

Checklist for Diamond DA42 TDI "Twin Star"

Edition #: **18.1** Edition date: **08.05.2018**

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 # 18.1 are on page 2 of this document

Checklist DA42 Twin Star - LEP

Page	Following Edition Date (or any higher) is valid	
Section : Normal Checklist		
1	14	01.12.2006
2	16.2	01.03.2015
3	14.1	01.07.2008
4	16.2	01.03.2015
5	17.2	15.04.2017
6	16	01.12.2012
7	17.1	15.03.2017
8	16.2	01.03.2015
9	17.1	15.03.2017
10	15.2	15.02.2012

Section: Emergency Checklist		
1	18	15.12.2017
2	18	15.12.2017
3	18	15.12.2017
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14	18	15.12.2017
Section: Abnormal Checklist		
15	18	15.12.2017
16	18.1	08.05.2018
17	18.1	08.05.2018
18	18.1	08.05.2018
19	18	15.12.2017
20	18.1	08.05.2018

Comments explaining Edition # 18

Normal Procedures:

No change

Emergency Procedures:

Pages rearranged and renumbered

Major changes:

Page 5: L/R STARTER

Pages 6/7: Engine Fire

Abnormal Procedures:

Pages renumbered

Comments explaining Edition # 18.1

Normal Procedures:

No change

Emergency Procedures:

No change

Abnormal Procedures:

Pages 16,17,18,20: editorial correction (reference page numbers)

Page 18: New values for maximum duration of ice protection when DEICE LVL LOW indicated

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 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
- *** with option 'increased ZFM' and actual ZFM > 1650 kg

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
Check battery voltage
- 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 External lights ON
- 12 Parking brake SET
- 13 Pitot heat ON
- 14 * Check de-ice fluid quantity
- 15 * Select de-ice pump 1
- 16 * De-ice HIGH/MAX
- 17 * Check DEIC PRES LO+HI out
- 18 * Select de-ice pump 2
- 19 * Check DEIC PRES LO+HI out
- 20 * Ice lights ON
- 21 * Check de-ice function
- 22 Check external lights
- 23 Check stall warning
- 24 Check pitot/static tube heat
- 25 Pitot heat OFF
- 26 External lights OFF
- 27 * De-ice, ice lights OFF
- 28 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
- *** structural temp.indicator: no "red 55"

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
- 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
 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	**AUX PUMPS (2)	OFF	3
4	Fuel selectors (2)	ON, safety guard closed	4
5	Power levers (2)	IDLE	5
6	Parking brake	SET	6
7	Alternate Air	CLOSED	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	ECU swap (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 + lights, 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
	<i>Control stick AFT and HOLD</i>		
	<i>Power levers..... MAX</i>		
	<i>Check backstop limit decreasing</i>		
	<i>Power levers.....IDLE</i>		
	<i>Check backstop limit increasing</i>		
32	Flaps.....	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	MFD.....	EIS – 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.....	EIS – SYSTEM	42
43	* DEIC PRESS LO caution	CHECKED ON	43
44	* De-ice ANNUN TEST	OFF	44
45	Start key	INSERTED	45
46	Power levers (2).....	IDLE	46
47	ACL (strobe)	ON	47

End of Checklist

ENGINE START PROCEDURE**Normal sequence: first start LH engine**

Propeller area CLEAR
Engine Master..... ON
Annunciations / Eng.Instr. CHECKED
Glow indication OFF
Start key....START, do not release below 500 RPM
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**CHECK AFTER ENGINE START**

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

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)

8	FMS setup	COMPLETED	8
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AUTOPILOT TEST*DISCONN* press, check electric trim not working*AP ON*, check overpowering servos*DISCONN* press, check AP off

9	Autopilot test	COMPLETED	9
10	Flood light	CHECKED, ON as required	10
11	Position lights.....	ON as required	11
12	Fuel Selectors (2)	ON	12
13	Altimeters (3)	SET	13
14	Standby horizon	CHECKED	14
15	Transponder	CODE / MODE CHECKED	15
16	Parking brake.....	RELEASED	16

