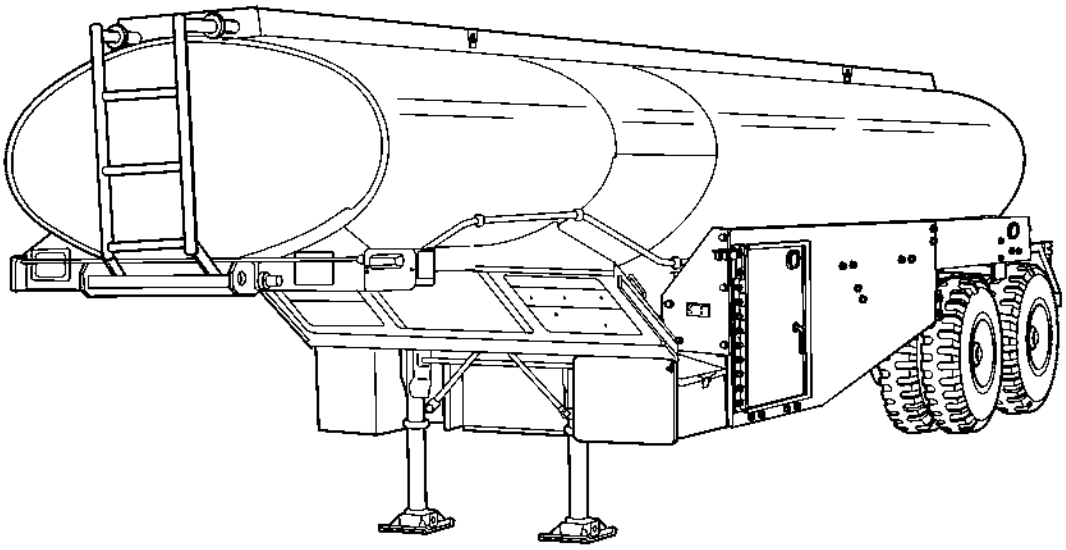
**DEPARTMENT OF THE ARMY TECHNICAL BULLETIN**

**TECHNICAL BULLETIN**

**FOR**

# SEMITRAILER, TANK, 5000-GALLON
# M967 (NSN 2330-01-050-5632)
# M967A1 (NSN 2330-01-155-0046)

# TANKER BALLISTIC PROTECTION SYSTEMS (TBPS/AOA/FTSS)





**Headquarters, Department of the Army, Washington, DC**

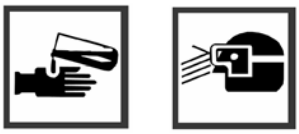
**FEBRUARY 2006**

**WARNING**

**Use caution lifting the supplemental armor. A swinging or shifting load may cause injury to personnel.**

**WARNING**

**Fuel is very flammable and can explode easily. To avoid serious injury or death, keep fuel away from open flame or any spark (ignition source). Keep at least a B-C fire extinguisher nearby when working with fuel or fuel system.**



**WARNING**

**Eye and hand protection must be worn at all times when applying FTSS Patch Kit. Failure to do so may result in injury to personnel.**

**Caution**

**When drilling through hole in upper slot of mounting plate, use caution not to drill through welded angle bracket.**

b

# TB 9-2330-337-14

# LIST OF EFFECTIVE PAGES/WORK PACKAGES

Date of issue for original pages/work packages is:

28 February 2006

NOTE: The portion of text affected by the changes is indicated by a vertical line in the outer margins of the page. Changes to illustrations are indicated by miniature pointing hands.

Dates of issue for original and changed pages are:

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**TOTAL NUMBER OF PAGES FOR FRONT AND REAR MATTER IS 30 AND TOTAL NUMBER OF PAGES IS 84 CONSISTING OF THE FOLLOWING:**

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| 1-1 thru 1-2 | 0 |
| 2-1/(2-2 Blank) | 0 |
| 3-1 thru 3-2 | 0 |
| 4-1 thru 4-39/4-40 Blank) | 0 |
| 5-1 thru 5-2 | 0 |
| 6-1/(6-2 Blank) | 0 |
| 7-1 thru 7-4 | 0 |

*Zero in this column indicates an original page or work package.

B

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D.C., 24 February 2006

# TECHNICAL BULLETIN

# FOR

# SEMITRAILER, TANK, 5000-GALLON
# M967 (NSN 2330-01-050-5632)
# M967A1 (NSN 2330-01-155-0046)

# TANKER BALLISTIC PROTECTION SYSTEMS
# (TBPS/AOA/FTSS)

## REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this publication. If you find any mistakes or if you know of a way to improve the procedures, please let us know. Submit your DA Form 2028-2 (Recommended Changes to Equipment Technical Publications) through the Internet, on the Army Electronic Product Support (AEPS) website. The Internet address is http://aeps.ria.army.mil. If you need a password, scroll down and click on ACCESS REQUEST FORM. The DA Form 2028 is located in the ONLINE FORMS PROCESSING section of the AEPS. Fill out the form and click on SUBMIT. Using this form on the AEPS will enable us to respond more quickly to your comments and better manage the DA Form 2028 program. You may also mail, fax, or e-mail your letter, DA Form 2028, or DA Form 2028-2 directly to Technical Publication Information Office, TACOM-R1, 1 Rock Island Arsenal, Rock Island, IL 61299-7630. The e-mail address is tacom-tech-pubs@ria.army.mil. The fax number is DSN 793-0726 or Commercial (309) 782-0726. A reply will be furnished to you.



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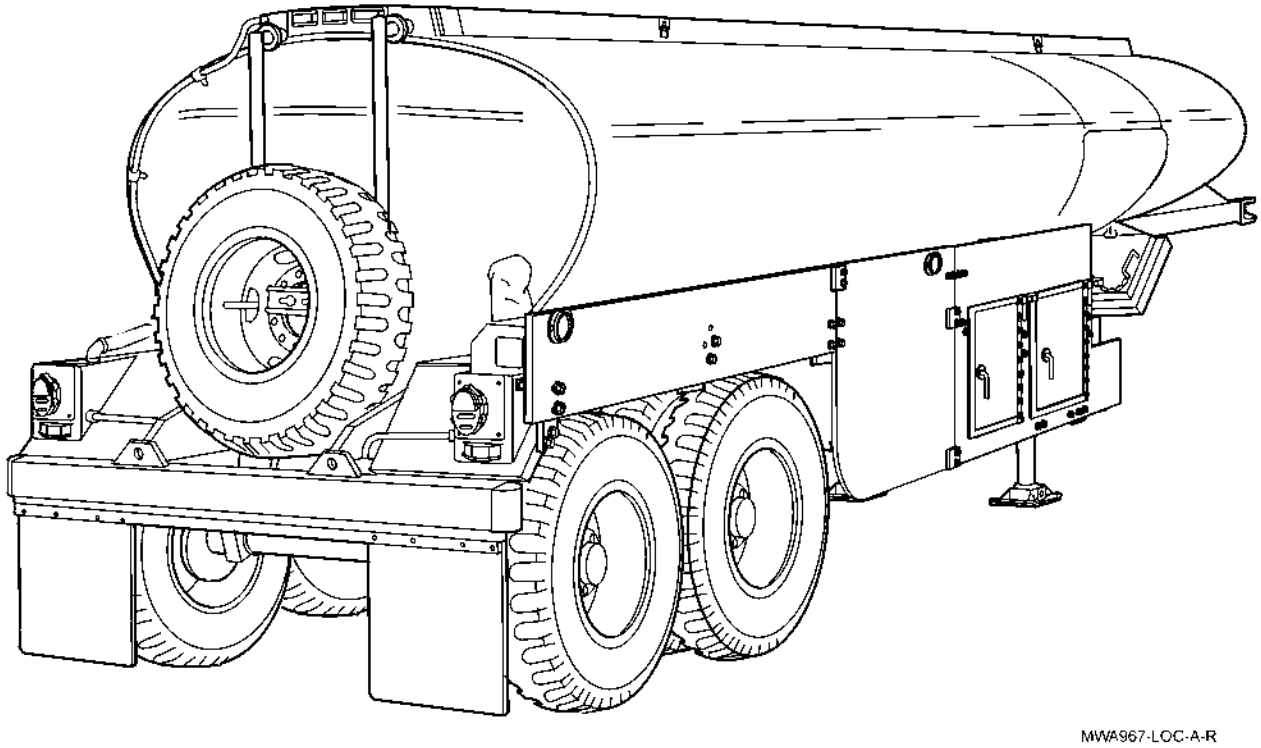
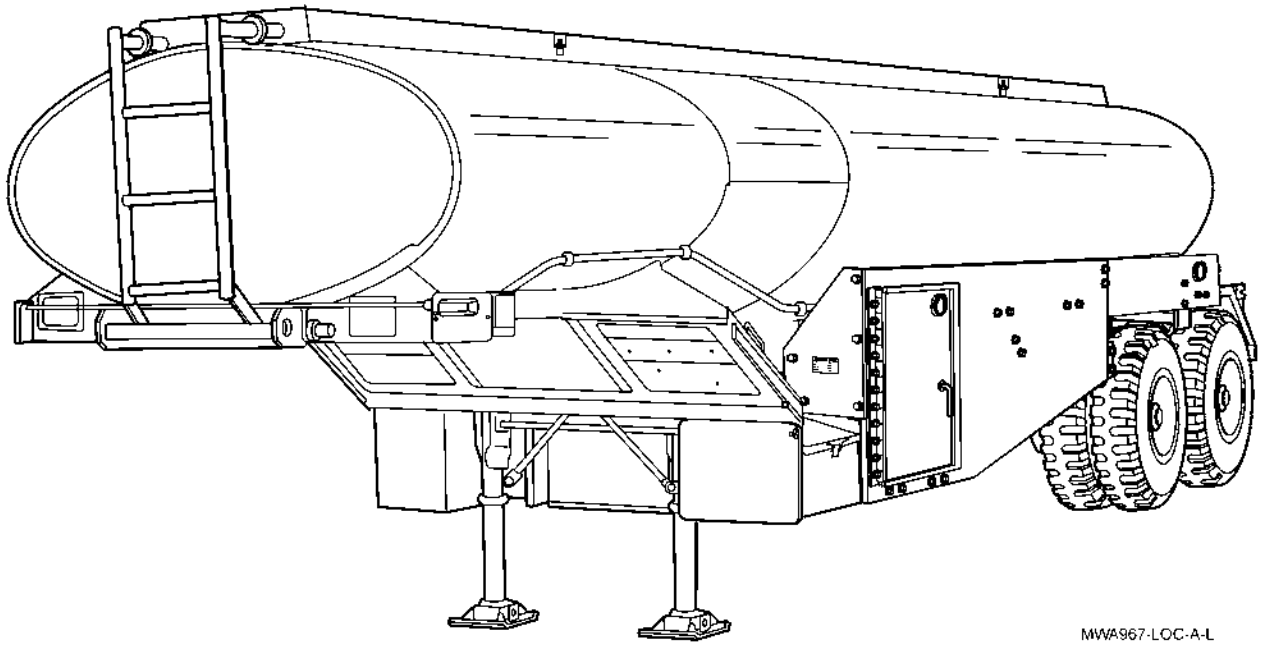
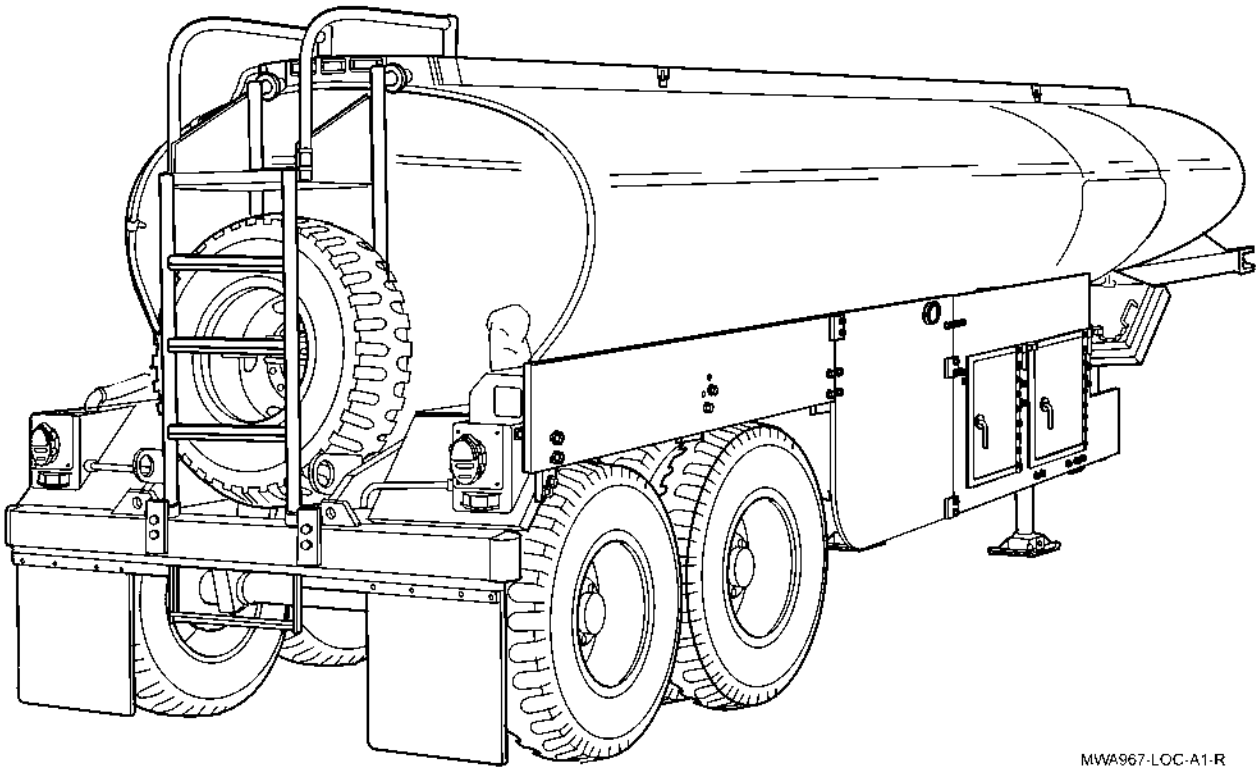


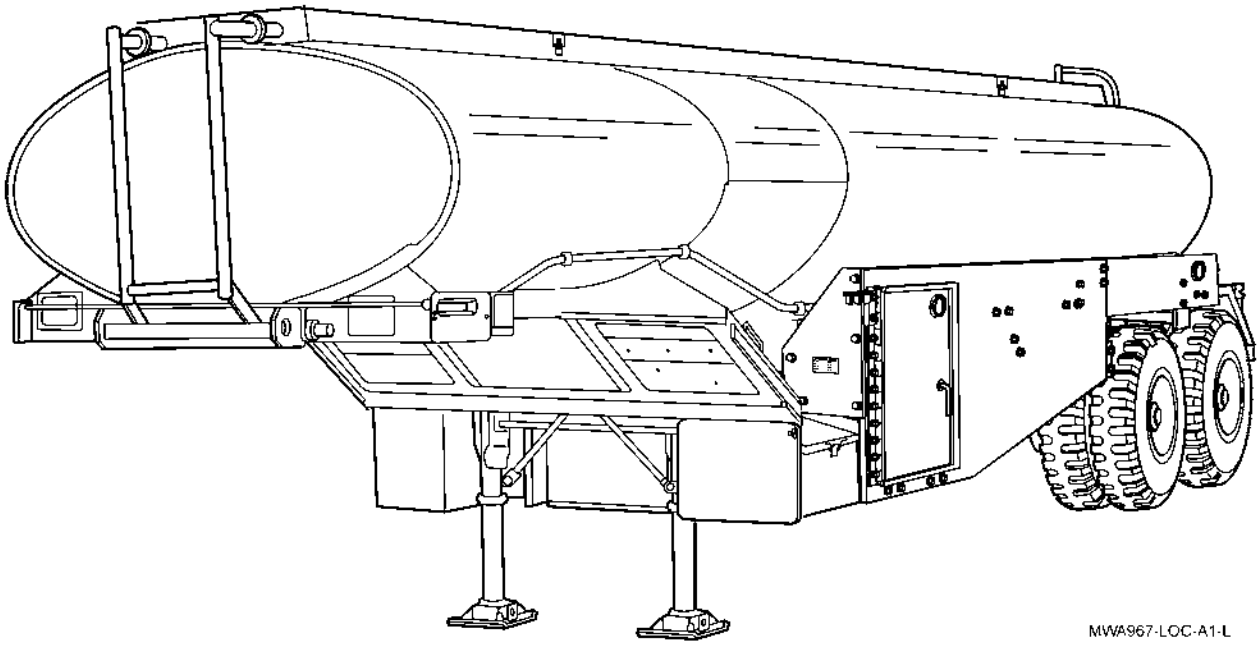

**M967 RIGHT SIDE**




**M967 LEFT SIDE**




**M967A1 RIGHT SIDE**




**M967A1 LEFT SIDE**

# CHAPTER 1
# GENERAL MAINTENANCE PROCEDURES

## SCOPE

The purpose of this Technical Bulletin (TB) is to provide the instructions for applying the Tanker Ballistic Protection System (TBPS) on M967/M967A1 series, 5000-gallon, fuel tankers. The TBPS consists of the Fuel Tank Self-Sealing (FTSS) System, Add-On-Armor (AOA) Kit, and FTSS Repair Kit, which all work in conjunction to provide the fuel tanker with ballistic protection against small arms fire.

The TBPS kit is applicable to the following:

| Nomenclature | National Stock Number | Part Number |
|---|---|---|
| M967 | 2330-01-050-5632 | 8750002 |
| M967A1 | 2330-01-155-0046 | 8750125 |

When completed, the vehicle NSN and part number will change for the end items as follows:

| Nomenclature | National Stock Number | Part Number |
|---|---|---|
| M967P1 | 2330-01-531-4046 | 12500825-1 |
| M967A1P1 | 2330-01-531-4059 | 12500825-2 |

## ARMY KNOWLEDGE ONLINE (AKO) WEBSITE

Refer to the AKO website at https://www.us.army.mil/suite/login/welcome.html for the most recent updates to the kits and TB installation instructions.

## MAINTENANCE FORMS, RECORDS, AND REPORTS

Department of the Army forms and procedures used for equipment maintenance will be those prescribed by DA PAM 738-750, Functional Users Manual for The Army Maintenance Management Systems (TAMMS).

## REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIRs)

If your M967/M967A1 needs improvement, let us know. Send us an EIR. You, the user, are the only one who can tell us what you don't like about your equipment. Let us know why you don't like the design or performance. Put it on an SF 368 (Product Quality Deficiency Report). Mail it to: Commander, U.S. Army Tank-automotive and Armaments Command, ATTN: AMSTA-TR-E/PQDR, Warren, MI 48397-5000. We will send you a reply.

## CORROSION PREVENTION AND CONTROL (CPC)

1. CPC of Army materiel is a continuing concern. Any corrosion problems with this item should be reported so that they can be corrected and improvements made to prevent the problem in future items.

2. While corrosion is typically associated with rusting of metals, it can also include deterioration of other materials, such as rubber and plastic. Unusual cracking, softening, swelling, or breaking of these materials may be a corrosion problem.

3. If a corrosion problem is identified, it can be reported using SF 368, Product Quality Deficiency Report. Use of key words such as "corrosion," "rust," "deterioration," or "cracking" will ensure that the information is identified as a CPC problem.

4. The form should be submitted to the address specified in DA PAM 738-750, Functional Users Manual for The Army Maintenance Management System (TAMMS).

## DESTRUCTION OF ARMY MATERIEL TO PREVENT ENEMY USE

Refer to TM 750-244-6 for procedures on destruction of military vehicles.

## PREPARATION FOR STORAGE OR SHIPMENT

Refer to TM 38-470, Storage and Maintenance of Army Prepositioned Stock Material, for preservation, packaging, marking, and preparation for storage or shipment of M967/M967A1 series fuel tankers.

## LIST OF ABBREVIATIONS AND ACRONYMS

| | |
|---|---|
| AKO | Army Knowledge Online |
| AOA | Add-On-Armor |
| CPC | Corrosion Prevention and Control |
| DA PAM | Department of the Army Pamphlet |
| DOT | Department of Transportation |
| EIR | Equipment Improvement Recommendations |
| FRP | Field Repair Patch |
| FTSS | Fuel Tank Self-Sealing |
| TAMMS | The Army Maintenance Management System |
| TB | Technical Bulletin |
| TBPS | Tanker Ballistic Protection System |
| TM | Technical Manual |

# CHAPTER 2
# PRECONDITIONS

## VEHICLE PREPARATION

1. Ensure the fuel tanker has been emptied in accordance with appropriate Operator's Manual, Technical Bulletin (TB) and Field Manual Procedures. The fuel tanker does not require purging or sniff testing prior to modification.

2. Ensure the fuel tanker is properly grounded and all vessel openings have been properly and completely secured.

3. Remove the front and rear reflectors from left and right side of vehicle (TM 9-2330-356-14). Discard mounting hardware. Set aside reflectors for reinstallation.

4. Remove hose trough covers and hose assemblies from left and right side of vehicle (TM 9-2330-356-14). Retain hoses, hose troughs, and hardware for reinstallation.

**NOTE**

Perform Step 5 for fuel tankers equipped with the Lombardini engine kit modification.

5. If so equipped, remove the engine door from the right side of the vehicle (TM 9-2330-356-14). Discard mounting hardware. Set aside engine door for disposition.

6. For vehicle preparation and application of the FTSS System, refer to Chapter 3 of this TB.

**NOTE**

Check assembly areas for any items that could interfere with the installation of the AOA kits, should any items be in the way; use a Plasma Cutter and/or Hand Grinder to remove those items. Finish all exposed metal areas using a rust inhibitor primer and paint as specified in Table 7-4, Materials and Parts. Allow for the appropriate time for prime and paint to cure.

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# CHAPTER 3
# FUEL TANK SELF-SEALING (FTSS) SYSTEM

## SCOPE

This section provides the instructions for applying the FTSS System to M967/M967A1 fuel tankers. The FTSS System is a coating applied to the exterior surface of the fuel tank vessel that will seal a leak caused by small arms fire within twenty minutes of impact. Once sealed, the fuel tanker may continue operating under normal conditions. In the event the FTSS System does not seal a leak within twenty minutes, a repair kit is provided to patch the affected area. Refer to Chapter 5, FTSS Repair Kit, for instructions on applying the field patch assemblies.

## VEHICLE PREPARATION

The following list details the locations and components that must be removed to allow access to restricted areas of the fuel tanker before the FTSS System coating is applied. Once the coating has been applied, dried, and inspected, some of the components may be reinstalled. For component replacement instructions, spare, and mandatory replacement parts, refer to TM 9-2330-356-14 and TM 9-2330-356-24P.

**Front Bulkhead:**

1. Remove drain tubes (M967A1 only).
2. Remove electrical conduit.
3. Remove electrical access cover.
4. Remove right and left maker lights and lead assemblies.
5. Remove service air glad-hand cover.
6. Remove emergency air glad-hand cover.

