

# T2 Tester

## *Calibration Information*

### **Introduction**

This calibration information sheet provides the following information for the T2 Tester (hereafter referred to as "the tester"):

- Safety information
- Parts and service information
- Specifications
- Cleaning procedure
- Required equipment
- Performance tests
- Calibration adjustment
- Battery replacement procedure
- Parts and accessories list

For operating instructions, refer to the *T2 Tester Instruction Sheet*.

### **Safety Information**

#### **Warning**

**To avoid possible electric shock or personal injury, follow these guidelines:**

- **Use caution when working with voltages above 30 V ac rms, 42 V ac peak, or 60 V dc. Such voltages pose a shock hazard.**
- **Do not use the tester if it or its test leads appear damaged, or if you suspect that the tester is not operating properly.**
- **Before each use, verify the tester's operation by measuring a known voltage.**
- **Disconnect the live test lead before disconnecting the common test lead.**
- **When using the probes, do not touch the metal probe tips.**
- **Never apply more than the rated voltage, as marked on the tester, between any terminal and earth ground.**
- **To avoid false readings, which could lead to possible electric shock or personal injury, replace the battery when touching the leads together no longer turns on the continuity LED.**
- **Do not use controls, adjustments, or procedures not documented or approved by Fluke Corporation.**

## Parts and Service

The tester is warranted to be free from defects in material and workmanship for one year, while under normal use. Parts and repairs are warranted for 90 days. For the complete warranty statement, refer to the *T2 Tester Instruction Sheet*.

To order parts, or for warranty service, contact Fluke as follows:

USA: 1-888-99-FLUKE (1-888-993-5853)

Canada: 1-800-36-FLUKE (1-800-363-5853)

Europe: +31 402-678-200


Japan: +81-3-3434-0181

Singapore: +65-738-5655

Anywhere in the world: +1-425-356-5500

Or, visit Fluke's Web site at [www.fluke.com](http://www.fluke.com).

## Specifications

<b>Display Accuracy</b>	The LED for each range turns on by 95 % of the nominal range value.
<b>Maximum Voltage Between any Terminal and Earth Ground</b>	1000 V dc; 1000 V ac rms (sine wave), Overvoltage Category III
<b>Input Impedance</b>	~750 k $\Omega$
<b>Temperature</b>	Operating: -10 °C to +50 °C (14 °F to 122 °F) Storage: -30 °C to +60 °C (-22 °F to +140 °F)
<b>Altitude</b>	Operating: 3000 m (9843 ft); Storage: 10,000 m (32808 ft)
<b>Relative Humidity</b>	0 °C to 30 °C (32 °F to 86 °F): 90 %; 30 °C to 40 °C (86 °F to 104 °F): 75 %; 40 °C to 50 °C (104 °F to 122 °F): 45 %
<b>Battery Type and Life</b>	AA (2); 350 hours with NEDA 15F or IEC R6
<b>Shock, Vibration</b>	1 m drop at 15 °C to 35 °C (59 °F to 95 °F). Sinusoidal vibration per MIL-PRF-28800F for a Class 2 instrument (5 Hz to 55 Hz, 3 g maximum)
<b>Environmental Seal</b>	IP 52 per IEC 529, no vacuum applied
<b>Safety</b>	Complies with EN61010-1: 1993, ANSI/ISA: S82.01-94, CSA/CAN C22.2 No.1010.1-92, and UL 3111 for use in overvoltage CAT III environments
<b>EMC Regulations</b>	EN50081-1, EN50082-1
<b>Certifications</b>	 UL, CSA, and VDE certifications pending.

## Cleaning the Tester

### Warning

**To avoid electrical shock or damage to the tester, never allow water inside the case. To avoid damaging the tester's case, never use solvents on the tester.**

If the tester requires cleaning, wipe it down with a cloth that is lightly dampened with water or a mild detergent. Do not use aromatic hydrocarbons, chlorinated solvents, or methanol-based fluids when wiping down the tester.

