M E M O R A N D U M

SUBJECT: Management Assistance Report
WMATA Crane Purchase
(MAR-23-0001)

DATE PUBLISHED: November 17, 2022

FROM: OIG – Rene Febles [redacted]

TO: GM/CEO – Randy Clarke

Executive Summary

The Office of Inspector General (OIG) is transmitting this Management Assistance Report (MAR) based on an allegation of wasteful spending of federal funds. This was associated with the Washington Metropolitan Area Transit Authority (WMATA) procurement of a $3.8 million 35 Ton Crane-Rail Bound that did not perform as intended.

On September 17, 2010, Cranemasters, Inc. (Cranemasters) was awarded a contract to build a 35 Ton Crane-Rail Bound (RC35). The contract obligated Cranemasters to meet contract specifications and specified delivery times of the crane. Although RC35 was briefly utilized by WMATA, albeit unauthorized, in WMATA's view it failed to perform as intended and did not meet WMATA's engineering acceptance safety and performing requirements. To date, RC35 is sitting idle at the WMATA Greenbelt Rail Yard.

On August 12, 2022, this matter was forwarded to WMATA's GM/CEO for review and action as appropriate, not only because of the concern with the expenditure, but also because it presented a safety concern associated with the operability of this crane on the Metrorail system. On September 9, 2022, WMATA's Executive Vice President/Chief Operating Officer responded to this MAR agreeing to secure to the keys to the vehicle deeming it unusable by WMATA employees and indicating WMATA would perform an analysis to identify the most cost-effective way to dispose of RC35.

Background

On December 4, 2009, WMATA announced a request for proposal (RFP) using federal funds associated with the Federal Economic Recovery Stimulus Program to purchase a 35 Ton Crane-Rail Bound prototype. The prototype crane was intended to, among other capabilities, operate through 360 degrees of rotation when using outriggers and pick and carry a load throughout the Metrorail system without using outriggers. As a result, specifications for the crane were developed and incorporated into the RFP.

On September 17, 2010, Cranemasters was awarded contract ES10091, in the amount of $3,838,880. Cranemasters was obligated to meet the contract specifications and deliver the final working crane in 420 days. The performance period was between September 17, 2010 and March 16, 2012.

A progress payment schedule was approved between WMATA and Cranemasters after six milestones were met post-award (**Exhibit 1**). WMATA paid Cranemasters $383,888 on November 18, 2010; $1,151,664 on August 2, 2011; $767,776 on January 24, 2012; $767,776 on November 6, 2012; and $353,888 on December 10, 2013. According to the progress payment schedule, the last payment was set to be released to Cranemasters after they had delivered RC35; completed training to WMATA personnel; deliverables were received and accepted; and final acceptance testing was completed and approved.

On January 14, 2016, the Office of Track & Structures (TRST) wrote a memorandum stating, in part, that RC35 was built to specifications and delivered on time (**Exhibit 2**).

On January 27, 2016, the Office of Procurement and Materials (PRMT) notified Cranemasters that WMATA accepted receipt of RC35. In addition, PRMT advised that all of the deficiencies within the scope of the work referenced in the awarded contract were correct and completed (**Exhibit 3**). Since Cranemasters did not provide the required training to WMATA personnel, a total of $30,000 was deobligated from the original contract amount. As a result, the final value was established at $3,808,880.

Contract Technical Specification and Performance Issues

At the onset of RC35 being delivered to WMATA in 2013, several issues were identified with the crane. For example, records provided by the Office of Quality Assurance, Internal Compliance and Oversight (QICO) reflected in September 2013 that WMATA's Department of Transit Infrastructure and Engineering, Office of Quality and Assurance Warranty (QAAW) wrote a detailed inspection report to identify issues and ensure WMATA received a defect-free crane (**Exhibit 4**). WMATA personnel identified 59 workmanship and quality issues involving RC35. These issues included, but were not limited to: fluid leaking from flange at rear left of vehicle under deck; multiple hydraulic hose clamps exhibiting inconsistent hardware; insufficient thread protrusion on hydraulic hose clamps; seven of the eight axle keepers installed upside-down; corrosion and rust on several parts; inconsistent hardware used at forward tow loop weldment; hydraulic line clamps missing rectangular metal plates at the left side of car body; and the boom slide stop was not mounted flush against boom slide flange.

Additional records provided by QICO reflected that QAAW wrote another detailed report in September 2015 highlighting several out of compliance issues involving RC35 based on the technical specifications in the contract (**Exhibit 5**). These issues included, but were not limited to: the crane having no electronics for monitoring crane angle and load; no boom angle indication; swing overload limiter; jacking points called out on the machine; hydraulic leaks and routing issues throughout the crane; hazardous walkway to check engine oil; unprotected hose around the front and rear trucks; wire routing and labeling throughout the machine; no lights in dog house; right engine cover snags; undercarriage hoses and wires hanging; cab mirror violated envelope; counterweight cradle bent; and outrigger pad retaining pin damaged.

Moreover, according to a warranty/history report, RC35 continued to have performance issues (**Exhibit 6**). For example, in November 2015, RC35 was transported to a Cranemasters facility in Richmond, Virginia to address several of the open corrective actions. In October 2016, RC35 was transported to Greenbelt Rail Yard after Cranemasters addressed several open corrective actions and testing was completed. In December 2016, additional testing was to be scheduled; however, it was canceled due to the crane winch retracking at random. In January 2017, while RC35 was moving, the crane winched the block into the boom and broke the cable, which caused damage to the boom tip. During testing in April 2017, RC35 brakes would not hold on a hill in the forward direction, lost propulsion, and made loud grinding noises. In June 2017, data from testing found that the machine left travel mode for no reason, had intermittent connectivity issue to one of the interlock sensors, and found one axle's parking brake release pressure was in low in one direction. Finally, in December 2017, RC35 winch cable broke, the hook block fell to the ballast, and the cable whipped over to the back of the crane resulting in the crane headache ball falling between the Metrorail tracks (**Exhibit 7**). The operator was unable to brake, forcing him to shut down RC35.

In May 2018, the Office of Car Track Equipment Maintenance (CTEM) advised in a memorandum that they had resolved to make no further effort to support the endeavor to meet the requirements of Contract. (**Exhibit 8**). In WMATA's view, there remained "multiple significant functional and design items" over a five-year period. CTEM recommended RC35 be removed from WMATA and/or all areas of concern are resolved prior to reengagement with WMATA to complete acceptance testing. According to WMATA engineers, the continuous repairs needed to repair RC35 required an extensive allocation of additional WMATA resources to review and escort their repair efforts. Cranemasters continues to communicate with WMATA personnel to address concerns associated with RC35, to include, redesigning the crane; however, Cranemasters has only submitted plans that do not provide a permanent solution. OIG was unable to quantify the WMATA personnel costs to date. Furthermore, OIG was unable to quantify any future costs to accomplish repair requests made to Cranemasters so that RC35 could perform as intended.

To date, RC35 sits idle and unused at the Greenbelt Rail Yard since it has never performed as intended nor has it ever passed WMATA engineering acceptance safety and performing requirements, despite TRST and PRMT indicating that they met the contract requirements.

Safety Concern

OIG learned that several WMATA crane operators used RC35 on various projects throughout the Metrorail system after the crane was delivered sometime in 2013 (**Exhibit 9**). This usage occurred despite the crane not being officially authorized since it did not appear to meet with the technical specifications incorporated in the contract. The purpose of acceptance testing is to determine whether the RFP technical specifications in the contract were met to verify the crane is safe, operationally ready, and defect-free.

WMATA personnel explained that RC35 was controlled by TRST. This allowed TRST to utilize the crane whenever they wanted on projects. A WMATA engineer added that he learned from a prior crane operator that the crane was used on a project for acceptance testing without engineers' involvement. This engineer indicated that it is not normal practice to perform acceptance testing on a project as it is a liability issue. He gave an example that one would not want to lift 35 tons of material over people when one has not tested that the crane could hold 35 tons of material.

The prior Contracting Officer Technical Representative (COTR) for RC35 confirmed when the crane was delivered in 2013, TRST used it in a testing capacity. He recalled RC35 being used for switch installation jobs near West Falls Church Rail Yard and Shady Grove interlocking. A previous crane operator also confirmed that he operated RC35 along with Cranemasters on different projects after the crane was delivered. He indicated that when he used the crane, he was using it to remove certain sections of the interlocking. He recalled using RC35 at Greenbelt Rail Yard and on the mainline, though he could not recall exactly where.

In December 2019, OIG advised WMATA management of the complaint we received and requested WMATA not move or tamper with RC35. In a recent site visit, OIG observed RC35 still present at the Greenbelt Rail Yard with a tag indicating "DANGER, DO NOT REMOVE THIS TAG!," with remarks indicating tow only (**Exhibit 10**). OIG is concerned that RC35 was used on multiple TRST projects after WMATA inspectors uncovered numerous issues with the crane being out of compliance with the RFP technical specifications at the onset of the crane being delivered to WMATA and has never performed as intended.

This matter is being forwarded to you for review and action as appropriate as it represents safety concerns associated with the operability of this crane on the Metrorail system if used again.

Recommendations and Actions

OIG recommends that the General Manager and Chief Executive Officer:

1. Follow WMATA safety protocols regarding unsafe equipment and apply them to RC35.
2. Make a determination if RC35 can be utilized or must be disposed.

Please provide a response to OIG's recommendations by September 2, 2022 to Rene Febles, rfebles@wmataoig.gov.

Exhibits

1. RC35 progress payment schedule
2. Memorandum dated January 14, 2016 from TRST indicating in part, that RC35 was built to specifications and delivered on time
3. Memorandum dated January 27, 2016 from PRMT to Cranemasters notifying them that WMATA had accepted receipt of RC35
4. Quality Assessment Report conducted in September 2013
5. Quality Assessment Report conducted in September 2015
6. RC35 Warranty/History Report
7. Incident form related to RC35 in December 2017
8. Letter explaining that CTEM will no longer support the acceptance of RC35
9. RC35 Cranemasters photograph
10. RC35 photographs taken by OIG

cc: COO – B. Dwyer
COUN – P. Lee
MARC – E. Sullivan
SAFE – T. Impastato

Exhibit 1

CRANEMASTERS INC.
3001 Williamsburg Road
Richmond, Virginia 23231
(800) 624-0543
www.cranemasters.com

September 9, 2010
CONTRACT ES10091/GWF
35 TON-RAILBOUND CRANE

PROGRESS PAYMENT SCHEDULE

Invoice #1	10% within 30 days after award of the contract.
Invoice #2	30% within 30 days after presentation and acceptance of approval drawings
Invoice #3	20% progress payment upon 10% total assembly complete
Invoice #4	20% progress payment upon 25% total assembly complete
Invoice #5	10% progress payment upon 50% total assembly complete
Invoice #6	10% Final payment after delivery of crane and after all training is complete and all deliverables received (spares, manuals) and accepted and after final acceptance testing complete and approved.

SPECIAL CONDITIONS:

a. Each invoice amount above is to be computed as a percentage (%) against the total contract award value of $3,838,880.
b. Photos and progress reports to be provided by Cranemasters every month.
c. Progress inspections are to be made by authorized WMATA personnel from start-up thru final assembly.
d. Ten percent (10%) of contract value will be retained until crane is delivered, tested and WMATA officially accepts Crane. All deliverables - manuals, training and spares must be delivered and accepted prior to final payment.
e. At no point prior to delivery, will total amounts invoiced exceed 90% of the total contract value.
f. Allowance for overhead and profit will be included in all progress payments submitted.
g. Invoices will be in lump sum amounts and are to be substantiated by delivery of digital photographs of progress made, or by site visits conducted by authorized WMATA personnel to the Cranemasters' manufacturing facility.

h. **CHANGE ORDERS** -all change orders must be approved in writing by WMATA and Cranemasters. If a change order adds or detracts from the contract cost, a MOD will be issued to make the appropriate cost adjustment to the contract value.

i. **DELIVERY** – Contract schedule requires delivery to WMATA's Alexandria yard within 420 days from date of award.

[redacted]

Kevin A. Green
WMATA Contracting Officer

[redacted]

Barry Isringhausen
Cranemasters Inc., Vice President

Exhibit 2

M E M O R A N D U M

SUBJECT: Contract No. ES10091
35 Ton Crane - Rail Bound

DATE: January 14, 2016

FROM: TRST - Leroy Jones [redacted]

TO: Contract File (ES10091)

Contract ES10091 was awarded to Cranemasters, Inc., on September 17, 2010 in the amount of $3,838,880.00. The Final Contract Value was established at $3,808,880.00. Currently all work required by the contract, consisting of the item listed below has been completed.

1. Build 35 Ton Crane to specifications, deliver on time and provide excellent support services throughout the useful life of the crane.

Concurred by:

Washington
Metropolitan Area
Transit Authority

Exhibit 3

January 27, 2016

Mr. Barry Isringhausen
Vice President
Cranemasters, Inc.
8020 Whitepine Road
North Chesterfield, Virginia 23237

Re: Contract No. ES10091
35 Ton Crane Rail Bound
Final Acceptance

Dear Mr. Isringhausen:

This letter is to inform you of the Authority's acceptance of the referenced contract.

The Authorized Representative of the Contracting Officer advises me that all deficiencies within the scope of work for the referenced contract are correct and completed

We appreciate your successful completion of the contract and look forward to your future participation in the Authority's construction program.

Sincerely,

[redacted]

Richard Owens
Contracting Officer
Office of Procurement and Materials

Washington
Metropolitan Area
Transit Authority

600 Fifth Street, NW
Washington, DC 20001
202/962-1234

www.metroopensdoors.com

Exhibit 4

WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

DEPARTMENT OF TRANSIT INFRASTRUCTURE & ENGINEERING SERVICES
OFFICE OF QUALITY ASSURANCE AND WARRANTY

QUALITY ASSESSMENT REPORT

REPORT NO.	AR-CENV-20130930-01	**PERFORMED - DATES:**	9/25/2013
ASSESSMENT PROJECT:	In-process Inspection of 35 Ton Crane Vehicle – Rail Bound	**PROGRAM:**	RFP ES10091/GWF
LOCATION:	Greenbelt Yard (CTEM)	**PROGRAM MANAGER:**	Michael Thomas (COTR)
DATE OF NOTIFICATION:	9/30/2013	**PREPARED BY:**	M. O'Hara

SUMMARY:

On 9/25/2013, QAAW performed an in-process inspection of the new, 35 Ton Crane Vehicle, currently undergoing final assembly at the Greenbelt Yard. This is a CTEM vehicle which is being provided by *Cranemasters*. The purpose of the inspection was to inspect the vehicle for discrepant areas of workmanship and quality. The vehicle was not inspected for design or engineering related issues. As such, numerous items (Qty: 59) were discovered and documented. The purpose of this report is to provide the COTR and *Cranemasters*, with a detailed inspection report in an effort for *Cranemasters* to correct the issues and ensure that WMATA receives a defect-free vehicle.

COMMENTS:

Please see the attached Inspection Report which contains 59 items and associated photos detailing the workmanship and quality issues discovered.

Follow Up Required: Yes

Date of Follow Up: 10/07/2013

REPORT DISTRIBUTION:

CENV: Reynolds, Kakkar, Thomas, Eisenhauer
CMNT: Cannon
CTEM: Hagan, Jones

QAAW Officer:	**QAAW Manager:**	**Audited Supervisor:**
Michael O'Hara		
DATE: 9/30/2013	**DATE:**	**DATE:**

WMATA CTEM Equipment

No.

Inspection Report

Car / Unit No.: 35 Ton Crane – Hi Rail Bound. (Reference *AR-CENV-20130930-01)*

Shop Order No.: RFP S10091/GWF

Manufacturer: Cranemasters

Consultant: LTK

WMAT pecto: O'Hara, Davis, Brown, Panik, Gunter & Achter

Insp. Type: In-process Inspection on WMATA Property (Greenbelt).

R Inspector:

Date: day 25 month 09 year 2013

Location: Gr elt CTEM

Item No.	Discrepancy	Accepte y & Date	
		MFR QC (Sign / Initial / Stamp)	Cust Insp. (Sign / Initial / Stamp)
1	At each outrigger (4 places); yellow cable is in hard contact wi cylin and lacks protection rubber. **Photo 1**		
2	Nearly all tie-wraps exhibit sharp edges an trimming. **Photo 2**		
3	Multiple hydraulic hose clamps exhibit incons ent hardwa de 5 and Gr de 8 bolts are used throughout these clamps along outriggers the carbody. **Photo 3A & 3B**		
4	At pivot points where the s join the carbo ere exists hard contact between the bolt head on the hy lic h lamps and ne y hydraulic hoses. **Photo 4**		
5	Multiple cases of ufficient thread otrusion on hyd lic hose clamps on hoses at pivot of outrig . **Photo 5**		
6	Chafing conditions abl nder carbody forward of forward right outrigger. **Photo 6**		
7	e-wrapped inst sharp edges of fitting on forward truck, right side, orward of #2 **Photo 7**		
	P-clamp on cable is t attached to vehicle under carbody near forward right outrigger lock. **Photo 8**		
9	mpartment cover sing at bottom of radiator compartment. **Photo 9**		
10	Unpain usting mounting bracket at forward right headlight. **Photo 10**		
11	Unpainted and rusting mounting bracket at forward right red light. **Photo 11**		

12	Seven of the eight axle keepers are installed upside-down. **Photos 12A & 12B**		
13	Hydraulic line clamps are missing rectangular metal plates at pivot point of forward right outrigger. **Photo 13**		
14	Missing lockwasher under head of cap screw at hydraulic flange on right side of carbody (Service Brake Pilot hose). **Photo 14**		
15	Corrosion/rust on hydraulic flange near leveling cylinder on forward left side of v l **Photo 15**		
16	Support pipe for manifold attached to leveling cylinder on forward left si e of vehicle is rusted. **Photo 16**		
17	Inconsistent hardware used at forward tow loop weldment. Mi bolt is longer than the two on either side of it on left and right side. **Photo 17**		
18	Inconsistent hardware used at rear tow loop weldment. Midd lt is lon than the two on either side of it on left and right side. **Photo 17**		
19	Electrical tape used to hold black protective conduit on yellow cable h me unattached from conduit and is unraveled ide of forward truck. **P o 18**		
20	Fittings leaking fluid at forward left outrigger nder. **Photo**		
21	Insufficient thread protrusion on P-clamp hardwa for nsor cable at #3 stabilizer cylinder on truck. **Photo**		
22	Fluid leaking from ges under ca dy aft of left f ard outrigger lock. **Photo 21A & 21B**		
23	Hydraulic lines 3 stabilize t truck frame at forward left area of truck. **Photo 22**		
24	At rear of vehi nder the deck and above the truck, large bundles of hoses in conta h the weld ts for the front and rear tow-loops. **Photo 23**		
2	Tow-loop mountin rdware at t and rear of vehicle exhibit insufficient thread protrusion. **Photo 2**		
26	early all of the larg ap screws in turret of vehicle exhibit corrosion/rust. **Photo 25**		
27	Cap ws se ng the right and left side outrigger controls have paint in the recess of the hex nd appear to be marred. **Photos 26A & 26B**		
28	Hydraulic line clamps are missing rectangular metal plates at left side of carbody. **Photo 27**		

29	Paint in threads of P-clamp studs at left side of carbody, forward of #3 axle. **Photo 28**		
30	Large bundle of hydraulic lines chafe against white wear pad on deck of vehicle at rear left side. **Photo 29**		
31	Fluid leaking from flange at rear left of vehicle under deck. **Photo 30**		
32	Hard contact and damage has occurred between the suction hose and pony mot mounting brackets. **Photo 31**		
33	Inconsistent cap screws found on block on right rear leveling device – i ufficient thread protrusion. **Photo 32**		
34	Loose nut on P-clamp stud at rear left side of carbody above axle. **Photo 33**		
35	Hose connection plates welded to deck aft of cab area are un ted and ted. **Photos 34A & 34B**		
36	Insufficient thread protrusion on P-clamp studs on carbody, right side, ve #3 axle. **Photo 35**		
37	Fluid leaking from flanges under deck, above axle, right s **oto 36**		
38	Cable lying on #3 axle, right **Photo 37**		
39	Jam nuts on boo heave are unp ted and rusted **hoto 38**		
40	Plugs/caps miss om bolt nning thro g es on boom. **Photo 39**		
41	Sh ing at end om. One side of the boom contains a small white sheave, t the oth s not, but holes where one may be installed. **Photos 40A & 40B**		
4	Boom slide stop is mounted f h against boom slide flange. There exists a gap between these two es. **Photo 41**		
43	Visible gap between per sheave jam nuts at end of boom. **Photo 42**		
44	Rand ard e (washers) found lying in turret area. **Photo 43**		
45	Engine filter access compartment contains multiple hoses in contact with each other and engine components. **Photos 44A, 44B & 44C**		

46	Terminals, wire and tie-wraps laying on the floor of the electrical compartment. **Photos 45A & 45B**		
47	Bolt laying on floor of radiator compartment. **Photo 46**		
48	In several areas, the hydraulic hose clamps pinch the hoses. **Photo 47**		
49	Unterminated wires at the terminal strip in the electrical compartment are not pro y capped. **Photo 48**		
50	Fins on the surface of the radiator are bent/damaged at top. **Photo 49**		
51	Nearly all glass panels in the cab area lack rubber seals/glazin **hoto 50A, 50B, 50C, 50D, 50E, 50F & 50G**		
52	Bottom cab windshield wiper is misaligned with the windshiel d falls b the glass. **Photo 51**		
53	Cotter pin installed incorrectly on large pin securing stacked sheet ste ights at rear of vehicle. **Photo 52**		
54	Several fluid leaks exist directly below the ca ea of the ve **Photo 53A & 53B**		
55	Battery cable is in hard contact with threads of c cr in turret of the vehicle. **Photo 54**		
56	Wiring in electrical mpartment la labels and is p rly routed in general. **Photos 55A, 55B & 55C**		
57	Hardware on P-c p above ot point of outrigger is loose. **Photo 56**		
58	S onnected t forward exterior side of the fuel tank has two P-clamps on yet is no ored to an g. **Photo 57**		
5	“RC-01” labels are sing from the vehicle.		

