Flight Training Division

Diamond AIRCRAFT

## Checklist für Diamond DA40 NG

Edition #: **16** Edition date: **01.12.2012**

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 # 16 are on page 2 of this document**

### Checklist DA40 NG - LEP

| Page | Following Edition (or any higher) is valid | Date |
|---|---|---|
| **Section : Normal Checklist** | | |
| 1 | 15 | 20.05.2010 |
| 2 | 15 | 20.05.2010 |
| 3 | 15 | 01.12.2012 |
| 4 | 15.2 | 01.12.2012 |
| 5 | 15.2 | 01.12.2012 |
| 6 | 15.1 | 01.03.2011 |
| 7 | 15 | 20.05.2010 |
| 8 | 15.2 | 15.12.2011 |

| **Section: Emergency Checklist** | | |
|---|---|---|
| 1 | 15.2 | 15.12.2011 |
| 2 | 15.2 | 15.12.2011 |
| 3 | 15.2 | 15.12.2011 |
| 4 | 15.2 | 15.12.2011 |
| 5 | 15.2 | 15.12.2011 |
| 6 | 15.2 | 15.12.2011 |
| 7 | 15.2 | 15.12.2011 |
| 8 | 15.2 | 15.12.2011 |
| 9 | 15.2 | 15.12.2011 |
| 10 | 15.2 | 15.12.2011 |
| 11 | 15.2 | 15.12.2011 |
| **Section: Abnormal Checklist** | | |
| 12 | 15.2 | 15.12.2011 |
| 13 | 15.2 | 15.12.2011 |
| 14 | 15.2 | 15.12.2011 |
| 15 | 15.2 | 15.12.2011 |

## Comments explaining Edition # 15.2

**Normal Procedures**

Preflight: minor revisions.
Page 4: Item 4 deleted, new item 16, warm up procedure just as explanatory text.
Page 5: Fuel temperature check deleted (covered by engine instruments check),
explanatory text for warm up added,
sequence of "ECU-test" and "Voter switch" changed.
Page 8: gliding ratio without wheel fairings added.

**Emergency Procedures and Abnormal Procedures:**

General:
in conformity with the AFM "Land ASAP" (land as soon as possible) changed to "land at nearest suitable airfield" in most procedures.

Procedure for "Simultaneous ECU A+B FAIL caution light" added.

Several procedures modified in accordance with AFM text.

Pages completely rearranged and graphic layout updated.

## Comments explaining Edition # 16

**Normal Procedures:**

Page 3,4,5:
EIS setting for engine starting procedure revised.

*The SOPs developed for our TRTO when the G1000 was introduced called for selecting "reversionary mode" before engine start.*
*The idea was to have two engine instrument displays (one on the PFD, the other on the MFD), so that both the oil pressure rise and the electrical data (volts, amperes) could be watched on an analogue scale.*
*Display mode was then switched back to "normal mode" during the check after engine start.*

*Experience, however, did show that this procedure frequently caused trainees to expect engine data display on the PFD even later, and they expressed their "disappointment" not to see these data on the PFD.*

*We now abandoned this procedure, and (in normal operation) we use the EIS display on the MFD only, also during engine start.*
*By selecting SYSTEM display all engine parameters can be monitored. Reaching minimum oil pressure is easily recognized when the red indication extinguishes, and this display also provides gearbox temperature, which is important to be monitored before the ECU check is performed.*

# NORMAL 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 DA40 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 21 (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.**





## PREFLIGHT INTERIOR + EXTERIOR.

1 Check Aircraft papers
2 Remove pitot cover
3 Check interior for foreign or loose objects
4 Check flight controls free
5 Check circuit breakers
6 Fuel Valve NORMAL
7 Engine Master OFF
8 VOTER switch AUTO
9 Fuel pumps OFF
10 Essential bus OFF
11 Avionic Master + electrics OFF
12 Electric Master ON
check voltage
13 Check fuel quantity + temp
14 External lights ON
15 Pitot heat ON
16 Check stall warning
17 Check pitot tube
18 Check external lights
19 Pitot heat / ext. lights OFF
20 Electric Master OFF,
key removed

