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Reality Expansion Pack for X-Plane

Beechcraft Bonanza G36

Checklists & References

BEFORE ENGINE STARTING

1. Seats ..... POSITION FOR TAKEOFF
2. Rudder Pedals ..... ADJUST
3. Seat Belts and Shoulder Harness ..... FASTEN/ADJUST
4. Parking Brake ..... CONFIRM SET
5. Left Side Circuit Breakers ..... IN
6. Alternate Static Air Source ..... NORMAL
7. Subpanel Switches ..... OFF, BEACON ON
8. Landing Gear Handle ..... DN
9. Throttle ..... CLOSED
10. Propeller ..... HIGH RPM
11. Mixture ..... FULL RICH
12. Cowl Flaps ..... OPEN
13. Flaps ..... UP
14. Avionics Circuit Breakers ..... IN
15. ELT Switch ..... ARM
16. Battery System Check ..... CONFIRM COMPLETE
17. Battery 1 & 2, Alternator 1 & 2 ..... ON
18. PFD ..... VERIFY REVERSIONARY MODE
19. Fuel Remaining ..... SET

BEFORE ENGINE STARTING (continued)

Select ENGINE and SYSTEM Soft Keys

With Full Fuel: Press RST FUEL

With Partial Fuel: Press DEC FUEL or INC FUEL

20. Fuel Selector ..... CHECK OPERATION THEN SELECT FULLER TANK

Feel for detent/confirm visually

Do not take off if fuel quantity indication is in the yellow band or with less than 13 gallons in each tank.

21. Aux Fuel Pump ..... VERIFY OPERATION

Select LO, listen for operation

Select OFF

ENGINE STARTING (BATTERY)

Do not engage starter for more than 30 seconds in any 4-minute time period.

COLD STARTS

1. Throttle ..... FULL OPEN
2. Propeller ..... HIGH RPM
3. Mixture ..... FULL RICH
4. Aux Fuel Pump ..... HI UNTIL FUEL FLOW PEAKS THEN OFF
5. Throttle ..... CLOSE, THEN OPEN APPROXIMATELY 1/2 INCH
6. Magneto/Start Switch ..... START

The [STARTER ENGD] Caution Alert will illuminate during the Start and should extinguish when starter is released.

7. Throttle ..... 1000 to 1200 RPM AFTER START

FLOODED ENGINE

8. Mixture ..... CUT OFF
9. Propeller ..... HIGH RPM
10. Throttle ..... 1/2 OPEN
11. Magneto/Start Switch ..... START

As Engine Starts:

12. Throttle ..... IDLE
13. Mixture ..... FULL RICH

HOT STARTS

1. Mixture ..... CUT OFF
2. Propeller ..... HIGH RPM
3. Aux Fuel Pump ..... HI FOR 30-60 SECONDS, THEN OFF
4. Mixture ..... FULL RICH
5. Throttle ..... FULL OPEN
6. Aux Fuel Pump ..... HI UNTIL FUEL FLOW PEAKS THEN OFF
7. Throttle ..... CLOSE; THEN OPEN APPROXIMATELY 1/2 INCH
8. Magneto/Start Switch ..... START
9. Aux Fuel Pur HI (Momentarily after starting to purge the system)
10. Aux Fuel Pump ..... OFF

BEFORE TAXI

1. Throttle ..... 1000 to 1200 RPM
2. Oil Temperature and Pressure ..... CHECK

Engine oil temperature and oil pressure must be in the green band prior to engine run-up above 1200 RPM.

3. Avionics Master ..... ON
4. Air Conditioner ..... AS REQUIRED
5. Autopilot Preflight test ..... COMPLETE

Red AFCS Message: ILLUMINATED WHILE AHRS ALIGNS, then EXTINGUISHED. White PFT Message: ILLUMINATED (~5 Seconds), then EXTINGUISHED. Autopilot Disconnect Tone: SOUNDS

6. MFD ..... AVIATION DATA BASE ACKNOWLEDGED
7. PFD and MFD ..... DISPLAYED IN NORMAL MODE
8. AHRS ..... ALIGN
9. ALT 1 and ALT 2 ..... CHECK
10. Bus 1 and Bus 2 Voltages ..... CHECK
11. Alerts/Messages ..... CHECK
12. Lights ..... AS REQUIRED
13. Avionics ..... CHECK & SET

BEFORE TAKEOFF (RUNUP)

1. Parking Brake ..... SET
2. Seat Belts and Shoulder Harnesses ..... CONFIRM BUCKLED
3. Engine Instruments ..... CHECK WITHIN OPER. LIMITS
4. Flight Instruments ..... CHECK
5. Throttle ..... 1700 RPM
6. Propeller ..... EXERCISE
7. Magnetos ..... CHECK INDIVIDUALLY
8. Alternator 2 and Bus Tie ..... CHECK
9. Standby Attitude Indicator ..... ERECT
10. Electric Elevator Trim ..... CHECK
11. Trim ..... SET
12. Flaps ..... CHECK OPERATION, SET FOR TAKEOFF
13. Flight Controls ..... CHECK FREEDOM OF MOVEMENT
14. Doors and Windows ..... SECURE
15. Fuel Selector Valve ..... CHECK TANK SELECTED
16. Aux Fuel Pump ..... OFF
17. Alerts/Messages ..... EXTINGUISHED OR CONSIDERED
18. PFD Attitude and Heading ..... NORMAL
19. GPS Position ..... VALID
20. Standby Attitude Indicator ..... ERECT AND NORMAL
21. Parking Brake ..... RELEASE

BEFORE TAKEOFF (FINAL ITEMS)

1. Pitot Heat ..... AS REQUIRED
2. Lights ..... AS REQUIRED
3. Air Conditioning ..... OFF

The [AC DOOR EXTD] Caution Alert must be extinguished before Takeoff.

