NOTE

Visually check airplane for general condition during walk-around inspection. 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 accumulation of ice or debris. Prior to flight, check that pitot heater (if installed) is warm to touch within 30 seconds of battery and pitot heat switches on. If a night flight is planned, check operation of all lights, and make sure a flashlight is available. Check the surrounding area for debris which may be drawn into or blown about by the propeller. If necessary, position the airplane to avoid creating a hazard to buildings, vehicles or persons by the propeller blast

**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, or 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





## PREFLIGHT INSPECTION

### CABIN

1. Documents/Hobbs/Tach/Squawks—CHECK
2. For IFR **VOR 30 Day Accuracy** – CHECK
3. Pilot's Operating Handbook and **Flyaway logbook** -IN AIRPLANE
4. Control Wheel Lock REMOVE (Seat belt or Yoke/rudder lock)
5. Ignition Switch--OFF place keys on glare shield
6. **Avionics Master Switches (2) – OFF**
   **NOTE:** There are two switches in parallel, only one at a time is used to power the avionics
7. Landing Gear Switch—DOWN
8. Circuit Breakers—IN
9. Electrical Switches--OFF (except beacon)
10. **Autopilot—OFF**
11. **Master Switch—ON**
12. Flashing Beacon--ON / CHECK
13. Instrument Lighting Rheostat--OFF (for day operations)
14. Landing Gear Position Indicator Lights--3 GREEN
15. Fuel Quantity Indicators--CHECK FUEL QUANTITY
16. Fuel Selector Valve-- SET TO DESIRED TANK (Check for movement)
17. Flaps—EXTEND
18. Exterior and Interior Lights (for night flight)—CHECK
19. **Master Switch—OFF**
20. Static Pressure Alternate Air Source Valve --OFF

### RIGHT WING Trailing Edge

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

### RIGHT WING

1. Wing Tip and Lights--CHECK
2. Wing Tie-Down--DISCONNECT
3. Fuel System Vent--OPEN
4. Fuel Sample--CHECK for water, sediment, proper fuel grade & color
5. Landing Gear shock Strut--CHECK proper inflation (approx 2")
6. Hydraulic Lines and Landing Gear Cylinders--CHECK FOR LEAKS
7. Main Wheel/Tire--CHECK brakes, tire condition/inflation, chocks
8. Fuel Quantity--CHECK VISUALLY desired level, SECURE CAP
9. Cabin Vent--CHECK

## NOSE

1. Windshield--CHECK FOR CLEANLINESS
2. Engine Area--CHECK for obvious fuel or oil leaks, general condition
3. Engine Oil Level--CHECK, do not operate with less than six quarts Fill to eight quarts for extended flight, DIPSTICK SECURE
4. Cowling--CHECK FOR SECURITY
5. Cowl Scoop--CHECK FOR OBSTRUCTIONS
6. Propeller and Spinner--CHECK for nicks and security
7. Engine Air Inlet Covers--REMOVE, CHECK INLET AREA
8. Landing/Taxi Lights--CHECK condition and cleanliness
9. Nose Wheel Strut--CHECK PROPER INFLATION (2-3/4")
10. Nose Wheel Tire--CHECK proper inflation and wear
11. Hydraulic Lines and Gear Cylinder--CHECK for leaks
12. Fuel Strainer--DRAIN before first flight of the day and after each refueling. CHECK STRAINER DRAIN CLOSED
13. Nose Tie-Down--DISCONNECT, remove chocks

## LEFT WING

1. Cabin Vent--CHECK
2. Gear Extension Mast--Remove Cover, CHECK for obstructions
3. Fuel Quantity--CHECK VISUALLY desired level, SECURE CAP
4. Landing Gear shock Strut--CHECK proper inflation (approx 2")
5. Hydraulic Lines and Landing Gear Cylinders--CHECK FOR LEAKS
6. Main Wheel/Tire--CHECK brakes, tire condition/inflation, chocks
7. Fuel Sample--CHECK for water, sediment, proper fuel grade & color
8 Fuel System Vent--OPEN
9. Wing Tie-Down--DISCONNECT
10. Stall Warning System--CHECK by lifting stall tab. The stall warning light will confirm system operation (master switch on)
11. Pitot Tube Cover--REMOVE, CHECK PITOT AND STATIC OPENINGS FOR STOPPAGE
12. Wing Tip and Lights--CHECK