## PREFLIGHT EXTERIOR

**Left main gear**
Wheel fairing
Tire condition, slip mark
Brake, hydraulic line

**Left wing**
Wing leading edge, top- and bottom surface
Drain fuel tank
Air intake (winter baffle ?)
Stall warning
Fuel vent
Fuel filler cap
Pitot probe (cover removed)
Landing/Taxi light
Wing tip, position light
Static dischargers
Aileron (freedom of movement, hinges, control linkage, security)
Wing flap

**Left fuselage**
Canopy left side
Rear door
Fuselage left side
Antennas

**Tail**
Elevator & rudder (freedom of movement, hinges)
Trim - tab
Tail skid + lower fin
Static dischargers

**Right fuselage**
Fuselage right side
Rear window
Canopy right side

**Right wing**
Wing flap
Aileron (freedom of movement, hinges, control linkage, security)
Static dischargers
Wing tip, position light
Wing leading edge, top- and bottom surface
Fuel filler cap
Fuel vent
Fuel cooler air inlet (winter baffle ?) + outlet
Drain fuel tank

**Right main gear**
Wheel fairing
Tire condition, slip mark
Brake, hydraulic line

**Nose section**
OAT sensor
Propeller surface
Spinner
Cowling, Air inlets (7)

**Nose gear**
Wheel fairing
Tire condition, slip mark

**Engine bay**
Engine oil level (5,0 – 7,0 l)
Gearbox oil level
Drain gascolator

## CHECK BEFORE ENGINE START

| | | | |
|---|---|---|---|
| 1 | Preflight check | COMPLETED | 1 |
| 2 | Baggage and tow bar | SECURED | 2 |
| 3 | Fuel valve | NORMAL / SECURED | 3 |
| 4 | Power lever | IDLE | 4 |
| 5 | Parking brake | SET | 5 |
| 6 | Alternate Air | CLOSED | 6 |
| 7 | Electric master | OFF | 7 |
| 8 | Avionic master | OFF | 8 |
| 9 | Essential bus | OFF | 9 |
| 10 | Alternate static | CLOSED | 10 |
| 11 | Engine master | OFF | 11 |
| 12 | VOTER switch | AUTO | 12 |
| 13 | Fuel pumps | OFF | 13 |
| 14 | All light switches | OFF | 14 |
| 15 | Emergency switch | OFF / GUARDED | 15 |
| 16 | ELT | ARMED | 16 |
| 17 | Circuit breakers | CHECKED IN | 17 |
| 18 | Flap selector | UP | 18 |
| 19 | Pitot heat | OFF | 19 |
| 20 | Fuel transfer | OFF | 20 |
| 21 | Electric Master | ON (check avionic fan noise) | 21 |
| 22 | Rudder pedals | ADJUSTED | 22 |
| 23 | Passengers | INSTRUCTED | 23 |
| 24 | Seat belts | FASTENED | 24 |
| 25 | Rear door | CLOSED and LATCHED | 25 |
| 26 | Front canopy | POS 1 or 2 | 26 |
| 27 | G1000 | POWERED, ACKNOWLEDGED | 27 |
| 28 | MFD | EIS – FUEL | 28 |
| 29 | Fuel Quantity | CHECKED, RESET/SET if requ. | 29 |
| 30 | Fuel temperature | CHECKED | 30 |
| 31 | Total time in service | NOTED | 31 |
| 32 | MFD | EIS - SYSTEM | 32 |
| 33 | Power lever | IDLE | 33 |
| 34 | ACL (strobe) | ON | 34 |

End of Checklist





### ENGINE START PROCEDURE

*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*

## CHECK AFTER ENGINE START

| | | | |
|---|---|---|---|
| 1 | Oil pressure | CHECKED | 1 |
| 2 | RPM 710 +/- 30 | CHECKED | 2 |
| 3 | Circuit breakers | CHECKED IN | 3 |
| 4 | Pitot heat | ON, annunciation + Amps checked | 4 |
| 5 | Pitot heat | OFF | 5 |
| 6 | Avionics master | ON | 6 |

