

Checklist for Diamond DA42 NG

Edition #: **14.4 NG** Edition date: **19.09.2009**

Please observe:

The file you are receiving hereby combines all three sections of the checklist: Normal Checklist, Emergency Checklist and Abnormal Checklist.

All pages of a new edition will have the same new "edition #" and "edition date", even if only one page was amended and all other pages still have the same, unchanged content.

Therefore the "List of Effective Pages" (LEP) is provided. It is here where you can see whether a particular page was amended. Pages which have been amended by a new edition will be marked yellow. For all other pages you will see which original "edition #" (and of course any higher "edition #") is still valid.

Note:

The system of assigning "Edition #" is as follows:

- if the revision affects all types, a new edition # (without a decimal figure) will be assigned to all of the checklists
- if the revision does not affect all types, the affected checklists will get subsequent "decimal figures" until a major revision affecting all checklists is issued.

Have a lot of nice flights and happy landings!

Peter Schmidleitner

Comments explaining Edition # 14.4 are on page 2 of this document

Checklist DA42 NG - LEP

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Comments explaining Edition # 14 NG

Although this is the first edition for the DA42 NG, I assigned the edition # 14, because the checklist is based on the checklist for the DA42 GFC700, Edition 14.3.

Comments explaining Edition # 14.1 NG

Normal Checklist page 10: Available Power Check amended

Emergency Checklist page 7: better wording for restart conditions

Comments explaining Edition # 14.2

Emergency checklist:

Page 12:

Procedures improved in line with latest Supplement "ICE PROTECTION SYSTEM"

Abnormal checklist:

Page 14:

L/R ALTN FAIL procedure improved in line with latest Supplement "ICE PROTECTION SYSTEM"

Comments explaining Edition # 14.3

Normal checklist:

Page 9:

Engine cooldown clarified to be "max" 10%.

Abnormal checklist:

Page 14:

ECU FAIL Procedure modified.

Comments explaining Edition # 14.4

Normal checklist:

Page 7:

Typographical error in ECU check corrected

Page 10:

Speeds updated

Abnormal checklist, Emergency Checklist:

No change

NORMAL CHECKLIST

Diamond DA42 NG



This checklist is compiled according to 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 to GAMA Specification No. 1 are in the DA42 Airplane Flight Manual Chapters 4A, 3 and 4B.

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.

Any possible liability of Diamond Aircraft for any damages, injury or death resulting from its use is excluded.

All such terms and conditions shall be deemed to be explicitly accepted in full by using the checklist. If you do not understand, or if you disagree with, any of the above terms and conditions and in any jurisdiction that does not give effect to all provisions of these terms and conditions any use of the checklist is not permitted.

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:

- Preflight interior + exterior
- Preflight exterior
- Check before engine start items 1 to 22 (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.

Attention!

For refuelling with JET A1 no additives (e.g. „Aerojet") are permitted.

- * if optional ice protection is installed
- ** if optional AUX tanks are installed

PREFLIGHT INTERIOR + EXTERIOR.

- 1 Check airplane documents
- 2 Remove pitot cover
- 3 Check interior for foreign objects
- 4 Check circuit breakers
- 5 Start key PULLED OUT
- 6 Gear selector CHECKED DOWN
- 7 Electric Master ON
- 8 Gear 3 greens CHECKED
- 9 Check fuel quantity + temp
- 10 **AUX PUMPS (2) ON – if L/R
AUX FUEL E caution ON:
AUX tank(s) empty
AUX PUMPS (2) OFF
- 11 External lights ON
- 12 Pitot heat ON
- 13 * Check de-ice fluid quantity
- 14 * Select de-ice pump 1
- 15 * De-ice HIGH/MAX
- 16 * Check DEIC PRES LO+HI out
- 17 * Select de-ice pump 2
- 18 * Check DEIC PRES LO+HI out
- 19 * Ice lights ON
- 20 * Check de-ice function
- 21 Check external lights
- 22 Check stall warning
- 23 Check pitot/static tube heat
- 24 Pitot heat OFF
- 25 External lights OFF
- 26 * De-ice, ice lights OFF
- 27 Electric Master OFF

PREFLIGHT EXTERIOR

Canopy left side

Left main gear

Strut (min 4cm bare piston) & downlock
Tire condition, pressure (4,5 bar), position mark
Brake, hydraulic line
Gear door & linkage

Left engine nacelle

Drain gascolator
3 air inlets / 2 air outlets
Spinner, propeller
Gearbox oil level
Engine oil level
Cowling
Nacelle underside
Venting pipe
Exhaust
** Check AUX tank full ?

Left wing

Wing leading edge, top- and bottom surface
vortex generators
Tank drain
Stall warning
Tank air vent
Fuel filler cap
Pitot, static probe (cover removed)
Wing tip, position light
Static dischargers
Aileron (freedom of movement, hinges, control linkage, security)
Wing flap
Fuel cooler air in- & outlet
** AUX tank vent
** Drain AUX tank

Left fuselage

Step
Rear cabin door
Fuselage left side
Static source
Antennas

Tail

Elevator & rudder (freedom of movement, hinges)
 Elevator & rudder trim - tabs
 Tail skid & lower fin
 Static dischargers

Right fuselage

Fuselage right side
 Static source
 Rear window
 Step

Right wing

Fuel cooler air in- & outlet
 ** AUX tank vent
 ** Drain AUX tank
 Wing flap
 Aileron (freedom of movement, hinges, control linkage, security)
 Static dischargers
 Wing tip, position light
 Wing leading edge, top- and bottom surface
 vortex generators
 Fuel filler cap
 Tank air vent
 Tank drain

