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Harsco Track Technologies

Harsco

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SERVICE BULLETIN
MAINTENANCE OF WAY EQUIPMENT

DATE: 3-12-2004 **BULLETIN NO:** 04-003

TITLE: TUBE AND SHAFT ASSEMBLY INSPECTION

RATING:

- ☐ **DIRECTIVE** (Action Is Required)
- ☐ **ALERT** (Potential Problem)
- ☒ **INFORMATION** (Action Is Optional)
- ☐ **PRODUCT IMPROVEMENT** (Enhance Product)

PRODUCT SERIES / MODEL: All Vehicles Equipped With HY-RAIL® Guide Wheel Equipment Series 0305, HR0305A, HR0305B, 0307, HR0307A or HR0307B Rail Pilot Units.

SERIAL NO: All 0305 - HR0305A and HR0305B Models
All 0307 - HR0307A and HR0307B Models

SUMMARY: Harsco Track Technologies recommends that the end of the tube and shaft assembly by the top of the wheel arm on the above Series HY-RAIL® Guide Wheel Equipment be inspected annually for cracks using a dye penetrant. Cracks on older and over-stressed tube and shaft assemblies have been discovered in the field.

OPERATIONAL IMPACT: To provide an Inspection Process for the end of the tube and shaft assembly by the top of the wheel arm for cracks.

ACTION: Follow the Inspection Process in this Service Bulletin to inspect the end of the tube and shaft assembly by the top of the wheel arm for cracks.

CONTACT: If you have any questions or if we can be of any service, please contact the HY-RAIL® Service Department at the Fairmont, MN. facility, (507) 235-7212.

SAFETY INFORMATION

- **FOLLOW APPLICABLE RAILROAD LOCKOUT - TAGOUT PROCEDURE TO REMOVE ALL ENERGY SOURCES FROM VEHICLE AND RAIL GUIDE WHEEL EQUIPMENT.**
- **READ AND FOLLOW ALL SAFETY WARNINGS AND INSTRUCTIONS LISTED ON LABELS OF PRODUCTS (Cleaners, Penetrant, Developer, etc.) THAT ARE USED. USE THESE PRODUCTS ONLY IN WELL VENTILATED AREAS.**
- **BE SURE TO WEAR ALL APPROPRIATE SAFETY EQUIPMENT (Goggles, Gloves, Shoes, Hat, etc.).**

FAILURE TO COMPLY COULD RESULT IN SEVERE BODILY INJURY.

INSPECTION PROCESS - See Figure 1 and Detail A

Harsco Track Technologies recommends that the end of the tube and shaft assembly by the top of the wheel arm be inspected annually for cracks using the following Inspection Process.

Foreword

All surfaces that are to be checked must be free of foreign materials and paint. Grease, oil, and dirt prevent penetrant penetration and should be removed by pre-cleaning. Scale, sand, dirt, and loose paint trap penetrant and hinder removal; therefore wire-brush pre-cleaning is necessary. For most effective results, paint should be removed from areas to be tested.

To inspect the tube and shaft assembly, it is coated with a visible solution. The excess dye is removed from the surface, and then a developer is applied. The developer acts like a blotter and draws penetrant out of the imperfections, which are open to the surface. With the visible dye, the vivid color contrast between the penetrant and the developer makes the “bleed out” easy to see.

Step Plate and Accessory Removal:

Remove step plates and all accessories from rail pilot unit to allow ease of inspection in the area in question.

Preparation Cleaning:

Clean tube and shaft area, shown in Detail A, by removing all dirt and grease with pressure washer, or other source. Wire brush surface to remove all loose scale and paint. Clean all around tube, top and bottom.

INSPECTION PROCESS - See Figure 1 and Detail A

Paint Removing:

Spray on Peeler, or equivalent paint remover, being sure to point arrow on nozzle away from you, onto surface area where the paint is to be removed. Allow the paint remover to work for approximately 1 to 5 minutes or until the paint has sufficient time to blister or bubble. Once the paint has blistered or bubbled, remove the paint and paint remover residue immediately with a flexible plastic scraper, steel wool, or shop rags. Repeat process if required.