SUPPORTING PHOTOS ATTACHED

Photo 3A

Photo 1

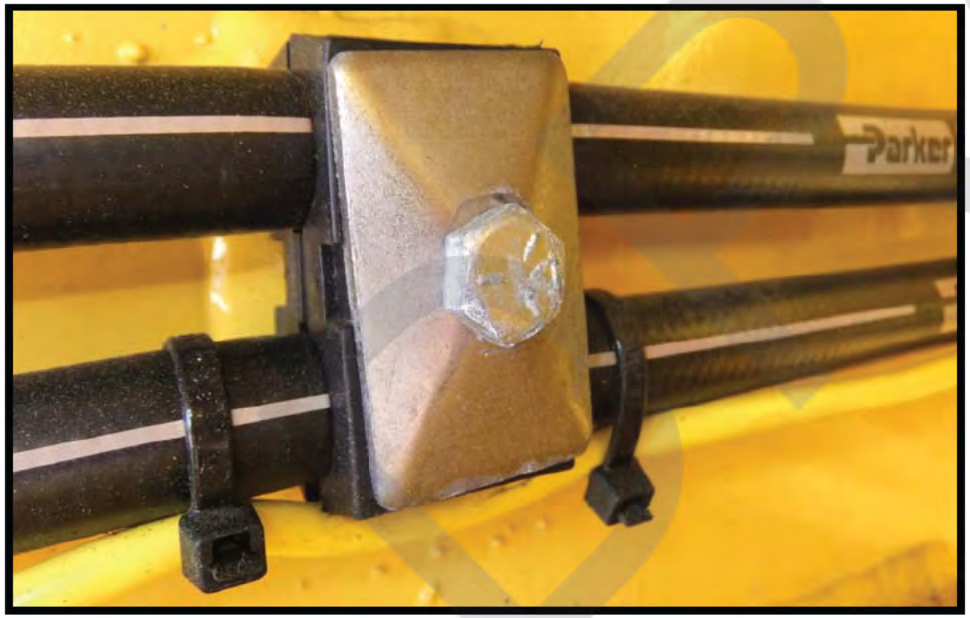
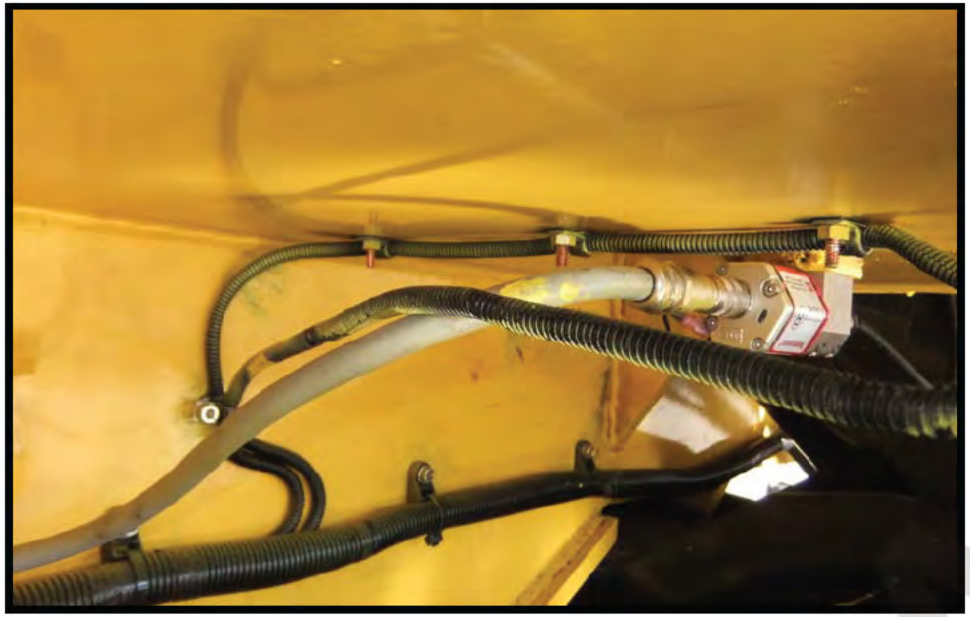


Photo 3B

Photo 2



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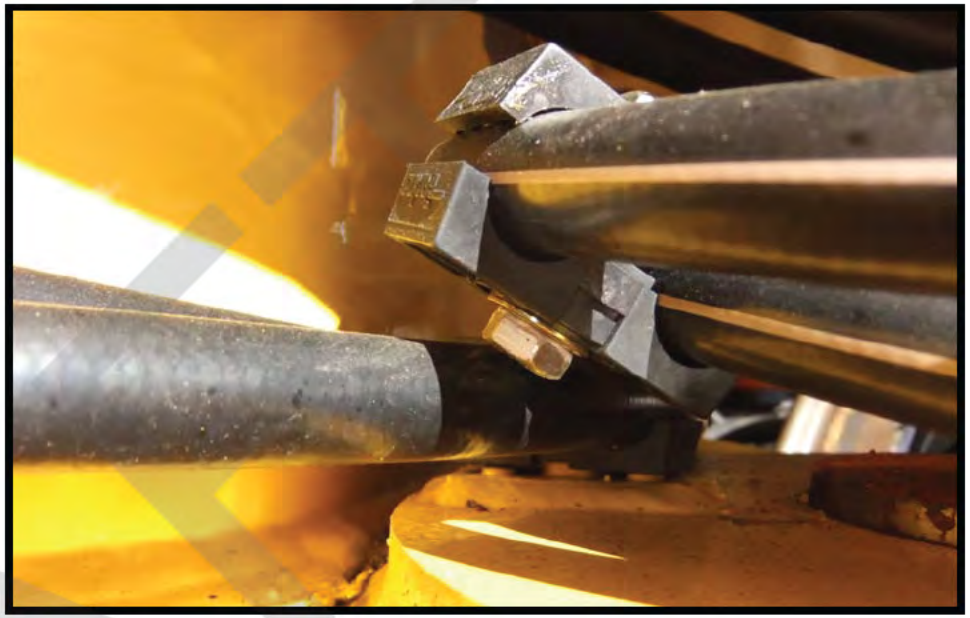


Photo 4

Photo 7

Photo 5

Photo 10

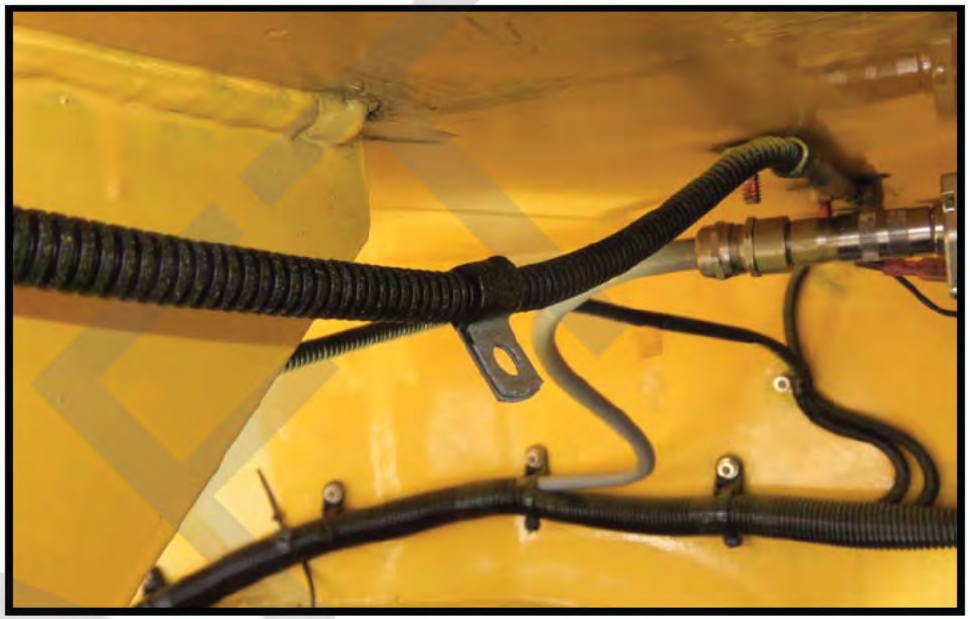


Photo 8

Photo 11

Photo 9

Photo 13

Photo 12A

Photo 14

Photo 12B

Photo 17

Photo 15

Photo 18

Photo 16

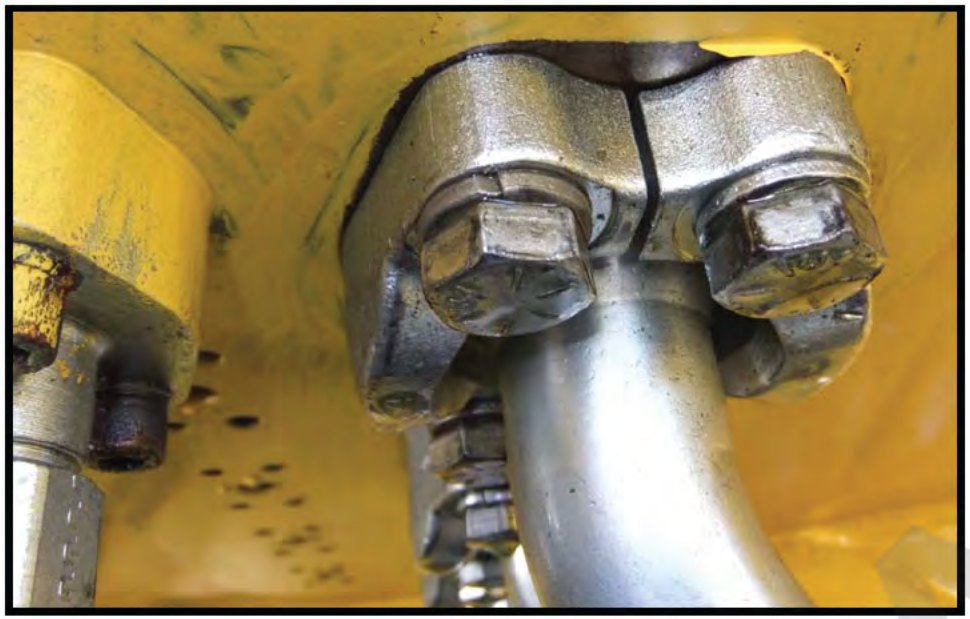
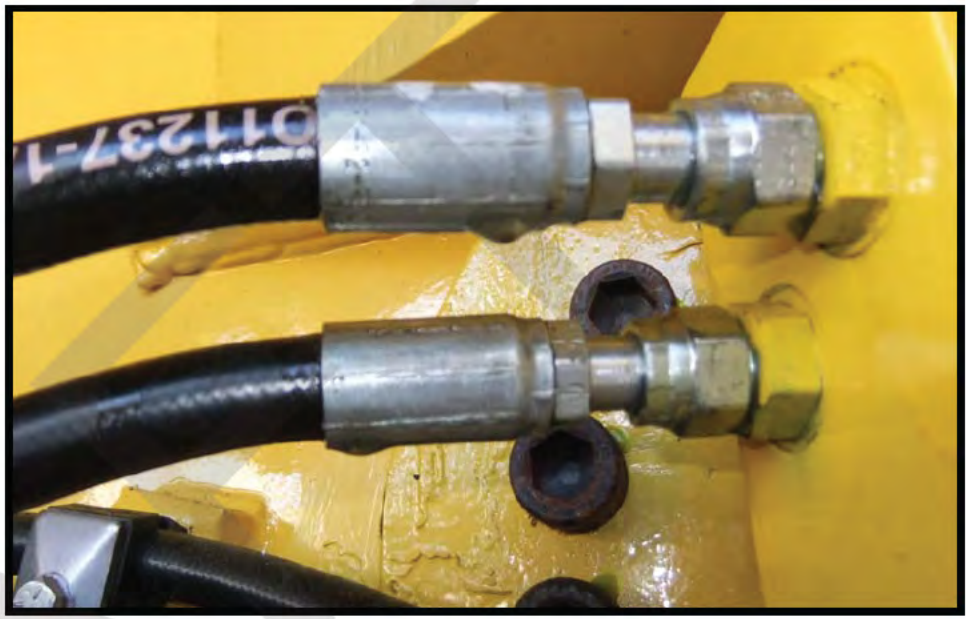


Photo 21A



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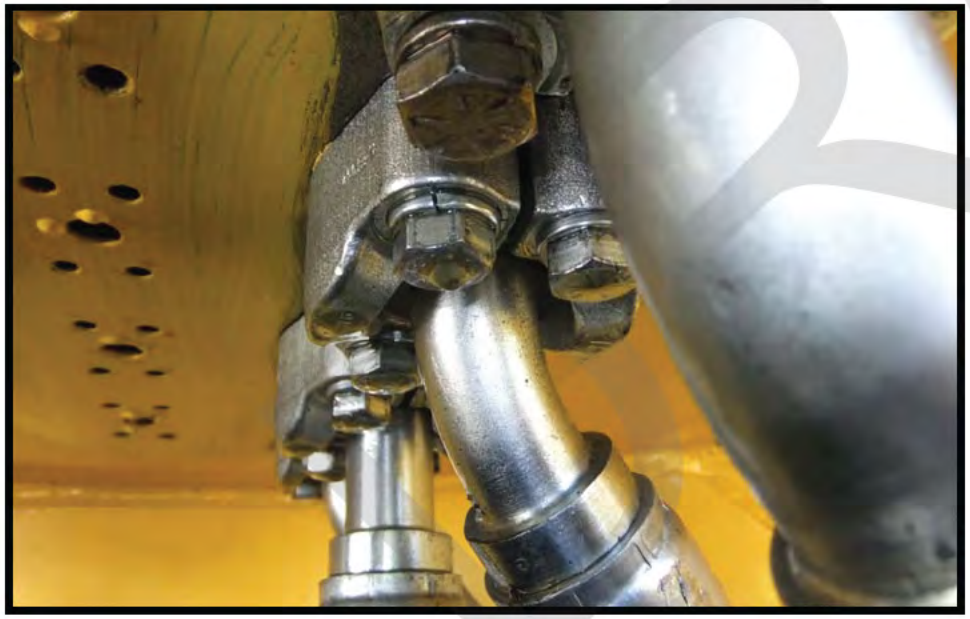
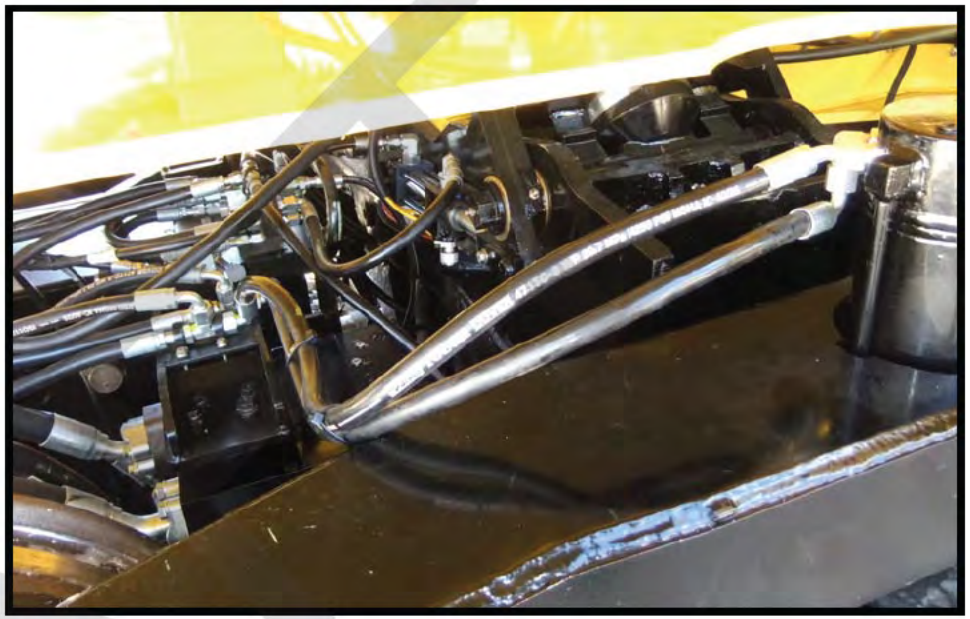