## LEFT WING Trailing Edge

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

## EMPENNAGE

1. Antennas and Fuselage Skin--CHECK CONDITION / SECURITY





2. Stabilator and Trim Tab--CHECK
3. Tail Tie-Down--DISCONNECT
4. Control Surfaces--CHECK freedom of movement and security
5. Flashing Beacon and Antennas--CHECK
6. Tow Bar and Aircraft Covers--STOW
7. Baggage Compartment--SECURE BAGGAGE & LOCK DOOR

# NORMAL PROCEDURES

## SPEEDS FOR NORMAL OPERATION

Unless otherwise noted, the following speeds are based on a maximum weight of 2650 pounds and may be used for any lesser weight. However, to achieve the performance specified in Section 9 for takeoff distance, the speed appropriate to the particular weight must be used.

| | MPH (IAS) |
|---|---|
| Takeoff, Flaps Up: | |
| Normal Climb Out | 60-70 |
| Short Field Takeoff, Flaps 25°, Speed at 50 Feet | 65 |
| Enroute Climb, Flaps Up, Gear Up: | 110 |
| Best Rate of Climb, Sea Level, Gear Down | 95 |
| Best Rate of Climb, Sea Level, Gear Up | 100 |
| Best Angle of Climb, Sea Level, Gear Down | 85 |
| Best Angle of Climb, Sea Level, Gear Up | 96 |
| Landing Approach: | |
| Normal Approach, Flaps 40° | 90 |
| Short Field approach, Flaps 40° | 90 |
| Balked Landing: | |
| Maximum Power, Flaps 25° | 65 |
| Maximum Recommended Turbulent Air Penetration Speed: | |
| 2650 Lbs | 131 |
| Landing Gear Extension Speed | 150 |
| Landing Gear Operating Speed | 125 |

Maximum Demonstrated Crosswind Velocity: 20 mph

## BEFORE STARTING ENGINE

1. Surrounding Area--CHECK FOR PERSONNEL AND HAZARDS; REMOVE CHOCKS AND TOW BAR. IF REQUIRED MOVE AIRCRAFT TO AVOID PROPWASH ON PARKING AREA/HANGAR
2. Preflight Inspection--COMPLETE
3. Seats--ADJUST AND LOCK
4. Seat Belts and Shoulder Harnesses--ADJUST and LOCK
5. Passengers--BRIEFED
6. Fuel Selector Valve--DESIRED TANK
7. Flashing Beacon Switch – Recheck ON
8. Avionics Master Switches, Autopilot and Electrical Equipment--OFF
9. Prop Control--FULL INCREASE (forward)
10. Landing Gear Handle--DOWN
11. Brakes--TEST and SET, Parking Brake--ON
12. Circuit Breakers--CHECK IN
13. Flaps--RETRACT

## STARTING ENGINE - COLD

**NOTE**
**IF AIRCRAFT HAS FLOWN RECENTLY AND ENGINE IS STILL WARM, GO TO HOT START PROCEDURE**

1. Throttle--OPEN 1/2”
2. Master Switch--ON
3. Electric Fuel Pump--ON
4. Mixture Control--FULL RICH until a **SLIGHT** indication is noted on fuel flow meter then...Fuel Pump OFF (engine is primed)
5. Mixture Control--IDLE CUT-OFF
6. Propeller Area--CLEAR
7. Ignition Switch (Rotate and push in on key)--START
8. When Engine Fires--MIXTURE FULL RICH, Throttle to 1000 RPM

