

E-CHU 20180308

INSTALLATION INSTRUCTIONS FOR ENHANCED CONTAINER HANDLING UNIT E-CHU

For HEMTT A4 And PLS A1

DISTRIBUTION STATEMENT A – Approved for public release, distribution is unlimited.

WARNING – This document contains technical data whose export is restricted by the Arms Export Control Act (Title 22, U.S.C., Sec 2751, et. seq.) or the Export Administration Act of 1979 (Title 50, U.S.C., App. 2401 et seq.), as amended. Violations of these export laws are subject to severe criminal penalties. Disseminate in accordance with provisions of DoD Directive 5230.25.

DESTRUCTION NOTICE – Destroy by any method that will prevent disclosure of contents or reconstruction of this document.

**OSHKOSH DEFENSE
08 MARCH 2018**

OSHKOSH DEFENSE
Oshkosh, WI, 08 MARCH 2018

**Installation Instructions
FOR
ENHANCED CONTAINER HANDLING UNIT E-CHU**

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

This manual is an internal product of Oshkosh Defense Global Integrated Product Support, for internal use by Oshkosh Defense employees. You can help improve this manual. If you find any mistakes, or if you know of a way to improve the procedures, please let us know. Please send questions or comments to Mr. Dan Long at Oshkosh Defense, 920-235-9151 x22139 or by email at dlong@defense.oshkoshcorp.com

DISTRIBUTION STATEMENT A – Approved for public release, distribution is unlimited.

WARNING – This document contains technical data whose export is restricted by the Arms Export Control Act (Title 22, U.S.C., Sec 2751, et. seq.) or the Export Administration Act of 1979 (Title 50, U.S.C., App. 2401 et seq.), as amended. Violations of these export laws are subject to severe criminal penalties. Disseminate in accordance with provisions of DoD Directive 5230.25.

DESTRUCTION NOTICE – Destroy by any method that will prevent disclosure of contents or reconstruction of the document.

TABLE OF CONTENTS

	Page No.
	<u>WP Sequence No.</u>
INSTALLATION INSTRUCTIONS	
INSTALLATION INSTRUCTIONS INTRODUCTION.....	WP 001
UNPACKING AND PARTS LIST.....	WP 002
Table 1. E-CHU Installation Parts List.....	002-1
Table 2. Components for HEMTT Only.....	002-4
Table 3. Components for PLS Only.....	002-4
HEMTT A4 ORIGINAL EQUIPMENT REMOVAL.....	WP 003
Table 1. Parts List for HEMTT Hydraulic Control Box Installation.....	003-7
HEMTT A4 INSTALLATION INSTRUCTIONS.....	WP 004
Table 1. Parts List for HEMTT A4 Stowage Assembly Installation.....	004-1
Table 2. Parts List for HEMTT A4 Slider Assembly Installation.....	004-16
Table 3. Parts List for Marker Light And Reflector Installation.....	004-21
Table 4. Parts List for Middle Frame Sensor Installation.....	004-32
Table 5. Parts List for Hook Arm Sensor Installation.....	004-35
PLS A1 ORIGINAL EQUIPMENT REMOVAL.....	WP 005
PLS A1 INSTALLATION INSTRUCTIONS.....	WP 006
Table 1. Parts List for PLS A1 Stowage Assembly Installation.....	006-1
Table 2. Parts List for PLS A1 Slider Assembly Installation.....	006-16
Table 3. Parts List for Marker Light And Reflector Installation.....	006-21
Table 4. Parts List for Middle Frame Sensor Installation.....	006-31
Table 5. Parts List for Hook Arm Sensor Installation.....	006-34

INSTALLATION INSTRUCTIONS

MAINTAINER MAINTENANCE INSTALLATION INSTRUCTIONS INTRODUCTION

INITIAL SETUP:

Not Applicable

General

This chapter contains procedures to prepare HEMTT A4 and PLS A1 vehicles and install the Enhanced Container Handling Unit (E-CHU).

OVERVIEW

1. Personnel. Suggested number of people to assemble the E-CHU is two. This team will require a lifting device (forklift or crane) operator.
2. Recommended Tool List.
 - a. Tool Set, SATS Base
 - b. Tool Kit, General Mechanic's
 - c. Suitable nylon slings
 - d. Suitable Lifting Device (2,000-lb Capacity)
3. Facilities. It is recommended that E-CHU is installed at a facility with an overhead crane and a flat work surface, or similar hardened work surface.
4. Inspection of Vehicle. Condition of subject vehicle should be thoroughly evaluated before E-CHU is installed on it. Vehicle structure and suspension should be capable of supporting additional weight of E-CHU, 3,336 lb (1,513 kg).
5. Preparation. Refer to Unpacking and Parts List (WP 002) and conduct a complete inventory verifying all parts are present. When finished, refer to Original Equipment Removal (WP 003) for HEMTT A4 vehicles, or Original Equipment Removal (WP 005) for PLS A1 vehicles. Follow instructions to remove prescribed components before doing any other work.
6. Warnings and Cautions. Observe all WARNINGS and CAUTIONS while completing installation.

END OF WORK PACKAGE

**MAINTAINER MAINTENANCE
UNPACKING AND PARTS LIST**

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's
Tool Set, SATS Base
Suitable Slings, Nylon
Suitable Lifting Device

References (cont.)

PLS A1 TM 9-2320-319-14&P
E-CHU TM 9-3950-253-13&P

Personnel Required

Maintainer (2)

Equipment Condition

Vehicle parked on level ground, in neutral gear
with parking brake applied. (HEMTT A4 TM
9-2320-326-13&P, PLS A1 TM
9-2320-319-14&P)

References

HEMTT A4 TM 9-2320-326-13&P

UNPACKING OF CRATES

Before opening the crates, inspect their condition. Look for any damage such as dents or scratches on outside of crates. Ensure that the correct ends are up and that the skids of the crate are in good order. If ANY appearance of damage exists, report this immediately to a supervisor or person in charge of the materials. This is imperative to maintaining proper quality control of the Enhanced Container Handling Unit (E-CHU).

Verify that unique kit box strapped to lift frame pallet matches the truck that the kit will be installed on.

LAYOUT

Proper care must be taken to ensure that the items are placed in an open area to take proper inventory. Properly staging the components around the vehicle will ensure that the parts are present and it will also aid in a speedy installation of the E-CHU.

INSTALLATION PARTS LIST

Table 1. E-CHU Installation Parts List.

PART NO.	QUANTITY	DESCRIPTION
111560101	1	Stowage Assembly
111950001	1	Front Lift Adapter
111589501	1	Rear Slider
112090401	2	Rear Slide Adapter Plate
112137701	1	HEMTT Data Plate
112137601	1	PLS Data Plate

INSTALLATION PARTS LIST - Continued

Table 1. E-CHU Installation Parts List - Continued.

PART NO.	QUANTITY	DESCRIPTION
112091901	1	Tie Down Strap
112265401	1	Bail Bar Lock
112266101	10	8" Tie Wrap, Black
112266102	10	10" Tie Wrap, Black
112265601	Stowage Mounting Hardware Kit	
112079811	12	1/2-13 x 2 UNC, Hex Head Capscrew, GR8, PLTD
112080004	12	1/2-13 UNC Nylon Locknut, GR 8, Plated
112080104	24	1/2 Flat Washer, Plated
112265501	Rear Slider Adapter Plate Hardware Kit	
112079703	6	3/4-10 UNC X 2 Hex Head Capscrew, GR 8, Plated
112080102	6	3/4 Flat Washer, Plated
112079719	8	9/16-12 UNC X 2 Hex Head Capscrew, GR 8, Plated
112080109	8	9/16 Flat Washer, Plated
112079403	Hydraulic Installation Kit	
110036205	2	Tube End Reducer
112082301	2	Run Tee
112079501	Pneumatic Installation Kit	
112083501	1	Male Swivel Elbow
112083601	1	Male/Female Bush 1/4 NPFT To 1/2 NPFT
112083701	1	Male/Female/Female Tee 1/2
1119540	Middle Frame Sensor Bracket Kit	
1119541	1	Plate
1119542	1	Plate
1119544	1	Screw

INSTALLATION PARTS LIST - Continued

Table 1. E-CHU Installation Parts List - Continued.

PART NO.	QUANTITY	DESCRIPTION
1119545	1	Sensor Plate
112079807	3	1/4 X 1 3/8 UNC Hex Socket Head Capscrew
112080003	1	3/4 UNC Nylon Locknut
112080005	3	1/4 UNC Nylon Locknut
112080105	6	1/4 Flat Washer, Plated
1119465	Hook Arm Sensor Bracket Kit	
111946101	1	Sensor Plate
111946401	1	Switch Plate
112079807	2	1/4 X 1-3/8 UNC Hex Socket Head Capscrew
112079802	2	Rivet, Blind
112080105	4	1/4 Flat Washer, Plated
112265701	2	Clamp Plate
112265801	Rear Indicator Light Installation Kit	
112137501	6	#10-24 X 3/8 Cross Recess Machine Screw
112265901	2	Harness Extension Splice Assembly
112265902	2	Harness Extension Splice Assembly (LED)
112266001	Stowage Rack Auto Mode Calibration Kit	
112267601	5	Jumper
	1	Instructions And Troubleshooting Guide
	Operator Control Box Mounting Bracket Hardware	
112079722	4	3/8-16 UNC X 1 1/2 Hex Head Capscrew, GR 8, Plated
112080106	8	3/8 Flat Washer, Plated
112080002	4	3/8-16 UNC Nylon Lock Nut, GR 8, Plated

INSTALLATION PARTS LIST - Continued

Table 2. Components for HEMTT Only.

PART NO.	QUANTITY	DESCRIPTION
		Stowage Mounting Brackets And Spacers
112079301	1	Stowage Mounting Bracket LH (Driver Side)
112079302	1	Stowage Mounting Bracket RH (Passenger Side)
112079001	2	Spacer Tube
112266301		Stowage Mounting Bracket Hardware
112079720	4	5/8-11 UNC X 2 1/2 Hex Flanged Capscrew GR 8
112079704	4	3/8-16 UNC X 3 1/2 Hex Head Capscrew, GR 8, Plated
112080002	4	3/8-16 UNC Nylon Locknut, GR 8, Plated
112080106	8	3/8 Flat Washer, Plated
112648301	2	5/8-11 UNC X 3 Hex Flanged Capscrew GR 8
		Manifold Mounting Bracket
112130301	2	Manifold Mounting Bracket
112266501		Manifold Adapter Bracket Hardware
112079722	4	3/8-16 UNC X 1 1/2 Hex Head Capscrew, GR 8, Plated
112080106	8	3/8 Flat Washer, Plated
112080002	4	3/8-16 UNC Nylon Locknut, GR 8, Plated
		Hydraulic Tube Fairlead Kit
Gt-23014	1	Fairlead
112079812	2	3/8-16 UNC X 2 Socket Head Capscrew, GR 8, Plated
112080106	2	3/8 Flat Washer, Plated
112080002	2	3/8-16 UNC Nylon Lock Nut, GR 8, Plated

Table 3. Components for PLS Only.

PART NO.	QUANTITY	DESCRIPTION
		Stowage Mounting Brackets

INSTALLATION PARTS LIST - Continued

Table 3. Components for PLS Only - Continued.

PART NO.	QUANTITY	DESCRIPTION
112079201	1	Stowage Mounting Bracket LH
112079202	1	Stowage Mounting Bracket RH
112266701		Stowage Mounting Bracket Hardware
112081103	4	5/8-11 Hex Flange Nut
112079726	4	3/4-10 UNC X 3 1/2 Hex Flanged Capscrew, GR 8
112079725	4	5/8-11 UNC X 2 Hex Flanged Capscrew, GR 8
112081104	4	3/4-10 UNC Hex Flange Nut
		Spacer Kit
112462101	2	Stowage Rack Spacer
112079905	4	1/2-13 UNC X 1 3/4 Flat Head Capscrew
112080004	4	1/2-13 UNC Nylon Lock Nut, GR 8, Plated
112080104	4	1/2 Flat Washer, Plated
112462201	4	Shims - PLS A1
		Operator Control Box Fender Mounting Bracket Kit
112525701	1	PLS A1 Operator Control Box Fender Mounting Bracket
112079722	4	3/8-16 UNC X 1 1/2 Hex Head Capscrew, GR 8, Plated
112080106	8	3/8 Flat Washer, Plated
112080002	4	3/8-16 UNC Nylon Lock Nut, GR 8, Plated
Total Pieces	278	

END OF WORK PACKAGE

MAINTAINER MAINTENANCE HEMTT A4 ORIGINAL EQUIPMENT REMOVAL

INITIAL SETUP:

Tools and Special Tools

Tool Kit, General Mechanic's
Tool Set, SATS Base
Suitable Slings, Nylon
Suitable Lifting Device

Personnel Required

Maintainer (2)

References

HEMTT A4 TM 9-2320-326-13&P

Materials/Parts

Cap Set, Protective, Dust and Moisture
Rag, Wiping
Tag, Marker
CARC Paint, MIL-DTL-53039E
Cable Ties

Equipment Condition

Vehicle parked on level ground, in neutral gear
with parking brake applied. (HEMTT A4 TM
9-2320-326-13&P)
Battery disconnect switch in OFF position.
(HEMTT A4 TM 9-2320-326-13&P)

LIGHT BAR AND BUMPER STOP BRACKET REMOVAL

NOTE

- Tag and mark connectors prior to removal to ensure proper installation.
 - Remove cable ties as required.
1. Remove two screws (Figure 1, Item 2) and driver side reflector (Figure 1, Item 3) from roller assembly (Figure 1, Item 1). Set aside for reinstallation.
 2. Repeat Step 1 for passenger side reflector.

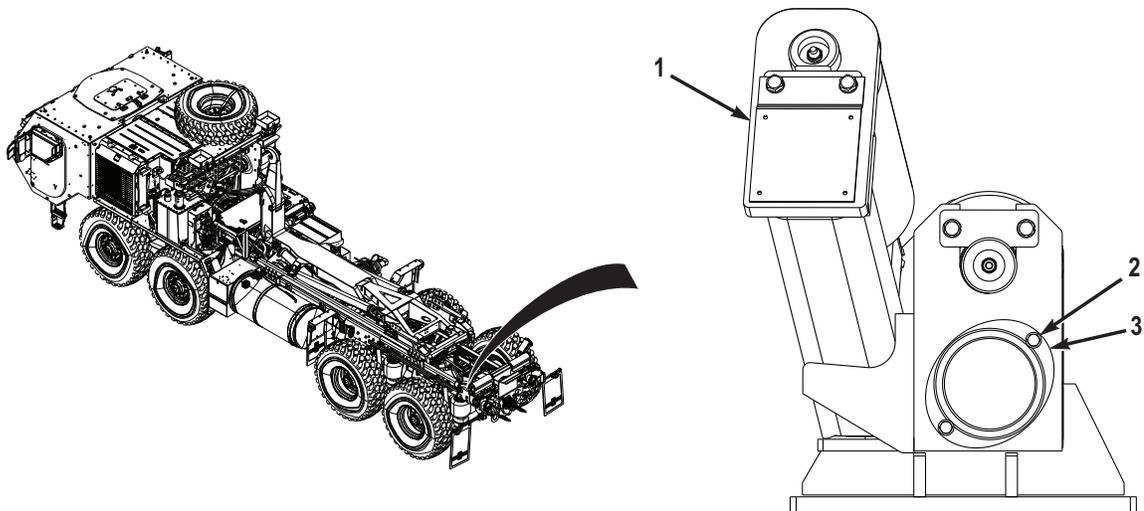


Figure 1. Roller Assembly Removal.

LIGHT BAR AND BUMPER STOP BRACKET REMOVAL - Continued

3. With the aid of an assistant, remove six nuts (Figure 2, Item 3), screws (Figure 2, Item 2), and bumper stop bracket (Figure 2, Item 1) from frame (Figure 2, Item 4). Set aside for reinstallation.

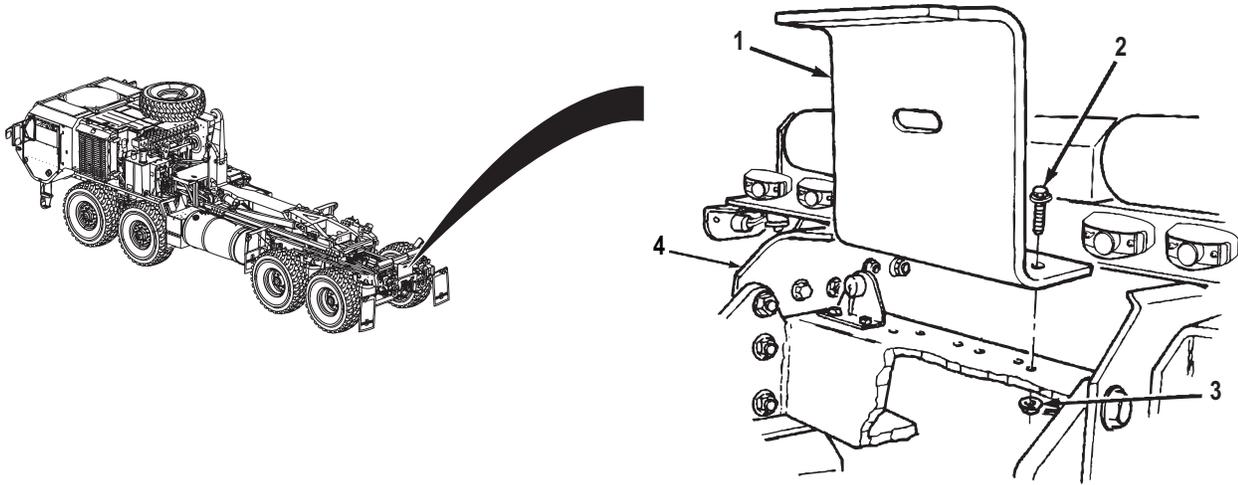


Figure 2. Light Bar and Bumper Stop Removal.

4. Disconnect light bar wiring harness (Figure 3, Item 2) from vehicle wiring harness (Figure 3, Item 1)

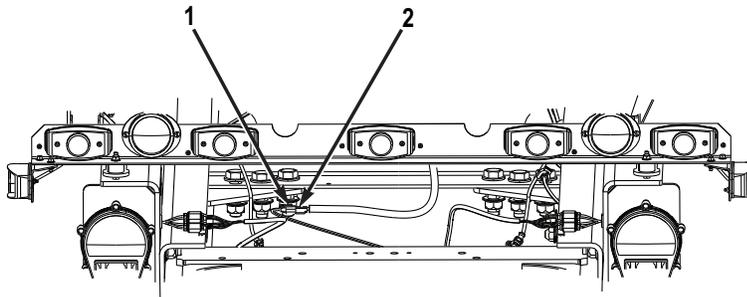


Figure 3. Light Bar and Bumper Stop Removal.

5. Remove two screws (Figure 4, Item 3) and rear light bar (Figure 4, Item 1) from two light bar mounting brackets (Figure 4, Item 2). Set light bar aside for disassembly and reinstallation. Discard screws.

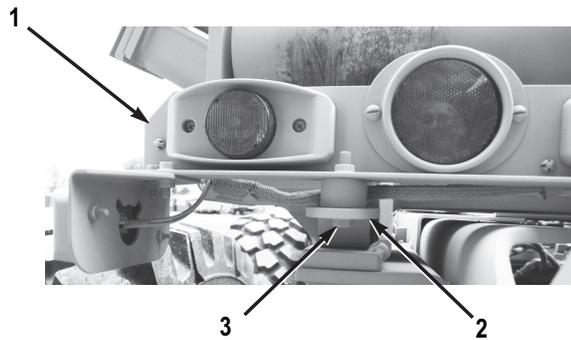
LIGHT BAR AND BUMPER STOP BRACKET REMOVAL - Continued

Figure 4. Light Bar and Bumper Stop Removal.

END OF TASK**REAR ROLLER ASSEMBLY REMOVAL****WARNING**

- Lifting cables, chains, hooks, and slings used for lifting must be in good condition and of suitable capacity.
- Improper use of lifting equipment and improper attachment of cables may cause injury to personnel and damage to equipment. Observe all standard rules of safety.
- Use extreme caution when handling heavy parts. Provide adequate support and use assistance during procedure. Ensure any lifting device used is in good condition and of suitable load capacity. Keep clear of heavy parts supported only by lifting device.
- Failure to follow these warnings may cause injury or death to personnel.

WARNING

Rear roller assembly weighs 375 lbs (170 kg). Do not attempt to lift or move rear roller assembly without the aid of an assistant and a lifting device. Failure to comply may result in injury or death to personnel.

1. Attach suitable slings and lifting device to rear roller assembly (Figure 5, Item 1). Adjust placement of slings until roller assembly will be level when raised.
2. Use lifting device to remove slack from sling.

REAR ROLLER ASSEMBLY REMOVAL - Continued

3. Remove six locknuts (Figure 5, Item 5), screws (Figure 5, Item 4), and two light bar mounting brackets (Figure 5, Item 2), from rear roller assembly (Figure 5, Item 1) and roller mounting brackets (Figure 5, Item 3). Discard hardware and light bar mounting brackets.
4. With the aid of an assistant, guide rear roller assembly (Figure 5, Item 1) up and off of vehicle.
5. Remove lifting device and slings from rear roller assembly (Figure 5, Item 1). Discard rear roller assembly.

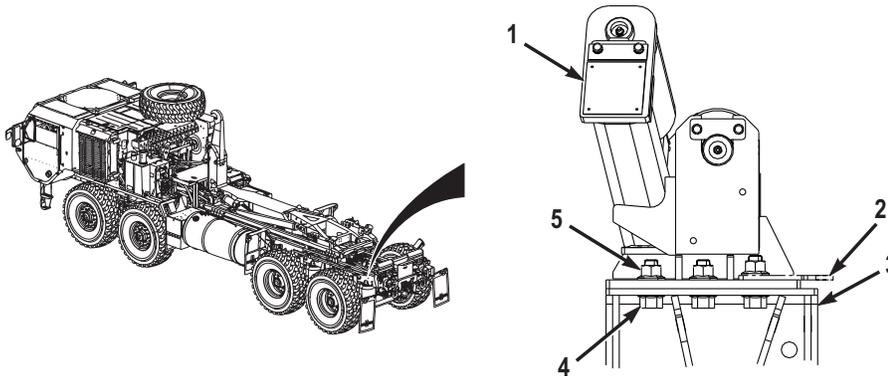


Figure 5. Rear Roller Assembly Removal.

END OF TASK**EXTEND HOOK ARM**

1. Fully extend hook arm (HEMTT A4 TM 9-2320-326-13&P).

NOTE

Perform Steps 2 - 3 to relieve hydraulic system pressure.

2. With engine on, set MODE switch to MAN H.A. and let engine idle for 30 seconds.
3. Set MODE switch to MAN M.F., let engine idle for 30 seconds, and turn off engine.

END OF TASK**REAR FENDER PANEL AND VEHICLE TIE DOWN RING REMOVAL****NOTE**

Both driver and passenger side rear fender panels are removed the same way. Driver side shown.

1. Remove three locknuts (Figure 6, Item 2), screws (Figure 6, Item 3), and washers (Figure 6, Item 4) from fender panel (Figure 6, Item 1) and three brackets (Figure 6, Item 5). Retain hardware for installation.

REAR FENDER PANEL AND VEHICLE TIE DOWN RING REMOVAL - Continued

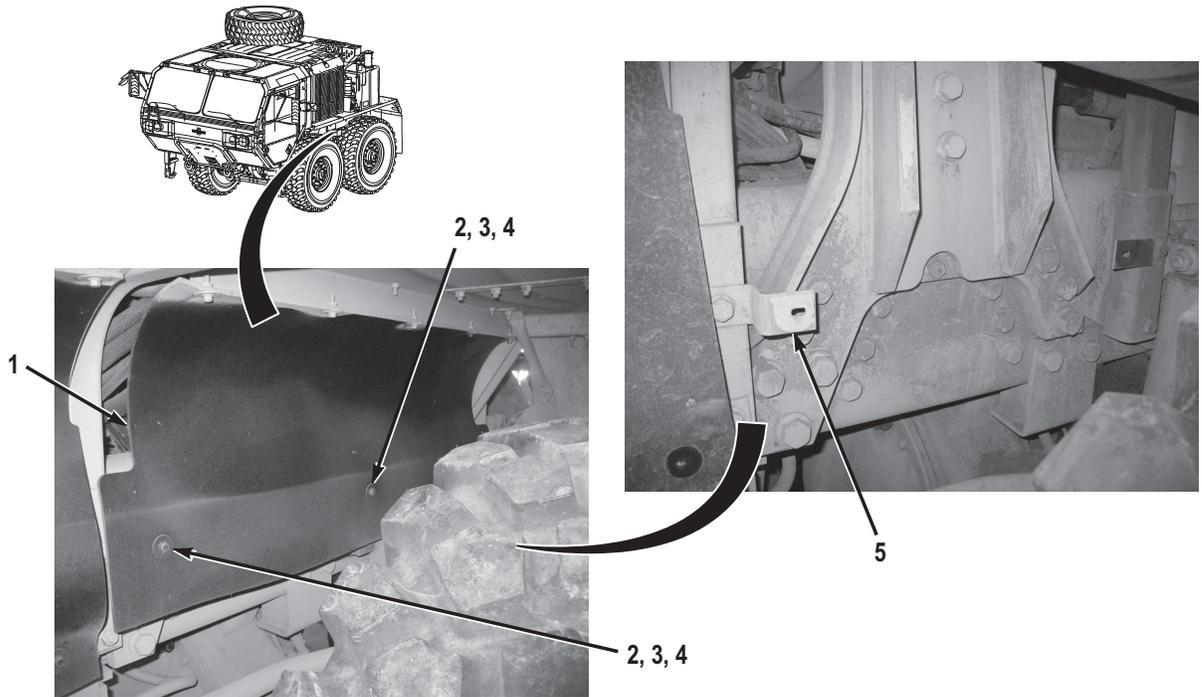


Figure 6. Driver And Passenger Side Rear Fender Panel Removal.

NOTE

Driver side and passenger side center vehicle tie down rings are removed the same way. Driver side shown.

- 2. Remove four locknuts (Figure 7, Item 2) screws (Figure 7, Item 3), and driver side center tie down (Figure 7, Item 1) from frame (Figure 7, Item 4). Retain hardware for installation.

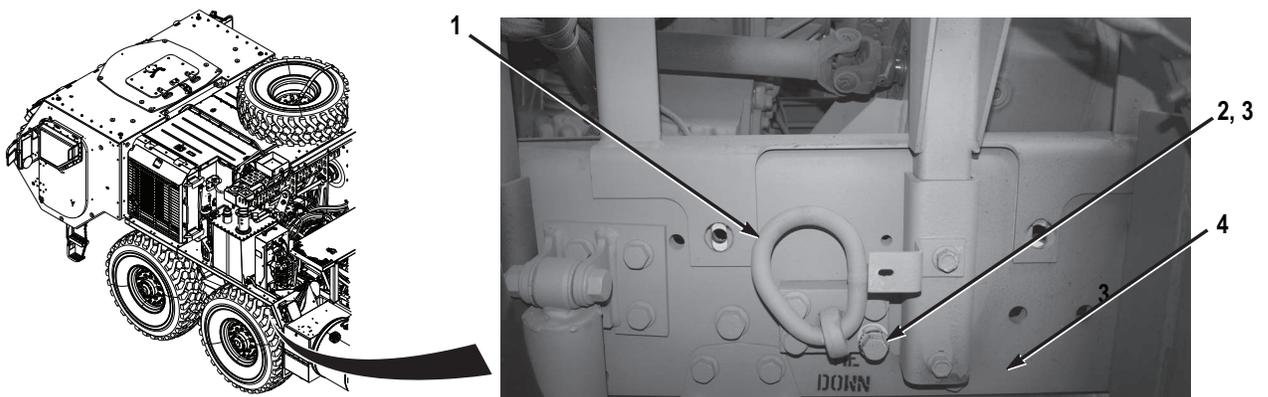


Figure 7. Vehicle Tie Down Removal.

REAR FENDER PANEL AND VEHICLE TIE DOWN RING REMOVAL - Continued

- Repeat Steps 1 - 2 for passenger side fender panel and center tie down.

END OF TASK**OPERATOR PLATFORM REMOVAL****WARNING**

After removing platform, use care to avoid being impaled on brackets. Failure to comply may result in injury or death to personnel.

- Remove four nuts (Figure 8, Item 2), washers (Figure 8, Item 3), springs (Figure 8, Item 4), washers (Figure 8, Item 5), screws (Figure 8, Item 10), and platform (Figure 8, Item 1) from two platform stands (Figure 8, Item 6). Discard platform and hardware.

NOTE

Driver side bracket must be rotated towards the front of the vehicle to clear harness before it can be removed.

- Remove four nuts (Figure 8, Item 9), screws (Figure 8, Item 7), and two stands (Figure 8, Item 6) from frame (Figure 8, Item 8). Discard stands. Retain hardware for reinstallation.

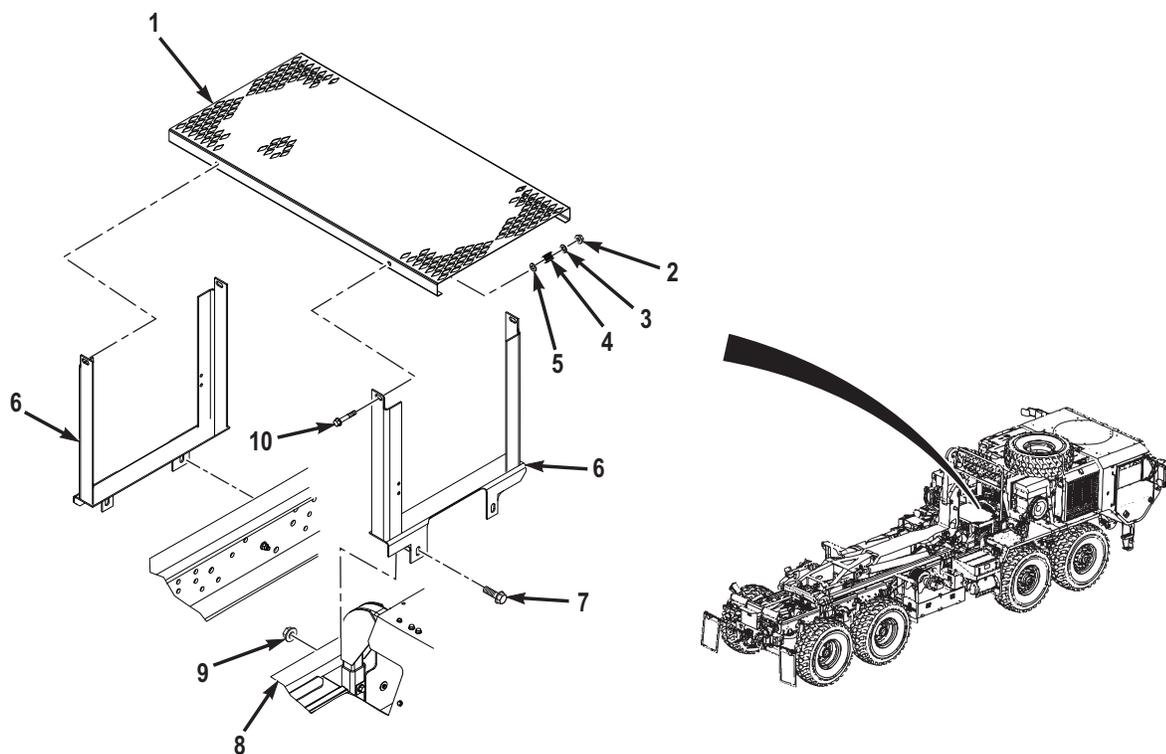


Figure 8. Platform Assembly Removal.

END OF TASK

REPOSITION HYDRAULIC CONTROL BOX**Table 1. Parts List for HEMTT Hydraulic Control Box Installation.**

ITEM NO.	QTY	DESCRIPTION	PART NUMBER
Figure 15, Item 4	2	Tube End Reducer	110036205
Figure 15, Item 3	2	T-Fitting	112082301
Figure 15, Item 11	1	Fairlead	GT-23014
Figure 15, Item 8	2	3/8-16 x 2 Bolt	112079812
Figure 15, Item 9	2	3/8 Washer	112080106
Figure 15, Item 10	2	3/8-16 Locknut	112080002
Figure 18, Item 2	2	Manifold Mounting Bracket	112130301
Figure 18, Item 4	4	3/8-16 x 4 1/2 Bolt	112079721
Figure 18, Items 5 and 6	8	3/8 Washer	112080106
Figure 18, Item 7	4	3/8-16 Locknut	112080002

1. Remove nut (Figure 9, Item 9), screw (Figure 9, Item 1), and standoff bracket (Figure 9, Item 2) from fender (Figure 9, Item 7) and fender support (Figure 9, Item 8).
2. Install nut (Figure 9, Item 9) and screw (Figure 9, Item 1) on fender (Figure 9, Item 7) and fender support (Figure 9, Item 8).
3. Remove nut (Figure 9, Item 3), screw (Figure 9, Item 4), two cushion clips (Figure 9, Item 6), and standoff bracket (Figure 9, Item 2) from two hoses (Figure 9, Item 5). Discard bracket, cushion clips, and hardware.

REPOSITION HYDRAULIC CONTROL BOX - Continued

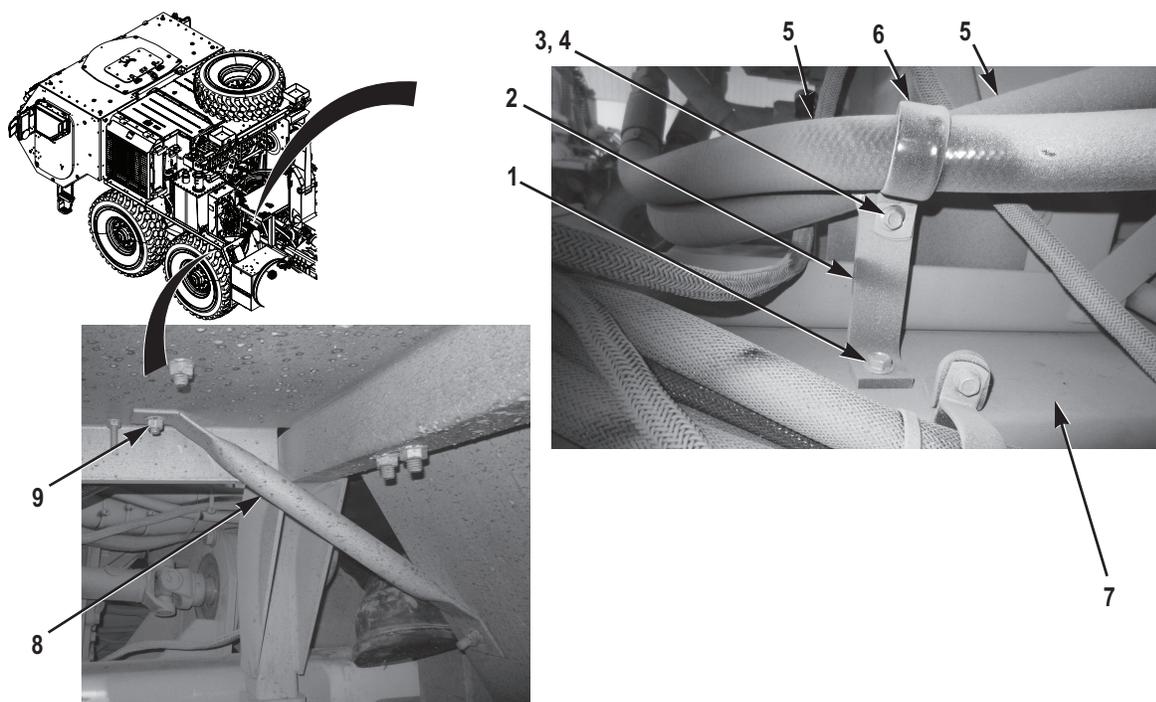
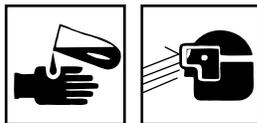


Figure 9. Hose Clamp Removal.

WARNING

- Disconnecting quick disconnect fittings will not relieve hydraulic system pressure. Failure to follow this warning may result in death or serious injury to personnel.
- Use extreme caution when disconnecting hydraulic hoses. Contact with hydraulic oil can damage eyes and skin. Wear eye protection, gloves and protective clothing while removing hydraulic hoses. Failure to follow this warning may result in death or serious injury to personnel.
- Hydraulic fluid under pressure can penetrate the skin and cause injury, blindness, or death. Pressure may build up in a hydraulic system. DO NOT perform any hydraulic system service without first shutting down the engine to relieve system pressure. Failure to follow this warning may result in death or serious injury to personnel.

NOTE

- Tag all hoses and fittings to aid in installation.
 - Cap all hoses and fittings on removal to prevent contamination.
 - After removal, position hydraulic hoses inside frame, over transmission.
4. Carefully remove eight hydraulic hoses (Figure 10, Item 3) from hydraulic control box (Figure 10, Item 1).

REPOSITION HYDRAULIC CONTROL BOX - Continued

5. Disconnect two hydraulic hoses (Figure 10, Item 4) from quick disconnect fittings (Figure 10, Item 5).
6. Disconnect two hydraulic tubes (Figure 10, Item 7) from bulkhead elbow fittings (Figure 10, Item 6).
7. Disconnect two wire harness connectors (Figure 10, Item 2) from hydraulic control box (Figure 10, Item 1).

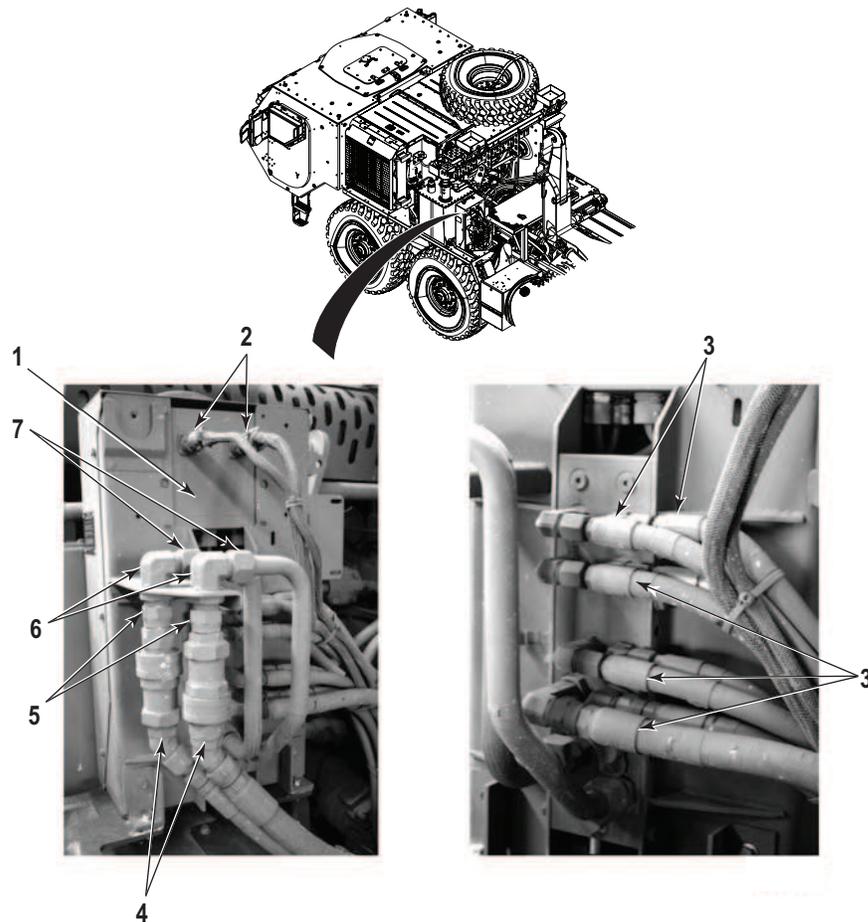


Figure 10. HEMTT Hydraulic Hose Removal.

8. Remove two quick disconnect coupler fittings (Figure 11, Item 3) from two bulkhead elbow fittings (Figure 11, Item 2). Retain quick disconnect coupler fittings for reinstallation.
9. Remove two bulkhead elbow fittings (Figure 11, Item 2) from bracket (Figure 11, Item 1). Discard fittings.

REPOSITION HYDRAULIC CONTROL BOX - Continued

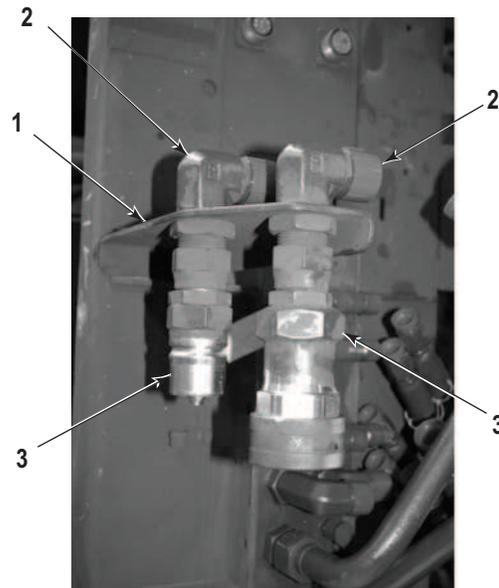


Figure 11. HEMTT Fittings Installation.

10. Remove two screws (Figure 12, Item 2), lockwashers (Figure 12, Item 3), washers (Figure 12, Item 5), and spacers (Figure 12, Item 6) from hydraulic control box (Figure 12, Item 1) and cover (Figure 12, Item 4). Retain hardware for reinstallation.
11. Remove four screws (Figure 12, Item 2), lockwashers (Figure 12, Item 3), and cover (Figure 12, Item 4) from hydraulic control box (Figure 12, Item 1). Retain hardware for reinstallation.

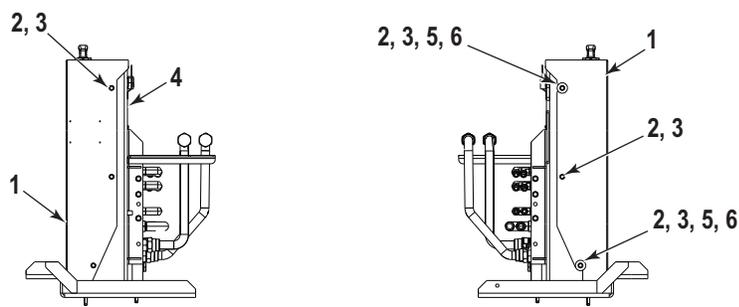


Figure 12. LHS Hydraulic Control Box Cover Removal.

12. Loosen four nuts (Figure 13, Item 1) on upper angle fittings (Figure 13, Item 2) and rotate angle fittings counterclockwise 30°.
13. Tighten four nuts (Figure 13, Item 1).
14. Loosen four nuts (Figure 13, Item 5) on lower angle fittings (Figure 13, Item 6) and rotate angle fittings counter-clockwise 45°.

REPOSITION HYDRAULIC CONTROL BOX - Continued

15. Tighten four nuts (Figure 13, Item 5).
16. Loosen two nuts (Figure 13, Item 5) on hydraulic tubes (Figure 13, Item 3) and rotate hydraulic tubes clockwise.

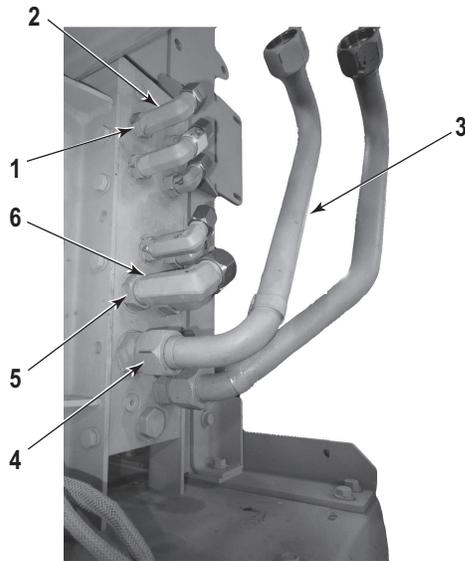
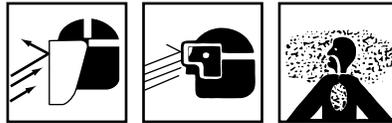


Figure 13. HEMTT Reposition Angle Fittings.

WARNING

- Appropriate safety precautions (including, but not limited to, wearing proper breathing apparatus, hearing protection, safety goggles, etc.) must be observed when working with CARC material.
 - All cutting and grinding must be done using an abrasive device only. Use of a cutting torch, plasma cutter, etc., is not permitted.
 - Always wear gloves and a face shield or breathing apparatus when grinding painted surfaces. Airborne particles may cause lung irritation or damage to eyes.
 - Failure to follow these warnings may cause injury or death to personnel.
17. Scribe line from point A to point B on bracket (Figure 14, Item 4), parallel to edge of gusset (Figure 14, Item 5), as shown in Figure 14.
 18. Cut outer section of bracket (Figure 14, Item 4) from hydraulic control box (Figure 14, Item 1).
 19. Prepare and paint bare metal surfaces. Instructions for preparation of material for painting, and materials to be used are in TB 43-0242.
 20. Loosen cushion clip (Figure 14, Item 2) and remove work lamp wire harness (Figure 14, Item 3) from hydraulic control box (Figure 14, Item 1).

