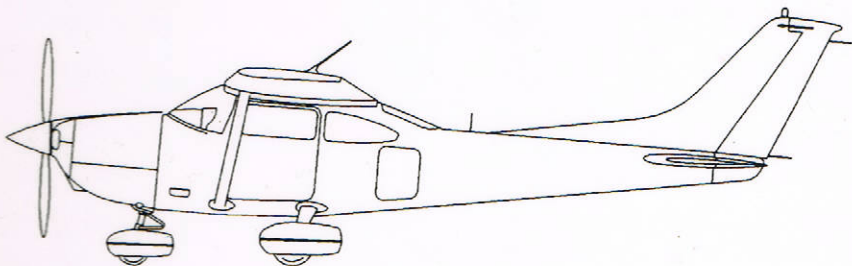


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## Pilot's Checklist



# Skylane

## Model 182S

THE PILOT'S CHECKLIST SHOULD NOT BE USED UNTIL THE FLIGHT CREW HAS BECOME COMPLETELY FAMILIAR WITH THE AIRPLANE AND SYSTEMS. ALL NORMAL AND EMERGENCY PROCEDURE ITEMS AND COMPLETE PERFORMANCE IN THE PILOT'S OPERATING HANDBOOK AND FAA APPROVED AIRPLANE FLIGHT MANUAL SHALL TAKE PRECEDENCE IN CASE OF CONFLICT.

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Wichita, Kansas USA

Original Issue - 3 Feb 1997  
Revision 2 - 15 November 2000

## REVISIONS

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### NOTE

**It is the responsibility of the owner to maintain this checklist in a current status when it is being used for operational purposes.**

Owners should contact their Cessna Service Station whenever the revision status of their checklist is in question.

A revision bar will extend the full length of new or revised text and/or illustrations added on new or presently existing pages. This bar will be located adjacent to the applicable revised area on the outer margin of the page. All revised pages will carry the date of the revision on the applicable page.

## LOG OF EFFECTIVE PAGES

The following Log provides a comprehensive list of every page which makes up the checklist. Pages which are affected by the current revision will carry the date of that revision.

### Revision Level

0 (Original)

1

2

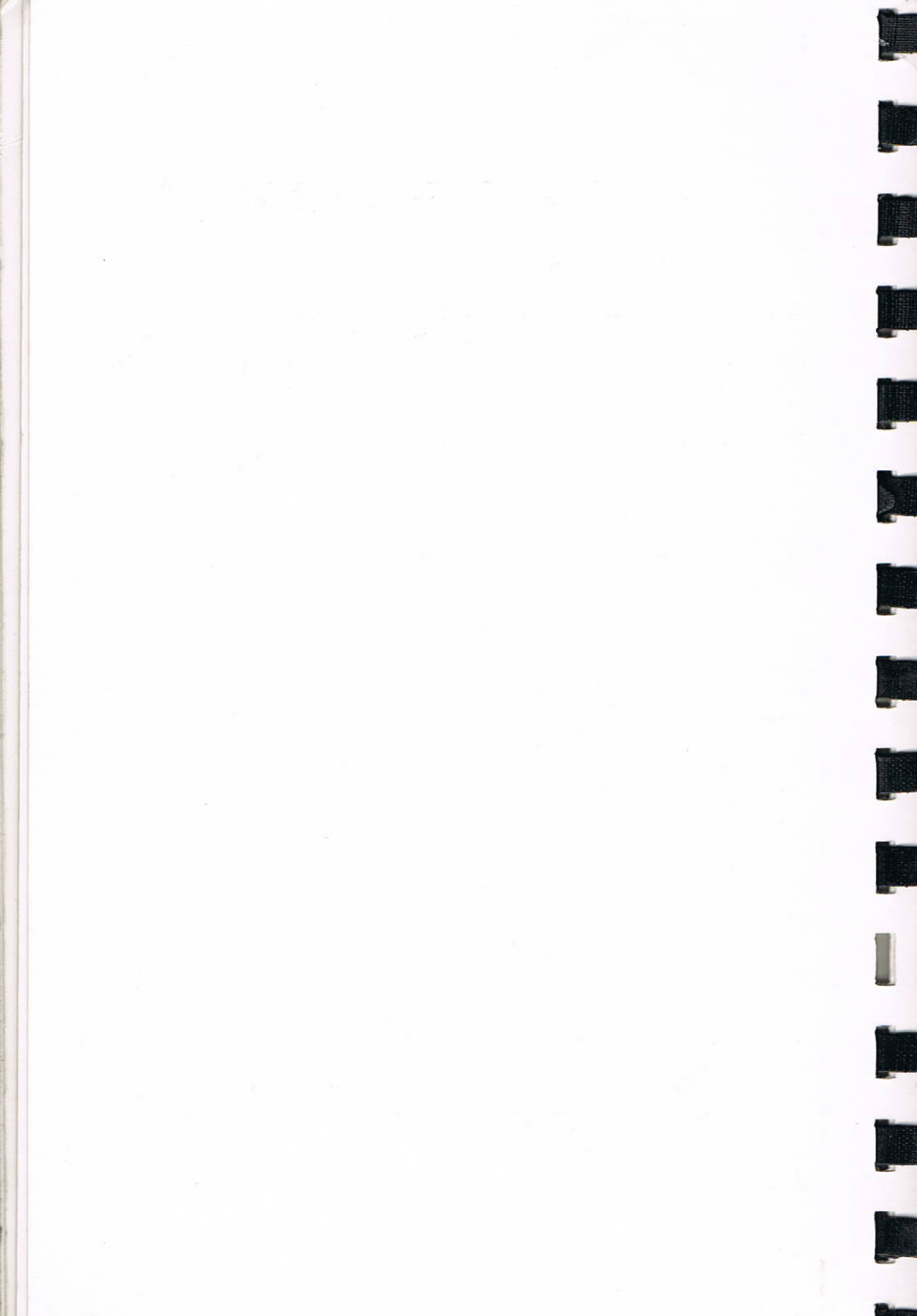
### Date

3 February 1997

1 December 1997

15 November 2000

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## NORMAL PROCEDURES

### AIRSPEEDS FOR NORMAL OPERATION

Unless otherwise noted, the following speeds are based on a maximum weight and may be used for any lesser weight. To achieve the performance specified in the Performance Section for takeoff distance, the speed appropriate to the particular weight must be used.

#### Takeoff:

Normal Climb Out	70-80 KIAS
Short Field Takeoff, Flaps 10°, Speed at 50 Feet	58 KIAS

#### Enroute Climb, Flaps Up:

Normal, Sea Level	85-95 KIAS
Best Rate-of-Climb, Sea Level	80 KIAS
Best Rate-of-Climb, 10,000 Feet	72 KIAS
Best Angle-of-Climb, Sea Level	63 KIAS
Best Angle-of-Climb, 10,000 Feet	66 KIAS

#### Landing Approach (2950 lbs.):

Normal Approach, Flaps Up	70-80 KIAS
Normal Approach, Flaps FULL	60-70 KIAS
Short Field Approach, Flaps FULL	60 KIAS

#### Balked Landing (2950 lbs.):

Maximum Power, Flaps 20°	55 KIAS
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#### Maximum Recommended Turbulent Air Penetration Speed:

