HARSCO RAIL
Enabling TECHNOLOGY IN MOTION

www.harscorail.com

SERVICE BULLETIN

MAINTENANCE OF WAY EQUIPMENT

DATE: 05 - 2026 **BULLETIN NO:** SBUS000142-26

TITLE: Voltage Regulator Repair - Electrodyne

RATING:

- [X] **DIRECTIVE** (Action Is Required)
- [ ] **ALERT** (Potential Problem)
- [ ] **INFORMATION** (Action Is Optional)
- [ ] **PRODUCT IMPROVEMENT** (Enhance Product)

PRODUCT SERIES / MODEL: All RGH10C Rail Grinders - also some PGM and SRGM Rail Grinders

SERIAL NO's: N/A

SUMMARY: It has been determined that some Voltage Regulators (Harsco Rail P/N 3402823) made by Electrodyne built in 2023 or after, are malfunctioning due to being assembled incorrectly. It is known this voltage regulator is used on all C model grinders and some of the PGM and SRGM grinders as well. This instruction will determine if the voltage regulator needs repair and if so, how to disassemble, repair, and reassemble the components properly.

OPERATIONAL IMPACT:

If voltage regulator is not operating correctly, this instruction will demonstrate how to repair the unit so it operates as designed.

ACTION: Repair voltage regulator so it will work properly.

CONTACT: Harsco Rail Service Department
Please contact Kelly Gardner - kgardner@harsco.com

SAFETY INFORMATION

- **Follow applicable railroad lockout - tagout procedures to disable energy sources when performing maintenance, making adjustments or repairs to the vehicle or equipment.**
- **Refer to energy control procedure to remove all energy sources from machine before performing maintenance or making adjustments or repairs to machine.**

Failure to heed these warnings could result in severe bodily injury.

Pre-Maintenance Steps

1. Comply with all company safety rules and operating procedures before starting any maintenance.
2. Make sure the machine is in a safe location for the maintenance being performed.
3. Ensure the maintenance personnel are qualified to perform the maintenance procedures.
4. Make sure unintended movement of the machine cannot occur. Apply hand brakes. Chock machine wheels, if required.
5. Ensure grinding heads and grinding carriages are raised and locked in the stowed position.
6. Stop the engine and turn the master disconnect switch off.
7. Depressurize the air and hydraulic systems.
8. Locate the electrical enclosure(s) where the voltage regulator(s) is mounted.

Determine Whether Voltage Regulator is Among the Affected: - See Figure 1

1. Look for the manufacturer's model number (1) etched into the bottom of the voltage regulator. The model number in question is **E-243-4-24**.
2. Check the bottom of the voltage regulator for the etched serial number (2). Look at the first two digits to determine the assembly year:
   - Starts with "**23**" or higher: These units are from 2023 or newer and may be assembled incorrectly.
   - Starts with "22" or lower: These units are not affected.

   Note: Voltage Regulator serial number shown in Figure 1 is an example of a component that is <u>not affected</u> - due to the serial number beginning with a "13".

