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Checklist für Diamond DA 42 Twin Star

Edition #: **12** Edition date: **01.07.2006**

Please observe:

In order to simplify the production process the following method has been chosen:

Normal Checklist, Emergency Checklist and Abnormal Checklist are produced separately, and therefore each will have its own "edition #"; "edition date" and pagination sequence.

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

For each of the 3 sections **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.

It is now up to you, whether you chose to print out the complete new checklist (thereby making papermills happy) or to print out only those pages which have been amended (thereby stressing brain cells how to do this).

Have a lot of nice flights and happy landings!

Peter Schmidleitner

Comments explaining Edition # 12 are on page 2 of this document

Checklist DA42 Twin Star - LEP

| Page | Following Edition (or any higher) is valid | Date |
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Comments explaining Edition # 11.5

Normal Checklist

Some PREFLIGHT EXTERIOR items rearranged

FMS setup: item "Radios" expanded

Autopilot test and Altimeter setting added to "check after engine start"

Check of electrical trim, ice protection and parking brake release added to "before TKOF check"

"Start key REMOVED" added to Parking Check

Page 9: stall speed increment for ice added

Emergency Checklist

Oxygen system related items added.

Abnormal Checklist

DEIC PRES LO procedure amended according "fiki" supplement.

Emergency Checklist

Abnormal Checklist

Layout of these checklists has been completely revised!

As you might know there is an inconsistency in the DA42 AFM since it is not arranged according to the principle

"red light - red chapter", "yellow light - yellow chapter".

This originally caused me to develop that somewhat awkward introductory table (with that red and yellow blocks) on page 2 of the previous emergency checklist.

Despite of this AFM structure I decided now to revise the DA42 checklist, and this checklist now adheres to the principle "red light - red checklist", "yellow light - yellow checklist".

In addition (since the cover sheet of the Emergency Checklist has the heading "Emergency + Abnormal Checklist") I changed the pagination and pages are now numbered without starting the Abnormal Checklist with another "1".

Comments explaining Edition # 12

This new edition is the result of a major exercise to streamline the checklists for all the 5 Diamond aircraft types (DA40-180, DA40 TDI, DA40-180 G1000, DA40 TDI G1000 and DA42) and to bring them to a common layout and standard.

In addition:

Emergency Checklist

All references to "12.500 ft" in the "Oxygen System" checklists have been changes to "10.000 ft" in order to comply with a revision of the relevant AFM supplement S04.

Note:

In the future the system of assigning "Edition #" will be 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.

NORMAL CHECKLIST



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 not a substitute for and does not supersede any portion of the current approved Airplane Flight Manual or any of its supplements, or any training or procedures required by any regulatory or advisory bodies. Use of this checklist is at the user's sole risk and discretion. Diamond Aircraft shall have no liability for any damages, injury or death resulting from its use. All such terms and conditions shall be deemed to be accepted in full by continued use of this checklist.

If you do not understand, or if you disagree with, any of the above terms and conditions, further use of this checklist is not permitted. Further use of this checklist is prohibited in any jurisdiction that does not give effect to all provisions of these terms and conditions.

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.

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 ** Fuel transfer ON – if L/R
AUX FUEL E caution ON:
AUX tank(s) empty
Fuel transfer OFF
- 11 * Check de-ice fluid quantity
- 12 * De-ice HIGH (if required)
- 13 External (* ice) lights ON
- 14 Pitot heat ON
- 15 Check external lights
- 16 Check stall warning
- 17 Check pitot/static tube heat
- 18 * Check de-ice function
- 19 Pitot heat OFF
- 20 External lights OFF
- 21 * De-ice, ice lights OFF
- 22 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 cascolator
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
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
Antennas

Tail

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

Right fuselage

Fuselage right side
 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
 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 cascolator