Photo 21B

Photo 20

Photo 24



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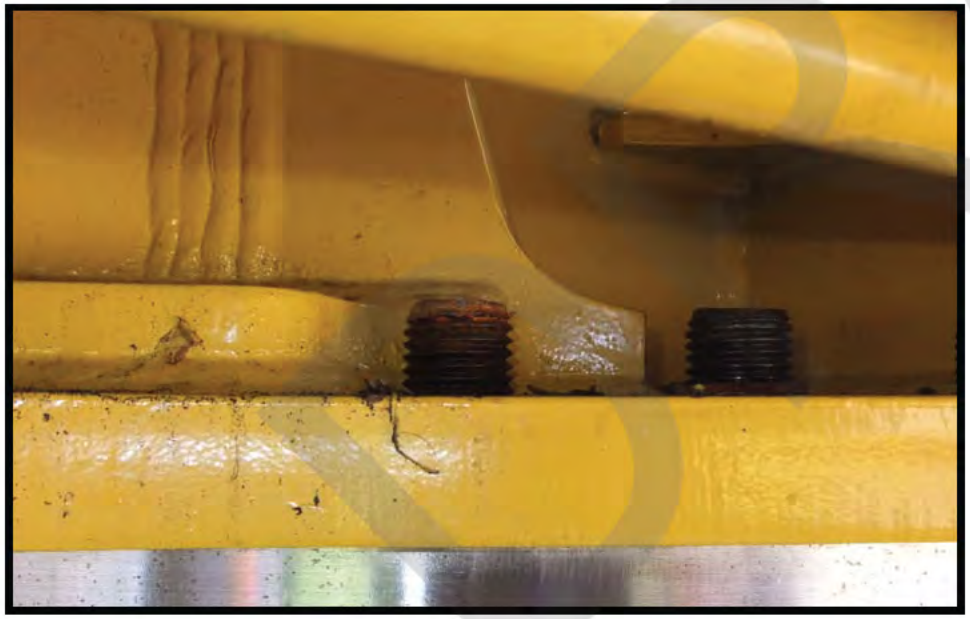
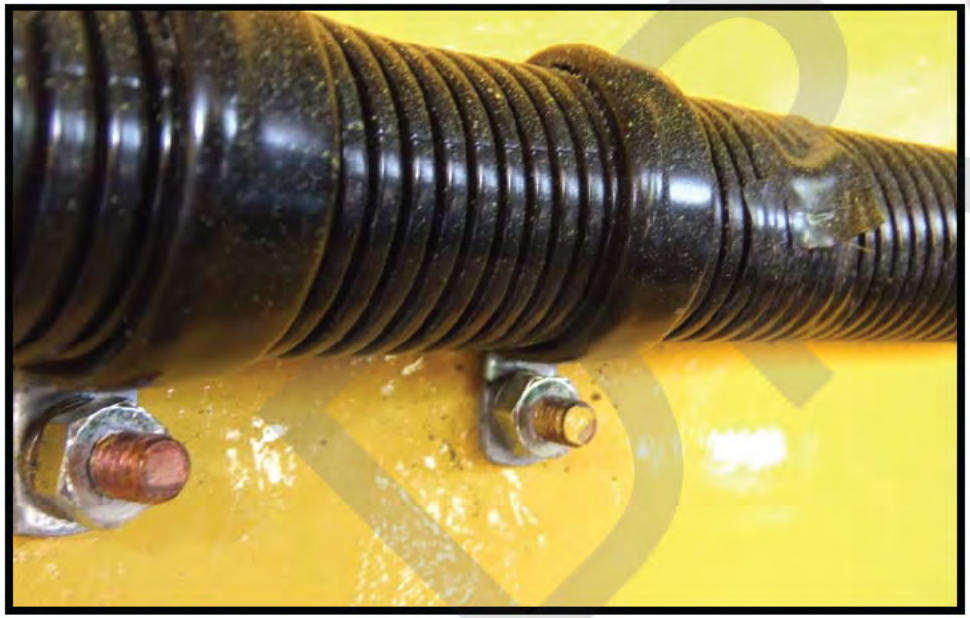


Photo 25

Photo 23

Photo 27

Photo 26A



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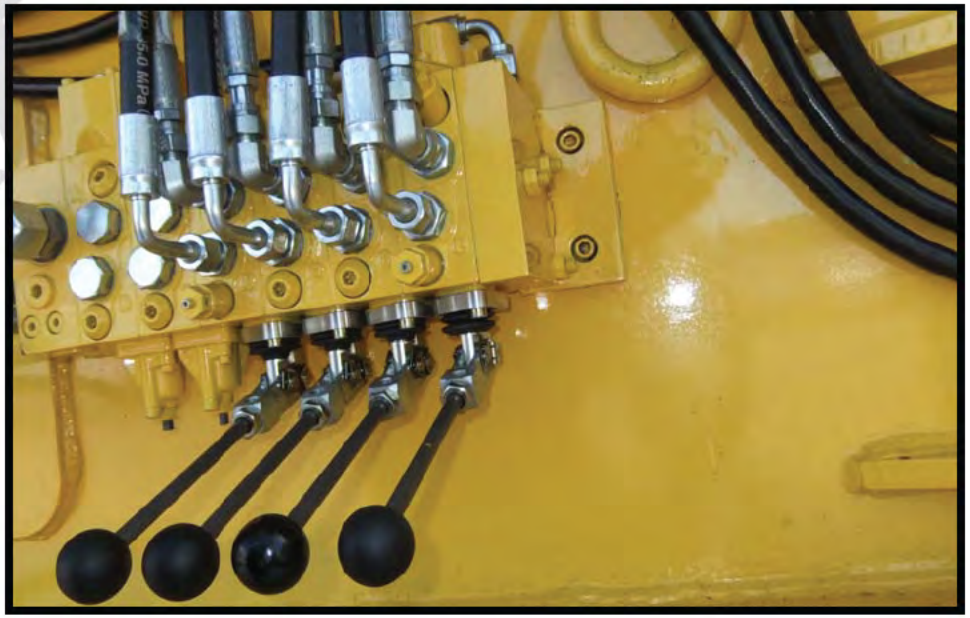