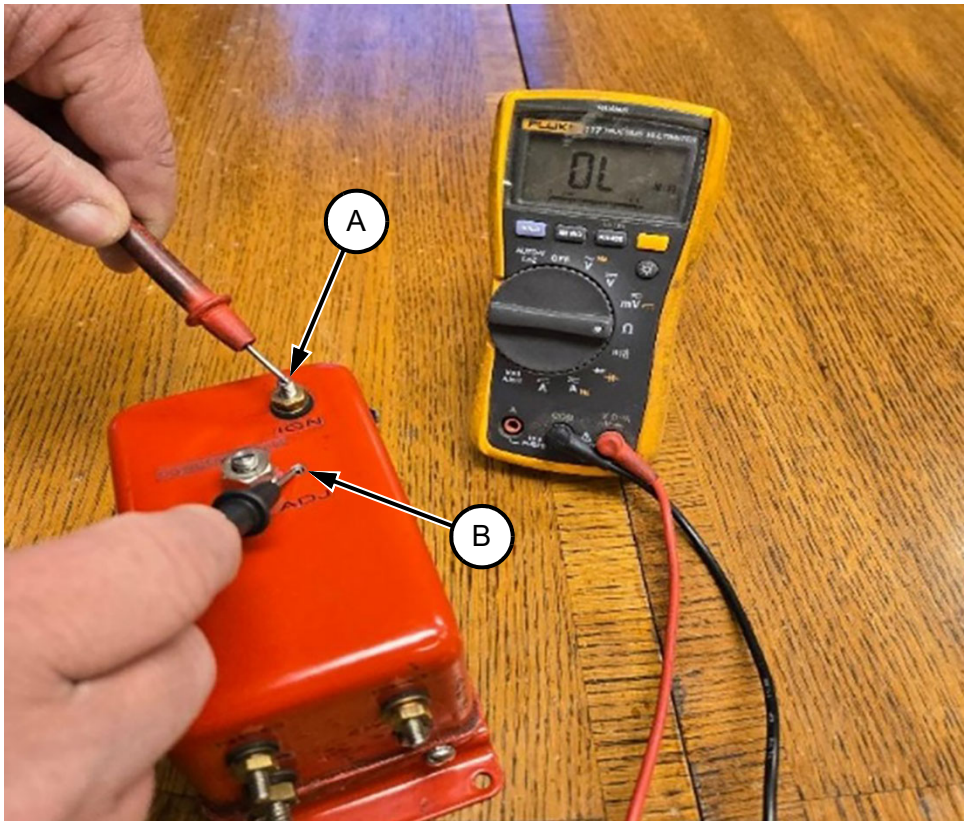
FIGURE 1
VOLTAGE REGULATOR
MODEL AND SERIAL NUMBER ETCHINGS

Testing with Ohmmeter - See Figure 2

1. If the model and serial numbers match the criteria for a malfunctioning unit - follow these steps using an ohmmeter to check the continuity between the "IGN" post and the Regulator Can.

    a. Use an ohmmeter (set to the Ω symbol) to test the connection:
    b. Touch the red lead to the "IGN" post (A) on top of the regulator.
    c. Touch the black lead (B) to the small hole next to the "VOLT ADJ" post (or any unpainted metal surface on the can).
    d. Check the reading:
        - If it reads "OL" or "Open": The internal and external Insulating Shoulder Washers are properly in place and the components are assembled correctly. No further action is needed.
        - If it shows a number: You must disassemble the can and properly install the internal and external Insulating Shoulder Washers. See the following procedure.

