

**BEFORE ENGINE START**

- 1) Hobbs Time ..... NOTED
- 2) Preflight..... COMPLETE
- 3) Fuel quantity.....ADEQUATE
- 4) Documentation (including IFR) ..... CHECK
- 5) Seats & Seat Belts..... ADJUSTED & LATCHED
- 6) Brakes .....TEST (SET)
- 7) Fuel flow memory ..... ON
- 8) ELT .....ARMED
- 9) Landing gear switch .....DOWN
- 10) Magneto switch.....OFF
- 11) Master switch.....OFF
- 12) Radio master switch.....OFF
- 13) Alternate static.....OFF
- 14) Lights and electrical equipment.....OFF
- 15) Boost pump .....OFF
- 16) Cowl flaps..... OPEN
- 17) Fuel selector .....ON (2<sup>nd</sup> tank)
- 18) Circuit breaker panel ..... CHECK
- 19) Passengers .....BRIEFED (normal & emergency)

**STARTING ENGINE**

- 1) Mixture..... CUT OFF
  - 2) Propeller.....FULL ADVANCE
  - 3) Throttle ..... OPEN ¼ inch (1/2 for hot)
  - 4) Master switch..... ON
  - 5) Strobes and/or Navigation lights ..... ON
  - 6) Fuel totalizer .....RESET or CHECK
  - 7) Propeller area ..... CLEAR
- For hot start delete steps 8-10*
- 8) Boost pump ..... ON
  - 9) Mixture..... RICH for 3-8 seconds then cut off
  - 10) Boost pump .....OFF
  - 11) Magnetos..... START (10 seconds max)
  - 12) Mixture..... RICH
  - 13) Oil pressure ..... NORMAL (within 30 seconds)
  - 14) Mixture..... LEAN for smooth idle

**AFTER START**

- 1) Radio Master..... ON
- 2) Lights .....AS REQUIRED
- 3) Electric trim ..... ON
- 4) Parking brake..... RELEASED
- 5) Brake and steering check ..... ON TAXI
- 6) IFR taxi checks ..... ON TAXI

**BEFORE TAKEOFF**

- 1) IFR taxi check ..... COMPLETE
- 2) Flight controls ..... FREE & CORRECT
- 3) Flight instruments .....SET
- 4) Radios ..... Comm & Nav SET
- 5) Annunciator panel ..... CHECK
- 6) Gear alert system..... TEST
- 7) Auto pilot..... TEST and OFF
- 8) Rudder trim .....SET
- 9) Elevator Trim .....SET for TAKEOFF
- 10) Flaps .....SET for TAKEOFF
- 11) Cowl flaps..... FULL OPEN
- 12) Fuel selector ..... ON DESIRED TANK
  - a) Throttle.....1900 RPM
  - b) Magnetos ..... CHECK (175 max drop)
  - c) Oil pressure..... NORMAL RANGE
  - d) Ammeter ..... CHARGE
  - e) Low vacuum light ..... OUT
  - f) Propeller .....CYCLE then FORWARD
  - g) Throttle.....1000 RPM

- 13) Door.....LOCKED
- 14) Mixture..... FULL RICH
- 15) Boost pump ..... ON
- 16) Lights & strobes.....AS REQUIRED
- 17) Transponder ..... ALT
- 18) Time of departure ..... NOTED
- 19) Pilot briefing .....NORMAL & EMERGENCY

**TAKEOFF & CLIMB**

- 1) Rotate ..... 63 KIAS
- 2) Gear UP
- 3) Climb ..... 85 KIAS  
(66 KIAS max performance)
- 4) Flaps ..... UP
- 5) Throttle .....25 inches (at 500 AGL)
- 6) Propeller.....2500 rpm
- 7) Climb ..... 100 KIAS  
(85 for best rate)
- 8) Boost pump ..... OFF  
(confirm fuel pressure)
- 9) Mixture..... LEAN  
(50 rich of peak or 14 gph)
- 10) Cowl flaps.....TRAIL (open if CHT hot)
- 11) Cylinder temperatures ..... MONITOR