Photo 26B

Photo 31

Photo 29

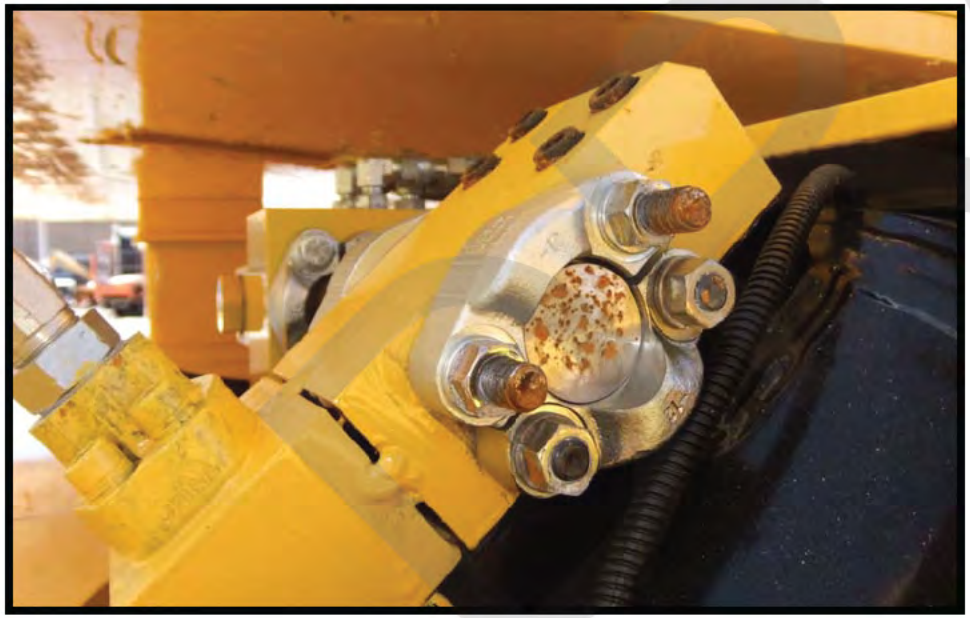


Photo 32

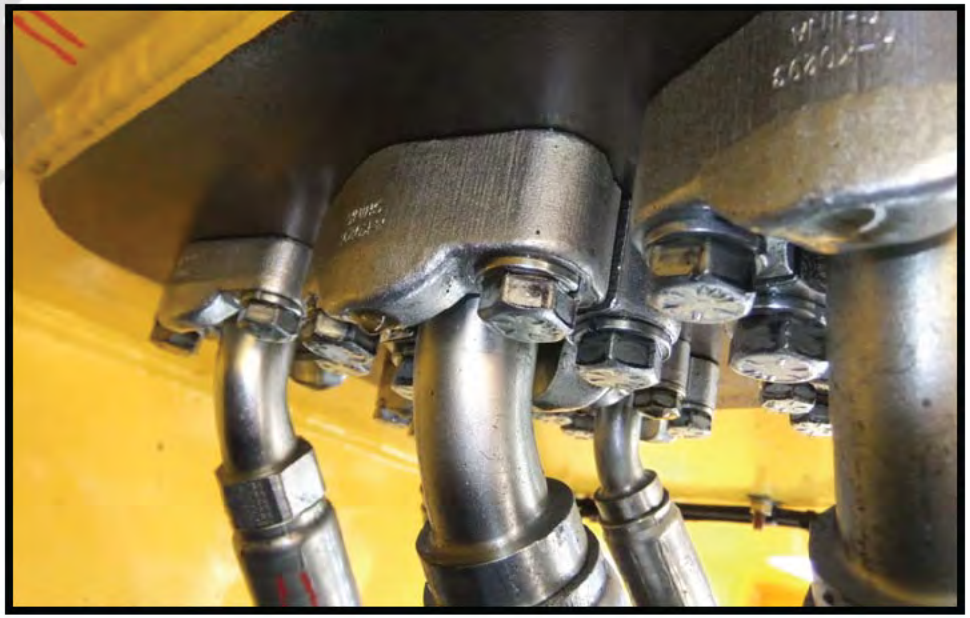


Photo 30

Photo 34B

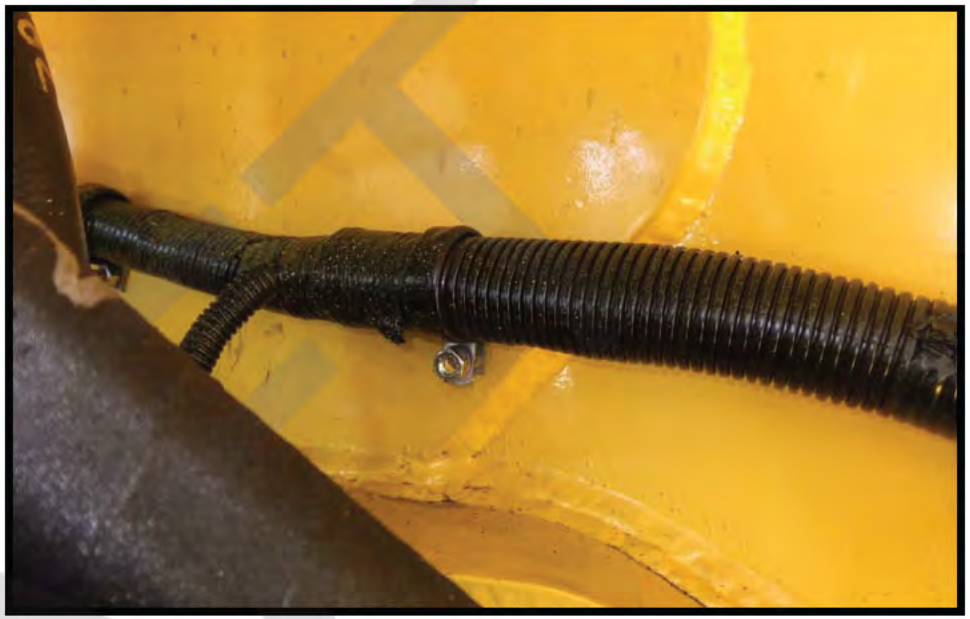


Photo 33

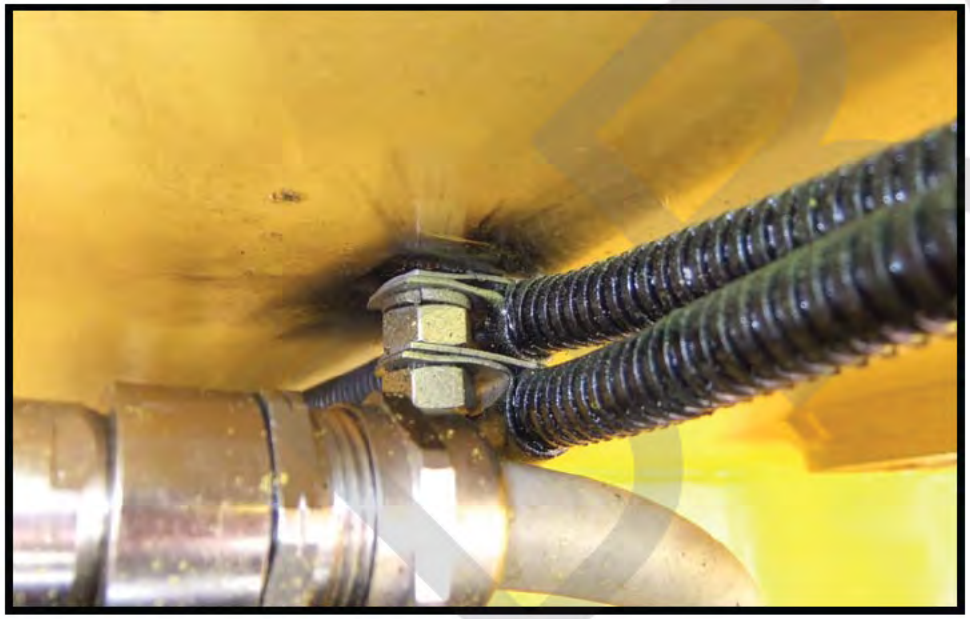


Photo 35

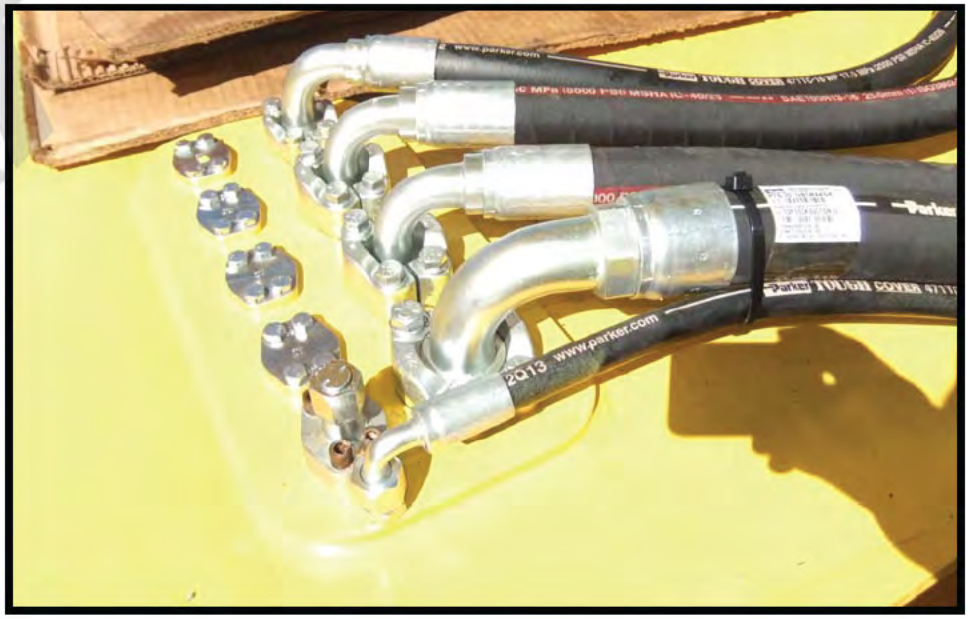


Photo 34A

Photo 38

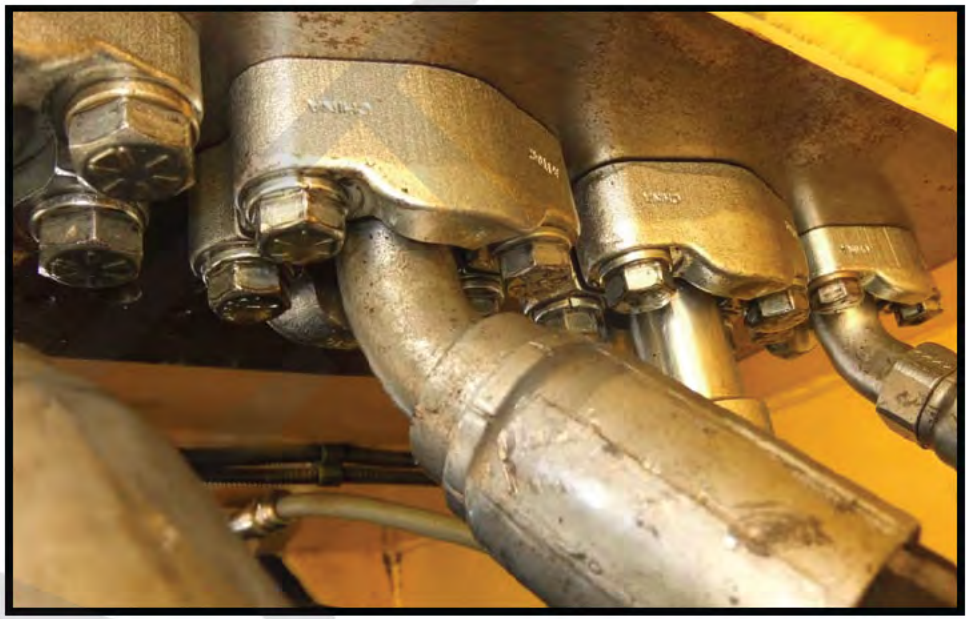


Photo 36

Photo 39

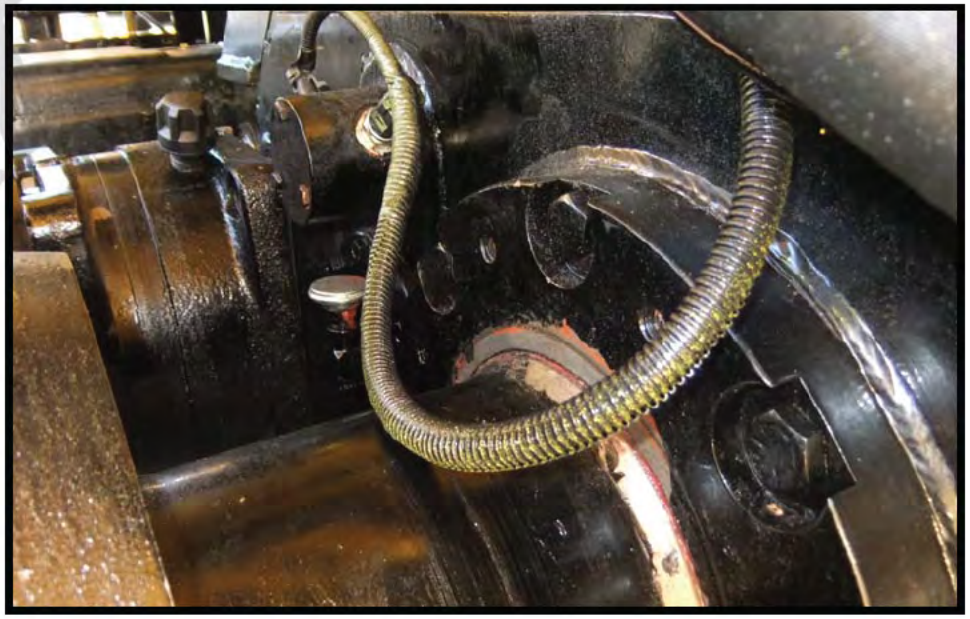


Photo 37

Photo 41

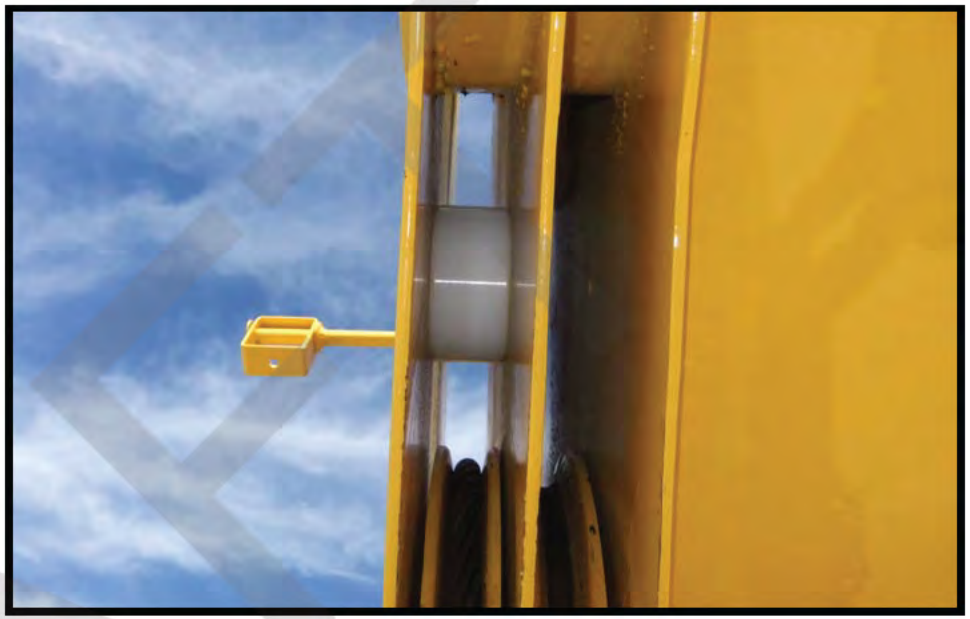


Photo 40A

Photo 42

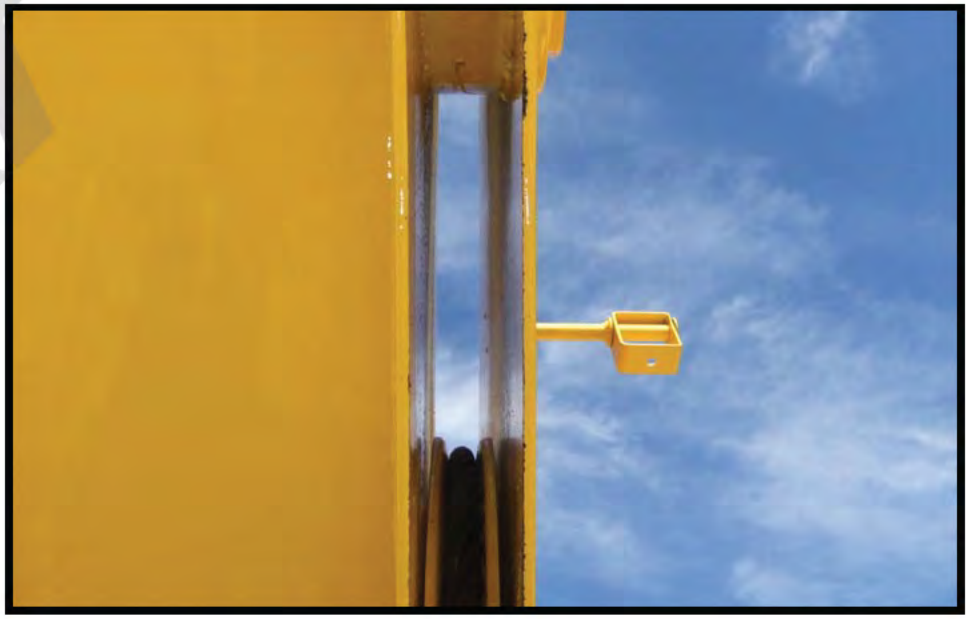


Photo 40B

Photo 44B

Photo 43

Photo 44C

Photo 44A

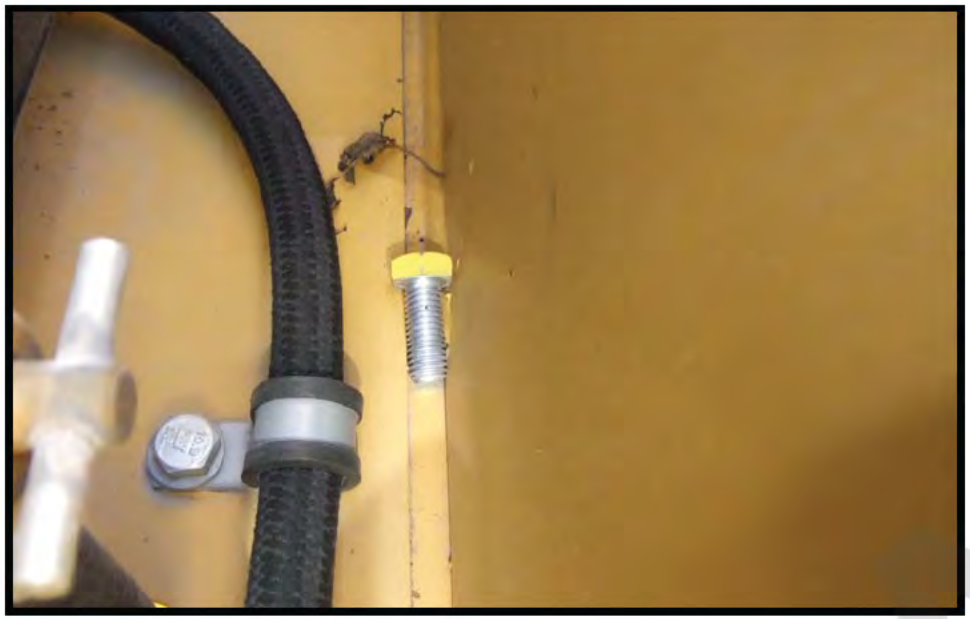


Photo 46

Photo 45A

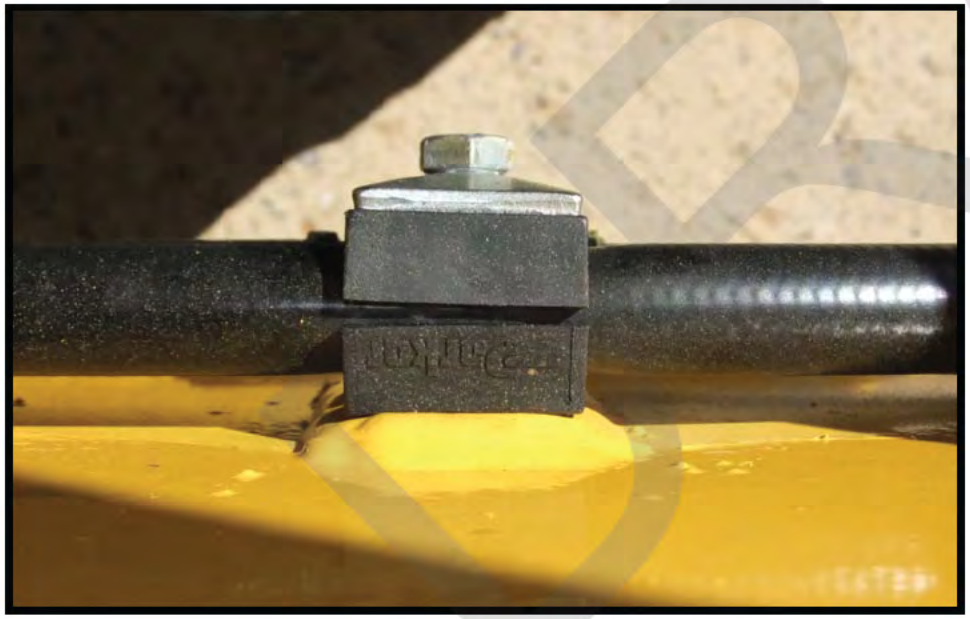


Photo 47

Photo 45B

Photo 50A

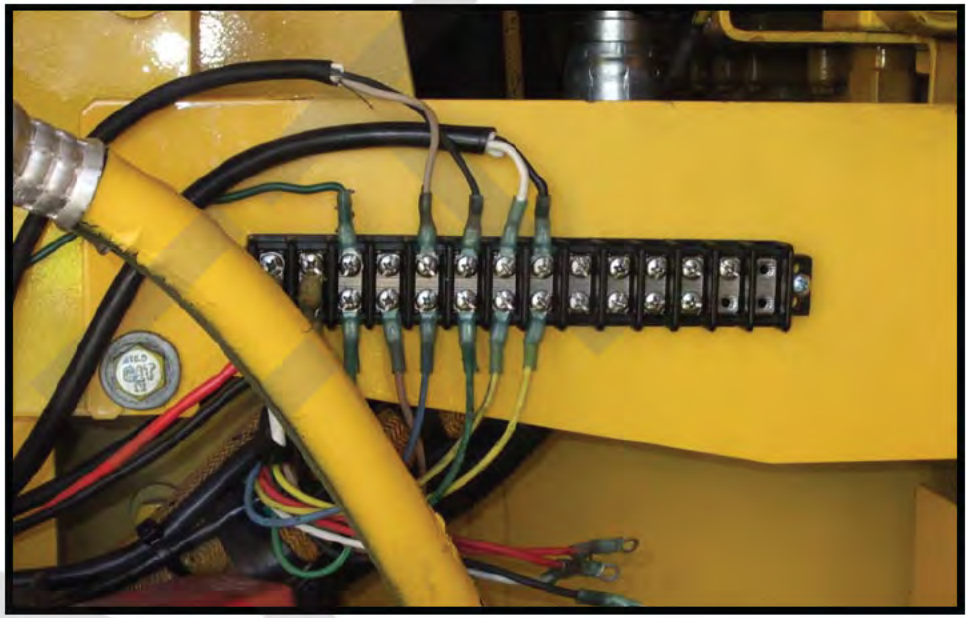


Photo 48

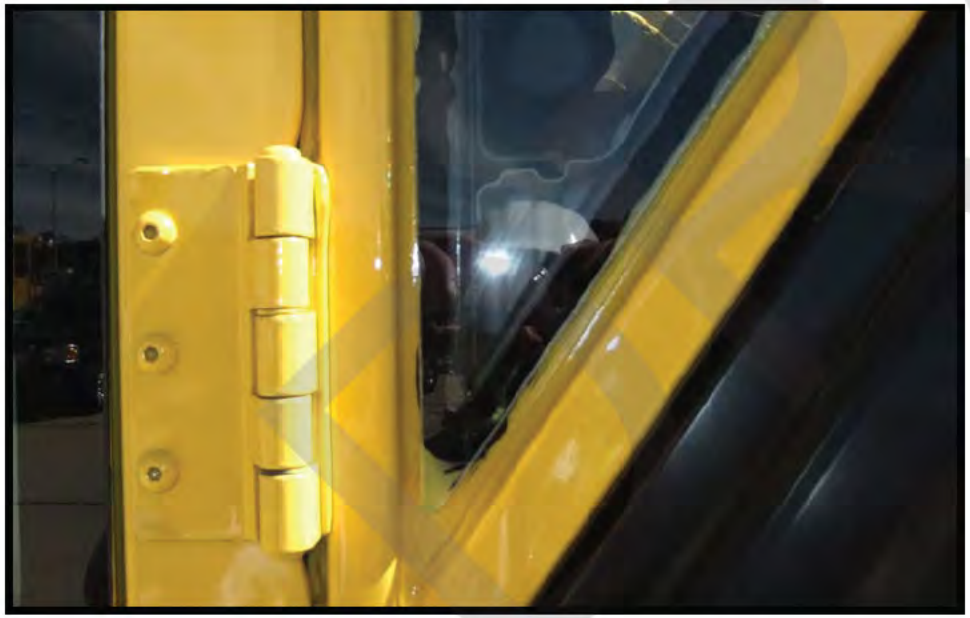


Photo 50B

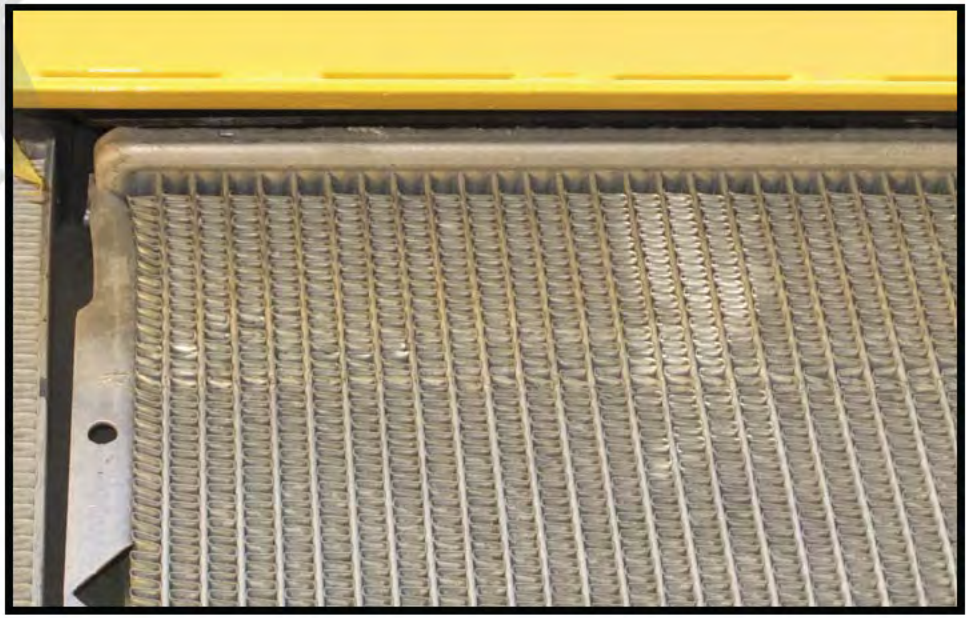


Photo 49

Photo 50E

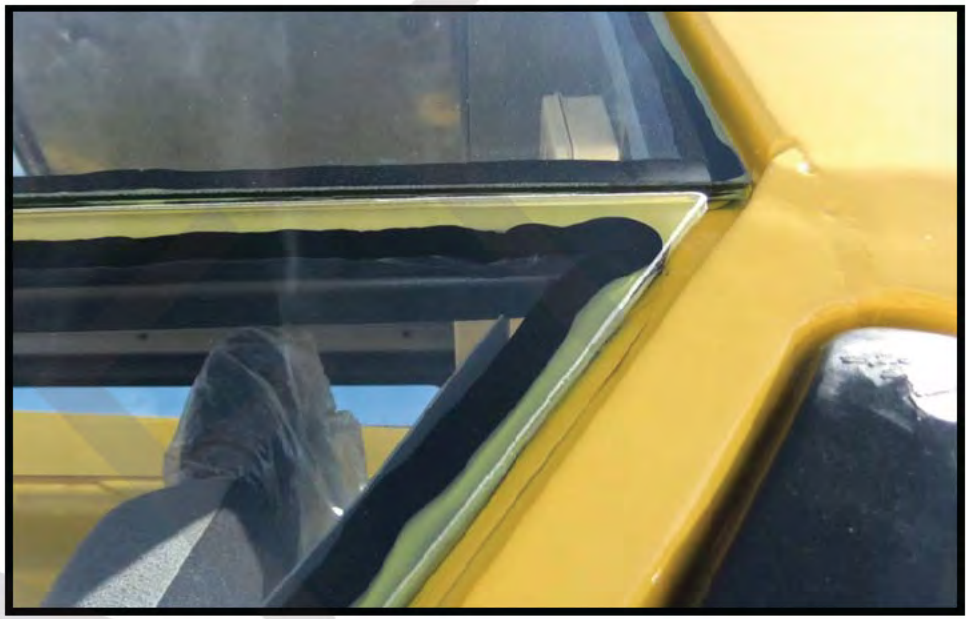


Photo 50C

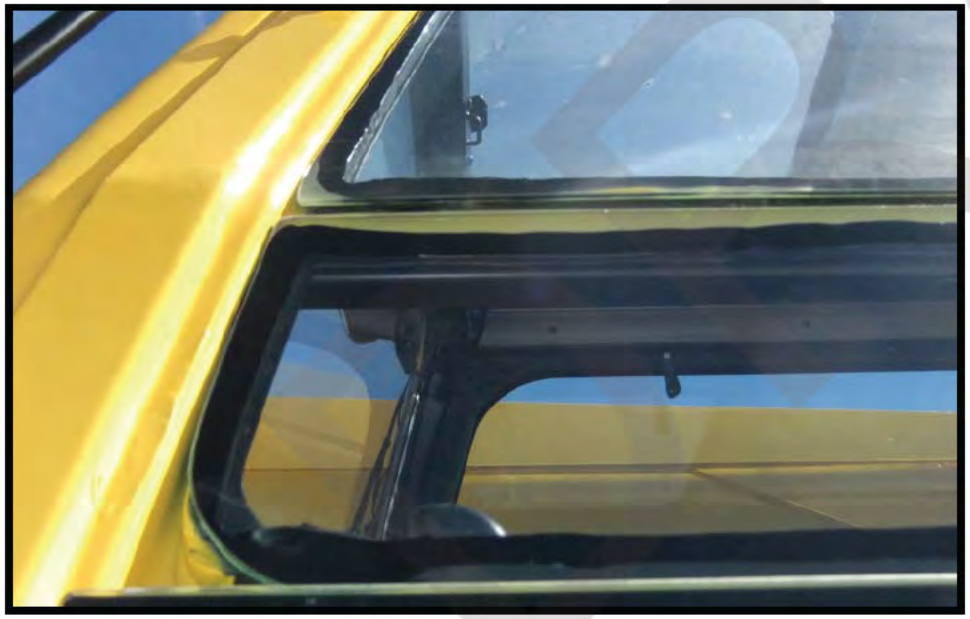


Photo 50F

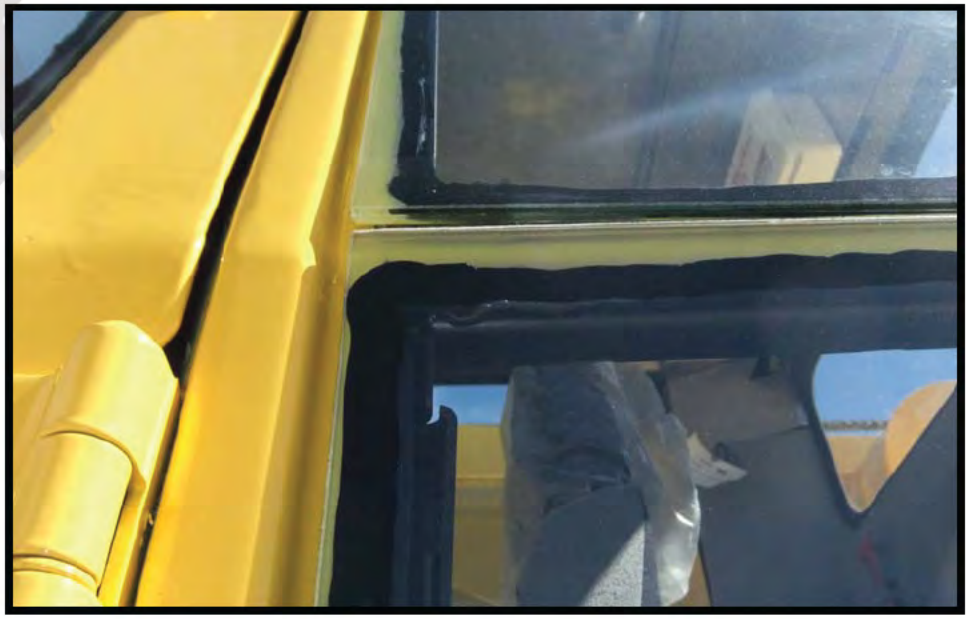


Photo 50D

Photo 52

Photo 50G

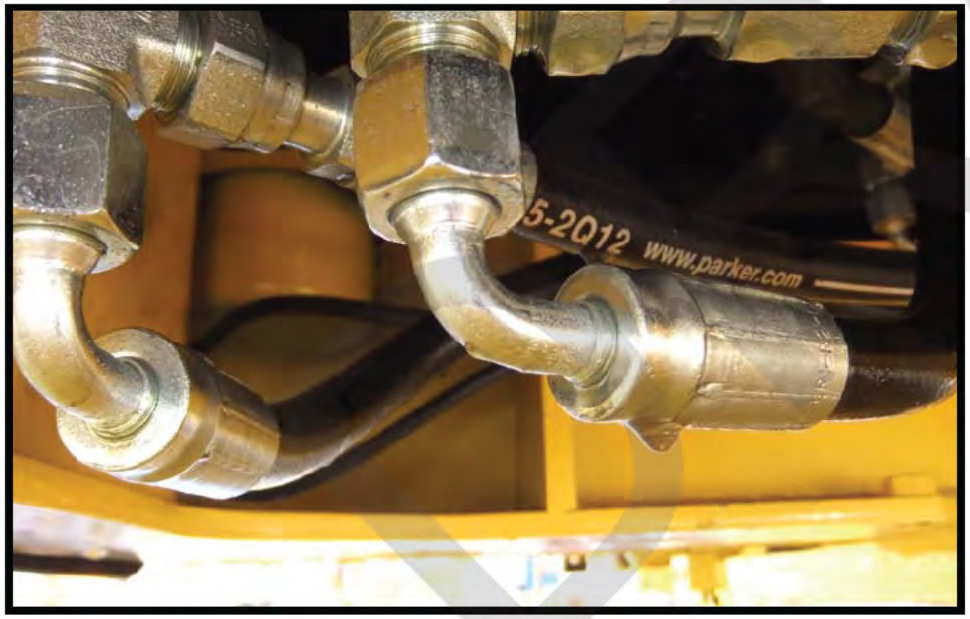


Photo 53A

Photo 51

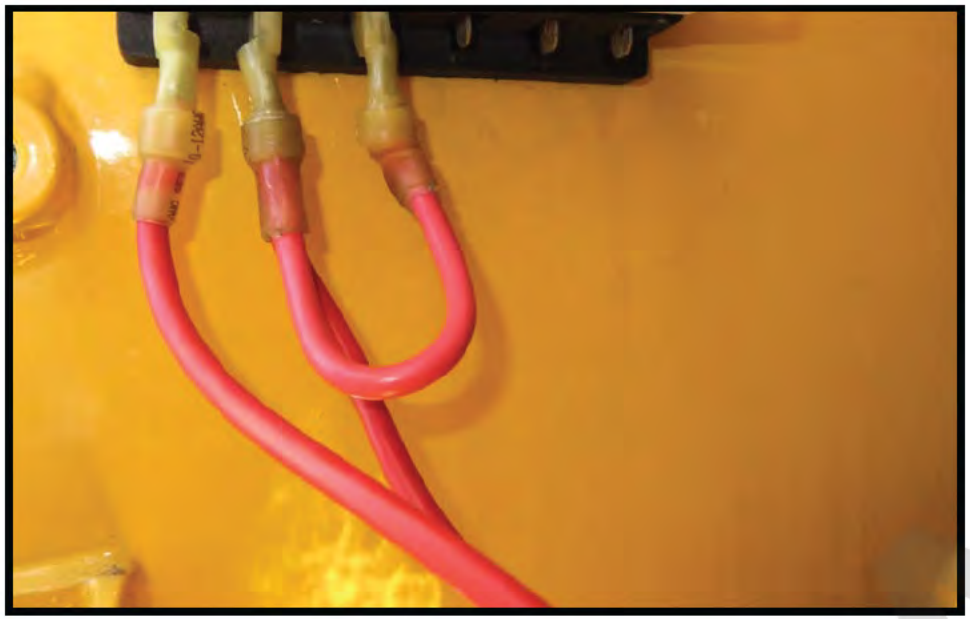


Photo 55A

Photo 53B

Photo 55B

Photo 54

Photo 57

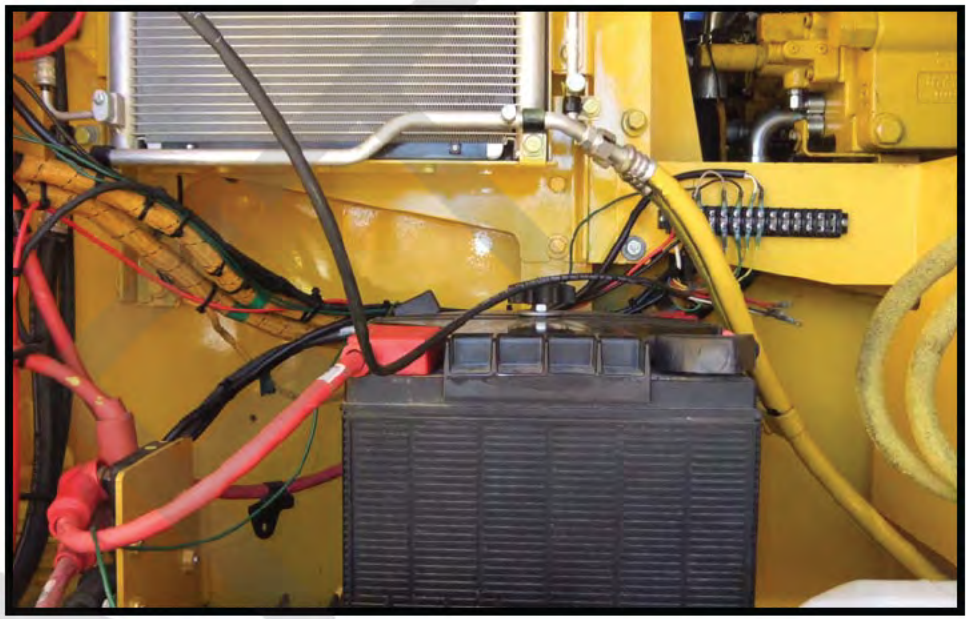


Photo 55C

Photo 56

Exhibit 5

WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY
DEPARTMENT OF TRANSIT INFRASTRUCTURE & ENGINEERING SERVICES
OFFICE OF QUALITY ASSURANCE AND WARRANTY
QUALITY ASSESSMENT REPORT

REPORT NO.	AR-CTEM-20150908-01F	**PERFORMED - DATES:**	8/5/2015 8/26/2015
ASSESSMENT PROJECT:	35 Ton-Track Maintenance Rail bound Crane	**PROGRAM:**	CraneMasters
LOCATION:	Branch Ave	**CTEM REP:**	Steve Redman
DATE OF NOTIFICATION:	4/9/2015	**PREPARED BY:**	Ulysses Johnson

EXECUTIVE SUMMARY:

On 8/5/2015 and 8/26/2015 CTEM/CENV/QAAW along with representatives from CraneMasters met at the Branch Ave rail yard to discuss the remaining open items on the 35 Ton Track Maintenance Rail bound Crane (35 Ton Crane). The criterion for the open items was based on the Technical Specification section of *RFP ES10091/GWF.*

During the initial meeting WMATA's representatives presented a discrepancy list to the CraneMasters representative. CraneMasters technicians were on site and have worked diligently to address many of the open items. Currently there are 18 discrepancies that remain open.

The following are examples of some the open items that still need to be addressed.

- Hydraulic leaks and routing issues throughout the machine.
- Unprotected hose around the front and rear trucks
- Chaffing and hoses that are rubbing.

The attachment below provides a more detailed and in-depth information along with the status about the remaining open items. QAAW will continue to monitor the progress of the completed work and provide a status report.

ATTACHMENTS:

- Discrepancies
- Photo Support

Follow Up Required: Yes, repairs on-going

REPORT DISTRIBUTION:

CTEM: D. Hagan, J. Barrett, A. O'Dell

CENV: D. Lemke, D. Eisenhauer

QAAW: M. DiNatale, J. Panik, S. Silver, J. Hernet

QAAW Officer:	**QAAW Manager:**
DATE: 9/15/2015	**DATE: 9/15/2015**

DISCREPANCIES

QAAW

Quality Control Discrepancy List

Shop/ Location:	Branch Ave Yard	QAAW Inspector:	U. Johnson
		Team Inspectors	A. O'Dell, G Mitchell D. Eisenhauer
Inspection:	CraneMasters 35 Ton Crane	CTEM Rep	J. Barrett, S.Redman
Unit #:	RC35	Date:	8/26/2015

Item No	Discrepancy	RFP No. ES10091/GWF Spec#	Corrective Action	Status
1	No electronics for monitoring crane angle, load etc.	14.5	Parts on hand to be Installed	Electrical issues with the LMI system
2	No swing overload limiter	14.4	Parts on hand to be Installed	Parts installed - resolving calibration issues
