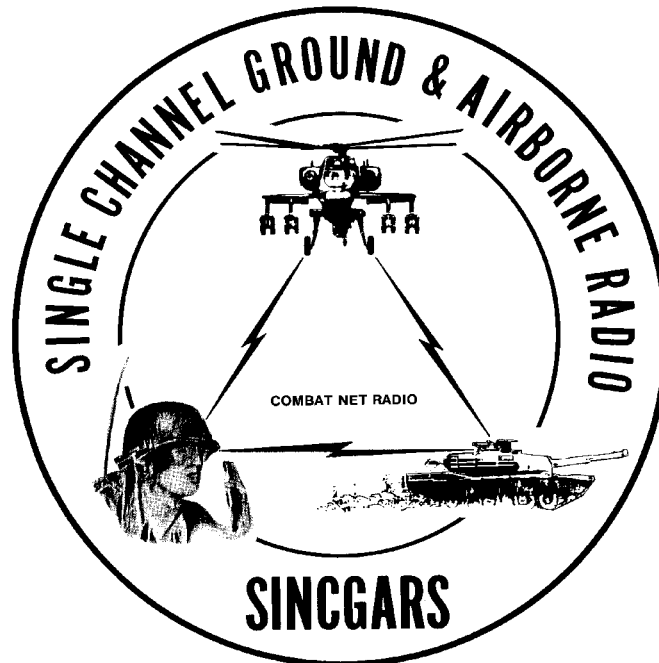


TECHNICAL BULLETIN



**INSTALLATION INSTRUCTIONS FOR
INSTALLATION KIT,
ELECTRONIC EQUIPMENT MK-2378/VRC
(NSN 5895-01-225-0518) (EIC: N/A)
TO PERMIT INSTALLATION OF RADIO SET
AN/VRC-87/88/90 SERIES
IN
M923, M924, M925, M926, M927, M928, M931,
M932, M933 AND M936 TRUCK, 5-TON**

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TB 11-5820-890-20-71

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REPORTING OF ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this manual. If you find any mistakes or if you know of a way to improve the procedures, please let us know. Mail your letter or DA Form 2028 (Recommended Changes to Publications and Blank Forms) direct to: Commander, US Army Communications-Electronics Command Fort Monmouth, ATTN: AMSEL-LC-LEO-D-CS-CFO, Fort Monmouth, NJ 07703-5006. The Fax number is 732-532-1413, DSN 992-1413. You may also e-mail your recommendation to: AMSEL-LC-LEO-PUBS-CHG@cecom3.monmouth.army.mil

In either case, a reply will be furnished direct to you.

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0. GENERAL INFORMATION.

0.1 SCOPE.

This technical bulletin (TB) provides installation instructions for Installation Kit, Electronic Equipment MK-2378/VRC, commonly referred to as the Mounting Kit (MK). This MK shall be installed into the following type of vehicle(s):

- M923, M924, M925, M926, M927, M928, M931, M932, M933 and M936 Truck, 5-Ton

The MK is used for installation of radio set components at field locations. The information contained in this technical bulletin is the official authorization to perform the installation at the unit maintenance level.

NOTE

This TB is not an authorization for requisition or turn-in of vehicles. This TB does not establish quantity or types of vehicles assigned to units.

0.2 CONSOLIDATED INDEX OF ARMY PUBLICATIONS AND BLANK FORMS.

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

0.3 MAINTENANCE FORMS, RECORDS, AND REPORTS.

0.3.1 Reports of Maintenance and Unsatisfactory Equipment. Department of the Army forms and procedures used for equipment maintenance will be those prescribed by DA Pam 738-750, as contained in Maintenance Management Update. Air Force personnel will use AFR 66-1 for maintenance reporting and TO-00-35D54 for unsatisfactory equipment reporting. Navy personnel will report maintenance performed utilizing the Maintenance Data Collection Subsystem (MDCS) IAW OPNAVINST 4790.2, Vol 3 and unsatisfactory material/conditions (UR) IAW OPNAVINST 4790.2, Vol 2, chapter 17. Marine Corps maintains forms and procedures as prescribed by TM 4700-15/1.

0.3.2 Reporting of Item and Packaging Discrepancies. Fill out and forward SF 364 (Supply Discrepancy Report (SDR)) as prescribed in AR 735-11-2/DLAR 4140.55/SECNAVINST 4355.18/AFR 400-54/MCO 4430.3J.

