Diamond AIRCRAFT

Flight Training Division

Checklist for Diamond DA42 NG

Edition #: **16.1a NG** Edition date: **01.02.2013**

(Editorial corrections only)

Please observe:

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

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

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

Note:

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

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

Have a lot of nice flights and happy landings!
Peter Schmidleitner

Comments explaining Edition # 16.1a are on page 2 of this document

Checklist DA42 NG - LEP

Page	Following Edition (or any higher) is valid	Date
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16	16.1a	01.02.2013
17	15.2	15.12.2011
18	16	01.12.2012
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Comments explaining Edition # 16

General:

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

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

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

Comments explaining Edition # 16.1

Normal Checklist:

Page 8:
Alternate air added in After Take-off Procedure and Climb to Cruise Check

Page 9:
After Landing Check: sequence of items changed according AFM procedure

Emergency Procedures

Page 13:
"Unintentional flight into icing": use of Alternate air revised

Abnormal Procedures:

Page 15:
"ECU FAIL" procedure revised

Comments explaining Edition # 16.1a

(Editorial corrections only)

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 fuel 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 or loose 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 **AUX PUMPS (2) ON – if L/R AUX FUEL E caution ON:
AUX tank(s) empty
AUX PUMPS (2) OFF
11 External lights ON
12 Pitot heat ON
13 * Check de-ice fluid quantity
14 * Select de-ice pump 1
15 * De-ice HIGH/MAX
16 * Check DEIC PRES LO+HI out
17 * Select de-ice pump 2
18 * Check DEIC PRES LO+HI out
19 * Ice lights ON
20 * Check de-ice function
21 Check external lights
22 Check stall warning
23 Check pitot tube heat
24 Pitot heat OFF
25 External lights OFF
26 * De-ice, ice lights OFF
27 Electric Master OFF

PREFLIGHT EXTERIOR

Canopy left side

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

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

Left wing
Vortex generators
Wing leading edge, top- and bottom surface
Tank drain
Stall warning
Tank air vent
Fuel filler cap
Pitot 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
Cabin air vent inlet
Vortex generators

Canopy right side

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

Ventilation air inlet

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

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

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

Chocks removed
Tow bar removed

CHECK BEFORE ENGINE START

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

If starting with external power:

a	Prop area	CHECK CLEAR	a
b	External power	CONNECT	b

22	Electric master	ON	22
23	Rudder pedals	ADJUSTED	23
24	Flight controls	CHECKED	24
25	Trims	CHECKED	25
26	Gear warning + 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 stop	CHECK	31

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

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

CHECK AFTER ENGINE START

1	Oil pressure	CHECKED	1
2	RPM 740 +/- 30	CHECKED	2
3	Fuel pumps (2)	check OFF	3
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 annunciations and FD
DISCONN press, check AP off
GA button press, check FD commands climb

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 (2)	SET	13
14	Standby horizon	CHECKED	14
15	Transponder	CODE / MODE CHECKED	15
16	Engine temperatures	CHECKED	16
17	Parking brake	RELEASED	17

Max power 50% until engine temperatures in green range

End of Checklist

DURING TAXI

Check Brakes
Check nose wheel steering
Check flight instruments

BEFORE TAKE OFF CHECK

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

Engine temperatures must be in green range before performing ECU test. (For gearbox min.38° recommended). For warm up max power 50%.

17	VOTER switches (2)	A, AUTO, B, AUTO	17

ECU TEST

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

18	ECU test (2)	PERFORMED	18
19	Pitot heat	AS REQUIRED	19
20	* Ice protection	AS REQUIRED	20
21	Transponder	CODE / MODE CHECKED	21
22	Fuel pumps (2)	ON	22
23	MFD	EIS – DEFAULT	23
24	Parking brake	RELEASED	24

End of Checklist

LINE UP PROCEDURE

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

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

AFTER TAKE-OFF PROCEDURE

Brakes ..... APPLY
Gear ..... UP
Alternate air: OPEN in rain, snow, visible moisture
At safe altitude: Flaps ..... UP
Fuel pumps (2) ..... OFF
Climb power 92%
Landing light ..... OFF

CLIMB TO CRUISE CHECK

1	Gear	CHECKED UP	1
2	Flaps	CHECKED UP	2
3	Fuel pumps (2)	CHECKED OFF	3
4	Climb power	SET	4
5	Alternate air	AS REQUIRED	5
6	Landing light	CHECKED OFF	6

