Checklist für Diamond DA40-180 G1000 (Lycoming)

Edition #: 17 Edition date: 01.03.2015

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 # 17 are on page 2 of this document

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<th>Page</th>
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Comments explaining Edition # 15.1

Adjustable backrests added

Comments explaining Edition # 17

Preflight Procedures:

Page 2:
Parking brake, chocks and towbar added

Normal Procedures:

Page 4:
Autopilot test: added FD OFF

Page 7:
Parking Check, item 3:
Text of ELT check revised
NORMAL CHECKLIST

DA40-180 Diamond Star G1000
2-blade propeller

This checklist is compiled according to the guidelines of GAMA Specification No. 1, SECTION 3, para 3.5, SECTION 3A, para 3A.5 and SECTION 4, para 4.5. The "Amplified Normal Procedures", "Amplified Emergency Procedures" and "Amplified Abnormal Procedures" according GAMA Specification No. 1 are in the DA40 Airplane Flight Manual Chapters 4A, 3 and 4B.

This checklist is a Recommended Operator Checklist and for reference only. It is not a substitute for and does not supersede the current approved Airplane Flight Manual or any of its supplements or parts thereof, or any training or procedures required by any regulatory or advisory bodies. This checklist may not contain all procedures shown in the Airplane Flight Manual. For a comprehensive listing of all procedures consult the Airplane Flight Manual. Use of the checklist is at the user’s sole risk and discretion. Any possible liability of Diamond Flight Training and/or 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 16 (may be completed by heart).

This checklist also serves as a back up for the electronic checklist in case the G1000 MFD is not available.

PREFLIGHT INTERIOR + EXTERIOR.

1. Check Aircraft papers
2. Remove pitot cover
3. Check interior for foreign objects
4. Check flight controls free
5. Check circuit breakers
6. Ignition OFF, key removed
7. Mixture IDLE CUT OFF
8. Essential bus OFF
9. Avionic Master + electrics OFF
10. Parking brake SET
11. Electric Master ON
   - Check battery voltage
12. Electric fuel pump ON + OFF
13. Check fuel quantity
14. External lights ON
15. Check external lights
16. External lights OFF
17. Electric Master OFF

PREFLIGHT EXTERIOR

- Left main gear
  - Wheel fairing
  - Tire condition, pressure (2,5 bar), position mark
  - Brake, hydraulic line
- Left wing
  - Wing leading edge, top- and bottom surface, stall strips
  - Drain fuel sump
  - Stall warning
  - Fuel vent
  - Fuel filler cap
  - Pitot, static probe (cover removed)
  - Landing/Taxi light
  - Wing tip, position light
  - Static dischargers
  - Aileron (freedom of movement, hinges, control linkage, security)
  - Wing flap
- Left fuselage
  - Canopy left side
  - Rear door
  - Fuselage left side
  - Antennas

- Right main gear
  - Wheel fairing
  - Tire condition, pressure (2,5 bar), position mark
  - Brake, hydraulic line
- Right wing
  - Wing flap
  - Aileron (freedom of movement, hinges, control linkage, security)
  - Static dischargers
  - Wing tip, position light
  - Wing leading edge, top- and bottom surface, stall strips
  - Fuel filler cap
  - Fuel vent
  - Drain fuel sump
- Right fuselage
  - Fuselage right side
  - Rear window
  - Canopy right side

- Tail
  - Elevator & rudder (freedom of movement, hinges)
  - Trim - tab
  - Tail skid + lower fin
  - Static dischargers
- Right fuselage
  - Fuselage right side
  - Rear window
  - Canopy right side

- Right wing
  - Wing flap
  - Aileron (freedom of movement, hinges, control linkage, security)
  - Static dischargers
  - Wing tip, position light
  - Wing leading edge, top- and bottom surface, stall strips
  - Fuel filler cap
  - Fuel vent
  - Drain fuel sump
- Right main gear
  - Wheel fairing
  - Tire condition, pressure (2,5 bar), position mark
  - Brake, hydraulic line
- Right wing
  - Wing flap
  - Aileron (freedom of movement, hinges, control linkage, security)
  - Static dischargers
  - Wing tip, position light
  - Wing leading edge, top- and bottom surface, stall strips
  - Fuel filler cap
  - Fuel vent
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- Right wing
  - Wing flap
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  - Static dischargers
  - Wing tip, position light
  - Wing leading edge, top- and bottom surface, stall strips
  - Fuel filler cap
  - Fuel vent
  - Drain fuel sump
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  - Brake, hydraulic line
- Right wing
  - Wing flap
  - Aileron (freedom of movement, hinges, control linkage, security)
  - Static dischargers
  - Wing tip, position light
  - Wing leading edge, top- and bottom surface, stall strips
  - Fuel filler cap
  - Fuel vent
  - Drain fuel sump
- Right fuselage
  - Fuselage right side
  - Rear window
  - Canopy right side
CHECK BEFORE ENGINE START