**NOTE:**
**If engine does not fire within 5-10 seconds, re-prime**

9. Oil Pressure--CHECK if no pressure in 30 sec, STOP ENGINE
10. Flashing Beacon and Navigation Lights--ON as required
11. **Avionics Master Switch (one) -- ON**
    **NOTE:** There are two switches in parallel, only one at a time is used to power the avionics
    Radios -- SET & CHECK OPERATION Before Movement
    Transponder -- SQUAWK STBY





12. Electrical Equipment--ON as required
13. Autopilot--ON

## STARTING ENGINE - HOT

1. Throttle--OPEN 1/2”
2. Master Switch--ON
3. Electric Fuel Pump--OFF
4. Mixture Control--IDLE CUT-OFF
5. Ignition Switch (Rotate and push in on key)--START
6. When Engine Fires--MIXTURE RICH, Adjust Throttle to 1000 RPM

## STARTING - FLOODED ENGINE

1. Throttle--OPEN FULL
2. Master Switch--ON
3. Electric Fuel Pump--OFF
4. Mixture Control--IDLE CUT-OFF
5. Ignition Switch (Rotate and push in on key)--START
6. When Engine Fires--MIXTURE RICH, Adjust Throttle to 1000 RPM
7. Oil Pressure--CHECK if no pressure in 30 sec, STOP ENGINE

## STARTING WITH EXTERNAL POWER

1. Master Switch-OFF
2. Connect POSITIVE (+) Lead of Piper External Power (PEP) Kit jumper cable to POSITIVE (+) Terminal of External 12 volt battery, and NEGATIVE (-) Lead to NEGATIVE (-) Terminal of battery
3. Insert plug of PEP jumper cable into socket on aircraft fuselage
4. Master Switch--ON, Proceed with NORMAL Start Technique
5. After engine has started, Master Switch--OFF, Remove jumper plug
6. Master Switch--ON, Check for indication of alternator output. DO NOT ATTEMPT FLIGHT IF THERE IS NO ALTERNATOR OUTPUT

## TAXI CHECK

1. Radio—**Contact FSS and Activate Flight Plan** prior to taxi
2. Taxi- REQUEST TAXI CLEARANCE or announce intentions

3. Maintain 1200 RPM for all ground operations and lean mixture for maximum RPM during taxi.
4. Brakes--CHECK during initial movement
5. Nose Wheel Steering—CHECK
6. Ailerons--POSITION for crosswind taxi
7. Magnetic Compass, Directional Gyro, Turn Coordinator—CHECK

## BEFORE TAKE-OFF CHECK

1. Parking Brake--SET
2 Seat Backs--ERECT
3. Seats, Seat Belts, Shoulder Harnesses--CHECK SECURE
4. Cabin Doors and Windows--CLOSED and LOCKED
5. Flight Controls--FREE, and CORRECT
6. Flight Instruments / Altimeter--SET (Attitude Ind, Dir Gyro, Etc.)
7. Electric Fuel Pump--ON
8. Fuel Quantity--CHECK
9. Fuel Selector Valve--RECHECK-Desired Tank
10. Mixture--SET, Full Rich below 5000 feet
11. Elevator and Rudder Trim--SET FOR TAKEOFF
12. Alternate Air--CLOSED
13. Alternator Function--CHECK
14. Propeller Control--FULL INCREASE (High RPM)
15. Throttle--2000 RPM
    a. Magnetos--CHECK (RPM drop should not exceed 175 RPM on either magneto or 50 RPM differential between magnetos)
    c. Engine Instruments and Ammeter--CHECK
    d. Vacuum Gauge--CHECK (5" +/-.1")
    e. Alternate Air Source--CYCLE (Should be no RPM change)
    f. Propeller Control--CHECK (Cycle 3 times - not below 1500 RPM, Set to High RPM)
    g. Electric Fuel Pump--OFF Momentarily, Check Pressure--ON
16. Throttle--1000 RPM or less
17. Throttle Friction Lock—ADJUST
18. Flaps--EXERCISED AND SET
11. **Auto pilot checklist-- ON -COMPLETE (Deactivate if not in use)**
20. Navigation Lights and Strobes--ON as required
21. Radios (comm and nav)--SET, Open Flight Plan
22. Transponder -- SET CODE & SQUAWK ALTITUDE
23. Cabin Door--RE-CHECK Closed and LATCHED
24. Takeoff Clearance--OBTAIN or Announce Intentions





