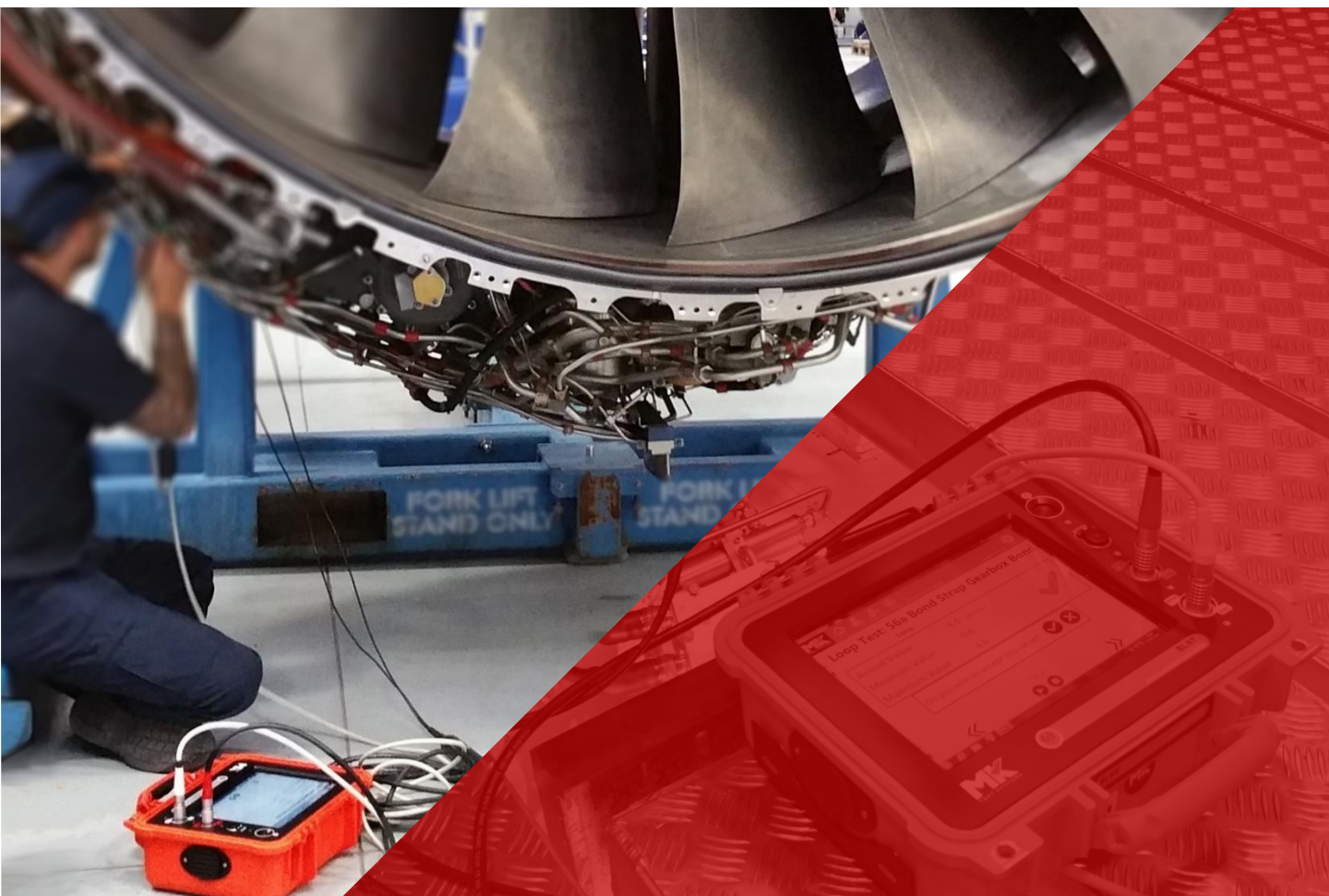


# BLRT

## AUTOMATIC BOND, LOOP & JOINT RESISTANCE TEST SYSTEM



**200Hz model - approved by The Boeing Company  
as an alternative to the LRT Loop Resistance Tester**

Alternative to LRT models 906-10246-3; 906-10247-3; 906-10276-3. Suitable for non-explosive environments.

