



**AGT***SERVICES* INC.

# Creative Solutions For Significant Generator Failure Damage

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*Generating timely repair solutions*



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**GE 9A4  
Shaft ID Damage  
& Repair**

**AGT Services, Inc.**

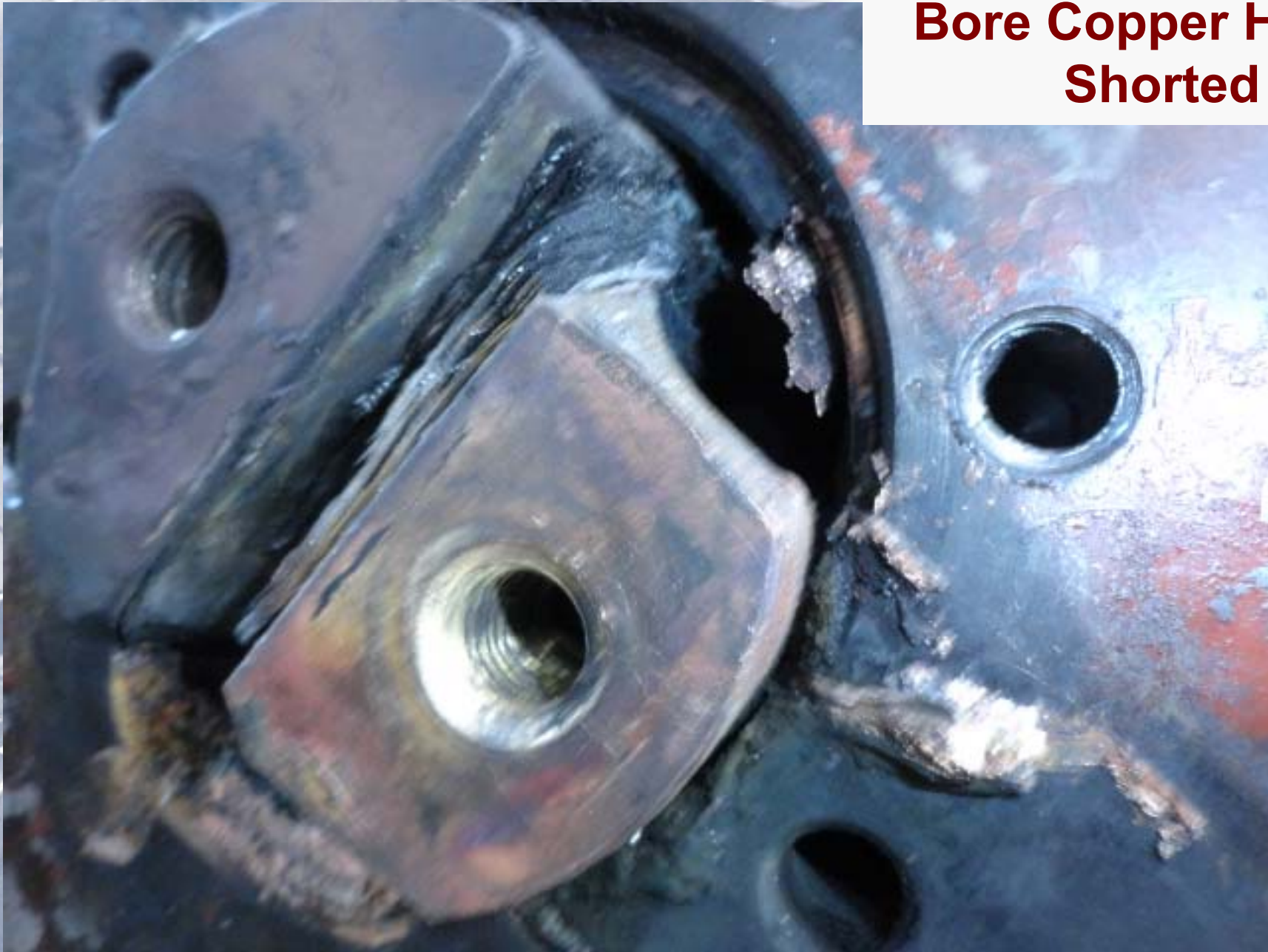
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## Bore Copper Halves Shorted



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## **Bore Copper Halves Shorted**



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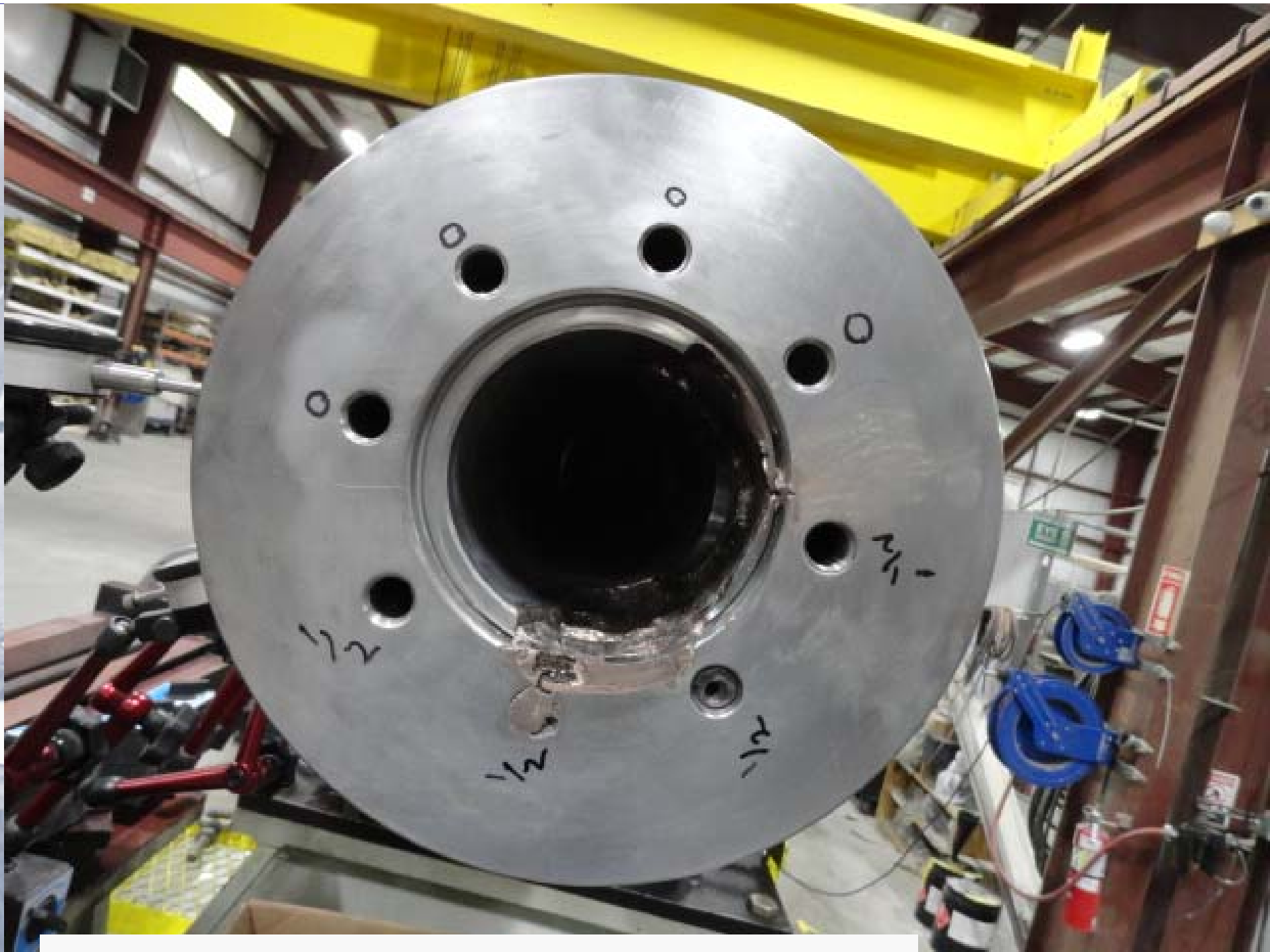
**Bore ID Damage Prior to Cleaning**

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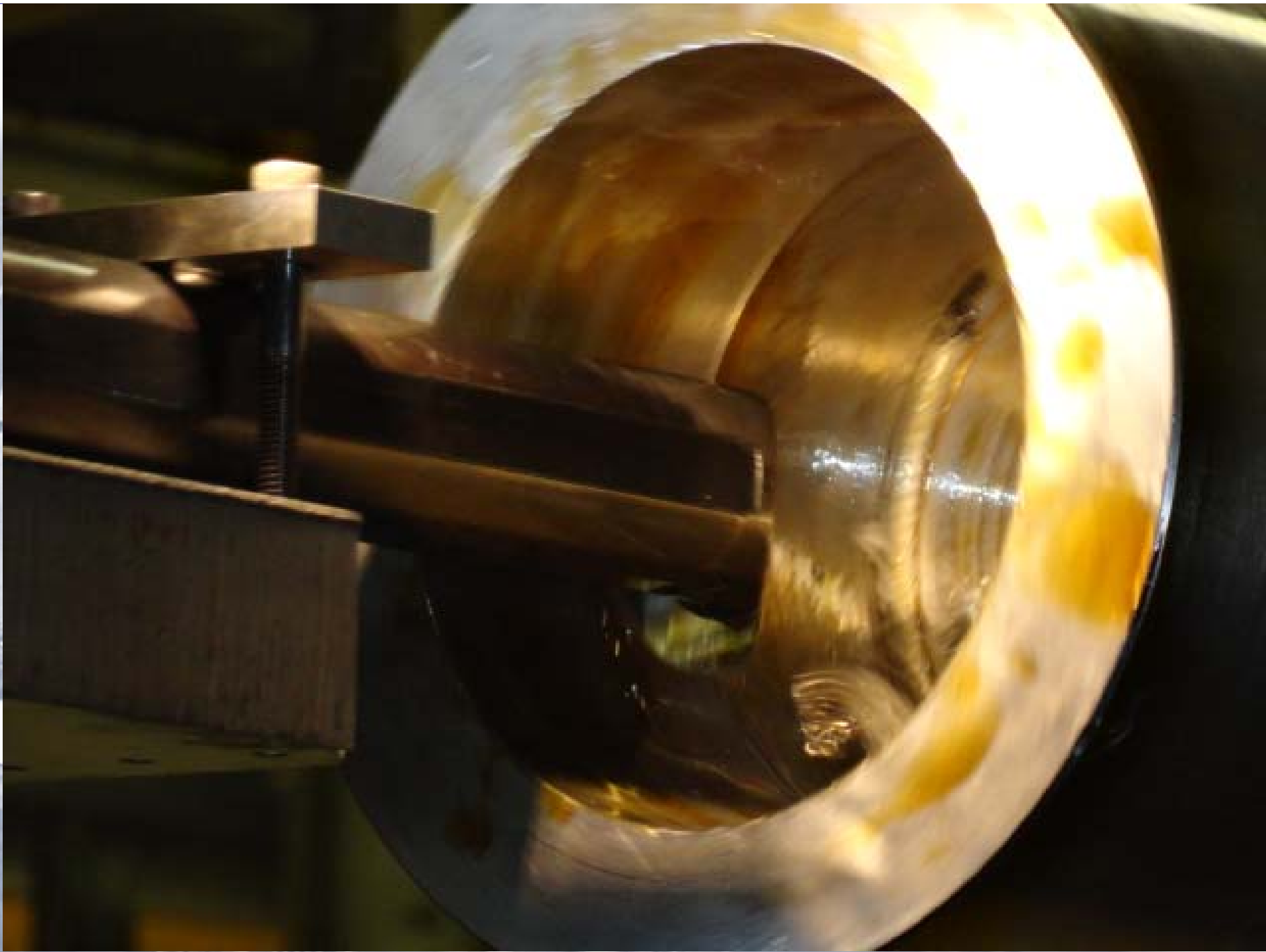
**Bore ID Damage After Cleaning**

