



Emergency Procedures

This section provides the recommended procedures for coping with various emergency or critical situations.

Pilots should familiarize themselves with the procedures given in this section and should be prepared to take the appropriate action should an emergency situation arise. The procedures are offered as a course of action for coping with the particular situation or condition described.

Most basic emergency procedures are a normal part of pilot training. This information is intended to provide a source of reference for the procedures which are applicable to this airplane. The pilot should review standard emergency procedures periodically to remain proficient in them.

AIRSPEEDS FOR SAFE OPERATIONS

One engine inoperative air minimum control (VMCA).....	66 KIAS
One engine inoperative best rate of climb (VYSE).....	88 KIAS
One engine inoperative best angle of climb (VXSE).....	83 KIAS
Maneuvering (VA - 4750 lbs.).....	139 KIAS
Never exceed (VNE).....	204 KIAS

Emergency Procedures Checklist

IDENTIFYING DEAD ENGINE – VERIFYING POWER LOSS

Loss of thrust -Nose of aircraft will yaw in direction of dead engine (with coordinated controls). Rudder pedal force will be required in the direction away from the dead engine to maintain straight flight.

Engine Securing Procedure (Feathering Procedure)

Throttle.....	CLOSE
Propeller.....	FEATHER (800 RPM MIN.)
Mixture.....	IDLE CUTOFF
Cowl Flap.....	CLOSE
Fuel Selector.....	OFF
Alternator.....	OFF
Fuel Pump.....	OFF
Magneto Switches.....	OFF
Prop Sync.....	OFF
Electrical Load.....	REDUCE
Crossfeed.....	AS REQUIRED

Engine Failure During Takeoff (Speed Below 85 KIAS or Gear Down)

If engine failure occurs during takeoff and 85 KIAS has not been attained:

Throttles.....	IMMEDIATELY CLOSE
Brakes.....	AS REQUIRED
Stop straight ahead	

If insufficient runway remains for a complete stop:

Throttles.....	IMMEDIATELY CLOSE
Mixtures.....	IDLE CUT.OFF



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Fuel SelectorsOFF
 Magneto Switches.....OFF
 Fuel Pumps.....OFF
 Battery Master Switch.....OFF
 Brakes apply max. braking

MAINTAIN DIRECTIONAL CONTROL, MANEUVERING TO AVOID OBSTACLES IF NECESSARY.

Engine Failure During Takeoff (Speed Above 85 KIAS)

If sufficient runway remains for a complete stop:

Directional Control.....MAINTAIN
 Throttles.....IMMEDIATELY CLOSE

LAND IFAIRBORNE AND STOP STRAIGHT AHEAD

Brakes.....AS REQUIRED

If runway remaining is inadequate for stopping and the decision is made to continue:

WARNING: Negative climb performance may result from an engine failure occurring after liftoff and before the failed engines propeller has been feathered, the gear has been retracted, the cowl flap on the failed engine is closed and a speed of 88 KIAS has been attained.

In many combinations of aircraft weight, configuration, ambient conditions and speed, negative climb performance may result.

Throttles.....38 In. Hg. MP
 Propeller controls.....FULL FORWARD
 Mixture controls.....FULL FORWARD
 Directional Control.....MAINTAIN
 Flaps.....FULL UP
 Landing Gear (in level or climbing flight).....RETRACT
 Inoperative Engine.....CLOSE THROTTLE
 Propeller (Inoperative Engine).....FEATHER
 Climb Speed.....88 KIAS

LAND AS SOON AS PRACTICAL AT THE NEAREST SUITABLE AIRPORT

Normal Procedures

AIRSPEEDS FOR SAFE OPERATION

The following airspeeds are those that are significant to the operation of the airplane. These airspeeds are for standard-equipped airplane, flown at gross weight under standard conditions at sea level.

Performance for a specific airplane may vary from published figures depending upon the equipment installed, the condition of the engines, airplane and equipment, atmospheric conditions and piloting technique.