 Canopy right side

Right engine nacelle

** Check AUX tank full ?
 3 air inlets / 2 air outlets
 Spinner, propeller
 Gearbox oil level
 Engine oil level
 Cowling
 Nacelle underside
 Venting pipe
 Exhaust
 Drain gascolator

Ventilation air inlet

Right main gear

Strut (min 4cm bare piston) & downlock
 Tire condition, pressure (4,5 bar), position mark
 Brake, hydraulic line
 Gear door & linkage

Nose section

* De-ice fluid tank
 L + R front baggage door locked
 OAT sensor
 EPU connection
 Landing / Taxi light

Nose gear

Strut (min 15cm bare piston) & lock
 Tire condition, pressure (6 bar), position mark
 Gear door & linkage

Chocks removed
 Tow bar removed

CHECK BEFORE ENGINE START

1	Preflight check.....	COMPLETED	1
2	Baggage and tow bar.....	SECURED	2
3	Fuel selectors (2)	ON	3
4	Power levers (2)	IDLE	4
5	Parking brake	SET	5
6	Alternate Air.....	CLOSED	6
7	Fuel pumps (2)	OFF	7
8	Manual gear extension handle.....	PUSHED	8
9	Gear selector.....	DOWN	9
10	Avionic master.....	OFF	10
11	Electric master.....	OFF	11
12	Engine masters (2).....	OFF	12
13	Pitot heat.....	OFF	13
14	Alternate static	CLOSED	14
15	Alternators (2).....	ON	15
16	VOTER switches (2)	AUTO	16
17	All light switches	OFF	17
18	Emergency switch	OFF/GUARDED	18
19	ELT	ARMED	19
20	Circuit breakers	CHECKED IN	20
21	Flap selector.....	UP	21

If starting with external power:

a	Prop area.....	CHECK CLEAR	a
b	External power	CONNECT	b

22	Electric master.....	ON	22
23	Rudder pedals	ADJUSTED	23
24	Flight controls.....	CHECKED	24
25	Trims.....	CHECKED	25
26	Gear warning, fire detector.....	TEST	26
27	* De-ice ANNUN TEST.....	ON	27
28	* DEICE LVL LO caution ...	CHECKED ON if applic.	28
29	* Windshield de-icing.....	PUMP 1 + 2 CHECKED	29

Checklist continued next page

CHECK BEFORE ENGINE START continued

- 30 Flaps LDG 30
- 31 Variable elevator backstop.....CHECK 31

Control stick AFT and HOLD
 Power levers MAX
 Check backstop limit decreasing
 Power levers IDLE
 Check backstop limit increasing
 Repeat check with flaps APP and flaps UP

- 32 Flaps CHECKED UP 32
- 33 Passengers INSTRUCTED 33
- 34 Seat belts FASTENED 34
- 35 Rear door CLOSED and LATCHED 35
- 36 Front Canopy POS 1 or 2 36
- 37 G1000 POWERED, ACKNOWLEDGED 37
- 38 PFD/MFD BACKUP MODE 38
- 39 MFD ENGINE - FUEL 39
- 40 Fuel Quantity CHECKED, RESET/SET if requ. 40
- 41 Fuel temperature CHECKED 41
- 42 Total time in service NOTED 42
- 43 MFD ENGINE - SYSTEM 43
- 44 * DEIC PRESS LO caution CHECKED ON 44
- 45 * De-ice ANNUN TEST OFF 45
- 46 Start key INSERTED 46
- 47 Power levers (2) IDLE 47
- 48 ACL (strobe) ON 48

End of Checklist

ENGINE START PROCEDURE

Normal sequence: first start LH engine

Engine Master ON
 Annunciations / Eng.Instr. CHECKED
 Glow indication OFF
 Propeller area CLEAR
 Start key START
 Oil pressure OUTSIDE RED within 3 sec
 Voltage, Electrical load CHECK INDICATION
 Annunciations / Eng.Instr. CHECK

If external power was used:

External powerDISCONNECT

Start RH engine, procedure as above

CHECK AFTER ENGINE START

- 1 Oil pressure CHECKED 1
- 2 RPM 740 +/- 30 CHECKED 2
- 3 Warm up time START 3

Warm up:
 Idle 30 seconds
 50% load until Oil > 50°C and Coolant > 60°C

- 4 Fuel pumps (2) check OFF 4
- 5 Fuel selectors (2) X-FEED 5
- 6 Pitot heat ON, annunciation + Amps checked 6
- 7 Pitot heat OFF 7
- 8 PFD/MFD NORMAL MODE 8
- 9 Avionics master ON 9

FMS SETUP

Initalize profile (AUX 4, MAP)
Flight plan
Radios (COM, NAV, ADF, DME, CDI, BRG 1/2)
Performance (speed bugs; Flight ID if applicable)

- 10 FMS setup COMPLETED 10

AUTOPILOT TEST

DISCONN press, check electric trim not working
 AP ON, check annunciators and FD
 DISCONN press, check AP off
 GA button press, check FD commands climb

- 11 Autopilot test COMPLETED 11
- 12 Flood light CHECKED, ON as required 12
- 13 Position lights ON as required 13
- 14 Fuel Selectors (2) ON 14
- 15 Altimeters (2) SET 15
- 16 Standby horizon CHECKED 16
- 17 Transponder CODE / MODE CHECKED 17
- 18 Parking brake RELEASED 18

