Checklist für Diamond DA40-180 Diamond Star

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

Checklist DA40-180 - LEP

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Section: Normal Checklist

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Comments explaining Edition # 15.1

Adjustable backrests added

Comments explaining Edition # 17

Preflight Procedures:

Page 2:
Parking brake, chocks, towbar added

Normal Procedures:

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

DA40-180 Diamond Star

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 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.

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. Electric Master ON
    Check battery voltage
11. Electric fuel pump ON + OFF
12. Check fuel quantity
13. External lights ON
14. Parking brake SET
15. Check stall warning
16. Check pitot heat
17. Check external lights
18. Pitot heat + ext. lights OFF
19. Electric Master OFF
20. Electric fuel pump ON

PREFLIGHT INTERIOR

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

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

Nose gear
Wheel fairing
Tire condition, pressure (2.0 bar), position mark

Nose section
OAT sensor
Propeller surface
Spinner
Cowling, Air inlets (3)

Engine bay
Engine oil level (min 5 qts)
Drain fuel strainer

Chocks removed
Towbar removed
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. Circuit breakers .................................. CHECKED IN 5
6. Flap selector ........................................ UP 6
7. Electric Master ....................................... OFF 7
8. Electric fuel pump .................................. OFF 8
9. Avionic Master ....................................... OFF 9
10. Essential bus ......................................... OFF 10
11. Ignition ............................................. OFF 11
12. All light switches .................................. OFF 12
13. Pitot heat ........................................... OFF 13
14. Alternate static ..................................... CLOSED 14
15. Emergency switch ............................. OFF / GUARDED 15
16. Instrument + flood light ......................... OFF 16
17. Gyro slave switch ................................ SLAVE 17
18. Electric Master ...................................... ON 18
19. Annunciator Panel/ Eng.instr. .................... CHECKED 19
20. Acknowledge button ............................. PRESS 20
21. Rudder pedals ..................................... ADJUSTED 21
22. Passengers ...................................... INSTRUCTED 22
23. Seat belts ......................................... FASTENED 23
24. Adjustable backrests ............................ UPRIGHT 24
25. Rear door .......................................... CLOSED and LATCHED 25
26. Front canopy .................................... POS 1 or 2 26
27. Fuel quantity ...................................... CHECKED 27
28. Fuel selector ....................................... FULL TANK 28
29. ACL (strobe) ....................................... ON 29
30. Hobbs meter ....................................... NOTED 30
31. Propeller area ...................................... CLEAR 31

End of Checklist

ENGINE START PROCEDURE

Cold engine:
- Throttle ................................................ OPEN HALF WAY
- Electric fuel pump ................................ CHECK OFF
- Mixture ............................................ FULL RICH when engine fires
- Oil pressure ......................................... CHECK GREEN RANGE
- Annunciations ACKNOWLEDGE / Eng.Instr. ............. CHECK

Hot engine:
- Electric fuel pump ................................ CHECK OFF
- Throttle ............................................... ½ inch OPEN
- Voltage, Electrical load .......................... CHECK INDICATION
- Oil pressure ......................................... CHECK GREEN RANGE
- Annunciations ACKNOWLEDGE / Eng.Instr. ............. CHECK

CHECK AFTER ENGINE START

1. Oil pressure ........................................... CHECKED 1
2. Fuel selector ....................................... SWITCH TANKS 2
3. Pitot heat ............................................. ON, annunciation + Amps checked 3
4. Oil pressure ......................................... CHECKED 4
5. Avionics master .................................. ON 5
6. VHF COM / NAV / GPS ........................... SET 6
7. Autopilot test ...................................... COMPLETED 7
8. Position lights ..................................... ON as required 8
9. Altimeters (3) ...................................... SET 10
10. Flaps ............................................... full travel CHECKED, then T/O 11
11. Horizon / Directional gyro ....................... CHECKED / SET 12
12. Transponder ....................................... CODE/MODE CHECKED 13
13. Parking brake .................................... RELEASED 14

End of Checklist

DURING TAXI
- Check Brakes
- Check flight instruments
BEFORE TAKE OFF CHECK

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

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
11. Flaps ......................................................................... CHECKED
12. Flight controls ............................................................... CHECKED
13. Fuel selector .............................................................. FULLER TANK