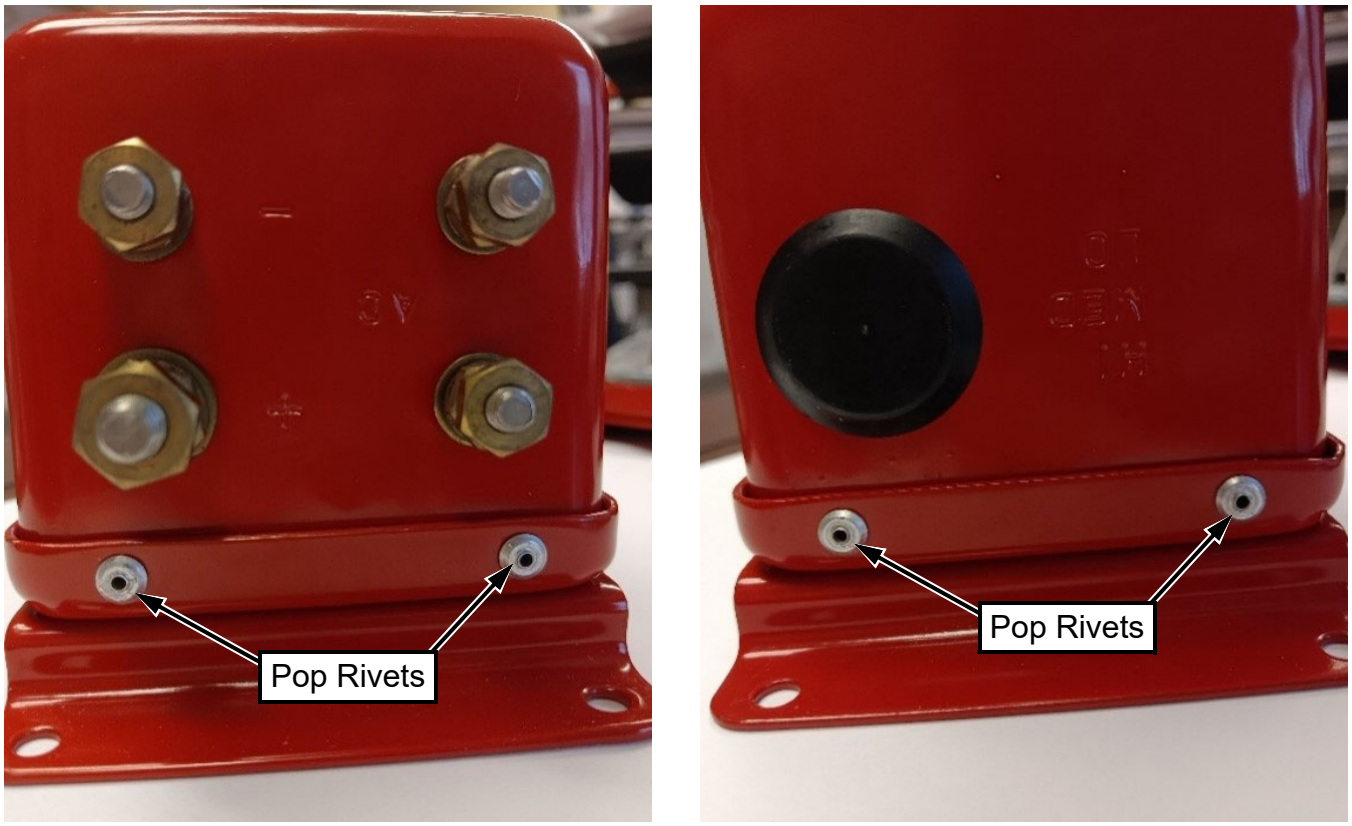
FIGURE 2
OHMMETER TESTING



Regulator Can Disassembly - See Figure 3

1. The Regulator Can will need to be opened up - which is held together by either pop rivets - or screws.

FIGURE 3
REGULATOR CAN RIVETS



2. Drill out the four pop rivets with a #21 (.1590 dia) drill bit. Remove the drilled out rivets with needle nosed pliers or other suitable tool.

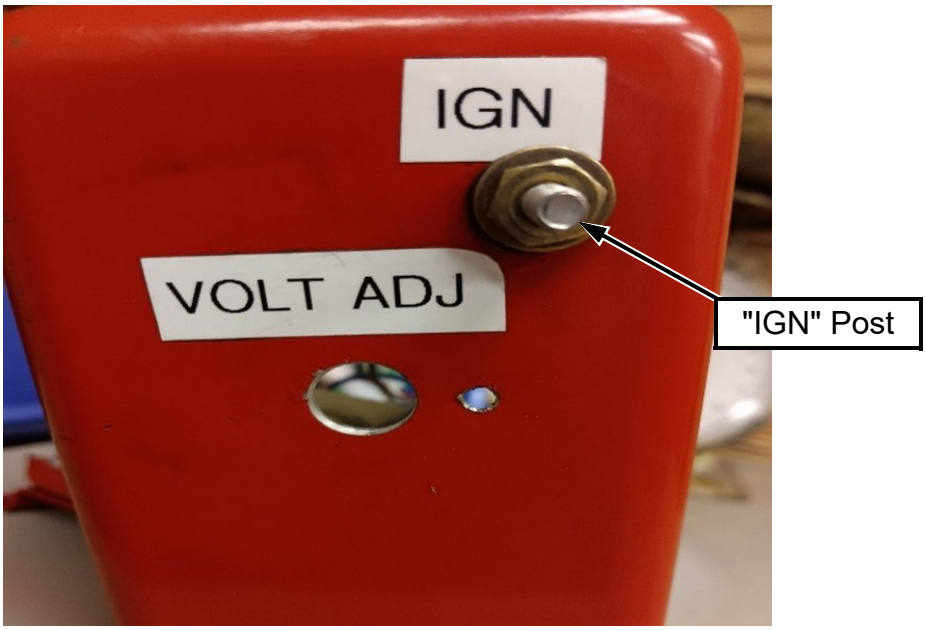
   If screws were used, remove the screws. Secure the screws in case you want to re-use them at assembly.

