

**TECHNICAL BULLETIN
INSTALLATION INSTRUCTIONS**

FOR SYSTEMS

**SINGLE CHANNEL GROUND AND
AIRBORNE RADIO SYSTEM (SINGARS)
AN/VRC-88F, AN/VRC-90F**

**FORCE XXI BATTLE COMMAND, BRIGADE-AND-BELOW (FBCB2)
AN/UYK-128 (V)4**

**PRECISION LIGHTWEIGHT GPS RECEIVER (PLGR)
AN/PSN-11**

**ENHANCED POSITION LOCATION REPORTING SYSTEM (EPLRS)
AN/VSQ-2 (V)**

**DRIVER'S VISION ENHANCER (DVE)
AN/VAS-5A**

FOR VEHICLE

**TRUCK, UTILITY, 2-DOOR: S250 SHELTER CARRIER, 4X4,
M1113 (2320-01-412-0143) (EIC: B6B).**

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HEADQUARTERS, DEPARTMENT OF THE ARMY

OCTOBER 2005

CHANGE
NO. 1

HEADQUARTERS
DEPARTMENT OF THE ARMY,
Washington, D.C., 1 OCTOBER 2006

**TECHNICAL BULLETIN
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SINGLE CHANNEL GROUND AND
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AN/VRC-88F, AN/VRC-90F

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TECHNICAL BULLETIN
NO. 9-2320-387-35-3

HEADQUARTERS,
DEPARTMENT OF THE ARMY
WASHINGTON, D.C., 17 OCTOBER 2005

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AN/VSQ-2 (V)**

**DRIVER'S VISION ENHANCER (DVE)
AN/VAS-5A**

FOR VEHICLE

**TRUCK, UTILITY, 2-DOOR: 5250 SHELTER CARRIER, 4X4,
M1113 (2320-01-412-4143) (EIC: B6B).**

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

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CHAPTER 1

INTRODUCTION

Section I. SCOPE

- 1-1.** This technical bulletin provides installation instructions for Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) equipment. The C4ISR equipment shall be installed in the following vehicles:
- Truck, Utility, 2-Door: S250 Shelter Carrier, 4x4, M1113
- 1-2.** The information contained in this technical bulletin is the official authorization to perform the installation of the C4ISR equipment at the direct support maintenance level through contract maintenance teams.

Section II. NOTES

- 2-1.** This technical bulletin is not an authorization for requisition or turn-in of vehicles.
- 2-2.** This technical bulletin does not establish quantity or types of vehicles assigned to using units.

Section III. GENERAL INFORMATION

- 3-1.** Included in the C4ISR equipment are:
- Single Channel Ground and Airborne Radio System (SINCGARS), Radio Set AN/VRC-88F/90F Series
 - Force XXI Battle Command, Brigade-and-Below (FBCB2), AN/UYK-128 (V)4
 - Precision Lightweight GPS Receiver (PLGR), AN/PSN-11
 - Enhanced Position Location Reporting System (EPLRS), AN/VSQ-2 (V)
 - Driver's Vision Enhancer (DVE) AN/VAS-5A
 - Additional terminal boards
- 3-2.** The C4ISR equipment becomes operable when all the components are installed in the vehicle and correct power is supplied.

Section IV. MAINTENANCE FORMS, RECORDS, AND REPORTS

Use the following to report any discrepancies:

- Reports of Maintenance and Unsatisfactory Equipment. See chapter 4, sections VI through VIII for information.
- Report of Packaging and Handling Deficiencies. See chapter 4, sections VI through VIII for information.
- Discrepancy in Transportation Deficiency Report (TDR) (SF361). See chapter 4, sections VI through VIII for information.

Section V. CONSOLIDATED INDEX OF ARMY PUBLICATIONS

Refer to the latest issue of DA PAM 25-30 to determine whether there are new changes or additional publications pertaining to the C4ISR equipment.

CHAPTER 2

PURPOSE OF INSTALLATION

The purpose of installing the C4ISR equipment is to provide the primary means of integrating command and control capability.

CHAPTER 3

COMPLETION TIME FOR INSTALLATION

A total of 20 man hours are required for two personnel to install the C4ISR equipment. Typical vehicle downtime is 12 hours.

CHAPTER 4 PREPARATION FOR INSTALLATION

Section I. PREPARATION OF VEHICLE

To prepare the vehicle for installation, ensure that the site includes adequate lighting and a power source when drilling is required. Inspect the vehicle for damage that could affect installation. Have any such damage repaired before installing the C4ISR equipment.

Section II. ITEMS TO BE REMOVED

- 2-1. Remove batteries. (Refer to TM 9-2320-387-24.)
- 2-2. Remove right-hand rear fixed door if desired. (Refer to TM 9-2320-387-24.)
- 2-3. Remove right-hand rear cab enclosure panel. (Refer to TM 9-2320-387-24.)
- 2-4. Remove standard radio rack.

Section III. LIST OF ITEMS TO BE RETAINED

- 3-1. Batteries
- 3-2. Right-hand rear cab enclosure (if applicable).
- 3-3. Right-hand rear fixed door (if applicable).

Section IV. PREPARATION OF C4ISR EQUIPMENT

To prepare C4ISR equipment, unpack, inspect, and check inventory.

Section V. PRECAUTIONS DURING HANDLING

Observe the following precautions to prevent equipment damage.

- a. Keep dust covers in place on connectors.
- b. Do not disassemble or modify parts in the C4ISR equipment unless authorized to do so.
- c. Keep mounting hardware covered and protected until needed.

Section VI. UNPACK AND INSPECT EQUIPMENT

- 6-1. Unpack and inspect packaging for evidence of damage.
- 6-2. Report any shipping damage on SF364 Report of Discrepancy (ROD) as prescribed in AR 735-11-2/DLAR 4140.55/NAVMATINST 4355.73A/AFR 400-64/MCO 4430.F.

Section VII. INVENTORY C4ISR EQUIPMENT

If any item is missing, fill out and forward Transportation Deficiency Report (TDR) (SF361) as described in AR 55-38/NAVSUPINST 4610.33C/AFR 75-18/MCO P4610.19D/DLAR 450015.

Section VIII. EXAMINE EACH ITEM FOR DAMAGE

If any item is damaged, fill out and forward SF364 Report of Discrepancy (ROD) as prescribed in AR 735-11-2/DLAR 4140.55/NAVMATINST 4355.73A/AFR 400-64/MCO 4430.F. All damages should be reported as prescribed by DA PAM 738-750, as contained in the Maintenance Management Update.

Section IX. C4ISR EQUIPMENT, DISTRIBUTION, AND CONSUMABLES

- 9-1. Use table 4-1 to identify and inventory C4ISR equipment installation parts supplied in kits.
- 9-2. Use table 4-2 to identify and inventory C4ISR equipment installation parts not supplied in kits.

Section X. DISTRIBUTION AND ISSUE INSTRUCTIONS

- 10-1. U.S. Forces: Do not requisition C4ISR equipment. They will be shipped automatically.
- 10-2. U.S. Army Depots: Requisition C4ISR equipment through supply channels.
- 10-3. Multiservice: Instructions shall be included for multiservice modifications.
- 10-4. MAP/MAS countries: Instructions shall be provided for MAP/MAS countries.

Section XI. PARTS LIST

KITS REQUIRED FOR THIS INSTALLATION:

NOTE

- Not all material in kits is required for this installation. Material not used during installation will be returned to stock for disposition in accordance with AR 725-50.
- If maintenance is to be performed on a vehicle with an existing kit, do not order entire kit for necessary reinstallation.

PLGR:

(A): 57K4400

SINGARS:

(B): No kits available

FBCB2:

(C): No kits available

EPLRS:

(D): No kits available

DVE:

(E): No kits available

MATERIAL REQUIRED FROM KITS:*Table 4-1. Kit Parts List for Installation of C4ISR Equipment.*

ITEM NO.	NOMENCLATURE	PART NUMBER	NSN	KIT	QTY.
1.	Antenna	A7575-030	5985-01-375-4660	(A)	1
2.	Bracket, Mounting	12480575	N/A	(A)	1
3.	Bracket, PLGR Mount	12480578	N/A	(A)	1
4.	Clamp	MS21333-65	5340-00-905-0790	(A)	5
5.	Clamp	MS21333-79	5340-00-922-6301	(A)	1
6.	Clamp, Loop	MS21333-67	5340-00-079-7837	(A)	3
7.	Clamp, Loop	MS21333-96	5340-00-088-1255	(A)	2
8.	Insert	12446871-3	5325-01-411-0066	(A)	5
9.	Nut	271175	5310-01-333-5245	(A)	1
10.	Nut	9419143	5310-01-148-0240	(A)	2
11.	Screw, Cap	274957	5305-00-558-5719	(A)	5
12.	Screw, Cap	B1821BH025C125N	5310-01-102-3270	(A)	2
13.	Screw, Cap	B1821BH025C175N	5305-00-071-2510	(A)	1
14.	Screw, Cap	MS35207-261	5305-00-990-6444	(A)	1
15.	Screw, Machine	MS35206-266	5305-00-984-6213	(A)	4
16.	Strap, Tiedown	MS3367-1-0	5975-00-984-6582	(A)	2
17.	Terminal Lug	7728777	5940-00-983-4067	(A)	1
18.	Terminal Lug	7728780	5940-01-035-4212	(A)	2
19.	Washer	2436161	5310-01-102-3270	(A)	6
20.	Washer, Lock	120217	5310-00-922-2017	(A)	5
21.	Washer, Lock	MS35333-76	5310-00-180-0277	(A)	1
22.	Washer, Lock	MS35338-43	5310-00-045-3296	(A)	1
23.	Washer, Lock	MS35338-44	5310-00-582-5965	(A)	3
24.	Washer, Lock	MS45904-71	5310-00-947-6980	(A)	5
25.	Wellnut	12339397-3	5310-01-231-7455	(A)	1
26.	Wellnut	12339397-6	5310-01-388-6205	(A)	1

MATERIAL REQUIRED BUT NOT INCLUDED IN KITS

Table 4-2. Non-Kit Parts List for Installation of C4ISR Equipment.

ITEM NO.	NOMENCLATURE	PART NUMBER	NSN	QTY.
1.	Antenna	A3005031	5820-01-183-9462	1
2.	Antenna AS-3900/VRC	A3017889-2	5985-01-308-8988	1
3.	Antenna Element (Lower)	A3018230-1	5985-01-201-1498	1
4.	Antenna Element (Upper)	A3017901-2	5985-01-306-4622	1
5.	Assembly, Display Lock	872843-01	N/A	1
6.	Bolt, Carriage	90185A540	N/A	4
7.	Box, Stowage	889519-1	2540-01-499-0607	1
8.	Bracket, Antenna Base	A3050655-1	5340-01-412-4379	2
9.	Bracket, DCM B-Pillar Roof	3245782-1	N/A	1
10.	Bracket, DCM Roof Mount	3236682-1	N/A	1
11.	Bracket, EPLRS	A3046202	5340-01-237-8102	1
12.	Bracket, Mounting	889567-14	N/A	1
13.	Bracket, PLGR	986-0645-001	5975-01-375-1302	1
14.	Bracket, PTM Control	3236630-1	N/A	1
15.	Bracket, User Readout (URO)	A3006206-2	5340-01-386-7841	1
16.	Cable, Antenna	A32551281W23	N/A	1
17.	Cable Assembly, Antenna, EPLRS	SM-C-911480	5995-01-167-1269	1
18.	Cable Assembly, Ground	12480567-1	N/A	1
19.	Cable Assembly, Power	12480567-2	N/A	1
20.	Cable Assembly, Power, EPLRS	A3004939	5995-01-198-0538	1
21.	Cable Assembly, Power, PLGR	9728558-10	6150-01-375-8661	1
22.	Cable Assembly, Radio Frequency	A3014031-8	5995-01-219-7035	1
23.	Cable Assembly, User Readout (URO)	A3005328	5995-01-375-2439	1
24.	Cable, Azimuth Lock	3221015-1	N/A	1
25.	Cable, DCM/PTM Interconnect	3220915-1	N/A	1
26.	Cable, DVE Power	3256881-1	6150-01-482-4740	1
27.	Cable, Speaker	A3014038-3	5995-01-219-4704	2
28.	Cable Assembly, INC-EPUU	A3279383-3	5995-01-453-9171	1
29.	Cable, W1	866003-3	5995-01-478-4908	1
30.	Cable, W2	881327-1	5995-01-478-4876	1
31.	Cable, W3N	881336-1	5995-01-478-4913	1
32.	Cable, W3P	881335-1	5995-01-478-4891	1
33.	Clamp, Loop	MS21333-102	5340-00-984-8540	3
34.	Clamp, Loop	MS21333-98	5340-00-809-1490	3
35.	Clamp, Loop	MS21333-67	5340-00-079-7837	4
36.	Clamp, Loop	MS21333-123	5340-00-989-1771	1
37.	Clamp, Loop	MS21333-104	5340-00-088-1254	7
38.	Clamp, Loop	MS21333-102	5340-00-984-8540	3
39.	Clamp, Loop	MS21333-77	5340-00-922-6300	5
40.	Clamp, Loop	MS21333-76	5340-00-724-7038	1

MATERIAL REQUIRED BUT NOT INCLUDED IN KITS (Contd):*Table 4-2. Non-Kit Parts List for Installation of CAISR Equipment (Contd).*

ITEM NO.	NOMENCLATURE	PART NUMBER	NSN	QTY.
41.	Compound, Antiseize	MIL-A-907	8050-00-059-2761	A/R
42.	Control Cable Seal Assembly	3220908	2990-00-365-1898	1
43.	CPU (Central Processing Unit)	881292-1	7021-01-474-3793	1
44.	Decal	12339060	7690-01-265-1135	1
45.	Decal	861868-2	N/A	1
46.	Display	881293-1	7025-01-475-0229	1
47.	Footrest Weldment	889567-21	N/A	1
48.	Fuse Cover	1209-9272	N/A	4
49.	Gasket	A3013655-1	5330-01-205-2864	2
50.	Grommet, Nonmetallic	2400	5325-01-289-7859	1
51.	Grommet, Nonmetallic	MS21266-4N	5325-00-923-9512	A/R
52.	Grommet, Nonmetallic	MS35489-143	N/A	2
53.	Guard, Amp	872842-1	5935-01-487-2172	1
54.	Guide, A-Frame Cable	3220964-1	5820-01-183-9462	1
55.	Guide, Hood Cable	3220912-1	N/A	1
56.	Insert	12446871-2	5310-01-411-3422	10
57.	Insert	ALS4-616-150	5325-01-483-7480	3
58.	Isolation Kit, CPU	872826-2	5340-01-481-5741	1
59.	Isolation Kit, Display	872870-1	5340-01-481-5757	1
60.	Lanyard	8925T5-7X19	4010-01-497-2675	1
61.	Left Rail Weldment	889567-12	N/A	1
62.	Loudspeaker	A3014065-1	5965-01-222-1420	2
63.	Mount, Antenna Overcab	A3265061	N/A	1
64.	Mount, DCM	3221839-1	N/A	1
65.	Mount, PTM A-Pillar	3221002-1	N/A	1
66.	Mount, Ramball	RAM-D-111U	5975-01-485-3615	1
67.	Mount, Resilient	MT-6146/VSQ-1	5340-01-167-8297	1
68.	Mount, Shelf	A3265968	N/A	1
69.	Mounting Base	A3013367-1	5975-01-188-8873	1
70.	Nut, Hexagon	9419143	5310-01-148-0240	1
71.	Nut, Hexagon	M45913/3-5CG8Z	N/A	3
72.	Nut, Hexagon	116002	5310-01-125-1216	4
73.	Nut, Hexagon	MS35649-2252	5310-00-997-1888	4
74.	Nut, Hexagon	271175	5310-01-333-5245	5
75.	Nut, Hexagon	MS35649-63	5310-00-804-3859	5
76.	Nut, Hexagon	9418892	5310-01-157-9819	22
77.	Nut, Hexagon	MS51967-2	5310-00-761-6882	3
78.	Nut, Hexagon	MS17829-3C	N/A	4
79.	Nut, Hexagon	13218E0320-293	5310-00-913-8881	8
80.	Nut, Hexagon	271169	5310-00-124-9265	5

MATERIAL REQUIRED BUT NOT INCLUDED IN KITS (Contd):

Table 4-2. Non-Kit Parts List for Installation of C4ISR Equipment (Contd).

ITEM NO.	NOMENCLATURE	PART NUMBER	NSN	QTY.
81.	Nut, Self-Locking	M45913/4-4CG8Z	N/A	9
82.	Panel, Enclosure	12447140	2510-01-413-5993	1
83.	Plate, Mounting	A3014550-1	N/A	2
84.	PTM Control Cable Assembly	3220905-1	5340-01-511-2705	1
85.	PTM Mount Assembly	3220952-1	5855-01-511-2699	1
86.	Quick-Release Pin	P/O 889567-21	N/A	1
87.	Rack Support	889509-22	N/A	1
88.	Rail, Left Overhead	A3265060-001	N/A	1
89.	Rail, Right Overhead	A3265060-002	N/A	1
90.	Right Rail Weldment	889567-22	N/A	1
91.	Rivet	SSLQ-68	5320-01-255-6608	3
92.	Rivet Nut	3221003-20	N/A	2
93.	Rivet Nut	3221003-14	N/A	17
94.	Rivet, Blind	12339355-1	5320-01-271-6357	2
95.	Rod	889567-16	N/A	1
96.	RTV	12346193	6850-01-159-4844	A/R
97.	Screw	9417875	N/A	7
98.	Screw, Cap	MS35751-18	5306-00-108-9988	4
99.	Screw, Cap	B1821BH031F100N	5305-00-051-4076	2
100.	Screw, Cap	B1821BH038C150N	5305-00-725-2317	4
101.	Screw, Cap	B1821BH025C300N	5305-00-071-2515	5
102.	Screw, Cap	B1821BH031F125N	5305-00-051-4078	10
103.	Screw, Cap	B1821BH025C138N	5305-00-225-3841	8
104.	Screw, Cap	B1821BH025C075N	5305-00-068-0508	18
105.	Screw, Cap	B1821BH050F150N	5305-00-719-5221	4
106.	Screw, Cap	B1821BH025C050N	5305-00-071-2506	3
107.	Screw, Cap	B1821AH025C063N	5305-01-457-8854	1
108.	Screw, Cap	B1821BH025C088N	5305-00-071-2505	5
109.	Screw, Cap	B1821AH025C100N	5305-01-389-7984	3
110.	Screw, Cap	B1821BH025C100N	5305-00-225-3843	26
111.	Screw, Cap	B1821AH025C150N	5305-00-466-7243	3
112.	Screw, Cap	MS35307-365	5305-00-847-1159	4
113.	Screw, Machine	MS35206-230	5305-00-889-3000	5
114.	Screw, Machine	MS35308-336	5306-00-021-3915	8
115.	Screw, Machine	MS35190-287	5305-00-954-4295	2
116.	Screw, Machine, Flat-Head	MS35206-266	5305-00-984-6213	4
117.	Screw, Machine, Flat-Head	MS35190-291	5305-00-958-5247	2
118.	Screw, Machine, Pan-Head	MS35207-263	5305-00-989-7434	2
119.	Screw, Machine, Tapping, Hex-Head	9416639	5305-01-197-2320	10

MATERIAL REQUIRED BUT NOT INCLUDED IN KITS (Contd):*Table 4-2. Non-Kit Parts List for Installation of CAISR Equipment (Contd).*

ITEM NO.	NOMENCLATURE	PART NUMBER	NSN	QTY.
120.	Screw, Self-Tapping	9421073	5305-01-162-8512	5
121.	Screw, Self-Tapping	12342499-2	5305-01-264-5809	11
122.	Serial Interface Adapter Device (SIAD)	881331-1	4920-01-478-3722	1
123.	Sleeve, Heat Shield	N/A	N/A	1
124.	Spacer	92510A318	N/A	4
125.	Spacer	10705AL315C	5365-01-487-3145	4
126.	Spacer	5579297	5365-01-194-0761	3
127.	Strap, Tiedown	MS3367-1-0	5975-00-984-6582	A/R
128.	Strap, Tiedown	MS3367-7-0	5975-01-034-5871	A/R
129.	Terminal	7728777	5940-00-983-4067	1
130.	Terminal Board	105A	5940-01-208-4713	1
131.	Terminal Board	MS27212-3-8	5940-00-950-7782	1
132.	Terminal Board Cover	12480569-1	N/A	1
133.	Terminal Board Cover	12480569-2	N/A	1
134.	Terminal Board Cover	MS18029-3S-2	5940-01-280-9304	1
135.	Terminal, Link	MS25266-6N-2	6150-01-167-9267	1
136.	Terminal, Lug	MS20659-108	5940-00-115-2674	1
137.	Terminal, Lug	MS25036-150	5940-00-113-8184	1
138.	Terminal, Lug	MS20659-141	5940-00-113-9825	6
139.	Tie, Stainless Steel Cable	69855K72	N/A	A/R
140.	Tube, Closeout	3236685-1	N/A	1
141.	Tubing, Shrink	MS23053/4-302-0	5970-01-161-6796	A/R
142.	Washer, Flat	MS51412-23	5310-01-333-0060	2
143.	Washer, Flat	3221003-9	N/A	5
144.	Washer, Flat	2436161	5310-01-102-3270	45
145.	Washer, Flat	120390	5310-00-012-0390	4
146.	Washer, Flat	MS27183-12	5310-00-081-4219	6
147.	Washer, Flat	MS27183-10	5310-00-809-4058	12
148.	Washer, Flat	MS27183-47	5310-01-312-4959	2
149.	Washer, Lock	131043	5310-00-013-1043	4
150.	Washer, Lock	12339501	5310-01-198-7585	4
151.	Washer, Lock	MS35338-43	5310-00-045-3296	2
152.	Washer, Lock	MS45904-71	5310-00-947-6980	5
153.	Washer, Lock	MS35338-41	5310-00-045-4007	5
154.	Washer, Lock	MS35338-44	5310-00-582-5965	39
155.	Washer, Lock	MS45904-68	5310-00-889-2528	3
156.	Washer, Lock	MS35338-48	5310-00-584-5272	3
157.	Washer, Lock	MS45904-76	5310-00-061-1258	8
158.	Washer, Lock	MS45904-72	5310-00-889-2527	46
159.	Wingnut	MS51553-420	5310-01-384-2546	4

MATERIAL REQUIRED BUT NOT INCLUDED IN KITS (Contd):

Table 4-2. Non-Kit Parts List for Installation of C4ISR Equipment (Contd).

ITEM NO.	NOMENCLATURE	PART NUMBER	NSN	QTY.
160.	Wire Assembly, Fuse (12V)	12480568-2	N/A	1
161.	Wire Assembly, Fuse (24V)	12480568-1	N/A	3
162.	Wire, Braided	AA59569F30T0375	6145-00-191-8402	A/R
163.	Wire, Lock	MS20995C32	9505-00-293-4208	A/R

CHAPTER 5 INSTALLATION PROCEDURES

Section I. SCOPE

This chapter provides instructions for installation of the following C4ISR equipment:

- Single Channel Ground and Airborne Radio System (SINCGARS)
- Force XXI Battle Command, Brigade-and-Below (FBCB2)
- Precision Lightweight Global Positioning System Receiver (PLGR)
- Enhanced Position Location Reporting System (EPLRS)
- Driver's Vision Enhancer (DVE)
- Additional terminal boards in the vehicle

When installing C4ISR equipment, be sure to read and follow instructions and illustrations carefully.

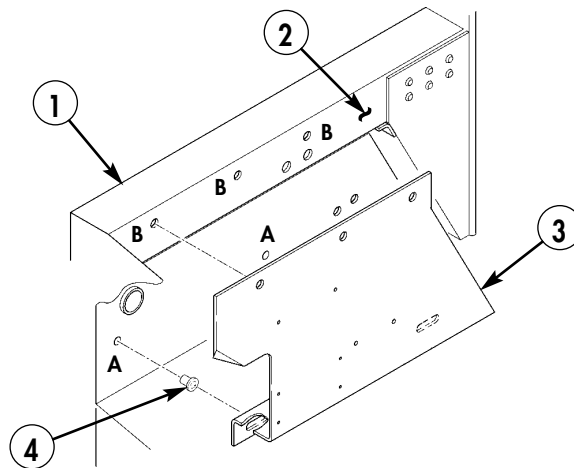
Section II. INSTALLATION OF TERMINAL BOARDS

Use the following procedure to install additional terminal boards to provide adequate power connections. Vehicles must have dual-voltage alternators installed in order to have both 12V and 24V terminal boards installed.

Section III. CAB ENCLOSURE PANEL, TERMINAL BOARD, AND COVER MODIFICATION

NOTE

- Late model M1114 vehicles come with cab enclosure panel and 24V terminal board. For early model M1114 vehicles, perform sections three through six. For late model M1114 vehicles, begin at section seven.
 - For vehicles without cab enclosure panel, begin with step 3-1.
 - For vehicles with cab enclosure panel, begin with step 3-3.
 - All dimensions are in inches.
- 3-1.** Place enclosure panel (3) in position. Locate, mark, and drill five 0.159-in. diameter holes marked A and B in B-beam (1) and battery box (2).
- 3-2.** Enlarge two lower mounting holes marked A to 0.390-in. diameter and install two inserts (4) in battery box (2).



- 3. ENCLOSURE PANEL – 12447140 – QTY. 1**
4. INSERT – 12446871-2 – QTY. 2

Figure 5-1.

NOTE

Do not install cab enclosure panel.

- 3-3. Locate, mark, and drill three 0.156-in. diameter holes marked A in cab enclosure panel (3).
- 3-4. Locate, mark, and drill two 0.196-in. diameter holes marked B in cab enclosure panel (3).
- 3-5. Locate, mark, and drill two 0.281-in. diameter holes marked C in cab enclosure panel (3).

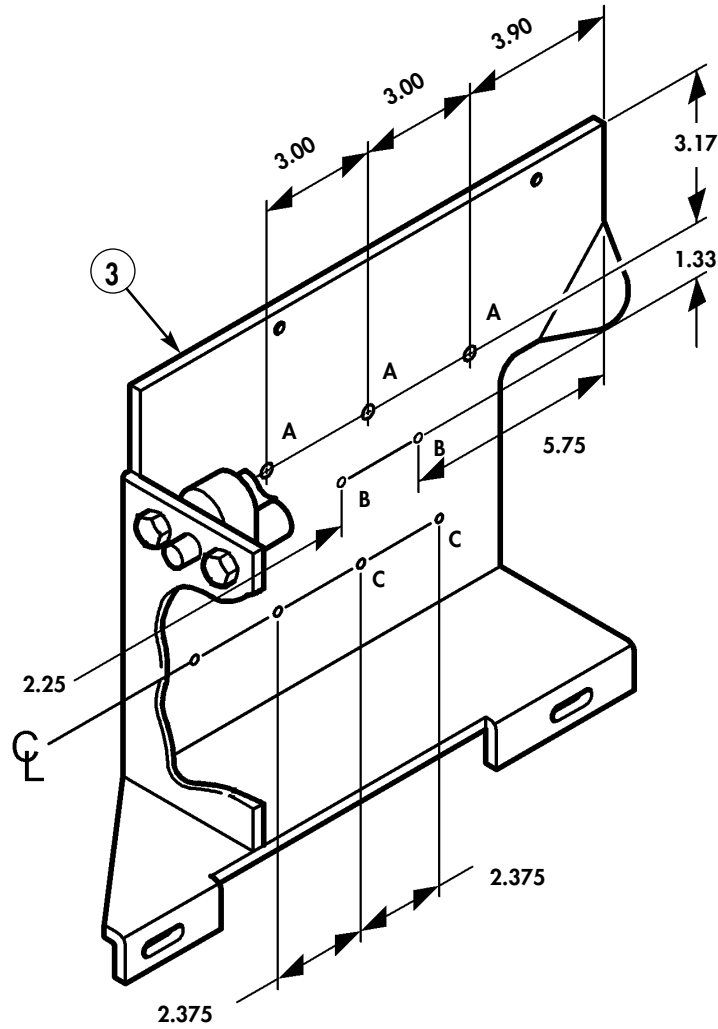


Figure 5-2.

NOTE

Perform steps 3-6 through 3-8 only if supplemental heater is installed.

- 3-6. Locate, mark, and cut corner of cab enclosure panel (3).
- 3-7. Locate, mark, and drill 0.154-in. diameter hole (5) in cab enclosure panel (3).

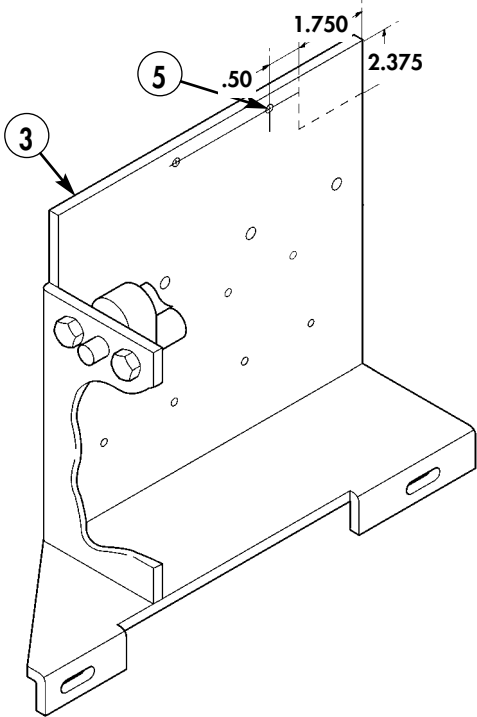
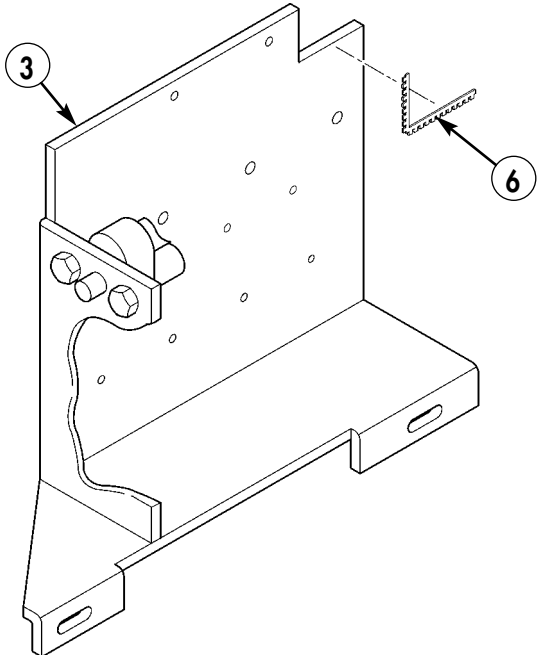


Figure 5-3.

- 3-8. Install grommet material (6) on cab enclosure panel (1) with RTV compound.



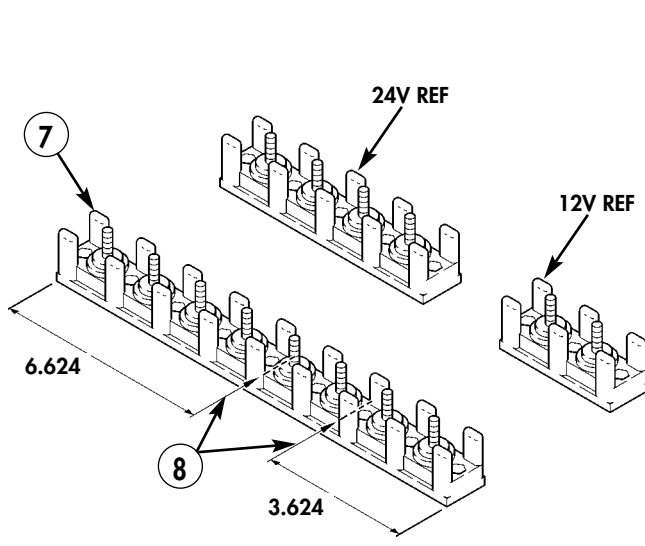
6. GROMMET MATERIAL – MS21266-4N – QTY. A/R

Figure 5-4.

CAUTION

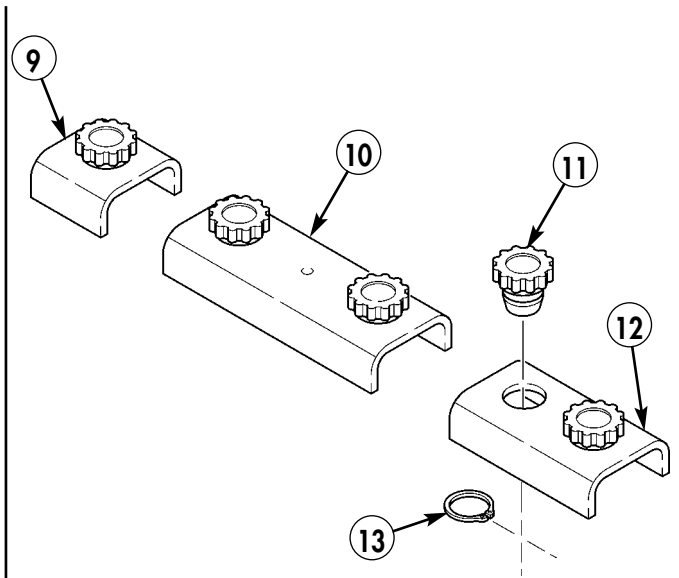
Do not cut raised sections of terminal board. Terminal board is not usable if cut on raised section.

- 3-9. Measure and cut terminal board (7) in two places (8). Remove burrs and sharp edges.
- 3-10. Install five nut sleeves (11) in terminal board covers (9), (10), and (12), and secure with five snaprings (13).



- 7. TERMINAL BOARD – MS27212-3-8 – QTY. 1
- 9. TERMINAL BOARD COVER – 12480569-1 – QTY. 1

Figure 5-5.



- 10. TERMINAL BOARD COVER – 12480569-2 – QTY. 1
- 12. TERMINAL BOARD COVER – MS18029-3S-2 – QTY. 1

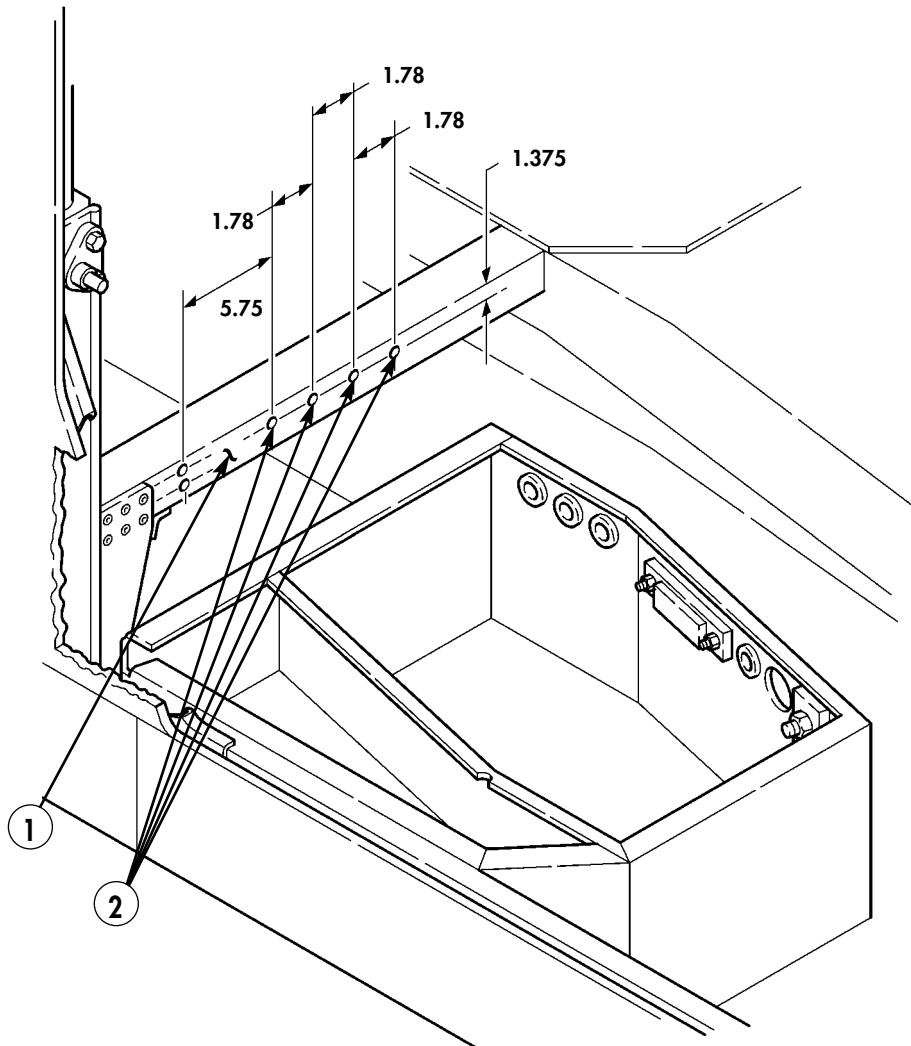
Figure 5-6.

Section IV. FUSE HOLDER COVER INSTALLATION

NOTE

If installing 24V terminal board only, do not drill holed marked (A).

Locate, mark, and drill three or four 0.159-in. diameter holes (2) in B-beam (3) and install three or four fuse covers (1) with three or four self-tapping screws (2).



1. FUSE COVER – 1209-9272 – QTY. 3 OR 4
2. SELF-TAPPING SCREW – 12342499-2 – QTY. 3 OR 4

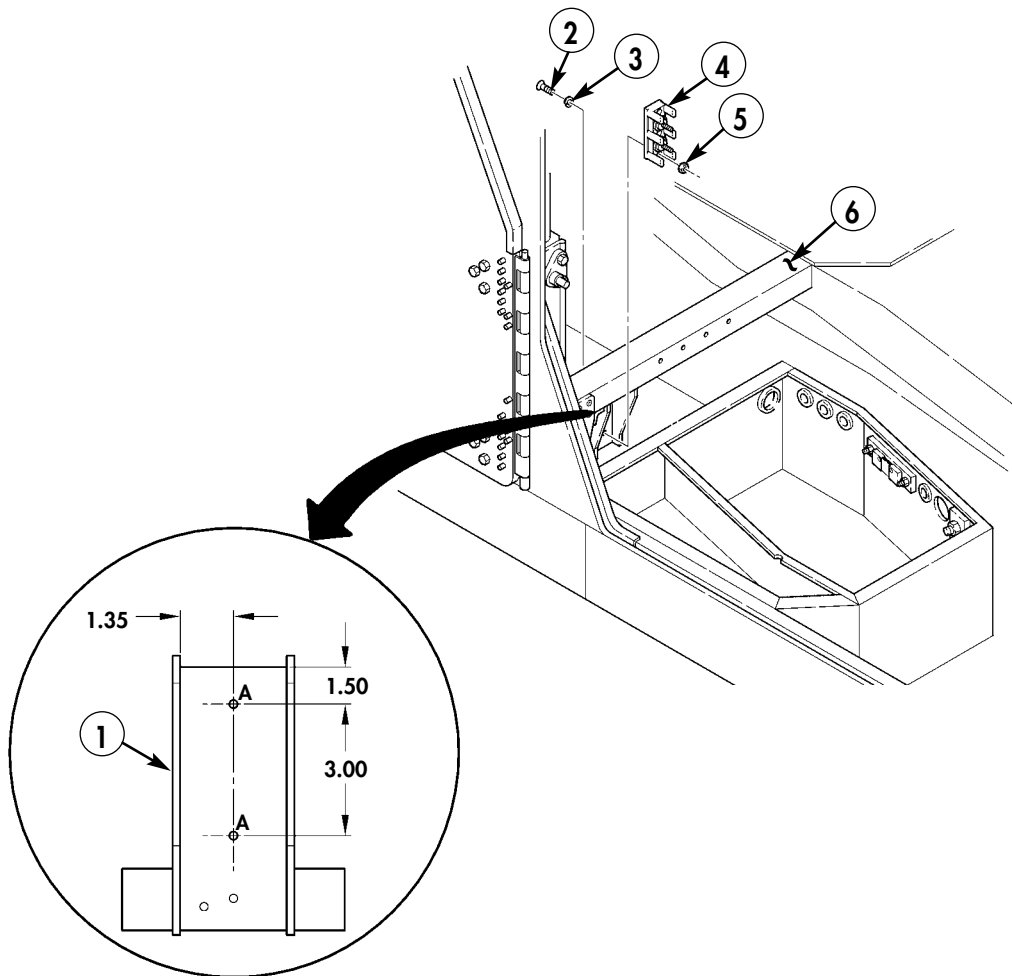
Figure 5-7.

Section V. ASSEMBLY OF CAB ENCLOSURE PANEL

NOTE

- For 12V terminal board installation on models with rifle mount bracket shown in figure 5-8, perform steps 5-1 through 5-3.
- If not installing 12V terminal board, begin with step 5-4.

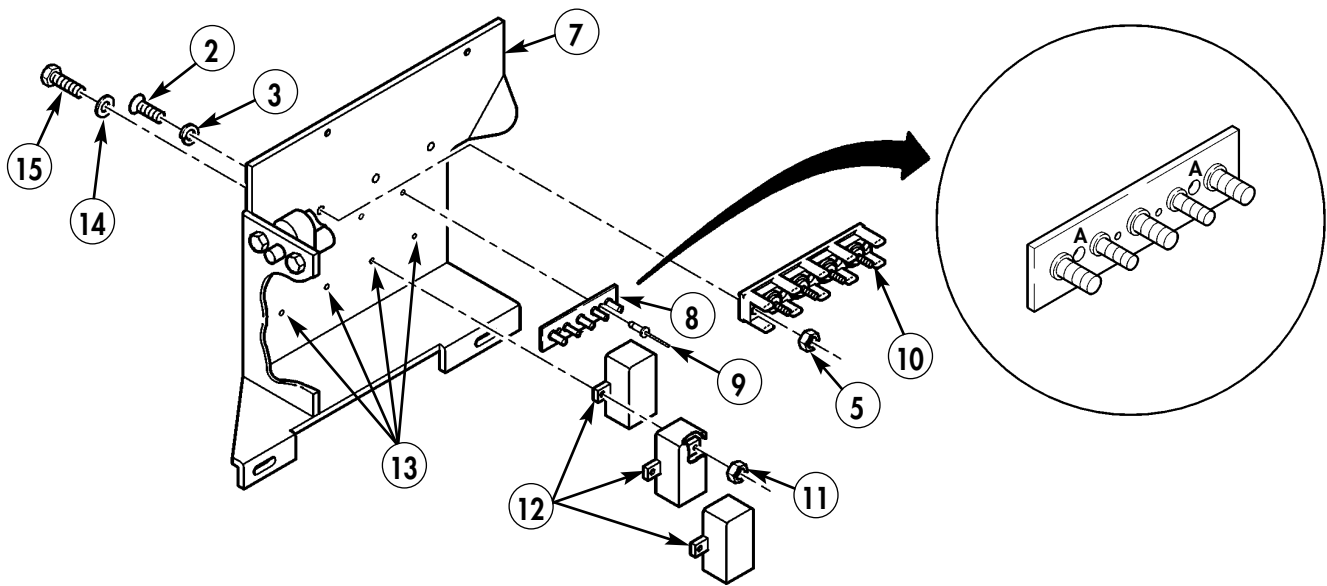
- 5-1. Remove lower rifle mount bracket (1) from B-beam (6). (Refer to TM 9-2320-387-24.)
- 5-2. Locate, mark, and drill two 0.159-in. diameter holes marked A in lower rifle mount bracket (1) and install 12V terminal board (4) with two screws (2), lockwashers (3), and nuts (5).
- 5-3. Install lower rifle mount bracket (1) on B-beam (6). (Refer to TM 9-2320-387-24.)



2. SCREW – MS35206-230 – QTY. 2
3. LOCKWASHER – MS35338-41 – QTY. 2
5. NUT – MS35649-63 – QTY. 2

Figure 5-8.

- 5-4. Install 24V terminal board (10) on enclosure panel (7) with three screws (2), three lockwashers (3), and three nuts (5).
- 5-5. Enlarge two holes marked A in terminal board (8) to 0.196 in. and secure terminal board (8) to enclosure panel (7) with two rivets (9).
- 5-6. Install three existing relays (12) in holes (13) on enclosure panel (7) with four existing screws (15), four washers (14), and four locknuts (11).



- 2. SCREW – MS35206-230 – QTY. 3
- 3. LOCKWASHER – MS35338-41 – QTY. 3
- 5. NUT – MS35649-63 – QTY. 3
- 8. TERMINAL BOARD – 12480570 – QTY. 1
- 9. BLIND RIVET – 12339355-1 – QTY. 2
- 11. LOCKNUT – MS51943-31 – QTY. 4

Figure 5-9.

Section VI. FINAL ASSEMBLY, TERMINAL BOARD WIRING, AND TERMINAL LINK

NOTE

- Refer to figure 5-10 for wiring overview.
- Perform steps 6-1 and 6-2 if hole and grommet do not exist in battery box.
- If installing 24V terminal board only, begin with step 6-6.

- 6-1.** Locate, mark, and drill 2.00-in. diameter hole (3) in upper right corner of rear wall of battery box.
- 6-2.** Install grommet (4) in hole (3).
- 6-3.** Secure terminal link (8) and fuse wire (7) to 12V terminal board (1) with two locknuts (6) and install cover (5).
- 6-4.** Route wire (2) through battery box hole (3).

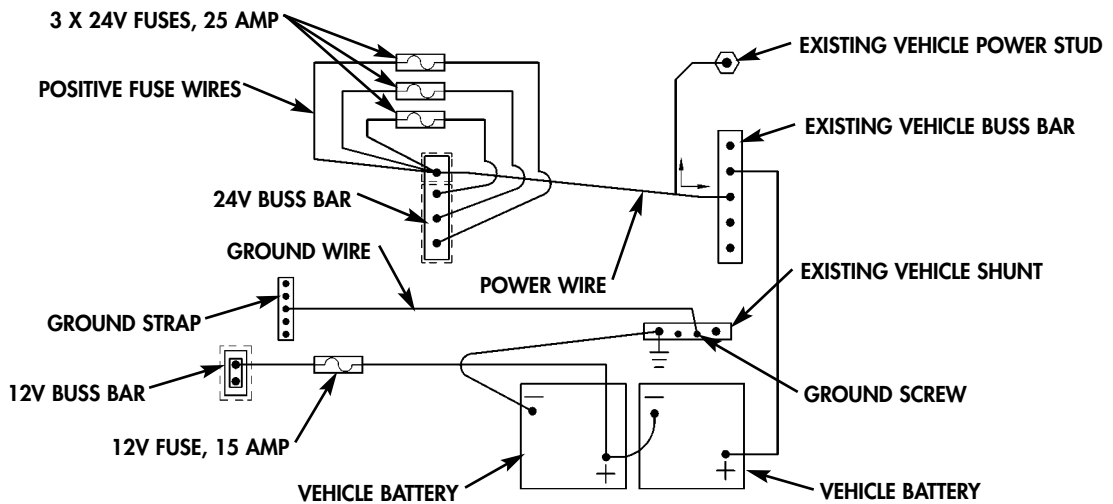


Figure 5-10.