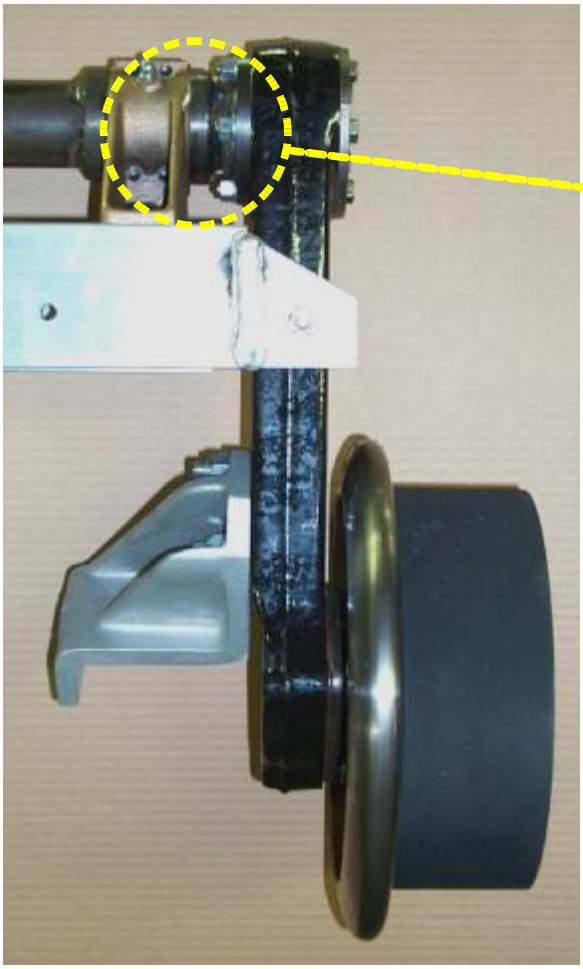
Cleaning:

Spray 3M High Power Brake Cleaner, or equivalent, on area to be cleaned. Wait a few minutes to permit complete penetration. Flush away dissolved deposits with added applications. Wipe dry.

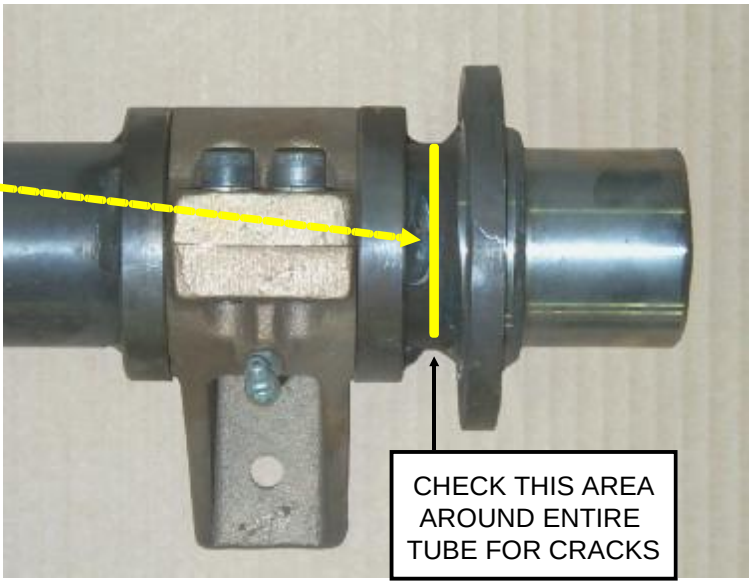
Surface Preparation Cleaning:

Coat the part or section to be inspected with Magnaflux Spotcheck® Cleaner / Remover, or equivalent. Allow Cleaner to dry before using Penetrant.

04-139 FIGURE 1
RAIL PILOT UNIT WHEEL AND ARM



DETAIL A 04-140
TUBE AND SHAFT ASSEMBLY



INSPECTION PROCESS - See Figure 1 and Detail A

Applying Penetrant:

Spray the section or area to be inspected so that the surface is covered with Magnaflux Spotcheck® Penetrant, or equivalent. If Penetrant pulls back in droplets, re-clean or wipe with cleaner. Allow the Penetrant to remain on part 1 to 3 minutes, or as required. Longer Penetrant times may be needed for locating extremely fine, tight cracks. Leaving Penetrant on part will not effect results, though the Penetrant may dry on the part. If so, it will require re-wetting with Penetrant and a 1 minute wait before removing.

Removing Penetrant:

When sufficient penetration time has been allowed, wipe surface clean with clean towel or cloth. Repeat if necessary until residual surface Penetrant has been removed.

Applying Developer:

Shake the Magnaflux Spotcheck® Developer, or equivalent, pressure can vigorously until the agitators rattle inside. Spray the part or section to be inspected with the Developer, just enough to wet the part thinly and evenly, no more. Proper thickness will dry to an even white layer. Too much Developer will mask indications and to little will not develop the indication sufficiently. Allow Developer to dry. Watch for large cracks to show up immediately. Minute cracks may take a few minutes to develop the best indication.

Inspection:

Defects will be marked by a deep red indication. A line or dotted line marks a crack. If wide and deep, the indication will grow and spread. If any cracks are found, replace the tube and shaft assembly before placing the vehicle back into service.

After Inspection:

If no cracks are found, repaint the tube and shaft assembly to help prevent corrosion.
Re-install step plates and all accessories that were removed on rail pilot unit before placing the vehicle back into service.

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