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 | Manual gear extension handle | PUSHED | 7 |
| 8 | Gear selector | DOWN | 8 |
| 9 | Avionic master | OFF | 9 |
| 10 | Electric master | OFF | 10 |
| 11 | Engine masters (2) | OFF | 11 |
| 12 | Pitot heat | OFF | 12 |
| 13 | Alternate static..... | CLOSED | 13 |
| 14 | Alternators (2) | ON | 14 |
| 15 | ECU swap (2)..... | AUTO | 15 |
| 16 | All light switches..... | OFF | 16 |
| 17 | Emergency switch..... | OFF/GUARDED | 17 |
| 18 | ELT..... | ARMED | 18 |
| 19 | Circuit breakers..... | CHECKED IN | 19 |
| 20 | Flap selector | UP | 20 |

If starting with external power:

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

| | | | |
|----|---|----------|----|
| 21 | Electric master | ON | 21 |
| 22 | Rudder pedals | ADJUSTED | 22 |
| 23 | Flight controls | CHECKED | 23 |
| 24 | Trims | CHECKED | 24 |
| 25 | Gear warning, fire detector | TEST | 25 |
| 26 | * De-ice ANNUN TEST | ON | 26 |
| 27 | * DEICE LVL LO caution. CHECKED ON if applic. | | 27 |
| 28 | * Windshield de-icing PUMP 1 + 2 | CHECKED | 28 |

Checklist continued next page

CHECK BEFORE ENGINE START continued

| | | | |
|----|----------------------------------|-----------------------------|----|
| 29 | Flaps..... | LDG | 29 |
| 30 | Variable elevator backstop | CHECK | 30 |
| | Control stick | AFT and HOLD | |
| | Power levers..... | MAX | |
| | Check backstop limit decreasing | | |
| | Power levers..... | IDLE | |
| | Check backstop limit increasing | | |
| 31 | Flaps..... | UP | 31 |
| 32 | Passengers | INSTRUCTED | 32 |
| 33 | Seat belts..... | FASTENED | 33 |
| 34 | Rear door | CLOSED and LATCHED | 34 |
| 35 | Front Canopy | POS 1 or 2 | 35 |
| 36 | G1000..... | POWERED, ACKNOWLEDGED | 36 |
| 37 | PFD/MFD | BACKUP MODE | 37 |
| 38 | MFD..... | ENGINE – FUEL | 38 |
| 39 | Fuel Quantity | CHECKED, RESET/SET if requ. | 39 |
| 40 | Fuel temperature..... | CHECKED | 40 |
| 41 | Total time in service..... | NOTED | 41 |
| 42 | MFD..... | ENGINE – SYSTEM | 42 |
| 43 | * DEIC PRESS LO caution | CHECKED ON | 43 |
| 44 | * De-ice ANNUN TEST | OFF | 44 |
| 45 | Power levers (2)..... | IDLE | 45 |
| 46 | ACL (strobe) | ON | 46 |

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 power..... DISCONNECT

Start RH engine, procedure as above

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DA42 Twin Star

NORMAL PROCEDURES

CHECK AFTER ENGINE START

| | | | |
|---|--|-------------------------------------|---|
| 1 | Oil pressure | CHECKED | 1 |
| 2 | RPM 900 +/- 20..... | CHECKED | 2 |
| 3 | Warm up time | START | 3 |
| | Warm up: | | |
| | Idle | 2 minutes | |
| | 1400RPM | until Oil > 50°C and Coolant > 60°C | |
| 4 | Fuel selectors (2)..... | X-FEED | 4 |
| 5 | Pitot heatON, annunciation + Amps checked | | 5 |
| 6 | Pitot heat | OFF | 6 |
| 7 | PFD/MFD | NORMAL MODE | 7 |
| 8 | Avionics master..... | ON | 8 |

FMS SETUP

I nitalize profile (AUX 4, MAP, MFD FPL, PFD FPL)

F light plan

R adios (COM, NAV, ADF, DME, CDI, BRG 1/2)

P erformance (speed bugs)

| | | | |
|---|-----------------|-----------|---|
| 9 | FMS setup | COMPLETED | 9 |
|---|-----------------|-----------|---|

