

REAL AERoclUB DE MENORCA MAHÓN

EMERGENCY PROCEDURES

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RACMM – Flight School
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This section provides with the aircraft's manufacturer suggested procedures to cope with various types of emergency and critical situations.

These procedures lay out suggest actions to take to try and cope with different prescribed situations but, by no means, intend to substitute sensible judgement or common sense. Pilots should be familiar with the procedures described in this section and be ready to perform the correct actions should and emergency arise.

The application of these procedures, which are oriented towards student-pilots on the initial and basic learning phases, intends to grant the best possible solution for problems that may arise during an emergency. La aplicación de estos procedimientos, orientados a alumnos piloto en estado inicial y básico de su aprendizaje, pretende garantizar la mejor solución posible para los problemas que puedan aparecer durante una situación de emergencia. The best complement to these procedures are: aircraft knowledge, common sense and experience.

1. ENGINE FIRE DURING START-UP

Statistically, the majority of fires during start-up have an over prime as main cause. The first attempt to extinguish the fire should be starting the engine to allow the excess of fuel to evacuate through the exhaust.

If the fire begins before starting up the engine, cut the mixture, open throttle and actuate the starter motor.

If the engine is already started, continue to operate the engine.

In both cases, if the fire persist for more than a few seconds, the fire should be extinguished by the most expeditious means.

Starter motor.....Actuate
 Mixture.....Cut off
 Throttle.....Full forward
 Electrical fuel pump.....Shut off
 Fuel selector.....Close

If fire persists:

Master.....Off
 Alternator.....Off
 Magnetos.....Off

2. ENGINE FAILURE DURING TAKE OFF

With sufficient runway available

Land normally on the runway.

Without sufficient runway available

Speed.....Best glide speed Vx (65KIAS)

Make light turns to avoid obstacles only

Once the forced landing is assured

Flaps.....As situation requires

Speed.....Adjust to flap setting

A larger flap setting reduces the touchdown speed

High enough to attempt an engine re-start

Speed..... Best glide speed Vx (65KIAS)
 Fuel selector.....Switch tanks
 Electrical fuel pump.....On
 Mixture.....Full rich
 Carburettor heater.....On
 Primer.....Block
If the restart is not successful perform the no-power landing procedure (Procedure number 4)

3. ENGINE FAILURE IN-FLIGHT

This procedure requires a minimum of situational awareness. Should be understood that in the cruise phase, no matter how high the failure occurs, the priority must be given to assure the landing, even if it is forced landing, in the best possible area. Because of that, and before trying to solve any problem that might have caused the failure, priority should be given to FLY, NAVIGATE and COMMUNICATE in that order, and then and only the, to the following actions:

Speed.....Best glide speed Vx (65KIAS)
 Trim.....Adjust to Vx (65KIAS)
Determine the wind direction, select a landing site and determine the course of actions needed to attempt a landing in it.
If it is possible, report the emergency on frequency: call MAYDAY (x3) and state problem, situation and intentions. Make use of in-use frequency or emergency frequency 121.500Mhz
During descent to the selected landing site, whilst losing altitude, an attempt to restart the engine should be performed in the following manner:

Fuel selector.....Switch tanks
 Electrical fuel pump.....On
 Mixture.....Full rich
 Carburettor heater.....On
 Engine instruments.....Check indications
 Primer.....Blocked

If there is no fuel pressure, check fuel selector to ensure fuel is fed from a not empty tank.

- If power is recovered:
 Carburettor heater.....Off
 Electrical fuel pump.....Off
- If power is not recovered:
 Trim.....Adjust to best glide speed Vx (65KIAS)

4. NO POWER LANDING

Speed.....Vx (65KIAS)

Trim.....Adjust to Vx (65KIAS)

Determine the wind direction, select a landing site and determine the course of actions needed to attempt a landing in it.

If it is possible, report the emergency on frequency: call MAYDAY (x3) and state problem, situation and intentions.

Just before landing and with no restart possible:

Throttle.....Idle

Ignition.....Off

Master switch.....Off

Fuel selector.....Close

Mixture.....Cut off

Seatbelt and harnesses.....Adjust tight

Door.....Unlock

Touch down should be performed at the minimum possible speed and with full flaps if possible.

5. FIRE IN-FLIGHT

Fire presence is indicated by its smoke, smell or heat in the cabin. An early identification of the origin of the fire, making use of instruments readings, type of smoke and other indications, is essential to take the correct actions in each case.

Origin.....Determine

ELECTRICAL FIRE (smoke in cabin)

Master.....Off

Ventilation ducts.....Open

Cabin heater.....Off
 Storm window.....Open
Land as soon as possible

- **ENGINE FIRE:**

Fuel selector.....Close
 Throttle.....Idle
 Mixture.....Cut off
 Electrical fuel pump.....Off
 Heater and fan.....Off

Perform NO POWER LANDING procedure. (*Procedure number 4*)

NOTE: The likelihood of the engine fire in flight is extremely low. The indicated procedure should be considered as a general guideline and will the sensible judgment of the Pilot be the determining factor to define the proper actions to take in this emergency.