Best Rate of Climb Speed (VY)..... 88 KIAS



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Best Angle of Climb Speed (VX)..... 83 KIAS
 Turbulent Air Operating Speed..... 139 KIAS
 Maximum Flap Speed..... 113 KIAS
 Landing Final Approach Speed (Flaps 40°) Short Field Effort..... 80 KIAS
 Intentional One Engine Inoperative Speed..... 85 KIAS
 Maximum Demonstrated Crosswind Velocity.....17 KTS

PREFLIGHT CHECKLIST

COCKPIT

Throttles.....IDLE
 Mixture Controls.....IDLE CUTOFF
 Cowl Flaps.....OPEN
 Elevator and Rudder Trim.....NEUTRAL
 Fuel Selectors.....ON
 Radio Master Switch.....OFF
 All Electrical Switches.....OFF
 Battery Master Switch.....ON
 Annunciator Panel.....ON
 Fuel Gauges.....CHECK QUANTITY
 Landing Gear Lights.....3 GREEN
 Flaps.....EXTEND
 Battery Master Switch.....OFF
 POH.....CHECK ON BOARD
 Baggage.....STOW - PROPERLY - SECURE



MISCELLANEOUS

- Battery Master Switch.....ON
- Flaps.....RETRACT
- Interior Lighting (Night Flight).....ON & CHECK

CAUTION - Care should be taken when an operational check of the heated pitot tube is being performed. The unit becomes very hot. Ground operation should be limited to 3 minutes maximum to avoid damaging the heating elements.

- Pitot Heat Switch.....ON
- Exterior Lighting Switches.....ON & CHECK
- All Lighting Switches.....OFF
- Battery Master Switch.....OFF
- Passengers.....BOARD

BEFORE STARTING ENGINE

- Preflight Check.....COMPLETED
- Flight Planning.....COMPLETED
- Aft Cabin Doors.....CLOSE & SECURE
- Forward Cabin Door.....CLOSE & SECURE
- Seats.....ADJUSTED & LOCKED

CAUTION - With the shoulder harness fastened and adjusted, a pull test of its locking restraint feature should be performed.

- Seatbelts and Harness.....FASTEN/ADJUST
- Empty Seats.....SEAT BELTS SNUGLY FASTENED
- Alternators.....ON

Warning - No braking will occur if knob is pulled before brake application.

- Parking BrakeSET
- Gear Selector.....GEAR DOWN
- Throttles.....IDLE
- Propeller Controls.....FULL FORWARD
- Mixture.....IDLE CUT-OFF
- Alternate Air Controls.....OFF
- Cowl Flaps.....OPEN
- Elevator and Rudder Trim.....SET
- Fuel Selectors.....ON
- Radio Master Switch.....OFF
- Electrical Switches.....OFF
- Circuit Breakers.....CHECK IN

CAUTION - For cold weather starting, ensure magneto and master switches are off and mixture controls are in idle cut-off before turning propeller manually.



NOTE - When starting at ambient temperatures +20°F and below, operate first engine started with alternator ON (at max charging rate not to exceed 1500 RPM) for 5 minutes minimum before initiating start on second engine.

To prevent starter damage, limit starter cranking to 30-second periods. If the engine does not start within that time, allow a cooling period of several minutes before engaging starter again. Do not engage the starter immediately after releasing it. This practice may damage the starter mechanism.

NORMAL START – COLD ENGINE

- Throttles..... 1-INCH OPEN
- Propeller Controls..... FULL FORWARD
- Battery Master Switch..... ON
- Gear Lights..... 3 GREEN
- *Fuel Pumps..... ON
- *Magneto Switches..... ON
- *Mixture..... RICH - THEN IDLE CUTOFF

NOTE - The amount of prime depends on engine temperature. Familiarity and practice will enable the operator to estimate the amount of prime required.