1. Preflight check .................................. COMPLETED 1
2. Baggage and tow bar ............................ SECURED 2
3. Parking brake ................................... SET 3
4. Alternate Air ................................... CLOSED 4
5. Electric master .................................. OFF 5
6. Avionic master .................................. OFF 6
7. Essential bus .................................. OFF 7
8. Alternate static .................................. CLOSED 8
9. All electrics ...................................... OFF 9
10. Horizon emergency switch .................. OFF / GUARDED 10
11. ELT ................................................ ARMED 11
12. Circuit breakers .................................. CHECKED IN 12
13. Flap selector .................................. UP 13
14. Pitot heat ...................................... OFF 14
15. Electric fuel pump ............................. OFF 15
16. Electric Master .................. ON (check avionic fan noise) 16
17. Rudder pedals .................................. ADJUSTED 17
18. Passengers .................................. INSTRUCTED 18
19. Seat belts .................................. FASTENED 19
20. Adjustable backrests .................... UPRIGHT 20
21. Rear door .................................. CLOSED and LATCHED 21
22. Front canopy .................................. POS 1 or 2 22
23. G1000 .................................. POWERED, ACKNOWLEDGED 23
24. Fuel quantity .................................. CHECKED 24
25. Fuel selector .................................. FULL TANK 25
26. MFD .................................. ENGINE – SYSTEM 26
27. Fuel Quantity .................................. RESET/SET if requ. 27
28. Total time in service .................. NOTED 28
29. MFD .................................. ENGINE – DEFAULT 29
30. ACL (strobe) .................................. ON 30
31. Propeller area .................................. CLEAR 31

ENGINE START PROCEDURE: next page

CHECK AFTER ENGINE START

1. Oil pressure .................................. CHECKED 1
2. Fuel selector .......................... SWITCH TANKS 2
3. Pitot heat ...ON, annunciation + Amps checked 3
4. Pitot heat .................................. OFF 4
5. Avionics master .................. ON 5

FMS SETUP

1. Initialize profile (AUX 4, MAP)
2. Light plan
3. Radios (COM, NAV, ADF, DME, CDI, BRG 1, 2)
4. Performance (speed bugs)

6. FMS setup .................................. COMPLETED 6

AUTOPilot TEST

1. DISCONN press, check electric trim not working
2. AP ON, check annunciations and GFC700:FD KAP140:overpowering
3. DISCONN press, check AP off, observe disconnect tone
4. GFC700:GA button press, check FD commands climb, FD OFF

7. Autopilot test .................................. COMPLETED 7
8. Flood light .......................... CHECKED, ON as required 8
9. Position lights .................. ON as required 9
10. Flaps .................................. FULL TRAVEL, THEN T/O 10
11. Altimeters (GFC700:2 KAP140:3) .... SET + COMPARED 11
12. Transponder .................. CODE / MODE CHECKED 12
13. Parking brake .................. RELEASED 13

DURING TAXI

1. Check brakes, Check flight instruments

End of Checklist
BEFORE TAKE OFF CHECK

1. Parking brake ........................................... SET 1
2. Adjustable backrests .................. VERIFY UPRIGHT 2
3. Seat belts ........................................ FASTENED 3
4. Rear door ................................ CLOSED + LATCHED 4
5. Front canopy .......................... CLOSED + LATCHED 5
6. Door warning light ............................... OFF 6
7. Engine instruments green range ...... CHECKED 7
8. Circuit breakers ................................. CHECKED 8
9. Mixture ........................................ RICH 9

RUN UP

Throttle ..................................................... 2000 RPM
Prop control .................................. cycle 3 times, then high
Magnetos .................................. (max 175/50) CHECKED
Circuit breakers, voltage ..................... RECHECKED
Throttle .................................................... IDLE

10. Electric elevator trim ............... CHECKED, T/O SET 10
11. Flaps .................................................. CHECKED T/O 11
12. Flight controls ................................. CHECKED 12
13. Fuel selector ................................. FULLER TANK 13

When cleared for Line Up:

14. Electric fuel pump ......................... ON 14
15. Pitot heat ................................ AS REQUIRED 15
16. Transponder ............................... CODE / MODE CHECKED 16
17. Parking brake .................................. RELEASED 17

LINE UP PROCEDURE

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

CLIMB TO CRUISE CHECK

1. Flaps ........................................... CHECKED UP 1
2. Electric fuel pump ......................... CHECKED OFF 2
3. Landing light ................................ CHECKED OFF 3

CLIMB, CRUISE, DESCENT AT HIGH ALTITUDE

Electric fuel pump ON to avoid vapour bubbles which may cause intermittent low fuel pressure and high fuel flow indication.

