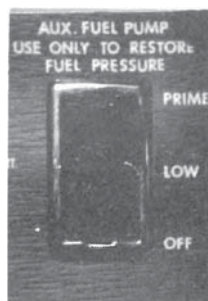


An electric auxiliary fuel pump is provided for starting and in the event that the engine driven fuel pump fails. See Fig. 1-10

Fig. 1-10
Auxiliary Fuel Switch



WARNING

On aircraft model 17-30A, Continental powered, the red auxiliary fuel pump switch has three positions, OFF, LOW, and PRIME. The PRIME position is spring loaded, and must be held in place. Prime should be used only for starting or to restore lost fuel flow. Prolonged use of auxiliary pump in PRIME position may cause engine roughness and possible engine stoppage due to overly rich mixture during low power operation. The switch is illuminated when the pump is in operation.

Fuel drains are located under the fuselage below the front seats. A quick drain is provided at the gasolator, with access to the control knob through the aft inspection cover on the engine cowl.

NOTE

After using quick drain, insure that the drain is not leaking, by visually looking under the fuselage.

LIGHTING SYSTEM

All lighting switches are located on the pilot's lower console with the exception of the map light switch.

INTERIOR LIGHTING

The radios and instruments are internally lighted with the intensity of each group controlled by a separate rheostat.

The side and bottom consoles employ post lights, which are also rheostat controlled.

Two directional over head high intensity map lights are provided with a rheostat control located on the pilots side console. See Fig. 1-11.

STARTING

1. Throttle – FULL OPEN
2. Mixture – FULL RICH
3. Aux. Fuel Pump – ON or (PRIME with Continental) until fuel flow/pressure indicates in green arc, then OFF
4. Mixture – IDLE CUT-OFF (Lycoming Only)
5. Throttle – CRACKED OPEN $\frac{1}{2}$ "
6. Propeller – CLEAR front and rear
7. Brakes – CHECK firm and SET
8. Starter – ENGAGE, release to BOTH after engine fires
9. Mixture – FULL RICH after engine fires (Lycoming only)
10. Throttle – 1000-1200 RPM
11. Oil Pressure – CHECK must indicate pressure within 30 seconds max.
12. Radio Master/Lights – AS DESIRED
13. Engine Instruments – CHECK

The use of auxiliary fuel pump for priming varies with each engine and temperature condition. Generally the colder the engine, the longer the priming period and in some cases, use of the aux. fuel pump must continue until engine RPM is steady. Avoid flooding, due to the resulting fire hazard.

To clear an engine that has been flooded due to excessive priming, proceed as follows:

1. Mixture – IDLE CUT-OFF
2. Throttle – FULL OPEN
3. Auxiliary Fuel Pump – OFF
4. Brakes – SET
5. Starter – ENGAGE until engine fires
6. Repeat normal starting procedures using little or no prime.

During cold weather operation (below 20°F) it is recommended that the engine be preheated prior to starting to insure a longer service life for the starter motor and engine. Direct warm air 175° max. through the opening in the bottom and/or the front of the cowl.

NOTE

After starting do not operate the engine above 1000-1200 RPM until oil temperature is in the green arc.

Should auxiliary power be required for starting, use the normal starting procedures. Connection of auxiliary power is described in Section VI.

TAXI

During ground operation the propeller control should always be in FULL INCREASE RPM position. Prolonged idle below 1000 RPM is not recommended due to plug fouling and insufficient engine cooling. High power operation and engine run up should be into the wind and kept to a minimum, especially during high temperature conditions. Use the flight controls in the conventional manner during crosswind conditions

CAUTION

Avoid taxiing and high power operation on or near loose gravel or small stones as severe damage will result to the propeller and flaps, if in the DOWN position.