25. Record Time Off

## LINE-UP CHECK

1. **Taxi into position –Perform Visual Check of runway final approaches for conflicting Traffic**
2. Compass and Directional Gyro Heading—CHECK
3. Mixture Rich if Leaned for Taxi
4. Landing / Taxi Lights--AS REQUIRED
5. Brakes—RELEASE

## TAKEOFF

### NORMAL TAKEOFF

1. Wing Flaps--0°
2. Throttle--FULL OPEN
3. Elevator Control--LIFT NOSE WHEEL (at 60-70 MPH)
4. Climb Speed--95 MPH (Gear Down); 100 MPH (Gear Up)
5. Landing Gear--UP < 125 MPH and after runway is no longer usable

### SHORT FIELD TAKEOFF

1. Wing Flaps--25°
2. Brakes--APPLY
3. Throttle--FULL OPEN
4. Mixture--RICH (above 5000 feet LEAN to obtain maximum RPM)
5. Brakes--RELEASE
6. Elevator Control--SLIGHTLY TAIL LOW, Rotate at 60-65 MPH
7. Climb Speed-85 MPH (until all obstacles are cleared)
8. Gear--UP
9. Accelerate to 100 MPH, Slowly RETRACT FLAPS

### SOFT FIELD TAKEOFF

1. Flaps--25°
2. Lift off at lowest possible airspeed, Accelerate to 85 MPH
3. Landing Gear--UP at a safe altitude
4. After Clearing Obstacle--100 MPH, Retract Flaps Slowly

## ENROUTE CLIMB

1. Airspeed--110 MPH

NOTE

If a maximum performance climb is necessary,
use speeds shown in the Rate of Climb chart in Section 9

2. Throttle--Reduce to 25" Hg
3. Propeller--2500 RPM
4. Mixture-- RICH (LEAN for smooth operation above 5000 feet, use EGT and set 75° rich of peak temperature)

## CRUISE

1. Power--SET (Approximately 75% is recommended, See Section 9)
2. Propeller RPM--SET
3. Elevator and Rudder Trim (if installed)--ADJUST
4. Mixture-- LEAN for smooth operation above 5000 feet, use EGT and set 75° rich of peak temperature
5. Fuel Selector--ON DESIRED TANK
6. Fuel Pump-OFF
7. Engine Gauges--CHECK
8. Directional Gyro--CHECK / SET

## DESCENT

1. Fuel Selector Valve--DESIRED TANK
2. Mixture--ADJUST for smooth operation (full rich for idle power)
3. Power--AS DESIRED
4. Propeller RPM--AS DESIRED

## BEFORE LANDING

1. Seat Backs--ERECT
2. Seats, Seat Belts, Shoulder Harnesses--SECURE
3. Fuel Selector Valve--PROPER TANK
4. Fuel Pump--ON
5. Mixture--SET, Full Rich below 5000 feet
6. Propeller--SET





7. Landing Lights--AS REQUIRED
8. Landing Gear--DOWN (150 MPH max)
9. Wing Flaps--AS DESIRED below 125 MPH
10. Autopilot—OFF

## LANDING

### NORMAL LANDING

1. Wing Flaps--AS DESIRED below 125 MPH
2. Airspeed--90 MPH (flaps down)
3. Propeller--2600 RPM
4. Touchdown--MAIN WHEELS FIRST
5. Landing Roll--LOWER NOSE WHEEL GENTLY
6. Braking--MINIMUM REQUIRED

