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1. INTRODUCTION

In case of emergency the pilot should acts as follows:

- *Keep control of the aeroplane*
- *Analyse the situation*
- *Apply the pertinent procedure*
- *Inform the Air Traffic Control if time and conditions allow*

Two types of emergency procedures are hereby given:

- The procedures **boxed**, must be known **by memory** and execute in the correct and complete sequence, as soon as possible as the failure is detected and recognized
- Other procedures are not time critical and can be executed entering and following step by step the AFM appropriate checklist

WARNING In this Chapter, following definitions apply:

- **LAND AS SOON AS POSSIBLE:** Land without delay at the nearest suitable area at witch a safe approach and landing is assured.
- **LAND AS SOON AS PRACTICAL:** Land at the nearest approved landing area whwew suitable repairs can be made.

2.1 GENERATOR WARNING LIGHT

Generator **WARNING** Light **ALT** may illuminates for a faulty alternator or when voltage is above 16V, in this case the over-voltage sensor automatically shuts down the alternator.

1	GENERATOR SWITCH	OFF
2	MASTER SWITCH	OFF
3	GENERATOR SWITCH	ON
4	MASTER SWITCH	ON
IF GENERATOR WARNING LIGHT ALT STAYS DISPLAYED		
5	GENERATOR SWITCH	OFF
6	NON VITAL ELECTRIC EQUIPMENT	OFF
7	RADIO CALLS	<i>Reduce at the strictly necessary</i>
8	FIVE MINUTES BEFORE LANDING	PITOT HEAT OFF
		LANDING LIGHT ON
WARNING	A FULLY CHARGED BATTERY IS CAPABLE TO SUPPLY ENOUGH POWER TO SUPPLY NORMAL ELECTRIC-LOADS INCLUDING OPERATION OF FLAP AND TRIM FOR ABOUT 35 MINUTES	

2.2 ELECTRIC FUEL PUMP FAILURE

If the electrical fuel pump light is OFF the reason can be: Electrical fuel pump non electrically fed; Light Inoperative

1	ELECTRICAL FUEL PUMP SWITCH	OFF
2	ELECTRICAL FUEL PUMP SWITCH	ON
3	FUEL PRESSURE:	CHECK RISE
IF FUEL PRESSURE DOESN'T BUILD UP		
4	LAND AS SOON AS POSSIBLE	
5	FUEL PRESSURE	MONITOR

2.3 TRIM SYSTEM FAILURE

LOCKED CONTROL
Should trim control be inoperative, act as follows:

1	BREAKERS	CHECK
2	TRIM SWITCH LH/RH	CHECK CORRECT POSITION
3	SPEED	ADJUST TO CONTROL AIRCRAFT WITHOUT EXCESSIVE STICK FORCE
4	LAND AIRCRAFT AS SOON AS POSSIBLE	
RUNAWAY		
<i>In event of trim runaway, act as follows:</i>		
1	TRIM DISCONNECT SWITCH	OFF
2	SPEED	ADJUST TO CONTROL AIRCRAFT WITHOUT EXCESSIVE STICK FORCE
3	LAND AIRCRAFT AS SOON AS POSSIBLE	

2.4 AIRPLANE EVACUATION

With the engine secured and propeller stopped (if practical):

1	PARKING BRAKE	ON
2	SEAT BELTS	UNSTRAP COMPLETELY
3	HEADPHONES	REMOVE
4	CANOPY	OPEN
5	IF CANOPY IS LOCKED OR DOESN'T SLIDE	BREAK USING THE HAMMER
6	ESCAPE AWAY FROM FLAMES/ HOT ENGINE COMPARTMENT/ SPILLING FUEL TANKS.	

