

# Chapter 03

## EMERGENCY PROCEDURES

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## 3.1 GENERAL INFORMATION

This section provides checklists and procedures for coping with emergencies that may occur. Emergencies caused by airplane malfunctions are rare if proper preflight inspections and maintenance are practiced. En-route weather emergencies may be minimized by careful flight planning and good judgment when unexpected weather is encountered. Should an emergency arise, the basic guidelines in this section should be considered and applied as necessary to correct the problem.

The A5 has a series of annunciator lights that assist the pilot in assessing the criticality of various situations.

The following terminology is used to categorize the level of urgency to land the aircraft during an abnormal or emergency situation:

### **Land as soon as practical**

Extended flight is not recommended. The landing site and duration of flight is at the discretion of the pilot. Flying to a nearby airport with support services is recommended.

### **Land as soon as possible**

Fly toward the nearest suitable landing area (runway or water) while being prepared to execute the “Engine Failure In-Flight” on page 3-9 to an emergency landing site (e.g. road).

### **Precautionary Landing**

A premeditated landing, on or off an airport, when further flight is possible but inadvisable. Examples of conditions that may call for a precautionary landing include deteriorating weather, being lost, fuel shortage, and gradually developing engine trouble.

### **Forced Landing**

An immediate landing, on or off an airport, necessitated by the inability to continue further flight. A typical example of which is an airplane forced down by engine failure.

## 3.2 AIRSPEEDS FOR EMERGENCY OPERATIONS

Condition	Airspeed
Engine Failure After Takeoff	AOA-Pitch for white line (-60 KIAS)
Engine Failure In-Flight	AOA-Pitch for white line (-60 KIAS)
Precautionary Landing with Engine Power	AOA-Pitch for white line (-60 KIAS)
Operating Maneuvering Speed – 1510 lb <sub>f</sub>	87 KIAS
Operating Maneuvering Speed – 1145 lb <sub>f</sub>	76 KIAS
Best Glide Speed	AOA-Pitch for white line (-60 KIAS)
Emergency Descent Speed for Rapid Descent	Max 120 KIAS

## 3.3 ANNUNCIATOR PANEL CAUTION LIGHTS

The annunciator panel caution lights are amber in color.

Caution	Cause/Remarks	Corrective Action
<b>BATTERY</b>	<ol style="list-style-type: none"> <li>1. Low battery voltage.</li> <li>2. Battery not charging with engine running.</li> <li>3. Aircraft systems are discharging battery.</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm Master Switch ON.</li> <li>2. Turn off non-critical equipment.</li> <li>3. If accompanied by ALTERNATOR light, consider lowering landing gear while battery is still strong.</li> </ol>
<b>ALTERNATOR</b>	<ol style="list-style-type: none"> <li>1. Low voltage on main bus.</li> <li>2. If flying, ALT B failure.</li> <li>3. Battery not charging with engine running.</li> </ol>	<ol style="list-style-type: none"> <li>1. Reset 30 Amp circuit breaker if tripped. If trips again then:</li> <li>2. Turn off non-critical equipment.</li> <li>3. Consider lowering landing gear while battery is still strong.</li> </ol>

Caution	Cause/Remarks	Corrective Action
<b>ENGINE</b>	<ol style="list-style-type: none"> <li>1. Engine component/sensor failure/exceedance detected.</li> <li>2. Engine limits may have been exceeded; check gauges.</li> <li>3. 10 hours max flight time recommended.</li> </ol>	<ol style="list-style-type: none"> <li>1. Land as soon as practical for troubleshooting.</li> </ol>
<b>FUEL PRESS</b>	<ol style="list-style-type: none"> <li>1. Excessively low or high fuel pressure.</li> </ol>	<ol style="list-style-type: none"> <li>1. Land as soon as practical for troubleshooting.</li> <li>2. Power reduction may help.</li> </ol>

### 3.4 ANNUNCIATOR PANEL WARNING LIGHTS

The annunciator panel warning lights are red in color.

Warning	Cause/Remarks	Corrective Action
<b>PURGE BILGE</b>	<ol style="list-style-type: none"> <li>1. At least 1 gallon of water in bilge.</li> <li>2. Could create weight or CG out of limits.</li> </ol>	<ol style="list-style-type: none"> <li>1. Bilge pump – ON.</li> </ol> <p>If light remains on:</p> <ol style="list-style-type: none"> <li>1. Do not takeoff.</li> </ol>
<b>SECURE WING/TAIL</b>	<ol style="list-style-type: none"> <li>1. One or more sensors indicate unlocked.</li> <li>2. Does not identify affected sensor.</li> </ol>	<p>On ground:</p> <ol style="list-style-type: none"> <li>1. Do not takeoff.</li> <li>2. Confirm wings/tails locked.</li> </ol> <p>In flight:</p> <ol style="list-style-type: none"> <li>1. Minimize maneuvering.</li> <li>2. Land as soon as practical.</li> </ol>
<b>LAND AIRCRAFT</b> + <b>FUEL PRESS</b>	<ol style="list-style-type: none"> <li>1. Critically low or high fuel pressure.</li> </ol>	<ol style="list-style-type: none"> <li>1. Land as soon as possible.</li> </ol>
<b>LAND AIRCRAFT</b> + <b>ENGINE</b>	<ol style="list-style-type: none"> <li>1. Critical engine component or sensor failure.</li> <li>2. Engine limits may have been exceeded.</li> </ol>	<ol style="list-style-type: none"> <li>1. Land as soon as possible.</li> <li>2. Check Gauges.</li> </ol>