AUTOPILOT TEST

DISCONN press, check electric trim not working

AP ON, check overpowering servos

DISCONN press, check AP off

| | | | |
|----|--------------------------|-------------------------|----|
| 10 | Autopilot test | COMPLETED | 10 |
| 11 | Flood light | CHECKED, ON as required | 11 |
| 12 | Position lights..... | ON as required | 12 |
| 13 | Fuel Selectors (2) | ON | 13 |
| 14 | Altimeters (3) | SET | 14 |
| 15 | Standby horizon | CHECKED | 15 |
| 16 | Transponder | CODE / MODE CHECKED | 16 |
| 17 | Parking brake..... | RELEASED | 17 |

End of Checklist

DURING TAXI

Check Brakes

Check nose wheel steering

Check flight instruments

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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 | Front baggage doors..... | CHECKED CLOSED | 5 |
| 6 | Door warning light..... | OFF | 6 |
| 7 | Engine instruments..... | CHECKED | 7 |
| 8 | Fuel temperature (Diesel min. +5°)... | CHECKED | 8 |
| 9 | Circuit breakers..... | CHECKED | 9 |
| 10 | Electric elevator trim..... | CHECKED, T/O SET | 10 |
| 11 | Fuel selectors (2)..... | CHECKED ON | 11 |
| 12 | Rudder trim..... | AS REQUIRED | 12 |
| 13 | Flaps..... | CHECKED UP | 13 |
| 14 | Flight controls..... | CHECKED | 14 |
| 15 | Power levers (2)..... | IDLE | 15 |
| 16 | ECU test (2)..... | PERFORM | 16 |

ECU TEST

ECU test button..... press and hold
 "L/R ECU A/B fail".....ON / RPM increasing / OFF
 "L/R ECU B fail".....ON / prop cycling / OFF
 "L/R ECU A fail".....ON / prop cycling / OFF
 RPM..... decrease to idle
 ECU test button..... release

| | | | |
|----|-----------------------|------------------------|----|
| 17 | ECU swap (2)..... | ECU B, ENGINES CHECKED | 17 |
| 18 | ECU swap (2)..... | AUTO | 18 |
| 19 | Pitot heat..... | AS REQUIRED | 19 |
| 20 | * Ice protection..... | AS REQUIRED | 20 |
| 21 | Transponder..... | CODE / MODE CHECKED | 21 |
| 22 | Parking brake..... | RELEASED | 22 |

End of Checklist

LINE UP PROCEDURE

Landing light..... ON
 Approach sector..... CLEAR
 Runway..... IDENTIFIED
 Power lever max (100% / 10 sec).....
 CHECK LOAD / RPM / FUEL FLOW / OP

AFTER TAKE-OFF PROCEDURE

Brakes.....APPLY
 Gear.....UP
 Landing light.....OFF

CLIMB TO CRUISE CHECK

| | | | |
|---|--------------------|-------------|---|
| 1 | Gear..... | CHECKED UP | 1 |
| 2 | Flaps..... | CHECKED UP | 2 |
| 3 | Landing light..... | CHECKED OFF | 3 |

End of Checklist

PERIODICALLY DURING CRUISE

Fuel Radio Engine Direction Altitude

DESCENT / APPROACH CHECK

| | | | |
|---|-------------------------|------------------|---|
| 1 | Landing data..... | RECEIVED | 1 |
| 2 | Altimeters (3)..... | SET | 2 |
| 3 | COM / NAV / FMS..... | SET | 3 |
| 4 | Seatbelts..... | FASTENED | 4 |
| 5 | Fuel selectors (2)..... | CHECKED ON | 5 |
| 6 | Parking brake..... | CHECKED RELEASED | 6 |
| 7 | Gear warning horn..... | CHECKED | 7 |

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
 Landing light OFF

AFTER LANDING CHECK

When clear of runway

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

End of Checklist

PARKING CHECK

- | | | | |
|----|--|-----------------------|----|
| 1 | Parking brake..... | SET | 1 |
| 2 | Power levers (2)..... | IDLE for 2 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 |
| 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.

