

NORMAL PROCEDURES

PREFLIGHT

**CABIN:**

1. POH & Documents – AVAILABLE
2. Seat Belt – REMOVE FROM YOKE
3. Ignition Switch -- OFF
4. Avionics & Electrical Switches – OFF
5. Landing Gear Selector – DOWN
6. Master Switch -- ON
7. Fuel Quantity Indicators -- CHECK
8. Lights -- CHECK IF NEEDED
9. Annunciator Panel -- CHECK
10. Master Switch -- OFF
11. Flaps -- CHECK MOVEMENT
12. Fuel Selector – LOWEST TANK
13. Pitot & Static Drains -- DRAINED
14. Hobbes & Tachometer -- CHECK

**WALKAROUND:**

**(RIGHT WING)**

1. Flap & Aileron – CHECK
2. Leading Edge -- CHECK
3. Wing Tie Down – DISCONNECT
4. Fuel Quantity – CHECK
5. Fuel Tank Vent Opening – CHECK
6. Tire, Gear Well & Brakes -- CHECK
7. Fuel Drain(s) -- CHECK

**(NOSE)**

1. Oil -- CHECK
2. Prop & Spinner – CHECK
3. Cooling Inlet – CHECK
4. Air Inlet – CHECK
5. Alternator Belt -- CHECK FOR TENSION
6. Tire, Strut and Gear Well -- CHECK
7. Cowling -- CHECK FASTENERS
8. Fuel Drain -- CHECK

**(LEFT WING)**

1. Fuel Drain -- CHECK
2. Fuel Quantity -- CHECK
3. Tire, Gear Well & Brakes -- CHECK
4. Pitot Tube & Static Source -- CHECK
5. Fuel Tank Vent Opening – CHECK
6. Wing Tie Down – DISCONNECT
7. Stall Warning Vane -- CHECK

9. Aileron & Flap -- CHECK  
**(EMPENNAGE)**

1. Fresh Air Inlet -- CLEAR
2. Tail Tie Down -- DISCONNECT
3. Control Surfaces -- CHECK

PRE-ENGINE START

1. Preflight – COMPLETE
2. Passenger Briefing -- COMPLETE
3. Seats, Belts & Harnesses – ADJUSTED
4. Fuel Selector -- LOWEST TANK
5. Avionics & Electrical Switches -- OFF
6. Brakes -- TEST & SET
7. Circuit Breakers -- CHECK
8. Landing Gear Selector – DOWN

ENGINE START

1. Alternate Air – OFF
2. Propeller – FORWARD (HIGH RPM)
3. Throttle -- OPEN ½ "
4. Prop area -- CLEAR
5. Master Switch -- ON
6. Fuel Pump -- ON
7. Anti-Collision Lights -- ON
8. Mixture – FULL RICH UNTIL INDICATION ON FUEL FLOW METER – THEN IDLE /CUTOFF
9. Ignition -- START
10. Throttle -- 1000 RPM
11. Oil Pressure -- CHECK
12. Nav & Strobe Lights -- ON AS REQUIRED
13. Fuel Pump -- OFF/CHECK FUEL PRESSURE
14. Flaps -- UP
15. Avionics -- ON & TUNED
16. Transponder -- STBY

BEFORE TAKEOFF

1. Brakes -- SET
2. Fuel Selector – SWITCH TO FULLEST TANK
3. Seats, Belts & Harnesses -- CHECK

4. Doors – CLOSED & LATCHED
5. Flight Controls -- FREE & CORRECT
6. Flight Instruments -- SET
9. Fuel Quantity -- CHECK
10. Mixture -- RICH
11. Elevator Trim -- SET FOR TAKEOFF
12. Throttle -- 2000 RPM
  - a. Magnetos -- CHECK < 175 RPM DROP, 50 RPM DIFFERENTIAL
  - b. Suction Gage -- CHECK 5" ± .1"
  - c. Ammeter -- CHECK
  - d. Alternate Air – CHECK
  - e. Prop – CYCLE 1-3 TIMES
13. Throttle – 1000 RPM
14. Throttle Friction Lock -- SET
15. Annunciator Panel -- CHECK
16. Radios – SET
17. Lights -- AS REQUIRED OR DESIRED
18. Door -- CLOSED & LATCHED
19. Autopilot (if installed) – OFF
20. Emergency Procedures – REVIEWED
21. Departure Plans -- REVIEWED
22. Takeoff Checklist – REVIEWED