- 4.** GROMMET – 2400 – QTY. 1
- 5.** TERMINAL BOARD COVER – MS18029-3S-2 – QTY. 1
- 6.** LOCKNUT – 271175 – QTY. 2
- 7.** FUSE WIRE ASSEMBLY (12V) – 12480568-2 – QTY. 1
- 8.** TERMINAL LINK – MS25226-6N-2 – QTY. 1

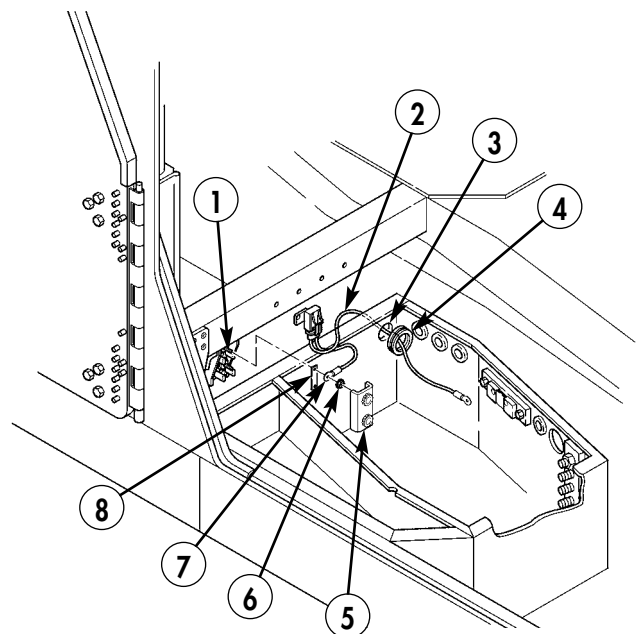


Figure 5-11.

- 6-5.** Connect wire (2) to existing positive 12V battery terminal end (10) with existing screw (9) and nut (11).

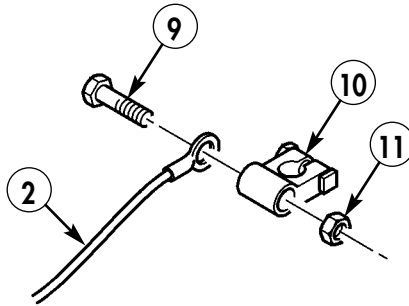
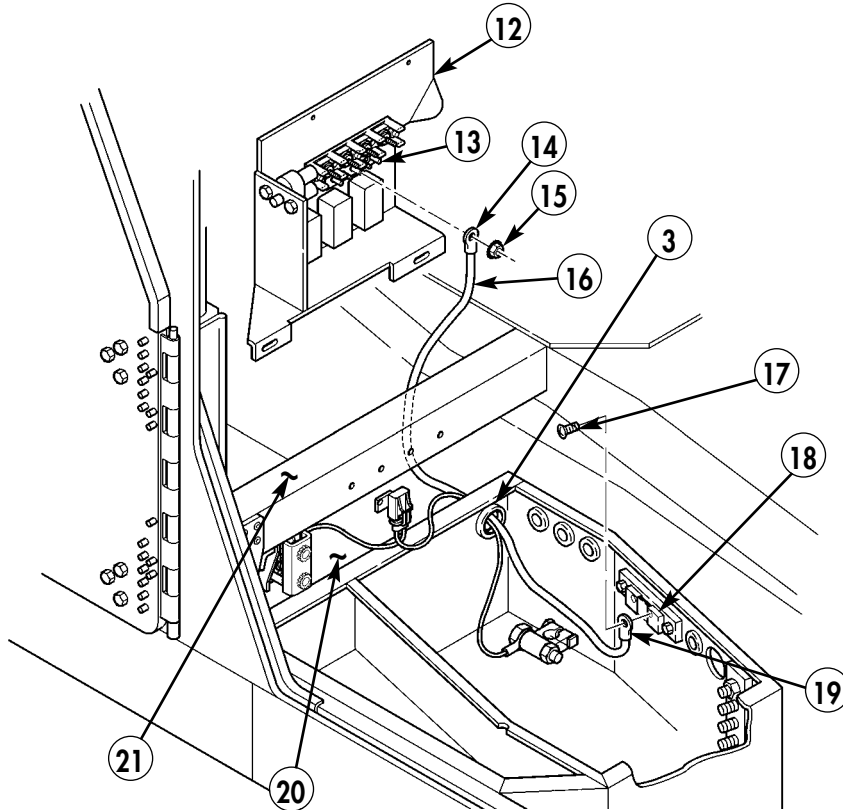


Figure 5-12.

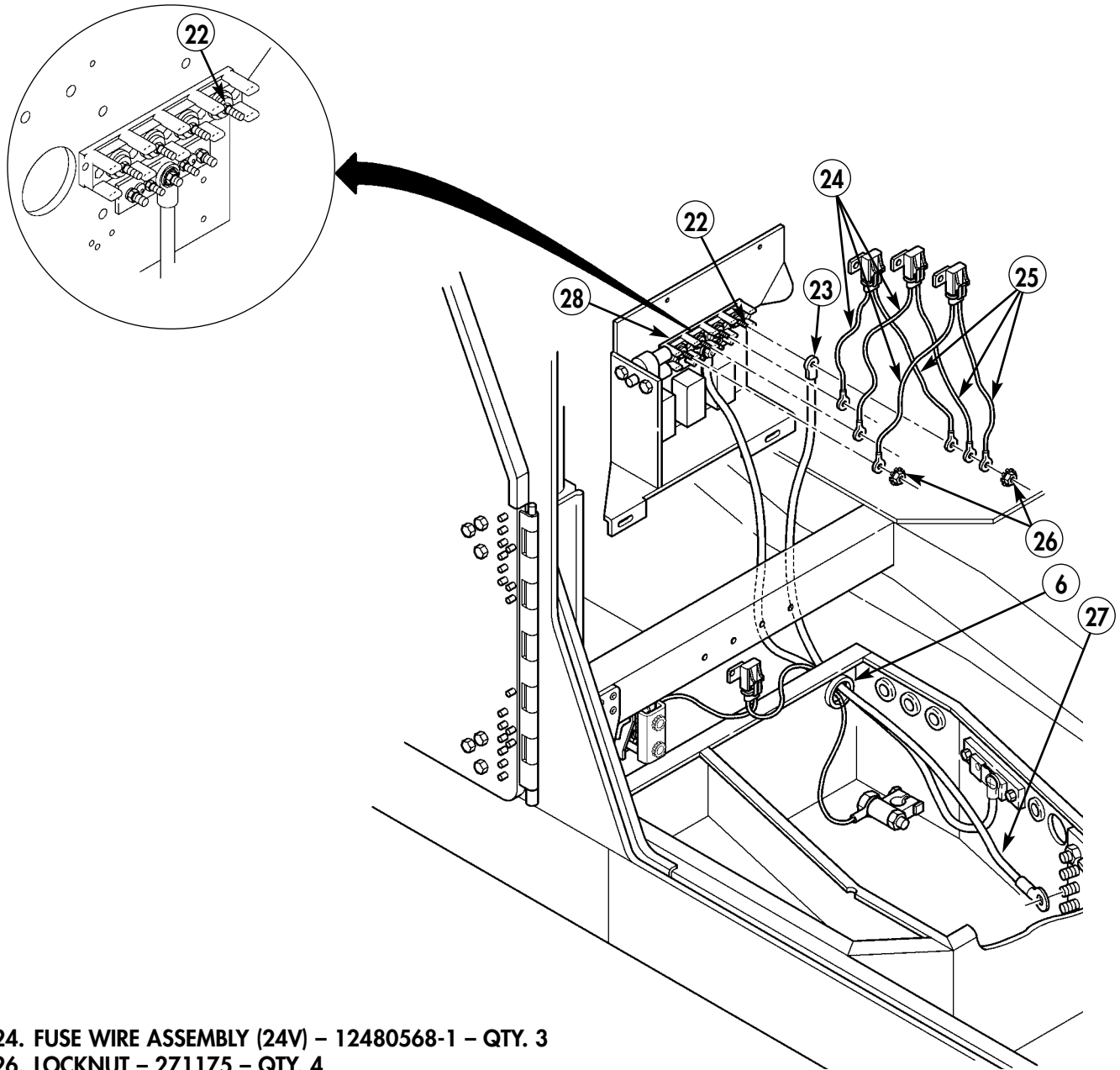
- 6-6.** Position cab enclosure panel (12) in rear floor pan (20) and rear of B-beam (21). Do not secure cab enclosure panel (12) at this time.
- 6-7.** Route ground cable (16) through battery box hole (3).
- 6-8.** Secure terminal lug (14) on center terminal of terminal board (13) with nut (15), and secure terminal lug (19) on shunt (18) with existing screw (17).
- 6-9.** Install four additional plain-assembled nuts (15) on terminal board (13).



- 15. PLAIN-ASSEMBLED NUT – 271169 – QTY. 5**
16. GROUND CABLE ASSEMBLY – 12480567-1 – QTY. 1

Figure 5-13.

- 6-10. Route 24V power cable (27) through hole (3) and install 24V power cable terminal lug (23) on inboard stud (22) of terminal board (28). Do not secure 24V power cable terminal lug (23) at this time.
- 6-11. Secure three fuse wires (25) and 24V power cable terminal lug (23) to inboard terminal board stud (22) with locknut (26).
- 6-12. Secure three remaining fuse wires (24) to corresponding studs on 24V terminal board (28) with three locknuts (26).



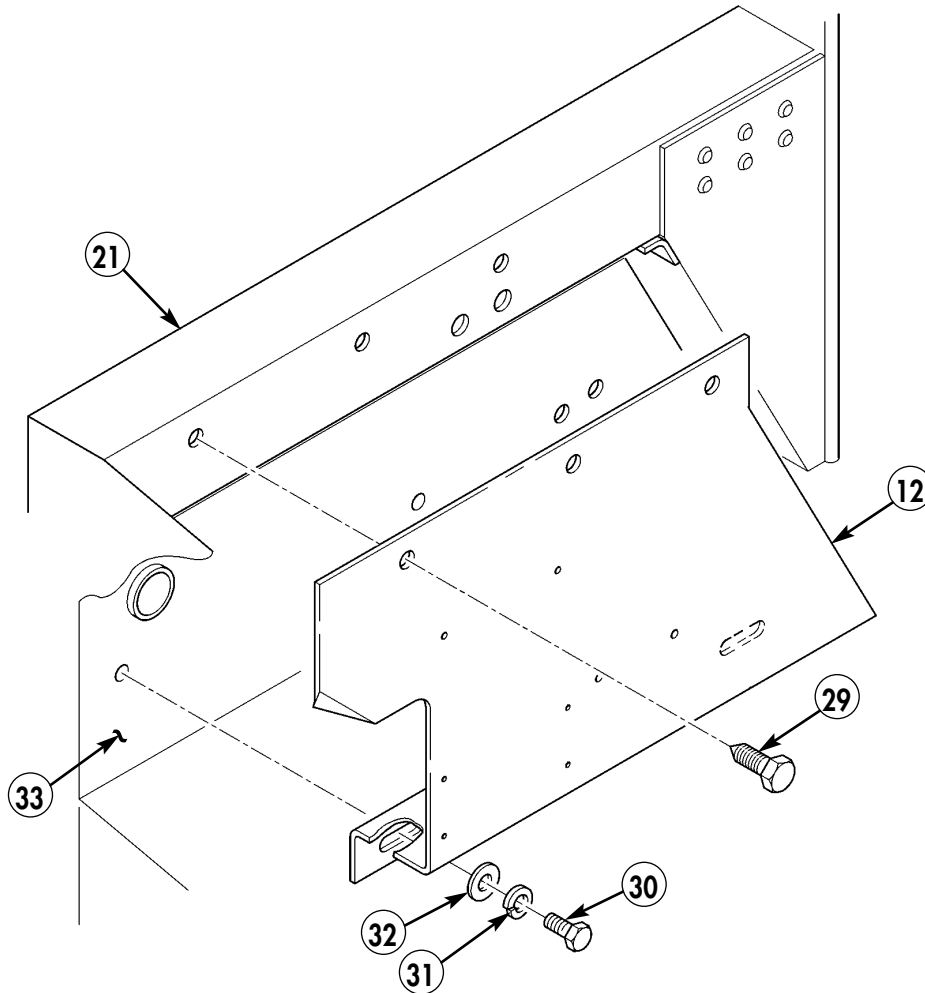
- 24. FUSE WIRE ASSEMBLY (24V) - 12480568-1 - QTY. 3
- 26. LOCKNUT - 271175 - QTY. 4
- 27. POWER CABLE ASSEMBLY - 12480567-2 - QTY. 1

Figure 5-14.

NOTE

For vehicles with new enclosure panel, begin with step 6-14.

- 6-13.** Install cab enclosure panel (12). (Refer to TM 9-2320-387-24.)
- 6-14.** Secure cab enclosure panel (12) to B-beam (21) with three self-tapping screws (29).
- 6-15.** Secure cab enclosure panel (12) to battery box (33) with two capscrews (30), lockwashers (31), and washers (32).



- 29. SELF-TAPPING SCREW – 12342499-2 – QTY. 3**
- 30. CAPSCREW – B1821BH025C075N – QTY. 2**
- 31. LOCKWASHER – MS35338-48 – QTY. 2**
- 32. WASHER – MS51412-23 – QTY. 2**

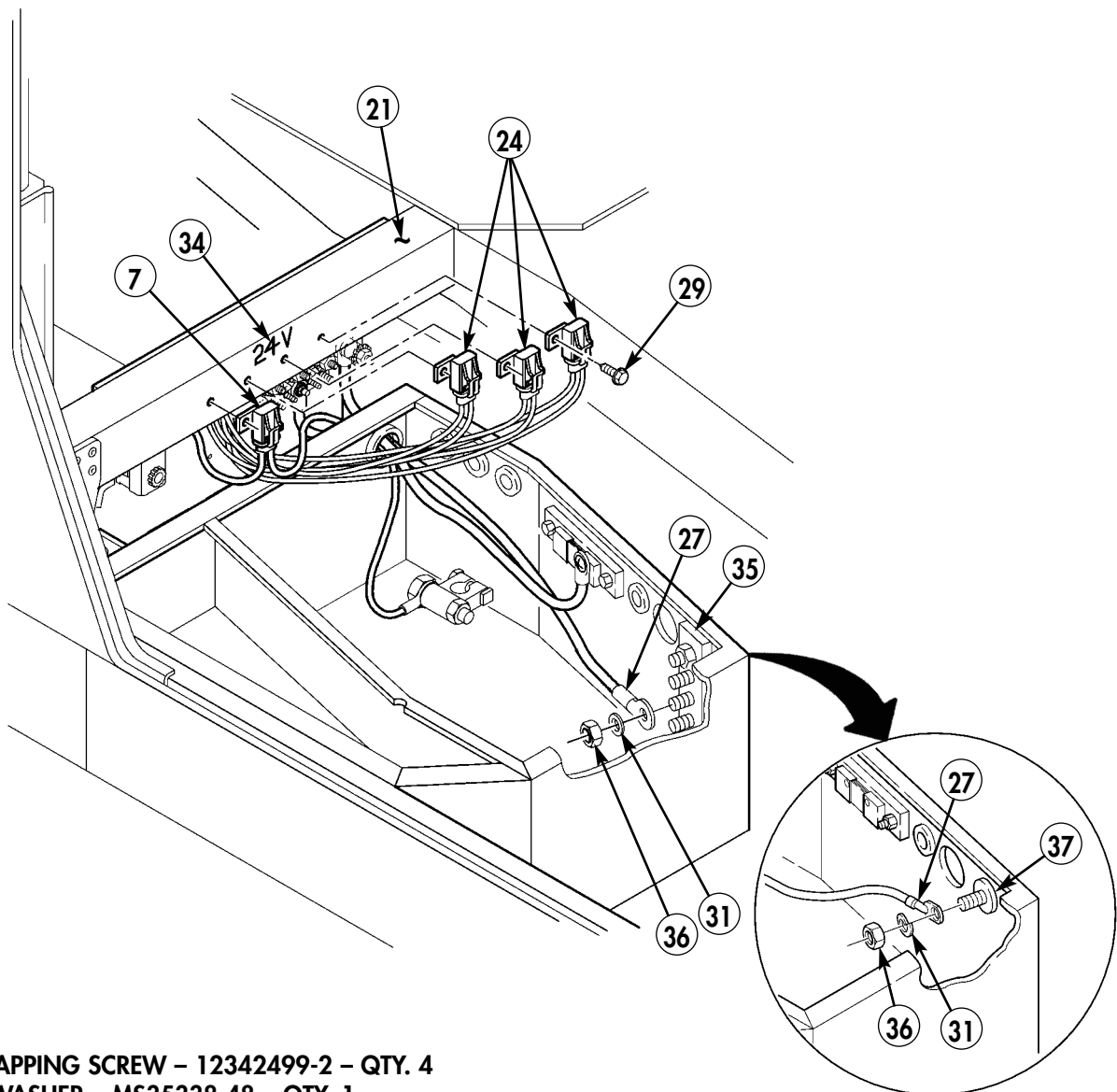
Figure 5-15.

- 6-16. Secure three 24V fusewire assemblies (24) and one 12V fusewire assembly (7) to B-beam (21) with four self-tapping screws (29).

NOTE

For models equipped with power stud, perform step 6-17.
Otherwise, proceed to step 6-18.

- 6-17. Secure 24V terminal board power wire terminal lug (27) to power stud (37) with lockwasher (31) and existing nut (36).
- 6-18. Secure 24V terminal board power wire terminal lug (27) to terminal board (35) with lockwasher (31) and existing nut (36).
- 6-19. Install decal (34) on B-beam (21).
- 6-20. If previously removed, install right-hand rear fixed door. (Refer to TM 9-2320-387-24.)
- 6-21. Install batteries. (Refer to TM 9-2320-387-24.)

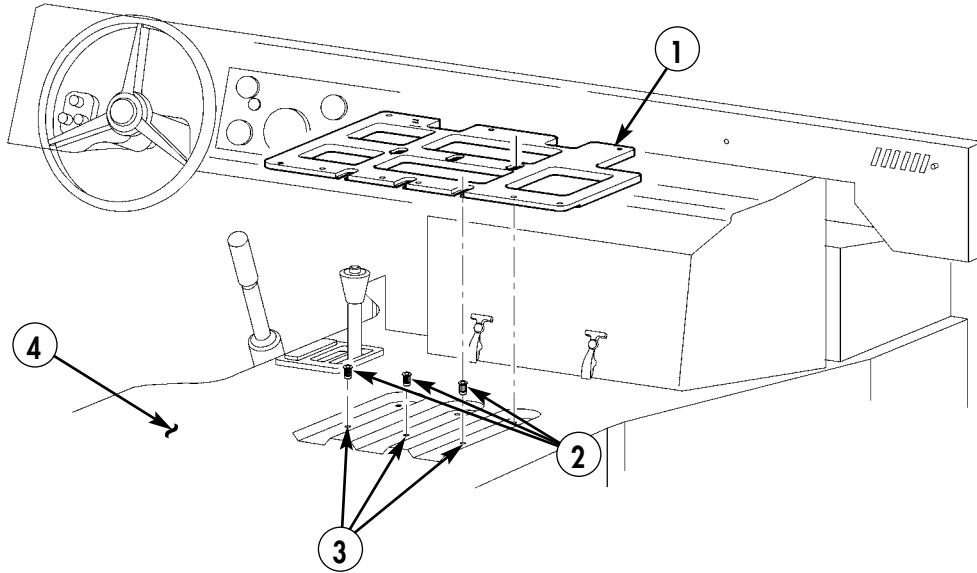


- 29. SELF-TAPPING SCREW - 12342499-2 - QTY. 4
- 31. LOCKWASHER - MS35338-48 - QTY. 1
- 34. DECAL - 12339060 - QTY. 1

Figure 5-16.

Section VII. INTEGRATED RACK INSTALLATION

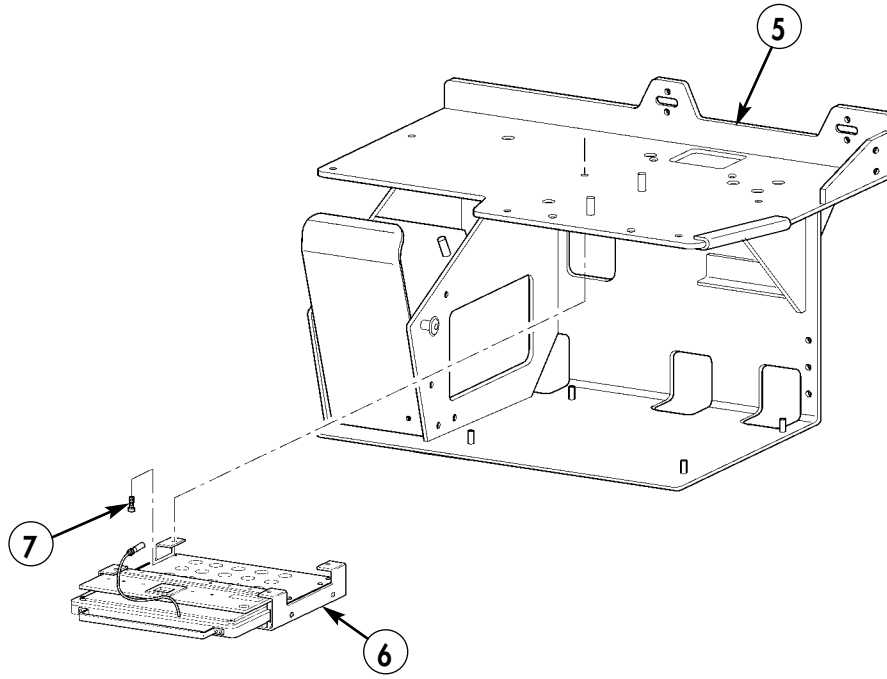
- 7-1. Using rack support (1) as template, locate, mark, and drill three 0.375-in. diameter holes (3) in tunnel (4).
- 7-2. Install three inserts (2) in holes (3) in tunnel (4).



- 1. RACK SUPPORT - 889509-22 - QTY. 1
- 2. INSERT - ALS4-616-150 - QTY. 3

Figure 5-17.

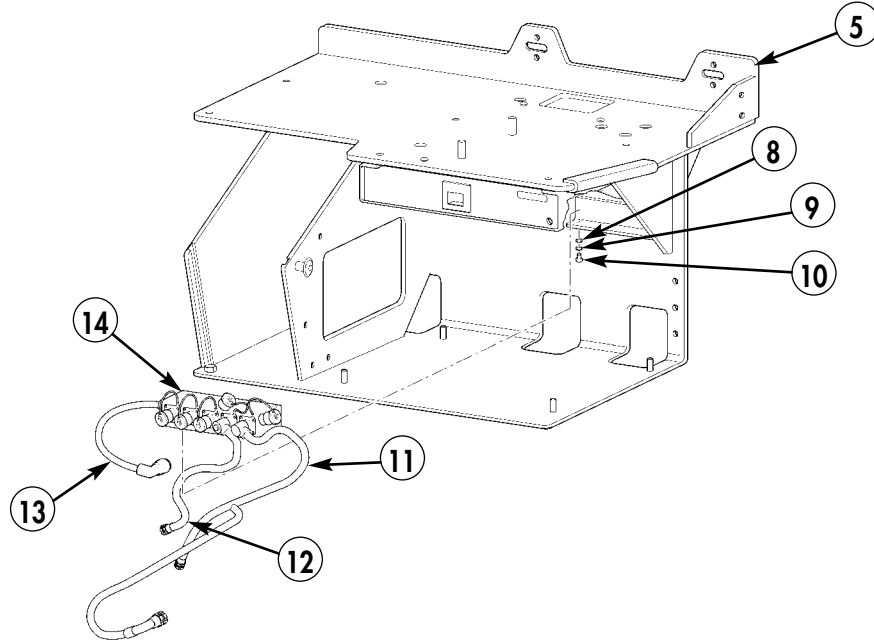
7-3. Install keyboard stowage box (6) on integrated rack (5) using four existing captive screws (7).



6. KEYBOARD STOWAGE BOX – 889519-1 – QTY. 1

Figure 5-18.

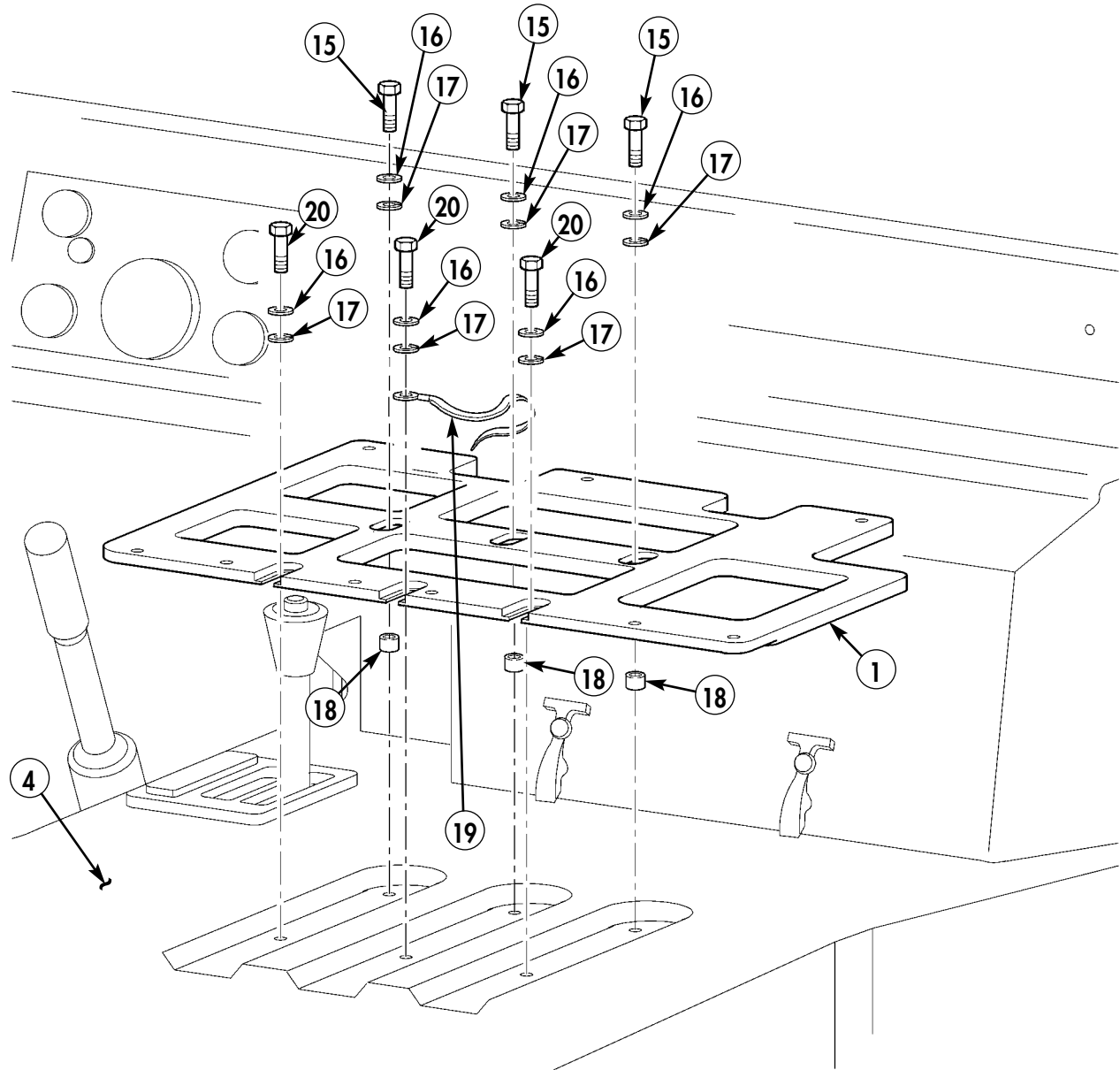
- 7-4. Install W3 cable (13) to Serial Interface Adapter Device (SIAD) (14).
- 7-5. Install W3N cable (11) to SIAD (14).
- 7-6. Install W3P cable (12) to SIAD (14).
- 7-7. Install SIAD (14) on integrated rack (5) using two screws (10), lockwashers (9), and washers (8).



- 8. WASHER – MS27183-47 – QTY. 2
- 9. LOCKWASHER – MS35338-43 – QTY. 2
- 10. SCREW – MS35207-263 – QTY. 2
- 11. W3N CABLE – 881336-1 – QTY. 1
- 12. W3P CABLE – 881335-1 – QTY. 1
- 13. W3 CABLE P/O – 881331-1 – QTY. 1
- 14. SIAD – 881331-1 – QTY. 1

Figure 5-19.

- 7-8. Fabricate ground strap (19) from 8.00-in. length of braided wire and two terminal lugs.
- 7-9. Install rack support (1) on tunnel (4) with three capscrews (20), three lockwashers (16), three washers (17), and ground strap (19), and three existing screws (15), three lockwashers (16), three washers (17), and three spacers (18). Do not tighten capscrews (20) and (15) at this time.



15. CAPSCREW - B1821BH025C150N - QTY. 3
 16. LOCKWASHER - MS35338-44 - QTY. 6
 17. WASHER - 2436161 - QTY. 6
 18. SPACER - 5579297 - QTY. 3
 19. GROUND STRAP
 • BRAIDED WIRE - AA59569F30T0375 - QTY. A/R
 • TERMINAL LUG - MS20659-141 - QTY. 2
 20. CAPSCREW - B1821BH025C100N - QTY. 3

Figure 5-20.

- 7-10. Position integrated rack (5) on rack support (1).
- 7-11. Align integrated rack (5) top mounting holes (21) with holes (22) in dash panel (23).
- 7-12. Remove integrated rack (5) from rack support (1).
- 7-13. Tighten three capscrews (15) and three capscrews (20), securing rack support (1) to tunnel (4).

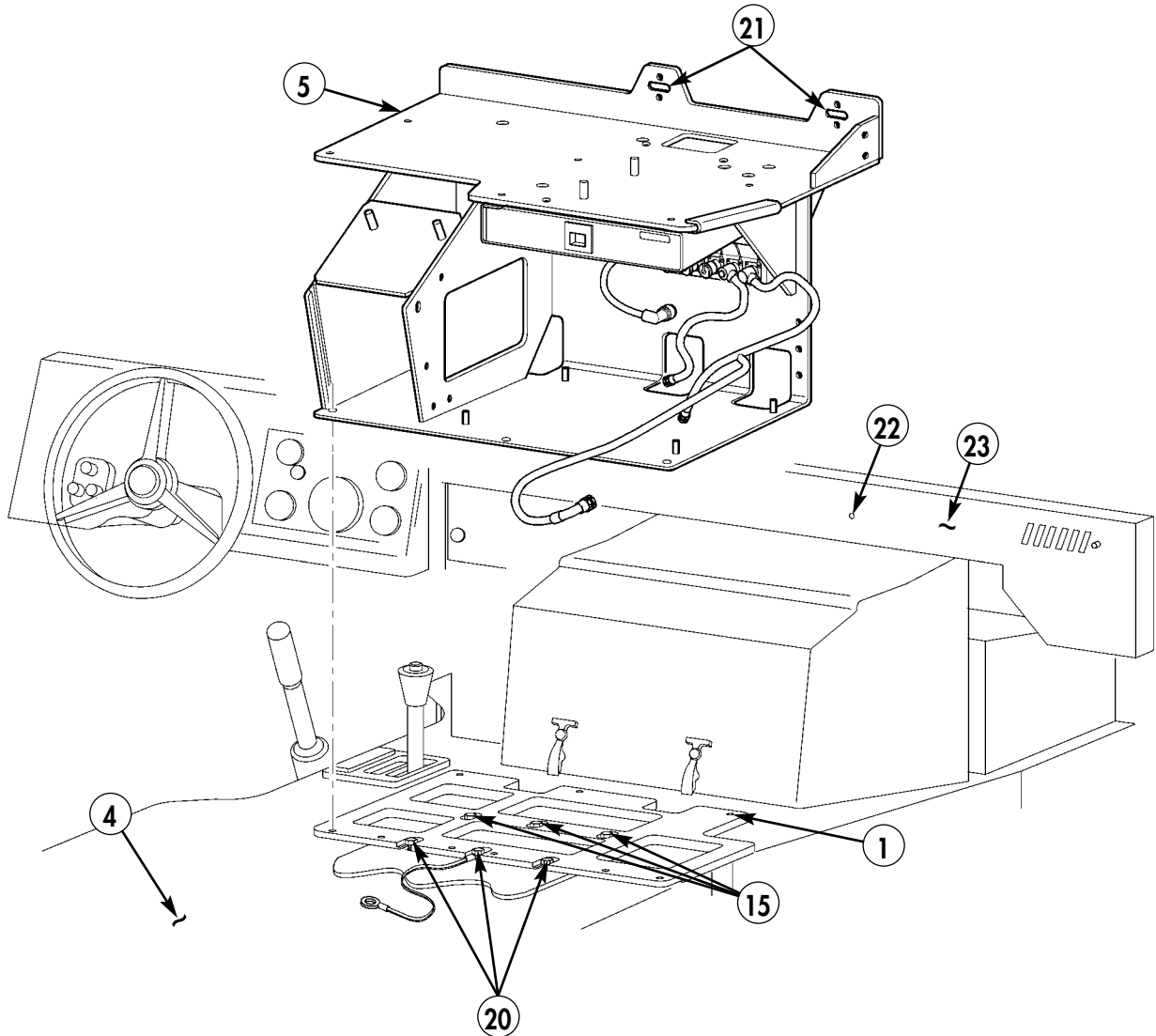
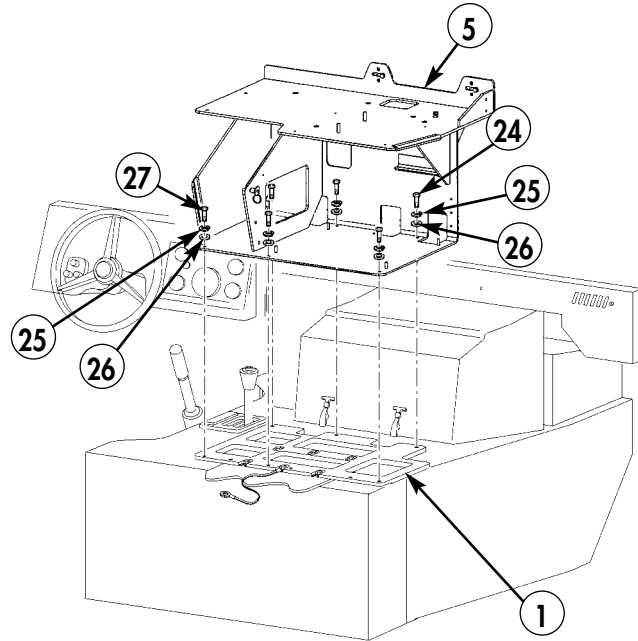


Figure 5-21.

- 7-14. Position integrated rack (5) on rack support (1).
- 7-15. Install integrated rack (5) on rack support (1) using five capscrews (24), five lockwashers (25), five washers (26), and one capscrew (27), one lockwasher (25), and one washer (26).



- 24. CAPSCREW – B1821BH025C088N – QTY. 5
- 25. LOCKWASHER – MS35338-44 – QTY. 6
- 26. WASHER – MS27183-10 – QTY. 6
- 27. CAPSCREW – B1821BH025C063N – QTY. 1

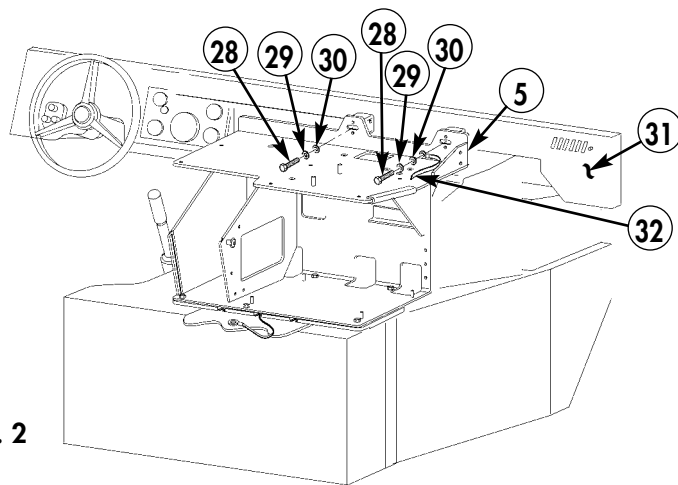
Figure 5-22.

- 7-16. Fabricate ground strap (32) from 8-in. length of braided wire and two terminal lugs.

NOTE

Remove paint from vicinity of integrated rack mounting hole before performing step 7-17. Apply antiseize compound as required.

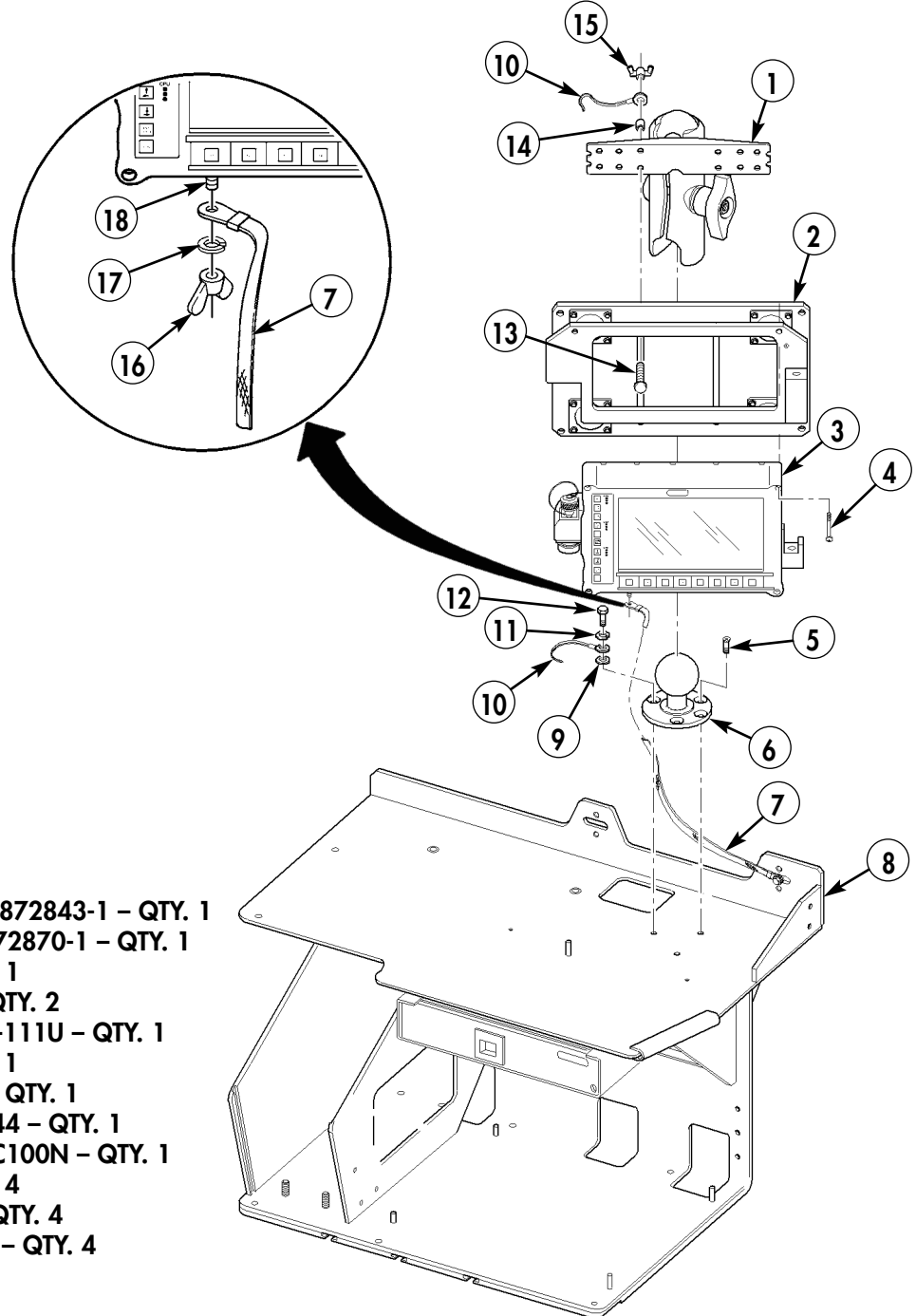
- 7-17. Attach integrated rack (5) to dash panel (31) using two screws (28), two lockwashers (29), two washers (30), and ground strap (32).



- 28. CAPSCREW – B1821BH025C100N – QTY. 2
- 29. LOCKWASHER – MS35338-44 – QTY. 2
- 30. WASHER – 2436161 – QTY. 2
- 32. GROUND STRAP
 - BRAIDED WIRE – AA59569F30T0375 – QTY. A/R
 - TERMINAL LUG – MS20659-141 – QTY. 2

Section VIII. SINGARS MOUNTING TRAY, AMP GUARD, AND FBCB2 COMPONENTS INSTALLATION

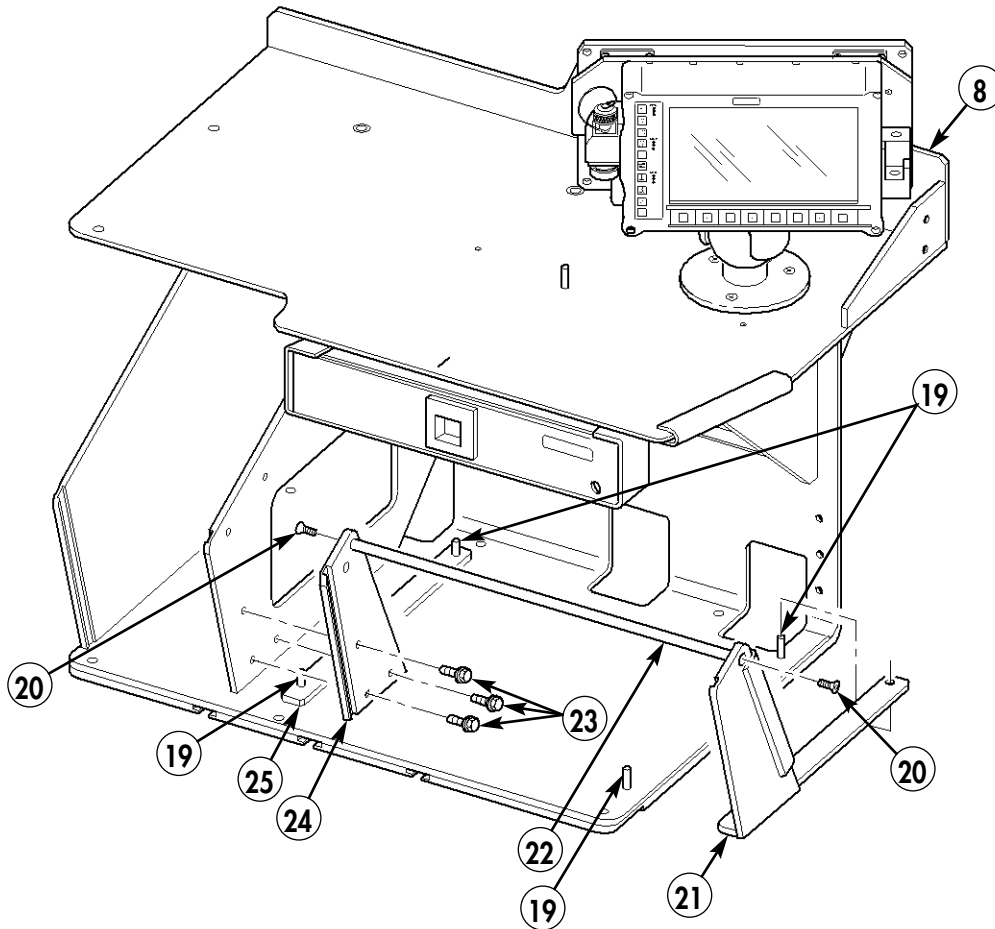
- 8-1. Install ramball mount (6) on integrated rack (8) with two screws (5) and one capscREW (12), one lockwasher (11), one lanyard (10), and one washer (9).
- 8-2. Install display isolation kit (2) on display unit mount (1) with four capscREW (13), four spacers (14), one lanyard (10), and four wingnuts (15).
- 8-3. Install display unit (3) on display isolation kit (2) with four existing screws (4).
- 8-4. Install display unit mount (1) on ramball mount (6).
- 8-5. Install ground strap (7) on display ground stud (18) with existing lockwasher (17) and wingnut (16).



- 1. DISPLAY LOCK ASSEMBLY - 872843-1 - QTY. 1
- 2. DISPLAY ISOLATION KIT - 872870-1 - QTY. 1
- 3. DISPLAY - 881293-1 - QTY. 1
- 5. SCREW - MS35190-291 - QTY. 2
- 6. RAMBALL MOUNT - RAM-D-111U - QTY. 1
- 9. WASHER - 2436161 - QTY. 1
- 10. LANYARD - 8925T5-7X19 - QTY. 1
- 11. LOCKWASHER - MS35338-44 - QTY. 1
- 12. CAPSCREW - B1821BH025C100N - QTY. 1
- 13. BOLT - MS35751-18 - QTY. 4
- 14. SPACER - 10705AL315C - QTY. 4
- 15. WINGNUT - MS51553-420 - QTY. 4

Figure 5-24.

- 8-6. Place mounting bracket (25) on two existing studs (19).
- 8-7. Attach rod (22) to left rail weldment (24) and right rail weldment (21) with two screws (20).
- 8-8. Place rail assembly on two right-hand studs (19) on integrated rack (8) and attach left rail weldment (24) to integrated rack (8) with three capscrews (23).



- 20. SCREW – MS35190-287 – QTY. 2
- 21. RIGHT RAIL WELDMENT – 889567-22 – QTY. 1
- 22. ROD – 889567-16 – QTY. 1
- 23. CAPSCREW – B1821BH025C075N – QTY. 3
- 24. LEFT RAIL WELDMENT – 889567-12 – QTY. 1
- 25. MOUNTING BRACKET – 889567-14 – QTY. 1

Figure 5-25.

- 8-9. Install CPU isolation kit (33) on integrated rack (8) with four existing studs (19), washers (35), lockwashers (36), and nuts (37).
- 8-10. Install CPU (26) on CPU isolation kit (33) with two existing fastener guards (34).
- 8-11. Install existing ground strap (28) on stud (27) on CPU (26) with existing wingnut (29), lockwasher (30), and washer (31).
- 8-12. Connect W3 cable (42) from Serial Interface Adapter Device (SIAD) (44) to J3 connector (39) on FFCB2 processor (26).
- 8-13. Connect W1 cable (41) to J1 connector (40) on FFCB2 processor (26). Route W1 cable (41) to integrated rack (8).