PERIODICALLY DURING CRUISE

Fuel Radio Engine Direction Altitude
Maximum fuel unbalance:
Standard tank: 10 USG, Long range tank: 8 USG

DESCENT / APPROACH CHECK

1. Landing data ................................. RECEIVED 1
2. Altimeters (GFC700:2 KAP140:3) ............... SET 2
3. COM / NAV / FMS .......................... SET 3
4. Adjustable backrests ..................... UPRIGHT 4
5. Seatbelts ..................................... FASTENED 5
6. Fuel selector ................................ FULLER TANK 6
7. At high altitude: Electric fuel pump ........... ON 7

BEFORE LANDING PROCEDURE

Downwind, latest base leg:
Flaps .................................................... T/O
Electric fuel pump .................................. ON
Landing light ........................................ ON
On final:
Mixture ........................................... RICH
Prop ................................................... HIGH RPM
Flaps ........................................... LDG

GO AROUND PROCEDURE

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

1. Flaps ....................................................... UP 1
2. Pitot heat .............................................. OFF 2
3. Electric fuel pump ................................... OFF 3
4. Alternate air ..................................... CLOSED 4
5. Landing/Taxi light ..................... AS REQUIRED 5
6. Transponder ............................ AS REQUIRED 6

**PARKING CHECK**

1. Parking brake............................................ SET 1
2. Engine instruments ......................... CHECKED 2
3. Engine / System page TTL TIME IN SVC NOTED 3
4. ELT.................................................... CHECK not activated 4
5. Avionic master ...................................... OFF 5
6. Electrical consumers except ACL (strobe) ... OFF 6
7. Throttle .................................................. 1000 RPM 7
8. Ignition .................................................. GROUNDING CHECK 8
9. Mixture .................................................. IDLE CUT OFF 9
10. Ignition ................................................... OFF 10
11. ACL (strobe) .......................................... OFF 11
12. Electric Master ....................................... OFF 12
13. Interior light ...................................... CHECKED OFF 13
14. Start key ................................................ REMOVED 14

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**OPERATING SPEEDS KIAS**

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EMERGENCY + ABNORMAL CHECKLIST

G1000 WARNINGS

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

Abnormal Checklist starts at page 9

Emergency landing

1. Adjustable backrests................UPRIGHT
2. Airspeed.................................76/73/68/60 KIAS
3. ATC............................................INFORM
4. Fuel tank selector..........................OFF
5. Mixture........................................IDLE CUT OFF

Emergency landing

6. Flap..........................................LDG
7. Ignition......................................OFF
8. Master switch...............................OFF
9. Safety harnesses............................TIGHT

OIL PRES LO

1. Oil pressure (OP)..........................CHECK
2. Oil temperature (OT)........................CHECK
3. Cylinder head temperature (CHT).........CHECK

- OP indication below green and
- OT normal

4. OT and CHT..................................MONITOR

- OP indication below green and
- OT or CHT rising

5. Engine power...............................RECUDE TO MIN

Emergency landing

- OP near zero, vibration, loss of oil, smoke

6. Mechanical failure..........................SUSPECT

7. Engine.........................................SHUT DOWN

Emergency landing

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.

Speeds quoted like this: 76/73/68/60 KIAS are for mass values of 1200/1150/1000/850kg
**FUEL PRESS LO**

1. Fuel flow ............................................ CHECK 1
   - If fuel flow high (red range):
     Suspect fuel leak,
     Land ASAP

**ALTERNATOR**

1. Circuit breakers................................. CHECK 1
2. Master switch (ALT) ......................... OFF, then ON 2
   - If alternator does not reset:
3. Essential bus .................................... ON 3
4. Unnecessary equipment ..................... OFF 4

**STARTER ENGD**

1. Throttle ............................................ IDLE 1
2. Mixture ........................................... IDLE CUT OFF 2
3. Ignition ........................................... OFF 3
4. Master switch .................................... OFF 4

