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

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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.

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

08.05.2018 Diamond Flight Training Page 1
Edition # 18.1 TDI
Does not replace the Airplane Flight Manual
## 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
Spinning, propeller
Gearbox oil level
Engine oil level
Cowling
Nacelle underside
Venting pipe
Exhaust
Drain casoclator

## 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

## Checklist

<table>
<thead>
<tr>
<th>Check</th>
<th>Status</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Preflight check</td>
</tr>
<tr>
<td>2</td>
<td>Baggage and tow bar</td>
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<tr>
<td>3</td>
<td><strong>AUX PUMPS (2)</strong></td>
</tr>
<tr>
<td>4</td>
<td>Fuel selectors (2)</td>
</tr>
<tr>
<td>5</td>
<td>Power levers (2)</td>
</tr>
<tr>
<td>6</td>
<td>Parking brake</td>
</tr>
<tr>
<td>7</td>
<td>Alternate Air</td>
</tr>
<tr>
<td>8</td>
<td>Manual gear extension handle</td>
</tr>
<tr>
<td>9</td>
<td>Gear selector</td>
</tr>
<tr>
<td>10</td>
<td>Avionic master</td>
</tr>
<tr>
<td>11</td>
<td>Electric master</td>
</tr>
<tr>
<td>12</td>
<td>Engine masters (2)</td>
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<tr>
<td>13</td>
<td>Pitot heat</td>
</tr>
<tr>
<td>14</td>
<td>Alternate static</td>
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<tr>
<td>15</td>
<td>Alternators (2)</td>
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<tr>
<td>16</td>
<td>ECU swap (2)</td>
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<tr>
<td>17</td>
<td>All light switches</td>
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<td>18</td>
<td>Emergency switch</td>
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<td>19</td>
<td>ELT</td>
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<td>20</td>
<td>Circuit breakers</td>
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<tr>
<td>21</td>
<td>Flap selector</td>
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If starting with external power:

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<thead>
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<th>Status</th>
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<td>Prop area</td>
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<td>b</td>
<td>External power</td>
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<thead>
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<td>Electric master</td>
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<td>23</td>
<td>Rudder pedals</td>
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<td>24</td>
<td>Flight controls</td>
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<tr>
<td>25</td>
<td>Trims</td>
</tr>
<tr>
<td>26</td>
<td>Gear warning + lights, fire detector</td>
</tr>
<tr>
<td>27</td>
<td>* De-ice ANNUN TEST</td>
</tr>
<tr>
<td>28</td>
<td>* DEICE LVL LO caution. CHECKED ON if applic.</td>
</tr>
<tr>
<td>29</td>
<td>* Windshield de-icing</td>
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</tbody>
</table>

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)
P 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

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

PERIODICALLY DURING CRUISE

Fuel Radio Engine Direction Altitude
Maximum fuel unbalance: 5 USG

DESKTOP / 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

BEFORE LANDING PROCEDURE

On final when landing assured:

FINAL CHECK

1. Flaps.............................. LDG 1
2. Gear ........................................... 3 GREENS CHECKED 2
3. Rudder 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
2 Pitot heat .................................................. OFF
3 Alternate air ............................................... CLOSED
4 * De-ice systems ....................................... OFF
5 Landing/Taxi light ...................................... AS REQUIRED

End of Checklist

PARKING CHECK

1 Parking brake ......................................... SET
2 Power levers (2) .................................... IDLE for 2 min.
3 ELT ........................................ CHECK not activated
4 Engine / System page .................... CHECKED
5 Engine / Fuel page ..... TTL TIME IN SVC NOTED
6 Avionic master ...................................... OFF
7 Electrical consumers except ACL (strobe)... OFF
8 Engine Masters (2) ................................ OFF
9 ACL (strobe) .............................................. OFF
10 Electric Master .................................... OFF
11 Interior light ...................................... CHECKED
12 Start key .............................................. REMOVED

End of Checklist

SECURING THE AIRCRAFT

Release parking brake, use chocks.
Cover the pitot probe.
Attach tie down ropes to mooring points.