REPOSITION HYDRAULIC CONTROL BOX - Continued

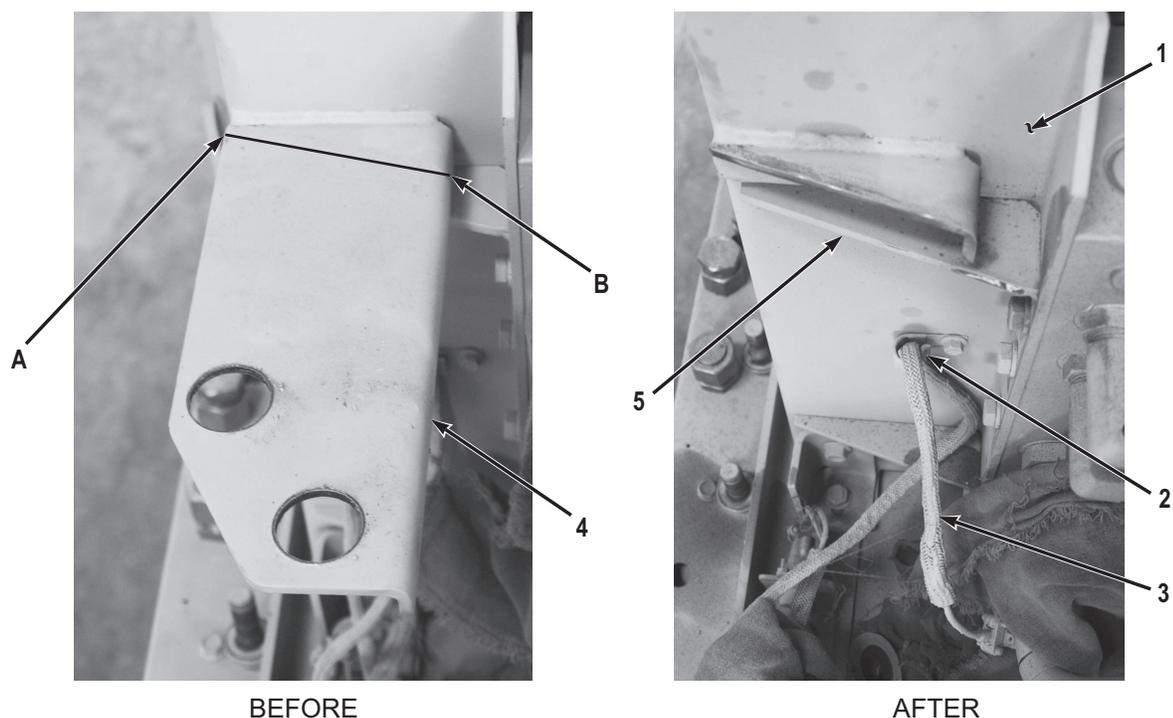


Figure 14. Cut Bracket Off.

NOTE

Tube end reducers may be assembled on T-fittings in kit. Ensure tube end reducers are properly tightened.

21. Install two tube end reducers (Figure 15, Item 4) on two T-fittings (Figure 15, Items 3 and 5.)
22. Install two T-fittings (Figure 15, Items 3 and 5) on two hydraulic tubes (Figure 15, Item 7).
23. Install male quick disconnect coupler fitting (Figure 15, Item 1) on forward T-fitting (Figure 15, Item 3) and tighten T-fitting jam nut (Figure 15, Item 2) against quick disconnect coupler fitting.
24. Install female quick disconnect coupler fitting (Figure 15, Item 12) on rear T-fitting (Figure 15, Item 5) and tighten T-fitting jam nut (Figure 15, Item 2) against quick disconnect coupler fitting.
25. Install fairlead (Figure 15, Item 11) on two hydraulic tubes (Figure 15, Item 7) with two screws (Figure 15, Item 8), washers (Figure 15, Item 9), and locknuts (Figure 15, Item 10)
26. Tighten two nuts (Figure 15, Item 13) to secure two hydraulic tubes (Figure 15, Item 7) on hydraulic control box (Figure 15, Item 14).
27. Prepare and paint bare metal surfaces. Instructions for preparation of material for painting, and materials to be used are in TB 43-0242.

REPOSITION HYDRAULIC CONTROL BOX - Continued

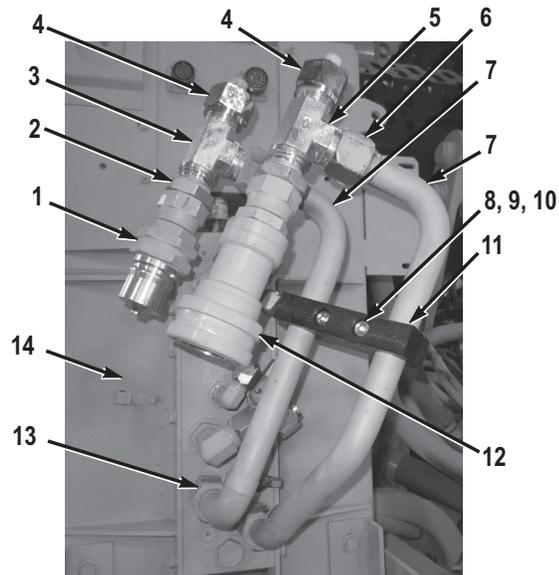


Figure 15. HEMTT A4 Hydraulic Hoses.

28. Remove four screws (Figure 16, Item 3) and four nuts (Figure 16, Item 4) from hydraulic control box (Figure 16, Item 1) and support brackets (Figure 16, Item 2). Retain hardware for reinstallation.

CAUTION

Use caution to avoid damage to hydraulic box equipment when lifting.

29. Attach suitable sling and lifting device to hydraulic control box (Figure 16, Item 1).
30. Use lifting device to remove hydraulic control box (Figure 16, Item 1) from support brackets (Figure 16, Item 2) and temporarily position hydraulic control box out of way.

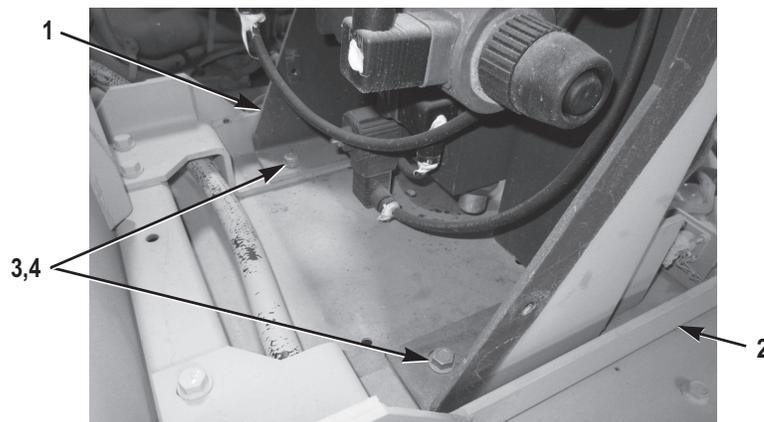


Figure 16. HEMTT Hydraulic Control Box Removal.

REPOSITION HYDRAULIC CONTROL BOX - Continued**NOTE**

- Ensure both manifold mounting brackets are installed to most rearward position of truck.
- Use kit hardware to install manifold mounting brackets.

31. Install two manifold mounting brackets (Figure 17, Item 2) on support brackets (Figure 17, Item 1) with four screws (Figure 17, Item 3), four washers (Figure 17, Item 4), four washers (Figure 17, Item 5), and four locknuts (Figure 17, Item 6).

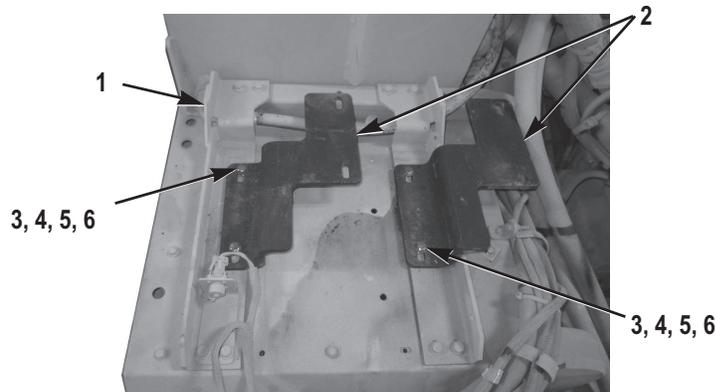


Figure 17. Install Manifold Mounting Brackets.

32. Prepare and paint bare metal surfaces. Instructions for preparation of material for painting, and materials to be used are in TB 43-0242.

NOTE

- Ensure control box is positioned to the rear of slotted brackets.
- Use original screws and nuts when reinstalling hydraulic control box.

33. Use lifting device to position hydraulic control box (Figure 18, Item 2) on two manifold mounting brackets (Figure 18, Item 1), and install hydraulic control box on manifold mounting brackets with four screws (Figure 18, Item 3), and nuts (Figure 18, Item 4).

REPOSITION HYDRAULIC CONTROL BOX - Continued

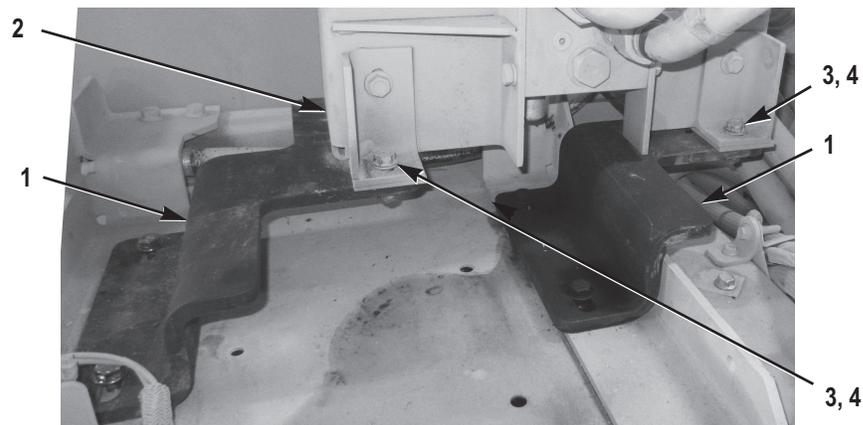
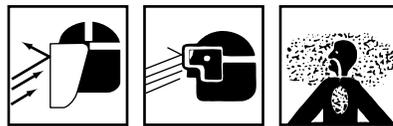


Figure 18. HEMTT Hydraulic Control Box Reinstallation.

WARNING



- Appropriate safety precautions (including, but not limited to, wearing proper breathing apparatus, hearing protection, safety goggles, etc.) must be observed when working with CARC material.
 - All cutting and grinding must be done using an abrasive device only. Use of a cutting torch, plasma cutter, etc., is not permitted.
 - Always wear gloves and a face shield or breathing apparatus when grinding painted surfaces. Airborne particles may cause lung irritation or damage to eyes.
 - Failure to follow these warnings may cause injury or death to personnel.
34. At bottom edge of hydraulic control box cover (Figure 19, Item 1) measure and mark 8.375 in. from outboard edge of cover.
 35. At marked point, measure and cut a notch .5 in. wide and 1.5 in. long as shown in Figure 19.

REPOSITION HYDRAULIC CONTROL BOX - Continued

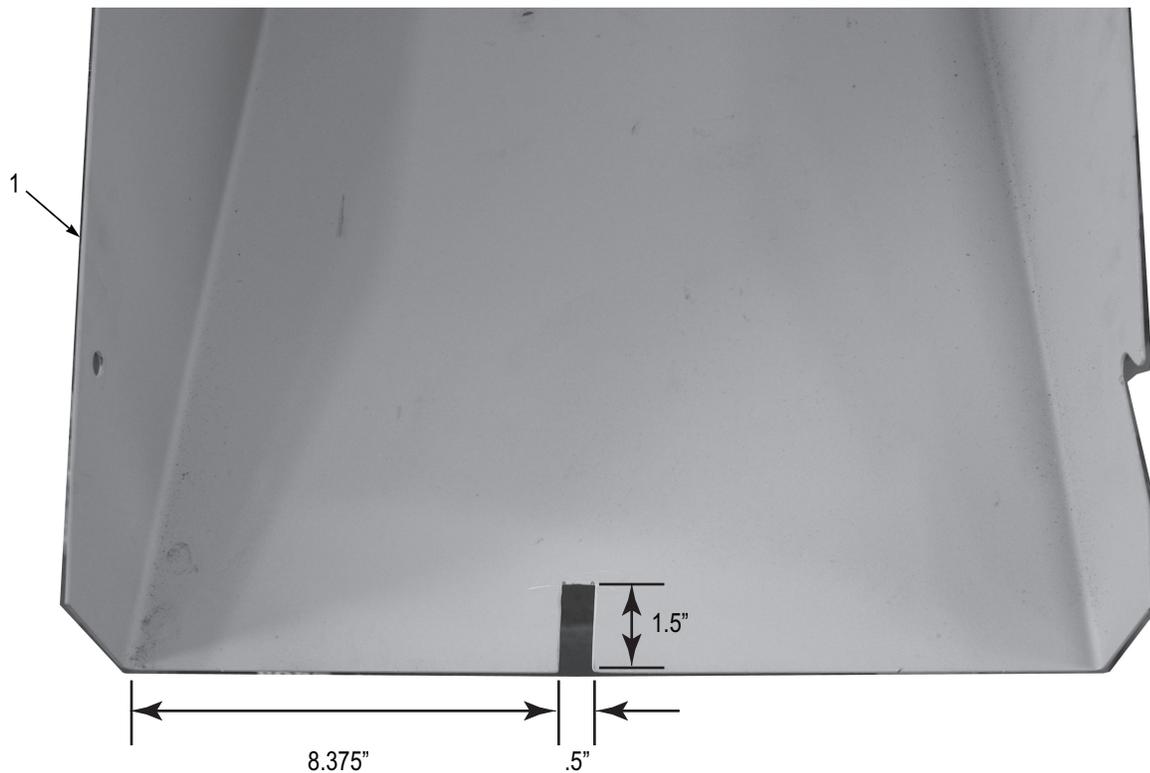


Figure 19. HEMTT A4 Hydraulic Control Box Cover Modification.

36. Prepare and paint bare metal surfaces. Instructions for preparation of material for painting, and materials to be used are in TB 43-0242.
37. Install cover (Figure 20, Item 1) on hydraulic control box (Figure 20, Item 4) with two screws (Figure 12, Item 2), lockwashers (Figure 12, Item 3), washers (Figure 12, Item 5), and spacers (Figure 12, Item 6)
38. Install cover (Figure 20, Item 1) on hydraulic control box (Figure 20, Item 4) with four screws (Figure 20, Item 2), and washers (Figure 20, Item 3).

REPOSITION HYDRAULIC CONTROL BOX - Continued

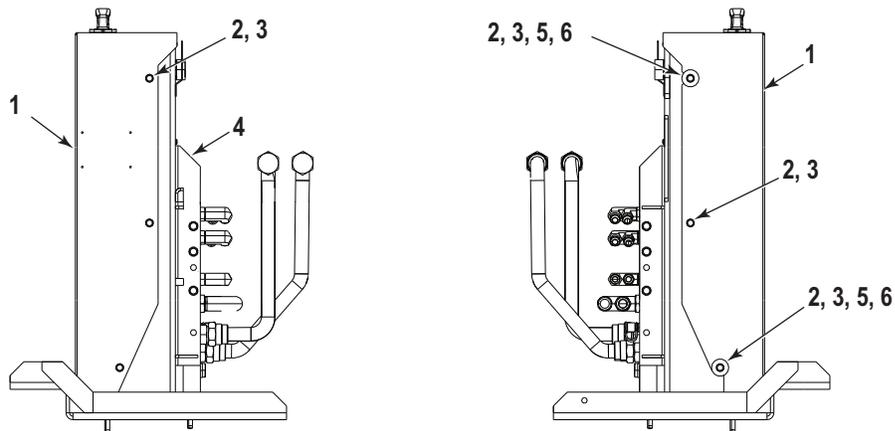


Figure 20. HEMTT Hydraulic Control Box Cover Installation.

END OF TASK

CABLE CLAMPS AND SCREW REMOVAL

1. Behind stowage box on driver side, remove two screws (Figure 21, Item 2) and nuts (Figure 21, Item 3) from driver side frame rail (Figure 21, Item 1). Retain for reinstallation.

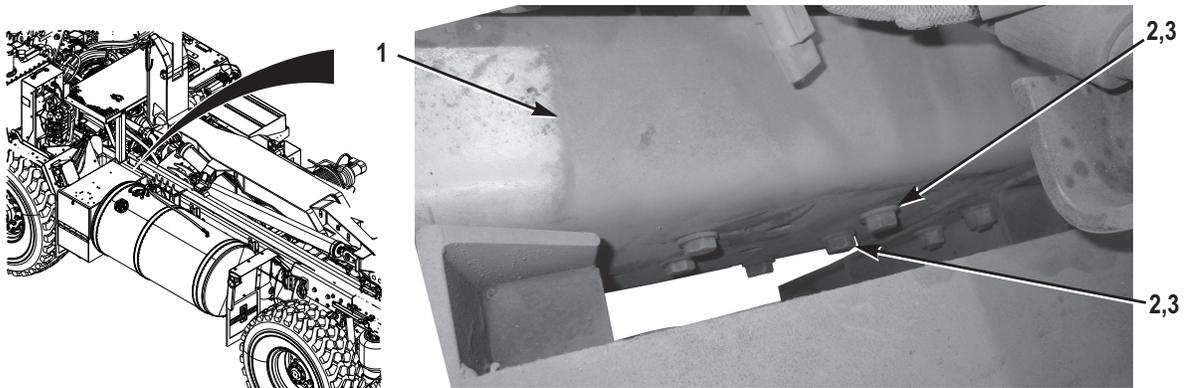


Figure 21. Screw Removal.

2. Behind battery box (Figure 22, Item 1), remove two screws (Figure 22, Item 2) and nuts (Figure 22, Item 3) from passenger side frame rail (Figure 22, Item 4) and air dryer bracket (Figure 22, Item 5). Retain for reinstallation.

CABLE CLAMPS AND SCREW REMOVAL - Continued

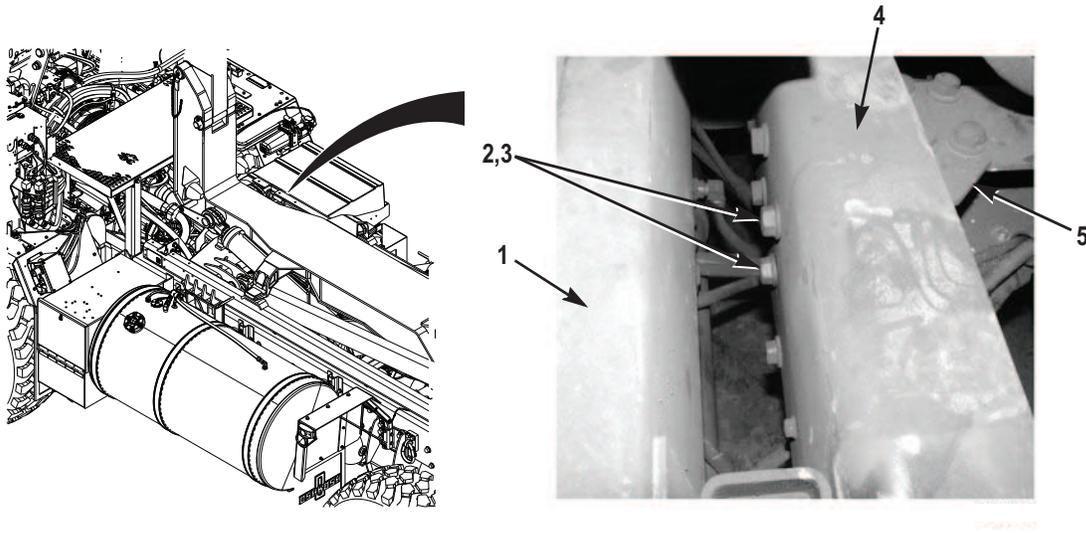


Figure 22. Screw Removal.

NOTE

Remove cable ties as required.

- Remove screw (Figure 23, Item 1), locknut (Figure 23, Item 2) and cushion clip (Figure 23, Item 3) from cables (Figure 23, Item 4) and stand off bracket (Figure 23, Item 5). Retain hardware and cushion clip for use in Step 4



Figure 23. Cushion Clip Removal.

- Install cushion clip (Figure 24, Item 5) on cables (Figure 24, Item 3) and standoff bracket (Figure 24, Item 4) with screw (Figure 24, Item 2) and locknut (Figure 24, Item 1).

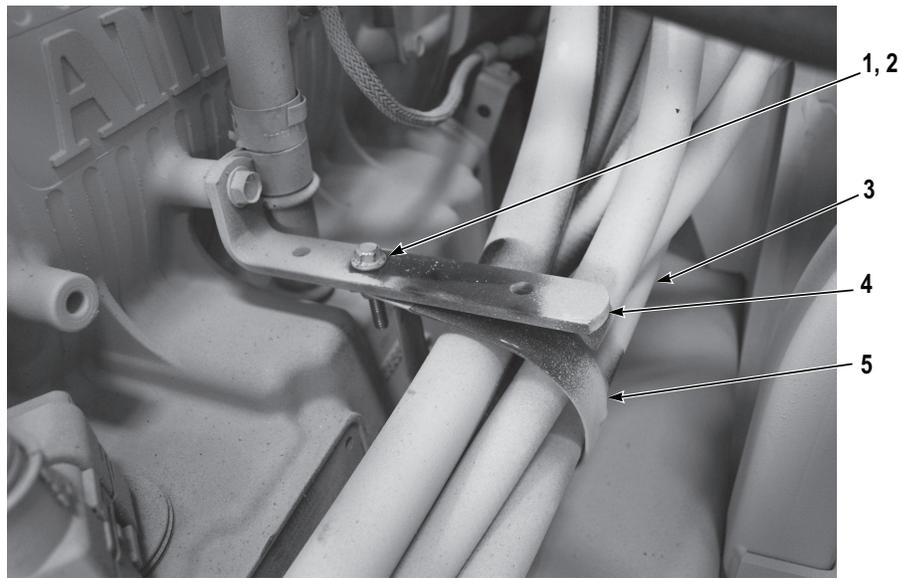
CABLE CLAMPS AND SCREW REMOVAL - Continued

Figure 24. Cushion Clip Installation.

END OF TASK**REORIENT HYDRAULIC TUBE AND HIGH PRESSURE HOSE****CAUTION**

Hydraulic hose and high pressure hydraulic hose must be repositioned closer to propeller shaft before installing E-CHU stowage assembly. Failure to reposition hoses before installing stowage assembly will result in damage to hoses.

NOTE

Remove cable ties as required.

1. Loosen four screws (Figure 25, Item 1) securing hydraulic tube (Figure 25, Item 4) to PTO pump (Figure 25, Item 2).

CAUTION

Ensure PTO tube and hydraulic hose remain clear of propeller shaft while repositioning. Failure to comply may result in damage to equipment.

2. Rotate hydraulic tube (Figure 25, Item 4) toward propeller shaft (Figure 25, Item 5) as far as possible without hydraulic hose (Figure 25, Item 3) or hydraulic tube making contact with propeller shaft.
3. Tighten four screws (Figure 25, Item 1) securing hydraulic tube (Figure 25, Item 4) to PTO pump (Figure 25, Item 2).

REORIENT HYDRAULIC TUBE AND HIGH PRESSURE HOSE - Continued

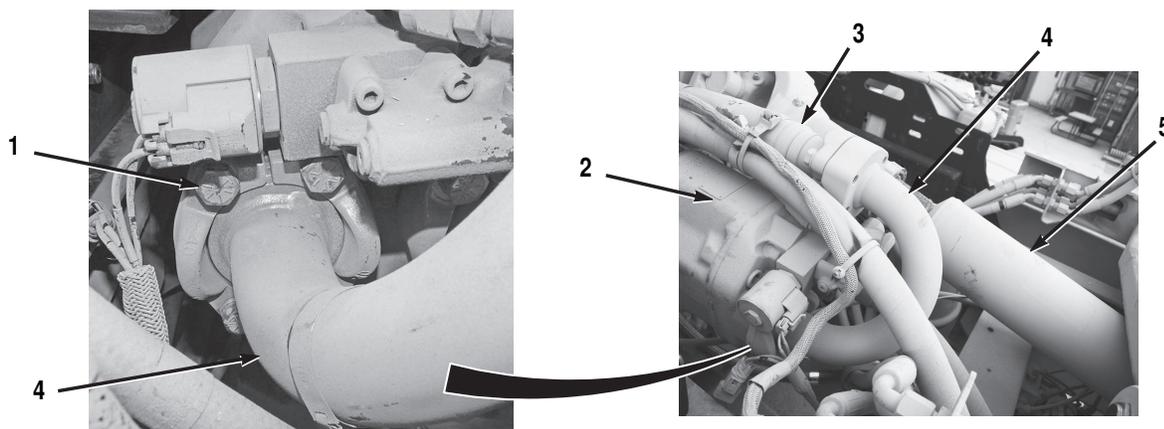


Figure 25. PTO Tube.

4. Loosen jam nut (Figure 26, Item 1) securing high pressure hose (Figure 26, Item 3) to high pressure filter head (Figure 26, Item 2).

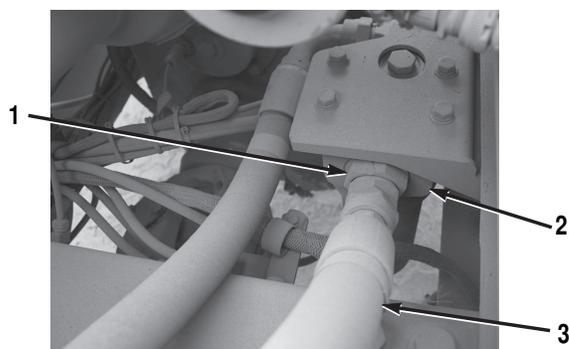


Figure 26. High Pressure Filter Mounting.

CAUTION

Ensure high pressure hydraulic hose remains clear of propeller shaft while repositioning.
Failure to comply may result in damage to equipment.

5. Reposition high pressure hose (Figure 27, Item 3) over hydraulic tube (Figure 27, Item 1) and hydraulic hose (Figure 27, Item 2) while ensuring high pressure hose does not make contact with propeller shaft (Figure 27, Item 4). Install cable ties as required.

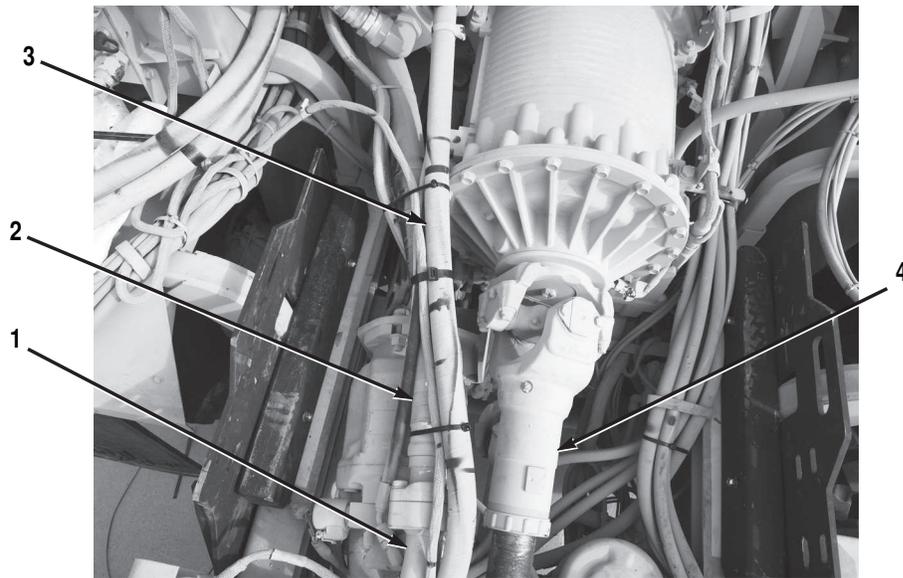
REORIENT HYDRAULIC TUBE AND HIGH PRESSURE HOSE - Continued

Figure 27. High Pressure Hose.

6. Tighten jam nut (Figure 26, Item 1) securing high pressure hose (Figure 26, Item 3) to high pressure filter head (Figure 26, Item 2).

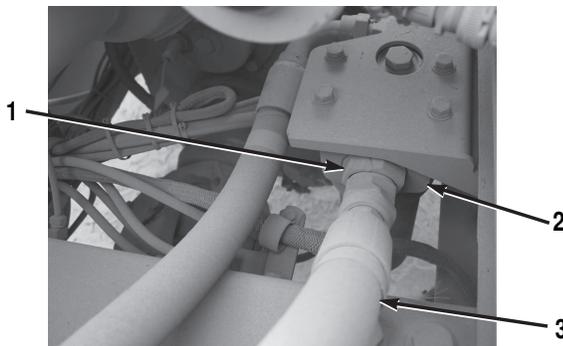


Figure 28. High Pressure Filter Mounting.

END OF TASK

END OF WORK PACKAGE

**MAINTAINER MAINTENANCE
HEMTT A4 INSTALLATION INSTRUCTIONS**

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's
Tool Set, SATS Base
Suitable Slings, Nylon
Suitable Lifting Device

Personnel Required

Maintainer (2)

References

HEMTT A4 TM 9-2320-326-13&P
E-CHU TM 9-3950-253-13&P

Materials/Parts

Adhesive, Thread
Cap Set, Protective, Dust and Moisture
Tag, Marker
CARC Paint (Tan) 086109TUZ-AERO
CARC Paint (Black) 08610KUZ-AERO
Adhesive, Loctite 271® 8030-00-148-9833 TL71
BX
Adhesive, Loctite 242® p/n 65270AX
Cable Ties
Pipe Sealant, Loctite 592® p/n 1657210
Shrink wrap

Equipment Condition

Vehicle parked on level ground, in neutral gear
with parking brake applied. (HEMTT A4 TM
9-2320-326-13&P)
Hook arm fully extended. (HEMTT A4 TM
9-2320-326-13&P)
Original equipment removed. (WP 003)

STOWAGE ASSEMBLY INSTALLATION

Table 1. Parts List for HEMTT A4 Stowage Assembly Installation.

ITEM NO.	QTY	DESCRIPTION	PART NUMBER
Figure 2, Item 1	1	Stowage Mounting Bracket, LH (Driver Side)	112079301
Figure 2, Item 2	3	5/8 x 2 1/2 Screw	112079720
Figure 4, Item 1	1	Stowage Mounting Bracket, RH (Passenger Side)	112079302
Figure 4, Item 2	2	5/8 x 3 Screw	112648301
Figure 4, Item 5	1	5/8 x 2 1/2 Screw	112079720
Figure 5, Item 2	2	Spacer Tube	112079001
Figure 5, Item 4	4	3/8 x 3 1/2 Screw	112079704
Figure 5, Items 5 and 6	8	3/8 Washer	112080106
Figure 5, Item 7	4	3/8 Locknut	112080002

STOWAGE ASSEMBLY INSTALLATION - Continued

Table 1. Parts List for HEMTT A4 Stowage Assembly Installation - Continued.

ITEM NO.	QTY	DESCRIPTION	PART NUMBER
Figure 7, Item 2	1	Stowage Assembly	111560101
Figure 9, Item 3	12	1/2 x 2 Screw	112079811
Figure 9, Items 4 and 5	24	1/2 Washer	112080104
Figure 9, Item 6	12	1/2 Locknut	112080004
Figure 16, Item 6	1	Pneumatic T-Fitting	112079501 (kit)



Figure 1. Assembly Guide, Driver Side.

NOTE

- Use original hardware except where indicated.
- For Step 1, use three 2.5" screws from kit.

1. Install driver side stowage mounting bracket (Figure 2, Item 1) on driver side frame rail (Figure 2, Item 4) with three screws (Figure 2, Item 2), and nuts (Figure 2, Item 3).

NOTE

Driver side tiedown has 3.5" screws. Passenger side tiedown has 3" screws. For Step 2, use original 3.5" screws.

2. Install tiedown (Figure 2, Item 9) on stowage mounting bracket (Figure 2, Item 1) and frame rail (Figure 2, Item 4) with four screws (Figure 2, Item 5) and nuts (Figure 2, Item 6).

STOWAGE ASSEMBLY INSTALLATION - Continued

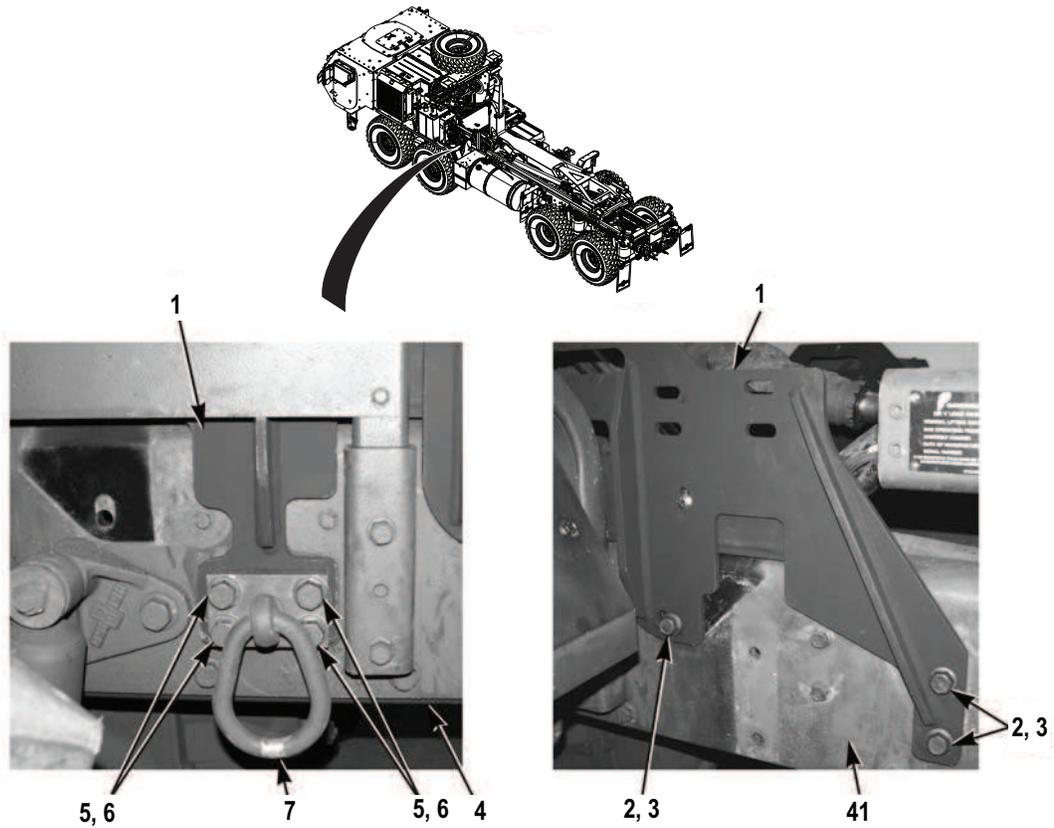


Figure 2. HEMTT A4 Driver Side Stowage Mounting Bracket.



Figure 3. Assembly Guide, Passenger Side.

NOTE

- Use new screws and original nuts in Steps 3 - 4.
- For Step 3, use two 3" screws from kit.

STOWAGE ASSEMBLY INSTALLATION - Continued

3. Install passenger side stowage mounting bracket (Figure 4, Item 4) on passenger side frame rail (Figure 4, Item 3) with two screws (Figure 4, Item 1) and nuts (Figure 4, Item 2).

NOTE

For Step 4, use one 2.5" screw from kit.

4. Install screw (Figure 4, Item 5) and nut (Figure 2, Item 2) on stowage mounting bracket (Figure 4, Item 4) and frame rail (Figure 4, Item 3).

NOTE

Driver side tiedown has 3.5" screws. Passenger side tiedown has 3" screws. For Step 5, use original 3" screws.

5. Install tiedown (Figure 4, Item 7) and stowage mounting bracket (Figure 3, Item 4) on frame rail (Figure 4, Item 3) with four screws (Figure 4, Item 5) and nuts (Figure 4, Item 6).

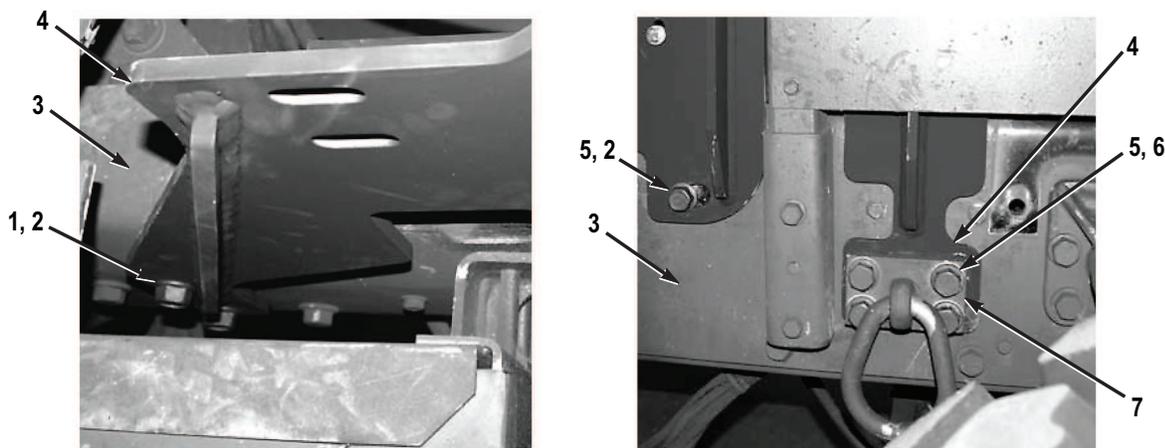


Figure 4. HEMTT A4 Passenger Side Stowage Mounting Bracket.

NOTE

Perform Steps 6 - 7 for both driver and passenger sides. Passenger side shown.

6. Place spacer tube (Figure 5, Item 2) on frame rail (Figure 5, Item 1) next to stowage mounting bracket (Figure 5, Item 3), aligning holes in spacer with holes in stowage mounting bracket.
7. Install spacer tube (Figure 5, Item 2) on stowage mounting bracket (Figure 4, Item 3) with two screws (Figure 5, Item 4), washers (Figure 5, Item 5), washers (Figure 5, Item 6), and locknuts (Figure 5, Item 7).

STOWAGE ASSEMBLY INSTALLATION - Continued

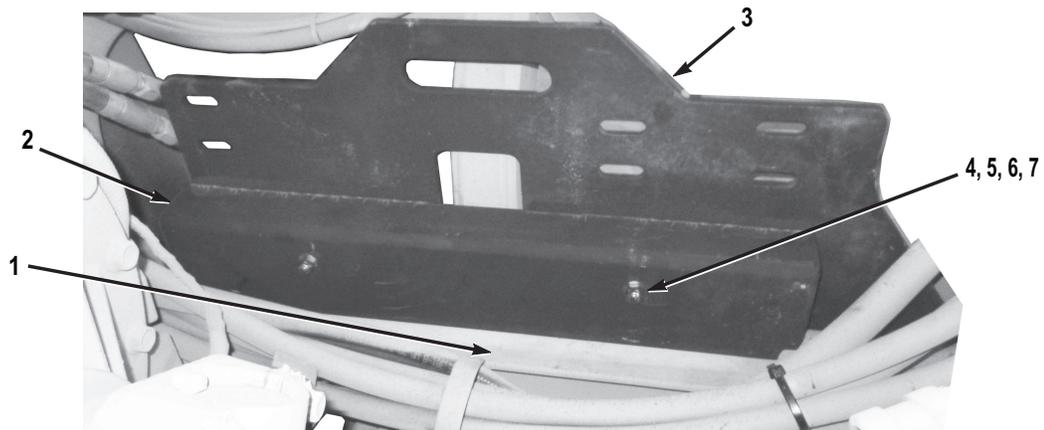


Figure 5. HEMTT A4 Stowage Support Spacer.

NOTE

- Install hoses as tagged during removal.
 - Remove caps prior to installation of hoses.
 - Install cable ties as needed to secure hoses.
 - Reposition fittings as needed.
8. Route four lower hoses (Figure 6, Item 4) to hydraulic control box (Figure 6, Item 1).
 9. Install four lower hoses (Figure 6, Item 4) on fittings (Figure 6, Item 5) as noted during removal.
 10. Route four upper hoses (Figure 6, Item 3) to hydraulic control box (Figure 6, Item 1).
 11. Install four upper hoses (Figure 6, Item 3) on fittings (Figure 6, Item 2) as noted during removal.

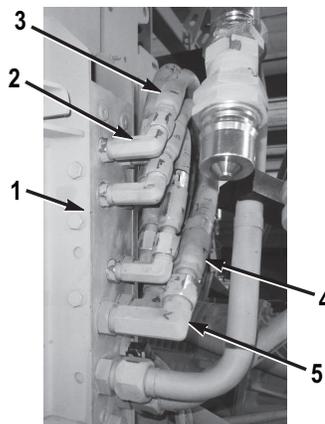
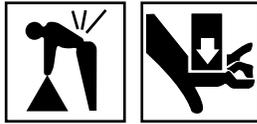


Figure 6. HEMTT A4 Route and Install Hydraulic Hoses.

STOWAGE ASSEMBLY INSTALLATION - Continued**WARNING**

- Lifting cables, chains, hooks, and slings used for lifting must be in good condition and of suitable capacity.
- Improper use of lifting equipment and improper attachment of cables may cause injury to personnel and damage to equipment. Observe all standard rules of safety.
- Use extreme caution when handling heavy parts. Provide adequate support and use assistance during procedure. Ensure any lifting device used is in good condition and of suitable load capacity. Keep clear of heavy parts supported only by lifting device.
- Failure to follow these warnings may cause injury or death to personnel.

CAUTION

Ensure stowage assembly hydraulic hoses and wiring harnesses are positioned out of the way before installing stowage assembly. Failure to follow this caution may result in damage to equipment.

NOTE

Stowage assembly weighs 640 lb (290 kg).

12. Attach suitable slings (Figure 7, Item 1) and lifting device to stowage assembly (Figure 7, Item 2). Adjust placement of slings until stowage assembly is level when raised.

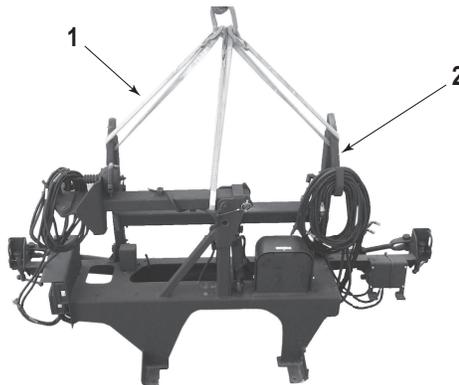


Figure 7. Sling on Stowage Assembly.

CAUTION

Before positioning stowage assembly on spacers, ensure existing vehicle hydraulic hoses and wiring harnesses are positioned out of the way of stowage assembly. Failure to comply may result in damage to equipment.

STOWAGE ASSEMBLY INSTALLATION - Continued**NOTE**

Position stowage assembly as far forward as possible on spacers, to avoid possible contact between hook arm and stowage assembly when stowing hook arm. Stowage assembly placement will be adjusted later in task.

13. With aid of an assistant and lifting device, position stowage assembly (Figure 8, Item 3) on spacers (Figure 8, Item 1) between stowage mounting brackets (Figure 8, Item 2). Align holes in stowage assembly with holes in stowage mounting brackets.

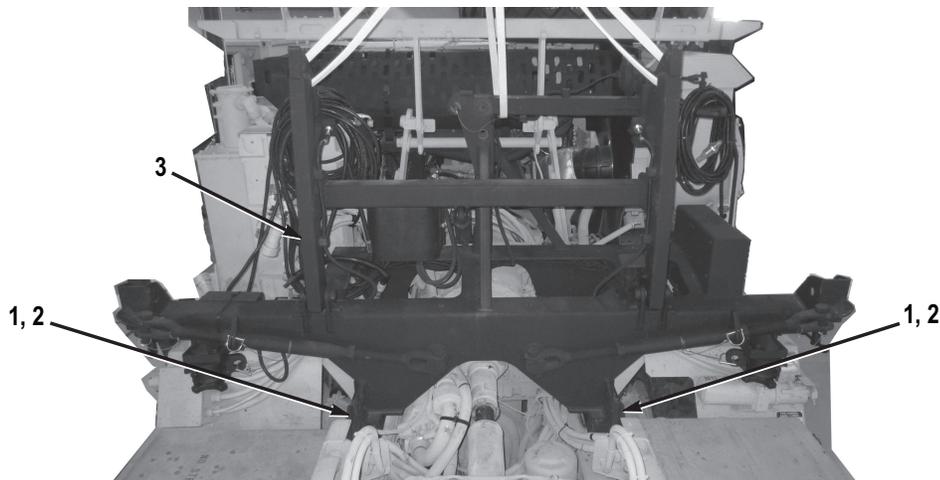


Figure 8. Position Stowage Assembly.

NOTE

Tighten all screws and nuts hand tight only. It will be necessary to adjust position of stowage assembly during installation. Passenger side mounting bracket shown.

14. Secure stowage assembly (Figure 9, Item 6) on two stowage mounting bracket (Figure 9, Item 5) with 12 screws (Figure 9, Item 1), washers (Figure 9, Item 2), washers (Figure 9, Item 3), and locknuts (Figure 9, Item 4).

STOWAGE ASSEMBLY INSTALLATION - Continued

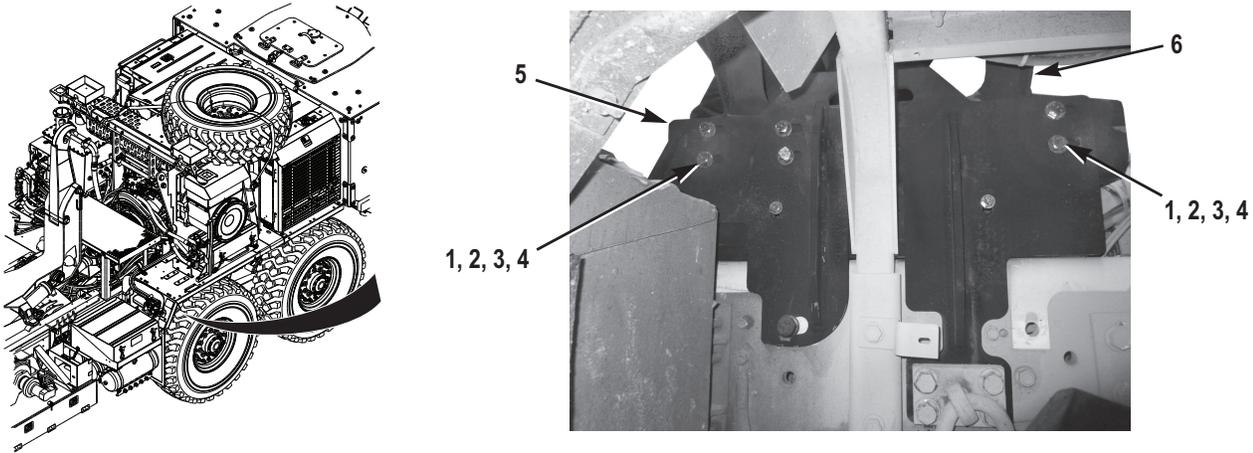


Figure 9. HEMTT A4 Stowage Assembly Installation.

15. Loosen three locking pins (Figure 10, Item 1) and remove manifold cover (Figure 10, Item 2) from stowage assembly (Figure 10, Item 6).

NOTE

- Pressure hose is marked with "P" on solenoid.
- Relief hose is marked with "T" on solenoid.

16. Identify pressure hose (Figure 10, Item 4) and relief hose (Figure 10, Item 3) based on markings on manifold (Figure 10, Item 5).