Warning	Cause/Remarks	Corrective Action
<b>LAND AIRCRAFT</b> <b>+ BATTERY</b>	1. Battery voltage is lower than 11 VDC. 2. Battery not holding a charge. 3. Wiring Harness continuity issue	1. Confirm Master Switch ON. 2. Turn off non-critical equipment. 3. Land as soon as possible. 4. Lower landing gear now if land landing.
<b>LAND AIRCRAFT</b> <b>+ ENGINE</b> <b>+ ALTERNATOR</b>	1. Low voltage on main bus. 2. If flying, ALT A failure.	1. Turn off non-critical equipment. 2. Land as soon as possible. 3. Consider lowering landing gear while battery still strong.
<b>LAND AIRCRAFT</b> <b>+ ALTERNATOR</b> <b>+ BATTERY</b>	1. Excessively low battery. 2. If flying, Alt B failure. 3. Battery not charging with engine running. 4. ALT A may also have failed.	1. Confirm Master Switch ON. 2. Turn off non-critical equipment. 3. Land as soon as possible. 4. Lower landing gear now if land landing. <i>NOTE: Battery life may limit engine run time.</i>
<b>LAND AIRCRAFT</b> <b>+ ENGINE</b> <b>+ ALTERNATOR</b> <b>+ BATTERY</b>	1. Excessively low battery. 2. If flying, Alt A failure. 3. Battery not charging with engine running. 4. ALT B may also have failed.	1. Confirm Master Switch ON. 2. Turn off non-critical equipment. 3. Land as soon as possible. 4. Lower landing gear now if land landing. <i>NOTE: Battery life may limit engine run time.</i>

### 3.5 ICON PARACHUTE SYSTEM (IPS) ACTUATION

IPS actuation is recommended for any of the following:

- Loss of Aircraft Control
- Engine Failure with NO SUITABLE landing area

- Pilot Incapacitation or inability to cope with situation or flight conditions

### 3.5.1 PARACHUTE DEPLOYMENT

1. Safety Pin – CONFIRM REMOVED, Remove if necessary
2. Parachute Handle – PULL HARD
3. Ignition Key – OFF
4. Master Switch – OFF (right before touchdown)

#### Notes:

Approximately 48 lb<sub>f</sub> of force is required to actuate the IPS.

Optimal IPS actuation is from level flight above 500 ft AGL.

Descent rate under parachute will be approximately 1200 ft/min.

Landing gear will automatically extend following IPS actuation. Once extended, it cannot be raised.

Seat belts should remain secure during descent until contact with the surface and all motion stops.

At pilot's discretion, consider unlocking canopy and removing windows during descent.

Exit the aircraft after all motion stops.

The ELT may not activate during IPS deployment or touchdown. It is therefore recommended to manually activate the ELT during the descent.

### 3.6 INADVERTENT SPIN/LOSS OF CONTROL

1. IPS Handle – PULL HARD
2. Ignition Key – OFF
3. Proceed to “Parachute Deployment” on page 3-6

**WARNING:** *The aircraft has not been certified for traditional spin recovery and the only approved method of spin recovery is activation of the IPS.*

### 3.7 AUTOPILOT LOSS OF CONTROL

If autopilot begins to behave unexpectedly, run away from a steady condition, or approach an unusual attitude:

1. Red Autopilot Disengage Button – PRESS
2. Recover manually to straight and level flight
3. If autopilot fails to disengage, proceed to “Failed Autopilot Disengagement” on page 3-7

### 3.8 FAILED AUTOPILOT DISENGAGEMENT

1. Overpower the autopilot servos to reach straight and level flight. The forces on the stick will be higher than normal but can be overpowered and flown by hand.
2. Once control of the aircraft is established, if forces persist, PULL the autopilot fuse from the overhead panel.

### 3.9 INADVERTENT IMC (AUTOPILOT INSTALLED)

Perform the following steps on the Autopilot Control Panel.

1. Blue LVL Button – PRESS
2. TRK Button – PRESS. The selected track bug should align with your current track on the PFD.
3. HDG/TRK Knob – TURN so that the selected track bug is 180° from current track
4. Wait for the aircraft to exit IMC conditions back in the direction you came from.

### 3.10 INADVERTENT ICING ENCOUNTER (NO AUTOPILOT INSTALLED)

1. Exit Icing Conditions.

**CAUTION:** *The presence of even small amounts of ice on the airframe may increase stall speed, decrease stall angle of attack and reduce performance including climb rate.*

3.11 ENGINE FIRE ON GROUND/START

- 1. Ignition – OFF
- 2. Master Switch – OFF
- 3. Egress Airplane

3.12 ENGINE FIRE IN FLIGHT

- 1. Ignition – OFF
- 2. Master Switch – OFF
- 3. Fuel Valve – OFF
- 4. Proceed to “Emergency Rapid Descent” on page 3-8 or “Forced Landing” on page 3-11 as required.