3	Hydraulic leaks and routing issues throughout the machine need to be addressed	General	A list of discrepancies to be created and distributed to CraneMasters See Photo Support attachment	A meeting has been set to discuss the issues with Crane Master's mechanic
4	Hazardous walkway to check engine oil access	1.7	A proposed handrail will be installed	WMATA requested that a new design is proposed
5	Unprotected hose around the front and rear trucks	10.8	A list of discrepancies to be created and distributed to CraneMasters	Changes will be made after the LMI is up and running
6	Paint throughout the machine needs touchup	11.2	Open to be addressed after other parts are installed	Open

QAAW

Quality Control Discrepancy List

Shop/ Location:	Branch Ave Yard	QAAW Inspector:	U. Johnson
		Team Inspectors	A. O'Dell, G Mitchell D. Eisenhauer
Inspection:	CraneMasters 35 Ton Crane	CTEM Rep	J. Barrett, S.Redman
Unit #:	RC35	Date:	8/26/2015

Item No	Discrepancy	RFP No. ES10091/GWF Spec#	Corrective Action	Status
7	Hydraulic leak under turret opposite side of the cab	General	A list of discrepancies to be created and distributed to CraneMasters	A meeting has been set to discuss the issues with Crane Master's mechanic
8	Wire routing and labeling throughout the machine needs to be addressed.	11.1, 11.2	Open to be addressed after other parts are installed	Parts are on order - waiting on connectors
9	No lights in dog house	11.14	Open	Installation completed for all but one light.
10	Right engine cover snags	11.2	Parts are on order	Installation to be complete prior to delivery
11	Undercarriage hoses and wires hanging	11.2, 10.8	Open	Open
12	Cab mirror violates envelope. (Rear camera w/monitor?)	1.3	Camera is being installed	Camera installed needs WMATA final approval
13	Counterweight cradle bent	11.2	Parts on hand to be Installed	Parts installed waiting WMATA final approval
14	Needs remote drains for engine	General	Installed needs verification	Not completed

QAAW

Quality Control Discrepancy List

Shop/ Location:	Branch Ave Yard	QAAW Inspector:	U. Johnson
		Team Inspectors	A. O'Dell, G Mitchell D. Eisenhauer
Inspection:	CraneMasters 35 Ton Crane	CTEM Rep	J. Barrett, S.Redman
Unit #:	RC35	Date:	8/26/2015

Item No	Discrepancy	RFP No. ES10091/GWF Spec#	Corrective Action	Status
15	No spare parts delivered	28	Open	Open
16	Manual not finalized	31	80% complete	sent to WMATA for review
17	Outrigger pad retaining pin damaged	General	Parts on site need to be tested	Open
18	No weight markings are labeled on the counterweights	General	Labelling will be installed	Open
19	Electrical panels not marked	13.5	Closed	Closed
20	No boom angle indication (mechanical)	14.5	Will be relocated	Closed
21	No centering indication for turret. No pins, locks or marks	21.2	Parts on Order to be installed	Closed
22	No Jacking points called out on the machine	4.12	Pads to be welded to outriggers	Closed
23	Minimum exposed bolt thread violation (tow eye fasteners)	2.2	Closed	Closed

QAAW

Quality Control Discrepancy List

Shop/ Location:	Branch Ave Yard	QAAW Inspector:	U. Johnson
		Team Inspectors	A. O'Dell, G Mitchell D. Eisenhauer
Inspection:	CraneMasters 35 Ton Crane	CTEM Rep	J. Barrett, S.Redman
Unit #:	RC35	Date:	8/26/2015

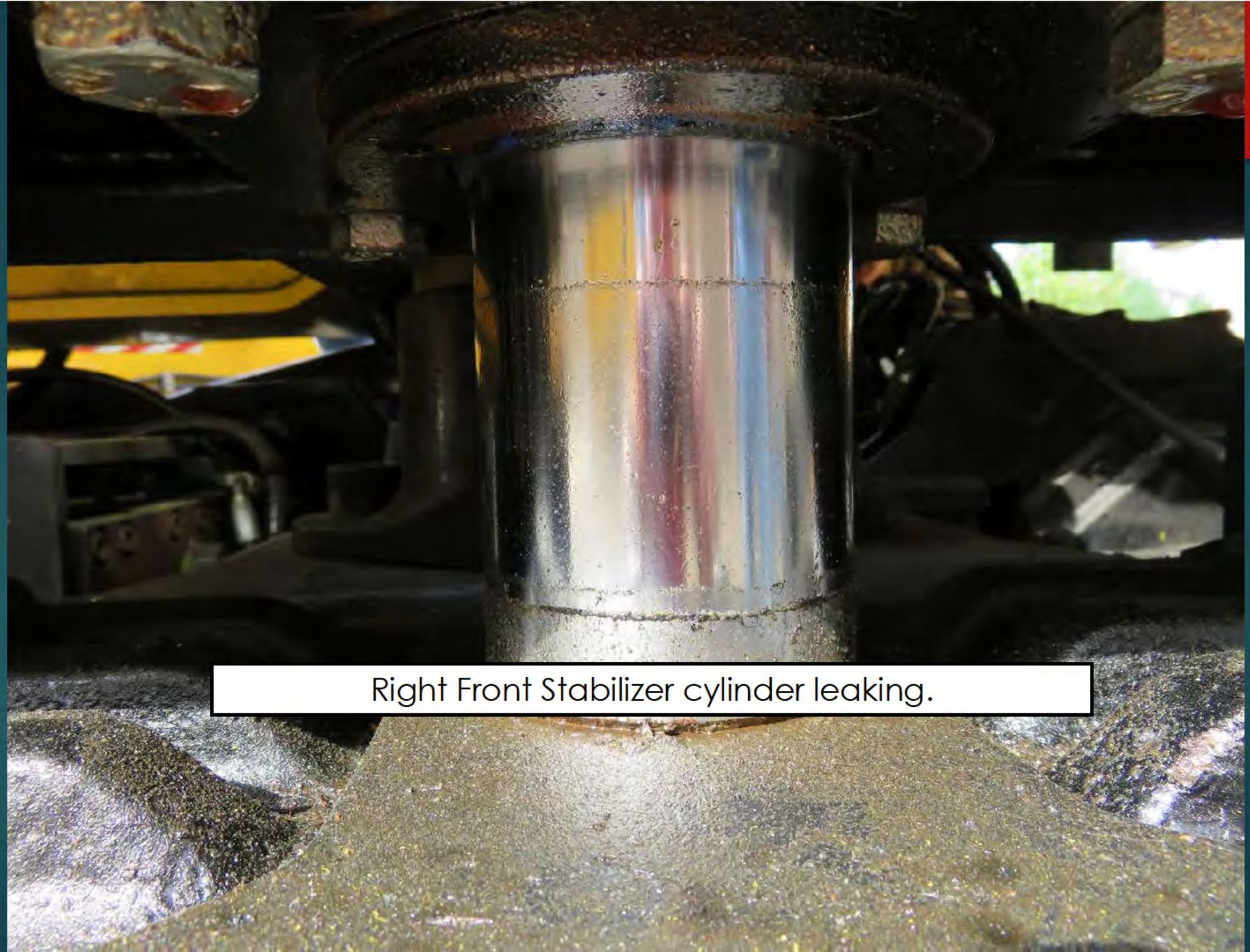
Item No	Discrepancy	RFP No. ES10091/GWF Spec#	Corrective Action	Status
24	All shutdown switches need large labels affixed	13.5	Labels and or decals will be added	Closed
25	No labels for front or rear (A & B)	13.5		Closed
26	Outrigger controls not labeled	13.5	Open	Closed

PHOTO SUPPORT

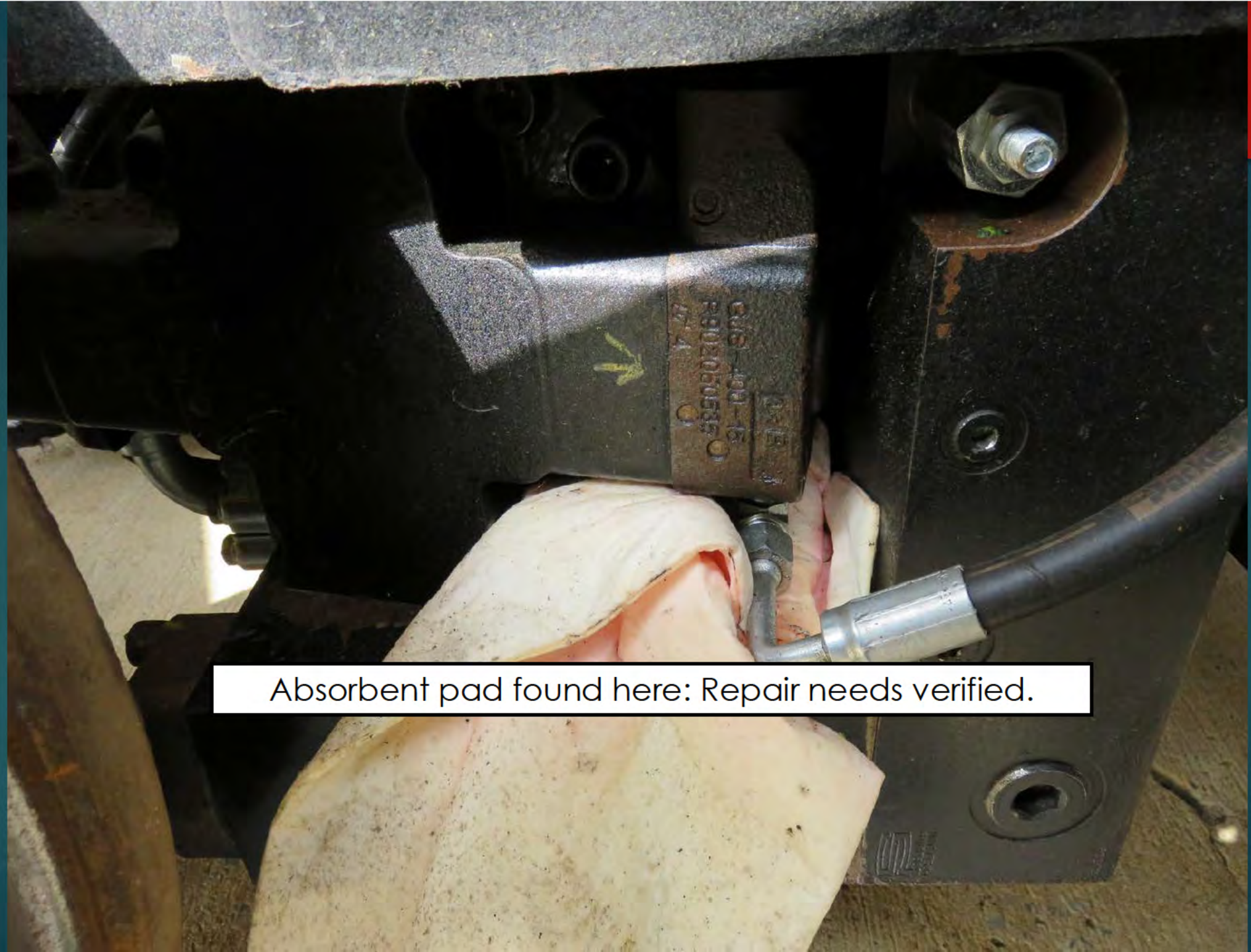
Crane Master RC35 Noted issues: 08/26/2015

BY GARY MITCHELL

Front Gear box leak: Appears to be above drain plug.



Right Front Stabilizer cylinder leaking.



Absorbent pad found here: Repair needs verified.

