



QUALITY AIRCRAFT SINCE 1948

TECNAM

SECTION 3 EMERGENCY PROCEDURES

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1. Introduction

Section 3 includes checklists and detailed procedures for coping with various types of emergency conditions that could arise.

Before operating the aircraft, the pilot should become thoroughly familiar with the present manual and, in particular, with the present Section. Further, a continued and appropriate training should be provided.

Two types of emergency procedure are hereby given:

- a. "Bold faces" which must be committed to memory and executed in the correct and complete sequence, as soon as possible as the failure is detected and recognized; These procedures characters are boxed and highlighted, as shown below:

BEFORE ROTATION: ABORT TAKE OFF

- | | |
|----------------------|----------------------|
| 1. Thrust Lever..... | IDLE |
| 2. Rudder..... | Keep heading control |
| 3. -- | |
| 4. -- | |

- b. Other procedures which should be well theoretically know and mastered, but that are not time critical and can be executed entering and following step by step the AFM appropriate checklist.

In case of emergency the pilot should acts as follows:

1. Maintain aircraft control
2. Analyse the situation
3. Apply the pertinent procedure
4. Inform the Air Traffic Control if time and conditions permit

The following definitions apply:

NOTE

Land as soon as possible: land without delay at the nearest suitable area at which a safe approach and landing is assured.

Land as soon as practical: land at the nearest approved landing area where suitable repairs can be made.

1.3. Alert Level Definition

Warning: This level of alert requires immediate attention. A warning alert appears in the Annunciation Window. Text appearing in the Annunciation Window is red. A warning alert is also accompanied by a flashing **Warning** Softkey annunciation. Pressing the Warning Softkey acknowledges the warning alert and stops the aural tone, if applicable. When a parameter exceeds its maximum value or a red caption is generated, an aural is provided to the pilot.

Caution: This level of alert indicates the existence of abnormal conditions on the aircraft that may require pilot intervention. When a new caution alert appears in the Annunciation Window, it is shown in black on amber inverse video in conjunction with the **Caution** Softkey. Pressing the **Caution** Softkey acknowledges all amber messages and extinguishes the softkey. Once acknowledged, caution messages are displayed until the issue is corrected.

Safe Operating Advisory: This level of alert indicates crew awareness is required. It is shown in green text in the Annunciation Window.

System Message Advisory: This level of alert provides general information to the pilot. Message Advisories appear in the Alerts Window and are not shown in the Annunciation Window. When a Message Advisory occurs, the system provides a white flashing **Messages** Softkey annunciation. Pressing the softkey acknowledges the message advisory alert, and displays the associated text in the Alerts Window.

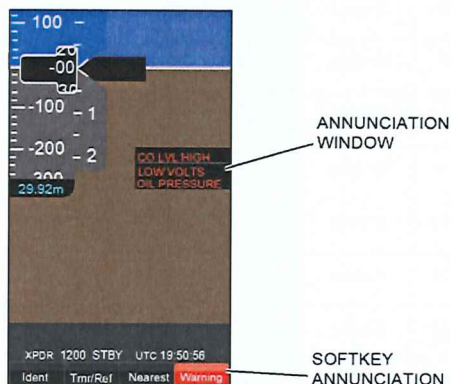


Figure 3-2 - Annunciation Windows



Figure 3-3 - Warning and Caution Softkey Annunciations



16	Fuel	LH FUEL QTY LOW	LH FUEL LOW	Low fuel quantity detected
17	Fuel	RH FUEL QTY LOW	LH FUEL LOW	Low fuel quantity detected
18	Fuel	LH-RH FUEL QTY LO	RH-LH FUEL QTY LOW	LH and RH FUEL QTY LOW both ON
19	Fuel	FUEL PUMP ON	FUEL PUMP ON	Fuel pump operative
20	Fuel	LH FUEL TMP LOW	LH FUEL TEMP LOW	LH FUEL TEMP $\leq$ 31
21	Fuel	RH FUEL TMP LOW	RH FUEL TEMP LOW	RH FUEL TEMP $\leq$ 31
22	Fuel	FUEL FLTR CLGD	FUEL FILTER CLOGGED	Filter pressure drop out of operative limit
23	Oil	OIL PRESS LOW	OIL PRESS LOW	OIL PRESS $\leq$ 0.9 bar
24	Oil	OIL TEMP HI	OIL TEMP HIGH	OIL TEMP $\geq$ 121 °C
25	Pitot	PITOT HEAT	PITOT HEAT	Pitot Heat OFF or FAIL
26	Pitot	PITOT HEAT ON	PITOT HEAT ON	Pitot heater operative
27*	Battery	BATT MAIN FAIL	MAIN BATTERY FAIL	Main Battery Failure
28*	Battery	BATT MAIN FAULT	MAIN BATTERY FAULT	Main Battery Fault
29*	Battery	CHARGING MAIN	MAIN BATTERY RECHARGES	Main Battery Charging