3. Remove the Regulator Can from the base. Thoroughly blow out all metal shavings with compressed air.

Wiring Disassembly Procedure - See Figure 4

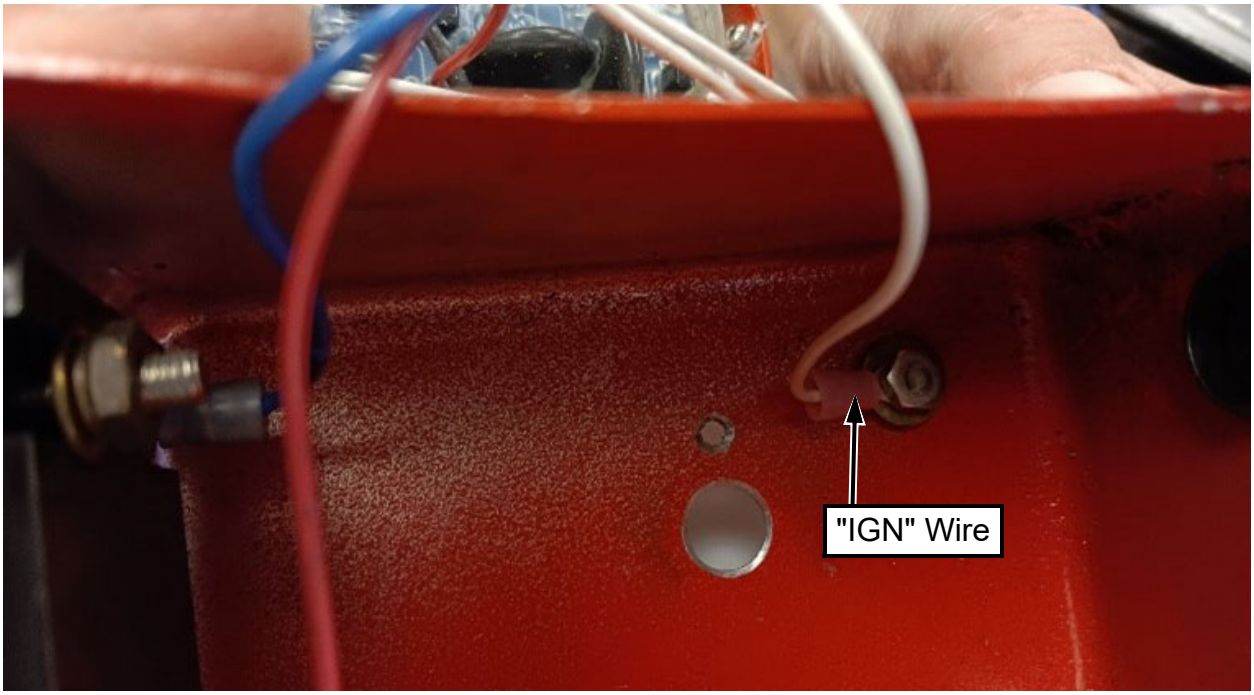
1. On the outside of the can, find the "IGN" (Ignition) label and the hardware securing the "IGN" post.