## Required Equipment

The following equipment is required for performance tests and calibration adjustments:

- Fluke 5500A Multi-Product Calibrator, or equivalent
- Small, insulated, flat-blade screwdriver ( $\approx 2$  mm tip size; ceramic preferred)

## Performance Tests

Use the following procedures to verify the tester's performance.

### Testing the Voltage Function

If the tester fails the voltage test, perform the calibration adjustment described under "Calibration Adjustment"; then retest all of the voltage functions. If the tester continues to fail, return it to Fluke for service.

Test the voltage function as follows:

1. Set the calibrator to 198 V dc. Apply this voltage to the tester to verify that the 220 V dc range LED is blinking steadily.
2. Apply 194 V dc to the tester. Verify that the tester's 220 V dc range LED is off.
3. Apply each nominal voltage and frequency as listed in Table 1 (for S/Ns 73512906 and below), or Table 2 (for S/Ns above 73512906). Verify that each corresponding LED turns on.

**Table 1. DC and AC Voltage Tests**

DC Voltages for All Models	AC Voltages for Model T2US (60 Hz)	AC Voltages for Models T2WF/T2WR (50 Hz)	AC Voltages for Model T2CAN (60 Hz)
-6 V dc (verify that -VDC LED is on)	24 V ac	12 V ac	24 V ac
12 V dc	120 V ac	24 V ac	120 V ac
24 V dc	208 V ac	48 V ac	208 V ac
36 V dc	240 V ac	110 V ac	240 V ac
48 V dc	277 V ac	230 V ac	347 V ac
110 V dc	480 V ac	400 V ac	480 V ac
220 V dc	600 V ac	690 V ac	600 V ac

**Table 2. DC and AC Voltage Tests**

<b>DC Voltages for All Models</b>	<b>AC Voltages for Model T2US (60 Hz)</b>	<b>AC Voltages for Models T2WF/T2WR (50 Hz)</b>	<b>AC Voltages for Model T2CAN (60 Hz)</b>
-6 V dc (verify that -VDC LED is on)	24 V ac	12 V ac	24 V ac
12 V dc	48 V ac	24 V ac	48 V ac
24 V dc	120 V ac	48 V ac	120 V ac
36 V dc	208 V ac	110 V ac	208 V ac
48 V dc	240 V ac	230 V ac	240 V ac
110 V dc	277 V ac	400 V ac	347 V ac
220 V dc	480 V ac	690 V ac	600 V ac

### **Continuity Function Tests**

The following tests verify correct operation of the continuity beeper and LED.

1. Set the calibrator to 20 kΩ. Apply the 20 kΩ to the tester and verify that the tester's beeper and continuity LED are ON.
2. Set the calibrator to 200 kΩ. Apply the 200 kΩ to the tester and verify that the tester's beeper and continuity LED are OFF.

### **Calibration Adjustment**

If the tester fails a voltage test, perform the following calibration adjustment.

1. Verify that the tester's batteries are good: replace the batteries if touching the leads together does not turn on the continuity LED.
2. Remove the tester's battery door and batteries.
3. Remove the two screws that hold the tester's case together.
4. Remove the top case.
5. Place the tester's batteries in the battery compartment. Temporarily install the battery door to hold the batteries in place during calibration.

#### **Warning**

**It is not necessary to remove the two screws that hold the circuit board in the bottom case; however, if the screws are removed for any reason, they must be secured with Loctite™ or equivalent when reinstalled.**

6. Set the calibrator to 198 V dc. Apply this voltage to the tester.
7. Adjust R4 until the tester's 220 V dc range LED (DS6) is blinking steadily. Figure 1 shows the location of R4.
8. Set the calibrator to 194 V dc. Verify that the 220 V dc range LED is off.
9. Secure R4 with Loctite™ or equivalent.
10. Reassemble the tester; then perform the voltage tests as given under "Testing the Voltage Functions".

