

NORMAL OPERATING CHECKLIST



This checklist is compiled according the guidelines of GAMA Specification No.1, SECTION 3, para 3.5, SECTION 3A, para 3A.5 and SECTION 4, para 4.5.

The "Amplified Normal Procedures", „Amplified Emergency Procedures" and „Amplified Abnormal Procedures" according GAMA Specification No. 1 are in the **DA50 C Airplane Flight Manual**.

This checklist is a Recommended Operator Checklist and for reference only.

It is not a substitute for and does not supersede the current approved Airplane Flight Manual or any of its supplements or parts thereof, or any training or procedures required by any regulatory or advisory bodies.

This checklist may not contain all procedures shown in the Airplane Flight Manual. For a comprehensive listing of all procedures consult the Airplane Flight Manual.

Use of the checklist is at the user's sole risk and discretion.

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Use of the electronic checklist (if available):

Before using the electronic checklist on the G1000 the following sections have to be completed using this paper checklist:

- **Preparation / Emergency & Safety equipment**
- **Preflight interior + exterior**
- **Preflight exterior**
- **Check before engine start items 1 to 35 (may be completed by heart).**

This checklist also serves as a back up for the electronic checklist in case the G1000 MFD is not available.

For use of fuel additives see AFM.

1. PREPARATION

- 1 Set parking brake
- 2 Remove and stow pitot cover
- 3 Remove and stow gust lock
- 4 Remove tie-downs / mooring ropes
- 5 MET, NAV, M&B completed
- 6 Check aircraft documents
- 7 Unlock all door key locks
- 8 Stow and secure baggage
- 9 Check interior for foreign or loose objects
- 10 Stow sun visors

2. EMERGENCY & SAFETY EQUIPMENT

- 11 Stow and secure:
 - Egress hammer
 - First aid kit
 - Fire extinguisher
 - Flashlight (as required)
 - Emergency microphone
 - Additional equipment as required
- 12 Remove pin from emergency exit window
- 13 Check Seatbelts & baggage net
- 14 Check and connect headsets
- 15 ** Check Oxygen Cannulas and masks, if required for flight

3. PREFLIGHT INTERIOR + EXTERIOR.

- 16 ** Check Oxygen valve closed
- 17 Check elevator trim
- 18 Power lever CHECK FULL CYCLE
- 19 Check flight controls
- 20 Cowl-Flap CLOSED
- 21 ECS ventilation fan OFF
- 22 Gear selector DOWN
- 23 Emergency gear extension PUSHED
- 24 Pitot/Stall heat OFF
- 25 Avionic Master OFF
- 26 Electric Master OFF
- 27 ESS Bus OFF
- 28 Engine Master OFF
- 29 Emergency Fuel Pump OFF
- 30 Fuel Transfer OFF

- 31 ECS Shut-off PUSHED
- 32 * Prop De-Ice OFF
- 33 * De-Ice Off / Off
- 34 All lights OFF
- 35 Circuit Breakers IN
- 36 Flap selector UP
- 37 Electric Master ON
- 38 G1000: Databases checked and acknowledged
- 39 G1000: EIS - Engine
- 40 EIS: Check voltage
- 41 EIS: Check fuel quantity
- 42 * EIS: Check de-ice fluid quantity
- 43 ** EIS: Check oxygen pressure
- 44 Electric Rudder trim CHECK
- 45 Cowl-Flap OPEN
- 46 ECS ventilation fan ON / CHECK
- 47 ECS ventilation fan OFF
- 48 Flap selector LDG
- 49 * Consider priming De-ice system with WINDSHIELD when doors are closed
- 50 * De-ice pump 1 SELECT
- 51 * De-ice mode HIGH
- 52 * Wing panels CHECK FOR FLUID * after 120":
- 53 * DEIC PRES LO+HI out
- 54 * De-ice pump 2 SELECT
- 55 * Wing panels CHECK FOR FLUID * after 120":
- 56 * Check DEIC PRES LO+HI out
- 57 * De-ice Mode OFF
- 58 * De-ice ALTERNATE ON
- 59 * De-ice pump CHECK NOISE
- 60 * De-ice ALTERNATE OFF
- 61 * Ice lights ON
- 62 External lights ON
- 63 Pitot/Stall heat ON (**cover removed**)

Continue outside of cabin:

- 64 Check pitot/stall heat – **Caution HOT**
- 65 Check all external lights
- 66 Wing flap LH&RH (LDG position, hinges, control linkage, mechanical interconnection)
- 67 Cowl flap LH&RH (condition, linkage, open position)
- 68 * Check de-ice function at panels

For use of fuel additives see AFM.

Continue on instrument panel:

- 69 Cowl-Flap CLOSED
- 70 Pitot/Stall heat OFF
- 71 * De-ice system, ice lights OFF
- 72 Flap selector UP
- 73 External lights OFF
- 74 Electric master OFF

4. PREFLIGHT EXTERIOR

Fuselage left front side

- 75 LH pilot door, hinges, window
- 76 * LH ice light
- 77 Windshield LH side
- 78 Antennas

Left main gear

- 79 Landing gear strut (5 cm bare piston)
- 80 Downlock and position switches
- 81 Tire condition, inflation and slip mark
- 82 Wheel and brake
- 83 Brake line connection
- 84 Landing gear door and linkage

Left wing

- 85 Wing leading edge, top- and bottom surface
- 86 Main tank - Fuel sample check (drain)
- 87 Stall warning (free movement)
- 88 Fuel vents
- 89 Fuel filler cap
- 90 Vortex generators (10)
- 91 Pitot probe and static port (pitot cover removed)
- 92 Wing tip, position and strobe light
- 93 Tie down (mooring rope removed)
- 94 Static discharger
- 95 Aileron (freedom of movement, hinges, control linkage, safety pins)
- 96 Wing flap (UP position, safety pins)
- 97 Safety walk

Fuselage left rear side

- 98 Passenger door, hinges, window
- 99 Step & handle
- 100 Fuselage left side
- 101 Antennas

Tail

- 102 Elevator & rudder (freedom of movement, hinges)
- 103 Trim tabs (elevator, rudder)
- 104 Tie down (mooring rope removed)
- 105 Fin, Tail skid
- 106 Static dischargers (3)
- 107 Antennas
- 108 Vortex generators (2x6)
- 109 ** Oxygen overboard discharge indicator disk (green) and compartment ventilation port

Fuselage right rear side

- 110 Fuselage right side
- 111 ** Oxygen supply, door closed
- 112 *** RACC air inlet & hot air outlet
- 113 *** RACC EPU port
- 114 Emergency exit window and release
- 115 Step & handle
- 116 * De-ice fluid level and filler cap
- 117 * De-ice tank vent

Right wing

- 118 Safety walk
- 119 Wing flap (UP position, safety pins)
- 120 Aileron (freedom of movement, hinges, control linkage, safety pins)
- 121 Static discharger
- 122 Tie down (mooring rope removed)
- 123 Wing tip, position and strobe light
- 124 Vortex generators (10)
- 125 Fuel filler cap
- 126 Fuel vents
- 127 Auxiliary tank - Fuel sample check (drain)
- 128 Wing leading edge, top- and bottom surface
- 129 OAT sensor

For use of fuel additives see AFM.

Right main gear

- 130 Landing gear strut (5 cm bare piston)
- 131 Downlock and position switches
- 132 Tire condition, inflation and slip mark
- 133 Wheel and brake
- 134 Brake line connection
- 135 Landing gear door and linkage
- 136 Fuel cooler in- and outlet

Fuselage right front side

- 137 RH pilot door, hinges, window
- 138 * RH ice light
- 139 Windshield RH side
- 140 Taxi and LDG light
- 141 Antennas
- 142 Battery vent

Nose section & engine

- 143 EPU connector, door closed
- 144 Cowling RH
- 145 Cowl flap RH (closed position)
- 146 Exhaust RH
- 147 NACA outlet RH
- 148 Main RH air intake (air filter, radiator)
- 149 Intercooler RH
- 150 Spinner
- 151 Propeller
- 152 * Propeller heating pads
- 153 Gearbox oil level
- 154 Main LH air intake (air filter, radiator)
- 155 Intercooler LH
- 156 Cowling LH
- 157 Engine oil level
- 158 NACA inlets LH (2)
- 159 NACA outlet LH
- 160 Exhaust LH
- 161 Cowl flap LH (closed position)
- 162 Ventilation pipe
- 163 Gascolator – Fuel sample check (drain)

Nose gear

- 164 Landing gear strut (5 cm bare piston)
- 165 Nose wheel centering device
- 166 Downlock and position switches
- 167 Emergency nose gear extension spring
- 168 Tire condition, inflation and slip mark
- 169 Wheel
- 170 Landing gear door and linkage

