

**ENGINE FAILURE TAKEOFF ROLL**

1. THROTTLE.....IDLE
2. BRAKES.....APPLY
3. WING FLAPS.....RETRACT
4. MIXTURE.....IDLE/CUTOFF
5. IGNITION SWITCH.....OFF
5. MASTER.....OFF

**ENGINE FAILURE – IMMEDIATE AFTER TAKEOFF**

1. AIRSPEED..70KIAS (flaps up) 65 KIAS (flaps down)
2. MIXTURE.....IDLE CUT OFF
3. FUEL SHUTOFF VALVE.....OFF (pull full out)
4. IGNITION SWITCH.....OFF
5. WING FLAPS.....AS REQUIRED
6. MASTER SWITCH.....OFF
7. CABIN DOOR.....UNLATCHED
8. LAND.....STRAIGHT AHEAD

**ENGINE FAILURE DURING FLIGHT**

(RESTART PROCEDURES)

1. AIRSPEED.....68 KIAS
2. FUEL SHUTOFF VALVE.....ON (push full in)
3. FUEL SELECTOR VALVE.....BOTH
4. AUX FUEL PUMP SWITCH.....ON
5. MIXTURE .....RICH (if restart has not occurred)
6. IGNITION SWITCH...BOTH (or START if propeller is stopped)

**ENGINE FIRE IN FLIGHT**

1. MIXTURE.....IDLE CUT OFF
2. FUEL SHUTOFF VALVE.....PULL OUT (OFF)
3. AUX FUEL PUMP SWITCH.....OFF
4. MASTER SWITCH.....OFF
5. CABIN HEAT AND AIR.....OFF (except overhead vents)
6. AIRSPEED.....100 KIAS  
(if fire is not extinguished, increase glide speed to find an airspeed within airspeed limitations – which will provide an incombustible mixture)
7. FORCED LANDING – EXECUTE (as described in Emergency Landing Without Engine Power)

**ELECTRICAL FIRE IN FLIGHT**

1. MASTER SWITCH.....OFF
2. VENTS, CABIN AIR, HEAT .....CLOSED
3. FIRE EXTINGUISHER.....ACTIVATE
4. AVIONICS MASTER.....OFF
5. ALL OTHER SWITCHES (except ignition switch) OFF

**WARNING**

**AFTER DISCHARGING FIRE EXTINGUISHER AND ASCERTAINING THAT FIRE HAS BEEN EXTINGUISHED VENTILATE THE CABIN**

**ELECTRICAL FIRE IN FLIGHT**

continued

6. VENTS/CABIN AIR/HEAT.....OPEN  
When it is ascertained that fire is completely extinguished. If fire has been extinguished and electrical power is necessary for continuance of flight to nearest airport or landing area.
7. MASTER SWITCH.....ON
8. CIRCUIT BREAKERS.....CHECK for faulty circuit (do not reset)
9. RADIO SWITCHES.....OFF
10. AVIONICS MASTER SWITCH.....ON
11. RADIO/ELECTRICAL SWITCHES – ON one at a time, With delay after each until short circuit is localized.

**CABIN FIRE**

1. MASTER SWITCH.....OFF
2. VENTS/CABIN AIR/HEAT.....CLOSED
3. FIRE EXTINGUISHER.....ACTIVATE  
**ONCE FIRE IS OUT – VENTILATE CABIN**
4. VENTS/CABIN AIR/HEAT.....OPEN
5. LAND THE AIRPLANE AS SOON AS POSSIBLE

**ENGINE FIRE DURING START ON THE GROUND**

1. IGNITION SWITCH START - CONTINUE CRANKING to get a start which would suck the flames and accumulated fuel into the engine.

If engine starts:

2. POWER.....1800 rpm (for a few minutes)
3. ENGINE.....SHUTDOWN (and inspect for damage)

If engine fails to start:

4. THROTTLE.....FULL OPEN
5. MIXTURE.....IDLE CUT OFF
6. CRANKING.....CONTINUE
7. FUEL SHUTOFF VALVE.....OFF (pull full out)
8. AUX FUEL PUMP.....OFF
9. FIRE EXTINGUISHER.....ACTIVATE
10. ENGINE.....SECURE
  - a. MASTER SWITCH.....OFF
  - b. IGNITION SWITCH.....OFF
11. PARKING BRAKE.....RELEASE
12. AIRPLANE.....EVACUATE
13. FIRE.....EXTINGUISH
14. FIRE DAMAGE.....INSPECT