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**Bore ID Damage After Cleaning**

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**Machine / Enlarge ID**

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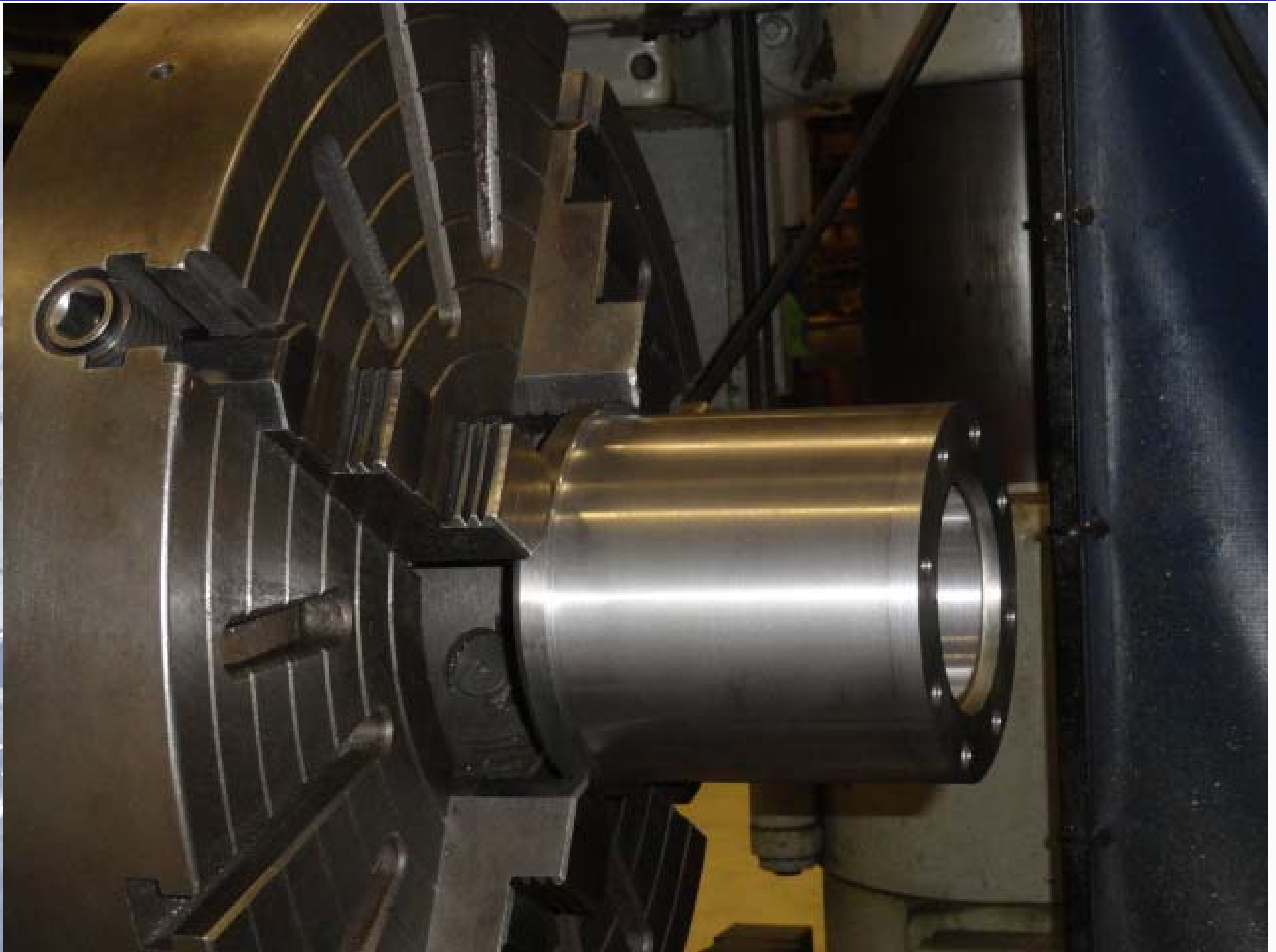




**Before / After**

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**Bore ID Insert / Sleeve**

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**Bore ID Insert / Sleeve**



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## New Bore Copper



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**Before & After**

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# GE Water Cooled LP Shaft OD Damage & Repair

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**Collector  
Ring  
Flashover  
OB Ring**

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## For Good Collector Performance:

- Consistent & adequate brush film
- Adequate contact pressure
- Proper Ring Surface Conditions
- Continuous brush to ring contact

***COMBINATION OF SMALL ISSUES CAN ADD UP***

***Daily & weekly monitoring with minor  
maintenance is key to good collector  
performance***



## OB Collector Ring & Shaft Damage

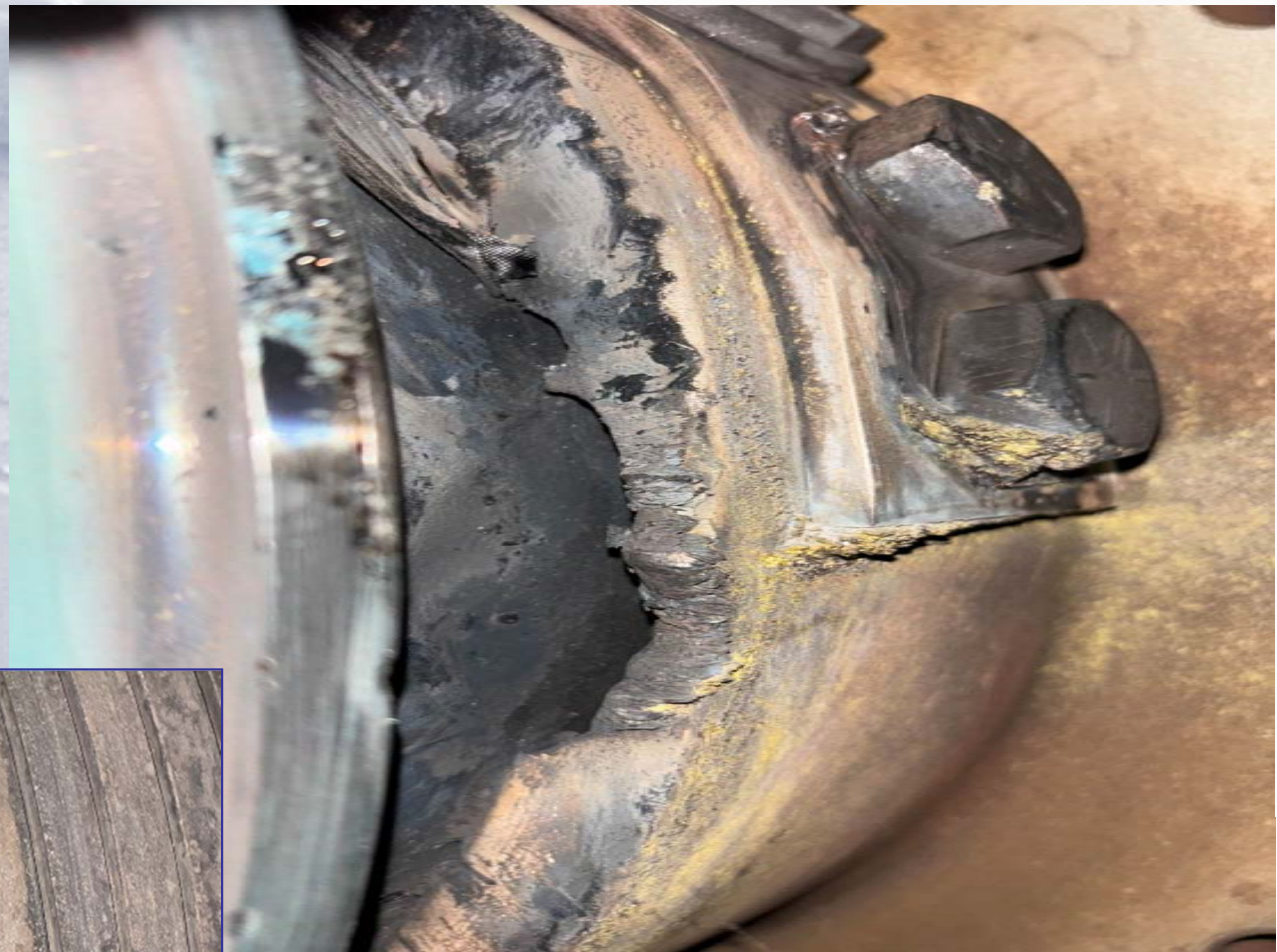


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# OB Collector Ring & Shaft Damage



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## Shaft Damage Due to Arcing