TAKEOFF

**NORMAL:**

1. Fuel Pump – ON
2. Flaps – UP
3. Alternate Air – OFF
4. Transponder – ON/ALT
5. Landing Light – ON
6. Time – NOTE
7. Heading Indicator – CHECK W/RWY
8. Propeller – FULL FORWARD
8. Throttle – FULL OPEN
9. Instruments -- CHECK FOR PROPER INDICATIONS
10. Rotate -- 60-70 MPH
11. Brakes – TAP LIGHTLY
12. Landing Gear – RETRACT
11. Climb Speed -- 100 MPH (V<sub>y</sub>)

8. Leading Edge – CHECK
- SHORT FIELD:**
1. Backup Gear Extender – OVERRIDE
  2. Fuel Pump -- ON
  2. Flaps -- 25° (2nd Notch)
  3. Alternate Air -- OFF
  4. Transponder – ON/ALT
  5. Landing Light -- ON
  6. Time – NOTE
  7. Heading Indicator -- CHECK W/RWY
  8. Brakes – APPLY
  9. Propeller – FULL FORWARD
  10. Throttle -- FULL OPEN
  11. Brakes -- RELEASE
  12. Instruments -- CHECK FOR PROPER INDICATIONS
  13. Rotate – 60-65 MPH
  13. Climb Speed – 85 MPH (V<sub>x</sub>)
  14. Brakes – TAP LIGHTLY
  15. Landing Gear – RETRACT
  14. Flaps -- RETRACT AFTER OBSTACLES ARE CLEARED & REACHING 90 MPH

**ENROUTE CLIMB**

1. Airspeed – 110 MPH
2. Throttle & Prop—25” MP/2500 RPM
3. Fuel Pump -- OFF
4. Mixture -- AS NECESSARY FOR ALTITUDE

**CRUISE**

1. Throttle & Prop -- ADJUST FOR PLANNED MP & RPM
2. Trim -- ADJUST
3. Mixture -- LEAN AS NECESSARY
4. Landing Light – OFF
5. Fuel Pump -- OFF
6. Heading Indicator -- CHECK WITH COMPASS
6. Fuel Selector -- AS DESIRED

**DESCENT**

1. Throttle -- AS DESIRED

**SECURE  
PRE-LANDING**

1. Seats, Belts & Harnesses -- CHECK
2. Mixture -- RICH OR AS NEEDED
3. Fuel Selector -- FULLEST TANK
4. Fuel Pump -- ON
5. Landing Light – ON
6. Landing Gear – EXTENDED (BELOW 150 MPH)

**LANDING**

**NORMAL:**

1. Fuel Pump -- ON
2. Landing Gear – DOWN & CEHCKED
3. Airspeed:
  - Downwind – 110 MPH
  - Base – 100 MPH
  - Final – 90 MPH
4. Flaps:
  - Downwind -- 10°
  - Base -- 25°
  - Final -- 40°
5. Propeller – FULL FORWARD

**SHORT FIELD:**

1. Fuel Pump – ON
2. Landing Gear – DOWN & CHECKED
3. Airspeed:
  - Downwind – 100 MPH
  - Base –90 MPH
  - Final – 80 MPH
4. Flaps:
  - Downwind -- 10°
  - Base – 25°
  - Final – 40°
5. Propeller – FULL FORWARD
6. Throttle -- IDLE AFTER CLEARING OBSTACLE
7. Brakes -- APPLY HEAVILY OR AS NEEDED
8. Flaps – RETRACT IMMEDIATELY
9. Control Yoke – HOLD FULL AFT

