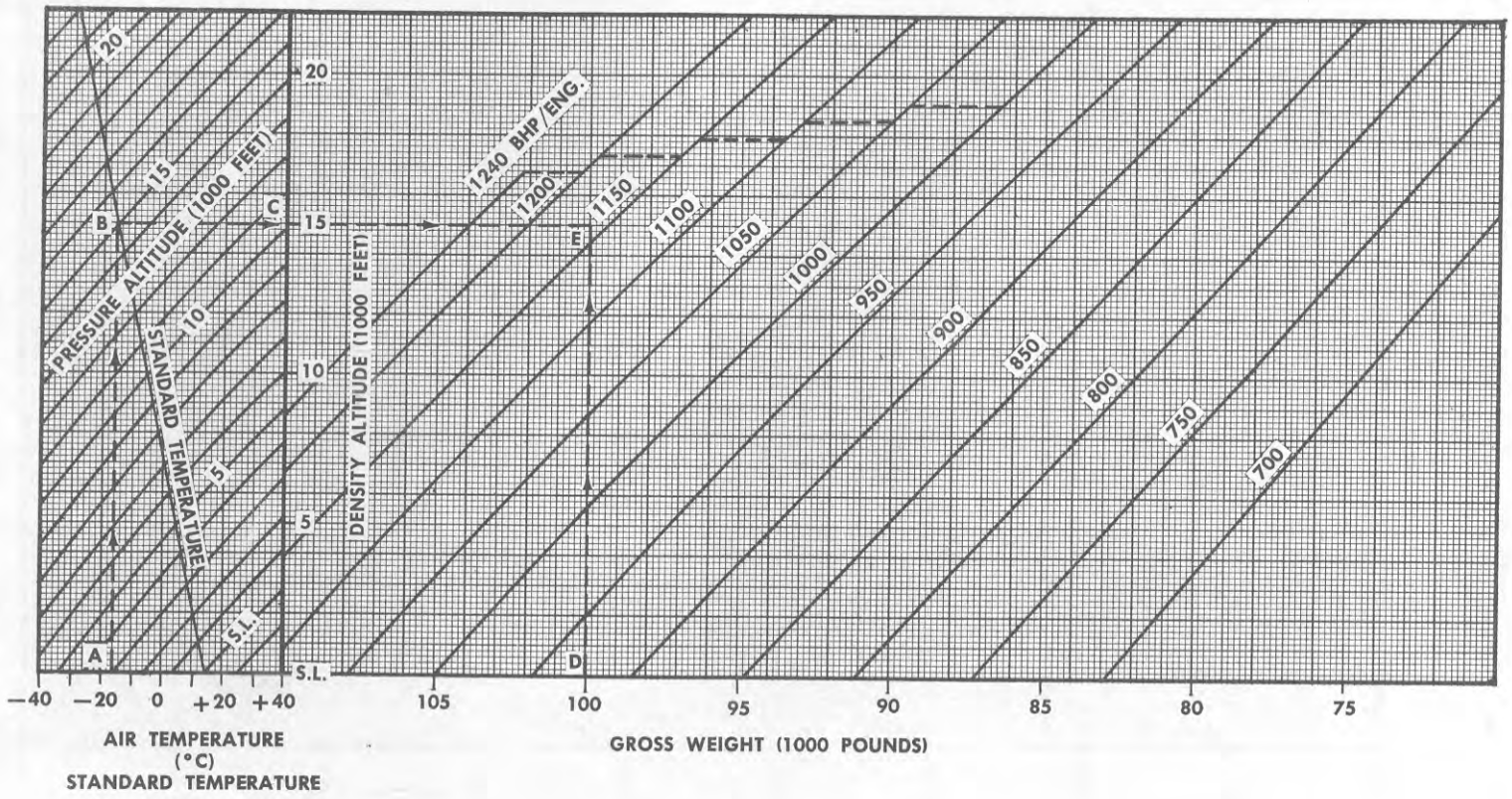
Figure A5-20. Approximate Two Engine Level Flight Performance

POWER REQUIRED TO MAINTAIN $1.1V_{L/D}$

ALL ENGINES OPERATING

MODEL: C-118A
DATA AS OF: 2-15-59
BASED ON: FLIGHT TEST DATA

ENGINES: (4) R2800-52W



NOTE:
Flight at altitudes above dotted lines require the use of high blowers.

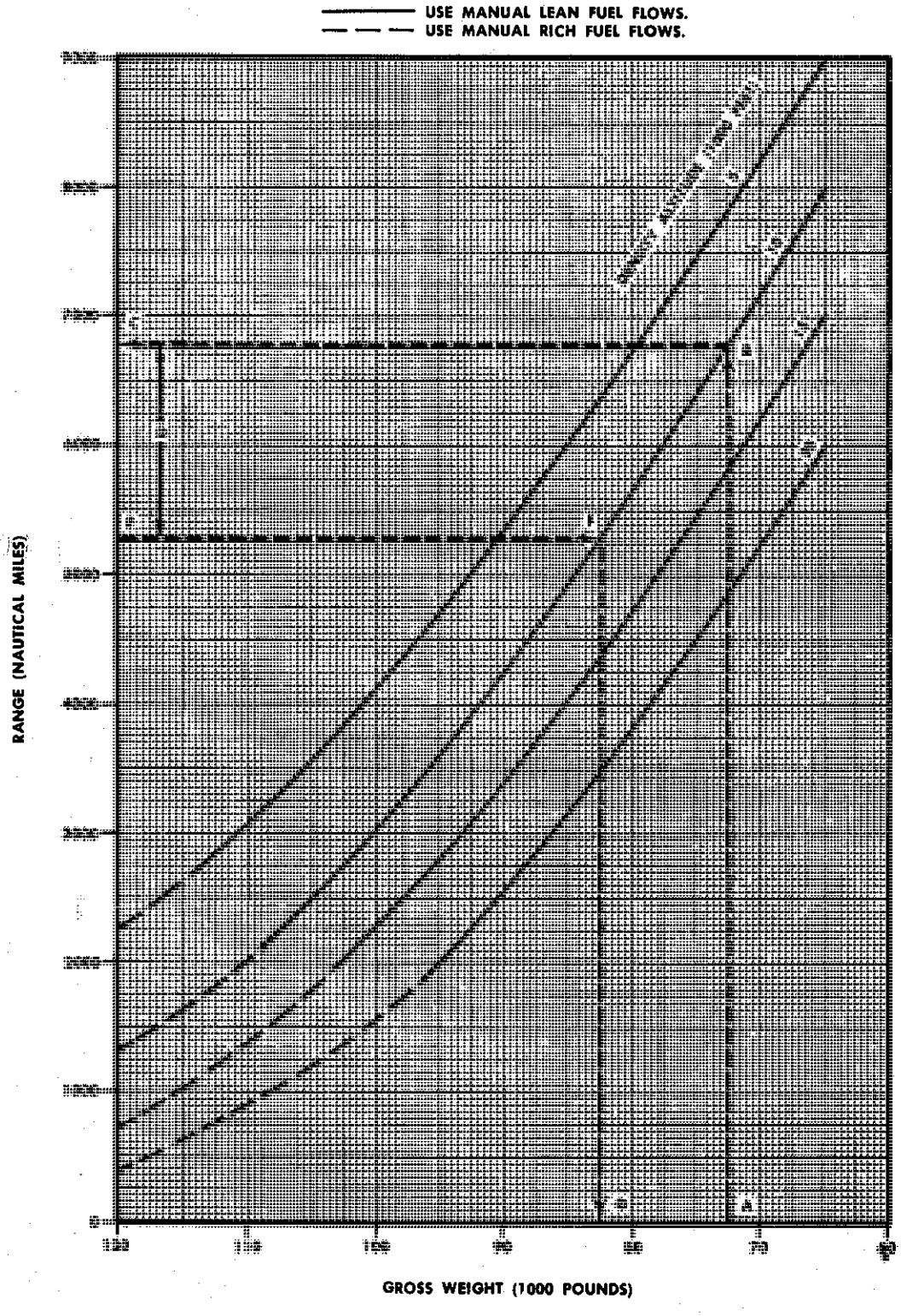
Figure A5-21. Power Required to Maintain $1.1V_{L/D}$

FOUR-ENGINE RANGE PREDICTION — DISTANCE

RECOMMENDED LONG RANGE CRUISE SPEED
NO WIND

MODEL: C-118A
DATA AS OF: 6-15-62
DATA BASIS: FLIGHT TEST

ENGINES: (4) R2800-52W
FUEL GRADE: 115/145
ALTERNATE FUEL GRADE: 100/130



AA1-218

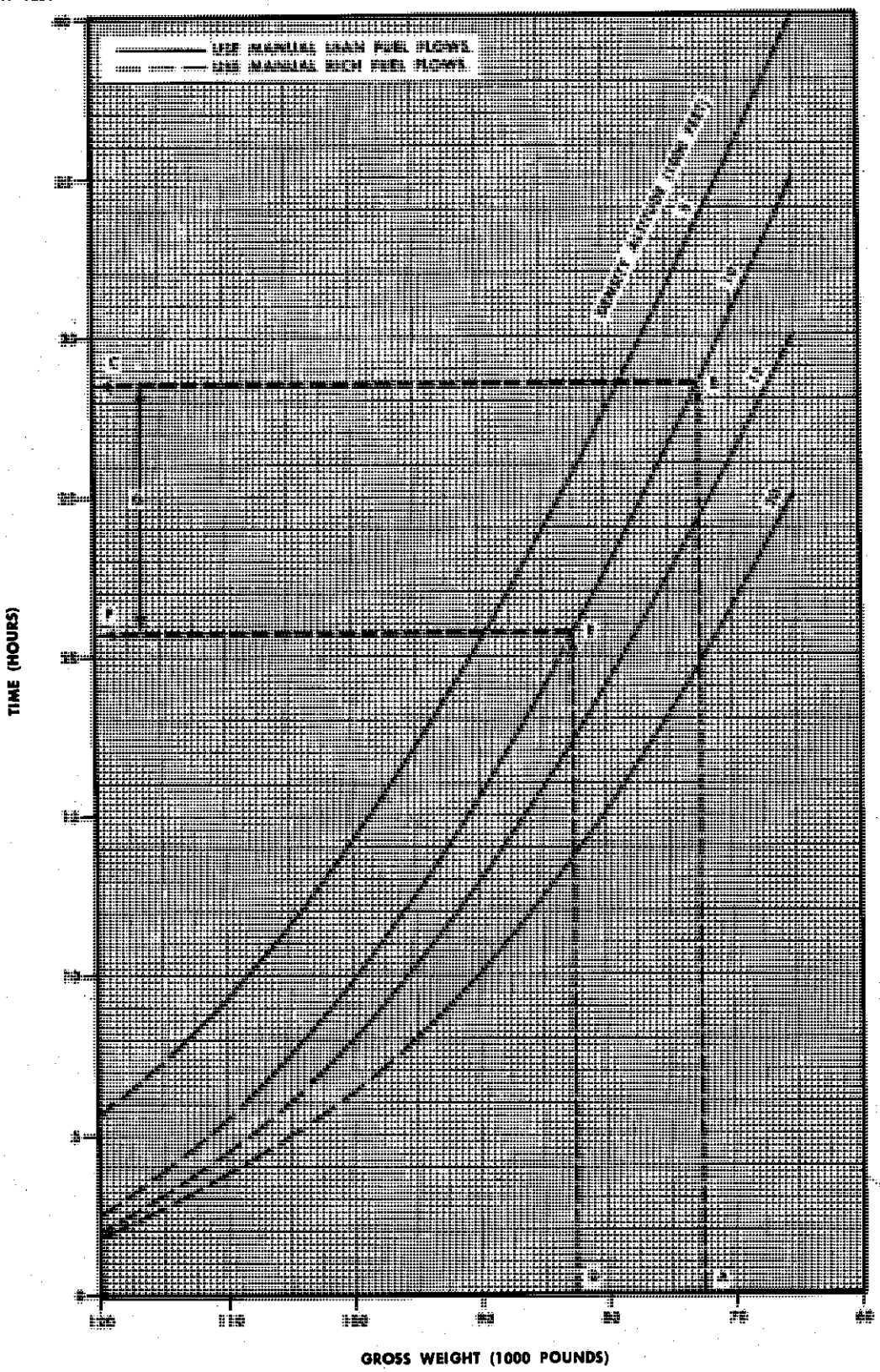
Figure A5-22. Four-Engine Range Prediction—Distance