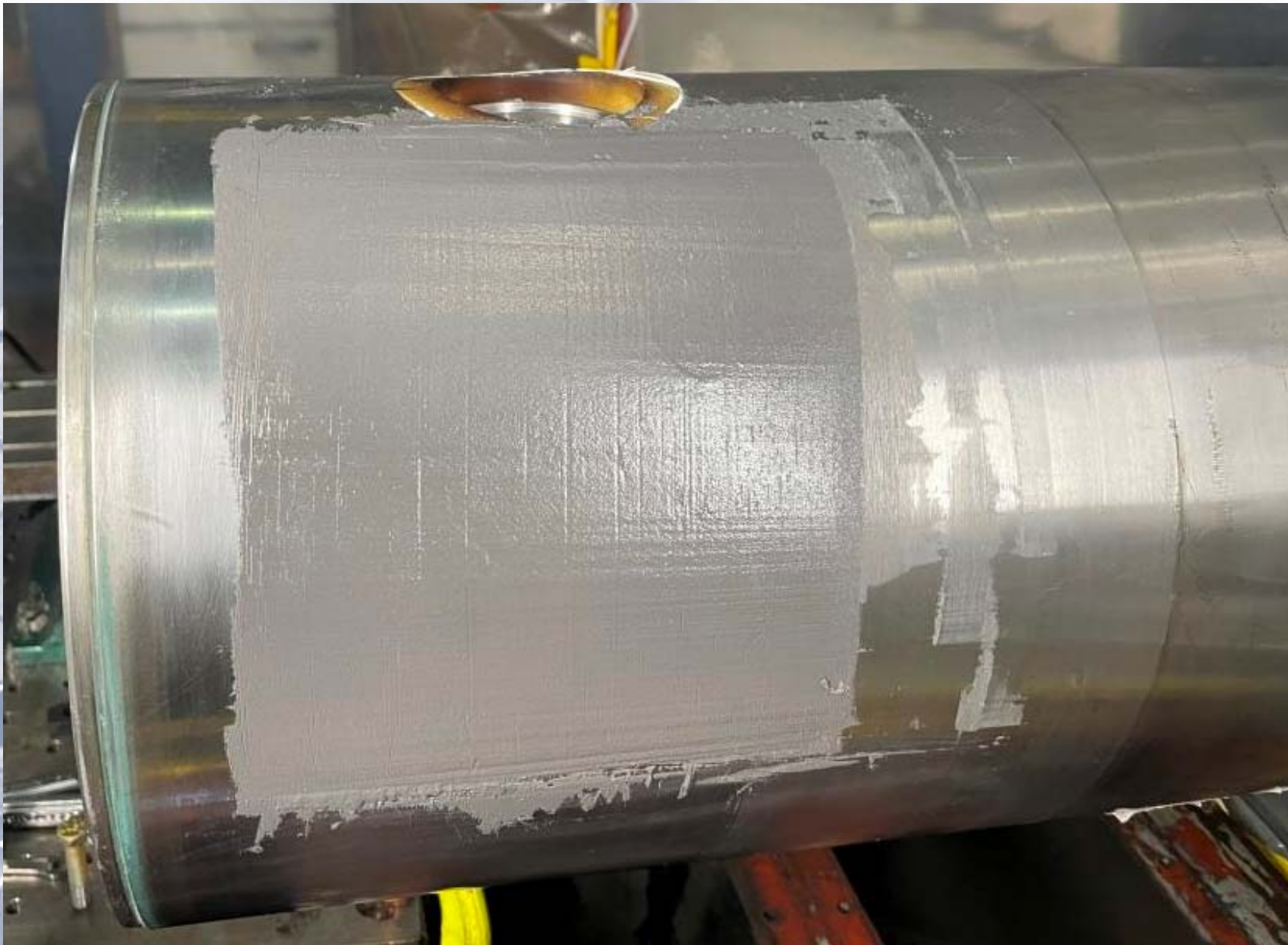
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**Heat Affected Material Removed  
& Blended**

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## **Plastic Metal Build Up**

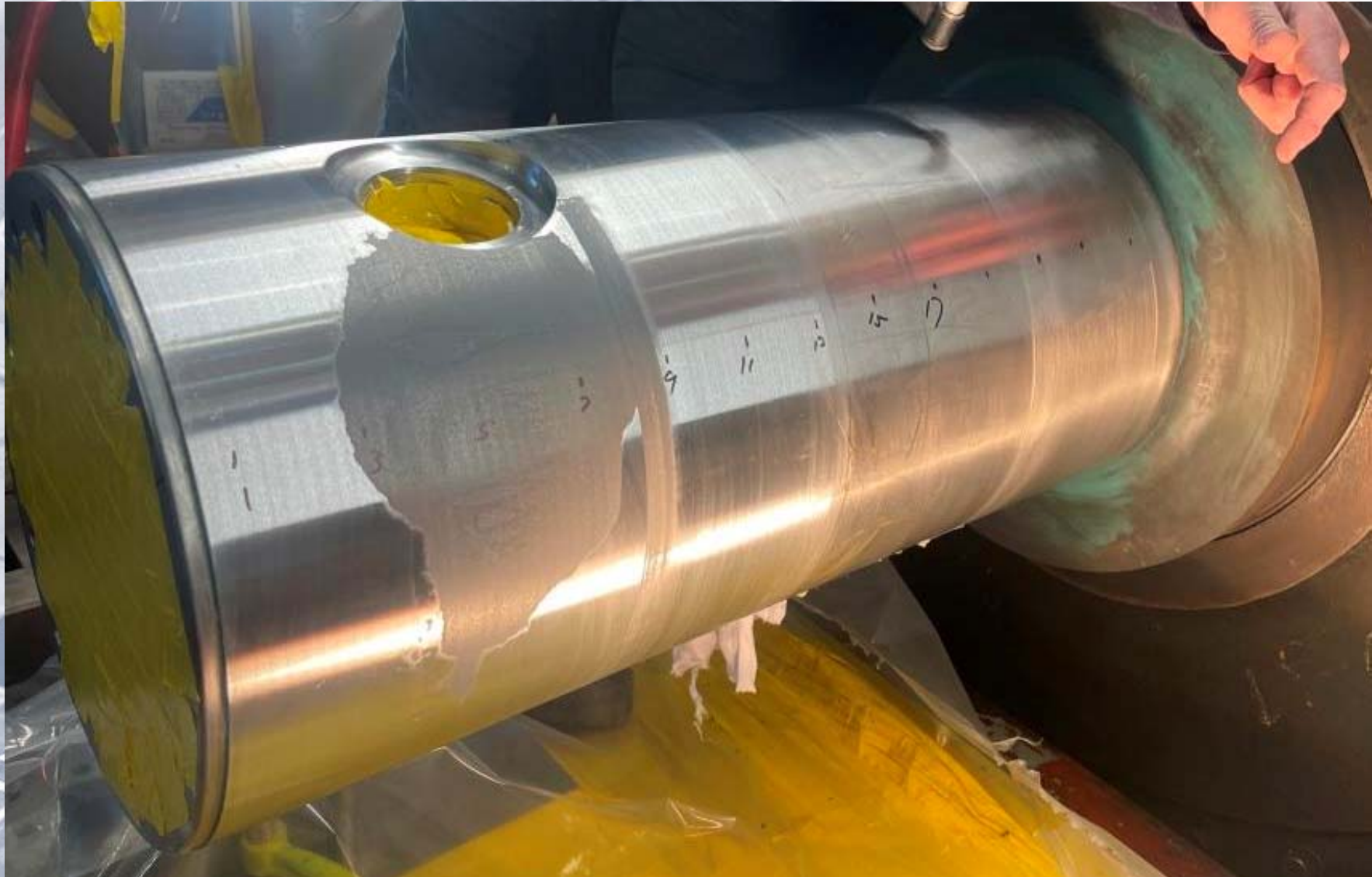
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**Machine OD**

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## Measurements After Machining

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## **Insulating Sleeve Dimensional Checks**

