

**PREFLIGHT INSPECTION****CABIN**

Certificates/Documents ..... IN AIRCRAFT  
**A**irworthiness Certificate  
**R**egistration  
**R**adio Operators/Station License (**I**nternational Flights Only)  
**O**perating Limitations / Airplane Flight Manual  
**W**eight & Balance (current)  
 Parking Brake ..... SET  
 Control Wheel Lock ..... REMOVE  
 Ignition Switch ..... OFF  
 Master Switch ..... ON  
 Fuel Quantity Indicators ..... CHECK QUANTITY  
 Anti-collision / Strobe Lights ..... CHECK OPERATION  
 Flaps ..... DOWN FOR INSPECTION  
 \*\*For Night Operation: Lights ..... CHECK  
 Master Switch ..... OFF  
 Engine Fuel Strainer ..... DRAIN 4 SECONDS  
 Fuel Selector ..... BOTH  
 Baggage Door ..... CHECK SECURE

**TAIL SECTION**

Tail Tie-Down / Rudder Gust Lock ..... REMOVE  
 Elevator & Rudder ..... CHECK FREEDOM & SECURE  
 Nav. Lights ..... UNBROKEN (WHITE)

**RIGHT WING**

Flap Tracks & Actuator Rod ..... CHECK  
 Aileron ..... CHECK FREEDOM & SECURE  
 Nav. Light ..... UNBROKEN (**GREEN**)  
 Fuel Quantity ..... CHECK VISUALLY  
 Fuel Filler Cap ..... SECURE  
 Wing Tie-down ..... REMOVE  
 Fuel Tank Sump Quick-Drain Valve ..... DRAIN  
 Main Wheel Tire ..... CHECK WEAR & INFLATION (32 psi)

**NOSE**

Windshield ..... CHECK CLEAN  
 Wheel Chocks ..... REMOVE  
 Engine Oil Dipstick ..... CHECK (9-12 qt.)  
 Nose Wheel ..... CHECK WEAR & INFLATION (32 psi)  
 Shock Strut ..... CHECK PROPER INFLATION (45 psi)  
     Approx. 3.25 inches showing  
 Air Inlets ..... CHECK FREE OF FOREIGN MATTER  
 Landing Light ..... CHECK  
 Air Filter ..... CHECK  
 Propeller & Spinner ..... CHECK  
 Tow Bar ..... REMOVE  
 Static Port ..... CHECK

**LEFT WING**

Main Wheel Tire ..... CHECK WEAR & INFLATION (32 psi)  
 Fuel Tank Sump Quick-Drain Valve ..... DRAIN  
 Wing Tie-down ..... REMOVE  
 Fuel Quantity ..... CHECK VISUALLY  
 Fuel Filler Cap ..... SECURE  
 Pitot Tube / Cover ..... CHECK / REMOVE  
 Fuel Tank Vent Opening ..... CHECK  
 Stall Warning Vent ..... CHECK  
 Nav. Light ..... UNBROKEN (**RED**)  
 Aileron ..... CHECK FREEDOM & SECURE  
 Flap Tracks & Actuator Rod ..... CHECK

**BEFORE STARTING ENGINE**

Chocks ..... REMOVE  
 Preflight Inspection ..... COMPLETE  
 Circuit Breakers ..... CHECK IN  
 Passenger Briefing ..... COMPLETE  
 Flight Controls ..... FREE & CORRECT  
 Seats, Seat Belts, Harness ..... ADJUST & LOCK  
 Brakes ..... TEST & SET  
 Master Switch ..... ON  
 Cowl Flaps ..... OPEN  
 Elevator Trim ..... SET for takeoff

Radios & Electrical Equipment ..... OFF  
 Fuel Selector ..... BOTH  
 Tow Bar ..... REMOVE

**STARTING ENGINE**

Carburetor Heat ..... COLD  
 Mixture ..... RICH  
 Propeller ..... HIGH RPM  
 Throttle ..... OPEN 1/2 inch  
 Prime ..... (2-6 strokes) AS REQUIRED  
 Primer ..... IN & LOCKED  
 Anti-collision / Strobe Lights ..... CHECK OPERATION  
 Propeller Area ..... CLEAR  
 Ignition Switch ..... START (hold no longer than 30 sec.)  
 Oil Pressure ..... CHECK\*  
     \* Oil pressure indication within 30 sec.  
 Engine Warm-up ..... THROTTLE 800-1200 RPM  
 Mixture ..... LEAN FOR TAXI