### SHORT FIELD LANDING

1. Wing Flaps--FULL DOWN (40°)
2. Airspeed--90 MPH (until flare)
3. Propeller--2600 RPM
4. Power--REDUCE to idle after clearing obstacle
5. Touchdown--MAIN WHEELS FIRST
6. Brakes--APPLY HEAVILY
7. Wing Flaps—RETRACT

### BALKED LANDING

1. Throttle--FULL OPEN
2. Wing Flaps--25° IMMEDIATELY
3. Climb Speed--65 MPH
4. Wing Flaps--25° until obstacles are cleared. RETRACT after reaching a safe altitude

## AFTER LANDING

1. Wing Flaps--UP
2. Electric Fuel Pump--OFF
3. Transponder -- SQUAWK STBY
4. Strobe Lights--OFF

5. Landing/Taxi Lights--AS REQUIRED
6. Radio Call--TAXI INSTRUCTIONS / INTENTIONS and CLOSE FLIGHT PLAN

**NOTE**

**THE FOLLOWING PROCEDURE IS PROVIDED FOR AIRCRAFT SHUTDOWN AT THE FUEL TANKS FOR REFUELING AS REQUIRED BY SOP.**

1. Parking Brake—SET as required
2. Flight Plan--CLOSED
3. **Avionics Master Switch -- OFF**
4. Electrical Equipment, autopilot —OFF
5. Mixture--IDLE CUT-OFF
6. Ignition Switch--OFF REMOVE KEYS AND PLACE ON GLARE SHIELD
7. Master Switch--OFF
8. Fuel Selector –**SET to RIGHT OR LEFT**
9. Chock Airplane -CHECK
10. Connect Fueling Grounding Wire --CHECK
11. Unlock Pump –TURN ON
12. Position Ladder and Fuel Hose-CHECK
13. Refueling- **TO BOTTOM OF FILLER NECKS (17 gallons each side- 34 gallons total)**
14. After Refueling –NOTE fuel quantity for log
15. Replace hose at pump, lock pump, get keys, move hose to safe area-
16. Disconnect and roll up Grounding wire- CHECK
17. Remove Chocks- CHECK
18. Attach tow bar, and move aircraft to parking position-CHECK

## SECURING AIRPLANE

1. Parking Brake—SET as required
2. Tiedown Wings, then tighten tail tiedown -CHECK
3. Chock Main wheel- CHECK
4. Hobbs, Tach, fuel and Squawks--RECORD
5. Control Lock--INSTALL





6. Clean Cabin, Store Belts, Replace Sun Screens and Covers --CHECK
6. Collect Keys and Airplane Book, pilot gear –CHECK
7. Log Aircraft back in—CHECK. Note Squawks, fuel, oil, flight time.
8. Return keys to Key box - CHECK

# EMERGENCY PROCEDURES

## AIRSPEEDS FOR EMERGENCY OPERATION

| Engine Failure After Takeoff: | MPH (IAS) |
|---|---|
| Wing Flaps Up | 105 |
| Wing Flaps Down | 90 |

Maneuvering Speed:

# OPERATIONAL CHECKLISTS

## ENGINE FAILURES

### ENGINE FAILURE DURING TAKEOFF RUN

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

### ENGINE FAILURE IMMEDIATELY AFTER TAKEOFF

IF SUFFICIENT RUNWAY REMAINS:

1. Landing Gear--DOWN
2. LAND STRAIGHT AHEAD

IF AREA AHEAD IS ROUGH OR OBSTACLES MUST BE CLEARED:

1. Landing Gear--UP (Latch Extension Lever in Override Position)

IF THERE IS SUFFICIENT ALTITUDE TO ATTEMPT A RESTART:

1. Maintain Safe Airspeed
2. Fuel Selector--SWITCH TO ANOTHER TANK WITH FUEL
3. Electric Fuel Pump--ON
4. Mixture--RICH





5. Alternate Air--ON
6. Emergency Gear Lever--AS REQUIRED

### ENGINE POWER LOSS IN FLIGHT

1. Airspeed-- 110 mph
2. Landing Gear--UP, Flaps--UP
3. Fuel Selector Valve--SWITCH to tank containing fuel
4. Electric Fuel Pump--ON
5. Mixture--RICH
6. Alternate Air--ON
7. Engine Gauges--CHECK to determine cause of power loss
8. If NO FUEL PRESSURE, check tank selector ON a tank with fuel