### FMS SETUP

***I*** *nitialize profile (AUX 4, MAP)*
***F*** *light plan*
***R*** *adios (COM, NAV, ADF, DME, CDI, BRG 1/2)*
***P*** *erformance (speed bugs, flight ID if applicable)*

| | | | |
|---|---|---|---|
| 7 | FMS setup | COMPLETED | 7 |

### AUTOPILOT TEST

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

| | | | |
|---|---|---|---|
| 8 | Autopilot test | COMPLETED | 8 |
| 9 | Flood light | CHECKED, ON as required | 9 |
| 10 | Position lights | ON as required | 10 |
| 11 | Flaps | full travel CHECKED, then T/O | 11 |
| 12 | Altimeters (2) | SET | 12 |
| 13 | Standby horizon | CHECKED | 13 |
| 14 | Transponder | CODE/MODE CHECKED | 14 |
| 15 | Engine temperatures | CHECKED | 15 |
| 16 | Parking brake | RELEASED | 16 |

*Max power 50% until engine temperatures in green range*

End of Checklist; see next page for "During taxi" – items

### DURING TAXI

*Check brakes*
*Check flight instruments*

## BEFORE TAKE OFF CHECK

| | | | |
|---|---|---|---|
| 1 | Parking brake | SET | 1 |
| 2 | Seat belts | FASTENED | 2 |
| 3 | Rear door | CLOSED + LATCHED | 3 |
| 4 | Front canopy | CLOSED + LATCHED | 4 |
| 5 | Door warning light | OFF | 5 |
| 6 | Circuit breakers | CHECKED | 6 |
| 7 | Electric elevator trim | CHECKED, T/O SET | 7 |
| 8 | Flaps | CHECKED T/O | 8 |
| 9 | Flight controls | CHECKED | 9 |
| 10 | Power lever | IDLE | 10 |
| 11 | MFD | EIS – SYSTEM | 11 |
| 12 | Engine instruments | CHECKED | 12 |

*Engine temperatures must be in green range before performing ECU test. For warm up max power 50%.*

| | | | |
|---|---|---|---|
| 13 | VOTER switch | A, AUTO, B, AUTO | 13 |

### ECU TEST

*ECU test button ..... press and hold*
*"ECU A/B fail" ..... ON*
*Prop cycling 2 times > 1900 RPM*
*"ECU A/B fail" ..... OFF*
*ECU test button ..... release*

| | | | |
|---|---|---|---|
| 14 | ECU test | PERFORMED | 14 |
| 15 | Pitot heat | AS REQUIRED | 15 |
| 16 | Transponder | CODE/MODE CHECKED | 16 |
| 17 | Fuel pumps | ON | 17 |
| 18 | MFD | EIS – DEFAULT | 18 |
| 19 | Parking brake | RELEASED | 19 |

End of Checklist

### LINE UP PROCEDURE

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

Available power check (see pg.6) ..... PERFORMED





**Available Power Check:**
10 sec. power MAX, RPM 2200 – 2300, min. load acc. table below

| | OAT | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Altitude [ft] | -35°C | -20°C | -10°C | 0°C | 10°C | 20°C | 30°C | 40°C | 50°C |
| 0 | 96% | | | | | | 95% | 92% | 90% |
| 2000 | | | | | | | 95% | 92% | ----- |
| 4000 | | | | | | | 95% | 92% | ----- |
| 6000 | | | | | | | 95% | 92% | ----- |
| 8000 | | | | | | 95% | 94% | 91% | ----- |
| 10000 | | | | 94% | 93% | 91% | 88% | ----- | ----- |

### AFTER TAKE-OFF PROCEDURE

*After passing safe altitude:*
*Flaps ..... UP*
*Fuel pumps ..... OFF*
*Climb power ..... SET*
*Landing light ..... OFF*

## CLIMB TO CRUISE CHECK

| | | | |
|---|---|---|---|
| 1 | Flaps | CHECKED UP | 1 |
| 2 | Fuel pumps | CHECKED OFF | 2 |
| 3 | Climb power | SET | 3 |
| 4 | Landing light | CHECKED OFF | 4 |

