

**TECHNICAL BULLETIN  
INSTALLATION INSTRUCTIONS**

**FOR SYSTEMS**

**SINGLE CHANNEL GROUND AND AIRBORNE  
RADIO SYSTEM (SINGARS)**

**AN/VRC-88F, AN/VRC-89F, 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, AMBULANCE: 4-LITTER, ARMORED, 4X4,  
M997 (2310-01-111-2274) (EIC: BBA).**

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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 vehicle:  
Truck, Ambulance: 4-Litter, Armored, 4x4, M997.
- 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:
  - a. Single Channel Ground and Airborne Radio System (SINCGARS), Radio Set AN/VRC-88F/89F/90F Series
  - b. Force XXI Battle Command, Brigade-and-Below (FBCB2)
  - c. Precision Lightweight Global Positioning System Receiver (PLGR)
  - d. Enhanced Position Location Reporting System (EPLRS)
  - e. Driver's Vision Enhancer (DVE)
  - f. 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:

- a. Reports of Maintenance and Unsatisfactory Equipment. See chapter 4, sections VI through VIII for information.
- b. Reports of Packaging and Handling Deficiencies. See chapter 4, sections VI through VIII for information.
- c. Consolidated Index of Army Publications.
- d. Refer to the latest issue of DA Pam 25-30 to determine whether there are new changes or additional publications pertaining to the equipment.

### 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 systems.



## **CHAPTER 3**

### **COMPLETION TIME FOR INSTALLATION**

A total of 25 man-hours are required for two personnel to install the C4ISR equipment. Typical vehicle downtime is 14 hours.



## CHAPTER 4

### PREPARATION FOR INSTALLATION

#### Section I. PREPARATION OF VEHICLE

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 9-2320-280-20.)
- 2-2. Remove right-hand rear cab enclosure panel, as applicable. (Refer to TM 9-2320-280-20.)
- 2-3. Remove center tunnel insulation, as applicable. (Refer to TM 9-2320-280-20.)
- 2-4. Remove standard radio rack. (Refer to TM 9-2320-280-20.)

#### Section III. LIST OF ITEMS TO BE RETAINED

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

#### Section IV. PREPARATION OF 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 SF 364 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 Discrepancy Report (TDR) (SF 361) 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 SF 364 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. Items supplied in C4ISR equipment and/or required for installation.
- 9-2. Use table 4-2 to identify and inventory C4ISR equipment parts required to perform installation. Refer to table 4-1 to identify additional materials required to install C4ISR equipment.

### Section X. DISTRIBUTION AND ISSUE INSTRUCTIONS

- 10-1. U.S. Forces: Do not requisition C4ISR equipment. It 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.

#### SINGARS:

- (A): MK-2325
- (B): MK-2326
- (C): MK-2327 (dual)
- (D): MK-2328 (double kit)
- (E): MK-2801

#### PLGR:

- (F): 57K4400

#### EPLRS:

- (G): MK-2467A/VSQ-1
- (H): MK-2753/VSQ

#### FBCB2:

- (I): No kits available

#### DVE:

- (J): No kits available



## MATERIAL REQUIRED FROM KITS:

Table 4-1. Kit Parts List for Installation of CAISR Equipment.

ITEM NO.	NOMENCLATURE	PART NUMBER	NSN	KIT	QTY
1.	Antenna AS-3900/VRC	A3017899-1	5985-01-297-2971	(A),(B),(C),(D),(G)	2
2.	Cable Assembly, Antenna	A3014031-17	5995-01-225-1660	(B),(C),(D)	1
3.	Cable Assembly, Antenna, EPLRS	SM-C-911480	5995-01-167-1269	(F),(G)	1
4.	Cable Assembly, Power, EPLRS	A3004939	5995-01-198-0538	(F),(G)	1
5.	Cable Assembly, Radio Frequency	A3014031-8	5995-01-219-7035	(A),(B),(C),(D)	1
6.	Clamp, Loop	MS21333-67	5340-00-079-7837	(A),(C),(D),(E)	9
7.	Clamp, Loop	MS21333-102	5340-00-984-8540	(B)	3
8.	Gasket	A3013655-1	5330-01-205-2864	(A),(B),(C),(D),(J)	3
9.	Insert	12446871-2	5310-01-411-3422	(E)	11
10.	Loudspeaker	A3014065-1	5965-01-222-1420	(A),(B),(C),(D)	2
11.	Mount, Resilient	MT-6146/VSQ-1	5340-01-167-8297	(F),(G)	1
12.	Mounting Base, Electrical Equipment	A3013367-1	5975-01-188-8873	(A),(B),(C),(D),(G)	1
13.	Nut	MS51967-2	5310-00-761-6882	(A),(B),(C),(D),(F),(G)	7
14.	Nut	MS51967-5	5310-00-880-7744	(G)	4
15.	Nut	MS51968-5	5310-00-880-7746	(A),(B),(C),(D),(G),(J)	2
16.	Nut	271169	5310-00-124-9265	(E)	5
17.	Nut	9419143	5310-01-148-0240	(E)	25
18.	Nut, Lock	271175	5310-01-333-5245	(E)	6
19.	Plate, Mounting	A3014550-1	N/A	(A),(B),(C),(D)	2
20.	Screw, Cap, Hexagon	B1821BH025C100N	5305-00-225-3843	(E)	23
21.	Screw, Cap, Hexagon	B1821BH025C125N	5305-00-068-0509	(E)	5
22.	Screw, Cap, Hexagon	MS90725-8	5305-00-225-3839	(A),(B),(C),(D),(G)	3
23.	Screw, Machine, Flat-Head	MS35190-291	5305-00-958-5247	(B)	2
24.	Screw, Machine, Flat-Head	MS35206-263	5305-00-984-6210	(E)	4
25.	Screw, Machine, Tapping, Hex-Head	9421073	5305-01-162-8512	(E)	6
26.	Splice	NAS1387-4	5940-00-113-9420	(E)	2
27.	Strap, Tiedown	MS3367-1-0	5975-00-984-6582	(E)	2
28.	Terminal Lug	7728777	5940-00-983-4067	(E)	2
29.	Terminal Lug	7728780	5940-01-035-4212	(E)	2
30.	Washer	MS27183-10	5310-00-809-4058	(C),(D),(G)	24
31.	Washer	MS27183-12	5310-00-081-4219	(B),(C),(D),(G)	6
32.	Washer	2436161	5310-01-102-3270	(E)	17
33.	Washer, Lock	MS35338-43	5310-00-045-3296	(A),(B),(C),(D), (E),(F),(G)	2
34.	Washer, Lock	MS35338-44	5310-00-582-5965	(A),(B),(C),(D),(E),(G)	25
35.	Washer, Lock	MS35338-46	5310-00-637-9541	(C),(D),(F),(G)	2
36.	Washer, Lock	MS35338-48	5310-00-584-5272	(C),(D)	4
37.	Washer, Lock	MS45904-68	5310-00-889-2528	(A),(B),(C),(D)	73
38.	Washer, Lock	MS45904-72	5310-00-889-2527	(A),(B),(C),(D), (F),(G),(J)	10

**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, Element(lower)	A3018230-1	5985-01-201-1498	2
2.	Antenna, Element(upper)	A3017901-2	5985-01-306-4622	2
3.	Assembly, Display Lock	872843-1	N/A	1
4.	Bolt	MS35751-18	5306-00-108-9988	4
5.	Bracket, Antenna Mounting	A3050655-1	5340-01-412-4379	2
6.	Bracket, PLGR	986-0645-001	5975-01-375-1302	1
7.	Bracket, PLGR Antenna	A3265576	5340-01-513-1461	1
8.	Bracket, PTM Control	3236630-1	N/A	1
9.	Bracket, PTM Control Mount	3220919-1	N/A	1
10.	Bracket, Support	A3265441	N/A	2
11.	Bracket, Support	RCSK 19656	N/A	1
12.	Bracket, URO	A3006206-2	N/A	1
13.	Cable Assembly, Ground	12480567-1	N/A	1
14.	Cable Assembly, Loudspeaker	A3014038-3	5995-01-219-4704	2
15.	Cable Assembly, Power	3256881-1	6150-01-482-4740	1
16.	Cable Assembly, Power	12480567-2	N/A	1
17.	Cable Assembly, Power, PLGR	9728558-10	6150-01-375-8661	1
18.	Cable, Azimuth Lock	3221015-1	N/A	1
19.	Cable, DCM/PTM Interconnect	3220915-1	N/A	1
20.	Cable, PLGR Antenna	A32551281W23	5995-01-468-9827	1
21.	Clamp, Loop	MS21333-76	5340-00-724-7038	1
22.	Clamp, Loop	MS21333-78	5340-00-958-8457	3
23.	Clamp, Loop	MS21333-98	5340-00-809-1490	1
24.	Clamp, Loop	MS21333-104	5340-00-088-1254	4
25.	Control Cable Seal Assembly	3220908	2990-00-365-1898	1
26.	CPU (Central Processing Unit)	881292-1	7021-01-474-3793	1
27.	Decal	12339060	7690-01-265-1135	1
28.	Decal	861868-2	N/A	1
29.	Display	881293-1	7025-01-475-0229	1
30.	Grommet, Nonmetallic	2400	5325-01-289-7859	1
31.	Guard, Amp	872842-1	5935-01-487-2172	1
32.	Guide, A-Frame Cable	3220964-1	5820-01-183-9462	1
33.	Guide, Hood Cable	3220912-1	N/A	1
34.	Isolation Kit, CPU	872826-2	5340-01-481-5741	1
35.	Isolation Kit, Display	872870-1	5340-01-481-5757	1
36.	Lanyard	8925T5-7X19	4010-01-497-2675	1
37.	Mount, PTM A-Pillar	3221002-1	N/A	1
38.	Mount, Ramball	RAM-D-111U	5975-01-485-3615	1
39.	Nut, Hexagon	MS35649-2252	5310-00-997-1888	3
40.	Nut, Hexagon	M45913/3-5CG8Z	N/A	3

**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.	Nut, Hexagon	13218E0320-293	5310-00-913-8881	8
42.	Nut, Hexagon	MS35649-63	5310-00-804-3859	5
43.	Nut, Hexagon	MS35649-2382	5310-00-056-3395	2
44.	Nut, Hexagon	MS51943-31	5310-00-061-4650	7
45.	Nut, Self-Locking	M45913/4-4CG8Z	N/A	4
46.	Panel, Enclosure	12447141	2510-01-413-5993	1
47.	Plate, EPLRS Mounting	A3265404	N/A	1
48.	Plate, Support	A3265440	N/A	2
49.	PTM Control Assembly	3220905-1	5340-01-511-2705	1
50.	PTM Mount Assembly	3220952-1	5855-01-511-2699	1
51.	Rack, Integrated	A3276903	N/A	1
52.	Rivet Nut	3221003-14	N/A	9
53.	Rivet, Blind	12339355-1	5320-01-271-6357	2
54.	RTV	12346193	6850-01-159-4844	A/R
55.	Screw	9426635	N/A	4
56.	Screw, Cap, Hexagon	B1821BH025C075N	5305-00-068-0508	12
57.	Screw, Cap, Hexagon	B1821BH025C150N	5305-00-071-2509	12
58.	Screw, Cap, Hexagon	B1821BH031F100N	5305-00-051-4076	2
59.	Screw, Cap, Hexagon	B1821BH031F125N	5305-00-051-4078	2
60.	Screw, Cap, Hexagon	B1821AH038C225N	5305-01-434-2947	2
61.	Screw, Cap, Hexagon	B1821BH025C300N	5305-00-071-2515	5
62.	Screw, Cap, Hexagon	B1821BH038C175N	5305-00-071-2510	8
63.	Screw, Machine	MS35206-230	5305-00-889-3000	5
64.	Screw, Machine	MS90725-39	5306-00-225-8503	4
65.	Screw, Machine	MS90725-65	5305-00-821-3869	4
66.	Screw, Self-Tapping	12342499-2	5305-01-264-5809	7
67.	Screw, Self-Tapping	9426241	5305-01-206-7219	1
68.	Screw, Self-Tapping	9421073	5305-01-162-8512	2
69.	Sleeve, Heat Shield	N/A	N/A	1
70.	Spacer	10705AL315C	5365-01-487-3145	4
71.	Spacer	A3265702	N/A	4
72.	Spacer	92510A318	N/A	4
73.	Support Plate	A3265439	N/A	2
74.	Strap, Tiedown	MS3367-1-0	5975-00-984-6582	A/R
75.	Terminal Board	12480570	N/A	1
76.	Terminal Board	MS27212-3-8	5940-00-950-7782	1
77.	Terminal Board Cover	12480569-1	N/A	1
78.	Terminal Board Cover	12480569-2	N/A	1
79.	Terminal Board Cover	MS18029-3S-2	5940-01-280-9304	2
80.	Terminal, Link	MS25266-6N-2	6150-01-167-9267	1

**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.	Terminal, Lug	MS20659-108	5940-00-115-2674	1
82.	Terminal, Lug	MS20659-141	5940-00-113-9825	4
83.	Terminal, Lug	MS25036-150	5940-00-113-8184	1
84.	Terminal, Lug	MS20659-129	5940-00-114-1314	2
85.	Tie, Stainless Steel Cable	69855K72	N/A	A/R
86.	Tubing, Shrink	MS23053/4-302-0	5970-01-161-6796	A/R
87.	Washer, Flat	MS51412-23	5310-01-333-0060	2
88.	Washer, Flat	3221003-9	N/A	5
89.	Washer, Flat	2436163	5310-01-412-4013	2
90.	Washer, Lock	MS35338-41	5310-00-045-4007	5
91.	Wingnut	MS51553-420	5310-01-384-2546	4
92.	Wire Assembly, Fuse (12V)	12480568-2	N/A	1
93.	Wire Assembly, Fuse (24V)	12480568-1	N/A	3
94.	Wire, Braided	AA59569F30T0375	6145-00-191-8402	A/R
95.	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)
- Precision Lightweight Global Positioning System Receiver (PLGR)
- Enhanced Position Location Reporting System (EPLRS)
- Force XXI Battle Command, Brigade-and-Below (FBCB2)
- Driver's Vision Enhancer (DVE)
- Additional terminal boards in the vehicle

Perform the steps in this chapter when installing SINCGARS, PLGR, EPLRS, FBCB2, and additional terminal boards. 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

- 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 0.157-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 0.276-in. diameter, and install two inserts (4) in battery box (2).

**3. ENCLOSURE PANEL – 12447141 – QTY. 1**

**4. INSERT – 12446871-2 – QTY. 2**

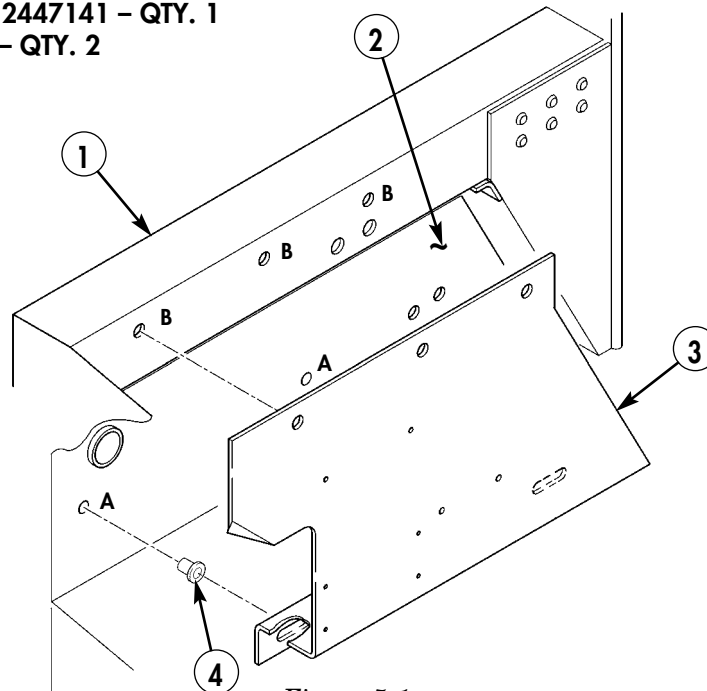


Figure 5-1.

**NOTE**

- Do not install cab enclosure panel.
- Use figures 5-2 and 5-3 to identify cab enclosure panel that is being modified.

- 3-3.** Locate, mark, and drill three 0.156-in. diameter holes marked A in cab enclosure panel (3) as shown in figures 5-2 and 5-3.
- 3-4.** Locate, mark, and drill two 0.156-in. diameter holes marked C in cab enclosure panel (3) as shown in figures 5-2 and 5-3.

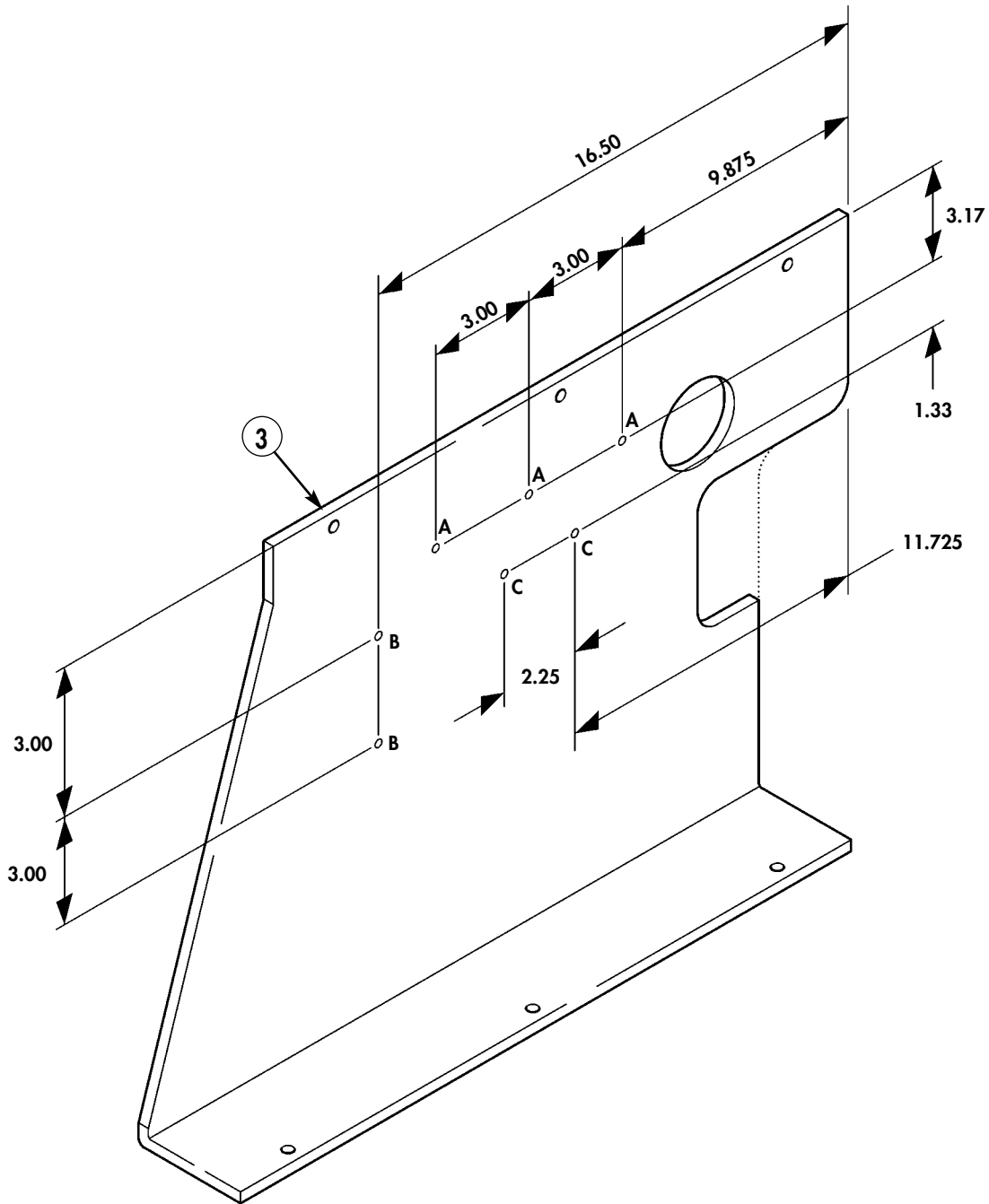


Figure 5-2.

3-5. Locate, mark, and drill two 0.196-in. diameter holes marked B in cab enclosure panel (3) as shown in figures 5-2 and 5-3.

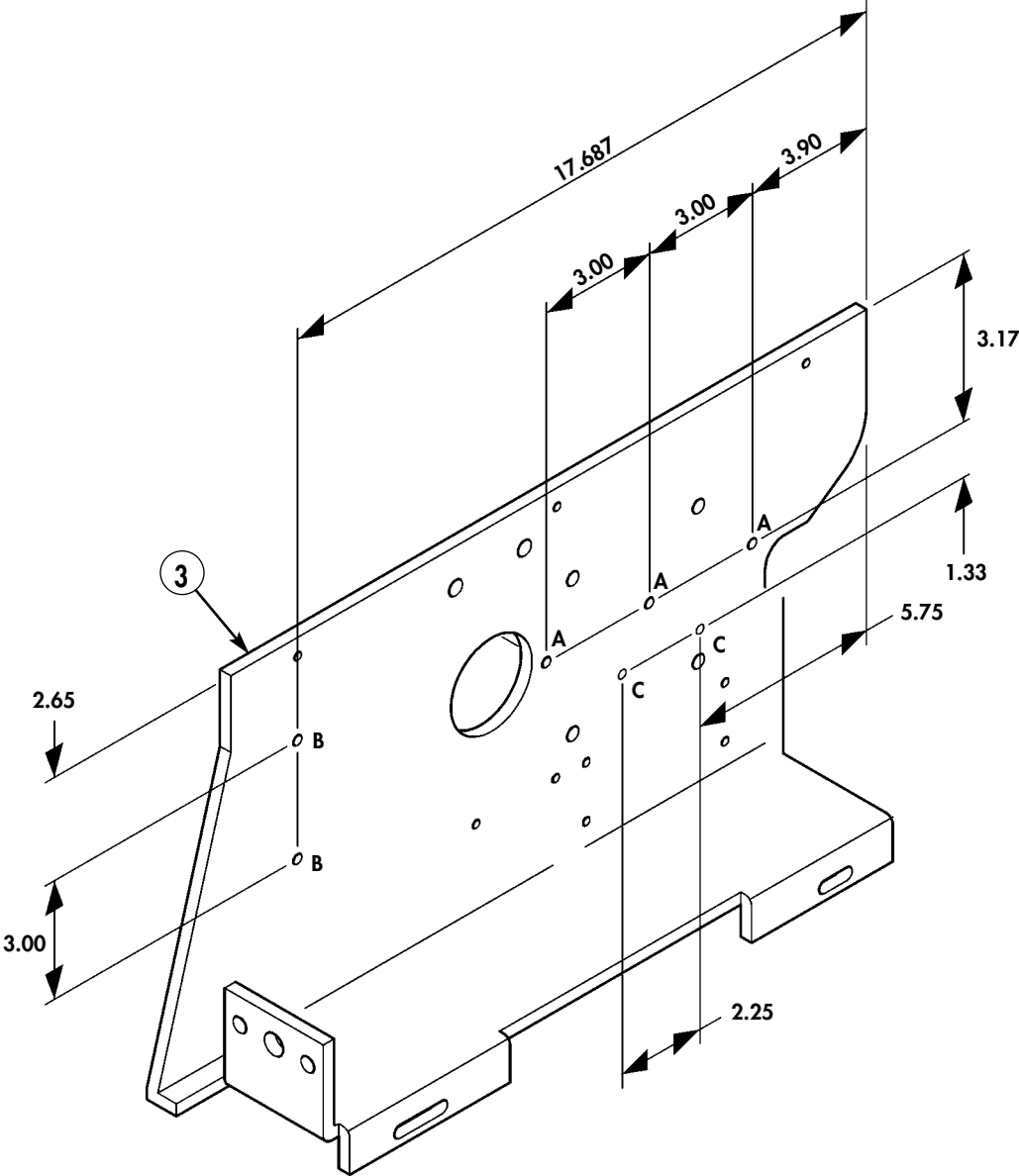


Figure 5-3.

**CAUTION**

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

- 3-6. Measure and cut terminal board (5) in two places (6) as shown in figure 5-4. Remove burrs and sharp edges.
- 3-7. Install five nut sleeves (9) in terminal board covers (7), (8), and (10), and secure with five snaprings (11) as shown in figure 5-5.

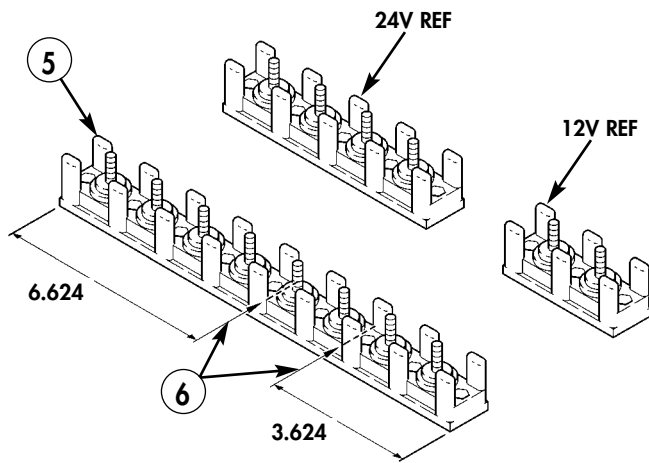


Figure 5-4.

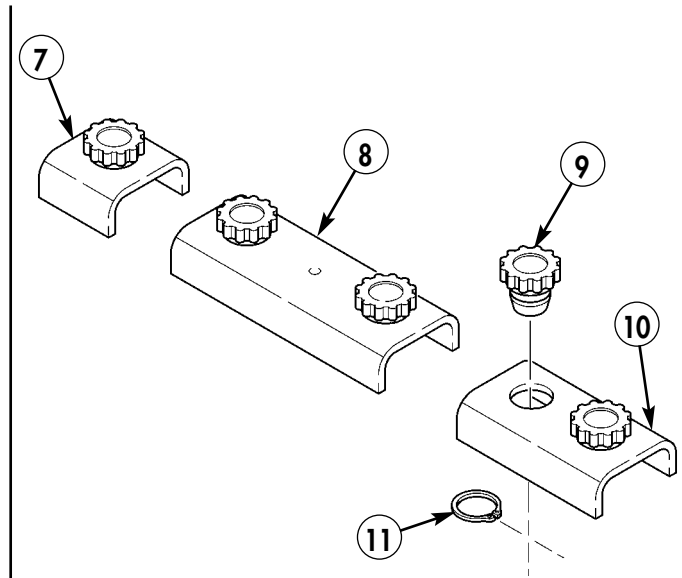


Figure 5-5.

- 5. TERMINAL BOARD – MS27212-3-8 – QTY. 1
- 7. TERMINAL BOARD COVER – 12480569-1 – QTY. 1
- 8. TERMINAL BOARD COVER – 12480569-2 – QTY. 1
- 10. TERMINAL BOARD COVER – MS18029-3S-2 – QTY. 1



### Section IV. B-BEAM PREPARATION

4-1. Locate, mark, and drill four 0.159-in. diameter holes (2) in B-beam (1).

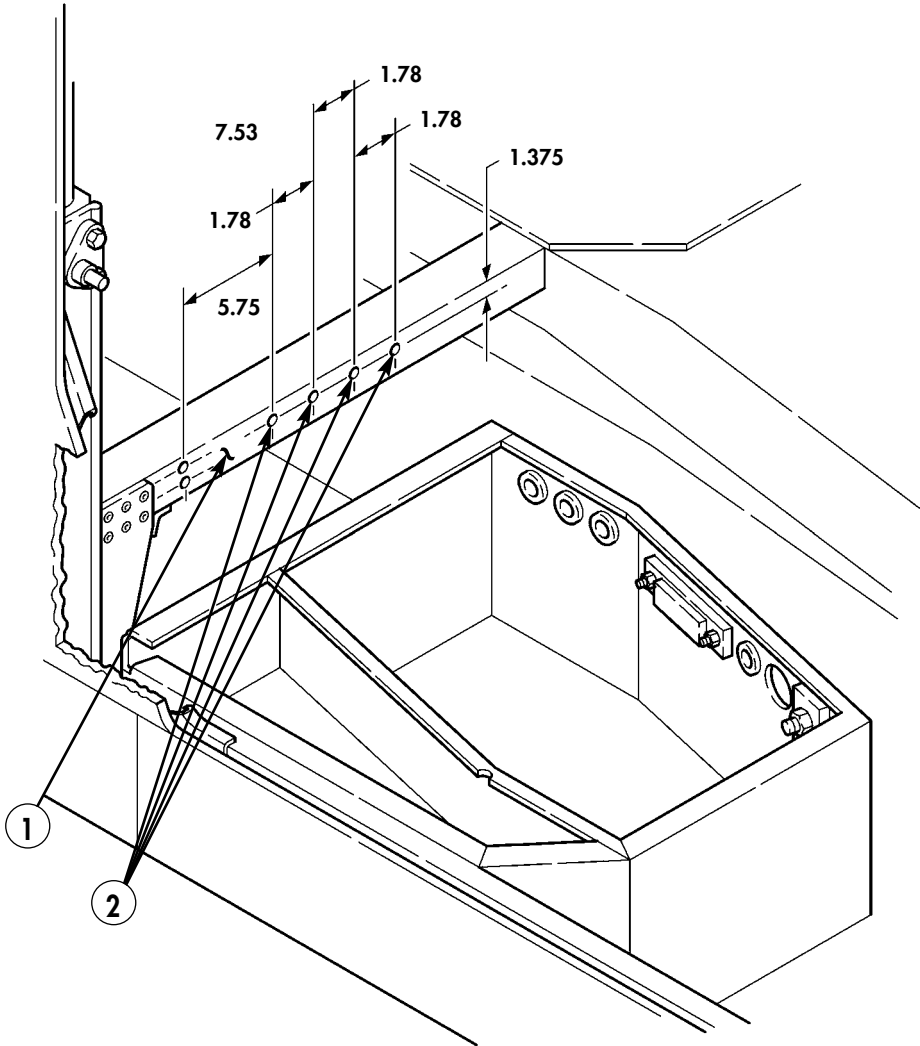
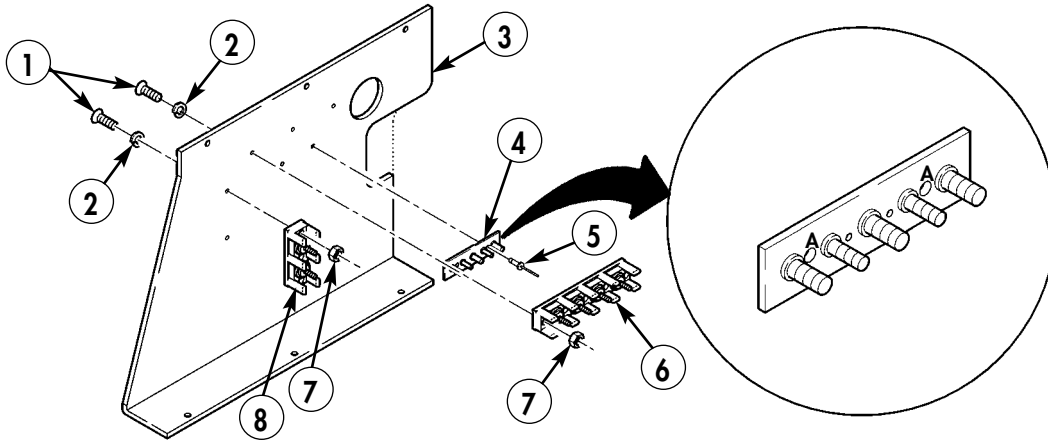


Figure 5-6.

### Section V. ASSEMBLY OF CAB ENCLOSURE PANEL

- 5-1. Install 12V terminal board (8) on cab enclosure panel (3) with two screws (1), lockwashers (2), and nuts (7) as shown in figures 5-7 and 5-8.
- 5-2. Install 24V terminal board (6) on cab enclosure panel (3) with three screws (1), lockwashers (2), and nuts (7) as shown in figures 5-7 and 5-8.
- 5-3. Enlarge two holes marked A in terminal board (4) to 0.196 in., and secure terminal board (4) to cab enclosure panel (3) with two rivets (5) as shown in figures 5-7 and 5-8.



- 1. SCREW – MS35206-230 – QTY. 5
- 2. LOCKWASHER – MS35338-41 – QTY. 5
- 4. TERMINAL BOARD – 12480570 – QTY. 1
- 5. BLIND RIVET – 12339355-1 – QTY. 2
- 7. NUT – MS35649-63 – QTY. 5

Figure 5-7.

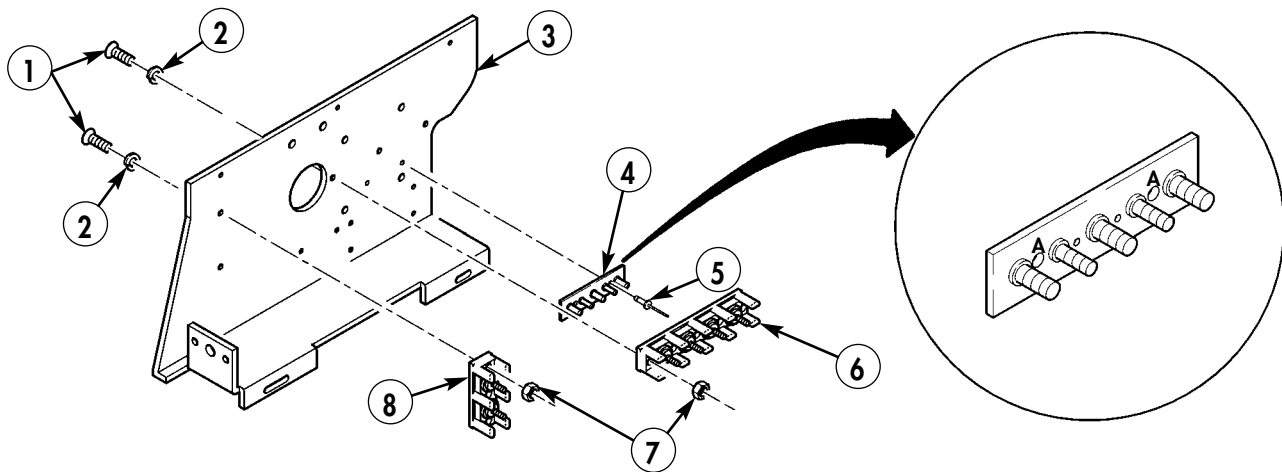


Figure 5-8.

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

**NOTE**

Refer to figure 5-9 for wiring overview.

- 6-1. Locate, mark, and drill 2.00-in. diameter hole (6) in upper right corner of rear wall of battery box, if necessary.
- 6-2. Cut and install 6.5-in. length of grommet material (7) in hole (6).
- 6-3. Secure terminal link (2) and fuse wire (3) to 12V terminal board (1) with two locknuts (4), and install cover (5) as shown in figure 5-10.
- 6-4. Route wire (8) through battery box hole (6).

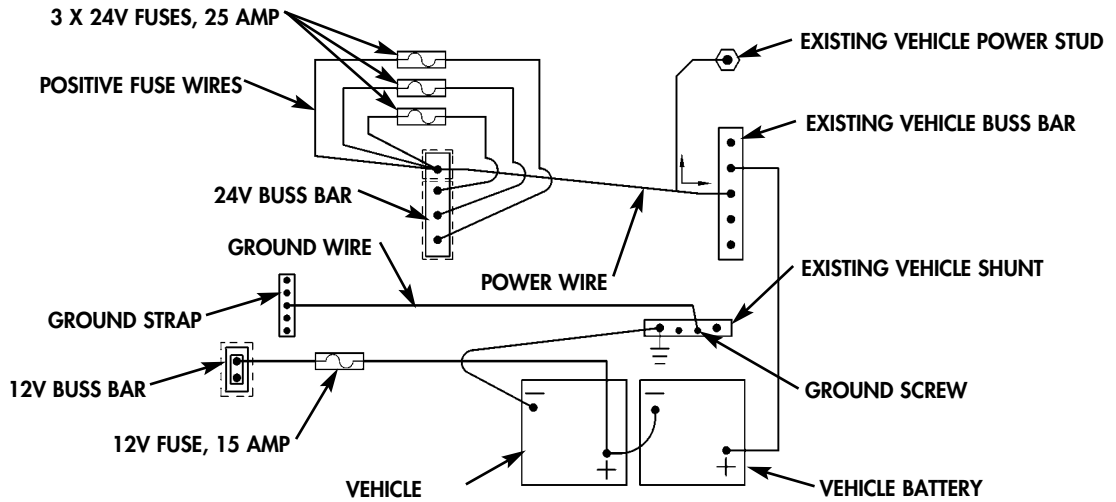
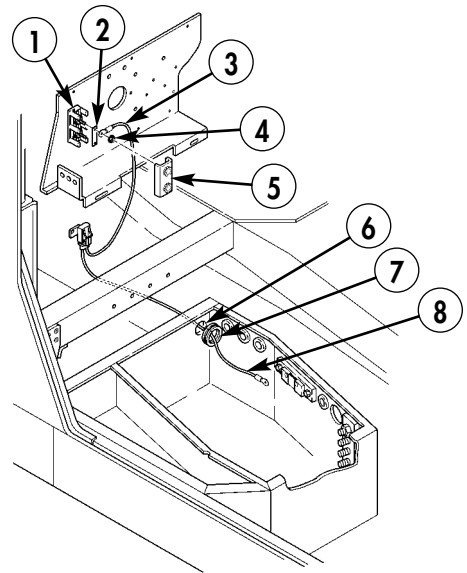


Figure 5-9.



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

Figure 5-10.

6-5. Connect wire (8) to positive 12V battery terminal end (10) with existing screw (9) and nut (11).

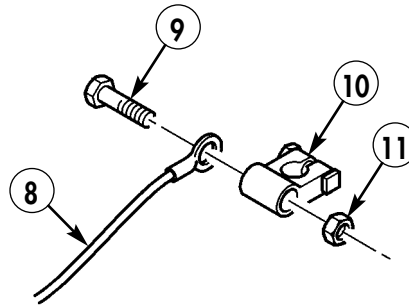
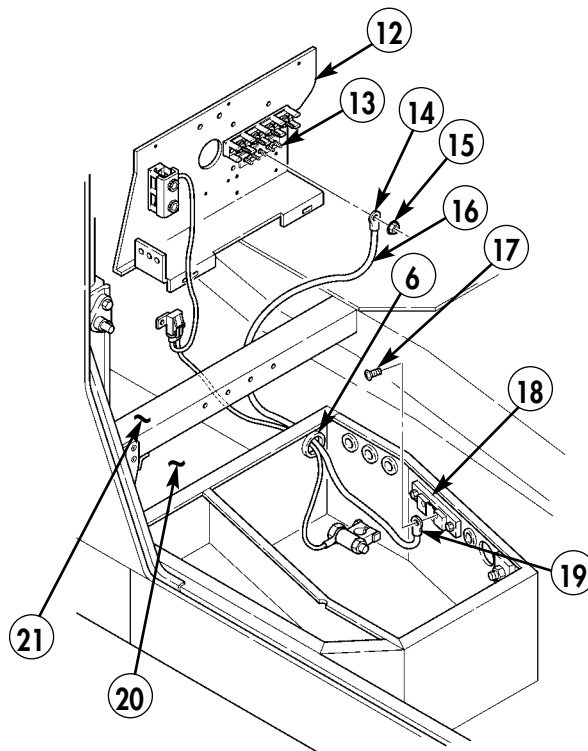


Figure 5-11.

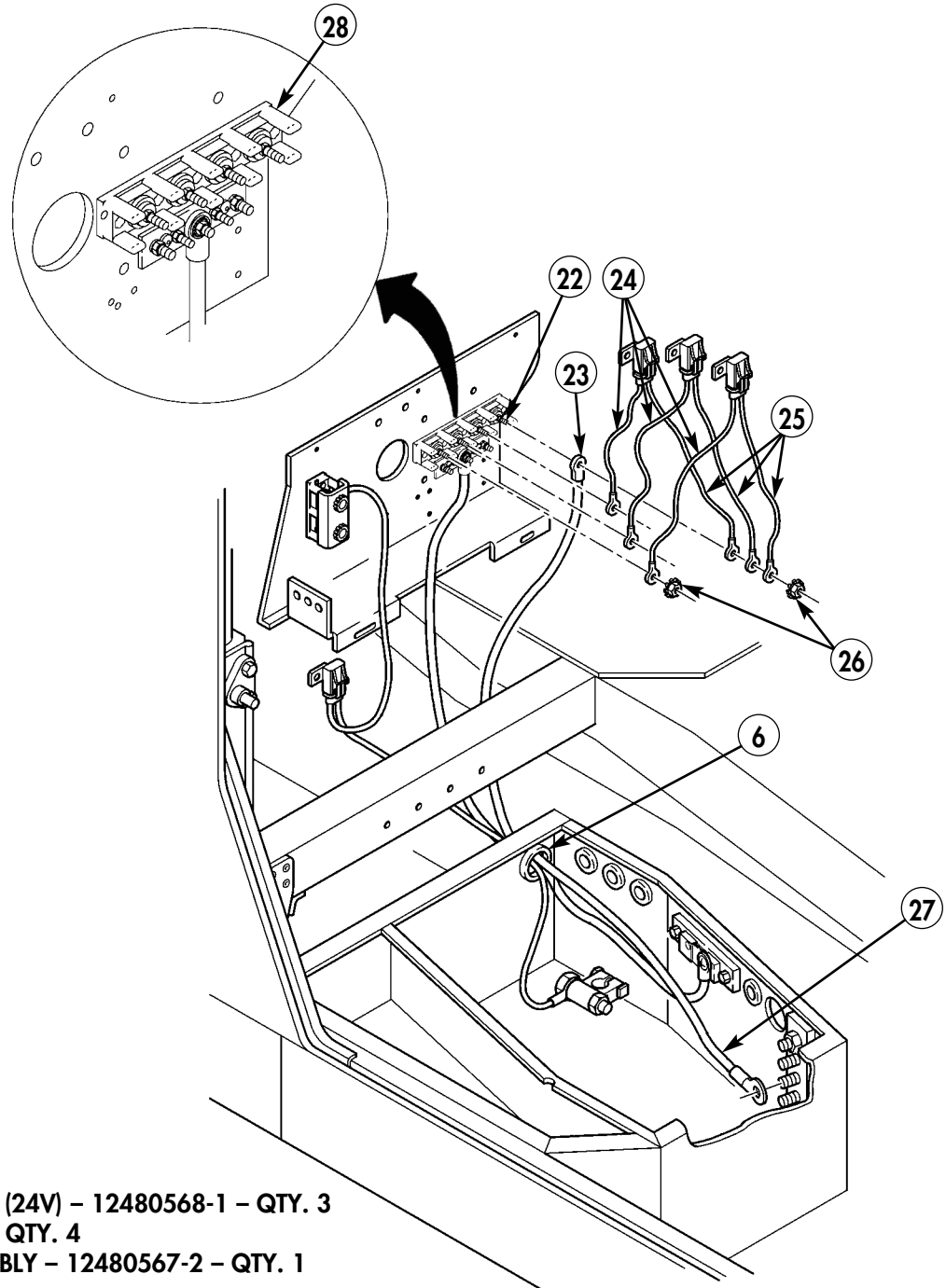
- 6-6. Position cab enclosure panel (12) in rear floor pan (20) and rear of B-beam (21). Do not secure cab enclosure panel (12) at this time.
- 6-7. Route ground cable (16) through battery box hole (6).
- 6-8. Secure terminal lug (14) on center terminal of terminal board (13) with nut (15), and secure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



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

Figure 5-12.

- 6-10.** Route 24V power cable (27) through hole (6) 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).



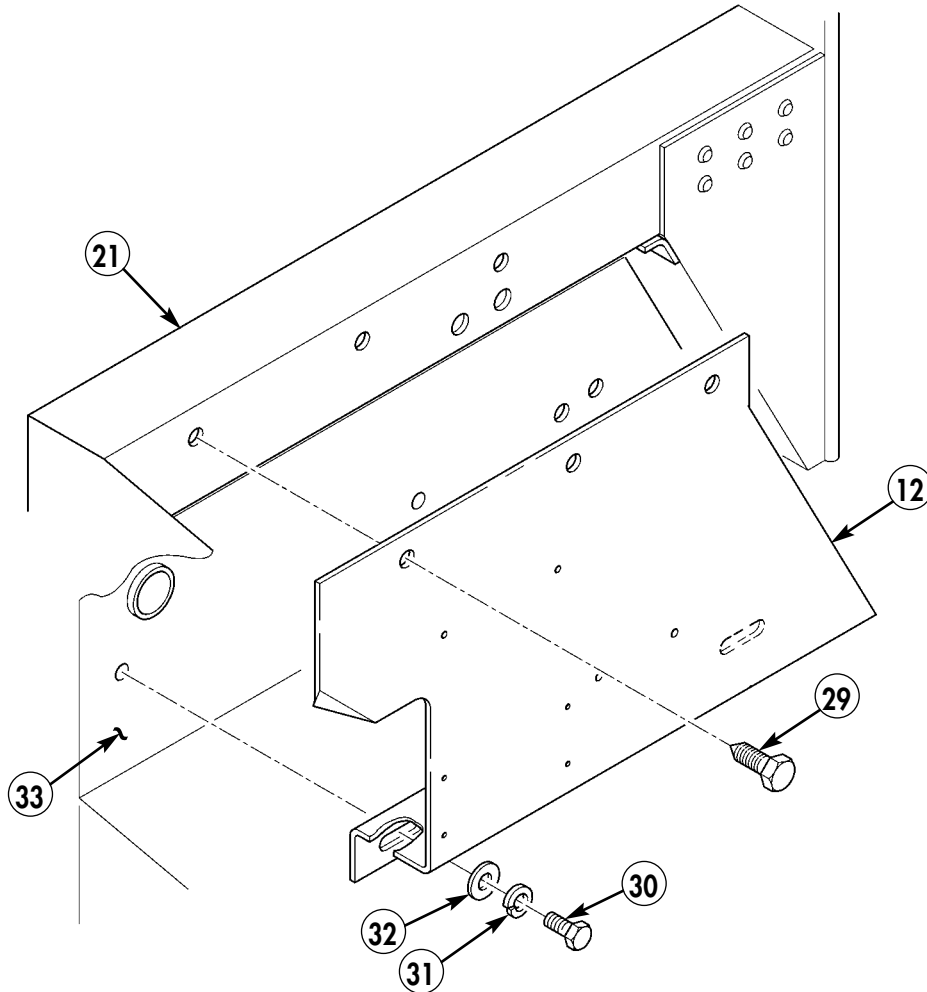
- 24. FUSE WIRE ASSEMBLY (24V) – 12480568-1 – QTY. 3**  
**26. LOCKNUT – 271175 – QTY. 4**  
**27. POWER CABLE ASSEMBLY – 12480567-2 – QTY. 1**

*Figure 5-13.*

**NOTE**

For vehicles with new cab enclosure panel, begin with step 6-13.

- 6-13.** Install cab enclosure panel (12). (Refer to TM 9-2320-280-20.)
- 6-14.** Secure cab enclosure panel (12) to B-beam (21) with three screws (29).
- 6-15.** Secure cab enclosure panel (12) to battery box (33) with two screws (30), lockwashers (31), and washers (32). (Refer to TM 9-2320-280-20.)



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

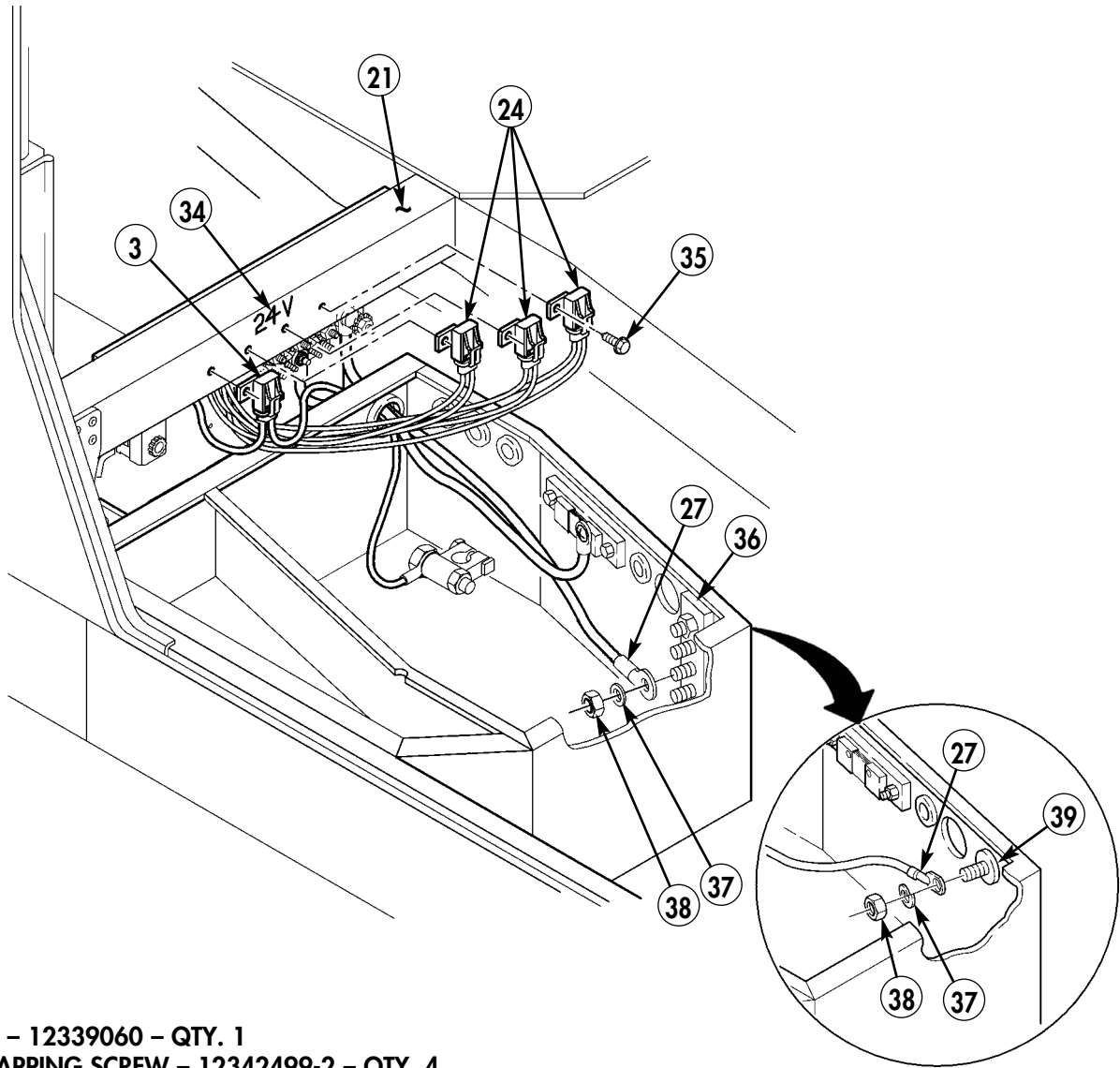
*Figure 5-14.*

- 6-16. Secure three 24V fusewire assemblies (24) and one 12V fusewire assembly (3) to B-beam (21) with four self-tapping screws (35).

**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 (39) with lockwasher (37) and existing nut (38).
- 6-18. Secure 24V terminal board power wire terminal lug (27) to terminal board (36) with lockwasher (37) and existing nut (38).
- 6-19. Install decal (34) on B-beam (21).
- 6-20. If previously removed, install right-hand rear fixed door. (Refer to TM 9-2320-280-20.)
- 6-21. Install batteries. (Refer to TM 9-2320-280-20.)

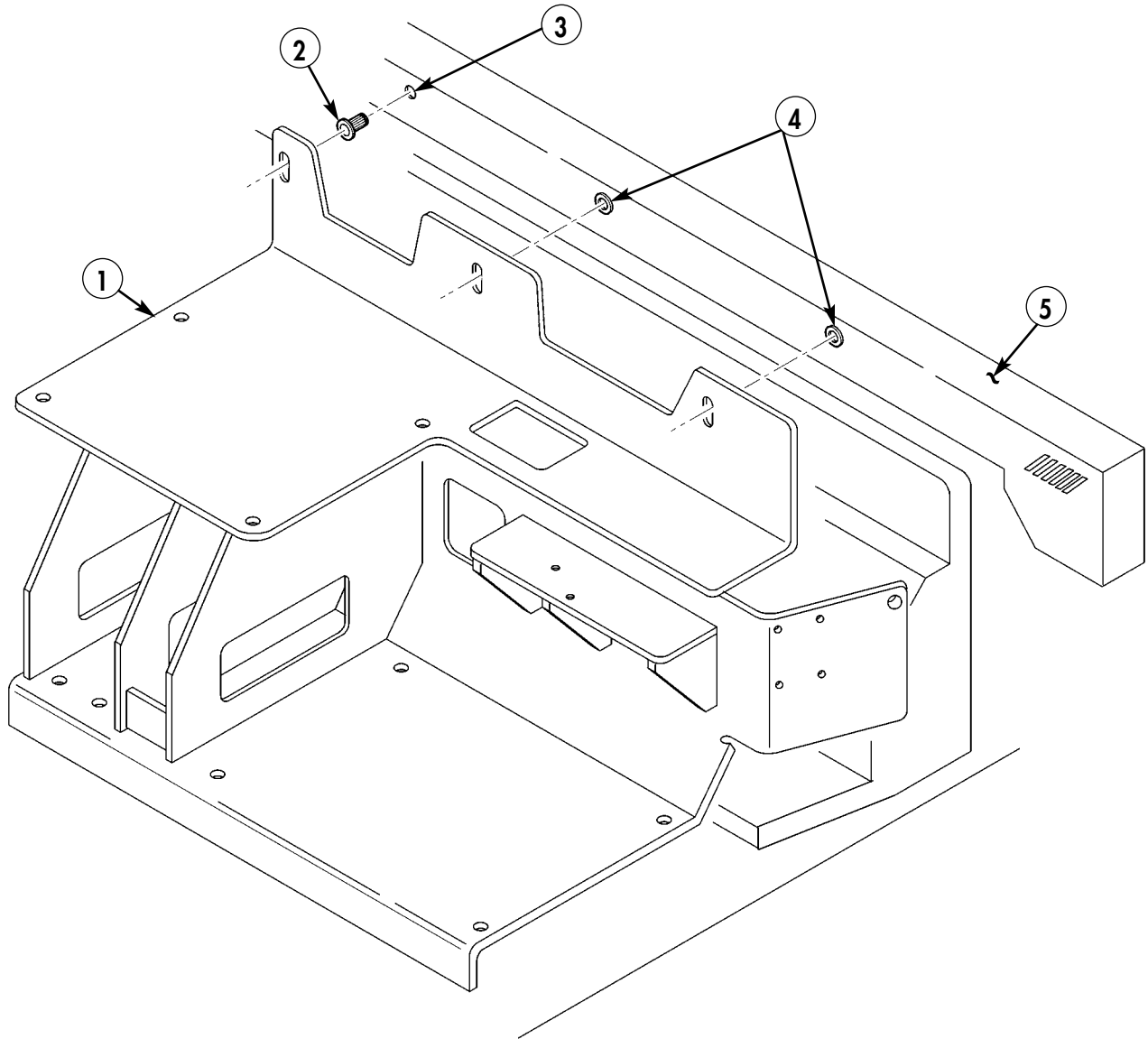


- 34. DECAL - 12339060 - QTY. 1
- 35. SELF-TAPPING SCREW - 12342499-2 - QTY. 4
- 37. LOCKWASHER - MS35338-48 - QTY. 1

Figure 5-15.

### Section VII. INTEGRATED RACK INSTALLATION

- 7-1. Using integrated rack (1) as template, locate, mark, and drill 0.390-in. diameter hole (3) in dash (5).
- 7-2. Remove paint from vicinity of hole (3) and two existing inserts (4).
- 7-3. Install insert (2) in hole (3).
- 7-4. Apply antiseize compound to vicinity of inserts (2) and (4) as required.



1. RACK, INTEGRATED - A3276903 - QTY. 1
2. INSERT - 12446871-2 - QTY. 1

Figure 5-16.



- 7-5. Remove paint from vicinity of three mounting slots (7) on integrated rack (1).
- 7-6. Remove paint from vicinity of hole (6) on integrated rack (1).
- 7-7. Apply antiseize compound to vicinity of three mounting slots (7) and hole (6) on integrated rack (1) as required.

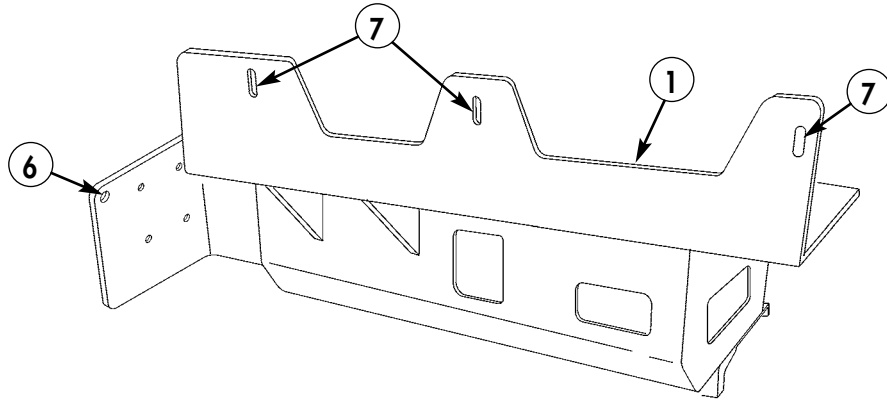
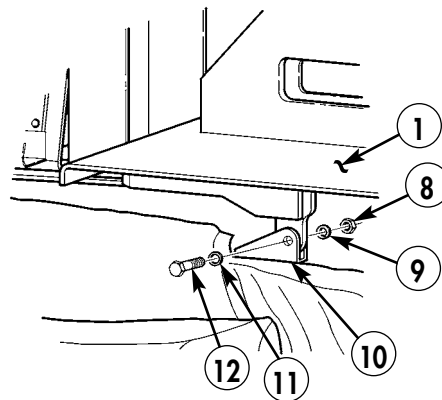


Figure 5-17.