**DOOR OPEN**

1. Airspeed ........................................... REDUCE 1
2. Canopy and rear door ....................... CHECK visually 2
   - If unlocked:
     Airspeed below 140 KIAS, land ASAP
     *Do not try to lock the rear door in flight*

**ROUGH ENGINE AND/OR POWER LOSS**

1. Airspeed............................. 76/73/68/60 KIAS 1
2. Electrical fuel pump ............................ ON 2
3. Fuel tank selector ............................. CHECK 3
4. Engine instruments ........................... CHECK 4
5. Throttle and propeller lever ............ CHECK 5
6. Mixture ........................................... SET 6
7. Alternate air .................................. OPEN 7
8. Ignition status light ....................... CHECK 8
9. Ignition CB ..................................... PULL 9
   - If no success and insufficient power:
     Land ASAP

**RPM OVERSPEED**

1. Friction adjuster .............................. CHECK 1
2. Oil pressure .................................... CHECK 2
   - If oil pressure lost:
     Adjust RPM with power lever
     Continue with
     OIL PRESSURE LOW checklist, page 2

**RPM UNDERSPEED**

1. Electrical fuel pump ............................ ON 1
2. Fuel tank selector ............................. CHECK 2
3. Friction adjuster .............................. CHECK 3
4. Propeller control .............................. HIGH RPM 4
   - If no success:
     Regulate RPM with throttle
     Land ASAP
### Windmill Engine Start

- **Airspeed**: 73 - 80 KIAS
- **Fuel tank selector**: FULLEST TANK
- **Ignition**: BOTH
- **Mixture**: CHECKED
- **Electrical fuel pump**: ON
- **Alternate air**: OPEN
  
  If no success:
  - **Mixture**: LEAN
  - **Mixture**: SLOWLY TO RICH

### Powered Engine Start

- **Airspeed**: 80 KIAS
- **Electrical equipment**: OFF
- **Avionic master**: OFF
- **Master switch**: ON
- **Mixture**: CHECKED
- **Fuel tank selector**: CHECKED
- **Electric fuel pump**: ON
- **Alternate air**: OPEN
- **Ignition**: START

### Total Electric Fail

- **Circuit breakers**: CHECK, PULL, RESET
- **Essential bus**: ON
  
  If no success:
  - **Horizon emergency switch**: ON
  - **Flood light, if required**: ON
  - **Power**: SET
  - **Flaps**: VERIFY POSITION
  - Land ASAP

### Engine Fire in Flight / After Take Off

- **Cabin heat**: OFF
- **Emergency landing**: PREPARE
- **Airspeed**: 76/73/68/60 KIAS
- **ATC**: INFORM
- **Canopy**: UNLATCH as necessary
  
  When landing assured:
  - **Fuel tank selector**: OFF
  - **Throttle**: MAX PWR if possible
  - **Electric fuel pump**: OFF
  - **Master switch (BAT)**: ON
  - **Emergency window**: OPEN if required
  
  On final:
  - **Mixture**: IDLE CUT OFF
  - **Flaps**: LDG
  - **Ignition**: OFF
  - **Master switch**: OFF

### Engine Fire On Ground

- **Fuel tank selector**: OFF
- **Cabin heat**: OFF
  
  After standstill:
  - **Throttle**: MAX POWER
  - **Master switch (BAT)**: OFF
  
  When engine stopped:
  - **Ignition**: OFF
  - **Canopy**: OPEN
  
  Evacuate
ELECTRIC FIRE / SMOKE IN FLIGHT
1. Horizon emergency switch ......................... ON 1
2. Canopy ....................................... UNLATCH as necessary 2
3. Master switch (ALT/BAT) .......................... OFF 3
4. Cabin heat ....................................... OFF 4
5. Emergency window .......................... OPEN as necessary 5
   Land ASAP
   If electronics/avionics required: apply isolation procedure as follows
6. Master switch (BAT) .......................... ON 6
7. Essential bus .................................... ON 7
   If smoke decreases: Land ASAP
   If smoke persists:
8. Master switch (ALT) ......................... ON 8
9. Essential bus ................................. OFF 9
10. BATT and ESS TIE circuit breakers ............ PULL 10
    Land ASAP

ELECTRIC FIRE / SMOKE ON GROUND
1. Master switch (BAT) ......................... OFF 1
2. Throttle ........................................ IDLE 2
3. Mixture ........................................ IDLE CUT OFF 3
   When engine stopped:
4. Canopy ........................................ OPEN 4
   Evacuate