**Curbside:**

1. Remove air cleaner.
2. Remove battery cover.
3. Remove front and rear reflectors.
4. Remove curbside clearance light and lead assembly.

**Rear Bulkhead:**

1. Remove ladder assembly.
2. Remove drain tubes (M967 only).
3. Remove spare tire and spare tire carrier.
4. Remove license plate and frame (as applicable).
5. Remove electrical conduit.
6. Remove triple warning lights and lead assembly.
7. Remove fire extinguisher and mounting bracket.
8. Remove gas can and mounting bracket.
9. Remove right composite light and lead assembly.
10. Remove left composite light and lead assembly.
11. Remove DOT placard (as applicable).

**Roadside:**

1. Remove electrical conduit.
2. Remove fire extinguisher and mount.
3. Remove roadside clearance light and lead assembly.

**FTSS SYSTEM PROCEDURE**

The source and application of the FTSS System is proprietary. For vehicle preparation, applications, and reapplication of the FTSS System, contact VSE Corporation, 2550 Huntington Avenue, Alexandria, VA 31902. Or you may submit your request by phone (800) 455-4873 or fax (703) 960-2688.

**FOLLOW-ON TASK**

The following is a list of components that are reinstalled after the FTSS coating has been applied, dried, and inspected. For component installation instructions, spare, and mandatory replacement parts, refer to TM 9-2330-356-14 and TM 9-2330-356-24P.

**Front Bulkhead:**

1. Install drain tubes (M967A1 only).
2. Install electrical conduit.
3. Install electrical access cover.
4. Install right and left maker lights and lead assemblies.
5. Install service air glad-hand cover.
6. Install emergency air glad-hand cover.

**Curbside:**

1. Install air cleaner.
2. Install battery cover.
3. Install front and rear reflectors.
4. Install curbside clearance light and lead assembly.

**Rear Bulkhead:**

1. Install ladder assembly.
2. Install drain tubes (M967 only).
3. Install spare tire and spare tire carrier.
4. Install license plate and frame.
5. Install electrical conduit.
6. Install triple warning lights and lead assembly.
7. Install fire extinguisher and mounting bracket.
8. Install gas can and mounting bracket.
9. Install right composite light and lead assembly.
10. Install left composite light and lead assembly.
11. Install DOT placard.

**Roadside:**

1. Install electrical conduit.
2. Install fire extinguisher and mount.
3. Install roadside clearance light and lead assembly.

# CHAPTER 4
# ADD-ON-ARMOR (AOA) KIT

## SCOPE

This chapter provides the parts list and installation instructions for the AOA kit.

## TOOLS AND SPECIAL TOOLS

For a list of tools and special tools needed to install the AOA kit, refer to Chapter 7, Table 7-2.

**NOTE**

All lifting devices, lifting slings, and hydraulic jacks must have the capability to support 500 pounds (227 kg) when used to install the AOA kit.

## ARMY KNOWLEDGE ONLINE (AKO) WEBSITE

Refer to the AKO website at https://www.us.army.mil/suite/login/welcome.html for the most recent updates to the kits and TB installation instructions.

## KIT PARTS AND THEIR DISPOSITION

The following lists the kit components of the AOA kit. This list can be used to inventory the kit for completeness.

**NOTE**

Item numbers 1, 9, 12, 29, and 32 are assembled during the installation of the AOA kit.

**Table 4-1. AOA Kit Contents List**

| Item No. | Nomenclature | National Stock Number | Part Number | CAGEC | QTY |
|---|---|---|---|---|---|
| | Assembly Drawing | | 12500835 | 19207 | 1 |
| | Small Shim 0.1046 Thick | | 12500845-1 | 19207 | 6 |
| | Small Shim 0.125 Thick | | 12500845-2 | 19207 | 6 |
| | Small Shim 0.375 Thick | | 12500845-3 | 19207 | 6 |
| | Large Shim 0.1046 Thick | | 12500846-1 | 19207 | 8 |
| | Large Shim 0.125 Thick | | 12500846-2 | 19207 | 8 |
| | Large Shim 0.375 Thick | | 12500846-3 | 19207 | 8 |
| 2 | Bracket, F, Support, Rear | | 12500856 | 19207 | 4 |
| 3 | Bracket, Support, Slider | | 12500852 | 19207 | 6 |
| 4 | Brace, Center Cross | | 12500864 | 19207 | 1 |
| 5 | Nut, Hexagon, Self-Locking 1/2-13 | 5305-01-411-4385 | MS17830-8C | 96906 | 58 |
| 6 | Washer, Flat 1/2 | 5310-00-767-9425 | MS15795-818 | 96906 | 134 |
| 7 | Washer, Lock 1/2 | 5310-00-933-8778 | MS35338-143 | 80205 | 76 |
| 8 | Screw, Cap, Hexagon, Head 1/2-13x2.00 | 5305-00-071-2071 | B1821BH050C200N | 80204 | 43 |
| 10 | Bracket, A, Support, Rear | | 12500851 | 19207 | 1 |

**KIT PARTS AND THEIR DISPOSITION (continued)**

**NOTE**

Item numbers 1, 9, 12, 29, and 32 are assembled during the installation of the AOA kit.

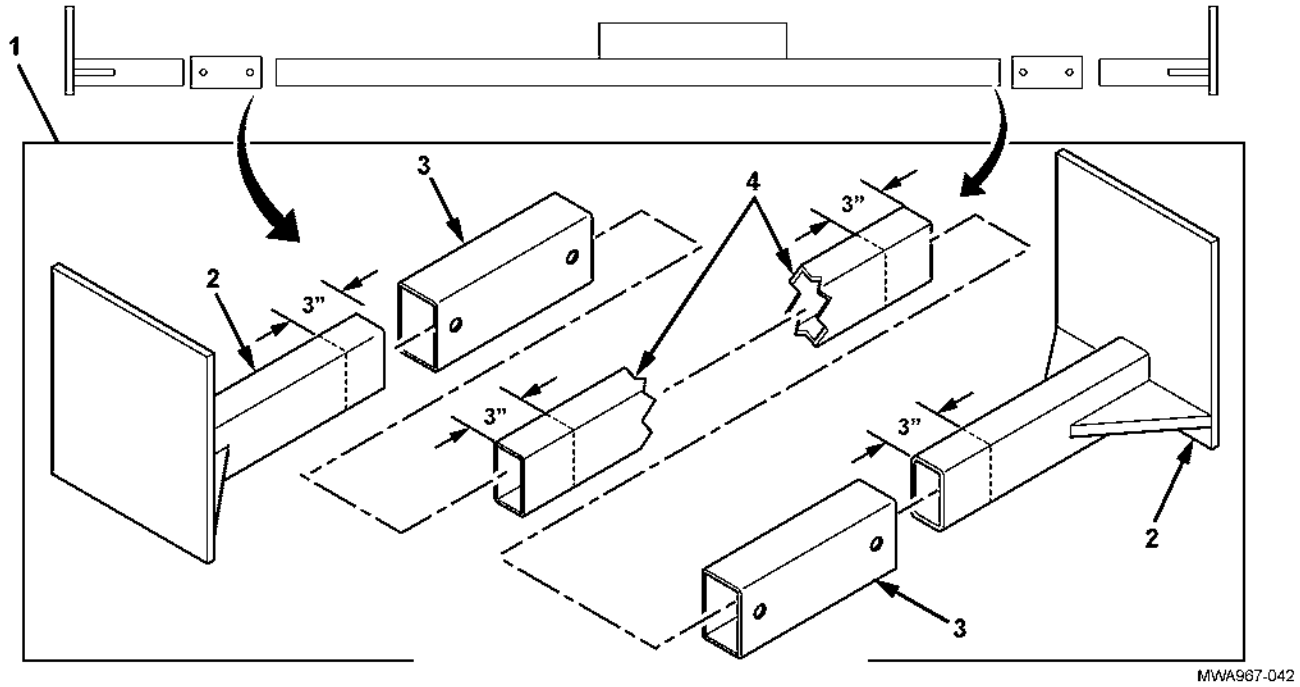
**Table 4-1. AOA Kit Contents List (continued)**

| Item No. | Nomenclature | National Stock Number | Part Number | CAGEC | QTY |
|---|---|---|---|---|---|
| 11 | Bracket, B, Support, Rear | 2540-01-532-8980 | 12500850 | 19207 | 1 |
| 13 | Bracket, E, Support, Rear | | 12500855 | 19207 | 2 |
| 14 | Frame Front, Roadside | | 12500836 | 19207 | 1 |
| 16 | Bracket, Support, Roadside | 2540-01-532-8977 | 12500839 | 19207 | 1 |
| 17 | Screw, Cap, Hexagon, Head 1/2-13x3.00 | 5305-00-071-2075 | B1821BH050C300N | 80204 | 29 |
| 18 | Screw, Cap, Hexagon, Head 1/2-13x6.00 | 5305-01-032-2312 | B1821BH050C600N | 80204 | 4 |
| 19 | Washer, Flat 1/2 x 1-1/4 O.D. | 5310-01-147-5859 | 10910174-40 | 19207 | 4 |
| 20 | Plate, Shield, Rear, Roadside | 2540-01-532-8976 | 12500843 | 19207 | 1 |
| 21 | Door, Assembly A, Roadside | 2540-01-532-8983 | 12500829 | 19207 | 1 |
| 22 | Latch, Safety | | 12500887-1 | 19207 | 1 |
| 23 | Washer, Flat 3/8 | 5310-01-312-4960 | MS27183-55 | 96906 | 34 |
| 24 | Washer, Lock 3/8 | 5310-00-984-7042 | MS35338-141 | 96906 | 32 |
| 25 | Screw, Cap, Hexagon, Head 3/8-16x2.00 | 5305-00-782-9489 | B1821BH038C200N | 80204 | 6 |
| 26 | Screw, Cap, Hexagon, Head 3/8-16x1.00 | 5305-00-068-0510 | B1821BH038C100N | 80204 | 30 |
| 27 | Screw, Machine 10-32 x 7/16 | 5305-00-059-3658 | MS51958-62 | 80205 | 8 |
| 28 | Washer, Flat #10 | 5310-00-619-1148 | MS15795-808 | 80205 | 8 |
| 29 | Washer, Lock #10 | 5310-00-933-8120 | MS35338-138 | 80205 | 8 |
| 31 | Bracket, D, Support, Front, Curbside | | 12500854 | 19207 | 1 |
| 32 | Bracket, C, Support, Front, Curbside | 2590-01-533-9803 | 12500853 | 19207 | 1 |
| 34 | Frame Front, Curbside | | 12500842-2 | 19207 | 1 |
| 35 | Mid-Plate, Curbside | | 12500837 | 19207 | 1 |
| 36 | Shield, Rear, Curbside | 2590-01-532-3301 | 12500838 | 19207 | 1 |
| 37 | Bracket, Rear Shield, Curbside | 2590-01-532-3570 | 12500840-2 | 19207 | 1 |
| 38 | Bracket, Rear Shield, Curbside | 2590-01-532-3273 | 12500840-1 | 19207 | 1 |
| 39 | Screw, Cap, Hexagon, Head 3/8-16x1.50 | 5305-00-725-2315 | B1821BH038C150N | 80204 | 2 |
| 40 | Washer, Flat (Spacer) 3/8 x 0.132 Thick | 5310-00-728-9957 | 10910174-22 | 19207 | 8 |
| 41 | Nut, Hexagon, Nylon Lock 3/8-16 | 5305-00-050-6646 | MS17830-6C | 96906 | 2 |
| 42 | Latch, Safety | | 12500887-2 | 19207 | 2 |
| 43 | Door, Assembly C, Curbside | 2510-01-532-3315 | 12500831 | 19207 | 1 |
| 44 | Door, Assembly D, Curbside | 2540-01-532-3415 | 12500832 | 19207 | 1 |

**INSTALLATION**

1. Scribe a locating mark 3-inches (8 cm) from end of center cross brace (4) and two support brackets (2), as shown. These marks will be used to position the slider support bracket (3).

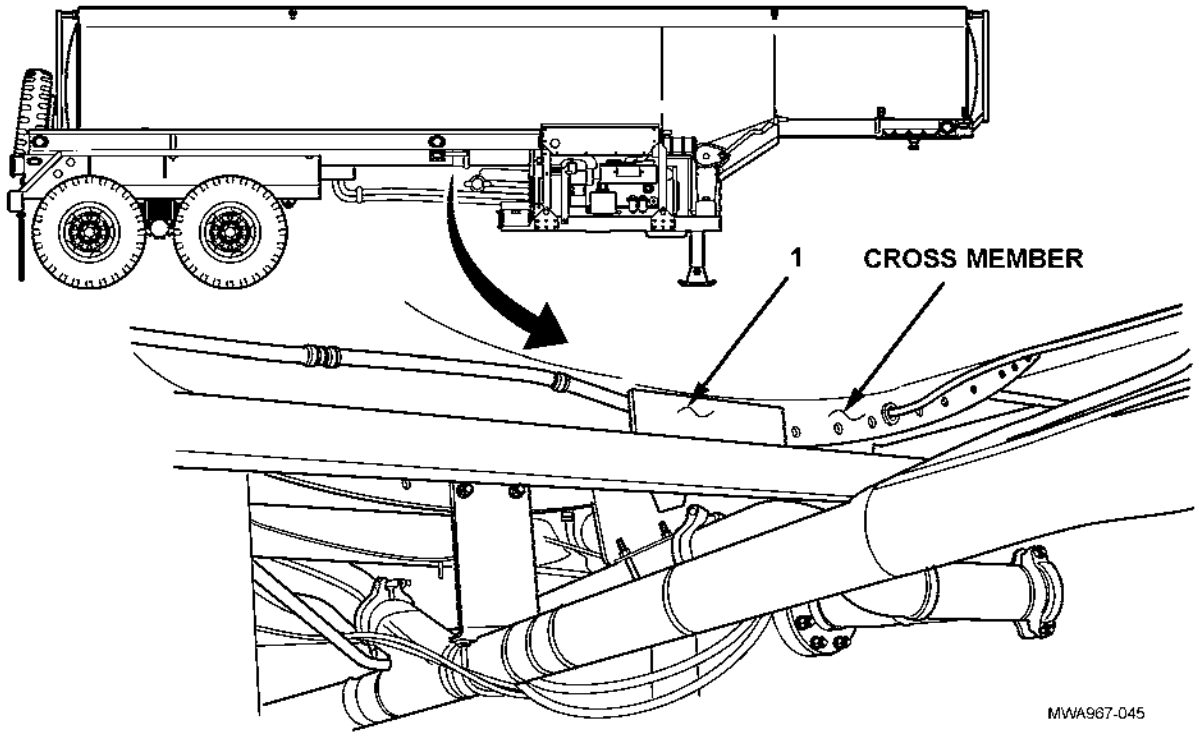
2. Install two slider support brackets (3) and support brackets (2) on center cross brace (4) to form the center support bracket assembly (1). Use clamps to hold brackets in place.



**INSTALLATION (continued)**

3. Locate the cross member, approximately mid-point of the tanker.

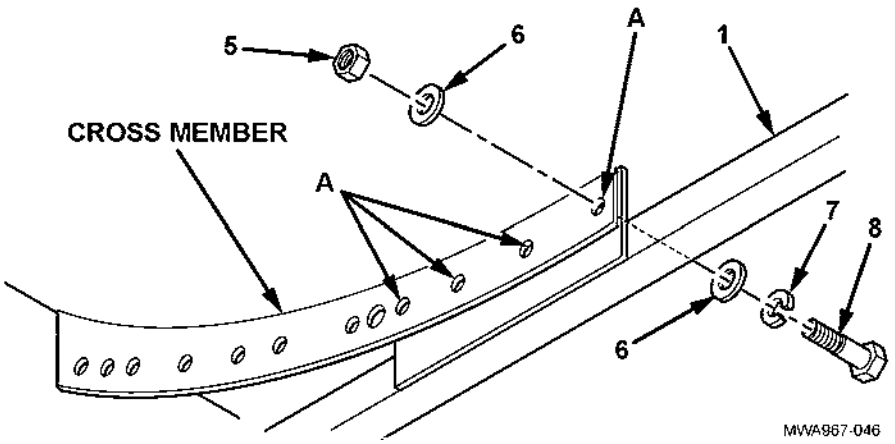
4. Position center support bracket assembly (1) on cross member with plate covering first four holes. Clamp center support bracket assembly (1) on cross member. Ensure center support bracket assembly (1) is level and flush.



**INSTALLATION (continued)**

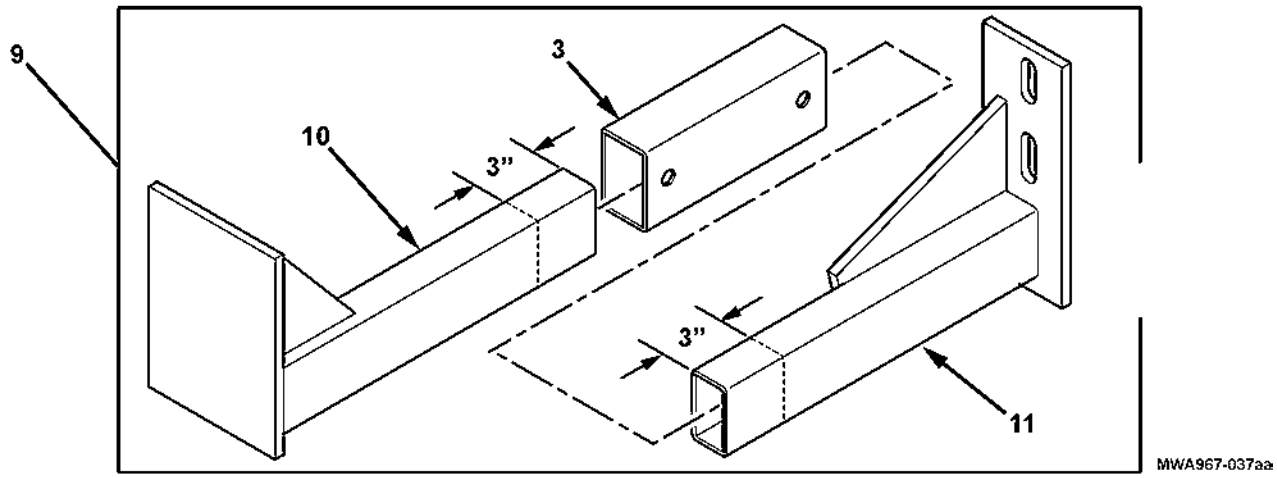
5. Using a 19/32-inch drill bit and cross member as a template, drill four holes, marked A, through the center support bracket assembly (1), as shown.

6. Install center support bracket assembly (1) on cross member with four flat washers (6), two hexagon head capscrews (8), lockwashers (7), and self-locking nuts (5). Hand tighten self-locking nuts.




7. Scribe a locating mark 3-inches (8 cm) from end of support bracket (10) and support bracket (11), as shown. These marks will be used to position the slider support bracket (3).

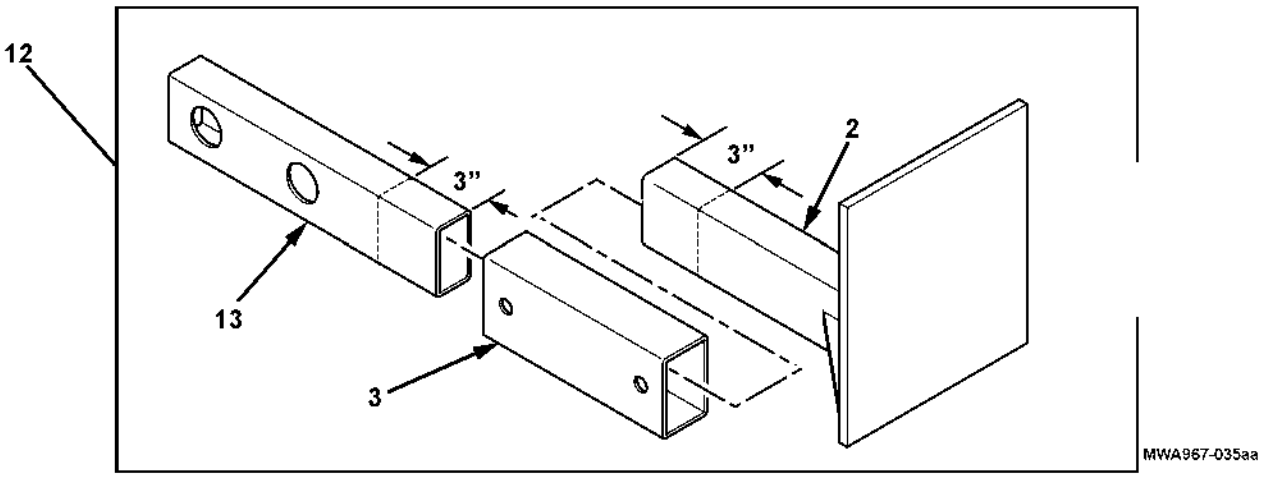
8. Install support bracket (10) and support bracket (11) on slider support bracket (3) to form the left front bracket assembly (9), as shown.



**INSTALLATION (continued)**

9. Scribe a locating mark 3-inches (8 cm) from end of support bracket (2) and support bracket (13), as shown. These marks will be used to position the slider support bracket (3).

10. Install support bracket (2) and support bracket (13) on slider support bracket (3) to form left rear bracket assembly (12), as shown.