**NOTE**

Do not install mounting hardware on top of integrated rack at this time. Not installing this hardware leaves the integrated rack free to pivot to assist in routing of cabling. Secure rack only after all cabling has been routed.

- 7-8. Mount integrated rack (1) to existing radio rack mount (10) using screw (12), washer (11), lockwasher (9), and nut (8). Repeat for opposite side. Do not tighten screws.



- 8. NUT – MS35649-2382 – QTY. 2
- 9. LOCKWASHER – MS35338-46 – QTY. 2
- 11. WASHER – 2436163 – QTY. 2
- 12. CAPSCREW – B1821AH038C225N – QTY. 2

Figure 5-18.

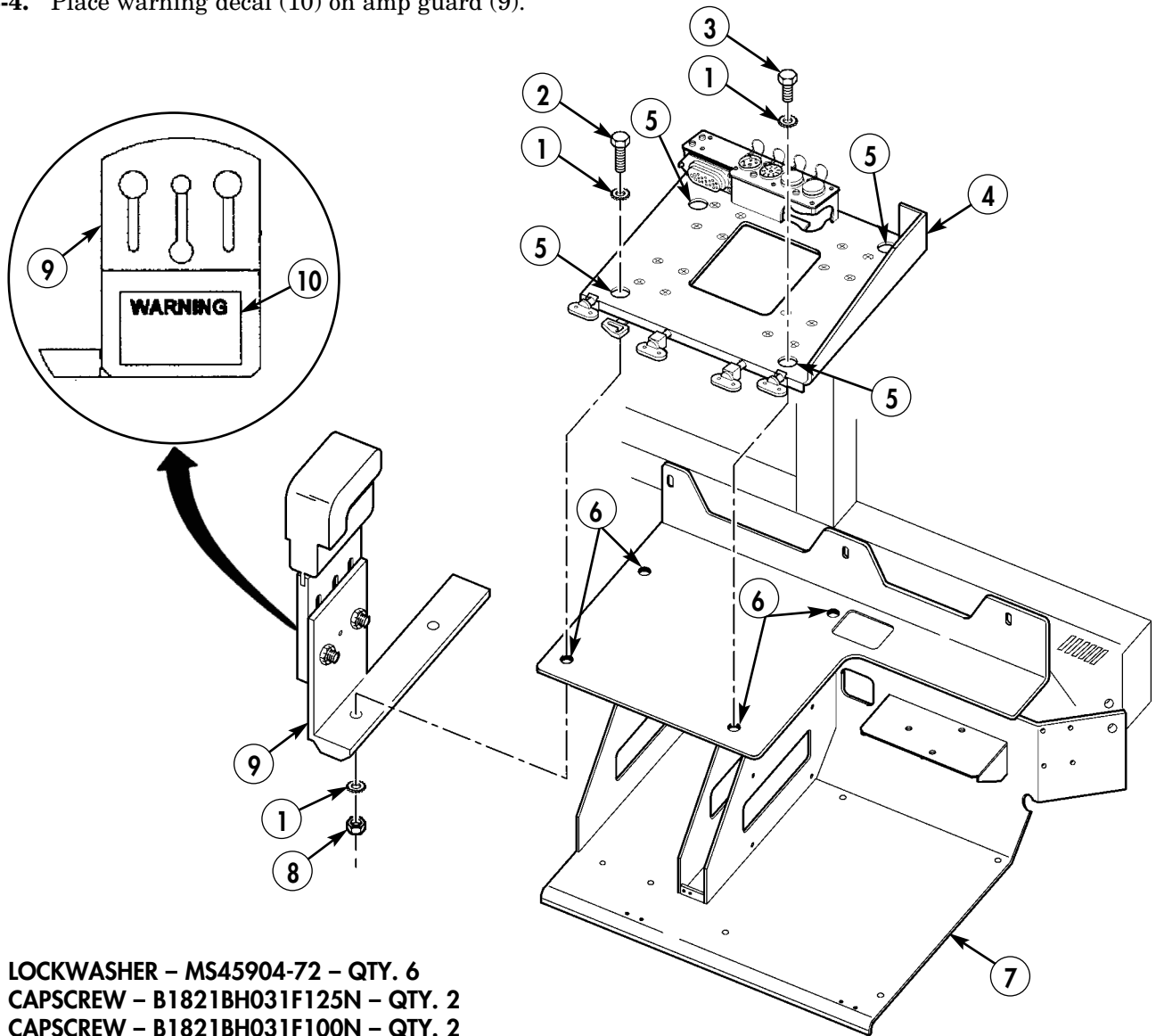
**Section VIII. INSTALLATION OF SINGARS MOUNTING TRAY AND AMP GUARD**

- 8-1. Remove paint from vicinity of four mounting holes (6) on integrated rack (7) and vicinity of four mounting holes (5) on bottom of mounting base (4).
- 8-2. Apply antiseize compound to vicinity of four mounting holes (6) and four mounting holes (5) as required.

**NOTE**

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

- 8-3. Install MT-6352/VRC mounting base (4) and amp guard (9) on integrated rack (7) with two capscrews (2), four lockwashers (1), and two nuts (8). Secure MT-6352/VRC mounting base (4) on integrated rack (7) with two capscrews (3) and two lockwashers (1).
- 8-4. Place warning decal (10) on amp guard (9).

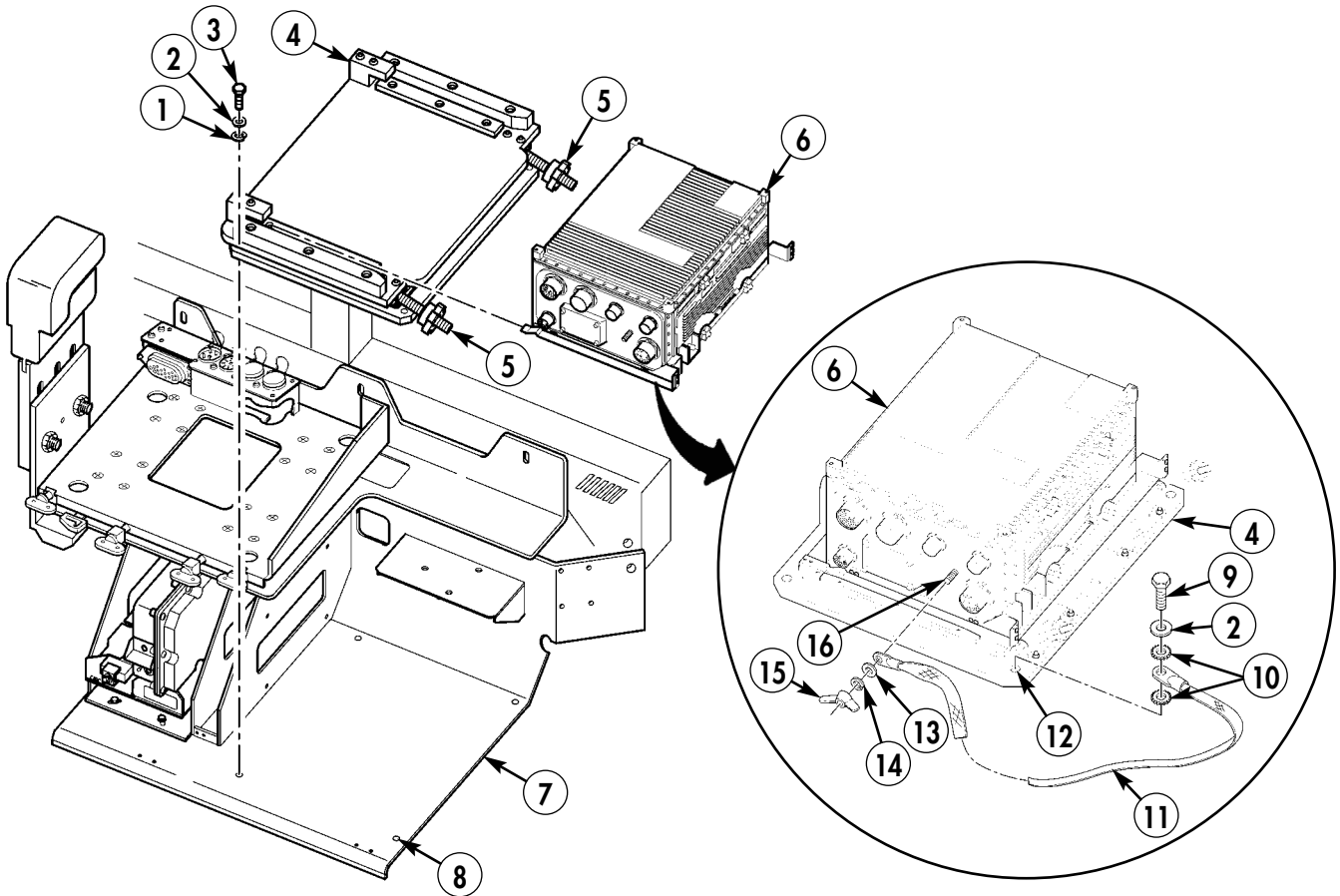


- 1. LOCKWASHER – MS45904-72 – QTY. 6
- 2. CAPSCREW – B1821BH031F125N – QTY. 2
- 3. CAPSCREW – B1821BH031F100N – QTY. 2
- 4. MOUNTING BASE, MT-6352/VRC – A3013367-1 – QTY. 1
- 8. NUT – MS51968-5 – QTY. 2
- 9. AMP GUARD – 872842-1 – QTY. 1
- 10. DECAL – 861868-2 – QTY. 1

Figure 5-19.

**Section IX. FFCB2 COMPONENTS INSTALLATION**

- 9-1. Remove paint from vicinity of hole (8) on integrated rack (7) and on both sides from vicinity of corresponding hole (12) on CPU isolation kit (4). Apply antiseize compound as required.
- 9-2. Install CPU isolation kit (4) on integrated rack (7) with three capscrews (3), washers (2), and lockwashers (1), leaving open holes (8) and (12).
- 9-3. Install CPU (6) on CPU isolation kit (4) with two existing fastener guards (5).
- 9-4. Fabricate ground strap (11) from 8.00-in. length of braided wire and two terminal lugs.
- 9-5. Install ground strap (11) on CPU ground stud (16) with existing washer (13), lockwasher (14), and wingnut (15).
- 9-6. Install ground strap (11) on CPU isolation kit (4) and integrated rack (7), with capscrew (9), washer (2), and two lockwashers (10).



- 1. LOCKWASHER – MS35338-44 – QTY. 3
- 2. WASHER – 2436161 – QTY. 4
- 3. CAPSCREW – B1821BH025C100N – QTY. 3
- 4. CPU ISOLATION KIT – 872826-2 – QTY. 1
- 6. CPU – 881292-1 – QTY. 1
- 9. CAPSCREW – B1821BH025C125 – QTY. 1
- 10. LOCKWASHER – MS45904-68 – QTY. 2
- 11. CPU GROUND STRAP
  - BRAIDED WIRE – AA59569F30T0375 – QTY. A/R
  - TERMINAL LUG – MS20659-141 – QTY. 2

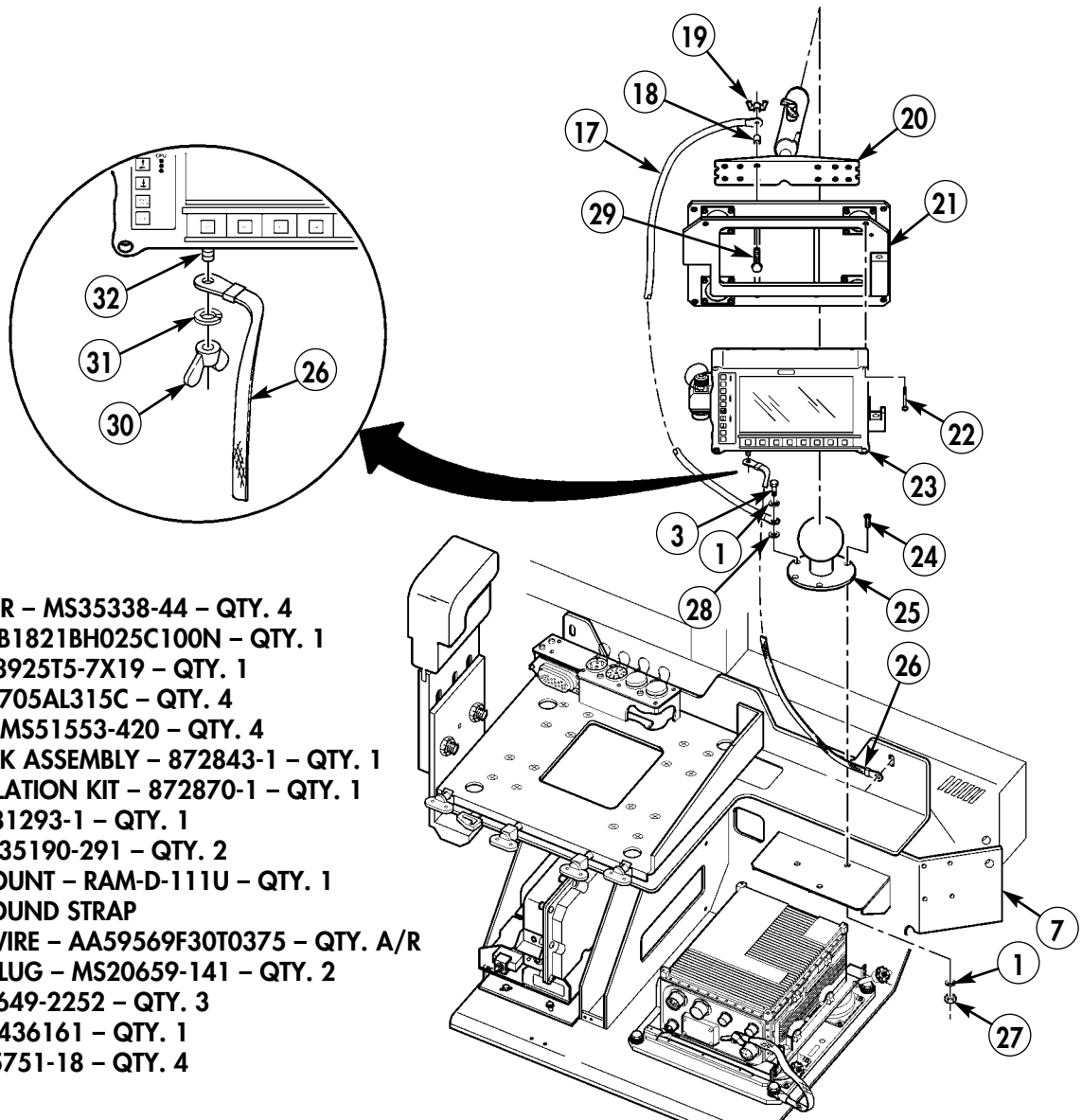
Figure 5-20.

- 9-7. Install ramball mount (25) on integrated rack (7) with two screws (24), screw (3), lockwasher (1), lanyard (17), washer (28), three lockwashers (1), and nuts (27).
- 9-8. Install display isolation kit (21) on display lock assembly (20) with four bolts (29), spacers (18), lanyard (17), and four wingnuts (19).
- 9-9. Install display unit (23) on display isolation kit (21) with four screws (22).
- 9-10. Install display lock assembly (20) on ramball mount (25).
- 9-11. Fabricate display ground strap (26) from 8-in. length of braided wire and two terminal lugs.

**NOTE**

Remove paint from vicinity of integrated rack mounting hole before performing step 9-12. Apply antiseize compound as required. Ground strap will be installed on integrated rack only when integrated rack is fully secured in vehicle.

- 9-12. Install display ground strap (26) on display ground stud (32) with existing lockwasher (31) and wingnut (30).



- 1. LOCKWASHER – MS35338-44 – QTY. 4
- 3. CAPSCREW B1821BH025C100N – QTY. 1
- 17. LANYARD – 8925T5-7X19 – QTY. 1
- 18. SPACER – 10705AL315C – QTY. 4
- 19. WINGNUT – MS51553-420 – QTY. 4
- 20. DISPLAY LOCK ASSEMBLY – 872843-1 – QTY. 1
- 21. DISPLAY ISOLATION KIT – 872870-1 – QTY. 1
- 23. DISPLAY – 881293-1 – QTY. 1
- 24. SCREW – MS35190-291 – QTY. 2
- 25. RAMBALL MOUNT – RAM-D-111U – QTY. 1
- 26. DISPLAY GROUND STRAP
  - BRAIDED WIRE – AA59569F30T0375 – QTY. A/R
  - TERMINAL LUG – MS20659-141 – QTY. 2
- 27. NUT – MS35649-2252 – QTY. 3
- 28. WASHER – 2436161 – QTY. 1
- 29. BOLT – MS35751-18 – QTY. 4

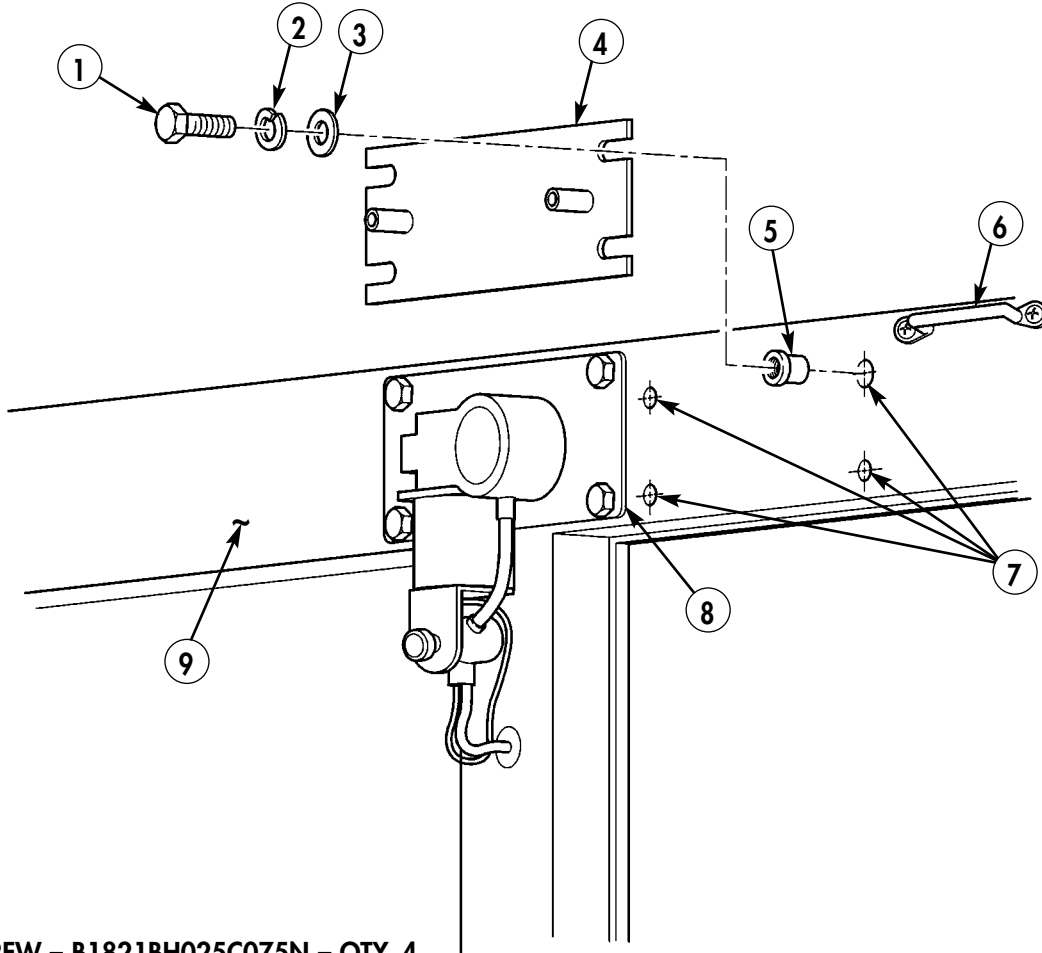
Figure 5-21.

### Section X. LOUDSPEAKER INSTALLATION

**NOTE**

- Perform steps 10-1 through 10-7 for vehicles with vertical wiper motor only.
- If sun visor kit has been installed, remove driver's side visor. (Refer to TM 9-2320-280-20.)
- Relocate all caution labels as necessary.

- 10-1.** 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).
- 10-2.** Install four inserts (5) in windshield frame (9).
- 10-3.** 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 5-22.

- 10-4. 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).
- 10-5. Install four inserts (5) in windshield frame (9).
- 10-6. Install mounting plate (4) with four capscrews (1), lockwashers (2), and washers (3).

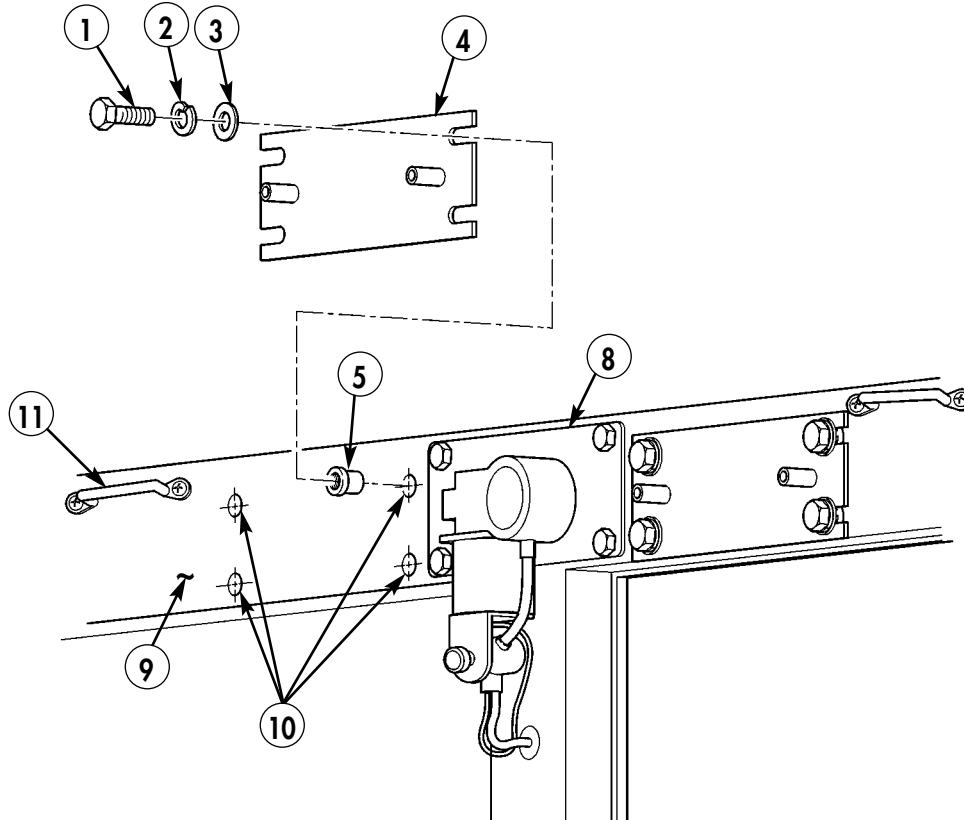
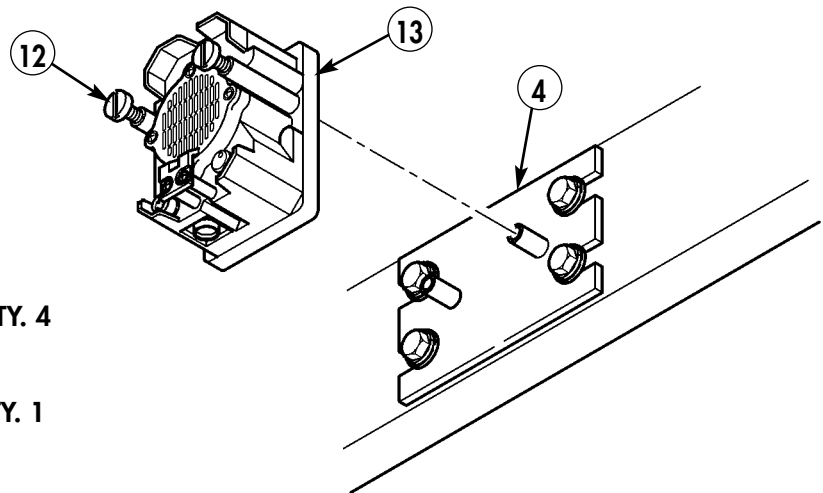


Figure 5-23.

- 10-7. Attach loudspeaker (13) to mounting plate (4) with two externally-relieved body screws (12). Repeat for opposite side.



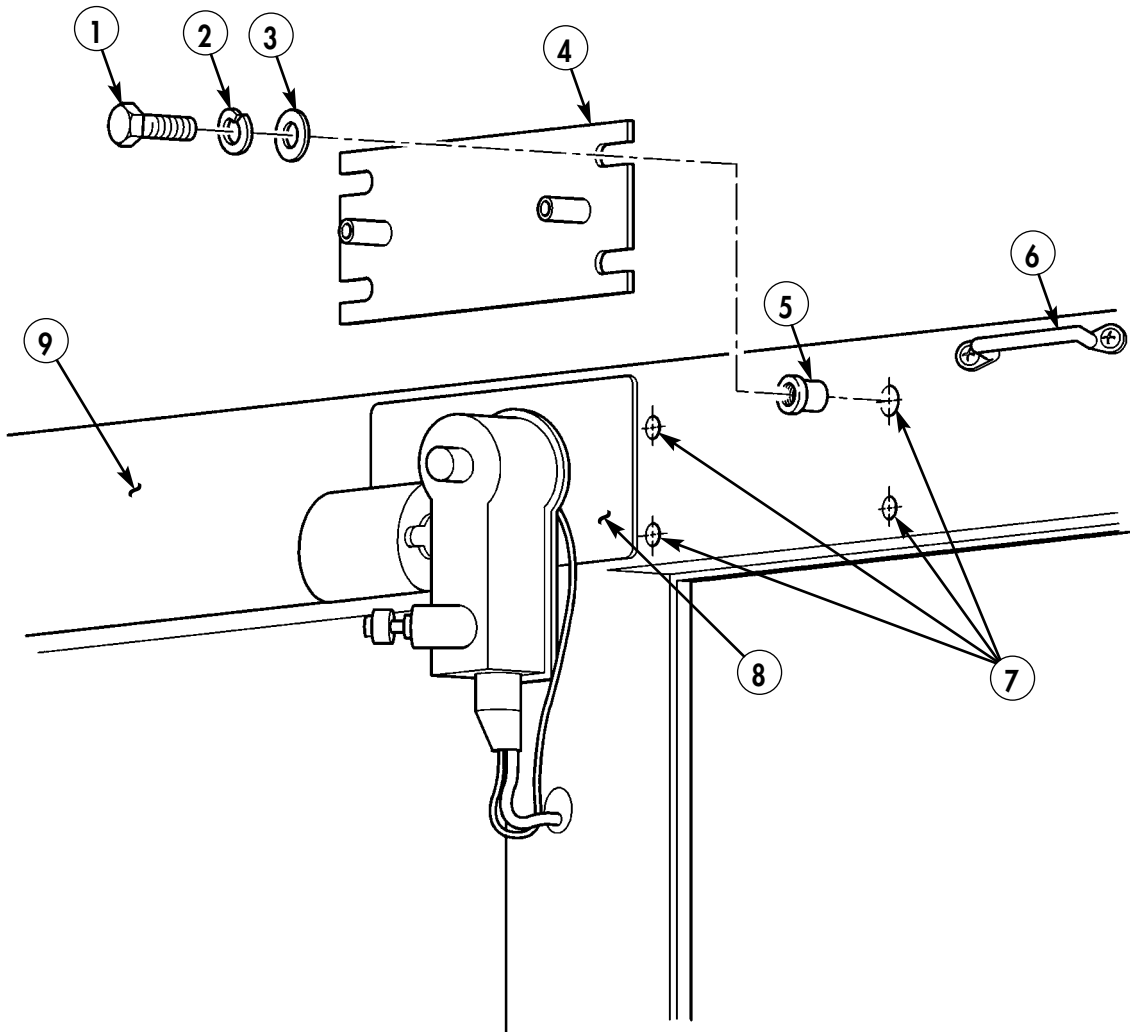
- 1. CAPSCREW - B1821BH025C075N - QTY. 4
- 2. LOCKWASHER -MS35338-44 - QTY. 4
- 3. WASHER - 2436161 - QTY. 4
- 4. MOUNTING PLATE - A3014550-1 - QTY. 1
- 5. INSERT - 12446871-2 - QTY. 4
- 13. LOUDSPEAKER -A3014065-1 -QTY. 2

Figure 5-24.

**NOTE**

Perform steps 10-8 through 10-14 for vehicles with horizontal wiper motor only.

- 10-8. 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).
- 10-9. Install four inserts (5) in windshield frame (9).
- 10-10. 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 5-25.

- 10-11. Using mounting plate (4) as template, center on left side of windshield frame (9) between access hole (15) and footman loop (11). Mark and drill four 0.390-in. diameter holes (14) in windshield frame (9).
- 10-12. Install four inserts (5) in windshield frame (9).
- 10-13. Install mounting plate (4) with four capscrews (1), lockwashers (2), and washers (3).

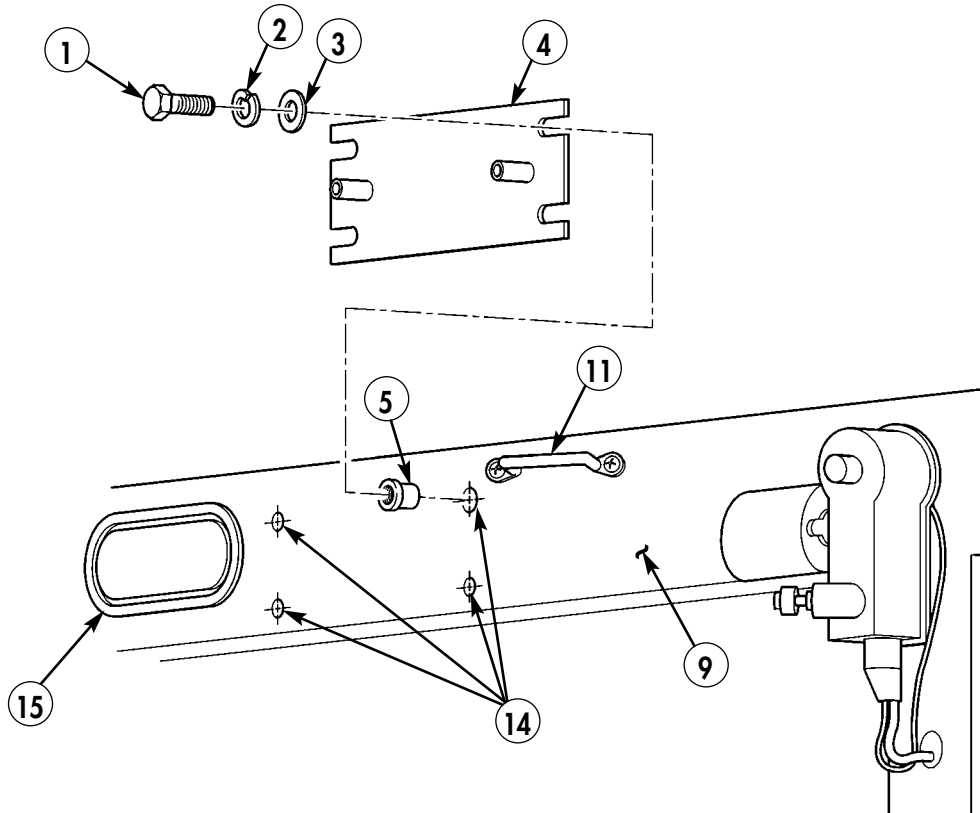
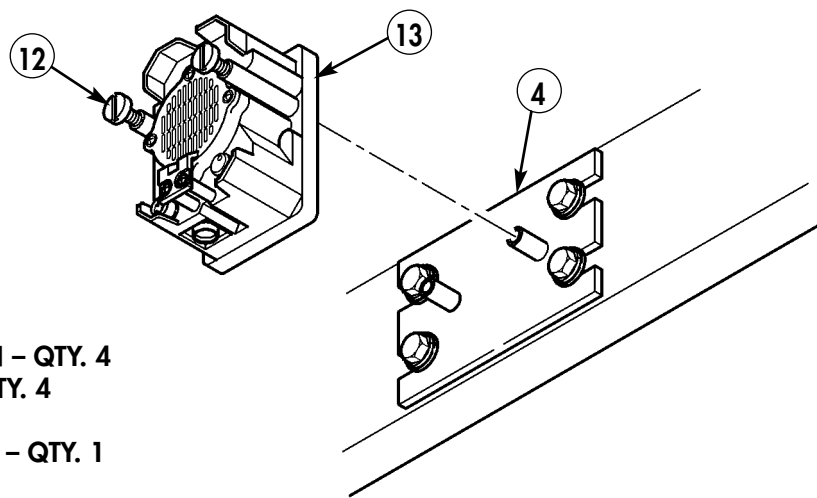


Figure 5-26.

- 10-14. 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 5-27.

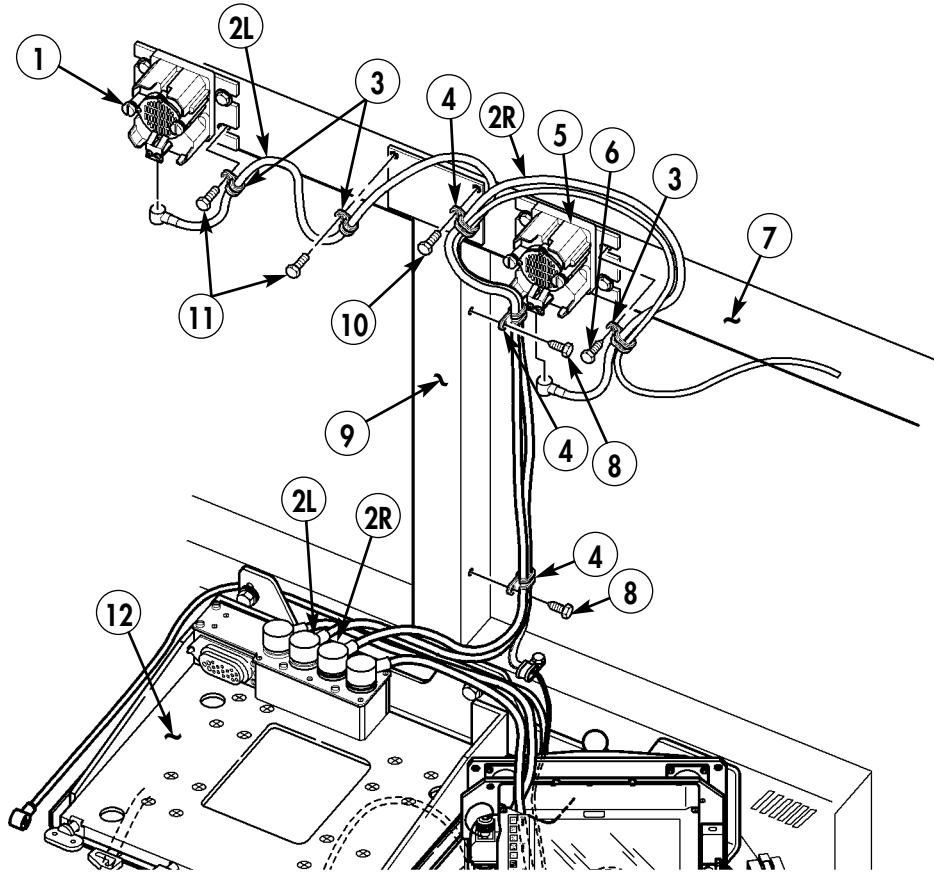


**Section XI. LOUDSPEAKER CABLES INSTALLATION**

**NOTE**

Routing for speaker cables with horizontal wiper motor is shown. Speaker cable routing with vertical wiper motor is similar. For vertical wiper motor speaker placement, refer to section X.

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

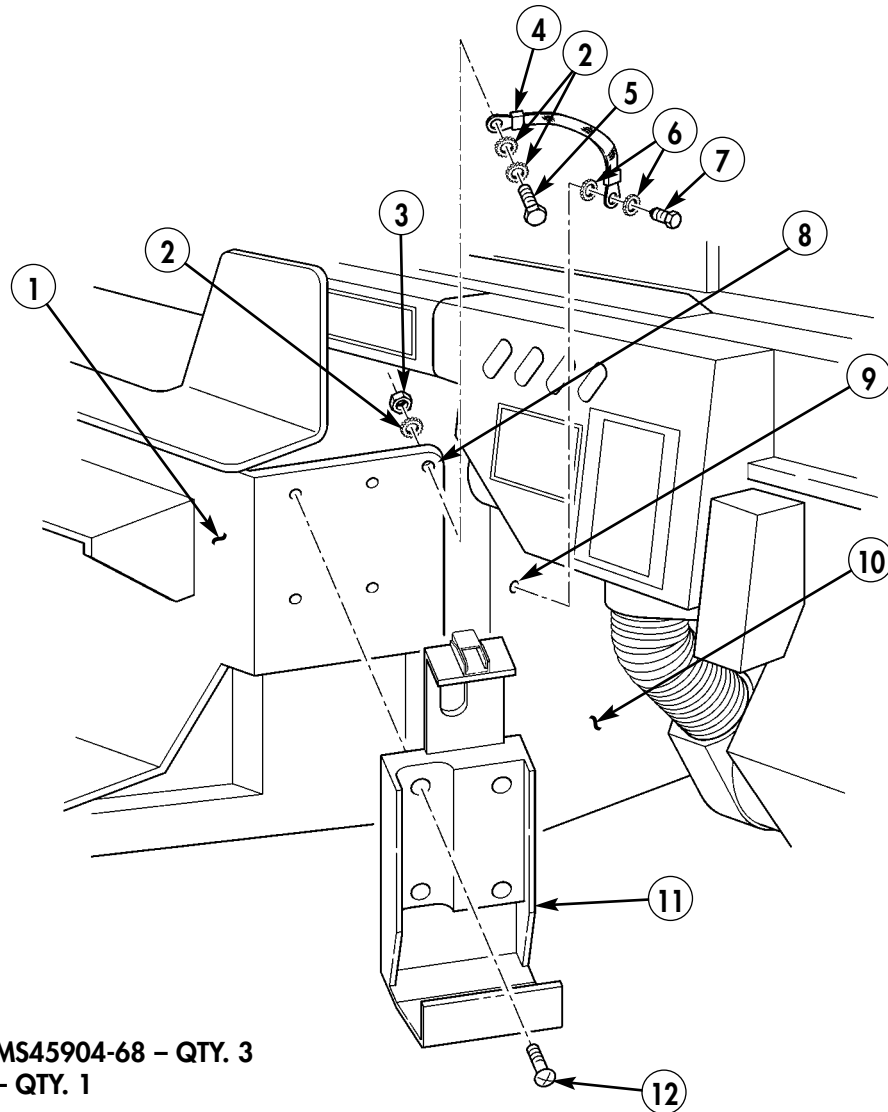


- 2L. LOUDSPEAKER CABLE – A3014038-3 – QTY. 1
- 2R. LOUDSPEAKER CABLE – A3014038-3 – QTY. 1
- 3. LOOP CLAMP – MS21333-102 – QTY. 3
- 4. LOOP CLAMP – MS21333-104 – QTY. 3

*Figure 5-28.*

## Section XII. PLGR BRACKET INSTALLATION

- 12-1. Install PLGR bracket (11) on integrated rack (1) with four screws (12).
- 12-2. Locate, mark, and drill one 0.201-in. diameter hole (9) in right side engine tunnel (10).
- 12-3. Remove paint from vicinity of hole (8) on integrated rack (1) and hole (9) on right side engine tunnel (10). Apply antiseize compound as required.
- 12-4. Fabricate ground strap (4) from 8.00-in. length of braided wire and two terminal lugs.
- 12-5. Install ground strap (4) on integrated rack (1) with capscrew (5), three lockwashers (2), and nut (3).
- 12-6. Install ground strap (4) on right side engine tunnel (10) with self-tapping screw (7) and two lockwashers (6).



2. LOCKWASHER – MS45904-68 – QTY. 3
3. NUT – 9419143 – QTY. 1
4. GROUND STRAP
  - BRAIDED WIRE – AA59569F30T0375 – QTY. A/R
  - TERMINAL LUG – MS20659-129 – QTY. 2
5. CAPSCREW – B1821BH025C100N – QTY. 1
6. LOCKWASHER – MS35338-43 – QTY. 2
7. SELF-TAPPING SCREW – 9426241 – QTY. 1
11. PLGR BRACKET – 986-0645-001 – QTY. 1
12. SCREW – MS35206-263 – QTY. 4

Figure 5-29.

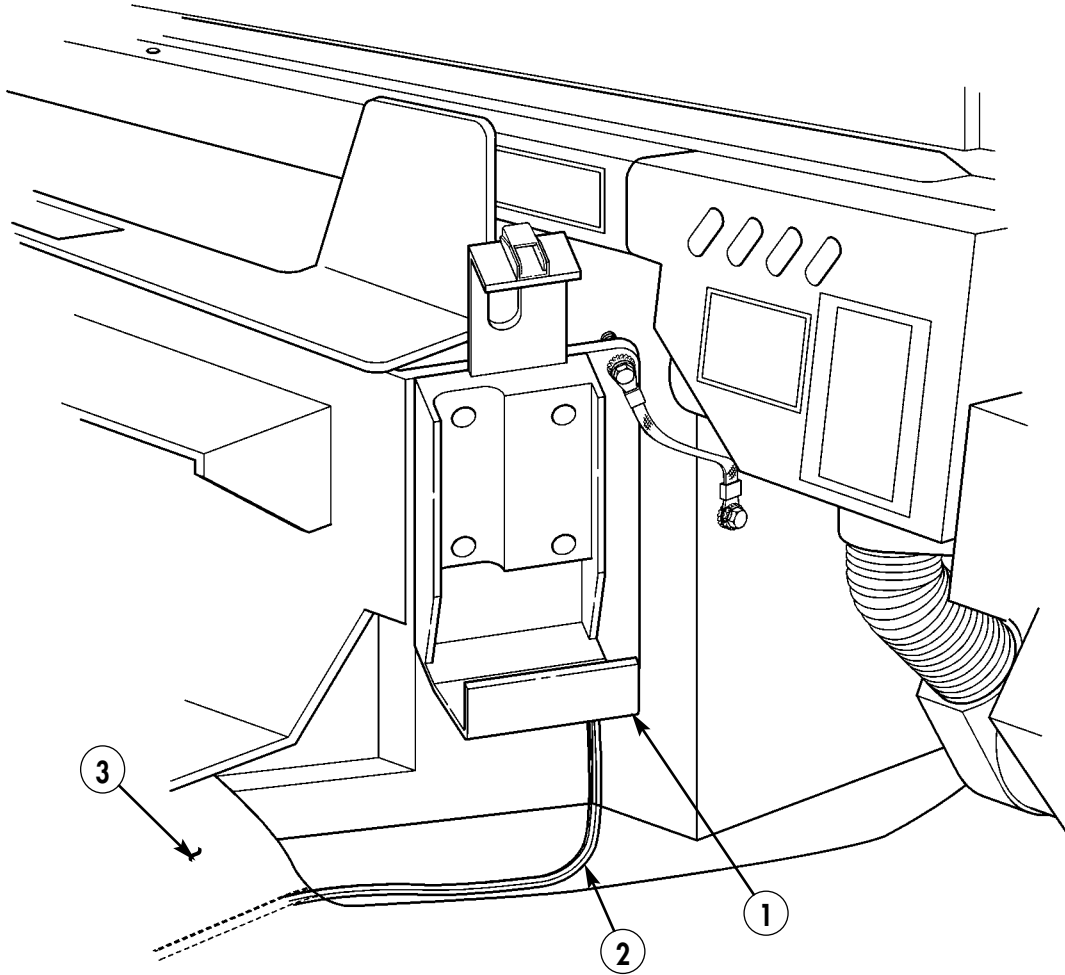
### Section XIII. PLGR POWER CABLE ROUTING

- 13-1. Route PLGR power cable (2) from bracket (1) to right side tunnel insulation (3).

**NOTE**

Loosen right side tunnel insulation before performing step 13-2.  
(Refer to TM 9-2320-280-20.)

- 13-2. Route PLGR power cable (2) under edge of right side tunnel insulation (3) to 24V terminal bar at cab enclosure panel.



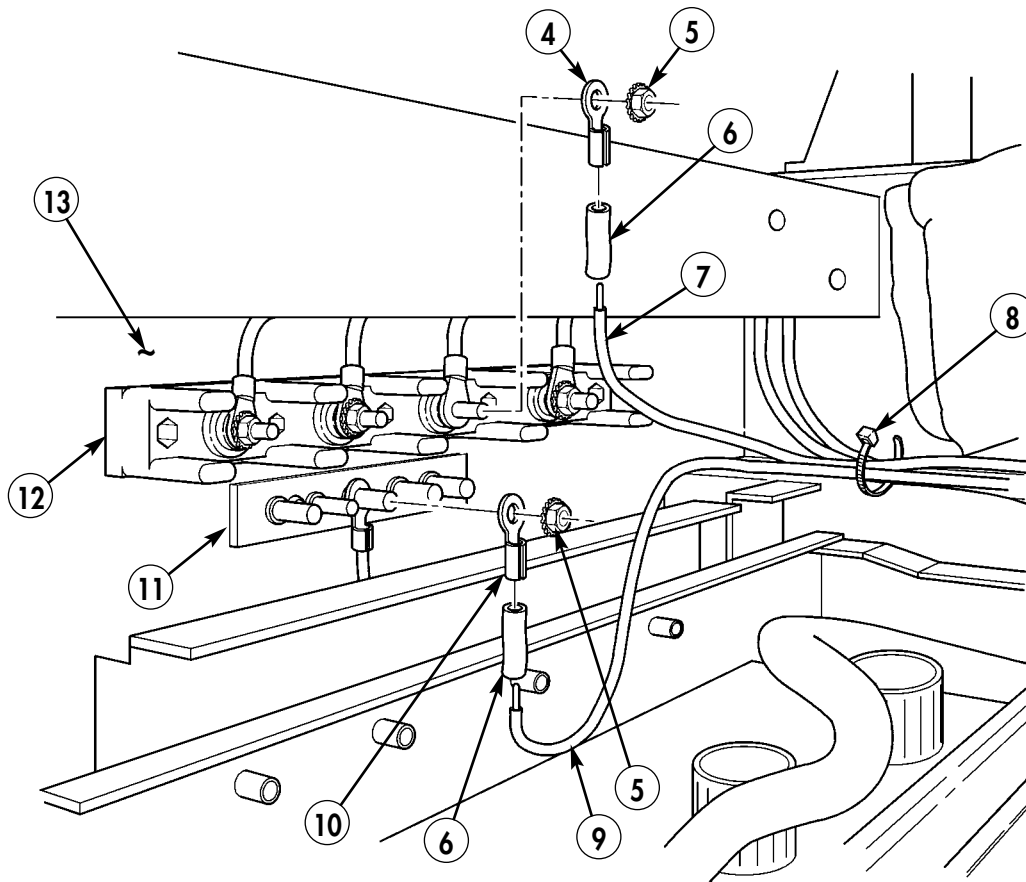
2. PLGR POWER CABLE – 9728558-10 – QTY. 1

Figure 5-30.

**NOTE**

PLGR power cable positive lead insulation is ribbed.

- 13-3. Attach shrink tubing (6) and terminal lugs (4) and (10) to PLGR power cable negative lead (9) and PLGR power cable positive lead (7). (Refer to TM9-2320-280-20 for terminal connector repair.)
- 13-4. Attach PLGR power cable positive lead (7) to 24-volt terminal board (12) located on cab enclosure panel (13) with existing nut (5).
- 13-5. Attach PLGR power cable negative lead (9) to ground strap (11) located on cab enclosure panel (13) with existing nut (5).
- 13-6. Coil excess positive and negative power leads, place beneath ground strap, and secure with tiedown strap (8).
- 13-7. Install right side tunnel insulation. (Refer to TM 9-2320-280-20.)



- 4. TERMINAL LUG - 7728780 - QTY. 1
- 6. SHRINK TUBING - MS23053/4-302-0 - QTY. A/R
- 8. TIEDOWN STRAP - MS3367-1-0 - QTY. A/R
- 10. TERMINAL LUG - 7728777 - QTY. 1

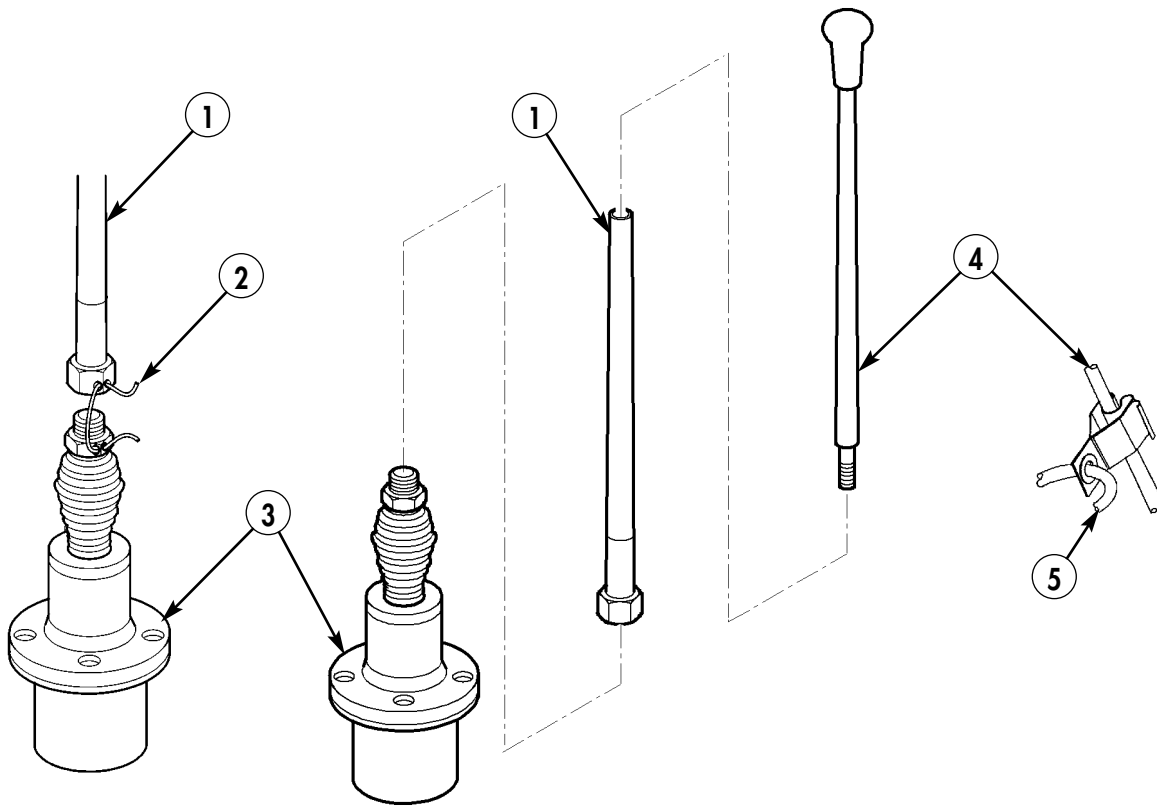
Figure. 5-31.

## Section XIV. ANTENNA ASSEMBLY

### NOTE

SINGARS antenna is shown; EPLRS antenna assembly procedures are basically the same.

- 14-1. Attach upper antenna element (4) to lower antenna element (1).
- 14-2. Attach antenna assembly to antenna with base (3).
- 14-3. Secure lower antenna element (4) to antenna with base (3) with lockwire (2).
- 14-4. Attach fiber rope assembly (5) to upper antenna assembly.



1. LOWER ANTENNA ELEMENT - A3018230-1 - QTY. 2
2. LOCK WIRE - MS20995C32 - QTY. A/R
4. UPPER ANTENNA ELEMENT - A3017901-2 - QTY. 2

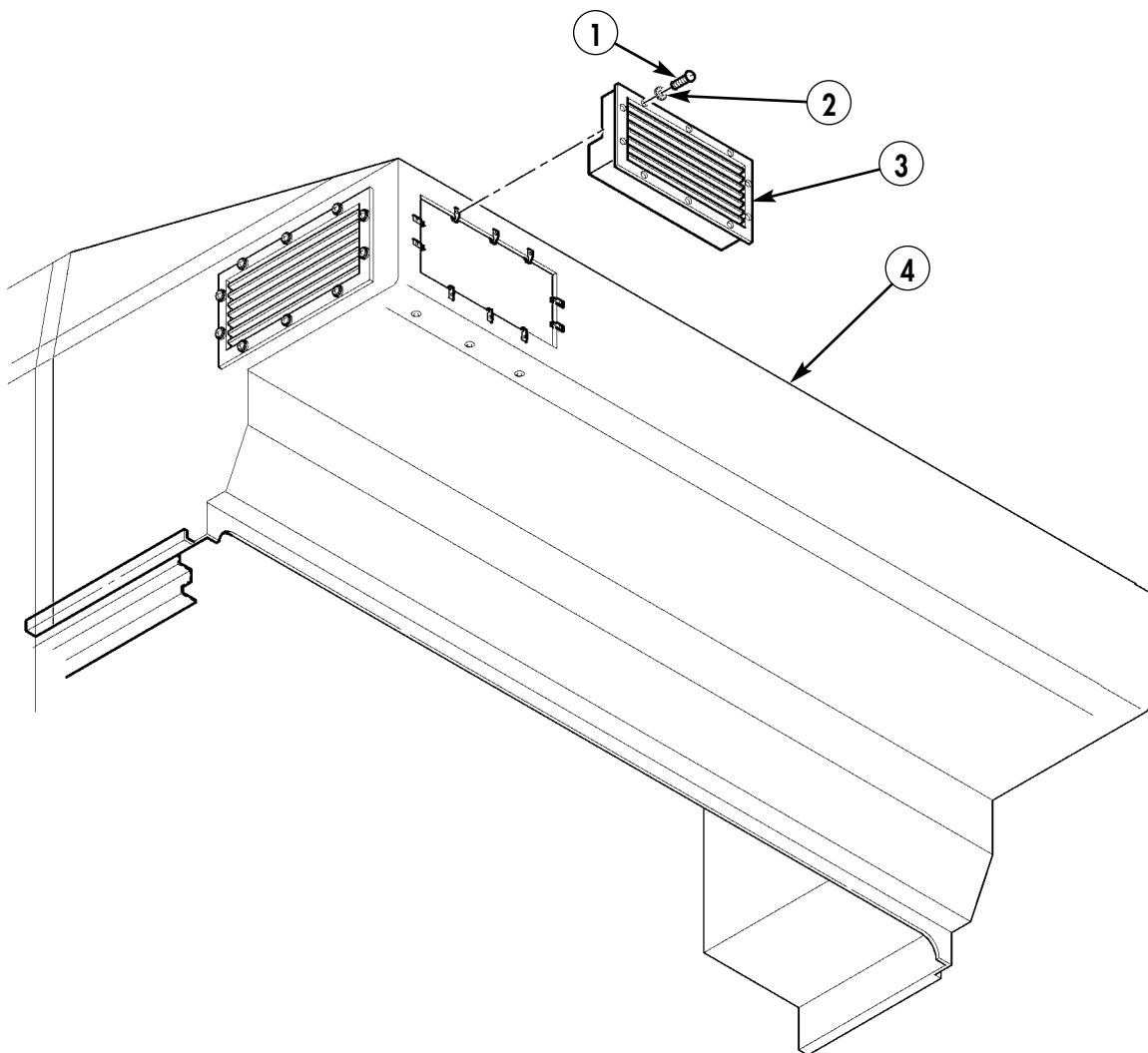
Figure 5-32.

## Section XV. SINGARS ANTENNA MOUNTING

### NOTE

- Perform steps 15-1 through 15-11 if MWO 9-2320-280-35-5 and Modification Kit 57K0181 have not been performed.
- Perform steps 15-12 through 15-23 if MWO 9-2320-280-35-5 has not been performed, but Modification Kit 57K0181 has been performed.
- Perform steps 15-24 through 15-39 if MWO 9-2320-280-35-5 has been performed and Modification Kit 57K0181 has not been performed.
- Perform steps 15-40 through 15-48 if MWO 9-2320-280-35-5 and Modification Kit 57K0181 have been performed.

**15-1.** Remove ten screws (1), lockwashers (2), and front grill (3) from bonnet (4).



*Figure 5-33.*

15-2. Locate and drill out second rivet (5) from edge on bottom of bonnet (4) with .281-in. diameter drill bit.