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	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	MFD.....	EIS - DEFAULT	22
23	Parking brake.....	RELEASED	23

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
 Maximum fuel unbalance: 5 USG

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	Rudder trim.....	AS REQUIRED	7
8	Gear warning + lights.....	TEST	8

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
3	Ruder trim.....	NEUTRAL	3

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..... | CHECK not activated | 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.
 Cover the pitot probe.
 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 _{SSE})	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
Approach V _{REF} Flaps UP	85	86
Approach V _{REF} Flaps APP	82	82
Approach V _{REF} 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

		Increased		
		LM	ZFM	LM + ZFM
Max. TKOF mass	1785 kg			
Max. ZF mass	1650 kg		1674 kg	1730 kg
Max. LDG mass	1700 kg	1785 kg		1785 kg
Empty mass	1295 kg			
Max. baggage in NOSE	30 kg			
Max. baggage in COCKPIT	45 kg			
Max. baggage in rear EXTENSION	18 kg			
Max. total of COCKPIT + EXTENSION	45 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.



2 engines out landingpage 2

G1000 Warningspage 3

Engine

Engine failure during take-off.....page 7

Engine failure, engine shutdown in flightpage 7

Engine troubleshootingpage 8

Engine restart.....page 9

Oscillating RPM page 10

RPM overspeed page 10

Landing Gear

Landing with defective main gear tire..... page 10

Landing with defective brakes page 10

Landing gear unsafe warning page 11

Manual extension of landing gear page 11

Landing gear up landing..... page 11

Smoke and fire

Engine fire on ground or during take-off.....page 6

Engine fire in flight.....page 6

Electrical fire on ground page 12

Electrical fire in flight.....page 12

If Oxygen System is installed

Cabin smoke, cabin fire, above 10.000 ft... page 13

Oxygen pressure loss above 10.000 ft..... page 13

Other Emergencies

Emergency descent page 13

*Unintentional flight into icing, Inadvertent icing
 encounter & excessive ice accumulation* page 14

Ice protection failure page 14

Suspicion of carbon monoxide..... page 14

Electrical System

Complete electrical failure page 12

ENGINES OUT LANDING

- | | | | |
|---|--------------------------|--------------------|---|
| 1 | Mayday call | CONSIDER | 1 |
| 2 | Engine masters (2) | OFF | 2 |
| 3 | Alternators (2) | OFF | 3 |
| 4 | Fuel selectors (2) | OFF | 4 |
| 5 | Avionic master | OFF | 5 |
| 6 | Safety harnesses..... | FASTENED and TIGHT | 6 |

When sure of making landing area:

- | | | | |
|---|-----------------------|--------------------------|---|
| 7 | Flaps | APP or LDG, as required | 7 |
| 8 | Approach speed | min (APP)82/(LDG)78 KIAS | 8 |
| 9 | Power levers (2)..... | IDLE | 9 |

❖ → Gear UP landing

After touchdown:

- | | | | |
|----|----------------------|-----|----|
| 10 | Electric master..... | OFF | 10 |
|----|----------------------|-----|----|

❖ → Gear DOWN landing

- | | | | |
|----|----------------------|------------------------|----|
| 10 | Gear | DOWN, 3 GREENS CHECKED | 10 |
| 11 | Electric master..... | OFF | 11 |

G1000 WARNINGS

L/R ALTN AMPS	Pg. 3	High Current (red range)
L/R OIL PRES	Pg. 3	Oil pressure low (red range)
L/R OIL TEMP	Pg. 3	Oil temperature high (red range)
L/R GBOX TEMP	Pg. 4	Gearbox temperature high (red range)
L/R ENG TEMP	Pg. 4	Coolant temperature high (red range)
L/R FUEL TEMP	Pg. 4	Fuel temperature high (red range)
L/R FUEL PRES	Pg. 5	Fuel pressure low
L/R STARTER	Pg. 5	Starter not disengaging
DOOR OPEN	Pg. 5	Unlocked doors
L/R ENG FIRE	Pg. 6	Engine fire on ground, during take-off, in flight