- *Propellers Area..... CLEAR
- *Starter..... ENGAGE
- *Mixture (when engine fires)..... ADVANCE
- *Throttle..... ADJUST
- *Oil Pressure..... CHECK

Repeat Above Procedure (*) for Second Engine Start

- Gyro Vacuum..... CHECK

Engine Start – Cold Weather

- Throttles..... 1/2-INCH OPEN
- Propeller Controls..... FULL FORWARD
- Battery Master Switch..... ON
- Gear Lights..... 3 GREEN
- *Fuel Pumps..... ON
- *Magneto Switches..... ON
- *Mixture..... FULL RICH
- *Propellers Area..... CLEAR
- *Starter..... ENGAGE
- *Throttle..... ADJUST
- *Oil Pressure..... CHECK

Repeat Above Procedure (*) for Second Engine Start

- Gyro Vacuum..... CHECK



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**Procedures
Checklist**

Before Tailing Checklist

WARMUP

External Power Source Unit.....REMOVE (IF APPLIED)
Throttles.....1000 to 1200 RPM

BEFORE TAXIING

Battery Master
Switch.....ON
Gyros.....SET
Altimeter and Clock.....CHECK & SET
Radio Master Switch.....ON
Lights.....AS REQUIRED
Heater and Defroster.....AS DESIRED
Fuel Selectors.....ON, CHECK CROSSFEED
Radios.....CHECK & SET
Autopilot.....TEST & OFF
Trim.....CHECK
Passenger Briefing.....COMPLETE
Parking Brake.....RELEASE

Taxi Checklist

TAXIING

Taxi Area.....CLEAR
Throttles.....APPLY SLOWLY
Brakes.....CHECK
Steering.....CHECK
Flight Instruments.....CHECK

Ground Check Checklist

GROUND CHECK

CAUTION - Alternate air is unfiltered. Use of alternate air during ground or flight operations, when dust or other contaminants are present, may result in engine damage from particle ingestion.

Parking Brake.....SET
Mixtures.....FULL RICH
Propeller Controls.....FULL FORWARD
Throttles.....1000 RPM
Engine Instruments.....CHECK
Throttles.....1500 RPM
Propeller Controls (Max. Drop 300 RPM).....FEATHER - CHECK
Throttles.....2300 RPM
Propeller Controls (Max. Drop 300 RPM).....EXERCISE
Alternate Air.....CHECK ON
Throttles.....2000 RPM
Annunciator Engine Lights.....OUT
Gyro Vacuum Gauge.....CHECK AS REQUIRED
Ice Protection Equipment.....CHECK AS REQUIRED



Throttles.....IDLE - CHECK
Throttles.....800 to 1000 RPM

BEFORE TAKEOFF

Doors.....LATCHED
Seat Backs.....ERECT
Seats.....ADJUSTED & LOCKED IN POSITION
Seat Belts, Harnesses.....FASTENED & ADJUSTED
Battery Master Switch.....ON
Alternators.....ON
Fuel Pumps.....ON
Flight Instruments.....CHECK
Engine Instruments.....CHECK

WARNING - If flight into icing conditions (in visible moisture below +5°C) is anticipated or encountered during climb, cruise or descent, activate the aircraft ice protection system, including the pilot heat, as described in supplement no. 3- Ice Protection System.

Prop Heat.....AS REQUIRED
Windshield Heat.....AS REQUIRED
Pilot/Stall Warning Heat.....AS REQUIRED
Prop Controls.....FULL FORWARD
Mixture Controls.....FULL FORWARD
Alternate Air.....OFF
Flaps.....SET
Elevator and Rudder Trim.....SET
Fuel Selectors.....ON
Flight controls.....CHECK
Parking Brake.....RELEASE

Takeoff Checklist

NOTE - Takeoffs are normally made with a manifold pressure to 38 In. Hg. maximum.