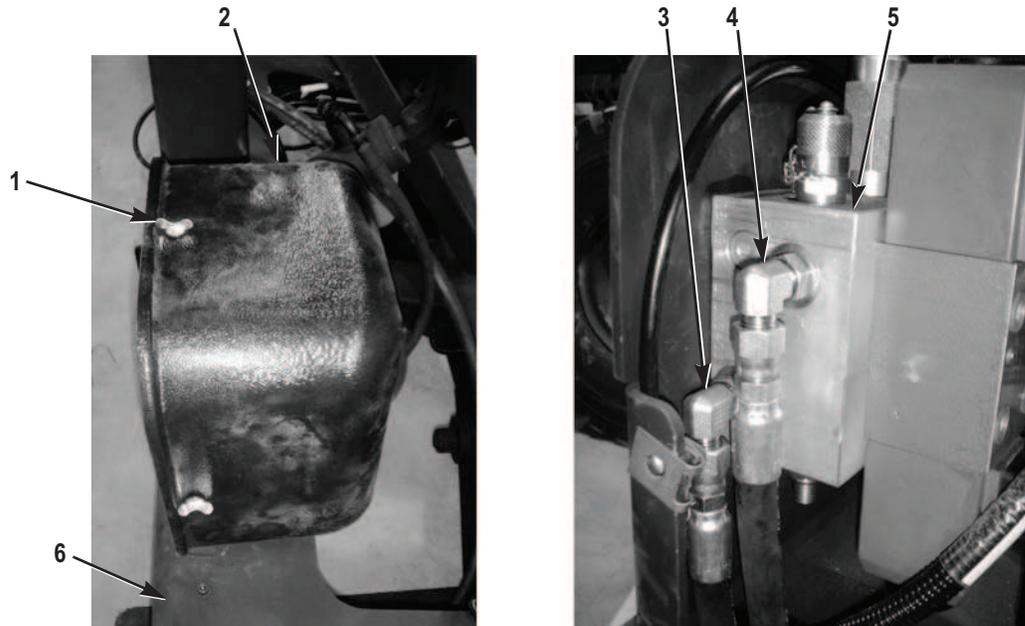


Figure 10. Identify Stowage Hydraulic Hoses.

STOWAGE ASSEMBLY INSTALLATION - Continued**NOTE**

- Route pressure and relief hoses under stowage assembly frame, over transmission, and along existing hydraulic hoses to T-fittings.
 - Install cable ties as needed to secure hoses.
17. Route pressure hose (Figure 11, Item 5) and relief hose (Figure 11, Item 6) to hydraulic control box (Figure 11, Item 3).
 18. Install pressure hose (Figure 11, Item 5) on forward tube end reducer (Figure 11, Item 4).
 19. Install relief hose (Figure 11, Item 6) on rear tube end reducer (Figure 11, Item 7).
 20. Route male quick disconnect hose (Figure 11, Item 9) and female quick disconnect hose (Figure 11, Item 1) from under stowage assembly to hydraulic control box (Figure 11, Item 1).
 21. Install female quick disconnect hose (Figure 11, Item 1) on male quick disconnect fitting (Figure 11, Item 2).
 22. Install male quick disconnect hose (Figure 11, Item 9) on female quick disconnect fitting (Figure 11, Item 8).
 23. Verify that all loosened, repositioned, or installed hydraulic hoses and fittings are tightened and secure.

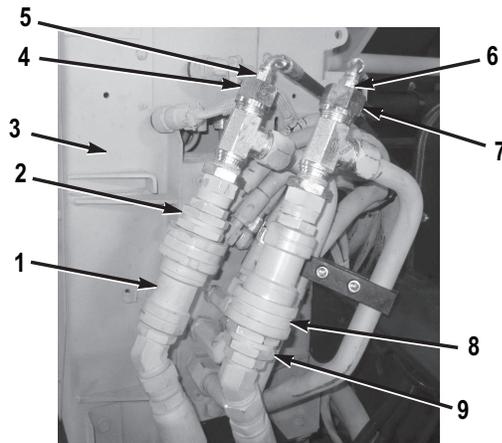


Figure 11. HEMTT A4 Install Hydraulic Hoses.

24. Start engine. (HEMTT A4 TM 9-2320-326-13&P)
25. Inspect hydraulic connections for leaks.
26. Shut off vehicle. (HEMTT A4 TM 9-2320-326-13&P)

NOTE

Stowage assembly wiring harness will not be connected at this time.

27. Connect two original wiring harnesses (Figure 12, Item 2) to two bulkhead connectors (Figure 12, Item 3) on hydraulic control box (Figure 12, Item 1) as marked during removal.

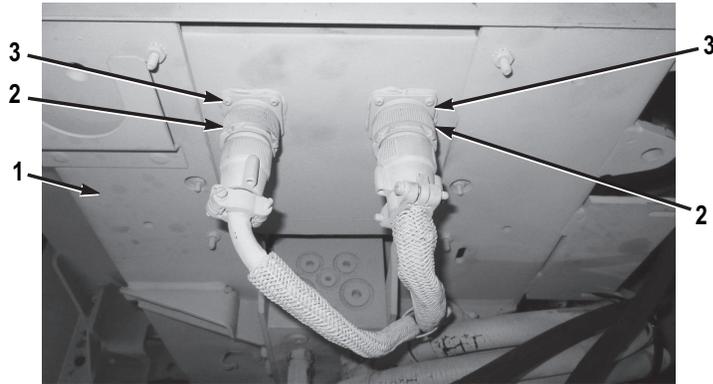
STOWAGE ASSEMBLY INSTALLATION - Continued

Figure 12. Connect Original Wire Harness.

CAUTION

Use caution when handling sensor harness. Sensors are easily damaged if mishandled. Failure to follow this caution may cause damage to equipment.

NOTE

Middle frame sensor harness and hook arm sensor harness are on passenger side of stowage assembly.

28. Route middle frame sensor and hook arm sensor harnesses (Figure 13, Item 1) from stowage assembly (Figure 13, Item 2), along inside of passenger side of frame (Figure 13, Item 3) to rear of main frame.
29. Install new cable ties as required to attach middle frame and hook arm sensor harnesses (Figure 13, Item 1) to existing wiring harness along frame.

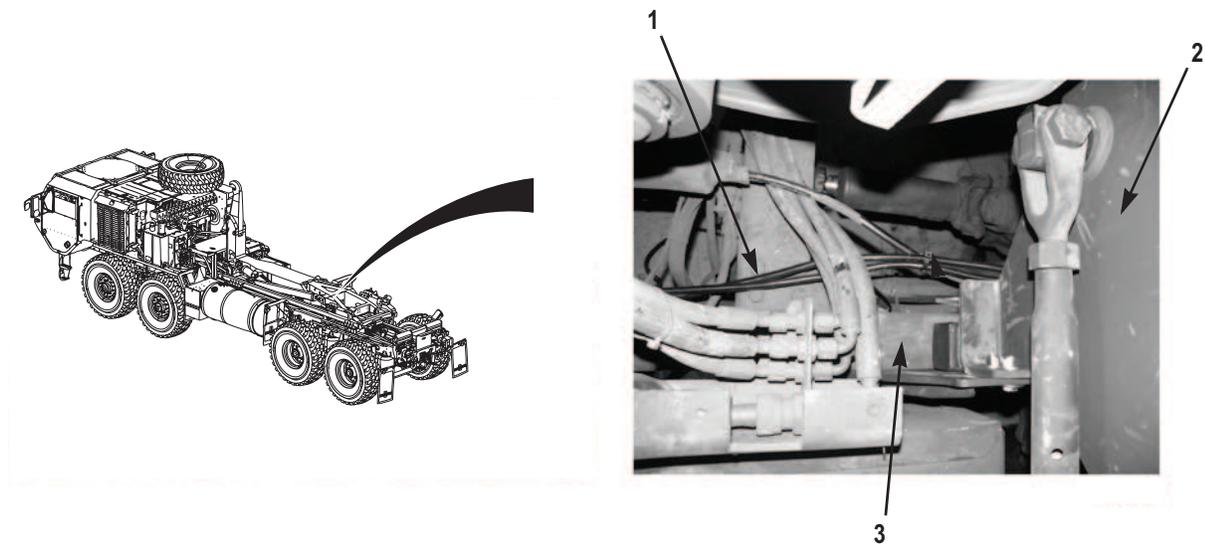


Figure 13. Middle Frame and Hook Arm Harness Installation.

STOWAGE ASSEMBLY INSTALLATION - Continued**CAUTION**

Use caution when handling sensor harness. Sensors are easily damaged if mishandled. Failure to follow this caution may cause damage to equipment.

NOTE

Driver side and passenger side twistlock sensor harness are on driver side of stowage assembly.

30. Route driver side and passenger side twistlock sensor harnesses (Figure 14, Item 1) from stowage assembly (Figure 14, Item 2), along interior of driver side of frame (Figure 14, Item 3) to rear of vehicle.
31. Install new cable ties as required to attach twistlock sensor harnesses (Figure 14, Item 1) to existing wiring harness along frame.

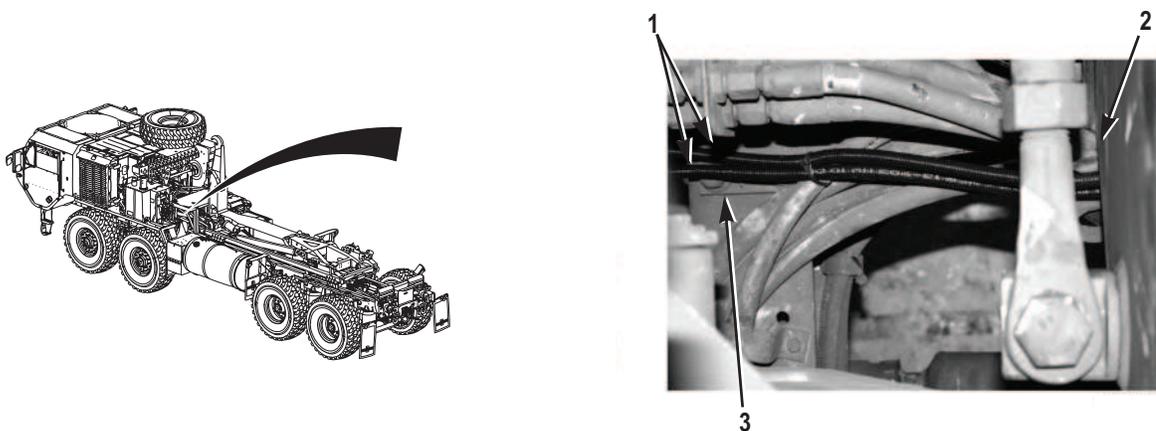


Figure 14. Twistlock Sensor Harness Installation.

32. Route air hose (Figure 15, Item 3) from solenoid valve (Figure 15, Item 4) on stowage assembly (Figure 15, Item 5) to air tank on passenger side of vehicle.
33. Install cable ties as required to secure air hose (Figure 15, Item 3).
34. Install manifold cover (Figure 15, Item 2) in stowage assembly (Figure 15, Item 5) and secure three locking pins (Figure 15, Item 1).

STOWAGE ASSEMBLY INSTALLATION - Continued

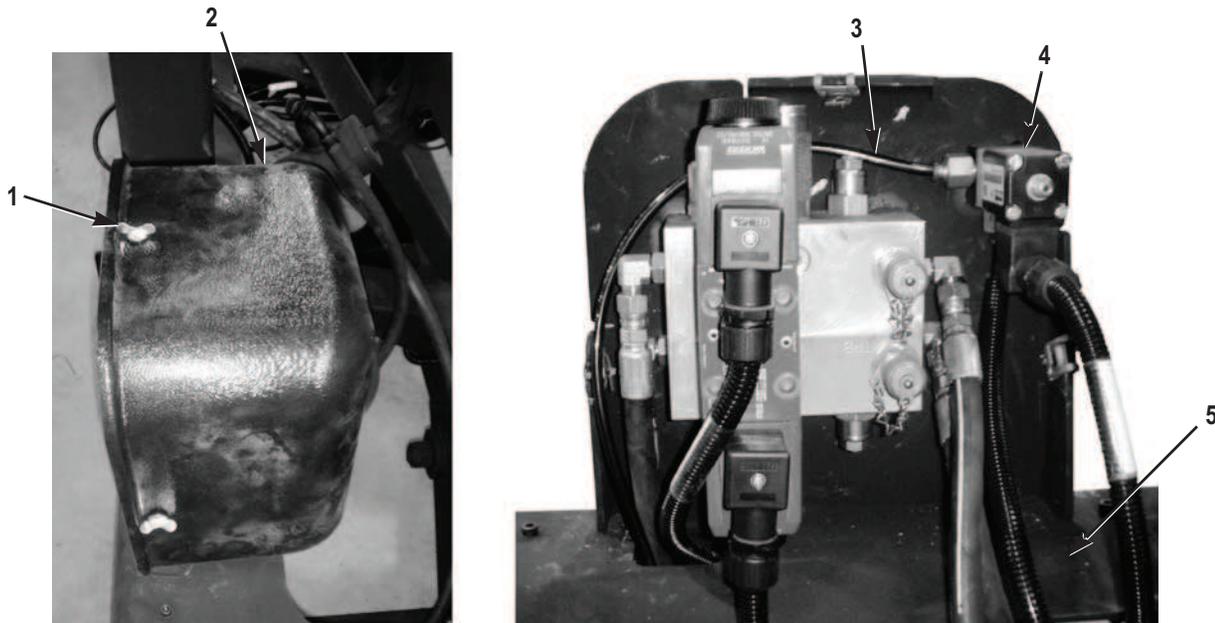


Figure 15. Routing Stowage Assembly Air Hose.

NOTE

Ensure relief valve is closed after relieving air pressure from system.

35. Drain air pressure from system (HEMTT A4 TM 9-2320-326-13&P).
36. Remove hose fitting (Figure 16, Item 1) from 45° fitting (Figure 16, Item 8).
37. Remove 45° fitting (Figure 16, Item 8) and check valve (Figure 16, Item 7) from 90° fitting (Figure 16, Item 5).
38. Apply pipe sealant to threads of T-fitting (Figure 16, Item 6) and install T-fitting on 90° fitting (Figure 16, Item 5).
39. Apply pipe sealant to threads of reducer fitting (Figure 16, Item 2) and install reducer fitting on T-fitting (Figure 16, Item 6).
40. Install push-lock fitting (Figure 16, Item 3) on reducer fitting (Figure 16, Item 2).
41. Apply pipe sealant to threads of check valve (Figure 16, Item 7), and install 45° fitting (Figure 16, Item 8), and check valve on T-fitting (Figure 16, Item 6).
42. Install hose fitting (Figure 16, Item 1) on 45° fitting (Figure 16, Item 8).
43. Cut air hose (Figure 16, Item 4) to fit, and install air hose on push lock fitting (Figure 16, Item 3).

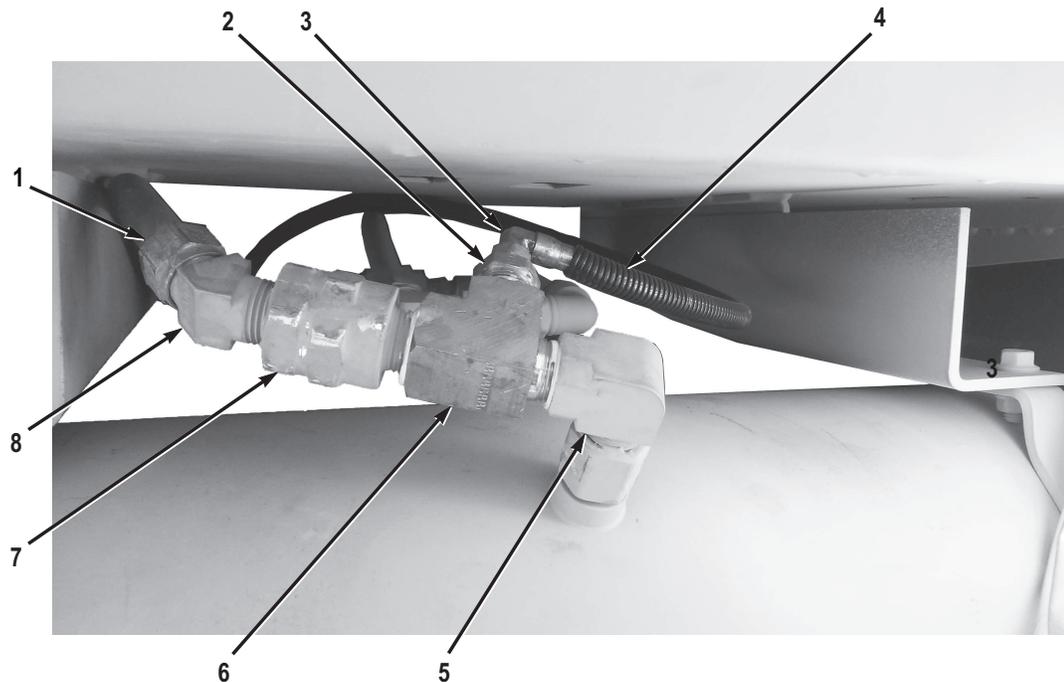
STOWAGE ASSEMBLY INSTALLATION - Continued

Figure 16. HEMTT A4 Pneumatic Fitting and Hose Installation.

44. Start vehicle (HEMTT A4 TM 9-2320-326-13&P) and allow air system to build pressure.
45. Stow hook arm (HEMTT A4 TM 9-2320-326-13&P).
46. Shut off vehicle (HEMTT A4 TM 9-2320-326-13&P).
47. Inspect new air lines and fittings for leaks.

NOTE

Measure distance from hook arm to stowage assembly on both drive side and passenger side to ensure accurate placement of stowage assembly. Driver side shown.

48. Adjust placement of stowage assembly (Figure 17, Item 1) on frame until distance between stowage assembly and front edge of hook arm (Figure 17, Item 2) measures 3.125 in. (80 mm).

STOWAGE ASSEMBLY INSTALLATION - Continued

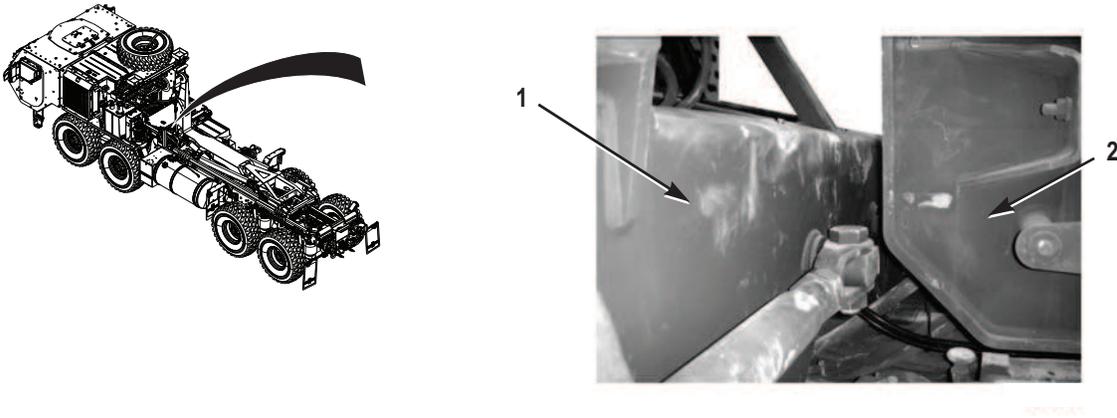


Figure 17. Distance Between Stowage Assembly and Hook Arm.

NOTE

Ensure stowage assembly does not shift while tightening hardware.

49. Tighten twelve screws (Figure 18, Item 1) and nuts (Figure 18, Item 2) securing stowage assembly (Figure 18, Item 4) to two stowage mounting brackets (Figure 18, Item 3).

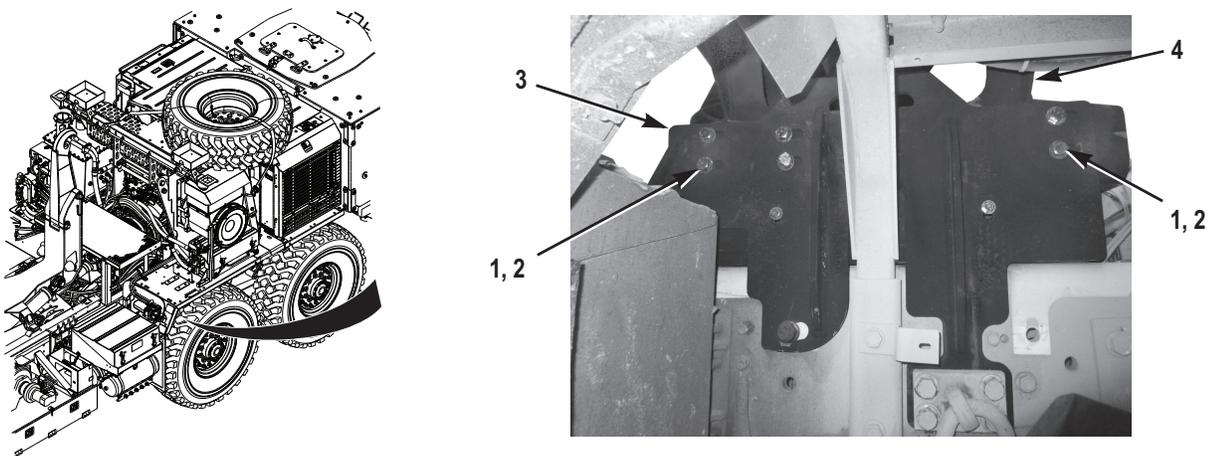


Figure 18. Secure HEMTT A4 Stowage Assembly.

50. Remove two nuts (Figure 19, Item 1), washers (Figure 19, Item 2), washers (Figure 19, item 3), and screws (Figure 19, Item 4) from manifold mounting bracket (Figure 19, Item 5) and bracket (Figure 19, Item 7).
51. Install stowage control panel bracket (Figure 19, Item 6) on manifold mounting bracket (Figure 19, Item 5) and bracket (Figure 19, Item 7) with two screws (Figure 19, item 4), washers (Figure 19, Item 3), washers (Figure 19, Item 2), and nuts (Figure 19, Item 1).

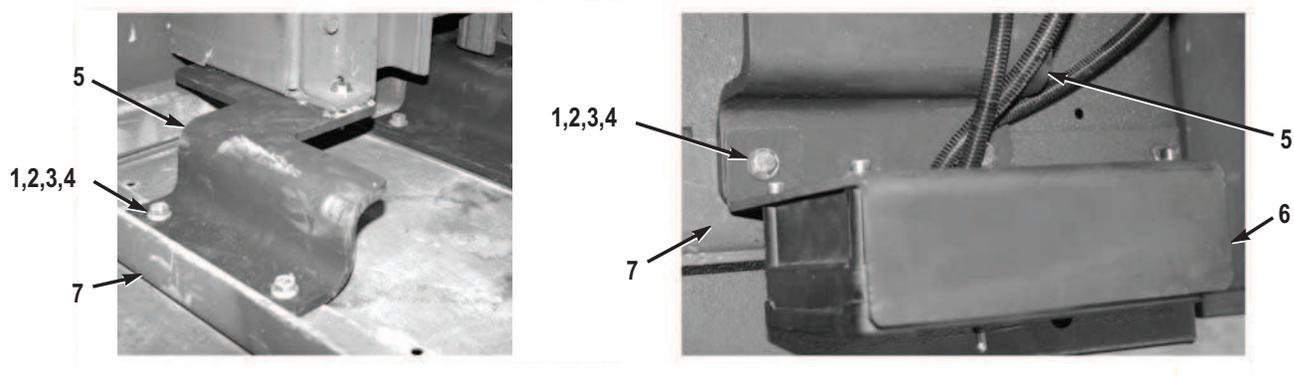
STOWAGE ASSEMBLY INSTALLATION - Continued

Figure 19. Control Panel Installation.

52. Install cable ties as required to secure stowage control panel wire harness.

END OF TASK**INSTALL FENDER PANELS****NOTE**

- Both driver and passenger side rear fender panels are installed the same way. Driver side shown.
 - Use retained hardware to install fender panels.
1. Install fender panel (Figure 20, Item 1) on three brackets (Figure 20, Item 5) with three screws (Figure 20, Item 2), washers (Figure 20, Item 3), and locknuts (Figure 20, Item 4)
 2. Repeat Step 1 for passenger side fender panel.

INSTALL FENDER PANELS - Continued

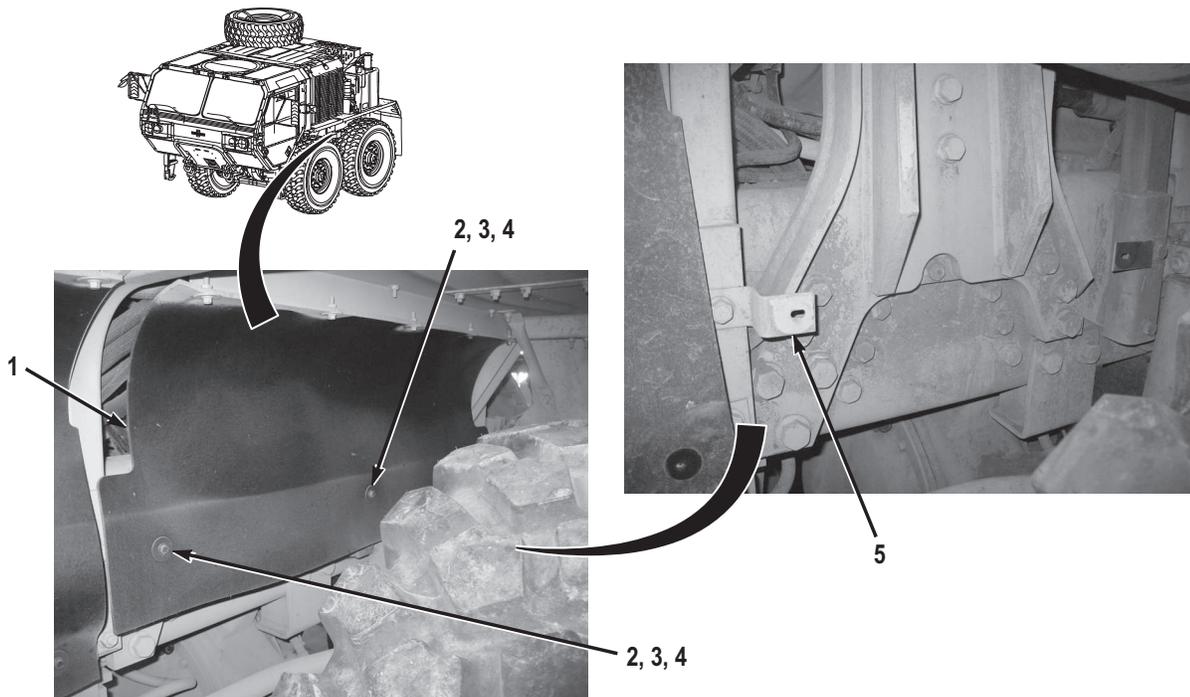


Figure 20. Driver And Passenger Side Rear Fender Panel Removal.

END OF TASK

SLIDER ASSEMBLY INSTALLATION

Table 2. Parts List for HEMTT A4 Slider Assembly Installation.

ITEM NO.	QTY	DESCRIPTION	PART NUMBER
Figure 21, Item 1	2	Rear Slide Adapter Plate.	112090401
Figure 21, Item 5	6	3/4 Washer	112080102
Figure 21, Item 4	6	3/4-10 x 2 Screw	112079703
Figure 23, Item 4	1	Slider Assembly	111589501
Figure 25, Item 6	8	9/16 Washer	112080109
Figure 25, Item 5	8	9/16-12 x 2 Screw	112079719

SLIDER ASSEMBLY INSTALLATION - Continued**NOTE**

- If necessary, clean threads of rear slide adapter plates with a tap before installation.
 - Driver side and passenger rear side slide adapter plates are installed the same way. Driver side shown.
 - Rear slide adapter plate will fit on vehicle with either side up. One row of holes for slider installation screws is approximately .25 in from edge of rear slide adapter plate. One row of holes for slider installation screws is approximately .75" from edge of rear slide adapter plate.
 - Hand tighten all screws on installation. Reposition rear slide adapter plates during slider assembly installation.
1. Place rear slide adapter plate (Figure 21, Item 1) on roller mounting bracket (Figure 21, Item 3), aligning center screw holes (Figure 21, Item 6) in rear slide adapter plate with holes in roller mounting bracket. Ensure rear slide adapter plate is positioned so that edge of the rear slide adapter plate with slider installation screw holes (Figure 21, Item 2).25 in. from edge is positioned to the outside of vehicle.
 2. Apply thread adhesive (Loctite 271®) to three screws (Figure 21, Item 4).
 3. Secure rear slide adapter plate (Figure 21, Item 1) on roller mounting bracket (Figure 21, Item 4) with three screws (Figure 21, Item 4) and washers (Figure 21, Item 5).
 4. Repeat Steps 1 - 3 for passenger side adapter plate.

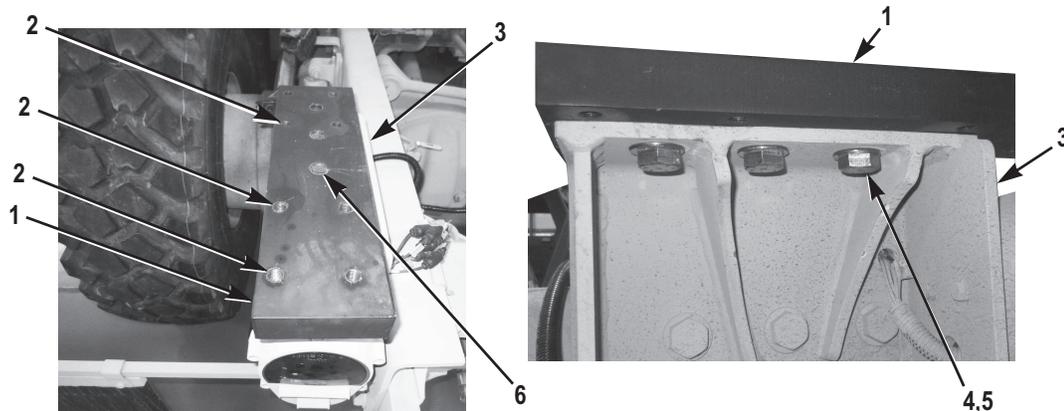
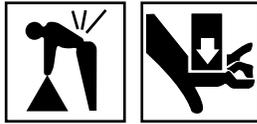


Figure 21. HEMTT A4 Slider Mounting Block Installation.

SLIDER ASSEMBLY INSTALLATION - Continued**WARNING**

- Lifting cables, chains, hooks, and slings used for lifting must be in good condition and of suitable capacity.
- Improper use of lifting equipment and improper attachment of cables may cause injury to personnel and damage to equipment. Observe all standard rules of safety.
- Use extreme caution when handling heavy parts. Provide adequate support and use assistance during procedure. Ensure any lifting device used is in good condition and of suitable load capacity. Keep clear of heavy parts supported only by lifting device.
- Failure to follow these warnings may cause injury or death to personnel.

NOTE

Slider assembly weighs 1,400 lb (635 kg).

5. Attach suitable slings and lifting device to slider assembly (Figure 22, Item 3). Loop one strap (Figure 22, Item 2) around center of slider assembly and two straps (Figure 22, Item 1) around right and left twistlocks (Figure 22, Item 4). Adjust placement of straps until slider assembly is level when raised.

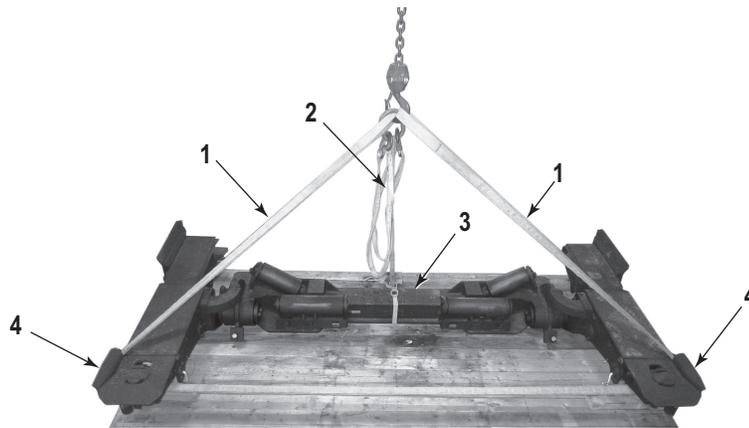


Figure 22. Slider Assembly With Straps.

6. Use lifting device to place slider assembly (Figure 23, Item 4) on rear slide adapter plates (Figure 23, Item 2), aligning rear mounting holes in slider assembly with rear holes in rear slide adapter plates.

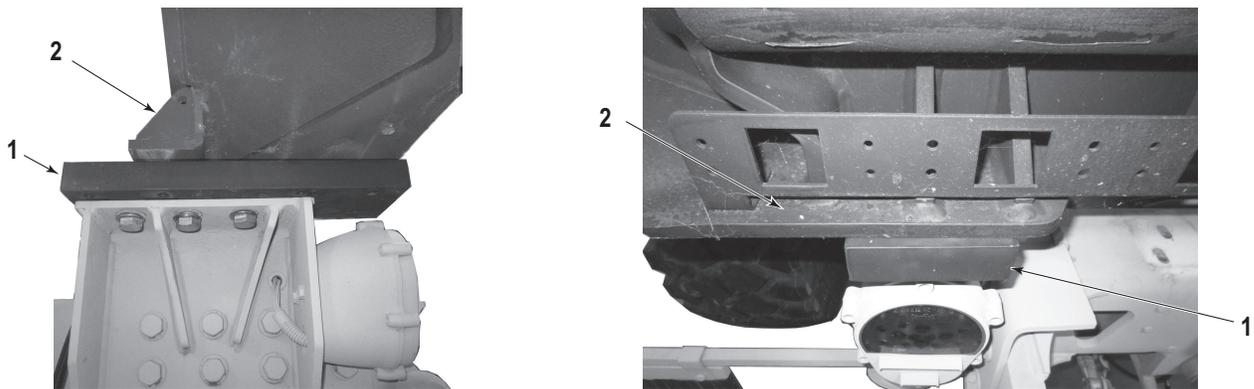
SLIDER ASSEMBLY INSTALLATION - Continued

Figure 23. Slider Assembly On Spacers.

NOTE

- Light bars must be positioned out of the way for slider assembly installation.
 - Passenger side and driver side light bars are repositioned the same way. Passenger side shown.
7. Remove screw (Figure 24, Item 5), washer (Figure 24, Item 6), washer (Figure 24, Item 7), and nut (Figure 24, Item 8) from passenger side light bracket (Figure 24, Item 2) and slider (Figure 24, Item 1).
 8. Loosen screw (Figure 24, Item 3) and nut (Figure 24, Item 4), and pivot passenger side light bracket (Figure 24, Item 2) out from slider (Figure 24, Item 1).
 9. Repeat Steps 7 - 8 for driver side light bracket.

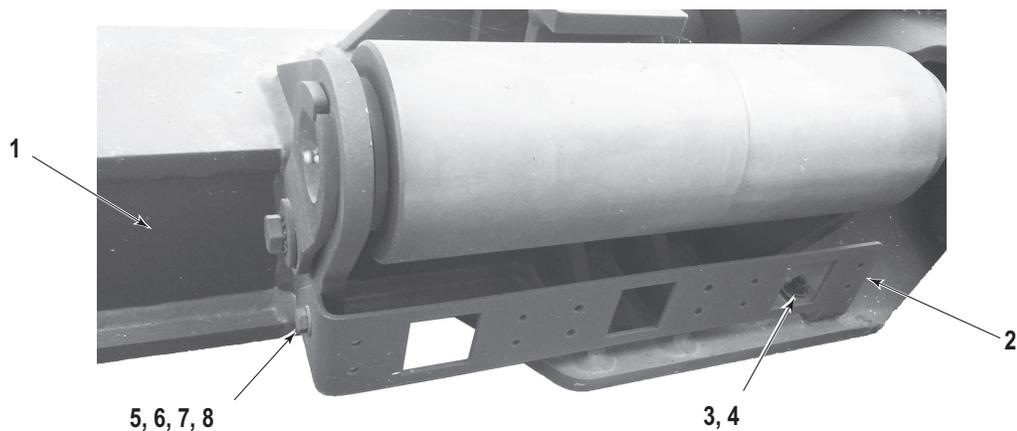


Figure 24. Slider Light Bracket Hardware.

10. Apply thread adhesive (Loctite 271®) to threads of eight screws (Figure 25, Item 5).
11. Secure slider assembly (Figure 25, Item 1) to two rear slide adapter plates (Figure 25, Item 2) with eight screws (Figure 25, Item 5) and washers (Figure 25, Item 6).
12. Tighten six screws (Figure 25, Item 3) securing two rear slide adapter plates (Figure 25, Item 2) to two roller mounting brackets (Figure 25, Item 4) to 375 ft-lbs.

SLIDER ASSEMBLY INSTALLATION - Continued

13. Tighten eight screws (Figure 25, Item 5) securing slider assembly (Figure 25, Item 1) to two rear slide adapter plates (Figure 25, Item 2) to 115 ft-lbs.
14. Remove lifting device and slings from slider assembly (Figure 25, Item 1).

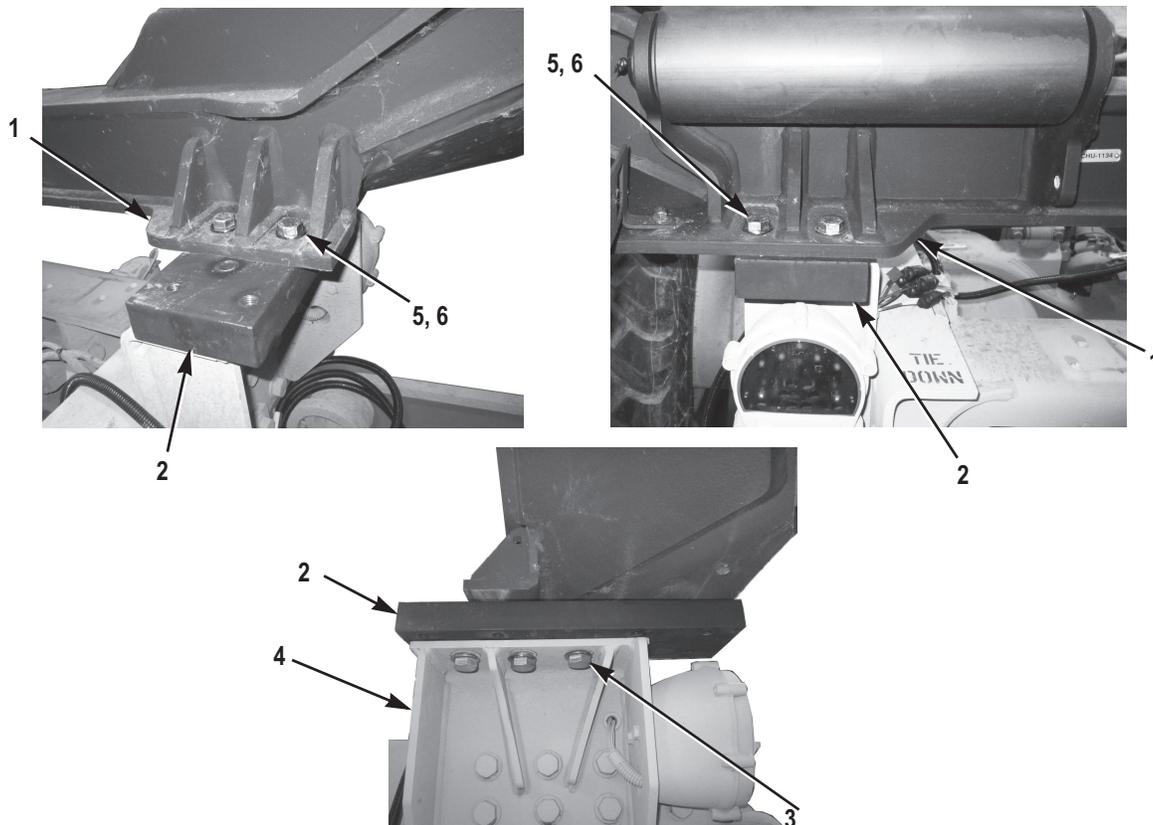


Figure 25. HEMTT A4 Slider Assembly Installation.

END OF TASK**LIGHT BAR ASSEMBLY DISASSEMBLY****NOTE**

- All rear light bar assembly marker lights are removed the same way.
- Set aside all hardware for reinstallation.

1. Remove two screws (Figure 26, Item 2), nuts (Figure 26, Item 3) and reflector (Figure 26, Item 4) from light bar (Figure 26, Item 1).
2. Repeat Step 1 for remaining reflector.
3. Remove two screws (Figure 26, Item 5) and cover (Figure 26, Item 6) from marker light (Figure 26, Item 8).
4. Remove two screws (Figure 26, Item 9), nuts (Figure 26, Item 10) and marker light (Figure 26, Item 8) from light bar (Figure 26, Item 1).
5. Disconnect marker light (Figure 26, Item 8) from connector (Figure 26, Item 11).

LIGHT BAR ASSEMBLY DISASSEMBLY - Continued

6. Repeat Steps 3 - 5 for remaining marker lights.

NOTE

Remove any remaining cable ties from wire harness.

7. Remove wire harness (Figure 26, Item 7) from light bar (Figure 26, Item 1). Discard light bar.

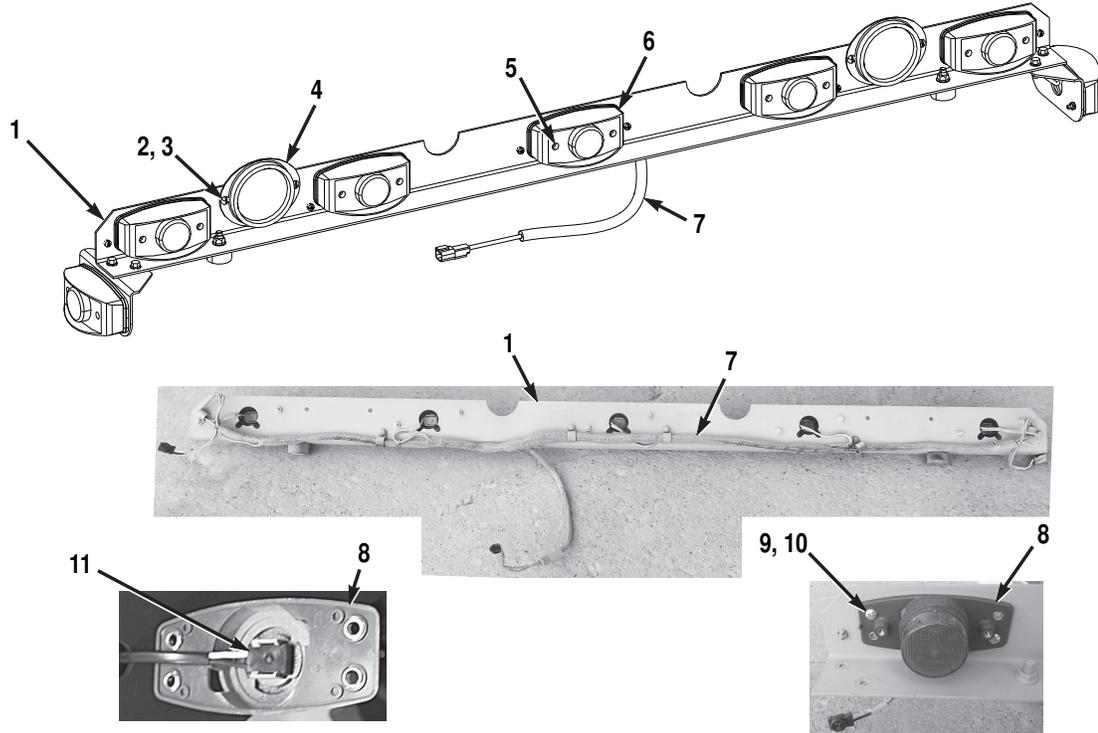


Figure 26. Rear Light Bar Wire Harness Removal.

END OF TASK**MARKER LIGHT AND REFLECTOR INSTALLATION**

Table 3. Parts List for Marker Light And Reflector Installation.

ITEM NO.	QTY	DESCRIPTION	PART NUMBER
Figure 30, Item 6 Figure 32, Item 4	6	Screw, 10–24 x 5/8	112137501
Figure 32, Item 2	2	Harness Extension Splice Assembly (LED)	112265901

1. Place original wiring harness (Figure 27, Item 2) behind driver side light bracket (Figure 27, Item 1) and passenger side light bracket (Figure 27, Item 3).

MARKER LIGHT AND REFLECTOR INSTALLATION - Continued

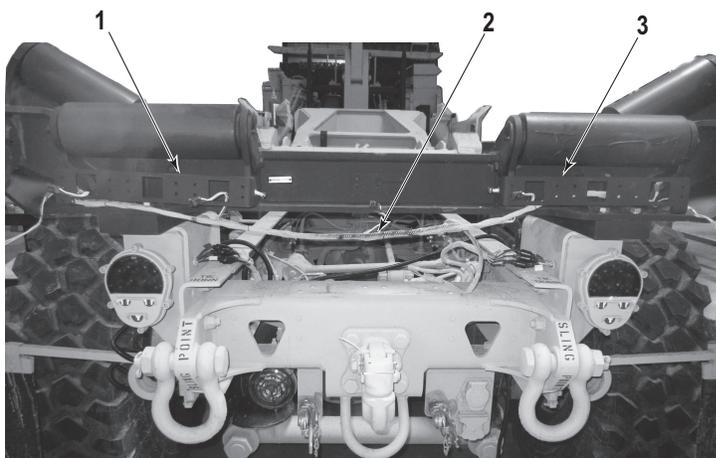


Figure 27. Light Brackets and Original Harness.

2. At inside light location of passenger side bracket, install marker light (Figure 28, Item 4) on light bracket (Figure 28, Item 1) with two screws (Figure 28, Item 2) and nuts (Figure 28, Item 3).
3. At outside light location of bracket, install marker light (Figure 28, Item 10) on light bracket (Figure 28, Item 1) with two screws (Figure 28, Item 8) and nuts (Figure 28, Item 9).
4. Install reflector (Figure 28, Item 7) on light bracket (Figure 28, Item 1) with two screws (Figure 28, Item 5) and nuts (Figure 28, Item 6).
5. Repeat Steps 2 - 4 for driver side light bracket.