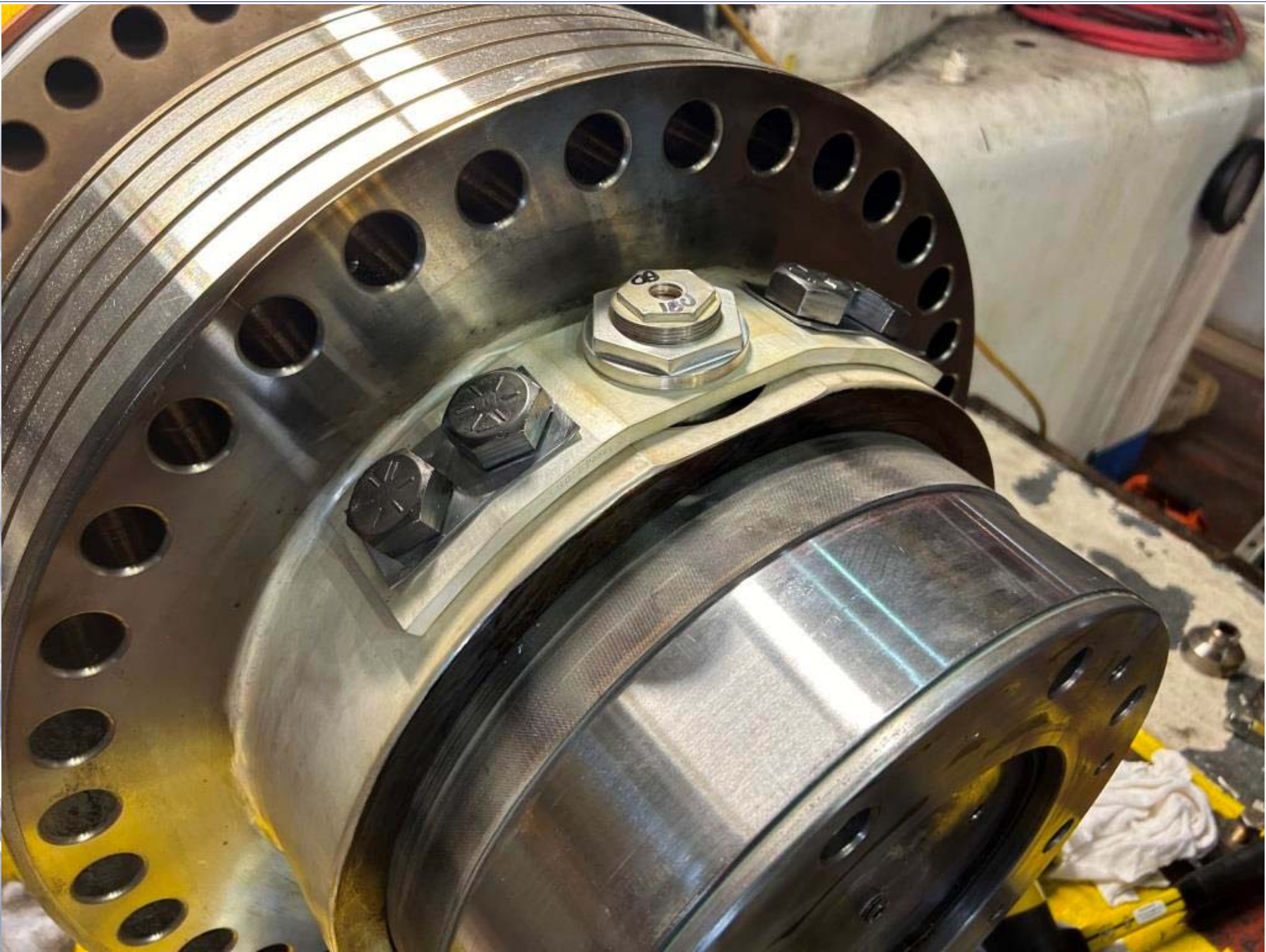
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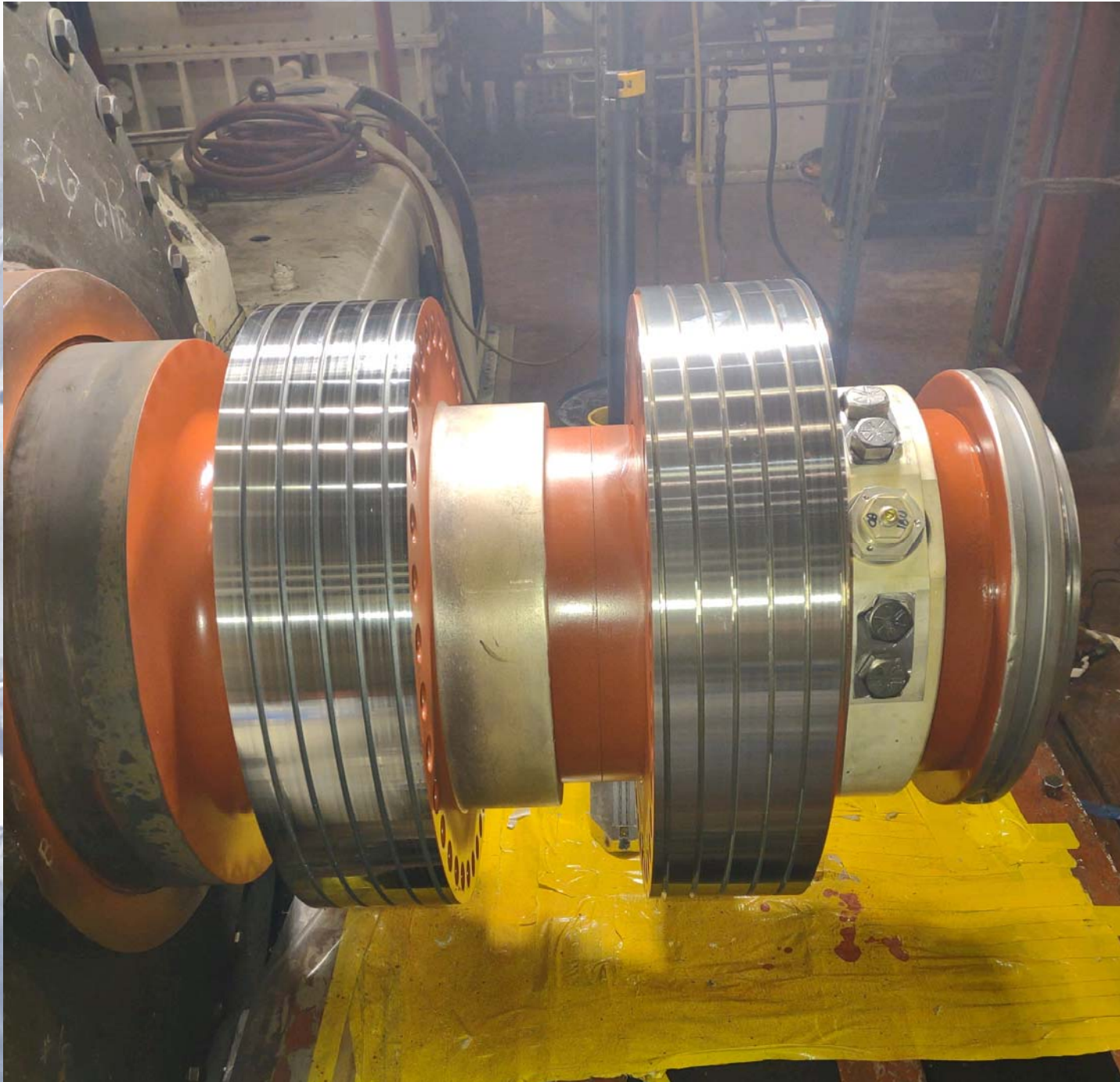
**After Sleeve Assembly**

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**After OB Collector Assembly**

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**After  
Collector  
Ring  
Final  
Machining**

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# GE 324 Main Lead Repairs

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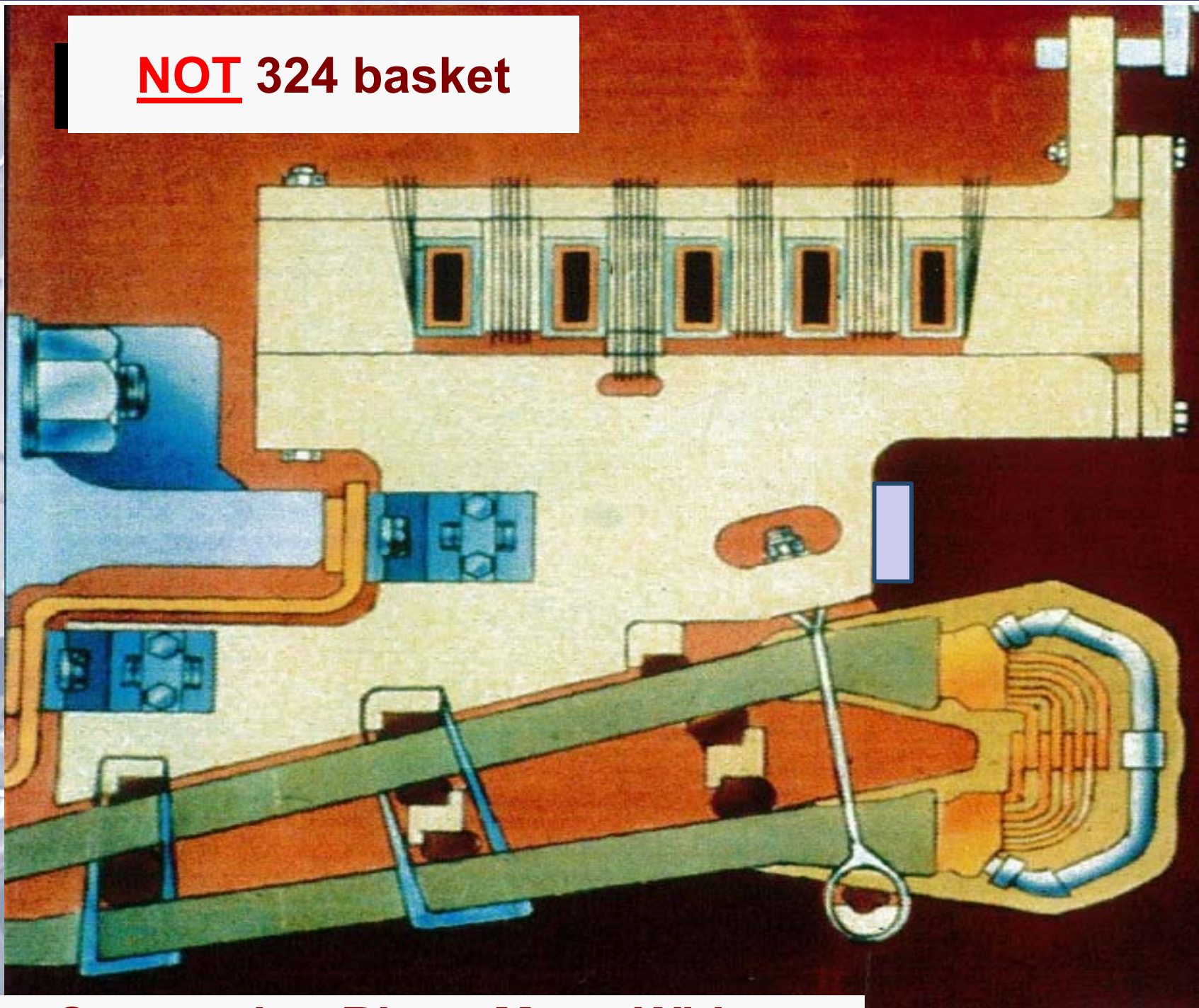
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**GE 324 – 3 Circuit Winding Connections**

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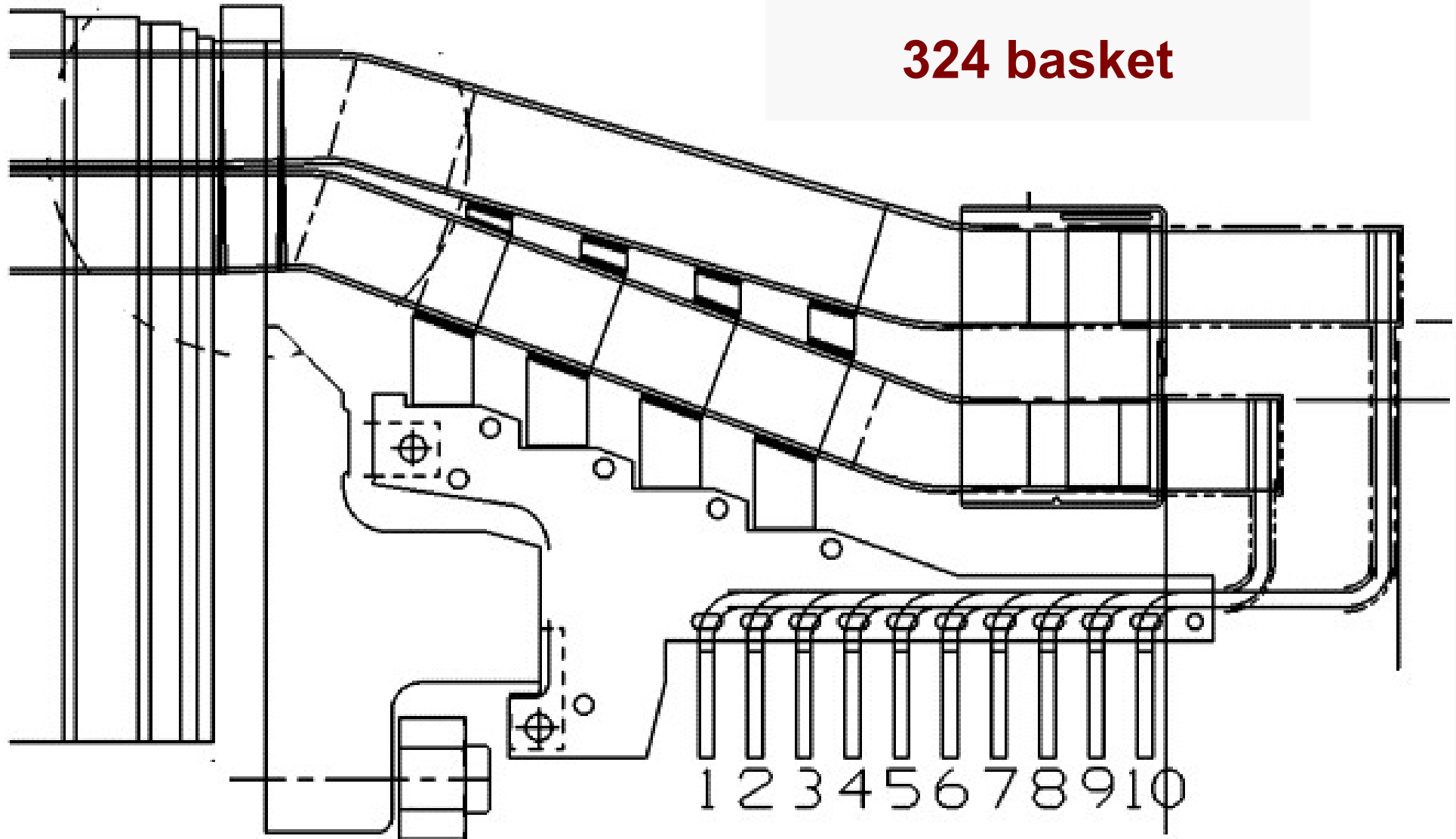
**NOT 324 basket**