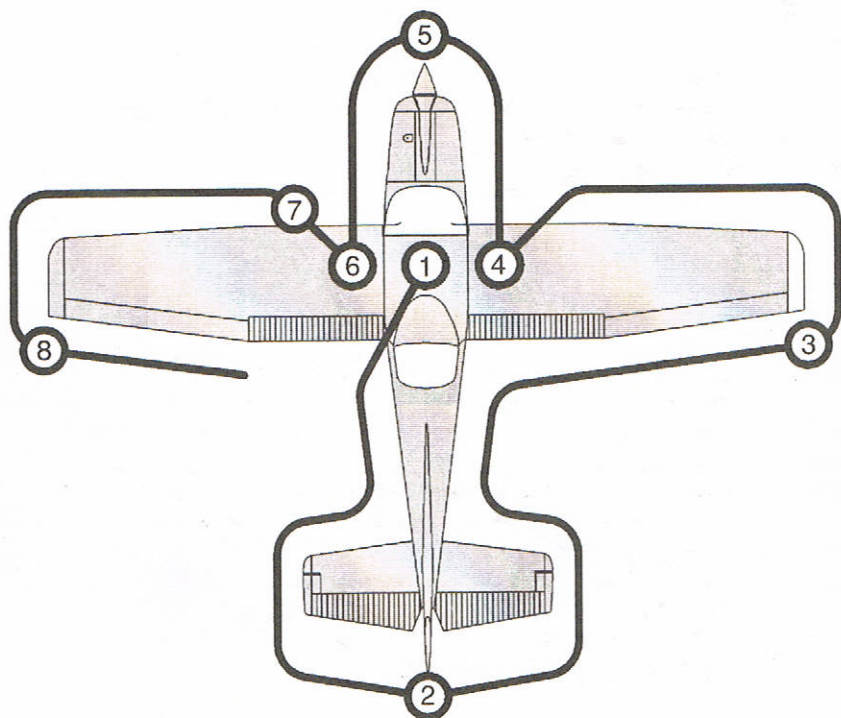
3100 Lbs	110 KIAS
2600 Lbs	101 KIAS
2000 Lbs	88 KIAS

#### Maximum Demonstrated Crosswind Velocity:

Takeoff or Landing	15 KNOTS
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All references to Sections throughout this checklist pertain to the appropriate Section of the Pilot's Operating Handbook.

## PREFLIGHT INSPECTION



## NOTE

- Visually check airplane for general condition during walk-around inspection. Airplane should be parked in a normal ground attitude (refer to Figure 1-1) to ensure that fuel drain valves allow for accurate sampling. Use of the refueling steps and assist handles will simplify access to the upper wing surfaces for visual checks and refueling operations. In cold weather, remove even small accumulations of frost, ice or snow from wing, tail and control surfaces. Also, make sure that control surfaces contain no internal accumulations of ice or debris. If a night flight is planned, check operation of all lights, and make sure a flashlight is available.

(Continued)

**PREFLIGHT INSPECTION (Continued)****① CABIN**

1. Pitot Tube cover -- REMOVE. Check for pitot stoppage.
2. Pilot's Operating Handbook -- AVAILABLE IN AIRPLANE.
3. Airplane Weight and Balance -- CHECKED.
4. Parking Brake -- SET.
5. Control Wheel Lock -- REMOVE.
6. Ignition Switch -- OFF.
7. Avionics Master Switch -- OFF..

**WARNING**

**WHEN TURNING ON THE MASTER SWITCH, USING AN EXTERNAL POWER SOURCE, OR PULLING THE PROPELLER THROUGH BY HAND, TREAT THE PROPELLER AS IF THE IGNITION SWITCH WERE ON. DO NOT STAND, NOR ALLOW ANYONE ELSE TO STAND, WITHIN THE ARC OF THE PROPELLER, SINCE A LOOSE OR BROKEN WIRE OR A COMPONENT MALFUNCTION COULD CAUSE THE PROPELLER TO ROTATE.**

8. Master Switch -- ON
9. Fuel Quantity Indicators -- CHECK QUANTITY and ENSURE LOW FUEL ANNUNCIATORS (L LOW FUEL R) are EXTINGUISHED.
10. Avionics Master Switch -- ON.
11. Avionics Cooling Fan -- CHECK AUDIBLY FOR OPERATION.
12. Avionics Master Switch -- OFF.
13. Static Pressure Alternate Source Valve -- OFF.
14. Annunciator Panel Switch -- PLACE AND HOLD IN TST POSITION and ensure all annunciators illuminate.

(Continued)

## PREFLIGHT INSPECTION (Continued)

15. Annunciator Panel Test Switch -- RELEASE. Check that appropriate annunciators remain on.

### NOTE

When Master Switch is turned ON, some annunciators will flash for approximately 10 seconds before illuminating steadily. When panel TST switch is toggled up and held in position, all remaining lights will flash until the switch is released.

16. Fuel Selector Valve -- BOTH.
17. Flaps -- EXTEND.
18. Pitot Heat -- ON. (Carefully check pitot tube is warm to the touch within 30 seconds).
19. Pitot Heat -- OFF.
20. Master Switch -- OFF.
21. Baggage Door -- CHECK, lock with key.

**2**

### EMPENNAGE

1. Rudder Gust Lock (if installed) -- REMOVE.
2. Tail Tie-Down -- DISCONNECT.
3. Control Surfaces -- CHECK freedom of movement and security.
4. Trim Tab -- CHECK security.
5. Antennas -- CHECK for security of attachment and general condition.

**3**

### RIGHT WING Trailing Edge

1. Flap -- CHECK for security and condition.
2. Aileron -- CHECK freedom of movement and security.

**4**

### RIGHT WING

1. Wing Tie-Down -- DISCONNECT.
2. Fuel Tank Vent Opening -- CHECK for stoppage.
3. Main Wheel Tire -- CHECK for proper inflation and general condition (weather checks, tread depth and wear, etc...).

(Continued)



**PREFLIGHT INSPECTION (Continued)**

4. Fuel Tank Sump Quick Drain Valves -- DRAIN at least a cupful of fuel (using sampler cup) from each sump location to check for water, sediment, and proper fuel grade before each flight and after each refueling. If water is observed, take further samples until clear and then gently rock wings and lower tail to the ground to move any additional contaminants to the sampling points. Take repeated samples from all fuel drain points until all contamination has been removed. If contaminants are still present, refer to WARNING below and do not fly airplane.

**WARNING**

**IF, AFTER REPEATED SAMPLING, EVIDENCE OF CONTAMINATION STILL EXISTS, THE AIRPLANE SHOULD NOT BE FLOWN. TANKS SHOULD BE DRAINED AND SYSTEM PURGED BY QUALIFIED MAINTENANCE PERSONNEL. ALL EVIDENCE OF CONTAMINATION MUST BE REMOVED BEFORE FURTHER FLIGHT.**

5. Fuel Quantity -- CHECK VISUALLY for desired level.
6. Fuel Filler Cap -- SECURE and VENT UNOBSTRUCTED.

**5****NOSE**

1. Static source Opening (right side of fuselage) -- CHECK for blockage.
2. Fuel Strainer Quick Drain Valve (Located on bottom of fuselage) -- DRAIN at least a cupful of fuel (using sampler cup) from valve to check for water, sediment, and proper fuel grade before each flight and after each refueling. If water is observed, take further samples until clear and then gently rock wings and lower tail to the ground to move any additional contaminants to the sampling points. Take repeated samples from all fuel drain points, including the fuel selector, until all contamination has been removed. If contaminants are still present, refer to WARNING above and do not fly airplane.

(Continued)

**PREFLIGHT INSPECTION (Continued)**

3. Engine Oil Dipstick/Filler Cap -- CHECK oil level, then check dipstick/filler cap SECURE. Do not operate with less than four quarts. Fill to eight quarts for extended flight.
4. Engine Cooling Air Inlets -- CLEAR of obstructions.
5. Propeller and Spinner -- CHECK for nicks and security.
6. Air Filter -- CHECK for restrictions by dust or other foreign matter.
7. Nose Wheel Strut and Tire -- CHECK for proper inflation of strut and general condition (weather checks, tread depth and wear, etc....) of tire.
8. Static Source Opening (left side of fuselage) -- CHECK for blockage.

(Continued)

**PREFLIGHT INSPECTION (Continued)****6 LEFT WING**

1. Fuel Quantity -- CHECK VISUALLY for desired level.
2. Fuel Filler Cap -- SECURE and VENT UNOBSTRUCTED.
3. Fuel Tank Sump Quick Drain Valves -- DRAIN at least a cupful of fuel (using sampler cup) from each sump location to check for water, sediment, and proper fuel grade before each flight and after each refueling. If water is observed, take further samples until clear and then gently rock wings and lower tail to the ground to move any additional contaminants to the sampling points. Take repeated samples from all fuel drain points until all contamination has been removed. If contaminants are still present, refer to WARNING on page N-5 and do not fly airplane.
4. Main Wheel Tire -- CHECK for proper inflation and general condition (weather checks, tread depth and wear, etc...).