When cleared for Line Up:

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

LINE UP PROCEDURE

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

CLIMB TO CRUISE CHECK

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

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
2. Altimeters (3) ............................................................ SET
3. COM / NAV / GPS ................................................ SET
4. Directional gyro .......................................................... SET
5. Seatbelts ................................................................. FASTENED
6. Adjustable backrests ............................................... UPRIGHT
7. Fuel selector ............................................................... FULLER TANK
8. At high altitude: Electric fuel pump .............................. ON

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

End of Checklist

PARKING CHECK

1. Parking brake.................. SET 1
2. Engine instruments .................. CHECKED 2
3. ELT ................................ CHECK not activated 3
4. Hobbs meter ................................. NOTED 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

End of Checklist

OPERATING SPEEDS KIAS

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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.

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

Abnormal Checklist starts at page 9

WARNING LIGHTS

Engine
- Rough engine and/or power loss ........................page 2
- RPM overspeed..............................................page 2
- RPM underspeed ..........................................page 2
- Windmill engine start .....................................page 2
- Powered engine start .....................................page 2

Electric System
- Total electrical fail ........................................page 2

Smoke and Fire
- Engine fire in flight ......................................page 2
- Engine fire on ground ....................................page 2
- Electric fire / smoke in flight .............................page 2
- Electric fire / smoke on ground .........................page 2

Other Emergencies
- Suspicion of carbon monoxide........................page 2
- Unintentional flight into icing .........................page 2
- Landing with defective main gear tire .................page 2
- Landing with defective brakes.........................page 2

EMERGENCY LANDING

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

On final:
6 Flaps ............................................LDG 6
7 Ignition ........................................OFF 7
8 Master switch.................................OFF 8
9 Safety harness...............................TIGHT 9

WARNING LIGHTS

OIL PRESS

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

- OP indication below green and
  OT normal

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

- OP indication below green and
  OT or CHT rising

5 Engine power .................................REDUCE TO MIN 5

Land ASAP, be prepared for Emergency Landing

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

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

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

Emergency landing

ALTERNATOR

ALTERNATOR FAILURE

1 Emergency switch ....................................ON 1
2 Essential bus ........................................ON 2
3 Circuit breakers.................................CHECK 3

If all OK:
4 Unnecessary equipment ............................OFF 4
5 Voltmeter ........................................CHECK regularly 5
FUEL PRESS

FUEL PRESSURE < 14 PSI

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

START

STARTER NOT DISENGAGING

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

TRIM FAIL

AUTOPilot TRIM FAIL

1 AP DISC switch (red button) .......... PRESS 1
2 AP circuit breaker ......................... PULL 2

DOORS

DOOR(S) OPEN OR UNLOCKED

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 LOW OIL PRESSURE CHECKLIST

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**

1. Airspeed.............................. 73 - 80 KIAS
2. Fuel tank selector.................... FULLEST TANK
3. Ignition.................................. BOTH
4. Mixture.................................... CHECKED
5. Electrical fuel pump.................. ON
6. Alternate air............................. OPEN

If no success:
7. Mixture.................................... LEAN
8. Mixture................................. SLOWLY TO RICH

**POWERED ENGINE START**

1. Airspeed.............................. 80 KIAS
2. Electrical equipment.................. OFF
3. Avionic master.......................... OFF
4. Master switch.......................... ON
5. Mixture.................................... CHECKED
6. Fuel tank selector.................... CHECKED
7. Electric fuel pump................... ON
8. Alternate air............................. OPEN
9. Ignition.................................. START

**TOTAL ELECTRIC FAIL**

1. Circuit breakers....................... CHECK, PULL, RESET
2. Essential bus.......................... ON

- If no success:
3. Emergency switch...................... ON
4. Flood light, if required.............. ON
5. Power...................................... SET

According power lever position and/or engine noise
6. Flaps................................. VERIFY POSITION

Land ASAP

---

**ENGINE FIRE IN FLIGHT / AFTER TAKE OFF**

1. Cabin heat.............................. OFF
2. Emergency landing.................... PREPARE
3. Airspeed.................................. 76/73/68/60 KIAS
4. ATC........................................... INFORM
5. Canopy................................. UNLATCH as necessary