*) applicable for aircraft embodying MOD2010/267

2.2. Loss of Essential Bus

1. Land as soon as practical

In case of loss of essential bus, the following equipment will be lost:

Table 3-2 – Loss of Essential Bus

-	FIELD	FUEL PUMP	FADEC B
AHRS	PITOT HEAT	STROBE LIGHT	PDF
LANDING LIGHT	COM#1	GPS/NAV#1	STALL WARNING
ADC	EIS (Garmin Engine Interface Unit)	FLAP ACTUATOR	-



The FADEC A, powered by Essential Bus in normal condition, continues to be powered by means of back-up battery in case of loss of Essential Bus. When operating on FADEC backup battery only, the FADEC FORCE B mode MUST not be activated. This will shut down the engine.



Change or maintain flight conditions according to available equipment.



Pilot will need to make reference to standby instrument for primary flight information and parameters.

Pilot will be able to use the audio panel and COM2/NAV2 via MFD.

Engine and fuel parameters and related warnings/cautions are lost.



Flaps selection will be not available to the pilot. Perform visual check to determine actual position and refer to Flap Operating System Failure procedure.



Strobe and landing lights will be lost, NAV and taxi lights are still available.



2.5. Electrical system overall failure

In case of electrical system overall failure, apply following procedure:

1. Master Switch..... OFF
2. Generator Switch..... OFF
3. Master Switch..... ON
4. Generator Switch..... ON

If failure persists, land as soon as possible



If generator and main battery are turned OFF, continued engine operation is dependent on the remaining capacity of the FADEC backup battery. In this case, all electrical equipment will not operate, do not switch the FORCE-B switch, this will shut down the engine.

2.6. Battery failure*

Main Battery failure

BATT MAIN FAIL

OR

BATT MAIN FAULT

NOTE

Light ON has to be intended as permanently ON

1. Master switch OFF
2. Land as soon as possible

*) applicable for aircraft embodying MOD2010/267

NOTE

In the event of an actual CAS message, the message will illuminate and will remain illuminated



3.2. Static source malfunction

NOTE

The alternate source valve is located on the left side of the central pedestal.

If static source malfunction is suspected and/or abnormal fluctuations of indicated airspeed and/or altitude are detected in relationship with yawing:

1. Alternate static source.....OPEN
2. Cabin air system OFF

NOTE

Operation of the alternate static air requires that the cabin air system be switched off in order not to affect the air pressure measurement.

4.3. Loss of attitude information

	ATTITUDE FAIL (red X on display field)
	Display system is not receiving attitude information from AHRS.

INSTRUCTION: revert to standby instrument

4.4. Loss of altitude information

	ALTITUDE FAIL (red X on display field)
	Display system is not receiving altitude input from Air Data Computer.

INSTRUCTION: revert to standby instrument



4.7. Display failure

In the event of a display failure, the G1000 Nxi phase III System automatically switches to reversionary (backup) mode. In reversionary mode, all important flight information is presented on the remaining display in the same format as in normal operating mode. The change to backup path is completely automated for all LRUs and no pilot action is required.

If the system fails to detect a display problem

1. REVERSIONARY MODE button PUSH

NOTE

REVERSIONARY MODE button is red and located on the bottom of the audio panel.

**CAUTION**

If a display fails, the related Integrated Avionics Unit (IAU) is cut off and can no longer communicate with the remaining display: subsequently the NAV and COM functions provided to the failed display by the associated Integrated Avionics Unit are flagged as invalid on the remaining display.



6. Aircraft Evacuation

With the engine secured and propeller stopped:

- | | |
|--|----------------|
| 1. Parking brakes..... | <i>ENGAGED</i> |
| 2. Seat Belts..... | <i>UNSTRAP</i> |
| 3. Headphones..... | <i>REMOVE</i> |
| 4. Doors..... | <i>OPEN</i> |
| 5. Master switch..... | <i>OFF</i> |
| 6. Escape away from flames/hot engine compartment/spilling fuel tanks/hot brakes | |



7.2. Engine Failure after Take-off

If engine fails immediately after becoming airborne:

- ***Abort on the runway if possible.***

In case low altitude precludes a runway stop and/or engine restart:

1. Establish a glide attitude ($V_{GLIDE}=79$ kts)
- Find a suitable place on the ground to land safely



CAUTION

The landing should be planned straight ahead with only small changes in directions not exceeding 45° to the left and 45° to the right.

Any turn would reduce the glide performance.