3.13 ELECTRICAL FIRE IN FLIGHT

- 1. Master Switch – OFF
- 2. Alternator Circuit Breaker – PULL (in overhead console)

*NOTE: The above actions will not affect engine operation.*

- 3. Land As Soon As Possible

3.14 EMERGENCY RAPID DESCENT

- 1. Throttle – IDLE
- 2. Flaps – UP
- 3. Airspeed –

Option	Actions
Smooth Air	120 KIAS
Rough Air	90 KIAS
MY17 Aircraft, Windows Removed	90 KIAS



### 3.15 ABNORMAL ENGINE VIBRATION

1. Throttle – Reduce to minimum practical
2. Assess Vibration – Take action

Option	Actions
If vibration stops.	1. Land as soon as practical
If vibration continues.	1. Land as soon as possible (suitable landing area)

### 3.16 ENGINE FAILURE DURING TAKEOFF PRIOR TO LIFTOFF

1. Throttle – IDLE
2. Brakes – AS REQUIRED

### 3.17 ENGINE FAILURE AFTER TAKEOFF

1. AOA – White line
2. Landing Site – SELECT
3. Landing Gear – As Required

#### If time permits

4. Flaps – As Required
5. Ignition Key – OFF
6. Master Switch – OFF
7. Fuel Valve – OFF

**NOTE:** *In most situations, when the engine fails below 300ft AGL, the landing should be made straight ahead, turning only to avoid obstructions.*

### 3.18 ENGINE FAILURE IN-FLIGHT

1. AOA – white line
2. Landing Site – SELECT

3. Confirm:
  - a. Throttle – above idle
  - b. Master Switch – ON
  - c. Ignition – BOTH
  - d. Fuel Valve – ON
4. If engine does not restart, proceed to “Forced Landing” on page 3-11 or “Parachute Deployment” on page 3-6 as required.

*NOTE: Recommended landing configuration for off airport landing other than hard surface is GEAR UP.*

## 3.19 COOLANT TEMPERATURE HIGH

### 3.19.1 GROUND

1. Throttle – ADVANCE to 3000-4000 RPM (if feasible)

#### **If high coolant temperature persists:**

2. Shutdown as soon as practical

*NOTE: Use of cabin heater may help reduce coolant temperature.*

### 3.19.2 IN FLIGHT

1. Throttle – REDUCE power to minimum required
2. Airspeed – INCREASE

#### **If high coolant temperature persists:**

3. Land as soon as possible

## 3.20 OIL PRESSURE-LOW/HIGH (IN THE RED)

### 3.20.1 GROUND

1. Throttle – IDLE
2. Ignition – OFF as soon as practical

### 3.20.2 IN FLIGHT

1. Throttle – Reduce
2. Land as soon as possible

## 3.21 OIL TEMPERATURE HIGH

### 3.21.1 GROUND

1. Throttle – ADVANCE to 3000-4000 RPM (if feasible)

#### **If high oil temperature persists:**

2. Shutdown as soon as possible

### 3.21.2 IN FLIGHT

1. Throttle – REDUCE
2. Airspeed – INCREASE

#### **If high oil temperature persists:**

3. Land as soon as possible

## 3.22 FORCED LANDING

1. AOA – White Line (~60 KIAS)
2. Landing Site – SELECT
3. Landing Gear and Flaps – As Required for type of landing

*NOTE: Flaps will Reduce Glide distance. Flaps should not be selected until landing is assured.*

4. Ignition Key – OFF
5. Canopy – Unlatch

#### **If time permits**

6. Transponder – Squawk 7700
7. Communicate intentions (121.5)
8. Fuel Valve – OFF

### 9. Master Switch – OFF

*NOTE: AOA requires power. Once Master Switch is turned off, AOA indicator will not work.*

*NOTE: Recommended landing configuration for off airport landing other than hard surface is GEAR UP.*

## 3.23 PRECAUTIONARY LANDING WITH ENGINE POWER

1. AOA – White Line (~60 KIAS) Best Glide
2. Landing Area – SELECT
3. Landing Gear and Flaps – As required for type of landing
4. Communicate intentions (time permitting, as required)
5. If the engine fails, proceed to “Forced Landing” on page 3-11 as required

*NOTE: Recommended Landing configuration for off airport landing on other than hard surface is GEAR UP.*

## 3.24 BOX-CANYON REVERSAL

1. Power – Full
2. Pitch – slightly up (~5-10° above horizon)
3. Immediately roll and pull (in most open direction)
4. AOA – pull mid yellow (or stall horn)
5. Keep nose above horizon (out of buffet)

## 3.25 LANDING GEAR FAILS TO RETRACT – ON WATER

1. Speed – Idle taxi
2. Landing Gear Handle – DOWN
3. Fuses – CHECK Landing Gear Fuses and REPLACE as required
4. Landing Gear – CHECK nose wheel centered; debris/seaweed clear of all landing gear