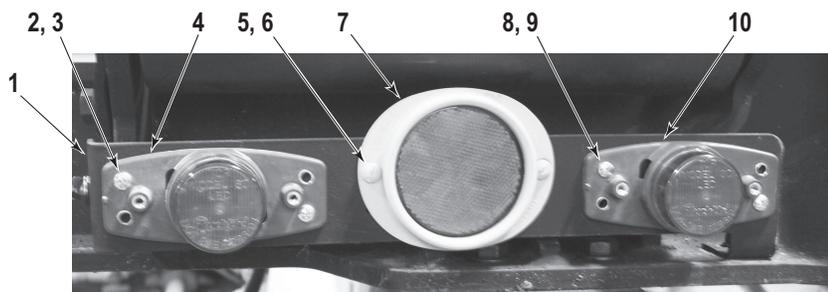


Figure 28. Marker Light Installation.

6. At center of rear slider beam (Figure 29, Item 1) , remove two screws (Figure 29, Item 3) and mounting plate (Figure 29, Item 2) from slider beam.

MARKER LIGHT AND REFLECTOR INSTALLATION - Continued

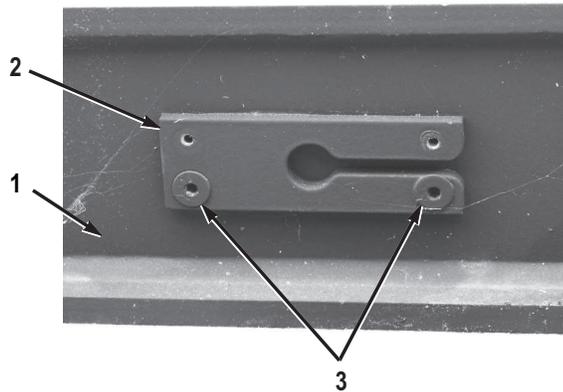


Figure 29. Slider Center Light Mounting Plate.

7. Rotate mounting plate so opening is on driver side, and install mounting plate (Figure 30, Item 2) on slider beam (Figure 30, Item 1) with two screws (Figure 30, Item 3).
8. Connect light (Figure 30, Item 5) to vehicle wiring harness connector (Figure 30, Item 4).
9. Route wire harness along slot on mounting plate (Figure 30, Item 2) and install light (Figure 30, Item 5) on mounting plate with two screws (Figure 30, Item 6).

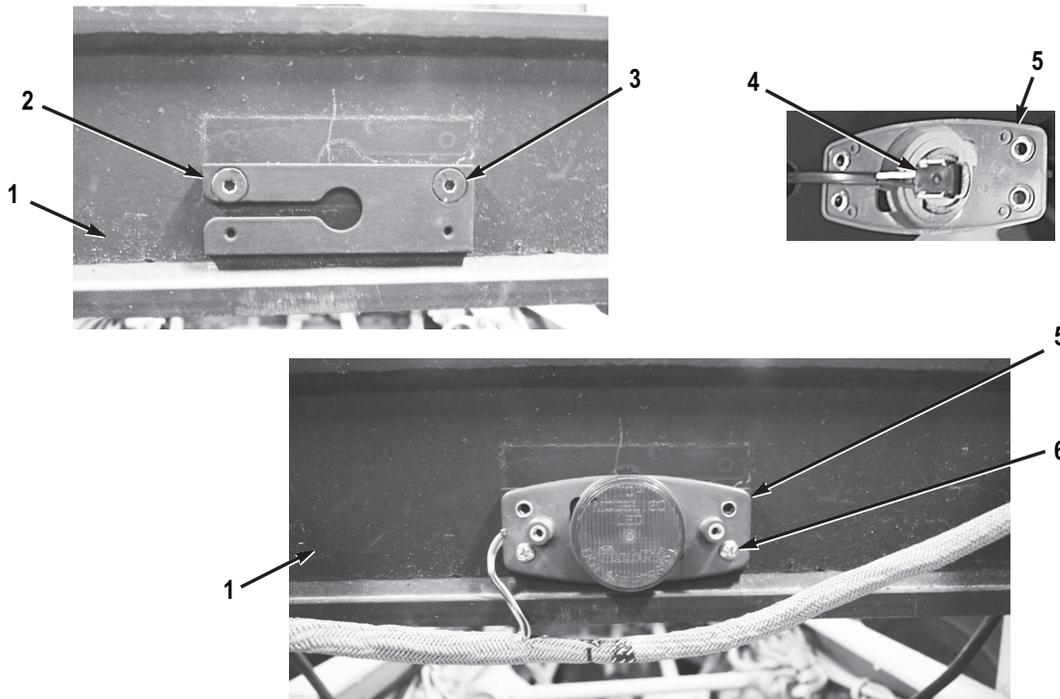


Figure 30. Slider Center Light Installation.

10. Connect wire harness connectors to remaining marker lights.

MARKER LIGHT AND REFLECTOR INSTALLATION - Continued

11. Install driver side light bracket (Figure 31, Item 1) on slider beam (Figure 31, Item 6) with screw (Figure 31, Item 2), washer (Figure 31, Item 3), washer (Figure 31, Item 4), and nut (Figure 31, Item 5).
12. Tighten screw (Figure 31, Item 7) and nut (Figure 31, Item 8).
13. Repeat Steps 11 - 12 for passenger side light bracket.

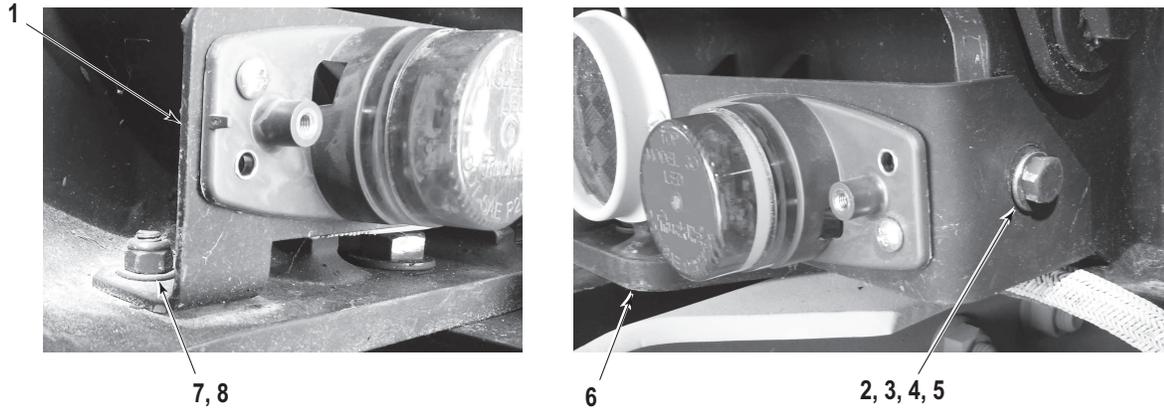


Figure 31. Light Bracket Installation.

14. Feed extension wire harness (Figure 32, Item 2) through assembly holes in driver side side slider bed (Figure 32, Item 1), and connect extension wire harness connector (Figure 32, Item 5) to marker light (Figure 32, Item 3).
15. Install marker light (Figure 32, Item 3) on slider bed (Figure 32, Item 1) with two screws (Figure 32, Item 4).

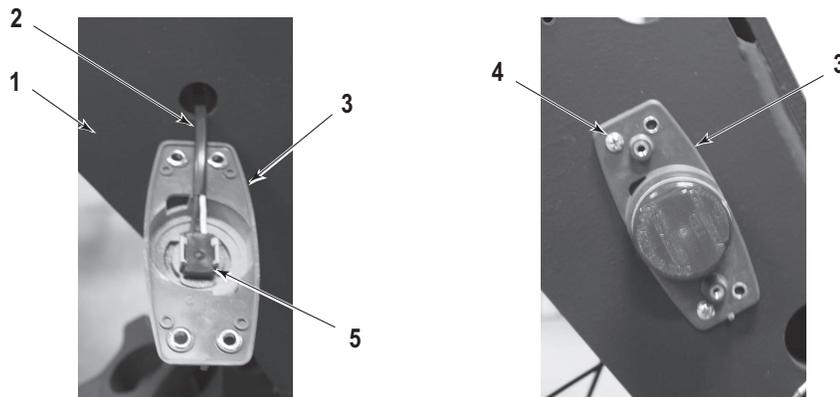


Figure 32. Slider Light Installation.

16. Install reflector (Figure 33, Item 2) on driver side slider assembly (Figure 33, Item 1) with two screws (Figure 33, Item 3).

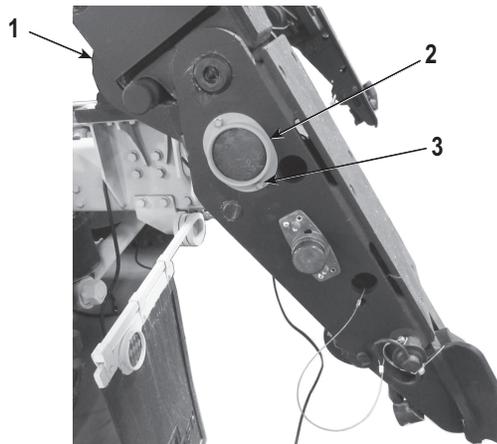
MARKER LIGHT AND REFLECTOR INSTALLATION - Continued

Figure 33. Reflector Installation.

17. Route light extension wire (Figure 34, Item 1) through hole in slider assembly (Figure 34, Item 2).

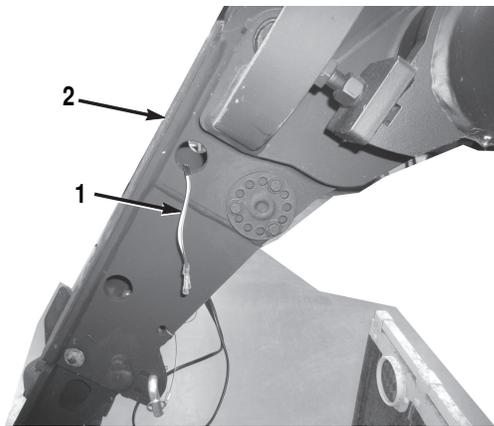


Figure 34. Light Extension Wire Routing.

18. Cut connector (Figure 35, Item 2) from wire harness (Figure 35, Item 1).

MARKER LIGHT AND REFLECTOR INSTALLATION - Continued



Figure 35. Connector.

19. Strip 1/4 in. insulation from two light wires (Figure 36, Item 3 and Item 5).
20. Install two 4 in. shrink wrap tubes (Figure 36, Item 4) on two light wires (Figure 36, Item 3 and Item 5).
21. Insert white light wire (Figure 36, Item 5) into solderless connector (Figure 36, Item 7) at end of white light extension wire (Figure 36, Item 7), and crimp solderless connector securely.
22. Insert black light wire (Figure 36, Item 3) into solderless connector (Figure 36, Item 2) at end of brown light extension wire (Figure 36, Item 1), and crimp solderless connector securely.
23. Apply heat to two solderless connectors (Figure 36, Item 2 and Item 6) until plastic cover of solderless connectors tightly encloses wires.
24. Slide two shrink wrap tubes (Figure 36, Item 4) over solderless connectors (Figure 36, Item 2 and Item 6), and apply heat to shrink wrap tubes until shrink wrap tightly encloses connectors.
25. Repeat Steps 14 - 24 for passenger side slider assembly.

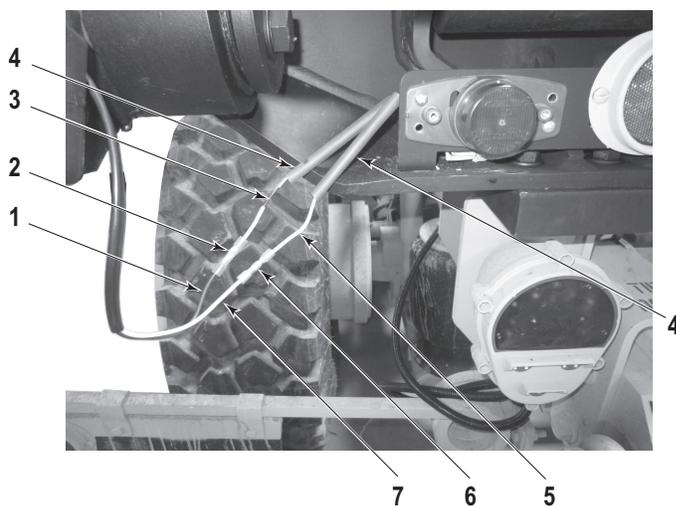


Figure 36. Light Wires and Light Extension Wires.

MARKER LIGHT AND REFLECTOR INSTALLATION - Continued**NOTE**

- Install light covers in positions noted during removal.
- Perform Step 26 for seven marker light covers.

26. Install marker light cover (Figure 37, Item 1) on marker light (Figure 37, Item 3) with two screws (Figure 37, Item 2).

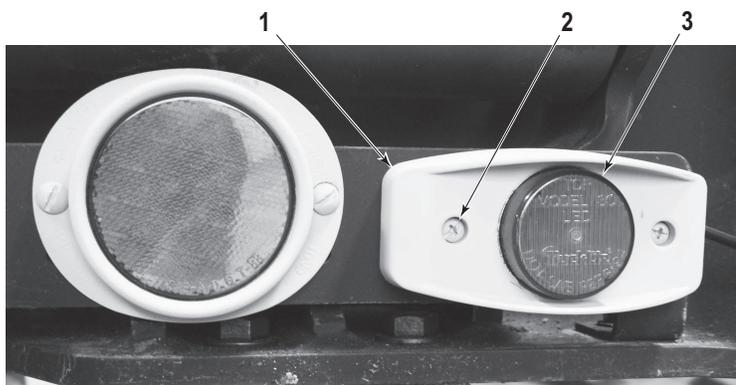


Figure 37. Light Cover Installation.

27. Connect wiring harness (Figure 38, Item 1) to vehicle wiring harness (Figure 38, Item 2)

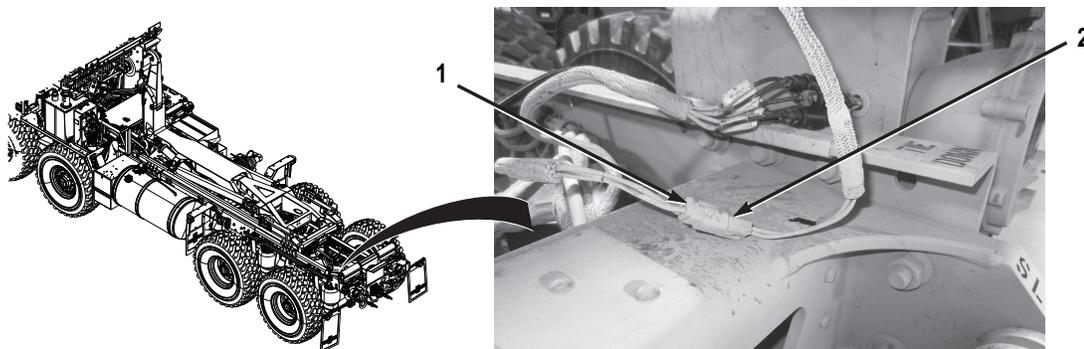
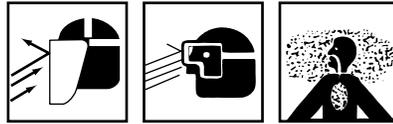


Figure 38. Connect Wiring Harness.

END OF TASK

BUMPER STOP BRACKET MODIFICATION**WARNING**

- Appropriate safety precautions (including, but not limited to, wearing proper breathing apparatus, hearing protection, safety goggles, etc.) must be observed when working with CARC material.
 - All cutting and grinding must be done using an abrasive device only. Use of a cutting torch, plasma cutter, etc., is not permitted.
 - Always wear gloves and a face shield or breathing apparatus when grinding painted surfaces. Airborne particles may cause lung irritation or damage to eyes.
 - Failure to follow these warnings may cause injury or death to personnel.
1. On driver side flange (Figure 39, Item 5) on bumper stop bracket (Figure 39, Item 1), measure and mark a vertical line (Figure 39, Item 2) 2.125 in. from inner face of bumper stop bracket.
 2. Measure and mark a vertical line (Figure 39, Item 3) .5 in. toward inner face of bumper stop bracket (Figure 39, Item 1) from first line (Figure 39, Item 2).
 3. Measure and mark a horizontal line (Figure 39, Item 4) .625 in. down from top of flange (Figure 39, Item 5).

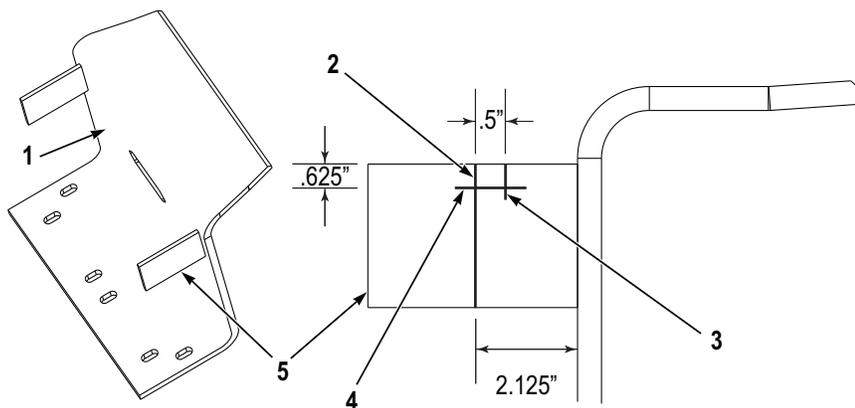


Figure 39. HEMTT A4 Bumper Stop Modification.

4. Cut or grind on marked lines to remove outer section of flange (Figure 40, Item 2) from bumper stop bracket (Figure 40, Item 1).
5. Repeat Steps 1 - 4 for passenger side flange.

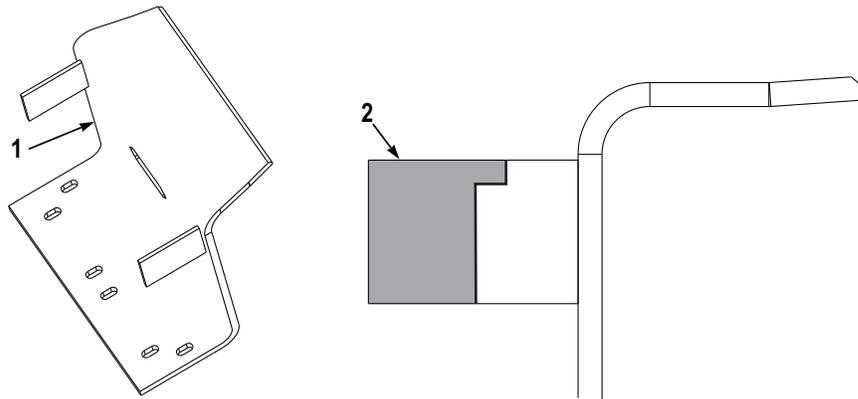
BUMPER STOP BRACKET MODIFICATION - Continued

Figure 40. HEMTT A4 Bumper Stop Modification.

6. Prepare and paint bare metal surfaces. Instructions for preparation of material for painting, and materials to be used are in TB 43-0242.

END OF TASK**BUMPER STOP BRACKET INSTALLATION**

With the aid of an assistant, install bumper stop (Figure 41, Item 1) on frame (Figure 41, Item 2) with six screws (Figure 41, Item 3) and nuts (Figure 41, Item 4).

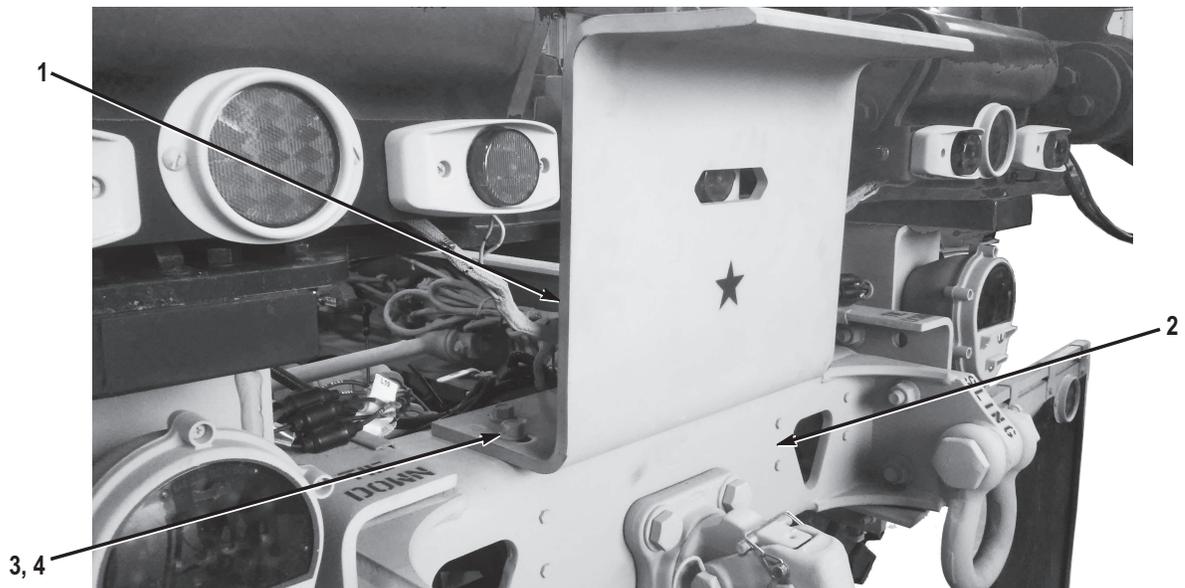


Figure 41. Bumper Stop Installation.

END OF TASK

TWISTLOCK SENSOR INSTALLATION**WARNING**

During this procedure, the twistlock assembly will be allowed to swing free unless it is manually supported. Ensure no personnel are standing in the path of the twistlock assembly. Failure to follow this warning may result in injury to personnel.

NOTE

Perform Steps 1 - 4 for both driver and passenger sides.

1. Remove locking pin (Figure 42, Item 3) from twistlock housing (Figure 42, Item 2).
2. Pull down and rotate twistlock locking pin (Figure 42, Item 7) to allow movement of twistlock handle (Figure 42, Item 8).
3. Loosen twistlock handle (Figure 42, Item 8) and rotate anvil (Figure 42, Item 1) to align with slot (Figure 42, Item 4) in twistlock housing (Figure 42, Item 2). Allow twistlock to rotate down.
4. Align locking tube (Figure 42, Item 9) with upper hole (Figure 42, Item 5) in twistlock housing (Figure 42, Item 2) and insert locking pin (Figure 42, Item 3) through upper hole in twistlock housing and into locking tube to secure twistlock.

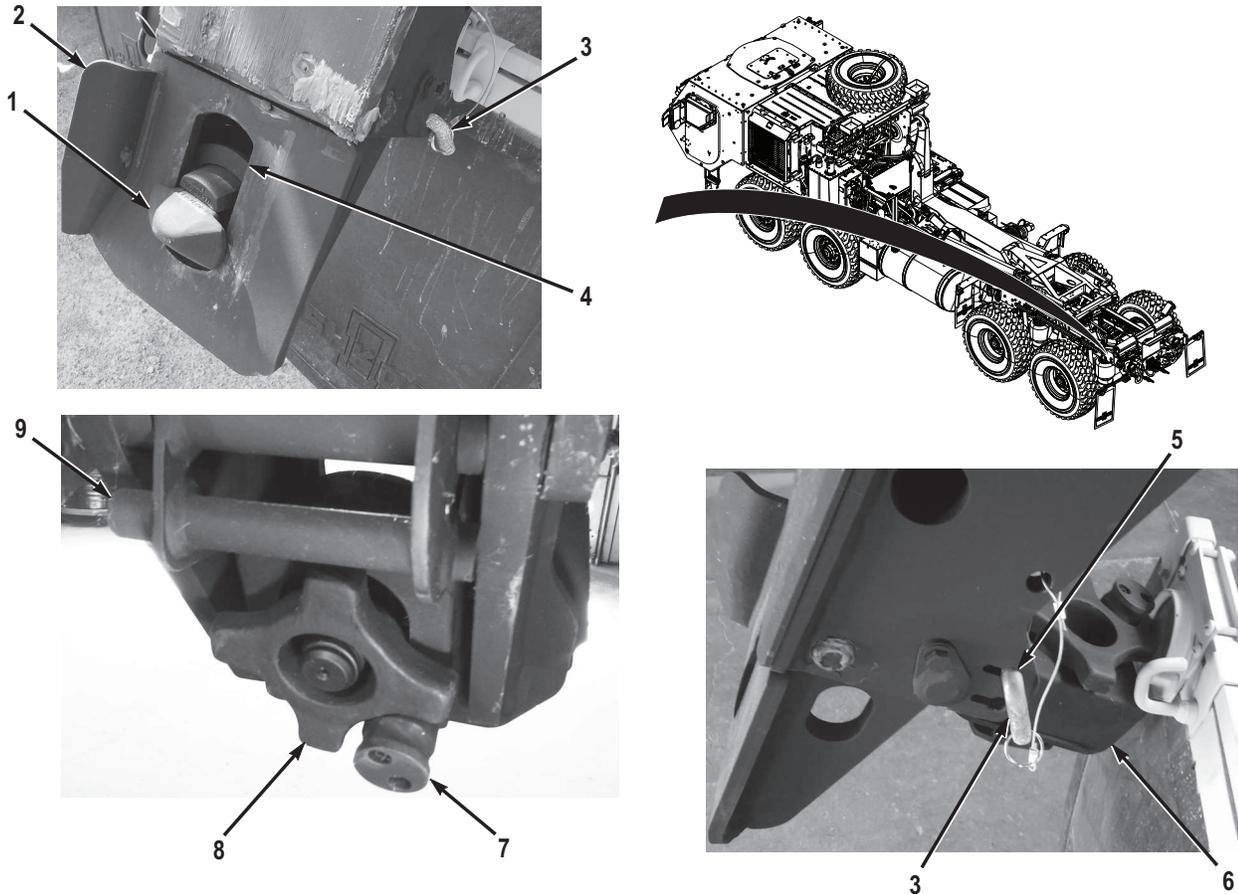


Figure 42. Release Twistlock from Housing.

TWISTLOCK SENSOR INSTALLATION - Continued**NOTE**

Passenger side and driver side twistlock sensor wire harnesses and twistlock sensors are installed the same way. Passenger side shown.

- Route passenger side twistlock sensor harness to passenger side twistlock assembly (Figure 43, Item 3).

CAUTION

Use care when handling the sensors as they can be easily damaged if they are mishandled or dropped on the ground during routing.

- Remove two nuts (Figure 43, Item 2) from twistlock sensor (Figure 43, Item 1). Discard nuts.
- Loosen two screws (Figure 43, Item 6) in cable clamp (Figure 43, Item 4) and insert twistlock sensor (Figure 43, Item 1) into cable clamp.
- Adjust twistlock sensor placement until end of sensor is .0625 to .1875 in. (2 to 3 mm) from twistlock plate (Figure 43, Item 5).
- Tighten two screws (Figure 43, Item 6) in cable clamp (Figure 43, Item 4).
- Repeat Steps 5 - 9 for driver side twistlock sensor wire harness and twistlock sensor.

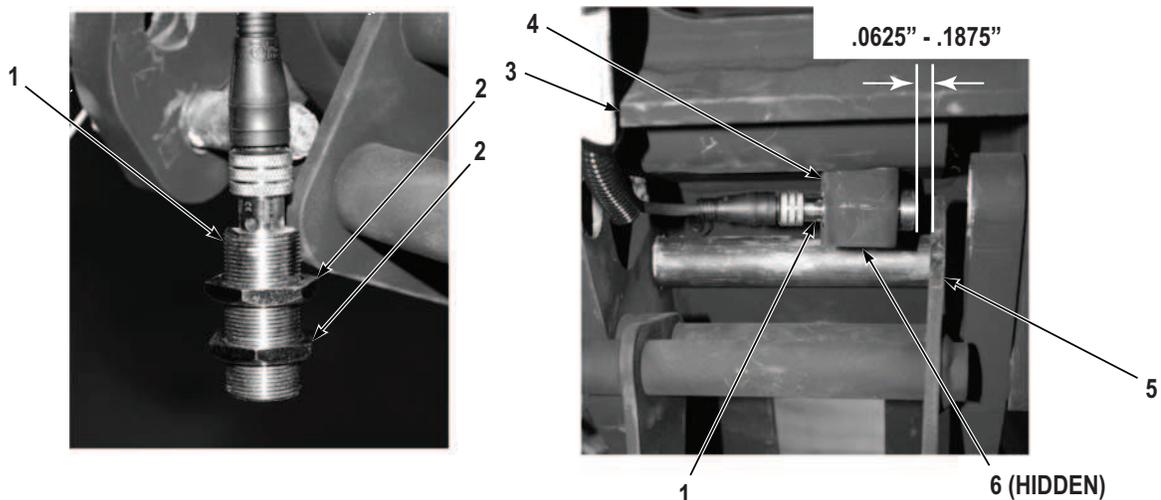


Figure 43. Adjust Twistlock Sensor.

- Route twistlock wire harnesses (Figure 44, Item 2) and marker light extension wires (Figure 44, Item 4) along slider bed (Figure 44, Item 3) as shown in Figure 44.
- Lift and lower each slider bed (Figure 44, Item 3) to ensure there is enough slack in the twistlock wire harness. Adjust harness as necessary.

NOTE

When installing wire harness, ensure there is enough slack in wire harness to allow rear slider bed to pivot up and down.

- Install new cable ties (Figure 44, Item 3) as required, securing twistlock wire harnesses (Figure 44, Item 4) and marker light extension wires (Figure 44, Item 2) to slider assembly (Figure 44, Item 1). Roll any excess harness and secure with cable ties.

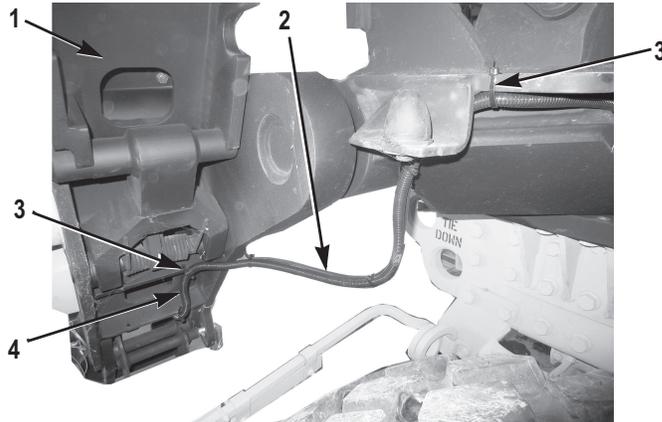
TWISTLOCK SENSOR INSTALLATION - Continued

Figure 44. Secure Harnesses to Slider Assembly.

14. Prepare and paint bare metal surfaces. Instructions for preparation of material for painting, and materials to be used are in TB 43-0242.

END OF TASK**MIDDLE FRAME SENSOR INSTALLATION****Table 4. Parts List for Middle Frame Sensor Installation.**

ITEM NO.	QTY	DESCRIPTION	PART NUMBER
Figure 45, Item 1	1	Screw	1119544
Figure 45, Item 3	1	Sensor Plate	1119545
Figure 45, Item 4	1	3/4 Locknut	112080003
Figure 46, Item 2	1	Upper Sensor Bracket	1119541
Figure 46, Item 3	1	Lower Sensor Bracket	1119542
Figure 46, Item 4	3	1/4 x 1 3/8 Screw	112079807
Figure 46, Items 5 and 6	6	1/4 Washer	112080105
Figure 46, Item 7	3	1/4 Locknut	112080005

1. Install screw (Figure 45, Item 1) in pivot cylinder (Figure 45, Item 2).

NOTE

- Position sensor plate as shown in Figure 45.
- Hardware will be tightened during sensor calibration procedure.

MIDDLE FRAME SENSOR INSTALLATION - Continued

2. Install sensor plate (Figure 45, Item 3) and locknut (Figure 45, Item 4) on screw (Figure 45, Item 1). Do not tighten hardware.

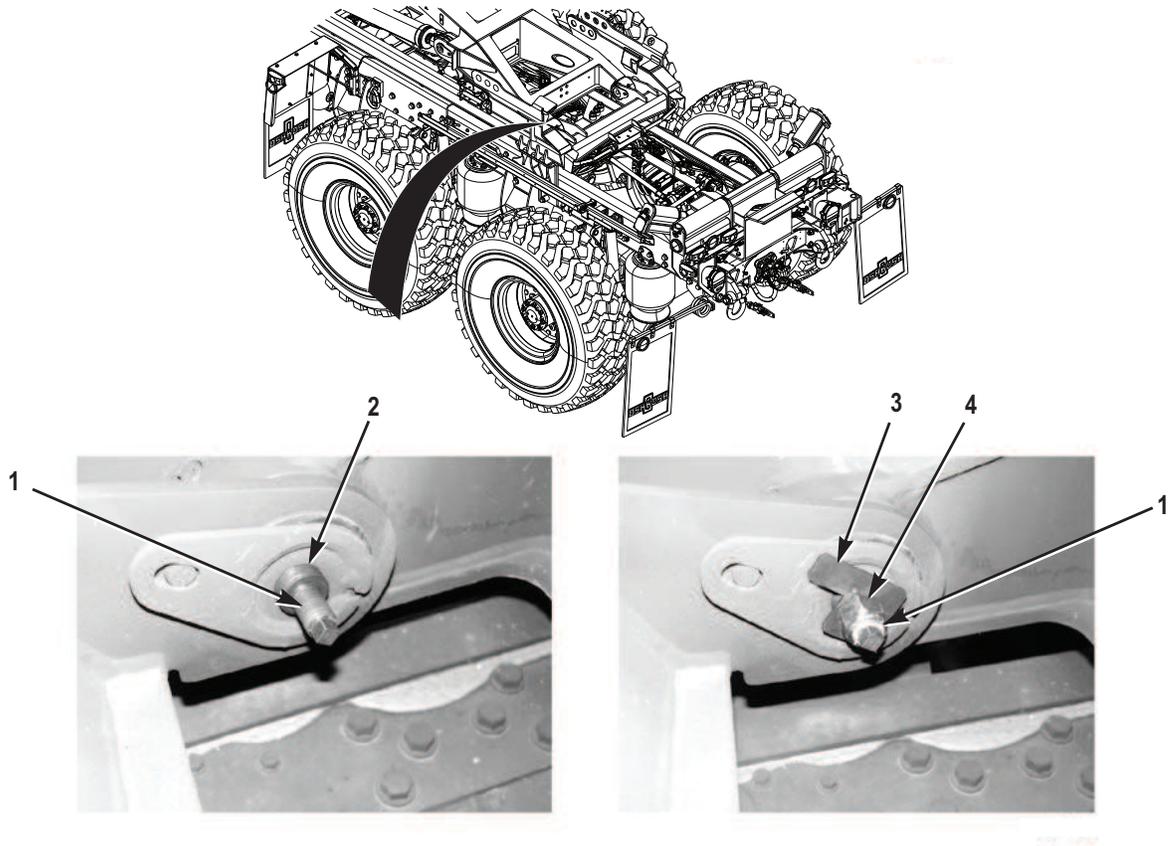


Figure 45. Middle Frame Sensor Plate Installation.

3. Measure and mark 5.25 in. from left edge of middle frame (Figure 46, Item 1).
4. Align left edge of upper sensor bracket (Figure 46, Item 2) with 5.25 in. mark, and install upper sensor bracket and lower sensor bracket (Figure 46, Item 3) on middle frame (Figure 46, Item 1) with three screws (Figure 46, Item 4), washers (Figure 46, Item 5), washers (Figure 46, Item 6), and locknuts (Figure 46, Item 7).

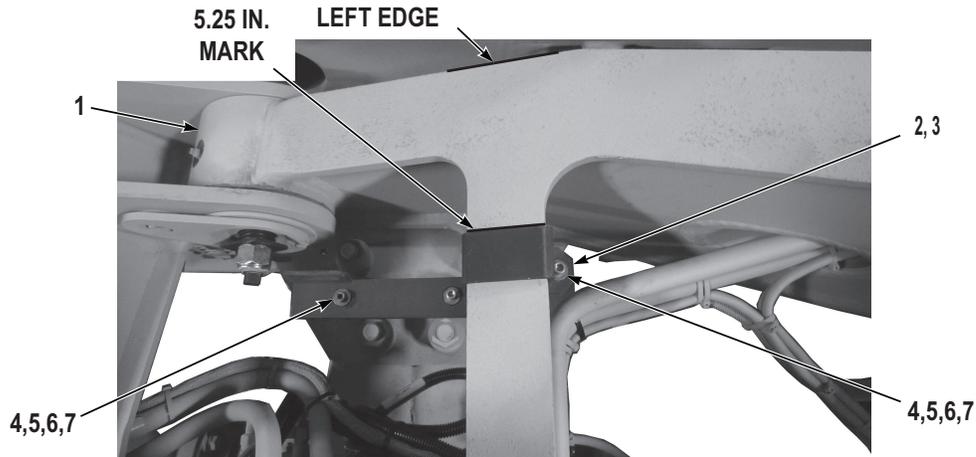
MIDDLE FRAME SENSOR INSTALLATION - Continued

Figure 46. Middle Frame Sensor Bracket Installation.

5. Route middle frame sensor harness (Figure 47, Item 2) as shown in Figure 47.
6. Remove nut (Figure 47, Item 4) from sensor (Figure 47, Item 3).

NOTE

Sensor position in bracket will be calibrated later in this work package.

7. Install sensor (Figure 47, Item 3) on sensor bracket (Figure 47, Item 1) with nut (Figure 47, Item 4), so that face of sensor is flush with nut.
8. Install new cable ties as required to secure middle frame sensor harness (Figure 47, Item 2).

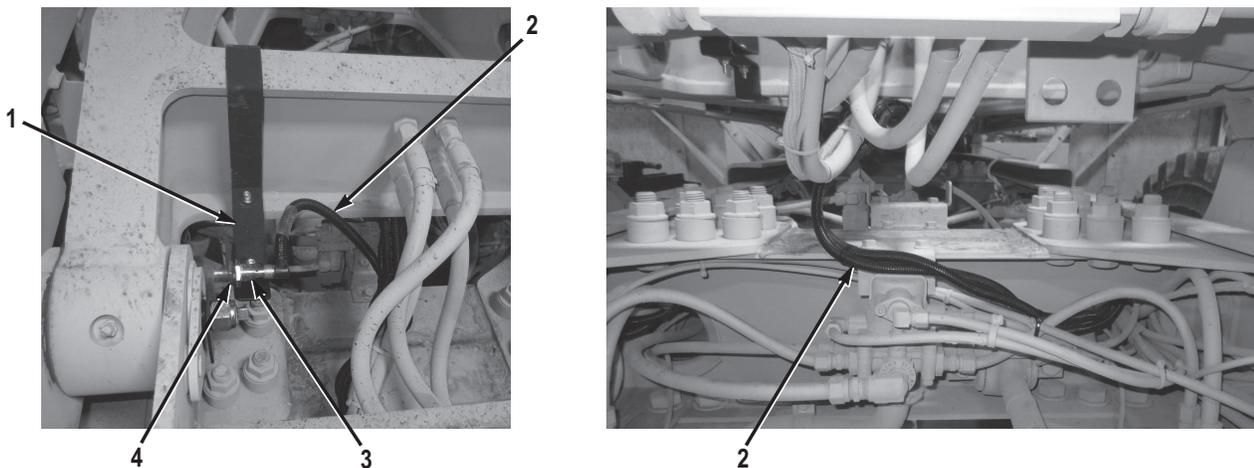


Figure 47. Middle Frame Sensor Installation.

END OF TASK

HOOK ARM SENSOR INSTALLATION

Table 5. Parts List for Hook Arm Sensor Installation.

ITEM NO.	QTY	DESCRIPTION	PART NUMBER
Figure 48, Item 6	1	Sensor Plate	1119464
Figure 48, Item 5	2	1/4 Washer	112080105
Figure 49, Item 5	1	Switch Plate	1119461
Figure 49, Item 3	2	1/4 x 3/4 Screw	112079802
Figure 49, Item 4	2	1/4 Washer	112080105

1. Remove two screws (Figure 48, Item 2), washers (Figure 48, Item 3), and plate (Figure 48, Item 5) from sensor mount (Figure 48, Item 1). Discard plate. Retain hardware for installation.
2. Install sensor plate (Figure 48, Item 4) on sensor mount (Figure 48, Item 1) with two screws (Figure 48, Item 2), and washers (Figure 48, Item 3).

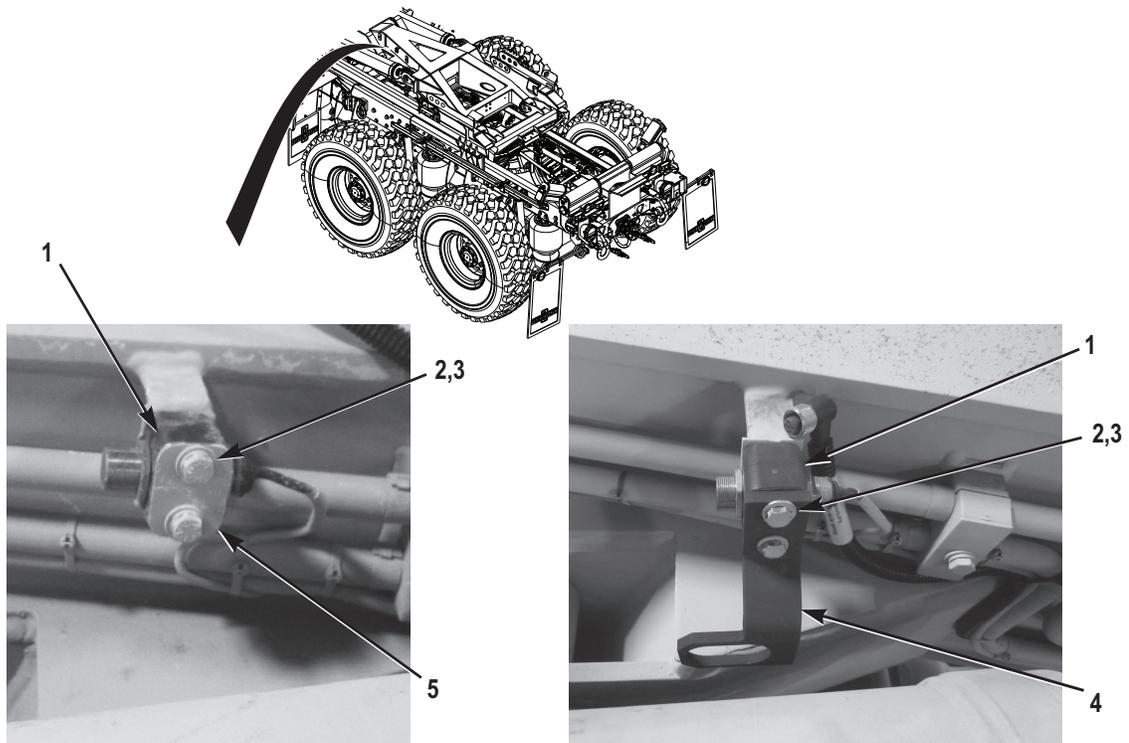
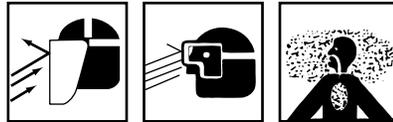


Figure 48. Hook Arm Sensor Bracket Installation.

3. Place a straight measurement aid (Figure 49, Item 1) on flat surface of hook arm (Figure 49, Item 2) where hook arm angles down.

HOOK ARM SENSOR INSTALLATION - Continued

4. Place hook arm switch plate (Figure 49, Item 5) on angled edge of hook arm (Figure 49, Item 2) where distance between bottom of measurement aid (Figure 49, Item 1) and top angled edge of hook arm switch plate is .25 in.
5. Mark edge of hook arm (Figure 49, Item 2) to identify point of placement of switch plate (Figure 49, Item 5) on hook arm.
6. Place switch plate (Figure 49, Item 5) 1.25 in. from inside edge of hook arm (Figure 49, Item 2), and use holes in switch plate as a template to mark hook arm for two pilot holes.

WARNING

- Appropriate safety precautions (including, but not limited to, wearing proper breathing apparatus, hearing protection, safety goggles, etc.) must be observed when working with CARC material.
 - All cutting and grinding must be done using an abrasive device only. Use of a cutting torch, plasma cutter, etc., is not permitted.
 - Always wear gloves and a face shield or breathing apparatus when grinding painted surfaces. Airborne particles may cause lung irritation or damage to eyes.
 - Failure to follow these warnings may cause injury or death to personnel.
7. Drill two 13/64 in. holes in hook arm.
 8. Tap two 13/64 in. holes in hook arm (Figure 49, Item 2) with 1/4-20 tap.

WARNING

Secure switch plate in vise before drilling holes. Failure to comply may result in injury.

9. Drill existing holes in switch plate (Figure 49, Item 5) to 17/64 in.
10. Install switch plate (Figure 49, Item 5) on hook arm (Figure 49, Item 2) with two screws (Figure 49, Item 3) and washers (Figure 49, Item 4).

HOOK ARM SENSOR INSTALLATION - Continued

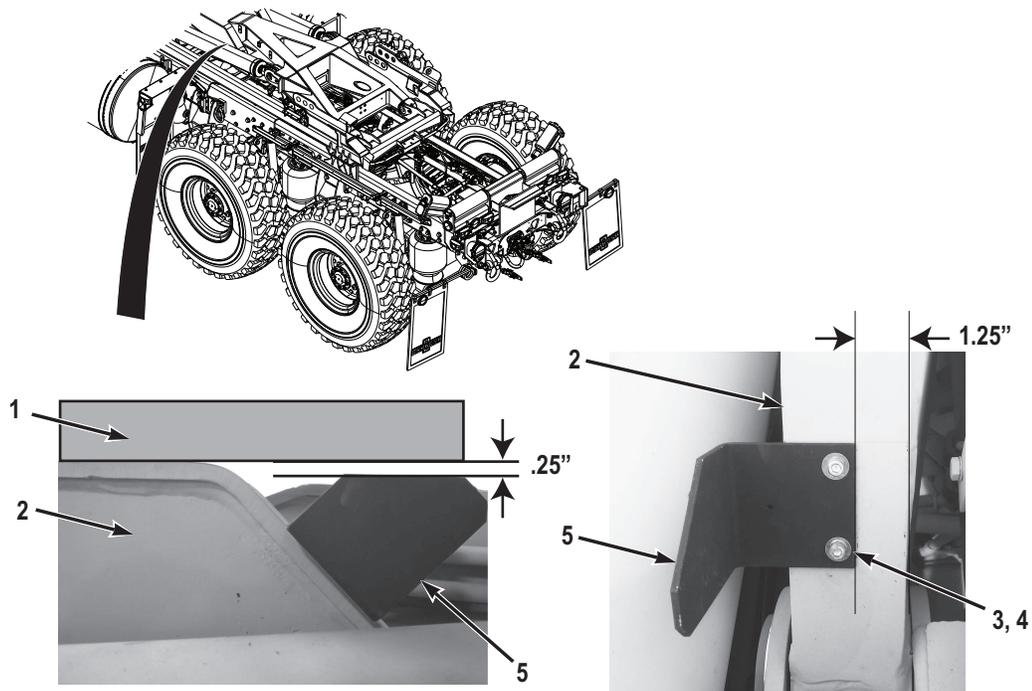


Figure 49. Hook Arm Sensor Plate Installation.