NORMAL (0° FLAP) PERFORMANCE TAKEOFF

Flaps.....UP
Elevator & Rudder Trim.....CHECK SET
Brakes.....HOLD
Power.....2600 RPM, 38 in. Hg. MAN PRESS
Mixture.....FULL RICH
Brakes.....RELEASE
Rotate Speed.....(Max. Takeoff weight) 81 KIAS
Obstacle Clearance Speed.....(Max. Takeoff weight) 82 KIAS
Gear.....UP
Climb Speed (after obstacle clearance).....88 KIAS



SHORT FIELD PERFORMANCE TAKEOFF

Flaps.....25°
 Elevator and Rudder Trim.....CHECK SET
 Brakes.....HOLD
 Power.....2600 RPM, 38 in. Hg. MAN PRESS
 Mixture.....FULL RICH
 Brakes.....RELEASE
 Rotate Speed.....(Max. Takeoff weight) 73 KIAS
 Obstacle Clearance Speed.....(Max. Takeoff weight) 76 KIAS
 Gear.....UP
 Flaps.....RETRACT WHILE ACCELERATING
 Climb Speed (after obstacle clearance).....88 KIAS

MAXIMUM PERFORMANCE CLIMB

Best Rate (Flaps Up).....88 KIAS
 Best Angle (Flaps Up).....83 KIAS
 Cowl Flaps.....FULL OPEN
 Power.....Max. Continuous Power

CRUISE CLIMB

Mixture.....FULL RICH
 Power.....2500 RPM, 32 in. Hg. MAN PRESS
 Climb Speed.....110 KIAS
 Cowl Flaps.....CLOSED or As Required

Cruise Checklist

CRUISING

Power.....Approx. 75%
 Mixture Controls.....ADJUST
 Cowl Flaps.....AS REQUIRED

Descent Checklist

DESCENT

Throttles.....AS REQUIRED
 Mixture Controls.....CRUISE SETTING
 Cowl Flaps.....CLOSED
 Altimeter.....SET
 Windshield Heat.....AS DESIRED

Approach and Landing Checklist

APPROACH AND LANDING

Seat Backs.....ERECT
 Seat Belt Harnesses.....FASTEN/ADJUSTED
 Armrests.....STOWED
 Fuel Selectors.....ON



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**Procedures
Checklist**

Cowl Flaps.....AS REQUIRED
 Mixture Controls.....FULL RICH
 Propeller Controls.....FULL FORWARD
 Landing Gear (Below 128 KIAS).....DOWN
 Landing Gear Lights.....3 GREEN
 Autopilot.....OFF

NORMAL LANDING

Flaps (Below 113 KIAS).....FULL DOWN
 Airspeed.....90 KIAS
 Trim.....AS REQUIRED
 Throttles.....AS REQUIRED
 Touchdown.....MAIN WHEELS
 Braking.....AS REQUIRED

SHORT FIELD PERFORMANCE LANDING

Flaps (Below 113 KIAS).....FULL DOWN
 Airspeed (At Max. Weight).....82 KIAS
 Trim.....AS REQUIRED
 Throttles.....IDLE
 Touchdown.....MAIN WHEELS
 Flaps.....RETRACT
 Control Wheel.....BACK PRESSURE
 Braking.....MAXIMUM without SKIDDING

Go-Around Checklist

GO-AROUND

Mixture Controls.....FULL RICH
 Propeller Controls.....FULL FORWARD
 Throttles.....FULL POWER
 Control Wheel.....BACK PRESSURE TO OBTAIN
 POSITIVE CLIMB ATTITUDE at 85 KIAS
 Flaps.....RETRACT SLOWLY
 Gear.....UP
 Cowl Flaps.....AS REQUIRED
 Trim.....AS REQUIRED

After Landing Checklist

AFTER LANDING

Clear of runway.
 Flaps.....RETRACT
 Cowl Flaps.....FULL OPEN

NOTE - During extended periods of engine idle at high ambient temperatures, fuel flow to the engine can be interrupted by the formation of fuel vapor bubbles in the fuel line.

Strobe Lights.....OFF



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Checklist**

Landing and Taxi Lights.....AS REQUIRED

Stopping Engine Checklist

STOPPING ENGINE

- Radio Master Switch.....OFF
- Electrical Equipment.....OFF
- Throttles.....IDLE
- Mixture Controls.....IDLE CUTOFF
- Magneto Switches.....OFF
- Alternator Switches.....OFF
- Panel Lights (At Night).....OFF
- Battery Master.....OFF