

RELIABLE EQUIPMENT

Testing and Refurbishing
Program

2016

Reliable
Equipment,
Warminster, PA



Reliable Equipment

Reliable
manufactures
and tests ground
cables for
various power
utilities and
construction
companies in
the USA



Pick up and
delivery available
upon location.



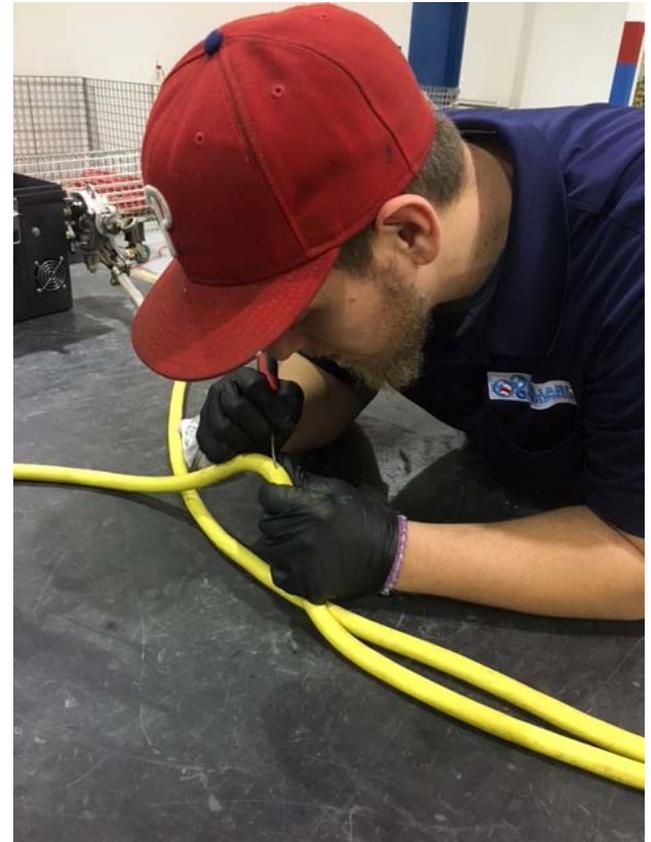
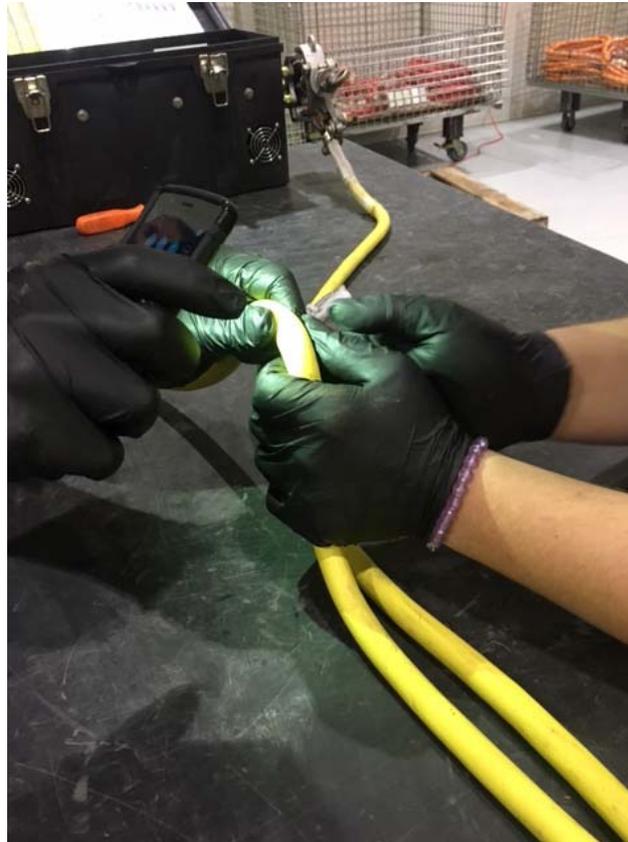
Cable sets are identified and serial numbered