FOUR-ENGINE RANGE PREDICTION — TIME

RECOMMENDED LONG RANGE CRUISE SPEED
NO WIND

MODEL: C-118A
DATA AS OF: 6-15-62
DATA BASIS: FLIGHT TEST

ENGINES: (4) R2800-52W
FUEL GRADE: 115/145
ALTERNATE FUEL GRADE: 100/130



AA1-188

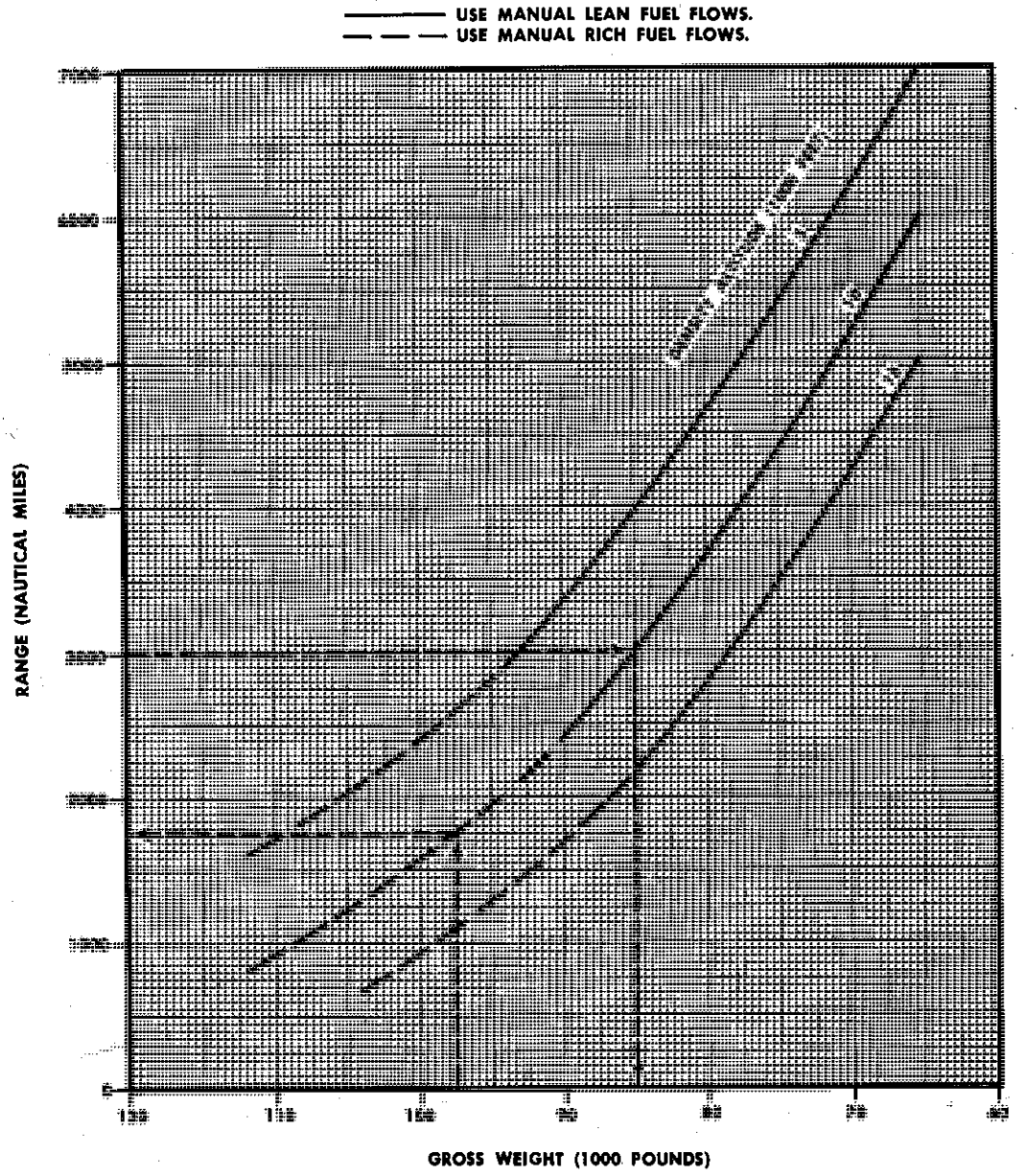
Figure A5-23. Four-Engine Range Prediction--Time

THREE-ENGINE RANGE PREDICTION — DISTANCE

RECOMMENDED LONG RANGE CRUISE SPEED
NO WIND

MODEL: C-118A
DATA AS OF: 6-15-62
DATA BASIS: FLIGHT TEST

ENGINES: (4) R2800-52W
FUEL GRADE: 115/145
ALTERNATE FUEL GRADE: 100/130



AA1-217

Figure A5-24. Three-Engine Range Prediction—Distance

THREE-ENGINE RANGE PREDICTION — TIME

RECOMMENDED LONG RANGE CRUISE SPEED
NO WIND

MODEL: C-118A
DATA AS OF: 6-15-62
DATA BASIS: FLIGHT TEST

ENGINES: (4) R2800-52W
FUEL GRADE: 115/145
ALTERNATE FUEL GRADE: 100/130

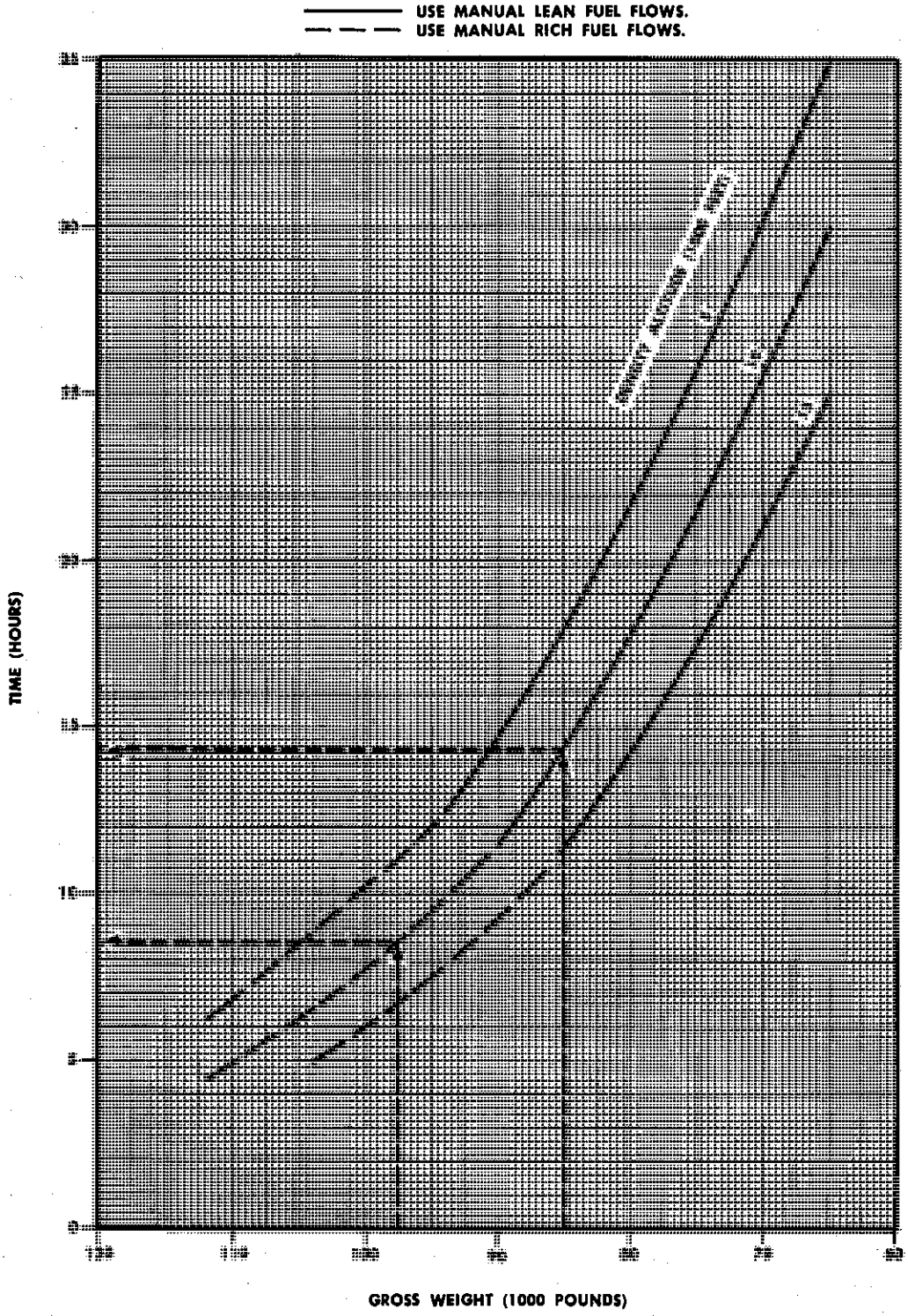


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Figure A5-25. Three-Engine Range Prediction — Time

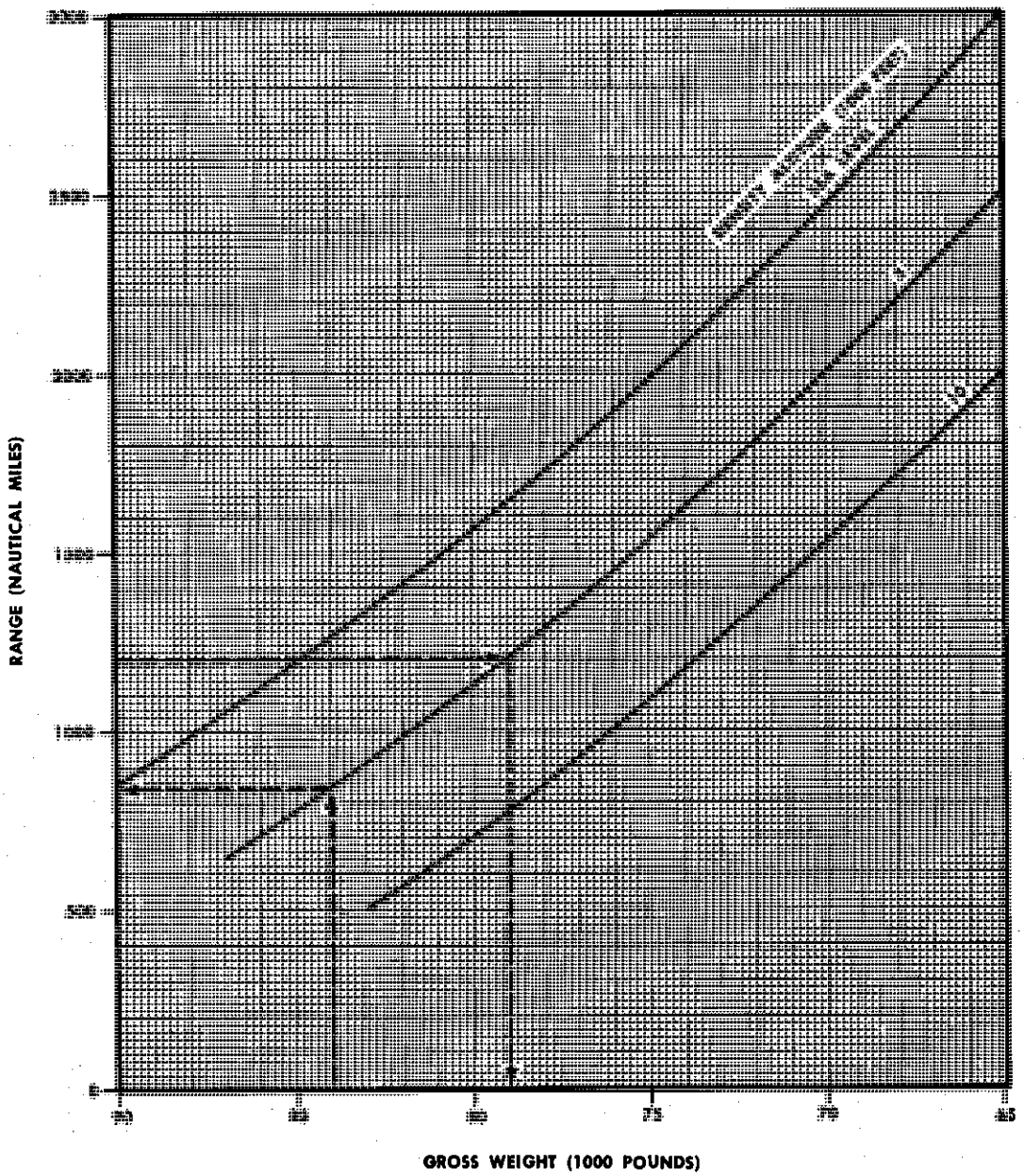
TWO-ENGINE RANGE PREDICTION — DISTANCE

RECOMMENDED LONG RANGE CRUISE SPEED
NO WIND

MODEL: C-118A
DATA AS OF: 6-15-62
DATA BASIS: FLIGHT TEST

ENGINES: (4) R2800-52W
FUEL GRADE: 115/145
ALTERNATE FUEL GRADE: 100/130

USE MANUAL RICH FUEL FLOWS.



AA1-64

Figure A5-26. Two-Engine Range Prediction — Distance

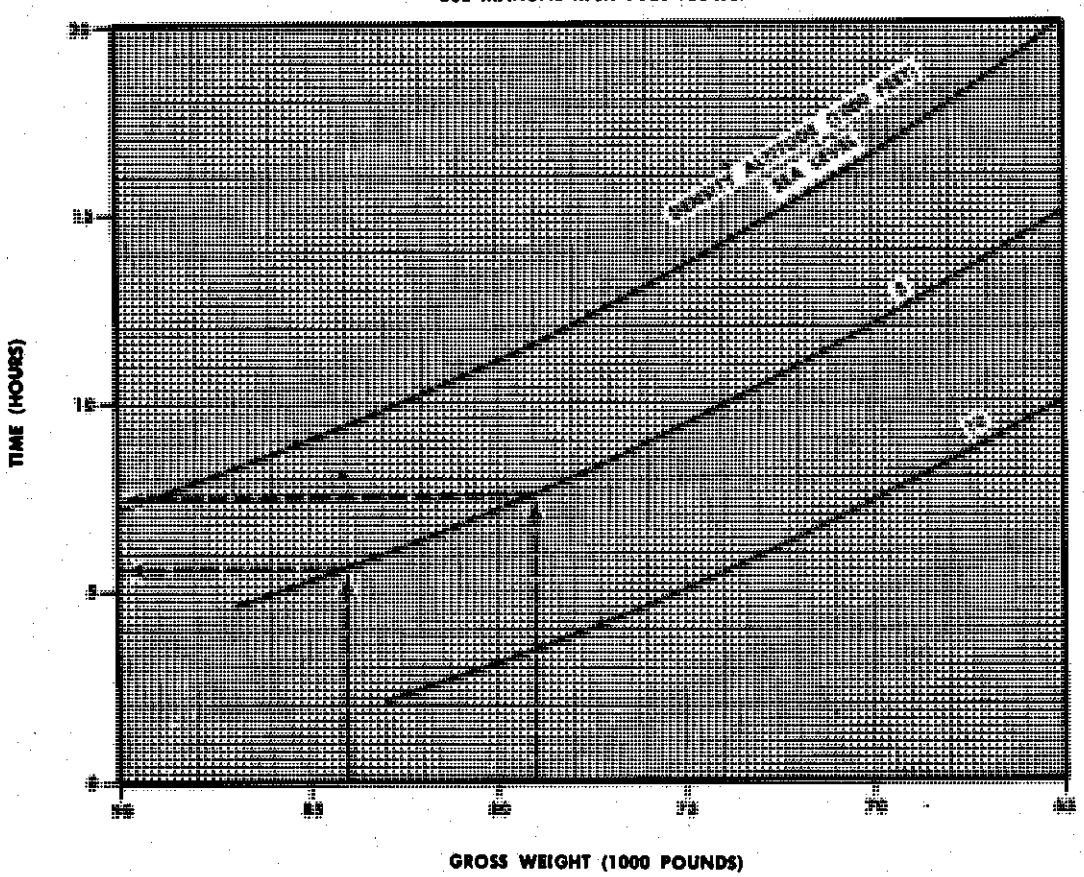
TWO-ENGINE RANGE PREDICTION — TIME

RECOMMENDED LONG RANGE CRUISE SPEED
NO WIND

MODEL: C-118A
DATA AS OF: 6-15-62
DATA BASIS: FLIGHT TEST

ENGINES: (4) R2800-52W
FUEL GRADE: 115/145
ALTERNATE FUEL GRADE: 100/130

USE MANUAL RICH FUEL FLOWS.