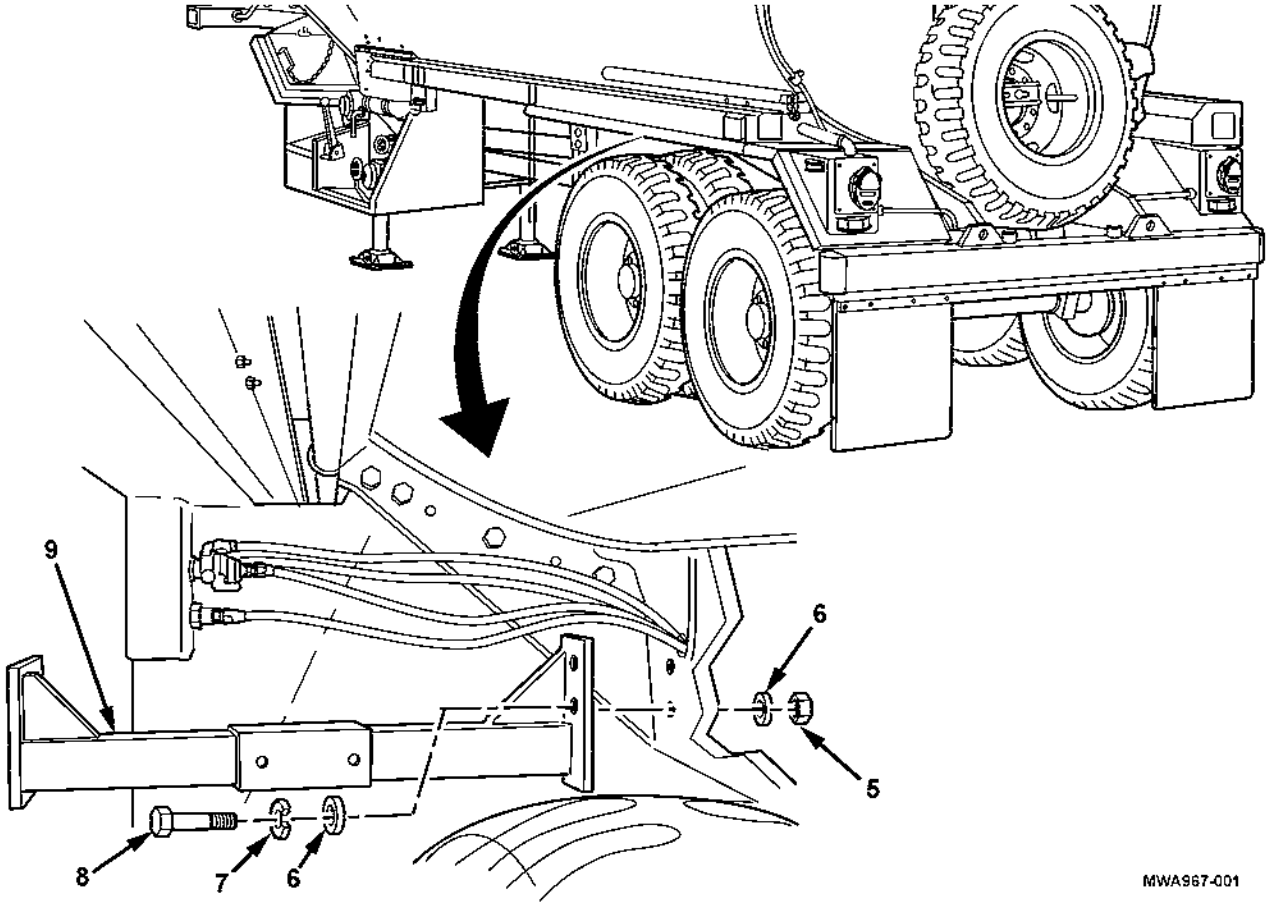
**INSTALLATION (continued)**

**NOTE**

If the through holes are not found on vehicle frame, use the left front bracket assembly as a template and drill using a 19/32-inch drill bit.

11. Locate two existing holes through vehicle frame as shown.

12. Install left front bracket assembly (9) on vehicle frame with four flat washers (6), two hexagon head capscrews (8), lockwashers (7), and self-locking nuts (5), as shown. Torque self-locking nuts to 55-65 lb-ft (75-81 N•m).



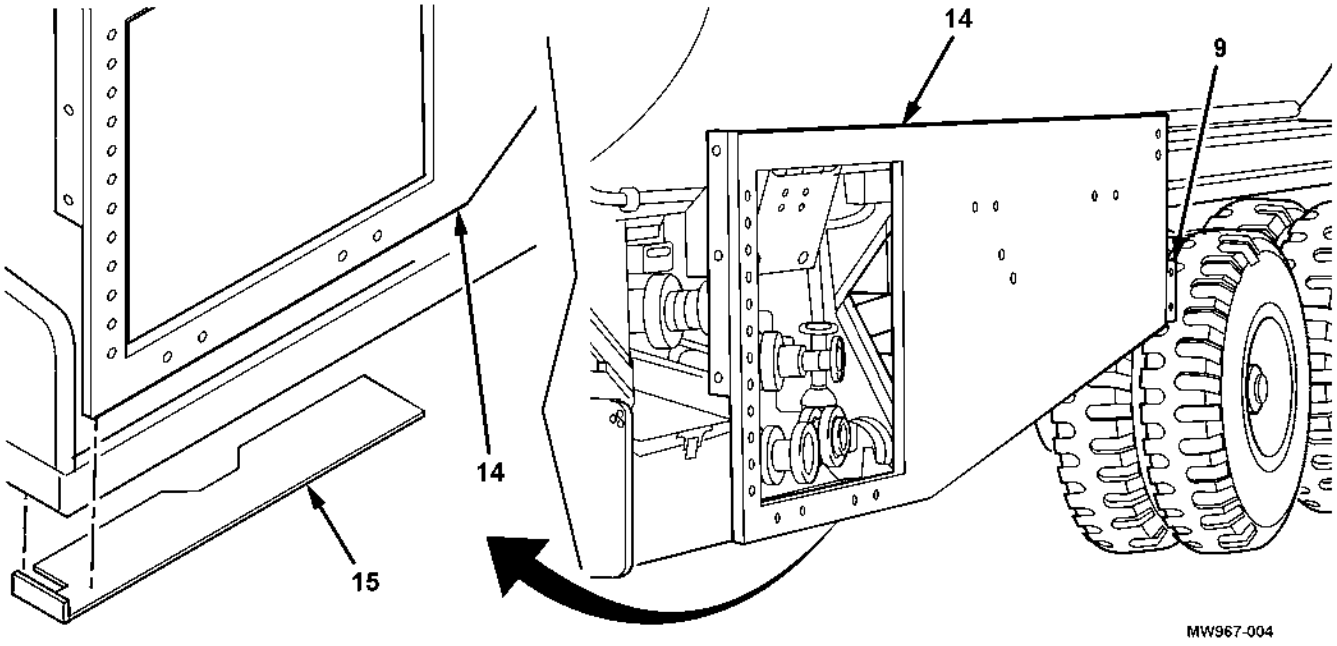
**INSTALLATION (continued)**

13. Position locating guide template (15) (Table 7-3) on valve cabinet and clamp in place. Ensure template (15) is flush and even with the bottom and front side of the valve reel cabinet.

**WARNING**

**Use caution when lifting the supplemental armor. A swinging or shifting load may cause injury to personnel.**

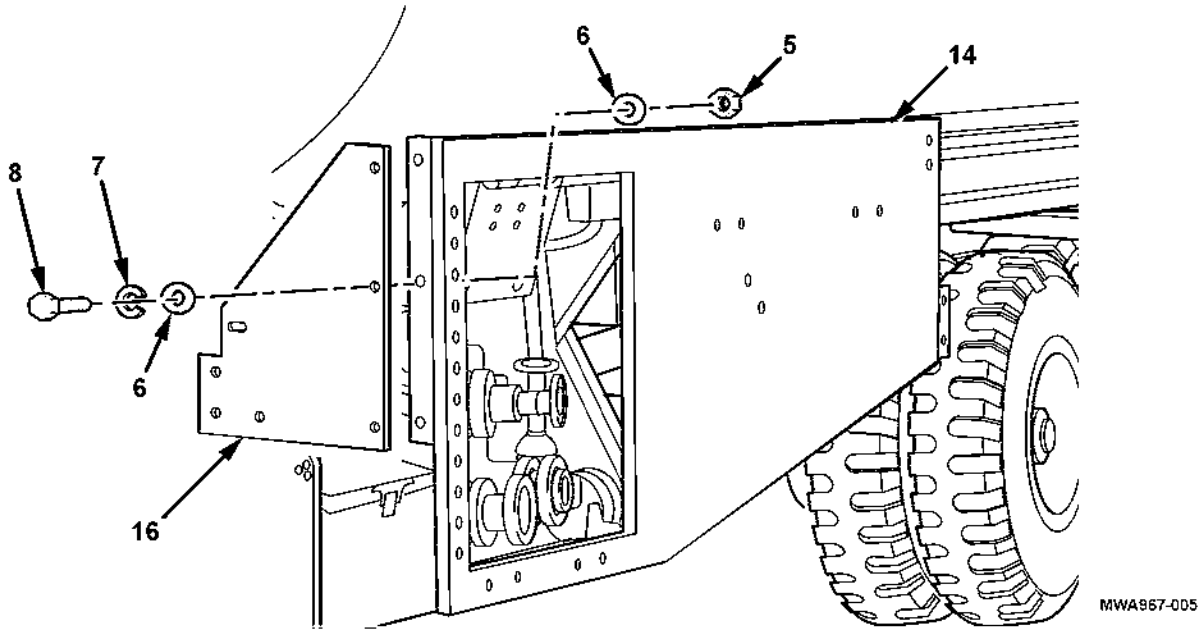
14. Using dawg grips (Table 7-2), a suitable lifting sling, and lifting device, raise and position frame plate (14) against valve cabinet. Ensure frame plate (14) seats square in template (15). Clamp frame plate (14) in place on valve cabinet and left front bracket assembly (9).



**INSTALLATION (continued)**

15. Install left support bracket (16) on frame plate (14) with six flat washers (6), three hexagon head capscrews (8), lockwashers (7), and self-locking nuts (5). Torque left support bracket hardware to 55-65 lb-ft (75-81 N•m).

16. Clamp left support bracket (16) against valve cabinet.

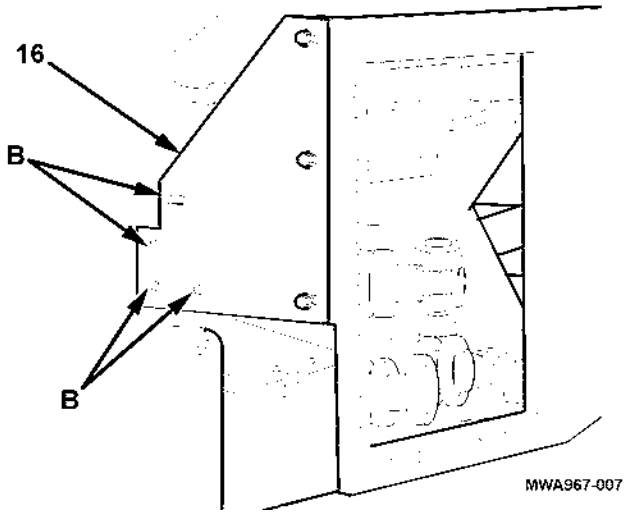


**INSTALLATION (continued)**

**CAUTION**

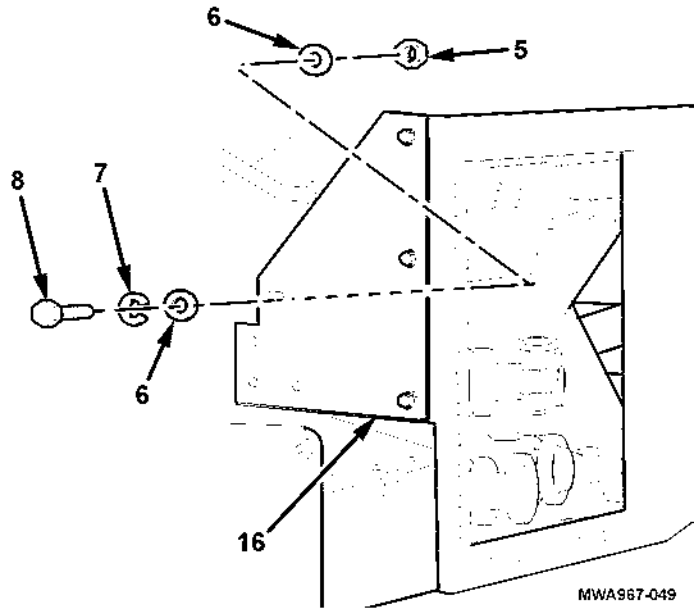
**When drilling through hole in upper slot of left support bracket, use caution not to drill through welded angle bracket.**

17. Using a 19/32-inch drill bit and left support bracket (16) as a template, drill four holes, marked B, through valve cabinet, as shown. Insert pry bar through slotted hole of support bracket to hold in place.



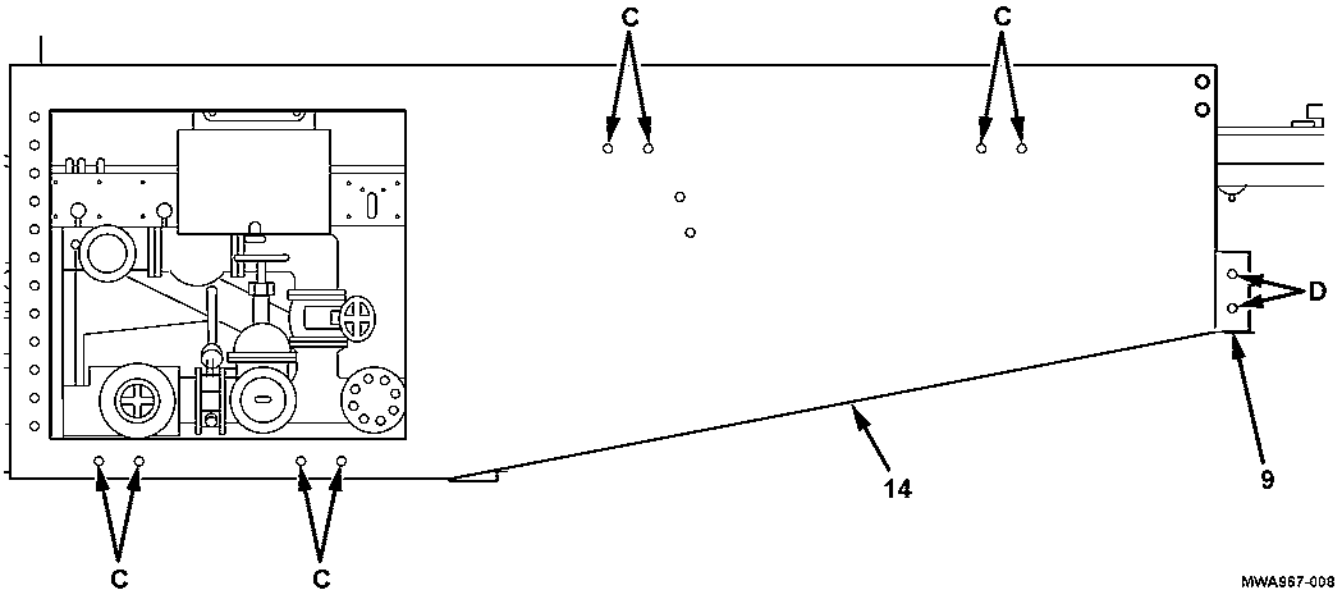
**INSTALLATION (continued)**

18. Install left support bracket (16) on valve cabinet with eight flat washers (6), four hexagon head capscrews (8), lockwashers (7), and self-locking nuts (5). Hand tighten self-locking nuts.




19. Using a 19/32-inch drill bit and frame plate (14) as a template, drill eight holes, marked C, through valve cabinet, as shown.

20. Using a 19/32-inch drill bit and frame plate (14) as a template, drill two holes, marked D, through left front bracket assembly (9), as shown.



**INSTALLATION (continued)**

**NOTE**

Install small shims 12500845-1 through -3 as required to ensure the frame plate is straight and even with the valve cabinet.

21. Check the straightness of the frame plate (14) against the valve cabinet at door opening. Shim gap using small shims as required.

22. Install frame plate (14) on the valve cabinet with eight flat washers (6), four hexagon head capscrews (18), lockwashers (7), and self-locking nuts (5). Hand tighten self-locking nuts.

**NOTE**

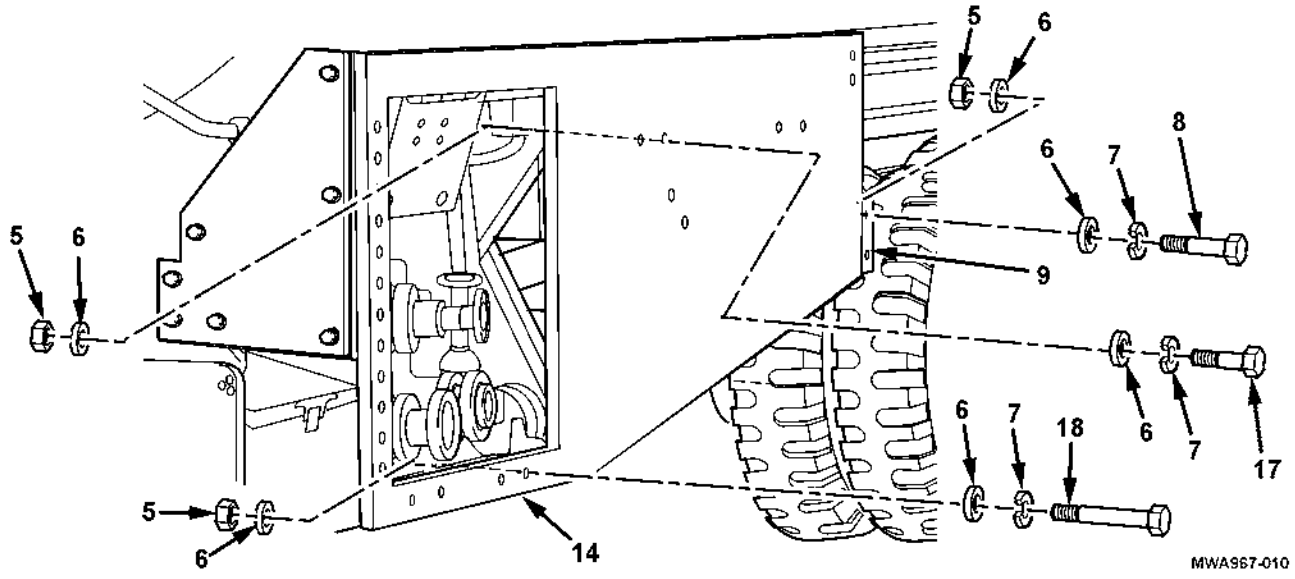
Install large shims 12500846-1 through -3, as needed, to ensure the frame plate is straight and even with the valve cabinet. Do not shim the area between the center support bracket and left front bracket assemblies.

23. Check the straightness of the frame plate (14) against the valve cabinet and fender of vehicle. Shim gap using large shims as required.

24. Install frame plate (14) on valve cabinet with eight flat washers (6), four hexagon head capscrews (17), lockwashers (7), and self-locking nuts (5). Hand tighten self-locking nuts.

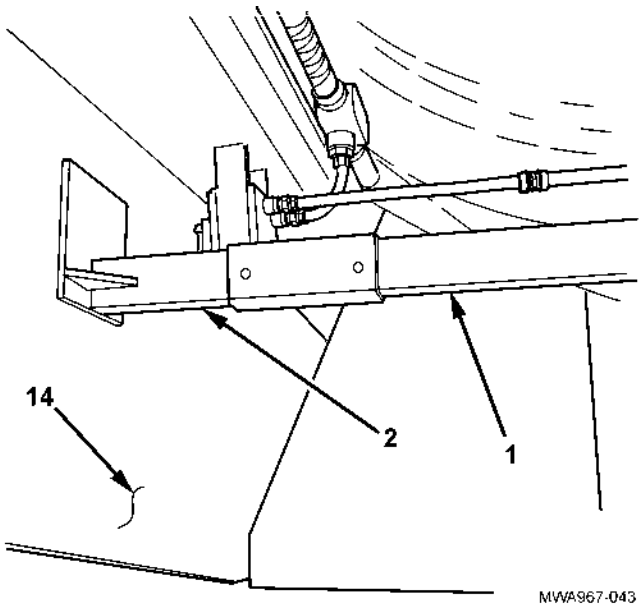
25. Install frame plate (14) on left front bracket assembly (9) with four flat washers (6), two hexagon head capscrews (8), lockwashers (7), and self-locking nuts (5). Hand tighten self-locking nuts.

26. Torque support bracket and frame plate hardware to 55-65 lb-ft (75-81 N•m).



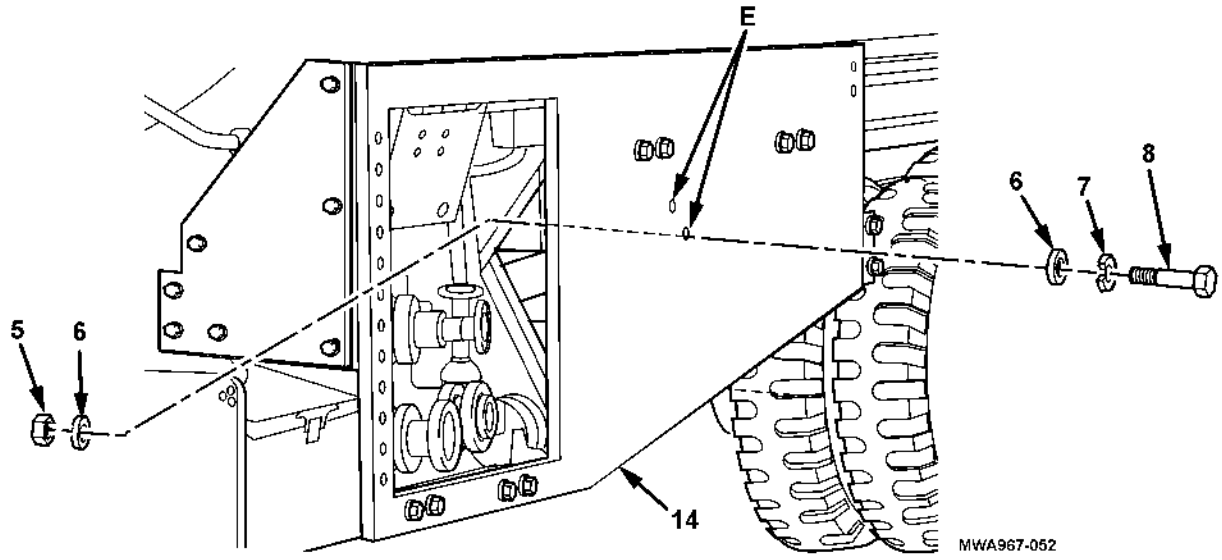
**INSTALLATION (continued)**

27. Loosen clamps and slide left rear support bracket (2) of center support bracket assembly (1) against frame plate (14). Tighten clamps.




28. Using 19/32-inch drill bit and frame plate (14) as a template, drill two holes, marked E, through left rear support bracket (2) of center support bracket assembly (1).

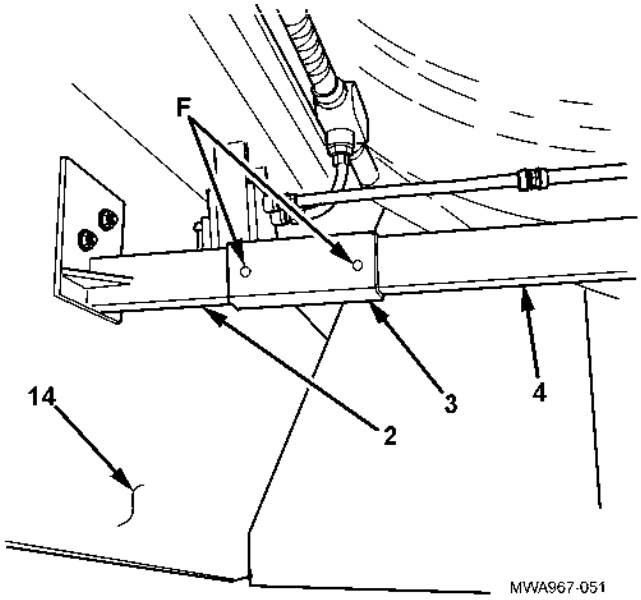
29. Install frame plate (14) on center support bracket assembly (1) with four flat washers (6), two hexagon head capscrews (8), lockwashers (7), and self-locking nuts (5). Torque self-locking nuts to 55-65 lb-ft (75-81 N•m).