**Connection Rings Move With Windings**

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**324 basket**

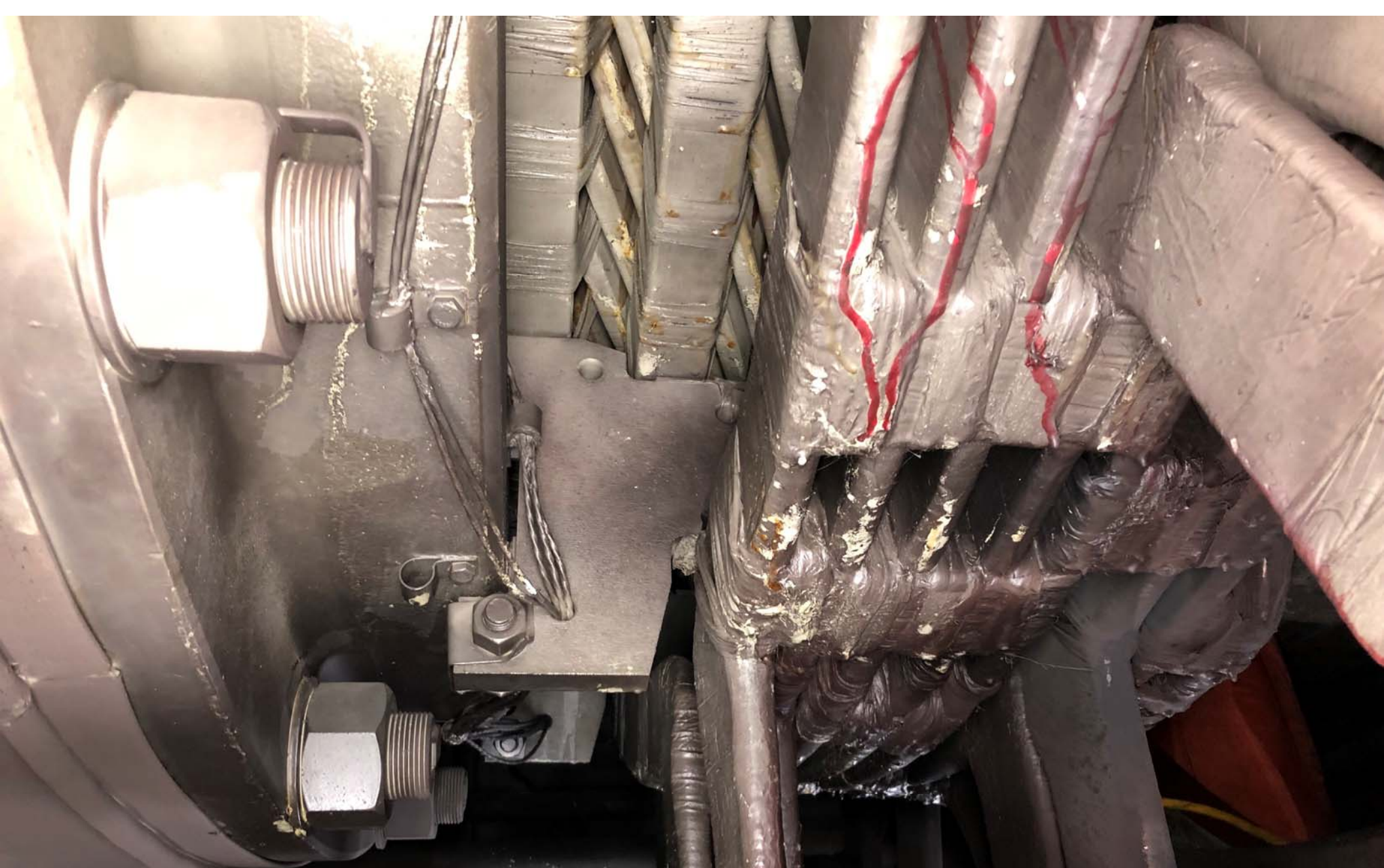


**Winding Moves With Respect to Core**

**Connection Rings Fixed to Core**

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**Winding Moves With Respect to Core  
Connection Rings Fixed to Core**



**Mechanical Abrasion  
Due to  
Loose Blocking  
& Loose Ties**



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**Mechanical Abrasion  
Due to  
Loose Blocking  
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**Mechanical Abrasion  
Due to  
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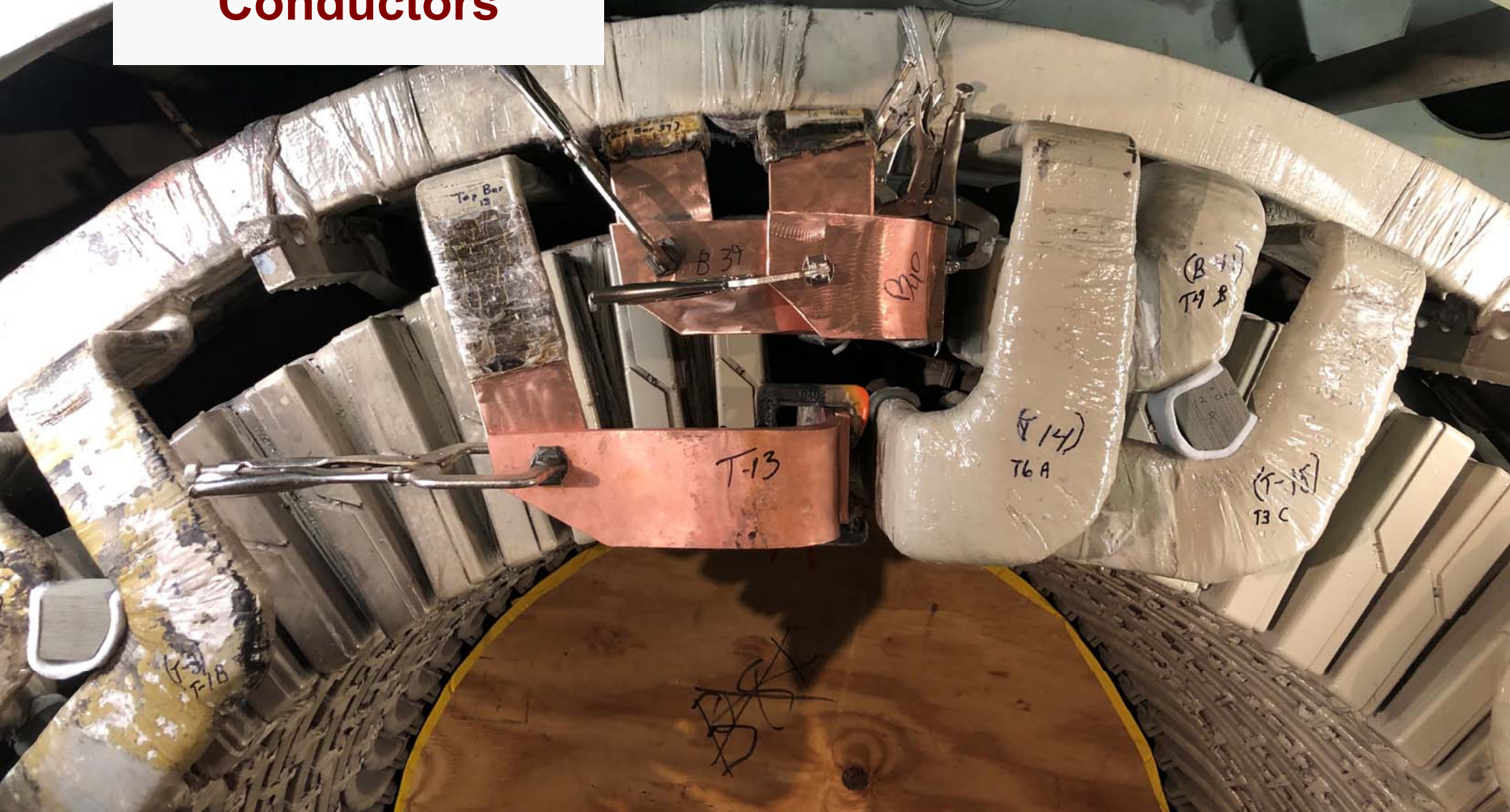
# Replacement Conductors



