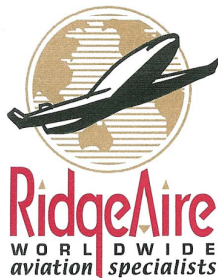


N7EV

1998 A36 Bonanza Turbine

Performance



MSN: E-3162

Prepared by the worldwide aviation specialists at RidgeAire, Inc.

SECTION V

PERFORMANCE

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**Temporary Change
to the
Pilot's Operating Handbook
and
FAA Approved Airplane Flight Manual
P/N 36-590002-37TC3**

Publication Affected	Bonanza A36 Pilot's Operating Handbook and FAA Approved Airplane Flight Manual (P/N 36-590002-37, Issued Oct, 1983 or Subsequent)
Airplane Serial Numbers Affected	E-3145 and After, And Prior Airplanes In Compliance With Raytheon Aircraft S.B. 28-3052; E-3100 thru E-3144, and Prior Airplanes In Compliance With Teledyne Continental Motors SID97-3; E-1946, E-2104, and E-2111 thru E-2760 Incorporating Kit 36-9015, Kit Serials 135 and After.
Description of Change	Prescribes fuel flow and performance adjustments required by engine-driven fuel pump changes.
Filing Instructions	Insert pages 1 thru 4 of this temporary change immediately following page 5-2 (PERFORMANCE Section) in the Bonanza A36 Pilot's Operating Handbook and FAA Approved Airplane Flight Manual. Retain until rescinded or replaced.

**PERFORMANCE (E-3145 AND AFTER, AND
PRIOR AIRPLANES IN COMPLIANCE WITH
RAYTHEON AIRCRAFT S.B. 28-3052; E-3100
THRU E-3144, AND PRIOR AIRPLANES IN
COMPLIANCE WITH TELEDYNE CONTINENTAL
MOTORS SID97-3; E-1946, E-2104, AND E-2111
THRU E-2760 INCORPORATING KIT 36-9015,
KIT SERIALS 135 AND AFTER)**

Notes are provided as follows to approximate performance adjustments.

Performance is estimated by changing the value associated with a table or graph by a specified percentage or fixed amount at all altitudes above sea level. The resulting performance is approximate and will vary with airspeed, temperature, and other ambient conditions.

NOTE

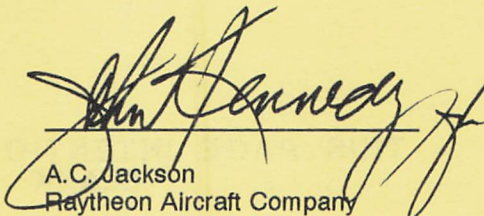
Performance adjustments made by this Temporary Change shall be made PRIOR to any adjustments required by Temporary Change 36-590002-37TC4.

- Increase Take-Off Distance by - 6%
- Decrease Rate Of Climb by - 75 fpm
- Increase Time to Climb by - 8%

Decrease Range and Endurance as Follows:

- SL - 4000 ft - 0.5%
- 4000 - 8000 ft - 1.0%
- 8000 - 12,000 ft - 2.0%
- 12,000 - 16,000 ft - 4.0%

Approved:



A.C. Jackson
Raytheon Aircraft Company
DOA CE-2

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**Temporary Change
to the
Pilot's Operating Handbook
and
FAA Approved Airplane Flight Manual
P/N 36-590002-37TC4**

Publication Affected	Bonanza A36 Pilot's Operating Handbook and FAA Approved Airplane Flight Manual (P/N 36-590002-37, Issued Oct, 1983 or Subsequent)
Airplane Serial Numbers Affected	E-1946, E-2104, E-2111 and After
Description of Change	Prescribes Performance adjustments required when the airplane is being operated at ambient temperatures exceeding a standard (ISA) day.
Filing Instructions	Insert this temporary change in the Bonanza A36 Pilot's Operating Handbook and FAA Approved Airplane Flight Manual immediately before Page 5-3 in Section V, Performance and retain until rescinded or replaced.

PERFORMANCE

INTRODUCTION TO PERFORMANCE AND FLIGHT PLANNING

Notes are provided as follows to approximate performance adjustments necessary when operations are being conducted where the ambient temperature exceeds a standard (ISA) day.

The performance is estimated by changing the value associated with a table or graph by a specified percentage or fixed amount. The resulting performance is approximate and will vary with air-speed, temperature, and other ambient conditions.

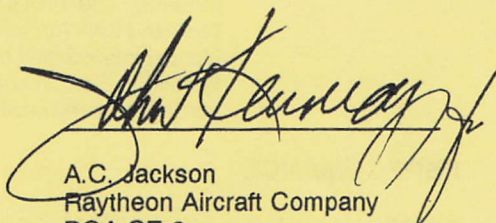
NOTE

Performance adjustments made by this Temporary Change shall be made SUBSEQUENT to any adjustments required by Temporary Change 36-590002-37TC3.

	ISA +10°C	ISA +20°C	ISA +30°C
Increase Take-Off Distance (%)	8	15	23
Decrease Rate of Climb (fpm)	90	180	270
Increase Time to Climb (%)	15	30	45
Decrease Cruise Speeds (KIAS)	4	7	11

(Linearly interpolate these factors for other temperatures between ISA and ISA +30°C.)

Approved:



A.C. Jackson
Raytheon Aircraft Company
DOA CE-2

Except as noted, all airspeeds quoted in this Section are indicated airspeeds (IAS) and assume zero instrument error.

INTRODUCTION TO PERFORMANCE AND FLIGHT PLANNING

The graphs and tables in this section present performance information for flight planning at various parameters of weight, power, altitude, and temperature. Examples have been presented on all performance graphs. In addition, the calculations for flight time, block speed, and fuel required for a proposed flight are detailed below. All examples and calculations utilize the following conditions:

CONDITIONS

At Stapleton International (DEN):

Outside Air Temperature	15°C (59°F)
Field Elevation.....	5333 ft ¹
Altimeter Setting.....	29.60 in. Hg
Runway 26L length.....	10,004 ft ¹

¹Source: Jeppesen Approach Chart, Nov 14-80

Route of Trip²

DEN-V81-AMA

At Amarillo International (AMA):

At Amarillo:

Outside Air Temperature	25°C (77°F)
Field Elevation.....	3605 ft ³
Altimeter Setting.....	29.56 in. Hg
Wind.....	190° at 12 kts
Runway 22 Length	13,502 ft ³

³Source: Jeppesen Approach Chart, Dec 21-79

Section V
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Bonanza A36

Route Segment Data²:

ROUTE SEGMENT	AVERAGE MAGNETIC COURSE	AVERAGE MAGNETIC VARIATION	DIST NM	WIND AT 11,500 FT DIR/KTS	OAT AT 11,500 FT °C
DEN-COS	155°	12°E	51	010°/30	-5
COS-PUB	153°	12°E	40	010°/30	-5
PUB-TBE	135°	12°E	74	100°/20	0
TBE-DHT	132°	11°E	87	200°/20	9
DHT-AMA	126°	10°E	70 ⁴	200°/20	10

²Source: Jeppesen Low Altitude Enroute Charts US (LO) 11 and 12, Oct 3-80

⁴Includes distance between airport and VORTAC, per Jeppesen Airport Directory, 1980

PRESSURE ALTITUDE

To determine pressure altitude at origin and destination airports, add 1000 feet to field elevation for each 1.00 in. Hg below 29.92, and subtract 1000 feet from field elevation for each 1.00 in. Hg above 29.92.

Pressure Altitude at DEN:

$$29.92 - 29.60 = .32 \text{ in. Hg}$$

$$.32 \times 1000 = 320 \text{ feet}$$

The Pressure Altitude at DEN is 320 feet above the field elevation.

$$5333 + 320 = 5653 \text{ feet}$$

Pressure Altitude at AMA:

$$29.92 - 29.56 = .36 \text{ in. Hg}$$

$$.36 \times 1000 = 360 \text{ feet}$$

The Pressure Altitude at AMA is 360 feet above the field elevation.

$$3605 + 360 = 3965 \text{ feet}$$

NOTE

For flight planning, the difference between cruise altitude and cruise pressure altitude has been ignored.

**CALCULATIONS FOR FLIGHT TIME, BLOCK SPEED AND
FUEL REQUIREMENT**

CRUISE CLIMB

Enter the TIME, FUEL, AND DISTANCE TO CRUISE CLIMB Graph at 15°C to 5653 ft and 3650 lbs, and again at -5°C to 11,500 ft and 3850 lbs. and read:

$$\text{Time to Climb} = 18.0 - 6.5 = 11.5 \text{ MIN}$$

$$\text{Fuel Used to Climb} = 6.0 - 2.5 = 3.5 \text{ GAL}$$

$$\text{Distance Traveled} = 36.0 - 12.5 = 23.5 \text{ NM}$$

CRUISE

The temperatures for cruise are presented for a Standard Day (ISA); 20°C (36°F) above a Standard Day (ISA + 20°C); and 20°C (36°F) below a Standard Day (ISA - 20°C). These should be used for flight planning. The IOAT values are true temperature values which have been adjusted for the compressibility effects. IOAT should be used for setting cruise power while enroute.