11. Route hook arm wiring harness (Figure 50, Item 3) through opening in hook arm (Figure 50, Item 1) to hook arm sensor bracket (Figure 50, Item 4).
12. Remove nut (Figure 50, Item 5) from hook arm sensor (Figure 50, Item 2).

CAUTION

Install sensor so that the sensor face is flush with outer nut. Failure to follow this caution may result in damage to equipment.

NOTE

Sensor position in bracket will be calibrated later in this work package.

13. Install hook arm sensor (Figure 50, Item 2) in hook arm sensor bracket (Figure 50, Item 4) with nut (Figure 50, Item 5), so that face of sensor is flush with nut.
14. Install new cable ties as required to secure hook arm sensor wire harness (Figure 50, Item 3).

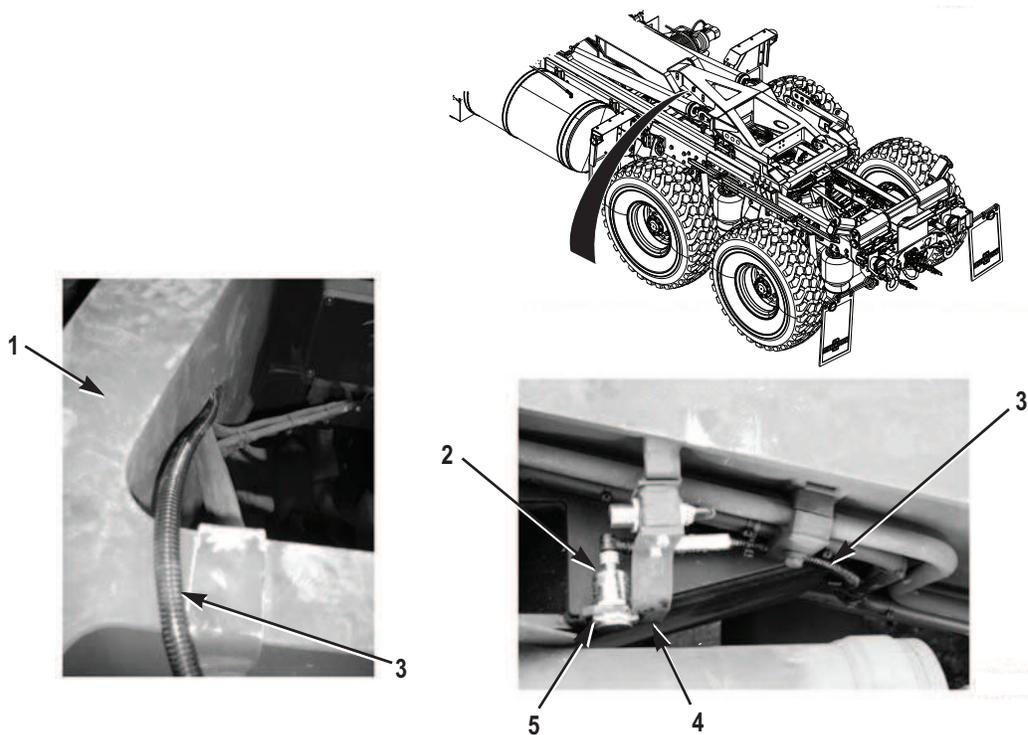
HOOK ARM SENSOR INSTALLATION - Continued

Figure 50. Hook Arm Sensor Installation.

15. Prepare and paint any bare metal surfaces, as required. Instructions for preparation of material for painting, and materials to be used are in TB 43-0242.

END OF TASK**STOWAGE WIRE HARNESS CONNECTION**

1. Disconnect wire harness connector (Figure 51, Item 4) from hydraulic control box bulkhead connector (Figure 51, Item 2).
2. Connect stowage assembly wire harness connector (Figure 51, Item 3) to hydraulic control box bulkhead connector (Figure 51, Item 2).
3. Connect wire harness connector (Figure 51, Item 4) to stowage wire harness connector (Figure 51, Item 1).
4. Install cable ties as required to secure stowage assembly wire harnesses.

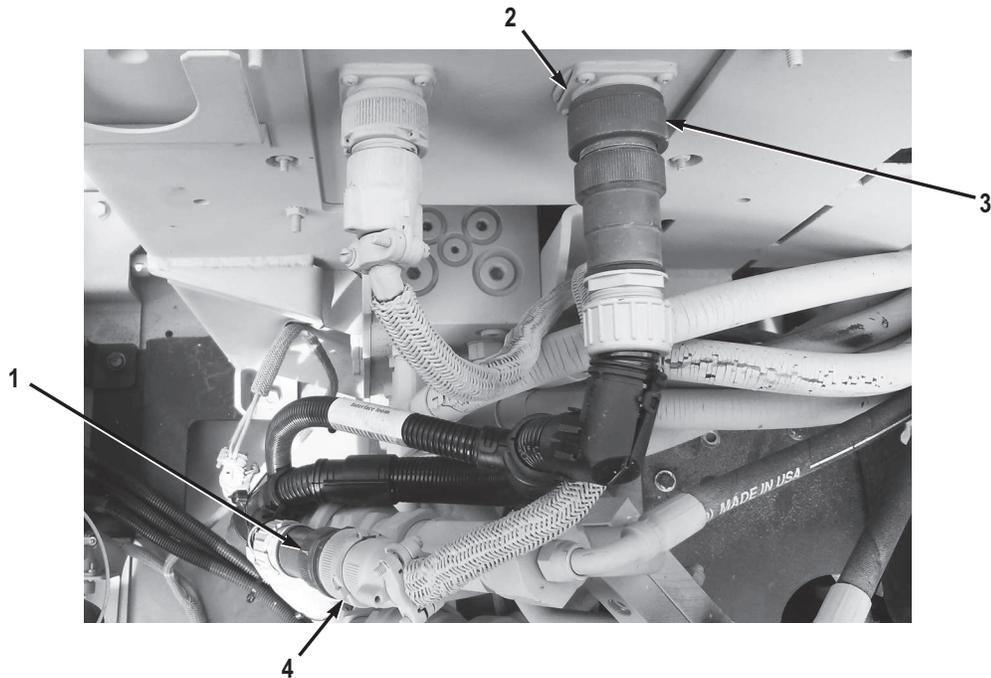
STOWAGE WIRE HARNESS CONNECTION - Continued

Figure 51. Stowage Wire Harness Connection.

END OF TASK**DATA PLATE INSTALLATION**

Install data plate (Figure 52, Item 1) on driver side of stowage assembly (Figure 52, Item 2) with four tinner's rivets (Figure 52, Item 3) supplied with data plate.



Figure 52. Data Plate Installation.

END OF TASK

DATA PLATE RETROFIT

NOTE

Some older kits do not contain labels to retrofit data plates.

1. Install blank adhesive label (Figure 53, Item 1) over NSN field on E-CHU data plate (Figure 53, Item 2) .



Figure 53. E-CHU Data Plate Retrofit.

2. Install E-CHU DATA adhesive label (Figure 54, Item 2) centered above data plate (Figure 54, Item 3) on driver side door (Figure 54, Item 1).
3. Install blank adhesive label (Figure 54, Item 4) over NSN field on data plate (Figure 54, Item 3) on driver side door (Figure 54, Item 1).

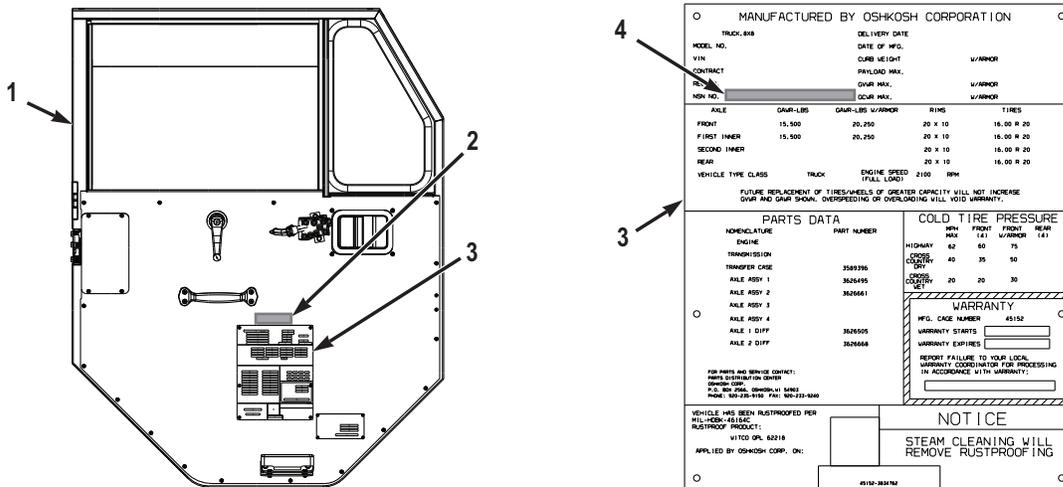


Figure 54. Door Data Plate Retrofit.

END OF TASK

SHEAR LATCH RETROFIT

NOTE

- Newer E-CHU kits will have shear latch installed by factory. Perform retrofit only if E-CHU kit does not already have shear latch installed.
 - Shear latch retrofit must be performed on both driver side and passenger side of stowage rack. Passenger side shown.
1. Using shear latch plate (Figure 55, Item 2) as a guide, locate, mark, and drill one hole $3/16''$ and one $13/32''$ hole in stowage lock bracket (Figure 55, Item 1) as shown in Figure 55.
 2. Countersink holes drilled in Step 1.

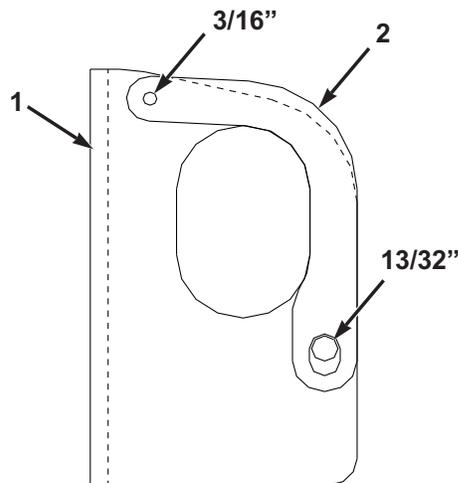
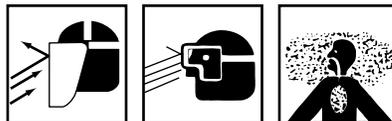


Figure 55. Shear Latch Drilling Guide.

3. Align shear latch plate (Figure 56, Item 2) with holes, and mark stowage lock bracket (Figure 56, Item 1) as shown in Figure 56.

WARNING



- Appropriate safety precautions (including, but not limited to, wearing proper breathing apparatus, hearing protection, safety goggles, etc.) must be observed when working with CARC material.
 - All cutting and grinding must be done using an abrasive device only. Use of a cutting torch, plasma cutter, etc., is not permitted.
 - Always wear gloves and a face shield or breathing apparatus when grinding painted surfaces. Airborne particles may cause lung irritation or damage to eyes.
 - Failure to follow these warnings may cause injury or death to personnel.
4. Cut stowage lock bracket (Figure 56, Item 1) along marks. Smooth edges and remove all sharp edges and burrs.

SHEAR LATCH RETROFIT - Continued

5. Prepare and paint bare metal surfaces. Instructions for preparation of material for painting, and materials to be used are in TB 43-0242.

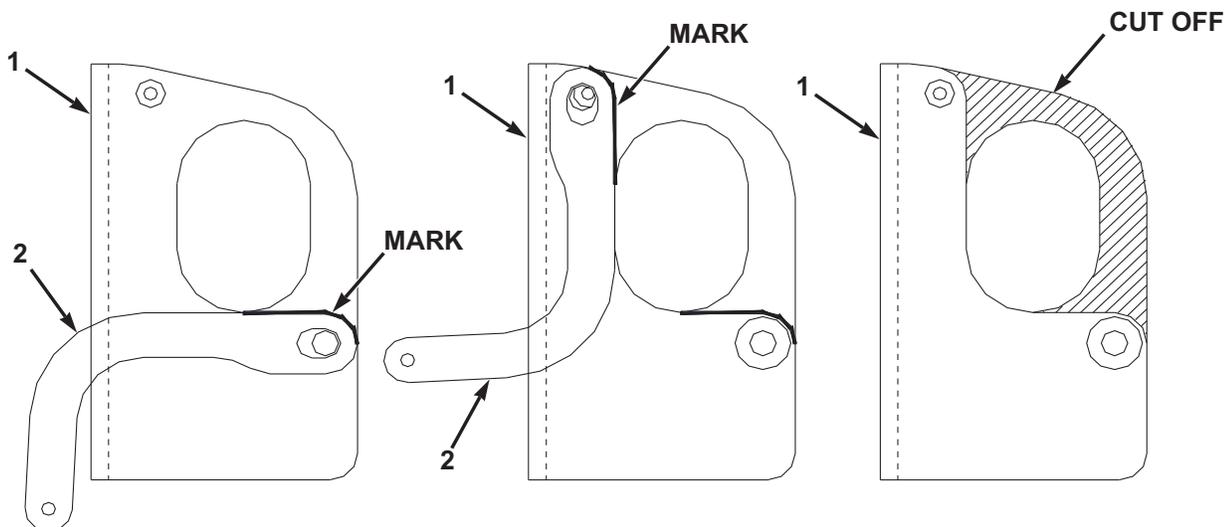


Figure 56. Shear Latch Cutting Guide.

CAUTION

Shear latch plate must be able to move freely, for shear latch to function correctly. For Steps 6 - 7, tighten hardware hand tight, only. Do not torque. Failure to comply may result in shear latch not functioning correctly, resulting in damage to equipment.

6. Install shear latch plate (Figure 57, Item 5) on the inside face of the stowage lock bracket (Figure 57, Item 1) with screws (Figure 57, Item 2), flat washer (Figure 57, Item 3), and nut (Figure 57, Item 4). Tighten hardware hand tight only.
7. Install shear latch plate (Figure 57, Item 5) on the inside face of the stowage lock bracket (Figure 57, Item 1) with screw (Figure 57, Item 6), flat washer (Figure 57, Item 7), and nut (Figure 57, Item 8). Tighten hardware hand tight only.

SHEAR LATCH RETROFIT - Continued

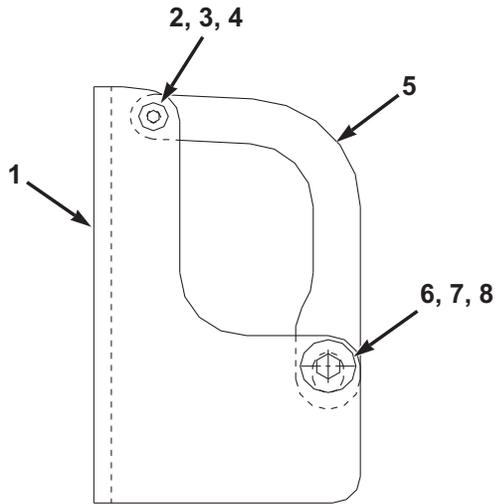


Figure 57. Shear Latch Installation.

8. Using the warning plate (Figure 58, Item 2) as a template, mark and drill four holes in lift lock frame (Figure 58, Item 1) as shown in Figure 58, using a 7/64 in. drill bit. Drill holes .125 in. deep. Do not drill through lift lock frame.
9. Install warning plate (Figure 58, Item 2) on lift lock frame (Figure 58, Item 2) with four screws.

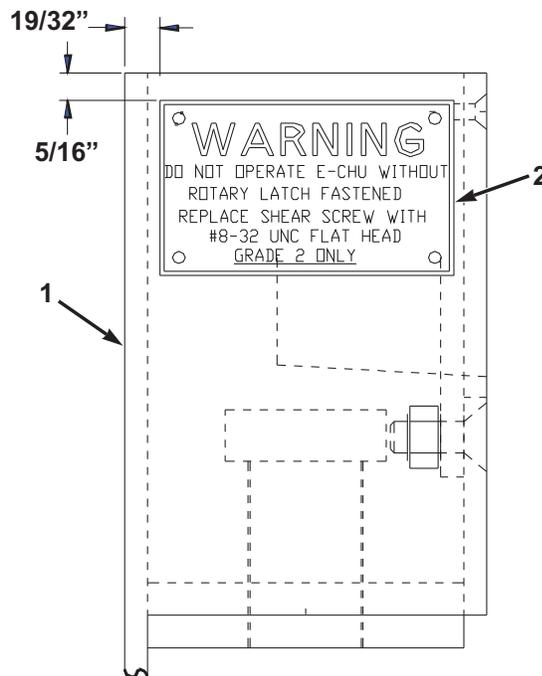


Figure 58. Shear Latch Warning Plate.

SHEAR LATCH RETROFIT - Continued

- Repeat Steps 1 - 9 for the driver side of stowage rack.

END OF TASK**SENSOR CALIBRATION****WARNING**

Do not stand on vehicle while operating LHS. Failure to comply may result in injury or death to personnel.

CAUTION

Walk around vehicle before extending hook arm, to ensure it is clear of obstructions. Failure to comply may result in damage to equipment.

- With MODE switch set to AUTO position, partially extend hook arm (HEMTT A4 TM 9-2320-326-13&P) until cylinder arm (Figure 59, Item 1) is extended 28 in. (750 mm) measured from base of cylinder arm cap (Figure 59, Item 2) to top of cylinder casing (Figure 59, Item 3).

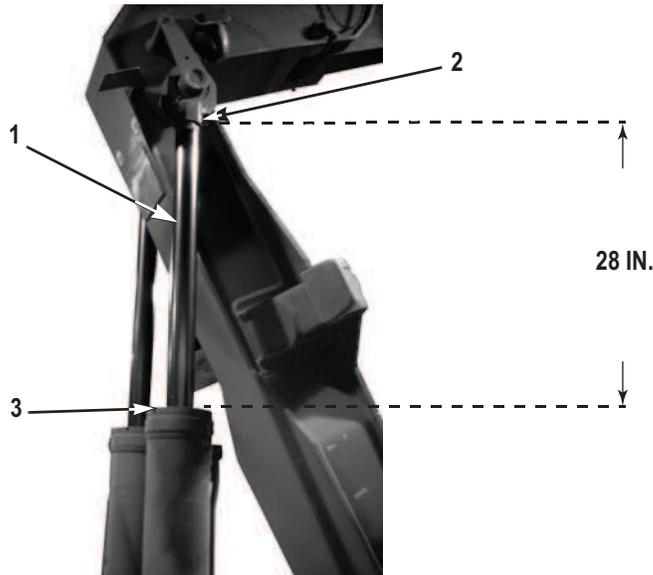


Figure 59. Hook Arm Cylinder Extension.

- Shut off vehicle and set ignition switch to ON position (HEMTT A4 TM 9-2320-326-13&P).

NOTE

Ensure that stowage control toggle switch is set to OFF position.

- Loosen outer nut (Figure 60, Item 5) on hook arm sensor (Figure 60, Item 2) until outer nut is positioned at the end of hook arm sensor threads.
- Loosen inner nut (Figure 60, Item 4) on hook arm sensor (Figure 60, Item 2).
- Apply thread sealant (Loctite 242®) to threads on inner section of hook arm sensor, and adjust inner nut (Figure 60, Item 4) until face of sensor is .0625 to .1875 in. (2 to 3 mm) from sensor plate (Figure 60, Item 6).

SENSOR CALIBRATION - Continued

6. Slide hook arm sensor (Figure 60, Item 2) on bracket (Figure 60, Item 3) toward sensor plate (Figure 60, Item 6) and identify position where sensor light (Figure 60, Item 1) turns on. Apply thread sealant (Loctite 242®) to threads on outer section of hook arm sensor, and tighten outer nut (Figure 60, Item 5) to secure sensor at that position on bracket.

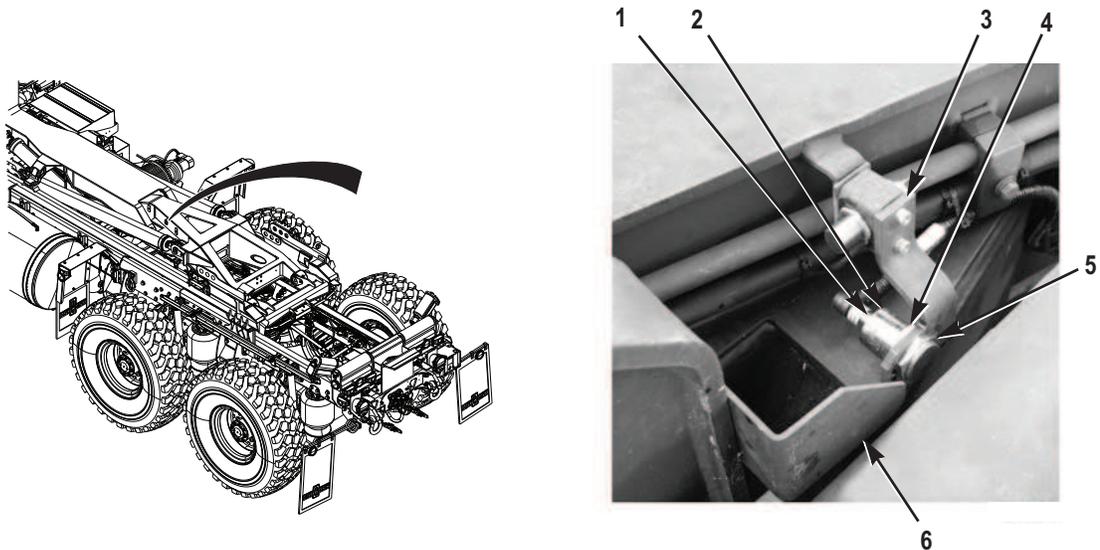


Figure 60. Hook Arm Sensor Calibration.

7. Return hook arm to stowed position (HEMTT A4 TM 9-2320-326-13&P).

NOTE

- Correct position for Step 8 is 28" as measured in Step 1.
 - Sensor calibration may take several cycles.
8. Extend hook arm (HEMTT A4 TM 9-2320-326-13&P) and ensure sensor stops hook arm in correct position. If sensor does not stop hook arm in correct position, stow hook arm, and repeat Steps 2 - 8 to adjust sensor position as required.
 9. Extend hook arm (HEMTT A4 TM 9-2320-326-13&P) until bottom of hook (Figure 61, Item 1) is 62 in. (1,574 mm) above ground.

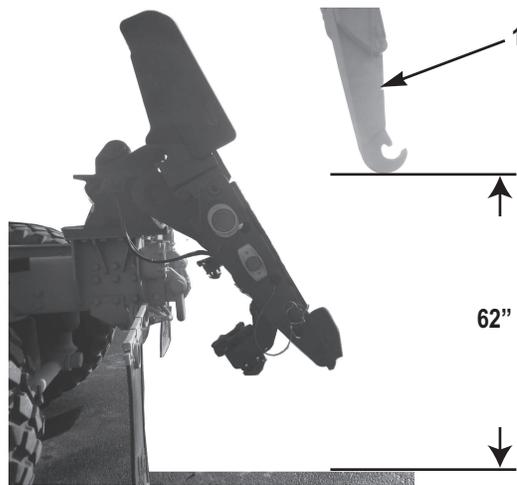
SENSOR CALIBRATION - Continued

Figure 61. Hook Position Above Ground.

NOTE

It may be necessary to adjust position of sensor plate in order to activate sensor light.

10. Loosen outer nut (Figure 62, Item 2) on middle frame sensor (Figure 62, Item 1) until outer nut is positioned at end of middle frame sensor threads.
11. Loosen inner nut (Figure 62, Item 4) on middle frame sensor (Figure 62, Item 1).
12. Apply thread sealant (Loctite 242®) to threads on inner section of middle frame sensor (Figure 62, Item 1) and adjust inner nut (Figure 62, Item 4) until face of middle frame sensor (Figure 62, Item 1) is .0625 in. to .1875 in. (2 to 3 mm) from sensor plate (Figure 62, Item 6).
13. Slide middle frame sensor (Figure 62, Item 1) on bracket (Figure 62, Item 3) toward sensor plate (Figure 62, Item 6) and identify position where sensor light (Figure 62, Item 5) turns on. Apply thread sealant (Loctite 242®) to threads on outer section of hook arm sensor, and tighten outer nut (Figure 62, Item 2) to secure sensor at that position on bracket.

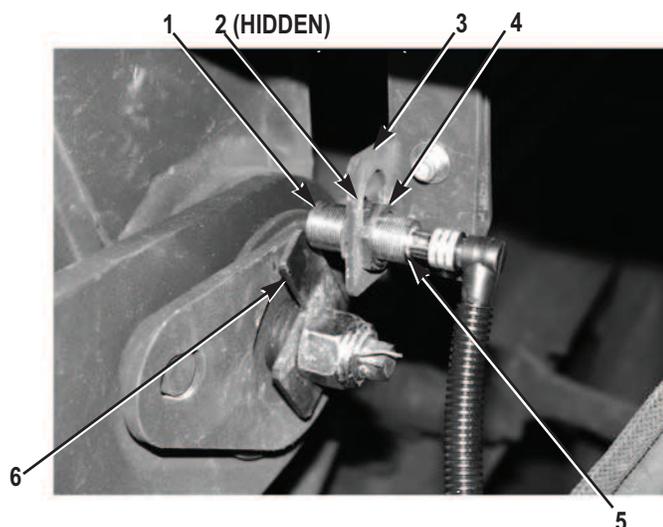
SENSOR CALIBRATION - Continued

Figure 62. Middle Frame Sensor Calibration.

14. Return hook arm to stowed position (HEMTT A4 TM 9-2320-326-13&P).

NOTE

- Correct position for Step 15 is 62" as measured in Step 9.
- Sensor calibration may take several cycles.

15. Extend hook arm (HEMTT A4 TM 9-2320-326-13&P) and ensure sensor stops hook arm in correct position. If sensor does not stop hook arm in correct position, stow hook arm and repeat Steps 9 - 15 to adjust sensor position as required.
16. Return hook arm to stowed position (HEMTT A4 TM 9-2320-326-13&P).

END OF TASK**STOWAGE GUIDE POSITION CALIBRATION**

Calibrate stowage guide positions according to instructions included in kit. Refer to TM 9-3950-253-13&P for operator instructions for HEMTT A4 with E-CHU to position lift frame on vehicle.

END OF TASK**STOW E-CHU KIT BII**

1. Stow E-CHU tiedown strap in stowage box.

NOTE

Older E-CHU kits do not include an E-CHU TM.

2. If kit includes E-CHU TM 9-3950-253-13&P, stow TM 9-3950-253-13&P in cab.

END OF TASK

Follow-On Maintenance

Load and Unload Container (TM 9-3950-253-13&P) to verify proper function of E-CHU kit.

END OF TASK

END OF WORK PACKAGE

MAINTAINER MAINTENANCE
PLS A1 ORIGINAL EQUIPMENT REMOVAL

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's
Tool Set, SATS Base
Suitable Slings, Nylon
Suitable Lifting Device

Materials/Parts

Rag, Wiping
Tag, Marker

Personnel Required

Maintainer (2)

References

PLS A1 TM 9-2320-319-14&P

Equipment Condition

Vehicle parked on level ground, in neutral gear with parking brake applied. (PLS A1 TM 9-2320-319-14&P)

Battery disconnect switch in OFF position. (PLS A1 TM 9-2320-319-14&P)

HARD LIFT REMOVAL**WARNING**

- Lifting cables, chains, hooks, and slings used for lifting must be in good condition and of suitable capacity.
- Improper use of lifting equipment and improper attachment of cables may cause injury to personnel and damage to equipment. Observe all standard rules of safety.
- Use extreme caution when handling heavy parts. Provide adequate support and use assistance during procedure. Ensure any lifting device used is in good condition and of suitable load capacity. Keep clear of heavy parts supported only by lifting device.
- Failure to follow these warnings may cause injury or death to personnel.

NOTE

Hard lift assembly weighs 240 lb (109 kg).

1. Attach sling and lifting device to hard lift (Figure 1, Item 1).
2. Remove six nuts (Figure 1, Item 2), and screws (Figure 1, Item 3) from hard lift (Figure 1, Item 1) and frame (Figure 1, Item 4).
3. Use lifting device to remove hard lift (Figure 1, Item 1) from vehicle and lower onto flat surface.

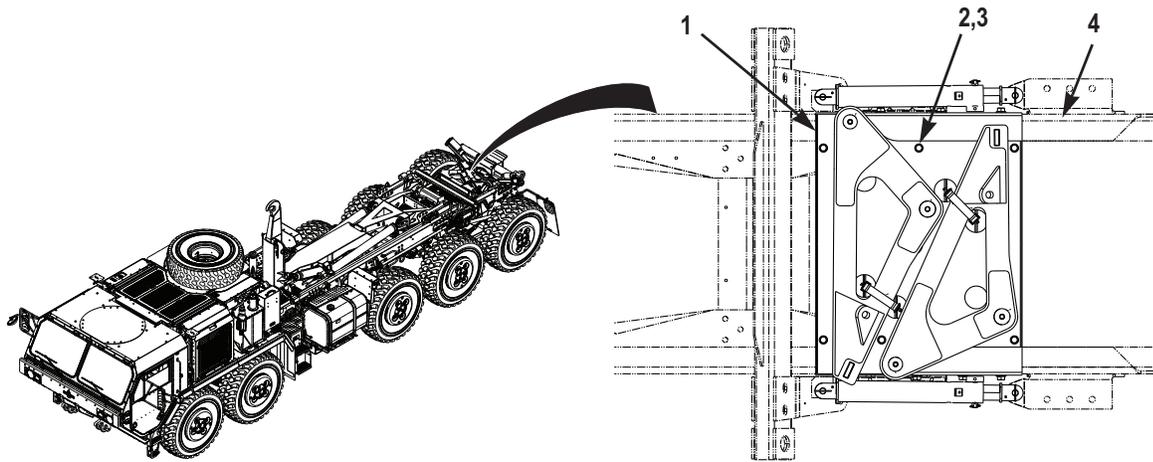
HARD LIFT REMOVAL - Continued

Figure 1. Hard Lift Removal.

END OF TASK**LIGHT BAR AND BUMPER STOP BRACKET REMOVAL**

1. Remove two screws (Figure 2, Item 2) and driver side reflector (Figure 2, Item 3) from roller assembly (Figure 2, Item 1). Set aside for reinstallation.
2. Repeat Step 1 for passenger side reflector.

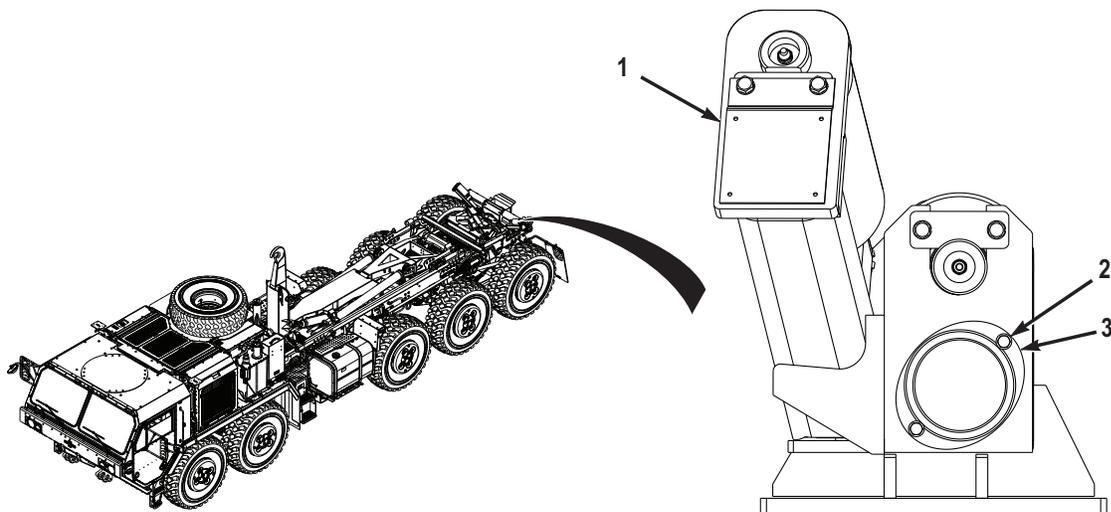


Figure 2. Light Bar and Bumper Stop Removal.

3. Disconnect light bar wiring harness (Figure 3, Item 1) from vehicle wiring harness (Figure 3, Item 2)

LIGHT BAR AND BUMPER STOP BRACKET REMOVAL - Continued

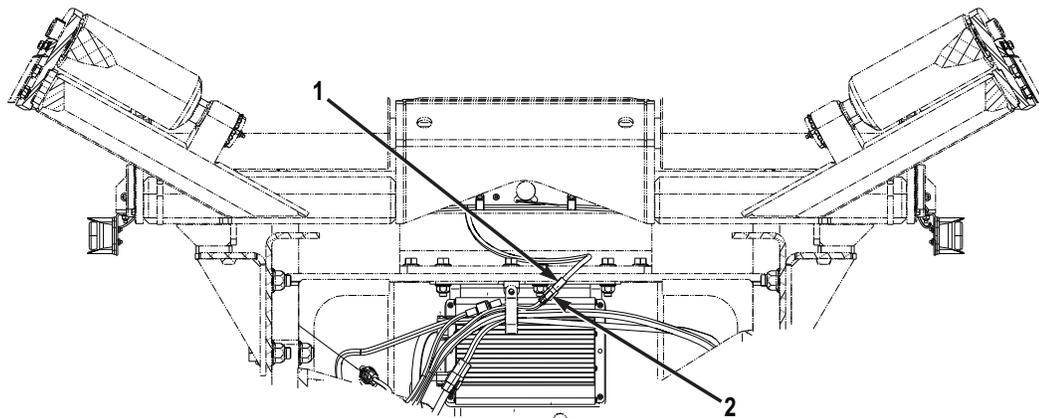


Figure 3. Light Bar and Bumper Stop Removal.

4. Remove four screws (Figure 4, Item 7), nuts (Figure 4, Item 8), and two reflectors (Figure 4, Item 6) from rear light bar (Figure 4, Item 5). Set aside for reinstallation.
5. Disconnect light bar wiring harness (Figure 4, Item 10) from two outboard marker lights (Figure 4, Item 1).
6. Remove four screws (Figure 4, Item 3), nuts (Figure 4, Item 4), and two outboard marker light brackets (Figure 4, Item 2) from rear light bar (Figure 4, Item 5). Set aside for disassembly and reinstallation.
7. Remove two screws (Figure 4, Item 9) and rear light bar (Figure 4, Item 5) from vehicle. Set aside for disassembly and reinstallation.

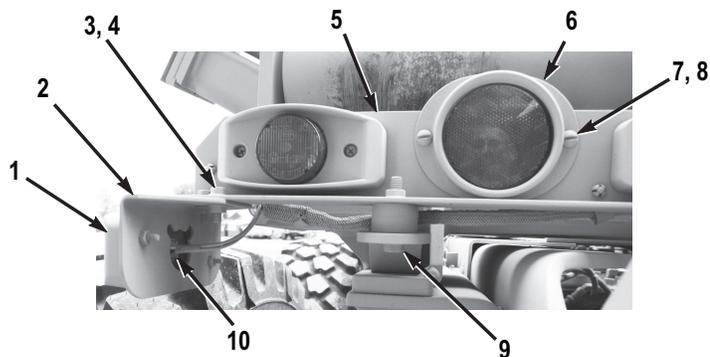


Figure 4. Light Bar and Bumper Stop Removal.

8. Remove four nuts (Figure 5, Item 5), screws (Figure 5, Item 6) and bracket (Figure 5, Item 7), from bumper bracket (Figure 5, Item 1) and frame (Figure 5, Item 2). Retain hardware for reinstallation.
9. With the aid of an assistant, remove two nuts (Figure 5, Item 3), screws (Figure 5, Item 4) and bumper stop bracket (Figure 5, Item 1) from frame (Figure 5, Item 2). Retain hardware for reinstallation.

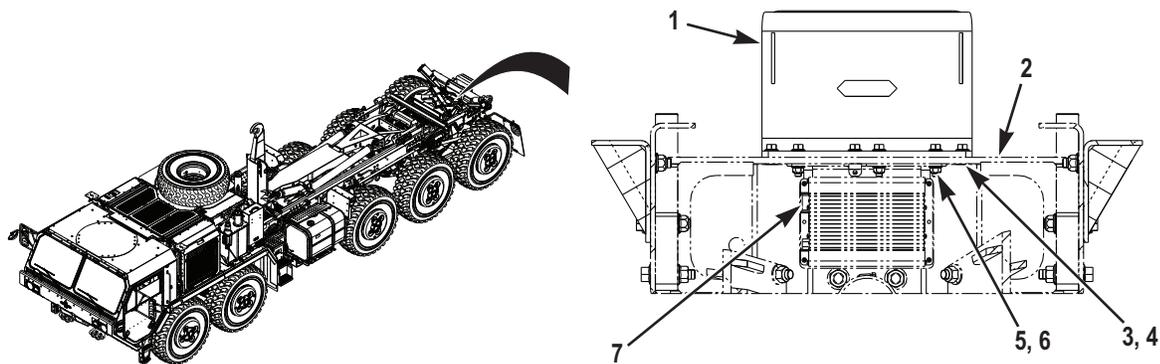
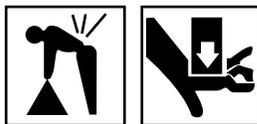
LIGHT BAR AND BUMPER STOP BRACKET REMOVAL - Continued

Figure 5. Light Bar and Bumper Stop Removal.

END OF TASK**REAR ROLLER ASSEMBLY REMOVAL****WARNING**

- Lifting cables, chains, hooks, and slings used for lifting must be in good condition and of suitable capacity.
- Improper use of lifting equipment and improper attachment of cables may cause injury to personnel and damage to equipment. Observe all standard rules of safety.
- Use extreme caution when handling heavy parts. Provide adequate support and use assistance during procedure. Ensure any lifting device used is in good condition and of suitable load capacity. Keep clear of heavy parts supported only by lifting device.
- Failure to follow these warnings may cause injury or death to personnel.

NOTE

Rear roller assembly weighs 375 lb (170 kg).

1. Attach sling and lifting device to rear roller assembly (Figure 6, Item 1).
2. Use lifting device to remove slack from sling.
3. Remove six nuts (Figure 6, Item 3), screws (Figure 6, Item 4) and two light bar mounting brackets (Figure 6, Item 2) from roller assembly (Figure 6, Item 1) and two roller assembly mounting brackets (Figure 6, Item 5). Discard hardware.
4. With the aid of an assistant, guide rear roller assembly (Figure 6, Item 1) up and off of vehicle.
5. Remove lifting device and slings from rear roller assembly (Figure 6, Item 1). Discard rear roller assembly.

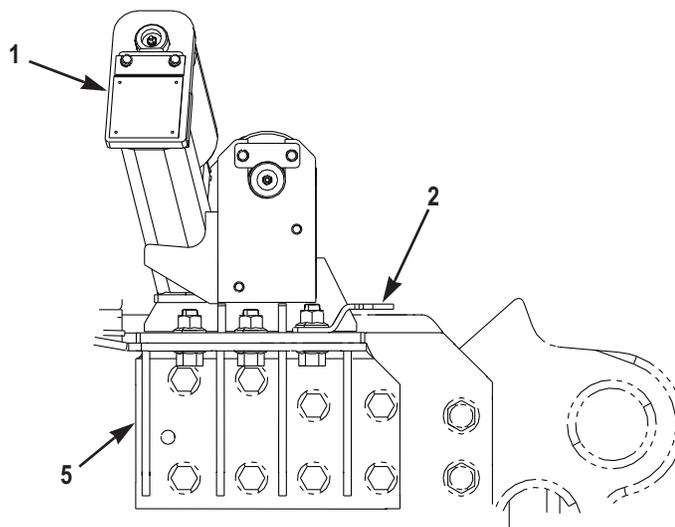
REAR ROLLER ASSEMBLY REMOVAL - Continued

Figure 6. Roller Assembly Removal.

END OF TASK**OPERATOR PLATFORM REMOVAL**

1. Extend hook arm (PLS A1 TM 9-2320-319-14&P).

NOTE

Perform Steps 2 - 3 to relieve hydraulic system pressure.

2. With engine on, set MODE switch to MAN H.A. and let engine idle for 30 seconds.
3. Set MODE switch to MAN M.F. and let engine idle for 30 seconds and turn off engine.

WARNING

After removing platform, use care to avoid being impaled on brackets. Failure to comply may result in injury or death to personnel.

4. Remove four nuts (Figure 7, Item 11), washers (Figure 7, Item 10), springs (Figure 7, Item 9), washers (Figure 7, Item 8), screws (Figure 7, Item 7) and platform (Figure 7, Item 1), from two platform stands (Figure 7, Item 6). Discard platform and hardware.
5. Remove four nuts (Figure 7, Item 3), spacer (Figure 7, Item 5), four screws (Figure 7, Item 4) and two platform stands (Figure 7, Item 6) from two frame rails (Figure 7, Item 2). Discard stands and spacer. Retain hardware for reinstallation.

OPERATOR PLATFORM REMOVAL - Continued

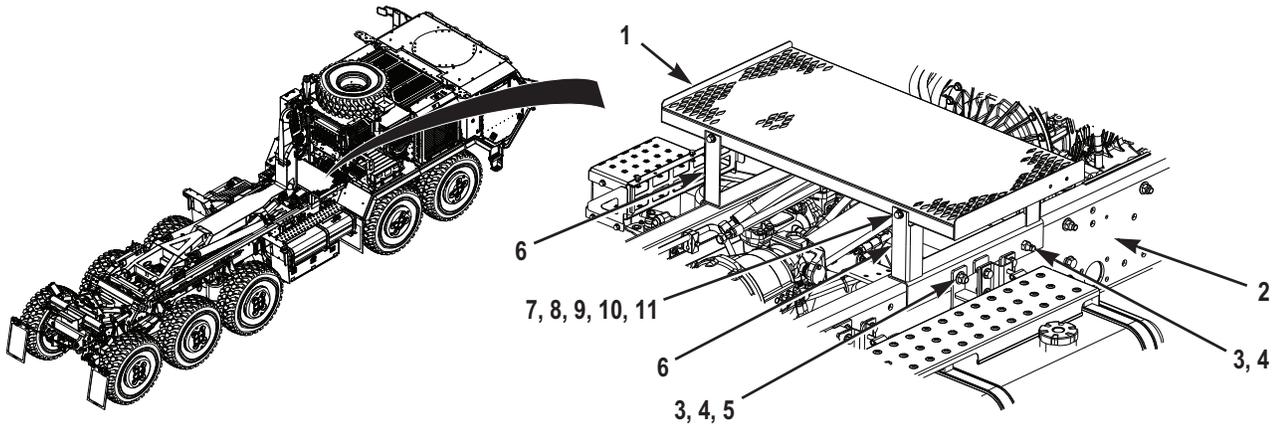


Figure 7. Operator Platform Removal.

END OF TASK

HARDWARE REMOVAL

1. On driver side of vehicle, remove two screws (Figure 8, Item 2) and nuts (Figure 8, Item 3) from frame rail (Figure 8, Item 1). Retain hardware for reinstallation.
2. Remove screw (Figure 8, Item 4) from frame rail (Figure 8, Item 1). Retain hardware for reinstallation.
3. Remove screw (Figure 8, Item 4) and spacer (Figure 8, Item 5) from frame rail (Figure 8, Item 1). Retain hardware for reinstallation.
4. Remove screw (Figure 8, Item 6) and nut (Figure 8, Item 7) from frame rail (Figure 8, Item 1). Retain hardware for reinstallation.
5. Repeat Steps 2 - 4 for passenger side of vehicle.

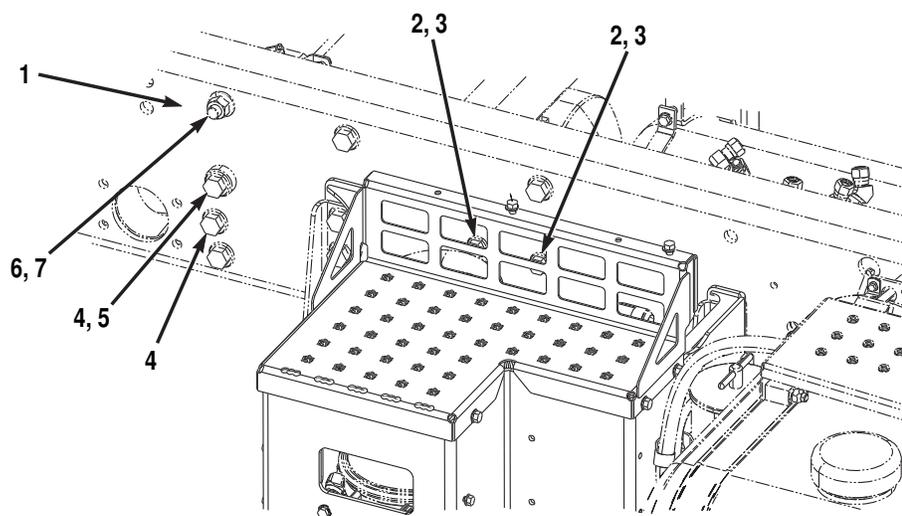


Figure 8. Driver Side Hardware Removal.

HARDWARE REMOVAL - Continued**NOTE**

Shims are located between fuel tank bracket and frame rail.

6. On passenger side of vehicle, remove upper two screws (Figure 9, Item 1), shims (Figure 9, Item 1) and nuts (Figure 9, Item 2), from fuel tank bracket (Figure 9, Item 4) and frame rail (Figure 9, Item 7). Retain hardware for reinstallation. Discard shims.
7. Loosen lower two screws (Figure 9, Item 5) and nuts (Figure 9, Item 6) attaching fuel tank bracket (Figure 9, Item 4) to frame rail (Figure 9, Item 7) approximately .25 in., to allow clearance to install E-CHU stowage brackets. Do not remove hardware.