**GO-AROUND**

1. Pitch -- UP
2. Throttle -- FULL OPEN

5. Airspeed -- 85 MPH
6. Flaps -- RETRACT SLOWLY AFTER REACHING SAFE ALTITUDE & 90 MPH

**AFTER LANDING**

1. Flaps -- RETRACT
2. Landing Light – OFF
3. Fuel Pump -- OFF
4. Transponder -- STBY

**SHUTDOWN**

1. Brakes – SET
2. Landing Gear Selector – DOWN
3. Avionics & Electrical Equipment – OFF
- \*LEAVE BEACON LIGHT (NAV IF REQUIRED) ON UNTIL PROP STOPS\***
3. Magnetos -- CHECK FOR ENGINE CUTOFF
4. Propeller – FULL FORWARD
5. Mixture -- IDLE CUT-OFF
6. Anti-Collision Lights -- OFF
7. Ignition Switch -- OFF
8. Master Switch -- OFF
9. Seat Belt – WRAP ON YOKE
10. Tie-Downs -- CONNECTED
11. Pitot Cover -- INSTALL
12. Hobbes & Tachometer Readings – RECORD
13. Flight Plan -- CLOSE

**V-Speeds**

- |                             |                             |
|-----------------------------|-----------------------------|
| V <sub>r</sub> -60 MPH      | V <sub>x</sub> -64MPH       |
| V <sub>y</sub> -76 MPH      | V <sub>s1</sub> -55 MPH     |
| V <sub>so</sub> -49 MPH     | V <sub>g</sub> - 76 MPH     |
| V <sub>a</sub> - 89-113 MPH | V <sub>no</sub> - 125 MPH   |
| V <sub>fe</sub> - 102 MPH   | V <sub>final</sub> - 66 MPH |
| V <sub>ne</sub> - 154 MPH   | Max. Crosswind - 17 MPH     |

2. Mixture -- ADJUST FOR ALTITUDE (FULL RICH AT IDLE POWER)
- EMERGENCY PROCEDURES**

**ENGINE FAILURE**

**TAKEOFF RUN:**

1. Throttle – IDLE
2. Brakes – APPLY AS NEEDED
3. Flaps -- RETRACT
4. Mixture -- IDLE CUT-OFF
5. Ignition Switch -- OFF
6. Electrical Equipment -- OFF
7. Fuel Pump -- OFF
8. Master Switch -- OFF

**IMMEDIATELY AFTER TAKEOFF:**

1. Airspeed – 105 MPH
2. Mixture -- IDLE CUT-OFF
3. Fuel Selector -- OFF
4. Fuel Pump – OFF
5. Ignition Switch -- OFF
6. Flaps -- AS REQUIRED (FULL RECOMMENDED)
7. Landing Gear – EXTEND OR RETRACT AS NECESSARY
7. Master Switch -- OFF
8. Landing – MAKE STRAIGHT AHEAD IN SUITABLE SPOT IF AVAILABLE

**DURING FLIGHT:**

1. Backup Gear Extender -- OVERRIDE
2. Airspeed -- 105 MPH
3. Alternate Air – ON
4. Fuel Selector -- SWITCH TANKS IF FUEL REMAINS IN OTHER TANK
5. Fuel Pump -- ON
6. Mixture -- RICH
7. Primer -- IN & LOCKED
8. Ignition Switch -- BOTH, LEFT, RIGHT (OR START IF PROP IS STOPPED)

*\* If Engine doesn't restart, locate a suitable landing spot & follow Emergency Landing checklist.*

3. Flaps -- RETRACT TO 25°
  4. Landing Gear -- RETRACT
- FORCED LANDINGS**

**WITHOUT POWER:**

1. Backup Gear Extender -- OVERRIDE
2. Airspeed -- 105 MPH
3. Propeller – FULL AFT (LOW RPM)
4. Seats, Belts & Harnesses -- SECURE
5. Mixture -- IDLE CUT-OFF
6. Fuel Selector -- OFF
7. Ignition Switch -- OFF
8. Flaps -- AS REQUIRED (FULL RECOMMENDED)
9. If Time Permits:
  - a. Transponder -- SQUAWK 7700
  - b. Radio -- TRANSMIT MAYDAY TO ATC (OR 121.5 AS A LAST RESORT) WITH LOCATION & INTENTIONS
10. Electrical Equipment -- OFF
11. Landing Gear – EXTEND OR RETRACT AS NECESSARY
12. Master Switch -- OFF
10. Doors -- UNLATCH PRIOR TO TOUCHDOWN
11. Touchdown -- SLIGHTLY TAIL LOW
12. Brakes -- APPLY HEAVILY
13. Cabin -- EVACUATE AS SOON AS POSSIBLE