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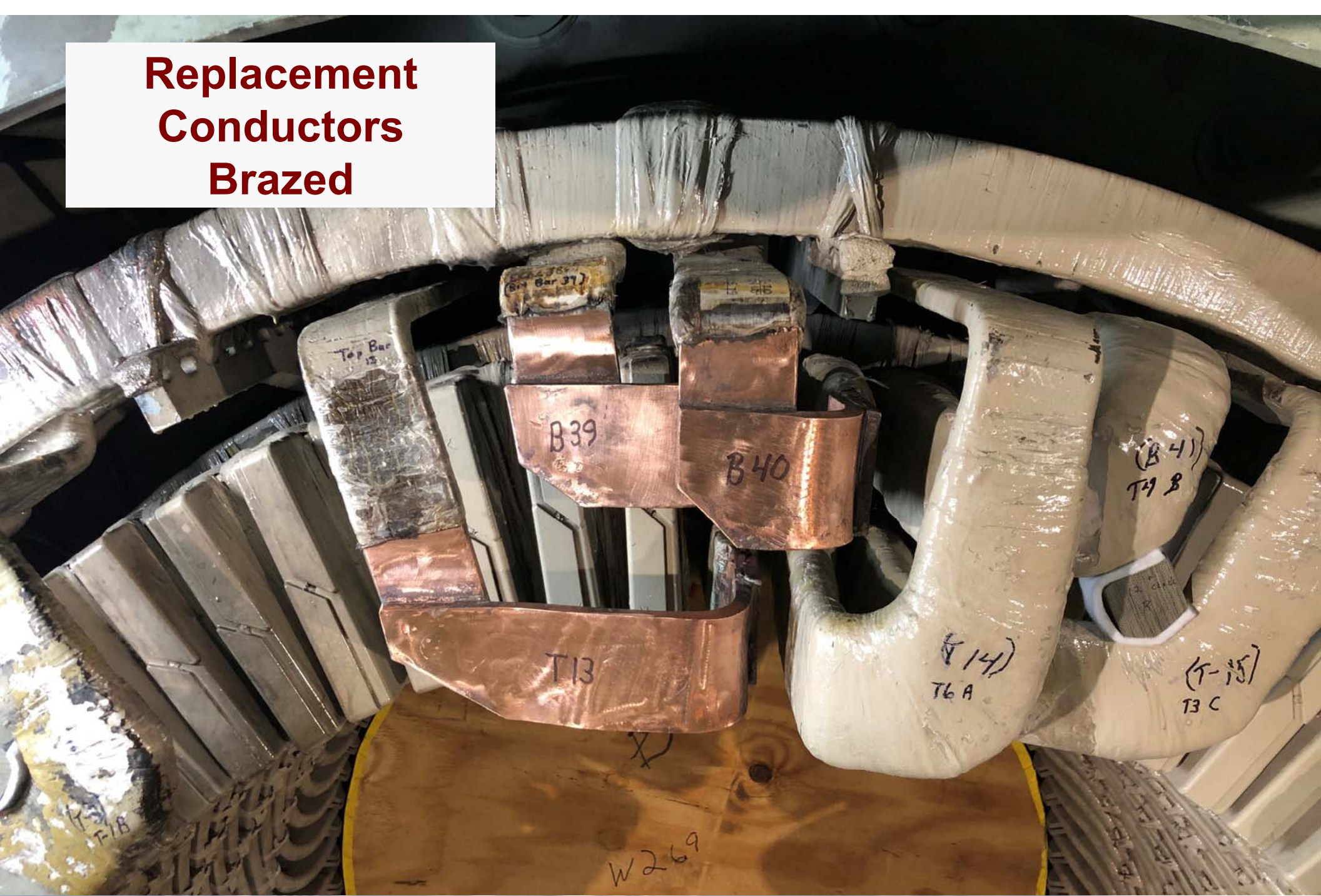
# Replacement Conductors



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# Replacement Conductors Brazed



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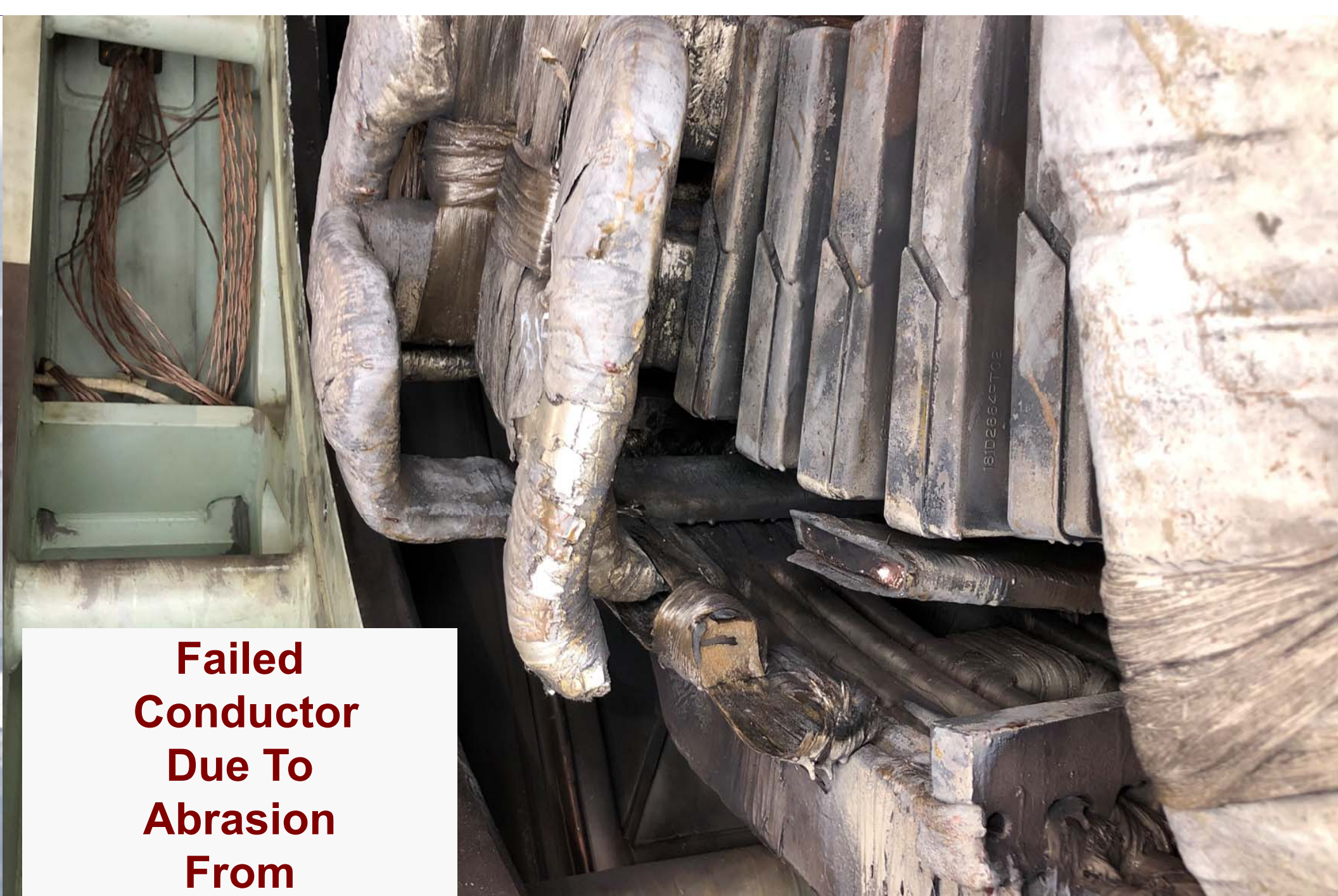
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# Replacement Conductors Insulated



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**Failed  
Conductor  
Due To  
Abrasion  
From  
Loose Blocks &  
Ties**

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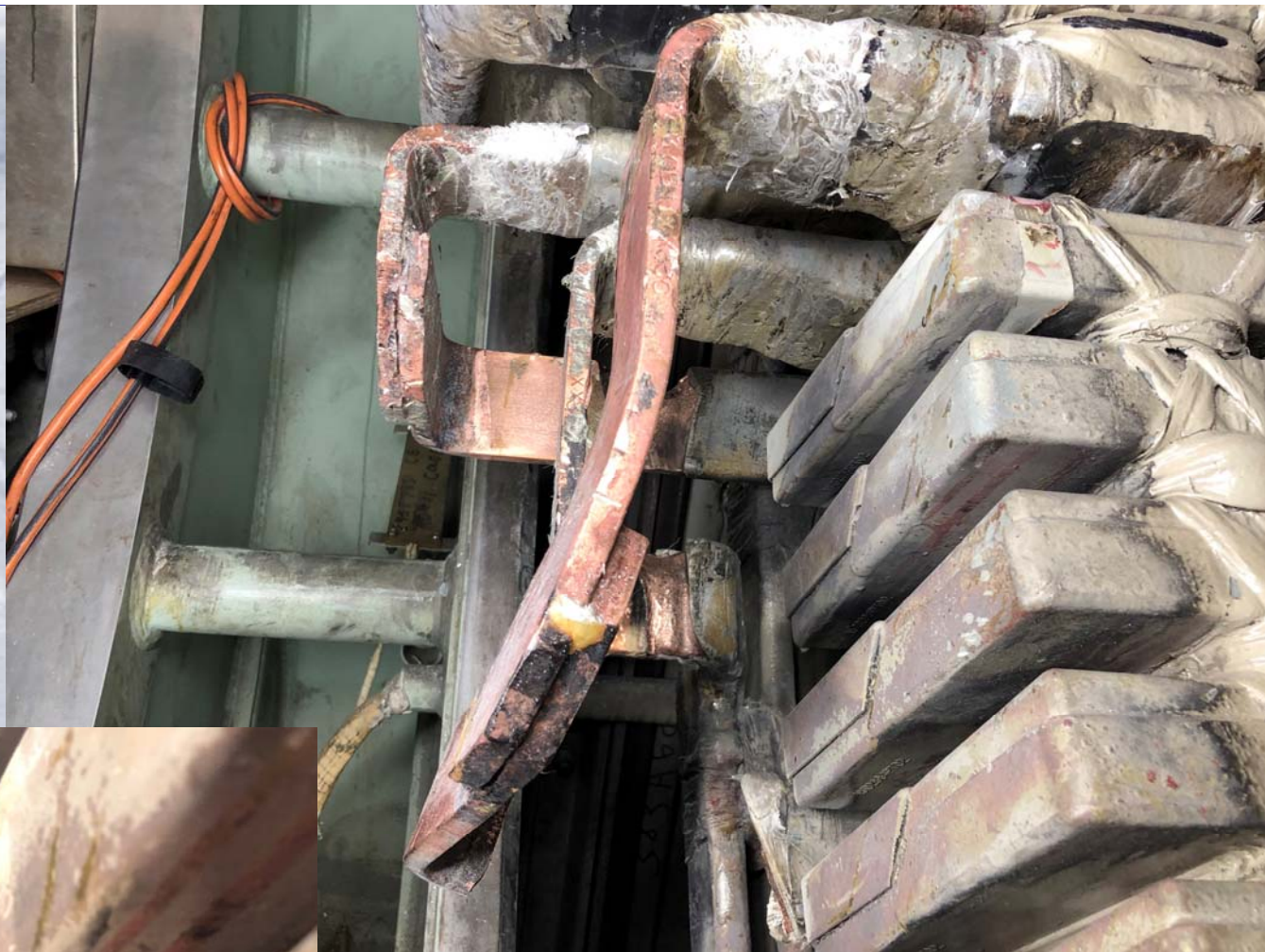