End of Checklist

### PERIODICALLY DURING CRUISE

*Fuel transfer ..... repeat as required*
Maximum fuel unbalance - Long range tank: 9 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 | Fuel transfer | AS REQUIRED | 5 |
| 6 | Parking brake | CHECKED RELEASED | 6 |
| 7 | Fuel pumps | ON | 7 |

End of Checklist

### *BEFORE LANDING PROCEDURE*

*Downwind, latest base leg:*
*Flaps ..... T/O*
*Landing light..... ON*
*On final:*
*Flaps ..... LDG*

### *GO AROUND PROCEDURE*

*Power ..... MAX*
*Flaps ..... T/O*
*Continue with take-off profile*

## AFTER LANDING CHECK

| | | | |
|---|---|---|---|
| 1 | Flaps | UP | 1 |
| 2 | Pitot heat | OFF | 2 |
| 3 | Fuel pumps | OFF | 3 |
| 4 | Alternate air | CLOSED | 4 |
| 5 | Landing/Taxi light | AS REQUIRED | 5 |

End of Checklist

## PARKING CHECK

| | | | |
|---|---|---|---|
| 1 | Parking brake | SET | 1 |
| 2 | Power lever | 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 Master | OFF | 8 |
| 9 | ACL (strobe) | OFF | 9 |

*When engine indications x-out red:*

| | | | |
|---|---|---|---|
| 10 | Electric Master | OFF | 10 |
| 11 | Start key | REMOVED | 11 |

End of Checklist





| STALLING SPEEDS KIAS | | | | | |
|---|---|---|---|---|---|
| | **1000kg** | **1080kg** | **1160kg** | **1216kg** | **1280kg** |
| Stalling speed ($V_{S0}$) Flaps LDG | 55 | 57 | 58 | 59 | 60 |
| Stalling speed ($V_S$) Flaps T/O | 54 | 56 | 58 | 60 | 62 |
| Stalling speed ($V_S$) clean | 56 | 60 | 62 | 64 | 66 |

| OPERATING SPEEDS KIAS | | | | | |
|---|---|---|---|---|---|
| | **1000kg** | **1080kg** | **1160kg** | **1216kg** | **1280kg** |
| Rotation speed | 58 | 60 | 63 | 65 | 67 |
| Vy up to 50 ft | 65 | 67 | 69 | 70 | 72 |
| Vy up to safe altitude | 72 | | | | |
| Cruise climb speed | 88 | | | | |
| Max. flap speed ($V_{FE}$) Flaps T/O | 110 | | | | |
| Max. flap speed ($V_{FE}$) Flaps LDG | 98 | | | | |
| Approach $V_{REF}$ Flaps UP | 73 | 78 | 81 | 82 | 83 |
| Approach $V_{REF}$ Flaps T/O | 70 | 73 | 76 | 77 | 78 |
| Approach $V_{REF}$ Flaps LDG | 69 | 72 | 74 | 76 | 77 |
| GA Flaps LDG (balked LDG) | | | | 76 | 77 |
| Min. GA speed Flaps T/O | 72 | | | | |
| Max. cruising speed ($V_{NO}$) | 130 | | | | |
| Never exceed speed ($V_{NE}$) | 172 | | | | |

| | up to 1080 kg | 1081-1180 kg | above 1080 kg |
|---|---|---|---|
| Manoeuvring speed ($V_O$) | 101 | 108 | 113 |

| | |
|---|---|
| Best gliding<br>Flaps UP, windmilling prop | 88<br>Gliding ratio 1:9,7 1,59 NM / 1000 ft<br>Without wheel fairings:<br>Gliding ratio 1:9,4 1,54 NM / 1000 ft |

**Max demonstrated X-wind: 25 kt**

| MASS | | |
|---|---|---|
| Max. TKOF mass | 1280 kg | |
| Max ZF mass | 1200 kg | |
| Max. LDG mass | 1216 kg | |
| Empty mass | *900 kg* | |
| Max. baggage in FWD compartment | 45 kg | 45 kg |
| Max. baggage in AFT extension | 18 kg | |