**INSTALLATION (continued)**

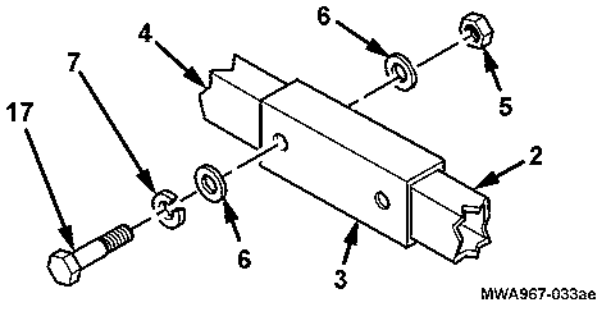
30. Align slider support bracket (3) with scribed mark on center cross brace (4) or rear support bracket (2) and clamp in place securely.

31. Using a 19/32-inch drill bit and slider support bracket (3) as a template, drill two holes, marked F, through on center cross brace (4) and rear support bracket (2).




32. Install four flat washers (6), two hexagon head capscrews (17), lockwashers (7), and self-locking nuts (5) through on center cross brace (4), support bracket (2), and support bracket (3), as shown.

33. Repeat Steps 30 through 32 for left front bracket assembly.



**INSTALLATION (continued)**

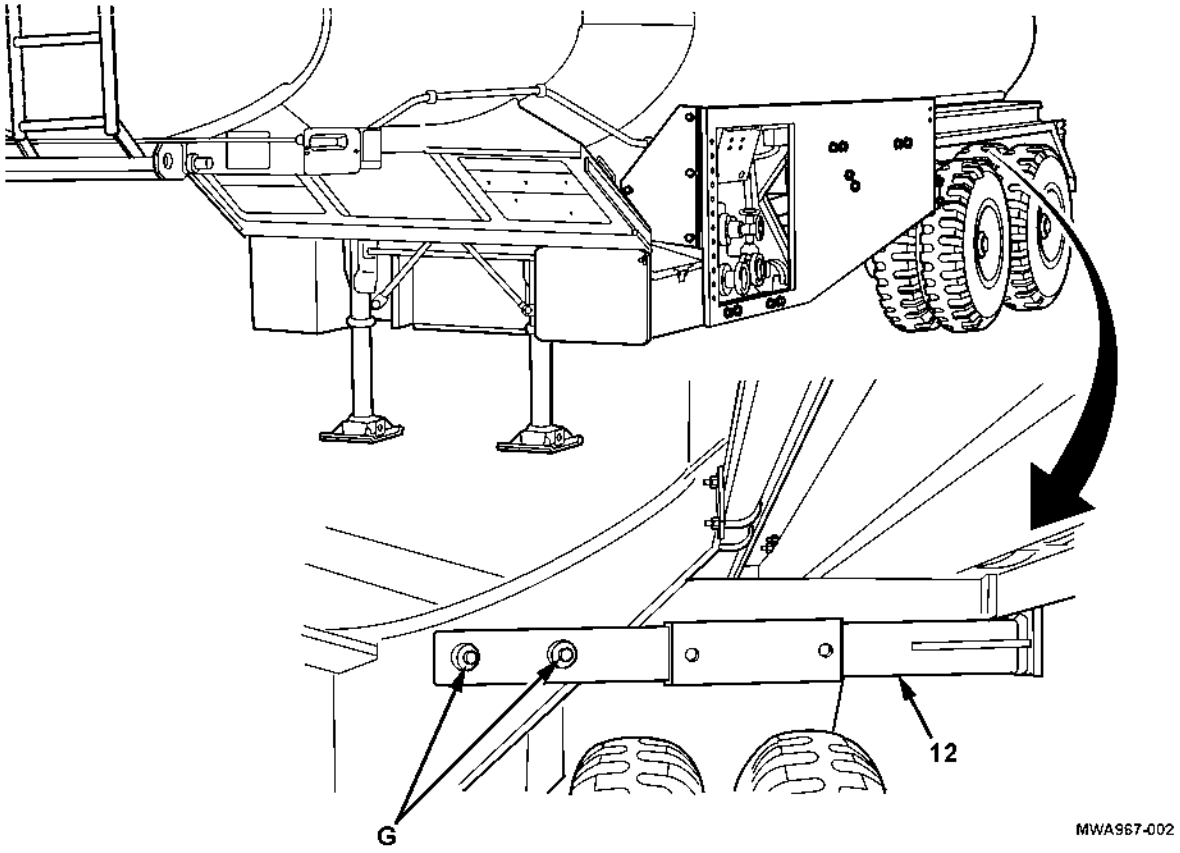
**NOTE**

Make sure left rear bracket assembly is level and does not interfere with the installation of the hose trough covers.

34. Position left rear bracket assembly (12) on vehicle frame member and clamp in place, as shown.

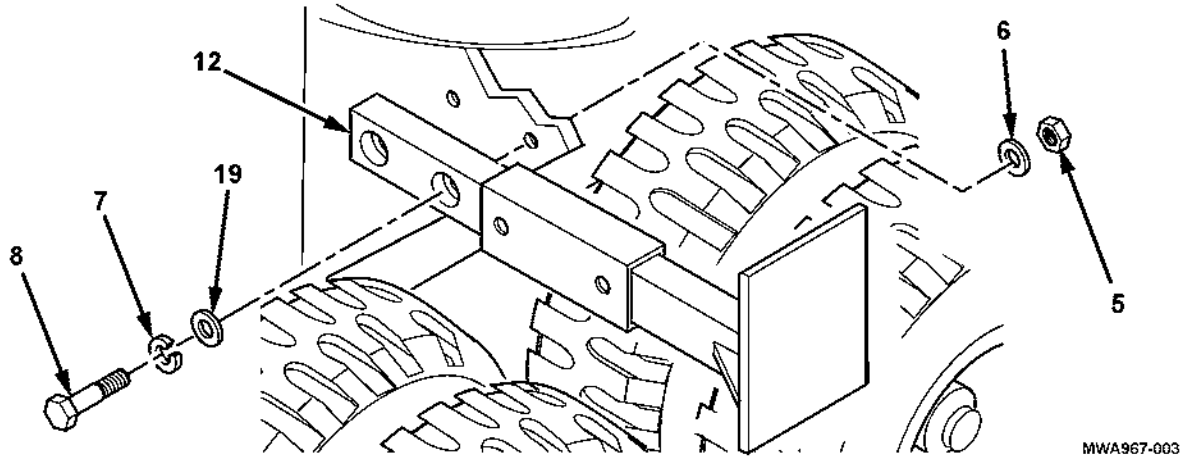
35. Using a 19/32-inch drill bit, drill two holes, marked G, through vehicle frame member, as shown.

36. Remove all burrs and sharp edges. Finish all exposed metal areas using a rust inhibitor primer and paint as specified in Table 7-4, Materials and Parts. Allow for the appropriate time for prime and paint to cure.



**INSTALLATION (continued)**

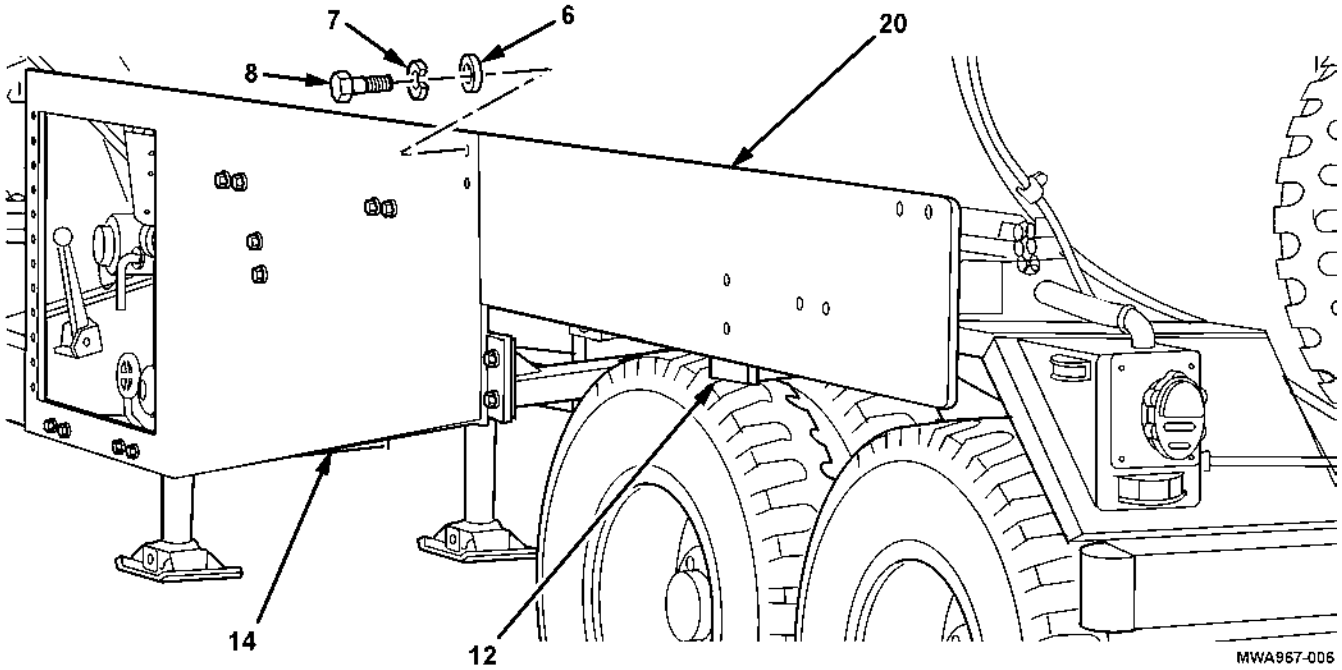
37. Install left rear bracket assembly (12) on vehicle frame member with two hexagon head capscrews (8), lockwashers (7), flat washers (19), flat washers (6), and self-locking nuts (5). Torque self-locking nuts to 55-65 lb-ft (75-81 N•m).




**WARNING**

**Use caution when lifting the supplemental armor. A swinging or shifting load may cause injury to personnel.**

38. Using dawg grips (Table 7-2), a suitable lifting sling, and lifting device, to raise and position rear shield plate (20) on vehicle. Position the two alignment holes of frame plate (14) over threaded holes of rear shield plate (20) and install with two hexagon head capscrews (8), lockwashers (7), and flat washers (6), as shown. Clamp rear shield plate (20) on vehicle and left rear bracket assembly (12).

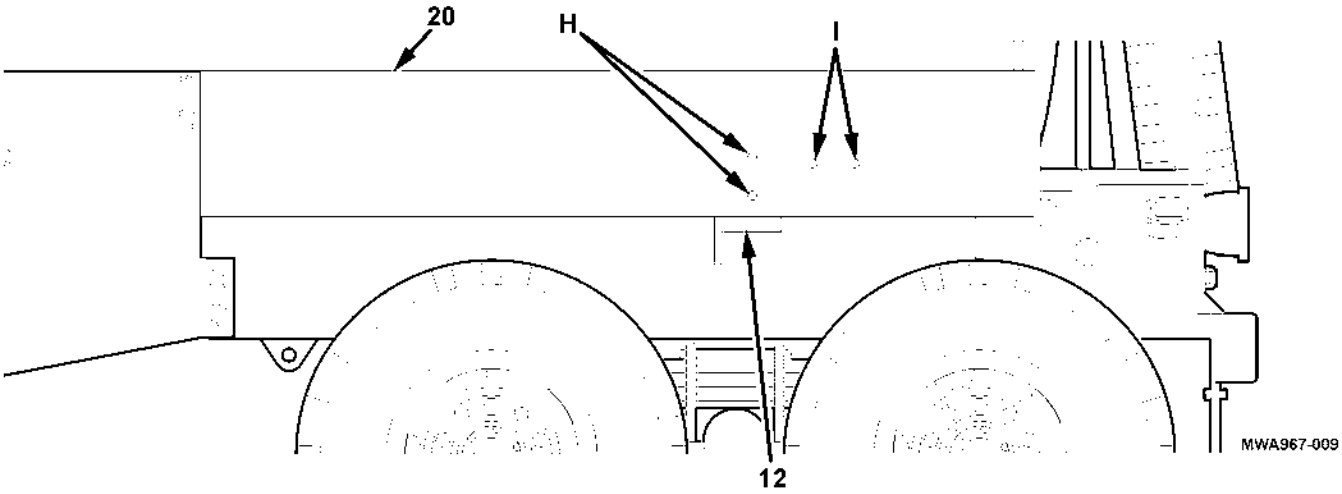


**INSTALLATION (continued)**

39. Using a 19/32-inch drill bit and rear shield plate (20) as a template, drill two holes, marked I, through vehicle fender, as shown.

40. Using a 27/64-inch drill bit and rear shield plate (20) as a template, drill two holes, marked H, through left rear bracket assembly (12) as shown. Use a 1/2-13 tap to thread through holes H in left rear bracket assembly (12).

41. Remove all burrs and sharp edges. Finish all exposed metal areas using a rust inhibitor primer and paint as specified in Table 7-4, Materials and Parts. Allow for the appropriate time for prime and paint to cure.



**INSTALLATION (continued)**

**NOTE**

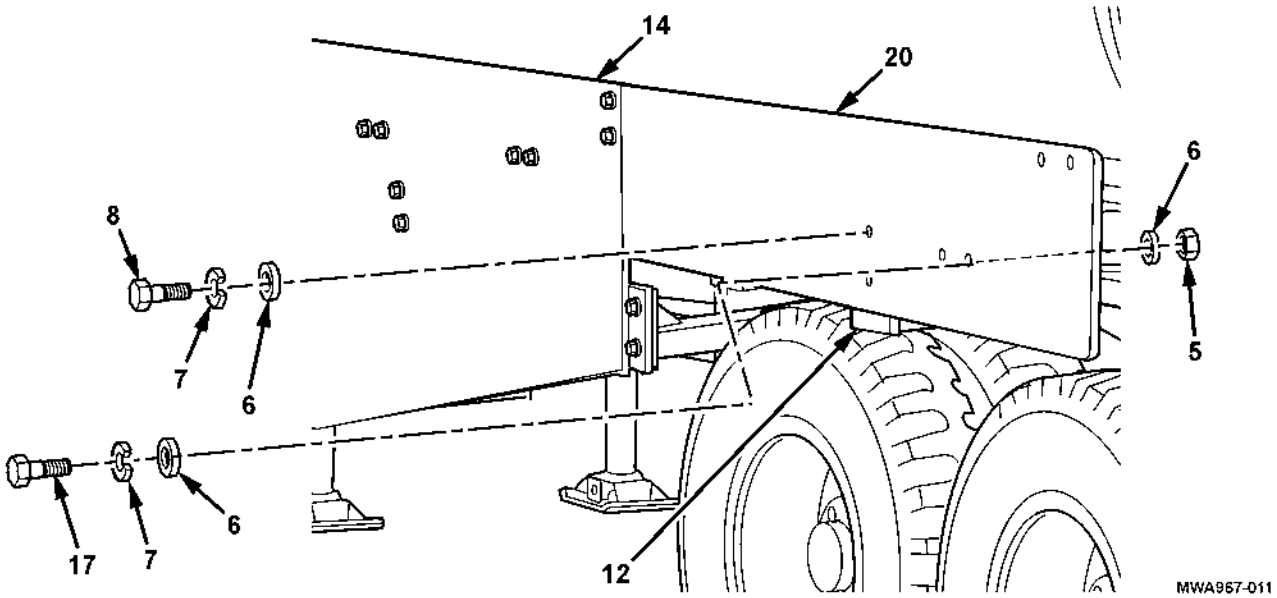
Install large shims 12500846-1 through -3, as needed, to ensure the rear shield plate is straight and even with the vehicle. Do not shim the area between the rear shield plate and left rear bracket.

42. Check the straightness of the rear shield plate (20) against the fender of vehicle. Shim using large shims as required.

43. Install rear shield plate (20) on left rear bracket assembly (12) with two hexagon head capscrews (8), lockwashers (7), and flat washers (6). Hand tighten rear shield plate hardware.

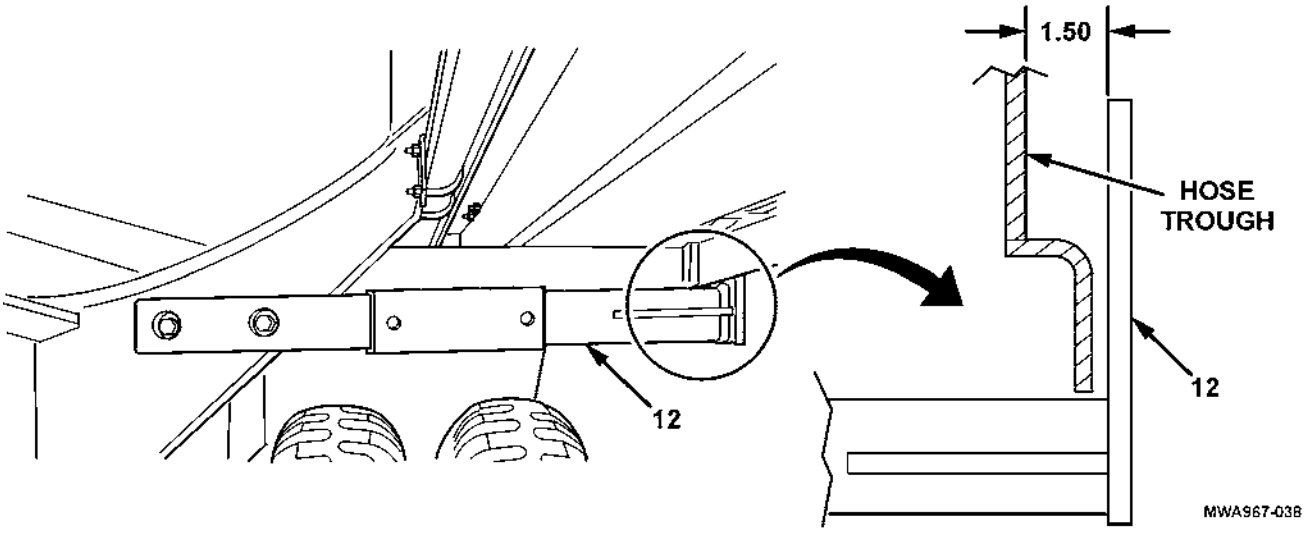
44. Install rear shield plate (20) on vehicle with four flat washers (6), two hexagon head capscrews (17), lockwashers (7), and self-locking nuts (5). Hand tighten rear shield plate hardware.

45. Torque all rear shield plate hardware to 55-65 lb-ft (75-81 N•m).



**INSTALLATION (continued)**

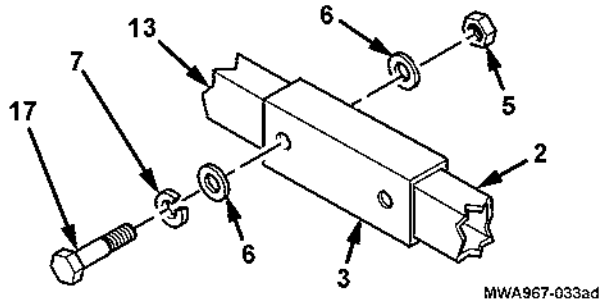
46. Adjust left rear bracket assembly (12) to ensure there is a 1.50-inch (38 mm) clearance between foot of bracket and hose trough and clamp in place securely.




47. Align slider support bracket (3) with scribed mark on rear support bracket (2) or rear support bracket (13) and clamp in place securely.

48. Using a 19/32-inch drill bit and slider support bracket (3) as a template, drill holes through rear support bracket (2) and rear support bracket (13)

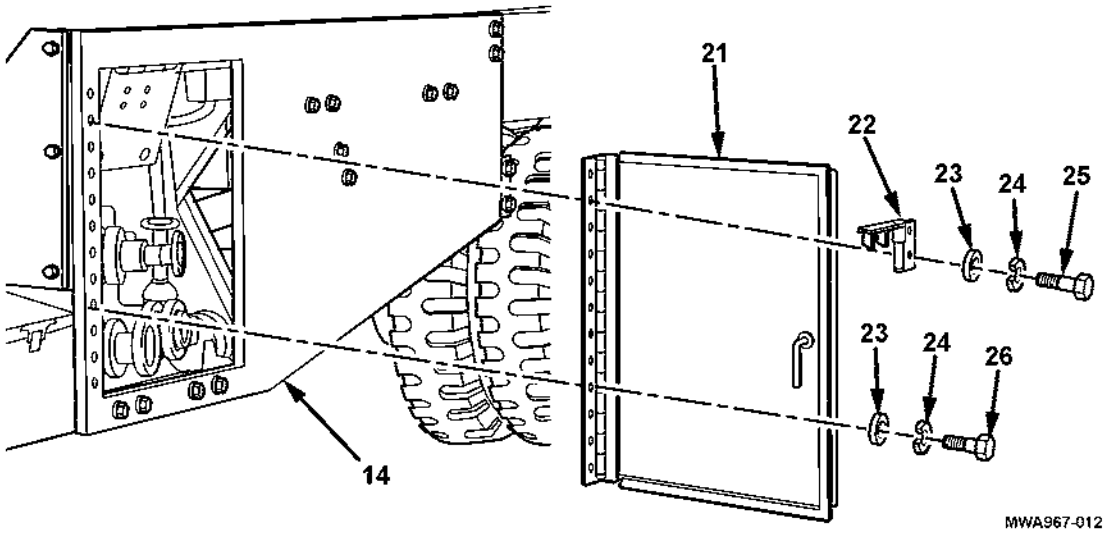
49. Install four flat washers (6), two hexagon head capscrews (17), lockwashers (7), and self-locking nuts (5) through slider support bracket (3), rear support bracket (2), and rear support bracket (13), as shown.