**BEFORE TAXI**

Lights & Strobes ..... AS REQUIRED  
 Radios ..... ON-SET  
 Transponder ..... STANDBY  
 Flaps ..... UP  
 Seats, Belts, Harnesses ..... CHECK SECURE  
 Brakes ..... TEST

**BEFORE TAKEOFF**

Parking Brake ..... SET  
 Seats, Belts, Harnesses ..... CHECK SECURE  
 Fuel Selector ..... BOTH  
 Fuel Quantity ..... CHECK  
 Mixture ..... RICH  
 Throttle ..... 1700 RPM  
     Magnetos ..... CHECK  
     (125 max drop / 50 max diff.)  
     Carburetor Heat ..... CHECK  
     Suction Gage ..... CHECK (3.75 to 5.0)  
 Propeller ..... CYCLE  
     (x3 high to low RPM; return to HIGH)  
 Engine Instruments & Ammeter ..... CHECK  
 Throttle ..... CHECK IDLE LIMITS (650 RPM)  
     If holding for Takeoff IDLE at 1200 RPM  
 Throttle Friction Lock ..... ADJUST  
 Flight Controls ..... FREE & CORRECT  
 Transponder ..... ALTITUDE  
 Wing Flaps ..... SET for takeoff (0° to 20° Only)  
 Cowl Flaps ..... FULL OPEN  
 Flight Instruments & Radios ..... CHECK & SET  
 Elevator & Rudder Trim ..... SET for takeoff  
 Cabin Doors & Windows ..... CLOSED & LOCKED  
 Lights ..... AS DESIRED  
 Brakes ..... RELEASE  
 \*\*\* (Note time of departure for fuel purposes.)

**TAKE OFF****NORMAL TAKEOFF**

Wing Flaps ..... 0 Degrees  
 Carburetor Heat ..... COLD  
 Throttle ..... FULL "OPEN" & 2600 RPM  
 Elevator Control ..... LIFT NOSE WHEEL (60 MPH)  
 Climb Speed ..... 90 MPH

**ENROUTE CLIMB**

Airspeed ..... 100-120 MPH  
 Power ..... 23" and 2450 RPM  
 Mixture ..... RICH (until 3000 feet)  
 Cowl Flaps ..... OPEN as required

**CRUISE**

Power ..... 15" to 23" MP and 2200 to 2450 RPM  
 Cowl Flaps ..... OPEN as required  
 Elevator & Rudder Trim ..... ADJUST  
 Mixture ..... LEAN

**DESCENT**

Fuel Selector..... BOTH  
Mixture ..... RICH  
Power ..... AS DESIRED  
Carburetor Heat ..... AS REQUIRED

**BEFORE LANDING**

Seats, Belts, Harnesses ..... SECURE  
Fuel Selector..... BOTH  
Mixture ..... RICH  
Propeller ..... HIGH RPM  
Cowl Flaps ..... CLOSED  
Carburetor Heat ..... APPLY FULL HEAT  
Elevator and Rudder Trim ..... ADJUST

**BALKED LANDING (Go-Around)**

Power..... FULL THROTTLE  
Carburetor Heat..... COLD  
Wing Flaps..... RETRACT to 20°  
Upon reaching an airspeed of approximately 60 MPH, retract flaps slowly.

**LANDING**

**NORMAL LANDING**

Airspeed ..... 80-90 MPH (flaps up)  
Wing Flaps..... 0° to 40° (below 110 MPH)  
Airspeed ..... 70-80 MPH (flaps down)  
Touchdown ..... MAINS FIRST  
Landing Roll ..... LOWER NOSE WHEEL GENTLY  
Braking ..... MINIMUM REQUIRED

**AFTER LANDING**

Cowl Flaps ..... OPEN  
Wing Flaps ..... UP  
Carburetor Heat ..... COLD  
Transponder ..... STANDBY  
Lights ..... AS REQUIRED

\*\*\* (Note time of landing to compare against the Hobbs.)