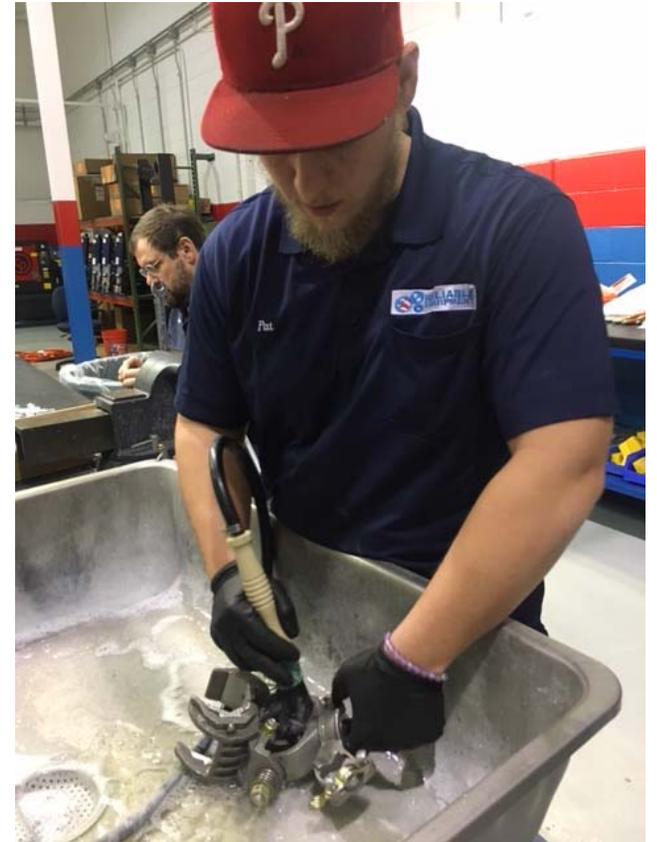
Cable insulation is cleaned.



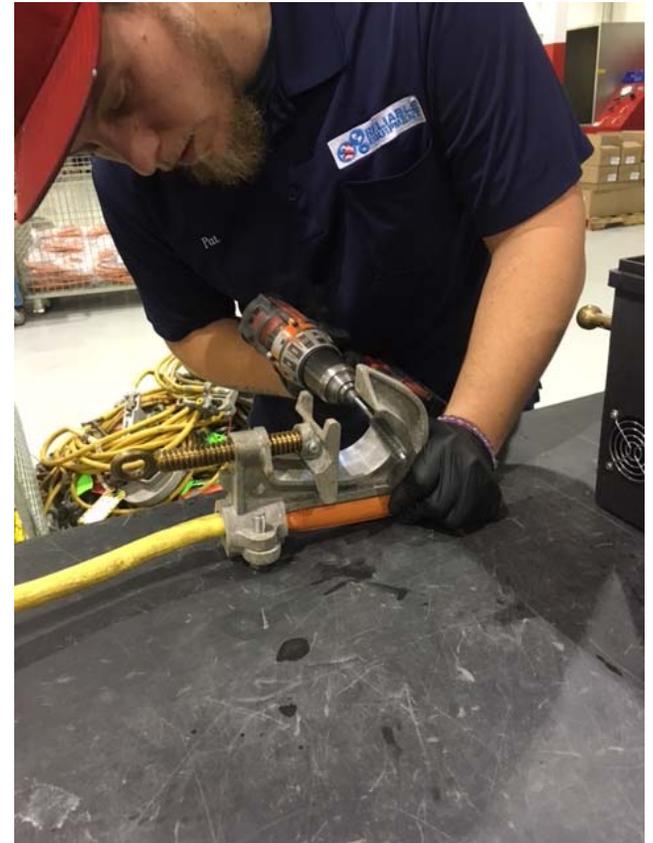
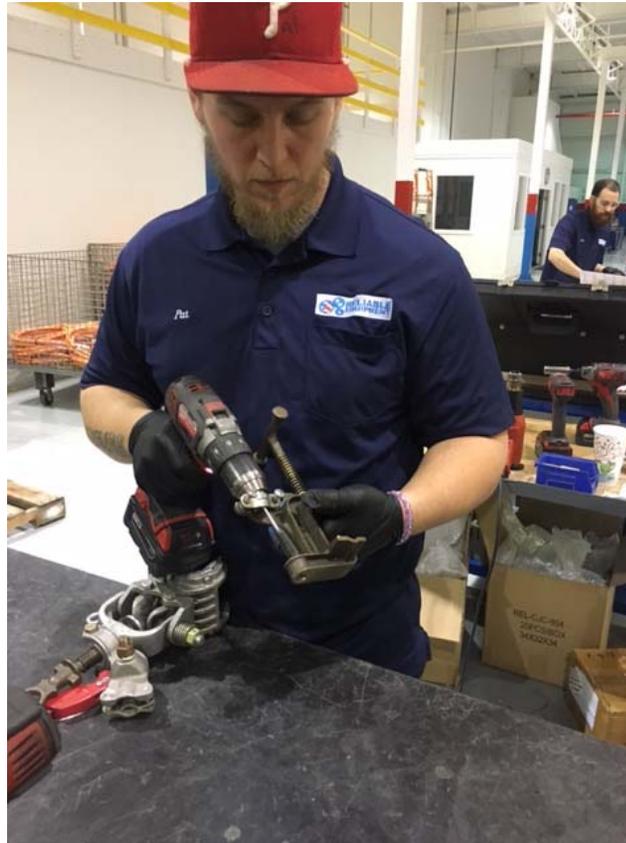
Cable insulation is inspected