**WHEN POWER IS RESTORED:**

9. Alternate Air--OFF
10. Electric Fuel Pump--OFF

IF THE ABOVE STEPS DO NOT RESTORE POWER:

**PREPARE FOR AN EMERGENCY LANDING (SEE POWER OFF LANDING)**

IF TIME PERMITS

1. Radio--TRANSMIT “MAYDAY” CALL 121.5 MHz
2. Transponder--7700
3. Master Switch--ON
4. Ignition Switch--”L” then “R” then “BOTH”
5. Throttle and Mixture--TRY DIFFERENT SETTINGS
6. Fuel Selector--TRY A DIFFERENT TANK

## FORCED LANDINGS

### POWER OFF LANDING

1. Airspeed--TRIM FOR BEST GLIDE 105 MPH (flaps UP)

### DETERMINE IF GEAR UP OR GEAR DOWN LANDING IS REQUIRED

## GEAR DOWN LANDING

1. Gear--DOWN When Committed to Landing
2. Throttle--CLOSED
3. Master and Ignition Switches--OFF
4. Flaps--AS DESIRED
5. Fuel Selector Valve--OFF
6. Mixture--IDLE CUTOFF
7. Seat Belts--TIGHTEN
8. Door--UNLATCH PRIOR TO TOUCHDOWN
9. Touchdown--SLIGHTLY TAIL LOW, Lowest Possible Speed
10. Brakes--APPLY HEAVILY

## GEAR UP LANDING

1. Gear Lever--UP
2. Flaps--AS DESIRED
3. Throttle--CLOSED
4. Master and Ignition Switches--OFF
5. Fuel Selector Valve--OFF
6. Mixture--IDLE CUTOFF
7. Seat Belts--TIGHTEN
8. Door--UNLATCH PRIOR TO TOUCHDOWN
9. Touchdown--LOWEST POSSIBLE AIRSPEED

## PRECAUTIONARY LANDING WITH ENGINE POWER

1. Airspeed--105 MPH
2. Wing Flaps 25°
3. Selected Field--FLY OVER, noting terrain and obstructions, then retract flaps upon reaching a safe altitude and airspeed
4. Radios and Electrical Switches--OFF
5. Wing Flaps--40° (on final approach)
6. Airspeed--90 MPH
7. Master Switch--OFF
8. Doors--UNLATCH PRIOR TO TOUCHDOWN
9. Touchdown--SLIGHTLY TAIL LOW
10. Ignition Switch--OFF
11. Brakes--APPLY HEAVILY

## DITCHING





1. Radio--TRANSMIT MAYDAY on 121.5 MHz , giving location and intentions and SQUAWK 7700
2. Heavy Objects --SECURE OR JETTISON
3. Landing Gear—UP
4. Approach--High Winds, Heavy Seas--INTO THE WIND
   Light Winds, Heavy Swells--PARALLEL TO SWELLS
5. Wing Flaps--40° recommended
6. Power--ESTABLISH 300 FPM DESCENT AT 90 MPH

NOTE

If no power is available, approach at 105 MPH (flaps up) or 90 MPH with 10° flaps

6. Cabin Door--UNLATCH
7. Touchdown--LEVEL ATTITUDE AT ESTABLISHED RATE OF DESCENT
8. Face--CUSHION at touchdown with folded coat
9. Airplane--EVACUATE through cabin doors. If necessary, open storm window and flood cabin to equalize pressure so door can be opened.
10. Life Vests and Raft--INFLATE

# FIRES

## DURING START ON GROUND

If Engine Fails to Start:

1. Mixture--IDLE CUT-OFF
2. Throttle--OPEN
3. Starter--CONTINUE ( to pull fire into engine)
4. Engine--SECURE

a. Master Switch--OFF
b. Ignition Switch--OFF
c. Mixture--IDLE CUT-OFF
d. Fuel Selector Valve--OFF

5. Fire--EXTINGUISH using fire extinguisher, wool blanket or dirt
6. Fire Damage--INSPECT, repair damage or replace damaged components or wiring before conducting another flight

If Engine Starts:

1. Power--2000 RPM for a few minutes
2. Engine--SHUT DOWN and inspect for damage

## ENGINE FIRE IN FLIGHT

1. Fuel Selector Valve--OFF
2. Throttle--CLOSE
3. Mixture--IDLE CUT-OFF
4. Heater--OFF (In all cases of fire)
5. Defroster--OFF (In all cases of fire)
6. If terrain permits--LAND IMMEDIATELY

## ELECTRICAL FIRE IN FLIGHT (Smoke in Cabin)

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

**WARNING**

**After discharging an extinguisher in a closed cabin, ventilate the cabin**

If fire appears out and electrical power is necessary for continued flight:

6. Master Switch--ON
7. Circuit Breakers--CHECK for faulty circuit, do not reset
8. Radio Switches--OFF
9. Avionics Power Switch--ON
10. Radios / Electrical Switches--ON one at a time, with delay after each until short circuit is located
11. Vents / Cabin Air / Heat--OPEN when it is ascertained that fir e is completely extinguished

## CABIN FIRE

1. Master Switch--OFF





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

**WARNING**

**After discharging an extinguisher in a closed cabin, ventilate the cabin**

4. Land the airplane as soon as possible to inspect for damage

## WING FIRE

1. Navigation Light Switch--OFF
2. Pitot Heat Switch (if installed) --OFF
3. Strobe Light Switch (if installed) -- OFF

NOTE

Perform a side slip to keep flames away from fuel tank and cabin, and land as soon as possible using flaps only as required on final approach.

# ICING

## INADVERTENT ICING ENCOUNTER

1. Pitot Heat--ON
2. Turn back or change altitude to obtain an outside temperature that is less conducive to icing
3. Pull cabin heat control full out and open defroster outlets to obtain maximum windshield defroster airflow. Adjust cabin air control to get maximum defroster heat and airflow
4. Open the throttle to increase engine speed and minimize ice build-up on propeller blades
5. Alternate Air Source--ON, Lean the mixture to 75° rich of maximum EGT
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 a significantly higher stall speed.
8. Leave wing flaps retracted. With a severe build-up on the horizontal tail, the change in wing wake airflow direction caused by wing flap extension could result in 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, of necessary for improved visibility
11. Approach at 105-110 MPH depending upon the amount of ice accumulation
12 Perform a landing in a level attitude

## STATIC SOURCE BLOCKAGE

**(Erroneous Instrument Reading Suspected)**

1. Alternate Static Source Valve--PULL ON
2. CAUTION: ALTIMETER AND AIRSPEED READINGS WILL NOT BE AS ACCURATE AS WITH THE NORMAL STATIC SOURCE

## ELECTRICAL POWER SUPPLY SYSTEM MALFUNCTIONS

### AMMETER SHOWS EXCESSIVE RATE OF CHARGE

**(Full Scale deflection)**

1. Alternator--OFF
2. Alternator Circuit Breaker--CHECK
3. Nonessential Electrical Equipment--OFF
4. Flight--TERMINATE as soon as practical

### ALTERNATOR FAILURE

**(Ammeter Reads Zero or Alternator Annuciator Light On)**

1. Landing Light--ON...Observe Ammeter..No Increase Implies Alternator Failure
2. Electrical Load--REDUCE
3. Avionics Master Switch--OFF
4. Alternator Circuit Breaker--CHECK IN
5. Alternator Switch--OFF (for 1 second)--ON
6. Low Voltage Light--CHECK OFF
6. Avionics Master Switch--ON