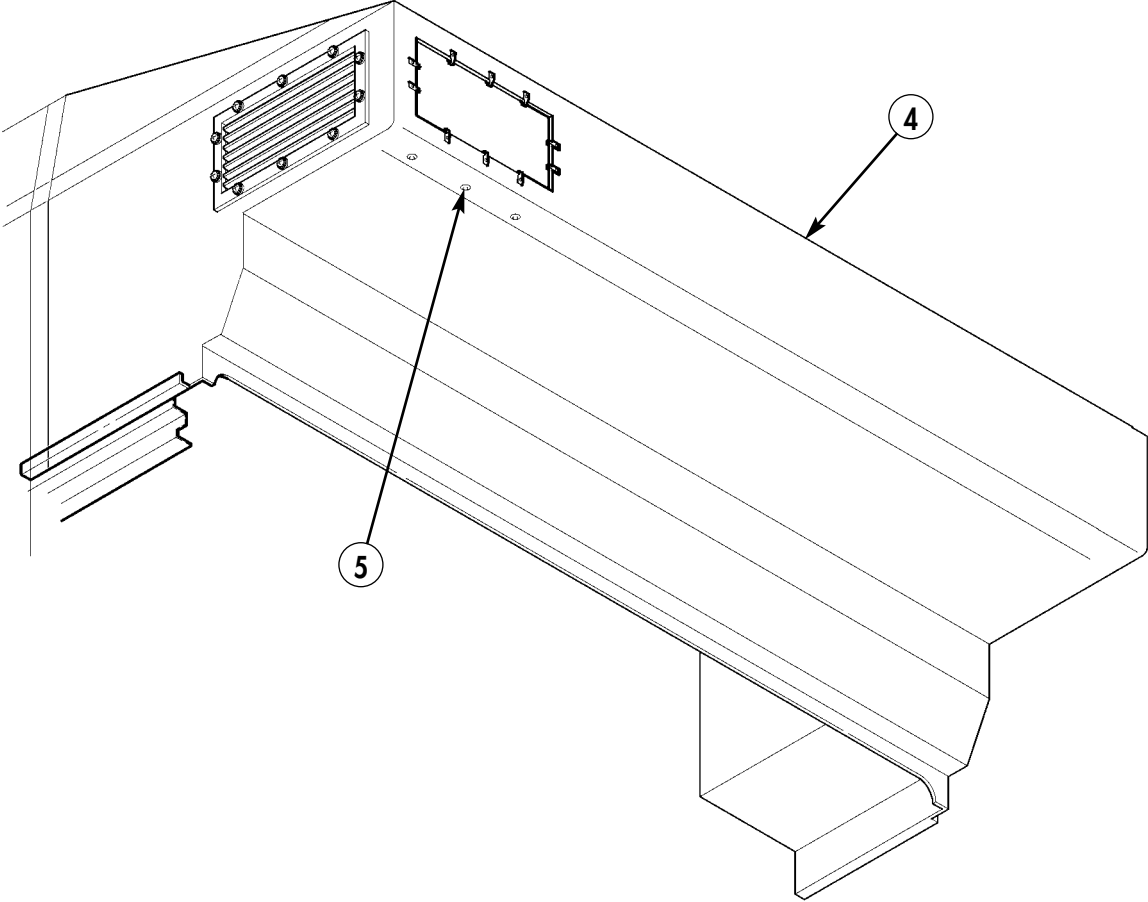
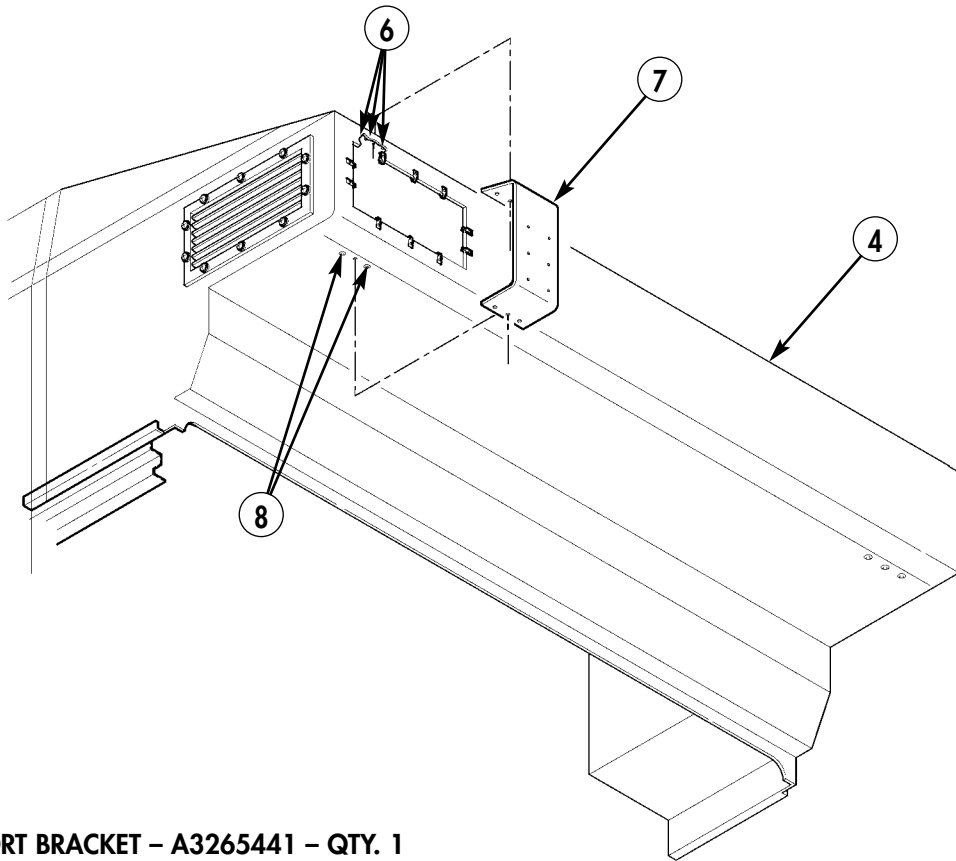


Figure 5-34.

- 15-3. Using support bracket (7) as template, locate, mark, and drill two .281-in. diameter holes (8) in bottom of bonnet (4) and three 0.281-in. diameter holes (6) in top of bonnet (4).
- 15-4. Remove paint from holes (6) and (8) in bonnet (4). Apply antiseize compound as required.



7. SUPPORT BRACKET – A3265441 – QTY. 1

Figure 5-35.

- 15-5. Remove paint from both sides of twelve mounting holes (9) on support bracket (7). Apply antiseize compound as required.

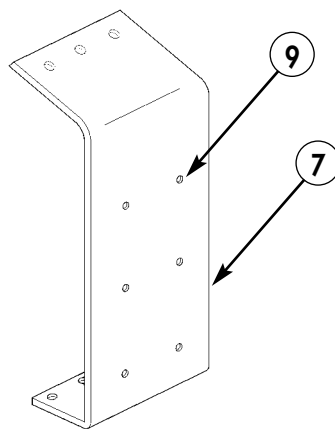
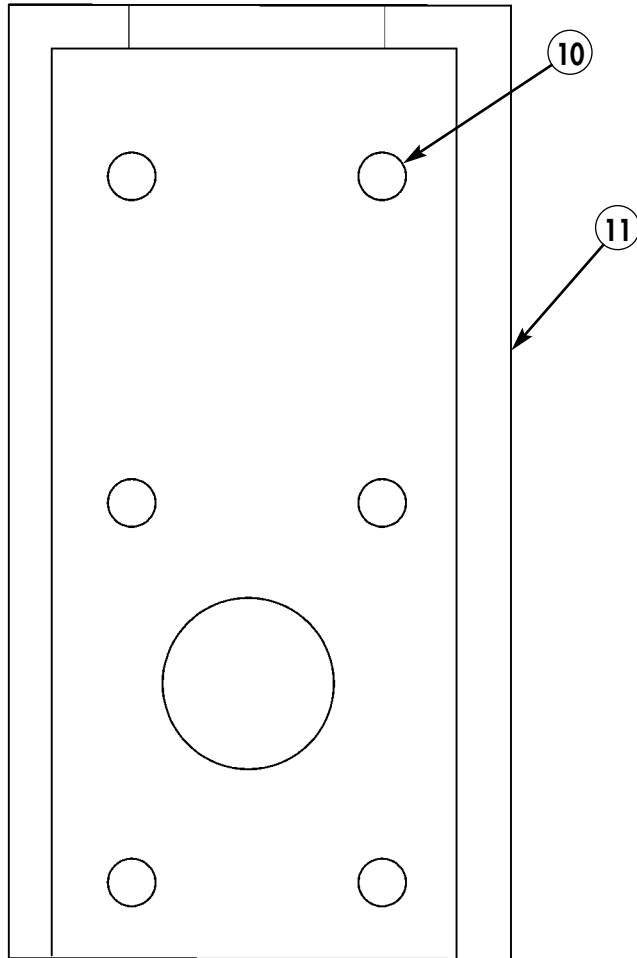


Figure 5-36.



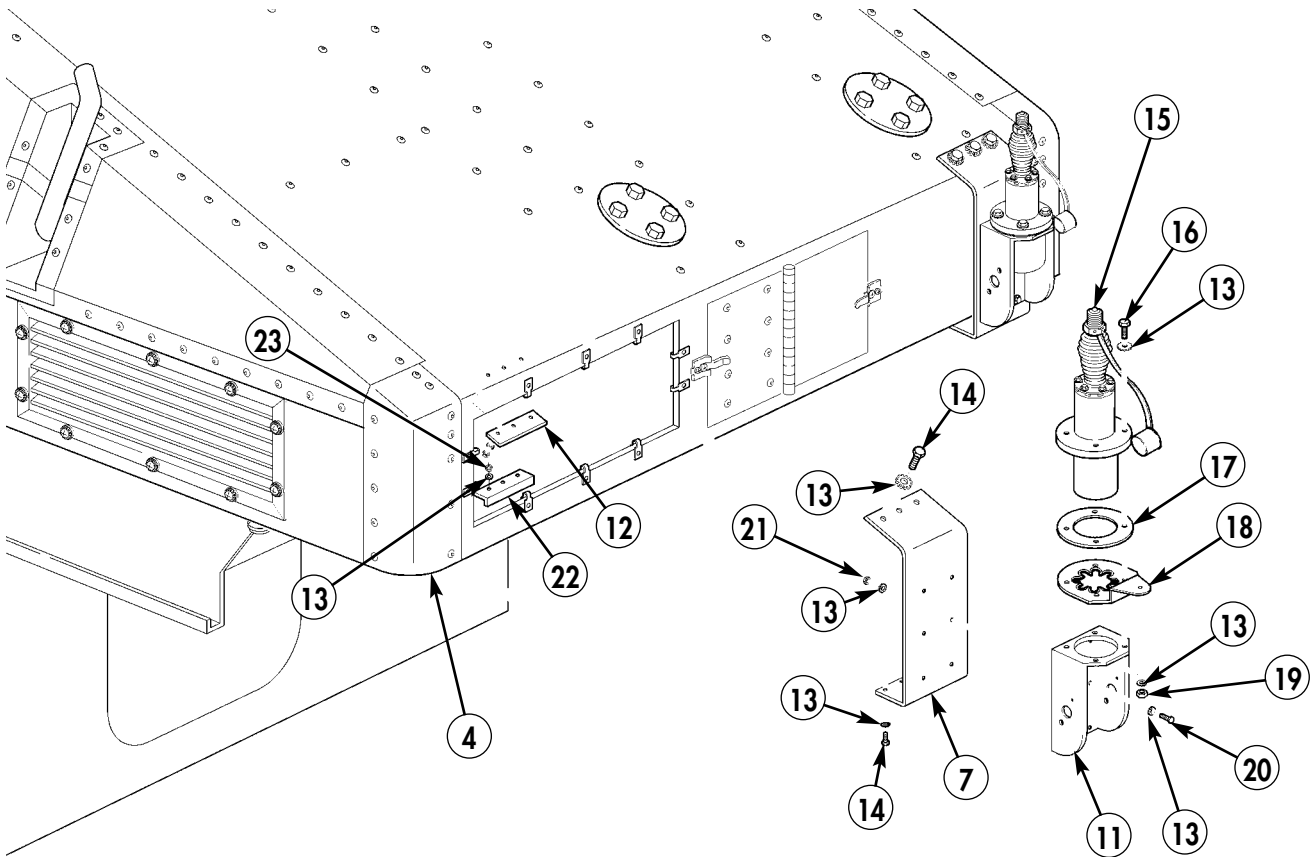
- 15-6.** Remove paint from all mounting holes (10) on antenna mounting bracket (11). Apply antiseize compound as required.



**11. ANTENNA MOUNTING BRACKET – A3050655-1 – QTY. 1**

*Figure 5-37.*

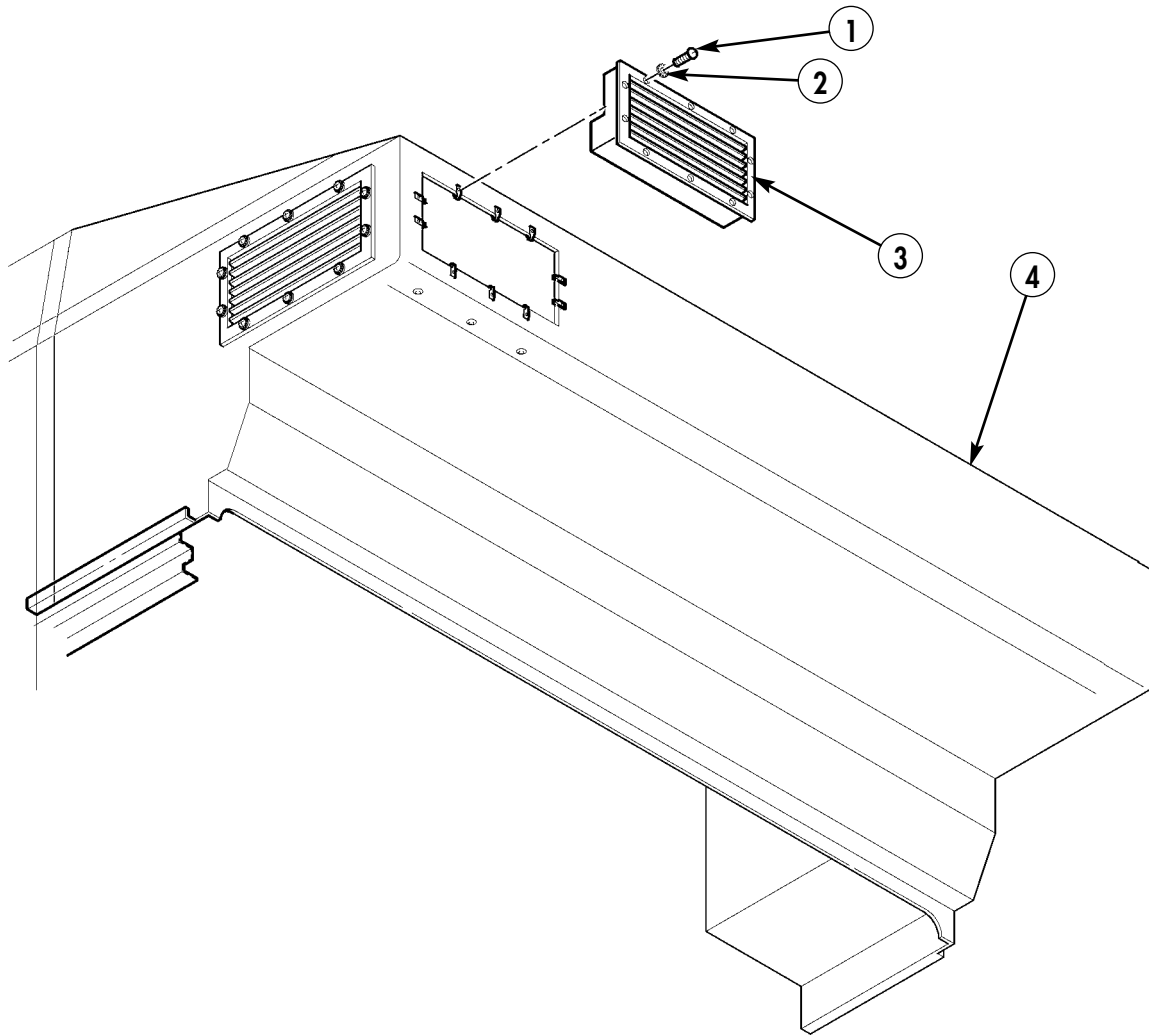
- 15-7. Attach antenna mounting bracket (11) to support bracket (7) with six screws (20), twelve lockwashers (13), and six nuts (21).
- 15-8. Attach antenna (15) to antenna mounting bracket (11) with four screws (16), eight lockwashers (13), one gasket (17), PLGR antenna mounting bracket (18), and four nuts (19).
- 15-9. Attach support bracket (7) to bonnet (4) with six screws (14), twelve lockwashers (13), two support plates (12) and (22), and six nuts (23).



- 12. SUPPORT PLATE - A3265440 - QTY. 1
- 13. LOCKWASHER - MS45904-68 - QTY. 32
- 14. SCREW - B1821BH025C150N - QTY. 6
- 15. SINGGARS ANTENNA - A3017899-1 - QTY. 1
- 16. SCREW - B1821BH038C175N - QTY. 4
- 17. GASKET - A3013655-1 - QTY. 1
- 18. PLGR ANTENNA BRACKET - A3265576 - QTY. 1
- 19. NUT - 13218E0320-293 - QTY. 4
- 20. SCREW - B1821BH025C100N - QTY. 6
- 21. NUT - 9419143 - QTY. 6
- 22. SUPPORT PLATE - A3265439 - QTY. 1
- 23. NUT - 9419143 - QTY. 6

Figure 5-38.

**15-10.** Install front grill (3) on bonnet (4) with ten existing screws (1) and lockwashers (2).



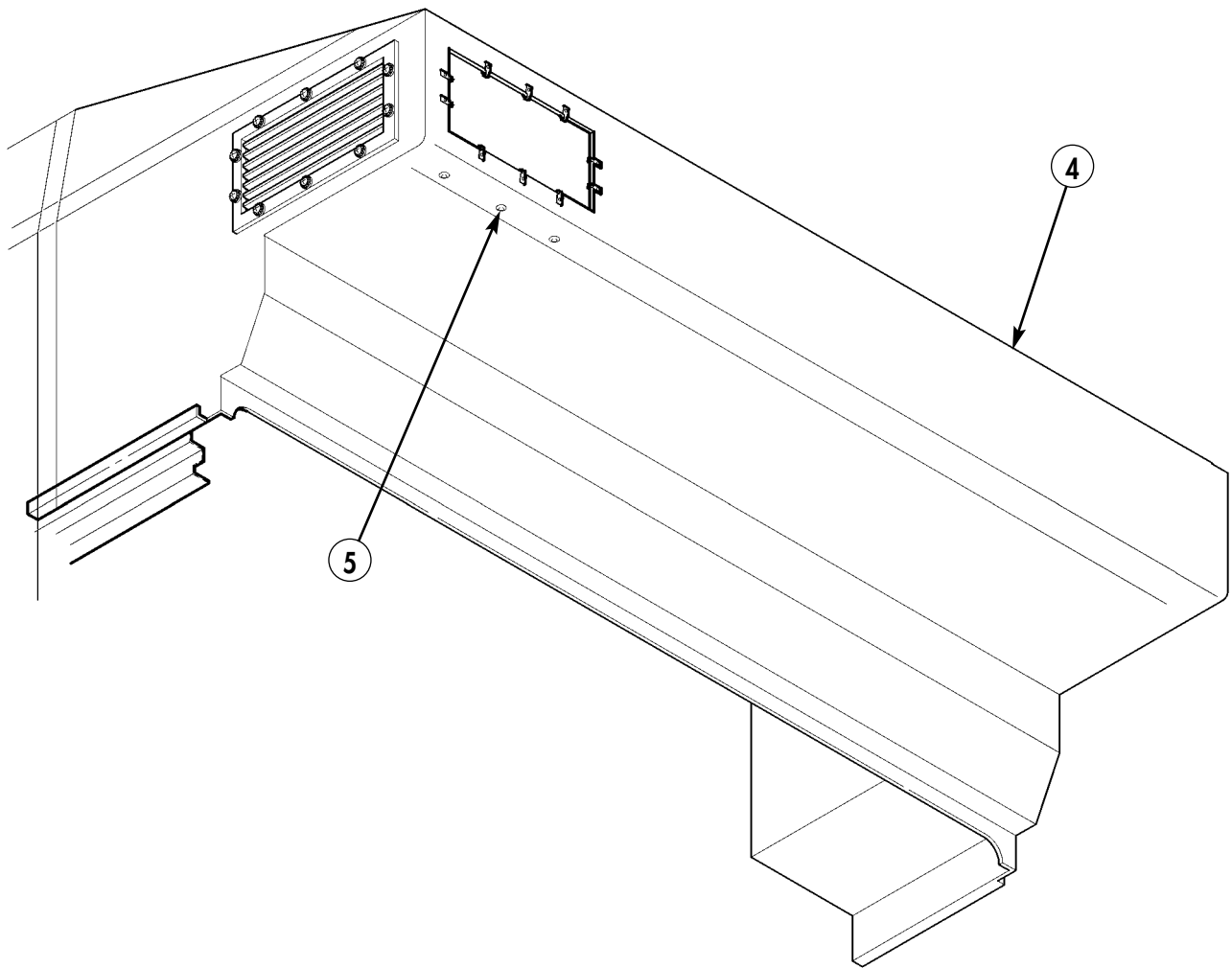
*Figure 5-39.*

**15-11.** Repeat steps 2 through 10 for driver's side.

**NOTE**

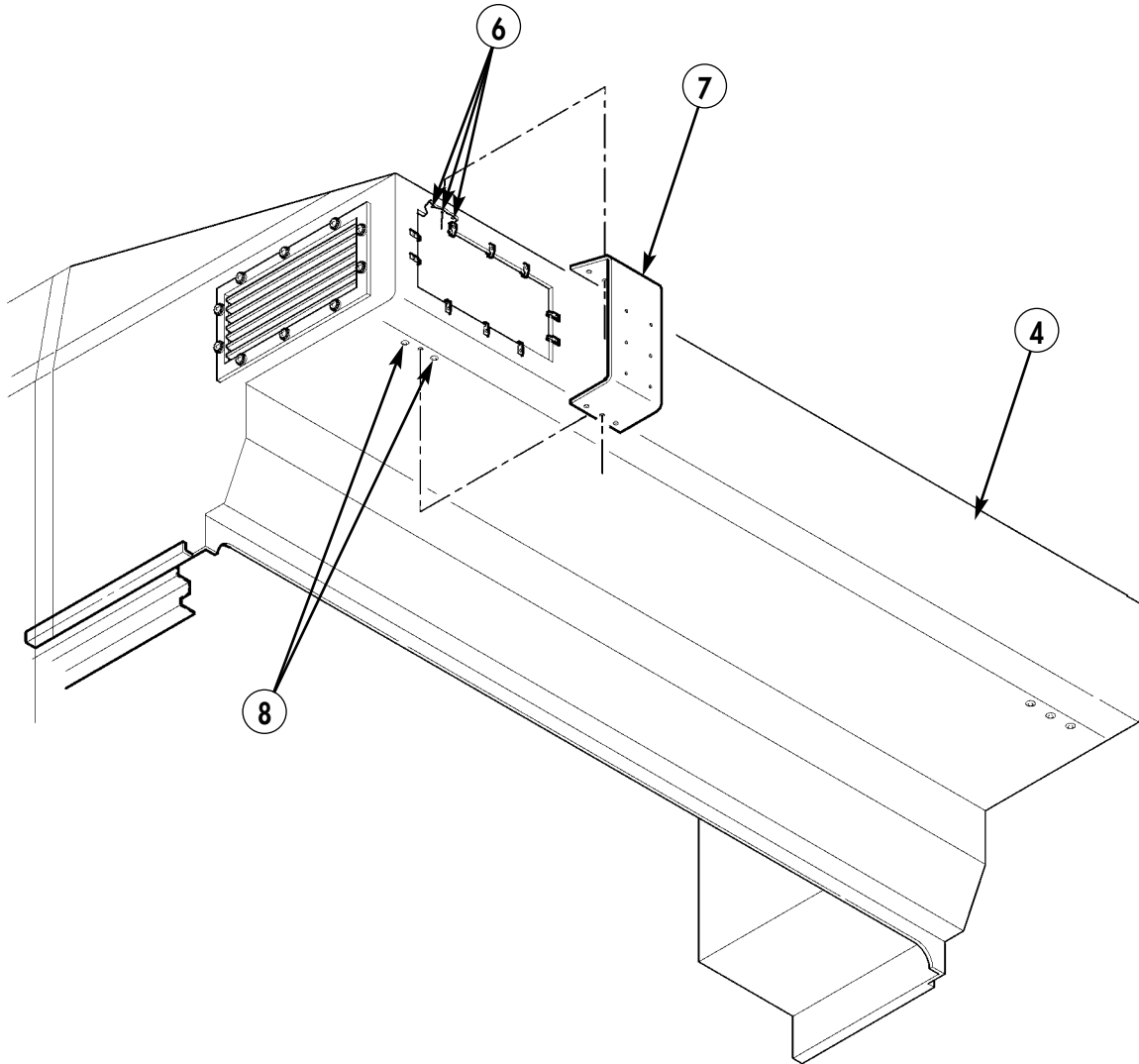
Perform steps 15-12 through 15-23 if MWO 9-2320-280-35-5 has not been performed but, Modification Kit 57K0181 has been performed.

- 15-12.** Remove ten screws (1), lockwashers (2), and front grill (3) from bonnet (4).
- 15-13.** Locate and drill out second rivet (5) from edge on bottom of bonnet (4) with 0.281-in. diameter drill bit.



*Figure 5-40.*

- 15-14. Using support bracket (7) as template, locate, mark, and drill two 0.281-in. diameter holes (8) in bottom of bonnet (4) and three 0.281-in. diameter holes (6) in top of bonnet (4).
- 15-15. Remove paint from holes (6) and (8) in bonnet (4). Apply antiseize compound as required.



7. SUPPORT BRACKET – A3265441 – QTY. 1

Figure 5-41.

- 15-16. Remove paint from both sides of mounting holes (9) on support bracket (7). Apply antiseize compound as required.

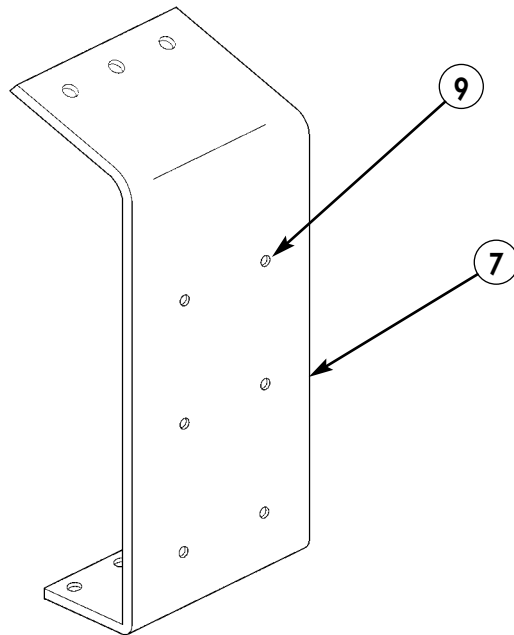
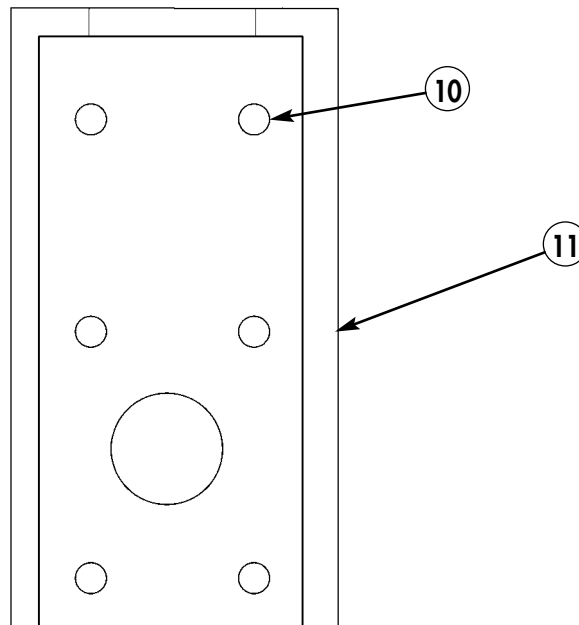


Figure 5-42.

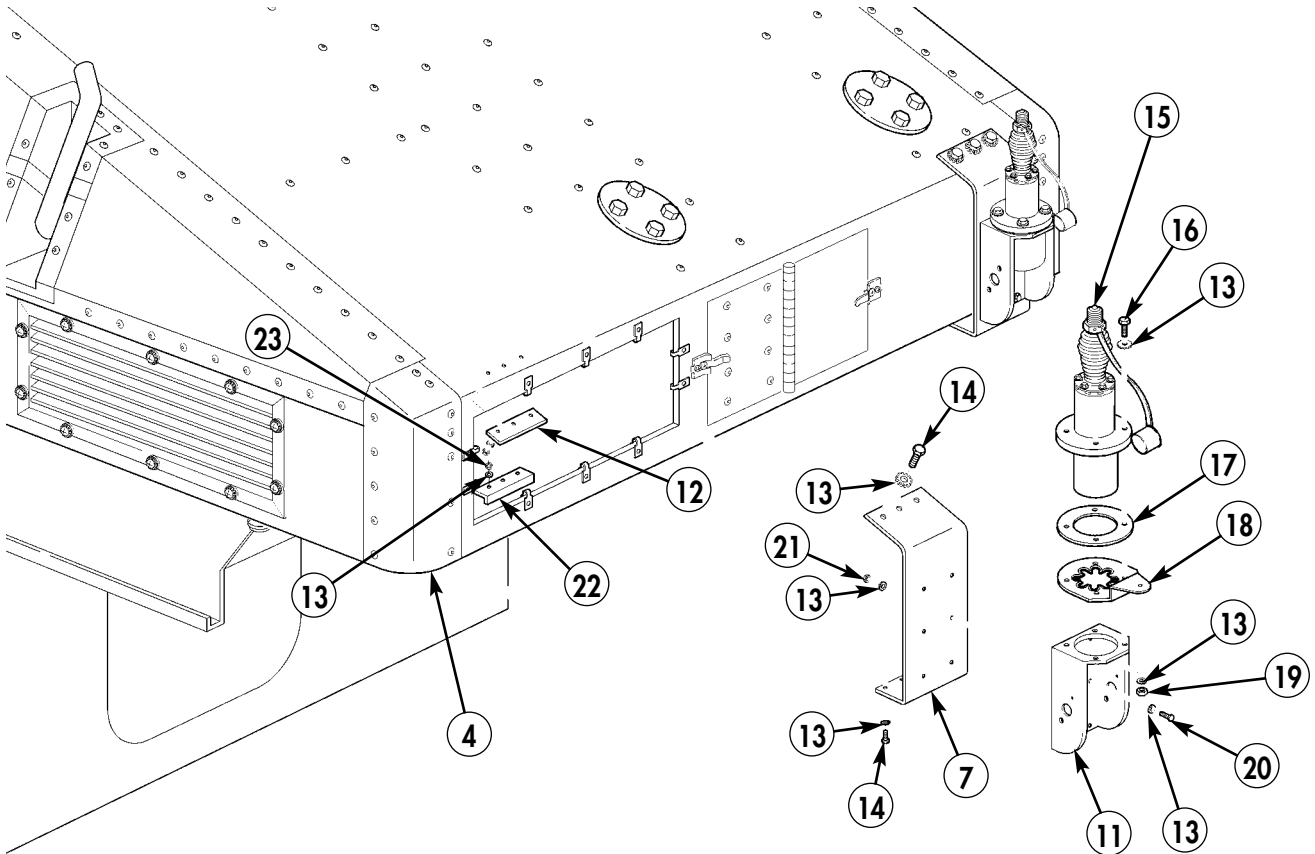
- 15-17. Remove paint from mounting holes (10) on antenna mounting bracket (11). Apply antiseize compound as required.



11. ANTENNA MOUNTING BRACKET – A3050655-1 – QTY. 1

Figure 5-43.

- 15-18. Attach antenna mounting bracket (11) to support bracket (7) with six screws (20), twelve lockwashers (13), and six nuts (21).
- 15-19. Attach antenna (15) to antenna mounting bracket (11) with four screws (16), eight lockwashers (13), one gasket (17), PLGR antenna mounting bracket (18), and four nuts (19).
- 15-20. Attach support bracket (7) to bonnet (4) with six screws (14), twelve lockwashers (13), two support plates (12) and (22), and six nuts (23).



- 12. SUPPORT PLATE - A3265440 - QTY. 1
- 13. LOCKWASHER - MS45904-68 - QTY. 32
- 14. SCREW - B1821BH025C150N-12 - QTY. 6
- 15. SINGARS ANTENNA - A3017899-1 - QTY. 1
- 16. SCREW - B1821BH038C175N - QTY. 4
- 17. GASKET - A3013655-1 - QTY. 1
- 18. PLGR ANTENNA BRACKET - A3265576 - QTY. 1
- 19. NUT - 13218E0320-293 - QTY. 4
- 20. SCREW - B1821BH025C100N - QTY. 6
- 21. NUT - 9419143 - QTY. 6
- 22. SUPPORT PLATE - A3265439 - QTY. 1
- 23. NUT - 9419143 - QTY. 6

Figure 5-44.

15-21. Install front grill (3) on bonnet (4) with ten existing screws (1) and lockwashers (2).

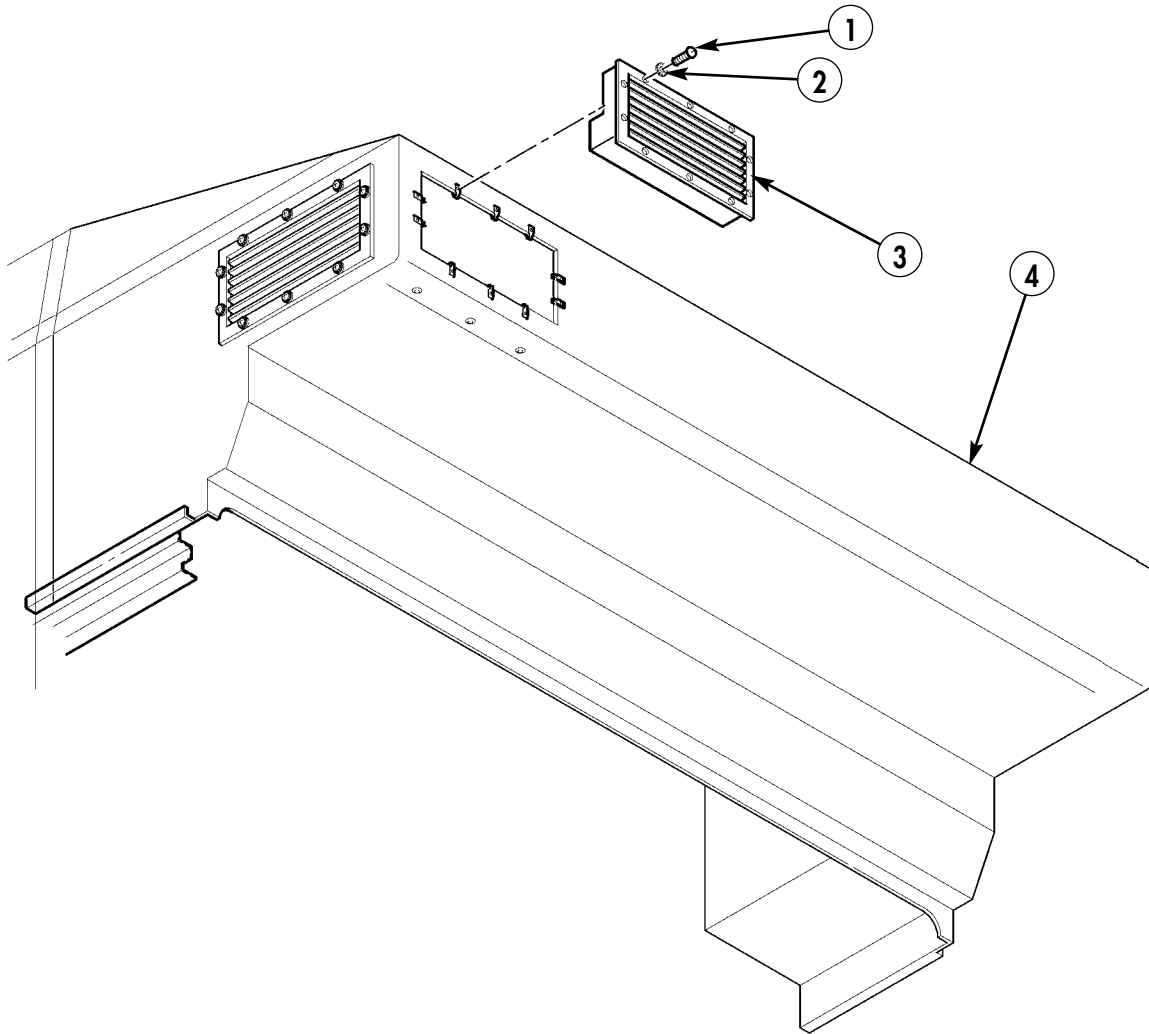


Figure 5-45.



**15-22.** Remove antenna mount plate (25), four screws (24), and one gasket (26) from antenna mounting block (27).

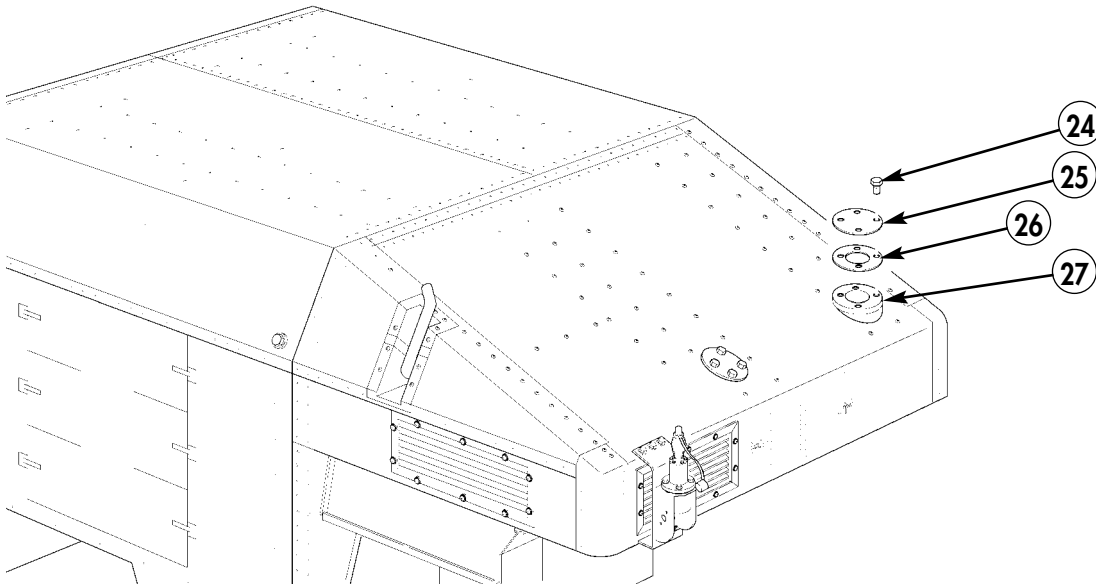
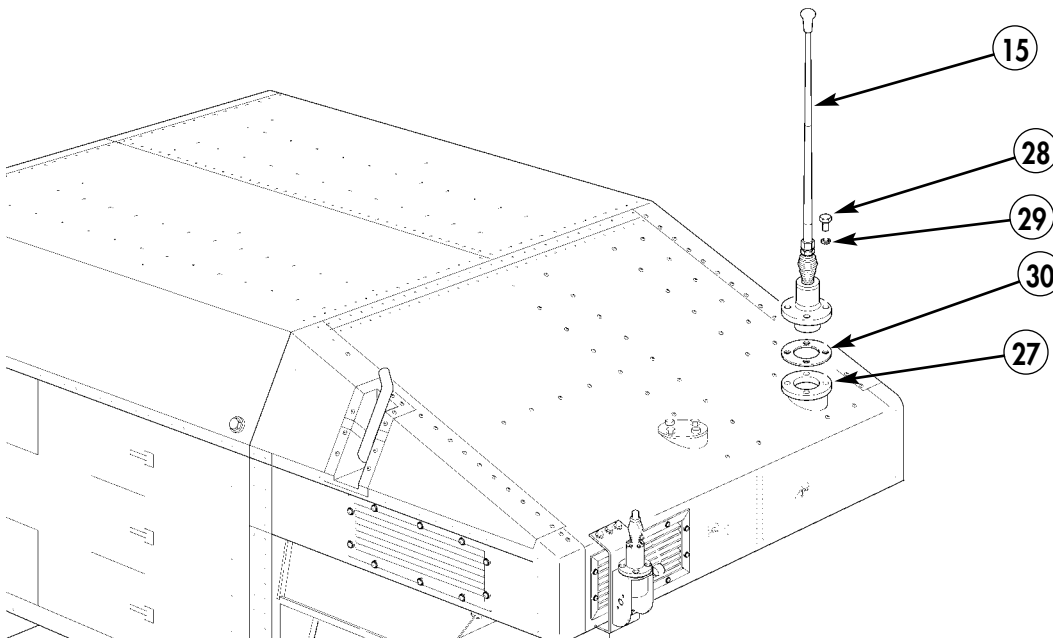


Figure 5-46.

**15-23.** Attach SINCGARS antenna (15) to antenna mounting block (27) with four screws (28), lockwashers (29) and one gasket (30).



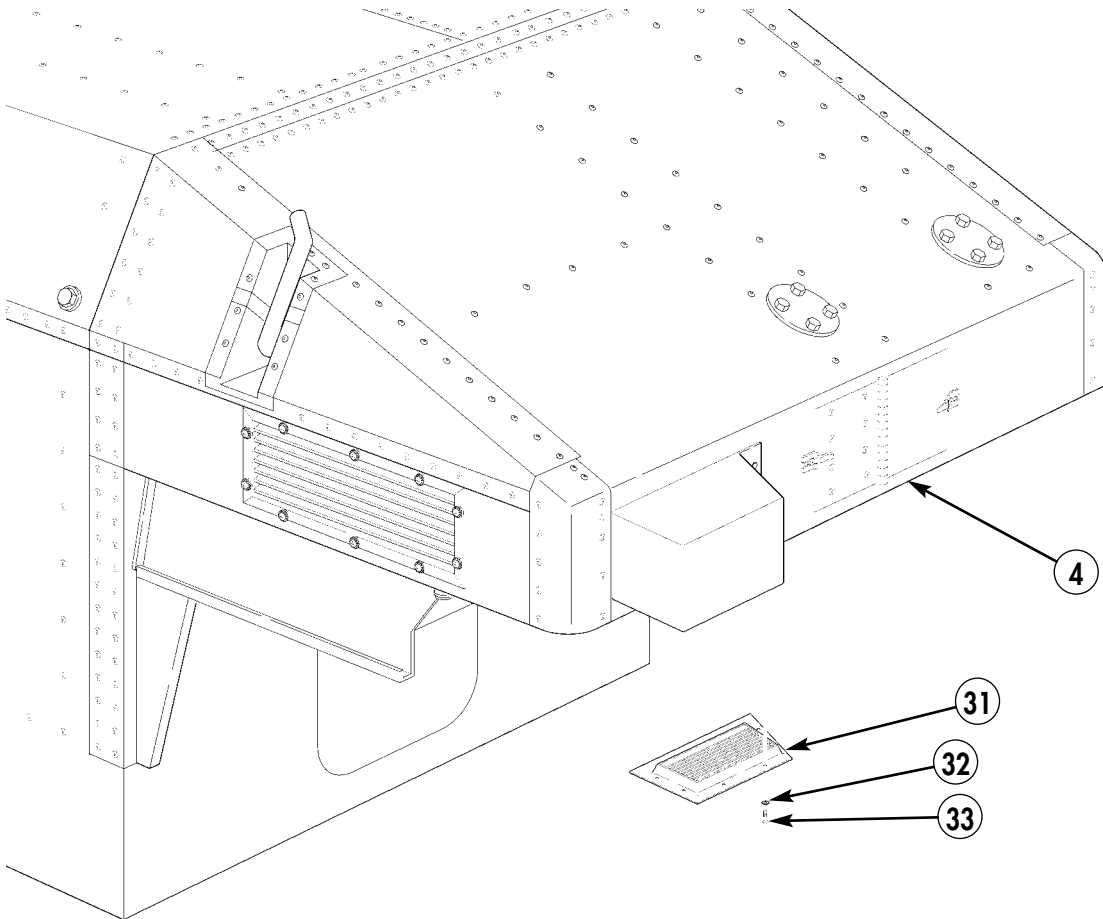
- 28. SCREW – MS90725–65 – QTY. 4
- 29. LOCKWASHER – MS45904–68 – QTY. 4
- 30. GASKET – A3013655–1 – QTY. 1

Figure 5-47.

**NOTE**

Perform steps 15-24 through 15-39 if MWO 9-2320-280-35-5 has been performed and Modification Kit 57K0181 has not been performed.

**15-24.** Remove nine screws (33), lockwashers (32), and grill (31) from bonnet (4).



*Figure 5-48.*

**15-25.** Locate and drill out second rivet (5) from edge on bottom of bonnet (4) with 0.281-in. diameter drill bit.

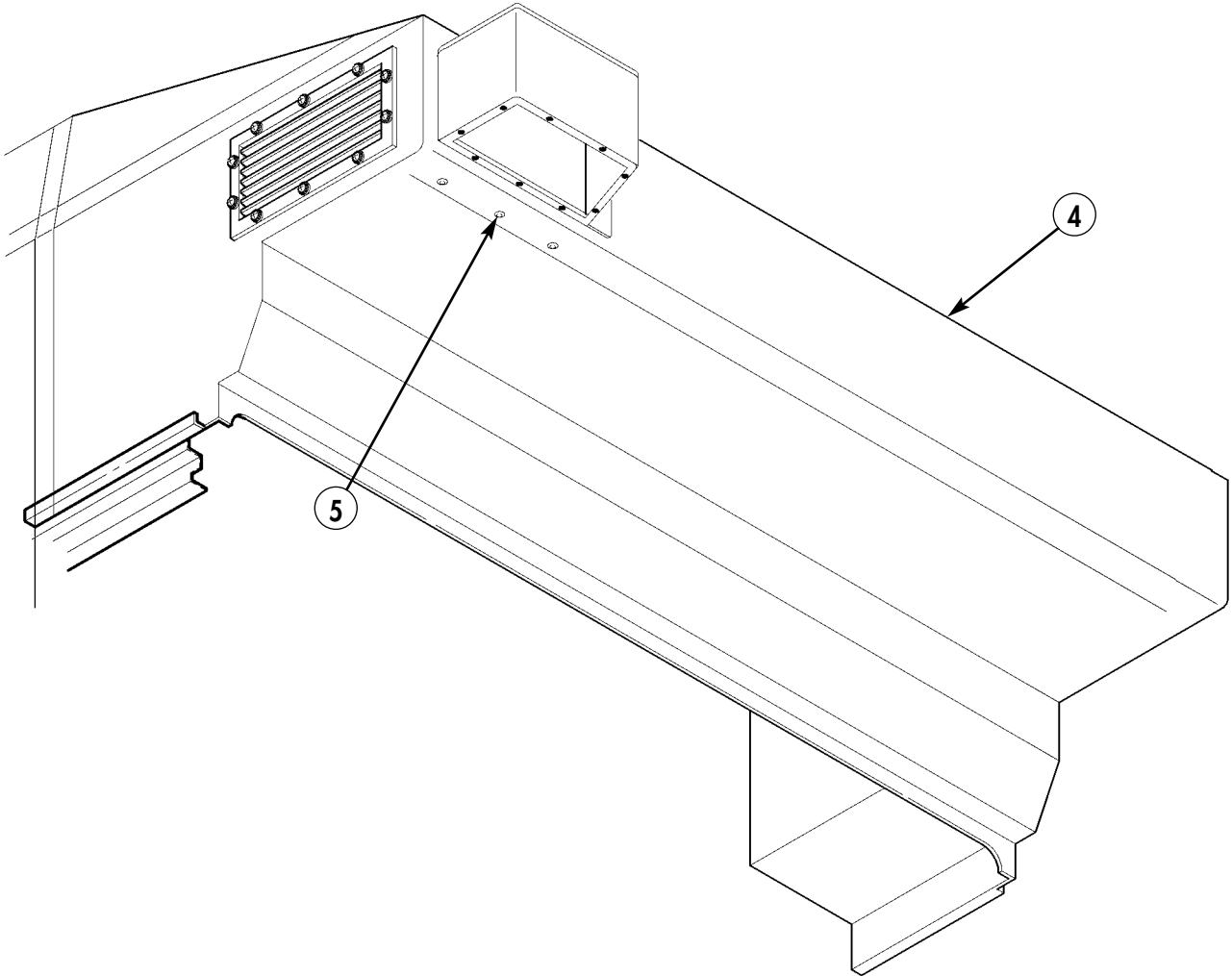
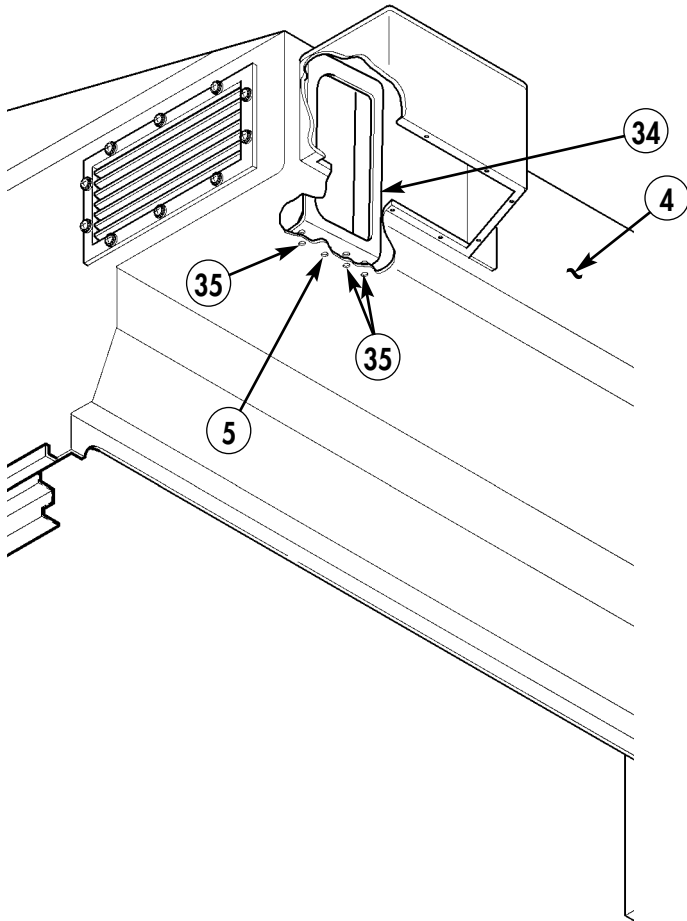


Figure 5-49.

**NOTE**

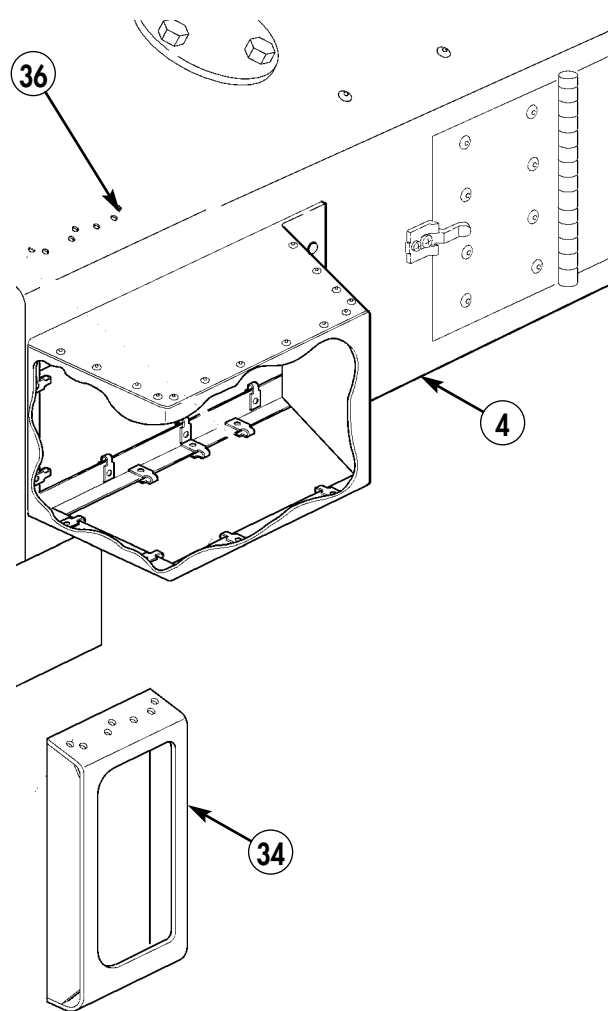
Ensure support bracket is flush against forward wall of bonnet.

- 15-26. Place support bracket (34) in position and align second hole from left, on bottom of support bracket (34), with rivet hole (5).
- 15-27. Using support bracket (34) as template, locate, mark, and drill three 0.281-in. diameter holes (35) in bottom of bonnet (4) and seven 0.281-in. diameter holes (36) in top of bonnet (4).
- 15-28. Remove paint from holes (35) and (36) in bonnet (4). Apply antiseize compound as required.



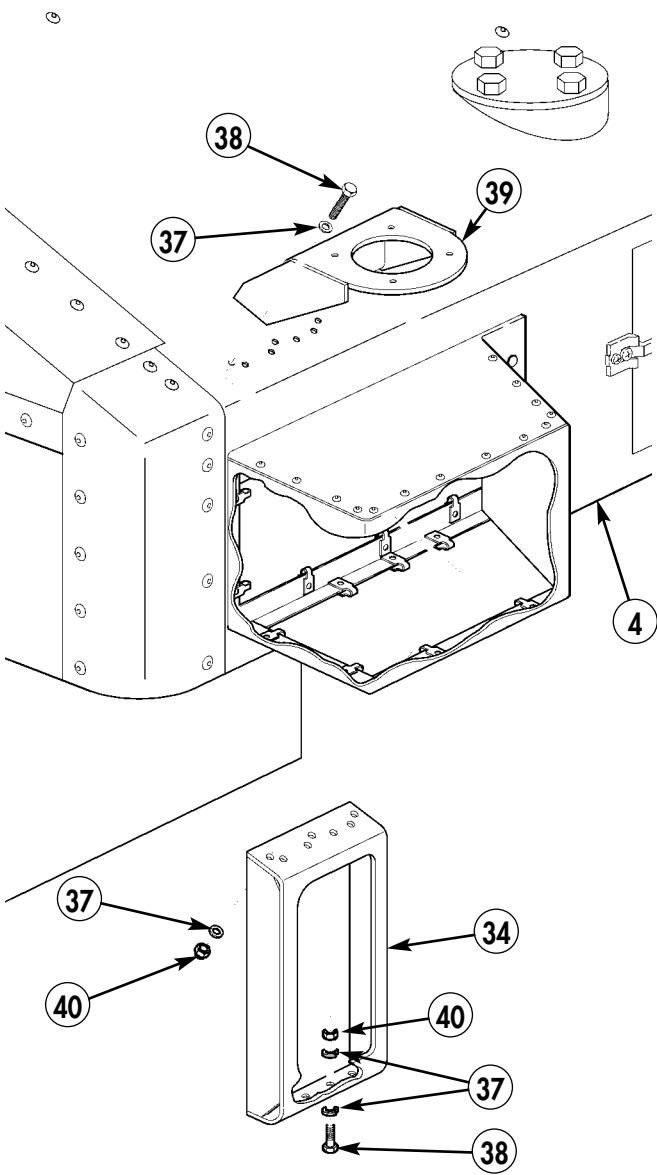
34. SUPPORT BRACKET – RCSK 19656 – QTY. 1

*Figure 5-50.*



*Figure 5-51.*

- 15-29. Secure top of support bracket (34) and antenna bracket (39) to bonnet (4) with seven screws (38), fourteen washers (37), and seven nuts (40).
- 15-30. Secure bottom of support bracket (34) to bonnet (4) with four screws (38), eight washers (37), and four nuts (40).



- 37. WASHER - MS27183-10 - QTY. 22
- 38. SCREW - B1821BH025C125N - QTY. 7
- 39. ANTENNA BRACKET - RCSK 19657 - QTY. 1
- 40. NUT - MS51943-31 - QTY. 7

Figure 5-52.