AA1-63

Figure A5-27. Two-Engine Range Prediction — Time

POWER SETTINGS FOR CRUISE
700 BHP/ENGINE
MANUAL LEAN OPERATION

MODEL: C-118A
DATA AS OF: 6-15-62
BASED ON: PRATT & WHITNEY CRUISE CHARTS ALT 102A

Note:
Do not operate in high blower above 30°C CAT.

R2800-52W ENGINES
FUEL GRADE: 115/145
ALTERNATE FUEL GRADE: 100/130

Pressure Altitude (Feet)	*Manifold Pressure At Carburetor Air Temperature °C (In. Hg)*								*RPM and Blower*	*BMEP Drop (psi)*	*Fuel Flow Per Eng. (Lb./Hr.)*	*Nominal BMEP (psi)*
	−30	−20	−10	0	+10	+20	+30	+38				
25,000	21.9	22.4	22.8	23.3	23.1	23.5	23.9					
24,000	22.9	23.3	22.8	23.2	23.7	23.6	24.0		HIGH 2200	12	389	90
23,000	22.9	23.3	23.8	23.3	23.7	24.1	24.0					
22,000	23.0	23.4	23.9	24.3	24.8	24.2	24.6		HIGH 2100	12	377	94
21,000	23.8	24.3	24.7	24.4	24.8	25.3	24.6					
20,000	23.9	24.4	24.8	24.5	24.9	25.4	25.8					
19,000	24.8	25.3	24.9	25.4	25.9	26.3	25.8		HIGH 2000	12	360	99
18,000	24.9	25.4	26.0	25.5	26.0	26.4	25.9					
17,000	23.2	25.5	26.1	26.5	27.0	26.5	27.0		HIGH 1900	12	344	104
16,000	23.5	23.9	26.2	26.7	27.1	27.6	27.1					
15,000	23.7	24.1	24.5	25.0	27.3	27.7	28.2					
14,000	24.6	25.0	24.7	25.1	25.6	26.0	28.3		HIGH 1800	12	334	110
13,000	24.8	25.3	25.8	26.3	25.9	26.3	26.8					
12,000	25.6	26.1	26.5	26.5	27.0	26.7	27.2	27.5	LOW 1800	12	328	110
11,000	25.8	26.3	26.9	27.4	27.2	27.7	28.2	27.8				
10,000	26.8	26.6	27.1	27.6	28.2	28.0	28.5	28.9				
9,000	27.1	27.6	27.3	27.8	28.4	28.8	28.7	29.1	LOW 1700	12	321	117
8,000	27.3	27.9	28.4	28.9	28.6	29.0	29.5	29.4				
7,000	28.4	28.9	28.7	29.3	29.8	30.3	29.7	30.1	LOW 1600	12	314	124
6,000	28.6	29.2	29.8	30.3	30.0	30.5	31.0	30.3				
5,000	29.0	29.6	30.2	30.7	31.3	30.8	31.3	31.7	LOW 1500	12	309	132
4,000	29.3	29.9	30.5	31.1	31.7	32.2	31.7	32.1				
3,000	29.7	30.3	30.9	31.5	32.1	32.7	33.3	33.7				
2,000	30.0	30.7	31.3	31.9	32.4	33.0	33.6	34.0	LOW 1400	12	304	141
1,000	30.4	31.0	31.7	32.3	32.8	33.4	34.0	34.4				

DO NOT OPERATE IN HIGH BLOWER ABOVE 30°C CAT.

Figure A5-28. Power Settings for Cruise — 700 BHP/Engine

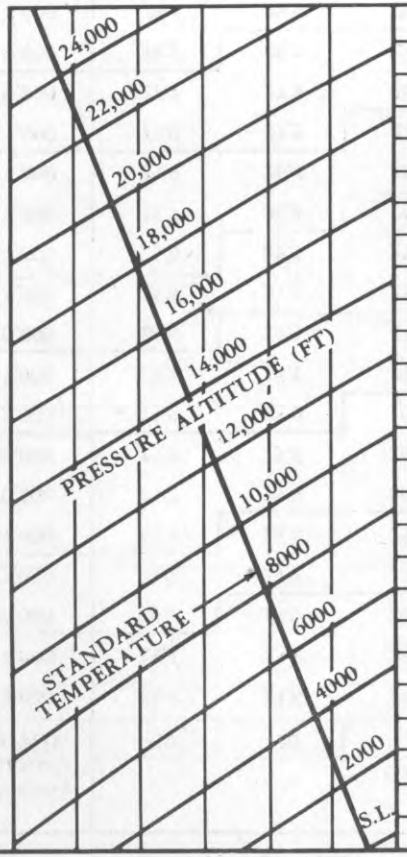
OPERATION BELOW $1.1V_{L/D}$

OPERATION BELOW $V_{L/D}$

CRUISE SPEEDS FOR 700 BHP/ENGINE MANUAL LEAN OPERATION

MODEL: C-118A
BASED ON: FLIGHT TEST

R2800-52W ENGINES
FUEL GRADE: 115/145
ALTERNATE FUEL GRADE: 100/130



Density Altitude (Ft)	Airspeed in Knots for Different Gross Weights															
	110,000 Pounds		105,000 Pounds		100,000 Pounds		95,000 Pounds		90,000 Pounds		85,000 Pounds		80,000 Pounds		75,000 Pounds	
	IAS	TAS	IAS	TAS	IAS	TAS	IAS	TAS	IAS	TAS	IAS	TAS	IAS	TAS	IAS	TAS
25,000																
24,000																
23,000																
22,000																
21,000																
20,000																
19,000																
18,000																
17,000																
16,000																
15,000															152	193
14,000															155	193
13,000															157	193
12,000															159	192
11,000															161	192
10,000													155	182	164	192
9000													158	182	166	191
8000													160	182	168	191
7000													162	182	170	190
6000													164	181	172	189
5000													167	181	173	189
4000											161	172	170	181	175	188
3000											164	172	171	180	177	187
2000											166	172	173	180	178	186
1000											168	172	175	180	180	185
S.L.											171	172	177	179	182	184

NOTES:
(1) Airspeeds based upon pilot's instrument, nose radar installed.
(2) Airspeeds based on −2 degrees cowl flap setting. Decrease airspeeds 3 knots per degree of opening from −2 degrees.
(3) Without nose radome decrease IAS approximately 3 knots. TAS is unaffected.

AA1-500

Figure A5-29. Cruise Speeds for 700 BHP/Engine

POWER SETTINGS FOR CRUISE
750 BHP/ENGINE
MANUAL LEAN OPERATION

MODEL: C-118A
DATA AS OF: 6-15-62
BASED ON: PRATT & WHITNEY CRUISE CHARTS ALT 102A

Note:
Do not operate in high blower above 30°C CAT.

R-2800-52W ENGINES
FUEL GRADE: 115/145
ALTERNATE FUEL GRADE: 100/130

Pressure Altitude (Feet)	*Manifold Pressure At Carburetor Air Temperature °C (In. Hg)*								*RPM and Blower*	*BMEP Drop (psi)*	*Fuel Flow Per Eng. (Lb./Hr.)*	*Nominal BMEP (psi)*
	−30	−20	−10	0	+10	+20	+30	+38				
25,000	23.4	23.8	24.2	24.3	24.7	25.1						
24,000	23.4	23.8	24.3	24.3	24.8	25.2	25.6					
23,000	24.1	23.9	24.4	24.8	25.2	25.3	25.7		HIGH 2200	12	410	96
22,000	24.2	24.7	25.1	24.9	25.3	25.7	25.8					
21,000	24.9	24.8	25.3	25.7	25.3	25.8	26.2		HIGH 2100	12	399	101
20,000	25.0	25.5	26.0	25.8	26.2	26.6	26.2					
19,000	25.1	25.6	26.1	26.3	26.3	26.7	27.1		HIGH 2000	12	380	106
18,000	23.5	23.9	26.2	26.5	27.1	27.5	27.2					
17,000	23.7	24.1	24.6	26.7	27.1	27.6	28.1					
16,000	24.6	24.3	24.8	25.2	27.2	27.7	28.2					
15,000	24.8	25.3	25.7	25.4	25.9	27.7	28.3		HIGH 1900	12	364	112
14,000	25.6	25.5	25.9	26.4	26.1	26.5	27.0					
13,000	25.7	26.2	26.1	26.6	27.1	26.6	27.1	27.4	LOW 1900	12	355	112
12,000	25.9	26.4	26.9	27.5	27.2	27.7	28.1	27.5				
11,000	27.0	27.5	27.3	27.8	28.3	28.0	28.4	28.8				
10,000	27.2	27.8	28.3	28.0	28.5	29.0	28.5	28.9	LOW 1800	12	347	118
9,000	28.2	28.1	28.5	29.1	28.7	29.2	29.6	29.0				
8,000	28.4	28.9	29.5	29.3	29.9	30.4	29.7	30.1	LOW 1700	12	340	125
7,000	28.6	29.1	29.7	30.2	30.1	30.6	31.0	30.2				
6,000	29.8	30.3	30.0	30.5	31.1	31.7	31.1	31.5	LOW 1600	12	333	133
5,000	30.0	30.5	31.2	30.8	31.4	31.9	32.3	31.6				
4,000	30.3	30.9	31.5	32.1	31.7	32.2	32.6	33.0	LOW 1500	12	327	141
3,000	30.7	31.2	31.9	32.5	33.0	33.7	32.7	33.1				
2,000	31.0	31.6	32.3	32.9	33.4	34.0	34.4	34.8	LOW 1400	12	322	152
1,000	31.4	32.0	32.7	33.3	33.9	34.4	34.8	35.2				

DO NOT OPERATE IN HIGH BLOWER ABOVE 30°C CAT.

Figure A5-30. Power Settings for Cruise — 750 BHP/Engine

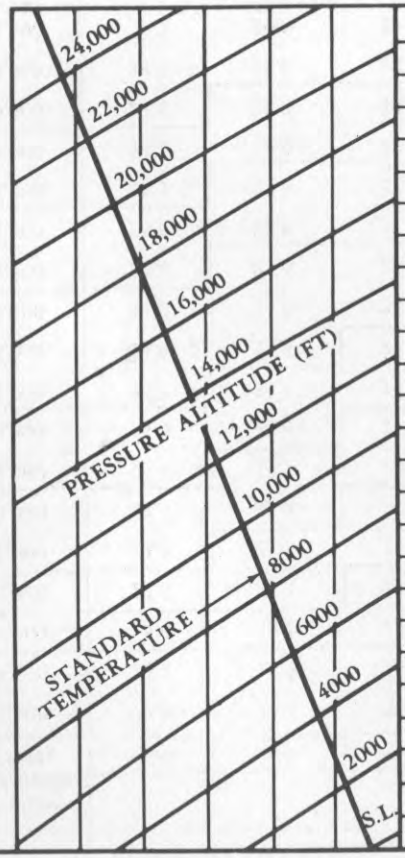
OPERATION BELOW $1.1V_{L/D}$

OPERATION BELOW $V_{L/D}$

MODEL: C-118A
BASED ON: FLIGHT TEST

CRUISE SPEEDS FOR 750 BHP/ENGINE MANUAL LEAN OPERATION

R2800-52W ENGINES
FUEL GRADE: 115/145
ALTERNATE FUEL GRADE: 100/130



Density Altitude (Ft)	110,000 Pounds		105,000 Pounds		100,000 Pounds		95,000 Pounds		90,000 Pounds		85,000 Pounds		80,000 Pounds		75,000 Pounds	
	Airspeed in Knots for Different Gross Weights															
	IAS	*TAS*	*IAS*	*TAS*	*IAS*	*TAS*	*IAS*	*TAS*	*IAS*	*TAS*	*IAS*	*TAS*	*IAS*	*TAS*	*IAS*	*TAS*
25,000																
24,000																
23,000																
22,000																
21,000																
20,000																
19,000															153	207
18,000															155	207
17,000															158	207
16,000															160	206
15,000															163	206
14,000													156	195	165	205
13,000													159	195	167	205
12,000													162	195	169	204
11,000													165	195	171	203
10,000													167	195	172	202
9000											160	184	169	194	174	201
8000											163	184	171	194	176	200
7000											165	184	172	193	178	199
6000											168	184	174	193	180	198
5000											170	184	176	192	181	197
4000									163	175	172	184	178	191	183	196
3000									166	175	174	183	180	190	185	195
2000									169	175	176	183	182	189	186	194
1000									172	175	178	183	183	188	187	192
S.L.									174	175	180	182	185	187	189	191

−40 −30 −20 −10 0 +10 +20
Outside Air Temperature (°C)

NOTES:
(1) Airspeeds based upon pilot's instrument, nose radar installed.
(2) Airspeeds based on −2 degrees cowl flap setting. Decrease airspeeds 3 knots per degree of opening from −2 degrees.
(3) Without nose radome decrease IAS approximately 3 knots. TAS is unaffected.

AA1-522

Figure A5-31. Cruise Speeds for 750 BHP/Engine

MODEL: C-118A
DATA AS OF: 6-15-62
BASED ON: PRATT & WHITNEY CRUISE CHARTS ALT 102A

POWER SETTINGS FOR CRUISE
800 BHP/ENGINE
MANUAL LEAN OPERATION

Note:
Do not operate in high blower above 30°C CAT.