BEFORE TAKE-OFF

1. Brakes – SET
2. Fuel Selector – FULLEST MAIN TANK
3. Mixture Control – FULL RICH
4. Turbo Control – FULL IN
5. Propeller Control – FULL INCREASE RPM
6. Aux. Fuel Pump – OFF
7. Engine Instruments – CHECK normal indications
8. Engine Run Up – 1800 RPM
 - a. Magnetos – CHECK (175 RPM max. drop, 50 RPM max. differential)
 - b. Propeller – CYCLE full decrease RPM until 200 RPM drop, then FULL INCREASE RPM
 - c. Engine Instruments – CHECK all in green arc
 - d. Throttle – 1000-1200 RPM
9. Turbo Charger Check – 2200 RPM
 - a. Turbo Warning Light – OUT
 - b. Turbo Control – FULL AFT, note rise in MAP, then push FULL IN
 - c. Throttle – 1000-1200 RPM
10. Controls – CHECK freedom of movement
11. Trim – CHECK operation and SET for take-off
12. Auto-pilot – OFF
13. Flaps – SET HALF or UP and CHECK
14. Circuit Breakers – IN
15. Flight Instruments – CHECK and SET
16. Pilot's Vent Window – CLOSED
17. Cabin Door – CHECK LOCKED
18. Seat and Shoulder Harness – FASTENED

TAKE-OFF (Normal)

1. Throttle – FULL OPEN applying smoothly
2. Engine Instruments – CHECK normal
3. Lift Off – 80 MPH
4. Gear – UP when clear of runway
5. Flaps – UP after reaching 100 MPH and clear of obstacle
6. Throttle – REDUCE 25" MAP after reaching 110 MPH IAS
7. Propeller -- SET 2500 RPM

NOTE

Should the throttle be reduced prior to reaching 105 MPH the landing gear will automatically extend.

Aircraft take-off characteristics are conventional and can be made with flaps UP or at HALF. Half flaps are recommended except during strong crosswinds because of shorter ground run and less nose attitude required for lift-off. Take-off with flaps UP requires sufficient elevator back pressure to insure lift-off at a reasonable speed.

NOTE

Trimming aft of the take-off position in an attempt to reduce the required back pressure for lift-off is not recommended because of the resulting nose high attitude after take-off.

TAKE-OFF (Obstacle)

During an obstacle take-off use the normal take-off procedures with the following exceptions:

1. Flaps – SET HALF and CHECK
2. Lift-Off – 70 MPH
3. Climb – 75 MPH until clear of obstacle

WARNING

This procedure should be used only when necessary. Because of the high nose attitude required, the aircraft may stall if a power loss is experienced and the nose is not lowered immediately.

TAKE-OFF (Soft Field)

For a soft field take – off use the normal take - off procedures with the following exceptions:

1. Flaps -- SET HALF and CHECK
2. Elevator Control – BACK raise nose wheel off ground as soon as possible
3. Lift-Off – ASSIST using elevator back pressure.
4. After Lift-Off – LEVEL FLIGHT to obtain safe margin of airspeed

WARNING

The aircraft will lift-off at a very low IAS but continued climb out immediately after lift-off is not recommended as a possible stall may result.

TAKE-OFF (High Altitude)

Use normal take-off procedures. If engine roughness is noted during full power application, leaning is permissible with the mixture control. Lean only that necessary to obtain smooth engine operation.

The use of the turbo-charger for improved high altitude take-off performance is acceptable. However, do not exceed the engine limitations for turbo charged operation.

CLIMB (Normal)

1. Throttle – 25" MAP
2. Propeller – 2500 RPM
3. Mixture – FULL RICH for power settings above 75%
4. Airspeed – 120 - 130 MPH below 10,000 ft.
110 - 120 MPH above 10,000 ft.
5. Engine Instruments – CHECK in green arc.

Using the normal climb procedures provides a good rate of climb and ground speed in addition to better forward visibility and adequate engine cooling.

When the desired MAP can no longer be maintained, the turbo charger should be utilized. Allow an additional 2" of MAP over that used when normal aspirated.