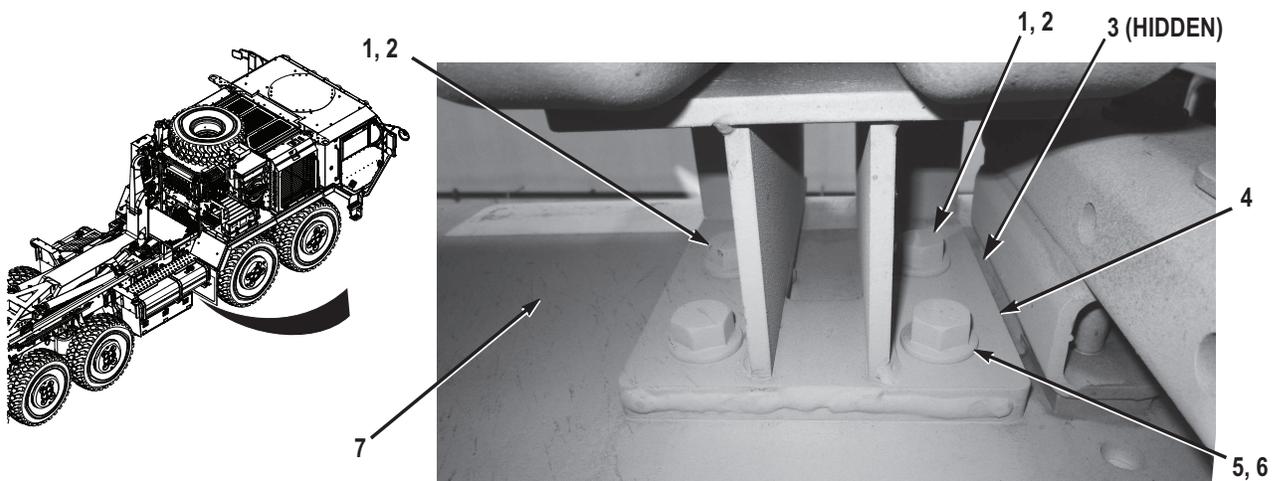


Figure 9. Passenger Side Hardware Removal.

END OF TASK

END OF WORK PACKAGE

**MAINTAINER MAINTENANCE
PLS A1 INSTALLATION INSTRUCTIONS**

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's, PD484
Tool Set, SATS Base, KTC-S2000
Suitable Slings, Nylon
Suitable Lifting Device

Personnel Required

Maintainer (2)

References

PLS A1 TM 9-2320-319-14&P
E-CHU TM and 9-3950-253-13&P

Materials/Parts

Cap And Plug Set, 10935405
Tag, Marker, 12-105
CARC Paint (Tan) 086109TUZ-AERO
CARC Paint (Black) 08610KUZ-AERO
Adhesive, Loctite 271® 8030-00-148-9833 TL71 BX
Adhesive, Loctite 242® p/n 65270AX (75Q65)
Pipe Sealant, Loctite 592® p/n 1657210 (75Q65)
Heat Shrink, 1704950 (75Q65)
Fitting, Adapter, 4285645 (75Q65) Qty: 2
Fitting, Adapter, 4285646 (75Q65) Qty: 2

Equipment Condition

Vehicle parked on level ground, in neutral gear with parking brake applied. (PLS A1 TM 9-2320-319-14&P)
Hook arm fully extended. (PLS A1 TM 9-2320-319-14&P)
Original equipment removed. (WP 005)

STOWAGE ASSEMBLY INSTALLATION

Table 1. Parts List for PLS A1 Stowage Assembly Installation.

ITEM NO.	QTY	DESCRIPTION	PART NUMBER
Figure 5, Item 2	1	Stowage Assembly	111560101
Figure 2, Item 10	1	Stowage Mounting Bracket, LH (Driver Side)	112079201
Figure 4, Item 5	1	Stowage Mounting Bracket, RH (Passenger Side)	112079202
Figure 4, Item 12	4	PLS A1 Shim	112462201
Figure 6, Item 5	2	Spacer	112462101
Figure 6, Item 2	4	1/2-13 x 1 3/4 Screw	112079905
Figure 6, Item 3	4	1/2-13 Locknut	112080004
Figure 6, Item 4	4	1/2 Washer	112080104
Figure 7, Item 2	12	1/2 x 2 Screw	112079811

STOWAGE ASSEMBLY INSTALLATION - Continued

Table 1. Parts List for PLS A1 Stowage Assembly Installation - Continued.

ITEM NO.	QTY	DESCRIPTION	PART NUMBER
Figure 7, Items 3 And 4	24	1/2 Washer	112080104
Figure 7, Item 5	12	1/2 Locknut	112080004
Figure 9, Item 3	2	Fitting, Hydraulic	4xh16-S
Figure 9, Item 4	2	Fitting, Hydraulic	6-4xhx6-S
Figure 13, Item 10	1	Male Swivel Elbow	112083501
Figure 13, Item 9	1	Bushing	112083601
Figure 13, Item 7	1	Tee Fitting	112083701
Figure 15, Item 2	1	Fender Mounting Bracket	112525701
Figure 15, Item 4	4	3/8 x 1 1/2 Screw	112079722
Figure 15, Items 9 And 10	8	3/8 Washer	112080106
Figure 15, Item 11	4	3/8 Locknut	112080002
(Not Used)	2	3/8 x 2 Screw	112079732
Figure 15, Items 5 And 6	4	3/8 Washer	112080106
Figure 15, Item 7	2	3/8 Locknut	112080002

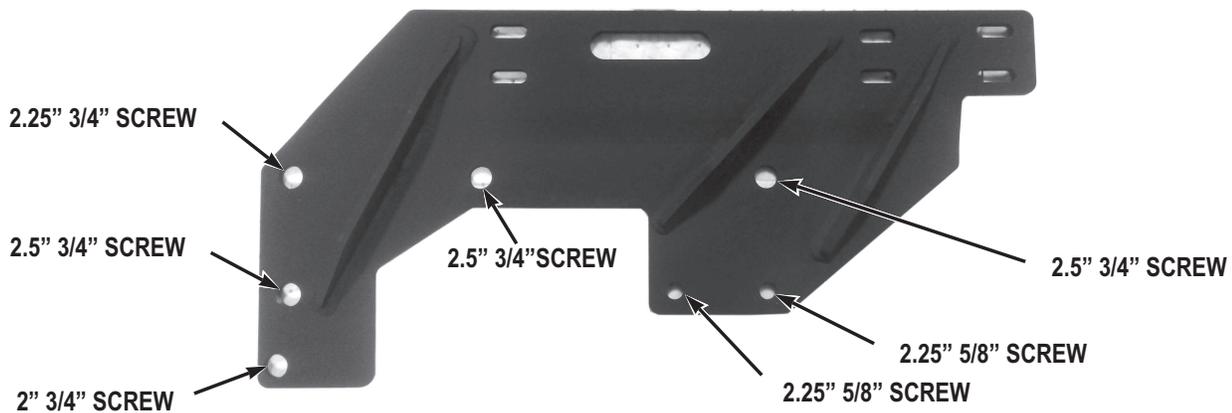


Figure 1. Assembly Guide, Driver Side.

STOWAGE ASSEMBLY INSTALLATION - Continued**NOTE**

- Tighten all screws and nuts hand tight only.
 - Use retained hardware for installation unless otherwise directed.
1. Secure driver side stowage mount bracket (Figure 2, Item 10) on driver side frame rail (Figure 2, Item 9) with screw (Figure 2, Item 1).
 2. Secure stowage mount bracket (Figure 2, Item 10) on frame rail (Figure 2, Item 9) with screw (Figure 2, Item 2), and spacer (Figure 2, Item 3).
 3. Secure stowage mount bracket (Figure 2, Item 10) on frame rail (Figure 2, Item 9) with screw (Figure 2, Item 4), and nut (Figure 2, Item 5).
 4. Secure stowage mount bracket (Figure 2, Item 10) on frame rail (Figure 2, Item 9) with two screws (Figure 2, Item 6) and nuts (Figure 2, Item 5).
 5. Secure stowage mount bracket (Figure 2, Item 10) on frame rail (Figure 2, Item 9) with two screws (Figure 2, Item 7) and nuts (Figure 2, Item 8).
 6. With the aid of an assistant, lift stowage mount bracket (Figure 2, Item 10) as far as possible on frame rail (Figure 2, Item 9) and tighten screws (Figure 2, Items 1, 2, 4, 6, and 7) and nuts (Figure 2, Items 5, and 8)

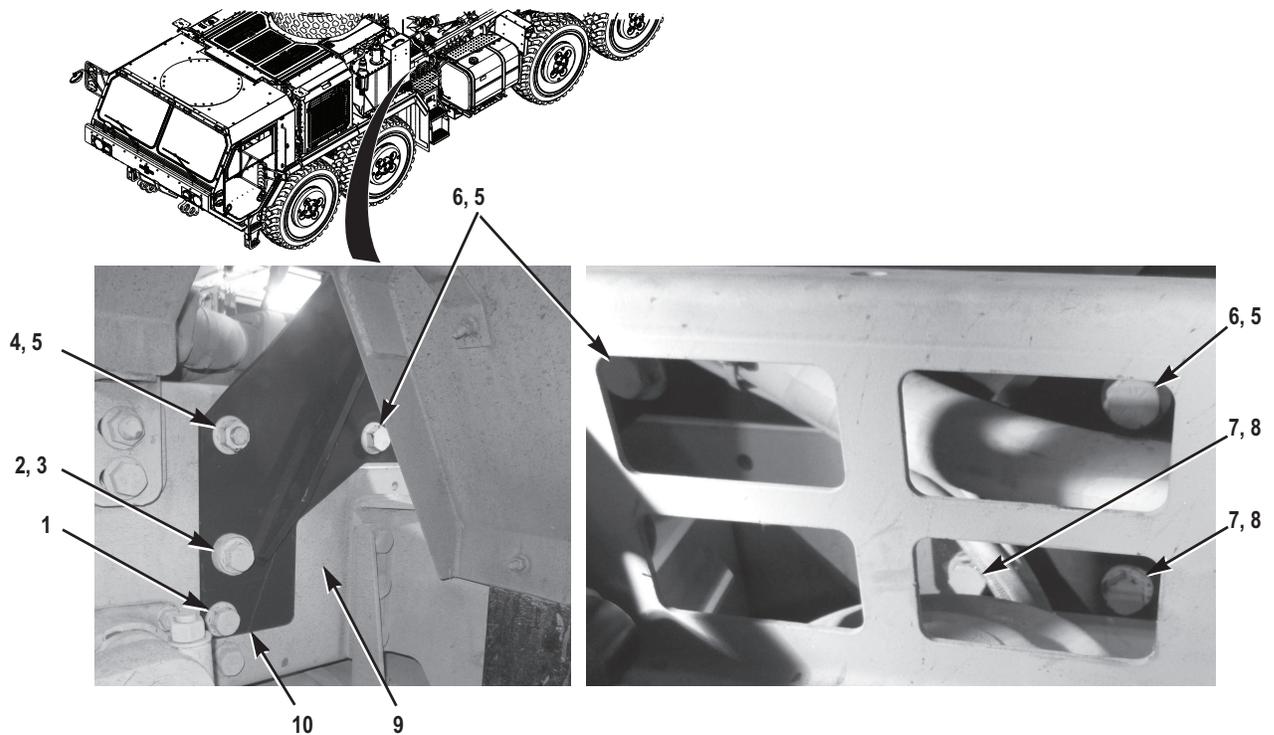


Figure 2. PLS A1 Driver Side Stowage Bracket Installation.

STOWAGE ASSEMBLY INSTALLATION - Continued

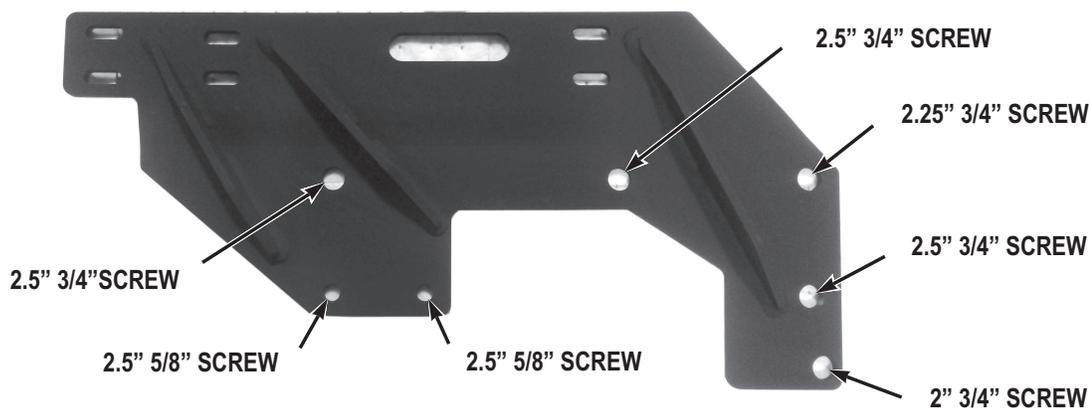


Figure 3. Assembly Guide, Passenger Side.

7. Secure passenger side stowage mount bracket (Figure 4, Item 5) on passenger side frame rail (Figure 4, Item 1) with screw (Figure 4, Item 8).
8. Secure stowage mount bracket (Figure 4, Item 5) on frame rail (Figure 4, Item 1) with screw (Figure 4, Item 2) and spacer (Figure 4, Item 7).
9. Secure stowage mount bracket (Figure 4, Item 5) on frame rail (Figure 4, Item 1) with screw (Figure 4, Item 6), and nut (Figure 4, Item 3).
10. Secure stowage mount bracket (Figure 4, Item 5) on frame rail (Figure 4, Item 1) with screw (Figure 4, Item 2), and nut (Figure 4, Item 3).
11. Secure fuel tank bracket (Figure 4, Item 4) and stowage mount bracket (Figure 4, Item 5) on frame rail (Figure 4, Item 1) with screw (Figure 4, Item 2), and nut (Figure 4, Item 3).
12. Secure fuel tank bracket (Figure 4, Item 4) and stowage mount bracket (Figure 4, Item 5) on frame rail (Figure 4, Item 1) with two screws (Figure 4, Item 9), and nuts (Figure 4, Item 10).
13. Position shims (Figure 4, Item 13) on screws (Figure 4, Item 11) between fuel tank bracket (Figure 4, Item 4) and frame rail (Figure 4, Item 1) as required.
14. With the aid of an assistant, lift stowage mount bracket (Figure 4, Item 5) as far as possible on frame rail (Figure 4, Item 1) and tighten screw (Figure 4, Items 8).
15. Tighten two screws (Figure 4, Item 11) and nuts (Figure 4, Item 12).
16. Tighten screws (Figure 4, Items 2, 6, and 9) and nuts (Items 3 and 10).

STOWAGE ASSEMBLY INSTALLATION - Continued

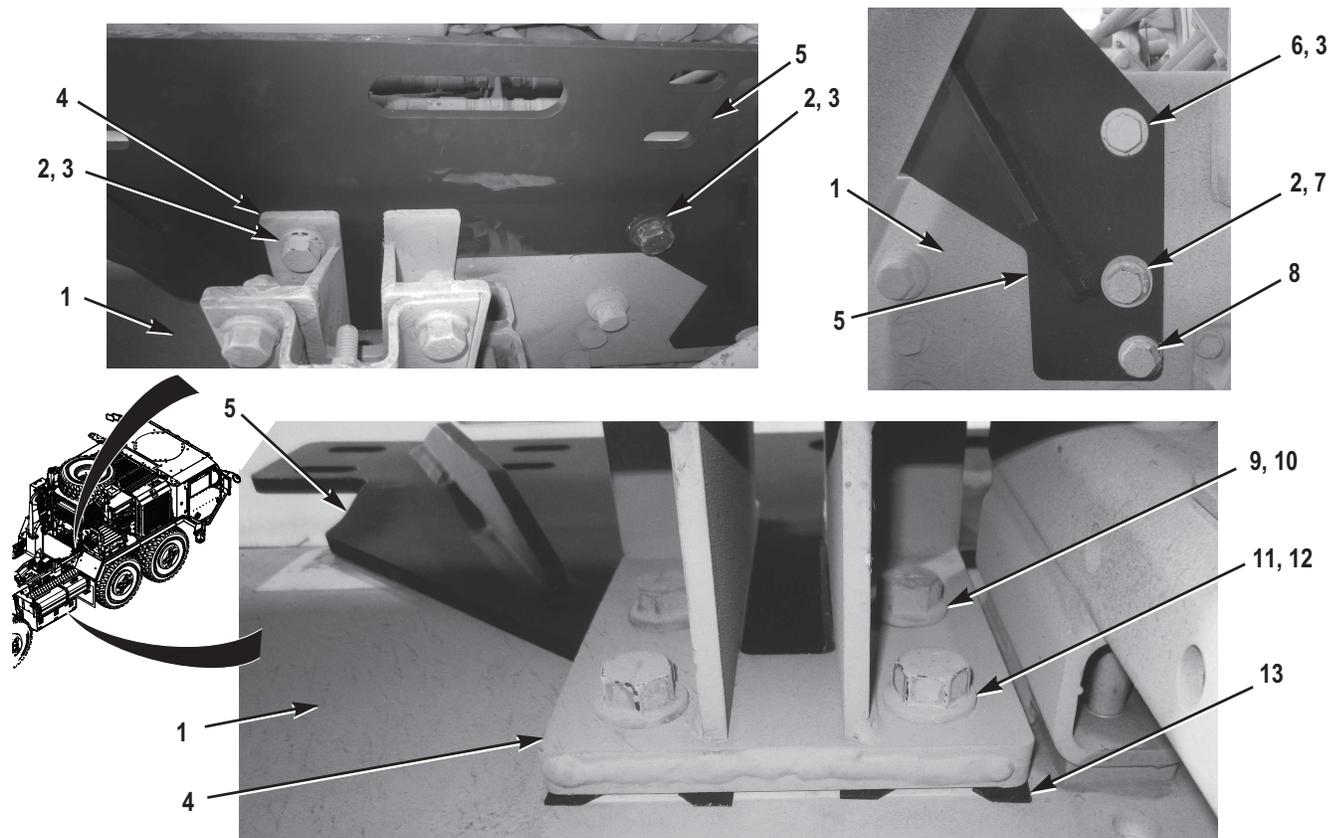


Figure 4. PLS A1 Passenger Side Stowage Bracket Installation.

WARNING



- Lifting cables, chains, hooks, and slings used for lifting must be in good condition and of suitable capacity.
- Improper use of lifting equipment and improper attachment of cables may cause injury to personnel and damage to equipment. Observe all standard rules of safety.
- Use extreme caution when handling heavy parts. Provide adequate support and use assistance during procedure. Ensure any lifting device used is in good condition and of suitable load capacity. Keep clear of heavy parts supported only by lifting device.
- Failure to follow these warnings may cause injury or death to personnel.

STOWAGE ASSEMBLY INSTALLATION - Continued**CAUTION**

Ensure stowage assembly hydraulic hoses and wiring harnesses are placed out of the way before installing stowage assembly. Failure to follow this caution may result in damage to equipment.

NOTE

Stowage assembly weighs 640 lb (290 kg).

17. Attach suitable slings (Figure 5, Item 1) and lifting device to stowage assembly (Figure 5, Item 2). Adjust placement of slings until stowage assembly is level when raised.

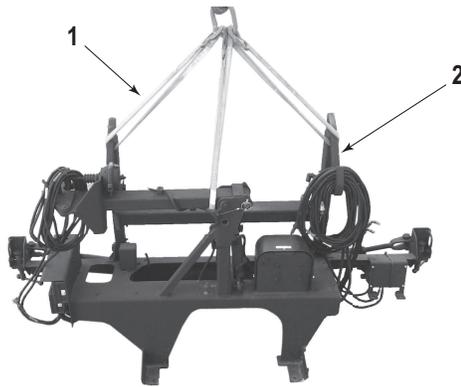


Figure 5. Sling on Stowage Assembly.

18. While stowage assembly (Figure 6, Item 1) is supported by lifting device, install two spacers (Figure 6, Item 5) on legs of stowage assembly with four screws (Figure 6, Item 2), washers (Figure 6, Item 4), and locknuts (Figure 6, Item 3).

STOWAGE ASSEMBLY INSTALLATION - Continued

Figure 6. PLS A1 Stowage Assembly Spacers.

CAUTION

Before positioning stowage assembly on vehicle, ensure existing vehicle hydraulic hoses and wiring harnesses are positioned out of the way of stowage assembly. Failure to comply may result in damage to equipment.

NOTE

Position stowage assembly as far forward as possible on spacers, to avoid possible contact between hook arm and stowage assembly when stowing hook arm. Stowage assembly placement will be adjusted later in task.

19. With aid of an assistant and lifting device, position stowage assembly (Figure 7, Item 6) on frame rails (Figure 7, Items 7) between two stowage mount brackets (Figure 7, Items 1). Align holes in stowage assembly with holes in stowage mount brackets.

NOTE

Tighten all screws and nuts hand tight only. It will be necessary to adjust position of stowage assembly during installation. Driver side mounting bracket shown.

20. Secure stowage assembly (Figure 7, Item 6) on two stowage mount brackets (Figure 7, Item 1) with twelve screws (Figure 7, Item 2), washers (Figure 7, Item 3), washers (Figure 7, Item 4), and locknuts (Figure 7, Item 5).

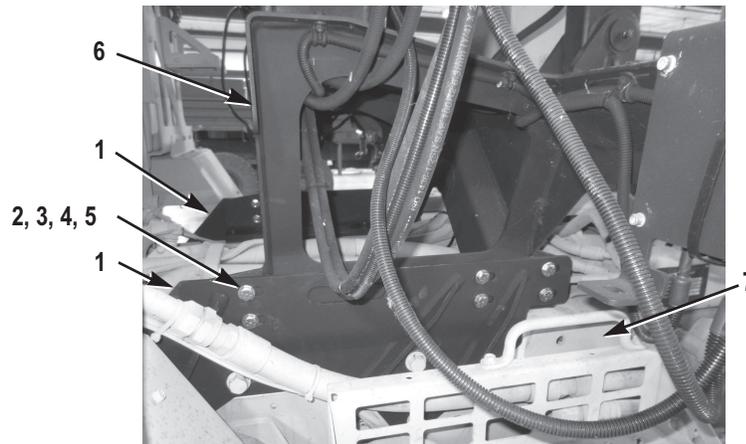
STOWAGE ASSEMBLY INSTALLATION - Continued

Figure 7. PLS A1 Stowage Assembly Installation.

21. Loosen three locking pins (Figure 8, Item 1) and remove manifold cover (Figure 8, Item 2) from stowage assembly (Figure 8, Item 6).

NOTE

- Pressure hose is marked with "P" on manifold.
- Relief hose is marked with "T" on manifold.

22. Identify pressure hose (Figure 8, Item 4) and relief hose (Figure 8, Item 3) based on markings on manifold (Figure 8, Item 5).

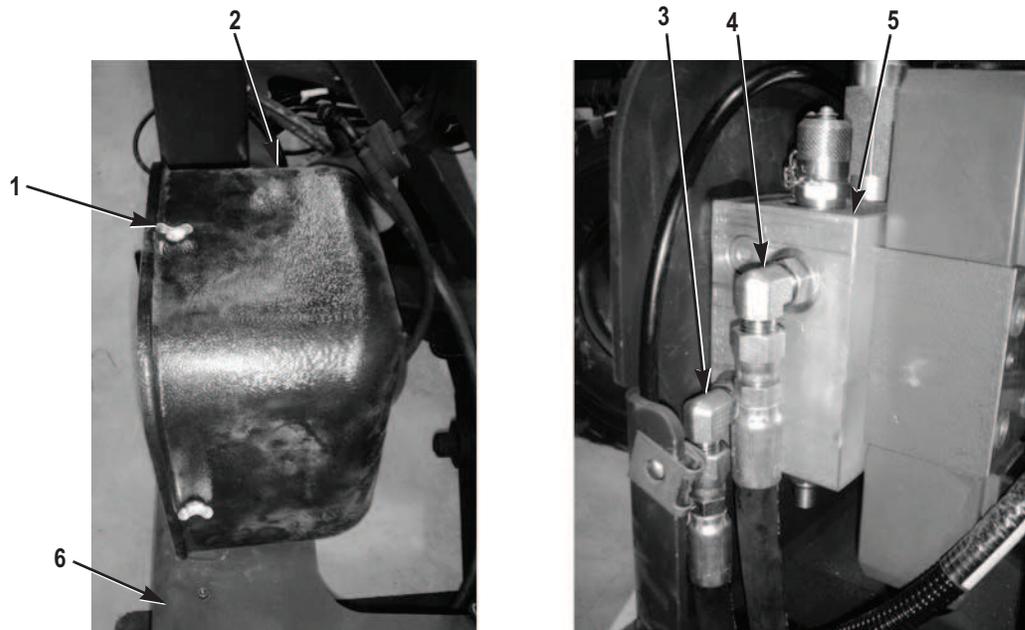


Figure 8. Identify Stowage Hydraulic Hoses.

STOWAGE ASSEMBLY INSTALLATION - Continued

23. Route pressure hose (Figure 9, Item 5) and relief hose (Figure 9, Item 1) to hydraulic control box (Figure 9, Item 6).
24. Install new cable ties as required to secure pressure hose (Figure 9, Item 5) and relief hose (Figure 9, Item 1) to existing hydraulic lines.

NOTE

For Steps 25 - 26, install shorter fitting on hose and longer fitting on hydraulic control fitting.

25. Install long adapter fitting (Figure 9, Item 3), short adapter fitting (Figure 9, Item 4), and pressure hose (Figure 9, Item 5) on hydraulic control fitting (Figure 9, Item 2).
26. Install long adapter fitting (Figure 9, Item 3), short adapter fitting (Figure 9, Item 4), and relief hose (Figure 9, Item 1) on hydraulic control fitting (Figure 9, Item 7).

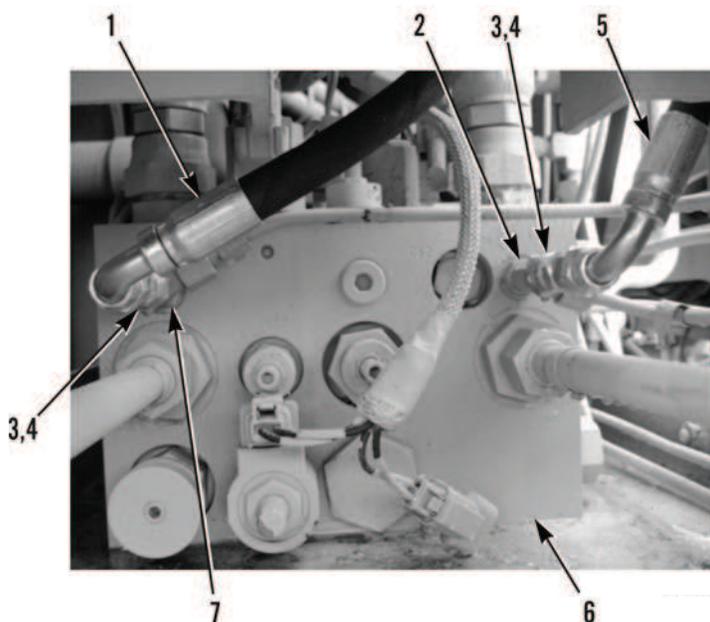


Figure 9. PLS A1 Hydraulic Hose Installation.

27. Start vehicle (PLS A1 TM 9-2320-319-14&P).
28. Inspect new hydraulic lines and fittings for leaks.
29. Shut off vehicle (PLS A1 TM 9-2320-319-14&P).

CAUTION

Use caution when handling sensor harness. Sensors are easily damaged if mishandled. Failure to follow this caution may cause damage to equipment.

NOTE

Middle frame sensor harness and hook arm sensor harness are on passenger side of stowage assembly.

STOWAGE ASSEMBLY INSTALLATION - Continued

30. Route middle frame sensor harness and hook arm sensor harness (Figure 10, Item 1) from stowage assembly (Figure 10, Item 2), along inside of passenger side of frame (Figure 10, Item 3) to rear of main frame.
31. Install new cable ties as required to secure middle frame sensor harness and hook arm sensor harness (Figure 10, Item 1) to existing wiring harness along frame.

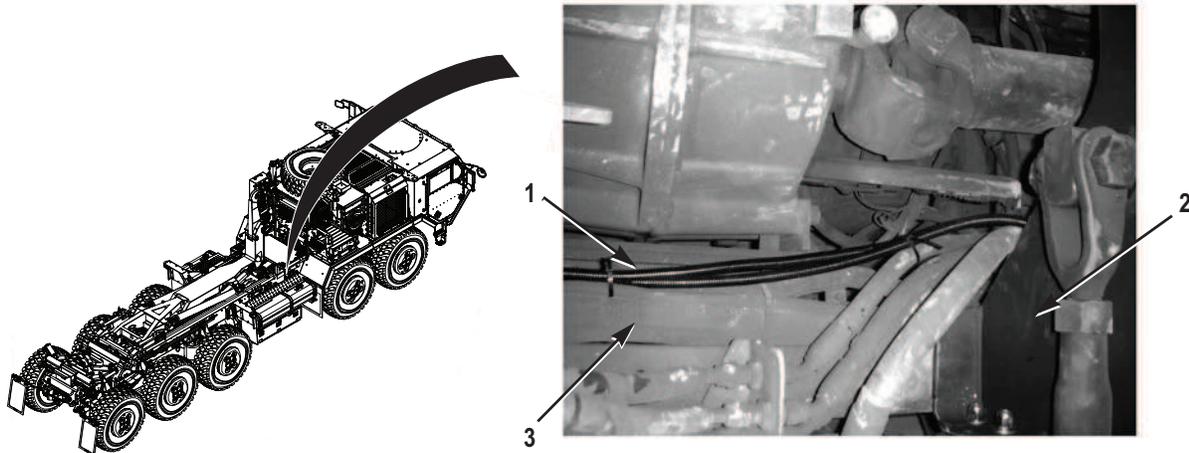


Figure 10. Middle Frame and Hook Arm Harness Installation.

CAUTION

Use caution when handling sensor harness. Sensors are easily damaged if mishandled. Failure to follow this caution may cause damage to equipment.

NOTE

Driver side and passenger side twistlock sensor harnesses are on driver side of stowage assembly.

32. Route driver side and passenger side twistlock sensor harnesses (Figure 11, Item 1) from stowage assembly (Figure 11, Item 2), along interior of driver side of frame (Figure 11, Item 3) to rear of vehicle.
33. Install new cable ties as required to secure twistlock sensor harnesses (Figure 11, Item 1) to existing wire harness along frame.

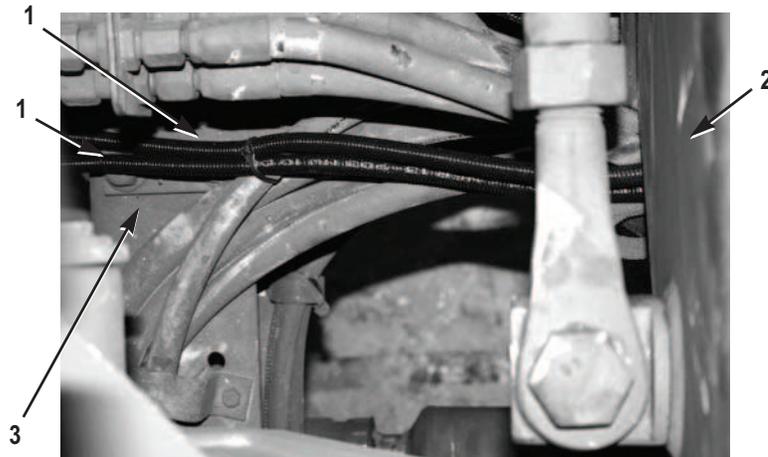
STOWAGE ASSEMBLY INSTALLATION - Continued

Figure 11. Twistlock Sensor Harness Installation.

NOTE

PLS A1 has five air tanks. There are three air tanks on the passenger side, inside the frame from the passenger side fuel tank. Route air line to rear of center passenger side air tank.

34. Route air hose (Figure 12, Item 3) from solenoid valve (Figure 12, Item 4) on stowage assembly (Figure 12, Item 5) along existing air lines, to rear of center air tank on passenger side.
35. Install manifold cover (Figure 12, Item 2) on stowage assembly (Figure 12, Item 5) and secure three locking pins (Figure 12, Item 1).

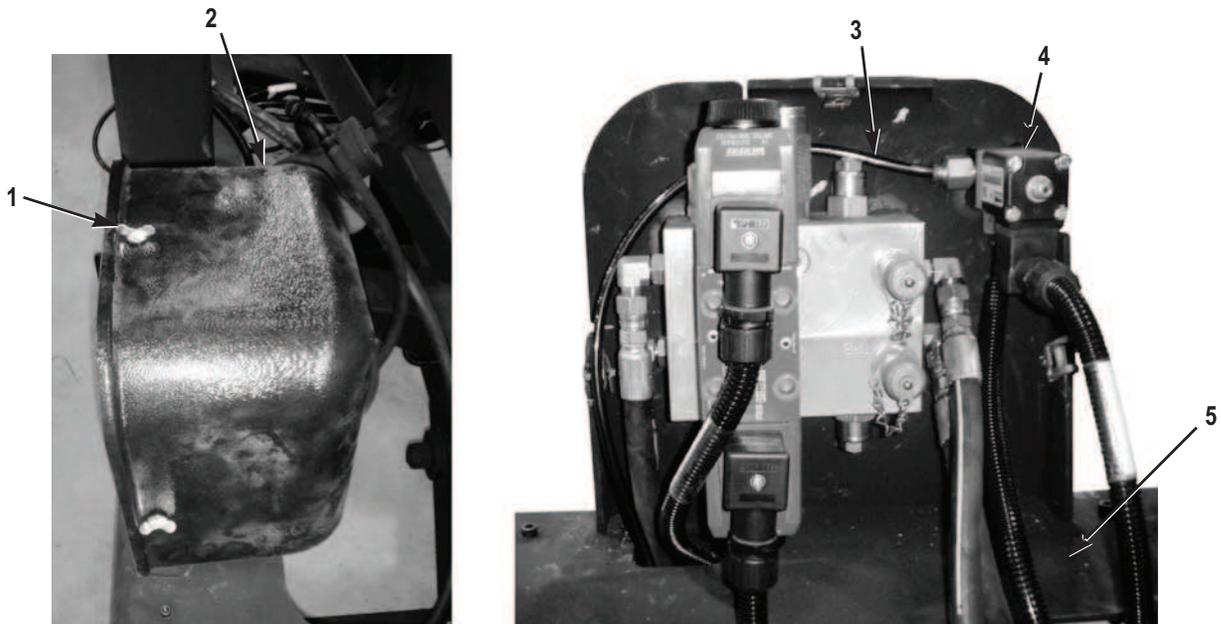


Figure 12. Routing Stowage Assembly Air Hose.

STOWAGE ASSEMBLY INSTALLATION - Continued**NOTE**

Ensure relief valve is closed after relieving air pressure from system.

36. Release air pressure from system (PLS A1 TM 9-2320-319-14&P).

NOTE

PLS A1 has five air tanks. There are three air tanks on the passenger side, inside the frame from the passenger side fuel tank. Fittings for Steps 37 - 55 are on rear of center passenger side air tank.

37. Remove air line (Figure 13, Item 4) from 90° fitting (Figure 13, Item 5).
38. Remove air line (Figure 13, Item 3) from 90° fitting (Figure 13, Item 2).
39. Remove 90° fitting (Figure 13, Item 5) from T-fitting (Figure 13, Item 1).
40. Remove 90° fitting (Figure 13, Item 2) from T-fitting (Figure 13, Item 1).
41. Remove T-fitting (Figure 13, Item 1) from check valve (Figure 13, Item 6).
42. Remove check valve (Figure 13, Item 6) from 90° fitting (Figure 13, Item 8).
43. Apply pipe sealant (Loctite 592®) to threads of T-fitting (Figure 13, Item 7) and install T-fitting on 90° fitting (Figure 13, Item 8).
44. Apply pipe sealant (Loctite 592®) to threads of check valve (Figure 13, Item 6) and install check valve on T-fitting (Figure 13, Item 7).
45. Apply pipe sealant (Loctite 592®) to threads of reducer fitting (Figure 13, Item 9) and install reducer fitting on T-fitting (Figure 13, Item 7).
46. Install pushlock fitting (Figure 13, Item 10) on reducer fitting (Figure 13, Item 9).
47. Apply pipe sealant (Loctite 592®) to threads T-fitting (Figure 13, Item 1) and install T-fitting on check valve (Figure 13, Item 6).
48. Apply pipe sealant (Loctite 592®) to threads of 90° fitting (Figure 13, Item 2) and install 90° fitting on T-fitting (Figure 13, Item 1).
49. Apply pipe sealant (Loctite 592®) to threads of 90° fitting (Figure 13, Item 5) and install 90° fitting on T-fitting (Figure 13, Item 1).
50. Connect air line (Figure 13, Item 4) to 90° fitting (Figure 13, Item 5).
51. Connect air line (Figure 13, Item 3) to 90° fitting (Figure 13, Item 2).
52. Cut air line (Figure 13, Item 11) to length, and connect air line to pushlock fitting (Figure 13, Item 10).
53. Start vehicle and allow air system to build pressure (PLS A1 TM 9-2320-319-14&P).
54. Shut off vehicle (PLS A1 TM 9-2320-319-14&P).
55. Inspect new air lines and fittings for leaks.

STOWAGE ASSEMBLY INSTALLATION - Continued

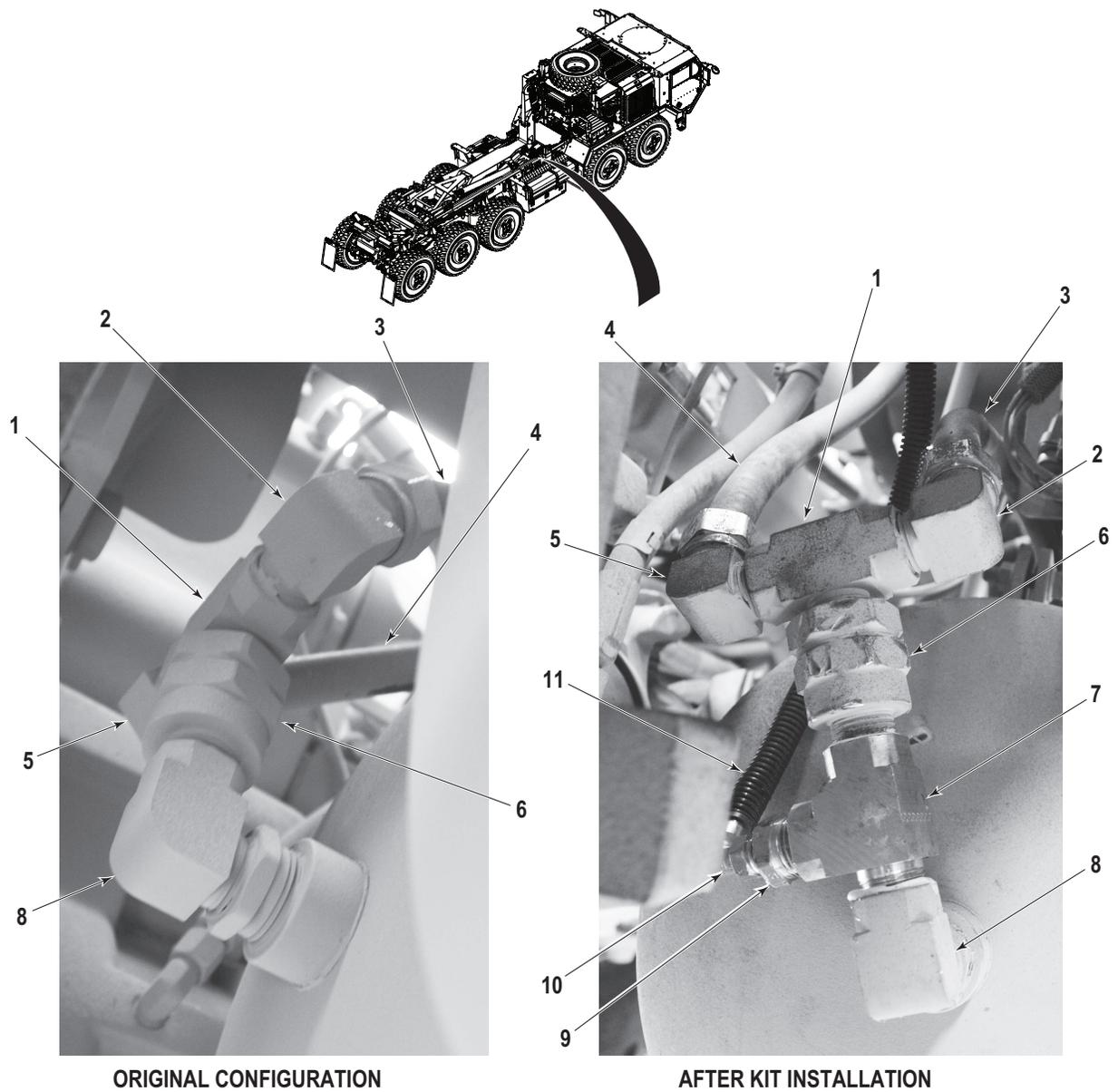


Figure 13. PLS A1 Pneumatic Fitting and Hose Installation.

56. Remove screw (Figure 14, Item 2), and nut (Figure 14, Item 3) from driver side fender (Figure 14, Item 1) and fender brace (Figure 14, Item 4). Discard hardware.

STOWAGE ASSEMBLY INSTALLATION - Continued

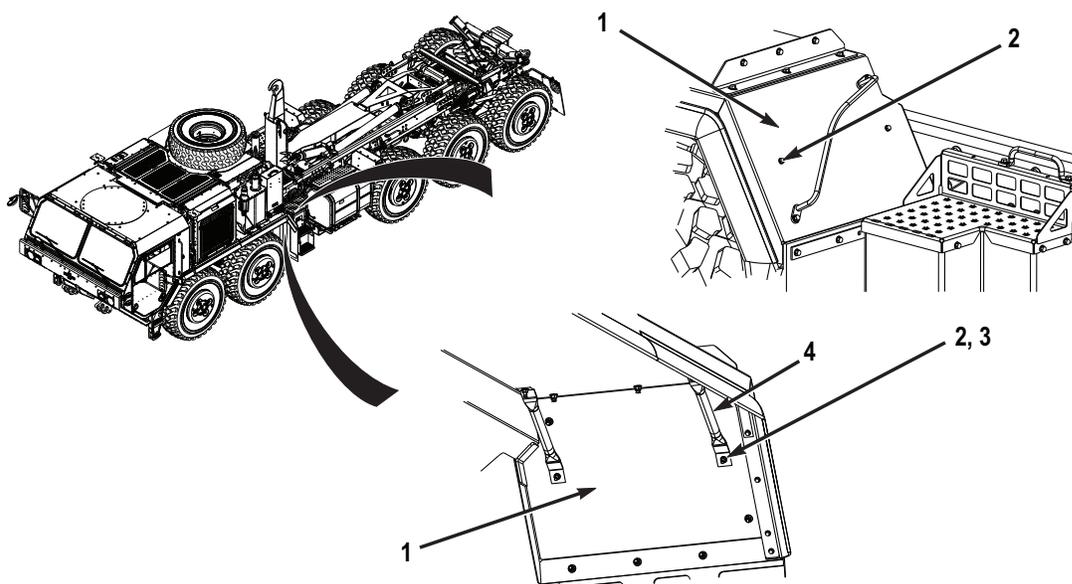
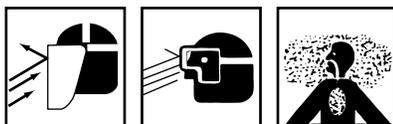


Figure 14. PLS A1 Driver Side Fender.

57. Place operator control box fender mounting bracket (Figure 15, Item 2) on driver side fender (Figure 15, Item 1) aligning bottom left hole in fender mounting bracket with hole in fender.

WARNING

- Appropriate safety precautions (including, but not limited to, wearing proper breathing apparatus, hearing protection, safety goggles, etc.) must be observed when working with CARC material.
 - All cutting and grinding must be done using an abrasive device only. Use of a cutting torch, plasma cutter, etc., is not permitted.
 - Always wear gloves and a face shield or breathing apparatus when grinding painted surfaces. Airborne particles may cause lung irritation or damage to eyes.
 - Failure to follow these warnings may cause injury or death to personnel.
58. Mark location of remaining three holes in fender mounting bracket (Figure 15, Item 2) on fender (Figure 15, Item 1). Drill three .5 in. holes at marked locations.
59. Install fender mounting bracket (Figure 15, Item 2) on fender (Figure 15, Item 1) and fender brace (Figure 15, Item 10) with four screws (Figure 15, Item 8), washers (Figure 15, Item 9), washers (Figure 15, Item 11), and locknuts (Figure 15, Item 12).
60. Install operator control box (Figure 15, Item 3) on fender mounting bracket (Figure 15, Item 2) with two screws (Figure 15, Item 4), washers (Figure 15, Item 5), washers (Figure 15, Item 6), and locknuts (Figure 15, Item 7).

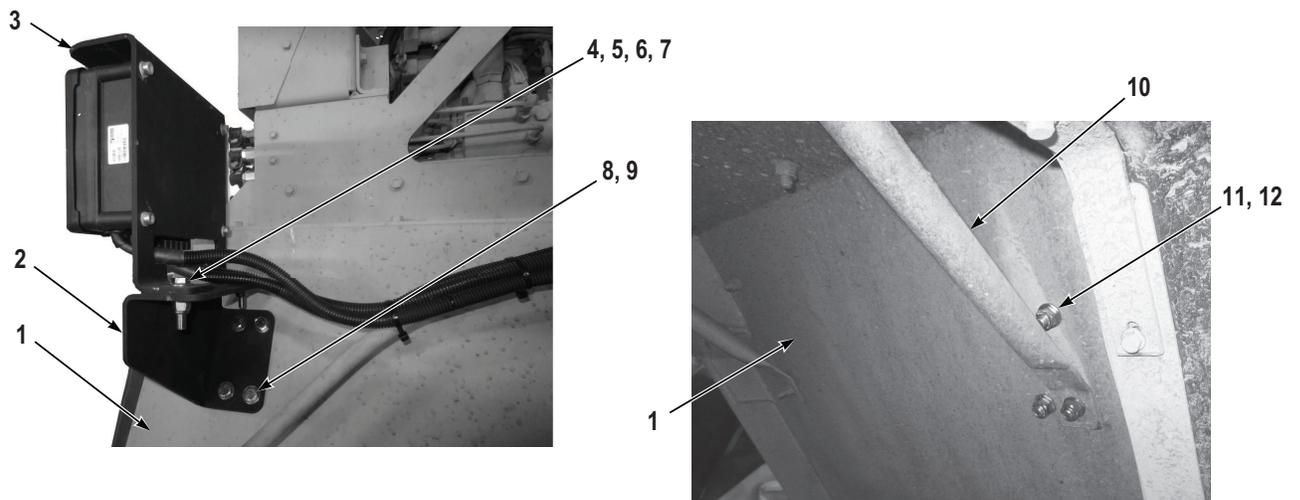
STOWAGE ASSEMBLY INSTALLATION - Continued

Figure 15. Stowage Control Panel and Bracket.