End of Checklist

DURING TAXI

Check Brakes
 Check nose wheel steering
 Check flight instruments

BEFORE TAKE OFF CHECK

1	Parking brake	SET	1
2	Seat belts	FASTENED	2
3	Adjustable backrest	UPRIGHT	3
4	Rear door.....	CLOSED + LATCHED	4
5	Front canopy	CLOSED + LATCHED	5
6	Front baggage doors.....	CHECKED CLOSED	6
7	Door warning light.....	OFF	7
8	Engine instruments	CHECKED	8
9	Fuel temperature	CHECKED	9
10	Circuit breakers	CHECKED	10
11	Electric elevator trim	CHECKED, T/O SET	11
12	Fuel selectors (2)	CHECKED ON	12
13	Rudder trim.....	AS REQUIRED	13
14	Flaps	CHECKED UP	14
15	Flight controls.....	CHECKED	15
16	Power levers (2)	IDLE	16
17	ECU test (2)	PERFORMED	17

ECU TEST

ECU test buttons (2) *press and hold*
 "L/R ECU A/B fail"..... *ON*
 Props cycling
 "L/R ECU A/B fail"..... *OFF*
 ECU test button..... *release*

18	VOTER switches (2)	A, AUTO, B, AUTO	18
----	--------------------------	------------------	----

Engines checked

19	Pitot heat	AS REQUIRED	19
20	* Ice protection	AS REQUIRED	20
21	Transponder	CODE / MODE CHECKED	21
22	Fuel pumps (2)	ON	22
23	Parking brake	RELEASED	23

End of Checklist

LINE UP PROCEDURE

Landing light..... *ON*
 Approach sector *CLEAR* Runway..... *IDENTIFIED* |

Available power check (see pg.10)..... **PERFORMED**

AFTER TAKE-OFF PROCEDURE

Brakes..... *APPLY*
 Gear..... *UP*
 Fuel pumps (2) *OFF* Climb power | *92% / 2100 RPM* Landing light..... *OFF* |

CLIMB TO CRUISE CHECK

1	Gear.....	CHECKED UP	1
2	Flaps	CHECKED UP	2
3	Fuel pumps (2)	CHECKED OFF	3
4	Climb power	SET	4
5	Landing light	CHECKED OFF	5

End of Checklist

Maximum fuel unbalance: 5 USG

DESCENT / APPROACH CHECK

1	Landing data	RECEIVED	1
2	Altimeters (2)	SET	2
3	COM / NAV / FMS	SET	3
4	Seatbelts	FASTENED	4
5	Adjustable backrest	UPRIGHT	5
6	Fuel selectors (2)	CHECKED ON	6
7	Parking brake	CHECKED RELEASED	7
8	Fuel pumps (2)	ON	8
9	Gear warning horn	CHECKED	9

End of Checklist

BEFORE LANDING PROCEDURE

Downwind, latest base leg:
 Flaps *APP* Gear..... *DOWN, CHECK 3 GREENS* Landing light..... *ON* |

On final when landing assured:

FINAL CHECK

1	Flaps	LDG	1
2	Gear.....	3 GREENS CHECKED	2

GO AROUND PROCEDURE

Power MAX
 Flaps APP
 Positive rate of climb:
 Gear UP
 Continue with take-off profile
 At safe altitude:
 Flaps UP
 Fuel pumps (2) OFF
 Climb power 92% / 2100 RPM
 Landing light OFF

AFTER LANDING CHECK

When clear of runway

- | | | | |
|---|--------------------|-------------|---|
| 1 | Flaps | UP | 1 |
| 2 | Pitot heat | OFF | 2 |
| 3 | Fuel pumps (2) | OFF | 3 |
| 4 | Alternate air | CLOSED | 4 |
| 5 | * De-ice systems | OFF | 5 |
| 6 | Landing/Taxi light | AS REQUIRED | 6 |

End of Checklist

PARKING CHECK

- | | | | |
|---|--|-----------------------|---|
| 1 | Parking brake | SET | 1 |
| 2 | Power levers (2) | max 10% for 1 min. | 2 |
| 3 | ELT | 121,5 CHECKED | 3 |
| 4 | Engine / System page | CHECKED | 4 |
| 5 | Engine / Fuel page | TTL TIME IN SVC NOTED | 5 |
| 6 | Avionic master | OFF | 6 |
| 7 | Electrical consumers except ACL (strobe) | OFF | 7 |
| 8 | Engine Masters (2) | OFF | 8 |
| 9 | ACL (strobe) | OFF | 9 |

When engine indications x-ed out red:

- | | | | |
|----|-----------------|-------------|----|
| 10 | Electric Master | OFF | 10 |
| 11 | Interior light | CHECKED OFF | 11 |
| 12 | Start key | REMOVED | 12 |

End of Checklist

SECURING THE AIRCRAFT

Release parking brake, use chocks.
 Attach tie down ropes to mooring points.

STALLING SPEEDS KIAS		
	1510 kg	1900 kg
Stalling speed (V _{SO}) Flaps LDG	58	62
Stalling speed (V _S) Flaps APP	62	66
Stalling speed (V _S) clean	62	69
In Ice: + 4-6 KIAS		

OPERATING SPEEDS KIAS for MTOM 1900 kg				
Best angle of climb (V _X)	90			
Best rate of climb (V _Y)	90			
Best rate of climb 1-eng. (V _{YSE})	85			
Min. control speed (V _{MCA})	76			
Min. control speed for TRG(V _{SSSE})	85			
Operating speed in ice	118 - 156			
Cruising climb speed	90			
Rotation speed	80			
Max. flap speed (V _{FE}) Flaps APP	133			
Max. flap speed (V _{FE}) Flaps LDG	113			
Max. LG extension (V _{LOE})	188			
Max. LG extended (V _{LE})	188			
Max. LG retraction (V _{LOR})	152			
Approach V _{REF} Flaps UP	86	in ice: 94		
Approach V _{REF} Flaps APP	84	in ice: 90		
Approach V _{REF} Flaps LDG	84	in ice: prohib.		
Min. Go-around speed Flaps UP	90			
Max. cruising speed (V _{NO})	151			
Never exceed speed (V _{NE})	188			
	up to	1700 kg	1800 kg	1900 kg
Manoeuvring speed (V _O)	112	119	122	