# WHAT IS ELECTRICAL BOND TESTING?

The electrical bonding on an aircraft protects the aircraft and passengers by limiting the effects of lightning strikes, stray currents, HIRF and EMC. The integrity of bonding circuits is critical to ensure they perform reliably to ensure normal and safe operation of the aircraft control and communication systems.

## BOND TEST

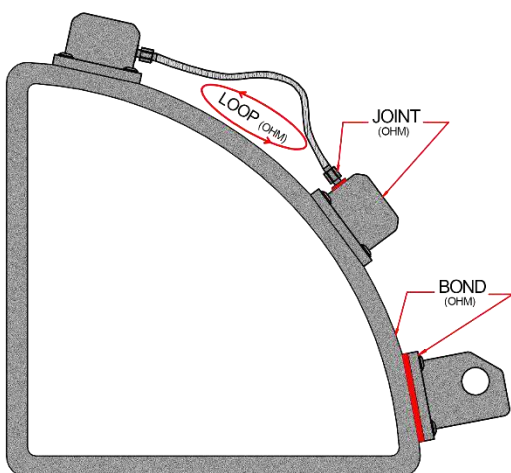
Measures the electrical resistance between two metallic elements, typically between a bracket and structure. The BLRT uses the 4-wire (Kelvin) resistance measurement to ensure micro-ohm accuracy.

## LOOP TEST

Here, several metallic elements and equipment are connected to create a loop of parallel resistance. The loop is typically made up of cable shields and bonding straps. The loop test makes use of specially designed test method, using a pair of clamps to inject and detect current flowing through the loop. The BLRT controls the flowing current and frequency, combines this with the known voltage fed back from the internal power source, and automatically carries out a phase correction to accurately report the loop resistance.

## JOINT TEST

The ground loop is made up of several elements such as shield, backshell, connector, equipment and structure. The joint resistance between these elements is critical in determining the total loop resistance. If a loop resistance is high, it is likely due to a single joint being loose or damaged, hence showing high resistance. While the BLRT loop clamps are injecting a known current through the ground loop, joint probes are used to measure the volt drop across specific joints; the volt drop is then phase corrected, and the joint resistance reported.



### THE BLRT PERFORMS SIMPLE, RAPID & AUTOMATIC TEST AND MEASUREMENT OF:

- ✓ Bond resistance between structural elements
- ✓ Loop resistance and integrity of cable shields
- ✓ Loop resistance and integrity of bonding straps
- ✓ Joint resistance diagnostics



## BLRT FEATURES & BENEFITS

### LIGHTWEIGHT AND ROBUST

- ✓ Single operator use
- ✓ Battery powered and truly portable
- ✓ Weight <7kg
- ✓ Size 35cm x 30cm x 15cm

### AUTOMATIC

- ✓ Integrated computer complete with MK BLRT software
- ✓ Automated test process, saving time and gaining efficiency
- ✓ Paperless process
- ✓ On screen graphical operator guidance
- ✓ Simple touchscreen control
- ✓ User login and access control
- ✓ Automatic pass and fail of measured value
- ✓ Automatic logging and upload of test results
- ✓ Guarantees traceability by user, UUT, measured result

### ACTIVE PROBES AND CLAMPS

- ✓ Push button control enables full test control from the probes and loop clamps
- ✓ LED pass fail indication on probes and loop clamps improves test efficiency
- ✓ Integrated lights on probes for testing in dark areas
- ✓ Various probe and clamp formats and sizes available

### RELIABLE AND ACCURATE

- ✓ Integrated self test and validation toolset
- ✓ Automatically validates system performance during test and after clamp or probe change

FEATURES	BLRT	LRT
<b>Operators</b>	✓ Single	× 2 operators required
<b>Calibration</b>	✓ Can be carried out by user in typically 30 minutes	× Return to base – typical turnaround is 2 months
<b>Weight</b>	✓ 7kg / 15.5lbs	× 17kg / 37.5lbs
<b>Batteries</b>	✓ Hot swap batteries – batteries can be replaced whilst unit is in use	× Low battery power affects accuracy of results. Tool can't be used whilst battery is charging
<b>Typical leadtime</b>	✓ Available from stock	× 16-20 weeks