**CRUISE**

- 1) Level at altitude ..... ACCELERATE
- 2) Throttle ..... SET DESIRED POWER
- 3) Propeller.....SET (2200 or 2400 rpm)
- 4) Trim ..... for LEVEL FLIGHT
- 5) Cowl flaps..... CLOSE (if CHT allows)
- 6) Mixture.....LEAN (lean of peak at < 60%)
- 7) Engine temperatures..... MONITOR
- 8) Systems .....CHECK

**DESCENT**

- 1) Throttle ..... (not less than 16" MP)
- 2) Cowl flaps.....(remain) CLOSED
- 3) Mixture..... LEAN (unless rough)

**IN RANGE**

- 1) Seats & belts ..... SECURE & LOCKED
- 1) Fuel.....ADEQUATE & DESIRED TANK
- 2) AWOS – ATIS – Advisories ..... NOTED
- 3) Altimeter ..... SET
- 4) Approach & missed approach.....BRIEFED
- 5) Radios..... SET
- 6) Lights .....AS REQUIRED
- 7) Initial approach speed ..... 105 KIAS

**BEFORE LANDING**

- 1) Boost pump ..... ON
- 2) Landing gear ..... DOWN  
(below 130 KIAS)
- 3) Throttle ..... SET
- 4) Propeller..... FORWARD
- 5) Mixture..... RICH
- 6) Cowl flaps..... OPEN
- 7) Flaps .....SET (below 115 KIAS)
- 8) Approach speed ..... 80 KIAS
- 9) Landing assured
  - a. Autopilot off
  - b. Gear confirmed down
  - c. Final approach speed – 71 KIAS

### MISSED APPROACH / GO AROUND

- 1) Throttle ..... FORWARD
- 2) Propeller ..... FORWARD
- 3) Speed ..... 65 to 80 KIAS
- 4) Flaps ..... TAKEOFF SETTING 15° (3 seconds)
- 5) Gear ..... RETRACT after positive rate
- 6) Flaps ..... RETRACT at 85 KIAS
- 7) Cowl flaps ..... OPEN
- 8) Boost Pump ..... OFF

### AFTER LANDING

- 1) Transponder ..... STANDBY
- 2) Boost pump ..... OFF
- 3) Mixture ..... LEAN
- 4) Strobes ..... OFF (at night)
- 5) Lights ..... AS REQUIRED
- 6) Flaps ..... UP
- 7) Trim ..... TAKEOFF SETTING

### ENGINE SHUTDOWN

- 1) Throttle ..... 1000 rpm (stabilize CHT)
- 2) Electric trim ..... OFF
- 3) Radio master ..... OFF
- 4) Electrical equipment ..... OFF
- 5) Mixture ..... CUT OFF
- 6) Throttle ..... CLOSED
- 7) Magnetos ..... OFF (remove key)
- 8) Lights ..... OFF
- 9) Master switch ..... OFF
- 10) Overhead lights ..... OFF
- 11) Parking brake ..... OFF
- 12) Aircraft interior & exterior ..... SECURE

POWER SETTINGS					
CONDITION	MP	RPM	MIX	PWR	GPH
Takeoff	Full	2700	Rich	95%	18
Initial climb	25"	2500	Rich	75%	14
Cruise climb	24"	2500	Lean	71%	10
Cruise	24"	2400	Lean	67%	9.6
" "	22"	2400	Lean	63%	9.0
" "	*20"	2400	Lean	58%	8.2
" "	*22"	2200	Lean	55%	7.8
" "	20"	2200	Lean	50%	7.3
" "	18"	2200	Lean	45%	6.8
Descent	16"	22-24	Lean	-	6.1

\* recommended for WCFC operations and fuel consumption

WCFC recommended SPEEDS TO FLY	
Va.....	120 KIAS
Vx.....	66 KIAS
Vy.....	85 KIAS
Best glide speed (clean)	
@ gross weight.....	90 KIAS
@ 2300 pounds.....	85 KIAS

WCFC required FIELD LENGTH		
Elevation	Normal	Maximum performance
Sea level	3,000 feet	2,500 feet
500 feet	3,200	2,600
1,000	3,500	2,800
2,000	4,000	3,000
4,000	5,000	4,000
6,000	6,000	5,000