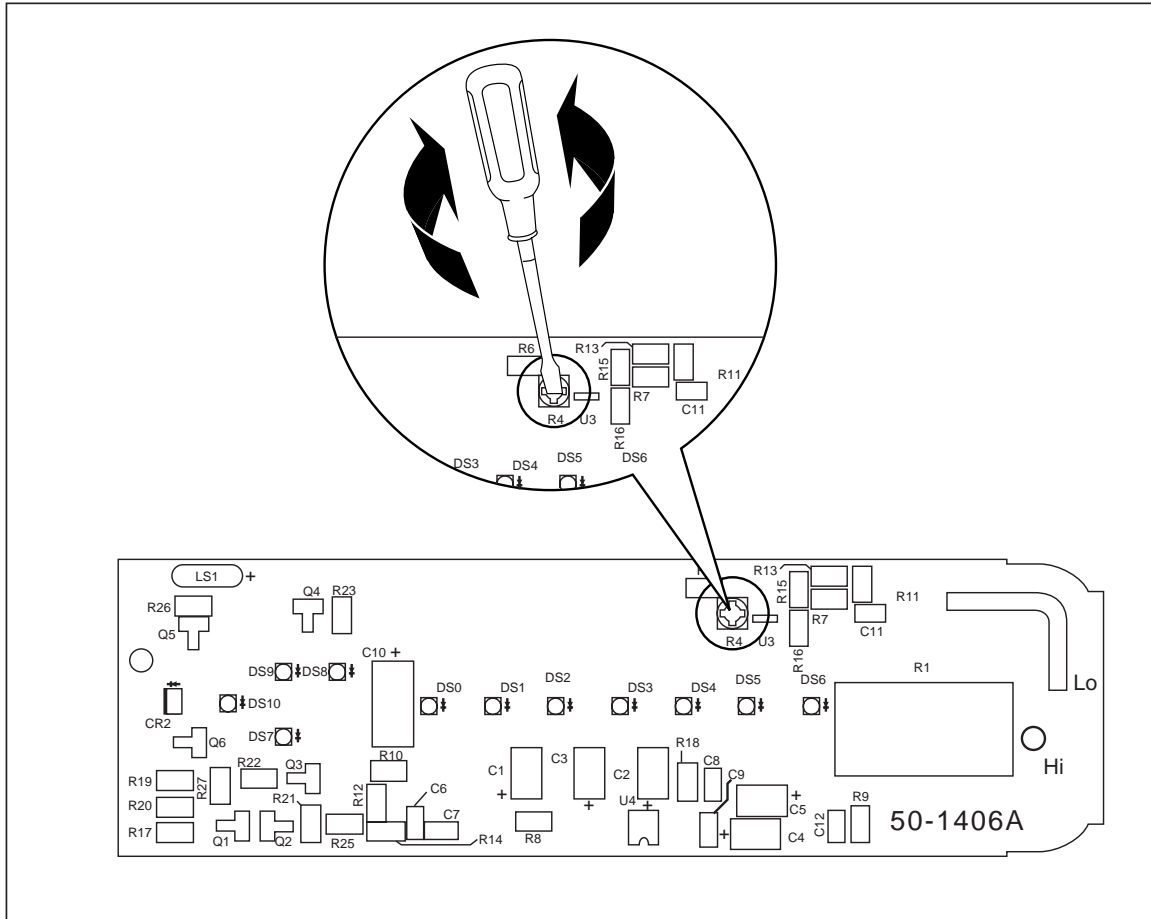
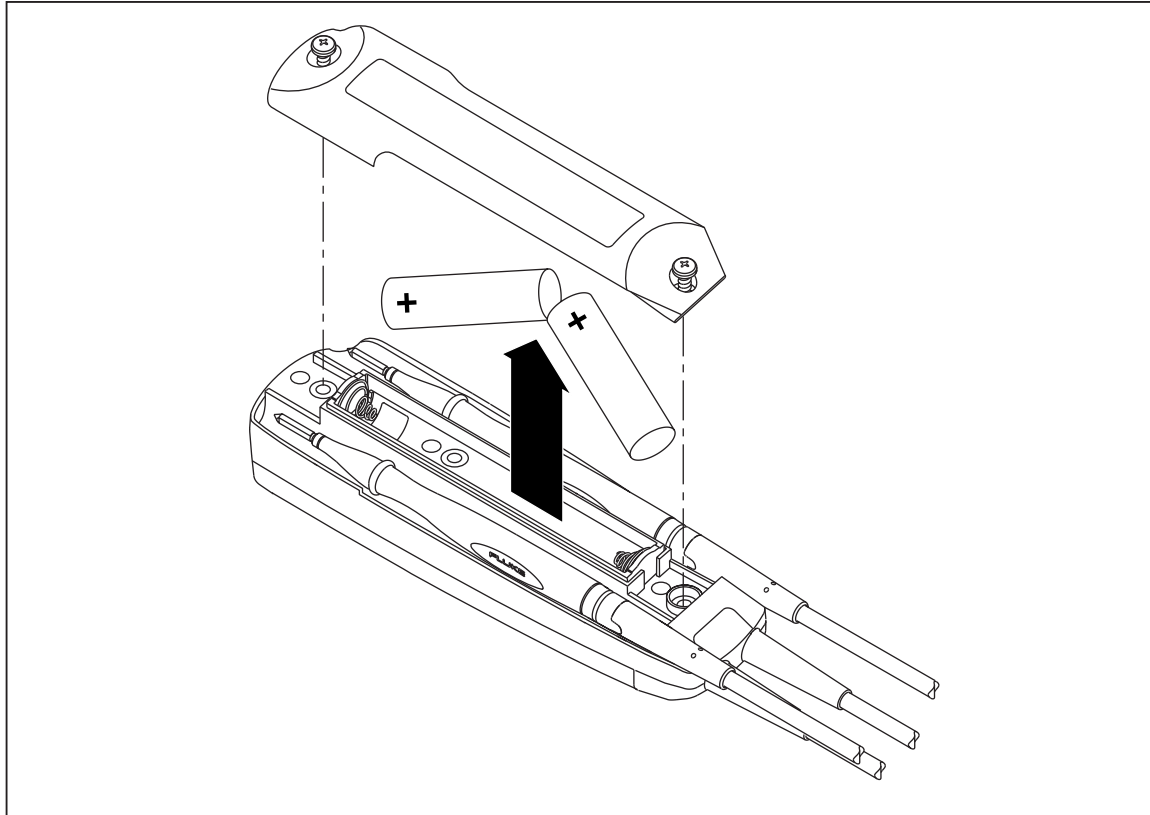