3 ENGINE SECURING

Following procedure is applicable to shut-down the engine in flight:

1	THROTTLE LEVER	IDLE
2	MAGNETOS	OFF
3	FUEL SELECTOR	OFF
4	ELECTRICAL FUEL PUMP	OFF
5	GENERATOR SWITCH	OFF



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CHECK LIST
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CHECK LIST
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4.1 ENGINE FAILURE DURING TAKE OFF RUN

1	THROTTLE	IDLE (fully out)
2	RUDDER	KEEP HEADING CONTROL
3	BRAKES	APPLY AS NEEDED
WHEN SAFELY STOPPED:		
5	MAGNETOS	OFF
6	FUEL SELECTOR VALVE	OFF
7	ELECTRIC FUEL PUMP	OFF
8	GENERATOR & MASTER SWITCHES	OFF

4.2 ENGINE FAILURE IMMEDIATELY AFTER TAKE OFF

1	SPEED	MINIMUM 51 KIAS
FIND A SUITABLE PLACE TO LAND SAFELY		
WARNING	The immediate landing should be planned straight ahead with only small changes in directions not exceeding 45° to the left and 45° to the right.	
	2	FLAPS

WARNING	Stall speed increases with bank angle and longitudinal load factor. Acoustic stall warning will in any case provide a correct anticipated clue of incipient stall.	
	AT, OR RIGHT BEFORE TOUCH DOWN	
3	THROTTLE	IDLE (fully out)
4	MAGNETOS	OFF
5	FUEL SELECTOR VALVE	OFF
6	ELECTRIC FUEL PUMP	OFF
7	GENERATOR & MASTER SWITCHES	OFF
WARNING	A single engine aircraft take off should always be preceded by a thorough take off emergency pilot self-briefing. Decision to try an engine emergency restart right after take off should be taken only if environmental situation requires it: Pilot shall never ignore the priority of attentively follow an immediate emergency landing.	
	After possible mechanical engine seizure, fire or a major propeller damage, engine restart attempt is not recommended.	

4.3.1 LOW FUEL PRESSURE

If the fuel pressure indicator falls below the 2.2 psi (0.15 bar):		
1	ELECTRIC FUEL PUMP:	ON
2	FUEL SELECTOR VALVE:	CHANGE TANK
3	BOTH FUEL QUANTITY INDICATORS	CHECK
If fuel pressure doesn't build up:		
4	LAND AS SOON AS POSSIBLE MONITORING FUEL PRESSURE	
If engine stops:		
5	LAND AS SOON AS POSSIBLE APPLY FORCED LANDING PROCEDURE SEE PARA 7.1	

4.3.2 OIL PRESSURE LIMITS EXCEEDANCE

IF OIL PRESSURE EXCEEDS UPPER LIMIT (7 BAR):		
1	THROTTLE LEVER	REDUCE ENGINE POWER AS PRACTICAL
2	OIL PRESS/OIL TEMP	CHECK WITHIN LIMITS
3	LAND AS SOON AS PRACTICAL	
IF OIL PRESSURE IS UNDER THE LOWER LIMIT (0.8 BAR):		
1	THROTTLE LEVER	REDUCE MINIMUM PRACTICAL
2	LAND AS SOON AS PRACTICAL	
IF OIL PRESSURE CONTINUES TO DECREASE:		
1	LAND AS SOON AS POSSIBLE APPLYING FORCED LANDING PROCEDURE SEE PARA 7.2	

4.3.3 HIGH OIL TEMPERATURE

If oil pressure is low see Low Oil Pressure		
If oil pressure is within limits:		
1	THROTTLE LEVER	REDUCE MINIMUM PRACTICAL
IF OIL TEMPERATURE DOES NOT DECREASE:		
2	AIRSPEED	INCREASE
If oil temperature does not come back within limits, the thermostatic valve (if embodied), regulating the oil flow to the heat exchangers, could be damaged or an oil leakage can be present in the oil supply line.		
3	LAND AS SOON AS PRACTICAL	
IF ENGINE ROUGHNESS, VIBRATIONS, ERRATIC BEHAVIOUR, OR HIGH CHT IS DETECTED:		
4	LAND AS SOON AS POSSIBLE APPLYING FORCED LANDING PROCEDURE SEE PARA 7.1	

4.3.4 CHT/CT LIMITS EXCEEDANCE

If CHT is above 135°C:		
1	THROTTLE LEVER	REDUCE MINIMUM PRACTICAL
2	LAND AS SOON AS PRACTICAL	
IF CHT CONTINUES TO RISE AND ENGINE SHOWS ROUGHNESS OR POWER LOSS:		
3	LAND AS SOON AS POSSIBLE APPLYING FORCED LANDING PROCEDURE SEE PARA 7.10 OR 7.2	