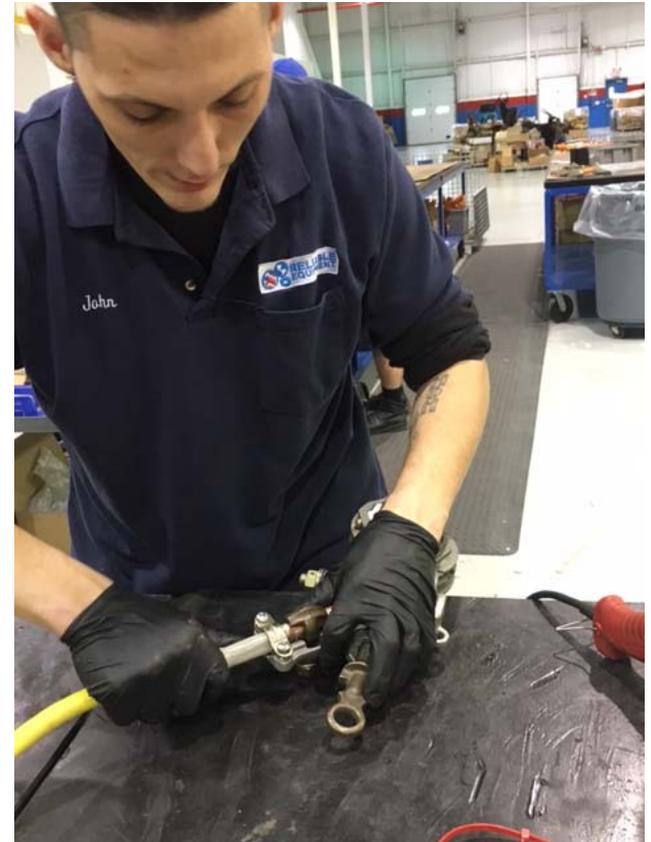
Clamp ends are disassembled and cleaned



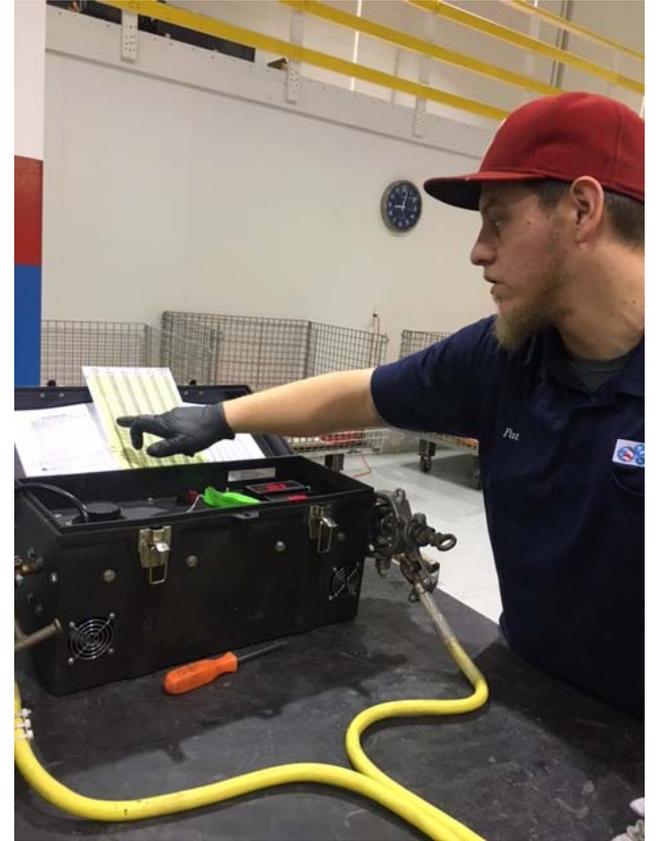
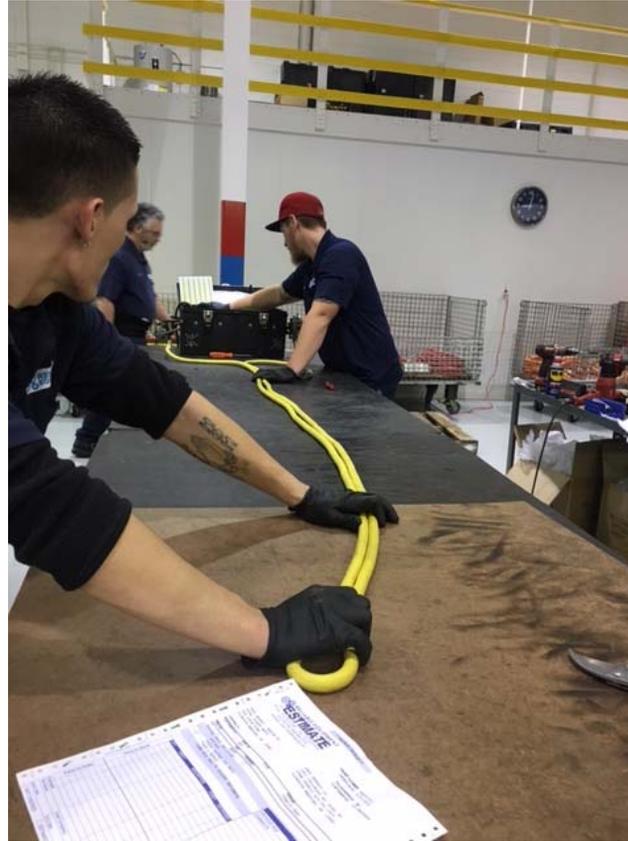
Clamp contacts are cleaned and polished



Heat-shrink added
and clamps
reassembled



Current is applied
and the voltage
measured



Finished cable.
Ready for
shipping or
delivery.



Reliable Equipment and Service Co., Inc.
**Test Methods for In-Service Temporary Grounding Assemblies
Per ASTM F2249-03 Guidelines**

Scope of the Test Methods:

The specifications outline in-service inspection and electrical testing for temporary grounding jumper assemblies which have been used by electrical workers in the field.

Significance of the Testing:

The test procedures in this specification provide an objective means of determining if a grounding jumper assembly meets minimum electrical specifications.

Mechanical damage, other than broken strands, may not significantly affect the cable resistance. Close manual and visual inspection is required to detect some types of mechanical damage.

Retest the grounding jumper assembly after performing any maintenance in order to ensure its integrity.

Procedure for the Testing:

A. Cleaning and Measuring of Grounding Jumper Assembly Prior to Electrical Testing:

1. Identify the cable gage (AWG) and make a precise measurement of the cable length.
2. Clean cable insulation with solvent.
3. Thoroughly clean the jaws of the clamps with a stiff wire brush.

B. Inspection of Grounding Jumper Assemblies:

1. Visual inspection shall be made of all grounding jumper assemblies prior to testing.
 - a. If the following defects are evident, the grounding jumpers may be rejected without electrical testing:

- a1. Cracked or broken ferrules and clamps.
- a2. Exposed broken strands.
- a3. Cut or badly mashed or flattened cable.
- a4. Extensively damaged cable - covering material.
- a5. Swollen cable jacket or soft spots, indicating internal corrosion.
- a6. Cable strands with a black deposit on them.

b. Grounding jumper assemblies which are visually defective shall be removed from service and permanently marked, tagged or destroyed (if beyond repair) to prevent re-use.

c. Before the grounding jumper assembly can be placed back in service, it must pass the inspection requirements in the above Section (B.1.a.) and in Section D: Electrical Requirements.

C. Electrical Requirements:

1. Our preferred electrical test method relative to the standard is:

a. AC impedance measurements

Testing shall be performed per the specifications of the Operating Instructions for the Bierer GT Series Assembly Tester (attached).

2A. Grounding jumper assemblies which do not pass the electrical test will be subject to repair /reconditioning as outlined in Section D.

OR

2B. Grounding jumper assemblies that fail the electrical test shall be removed from service and permanently marked or destroyed to prevent reuse.

A quote will be issued by the sales department for a **NEW** equivalent jumper/ground assembly.