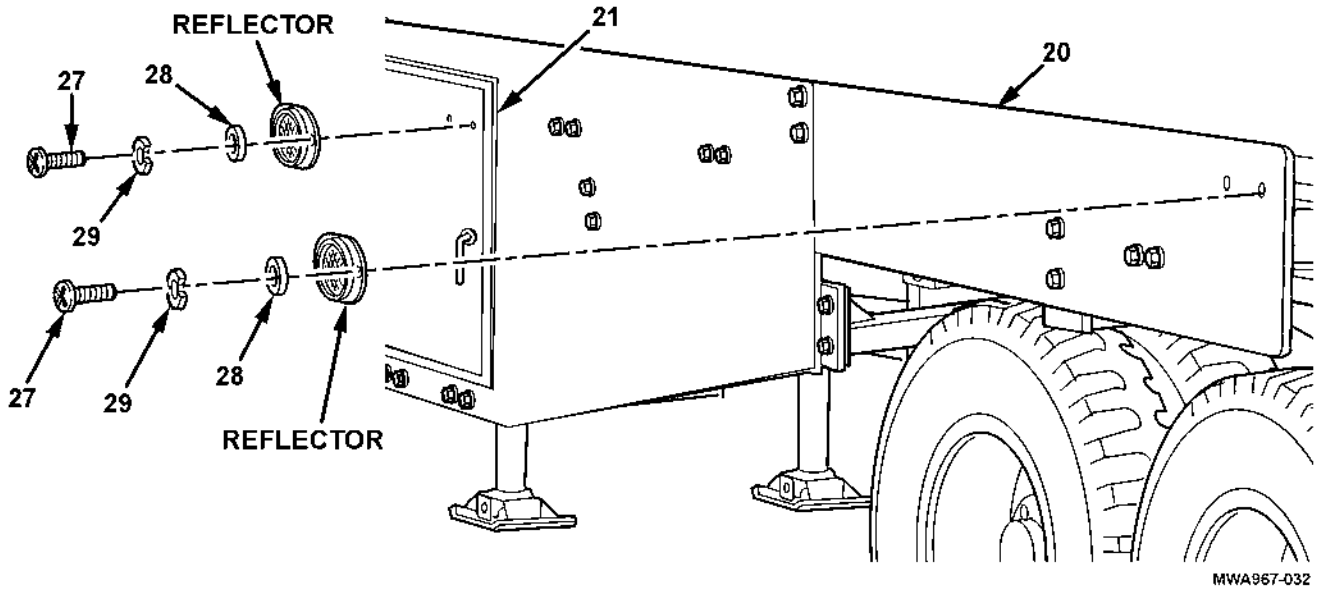
**INSTALLATION (continued)**

50. Install door assembly (21) on frame plate (14) with ten flat washers (23), lockwashers (24), and hexagon head capscrews (26). Torque door assembly hardware to 30-35 lb-ft (41-48 N•m).

51. Install safety latch (22) on door assembly (21) with two flat washers (23), lockwashers (24), and hexagon head capscrews (25). Torque safety latch hardware to 30-35 lb-ft (41-48 N•m).



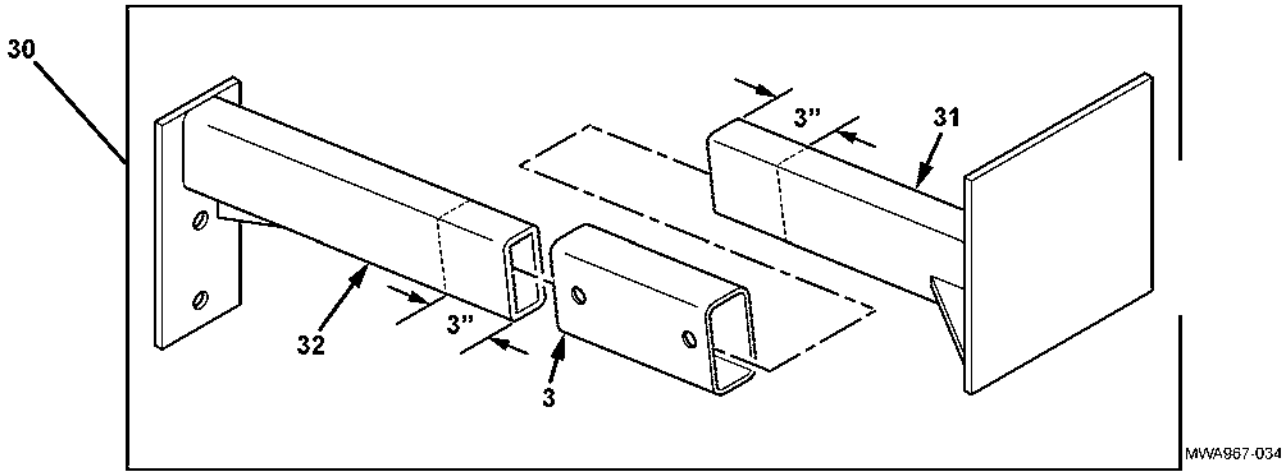

52. Position reflectors, previously removed, on door assembly (21) and rear shield plate (20) and install with two screws (27), lockwashers (29), and flat washers (28).



**INSTALLATION (continued)**

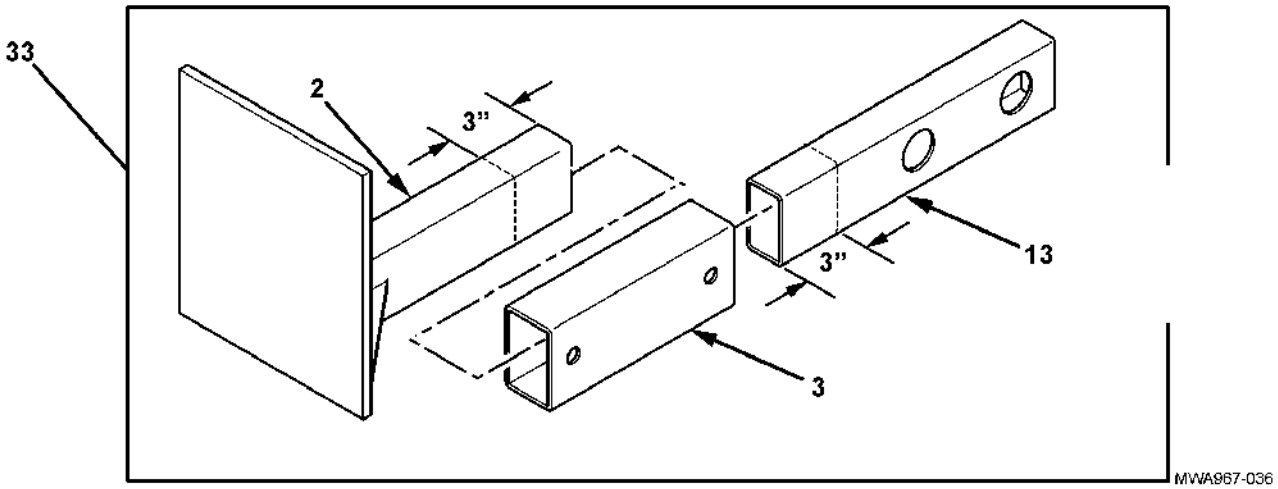
53. Scribe a locating mark 3-inches (8 cm) from end of support bracket (31) and support bracket (32), as shown. These marks will be used to position the slider support bracket (3).

54. Install support bracket (31) and support bracket (32) on slider support bracket (3) to form right front bracket assembly (30), as shown.




55. Scribe a locating mark 3-inches (8 cm) from end of support bracket (2) and support bracket (13), as shown. These marks will be used to position the slider support bracket (3).

56. Install support bracket (2) and support bracket (13) on slider support bracket (3) to form right rear bracket assembly (33), as shown.



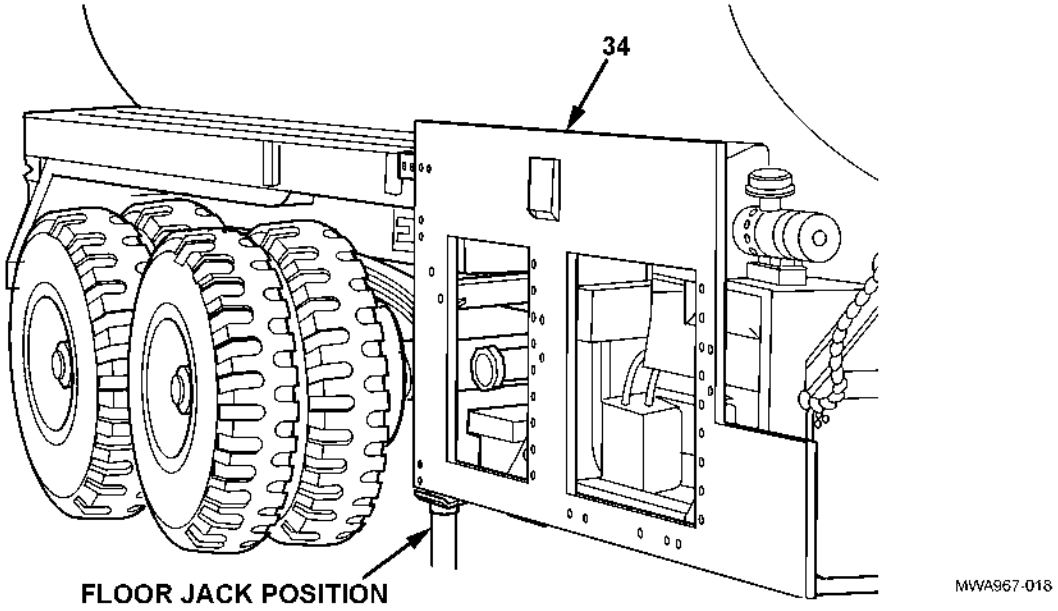
**INSTALLATION (continued)**

**WARNING**

**Use caution when lifting the supplemental armor. A swinging or shifting load may cause injury to personnel.**

57. Using dawg grips (Table 7-2), a suitable lifting sling, and lifting device, raise and position frame plate (34) against engine and pump frame.

58. Place a floor jack at the rear of frame plate (34), as shown, to lift and hold the plate level and flush with the bottom of the engine and pump frame. Clamp frame plate (34) in place on engine and pump frame.

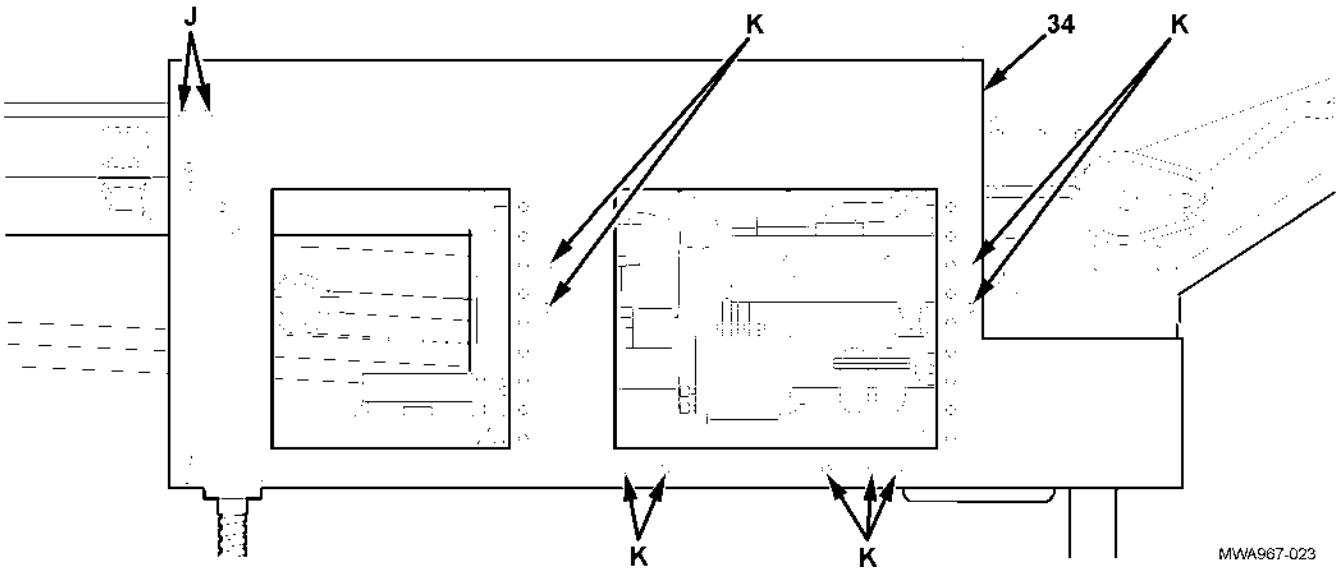


**INSTALLATION (continued)**

59. Using a 19/32-inch drill bit and frame plate (34) as a template, drill nine holes, marked K, through engine and pump frame, as shown.

60. Using a 19/32-inch drill bit and frame plate (34) as a template, drill two holes, marked J, through hose trough, as shown.

61. Remove all burrs and sharp edges. Finish all exposed metal areas using a rust inhibitor primer and paint as specified in Table 7-4, Materials and Parts. Allow for the appropriate time for primer and paint to cure.



**INSTALLATION (continued)**

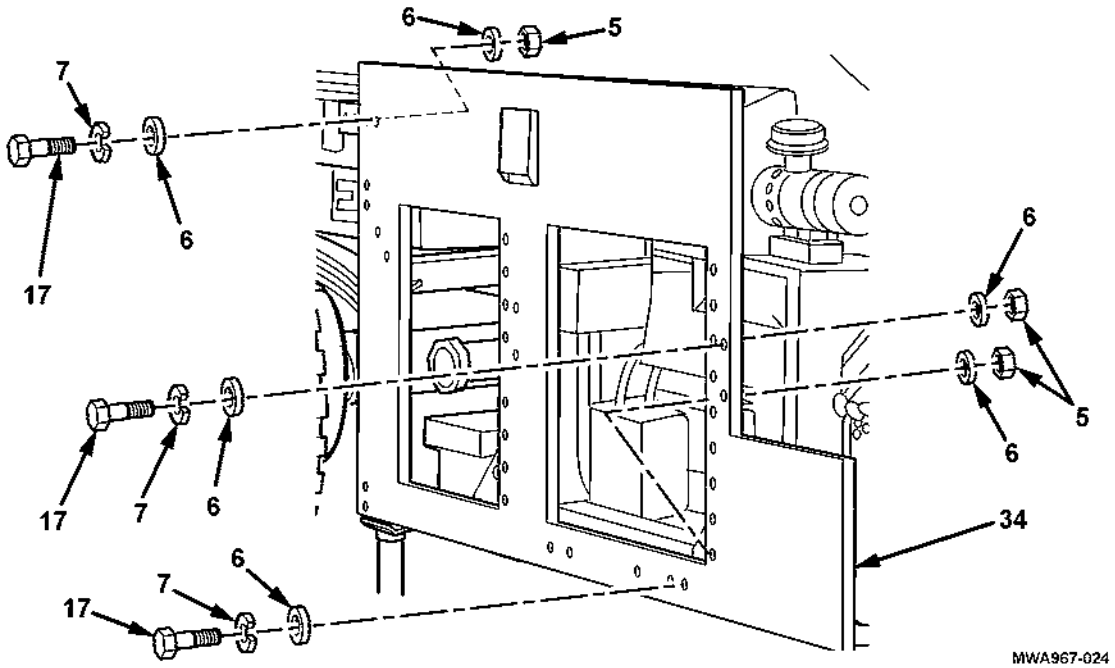
**NOTE**

Install large shims 12500846-1 through -3, as needed, to ensure a snug and secure fit of frame plate on the engine and pump frame.

62. Install frame plate (34) on engine and pump frame with eighteen flat washers (6), nine hexagon head capscrews (17), lockwashers (7), and self-locking nuts (5). Hand tighten self-locking nuts.

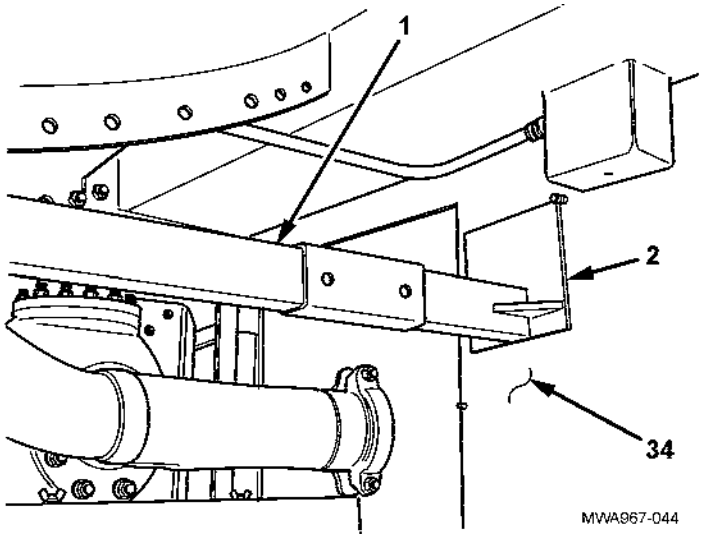
63. Install frame plate (34) on vehicle with four flat washers (6), two hexagon head capscrews (17), lockwashers (7), and self-locking nuts (5). Hand-tighten self-locking nuts.

64. Torque all frame plate (34) hardware to 55-65 lb-ft (75-81 N•m).

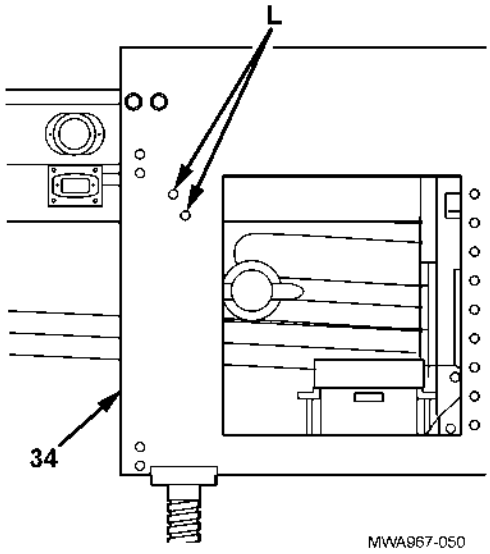


**INSTALLATION (continued)**

65. Loosen clamps and extend the right rear support bracket (2) of center support bracket assembly (1) to frame plate (34). Tighten clamps.

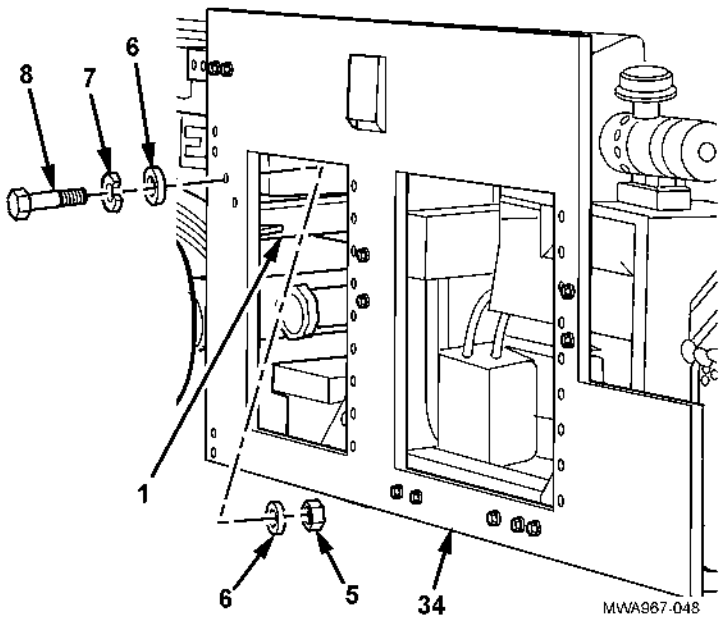



66. Using a 19/32-inch drill bit and frame plate (34) as a template, drill two holes, marked L, through rear support (2) of center support bracket assembly (1), as shown.



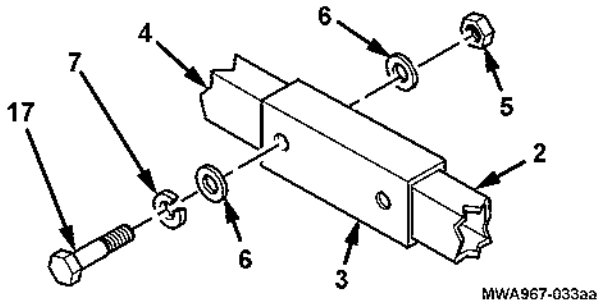
**INSTALLATION (continued)**

67. Install center support bracket assembly (1) on frame plate (34) with four flat washers (6), two hexagon head capscrews (8), lockwashers (7), and self-locking nuts (5). Torque self-locking nuts to 55-65 lb-ft (75-81 N•m).




68. Using a 19/32-inch drill bit and slider support bracket (3) as a template, drill two holes through the center cross brace (4) and right rear support bracket (2).

69. Install four flat washers (6), two hexagon head capscrews (17), lockwashers (7), and self-locking nuts (5) on slider support bracket (3), center cross brace (4), and right rear support bracket (2).



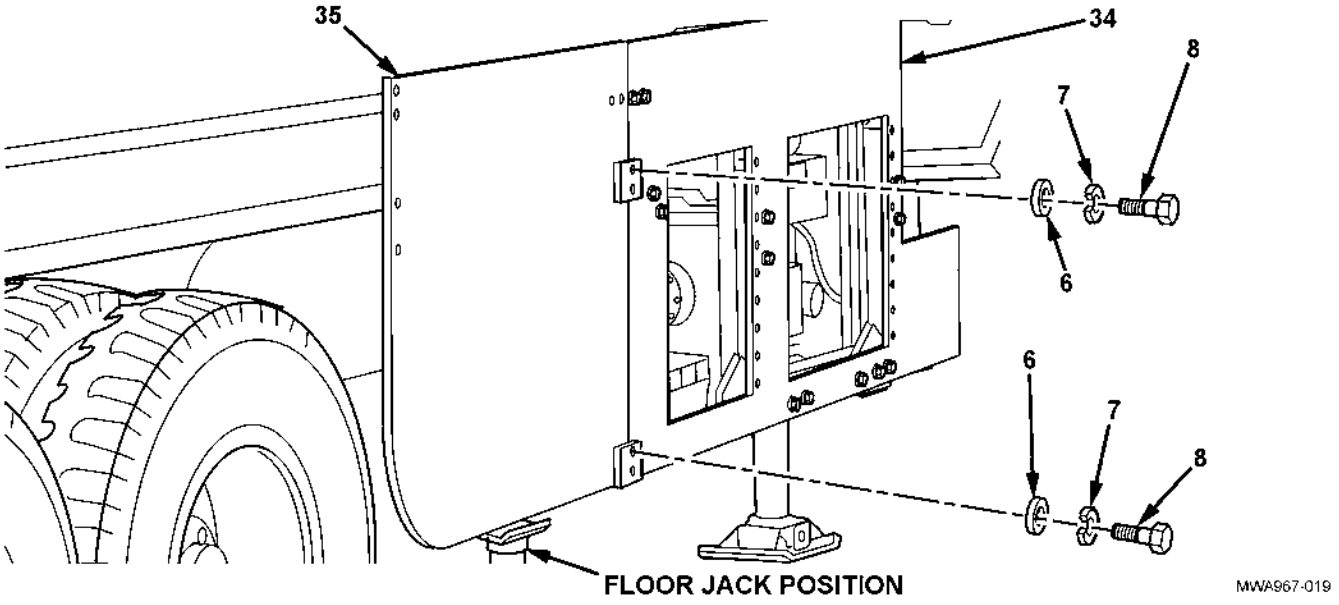
**INSTALLATION (continued)**

**WARNING**

**Use caution when lifting the supplemental armor. A swinging or shifting load may cause injury to personnel.**

70. Using dawg grips (Table 7-2), a suitable lifting sling, and lifting device, lift and position mid-plate (35) against engine and pump frame, as shown. Use a floor jack to level and support the mid-plate (35) against the engine and pump frame, as shown.