**Failed & Damaged  
Conductors  
Due To  
Abrasion  
From  
Loose Blocks &  
Ties**

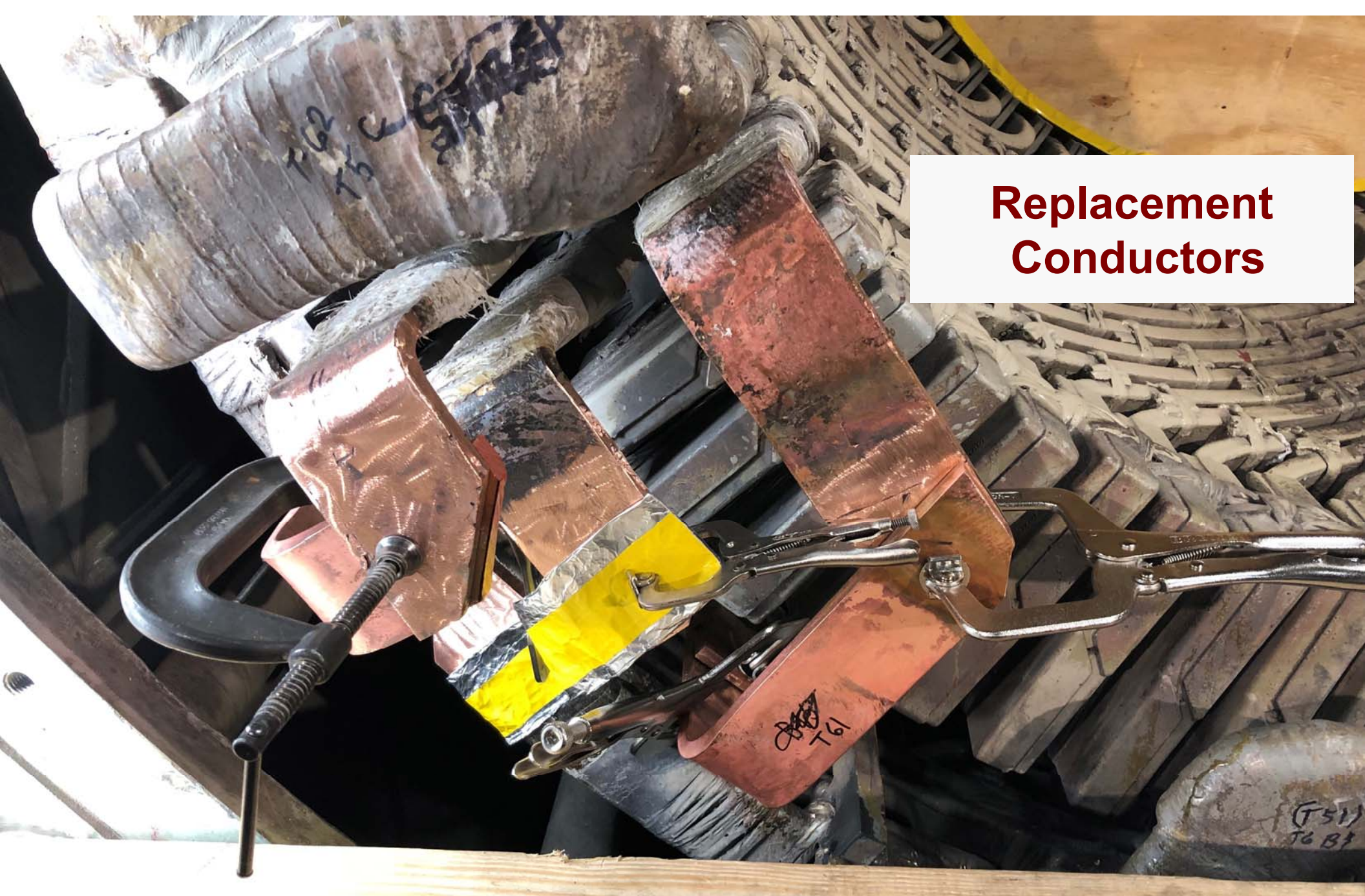
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**Failed & Damaged  
Conductors  
Due To  
Abrasion  
From  
Loose Blocks &  
Ties**



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# Replacement Conductors



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## **Replacement Conductors**

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**Replacement  
Conductors  
Insulated**

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# Alstom Air Cooled VPI Winding Main Lead Repair

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## **Uninsulated Phase Connections**



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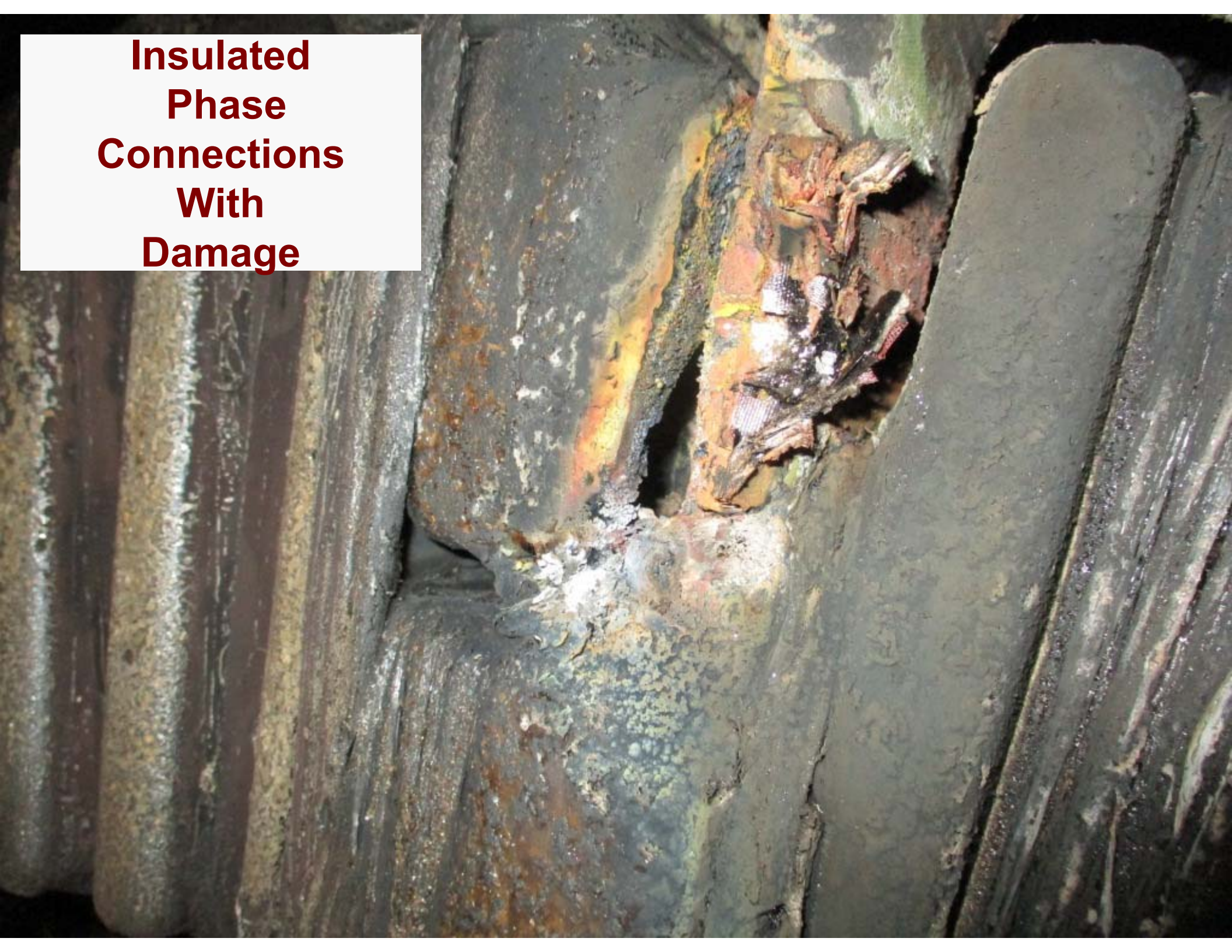
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**Insulated  
Phase  
Connections  
With  
Damage**



**Insulated  
Phase  
Connections  
With  
Damage**





**Damaged Phase Connections**

**Undamaged  
Phase  
Connections**



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**Phase Lead &  
Top Bar  
Damage**



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**Phase Lead &  
Bottom Bar  
Damage**



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A close-up photograph of a concrete structure showing significant damage to the top and bottom reinforcement bars. The bars are heavily corroded, with a dark, flaky rust coating them. Some bars are bent or broken, and the surrounding concrete is cracked and crumbling. A white text box is overlaid on the left side of the image.

