

## BEFORE STARTING ENGINE

1. Preflight Inspection – COMPLETE.
2. Passenger / Crew Briefing – COMPLETE.
3. Seats, Belts, Shoulder Harnesses – ADJUST and LOCK.
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. Cowl Flaps – OPEN.
9. Fuel Selector Valve – BOTH.
10. Avionics Circuit Breakers – CHECK IN.

## STARTING ENGINE (With Battery)

1. Throttle – OPEN ¼ INCH.
2. Prop – HIGH RPM.
3. Mixture – IDLE CUT OFF.
4. Propeller Area – CLEAR.
5. Master Switch – ON.

### **NOTE**

**If engine is warm, omit priming procedure in steps 6,7, and 8. Go directly to step 9.**

6. Auxiliary Fuel Pump Switch – ON.
7. Mixture – ADVANCE to full rich until the fuel flow just starts to rise, then return to IDLE CUT OFF position.
8. Auxiliary Fuel Pump – OFF.
9. Beacon – ON.
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 ½ to full and crank engine. When engine fires, advance mixture to full rich and retard throttle promptly.

12. Oil Pressure – CHECK.
13. Mixture – LEAN FOR TAXI (1200RPM, lean to peak).
14. Navigation Lights – ON as required.
15. Avionics Master Switch – ON.
16. Aspen Master Switch – ON.
17. Radios – ON (obtain clearance).
18. Flaps – RETRACT.
19. Transponder – ALT (with appropriate squawk).

## TAXI

1. Brakes – CHECK.
2. Flight Controls – POSITION FOR WIND.
3. Flight and Nav Instruments – CHECK AND SET.

## 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.
5. Flight Controls – FREE and CORRECT.
6. Flight Instruments – CHECK and SET.
7. Fuel Quantity – CHECK.
8. Fuel Selector Valve – RECHECK BOTH.
9. Elevator Trim and Rudder Trim – SET for takeoff.
10. 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 Gage – CHECK.
  - d. Engine Instruments and Ammeter – CHECK.
11. Annunciator Panel – Ensure none illuminated.
12. Throttle – CHECK IDLE.
13. Throttle – 1000 RPM or less.
14. Throttle Friction Lock – ADJUST.
15. Strobe Lights – AS DESIRED.
16. Radios and Avionics – SET.
17. Autopilot – OFF.
18. Wing Flaps – SET for takeoff (0° to 20°).
19. Cowl Flap – OPEN.
20. Brakes – RELEASE.

## TAKEOFF

### **NORMAL TAKEOFF**

1. Wing Flaps – 0° to 20°.
2. Lights – ON as desired.
3. Time – NOTED.
4. Power – SMOOTHLY ADVANCE to FULL THROTTLE and 2400 RPM.
5. Mixture – RICH (mixture may be leaned to obtain Maximum Power Fuel Flow placard value).
6. Engine Instruments – VERIFY NORMAL.
7. Elevator Control – LIFT NOSE WHEEL (at 50-60 KIAS).
8. Climb Speed – 70 KIAS (flaps 20°).  
80 KIAS (flaps 0°).
9. Wing Flaps – RETRACT.

### **SHORT FIELD TAKEOFF**

1. Wing Flaps – 20°.
2. Lights – ON as desired.
3. Time – NOTED.
4. Brakes – APPLY.
5. Power – SMOOTHLY ADVANCE to FULL THROTTLE and 2400 RPM.
6. Mixture – Lean to obtain Maximum Power Fuel Flow placard value.
7. Brakes – RELEASE.
8. Elevator Control – MAINTAIN SLIGHTLY TAIL-LOW ATTITUDE.
9. Climb Speed – 60 KIAS (until all obstacles are cleared).
10. Wing Flaps – RETRACT slowly after reaching 70 KIAS.

## AFTER TAKEOFF / ENROUTE CLIMB

1. Airspeed – 85-95 KIAS.  
Max Performance ( $V_y$ ) 80 KIAS @SL to 77 KIAS @10,000 ft.
2. Power – 23 in. Hg or FULL THROTTLE (whichever is less) and 2400 RPM.
3. Fuel Selector Valve – BOTH.
4. Cowl Flaps – OPEN (as required).

## CRUISE

1. Lights – AS DESIRED.
2. Power – 15-23 INCHES Hg. 2000-2400 RPM (no more than 80%).
3. Elevator and Rudder Trim – ADJUST.
4. Mixture – LEAN.
5. Cowl Flaps – CLOSED.

## DESCENT

1. Power – AS DESIRED.
2. Mixture – ENRICHEN as required.
3. Cowl Flaps – CLOSED.
4. Altimeter – SET.
5. Fuel Selector Valve – BOTH.
6. Wing Flaps – AS DESIRED (0°-10° below 140 KIAS, 10°-20° below 120 KIAS, 20° - FULL below 100 KIAS).

## BEFORE LANDING

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

## LANDING

### NORMAL LANDING

1. Airspeed – 70 to 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.
6. Touchdown – MAIN WHEELS FIRST.
7. Landing Roll – LOWER NOSE WHEEL GENTLY.
8. Braking – MINIMUM REQUIRED.

## SHORT FIELD LANDING

1. Airspeed – 70 to 80 KIAS (flaps UP).
2. Wing Flaps – FULL (below 100 KIAS).
3. Airspeed – 60 KIAS (until flare).
4. Trim – ADJUST.
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.
3. Mixture – LEAN for taxi.
4. Lights – AS DESIRED.

## SHUTDOWN / SECURING AIRPLANE

1. Parking Brake – SET.
2. Throttle – IDLE. **TRY 1000-1200 if next start is hot**
3. Electrical Equipment, Avionics Master Switch, Autopilot (if installed) – OFF.
4. Aspen Master Switch – OFF.
5. Mixture – IDLE CUT OFF (pulled full out).
6. Ignition Switch – OFF.
7. Master Switch – OFF.
8. Control Lock – INSTALL.
9. Fuel Selector Valve – LEFT or RIGHT to prevent cross feeding.

### V SPEED REFERENCE-KIAS

$V_A$  – 110  
 $V_X$  (6000 ft.) – 67  
 $V_Y$  (6000 ft.) – 79  
 $V_{NO}$  – 140  
 $V_{NE}$  – 175  
 $V_{FE}$  (flaps 20° to FULL) – 100  
 $V_{FE}$  (flaps 10° - 20°) – 120  
 $V_{FE}$  (flaps 0°-10°) – 140  
BEST GLIDE SPEED – 76

### CYLINDER ORIENTATION

PROPELLER  
2      1 (CHT)  
4      3  
6      5  
FIREWALL