R2800-52W ENGINES
FUEL GRADE: 115/145
ALTERNATE FUEL GRADE: 100/130

Pressure Altitude (Feet)	*Manifold Pressure At Carburetor Air Temperature °C (In. Hg)*								*RPM and Blower*	*BMEP Drop (psi)*	*Fuel Flow Per Eng. (Lb./Hr.)*	*Nominal BMEP (psi)*
	−30	−20	−10	0	+10	+20	+30	+38				
25,000	23.9	24.4	24.9	25.2	25.6	26.1	F.T.	DO NOT OPERATE IN HIGH BLOWER ABOVE 30°C CAT.				
24,000	23.9	24.5	24.9	25.5	25.8	26.2	26.7					
23,000	24.6	25.1	25.6	25.5	25.8	26.3	26.7		HIGH 2300	12	442	98
22,000	22.6	23.1	25.7	26.2	25.9	26.3	26.8					
21,000	23.2	23.3	23.7	26.4	26.8	27.3	26.8		HIGH 2200	12	429	103
20,000	23.3	23.6	23.8	24.3	24.7	27.4	27.9					
19,000	23.9	23.7	24.1	24.6	24.9	25.3	27.9		HIGH 2100	12	415	108
18,000	24.0	24.4	24.3	24.8	25.2	25.5	26.0					
17,000	24.7	24.5	25.0	25.5	25.3	25.8	26.2	26.5	LOW 2200	12	396	103
16,000	24.8	25.3	25.2	25.6	26.1	26.0	26.5	26.9				
15,000	25.0	25.5	26.0	26.5	26.3	26.7	26.7	27.1	LOW 2100	12	388	108
14,000	26.1	25.6	26.1	26.7	27.1	26.9	27.4	27.8				
13,000	26.3	26.8	27.3	26.9	27.4	27.8	27.5	27.9	LOW 2000	12	381	114
12,000	27.2	27.0	27.5	28.0	28.6	28.0	28.5	28.9				
11,000	27.4	28.0	28.5	28.2	28.8	29.2	28.7	29.1	LOW 1900	12	372	119
10,000	28.1	28.2	28.7	29.2	29.0	29.5	30.0	30.4				
9,000	28.3	28.8	29.4	29.4	30.0	30.5	30.0	30.0	LOW 1800	12	364	128
8,000	28.7	29.2	29.8	30.3	30.2	30.7	31.2	30.8				
7,000	29.6	30.2	30.1	30.6	31.2	30.9	31.5	31.9				
6,000	29.9	30.5	31.1	31.0	31.5	32.0	32.6	32.1	LOW 1700	12	358	132
5,000	30.1	30.7	31.3	31.9	31.7	32.2	32.8	33.2				
4,000	30.4	31.0	31.6	32.2	32.8	33.4	32.9	33.3	LOW 1600	12	351	141
3,000	30.7	31.2	31.9	32.5	33.1	33.7	34.3	34.7				
2,000	31.0	31.6	32.3	32.9	33.5	34.0	34.6	35.0				
1,000	31.4	32.0	32.7	33.3	33.9	34.4	35.0	35.4	LOW 1500	12	346	151

Figure A5-32. Power Settings for Cruise — 800 BHP/Engine

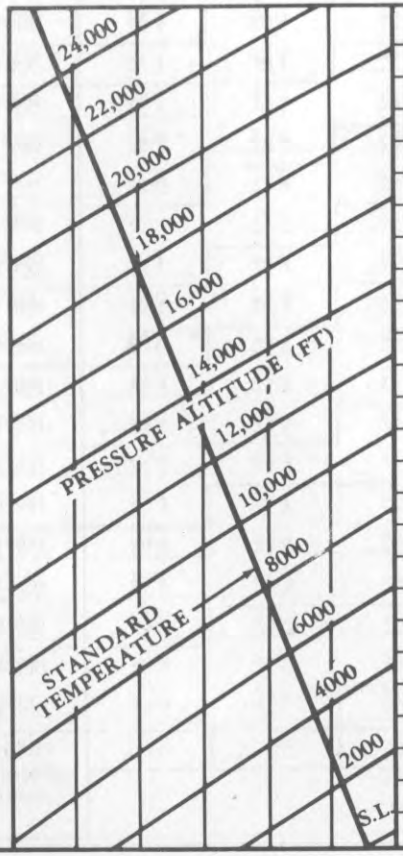
OPERATION BELOW $1.1V_{L/D}$

OPERATION BELOW $V_{L/D}$

CRUISE SPEEDS FOR
800 BHP/ENGINE
MANUAL LEAN OPERATION

MODEL: C-118A
BASED ON: FLIGHT TEST

R2800-52W ENGINES
FUEL GRADE: 115/145
ALTERNATE FUEL GRADE: 100/130



Density Altitude (Ft)	Airspeed in Knots for Different Gross Weights															
	110,000 Pounds		105,000 Pounds		100,000 Pounds		95,000 Pounds		90,000 Pounds		85,000 Pounds		80,000 Pounds		75,000 Pounds	
	IAS	TAS	IAS	TAS	IAS	TAS	IAS	TAS	IAS	TAS	IAS	TAS	IAS	TAS	IAS	TAS
25,000																
24,000																
23,000															152	220
22,000															155	220
21,000															157	220
20,000															160	220
19,000															162	219
18,000													156	208	164	219
17,000													159	208	167	219
16,000													162	208	169	218
15,000													164	208	171	217
14,000													166	207	172	216
13,000											161	197	169	207	174	215
12,000											164	197	171	207	176	214
11,000											166	197	173	206	178	213
10,000											168	196	175	205	180	211
9000											170	196	177	204	182	210
8000									165	187	173	196	178	203	183	209
7000									167	187	175	195	180	202	185	208
6000									170	187	177	195	182	201	186	206
5000									172	186	179	194	184	200	188	205
4000									175	186	181	194	186	199	189	203
3000									177	186	183	193	187	198	191	202
2000							170	177	179	185	184	192	188	196	192	200
1000							173	177	181	185	186	191	190	195	194	199
S.L.							176	177	183	185	187	190	192	194	195	198

NOTES:
(1) Airspeeds based upon pilot's instrument, nose radar installed.
(2) Airspeeds based on −2 degrees cowl flap setting. Decrease airspeeds 3 knots per degree of opening from −2 degrees.
(3) Without nose radome decrease IAS approximately 3 knots. TAS is unaffected.

AA1-501

Figure A5-33. Cruise Speeds for 800 BHP/Engine

POWER SETTINGS FOR CRUISE
850 BHP/ENGINE
MANUAL LEAN OPERATION

MODEL: C-118A
DATA AS OF: 6-15-62
BASED ON: PRATT & WHITNEY CRUISE CHARTS ALT 102A

Note:
Do not operate in high blower above 30°C CAT.

R2800-52W ENGINES
FUEL GRADE: 115/145
ALTERNATE FUEL GRADE: 100/130

Pressure Altitude (Feet)	*Carburetor Air Temperature °C (In. Hg) Manifold Pressure At* −30	−20	−10	0	+10	+20	+30	+38	*RPM and Blower*	*BMEP Drop (psi)*	*Fuel Flow Per Eng. (Lb./Hr.)*	*Nominal BMEP (psi)*
25,000	25.4	F.T.	26.3	26.9	F.T.							
24,000	25.5	26.0	26.5	26.9	27.4	F.T.						
23,000	25.8	26.1	26.6	27.1	27.5	27.8						
22,000	25.9	26.3	26.8	27.2	27.6	27.9	28.4					
21,000	26.0	26.4	26.9	27.5	27.7	28.0	28.4	DO NOT OPERATE IN HIGH BLOWER ABOVE 30°C CAT.	HIGH 2300	12	365	105
20,000	24.3	26.5	27.0	27.5	28.0	28.1	28.6					
19,000	24.5	24.9	25.4	27.6	28.0	28.4	28.6		HIGH 2200	12	351	109
18,000	25.1	25.5	25.5	26.0	28.1	28.4	28.9					
17,000	25.3	25.7	26.2	26.1	26.6	28.5	29.0					
16,000	26.0	25.9	26.4	26.9	26.7	27.2	29.1					
15,000	26.1	26.6	26.5	27.0	27.4	27.4	27.9		HIGH 2100	12	437	115
14,000	27.1	26.8	27.4	27.9	27.6	28.1	28.1	28.5	LOW 2100	12	409	115
13,000	27.2	27.7	27.6	28.1	28.6	28.3	28.8	29.3				
12,000	28.0	27.9	28.4	28.2	28.7	29.2	29.0	29.5	LOW 2000	12	401	120
11,000	28.2	28.8	28.7	29.3	28.9	29.4	29.9	30.4				
10,000	28.5	29.1	29.6	29.5	30.0	30.5	30.0	30.5	LOW 1900	12	392	127
9,000	29.5	30.1	29.9	30.4	30.2	30.7	31.2	31.7				
8,000	30.3	30.3	30.9	30.6	31.2	31.7	31.4	31.9	LOW 1800	12	384	134
7,000	30.5	31.1	31.1	31.7	31.4	32.0	32.5	32.9				
6,000	30.8	31.4	32.0	31.9	32.5	32.2	32.7	33.1	LOW 1700	12	377	141
5,000	31.0	31.7	32.3	32.9	32.8	33.4	33.9	34.3				
4,000	31.2	31.8	32.5	33.1	33.7	34.3	34.0	34.4	LOW 1600	12	370	150
3,000	31.5	32.1	32.7	33.4	34.0	34.6	35.2	35.6				
2,000	31.7	32.4	33.0	33.6	34.2	34.8	35.4	35.8				
1,000	32.0	32.6	33.3	33.9	34.5	35.1	35.7	36.1	LOW 1550	12	368	155

Figure A5-34. Power Settings for Cruise — 850 BHP/Engine

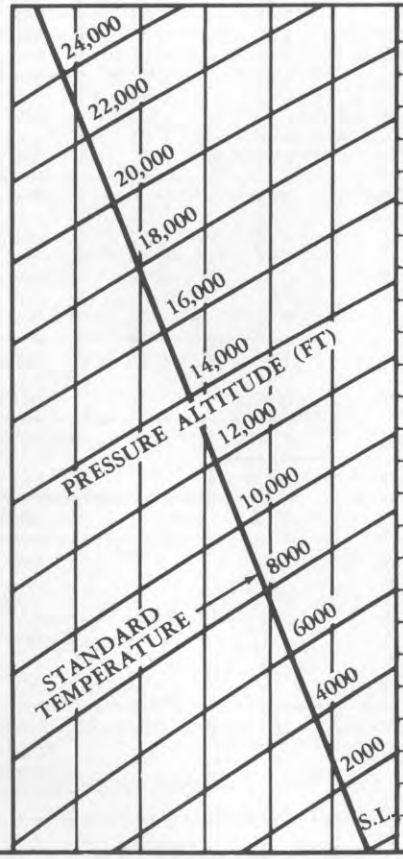
OPERATION BELOW $1.1V_{L/D}$

OPERATION BELOW $V_{L/D}$

MODEL: C-118A
BASED ON: FLIGHT TEST

CRUISE SPEEDS FOR 850 BHP/ENGINE MANUAL LEAN OPERATION

R2800-52W ENGINES
FUEL GRADE: 115/145
ALTERNATE FUEL GRADE: 100/130



Density Altitude (Ft)	*Airspeed in Knots for Different Gross Weights*															
	110,000 Pounds		*105,000 Pounds*		*100,000 Pounds*		*95,000 Pounds*		*90,000 Pounds*		*85,000 Pounds*		*80,000 Pounds*		*75,000 Pounds*	
	IAS	*TAS*	*IAS*	*TAS*	*IAS*	*TAS*	*IAS*	*TAS*	*IAS*	*TAS*	*IAS*	*TAS*	*IAS*	*TAS*	*IAS*	*TAS*
25,000															156	234
24,000															159	234
23,000															162	234
22,000													154	222	164	233
21,000													158	222	166	233
20,000													161	222	168	232
19,000													163	222	170	231
18,000													166	222	172	230
17,000											159	209	168	221	174	229
16,000											163	209	170	220	176	227
15,000											165	209	172	219	178	226
14,000											168	209	174	218	180	225
13,000											170	209	176	217	181	223
12,000									164	198	173	208	178	216	183	222
11,000									167	198	175	208	180	215	185	220
10,000									170	198	176	207	182	214	186	219
9000									172	198	178	206	184	213	188	218
8000									175	198	180	205	186	212	189	216
7000									177	197	182	204	187	210	191	214
6000							170	188	179	197	184	203	188	208	192	213
5000							173	188	181	197	186	202	190	207	194	211
4000							176	188	183	196	188	201	192	206	195	210
3000							178	188	185	195	189	200	193	204	197	208
2000							180	188	186	194	191	199	195	203	198	206
1000					175	178	183	187	188	193	193	198	197	202	200	205
S.L.					177	178	185	187	190	192	194	197	198	200	201	203

−40 −30 −20 −10 0 +10 +20
Outside Air Temperature (°C)

NOTES:
(1) Airspeeds based upon pilot's instrument, nose radar installed.
(2) Airspeeds based on −2 degrees cowl flap setting. Decrease airspeeds 3 knots per degree of opening from −2 degrees.
(3) Without nose radome decrease IAS approximately 3 knots. TAS is unaffected.

Figure A5-35. Cruise Speeds for 850 BHP/Engine

AA1-523

POWER SETTINGS FOR CRUISE
900 BHP/ENGINE
MANUAL LEAN OPERATION

MODEL: C-118A
DATA AS OF: 6-15-62
BASED ON: PRATT & WHITNEY CRUISE CHARTS ALT 102A

Note:
Do not operate in high blower above 30°C CAT.