71. Align four holes in mid-plate (35) with threaded holes of frame plate (34) and install with four flat washers (6), lockwashers (7), and hexagon head capscrews (8). Clamp mid-plate (35) in place on engine and pump frame.



**INSTALLATION (continued)**

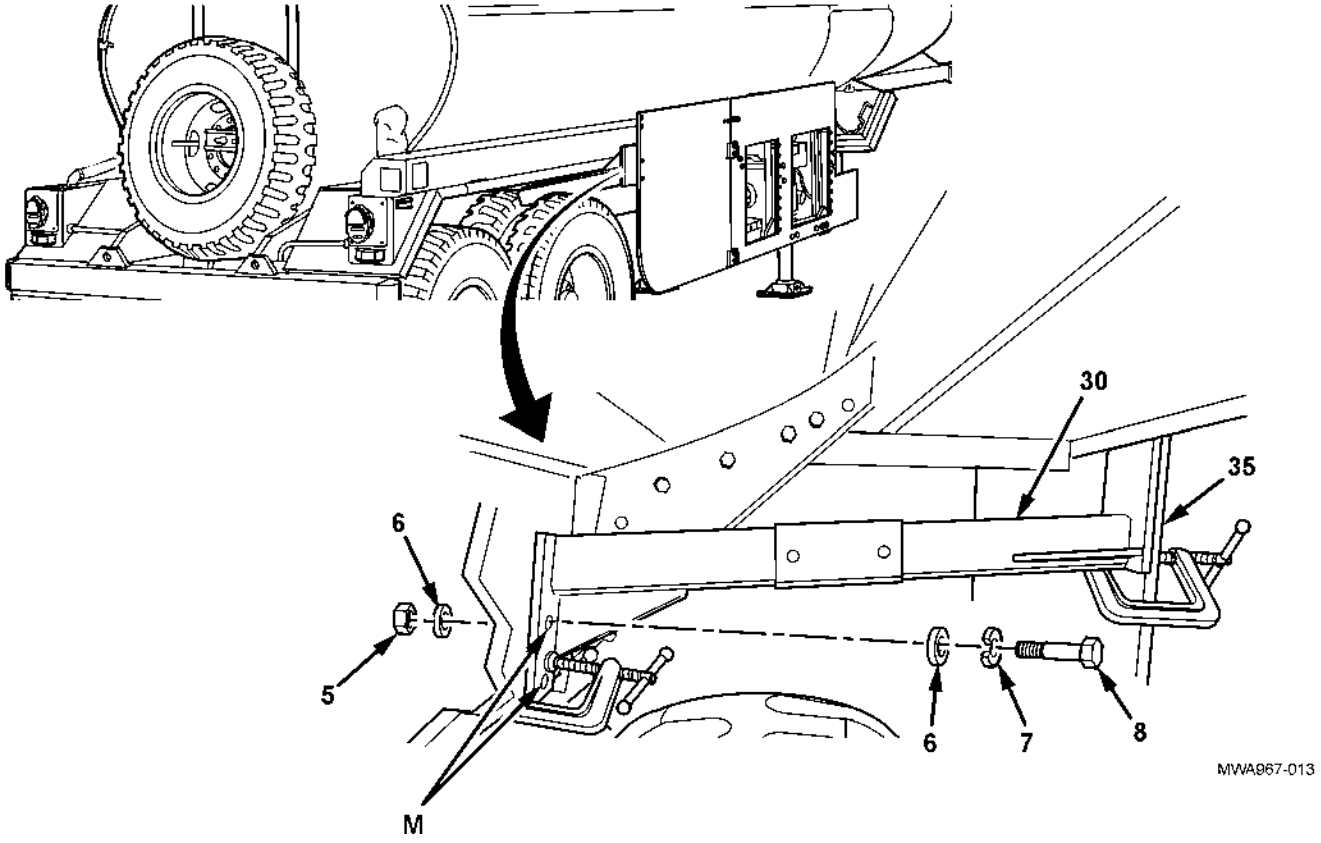
72. Position right front bracket assembly (30) under fender on vehicle frame and mid-plate (35). Align bottom of right front bracket assembly (30) flush with bottom of vehicle frame. Clamp bracket in place on vehicle frame and mid-plate (35).

73. Extend right front bracket assembly (30) to vehicle frame. Align pad of right front bracket assembly (30) flush with the bottom of the vehicle frame and clamp in place as shown.

74. Using a 19/32–inch drill bit and right front bracket assembly (30) as a template, drill two holes, marked M, as shown.

75. Remove all burrs and sharp edges. Finish all exposed metal areas using a rust inhibitor primer and paint as specified in Table 7-4, Materials and Parts. Allow for the appropriate time for primer and paint to cure.

76. Install right front bracket assembly (30) on vehicle frame with four flat washers (6), two hexagon head capscrews (8), lockwashers (7), and self-locking nuts (5). Hand tighten self-locking nuts.



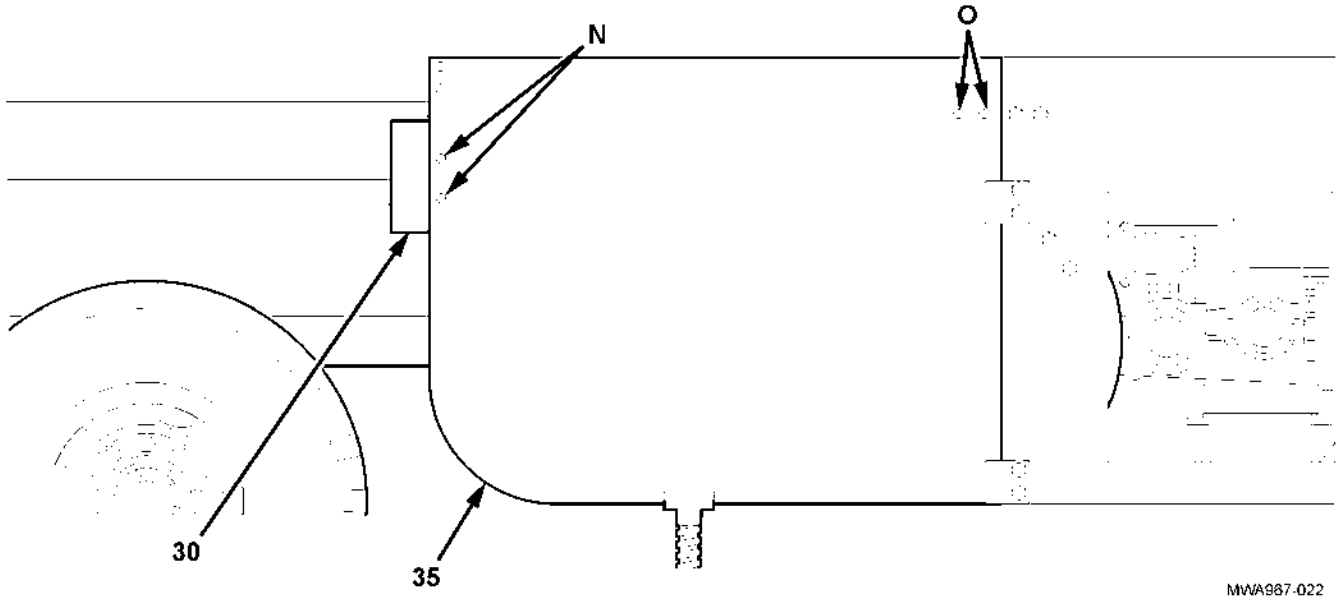
**INSTALLATION (continued)**

77. Using a 19/32-inch drill bit and mid-plate (35) as a template, center and drill two holes, marked O, through hose trough, as shown.

78. Using a 27/64-inch drill bit and mid-plate (35) as a template, center and drill two holes, marked N, through right front bracket assembly (30), as shown.

79. Use a 1/2-13 tap to thread through holes N in right front bracket assembly (30), as shown.

80. Remove all burrs and sharp edges. Finish all exposed metal areas using a rust inhibitor primer and paint as specified in Table 7-4, Materials and Parts. Allow for the appropriate time for primer and paint to cure.



**INSTALLATION (continued)**

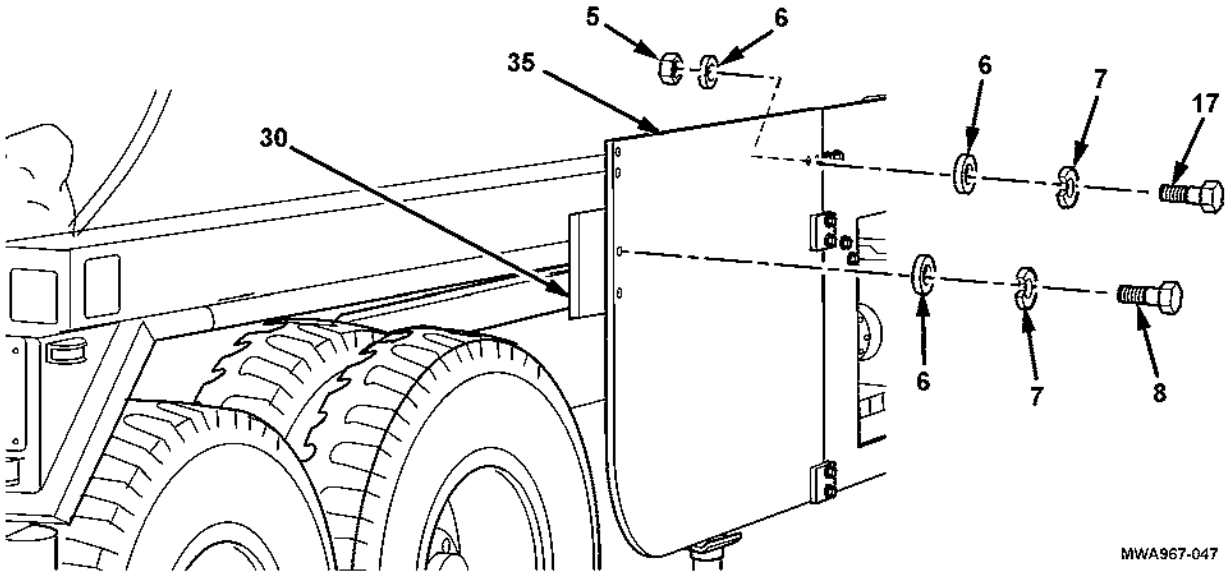
**NOTE**

Install large shims 12500846-1 through -3, as needed, to ensure a snug and secure fit of the mid and rear shield frame plates on the vehicle. Do not shim the area between the frame plates, front, rear brackets.

81. Install mid-plate (35) on right front bracket assembly (30) with two flat washers (6), lockwashers (7), and hexagon head capscrews (8). Hand-tighten filter mid-plate hardware.

82. Install mid-plate (35) on right front bracket assembly (30) four flat washers (6), two hexagon head capscrews (17), lockwashers (7), and self-locking nuts (5). Hand tighten self-locking nuts.

83. Torque mid-plate hardware to 55-65 lb-ft (75-81 N•m).

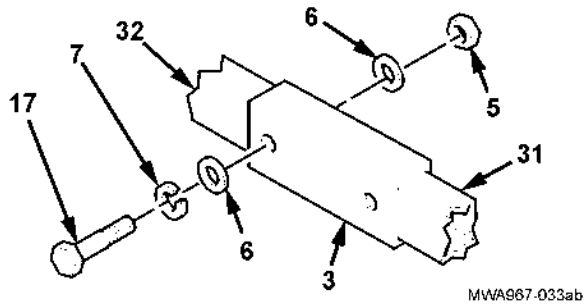


**INSTALLATION (continued)**

84. Align slider support bracket (3) with scribed mark on support bracket (31) or support bracket (32) and clamp in place securely.

85. Using a 19/32-inch drill bit and slider support bracket (3) as a template, drill holes through front support bracket (32) or support bracket (31).

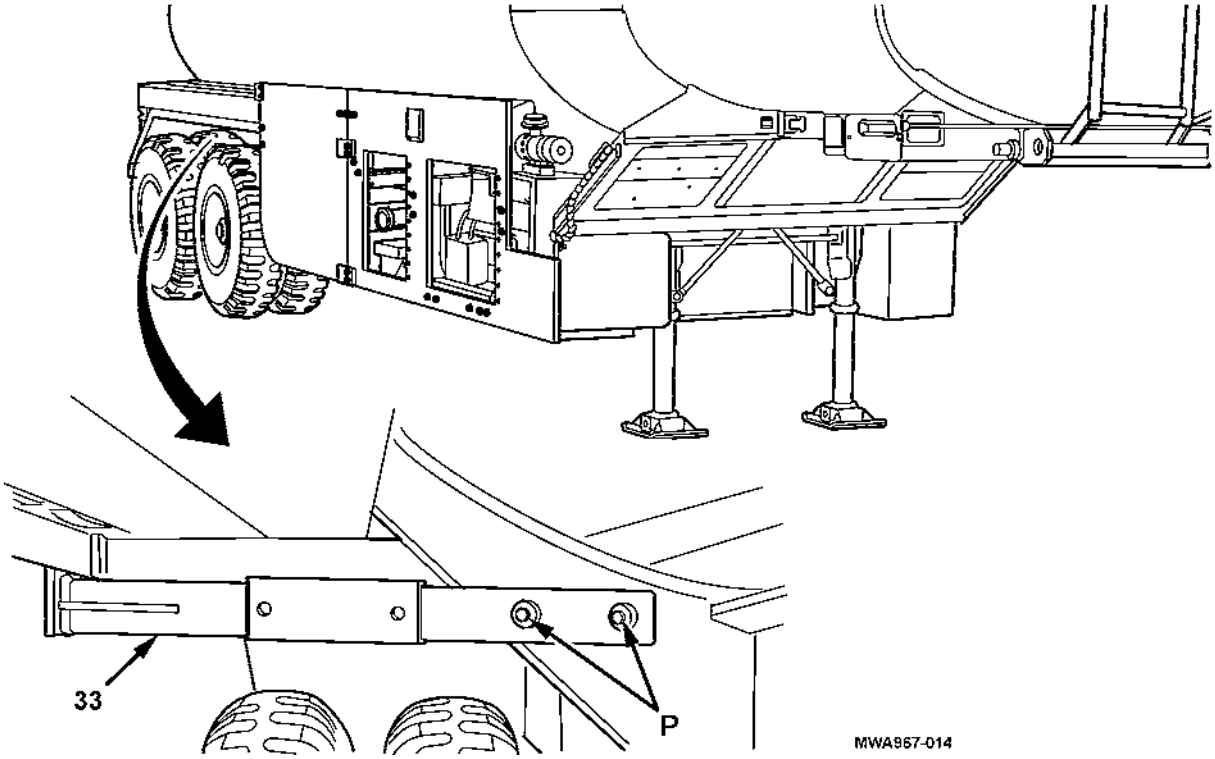
86. Install four flat washers (6), two hexagon head capscrews (17), lockwashers (7), and self-locking nuts (5) through slider support bracket (3), support bracket (32) or support bracket (31), as shown.




87. Position right rear bracket assembly (33) on vehicle frame and clamp in place.

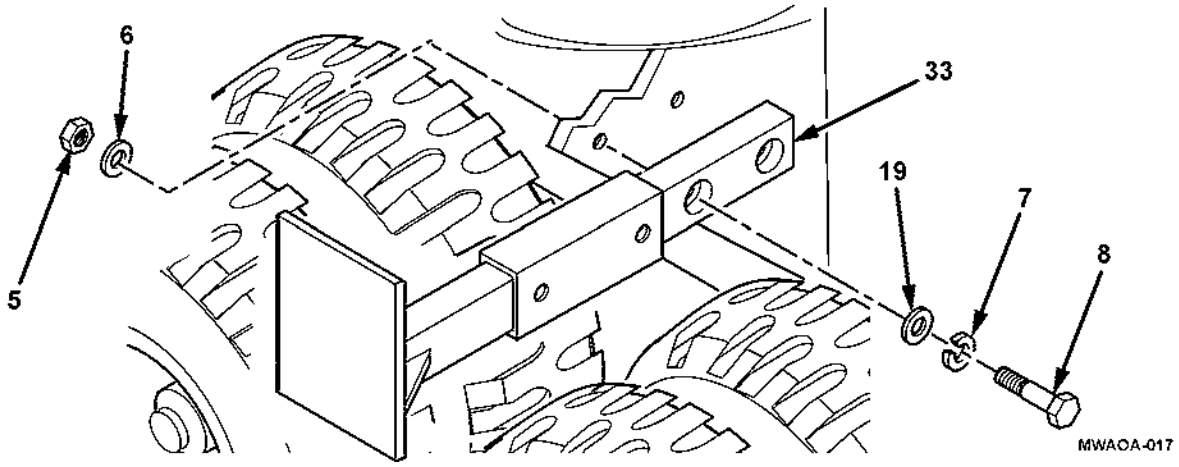
88. Using a 19/32-inch drill bit and right rear bracket assembly (33) as a template center and drill two holes, marked P, through vehicle frame member.

89. Remove all burrs and sharp edges. Finish all exposed metal areas using a rust inhibitor primer and paint as specified in Table 7-4, Materials and Parts. Allow for the appropriate time for primer and paint to cure.



**INSTALLATION (continued)**

90. Install right rear bracket assembly (33) on vehicle frame member with two flat washers (19), flat washers (6), hexagon head capscrews (8), lockwashers (7), and self-locking nuts (5). Torque all hexagon head capscrews to 55-65 lb-ft (75-81 N•m).



**INSTALLATION (continued)**

**WARNING**

**Use caution when lifting the supplemental armor. A swinging or shifting load may cause injury to personnel.**

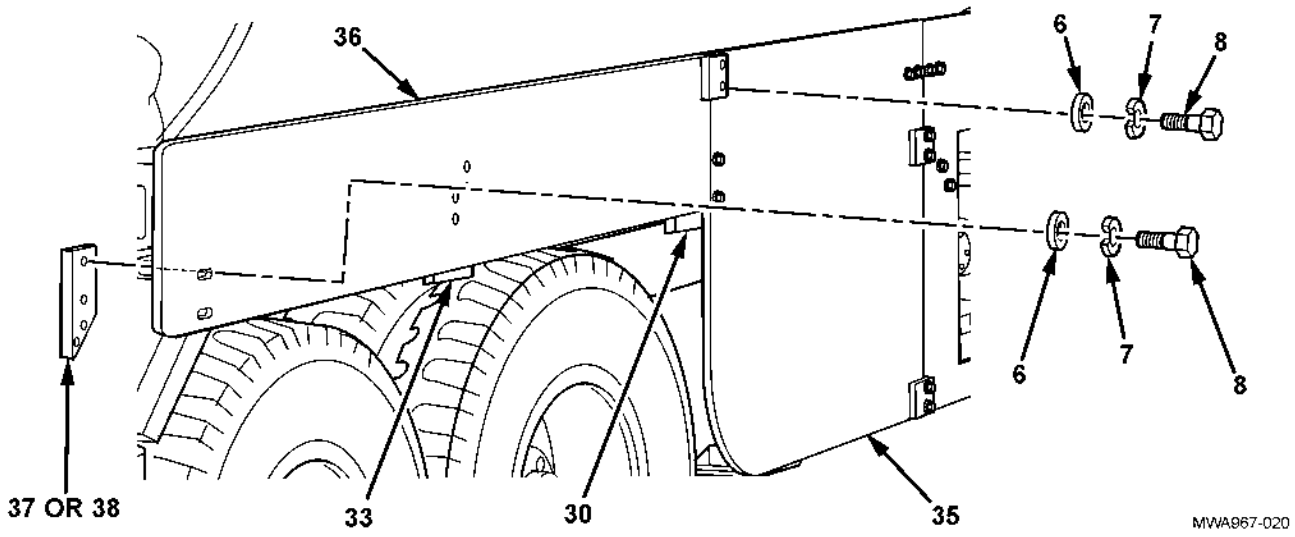
91. Using dawg grips (Table 7-2), a suitable lifting sling, and lifting device, raise and position rear shield (36) against vehicle fender, as shown.

92. Align two holes in rear shield (36) with threaded holes of filter mid-plate (35) and install with two flat washers (6), lockwashers (7), and hexagon head capscrews (8). Clamp rear shield (36) in place on vehicle, right front (30), and right rear (33) brackets.

**NOTE**

Rear shield brackets 12500840-1 and 12500840-2 are match fit. Select the bracket which is appropriate for the vehicle. When installing shield bracket 12500840-2, replace hexagon head capscrew B1821BH038C100N with B1821BH038C150N.

93. Install rear shield bracket (37) or (38) on rear shield (36) with two flat washers (6), lockwashers (7), and hexagon head capscrews (8).



**INSTALLATION (continued)**

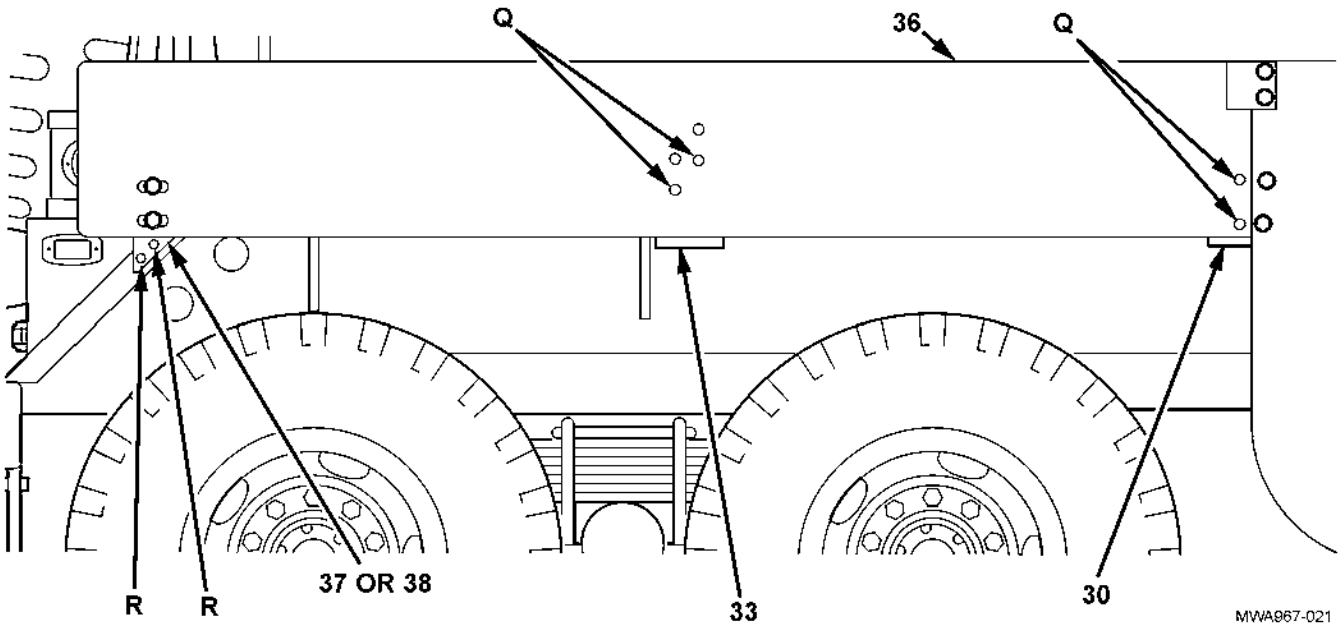
94. Align rear shield bracket (37) or (38) to fender of vehicle. Using a 3/8-drill bit, center and drill two through holes in fender, marked R, as shown.