0.3.3 Transportation Discrepancy Report (TDR) (SF 361). Fill out and forward Transportation Discrepancy Report (TDR) (SF 361) as prescribed in AR 55-38/NAVSUPINST 4610.33C/AFR 75-18/MCO P4610.19D/DLAR 4500.15.

0.4 DESTRUCTION OF ARMY ELECTRONICS MATERIEL.

Destruction of Army electronics materiel to prevent enemy use shall be in accordance with TM 750-244-2.

0.5 REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIR).

0.5.1 Army. If your equipment needs improvement, let us know. Send us an EIR. You, the user, are the only one who can tell us what you don't like about your equipment. Let us know why you don't like the design or performance. Put it on an SF 368 (Product Quality Deficiency Report). Mail it to: Commander, US Army Communications-Electronics Command and Fort Monmouth, ATTN: AMSEL-LC-LEO-D-CS-CFO, Fort Monmouth, New Jersey 07703-5006. We'll send you a reply.

0.5.2 Air Force. Air Force personnel are encouraged to submit EIR's in accordance with AFR 900-4.

0.5.3 Navy. Navy personnel are encouraged to submit EIR's through their local Beneficial Suggestion Program.

0.5.4 Marine Corps. QDR shall be reported on SF 368 in accordance with MCO P4855.10, Product Quality Deficiency Report Manual. Submit to Commanding General, Marine Corps Logistics Base (Code 850), Albany, Georgia 31704-5000.

1. PURPOSE OF INSTALLATION.

Installation Kit, Electronic Equipment MK-2378/VRC, commonly referred to as the Mounting Kit (MK), prepares a 5-Ton truck for the installation of SINCGARS Radio Sets AN/VRC-87/88/90.

2. END ITEM OR SYSTEM TO BE MODIFIED.

Installation Kit, Electronic Equipment MK-2378/VRC can be installed in M923, M924, M925, M926, M927, M928, M931, M932, M933, and M936 5-Ton Trucks.

3. APPLICATION TIMES.

3.1 Time for Completion of Installation. Using two people, a total of 2.0 work-hours is required. Typical vehicle downtime is 2.5 hours.

3.2 Time for Installation of One Assembly or Component. Table 3-1 lists the time required to install one component. All times have been rounded off to the nearest half hour. The sum of these items will not reflect the typical vehicle downtime.

Table 3-1. Installation Times		
ITEM	SECTION	TIME
Antenna AS-3900/VRC	5.1	0.5
Mounting Base, Electrical Equipment MT-6352/VRC	5.3	0.5
Cables	5.5	1.0

4. PREPARATION FOR INSTALLATION.

4.1 Preparation of Work Area. Ensure that the site has adequate lighting and a power source.

4.2 Preparation of Vehicle. Inspect the vehicle for damage that could affect installation. Have any such damage repaired before installing MK. Refer to TM 9-2320-272-20 for unit maintenance for the 5-ton trucks.

4.2.1 Items to be Removed. Remove existing AN/VRC-12 radio family installation kit and harness. See TM 11-5820-401-20-1 (for radios without intercom systems) or TM 11-5820-401-20-2 (for radios with intercom systems).

4.2.2 Items to be Retained for Reuse. None.

4.3 Preparation of Installation Kit. To prepare MK, unpack, inspect and check inventory.

4.3.1 Precautions During Handling. Observe these steps to prevent equipment damage.

- Keep dust cover in place on connectors.
- Do not disassemble or modify parts in MK unless authorized to do so.
- Keep mounting hardware covered and protected until needed.
- When exposed to moisture, rain or salt water, keep all parts dry to prevent corrosion.

4.3.2 Unpack and Inspect Equipment.

4.3.2.1 Inspect Packaging for Evidence of Damage. Report discrepancies as stated in para 0.3.3.

4.3.2.2 Unpack and Inventory MK. Report discrepancies as stated in para 0.3.2.

4.3.2.3 Examine Each Item for Damage. Report discrepancies as stated in para 0.3.2.

4.4 Contents of Installation Kit

Refer to Table 4-1 and Figure 4-1 to identify and inventory MK parts.