# 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

| | | |
|---|---|---|
| **ENG TEMP** | Pg. 6 | **Coolant temperature high (red range)** |
| **OIL TEMP** | Pg. 6 | **Oil temperature high (red range)** |
| **OIL PRES** | Pg. 6 | **Oil pressure low (red range)** |
| **GBOX TEMP** | Pg. 7 | **Gearbox temperature high (red range)** |
| **L/R FUEL TEMP** | Pg. 7 | **Fuel temperature high (red range)** |
| **FUEL PRESS** | Pg. 7 | **Fuel pressure low** |
| **ALTN AMPS** | Pg. 7 | **High Current (red range)** |
| **ALTN FAIL** | Pg. 7 | **Alternator failed** |
| **STARTER** | Pg. 8 | **Starter not disengaging** |
| **DOOR OPEN** | Pg. 8 | **Unlocked doors** |

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

***Abnormal Checklist starts at page 12***







## ENGINE FAILURE IN FLIGHT

1 Airspeed..... 88 KIAS 1
2 Flaps ..... UP 2
Depending on remaining altitude consider:
RESTART (page 7) or
EMERGENCY LANDING (ENGINE OFF) (see ↓)

## EMERGENCY LANDING (ENGINE OFF)

1 Gliding speed..... 88 KIAS 1
2 ATC ..... INFORM 2
3 Engine master..... OFF 3
4 Fuel transfer pump ..... OFF 4
5 Fuel valve ..... OFF 5
6 Avionic master ..... OFF 6
7 Safety harness..... TIGHT 7
On final:
8 Flaps ..... T/O or LDG 8

| | Approach speed KIAS | | | | |
|---|---|---|---|---|---|
| **Flaps** | **1000 kg** | **1080 kg** | **1160 kg** | **1216 kg** | **1280 kg** |
| **T/O** | 70 | 73 | 76 | 77 | 78 |
| **LDG** | 69 | 72 | 74 | 76 | 77 |

9 Electric master switch ..... OFF 9

## ENGINE FIRE IN FLIGHT

1 Cabin heat..... OFF 1
2 Canopy .....UNLATCH as necessary 2
Select emergency landing area
When certain to reach landing area:
3 Fuel valve ..... OFF 3
4 Power lever ..... MAX 4
5 Emergency windows ..... OPEN as necessary 5
Carry out:
EMERGENCY LANDING (ENGINE OFF) (see ↑)

## WINDMILL ENGINE START

Do not consider starter assisted restart if propeller has stopped

Max. altitude:
16.400 ft PA for immediate restart
10.000 ft PA for restart within 2 minutes

| | | | |
|---|---|---|---|
| 1 | Airspeed | 88 KIAS | 1 |
| 2 | Power lever | IDLE | 2 |
| 3 | VOTER switch | CHECKED AUTO | 3 |
| 4 | Fuel valve | CHECKED NORMAL | 4 |
| 5 | Alternate air | AS REQUIRED | 5 |
| 6 | Fuel quantity | CHECKED | 6 |
| 7 | Fuel transfer pump | AS REQUIRED | 7 |
| 8 | Electric master | CHECKED ON | 8 |
| 9 | Engine master | CHECKED ON | 9 |

- If engine does not start:

| | | | |
|---|---|---|---|
| 10 | Fuel valve | EMERGENCY | 10 |

- If engine does not start:

| | | | |
|---|---|---|---|
| 11 | Flaps | UP | 11 |

Carry out:
EMERGENCY LANDING (ENGINE OFF) (page 2)





## ENGINE TROUBLESHOOTING

| | | | |
|---|---|---|---|
| 1 | Airspeed | 88 KIAS | 1 |
| 2 | Power lever | MAX | 2 |

If
**ECU A AND B FAIL**
simultaneously
and ALL of the following conditions exist:
- **indicated LOAD unchanged**
- **perceived thrust is reduced**
- **engine noise level changes or engine running rough**

| | | | |
|---|---|---|---|
| 3 | POWER lever | IDLE for 1 second | 3 |
| 4 | POWER lever | slowly increase to 1975 RPM | 4 |