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

Abnormal Checklist starts at page 15

L/R ALTN AMPS**HIGH CURRENT**

- Check circuit breakers
- Reduce electrical load and land at nearest suitable airfield

L/R OIL PRES**OIL PRESSURE LOW**

- Reduce power on affected engine
- Be prepared for loss of oil and an engine failure; land at nearest suitable airfield

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 at nearest suitable airfield

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

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

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 required
 - ⇒ 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 at nearest suitable airfield
 - ❖ 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 at nearest suitable airfield

L/R STARTER**STARTER NOT DISENGAGING**❖→ **On ground:**

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

❖→ **In flight:**

- ⇒ Pull **LDG LT/START CB** (RH Main Bus; push again when LDG light needed)
- ⇒ Watch engine cowling and instruments
- ⇒ Land at nearest suitable airfield

DOOR OPEN**UNLOCKED DOORS**

- Reduce airspeed immediately
- Check canopy visually
 - If open:
 - ⇒ airspeed below 140 KIAS, land at nearest suitable airfield
- Check rear door visually
 - If open:
 - ⇒ airspeed below 140 KIAS, land at nearest suitable airfield
 - ⇒ do not try to lock door in flight
- Check front baggage doors visually
 - If one or both open:
 - ⇒ reduce airspeed to keep door(s) in stable position, land at nearest suitable airfield

G1000 WARNING**L/R ENG FIRE****OR ENGINE FIRE OBSERVED**❖→ **On ground:**

- | | | | |
|---|--------------------------|----------|---|
| 1 | Engine masters (2) | OFF | 1 |
| 2 | Fuel selectors (2) | OFF | 2 |
| 3 | Mayday call | CONSIDER | 3 |
| 4 | Electric master | OFF | 4 |

When engine and aircraft stopped:

- | | | | |
|---|--------------|------|---|
| 5 | Canopy | OPEN | 5 |
|---|--------------|------|---|

Evacuate

❖→ **During Take-off**

- | | | | |
|---|-----------------------------|------|---|
| 1 | Cabin heat & defrost | OFF | 1 |
| 2 | Emergency windows (2) | OPEN | 2 |
| 3 | Proceed according | | |

ENGINE FAILURE DURING TAKE-OFF → page 7... 3**G1000 WARNING****L/R ENG FIRE**● **In flight:**

- ⇒ Evaluate the situation
 - If Engine Fire observed:
 - ⇒ Proceed according

ENGINE FIRE IN FLIGHT → page 7

ENGINE FAILURE DURING TAKE-OFF**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 |

**ENGINE FAILURE DURING FLIGHT
AND ENGINE SHUTDOWN****If airspeed below Vmca:**

Perform Vmc recovery procedure

Airspeed above Vmca:

- | | | | |
|---|---------------------------------------|----------------------|---|
| 1 | Power | INCREASE up to MAX | 1 |
| 2 | Airspeed..... | min BLUE LINE | 2 |
| 3 | Landing gear | UP | 3 |
| 4 | Flaps | UP | 4 |
| 5 | Power lever (affected engine).. | REDUCE TO VERIFY | 5 |
| 6 | Engine Master (affected engine) | OFF | 6 |
| | Above safe altitude | | |
| 7 | Power (life engine) | up to MAX CONTINUOUS | 7 |
| 8 | Alternator (dead engine) | OFF | 8 |
| 9 | Fuel selector (dead engine)..... | OFF | 9 |

ENGINE FIRE IN FLIGHT

- | | | | |
|---|--------------------------------|----------------------|---|
| 1 | Cabin heat & defrost | OFF | 1 |
| 2 | Canopy | UNLATCH if necessary | 2 |
| | <i>Max airspeed 120 KIAS</i> | | |
| 3 | Shut down the engine according | | |