4. Flaps ..... CONFIRM SET
5. Transponder Code ..... CONFIRM SET
6. Rotation Speed ..... CONFIRM

TAKEOFF

1. Take-Off Power ..... SET
2. Brakes ..... RELEASE
3. Instruments ..... CHECK

Check MAP, RPM, Fuel Flow, Oil Temp/Press

4. Rotation Speed ..... ROTATE
5. Landing Gear ..... RETRACT
6. Flaps ..... RETRACT

CLIMB

1. Power ..... SET
2. Cowl Flaps ..... AS REQUIRED

100 KTS for MCP Climb, 110 KTS for Cruise Climb

3. Engine Temperatures ..... MONITOR
4. Air Conditioner ..... AS REQUIRED
5. Aux Fuel Pump ..... AS REQUIRED

Engine roughness, fuel flow fluctuation or low fuel flow can occur when climbing on hot days. These can be eliminated by switching the auxiliary fuel pump from OFF to LO and leaning the fuel flow to the cyan climb fuel flow marker.

CRUISE

1. Cowl Flaps ..... CLOSE
2. Power ..... SET
3. Aux Fuel Pump ..... OFF

Return the mixture control to full rich before turning the aux fuel pump off.

4. Mixture ..... LEAN USING EGT

See Leaning Using EGT Indication in Other Normal Procedures (Cyan Climb Fuel Flow Marker will extinguish as fuel flow is leaned).

DESCENT

1. Altimeters ..... SET
2. Cowl Flaps ..... CONFIRM CLOSED
3. Power ..... AS REQUIRED
4. Mixture ..... AS REQUIRED

The mixture must be manually enriched as the airplane descends. An optional procedure is to retard the throttle as the airplane descends to maintain a constant manifold pressure. Then adjust the mixture to maintain the EGT within its limits.

5. Engine Temperatures ..... MONITOR
6. Flaps ..... AS REQUIRED
7. Windshield Defroster ..... AS REQUIRED

BEFORE LANDING

1. Seat Belts and Shoulder Harnesses ..... FASTENED
2. Seat Backs ..... POSITION FOR LANDING
3. Fuel Selector Valve ..... SELECT FULLER TANK
4. Cowl Flaps ..... AS REQUIRED
5. Mixture ..... FULL RICH
6. Landing Gear ..... DOWN AND CHECK
7. Landing Lights ..... AS REQUIRED
8. Propeller ..... HIGH RPM

NORMAL LANDING

1. Flaps ..... DOWN

Establish normal approach speed

2. Yaw Damp ..... OFF

BALKED LANDING

1. Throttle and Propeller ..... FULL FORWARD

80 KTS until clear of obstacles, then trim to 110 KTS

2. Flaps ..... UP
3. Landing Gear ..... RETRACT
4. Cowl Flaps ..... OPEN

AFTER LANDING

1. Cowl Flaps ..... OPEN
2. Flaps ..... UP
3. Landing, Taxi, and Strobe Lights ..... AS REQUIRED
4. Trim Tabs ..... RESET AS REQUIRED
5. [BUSES TIED] ..... Illuminated

SHUTDOWN AND SECURING

1. Parking Brake ..... SET
2. Avionics ..... OFF
3. Electrical Equipment ..... OFF
4. Air Conditioner ..... OFF
5. Throttle ..... 1000 RPM
6. Mixture ..... CUT OFF
7. Magnetos ..... OFF

After engine stops

8. Battery 1 & 2, Alternator 1 & 2 ..... OFF
9. Standby Attitude Indicator ..... CHECK EMERGENCY MODE

See OTHER NORMAL PROCEDURES

10. Control Locks ..... INSTALL
11. Wheel Chocks ..... INSTALL
12. Parking Brake ..... RELEASE

EMERGENCY AIRSPEEDS

1. Emergency Descent ..... 154 Kts
2. Maximum Range Glide ..... 110 Kts
3. Landing Approach - Without Power ..... 85 Kts

The stall warning horn will be inoperative when power is lost to Bus 1, i.e. if BAT 1 and ALT 1 are both inoperative.

ABORTED TAKEOFF

1. Throttle ..... CLOSED
2. Brakes ..... AS REQUIRED TO ACHIEVE STOPPING DISTANCE
3. Mixture ..... CUT OFF
4. Ground Loop ..... IF REQUIRED

When airplane comes to a stop:

5. Fuel Selector Valve ..... OFF
6. Battery 1 & 2, Alternator 1 & 2 ..... OFF
7. Magnetos ..... OFF

Evacuate airplane and move to a safe distance.

ENGINE FAILURE

NOTE: The most probable causes of engine failure are loss of fuel flow, ignition system malfunction or blockage of the induction system.

DURING TAKE-OFF GROUND ROLL

1. Throttle ..... CLOSED
2. Braking ..... AS REQUIRED TO ACHIEVE STOPPING DISTANCE
3. Fuel Selector Valve ..... OFF
4. Magnetos ..... OFF
5. Battery 1 & 2, Alternator 1 & 2 ..... OFF

IN FLIGHT

6. Airspeed Immediately After Takeoff ..... 85 KTS (minimum)
7. Airspeed With Sufficient Altitude ..... 110 KTS

If sufficient time is available, accomplish the following:

8. Turn toward the Most Favorable Landing Site .....
9. Air Conditioner ..... OFF
10. Fuel Selector Valve ..... SELECT OTHER TANK
11. Magnetos ..... CHECK BOTH SELECTED
12. Aux Fuel Pump ..... HI
13. Mixture ..... FULL RICH, THEN LEAN AS REQUIRED

If power is restored when the Auxiliary Fuel Pump is selected to HI, then manual adjustment of the mixture control will be required for all power changes to prevent engine roughness. Do not retard throttle to idle until landing is assured.

If engine does not start:

14. Aux Fuel Pump ..... OFF
15. Mixture ..... FULL RICH
16. Magnetos ..... CHECK LEFT, RIGHT, THEN BOTH
17. Alternate Air T-Handle ..... PULL AND RELEASE

If engine still does not start:

See MAXIMUM GLIDE CONFIGURATION procedure.

ENGINE FIRE IN FLIGHT

1. Firewall Air Control Knob ..... PULL TO CLOSE

WARNING: The red FIREWALL AIR control knob on the outboard side of the left lower subpanel should be pulled to close off all heating system outlets so that smoke and fumes will not enter the cabin.