REMOVE CHOCKS

REMOVE AND STOW TOW BAR

CHECK BEFORE ENGINE START

1	Pre-flight inspection.....	COMPLETED	1
2	Baggage and tow bar.....	SECURED	2
3	Passengers.....	INSTRUCTED	3
4	Rear door.....	CLOSED AND LATCHED	4
5	Front doors	CLOSED AND LATCHED	5
6	Adjustable Backrest.....	UPRIGHT	6
7	Safety harnesses.....	FASTENED	7
8	** Oxygen valve	PUSHED IN	8
9	Fuel valve	NORMAL	9
10	Elevator trim	FREE, T/O SET	10
11	Power lever	FREE / GROUND IDLE (GI)	11
12	Cowl-Flap.....	CLOSED	12
13	Parking brake	SET	13
14	ECS fan	OFF	14
15	Emergency gear extension.....	PUSHED	15
16	Gear selector.....	DOWN	16
17	Pitot/Stall heat.....	OFF	17
18	Avionic master.....	OFF	18
19	Electric master.....	OFF	19
20	Essential bus	OFF	20
21	Engine master	OFF	21
22	Emergency fuel pump	OFF	22
23	Fuel transfer pump	OFF	23
24	* Prop De-Ice	OFF	24
25	ECS shut-off valve.....	PUSHED	25
26	Alternate static	CLOSED	26
27	Alternators (2).....	ON	27
28	FADEC	AUTO	28
29	* Ice protection (TKS).....	OFF / OFF	29
30	All light switches	OFF	30
31	Circuit breakers	CHECKED IN	31
32	ELT	ARMED	32
33	Flaps selector	UP	33
34	Alternate air	CLOSED	34

Checklist continued next page

If starting engine with external power:

- | | | |
|----|-------------------------------------|---|
| a. | Prop areaCHECK CLEAR | a |
| b. | GPU connector cover/door OPEN | b |
| c. | External powerCONNECT | c |

35	Electric master..... ON	35
36	Rudder pedalsADJUSTED	36
37	Flood/Instrument light CHECKED, ON as req.	37
38	Flaps UP -> LDG -> T/O -> UP	38
39	Gear warning + lights TEST	37
40	Stall warning TEST	38
41	G1000POWERED, ACKNOWLEDGED	40
42	MFDEIS - ENGINE	41
43	Fuel quantity CHECKED, RST/SET if required	42
44	Fuel temperature CHECKED	43
45	Total time in service NOTED	44
46	Strobe / Position lights.....ON as required	45

End of Checklist

ENGINE START PROCEDURE

- Propeller area CLEAR*
- Engine master ON*
- Annunciations (CAS) / Engine instruments CHECKED*
- Glow indication CHECK ON, then OFF*
- Start buttonPRESS (max. 3")*
- Oil pressure.....min 2.3 bar within 3"*
- Annunciations / Engine instrumentsCHECK*

If external power was used:

- | | | |
|---|--------------------------------------|---|
| a | External powerDISCONNECT | a |
| b | GPU connector cover/doorCLOSED | b |
| c | GPU REMOVED | c |

CHECK AFTER ENGINE START

1	Oil pressure.....	CHECKED	1
2	Circuit breakers	CHECKED IN	2
3	RPM	IDLE – CHECK 660	3
4	Fuel valve	EMERGENCY	4

***ICE PROTECTION TEST INITIATION**

Prop De-Ice..... ON
De-Ice ANNUN TEST..... ON
TIMING..... START
DEICE LVL LOW caution CHECKED ON if applicable
Windshield de-ice..... CHECKED
Test continued/completed at checklist item 15

5	* Ice protection test	INITIATED	5
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ALTERNATOR TEST

Voltage / ALTN. 1 AmpsCHECK
ESS Bus..... ON
Pitot/Stall heatON, annunciation CHECKED
ALTN. 2 Amps..... CHECK RISING
ESS Bus..... OFF
ALTN. Amps 1: INCREASING / 2: DECREASING
Pitot/Stall heat OFF

6	Alternator test	COMPLETED	6
7	Avionic master.....	ON	7
8	*** RACC (only at OAT >10°C) ...	AS REQUIRED	8

FMS SETUP

I nitialize profile / Check System / ESP (AUX 3-5, MAP)
F light plan
R adios (COM, NAV, ADF, DME, CDI, BRG ½, RAIM)
P erformance (speed bugs, flight ID if applicable)

9	FMS setup	COMPLETED	9
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AUTOPILOT TEST

Electric elevator trim (MET) check
DISC press and hold, check electric elevator trim not working
AP ON, check FMA annunciations and FD (ROL/AP/YD/PIT)
LEVEL button press, check AP LEVEL mode (LVL/AP/YD/LVL)
CWS press and hold, check override (LVL/CWS/YD/LVL)
Copilot DISC press, check AP off
GA button press, check FD commands climb (GA/GA)
FD OFF

10	Autopilot test.....	COMPLETED	10
11	Fuel valve	NORMAL	11
12	Altimeters (2).....	SET	12
13	Standby attitude module SAM	CHECKED	13
14	Transponder.....	CODE/MODE CHECKED	14

Checklist continued next page

***ICE PROTECTION TEST COMPLETION**

120" after De-Ice ANNUN Test ON:

DEIC PRESS LO caution ON
 De-Ice ANNUN Test OFF

180" after Prop De-Ice ON:

PROP DE-ICE FAIL caution..... VERIFY REMAINED OFF
 Prop De-Ice..... OFF

15	* Ice protection test	COMPLETED	15
16	Taxi light	ON	16
17	Engine temperatures	CHECKED	17
18	Parking brake	RELEASED	18

IDLE for 2 min then max. RPM 1100 until engine temperatures in green range.

End of Checklist

DURING TAXI

Brakes and steeringCHECK
 Flight instruments & Avionics.....CHECK

BEFORE TAKE OFF CHECK

1	Parking brake	SET	1
2	Power lever	GROUND IDLE (GI)	2
3	Rear door	CHECK CLOSED AND LATCHED	3
4	Front doors	CHECK CLOSED AND LATCHED	4
5	Door warning annunciations	OFF	5
6	Sun visors	STOWED	6
7	Safety harnesses	FASTENED	7
8	Adjustable backrests	UPRIGHT	8
9	Keypad	STOWED	9
10	Fuel valve	CHECKED NORMAL	10
11	Flight controls	CHECKED	11
12	Elevator trim	T/O	12
13	Rudder trim	T/O (white range)	13
14	Cowl-Flap	OPEN	14
15	Circulating Air	FRESH AIR	15
16	ECS Shut off	PUSHED	16
17	Transponder	CODE/MODE CHECKED	17
18	Circuit breakers	CHECKED IN	18
19	Flaps	T/O	19
20	MFD	EIS - Engine	20
21	Engine instruments / temperatures	CHECKED	21
22	FADEC	ECU B then AUTO	22

Checklist continued next page

ECU TEST

FADEC TEST button *Press and Hold*
 ECU A/B FAIL caution *ON*
 RPM increase *CHECKED*
 ECU B FAIL caution *ON*
 Propeller RPM cycle *CHECKED*
 ECU A FAIL caution *ON*
 Propeller RPM cycle *CHECKED*
 ECU A/B FAIL caution *OFF*
 FADEC TEST button *Release*

23	ECU test	PERFORMED	23
24	Emergency fuel pump	ON	24

AVAILABLE POWER CHECK (STAND STILL)

Power *Maximum (TOP) for 10"*
 Engine instruments & annunciations *CHECKED*
 RPM *between 2290 and 2340*
 Load *between 85% and 100% acc. table below*
 Power *Ground Idle*
 ECU A/B FAIL caution *OFF*
 Ammeter / Voltage / Alternator Warnings *CHECK*

Altitude [ft]	OAT								
	-35°C -31°F	-20°C -4°F	-10°C 14°F	0°C 32°F	10°C 50°F	20°C 68°F	30°C 86°F	40°C 104°F	50°C 122°F
0							99%	97%	96%
2000							98%	97%	96%
4000	99%						98%	97%	96%
6000							98%	96%	96%
8000							97%	96%	95%
10000	89%				88%		87%	86%	85%

Available power check might be performed also at line up just before take-off roll commences (stand still).