**7 LEFT WING Leading Edge**

1. Pitot Tube cover -- REMOVE and check opening for stoppage.
2. Fuel Tank Vent Opening -- CHECK for stoppage.
3. Stall Warning Vane -- CHECK for freedom of movement. To check the system, place the vane upward; a sound from the warning horn with the Master Switch on will confirm system operation.
4. Wing Tie-Down -- DISCONNECT.
5. Landing/Taxi Light(s) -- CHECK for condition and cleanliness of cover.

(Continued)

**PREFLIGHT INSPECTION (Continued)****8 LEFT WING Trailing Edge**

1. Aileron-- CHECK for freedom of movement and security.
2. Flap -- CHECK for security and condition.

**BEFORE STARTING ENGINE**

1. Preflight Inspection -- COMPLETE.
2. Passenger Briefing -- COMPLETE.
3. Seats, Seat Belts, Shoulder Harnesses -- ADJUST and LOCK.  
Ensure inertial reel locking.
4. Brakes -- TEST and SET.
5. Circuit Breakers -- CHECK IN.
6. Electrical Equipment -- OFF.

**CAUTION**

**THE AVIONICS MASTER SWITCH MUST BE OFF DURING ENGINE START TO PREVENT POSSIBLE DAMAGE TO AVIONICS.**

7. Avionics Master Switch -- OFF.
8. Autopilot (if installed ) -- OFF.
9. Cowl Flaps -- OPEN.
10. Fuel Selector Valve -- BOTH.
11. Avionics Circuit Breakers -- CHECK IN.

(Continued)

**STARTING ENGINE (With Battery)**

1. Throttle -- OPEN 1/4 INCH.
2. Propeller -- HIGH RPM.
3. Mixture -- IDLE CUT OFF.
4. Propeller Area -- CLEAR.
5. Master Switch -- ON.
6. Auxiliary Fuel Pump Switch -- ON.
7. Mixture -- ADVANCE until fuel flow just starts to rise, then return to IDLE CUT OFF position.
8. Auxiliary Fuel Pump -- OFF.

**NOTE**

If engine is warm, omit priming procedure of steps 6, 7 and 8 above.

9. Ignition Switch -- START (release when engine starts).
10. Mixture -- ADVANCE smoothly to RICH when engine fires.

**NOTE**

If engine floods, place mixture in idle cut off, open throttle 1/2 to full, and crank engine. When engine fires, advance mixture to full rich and retard throttle promptly.

11. Oil Pressure -- CHECK.
12. Flashing Beacon and Navigation Lights -- ON as required.
13. Avionics Master Switch -- ON.
14. Radios -- ON.
15. Flaps -- RETRACT.

(Continued)

## STARTING ENGINE (With External Power)

1. Throttle -- OPEN 1/4 INCH.
2. Propeller -- HIGH RPM.
3. Mixture -- IDLE CUT OFF.
4. Propeller Area -- CLEAR.
5. External Power -- CONNECT to airplane receptacle.
6. Master Switch -- ON.
7. Auxiliary Fuel Pump Switch -- ON.
8. Mixture -- ADVANCE until fuel flow just starts to rise, then return to IDLE CUT OFF position.
9. Auxiliary Fuel Pump -- OFF.

### NOTE

If engine is warm, omit priming procedure of steps 7, 8 and 9 above.

10. Ignition Switch -- START (release when engine starts).
11. Mixture -- ADVANCE smoothly to RICH when engine fires.

### NOTE

If engine floods, place mixture in idle cut off, open throttle 1/2 to full, and crank engine. When engine fires, advance mixture to full rich and retard throttle promptly.

12. Oil Pressure -- CHECK.
13. External Power -- DISCONNECT from airplane receptacle.
14. Flashing Beacon and Navigation Lights -- ON as required.
15. Avionics Master Switch -- ON.
16. Radios -- ON.
17. Flaps -- RETRACT.

## BEFORE TAKEOFF

1. Parking Brake -- SET.
2. Passenger Seat Backs -- MOST UPRIGHT POSITION.
3. Seats and Seat Belts -- CHECK SECURE.
4. Cabin Doors -- CLOSED and LOCKED.

(Continued)

**BEFORE TAKEOFF (Continued)**

5. Flight Controls -- FREE and CORRECT. *ELECT. TRIM CHECK*
6. Flight Instruments -- CHECK and SET.
7. Fuel Quantity -- CHECK. *H/P CHECK*
8. Mixture -- RICH.
9. Fuel Selector Valve -- RECHECK BOTH.
10. Elevator Trim and Rudder Trim -- SET for takeoff.
11. Throttle -- 1800 RPM.
  - a. Magnetos -- CHECK (RPM drop should not exceed 150 RPM on either magneto or 50 RPM differential between magnetos).
  - b. Propeller -- CYCLE from high to low RPM; return to high RPM (full in).
  - c. Vacuum Gauge -- CHECK.
  - d. Engine Instruments and Ammeter -- CHECK.
12. Annunciator Panel -- Ensure no annunciators are illuminated.
13. Throttle -- 800-1000 RPM.
14. Throttle Friction Lock -- ADJUST.
15. Strobe Lights -- AS DESIRED.
16. Radios and Avionics -- SET.
17. NAV/GPS/HSI Switch (if installed) -- SET.
18. Autopilot (if installed) -- OFF.
19. Wing Flaps -- SET for takeoff (0° TO 20°).
20. Cowl Flaps -- OPEN. *TRANSPONDER ON! ALI.*
21. Brakes -- RELEASE.

**TAKEOFF****NORMAL TAKEOFF**

1. Wing Flaps -- 0°-20°.
2. Power -- FULL THROTTLE and 2400 RPM.
3. Mixture -- RICH (mixture may be leaned to Maximum Power Fuel Flow placard value).
4. Elevator Control -- LIFT NOSE WHEEL (at 50-60 KIAS).
5. Climb Speed -- 70 KIAS (flaps 20°).  
80 KIAS (flaps 0°).
6. Wing Flaps -- RETRACT.

(Continued)

## TAKEOFF (Continued)

### SHORT FIELD TAKEOFF

1. Wing Flaps -- 20°.
2. Brakes -- APPLY.
3. Power -- FULL THROTTLE and 2400 RPM.
4. Mixture -- lean to obtain Maximum Power Fuel Flow placard value).
5. Brakes -- RELEASE.
6. Elevator Control -- MAINTAIN SLIGHTLY TAIL LOW ATTITUDE.
7. Climb Speed -- 58 KIAS (until all obstacles are cleared).
8. Wing Flaps -- RETRACT slowly after reaching 70 KIAS.

## ENROUTE CLIMB

### NORMAL CLIMB

1. Airspeed -- 85-95 KIAS.
2. Power -- 23 in. Hg or FULL THROTTLE (whichever is less) and 2400 RPM.
3. Mixture -- 15 GPH or FULL RICH (whichever is less).
4. Cowl Flaps -- OPEN as required.
5. Fuel Selector Valve -- BOTH.

### MAXIMUM PERFORMANCE CLIMB

1. Airspeed -- 80 KIAS at sea level to 72 KIAS at 10,000 feet. (Refer to Section 5).
2. Power -- FULL THROTTLE and 2400 RPM.
3. MIXTURE -- LEAN in accordance with Maximum Power Fuel Flow placard value.
4. Cowl Flaps -- OPEN.
5. Fuel Selector Valve -- BOTH.

(Continued)



## CRUISE

1. Power -- 15-23 in. Hg, 2000-2400 RPM (no more than 80%).
2. Elevator and Rudder Trim- ADJUST.
3. Mixture -- LEAN.
4. Cowl Flaps -- CLOSED.

## DESCENT

1. Power -- AS DESIRED.
2. Mixture -- ENRICHEN as required.
3. Dowl Flaps -- CLOSED.
4. Fuel Selector Valve -- BOTH.
5. NAV/GPS/HSI Switch (if installed) -- SET.
6. Wing Flaps -- AS DESIRED (0°-10° below 140 KIAS; 10°-20° below 120 KIAS; 20°-FULL below 100 KIAS).

