

## EMERGENCY PROCEDURES

Section 3 provides checklist and amplified procedures for coping with emergencies that may occur. Emergencies caused by airplane or engine malfunctions are extremely rare if proper preflight inspections and maintenance are practiced. Enroute weather emergencies can be minimized or eliminated by careful flight planning and good judgment when unexpected weather is encountered. However, should an emergency arise, the basic guidelines described in this section should be considered and applied as necessary to correct the problem. Emergency procedures associated with ELT and other optional systems can be found in Section 9

### AIRSPEEDS FOR EMERGENCY OPERATION

Engine Failure After Takeoff -----	60 KIAS
Maneuvering Speed	
1670 Lbs -----	104 KIAS
1500 Lbs -----	98 KIAS
1350 Lbs -----	93 KIAS
Maximum Glide -----	60 KIAS
Precautionary Landing With Engine Power ---	55 KIAS
Landing Without Engine Power:	
Wing Flaps Up -----	65 KIAS
Wing Flaps Down -----	60 KIAS

## OPERATIONAL CHECKLISTS

### ENGINE FAILURE DURING TAKEOFF RUN

1. Throttle — IDLE
2. Brakes — APPLY
3. Wing Flaps — RETRACT
4. Mixture — IDLE CUT-OFF
5. Ignition Switch — OFF
6. Master Switch — OFF

### ENGINE FAILURE IMMEDIATELY AFTER TAKEOFF

1. Airspeed — 60 KIAS
2. Mixture — IDLE CUT-OFF
3. Fuel Shutoff Valve — OFF
4. Ignition Switch — OFF
5. Wing Flaps — AS REQUIRED
6. Master Switch — OFF

### ENGINE FAILURE DURING FLIGHT

1. Airspeed — 60 KIAS
2. Carburetor Heat — ON
3. Primer — IN and LOCKED
4. Fuel Shutoff Valve — ON
5. Mixture — RICH
6. Ignition Switch — BOTH (or START if propeller is stopped)

### EMERGENCY LANDING WITHOUT ENGINE POWER

1. Airspeed — 65 KIAS (flaps UP).  
60 KIAS (flaps DOWN)
2. Mixture — IDLE CUT-OFF
3. Fuel Shutoff Valve — OFF
4. Ignition Switch — OFF
5. Wing Flaps — AS REQUIRED (30° recommended)
6. Master Switch — OFF
7. Doors — UNLATCH PRIOR TO TOUCHDOWN
8. Touchdown — SLIGHTLY TAIL LOW
9. Brakes — APPLY HEAVILY

### PRECAUTIONARY LANDING WITH ENGINE POWER

1. Airspeed — 60 KIAS
2. Wing Flaps — 20°
3. Selected Field — FLY OVER, noting terrain and obstructions, then retract flaps upon reaching a safe altitude and airspeed
4. Radio and Electrical Switches — OFF
5. Wing Flaps — 30° (on final approach)
6. Airspeed — 55 KIAS
7. Master Switch — OFF
8. Doors — UNLATCH PRIOR TO TOUCHDOWN
9. Touchdown — SLIGHTLY TAIL LOW
10. Ignition Switch — OFF
11. Brakes — APPLY HEAVILY



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### ENGINE FIRE DURING START ON GROUND

1. Cranking — CONTINUE, to get a start which would suck the flames and accumulated fuel through the carburetor and into the engine

#### If engine starts

2. Power — 1700 RPM for a few minutes
3. Engine — SHUTDOWN and inspect for damage

#### If engine fails to start

4. Cranking — CONTINUE in an effort to obtain a start
5. Extinguisher — OBTAIN (have ground attendants obtain if not installed)
6. Engine — SECURE
  - a. Master Switch — OFF
  - b. Ignition Switch — OFF
  - c. Fuel Shutoff Valve — OFF
7. Fire — EXTINGUISH using fire extinguisher, wool blanket, or dirt
8. Fire Damage — INSPECT, repair damage or replace damaged components or wiring before conducting another flight

### ENGINE FIRE IN FLIGHT

1. Mixture — IDLE CUT-OFF
2. Fuel Shutoff Valve — OFF
3. Master Switch — OFF
4. Cabin Heat and Air — OFF (except wing root vents)
5. Airspeed — 85 KIAS (If fire is not extinguished, increase glide speed to find an airspeed which will provide an incombustible mixture)
6. Forced Landing — EXECUTE (as described in Emergency Landing Without Engine Power)

### ELECTRICAL FIRE IN FLIGHT

1. Master Switch — OFF
2. All Other Switches (except ignition switch) — OFF
3. Vents/Cabin Air/Heat — CLOSED
4. Fire Extinguisher — ACTIVATE (if available)

#### Warning

After discharging an extinguisher within a closed cabin, ventilate the cabin.

