

Before Starting Engine

Parking Brake Set
 Fuel Selector desired Tank
 Alternate Air Off
Fuel/Oil/preflight checked

Starting Engine

Fuel Selector ON
 Mixture Forward
 Propeller Forward
 Throttle Forward
 Master Switch ON
 Auxiliary Pump OFF
 Primer ON 4-5 seconds
 Throttle CLOSE
 Starter immediately
 When firing, open throttle to get 1000 RPM.
 Starter release at 500RPM
 Oil Pressure check
 Alternator check
 Vacuum check
 Mixture lean

Warm-up
 Throttle 900-1200RPM

Taxi

Chocks removed
 Brake off
 Taxi area clear
 Throttle apply slowly
 Prop high RPM
 Brakes check
 Steering check

Ground Check

Controls free
 Flight Instruments check
 Fuel Selector Proper Tank
 Auxiliary Fuel Pump Off
 Parking Brake Set
 Propeller forward
 Mixture forward
 Throttle 1800-2000RPM
 Magneto max drop 150 RPM
 Max diff 50 RPM
 Vacuum 4.8-5.1"

Oil temperature check
 Oil pressure check
 Annunciator Panel check
 Propeller check, then Forward
 Alternate Air check
 Fuel Pressure check

Engine is ready for take-off when oil temperature reaches the bottom of the green arc.

Auxiliary Fuel Pump Off
 Fuel Pressure check
 Throttle retard
 Manifold Pressure drain

Before Take Off

Seat Belts and door check
 Flight instruments check
 Engine gauges check
 Alternate Air closed
 Mixture set
 Prop Forward
 Controls free
 Flaps set
 Trim tab set
 Gear Override ON
 Parking brake release

Take-Off

Flaps Set
 Trim Set
 Transponder ON
 Lights set
 Heading Indicator Runway heading
 Vr 70-77
 Pitot Heat Set
 Mixture Full rich

Climb Out

Power 2450/33"
 Gear Override automatic

Landing

Fuel Selector Proper tank
 Gear Down
 Mixture set
 Propeller forward
 Trim 75K

Stopping Engine

Cool down two minutes

Airspeeds

Gear Down V _x , V _y	71/78
Gear Up V _x , V _y	78/96
Cruise Climb	104 (2450/33")
Gear-down V _{le} V _{lo}	129
Gear retraction	107
Maneuvering Speed	119 @ 2900 96 @ 1865
Glide V _g	97
Final Approach Speed	75 with 40° flaps

Engine

Warm-up	900-1200 RPM
Take-off	41"
Cruise Climb	2450/33"
75% Cruise	23 / 34.8"
65% Cruise	23 / 31.1
best power	peak EGT plus 100°F
best economy	peak EGT plus 0°F
Priming time	4-5 seconds @ 80-100° 5-6 seconds @ 60° 6-8 seconds @ 50° 7-9 seconds @ 40°

Emergency Landing Gear Extension

Master Switch	check ON
Circuit Breakers	check
Panel Lights (Right side roller)	OFF(daytime)
Gear Bulbs	check by interchanging
Airspeed	88 max
Gear selector	Gear Down
emergency gear lever	Up to "Override Engaged" (The point is to override the automatic gear system.)

If that fails to lower gear:

Emergency gear lever	"Emergency Down" position, (This releases hydraulic pressure And lets the gear fall.)
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If gear fails to lock, yaw aircraft abruptly from side to side with the rudder.

If the nose gear fails to lock down, slow to lowest safe speed with low power, then:

Emergency Gear lever	Up to "Override Engaged"
Gear selector	Down (The idea is to attempt to force the nose gear down with hydraulic pressure.)

If that fails, attempt to re-cycle the gear through UP position, then select gear down, with Override engaged.

Emergency Checklist

Engine Power Loss During Takeoff

Land straight ahead.

Gear up or down depending on terrain. To raise gear, "Override" must be engaged.

Engine Restart Attempt in Flight

Fuel Selector switch to tank with fuel
Auxiliary fuel Pump unlatch, HI
Mixture Rich
Alternate Air Open
Gauges Check for indication of power loss

When Power is restored:

Alternate Air OFF
Auxiliary Fuel Pump OFF

If no power, trim for 97K.

It takes 10 seconds for fuel to reach the engine following running a tank dry.

Gear Down Emergency Landing

Flaps Normally full
Throttle CLOSED
Mixture idle cut-off
Ignition OFF
Master Switch OFF
Fuel Selector OFF
Seat Belt Tight

Gear UP Emergency Landing

Flaps Normally full
Throttle close
Mixture idle cut-off
Ignition OFF
Master Switch OFF
(electricity is needed to raise gear)
Fuel Selector OFF
Seat Belt Tight

Engine Roughness

Mixture adjust for max smoothness
Alternate Air Open
Fuel Selector switch tanks
Magneto L then R then BOTH

With single magneto, use reduced power with full rich mixture and land at first available airport

If roughness continues, prepare for precautionary landing.

Fire In Flight

Source of Fire Check
Electrical Fire (smoke in cabin)
Master Switch OFF
Vents Open
Cabin heat OFF
Land as soon as practicable.

Engine Fire

Fuel Selector OFF
Throttle OFF
Mixture idle cut-off
Auxiliary Fuel Pump Check off
Heater and Defrost OFF

Engine Driven Fuel Pump Failure

Throttle Retard
Auxiliary Fuel Pump unlatch, HI
Throttle 75% Max

If normal engine operation is not immediately re-established with the pump on Hi, the pump should be turned OFF. The lack of fuel flow indication while in HI auxiliary fuel pump position could indicate a leak in the fuel system, or fuel exhaustion in selected tank.

Alternator Failure

Verify failure by turning on the landing light and observing the ammeter increase.

Reduce electrical loads as much as possible

Alternator Circuit Breaker Check

ALT Switch OFF for one second then ON

(This is to reset the over-voltage relay, look for restored output.)

If no output,

ALT Switch OFF

If battery is fully discharged, gear will have to be lowered using emergency extension procedure, and the indicators will remain dark.

Spin Recovery

Rudder FULL OPPOSITE
Control Wheel Full forward while neutralizing ailerons
Throttle Idle
Rudder Neutral when rotation stops
Control Wheel Smoothly regain level flight attitude