- | | |
|----------------------|-------------|
| 2. Thrust Lever..... | IDLE |
| 3. Brakes..... | As required |

With aircraft stopped

- | | |
|-------------------------------------|----------------------|
| 4. Fuel Selector valve..... | OFF |
| 5. Electrical fuel pump..... | OFF |
| 6. Engine Master..... | OFF |
| 7. Generator & Master Switches..... | OFF |
| 8. Parking Brake..... | ENGAGED |
| 9. Aircraft Evacuation..... | PERFORM if necessary |



7.4. Propeller Overspeed

In case of propeller overspeeding, apply following procedure:

1. Thrust Lever..... *REDUCE power*
2. Airspeed..... *REDUCE to prevent propeller overspeed*
3. RPM indicator..... *CHECK*

If it is not possible to decrease propeller RPM, **land as soon as possible** applying Forced landing procedure.



CAUTION

Maximum propeller RPM exceedance may cause engine components damage.

Apply caution while accelerating with power lever close to max and monitor RPM; RPM overspeed shall be prevented by retarding thrust lever.

NOTE

For propeller overspeeding up to 2500 RPM for maximum 20 sec., no maintenance action is required. Refer to engine/propeller manufacturer manuals.

**7.6. Coolant Level Limit Exceedance**

Annunciation window	Alert window
COOLANT LVL LOW	Coolant Level Low

1. Coolant Temperature..... *Monitor*

If CT rises:

2. Refer to CT Limits Exceedance procedure (§7.5).

I

**7.8. Intercooler Temperature Limit Exceedance****7.8.1. LOW INTERCOOLER TEMPERATURE***

Annunciation window	Alert window
INTRCLR TEMP LO	Intercooler Temp Low

1. POWER..... *INCREASE as required to extinguish CAS message*

If CAS message doesn't extinguish:

2. Fly immediately away from engine red zone (see Sect.2) (changing altitude and direction of flight, out and below of clouds, visible moisture, precipitation) to allow to increase outside air temperature.

If CAS message doesn't extinguish:

3. Land as soon as possible

*) applicable for aircraft NOT embodying MOD 2010/240

7.8.2. HIGH INTERCOOLER TEMPERATURE

Annunciation window	Alert window
INTRCLR TEMP HI	Intercooler Temp High

1. POWER..... *REDUCE as required to extinguish CAS message*

If CAS message doesn't extinguish:

2. Land as soon as possible

7.10. Oil Pressure Limits Exceedance

7.10.1. LOW OIL PRESSURE

Annunciation window	Alert window
OIL PRESS LO	Oil Press Low

If the oil pressure is under the lower limit

1. Thrust Lever..... *REDUCE to minimum practical*
2. OIL TEMP..... *CHECK within limits*
3. OIL PRESS..... *CHECK*

If oil pressure does not increase and temperature remains within limits

4. OIL and CT..... *CHECK*
5. Land as soon as practical

If oil pressure does not increase and temperature exceeds limits

4. ENGINE..... *SECURE*
5. Land as soon as possible applying Forced landing procedure

7.10.2. HIGH OIL PRESSURE

If the oil pressure exceeds upper limit

1. Thrust Lever..... *REDUCE*
2. OIL PRESS..... *CHECK*

If oil pressure does not decrease

3. ENGINE..... *SECURE*
4. Land as soon as possible applying Forced landing procedure

8. FUEL SYSTEM

8.1. Fuel Temperature Limits Exceedance

8.1.1. LOW FUEL TEMPERATURE



CAS message will be provided only when fuel temperature is below or equal to -31°C . For Diesel, operation with fuel temperature equal or below -5°C are not allowed.

Apply the following procedure when fuel temperatures are in red arc for JET A-1 fuel or in yellow arc for Diesel fuel:

Annunciation window	Alert window
LH FUEL TMP LOW	LH Fuel Temp Low
RH FUEL TMP LOW	RH Fuel Temp Low

1. Fuel Tank..... *SWITCH to fuel tank with higher fuel temperature, if this contains sufficient fuel*
2. Altitude..... *CHANGE to altitude with higher OAT*

If the temperature does not increase, **land as soon as possible.**

9. Inflight Engine Restart



Engine inflight restart must be performed without using the starter as long as propeller is windmilling in order to avoid possible engine damages.

NOTE

The propeller will normally continue to turn as long as the airspeed is above 65 KIAS. Should the propeller stop at an airspeed of 65 KCAS or more, the reason for this should be investigated before attempting a restart. If the engine or propeller jamming is suspected, do not use the Starter.

NOTE

The engine re-start can be performed in the whole aircraft envelope. However, it is suggested to perform inflight engine re-start at 13000 ft or below.

1. Glide..... Below 13000 ft
2. Master switch..... CHECK ON
3. Fuel quantity indicator..... CHECK
4. Fuel Selector valve..... SWITCH TANK (if not empty)
5. Electric Fuel pump..... ON
6. Thrust Lever..... IDLE
7. Engine Master..... OFF and then ON (if the propeller does not turn, then additionally Starter ON)

NOTE

If the Engine Master is in position OFF, a X will be displayed on each engine parameter.