R2800-52W ENGINES
FUEL GRADE: 115/145
ALTERNATE FUEL GRADE: 100/130

Pressure Altitude (Feet)	*Manifold Pressure At Carburetor Air Temperature °C (In. Hg)*								*RPM and Blower*	*BMEP Drop (psi)*	*Fuel Flow Per Eng. (Lb./Hr.)*	*Nominal BMEP (psi)*
	−30	−20	−10	0	+10	+20	+30	+38				
25,000	26.7	27.2	F.T.									
24,000	26.6	27.2	27.7	28.2	F.T.							
23,000	26.7	27.3	27.8	28.2	28.8	29.3	F.T.					
22,000	26.7	27.3	27.8	28.3	28.8	29.2	29.7					
21,000	27.2	27.8	27.9	28.4	28.9	29.3	29.7					
20,000	25.0	27.8	28.3	28.9	28.9	29.4	29.9		HIGH 2300	12	483	111
19,000	25.0	25.5	26.1	28.8	29.4	29.9	29.9					
18,000	25.5	26.0	26.2	26.7	27.1	30.0	30.5		HIGH 2200	12	470	116
17,000	25.6	26.1	26.7	27.2	27.2	27.7	30.6					
16,000	26.3	26.8	26.8	27.3	27.7	27.8	28.3		HIGH 2100	12	455	122
15,000	26.4	26.9	27.5	27.4	27.9	28.3	28.5	28.9	LOW 2200	12	436	116
14,000	27.3	27.8	27.6	28.2	28.7	28.5	29.0	29.0				
13,000	27.4	28.0	28.5	28.3	28.8	29.3	29.2	29.6	LOW 2100	12	426	122
12,000	28.5	28.2	28.7	29.3	28.9	29.5	30.0	29.7				
11,000	28.7	29.3	29.8	29.6	30.1	29.7	30.2	30.6	LOW 2000	12	417	128
10,000	28.9	29.5	30.0	30.6	30.2	30.7	30.3	30.7				
9,000	29.9	30.5	31.1	30.7	31.3	30.9	31.5	31.9	LOW 1900	12	410	134
8,000	30.4	31.1	31.3	31.8	31.5	32.0	31.6	32.0				
7,000	30.6	31.2	31.9	32.1	32.7	32.3	32.9	33.3	LOW 1800	12	403	142
6,000	31.0	31.6	32.2	32.9	32.9	33.5	34.1	33.5				
5,000	31.1	31.8	32.4	33.0	33.6	34.2	34.3	34.7	LOW 1700	12	396	150
4,000	31.3	31.9	32.5	33.2	33.8	34.4	35.0	35.4				
3,000	31.5	32.1	32.7	33.4	34.0	34.6	35.2	35.6	LOW 1650	12	392	154
2,000	31.7	32.4	33.0	33.7	34.2	34.8	35.4	35.8				
1,000	32.0	32.6	33.3	33.9	34.5	35.1	35.7	36.1				

DO NOT OPERATE IN HIGH BLOWER ABOVE 30°C CAT.

Figure A5-36. Power Settings for Cruise — 900 BHP/Engine

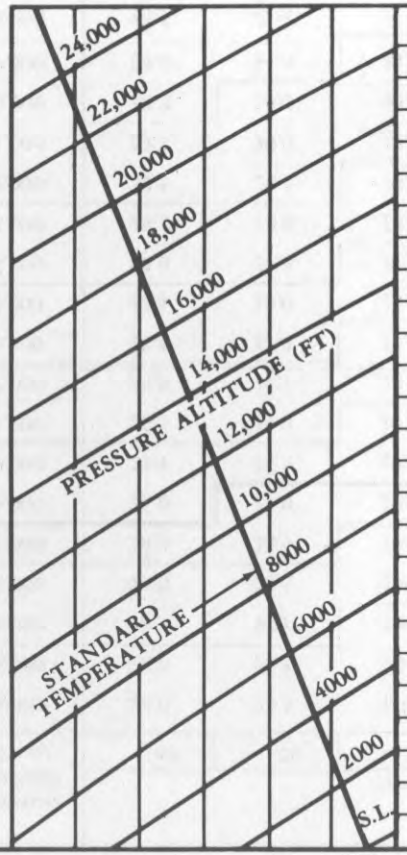
OPERATION BELOW $1.1V_{L/D}$

OPERATION BELOW $V_{L/D}$

CRUISE SPEEDS FOR 900 BHP/ENGINE MANUAL LEAN OPERATION

MODEL: C-118A
BASED ON: FLIGHT TEST

R2800-52W ENGINES
FUEL GRADE: 115/145
ALTERNATE FUEL GRADE: 100/130



Density Altitude (Ft)	Airspeed in Knots for Different Gross Weights															
	110,000 Pounds		105,000 Pounds		100,000 Pounds		95,000 Pounds		90,000 Pounds		85,000 Pounds		80,000 Pounds		75,000 Pounds	
	IAS	TAS	IAS	TAS	IAS	TAS	IAS	TAS	IAS	TAS	IAS	TAS	IAS	TAS	IAS	TAS
25,000													155	234	164	246
24,000													158	234	166	246
23,000													161	234	169	245
22,000													164	234	171	245
21,000													167	234	173	243
20,000											160	222	169	233	175	242
19,000											163	222	172	233	177	240
18,000											166	222	173	232	179	239
17,000											169	222	175	231	181	238
16,000									162	210	171	221	177	229	183	236
15,000									165	210	173	221	179	228	185	234
14,000									168	210	176	220	181	227	187	233
13,000									171	210	178	219	184	226	188	231
12,000									173	210	180	218	186	224	190	229
11,000									175	209	182	217	187	223	191	228
10,000							169	199	178	209	185	216	189	221	193	226
9000							172	199	180	209	186	215	191	220	195	224
8000							175	199	182	208	188	214	192	218	196	222
7000							177	199	184	207	189	212	193	216	197	220
6000							180	199	186	206	191	211	195	215	198	219
5000					174	189	182	198	188	205	192	210	196	214	199	217
4000					177	189	184	198	189	203	194	209	198	212	200	215
3000					179	189	186	197	191	202	196	207	199	211	202	214
2000					182	189	188	196	193	201	197	205	200	209	203	212
1000					184	189	190	195	195	200	199	204	202	208	204	210
S.L.					186	188	192	194	197	199	200	203	203	206	206	209

−40 −30 −20 −10 0 +10 +20
Outside Air Temperature (°C)

NOTES:
(1) Airspeeds based upon pilot's instrument, nose radar installed.
(2) Airspeeds based on −2 degrees cowl flap setting. Decrease airspeeds 3 knots per degree of opening from −2 degrees.
(3) Without nose radome decrease IAS approximately 3 knots. TAS is unaffected.

AA1-502

Figure A5-37. Cruise Speeds for 900 BHP/Engine

MODEL: C-118A
DATA AS OF: 6-15-62
BASED ON: PRATT & WHITNEY CRUISE CHARTS ALT 102A

POWER SETTINGS FOR CRUISE
950 BHP/ENGINE
MANUAL LEAN OPERATION

Note:
Do not operate in high blower above 30°C CAT.

R2800-52W ENGINES
FUEL GRADE: 115/145
ALTERNATE FUEL GRADE: 100/130

Pressure Altitude (Feet)	*Manifold Pressure At Carburetor Air Temperature °C (In. Hg)*								*RPM and Blower*	*BMEP Drop (psi)*	*Fuel Flow Per Eng. (Lb./Hr.)*	*Nominal BMEP (psi)*
	−30	−20	−10	0 B	+10	+20 E	+30	+38				
25,000	28.0	28.5	F.T.									
24,000	28.0	28.5	29.0	F.T.								
23,000	28.1	28.6	29.1	29.4	F.T.							
22,000	28.0	28.6	29.1	29.7	30.2	30.7	F.T.					
21,000	28.3	28.9	29.2	29.8	30.2	30.7	31.2					
20,000	26.0	29.0	29.5	30.1	30.3	30.8	31.2					
19,000	26.1	26.6	27.2	30.2	30.6	30.8	31.3		HIGH 2300	12	506	117
18,000	26.5	27.0	27.3	27.8	30.6	31.1	31.3					
17,000 A	26.6	27.1	27.7	27.9 C	28.3	31.2 F	31.7		HIGH 2200	12	492	122
16,000	27.3	27.8	27.9	28.4	28.5	29.0	31.8					
15,000	27.5	28.0	28.6	28.5	29.0	29.1	29.6		HIGH G 2100	12	476	128
14,000	28.0	28.6	28.7	29.3	29.3	29.7	29.7	30.1				
13,000	28.2	28.8	29.3	29.5	30.1	29.8	30.4	30.2	LOW D 2200	12	461	122
12,000	29.1	29.7	29.5	30.1	30.3	30.8	30.5	30.9				
11,000	29.3	29.9	30.4	30.2	30.8	31.0	31.6	31.0	LOW 2100	12	447	128
10,000	30.2	30.0	30.6	31.2	31.0	31.6	31.7	32.1				
9,000	30.4	31.0	30.8	31.3	32.0	31.8	32.4	32.2	LOW 2000	12	436	135
8,000	30.7	31.3	32.0	31.5	32.1	32.7	32.5	32.9	LOW 1950	12	433	138
7,000	30.9	31.5	32.2	32.7	33.3	32.9	33.5	33.9	LOW 1856	12	425	145
6,000	31.2	31.8	32.4	33.0	33.6	34.2	34.8	35.2				
5,000	31.3	31.9	32.6	33.2	33.8	34.4	35.0	35.4				
4,000	31.4	32.0	32.7	33.3	33.9	34.5	35.1	35.5				
3,000	31.6	32.2	32.9	33.5	34.1	34.7	35.3	35.7				
2,000	31.8	32.5	33.1	33.7	34.3	34.9	35.5	35.9				
1,000	32.0	32.6	33.3	33.9	34.5	35.1	35.7	36.1	LOW 1750	12	418	154

DO NOT OPERATE IN HIGH BLOWER ABOVE 30°C CAT.

Figure A5-38. Power Settings for Cruise — 950 BHP/Engine

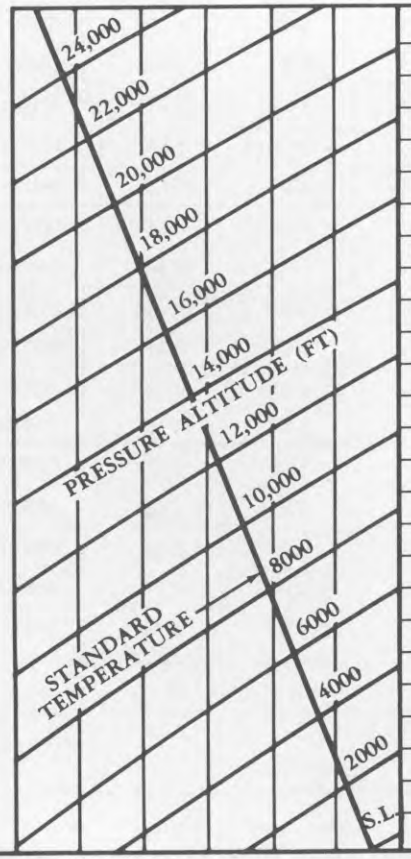
OPERATION BELOW $1.1V_{L/D}$

OPERATION BELOW $V_{L/D}$

CRUISE SPEEDS FOR 950 BHP/ENGINE MANUAL LEAN OPERATION

MODEL: C-118A
BASED ON: FLIGHT TEST

R2800-52W ENGINES
FUEL GRADE: 115/145
ALTERNATE FUEL GRADE: 100/130



Density Altitude (Ft)	Airspeed in Knots for Different Gross Weights															
	110,000 Pounds		105,000 Pounds		100,000 Pounds		95,000 Pounds		90,000 Pounds		85,000 Pounds		80,000 Pounds		75,000 Pounds	
	IAS	TAS	IAS	TAS	IAS	TAS	IAS	TAS	IAS	TAS	IAS	TAS	IAS	TAS	IAS	TAS
25,000													165	248	171	258
24,000											158	234	167	247	173	257
23,000											161	234	170	246	175	255
22,000											164	234	172	246	177	254
21,000											167	234	174	245	179	252
20,000											170	234	176	243	181	250
19,000											172	233	178	242	184	249
18,000									166	221	174	233	180	240	186	247
17,000									169	221	176	232	182	239	187	245
16,000									172	221	178	231	185	238	188	242
15,000									174	221	181	230	186	236	190	241
14,000									177	220	184	229	188	234	192	240
13,000							171	210	179	220	186	228	190	233	194	238
12,000							174	210	181	220	187	226	191	231	195	236
11,000							177	210	184	219	189	225	193	230	197	234
10,000							179	209	186	218	191	223	195	228	198	232
9000							181	209	188	217	193	222	196	226	199	230
8000					175	199	184	208	190	215	194	221	198	224	200	228
7000					178	199	185	208	191	214	195	219	199	223	201	226
6000					181	199	187	207	192	213	197	218	200	221	202	224
5000					183	198	189	206	194	212	198	216	201	220	204	222
4000					186	198	191	205	196	210	200	214	203	218	205	221
3000			178	188	188	197	193	204	198	209	201	213	204	216	207	219
2000			181	188	189	197	195	203	199	208	202	211	206	215	208	217
1000			184	188	191	196	197	202	201	207	204	210	207	213	209	215
S.L.			186	188	193	195	199	201	202	205	205	208	208	211	210	213

NOTES:
(1) Airspeeds based upon pilot's instrument, nose radar installed.
(2) Airspeeds based on −2 degrees cowl flap setting. Decrease airspeeds 3 knots per degree of opening from −2 degrees.
(3) Without nose radome decrease IAS approximately 3 knots. TAS is unaffected.

AA1-524

Figure A5-39. Cruise Speeds for 950 BHP/Engine

MODEL: C-118A
DATA AS OF: 6-15-62
BASED ON: PRATT & WHITNEY CRUISE CHARTS ALT 102A

POWER SETTINGS FOR CRUISE
1000 BHP/ENGINE
MANUAL LEAN OPERATION

Note:
Do not operate in high blower above 30°C CAT.