SUSPICION OF CARBON MONOXIDE
1. Cabin heat ...................................... OFF 1
2. Ventilation .................................... OPEN 2
3. Emergency windows .......................... OPEN 3
4. Forward canopy ............................ UNLATCH 4

UNINTENTIONAL FLIGHT INTO ICING
1. Pitot heat ...................................... ON 1
2. Cabin heat ...................................... ON 2
3. Cabin air distribution ......................... UP 3
4. RPM .............................................. INCREASE 4
5. Alternate air .................................... OPEN 5
6. Emergency windows ........................ OPEN as required
   Leave icing area, inform ATC
   When pitot heat fails:
7. Alternate static valve ........................ OPEN 7
8. Emergency windows ........................ CLOSED 8

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. Fuel tank selector ............................. OFF 1
2. Mixture ........................................ IDLE CUT OFF 2
3. Ignition ........................................ OFF 3
4. Master switch ................................. OFF 4
**G1000 CAUTION LIGHTS**

<table>
<thead>
<tr>
<th>Light</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PITOT OFF</td>
<td>No procedure</td>
</tr>
<tr>
<td>PITOT FAIL</td>
<td>Pitot heating system OFF</td>
</tr>
<tr>
<td>L FUEL LOW</td>
<td>No procedure, left tank fuel qty low (&lt; 3 USG)</td>
</tr>
<tr>
<td>R FUEL LOW</td>
<td>No procedure, right tank fuel qty low (&lt; 3 USG)</td>
</tr>
<tr>
<td>LOW VOLTS</td>
<td>Bus voltage too low</td>
</tr>
</tbody>
</table>

**PITOT FAIL**

- Check pitot heat ON
  - If in icing conditions:
    - Expect failure of the pitot-static-system
  - Alternate static valve: OPEN
  - Leave area with icing conditions

**LOW VOLTAGE**

- Bus voltage too low

**Engine instrument indications outside of green range**

- Oil pressure low / high
- Oil temperature high
- Cylinder head temp high / low
- Exhaust gas temp high / low
- Fuel flow high
- Volt high (overvoltage)
- Manifold pressure high

**OIL PRESSURE LOW**

- Check oil pressure indicator
- OIL PRESS LO warning light ON or flashing:
  - Apply "OIL PRESS LO"-emergency procedure
    (Emergency Checklist page 2)
- OIL PRESS LO warning light OFF:
  - Check oil temperature and cylinder head temperature (CHT)
  - Oil temperature and CHT normal:
    - Monitor oil pressure warning light
    - Monitor oil temperature and cylinder head temperature
  - Oil temperature or CHT high:
    - Reduce engine power to minimum
    - Land ASAP
    - Be prepared for engine failure and emergency landing
- Oil pressure near zero, vibration, loss of oil, smoke:
  - Suspect mechanical failure in the engine
  - Shut down engine immediately
  - Perform emergency landing

**Oil pressure high**

- Check oil temperature
- Oil pressure high:
  - If oil temperature normal:
    - Suspect faulty oil pressure indication, continue flight

**Oil temperature high**

- Check engine temperature and EGT
- Oil temperature high:
  - If CHT and EGT normal:
    - Suspect faulty oil temperature indication, continue flight
  - If CHT or EGT high:
    - Check oil pressure
      - If oil pressure low:
        - Continue with OIL pressure LOW checklist
      - If oil pressure in green range:
        - Check mixture setting, enrich if necessary
        - Reduce power
        - If no success:
          - Land ASAP
**Cylinder head temperature (CHT) or EGT high**
- Enrich mixture
- Check oil temperature
  - If oil temperature also high:
    - Check oil pressure
      - If oil pressure low:
        - Continue with abnormal checklist “Oil pressure low” (page 10)
      - If oil pressure in green range:
        - Reduce power
          - If no success
            - Land ASAP, be prepared for emergency landing

**Cylinder head temperature (CHT) or EGT low**
- A very low reading for a single cylinder may be the result of a loose sensor

**FUEL FLOW high**
- Check **FUEL PRES LO** warning light
  - If ON:
    - Suspect fuel leak
    - Land ASAP
  - If OFF:
    - Continue flight
    - Take fuel flow from AFM
    - Check fuel quantity frequently

**OVER VOLTAGE**
- Essential bus ON
- Master switch (ALT) OFF
- Master switch (BAT) ON
- Switch OFF unnecessary equipment
- Land ASAP

**Manifold pressure (MP) high**
- If clearly above green range:
  - Reading is faulty