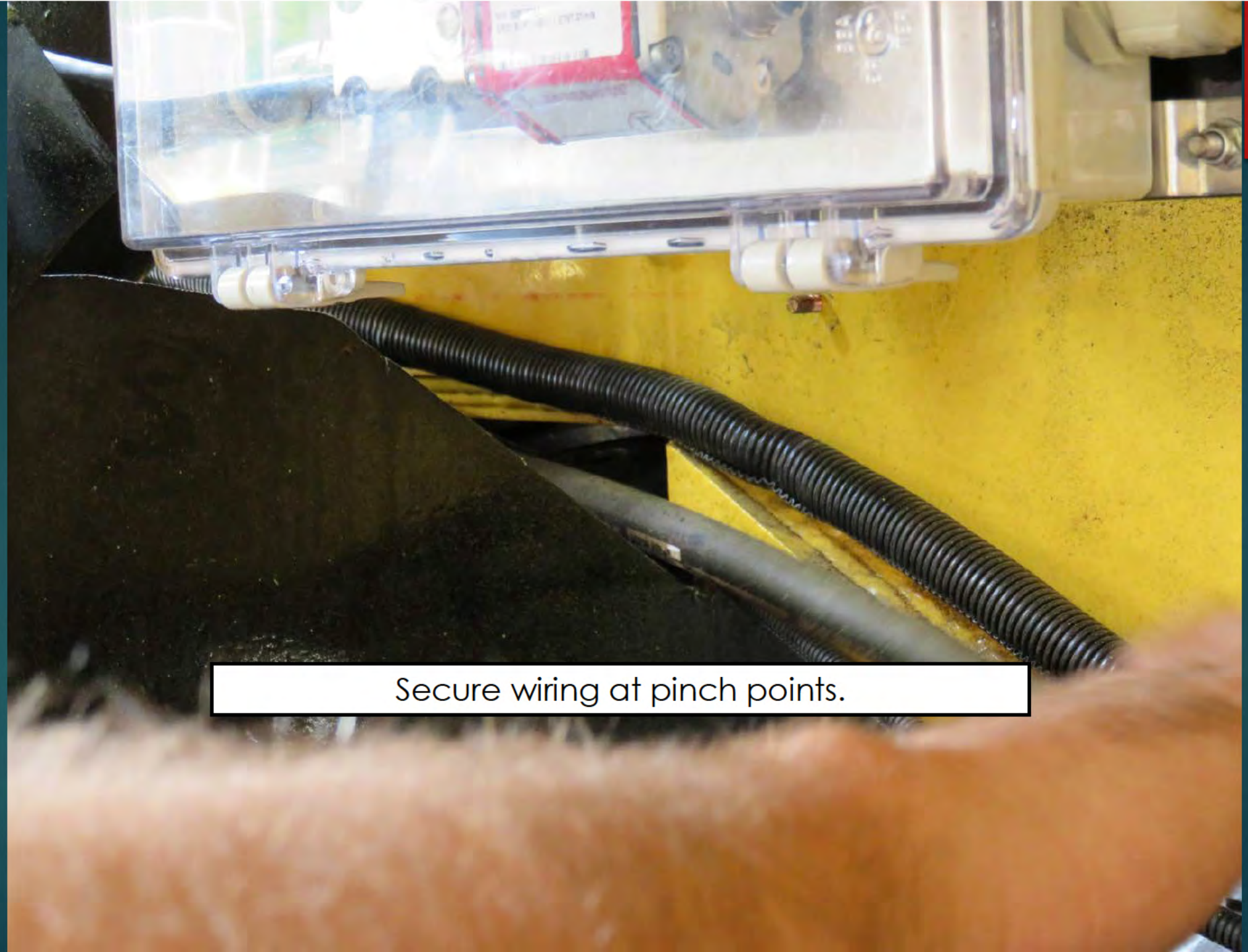
Deck Hose fittings leaking: Requires repair.

Front Axle: Hose need secured in a permanent fashion.

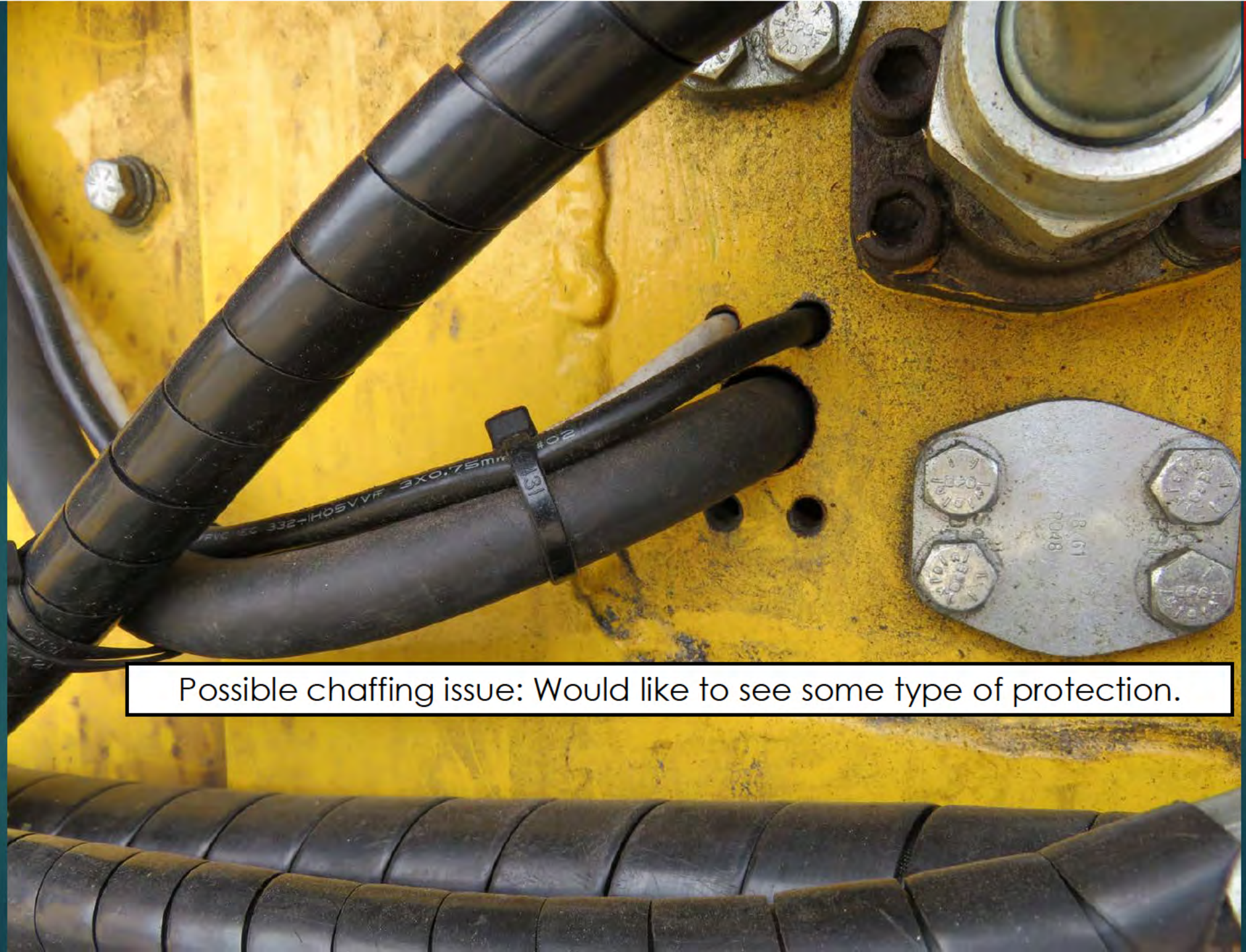
Chaffing area: Lug needs removed or hoses secured.

Right Rear Outrigger Cylinder Valve Leaking.

Right rear outrigger cylinder rod: Shows signs of damage.



Secure wiring at pinch points.

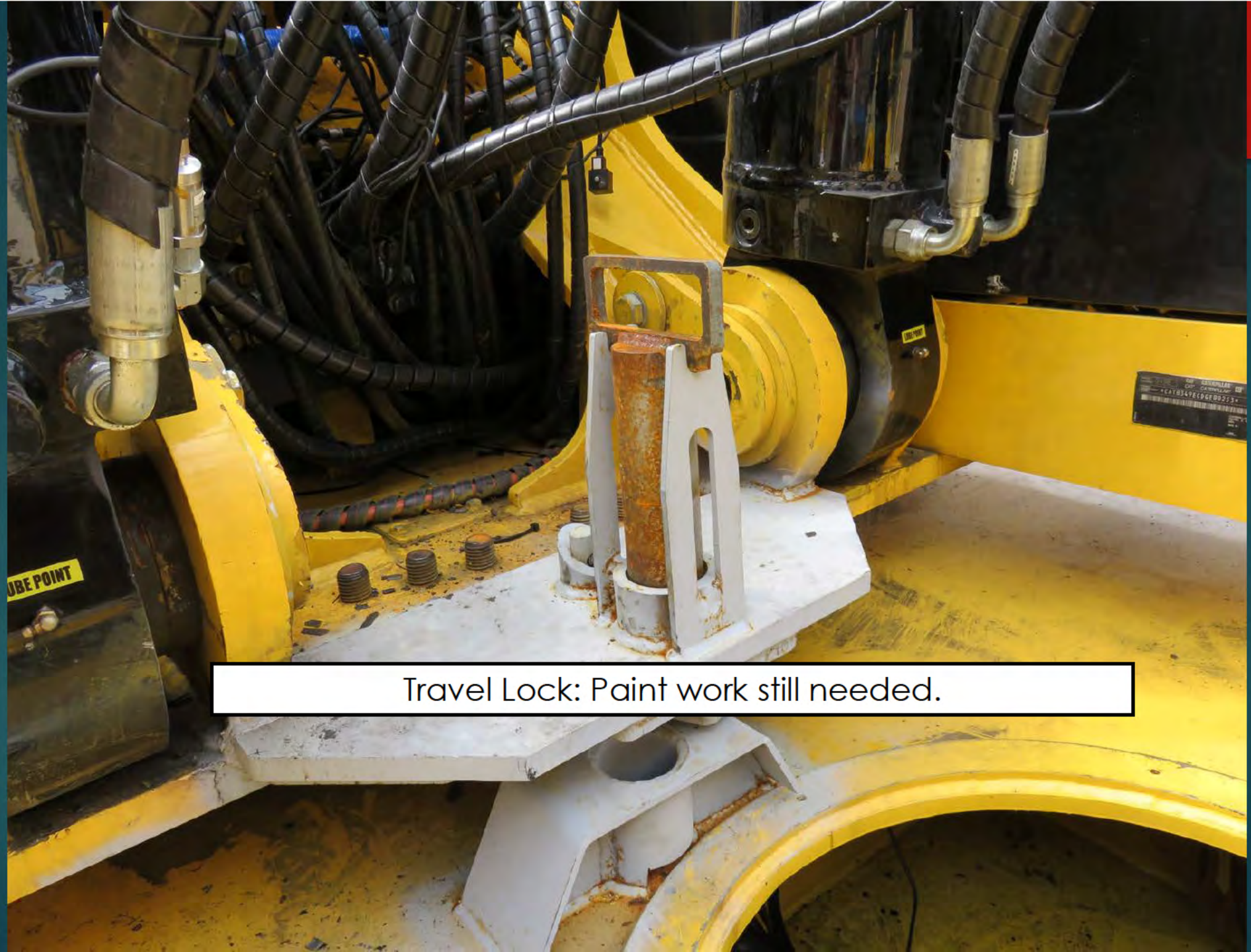


Possible chaffing issue: Would like to see some type of protection.

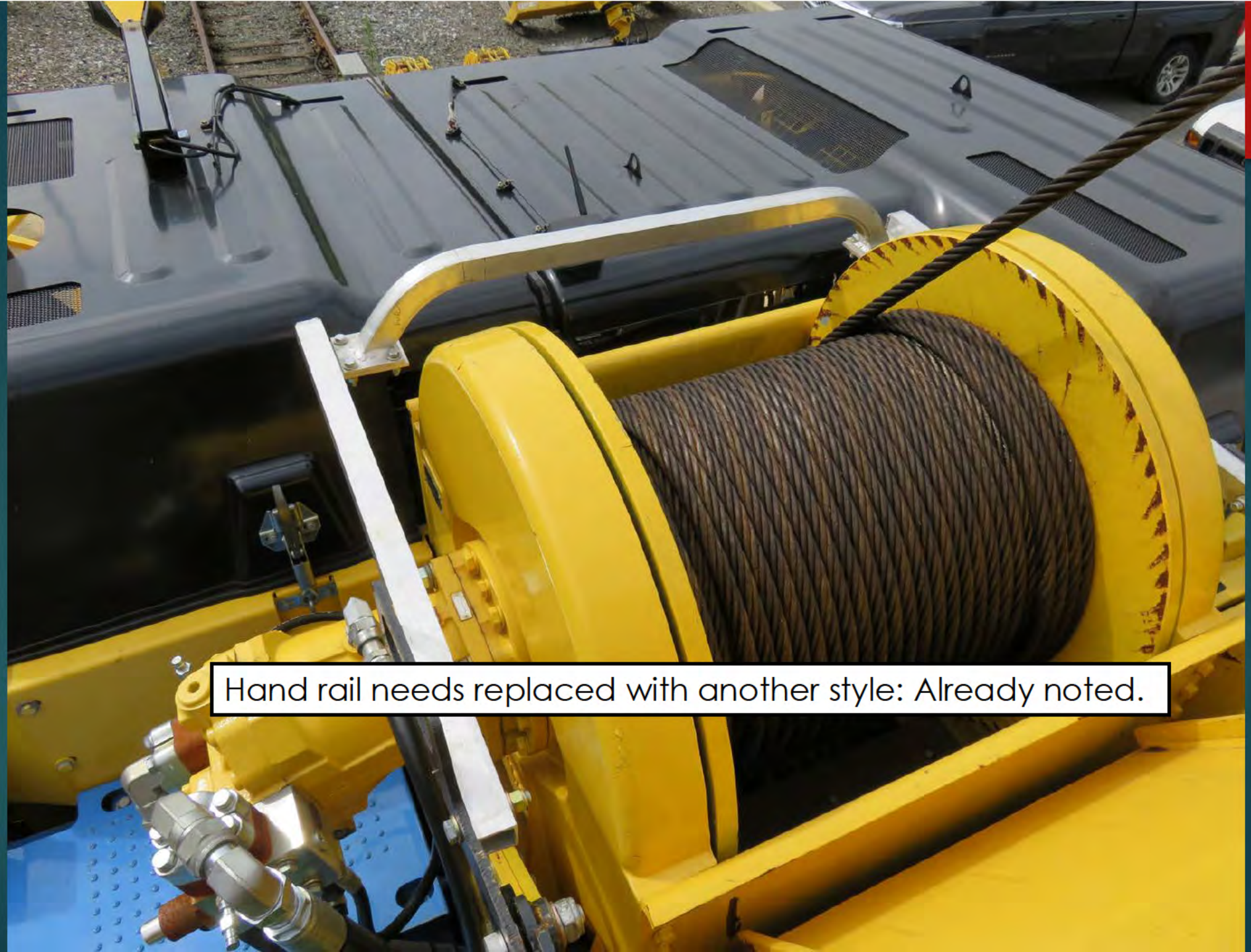
Questioned wear area: CraneMaster Rep. explained this is not an issue.

Refer to slide 12.

Hose layout above axles: Hose retainers need to be permanent.



Travel Lock: Paint work still needed.



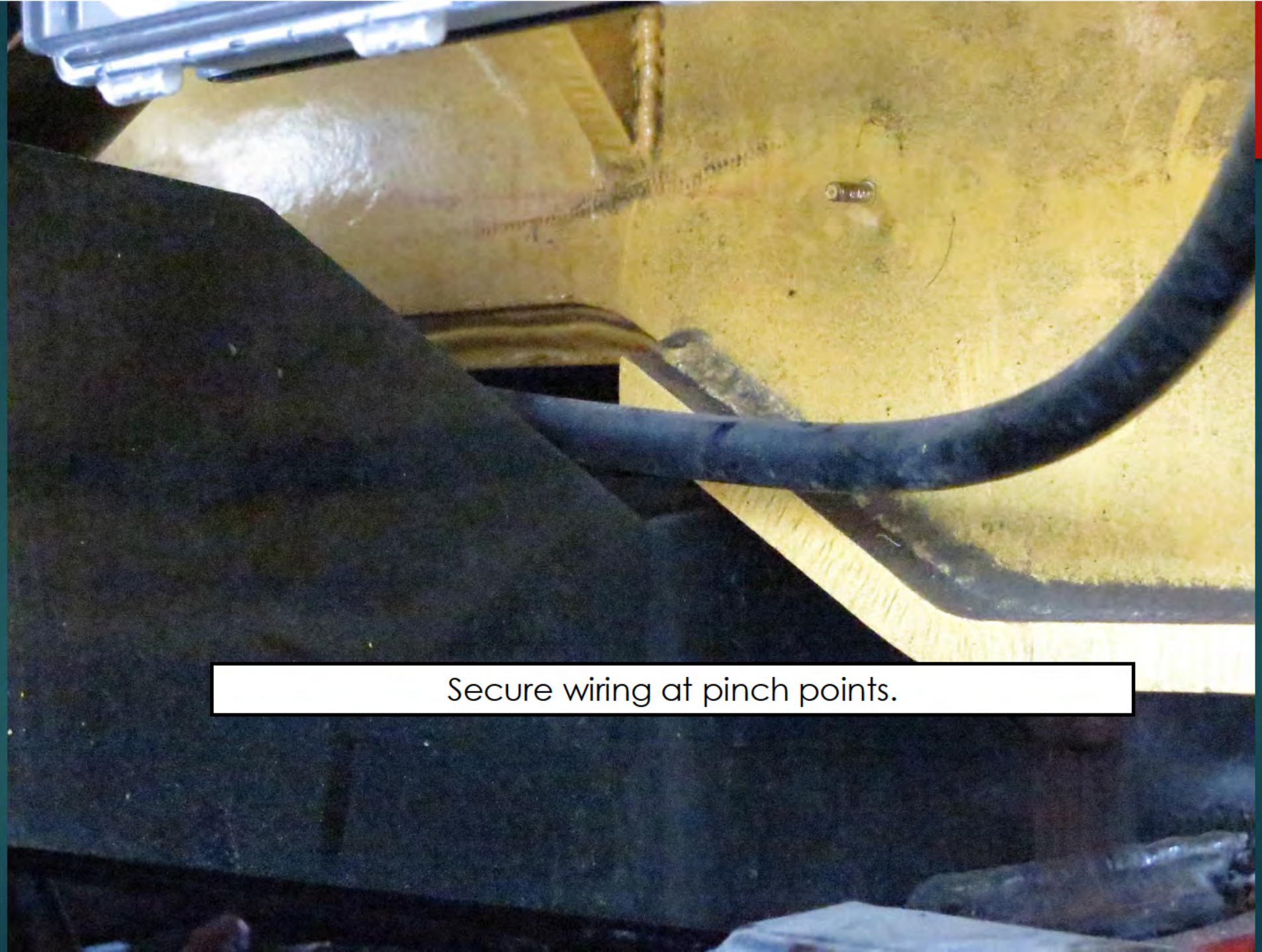
Hand rail needs replaced with another style: Already noted.

Wire ties are not a permanent repair to loose hoses.