6. OIL PRESSURE LOWW

Can be partial or total. A partial oil pressure, generally, can be considered as an indication of a failure in the oil pressure regulating system and requires landing as soon as possible to investigate the root cause.

A total loss of oil pressure can indicate a real loss of oil in the engine or failure on the indicating system. In both cases a direct route to the closest aerodrome, preparing for a possible forced landing, is the correct course of action considering that a real loss of oil could cause a sudden engine stop. Maintaining altitude and not making any unnecessary power adjustments can help delaying a possible engine stop.

Land as soon as possible in the closest adequate aerodrome and investigate the root cause.

Prepare for a NO POWER LANDING (Procedure number 4)

7. FUEL PRESSURE LOSS

Electrical fuel pump.....On
 Fuel selector.....Select fullest tank
In case the pressure los persists:
 Electrical fuel pump.....Change

8. HIGH OIL TEMPERATURE

*An abnormally high oil temperature indication could be induced by a low oil level or an obstruction on the refrigeration system.
 A continuous and rapid oil temperature increase is a definite indication of a problem. Check your oil pressure gauge as it can come along with a pressure loss. Land on the closest aerodrome and investigate the root cause.
 Prepare for a NO POWER LANDING (Procedure number 4)*

9. ELECTRICAL FAILURES

NOTE: When a low charge operation is performed and the battery is fully charged, the alternator inoperative light can illuminate due to a minimum current output from the alternator. If the alternator is operative, a light increase in the electrical charge should extinguish the alternator inoperative light.

ALT inop. light illuminated

Ammeter.....Check to verify alternator inoperative

- **If indicates 0:**
 - Alternator switch.....Off
 - Reduce load to a minimum.
 - Alternator braker.....Check and reset
 - Alternator switch.....On
 - If the alternator is recovered:
Continue flight.
 - If the alternator is not recovered:
Alternator switch.....Off
If the alternator output cannot be recovered, reduce loads to a minimum and land as soon as possible. The battery is the only electrical power source remaining.

- If there is an abnormal ammeter indication
Consider indicator failure.

10. ELECTRICAL OVERLOAD (More than 20A in known load conditions)

Aircraft with separated battery and alternator switches

Alternator switch.....On

Master switch.....Off

- If alternator load is reduced: (battery charging failure)
Electrical load.....Reduce to a minimum
Land as soon as possible.

NOTE: Provided the increased voltage and the frequency noise over the radio, operation with alternator switch on and battery switch off should only be performed when required by an electrical failure.

- IF alternator load is not reduced:
Alternator switch.....Off
Master switch.....Off
Land as soon as possible and expect a total electrical failure.

11. SPIN RECOVERY

Intentional spins are prohibited in this aircraft.

Throttle.....Idle

Ailerons.....Neutral

Rudder.....Max deflexion opposite to the direction of rotation

Control collumn.....Full forward

Rudder.....Neutral (when rotation stops)

Control collumn.....As required for straight and level flight

12. DOOR OPEN

If both upper and lower hooks are open, door will remain slightly open and speed will be reduced accordingly.

To close the door in flight:

Speed.....Reduce to 87KIAS

Cabin vents.....Close

Storm window.....Open

- If upper hook open.....Close
- If lower hook open.....Pull the arm rest and lower the closing lever
- If both hooks open.....Close the lower hook first

13. CARBURETTOR HEATER

Under certain amount of humidity, a temperature of up to +25°C could host the formation of ice in the carburettor. This will be indicated by an rpm loss and engine vibrations that, most likely, will be accompanied by a loss in airspeed and altitude.

Ice built up in the carburettor beyond a certain threshold can impede the total recovery of power. Because of that, early identification and action is of the utmost importance.

Carburettor heater.....On

Mixture.....Adjust kindly

NOTE: The partial use of carburettor heater could be worse than not using it at all as partially melting the built-up ice can cause it to re-freeze upstream in the engine admission. Hence, when the carburettor heater is to be used, always make use of its maximum heating capacity and, once the ice is eliminated, return the lever to the off position.

14. ENGINE VIBRATION

Generally due to carburettor icing or an incorrect mixture. Magneto failure could also cause engine vibrations.

Carburettor heater.....On

- If vibration disappears:
Carburettor heater.....Keep on

- If vibration continues after a minute:
 - Carburettor heater.....Off
 - Mixture.....Adjust for max smoothness
 - Tachometer.....Check out of red arc
 - Electrical fuel pump.....On
 - Fuel selectorSwitch tanks
 - Engine instruments.....Check
 - Magnetos.....Left, right and then both

If operation becomes smooth in any of the magnetos, keep using that magneto at a reduced power and full rich mixture flying direct to the closest aerodrome and land.

Expect a NO POWER LANDING. (Procedure number 4).