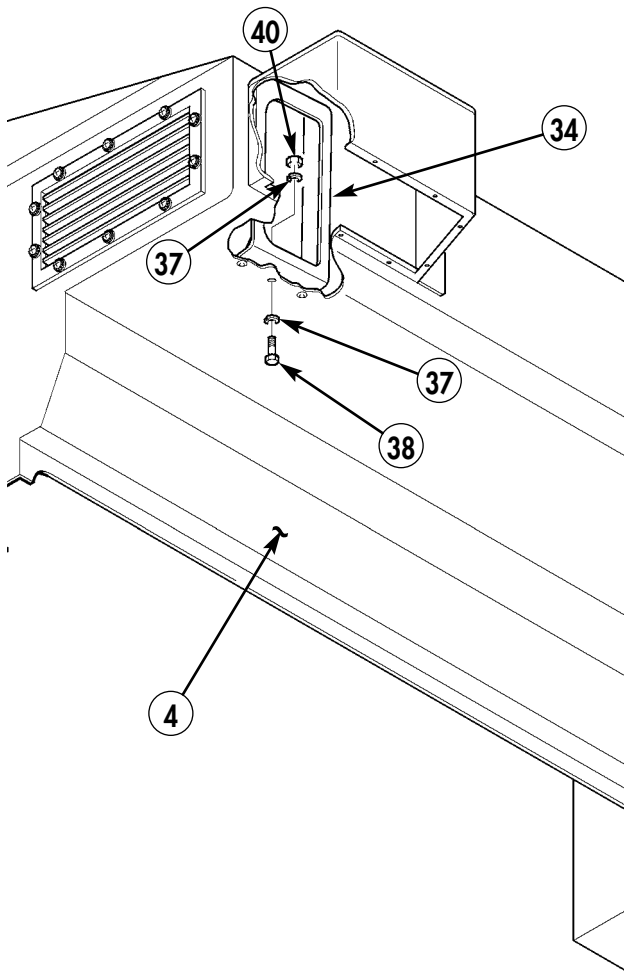
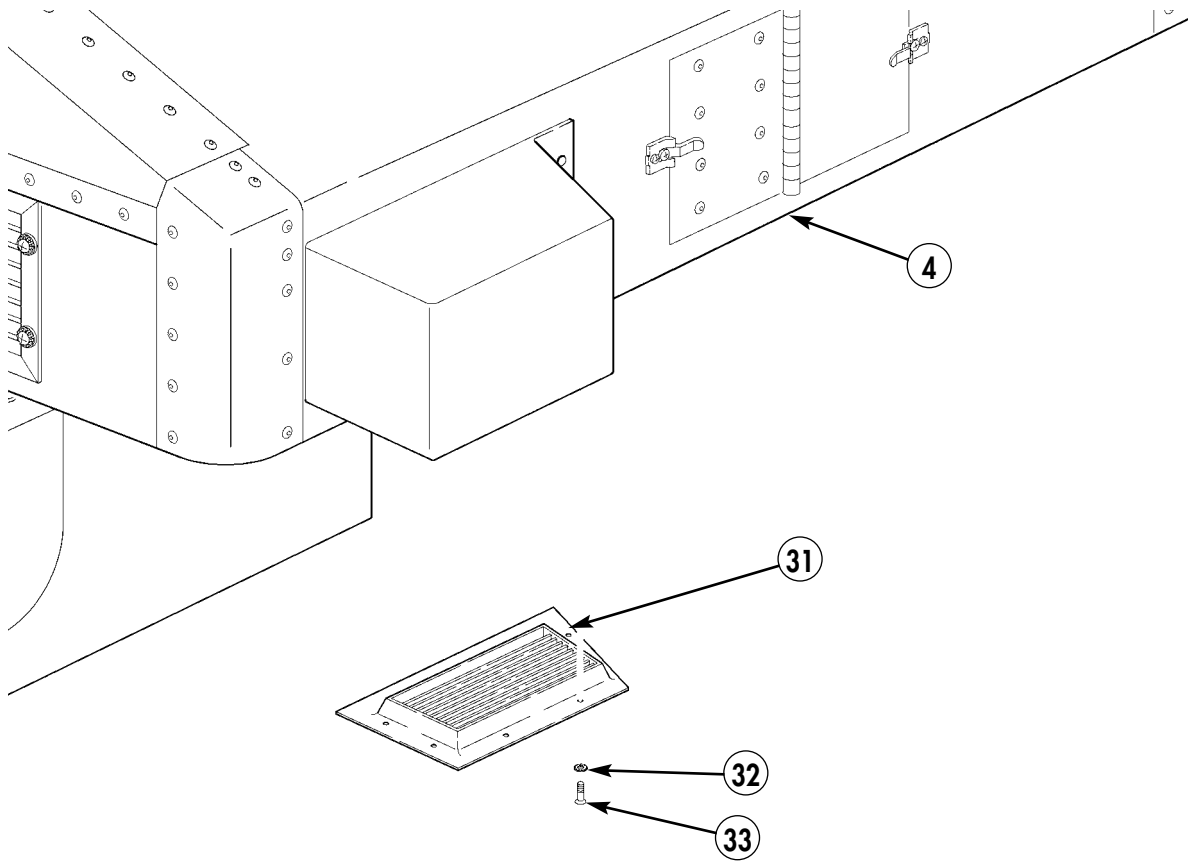


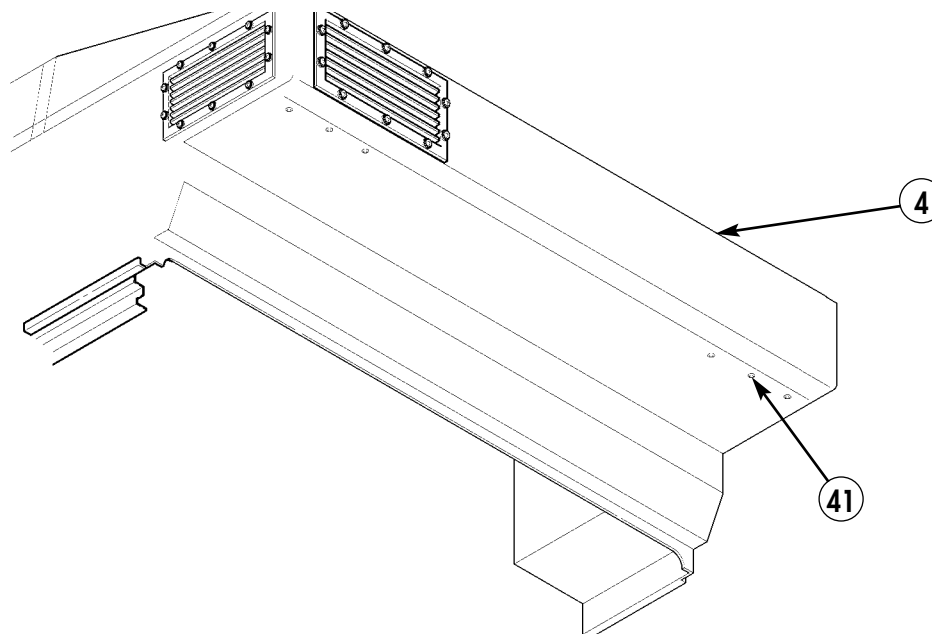
Figure 5-53.

**15-31.** Install front grill (31) on bonnet (4) with nine existing screws (33) and lockwashers (32).



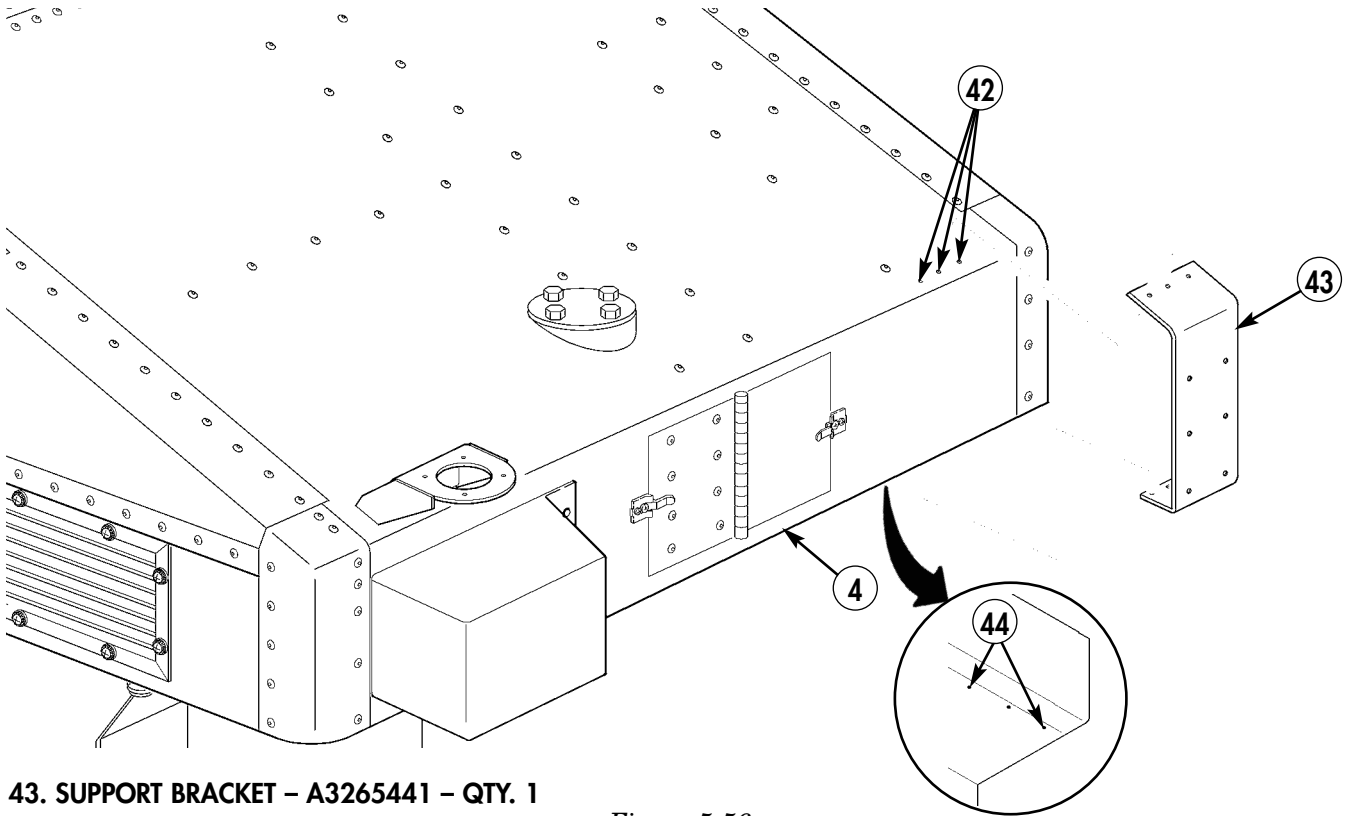
*Figure 5-54.*

**15-32.** Locate and drill out second rivet (41) from edge on bottom of bonnet (4) with 0.281-in. diameter drill bit (driver's side only).



*Figure 5-55.*

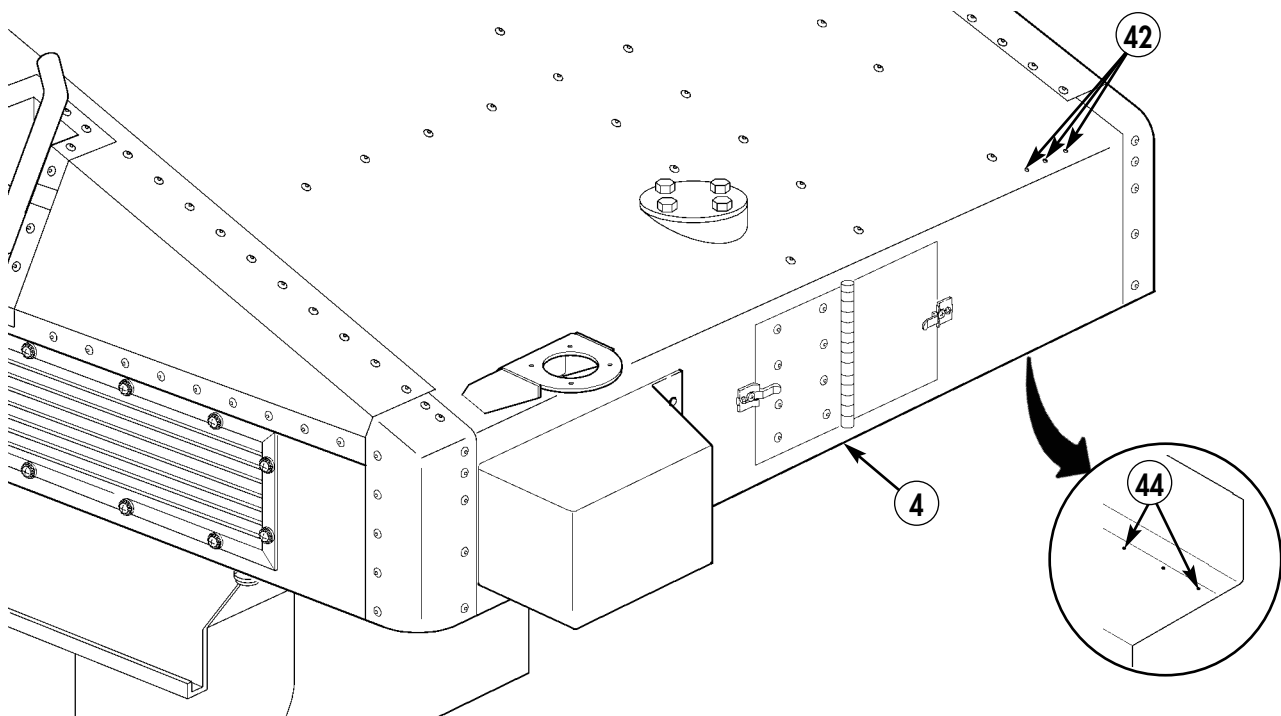
**15-33.** Using support bracket (43) as template, locate, mark, and drill two 0.281-in. diameter holes (42) in bottom of bonnet (4) and three 0.281-in. diameter holes (42) in top of bonnet (4).



**43. SUPPORT BRACKET – A3265441 – QTY. 1**

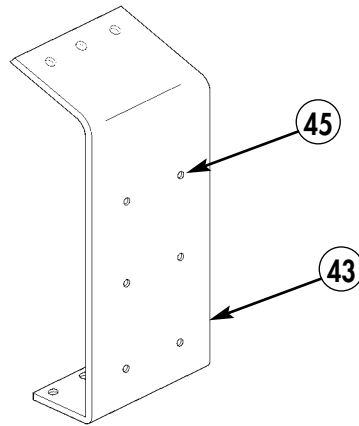
*Figure 5-56.*

**15-34.** Remove paint from holes (42) and (44) in bonnet (4). Apply antiseize compound as required.



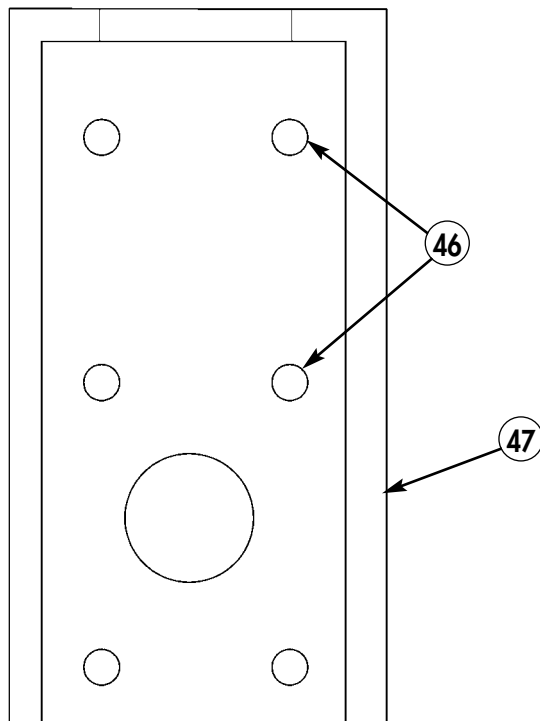
*Figure 5-57.*

**15-35.** Remove paint from both sides of mounting holes (45) on support bracket (43). Apply antiseize compound as required.



*Figure 5-58.*

**15-36.** Remove paint from mounting holes (46) on antenna mounting bracket (47). Apply antiseize compound as required.

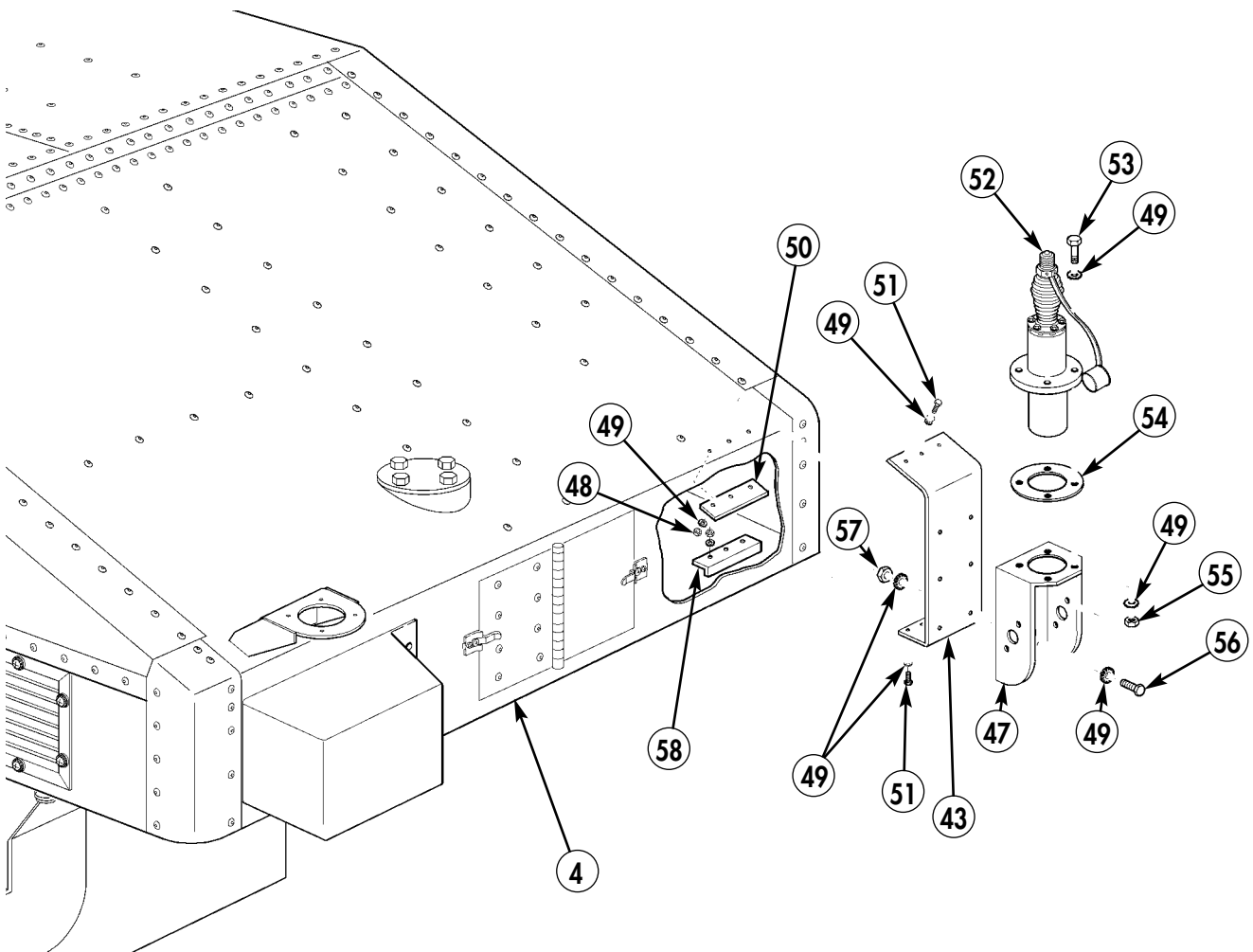


**47. ANTENNA MOUNTING BRACKET – A3050655-1 – QTY. 1**

*Figure 5-59.*



- 15-37. Attach antenna mounting bracket (47) to support bracket (43) with six screws (56), twelve lockwashers (49), and six nuts (57).
- 15-38. Attach antenna (52) and gasket (54) to antenna mounting bracket (47) with four screws (53), eight lockwashers (49), and four nuts (55).
- 15-39. Attach support bracket (43) to bonnet (4) with six screws (51), twelve lockwashers (49), two support plates (50) and (58), and six nuts (48).



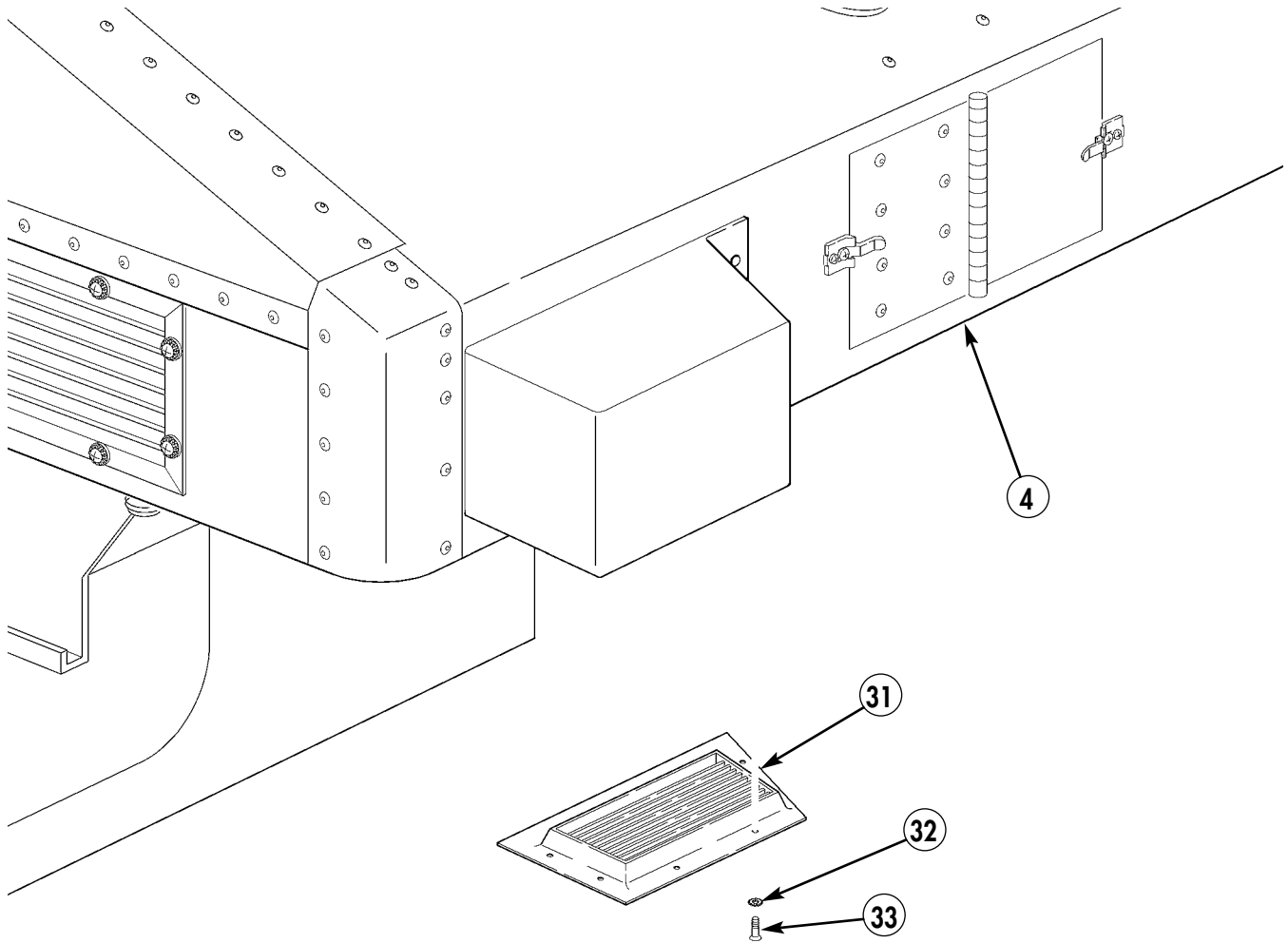
- 48. NUT - 9419143 - QTY. 6
- 49. LOCKWASHER - MS45904-68 - QTY. 32
- 50. SUPPORT PLATE - A3265440 - QTY. 1
- 51. SCREW - B1821BH025C150N - QTY. 6
- 52. SINGARS ANTENNA - A3017899-1 - QTY. 1
- 53. SCREW - B1821BH038C175N - QTY. 4
- 54. GASKET - A3013655-1 - QTY. 1
- 55. NUT - 13218E0320-293 - QTY. 4
- 56. SCREW - B1821BH025C100N - QTY. 6
- 57. NUT - 9419143 - QTY. 6
- 58. SUPPORT PLATE - A3265439 - QTY. 1

Figure 5-60.

**NOTE**

Perform steps 15-40 through 15-48 if MWO 9-2320-280-35-5 and Modification Kit 57K0181 have been performed.

**15-40.** Remove nine screws (33), lockwashers (32), and grill (31) from bonnet (4).



*Figure 5-61.*

15-41. Locate and drill out second rivet (5) from edge on bottom of bonnet (4) with 0.281-in. diameter drill bit.

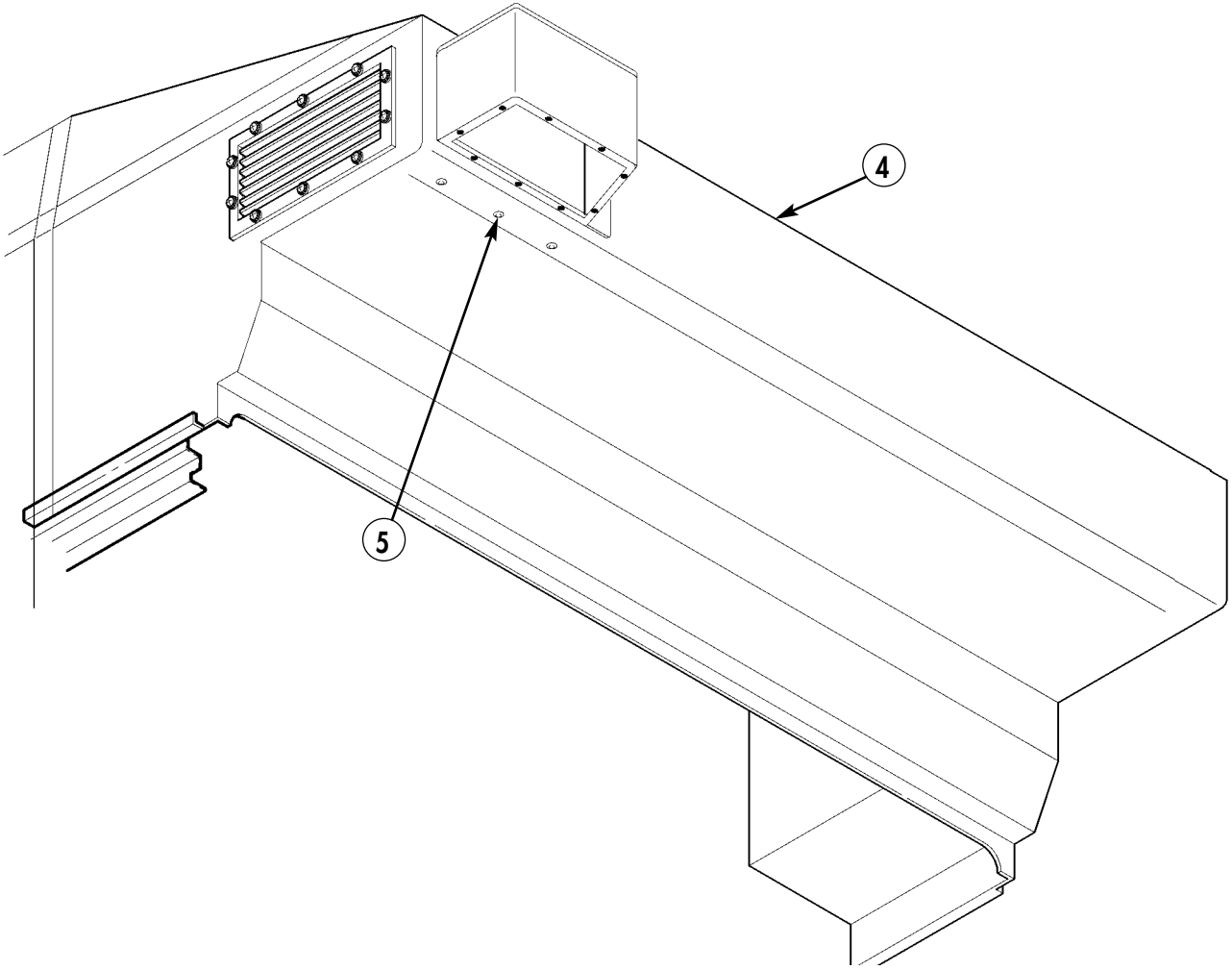
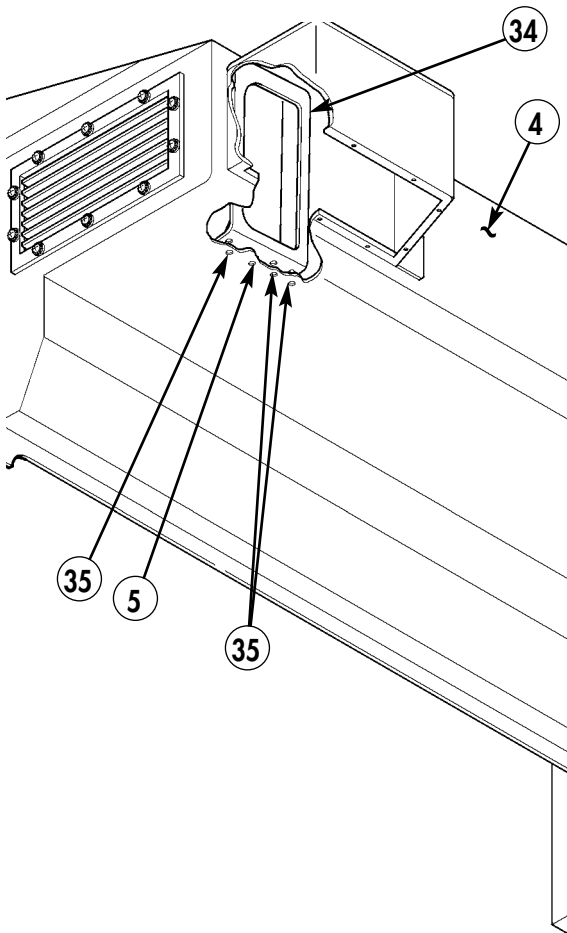


Figure 5-62.

**NOTE**

Ensure support bracket is flush against forward wall of bonnet.

- 15-42. Place support bracket (34) in position and align support bracket hole (34) with rivet hole (5). Use center holes.
- 15-43. Using support bracket (34) as template, locate, mark, and drill three 0.281-in. diameter holes (35) in bottom of bonnet (4) and six 0.281-in. diameter holes (36) in top of bonnet (4).
- 15-44. Remove paint from holes (35) and (36) in bonnet (4). Apply antiseize compound as required.



34. SUPPORT BRACKET – RCSK 19656 – QTY. 1

Figure 5-63.

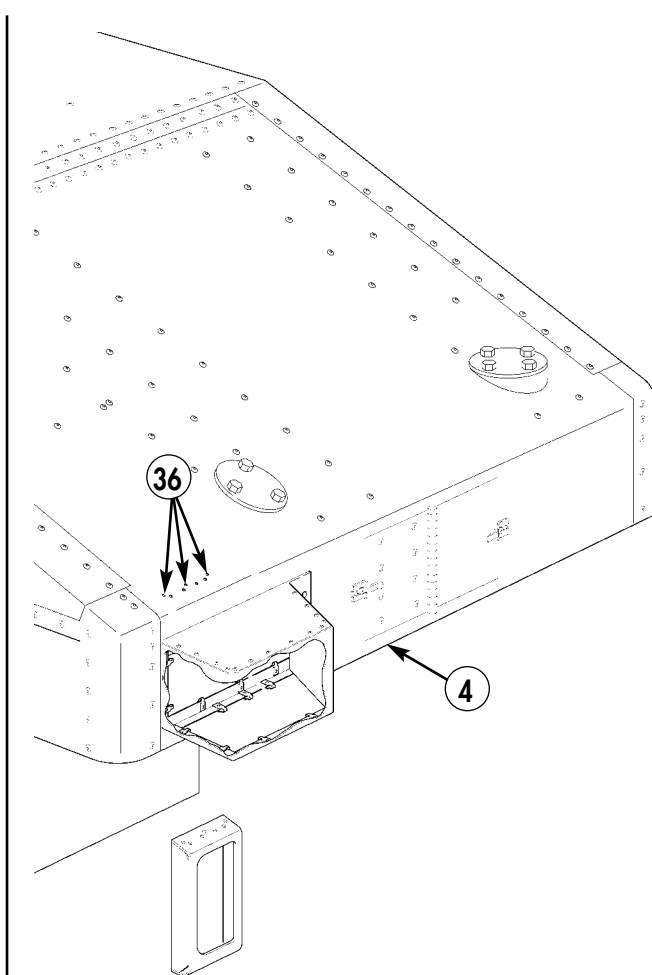
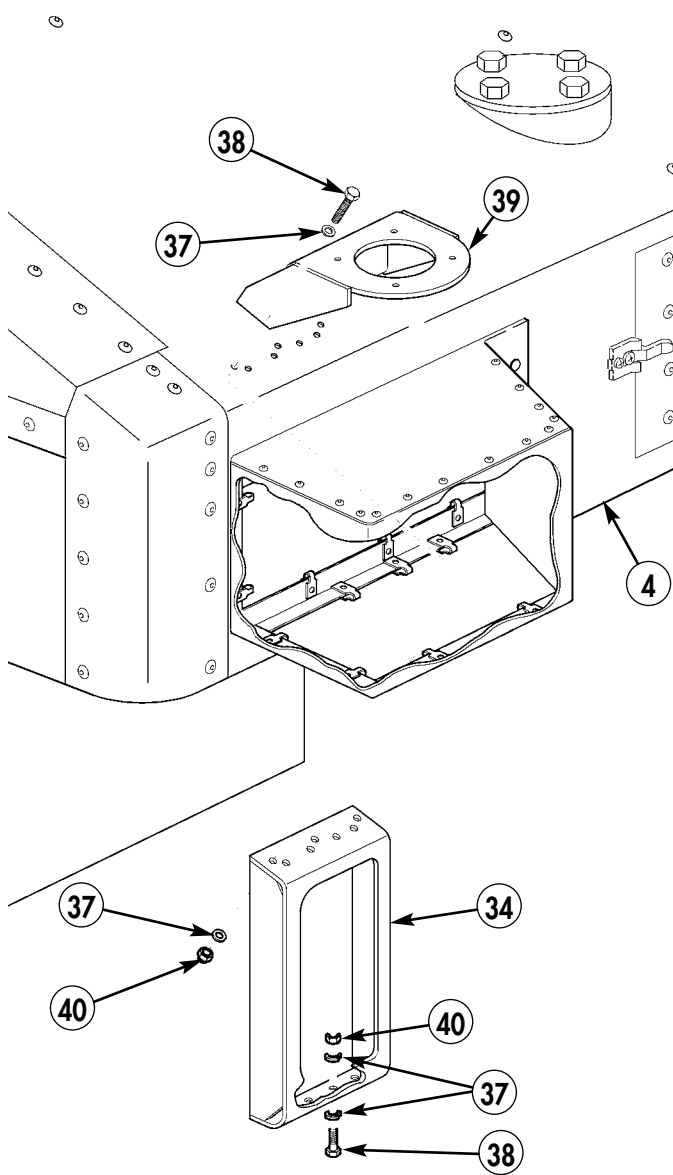


Figure 5-64.

- 15-45. Secure top of support bracket (34) and antenna bracket (39) to bonnet (4) with seven screws (38), fourteen washers (37), and seven nuts (40).
- 15-46. Secure bottom of support bracket (34) to bonnet (4) with four screws (38), eight washers (37), and four nuts (40).



- 37. WASHER – MS27183-10 – QTY. 22
- 38. SCREW – B1821BH025C125N – QTY. 7
- 39. ANTENNA BRACKET – RCSK 19657 – QTY. 1
- 40. NUT – MS51943-31 – QTY. 7

Figure 5-65.

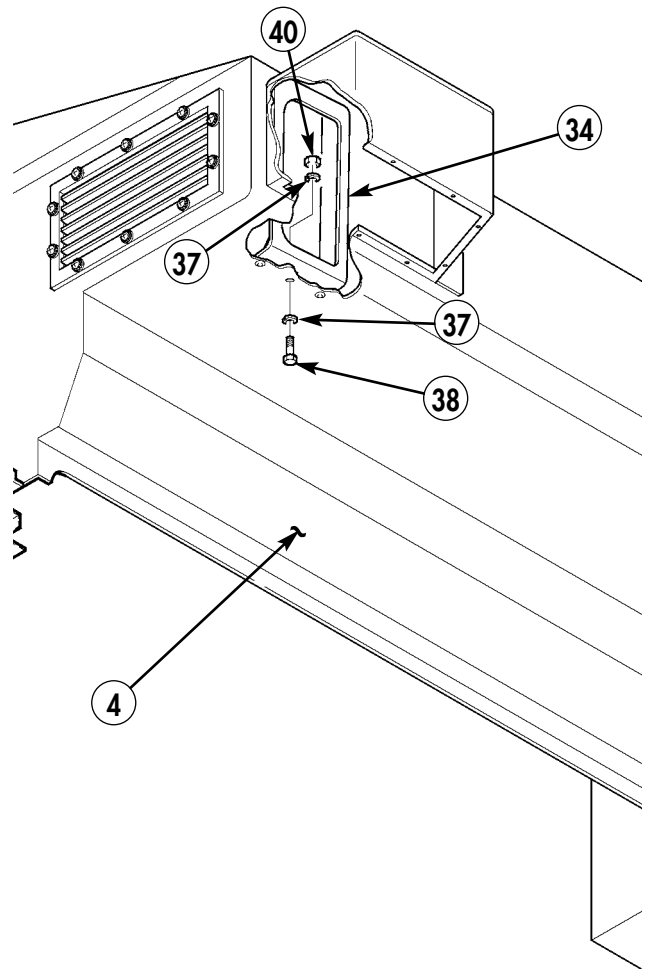


Figure 5-66.

15-47. Install front grill (31) on bonnet (4) with ten existing screws (33) and lockwashers (32).

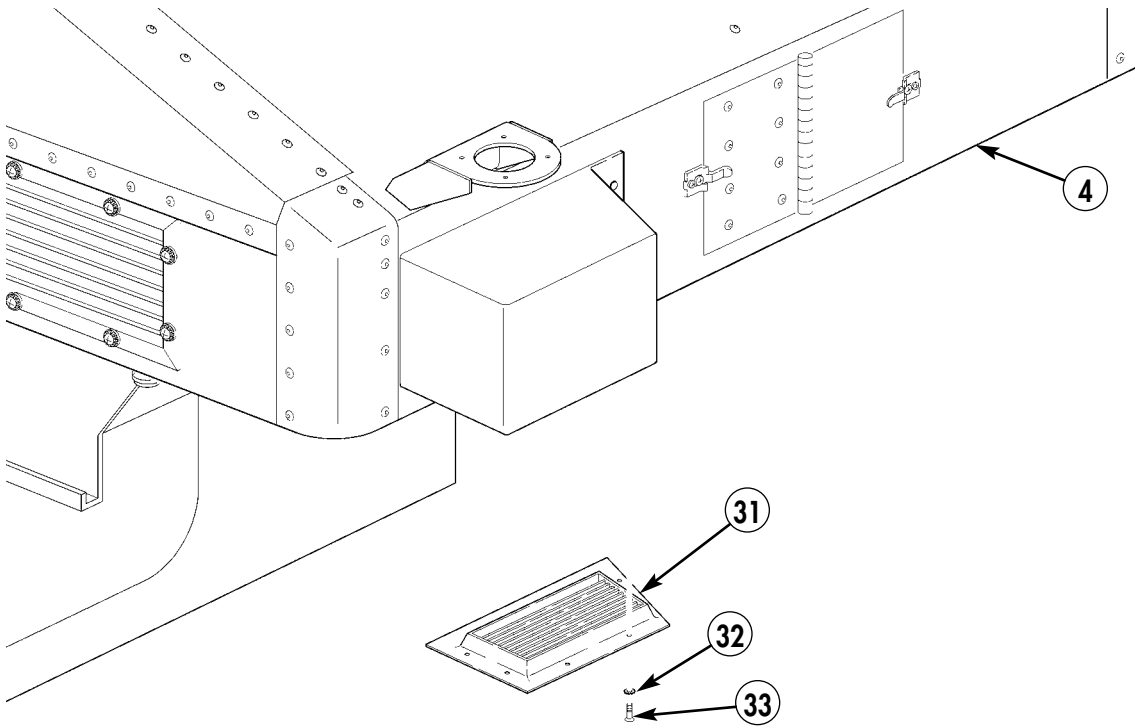
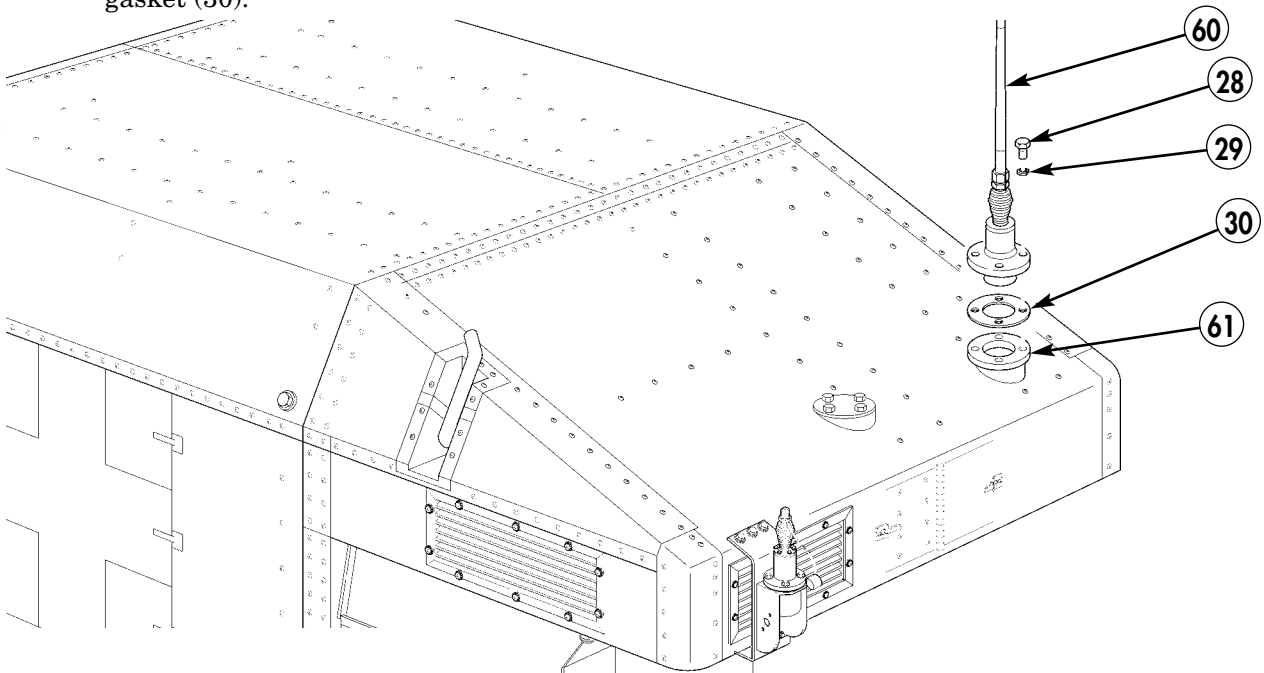


Figure 5-67.

15-48. Attach antenna (60) to antenna mounting block (61) with four screws (28), lockwashers (29), and gasket (30).



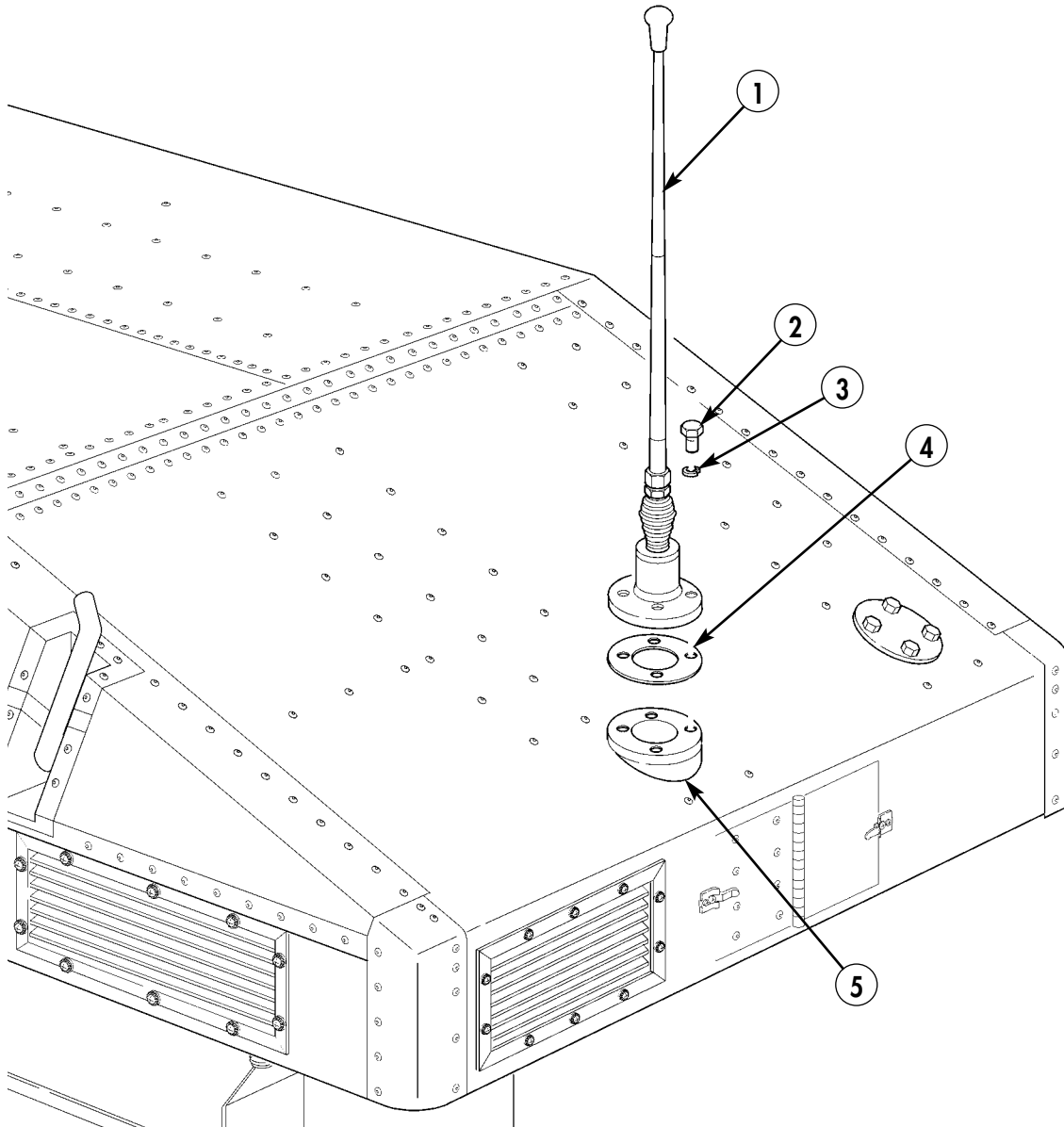
- 28. SCREW - MS90725-65 - QTY. 4
- 29. LOCKWASHER - MS45904-68 - QTY. 4
- 30. GASKET - A3013655-1 - QTY. 1

Figure 5-68.

**Section XVI: EPLRS ANTENNA MOUNTING****NOTE**

If Modification Kit 57K0181 has been performed, antenna base and associated hardware will need to be installed per TM 9-2320-280-20.

- 16-1.** Attach antenna with base (1) to antenna mounting block (5) with four screws (2), lockwashers (3), and gasket (4).



- 2. SCREW – MS90725-65 – QTY. 4**  
**3. LOCKWASHER – MS45904-68 – QTY. 4**  
**4. GASKET – A3013655-1 – QTY. 1**

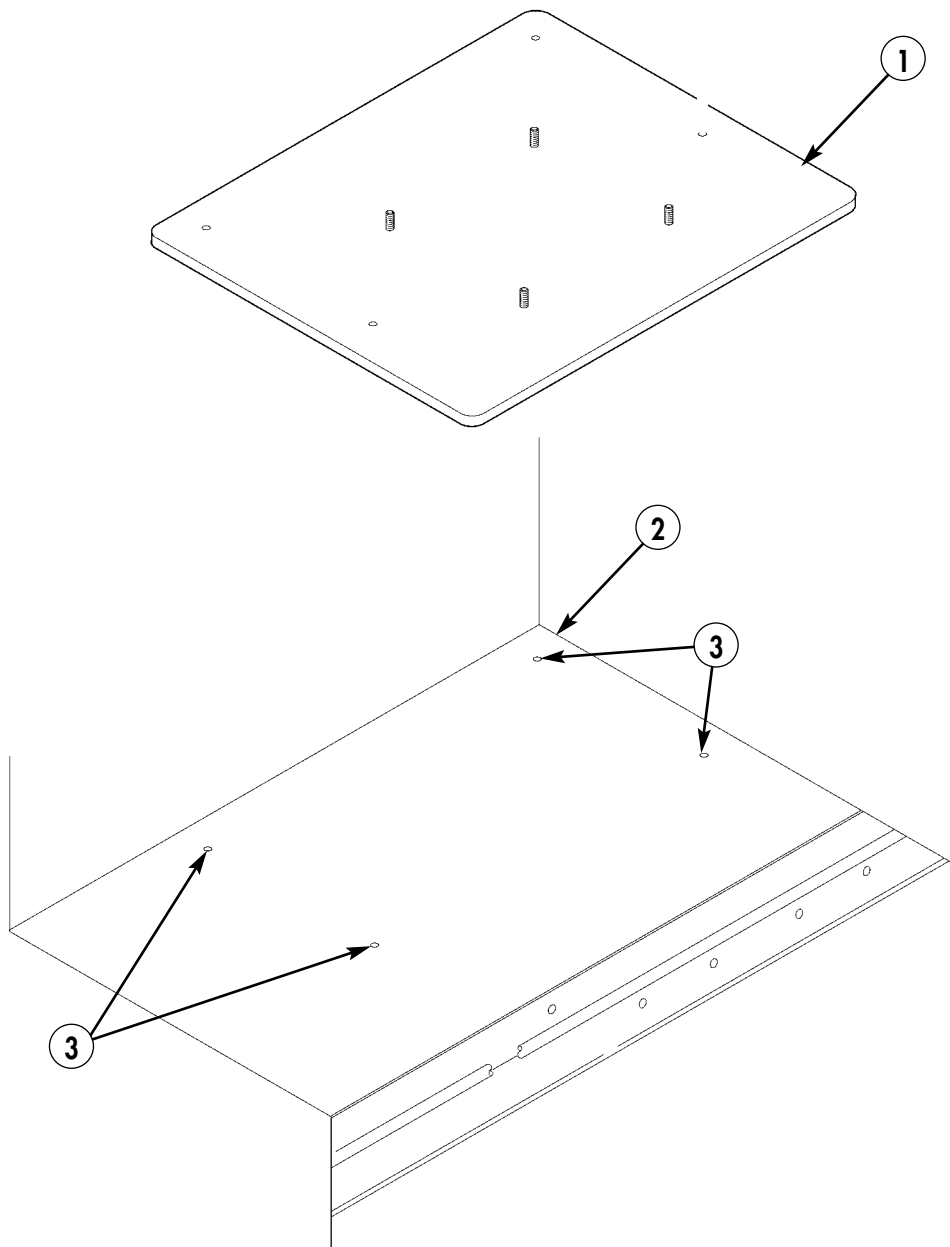
*Figure 5-69.*

### Section XVII: EPLRS MOUNTING

**NOTE**

Ensure EPLRS mounting plate is flush against forward and passenger-side bulkheads.

- 17-1. Using EPLRS mounting plate (1) as template, locate, mark, and drill four 0.343-in. diameter holes (3) in bonnet floor (2).

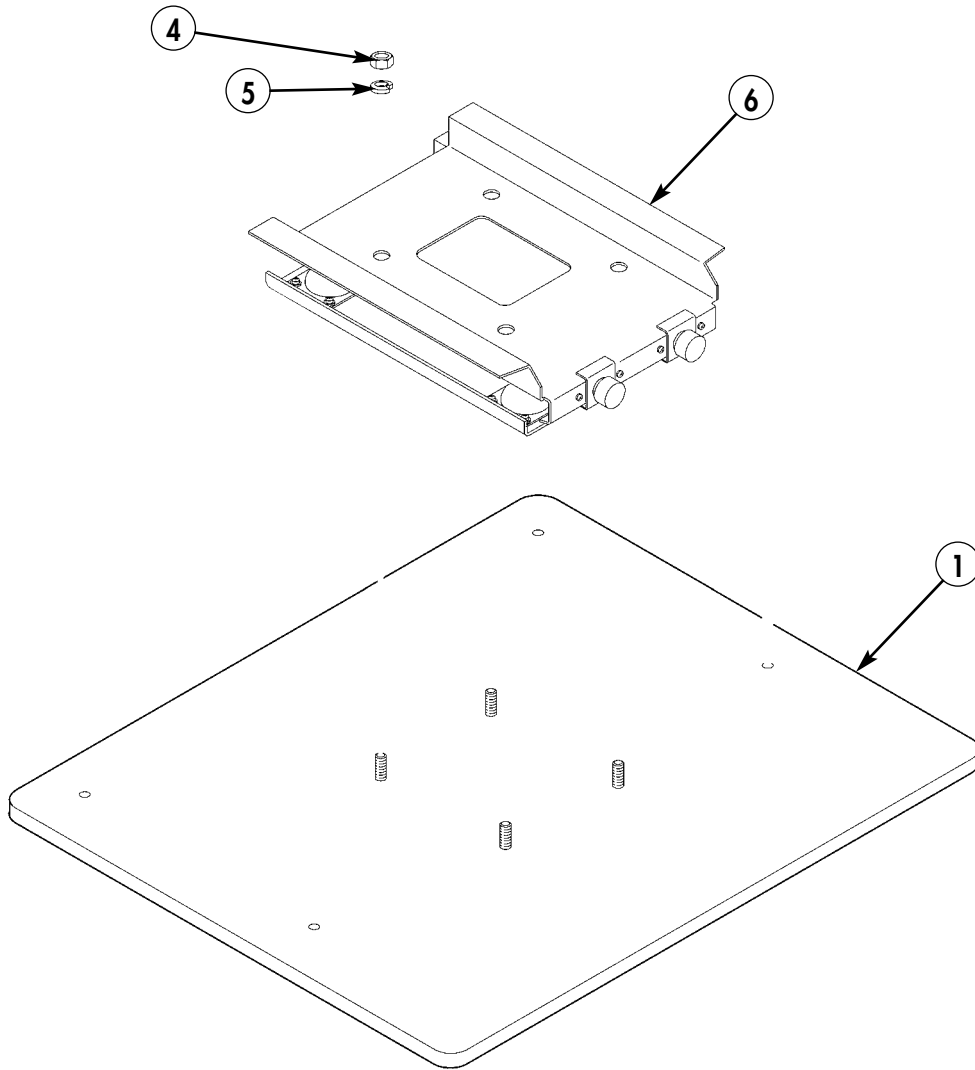


- 1. EPLRS MOUNTING PLATE – A3265404 – QTY. 1

Figure 5-70.



17-2. Mount resilient mount (6) to EPLRS mounting plate (1) with four lockwashers (5) and nuts (4).



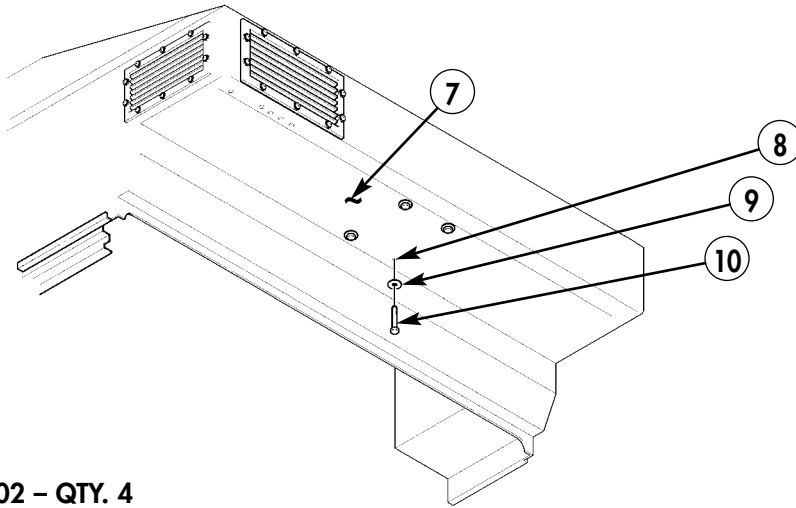
- 4. NUT - MS51967-2 - QTY. 4
- 5. LOCKWASHER - MS35338-44 - QTY. 4
- 6. RESILIENT MOUNT - MT-6146/VSQ-1 - QTY. 1

Figure 5-71.

**NOTE**

Two persons are required to complete steps 17-3 through 17-5.