Table 4-1. Parts List for Installation Kit, Electronic Equipment MK-2378/VRC				
NSN	ITEM DESCRIPTION AND PART NUMBER	QUANTITY IN MK	SMR CODE	FIGURE, ITEM NO.
5985-01-297-2971	Antenna, Vehicular AS-3900/VRC (A3017899-1)	1	PAOFA	4-1, 2
5305-00-847-1159	Screw, Cap, Hexagon (3/8-16 x 1-3/4 in) MS35307-365	4	PAOZZA	
5310-00-913-8881	Nut, Hexagon (3/8-16 in) MS51971-3	4	PAOZZA	4-1, 1
5310-00-061-1258	Washer, Lock, Internal/External-Toothed (3/8 in) MS45904-76	8	PAOZZA	
5310-00-889-2527	Washer, Lock, Internal/External-Toothed (5/16 in) MS45904-72	2	PAOZZA	
5306-00-225-9086	Bolt, Machine (5/16-24 x 5/8 in) MS90726-31 (Not Used)	1	PAOZZA	
5330-01-205-2864	Gasket (A3013655-1)	1	PAOZZA	
5975-01-188-8873	Mounting Base, Electrical Equipment MT-6352/VRC (A3013367-1)	1	PAOFA	
5306-00-225-9089	Bolt, Machine (5/16-24 x 1 in) MS90726-34	5	PAOZZA	
5310-00-889-2527	Washer Lock, Internal/External-Toothed (5/16 in) MS45904-72	10	PAOZZA	
5310-00-880-7746	Nut, Hexagon (5/16-24 in) MS51968-5	5	PAOZZA	
5995-01-219-7009	Cable Assembly, Power, Electrical, CX-13302/VRC (7 FT, 0 IN) (A3014039-1)	1	PAOZZA	
5995-01-225-1662	Cable Assembly, Radio Frequency, CG-3855/VRC (12 FT, 0 IN) (A3014031-12)	1	PAOZZA	4-1, 15
4020-01-341-8795	Fiber Rope Assembly, Single Leg (A3167672-1)	1	PAOZZA	4-1, 3
5965-00-876-2375	Loudspeaker, Permanent Magnet LS-454/U	1	PAOZZA	4-1, 14
5965-00-043-3463	Handset, H-250/U	1	PAOZZA	4-1, 13
	Bracket, Mounting, Antenna (A3050655-1)	1	XBOZZA	4-1, 4
	Right Support Assembly (A3186212-1)	1	XBOZZA	4-1, 5
	Left Support Assembly (A3186209-1)	1	XBOZZA	4-1, 7
	Brace, Mounting Plate (A3016189-1)	1	XBOZZA	4-1, 6
	Support Assembly (A3186210-1)	1	XBOZZA	4-1, 8
	Mounting Plate (A3186211-1)	1	XBOZZA	4-1, 9
	Bracket, Back Panel (A3186208-1)	1	XBOZZA	4-1, 10
	Support, Mounting Plate (A3186206-1)	1	XBOZZA	4-1, 11
	Brace, Antenna Mount (A3186207-1)	1	XBOZZA	4-1, 12
	Nut Strip (A3014064-1)	1	XBOZZA	4-1, 17
5306-00-225-9089	Bolt, Machine (5/16-24 x 1 in) MS90726-34	2	PAOZZA	
5340-00-809-1490	Clamp, Loop (1/4-1/4 in) MS21333-98	7	PAOZZA	
5325-00-926-1394	Grommet, Nonmetallic MS21266-3N	2	PAOZZA	

Table 4-1. Parts List for Installation Kit, Electronic Equipment MK-2378/VRC - continued				
NSN	ITEM DESCRIPTION AND PART NUMBER	QUANTITY IN MK	SMR CODE	FIGURE, ITEM NO.
5310-00-913-8881	Nut, Plain, Hexagon (3/8-16 in) MS51971-3	7	PAOZZA	
5310-00-761-8882	Nut, Plain, Hexagon (1/4-20 in) MS51967-2	7	PAOZZA	
5305-00-068-0502	Screw, Cap, Hexagon (1/4-20 x 3/4 in) MS90725-6	1	PAOZZA	
5305-00-225-3839	Screw, Cap, Hexagon (1/4-20 x 1 in) MS80725-8	6	PAOZZA	
5305-00-269-3211	Screw, Cap, Hexagon (3/8-16 x 1 in) MS90725-60	5	PAOZZA	
5305-00-269-2803	Screw, Cap, Hexagon (3/8-24 x 1 in) MS90726-60	1	PAOZZA	
5305-00-021-3740	Screw, Cap, Hexagon (3/8-16 x 1 1/2 in) MS35307-364	2	PAOZZA	
5305-00-432-4253	Screw, Tapping, Thread Forming (1/4-14 x 3/4 in) Pan-Head MS51861-67	4	PAOZZA	
5975-00-111-3208	Strap, Tiedown, Electrical Components MS3367-5-9	5	PAOZZA	
5310-00-637-9741	Washer, Lock (3/8 in) MS35338-46	2	PAOZZA	
5310-00-582-5965	Washer, Lock (1/4 in) MS35338-44	1	PAOZZA	
5310-00-061-1258	Washer, Lock, Internal/External-Toothed (3/8 in) MS45904-76	14	PAOZZA	
5310-00-067-6357	Washer, Lock, Internal/External-Toothed (1/4 in) MS45904-69	13	PAOZZA	

