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 (or any higher) is valid	Date
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
4	18	15.12.2017
5	18	15.12.2017
6	18	15.12.2017
7	18	15.12.2017
8	18	15.12.2017
9	18	15.12.2017
10	18	15.12.2017
11	18	15.12.2017
12	18	15.12.2017
13	18	15.12.2017
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

Control stick ..... AFT and HOLD
Power levers..... MAX
Check backstop limit decreasing
Power levers.....IDLE
Check backstop limit increasing

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

Warm up:
Idle ..... 2 minutes
Max 1400RPM ..... until Oil > 50°C and Coolant > 60°C

4	Fuel selectors (2)..... X-FEED	4
5	Pitot heat ....ON, 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

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

***F**uel **R**adio **E**ngine **D**irection **A**ltitude*

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_{S0}) 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.

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
	Max airspeed 120 KIAS		
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
For TAE 125-01 engine .....80 – 120 KIAS 1
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”

If Oxygen System is installed

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

If Oxygen System is installed

EMERGENCY DESCENT

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

UNINTENTIONAL FLIGHT INTO ICING

Leave icing area, continue with item 1

* INADVERTENT ICING ENCOUNTER & EXCESSIVE ICE ACCUMULATION

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

- When 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	Airspeed	min 121 KIAS until final	1
2	Flaps	UP	2
3	Slip angle	MINIMIZE	3
4	Approach with residual ice	91 KIAS	4
5	Landing distance	x1,4	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	Canopy	UNLATCH	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

Other abnormal situations

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 + R ALTN FAIL

BOTH ALTERNATORS FAILED

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 / PITOT HT OFF

- check pitot heat ON, if in icing conditions
  - ⇒ expect failure of the pitot-static-system
  - ⇒ alternate static valve: OPEN

STALL HT FAIL / STALL HT OFF

- ⇒ expect loss of aural stall warning

- 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 indicaton
    - ⇒ 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 FLUIS 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 faiure;
      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 Intitialization – 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
Flash navigation lights	You have been intercepted
Turn on landing lights	Land here

Your Signal	Meaning
Flash navigation lights	I will comply
Turn on landing light	I will land
Flash landing light	Airport inadequate
Flash all lights regular	Can not comply
Flash all lights irregular	Distress