CLIMB (Maximum Performance)

Maximum climb performance is obtained with full take-off power and the following conditions:

Best Rate of Climb	Best Angle of Climb
1. Flaps – UP 2. Gear – UP 3. Airspeed – 110 MPH	1. Flaps – HALF 2. Gear – UP 3. Airspeed – 75 MPH

CAUTION

Engine limitations must not be exceeded. For maximum engine service life, high power settings at low airspeeds must be kept to a minimum.

CRUISE

1. Level Off – TRIM
2. Airspeed – ACCELERATE to cruise
3. Throttle – SET to cruise MAP
4. Propeller – REDUCE to 2400 RPM or desired cruise RPM
5. Mixture – LEAN to rich side of peak
6. Fuel Selector – AUXILIARY TANK

When level off altitude is reached, allow aircraft to accelerate to cruise airspeed prior to reducing power. An engine power setting of 75% will deliver maximum cruise performance. If maximum range is desired a lower power range setting should be used. Consult the flight performance data.

The recommended propeller setting is 2400 RPM under most cruise conditions for maximum engine smoothness and lowest noise level. Lean when at or less than 75% power, using the exhaust gas temperature gauge as a primary reference. Recommended is 50°F less than the peak temperature at 75% power settings and 25°F less than the peak with 65% power and below. In all cases, lean on the rich side of the peak temperature. For additional information consult the engine operators manual

During high altitude operation above 10,000 ft. it may be necessary to use the auxiliary fuel pump should a fluctuation of fuel pressure or flow be noted. This is due to the increased fuel vaporization rate caused by low atmospheric pressure.

DESCENT

1. Mixture – FULL RICH or maintain rich side of peak EGT.
2. Throttle – REDUCE, maintain normal cylinder head and oil temperature.
3. Propeller – 2200 - 2400 RPM
4. Airspeed – AS DESIRED

Descent should be planned using a comfortable rate of descent with arrival at the destination and level-off altitude occurring at the same time. The mixture should be FULL RICH when initiating the let down. Gradual richening is permissible, but the EGT must always be on the rich side of peak EGT.

The descent should be made with enough power to maintain cylinder head and oil temperature within the green arc. Do not allow the propeller to windmill the engine. If necessary, decrease propeller RPM and/or increase MAP.

LANDING (Normal)

1. Seat and Shoulder Harness – FASTENED
2. Fuel Selector – FULLEST MAIN TANK
3. Mixture – RICH
4. Downwind
 - a. Propeller – 2200–2500 RPM
 - b. Airspeed – 120-130 MPH
 - c. Gear – DOWN, 140 MPH Max.
 - d. Flaps – HALF, 120 MPH Max.
5. Base Leg – 100 MPH
6. Final
 - a. Flaps – FULL DOWN on short final
 - b. Airspeed – 90 MPH FULL FLAPS, 100 MPH no flaps
 - c. Propeller – FULL INCREASE RPM
7. Touchdown
 - a. Throttle – CLOSED
 - b. Attitude – NOSE HIGH, contact runway, with main gear first
8. Roll – Out
 - a. Flaps – UP
 - b. Brakes – AS NEEDED

Aircraft landing characteristics are conventional and can be made with any desired flap setting. Full flaps are recommended, but due to high drag coefficient, they should not be fully extended until established on final approach. As the landing gear and flaps are extended, no abrupt or unusual pitch changes occur. However, it is recommended that the aircraft be kept in proper trim as the airspeed decreases.

Crosswind landings can be accomplished with or without flaps. The wing down, top rudder method is recommended, but the rudder pedals MUST be neutralized just prior to the nose wheel contacting the runway.

During a balked landing or go around, add full power and raise flaps to HALF if fully extended.

LANDING (Obstacle)

Landing over an obstacle is accomplished using the same procedures for the normal landing. On final approach the following is recommended.

1. Flaps – FULL DOWN
2. Propeller – FULL INCREASE RPM
3. Airspeed – ESTABLISHED 90 MPH
4. Throttle – AS DESIRED, to control rate of descent

WARNING

With the throttle fully CLOSED and the flaps FULL DOWN a high rate of descent develops very rapidly. If airspeed is allowed to decrease below 90 MPH, level-off is possible ONLY with an application of power.