OPERATING SPEEDS KIAS for MTOM 1785

| | 1400 kg | 1785 kg |
|---|---------------|-----------------|
| Stalling speed (V _{SO}) Flaps LDG | 49 | 57 |
| Stalling speed (V _S) Flaps APP | 53 | 61 |
| Stalling speed (V _S) clean | 56 | 64 |
| In Ice: + 4 Kt | | |
| Best gliding angle (Flaps UP) | 82 | |
| Best angle of climb (V _X) | 79 | |
| Best rate of climb (V _Y) | 79 | |
| Best rate of climb 1-eng. (V _{YSE}) | 82 | |
| Min. control speed (V _{MCA}) | 68 | |
| Min. control speed for TRG(V _{SSF}) | 82 | |
| Min. control speed (V _{MCA}) in ice | 72 | |
| Operating speed in ice | 121 - 160 | |
| Cruising climb speed | 86 | |
| Rotation speed | 72 | |
| Max. flap speed (V _{FE}) Flaps APP | 137 | |
| Max. flap speed (V _{FE}) Flaps LDG | 111 | |
| Max. LG extension (V _{LOE}) | 194 | |
| Max. LG extended (V _{LE}) | 194 | |
| Max. LG retraction (V _{LOR}) | 156 | |
| | 1700 kg | 1785 kg |
| Min. Landing speed Flaps UP | 85 | 86 |
| Min. Landing speed Flaps APP | 82 | 82 |
| Min. Landing speed Flaps LDG | 76 | 78 |
| Min. Go-around speed Flaps UP | 82 | 82 |
| Max. cruising speed (V _{NO}) | 155 | |
| Never exceed speed (V _{NE}) | 194 | |
| | up to 1542 kg | above - 1542 kg |
| Manoeuvring speed (V _A) | 120 | 126 |

MASS

| | | |
|--------------------------------|---------|-------|
| Max. TKOF mass | 1785 kg | |
| Max ZF mass | 1650 kg | |
| Max. LDG mass | 1700 kg | |
| Empty mass | 1295 kg | |
| Max. baggage in NOSE | 30 kg | |
| Max. baggage in COCKPIT | 45 kg | 45 kg |
| Max. baggage in rear 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 page 2

Engine

- Engine fire / failure during take-off*..... page 4
- Engine fire / failure in flight*..... page 4
- Engine troubleshooting* page 5
- Engine restart* page 5
- Oscillating RPM*..... page 6
- RPM overspeed*..... page 6

Landing Gear

- Landing with defective main gear tire* .. page 6
- Landing with defective brakes*..... page 6
- Landing gear unsafe warning* page 7
- Manual extension of landing gear* page 7
- Landing gear up landing*..... page 7

Smoke and fire

- Engine fire on ground* page 8
- Electrical fire on ground*..... page 8
- Electrical fire in flight*..... page 8
- Cabin smoke, cabin fire abv 10.000 ft.* page 9

Other Emergencies

- Oxygen pressure loss above 10.000 ft.* page 9
- Emergency descent*..... page 9
- Suspicion of carbon monoxide*..... page 9
- Unintentional flight into icing*page 10
- Ice protection failure*page 10

Electrical System

- Complete electrical failure*page 10

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. 2 | 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 ALTN AMPS | Pg. 3 | High Current (red range) |
| L/R STARTER | Pg. 3 | Starter not disengaging |
| DOOR OPEN | Pg. 3 | Unlocked doors |
| L/R ENG FIRE | Pg. 4 Pg. 4 Pg. 8 | 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 11

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 reqd
 - ⇒ 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 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 68 KIAS:

Perform Vmca recovery procedure

Airspeed above 68 KIAS:

- | | | | |
|---|----------------------------------|--------------------|---|
| 1 | Power | INCREASE up to MAX | 1 |
| 2 | Airspeed..... | min Vyse 82 KIAS | 2 |
| 3 | Landing gear | UP | 3 |
| 4 | Flaps | UP | 4 |
| 5 | Engine Master (dead engine)..... | OFF | 5 |
| 6 | Alternator (dead engine) | OFF | 6 |
| 7 | Fuel selector (dead engine)..... | OFF | 7 |

In case of fire:

- | | | | |
|---|----------------------------|----------------------|---|
| 8 | Cabin heat & defrost | OFF | 8 |
| 9 | Canopy | UNLATCH if necessary | 9 |