R2800-52W ENGINES
FUEL GRADE: 115/145
ALTERNATE FUEL GRADE: 100/130

Pressure Altitude (Feet)	*Manifold Pressure At Carburetor Air Temperature °C (In. Hg)*								*RPM and Blower*	*BMEP Drop (psi)*	*Fuel Flow Per Eng. (Lb./Hr.)*	*Nominal BMEP (psi)*
	−30	−20	−10	0	+10	+20	+30	+38				
23,000	29.1	29.7	F.T.									
22,000	29.1	29.7	30.3	30.9	F.T.							
21,000	29.2	29.7	30.3	30.9	31.4							
20,000	29.5	29.8	30.3	30.9	31.4	32.0	F.T.					
19,000	29.6	30.2	30.7	30.9	31.4	32.0	32.6		HIGH 2300	12	526	123
18,000	27.0	27.5	30.8	31.3	31.5	32.0	32.6					
17,000	27.2	27.7	28.3	31.4	31.8	32.0	32.6		HIGH 2200	12	512	128
16,000	27.8	28.3	28.4	28.9	31.9	32.4	32.6					
15,000	27.9	28.5	29.1	29.0	29.6	32.5	33.0		HIGH 2100	12	495	135
14,000	28.8	29.4	29.2	29.7	29.7	30.1	33.0					
13,000	28.9	29.5	30.1	29.8	30.4	30.2	30.8	31.2	LOW 2200	12	481	128
12,000	29.8	30.3	30.2	30.7	30.5	31.1	31.7	31.4				
11,000	30.4	30.6	31.2	30.9	31.4	31.3	31.9	32.3	LOW 2100	12	469	135
10,000	30.5	31.1	31.3	31.9	31.5	32.1	32.7	32.4				
9,000	30.7	31.3	32.0	32.1	32.6	32.2	32.8	33.2	LOW 2200	12	456	141
8,000	30.9	31.5	32.1	32.6	32.8	33.4	34.0	33.4				
7,000	31.1	31.7	32.3	32.9	33.5	34.2	34.2	34.6	LOW 1900	12	449	149
6,000	31.3	31.9	32.5	33.1	33.7	34.3	34.9	35.3				
5,000	31.4	32.1	32.7	33.3	33.9	34.5	35.1	35.5				
4,000	31.6	32.3	32.9	33.6	34.2	34.8	35.4	35.8				
3,000	31.9	32.5	33.1	33.8	34.3	35.0	35.6	36.0				
2,000	32.0	32.7	33.3	33.9	34.5	35.1	35.7	36.1				
1,000	32.3	32.9	33.6	34.2	34.8	35.4	36.0	36.4	LOW 1850	12	444	153

DO NOT OPERATE IN HIGH BLOWER ABOVE 30°C CAT.

Figure A5-40. Power Settings for Cruise — 1000 BHP/Engine

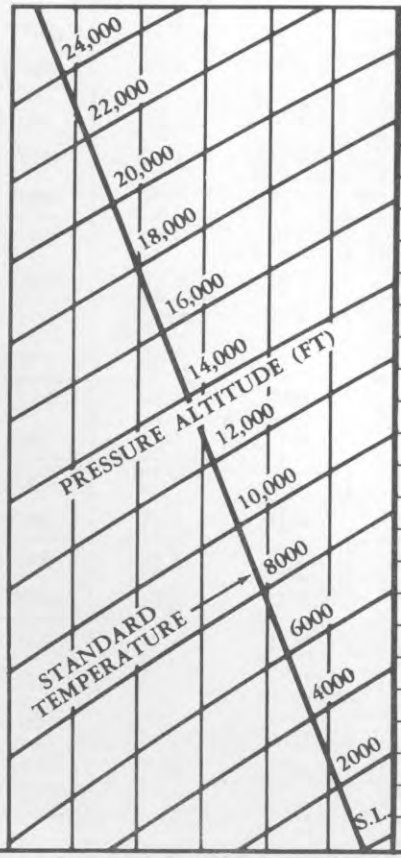
OPERATION BELOW $1.1V_{L/D}$

OPERATION BELOW $V_{L/D}$

CRUISE SPEEDS FOR 1000 BHP/ENGINE MANUAL LEAN OPERATION

MODEL: C-118A
BASED ON: FLIGHT TEST

R2800-52W ENGINES
FUEL GRADE: 115/145
ALTERNATE FUEL GRADE: 100/130



Density Altitude (Ft)	Airspeed in Knots for Different Gross Weights															
	110,000 Pounds		105,000 Pounds		100,000 Pounds		95,000 Pounds		90,000 Pounds		85,000 Pounds		80,000 Pounds		75,000 Pounds	
	IAS	TAS	IAS	TAS	IAS	TAS	IAS	TAS	IAS	TAS	IAS	TAS	IAS	TAS	IAS	TAS
25,000																
24,000																
23,000											170	246	177	256	183	264
22,000											173	246	179	254	185	262
21,000									167	233	175	245	181	253	187	260
20,000									170	233	177	244	183	252	188	258
19,000									173	233	180	243	186	250	190	256
18,000									175	233	182	242	188	248	191	254
17,000									178	232	185	241	189	247	193	252
16,000							172	221	180	232	187	239	191	245	195	250
15,000							175	221	183	231	188	238	193	243	196	248
14,000							178	221	186	230	190	236	195	242	198	246
13,000							180	221	188	229	192	235	196	240	199	244
12,000							183	220	189	228	194	234	198	238	201	241
11,000					177	210	185	219	191	226	196	232	200	236	202	239
10,000					180	210	188	219	193	225	197	230	201	234	203	237
9000					183	210	190	218	195	223	199	229	202	233	205	235
8000					185	209	192	217	197	222	201	229	203	231	206	233
7000					187	209	193	216	198	221	202	225	204	229	207	231
6000			179	199	188	208	194	215	199	219	203	224	205	227	207	229
5000			183	199	190	207	196	214	200	218	204	222	206	225	208	227
4000			185	199	192	206	198	212	201	216	205	220	208	223	209	225
3000			188	198	194	205	200	211	203	215	206	218	209	221	211	224
2000			190	198	196	204	201	210	205	214	208	217	210	219	212	222
1000	184	188	192	197	198	203	203	209	206	212	209	215	211	217	213	220
S.L.	187	188	195	197	200	202	205	208	208	211	210	214	213	216	215	218

−40 −30 −20 −10 0 +10 +20
Outside Air Temperature (°C)

NOTES:
(1) Airspeeds based upon pilot's instrument, nose radar installed.
(2) Airspeeds based on −2 degrees cowl flap setting. Decrease airspeeds 3 knots per degree of opening from −2 degrees.
(3) Without nose radome decrease IAS approximately 3 knots. TAS is unaffected.

AA1-503

Figure A5-41. Cruise Speeds for 1000 BHP/Engine

POWER SETTINGS FOR CRUISE
1050 BHP/ENGINE
MANUAL LEAN OPERATION

MODEL: C-118A
DATA AS OF: 6-15-62
BASED ON: PRATT & WHITNEY CRUISE CHARTS ALT 102A

Note:
Do not operate in high blower above 30°C CAT.

R2800-52W ENGINES
FUEL GRADE: 115/145
ALTERNATE FUEL GRADE: 100/130

Pressure Altitude (Feet)	*Manifold Pressure At Carburetor Air Temperature °C (In. Hg)*								*RPM and Blower*	*BMEP Drop (psi)*	*Fuel Flow Per Eng. (Lb./Hr.)*	*Nominal BMEP (psi)*
	−30	−20	−10	0	+10	+20	+30	+38				
25,000												
24,000												
23,000	30.7	31.3	F.T.									
22,000	30.7	31.3	32.0									
21,000	30.8	31.3	32.0	32.6	F.T.							
20,000	31.2	31.4	32.0	32.6	33.2							
19,000	31.3	31.7	32.1	32.6	33.2	33.8	34.3		HIGH 2300	12	551	129
18,000	28.2	31.8	32.4	32.7	33.2	33.8	34.3					
17,000	28.3	28.9	32.5	33.0	33.3	33.8	34.3		HIGH 2200	12	537	135
16,000	28.8	29.0	29.6	33.1	33.5	33.9	34.4					
15,000	28.9	29.5	29.7	30.2	33.6	34.1	34.6		HIGH 2100	12	518	141
14,000	29.8	29.7	30.3	30.3	30.9	31.4	34.7					
13,000	29.9	30.5	30.5	31.0	31.0	31.5	32.1	32.5	LOW 2200	12	507	135
12,000	30.4	30.7	31.2	31.1	31.7	32.2	32.8	32.6				
11,000	30.6	31.2	31.3	32.0	32.0	32.5	33.1	33.5	LOW 2100	12	492	141
10,000	30.7	31.3	31.9	32.1	32.8	33.2	33.8	33.7				
9,000	30.8	31.5	32.1	32.7	33.3	33.8	33.9	34.3	LOW 2000	12	478	148
8,000	31.0	31.6	32.3	32.8	33.5	34.0						
7,000	31.2	31.8	32.4	33.0	33.7	34.2	34.8	35.2				
6,000	31.3	32.0	32.6	33.2	33.8	34.4	35.0	35.4				
5,000	31.5	32.1	32.8	33.4	34.0	34.6	35.2	35.6				
4,000	31.7	32.3	32.9	33.6	34.2	34.8	35.4	35.8				
3,000	31.9	32.5	33.2	33.8	34.4	35.0	35.6	36.0				
2,000	32.1	32.7	33.4	34.0	34.6	35.2	35.8	36.2				
1,000	32.3	32.9	33.6	34.2	34.8	35.4	36.0	36.4	LOW 1950	12	474	153

DO NOT OPERATE IN HIGH BLOWER ABOVE 30°C CAT.

Figure A5-42. Power Settings for Cruise — 1050 BHP/Engine

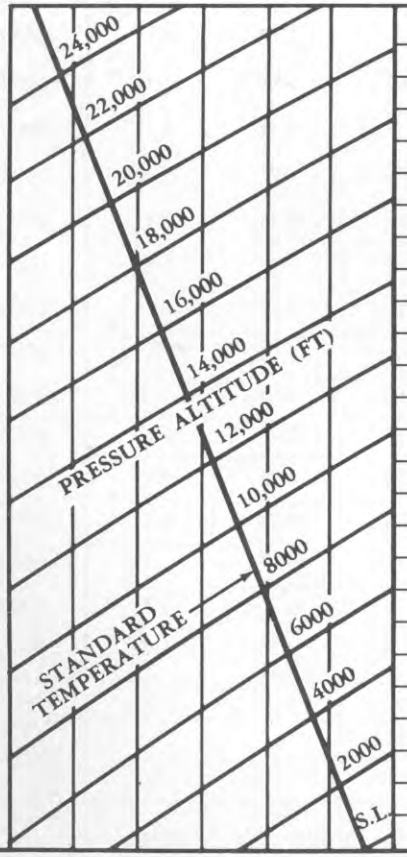
OPERATION BELOW $1.1V_{L/D}$

OPERATION BELOW $V_{L/D}$

CRUISE SPEEDS FOR 1050 BHP/ENGINE MANUAL LEAN OPERATION

MODEL: C-118A
BASED ON: FLIGHT TEST

R2800-52W ENGINES
FUEL GRADE: 115/145
ALTERNATE FUEL GRADE: 100/130



Density Altitude (Ft)	Airspeed in Knots for Different Gross Weights															
	110,000 Pounds		105,000 Pounds		100,000 Pounds		95,000 Pounds		90,000 Pounds		85,000 Pounds		80,000 Pounds		75,000 Pounds	
	IAS	TAS	IAS	TAS	IAS	TAS	IAS	TAS	IAS	TAS	IAS	TAS	IAS	TAS	IAS	TAS
25,000																
24,000									167	245	175	257	181	267	185	273
23,000									170	245	177	256	183	265	187	276
22,000									173	245	179	255	185	263	189	269
21,000									175	244	182	254	187	261	190	267
20,000									178	244	184	253	188	259	192	264
19,000							172	232	180	243	186	251	190	257	194	262
18,000							175	232	182	242	187	250	191	255	195	260
17,000							178	232	184	241	189	248	193	253	197	258
16,000							180	232	186	240	191	247	195	252	198	256
15,000							183	231	188	239	193	245	197	250	200	254
14,000					177	220	185	230	190	238	195	244	199	248	201	252
13,000					180	220	187	229	192	236	197	242	200	246	202	249
12,000					182	220	189	229	194	235	198	240	202	244	204	247
11,000					185	219	192	228	196	234	200	238	203	242	206	245
10,000					187	219	194	227	198	232	202	236	204	240	207	243
9000			181	208	190	218	196	226	200	230	203	234	206	238	208	241
8000			184	208	192	218	198	224	201	228	204	232	208	236	209	239
7000			187	208	194	217	199	223	202	227	206	231	209	234	211	237
6000			189	208	195	216	200	221	203	225	207	229	210	232	212	234
5000			191	207	197	215	202	220	205	224	208	227	211	230	213	232
4000	185	198	193	207	199	214	204	219	207	222	209	225	212	228	214	230
3000	188	198	195	206	201	213	205	217	208	221	211	224	213	226	215	228
2000	190	198	197	205	203	212	207	216	209	219	212	222	215	224	216	226
1000	193	197	199	205	204	210	208	215	211	217	214	220	216	222	218	224
S.L.	195	197	201	204	206	209	210	213	212	216	215	219	217	221	219	222

NOTES:
(1) Airspeeds based upon pilot's instrument, nose radar installed.
(2) Airspeeds based on −2 degrees cowl flap setting. Decrease airspeeds 3 knots per degree of opening from −2 degrees.
(3) Without nose radome decrease IAS approximately 3 knots. TAS is unaffected.

AA1-525

Figure A5-43. Cruise Speeds for 1050 BHP/Engine

POWER SETTINGS FOR CRUISE
1100 BHP/ENGINE
MANUAL LEAN OPERATION

MODEL: C-118A
DATA AS OF: 6-15-62
BASED ON: PRATT & WHITNEY CRUISE CHARTS ALT 102A

Note:
Do not operate in high blower above 30°C CAT.