↑ **ENGINE SHUT DOWN**-procedure ↑

ENGINE TROUBLESHOOTING

- | | | |
|---|--|-----------------|
| 1 | Power lever (good engine). INCREASE up to MAX | 1 |
| 2 | Power lever (affected engine)..... | IDLE 2 |
| | ● If in icing conditions: | |
| 3 | Alternate air | OPEN 3 |
| 4 | Fuel quantity | CHECK 4 |
| 5 | AUX transfer (affected engine) | CONSIDER 5 |
| 6 | Fuel selector (affected engine) | ON or X-FEED 6 |
| 7 | ECU swap (affected engine) | ECU B 7 |
| | ✦→ If successful: land ASAP | |
| | ✦→ If unsuccessful: | |
| 8 | ECU swap (affected engine) | AUTO 8 |
| 9 | Circuit breakers..... | CHECK / RESET 9 |
| | ✦→ If successful: land ASAP | |
| | ✦→ If unsuccessful: | |
| | continue with ENGINE FAILURE IN FLIGHT checklist | |

Wording and figures in italic print are for the TAE 125-01 engine.

ENGINE RESTART

Engine restart is possible up to 8000 (6000) ft pressure altitude

- | | | | |
|---|---------------------------------------|----------------------|----------|
| 1 | Airspeed | | |
| | For starter assisted restart: | below 90 KIAS | 1 |
| | For windmilling restart: | 125 – 145 KIAS | 1 |
| | <i>For TAE 125-01 engine</i> | <i>80 – 120 KIAS</i> | <i>1</i> |
| 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 |

For starter assisted restart:

- | | | | |
|---|---------------------------------|--------|---|
| 7 | Starter | ENGAGE | 7 |
| | until 500 RPM or prop windmills | | |

For TAE 125-01 engine: do not engage starter if prop windmills

❖ If engine started:

- | | | | |
|----|-------------------------------|-------------------|----|
| 8 | Power (affected engine) | MODERATE | 8 |
| 9 | Engine instruments | check GREEN RANGE | 9 |
| 10 | Circuit breakers | CHECKED | 10 |

❖ If engine did not start (re-feathering procedure):

One attempt only, expect altitude loss of up to 800 (500) ft

- | | | | |
|----|---------------------------------------|------------------------------|----|
| 8 | Airspeed | 82 KIAS | 8 |
| 9 | Power lever (affected engine) | MAX | 9 |
| 10 | Engine Master (affected engine) | CHECK ON | 10 |
| 11 | Airspeed | INCREASE to achieve 1800 RPM | 11 |
| 12 | Engine Master (affected engine) | OFF | 12 |
| 13 | Airspeed | REDUCE to 82 KIAS | 13 |
| 14 | Propeller | CHECK FEATHERED | 14 |
| 15 | Alternator (dead engine) | OFF | 15 |
| 16 | Fuel selector (dead engine) | OFF | 16 |

OSCILLATING RPM

- | | | | |
|----|-----------------------------------|----------------|---|
| 17 | Power lever | change setting | 1 |
| | ● If no success: | | |
| 18 | ECU swap | ECU B | 2 |
| | ● If no success: | | |
| 19 | ECU swap | AUTO | 3 |
| | Land at nearest suitable airfield | | |

RPM OVERSPEED

- | | | | |
|----|--|--------|---|
| 20 | Power setting | REDUCE | 1 |
| | ● If no success: | | |
| 21 | ECU swap | ECU B | 2 |
| | ● If no success: | | |
| 22 | ECU swap | AUTO | 3 |
| | Land at nearest suitable airfield | | |
| | 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):

- | | | | |
|----|--------------------------|-----|---|
| 23 | Engine Masters (2) | OFF | 1 |
| 24 | Fuel selectors (2) | OFF | 2 |
| 25 | 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 lights | TEST | 2 |
| 3 | Electric master..... | CHECK ON | 3 |
| 4 | Bus voltage | CHECK NORMAL | 4 |
| 5 | Circuit breaker | CHECK | 5 |
| 6 | Gear selector | DOWN | 6 |
| 7 | Manual extension handle | PULL | 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 | Approach | NORMAL | 1 |
| | If time/situation allows: just before touchdown: | | |
| 2 | Power lever | IDLE | 2 |
| 3 | Engine Masters (2) | OFF | 3 |
| 4 | Fuel selectors (2) | OFF | 4 |
| | Immediately after touchdown: | | |
| 5 | Electric Master | OFF | 5 |

