# SECTION 3

## EMERGENCY PROCEDURES

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SECTION 3

EMERGENCY PROCEDURES

3.1 GENERAL

The recommended procedures for various types of emergencies and critical situations are provided in this section. All the required emergency procedures and those necessary for operation of the aircraft as determined by its operating and design features are presented.

This Section consists of an abbreviated emergency check list which supplies critical situation action sequences. Pilots should familiarize themselves with the procedures given in this Section in order to be prepared to take appropriate action when an emergency situation arises.

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:

**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.
3.2 CERTAIN AIRSPEED IN EMERGENCIES

(a) Airspeed for Best Glide Angle (flaps UP) 80 KIAS

3.3 GLIDING

Flaps UP
Airspeed 80 KIAS
3.4 ENGINE SECURING

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

(a) Throttle IDLE
(b) Ignition key OFF
(c) Fuel selector OFF
(d) FUEL PUMP switch OFF
(e) ALT switch OFF

**WARNING**
Shut-down the engine in flight only in case of engine fire. Any other intentional shut-down of engine in flight is forbidden.

3.5 AIRCRAFT EVACUATION

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

(a) Parking brake ON
(b) Seat belts UNSTRAP
(c) Headphones REMOVE
(d) MASTER BATTERY switch OFF
(e) Door OPEN
(f) EVACUATE AIRCRAFT As soon as possible

DATE: 03 December 2015
3.6 ENGINE FAILURE DURING TAKE-OFF RUN

If engine fails before rotation, take-off can be still aborted (sufficient runway length available)

(a) Throttle  IDLE
(b) Mixture  CUT-OFF
(c) Brakes  AS REQUIRED

With aircraft stopped:

(d) Ignition key  OFF
(e) Fuel selector  OFF
(f) FUEL PUMP switch  OFF
(g) ALT switch  OFF
(h) MASTER BATTERY switch  OFF
(i) Parking brake  ENGAGED
(j) AIRCRAFT EVACUATION procedure  PERFORM if necessary

3.7 ENGINE FAILURE AFTER TAKE-OFF

If engine fails immediately after becoming airborne, ABORT on the runway if possible, otherwise:

(a) Throttle  IDLE
(b) Mixture  CUT-OFF
(c) Brakes  AS REQUIRED
(d) LAND  As soon as possible
WARNING
In the take-off cannot longer be aborted and a safe height has not been reached, a straight-ahead emergency landing should be carried out with only small changes in directions not exceeding 45° to the left and 45° to the right. Turning back can be fatal.

With aircraft stopped, and if time allows:

(e) Ignition key OFF
(f) Fuel selector OFF
(g) FUEL PUMP switch OFF
(h) ALT switch OFF
(i) MASTER BATTERY switch OFF
(j) Parking brake ENGAGED
(k) AIRCRAFT EVACUATION procedure PERFORM if necessary

3.8 RESTARTING ENGINE WITH WINDMILLING PROPELLER

Restarting the engine is possible at all airspeeds above 80 KIAS within the normal operating envelope of the airplane.

(a) Airspeed BEST GLIDE SPEED 80 KIAS
(b) Fuel tank selector FULLEST TANK
(c) Ignition key CHECK BOTH
(d) Mixture control lever CHECK APPROPRIATE POSITION (full rich below 5000 ft)
(e) FUEL PUMP switch CHECK ON

DATE: 03 December 2015
(f) Throttle control lever

SET APPROPRIATE
(minimum ¼” stroke)

If the engine does not start:

(g) Mixture control lever

LEAN then PUSH FWD SLOWLY

**CAUTION**
Do not engage the starter if propeller is windmilling. Engine damage may result.

If it is not possible to start the engine:

FORCED LANDING WITHOUT ENGINE POWER procedure PERFORM

If the engine starts successfully:

(h1) LAND

As soon as possible

**CAUTION**
It must be expected that engine restart is impossible after an engine fire.

**CAUTION**
After engine restart allow the temperatures for stabilazing in the green arcs.

### 3.9 PROPELLER OVERSPEED

In case of propeller overspeeding in flight:

(a) Throttle REDUCE power

(b) Mixture AS REQUIRED

(c) RPM indicator CHECK

(d) Friction adjuster for throttle quadrant CHECK

DATE: 03 December 2015
(e) Oil pressure indicator CHECK
(following a loss of oil or oil pressure, the propeller governor sets a high RPM. In this case the RPM should be regulated using the throttle)

If oil pressure is normal:

(f) RPM lever PULL BACK
(and listen for an associated drop in RPM. If there is no audible drop, RPM should be regulated using the throttle)

If it is not possible to decrease propeller rpm:

(g) LAND As soon as possible
(applying forced landing procedure)

CAUTION
Maximum propeller rpm exceedance may cause powerplant components damages.
Apply caution when accelerating with power lever close to max and monitor engine RPM.
RPM overspeed shall be prevented by retarding power lever.

3.10 CHT LIMIT EXCEEDANCE

If CHT exceeds maximum limit:

(a) Throttle REDUCE power as practical
(b) Mixture RICH as required
(c) CHT VERIFY DECREASING
(d) Oil temperature indicator CHECK

If oil temperature is also high:

(e) Oil pressure indicator CHECK

DATE: 03 December 2015
If CHT stabilizes in the green arc:

(f₁) CONTINUE FLIGHT

If CHT continues to rise and engine shows roughness:

(f₂) LAND As soon as possible
     (applying forced landing procedure)

### 3.11 HIGH OIL TEMPERATURE

**WARNING**

Oil temperatures above the limit value of 245°F (118°C) can cause a total loss of power due to engine failure.

If oil temperature exceeds maximum limit:

*HI O-T* message on RAD display

(a) Throttle REDUCE engine power

(b) Mixture RICH as required

(c) Oil temperature indicator CHECK

(d) CHT and EGT CHECK

If CHT or EGT is also high:

(e) Oil pressure indicator CHECK

If oil temperature does not decrease:

(f) Airspeed INCREASE

(g) Oil temperature indicator CHECK

If oil temperature does not come back within limits:

(h₁) LAND As soon as practical
(with engine set to the minimum necessary power)

If engine roughness, vibrations, erratic behaviour or high CHT is detected:

(h2) LAND As soon as possible (applying forced landing procedure)

**WARNING**
If high oil temperature is announced and oil pressure indication is within green range, it can be assumed that there is no technical defect in the engine oil system, hence the above mentioned procedure could improve engine cooling and lower oil temperature. Increase by descending if situation permits.

**NOTE**
Maximum oil temperature limit exceedance can be the final effect of different causes: excessive friction between moving engine components, or oil leakage from the circuit (with related pressure reduction).

### 3.12 LOW OIL PRESSURE

**WARNING**
Oil pressures below the limit value of 25 psig can cause a total loss of power due to engine failure.

If oil pressure is under the lower limit:
*LO O-P message on RAD display*

(a) Throttle REDUCE to minimum practical

(b) Mixture AS REQUIRED

(c) Oil temperature indicator CHECK within limits

(d) CHT CHECK

DATE: 03 December 2015
If oil temperature and/or CHT is high or it is rising:

(e) Engine power REDUCE to the minimum required

(f) PREPARE for engine failure and emergency landing

(g) LAND As soon as possible (applying forced landing procedure)

### 3.13 HIGH OIL PRESSURE

If oil pressure exceeds upper limit:
*HI* F-P message on RAD display

(a) Throttle REDUCE engine power by 10%

(b) Oil pressure indicator CHECK

(c) Oil temperature indicator and CHT CHECK

If oil pressure does not increase:

(d) LAND As soon as possible (applying forced landing procedure)

### 3.14 LOW FUEL PRESSURE

If fuel pressure decreases below the lower limit:
*LO* F-P message on RAD display

(a) FUEL PUMP switch ON

(b) Fuel flow indicator CHECK

If fuel flow is high, there is possibly a leak:

(c₁) LAND As soon as possible
If fuel flow is not high:

(c₂) Fuel selector  SELECT opposite fuel tank if NOT empty

(d) Fuel quantity indicator  CHECK

If fuel pressure does not build up:

(e) LAND  As soon as practical

**WARNING**
Prepare for potential engine failure and for applying the forced landing procedure.

**CAUTION**
Monitor engine for power loss and rough operation that could indicate fuel starvation. If the engine is no longer producing sufficient power, then an emergency landing should be carried out.