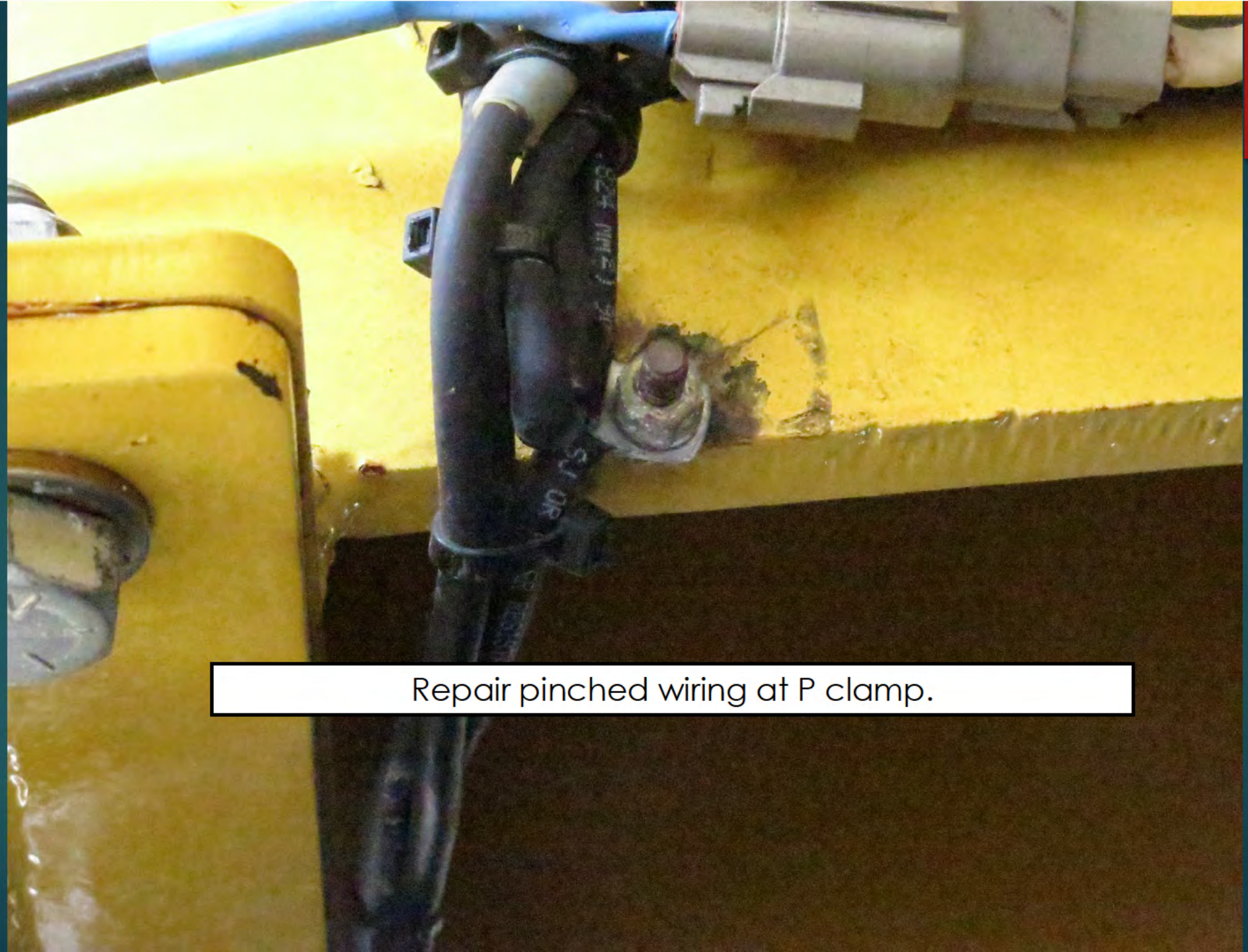
Ground connections need to have star washers installed.

Decals are not staying secured: Suggest Stenciling.

Verification needed that suction hose is sufficient.



Secure wiring at pinch points.



Repair pinched wiring at P clamp.

Exhibit 6

RC35 Warranty/History Report

Delivery Date: Unknown **Make: CraneMasters** **Model: RC35** **Serial #: ES10091**

Date	Failure
01/15/10	Contract awarded
?/?/13	unit arives on property
09/25/13	QAAW performs in-process inspection and compiled a list of defiencies
02/03/15	A Odell assumes CTEM project oversite and compiled/cosoladated the lists of existing issues.
02/06/15	unit transpoeted to Branch ave
04/14/15	repair kickoff meeting with cranemasters and performed inspection with CM and presented known issues
04/15/15	compiled list of issues found durring inspection
4/15/2015 - 4/17/15	CM performed repairs on know issues
05/05/15	QAAW issues report - AR-CTEM-20150423-01F
05/06/15	CM proposes solutions to the boom angle indicator, labeling, counterweight cribber
05/22/15	status meeting with CM, reviewed and approved proposed solutions
05/30/15	CM schduled to come to work on unit but mechanic was injured off sight causing delay
06/16/15	followup meeting with cranemasters
06/18/15	QAAW issues report - AR-CTEM-20150618-01F
6/16/05 - 07/30/15	CM installed Turret lock pin, Swing up hand rail above winch, 12V wiring for the camera system, Additional work lights on the boom , Backing plates with reflective tape for outrigger control labels and corrected numrous issues
07/30/15	followup meeting with cranemasters
08/25/15	updated Discrepancy list
8/25/15 - 10/21/15	CM continued to repair issues noted on discreapancy list
10/21/15	CM requested the unit be transported to GBLT to touch up the paint. Repairs will continue in GBLT
10/29/15	crane transported to GBLT

11/03/15	Paint readyness and issues reviewed. It was determined that the amount of work needed for paint prep/paint/repairs and testing it would be best if the unit was returned to the vendors facility and completed.
11/20/15	unit transpoeted to Cranemasters in ritchmond VA
02/12/16	Punch list of repairs delivered and site visit schduled
02/26/16	Site vist by CTEM, QAAW, CENV
03/16/16	QAAW issues report - AR-CTEM-20160226-01F
03/18/16	Site vist by TRST
04/29/16	Site vist by CTEM, QAAW, CENV
05/10/16	QAAW issues report - AR-CTEM-20160429-01F
06/08/16	on site test plans revied and submitted to CM
06/14/16	Site visit by CTEM, QAAW, CENV, TRST canceled due to CM unable to perform Load test
07/26/16	Site visit by CTEM, QAAW, CENV; performed on site test
08/16/16	QAAW issues report - AR-CTEM-20160726-01F
09/13/16	Site visit by CTEM, QAAW, CENV; performed on site test
10/11/16	crane transported to GBLT
12/02/16	towability and emergency stop testing performed in GBLT yard
12/15/16	Weight measurments and derail bar clearance
12/22/16	planned gradeability testing at Fort Totten. Speed and braking testing between Greenbelt and College Park. But cancled due to winch retracting at random. Corospondances sent to CM. CM suspected "wake up line" issues.
01/06/16	moved the unit and before it moved 30 feet it winched the block into the boom and broke the cable and damaged the boom tip. Informed CM immiadiatly
01/18/17	CM came to GBLT to investigate the boom and cable issue. No definitive issue found. Took measurments and will review the data.
01/24/17	CM suspects pilot controls building pressure and proposed solution to add a LMI/pilot cutout manifold
01/26/17	CM and WMATA confrence to review the proposal. WMATA concurs and approves with the solution
3/20/17 - 3/21/17	CM repaired the boom tip. Installed the new load line and new manifold.
03/28/17	tested unit on the loop to validate repairs prior to mainline testing
03/30/17	schduled mainline testing, calcled due to operator working on safetrack

04/05/17	performed main line testing. Speed and gradeability were good but, its brakes would not hold on a hill in the forward direction. Additionally on the way back it lost propulsion and was making a loud grinding noise. We went to rescue the crane but before we got there it started working. back in the yard we were unable to duplicate the issue
04/13/17	CM performed testing to duplicate the issue, reconfigured drive manifold
05/23/17	performed main line testing with a DAQ attached. unit came out of drive 2 times but, otherwise operated as designed. Data was taken back to CM for review
06/05/17	CM compleaded review of the data and found that the machine left travel mode for seemingly no reason. CM thinks there was an intermittent connectivity issue to one of the interlock sensors. There is Intermittent LMI connectivity . one axle's parking break release pressure is low in one direction
07/18/17	CM came to replace cables and clean the turret pass through for the LMI circuit in efforts to fix the LMI issues.
09/20/17	CM came to perform CAN diagnostic on the LMI and test leveling system.
12/05/17	CM Installed new counterbalance valve, sequence valve on service brake line and remove parking brake orifices to speed up the application speed.
12/13/17	mecnaincs went to move the unit, While moving the unit the winch engaged pulling the block into the crane boom and snapping the cable. At this point the mechanic was unable to brake and was forced to shut the unit down. Incident 20171226#67763
12/18/17	Tested unit to duplicate the complaint and attempt to isolate the issue.
12/20/17	CM issued report that they were unable to duplicat the issue but found high case drain pressure that required further investigation
1/4/18 - 1/5/18	CM arrived to perform additional testing and found numerous issues.
01/12/18	CM issued report that describes the issues found
2/8/18 - 2/9/18	CM installed and rerouted the pilot drain lines.
02/13/18	CM installed motor case drains and installed filter for motor makeup line. Validated that case pressures were now within the allowable limits.
03/02/18	CM issues status update and action plan to WMATA
Current	Pending WMATA approval of action plan

Exhibit 7

Initial Incident Form

WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

TO BE COMPLETED AND DISTRIBUTED WITHIN 24 HOURS

INCIDENT

Date	Incident Time	Date/Time Reported	Worksafe Incident ID#
12/13/2017	06:30 ☑ AM ☐ PM	12/13/2017 / 06:30 ☑ AM ☐ PM	20171226#67763

Location	Incident ID# (From ROCC, BOCC, etc.)
Greenbelt MOW Track 24 shop lead	

Type of Incident:
☑ Damage to Property
Entrapment:
☐ Elevator ☐ Disabled Train
☐ Evacuation
☐ Fire
☐ Flood
Hazardous Material Incident:
☐ Detector ☐ Leak ☐ Spill
☐ Near Miss
Rail Vehicle Collision:
☐ Collision ☐ Derailment
☐ Request for Medical Assistance
☐ Smoke
☐ Trespassing

Incident Class
☐ Injury
☐ No Loss
☑ Property Damage
☐ Other

Injury Class
☐ Fatality ☐ Medical Treatment
☐ First Aid Only ☐ Restricted Work
☐ Loss of Consciousness
☐ Lost Time
☐ No Treatment

WMATA PERSONNEL INVOLVED

Name	Age	Employee # or MTPD Badge #
Raymond Pearl	[redacted]	[redacted]

Phone Number	Job Title	Department	Division/Section
(301) 955-2070	Mechanic AA CTEM	CTEM	Greenbelt

Last Day Worked (prior to)	Hours Worked (within last 24 hrs)	Overtime?
12/12/2017	8	☐ Yes ☑ No

COMPLETE FOR INCIDENTS WITHIN THE RAIL SYSTEM:

Train/Vehicle ID	Direction	Track #	Car/Vehicle Numbers	Trouble Code	Resp Code
RC35		24 lead			

Mezzanine #	AFC Equipment #	Escalator/Elevator #	Entrance	Platform	Track	Room#

COMPLETE FOR INCIDENTS WITHIN THE BUS SYSTEM

Bus or Tag Number	Vehicle or Tag Number	Block Number	Run Number

DESCRIBE THE INCIDENT AND PROPERTY/EQUIPMENT DAMAGE

Provide factual information about the task, actions before and after the incident, the injury causing agent and any damage caused to property or equipment. Provide a diagram(s) and/or photos as attachments. If necessary, provide diagram in this space or on a separate page.

Moving RC35 to clear the 24 track yard lead, employee started unit and let the unit warm up approximately 5 minutes, started moving the unit in the reverse direction, the unit started to make a crackling sound like abnormal rail wheel noise, the unit was only moving at 1 - 2 mph, attempted to stop the unit and it continued in the reverse direction, moved control to move in the forward direction, it did not reverse direction, at that time a loud bang was heard, the employee immediately shut the unit off with the ignition key. The unit snapped the winch line dropping the headache ball to the track in front of the unit, the cable whipped back to the rear of the unit, that was the result of the loud "bang" heard by the employee. The employee disembarked the unit chocked it and notified his immediate supervisor W. Jones

EXTERNAL AGENCIES INVOLVED

☐ Fire Dept. – Arrival Time:_____ ☐ EMS. – Arrival Time:_____

☐ Police – Arrival Time:_____ ☐ Other _____ – Arrival Time:_____

Name	Badge Number	Complaint Number	Jurisdiction

Engine Number	Ambulance Number	Hospital

ACTIONS TAKEN BY SUPERVISOR

Describe immediate changes made to address the incident.

Interviewed employee and filled out this form. Observed the unit and post episode damage, instructed employee to leave all parts and debris where it landed. Outside temperature was 21 degrees Fahrenheit.

Form completed by (Signature)	Date
William Jones [redacted] WMATA Digitally signed by William Jones [redacted] WMATA Date: 2017.12.26 07:30:19 -05'00'	12/13/2017

Print name	Employee Number	Phone Number
William R. Jones	[redacted]	301-955-2070

Supervisor (Signat [redacted]	Date
	12/26/17

Print name	Employee Number	Phone Number
Steven Bodman	[redacted]	[redacted]

Witness or Employee Statement Form

WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

USE SEPARATE FORM FOR EACH PERSON

TO BE COMPLETED AND DISTRIBUTED WITHIN 24 HOURS

PERSONNEL INVOLVED (Use This Block For WMATA Employees and Contractors)

Name	Age	Employee # or MTPD Badge #
Ray Pecan	[redacted]	[redacted]

Phone Number	Job Title	Department	Division/Section
[redacted]	Mechanic AA	CTEM	Green belt

Last Day Worked (prior to)	Hours Worked (within last 24 hrs)	Overtime?
12-12-2017	8	We

INVOLVED PERSON OR WITNESS (Use This Block For Non-WMATA Involved Person or Witness)

Name	Phone Number	E-Mail
Ray Pecan	[redacted]	[redacted] @wmata

Address [redacted]

INCIDENT

Date	Incident Time	Date/Time Reported	Location
12/13/17	06:30	12/13/17 0617a	Greenbelt Mow Track 24 shop lead

Incident ID# (From ROCC, BOCC, etc.)	Worksafe Incident #

What happened prior to the incident?

I was moving RC35 to clear the shop lead on 24 track. did my walk around and checked for any thing hanging off unit, air Hyd all ok. started unit let Run for 5min or so why i removed chalks and throw switch on move other unit. So the shop switch can move from bay 23 to bay 24

Describe the incident

I moved ~~other~~ RC35 fowerd half way over switch, about 10min went to move RC35 backe onto the pad to clear switch heard poping noises coming from out side went to stop move handle to neutral Position it kept going applyed brake still ker going creeping Backwards Torch the bay door, then a loud bang i saw the blade fall infrant on the ground I instently turned off ignition, climb out saw cable on ground told supervisor emmediate after checking unit

What happened after the incident?

Told supervisor

Form Completed by: (Print Name) Ray Pecan Date 1-3-18

Signature [redacted]

Washington Metropolitan Area Transit Authority

Report for incident: **20171226#67763**

Incident Data

Incident Date: 13 December 2017 06:30:00 AM
Report Date: 13 December 2017 06:30:00 AM
Type: Rail Vehicle Other
Class of The Incident:
BOCC # :
Department: RAIL CMNT Heavy Equip Shop

State: MD
Region: PRINCE GEORGE'S
Location (Other):
Address/Intersection:
Street:
Cross Street:
Cross Street Distance (in feet):
Direction to Cross Street:

Description

Employee started to move Rail Crane (RC35) and lost propel control and then thewinch two-blocked without operator initiation. Thewinch cable broke, the hook and block fell to theballast,and the cable whipped over the backof the crane. The employee immediately shut down the crane from the ignition switch and the unit came to a stop without further incident.

Preferred Phone: 301-955-2102
Alternative Phone:
Public Liability: No
Patron Involved: No
Employee Involved: No
Immediate Changes: CTEM disabled the engine start circuit and placed a "Do Not Start" tag on the console with the words "Tow Only" written on the tag.
People Impact: None
Asset Impact: Torn metal requiring body panel replacement. Total property damage is under $25,000.
Response Level: Level 2
Property Equipment Damage:
Explanation For Conclusion: Equipment Complication/Design/Design Specs/Specs needs improvement;
Potential People Impact:
Potential Asset Impact:
Frequency:
Risk Index:

Activity Being Performed: (None)
Known Facts: While moving the Crane towards the shop the wire rope broke dropping the headache ball between the rails.
Equipment:
Crane,
Key Factors:
Work Environment Hot/Cold;Inadequate Technical Design
Visibility and Surface Conditions:
Lights On, Dawn/Dusk, Clear
Hazard Description:

WMATA Vehicles

RC35 (Not Rated)

Tag : RC35
Asset # : MRC35
Vehicle Lisence Issuing State :
VIN Number : 349ECDGE00253
Make : Cranemasters
Model : 35 TON
Year : 2013
Style :
Color :

Owner's Name : WMATA
Registered Owner's Phone : 202-962-1118
Registered Owner's Address : 600 5th Street NW Washington DC 20001

Insurance Company :
Insurance Agent :
Insurance Policy # :

Run :
MetroAccess Run :
Route :
On Street :
Block :
Travel Direction :
Total Number Of Occupants :
Service Type : Non-Revenue

Vehicle State :
Towed By :
Body Damages :

Seat Locations :
Speed At Time Of Impact :
Skid Marks To Impact :
Skid Marks After Impact :
Collision Factors :

Employees Involved

Raymond Pearl [redacted]

Is Injured: No
Transported By :
Transported To:
PPE:
Composite Toe Shoes: Worn Properly, Safety Vest: Worn Properly, Seatbelt: Worn Properly

Is a witness: No
Witness Statement:
While performing yard moves crane was moved toward shop apron when he heard a popping noise coming from outside the unit. He went to stop the unit but it kept rolling and the wire rope broke causing the headache ball to fall between the rails. Immediately the unit was turned off and it came to a complete stop.
Prior To Incident:
Arrived at work on time and was assigned to move equipment in order to get PM work into shop
After Incident:
Secured unit with chocks and came into the shop to notify his supervisor

Phone: [redacted]
Address: [redacted]
City [redacted]
Zip Code: [redacted]

Busines Phone :
Busines Address:

Driver License Number :
License Issued by State :
License Expiration Date :

Last Day Worked :
Hours :
Worked Overtime : No

Is an Operator: No
Vehicle: 20171226#67763 RC35 WMATA MRC35

I/A Documents

Original Name : Initial Incident Form 50.688.pdf
Internal Name : [redacted]

Original Name : Employee Statement Form 50.689.pdf
Internal Name : [redacted]

Original Name : Incident Investigation Form - 50 690 Mod.pdf
Internal Name : [redacted]

Original Name : Interview Questions.docx
Internal Name : [redacted]