**Top & Bott Bar  
Damage**



**Phase Leads  
Removed  
Top & Bott Bar  
Damage  
Removed**

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Ground Wall Insulation

Strand Packages

**Top Bar  
Damaged  
Strands  
Removed**

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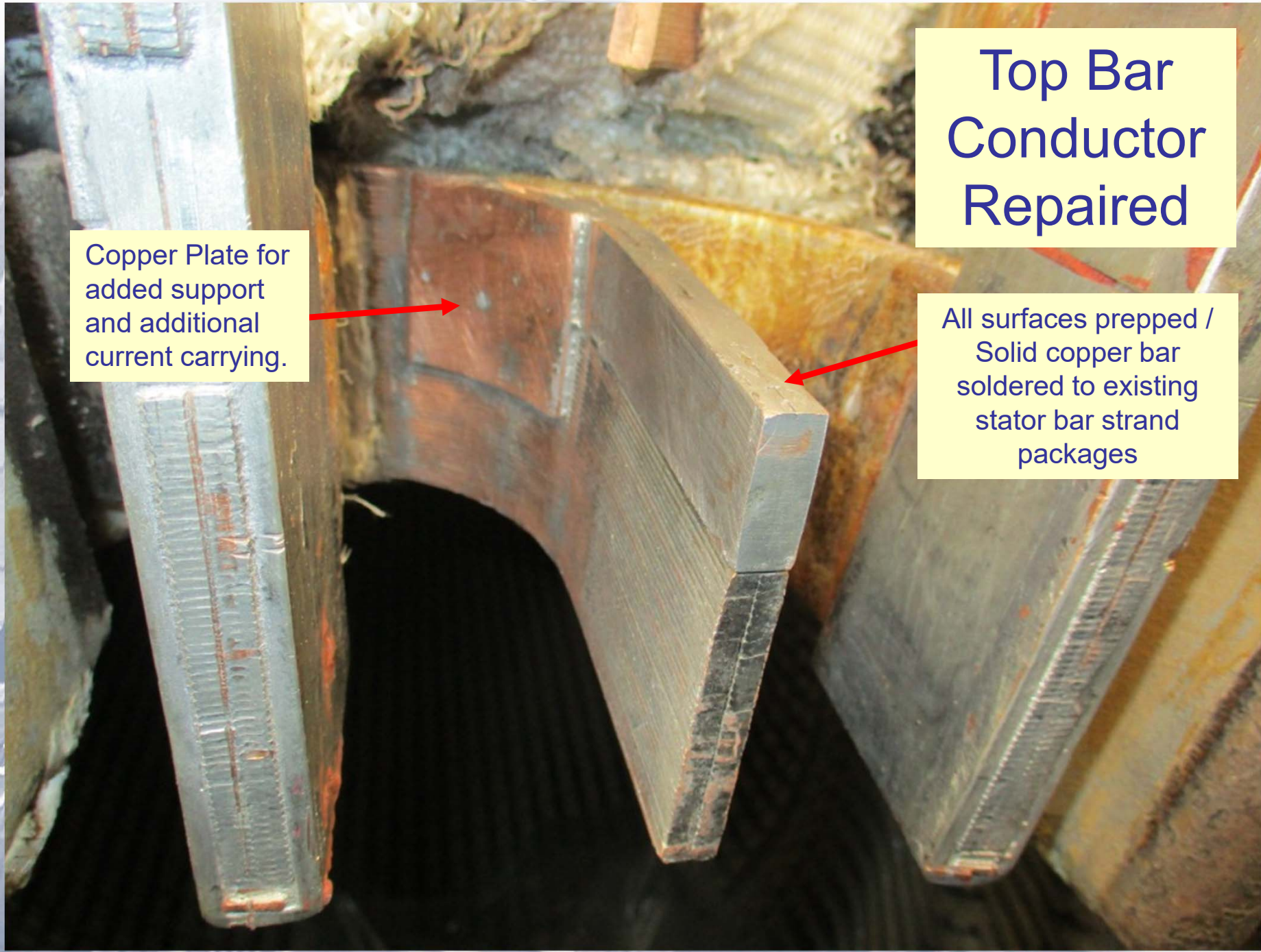
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**Top Bar  
Damaged  
Strands  
Replaced  
with Solid  
Copper**







# Top Bar Conductor Repaired

Copper Plate for added support and additional current carrying.

All surfaces prepped / Solid copper bar soldered to existing stator bar strand packages



**Bott Bar  
Conductor  
Damage  
Removed**

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**Bott Bar  
Conductor  
Repair  
Piece**



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**Bott Bar  
Conductor  
Repair  
Piece**



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All surfaces  
prepped / Solid  
copper bar  
soldered to  
existing stator  
bar strand  
packages

## Bottom Bar Conductor Repair

Copper Plate for  
added support  
and additional  
current carrying.

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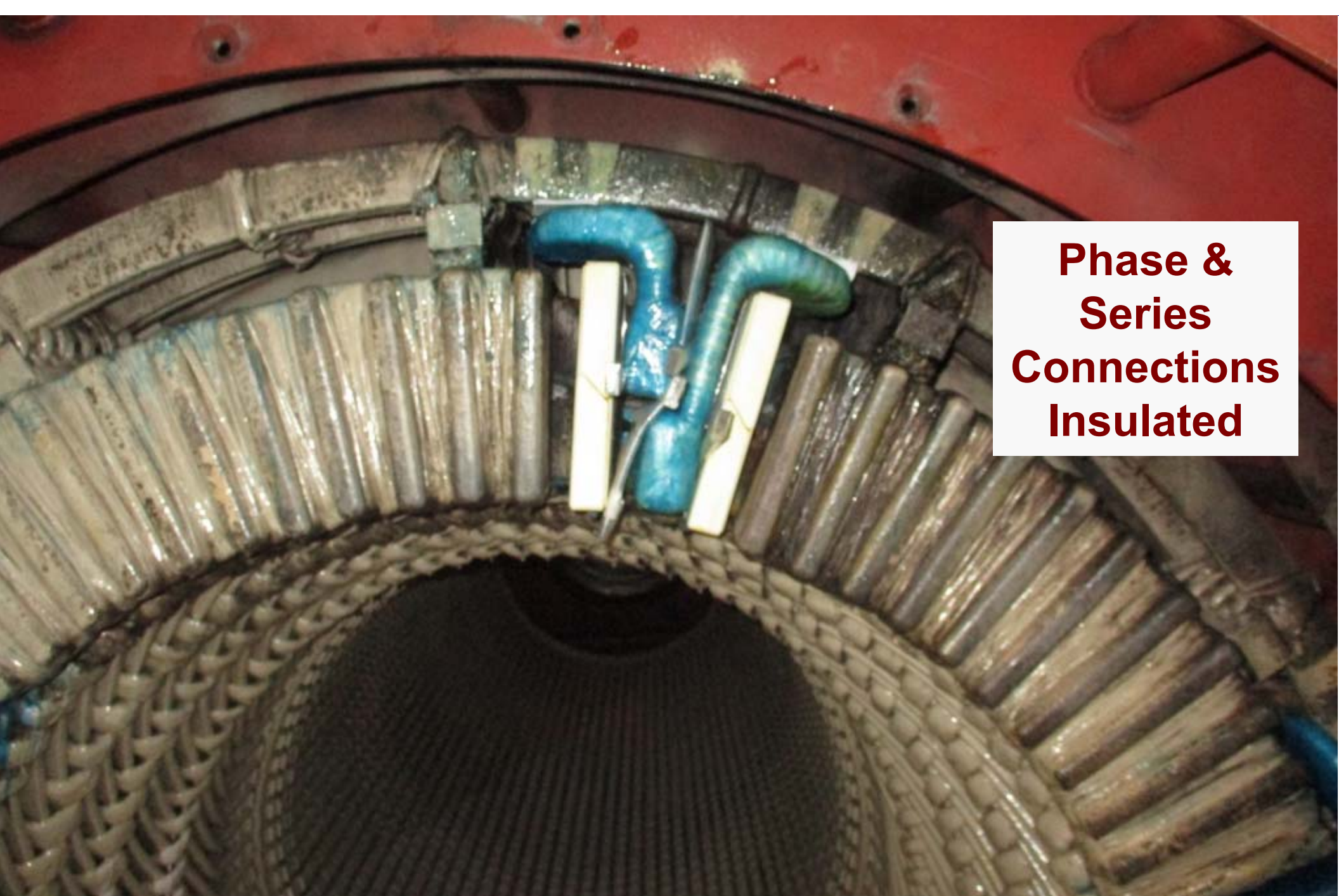
**Replacement  
Phase  
Conductor  
Bottom Bar**



**Replacement  
Phase  
Conductors**

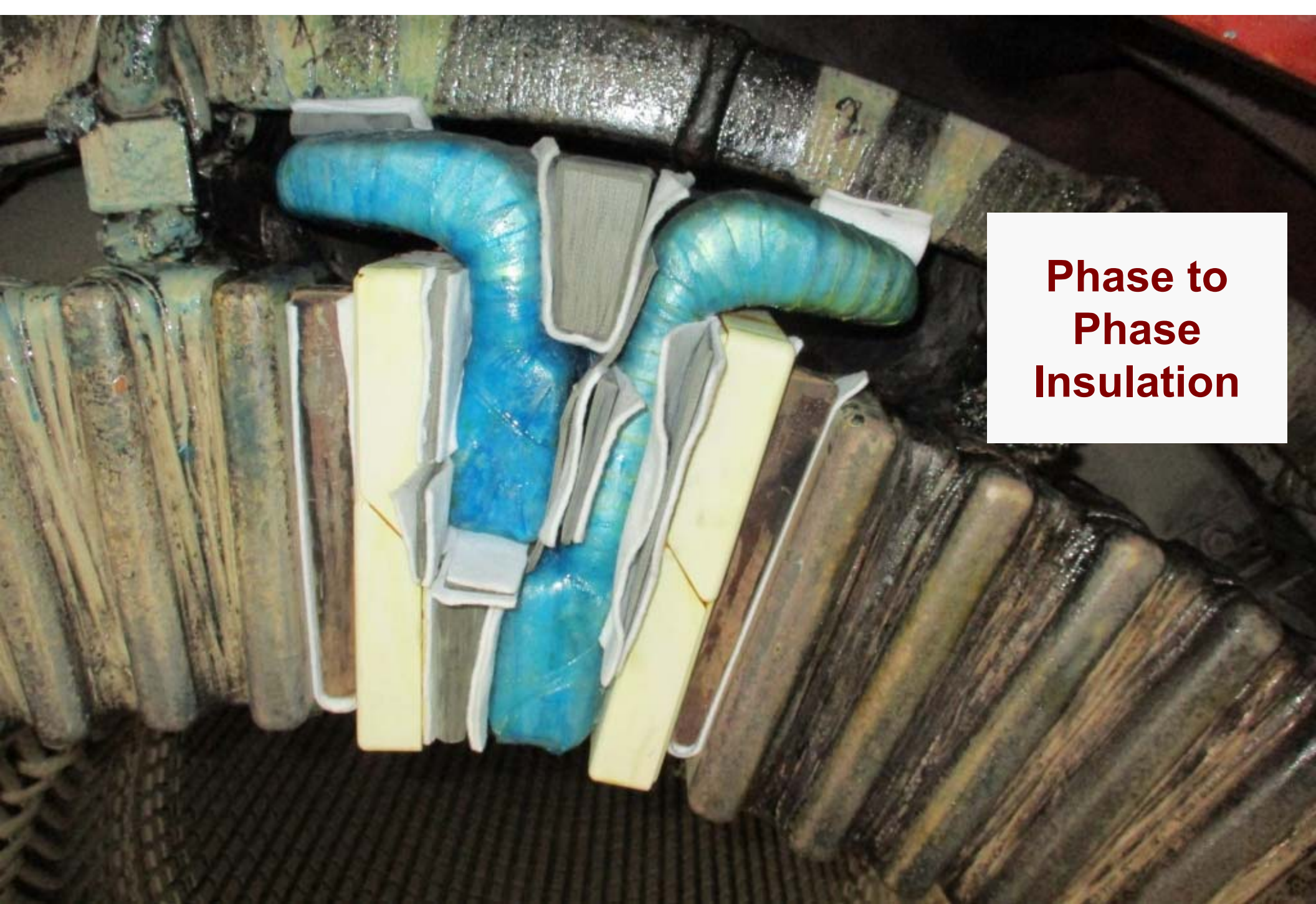
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**Phase &  
Series  
Connections  
Insulated**





**Phase to  
Phase  
Insulation**

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**Phase &  
Series  
Connections  
Insulated  
NO AIR  
SPACES!!**



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