R2800-52W ENGINES
FUEL GRADE: 115/145
ALTERNATE FUEL GRADE: 100/130

Pressure Altitude (Feet)	*Manifold Pressure At Carburetor Air Temperature °C (In. Hg)*								*RPM and Blower*	*BMEP Drop (psi)*	*Fuel Flow Per Eng. (Lb./Hr.)*	*Nominal BMEP (psi)*
	−30	−20	−10	0	+10	+20	+30	+38				
21,000	31.6	32.1	F.T.					DO NOT OPERATE IN HIGH BLOWER ABOVE 30°C CAT.	HIGH 2300	12	573	135
20,000	31.6	32.1	32.8	33.4	F.T.							
19,000	31.7	32.1	32.8	33.5	34.0	F.T.						
18,000	31.9	32.2	32.9	33.4	34.1	34.6	F.T.					
17,000	32.0	32.4	33.1	33.5	34.0	34.6	35.1					
16,000	29.3	29.9	33.2	33.7	34.1	34.6	35.1					
15,000	30.1	30.1	30.6	33.8	34.3	34.6	35.1		HIGH 2200	12	557	141
14,000	30.2	30.7	30.7	31.3	34.4	35.1	35.1					
13,000	31.0	30.9	31.5	31.4	32.0	35.2	35.7		HIGH 2100	12	538	148
12,000	31.1	31.7	31.7	32.2	32.2	32.8	35.7					
11,000	31.2	31.9	32.5	32.3	32.9	33.0	33.6	34.0	LOW 2200	12	530	141
10,000	31.3	32.0	32.6	33.2	33.0	33.6	34.2	34.1				
9,000	31.5	32.1	32.8	33.4	34.0	33.7	34.3	34.7	LOW 2100	12	512	148
8,000	31.7	32.3	33.0	33.5	34.2	34.8	35.4	34.9				
7,000	31.9	32.5	33.1	33.7	34.3	35.0	35.6	36.0	LOW 2000	12	500	155
6,000	32.1	32.7	33.4	34.0	34.6	35.2	35.8	36.2				
5,000	32.2	32.8	33.5	34.1	34.7	35.3	35.9	36.3				
4,000	32.3	33.0	33.7	34.3	34.9	35.5	36.1	36.5				
3,000	32.6	33.3	34.0	34.6	35.2	35.8	36.4	36.8				
2,000	32.7	33.4	34.1	34.7	35.3	35.9	36.5	37.0				
1,000	32.8	33.5	34.2	34.8	35.4	36.0	36.7	37.2				

Figure A5-44. Power Settings for Cruise — 1100 BHP/Engine

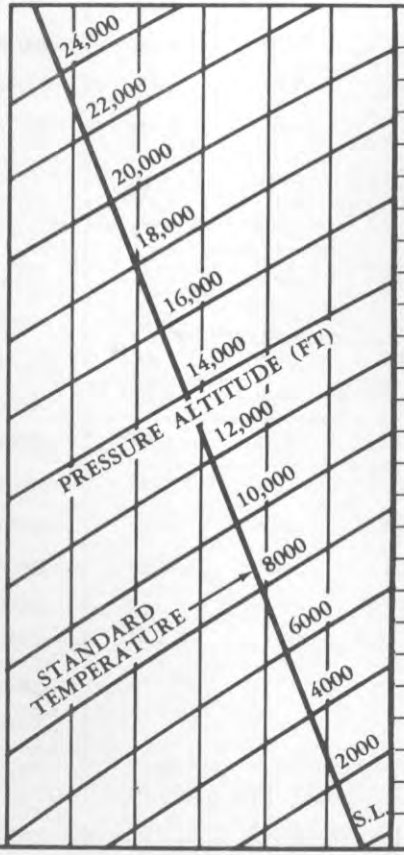
OPERATION BELOW $1.1V_{L/D}$

OPERATION BELOW $V_{L/D}$

CRUISE SPEEDS FOR
1100 BHP/ENGINE
MANUAL LEAN OPERATION

MODEL: C-118A
BASED ON: FLIGHT TEST

R2800-52W ENGINES
FUEL GRADE: 115/145
ALTERNATE FUEL GRADE: 100/130



Density Altitude (Ft)	Airspeed in Knots for Different Gross Weights															
	110,000 Pounds		105,000 Pounds		100,000 Pounds		95,000 Pounds		90,000 Pounds		85,000 Pounds		80,000 Pounds		75,000 Pounds	
	IAS	TAS	IAS	TAS	IAS	TAS	IAS	TAS	IAS	TAS	IAS	TAS	IAS	TAS	IAS	TAS
25,000																
24,000																
23,000																
22,000																
21,000							173	243	181	254	187	262	191	268	196	273
20,000							176	243	184	253	189	260	193	266	198	271
19,000							179	243	186	252	191	259	195	264	199	269
18,000							182	242	188	250	193	257	197	262	200	266
17,000					176	230	184	242	190	249	195	255	198	260	201	264
16,000					179	230	187	241	192	247	196	253	200	258	202	261
15,000					182	230	189	240	194	246	198	252	202	256	204	259
14,000					185	230	191	239	196	244	200	249	203	254	205	257
13,000					187	229	193	237	198	243	202	248	204	252	207	254
12,000			180	218	189	229	195	236	200	241	203	246	206	250	208	252
11,000			184	218	191	228	197	235	201	239	204	244	207	248	209	250
10,000			187	218	194	227	199	233	203	238	206	242	209	246	211	248
9000			189	217	196	226	201	232	204	236	208	240	210	243	212	245
8000			192	217	198	225	203	231	206	235	209	238	211	241	213	243
7000	185	207	194	216	199	224	204	229	207	233	210	236	212	239	214	241
6000	188	207	195	216	201	223	205	228	208	231	211	234	213	237	215	239
5000	190	207	198	215	203	221	207	226	210	229	212	232	215	235	216	236
4000	193	207	200	215	205	220	208	224	211	228	214	230	216	233	218	234
3000	195	206	202	214	206	218	210	223	213	226	215	228	217	231	219	232
2000	198	206	204	213	208	217	212	221	214	224	217	227	219	229	220	230
1000	200	205	206	212	210	216	213	220	216	222	218	225	220	227	222	228
S.L.	202	204	207	211	211	215	215	218	217	221	220	223	221	225	223	226

−40 −30 −20 −10 0 +10 +20
Outside Air Temperature (°C)

NOTES:
(1) Airspeeds based upon pilot's instrument, nose radar installed.
(2) Airspeeds based on −2 degrees cowl flap setting. Decrease airspeeds 3 knots per degree of opening from −2 degrees.
(3) Without nose radome decrease IAS approximately 3 knots. TAS is unaffected.

AA1-504

Figure A5-45. Cruise Speeds for 1100 BHP/Engine

POWER SETTINGS FOR CRUISE
1150 BHP/ENGINE
MANUAL LEAN OPERATION

MODEL: C-118A
DATA AS OF: 6-15-62
BASED ON: PRATT & WHITNEY CRUISE CHARTS ALT 102A

Note:
Do not operate in high blower above 30°C CAT.

R2800-52W ENGINES
FUEL GRADE: 115/145
ALTERNATE FUEL GRADE: 100/130

Pressure Altitude (Feet)	*Manifold Pressure At Carburetor Air Temperature °C (In. Hg)*								*RPM and Blower*	*BMEP Drop (psi)*	*Fuel Flow Per Eng. (Lb./Hr.)*	*Nominal BMEP (psi)*
	−30	−20	−10	0	+10	+20	+30	+38				
25,000												
24,000												
23,000												
22,000												
21,000	32.2	32.7	F.T.									
20,000	32.2	32.7	33.5	33.9	F.T.							
19,000	32.3	32.7	33.5	34.0	34.5	F.T.						
18,000	32.5	32.8	33.5	34.0	34.6	35.2	F.T.					
17,000	32.7	33.2	33.6	34.1	34.6	35.2	35.8		HIGH 2300	12	604	141
16,000	29.5	33.3	33.9	34.6	34.7	35.2	35.8					
15,000	29.6	30.2	30.7	34.7	35.2	35.3	35.8		HIGH 2200	12	585	148
14,000	30.4	30.9	30.8	31.3	35.3	36.0	35.9					
13,000	30.5	31.0	31.5	31.4	32.0	36.1	36.6		HIGH 2100	12	561	155
12,000	31.3	31.9	31.6	32.1	32.1	32.7	36.6					
11,000	31.4	32.1	32.7	32.3	32.9	32.8	33.4	33.8	LOW 2200	12	559	148
10,000	31.5	32.2	32.8	33.4	33.0	33.6	34.2	33.9				
9,000	31.7	32.3	33.0	33.6	34.2	33.7	34.3	34.7	LOW 2100	12	541	155
8,000	31.9	32.5	33.2	33.7	34.4	35.0	35.6	34.8				
7,000	32.1	32.7	33.3	33.9	34.5	35.2	35.8	36.2				
6,000	32.3	33.0	33.7	34.3	34.9	35.5	36.1	36.6				
5,000	32.5	33.2	33.9	34.5	35.1	35.7	36.3	36.7				
4,000	32.7	33.4	34.1	34.7	35.3	35.9	36.5	36.9				
3,000	32.9	33.6	34.3	34.9	35.5	36.1	36.8	37.3				
2,000	33.1	33.8	34.5	35.1	35.7	36.3	37.0	37.5				
1,000	33.3	34.0	34.7	35.3	35.9	36.5	37.2	37.7	LOW 2000	12	525	163

DO NO OPERATE IN HIGH BLOWER ABOVE 30°C CAT.

Figure A5-46. Power Settings for Cruise — 1150 BHP/Engine

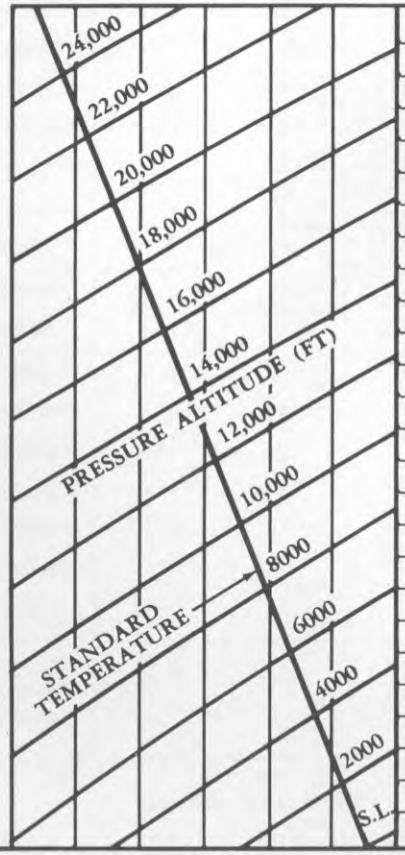
OPERATION BELOW $1.1V_{L/D}$

OPERATION BELOW $V_{L/D}$

CRUISE SPEEDS FOR
1150 BHP/ENGINE
MANUAL LEAN OPERATION

MODEL: C-118A
BASED ON: FLIGHT TEST

R2800-52W ENGINES
FUEL GRADE: 115/145
ALTERNATE FUEL GRADE: 100/130



Density Altitude (Ft)	Airspeed in Knots for Different Gross Weights															
	110,000 Pounds		105,000 Pounds		100,000 Pounds		95,000 Pounds		90,000 Pounds		85,000 Pounds		80,000 Pounds		75,000 Pounds	
	IAS	TAS	IAS	TAS	IAS	TAS	IAS	TAS	IAS	TAS	IAS	TAS	IAS	TAS	IAS	TAS
25,000																
24,000																
23,000																
22,000							178	254	185	264	190	271	195	277	199	282
21,000							181	253	187	263	192	269	197	275	200	279
20,000					175	241	183	253	189	261	195	267	199	273	202	277
19,000					178	241	185	252	191	259	197	265	200	270	203	274
18,000					181	241	187	251	193	258	198	264	201	268	204	272
17,000					184	241	191	250	195	256	200	262	202	266	205	269
16,000					187	240	193	249	197	254	201	260	204	263	206	267
15,000			180	228	188	239	195	247	199	253	202	258	206	262	208	264
14,000			183	228	190	238	197	246	201	251	204	256	207	259	209	262
13,000			186	228	193	237	199	244	202	249	206	253	208	257	210	259
12,000			188	228	195	236	201	243	204	247	207	251	210	255	212	257
11,000			191	227	198	235	202	241	206	245	209	249	211	252	213	255
10,000	185	216	194	227	200	234	204	240	207	243	210	247	213	250	214	252
9000	188	216	196	226	202	233	206	238	209	242	212	245	214	248	216	250
8000	190	216	198	225	203	231	208	236	210	240	213	243	215	245	217	248
7000	193	216	200	224	204	230	209	235	211	238	214	241	216	243	218	245
6000	195	216	202	223	206	229	210	233	212	236	215	239	217	241	219	243
5000	198	216	204	222	208	227	212	232	214	234	217	237	219	239	220	241
4000	200	215	206	221	210	226	213	230	216	232	218	235	220	237	222	239
3000	202	214	208	220	211	224	215	228	217	231	220	233	221	235	223	236
2000	205	213	210	219	213	223	217	227	219	229	221	231	223	233	224	234
1000	207	212	212	218	215	222	219	225	221	227	223	229	224	231	225	232
S.L.	209	211	213	217	217	220	220	223	222	225	224	227	225	229	226	230

NOTES:
(1) Airspeeds based upon pilot's instrument, nose radar installed.
(2) Airspeeds based on −2 degrees cowl flap setting. Decrease airspeeds 3 knots per degree of opening from −2 degrees.
(3) Without nose radome decrease IAS approximately 3 knots. TAS is unaffected.

AA1-526

Figure A5-47. Cruise Speeds for 1150 BHP/Engine

MODEL: C-118A
DATA AS OF: 6-15-62
BASED ON: PRATT & WHITNEY CRUISE CHARTS ALT 102A

POWER SETTINGS FOR CRUISE
1200 BHP/ENGINE
MANUAL LEAN OPERATION

Note:
Do not operate in high blower above 30°C CAT.