Engine Shutdown

2. Fuel Selector Valve ..... OFF
3. Mixture ..... CUT OFF
4. Propeller ..... LOW RPM
5. Fuel Boost Pump ..... OFF
6. Magnetos ..... OFF
7. Alternator 1 & 2 ..... OFF

DO NOT ATTEMPT TO RESTART

See the following procedures, as required:

EMERGENCY DESCENT, MAXIMUM GLIDE CONFIGURATION, LANDING WITHOUT POWER

ENGINE FIRE ON THE GROUND

1. Mixture ..... CUT OFF
2. Starter ..... CONTINUE TO CRANK
3. Fuel Selector Valve ..... OFF
4. Magnetos ..... OFF
5. Battery 1 & 2, Alternator 1 & 2 ..... OFF

Evacuate airplane and move to a safe distance.

PROPELLER OVERSPEED

1. Throttle ..... RETARD
2. Airspeed ..... REDUCE UNTIL RPM IS AT OR BELOW 2700
3. Oil Pressure ..... CHECK

WARNING: If loss of oil pressure was the cause of overspeed, the engine will seize after a short period of operation.

Land as soon as practical.

If engine seizes, see following procedures in this section, as required:

MAXIMUM GLIDE CONFIGURATION, LANDING WITHOUT POWER

ELECTRICAL SMOKE OR FIRE

1. Battery 1 & Alternator 1 ..... OFF
2. Firewall Air Control ..... PULL
3. Autopilot and Flight Director ..... DISENGAGE
4. Avionics Switch and All Electrical Equipment Switches ..... OFF

Dissipation of smoke may be aided by the following:

5. Firewall Air Control (if engine is not source of sr FULL FORWARD
6. Wing Root Fresh Air Outlets ..... OPEN
7. Overhead Fresh Air Outlets ..... OPEN

If smoke subsides:

Land as soon as practical.

WARNING: Dissipation of smoke is not sufficient evidence that the fire has been extinguished. If it cannot be visually confirmed that no fire exists, land at the nearest suitable airport.

If smoke persists:

8. Airplane Control ..... MAINTAIN USING STANDBY INSTRUMENTS
9. Battery 2 & Alternator 2 ..... OFF

If Smoke Subsides and Avionics equipment is required to land the airplane, restore Bus No.1:

10. Battery 1 & Alternator 1 ..... ON

EMERGENCY DESCENT

1. Power ..... IDLE
2. Propeller ..... HIGH RPM
3. Landing Gear (154 Kts Maximum) ..... DOWN
4. Flaps (154 Kts Maximum) ..... DOWN
5. Airspeed ..... 154 KIAS

MAXIMUM GLIDE CONFIGURATION

1. Landing Gear ..... UP

~CAUTION~ The landing gear will not retract unless the throttle is in a position corresponding to approximately 17 in. Hg manifold pressure or above.

2. Flaps ..... UP
3. Propeller ..... LOW RPM
4. Cowl Flaps ..... CLOSED
5. Airspeed ..... 110 KTS
6. Air Conditioner ..... OFF
7. Alternator 1 & 2 ..... OFF
8. ELT ..... ON

Glide Ratio 1.7 NM/1000 FEET (2 statute miles/1000 feet)

Determine Nearest Airport:

a. PFD - PRESS NRST SOFTKEY

b. Large FMS Knob - SELECT DESIRED AIRPORT

c. Direct-To Key - PRESS

d. ENT Key - PRESS TWICE

LANDING WITHOUT POWER

1. Fuel Selector Valve ..... OFF
2. Mixture ..... CUT OFF
3. Magnetos ..... OFF
4. Flaps ..... DOWN
5. Landing Gear ..... DOWN or UP (depending on terrain)

~CAUTION~ The landing gear will not retract unless the throttle is in a position corresponding to approximately 17 in. Hg manifold pressure or above.

6. Airspeed ..... 85 KIAS MINIMUM
7. Alternator 1 & 2 ..... OFF

When landing is assured and PFD is not required:

8. Battery 1 & 2 ..... OFF

ELECTRICAL ALTERNATOR 1 AND 2 FAILURE

1. Alt 1 and Alt 2 ..... CHECK, VERIFY ON
2. Alt Load 1 & 2 ..... CHECK
3. Bus Volts 1 & 2 ..... CHECK

If Alt Load 1 & 2 indicate a load, a false warning is indicated.

Continue to use Alternator 1 & 2.

If Alt Load 1 & 2 show no load and the Bus Volts 1 & 2 gradually drop below 25 volts, alternator 1 & 2 are inoperative.

Attempt to reset the alternators as follows:

4. Alternator 1 & 2 ..... OFF MOMENTARILY, THEN ON

If [ALT 1 - 2 INOP] Extinguishes:

Continue to use Alternator 1 & 2.

If Alt Load 1 & 2 continue to show no load and Bus Volts 1 & 2 continue to indicate below 25 volts:

5. Alternator 1 & 2 ..... OFF
6. Autopilot and Flight Director ..... DISENGAGE
7. Avionics Switch ..... OFF

Bus 1 and Bus 2 - LOAD SHED AS REQD (see ELECTRICAL LOAD SHEDDING procedures)

Land as soon as practical.

ALTERNATOR 1 FAILURE

1. Alternator 1 ..... CHECK, VERIFY ON
2. Alt Load 1 ..... CHECK
3. Bus Volts 1 ..... CHECK

If Alt Load 1 indicates a load and Bus Volts 1 is 27.5 to 29.0 volts, a false warning is indicated.

Continue to use Alternator 1.

If Alt Load 1 shows no load and the Bus Volts 1 gradually drops below 25 volts, alternator 1 is inoperative.

Attempt to reset the alternator as follows:

4. Alternator 1 ..... OFF MOMENTARILY, THEN ON

If [ALT 1 INOP] Extinguishes:

Continue to use Alternator 1.

If Alt Load 1 continues to show no load and Bus Volts 1 continues to indicate below 25 volts:

5. Alternator 1 ..... OFF

LOAD SHED AS REQD (See ELECTRICAL LOAD SHEDDING Procedures)

ALTERNATOR 2 FAILURE

1. Alternator 2 ..... CHECK, VERIFY ON
2. Alt Load 2 ..... CHECK
3. Bus Volts 2 ..... CHECK

If Alt Load 2 indicates a load and Bus Volts 2 is 27.5 to 29.0 volts, a false caution alert is indicated.