MASS		
Max. TKOF mass	1900 kg	
Max ZF mass	1765 kg	
Max. LDG mass	1805 kg	
Empty mass	1450 kg	
Max. baggage in NOSE	30 kg	
Max. baggage in COCKPIT	45 kg	
Max. baggage in rear EXTENSION	18 kg	45 kg

Available Power Check:

10 sec. power MAX, RPM 2250 - 2300, min. load acc. table below

Altitude [ft]	OAT								
	-35°C	-20°C	-10°C	0°C	10°C	20°C	30°C	40°C	50°C
0						97%	96%	93%	91%
2000	99%					97%	96%	93%	-----
4000						97%	96%	93%	-----
6000						97%	96%	93%	-----
8000			98%	98%	98%	96%	95%	92%	-----
10000	98%	97%	97%	95%	94%	92%	89%	-----	-----

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.



G1000 Warnings page 2

Engine

- Engine fire / failure during take-off*page 5
- Engine fire / failure in flight*page 5
- Engine troubleshooting*page 6
- Engine restart*.....page 7
- Oscillating RPM*page 8
- RPM overspeed*page 8

Landing Gear

- Landing with defective main gear tire*.....page 8
- Landing with defective brakes*page 8
- Landing gear unsafe warning*page 9
- Manual extension of landing gear*page 9
- Landing gear up landing*.....page 9

Smoke and fire

- Engine fire on ground* page 10
- Electrical fire on ground* page 10
- Electrical fire in flight*.....page 10
- If Oxygen System is installed**
- Cabin smoke, cabin fire, loss of oxygen pressure above 10.000 ft* page 11

Other Emergencies

- Oxygen pressure loss above 10.000 ft*..... page 11
- Emergency descent* page 11
- Suspicion of carbon monoxide*..... page 11
- Unintentional flight into icing, Inadvertent icing encounter & excessive ice accumulation* page 12
- Ice protection failure* page 12

Electrical System

- Complete electrical failure* page 12

G1000 WARNINGS

L/R OIL PRES	Pg. 2	Oil pressure low (red range)
L/R OIL TEMP	Pg. 2	Oil temperature high (red range)
L/R GBOX TEMP	Pg. 3	Gearbox temperature high (red range)
L/R ENG TEMP	Pg. 3	Coolant temperature high (red range)
L/R FUEL TEMP	Pg. 3	Fuel temperature high (red range)
L/R FUEL PRES	Pg. 4	Fuel pressure low
L/R ALTN AMPS	Pg. 4	High Current (red range)
L/R STARTER	Pg. 4	Starter not disengaging
DOOR OPEN	Pg. 4	Unlocked doors
L/R ENG FIRE	Pg. 5 Pg. 5 Pg. 10	Engine fail/fire during take-off Engine fail/fire in flight Engine fire on ground

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

Abnormal Checklist starts at page 13

L/R OIL PRES

OIL PRESSURE LOW

- Reduce power on affected engine
- Be prepared for loss of oil and an engine failure; land ASAP

L/R OIL TEMP

OIL TEMPERATURE HIGH

- Check oil pressure
 - ❖ If oil pressure too low (outside green range):
 - ⇒ Reduce power on affected engine
 - ⇒ Expect loss of engine oil
 - ⇒ Be prepared for an engine failure
 - ❖ If oil pressure in green range
 - ⇒ Reduce power on affected engine
 - ⇒ Increase airspeed
 - ❖ If oil temperature not returning to green range:
 - ⇒ Be prepared for an engine failure; land ASAP

L/R GBOX TEMP**GEARBOX TEMPERATURE HIGH**

- Reduce power on affected engine
- Increase airspeed
 - ❖ If not returning to green range:
 - ⇒ Be prepared for an engine failure; land ASAP

L/R ENG TEMP**COOLANT TEMPERATURE HIGH**

- Check G1000 for **LOW COOL LVL** caution light
 - ❖ If **LOW COOL LVL** caution light OFF
 - ❖ During climb:
 - ⇒ Reduce power on affected engine by 10% or more as reqrd
 - ⇒ Increase airspeed by 10 KIAS or more as required
 - ⇒ If coolant temp. not returning to green range within 60": reduce power on affected engine as much as possible and increase airspeed
 - ❖ During cruise:
 - ⇒ Reduce power on affected engine
 - ⇒ Increase airspeed
 - ⇒ If coolant temp. not returning to green range: Be prepared for an engine failure; land ASAP
 - ❖ If **LOW COOL LVL** caution light ON
 - ⇒ Reduce power on affected engine
 - ⇒ Expect loss of coolant fluid
 - ⇒ Be prepared for an engine failure

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

- Reduce power on affected engine
- Increase airspeed
- Transfer fuel from AUX to MAIN tank if applicable
 - ❖ If not returning to green range: land ASAP

L/R FUEL PRES**FUEL PRESSURE LOW**

- Check fuel quantity
- FUEL SELECTOR of affected engine: check ON
- FUEL PUMP of affected engine: ON
 - ❖ If warning remains:
 - ⇒ FUEL PUMP of affected engine: OFF
 - ⇒ FUEL SELECTOR of affected engine: CROSSFEED
 - ❖ If warning still remains:
 - ⇒ Be prepared for an engine failure; land ASAP

