

## Barfield Bond Meter Competition Procedure

**TITLE:** Bond PASS/FAIL Test using Barfield BT-700 Handheld Bond Meter

**INTRODUCTION:** For users unfamiliar with the Barfield Model BT-700 operation, this procedure explains how to turn the instrument's power ON, how to set a PASS/FAIL limit; how to make a measurement and; complete a proficiency test to differentiate the PASS/FAIL status on a series of unknown resistance values.

**EQUIPMENT PROVIDED FOR TEST:**



Kelvin Klip



Display Probe













BT-700









Test Board

**INSTRUMENT OVERVIEW:** Though test instructions will specifically explain, button-by-button, how to turn the BT-700 ON and set up a test limit, the user should familiarize himself, or herself, on the Keypad and LCD Display by reviewing the descriptions below.

**Keypad;** The instrument keypad is a six (6) key, sealed membrane keypad. Each key provides audible and tactile user feedback when pressed. Key functions are described in *Figure 1* below.

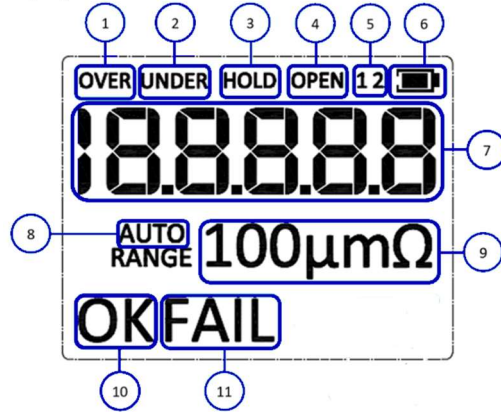
		Power instrument ON or OFF
		Disable auto-power OFF while instrument is on.
		Enter Test Limit Menu (See <i>Section Error! Reference source not found.</i> )
		While in Test Limit Menu, save current value and advance to next parameter
		Toggle display backlight
		Disable backlight 30-second timeout
		Hold currently displayed measurement and OK/FAIL result
		Enter/Exit Auto Hold mode (See <i>Section Error! Reference source not found.</i> )
	Increment/Decrement through ranges, including AUTO	
	While in Test Limit Menu, advance or reverse selected parameter	

*Figure 1: Keypad Button Functional Description*

The , , , and  keys have multiple functions which can be accessed by momentarily pressing the key, or alternatively, by pressing and holding the key for approximately 1.5 seconds. Throughout this Operation Manual, the press and hold sequence is indicated by the key designator followed by the subscript (1.5s). For instance,  (1.5s) indicates that the  key should be pressed and held for 1.5 seconds, then released to access the desired function.

**LCD Display;** The display is a large, easy to read, LCD display, with an LED backlight for clear viewing in low-light conditions. It can simultaneously display the resistance reading, range, PASS/FAIL status, open lead detection, over/under indication and the battery level.









See Figure 2 below for further description of each display indicator.



1	Measurement is overrange
2	Measurement is 10% or less of range
3	Solid: Hold function is active Flashing: Auto Hold function is active
4	One or both probes are not electrically connected (See Section <b>Error! Reference source not found., Error! Reference source not found.</b> )
5	If a probe is not electrically connected, the open channel is indicated (See Section <b>Error! Reference source not found., Error! Reference source not found.</b> )
6	Remaining battery life
7	Resistance measurement
8	AUTO range is active
9	Currently selected range
10	The measurement is less than the test limit
11	The measurement is greater than the test limit

Figure 2: LCD Display Description

### PREPARING THE BT-700 FOR TEST:

1. Press  to turn unit ON;
2. Press  key 5 times to select Auto-Range mode.
3. To set the Test Limit to 2.5 mΩ, Press  (1.5s) to access the Test Limit Menu.
4. Press  2 times until “2” is displayed, then Press  (1.5s)
5. Press  5 times until “5” is displayed, then Press  (1.5s)
6. Press  4 times to exit the Test Limit Menu.


### DESCRIPTION OF THE TEST:

1. To complete the test, the user will measure the resistance of seven different unknown resistors to determine whether not they are “OK” or “FAIL” by having values BELOW or ABOVE the test limit of 2.5 mΩ.
2. These seven resistors are numbered “1” through “7” on the test board, with each resistor test pad/lug marked “A” and “B”. At least two resistors on the test board will produce a “FAIL” indication.
3. The user’s job is to identify those failures.
4. For each measurement, the BT-700 display will provide the user with a digital readout of the resistance value AND a PASS/FAIL indication of “OK” or “FAIL”.
5. The BT-700 Display Probe will also provide an identical digital readout and PASS/FAIL indication using a GREEN light for “OK” and RED light for “FAIL”.
6. The user may rely on any to determine the resistor’s status.










## TEST PROCEDURE:

- The BARFIELD Model BT-700 Bond Tester uses two probes to test bond resistance.
- To complete each measurement, attach the Kelvin Klip probe to either the “A” or “B” lug, and touch both tips of the Display Probe to the pad of the opposite “B” or “A” for that numbered unknown resistance.
- A picture of a sample test board is below.



1. Measure Resistor “1” and record “OK” or “FAIL”.
2. Measure Resistor “2” and record “OK” or “FAIL”.
3. Measure Resistor “3” and record “OK” or “FAIL”.
4. Measure Resistor “4” and record “OK” or “FAIL”.
5. Measure Resistor “5” and record “OK” or “FAIL”.
6. Measure Resistor “6” and record “OK” or “FAIL”.
7. Measure Resistor “7” and record “OK” or “FAIL”.
8. Press  to turn unit OFF.
9. Record the Test Board # on the results sheet.
10. Submit results sheet to the judge.
11. Test is complete.

**RESETTING THE INSTRUMENT & TEST BENCH:**

1. Disconnect probes from the test board, set Test Limits back to ZERO and the Range back to 10 mΩ,
  1. Disconnect test probes from the test board. (Leave them plugged into the BT-700)
  2. Press  to turn unit ON;
  3. Press  key 5 times to select 10 mΩ Range.
  4. To set the Test Limit to 2.5 mΩ, Press  to access the Test Limit Menu.
  5. Press  2 times until "0" is displayed, then Press .
  6. Press  5 times until "0" is displayed, then Press .
  7. Press  4 times to exit the Test Limit Menu.
  8. Press  to turn unit OFF.