R2800-52W ENGINES
FUEL GRADE: 115/145
ALTERNATE FUEL GRADE: 100/130

Pressure Altitude (Feet)	*Manifold Pressure At Carburetor Air Temperature °C (In. Hg)*								*RPM and Blower*	*BMEP Drop (psi)*	*Fuel Flow Per Eng. (Lb./Hr.)*	*Nominal BMEP (psi)*
	−30	−20	−10	0	+10	+20	+30	+38				
23,000								DO NOT OPERATE IN HIGH BLOWER ABOVE 30°C CAT.	HIGH 2300	12	633	147
22,000												
21,000												
20,000												
19,000	34.1	F.T.										
18,000	33.9	34.6	F.T.									
17,000	33.9	34.6	35.3	36.0	F.T.							
16,000	31.3	34.5	35.2	35.8	36.5	F.T.						
15,000	31.3	31.9	35.2	35.8	36.4	37.1	37.7					
14,000	31.7	32.1	32.7	33.3	36.4	37.0	37.6					
13,000	31.8	32.4	32.8	33.4	34.0	37.0	37.6					
12,000	31.9	32.5	33.1	33.7	34.0	34.6	37.6					
11,000	32.0	32.7	33.3	34.0	34.6	34.8	35.4	35.8	LOW 2300	12	605	147
10,000	32.2	32.8	33.5	34.1	34.7	35.3	35.4	35.8				
9,000	32.3	33.0	33.7	34.3	34.9	35.5	36.1	36.5	LOW 2200	12	587	155
8,000	32.6	33.2	33.8	34.4	35.1	35.7	36.3	36.7				
7,000	32.7	33.3	34.0	34.6	35.2	35.9	36.5	37.0				
6,000	32.8	33.5	34.2	34.8	35.5	36.1	36.6	37.1				
5,000	33.0	33.7	34.4	35.0	35.6	36.3	36.9	37.3				
4,000	33.2	33.9	34.6	35.3	35.9	36.5	37.1	37.6				
3,000	33.4	34.0	34.7	35.4	36.0	36.6	37.2	37.7				
2,000	33.6	34.3	35.0	35.6	36.2	36.8	37.5	38.0				
1,000	33.8	34.5	35.2	35.8	36.4	37.0	37.7	38.2				

Figure A5-48. Power Settings for Cruise — 1200 BHP/Engine

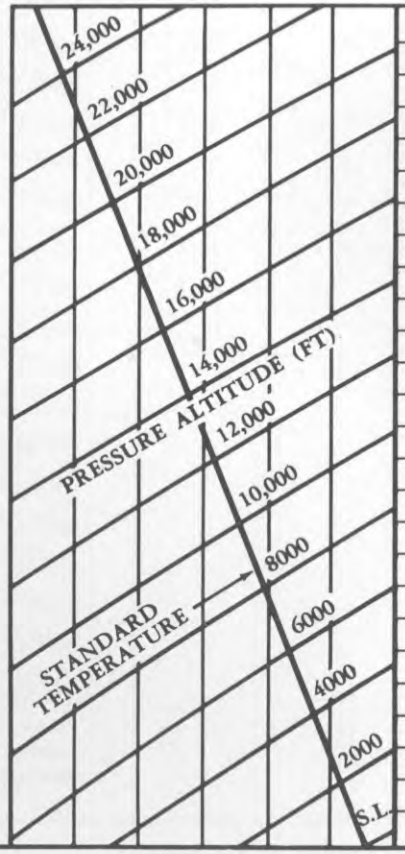
OPERATION BELOW $1.1V_{L/D}$

OPERATION BELOW $V_{L/D}$

CRUISE SPEEDS FOR 1200 BHP/ENGINE MANUAL LEAN OPERATION

MODEL: C-118A
BASED ON: FLIGHT TEST

R2800-52W ENGINES
FUEL GRADE: 115/145
ALTERNATE FUEL GRADE: 100/130



Density Altitude (Ft)	Airspeed in Knots for Different Gross Weights															
	110,000 Pounds		105,000 Pounds		100,000 Pounds		95,000 Pounds		90,000 Pounds		85,000 Pounds		80,000 Pounds		75,000 Pounds	
	IAS	TAS	IAS	TAS	IAS	TAS	IAS	TAS	IAS	TAS	IAS	TAS	IAS	TAS	IAS	TAS
25,000																
24,000																
23,000																
22,000					177	251	185	264	190	272	196	278	199	283	203	288
21,000					180	251	187	263	192	270	198	276	201	281	204	285
20,000					182	250	189	261	194	268	200	274	203	279	205	282
19,000					184	250	192	260	197	266	201	272	204	276	207	280
18,000					187	249	195	258	199	264	203	270	206	274	208	277
17,000			183	238	190	249	197	257	200	263	204	267	207	272	209	274
16,000			185	238	192	248	198	256	202	261	205	265	208	269	210	272
15,000			187	238	195	247	200	254	203	259	207	263	209	267	211	269
14,000			190	237	197	246	202	252	205	257	208	260	211	264	213	267
13,000	184	226	193	237	199	245	204	251	207	255	210	258	212	262	214	264
12,000	186	226	196	237	201	243	206	249	209	253	211	256	214	259	216	262
11,000	189	226	198	235	203	242	207	247	210	251	213	254	215	257	217	259
10,000	192	226	200	234	205	240	208	245	211	248	214	252	216	254	218	256
9000	194	225	202	233	207	239	210	243	213	246	216	250	218	252	219	254
8000	197	225	204	232	209	237	212	242	215	245	217	248	219	250	221	252
7000	199	224	206	231	210	236	214	240	216	243	219	245	220	248	222	249
6000	202	224	207	230	211	235	215	238	217	241	220	243	221	246	223	247
5000	204	223	209	228	213	233	216	236	219	239	221	241	223	243	224	245
4000	206	222	211	227	215	231	218	234	221	237	222	239	224	241	225	242
3000	209	221	213	226	217	230	220	233	222	235	224	237	225	239	226	240
2000	211	219	215	225	218	228	221	231	223	233	225	235	226	237	227	238
1000	213	218	216	223	220	226	223	229	225	231	226	233	227	235	229	236
S.L.	214	217	218	222	222	225	224	228	226	230	227	231	229	233	230	234

NOTES:
(1) Airspeeds based upon pilot's instrument, nose radar installed.
(2) Airspeeds based on −2 degrees cowl flap setting. Decrease airspeeds 3 knots per degree of opening from −2 degrees.
(3) Without nose radome decrease IAS approximately 3 knots. TAS is unaffected.

AA1-505

Figure A5-49. Cruise Speeds for 1200 BHP/Engine

MODEL: C-118A
DATA AS OF: 6-15-62
BASED ON: PRATT & WHITNEY CRUISE CHARTS ALT 102A

POWER SETTINGS FOR CRUISE
1240 BHP/ENGINE
MANUAL LEAN OPERATION
12 BMEP DROP

R2800-52W ENGINES
FUEL GRADE: 115/145
ALTERNATE FUEL GRADE: 100/130

Pressure Altitude (Feet)	*Manifold Pressure At Carburetor Air Temperature °C (In. Hg)*						*RPM and Blower*	*BMEP Drop (psi)*	*Fuel Flow Per Eng. (Lb./Hr.)*	*Nominal BMEP (psi)*
	−30	−20	−10	0	+10	+20				
25,000										
24,000										
23,000										
22,000										
21,000										
20,000										
19,000										
18,000										
17,000										
16,000										
15,000	31.9						2300 LOW	12	634	153
14,000	32.0	32.7								
13,000	32.1	32.8	33.5							
12,000	32.2	33.0	33.6	34.2	34.8					
11,000	32.3	33.1	33.7	34.3	34.9	35.5				
10,000	32.5	33.2	33.8	34.4	35.0	35.6				
9,000	32.7	33.3	33.9	34.5	35.1	35.7				
8,000	32.8	33.4	34.0	34.6	35.2	35.9				
7,000	32.9	33.5	34.1	34.7	35.3	36.0				
6,000	33.0	33.7	34.3	34.9	35.5	36.1				
5,000	33.1	33.8	34.4	35.0	35.6	36.3				
4,000	33.2	33.9	34.5	35.1	35.7	36.4				
3,000	33.3	34.0	34.7	35.3	35.9	36.5				
2,000	33.5	34.1	34.8	35.4	36.0	36.6				
1,000	33.6	34.2	34.9	35.5	36.1	36.7				

Figure A5-50. Power Settings for Cruise — 1240 BHP/Engine — 12 BMEP Drop

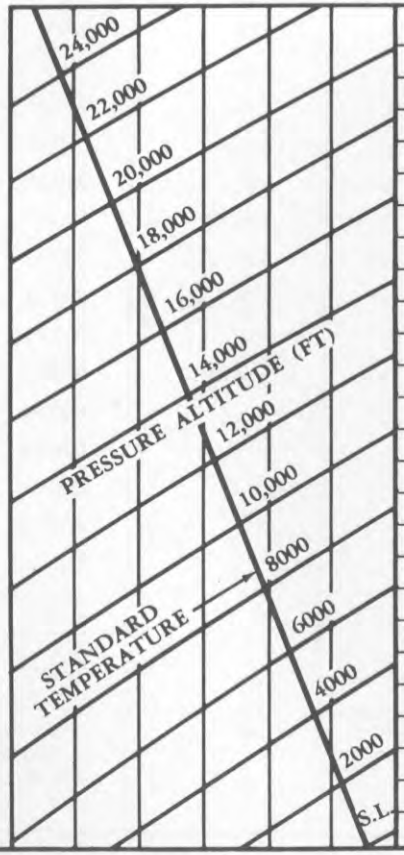
OPERATION BELOW $1.1V_{L/D}$

OPERATION BELOW $V_{L/D}$

CRUISE SPEEDS FOR 1240 BHP/ENGINE MANUAL LEAN OPERATION

MODEL: C-118A
BASED ON: FLIGHT TEST

R2800-52W ENGINES
FUEL GRADE: 115/145
ALTERNATE FUEL GRADE: 100/130



Density Altitude (Ft)	Airspeed in Knots for Different Gross Weights															
	110,000 Pounds		105,000 Pounds		100,000 Pounds		95,000 Pounds		90,000 Pounds		85,000 Pounds		80,000 Pounds		75,000 Pounds	
	IAS	TAS	IAS	TAS	IAS	TAS	IAS	TAS	IAS	TAS	IAS	TAS	IAS	TAS	IAS	TAS
25,000																
24,000																
23,000																
22,000																
21,000																
20,000																
19,000																
18,000																
17,000			187	244	195	255	200	263	203	267	207	272	209	276	211	278
16,000			190	244	197	254	202	261	205	265	208	269	211	273	213	276
15,000	184	234	193	244	199	253	204	259	207	263	210	267	212	270	215	273
14,000	187	234	196	244	201	252	206	257	209	261	211	265	215	268	216	270
13,000	190	234	198	244	203	251	208	256	210	259	213	263	216	265	217	268
12,000	192	234	201	243	205	249	209	254	212	257	215	261	217	263	218	265
11,000	195	233	203	241	207	247	211	252	213	255	216	258	218	261	220	262
10,000	198	233	205	240	209	246	213	250	215	253	218	256	220	258	221	260
9000	200	232	207	239	211	244	214	248	217	251	219	254	221	256	223	258
8000	202	231	208	237	212	242	216	246	218	249	221	252	222	253	224	255
7000	205	230	210	236	214	240	218	244	220	247	222	249	223	251	225	253
6000	207	229	212	235	215	239	219	243	221	245	223	247	224	249	226	250
5000	209	228	213	233	217	237	220	241	222	243	224	245	225	247	227	248
4000	211	227	215	232	219	236	222	239	224	241	225	243	227	245	228	246
3000	213	225	217	230	220	234	223	237	225	239	226	240	228	242	229	243
2000	215	224	219	229	222	232	225	235	226	237	227	238	229	240	230	241
1000	217	223	221	227	224	230	226	233	227	235	229	236	230	238	232	239
S.L.	219	222	222	226	225	229	227	231	229	233	231	235	232	236	233	237

NOTES:
(1) Airspeeds based upon pilot's instrument, nose radar installed.
(2) Airspeeds based on −2 degrees cowl flap setting. Decrease airspeeds 3 knots per degree of opening from −2 degrees.
(3) Without nose radome decrease IAS approximately 3 knots. TAS is unaffected.

AA1-506

Figure A5-51. Cruise Speeds for 1240 BHP/Engine

MODEL: C-118A
DATA AS OF: 6/15/62

BASED ON: PRATT & WHITNEY CRUISE CHARTS

POWER SETTINGS FOR CRUISE
1240 BHP/ENGINE
MANUAL LEAN OPERATION — 2 BMEP DROP

R2800-52W ENGINES
FUEL GRADE: 115-145
ALTERNATE FUEL GRADE: 100/130

Pressure Altitude (Feet)	*Manifold Pressure At Carburetor Air Temperature °C (In. Hg)*						*RPM and Blower*	*BMEP Drop (psi)*	*Fuel Flow Per Eng. (Lb./Hr.)*	*Nominal BMEP (psi)*
	−30°	−20°	−10°	0°	+ 10°	+ 20°				
25,000										
24,000										
23,000										
22,000										
21,000										
20,000										
19,000										
18,000										
17,000	29.3	30.0	F.T.							
16,000	30.4	30.0	30.6	F.T.			2300 LOW	2	663	153
15,000	30.5	31.1	31.7	31.4						
14,000	30.6	31.2	31.9	32.5	32.1					
13,000	30.7	31.3	32.0	32.6	33.2	32.8				
12,000	30.8	31.5	32.1	32.7	33.3	33.8				
11,000	30.9	31.6	32.2	32.8	33.4	33.9				
10,000	31.0	31.7	32.3	32.9	33.5	34.1				
9000	31.2	31.8	32.4	33.0	33.6	34.2				
8000	31.3	31.9	32.5	33.1	33.7	34.4				
7000	31.4	32.0	32.6	33.2	33.8	34.5				
6000	31.5	32.2	32.8	33.4	34.0	34.6				
5000	31.6	32.3	32.9	33.5	34.1	34.8				
4000	31.7	32.4	33.0	33.6	34.2	34.9				
3000	31.8	32.5	33.2	33.8	34.4	35.0				
2000	32.0	32.6	33.3	33.9	34.5	35.1				
1000	32.1	32.7	33.4	34.0	34.6	35.2				
S.L.										

Figure A5-52. Power Settings for Cruise—1240 BHP/Engine—2 BMEP Drop