NOTE

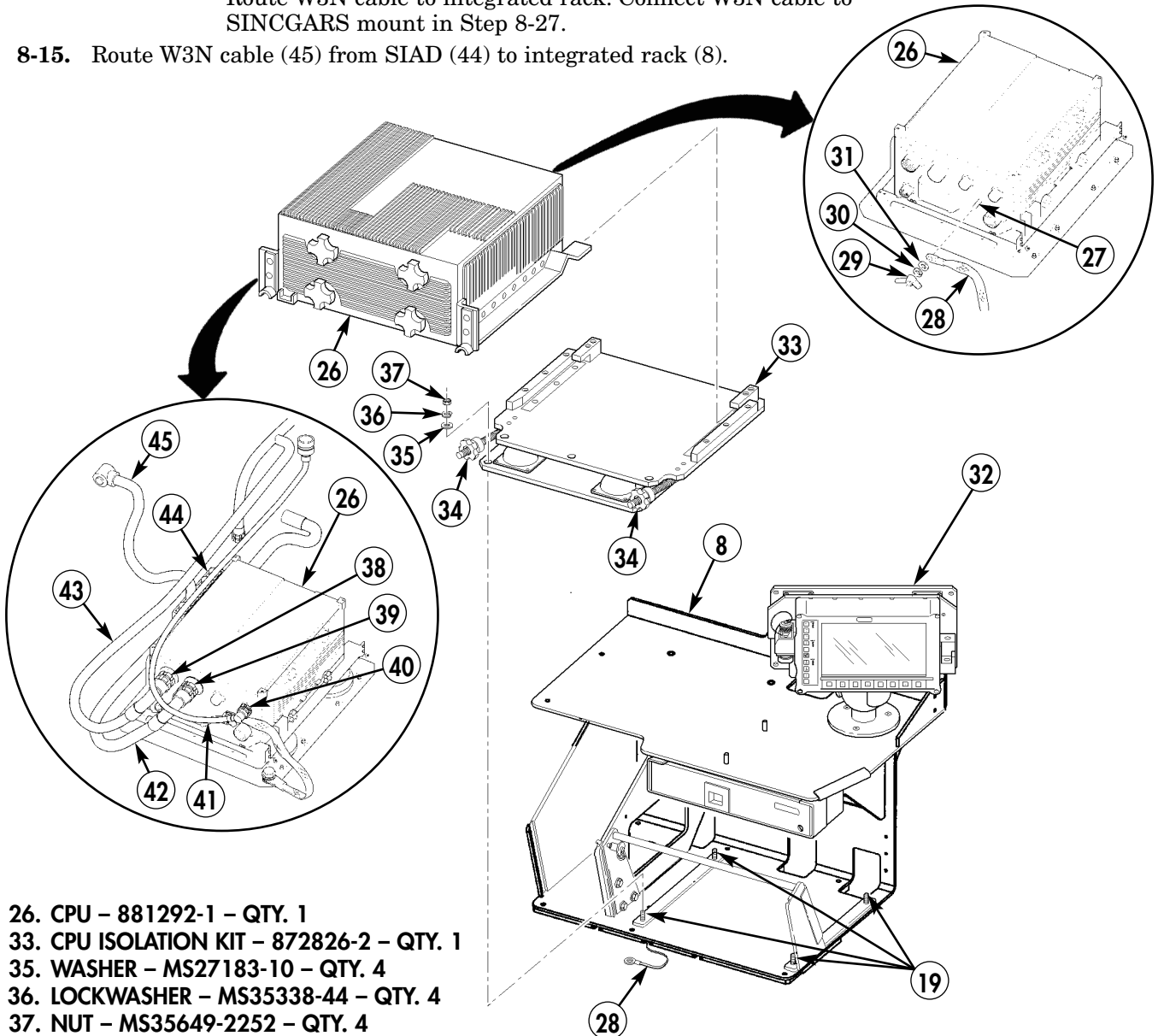
Route W2 cable to integrated rack. Connect W2 cable to FFCB2 display unit in Step 8-23.

- 8-14. Connect W2 cable (43) to J4 connector (38) on FFCB2 processor (26). Route W2 cable towards FFCB2 display unit (32) on integrated rack.

NOTE

Route W3N cable to integrated rack. Connect W3N cable to SINGARS mount in Step 8-27.

- 8-15. Route W3N cable (45) from SIAD (44) to integrated rack (8).



- 26. CPU – 881292-1 – QTY. 1
- 33. CPU ISOLATION KIT – 872826-2 – QTY. 1
- 35. WASHER – MS27183-10 – QTY. 4
- 36. LOCKWASHER – MS35338-44 – QTY. 4
- 37. NUT – MS35649-2252 – QTY. 4

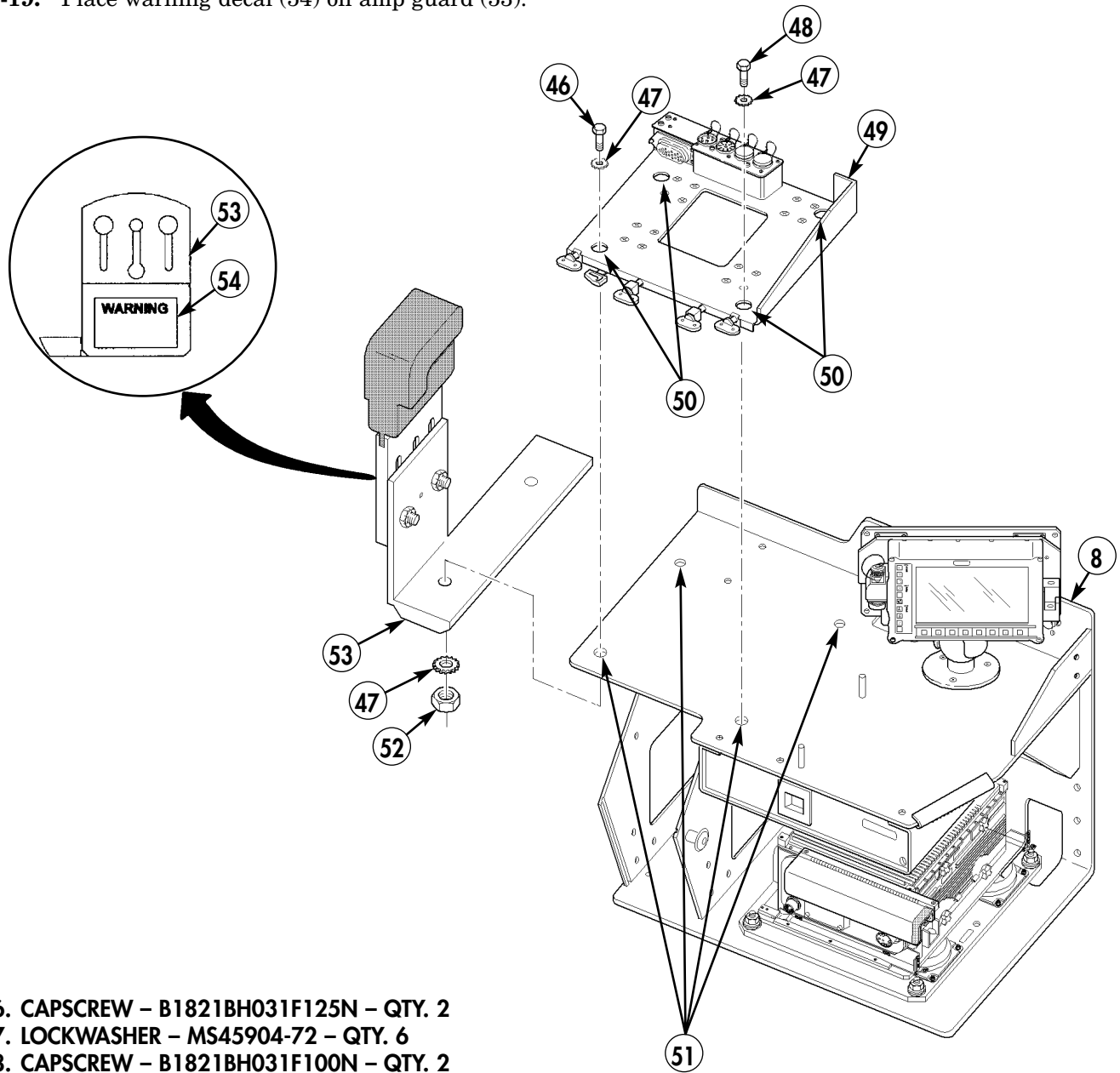
Figure 5-26.

- 8-16. Remove paint from four mounting holes (51) on integrated rack (8). Apply anti-seize compound as required.
- 8-17. Remove paint from four mounting holes (50) on MT-6352/VRC mounting base (49). Apply anti-seize compound as required.

NOTE

Two lockwashers and nuts are used on driver's side screws only.

- 8-18. Mount MT-6352/VRC mounting base (49) and amp guard (53) on integrated rack (8) with two capscrews (46), four lockwashers (47), and two nuts (52). Secure MT-6352/VRC mounting base (49) to integrated rack (8) with two capscrews (48) and two lockwashers (47).
- 8-19. Place warning decal (54) on amp guard (53).



- 46. CAPSCREW – B1821BH031F125N – QTY. 2
- 47. LOCKWASHER – MS45904-72 – QTY. 6
- 48. CAPSCREW – B1821BH031F100N – QTY. 2
- 49. MOUNTING BASE, MT-6352/VRC – A3013367-1 – QTY. 1
- 52. NUT – 9418892 – QTY. 2
- 53. AMP GUARD – 872842-1 – QTY. 1
- 54. DECAL – 861868-2 – QTY. 1

Figure 5-27.

8-20. Insert weldment (55) in grooves of integrated rack (8).

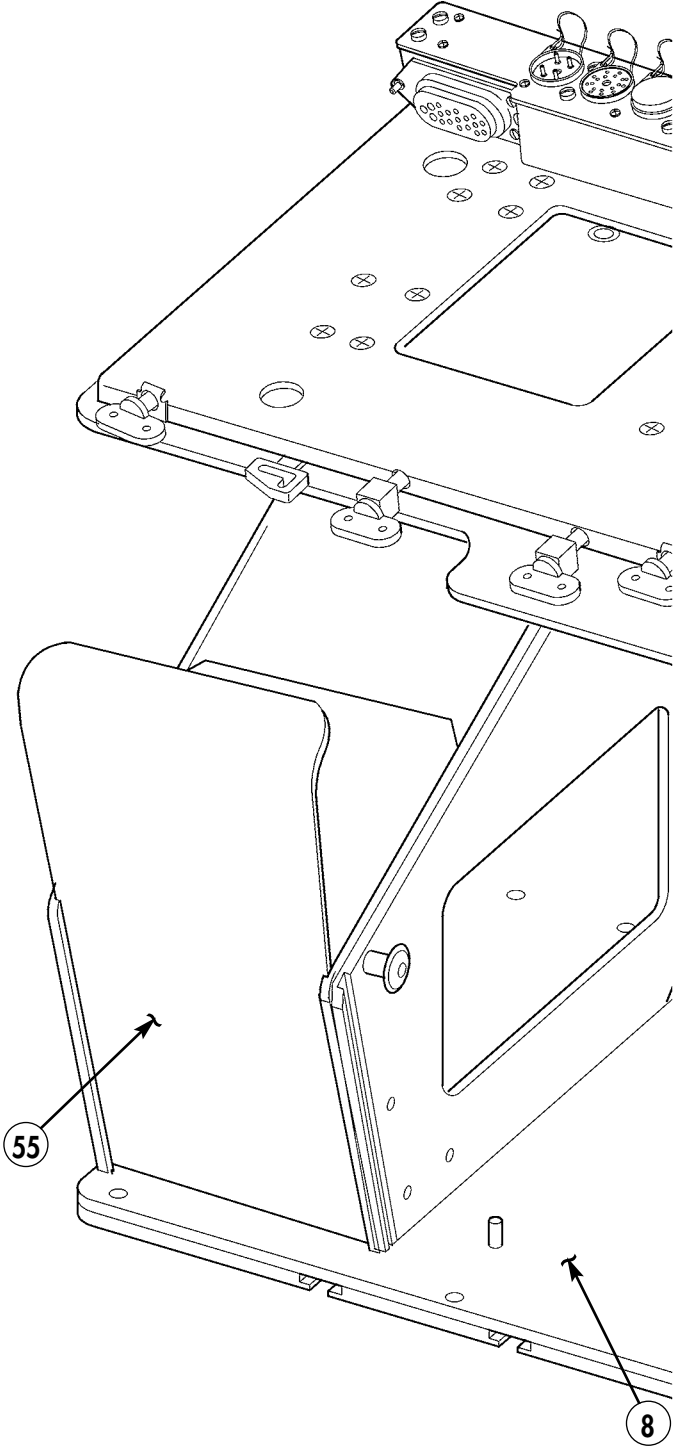
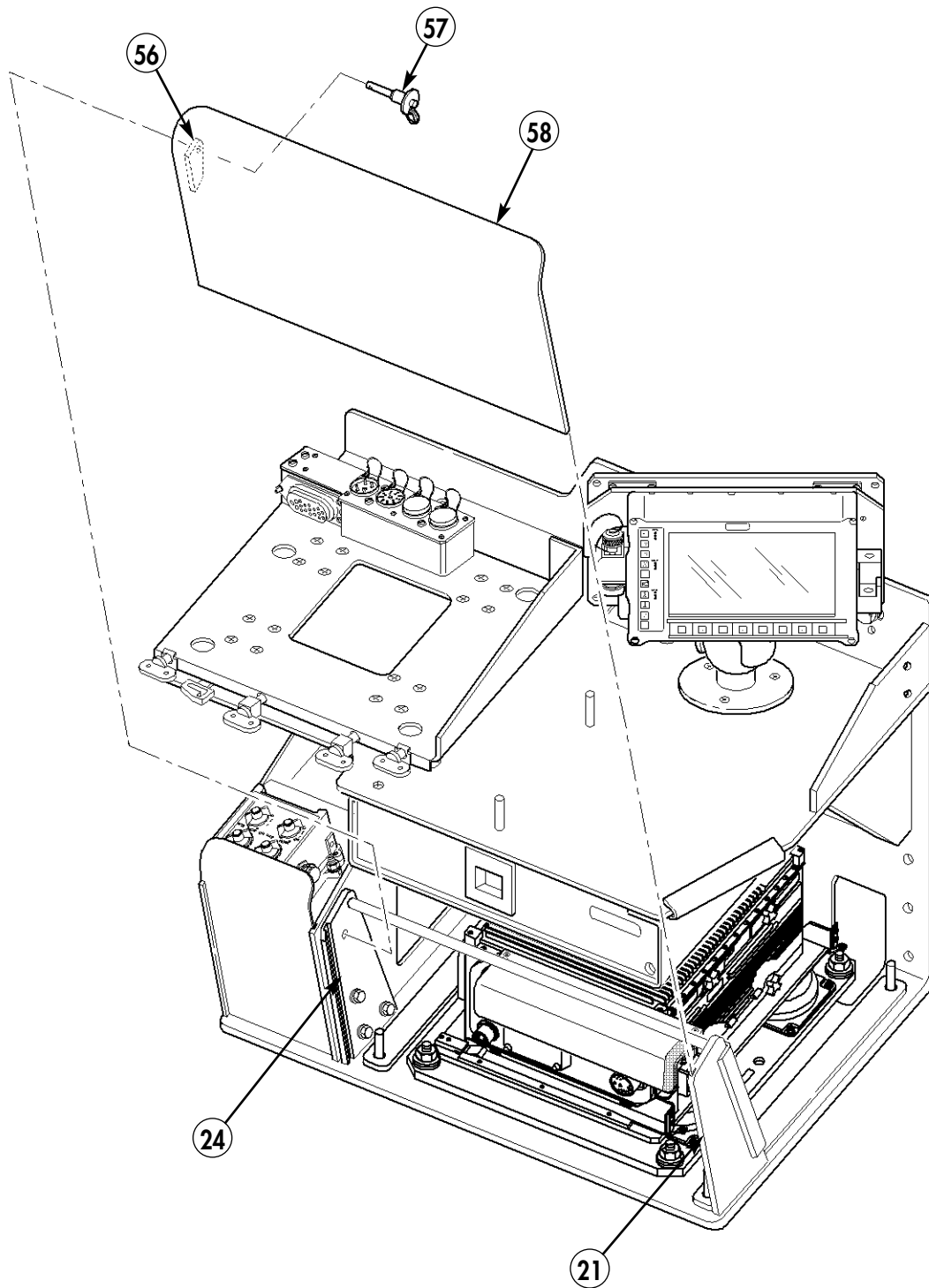


Figure 5-28.

- 8-21. Insert footrest weldment (58) in grooves of right rail weldment (21) and left rail weldment (24).
- 8-22. Insert quick-release pin (57) through hole (56) in footrest weldment (58), left rail weldment (24), and integrated rack (8).



- 57. QUICK-RELEASE PIN – P/O 889567-21 – QTY. 1
- 58. FOOTREST WELDMENT – 889567-21 – QTY. 1

Figure 5-29.

8-26. Install Vehicular Amplifier Adapter (VAA) (63) into SINCGARS mount (49).

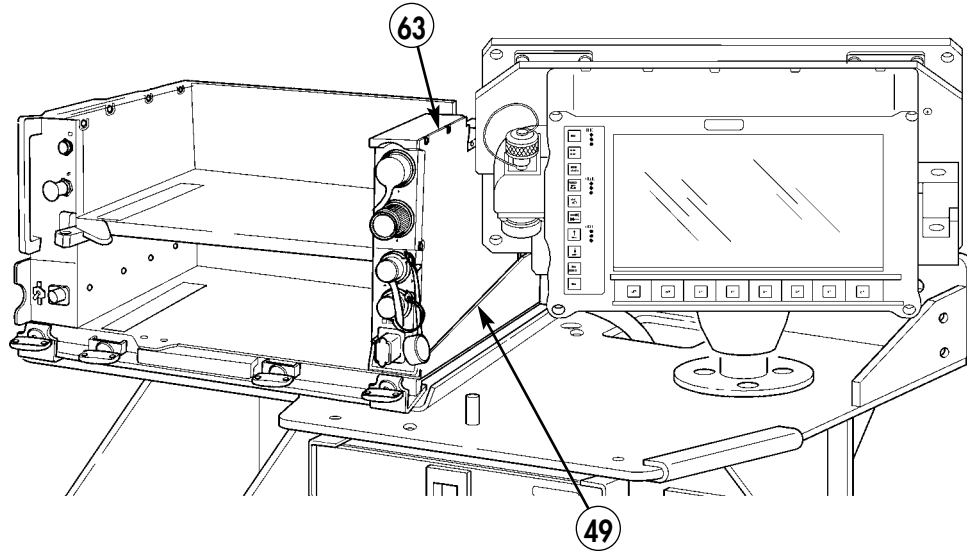


Figure 5-29.2.

8-27. Connect W3N cable (64) to J3 (65) connector on VAA (63).

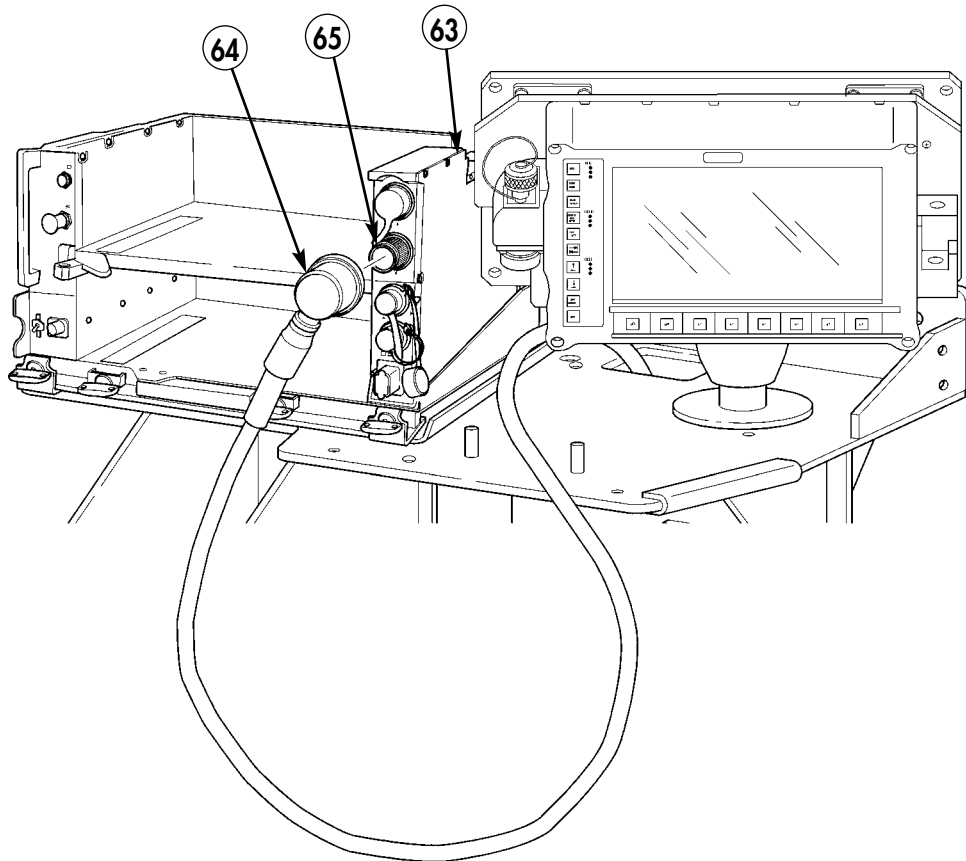


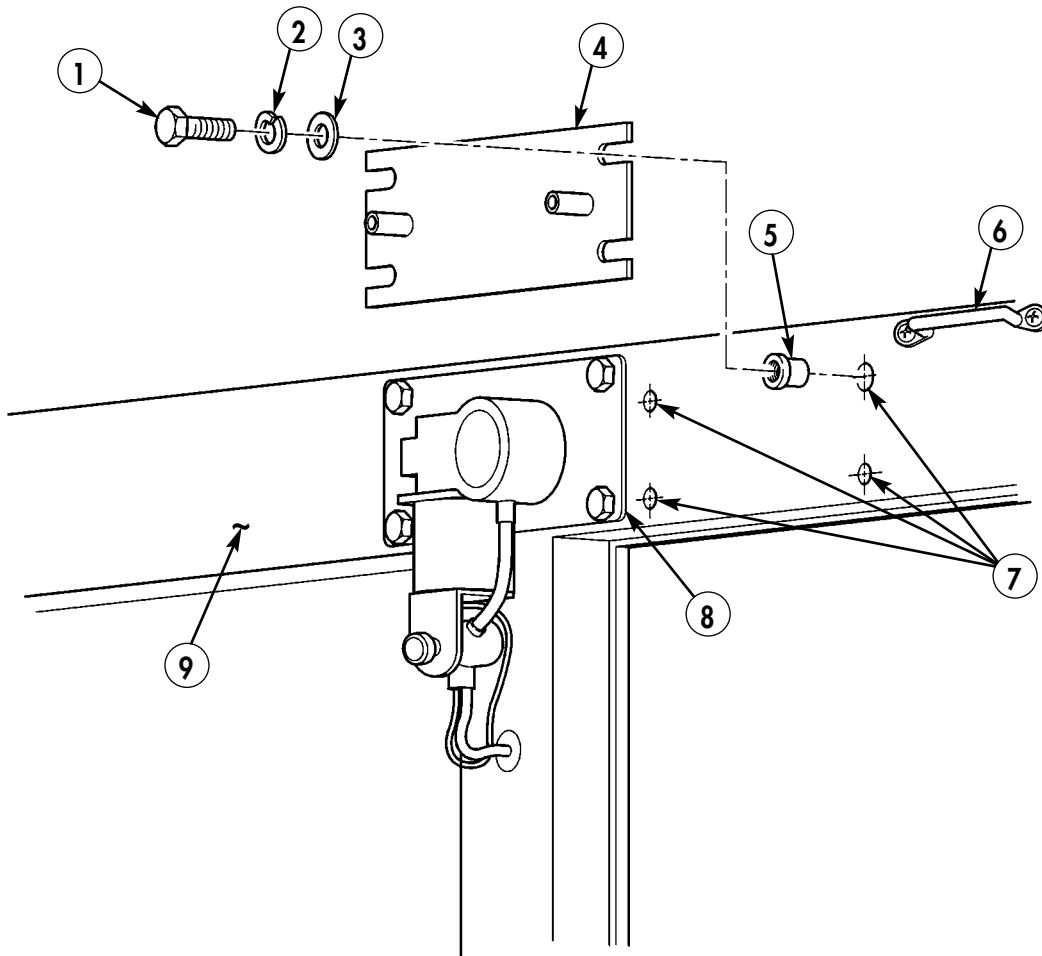
Figure 5-29.3.

Section IX. LOUDSPEAKER INSTALLATION

NOTE

- If sun visor kit has been installed, remove driver's side visor. (Refer to TM 9-2320-387-20.)
- Relocate all caution labels as necessary.

- 9-1.** Using mounting plate (4) as template, center on right side of windshield frame (9) between wiper motor mounting plate (8) and footman loop (6). Mark and drill four 0.390-in. diameter holes (7) in windshield frame (9).
- 9-2.** Install four inserts (5) in windshield frame (9).
- 9-3.** Install mounting plate (4) with four capscrews (1), lockwashers (2), and washers (3).



1. CAPSCREW - B1821BH025C075N - QTY. 4
2. LOCKWASHER -MS35338-44 - QTY. 4
3. WASHER - 2436161 - QTY. 4
4. MOUNTING PLATE - A3014550-1 - QTY. 1
5. INSERT - 12446871-2 - QTY. 4

Figure 5-30.

- 9-4. Using mounting plate (4) as template, center on left side of windshield frame (9) between wiper mounting plate (8) and footman loop (11). Mark and drill four 0.390-in. diameter holes (10) in windshield frame (9).
- 9-5. Install four inserts (5) in windshield frame (9).
- 9-6. Install mounting plate (4) with four capscrews (1), lockwashers (2), and washers (3).

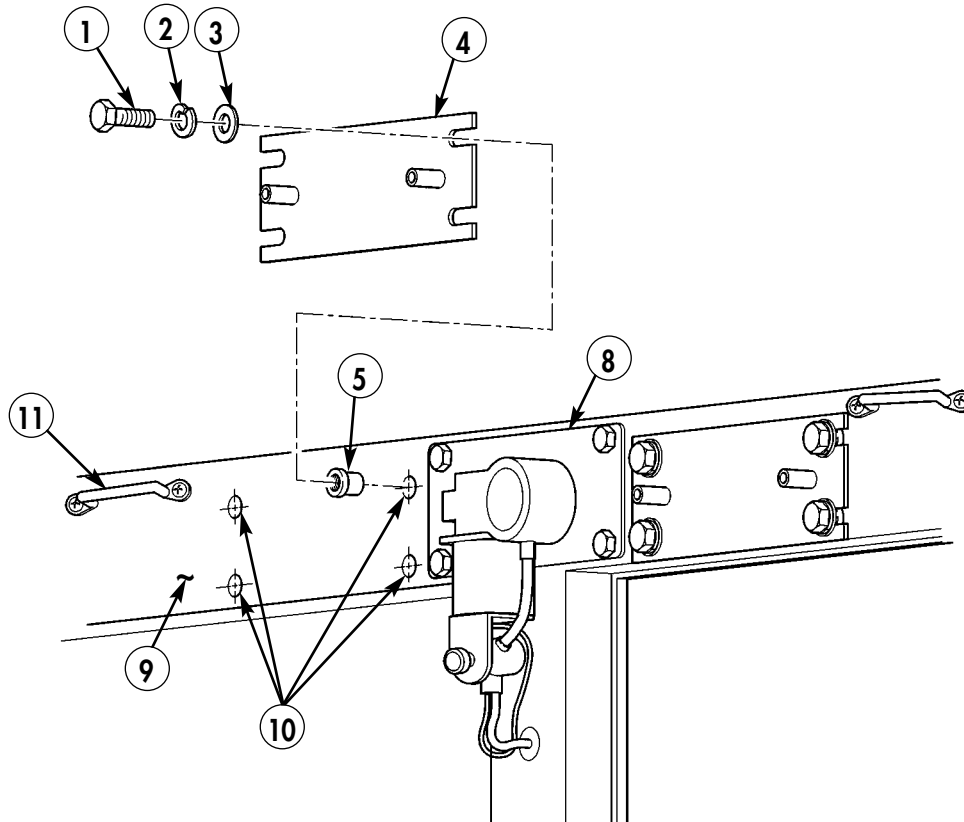
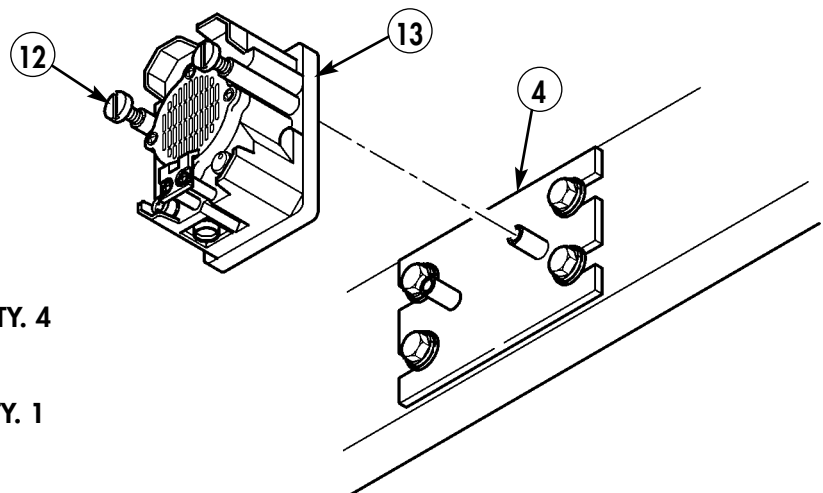


Figure 5-31.

- 9-7. Attach loudspeaker (13) to mounting plate (4) with two externally-relieved body screws (12). Repeat for opposite side.

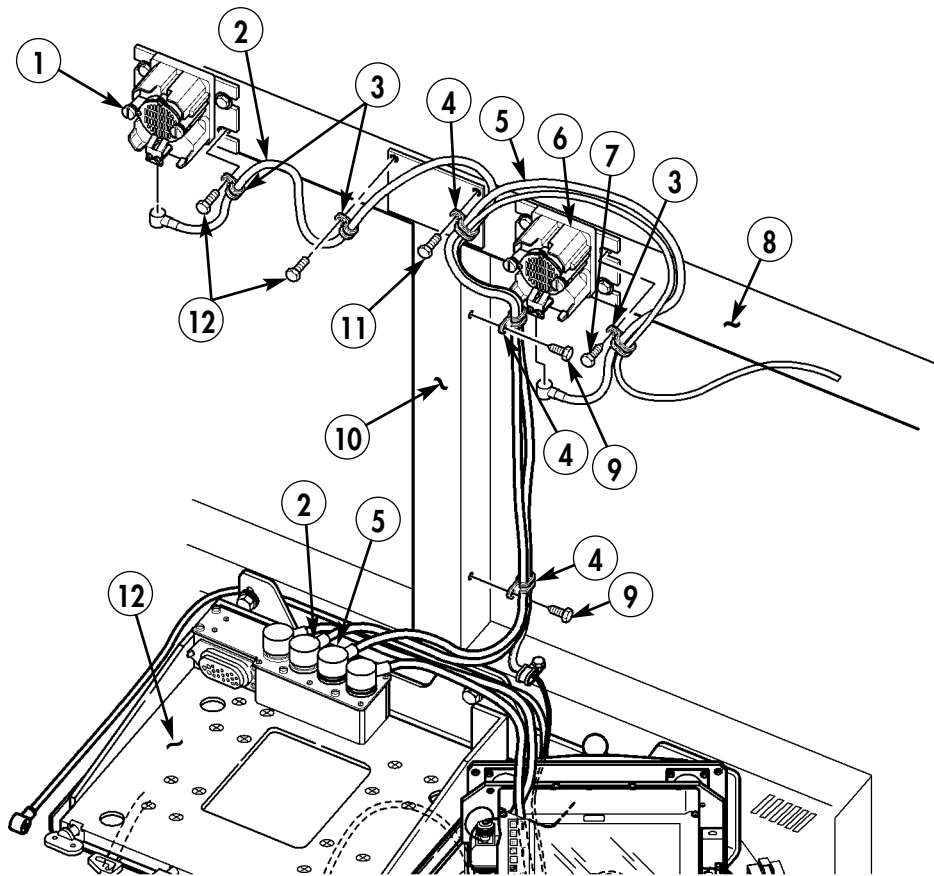


- 1. CAPSCREW - B1821BH025C075N - QTY. 4
- 2. LOCKWASHER -MS35338-44 - QTY. 4
- 3. WASHER - 2436161 - QTY. 4
- 4. MOUNTING PLATE - A3014550-1 - QTY. 1
- 5. INSERT - 12446871-2 - QTY. 4
- 13. LOUDSPEAKER -A3014065-1 -QTY. 2

Figure 5-32.

Section X. LOUDSPEAKER CABLES INSTALLATION

- 10-1.** Route two loudspeaker cables (2) and (5) from mounting base (13) up along windshield center post (10) and secure with three loop clamps (4), two existing self-tapping screws (9), and existing screw (11).
- 10-2.** Route left-side loudspeaker cable (2) along windshield frame (8) and secure with two loop clamps (3) and existing screws (12). Connect speaker cable (2) to left speaker (1).
- 10-3.** Route right-side loudspeaker cable (5) around right speaker (6) and secure to windshield frame (8) with loop clamp (3) and existing screw (7). Connect right speaker cable (5) to right speaker (6).



- 2. LOUDSPEAKER CABLE – A3014038-3 – QTY. 1
- 3. LOOP CLAMP – MS21333-102 – QTY. 3
- 4. LOOP CLAMP – MS21333-104 – QTY. 3
- 5. LOUDSPEAKER CABLE – A3014038-3 – QTY. 1

Figure 5-33.

Section XI. PLGR BRACKET INSTALLATION

11-1. Locate, mark, and drill two 0.218-in. diameter holes (2) in integrated rack (1).

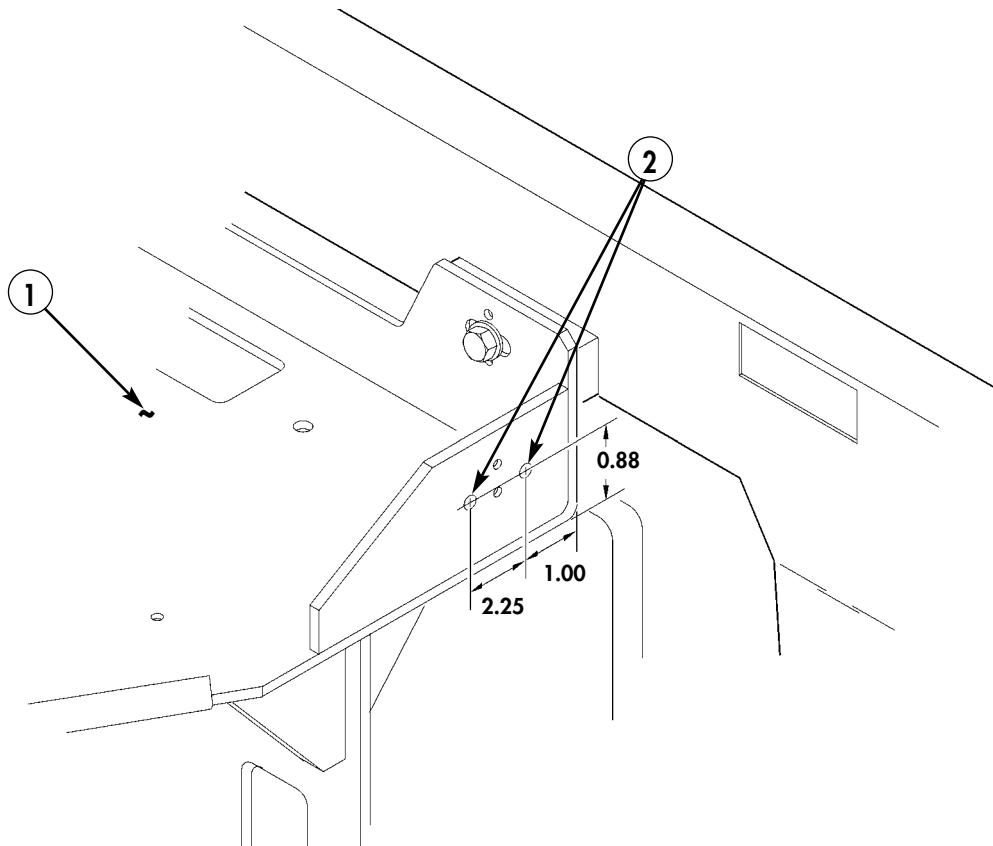
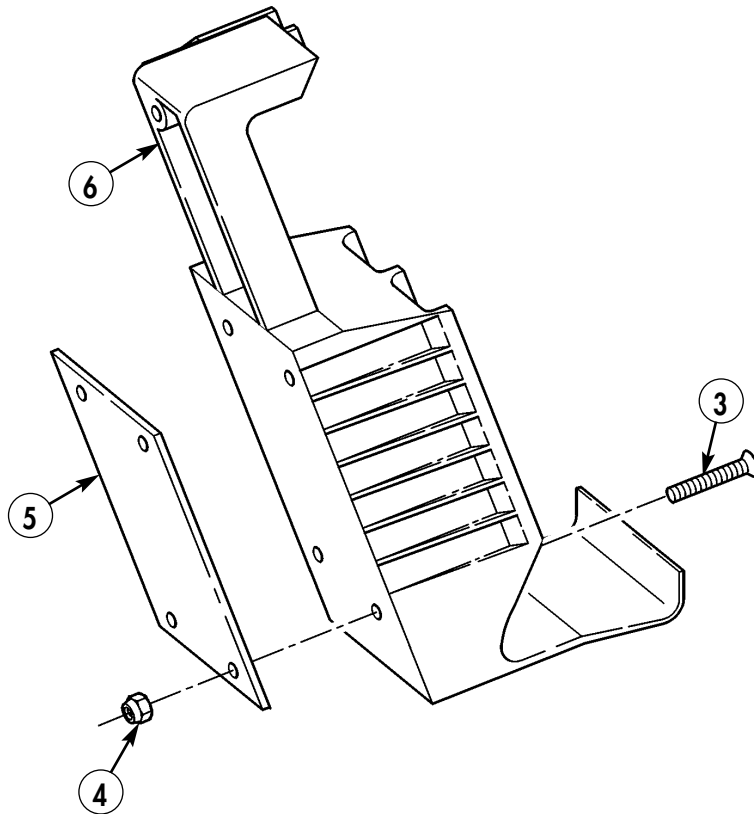


Figure 5-34.

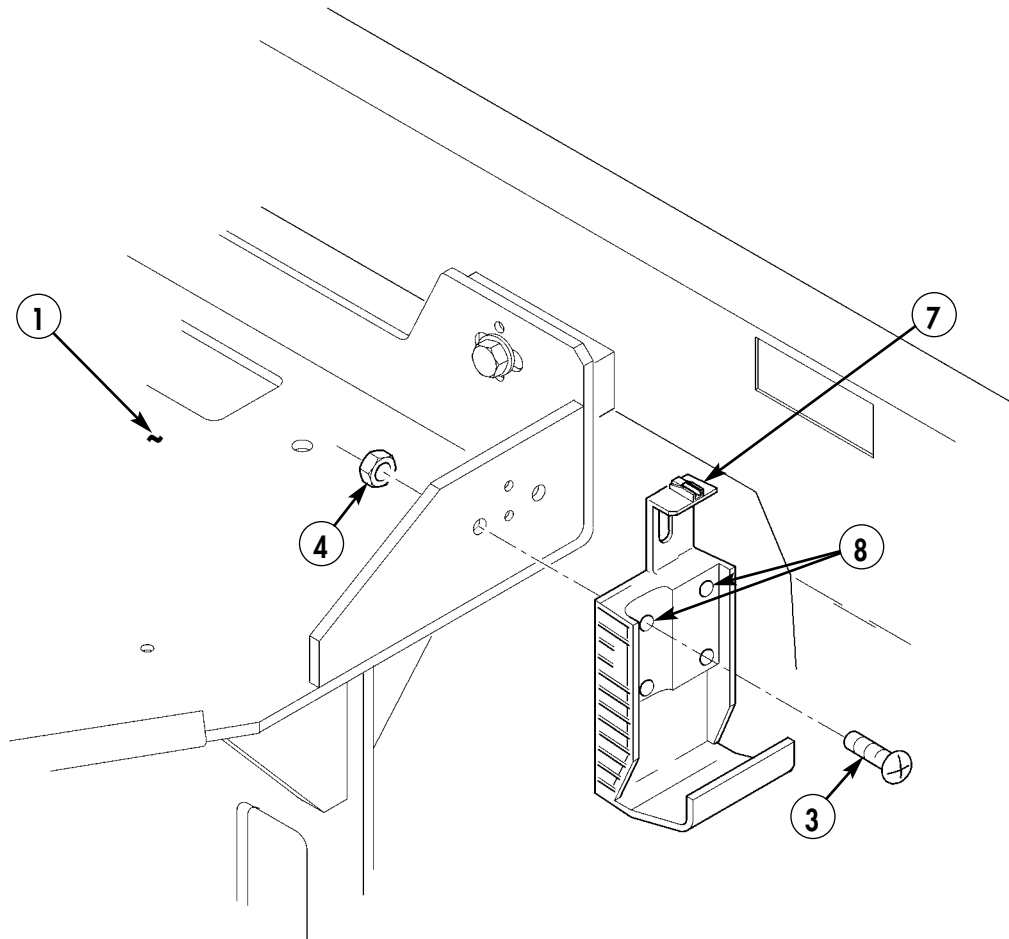
- 11-2. Secure mounting bracket (5) to two lower holes in PLGR bracket (6) with two screws (3) and locknuts (4). Do not tighten locknuts (4).



- 3. SCREW – MS35206-266 – QTY. 2
- 4. LOCKNUT – MS17829-3C – QTY. 2
- 5. MOUNTING BRACKET – 12480575 – QTY. 1
- 6. PLGR BRACKET – 986-0645-001 – QTY.1

Figure 5-35.

11-3. Install PLGR mount assembly (7) on integrated rack (1) with two screws (3) and locknuts (4), using upper holes (8) only. Do not tighten locknuts (4).



- 3. SCREW – MS35206-266 – QTY. 2
- 4. LOCKNUT – MS17829-3C – QTY. 2

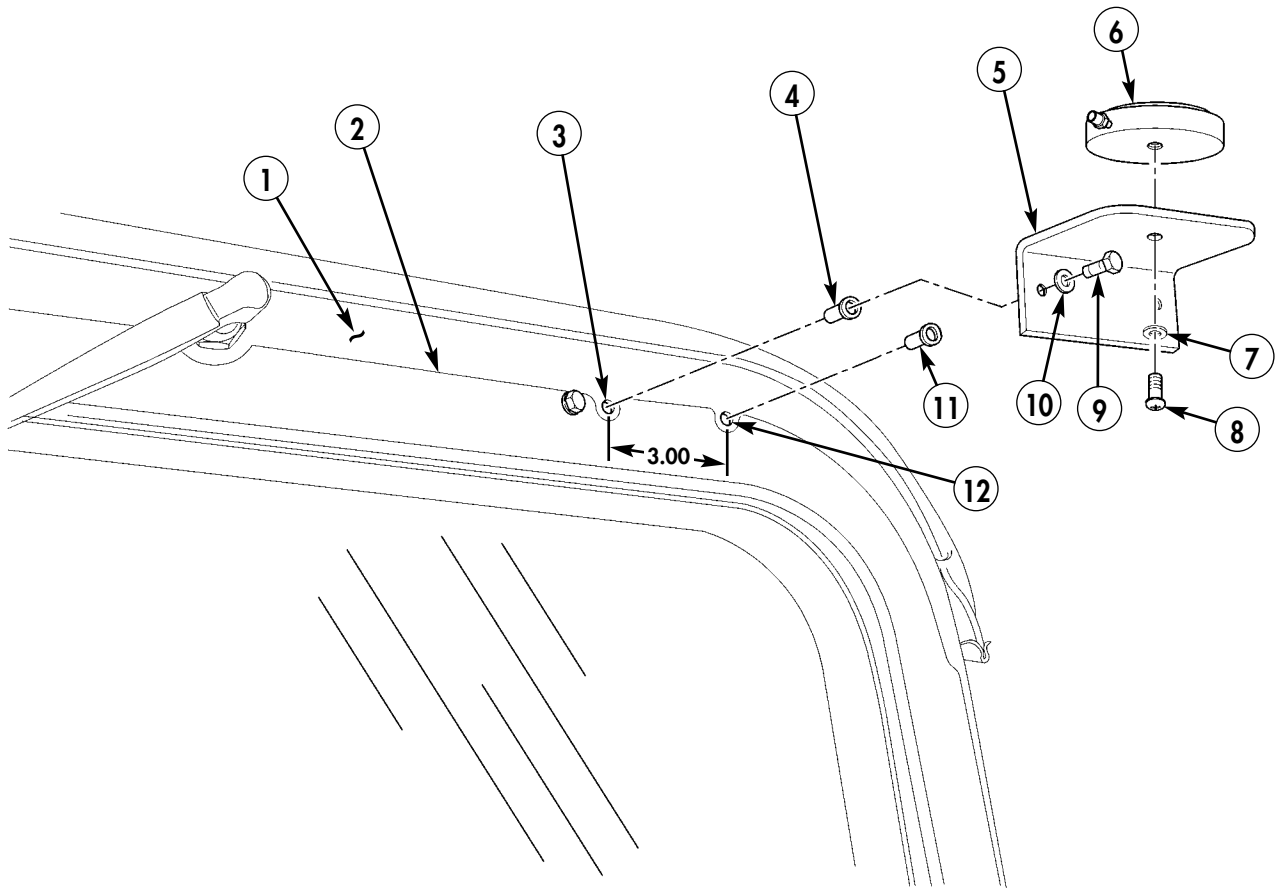
Figure 5-36.

Section XII. PLGR ANTENNA AND CABLE INSTALLATION (WITHOUT BOLT-ON ARMOR)

NOTE

For antenna cable installation with bolt-on armor, see Section XXVIII.

- 12-1. Locate, mark, and drill two 0.50-in. diameter holes (3) and (12) on left side windshield frame (1) between cutouts on windshield retainer (2).
- 12-2. Install wellnuts (4) and (11) in holes (3) and (12).
- 12-3. Install support bracket (5) on windshield frame (1) with two washers (10) and capscrews (9).
- 12-4. Install PLGR antenna (6) on support bracket (5) with lockwasher (7) and screw (8).



- 4. WELLNUT - 12339397-3 - QTY. 1
- 5. SUPPORT BRACKET - 12480578 - QTY. 1
- 6. PLGR ANTENNA - AT575-030 - QTY. 1
- 7. LOCKWASHER - MS35338-43 - QTY. 1
- 8. SCREW - MS35207-261 - QTY. 1
- 9. CAPSCREW - B1821BH025C125N - QTY. 2
- 10. WASHER - 2436161 - QTY. 2
- 11. WELLNUT - 12339397-6 - QTY. 1

Figure 5-37.

- 12-5. Remove wiper access cover (13) from windshield frame (1).
- 12-6. Locate, mark, and drill 0.375-in. diameter hole (14) on windshield frame (1).
- 12-7. Install wiper access cover (13) on windshield frame (1).