#### If fire appears out and electrical power is necessary for continuance of flight:

5. Master Switch — ON
6. Circuit Breakers — CHECK for faulty circuit, do not reset
7. Radio/Electrical Switches — ON one at a time, with delay after each until short circuit is localized
8. Vents/Cabin Air/Heat — OPEN when it is ascertained that fire is completely extinguished

### CABIN FIRE

1. Master Switch — OFF
2. Vents/Cabin Air/Heat — CLOSED (to avoid drafts)
3. Fire Extinguisher — ACTIVATE (if available)

#### Warning

After discharging an extinguisher within a closed cabin, ventilate the cabin.

4. Land the airplane as soon as possible to inspect for damage

### WING FIRE

1. Navigation Light Switch — OFF
2. Strobe Light Switch (if installed) — OFF
3. Pitot Heat Switch (if installed) — OFF

#### Note

Perform a side slip to keep the flames away from the fuel tank and cabin, and land as soon as possible, with flaps retracted.



### INADVERTENT ICING ENCOUNTER

1. Turn pitot heat switch ON (if installed)
2. Turn back or change altitude to obtain an outside air temperature that is less conducive to icing
3. Pull cabin heat control full out to obtain maximum defroster air temperature. For greater air flow at reduced temperatures, adjust the cabin air control as required
4. Open the throttle to increase engine speed and minimize ice buildup on propeller blades
5. Watch for signs of carburetor air filter ice and apply carburetor heat as required. An unexpected loss in engine speed could be caused by carburetor ice or air intake filter ice. Lean the mixture for maximum RPM, if carburetor heat is used continuously
6. Plan a landing at the nearest airport. With an extremely rapid ice build-up, select a suitable "off airport" landing site
7. With an ice accumulation of ¼ inch or more on the wing leading edges, be prepared for significantly higher stall speed
8. Leave wing flaps retracted. With a severe ice build-up on the horizontal tail, the change in wing wake airflow direction changed by wing flap extension could result in a loss of elevator effectiveness
9. Open left window and, if practical, scrape ice from a portion of the windshield for visibility in the landing approach
10. Perform a landing approach using a forward slip, if necessary, for improved visibility
11. Approach at 65 to 75 KIAS depending upon the amount of ice accumulation
12. Perform a landing in level attitude

### DITCHING

1. Radio — TRANSMIT MAYDAY on 121.5 MHz, giving location and intentions and SQUAWK 7700 if transponder is installed
2. Heavy Objects (in baggage area) — SECURE OR JETTISON
3. Approach —
  - a. High Winds, Heavy Seas — INTO THE WIND
  - b. Light Winds, Heavy Swells — PARALLEL TO SWELLS
4. Wing Flaps — 30°
5. Power — ESTABLISH 300 FT/MIN DESCENT AT 55 KIAS
6. Cabin Doors — UNLATCH
7. Touchdown — LEVEL ATTITUDE AT 300 FT/MIN DESCENT
8. Face — CUSHION at touchdown with folded coat
9. Airplane — EVACUATE through cabin doors. If necessary, open windows and flood cabin to equalize pressure so doors can be opened
10. Life Vests and Raft — INFLATE

### LANDING WITH A FLAT MAIN TIRE

1. Wing Flaps — AS DESIRED
2. Approach — NORMAL
3. Touchdown — GOOD TIRE FIRST, hold airplane off flat tire as long as possible with aileron control

### AMMETER SHOWS EXCESSIVE RATE OF CHARGE (Full Scale Deflection)

1. Alternator — OFF
2. Alternator Circuit Breaker — PULL
3. Master — ON
4. Nonessential Electrical Equipment - OFF
5. Flight — TERMINATE as soon as practical

### LOW-VOLTAGE LIGHT ILLUMINATES DURING FLIGHT (Ammeter Indicates Discharge)

#### Note

Illumination of the low-voltage light may occur during low RPM conditions with an electrical load on the system such as during a low RPM taxi. Under these conditions, the light will go out at higher RPM. The master switch need not be recycled since an over-voltage condition has not occurred to de-activate the alternator system.

1. Radios — OFF
2. Alternator Circuit Breaker — CHECK IN
3. Master Switch — OFF (both sides)
4. Master Switch — ON
5. Low-Voltage Light — CHECK OFF
6. Radios — ON

### If low-voltage light illuminates again:

7. Alternator — OFF
8. Nonessential Radio and Electrical Equipment — OFF
9. Flight — TERMINATE as soon as practical

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