Enter the ISA CONVERSION Graph at 11,500 feet and the temperature for the route segment:

DEN-PUB	OAT	=	-5°C
	ISA Condition	=	ISA + 3°C
PUB-TBE	OAT	=	0°C
	ISA Condition	=	ISA + 8°C
TBE-DHT	OAT	=	9°C
	ISA Condition	=	ISA + 17°C
DHT-AMA	OAT	=	10°C
	ISA Condition	=	ISA + 18°C

Enter the MAXIMUM CRUISE POWER Table at 10,000 ft and at 12,000 ft at ISA and ISA + 20°C:

ALTITUDE FEET	TEMPERATURE			
	ISA		ISA + 20°C	
	FUEL FLOW GAL/HR	TAS KNOTS	FUEL FLOW GAL/HR	TAS KNOTS
10,000	14.5	171	14.0	171
12,000	13.5	167	13.0	167

BEECHCRAFT
Bonanza A36

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Performance

Interpolate for 11,500 feet and the temperature for the appropriate route segment. Results of the interpolations are:

ROUTE SEGMENT	ISA CONDITION	FUEL FLOW GPH	TAS KNOTS
DEN-PUB	ISA + 3°C	13.7	168
PUB-TBE	ISA + 8°C	13.6	168
TBE-DHT	ISA + 17°C	13.4	168
DHT-AMA	ISA + 18°C	13.3	168

Time and fuel used were calculated as follows:

$$\text{Time} = \frac{\text{Distance}}{\text{Ground Speed}}$$

$$\text{Fuel Used} = \frac{\text{Distance}}{\text{Ground speed}} \times \text{Fuel Flow}$$

Results are:

ROUTE SEGMENT	DISTANCE NM	EST GROUND SPEED KNOTS	TIME AT CRUISE ALTITUDE HRS:MIN	FUEL USED CRUISE GAL
DEN-COS	51-23.5 = 27.5*	195	:08.5	2.0
COS-PUB	40	195	:12	2.9
PUB-TBE	74	154	:29	6.6
TBE-DHT	87	156	:33.5	7.5
DHT-AMA	70	158	:27	5.9

*Distance required to climb has been subtracted from segment distance.

TIME - FUEL - DISTANCE - CHART			
ITEM	TIME HRS:MINS	FUEL GAL	DISTANCE NM
Start, Runup, Taxi, and Take- off acceleration	0:00	2.2	0
Climb	:11.5	3.5	23.5
Cruise	1:49.7	24.9	298.5
Total	2:01.2	30.6	322

Total Flight Time: 2 hours, 1.2 minutes

Block Speed: 322 NM ÷ 2 hours, 1.2 minutes = 159 knots

RESERVE FUEL

Enter the **ECONOMY CRUISE POWER** Table at ISA and ISA + 20°C at 10,000 feet and 12,000 feet. Interpolate to find the Fuel Flow at 11,500 feet at ISA + 18°C:

Total Fuel Flow 9.3 GPH

Reserve Fuel (45 minutes) (9.3 GPH) = 7.0 gallons

TOTAL FUEL REQUIREMENT

30.6 + 7.0 = 37.6 gallons

LANDING WEIGHT

The estimated landing weight is determined by subtracting the fuel required for the trip from the ramp weight:

Assumed Ramp Weight = 3663 pounds

Estimated fuel from DEN to AMA = 30.6 gallons @ 6
lbs/gal = 183.6 = 184 pounds

Estimated Landing Weight = $3663 - 184 = 3479$
pounds

**COMMENTS PERTINENT TO THE USE OF
PERFORMANCE GRAPHS**

1. In addition to presenting the answer for a particular set of conditions the example on the graph also presents the order in which the various scales on the graph should be used. For instance, if the first item in the example is OAT, then enter the graph at the known OAT and proceed to the remaining item(s) in the example in the order given.
2. The reference lines indicate where to begin following guidelines. Always project to the reference line first, then follow the guideline to the next known item.
3. Indicated airspeeds (IAS) were obtained by using the AIRSPEED CALIBRATION - NORMAL SYSTEM Graph.
4. The associated conditions define the specific conditions from which performance parameters have been determined. They are not intended to be used as instructions; however, performance values determined from charts can only be achieved if the specified conditions exist.

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Performance

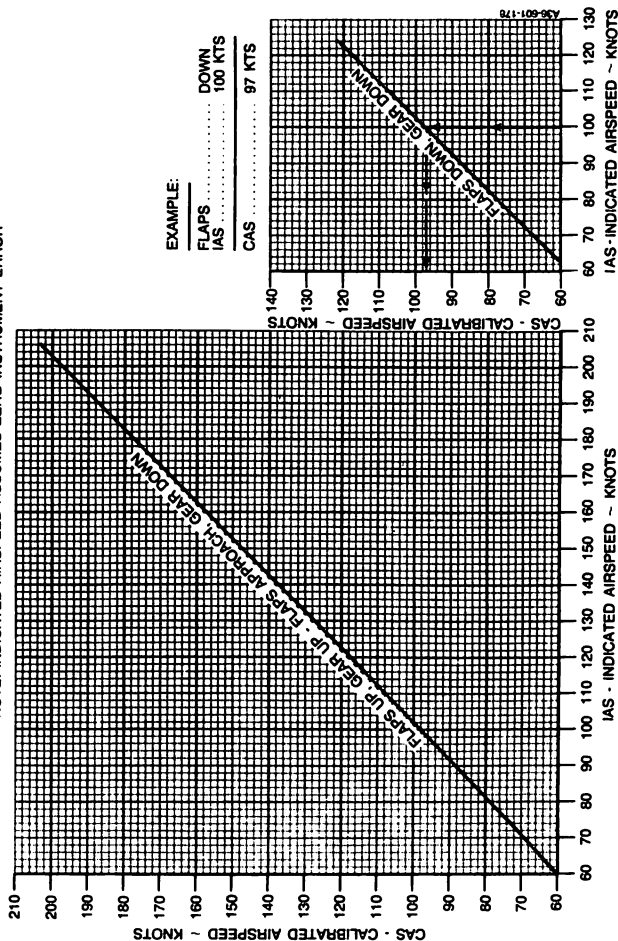
BEECHCRAFT
Bonanza A36

5. The full amount of usable fuel is available for all approved flight conditions.

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AIRSPEED CALIBRATION - NORMAL SYSTEM

NOTE: INDICATED AIRSPEED ASSUMES ZERO INSTRUMENT ERROR



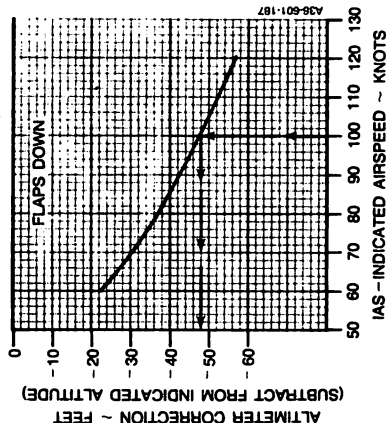
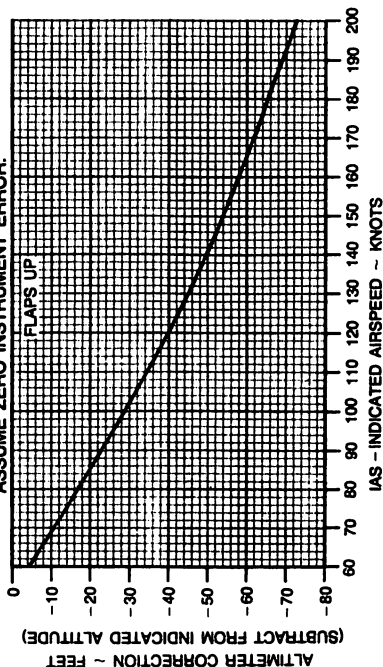
EXAMPLE:

FLAPS DOWN
IAS 100 KTS
INDICATED PRESSURE
ALTITUDE 4500 FT

ALTITUDE CORRECTION -48 FT
ACTUAL PRESSURE ALTITUDE 4452 FT

ALTIMETER CORRECTION — NORMAL SYSTEM

**NOTE: INDICATED AIRSPEED AND INDICATED ALTITUDE
ASSUME ZERO INSTRUMENT ERROR.**



Section V Performance

BEECHCRAFT Bonanza A36

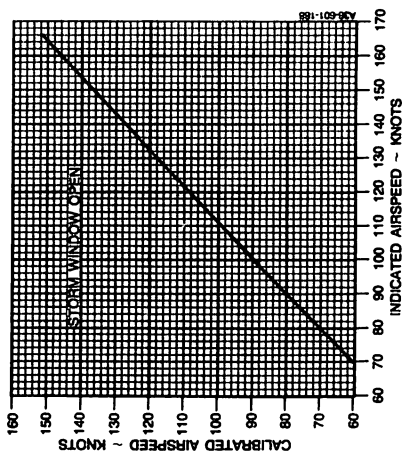
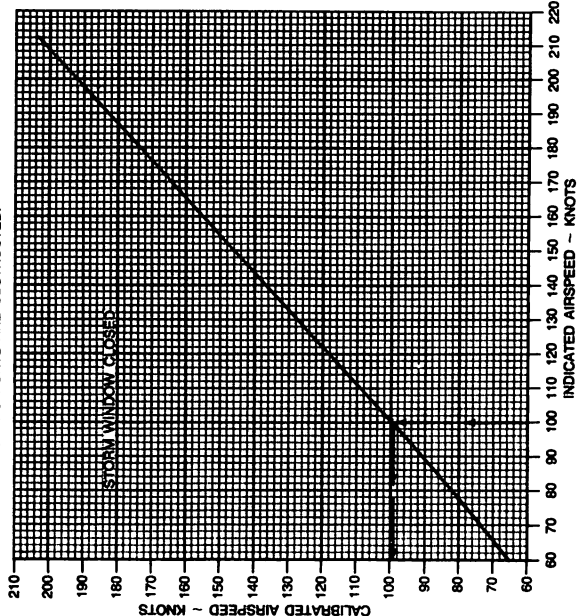
AIRSPEED CALIBRATION - ALTERNATE SYSTEM

ALL FLAP POSITIONS

- NOTES: 1. INDICATED AIRSPEED ASSUMES ZERO INSTRUMENT ERROR.
2. NORMAL STATIC PORTS ARE OBSTRUCTED.