61. Install cable ties as required to secure stowage control panel wire harness.
62. Stow hook arm (PLS A1 TM 9-2320-319-14&P).

NOTE

Measure distance from hook arm to stowage assembly on both drive side and passenger side to ensure accurate placement of stowage assembly.

63. Adjust placement of stowage assembly (Figure 16, Item 1) on frame until distance between stowage assembly and front edge of hook arm (Figure 16, Item 2) measures 3.125 in. (80 mm).



Figure 16. Distance Between Stowage Assembly and Hook Arm.

NOTE

Ensure stowage assembly does not shift while tightening hardware.

STOWAGE ASSEMBLY INSTALLATION - Continued

64. Tighten twelve screws (Figure 17, Item 2) and nuts (Figure 17, Item 3) securing stowage assembly (Figure 17, Item 4) on two stowage mount brackets (Figure 17, Item 1).



Figure 17. PLS A1 Stowage Assembly Installation.

END OF TASK**SLIDER ASSEMBLY INSTALLATION**

Table 2. Parts List for PLS A1 Slider Assembly Installation.

ITEM NO.	QTY	DESCRIPTION	PART NUMBER
Figure 18, Item 1	2	Slide Adapter Plate	112090401
Figure 18, Item 4	6	3/4-10 x 2 Screw	112079703
Figure 18, Item 5	6	3/4 Washer	112080102
Figure 19, Item 4	1	Slider Assembly	111589501
Figure 22, Item 3	8	9/16-12 x 2 Screw	112079719
Figure 22, Item 4	8	9/16 Washer	112080109

SLIDER ASSEMBLY INSTALLATION - Continued**NOTE**

- If necessary, clean threads of slide adapter plates with a tap before installation.
 - Driver side and passenger side slide adapter plates are installed the same way. Driver side shown.
 - Slide adapter plate will fit on vehicle with either side up. One row of holes for slider installation screws is approximately .25 in from edge of slide adapter plate. One row of holes for slider installation screws is approximately .75" from edge of slide adapter plate.
 - Hand tighten all screws on installation. Slide adapter plates will be repositioned during slider assembly installation.
 - Perform Steps 1 - 3 for both driver and passenger sides. Driver side shown.
1. Place slide adapter plate (Figure 18, Item 1) on roller support bracket (Figure 18, Item 3), aligning center screw holes (Figure 18, Item 6) in slide adapter plate with holes in roller support bracket. Ensure slide adapter plate is positioned so that edge of slide adapter plate with slider installation screw holes (Figure 18, Item 2) .25 in from edge of slide adapter plate is positioned to the outside of vehicle.
 2. Apply thread adhesive (Loctite 271®) to three screws (Figure 18, Item 4).
 3. Secure slide adapter plate (Figure 18, Item 1) on roller support bracket (Figure 18, Item 3) with three screws (Figure 18, Item 4) and washers (Figure 18, Item 5).
 4. Repeat Steps 1 - 3 for passenger side slide adapter plate.

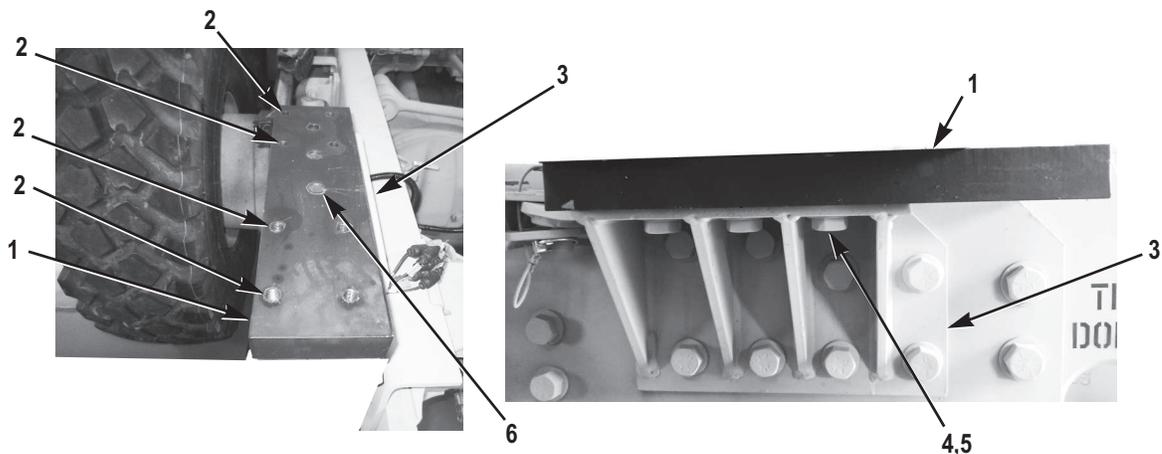
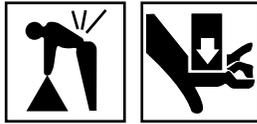


Figure 18. PLS A1 Slider Mounting Block Installation.

SLIDER ASSEMBLY INSTALLATION - Continued**WARNING**

- Lifting cables, chains, hooks, and slings used for lifting must be in good condition and of suitable capacity.
- Improper use of lifting equipment and improper attachment of cables may cause injury to personnel and damage to equipment. Observe all standard rules of safety.
- Use extreme caution when handling heavy parts. Provide adequate support and use assistance during procedure. Ensure any lifting device used is in good condition and of suitable load capacity. Keep clear of heavy parts supported only by lifting device.
- Failure to follow these warnings may cause injury or death to personnel.

NOTE

Slider assembly weighs 1,400 lb (635 kg).

5. Attach suitable slings and lifting device to slider assembly (Figure 19, Item 3). Attach one sling (Figure 19, Item 2) around center of slider assembly and two slings (Figure 19, Item 1) around right and left twistlocks (Figure 19, Item 4). Adjust placement of slings until slider assembly is level when raised.

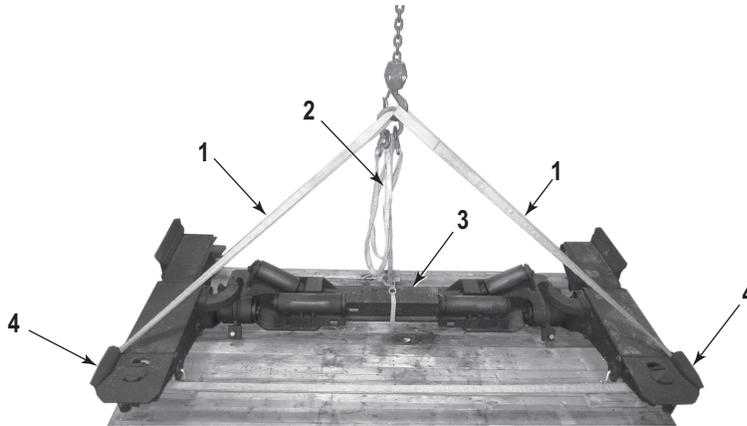


Figure 19. Slider Assembly With Straps.

6. Use lifting device to place slider assembly (Figure 20, Item 1) on slide adapter plates (Figure 20, Item 2), aligning front mounting holes in slider assembly with front holes in slide adapter plate.

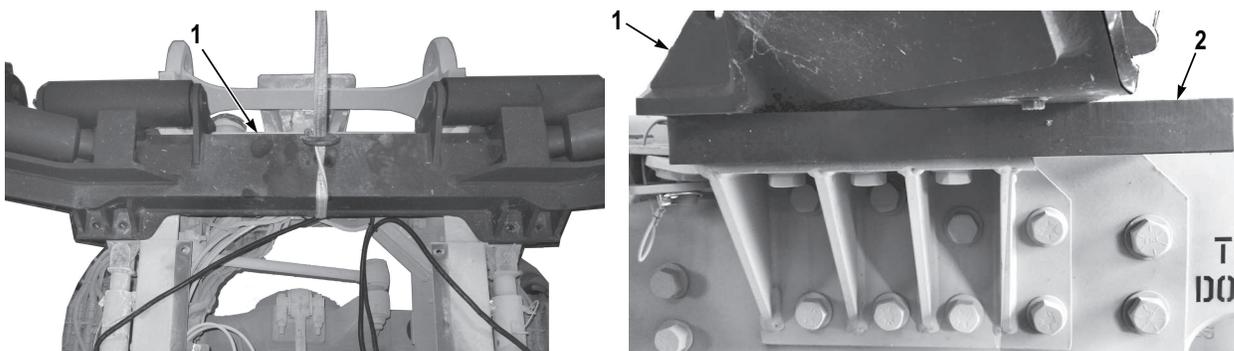
SLIDER ASSEMBLY INSTALLATION - Continued

Figure 20. Slider Assembly On Spacers.

NOTE

- Light bars must be positioned out of the way for slider assembly installation.
 - Passenger side and driver side light bars are positioned the same way. Passenger side shown.
7. Remove screw (Figure 21, Item 5), washer (Figure 21, Item 6), washer (Figure 21, Item 7), and nut (Figure 21, Item 8) from passenger side light bracket (Figure 21, Item 2) and slider assembly (Figure 21, Item 1).
 8. Loosen screw (Figure 21, Item 3) and nut (Figure 21, Item 4), and pivot passenger side light bracket (Figure 21, Item 2) out from slider assembly (Figure 21, Item 1).
 9. Repeat Steps 7 - 8 for driver side light bracket.

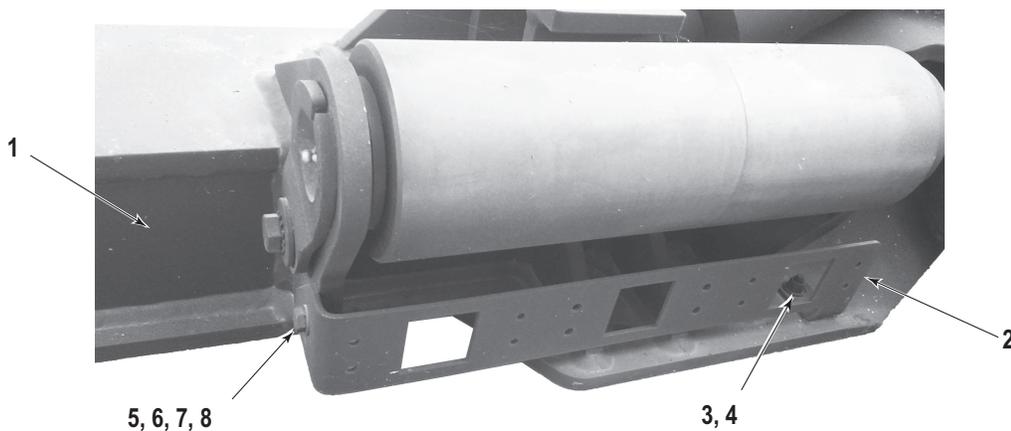


Figure 21. Slider Light Bracket Hardware.

NOTE

Perform Steps 10 - 13 for both driver and passenger sides. Driver side shown.

10. Apply thread adhesive (Loctite 271®) to threads of eight screws (Figure 22, Item 3).

SLIDER ASSEMBLY INSTALLATION - Continued

11. Secure slider assembly (Figure 22, Item 1) to two slide adapter plates (Figure 22, Item 2) with eight screws (Figure 22, Item 3) and washers (Figure 22, Item 4).
12. Tighten six screws (Figure 22, Item 6) securing two slide adapter plates (Figure 22, Item 2) to two roller support brackets (Figure 22, Item 5) to 375 ft-lbs.
13. Tighten eight screws (Figure 22, Item 3) securing slider assembly (Figure 22, Item 1) to two slide adapter plates (Figure 22, Item 2) to 115 ft-lbs.
14. Remove lifting device and slings from slider assembly (Figure 22, Item 1).

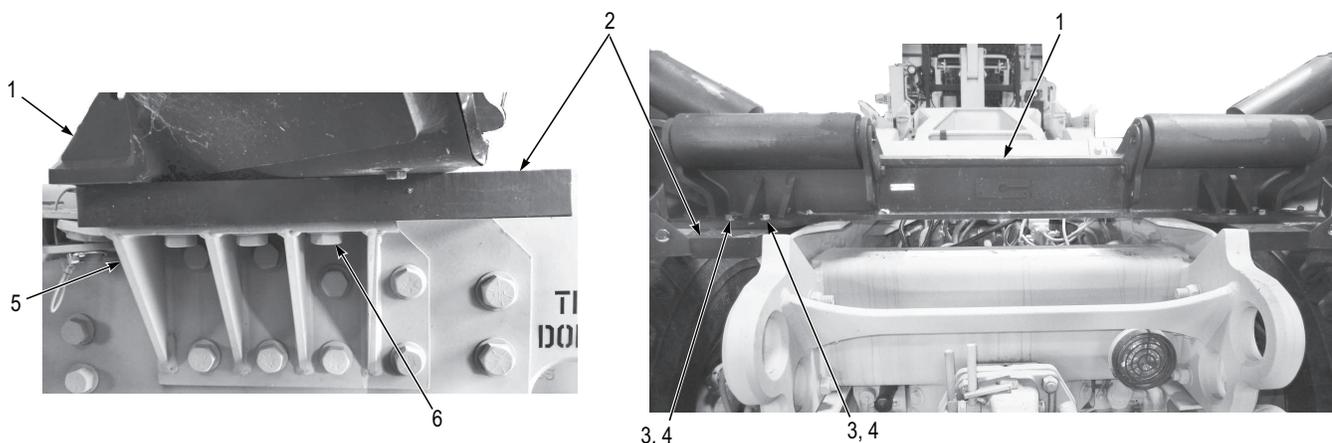


Figure 22. Slider Assembly Installation.

END OF TASK**LIGHT BAR ASSEMBLY DISASSEMBLY****NOTE**

- All rear light bar assembly marker lights are removed the same way.
- Set aside all hardware for reinstallation.

1. Remove two screws (Figure 23, Item 1) and cover (Figure 23, Item 2) from marker light (Figure 23, Item 5).
2. Remove two screws (Figure 23, Item 6), nuts (Figure 23, Item 7) and marker light (Figure 23, Item 5) from light bar (Figure 23, Item 3).
3. Disconnect marker light (Figure 23, Item 5) from wire harness connector (Figure 23, Item 8).
4. Repeat Steps 1 - 3 for remaining marker lights on light bar.
5. Repeat Steps 1 - 2 for two marker lights on side marker light brackets. Discard brackets.

NOTE

Remove any remaining cable ties from wire harness.

6. Remove wire harness (Figure 23, Item 4) from light bar (Figure 23, Item 3). Discard light bar.

LIGHT BAR ASSEMBLY DISASSEMBLY - Continued

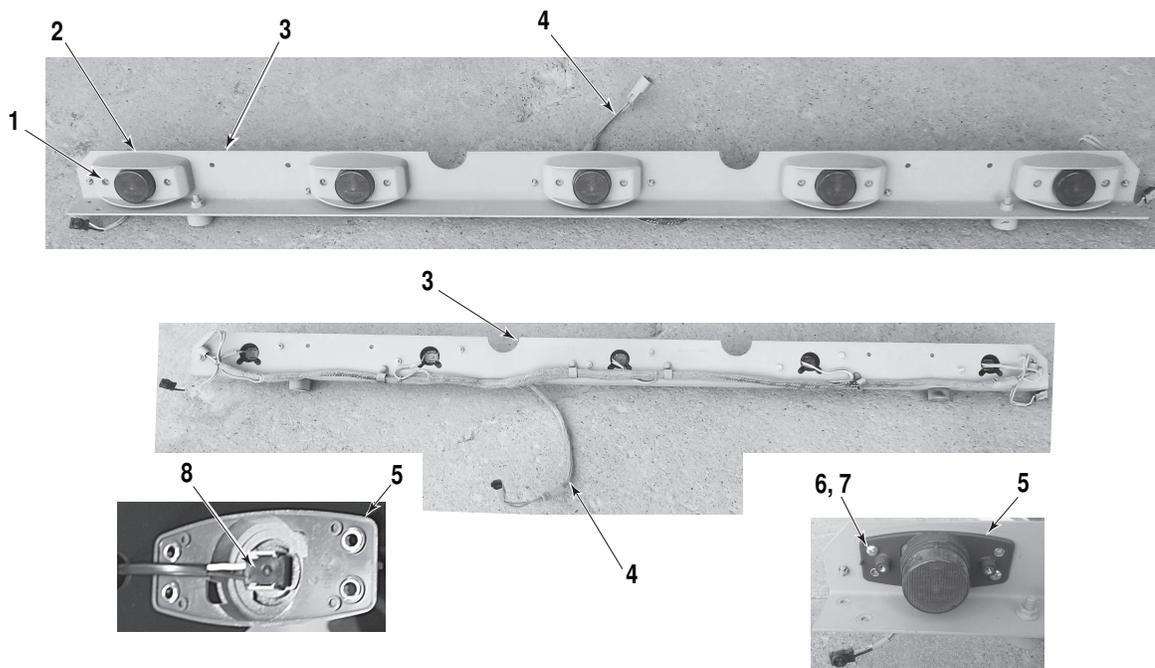


Figure 23. Light Bar Disassembly.

END OF TASK

MARKER LIGHT AND REFLECTOR INSTALLATION

Table 3. Parts List for Marker Light And Reflector Installation.

ITEM NO.	QTY	DESCRIPTION	PART NUMBER
Figure 26, Item 2 Figure 28, Item 4	6	Screw, 10–24 x 5/8	112137501
Figure 28, Item 2	2	Harness Extension Splice Assembly (LED)	112265901

1. Place original wiring harness (Figure 24, Item 2) behind driver side light bracket (Figure 24, Item 1) and passenger side light bracket (Figure 24, Item 3).

MARKER LIGHT AND REFLECTOR INSTALLATION - Continued

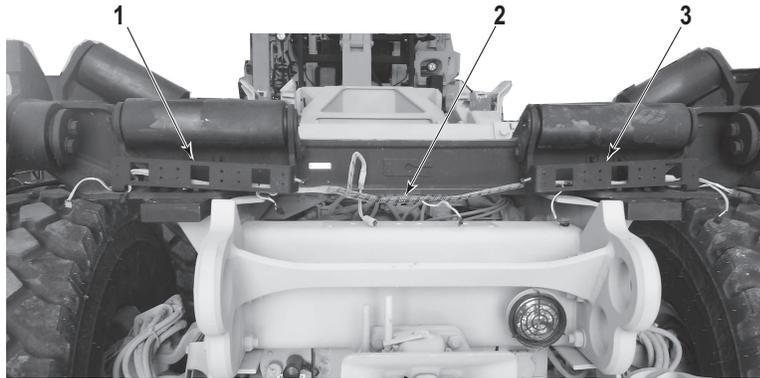


Figure 24. Wire Harness Installation.

2. At inside light location of passenger side light bracket, install marker light (Figure 25, Item 4) on light bracket (Figure 25, Item 1) with two screws (Figure 25, Item 2) and nuts (Figure 25, Item 3).
3. At outside light location of bracket, install marker light (Figure 25, Item 10) on light bracket (Figure 25, Item 1) with two screws (Figure 25, Item 8) and nuts (Figure 25, Item 9).
4. Install reflector (Figure 25, Item 7) on light bracket (Figure 25, Item 1) with two screws (Figure 25, Item 5) and nuts (Figure 25, Item 6).
5. Repeat Steps 2 - 4 for driver side marker lights and reflector.

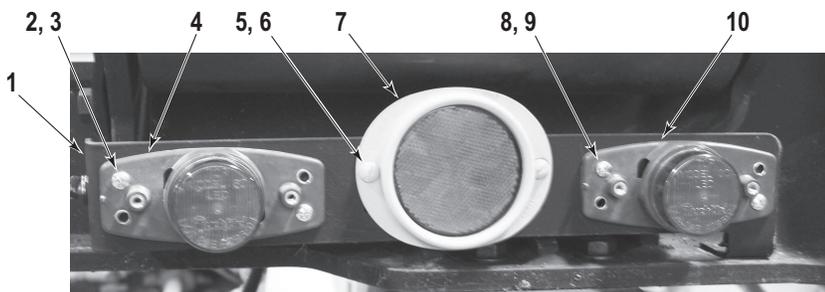


Figure 25. Marker Light Installation.

6. Connect center marker light (Figure 26, Item 3) to vehicle wire harness connector (Figure 26, Item 5).
7. Route wire harness (Figure 26, Item 4) along slot on mounting plate (Figure 26, Item 1) and install center marker light (Figure 26, Item 3) on mounting plate with two screws (Figure 26, Item 2).

MARKER LIGHT AND REFLECTOR INSTALLATION - Continued

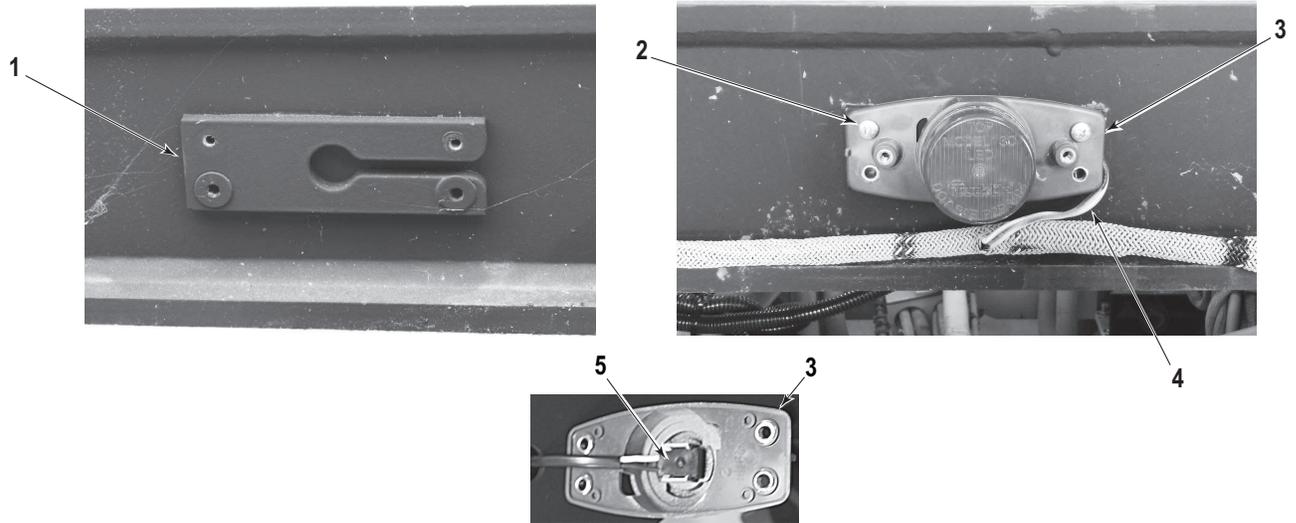


Figure 26. Marker Light Installation.

8. Connect wire harness connectors to remaining marker lights.
9. Install light bracket (Figure 27, Item 1) on slider beam (Figure 27, Item 6) with screw (Figure 27, Item 2), washer (Figure 27, Item 3), washer (Figure 27, Item 4), and nut (Figure 27, Item 5).
10. Tighten screw (Figure 27, Item 7) and nut (Figure 27, Item 8).
11. Repeat Steps 9 - 10 for passenger side light bracket.

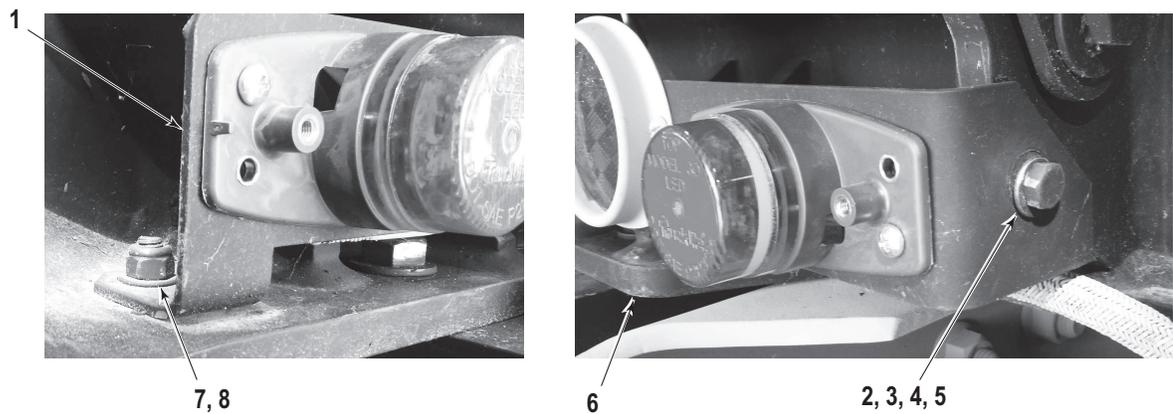


Figure 27. Light Bracket Installation.

12. Feed extension wire harness (Figure 28, Item 2) through assembly holes in driver side slider bed (Figure 28, Item 1), and connect extension wire harness connector (Figure 28, Item 5) to marker light (Figure 28, Item 3).
13. Install marker light (Figure 28, Item 3) on slider bed (Figure 28, Item 1) with two screws (Figure 28, Item 4).

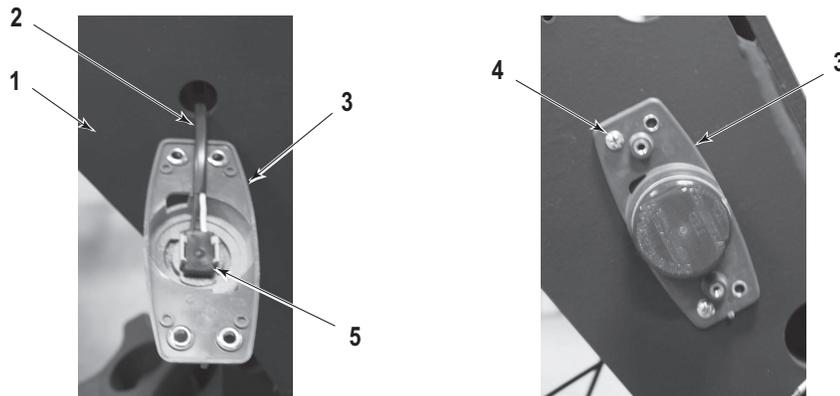
MARKER LIGHT AND REFLECTOR INSTALLATION - Continued

Figure 28. Marker Light Installation.

14. Install reflector (Figure 29, Item 2) on slider assembly (Figure 29, Item 1) with two screws (Figure 29, Item 3).

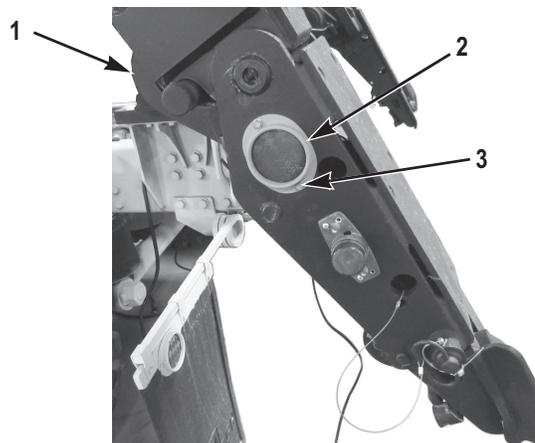


Figure 29. Reflector Installation.

15. Route light extension wire (Figure 30, Item 1) through hole in slider assembly (Figure 30, Item 2).

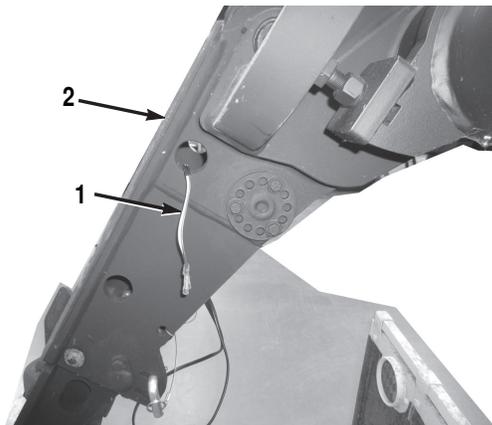
MARKER LIGHT AND REFLECTOR INSTALLATION - Continued

Figure 30. Light Extension Wire Routing.

16. Cut connector (Figure 31, Item 1) from wire harness (Figure 31, Item 2).



Figure 31. Light Wires.

17. Strip 1/4 in. insulation from two light wires (Figure 32, Item 2 and Item 3).
18. Install two 4 in. shrink wrap tubes (Figure 32, Item 1) on two light wires (Figure 32, Item 2 and Item 3).
19. Insert white light wire (Figure 32, Item 3) into solderless connector (Figure 32, Item 5) at end of white light extension wire (Figure 32, Item 6), and crimp solderless connector securely.
20. Insert black light wire (Figure 32, Item 2) into solderless connector (Figure 32, Item 4) at end of brown light extension wire (Figure 32, Item 7), and crimp solderless connector securely.
21. Apply heat to two solderless connectors (Figure 32, Item 4 and Item 5) until plastic cover of solderless connectors tightly encloses wires.
22. Slide two shrink wrap tubes (Figure 32, Item 1) over solderless connectors (Figure 32, Item 4 and Item 5), and apply heat to two shrink wrap tubes until shrink wrap tightly encloses connectors.
23. Repeat Steps 12 - 22 for passenger side slider assembly.

MARKER LIGHT AND REFLECTOR INSTALLATION - Continued

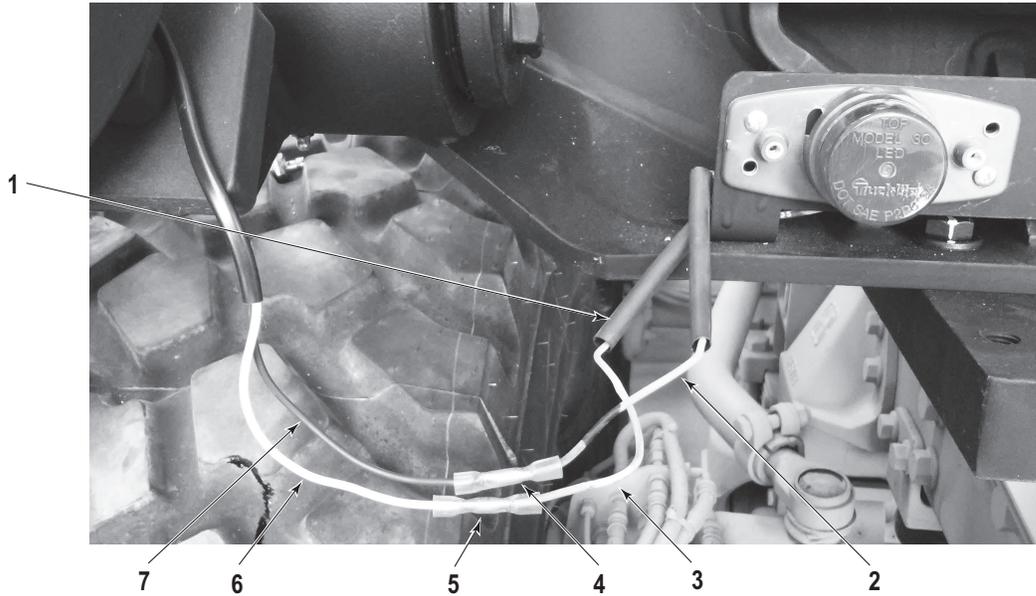


Figure 32. Light Wires and Light Extension Wires.

NOTE

- Install light covers in positions noted during removal.
- Perform Step 24 for seven marker light covers.

24. Install marker light cover (Figure 33, Item 1) on marker light (Figure 33, Item 3) with two screws (Figure 33, Item 2).

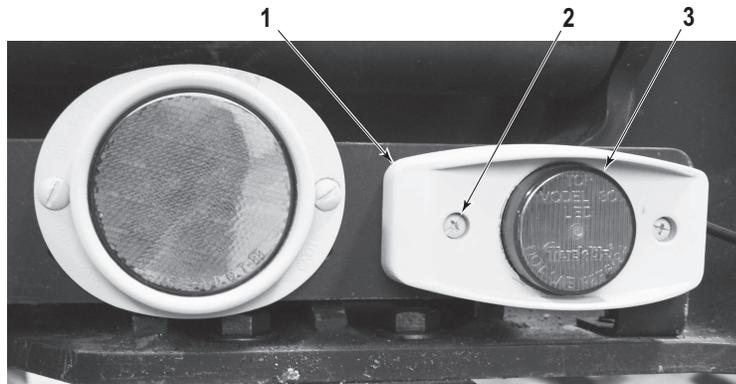


Figure 33. Light Cover Installation.

25. Connect wiring harness (Figure 34, Item 2) to vehicle wiring harness (Figure 34, Item 1)

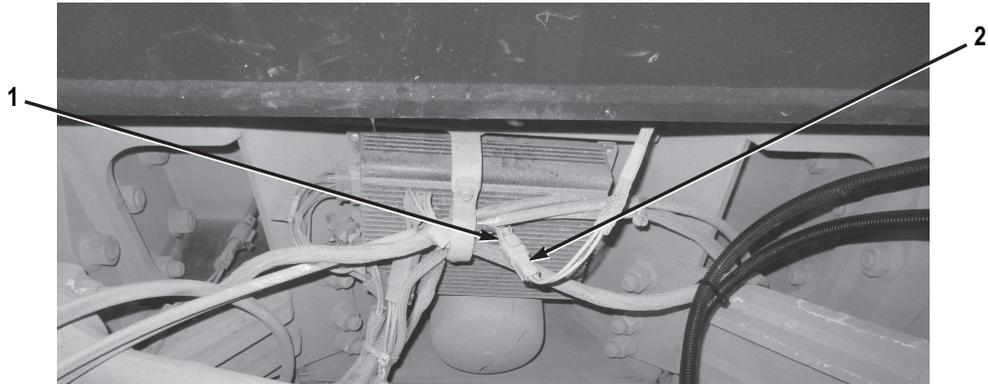
MARKER LIGHT AND REFLECTOR INSTALLATION - Continued

Figure 34. Connect Wiring Harness.

END OF TASK**BUMPER STOP BRACKET INSTALLATION**

1. With the aid of an assistant, install bumper stop bracket (Figure 35, Item 1) on frame (Figure 35, Item 2) with two screws (Figure 35, Item 3), and nuts (Figure 35, Item 4).
2. Install bumper stop bracket (Figure 35, Item 1) and bracket (Figure 35, Item 7) on frame (Figure 35, Item 2) with four screws (Figure 35, Item 5), and nuts (Figure 35, Item 6).

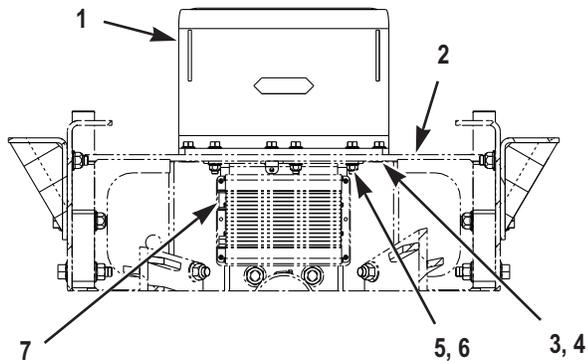
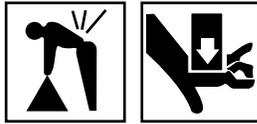


Figure 35. Bumper Stop Installation.

END OF TASK

HARD LIFT INSTALLATION

WARNING



- Lifting cables, chains, hooks, and slings used for lifting must be in good condition and of suitable capacity.
- Improper use of lifting equipment and improper attachment of cables may cause injury to personnel and damage to equipment. Observe all standard rules of safety.
- Use extreme caution when handling heavy parts. Provide adequate support and use assistance during procedure. Ensure any lifting device used is in good condition and of suitable load capacity. Keep clear of heavy parts supported only by lifting device.
- Failure to follow these warnings may cause injury or death to personnel.

NOTE

Hard lift assembly weighs 240 lb (109 kg).

1. Attach sling and lifting device to hard lift (Figure 36, Item 1).
2. Use lifting device to position hard lift (Figure 36, Item 1) on frame (Figure 36, Item 4).
3. Install hard lift (Figure 36, Item 1) on frame (Figure 36, Item 4) with six screws (Figure 36, Item 3) and nuts (Figure 36, Item 2).

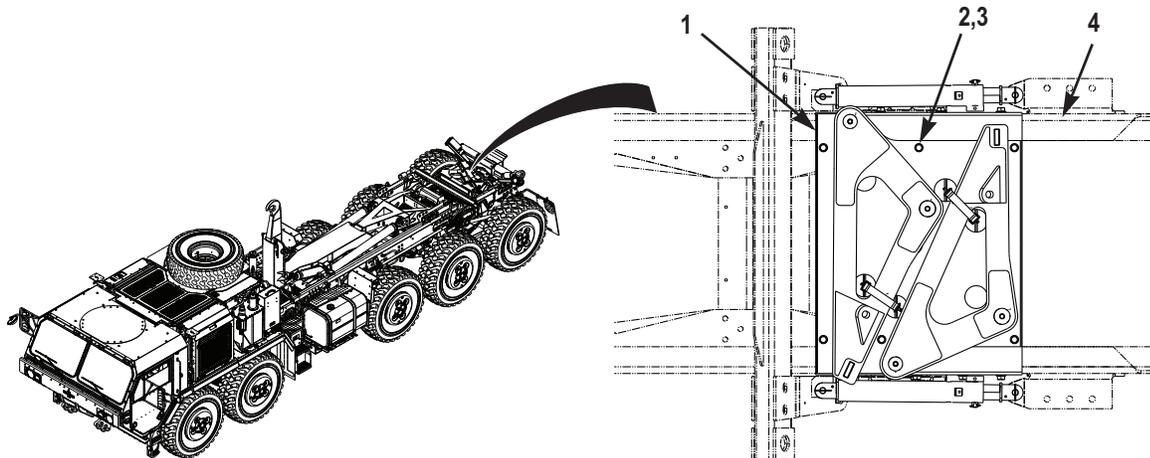


Figure 36. PLS A1 Hard Lift Installation.

END OF TASK

TWISTLOCK SENSOR INSTALLATION

WARNING

During this procedure, the twistlock assembly will be allowed to swing free unless it is manually supported. Ensure no personnel are standing in the path of the twistlock assembly. Failure to follow this warning may result in injury to personnel.

NOTE

Perform Steps 1 - 4 for both driver and passenger sides.

1. Remove locking pin (Figure 37, Item 3) from twistlock housing (Figure 37, Item 2).
2. Pull down and rotate twistlock locking pin (Figure 37, Item 7) to allow movement of twistlock handle (Figure 37, Item 8).
3. Loosen twistlock handle (Figure 37, Item 8) and rotate anvil (Figure 37, Item 1) to align with slot (Figure 37, Item 4) in twistlock housing (Figure 37, Item 2). Allow twistlock to rotate down.
4. Align locking tube (Figure 37, Item 9) with upper hole (Figure 37, Item 5) in twistlock housing (Figure 37, Item 2) and insert locking pin (Figure 37, Item 3) through upper hole in twistlock housing and into locking tube to secure twistlock.

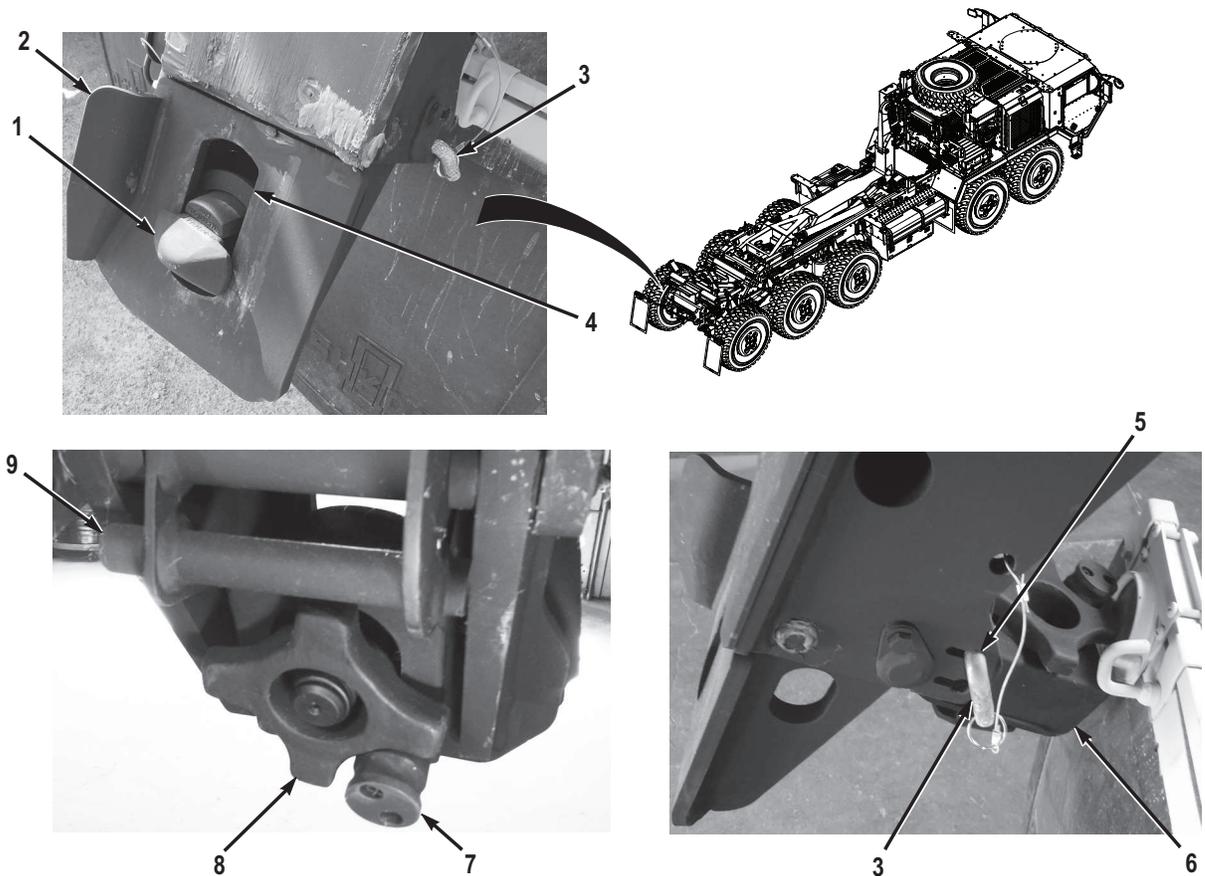


Figure 37. Release Twistlock from Housing.

TWISTLOCK SENSOR INSTALLATION - Continued**NOTE**

Passenger side and driver side twistlock sensor wire harnesses and twistlock sensors are installed the same way. Passenger side shown.

5. Route passenger side twistlock sensor harness to passenger side twistlock assembly (Figure 38, Item 3).

CAUTION

Use care when handling the sensors as they can be easily damaged if they are mishandled or dropped on the ground during routing.

6. Remove two nuts (Figure 38, Item 2) from twistlock sensor (Figure 38, Item 1). Discard nuts.
7. Loosen two screws (Figure 38, Item 6) in cable clamp (Figure 38, Item 4) and insert twistlock sensor (Figure 38, Item 1) into clamp.
8. Adjust twistlock sensor placement until end of sensor is .0625 to .1875 in. (2 to 3 mm) from twistlock plate (Figure 38, Item 5).
9. Tighten two screws (Figure 38, Item 6) in cable clamp (Figure 38, Item 4).
10. Repeat Steps 5 - 9 for driver side twistlock sensor wire harness and twistlock sensor.

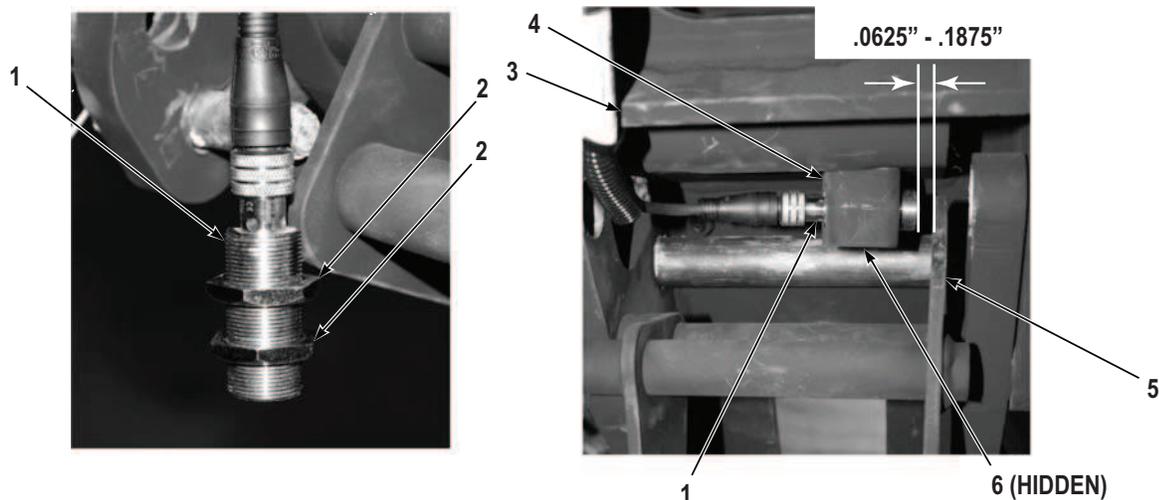


Figure 38. Adjust Twistlock Sensor.

11. Route twistlock wire harnesses (Figure 39, Item 2) and marker light extension wires (Figure 39, Item 4) along slider bed (Figure 39, Item 3) as shown in Figure 39.
12. Lift and lower each slider bed (Figure 39, Item 3) to ensure there is enough slack in the twistlock wire harness. Adjust harness as necessary.

NOTE

When installing wire harness, ensure there is enough slack in wire harness to allow rear slider bed to pivot up and down.

13. Install new cable ties (Figure 39, Item 3) as required, securing twistlock harnesses (Figure 39, Item 4) and marker light extension wires (Figure 39, Item 2) to slider assembly (Figure 39, Item 1). Roll any excess harness and secure with cable ties.