Continue to use Alternator 2.

If Alt Load 2 shows no load and Bus Volts 2 gradually drops to approximately 2 volts below Bus Volts 1, Alternator 2 is inoperative.

Attempt to reset the alternators as follows:

4. Alternator 2 ..... OFF MOMENTARILY, THEN ON

If the [ALT 2 INOP] and [BUSES TIED] Extinguishes:

Continue to use Alternator 2.

If Alt Load 2 continues to show no load and the [ALT 2 INOP] and [BUSES TIED] remain illuminated:

5. Alternator 2 ..... OFF

Monitor Alt Load 1.

LOAD SHED IF REQD (See ELECTRICAL LOAD SHEDDING Procedures)

Land as soon as practical.

ELECTRICAL LOAD SHEDDING

Loss of Alternator 1 or Alternator 1 and 2: Shed load from Bus 1. Items to shed based on pilot's discretion and flight conditions. Priority shedding for dual alternator failure.

Items located on Bus 1:

* Avionics Circuit Breaker Panel - Turn off avionics to shed load.

* Pilot’s Sub Panel Switches - Strobe, beacon, panel lights off.

Left Circuit Breaker Panel - Utilize utility power sparingly.

COMPLETE ELECTRICAL FAILURE

Maintain airplane control using standby instruments.

Standby instruments include Airspeed Indicator, Attitude Indicator, Altimeter, and Compass.

Press Standby Power button to secure battery life for instruments.

Plan on flaps up landing, consult LANDING GEAR MANUAL EXTENSION procedure for manual gear extension.

Plan on no more than 1 hour of battery life for standby instruments. Land at the nearest suitable airport.

EMERGENCY COMMUNICATIONS

The 121.5 MHZ Emergency frequency will be automatically loaded under the following conditions:

1. Pressing and holding the COM Frequency Toggle Key for approximately 2 seconds.

2. When a COM tuning failure is detected by the system.

3. In the event of a failure of the PFD and the MFD, the emergency frequency will be available to the pilot through the headset.

EMERGENCY EXITS

The openable windows on the left and right side of the cabin may be used for emergency egress in addition to the cabin door and utility doors. An emergency exit instructions placard is located on each openable window/emergency exit latch cover.

To Open the Emergency Exit:

1. Remove cover as indicated by placard in center of openable window emergency exit latch.

2. Rotate exposed red latch handle up (as indicated by placard), breaking safety wire, and push window out.

NOTE: Anytime the window has been opened by breaking the safety wire on the red emergency latch handle, the window must be reattached and wired by a qualified mechanic using a single strand of QQ-W-343, Type S, .020 diameter copper wire prior to future airplane operation.

SPINS

Intentional spins are prohibited. If an unintentional spin is encountered, perform the following procedure IMMEDIATELY - THE LONGER THE DELAY, THE MORE DIFFICULT RECOVERY WILL BECOME.

Steps 1 through 3 should be done AGGRESSIVELY and SIMULTANEOUSLY. The full forward position of the control column may be reduced slightly, if required, to prevent the airplane from exceeding a 90° nose down (inverted) attitude.

If a Spin is Entered Inadvertently:

1. Control Column ..... FULL FORWARD, AILERONS NEUTRAL
2. Full Rudder ..... OPPOSITE THE DIRECTION OF SPIN
3. Throttle ..... IDLE

Rudder - NEUTRALIZE WHEN ROTATION STOPS

Execute a smooth pullout.

EMERGENCY SPEED REDUCTION

1. Throttle ..... IDLE
2. Landing Gear ..... DOWN

Airspeed - MONITOR

3. Throttle ..... AS REQUIRED
4. Landing Gear ..... AS REQUIRED

NOTE: If disorientation is possible, leave the landing gear down to reduce the tendency of subsequent speed buildups.

NOTE: Should the landing gear be used at speeds higher than the maximum extension speed, a special inspection of the gear doors in accordance with maintenance manual procedures is required, with repair as necessary.

LANDING GEAR MANUAL EXTENSION

1. Airspeed ..... 152 KIAS or less

NOTE: Manual extension of the gear can be facilitated by first reducing the airspeed as much as practical.

2. Landing Gear Motor CB ..... PULL
3. Landing Gear Handle ..... DOWN
4. Handcrank Handle Cover ..... REMOVE
5. Handcrank ..... ENGAGE and turn CCW (approx. 50 turns)

If the elecrical system is operative, a positive landing gear indication can be made as follows:

a. LDG GR WARN CB - CHECK IN

b. Landing GEAR DN & LOCKED LIGHTS - 3 GREEN

c. CHECK that the landing gear horn does not sound when the throttle is retarded to idle.

6. Handcrank ..... Disengage then stow
7. Landing Gear Handle ..... Do not move
8. Landing Gear Motor CB ..... Do not reset
9. Landing Gear ..... Consider unlocked

CAUTION: Do not operate the landing gear electrically with the handcrank engaged. Damage to the mechanism may occur.

CAUTION: The manual extension system is designed to LOWER the landing gear only. DO NOT ATTEMPT TO RETRACT THE LANDING GEAR MANUALLY

LANDING GEAR RETRACTION AFTER PRACTICE MANUAL EXTENSION

After practice manual extension, the landing gear can only be retracted electrically, as follows:

1. Handcrank ..... CONFIRM STOWED
2. Landing Gear Motor CB ..... CHECK IN
3. Landing Gear Handle ..... UP

AIRSPEEDS FOR SAFE OPERATIONS (3650 LBS)

All airspeeds quoted in this section are indicated airspeeds (IAS) and assume zero instrument error.