EXAMPLE:

IAS	100 KNOTS
STORM WINDOW	CLOSED
CAS	99.5 KNOTS

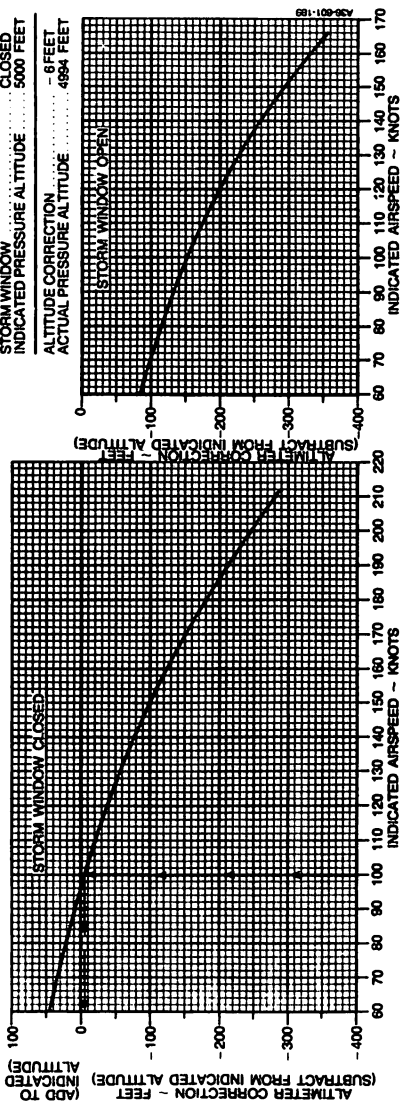


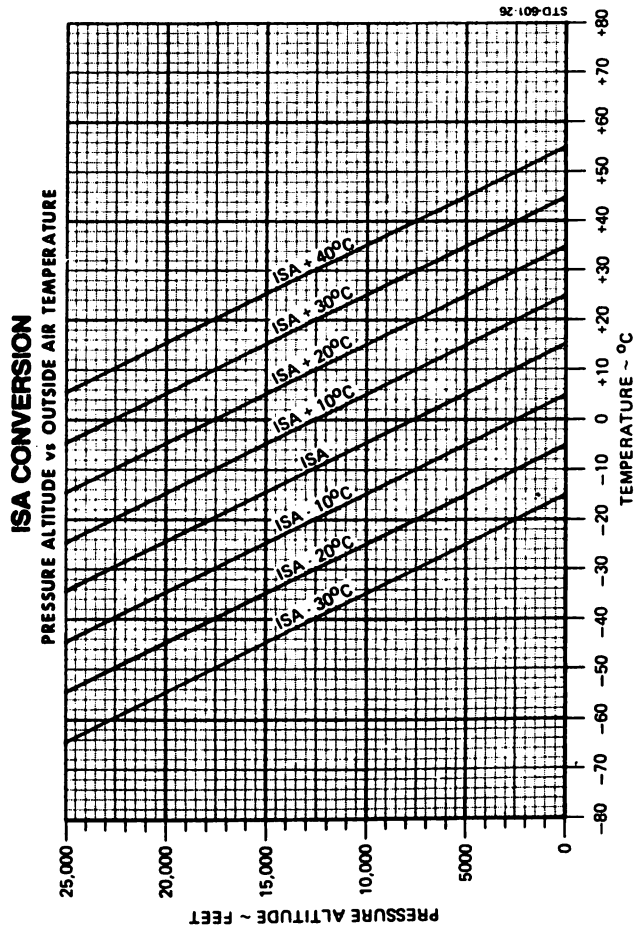
ALTIMETER CORRECTION - ALTERNATE SYSTEM ALL FLAP POSITIONS

- NOTES:
1. INDICATED AIRSPEED AND INDICATED ALTITUDE ASSUME ZERO INSTRUMENT ERROR.
 2. NORMAL STATIC PORTS ARE OBSTRUCTED.

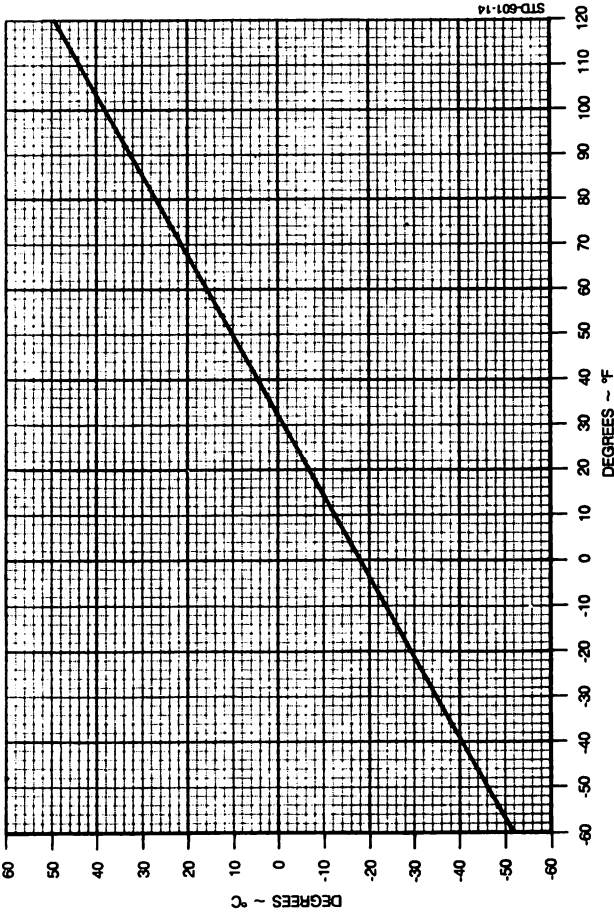
EXAMPLE:

IAS	100 KNOTS
STORM WINDOW	CLOSED
INDICATED PRESSURE ALTITUDE	5000 FEET
ALTITUDE CORRECTION	- 6 FEET
ACTUAL PRESSURE ALTITUDE	4994 FEET





FAHRENHEIT TO CELSIUS TEMPERATURE CONVERSION



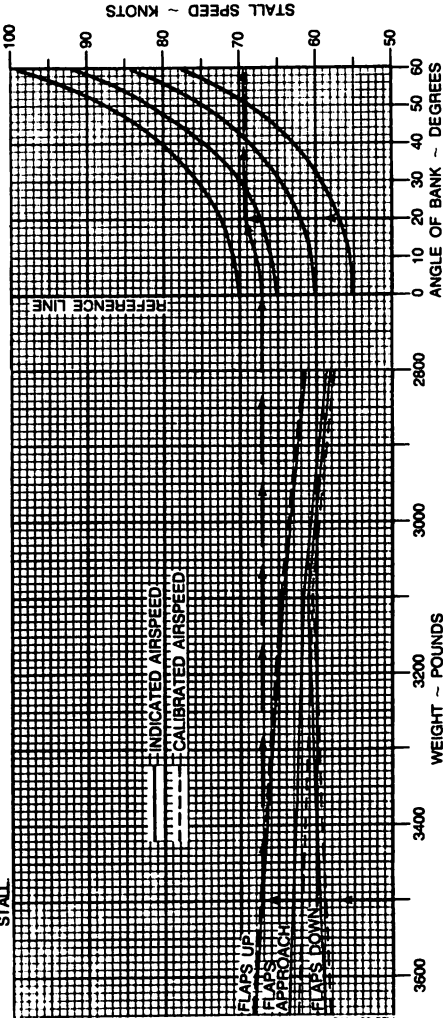
STALL SPEEDS - POWER IDLE

- NOTES: 1. THE MAXIMUM ALTITUDE LOSS EXPERIENCED WHILE CONDUCTING STALLS IN ACCORDANCE WITH CAR 3.120 WAS 320 FEET.
2. THESE STALL SPEEDS WERE DETERMINED AT THE FORWARD CENTER OF GRAVITY LIMIT FOR EACH WEIGHT. AT SOME LOADINGS THE AIRPLANE IS ELEVATOR LIMITED, RESULTING IN A MINIMUM STEADY SPEED RATHER THAN A STALL.