## BEFORE LANDING

1. Pilot and Passenger Seat Backs -- MOST UPRIGHT POSITION.
2. Seats and Seat Belts -- SECURED and LOCKED.
3. Fuel Selector Valve -- BOTH.
4. Mixture -- RICH.
5. Propeller -- HIGH RPM.
6. Landing Taxi Lights -- ON.
7. Autopilot (if installed) -- OFF.

## LANDING

### NORMAL LANDING

1. Airspeed -- 70-80 KIAS (flaps UP).
2. Wing Flaps -- AS DESIRED (0°-10° below 140 KIAS; 10°-20° below 120 KIAS; 20°-FULL below 100 KIAS).
3. Airspeed -- 60-70 KIAS (flaps FULL).
4. Power -- REDUCE to idle as obstacle is cleared.
5. Trim -- ADJUST as desired.
6. Touchdown -- MAIN WHEELS FIRST.
7. Landing Roll -- LOWER NOSE WHEEL GENTLY.
8. Braking -- MINIMUM REQUIRED.

**SHORT FIELD LANDING**

1. Airspeed -- 70-80 KIAS (flaps UP).
2. Wing Flaps -- FULL (below 100 KIAS).
3. Airspeed -- 60 KIAS (until flare).
4. Trim -- ADJUST as desired.
5. Touchdown -- MAIN WHEELS FIRST.
6. Brakes -- APPLY HEAVILY.
7. Wing Flaps -- RETRACT for maximum brake effectiveness.

**BALKED LANDING**

1. Power -- FULL THROTTLE and 2400 RPM.
2. Wing Flaps -- RETRACT TO 20°.
3. Climb Speed -- 55 KIAS.
4. Wing Flaps -- RETRACT slowly after reaching a safe altitude and 70 KIAS
5. Cowl Flaps -- OPEN.

**AFTER LANDING**

1. Wing Flaps -- UP.
2. Cowl Flaps -- OPEN.

TRANSPONDER -- OFF.  
STANBY

**SECURING AIRPLANE**

1. Parking Brake -- SET.
2. Throttle -- IDLE.
3. Electrical Equipment, Avionics Master Switch, Autopilot (if installed) -- OFF.
4. Mixture -- IDLE CUT OFF (pulled full out).
5. Ignition Switch -- OFF.
6. Master Switch -- OFF.
7. Control Lock -- INSTALL.
8. Fuel Selector Valve -- LEFT or RIGHT to prevent cross feeding.

AIRSPEDS FOR EMERGENCY OPERATION  
ENGINE FAILURES  
ENGINE FAILURES DURING TAKEOFF ROLL  
ENGINE FAILURES IMMEDIATELY AFTER TAKEOFF  
ENGINE FAILURE DURING FLIGHT (Restart Procedures)

FORCED LANDINGS  
EMERGENCY LANDING WITHOUT ENGINE POWER  
PRECAUTIONARY LANDING WITH ENGINE POWER  
DITCHING

FIRES  
DURING START ON GROUND  
ENGINE FIRE IN FLIGHT  
ELECTRICAL FIRE IN AIRPLANE

FIRES  
CABIN FIRE  
WING FIRE  
ICING  
INADVERTENT ICING ENCOUNTER

STATIC SOURCE BLOCKAGE  
(Erroneous Instrument Reading Suspected)  
LANDING WITH A FLAT MAIN TIRE  
LANDING WITH A FLAT NOSE TIRE  
ELECTRICAL POWER SUPPLY SYSTEM MALFUNCTIONS

VACUUM SYSTEM FAILURE

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# EMERGENCY PROCEDURES

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**AIRSPEEDS FOR EMERGENCY OPERATION**

## Engine Failure After Takeoff:

Wing Flaps Up .....	75 KIAS
Wing Flaps Down .....	70 KIAS

## Maneuvering Speed:

3100 Lbs .....	110 KIAS
2600 Lbs .....	101 KIAS
2000 Lbs .....	88 KIAS

## Maximum Glide:

3100 Lbs .....	75 KIAS
2600 Lbs .....	70 KIAS
2000 Lbs .....	62 KIAS

Precautionary Landing With Engine Power .....

70 KIAS

## Landing Without Engine Power:

Wing Flaps Up .....	75 KIAS
Wing Flaps Down .....	70 KIAS

Procedures in the following checklists shown in **bold-faced** type are immediate-action items which should be committed to memory.

## ENGINE FAILURES

### ENGINE FAILURE DURING TAKEOFF ROLL

1. **Throttle -- IDLE.**
2. **Brakes-- APPLY.**
3. Wing Flaps -- RETRACT.
4. Mixture -- IDLE CUT OFF.
5. Ignition Switch -- OFF.
6. Master Switch -- OFF.

### ENGINE FAILURE IMMEDIATELY AFTER TAKEOFF

1. **Airspeed -- 75 KIAS (flaps UP).  
70 KIAS (flaps DOWN).**
2. Mixture -- IDLE CUT OFF.
3. Fuel Selector Valve -- PUSH DOWN and ROTATE TO OFF.
4. Ignition Switch -- OFF.
5. Wing Flaps -- AS REQUIRED (FULL recommended).
6. Master Switch -- OFF.
7. Cabin Door -- UNLATCH.
8. Land -- STRAIGHT AHEAD.

### ENGINE FAILURE DURING FLIGHT (Restart Procedures)

1. **Airspeed -- 75 KIAS (Best glide speed).**
2. **Fuel Selector Valve -- BOTH.**
3. **Auxiliary Fuel Pump Switch -- ON.**
4. **Mixture -- RICH (if restart has not occurred).**
5. Ignition Switch -- BOTH (or START if propeller is stopped).

## **FORCED LANDINGS**

### **EMERGENCY LANDING WITHOUT ENGINE POWER**

1. Passenger Seat Backs -- MOST UPRIGHT POSITION.
2. Seats and Seat Belts -- SECURE.
3. Airspeed -- 75 KIAS (flaps UP).  
70 KIAS (flaps DOWN).
4. Mixture -- IDLE CUT OFF.
5. Fuel Selector Valve -- PUSH DOWN and ROTATE TO OFF.
6. Ignition Switch -- OFF.
7. Wing Flaps -- AS REQUIRED (FULL recommended).
8. Master Switch -- OFF (when landing is assured).
9. Doors -- UNLATCH PRIOR TO TOUCHDOWN.
10. Touchdown -- SLIGHTLY TAIL LOW.
11. Brakes -- APPLY HEAVILY.

### **PRECAUTIONARY LANDING WITH ENGINE POWER**

1. Passenger Seat Backs -- MOST UPRIGHT POSITION.
2. Seats and Seat Belts -- SECURE.
3. Airspeed -- 75 KIAS.
4. Wing Flaps --20°.
5. Selected Field -- FLY OVER, noting terrain and obstructions, then retract flaps upon reaching a safe altitude and airspeed.
6. Avionics Power Switch and Electrical Switches -- OFF.
7. Wing Flaps -- FULL (on final approach).
8. Airspeed -- 70 KIAS.
9. Master Switch -- OFF.
10. Doors -- UNLATCH PRIOR TO TOUCHDOWN.
11. Touchdown -- SLIGHTLY TAIL LOW.
12. Ignition Switch -- OFF.
13. Brakes -- APPLY HEAVILY.

(Continued)

**FORCED LANDINGS (Continued)****DITCHING**

1. Radio -- TRANSMIT MAYDAY on 121.5 MHz, giving location and intentions and SQUAWK 7700.
2. Heavy Objects (in baggage area) -- SECURE OR JETTISON (if possible).
3. Passenger Seat Backs -- MOST UPRIGHT POSITION.
4. Seats and Seat Belts -- SECURE.
5. Wing Flaps -- 20° to FULL.
6. Power -- ESTABLISH 300 FT/MIN DESCENT AT 65 KIAS.

**NOTE**

If no power is available, approach at 70 KIAS with flaps up or at 65 KIAS with 10° flaps.