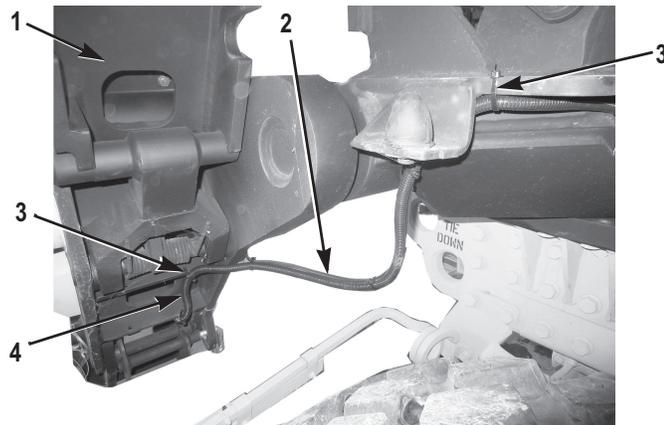
TWISTLOCK SENSOR INSTALLATION - Continued

Figure 39. Secure Harnesses to Slider Assembly.

END OF TASK**MIDDLE FRAME SENSOR INSTALLATION****Table 4. Parts List for Middle Frame Sensor Installation.**

ITEM NO.	QTY	DESCRIPTION	PART NUMBER
Figure 40, Item 1	1	Screw	1119544
Figure 40, Item 3	1	Sensor Plate	1119545
Figure 40, Item 4	1	3/4 Locknut	112080003
Figure 41, Item 2	1	Upper Sensor Bracket	1119541
Figure 41, Item 3	1	Lower Sensor Bracket	1119542
Figure 41, Item 4	3	1/4 x 1 3/8 Screw	112079807
Figure 41, Items 5 and 6	6	1/4 Washer	112080105
Figure 41, Item 7	3	1/4 Locknut	112080005

1. Install screw (Figure 40, Item 1) in pivot cylinder (Figure 40, Item 2).

NOTE

- Position sensor plate as shown in Figure 40.
 - Hardware will be tightened during sensor calibration procedure.
2. Install sensor plate (Figure 40, Item 3) and locknut (Figure 40, Item 4) on screw (Figure 40, Item 1).

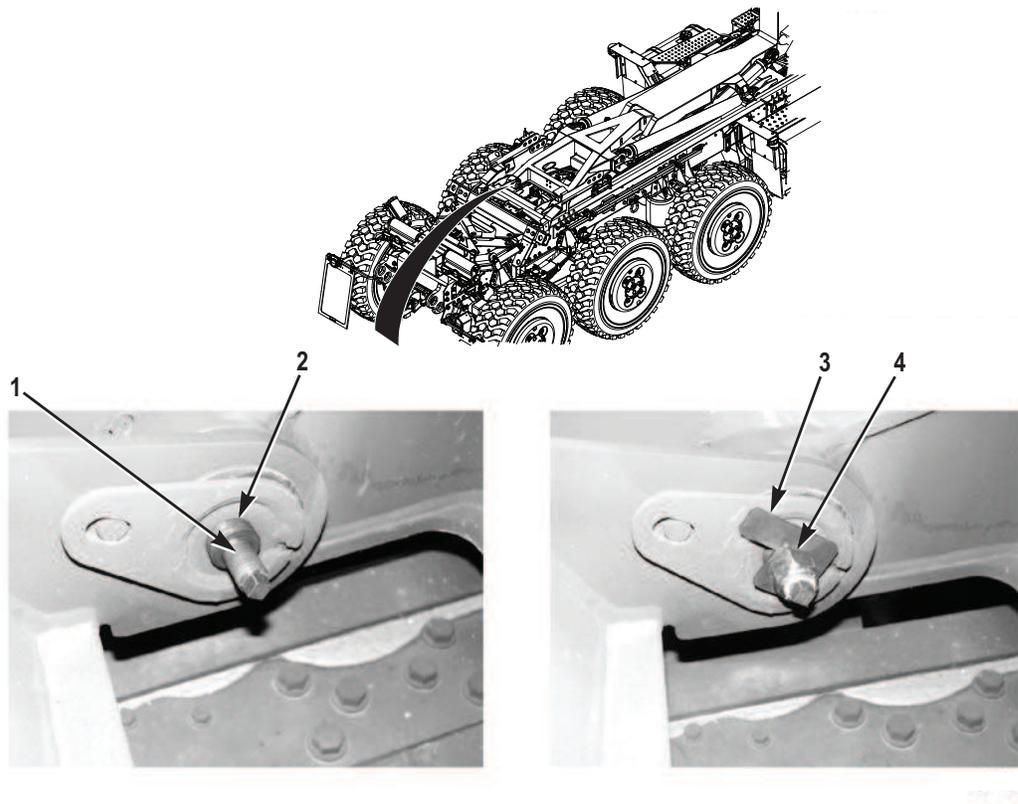
MIDDLE FRAME SENSOR INSTALLATION - Continued

Figure 40. Middle Frame Sensor Plate Installation.

3. Measure and mark 5 1/4 in. from left edge of middle frame (Figure 41, Item 1).
4. Align left edge of sensor bracket with 5 1/4 in. mark, and install upper sensor bracket (Figure 41, Item 2) and lower sensor bracket (Figure 41, Item 3) on middle frame (Figure 41, Item 1) with three screws (Figure 41, Item 4), washers (Figure 41, Item 5), washers (Figure 41, Item 6), and locknuts (Figure 41, Item 7).

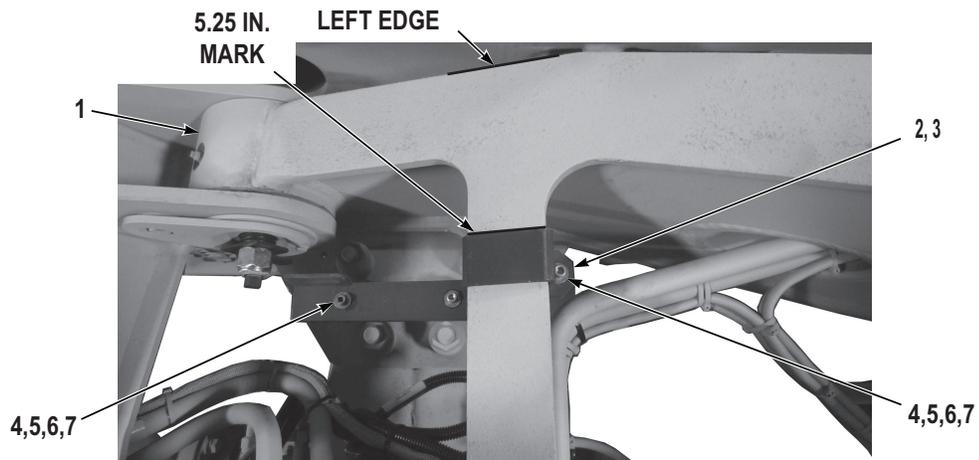
MIDDLE FRAME SENSOR INSTALLATION - Continued

Figure 41. Middle Frame Sensor Bracket Installation.

5. Route middle frame sensor harness (Figure 42, Item 2) as shown in Figure 42.
6. Remove nut (Figure 42, Item 4) from sensor (Figure 42, Item 3).

NOTE

Sensor position in bracket will be calibrated later in this work package.

7. Install sensor (Figure 42, Item 3) on sensor bracket (Figure 42, Item 1) with nut (Figure 42, Item 4) so that face of sensor is flush with nut.
8. Install new cable ties as required to secure middle frame sensor harness (Figure 42, Item 2).

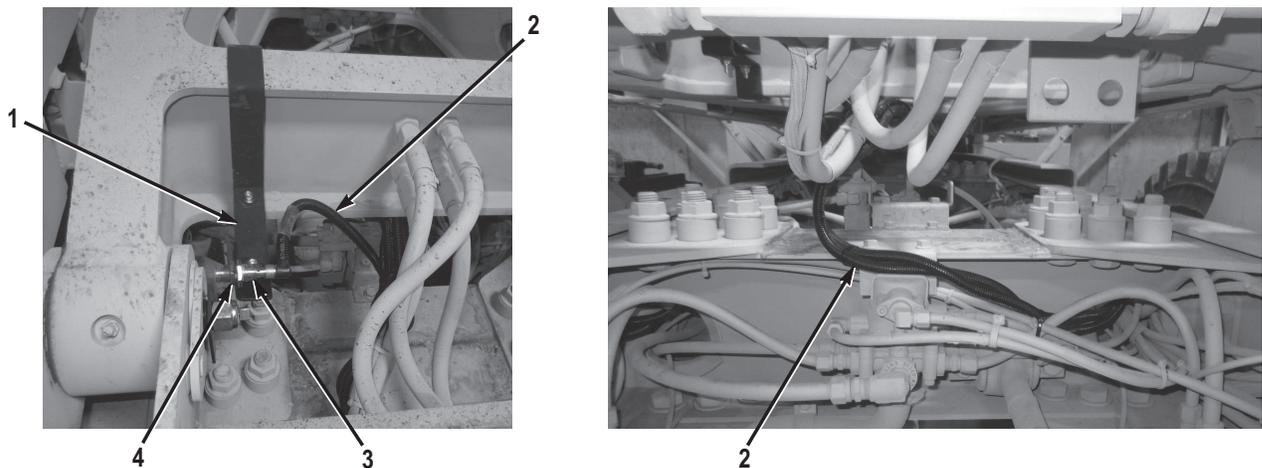


Figure 42. Middle Frame Sensor Installation.

END OF TASK

HOOK ARM SENSOR INSTALLATION

Table 5. Parts List for Hook Arm Sensor Installation.

ITEM NO.	QTY	DESCRIPTION	PART NUMBER
Figure 43, Item 6	1	Sensor Plate	1119464
Figure 43, Item 5	2	1/4 Washer	112080105
Figure 44, Item 5	1	Switch Plate	1119461
Figure 44, Item 3	2	1/4 x 3/4 Screw	112079802
Figure 44, Item 4	2	1/4 Washer	112080105

1. Remove two screws (Figure 43, Item 2), washers (Figure 43, Item 3), and plate (Figure 43, Item 5) from sensor mount (Figure 43, Item 1). Discard plate and washers. Retain screws for installation.
2. Install sensor plate (Figure 43, Item 4) on sensor mount (Figure 43, Item 1) with two screws (Figure 43, Item 2), and washers (Figure 43, Item 3).

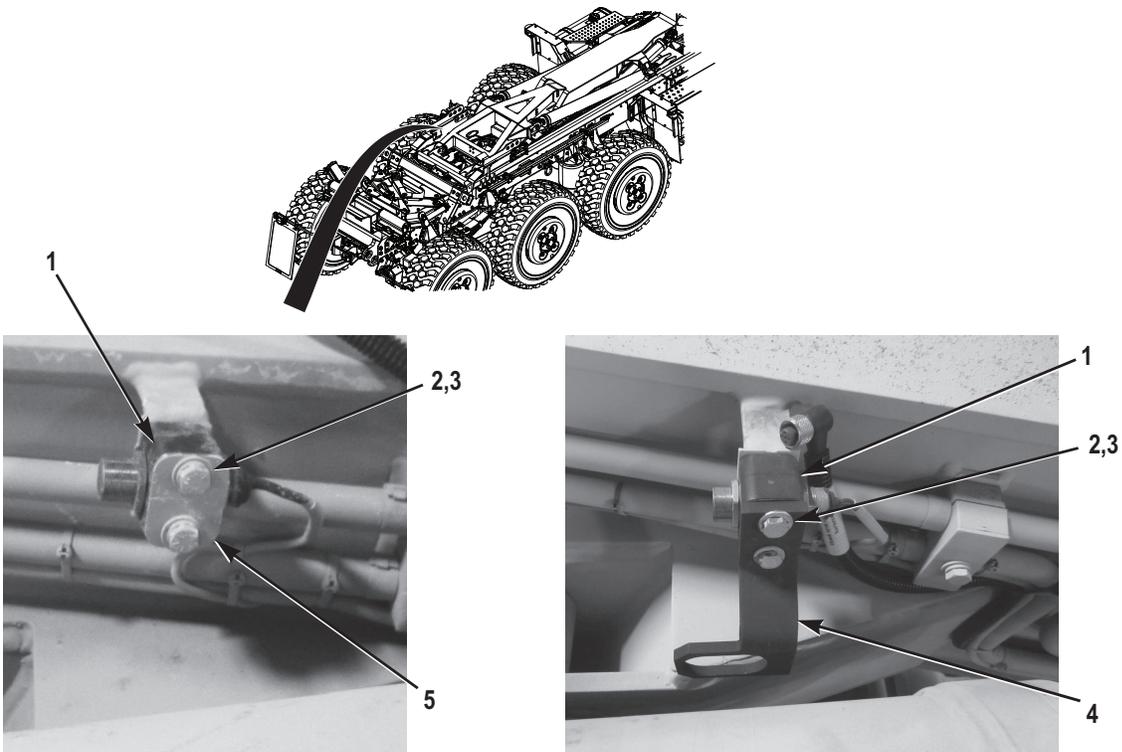
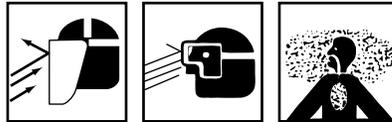


Figure 43. Hook Arm Sensor Bracket Installation.

3. Place a straight measurement aid (Figure 44, Item 1) on flat surface of hook arm (Figure 44, Item 2) where it angles down.

HOOK ARM SENSOR INSTALLATION - Continued

4. Place hook arm switch plate (Figure 44, Item 5) on angled edge of hook arm (Figure 44, Item 2) where distance between bottom of measurement aid (Figure 44, Item 1) and top angled edge of hook arm switch plate is .25 in.
5. Mark edge of hook arm (Figure 44, Item 2) to identify point of placement of switch plate (Figure 44, Item 4) on hook arm.
6. Place switch plate (Figure 44, Item 5) 1.25 in. from inside edge of hook arm (Figure 44, Item 2), and use holes in switch plate as a template to mark hook arm for two pilot holes.

WARNING

- Appropriate safety precautions (including, but not limited to, wearing proper breathing apparatus, hearing protection, safety goggles, etc.) must be observed when working with CARC material.
 - All cutting and grinding must be done using an abrasive device only. Use of a cutting torch, plasma cutter, etc., is not permitted.
 - Always wear gloves and a face shield or breathing apparatus when grinding painted surfaces. Airborne particles may cause lung irritation or damage to eyes.
 - Failure to follow these warnings may cause injury or death to personnel.
7. Drill two 13/64 in. holes in hook arm.
 8. Tap two 13/64 in. holes in hook arm (Figure 44, Item 2) with 1/4-20 tap.

NOTE

Secure switch plate in vise before drilling holes.

9. Drill existing holes in switch plate (Figure 44, Item 5) to 17/64 in.
10. Install switch plate (Figure 44, Item 5) on hook arm (Figure 44, Item 2) with two screws (Figure 44, Item 3) and washers (Figure 44, Item 4).

HOOK ARM SENSOR INSTALLATION - Continued

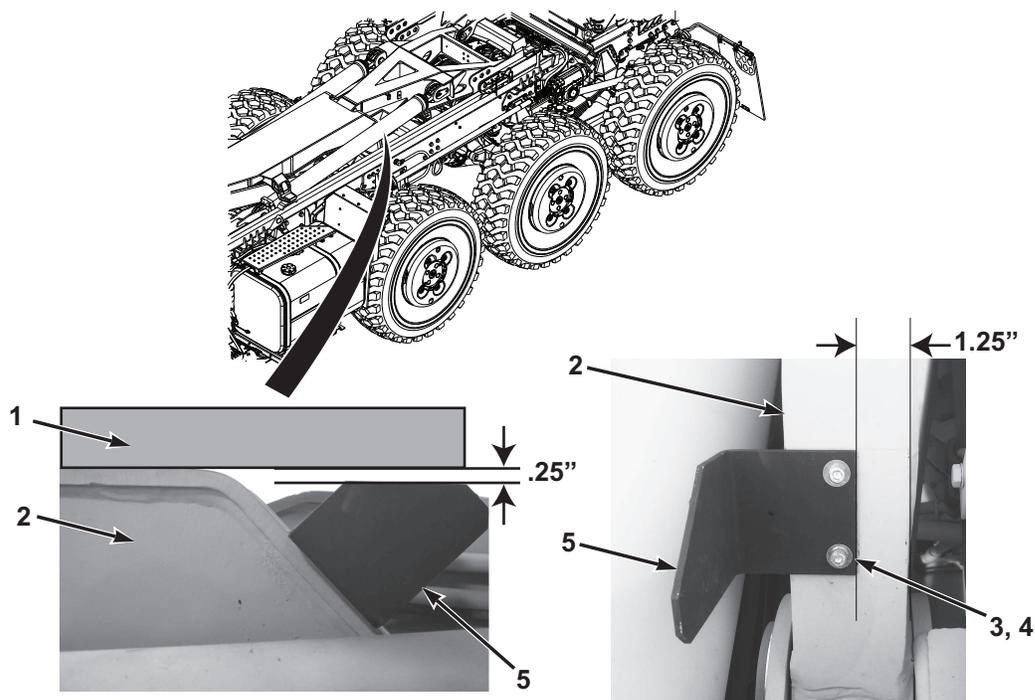


Figure 44. Hook Arm Sensor Plate Installation.

11. Route hook arm sensor wiring harness (Figure 45, Item 3) through opening in hook arm (Figure 45, Item 1) to hook arm sensor bracket (Figure 45, Item 5).
12. Remove nut (Figure 45, Item 5) from hook arm sensor (Figure 45, Item 2).

CAUTION

Install sensor so that face is flush with outer nut. Failure to follow this caution may result in damage to equipment.

NOTE

Sensor position in bracket will be calibrated later in this work package.

13. Install hook arm sensor (Figure 45, Item 2) in hook arm sensor bracket (Figure 45, Item 4) with nut (Figure 45, Item 5), so that face of hook arm sensor is flush with nut.
14. Install new cable ties as required to secure hook arm sensor wiring harness (Figure 45, Item 3).

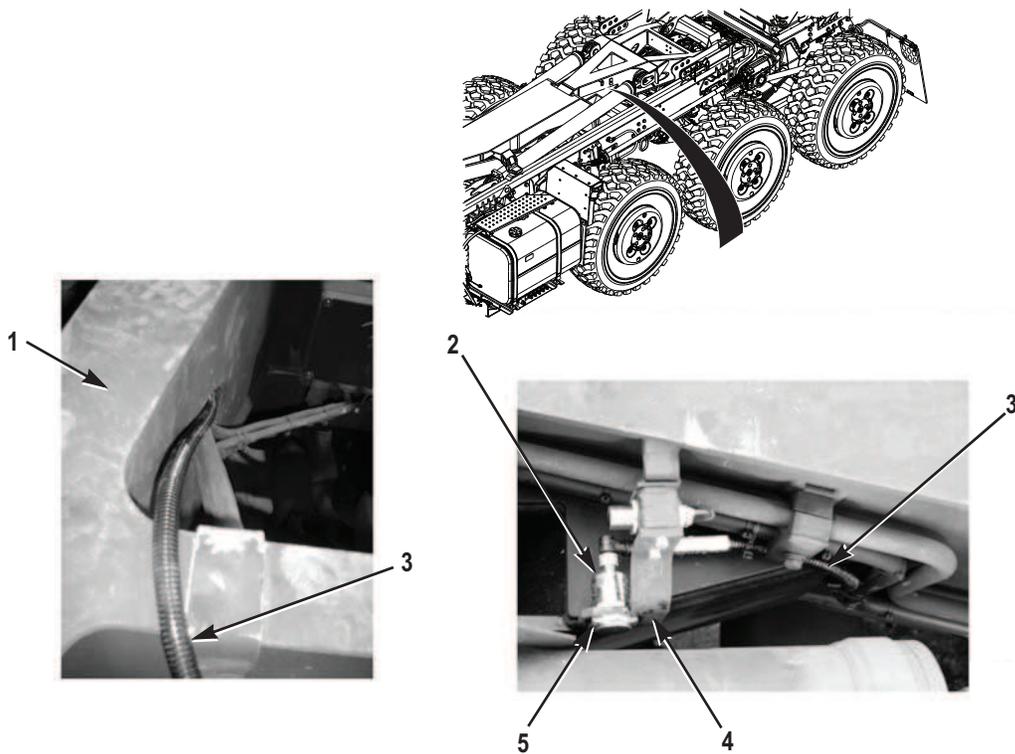
HOOK ARM SENSOR INSTALLATION - Continued

Figure 45. Hook Arm Sensor Installation.

15. Prepare and paint any bare metal surfaces, as required. Instructions for preparation of material for painting, and materials to be used are in TB 43-0242.

END OF TASK**STOWAGE WIRE HARNESS CONNECTION**

1. Disconnect wire harness connector (Figure 46, Item 3) from hydraulic control box bulkhead connector (Figure 46, Item 1).
2. Connect stowage assembly wire harness connector (Figure 46, Item 2) to hydraulic control box bulkhead connector (Figure 46, Item 1).
3. Connect wire harness connector (Figure 46, Item 3) to stowage wire harness connector (Figure 46, Item 4).
4. Install cable ties as required to secure stowage assembly wire harnesses.

STOWAGE WIRE HARNESS CONNECTION - Continued

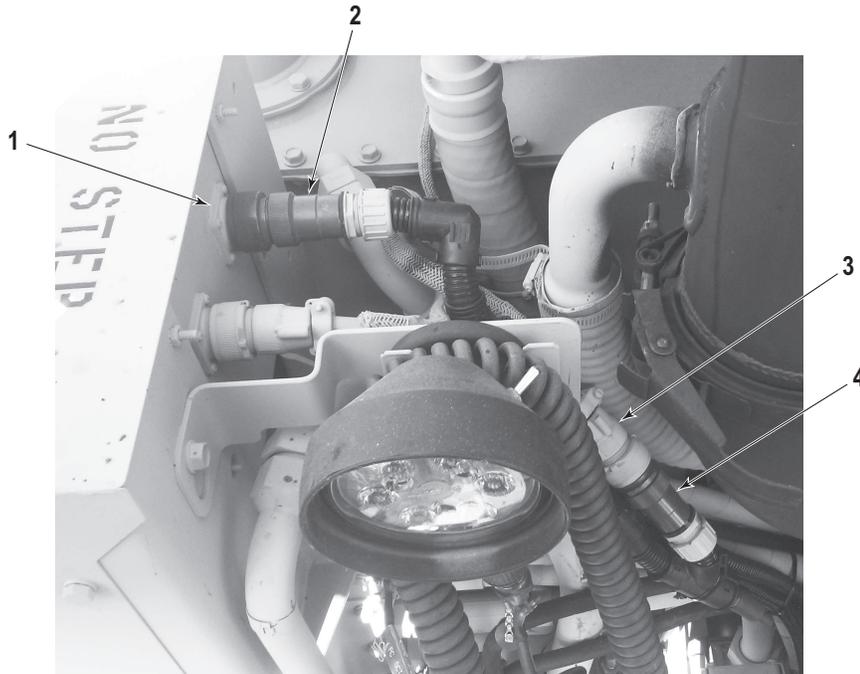


Figure 46. Stowage Wire Harness Connection.

END OF TASK

DATA PLATE INSTALLATION

Install E-CHU data plate (Figure 47, Item 1) on driver side of stowage assembly (Figure 47, Item 2) with four tinnerns rivets (Figure 47, Item 3).



Figure 47. Data Plate Installation.

END OF TASK

DATA PLATE RETROFIT

NOTE

Older kits will not contain labels to retrofit data plates.

1. Install blank adhesive label (Figure 48, Item 1) over NSN field on E-CHU data plate (Figure 48, Item 2) .



Figure 48. E-CHU Data Plate Retrofit.

2. Install E-CHU DATA adhesive label (Figure 49, Item 2) centered above data plate (Figure 49, Item 3) on driver side door (Figure 49, Item 1).
3. Install blank adhesive label (Figure 49, Item 4) over NSN field on data plate (Figure 49, Item 3) on driver side door (Figure 49, Item 1).

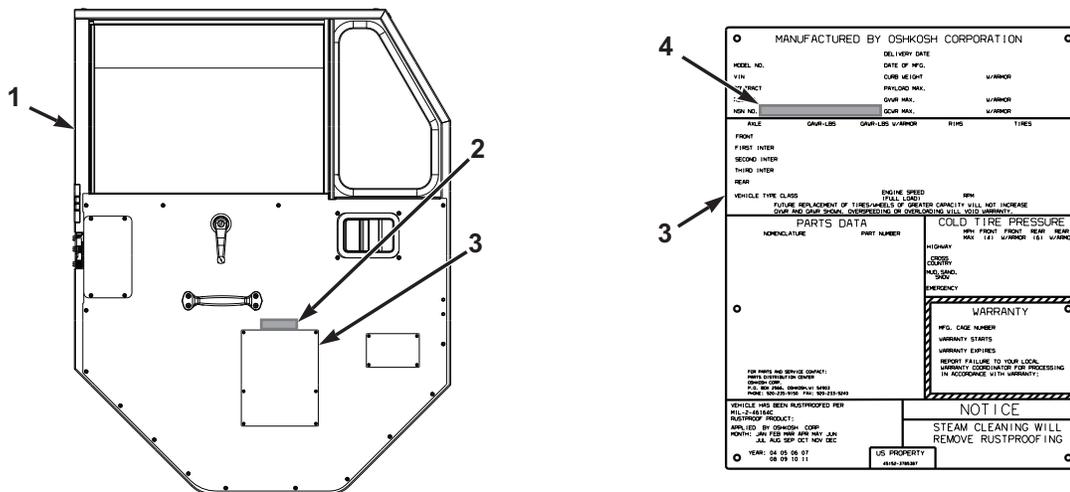


Figure 49. Door Data Plate Retrofit.

END OF TASK

SHEAR LATCH RETROFIT

NOTE

- Newer E-CHU kits will have shear latch installed by factory. Perform retrofit only if E-CHU kit does not already have shear latch installed.
 - Shear latch retrofit must be performed on both driver side and passenger side of stowage rack. Passenger side shown.
1. Using shear latch plate (Figure 50, Item 2) as a guide, locate, mark, and drill one hole $3/16''$ and one $13/32''$ hole in stowage lock bracket (Figure 50, Item 1) as shown in Figure 50.
 2. Countersink holes drilled in Step 1.

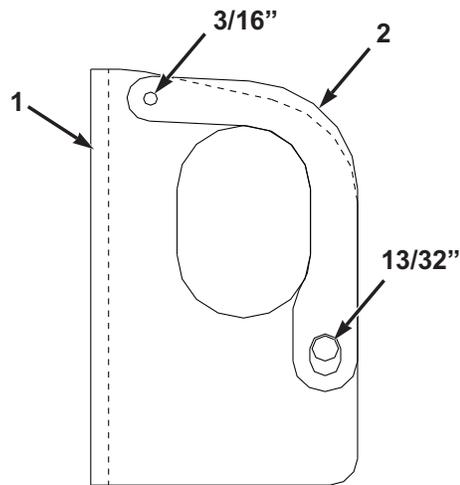
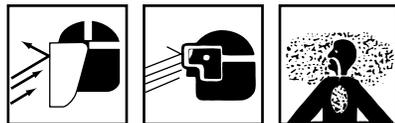


Figure 50. Shear Latch Drilling Guide.

3. Align shear latch plate (Figure 51, Item 2) with holes, and mark stowage lock bracket (Figure 51, Item 1) as shown in Figure 51.

WARNING



- Appropriate safety precautions (including, but not limited to, wearing proper breathing apparatus, hearing protection, safety goggles, etc.) must be observed when working with CARC material.
 - All cutting and grinding must be done using an abrasive device only. Use of a cutting torch, plasma cutter, etc., is not permitted.
 - Always wear gloves and a face shield or breathing apparatus when grinding painted surfaces. Airborne particles may cause lung irritation or damage to eyes.
 - Failure to follow these warnings may cause injury or death to personnel.
4. Cut stowage lock bracket (Figure 51, Item 1) along marks. Smooth edges and remove all sharp edges and burrs.

SHEAR LATCH RETROFIT - Continued

5. Prepare and paint bare metal surfaces. Instructions for preparation of material for painting, and materials to be used are in TB 43-0242.

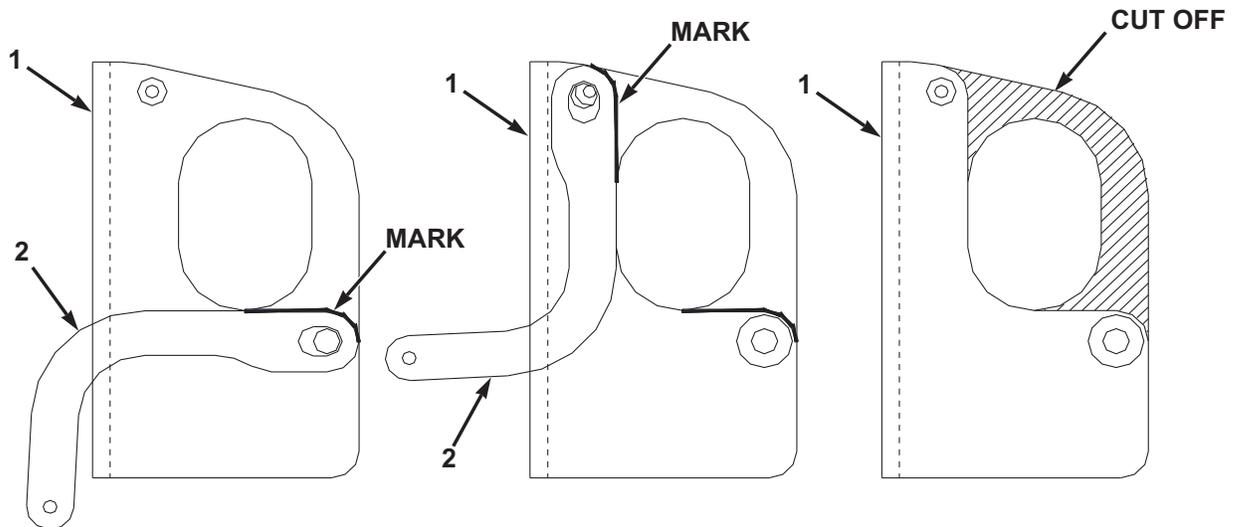


Figure 51. Shear Latch Cutting Guide.

CAUTION

Shear latch plate must be able to move freely, for shear latch to function correctly. For Steps 6 - 7, tighten hardware hand tight, only. Do not torque. Failure to comply may result in shear latch not functioning correctly, resulting in damage to equipment.

6. Install shear latch plate (Figure 52, Item 5) on the inside face of the stowage lock bracket (Figure 52, Item 1) with screws (Figure 52, Item 2), flat washer (Figure 52, Item 3), and nut (Figure 52, Item 4). Tighten hardware hand tight only.
7. Install shear latch plate (Figure 52, Item 5) on the inside face of the stowage lock bracket (Figure 52, Item 1) with screw (Figure 52, Item 6), flat washer (Figure 52, Item 7), and nut (Figure 52, Item 8). Tighten hardware hand tight only.

SHEAR LATCH RETROFIT - Continued

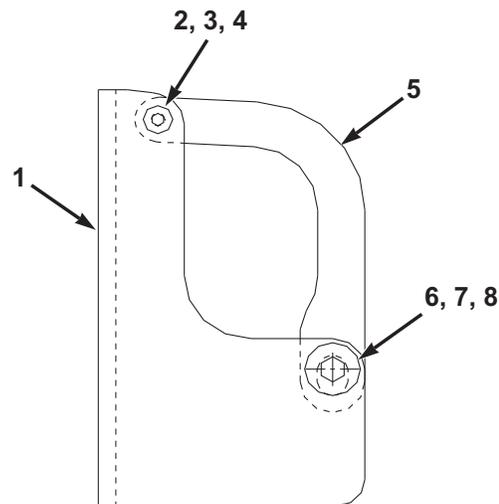


Figure 52. Shear Latch Installation.

8. Using the warning plate (Figure 53, Item 2) as a template, mark and drill four holes in lift lock frame (Figure 53, Item 1) as shown in Figure 53, using a 7/64 in. drill bit. Drill holes .125 in. deep. Do not drill through lift lock frame.
9. Install warning plate (Figure 53, Item 2) on lift lock frame (Figure 53, Item 2) with four screws.

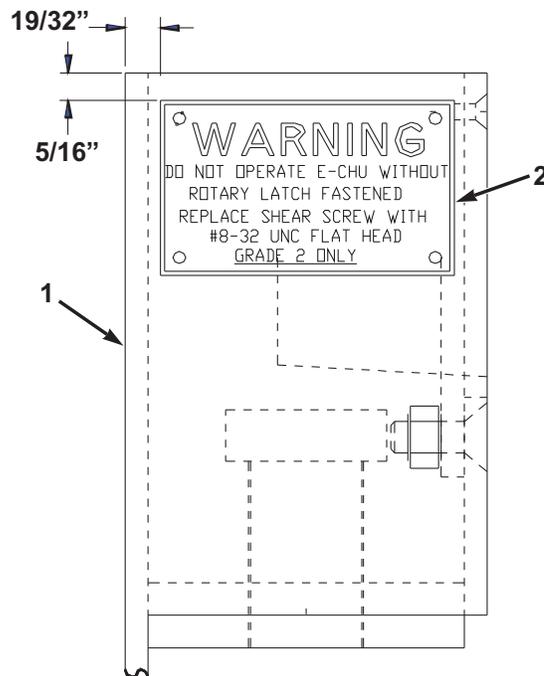


Figure 53. Shear Latch Warning Plate.

SHEAR LATCH RETROFIT - Continued

10. Repeat Steps 1 - 9 for the opposite side of stowage rack.

END OF TASK**SENSOR CALIBRATION****WARNING**

Do not stand on vehicle while operating LHS. Failure to comply may result in injury or death to personnel.

CAUTION

Walk around vehicle before extending hook arm, to ensure it is clear of obstructions. Failure to comply may result in damage to equipment.

1. With MODE switch set to AUTO position, partially extend hook arm (PLS A1 TM 9-2320-319-14&P) until cylinder arm (Figure 54, Item 1) is extended 28 in. (750 mm) measured from base of cylinder arm cap (Figure 54, Item 2) to top of cylinder casing (Figure 54, Item 3).

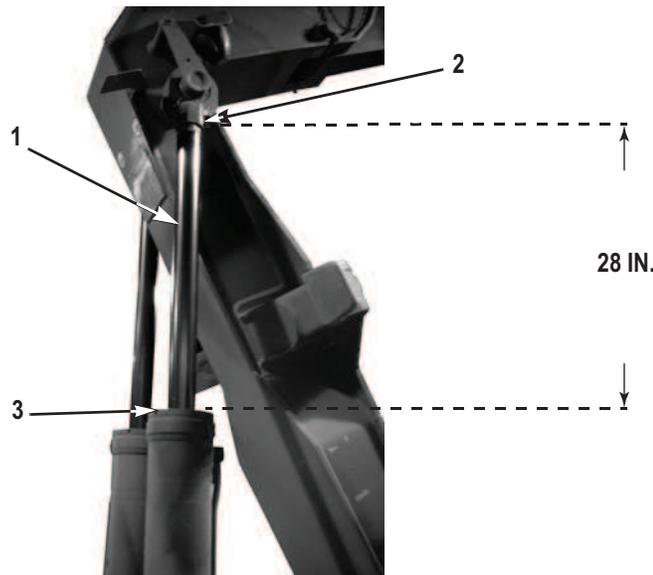


Figure 54. Hook Arm Cylinder Extension.

2. Shut off vehicle and set ignition switch to ON position (PLS A1 TM 9-2320-319-14&P).

NOTE

Ensure that stowage control toggle switch is set to OFF position.

3. Loosen outer nut (Figure 55, Item 5) on hook arm sensor (Figure 55, Item 2) until outer nut is positioned at end of hook arm sensor threads.
4. Loosen inner nut (Figure 55, Item 4) on hook arm sensor (Figure 55, Item 2).
5. Apply thread sealant (Loctite 242®) to threads on inner section of hook arm sensor, and adjust inner nut (Figure 55, Item 4) until face of sensor is .0625 to .1875 in. (2 to 3 mm) from sensor plate (Figure 55, Item 6).

SENSOR CALIBRATION - Continued

6. Slide hook arm sensor (Figure 55, Item 2) on bracket (Figure 55, Item 3) toward sensor plate (Figure 55, Item 6) and identify position where sensor light (Figure 55, Item 1) turns on. Apply thread sealant (Loctite 242®) to threads on outer section of hook arm sensor, and tighten outer nut (Figure 55, Item 5) to secure sensor at that position on bracket.
7. Return hook arm to stowed position (PLS A1 TM 9-2320-319-14&P).

NOTE

- Correct position for Step 8 is 28" as measured in Step 1.
 - Sensor calibration may take several cycles.
8. Extend hook arm (PLS A1 TM 9-2320-319-14&P) and ensure sensor stops hook arm in correct position. If sensor does not stop hook arm in correct position, stow hook arm, and repeat Steps 2 - 8 to adjust sensor position as required.

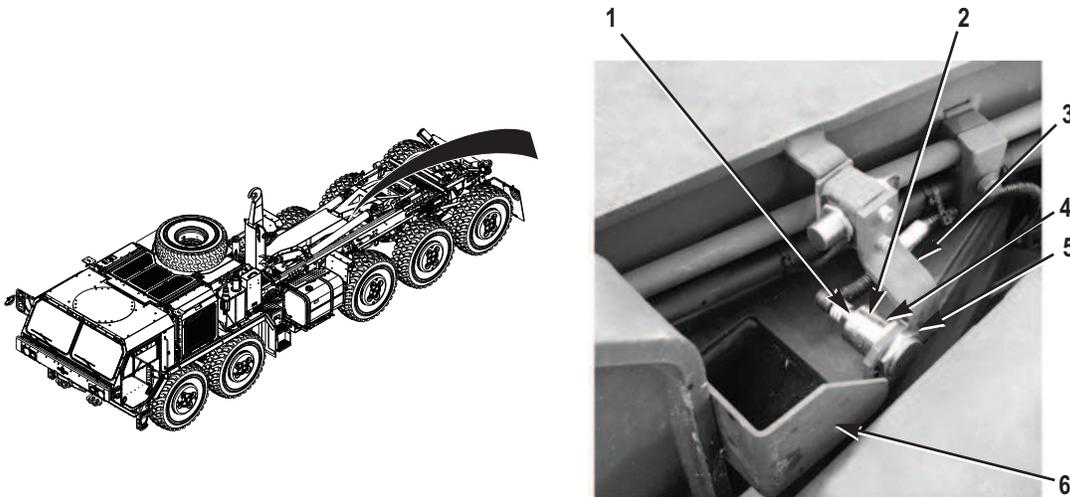


Figure 55. Hook Arm Sensor Calibration.

9. Extend hook arm (PLS A1 TM 9-2320-319-14&P) until bottom of hook (Figure 56, Item 1) is 62 in. (1,574 mm) above ground.

SENSOR CALIBRATION - Continued

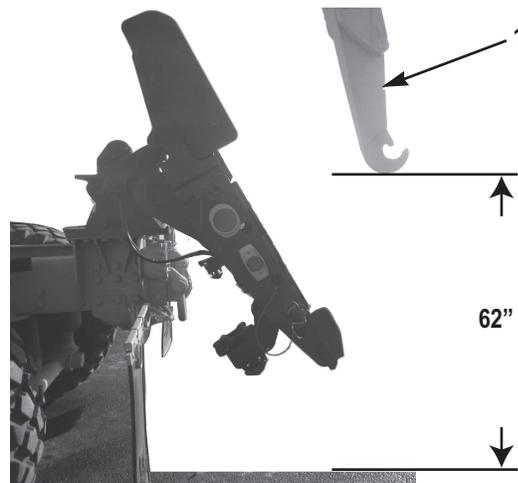


Figure 56. Hook Position Above Ground.

NOTE

It may be necessary to adjust position of sensor plate in order to activate sensor light.

10. Loosen outer nut (Figure 57, Item 2) on middle frame sensor (Figure 57, Item 1) until outer nut is positioned at end of middle frame sensor threads.
11. Loosen inner nut (Figure 57, Item 2) on middle frame sensor (Figure 57, Item 1).
12. Apply thread sealant (Loctite 242®) to threads on inner section of middle frame sensor (Figure 57, Item 1), and adjust inner nut (Figure 57, Item 4) until face of middle frame sensor (Figure 57, Item 1) is .0625 to .1875 in. (2 to 3 mm) from sensor plate (Figure 57, Item 6).
13. Slide middle frame sensor (Figure 57, Item 1) on bracket (Figure 57, Item 3) toward sensor plate (Figure 57, Item 6) and identify position where sensor light (Figure 57, Item 5) turns on. Apply thread sealant (Loctite 242®) to threads on outer section of hook arm sensor, and tighten outer nut (Figure 57, Item 2) to secure sensor at that position on bracket.

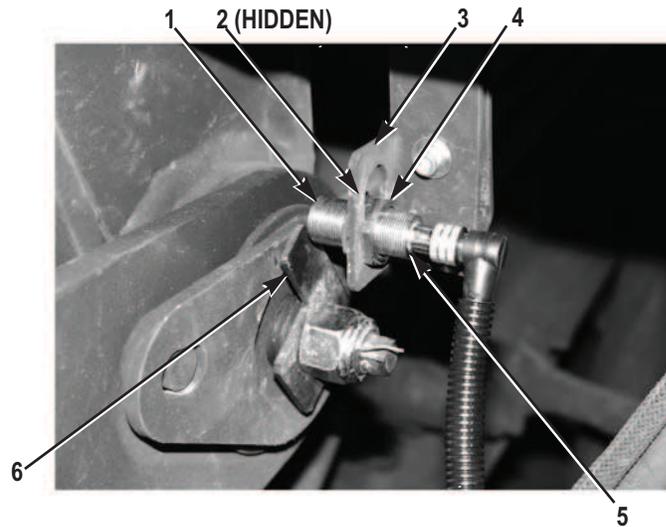
SENSOR CALIBRATION - Continued

Figure 57. Middle Frame Sensor Calibration.

14. Return hook arm to stowed position (PLS A1 TM 9-2320-319-14&P).

NOTE

- Correct position for Step 15 is 62" as measured in Step 9.
- Sensor calibration may take several cycles.

15. Extend hook arm (PLS A1 TM 9-2320-319-14&P) and ensure sensor stops hook arm in correct position. If sensor does not stop hook arm in correct position, stow hook arm and repeat Steps 9 - 15 to adjust sensor position as required.
16. Return hook arm to stowed position (PLS A1 TM 9-2320-319-14&P).

END OF TASK**STOWAGE GUIDE POSITION CALIBRATION**

Calibrate stowage guide positions according to instructions included in kit. Refer to TM 9-3950-253-13&P for operator instructions for PLS A1 with E-CHU to position lift frame on vehicle.

END OF TASK**STOW E-CHU KIT BII**

1. Stow E-CHU tiedown strap in stowage box.

NOTE

Older E-CHU kits do not include an E-CHU TM.

2. If kit includes E-CHU TM 9-3950-253-13&P, stow TM 9-3950-253-13&P in cab.

END OF TASK

Follow-On Maintenance

Load and Unload Container (TM 9-3950-253-13&P) to verify proper function of E-CHU kit.

END OF TASK

END OF WORK PACKAGE

THE METRIC SYSTEM AND EQUIVALENTS

LINEAR MEASURE

1 Centimeter = 10 Millimeters = 0.01 Meters = 0.3937 Inches
 1 Meter = 100 Centimeters = 1000 Millimeters = 39.37 Inches
 1 Kilometer = 1000 Meters = 0.621 Miles

WEIGHTS

1 Gram = 0.001 Kilograms = 1000 Milligrams = 0.035 Ounces
 1 Kilogram = 1000 Grams = 2.2 Pounds
 1 Metric Ton = 1000 Kilograms = 1 Megagram = 1.1 Short Tons

LIQUID MEASURE

1 Milliliter = 0.001 Liters = 0.0338 Fluid Ounces
 1 Liter = 1000 Milliliters = 33.82 Fluid Ounces

SQUARE MEASURE

1 Sq Centimeter = 100 Sq Millimeters = 0.155 Sq Inches
 1 Sq Meter = 10,000 Sq Centimeters = 10.76 Sq Feet
 1 Sq Kilometer = 1,000,000 Sq Meters = 0.386 Sq Miles

CUBIC MEASURE

1 Cu Centimeter = 1000 Cu Millimeters = 0.06 Cu Inches
 1 Cu Meter = 1,000,000 Cu Centimeters = 35.31 Cu Feet

TEMPERATURE

$5/9 (F - 32) = C$
 212° Fahrenheit is equivalent to 100° Celsius
 90° Fahrenheit is equivalent to 32.2° Celsius
 32° Fahrenheit is equivalent to 0° Celsius
 $9/5 (C + 32) = F$

APPROXIMATE CONVERSION FACTORS

<u>TO CHANGE</u>	<u>TO</u>	<u>MULTIPLY BY</u>
Inches	Centimeters	2.540
Feet	Meters	0.305
Yards	Meters	0.914
Miles	Kilometers	1.609
Square Inches	Square Centimeters	6.451
Square Feet	Square Meters	0.093
Square Yards	Square Meters	0.536
Square Miles	Square Kilometers	2.590
Acres	Square Hectometers	0.405
Cubic Feet	Cubic Meters	0.026
Cubic Yards	Cubic Meters	0.765
Fluid Ounces	Milliliters	29.573
Pints	Liters	0.473
Quarts	Liters	0.946
Gallons	Liters	3.785
Ounces	Grams	28.349
Pounds	Kilograms	0.454
Short Tons	Metric Tons	0.907
Pound-Feet	Newton-Meters	1.356
Pounds/Sq Inch	Kilopascals	6.895
Miles per Gallon	Kilometers/Liter	0.425
Miles per Hour	Kilometers/Hour	1.609

<u>TO CHANGE</u>	<u>TO</u>	<u>MULTIPLY BY</u>
Centimeters	Inches	0.394
Meters	Feet	3.280
Meters	Yards	1.094
Kilometers	Miles	0.621
Sq Centimeters	Square Inches	0.155
Square Meters	Square Feet	10.764
Square Meters	Square Yards	1.196
Square Kilometers	Square Miles	0.386
Square Hectometers	Acres	2.471
Cubic Meters	Cubic Feet	35.315
Cubic Meters	Cubic Yards	1.308
Millimeters	Fluid Ounces	0.034
Liters	Pints	2.113
Liters	Quarts	1.057
Liters	Gallons	0.264
Grams	Ounces	0.035
Kilograms	Pounds	2.205
Metric Tons	Short Tons	1.102
Newton-Meters	Pound-Feet	0.738
Kilopascals	Pounds per Sq Inch	0.145
Km per Liter	Miles per Gallon	2.354
Km per Hour	Miles per Hour	0.621



FOR COMPARISON ONLY
NOT ACCURATE FOR MEASUREMENT