EXAMPLE:

WEIGHT 3500 LBS
FLAPS UP
BANK ANGLE 20°

STALL SPEED 69.4 KTS INDICATED



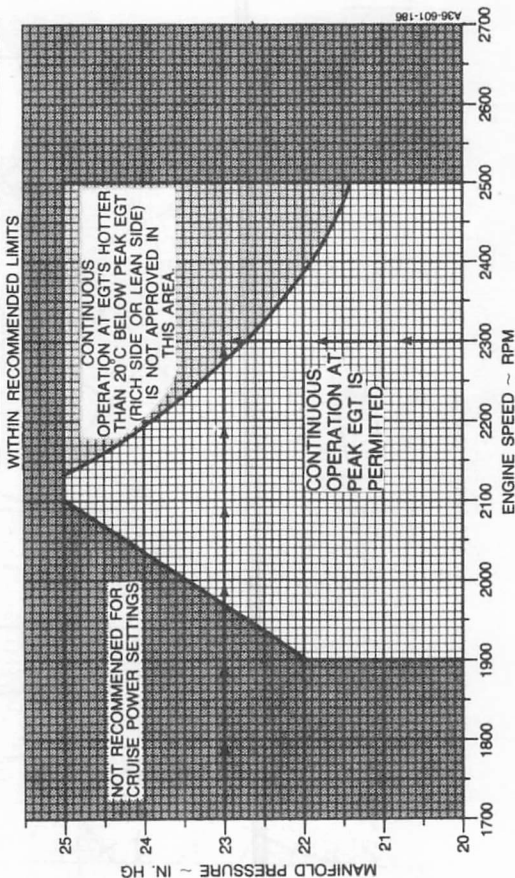
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MANIFOLD PRESSURE VS RPM

EXAMPLE:

ENGINE SPEED 2300 RPM
MANIFOLD PRESSURE 23 IN. HG
MIXTURE SETTING 20°C LEAN OF PEAK EGT

NOTE: OPERATION AT MIXTURE SETTINGS
LEANER THAN 27°C LEAN OF PEAK
EGT IS PROHIBITED.

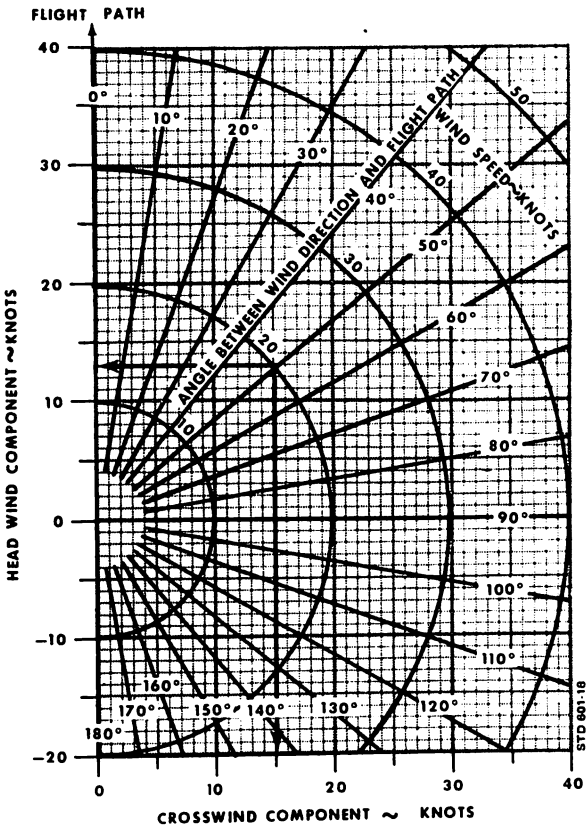


WIND COMPONENTS

Demonstrated Crosswind is 17 kts

EXAMPLE:

WIND SPEED	20 KTS
ANGLE BETWEEN WIND DIRECTION AND FLIGHT PATH	50°
HEADWIND COMPONENT	13 KTS
CROSSWIND COMPONENT	15 KTS



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TAKE-OFF DISTANCE - FLAPS UP

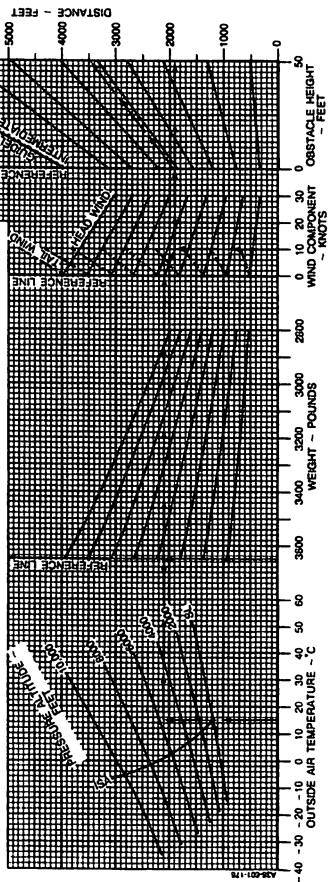
ASSOCIATED CONDITIONS:

POWER TAKE-OFF POWER SET BEFORE BRAKE RELEASE
MIXTURE FULL RICH (E-1948, E-2104, E-2111, THRU E-3144, NOT IN
COMPLIANCE WITH RAYTHEON AIRCRAFT S.B. 28-3052)
AS REQUIRED BY FIELD ELEVATION (E-3145 AND AFTER, AND
PRIOR AIRPLANES IN COMPLIANCE WITH RAYTHEON
AIRCRAFT S.B. 28-3052)
FLAPS UP (TRACT AFTER POSITIVE CLIMB ESTABLISHED)
LANDING GEAR RETRACTED
COWL FLAPS OPEN
RUNWAY PAVED, LEVEL, DRY SURFACE

EXAMPLE

OAT 15°C
PRESSURE ALTITUDE 5563 FT
TAKE-OFF WEIGHT 3650 LBS
HEAD WIND COMPONENT 10 KTS
GROUND ROLL 1800 FT
TOTAL DISTANCE OVER 50-FT OBSTACLE 3475 FT
TAKE-OFF SPEED AT
ROTATION 73 KTS
50-FT 84 KTS

WEIGHT - POUNDS	TAKE-OFF SPEED	
	ROTATION	50 FT
3650	73	84
3400	71	82
3200	70	80
3000	68	78
2800	65	75



TAKE-OFF DISTANCE - FLAPS APPROACH

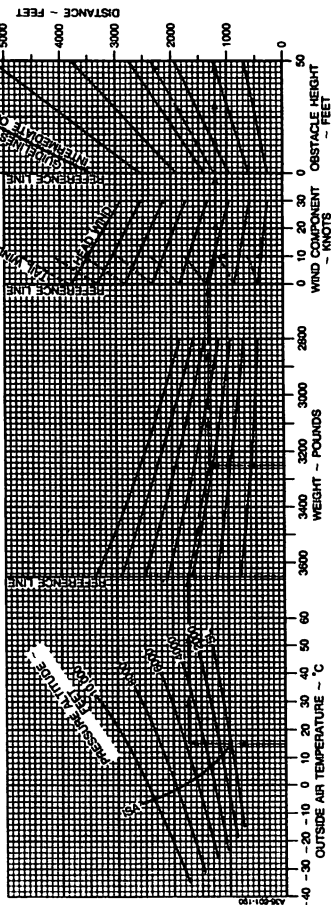
ASSOCIATED CONDITIONS:

POWER TAKE-OFF POWER SET BEFORE BRAKE RELEASE
MIXTURE FULL RICH (E-1948, E-2104, E-2111 THRU E-3144, NOT IN
COMPLIANCE WITH RAYTHEON AIRCRAFT S.S. 28-3052)
AS REQUIRED BY FIELD ELEVATION (E-3145 AND AFTER, AND
PRIOR AIRPLANES IN COMPLIANCE WITH RAYTHEON
28-3052)
FLAPS APPROACH (FLAPS)
LANDING GEAR RETRACT AFTER POSITIVE CLIMB ESTABLISHED
COWL FLAPS OPEN
RUNWAY PAVED, LEVEL, DRY SURFACE

EXAMPLE:

OAT 15°C
PRESSURE ALTITUDE 3250 FT
HEAD WIND COMPONENT 10 KTS
GROUND ROLL 1200 FT
TOTAL DISTANCE OVER 50-FT OBSTACLE 2350 FT
TAKE-OFF SPEED AT
ROTATION 65 KTS
75 KTS
50 FT

WEIGHT ~ POUNDS	TAKE-OFF SPEED	
	ROTATION KNOTS	50 FT KNOTS
3650	67	77
3400	66	76
3200	65	75
3000	64	73
2800	62	71



CLIMB

CLIMB SPEED: 100 KNOTS ALL WEIGHTS

ASSOCIATED CONDITIONS:

POWER..... FULL THROTTLE. 2700 RPM

MIXTURE. FULL RICH (E-1946, E-2104, E-2111 THRU E-3144, NOT IN COMPLIANCE WITH RAYTHEON AIRCRAFT S.B. 28-3052)

AS REQUIRED BY ALTITUDE (E-3145 AND AFTER, AND PRIOR AIRPLANES
IN COMPLIANCE WITH RAYTHEON AIRCRAFT S.B. 28-3052)