5 IN FLIGHT ENGINE RESTART

WARNING	After a mechanical engine seizure, fire or a major propeller damage engine restart is not recommended.	
	1	CARBURETTOR HEAT - IF REQUIRED
2	ELECTRICAL FUEL PUMP	ON
3	FUEL QUANTITY INDICATOR	CHECK
4	FUEL SELECTOR	CHANGE TANK
5	MAGNETOS	BOTH
6	MAGNETOS	START
7	THROTTLE LEVEL	SET AS REQUIRED

CAUTION	After engine restart, if practical, moderate propeller rpm and throttle increase to allow OIL and CHT temperatures for stabilizing in the green arcs.	
	IN CASE OF UNSUCCESSFUL ENGINE RESTART	
8	ENGINE	SECURE APPLY ENGINE SECURING PROCEDURE
9	LAND AS SOON AS POSSIBLE APPLYING FORCED LANDING PROCEDURE SEE PARA 7.1	

6.1 ENGINE FIRE ON THE GROUND

1	FUEL SELECTOR	OFF
2	ELECTRICAL FUEL PUMP	OFF
3	MAGNETOS	OFF
4	THROTTLE LEVER	FULL POWER
5	CABIN HEAT OFF	OFF
6	GENERATOR & MASTER SWITCHES	OFF
7	PARKING BRAKE	SET
8	AIRCRAFT EVACUATION SEE PARA 2.4	
		PERFORM IMMEDIATELY

6.2 ENGINE FIRE DURING TAKE OFF

BEFORE ROTATION: ABORT TAKE OFF		
1	THROTTLE LEVER	IDLE
2	RUDDER	KEEP HEADING
3	BRAKES	AS REQUIRED
With aircraft under control:		
4	FUEL SELECTOR	OFF
5	ELECTRICAL FUEL PUMP	OFF
6	MAGNETOS	OFF
7	CABIN HEAT	OFF
8	GENERATOR & MASTER SWITCHES	OFF
9	PARKING BRAKE	SET
10	AIRCRAFT EVACUATION SEE PARA 2.4	PERFORM IMMEDIATELY

6.3 ENGINE FIRE IN FLIGHT

1	CABIN HEATING	OFF
2	FUEL SELECTOR VALVE	OFF
3	ELECTRIC FUEL PUMP	OFF
4	THROTTLE	FULL FORWARD UNTIL THE ENGINE STOPS
5	MAGNETOS	OFF
6	CABIN VENT	OPEN

WARNING Do not attempt engine restart

7 LAND AS SOON AS POSSIBLE
APPLYING FORCED LANDING PROCEDURE SEE PARA 7.1

6.4 CABIN FIRE/ ELECTRICAL SMOKE IN CABIN DURING FLIGHT

1	CABIN HEATING	OFF
2	CABIN VENTS	OPEN
3	CANOPY	OPEN, if necessary
4	TRY TO CHOKE THE FIRE DIRECT THE FIRE EXTINGUISHER TOWARDS FLAME BASE	
IF SMOKE PERSISTS:		
5	GENERATOR & MASTER SWITCHES	OFF
6	LAND AS SOON AS POSSIBLE EVACUATE THE AIRCRAFT SEE PARA 2.4	
CAUTION	If the MASTER SWITCH is set to OFF, consider that flaps extension and pitch trim operation would be not possible.	

6.5 ELECTRICAL SMOKE/FIRE IN THE CABIN ON GROUND

1	GENERATOR SWITCH	OFF
2	THROTTLE LEVER	IDLE
3	MAGNETOS	OFF
4	FUEL SELECTOR VALVE	OFF
5	MASTER SWITCH	OFF
6	AIRCRAFT EVACUATION SEE PARA 2.4	PERFORM IMMEDIATELY

7.1 FORCED LANDING WITHOUT ENGINE POWER

1	FLAP	UP
2	SPEED	69 KIAS
FIND SUITABLE PLACE TO LAND SAFELY, APPROACH IT UPWIND		
3	FUEL SELECTOR VALVE	OFF
4	ELECTRIC FUEL PUMP	OFF
5	MAGNETOS	OFF
6	SAFETY BELTS	TIGHTEN
7	CANOPY LOCKS	CHECK LOCKED
When certain to land		
8	FLAPS	AS NECESSARY
9	GENERATOR AND MASTER SWITCHES	OFF
Glide ratio: 12.8 – With no wind every 1000ft AGL it is possible to cover ca. 2 NM		