MASS

Increased

| LM | ZFM | LM + ZFM |
| Max. TKOF mass | 1785 kg | 1674 kg | 1730 kg |
| Max. ZF mass | 1650 kg | 1674 kg | 1730 kg |
| Max. LDG mass | 1700 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 |

OPERATING SPEEDS KIAS for MTOM 1785

| Mass | 1400 kg | 1785 kg |
| Stalling speed (VSO) Flaps LDG | 49 | 57 |
| Stalling speed (VSO) Flaps APP | 53 | 61 |
| Stalling speed (VSO) clean | 56 | 64 |
| In Ice: + 4 Kt | | |
| Best gliding angle (Flaps UP) | 82 |
| Best angle of climb (Vx) | 79 |
| Best rate of climb (Vy) | 79 |
| Best rate of climb 1-eng. (Vyse) | 82 |
| Min. control speed (Vmcg) | 68 |
| Min. control speed for TRG(Vyse) | 82 |
| Min. control speed (Vmcg) in ice | 72 |
| Operating speed in ice | 121 - 160 |
| Cruising climb speed | 86 |
| Rotation speed | 72 |
| Max. flap speed (Vfe) Flaps APP | 137 |
| Max. flap speed (Vfe) Flaps LDG | 111 |
| Max. LG extension (Vloe) | 194 |
| Max. LG extended (Vle) | 194 |
| Max. LG retraction (Vloe) | 156 |
| Operating speed in ice | 106 |
| Maximum approach speed (Vmax) | 155 |
| Never exceed speed (Vne) | 194 |
| Approach speed up to 1542 kg | 85 |
| Approach speed above 1542 kg | 82 |
| Maneuvering speed (Vr) | 120 - 126 |

80.05.2018 Diamond Flight Training Does not replace the Airplane Flight Manual
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**

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<thead>
<tr>
<th>Parameter</th>
<th>Page</th>
<th>Description</th>
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<tbody>
<tr>
<td>L/R ALTN AMPS</td>
<td>3</td>
<td>High Current (red range)</td>
</tr>
<tr>
<td>L/R OIL PRES</td>
<td>3</td>
<td>Oil pressure low (red range)</td>
</tr>
<tr>
<td>L/R OIL TEMP</td>
<td>3</td>
<td>Oil temperature high (red range)</td>
</tr>
<tr>
<td>L/R GBOX TEMP</td>
<td>4</td>
<td>Gearbox temperature high (red range)</td>
</tr>
<tr>
<td>L/R ENG TEMP</td>
<td>4</td>
<td>Coolant temperature high (red range)</td>
</tr>
<tr>
<td>L/R FUEL TEMP</td>
<td>4</td>
<td>Fuel temperature high (red range)</td>
</tr>
<tr>
<td>L/R FUEL PRES</td>
<td>5</td>
<td>Fuel pressure low</td>
</tr>
<tr>
<td>L/R STARTER</td>
<td>5</td>
<td>Starter not disengaging</td>
</tr>
<tr>
<td>DOOR OPEN</td>
<td>5</td>
<td>Unlocked doors</td>
</tr>
<tr>
<td>L/R ENG FIRE</td>
<td>6</td>
<td>Engine fire on ground, during take-off, in flight</td>
</tr>
</tbody>
</table>

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 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 TEM**

_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...

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 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
ENGINE RESTART

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

1 Airspeed
   For starter assisted restart: .......... below 90 KIAS
   For windmilling restart: ............. 125 – 145 KIAS
   For TAE 125-01 engine .................. 80 – 120 KIAS
2 Power (affected engine) .................. IDLE
3 Fuel selector (affected engine) .......... ON
4 Alternate air ............................. AS REQUIRED
5 Alternator (affected engine) ........... ON
6 Engine Master (affected engine) ....... ON

For starter assisted restart:
7 Starter ........................................... ENGAGE
   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
9 Engine instruments........... check GREEN RANGE
10 Circuit breakers .......................... CHECKED

If engine did not start (re-feathering procedure):
One attempt only, expect altitude loss of up to 800 (500) ft
8 Airspeed ................................. 82 KIAS
9 Power lever (affected engine) ........ MAX
10 Engine Master (affected engine) ...... CHECK ON
11 Airspeed ................................. INCREASE to achieve 1800 RPM
12 Engine Master (affected engine) ...... OFF
13 Airspeed ......................... REDUCE to 82 KIAS
14 Propeller ............................... CHECK FEATHERED
15 Alternator (dead engine) ............... OFF
16 Fuel selector (dead engine) ............. OFF