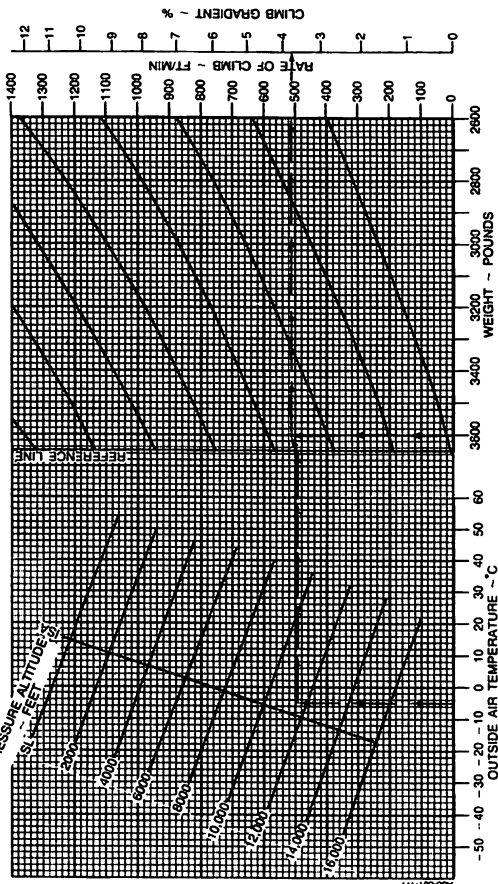
FLAPS.....UP

LANDING GEAR... UP

COWL FLAPS.....AS REQUIRED

EXAMPLE:

OAT	-5°C
PRESSURE ALTITUDE	11,500 FT
WEIGHT	3600 LBS
RATE OF CLIMB	515 FT/MIN
CLIMB GRADIENT	3.8%



TIME, FUEL, AND DISTANCE TO CRUISE CLIMB

CLIMB SPEED: 110 KNOTS ALL WEIGHTS

ASSOCIATED CONDITIONS:

POWER FULL THROTTLE, 2500 RPM

FUEL DENSITY 6.0 LBS/GAL

MIXTURE FULL RICH (E-1948, E-2104, E-2111 THRU E-3144, NOT IN

COMPLIANCE WITH RAYTHEON AIRCRAFT S.B. 28-3052)

AS REQUIRED BY ALTITUDE (E-3148 AND AFTER, AND PRIOR

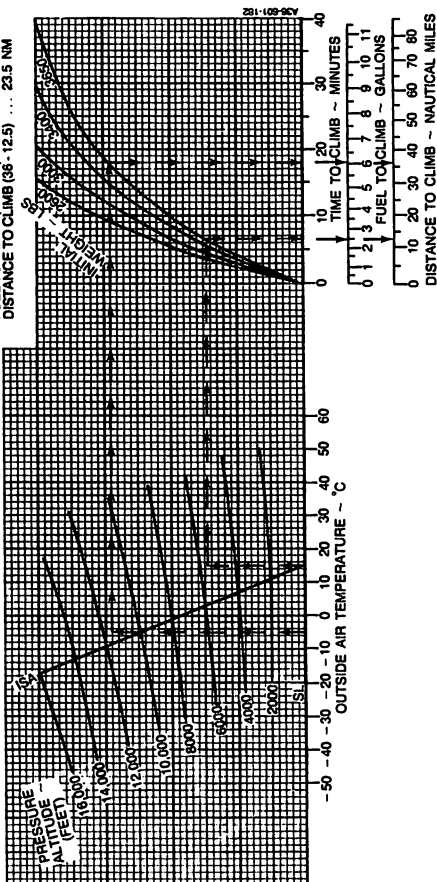
TO CRUISE CLIMB WITH RAYTHEON AIRCRAFT

S.B. 28-3052)

COWL FLAPS ... AS REQUIRED

EXAMPLE:

OAT AT TAKEOFF	15°C
OAT AT CRUISE	-5°C
AIRPORT PRESSURE ALTITUDE	5653 FT
CRUISE PRESSURE ALTITUDE	11,500 FT
INITIAL CLIMB WEIGHT	3650 LBS
TIME TO CLIMB (18 - 8.5)	11.5 MIN
FUEL TO CLIMB (6.0 - 2.5)	3.5 GAL
DISTANCE TO CLIMB (36 - 12.5)	23.5 NM



Section V
Performance

BEECHCRAFT
Bonanza A36

MAXIMUM RECOMMENDED CRUISE POWER SETTINGS

20°C RICH

25.0 IN. HG (OR FULL THROTTLE) @ 2500 RPM
CRUISE RICH MIXTURE
3400 LBS.

OF PEAK EGT

	PRESS. ALT	IOAT		MAN. PRESS.	FUEL FLOW		AIR- SPEED	
	FEET	°C	°F	IN. HG	PPH	GPH	KTAS	KTAS
ISA - 20° C (ISA - 36° F)	SL	-3	27	25.0	102.1	17.0	172	164
	2000	-6	21	25.0	105.6	17.6	172	169
	4000	-10	14	25.0	109.1	18.2	172	174
	6000	-14	7	24.1	106.1	17.7	169	175
	8000	-18	-1	22.3	97.7	16.3	162	173
	10,000	-22	-8	20.6	90.2	15.0	155	170
	12,000	-26	-15	19.1	83.5	13.9	147	167
	14,000	-30	-22	17.7	78.3	13.1	140	163
	16,000	-34	-30	16.3	73.1	12.2	131	158
STANDARD DAY (ISA)	SL	18	64	25.0	98.1	16.4	167	165
	2000	14	57	25.0	101.3	16.9	167	170
	4000	10	50	25.0	104.6	17.4	167	175
	6000	6	43	24.1	101.8	17.0	164	176
	8000	2	36	22.3	93.9	15.7	157	174
	10,000	-2	28	20.6	86.9	14.5	150	171
	12,000	-6	21	19.1	80.8	13.5	142	167
	14,000	-10	14	17.1	76.0	12.7	134	163
	16,000	-14	6	16.3	71.2	11.9	125	157
ISA + 20° C (ISA + 36° F)	SL	38	100	25.0	94.1	15.7	163	166
	2000	34	93	25.0	97.2	16.2	163	171
	4000	30	86	25.0	100.3	16.7	162	176
	6000	26	79	24.1	97.7	16.3	159	177
	8000	22	72	22.3	90.3	15.1	152	174
	10,000	18	64	20.6	83.8	14.0	144	171
	12,000	14	57	19.1	78.1	13.0	137	167
	14,000	10	50	17.7	73.9	12.3	129	162
	16,000	6	42	16.3	69.8	11.6	119	155

- NOTES:
1. Full throttle manifold pressure settings are approximate.
 2. Shaded area represents operation with full throttle.
 3. Fuel flows are to be used for flight planning only and will vary from airplane to airplane. Lean using the EGT.

RECOMMENDED CRUISE POWER SETTINGS

20°C LEAN

25.0 IN. HG (OR FULL THROTTLE) @ 2500 RPM
CRUISE LEAN MIXTURE
3400 LBS.

OF PEAK EGT

	PRESS. ALT	IOAT		MAN. PRESS.	FUEL FLOW		AIR- SPEED	
	FEET	°C	°F	IN. HG	PPH	GPH	KIAS	KTAS
ISA - 20° C (ISA - 36° F)	SL	-3	27	25.0	86.3	14.4	168	159
	2000	-6	20	25.0	89.3	14.9	168	164
	4000	-10	13	25.0	92.3	15.4	168	169
	6000	-14	6	24.1	89.8	15.0	164	170
	8000	-18	-1	22.3	82.6	13.8	157	168
	10,000	-22	-8	20.6	76.0	12.7	150	165
	12,000	-26	-15	19.1	70.2	11.7	143	162
	14,000	-30	-23	17.7	65.5	10.9	135	158
	16,000	-35	-30	16.3	60.8	10.1	126	152
STANDARD DAY (ISA)	SL	17	63	25.0	82.9	13.8	163	160
	2000	14	56	25.0	85.6	14.3	163	165
	4000	10	50	25.0	88.5	14.8	163	170
	6000	6	42	24.1	86.1	14.4	159	171
	8000	2	35	22.3	79.3	13.2	152	169
	10,000	-2	28	20.6	73.3	12.2	145	166
	12,000	-6	21	19.1	67.8	11.3	137	162
	14,000	-10	13	17.7	63.5	10.6	129	157
	16,000	-15	6	16.3	59.1	9.9	120	150
ISA + 20° C (ISA + 36° F)	SL	37	99	25.0	79.5	13.3	158	161
	2000	34	92	25.0	82.1	13.7	158	166
	4000	30	86	25.0	84.7	14.1	158	171
	6000	26	79	24.1	82.5	13.8	154	172
	8000	22	71	22.3	76.2	12.7	147	169
	10,000	18	64	20.6	70.5	11.8	140	165
	12,000	14	57	19.1	65.5	10.9	132	161
	14,000	10	49	17.7	61.5	10.3	123	155
	16,000	5	42	16.3	57.5	9.6	113	146

NOTES:

1. Full throttle manifold pressure settings are approximate.
2. Shaded area represents operation with full throttle.
3. Fuel flows are to be used for flight planning only and will vary from airplane to airplane. Lean using the EGT.