Maximum Demonstrated Crosswind Component	17 Kts
Rotation Speed (Flaps UP)	73 Kts
50-ft Speed (Flaps UP)	84 Kts
Rotation Speed (Flaps APH)	67 Kts
50-ft Speed (Flaps APH)	77 Kts
Vx	84 Kts
Vy	100 Kts
Cruise Climb	110 Kts
Turb. Air Penet.	141 Kts
Max with Door Removed	166 Kts
Landing Approach (Flaps DN)	79 Kts
Landing Approach (Flaps UP)	90 Kts
Balked Landing Climb	80 Kts

TAKE-OFF DISTANCE – FLAPS UP

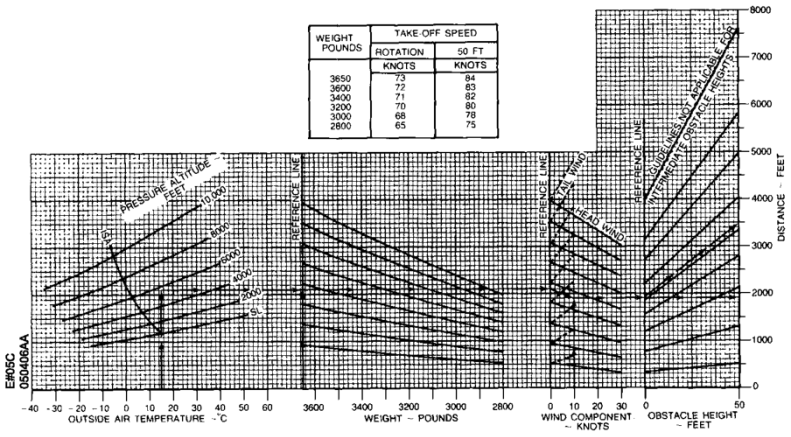
ASSOCIATED CONDITIONS:

POWER . . . . . TAKE-OFF POWER SET BEFORE BRAKE RELEASE
MIXTURE . . . . . AS REQUIRED BY FIELD ELEVATION
FLAPS . . . . . UP
LANDING GEAR . . . RETRACT AFTER POSITIVE CLIMB ESTABLISHED
COWL FLAPS . . . . OPEN
RUNWAY . . . . . PAVED, LEVEL, DRY SURFACE

EXAMPLE

OAT	15°C
PRESSURE ALTITUDE	5653 FT
TAKE-OFF WEIGHT	3650 LBS
HEAD WIND COMPONENT	10 KTS
GROUND ROLL	1900 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
	KNOTS	KNOTS
3650	73	84
3600	72	83
3400	71	82
3200	70	80
3000	68	78
2800	65	75



TAKE-OFF DISTANCE – FLAPS APPROACH

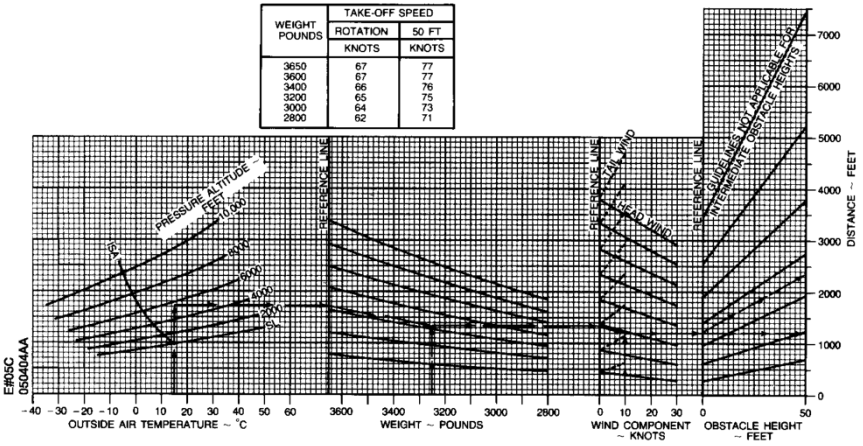
ASSOCIATED CONDITIONS:

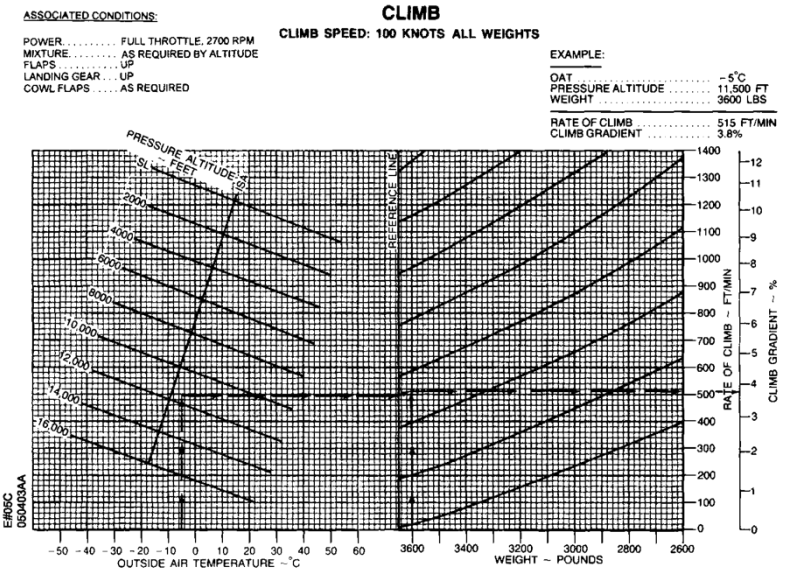
POWER.....TAKE-OFF POWER SET BEFORE BRAKE RELEASE
MIXTURE.....AS REQUIRED BY FIELD ELEVATION
FLAPS.....APPROACH (BLUE)
LANDING GEAR...RETRACT AFTER POSITIVE CLIMB ESTABLISHED
COWL FLAPS.....OPEN
RUNWAY.....PAVED, LEVEL, DRY SURFACE

EXAMPLE:

OAT	15°C
PRESSURE ALTITUDE	5653 FT
TAKE-OFF WEIGHT	3250 LBS
HEAD WIND COMPONENT	10 KTS
GROUND ROLL	1200 FT
TOTAL DISTANCE OVER 50-FT OBSTACLE	2350 FT
TAKE-OFF SPEED AT	
ROTATION	65 KTS
50 FT	75 KTS