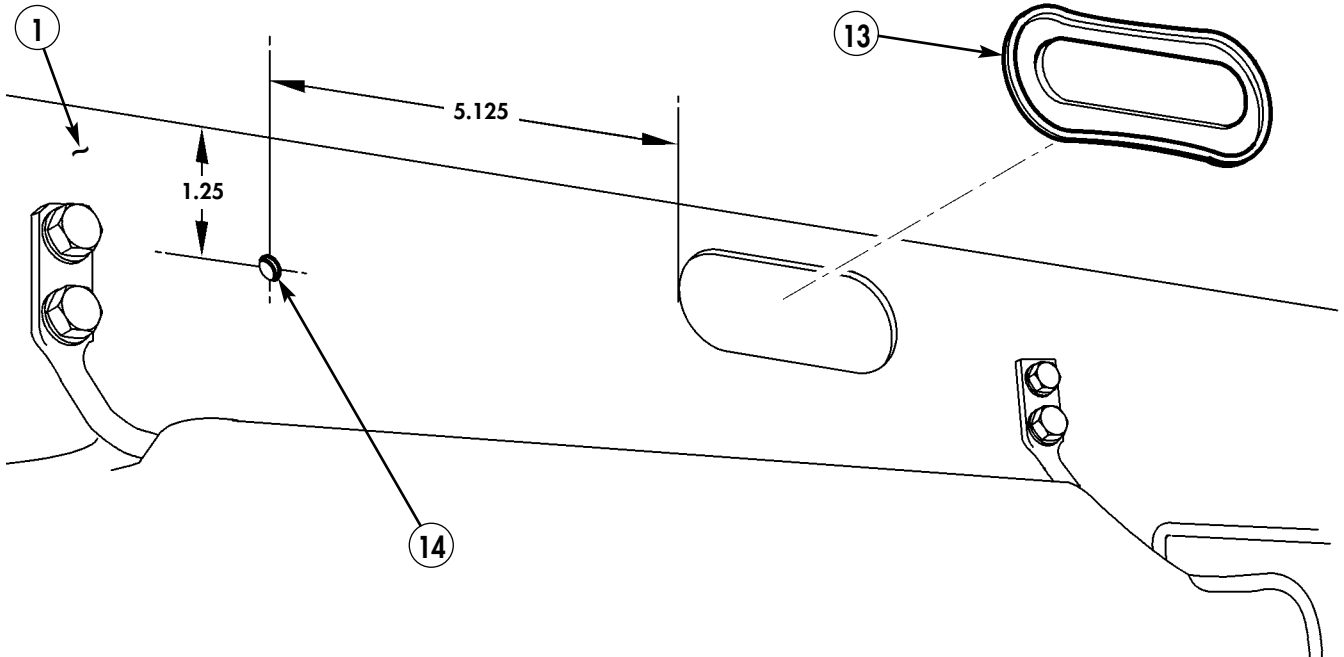


Figure 5-38.

- 12-8. Locate, mark, and drill 0.375-in. diameter hole (15) on windshield frame (1).

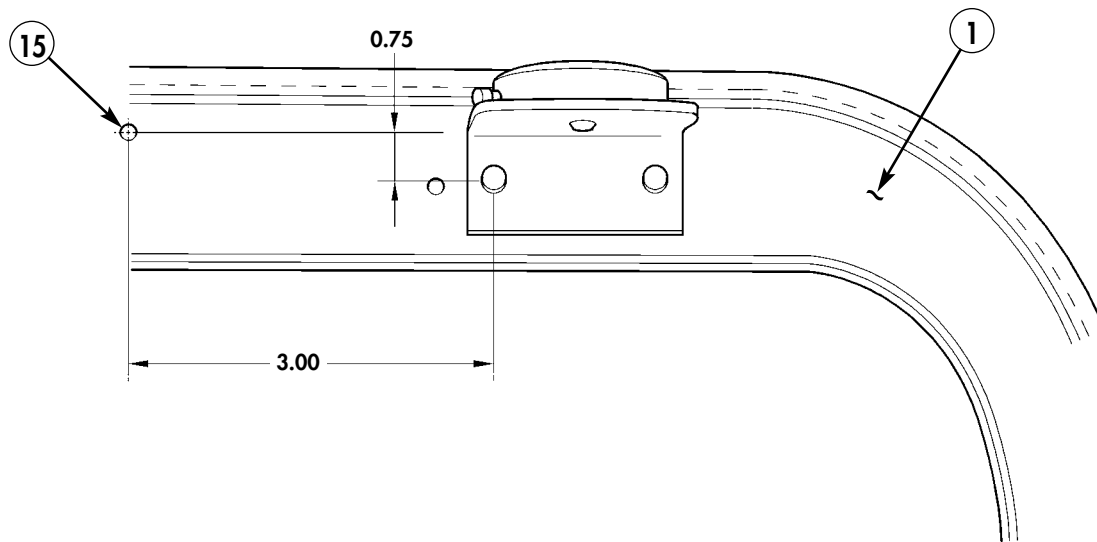


Figure 5-39.

- 12-9. Install antenna cable (17) through holes (14) and (15).
- 12-10. Install antenna cable (17) on PLGR antenna (6).
- 12-11. Split two grommets (16) and install on antenna cable (17) and in holes (14) and (15).
- 12-12. Remove screw (20) and lockwasher (19) from sun visor brace (21).
- 12-13. Install clamp (18) on antenna cable (17) and sun visor brace (21) with lockwasher (19) and screw (20).
- 12-14. Install wiper access cover (13) on windshield frame (1).

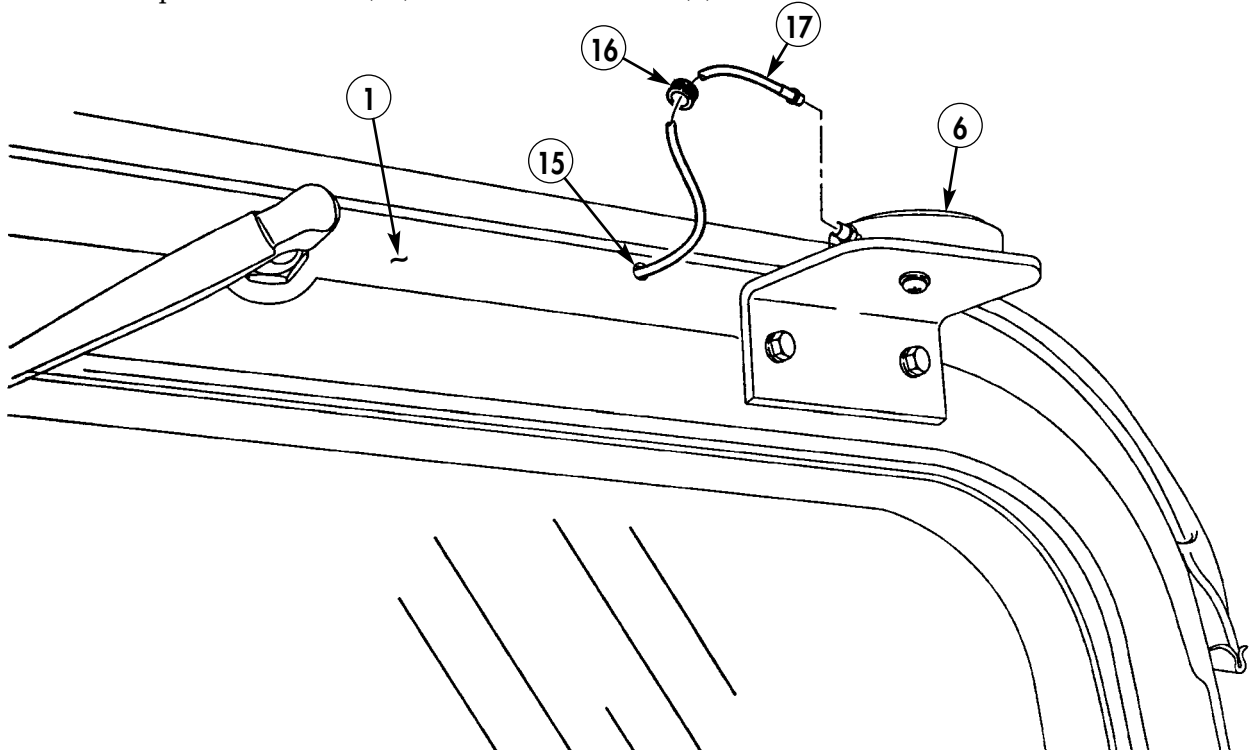
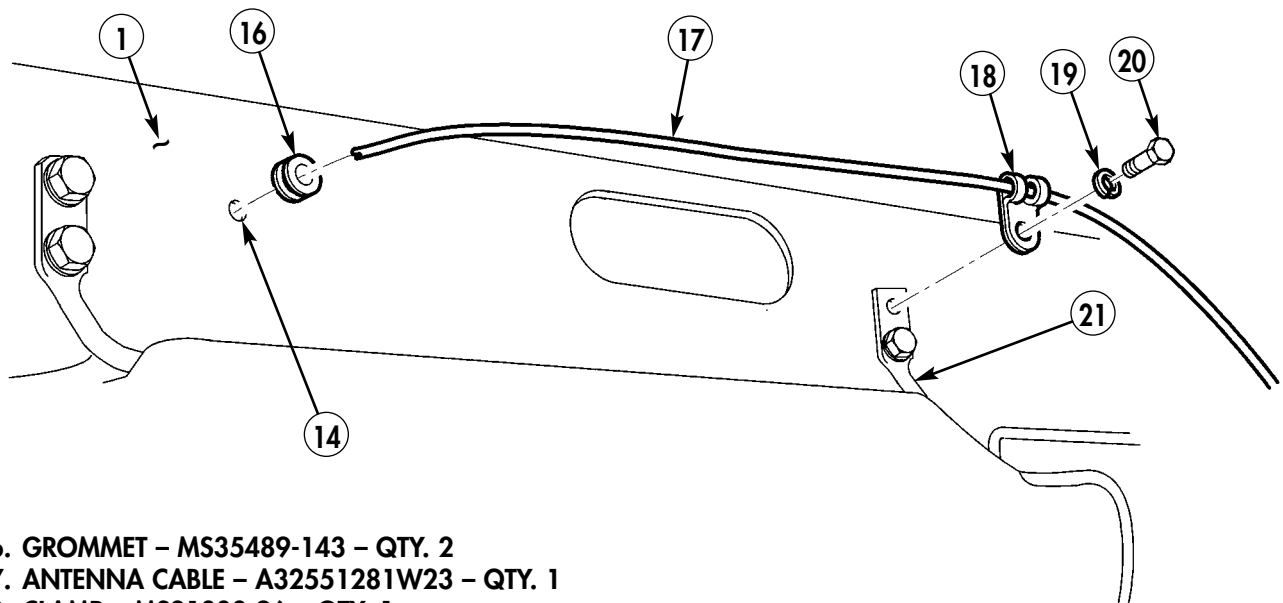


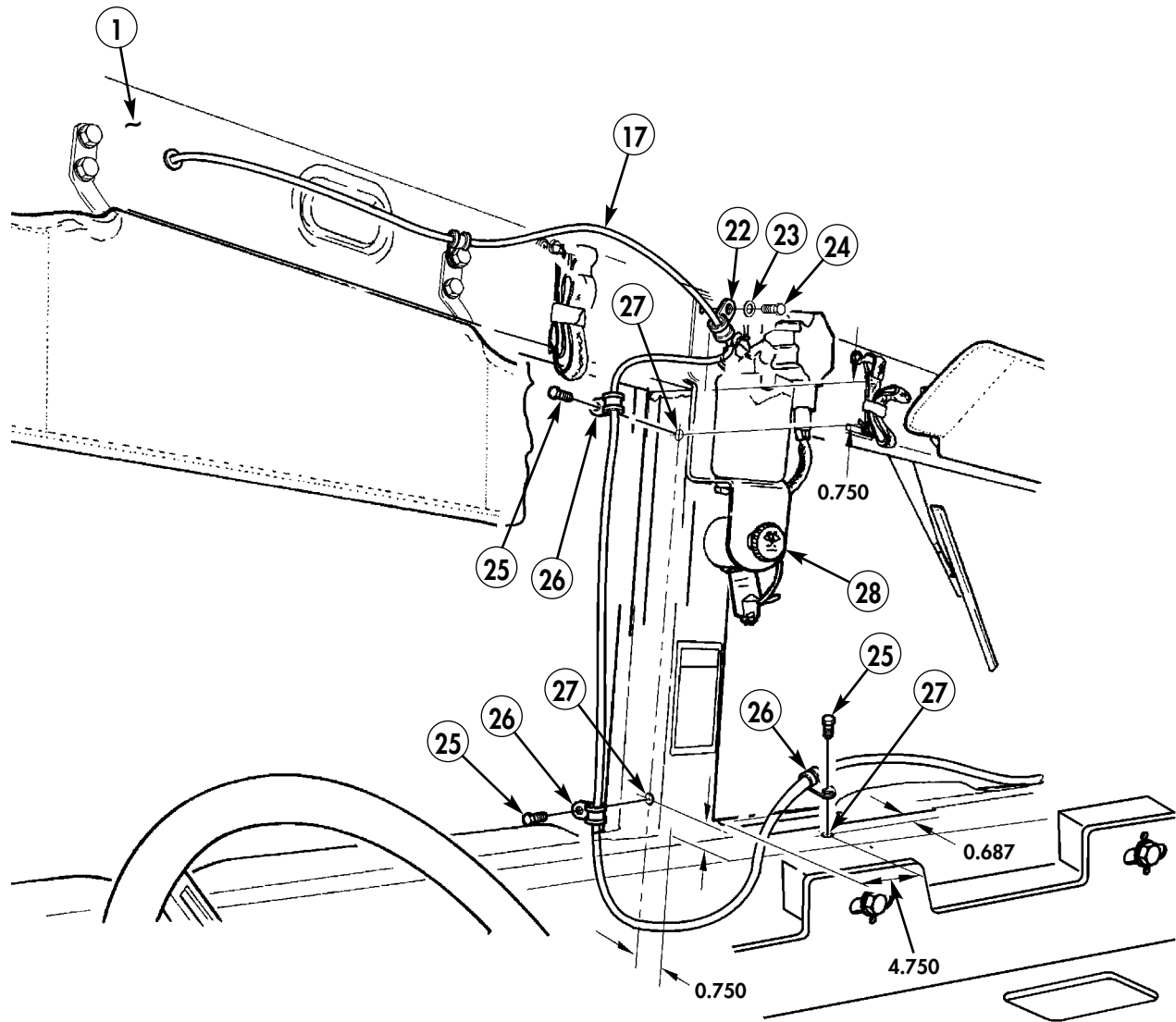
Figure 5-40.



16. GROMMET - MS35489-143 - QTY. 2
 17. ANTENNA CABLE - A32551281W23 - QTY. 1
 18. CLAMP - MS21333-96 - QTY. 1

Figure 5-41.

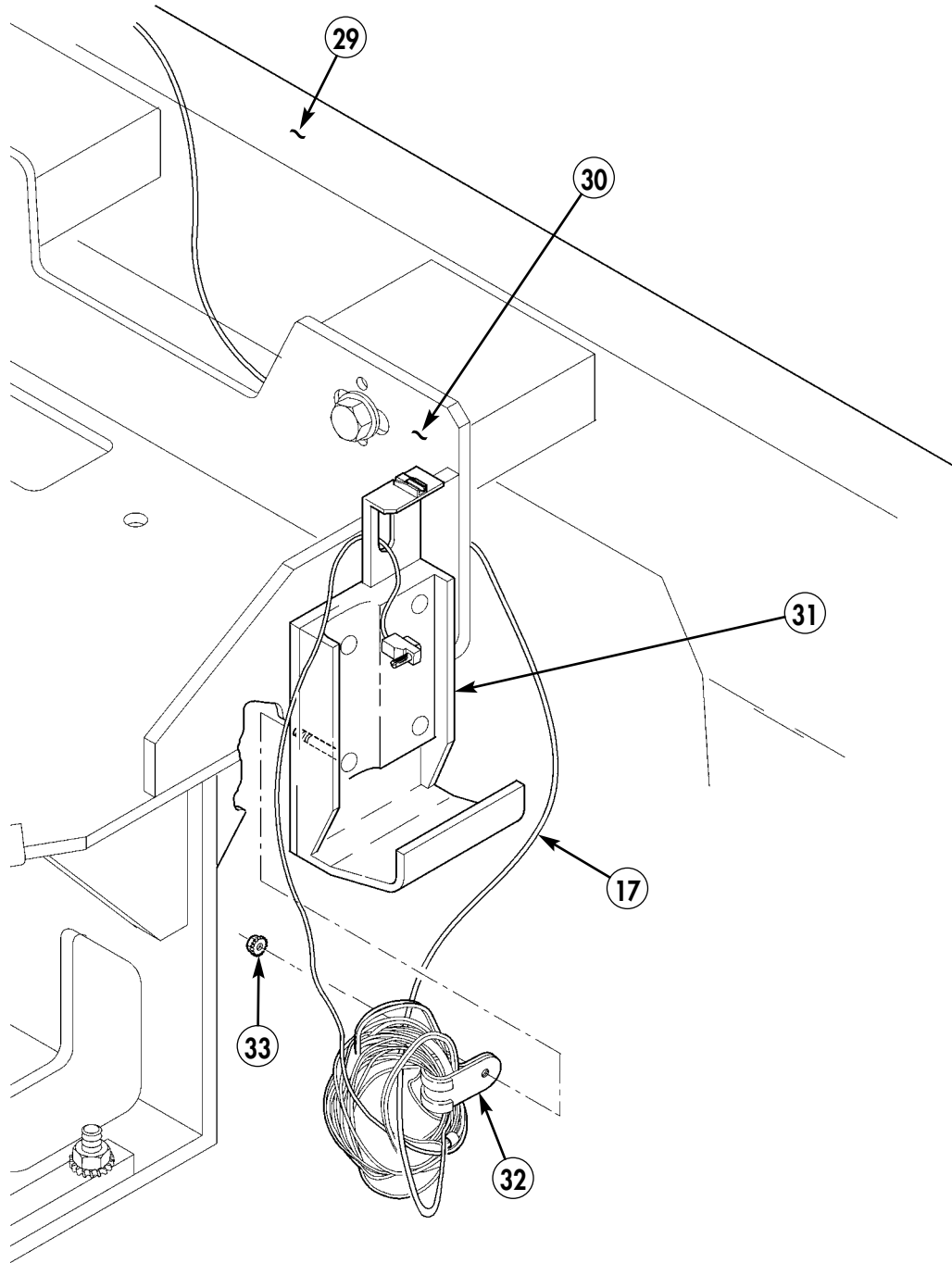
- 12-15. Remove screw (24) and washer (23) from wiper motor (28).
- 12-16. Install clamp (22) on antenna cable (17) and wiper motor (28) with screw (24) and washer (23).
- 12-17. Locate, mark, and drill three 0.147-in. diameter holes (27) in windshield frame (1).
- 12-18. Install three clamps (26) on antenna cable (17) and windshield frame (1) with three screws (25).



- 22. CLAMP - MS21333-96 - QTY. 1
- 25. SCREW - 9421073 - QTY. 3
- 26. CLAMP - MS21333-67 - QTY. 3

Figure 5-41.1.

- 12-19. Route antenna cable (17) between integrated radio rack (30) and plenum (29).
- 12-20. Remove nut (33) from mounting bracket (31).
- 12-21. Secure excess antenna cable (17) with clamp (32) and install clamp (32) on mounting bracket (31) with nut (33).

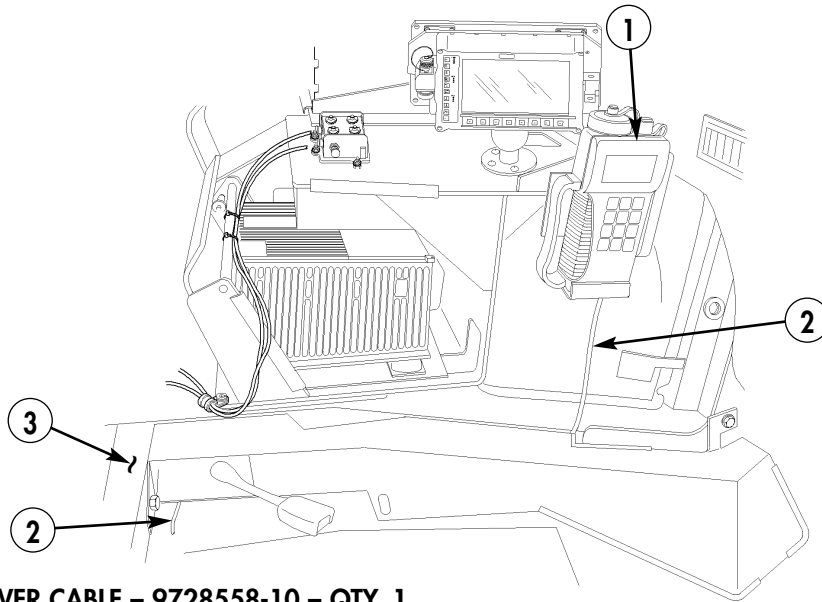


32. CLAMP – MS21333-79 – QTY. 1

Figure 5-41.2.

Section XIII. PLGR POWER CABLE INSTALLATION

13-1. Route PLGR power cable (2) from PLGR assembly (1) to B-beam (3).



2. PLGR POWER CABLE – 9728558-10 – QTY. 1

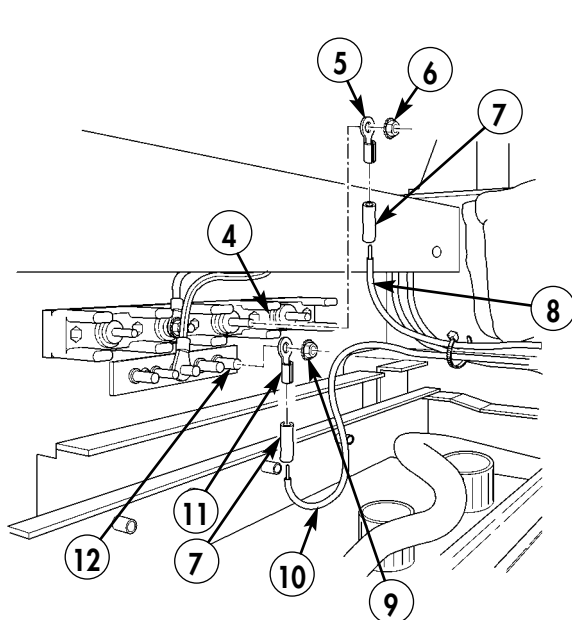
Figure 5-42.

13-2. Attach shrink tubing (7) and terminal lugs (5) and (11) to PLGR power cable negative lead (10) and PLGR power cable positive lead (8). (Refer to TM 9-2320-387-24 for terminal connector repair.)

13-3. Attach PLGR power cable positive lead (8) to 24-volt terminal board stud (4) with existing nut (6).

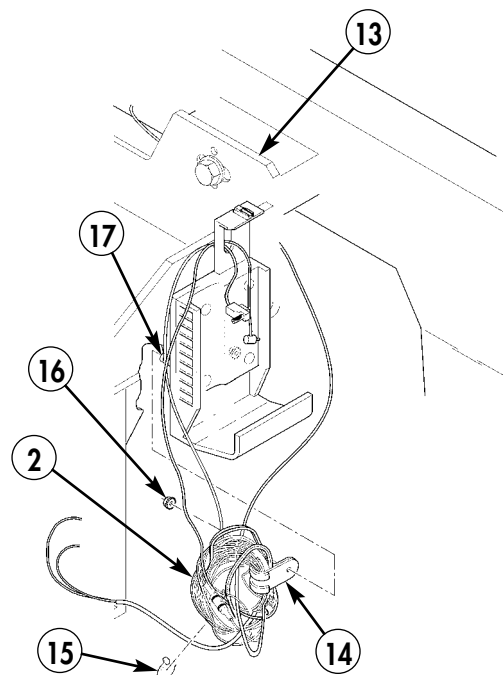
13-4. Attach PLGR power cable negative lead (10) to ground strap stud (12) with existing nut (9).

13-5. Coil excess power cable (2) under integrated rack (13) and secure with clamp (14), screw (17), and nut (16). Secure power cable (2) with tiedown straps (15) as necessary.



5. TERMINAL LUG – 7728780 – QTY. 1
 7. SHRINK TUBING – MS23053/4-302-0 – QTY. A/R
 11. TERMINAL LUG – 7728777 – QTY. 1

Figure 5-43.



14. TIEDOWN STRAP – MS3367-7-0 – QTY. A/R

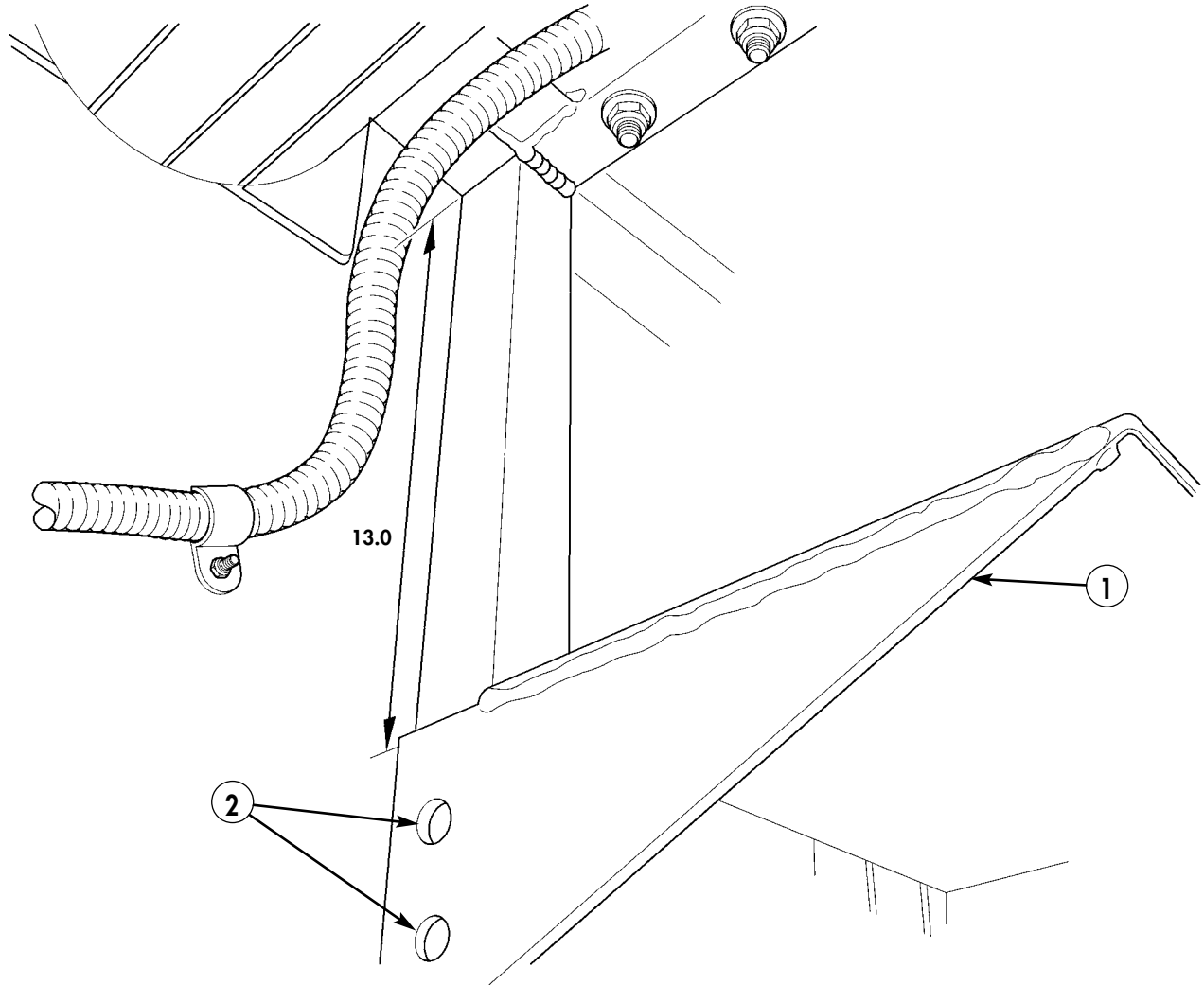
Figure 5-43.1.

Section XIV. EPLRS MOUNTING CABLE INSTALLATION

NOTE

Secure mount to shelf before installing shelf.

- 14-1.** Using shelf (1) as template, locate, mark, and drill four 0.562-in. diameter holes (2).



1. MOUNTING SHELF - A3265968 - QTY. 1

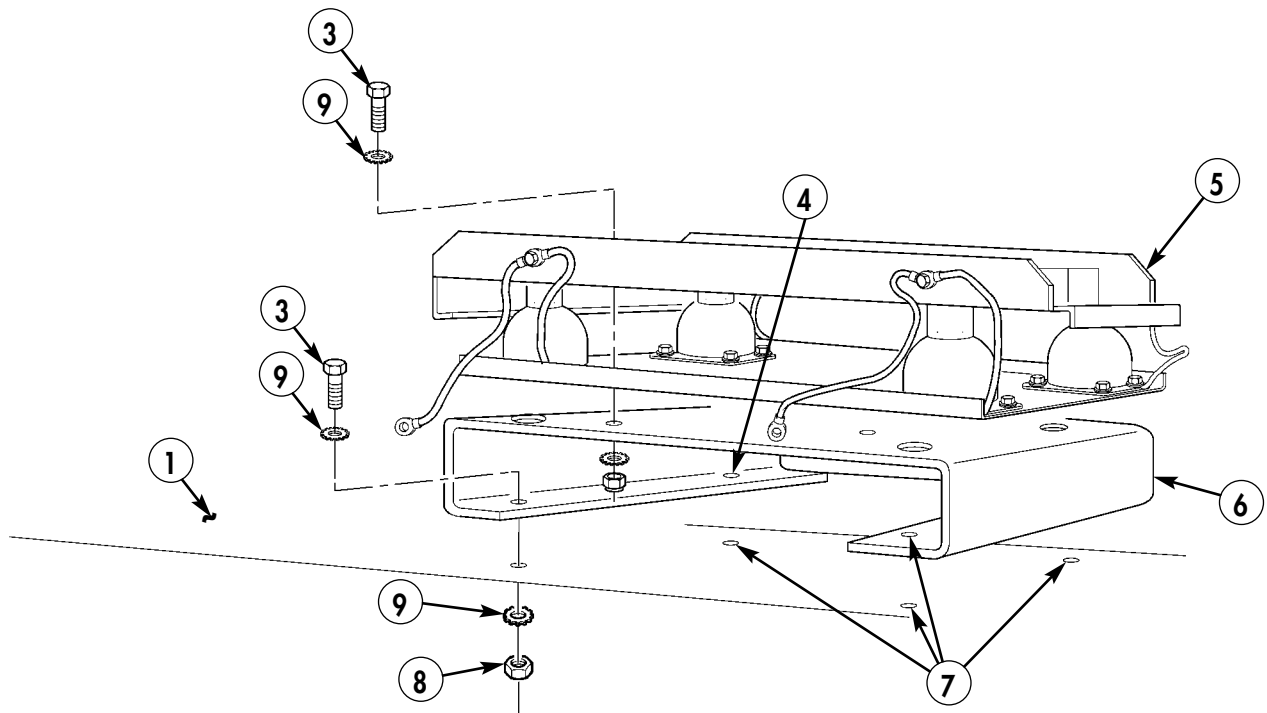
Figure 5-44.

- 14-2. Using EPLRS bracket (6) as template, locate, mark, and drill four 0.531-in. diameter holes (7) in shelf (1).
- 14-3. Enlarge four holes (4) in ELPRS bracket (6) to 0.343-in., and install EPLRS bracket (6) on shelf (1) using four screws (3), eight washers (9), and four nuts (8).

NOTE

Install existing ground in right front hole location when installing resilient mount.

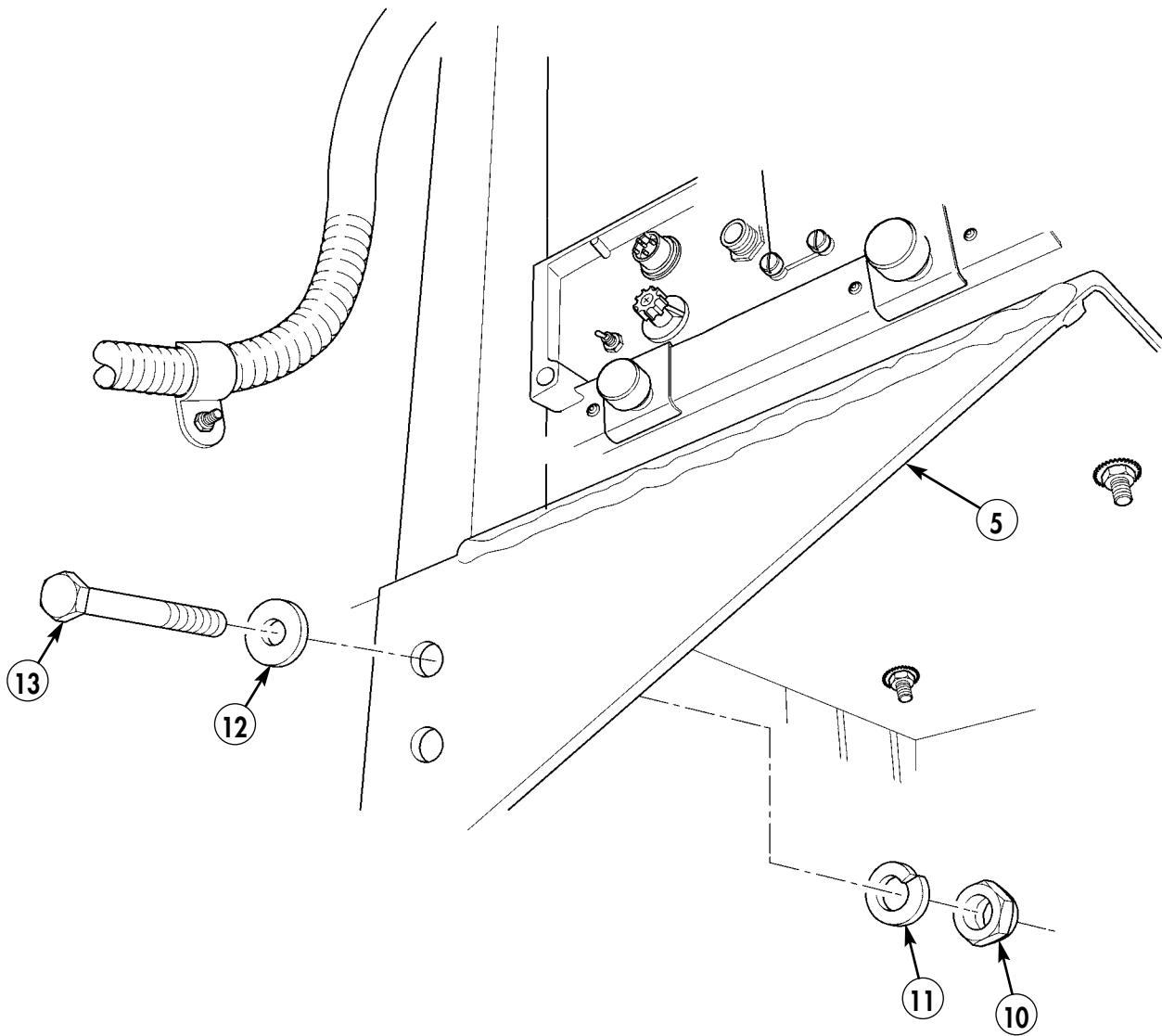
- 14-4. Install resilient mount (5) on EPLRS bracket (6) with four screws (3), eight lockwashers (9), and four nuts (8).



- 3. SCREW,CAP - B1821BH031F125N - QTY. 8
- 5. MOUNT, RESILIENT - MT-6146/VSQ-1 - QTY. 1
- 6. BRACKET, EPLRS - A3046202 - QTY. 1
- 8. NUT - 9418892 - QTY. 8
- 9. LOCK WASHER - MS45904-72 - QTY. 16

Figure 5-45.

14-5. Install shelf (1) with four screws (13), four washers (12), four lockwashers (11), and four nuts (10).



- 10. NUT - 9418892 - QTY. 4
- 11. LOCK WASHER - 12339501 - QTY. 4
- 12. WASHER - 120390 - QTY. 4
- 13. CAPSCREW - BI821BH050F150N - QTY. 4

Figure 5-46.

Section XV. EPLRS URO (USER READOUT) INSTALLATION

- 15-1. Remove and discard two screws (2) and remove URO extension cable bracket (3) from URO bracket (1).

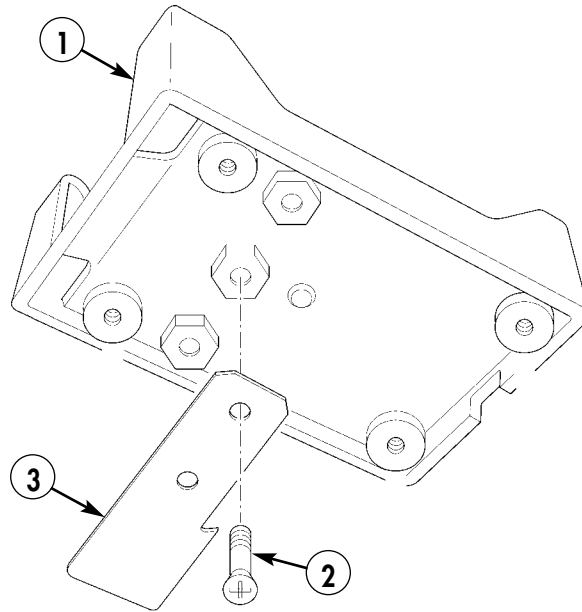
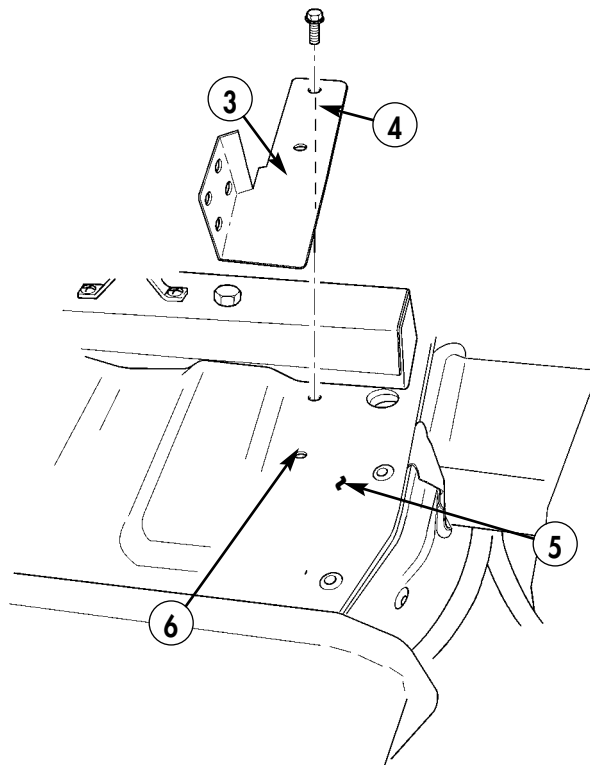


Figure 5-47.

- 15-2. Using URO extension cable bracket (3) as template, locate, mark and drill two 0.147-in. diameter holes (6) on tunnel (5).
- 15-3. Install URO extension cable bracket (3) with two screws (4).



- 4. SELF-TAPPING SCREW - 9416639 - QTY. 2

Figure 5-48.

NOTE

Be sure URO bracket points towards the driver.

- 15-4. Using URO bracket (3) as template, locate, mark, and drill four 0.147-in. diameter holes (8) on tunnel (5) in front of integrated rack (7).

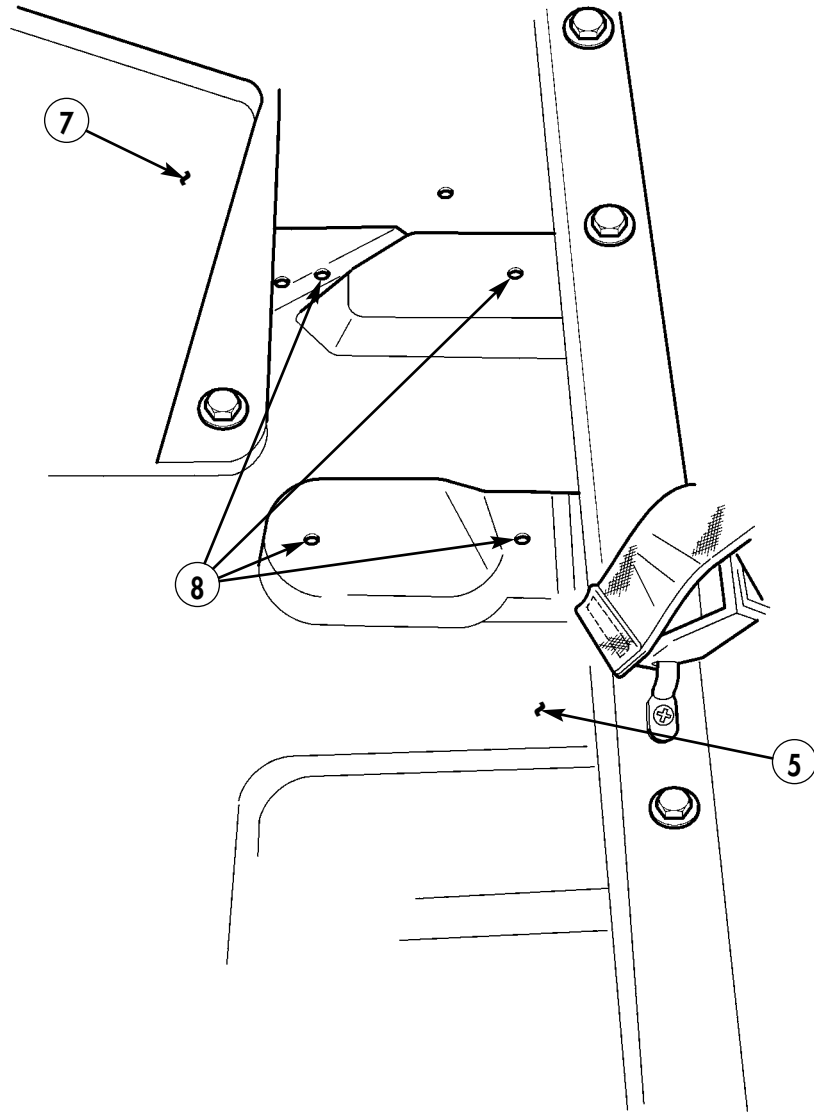


Figure 5-49.

15-5. Install URO bracket (1) with four screws (9), four washers (11), and four spacers (10).

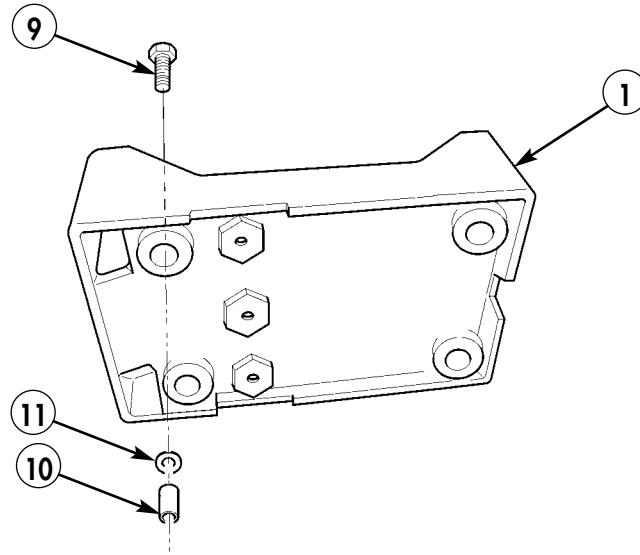


Figure 5-50.

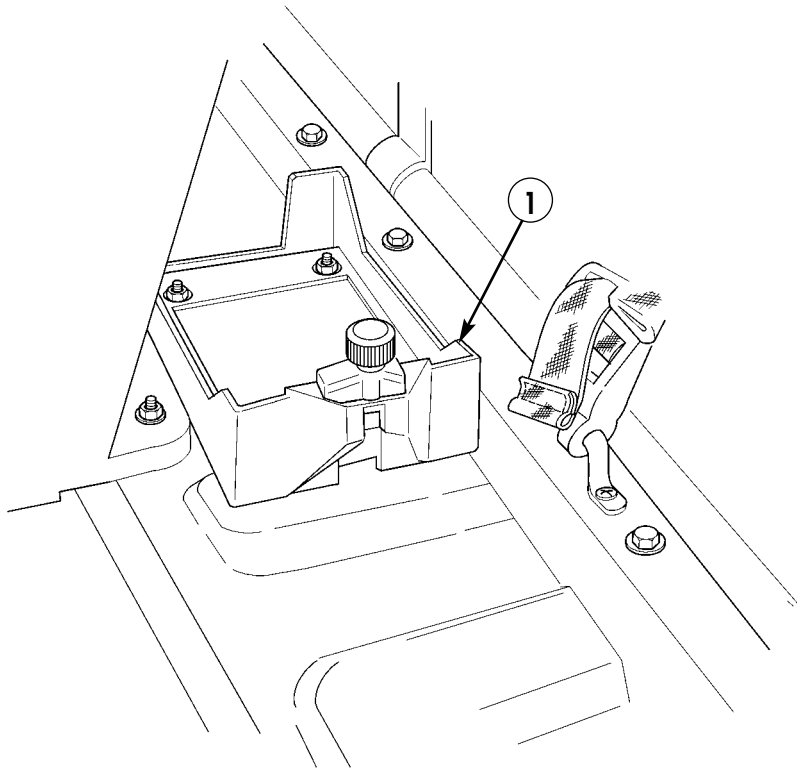


Figure 5-51.

Section XVI. ANTENNA INSTALLATION

- 16-1.** Enlarge four holes (2) to 0.343-in. diameter and remove paint from vicinity of four mounting holes (2) on two antenna base brackets (1).