Reliable Equipment and Service Co., Inc. In-Service Test Methods for Temporary Grounding Jumpers and Assemblies **is modeled after the ASTM F2249-03 Standard.**

D. Repair/Reconditioning of Grounding Jumper Assembly after inspection:

1. For the readings which are high, additional cleaning and tightening of the assembly may restore its electrical integrity.
2. Disassemble the grounding jumper assembly and thoroughly clean the ferrule and clamp interface with isopropyl alcohol and a stiff wire brush.
3. Inspect all components during the disassembly and reassembly process.
4. Reassemble the grounding jumper.
All physical connections should be checked for tightness with specified torque values.
5. Grounding jumper assemblies that fail the electrical test after additional maintenance or repairs are performed shall be removed from service and permanently marked or destroyed to prevent reuse.
6. A quote will be issued by the sales department for a **NEW** equivalent jumper/ground assembly.

OPERATING INSTRUCTIONS

For GT Series Grounding Assembly Tester

1. Make sure the current control knob is turned fully counter clockwise to zero.
2. Install the test studs into the threaded terminals provided on the sides of the tester.
3. Plug the power cord into any 115V AC outlets rated at 20 amperes or higher.
4. Measure the grounding jumper to the nearest foot. For lengths not shown on the chart, round to the nearest foot. For lengths not shown on the chart, round to the nearest length. For a more conservative test, always round down.
5. Clamp the grounding jumper to the test studs, making sure clamps are properly tightened. See diagrams for preferred cable configurations.
6. Turn the power switch to the "ON" position.
7. While observing the digital ammeter, slowly turn the current control knob clockwise until the current in the test cable reaches its rated ASTM value (based on the cable diameter) provided on the table.
8. Observe the voltage reading on the digital volt meter. Compare this reading to the voltage values in voltage drop table for the length and size of cable being tested.
9. If the voltage reading is equal to or less than that specified in the table, the grounding jumper passes the test.
10. Rotate the current control knob full counter clockwise to the zero position before removing clamps.
11. Grounding jumpers failing the test must be disassembled for inspection, cleaning, tightening, and/or terminal replacement. If the grounding jumper fails the retest after maintenance is performed, the grounding jumper should be removed from service and disposed of to prevent further use.
12. To insure maximum cooling of the power transformers, do not turn unit off between test(s).

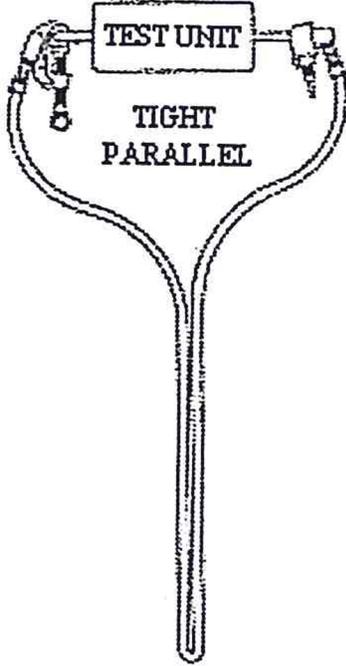
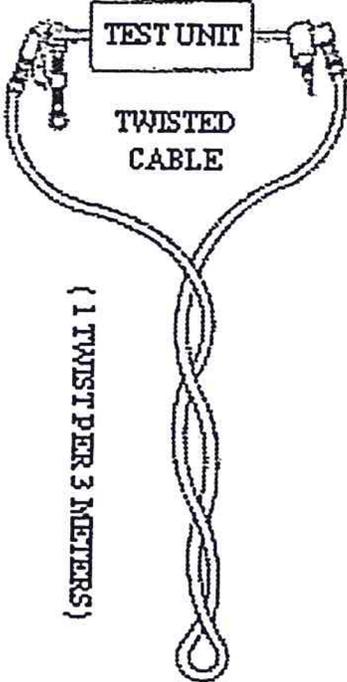
IF THE DUTY CYCLE IS EXCEEDED, THE UNIT WILL AUTOMATICALLY SHUT DOWN AND WILL NOT RESTART UNTIL THE TRANSFORMERS COOL DOWN. CONSISTENTLY EXCEEDING THE DUTY CYCLE MAY RESULT IN DAMAGE TO THE GROUNDING ASSEMBLY TESTER.

WARNING!