7. Approach -- High Winds, Heavy Seas -- INTO THE WIND.  
Light Winds, Heavy Swells -- PARALLEL TO SWELLS.
8. Cabin Doors -- UNLATCH.
9. Touchdown -- LEVEL ATTITUDE AT ESTABLISHED RATE OF DESCENT.
10. Face -- CUSHION at touchdown with folded coat.
11. ELT -- Activate.
12. Airplane -- EVACUATE through cabin doors. If necessary, open window and flood cabin to equalize pressure so doors can be opened.
13. Life Vests and Raft -- INFLATE WHEN CLEAR OF AIRPLANE.

## FIRES

### DURING START ON GROUND

1. **Cranking -- CONTINUE** to get a start which would suck the flames and accumulated fuel into the engine.

If engine starts:

2. Power -- 1700 RPM for a few minutes.
3. Engine -- SHUTDOWN and inspect for damage.

If engine fails to start:

4. **Throttle -- FULL OPEN.**
5. **Mixture -- IDLE CUT OFF.**
6. **Cranking -- CONTINUE.**
7. **Fuel Selector Valve -- PUSH DOWN and ROTATE TO OFF.**
8. **Auxiliary Fuel Pump Switch -- OFF.**
9. Fire Extinguisher -- OBTAIN (have ground attendants obtain if not installed).
10. Engine -- SECURE.
  - a. Master Switch -- OFF.
  - b. Ignition Switch -- OFF
11. Parking Brake -- RELEASE.
12. Airplane -- EVACUATE.
13. Fire -- EXTINGUISH using fire extinguisher, wool blanket, or dirt.
14. Fire Damage -- INSPECT, repair damage or replace damaged components or wiring before conducting another flight.

### ENGINE FIRE IN FLIGHT

1. **Mixture -- IDLE CUT OFF.**
2. **Fuel Selector Valve -- PUSH DOWN and ROTATE TO OFF.**
3. **Auxiliary Fuel Pump Switch -- OFF.**
4. **Master Switch -- OFF.**
5. Cabin Heat and Air -- OFF (except overhead vents).
6. Airspeed -- 100 KIAS (If fire is not extinguished, increase glide speed to find an airspeed - within airspeed limitations - which will provide an incombustible mixture).
7. Forced Landing -- EXECUTE (as described in Emergency Landing Without Engine Power).

(Continued)



## FIRES (Continued)

### ELECTRICAL FIRE IN FLIGHT

1. Master Switch -- OFF.
2. Vents, Cabin Air, Heat -- CLOSED.
3. Fire Extinguisher -- ACTIVATE (if available).
4. Avionics Power Switch -- OFF.
5. All Other Switches (except ignition switch) -- OFF.



### WARNING

**AFTER DISCHARGING FIRE  
EXTINGUISHER AND ASCERTAINING THAT  
THE FIRE HAS BEEN EXTINGUISHED,  
VENTILATE THE CABIN.**

6. Vents/Cabin Air/Heat -- OPEN when it is ascertained that fire is completely extinguished.

If fire has been extinguished and electrical power is necessary for continuance of flight to nearest suitable airport or landing area:

7. Master Switch -- ON.
8. Circuit Breakers -- CHECK for faulty circuit, do not reset.
9. Radio Switches -- OFF.
10. Avionics Power Switch -- ON.
11. Radio/Electrical Switches -- ON one at a time, with delay after each until short circuit is localized.

(Continued)

## FIRES (Continued)

### CABIN FIRE

1. Master Switch -- OFF.
2. Vents/Cabin Air/Heat -- CLOSED (to avoid drafts).
3. Fire Extinguisher -- ACTIVATE (if available).



### WARNING

AFTER DISCHARGING FIRE  
EXTINGUISHER AND ASCERTAINING THAT  
FIRE HAS BEEN EXTINGUISHED,  
VENTILATE THE CABIN.

4. Vents/Cabin Air/ Heat -- Open when it is ascertained that fire is completely extinguished.
5. Land the airplane as soon as possible to inspect for damage.

### WING FIRE

1. Landing/Taxi Light Switches -- OFF.
2. Navigation Light Switch -- OFF.
3. Strobe Light Switch -- OFF.
4. Pitot Heat Switch -- OFF.

### NOTE

Perform a sideslip to keep the flames away from the fuel tank and cabin. Land as soon as possible using flaps only as required for final approach and touchdown.

## ICING

### INADVERTENT ICING ENCOUNTER

1. Turn pitot heat switch ON.
2. Turn back or change altitude to obtain an outside air temperature that is less conducive to icing.
3. Pull cabin heat control full out and rotate defroster control clockwise to obtain maximum defroster airflow.
4. Increase engine speed to minimize ice build-up on propeller blades.
5. Watch for signs of induction air filter icing. An unexplained loss of manifold pressure could be caused by ice blocking the air intake filter. Adjust the throttle as desired to set manifold pressure. Adjust mixture, as required, for any change in power settings.
6. Plan a landing at the nearest airport. With an extremely rapid ice build up, select a suitable "off airport" landing site.
7. With an ice accumulation of 1/4 inch or more on the wing leading edges, be prepared for significantly higher stall speed.
8. Leave wing flaps retracted. With a severe ice build up on the horizontal tail, the change in wing wake airflow direction caused by wing flap extension could result in a loss of elevator effectiveness.
9. Open left window and, if practical, scrape ice from a portion of the windshield for visibility in the landing approach.
10. Perform a landing approach using a forward slip, if necessary, for improved visibility.
11. Approach at 80 to 90 KIAS depending upon the amount of the accumulation.
12. Perform a landing in level attitude.

## **STATIC SOURCE BLOCKAGE (Erroneous Instrument Reading Suspected)**

1. **Static Pressure Alternate Source Valve -- PULL ON.**
2. Airspeed -- Consult appropriate calibration table in Section 5.
3. Altitude -- Consult altimeter correction table in Section 5.

## **LANDING WITH A FLAT MAIN TIRE**

1. Approach -- NORMAL.
2. Wing Flaps -- FULL DOWN.
3. Touchdown -- GOOD MAIN TIRE FIRST, hold airplane off flat tire as long as possible with aileron control.
4. Directional Control -- Maintain using brake on good wheel as required.

## **LANDING WITH A FLAT NOSE TIRE**

1. Approach -- NORMAL.
2. Flaps -- AS REQUIRED.
3. Touchdown -- ON MAINS, hold nose wheel off the ground as long as possible.
4. When nose wheel touches down, maintain full up elevator as airplane slows to stop.

## **ELECTRICAL POWER SUPPLY SYSTEM MALFUNCTIONS**

### **AMMETER SHOWS EXCESSIVE RATE OF CHARGE (Full Scale Deflection)**

1. Alternator -- OFF.
2. Nonessential Electrical Equipment -- OFF.
3. Flight -- TERMINATE as soon as practical.

### **LOW VOLTAGE ANNUNCIATOR (VOLTS) ILLUMINATES DURING FLIGHT (Ammeter Indicates Discharge)**

#### **NOTE**

Illumination of "VOLTS" on the annunciator panel may occur during low RPM conditions with an electrical load on the system such as during a low RPM taxi. Under these conditions, the light will go out at higher RPM. The master switch need not be recycled since an overvoltage condition has not occurred to deactivate the alternator system.

1. Avionics Power Switch -- OFF.
2. Alternator Circuit Breaker -- CHECK IN.
3. Master Switch -- OFF (both sides).
4. Master Switch -- ON.
5. Low Voltage Annunciator -- CHECK OFF.
6. Avionics Power Switch -- ON.

If low voltage light illuminates again:

7. Alternator-- OFF.
8. Nonessential Radio and Electrical Equipment -- OFF.
9. Flight -- TERMINATE as soon as practical.

**VACUUM SYSTEM FAILURE**

Left Vacuum or Right Vacuum Annunciator Light (L VAC R) Illuminates.

**CAUTION**

**IF VACUUM IS NOT WITHIN NORMAL OPERATING LIMITS, A FAILURE HAS OCCURRED IN THE VACUUM SYSTEM AND PARTIAL PANEL PROCEDURES MAY BE REQUIRED FOR CONTINUED FLIGHT.**

1. **Suction Gage** -- **CHECK** to ensure vacuum within normal operating limits.