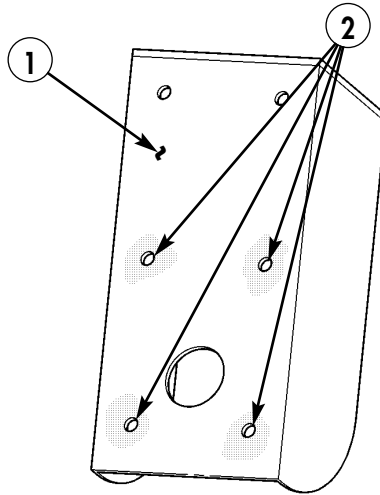
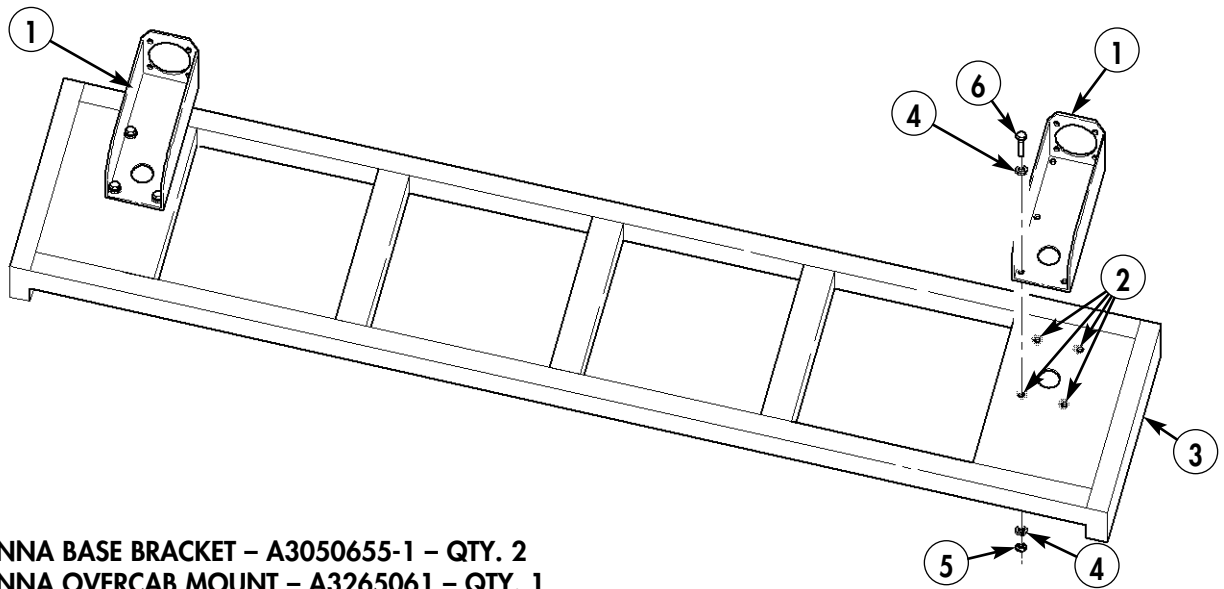


Figure 5-52.

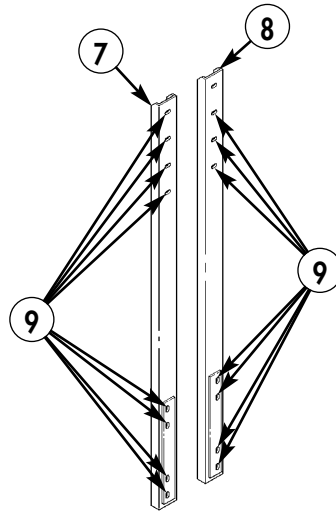
- 16-2.** Using antenna base bracket (10 as template, mark, and drill four 0.343-in. diameter holes (2) in antenna overcab mount (3).
- 16-3.** Remove paint from vicinity of four mounting holes (2) on antenna overcab mount (3). Apply anti-seize compound as required.
- 16-4.** Install two antenna base brackets (1) on front side of antenna overcab mount (3) with eight screws (6), sixteen lockwashers (4), and eight nuts (5).



- 1. ANTENNA BASE BRACKET – A3050655-1 – QTY. 2**
3. ANTENNA OVERCAB MOUNT – A3265061 – QTY. 1
4. LOCKWASHER – MS45904-72 – QTY. 16
5. NUT – 9418892 – QTY. 4
6. SCREW – MS35308-336 – QTY. 8

Figure 5-53.

- 16-5. Remove paint from vicinity of sixteen mounting holes (9) on left overhead rail (7) and right overhead rail (8). Apply anti-seize compound as required.



7. LEFT OVERHEAD RAIL – A3265060-001 – QTY. 1
8. RIGHT OVERHEAD RAIL – A3265060-002 – QTY. 1

Figure 5-54.

NOTE

Perform 16-6 on both sides of antenna overcab mount.

- 16-6. Remove paint from vicinity of four mounting holes (10) on antenna overcab mount (3). Apply anti-seize compound as required. Repeat for opposite side.

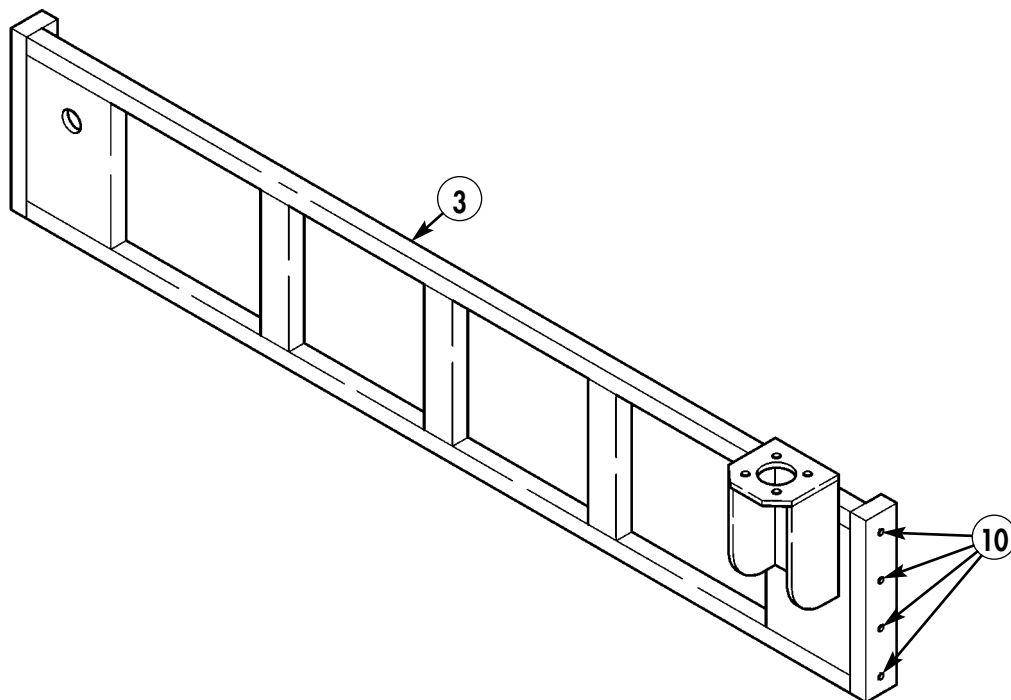


Figure 5-55.

- 16-7. Remove and discard four existing bolts from left and right B-pillars.
- 16-8. Remove paint from vicinity of four holes (11) on left B-pillar mounting (12). Apply anti-seize compound as required.
- 16-9. Install left overhead rail (7) on left B-pillar (12) mounting with four capscrews (13) and four washers (14). Do not tighten capscrews (13).

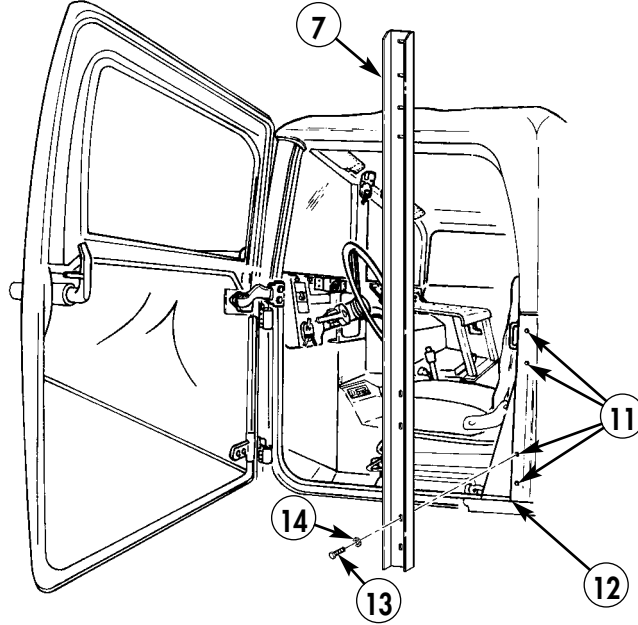
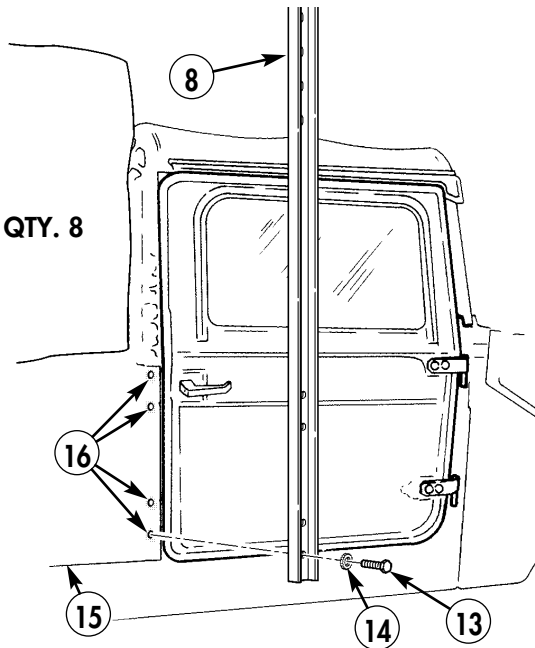


Figure 5-56.

- 16-10. Remove paint from vicinity of four holes (16) on right B-pillar mounting (15). Apply anti-seize compound as required.
- 16-11. Install right overhead rail (8) on right B-pillar mounting (15) with four capscrews (13) and four washers (14). Do not tighten capscrews (13).



- 13. CAPSCREW - B1821BH025C138N - QTY. 8
- 14. WASHER - 2436161 - QTY. 8

Figure 5-57.

- 16-12.** Install antenna overcab mount (3) on left overhead rail (7) and right overhead rail (8) with seven capscrews (17) and seven lockwashers (18), omitting one left-side screw and lockwasher (third from top). Tighten lower left rail and right rail capscrews (13) to B-pillar. (Refer to figures 5-56 and 5-57.)

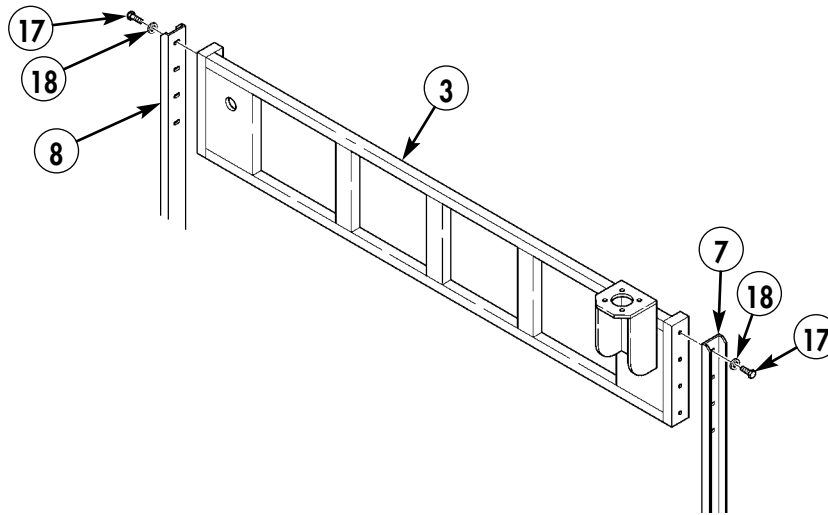


Figure 5-58.

- 16-13.** Remove paint from vicinity of left overhead rail hole (9). Apply anti-seize compound as required.
16-14. Fabricate ground strap (22) from 6-in. length of braided wire and two terminal lugs.
16-15. Install ground strap (22) on left overhead rail (7) with capscrew (17) and two lockwashers (18).
16-16. Locate, mark, and drill 0.281-in. diameter hole (19). Apply anti-seize compound as required.
16-17. Remove paint from vicinity of antenna overcab mount (19). Apply anti-seize compound as required.
16-18. Install ground strap (22) on antenna overcab mount (3) with capscrew (23), two lockwashers (18), washer (20), and nut (21).

- 17. CAPSCREW – B1821BH025C100N – QTY. 8**
18. LOCKWASHER – MS45904-71 – QTY. 11
20. WASHER – 2436161 – QTY. 1
21. NUT – 9419143 – QTY. 1
22. GROUND STRAP
 • BRAIDED WIRE – AA59569F30T0375 – QTY. A/R
 • TERMINAL LUG – MS20659-141 – QTY. 2
23. CAPSCREW – B1821BH025C075N – QTY. 1

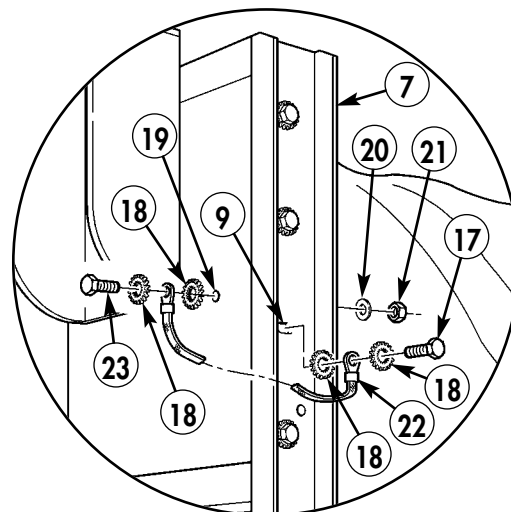
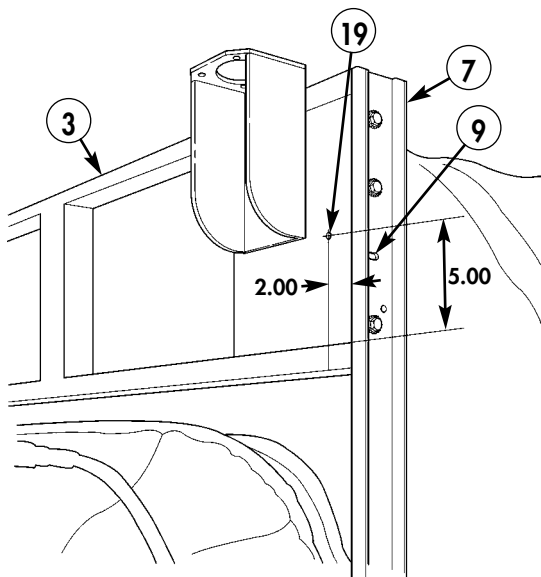
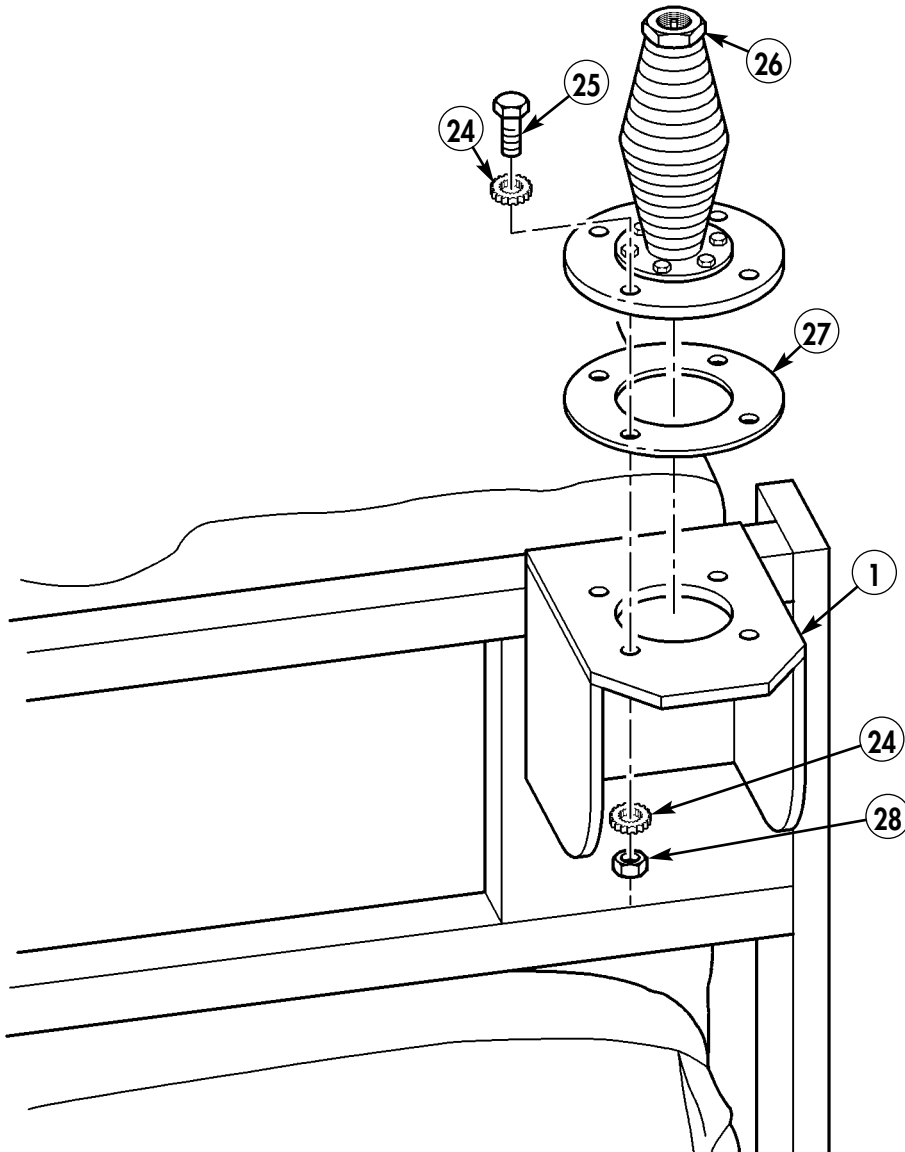


Figure 5-59.

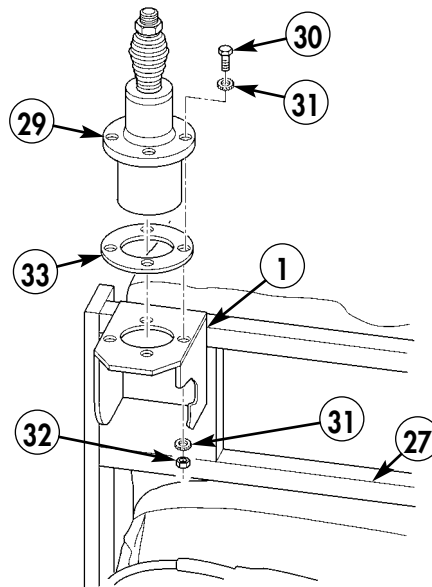
16-19. Install antenna (26) on antenna base bracket (1) with four capscrews (25), eight lockwashers (24), gasket (27), and four nuts (28).



- 24. LOCKWASHER - MS45904 - QTY. 8
- 25. CAPSCREW - B1821BH038C150N - QTY. 4
- 26. ANTENNA - A3005031 - QTY. 1
- 27. GASKET - A3013655-1 - QTY. 1
- 28. NUT - 132180320-293 - QTY. 4

Figure 5-60.

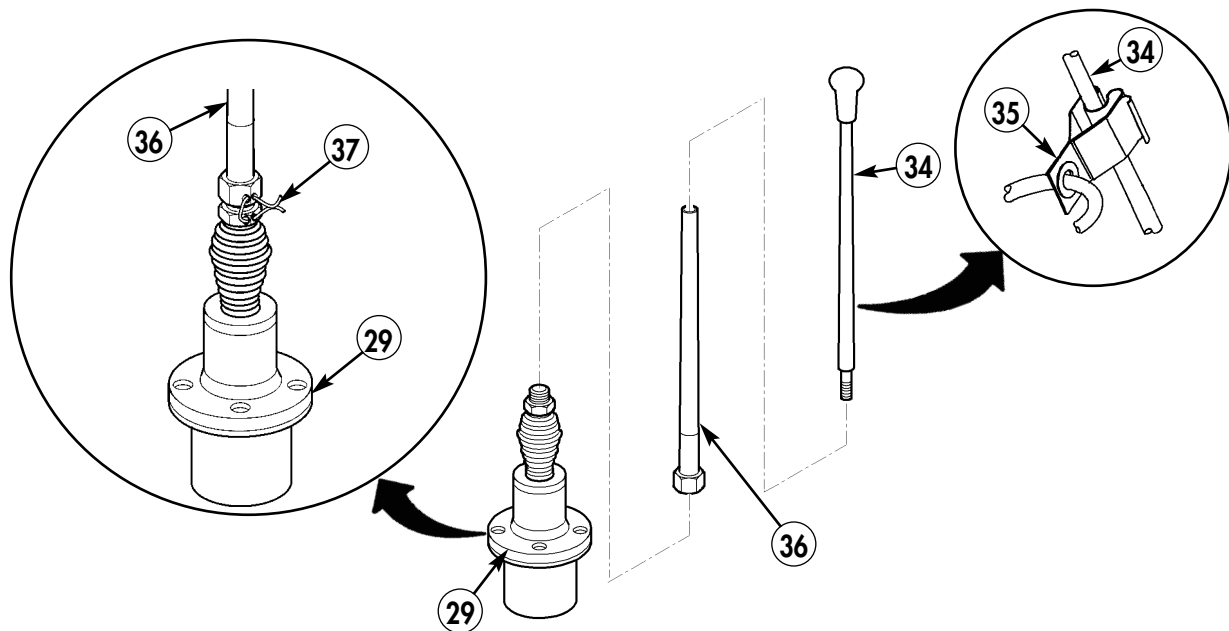
- 16-20. Position antenna with base (29) and gasket (33) on antenna bracket (1) and feed existing ground strap through antenna base bracket (1).
- 16-21. Attach antenna with base (29) to antenna base bracket (1) with four screws (30), eight lockwashers (31), and four nuts (32).



- 29. ANTENNA - A3017899-2 - QTY. 8
- 30. SCREW - MS35307-365 - QTY. 4
- 31. LOCKWASHER - MS45904-72 - QTY. 8
- 32. NUT - 13218E0320 - QTY. 4
- 33. GASKET - A3013655-1 - QTY. 1

Figure 5-61.

- 16-22. Attach upper antenna element (34) to lower antenna element (36).
- 16-23. Attach antenna assembly to antenna base (29).
- 16-24. Attach fiber rope assembly (35) to upper antenna element (34).
- 16-25. Secure lower antenna element (36) to antenna base (29) with lockwire (37).



- 34. UPPER ANTENNA ELEMENT - A3017901-2 - QTY. 2
- 36. LOWER ANTENNA ELEMENT - A3018230-1 - QTY. 2
- 37. LOCKWIRE - MS20995C32 - QTY. A/R

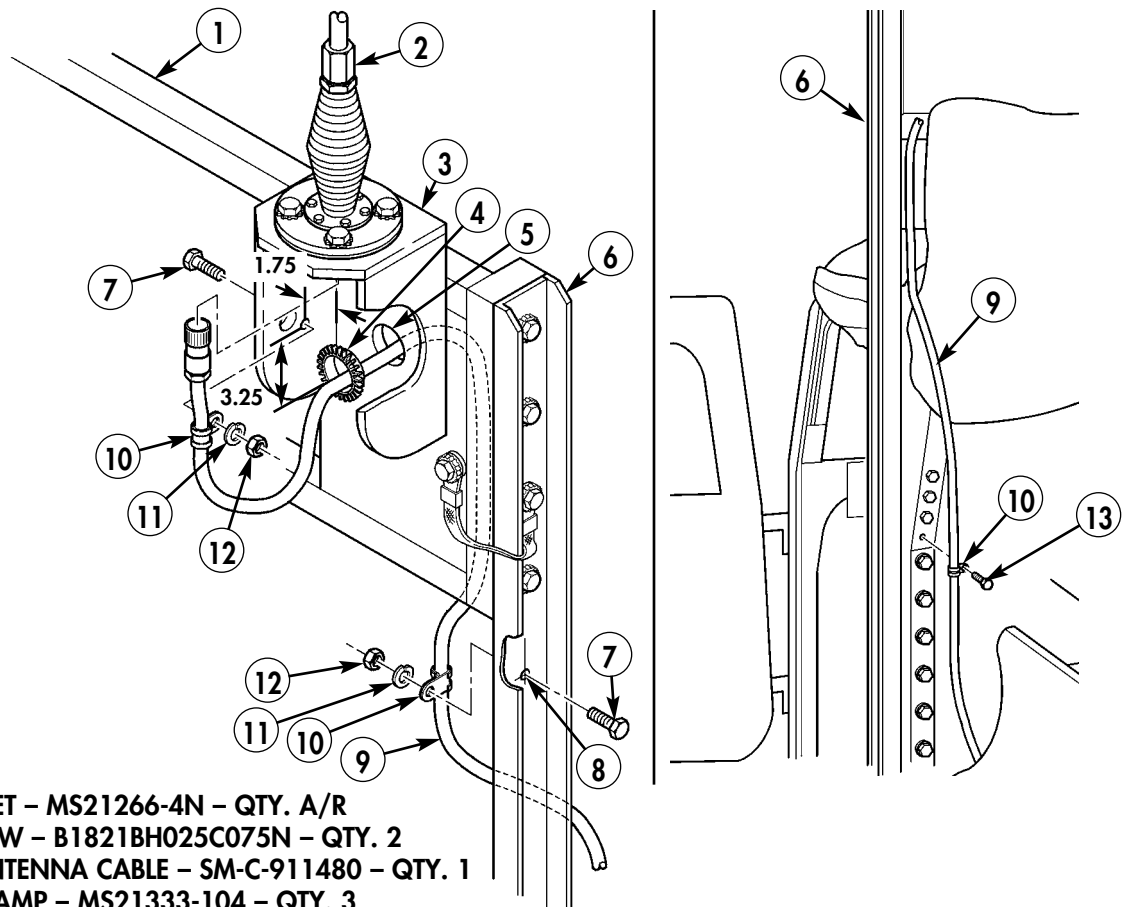
Figure 5-61.1.

Section XVII. CABLES INSTALLATION

NOTE

- If soft top has been installed, roll back to allow clearance for routing of antenna cable in steps 17-2 through 17-5.
- Lay out all cables in their approximate positions before clamps are installed. This will minimize the length, and ensure all slack is taken out of all cables from front of vehicle to rear.
- Excess slack in all cables will be stored under EPLRS mount assembly.
- It may be necessary to drill one 0.281-in. diameter hole in left side of antenna base bracket for antenna cable clamp. (Refer to figure 5-62.)

- 17-1. Locate, mark, and drill 0.281-in. diameter hole (8) in left overhead rail (6).
- 17-2. Route antenna cable (9) through hole (5) in overcab mount (1) and antenna base bracket (3), and connect to antenna (2).
- 17-3. Install grommet (4) in antenna base bracket (3) and overcab mount (1).
- 17-4. Secure antenna cable (9) to left overhead rail (6) and antenna base bracket (3) with two loop clamps (10), two capscrews (7), two lockwashers (11), and two nuts (12).
- 17-5. Route antenna cable (9) down along left overhead rail (6) and secure with loop clamp (10) and existing screw (13).
- 17-6. Route antenna cable (9) to B-beam.



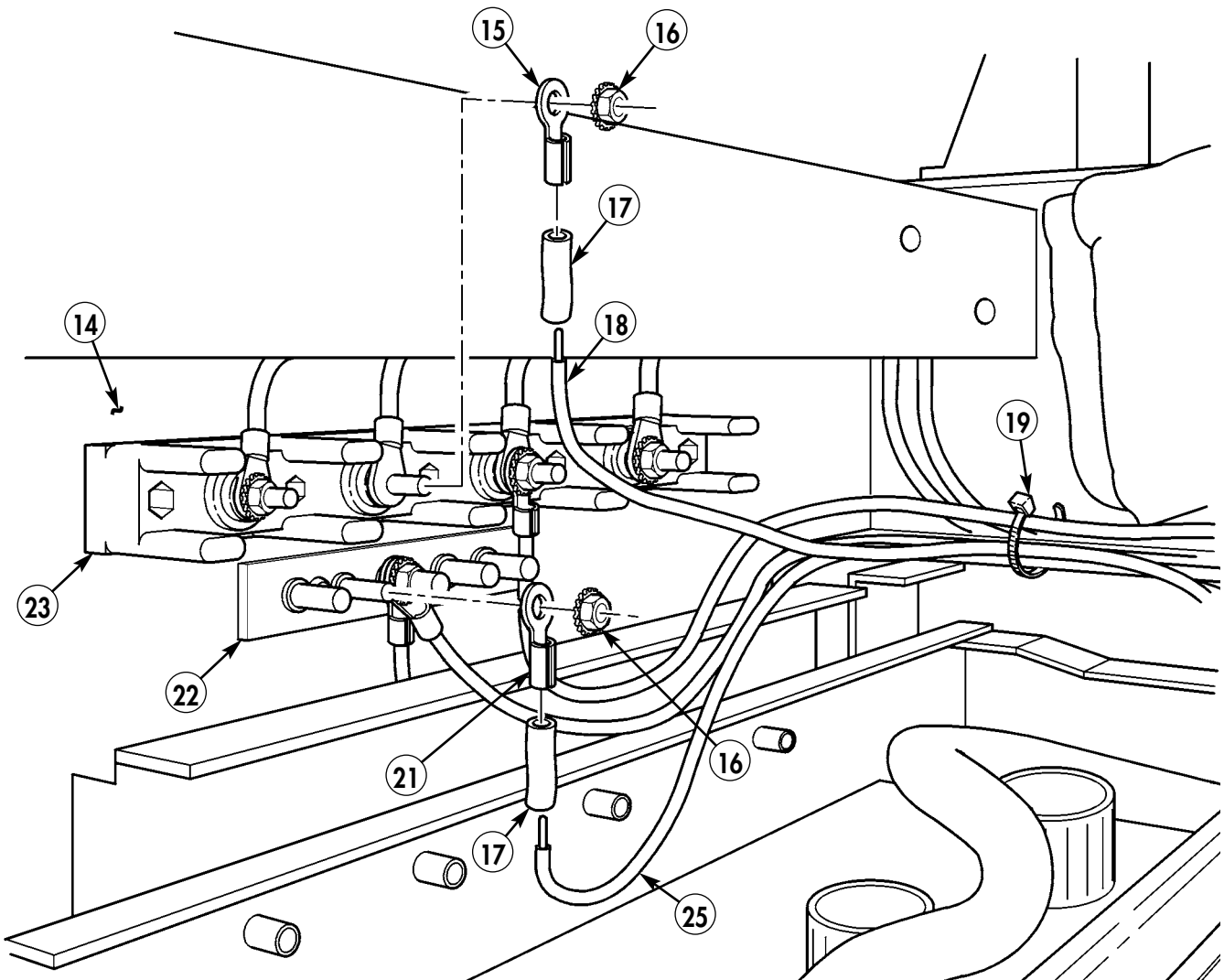
4. GROMMET – MS21266-4N – QTY. A/R
7. CAPSCREW – B1821BH025C075N – QTY. 2
9. EPLRS ANTENNA CABLE – SM-C-911480 – QTY. 1
10. LOOP CLAMP – MS21333-104 – QTY. 3
11. LOCKWASHER – MS35338-44 – QTY. 2
12. NUT – 9419143 – QTY. 2

Figure 5-61.

NOTE

Loosen right-side tunnel insulation before performing step 17-7.
(Refer to TM 9-2320-387-24.)

- 17-7. Route power cable (27) under right-side tunnel insulation (28) towards terminal board. (Refer to figure 5-64.)
- 17-8. Attach heat shrink tubing (17) and two terminal lugs (15) and (21) to power cable negative lead (20) and power cable positive lead (18). (Refer to TM 9-2320-387-24 for terminal connector repair.)
- 17-9. Connect power cable positive lead (18) to 24V terminal board (23) located on cab enclosure panel (14) with existing nut (16).
- 17-10. Connect power cable negative lead (20) to ground strap (22) located on cab enclosure panel (14) with existing nut (16). Secure leads together with tiedown strap (19).
- 17-11. Secure right-side tunnel insulation. (Refer to TM 9-2320-387-24.)



- 15. TERMINAL LUG - 7728780 - QTY. 1
- 17. SHRINK TUBING - MS23053/4-302-0 - QTY. A/R
- 19. TIEDOWN STRAP - MS3367-1-0 - QTY. A/R
- 21. TERMINAL LUG - 7728777 - QTY. 1

Figure 5-63.

NOTE

Loosen left-side tunnel insulation before performing step 17-12.
(Refer to TM 9-2320-387-24.)

- 17-12. Route INC-EPUU cable (24) from integrated rack (26) down through center access hole (25) and under left-side tunnel insulation (35) towards rear of vehicle.
- 17-13. Route power cable (27) forward and under integrated rack (26) and under left-side tunnel insulation (35) towards rear of vehicle.
- 17-14. Route URO extension cable (33) towards URO cable bracket (32) and URO mount (29) and connect to URO cable bracket (32) with four screws (34), four lockwashers (31), and four nuts (30). Route remaining URO extension cable (33) towards rear of vehicle.
- 17-15. Secure left-side tunnel insulation (35). (Refer to TM 9-2320-387-24.)

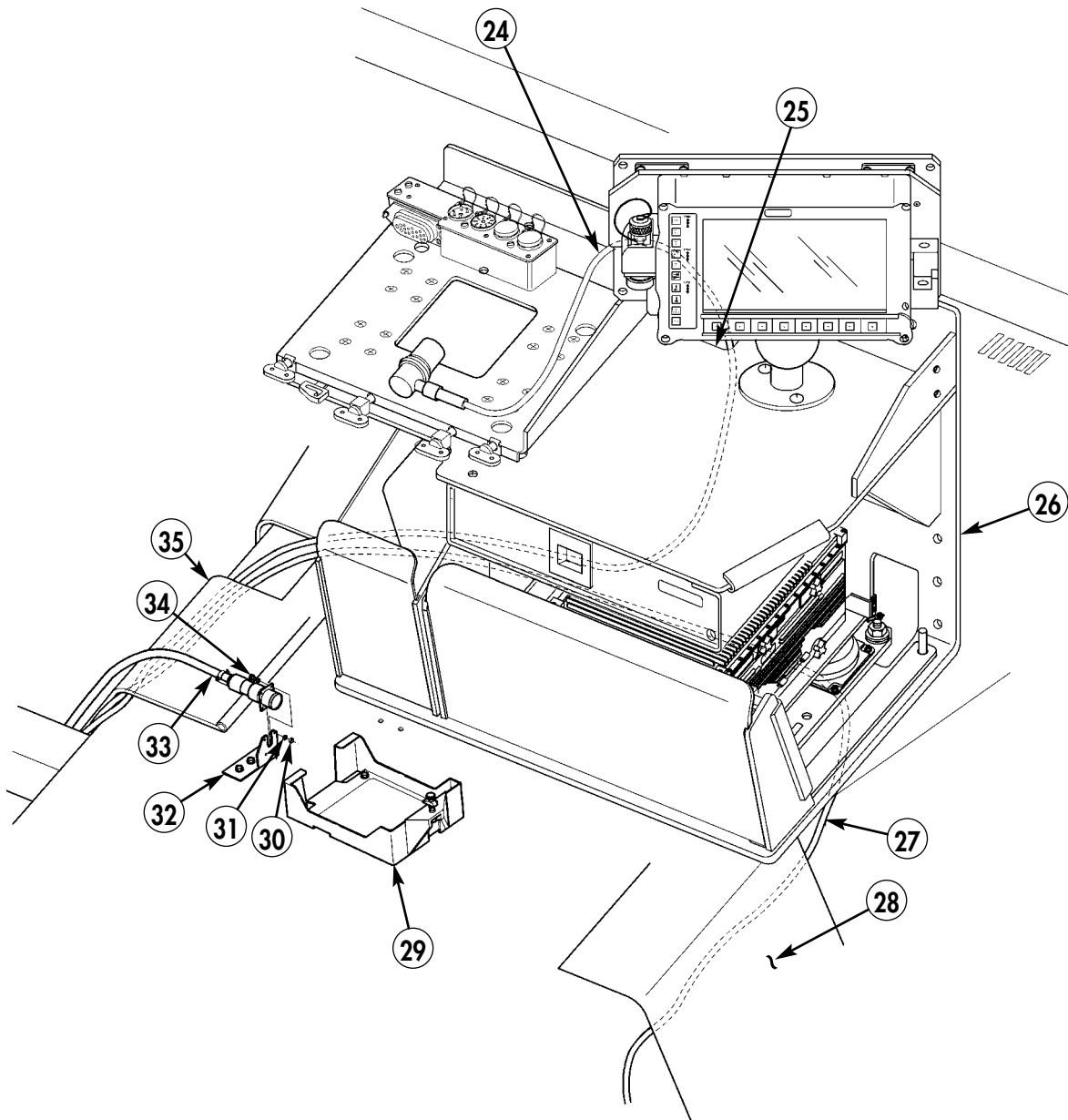
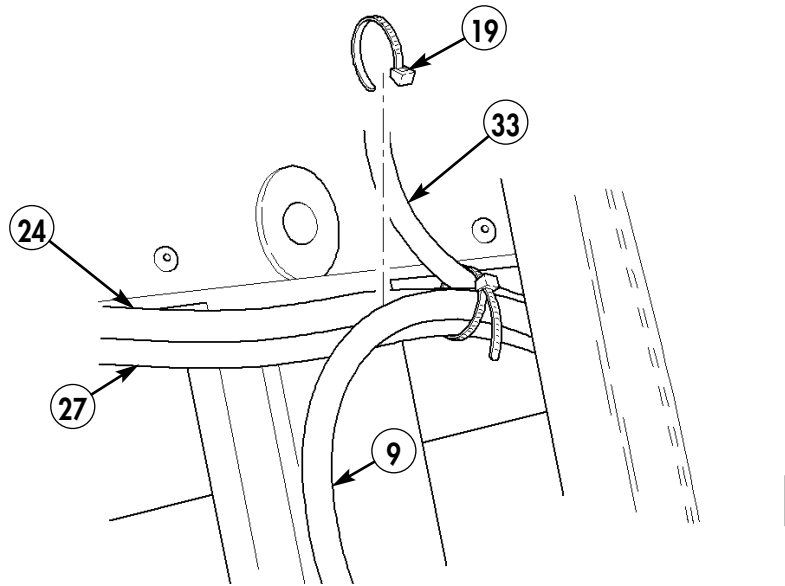


Figure 5-64.

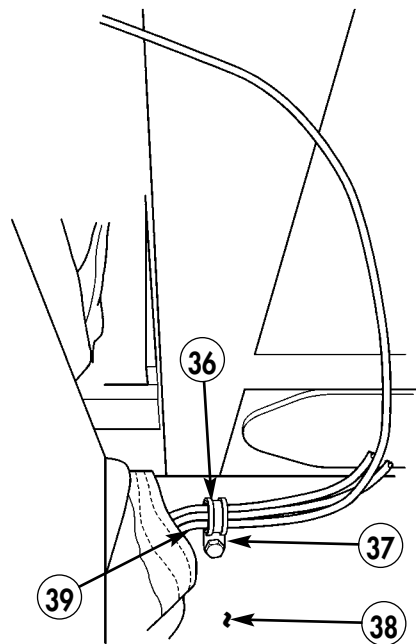
17-16. Route INC-EPUU cable (24), URO extension cable (33), EPLRS power cable (27), and ELPRS antenna cable (9) rearward under B-beam and into shelter. Secure cables with tiedown strap (19).



19. TIEDOWN STRAP – MS3367-1-0 – QTY. A/R

Figure 5-65.

17-17. Secure cables (39) to shelter floor (38) with loop clamp (36) and screw (37).



36. CLAMP, LOOP – MS21333-77 – QTY. 1
37. SCREW, SELF-TAPPING – 9416639 – QTY. 1

Figure 5-66.

17-18. Route cables (39) up EPLRS mount rail (41) to EPLRS mount (40).

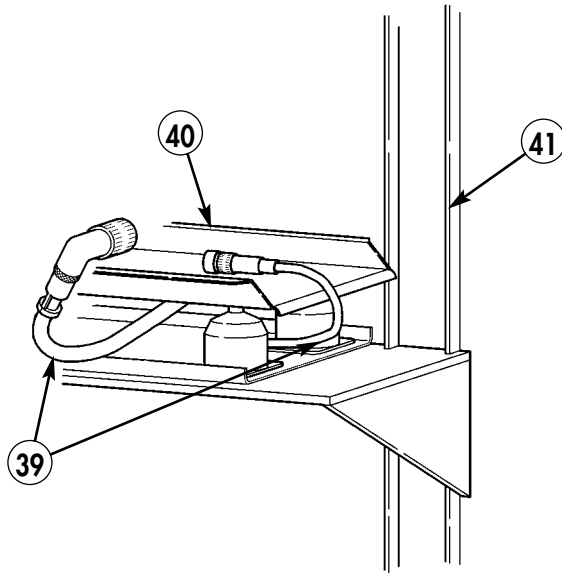
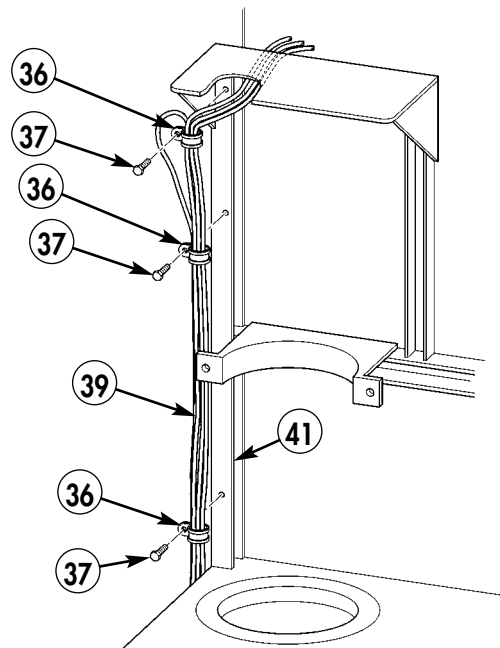


Figure 5-67.

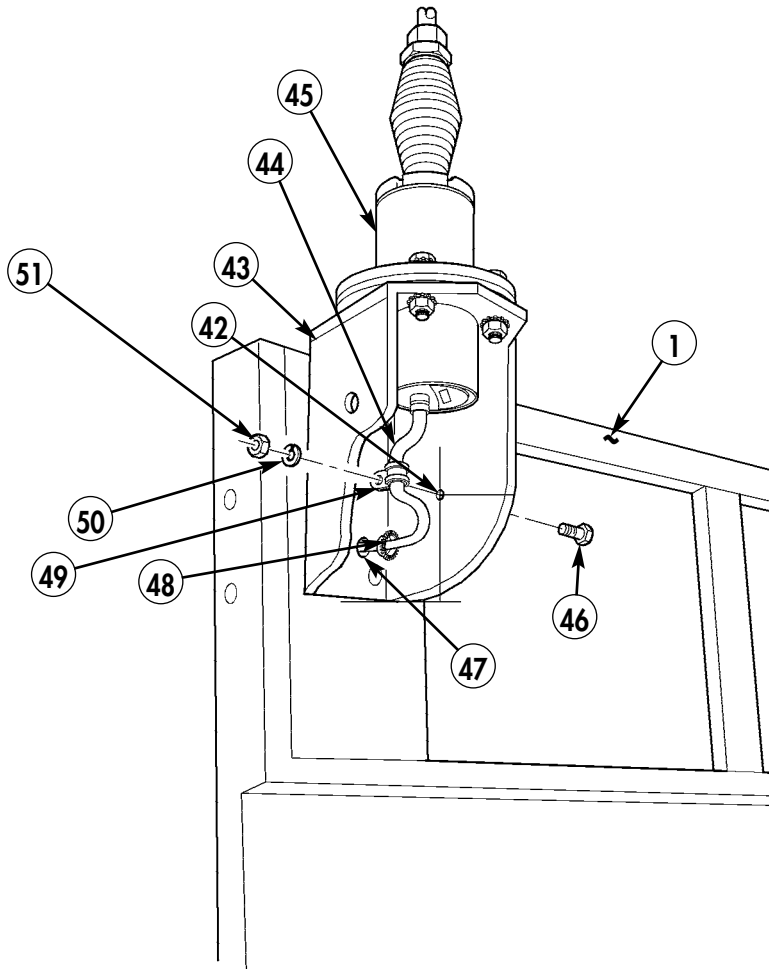
17-19. Secure cables (39) to EPLRS mount rail (41) with four loop clamps (36) and four screws (37). Wrap slack in cables (39) as shown in figure 5-68.



- 36. CLAMP, LOOP - MS21333-77 - QTY. 4
- 37. SCREW, SELF-TAPPING - 9416639 - QTY. 4

Figure 5-68.

- 17-20. Locate, mark, and drill 0.281-in. hole (42) in side of antenna base bracket (43).
- 17-21. Route SINCGARS antenna cable (44) through hole (47) in overcab mount (1) and antenna base bracket (43) and connect antenna cable (44) to antenna (45).
- 17-22. Install grommet (48) in antenna base bracket (43) and overcab mount (1).
- 17-23. Secure antenna cable (44) to antenna base bracket (43) with loop clamp (49), capscrew (46), lockwasher (50), and nut (51).



- 44. CABLE, SINGARS ANTENNA – A3014031-8 – QTY. 1
- 46. CAPSCREW – B1821BH025C050N – QTY. 1
- 48. GROMMET – MS21266-4N – QTY. 1
- 49. LOOP CLAMP – MS21333-98 – QTY. 1
- 50. LOCKWASHER – MS45904-68 – QTY. 1
- 51. NUT – MS51967-2 – QTY. 1

Figure 5-69.

- 17-24. Locate, mark, and drill 0.147-in. hole (52) in shelter (53).
- 17-25. Secure antenna cable (44) to shelter (53) with loop clamp (54) and screw (55).
- 17-26. Locate, mark, and drill 0.281-in. hole (56) in right overhead rail (57).
- 17-27. Secure antenna cable (44) to right overhead rail (57) with loop clamp (49), capscrew (46), lockwasher (50), and nut (51).

- 46. CAPSCREW – B1821BH025C050N – QTY. 1
- 49. LOOP CLAMP – MS21333-98 – QTY. 1
- 50. LOCKWASHER – MS45904-68 – QTY. 1
- 51. NUT – MS51967-2 – QTY. 1
- 54. LOOP CLAMP – MS21333-67 – QTY. 1
- 55. SELF-TAPPING SCREW – 9416639 – QTY. 1

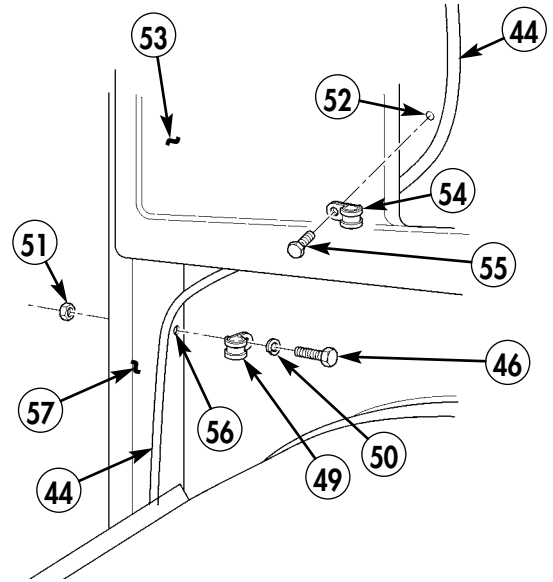


Figure 5-70.

- 17-28. Locate, mark, and drill 0.281-in. hole (52) in right overhead rail (57).
- 17-29. Secure antenna cable (44) to right overhead rail (57) with loop clamp (49), capscrew (46), lockwasher (50), and nut (51).