25	Available power check.....	PERFORMED	25
26	MFD	EIS - Default	26
27	Pitot/Stall heat.....	AS REQUIRED	27
28	* Ice protection	AS REQUIRED	28
29	Parking Brake	RELEASED	29

End of Checklist

LINE UP PROCEDURE

Landing light *ON*
 Approach sector *CLEAR*
 Runway *IDENTIFIED*
 Heading (HSI & STBY compass) *CHECKED*

AFTER TAKE-OFF PROCEDURE

When no chance for re-land on runway
 Brakes *APPLY*
 Gear *UP*
 Alternate Air *OPEN in rain, snow, visible moisture*
After passing safe altitude
 Flaps *UP*
 Climb power *90%*

CLIMB TO CRUISE CHECK

1	Gear	CHECKED UP	1
2	Flaps	CHECKED UP	2
3	Alternate air	AS REQUIRED	3
4	Climb power	SET	4
5	Cowl-Flap	AS REQUIRED	5
6	FD / AFCS	AS REQUIRED	6
7	Emergency fuel pump	OFF	7
8	Landing & taxi light	OFF	8

End of Checklist

WHEN PASSING 10,000 FT

- **Oxygen valve & system ON / as required
- ***RACC..... OFF

PERIODICALLY DURING CRUISE

- Cowl-Flap CLOSED / as required
- Fuel transferrepeat as required to remain within max. fuel imbalance
- AFCSCHECK FMA annunciations / as required
- * Ice protection.....as required, check fluid quantity and annunciations
- ** Oxygen.....check pressure & hoses as required
- ***RACC..... CHECK OAT / Use as required only > 10°C

DESCENT / APPROACH CHECK

1	Landing data	RECEIVED	1
2	Altimeters (2)	SET	2
3	COM / NAV / FMS	SET AND CHECKED	3
4	Adjustable backrests.....	UPRIGHT	4
5	Safety harnesses.....	FASTENED	5
6	Keypad.....	STOWED	6
7	Fuel valve	CHECK NORMAL	7
8	Cowl-Flap.....	AS REQUIRED	8
9	Parking brake	CHECK RELEASED	9
10	Gear warning and lights	TEST	10
11	Emergency fuel pump	ON	11
12	Fuel transfer.....	OFF	12
13	Landing & Taxi light.....	ON, as req.	13
14	Sun visors.....	STOWED	14
15	Port. Electronic Devices.....	OFF for low vis app	15
16	* Ice protection	AS REQUIRED	16
17	** Oxygen	OFF and stow / AS REQUIRED	17

End of Checklist

FINAL CHECK

1	Flaps	LDG, as req.	1
2	Gear	DOWN, 3 GREENS CHECKED	2
3	Cowl-Flap.....	OPEN	3
4	Rudder trim	NEUTRAL	4
5	AFCS / YD	DISC / OFF	5

End of Checklist

GO AROUND PROCEDURE

Power..... MAX
Flaps..... T/O
Cowl-Flap..... CHECK OPEN
GA Button..... PRESS

Positive Rate of Climb

Gear..... UP
Alternate Air..... OPEN in rain, snow, visible moisture

After passing safe altitude

Flaps..... UP
Climb power..... 90%

Continue with "Climb to Cruise Checklist"

AFTER LANDING CHECK

when clear of runway

1	Alternate air	CLOSED	1
2	Flaps	UP	2
3	Landing light	OFF	3
4	* Ice protection (TKS/Prop De-Ice)	OFF/OFF	4
5	Emergency fuel pump	OFF	5
6	Transponder.....	CHECK GND	6
7	Pitot/Stall heat.....	OFF	7
8	Cowl-Flap.....	CLOSED	8

End of Checklist

PARKING CHECK

1	Parking brake	SET	1
2	Power lever	GROUND IDLE for at least 2 min	2
3	ELT	CHECK not activated	3
4	MFD	EIS – Engine	4
5	Engine instruments	CHECKED	5
6	TTL TIME IN SVC.....	NOTED	6
7	Avionic master.....	OFF	7
8	ECS Fan.....	OFF	8
9	*** RACC	OFF	9
10	Electrical consumers except strobe (ACL)....	OFF	10
11	Engine Master.....	OFF	11

When engine indications x-out:

12	Strobe (ACL) light	OFF	12
13	Electric Master	OFF	13
14	Pilot reading/map light.....	CHECK OFF	14

End of Checklist

SECURING THE AIRCRAFT

Emergency exit window pin	INSERT
Pitot Cover	INSTALL
Mooring	CONSIDER
Chocks	CONSIDER
Gust Lock.....	CONSIDER
Aircraft doors	LOCK
Aircraft and engine covers.....	CONSIDER
Technical and operational documents	RECORD

CHARACTERISTIC DATA

STALLING SPEEDS [KIAS]	1600kg	1800kg	1999kg
V _S Flaps UP, Gear UP	63	66	72
V _S Flaps T/O, Gear DWN	57	60	66
V _{SO} Flaps LDG, Gear DWN	52	55	59

OPERATING SPEEDS [KIAS]

	<1600kg	<1800 kg	>1800kg
Rotation speed V _R	59	64	68
V ₅₀ up to 50 ft	69	73	79
V _Y up to safe altitude (Flaps T/O)	79		
Cruise climb speed	94		

Max. structural cruising speed (V _{NO})	152
Never exceed speed (V _{NE})	191
Continuous operating speed range in ice	94 – 152
Max. flap extension speed (V _{FE}) Flaps T/O	133
Max. flap extension speed (V _{FE}) Flaps LDG	121
Max. landing gear extended speed (V _{LE})	162
Max. landing gear operation speed (V _{LO})	162
Max. speed for emergency gear extension	102

	<1600kg	<1800 kg	>1800kg
Approach speed V _{REF} Flaps UP (ICE)	84 (86)	90 (92)	94 (96)
Approach speed V _{REF} Flaps T/O (ICE)	77 (80)	79 (84)	85 (88)
Approach speed V _{REF} Flaps LDG	73	75	77
Same speeds apply for Go Around (Flaps T/O)			

	up to 1650 kg	1651 – 1850 kg	above 1850 kg
Manoeuvring speed (V _O)	119	125	133

Best GLIDE speed	94 (ICE: 96)
Gear & Flaps UP, windmilling prop	Gliding ratio 1:10 1,6 NM / 1000 ft

Max. demonstrated X-wind component: 15 kt

MASSES		
MTOM (Maximum-Take-Off-Mass)	1999 kg	4407 lb
MZFM (Maximum-Zero-Fuel-Mass)	1900 kg	4189 lb
MLM (Maximum-Landing-Mass)	1999 kg	4407 lb
MFM (Minimum-Flight-Mass)	1480 kg	3263 lb
Empty mass (SN: 50. Reg.:)	kg	lb
Max. baggage in baggage Area A	40 kg	88 lb
Max. baggage in baggage Area B	35 kg	77 lb
Max. baggage in baggage Compartment C	10 kg	22 lb
Max. baggage in baggage Compartment D	5 kg	11 lb

EMERGENCY + ABNORMAL CHECKLIST

For conditions to use this Emergency + Abnormal checklist see page 1 of the Normal checklist.
All such conditions are fully applicable also for this checklist.

ANNUNCIATED WARNINGS

G1000 WARNINGS

ALTN 1 AMPS ALTN 2 AMPS	Page 2	Engine alternator 1 and/or 2 output is higher than 70 Amps (red range)
ALTN 1 FAIL AND ALTN 2 FAIL	Page 2	Engine alternator 1 AND engine alternator 2 have failed
COOLANT TEMP	Page 3	Coolant temperature is above 105°C (red range)
ENG INTAKE	Page 3	Engine Air Intake Temperature is above 80°C
ENG OIL TEMP	Page 4	Engine oil temperature is above 125°C (red range)
FUEL PRESS	Page 4	Engine fuel pressure is above 1.0 or below -0.3 bar (red range)
GB OIL TEMP	Page 4	Gearbox temperature is above 110°C (red range)
L DOOR OPEN R DOOR OPEN REAR DOOR OPEN	Page 5	LH / RH / Rear door is not closed and latched
L FUEL TEMP R FUEL TEMP	Page 5	Fuel temperature in LH/RH fuel tank is above 60°C (red range)
OIL PRES	Page 6	Engine oil pressure is above 7.5 or below 2.0 bar (red range)
STARTER	Page 6	Engine starter is engaged

NON-ANNUNCIATED EMERGENCY PROCEDURES

start at page 7

NOTE

In case of any emergencies, malfunctions or excessive noise or vibrations, the *** RACC must be switched OFF.

For other parameters "out of green range" see abnormal Checklist

Abnormal checklist starts at page 25

ALTN 1/2 AMPS**HIGH CURRENT****Consumption of electrical power is too high**

Possible reason: fault in wiring or equipment

- Monitor MFD – EIS Engine page
- Reduce electric load
- Check circuit breakers
- Monitor ammeter / voltmeter
- Land at nearest suitable airfield

ALTN 1+2 FAIL**BOTH ALTERNATORS FAILED****Batteries will last for about 30 minutes**

- Check circuit breakers
- Extend landing gear (pull emergency gear extension lever when down and locked)
- ESSENTIAL BUS: ON
- Switch off alternator 1 + 2
- Switch off pitot/stall heat
- Switch off all lights
- Switch off unnecessary electrical equipment
- Leave area icing conditions
- Land at nearest suitable airfield

⇒ Be prepared for engine failure and emergency landing

COOLANT TEMP**COOLANT TEMPERATURE HIGH**

- Check "COOL LVL" caution message
 - ❖ → If "COOL LVL" OUT:
 - ❖ → During climb:
 - ⇒ Reduce power by 10% or more
 - ⇒ Open cowl flap
 - ⇒ Increase airspeed by 10 KIAS or more
 - ⇒ If not returning to green range within 60 seconds: reduce power as far as possible and increase airspeed
 - ❖ → During cruise:
 - ⇒ Reduce power
 - ⇒ Increase airspeed, if necessary descend
 - ⇒ Open cowl flap
 - ⇒ Check coolant temperature in green range
 - If not returning to green range:
 - ⇒ land at nearest suitable airfield
- ❖ → If "COOL LVL" ON:
 - ⇒ Reduce power
 - ⇒ Open cowl flap
 - ⇒ Expect loss of coolant fluid
 - ⇒ Be prepared for engine failure and emergency landing

ENG INTAKE**ENGINE AIR INTAKE TEMPERATURE IS HIGH (ABOVE 80°C) FOR MORE THAN 30"**

- Reduce power
- Open cowl-flap
- Increase airspeed
- Monitor caution carefully

High engine air intake temperatures may reduce power.