**PRECAUTIONARY WITH POWER:**

1. Airspeed -- 105 MPH
2. Flaps -- 25°
3. Seats, Belts & Harnesses -- SECURE
4. Landing Sight -- FLY OVER NOTING CONDITIONS
5. Flaps -- RETRACT UPON SAFE ALTITUDE AND AIRSPEED
6. If Time Permits & Necessary:
  - a. Transponder -- SQUAWK 7700
  - b. Radio -- TRANSMIT MAYDAY TO ATC (OR 121.5 AS A LAST RESORT) WITH LOCATION & INTENTIONS
7. Electrical Equipment -- OFF
8. Flaps -- AS REQUIRED (FULL

9. Master Switch -- OFF
10. Doors – UNLATCH PRIOR TO TOUCHDOWN
11. Touchdown -- SLIGHTLY TAIL LOW
12. Brakes -- APPLY HEAVILY
13. Ignition Switch – OFF

**PROPELLER OVERSPEED**

1. Throttle – RETARD
2. Oil Pressure – CHECK
3. Propeller – FULL AFT (LOW RPM) SET IF ANY CONTROL AVAILABLE
4. Airspeed – REDUCE
5. Throttle – AS REQUIRED TO REMAIN BELOW 2700 RPM

**EMERGENCY LANDING GEAR EXTENSION**

1. Master Switch – ON
2. Circuit Breakers – CHECK
3. Panel Lights – OFF (DAYTIME)
4. Gear Indicator Bulbs – CHECK
- \* **If Gear is not down & locked:**
5. Airspeed – BELOW 100 MPH
6. Landing Gear Selector – DOWN
7. Backup Gear Extender – OVERRIDE
8. Emergency Gear Extender – ENGAGED
9. Aircraft – YAW IF NECESSARY

**DITCHING**

1. Radio -- TRANSMIT MAYDAY TO ATC (OR 121.5 AS A LAST RESORT) WITH LOCATION & INTENTIONS
2. Transponder -- SQUAWK 7700
3. Heavy Objects -- SECURE OR JETTISON
4. Approach: High Winds, Heavy Seas -- INTO THE WIND

6. Landing Gear – RETRACT
7. Power -- ESTABLISH 300 FT/MIN DESCENT AT 105 MPH  
\*If no power is available, approach at 105 MPH & 10° flaps
8. Cabin Doors -- UNLATCH
9. Touchdown – LEVEL ATTITUDE AT ESTABLISHED RATE OF DESCENT
10. Face -- CUSHION WITH AVAILABLE OBJECT
11. Cabin -- EVACUATE..IF NECESSARY, OPEN WINDOW AND FLOOD CABIN TO EQUALIZE PRESSURE SO DOORS CAN BE OPENED
12. Life Vest & Raft -- INFLATE IF ON BOARD

**FIRES**

***DURING START ON GROUND:***

1. Cranking -- CONTINUE, AS TO ACQUIRE START THUS SUCKING FLAMES INTO ENGINE

**\* If Engine Starts:**

2. Power -- 2000 RPM FOR A FEW MINUTES
3. Engine -- SHUTDOWN & INSPECT FOR DAMAGE

**\* If Engine Fails to Start:**

4. Throttle -- FULL OPEN
5. Mixture -- IDLE CUT-OFF
6. Fuel Pump -- OFF
7. Cranking -- CONTINUE
8. Fire Extinguisher -- OBTAIN (HAVE GROUND ATTENDANT OBTAIN IF NOT INSTALLED)
9. Engine -- SECURE
  - a. Master Switch -- OFF
  - b. Ignition Switch -- OFF
  - c. Fuel Selector -- OFF
10. Fire -- EXTINGUISH