**NOTE**

When installing the rear shield, use the lower set of holes, marked Q, as indicated.

95. Using a 27/64-inch drill bit and rear shield (36) as a template, drill four holes, marked Q, through right front (30) and rear (33) bracket, as shown.

96. Use a 1/2-13 tap to thread through holes Q in right front (30) and rear (33) bracket as shown.

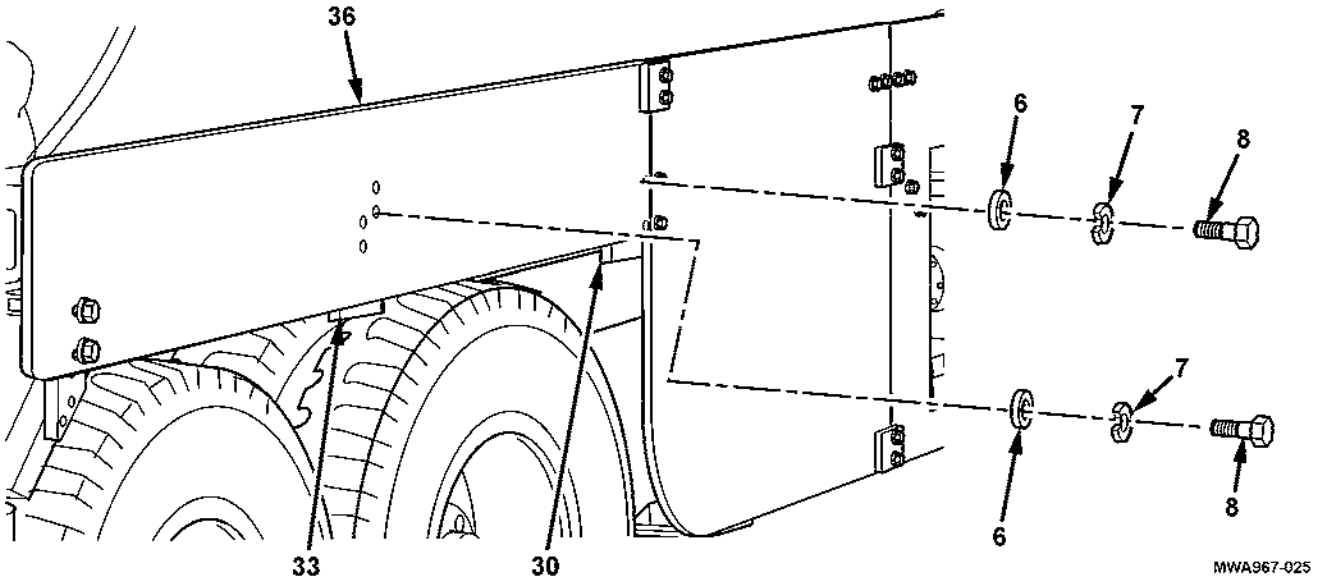


**INSTALLATION (continued)**

97. Install rear shield (36) on right rear bracket assembly (33) with two flat washers (6), lockwashers (7), and hexagon head capscrews (8). Hand tighten rear shield plate hardware.

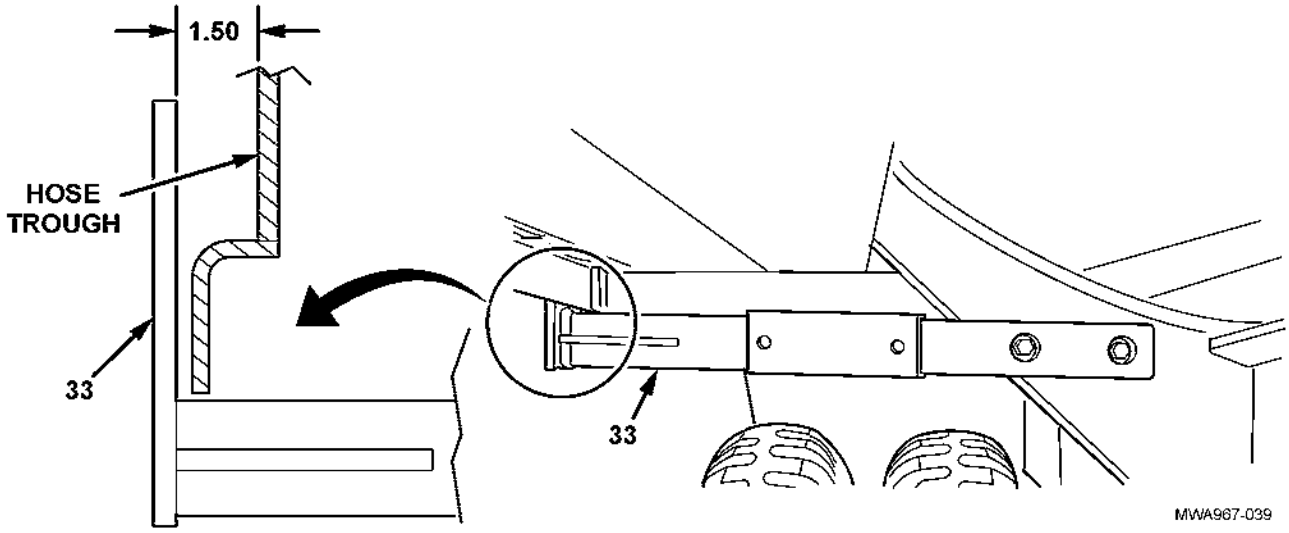
98. Install rear shield (36) on right front bracket assembly (30) with two flat washers (6), lockwashers (7), and hexagon head capscrews (8). Hand tighten rear shield plate hardware.

99. Torque all rear shield plate hardware to 55-65 lb-ft (75-81 N•m).



**INSTALLATION (continued)**

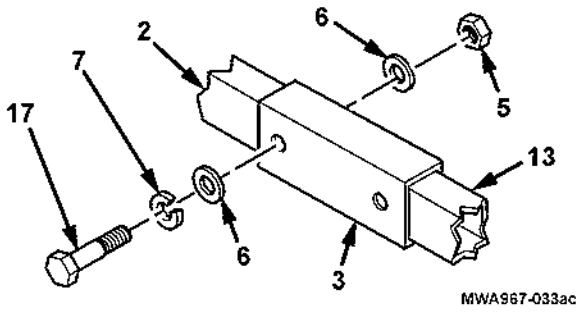
100. Adjust right rear bracket assembly (33) to ensure there is a 1.50-inch (38.1 mm) clearance between foot of bracket and hose trough and clamp in place securely.




101. Align slider support bracket (3) with scribed mark on rear support bracket (2) or rear support bracket (13) and clamp in place securely.

102. Using a 19/32-inch drill bit and slider support bracket (3) as a template, drill through holes through rear support bracket (2) and rear support bracket (13).

103. Install four flat washers (6), two hexagon head capscrews (17), lockwashers (7), and self-locking nuts (5) through slider support bracket (3), rear support bracket (2), and rear support bracket (13), as shown.

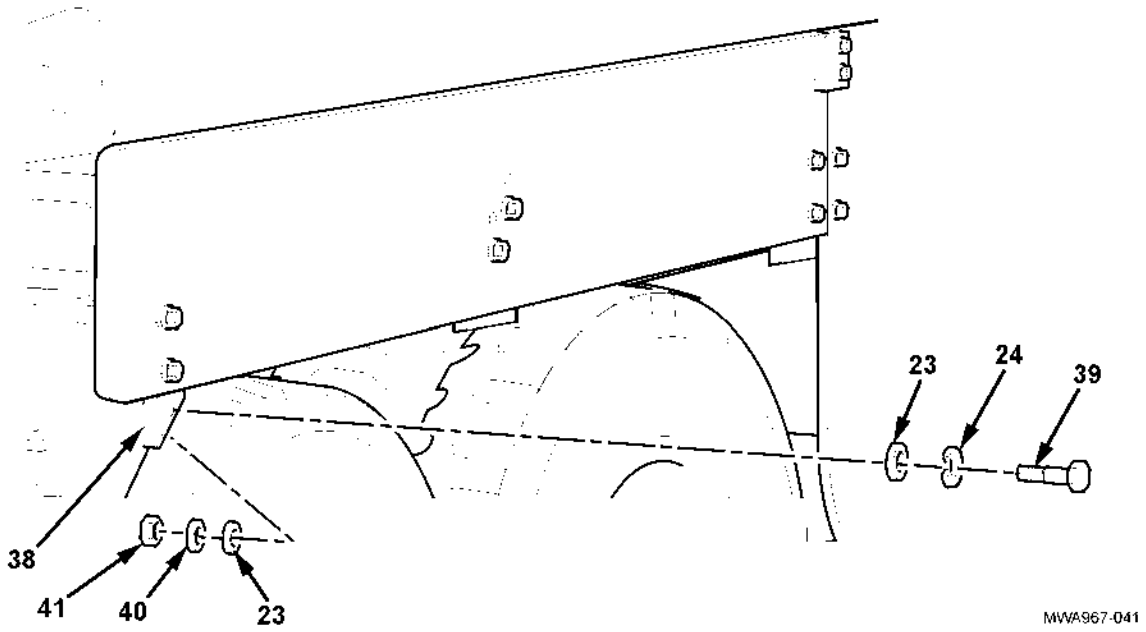


**INSTALLATION (continued)**

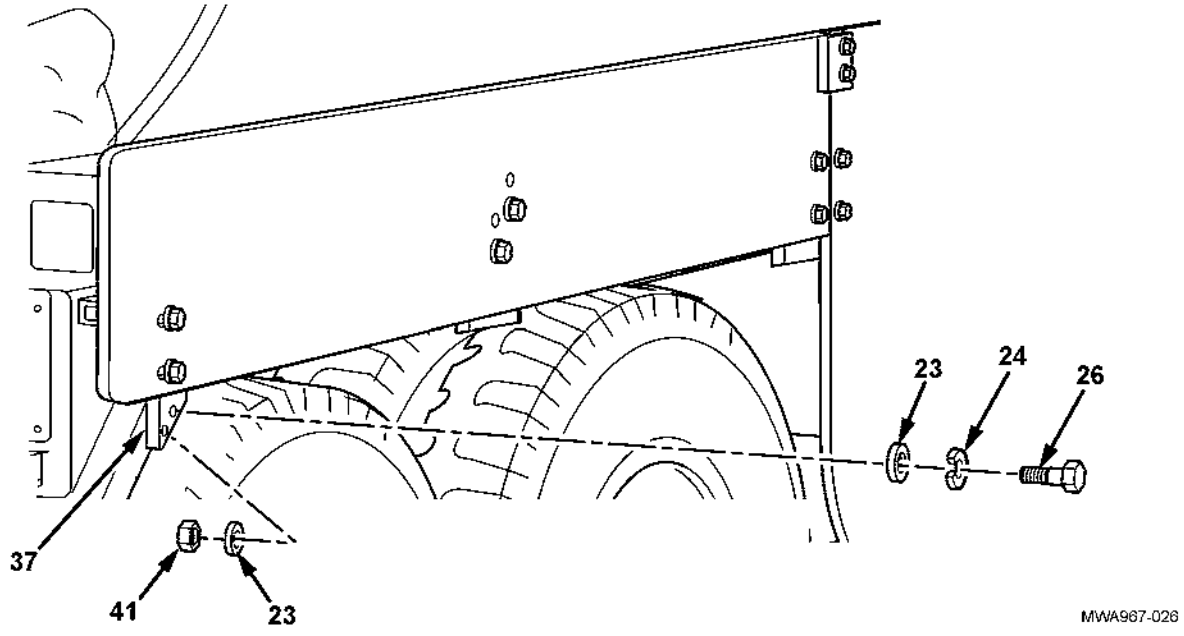
**NOTE**

Perform Step 104 if installing with optional rear shield bracket 12500840-2.

104. Install rear shield bracket (38) to fender with four flat washers (23), two hexagon head capscrews (39), lockwashers (24), spacers (40) (as required), and self-locking nuts (41).

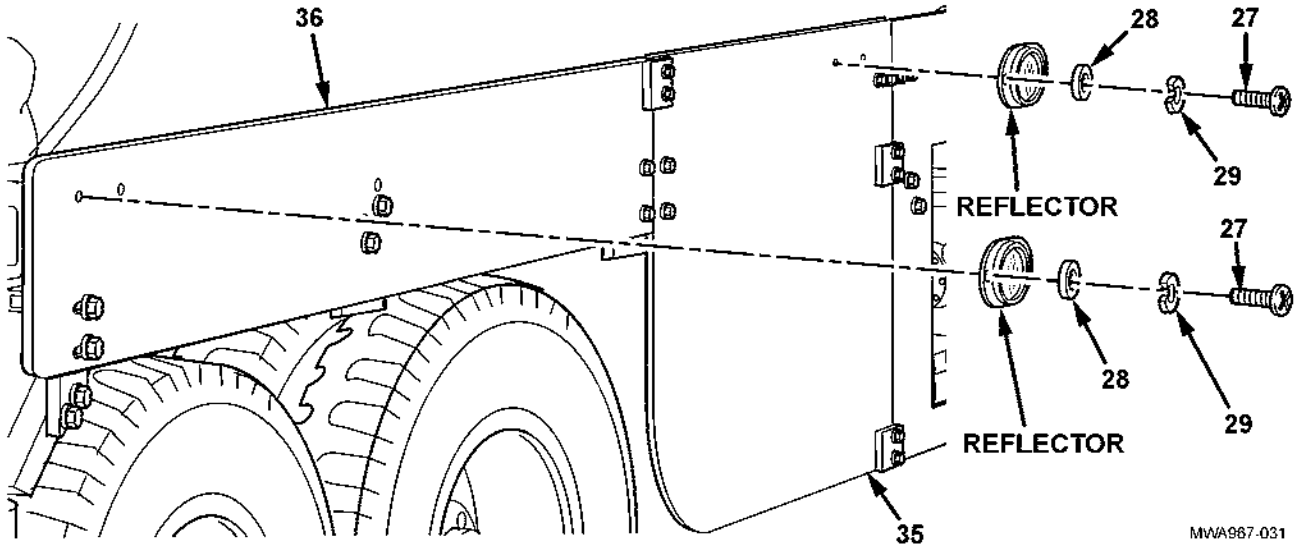



105. Install bracket (37) to fender with four flat washers (23), two hexagon head capscrews (26), lockwashers (24), and self-locking nuts (41).



**INSTALLATION (continued)**

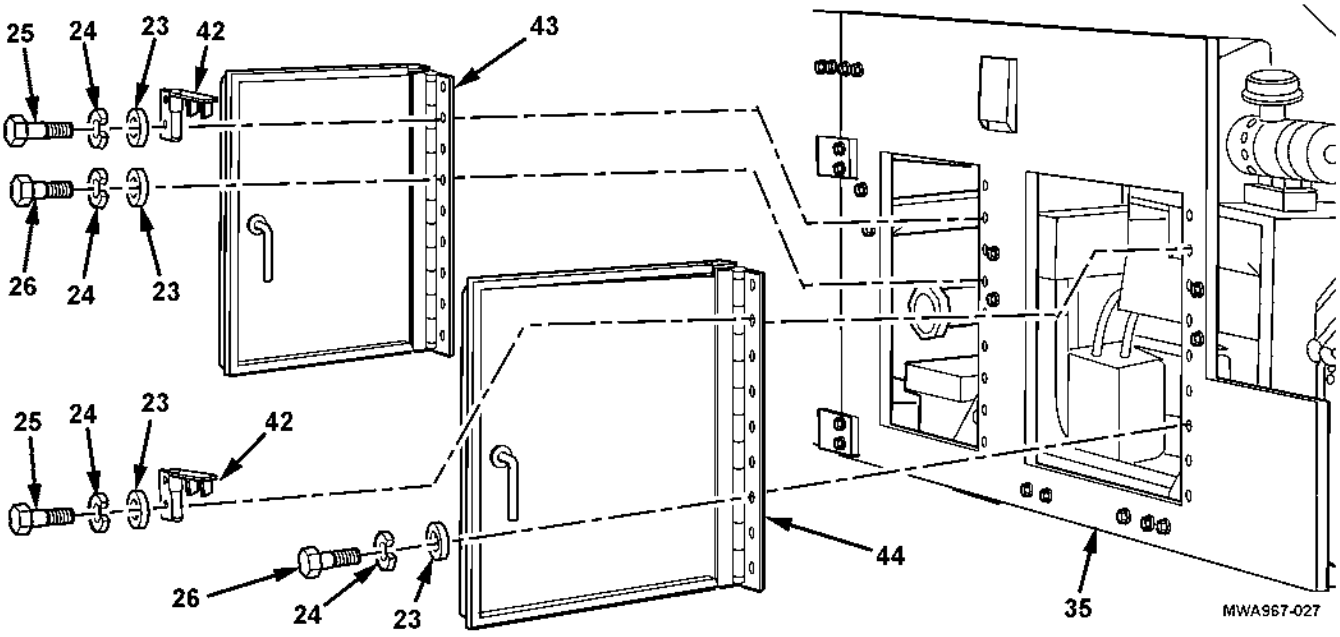
106. Position reflectors, previously removed, on mid-plate (35) and rear shield (36) and install with two screws (27), lockwashers (29), and flat washers (28).




107. Install door assembly (44) on frame plate (34) with seven flat washers (23), lockwashers (24), and hexagon head capscrews (26). Torque all hexagon head capscrews to 30-35 lb-ft (41-48 N•m).

108. Install door assembly (43) on frame plate (34) with seven flat washers (23), lockwashers (24), and hexagon head capscrews (26). Torque all hexagon head capscrews to 30-35 lb-ft (41-48 N•m).

109. Install safety latch (42) on door assembly (43) and (44) with two flat washers (23), lockwashers (24), and hexagon head capscrews (25). Torque hexagon head capscrews to 30-35 lb-ft (41-48 N•m).



## FOLLOW-ON TASK

1. Install hose assemblies and hose trough covers on vehicle (TM 9-2330-356-14) using hardware retained.

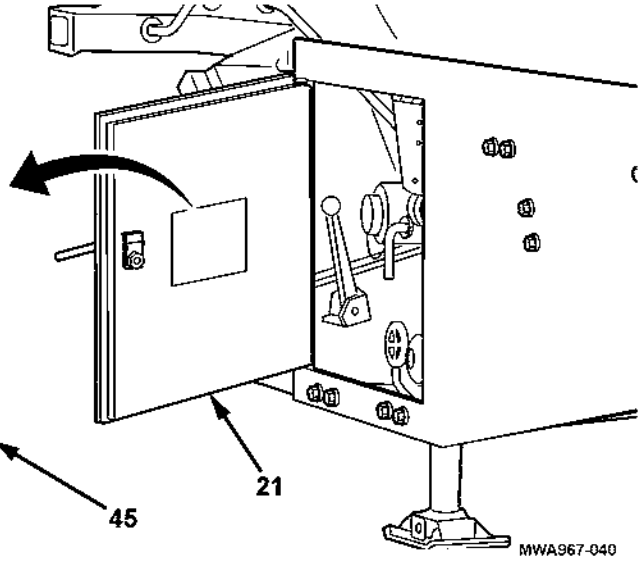
**NOTE**

Perform Step 2 only if door assembly 12500829 did not come with load data plate 12500857 installed previously.

2. Using spray adhesive, (Item 8, Table 7-4), Materials and Parts, install load data plate (45) on door assembly (21), as shown.

| Trailers With Tanker Ballistic Protection System (TBPS) Installed | | | |
|---|---|---|---|
| Prime Mover | Maximum Fuel Load | Terrain | Minimum Allowable Speed |
| M915/M931/M932* Series | 4,500 Gallons | Hard Surfaces, Gravel, and Dirt Roads | 40 mph |
| M916/M936/M932* Series | 2,500 Gallons | Cross-Country | 35 mph |
| M52 Series | 2,500 Gallons | All | IAW Applicable TM |
| M1088 Series | 5,000 Gallons | All | IAW Applicable TM |
| M915 Series | 5,000 Gallons | All | IAW Applicable TM |
| All Tractors | As Listed Above | Sand-Swamp-Mud | 25 mph |
| | | Ice | 12 mph |
| *Tire Pressure on rear tires of M931A1/A2 and M932A1/A2 must be increased to 70 psi. Tractors equipped with Central Tire Inflation Systems (CTIS) must have the CTIS system disabled IAW applicable vehicle Technical Manual. | | | |

| Trailers WITHOUT Tanker Ballistic Protection System (TBPS) Installed | | | |
|---|---|---|---|
| Prime Mover | Maximum Fuel Load | Terrain | Minimum Allowable Speed |
| M915/M931/M932* Series | 5,000 Gallons | Hard Surfaces, Gravel, and Dirt Roads | 40 mph |
| M916/M936/M932* Series | 3,000 Gallons | Cross-Country | 35 mph |
| M52 Series | 3,000 Gallons | All | IAW Applicable TM |
| M1088 Series | 5,000 Gallons | All | IAW Applicable TM |
| M915 Series | 5,000 Gallons | All | IAW Applicable TM |
| All Tractors | As Listed Above | Sand-Swamp-Mud | 25 mph |
| | | Ice | 12 mph |
| *Tire Pressure on rear tires of M931A1/A2 and M932A1/A2 must be increased to 70 psi. Tractors equipped with Central Tire Inflation Systems (CTIS) must have the CTIS system disabled IAW applicable vehicle Technical Manual. | | | |




3. Place the FTSS repair kit in tool box for stowage.

# CHAPTER 5
# FUEL TANK SELF-SEALING (FTSS) REPAIR KIT

## SCOPE

This chapter provides the kit contents and instructions for repairing a fuel tanker that has been coated with the Fuel Tank Self-Sealing (FTSS) System. The FTSS Repair Kit is used to close punctures in the tanker wall that the FTSS System does not fully seal after being ruptured. Each of the 3 and 5-inch diameter Field Repair Patch (FRP) assemblies contain an absorbent packet that will activate a gelatin process, which converts the leaking fuel into a semi-solid. The combination of the semi-solid and mechanical rubber seal of the patch form a blockage of the leaking fuel from the tanker.

