

DBI3 Service Manual/ Instructions for Continued Airworthiness



<i>Balloonacy, LLC db/a DigiToolUSA</i> 125 REDWOOD CIRCLE FAYETTEVILLE, GA 30214	DRAWN: DWS 3/3/17	REVISIONS				SHEET 1 of 6
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DigiTool Instruments

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1.0 General

1.1 Introduction

Maintenance of the DBI3 is limited to inspection and calibration. Tools needed are a Torx T8 screwdriver, a USB to microB cable, the DigiTool computer calibration program, user manual and a reference pressure sensor or altimeter.

Repair of the DBI3 is limited to replacement of parts and assemblies. Tools needed are standard mechanical workshop tools.

1.2 Parts

Spare parts shall be original DigiTool or parts approved by DigiTool

2.0 Airworthiness Limitations per 14 CFR §31:

None

The Airworthiness Limitations section is FAA approved and specifies maintenance required under Secs. 43.16 and 91.403 of the Federal Aviation Regulations.

3.0 DBI3 Maintenance

3.1 DBI3 functions check list

DBI3 functions shall perform as indicated in the user manual.

Functions Check List	
Function	Procedure
Power on	Press ON button, observe display test, check function.
Push buttons	Operate the 4 push buttons, check mechanical operation.
Touch button	Operate the touch button, check function.
Time display	Time display colon shall blink at 1/2 Hz rate and display elapsed time enroute.
Ambient temperature display	Observe display. Determine if readout is reasonable.
Envelope temperature display	Activate the DBI-TX1 transmitter. Observe display.
Altimeter display	Observe display. Determine if readout is reasonable.
Variometer display	Increase instrument altitude by a few feet, observe displays (analog & digital). Determine if readout is reasonable.
Speed over ground and Course over ground display	Operate instrument at known speed and direction.
QNH setting	Increment and decrement BAR setting. Observe display.

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Battery charge & status	Connect charger, observe display and red LED indicator.
Electric connector interface	Connect PC interface cable between PC and Instrument. Start calibration program. Observe operation; insure connectivity
Sound	Activate one or more of the related audio functions; observe operation
Flight recorder	Connect USA/micro B cable, verify download capability
Real Time Clock	Verify clock operation

3.2 Instrument parts check list

Part	Procedure or characteristic
Fitting strap	Velcro function and strap firmness.
Cover glass	Transparency and firmness.
Push buttons	Firmness.
Touch button	Firmness, function.
Electric connector	Firmness and free from oxidation.
Ambient temp sensor	Firmness.
Enclosure	Firmness.

3.3 Calibration with reference altimeter / calibrated pressure sensor

Place the DBI3 and a reference altimeter at same height. Compare the two instruments. Check allowed deviation is within the allowable deviation per table at paragraph 2.4.4 below.

Make sure QNH setting is equal.

3.4 Calibration check

3.4.1 Control setup

Place the DBI3 in a pressure sealed chamber connected to a calibrated pressure gauge. The chamber shall have a viewing window enabling reading of DBI3 display.

3.4.2 Control procedure

Set the DBI3 barometric setting to 1013 hPa ./ 29.92 inHg

Subject the DBI3 to pressure altitudes listed in the table listed at 2.4.4 below by means of an appropriate system.

Compare displayed altitude reading to be within column 2 max error tolerances.

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3.4.3 Recalibration procedure

The DBI3 is recalibrated for offset error by using the DigiTool computer setup program, USB to micro B cable together with above control procedure data. This functionality shall ONLY be used by a nationally approved service facility.

3.4.4 Allowable Altitude Display Deviation per AS8009

Range feet	Total error +/- feet at 25°C / 77°F
-1000	20
0	20
500	20
1000	20
1500	25
2000	30
3000	30
4000	35
6000	40
8000	60
10000	80
12000	90
14000	100
16000	110
18000	120
20000	130

3.4.5 Temperature Calibration Procedure

Connect the DBI3 to the calibration computer by using the USB to micro B cable. Turn the calibration program on.

Immerse the temperature sensor in a bath of crushed ice and water; allow the sensor to soak for at least twenty (20) minutes. Note temperature; adjust as required.

Move the sensor to a container of boiling water; allow the sensor to soak for at least twenty (20) minutes. Having previously obtained the boiling point of the water dependent on station altitude, note the temperature indication; adjust as required.

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4.0 Repair

4.1 Parts list

Digitool Part Number	Quantity	Part name
03-01-1001	1	Casing Top
03-01-1002	1	Lens
03-01-1003	1	O-Ring Sealing
03-01-1004	1	Keypad
03-01-1005	1	Casing Bottom
03-01-1006	1	Temp Probe
03-01-1007	2	Antenna Plug
03-01-1008	1	Touch Button
03-01-1009	1	Antenna Assembly
03-01-1010	1	Battery Assembly
03-01-1011	1	Rotary Shaft
03-01-1012	2	Hydrophobic Filter
03-01-1013	4	Screw Pan M4
03-01-1014	4	Screw MFT M4
03-01-1015	4	Screw MRT M2.5
03-01-1016	1	PCA Assembly
03-01-1017	1	Pressure Transducer Module

4.2 Assembly / Disassembly procedure

There are no parts or components contained within the DBI3 instrument that are field maintainable or replaceable.