ELECTRICAL FIRE ON GROUND

- | | | | |
|---|-----------------------------------|----------|---|
| 1 | Mayday call | CONSIDER | 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 call | CONSIDER | 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 at nearest suitable airfield | | |

COMPLETE ELECTRICAL FAILURE

* Leave icing area

- | | | | |
|---|--|-----------------|---|
| 1 | Circuit breakers..... | CHECK all IN | 1 |
| | ● If no success: | | |
| 2 | Emergency switch | ON | 2 |
| 3 | Flood light, if necessary..... | ON | 3 |
| 4 | Power | SET | 4 |
| | according power lever position and/or engine noise | | |
| 5 | Flaps | VERIFY POSITION | 5 |
| | Land at nearest suitable airfield | | |
| | Landing gear may slowly extend | | |
| | For landing apply "Manual extension of landing gear" | | |

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 at nearest suitable airfield

CABIN FIRE ABOVE 10.000 FT

- 1 Oxygen PUSH OFF 1
- 2 Emergency descent INTITIATE 2
Land at nearest suitable airfield

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 at nearest suitable airfield

EMERGENCY DESCENT

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

If Oxygen System is installed

If Oxygen System is installed

UNINTENTIONAL FLIGHT INTO ICING

Leave icing area, continue with item 1

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

- 1 Pitot heatON 1
- 2 Cabin heat & defrostON 2
- 3 Power INCREASE PERIODICALLY 3
- 4 * De-ice systems USE as appropriate 4
- 5 Alternate airOPEN as required 5
- 6 Emergency windowsOPEN as required 6
 - When pitot heat fails:
- 7 Alternate static valve OPEN 7
- 8 Emergency windows CLOSED 8
 - * When de-ice system does not work properly:
Continue with ICE PROTECTION FAILURE

*** ICE PROTECTION FAILURE**

- 1 Airspeedmin 121 KIAS until final 1
- 2 Flaps UP 2
- 3 Slip angle MINIMIZE 3
- 4 Approach with residual ice 91 KIAS 4
- 5 Landing distancex1,4 5

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 CanopyUNLATCH 5
Push up and lock in cooling gap position

G1000 CAUTION LIGHTS

L/R ECU A FAIL	Page 16	ECU A failed
L/R ECU B FAIL	Page 16	ECU B failed
L/R VOLTS LOW	Page 16	Bus voltage too low
L/R ALTN FAIL	Page 16	Alternator failed
L+R ALTN FAIL	Page 17	Both Alternators failed
L/R COOL LVL	Page 17	Engine coolant level low
PITOT FAIL	Page 17	Pitot heating system failed
PITOT HT OFF	Page 17	Pitot heating system OFF
STALL HT FAIL	Page 17	Stall warning heating failed
STALL HT OFF	Page 17	Stall warning heating OFF
L/R FUEL LOW	Page 17	Main tank fuel qty low
L/R AUX FUEL E	Page 17	L/R auxiliary fuel tank empty
STICK LIMIT	Page 18	Stick limiting system failed
DEICE LVL LO	Page 18	De-icing fluid level low
DEIC PRES LO	Page 18	De-icing pressure low
DEIC PRES HI	Page 18	De-icing pressure high

Engine instrument indications outside of green range

COOLANT temperature high/low	page 19
OIL temperature high/low.....	page 19
OIL pressure high/low.....	page 19
FUEL temperature high/low.....	page 19
VOLT low.....	page 20
RPM high.....	page 20

Other abnormal situations

Both alternators failed.....	page 20
Hydraulic pump fail or continuous ops...	page 20
AUX fuel transfer fail	page 20