Section V
Performance

BEECHCRAFT
Bonanza A36

RECOMMENDED CRUISE POWER SETTINGS

20°C RICH

23.0 IN. HG (OR FULL THROTTLE) @ 2300 RPM
CRUISE RICH MIXTURE
3400 LBS

OF PEAK EGT

	PRESS. ALT	IOAT		MAN. PRESS.	FUEL FLOW		AIR- SPEED	
	FEET	°C	°F	IN. HG	PPH	GPH	KIAS	KTAS
ISA - 20° C (ISA - 36° F)	SL	-3	27	23.0	81.6	13.6	158	150
	2000	-7	20	23.0	84.2	14.0	158	154
	4000	-11	13	23.0	86.9	14.5	158	159
	6000	-14	6	23.0	89.7	15.0	158	164
	8000	-18	-1	22.4	89.0	14.8	156	166
	10,000	-22	-8	20.7	82.7	13.8	148	163
	12,000	-26	-16	19.2	77.1	12.9	141	160
	14,000	-31	-23	17.8	73.2	12.2	133	155
	16,000	-35	-30	16.4	69.2	11.5	124	150
STANDARD DAY (ISA)	SL	17	63	23.0	79.0	13.2	153	150
	2000	13	56	23.0	81.4	13.6	153	155
	4000	9	49	23.0	83.9	14.0	153	160
	6000	6	42	23.0	86.5	14.4	153	165
	8000	2	35	22.4	85.8	14.3	150	167
	10,000	-2	28	20.7	80.0	13.3	143	163
	12,000	-6	20	19.2	75.1	12.5	135	159
	14,000	-11	13	17.8	71.5	11.9	127	154
	16,000	-15	6	16.4	67.9	11.3	117	147
ISA + 20° C (ISA + 36° F)	SL	37	99	23.0	76.5	12.8	148	151
	2000	33	92	23.0	78.7	13.1	148	155
	4000	29	85	23.0	81.0	13.5	148	160
	6000	26	78	23.0	83.4	13.9	148	165
	8000	22	71	22.4	82.8	13.8	145	167
	10,000	18	64	20.7	77.3	12.9	138	163
	12,000	14	56	19.2	73.0	12.2	130	158
	14,000	9	49	17.8	69.8	11.6	121	152
	16,000	5	41	16.4	66.6	11.1	109	142

- NOTES:
1. Full throttle manifold pressure settings are approximate.
 2. Shaded area represents operation with full throttle.
 3. Fuel flows are to be used for flight planning only and will vary from airplane to airplane. Lean using the EGT.

RECOMMENDED CRUISE POWER SETTINGS

20°C LEAN

23.0 IN. HG (OR FULL THROTTLE) @ 2300 RPM
CRUISE LEAN MIXTURE
3400 LBS

OF PEAK EGT

	PRESS. ALT	IOAT		MAN. PRESS.	FUEL FLOW		AIR- SPEED	
	FEET	°C	°F	IN. HG	PPH	GPH	KIAS	KTAS
ISA - 20° C (ISA - 36° F)	SL	-3	26	23.0	67.6	11.3	152	144
	2000	-7	20	23.0	69.7	11.6	152	149
	4000	-11	13	23.0	72.1	12.0	153	154
	6000	-15	6	23.0	74.4	12.4	153	158
	8000	-18	-1	22.4	73.8	12.3	150	160
	10,000	-23	-9	20.7	68.4	11.4	143	167
	12,000	-27	-16	19.2	63.8	10.6	136	163
	14,000	-31	-23	17.8	60.0	10.0	127	148
	16,000	-35	-31	16.4	56.3	9.4	117	141
STANDARD DAY (ISA)	SL	17	62	23.0	65.4	10.9	147	145
	2000	13	56	23.0	67.4	11.2	147	149
	4000	9	49	23.0	69.4	11.6	148	154
	6000	5	42	23.0	71.7	12.0	148	159
	8000	2	35	22.4	71.1	11.9	145	160
	10,000	-3	27	20.7	66.2	11.0	137	167
	12,000	-7	20	19.2	61.8	10.3	129	162
	14,000	-11	13	17.8	58.5	9.8	120	146
	16,000	-15	5	16.4	55.3	9.2	109	137
ISA + 20° C (ISA + 36° F)	SL	37	98	23.0	63.2	10.5	142	145
	2000	33	92	23.0	65.1	10.9	143	149
	4000	29	85	23.0	67.1	11.2	143	154
	6000	25	78	23.0	69.0	11.5	142	158
	8000	22	71	22.4	68.5	11.4	140	160
	10,000	17	63	20.7	64.0	10.7	132	166
	12,000	13	56	19.2	60.0	10.0	123	161
	14,000	9	48	17.8	57.1	9.5	113	142
	16,000	—	—	—	—	—	—	—

- NOTES:
1. Full throttle manifold pressure settings are approximate.
 2. Shaded area represents operation with full throttle.
 3. Fuel flows are to be used for flight planning only and will vary from airplane to airplane. Lean using the EGT.

Section V
Performance

BEECHCRAFT
Bonanza A36

RECOMMENDED CRUISE POWER SETTINGS

20°C RICH

25.0 IN. HG (OR FULL THROTTLE) @ 2100 RPM
CRUISE RICH MIXTURE
3400 LBS

OF PEAK EGT

	PRESS. ALT	IOAT		MAN. PRESS.	FUEL FLOW		AIR- SPEED	
	FEET	°C	°F	IN. HG	PPH	GPH	KIAS	KTAS
ISA - 20° C (ISA - 36° F)	SL	-3	27	25.0	79.5	13.3	155	148
	2000	-7	20	25.0	82.6	13.8	156	153
	4000	-11	13	25.0	85.8	14.3	157	158
	6000	-15	6	24.3	85.1	14.2	154	159
	8000	-19	-1	22.5	79.5	13.3	147	157
	10,000	-23	-9	20.8	74.9	12.5	140	153
	12,000	-27	-16	19.3	70.9	11.8	132	149
	14,000	-31	-23	17.9	68.2	11.4	123	144
	16,000	-35	-31	16.5	65.6	10.9	112	135
STANDARD DAY (ISA)	SL	17	63	25.0	77.0	12.8	150	148
	2000	13	56	25.0	79.9	13.3	151	153
	4000	9	49	25.0	82.9	13.8	152	158
	6000	5	42	24.3	82.3	13.7	149	160
	8000	1	35	22.5	77.1	12.9	142	157
	10,000	-3	27	20.8	72.9	12.2	134	153
	12,000	-7	20	19.3	69.5	11.6	126	148
	14,000	-11	12	17.9	67.2	11.2	116	141
	16,000	-15	5	16.5	64.9	10.8	101	127
ISA + 20° C (ISA + 36° F)	SL	37	99	25.0	74.9	12.5	146	148
	2000	33	92	25.0	77.3	12.9	146	153
	4000	29	85	25.0	80.1	13.4	146	158
	6000	25	78	24.3	79.5	13.3	143	160
	8000	21	71	22.5	74.9	12.5	136	156
	10,000	17	63	20.8	71.0	11.8	128	152
	12,000	13	56	19.3	68.1	11.4	119	145
	14,000	9	48	17.9	66.1	11.0	107	135
	16,000	—	—	—	—	—	—	—

NOTES:

1. Full throttle manifold pressure settings are approximate.
2. Shaded area represents operation with full throttle.
3. Fuel flows are to be used for flight planning only and will vary from airplane to airplane. Lean using the EGT.

RECOMMENDED CRUISE POWER SETTINGS

20°C LEAN

25.0 IN. HG (OR FULL THROTTLE) @ 2100 RPM
CRUISE LEAN MIXTURE
3400 LBS

OF PEAK EGT

	PRESS. ALT	IOAT		MAN. PRESS.	FUEL FLOW		AIR- SPEED	
	FEET	°C	°F	IN. HG	PPH	GPH	KIAS	KTAS
ISA - 20° C (ISA - 36° F)	SL	-3	26	25.0	63.8	10.6	148	140
	2000	-7	19	25.0	66.4	11.1	149	145
	4000	-11	12	25.0	68.9	11.5	149	150
	6000	-15	5	24.3	68.3	11.4	147	152
	8000	-19	-2	22.5	63.9	10.7	139	148
	10,000	-23	-9	20.8	60.1	10.0	132	144
	12,000	-27	-17	19.3	56.7	9.5	123	139
	14,000	-31	-24	17.9	54.5	9.1	113	132
	16,000	-35	-32	16.5	52.2	8.7	95	114
STANDARD DAY (ISA)	SL	17	62	25.0	61.9	10.3	143	140
	2000	13	55	25.0	64.2	10.7	143	145
	4000	9	48	25.0	66.6	11.1	144	150
	6000	5	41	24.3	66.1	11.0	141	152
	8000	1	34	22.5	61.9	10.3	134	148
	10,000	-3	27	20.8	58.5	9.8	126	143
	12,000	-7	19	19.3	55.6	9.3	116	136
	14,000	-11	12	17.9	53.5	8.9	108	126
	16,000	—	—	—	—	—	—	—
ISA + 20° C (ISA + 36° F)	SL	37	98	25.0	60.1	10.0	138	140
	2000	33	91	25.0	62.1	10.4	138	145
	4000	29	84	25.0	64.4	10.7	139	150
	6000	25	77	24.3	63.9	10.7	136	151
	8000	21	70	22.5	60.2	10.0	128	147
	10,000	17	63	20.8	56.8	9.5	119	141
	12,000	13	55	19.3	54.5	9.1	108	131
	14,000	—	—	—	—	—	—	—
	16,000	—	—	—	—	—	—	—

- NOTES:
1. Full throttle manifold pressure settings are approximate.
 2. Shaded area represents operation with full throttle.
 3. Fuel flows are to be used for flight planning only and will vary from airplane to airplane. Lean using the EGT.