WEIGHT POUNDS	TAKE-OFF SPEED	
	ROTATION	50 FT
	KNOTS	KNOTS
3650	67	77
3600	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..... AS REQUIRED BY ALTITUDE
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%
PRESSURE ALTITUDE ~ FEET
SL
2000
4000
6000
8000
10,000
12,000
14,000
16,000
REFERENCE LINE
RATE OF CLIMB ~ FT/MIN
CLIMB GRADIENT ~ %
E#05C
050403AA
-50 -40 -30 -20 -10 0 10 20 30 40 50 60
OUTSIDE AIR TEMPERATURE ~°C
3600 3400 3200 3000 2800 2600
WEIGHT ~ POUNDS

TIME, FUEL, AND DISTANCE TO CRUISE CLIMB

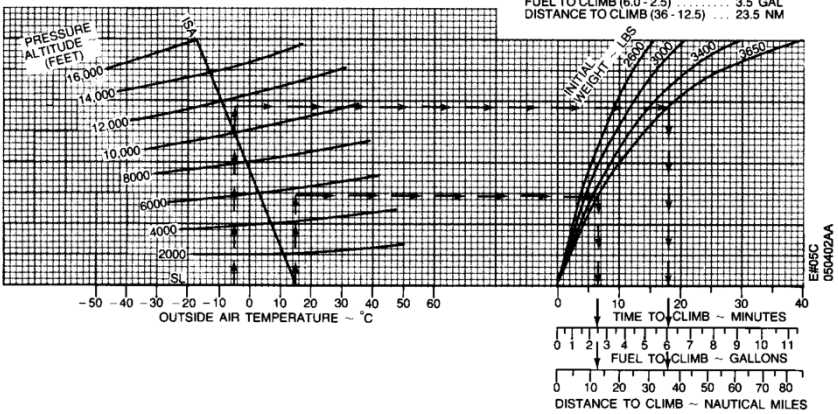
CLIMB SPEED: 110 KNOTS ALL WEIGHTS

ASSOCIATED CONDITIONS:

POWER . . . . . FULL THROTTLE, 2500 RPM
FUEL DENSITY. . 6.0 LBS/GAL
MIXTURE. . . . . AS REQUIRED BY ALTITUDE
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 - 6.5)	11.5 MIN
FUEL TO CLIMB (6.0 - 2.5)	3.5 GAL
DISTANCE TO CLIMB (36 - 12.5)	23.5 NM



MAXIMUM POWER CRUISE - 20° RICH - 25 IN.HG @2500RPM - 3400LBS

PRESS. ALT.	IOAT		MAN. PRESS.	FUEL FLOW/ ENGINE		AIRSPEED	
FEET	°C	°F	IN. HG	PPH	GPH	KIAS	KTAS
ISA - 20° C (ISA - 36°F)							
SL	-5	23	25.0	102.1	17.0	172	164
2000	-9	16	25.0	105.6	17.6	172	169
4000	-13	9	25.0	109.1	18.2	172	174
6000	-17	2	24.1	106.1	17.7	169	175
8000	-21	-6	22.3	97.7	16.3	162	173
10000	-25	-13	20.6	90.2	15.0	155	170
12000	-29	-20	19.1	83.5	13.9	147	167
14000	-33	-27	17.7	78.3	13.1	140	163
16000	-37	-34	16.3	73.1	12.2	131	158
STANDARD DAY (ISA)							
SL	15	59	25.0	98.1	16.4	167	165
2000	11	52	25.0	101.3	16.9	167	169
4000	7	45	25.0	104.6	17.4	167	175
6000	3	38	24.1	101.8	17.0	164	176
8000	-1	30	22.3	93.9	15.7	157	174
10000	-5	23	20.6	86.9	14.5	150	171
12000	-9	16	19.1	80.8	13.5	142	167
14000	-13	9	17.7	76.0	12.7	134	163
16000	-17	2	16.3	71.2	11.9	125	157
ISA + 20° C (ISA + 36°F)							
SL	35	95	25.0	94.1	15.7	163	166
2000	31	88	25.0	97.2	16.2	163	171
4000	27	81	25.0	100.3	16.7	162	176
6000	23	74	24.1	97.7	16.3	159	177
8000	19	66	22.3	90.3	15.1	152	174
10000	15	59	20.6	83.8	14.0	144	171
12000	11	52	19.1	78.1	13.0	137	167
14000	7	45	17.7	73.9	12.3	129	162
16000	3	38	16.3	69.8	11.6	119	155

RECOMMENDED CRUISE POWER - 20° LEAN - 25 IN.HG @2500RPM - 3400LBS

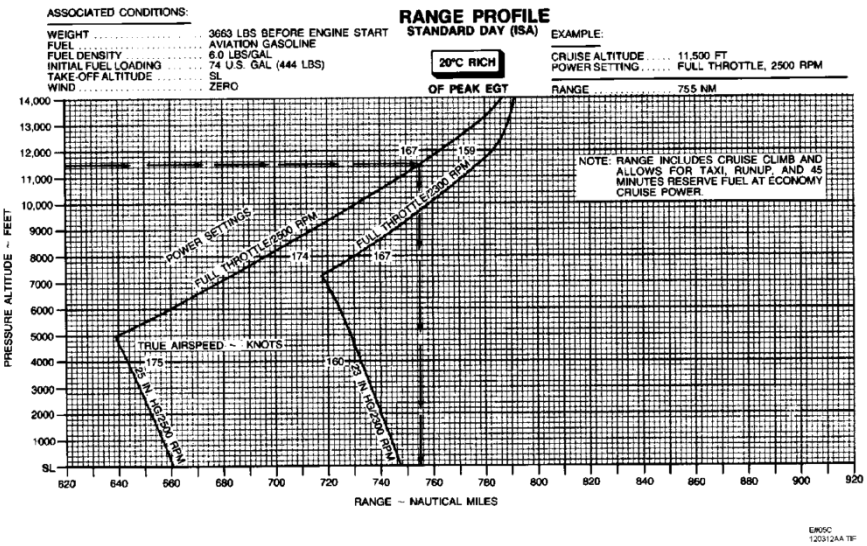
PRESS. ALT.	IOAT		MAN. PRESS.	FUEL FLOW/ ENGINE		AIRSPEED	
FEET	°C	°F	IN. HG	PPH	GPH	KIAS	KTAS
ISA - 20° C (ISA - 36°F)							
SL	-5	23	25.0	86.3	14.4	168	159
2000	-9	16	25.0	89.3	14.9	168	164
4000	-13	9	25.0	92.3	15.4	168	169
6000	-17	2	24.1	89.8	15.0	164	170
8000	-21	-6	22.3	82.6	13.8	157	168
10000	-25	-13	20.6	76.0	12.7	150	166
12000	-29	-20	19.1	70.2	11.7	143	162
14000	-33	-27	17.7	65.5	10.9	135	158
16000	-37	-34	16.3	60.8	10.1	126	155
STANDARD DAY (ISA)							
SL	15	59	25.0	82.9	13.8	163	160
2000	11	52	25.0	85.6	14.3	163	165
4000	7	45	25.0	88.5	14.8	163	170
6000	3	38	24.1	86.1	14.4	159	171
8000	-1	30	22.3	79.3	13.2	152	169
10000	-5	23	20.6	73.3	12.2	145	166
12000	-9	16	19.1	67.8	11.3	137	162
14000	-13	9	17.7	63.5	10.6	129	157
16000	-17	2	16.3	59.1	9.9	120	150
ISA + 20° C (ISA + 36°F)							
SL	35	95	25.0	79.5	13.3	158	166
2000	31	88	25.0	82.1	13.7	158	166
4000	27	81	25.0	84.7	14.1	158	171
6000	23	74	24.1	82.5	13.8	154	172
8000	19	66	22.3	76.2	12.7	147	174
10000	15	59	20.6	70.5	11.8	140	171
12000	11	52	19.1	65.5	10.9	132	167
14000	7	45	17.7	61.5	10.3	123	162
16000	3	38	16.3	57.5	9.6	113	146