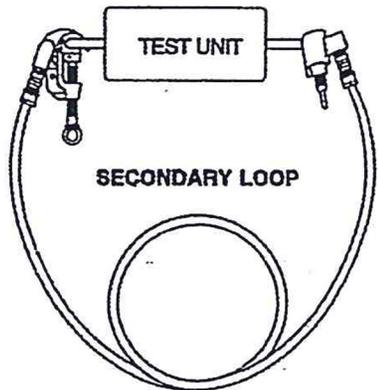
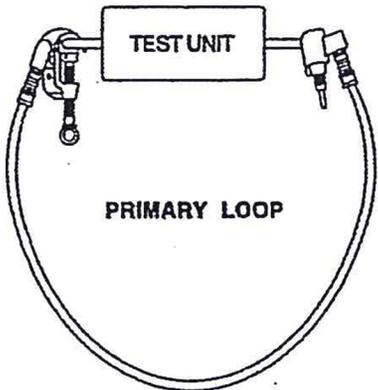
If the grounding jumper being tested has defects, the defective area can get hot in a matter of seconds and could cause burns if touched. The operator of the tester should wear proper hand protection when handling grounding jumpers during testing.

CABLE CONFIGURATIONS

PREFERRED CONFIGURATIONS



AVOID THESE CONFIGURATIONS





RELIABLE EQUIPMENT & SERVICE CO., INC.

Trained personnel completing course
requirements for GT400HDXL
Ground Tester.



Certificate of Training

RELIABLE EQUIPMENT CO.

In honor of your outstanding performance and dedication we gladly present this to:

Jerry Chirinos

for completing all the course requirements for
GT400HDXL Grounds Tester

Awarded on October 20, 2014



Rick Kennerly
VP Engineering & Operations
Bierer & Associates Inc.

Certificate of Training

RELIABLE EQUIPMENT CO.

In honor of your outstanding performance and dedication we gladly present this to:

Patrick O'Neill

for completing all the course requirements for
GT400HDXL Grounds Tester

Awarded on October 20, 2014



Rick Kennerly
VP Engineering & Operations
Bierer & Associates Inc.

Certificate of Training

RELIABLE EQUIPMENT CO.

In honor of your outstanding performance and dedication we gladly present this to:

Troy Walsh

for completing all the course requirements for
GT400HDXL Grounds Tester

Awarded on October 20, 2014



Rick Kennerly
VP Engineering & Operations
Bierer & Associates Inc.

Certificate of Training

RELIABLE EQUIPMENT CO.

In honor of your outstanding performance and dedication we gladly present this to:

Steve Schneider

for completing all the course requirements for
GT400HDXL Grounds Tester

Awarded on October 20, 2014



Rick Kennerly
VP Engineering & Operations
Bierer & Associates Inc.



Instrument Test Certificate and Statement of Calibration Practices

Bierer and Associates, Inc. hereby certify that your product was calibrated in accordance with applicable calibration procedures during the manufacturing process. These processes are controlled and designed to assure that the instrument will meet its published specification.

Bierer and Associates, Inc. further certify the measurement standards and instruments used during the calibration of this product are traceable to the United States National Institute of Standard and Technology (NIST). At planned intervals, Bierer and Associates, Inc. measurement standards are calibrated by comparison to or measured against the standards of NIST.

Joe Bierer
Plant Manager

Bierer & Associates, Inc.
10730 Farrow Rd.
Blythewood, S.C. 29016
(803)786-4839

Model: GT600VMA
Serial #: 17410
Calibration Date: 09/03/2015
Recalibration Date: N/A

Calibration DATA (Fluke model 45) – Typical



Instrument Test Certificate and Statement of Calibration Practices

Bierer and Associates, Inc. hereby certify that your product was calibrated in accordance with applicable calibration procedures during the manufacturing process. These processes are controlled and designed to assure that the instrument will meet its published specification.

Bierer and Associates, Inc. further certify the measurement standards and instruments used during the calibration of this product are traceable to the United States National Institute of Standard and Technology (NIST). At planned intervals, Bierer and Associates, Inc. measurement standards are calibrated by comparison to or measured against the standards of NIST.

Joe Bierer
Plant Manager

Bierer & Associates, Inc.
10730 Farrow Rd.
Blythewood, S.C. 29016
(803)786-4839

Model: GT600VMA
Serial #: 17531
Calibration Date: 8/24/2015
Recalibration Date: N/A

Calibration DATA (Fluke model 45) – Typical



**RELIABLE EQUIPMENT
& SERVICE CO., INC.**

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Visit us on the web at www.Reliable-Equip.com