End of Checklist

Maximum fuel unbalance: 5 USG

DESCENT / APPROACH CHECK

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

End of Checklist

BEFORE LANDING PROCEDURE

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

On final when landing assured:

FINAL CHECK

1	Flaps	LDG	1
2	Gear	3 GREENS CHECKED	2

GO AROUND PROCEDURE

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

AFTER LANDING CHECK

When clear of runway

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

End of Checklist

PARKING CHECK

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

When engine indications x-ed out red:

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

End of Checklist

SECURING THE AIRCRAFT

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

	"NG"	"Dash-6"	"NG"	"Dash-6"
STALLING SPEEDS KIAS for MTOM 1900 kg				
(V_{S0}) Flaps LDG, gear down	62	62		
(V_S) Flaps APP, gear down	66	65		
(V_S) clean, gear up	69	68		
In Ice: + 4-6 KIAS				
OPERATING SPEEDS KIAS for MTOM 1900 kg				
Min. control speed Flaps UP	76	71	**Short field TKOF with flaps APP**	
(V_{MCA}) Flaps APP	73	68		
Rotation speed	80	76	76	71
Best angle of climb (V_X)	--	--	82	77
Best rate of climb (V_Y)	90		85	
Best rate of climb 1-eng. (V_{YSE})	85			
Operating speed in ice	118 - 156			
Max. flap speed (V_{FE}) Flaps APP	133			
Max. flap speed (V_{FE}) Flaps LDG	113			
Max. LG extension (V_{LOE})	188			
Max. LG extended (V_{LE})	188			
Max. LG retraction (V_{LOR})	152			
Approach V_{REF} Flaps UP	86 in ice: 94			
Approach V_{REF} Flaps APP	84 in ice: 90			
Approach V_{REF} Flaps LDG	84 in ice: prohib.			
Min. Go-around speed Flaps UP	90			
Max. cruising speed (V_{NO})	151			
Never exceed speed (V_{NE})	188			

up to	1700 kg	1800 kg	1900 kg
Manoeuvring speed (V_O)	112	119	122

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

Available Power Check:

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

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

EMERGENCY + ABNORMAL CHECKLIST

For conditions to use this Emergency + Abnormal Checklist see page 1 of the Normal Checklist.

All such conditions are fully applicable also for this checklist.

ENGINES OUT LANDING

1	Mayday call	CONSIDER	1
2	Engine masters (2)	OFF	2
3	Alternators (2)	OFF	3
4	Fuel pumps (2)	OFF	4
5	Fuel selectors (2)	OFF	5
6	Avionic master	OFF	6
7	Safety harnesses	FASTENED and TIGHT	7

When sure of making landing area:

8	Flaps	APP or LDG, as required	8
9	Approach speed	min 84 KIAS	9
10	Power levers (2)	IDLE	10

❖→ Gear UP landing

After touchdown:

11	Electric master	OFF	11

❖ Gear DOWN landing

11	Gear	DOWN, 3 GREENS CHECKED	11
12	Electric master	OFF	12

G1000 WARNINGS

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 ALTN AMPS	Pg. 5	High Current (red range)
L/R STARTER	Pg. 5	Starter not disengaging
DOOR OPEN	Pg. 5	Unlocked doors
L/R ENG FIRE	Pg. 6 Pg. 6 Pg. 11	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 14

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 rqrd
      - ⇒ 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 FUEL PRES

FUEL PRESSURE LOW

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

L/R ALTN AMPS

HIGH CURRENT

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

L/R STARTER

STARTER NOT DISENGAGING

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

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**

ENGINE FAILURE
ENGINE FIRE

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
	In case of fire:		
7	Cabin heat & defrost	OFF	7

ENGINE FAILURE
ENGINE FIRE

IN FLIGHT

If airspeed below 76 KIAS:

Perform Vmca recovery procedure

Airspeed above 76 KIAS:

1	Power	INCREASE up to MAX	1
2	Airspeed	min Vyse 85 KIAS	2
3	Landing gear	UP	3
4	Flaps	UP	4
5	Power lever (affected engine)	IDLE	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 pump (dead engine)	OFF	9
10	Fuel selector (dead engine)	OFF	10
	In case of fire:		
11	Cabin heat & defrost	OFF	11
12	Canopy	UNLATCH if necessary	12