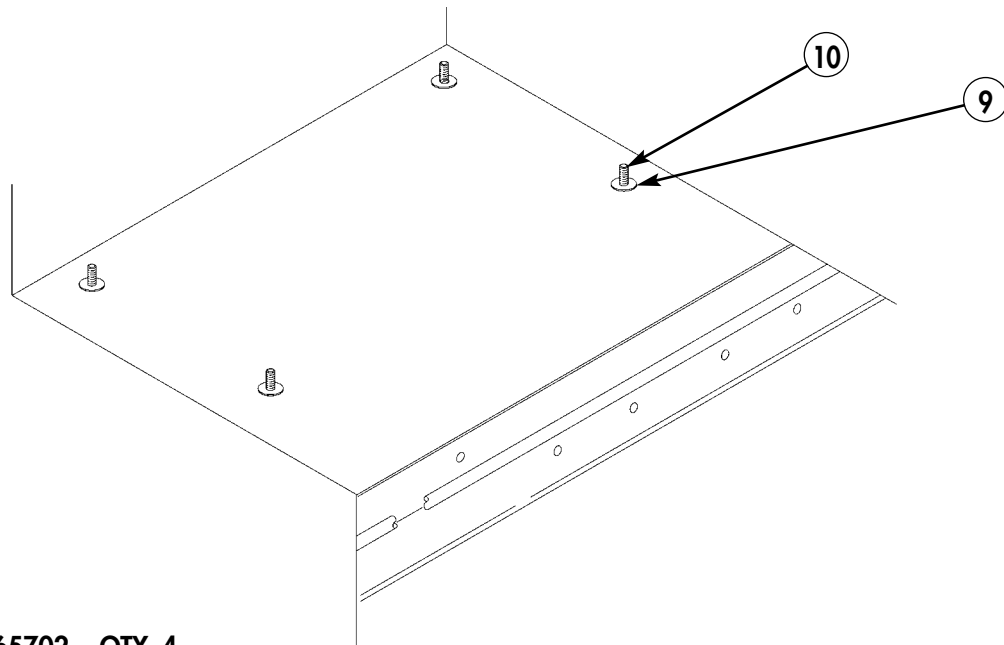
17-3. Insert four screws (10) and spacers (9) in holes (8) in bonnet (7).



- 9. SPACER – A3265702 – QTY. 4
- 10. SCREW – MS90725-39 – QTY. 4

*Figure 5-72.*

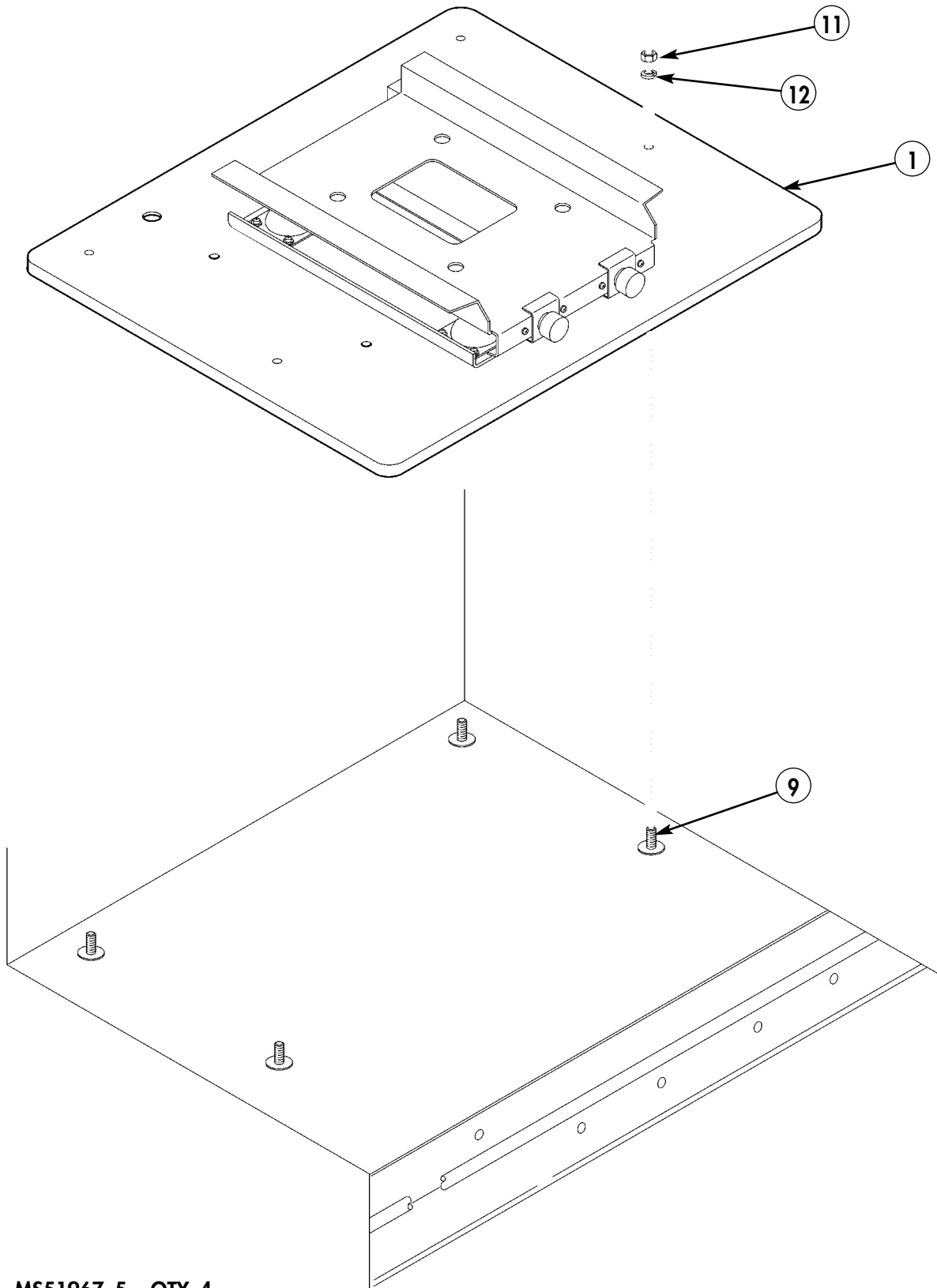
17-4. Install four spacers (9) on screws (10).



- 9. SPACER – A3265702 – QTY. 4

*Figure 5-73.*

**17-5.** Position EPLRS mounting plate (1) on four screws (9) and secure with four lockwashers (12) and nuts (11).

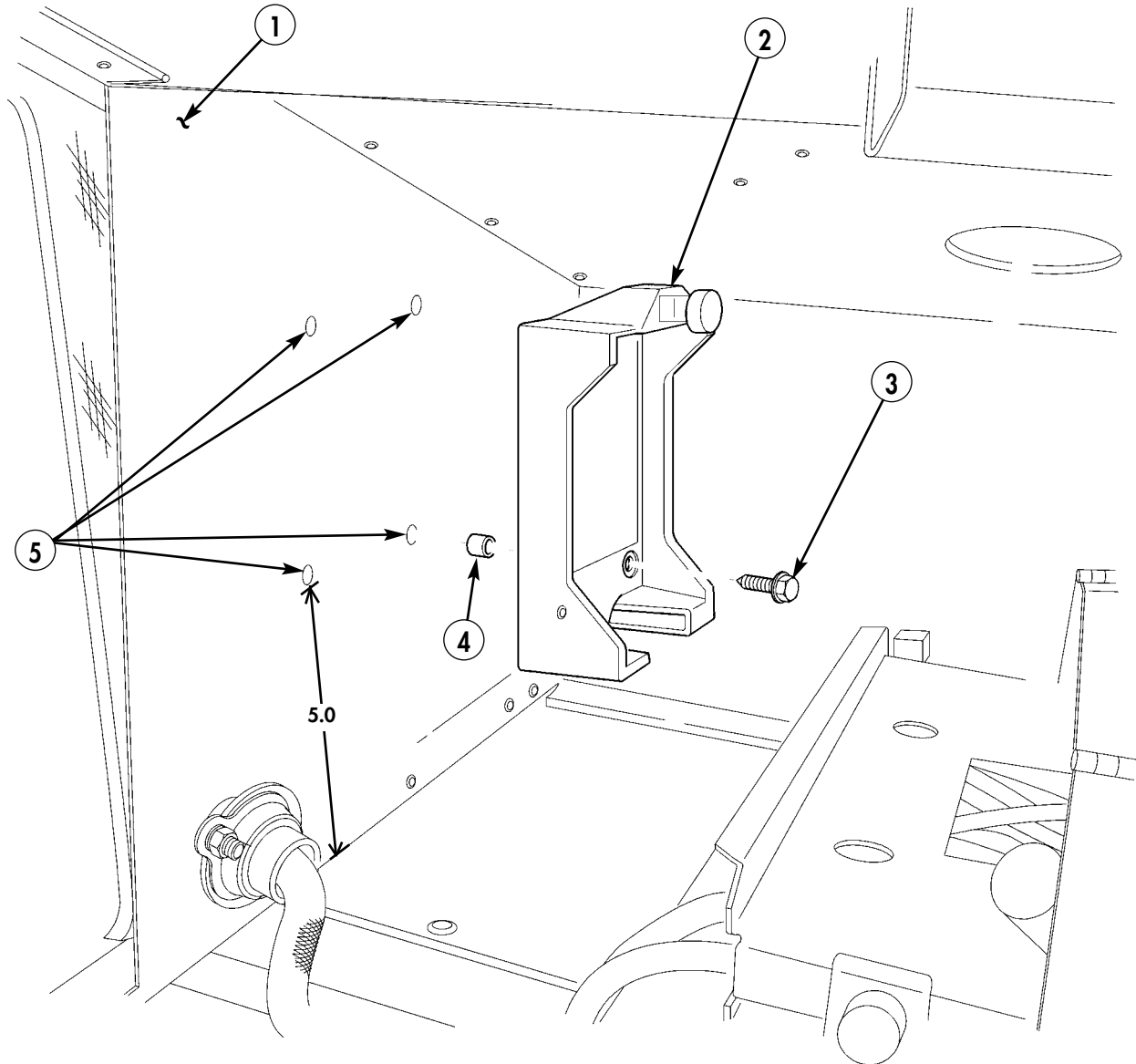


- 11. NUT – MS51967-5 – QTY. 4
- 12. LOCKWASHER – MS45904-72 – QTY. 4

Figure 5-74.

### Section XVIII. URO BRACKET MOUNTING

- 18-1. Using URO bracket (2) as template, locate, mark, and drill four 0.147-in. diameter holes (5) in bonnet wall (1).
- 18-2. Mount URO bracket (2) to bonnet wall (1) with four screws (3) and spacers (4).



2. URO BRACKET - A3006206-2 - QTY. 1
3. SCREW - 9426635 - QTY. 4
4. SPACER - 92510A318 - QTY. 4

Figure 5-75.

## Section XIX: ANTENNA CABLE ROUTING

### NOTE

- Perform steps 19-1 through 19-14 if MWO 9-2320-280-35-5 and MODIFICATION KIT 57K0181 have not been performed.
- Perform steps 19-15 through 19-29 if MWO 9-2320-280-35-5 has not been performed, but MODIFICATION KIT 57K0181 has been performed.
- Perform steps 19-30 through 19-44 if MWO 9-2320-280-35-5 has been performed and MODIFICATION KIT 57K0181 has not been performed.
- Perform steps 19-45 through 19-59 if MWO 9-2320-280-35-5 and MODIFICATION KIT 57K0181 have been performed.

**19-1.** Locate, mark, and drill 1.00-inch diameter hole (2) in bottom of bonnet (1).

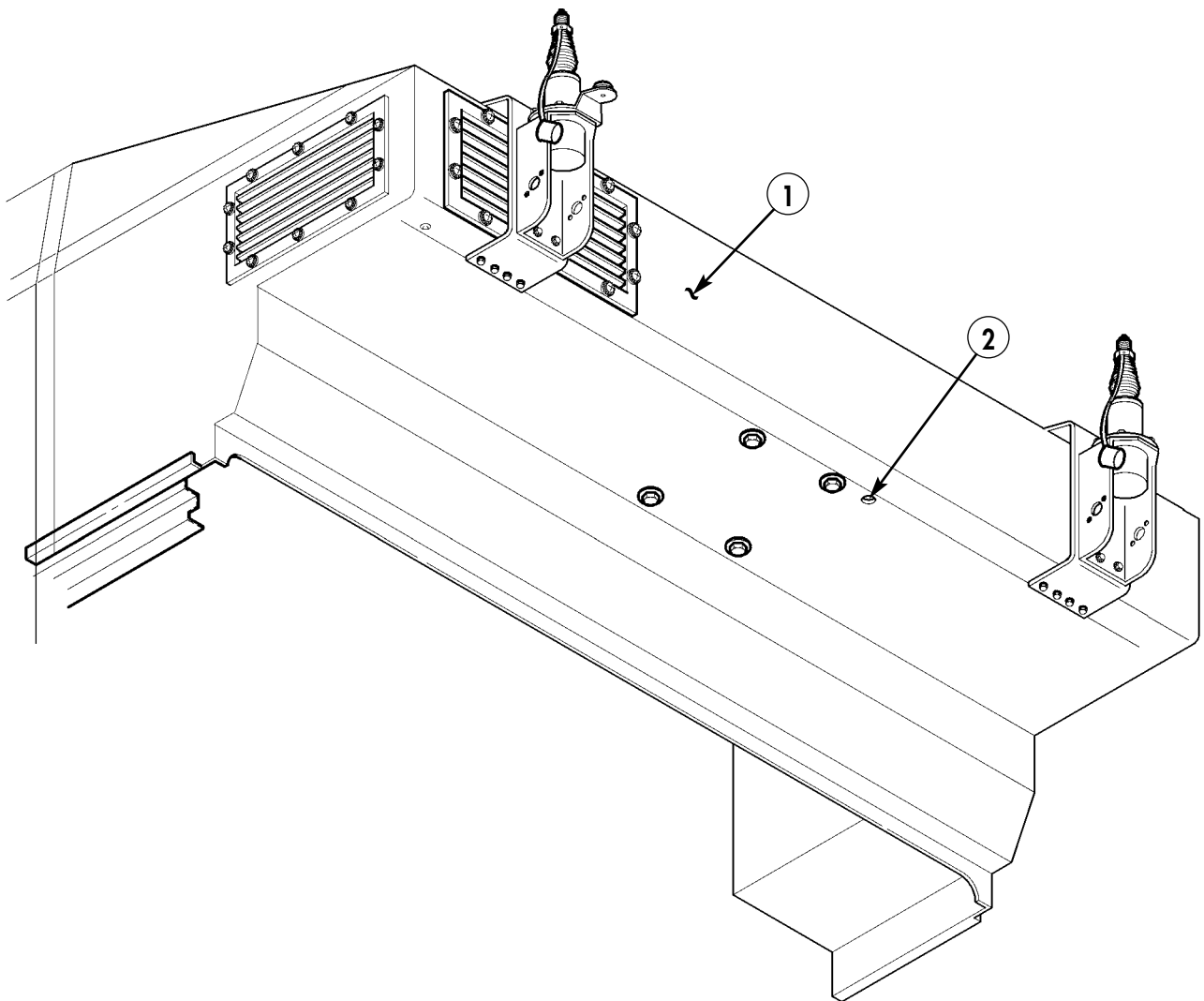


Figure 5-76.

19-2. Locate, mark, and drill five 0.147-inch diameter holes (3) in bonnet (1).

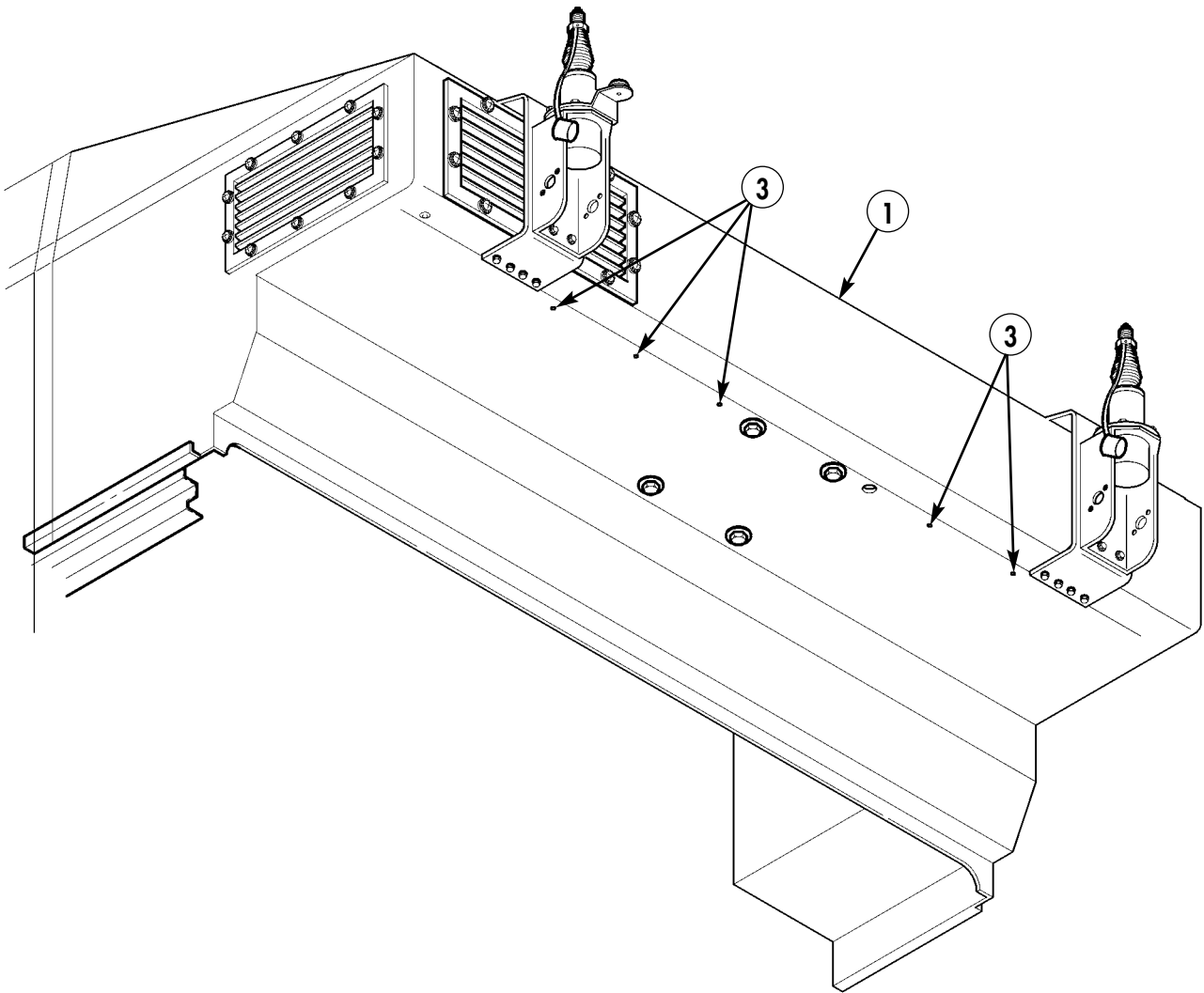
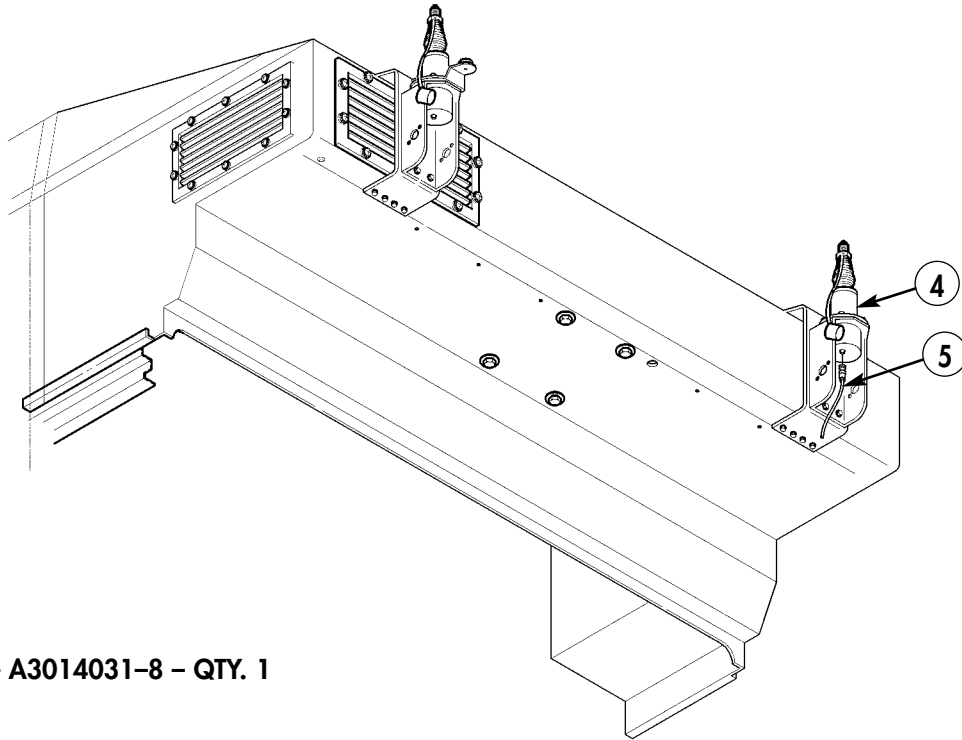


Figure 5-77.

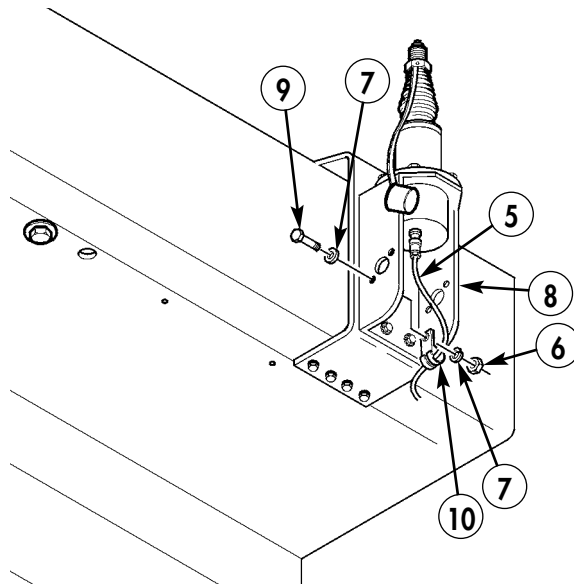
**19-3.** Connect RF cable (5) to driver's side SINCGARS antenna (4).



**5. RF CABLE – A3014031-8 – QTY. 1**

*Figure 5-78.*

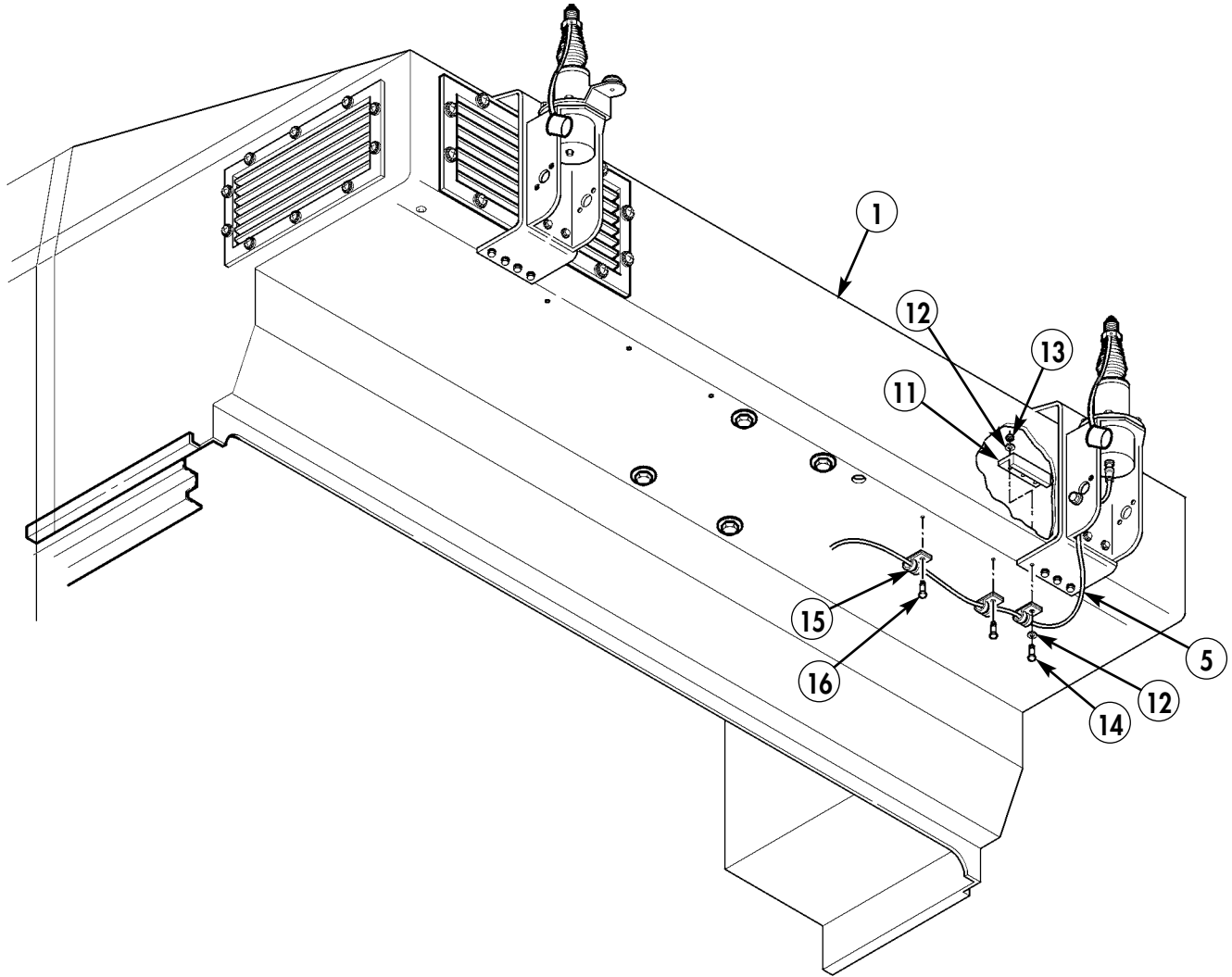
**19-4.** Route RF cable (5) along SINCGARS antenna bracket (8) with screw (9), two lockwashers (7), one loop clamp (10), and nut (6).



- 6. NUT – MS51967-2 – QTY. 1**
- 7. LOCKWASHER – MS35338-44 – QTY. 2**
- 9. SCREW – MS90725-8 – QTY. 1**
- 10. LOOP CLAMP – MS21333-78 – QTY. 1**

*Figure 5-79.*

- 19-5. Route RF cable (5) along bonnet (1) with loop clamp (15) and existing screw (14), two lockwashers (12), spacer (11), and nut (13).
- 19-6. Route RF cable (5) along bonnet (1) with two loop clamps (15) and screws (16).

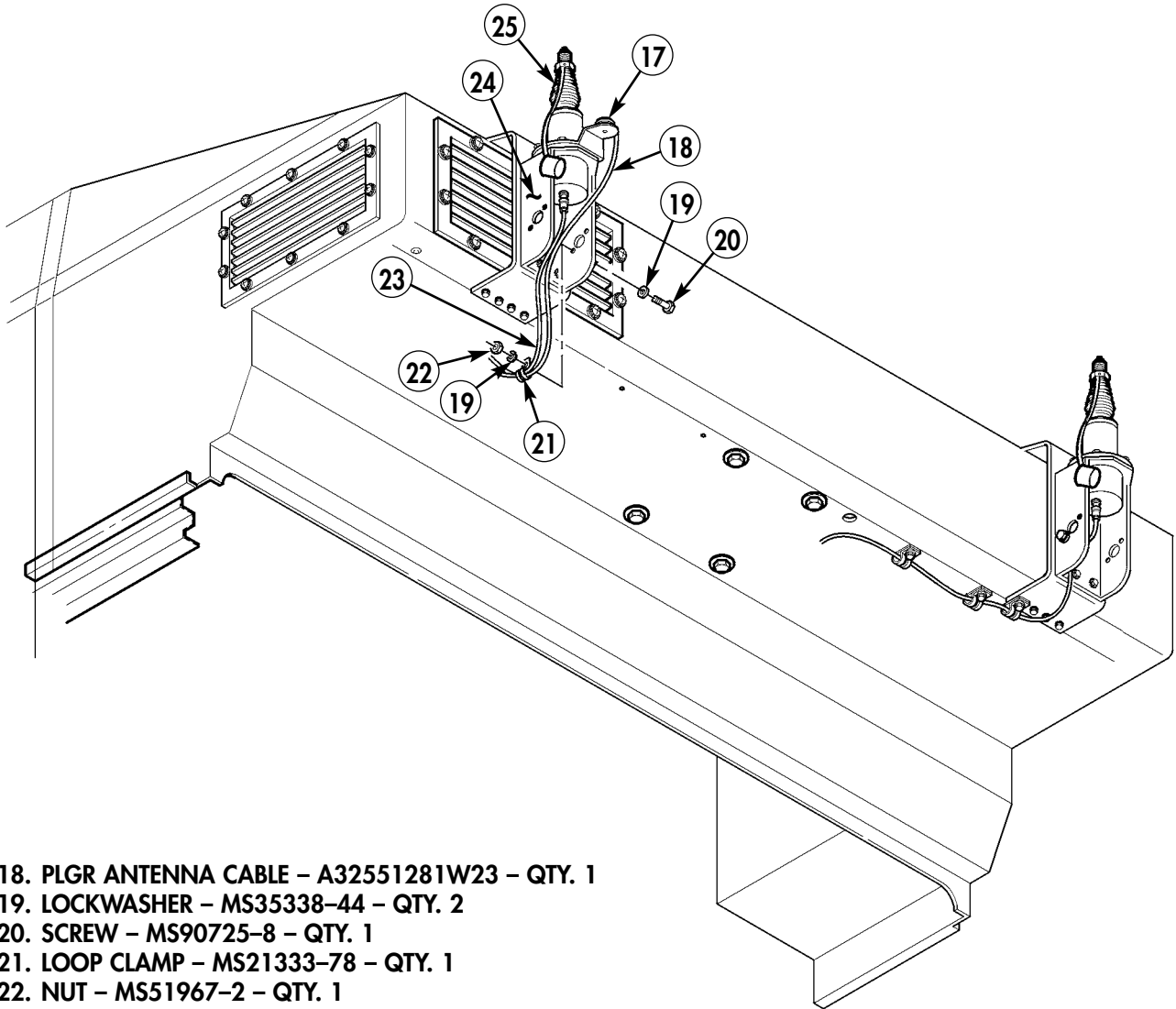


- 15. LOOP CLAMP – MS21333-67– QTY. 3
- 16. SCREW – 9421073 – QTY. 2

Figure 5-80.



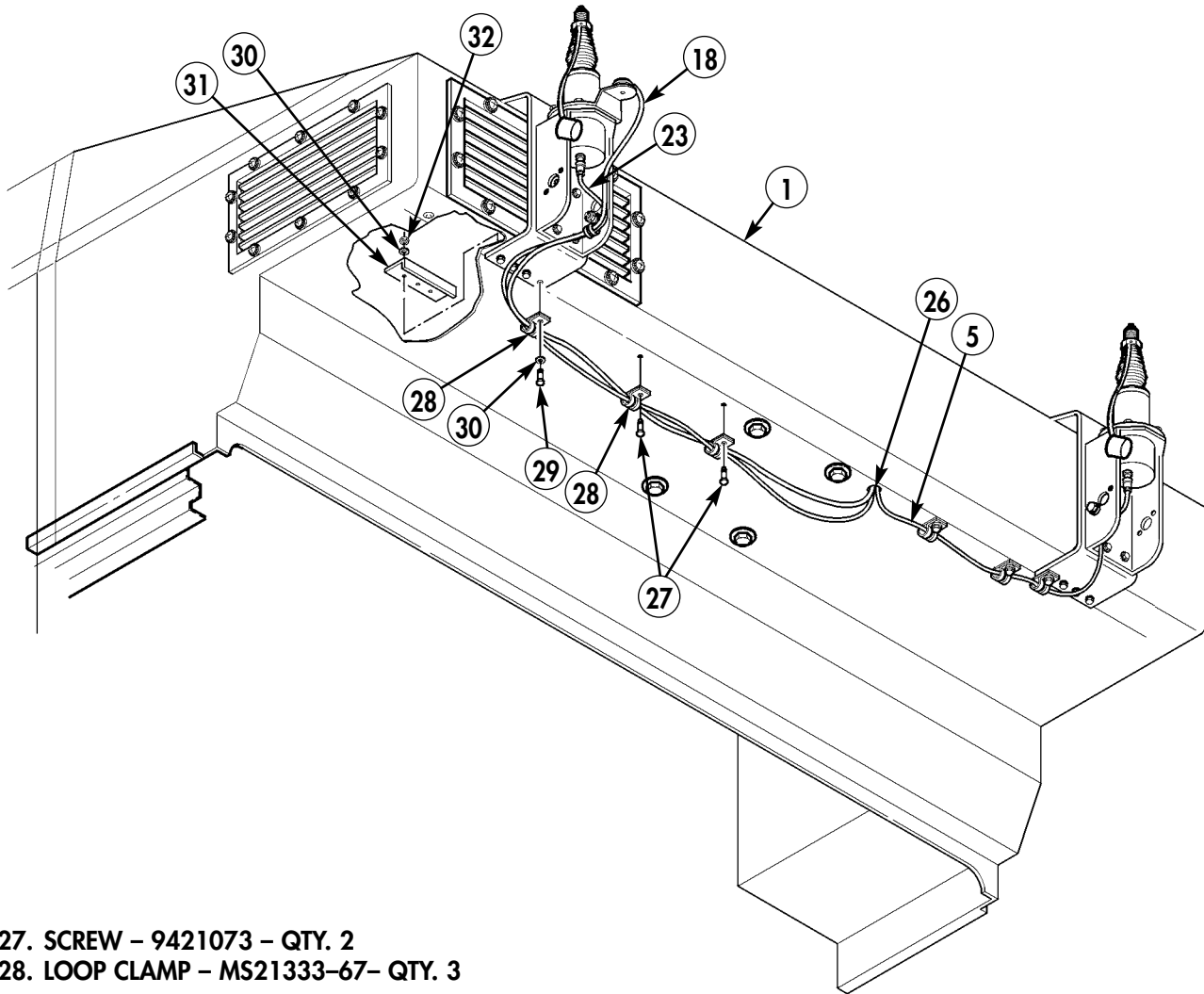
- 19-7.** Connect RF cable (23) to passenger's side SINCGARS antenna (25).
- 19-8.** Connect PLGR antenna cable (18) to PLGR antenna (17).
- 19-9.** Route RF cable (23) and PLGR antenna cable (18) along SINCGARS antenna bracket (24) with screw (20), two lockwashers (19), loop clamp (21), and nut (22).



- 18. PLGR ANTENNA CABLE – A32551281W23 – QTY. 1**
- 19. LOCKWASHER – MS35338-44 – QTY. 2**
- 20. SCREW – MS90725-8 – QTY. 1**
- 21. LOOP CLAMP – MS21333-78 – QTY. 1**
- 22. NUT – MS51967-2 – QTY. 1**
- 23. RF CABLE – A3014031-17 – QTY. 1**

*Figure 5-81.*

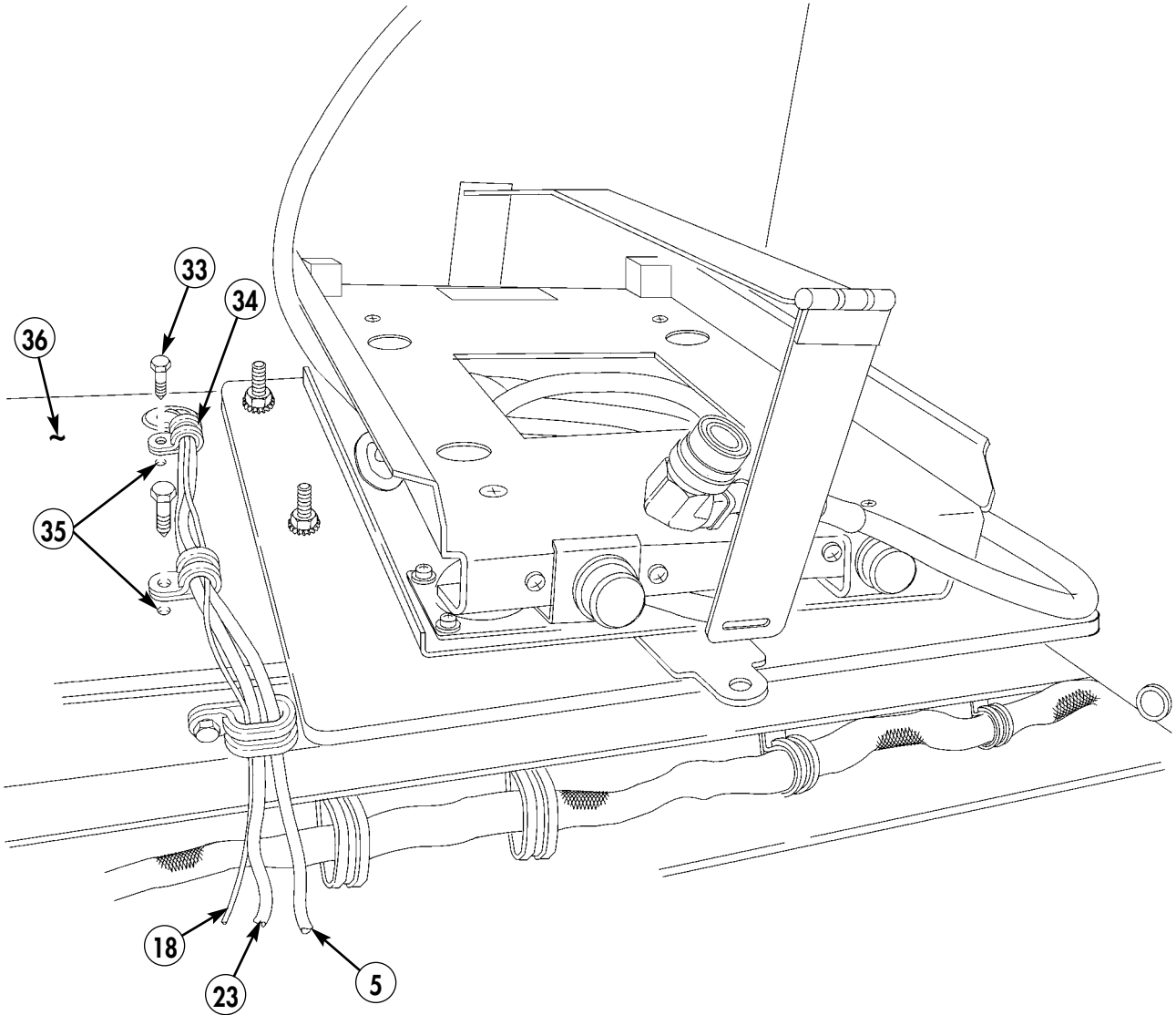
- 19-10. Route RF cable (23) and PLGR antenna cable (18) along bonnet (1) with loop clamp (28) and existing screw (29), two lockwashers (30), spacer (31), and nut (32).
- 19-11. Route RF cable (23) and PLGR antenna cable (18) along bonnet (1) with two loop clamps (28) and screws (27).
- 19-12. Feed PLGR antenna cable (18) and two RF cables (5) and (23) through hole (26) in bonnet (1).



- 27. SCREW - 9421073 - QTY. 2
- 28. LOOP CLAMP - MS21333-67- QTY. 3

Figure 5-82.

- 19-13. Locate, mark, and drill two 0.147-inch diameter holes (35) in bonnet floor (36).
- 19-14. Route PLGR antenna cable (18) and two RF cables (5) and (23) along bonnet floor (36) with two loop clamps (34) and screws (33).



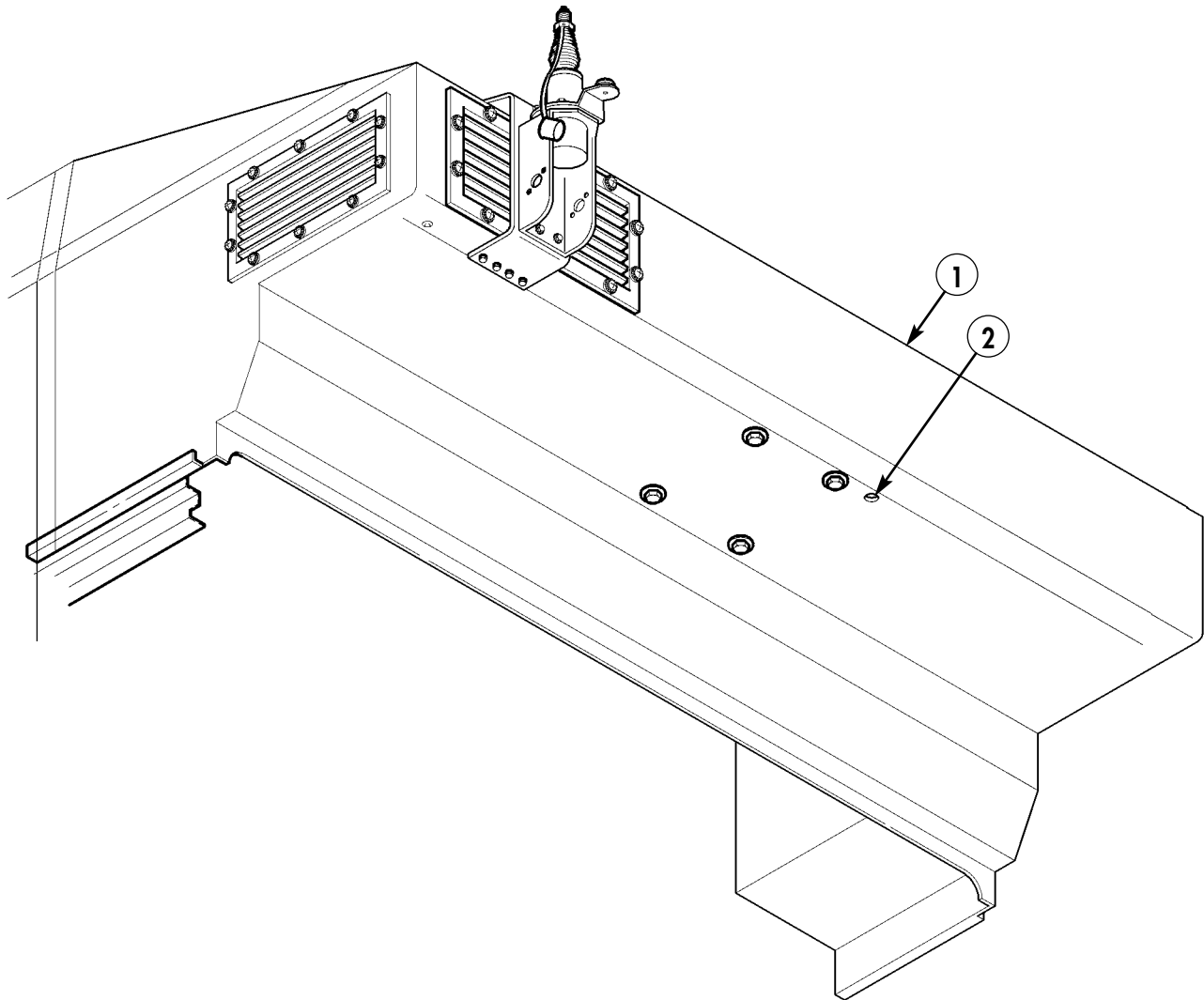
- 33. SCREW - 9421073 - QTY. 2
- 34. LOOP CLAMP - MS21333-67- QTY. 3

Figure 5-83.

**NOTE**

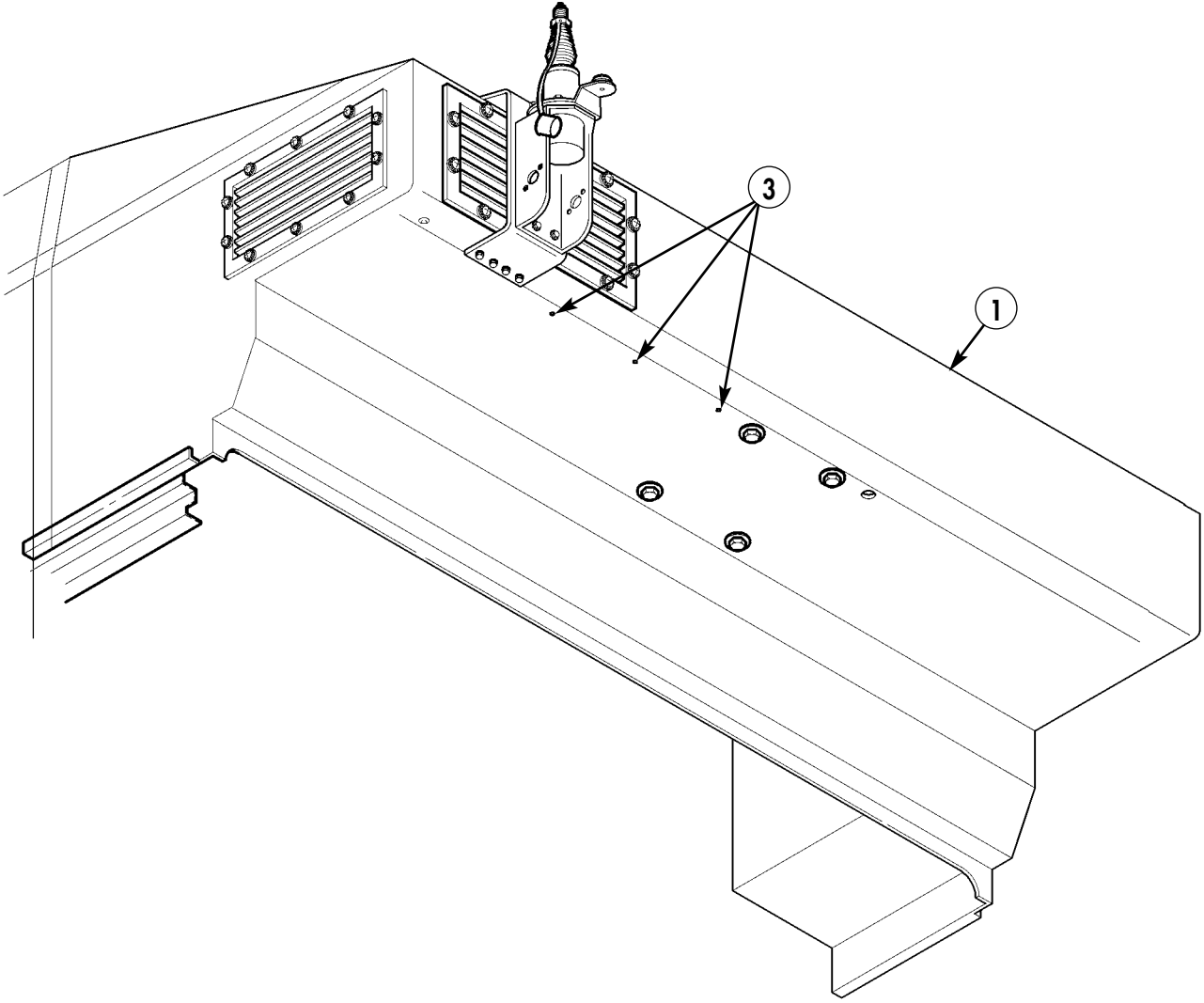
Perform steps 19-15 through 19-29 if MWO 9-2320-280-35-5 has not been performed but, Modification Kit 57K0181 has been performed.

- 19-15.** Locate, mark, and drill 1.00-inch diameter hole (2) in bottom of bonnet (1).



*Figure 5-84.*

**19-16.** Locate, mark, and drill three 0.147-inch diameter holes (3) in bonnet (1).



*Figure 5-85.*

19-17. Connect RF cable (23) to passenger's side SINCGARS antenna (25).

19-18. Connect PLGR antenna cable (18) to PLGR antenna (17).

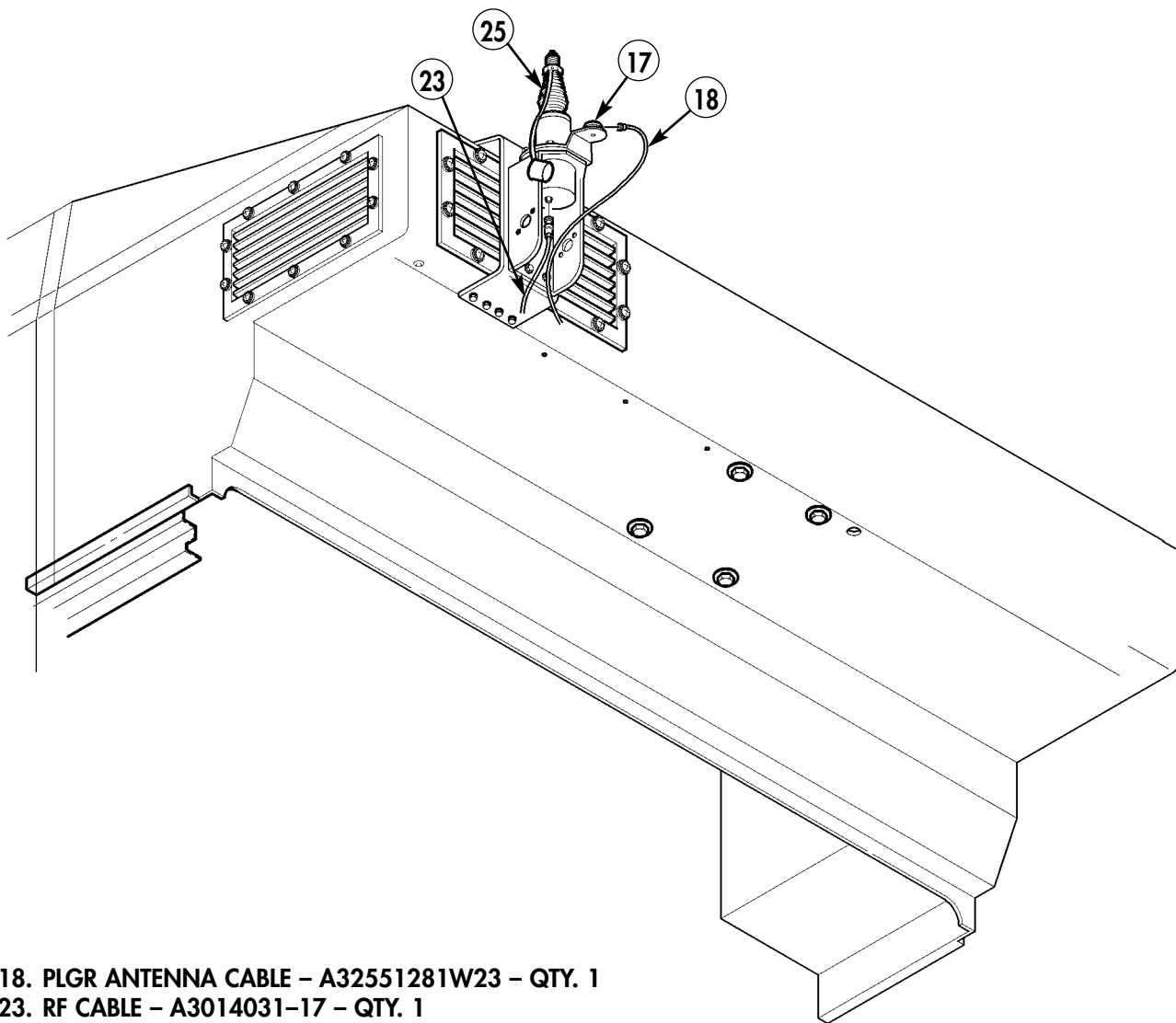
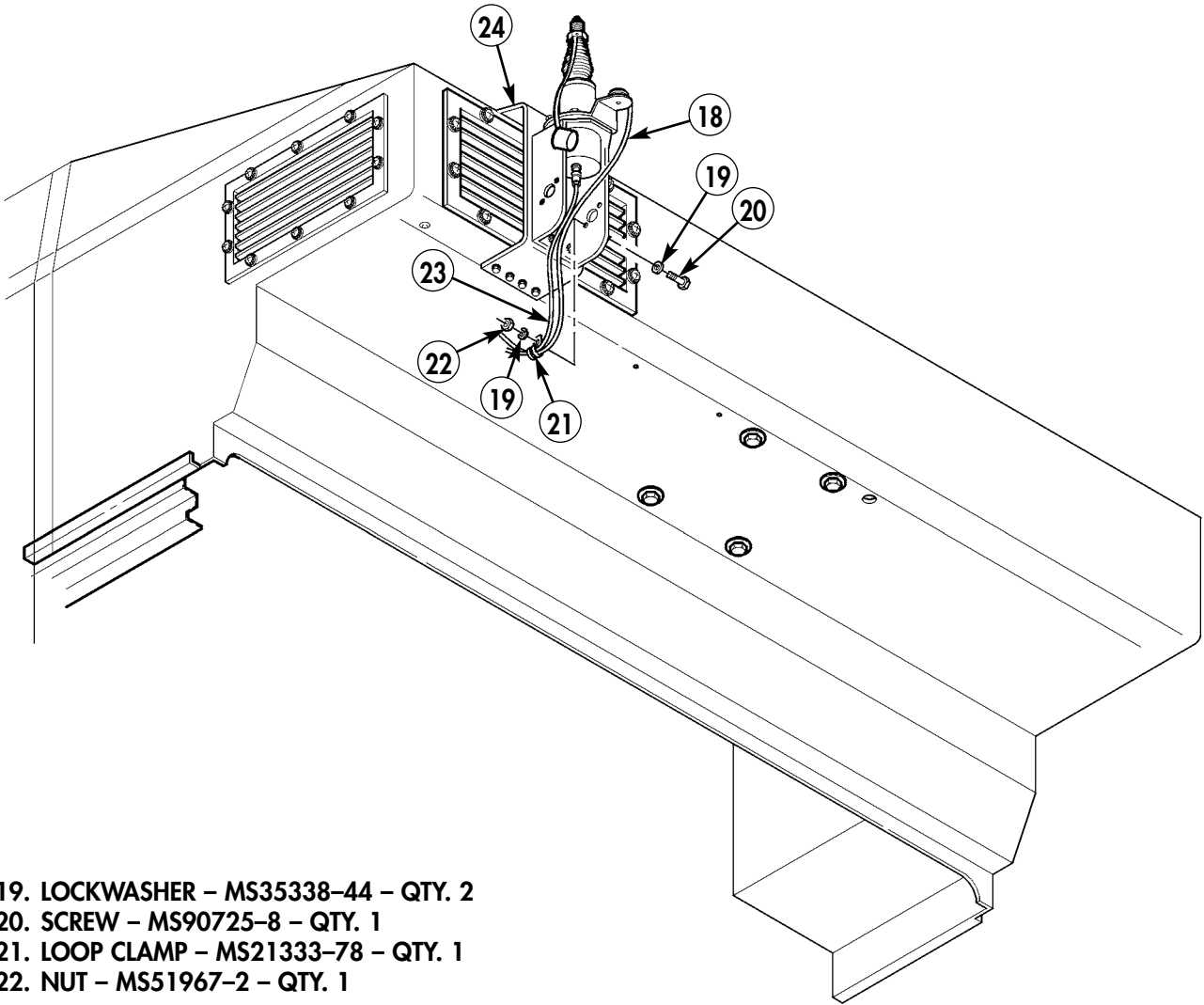


Figure 5-86.

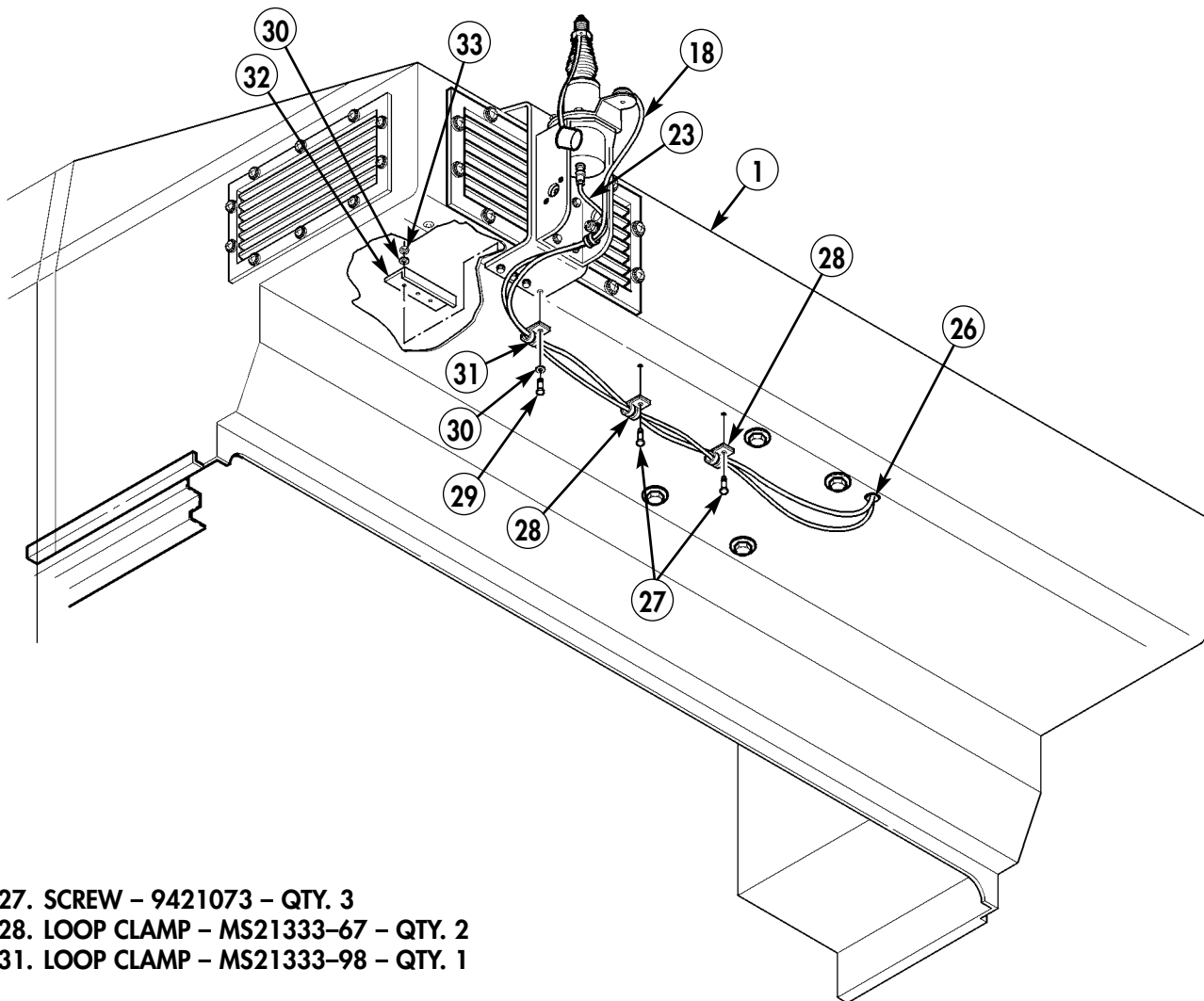
**19-19.** Route RF cable (23) and PLGR antenna cable (18) along SINCGARS antenna bracket (24) with screw (20), two lockwashers (19), loop clamp (21), and nut (22).