ENG OIL TEMP**OIL TEMPERATURE HIGH**

- Check oil pressure
 - ❖ If too low:
 - ⇒ Reduce power
 - ⇒ Open cowl flap
 - ⇒ Be prepared for loss of oil and engine failure
 - Be prepared for emergency landing
 - ❖ If in green range:
 - ⇒ Reduce power
 - ⇒ Open cowl flap
 - ⇒ Increase airspeed
 - ⇒ Check oil temp in green range
 - If not returning to green range:
 - land at nearest suitable airfield

FUEL PRESS**FUEL PRESSURE LOW**

- Check fuel quantity
- Check fuel valve NORMAL
- Switch emergency fuel pump ON
 - If FUEL PRESS warning remains:
 - ⇒ Fuel valve to EMERGENCY
 - ⇒ Switch emergency fuel pump OFF
 - If FUEL PRESS warning still remains
 - ⇒ Be prepared for engine failure

GB OIL TEMP**GEARBOX OIL TEMP. HIGH**

- Reduce power
- Open cowl flap
- Increase airspeed
 - If gearbox temperature still in red range:
 - ⇒ Land at nearest suitable airfield
 - Be prepared for engine failure

L/R DOOR OPEN**UNLOCKED DOORS****REAR DOOR OPEN**

- Reduce airspeed
- Check door visually
 - If door is unlocked:
 - ⇒ Airspeed below 140 KIAS
 - ⇒ Land at nearest suitable airfield

Do not try to lock the rear door in flight

L/R FUEL TEMP**FUEL TEMPERATURE IN FUEL
TANK HIGH**

- Reduce power
- Open cowl flap
- Increase airspeed
- Consider fuel transfer from AUX to MAIN tank
 - If fuel temperature **not returning** to green range:
 - ⇒ Land at nearest suitable airfield

OIL PRES**OIL PRESSURE BELOW 2.0 BAR**

- ❖ → On ground (immediate engine shut down)
 - Reduce power to ground idle (GI)
 - Apply brakes as required
 - Switch off engine master
- ↓
- ❖ → During flight
 - Reduce power
 - Check oil temperature
 - Expect loss of engine oil and engine failure
Prepare for emergency landing

OIL PRESSURE ABOVE 7.5 BAR

- Check oil temperature
- Check coolant temperature
 - ❖ → If temperatures within green range
 - ⇒ Oil pressure indication may be faulty;
monitor temperatures
 - ↓
 - ❖ → If temperatures outside of green range
 - ⇒ Reduce power
 - ⇒ Land at nearest suitable airfield,
be prepared for engine failure

CAUTION

When starting a cold engine, oil pressure could be as high as 6.5 bar for a maximum of 20 seconds.

STARTER**STARTER NOT DISENGAGING****ON GROUND:**

- Reduce power to ground idle (GI)
- Switch off engine master
- Switch off electric master
- Terminate flight preparation

IN FLIGHT:

- Land as soon as possible

NON-ANNUNCIATED EMERGENCY PROCEDURES**Emergency landing (engine off) page 9****Ditching page 10****ENGINE PAGE 11**

Engine failure on ground	page 11
Engine failure during aborted take-off ...	page 11
Engine failure during continued take-off .	page 11
Engine failure in flight.....	page 12
Restart engine in flight	page 13
Oscillating RPM	page 14
RPM overspeed.....	page 14
RPM underspeed	page 14
Defective cowl flap	page 15
Engine troubleshooting	page 15

SMOKE AND FIRE..... PAGE 16

Engine fire on ground	page 16
Electric fire / smoke on ground	page 16
Fire / smoke during aborted take-off	page 16
Fire / smoke in continued TKOF	page 17
Engine fire in flight	page 17
Electric fire with smoke in flight	page 18

**** OXYGEN SYSTEM PAGE 19**

Oxygen pressure loss above 10,000 ft....	page 19
Insufficient flow	page 19
Loss of oxygen pressure indication	page 19

ELECTRIC SYSTEM PAGE 20

Complete failure of the electric system ..	page 20
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LANDING GEAR SYSTEM PAGE 21

Emergency extension of the LDG gear ...	page 21
Landing with a defective tire on the MLG	page 21
Landing with defective brakes	page 21
Landing gear unsafe warning	page 22
Landing with gear up	page 22

ICING / DE-ICING EMERGENCIES..... PAGE 23

Unintentional flight into icing,	
* Inadvertent icing encounter and	
* Excessive ice accumulation	page 23
* Ice protection failure.....	page 23
* Loss of ice protection fluid display.....	page 24
* Freezing rain/drizzle exit procedures ...	page 24
* Insuff. Eng. PWR in icing conditions	Page 24

OTHER EMERGENCIES..... PAGE 25

Suspicion of carbon monoxide.....	page 25
Autopilot or electric trim malfunction	page 25
Gliding	page 25
Emergency descent	page 25
Recovery from spin	page 26
*** RACC failure	page 26
Emergency exit / evacuation	page 26

EMERGENCY LANDING (ENGINE OFF)

- 1 Gliding speed 94 KIAS 1
- 2 ATC..... INFORM 2
- 3 Power lever FLIGHT IDLE (FI) 3
- 4 Engine master OFF 4
- 5 Adjustable backrests UPRIGHT 5
- 6 Safety harnesses TIGHT 6
- 7 Sun visors..... STOWED 7
- 8 Keypad STOWED 8
- 9 Fuel valve OFF 9
- 10 Emergency fuel pump..... OFF 10
- 11 Fuel transfer pump..... OFF 11

On final / before touchdown:

- 12 Doors UNLATCH 12
- 13 Landing gear AS REQUIRED 13
- 14 Flaps T/O or LDG 14

Approach speed KIAS	
Flaps UP	94
Flaps T/O	85
Flaps LDG	77

- 15 Electric master OFF 15

DITCHING

- 1 Mayday call.....CONSIDER 1
- 2 Heavy objects SECURE 2
- 3 Adjustable backrests UPRIGHT 3
- 4 Keypad..... STOWED 4
- 5 Sun visors STOWED 5
- 6 Safety harnesses TIGHT 6
- 7 Landing Gear UP 7

Heavy swell with light wind: ditch parallel to the swell
 Heavy wind: ditch into the wind

- 8 Flaps..... LDG 8
- 9 Final approach speed Vref..... 77 KIAS 9
- 10 Power..... 300FT/MIN rate of descent 10

Touchdown, in level attitude, avoid landing flare (height difficult to judge), airplane will float only a short time.

EVACUATE through doors

When outside inflate life vests (raft)

ENGINE

ENGINE FAILURE ON GROUND

1	Power lever	GROUND IDLE (GI)	1
2	Brakes	AS REQUIRED	2
3	Engine shut down	CONSIDER	3

ENGINE FAILURE DURING ABORTED TAKE-OFF

1	Power lever	GROUND IDLE (GI)	1
2	Brakes	AS REQUIRED	2
3	Engine master	OFF	3
4	Fuel valve	OFF	4
5	Electric master	OFF during DAY	5
6	Land	STRAIGHT AHEAD	6

ENGINE FAILURE DURING CONTINUED TAKE-OFF

1	Power lever	CHECK MAX	1
2	Emergency fuel pump	CHECK ON	2
3	FADEC switch	FORCE B	3
	● If no success:		
4	FADEC switch	AUTO	4
5	Alternate Air	OPEN	5
	● If power output too low to continue flight:		
6	Power lever	FLIGHT IDLE (FI)	6
7	Engine master	OFF	7
8	Fuel valve	OFF	8
9	Airspeed, landing gear, flaps	AS REQUIRED	9
10	Land	BEST LOCATION WITHIN SAFE REACH	10
	● If power output sufficient to continue flight:		
11	Land	AS SOON AS POSSIBLE	11