Max airspeed 120 KIAS

ENGINE TROUBLESHOOTING

- | | | | |
|---|-------------------------|---------------|---|
| 1 | Power | MAX | 1 |
| | If in icing conditions: | | |
| 2 | Alternate air | OPEN | 2 |
| 3 | Fuel quantity | CHECK | 3 |
| 4 | AUX transfer | CONSIDER | 4 |
| 5 | Fuel selector | ON or X-FEED | 5 |
| 6 | ECU swap | ECU B | 6 |
| | If unsuccessful: | | |
| 7 | ECU swap | AUTO | 7 |
| 8 | Circuit breakers | CHECK / RESET | 8 |

- If CB reset restored engine power: land ASAP
- If all unsuccessful: continue with ENGINE FAILURE IN FLIGHT checklist

ENGINE RESTART

- | | | | |
|----|---------------------------------------|------------------------|----|
| 1 | Airspeed | 80 KIAS - max 120 KIAS | 1 |
| 2 | Pressure Altitude | max 6000 ft | 2 |
| 3 | Power (affected engine) | IDLE | 3 |
| 4 | Fuel selector (affected engine) | ON | 4 |
| 5 | Alternate air | AS REQUIRED | 5 |
| 6 | Engine Master (affected engine) | ON | 6 |
| 7 | Starter | if necessary ENGAGE | 7 |
| | If engine started: | | |
| 8 | Power (affected engine) | MODERATE | 8 |
| 9 | Engine instruments | check GREEN RANGE | 9 |
| 10 | Alternator (affected engine) | ON | 10 |

OSCILLATING RPM

- | | | | |
|---|-------------------|----------------|---|
| 1 | Power lever | change setting | 1 |
| | If no success: | | |
| 2 | ECU swap | ECU B | 2 |
| | If no success: | | |
| 3 | ECU swap | AUTO | 3 |

Land ASAP

RPM OVERSPEED

- | | | | |
|---|---------------------|--------|---|
| 1 | Power setting | REDUCE | 1 |
| | If no success: | | |
| 2 | ECU swap | ECU B | 2 |
| | If no success: | | |
| 3 | ECU swap | 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 156 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 156 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 120 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 120 KIAS | 4 |
| 5 | Canopy | UNLATCH | 5 |

Push up and lock in cooling gap position

UNINTENTIONAL FLIGHT INTO ICING

- | | | | |
|---|------------------------------|--------------------|---|
| 1 | Pitot heat | ON | 1 |
| 2 | Cabin heat & defrost | ON | 2 |
| 3 | Power | INCREASE | 3 |
| 4 | * De-ice systems..... | USE as appropriate | 4 |
| 5 | Alternate air | OPEN as required | 5 |
| 6 | Emergency windows | OPEN as required | 6 |
| | When pitot heat fails: | | |
| 7 | Alternate static valve | OPEN | 7 |
| 8 | Emergency windows | CLOSED | 8 |

ICE PROTECTION FAILURE

- | | | | |
|---|----------------------------------|--------------|---|
| 1 | Airspeed..... | MIN 121 KIAS | 1 |
| 2 | Flaps | MAX APP | 2 |
| 3 | Approach with residual ice | 82 KIAS | 3 |
| 4 | Landing distance | x 1,4 | 4 |

COMPLETE ELECTRICAL FAILURE

- | | | | |
|---|--|-----------------|---|
| 1 | Circuit breakers..... | CHECK all IN | 1 |
| | If no success: | | |
| 2 | Emergency switch | ON | 3 |
| 3 | Flood light | ON | 4 |
| 4 | Power | SET | 5 |
| | according power lever position and/or engine noise | | |
| 5 | Flaps | VERIFY POSITION | 6 |

Land ASAP

Landing gear may slowly extend

For landing apply "Manual extension of landing gear"