L/R ALTN AMPS**HIGH CURRENT**

- Check circuit breakers
- Reduce electrical load and land ASAP

L/R STARTER**STARTER NOT DISENGAGING**

- Affected power lever IDLE
- Affected engine master OFF
- Electric master OFF

DOOR OPEN**UNLOCKED DOORS**

- Reduce Airspeed
- Check canopy and rear door visually
 - ❖ If unable to latch: land ASAP
- Check front baggage doors visually
 - ❖ If one or both open: land ASAP

**Never unlatch
rear door
during flight**

ENGINE FAILURE**DURING TAKE-OFF****ENGINE FIRE****REJECTED TAKE-OFF OR EMERGENCY RE-LANDING**

- | | | | |
|---|----------------------------|--------|---|
| 1 | Power | OFF | 1 |
| 2 | Brakes | APPLY | 2 |
| 3 | ATC | INFORM | 3 |
| | If necessary: | | |
| 4 | Engine Masters (2) | OFF | 4 |
| 5 | Fuel selectors (2) | OFF | 5 |
| 6 | Electric Master | OFF | 6 |
| | In case of fire: | | |
| 7 | Cabin heat & defrost | OFF | 7 |

ENGINE FAILURE**IN FLIGHT****ENGINE FIRE****If airspeed below 76 KIAS:**

Perform V_{mc}a recovery procedure

Airspeed above 76 KIAS:

- | | | | |
|----|---------------------------------------|----------------------|----|
| 8 | Power | INCREASE up to MAX | 1 |
| 9 | Airspeed..... | min Vyse 85 KIAS | 2 |
| 10 | Landing gear | UP | 3 |
| 11 | Flaps | UP | 4 |
| 12 | Power lever (affected engine)..... | IDLE | 5 |
| 13 | Engine Master (affected engine) | OFF | 6 |
| | Above safe altitude | | |
| 14 | Power (life engine) | up to MAX CONTINUOUS | 7 |
| 15 | Alternator (dead engine) | OFF | 8 |
| 16 | Fuel pump (dead engine)..... | OFF | 9 |
| 17 | Fuel selector (dead engine)..... | OFF | 10 |
| | In case of fire: | | |
| 18 | Cabin heat & defrost | OFF | 11 |
| 19 | Canopy | UNLATCH if necessary | 12 |

Max airspeed 117 KIAS

ENGINE TROUBLESHOOTING

- | | | |
|----|--|---------------|
| 1 | Power lever (good engine) INCREASE up to MAX | 1 |
| 2 | Circuit breakers..... | CHECK / RESET |
| | ❖ If successful: land ASAP | |
| | ❖ If no success: | |
| 3 | VOTER switch | ECU A |
| | ❖ If successful: land ASAP | |
| | ❖ If no success: | |
| 4 | VOTER switch | ECU B |
| | ❖ If successful: land ASAP | |
| | ❖ If no success: | |
| 5 | VOTER switch | AUTO |
| | ❖ If successful: land ASAP | |
| | ❖ If no success: | |
| 6 | Fuel pump (affected engine) | CHECK OFF |
| 7 | Fuel selector (affected engine) | CROSSFEED |
| | ❖ If successful: continue flight | |
| | ❖ If no success: | |
| 8 | Fuel selector (affected engine)ON or CROSSFEED | |
| 9 | Alternate air | OPEN |
| 10 | Power | AS REQUIRED |
| | ❖ If successful: land ASAP | |
| | ❖ If all unseccesful: | |
| | continue with | |
| | ENGINE FAILURE IN FLIGHT | |
| | checklist | |
| | (page 5) | |

ENGINE RESTART**Reason for shutdown must be ascertained****Maximum restart altitude:****18.000 ft PA for immediate restart****10.000 ft PA for restart within 2 minutes****NO restart:****If engine shut down for more than 2 minutes****Windmilling restart**

- | | | |
|---|---|---|
| 1 | Airspeed..... min 125 KIAS - max 145 KIAS | 1 |
|---|---|---|

Restart with starter motor:

- | | | |
|---|--|---|
| 1 | Airspeed.....max 100 KIAS | 1 |
| | or prop stationary, whichever is lower | |

- | | | | |
|---|---------------------------------------|-------------|---|
| 2 | Power (affected engine) | IDLE | 2 |
| 3 | Fuel selector (affected engine) | ON | 3 |
| 4 | Alternate air | AS REQUIRED | 4 |
| 5 | Alternator (affected engine) | ON | 5 |
| 6 | Engine Master (affected engine) | ON | 6 |

If applicable:

- | | | | |
|---|--------------|--------|---|
| 7 | Starter..... | ENGAGE | 7 |
|---|--------------|--------|---|

If engine started:

- | | | | |
|---|-------------------------------|-------------------|---|
| 8 | Power (affected engine) | MODERATE | 8 |
| 9 | Engine instruments..... | check GREEN RANGE | 9 |

OSCILLATING RPM

- | | | | |
|---|----------------------------------|----------------|---|
| 1 | Power lever | change setting | 1 |
| | If no success: | | |
| | Check G1000 for ECU FAIL caution | | |
| | If ECU FAIL caution indicated: | | |
| 2 | VOTER switch | unaffected ECU | 2 |
| | If no success: | | |
| 3 | VOTER switch | AUTO | 3 |
| | Land ASAP | | |