In case of unsuccessful engine restart:

8. Land as soon as possible applying Forced landing procedure.(§15.1)

In case of successful engine restart:

9. Engine power:
 - i. Thrust Lever..... Set as required
 - ii. Engine parameters..... CHECK



11. Smoke and Fire

11.1. Engine fire on the ground

- | | |
|---------------------------------------|---------|
| 1. Fuel Selector valve..... | OFF |
| 2. Engine Master..... | OFF |
| 3. Electric Fuel pump..... | OFF |
| 4. Cabin heat and defrost..... | OFF |
| 5. Master and Generator Switches..... | OFF |
| 6. Parking Brake..... | ENGAGED |
| 7. Aircraft Evacuation..... | PERFORM |

11.2. Engine fire during take-off

*If engine fails before rotation: **ABORT TAKE-OFF***

- | | |
|------------------------|-------------|
| 1. Engine Master | OFF |
| 2. Thrust Lever | IDLE |
| 3. Brakes..... | As required |

With the aircraft under control

- | | |
|---------------------------------------|---------|
| 4. Fuel Selector valve..... | OFF |
| 5. Electric Fuel pump..... | OFF |
| 6. Cabin heat..... | OFF |
| 7. Master and generator Switches..... | OFF |
| 8. Parking Brake..... | ENGAGED |
| 9. Aircraft Evacuation..... | PERFORM |

**11.5. Electrical smoke or fire in cabin during flight**

- | | |
|---|------|
| 1. Cabin heat..... | OFF |
| 2. Cabin ventilation..... | OPEN |
| 3. In case of fire, direct the fire extinguisher toward the base of flame | |

Initiate an emergency descent:

4. Flaps UP
5. Thrust lever IDLE
6. Airspeed as required

When passing 10,000 ft or at an altitude where oxygen is no longer required, whichever comes first:

7. OXYGEN OFF

If smoke persists:

8. Generator Switch..... OFF

If smoke persists:

9. Generator switch..... ON
10. Keep RPM above 1000..... OFF
11. Master switch..... OFF

If smoke persists:

12. Generator switch..... OFF



If both generator and main battery are turned OFF, continued engine operation is dependent on the remaining capacity of the FADEC backup battery.



*Turn on electrical equipment required to continue flight depending on the situation and **land as soon as possible**.*



If the Generator SWITCH is set to OFF, consider that flaps are supplied by battery. If the Master switch is set to OFF, flap will remain in the last position.



12.2. Electrical rudder trim control failure

Trim Runaway

In event of trim runaway:

1. Airspeed and flaps..... *ADJUST to control aircraft without excessive force*
2. Rudder..... *As required*
3. **Land aircraft as soon as practical**

Trim Jamming

Should trim control be jammed/inoperative:

1. Breaker..... *CHECK IN*
2. Airspeed and flaps..... *ADJUST to control aircraft without excessive force*
3. Rudder..... *As required*
4. **Land aircraft as soon as practical**

**NOTE**

If flaps are stuck UP, plan landing using a flat approach and use power levers to control airplane speed and rate of descent.

If flaps are NOT stuck:

NOTE

Consider flaps indicator inoperative.

4. Flaps switchas required
5. Flaps position.....CHECK visually

**14. UNINTENTIONAL FLIGHT INTO ICING CONDITIONS**

3. Pitot heat..... *CHECK ON*
4. *Fly immediately away from icing conditions (changing altitude and direction of flight, out and below of clouds, visible moisture, precipitation)*
5. Control surfaces..... *MOVE continuously to avoid locking*
6. Thrust Lever..... *INCREASE to prevent ice build-up on propeller blades*



In event of ice build-up in correspondence of wing leading edges, stall speed increases and stall may become asymmetric. In case of stabilator ice accretion, it may lose its efficiency, leading to lack of aircraft pitch control and loss of control.

**15.2. Power on forced landing**

1. Flaps..... *UP*
2. Airspeed..... *ESTABLISH V_{GLIDE}
(79 KIAS)*

NOTE

Glide ratio is about 11.5, therefore in zero wind conditions for every 1000 ft it is possible to cover about 2 NM. With propeller in windmilling glide ratio is about 9.3, therefore for every 1000 ft it is possible to cover about 1.5 NM.

3. Find a suitable place to land safely
4. Safety Belts..... *Tightly FASTENED*

When landing is assured:

5. Flaps..... *As necessary*
6. Fuel selector valve..... *OFF*
7. Electric Fuel pump..... *OFF*
8. Engine Master..... *OFF*
9. Generator and Master switches..... *OFF*

NOTE

Be prepared for aircraft evacuation.