ENGINE FAILURE IN FLIGHT

1	Airspeed	94 KIAS	1
2	Flaps	UP	2
3	Cowl flap.....	CLOSED	3
4	Electric master	CHECK ON	4
5	Engine parameters	CHECK	5
6	Fuel quantity main tank	CHECK	6
7	Fuel valve	CHECK NORMAL	7
8	Emergency fuel pump.....	ON	8
	● If in rain, snow or visible moisture:		
9	Alternate air	OPEN	9
	● If failure persists:		
10	Power lever	MAX	10
11	Fuel valve	EMERGENCY	11
12	ECU A/B fail caution	CHECK & MONITOR	12
13	Engine parameters	CHECK	13
	● If failure persists:		
14	FADEC switch	FORCE B	14
	● If failure persists:		
15	FADEC switch	AUTO	15
	Land at next suitable airfield		
	Prepare for emergency landing without engine		

RESTART ENGINE IN FLIGHT

Consider starter assisted restart
if propeller has stopped
only with extreme caution

Max. altitude: 15.000 ft PA

- 1 Landing gearUP 1
- 2 Cowl flap..... CHECK CLOSED 2
- 3 Electric masterCHECK ON 3
- 4 Fuel quantityCHECK 4
- 5 Fuel valve SELECT FULLEST TANK 5
- 6 Emergency fuel pump..... ON 6
- 7 FADEC switchAUTO 7
- 8 Power lever FLIGHT IDLE (FI) 8
- 9 Airspeed 122 KIAS 9
- 10 Engine masterOFF then ON 10
- 11 Power leverCHECK POWER 11

Land at nearest suitable airfield

● If engine does not start:

Carry out:

EMERGENCY LANDING (ENGINE OFF) (page 9)

OSCILLATING RPM

- | | | | |
|---|-----------------------------------|----------------|---|
| 1 | Power lever | CHANGE SETTING | 1 |
| | ● If no success: | | |
| 2 | FADEC switch | FORCE B | 2 |
| | ● If no success: | | |
| 3 | FADEC switch | AUTO | 3 |
| | Land at nearest suitable airfield | | |

RPM OVERSPEED

- | | | | |
|----|-----------------------------------|-------------------------|----|
| 1 | Power lever | ADJUST to max. 2300 RPM | 1 |
| 2 | Airspeed | 94 KIAS | 2 |
| 3 | Flaps | CHECK UP | 3 |
| ↕ | If RPM stabilized below 2300: | | |
| 4 | Airspeed | AS REQUIRED | 4 |
| 5 | Power lever | AS REQUIRED | 5 |
| | but do not exceed 2300 RPM | | |
| ↕ | If RPM still above 2300: | | |
| 6 | FADEC switch | FORCE B | 6 |
| | ● If no success: | | |
| 7 | FADEC switch | AUTO | 7 |
| | adjust RPM with power lever | | |
| | Land at nearest suitable airfield | | |
| | If increased climb rate required: | | |
| 8 | Flaps | T/O | 8 |
| 9 | Airspeed | 79 KIAS | 9 |
| 10 | Power lever | ADJUST to max. 2300 RPM | 10 |

RPM UNDERSPEED

- | | | | |
|---|-----------------------------------|-------------|---|
| 1 | Power lever | AS REQUIRED | 1 |
| 2 | FADEC switch | FORCE B | 2 |
| | ● If no success: | | |
| 3 | FADEC switch | AUTO | 3 |
| 4 | Power lever | AS REQUIRED | 4 |
| | Land at nearest suitable airfield | | |

DEFECTIVE COWL FLAP

- | | | |
|---|---|---|
| 1 | Coolant temperature CHECK | 1 |
| | Follow COOLANT TEMP emergency procedure as applicable | |

ENGINE TROUBLESHOOTING

- | | | |
|----|--|----|
| 1 | Airspeed min. 94 KIAS | 1 |
| 2 | Flaps UP | 2 |
| 3 | Power lever CHECK | 3 |
| 4 | Alternate air OPEN | 4 |
| 5 | Fuel quantity CHECK | 5 |
| 6 | Fuel valve EMERGENCY | 6 |
| | ● If engine OK: continue, land ASAP <small>End of Checklist</small> | |
| 7 | Fuel valve NORMAL | 7 |
| 8 | FADEC switch FORCE B | 8 |
| | ● If engine OK: continue, land ASAP <small>End of Checklist</small> | |
| 9 | FADEC switch AUTO | 9 |
| 10 | Circuit breakers CHECK/RESET | 10 |
| | ● If engine OK: land as soon as practicable <small>End of Checklist</small> | |
| | ● If engine still not OK: be prepared for
ENGINE FAILURE IN FLIGHT, land ASAP <small>End of Checklist</small> | |

SMOKE AND FIRE

ENGINE FIRE ON GROUND

1	Engine master	OFF	1
2	Fuel valve	OFF	2
3	Electric master	OFF	3
After standstill and when engine stopped:			
4	Doors	OPEN	4
Evacuate			

ELECTRIC FIRE / SMOKE ON GROUND

1	Electric master	OFF	1
2	Power lever	GROUND IDLE (GI)	2
3	Fuel valve	OFF	3
4	Engine master	OFF	4
After standstill and when engine stopped:			
5	Doors	OPEN	5
Evacuate			

FIRE / SMOKE DURING ABORTED TKOF

1	Power lever	GROUND IDLE (GI)	1
2	ECS shut-off	PULL	2
3	Brakes	APPLY	3
4	Fuel valve	OFF	4
5	Engine master	OFF	5
6	Electric master	OFF	6
After standstill and when engine stopped:			
7	Doors	OPEN	7
Evacuate			

FIRE / SMOKE DURING CONTINUED TKOF

- 1 ECS shut-off.....PULL 1
 If possible climb to safe height and land ASAP
 When landing assured:
- 2 Engine master OFF 2
- 3 Fuel valve OFF 3
- 4 Electric master OFF 4
- 5 Emergency front windows OPEN as necessary 5

Carry out:

EMERGENCY LANDING (ENGINE OFF) (page 9)

After standstill and when engine stopped:

- 6 Doors OPEN 6
 Evacuate

ENGINE FIRE IN FLIGHT

- 1 ECS circulating air..... FRESH AIR 1
- 2 ECS shut-off.....PULL 2
 Select appropriate emergency landing area
- 3 Engine master OFF 3
- 4 Fuel valve OFF 4
- 5 Electric master OFF 5
- 6 Airspeed AS REQUIRED / CONSIDER HIGHER 6
- 7 Emergency front windows OPEN as necessary 7

Carry Out:

EMERGENCY LANDING (ENGINE OFF) (page 9)

After standstill and when engine stopped:

- 8 Doors OPEN 8
 Evacuate

ELECTRIC FIRE WITH SMOKE IN FLIGHT

If Oxygen System is installed and flight performed above 10,000ft:

- 1 ** Oxygen System OFF 1
- 2 ** Emergency DescentINITIATE 2

Continue:

- 3 Avionic master..... OFF 3
- 4 Electric master OFF 4
- 5 ECS – circulating air FRESH AIR 5
- 6 ECS shut-off.....PULL 6
- 7 Emergency front windowsOPEN as necessary 7

Land immediately

Consider and be prepared for:

EMERGENCY LANDING (ENGINE OFF) (page 9)

After standstill and when engine stopped:

- 8 DoorsOPEN 8
- Evacuate

** OXYGEN SYSTEM

OXYGEN PRESSURE LOSS ABOVE 10.000 FT

- 1 OxygenPUSH OFF 1
- 2 Oxygen pressureCHECKED, note down 2
- 3 Emergency descent..... INTIATE 3

When passing 10.000 FT:

- 4 Oxygen pressureCHECK AGAIN 4
 - ❖→ If oxygen pressure constant:Continue flight
 - ❖ If oxygen pressure dropped: ... Land at nearest suitable airfield

INSUFFICIENT FLOW

- 1 OxygenCHECK ON 1
- 2 Flowmeter adjustment..... CHECK 2

If flowmeter is not adjustable to required flow:

- 3 Oxygen pressure CHECK, note down 3
- 4 Emergency descent..... INTIATE 4

When passing 10.000 FT:

- 5 OxygenPush OFF 5
- 6 Oxygen pressureCHECK AGAIN 6
 - ❖→ If oxygen pressure constant:Continue flight
 - ❖ If oxygen pressure dropped: ... Land at nearest suitable airfield

LOSS OF OXYGEN PRESSURE INDICATION

- 1 Flow and flowmeter..... CHECK, ADJUST 1
 - ❖→ If flow is adjustable and sufficient:
 - Continue flight
 - Perform manual endurance calculation
 - ❖ If flow is not adjustable and sufficient:
 - Proceed with **Insufficient flow procedure** ↑

ELECTRIC SYSTEM

COMPLETE FAILURE OF THE ELECTRICAL SYSTEM

Leave icing conditions.