OSCILLATING RPM

17 Power lever ......................... change setting
   ● If no success:
18 ECU swap ................................. ECU B
   ● If no success:
19 ECU swap ................................. AUTO
   Land at nearest suitable airfield

RPM OVERSPEED

20 Power setting .......................... REDUCE
   ● If no success:
21 ECU swap ................................. ECU B
   ● If no success:
22 ECU swap ................................. AUTO
   Land at nearest suitable airfield
   Be prepared for ENGINE FAILURE IN FLIGHT

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):
23 Engine Masters (2) ...................... OFF
24 Fuel selectors (2) ........................ OFF
25 Electric Master .......................... OFF
LANDING GEAR UNSAFE WARNING
If on for more than 20 seconds:
1. Airspeed....................................max 156 KIAS
   In cold temperature:
2. Airspeed....................................max 110 KIAS
3. Gear selector .................................... RECYCLE
   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
2. Gear indicator lights ................................TEST
3. Electric master ..................................... CHECK ON
4. Bus voltage ..................................... CHECK NORMAL
5. Circuit breaker ..................................... CHECK
6. Gear selector ........................................DOWN
7. Manual extension handle .......................... PULL
   If necessary
8. Airspeed....................................max 110 KIAS
   Apply moderate yawing
9. Gear indicator lights .............. CHECK 3 GREENS

LANDING GEAR UP LANDING
(Landing gear completely retracted)
1. Approach ......................................NORMAL
   If time/situation allows: just before touchdown:
2. Power lever ..................................... IDLE
3. Engine Masters (2) ............................ OFF
4. Fuel selectors (2) ............................. OFF
   Immediately after touchdown:
5. Electric Master ................................. OFF

ELECTRICAL FIRE ON GROUND
1. Mayday call ....................................CONSIDER
2. Electric Master ..................................... OFF
3. Power levers (2) ................................ IDLE
4. Engine Masters (2) ............................ OFF
5. Fuel selectors (2) ............................. OFF
   When engine and aircraft stopped:
6. Canopy ............................................. OPEN
   Evacuate

ELECTRICAL FIRE IN FLIGHT
1. Emergency switch ......................................ON
2. Mayday call ....................................CONSIDER
3. Avionic master ..................................... OFF
4. Electric master ..................................... OFF
5. Cabin heat & defrost ............................. OFF
6. Emergency windows ............................. OPEN as necessary
7. Canopy ............................................. UNLATCH if necessary
   Max airspeed 120 KIAS
   Land at nearest suitable airfield

COMPLETE ELECTRICAL FAILURE
* Leave icing area
1. Circuit breakers............................CHECK all IN
   • If no success:
2. Emergency switch ......................................ON
3. Flood light, if necessary ......................ON
4. Power .................................................. SET
   according power lever position and/or engine noise
5. Flaps .........................................VERIFY POSITION
   Land at nearest suitable airfield
   Landing gear may slowly extend
   For landing apply “Manual extension of landing gear”

08.05.2018 Diamond Flight Training Page 11
Edition # 18.1 TDI Does not replace the Airplane Flight Manual
**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 ......................... INITIATE 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 ......................... INITIATE 3
   When passing 10,000 FT:
4. Oxygen pressure ......................... CHECK AGAIN 4
   If oxygen pressure constant: Continue flight
   If oxygen pressure dropped: Land at nearest suitable airfield