# SHORT FIELD TAKEOFF DISTANCE AT 3100 POUNDS

## CONDITIONS

- Flaps 20°
- Cowl Flaps Open
- 2400 RPM, Full Throttle Prior to Brake Release
- Paved, Level, Dry Runway
- Zero Wind: Lift Off - 49 KIAS
- Speed at 50 Ft: - 58 KIAS

Press Alt In Feet	0°C		10°C		20°C		30°C		40°C	
	Grnd Roll Ft	Total Ft To Clear 50 Ft Obst	Grnd Roll Ft	Total Ft To Clear 50 Ft Obst	Grnd Roll Ft	Total Ft To Clear 50 Ft Obst	Grnd Roll Ft	Total Ft To Clear 50 Ft Obst	Grnd Roll Ft	Total Ft To Clear 50 Ft Obst
S. L.	715	1365	765	1460	825	1570	885	1680	945	1800
1000	775	1490	835	1600	900	1720	965	1845	1030	1980
2000	850	1635	915	1760	980	1890	1055	2035	1130	2190
3000	925	1800	995	1940	1070	2090	1150	2255	1235	2435
4000	1015	1990	1090	2150	1175	2325	1260	2515	1355	2720
5000	1110	2210	1195	2395	1290	2595	1385	2820	1485	3070
6000	1220	2470	1315	2690	1415	2930	1520	3200	1635	3510
7000	1340	2785	1445	3045	1560	3345	1675	3685	---	---
8000	1480	3175	1595	3500	1720	3880	---	---	---	---

## NOTES:

1. Short field technique as specified in Section 4.
2. Prior to takeoff, the mixture should be leaned to the Maximum Power Fuel Flow placard value in a full throttle, static runup.
3. Decrease distances 10% for each 9 knots headwind. For operation with tail winds up to 10 knots, increase distances by 10% for each 2 knots.
4. For operation on dry, grass runway, increase distances by 15% of the "ground roll" figure.

(Continued)



## SHORT FIELD TAKEOFF DISTANCE AT 2700 POUNDS

### CONDITIONS

- Flaps 20°
- Cowl Flaps Open
- 2400 RPM, Full Throttle Prior to Brake Release
- Paved, Level, Dry Runway
- Zero Wind: Lift Off - 45 KIAS
- Speed at 50 Ft: - 54 KIAS

Press Alt In Feet	0°C		10°C		20°C		30°C		40°C	
	Grnd Roll Ft	Total Ft To Clear 50 Ft Obst	Grnd Roll Ft	Total Ft To Clear 50 Ft Obst	Grnd Roll Ft	Total Ft To Clear 50 Ft Obst	Grnd Roll Ft	Total Ft To Clear 50 Ft Obst	Grnd Roll Ft	Total Ft To Clear 50 Ft Obst
S. L.	520	995	560	1065	600	1135	645	1215	690	1295
1000	565	1080	610	1155	655	1235	700	1320	750	1410
2000	615	1180	665	1260	710	1350	765	1445	820	1545
3000	675	1285	725	1380	775	1480	835	1585	895	1695
4000	735	1410	790	1510	850	1625	910	1740	975	1870
5000	805	1550	865	1665	930	1790	1000	1920	1070	2065
6000	880	1705	950	1840	1020	1980	1095	2135	1175	2300
7000	965	1890	1040	2040	1120	2205	1200	2380	1290	2575
8000	1060	2100	1145	2275	1230	2465	1320	2675	1420	2910

### NOTES:

1. Short field technique as specified in Section 4.
2. Prior to takeoff, the mixture should be leaned to the Maximum Power Fuel Flow placard value in a full throttle, static runup.
3. Decrease distances 10% for each 9 knots headwind. For operation with tail winds up to 10 knots, increase distances by 10% for each 2 knots.
4. For operation on dry, grass runway, increase distances by 15% of the "ground roll" figure.

(Continued)

## SHORT FIELD TAKEOFF DISTANCE AT 2300 POUNDS

### CONDITIONS

- Flaps 20°
- Cowl Flaps Open
- 2400 RPM, Full Throttle Prior to Brake Release
- Paved, Level, Dry Runway
- Zero Wind: Lift Off - 42 KIAS
- Speed at 45 Ft: - 50 KIAS

Press Alt In Feet	0°C		10°C		20°C		30°C		40°C	
	Grnd Roll Ft	Total Ft To Clear 50 Ft Obst	Grnd Roll Ft	Total Ft To Clear 50 Ft Obst	Grnd Roll Ft	Total Ft To Clear 50 Ft Obst	Grnd Roll Ft	Total Ft To Clear 50 Ft Obst	Grnd Roll Ft	Total Ft To Clear 50 Ft Obst
S. L.	365	705	390	750	420	800	450	850	480	905
1000	395	765	425	815	455	870	490	925	520	985
2000	430	830	460	885	495	940	530	1005	565	1070
3000	470	900	505	960	540	1025	580	1090	620	1165
4000	510	980	550	1045	590	1115	630	1190	675	1270
5000	555	1065	600	1140	640	1220	690	1305	735	1390
6000	610	1165	655	1250	700	1335	755	1430	805	1530
7000	665	1275	715	1370	770	1470	825	1570	885	1685
8000	730	1405	785	1510	845	1620	905	1735	970	1865

### NOTES:

1. Short field technique as specified in Section 4.
2. Prior to takeoff, the mixture should be leaned to the Maximum Power Fuel Flow placard value in a full throttle, static runup.
3. Decrease distances 10% for each 9 knots headwind. For operation with tail winds up to 10 knots, increase distances by 10% for each 2 knots.
4. For operation on dry, grass runway, increase distances by 15% of the "ground roll" figure.

**CRUISE PERFORMANCE**

PRESSURE ALTITUDE SEA LEVEL

CONDITIONS:

● 3100 Pounds ● Recommended Lean Mixture ● Cowl Flaps Closed

NOTE: Maximum cruise power is 80% MCP. Those powers above that value in the table are for interpolation purposes only.

RPM	MP	20°C BELOW STANDARD TEMP			STANDARD TEMPERATURE			20°C ABOVE STANDARD TEMP		
		% BHP	KTAS	GPH	% BHP	KTAS	GPH	% BHP	KTAS	GPH
2400	27	---	---	---	---	---	---	83	137	14.0
	26	---	---	---	82	134	13.7	79	135	13.3
	25	80	130	13.4	77	131	13.0	75	131	12.6
	24	76	127	12.7	73	127	12.3	71	128	11.9
	23	71	123	12.0	69	124	11.6	66	125	11.3
	22	67	120	11.3	64	121	10.9	62	121	10.6
	21	62	117	10.6	60	117	10.3	58	117	10.0
	20	57	112	10.0	55	113	9.7	54	113	9.4
2300	27	---	---	---	83	134	13.9	80	135	13.4
	26	82	131	13.7	79	132	13.2	76	132	12.8
	25	77	128	12.9	75	129	12.5	72	129	12.1
	24	73	125	12.3	70	126	11.9	68	127	11.5
	23	69	122	11.6	66	123	11.2	64	123	10.9
	22	64	119	10.9	62	119	10.6	60	119	10.3
	21	60	115	10.3	58	115	10.0	56	115	9.8
	20	56	111	9.7	54	111	9.4	52	111	9.2
2200	27	83	131	13.8	80	132	13.3	77	133	12.9
	26	78	129	13.1	76	129	12.7	73	130	12.3
	25	74	126	12.5	72	126	12.1	69	128	11.7
	24	70	123	11.8	68	124	11.5	66	124	11.1
	23	66	120	11.2	64	121	10.9	62	121	10.6
	22	62	117	10.6	60	117	10.3	58	117	10.0
	21	58	113	10.0	56	113	9.7	54	113	9.5
	20	54	109	9.4	52	109	9.2	50	109	8.9

**CRUISE PERFORMANCE (Continued)****PRESSURE ALTITUDE SEA LEVEL (Continued)**

CONDITIONS:

● 3100 Pounds ● Recommended Lean Mixture ● Cowl Flaps Closed

NOTE: Maximum cruise power is 80% MCP. Those powers above that value in the table are for interpolation purposes only.