- 19. LOCKWASHER - MS35338-44 - QTY. 2
- 20. SCREW - MS90725-8 - QTY. 1
- 21. LOOP CLAMP - MS21333-78 - QTY. 1
- 22. NUT - MS51967-2 - QTY. 1

*Figure 5-87.*

- 19-20. Route RF cable (23) and PLGR antenna cable (18) along bonnet (1) with loop clamp (31) and existing screw (29), two lockwashers (30), spacer (32), and nut (33).
- 19-21. Route RF cable (23) and PLGR antenna cable (18) along bonnet (1) with two loop clamps (28) and screws (27).
- 19-22. Feed RF cable (23) and PLGR antenna cable (18) through hole (26) in bonnet (1).

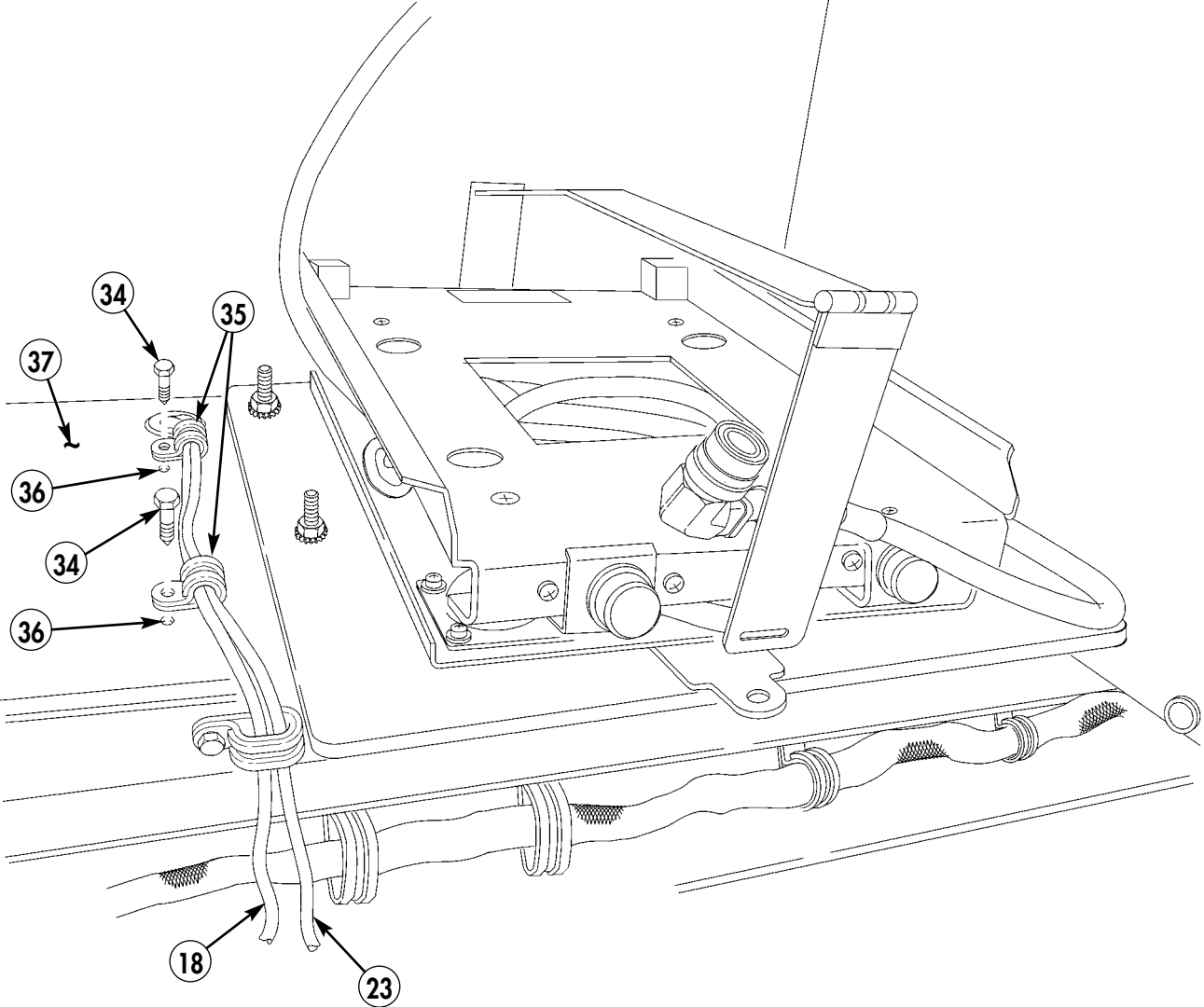


- 27. SCREW - 9421073 - QTY. 3
- 28. LOOP CLAMP - MS21333-67 - QTY. 2
- 31. LOOP CLAMP - MS21333-98 - QTY. 1

Figure 5-88.



- 19-23. Locate, mark, and drill two 0.147-inch diameter holes (36) in bonnet floor (37).
- 19-24. Route RF cable (23) and PLGR antenna cable (18) along bonnet floor (37) with two loop clamps (35) and screws (34).



- 34. SCREW - 9421073 - QTY. 3
- 35. LOOP CLAMP - MS21333-67 - QTY. 2

Figure 5-89.

- 19-25. Connect RF cable (5) to SINCGARS antenna (47).
- 19-26. Route RF cable (5) along roof panel (48) with existing clamp (39), screw (38), two lockwashers (40), and nut (41).
- 19-27. Route RF cable (5) along forward bulkhead (49) of bonnet with existing clamp (39) and screw (46).
- 19-28. Route RF cable (5) along partition (42) with two existing clamps (39), screws (38), four lockwashers (40), and two nuts (41).
- 19-29. Feed RF cable (5) through partition (42) with existing grommet assembly (44), two screws (43), and nuts (45).

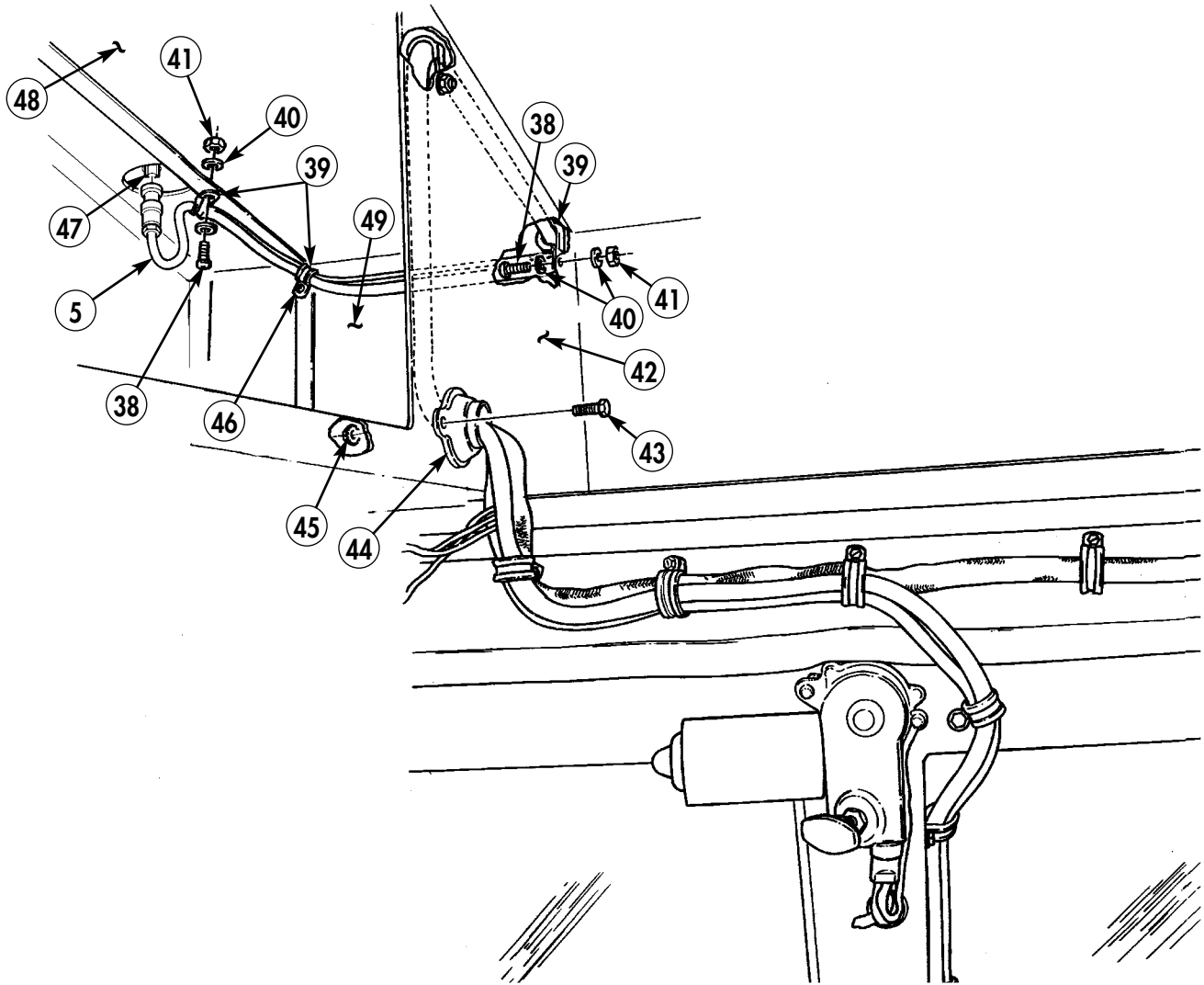
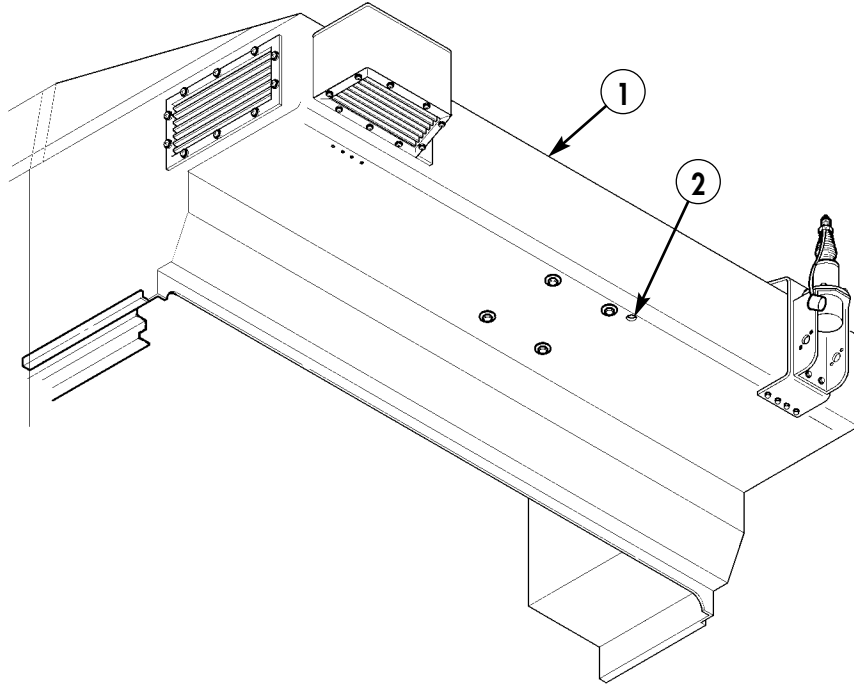


Figure 5-90.

**NOTE**

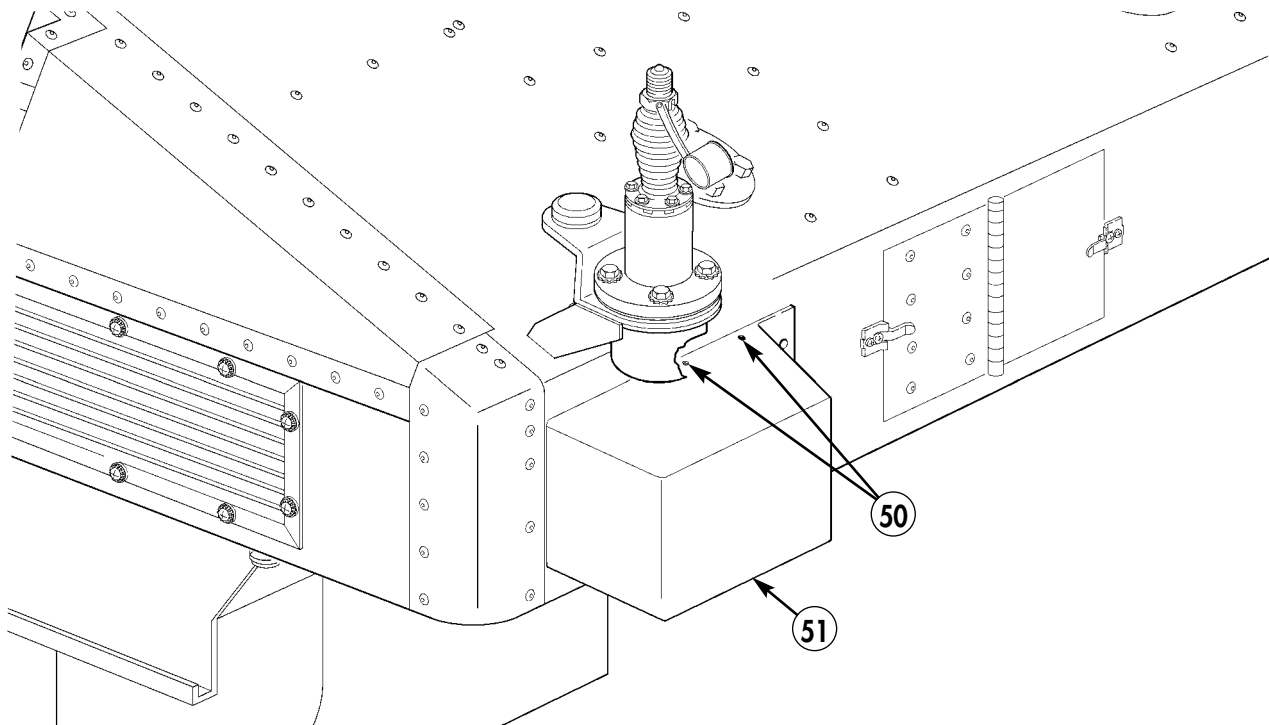
Perform steps 19-30 through 19-44 if MWO 9-2320-280-35-5 has been performed but, modification kit 57K0181 has not been performed.

**19-30.** Locate, mark, and drill 1.00-inch diameter hole (2) in bottom of bonnet (1).



*Figure 5-91.*

**19-31.** Locate, mark, and drill two 0.147-inch diameter holes (50) in air intake plenum (51).



*Figure 5-92.*

19-32. Locate, mark, and drill four 0.147-inch diameter holes (52) in bonnet (1).

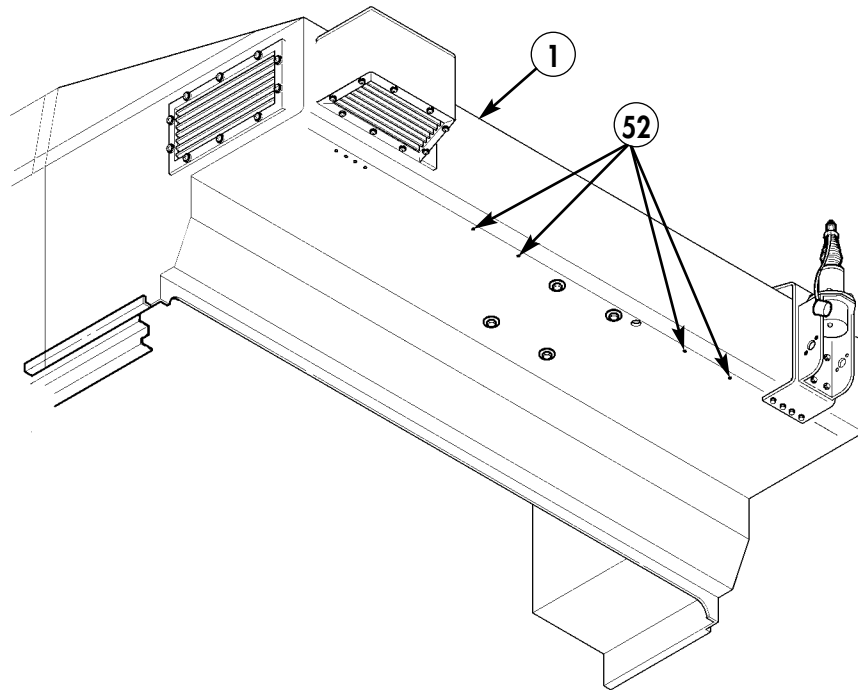
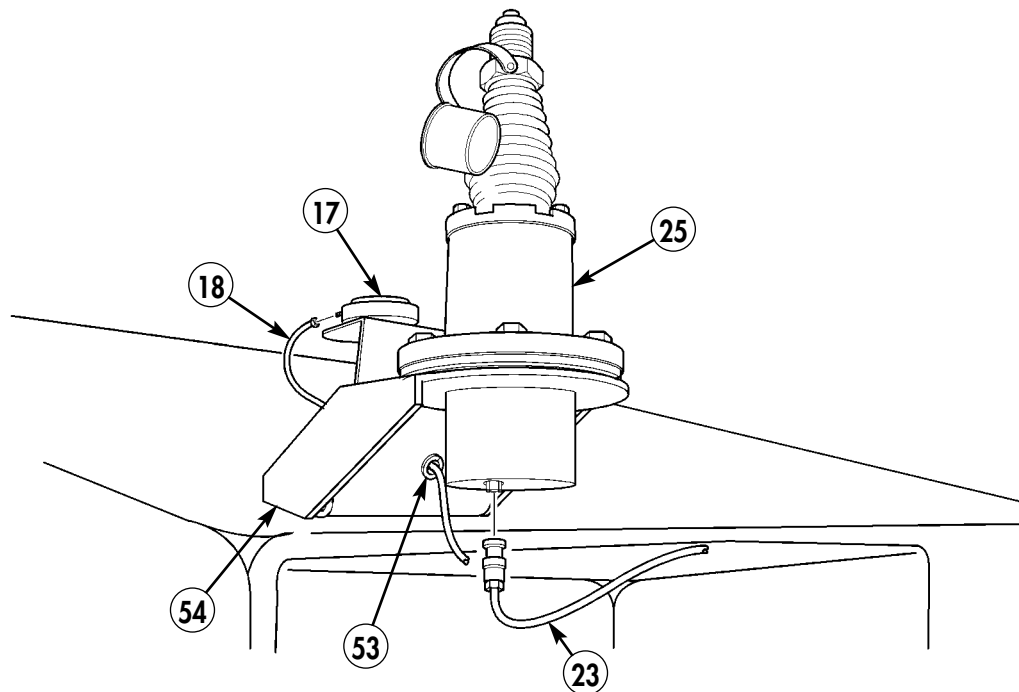


Figure 5-93.

19-33. Thread PLGR antenna cable (18) through hole (53) in SINCGARS antenna bracket (54). Connect PLGR antenna cable (18) to PLGR antenna (17).

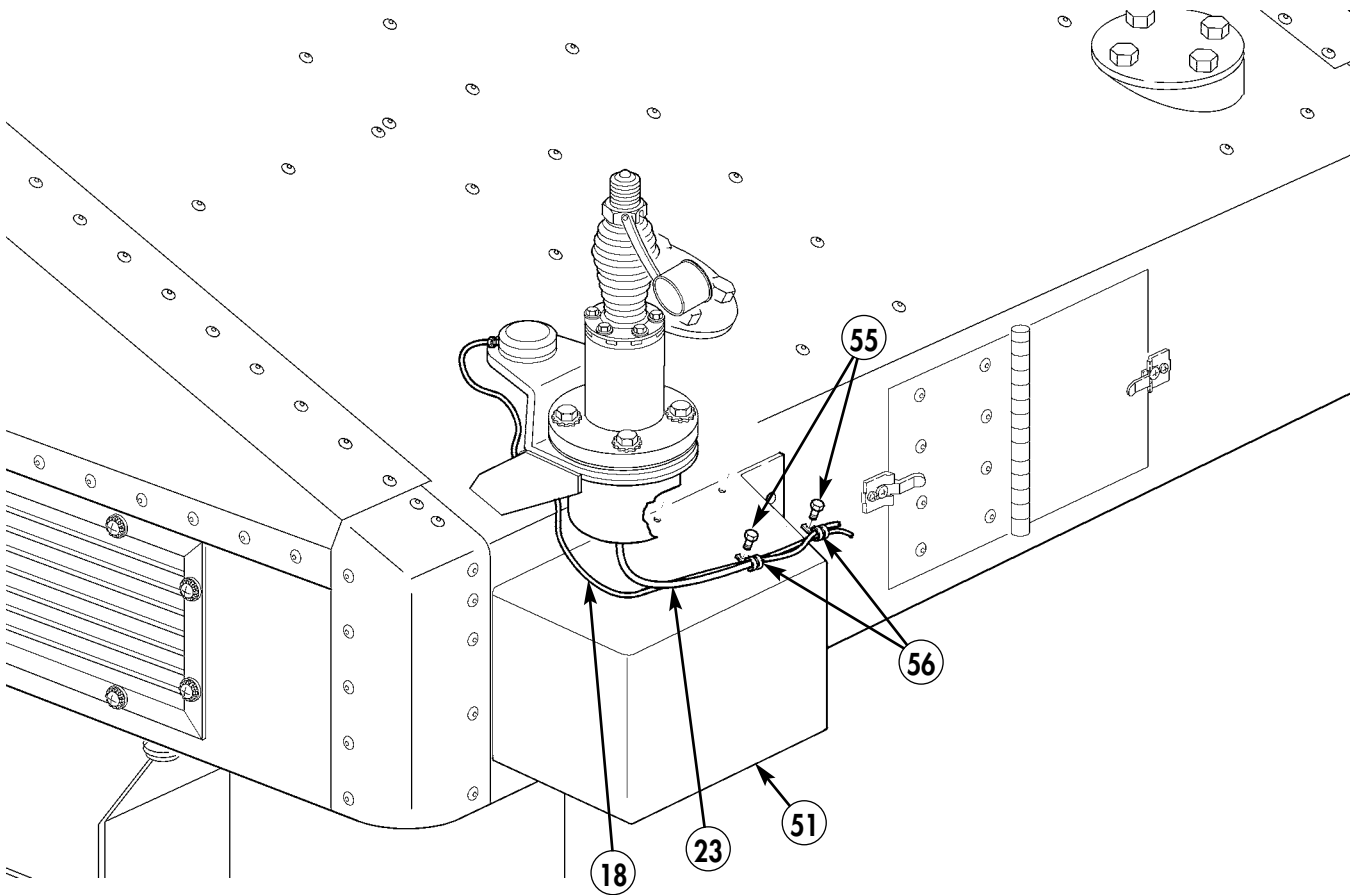
19-34. Connect RF cable (23) to SINCGARS antenna (25).



- 18. PLGR ANTENNA CABLE - A32551281W23 - QTY. 1
- 23. RF CABLE - A3014031-17 - QTY. 1

Figure 5-94.

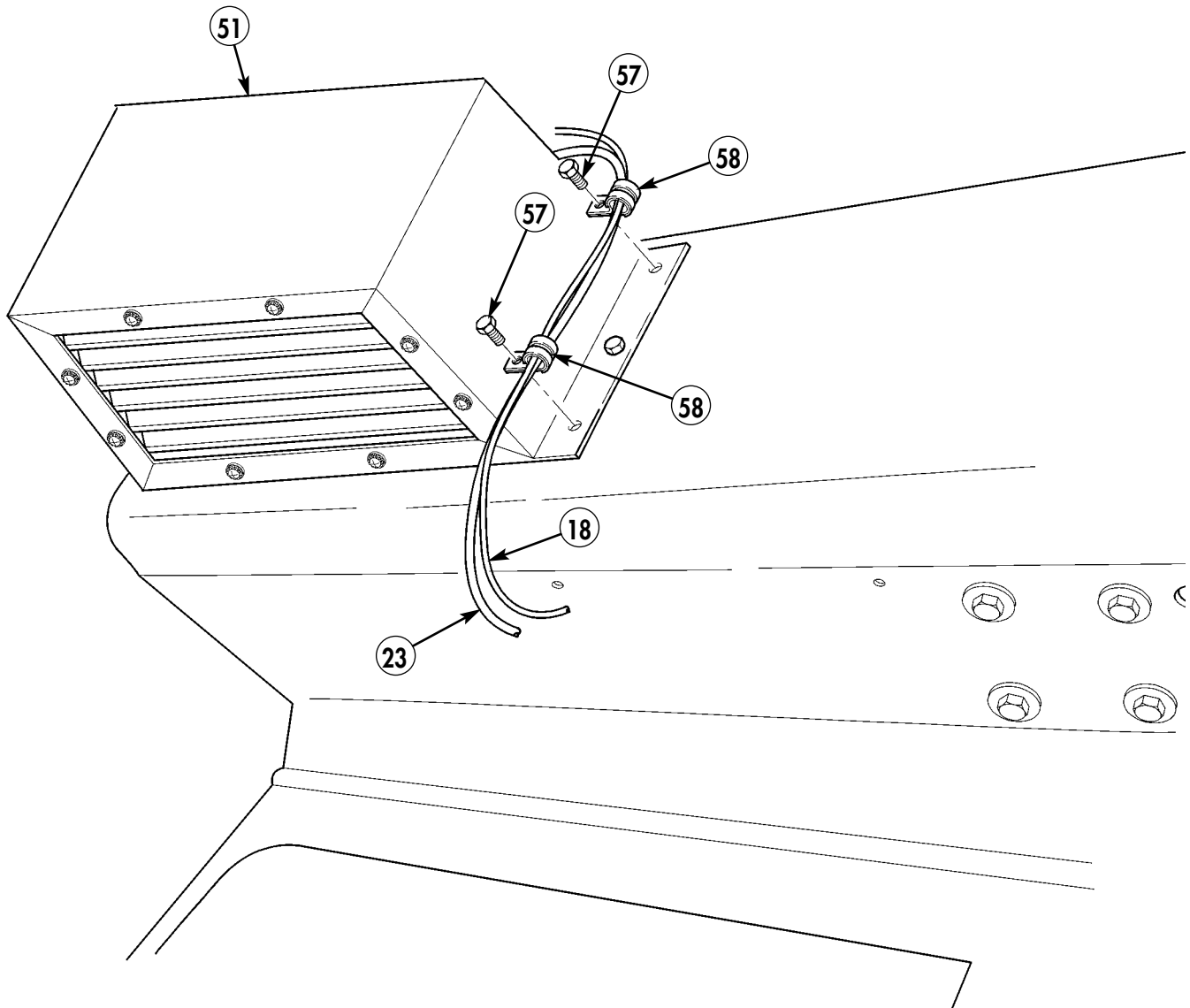
**19-35.** Route PLGR antenna cable (18) and RF cable (23) along air intake plenum (51) with two loop clamps (56) and screws (55).



- 55. SCREW - 9421073 - QTY. 2
- 56. LOOP CLAMP - MS21333-67- QTY. 2

*Figure 5-95.*

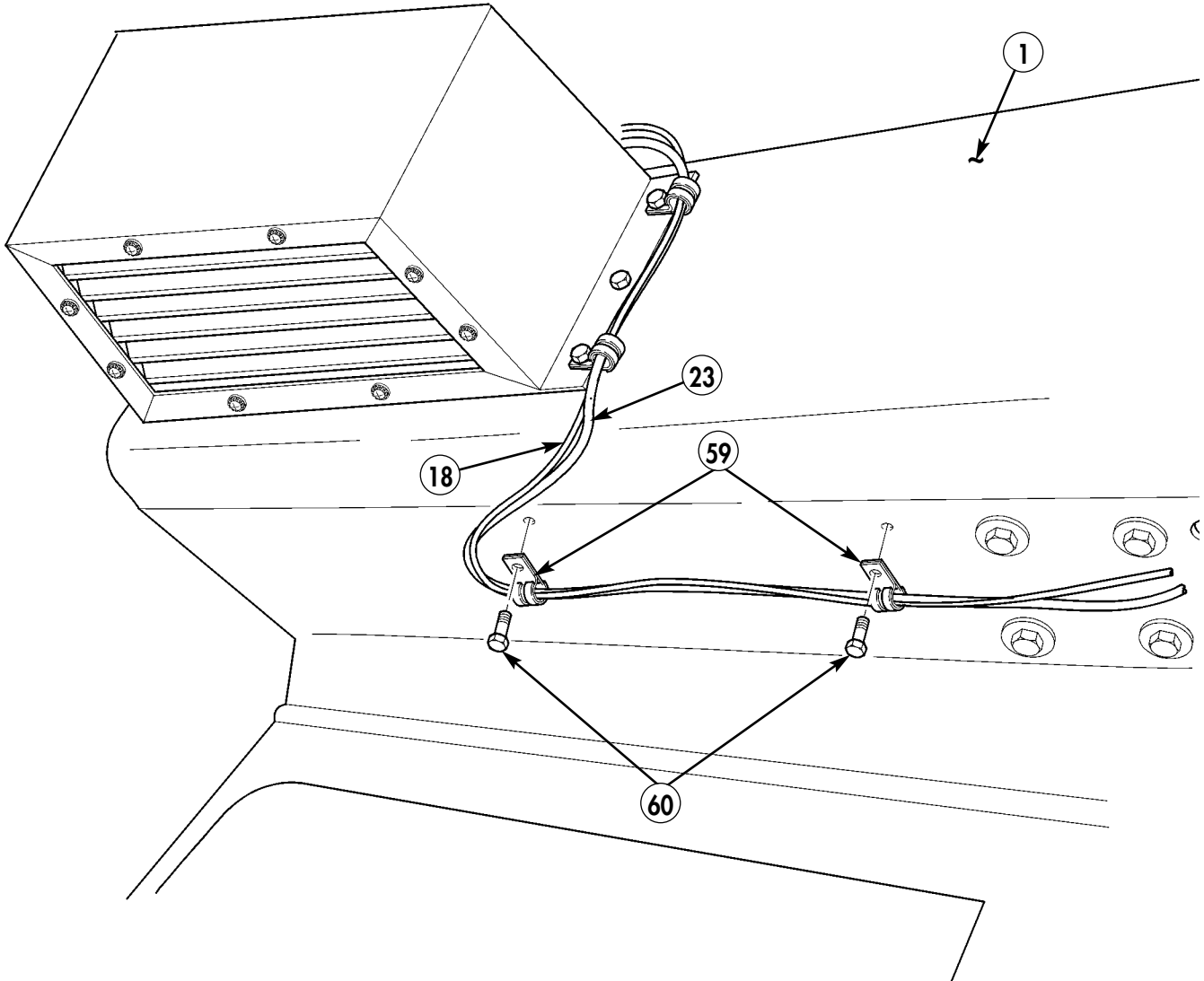
**19-36.** Route PLGR antenna cable (18) and RF cable (23) along side of air intake plenum (51) with two loop clamps (58) and existing screws (57).



- 57. SCREW - 9421073 - QTY. 2
- 58. LOOP CLAMP - MS21333-67- QTY. 2

*Figure 5-96.*

19-37. Route PLGR antenna cable (18) and RF cable (23) along bonnet (1) with two loop clamps (59) and screws (60).

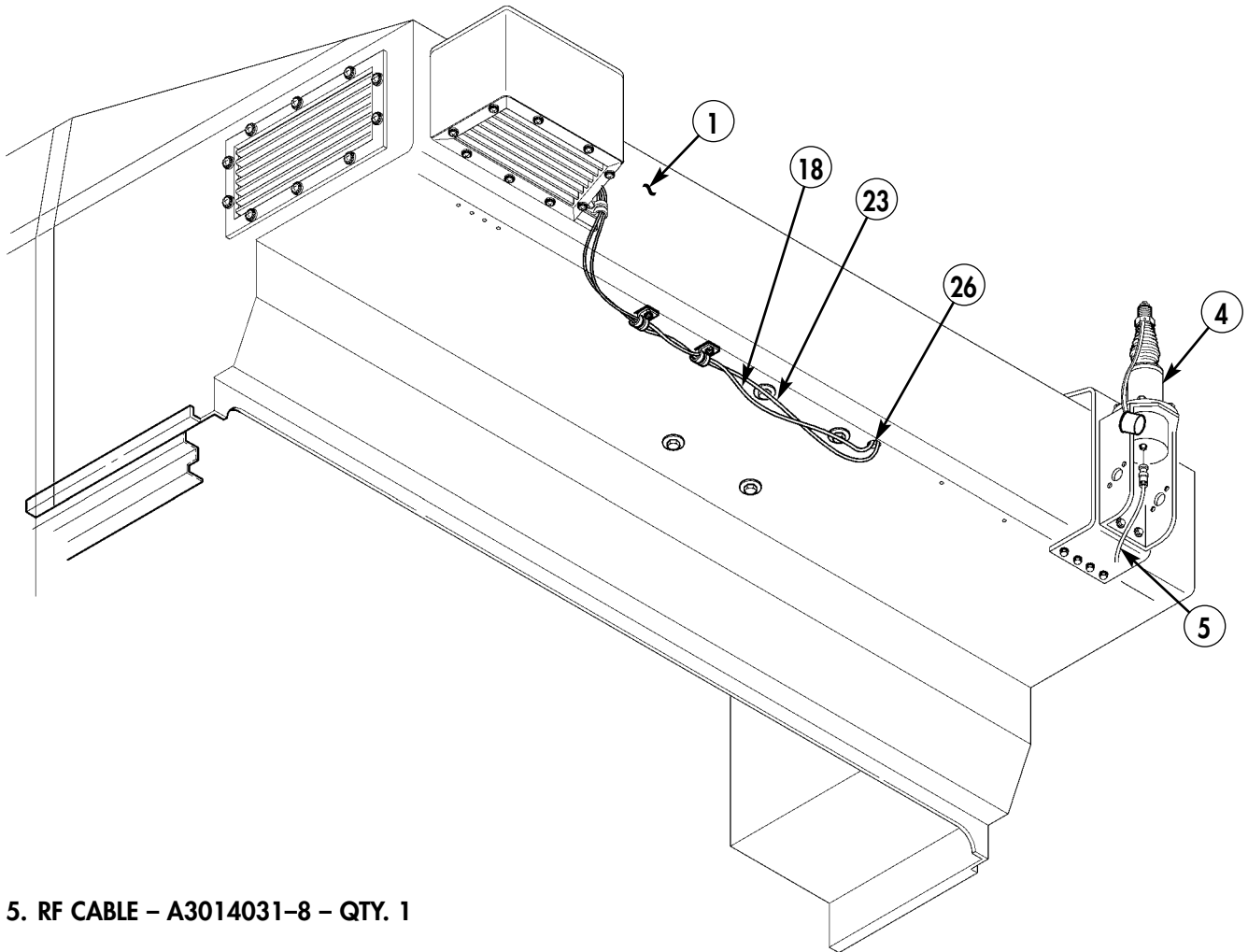


- 59. LOOP CLAMP - MS21333-67- QTY. 2
- 60. SCREW - 9421073 - QTY. 2

Figure 5-97.

**19-38.** Feed PLGR antenna cable (18) and RF cable (23) through hole (26) in bonnet (1).

**19-39.** Connect RF cable (5) to driver's side SINCGARS antenna (4).

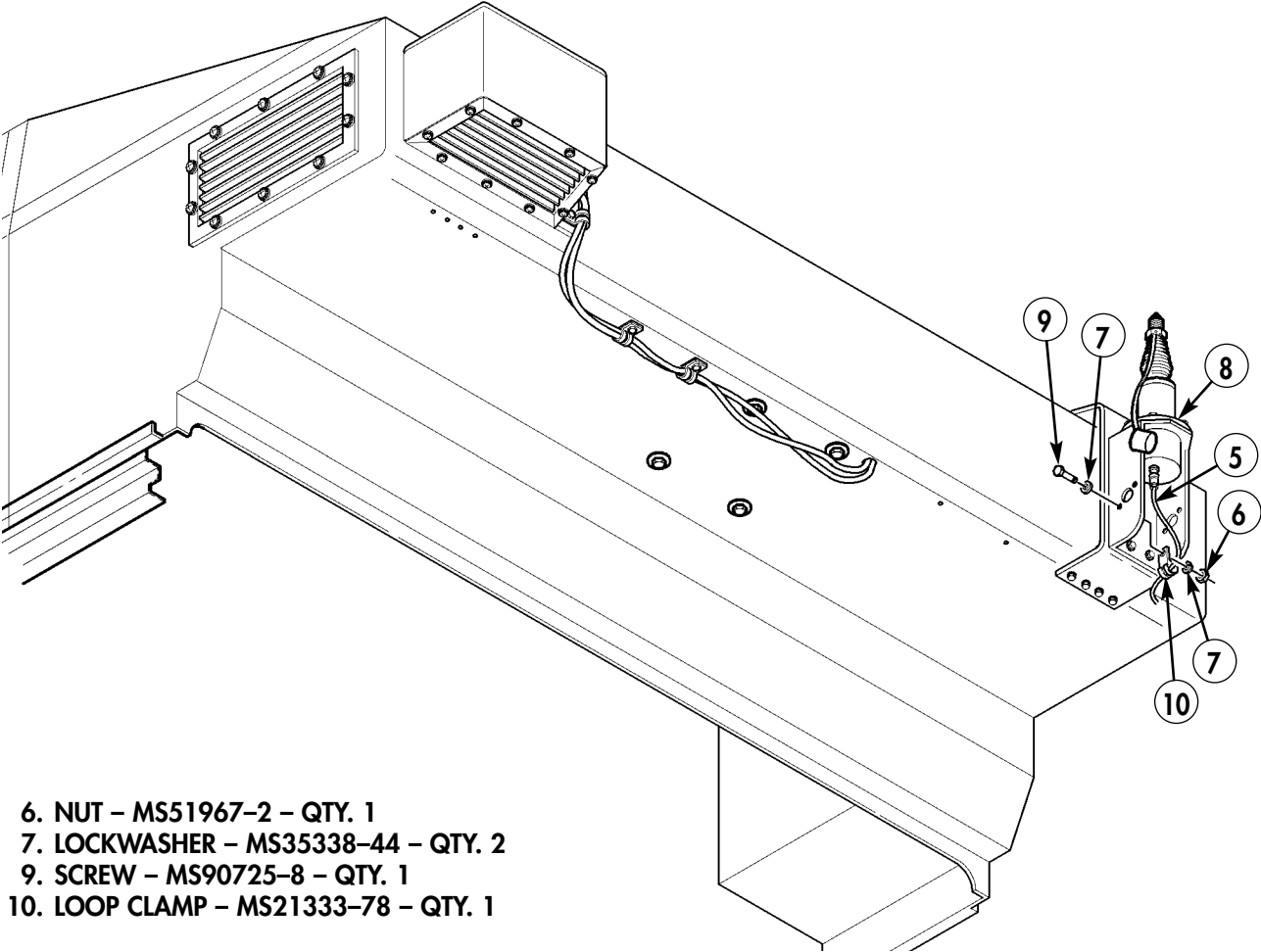


**5. RF CABLE - A3014031-8 - QTY. 1**

*Figure 5-98.*



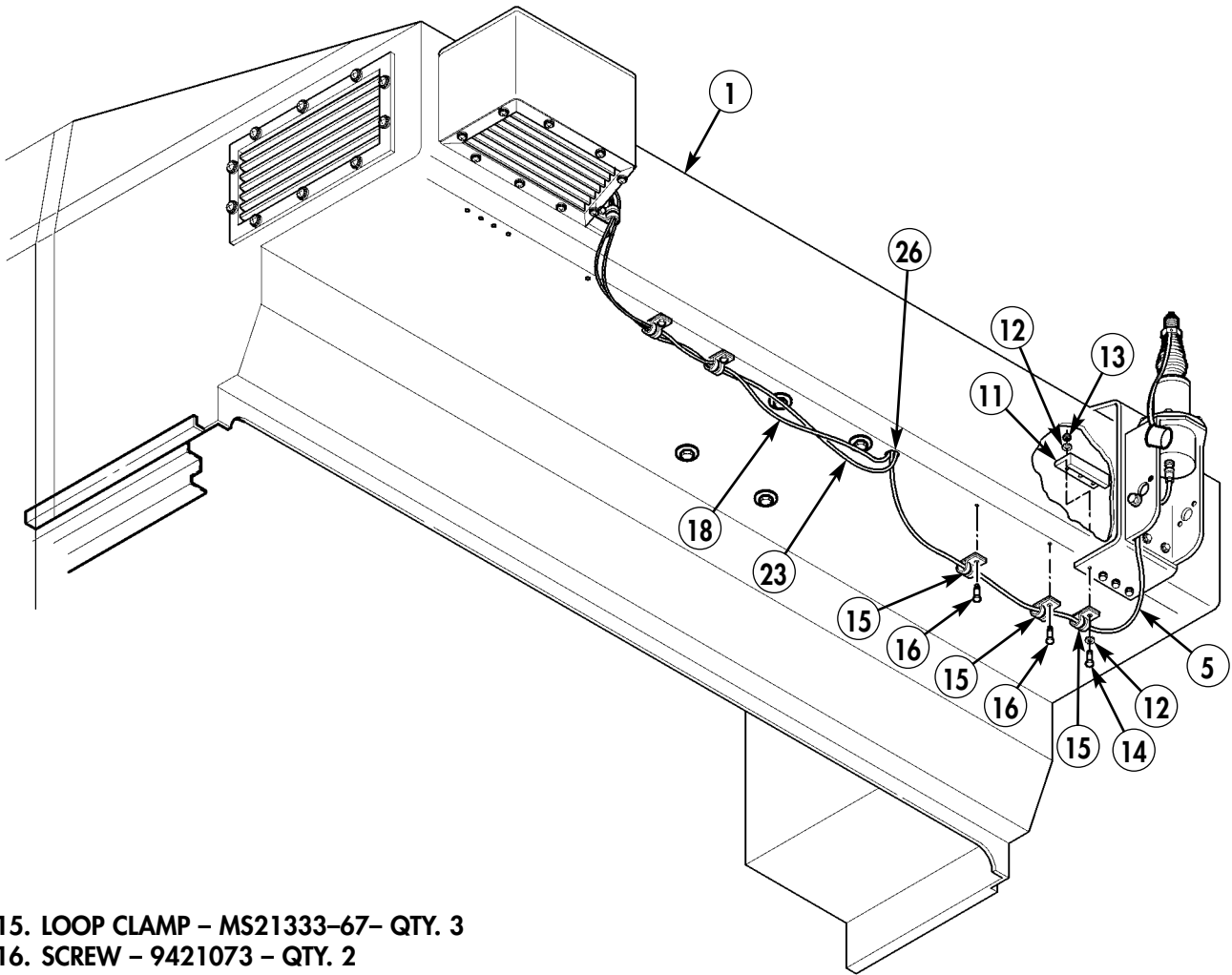
19-40. Route RF cable (5) along SINCGARS antenna bracket (8) with screw (9), two lockwashers (7), loop clamp (10), and nut (6).



- 6. NUT - MS51967-2 - QTY. 1
- 7. LOCKWASHER - MS35338-44 - QTY. 2
- 9. SCREW - MS90725-8 - QTY. 1
- 10. LOOP CLAMP - MS21333-78 - QTY. 1

Figure 5-99.

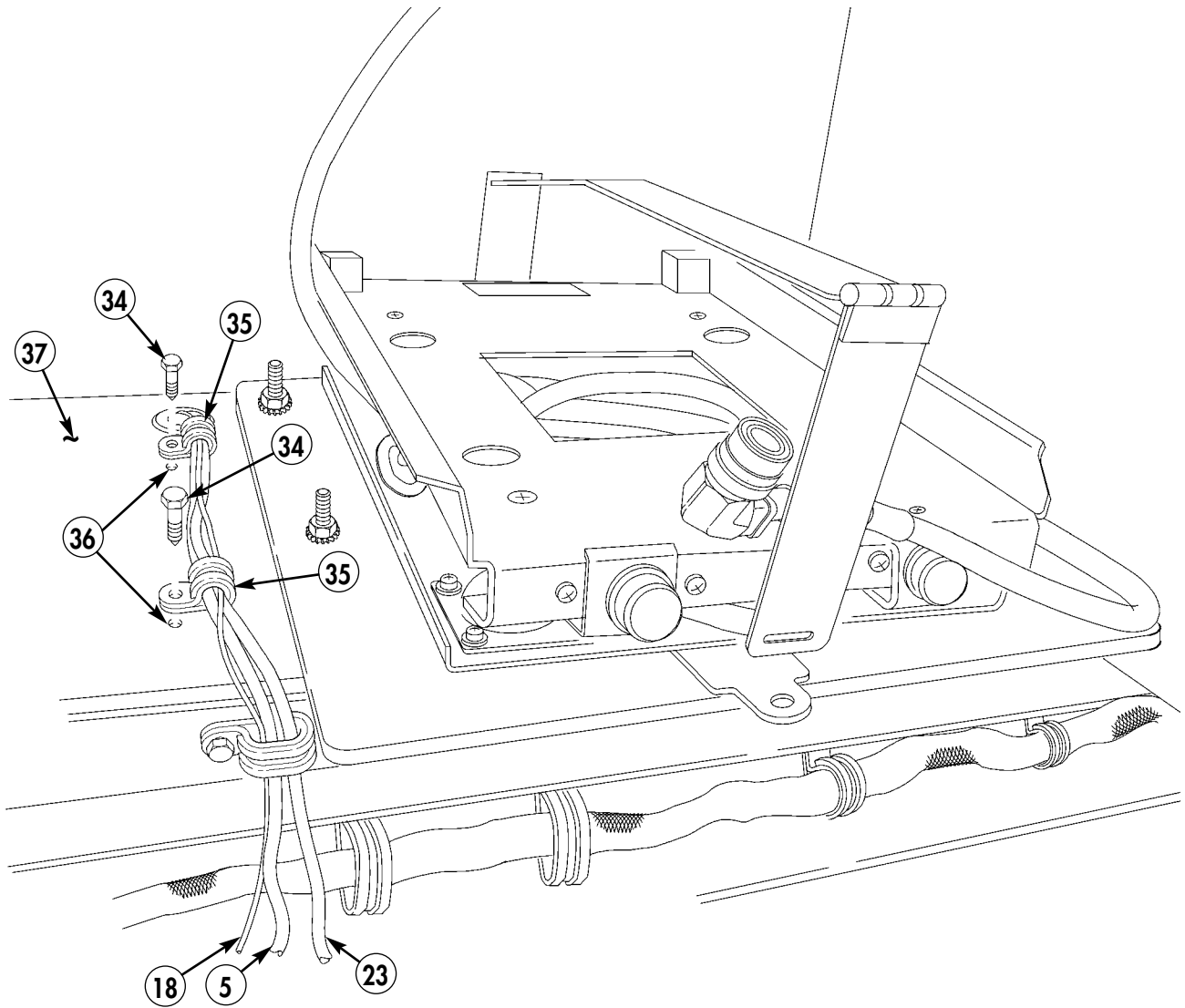
- 19-41. Route RF cable (5) along bonnet (1) with clamp (15) and existing screw (14), two lockwashers (12), spacer (11), and nut (13).
- 19-42. Route RF cable (5) along bonnet (1) with two loop clamps (15) and screws (16) to hole (26) in bonnet (1).



- 15. LOOP CLAMP - MS21333-67- QTY. 3
- 16. SCREW - 9421073 - QTY. 2

Figure 5-100.

- 19-43. Locate, mark, and drill two 0.147-inch diameter holes (36) in bonnet floor (37).
- 19-44. Route PLGR antenna cable (18) and two RF cables (5) and (23) along bonnet floor (37) with two loop clamps (35) and screws (34).



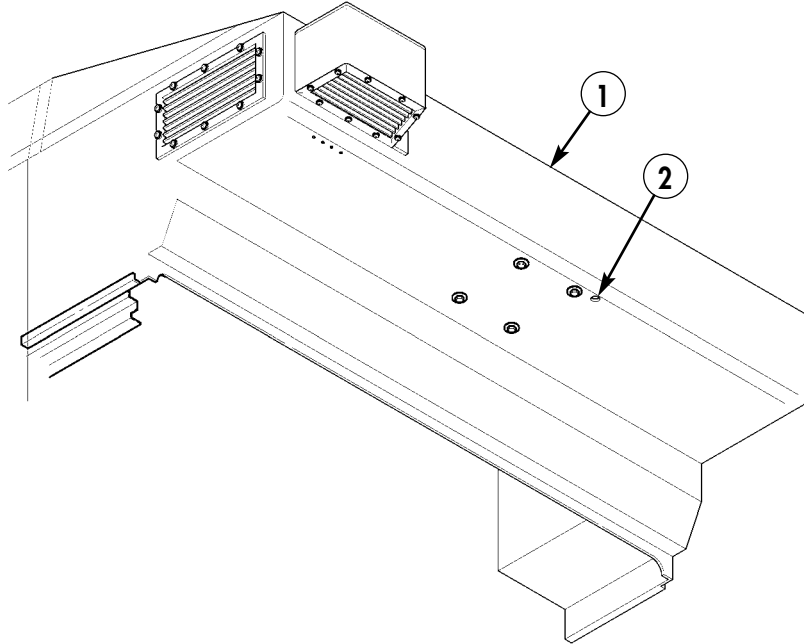
- 34. SCREW - 9421073 - QTY. 2
- 35. LOOP CLAMP - MS21333-67- QTY. 3

Figure 5-101.

**NOTE**

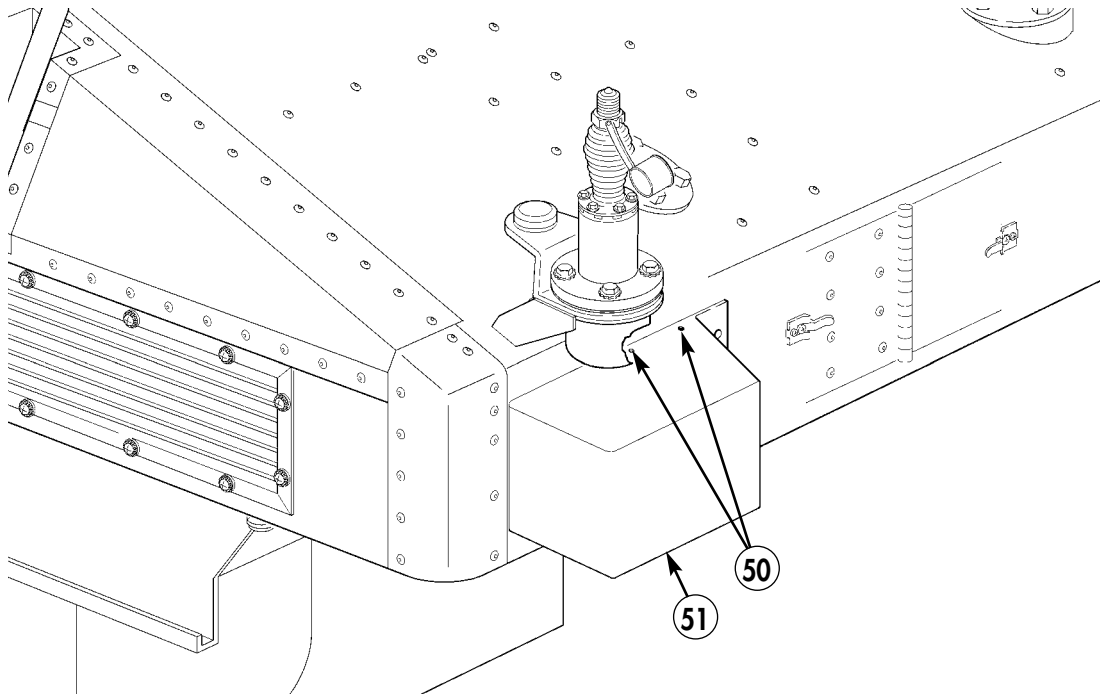
Perform steps 19-45 through 19-59 if MWO 9-2320-280-35-5 and modification kit 57K0181 have been performed.

**19-45.** Locate, mark, and drill 1.00-inch diameter hole (2) in bottom of bonnet (1).



*Figure 5-102.*

**19-46.** Locate, mark, and drill two 0.147-inch diameter holes (50) in air intake plenum (51).



*Figure 5-103.*

19-47. Locate, mark, and drill two 0.147-inch diameter holes (61) in bonnet (1).

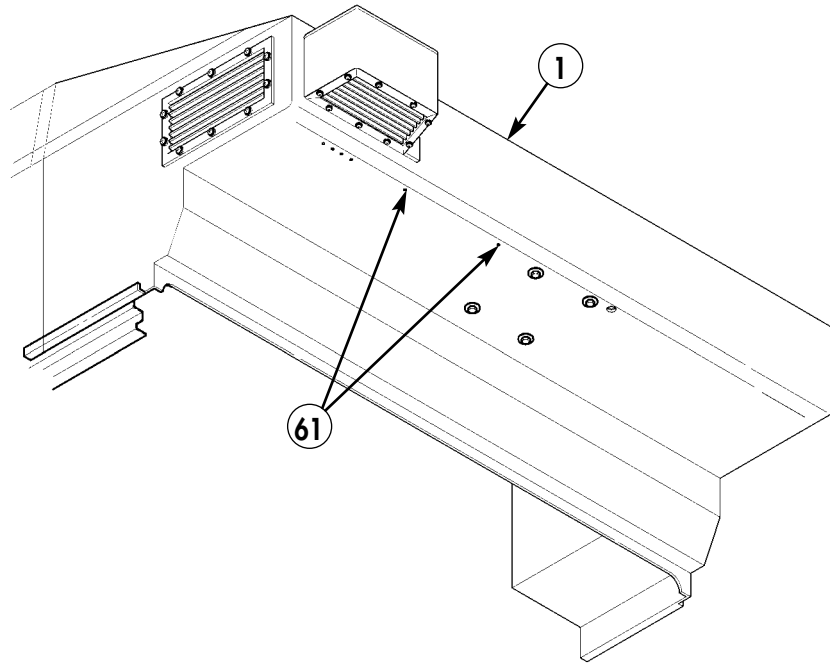
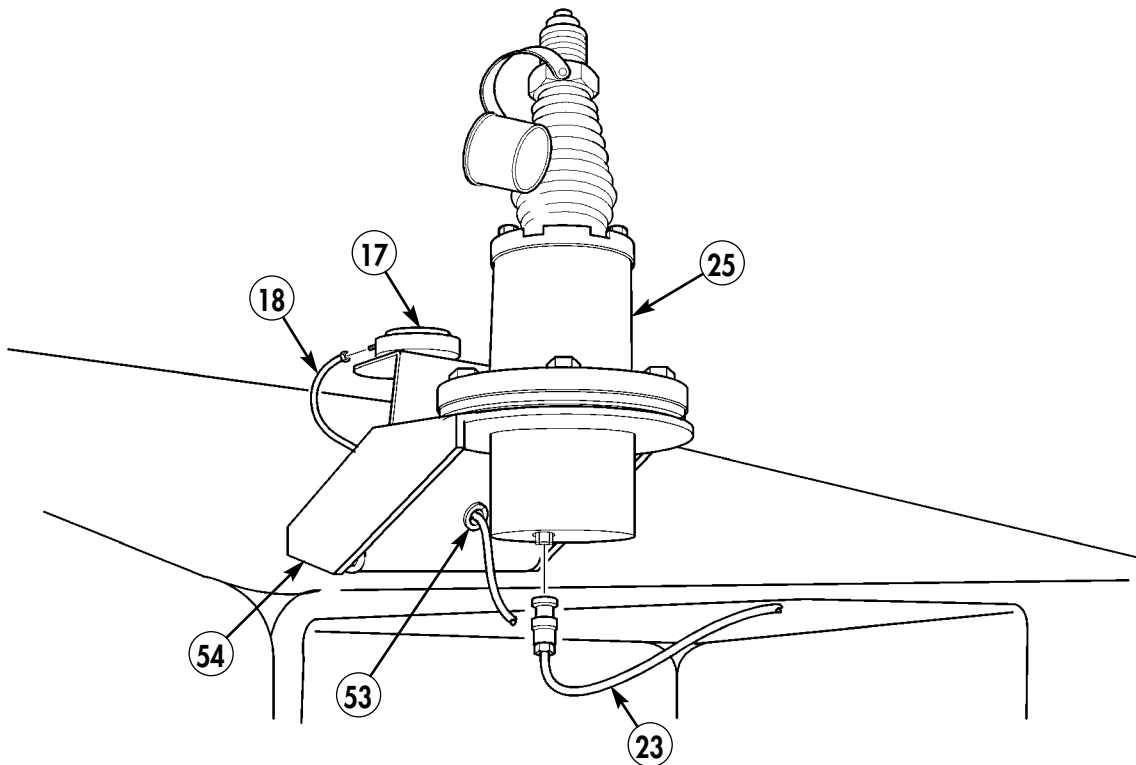


Figure 5-104.