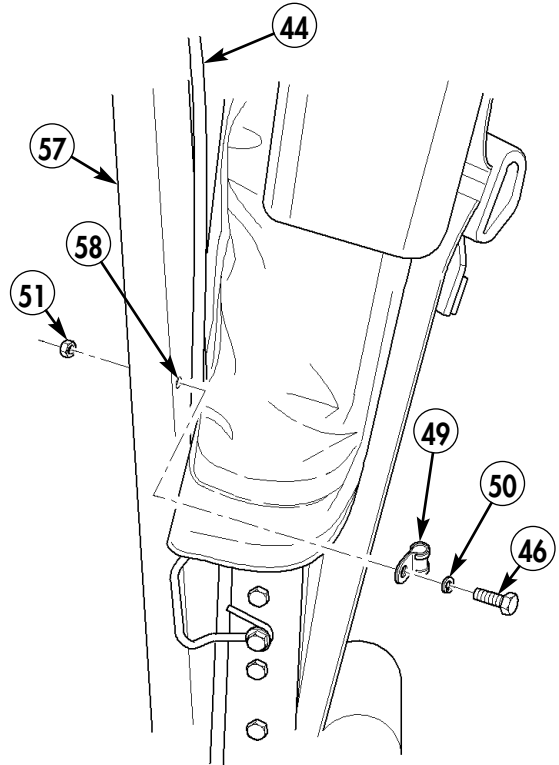
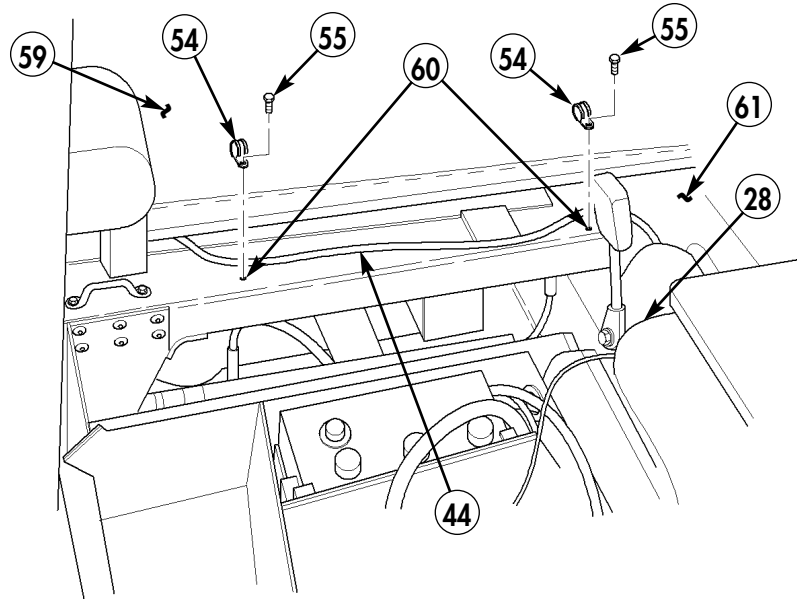


Figure 5-71.

- 46. CAPSCREW – B1821BH025C050N – QTY. 1
- 49. LOOP CLAMP – MS21333-98 – QTY. 1
- 50. LOCKWASHER – MS45904-68 – QTY. 1
- 51. NUT – MS51967-2 – QTY. 1

- 17-30. Route SINGARS antenna cable (44) under canvas (59).
- 17-31. Locate, mark, and drill two 0.147-in holes (60) in cab floor (61).
- 17-32. Secure antenna cable (44) to cab floor (61) with two loop clamps (54) and two screws (55).
- 17-33. Route antenna cable (44) under right-side tunnel insulation (28).



- 54. LOOP CLAMP – MS21333-67 – QTY. 2
- 54. SELF-TAPPING SCREW – 9416639 – QTY. 2

Figure 5-72.

- 17-34. Route antenna cable (44) between integrated rack (26) and engine access cover (62) and through access cutout.

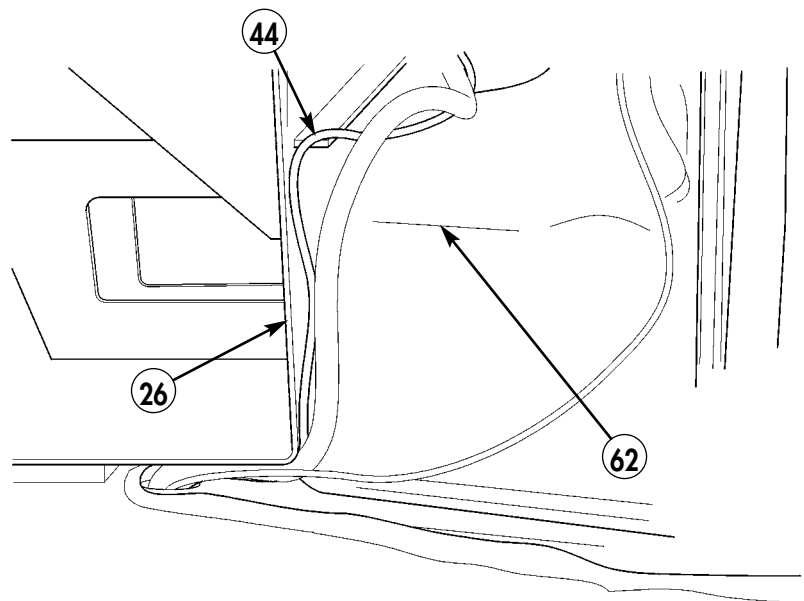


Figure 5-73.

Section XVIII. DVE HOOD CABLE GUIDE INSTALLATION

NOTE

- Cover engine compartment prior to performing DVE installation to keep metal and fiberglass filings out of engine compartment.
- Once DVE installation is complete, Pan and Tilt Module (PTM) mount may require adjustment to obtain optimum DVE elevation-viewing angle. This adjustment is made by adding or removing washers from PTM mounting bolt between HMMWV windshields.

- 18-1.** Remove six bolts (3), twelve washers (4), six nuts (7), and hood brackets (6) from hood (1).
18-2. Remove bracket (9) from top side of hood (1).
18-3. Drill out five rivets (8) from hood (1), rubber hood seal (5), and retaining strip (2).
18-4. Remove retaining strip (2) from hood (1).
18-5. Cut retaining strip (2). Discard cut portion of retaining strip (2).
18-6. Cut rubber hood seal (5). Discard cut portion of rubber hood seal (5).

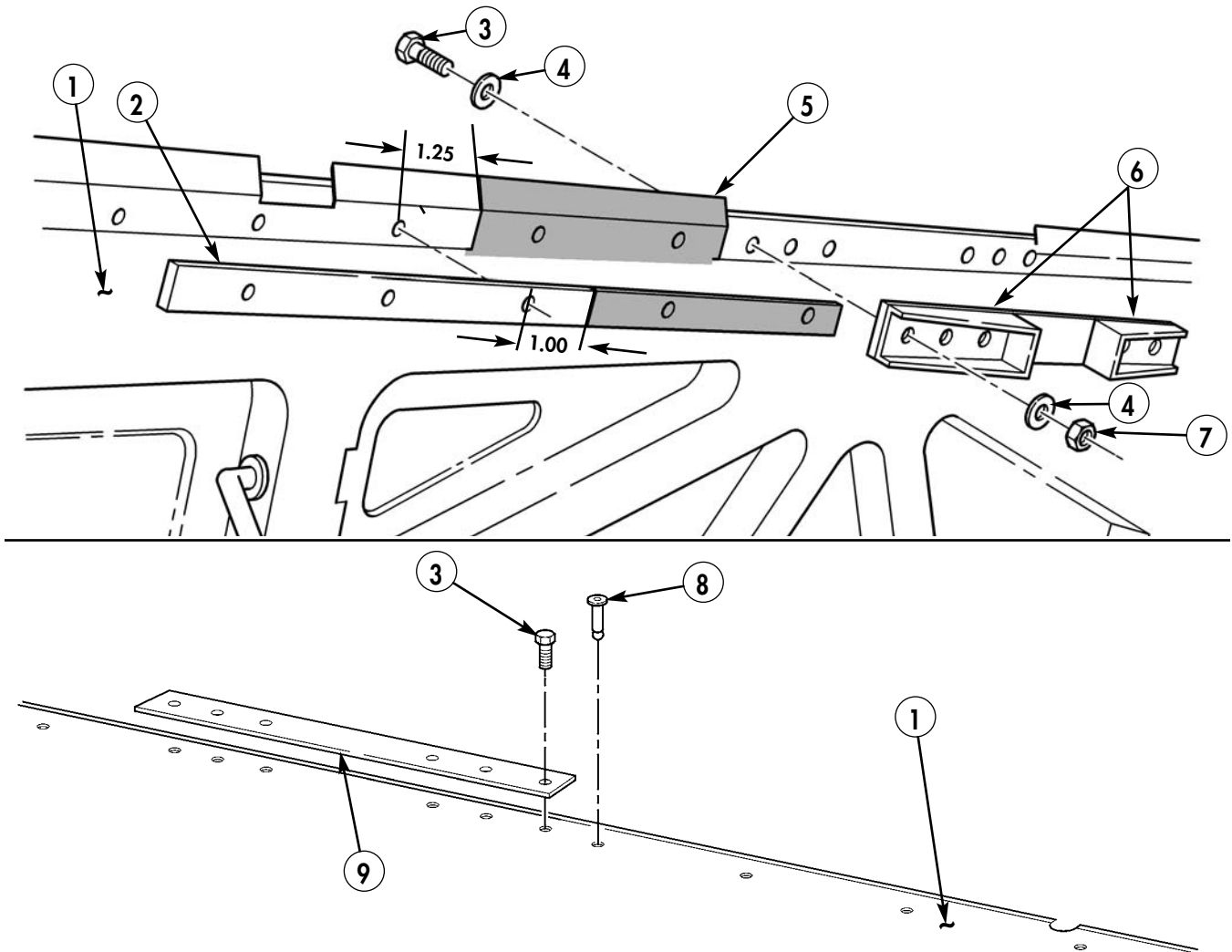


Figure 5-74.

CAUTION

- Use caution to avoid cutting notch in hood too large. If cutout notch is too large, the hood cable guide cannot be correctly installed.
- Remove and retain plug for reinstallation if cutting of hood will damage plug.

NOTE

- Use scrap pieces of 2x4 boards to prop open hood.

18-7. Locate, mark, and cut area (10) on hood (1).

18-8. Reinstall two hood brackets (6) and bracket (9) on top side of hood (1) with six bolts (3), twelve washers (4), and six nuts (7).

18-9. Reinstall retaining strip (2) with three rivets (8).

NOTE

File hood and hood cable guide as required to ensure a snug fit.

18-10. Ensure hood cable guide (11) fits securely in cut area (10). Remove cable guide (11).

NOTE

Heat lamp or heat gun may be used to speed curing time for adhesive.

18-11. Apply thin coat of adhesive to hood cable guide (11) and matching area on hood (1), and install cable guide (11) on hood (1).

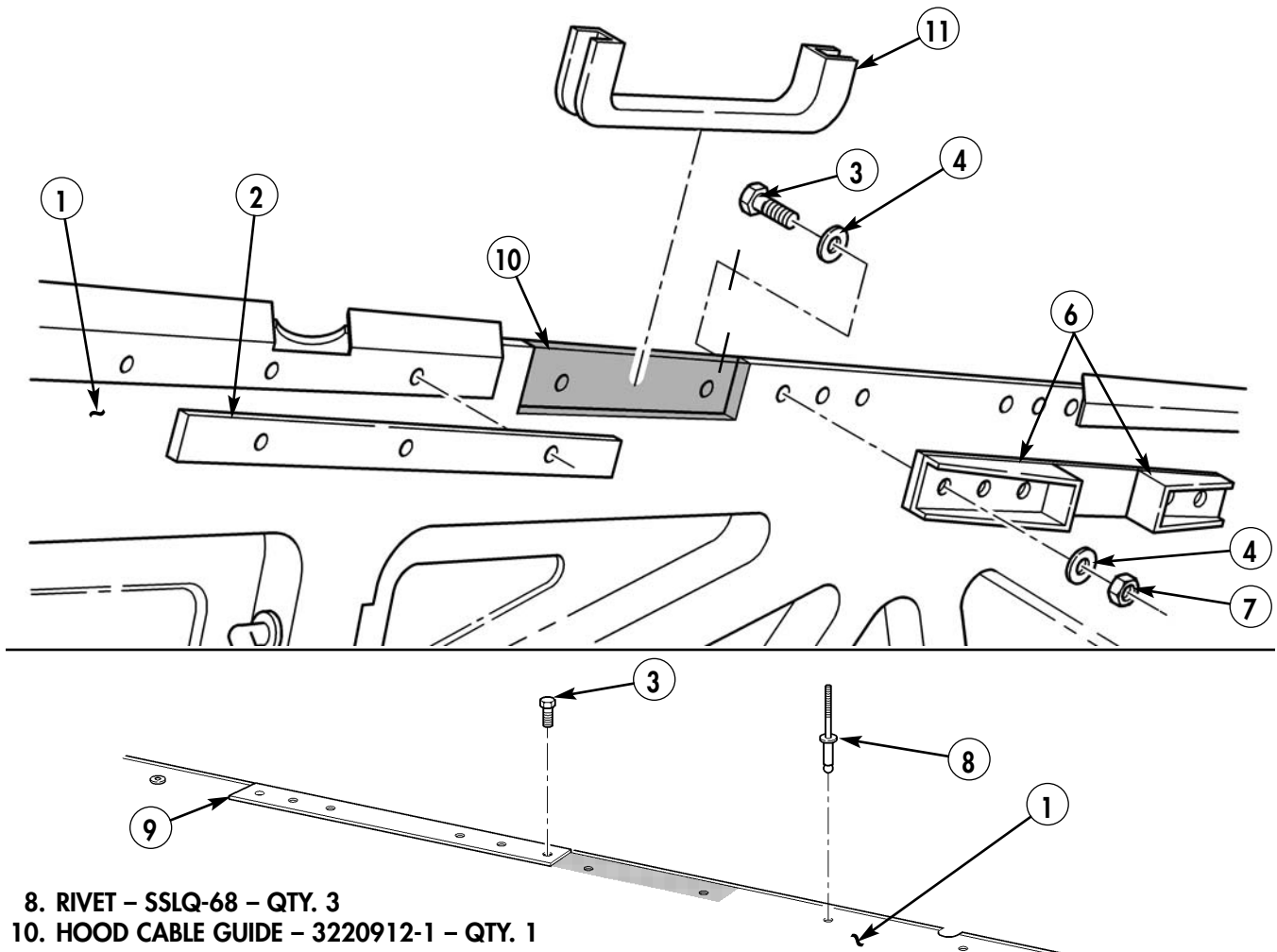
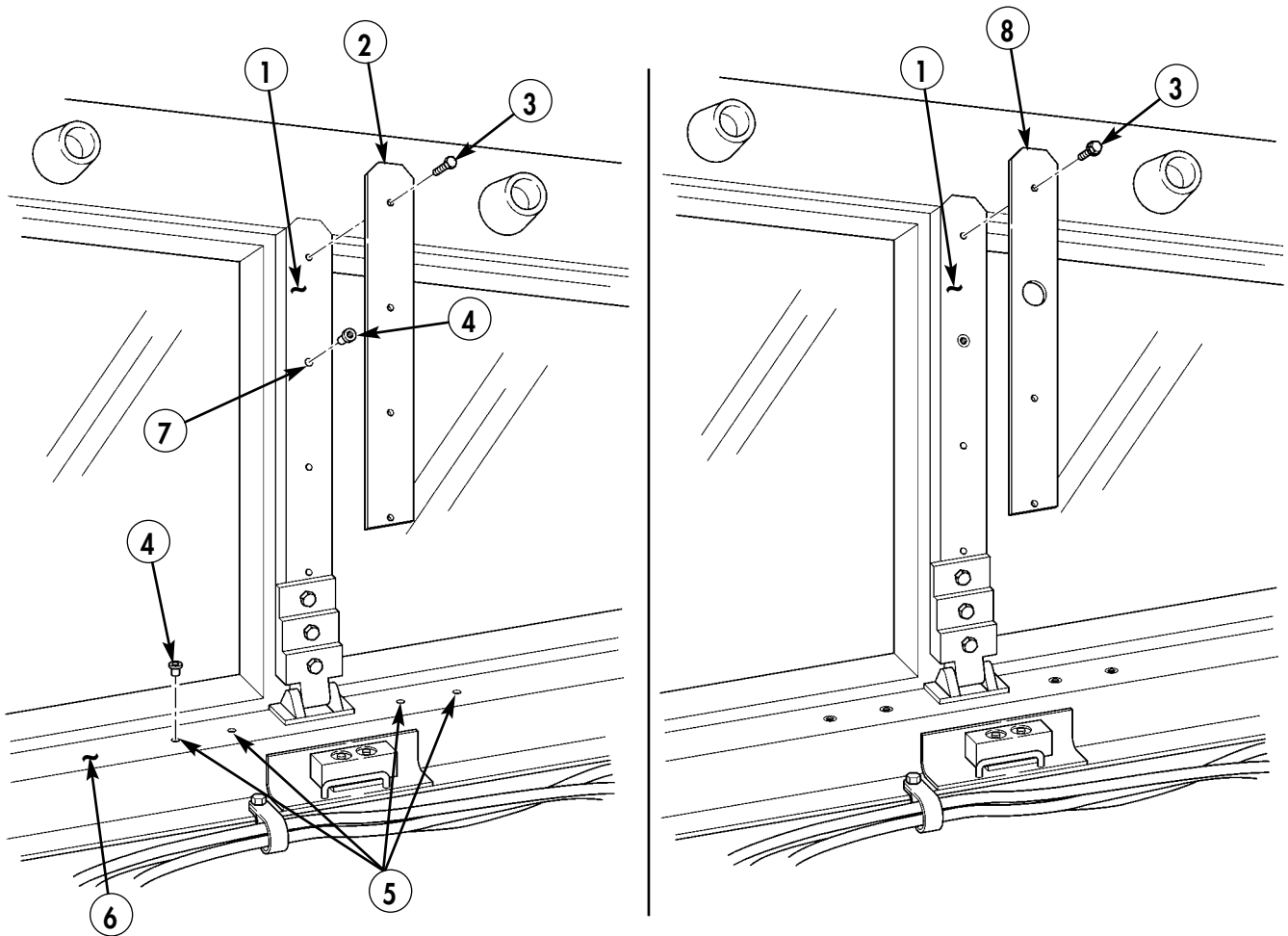


Figure 5-75.

Section XIX. DVE PAN AND TILT MODULE (PTM) MOUNT ASSEMBLY PREPARATION AND PILLAR MOUNT INSTALLATION

- 19-1. Remove four existing screws (3) and existing center windshield retainer (2) from center windshield frame (1). Retain three screws (3).
- 19-2. Using PTM mount assembly as template, locate, mark, and drill four 0.391-in. holes (5) on A-frame pillar flange (6).
- 19-3. Enlarge hole (7) to 0.391 in. on center windshield frame (1).
- 19-4. Install one rivet nut (4) on center windshield frame (1) and four rivet nuts (4) on A-frame pillar flange (6).
- 19-5. Install PTM A-pillar mount (8) on center windshield frame (1) with three existing screws (3).



- 4. RIVET NUT - 3221003-14 - QTY. 5
- 8. PTM A-PILLAR MOUNT- 3221002-1 - QTY. 1

Figure 5-76.

Section XX. DVE A-FRAME CABLE GUIDE AND PAN AND TILT MODULE (PTM) MOUNT ASSEMBLY INSTALLATION

- 20-1.** Remove two screws (2), nuts (4), and clamps (1) from A-frame pillar flange (5). Retain hardware.
- 20-2.** Locate and mark cutout area (3) on A-frame pillar flange (5).
- 20-3.** Cut out area (3) of A-frame pillar flange (5). Use fine mill file or crocus cloth to remove all burrs and sharp edges.

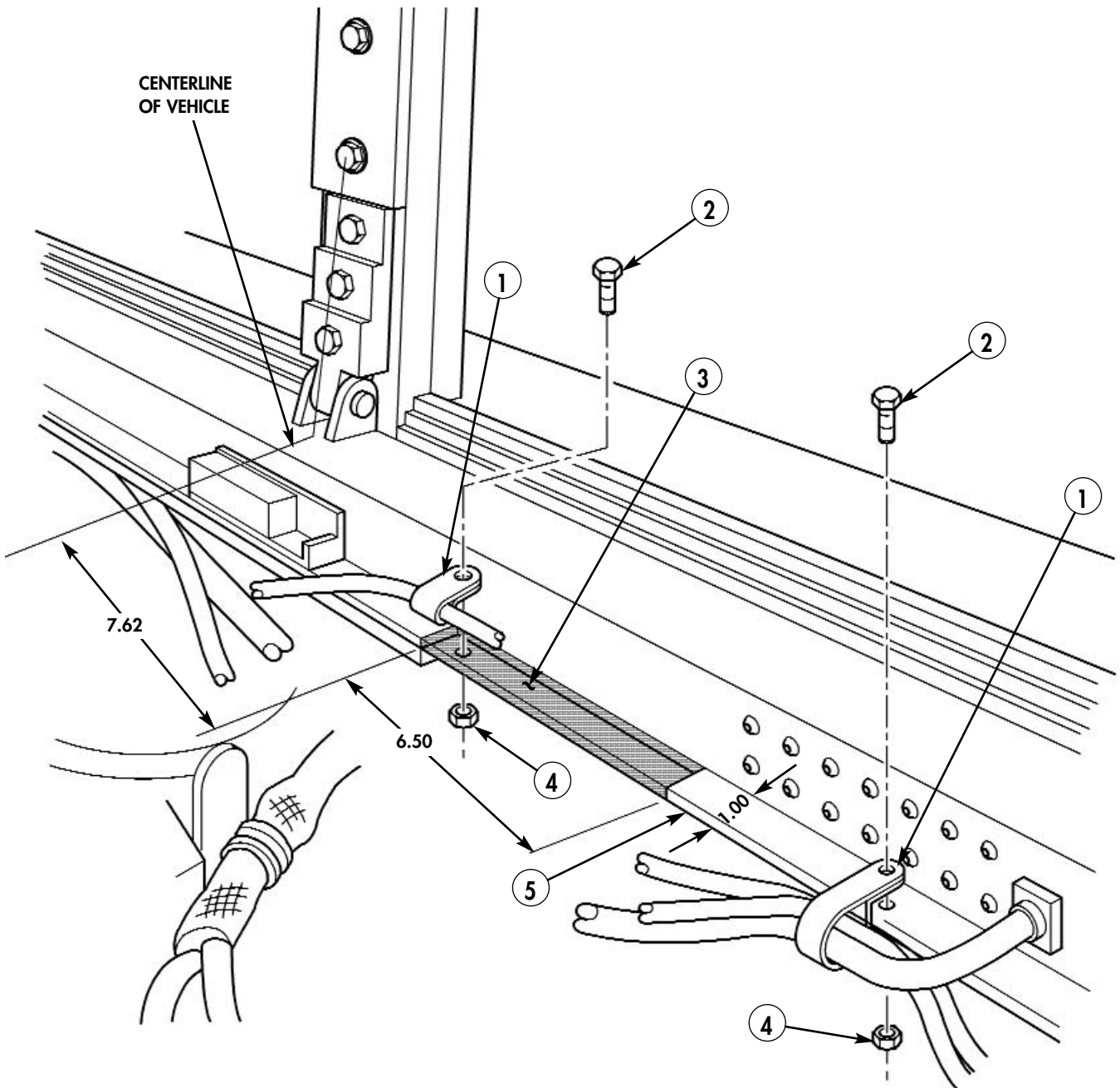


Figure 5-77.

- 20-4. Using A-frame cable guide (13) as template, mark four mounting hole locations (11), (8), and (6).
- 20-5. Drill two 0.391-in. holes (8) on vertical wall (7).
- 20-6. Drill two 0.277-in. holes (6) and (11) on A-frame pillar flange (5).
- 20-7. Install two rivet nuts (12) on vertical wall (7).
- 20-8. Apply thin coat of adhesive to A-frame cable guide (13) and matching areas on A-frame pillar flange (5) and vertical wall (7).
- 20-9. Install A-frame cable guide (13) on A-frame pillar flange (5) and vertical wall (7) with four capscrews (9), six washers (10), and two locknuts (14).
- 20-10. Locate, mark, and drill 0.221-in. hole (15) on center of A-frame pillar flange (5).
- 20-11. Reinstall two cable clamps (1) on A-frame pillar flange (5) with existing screws (2) and nuts (4).

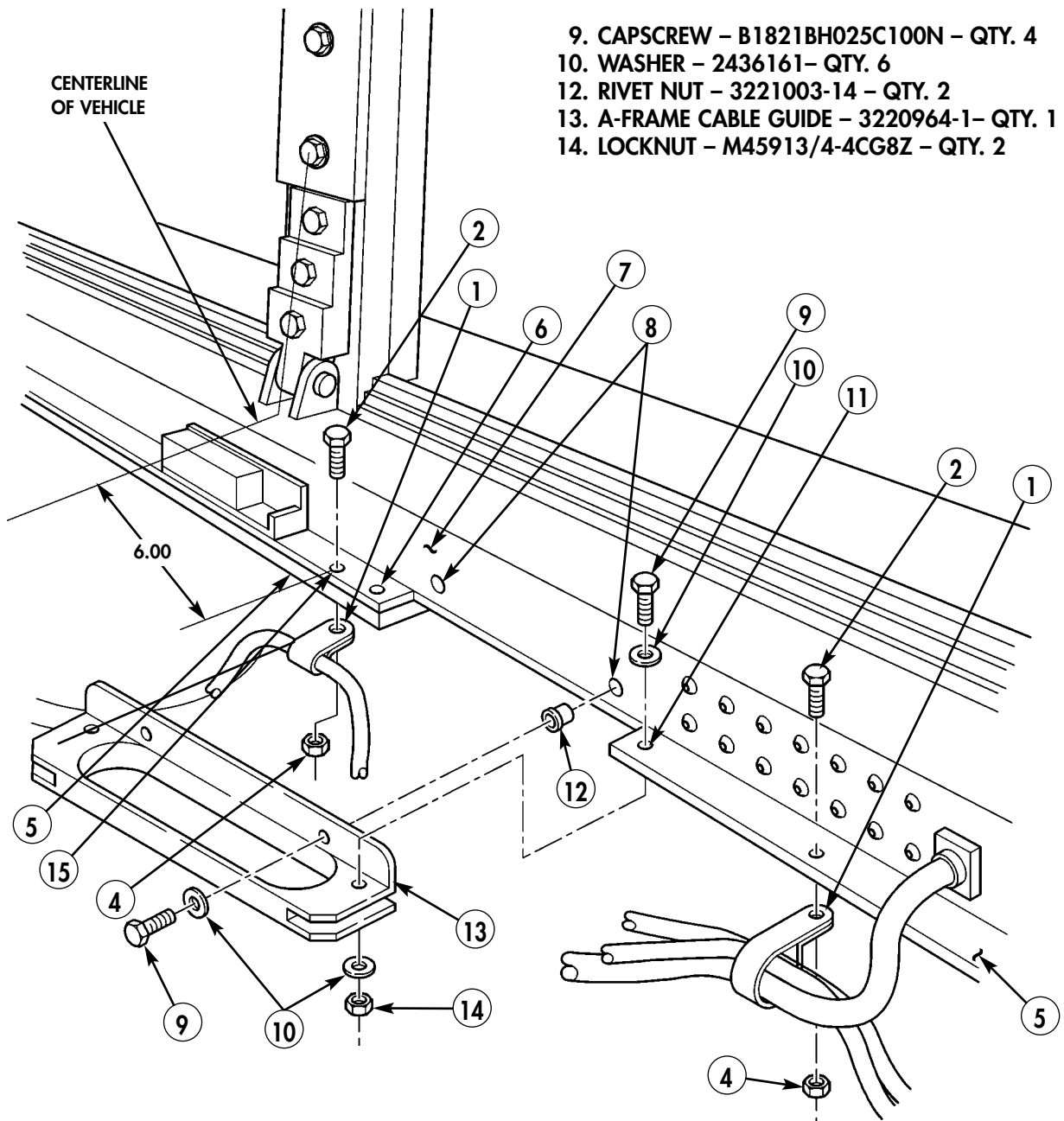
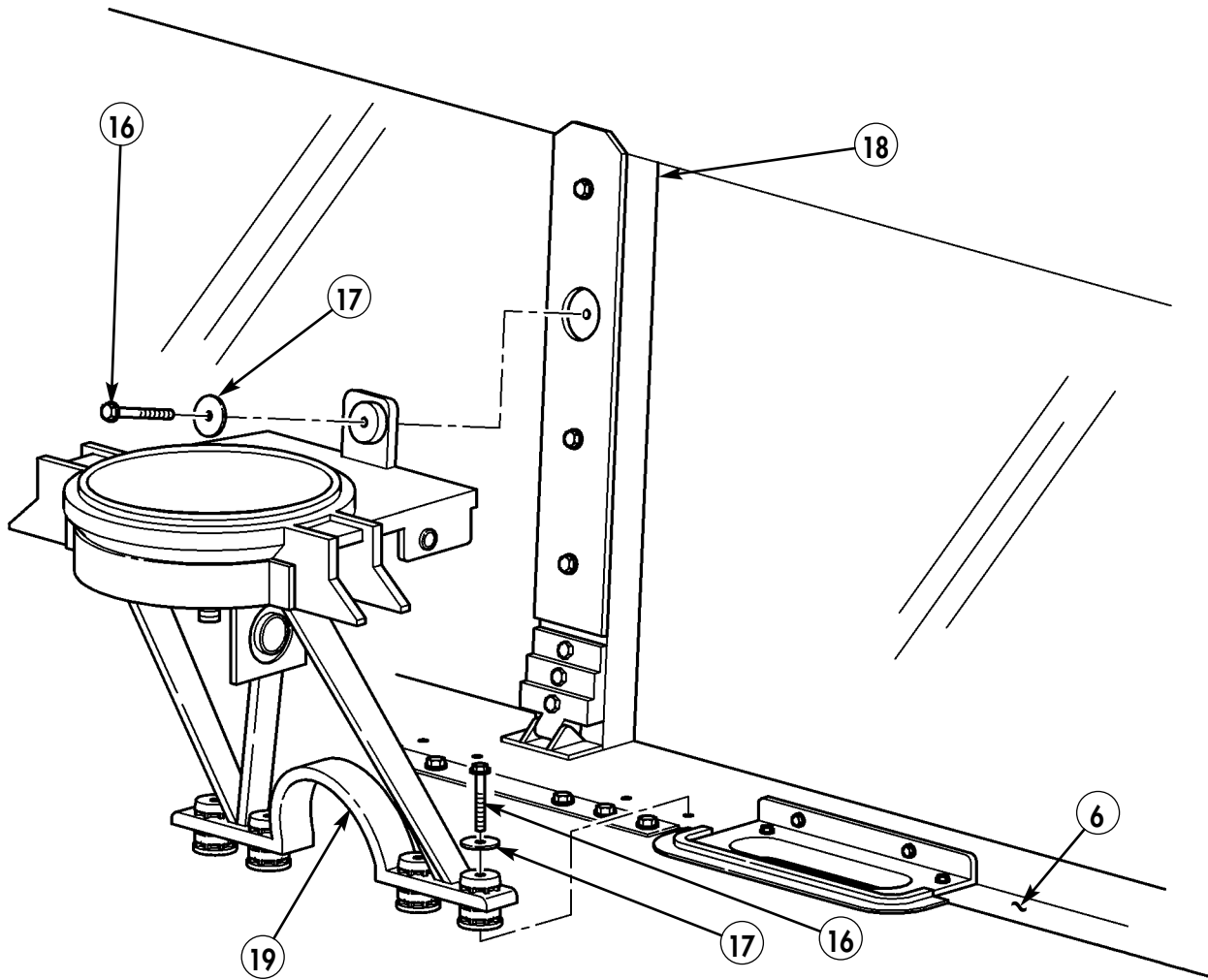


Figure 5-78.

20-12. Install PTM mount assembly (19) on A-frame pillar flange (6) with four capscrews (16) and washers (17), and on center windshield frame (18) with capscrew (16) and washer (17).

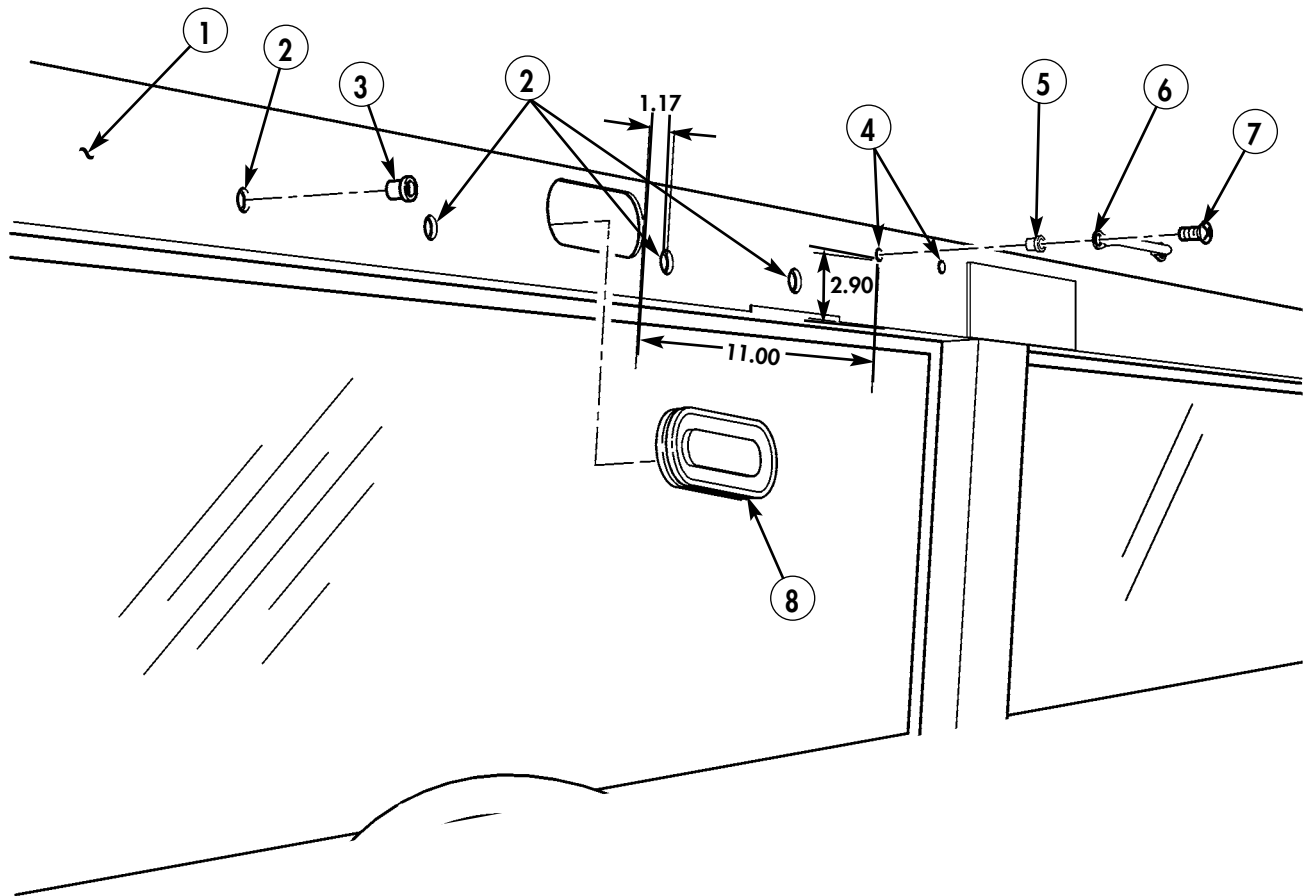


- 16. CAPSCREW - B1821BH025C300N - QTY. 5
- 17. WASHER - 3221003-9 - QTY. 5
- 19. PTM MOUNT ASSEMBLY - 3220952-1 - QTY. 1

Figure 5-79.

Section XXI. DVE DISPLAY CONTROL MODULE (DCM) ROOF MOUNT INSTALLATION

- 21-1. Remove driver's sun visor, if installed. (Refer to TM 9-2320-280-20.)
- 21-2. Remove access cover (8).
- 21-3. Remove left side footman loop (6) from original location on left side of windshield frame (1). (Refer to TM 9-2320-280-20.) Retain screws.
- 21-4. Using footman loop (6) as template, locate, mark, and drill two 0.296-in. holes (4) in left side of windshield frame (1).
- 21-5. Install two rivet nuts (5) in windshield frame (1).
- 21-6. Reinstall footman loop (6) in new location in windshield frame (1) with existing screws (7).
- 21-7. Using DCM roof mount assembly as template, locate, mark, and drill four 0.391-in. holes (2) in windshield frame (1).
- 21-8. Install four rivet nuts (3) in windshield frame (1).
- 21-9. Install access cover (8).



- 3. RIVET NUT – 3221003-14 – QTY. 4
- 5. RIVET NUT – 3221003-20 – QTY. 2

Figure 5-80.

NOTE

Loosen soft top fasteners to allow soft top to be folded back on the left side for access to support bow and top of DCM mount.

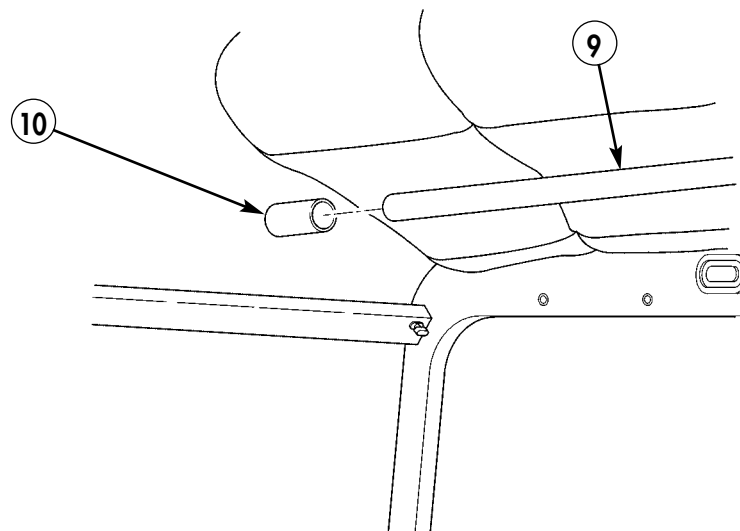
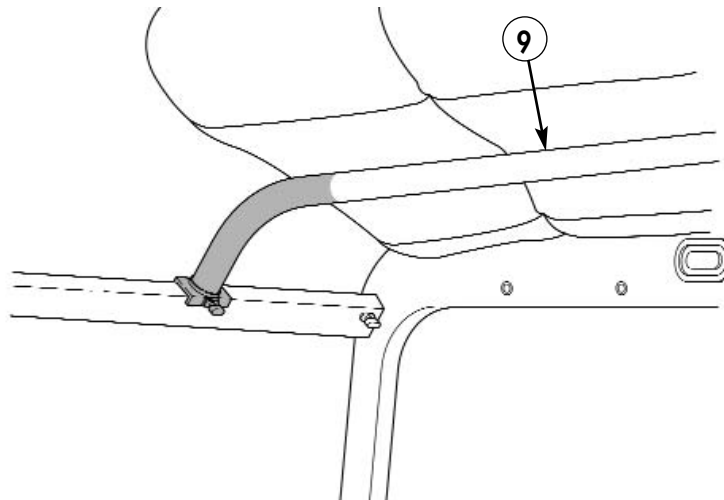
21-10. Remove two screws securing left side of soft top support bow (9). (Refer to TM 9-2320-280-10.)

NOTE

Cut where support bow begins to bend down.

21-11. Cut soft top support bow (9) as shown, and discard.

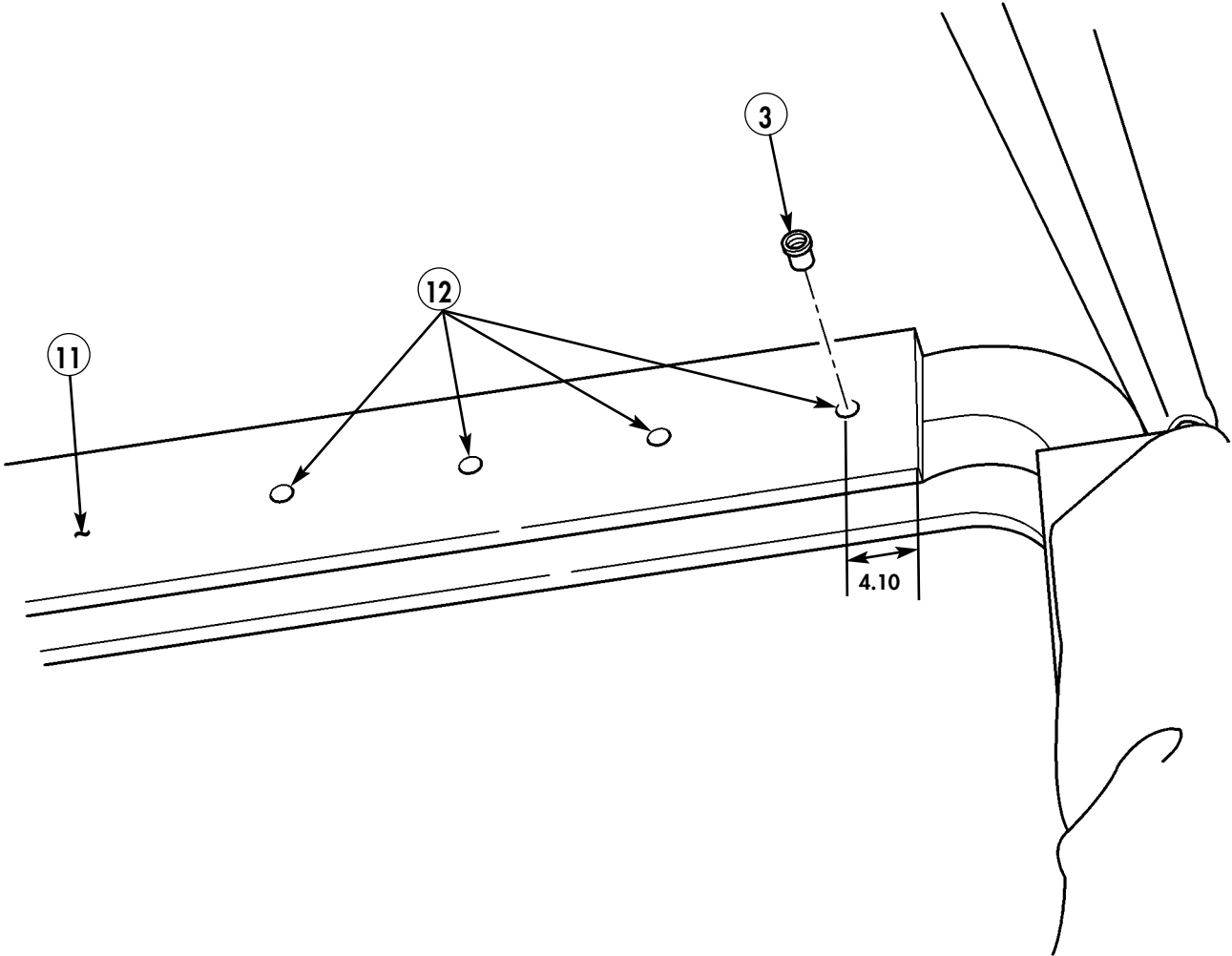
21-12. Slide bow closeout tube (10) onto end of soft top support bow (9).



10. CLOSEOUT TUBE – 3236685-1 – QTY. 1

Figure 5-81.

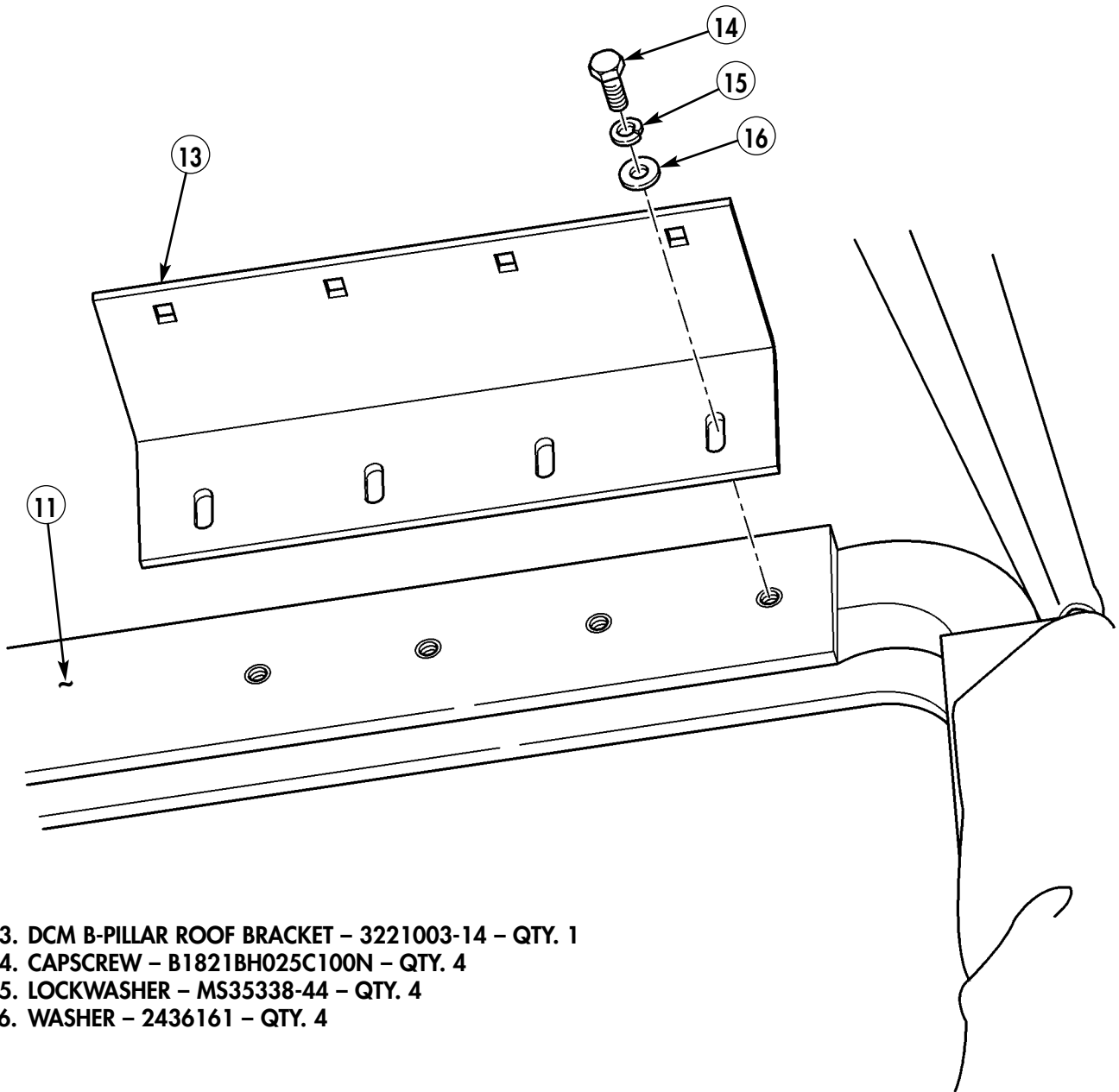
- 21-13. Using DCM B-pillar roof bracket as template, locate, mark, and drill four 0.391-in. holes (12) on B-pillar (11).
- 21-14. Install four rivet nuts (3) in B-pillar (11).