- If engine shows power loss during the POWER lever increase

| | | | |
|---|---|---|---|
| 5 | POWER lever | idle for 1 second | 5 |
| 6 | POWER lever | slowly increase | 6 |

stop prior to the RPM where former engine power loss was observed

*Do not increase the POWER lever past the propeller speed of 1975 RPM or the setting determined in step 4. An increase of engine power beyond this setting leads into another power loss.*
*With this power setting the engine can provide up to 65% at the maximum propeller speed of 1975 RPM*

| | | | |
|---|---|---|---|
| 7 | Land at nearest suitable airfield | | 7 |

End of Checklist

Otherwise:

| | | | |
|---|---|---|---|
| 3 | Circuit breakers | CHECK/RESET | 3 |

- If engine OK: continue, land ASAP End of Checklist

| | | | |
|---|---|---|---|
| 4 | VOTER switch | SWAP between A and B | 4 |

- If engine OK: continue, land ASAP End of Checklist

| | | | |
|---|---|---|---|
| 5 | VOTER switch | AUTO | 5 |

- If engine OK: continue, land ASAP End of Checklist

| | | | |
|---|---|---|---|
| 6 | Fuel valve | EMERGENCY | 6 |

- If engine OK: continue, land ASAP End of Checklist

| | | | |
|---|---|---|---|
| 7 | Fuel valve | NORMAL | 7 |
| 8 | Alternate air | OPEN | 8 |

- If engine OK: land as soon as practicable End of Checklist
- If engine still not OK: be prepared for ENGINE FAILURE IN FLIGHT, land ASAP End of Checklist

## OSCILLATING RPM

1 Power lever ..... CHANGE SETTING 1
- If no success:

2 VOTER switch ..... SWAP between A and B 2
- If no success:

3 VOTER switch ..... AUTO 3

Land at nearest suitable airfield

## RPM OVERSPEED

1 Power lever ..... ADJUST to max. 2300 RPM 1
2 Airspeed..... 88 KIAS 2
3 Flaps ..... 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 VOTER switch ..... SWAP between A and B 6
- If no success:

7 VOTER 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..... 72 KIAS 9
10 Power lever ..... ADJUST to max. 2300 RPM 10

## RPM UNDERSPEED

1 Power lever ..... AS REQUIRED 1
2 VOTER switch ..... SWAP between A and B 2
- If no success:

3 VOTER switch ..... AUTO 3
4 Power lever ..... AS REQUIRED 4

Land at nearest suitable airfield





## G1000 WARNINGS

### ENG TEMP — COOLANT TEMPERATURE HIGH

- Check "COOL LVL" caution message
  - If "COOL LVL" OUT:
    - During climb:
      - ⇒ Reduce power 10%
      - ⇒ Increase airspeed 10 KIAS
      - ⇒ 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
      - ⇒ Check coolant temperature in green range
        - If not returning to green range:
          - ⇒ land at nearest suitable airfield
  - If "COOL LVL" ON:
    - ⇒ Reduce power
    - ⇒ Expect loss of coolant fluid
    - ⇒ Be prepared for emergency landing

### OIL TEMP — OIL TEMPERATURE HIGH

- Check oil pressure
  - If too low:
    - ⇒ Reduce power
    - ⇒ Be prepared for loss of oil and engine fail; be prepared for emergency landing
  - If in green range:
    - ⇒ Reduce power
    - ⇒ Increase airspeed

### OIL PRES — OIL PRESSURE LOW

- Reduce power
- Expect loss of oil
- Land at nearest suitable airfield
- Be prepared for engine fail

## GBOX TEMP

GEARBOX TEMPERATURE HIGH

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

## L/R FUEL TEMP

FUEL TEMPERATURE HIGH

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

## FUEL PRESS

FUEL PRESSURE LOW

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

## ALTN FAIL

ALTERNATOR FAILED

**Batteries will last for about 30 minutes**

- Check circuit breakers
- ESSENTIAL BUS: ON
- Switch off unnecessary electrical equipment
- Land at nearest suitable airfield
- Be prepared for engine fail;
  be prepared for emergency landing