FIGURE 4
LOCATE "IGN" HARDWARE



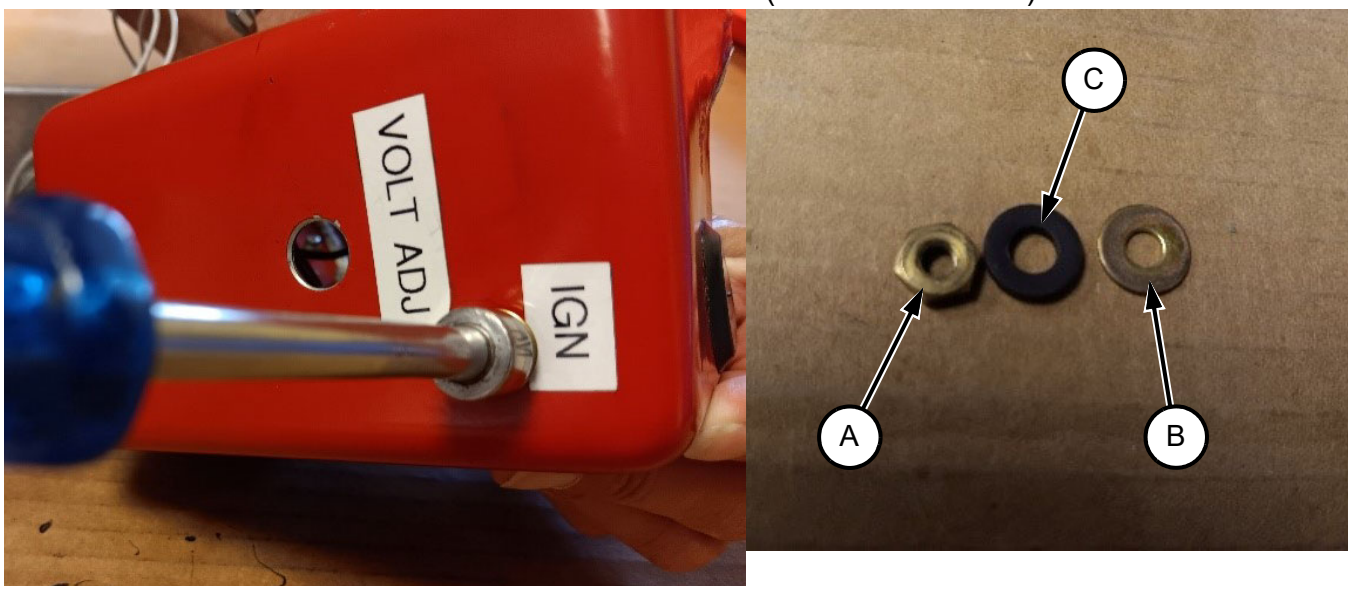
2. Inside the can, locate the ignition wire. Hold the Hex Head Cap Screw (D) and "IGN" wire terminal (E) securely while removing the hardware on the other side of the can.
   - See Figures 5 thru 8

FIGURE 5
"IGN" WIRE - INSIDE CAN



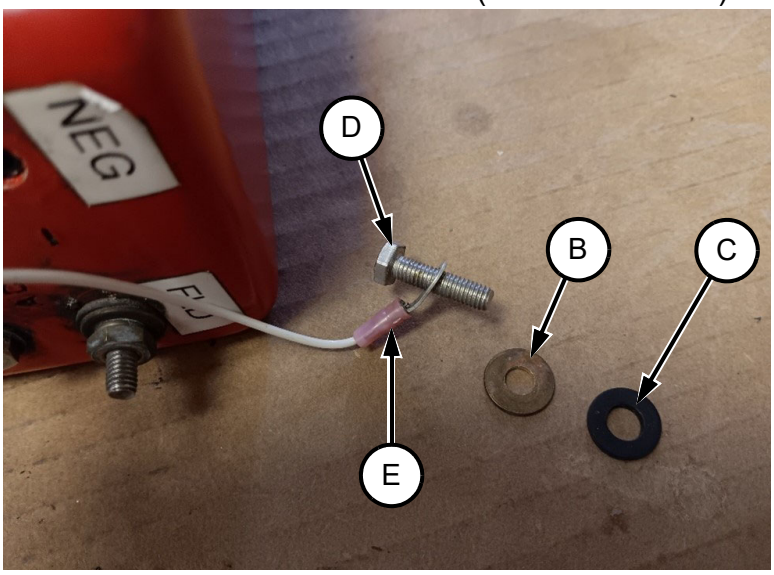
3. Remove the Hex Nut (A), Brass Washer (B), and Insulating Shoulder Washer (C) from the outside of the can. Keep track of the hardware as it will be re-used at assembly.
- See Figure 6

FIGURE 6
REMOVE "IGN" HARDWARE - (on outside of Can)



4. Gently pull the Hex Head Cap Screw (D) and the attached "IGN" Wire Terminal (E) - along with the Brass Washer (B) and Insulating Shoulder Washer (C) from the inside of the can. Keep track of the hardware as it will be re-used at assembly. - See Figure 7

FIGURE 7
REMOVE "IGN" HARDWARE (on inside of Can)



Wiring Re-Assembly Procedure - See Figure 8

Follow these steps to ensure the "IGN" post is properly insulated from the Regulator Can.

1. Pre-assemble the "IGN" Post Hardware.
   Slide the following components onto the Hex Head Cap Screw (D) in this exact order:
   - "IGN" Wire Terminal (E)
   - Brass Washer (B)
   - Insulating Shoulder Washer (C)

   Note: Ensure the shoulder of the Insulating Shoulder Washer faces away from the screw head (see Figure 8).