3. RIVET NUT - 3221003-14 - QTY. 4

Figure 5-82.

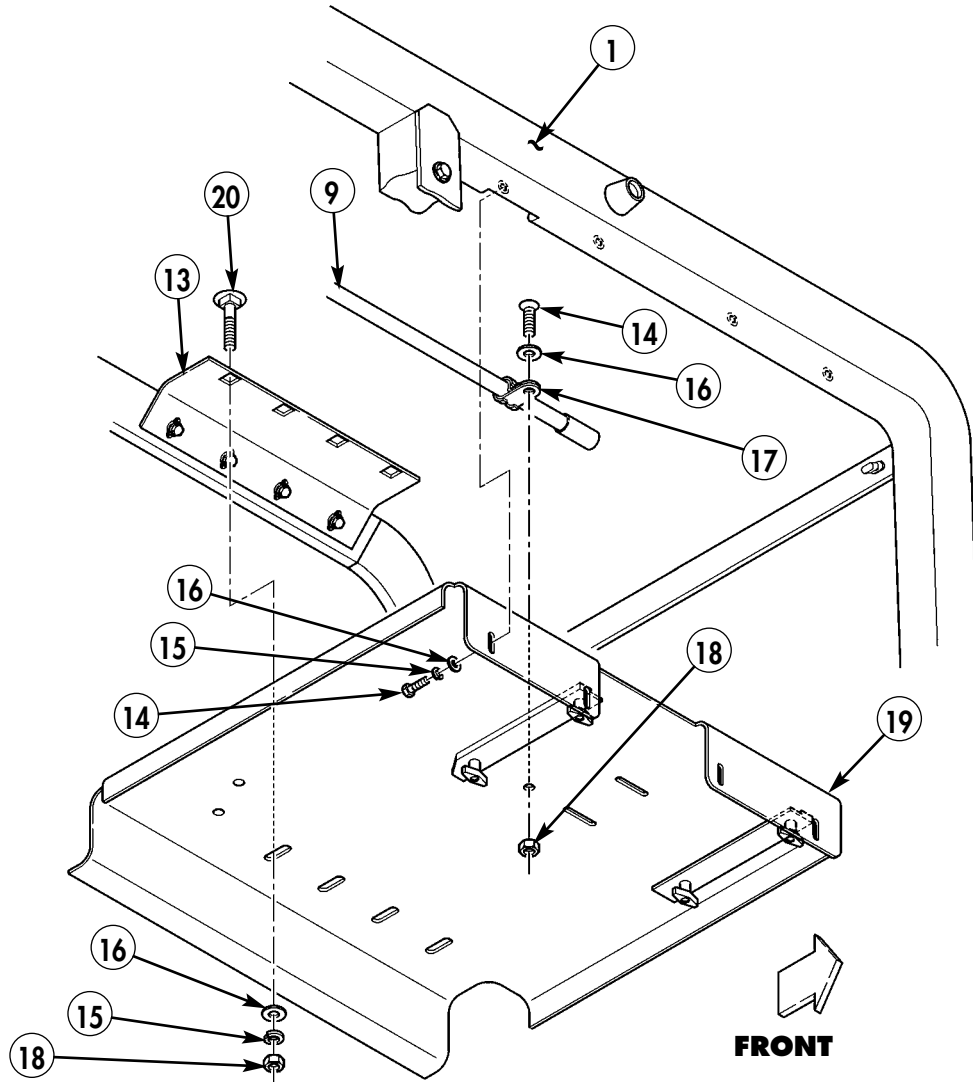
21-15. Install DCM B-pillar roof bracket (13) on B-pillar (11) with four capscrows (14), lockwashers (15), and washers (16). Do not tighten capscrows (14).



- 13. DCM B-PILLAR ROOF BRACKET - 3221003-14 - QTY. 1
- 14. CAPSCREW - B1821BH025C100N - QTY. 4
- 15. LOCKWASHER - MS35338-44 - QTY. 4
- 16. WASHER - 2436161 - QTY. 4

Figure 5-83.

- 21-16.** Install DCM roof mount bracket (19) on inside of windshield frame (1) with four capscrews (14), lockwashers (15), and washers (16), and on B-pillar roof bracket (13) with four carriage bolts (20), washers (16), lockwashers (15), and locknuts (18).
- 21-17.** Install loop clamp (17) on soft top support bow (9) and DCM roof mount (19) with capscrew (14), washer (16), and locknut (18). Tighten all capscrews (14).

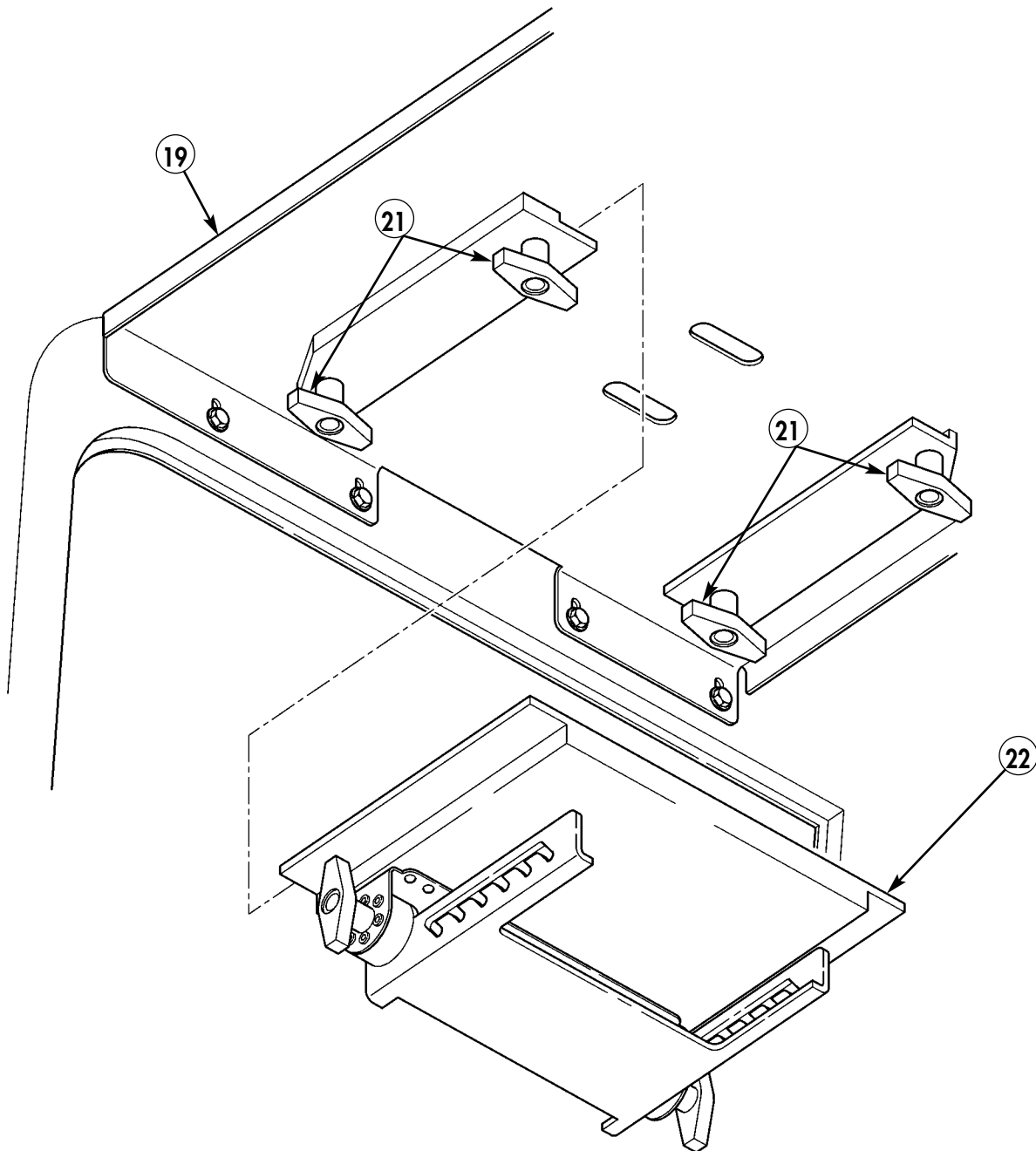


14. CAPSCREW - B1821BH025C100N - QTY. 5
 15. LOCKWASHER - MS35338-44 - QTY. 8
 16. WASHER - 2436161 - QTY. 9
 17. LOOP CLAMP - MS21333-123 - QTY. 1
 18. LOCKNUT - M45913/4-4CG8Z - QTY. 5
 19. DCM ROOF MOUNT BRACKET - 3236682-1 - QTY. 1
 20. CARRIAGE BOLT - 90185A540 - QTY. 4

Figure 5-84.

21-18. Loosen four hand knobs (21) on DCM roof mount (19). Slide DCM mount (22) onto DCM roof mount (19). Tighten four hand knobs (21).

21-19. Install vehicle soft top. (Refer to TM 9-2320-280-10.)



22. DCM MOUNT – 3221839-1 – QTY. 1

Figure 5-85.

Section XXII. PAN AND TILT MODULE (PTM) CONTROL MOUNTING BRACKET INSTALLATION

NOTE

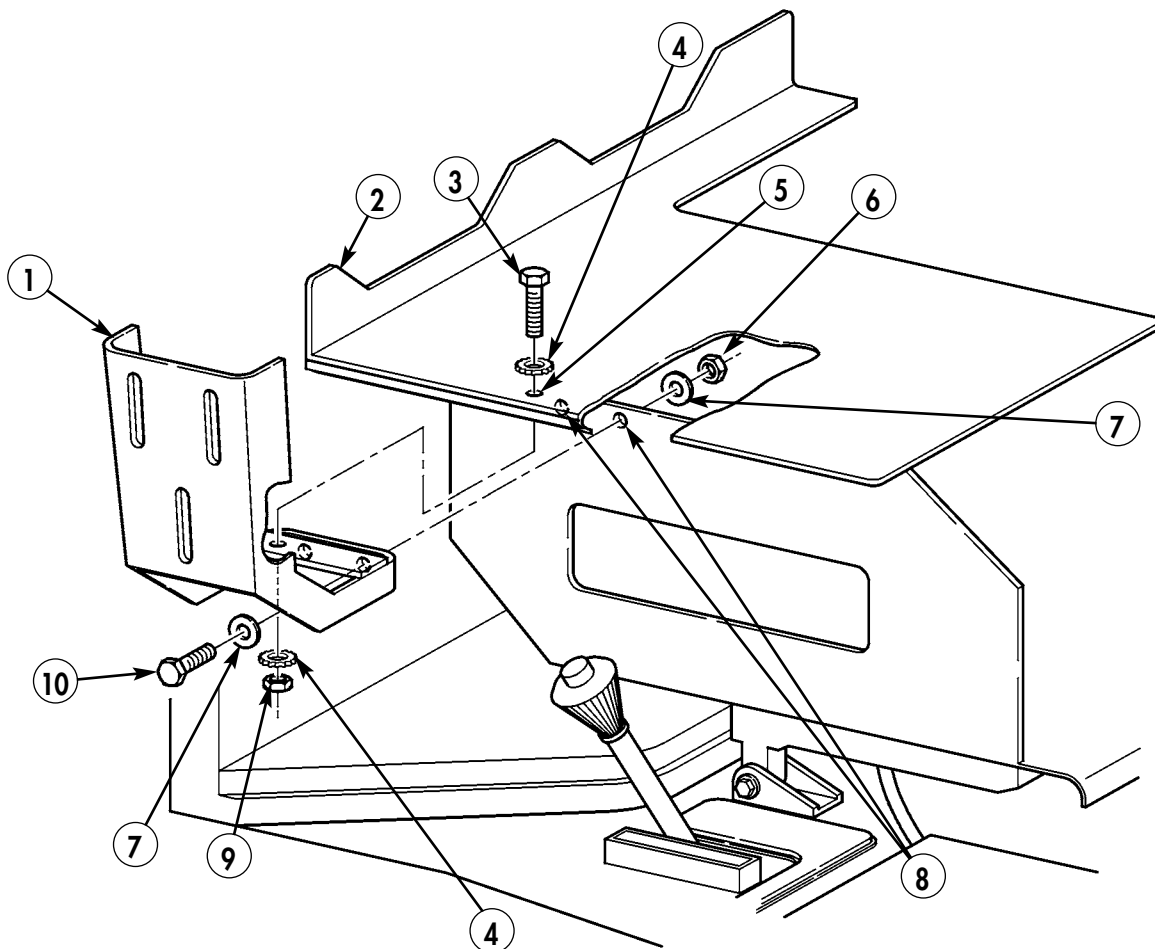
SINGARS mount and amp guard share existing mounting hardware with PTM control mounting bracket.

- 22-1. Remove SINGARS mount and amp guard if necessary. (Refer to chapter 5, section VIII.)
- 22-2. Using existing hole (5) and PTM control mounting bracket (1) as template, locate, mark, and drill two 0.281-in. holes (8) on integrated rack (2).

NOTE

SINGARS mount and amp guard must be in place before PTM mount is installed.

- 22-3. Install SINGARS mount and amp guard if removed. (Refer to chapter 5, section VIII.)
- 22-4. Install PTM control mounting bracket (1) on integrated rack (2) with two capscrews (10), four washers (7), two locknuts (6), and existing screw (3), two lockwashers (4), and nut (9).



- 1. PTM CONTROL MOUNTING BRACKET – 3236630-1 – QTY. 1
- 6. LOCKNUT – M45913/4-4CG8Z – QTY. 2
- 7. WASHER – 2436161- QTY. 4
- 10. CAPSCREW – B1821BH025C100N – QTY. 2

Figure 5-86.

Section XXIII. PAN AND TILT MODULE (PTM) CONTROL ASSEMBLY, CONTROL CABLE ASSEMBLY, AND DCM/PTM INTERCONNECT CABLE INSTALLATION

- 23-1. Locate, mark, and drill 1.375-in. hole (1) for control cable seal assembly (2) on tunnel (3).
- 23-2. Position control cable seal assembly (2) and mark two hole locations (5).
- 23-3. Drill two 0.391-in. holes in marked locations (5).
- 23-4. Insert two rivet nuts (4) into tunnel (3).
- 23-5. Insert DCM connector end of DCM/PTM interconnect cable (6) from transmission compartment through hole (1) in tunnel (3), through control cable seal assembly (2), and into driver's compartment.
- 23-6. For vehicles equipped with FBCB2, route PTM control cable assembly (8) through PTM control mounting bracket (7).

NOTE

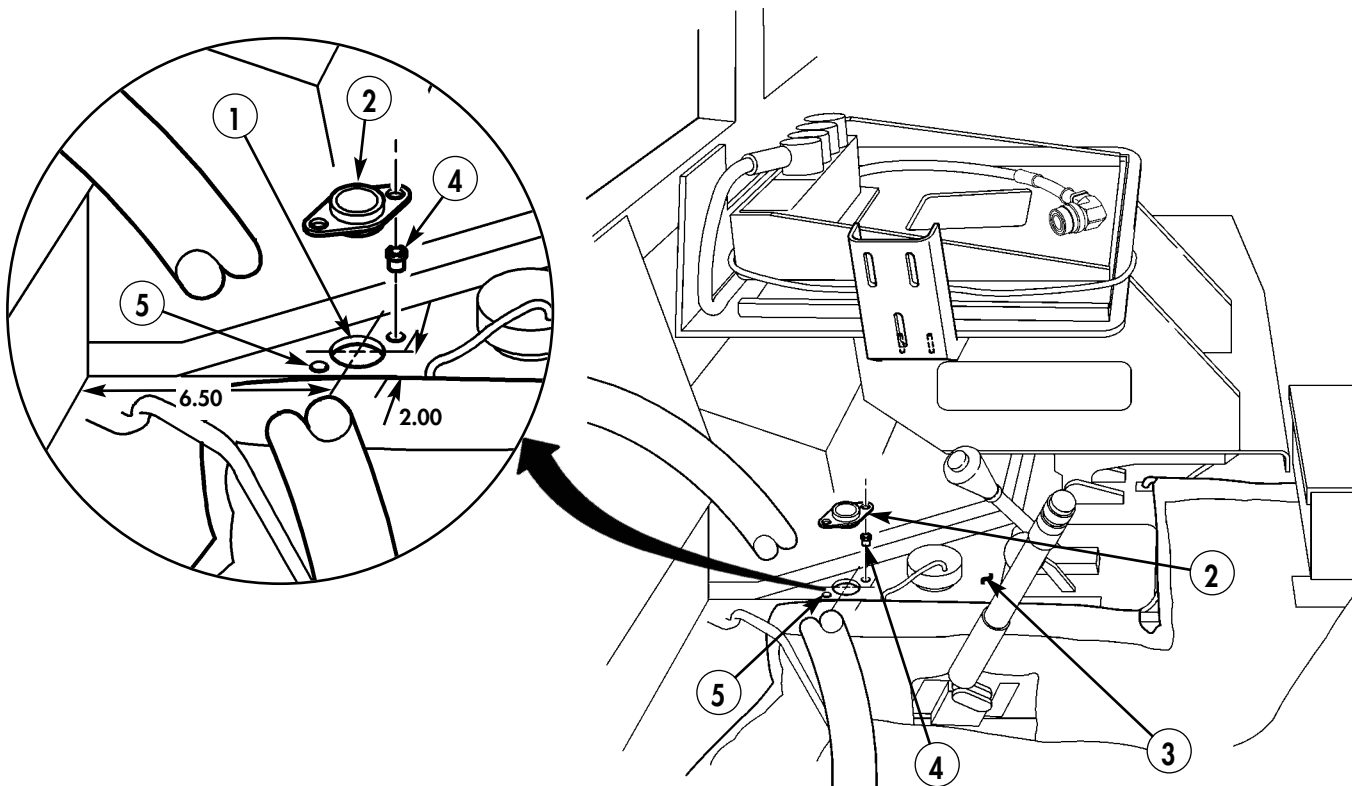
It may be necessary to remove azimuth lock cable adjusting nut to route cabling.

- 23-7. Insert two cables (8) and (9) from PTM control mounting bracket (7) through control cable seal assembly (2).

NOTE

Holes in grommet must be enlarged to allow cables to fit.

- 23-8. Cut sides of four holes on grommet of control cable seal assembly (2).
- 23-9. Insert three cables (6), (8), and (9) from PTM control mounting bracket (7) into tunnel hole (1).
- 23-10. Route three cables (6), (8), and (9) along exhaust pipe (10), body mount (12), and oil filter (11). Continue routing cables (6), (8), and (9) through engine compartment to A-frame cable guide (14) on A-frame pillar flange (13) to PTM mount assembly (15).



- 2. CONTROL CABLE SEAL ASSEMBLY – 3220908 – QTY. 1
- 4. RIVET NUT – 3221004-14 – QTY. 2

Figure 5-87.

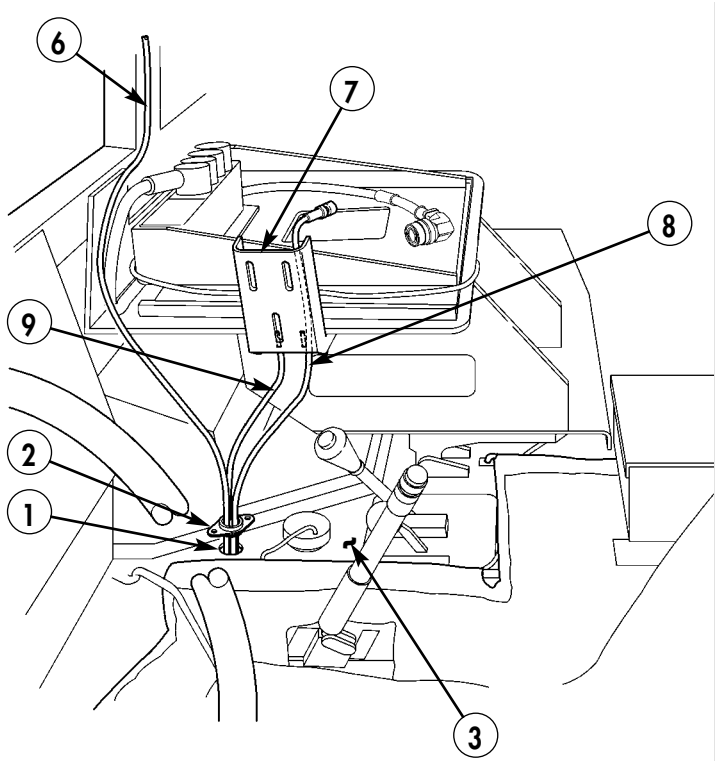


Figure 5-88.

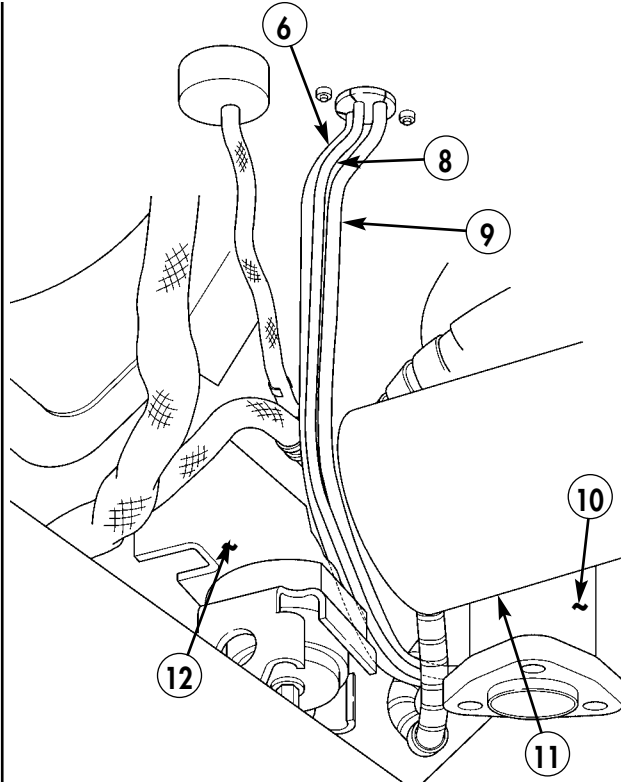
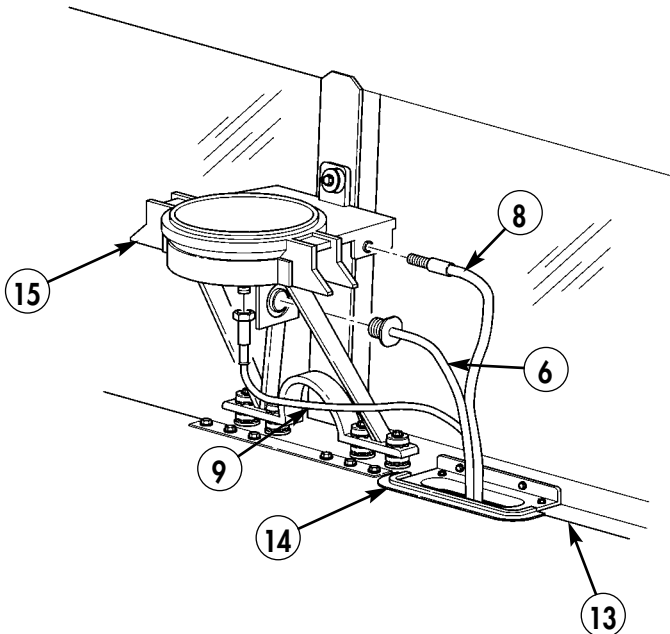


Figure 5-89.



- 6. DCM/PTM INTERCONNECT CABLE - 3220915-1 - QTY. 1
- 8. PTM CONTROL CABLE ASSEMBLY - 3220905-1 - QTY. 1
- 9. AZIMUTH LOCK CABLE - 3221015-1 - QTY. 1

Figure 5-90.

CAUTION

Do not overtighten DCM/PTM interconnect cable. The DCM/PTM interconnect cable is made of plastic and will break when overtightened.

- 23-11.** Secure PTM connector end (17) of DCM/PTM interconnect cable (6) to PTM mount assembly (15) with nut (18).

NOTE

Apply anti-seize compound as required.

- 23-12.** Mount PTM control assembly (31) on PTM control mount bracket assembly (36) with three screws (35), six washers (32), and three nuts (33). Ensure PTM control assembly handle (30) has sufficient room to clear steering wheel and integrated radio rack (34).

NOTE

Installation of PTM azimuth control cable may take several attempts before all adjustments are correct.

- 23-13.** Remove bolt (37) and washer (26) from PTM mount assembly (15) and azimuth sector gear assembly (25).

NOTE

To determine which cable is the azimuth control cable, move PTM control handle left, right, fore, and aft to see which cable moves.

- 23-14.** Insert azimuth control cable (8) into side of PTM mount assembly (15).
23-15. Install azimuth control cable rubber boot (19) on azimuth control cable (8).
23-16. Install azimuth control cable (8) into clevis (21) of azimuth sector gear (25) until approximately one thread of shaft (16) is exposed through clevis (21). This is the starting position for aligning azimuth sector gear assembly (25).
23-17. Tighten azimuth control cable locking nut (20).
23-18. Position azimuth sector gear assembly (25) onto PTM mount assembly (15).
23-19. Insert azimuth control cable (8) into PTM mount assembly cable lock (37).

NOTE

PTM control assembly must be in the center position.

- 23-20.** Ensure that azimuth locking pin hole (22) in azimuth sector gear assembly (25) is aligned with azimuth lock cable (9) in PTM mount assembly (15). If aligned, proceed to next step. If not aligned, repeat steps 36-15 through 36-19, adjusting the azimuth sector gear assembly (25) position on the azimuth control cable (8) until alignment is achieved.
23-21. Secure azimuth sector gear assembly (25) to PTM mount assembly (15) with bolt (27) and washer (26).
23-22. Insert azimuth lock cable (9) through hole (29) into PTM mount assembly (15).
23-23. Install azimuth lock cable rubber boot (23) on azimuth lock cable (9).
23-24. Adjust top and bottom locking/adjuster nuts (24) until locking pin (28) clears azimuth sector gear assembly (25) by 1/16 in. when PTM control azimuth locking trigger is pulled.
23-25. Ensure azimuth control cable (8), azimuth lock cable (9), and rubber boots (19) and (23) are installed correctly.

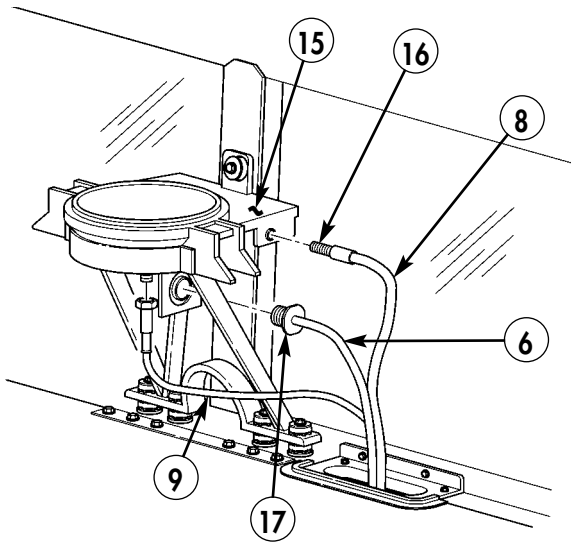


Figure 5-91.

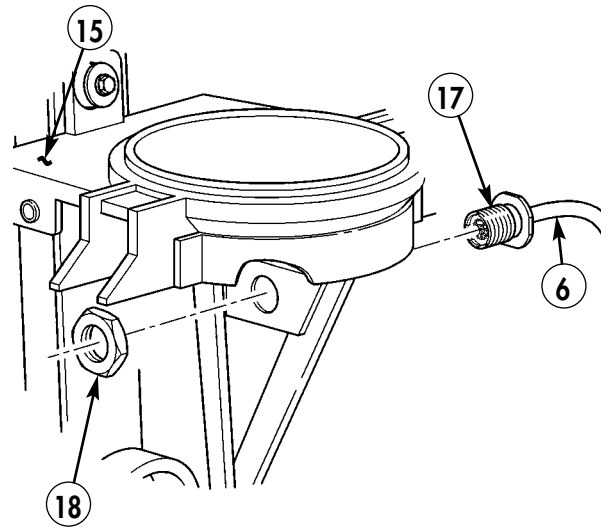
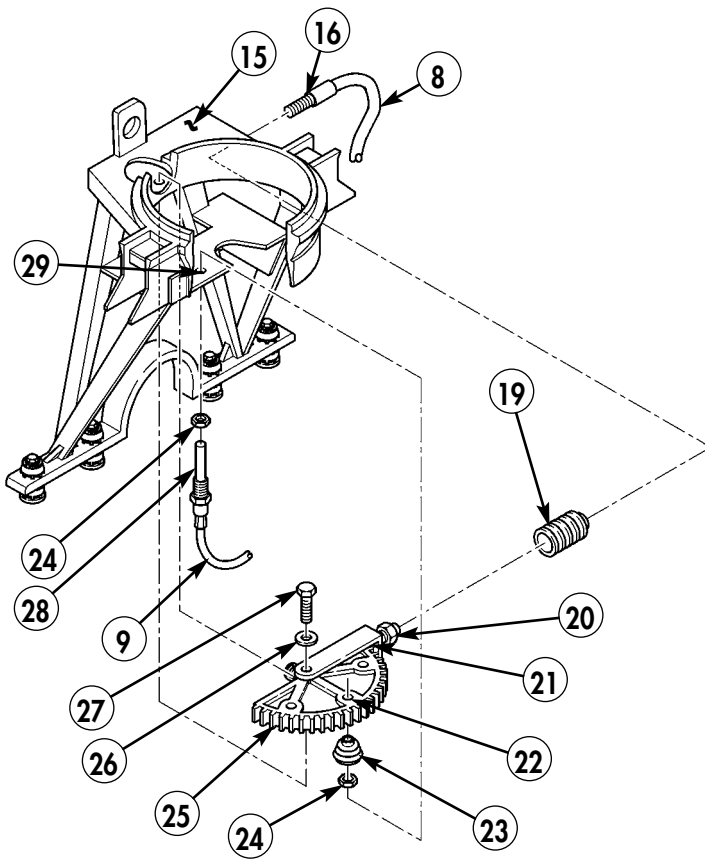


Figure 5-92.



- 15. PTM MOUNT ASSEMBLY - 3220952-1 - QTY. 1
- 31. PTM CONTROL ASSEMBLY - 3220905-1 - QTY. 1
- 33. NUT - M45913/3-5CG8Z - QTY. 3
- 34. WASHER - MS27183-12 - QTY. 6
- 35. SCREW - N/A - QTY. 3

Figure 5-93.

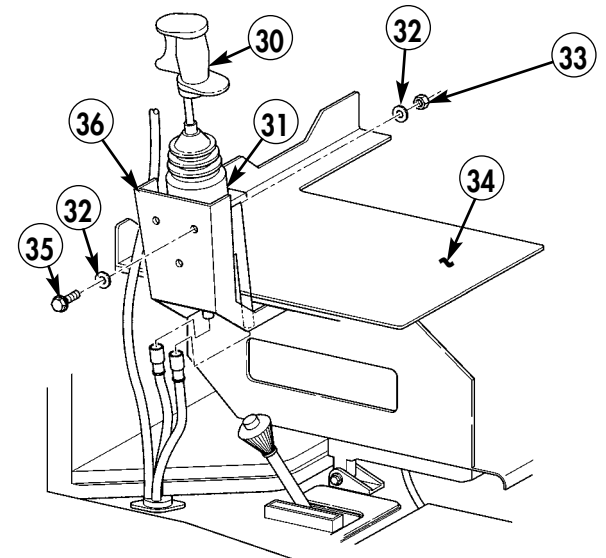


Figure 5-94.

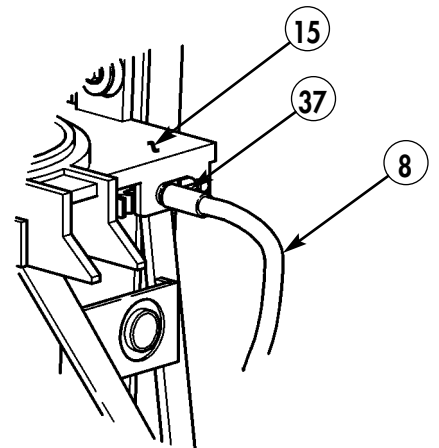
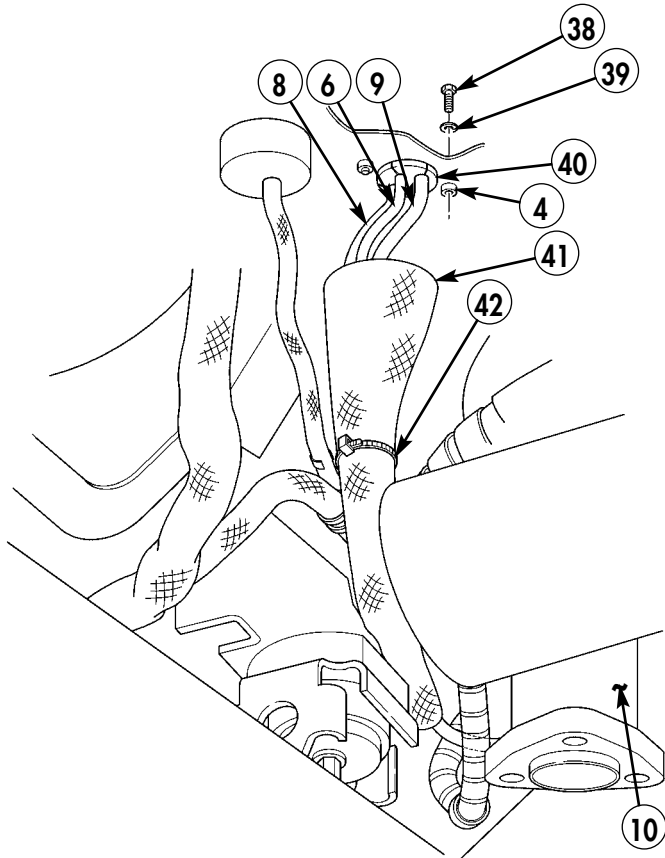


Figure 5-95.

- 23-26. Install control cable seal assembly rubber grommet (40) on PTM control cables (8) and (9) and DCM/PTM interconnect cable (6). Secure control cable seal assembly rubber grommet (40) on tunnel rivet nuts (4) with two capscrews (38) and washers (39).
- 23-27. Cover DVE/PTM control cables (8) and (9) that run along vehicle exhaust pipe (10) with heat shield sleeve (41). Secure heat shield sleeve (41) and PTM control cables (8) and (9) with cable ties (42).
- 23-28. Route DCM/PTM interconnect cable (6) behind radio rack to DCM mounting assembly (43).



- 38. CAPSCREW – B1821BH025C075N – QTY. 2
- 39. WASHER – MS27183-10 – QTY. 2
- 41. HEAT SHIELD SLEEVE – N/A – QTY. 1
- 42. STAINLESS STEEL CABLE TIE – 69855K72 – QTY. A/R

Figure 5-96.

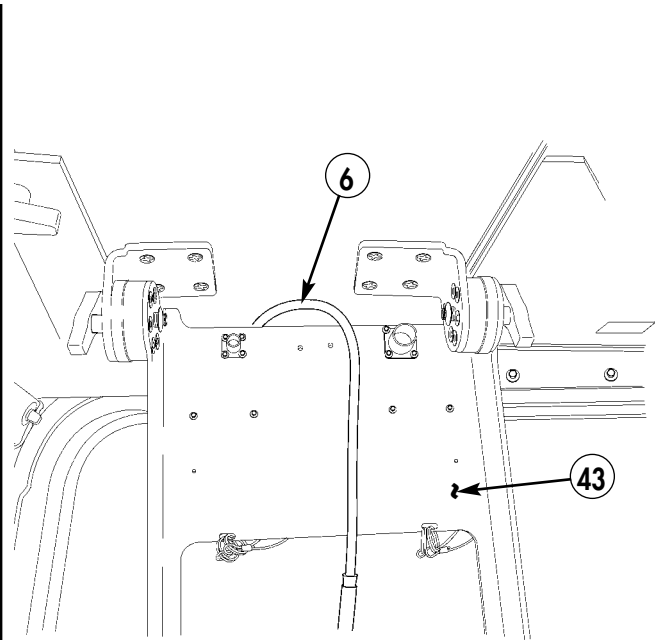


Figure 5-97.

Section XXIV. LCD PROTECTIVE ASSEMBLY INSTALLATION

NOTE

Installation of the LCD protective assembly is optional. Perform the following operations only if desired.

- 24-1.** Install LCD protective assembly on DCM.

NOTE

LCD protective assembly is stored in stowage pouch 3256879-1.

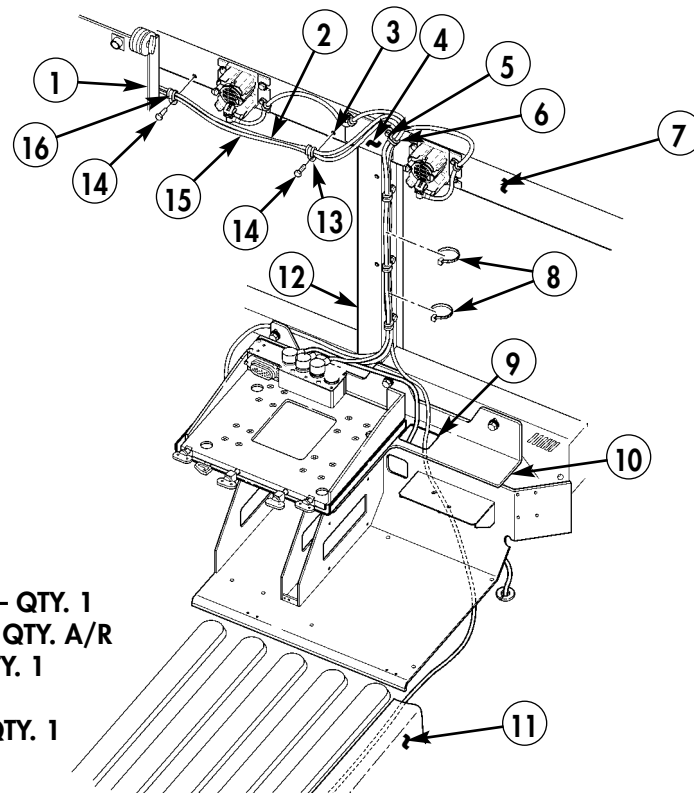
- 24-2.** Place stowage pouch in rear seat storage.

Section XXV. DVE POWER CABLE INSTALLATION

NOTE

Previously routed cables have been removed for clarity.

- 25-1. Route DVE power cable (2) from DCM mount (1) to center of windshield center support (12), through access cutout (9) in integrated radio rack (10), and under tunnel insulation (11) to rear of battery box.
- 25-2. Attach shrink tubing (19) and two terminal lugs (18) and (22) to DVE power cable negative lead (21) and DVE power cable positive lead (20). (Refer to TM 9-2320-280-20 for terminal connector repair.)
- 25-3. Attach DVE power cable positive lead (20) to 24V terminal board (24) with existing nut (17).
- 25-4. Attach DVE power cable negative lead (21) to ground strap (23) with existing nut (25).
- 25-5. Secure all leads together with tiedown strap (8).
- 25-6. Remove two existing screws, lockwasher, and washers from DCM mount (1) and windshield frame (7).
- 25-7. Secure two cables (2) and (15) to windshield frame (7) with clamp (16) and screw (14).
- 25-8. Secure DCM mount (1) to windshield frame (7) with existing washers, lockwashers, and nuts.
- 25-9. If required, locate, mark, and drill 0.147-in. diameter hole (3) in windshield frame (7).
- 25-10. Secure two cables (2) and (15) to windshield frame (7) with clamp (13) and screw (14).
- 25-11. Remove screw (5) and clamp (6) from windshield wiper bracket (4).
- 25-12. Secure two cables (2) and (15) to windshield wiper bracket (4) with existing clamp (6) and existing screw (5).
- 25-13. Secure two cables (2) and (15) to existing cables with tiedown straps (8).
- 25-14. Install right side tunnel insulation. (Refer to TM 9-2320-280-20.)
- 25-15. Install batteries. (Refer to TM 9-2320-280-20.)



- 2. DVE POWER CABLE – 3256881-3 – QTY. 1
- 8. TIEDOWN STRAP – MS3367-1-0 – QTY. A/R
- 13. LOOP CLAMP – MS21333-76 – QTY. 1
- 14. SCREW – 9421073 – QTY. 2
- 16. LOOP CLAMP – MS21333-104 – QTY. 1

Figure 5-98.

SECTION XXVI. WINDSHIELD ARMOR MODIFICATION

NOTE

Perform following steps for vehicles with bolt-on armor installed.

- 26-1. Remove four capscrews (5) and left capping ring (4) from left side of windshield frame (1).
- 26-2. Remove four capscrews (5) and right capping ring (6) from right side of windshield frame (1).
- 26-3. Remove five capscrews (3) and upper capping ring (2) from windshield frame (1).

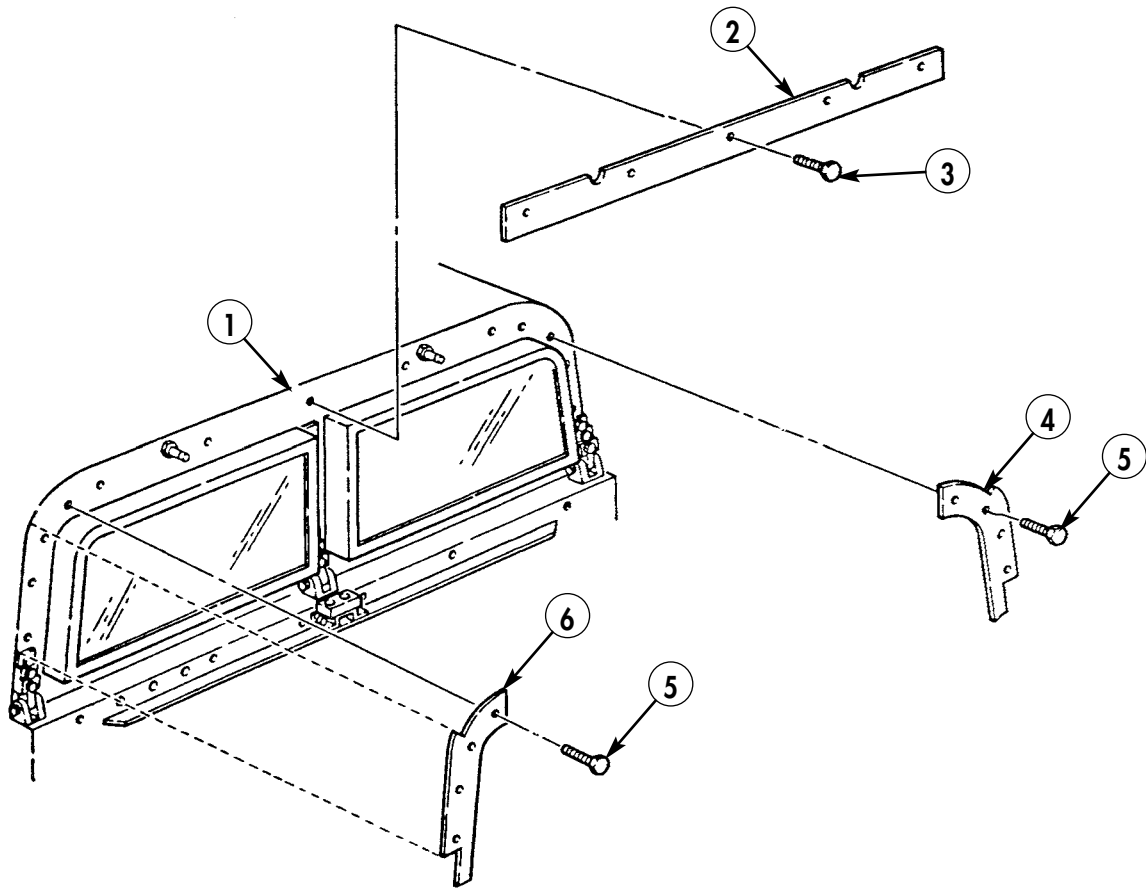


Figure 5-100.

NOTE

Left side shown; right side opposite.

26-4. Locate, mark, and remove section of armor on left capping ring (4). Repeat for right side.

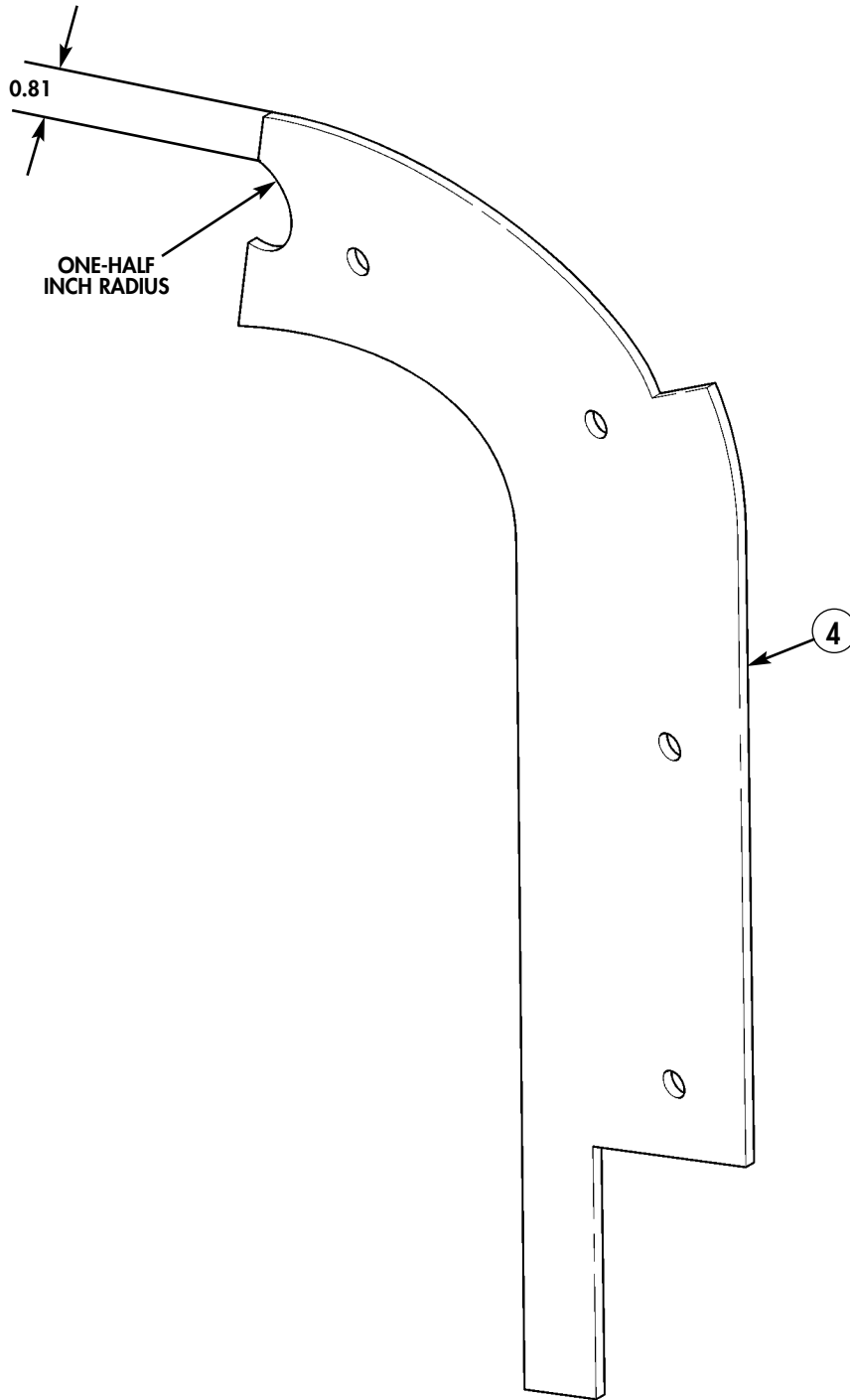


Figure 5-101.