## ALTN AMPS

HIGH CURRENT

**Consumption of electrical power is too high**

- Essential Bus ON
- Switch MFD to Engine System Display
- Check circuit breakers
- Monitor Ammeter/Voltmeter
- Land at nearest suitable airfield

## STARTER

STARTER NOT DISENGAGING

- Power lever IDLE
- Engine master OFF
- Electric master OFF

## DOOR OPEN

UNLOCKED DOORS

- Reduce airspeed
- Check canopy and rear door visually
  - If canopy and/or rear door unlocked:
    - ⇒ Airspeed below 140 KIAS
    - ⇒ Land at nearest suitable airfield

***Do not try to lock the rear door in fligh***

## UNINTENTIONAL FLIGHT INTO ICING

Leave icing area, inform ATC

| | | | |
|---|---|---|---|
| 1 | Pitot heat ..... | ON | 1 |
| 2 | Cabin heat..... | ON | 2 |
| 3 | Cabin air ..... | DEFROST | 3 |
| 4 | RPM..... | INCREASE, change periodically | 4 |
| 5 | Alternate air ..... | OPEN | 5 |
| 6 | Emergency windows ..... | OPEN as required | 6 |

## HIGH CURRENT

Refer to Emergency Checklist page 8 "ALTN AMPS"

## TOTAL ELECTRIC FAIL

1 Circuit breakers.....CHECK ALL IN 1
2 Essential bus ..... ON 2
- If no success:

3 Emergency switch ..... ON 3
4 Flood light, if necessary..... ON 4
5 Power ..... SET 5
according power lever position and/or engine noise
6 Flaps .....VERIFY POSITION 6
Land at nearest suitable airfield

## ELECTRIC FIRE / SMOKE IN FLIGHT

1 Emergency switch ..... ON 1
2 Avionic master ..... OFF 2
3 Electric master..... OFF 3
4 Cabin heat..... OFF 4
5 Emergency window..... OPEN as necessary 5
6 Canopy .....UNLATCH as necessary 6
Land immediately

Consider:
EMERGENCY LANDING (ENGINE OFF) (page 2)





## FIRE / SMOKE ON GROUND

1 Power lever .....IDLE 1
2 Cabin heat..... OFF 2
3 Fuel valve ..... OFF 3
4 Fuel transfer pump ..... OFF 4
5 Engine master..... OFF 5
6 Fuel pumps..... OFF 6
7 Electric master..... OFF 7
After standstill and when engine stopped:
8 Canopy .....OPEN 8
Evacuate

## FIRE / SMOKE DURING CONTINUED TKOF

1 Cabin heat..... OFF 1
If possible climb to safe height and land ASAP
When landing assured:
2 Fuel valve ..... OFF 2
3 Fuel transfer pump ..... OFF 3
4 Engine master..... OFF 4
5 Fuel pumps..... OFF 5
6 Electric master..... OFF 6
7 Emergency window..... OPEN as necessary 7
8 Canopy .....UNLATCH as necessary 8
9 Flaps .....T/O or LDG 9

| | Approach speed KIAS | | | | |
|---|---|---|---|---|---|
| **Flaps** | **1000 kg** | **1080 kg** | **1160 kg** | **1216 kg** | **1280 kg** |
| **T/O** | 70 | 73 | 76 | 77 | 78 |
| **LDG** | 69 | 72 | 74 | 76 | 77 |

## 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

Preferably land on grass.

After touchdown (if necessary):

1 Fuel valve ..... OFF 1
2 Engine master..... OFF 2
3 Fuel pumps..... OFF 3
4 Electric master..... OFF 4

## FUEL TRANSFER PUMP U/S

1 Fuel valve ..... EMERGENCY 1
2 Fuel pumps..... OFF 2
3 AUX fuel quantity ..... CHECK min 1 USG 3
4 MAIN fuel quantity.....CHECK max 14 USG 4
5 Fuel valve ..... Reset to NORMAL 5