7.2 POWER ON FORCED LANDING

1	SPEED	69 KIAS
2	FLAP	UP
FIND SUITABLE PLACE TO LAND SAFELY, APPROACH IT UPWIND		
3	SAFETY BELTS	TIGHTEN
4	CANOPY LOCKS	CHECK LOCKED
When certain to land, right before touchdown		
5	FLAP	AS REQUIRED
6	FUEL SELECTOR VALVE	OFF
7	ELECTRIC FUEL PUMP	OFF
8	MAGNETOS	OFF
9	GENERATOR AND MASTER SWITCHES	OFF

7.3 LANDING WITH A FLAT NOSE TYRE

1	PRE-LANDING CHECKLIST	COMPLETE
2	FLAPS	LAND
3	Land and maintain aircraft NOSE HIGH attitude as long as possible	
As aircraft stops		
4	ENGINE SECURING SEE PARA 3	PERFORM
5	AIRPLANE EVACUATION SEE PARA 2.4	PERFORM

7.4 LANDING WITH A FLAT MAIN TYRE

If it's suspected a main tyre defect or it's reported to be defective		
1	PRE-LANDING CHECKLIST	COMPLETE
2	FLAP	LAND
3	Land aeroplane on side of runway opposite to defective tyre to compensate the change in direction which is to be expected during final rolling	
4	Touchdown with the GOOD TIRE FIRST and hold aircraft with the flat tyre off the ground as long as possible by mean of aileron and rudder control.	
As aircraft stops		
5	ENGINE SECURING SEE PARA 3	PERFORM
6	AIRPLANE EVACUATION SEE PARA 2.4	PERFORM

8 RECOVERY FROM UNINTENTIONAL SPIN

If unintentional spin occurs, the following recovery procedure should be used:		
1	THROTTLE	IDLE (fully out position)
2	RUDDER	FULL, IN THE OPPOSITE DIRECTION OF THE SPIN
3	STICK	CENTRALIZE AND HOLD NEUTRAL
As the spin stops		
4	RUDDER	SET NEUTRAL
Smoothly recover avoiding to exceed VNE and maximum n=+3.8		
5	THROTTLE	READJUST TO RESTORE ENGINE POWER
WARNING	Keep full rudder against rotation until spin has stopped. One complete turn and recovery takes around 500 feet.	



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9.1 UNINTENTIONALLY FLIGHT INTO ICING CONDITIONS

Carburettor ice is possible when at low rpm in visible moisture (visibility < 5 km, vicinity of fog, mist, clouds, rain, snow or hail) and OAT < 10°C. Airbox carburettor heater is designed to help prevent carburettor ice, less effectively functions as a de-icing system.

1	CARBURETTOR HEATING	ON
2	PITOT HEATING	ON
3	Immediately fly away from icing conditions (changing altitude and direction of flight, out of clouds, visible moisture, precipitations) in order to reach an area with warmer external temperature	
4	FLIGHT CONTROLS	<i>Continue to move to maintain their movability</i>
5	PROPELLER SPEED	INCREASE RPM.
6	CABIN HEAT	ON

WARNING *In case of ice formation on wing leading edge, stall speed would increase.*

9.2 STATIC PORT FAILURE

In case of static port failure, the alternate static port in the cabin (pedestal right side) must be activated

1	CABIN VENTILATION	OFF (hot and cold air)
2	ALTERNATE STATIC PORT	OPEN
3	<i>Continue the mission</i>	

9.3 INSTRUMENT LIGHT FAILURE

In event o failures affecting the instrument light, if required, apply following instructions

1	DOME LIGHT	OFF
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This Check List is compliant to Section 3 – Emergency Procedure of the **Aircraft Flight Manual** *Doc. No. 2002/028 3rdEdition – Rev. 14* issued by Costruzioni Aeronautiche **TECNAM** srl - Via Maiorise CAPUA (CE) – Italy on the 11th November 2019.
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