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 at nearest suitable airfield
 - ❖ 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 at nearest suitable airfield
 - ❖ If ECU B caution message can be reset
 - ⇒ Continue flight. Engine must be serviced after LDG

L/R VOLTS LOW BUS VOLTAGE TOO LOW

Remark: possible reasons are
- fault in the electrical power supply
- Alternators OFF

- Continue with "Engine instrument indications outside of green range"
- VOLTS low, page 20

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 20

L ALTN FAIL +**BOTH ALTERNATORS FAILED****R ALTN FAIL**

Reduce all electrical equipment to a minimum:

- 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

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
 - ⇒ alternate static valve: OPEN
- leave area with icing conditions (see **Emergency Checklist page 14** "Unintentional flight into icing")

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} 79/82 KIAS

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

- Maximum duration of ice protection in NORMAL mode: 30 min, in HIGH mode: 15 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 14** 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 4**, "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 3**, "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 at nearest suitable airfield

OIL pressure low

- Refer to **Emergency Checklist page 3**, "L/R OIL PRES"

FUEL temperature high

- Refer to **Emergency Checklist page 4**, "L/R FUEL TEMP"

FUEL temperature low (JET Fuel operation)

- Monitor fuel temperature
 - If fuel temperature decreases to **red range** (< 30°C):
 - ⇒ Increase power on affected engine
 - ⇒ Reduce airspeed
 - If not returning to yellow range:
 - ⇒ Land at nearest suitable airfield

FUEL temperature low (Diesel Fuel operation)

- Increase power on affected engine
- Reduce airspeed
 - If not returning to green range:
 - ⇒ Land at nearest suitable airfield

VOLTS low

- ❖→ On ground:
 - ⇒ Check alternators ON
 - ⇒ Check circuit breakers
 - If LOW VOLTS CAUTION still indicated on the G1000:
 - ⇒ Discontinue operation; terminate flight preparation

- ❖ In flight:
 - ⇒ Check alternators ON
 - ⇒ 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 16

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 10** "RPM overspeed"
 - ⇒ Land at nearest suitable airfield

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 x-fer pumps OFF
- Check fuel quantity
- Use X-feed to keep main tank fuel unbalance within 1 USG
- Switch remaining x-fer 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 Initialization – AUX 4 page
Recommended and compulsory settings**

TIME FORMAT	UTC
NAV ANGLE	AUTO
DIS. SPD	NAUTICAL
ALT. VS	FEET
TEMP	CELSIUS
FUEL, FF	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 TRK
GPS CDI	
SELECTED	AUTO
COM CHANNEL SPACING	25,0 KHZ OR 8,33 KHZ
NEAREST APT	
RWY SURFACE	As desired
MIN LENGHT	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

**#1 REASON GA AIRCRAFT ARE INTERCEPTED:
Entering restricted airspace and not talking to ATC**

NORAD / FAA / ICAO INTERCEPT PROCEDURES

Intercept Procedures

- Typically two fighters approach from the stern -- you may only see one
- Fighter rocks wings to signal intercept
- Fighter responsible for safe separation



Your Actions

- Remain predictable – Altitude, heading, airspeed, don't descend
- Acknowledge fighter with wing rock
- Talk to ATC
- Talk to fighter on 121.5

Post Intercept

- Comply with instructions
- Land where directed

DAY INTERCEPT SIGNALS

Interceptor Signals	Meaning
Fighter slow turn to desired heading	FLY THIS WAY
Fighter abrupt turn across nose to desired heading and may dispense flares	WARNING: TURN NOW (DIRECTION OF FIGHTER)
Fighter circles airport, lowers landing gear, overflies runway in direction of landing	LAND HERE

NIGHT INTERCEPT SIGNALS

Interceptor Signals	Meaning	Your Signal	Meaning
Flash navigation lights	You have been intercepted	Flash navigation lights	I will comply
Turn on landing lights	Land here	Turn on landing light	I will land
		Flash landing light	Airport inadequate
		Flash all lights regular	Can not comply
		Flash all lights irregular	Distress