**SHUTDOWN**

Parking Brake ..... SET  
Radios & Electrical Equipment & Lights ..... OFF  
Throttle ..... 1000 RPM  
Mixture ..... IDLE CUT-OFF  
Ignition Switch ..... OFF  
Master ..... OFF  
Control Lock ..... INSTALL  
Hobbs & Tach ..... RECORD  
Aircraft ..... SECURE

**USEFUL INFORMATION**

**Aircraft V-Speeds:**

**Vr:** (Rotation Speed) 60 MPH  
**Vx:** (Best angle of climb) 70 MPH  
**Vy:** (Best rate of climb) 88 MPH  
**Va:** (Maneuvering Speed) 128 MPH  
**Vfe:** (Max flap extended speed) 110 MPH  
**Vno:** (Max structural cruising speed) 160 MPH  
**Vne:** (Never exceed speed) 193 MPH  
**Vs1:** (Stall Speed (clean)) 67 MPH  
**Vso:** (Stall Speed (dirty)) 60 MPH  
**Glide:** (clean) **80 MPH**

Note: All Speeds are for Gross Weight (2800 lbs) aircraft.

**Weight & Balance:**

Max Gross Weight: 2800.00 lbs.  
Basic Empty Weight: lbs.  
Useful Load: lbs.  
Payload: lbs.  
Moment:  
Center of Gravity: in.

**Standard Fuel Loading:**

84 Gallon Capacity 504 lbs  
79 Gallons Usable 474 lbs  
5 Gallons Unusable Fuel 30 lbs

**EMERGENCY PROCEDURES**

**ENGINE FIRE DURING START (results from over priming) (Technique)**

Starter..... CONTINUE TO CRANK ENGINE  
Power ..... 1700 RPM (if engine starts)  
If engine start is unsuccessful, continue cranking for 2 or 3 minutes with throttle full open.  
Mixture ..... IDLE CUT-OFF  
Fuel Selector..... OFF  
Aircraft..... ABANDON IF FIRE CONTINUES

Smother flames with fire extinguisher, seat cushion, blanket, or loose dirt. If practical, remove carburetor air filter if it's ablaze.

Make a thorough inspection of fire damage, and repair or replace damaged components before conducting flight.

**ENGINE POWER LOSS DURING TAKE-OFF (Instructor Technique)**

If sufficient runway remains for a normal landing land straight ahead.

If insufficient runway remains, maintain a safe airspeed and make only shallow turns to avoid obstructions.

If you have gained sufficient altitude to attempt a restart, proceed with next checklist.

**ENGINE FAILURE DURING FLIGHT (restart) (Instructor Technique)**

Airspeed ..... **80 MPH**  
Carburetor Heat..... ON  
Fuel Selector ..... SWITCH TANKS\*  
Mixture ..... RICH  
Engine Gauges..... CHECK FOR CAUSE  
Ignition Switch ..... "L" then "R" back to BOTH  
Primer ..... IN & LOCKED  
Transponder ..... **7700**  
Radio ..... **121.5 MAYDAY\*\***

\* If engine failure was caused by fuel exhaustion, power will not be regained after tanks are switched until empty fuel lines are filled, which may require up to ten seconds.

\*\* When calling on 121.5 say your last known position number of people on board, how much fuel, and what kind of emergency. It is recorded and they will be able to find you and take care of you faster.

**EMERGENCY LANDING WITHOUT ENGINE POWER (Technique)**

Airspeed ..... **80 MPH**  
Mixture ..... CUT—OFF  
Fuel Selector..... OFF  
Ignition Switch ..... OFF  
Seat belt and harness..... TIGHT  
Flaps..... AS REQUIRED WITHIN GLIDING DIST OF FIELD  
(Full Flaps Down)..... **70 MPH**  
Master Switch ..... OFF  
Cabin Doors..... UNLACH PRIOR TO FINAL APPROACH  
Touchdown ..... SLIGHTLY TAIL LOW(min. speed)  
Apply heavy braking while holding full up elevator.

**ELECTRICAL FIRE (smoke in cabin) (Instructor Technique)**

Master Switch..... OFF  
All Electrical Switches (except ignition)..... OFF  
Vents / Windows..... OPEN TO VENT SMOKE  
Cabin Heat..... OFF  
Land as soon as Practical

**ENGINE FIRE IN FLIGHT(Instructor Technique)**

Mixture ..... CUT—OFF  
Fuel Selector..... OFF  
Master Switch ..... OFF  
Glide Establish..... **120 MPH**  
Cabin Heat..... OFF / CLOSED

If fire is not extinguished, increase glide speed in an attempt to find an airspeed that will provide incombustible mixture.

Magneto Switch ..... OFF

Proceed with **EMERGENCY LANDING w/o POWER** procedure.