RPM	MP	20°C BELOW STANDARD TEMP			STANDARD TEMPERATURE			20°C ABOVE STANDARD TEMP		
		% BHP	KTAS	GPH	% BHP	KTAS	GPH	% BHP	KTAS	GPH
2100	27	79	129	13.2	76	130	12.7	73	130	12.3
	26	75	126	12.5	72	127	12.1	70	128	11.8
	25	71	123	11.9	68	124	11.5	66	125	11.2
	24	67	120	11.3	64	121	11.0	62	121	10.7
	23	63	118	10.7	61	117	10.4	59	118	10.2
	22	59	114	10.2	57	114	9.9	55	114	9.6
	21	55	110	9.6	53	111	9.4	51	111	9.1
2000	27	74	126	12.5	72	127	12.1	70	128	11.7
	26	71	123	11.9	68	124	11.5	66	125	11.2
	25	67	121	11.4	65	122	11.0	63	121	10.7
	24	63	118	10.8	61	118	10.5	59	118	10.2
	23	60	114	10.3	58	115	10.0	56	115	9.7
	22	56	111	9.8	54	111	9.5	52	112	9.2
	21	52	108	9.2	50	108	9.0	49	108	8.8

**CRUISE PERFORMANCE**

PRESSURE ALTITUDE 2000 FEET

## CONDITIONS:

● 3100 Pounds ● Recommended Lean Mixture ● Cowl Flaps Closed

NOTE: Maximum cruise power is 80% MCP. Those powers above that value in the table are for interpolation purposes only.

RPM	MP	20°C BELOW STANDARD TEMP			STANDARD TEMPERATURE			20°C ABOVE STANDARD TEMP		
		% BHP	KTAS	GPH	% BHP	KTAS	GPH	% BHP	KTAS	GPH
2400	26	---	---	---	---	---	---	82	139	13.7
	25	83	134	13.9	80	135	13.4	77	135	12.9
	24	78	131	13.1	75	131	12.7	73	132	12.3
	23	74	127	12.4	71	128	12.0	69	129	11.6
	22	69	124	11.6	67	125	11.3	64	125	10.9
	21	64	121	10.9	62	120	10.6	60	121	10.3
	20	60	116	10.3	58	117	10.0	56	117	9.7
2300	26	---	---	---	81	136	13.6	78	136	13.1
	25	80	132	13.3	77	132	12.9	74	133	12.5
	24	75	129	12.6	73	129	12.2	70	131	11.8
	23	71	125	11.9	68	126	11.6	66	127	11.2
	22	66	122	11.3	64	123	10.9	62	123	10.6
	21	62	118	10.6	60	119	10.3	58	119	10.0
	20	58	114	10.0	56	115	9.7	54	115	9.5
2200	26	81	132	13.5	78	133	13.1	75	134	12.6
	25	77	130	12.8	74	130	12.4	71	131	12.0
	24	72	126	12.2	70	127	11.8	68	128	11.4
	23	68	124	11.5	66	124	11.2	64	124	10.9
	22	64	120	10.9	62	120	10.6	60	121	10.3
	21	60	116	10.3	58	117	10.0	56	117	9.7
	20	56	113	9.7	54	113	9.4	52	113	9.2

**CRUISE PERFORMANCE (Continued)****PRESSURE ALTITUDE 2000 FEET (Continued)**

CONDITIONS:

● 3100 Pounds ● Recommended Lean Mixture ● Cowl Flaps Closed

NOTE: Maximum cruise power is 80% MCP. Those powers above that value in the table are for interpolation purposes only.

RPM	MP	20°C BELOW STANDARD TEMP			STANDARD TEMPERATURE			20°C ABOVE STANDARD TEMP		
		% BHP	KTAS	GPH	% BHP	KTAS	GPH	% BHP	KTAS	GPH
2100	26	77	130	12.9	74	130	12.4	72	131	12.1
	25	73	127	12.2	70	128	11.8	68	128	11.5
	24	69	124	11.6	66	125	11.3	64	125	10.9
	23	65	121	11.0	63	121	10.7	61	122	10.4
	22	61	117	10.5	59	118	10.2	57	118	9.9
	21	57	114	9.9	55	114	9.6	53	114	9.4
	20	53	110	9.3	51	110	9.1	49	110	8.8
2000	26	73	127	12.2	70	128	11.8	68	128	11.5
	25	69	124	11.7	67	125	11.3	64	125	11.0
	24	65	122	11.1	63	121	10.8	61	122	10.5
	23	62	118	10.6	59	118	10.2	57	119	10.0
	22	58	115	10.0	56	115	9.7	54	115	9.5
	21	54	111	9.5	52	111	9.2	50	111	9.0

**CRUISE PERFORMANCE****PRESSURE ALTITUDE 4000 FEET****CONDITIONS:**

● 3100 Pounds ● Recommended Lean Mixture ● Cowl Flaps Closed

NOTE: Maximum cruise power is 80% MCP. Those powers above that value in the table are for interpolation purposes only.

RPM	MP	20°C BELOW STANDARD TEMP			STANDARD TEMPERATURE			20°C ABOVE STANDARD TEMP		
		% BHP	KTAS	GPH	% BHP	KTAS	GPH	% BHP	KTAS	GPH
2400	25	---	---	---	82	139	13.8	80	140	13.3
	24	81	135	13.5	78	135	13.0	75	137	12.6
	23	76	131	12.8	73	132	12.3	71	133	11.9
	22	71	128	12.0	69	129	11.6	67	129	11.3
	21	67	125	11.3	64	124	10.9	62	125	10.6
	20	62	120	10.6	60	121	10.3	58	121	10.0
2300	25	82	136	13.8	79	136	13.3	77	137	12.8
	24	78	133	13.0	75	133	12.6	72	135	12.2
	23	73	129	12.3	71	130	11.9	68	130	11.5
	22	69	126	11.6	66	126	11.2	64	127	10.9
	21	64	122	10.9	62	123	10.6	60	123	10.3
	20	60	118	10.3	58	119	10.0	56	119	9.7
2200	25	79	133	13.2	76	134	12.7	73	135	12.3
	24	75	130	12.5	72	131	12.1	70	132	11.7
	23	70	127	11.9	68	128	11.5	66	128	11.1
	22	66	124	11.2	64	124	10.9	62	125	10.6
	21	62	120	10.6	60	121	10.3	58	121	10.0
	20	58	116	10.0	56	116	9.7	54	117	9.4
2100	25	75	130	12.6	72	132	12.2	70	132	11.8
	24	71	128	11.9	68	129	11.6	66	128	11.2
	23	67	125	11.3	65	125	11.0	62	125	10.7
	22	63	121	10.7	61	122	10.4	59	122	10.1
	21	59	117	10.2	57	118	9.9	55	118	9.7
	20	55	114	9.6	53	114	9.3	51	113	9.1
2000	25	71	128	12.0	69	129	11.6	66	129	11.2
	24	67	125	11.4	65	125	11.0	63	126	10.7
	23	63	121	10.8	61	122	10.5	59	122	10.2
	22	60	118	10.3	58	118	10.0	56	119	9.7
	21	56	115	9.7	54	115	9.5	52	115	9.2

## CRUISE PERFORMANCE (Continued)

### PRESSURE ALTITUDE 6000 FEET

CONDITIONS:

● 3100 Pounds   ● Recommended Lean Mixture   ● Cowl Flaps Closed

RPM	MP	20°C BELOW STANDARD TEMP			STANDARD TEMPERATURE			20°C ABOVE STANDARD TEMP		
		% BHP	KTAS	GPH	% BHP	KTAS	GPH	% BHP	KTAS	GPH
2400	23	79	135	13.2	76	136	12.7	73	137	12.3
	22	74	132	12.4	71	133	12.0	69	133	11.6
	21	69	129	11.7	67	128	11.3	64	129	10.9
	20	64	124	10.9	62	125	10.6	60	125	10.3
	19	60	120	10.3	57	120	10.0	55	120	9.7
2300	23	76	133	12.7	73	134	12.2	70	135	11.9
	22	71	130	12.0	68	130	11.6	66	131	11.3
	21	66	126	11.3	64	127	10.9	62	127	10.6
	20	62	122	10.6	60	122	10.3	58	123	10.0
	19	57	118	10.0	55	118	9.7	53	118	9.4
2200	23	73	131	12.2	70	132	11.8	68	132	11.4
	22	68	128	11.5	66	128	11.2	64	129	10.8
	21	64	124	10.9	62	124	10.6	60	124	10.3
	20	60	120	10.3	57	120	10.0	56	120	9.7
	19	55	116	9.7	53	116	9.4	52	115	9.1
2100	23	69	129	11.6	66	128	11.3	64	129	10.9
	22	65	125	11.0	63	125	10.7	60	125	10.4
	21	61	121	10.4	59	121	10.1	57	121	9.9
	20	57	117	9.9	55	117	9.6	53	117	9.3
	19	53	113	9.3	51	113	9.0	49	112	8.8
2000	23	65	125	11.1	63	126	10.8	61	126	10.5
	22	62	122	10.5	59	122	10.2	57	122	10.0
	21	58	118	10.0	56	118	9.7	54	118	9.4
	20	54	114	9.5	52	114	9.2	50	113	8.9
	19	50	110	8.9	48	109	8.7	47	108	8.4



**CRUISE PERFORMANCE (Continued)****PRESSUE ALTITUDE 8000 FEET**

CONDITIONS:

● 3100 Pounds ● Recommended Lean Mixture ● Cowl Flaps Closed

RPM	MP	20°C BELOW STANDARD TEMP			STANDARD TEMPERATURE			20°C ABOVE STANDARD TEMP		
		% BHP	KTAS	GPH	% BHP	KTAS	GPH	% BHP	KTAS	GPH
2400	21	71	133	12.0	69	133	11.6	66	134	11.3
	20	67	128	11.3	64	129	10.9	62	129	10.6
	19	62	124	10.6	59	124	10.3	57	124	10.0
	18	57	119	9.9	55	119	9.6	53	119	9.3
2300	21	69	130	11.6	66	131	11.2	64	131	10.9
	20	64	126	10.9	62	126	10.6	60	127	10.3
	19	59	122	10.3	57	122	9.9	55	122	9.7
	18	55	117	9.6	53	117	9.3	51	116	9.1
2200	21	66	127	11.2	64	128	10.8	61	128	10.5
	20	62	124	10.6	59	124	10.2	57	124	9.9
	19	57	119	9.9	55	120	9.6	53	119	9.4
	18	53	115	9.3	51	114	9.0	49	113	8.8
2100	21	63	125	10.7	60	125	10.4	58	125	10.1
	20	59	121	10.1	56	121	9.8	54	121	9.6
	19	54	117	9.5	52	116	9.3	51	115	9.0
	18	50	112	9.0	48	111	8.7	47	109	8.5
2000	21	59	122	10.3	57	122	9.9	55	122	9.7
	20	56	118	9.7	54	118	9.4	52	117	9.2
	19	52	114	9.1	50	113	8.9	48	111	8.6

## CRUISE PERFORMANCE (Continued)

### PRESSURE ALTITUDE 10,000 FEET

CONDITIONS:  
 3100 Pounds  
 Recommended Lean Mixture  
 Cowl Flaps Closed

RPM	MP	20°C BELOW STANDARD TEMP			STANDARD TEMPERATURE			20°C ABOVE STANDARD TEMP		
		% BHP	KTAS	GPH	% BHP	KTAS	GPH	% BHP	KTAS	GPH
2400	20	69	132	11.6	66	133	11.2	64	133	10.9
	19	64	128	10.9	62	128	10.6	59	128	10.3
	18	59	123	10.2	57	120	9.9	55	123	9.6
2300	20	66	130	11.2	64	131	10.9	62	131	10.6
	19	62	126	10.6	59	126	10.2	57	126	9.9
	18	57	121	9.9	55	121	9.6	53	120	9.3
2200	20	64	128	10.8	61	128	10.5	59	128	10.2
	19	59	123	10.2	57	124	9.9	55	123	9.6
	18	55	119	9.6	53	118	9.3	51	117	9.0
2100	20	60	125	10.4	58	125	10.1	56	125	9.8
	19	56	120	9.8	54	120	9.5	52	119	9.2
	18	52	115	9.2	50	114	8.9	48	113	8.7
2000	20	57	121	9.9	55	122	9.6	53	121	9.4
	19	53	117	9.4	51	116	9.1	50	115	8.9
	18	49	112	8.8	48	110	8.6	46	108	8.3

**CRUISE PERFORMANCE(Continued)****PRESSURE ALTITUDE 12,000 FEET**

CONDITIONS:

3100 Pounds

Recommended Lean Mixture

Cowl Flaps Closed

RPM	MP	20°C BELOW STANDARD TEMP			STANDARD TEMPERATURE			20°C ABOVE STANDARD TEMP		
		% BHP	KTAS	GPH	% BHP	KTAS	GPH	% BHP	KTAS	GPH
2400	18	61	127	10.5	59	128	10.2	57	127	9.9
	17	56	122	9.8	54	121	9.5	52	120	9.2
	16	51	116	9.1	49	114	8.8	48	112	8.6
2300	18	59	125	10.2	57	125	9.9	55	124	9.6
	17	54	120	9.5	52	119	9.2	50	117	9.0
	16	49	113	8.8	48	111	8.6	46	107	8.3
2200	18	57	123	9.8	54	122	9.5	52	121	9.3
	17	52	117	9.2	50	115	8.9	48	114	8.7
2100	18	54	119	9.4	52	118	9.2	50	116	8.9
	17	49	113	8.9	48	112	8.6	46	108	8.3
2000	18	51	115	9.1	49	114	8.8	47	111	8.5

## CRUISE PERFORMANCE (Continued)

### PRESSURE ALTITUDE 14,000 FEET

## CONDITIONS:

3100 Pounds

Recommended Lean Mixture

Cowl Flaps Closed

RPM	MP	20°C BELOW STANDARD TEMP			STANDARD TEMPERATURE			20°C ABOVE STANDARD TEMP		
		% BHP	KTAS	GPH	% BHP	KTAS	GPH	% BHP	KTAS	GPH
2400	16	53	120	9.4	51	118	9.1	49	116	8.8
	15	48	112	8.7	46	109	8.4	45	104	8.2
2300	16	51	117	9.1	49	115	8.8	48	111	8.6
2200	16	49	114	8.8	47	111	8.6	46	107	8.3
2100	16	47	110	8.5	45	105	8.2	43	103	8.0

## SHORT FIELD LANDING DISTANCE AT 2950 POUNDS

### CONDITIONS:

- Flaps FULL
- Maximum Braking
- Zero Wind
- Power Off
- Paved, Level, Dry Runway
- Speed at 50 Ft: 61 KIAS

PRESS ALT FT	0°C		10°C		20°C		30°C		40°C	
	Grnd Roll Ft	Total Ft To Clear 50 Ft Obst	Grnd Roll Ft	Total Ft To Clear 50 Ft Obst	Grnd Roll Ft	Total Ft To Clear 50 Ft Obst	Grnd Roll Ft	Total Ft To Clear 50 Ft Obst	Grnd Roll Ft	Total Ft To Clear 50 Ft Obst
S.L.	560	1300	580	1335	600	1365	620	1400	640	1435
1000	580	1265	600	1365	620	1400	645	1440	665	1475
2000	600	1370	625	1405	645	1440	670	1480	690	1515
3000	625	1410	645	1445	670	1485	695	1525	715	1560
4000	650	1450	670	1485	695	1525	720	1565	740	1600
5000	670	1485	695	1525	720	1565	745	1610	770	1650
6000	700	1530	725	1575	750	1615	775	1660	800	1700
7000	725	1575	750	1615	780	1665	805	1710	830	1750
8000	755	1625	780	1655	810	1715	835	1760	865	1805

### NOTES:

1. Short field technique as specified in Section 4.
2. Decrease distances 10% for each 9 knots headwind. For operation with tail winds up to 10 knots, increase distances by 10% for each 2 knots.
3. For operation on dry, grass runway, increase distances by 45% of the "ground roll" figure.
4. If a landing with flaps up is necessary, increase the approach speed by 10 KIAS and allow for 35% longer distances.