Figure 1. Calibration Adjustment Point

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## Battery Replacement

Replace the batteries when touching the leads together no longer turns on the continuity LED. Figure 2 shows how to replace the batteries.





**Figure 2. Replacing the Batteries**

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## **Parts and Accessories**

Table 3 shows the replacement parts and accessories available from Fluke for the T2 Tester.

**Table 3. Replacement Parts and Accessories**

<b>Description</b>	<b>Fluke Part Number</b>
Test lead assembly, flat blade  <input type="checkbox"/> Replace only with Fluke double-insulated leads.	686733
Test lead assembly, 4 mm round  <input type="checkbox"/> Replace only with Fluke double-insulated leads.	688165
Battery door	686741
AA battery, 1.5 V, carbon-zinc (2 required)	650181
AA battery, 1.5 V, alkaline (2 required)	376756
<i>T2 Tester Instruction Sheet</i> English, French, Spanish	686501
<i>T2 Tester Instruction Sheet</i> French, German, Italian, Finnish, Dutch	689692
<i>T2 Tester Instruction Sheet</i> Danish, Norwegian, Swedish, Spanish, Portuguese	689695
<i>T2 Tester Instruction Sheet</i> English, Korean, Thai, Simplified Chinese, Traditional Chinese	689684
H5 Belt Holster	Accessory