- 1 Circuit breakersCHECK ALL IN 1
- 2 Essential bus ON 2
- 3 Unessential electrical equipment OFF 3
- 4 Power SET 4
according power lever position and/or engine noise
- 5 Flaps VERIFY POSITION 5
Land at nearest suitable airfield

Be prepared for:

EMERGENCY LANDING (ENGINE OFF) (page 9)

LANDING GEAR SYSTEM

EMERGENCY EXTENSION OF THE LANDING GEAR

1	Electric master	CHECK ON	1
2	Gear indicator lights	TEST	2
3	Bus voltage	CHECK NORMAL	3
4	Circuit breaker	CHECK	4
5	Gear selector	DOWN	5
6	Airspeed	max. 102 KIAS	6
7	Emergency gear extension	PULL	7
	If necessary		
8	Airspeed	REDUCE	8
	Apply moderate yawing		
9	Gear indicator lights	CHECK 3 GREENS	9

LANDING GEAR UNSAFE WARNING

If on for more than 20 seconds:

1	Airspeed	max. 162 KIAS	1
	In cold temperature:		
2	Airspeed	max. 102 KIAS	2
3	Gear selector	RECYCLE	3

- ❖ → If landing gear **extension** unsuccessful:
 Continue with EMERGENCY EXTENSION
- ❖ ↓ If landing gear **retraction** unsuccessful:
 Consider flight with landing gear down

LANDING WITH A DEFECTIVE TIRE ON THE MAIN LANDING GEAR

1	ATC	INFORMED	1
	For landing:		
	<ul style="list-style-type: none"> ● Land on RWY side with "good" tire ● Keep wing on "good" side low ● Support directional control with brake 		

LANDING WITH DEFECTIVE BRAKES

Preferably land on grass.

After touchdown (if necessary):

- | | | | |
|---|--------------------------|-----|---|
| 1 | Fuel valve | OFF | 1 |
| 2 | Engine master | OFF | 2 |
| 3 | Emergency fuel pump..... | OFF | 3 |
| 4 | Fuel transfer pump..... | OFF | 4 |
| 5 | Electric master | OFF | 5 |

LANDING WITH GEAR UP

(Landing gear completely retracted)

- | | | | |
|---|-------------------|-------------------|---|
| 1 | Approach | NORMAL. | 1 |
| 2 | Sun Visors | STOWED. | 2 |
| 3 | Keypad | STOWED. | 3 |
| 4 | Power Lever | FLIGHT IDLE (FI). | 4 |

If time/situation allows: just before touchdown:

- | | | | |
|---|--------------------------|-----|---|
| 5 | Engine master | OFF | 5 |
| 6 | Emergency fuel pump..... | OFF | 6 |
| 7 | Fuel transfer pump..... | OFF | 7 |
| 8 | Fuel valve | OFF | 8 |

- | | | | |
|---|-----------------|------------------|---|
| 9 | Touchdown | Minimum Airspeed | 9 |
|---|-----------------|------------------|---|

Maintain directional control with rudder as long as possible

Immediately after touchdown:

- | | | | |
|----|----------------------|-----|----|
| 10 | Electric Master..... | OFF | 10 |
|----|----------------------|-----|----|

ICING / DE-ICING EMERGENCIES

UNINTENTIONAL FLIGHT INTO ICING

Leave icing area, inform ATC, continue with item 1

* INADVERTENT ICING ENCOUNTER &

* EXCESSIVE ICE ACCUMULATION

- 1 * Ice-protection system HI + MAX 1
- 2 * Prop De-Ice ON 2
- 3 Pitot/Stall heat ON 3
- 4 * Ice light ON as required 4
- 5 ECS - Cabin heat ON 5
- 6 ECS - Cabin air DEFROST 6
- 7 Power lever INCREASE, change periodically 7
- 8 Alternate air OPEN 8
- 9 * Windshield de-ice USE AS APPROPRIATE 9
- 10 Emergency front windows OPEN as required 10

* If ice-protection does not work properly:
Continue with ICE PROTECTION FAILURE

* ICE PROTECTION FAILURE

Leave icing conditions

- 1 Airplane control stick Grasp firmly 1
- 2 AP DISC switch PRESS 2
- 3 Airspeed..... 94 to 152 KIAS (172 KTAS) until final 3
- 4 Flaps UP for landing 4
- 5 Approach speed per table 5

Flaps	< 1600 kg	< 1800 kg	> 1800 kg
UP	86	92	96

- 6 Landing distance...according AFM abnormal flaps 6

*** LOSS OF ICE PROTECTION FLUID DISPLAY**

Leave icing conditions

If fluid quantity is known, remaining system operating time can be estimated based on the flow rates.

(NORM: 11,3 l/h / HI: 22,6 l/h / MAX: 1,5 l per activation)

*** FREEZING RAIN/DRIZZLE EXIT PROCEDURES**

- Leave freezing rain/drizzle conditions
- Activate ice protection system:
 - DE-ICE HI+MAX
 - Prop DE-ICE
 - PITOT/STALL Heat
 - Windshield DE-ICE
- Avoid abrupt and excessive manoeuvring
- Grasp control stick firmly
- Disengage Autopilot
- Periodically move all controls gently and check for and prevent frozen control surfaces
- If unusual roll response or uncommanded control movement is observed, reduce AoA by increasing airspeed or rolling wings level and apply additional power
- Keep present flap position
- Consider informing ATC

*** INSUFFICIENT ENGINE POWER IN ICING CONDITIONS**

1	Cowl-Flap.....	OPEN	1
2	Alternate Air.....	OPEN	2

Leave icing conditions

If engine power is insufficient to continue flight, be prepared for an emergency landing.

OTHER EMERGENCIES

SUSPICION OF CARBON MONOXIDE

- | | | | |
|---|------------------------------|-----------|---|
| 1 | ECS Fan..... | OFF | 1 |
| 2 | Circulating air..... | FRESH AIR | 2 |
| 3 | ECS shut-off..... | PULL | 3 |
| 4 | Emergency front windows..... | OPEN | 4 |

AUTOPILOT OR ELECTRIC TRIM

MALFUNCTION

- | | | | |
|---|---------------------------------|----------------------|---|
| 1 | Airplane control stick..... | Grasp firmly | 1 |
| 2 | AP DISC switch..... | PRESS AND HOLD | 2 |
| 3 | Trim..... | Manually as required | 3 |
| 4 | AFCS / ESP circuit breaker..... | PULL | 4 |
| 5 | AP DISC switch..... | RELEASE | 5 |

Do not attempt to re-engage the AP, following an AP, auto-trim or manual electric trim malfunction until the cause for the malfunction has been corrected.

GLIDING

- | | | | |
|---|-------------------|-------------------|---|
| 1 | Flaps..... | UP | 1 |
| 2 | Landing gear..... | UP | 2 |
| 3 | Cowl-Flap..... | CLOSED | 3 |
| 4 | Airspeed..... | 94 (ICE: 96) KIAS | 4 |

Glide ratio of 10 (1,6 NM per 1,000 ft altitude)

EMERGENCY DESCENT

- | | | | |
|---|-------------------|------------------|---|
| 1 | Flaps..... | UP | 1 |
| 2 | Power..... | FLIGHT IDLE (FI) | 2 |
| 3 | Airspeed..... | max. 162 KIAS | 3 |
| 4 | Landing gear..... | DOWN | 4 |

RECOVERY FROM SPIN

Steps 1-4 immediately and simultaneously

1	Power lever	FLIGHT IDLE (FI)	1
2	Ailerons	NEUTRAL	2
3	Rudder	FULL AGAINST SPIN DIRECTION	3
4	Elevator	FORWARD	4

When rotation has stopped

5	Rudder	NEUTRAL	5
6	Flaps	UP	6
7	Elevator	PULL CAREFULLY	7

Return the aircraft in normal attitude without exceeding V_{NE} .

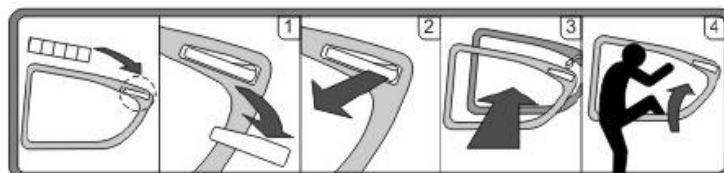
*** RACC FAILURE

Switch RACC off in case of:

- Smoke or fire is observed from RACC
- Excessive noise or vibration is observed
- Failure "FP", "OP" or "SC" is displayed on control panel of RACC
- No airflow is distributed from overhead RACC outlets

EMERGENCY EXIT / EVACUATION

- Use any door as emergency exit
- In case doors are blocked, use egress hammer to break through windows
- In case of roll over use red belt to release Rear RH window as emergency exit window. Exit as placarded.