### 3.15 HIGH FUEL PRESSURE

If fuel pressure increases above the upper limit:

*HI P message on RAD display*

(a) LAND  As soon as possible (applying forced landing procedure)

**WARNING**
Possible injector failure or obstruction. Prepare for potential engine shut-down.

### 3.16 ENGINE FIRE DURING GROUND OPERATION

(a) Fuel selector  OFF

(b) Cabin heat  OFF

(c) Brakes  APPLY

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Once aircraft is stopped:

(d) Throttle MAX PWR

(e) MASTER BATTERY switch OFF

When the engine is stopped:

(f) Ignition key OFF

(g) AIRCRAFT EVACUATION procedure PERFORM immediately

**NOTE**
*If possible, attempt to deal with fire using fire extinguisher located under the pilot seat.*

### 3.17 ENGINE FIRE DURING TAKE-OFF

If take-off can be still aborted:

(a₁) Throttle IDLE

(b₁) Cabin heat OFF

(c₁) Brakes APPLY

(d₁) ENGINE FIRE DURING GROUND OPERATION procedure PERFORM

If take-off cannot be aborted:

(a₂) Cabin heat OFF

(b₂) FLY along a short-cut traffic circuit

(c₂) SELECT appropriate landing field

After climbing to a height from which the selected landing area can be reached safely:

(d₂) Fuel selector OFF
(e) FUEL PUMP switch OFF
(f) ALT switch OFF
(g) MASTER BATTERY switch OFF
(h) LAND with engine off As soon as possible (applying forced landing procedure)

(i) AIRCRAFT EVACUATION procedure PERFORM immediately

### 3.18 ENGINE FIRE IN FLIGHT

(a) Cabin heat OFF
(b) Cabin ventilation OPEN
(c) SELECT appropriate landing field

When it seems certain that the selected landing area will be reached:

(d) Ignition key OFF
(e) Fuel selector OFF
(f) Throttle MAX PWR
(g) FUEL PUMP switch OFF
(h) MASTER BATTERY switch OFF
(i) LAND with engine off As soon as possible (applying forced landing procedure)

(j) AIRCRAFT EVACUATION procedure PERFORM immediately
WARNING
If fire goes out, do not attempt to restart the engine.

CAUTION
If fire extinguisher is used, the cabin must be ventilated.

NOTE
If a suitable landing area is available and can be safely reached, airspeed can be increased in an attempt to extinguish the fire. Do not exceed airspeeds given for structural limitations.

3.19 FORCED LANDING WITHOUT ENGINE POWER

Preparation:

(a) Flaps \[ \text{UP} \]
(b) Best glide speed \[ \text{ESTABLISH} \]
(c) Radio \[ \text{TRANSMIT MAYDAY} \] giving location and intentions
(d) Transponder \[ \text{SET 7700} \]
(e) FIND a suitable place to land safely, plan to approach it upwind
(f) Throttle \[ \text{IDLE} \]
(g) Mixture \[ \text{CUT-OFF} \]
(h) Ignition key \[ \text{OFF} \]
(i) Fuel selector \[ \text{OFF} \]
(j) FUEL PUMP switch \[ \text{OFF} \]
(k) Seat belts \[ \text{TIGHTLY FASTENED} \]
When landing is assured:

(l) Flaps \text{AS REQUIRED}

(m) ALT switch \text{OFF}

(n) MASTER BATTERY switch \text{OFF}

\textbf{WARNING}

Prepare for immediate aircraft evacuation.