2. Install the Assembly into the Can.
   From the inside of the Regulator Can, insert the assembled screw through the "IGN" hole.

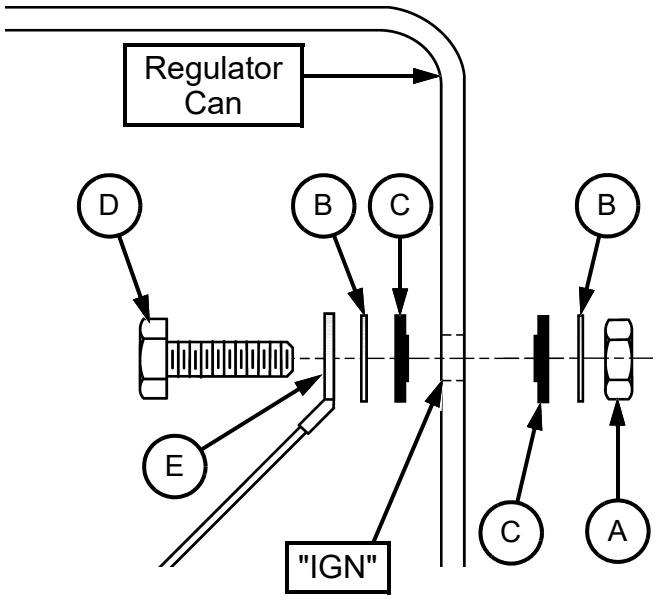
   Note: The shoulder of the Insulating Shoulder Washer (C) must seat fully into the hole to prevent the screw from touching the metal can.

3. Secure the Hardware.
   From the outside of the can, finish the stack by adding these parts to the protruding screw in this exact order:
   - Insulating Shoulder Washer (C) (Shoulder must face into the hole)
   - Brass Washer (B)
   - Hex Nut (A)

4. Final Check.
   Tighten the Hex Nut (A) securely. Verify that the shoulders of both Insulating Shoulder Washers (C) are mated flush against the can walls on both sides.

   Note: If missing Insulating Shoulder Washers or Brass Washer, - place an order for Harsco Rail P/N 5152064 Voltage Regulator Kit - these components are in the kit.

FIGURE 8
ASSEMBLE "IGN" HARDWARE



Regulator Can Assembly - See Figure 9

1. Place the Regulator Can back onto it's base and secure with four new U-Drive, Drive Screw #4-7 x 3/16 Rd Hd Gr 18-8, Stainless Steel (Fastenal 0172719).