Max airspeed 117 KIAS

ENGINE TROUBLESHOOTING

If

L OR **R**

ECU A AND **B FAIL**

simultaneously

and ALL of the following conditions exist:

- **indicated LOAD unchanged**
- **perceived thrust is reduced**
- **engine noise level changes or engine running rough**

1 POWER lever ..... IDLE for 1 second 1
2 POWER lever ..... slowly increase to 1975 RPM 2
- If engine shows power loss during the POWER lever increase

3 POWER lever .....idle for 1 second 3
4 POWER lever .....slowly increase 4
stop prior to the RPM where former engine power loss was observed

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

5 Land at nearest suitable airfield..... 5

End of Checklist

Otherwise:

1 Power lever (good engine). INCREASE up to MAX 1
2 Circuit breakers..... CHECK/RESET 2
- If engine OK: continue, land ASAP End of Checklist

3 VOTER switch ..... SWAP between A and B 3
- If engine OK: continue, land ASAP End of Checklist

4 VOTER switch .....AUTO 4
- If engine OK: continue, land ASAP End of Checklist

5 Fuel pump (affected engine) .....CHECK OFF 5
6 Fuel selector (affected engine) .....CROSSFEED 6
- If engine OK: continue, End of Checklist

7 Fuel selector (affected engine)ON or CROSSFEED 7
8 Alternate air .....OPEN 8
- If engine OK: land as soon as practicable End of Checklist
- If engine still not OK: Be prepared for ENGINE FAILURE IN FLIGHT, land ASAP End of Checklist

ENGINE RESTART

Reason for shutdown must be ascertained

Maximum restart altitude:
18.000 ft PA for immediate restart
10.000 ft PA for restart within 2 minutes
NO restart:
If engine shut down for more than 2 minutes

Windmilling restart
Airspeed ..... min 125 KIAS - max 145 KIAS
Restart with starter motor:
Airspeed .....max 100 KIAS
or prop stationary, whichever is lower

1 Power (affected engine) ..... IDLE 1
2 Fuel selector (affected engine) .....ON 2
3 Alternate air ..... AS REQUIRED 3
4 Alternator (affected engine).....ON 4
5 Engine Master (affected engine) .....ON 5

For restart with starter motor:
6 Starter.....ENGAGE when prop stationary 6
7 Circuit breakers.....CHECK/RESET if necessary 7

If engine started:
8 Power (affected engine) ..... MODERATE 8
9 Engine instruments.....check GREEN RANGE 9

OSCILLATING RPM

1 Power lever ..... change setting 1
- If no success:

Check G1000 for ECU FAIL caution
- If ECU FAIL caution indicated:

2 VOTER switch .....unaffected ECU 2
- If no success:

3 VOTER switch ..... AUTO 3

Land at nearest suitable airfield

RPM OVERSPEED

1 Power setting..... REDUCE 1
- If no success:

Check G1000 for ECU FAIL caution
- If ECU FAIL caution indicated:

2 VOTER switch .....unaffected ECU 2
- If no success:

3 VOTER switch ..... AUTO 3

Land 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):

1 Engine Masters (2) ..... OFF 1

2 Fuel selectors (2) ..... OFF 2

3 Electric Master ..... OFF 3

LANDING GEAR UNSAFE WARNING

If on for more than 20 seconds:

1 Airspeed.....max 152 KIAS 1

In cold temperature:

2 Airspeed.....max 110 KIAS 2

3 Gear selector ..... RECYCLE 3

❖→ If landing gear **extension** unsuccessful:

Continue with MANUAL EXTENSION

❖ If landing gear **retraction** unsuccessful:

Consider flight with landing gear down

MANUAL EXTENSION OF LANDING GEAR

1 Airspeed.....max 152 KIAS 1

2 Gear indicator 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 pumps..... OFF 4

5 Fuel selectors (2) ..... OFF 5

Immediately after touchdown:

6 Electric Master ..... OFF 6

ENGINE FIRE ON GROUND

1	Power levers (2)	IDLE	1
2	Engine masters (2)	OFF	2
3	Fuel selectors (2)	OFF	3
4	Mayday call	CONSIDER	4
5	Electric master	OFF	5

When engine and aircraft stopped:

6	Canopy	OPEN	6

Evacuate

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 117 KIAS

Land at nearest suitable airfield

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

4	Oxygen	PUSH OFF	1
5	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

SUSPICION OF CARBON MONOXIDE

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

Push up and lock in cooling gap position

UNINTENTIONAL FLIGHT INTO ICING

Leave icing area, continue with item 1

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

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

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

* ICE PROTECTION FAILURE

1	Airspeed	MIN 118 KIAS	1
2	Flaps	limited to APP position	2
3	Slip angle	MINIMIZE	3
4	Approach with residual ice	90 KIAS	4
5	Landing distance	CHECK AFM	5

COMPLETE ELECTRICAL FAILURE

* Leave icing area

1	Circuit breakers	CHECK all IN	1

- If no success:

2	Emergency switch	ON	2
3	Flood light, if necessary	ON	3
4	Power	SET according power lever position and/or engine noise	4
5	Flaps	VERIFY POSITION	5

Land at nearest suitable airfield
Landing gear may slowly extend
For landing apply "Manual extension of landing gear"

G1000 CAUTION LIGHTS

L/R ECU A FAIL	Page 15	**ECU A failed**
L/R ECU B FAIL	Page 15	**ECU B failed**
L/R ALTN FAIL	Page 15	**Alternator failed**
L/R VOLTS LOW	Page 15	**Bus voltage too low**
L/R COOL LVL	Page 16	**Engine coolant level low**
PITOT FAIL	Page 16	**Pitot heating system failed**
PITOT HT OFF	Page 16	**Pitot heating system OFF**
STALL HT FAIL	Page 16	**Stall warning heating failed**
STALL HT OFF	Page 16	**Stall warning heating OFF**
L/R FUEL LOW	Page 16	**Main tank fuel qty low**
L/R AUX FUEL E	Page 16	**L/R auxiliary fuel tank empty**
STICK LIMIT	Page 16	**Stick limiting system failed**
DEICE LVL LO	Page 17	**De-icing fluid level low**
DEIC PRES LO	Page 17	**De-icing pressure low**
DEIC PRES HI	Page 17	**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 or B FAIL DURING FLIGHT

Remark: in case of ECU A or B fail the system automatically switches to the other ECU (B or A)

- Alternate Air: OPEN
- Fuel pumps L/R: ON
- Circuit breakers: CHECK, RESET if necessary
- Verify VOTER switch in position AUTO
  - If ECU caution remains:
    - ⇒ Land at nearest suitable airfield
  - If additional engine problems are observed:
    - ⇒ Go to Emergency Checklist page 7 ENGINE TROUBLESHOOTING

L OR R ECU A FAIL and ECU B FAIL SIMULTANEOUSLY

- Go to Emergency Checklist page 7 ENGINE TROUBLESHOOTING

L/R ALTN FAIL

ALTERNATOR FAILED

- If in icing conditions:
  - ⇒ Leave icing area as soon as practicable
- Alternator on affected side OFF
- Monitor bus voltage
- Reduce electrical consumers
  - If both alternators failed:
    - ⇒ See Abnormal Checklist "Both Alternators failed", page 19

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 19

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

STALL HT FAIL / STALL HT OFF

- check pitot heat ON, if in icing conditions
  - ⇒ expect failure of the pitot-static-system
  - ⇒ expect loss of aural stall warning
- leave area with icing conditions (see Emergency Checklist page 13 "Unintentional flight into icing")

L/R FUEL LOW

MAIN TANK FUEL QTY LOW

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

L/R AUX FUEL E

AUXILIARY FUEL TANK EMPTY

- ⇒ L/R auxiliary fuel pump OFF

STICK LIMIT

VARIABLE ELEVATOR STOP SYSTEM FAILED

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

DEICE LVL LO

DE-ICING FLUIS 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 13 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
- Check coolant temperature
  - ❖→If temperatures within green range
    - ⇒ Oil pressure indication may be faulty; watch temperatures
  - ❖ If temperatures outside of green range
    - ⇒ Reduce power on affected engine;
    - ⇒ Land at nearest suitable airfield, be prepared for engine fail

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

- Increase power on affected engine
- Reduce airspeed
  - If not returning to green range:
    - ⇒ Be prepared for an engine faiure; 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 15

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

FMS Intitialization – AUX 4 page
Recommended and compulsory settings

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

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

Compulsory:

ARINC 424 Distance Coding:

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