RPM OVERSPEED

- | | | | |
|---|--|----------------|---|
| 1 | Power setting..... | REDUCE | 1 |
| | If no success: | | |
| | Check G1000 for ECU FAIL caution | | |
| | If ECU FAIL caution indicated: | | |
| 2 | VOTER switch | unaffected ECU | 2 |
| | If no success: | | |
| 3 | VOTER switch | AUTO | 3 |
| | Land ASAP | | |
| | Be prepared for ENGINE FAILURE IN FLIGHT | | |

LANDING WITH DEFECTIVE MAIN GEAR TIRE

- | | | | |
|---|--|----------|---|
| 1 | ATC..... | INFORMED | 1 |
| | For landing: | | |
| | • Land on RWY side with "good" tire | | |
| | • Keep wing on "good" side low | | |
| | • Support directional control with brake | | |

LANDING WITH DEFECTIVE BRAKES

After touchdown (if necessary):

- | | | | |
|---|--------------------------|-----|---|
| 1 | Engine Masters (2) | OFF | 1 |
| 2 | Fuel selectors (2) | OFF | 2 |
| 3 | Electric Master | OFF | 3 |

LANDING GEAR UNSAFE WARNING

If on for more than 20 seconds:

- | | | |
|---|-----------------------------|---|
| 1 | Airspeed.....max 152 KIAS | 1 |
| | In cold temperature: | |
| 2 | Airspeed.....max 110 KIAS | 2 |
| 3 | Gear selector RECYCLE | 3 |

If landing gear **extension** unsuccessful:
Continue with MANUAL EXTENSION

If landing gear **retraction** unsuccessful:
Consider flight with landing gear down

MANUAL EXTENSION OF LANDING GEAR

- | | | |
|---|--|---|
| 1 | Airspeed.....max 152 KIAS | 1 |
| 2 | Gear indicator lightsTEST | 2 |
| 3 | Electric masterCHECK ON | 3 |
| 4 | Bus voltage CHECK NORMAL | 4 |
| 5 | Circuit breaker CHECK | 5 |
| 6 | Gear selector DOWN | 6 |
| 7 | Manual extension handlePULL | 7 |
| | If necessary | |
| 8 | Airspeed.....max 110 KIAS | 8 |
| | Apply moderate yawing | |
| 9 | Gear indicator lights CHECK 3 GREENS | 9 |

LANDING GEAR UP LANDING

(Landing gear completely retracted)

- | | | |
|---|------------------------------|---|
| 1 | ApproachNORMAL | 1 |
| | Just before touchdown: | |
| 2 | Power lever IDLE | 2 |
| | After touchdown: | |
| 3 | Engine Masters (2) OFF | 3 |
| 4 | Fuel selectors (2) OFF | 4 |
| 5 | Electric Master OFF | 5 |

ENGINE FIRE ON GROUND

- | | | |
|---|-----------------------------------|---|
| 1 | Power levers (2)..... IDLE | 1 |
| 2 | Engine masters (2)..... OFF | 2 |
| 3 | Fuel selectors (2) OFF | 3 |
| 4 | Mayday callCONSIDER | 4 |
| 5 | Electric master..... OFF | 5 |
| | When engine and aircraft stopped: | |
| 6 | Canopy OPEN | 6 |
| | Evacuate | |

ELECTRICAL FIRE ON GROUND

- | | | |
|---|-----------------------------------|---|
| 1 | Mayday callCONSIDER | 1 |
| 2 | Electric Master OFF | 2 |
| 3 | Power levers (2)..... IDLE | 3 |
| 4 | Engine Masters (2) OFF | 4 |
| 5 | Fuel selectors (2) OFF | 5 |
| | When engine and aircraft stopped: | |
| 6 | Canopy OPEN | 6 |
| | Evacuate | |

ELECTRICAL FIRE IN FLIGHT

- | | | |
|---|---|---|
| 1 | Emergency switch ON | 1 |
| 2 | Mayday callCONSIDER | 2 |
| 3 | Avionic master OFF | 3 |
| 4 | Electric master OFF | 4 |
| 5 | Cabin heat & defrost OFF | 5 |
| 6 | Emergency windows OPEN as necessary | 6 |
| 7 | Canopy UNLATCH if necessary | 7 |

Max airspeed 117 KIAS

Land ASAP

CABIN SMOKE ABOVE 10.000 FT

- | | | | |
|---|-------------------------|----------|---|
| 1 | Oxygen | CHECK ON | 1 |
| 2 | Emergency descent | INITIATE | 2 |
| | When passing 10.000 ft | | |
| 3 | Oxygen | OFF | 3 |
| | Land ASAP | | |

CABIN FIRE ABOVE 10.000 FT

- | | | | |
|---|-------------------------|----------|---|
| 1 | Oxygen | PUSH OFF | 1 |
| 2 | Emergency descent | INTITIAE | 2 |
| | Land ASAP | | |

OXYGEN PRESSURE LOSS ABOVE 10.000 FT

- | | | | |
|---|--|--------------------|---|
| 1 | Oxygen | PUSH OFF | 1 |
| 2 | Oxygen pressure | CHECKED, note down | 2 |
| 3 | Emergency descent | INTIATE | 3 |
| | When passing 10.000 FT: | | |
| 4 | Oxygen pressure | CHECK AGAIN | 4 |
| | • If oxygen pressure constant: ... Continue flight | | |
| | • If oxygen pressure dropped: Land ASAP | | |

EMERGENCY DESCENT

- | | | | |
|---|--------------------|-------------|---|
| 1 | Flaps | UP | 1 |
| 2 | Landing Gear | DOWN | 2 |
| 3 | Power levers | IDLE | 3 |
| 4 | Airspeed..... | AS REQUIRED | 4 |