**WING FIRE**

1. LANDING/TAXI LIGHT SWITCHES.....OFF
2. NAVIGATION LIGHT SWITCH.....OFF
3. STROBE LIGHT SWITCH.....OFF
4. PITOT HEAT SWITCH.....OFF

Perform a sideslip to keep the flames away from the fuel tank and Cabin. Land as soon as possible using flaps only as required for final approach and touchdown

**FORCED LANDING EMERGENCY****WITHOUT ENGINE POWER**

1. PASSENGER SEAT BACKS.....MOST UPRIGHT
2. SEAT BELTS/SHOULDER HARNESSSES... SECURE
3. AIRSPEED....70KIAS (flaps up) 65KIAS (flaps down)
4. MIXTURE.....IDLE/CUTOFF
5. FUEL SELECTOR VALVE.....OFF
6. IGNITION SWITCH.....OFF
7. WING FLAPS.....AS REQ.....(30° recommended)
8. MASTER SWITCH.....OFF (landing assured)
9. DOORS.....UNLATCHED (prior to landing)
10. TOUCHDOWN.....SLIGHTLY TAIL LOW
11. BRAKES.....APPLY HEAVILY

**LOW OIL PRESSURE**

1. IF A TOTAL LOSS OF OIL PRESSURE IS ACCOMPANIED BY A RISE IN OIL TEMPERATURE, THERE IS GOOD REASON TO SUSPECT AN ENGINE FAILURE IS IMMINENT.
2. REDUCE ENGINE POWER IMMEDIATELY AND SELECT A SUITABLE FORCED LANDING FIELD. USE ONLY THE MINIMUM POWER REQUIRED TO REACH THE DESIRED TOUCHDOWN SPOT

**ENGINE ROUGHNESS**

1. ENGINE INSTRUMENTS.....CHECK
2. FUEL SELECTOR.....OTHER TANK
3. MIXTURE.....RE-ADJUST FOR SMOOTH OPERATIONS
4. MAGNETO/STARTER....SELECT **R** OR **L** OR **BOTH**  
IF ROUGHNESS DISAPPEARS ON SINGLE MAGNETO,  
MONITOR POWER AND CONTINUE ON SELECTED  
MAGNETO  
SEE POH FOR POWER LOSS AND ROUGH ENGINE WARNINGS
5. THROTTLE.....REDUCE  
CHECK TO SEE IF A LESSER THROTTLE SETTING CAUSES  
ROUGHNESS TO DECREASE  
IF SEVERE ENGINE ROUGHNESS CANNOT BE ELIMINATED  
LAND AS SOON AS PRACTICABLE.

**ALTERNATOR OVERVOLTAGE****(ammeter shows overcharge)**

1. ALTERNATOR SWITCH.....OFF
2. NON-ESSENTIAL EQUIPMENT.....OFF
3. LAND AS SOON AS PRACTICABLE.

**LOW VOLTAGE**Illumination of the low voltage (VOLTS) annunciator  
In flight

1. AVIONICS MASTER.....OFF
2. ALTERNATOR CIRCUIT BREAKER.. CHECK IN
3. MASTER SWITCH.....(both sides) OFF
4. MASTER SWITCH.....ON
5. LOW VOLTAGE ANNUNCIATOR ...CHECK OFF
6. AVIONICS.MASTER.....ON

- IF VOLTS ANNUNCIATOR ILLUMINATES AGAIN
7. ALTERNATOR.....OFF
  8. NONESSENTIAL RADIO AND ELECTRICAL  
EQUIPMENT.....OFF
  9. FLIGHT..TERMINATE AS SOON AS PRACTICAL

**AIRSPEEDS**

Engine Failure after Takeoff

Wing Flaps up.....70 KIAS  
Wing Flaps down.....65 KIAS

Maneuvering Speed:

2550 Lbs.....105 KIAS  
2200 Lbs.....98 KIAS  
1900 Lbs.....90 KIAS

Max Glide (Vg).....68 KIAS

Precautionary Landing with Engine Power...65 KIAS

Landing Without Engine Power

Wing Flaps Up.....70 KIAS  
Win Flaps Down.....65 KIAS

**NOTE – INTENTIONAL SPINS PROHIBITED**