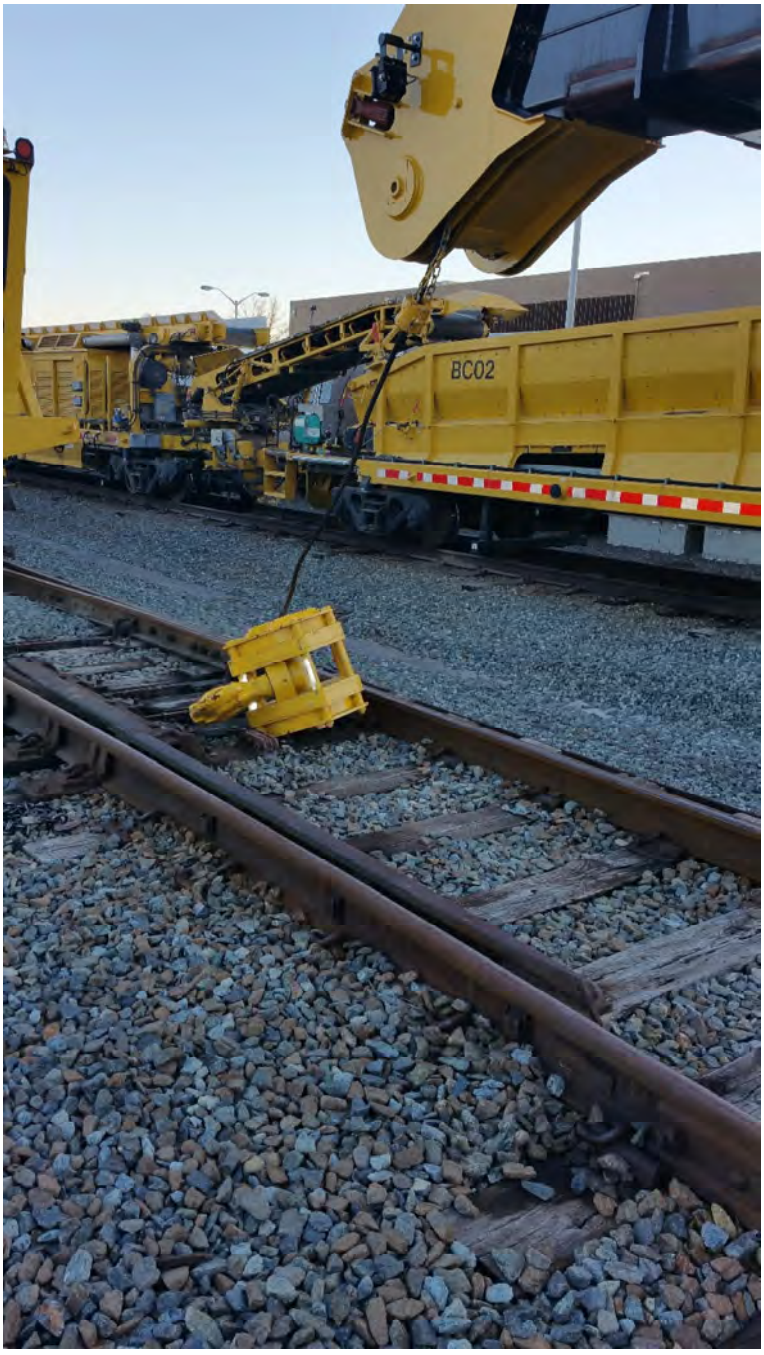
Supervisor (Signature): _____ Date: _____

Print Name: _____ Employee ID: _____ Phone: _____

Employee (Signature): _____ Date: _____

Print Name: _____ Employee ID: _____ Phone: _____


SRC-70
metro
BC01
27,000 LB
SRC-70
FRONT


BC02

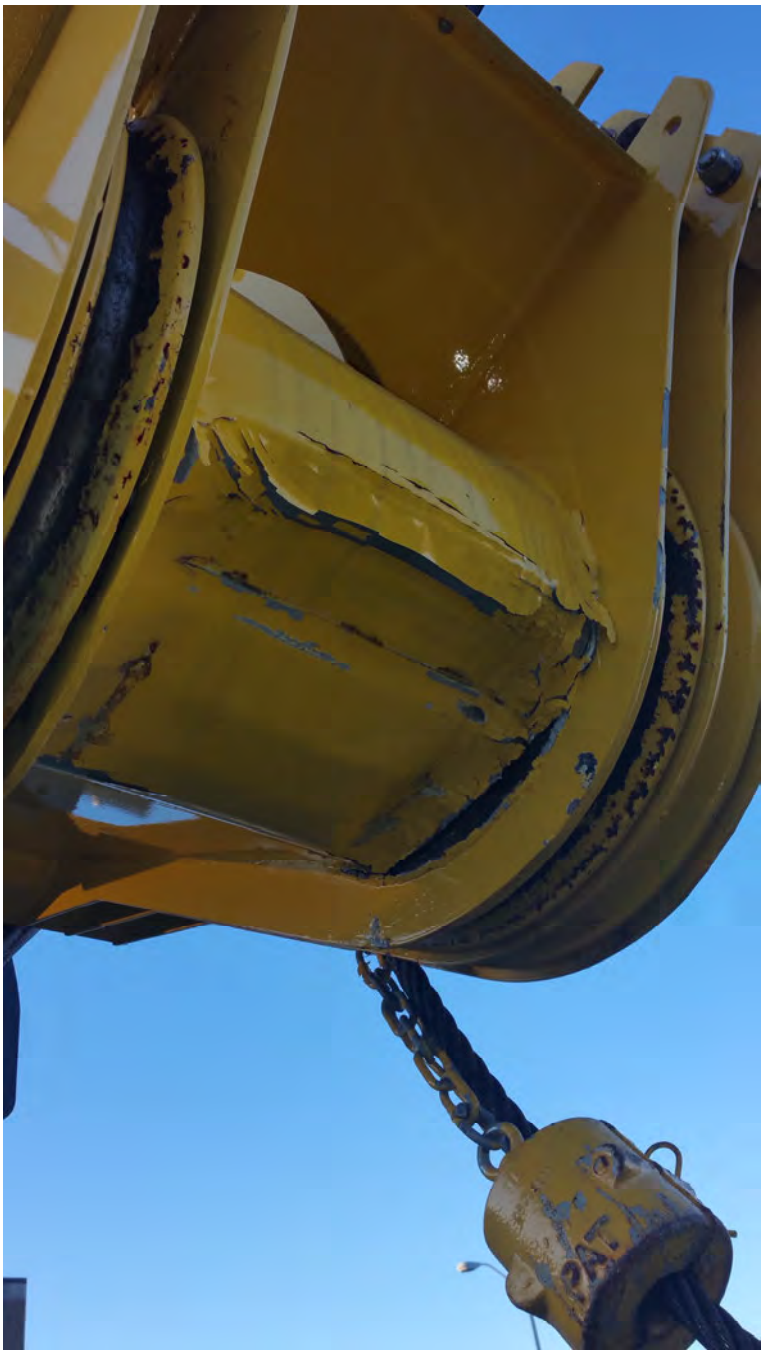

CAT

Exhibit 8

May 2, 2018

RE: RC35

Mr. Johnson,

I am writing to inform you that Car Track Equipment Maintenance has resolved to make no further efforts to support the endeavor to meet the requirements of Contract ES10091\GWF for the purchase and acceptance of 35 Ton Rail Crane. Over the previous five years Cranemaster's has attempted to meet the requirements necessary to allow WMATA to safely place the Rail Crane in serviceable use. While Cranemasters has been making efforts to resolve concerns, identified in the Warranty and History Report attached, after five years it remains that multiple significant functional and design items remain unresolved.

It is my recommendation that [redacted]

Sincerely,

[redacted]

Daniel K. Hagan

Washington
Metropolitan Area
Transit Authority

Exhibit 9


CAT

Exhibit 10


DO NOT REMOVE
THIS TAG!
TO DO SO WITHOUT
AUTHORITY WILL MEAN
DISCIPLINARY ACTION!
IT IS HERE FOR A PURPOSE
REMARKS:
SEE OTHER SIDE


27,000 LB
COUNTER WEIGHT
FRONT
E-STOP
SRC-70


27,000 LB
COUNTER WEIGHT
FRONT


SRC-70X
27,000 LB
COUNTER WEIGHT
SRC-70X
REAR

MANAGEMENT'S RESPONSE

M E M O R A N D U M

SUBJECT: Management Assistance Report: WMATA Crane Purchase (MAR-23-0001)

DATE: September 9, 2022

FROM: EVP/COO – Brian P. Dwyer Michael Hass Digitally signed by Michael Hass Date: 2022.09.15 16:29:20 -04'00'

TO: OIG – Rene Febles

WMATA's management team has reviewed the Office of Inspector General's (OIG) Management Assistance Report: WMATA Crane Purchase (MAR-23-0001). Since the RC35 crane was purchased, WMATA has improved its Class 2 vehicle design and specification review procedures. These procedures allow WMATA to ensure all Class 2 vehicles, such as this crane, operating on the right of way are doing so as designed and safely. Overall, WMATA agrees with the two (2) recommendations in the report. The actions Car Track Equipment Maintenance (CTEM) have taken to address the recommendations are described below.

1. **Follow WMATA safety protocols regarding unsafe equipment and apply them to the RC35.**

CTEM has locked out and tagged out the RC35 on September 8, 2022. The keys to the vehicle are secured in a limited access lockbox and the crane is now secured and unusable by WMATA employees.

2. **Make a determination if RC35 can be utilized or must be disposed.**

WMATA will perform an analysis to identify the most cost-effective way to dispose of the RC35 crane December 15, 2022. Once the analysis is complete, WMATA will work execute the plan to dispose of the RC35 and will notify OIG when disposal occurs.

Washington Metropolitan Area Transit Authority

List of Attachments

1. SOP 202.20 – Class 2 Rail Vehicle Acceptance
2. Equipment Reliability Update 2008-01 – Equipment Failure Service Tags
3. Image 1 – "Do Not Start" and "Out of Service" Tags September 8, 2022

cc: GM/CEO Randy Clarke
Senior Executive Team

Washington Metropolitan Area Transit Authority

OFFICE OF VEHICLE PROGRAM SERVICES

Standard Operating Procedure

CATEGORY	TOPIC
Administrative	Class 2 Rail Vehicle Acceptance

SOP NO.	TITLE
202.20	Class 2 Rail Vehicle Acceptance Procedure

LATEST REVISION NO.	ORIGINATION DATE	DATE REVIEW DUE	EXPIRATION DATE
0.0	02/02/2022	02/02/2024	No Expiration
LATEST REVISION DATE	**LATEST REVIEW DATE**		
02/02/2022	02/02/2022		

SOP APPLIES TO:

CENV

DEPARTMENT/OFFICE/INDIVIDUAL OF PRIMARY RESPONSIBILITY

CMOR, CENV, Deputy Chief Mechanical Officer New Car Programs

EFFECTIVE PAGES/NOTES

Initial document.

DISTRIBUTION	COORDINATION WITH OTHER PUBLICATIONS
All CMOR Offices, MTPD, QICO, SAFE, CVST, TRST	WMATA SSCPP

APPROVAL:

Cameron Akins [redacted] WMATA
Digitally signed by Cameron Akins [redacted]/MATA
DN: c=US, o=Washington Metropolitan Area Transit Authority, ou=People, cn=Cameron Akins [redacted]/MATA
Date: 2022.02.03 12:38:57 -05'00'

Date:_____

Cameron Akins
Senior Program Manager
Vehicle Program Services (CENV)

DIRECTED BY:

David F. Sauter c/o Sachit Kakkar
Digitally signed by David F. Sauter c/o Sachit Kakkar
Date: 2022.02.03 13:40:51 -05'00'

Date:_____

Sachit Kakkar
Deputy Chief Mechanical Officer – New Car Program
Vehicle Program Services (CENV)

Class 2 Rail Vehicle Acceptance Procedure

1. PURPOSE

*This Standard Operating Procedure (SOP) ensures new **Class 2 Rail Vehicles** are specified, designed, and accepted in compliance with Washington Metropolitan Area Transit Authority (WMATA's) Safety and Security Certification Program Plan (SSCPP).*

2. SCOPE

*This procedure describes the steps Vehicle Program Services (CENV) follows, from project initiation to acceptance, to ensure delivery of **Class 2 Rail Vehicles** meeting the highest level of safety, quality, performance, and service.*

3. RESPONSIBILITIES

3.1 Chief Mechanical Officer – Rail/CENV/Deputy Chief Mechanical Officer New Car Programs:

3.1.1. Has the responsibility to notify all affected personnel of this SOP or changes to SOP through the WMATA email system.

3.1.2. Ensure an email is sent to Metro Transit Police Department (MTPD), Office of Quality Assurance, Internal Compliance & Oversight (QICO), and Department of Safety (SAFE) to notify them of the new or revised SOP that must reside within the **Documentum** domain.

3.1.3. The email notification shall identify the link where the SOP resides within the **Documentum** domain.

3.1.4. Must submit native (Microsoft Word®) SOP document(s) to Railcar Quality Assurance and Warranty Compliance (RQAW) for final review prior to signatures**.**

3.1.5. Must submit signed Portable Document Format (PDF) SOP to RQAW for final review, prior to being sent to Overhaul Support & Document Configuration Management (ODCM) for upload into **Documentum**.

3.1.6. RQAW submits final signed and native documents to CENV, ODCM to upload into **Documentum**.

3.2 Deputy Chief Mechanical Officer(s), CENV:

3.2.1 Primary responsibility for administration and compliance with this SOP and its related forms.

3.2.2 Ensure all CENV Managers are made aware of this SOP and any changes thereto through Scheduled Meeting and fully comply with all requirements herein.

3.3 Deputy Chief Engineer/Senior Program Manager(s), CENV:

3.3.1 Primary responsibility for review and content, to include technical accuracy within the SOP.

3.3.2 Primary responsibility for implementation of this SOP within his/her area(s) of responsibility.

3.3.3 Ensure CENV personnel are made aware of this SOP and any changes thereto, through the weekly engineering staff meeting and fully comply with all requirements herein.

3.4 Manager(s), CENV:

3.4.1 All managers shall be responsible for adherence to this SOP and their area(s) of responsibility.

3.4.2 Ensure all CENV personnel, under their direct supervision, are made aware of this SOP and fully comply with all policies/procedures herein.

3.5 Vehicle Engineers, CENV:

Responsible for adherence to this SOP and associated forms.

3.6 Overhaul Support & Document Configuration Management, (ODCM):

3.6.1 Responsible for retaining and archiving the native (Microsoft Word®) document(s) in **Documentum**.

3.6.2 Responsible for the electronic distribution of this SOP through the WMATA email system.

4. DEFINITIONS

4.1 Class 2 Rail Vehicle: A rail vehicle not designed for the transportation of passengers.

4.2 Documentum: Electronic document management system software that provides a single source for documentation storage and controlled access.

4.3 Stakeholders: Departments and personnel that are directly affected by this SOP.

4.4 Inspection and Testing Tracking Log: A tracking log developed, case by case, per project, by SAFE with CENV assistance, based on the technical specifications of the contract.

5. ABBREVIATIONS and ACRONYMS

CENV:	Vehicle Program Services
CMOR:	Chief Mechanical Officer Rail
CTEM:	Car Track Equipment Maintenance
CVST:	Civil & Structural Engineering
MTPD:	Metro Transit Police Department
ODCM:	Overhaul Support & Document Configuration Management
PDF:	Portable Document Format
QICO:	Office of Quality Assurance, Internal Compliance & Oversight
RQAW:	Railcar Quality Assurance & Warranty Compliance
SAFE:	Department of Safety
SOP:	Standard Operating Procedure
SOW:	Scope of Work
SSCPP:	Safety and Security Certification Program Plan
TRST:	Office of Track and Structures
WMATA:	Washington Metropolitan Area Transit Authority

6. PROCEDURES

Procedure #	Content
6.1	**Project Initiation**
6.2	**Supplier Design**
6.3	**Acceptance Testing**

6.1 Project Initiation:

6.1.1 Distribute project information–draft Scope of Work (SOW) and technical specification–to Office of Track and Structures (TRST), Car Track Equipment Maintenance (CTEM) SAFE, RQAW, Civil & Structural Engineering (CVST) and any other **stakeholders**.

6.1.2 Coordinate with respective **stakeholder** departments regarding quality, maintenance, operators' use, and safety to ensure that **stakeholder's** needs are incorporated and that the highest level of performance and service are delivered to WMATA customers.

6.1.3 Assist SAFE to evaluate and determine the level of certification required for the project according to the categories defined in the SSCPP.

6.1.4 Receive the SAFE Safety Certification Project Assessment form for the project.

6.1.5 Ensure that **stakeholder** input, safety, and security requirements, including hazard mitigations and controls, are incorporated into the SOW, design criteria and specifications.

6.2 Supplier Design:

6.2.1 Invite stakeholders to participate in design reviews.

6.2.2 Ensure the supplier design meets the identified safety and security design and specification requirements.

6.2.3 Assist SAFE in the development of an Operational Hazard Analysis and an Inspection and Testing tracking log consistent with WMATA's SSCPP and Safety Risk Management process.

6.2.4 Assist SAFE in the identification of safety and security certifiable items and requirements.

6.3 Acceptance Testing:

6.3.1 Ensure successful completion of all safety/security related specification and test activities

6.3.2 Forward completed and CENV approved test documents to SAFE.

6.3.3 Ensure all certifiable items have been verified and send documentation to SAFE.

6.3.4 Receive Certificate of Compliance for each package submitted to SAFE.

6.3.5 Receive final Safety and Security Certification Verification Report, System Certificate of Compliance at the end of the safety certification for the project.

6.3.6 Inform CTEM to update status of fully accepted equipment in Maximo to ready for service.

7. SAFETY MANAGEMENT

This document has been created in compliance with WMATA's safety plan and safety policy. Any hazards and risks associated with the processes within this document have been evaluated for safety and have appropriate mitigation strategies established as part of WMATA's overall risk assessment management, where applicable and/or relevant. This document is also subject to monitoring for safety risk mitigation adherence and safety performance, and has effective communication practices in place, including adequate safety training to ensure competencies, and to solicit feedback from the affected employees, where applicable and/or relevant. For further guidance on WMATA's safety plan, visit the Department of Safety and Environmental Management's (SAFE) intranet homepage.

8. REFERENCES

- WMATA SSCPP **(Most recent version)**
- Safety Certification Project Assessment Form

9. RECORDS

N/A

10. ATTACHMENTS

N/A

CTEM Equipment Reliability Update

ERU: 2008-01

Title: Equipment Failure Service Tags

Document #:	ERU2008-01
Models:	All Class 2 Equipment

Revision Number	Reason / Description	Revision Issue Date
0	New	8/14/2020
1	Updated document format	7/19/2021

Washington Metropolitan Area Transit Authority

ERU Number: 2008-01

ERU Title: Equipment Failure Service Tags

ERU Revision Level: 1 ERU Revision Date: 7/19/2021

Approval Signature: [redacted] Digitally signed by Steven Redman [redacted] WMATA Date: 2021.07.19 11:23:42 -04'00'

Steven L. Redman
CTEM Superintendent
Office of Car Maintenance (CMNT) - Car Track Equipment (CTEM)

CTEM

Equipment Reliability Update
ERU: 2008-01

Models:
All Class 2 Equipment

Title:
Equipment Failure Service Tags

This Equipment Reliability Update (ERU) is being issued to all CTEM Personnel.

Condition/Problem: CTEM "Do Not Start" tags have led to equipment in service / out of service issues when applied for ancillary equipment issues to the main console.

Correction: Utilize multiple types of tags for clarification of machine status.

When a machine is unable to be operated a "Do Not Start" tag will be applied to the operator's console. This indicates the unit is out of service and may not be started.

Do Not Start Tag

R75-10-0040

When a machine has a defective component that does not remove the unit completely from service the following tag configuration will be used.

- An "Out of Service" tag will be applied directly to the component that is unusable listing the issue with the tagged component.

Out of Service Tag

R76-90-0001

- A “Warning” tag will be applied to the operator’s console listing the defective component and any usage restrictions. This alerts the operator of ancillary equipment concerns that may affect the machines functionality. This tag does not remove a unit from service, only the component listed is out of service.

Warning Tag

R79-60-0001

Mechanics shall fill complete each tag with the following information:

- Issue with machine or component
- Mechanics name, clearly written
- Date tag was installed


DO NOT START
THIS MACHINE
SIGNED BY: CTEM
DATE: 9.8.2022
www.accuform.com • reorder# MDT124
DANGER
OUT OF SERVICE
SIGNED BY: CTEM
DATE: 9.8.2022
AUTO
MOTOROLA