SUSPICION OF CARBON MONOXIDE

- | | | | |
|---|----------------------------|--------------|---|
| 1 | Cabin heat & defrost | OFF | 1 |
| 2 | Ventilation..... | OPEN | 2 |
| 3 | Emergency windows | OPEN | 3 |
| 4 | Airspeed..... | max 117 KIAS | 4 |
| 5 | Canopy | UNLATCH | 5 |

Push up and lock in cooling gap position

UNINTENTIONAL FLIGHT INTO ICING

Leave icing area, continue with item 1

*** INADVERTENT ICING ENCOUNTER & EXCESSIVE ICE ACCUMULATION**

- | | | | |
|---|----------------------------|-----------------------|---|
| 1 | Pitot heat | ON | 1 |
| 2 | Cabin heat & defrost | ON | 2 |
| 3 | Power | INCREASE PERIODICALLY | 3 |
| 4 | * De-ice systems..... | USE as appropriate | 4 |
| 5 | Alternate air | OPEN as required | 5 |
| 6 | Emergency windows | OPEN as required | 6 |

- * When de-ice system does not work properly:
Continue with ICE PROTECTION FAILURE

*** ICE PROTECTION FAILURE**

- | | | | |
|---|----------------------------------|--------------|---|
| 1 | Airspeed..... | MIN 118 KIAS | 1 |
| 2 | Flaps | APP | 2 |
| 3 | Slip angle | MINIMIZE | 3 |
| 4 | Approach with residual ice | 90 KIAS | 4 |
| 5 | Landing distance | CHECK AFM | 5 |

COMPLETE ELECTRICAL FAILURE

* Leave icing area

- | | | | |
|---|--|-----------------|---|
| 1 | Circuit breakers..... | CHECK all IN | 1 |
| | If no success: | | |
| 2 | Emergency switch | ON | 2 |
| 3 | Flood light | ON | 3 |
| 4 | Power | SET | 4 |
| | according power lever position and/or engine noise | | |
| 5 | Flaps | VERIFY POSITION | 5 |

Land ASAP

Landing gear may slowly extend

For landing apply "Manual extension of landing gear"

G1000 CAUTION LIGHTS

L/R ECU A FAIL	Page 14	ECU A failed
L/R ECU B FAIL	Page 14	ECU B failed
L/R ALTN FAIL	Page 14	Alternator failed
L/R VOLTS LOW	Page 14	Bus voltage too low
L/R COOL LVL	Page 15	Engine coolant level low
PITOT FAIL	Page 15	Pitot heating system failed
PITOT HT OFF	Page 15	Pitot heating system OFF
STALL HT FAIL	Page 15	Stall warning heating failed
STALL HT OFF	Page 15	Stall warning heating OFF
L/R FUEL LOW	Page 15	Main tank fuel qty low
L/R AUX FUEL E	Page 15	L/R auxiliary fuel tank empty
STICK LIMIT	Page 15	Stick limiting system failed
DEICE LVL LO	Page 16	De-icing fluid level low
DEIC PRES LO	Page 16	De-icing pressure low
DEIC PRES HI	Page 16	De-icing pressure high

Engine instrument indications outside of green range

COOLANT temperature high/low	page 17
OIL temperature high/low.....	page 17
OIL pressure high/low.....	page 17
FUEL temperature high/low.....	page 17
VOLT low.....	page 18
RPM high.....	page 18

Other abnormal situations

Both Alternators failed	page 18
Hydraulic pump fail or continuous ops...	page 18
AUX fuel transfer fail	page 18

CAUTION ALERTS ON THE G1000**L/R ECU A OR B FAIL ON GROUND**

- Discontinue operation, terminate flight preparation

L/R ECU A FAIL DURING FLIGHT

Remark: in case of ECU A fail the system automatically switches to ECU B

- Verify VOTER switch in position AUTO
 - ❖ If ECU caution remains:
 - ⇒ Land ASAP
 - ❖ If additional engine problems are observed:
 - Go to **Emergency Checklist page 6 ENGINE TROUBLESHOOTING**

L/R ECU B FAIL DURING FLIGHT

Remark: in case of ECU B fail the system automatically switches to ECU A

- Verify VOTER switch in position AUTO
 - ❖ If ECU caution remains:
 - ⇒ Land ASAP
 - ❖ If additional engine problems are observed:
 - Go to **Emergency Checklist page 6 ENGINE TROUBLESHOOTING**

L/R ALTN FAIL ALTERNATOR FAILED

- ❖ If in icing conditions:
 - ⇒ Leave icing area as soon as practicable
- Alternator on affected side OFF
- Monitor bus voltage
- Reduce electrical consumers
 - ❖ If both alternators failed:
 - ⇒ See Abnormal Checklist "Both Alternators failed", page 18

L/R VOLTS LOW BUS VOLTAGE TOO LOW

Remark: possible reasons are
- fault in the electrical power supply
- RPM too low

- Continue with "Engine instrument indications outside of green range"
- VOLTS low, page 18

L/R COOL LVL**ENGINE COOLANT LEVEL LOW**

- Monitor annunciations / engine instruments
- Check coolant temperature
- See "Engine instrument indications outside of green range" – COOLANT TEMPERATURE

PITOT FAIL**STALL HT FAIL****PITOT HT OFF****STALL HT OFF**

- check pitot heat ON, if in icing conditions
 - ⇒ expect failure of the pitot-static-system
- leave area with icing conditions (see **Emergency Checklist page 12** "Unintentional flight into icing")