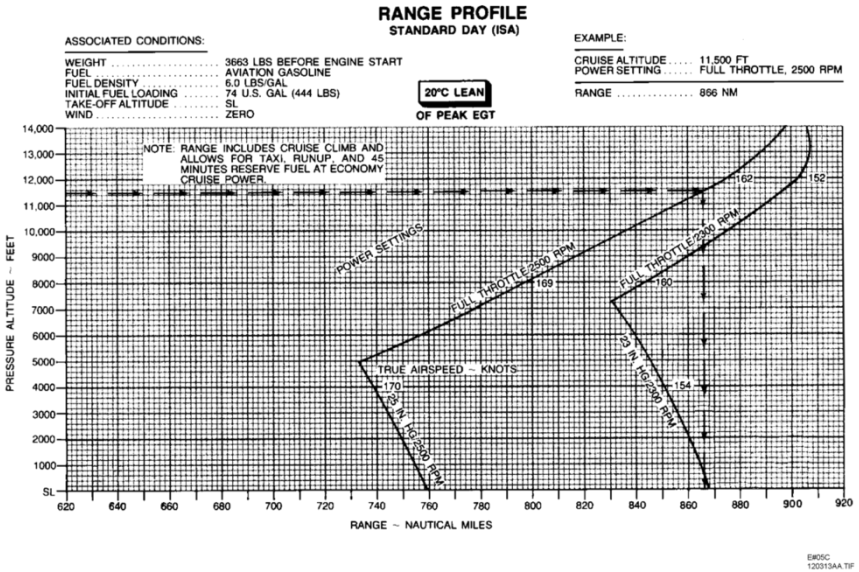
RECOMMENDED CRUISE POWER - 20° RICH - 23 IN.HG @2300RPM - 3400LBS

PRESS. ALT.	IOAT		MAN. PRESS.	FUEL FLOW/ ENGINE		AIRSPEED	
FEET	°C	°F	IN. HG	PPH	GPH	KIAS	KTAS
ISA - 20° C (ISA - 36°F)							
SL	-5	23	23.0	81.6	13.6	158	150
2000	-9	16	23.0	84.2	14.0	158	154
4000	-13	9	23.0	86.9	14.5	158	159
6000	-17	2	23.0	89.7	15.0	158	164
8000	-21	-6	22.4	89.0	14.8	156	166
10000	-25	-13	20.7	82.7	13.8	148	163
12000	-29	-20	19.2	77.1	12.9	141	160
14000	-33	-27	17.8	73.2	12.2	133	155
16000	-37	-34	16.4	69.2	11.5	124	150
STANDARD DAY (ISA)							
SL	15	59	23.0	79.0	13.2	153	150
2000	11	52	23.0	81.4	13.6	153	155
4000	7	45	23.0	83.9	14.0	153	160
6000	3	38	23.0	86.5	14.4	153	165
8000	-1	30	22.4	85.8	14.3	150	167
10000	-5	23	20.7	80.0	13.3	143	163
12000	-9	16	19.2	75.1	12.5	135	159
14000	-13	9	17.8	71.5	11.9	127	154
16000	-17	2	16.4	67.9	11.3	117	147
ISA + 20° C (ISA + 36°F)							
SL	35	95	23.0	76.5	12.8	148	151
2000	31	88	23.0	78.7	13.1	148	155
4000	27	81	23.0	81.0	13.5	148	160
6000	23	74	23.0	83.4	13.9	148	165
8000	19	66	22.4	82.8	13.8	145	167
10000	15	59	20.7	77.3	12.9	138	163
12000	11	52	19.2	73.0	12.2	130	158
14000	7	45	17.8	69.8	11.6	121	152
16000	3	38	16.4	66.6	11.1	109	142