If Annunciator Light Remains ON, or Ammeter Reads Zero

7. Alternator--OFF





8. Non-essential Radio and Electrical Equipment--OFF
9. Flight--TERMINATE as soon as practical

NOTE:

If battery is fully discharged, the gear will have to be lowered using the EMERGENCY LANDING GEAR EXTENSION procedure

## EMERGENCY LANDING GEAR EXTENSION

1. Master Switch--ON
2. Circuit Breakers--CHECK
3. Panel Lights--OFF (daytime, can mask gear indication lights)
4. Gear Indicator Bulbs--CHECK

IF GEAR DOES NOT CHECK DOWN AND LOCKED

5. Airspeed--BELOW 100 MPH
6. Landing Gear Selector--DOWN
7. Emergency Gear Lever--OVERRIDE ENGAGED Position

IF GEAR STILL FAILS TO LOCK DOWN

8. Emergency Gear Lever--EMERGENCY DOWN Position

IF GEAR STILL FAILS TO LOCK DOWN

9. YAW Abruptly SIDE TO SIDE with rudder

IF THE NOSE GEAR WILL NOT LOCK DOWN

10. SLOW TO LOWEST SAFE AIRSPEED
11. Emergency Gear Lever--OVERRIDE ENGAGED Position
12. Landing Gear Selector--DOWN

IF GEAR DOES NOT CHECK DOWN

13. RECYCLE Gear Lever through UP position then DOWN

NOTE:

If all electrical power has been lost, the gear must be extended using the above procedure. The landing gear position lights will be inoperative

## HIGH OIL TEMPERATURE

1. LAND AS SOON AS PRACTICABLE to investigate

## LOSS OF OIL PRESSURE

### PARTIAL LOSS

1. Usually Signifies a Malfunction of the Oil Regulating System
2. As Soon as Possible--LAND

### COMPLETE LOSS

1. THE ENGINE MAY STOP SUDDENLY
2. PROCEED--Toward Nearest Airport
3. MAINTAIN ALTITUDE--Until a Dead Stick Landing Could Be Made
4. CHECK OTHER GAUGES-- For indications of actual oil pressure loss (high temperature, oil smoke, etc)
5. NOTIFY ATC/FSS Of Your Situation
6. CONSIDER--An Off Airport Landing while power is still available
7. If Engine Stops-- Perform POWER OFF LANDING

## LOSS OF FUEL PRESSURE

1. Electric Boost Pump--ON
2. Mixture Control--RICH (Forward)

## LANDING WITH A FLAT MAIN TIRE

1. Approach--NORMAL
2. Touchdown--GOOD TIRE FIRST, hold airplane off flat tire as long as possible





## PROPELLER OVERSPEED

1. Throttle--RETARD
2. Oil Pressure--CHECK
3. Propeller Control--FULL DECREASE RPM...,,SET If controllable
4. Airspeed--REDUCE
5. Throttle--AS REQUIRED BELOW 2700 RPM
6. Problem Not Resolved--LAND AS SOON AS PRACTICABLE

## SPINS

1. Throttle--IDLE
2. Rudder--FULL OPPOSITE TO DIRECTION OF ROTATION
3. Control Wheel--FULL FORWARD
4. Rudder--NEUTRAL When Rotation Stops
5. Control Wheel--AS REQUIRED To smoothly regain level flight

NOTE:

With the backup gear extender, the landing gear will extend during a spin, and will retract during recovery. Gear extension has no adverse effect on the spin characteristics.

## OPEN DOOR

An open door will not affect the normal flight characteristics, and a normal landing can be made with an open door. An open door will trail in a slightly open position and airspeed will be reduced slightly.

To close the door in flight:

1. Slow the airplane to 100 MPH
2. Cabin Vents--CLOSE
3. Storm Window--OPEN
4. If Upper Latch is Open--LATCH...If lower latch is open - open top latch, push door further open then close rapidly. Latch top latch.

A slip in the direction of the open door will assist in the latching procedure