When landing assured:
6. Fuel tank selector.................... OFF
7. Throttle................................. MAX PWR if possible
8. Electrical fuel pump.................. OFF
9. Master switch (BAT).................... ON
10. Emergency window.................... OPEN if required

On final:
11. Mixture................................. IDLE CUT OFF
12. Flaps..................................... LDG
13. Ignition.................................. OFF
14. Master switch.......................... OFF

---

**ENGINE FIRE ON GROUND**

1. Fuel tank selector.................... OFF
2. Cabin heat.............................. OFF

After standstill:
3. Throttle................................. MAX POWER
4. Master switch (BAT).................... OFF

When engine stopped:
5. Ignition.................................. OFF
6. Canopy................................. OPEN

Evacuate
### Electric Fire / Smoke in Flight

1. Emergency switch .................................... ON
2. Canopy ........................ UNLATCH as necessary
3. Master switch (ALT/BAT) .......................... OFF
4. Cabin heat.............................................. OFF
5. Emergency window ............. OPEN as necessary

**Land ASAP**

- If electronics/avionics required apply isolation procedure:
  6. Master switch (BAT).................................. ON
  7. Essential bus ........................................... ON

**Land ASAP**

- If smoke decreases:
  8. Master switch (ALT) .................................. ON
  9. Essential bus .......................................... OFF
10. BATT and ESS TIE circuit breakers............ PULL

**Land ASAP**

### Electric Fire / Smoke on Ground

1. Master switch (BAT) ................................. OFF
2. Throttle................................................... IDLE
3. Mixture ........................................... IDLE CUT OFF
   
   - When engine stopped:
4. Canopy ................................................OPEN

**Evacuate**

### Suspicion of Carbon Monoxide

1. Cabin heat .............................................. OFF
2. Ventilation ........................................... OPEN
3. Emergency windows .............................. OPEN
4. Forward canopy ........................................ UNLATCH

### Unintentional Flight into Icing

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

### Landing with Defective Main Gear Tire

1. ATC ...................................................... INFORMED

**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
2. Mixture ........................................... IDLE CUT OFF
3. Ignition ............................................ OFF
4. Master switch ........................................ OFF
**CAUTION LIGHTS**

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**PITOT**
- Pitot heating system OFF
- If in icing conditions:
  - Expect failure of the pitot-static-system
  - Alternate static valve: OPEN
  - Leave area with icing conditions

**LOW FUEL**
- No procedure
- Fuel qty low (< 3 USG)
- Single aural alert: left or right tank
- Continuous aural alert: both tanks

**LOW VOLTS**
- Bus voltage too low
- Engine instrument indications outside of green range:
  - Oil pressure low / high
  - Oil temperature high
  - Cyl. Head Temp high / low
  - EXHAUST GAS Temp high / low
  - Fuel Flow high
  - Volt high (overvoltage)
  - Manifold pressure high

**PITOT HEATING SYSTEM FAILED OR OFF**
- Check pitot heat ON
  - If in icing conditions:
    - Expect failure of the pitot-static-system
    - Alternate static valve: OPEN
    - Leave area with icing conditions

**LOW VOLTS**
- Bus voltage too low
- Remark: possible reasons are:
  - Malfunction of electrical supply
  - RPM too low
  - On ground:
    - Increase RPM to 1200
    - Electrical equipment OFF
    - Check Ammeter and voltmeter
    - If light still ON:
      - Terminate flight preparation
  - In flight:
    - Switch off unnecessary electrical equipment
    - Check Ammeter and voltmeter
    - If light still ON:
      - Apply "ALTERNATOR FAIL"-emergency procedure

**OIL pressure low**
- Check oil pressure
  - Oil PRESS LO warning light
    - Oil PRESS LO warning light ON or flashing:
      - Apply "OIL PRESS LOW"-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 rising:
          - 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
- If oil pressure in green range:
  - Check mixture setting, enrich if necessary
  - Reduce power
  - If no success:
    - Land ASAP

**OIL pressure high**
- Check oil pressure
- If oil pressure normal:
  - Suspect faulty oil pressure indication, continue flight
- 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 PRESS 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