FIGURE 9
SECURING REGULATOR CAN ONTO BASE

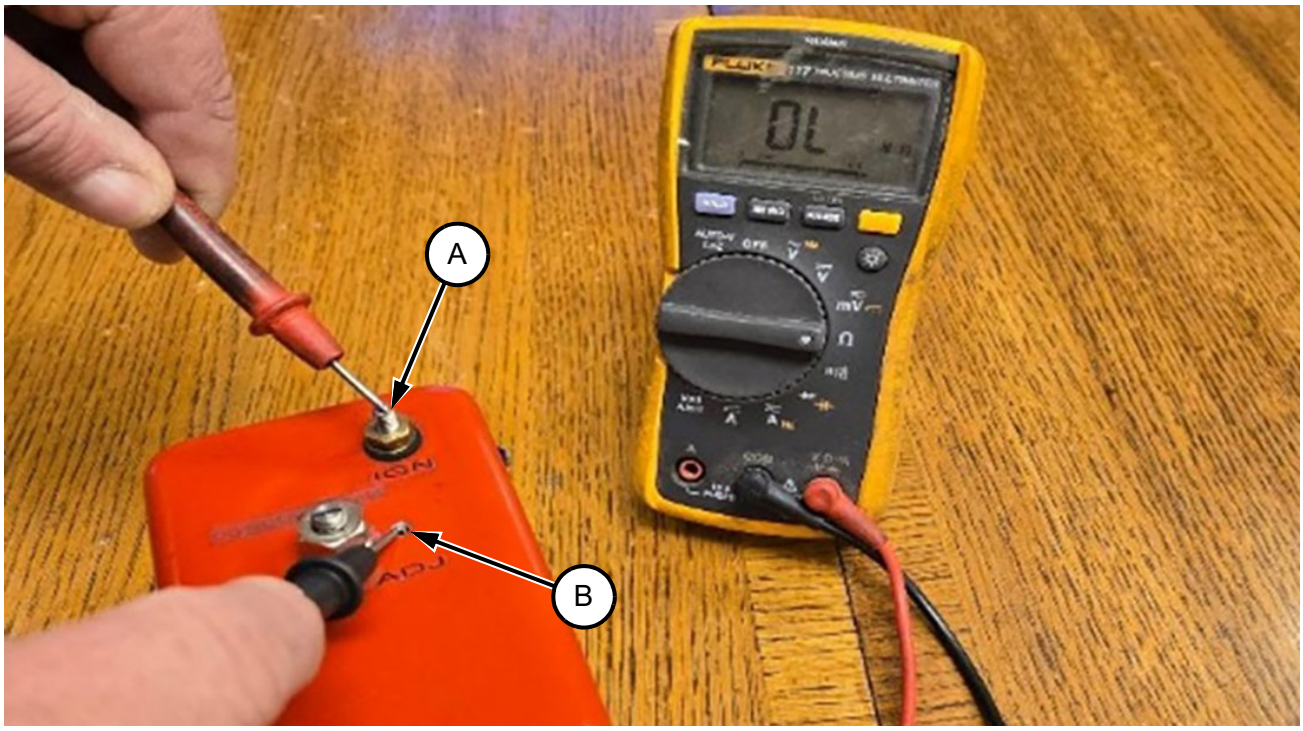
Final Continuity Check - See Figure 10

Once re-assembly is complete, repeat the continuity test to verify the fix:

1. Set your ohmmeter to the Ω (Ohm) symbol.
2. Touch the red lead to the "IGN" post (A) and the black lead (B) to an unpainted surface on the Regulator Can.
3. Verify the Reading: The meter must read "OL" or "Open."

   Note: If the meter shows a numerical value, the screw is still touching the can. Disassemble and check the alignment of the Insulating Shoulder Washers (C).

FIGURE 10
OHMMETER TESTING



FACILITY LOCATIONS

HARSCO RAIL, LLC
306 West Fourth Street
Fairmont, MN
56031-1837
Tel: +1 (507) 235-7376
Parts: +1 (800) 800-6410
Fax: +1 (507) 235-7372

HARSCO RAIL, LLC
2401 Edmund Road, Box 20
Cayce-West Columbia, SC
29171-0020
Tel: +1 (803) 822-7420
Parts: +1 (800) 800-6410
Fax: +1 (803) 822-7403

HARSCO RAIL, LLC
200 South Jackson Road
Ludington, MI
49431
Tel: +1 (231) 843-3431
Parts: +1 (800) 800-6410
Fax: +1 (231) 843-1644

HARSCO RAIL
GLOBAL HEADQUARTERS
3440 Toringdon Way
Suite 107, Building 3
Charlotte, NC 28277
56031-1837
Tel: +1 (980) 960-2624

HARSCO RAIL, LTDA
Av. Marechal Câmara
160 / 1615, Centro
Rio de Janeiro RJ 20020-080
Brazil
Tel: +55 21 2510-5164 / -5151

HARSCO RAIL EUROPE, GmbH
Luetticher Str. 130
40547 Duesseldorf, Germany
Tel: +49 (0) 211 60116 0

HARSCO RAIL CHINA
Room C1201 Tower 2,
No.36 BeiSanHuan Dong Lu,
DongCheng District,
Beijing 100013, P.R. China
Phone: +87 10-6590-6399

HARSCO TRACK MACHINES AND SERVICES PRIVATE
Limited India
2nd Floor, Building Alpha,
Bengal Intelligent Park Block EP & GP,
Sector V, Salt Lake, Kolkata
700091 West Bengal, India
Phone: +91 33 2357 5651

HARSCO RAIL MALAYSIA
3-5, Block A, Jaya One
72A Jalan Profesor Diraja Ungku Aziz,
46200 Petaling Jaya,
Selangor, Malaysia

HARSCO RAIL LTD
Unit 1 Chewton Street
Eastwood, Nottingham, NG16 3HB
United Kingdom
Tel: +44 (0) 1773 539480

HARSCO RAIL PTY LTD
157 Granite St
Geebung, Queensland 4034
Australia
Tel: 61 7 3205 6500
Fax: 61 7 3205 7369