\section*{3.20 POWER-ON FORCED LANDING}

Preparation:

(a) Flaps \text{UP}

(b) Best glide speed \text{ESTABLISH}

(c) FIND the most suitable terrain to land safely, plan to approach it upwind

(d) Seat belts \text{TIGHTLY FASTENED}

When landing is assured:

(e) Flaps \text{AS NECESSARY}

(f) Ignition key \text{OFF}

(g) Fuel selector \text{OFF}

(h) FUEL PUMP switch \text{OFF}

(i) ALT switch \text{OFF}

(j) MASTER BATTERY switch \text{OFF}
3.21 UNINTENTIONAL FLIGHT INTO ICING CONDITIONS

WARNING
Flight into known icing conditions is forbidden.
The airplane is not equipped with a de-icing system.

WARNING
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.

WARNING
In case of ice build-up on the wing leading edge, some erroneous indication of airspeed, altimeter, rate of climb and stall warning should be expected.

If an inadvertent encounter with icing conditions occurs:

(a) Pitot heat ON
(b) Altitude and flight direction CHANGE immediately to fly away from icing conditions
(c) Control surfaces MOVE continuously to avoid locking
(d) Throttle INCREASE to prevent icing of propeller blades
(e) Cabin heat ON
3.22 RECOVERY FROM UNINTENTIONAL SPIN

WARNING
All spins are prohibited.

If an inadvertent spin occurs:

(a) Throttle  REDUCE AS PRACTICAL
(b) Rudder  FULLY OPPOSITE to the direction of spin
(c) Control wheel  CENTRALIZE AND HOLD NEUTRAL

When rotation stops:

(d) Rudder  NEUTRAL
(e) Control wheel  RECOVER SMOOTHLY to bring the nose-up to level flight attitude.
Do not exceed maximum permissible speed \(V_{\text{NE}}\)
(f) Throttle  AS REQUIRED for straight and level flight

3.23 DOOR CLOSURE FAILURE

If a door opens during take-off: ABORT TAKE-OFF

If a door opens in flight:

(a) Airspeed  REDUCE as appropriate
(b) Door  CLOSE AND LATCH
(if necessary, yaw the airplane in open door direction)
(c) Approach speed  NORMAL
If unable to latch door in flight, or if damage occurred:

(d) LAND As soon as practical

**CAUTION**

In flight, do not allow efforts to close the door to interfere with the primary tasks of maintaining control and flying the airplane.

### 3.24 ALTERNATOR FAILURE

(ALT OUT message on Annunciator Panel)

(a) ALT switch OFF

(b) Electrical loads REDUCE to minimum

(c) Ammeter CHECK

**WARNING**

Since the alternator has been switched OFF, the battery will maintain the essential load for approximately 33 minutes. Prepare to land. VHF transmission should be restricted to 6 minutes total during flight.

(d) FUEL PUMP switch OFF unless necessary

(e) AVIONICS switch OFF

(f) INSTRUMENT LIGHTS knob OFF

Only for aircraft s/n 1001 and 1002

(g) TAXI/LDG LIGHT switch OFF unless at appropriate time for landing

For aircraft from s/n 1003 onwards

(h) LDG LIGHT switch OFF unless at appropriate time for landing

(i) TAXI LIGHT switch OFF

For all aircraft

(j) STALL HEAT switch OFF

(k) PITOT HEAT switch OFF unless necessary

(l) LAND As soon as possible

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DATE: 14 March 2018
NOTE
Operating systems allowed for the emergency phase (with battery only):

(a) PFD
(b) COM1/NAV1/GPS equipment GTN 650
(c) Audio Panel GMA 350
(d) Stall warning
(e) NAV Lights
(f) Taxi/Landing light on nose (if installed)
(g) Landing light on LH wing (from s/n 1003 onwards)
(h) Clock (if installed)
(i) Hourmeter
(j) Map Light
(k) Engine Indication System EDM 930
(l) GDC74A Air Data Computer
(m) AHRS GRS77 and GMU44
(n) OAT
(o) MD302 STBY Module
(p) GTN 650 Blower
(q) XPDR GTX 33 w/ES (or GTX 345R, if installed)

3.25 COMPLETE ELECTRICAL FAILURE

NOTE
In case of complete electrical failure, operating only standby flight instruments:

(a) MD302 STBY Module
(b) Magnetic compass

WARNING
Flaps cannot be lowered.