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

**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**

<table>
<thead>
<tr>
<th>Light Code</th>
<th>Page</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>L/R ECU A FAIL</td>
<td>16</td>
<td>ECU A failed</td>
</tr>
<tr>
<td>L/R ECU B FAIL</td>
<td>16</td>
<td>ECU B failed</td>
</tr>
<tr>
<td>L/R VOLTS LOW</td>
<td>16</td>
<td>Bus voltage too low</td>
</tr>
<tr>
<td>L/R ALTN FAIL</td>
<td>16</td>
<td>Alternator failed</td>
</tr>
<tr>
<td>L/R ALTN FAIL</td>
<td>17</td>
<td>Both Alternators failed</td>
</tr>
<tr>
<td>L/R COOL_LVL</td>
<td>17</td>
<td>Engine coolant level low</td>
</tr>
<tr>
<td>PITOT FAIL</td>
<td>17</td>
<td>Pitot heating system failed</td>
</tr>
<tr>
<td>STALL HT FAIL</td>
<td>17</td>
<td>Stall warning heating failed</td>
</tr>
<tr>
<td>STALL HT OFF</td>
<td>17</td>
<td>Stall warning heating OFF</td>
</tr>
<tr>
<td>L/R FUEL LOW</td>
<td>17</td>
<td>Main tank fuel qty low</td>
</tr>
<tr>
<td>L/R AUX FUEL E</td>
<td>17</td>
<td>L/R auxiliary fuel tank empty</td>
</tr>
<tr>
<td>STICK LIMIT</td>
<td>18</td>
<td>Stick limiting system failed</td>
</tr>
<tr>
<td>DEICE_LVL_LO</td>
<td>18</td>
<td>De-icing fluid level low</td>
</tr>
<tr>
<td>DEICE_PRES_LO</td>
<td>18</td>
<td>De-icing pressure low</td>
</tr>
<tr>
<td>DEICE_PRES_HI</td>
<td>18</td>
<td>De-icing pressure high</td>
</tr>
</tbody>
</table>

**Engine instrument indications outside of green range**

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

**Other abnormal situations**

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

---

**CAUTION ALERTS ON THE G1000**

**L/R ECU A OR B FAIL**

**ON GROUND**

- Discontinue operation, terminate flight preparation

**L/R ECU A FAIL**

**DURING FLIGHT**

- Remark: in case of ECU A fail the system automatically switches to ECU B
- Press ECU TEST button for more than 2 seconds
  - If ECU A caution message re-appears or cannot be reset:
    - Land at nearest suitable airfield
    - If ECU A caution message can be reset
      - Continue flight. Engine must be serviced after LDG

**L/R ECU B FAIL**

**DURING FLIGHT**

- Press ECU TEST button for more than 2 seconds
  - If ECU B caution message re-appears or cannot be reset:
    - Land at nearest suitable airfield
    - If ECU B caution message can be reset
      - Continue flight. Engine must be serviced after LDG

**L/R VOLTS LOW**

**BUS VOLTAGE TOO LOW**

- Remark: possible reasons are
  - fault in the electrical power supply
  - Alternators OFF
- Continue with "Engine instrument indications outside of green range"
  - VOLTS low, page 20

**L/R ALTN FAIL**

**ALTERNATOR FAILED**

- If in icing conditions:
  - Leave icing area as soon as practicable
- Alternator on affected side OFF
- Monitor bus voltage
- Reduce electrical consumers
- If both alternators failed:
  - See Abnormal Checklist "Both Alternators failed", page 20
**DA42 TDI ABNORMAL PROCEDURES**

**L 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**

STALL HT FAIL

PITOT HT OFF

STALL HT OFF

- Check pitot heat ON, if in icing conditions
  - Expect failure of the pitot-static-system
  - Alternate static valve: OPEN
- Leave area with icing conditions (see Emergency Checklist page 14 “Unintentional flight into icing”)

**L/R FUEL LOW**

MAIN TANK FUEL QTY LOW

- Check fuel quantity
  - If LH & RH quantities show remarkable difference:
    - Expect loss of fuel on side with lower indicator
    - Use x-feed: Fuel selector to x-feed on side with LOW FUEL indication

**L/R AUX FUEL E**

AUXILIARY FUEL TANK EMPTY

- L/R auxiliary fuel pump OFF

**STICK LIMIT**

VARIABLE ELEVATOR BACKSTOP SYSTEM FAILED

- 1 or 2 power levers set for MORE than 20% load:
  - Elevator variable backstop is INOP
  - Do not stall in any configuration!
- 2 power levers set for LESS than 20% load:
  - Elevator variable backstop always ACTIVE
  - Reduced elevator capacity
  - For approach min Vref 79/82 KIAS

**DEICE LVL LO**

DE-ICING FLUID LEVEL LOW

- Maximum duration of ice protection in NORMAL mode: 30 min, in HIGH mode: 15 min

**DEIC PRES LO**

DE-ICING PRESSURE LOW

- Switch DE-ICE to HIGH
  - If DEIC PRES LO light still ON
    - PUMP1 / PUMP2: select other pump
    - If necessary prime pump by activating windshield pump
  - If DEIC PRES LO light still ON
    - Activate ALTERNATE switch
      - If DEIC PRES LO light still ON
        - Go to Emergency Checklist page 14 ICE PROTECTION FAILURE
  - If DEIC PRES LO light OFF
    - Continue flight
      - (de-icing fluid flow: 30 lt/hr)
    - Monitor ice protection system operation
    - Check de-icing fluid level periodically