ANNUNCIATED CAUTIONS**G1000 CAUTION LIGHTS**

ALTN 1 FAIL	Page 28	Engine alternator 1 has failed.
ALTN 2 FAIL	Page 28	Engine alternator 2 has failed.
ALTN 1 FAIL AND ALTN 2 FAIL	EMERGENCY PROCEDURES Page 2	Engine alternator 1 and 2 has failed.
CHECK GEAR	Page 28	Landing gear is not down and locked during approach.
COOLANT LVL	Page 28	Engine coolant level low
ECU A FAIL	Page 29	Fault in ECU A
ECU B FAIL	Page 29	Fault in ECU B
ENG INTAKE	Page 30	Engine Air Intake Temperature is above 70°C
FUEL LOW	Page 30	Main tank fuel qty is below 4 USGal
PITOT FAIL	Page 30	Pitot heat has failed.
PITOT HT OFF	Page 30	Pitot heat is off.
STALL HT FAIL	Page 31	Stall warning heat has failed.
STALL HT OFF	Page 31	Stall warning heat is off.
STALL WARN FAIL	Page 31	Stall warning system has failed.
VOLTS LOW	Page 31	Essential bus voltage is below 25 V.
DEIC LVL LO	Page 32	* De-icing fluid level low
DEIC PRES LO	Page 32	* De-icing pressure low
DEIC PRES HI	Page 32	* De-icing pressure high
PROP DE-ICE FAIL	Page 32	* Propeller de-ice system has failed
OXY PRESS LO	-	Oxygen pressure is below 500 psi Do not deplete below 250 psi. Plan to reach 10,000ft or below before reaching 250 psi
OXY PRESS LO	-	Oxygen pressure is below 850 psi

NON-ANNUNCIATED ABNORMAL OPERATING PROCEDURES**start at page 32**

ALTN 1 FAIL**ALTERNATOR 1 HAS FAILED**

- | | | | |
|---|----------------------|----------|---|
| 1 | Circuit breaker..... | check IN | 1 |
| 2 | Alternator 1..... | OFF | 2 |
| 3 | Essential bus | ON | 3 |
| 4 | Bus voltage | MONITOR | 4 |

Terminate NVFR/IFR-flight and land at nearest suitable airfield.

Leave icing conditions.

ALTN 2 FAIL**ALTERNATOR 2 HAS FAILED**

- | | | | |
|---|----------------------|----------|---|
| 1 | Circuit breaker..... | check IN | 1 |
| 2 | Alternator 2..... | OFF | 2 |
| 3 | Bus voltage | MONITOR | 3 |

Terminate NVFR/IFR-flight and land at nearest suitable airfield.

Leave icing conditions.

CHECK GEAR**LANDING GEAR IS UP**

- | | | | |
|---|--------------------|--------------------|---|
| 1 | Landing gear | DOWN / AS REQUIRED | 1 |
|---|--------------------|--------------------|---|

NOTE

The CHECK GEAR caution message is displayed when either the flaps are in LDG position and/or the power lever is less than 20% and the landing gear is not down and locked.

COOL LVL**ENGINE COOLANT LEVEL LOW**

- Monitor annunciations and instruments
- Check „Coolant temperature“ procedure, Emergency Procedures page 3

ECU A OR B FAIL**ON GROUND**

Terminate flight preparation.

ECU A OR B FAIL**IN FLIGHT**

Remark: in case of ECU A fail the system automatically switches to the ECU B, when FADEC switch is set to AUTO.

- | | | | |
|---|---------------------------|--------------------------|---|
| 1 | Alternate air | OPEN | 1 |
| 2 | Emergency fuel pump | ON | 2 |
| 3 | Circuit breakers | CHECK/RESET if necessary | 3 |
| 4 | FADEC test button | PRESS >2 sec | 4 |
- If ECU caution clears:
 - ⇒ Continue flight
 - If ECU caution persists:
 - ⇒ Land at nearest suitable airfield
 - If additional engine problems are observed:
 - ⇒ Go to **Emergency Checklist page 15**
ENGINE TROUBLESHOOTING

Remark: after landing the engine must be serviced.

ECU A AND B FAIL**SIMULTANEOUSLY****DURING FLIGHT**

- Go to **Emergency Ckl page 15** ENGINE TROUBLESHOOTING

ENG INTAKE**ENGINE AIR INTAKE****TEMPERATURE IS HIGH (ABOVE
70°C) FOR MORE THAN 30"**

- Reduce power
- Open cowl-flap
- Increase airspeed
- Monitor caution carefully

High engine air intake temperatures may reduce power.

FUEL LOW**MAIN TANK FUEL QUANTITY IS
BELOW 4 USGAL**

- Fuel transfer pump: ON
- Check fuel quantity
- Avoid uncoordinated flight
 - If light still ON:
 - ⇒ Expect fuel leak
 - ⇒ Consider: Fuel valve to EMERGENCY
 - ⇒ Consider: Fuel transfer pump OFF
 - ⇒ Be prepared for emergency landing

PITOT FAIL**PITOT HEAT HAS FAILED**

- Check PITOT/STALL HEAT ON
 - If in icing conditions
 - ⇒ expect loss of airspeed indication
 - ⇒ leave icing conditions

NOTE

Prolonged pitot heat operation on ground will let the thermal switch disconnect the heating function. This is a normal function. After sufficient cooling, the heating function is restored.

PITOT HT OFF**PITOT HEAT IS OFF**

- Switch PITOT/STALL HEAT ON, AS REQUIRED

STALL HT FAIL**STALL WARNING HEAT HAS FAILED**

- Check PITOT/STALL HEAT ON
 - If in icing conditions
 - ⇒ expect loss of acoustic stall warning
 - ⇒ leave icing conditions

NOTE

Operation of the stall warning heating on ground causes the stall warning heating failed caution message to be displayed as the thermal protection relay has been activated, which prevents overheating of the stall warning device on the ground. This is a normal function and will disappear in flight.

STALL HT OFF**STALL WARNING HEAT IS OFF**

- Switch PITOT/STALL HEAT ON, AS REQUIRED

STALL WARN FAIL**STALL WARNING SYSTEM HAS FAILED**

- Expect loss of acoustic stall warning
- Continue flight with caution when flying at lower airspeeds

VOLTS LOW**ESSENTIAL BUS VOLTAGE IS BELOW 25 V**

Remark: possible reason is a fault in the electrical power supply or RPM too low

- ❖ → On ground
 - ⇒ Check circuit breakers
 - ⇒ Increase RPM (Consider warm up engine temperature limits)
 - ⇒ If light still ON: Terminate flight preparation
- ❖ In flight
 - ⇒ Check circuit breakers
 - ⇒ Switch off unnecessary electrical equipment
 - ⇒ If light still ON: Follow ALTN 1 FAIL procedure (page 28)

During approach/landing: Continue approach and land

*** DEICE LVL LO****DE-ICING FLUID LEVEL LOW**

- Maximum duration of ice protection in NORMAL mode: 40 min, in HIGH mode: 20 min

*** DEIC PRES LO****DE-ICING PRESSURE LOW**

- If in OAT above 10°C and below 20°C warning appears in HIGH mode switch to MAX mode to cancel warning.
Above 20°C OAT warning cancellation may not be possible.
- Switch DE-ICE to HIGH
 - ❖ → If DEIC PRES LO light still ON
 - ⇒ PUMP1 / PUMP2: select other pump
 - ⇒ If necessary prime pump by activating windshield pump
 - ❖ → If DEIC PRES LO light still ON
 - ⇒ Activate ALTERNATE switch
 - ❖ → If DEIC PRES LO light still ON
 - ⇒ Go to **Emergency Checklist page 23**
ICE PROTECTION FAILURE
 - ❖ → If DEIC PRES LO light OFF
 - ⇒ Continue flight (de-icing fluid flow: 22,6 lt/hr)
 - ⇒ Monitor ice protection system operation
 - ⇒ Check de-icing fluid level periodically

*** DEIC PRES HI****DE-ICING PRESSURE HIGH**

- Possible reduced system performance
- Leave icing conditions
- Proceed with **Emergency Checklist page 23**
ICE PROTECTION FAILURE
- Unscheduled maintenance is required

*** PROP DE-ICE FAIL****PROPELLER DE-ICE FAILED**

- Possible vibration might occur
- Increase RPM up to 2300
- Leave icing conditions

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INDICATIONS OUTSIDE OF GREEN RANGE

RPM high

Yellow range is permitted for up to 5 minutes if required

- Reduce power
- Keep RPM in green range using the power lever
 - If problem not solved
 - ⇒ Go to „RPM overspeed“ procedure, **Emergency Checklist page 14**
 - ⇒ Land at nearest suitable airfield

OIL PRESSURE high

- ❖ → On ground during warm up with low oil temperature
 - Reduce power until oil pressure green, continue warm up at reduced power
- ❖ During flight
 - Monitor oil pressure carefully
 - If oil pressure moves into red range, refer to **Emergency Checklist page 6, “OIL PRES”**

OIL PRESSURE low

- Check RPM
 - If RPM above 1800, refer to **Emergency Checklist page 6, “OIL PRES”**

OIL TEMPERATURE high

- Open cowl flap
- Reduce power, increase airspeed as applicable
- Monitor oil temperature carefully
 - If oil temperature moves into red range, refer to **Emergency Checklist page 4, “ENG OIL TEMP”**