19-48. Thread PLGR antenna cable (18) through hole (53) in PLGR antenna bracket (54). Connect PLGR antenna cable (18) to PLGR antenna (17).

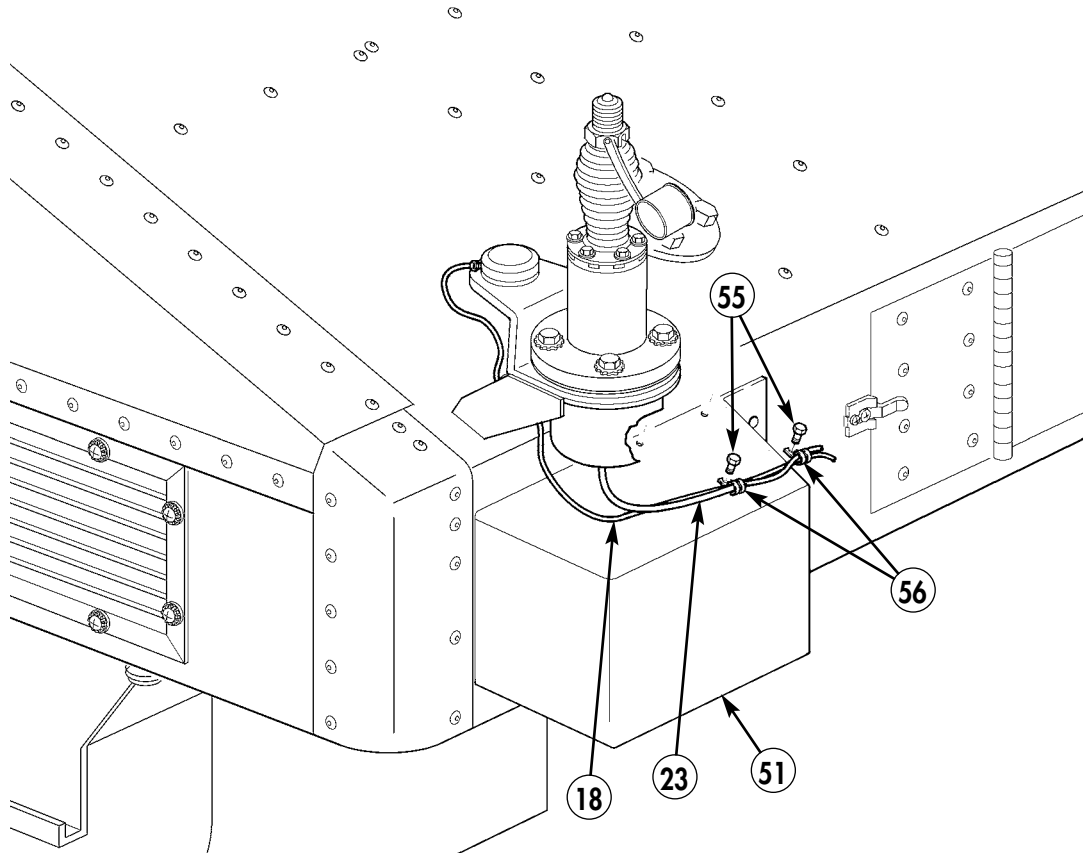
19-49. Connect RF cable (23) to SINCGARS antenna (25).



18. PLGR ANTENNA CABLE - A32551281W23 - QTY. 1  
 23. RF CABLE - A3014031-17 - QTY. 1

Figure 5-105.

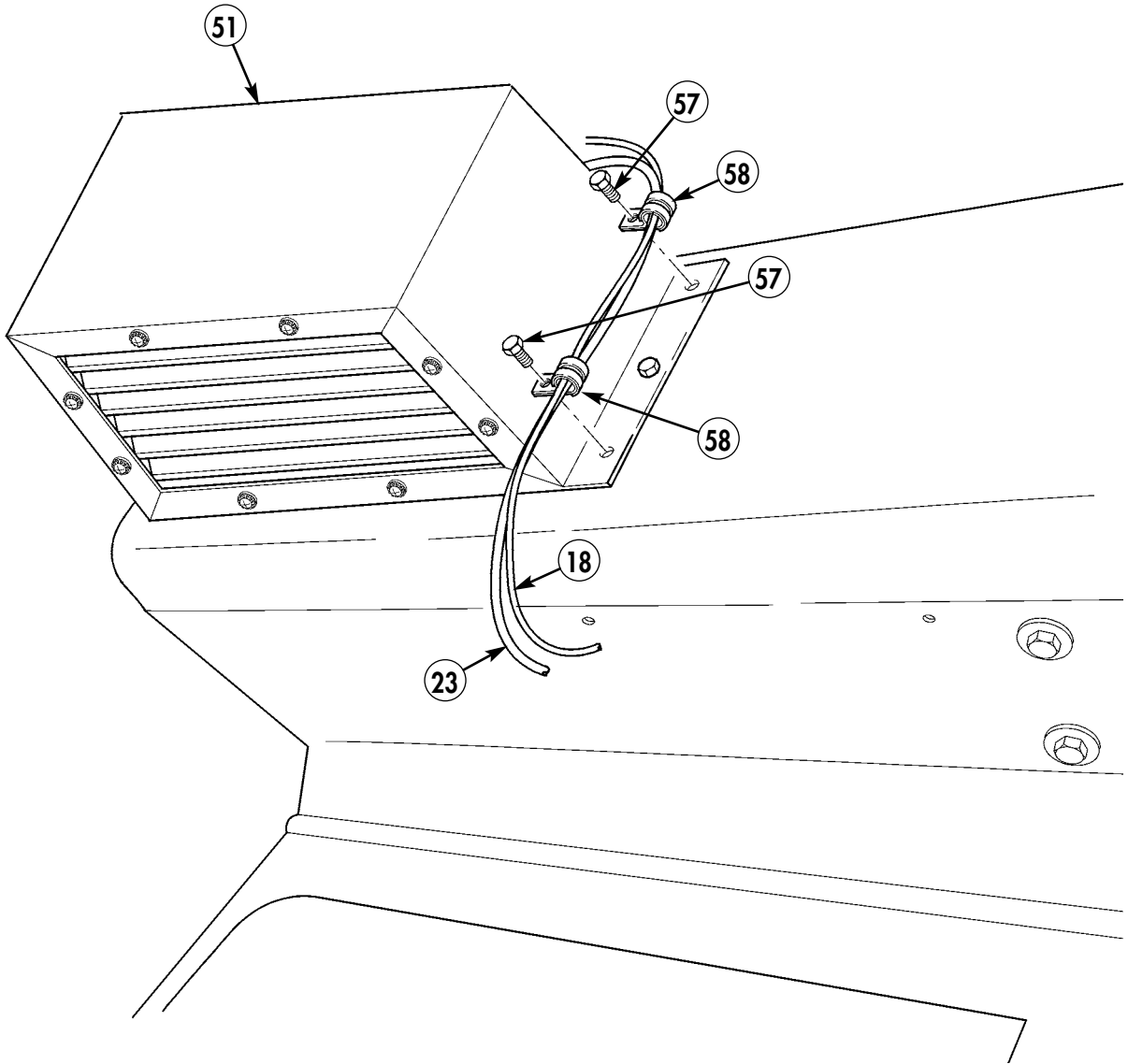
**19-50.** Route PLGR antenna cable (18) and RF cable (23) along air intake plenum (51) with two loop clamps (56) and screws (55).



- 55. SCREW - 9421073 - QTY. 2
- 56. LOOP CLAMP - MS21333-67- QTY. 2

*Figure 5-106.*

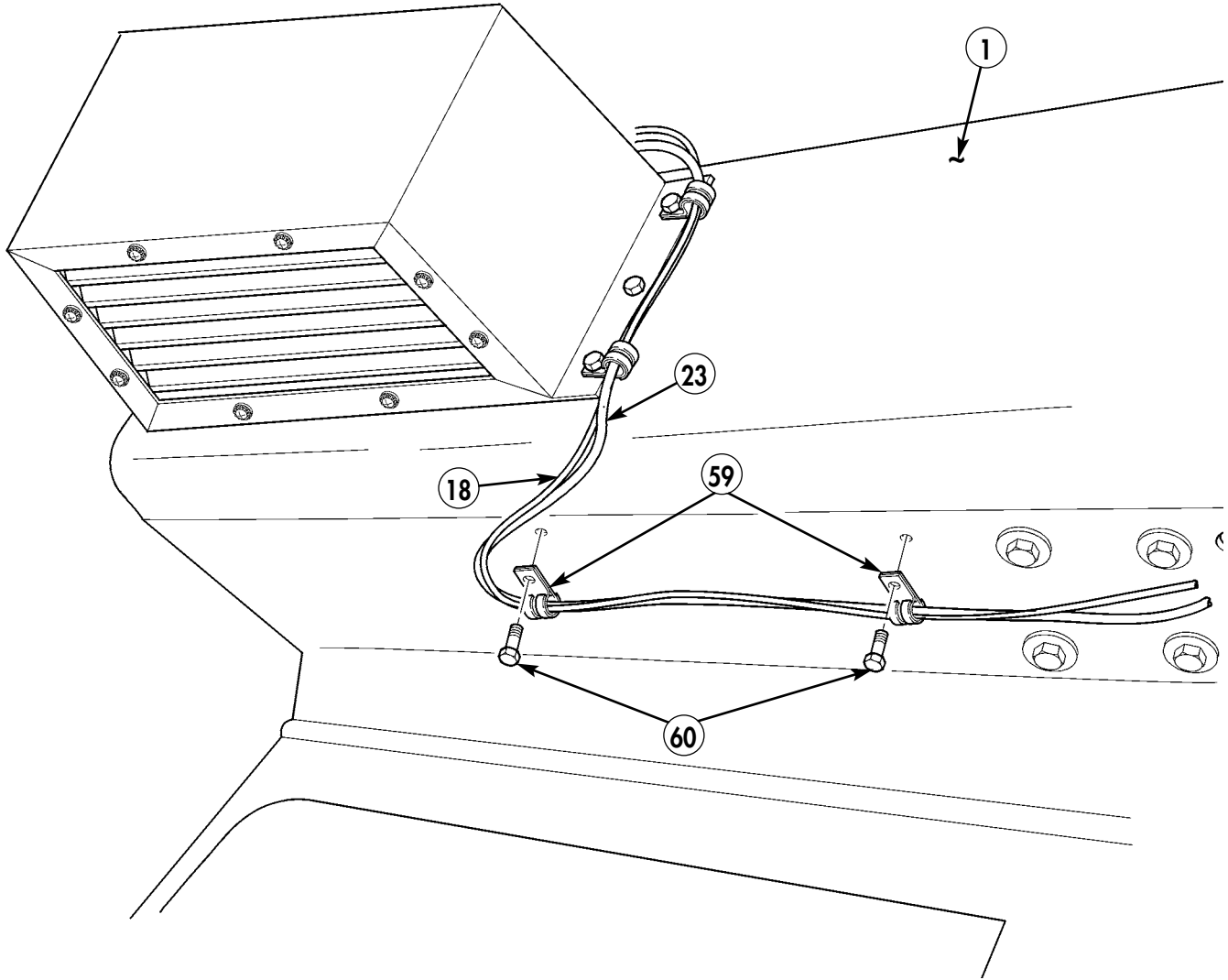
**19-51.** Route PLGR antenna cable (18) and RF cable (23) along side of air intake plenum (51) with two loop clamps (58) and existing screws (57).



- 57. SCREW - 9421073 - QTY. 2
- 58. LOOP CLAMP - MS21333-67- QTY. 2

*Figure 5-107.*

19-52. Route PLGR antenna cable (18) and RF cable (23) along bonnet (1) with two loop clamps (59) and screws (60).

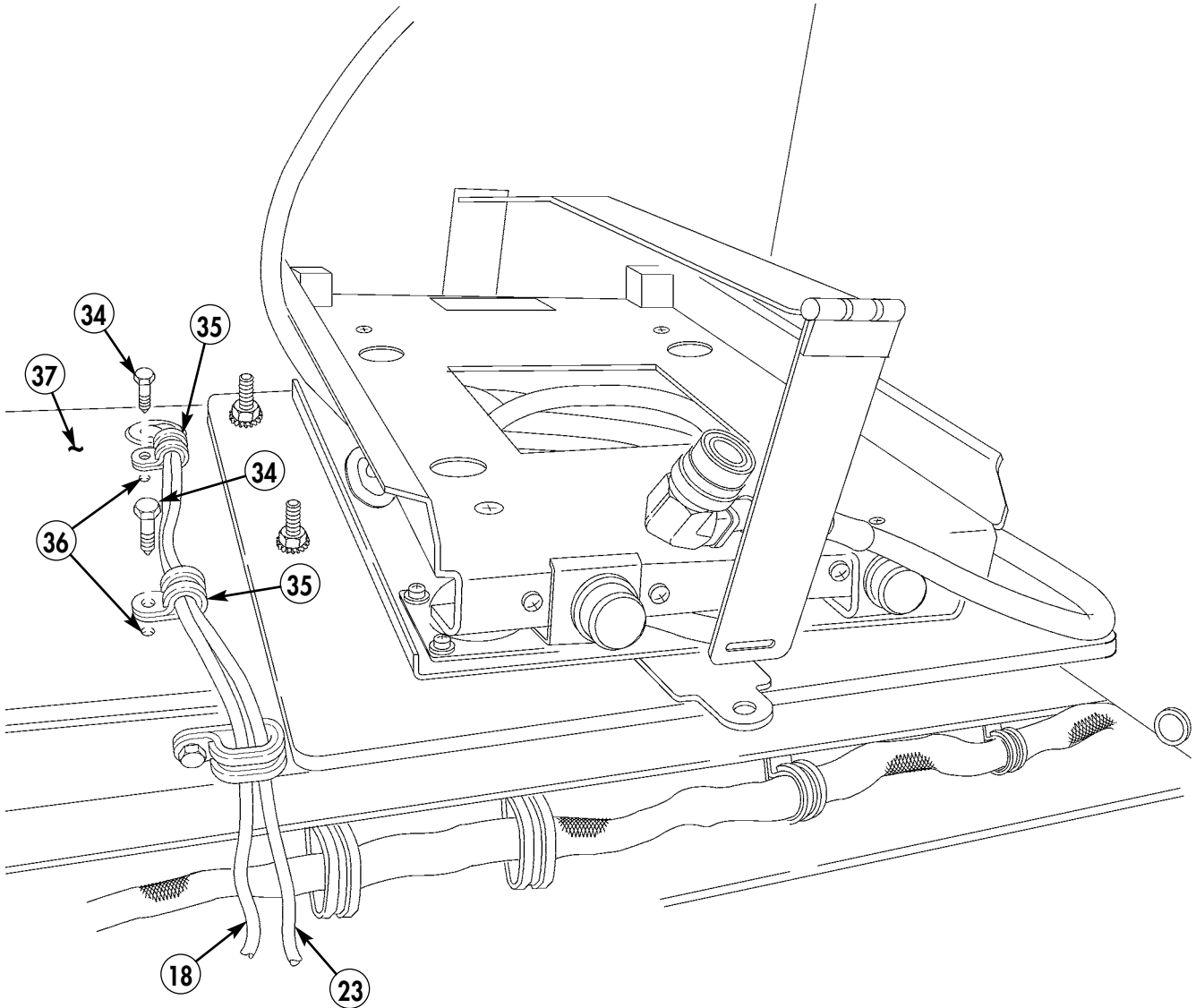


- 59. LOOP CLAMP - MS21333-67- QTY. 2
- 60. SCREW - 9421073 - QTY. 2

Figure 5-108.



- 19-53. Locate, mark, and drill two 0.147-inch diameter holes (36) in bonnet floor (37).
- 19-54. Route PLGR antenna cable (18) and RF cable (23) along bonnet floor (37) with two loop clamps (35) and screws (34).



- 34. SCREW - 9421073 - QTY. 2
- 35. LOOP CLAMP - MS21333-67- QTY. 3

Figure 5-109.

- 19-55. Connect RF cable (5) to SINCGARS antenna (47).
- 19-56. Route RF cable (5) along roof panel (48) with existing clamp (39), screw (38), two lockwashers (40), and nut (41).
- 19-57. Route RF cable (5) along forward bulkhead (49) of bonnet with existing clamp (39) and screw (46).
- 19-58. Route RF cable (5) along partition (42) with two existing clamps (39), screws (38), four lockwashers (40), and two nuts (41).
- 19-59. Feed RF cable (5) through partition (42) with existing grommet assembly (44), two screws (43), and nuts (45).

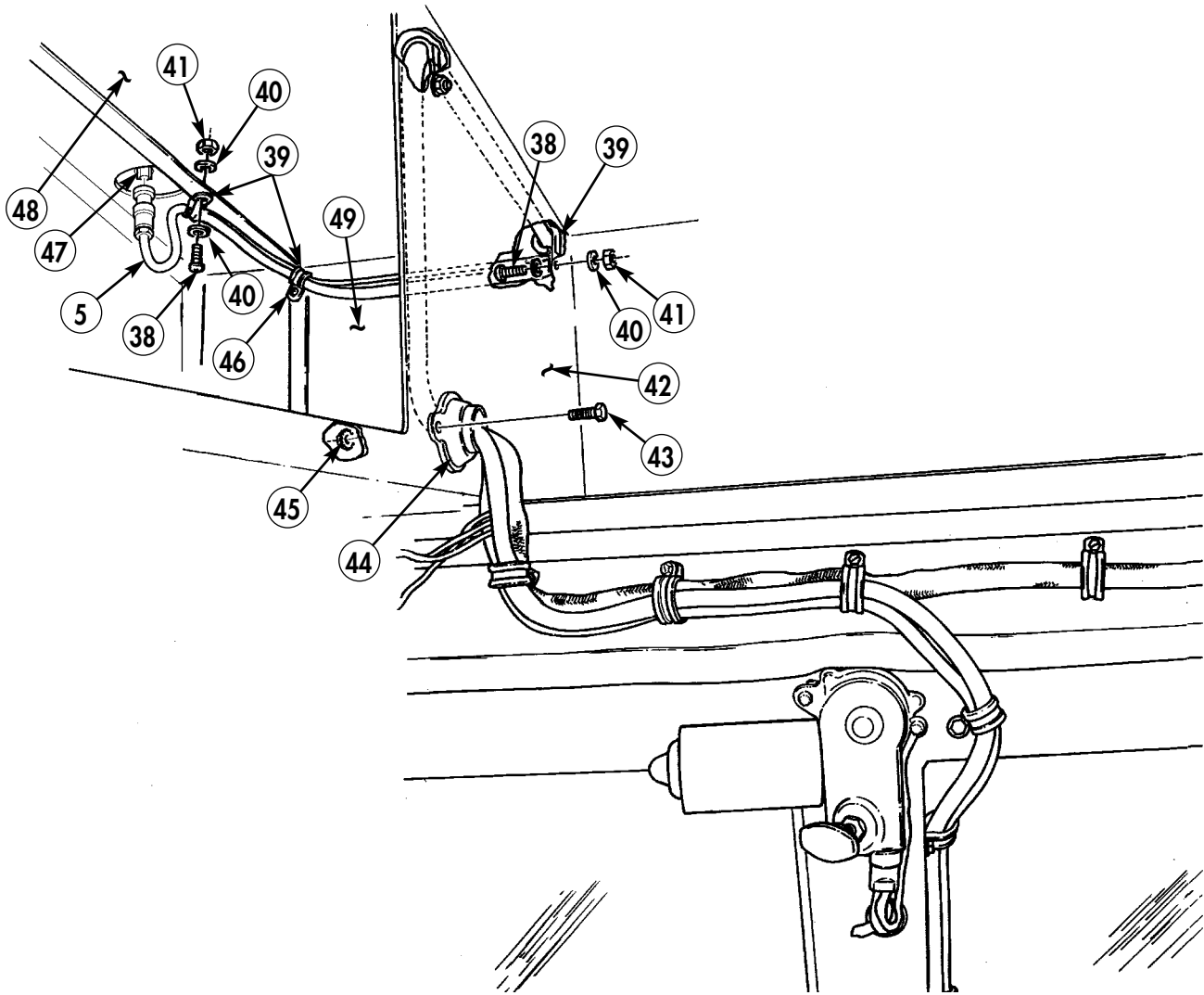
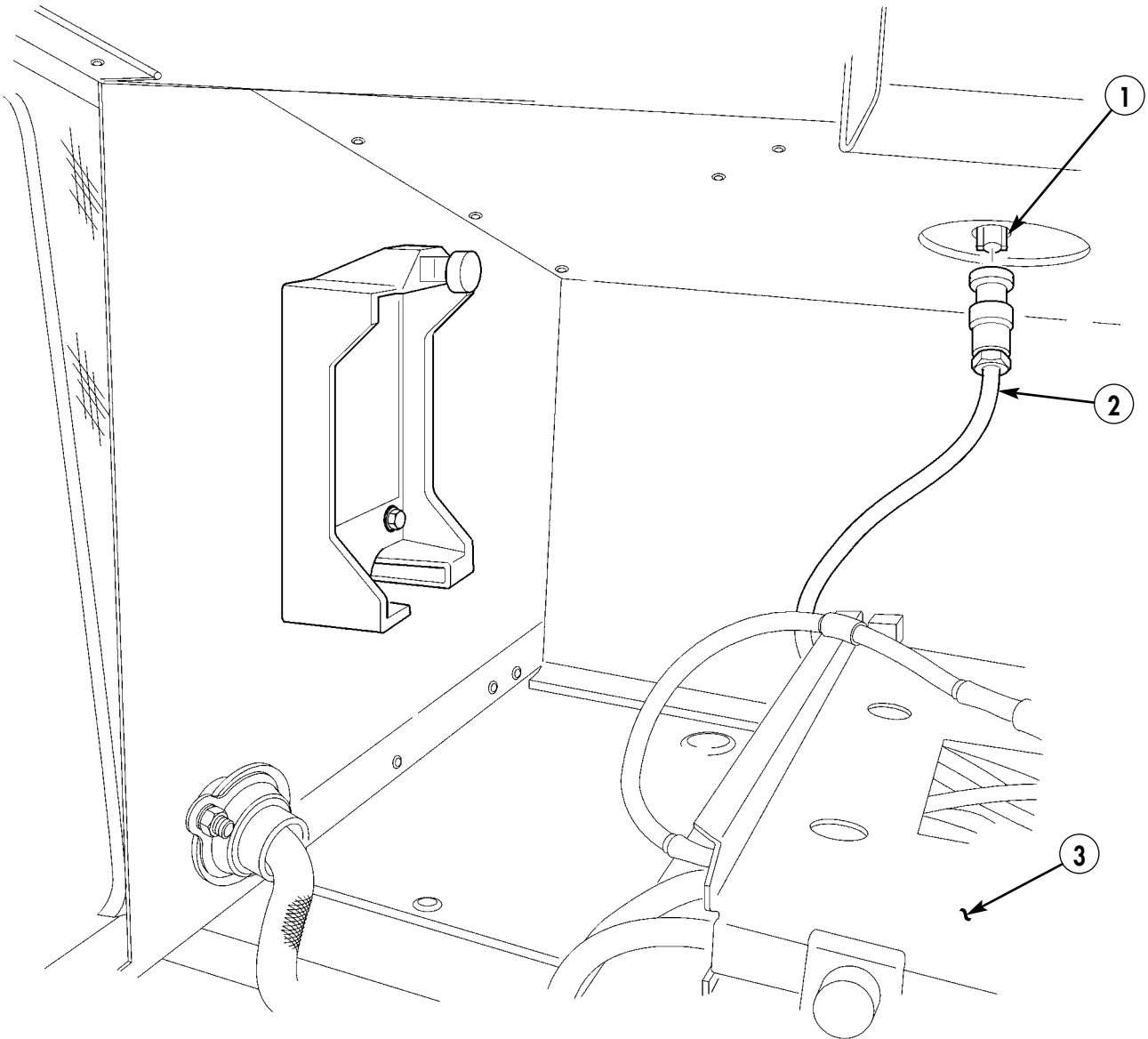


Figure 5-110.

**Section XX: EPLRS CABLE ROUTING**

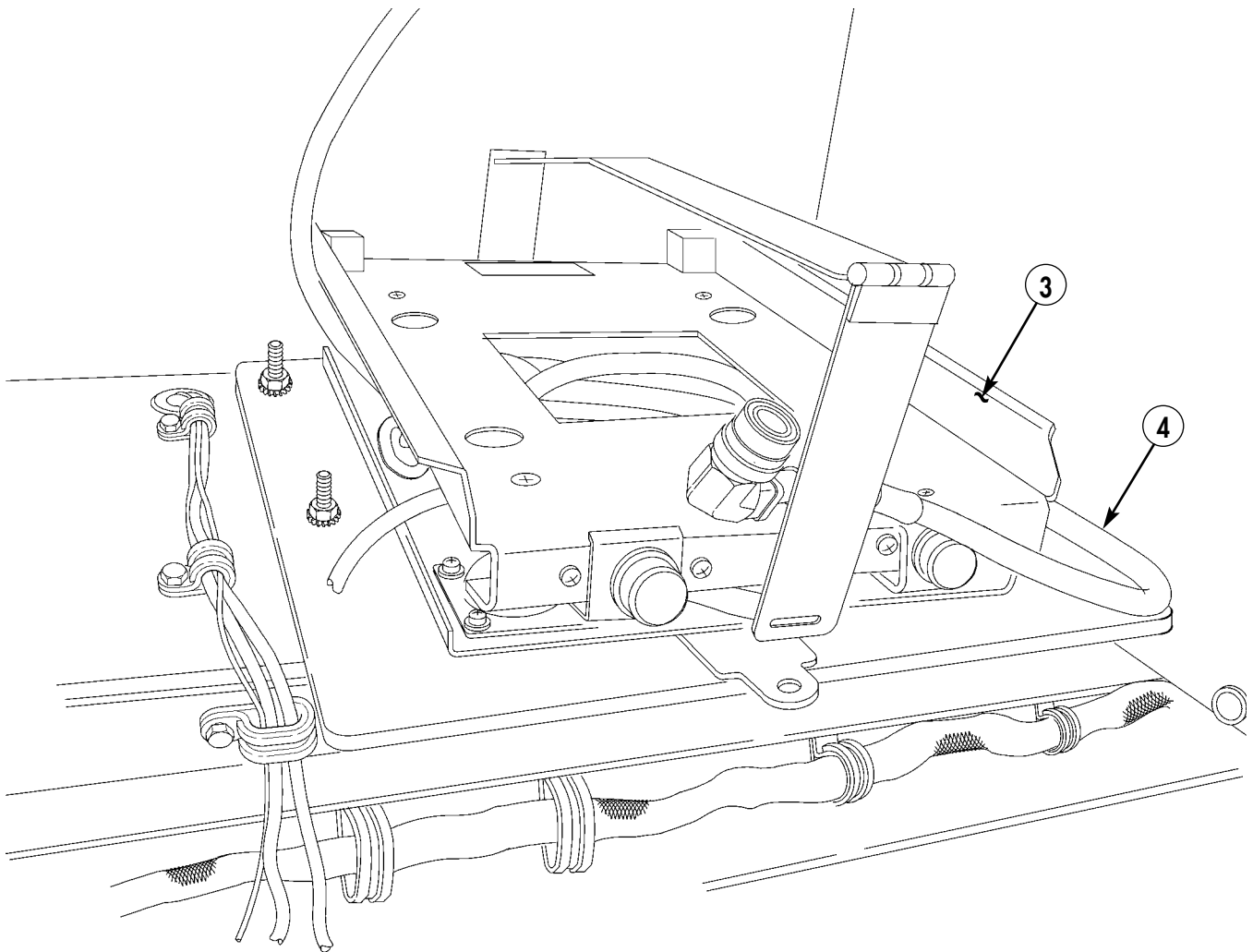
- 20-1.** Connect EPLRS antenna cable (2) to antenna (1).
- 20-2.** Coil EPLRS antenna cable (2) and place under resilient mount (3). Leave enough EPLRS antenna cable (2) free to connect to equipment when installed.



**2. EPLRS ANTENNA CABLE – SM-C-911480 – QTY. 1**

*Figure 5-111.*

**20-3.** Coil EPLRS power cable (4) under resilient mount (3). Leave enough EPLRS power cable (3) free to connect to equipment when installed.



**4. EPLRS POWER CABLE - A3004939 - QTY. 1**

*Figure 5-112.*

20-4. Route EPLRS power cable (4), PLGR antenna cable (6), and two RF cables (5) along windshield frame (9) with four existing clamps (7) and screws (8).

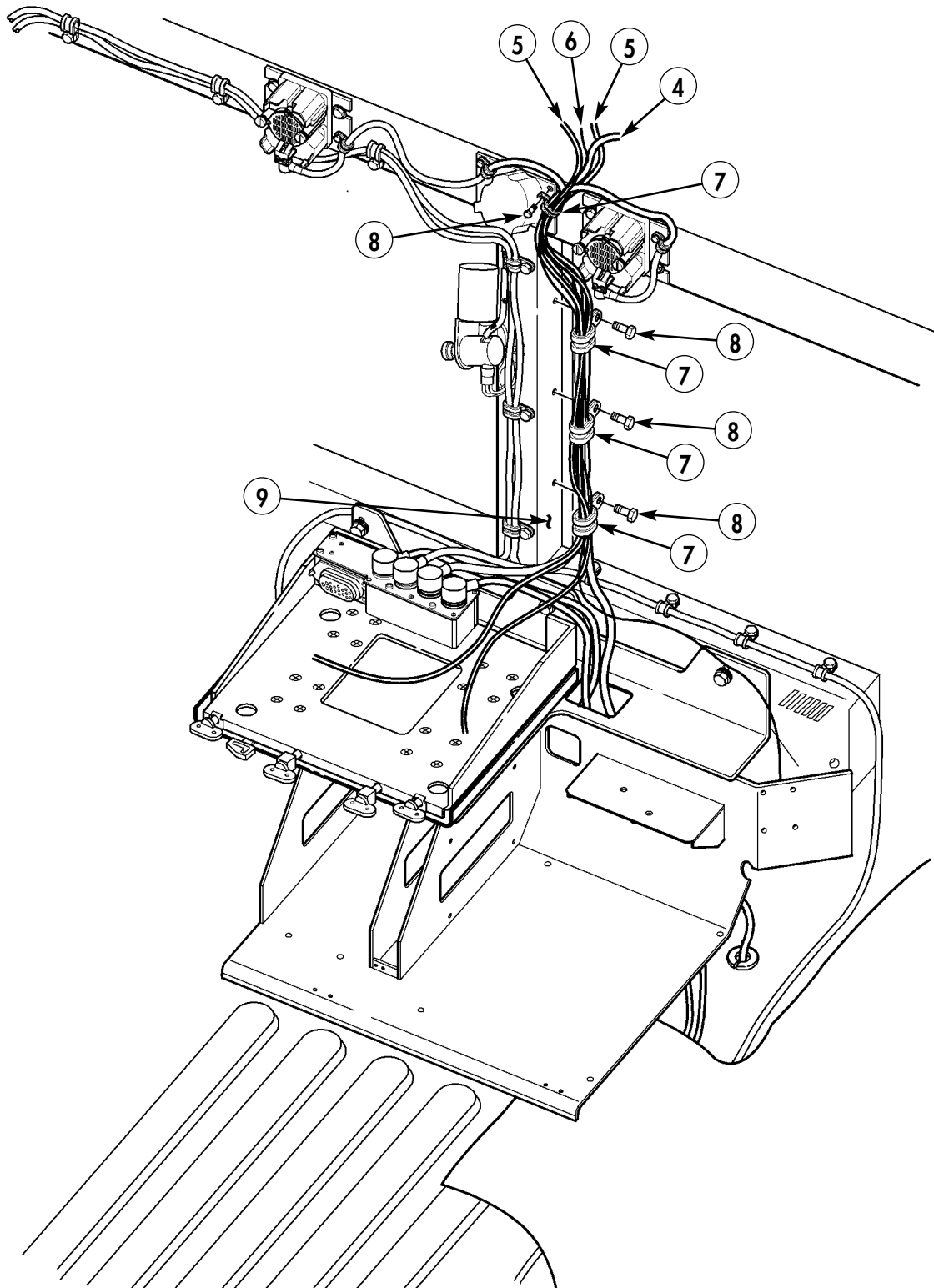


Figure 5-113.

20-5. Route EPLRS power cable (4) through access hole (11), under integrated rack (10) to tunnel insulation (12).

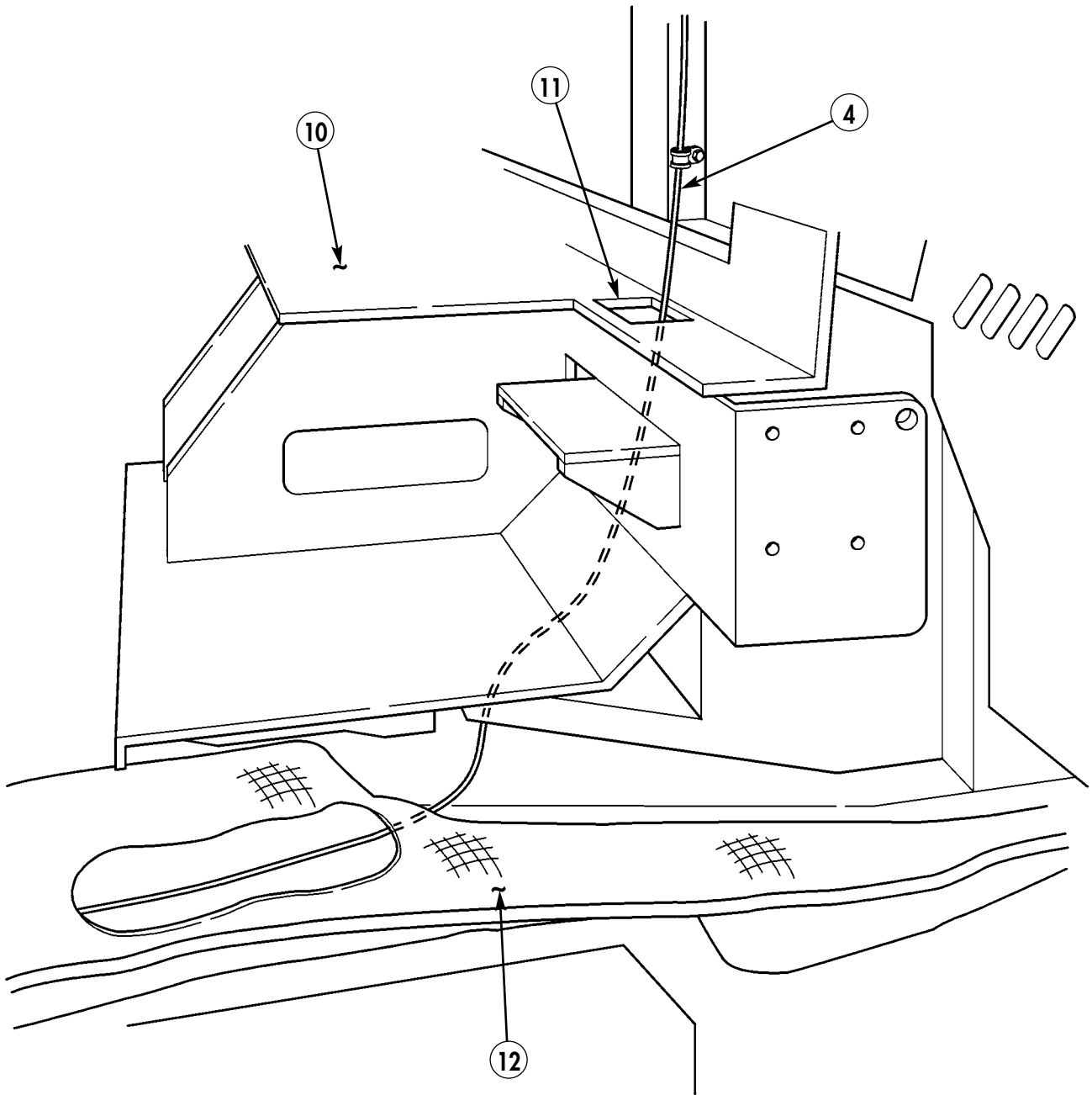


Figure 5-114.

20-6. Route EPLRS power cable (4) under tunnel insulation (12) to B-beam.

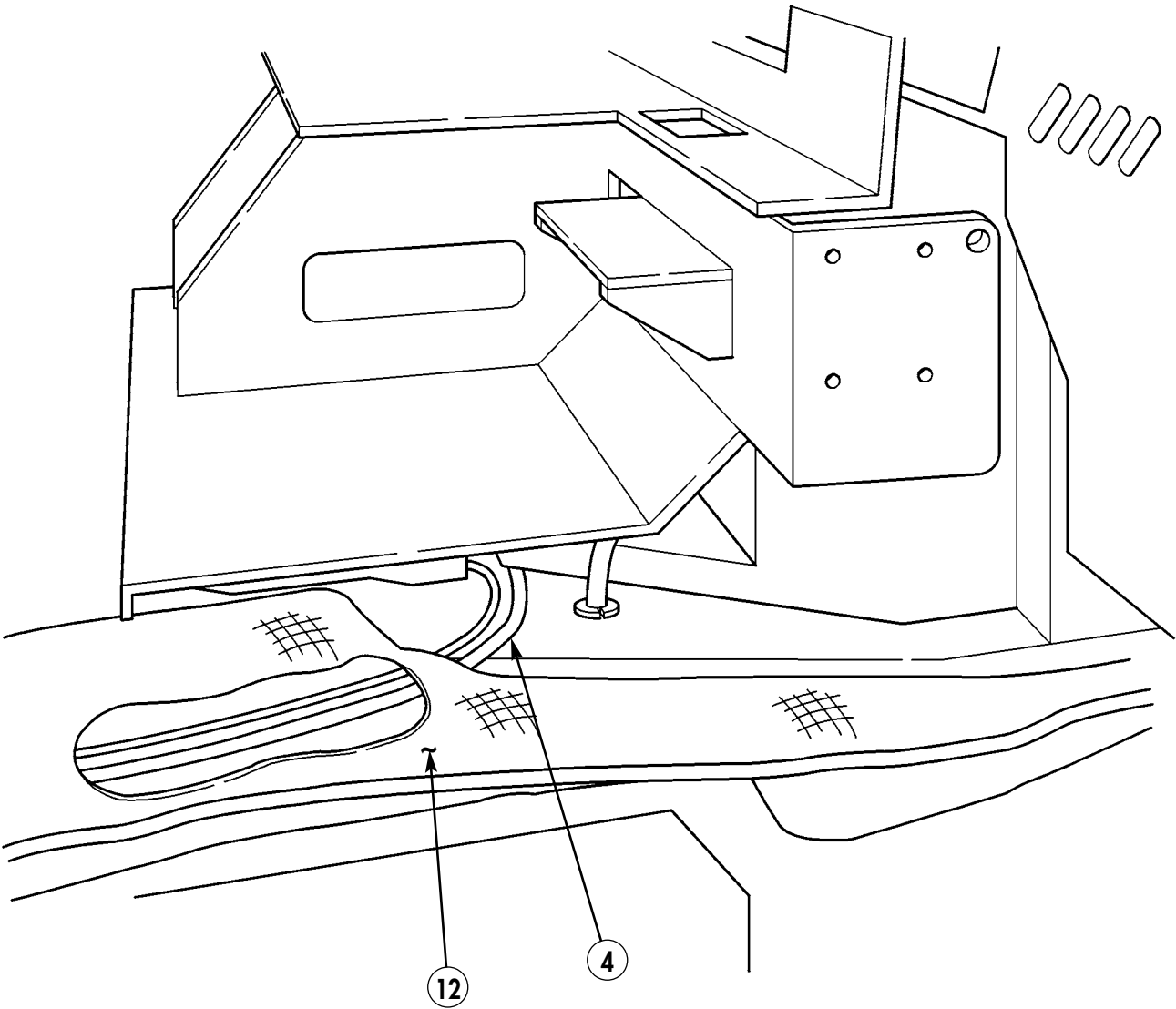
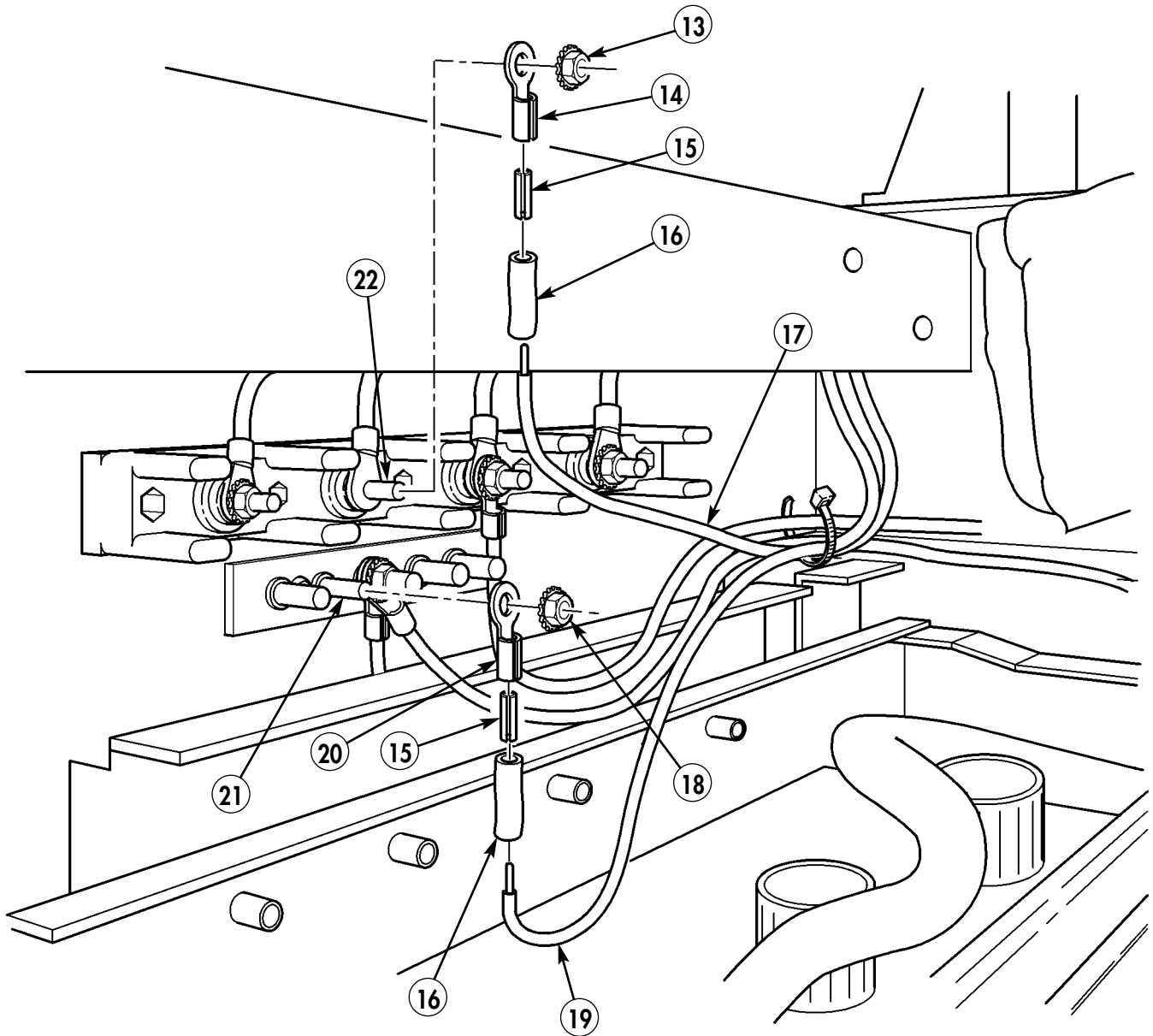


Figure 5-115.

- 20-7. Attach shrink tubing (16), terminal lugs (14) and (20), and splices (15) to EPLRS power cable negative lead (19) and EPLRS power cable positive lead (17). (Refer to TM 9-2320-280-20-2 for terminal connector repair.)
- 20-8. Attach EPLRS power cable positive lead (17) to 24-volt terminal board stud (22) with nut (13).
- 20-9. Attach EPLRS power cable negative lead (19) to ground strap stud (21) with nut (18).



- 14. TERMINAL LUG - 7728780 - QTY. 1
- 15. SPLICE - NAS1387-4 - QTY. 2
- 16. SHRINKING TUBING - MS23053/4-302-0 - QTY. A/R
- 20. TERMINAL LUG -7728777 - QTY. 1

Figure 5-116.



**Section XXI. 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.

- 21-1.** Remove six bolts (3), twelve washers (4), six nuts (7), and two hood brackets (6) from hood (1).  
**21-2.** Remove bracket (9) from top side of hood (1).  
**21-3.** Drill out five rivets (8) from hood (1), rubber hood seal (5) and retaining strip (2).  
**21-4.** Remove retaining strip (2) from hood (1).  
**21-5.** Cut retaining strip (2). Discard cut portion of retaining strip (2).  
**21-6.** Cut rubber hood seal (5). Discard cut portion of rubber hood seal (5).

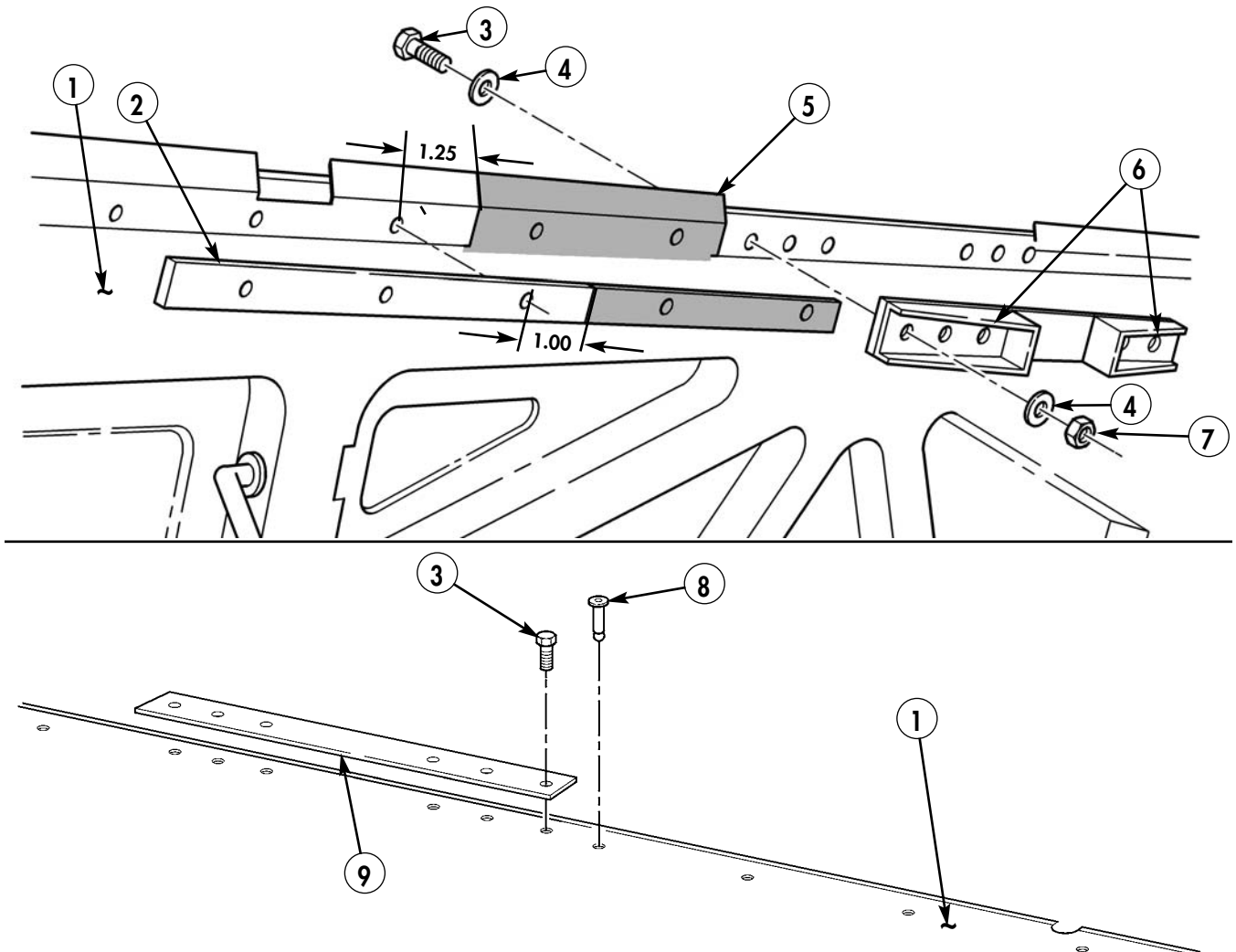


Figure 5-117.

**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.

- 21-7. Locate, mark, and cut area (10) on hood (1).
- 21-8. 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) on hood (1).
- 21-9. Reinstall retaining strip (2) with three rivets (8).

**NOTE**

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

- 21-10. 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.

- 21-11. Apply a thin coat of adhesive to hood cable guide (11) and matching area on hood (1), and install cable guide (11) on hood (1).

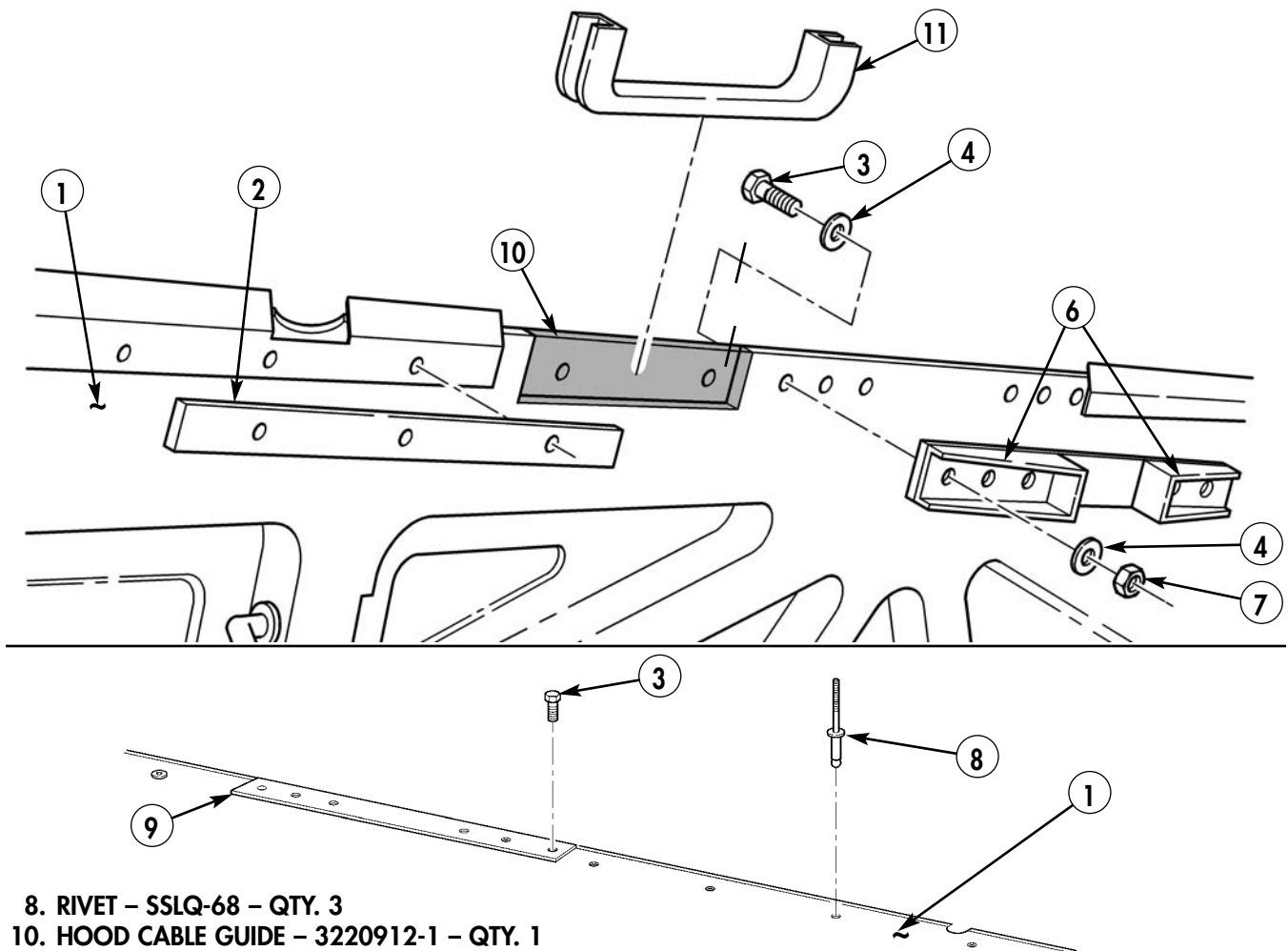
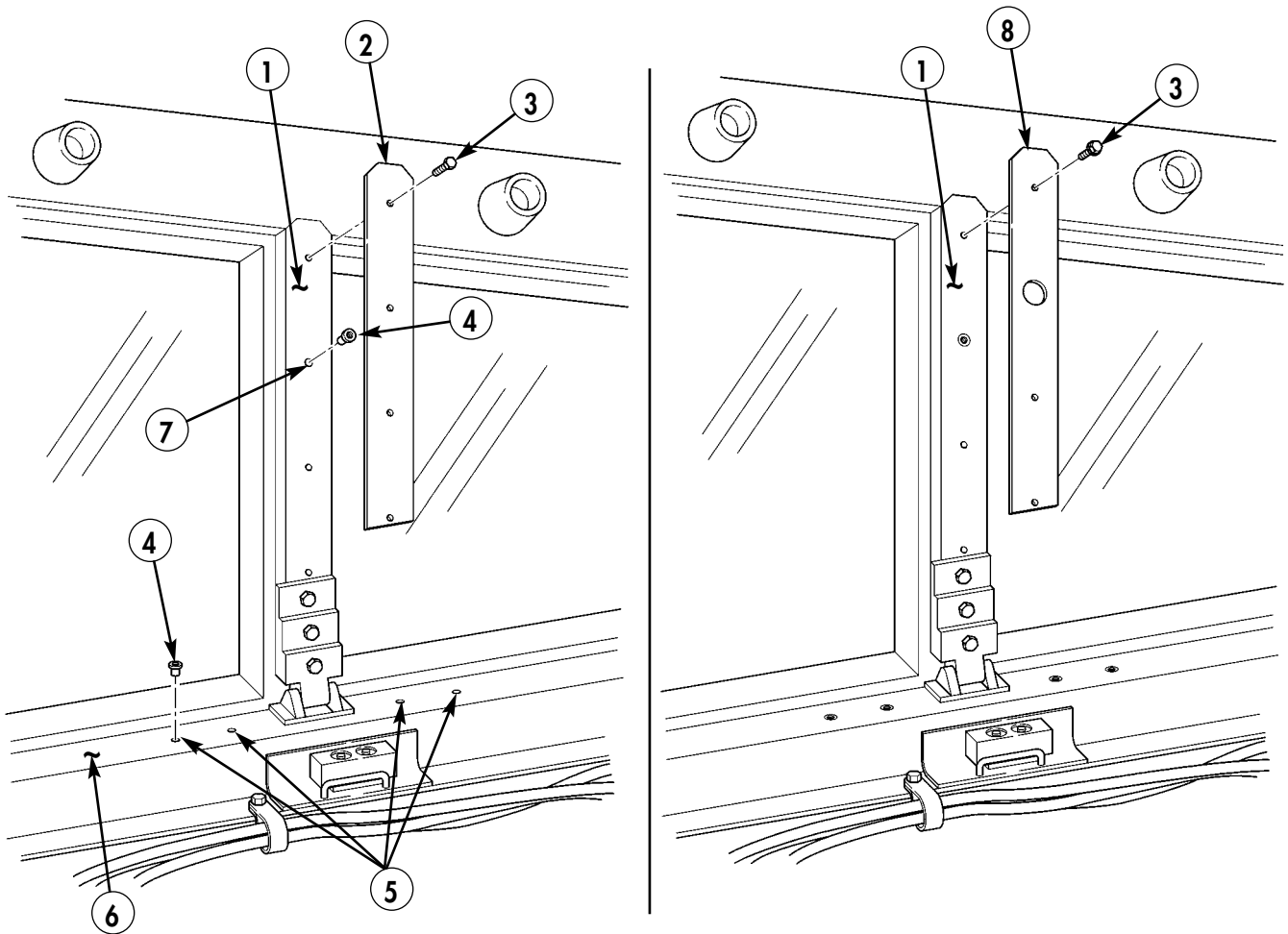


Figure 5-118.

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

- 22-1.** Remove four existing screws (3) and existing center windshield retainer (2) from center windshield frame (1). Retain three screws (3).
- 22-2.** Using PTM mount assembly as template, locate, mark, and drill four 0.391-in. holes (5) on A-frame pillar flange (6).
- 22-3.** Enlarge hole (7) to 0.391 in. on center windshield frame (1).
- 22-4.** Install one rivet nut (4) on center windshield frame (1) and four rivet nuts (4) on A-frame pillar flange (6).
- 22-5.** 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 5-119.*

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

- 23-1.** Remove two screws (2), nuts (5), and clamps (1) from A-frame pillar flange (6). Retain hardware.

**NOTE**

Use template, if available, to mark cutout area for the A-frame cable guide.