**DEIC PRES HI**

DE-ICING PRESSURE HIGH

- Possible reduced system performance
- Filter cartridge to be replaced at next scheduled maintenance
ENGINE INSTRUMENT INDICATIONS OUTSIDE OF GREEN RANGE

COOLANT temperature high
- Refer to Emergency Checklist page 4, “L/R ENG TEMP”

COOLANT temperature low
Remark: During low power descent from high altitude coolant temperature may decrease. Consider increasing power.
- Check G1000 for LOW COOLANT LVL caution light
  - If “LOW COOLANT LVL caution light” ON
    => Reduce power on affected engine
    => Expect loss of coolant fluid
    => Be prepared for an engine failure

OIL temperature high
- Refer to Emergency Checklist page 3, “L/R OIL TEMP”

OIL temperature low
- Increase power
- Reduce airspeed

OIL pressure high
- Check oil temperature and coolant temperature
  ☑ If within green range
  => Oil pressure indication may be faulty; watch temperatures
  ☑ If outside of green range
  => Reduce power on affected engine;
  => Be prepared for an engine failure;
  Land at nearest suitable airfield

OIL pressure low
- Refer to Emergency Checklist page 3, “L/R OIL PRES”

FUEL temperature high
- Refer to Emergency Checklist page 4, “L/R FUEL TEMP”

FUEL temperature low (JET Fuel operation)
- Monitor fuel temperature
  ● If fuel temperature decreases to red range (< 30°C):
    => Increase power on affected engine
    => Reduce airspeed
  ● If not returning to yellow range:
    => Land at nearest suitable airfield

FUEL temperature low (Diesel Fuel operation)
- Increase power on affected engine
- Reduce airspeed
  ● If not returning to green range:
    => Land at nearest suitable airfield

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

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
**FMS Initialization – AUX 4 page**

**Recommended and compulsory settings**

<table>
<thead>
<tr>
<th>TIME FORMAT</th>
<th>TIME FORMAT</th>
<th>NAV ANGLE</th>
<th>NAV ANGLE</th>
<th>DIS. SPD</th>
<th>DIS. SPD</th>
<th>ALT. VS</th>
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**MFD DATA BAR FIELDS**

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<td>2</td>
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**COM CHANNEL**

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<td>SPACING</td>
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<td>25,0 KHZ</td>
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<td>OR 8,33 KHZ</td>
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<tr>
<td>NEAREST APT</td>
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<tr>
<td>Rwy Surface</td>
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<tr>
<td>Min Lenght</td>
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**ARINC 424 Distance Coding:**

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<tr>
<td>21</td>
<td>22</td>
<td>23</td>
<td>24</td>
<td>25</td>
</tr>
</tbody>
</table>

**NORAD / FAA / ICAO INTERCEPT PROCEDURES**

**Interceptor 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

**ARINC 424 Distance Coding:**

<table>
<thead>
<tr>
<th>Interceptor Signals</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
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<td>FLY THIS WAY</td>
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<table>
<thead>
<tr>
<th>Interceptor Signals</th>
<th>Meaning</th>
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<tr>
<td></td>
<td>WARNING: TURN NOW (DIRECTION OF FIGHTER)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Interceptor Signals</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>LAND HERE</td>
</tr>
</tbody>
</table>

**DAY INTERCEPT SIGNALS**

<table>
<thead>
<tr>
<th>Interceptor Signals</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flash navigation lights</td>
<td>You have been intercepted</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Interceptor Signals</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Turn on landing lights</td>
<td>Land here</td>
</tr>
</tbody>
</table>

**NIGHT INTERCEPT SIGNALS**

<table>
<thead>
<tr>
<th>Interceptor Signals</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flash navigation lights</td>
<td>I will comply</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Interceptor Signals</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Turn on landing light</td>
<td>I will land</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Interceptor Signals</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flash landing light</td>
<td>Airport inadequate</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Interceptor Signals</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flash all lights regular</td>
<td>Can not comply</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Interceptor Signals</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flash all lights irregular</td>
<td>Distress</td>
</tr>
</tbody>
</table>