RECOMMENDED CRUISE POWER - 20° LEAN - 23 IN.HG @2300RPM - 3400LBS

PRESS. ALT.	IOAT		MAN. PRESS.	FUEL FLOW/ ENGINE		AIRSPEED	
FEET	°C	°F	IN. HG	PPH	GPH	KIAS	KTAS
ISA - 20° C (ISA - 36°F)							
SL	-5	23	23.0	67.6	11.3	152	144
2000	-9	16	23.0	69.7	11.6	152	149
4000	-13	9	23.0	72.1	12.0	153	154
6000	-17	2	23.0	74.4	12.4	153	158
8000	-21	-6	22.4	73.8	12.3	150	160
10000	-25	-13	20.7	68.4	11.4	143	157
12000	-29	-20	19.2	63.8	10.6	135	153
14000	-33	-27	17.8	60.0	10.0	127	148
16000	-37	-34	16.4	56.3	9.4	117	141
STANDARD DAY (ISA)							
SL	15	59	23.0	65.4	10.9	147	145
2000	11	52	23.0	67.4	11.2	147	149
4000	7	45	23.0	69.4	11.6	148	154
6000	3	38	23.0	71.7	12.0	148	159
8000	-1	30	22.4	71.1	11.9	145	160
10000	-5	23	20.7	66.2	11.0	137	157
12000	-9	16	19.2	61.8	10.3	129	152
14000	-13	9	17.8	58.5	9.8	120	146
16000	-17	2	16.4	55.3	9.2	109	137
ISA + 20° C (ISA + 36°F)							
SL	35	95	23.0	63.2	10.5	142	145
2000	31	88	23.0	65.1	10.9	143	149
4000	27	81	23.0	67.1	11.2	143	154
6000	23	74	23.0	69.0	11.5	142	158
8000	19	66	22.4	68.5	11.4	140	160
10000	15	59	20.7	64.0	10.7	132	156
12000	11	52	19.2	60.0	10.0	123	151
14000	7	45	17.8	57.1	9.5	113	142
16000	--	--	--	--	--	--	--


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
RANGE PROFILE
STANDARD DAY (ISA)
20°C RICH
OF PEAK EGT
EXAMPLE:
CRUISE ALTITUDE ..... 11,500 FT
POWER SETTING ..... FULL THROTTLE, 2500 RPM
RANGE ..... 755 NM
NOTE: RANGE INCLUDES CRUISE CLIMB AND ALLOWS FOR TAXI, RUNUP, AND 45 MINUTES RESERVE FUEL AT ECONOMY CRUISE POWER.
POWER SETTINGS
FULL THROTTLE/2500 RPM
FULL THROTTLE/2300 RPM
TRUE AIRSPEED ~ KNOTS
175
174
167
167
159
160
153
PRESSURE ALTITUDE ~ FEET
14,000
13,000
12,000
11,000
10,000
9000
8000
7000
6000
5000
4000
3000
2000
1000
SL
820
640
660
680
700
720
740
760
780
800
820
840
860
880
900
920
RANGE ~ NAUTICAL MILES
E805C
120312AA.TIF


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
NOTE: RANGE INCLUDES CRUISE CLIMB AND ALLOWS FOR TAXI, RUNUP, AND 45 MINUTES RESERVE FUEL AT ECONOMY CRUISE POWER.
POWER SETTINGS
FULL THROTTLE/2500 RPM
FULL THROTTLE/2300 RPM
23 IN. HG/2500 RPM
23 IN. HG/2300 RPM
TRUE AIRSPEED ~ KNOTS
162
152
169
160
170
154
PRESSURE ALTITUDE ~ FEET
14,000
13,000
12,000
11,000
10,000
9000
8000
7000
6000
5000
4000
3000
2000
1000
SL
620
640
660
680
700
720
740
760
780
800
820
840
860
880
900
920
RANGE ~ NAUTICAL MILES
E#05C
120313AA.TIF

ENDURANCE PROFILE
STANDARD DAY (ISA)

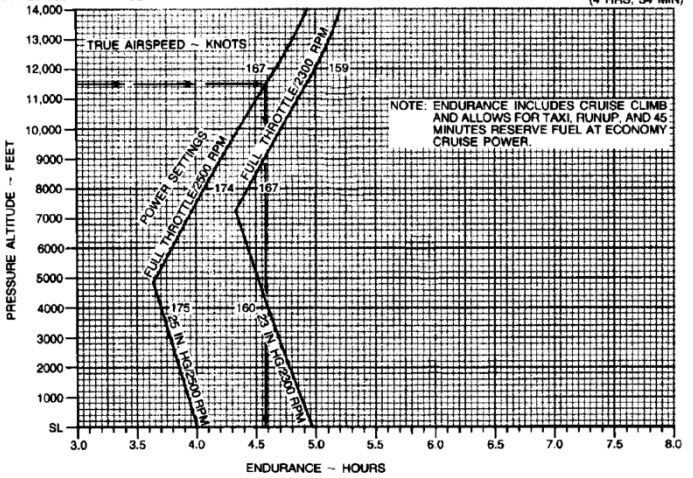
ASSOCIATED CONDITIONS:

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

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)

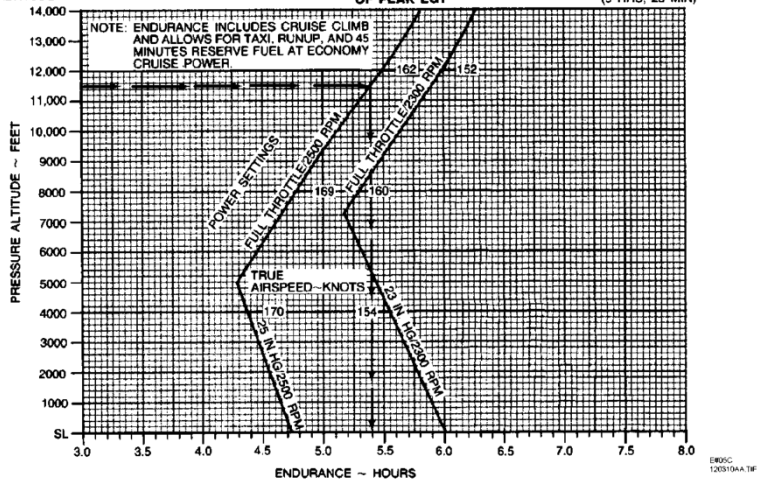
ASSOCIATED CONDITIONS:

WEIGHT	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

20°C LEAN OF PEAK EGT

EXAMPLE:

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



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

WEIGHT ~ POUNDS	SPEED AT 50 FT KNOTS
3650	79
3400	80
3200	81
3000	81
2800	78

EXAMPLE:

OAT	25°C
PRESSURE ALTITUDE	3965 FT
WEIGHT	3479 LBS
HEADWIND COMPONENT	10 KTS
GROUND ROLL	960 FT
TOTAL OVER 50-FT OBSTACLE	1515 FT
APPROACH SPEED	80 KTS