⇒ expect loss of aural stall warning

L/R FUEL LOW**MAIN TANK FUEL QTY LOW**

- Check fuel quantity
 - ❖ If LH & RH quantities show remarkable difference:
 - ⇒ Expect loss of fuel on side with lower indicaton
 - ⇒ Check fuel pumps OFF
 - ⇒ Use x-feed: Fuel selector to x-feed on side with LOW FUEL indication

L/R AUX FUEL E**AUXILIARY FUEL TANK EMPTY**

⇒ L/R auxiliary fuel pump OFF

STICK LIMIT**VARIABLE ELEVATOR BACKSTOP SYSTEM FAILED**

- ❖ 1 or 2 power levers set for MORE than 20% load:
 - ⇒ Elevator variable backstop is INOP
 - ⇒ Do not stall in any configuration!
- ❖ 2 power levers set for LESS than 20% load:
 - ⇒ Elevator variable backstop always ACTIVE
 - ⇒ Reduced elevator capacity
 - ⇒ For approach min V_{REF} 84 KIAS

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

- Maximum duration of ice protection in NORMAL mode: 45 min, in HIGH mode: 22 min

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

- 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 12** ICE PROTECTION FAILURE
 - ❖ If DEIC PRES LO light OFF
 - ⇒ Continue flight (de-icing fluid flow: 30 lt/hr)
 - ⇒ Monitor ice protection system operation
 - ⇒ Check de-icing fluid level periodically

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

- Possible reduced system performance
- Filter cartridge to be replaced at next scheduled maintenance

ENGINE INSTRUMENT INDICATIONS OUTSIDE OF GREEN RANGE

COOLANT temperature high

- Refer to **Emergency Checklist page 3**, "L/R ENG TEMP"

COOLANT temperature low

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

- Check G1000 for LOW COOLANT LVL caution light
- ❖ If "LOW COOLANT LVL caution light" ON
 - ⇒ Reduce power on affected engine
 - ⇒ Expect loss of coolant fluid
 - ⇒ Be prepared for an engine failure

OIL temperature high

- Refer to **Emergency Checklist page 2**, "L/R OIL TEMP"

OIL temperature low

- Increase power
- Reduce airspeed

OIL pressure high

- Check oil temperature and coolant temperature
 - ❖ If within green range
 - ⇒ Oil pressure indication may be faulty; watch temperatures
 - ❖ If outside of green range
 - ⇒ Reduce power on affected engine;
 - ⇒ Be prepared for an engine failure; Land ASAP

OIL pressure low

- Refer to **Emergency Checklist page 2**, "L/R OIL PRES"

FUEL temperature high

- Refer to **Emergency Checklist page 3**, "L/R FUEL TEMP"

FUEL temperature low

- Increase power on affected engine
- Reduce airspeed
 - ❖ If not returning to green range:
 - ⇒ Be prepared for an engine failure; Land ASAP

VOLTS low

- ❖ On ground:
 - ⇒ Check circuit breakers
 - ⇒ Increase RPM
 - ❖ If LOW VOLTS CAUTION still indicated on the G1000:
 - ⇒ Discontinue operation; terminate flight preparation
- ❖ In flight:
 - ⇒ Check circuit breakers
 - ⇒ Switch off unnecessary electrical equipment
 - ❖ If LOW VOLTS CAUTION still indicated on the G1000:
 - ⇒ Apply L/R ALTN FAIL caution procedure, page 14

RPM high

- Reduce power on affected engine
- Keep RPM in green range with appropriate power lever setting
 - ❖ If problem not solved:
 - ⇒ Refer to **Emergency Checklist page 8** "RPM overspeed"
 - ⇒ Land ASAP

OTHER ABNORMAL SITUATIONS

Both alternators failed

- Avionic Master: OFF
- LH/RH Alternator: OFF
- Transponder: STBY
- Gear: DOWN
 - ❖ When down and locked:
 - ⇒ Pull manual gear extension handle
- Stall/Pitot heat: OFF
- All lights: OFF
 - ⇒ Expect battery power to last for 30 minutes
 - ⇒ Expect engine stoppage after this time
 - ⇒ Land ASAP

Hydraulic pump: failure or continuous operation

- Check gear indication lights
- Prepare for manual landing gear extension

L/R Auxiliary fuel XFER FAIL

- Both AUX PUMPS: OFF
- Check fuel pumps OFF
- Check fuel quantity
- Use X-feed to keep main tank fuel unbalance within 1 USG
- Switch remaining AUX PUMP ON
- Use X-feed to keep main tank fuel unbalance within 1 USG
- Amend flight plan to allow for reduced amount of available fuel

**FMS Intitialization – AUX 4 page
Recommended and compulsory settings**

TIME FORMAT	UTC
NAV ANGLE	MAGNETIC
DIS. SPD	NAUTICAL
ALT. VS	FEET
TEMP	CELSIUS
FUEL	GALLONS
POSITION	HDDD°MM.MM'
AIRSPACE ALERTS	As desired
ARRIVAL ALERT	As desired
VOICE	As desired

MFD DATA BAR FIELDS	1 GS
	2 DIS
	3 ETE
	4 As desired
GPS CDI	
SELECTED	AUTO
COM CHANNEL SPACING	25,0 KHZ
NEAREST APT	
RWY SURFACE	As desired
MIN LENGTH	As desired

Compulsory:

ARINC 424 Distance Coding:

A	B	C	D	E
1	2	3	4	5
F	G	H	I	J
6	7	8	9	10
K	L	M	N	O
11	12	13	14	15
P	Q	R	S	T
16	17	18	19	20
U	V	W	X	Y
21	22	23	24	25