Section V
Performance

BEECHCRAFT
Bonanza A36

RECOMMENDED CRUISE POWER SETTINGS

20°C RICH

21.0 IN. HG (OR FULL THROTTLE) @ 2100 RPM
CRUISE RICH MIXTURE
3400 LBS

OF PEAK EGT

	PRESS. ALT	IOAT		MAN. PRESS.	FUEL FLOW		AIR- SPEED	
	FEET	°C	°F	IN. HG	PPH	GPH	KTAS	KTAS
ISA - 20° C (ISA - 36° F)	SL	-4	26	21.0	66.0	11.0	135	128
	2000	-7	19	21.0	67.5	11.3	137	134
	4000	-11	12	21.0	69.3	11.6	138	139
	6000	-15	5	21.0	71.1	11.9	139	144
	8000	-19	-2	21.0	73.4	12.2	140	149
	10,000	-23	-9	20.8	74.9	12.5	140	153
	12,000	-27	-16	19.3	70.9	11.8	132	149
	14,000	-31	-23	17.9	68.2	11.4	123	144
	16,000	-35	-31	16.5	65.6	10.9	112	135
STANDARD DAY (ISA)	SL	17	62	21.0	65.2	10.9	130	127
	2000	13	55	21.0	66.3	11.1	131	133
	4000	9	48	21.0	67.9	11.3	133	138
	6000	5	41	21.0	69.7	11.6	134	144
	8000	1	34	21.0	71.5	11.9	135	149
	10,000	-3	27	20.8	72.9	12.2	134	153
	12,000	-7	20	19.3	69.5	11.6	126	148
	14,000	-11	12	17.9	67.2	11.2	118	141
	16,000	-15	5	16.5	64.9	10.8	101	127
ISA + 20° C (ISA + 36° F)	SL	36	98	21.0	64.5	10.8	124	126
	2000	33	91	21.0	65.5	10.9	126	132
	4000	29	84	21.0	66.6	11.1	127	137
	6000	25	77	21.0	68.3	11.4	128	143
	8000	21	70	21.0	70.0	11.7	129	148
	10,000	17	63	20.8	71.0	11.8	128	152
	12,000	13	56	19.3	68.1	11.4	119	145
	14,000	9	48	17.9	66.1	11.0	107	135
	16,000	—	—	—	—	—	—	—

NOTES:

1. Full throttle manifold pressure settings are approximate.
2. Shaded area represents operation with full throttle.
3. Fuel flows are to be used for flight planning only and will vary from airplane to airplane. Lean using the EGT.

ECONOMY CRUISE POWER SETTINGS

20°C LEAN

OF PEAK EGT

21.0 IN. HG (OR FULL THROTTLE) @ 2100 RPM
CRUISE LEAN MIXTURE
3400 LBS

	PRESS. ALT	IOAT		MAN. PRESS.	FUEL FLOW		AIR- SPEED	
	FEET	°C	°F	IN. HG	PPH	GPH	KTAS	KTAS
ISA - 20° C (ISA - 36° F)	SL	-4	25	21.0	52.7	8.8	126	120
	2000	-8	18	21.0	54.0	9.0	128	125
	4000	-11	12	21.0	55.4	9.2	130	130
	6000	-15	5	21.0	56.9	9.5	131	136
	8000	-19	-2	21.0	58.9	9.8	132	141
	10,000	-23	-9	20.8	60.1	10.0	132	144
	12,000	-27	-17	19.3	58.7	9.5	123	139
	14,000	-31	-24	17.9	54.5	9.1	113	132
	16,000	-35	-32	16.5	52.2	8.7	95	114
STANDARD DAY (ISA)	SL	16	61	21.0	51.8	8.8	120	118
	2000	12	54	21.0	53.1	8.9	123	124
	4000	9	48	21.0	54.4	9.1	124	129
	6000	5	41	21.0	55.7	9.3	125	134
	8000	1	34	21.0	57.3	9.6	126	140
	10,000	-3	27	20.8	58.5	9.8	126	143
	12,000	-7	19	19.3	55.8	9.3	116	137
	14,000	-11	12	17.9	53.5	8.9	103	125
	16,000	—	—	—	—	—	—	—
ISA + 20° C (ISA + 36° F)	SL	36	97	21.0	50.8	8.5	114	115
	2000	32	90	21.0	52.1	8.7	116	121
	4000	29	83	21.0	53.4	8.9	118	127
	6000	25	77	21.0	54.7	9.1	119	132
	8000	21	70	21.0	55.9	9.3	120	137
	10,000	17	63	20.8	56.8	9.5	119	141
	12,000	13	55	19.3	54.5	9.1	108	131
	14,000	—	—	—	—	—	—	—
	16,000	—	—	—	—	—	—	—

- NOTES:
1. Full throttle manifold pressure settings are approximate.
 2. Shaded area represents operation with full throttle.
 3. Fuel flows are to be used for flight planning only and will vary from airplane to airplane. Lean using the EGT.

CRUISE SPEEDS

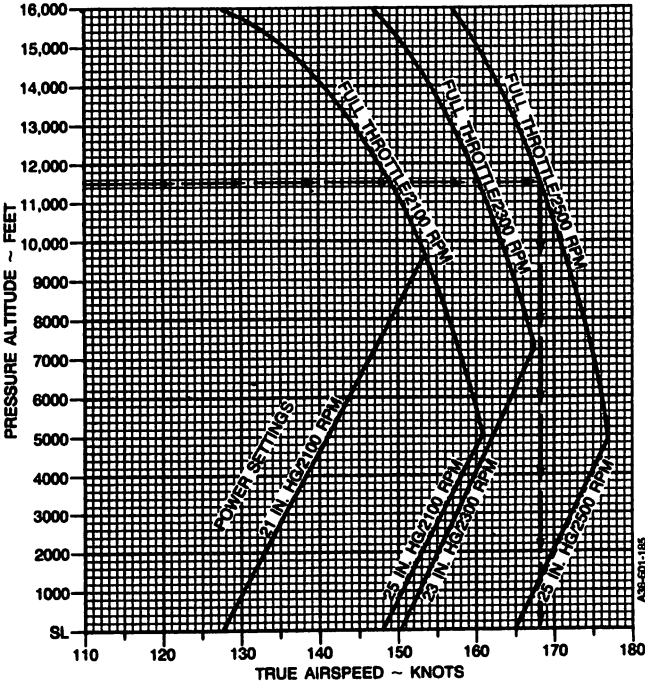
20°C RICH
OF PEAK EGT

ASSOCIATED CONDITIONS:

AVERAGE CRUISE WT 3400 LBS
TEMPERATURE STD DAY (ISA)

EXAMPLE:

CRUISE ALTITUDE 11,500 FT
POWER SETTING FULL THROTTLE, 2500 RPM
TRUE AIRSPEED 168 KTS



CRUISE SPEEDS

20°C LEAN

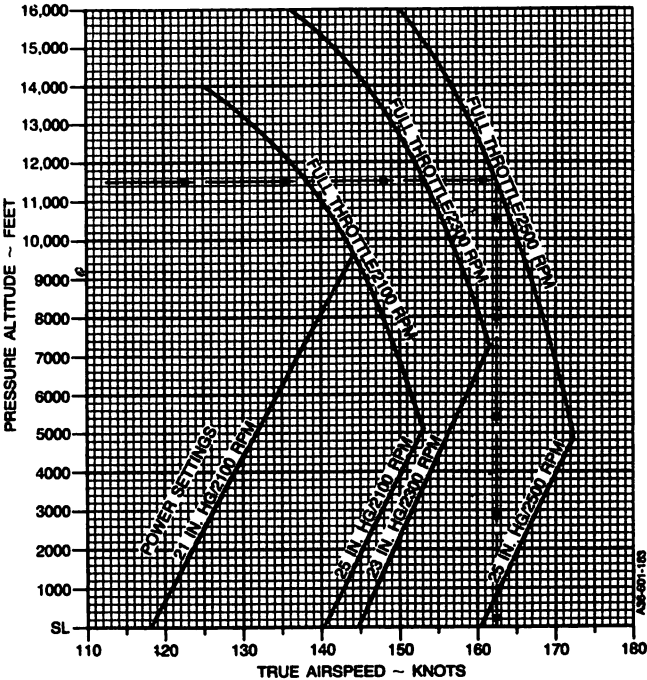
OF PEAK EGT

ASSOCIATED CONDITIONS:

AVERAGE CRUISE WT 3400 LBS
TEMPERATURE STD DAY (ISA)

EXAMPLE:

PRESSURE ALTITUDE 11,500 FT
POWER SETTING FULL THROTTLE, 2500 RPM
TRUE AIRSPEED 163 KTS



Section V Performance

BEECHCRAFT Bonanza A36

RANGE PROFILE STANDARD DAY (ISA)