MAIN FEATURES			
✓ Tough polypropylene enclosure	✓ Carrying handle and optional harness	✓ USB port (when data adapter fitted)	✓ Network port (when data adapter fitted)
✓ Flip-off protective lid, with self-test fixture	✓ Soft-start current source prevents arcing	✓ Active probes & clamps	✓ Pass fail status indication on probes & clamps
✓ LCD 10.4" touchscreen integrated monitor	✓ On-screen instructions	✓ Auto and manual modes	✓ Wide range of custom probes available
✓ Smart Li-Ion "hot-swap" batteries	✓ Wireless data upload & download		
✓ Lightweight			
BOND TEST MEASUREMENT (DC) – OPTIONAL – ONLY APPLIES WHEN FITTED			
<b>Current (DC)</b>	up to 10A (10% accuracy)	<b>Resistance resolution</b>	0.1mΩ
<b>Resistance range</b>	0.1mΩ to 2mΩ	<b>Resistance accuracy</b>	±(1% of reading ±0.1mΩ) @ 10A
LOOP TEST MEASUREMENT – MK52 Clamps			
<b>Mode</b>	<b>Range 1</b> 1 Arms (constant current)	<b>Range 2</b> 0.004 Vrms (constant voltage)	<b>Range 3</b> 0.004 Vrms (constant voltage)
<b>Frequency</b>	200Hz	200Hz	200Hz
<b>Resistance range</b>	0.5mΩ to 4mΩ	>4mΩ to 40mΩ	>40mΩ to 4000mΩ
<b>Resistance resolution</b>	0.01mΩ	0.01mΩ	0.01mΩ
<b>Resistance accuracy</b>	±(2% of reading + 0.4mΩ)	±(2% of reading + 0.4mΩ)	±(5% of reading + 0.4mΩ)
LOOP TEST MEASUREMENT – MK32 Clamps (400 derivative)			
<b>Mode</b>	<b>Range 1</b> 1 Arms (constant current)	<b>Range 2</b> 0.004 Vrms (constant voltage)	<b>Range 3</b> 0.004 Vrms (constant voltage)
<b>Frequency</b>	200Hz	200Hz	200Hz
<b>Resistance range</b>	0.5mΩ to 4mΩ	>4mΩ to 40mΩ	>40mΩ to 400mΩ
<b>Resistance resolution</b>	0.01mΩ	0.01mΩ	0.01mΩ
<b>Resistance accuracy</b>	±(2% of reading + 0.4mΩ)	±(2% of reading + 0.4mΩ)	±(5% of reading + 0.4mΩ)
JOINT TEST MEASUREMENT			
<b>Mode</b>	<b>Range 1</b> 1 Arms (constant current)	<b>Range 2</b> 0.004 Vrms (constant voltage)	<b>Range 3</b> 0.004 Vrms (constant voltage)
<b>Frequency</b>	200Hz	200Hz	200Hz
<b>Applied loop resistance range</b>	0.5mΩ to 4mΩ	>4mΩ to 40mΩ	>40mΩ to 4000mΩ
<b>Joint resistance range</b>	0.05mΩ to 4mΩ	0.05mΩ* (@0.5mΩ loop) to 40mΩ	0.5mΩ* (@40mΩ loop) to 4000mΩ (to 400mΩ with MK32 clamp)
<b>Joint low calculation</b>	0.05mΩ	1.25% of loop	1.25% of loop
<b>Resistance resolution</b>	0.01mΩ	0.01mΩ	0.01mΩ
<b>Resistance accuracy</b>	±(5% of joint +0.025mΩ + 0.25% of loop)	±(5% of joint + 0.025mΩ + 0.25% of loop)	±(5% of joint + 0.025mΩ + 0.25% of loop)
<small>*To determine lowest measurable joint resistance for a given loop use: Joint (low) = Loop resistance x percentage shown</small>			
LOW JOINT INDICATION			
<b>Mode</b>	Autoranging (max 1Arms)	<b>Joint resistance range</b>	Up to 0.05mΩ
<b>Frequency</b>	200Hz	<b>Resistance resolution</b>	n/a
<b>Applied loop resistance range</b>	0.5mΩ to 40mΩ	<b>Resistance accuracy</b>	System reports "<0.05mΩ" for measurable joints below 0.05mΩ

### Support and further information

MK Test System solutions combine powerful and flexible capability with a global sales and support network to provide our customers with the most complete solution available in the testing industry.



MK HQ & regional offices  
(UK, USA, Hong Kong)



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