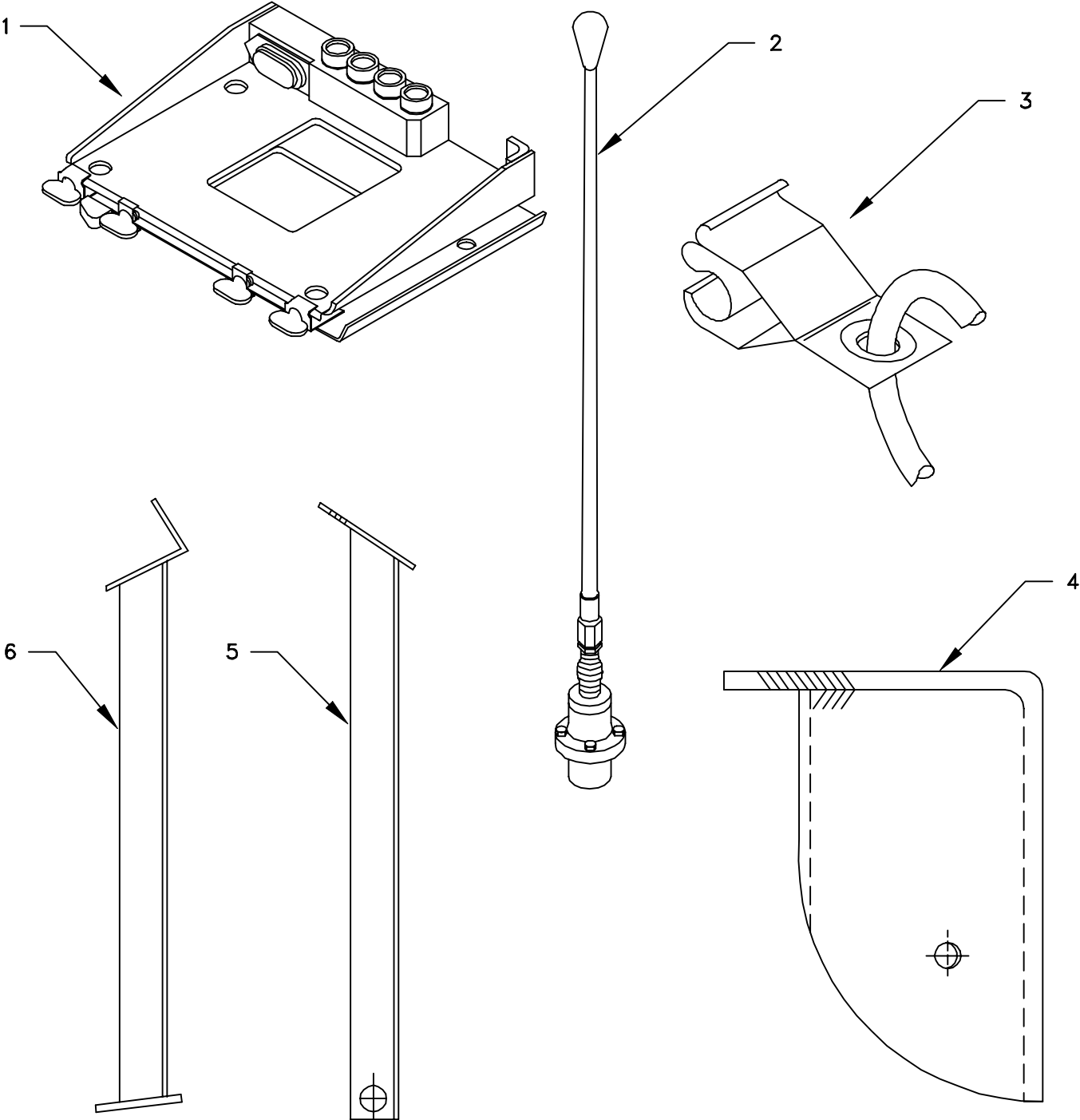


Figure 4-1 (1). MK Illustrated Parts List