OIL TEMPERATURE low

- Increase power
- Close cowl flap
- Reduce airspeed

FUEL TEMPERATURE high

- Open cowl flap
- Reduce power, increase airspeed as applicable
 - If fuel temperature moves into red range, refer to **Emergency Checklist page 5**, "**L/R FUEL TEMP**"

FUEL TEMPERATURE low

- Monitor fuel temperature
 - If fuel temperature decreases to red range ($< -25^{\circ}\text{C}$):
 - ⇒ Increase power
 - ⇒ Close cowl flap
 - ⇒ Reduce airspeed
 - If not returning to yellow range:
 - ⇒ Land at nearest suitable airfield

COOLANT TEMPERATURE high

- Open cowl flap
- Reduce power, increase airspeed as applicable
- Monitor coolant temperature carefully
 - If coolant temperature moves into red range, refer to **Emergency Checklist page 3**, "**COOLANT TEMP**"

COOLANT TEMPERATURE low

Remark: During low power descent from high altitude coolant temperature may decrease

- Close cowl flap
- Check "COOL LVL" caution light
 - If ON
 - ⇒ Reduce power
 - ⇒ Expect loss of coolant fluid
 - ⇒ Be prepared for engine failure

GEARBOX TEMPERATURE high

- Open cowl flap
- Reduce power, increase airspeed as applicable
- Monitor gearbox temperature carefully
 - If gearbox temperature moves into red range, refer to **Emergency Checklist page 4**, "**GB OIL TEMP**"

ALTERNATOR LOAD yellow range

- Reduce electrical load by switching off unnecessary electrical equipment as applicable
- Monitor Alternator Load indication carefully
 - If indication moves into the red range: refer to **Emergency Checklist page 2, "ALTN 1/2 AMPS"**

OTHER ABNORMAL SITUATIONS

RUDDER TRIM failure

- Check rudder trim movement via PFD indication and actuation

In case of indication failure:

- Adjust rudder trim as required
- Disregard indication

In case of functional failure:

- Maintain/Regain airplance control and attitude
- Use convenient airspeed and power setting
- Consider bank/slip to reduce required prolonged forces on rudder pedal

CAUTION

A max. of 3° bank angle, corresponding to ¾ ball off centre, is allowed for prolonged forces on rudder pedal.

- Consider pulling circuit breaker "RUDDER TRIM"

FLAPS failure

- Check flaps visually, recheck flap positions
- Airspeed within white sector (<121 KIAS)
- If only UP or T/O available – or in icing conditions with ice accretion:

Approach speeds with abnormal flap setting:

Flaps	< 1600 kg	< 1800 kg	> 1800 kg
T/O (ICE)	77 (80)	79 (84)	85 (88)
UP (ICE)	84 (86)	90 (92)	94 (96)

- Consider longer landing distances
- Land at flat approach angle
- Use power lever to control rate of descent
- If only LDG available (No Ice procedure)
Perform normal landing

LIGHTNING STRIKE

- Avoid abrupt or full control surface movements
- Avoid high G-Loads on the airframe
- Avoid high yaw angles
- Avoid turbulent air as far as possible (e.g. lee effects)
- Do not fly into areas of known or forecast icing

- Set airspeed as low as practicable (do not exceed V_0)
- Grasp airplane controls firmly
- Disengage autopilot
- Verify periodically PFD & SAM
- Land on the next suitable airfield

FUEL TRANSFER FAILURE**NOTE**

If fuel transfer from the auxiliary tank to the main tank cannot be observed within few minutes after switching on the fuel transfer pump, assume a defective fuel transfer system.

- Switch FUEL VALVE periodically between EMERGENCY and NORMAL
- Do not exceed fuel imbalance limits (9 USGal)

AUTOPILOT FAILURES

AP failure annunciations

Alert Condition	Annunciation	Description
Rudder Mistrim Right	RUD→	Yaw servo providing sustained force in the indicated direction
Rudder Mistrim Left	←RUD	
Aileron Mistrim Right	AIL→	Roll servo providing sustained force in the indicated direction
Aileron Mistrim Left	←AIL	
Elevator Mistrim Down	↓ELE	Pitch servo providing sustained force in the indicated direction - May indicate a failure of the pitch trim servo or trim system
Elevator Mistrim Up	↑ELE	
Pitch Trim Failure (or stuck AP TRIM Switch)	PTRM	If AP engaged, take control of the aircraft and disengage AP or if the AP is disengaged, move the AP TRIM switches separately to unstick
Yaw Damper Failure	YAW	YD control failure
Roll Failure	ROLL	Roll axis control failure; AP inoperative
Pitch Failure	PTCH	Pitch axis control failure; AP inoperative
System Failure	AFCS	AP and MET are unavailable; FD may still be available
Preflight Test	PFT	Performing preflight system test; aural alert sounds at completion - Do not press the AP DISC Switch during servo power initialization and preflight system tests as this may cause the preflight system test to fail or never to start (if servos fail their power initialization tests). Power must be cycled to the servos to remedy the situation.
	PFT	Preflight system test failed; aural alert sounds at failure

AP disconnect (yellow AP flashing on PFD FMA)

- 1 AP DISC..... PRESS AND RELEASE 1
- 2 Pitch trim As required, use trim wheel 2

NOTE

The AP disconnect may be accompanied by a red boxed PTCH (pitch) or ROL on the PFD, indicating the axis which has failed. The AP cannot be re-engaged with either of these annunciations present.

AP overspeed recovery

- 1 Power lever Reduce power 1

When overspeed condition is corrected

- 2 Autopilot..... Reselect vertical mode 2

Loss of navigation information

- | | | | |
|---|-----------------------------|-------------------------|---|
| 1 | Autopilot lateral mode..... | HDG | 1 |
| 2 | CDI..... | Select valid NAV source | 2 |
| 3 | Autopilot lateral mode..... | NAV | 3 |

If on an instrument approach at the time of navigation signal loss:

- | | | | |
|---|----------------------|---------|---|
| 4 | Missed approach..... | Execute | 4 |
|---|----------------------|---------|---|

AP out of trim (ELE, AIL, RUD)

- Pitch trim ↓ELE
↑ELE
- | | | | |
|---|---------------------------------|-----------------------------|---|
| 1 | AP DISC switch | PRESS and HOLD | 1 |
| 2 | Control Stick | Grasp firmly | 2 |
| 3 | Airplane attitude | Maintain / regain control | 3 |
| 4 | Pitch trim | As required, use trim wheel | 4 |
| 5 | AFCS / ESP circuit breaker..... | PULL | 5 |
| 6 | AP DISC switch | RELEASE | 6 |
- Lateral trim AIL→ RUD→
←AIL ←RUD
- | | | | |
|---|------------------|-------------------------------------|---|
| 1 | Rudder trim..... | Verify slip/skid indicator centered | 1 |
| 2 | Rudder trim..... | Retrim if necessary | 2 |
- If the annunciation remains
- | | | | |
|---|----------------------|--|---|
| 3 | Control Stick | Grasp firmly | 3 |
| 4 | AP DISC switch | PRESS | 4 |
| 5 | Autopilot.. | Re-engage if lateral trim is established | 5 |

NOTE

Observe the maximum fuel imbalance limitation.

Flashing yellow mode annunciation

In case of loss of selected Vertical Mode (FLC, VS, ALT, GS):

- Select another vertical mode
- If on instrument approach: Disconnect and AP continue manually or execute missed approach

In case of loss of selected Lateral Mode (HDG, NAV, GPS, LOC, VAPP, BC):

- Select another lateral mode
- If on instrument approach: Disconnect and AP continue manually or execute missed approach

Effects of G1000 LRU losses upon AP operations

G1000 NXi System Loss	Effect upon Autopilot Operation
AHRS	The autopilot disconnects and autopilot, yaw damper and flight director are inoperative. Manual electric trim is available.
HDG function of AHRS	The autopilot will remain engaged with the loss of the HDG mode.
MFD	The autopilot will remain engaged in the last active mode. Controls are not available. Disengage by using the AP DISC switch.
PFD	The autopilot will remain engaged with no functional limitations.
GIA No. 1	The autopilot disconnects and autopilot, flight director and manual electric trim are inoperative.
GIA No. 2	The autopilot disconnects and autopilot and manual electric trim are inoperative. Flight director is available.
GPS No. 1 and 2	The autopilot and flight director operates in NAV modes only (LOC, BC, VOR, VAPP) with reduced accuracy.
ADC	The autopilot disconnects and autopilot is inoperative. The flight director is available except for air data modes (ALT, VS, FLC). Manual electric trim is available.

DE-ICE SYSTEM FAILURES

Failure of the De-Ice indication lights

- Failure to illuminate an indication light does not indicate a malfunction of the system
- Continue flight
- Unscheduled maintenance after flight is required

Failure of the windshield De-Ice

- Continue flight viewing through the unobstructed areas on the side of the door windows
- Open the emergency window if necessary
- Use DEFROST to clear light ice formation
- Leave icing conditions