## FTSS REPAIR KIT

The FTSS Repair Kit consists of the following items listed in Table 5-1:

**Table 5-1. FTSS Repair Kit, 57K4786, List**

| Nomenclature | NSN | Part Number | CAGE | QTY |
|---|---|---|---|---|
| 3-inch Patch, Spill Control | TBD | 12500860 | 19207 | 15 each |
| 5-inch Patch, Spill Control | TBD | 12500859 | 19207 | 5 each |
| Bag, Tool | TBD | 12500890 | 19207 | 1 each |
| Battery, Non-Rechargeable, AA 4-Pack | 6135-01-447-0950 | 115A | 80204 | 1 pkg. |
| Blade, Knife | 5110-00-293-2865 | PD5110-00-293-2865 | 80244 | 1 pkg. |
| Caulking Compound, 3 oz Tube | 8030-01-293-8513 | 1708 | 4U870 | 2 each |
| Cloth, Cleaning 80 Count Alcohol Saturated | 7920-01-036-4464 | TX1301 | 21994 | 1 box |
| Extension, Socket Wrench 20-inch Extension 1/2-inch Drive | 5120-00-240-8705 | 516059-6 | 80020 | 1 each |
| Flashlight, AA Battery | 6230-00-635-4998 | Z21P | 77542 | 1 each |
| Gloves, Disposable, XL 100 Count Box | 8415-01-492-0180 | 8415-01-492-0180 | 80244 | 1 box |
| Goggles, Industrial | 4240-00-052-3776 | 3336841 | 45152 | 2 pair |
| Handle, Socket Wrench, 18-inch, 1/2-inch Drive | 5120-00-249-1071 | B107.10M TY1CL3ST1 | 05047 | 1 each |
| Knife, Craftsman's | 5110-00-892-5071 | PD5110-00-892-5071 | 80244 | 1 each |
| Laminated Instruction Sheet | TBD | 12500872 | 19205 | 1 each |
| Laminated Parts List | TBD | 12500888 | 19207 | 1 each |
| Socket, Magnetic 3/4-inch, 1/2-inch Drive | TBD | 12500858 | 19207 | 1 each |

## REPAIR PROCEDURES

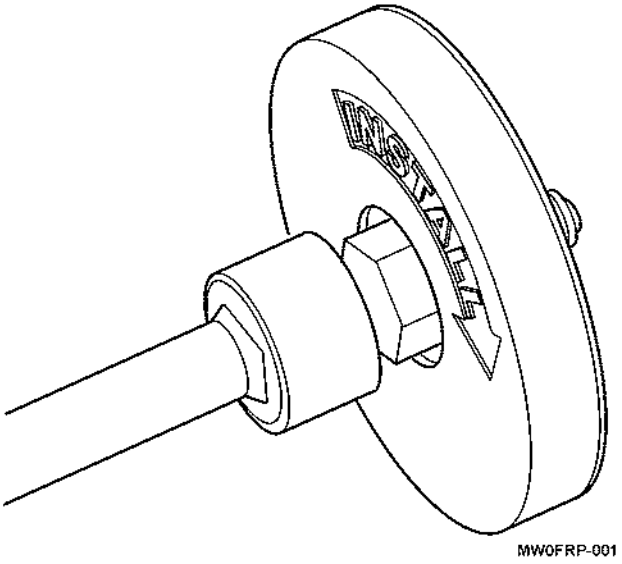
**WARNING**

**Fuel is very flammable and can explode easily. To avoid serious injury or death, keep fuel away from open flame or any spark (ignition source). Keep a B-C fire extinguisher within reach when performing fuel tank repair.**

**WARNING**

**Eye and hand protection must be worn at all times when applying FTSS Patch Kit. Failure to do so may result in injury to personnel.**

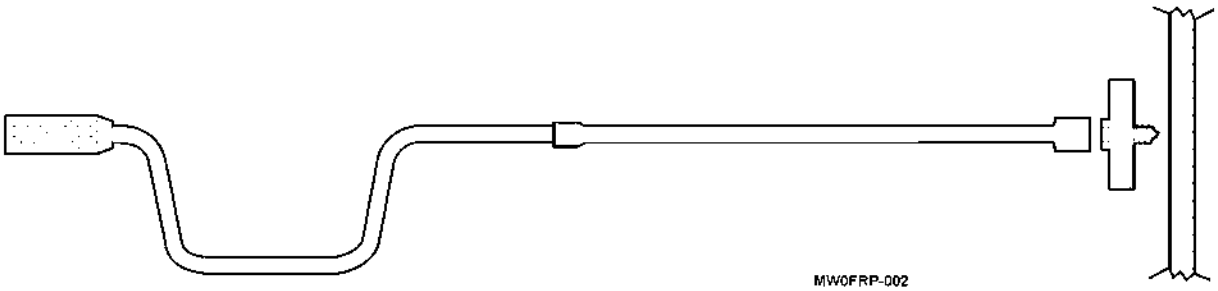
1. Place the bolt head of the FRP assembly into the magnetic socket.



MW0FRP-001

2. Position the FRP assembly within 1/2 inch (12.7 mm) of the leak by "stabbing" the patch assembly directly into the FTSS System liner.

3. Using the socket wrench handle and extension, tighten the FRP assembly screw until secure.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4. Observe the fuel flow. Leakage should begin to slow and noticeably stop within a few seconds. If the leak continues, remove the patch, and relocate to a different position.

5. After leak has stopped, wipe any excess fuel from repaired area with a clean rag. Clean repaired area with alcohol wipes. Apply caulking compound to the base of the FRP assembly to permanently seal the patch in place.

6. Report all fuel tanker vessel damage to immediate supervisor for proper repair.

# CHAPTER 6
# QUALITY ASSURANCE AND FINAL INSPECTION

## QUALITY ASSURANCE REQUIREMENTS

The installer is responsible for compliance with quality assurance requirements specified herein. The installer is responsible for observing all quality and safety standards. These requirements and the installer's plan of inspection, or quality assurance program, constitute the minimum examinations and tests necessary to assure compliance with established requirements. The installer is responsible for following the instructions contained in this Technical Bulletin (TB) for installing the TBPS kit. Report and record the application of this TB in accordance with DA Pam 738-750 and DA Pam 738-751.

## FINAL PAINT

1. Ensure all exposed metal surfaces have been thoroughly cleaned by an approved chemical or mechanical method.

2. Finish all exposed metal plates, brackets, and shields using rust inhibitor primer and paint as specified in Table 7-4, Materials and Parts, in accordance with TM 43-0139, Painting Instructions for Army Materiel. Allow for the appropriate time for the primer and paint to cure.

3. Ensure all surfaces have been pretreated as soon as possible after cleaning by an approved spray or brush method.

4. Apply stencils per TM 9-2330-356-14 in accordance with TM 43-0139 and TB 43-0209.

## FINAL INSPECTION REQUIREMENTS

1. Check all armor panels, braces, brackets, and doors are properly installed and secure.

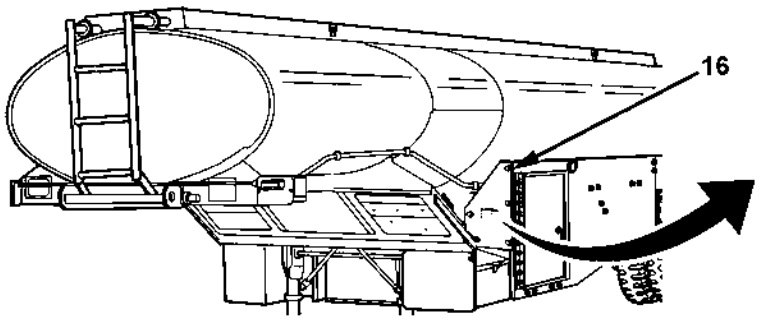
2. Check the operation of all access doors. Ensure access door do not bind when opening and closing.

3. Ensure door latches do not bind and hold access doors securely in place.

4. Apply lubricating oil (Item 9, Table 7-4) to door hinges and safety latches.

## MARKING EQUIPMENT

After the TBPS has been installed, apply the new data on left support bracket (16), as shown.




| UP-ARMORED VEHICLE | |
|---|---|
| MODEL : | FIELD A : |
| NSN : | FIELD B : |
| NEW LIN : | FIELD C : |
| OLD LIN : | FIELD D : |

MWA967-053

# CHAPTER 7
# SUPPORT DATA

## REFERENCES

This section contains a list of all the publications referenced in and/or applicable to this TB.

| | |
|---|---|
| DA PAM 738-750 | Functional Users Manual for The Army Maintenance Management System (TAMMS) |
| DA PAM 738-751 | Functional Users Manual for The Army Maintenance Management System – Aviation (TAMMS-A) |
| DA Form 2028-2 | Recommended Changes to Equipment Technical Publications |
| SF 368 | Product Quality Deficiency Report |
| TB 43-0209 | Color and marking of Military Vehicles, Construction Equipment, and Materials Handling Equipment |
| TM 38-470 | Storage and Maintenance of Amy Prepositioned Stock Material |
| TM 43-0139 | Painting Instructions for Army Materiel |
| TM 750-244-6 | Procedures for Destruction of Tank-Automotive Equipment to Prevent Enemy Use |
| TM 9-2330-356-14 | Operators, Unit, Direct Support, and General Support Maintenance Manual for Semitrailer, Tank, 5000-Gallon |
| TM 9-2330-356-24P | Unit, Direct Support, and General Support Maintenance Repair Parts and Special Tools List for Semitrailer, Tank, 5000-Gallon |

## SPECIAL TOOLS; TOOL KITS; TEMPLATES; TEST, MEASUREMENT, AND DIAGNOSTIC EQUIPMENT (TMDE); AND FIXTURES REQUIRED

The following list contains the common and special tools needed to properly install the AOA kit:

**Table 7-1. Hand Tools**

| Nomenclature | National Stock Number | CAGEC | Part Number | QTY |
|---|---|---|---|---|
| Tool Kit, General Mechanics | 5180-00-177-7033 or Commercial Equivalent | 19204 | SC5180-90-CL-N26 | 1 |
| Variable Speed Magnetic Base Drill | Milwaukee or Commercial Equivalent | 40898 | CAT 4202 40917, Model 8373877778 42010 | 1 |
| Hand Grinder | Dewalt or Commercial Equivalent | | DW818 | 1 |
| C Clamps, 8-inch | 5120-00-203-6436 | 2V507 | 5027A16 | 3 |
| C Clamps, 12-inch | | 2V507 | 5027A25 | 2 |
| Vise Grip Clamps, 8-inch | | | 5105A17 | 4 |
| Vise Grip Clamps, 4-1/2-inch | | | 5105A23 | 4 |
| Pads, Grinding 4-inch | | 2V507 | 4655A5 | 2 |
| Grinding Discs 4-1/2-inch (Package of 25) | | 2V507 | 4732A12 | 2 |
| Ratchet, Air, 3/8-inch | | | 84967504 | 2 |
| Air Drill, 1/2-inch Drive | | | 48438022 | 1 |
| Torque Wrench, 1/2-inch drive | 5120-00-640-6364 | 05047 | B107.14MTY1CLBS11 | 1 |

**SPECIAL TOOLS; TOOL KITS; TEMPLATES; TEST, MEASUREMENT, AND DIAGNOSTIC EQUIPMENT (TMDE); AND FIXTURES REQUIRED (continued)**

**Table 7-2. Common and Special Tools**

| Nomenclature | National Stock Number | CAGEC | Part Number | QTY |
|---|---|---|---|---|
| Drill Bits, 19/32 (.5938) Diameter Ex Gold Cobalt, Split Point | | 4J007 | 78581055 | 6 |
| Drill Bits, 7/32 (.2188) Cobalt, Split Point | | 4J007 | 78561891 | |
| Drill Bits, 1/4 (.2500) Cobalt | | 4J007 | 64183890 | |
| Tap 1/2-13 | | 4J007 | 01791516 | |
| Handle, Tap (1/4 – 1/2)-12" | | 4J007 | 88435284 | |
| Drill Bits, .375 Diameter Cobalt | | | 78530573 | 10 |
| Air Line Dryer | | | 159672-1405 | 4 |
| Air Line Coupler Kit, 3/8, Male Plug | | | 155231-1405 | 2 |
| Air Line Coupler Kit, 3/8, Female Plug | | | 155232-1405 | 2 |
| Air Line Coupler Kit, 3/8, Male | | | 155233-1405 | 4 |
| Air Line Coupler Kit, 3/8, Female | | | 155234-1405 | 4 |
| 5-in-1 Air Line Manifold, 3/8 | | | 159133-1405 | 2 |
| Work Lights | | | 160923-1405 | 2 |
| Electrical Extension Lines, 50-Foot | | | 162439-1405 | 4 |
| Rigging, 2 Leg, add 2 Ft, 40-Ft legs, SS Type 2 | | 2V507 | 33675T16 | 2 |
| Rigging, Material Dawgs/Grippers | | 2V507 | 8845T74 | 2 |
| Respirator, Air | 4240-00-022-2524 or Commercial Equivalent | 81348 | GGG-M-125/6 | 4 |
| Gloves, Work, Leather | | 2V507 | 52835T41 | 8 |
| Floor Jack, 3.5-Ton | | | 144885-1405 | 2 |
| Engine Hoist | | | 145503-1405 | 2 |
| 3/8 Air Hose, 65-Feet | | | 1586652-1405 | 4 |

**Table 7-3. Templates**

| Item No. | Nomenclature | National Stock Number | CAGEC | Part Number | QTY |
|---|---|---|---|---|---|
| 15 | Locating Guide Template | | 31902 | 12500847 | 1 |

## MATERIALS AND EXPENDABLES

The following list contains the bulk and expendable materials needed to apply the TB:

**Table 7-4. Materials and Parts**

| ITEM | Nomenclature | National Stock Number | Part Number | CAGEC | QTY |
|---|---|---|---|---|---|
| 1 | Primer, Coating (Rust Inhibitor) | 8010-00-687-8191 or Commercial Equivalent | TT-P-662 | 81348 | 1 GL |
| 2 | Rag, Wiping White | 7920-00-205-3571 or Commercial Equivalent | DDD-R-0030 | 81348 | 50 LB |
| 3 | Cutting Fluid | 9150-01-373-5788 or Commercial Equivalent | TAPMAGIC EP-XTRA | 17781 | 1 PT |
| 4 | Cleaning Compound, Solvent | 7930-00-177-5217 or Commercial Equivalent | 7930-00-177-5217 | 80244 | 5 GL |
| 5 | Detergent, General Purpose | 7930-00-985-6945 or Commercial Equivalent | 7930-00-985-6945 | 83421 | 1 GL |
| 6 | Coating, Water Dispersible Aliphatic Polyurethane, Chemical Agent Resistant (Desert Tan 686A) | 8010-01-519-6769 or Commercial Equivalent | M64159-2-003G-33446 | 81349 | 3 GL |
| 7 | Carbide Cutter Lubricant | Commercial Equivalent | TP00234-0 | | 1 GL |
| 8 | Adhesive, Spray | 8040-00-938-6860 or Commercial Equivalent | MMM-A-1058 | 81348 | 1 CN |
| 9 | Oil, Lubricating | 9150-00-178-4726 | MIL-PRF-2104 | 81348 | 1 QT |

| RECOMMENDED CHANGES TO PUBLICATIONS AND BLANK FORMS<br>For use of this form, see AR 310-1; the proponent agency is US Army Adjutant General Center. | Use Part II *(reverse)* for Repair Parts and Special Tools Lists (RPSTL) and Supply Catalogs/Supply Manuals (SC/SM) | DATE<br>(Date You Will Fill Out This Form) |
|---|---|---|
| **TO:** *(Forward to proponent of publication or form )(Include Zip Code)* | **FROM:** *(Activity and location)(Include Zip Code)*<br>(Your Mailing Address) | |

**PART I - ALL PUBLICATIONS (EXCEPT RPSTL AND SC/SM) AND BLANK FORMS**

| PUBLICATION FORM NUMBER | DATE | TITLE |
|---|---|---|
| TB 9-2330-337-14 | | Technical Bulletin for M967/A1 Fuel Tankers |

| ITEM | PAGE NO. | PARA-GRAPH | LINE NO.* | FIGURE NO. | TABLE NO. | RECOMMENDED CHANGES AND REASON *(Exact wording of recommended changes must be given)* |
|---|---|---|---|---|---|---|
| | 0004<br>00-3 | | | | | Callouts on art are numbered incorrectly.<br>Callouts 3, 4, and 5 should be 6, 7, and 8. |



** Reference to line numbers within the paragraph or sub paragraph.*

| TYPED NAME, GRADE OR TITLE | TELEPHONE EXCHANGE/AUTOVON, PLUS EXTENSION | SIGNATURE |
|---|---|---|
| John Doe SSG | XXX-XXXX | John Doe |

**DA** FORM 1 FEB 74 **2028** REPLACES DA FORM 2028, 1 DEC 68, WHICH WILL BE USED

| TO: *(Forward direct to addressee listed in publication)* | FROM: *(Activity and location)(Include Zip Code)* (Your Mailing Address) | DATE (Date You Will Fill Out This Form) |
|---|---|---|

**PART II - REPAIR PARTS AND SPECIAL TOOLS LISTS AND SUPPLY CATALOGS/SUPPLY MANUALS**

| PUBLICATION NUMBER | DATE | TITLE |
|---|---|---|
| TB 9-2330-337-14 | | Technical Bulletin for M967/A1 Fuel Tankers |

| PAGE NO. | COLM NO. | LINE NO. | NATIONAL STOCK NUMBER | REFERENCE NO. | FIGURE NO. | ITEM NO. | TOTAL NO. OF MAJOR ITEMS SUPPORTED | RECOMMENDED ACTION |
|---|---|---|---|---|---|---|---|---|
| 260 | | | 4730-00-273-6772 | | 134 | 4 | 1 | Change from Hex to Socket Plug. |
| 260-1 | | | 4730-00-273-6772 | | | 4 | 1 | Change part Number to 12301694. |

**PART III - REMARKS** *(Any general remarks or recommendations, or suggestions for improvement of publications and blank forms. Additional blank sheets may be use dif more space is needed.)*



| TYPED NAME, GRADE OR TITLE | TELEPHONE EXCHANGE/AUTOVON, PLUS EXTENSION | SIGNATURE |
|---|---|---|
| John Doe SSG | XXX-XXXX | John Doe |

| RECOMMENDED CHANGES TO PUBLICATIONS AND BLANK FORMS<br>For use of this form, see AR 310-1; the proponent agency is US Army Adjutant General Center. | Use Part II *(reverse)* for Repair Parts and Special Tools Lists (RPSTL) and Supply Catalogs/Supply Manuals (SC/SM) | DATE |
|---|---|---|
| **TO:** *(Forward to proponent of publication or form )(Include Zip Code)* | **FROM:** *(Activity and location)(Include Zip Code)* | |

**PART I - ALL PUBLICATIONS (EXCEPT RPSTL AND SC/SM) AND BLANK FORMS**

| PUBLICATION FORM NUMBER | DATE | TITLE |
|---|---|---|
| TB 9-2330-337-14 | | Technical Bulletin for M967/A1 Fuel Tankers |

| ITEM | PAGE NO. | PARA-GRAPH | LINE NO.* | FIGURE NO. | TABLE NO. | RECOMMENDED CHANGES AND REASON *(Exact wording of recommended changes must be given)* |
|---|---|---|---|---|---|---|
| | | | | | | |

** Reference to line numbers within the paragraph or sub paragraph.*

| TYPED NAME, GRADE OR TITLE | TELEPHONE EXCHANGE/AUTOVON, PLUS EXTENSION | SIGNATURE |
|---|---|---|
| | | |

**DA** FORM 1 FEB 74 **2028** REPLACES DA FORM 2028, 1 DEC 68, WHICH WILL BE USED

| TO: *(Forward direct to addressee listed in publication)* | FROM: *(Activity and location)(Include Zip Code)* | DATE |
|---|---|---|
| | | |

**PART II - REPAIR PARTS AND SPECIAL TOOLS LISTS AND SUPPLY CATALOGS/SUPPLY MANUALS**

| PUBLICATION NUMBER | DATE | TITLE |
|---|---|---|
| TB 9-2330-337-14 | | Technical Bulletin for M967/A1 Fuel Tankers |

| PAGE NO. | COLM NO. | LINE NO. | NATIONAL STOCK NUMBER | REFERENCE NO. | FIGURE NO. | ITEM NO. | TOTAL NO. OF MAJOR ITEMS SUPPORTED | RECOMMENDED ACTION |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | |

**PART III - REMARKS** *(Any general remarks or recommendations, or suggestions for improvement of publications and blank forms. Additional blank sheets may be use dif more space is needed.)*

| TYPED NAME, GRADE OR TITLE | TELEPHONE EXCHANGE/AUTOVON, PLUS EXTENSION | SIGNATURE |
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By Order of the Secretary of the Army:

PETER J. SCHOOMAKER
*General, United States Army*
*Chief of Staff*

Official:

SANDRA R. RILEY
*Administrative Assistant to the*
*Secretary of the Army*
0535704

Distribution:

DISTRIBUTION: To be distributed in accordance with the Initial Distribution Number (IDN) 344842, requirements for TB 9-2330-337-14.

# THE METRIC SYSTEM AND EQUIVALENTS

### LINEAR MEASURE

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

### SQUARE MEASURE

1 Sq. Centimeter = 100 Sq. Millimeters = 0.155 Sq. Inch
1 Sq. Meter = 10,000 Sq. Centimeters = 10.76 Sq. Feet
1 Sq. Kilometer = 1,000,000 Sq. Meters = 0.386 Sq. Mile

### WEIGHTS

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

### CUBIC MEASURE

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

### LIQUID MEASURE

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

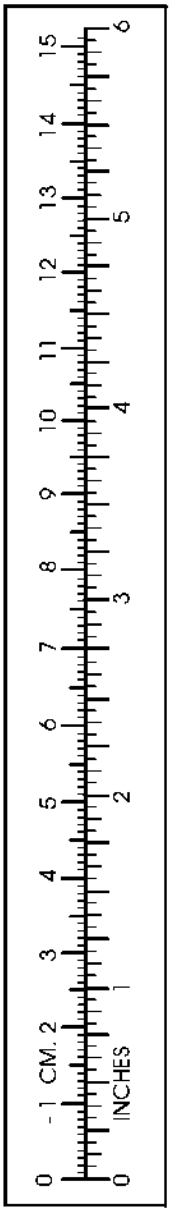
### TEMPERATURE

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

| TO CHANGE | TO | MULTIPLY BY |
|---|---|---|
| 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 | 0.836 |
| Square Miles | Square Kilometers | 2.590 |
| Acres | Square Hectometers | 0.405 |
| Cubic Feet | Cubic Meters | 0.028 |
| 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 per Square Inch | Kilopascals | 6.895 |
| Miles per Gallon | Kilometers per Liter | 0.425 |
| Miles per Hour | Kilometers per Hour | 1.609 |

| TO CHANGE | TO | MULTIPLY BY |
|---|---|---|
| Centimeters | Inches | 0.394 |
| Meters | Feet | 3.280 |
| Meters | Yards | 1.094 |
| Kilometers | Miles | 0.621 |
| Square Centimeters | Square Inches | 0.155 |
| Square Meters | Square Feet | 10.764 |
| Square Kilometers | Square Miles | 0.386 |
| Square Hectometers | Acres | 2.471 |
| Cubic Meters | Cubic Feet | 35.315 |
| Cubic Meters | Cubic Yards | 1.308 |
| Milliliters | 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 Square Inch | 0.145 |
| Kilometers per Liter | Miles per Gallon | 2.354 |
| Kilometers per Hour | Miles per Hour | 0.621 |



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