- 23-2.** Locate and mark cutout area (3) on A-frame pillar flange (6).
- 23-3.** Cut out area (3) of A-frame pillar flange (6) flush with vertical wall (4). Use fine mill file or crocus cloth to remove all burrs and sharp edges.

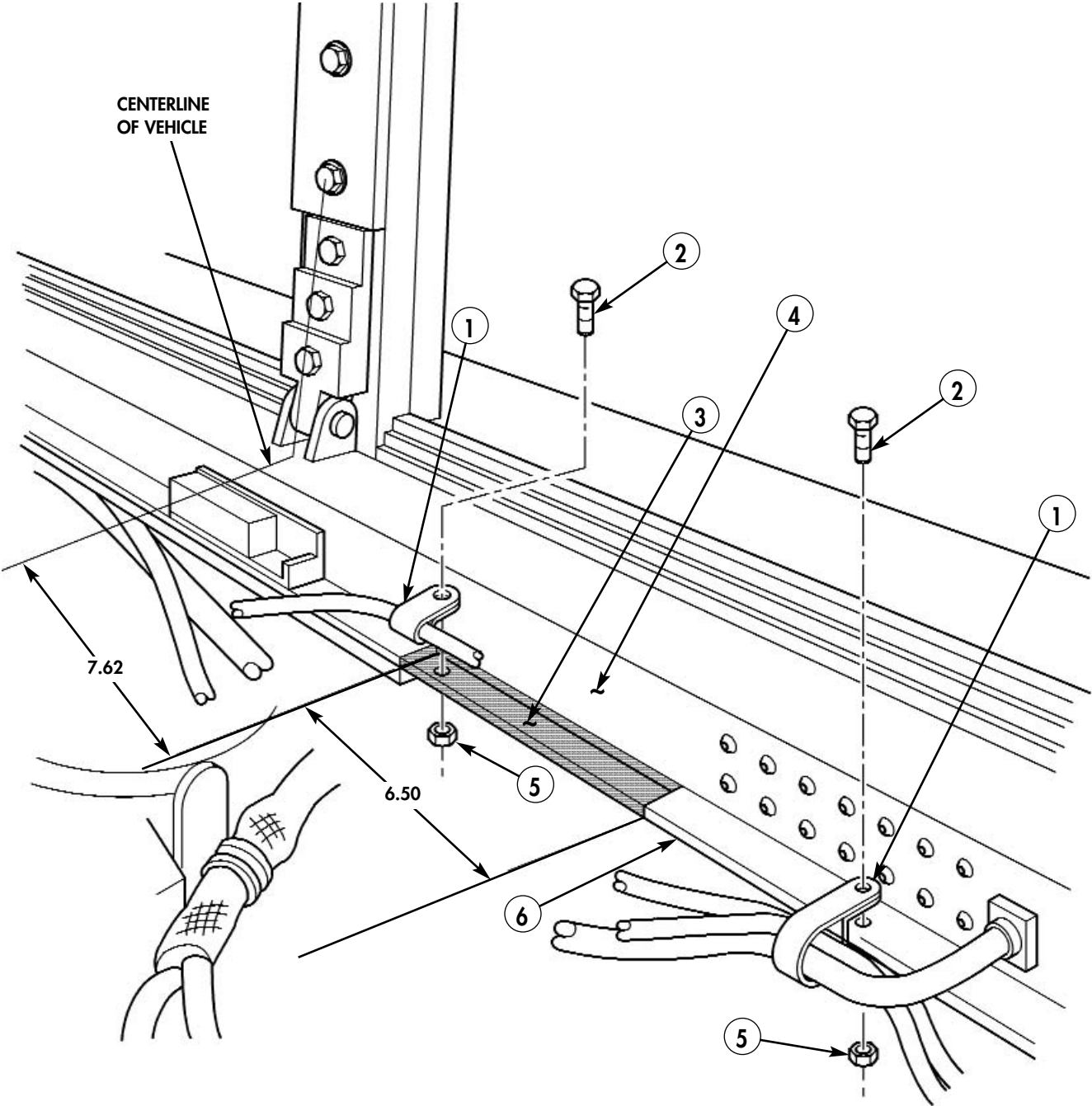


Figure 5-120.

- 23-4. Using A-frame cable guide (13) as template, mark four mounting hole locations (11), (8), and (7).
- 23-5. Drill two 0.391-in. holes (8) on vertical wall (4).
- 23-6. Drill two 0.277-in. holes (7) and (11) on A-frame pillar flange (6).
- 23-7. Install two rivet nuts (12) on vertical wall (4).
- 23-8. Apply a thin coat of adhesive to A-frame cable guide (13) and matching areas on A-frame pillar flange (6) and vertical wall (4).
- 23-9. Install A-frame cable guide (13) on A-frame pillar flange (6) and vertical wall (4) with four capscrews (9), six washers (10), and two locknuts (14).
- 23-10. Locate, mark, and drill 0.221-in. hole (15) on A-frame pillar flange (6).
- 23-11. Reinstall two cable clamps (1) on A-frame pillar flange (6) with existing screws (2) and nuts (5). Close hood. (Refer to TM 9-2320-280-10.)

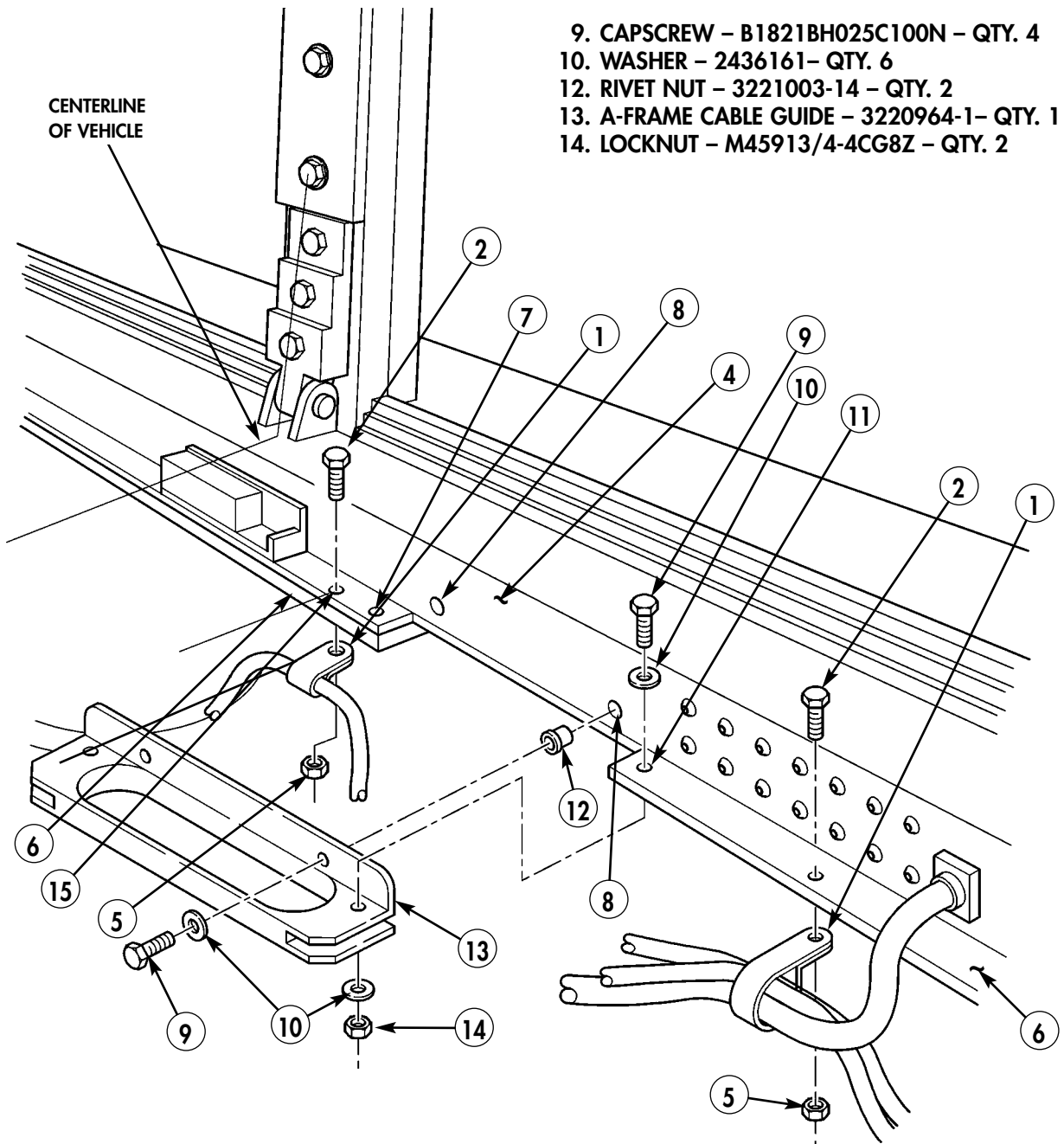


Figure 5-121.

**23-12.** 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

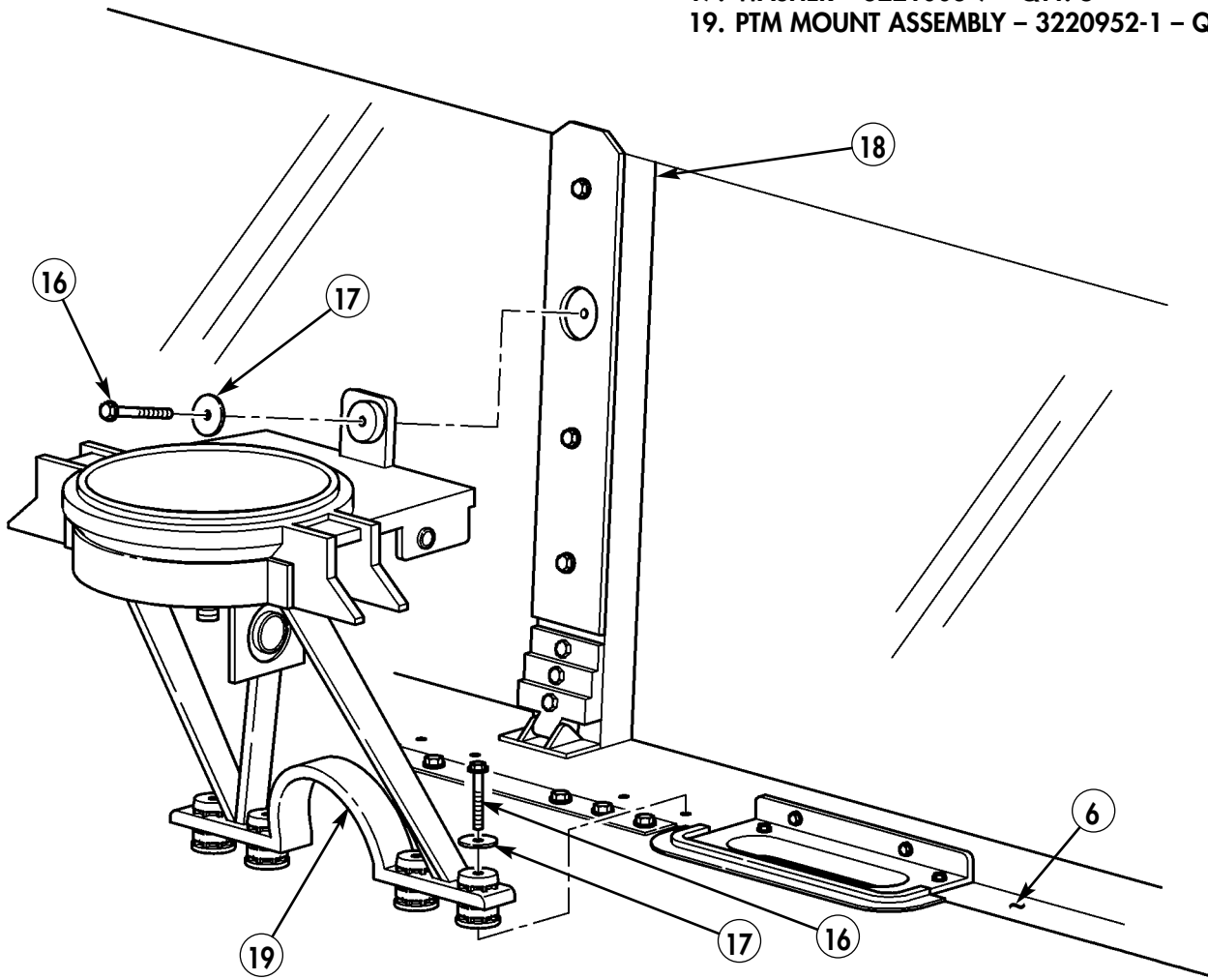


Figure 5-122.

## Section XXIV. DRIVER'S NBC AIR LINE AND HEATER REMOVAL

- 24-1.** Disconnect driver's NBC PVC air line rubber connectors in NBC storage compartment. (Refer to TM 9-2320-280-20-3.)
- 24-2.** Disconnect driver's heater. (Refer to TM 9-2320-280-20-3.)
- 24-3.** Disconnect crossover to passenger NBC heater. (Refer to TM 9-2320-280-20-3.)
- 24-4.** Remove driver's NBC PVC pipe holding clamps (2).
- 24-5.** Using PVC pipe cutter, cut NBC PVC pipe (1) going to passenger side NBC heater. Remove NBC PVC pipe (1) from vehicle and discard.
- 24-6.** Disconnect driver's NBC heater electrical connection. (Refer to TM 9-2320-280-20-3.)
- 24-7.** Remove driver's NBC heater (Refer to TM 9-2320-280-20-3.) Retain heater and mounting hardware.



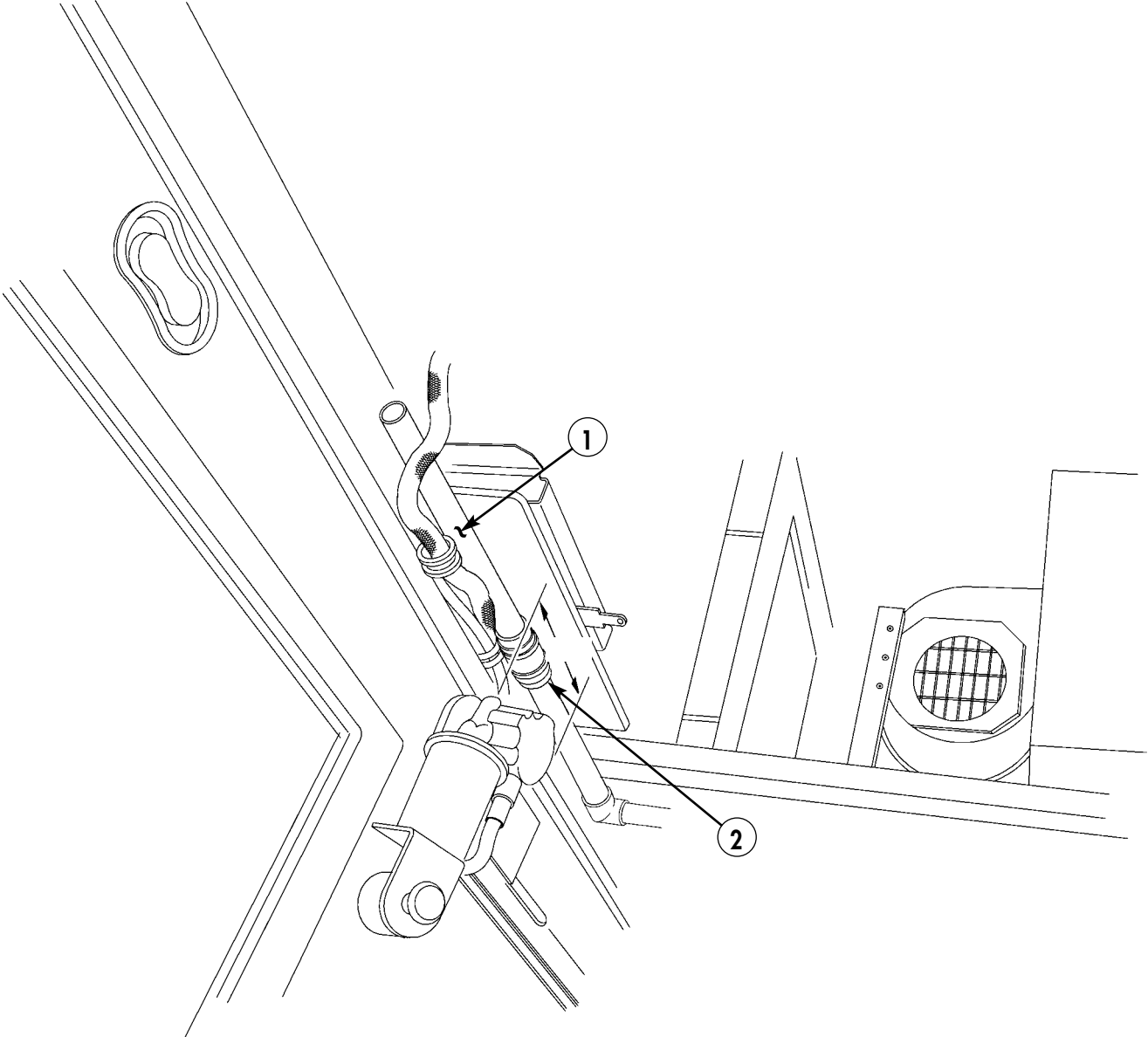


Figure 5-123.

## Section XXV. DCM ROOF MOUNTING ASSEMBLY INSTALLATION

- 25-1. Remove driver's sun visor, if applicable. (Refer to TM 9-2320-280-20-3.)
- 25-2. Remove foam insulation from mounting area on driver's ceiling (7).
- 25-3. Place DCM roof mount assembly (4) on driver's compartment ceiling (7) as far forward and to driver's left as possible. Secure with vise grips or C-clamps.
- 25-4. Mark twelve hole locations (3).
- 25-5. Remove DCM roof mount assembly (4).

### **CAUTION**

When drilling through Kevlar in NBC stowage compartment, ensure holes are drilled cleanly. Kevlar is easily shredded and destroyed when drilled.

- 25-6. Drill 0.290-inch holes in twelve marked locations (3).

### **NOTE**

- DCM roof mount assembly has a backer plate for added roof strength. DCM roof mount assembly backer plate is located in driver's NBC stowage compartment.
- Ensure DCM mount backer plate (2) can be aligned over previously drilled holes (3). If DCM mount backer plate (2) doesn't lay flat on ceiling (7), remove obstruction.

- 25-7. Position DCM roof mount assembly (4) on driver's ceiling (7). Install DCM roof mount assembly (4) and backer plate (2) with twelve bolts (5), twenty-four washers (6) and twelve nuts (1).
- 25-8. Loosen four large hand knobs (8) on DCM roof mount assembly (4).
- 25-9. Insert DCM mount assembly (9) into roof mount assembly (4). Tighten four large hand knobs (8).

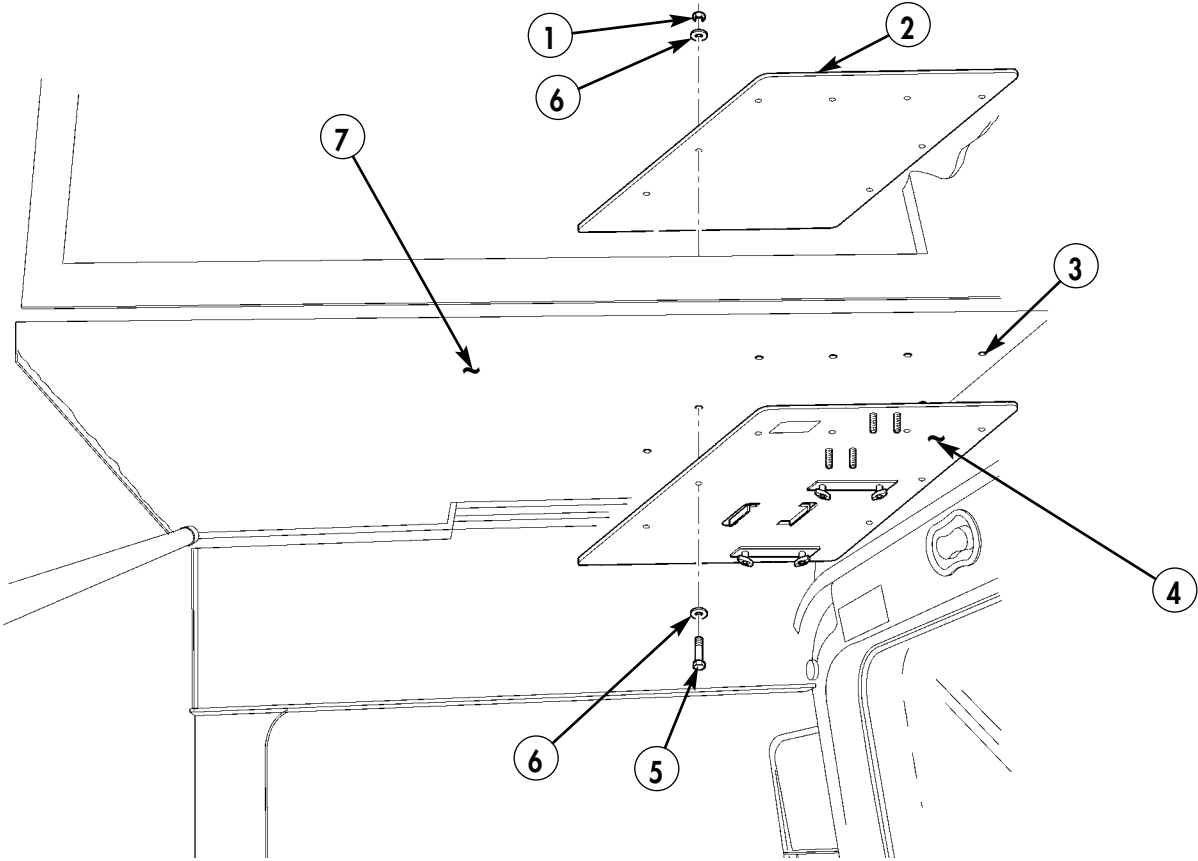


Figure 5-124.

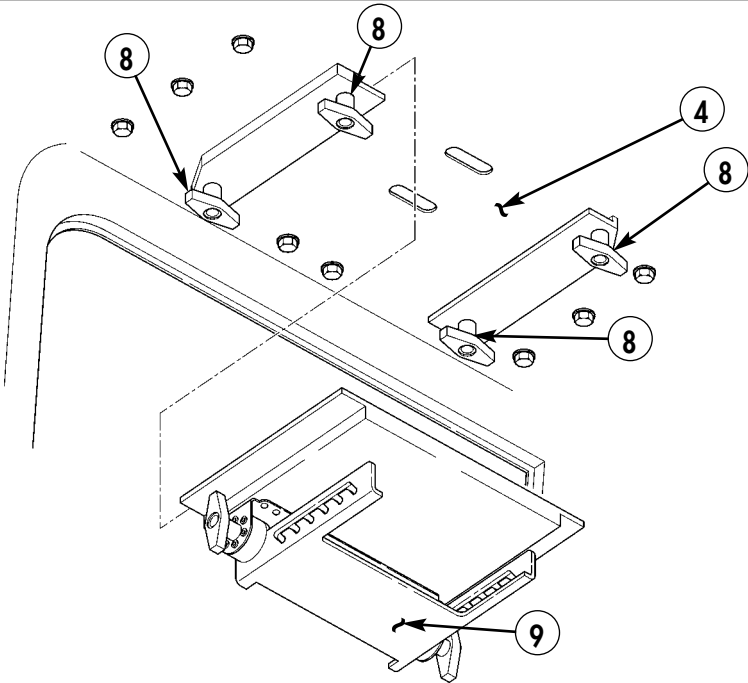


Figure 5-125.

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

### **NOTE**

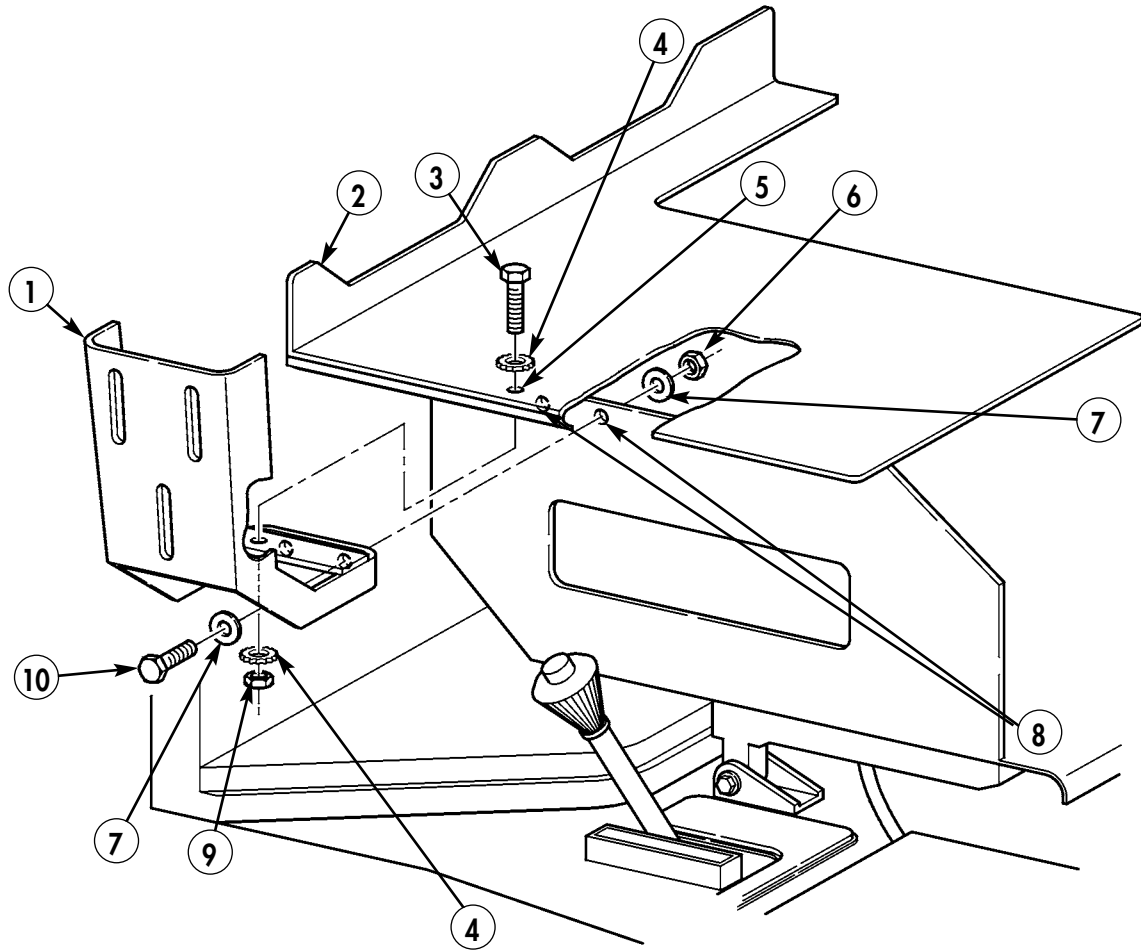
SINCGARS mount and amp guard share existing mounting hardware with PTM control mounting bracket.

- 26-1.** Remove SINCGARS mount and amp guard if necessary. (Refer to section VIII.)
- 26-2.** Using existing hole (5) and PTM control mounting bracket (1) as template, locate, mark, and drill two 0.281-inch holes (8) on integrated rack (2).

### **NOTE**

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

- 26-3.** Install SINCGARS mount and amp guard if removed. (Refer to section VIII.)
- 26-4.** Install PTM control mounting bracket (1) on integrated rack (2) with two screws (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. SCREW - B1821BH025C100N - QTY. 2

Figure 5-126.

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

- 27-1. Locate, mark, and drill 1.375-in. hole (1) for control cable seal assembly (2) on tunnel (3).
- 27-2. Position control cable seal assembly (2) and mark two hole locations (5).
- 27-3. Drill two 0.391-in. holes in marked locations (5).
- 27-4. Insert two rivet nuts (4) into tunnel (3).
- 27-5. 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.
- 27-6. For vehicles equipped with FBCB2, route PTM control cable assembly (8) through PTM control mounting bracket (7).

**NOTE**

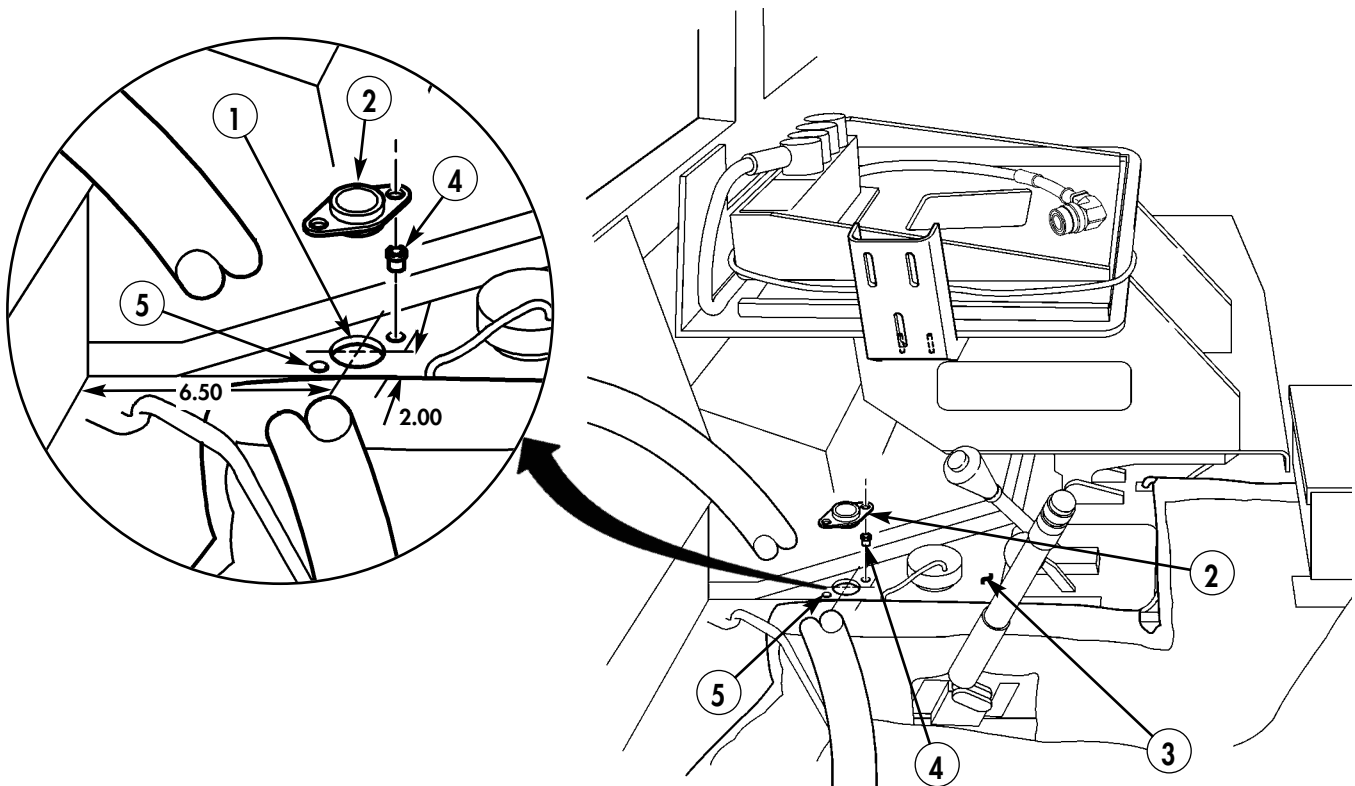
It may be necessary to remove azimuth lock cable adjusting nut to route cabling.

- 27-7. 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.

- 27-8. Cut sides of four holes on grommet of control cable seal assembly (2).
- 27-9. Insert three cables (6), (8), and (9) from PTM control mounting bracket (7) into tunnel hole (1).
- 27-10. 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 5-127.

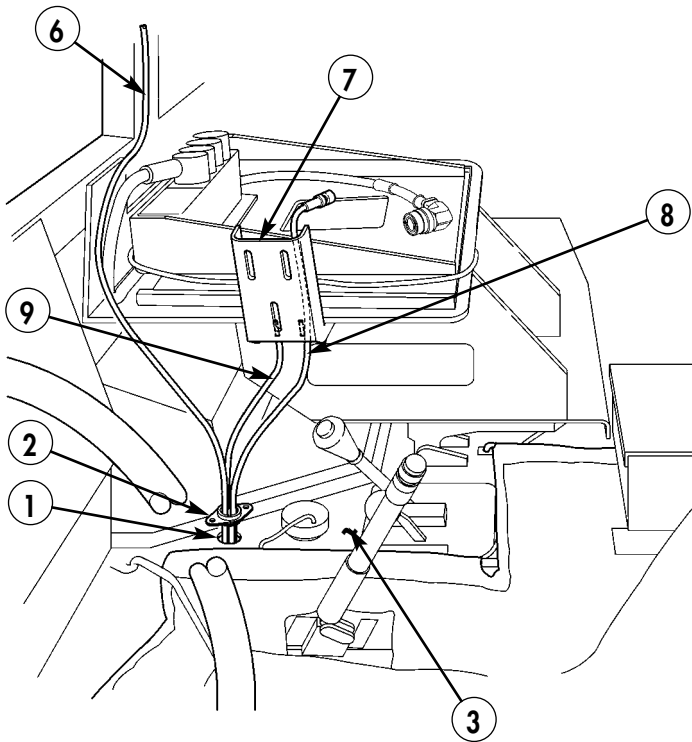


Figure 5-128.

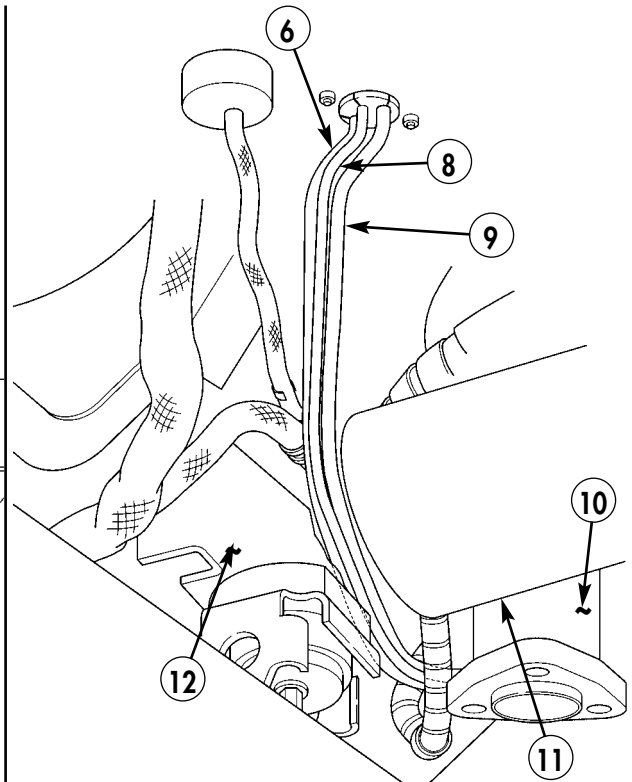
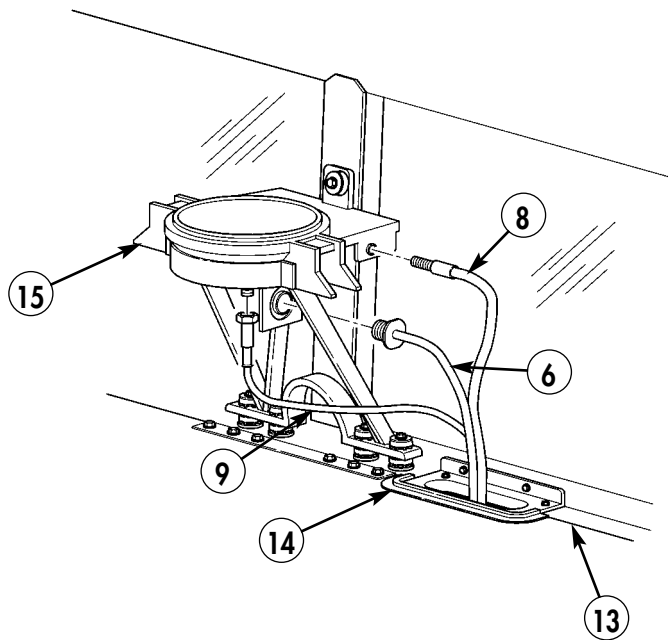


Figure 5-129.



- 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 5-130.

**CAUTION**

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

- 27-11.** 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.

- 27-12.** 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.

- 27-13.** 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.

- 27-14.** Insert azimuth control cable (8) into side of PTM mount assembly (15).  
**27-15.** Install azimuth control cable rubber boot (19) on azimuth control cable (8).  
**27-16.** 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).  
**27-17.** Tighten azimuth control cable locking nut (20).  
**27-18.** Position azimuth sector gear assembly (25) onto PTM mount assembly (15).  
**36-19.** Insert azimuth control cable (8) into PTM mount assembly cable lock (37).

**NOTE**

PTM control assembly must be in the center position.

- 27-20.** 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 27-15 through 27-19, adjusting the azimuth sector gear assembly (25) position on the azimuth control cable (8) until alignment is achieved.  
**27-21.** Secure azimuth sector gear assembly (25) to PTM mount assembly (15) with bolt (27) and washer (26).  
**27-22.** Insert azimuth lock cable (9) through hole (29) into PTM mount assembly (15).  
**27-23.** Install azimuth lock cable rubber boot (23) on azimuth lock cable (9).  
**27-24.** 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.  
**27-25.** Ensure azimuth control cable (8), azimuth lock cable (9), and rubber boots (19) and (23) are installed correctly.



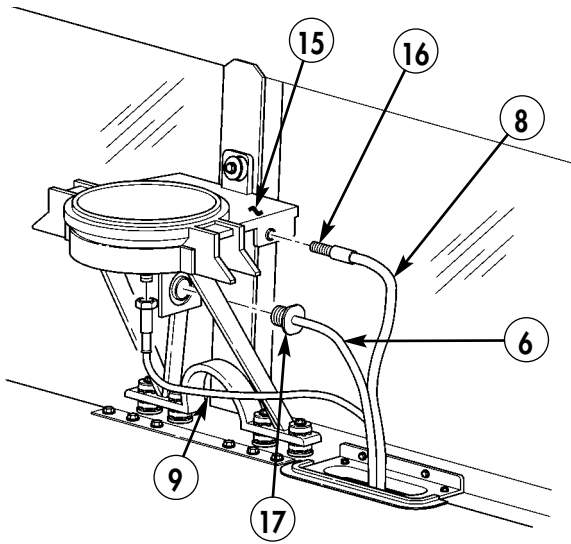


Figure 5-131.

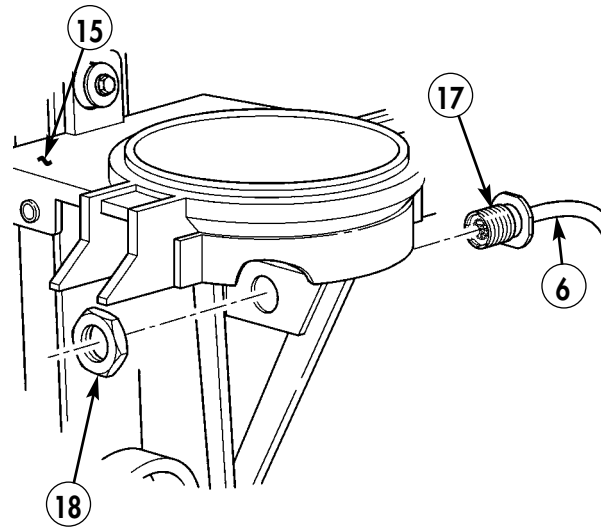
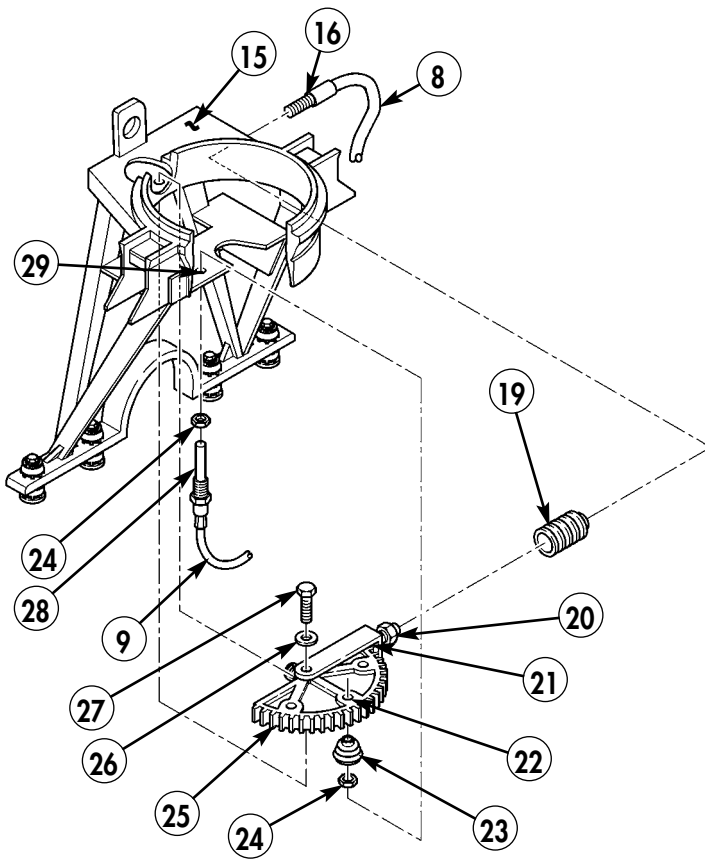


Figure 5-132.



- 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 5-133.

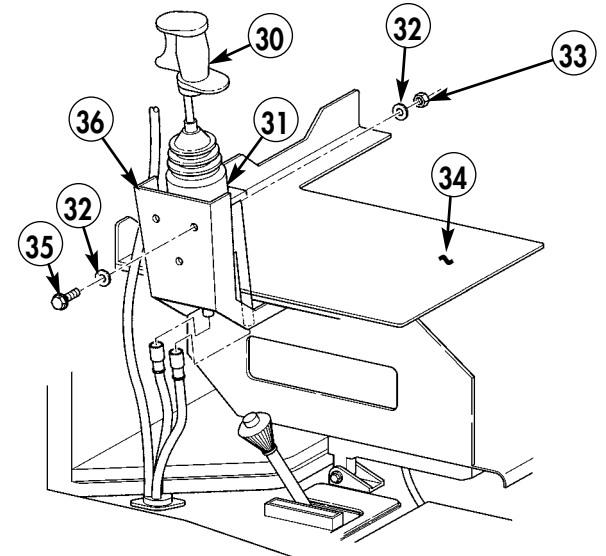


Figure 5-134.

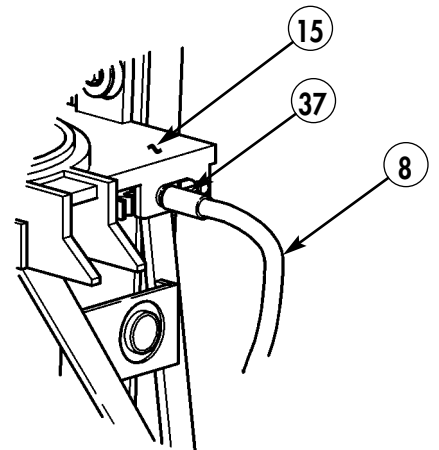
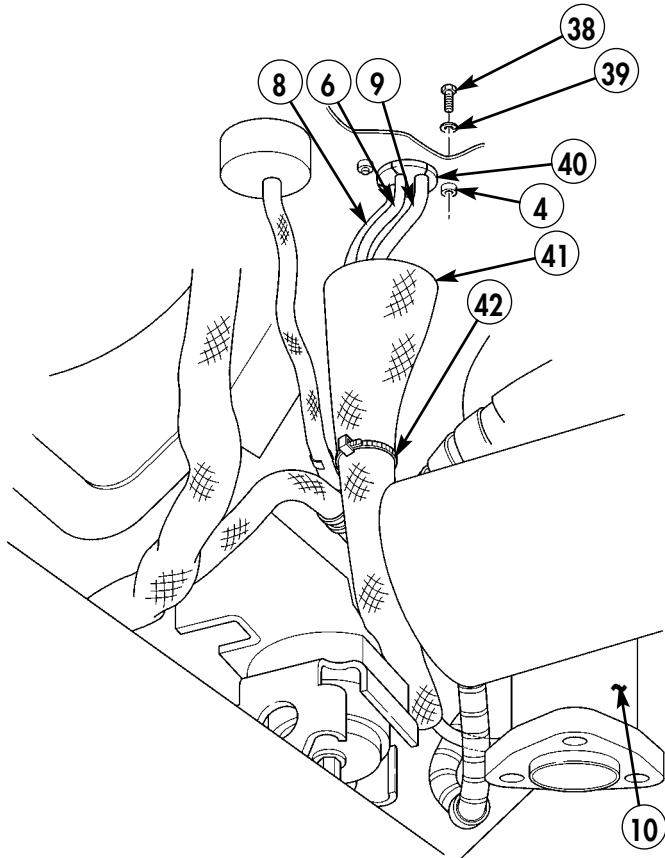


Figure 5-135.

- 27-26. 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).
- 27-27. 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).
- 27-28. 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 5-136.

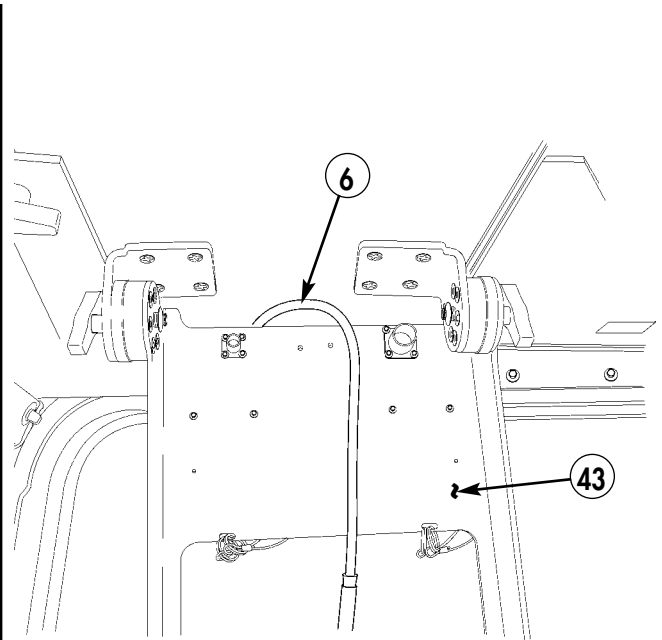


Figure 5-137.

## Section XXVIII. STOWAGE ASSEMBLY INSTALLATION

### **NOTE**

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

- 28-1. Install LCD protective assembly on DCM.

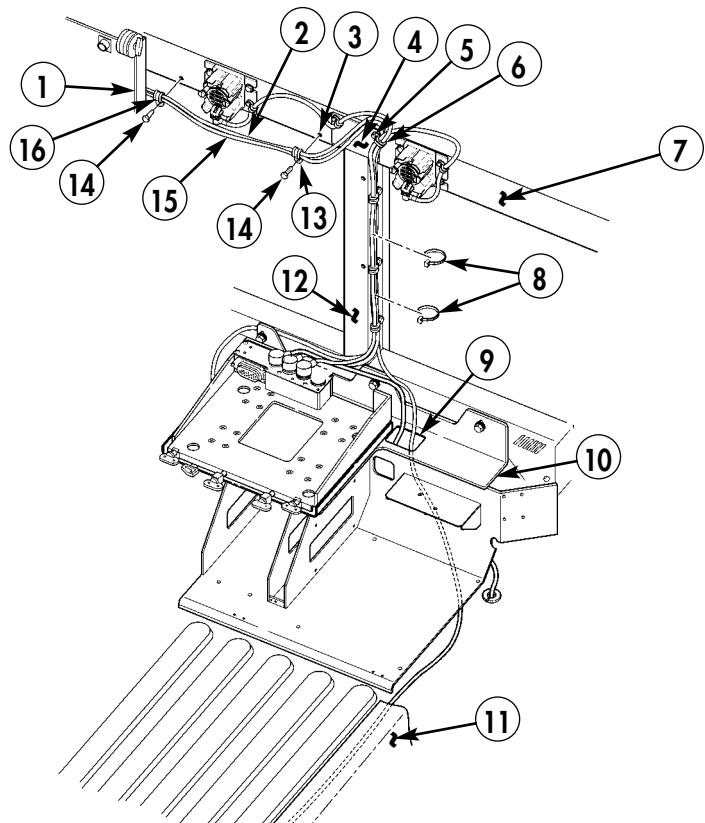
### **NOTE**

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

- 28-2. Place stowage pouch in rear seat storage.

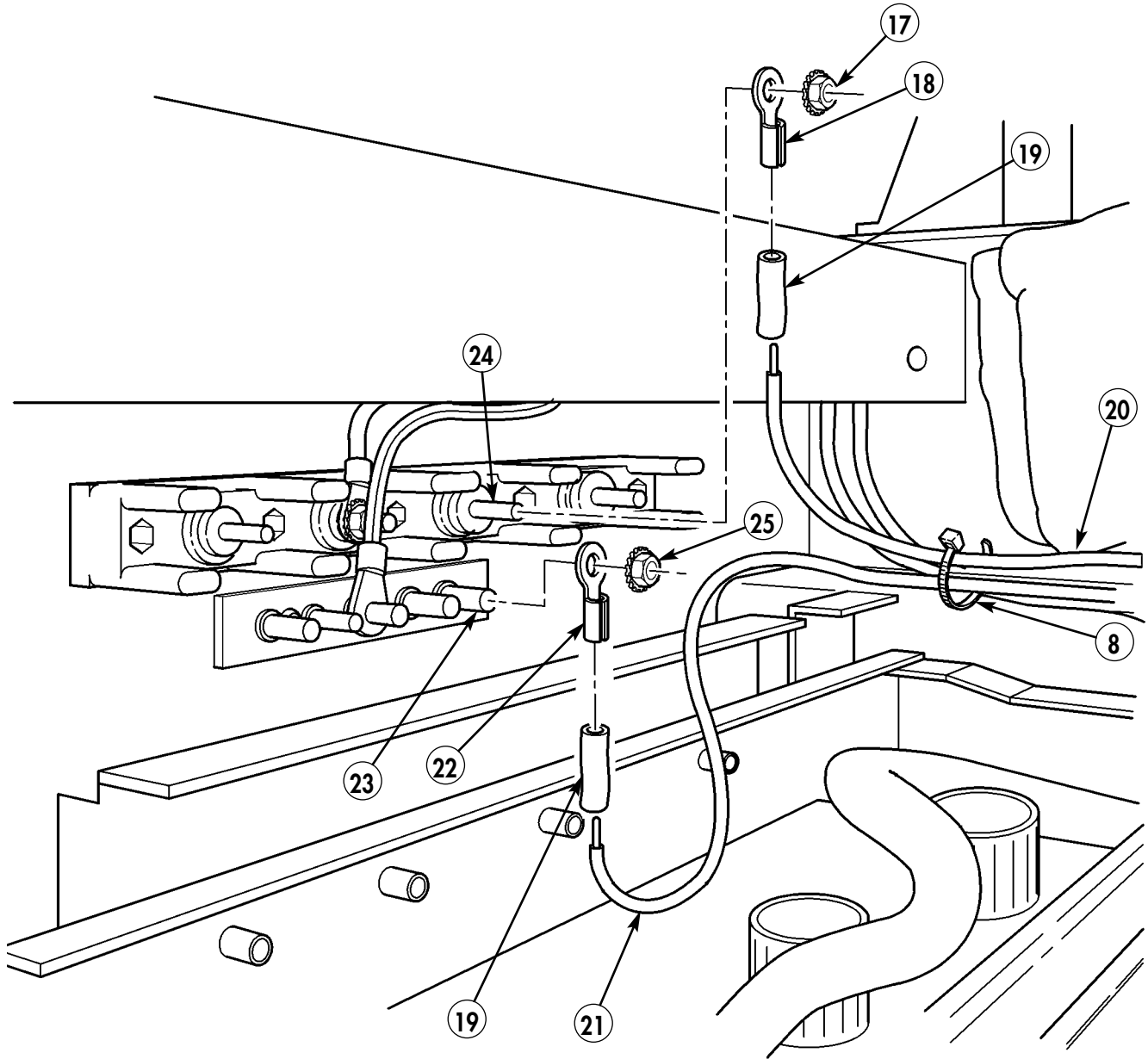
## Section XXIX. DVE POWER CABLE INSTALLATION

- 29-1.** 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.
- 29-2.** 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.)
- 29-3.** Attach DVE power cable positive lead (20) to 24V terminal board (24) with existing nut (17).
- 29-4.** Attach DVE power cable negative lead (21) to ground strap (23) with existing nut (25).
- 29-5.** Secure all leads together with tiedown strap (8).
- 29-6.** Remove two existing screws, lockwasher, and washers from DCM mount (1) and windshield frame (7).
- 29-7.** Secure two cables (2) and (15) on windshield frame (7) with clamp (16) and screw (14).
- 29-8.** Secure DCM mount (1) on windshield frame (7) with existing washers, lockwashers, and nuts.
- 29-9.** If required, locate, mark, and drill 0.147-inch diameter hole (3) in windshield frame (7).
- 29-10.** Secure two cables (2) and (15) with clamp (13) and screw (14) on windshield frame (7).
- 29-11.** Remove screw (5) and clamp (6) from windshield wiper bracket (4).
- 29-12.** Secure two cables (2) and (15) with clamp (6) and existing screw (5).
- 29-13.** Secure two cables (2) and (15) to existing cables with tiedown straps (8).
- 29-14.** Install right side tunnel insulation. (Refer to TM 9-2320-280-20-3.)
- 29-15.** Install batteries. (Refer to TM 9-2320-280-20-2.)



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

Figure 5-138.



- 8. TIEDOWN STRAP - MS21333-1-0 - QTY. A/R
- 18. TERMINAL LUG - MS25036-150 - QTY. 1
- 19. SHRINK TUBING - MS23053/4-302-0 - QTY. A/R
- 22. TERMINAL LUG - MS25036-108 - QTY.1

Figure 5-139.



By Order of the Secretary of the Army:

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

Official:



SANDRA R. RILEY  
*Administrative Assistant to the*  
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<b>RECOMMENDED CHANGES TO PUBLICATIONS AND BLANK FORMS</b> 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: <p style="text-align: center;"><b>5 Dec. 2005</b></p>
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TO: <i>(Forward to proponent of publication or form) (include ZIP code)</i> <b>AMSTA-LC-LMIT/Tech Pubs, TACOM-RI</b> 1 Rock Island Arsenal Rock Island, IL 61299-7630	FROM: <i>(Activity and location) (include ZIP code)</i> <p style="text-align: center;"><b>Co. B, 1st BN, 2nd Brigade</b>  <b>Ft. Hood, TX 76445</b></p>
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PART I - ALL PUBLICATIONS (EXCEPT RPSTL AND SC/SM) AND BLANK FORMS

PUBLICATION/FORM NUMBER <p style="text-align: center;"><b>TB 9-2320-280-35-5</b></p>	DATE <p style="text-align: center;"><b>17 SEP 2005</b></p>	TITLE <p style="text-align: center;"><b>TECHNICAL BULLETIN INSTALLATION INSTRUCTIONS</b></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>
1	5-30		15-7			<p><b>Attach antenna bracket to support bracket with six screws, twelve lockwashers, and six nuts.</b></p>

SAMPLE

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

TYPED NAME, GRADE, OR TITLE <p style="text-align: center;"><b>Pat Smith</b></p>	TELEPHONE EXCHANGE/AUTOVON, PLUS EXTENSION <p style="text-align: center;"><b>AV272-4162</b></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-LMIT/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 9-2320-280-35-5	DATE 17 SEP 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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<b>TO:</b> <i>(Forward direct to addressee listed in publication)</i> AMSTA-LC-LMIT/Tech Pubs, TACOM-RI 1 Rock Island Arsenal Rock Island, IL 61299-7630	<b>FROM:</b> <i>(Activity and location) (include ZIP code)</i>	<b>DATE:</b>
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PART II - REPAIR PARTS AND SPECIAL TOOLS LISTS AND SUPPLY CATALOGS/SUPPLY MANUALS

<b>PUBLICATION/FORM NUMBER</b> TB 9-2320-280-35-5	<b>DATE</b> 17 SEP 2005	<b>TITLE</b> 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

**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.)*

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<b>TYPED NAME, GRADE, OR TITLE</b>	<b>TELEPHONE EXCHANGE/AUTOVON, PLUS EXTENSION</b>	<b>SIGNATURE</b>



<b>TO:</b> <i>(Forward direct to addressee listed in publication)</i> AMSTA-LC-LMIT/Tech Pubs, TACOM-RI 1 Rock Island Arsenal Rock Island, IL 61299-7630	<b>FROM:</b> <i>(Activity and location) (include ZIP code)</i>	<b>DATE:</b>
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PART II - REPAIR PARTS AND SPECIAL TOOLS LISTS AND SUPPLY CATALOGS/SUPPLY MANUALS

<b>PUBLICATION/FORM NUMBER</b> TB 9-2320-280-35-5	<b>DATE</b> 17 SEP 2005	<b>TITLE</b> 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

**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.)*

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<b>TYPED NAME, GRADE, OR TITLE</b>	<b>TELEPHONE EXCHANGE/AUTOVON, PLUS EXTENSION</b>	<b>SIGNATURE</b>