WARNING
Stall warning becomes inoperative.
NOTE
The MD302 Standby Attitude Module has an integral and rechargeable battery that supplies electrical power to the unit for up to one hour. In case of complete electrical failure or normal end-of-flight power down, the unit switches to the Power Loss Warning mode and a warning message on the instrument display appears. Rotating and pressing the STBY control knob to highlight and select respectively the “ON” option, before the end of the (nominal) one-minute timing period, the unit will continue to operate on the standby battery for nominally one (1) hour or until the battery is exhausted. If no action is undertaken before the end of the (nominal) one-minute timing period, the instrument will turn off automatically.

WARNING
The MD302 internal battery will recharge itself from aircraft power while in normal mode. A battery capacity check occurs each time the unit is powered on. If the battery capacity is determined to be less than 80%, there will be a battery pack warning. If the warning persists more than once in a short time, the battery must be replaced.
3.26 PFD FAILURE

(a) PFD breaker

If the breaker is IN:

(b) MD302 STBY module

(c) Standby magnetic compass

(d) Power lever

(e) LAND

CHECK IN

REVERT TO

REVERT TO

SET as required
(but not full forward
unless required for flight phase)

As soon as practical

CAUTION

In case of temporary PFD failure, the SVT feature
will be unavailable. When the PFD restarts, the
SVT information will be provided on PFD
approximately 30 seconds after the Terrain self-
test completion.

NOTE

COM 1/COM 2, NAV 1/NAV 2 and GPS remain
still operative.

3.27 AIRSPEED FAILURE

If an erroneous airspeed indication is suspected or a FAIL RED X appears on
the airspeed indicator on the PFD:

(a) ADC breaker

If the breaker is IN:

(b) Standby airspeed indicator

CHECK IN

REVERT TO
3.28 ALTITUDE FAILURE

If an erroneous altitude indication is suspected or a FAIL RED X appears on the altitude indicator on the PFD:

(a) ADC breaker

If the breaker is IN:

(b) Standby altitude indicator

3.29 ATTITUDE FAILURE

If an erroneous attitude indication is suspected or a FAIL RED X appears on the attitude indicator on the PFD:

(a) Standby attitude indicator

(b) AHRS breaker

If the breaker is IN:

(c) Standby attitude indicator

(d) IMC

(e) LAND

CAUTION

In case of temporary loss of Attitude information (AHRS failure), the SVT feature will be disabled. When the AHRS restarts and realigns, wait for approximately 3 minutes after the AHRS self-test completion before performing the SVT activation procedure reported into the document “Garmin G500 Pilot’s Guide” p/n 190-01102-02 or 190-00601-02, as applicable.
3.30 OAT SYSTEM FAILURE

If an erroneous OAT indication is suspected or a FAIL RED X appears on the OAT indicator on the PFD:

(a) Flight in freezing moisture condition  AVOID

If icing condition are inadvertently encountered:

(b) Unintentional Flight Into Icing Conditions procedure  PERFORM

3.31 VERTICAL SPEED FAILURE

If an erroneous vertical speed indication is suspected or a FAIL RED X appears on the airspeed indicator on the PFD:

(a) Altitude indicator  USE timed rate of change of altitude to determine vertical speed

3.32 HSI FAILURE

If an erroneous heading indication is suspected or a FAIL RED X appears on the HSI on the PFD:

(a) Standby magnetic compass  REVERT TO

(b) AHRS breaker  CHECK IN

(c) GPS/NAV 1 breaker  CHECK IN

If the breakers are IN:

(d) Standby magnetic compass  USE as sole mean to determine a/c heading

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3.33 RATE OF TURN INDICATOR FAILURE

If an erroneous rate of turn indication is suspected or a FAIL RED X appears on the HSI on the PFD:

(a) Compass
   USE to determine turn rate

3.34 MFD FAILURE

(a) GTN 650
   REVERT TO

3.35 BOTH PFD AND MFD FAILURE

(a) PFD Breaker
   CHECK IN

If the breaker is IN:

(b) MD302 STBY module
   REVERT TO

(c) Standby magnetic compass
   REVERT TO

(d) GTN 650
   REVERT TO

(e) Power lever
   SET as required
   (but not full forward unless required for flight phase)

(f) LAND
   As soon as possible
3.36 GPS FAILURE

(a) GPS/NAV 1 breaker

If the breaker is OUT, also NAV 1 won’t be operative:

(b) NAV 2

(c) CDI softkey

CAUTION
In case of temporary loss of GPS signal (GTN650 failure), the SVT feature will be unavailable. When the GPS signal is recovered, the SVT information will be provided on PFD approximately in 2 minutes.

3.37 NAV 1 FAILURE

If VLOC receiver message is present in the MSG window on GTN 650:

(a) GPS/NAV 1 breaker

If the breaker is IN:

(b) NAV 2

(c) CDI softkey

3.38 NAV 2 FAILURE

If VLOC receiver message is present on GNC 255:

(a) NAV 2 breaker

If the breaker is IN:

(b) NAV 1

(c) CDI softkey

PRESS to cycle through navigation sources
3.39 COM 1 FAILURE
If the COM message alert appears on GTN 650:

(a) COM 1 breaker CHECK IN
If the breaker is IN:
(b) COM 2 REVERT TO

3.40 COM 2 FAILURE
If the COM message alert appears on GNC 255:

(a) COM 2 breaker CHECK IN
If the breaker is IN:
(b) COM 1 REVERT TO

3.41 GLIDESLOPE FAILURE
If NO GS appears on the PFD:

(a) Navigation frequency CHECK
If NO GS message still remains:
(b) NAV 2 navigation REVERT TO
If NO GS message still remains, when appropriate:
(c) Non Precision Approach PERFORM
3.42 TOTAL ENGINE PARAMETERS FAILURE

(a) EIS breaker CHECK IN

If the breaker is IN:

(b) Engine RPM MATCH by aural noise and REFER to position of power levers (throttle and RPM)

To change the flight condition:

(c) Power lever SET as required

(d) LAND As soon as possible

3.43 BUS BAR VOLTAGE ALERTS

If voltage readout becomes red ("Low Warning" condition) on EIS:

(a) ALT switch CHECK ON

(b) ALT FIELD breaker CHECK IN

If switch is ON and breaker is IN:

(c) LAND As soon as possible

3.44 AMMETER FAILURE

(a) ALT OUT message on annunciator panel CHECK

If message is present:

(b) ALT FIELD breaker CHECK IN

If breaker is IN:

(c) ALT switch CHECK ON
If switch is ON:

(d) Alternator Failure procedure PERFORM

3.45 MAP INDICATOR FAILURE

(a) RPM and fuel flow indicators USE as MAP directly linked parameters

3.46 RPM INDICATOR FAILURE

(a) Propeller MAINTAIN setting
(b) Throttle SET as required

3.47 CHT INDICATOR FAILURE

(a) Remaining CHT gauges USE to determine CHT operating range

If all CHT fail:

(b) Fuel flow indicator USE as CHT directly linked parameters

3.48 EGT INDICATOR FAILURE

(a) Remaining EGT gauges USE to determine EGT operating range

If all EGT gauges fail

(b) CHT and fuel flow indicators USE as EGT directly linked parameters
3.49 FUEL FLOW INDICATOR FAILURE

(a) Fuel quantity MONITOR for regular consumption