***ENGINE FIRE IN FLIGHT:***

- RECOMMENDED)
9. Landing Gear – EXTEND OR RETRACT AS NECESSARY
  5. Ignition Switch -- OFF
  6. Cabin Heat & Air -- OFF (EXCEPT OVERHEAD VENTS)
  7. Airspeed – 110 MPH  
**\* IF FIRE IS NOT EXTINGUISHED, INCREASE GLIDE SPEED TO PROVIDE INCOMBUSTIBLE MIXTURE \***
  8. Forced Landing – FORCED LANDING WITHOUT POWER

***ELECTRICAL FIRE IN FLIGHT:***

1. Master Switch -- OFF
2. Electrical Equipment -- OFF
3. Vents – OPEN
4. Cabin Heat -- OFF
5. Fire Extinguisher -- ACTIVATE IF AVAILABLE

**\* VENTILATE CABIN AFTER DISCHARGING EXTINGUISHER \***

**\* If Fire appears out & Electrical Equipment is Necessary:**

6. Master Switch -- ON
7. Circuit Breakers -- CHECK FOR FAULTY CIRCUIT (DO NOT RESET)
8. Radio Switches -- OFF
9. Radio/Electrical Switches -- ON..ONE AT A TIME UNTIL SHORT CIRCUIT IS LOCALIZED
10. Vents/Cabin Air/Heat -- ON WHEN DETERMINED THAT FIRE IS COMPLETELY OUT

***CABIN FIRE:***

1. Master Switch -- OFF
2. Vents/Cabin Air/Heat -- CLOSED
3. Fire Extinguisher -- ACTIVATE IF AVAILABLE

**\* VENTILATE CABIN AFTER DISCHARGING EXTINGUISHER \***

4. Flight -- TERMINATE AS SOON AS POSSIBLE

***WING FIRE:***

- Light Winds, Heavy Swells – PARALLEL TO THE SWELLS
5. Flaps -- 25°-40°  
KEEP FLAMES AWAY FROM THE FUEL TANKS & CABIN. LAND AS SOON AS POSSIBLE, USING FLAPS ONLY AS REQUIRED FOR FINAL APPROACH & TOUCHDOWN

**ELECTRICAL MALFUNCTIONS**

***EXCESSIVE LOAD ON ALTERNATOR GAUGE:***

1. Alternator -- ON
2. Battery Switch -- OFF
3. Nonessential Electrical Equipment – OFF

**\* If Alternator Loads are not Reduced:**

4. Alternator -- OFF
5. Battery Switch -- AS REQUIRED
6. Flight -- TERMINATE AS SOON AS PRACTICAL

***ALTERNATOR FAILURE: (ZERO READING ON AMMETER)***

1. Electrical Equipment -- OFF
2. Alternator Switch -- OFF 30 SECS.
3. Circuit Breaker -- CHECK & RESET AS REQUIRED
4. Alternator Switch -- ON
5. Alternator Gauge -- CHECK OPERATION

**\* If Ammeter Returns to Zero Again:**

7. Alternator Switch -- OFF
8. Nonessential Radio & Electrical Equipment -- OFF
9. Flight -- TERMINATE AS SOON AS PRACTICAL

**OPEN DOOR**

1. Airspeed -- 100 MPH
2. Cabin Vents – CLOSE
3. Storm Window -- OPEN
4. Latch -- CLOSE (SIDE BEFORE UPPER)

<ol style="list-style-type: none"><li>1. Mixture -- IDLE CUT-OFF</li><li>2. Fuel Selector -- OFF</li><li>3. Fuel Pump -- OFF</li><li>4. Master Switch -- OFF</li></ol>	<ol style="list-style-type: none"><li>1. Navigation Lights -- OFF</li><li>2. Pitot Heat -- OFF</li><li>3. Strobe Lights -- OFF</li><li>4. Flight -- PERFORM SIDE SLIP TO</li></ol>	