## SUSPICION OF CARBON MONOXIDE

1 Cabin heat..... 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*





## G1000 CAUTION LIGHTS

| | | |
|---|---|---|
| **ECU A FAIL** | Page 12 | **Engine ECU A fail** |
| **ECU B FAIL** | Page 12 | **Engine ECU B fail** |
| **FUEL LOW** | Page 13 | **Main tank fuel qty low** |
| **VOLTS LOW** | Page 13 | **Bus voltage too low** |
| **PITOT FAIL** | Page 13 | **Pitot heating system failed** |
| **COOL LVL** | Page 13 | **Engine coolant level low** |
| **PITOT HT OFF** | No procedure | **Pitot heating system OFF** |

**Indications outside of green range**



**Other abnormal situations**



**ECU A OR B FAIL** **ON GROUND**

➢ Discontinue operation, terminate flight preparation

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

➢ Go to Emergency Ckl page 4 ENGINE TROUBLESHOOTING

**ECU A OR B FAIL** **DURING FLIGHT**

*Remark: in case of ECU fail the system automatically switches to the otherECU*

➢ Verify VOTER switch in position AUTO

- **If ECU caution remains:**
  ⇒ Land at nearest suitable airfield
- **If additional engine problems are observed:**
  ⇒ Go to Emergency Ckl page 4 ENGINE TROUBLESHOOTING

## FUEL LOW

**MAIN TANK FUEL QTY LOW**

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

## VOLTS LOW

**BUS VOLTAGE TOO LOW**

*Remark: possible reason is a fault in the electrical power supply*

- **On ground**
  - ⇒ Terminate flight preparation
- **In flight**
  - ⇒ Check circuit breakers
  - ⇒ Switch off unnecessary electrical equipment
    - **If light still ON:**
      - ⇒ Apply "ALTERNATOR FAIL"-emergency procedure (Emergency Checklist page 7)

## PITOT FAIL

**PITOT HEATING SYSTEM FAILED**

- check pitot heat ON
  - **If in icing conditions**
    - ⇒ expect loss of airspeed indication
    - ⇒ leave area with icing conditions

## COOL LVL

**ENGINE COOLANT LEVEL LOW**

- Monitor annunciations and instruments
- Check „Coolant temperature" procedure, page 15





## 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 5
    - ⇒ Land at nearest suitable airfield

**Oil pressure high**

- Check oil temperature
- Check coolant temperature
  - **If temperatures in lower green range**
    - ⇒ Increase power, reduce airspeed
      - **If oil pressure still outside of green range**
        - ⇒ Land at nearest suitable airfield, be prepared for engine fail
  - **If temperatures outside of green range**
    - ⇒ Reduce power
    - ⇒ Land at nearest suitable airfield, be prepared for engine fail

**Oil pressure low**

- Refer to Emergency Checklist page 6, "OIL PRES"

**Oil temperature high**

- Refer to Emergency Checklist page 6, "OIL TEMP"

**Oil temperature low**

- Increase power
- Reduce airspeed

**Fuel temperature high**

➢ Refer to Emergency Checklist page 7, "L/R FUEL TEMP"

**FUEL temperature low**

➢ Monitor fuel temperature
- **If fuel temperature decreases to red range (< 25°C):**
  - ⇒ Increase power
  - ⇒ Reduce airspeed
    - **If not returning to yellow range:**
      - ⇒ Land at nearest suitable airfield

**Coolant temperature high**

➢ Refer to Emergency Checklist page 6, "ENG TEMP"

**Coolant temperature low**

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

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

**Gearbox temperature high**

➢ Refer to Emergency Checklist page 7, "GBOX TEMP"

**Alternator load yellow range**

➢ Switch off unnecessary electrical equipment
- **If indication still outside of green range:**
  - ⇒ Land at nearest suitable airfield

**Flap failure**

➢ Check flaps visually, recheck all flap switch positions

➢ Approach speeds with abnormal flap setting:

| | Approach speed KIAS | | | | |
|---|---|---|---|---|---|
| **Flaps** | **1000 kg** | **1080 kg** | **1160 kg** | **1216 kg** | **1280 kg** |
| **T/O** | 70 | 73 | 76 | 77 | 78 |
| **UP** | 73 | 78 | 81 | 82 | 83 |