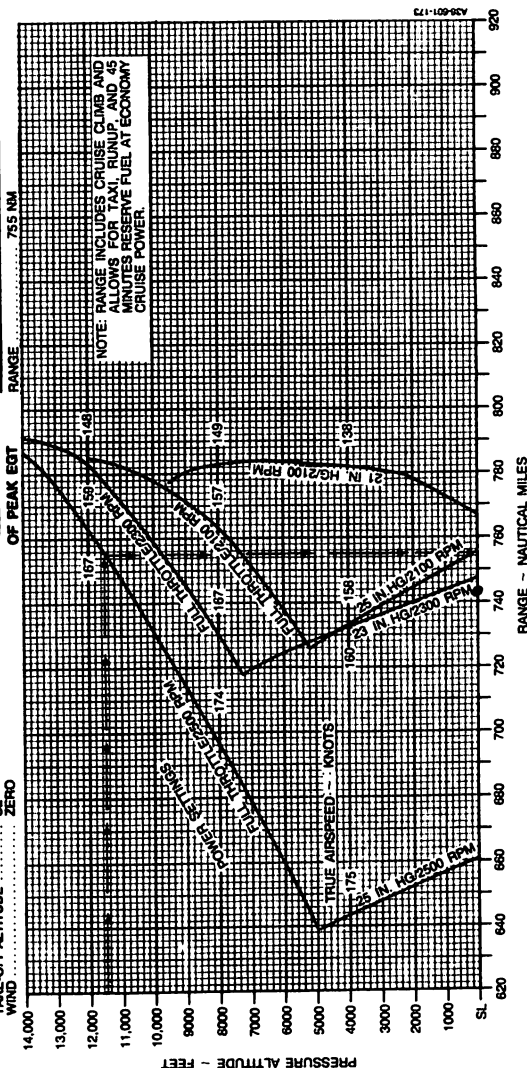
EXAMPLE:

CRUISE ALTITUDE 11,500 FT
POWER SETTING FULL THROTTLE, 2500 RPM

20°C RICH

ASSOCIATED CONDITIONS:

WEIGHT 3983 LBS BEFORE ENGINE START
FUEL AVIATION GASOLINE
FUEL DENSITY 6.0 LBS/GAL
INITIAL FUEL LOADING 74 U.S. GAL (444 LBS)
TAKE-OFF ALTITUDE SEA LEVEL
WIND ZERO



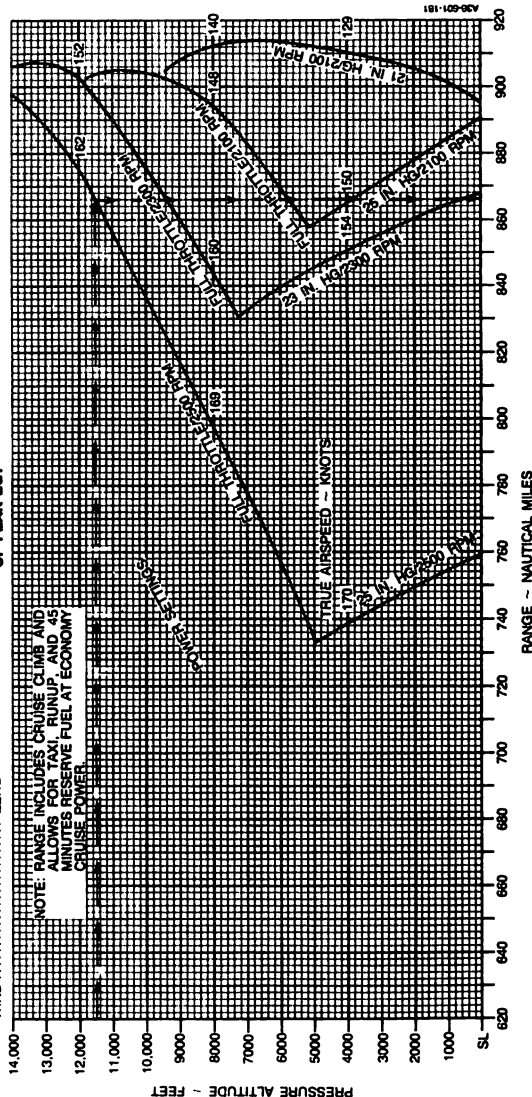
RANGE PROFILE STANDARD DAY (ISA)

ASSOCIATED CONDITIONS:

WEIGHT 3663 LBS BEFORE ENGINE START
FUEL AVIATION GASOLINE
FUEL DENSITY 6.0 LBS/GAL
INITIAL FUEL LOADING 74 U.S. GAL (444 LBS)
TAKE-OFF ALTITUDE SL
WIND ZERO

20°C LEAN
OF PEAK EGT

EXAMPLE:
CRUISE ALTITUDE 11,500 FT
POWER SETTING FULL THROTTLE, 2500 RPM
RANGE 866 NM



Section V Performance

**BEECHCRAFT
Bonanza A36**

ENDURANCE PROFILE STANDARD DAY (ISA)

ASSOCIATED CONDITIONS:

WEIGHT 3663 LBS BEFORE ENGINE START
FUEL AVIATION GASOLINE
FUEL DENSITY 6.0 LBS/GAL
INITIAL FUEL LOADING 74 U.S. GAL (444 LBS)
TAKE-OFF ALTITUDE SL

3663 LBS BEFORE ENGINE START

AVIATION GASOLINE

6.0 LBS/GAL

74 U.S. GAL (444 LBS)

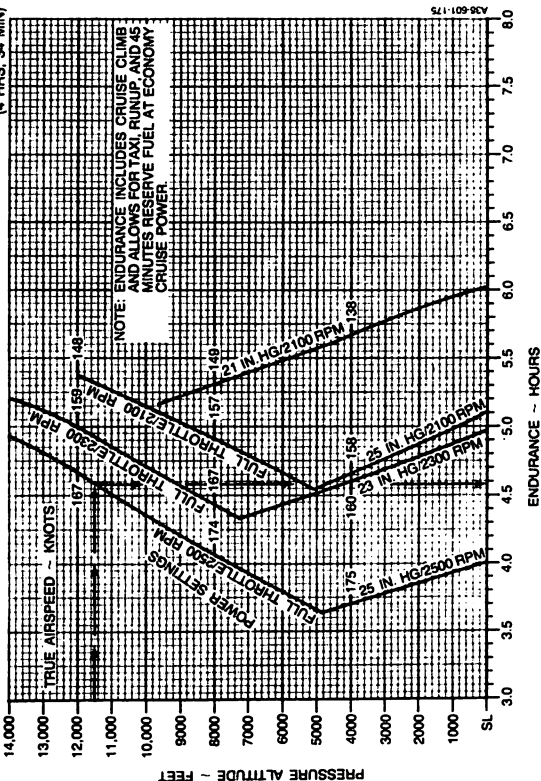
SL

20°C RICH

OF PEAK EGT

EXAMPLE:

CRUISE ALTITUDE 11,500 FT
POWER SETTING FULL THROTTLE, 2500 RPM
ENDURANCE 4.58 HRS
(4 HRS, 34 MIN)



ENDURANCE PROFILE

STANDARD DAY (ISA)

ASSOCIATED CONDITIONS:

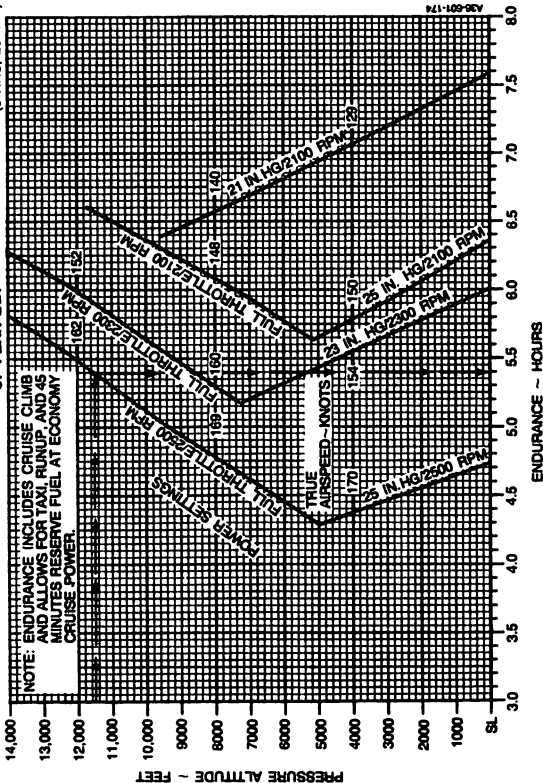
WEIGHT 3683 LBS BEFORE ENGINE START
FUEL AVIATION GASOLINE
FUEL DENSITY 6.0 LBS/GAL
INITIAL FUEL LOADING 74 U.S. GAL (444 LBS)
TAKE-OFF ALTITUDE SL

EXAMPLE:

CRUISE ALTITUDE 11,500 FT
POWER SETTING FULL THROTTLE, 2500 RPM
ENDURANCE 5.39 HRS
(5 HRS, 23 MIN)

20°C LEAN

OF PEAK EGT



Section V Performance

BEECHCRAFT Bonanza A36

LANDING DISTANCE

ASSOCIATED CONDITIONS:

POWER RETARDED TO MAINTAIN 900 FT/MIN
ON FINAL APPROACH
FLAPS DOWN (AMBER)
LANDING GEAR DOWN
RUNWAY PAVED, LEVEL, DRY SURFACE
APPROACH SPEED IAS AS TABULATED
BRAKING MAXIMUM

EXAMPLE:

OAT 25°C
PRESSURE ALTITUDE 3965 FT
WEIGHT 3475 LBS
HEADWIND COMPONENT 10 KTS
GROUND ROLL 960 FT
TOTAL OVER 60-FT OBSTACLE 1515 FT
APPROACH SPEED 80 KTS

WEIGHT ~ POUNDS	SPEED AT 50 FT	
	KNOTS	
3850	79	
3400	80	
3200	81	
3000	81	
2800	78	