G1000 CAUTION LIGHTS

| | | |
|----------------|---------|-------------------------------|
| L/R ECU A FAIL | Page 12 | ECU A failed |
| L/R ECU B FAIL | Page 12 | ECU B failed |
| L/R ALTN FAIL | Page 12 | Alternator failed |
| L/R VOLTS LOW | Page 12 | Bus voltage too low |
| L/R COOL LVL | Page 13 | Engine coolant level low |
| PITOT FAIL | Page 13 | Pitot heating system failed |
| PITOT HT OFF | Page 13 | Pitot heating system OFF |
| STALL HT FAIL | Page 13 | Stall warning heating failed |
| STALL HT OFF | Page 13 | Stall warning heating OFF |
| L/R FUEL LOW | Page 13 | Main tank fuel qty low |
| L/R AUX FUEL E | Page 13 | L/R auxiliary fuel tank empty |
| STICK LIMIT | Page 13 | Stick limiting system failed |
| DEICE LVL LO | Page 14 | De-icing fluid level low |
| DEIC PRES LO | Page 14 | De-icing pressure low |
| DEIC PRES HI | Page 14 | De-icing pressure high |

Engine instrument indications outside of green range

COOLANT temperature high/low page 15
 OIL temperature high/low..... page 15
 OIL pressure high/low..... page 15
 FUEL temperature high/low..... page 15
 VOLT low..... page 16
 RPM high..... page 16

Other abnormal situations

Both Alternators failed page 16
 Hydraulic pump fail or continuous ops... page 16
 AUX fuel transfer fail page 16

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

- Press ECU TEST button for more than 2 seconds
 - ❖ If ECU A caution message re-appears or cannot be reset:
 - ⇒ Land ASAP
 - ❖ If ECU A caution message can be reset
 - ⇒ Continue flight. Engine must be serviced after LDG

L/R ECU B FAIL DURING FLIGHT

- Press ECU TEST button for more than 2 seconds
 - ❖ If ECU B caution message re-appears or cannot be reset:
 - ⇒ Land ASAP
 - ❖ If ECU B caution message can be reset
 - ⇒ Continue flight. Engine must be serviced after LDG

L/R ALTN FAIL ALTERNATOR FAILED

- Alternator on affected side OFF
- Monitor bus voltage
- Reduce electrical consumers
 - ❖ If both alternators failed:
 - ⇒ See Abnormal Checklist "Both Alternators failed", page 16

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 16

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**

- | | |
|---|--|
| <ul style="list-style-type: none"> ➤ check pitot heat ON, if in icing conditions <ul style="list-style-type: none"> ⇒ expect failure of the pitot-static-system ⇒ alternate static valve: OPEN ➤ leave area with icing conditions (see Emergency Checklist page 10 "Unintentional flight into icing") | <ul style="list-style-type: none"> ⇒ 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 indicator
 - ⇒ 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} 76/78 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 10** 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 12

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 6** "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

- Check fuel quantity
- Use X-feed to keep LH and RH fuel levels equal
- Amend flight plan to allow for reduced amount of available fuel

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

| | |
|-----------------|-------------|
| TIME FORMAT | UTC |
| NAV ANGLE | AUTO |
| DIS. SPD | NAUTICAL |
| ALT. VS | FEET |
| PRESSURE | HECTOPASCAL |
| TEMP | CELSIUS |
| FUEL, FF | GALLONS |
| POSITION | HDDD°MM.MM' |
| | |
| MAP DATUM | WGS 84 |
| AIRSPACE ALERTS | As desired |
| ARRIVAL ALERT | As desired |
| VOICE | As Desired |

| | |
|---------------------|---|
| MFD DATA BAR FIELDS | 1 GS |
| | 2 DIS |
| | 3 ETE |
| | 4 MSA |
| GPS CDI | |
| SELECTED | AUTO |
| ILS CDI CAPTURE | If coupled ILS APCH planned: MANUAL |
| COM CHANNEL SPACING | 25,0 KHZ |
| NEAREST APT | |
| RWY SURFACE | As desired |

Compulsory:

| | |
|-----------------|---------|
| PFD Flight Plan | ETA ESA |
| | |

| | |
|-----------------|---------|
| MFD Flight Plan | DTK DIS |
| | |

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 |