NOTE

Right side shown; left side opposite.

26-5. Locate, mark, and remove sections of armor on upper capping ring (2).

26-6. Spot paint all exposed metal surfaces. (Refer to TM 43-0139.)

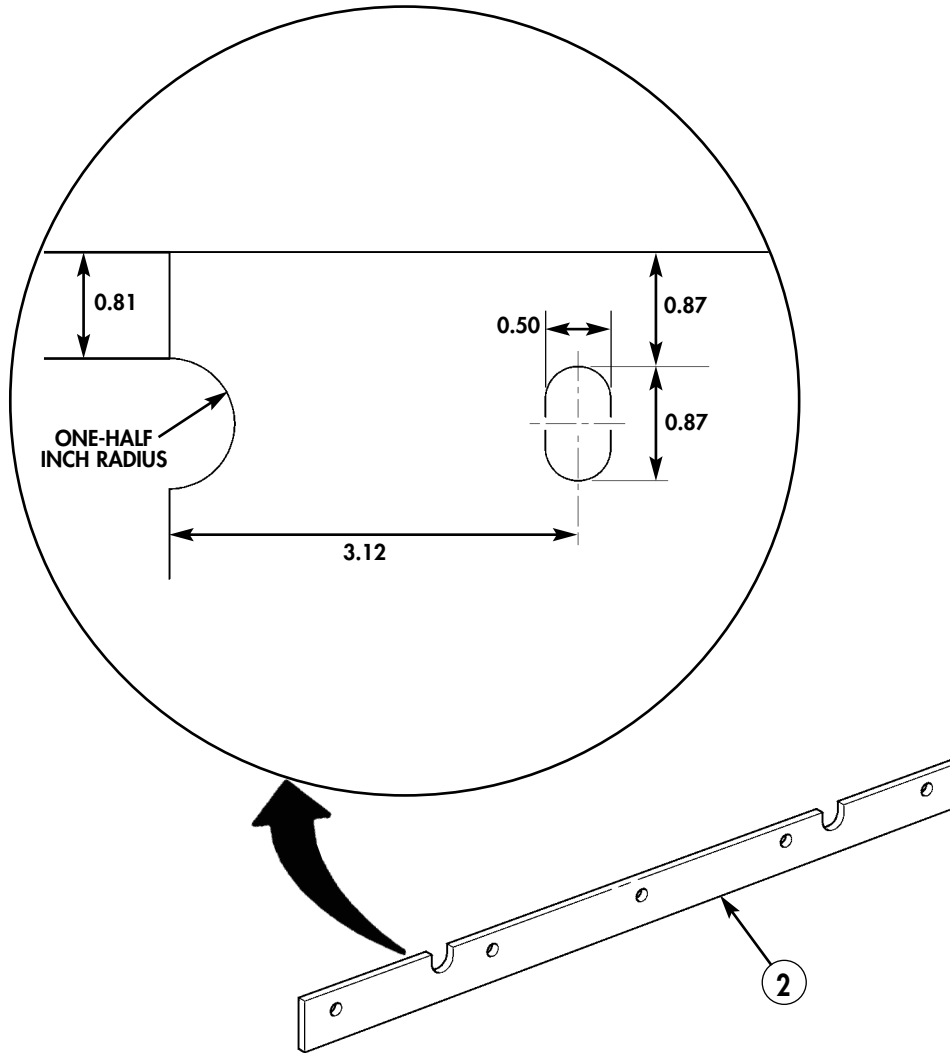


Figure 5-102.

Section XXVII. ARMOR AND ANTENNA INSTALLATION

NOTE

Perform following steps for vehicles with bolt-on armor and antenna mounted on left side of windshield frame.

27-1. Locate, mark and drill two 0.500-in. diameter holes (2) on left side of windshield frame (1).

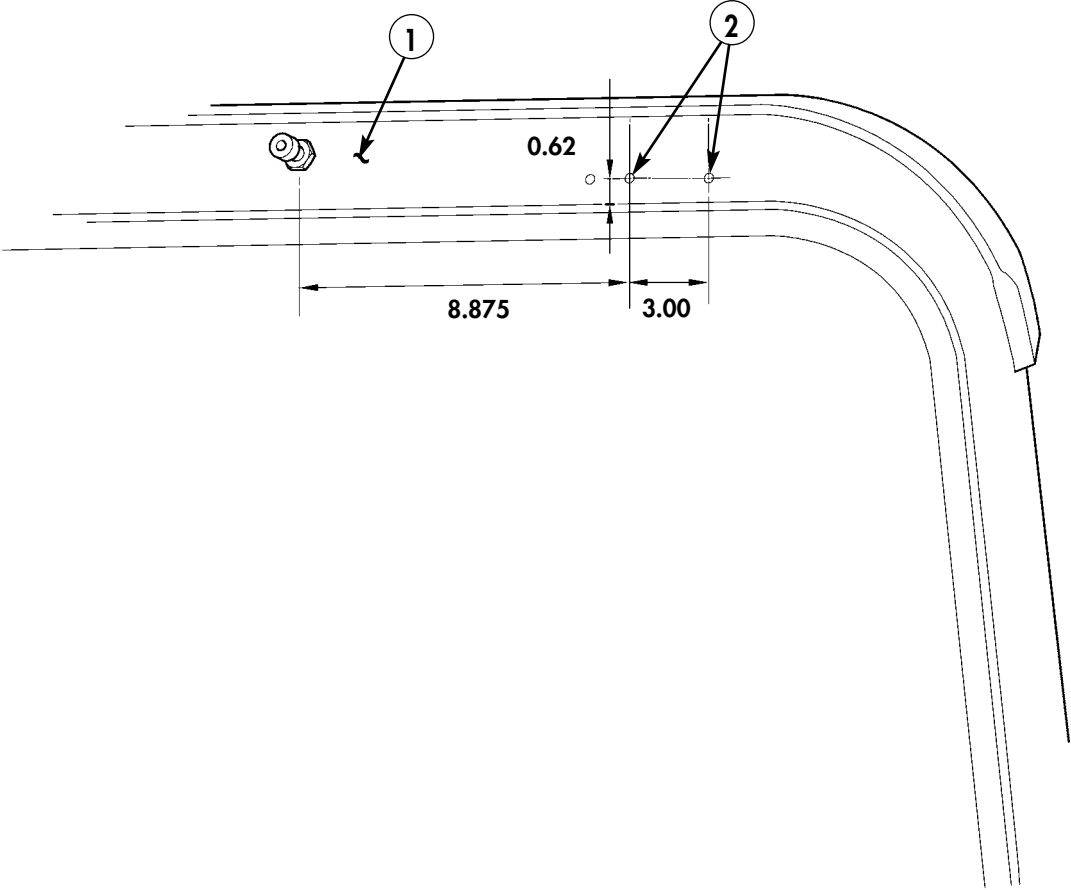
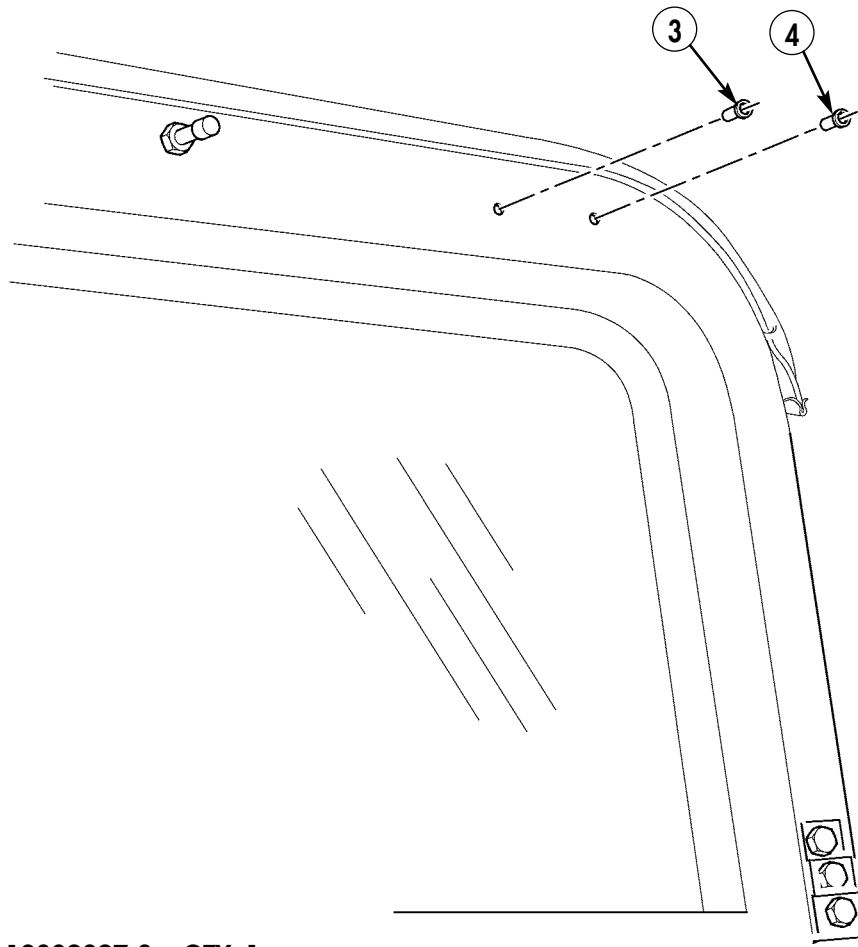


Figure 5-103.

27-2. Install wellnuts (3) and (4).



- 3. WELLNUT - 12339397-3 - QTY. 1
- 4. WELLNUT - 12339397-6 - QTY. 1

Figure 5-104.

NOTE

It may be necessary to drill pilot hole prior to drilling 0.562-in. diameter hole.

27-3. Locate, mark and drill one 0.562-in. diameter hole (5) on right side of A-pillar (6).

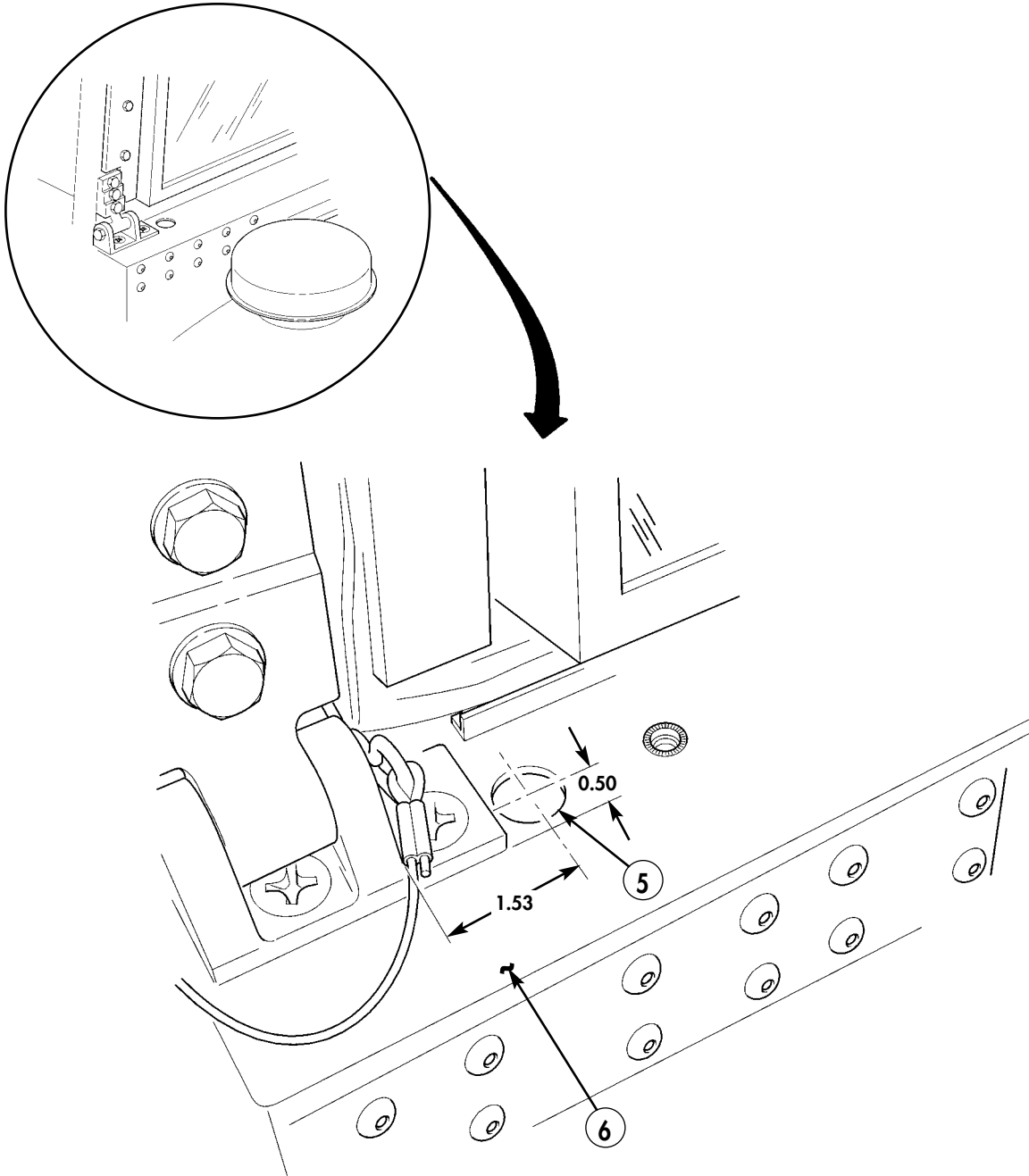


Figure 5-105.

- 27-4. Install modified upper capping ring (7) on windshield frame (12) with five existing screws (8).
- 27-5. Install modified right capping ring (11) on right side of windshield frame (12) with four existing screws (10).
- 27-6. Install modified left capping ring (9) on left side of windshield frame (12) with four existing screws (10).

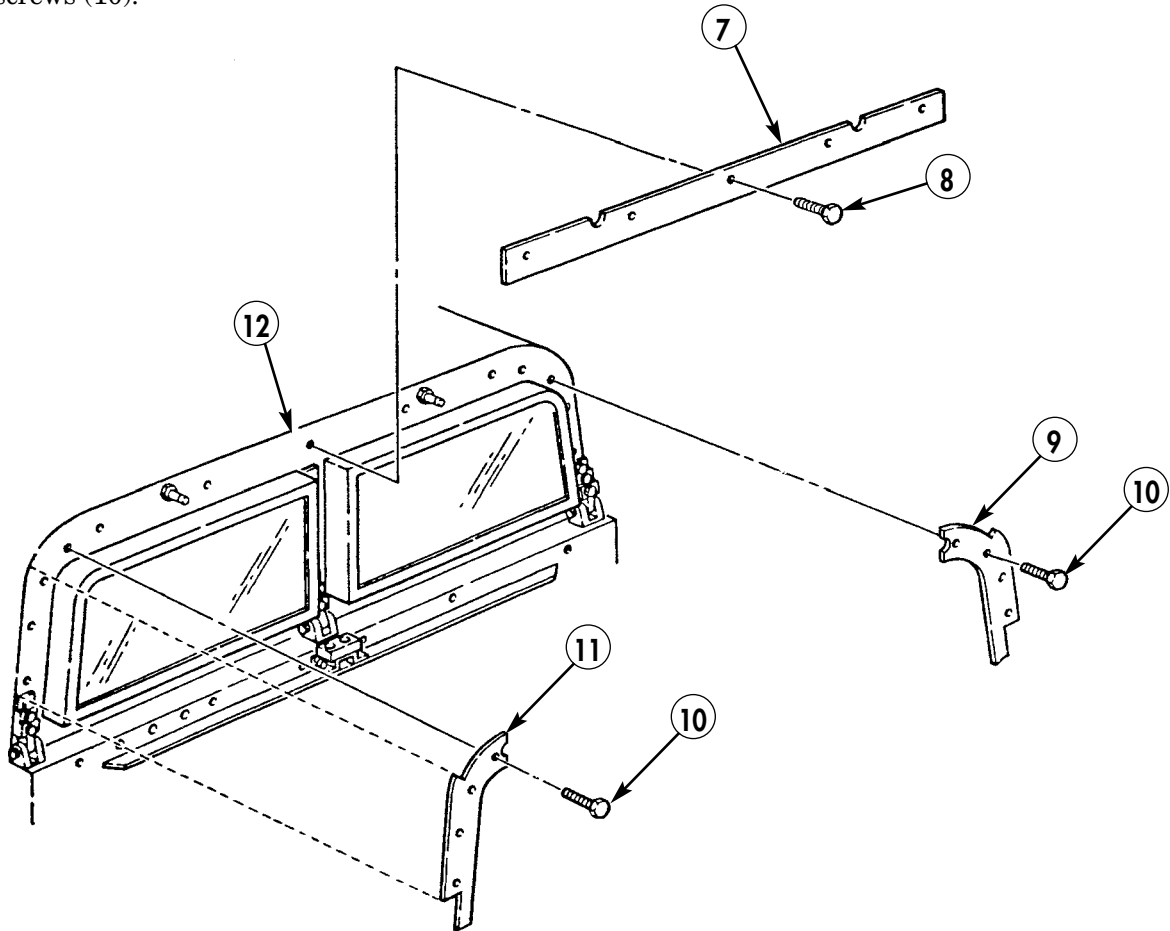
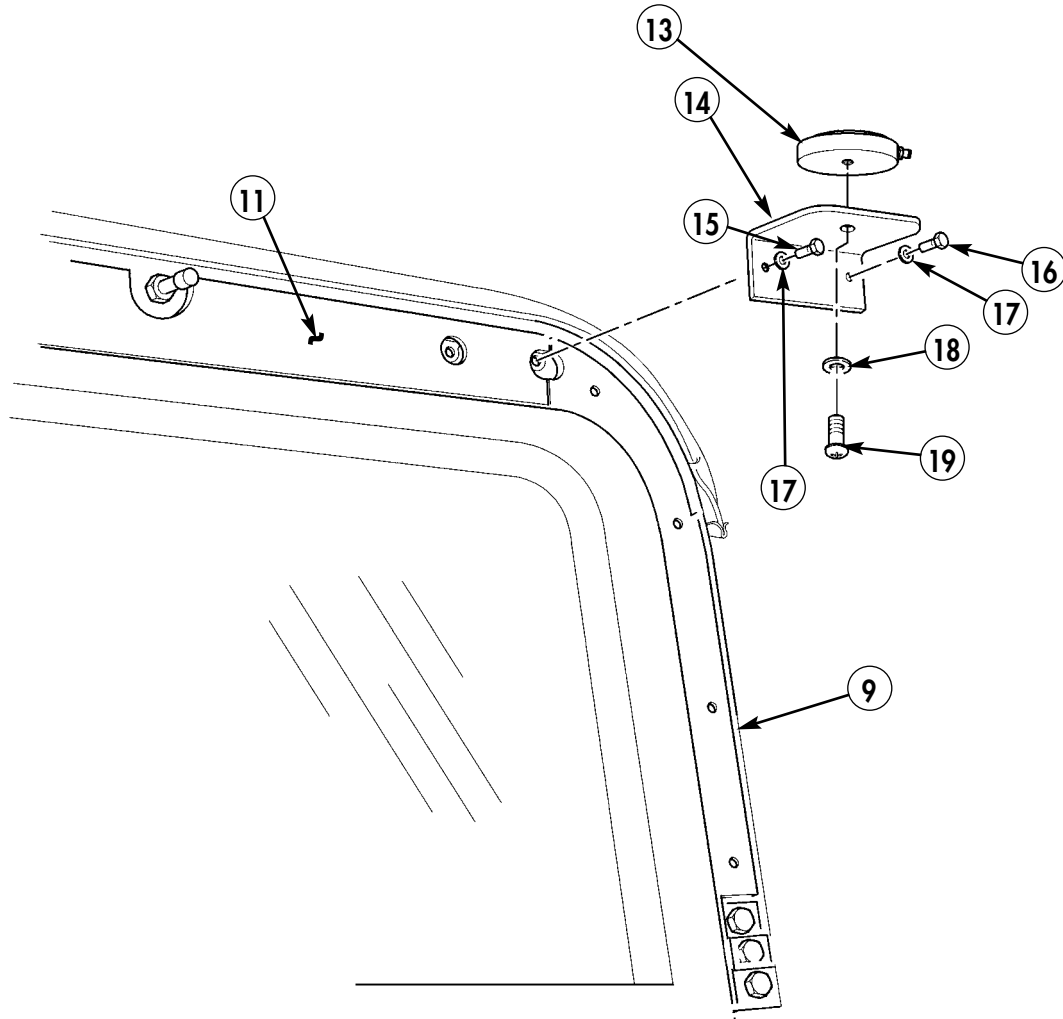


Figure 5-106.

- 27-7.** Secure antenna (13) to support (14) with lockwasher (18) and screw (19).
- 27-8.** Install support (14) on left capping ring (9) and upper capping ring (11) with two washers (17), screw (15) and screw (16).



13. PLGR ANTENNA - AT575-030 - QTY. 1
 14. SUPPORT - 12480578 - QTY. 1
 15. CAPSCREW - B1821BH025C175N - QTY. 1
 16. CAPSCREW - B1821BH025C125N - QTY. 1
 17. WASHER - 2436161 - QTY. 2
 18. LOCKWASHER - MS35338-43 - QTY. 1
 19. SCREW - MS35207-261 - QTY. 1

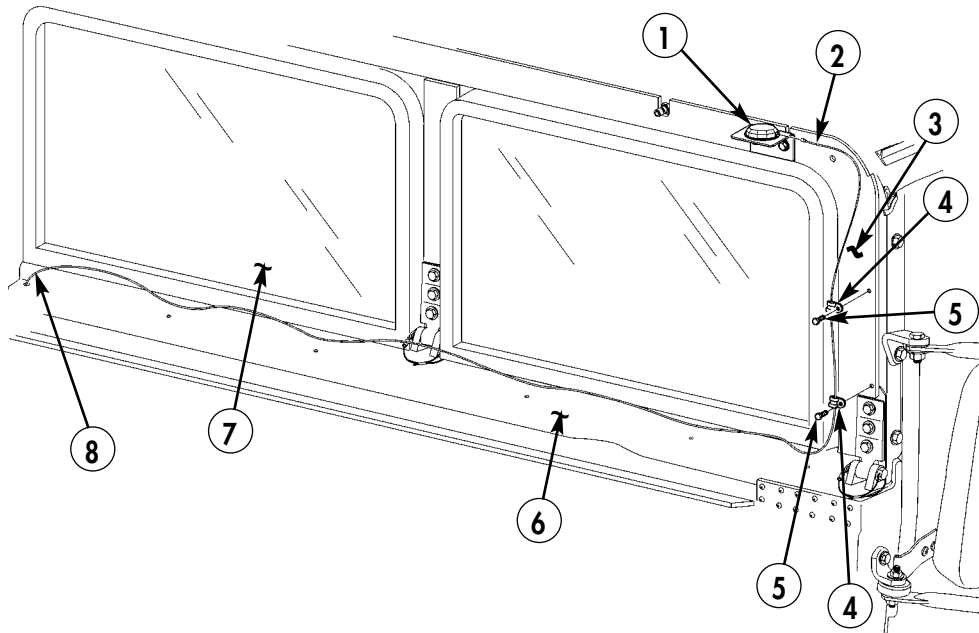
Figure 5-107.

Section XXVIII. ANTENNA CABLE INSTALLATION (WITH BOLT-ON ARMOR)

NOTE

- Perform following steps for vehicles with bolt-on armor and antenna installed on left side of windshield frame.
- For antenna cable installation without bolt-on armor (See Section XII).

- 28-1.** Route antenna cable (2) through hole (8), across A-pillar (6) and below windshield (7) to left side of vehicle. Connect antenna cable (2) to antenna (1).
- 28-2.** Remove two screws (5) from left capping ring (3).
- 28-3.** Secure antenna cable (2) to left capping ring (3) with two clamps (4) and two existing screws (5).



2. ANTENNA CABLE – A32551281W23 – QTY. 1
4. CLAMP – MS21333-96 – QTY. 1

Figure 5-108.

- 28-4. Split grommet (10) and install on antenna cable (2)
- 28-5. Wrap electrical tape (9) around antenna cable (2).
- 28-6. Install antenna cable (2) into grommet (10).

NOTE

Apply sealing compound on grommet.

- 28-7. Install grommet (10) into hole (11) on A-pillar (6).

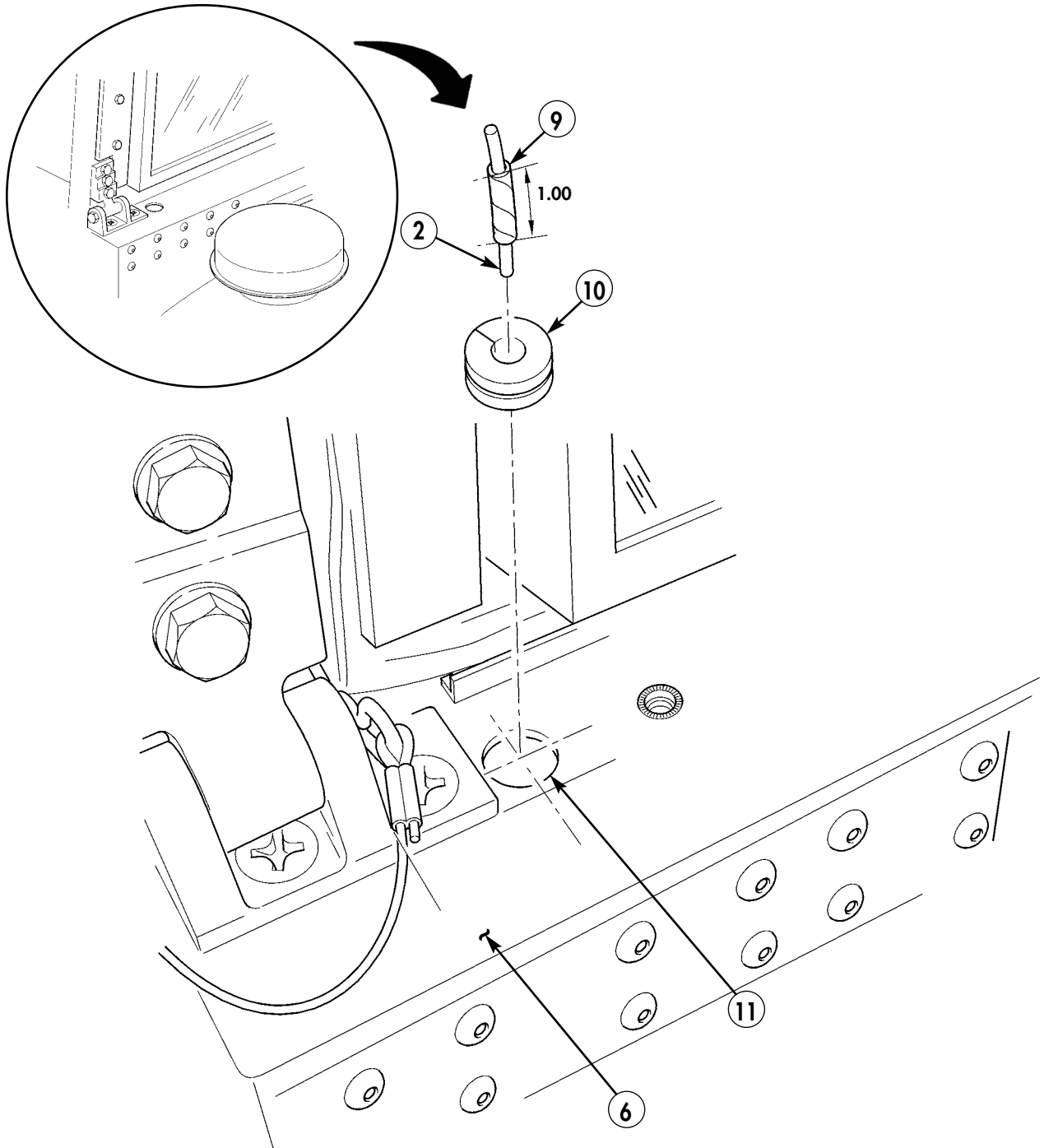


Figure 5-109.

NOTE

Perform steps 28-8 and 28-9 for vehicles that have windshield retainer installed on A-pillar.

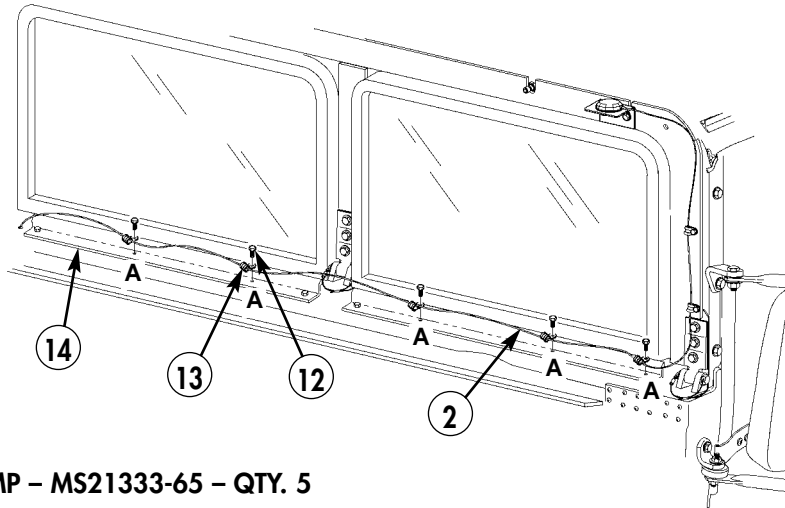
28-8. Remove five screws (12) from windshield retainer (14).

28-9. Secure antenna cable (2) to windshield retainer (14) with five clamps (13) and existing screws (12).

NOTE

Perform steps 28-10 through 28-12 for vehicles that do not have windshield retainer or holes.

28-10. Locate, mark and drill five 0.297-in. diameter holes (15) on A-pillar (6).



13. LOOP CLAMP – MS21333-65 – QTY. 5

Figure 5-110.

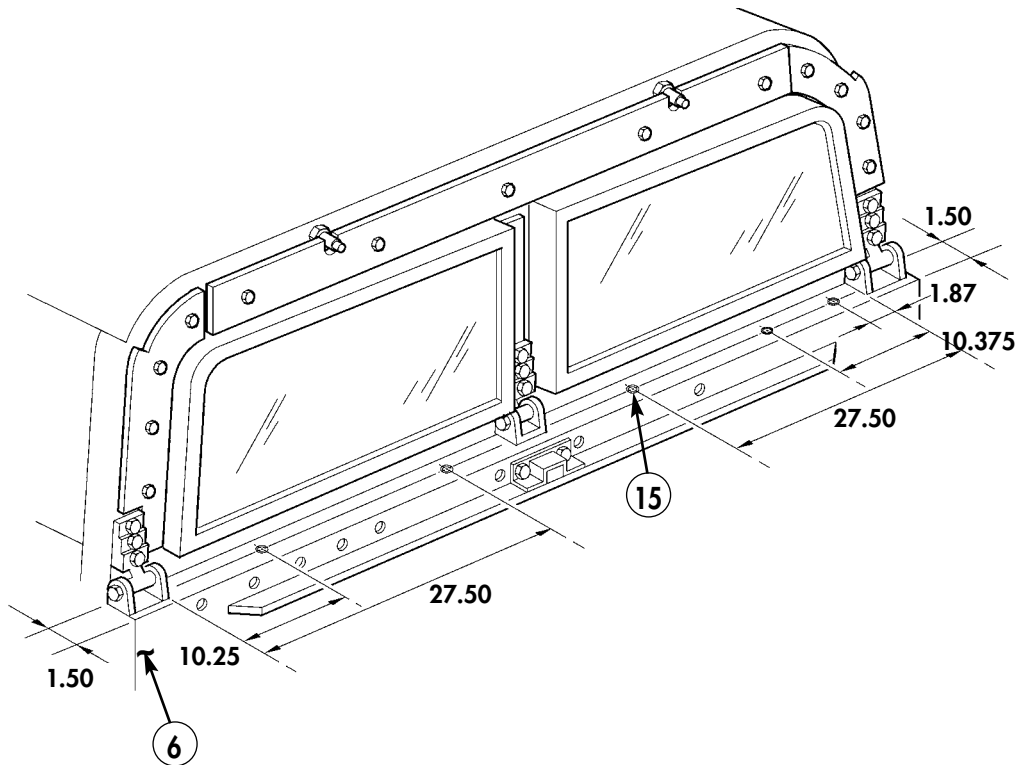
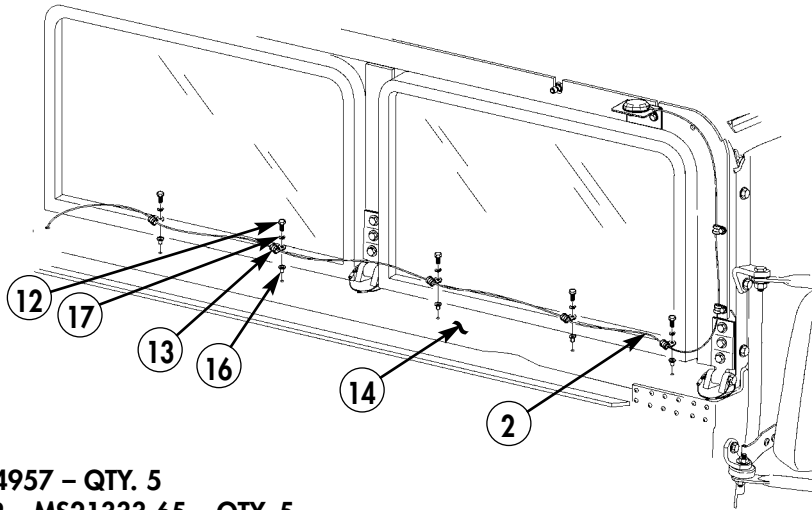


Figure 5-111.

- 28-11.** Install five inserts (16) in holes of windshield retainer (14).
- 28-12.** Secure antenna cable (2) to windshield retainer (14) with five clamps (13), lockwashers (17) and screws (12).
- 28-13.** Route antenna cable (2) behind heater shield (19) to installation mount (18).



- 12. SCREW - 274957 - QTY. 5**
13. LOOP CLAMP - MS21333-65 - QTY. 5
16. INSERT - 12446871-3 - QTY. 5
17. LOCKWASHER - 120217 - QTY. 5

Figure 5-112.

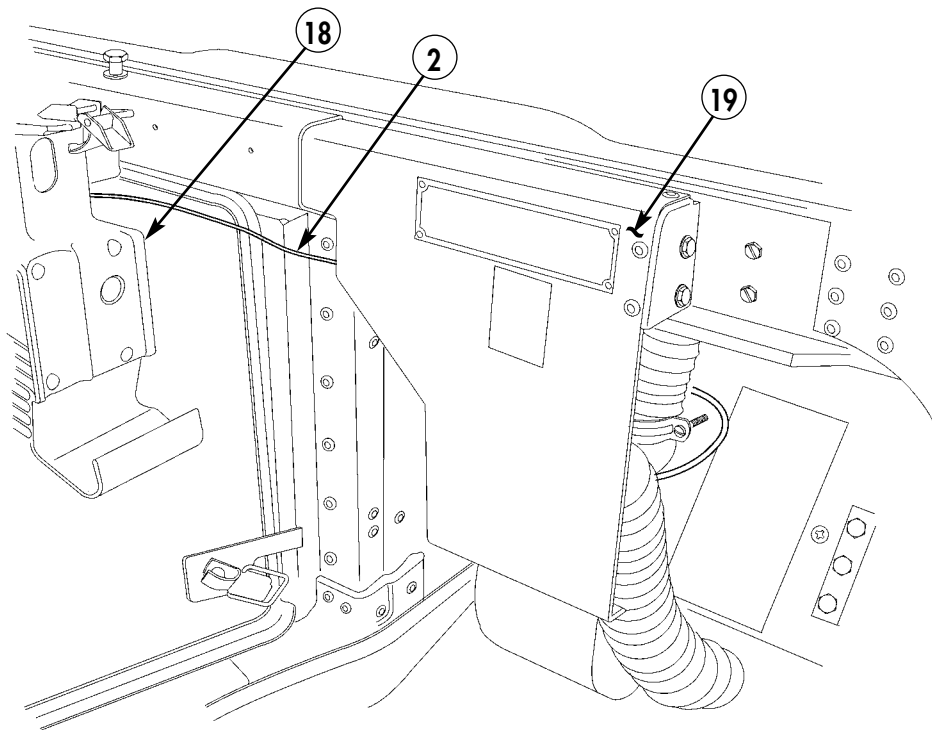


Figure 5-113.

- 28-14. Locate, mark and drill 0.147-in. diameter hole (21) in plenum (20).
- 28-15. Secure antenna cable (2) to plenum (20) with clamp (23) and screw (22).
- 28-16. Secure excess antenna cable behind installation mount (18) on radio rack (27) with clamp (25), and existing screw (24) and nut (26). Do not tighten nut (26).

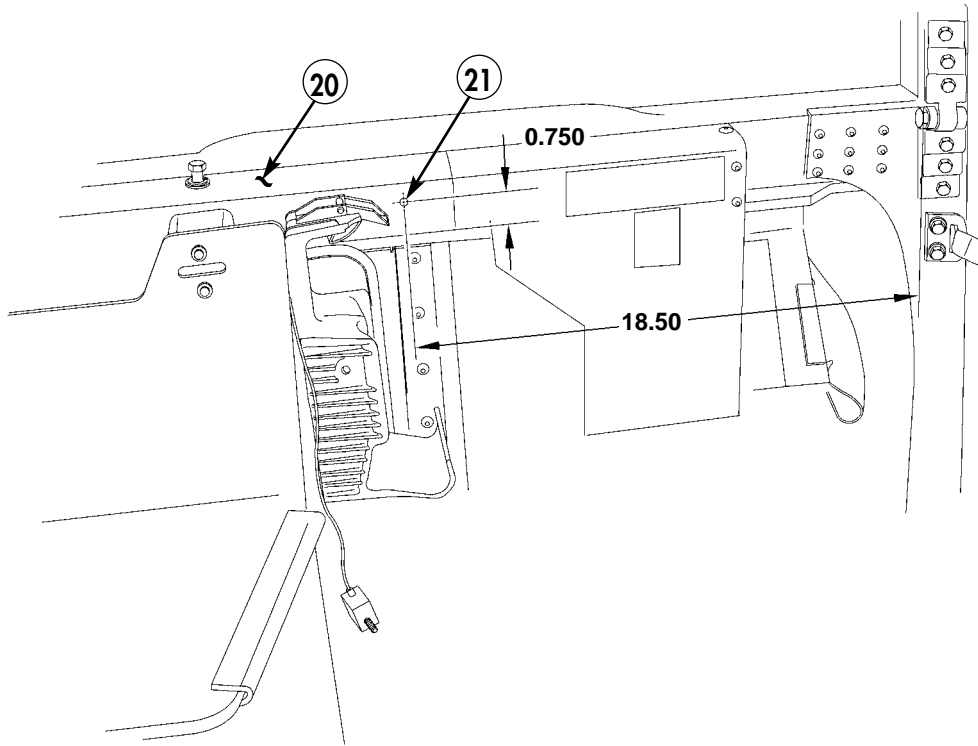


Figure 5-114.

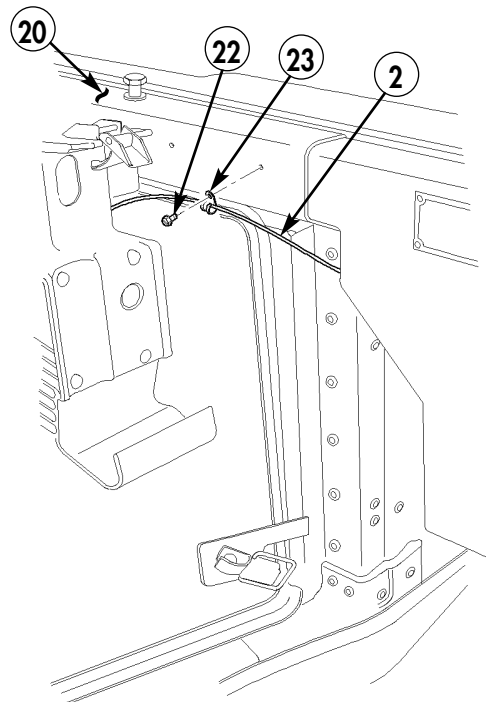
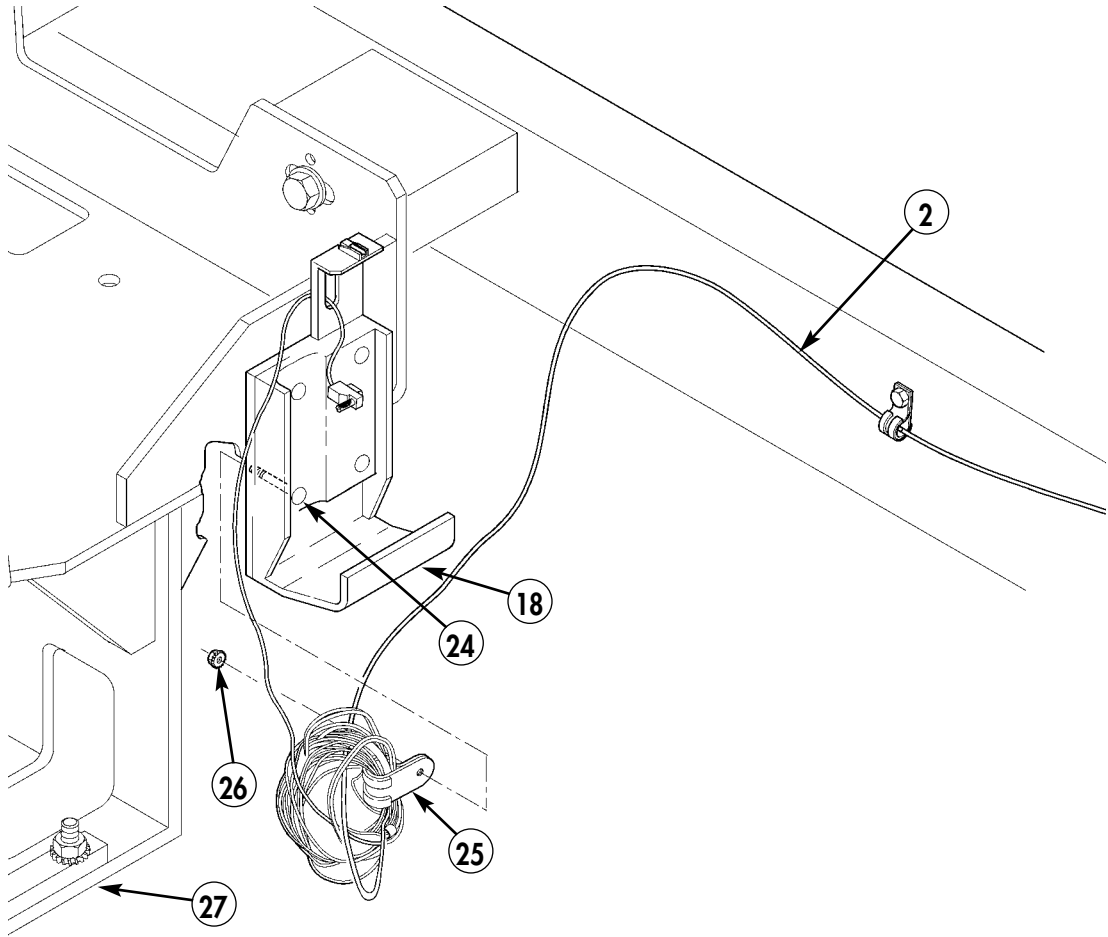


Figure 5-115.



25. LOOP CLAMP – MS21333-79 – QTY. 1

Figure 5-116.

By Order of the Secretary of the Army:

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

Official:



SANDRA R. RILEY
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PUBLICATION/FORM NUMBER <p style="text-align: center;">TB 9-2320-387-35-3</p>	DATE <p style="text-align: center;">17 OCT. 2005</p>	TITLE <p style="text-align: center;">TECHNICAL BULLETIN INSTALLATION INSTRUCTIONS</p>
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ITEM NO.	PAGE NO.	PARA-GRAPH	LINE NO.*	FIGURE NO.	TABLE NO.	RECOMMENDED CHANGES AND REASON <i>(Provide exact wording of recommended changes, if possible)</i>
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1	5-51	5-68				<p>Loop clamp should be MS21333-77.</p>
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SAMPLE

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

TYPED NAME, GRADE, OR TITLE <p style="text-align: center;">Pat Smith</p>	TELEPHONE EXCHANGE/AUTOVON, PLUS EXTENSION <p style="text-align: center;">AV272-4162</p>	SIGNATURE <p style="text-align: center;"><i>Pat Smith</i></p>
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TO: <i>(Forward direct to addressee listed in publication)</i> AMSTA-LC-LPIT/Tech Pubs, TACOM-RI 1 Rock Island Arsenal Rock Island, IL 61299-7630	FROM: <i>(Activity and location) (include ZIP code)</i>	DATE:
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PART II - REPAIR PARTS AND SPECIAL TOOLS LISTS AND SUPPLY CATALOGS/SUPPLY MANUALS

PUBLICATION/FORM NUMBER TB 9-2320-387-35-3	DATE 17 OCT. 2005	TITLE TECHNICAL BULLETIN INSTALLATION INSTRUCTIONS
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PAGE NO.	COLM NO.	LINE NO.	NATIONAL STOCK NUMBER	REFERENCE NO.	FIGURE NO.	ITEM NO.	TOTAL NO. OF MAJOR ITEMS SUPPORTED	RECOMMENDED ACTION
<h1>SAMPLE</h1>								

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

TYPED NAME, GRADE, OR TITLE	TELEPHONE EXCHANGE/AUTOVON, PLUS EXTENSION	SIGNATURE
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RECOMMENDED CHANGES TO PUBLICATIONS AND BLANK FORMS For use of this form, see AR 25-30; the proponent agency is ODISC4.				Use Part II (reverse) for Repair Parts and Special Tools Lists (RPSTL) and Supply Catalogs/Supply Manuals (SC/SM).		DATE:
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