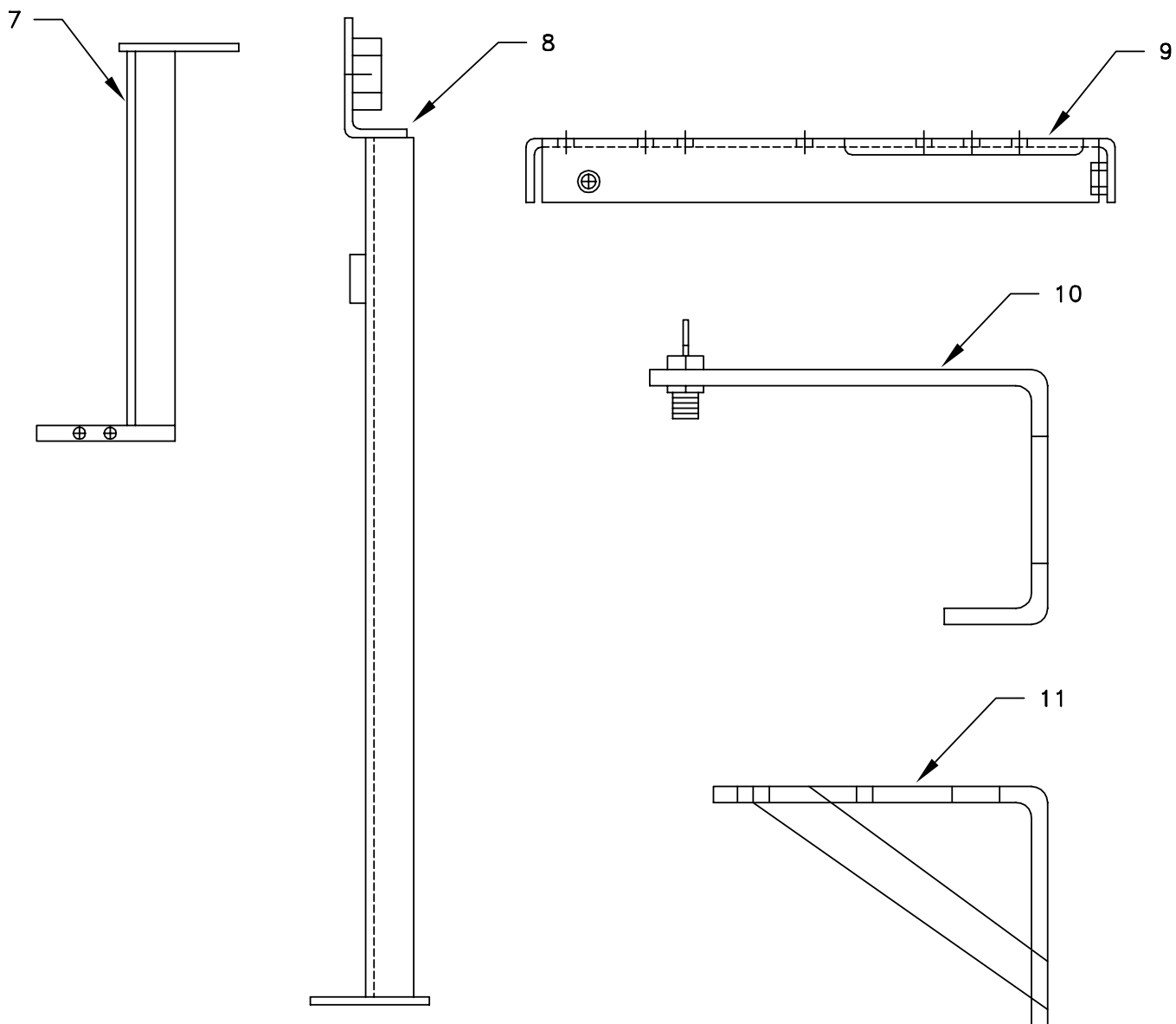


Figure 4-1 (2). MK Illustrated Parts List

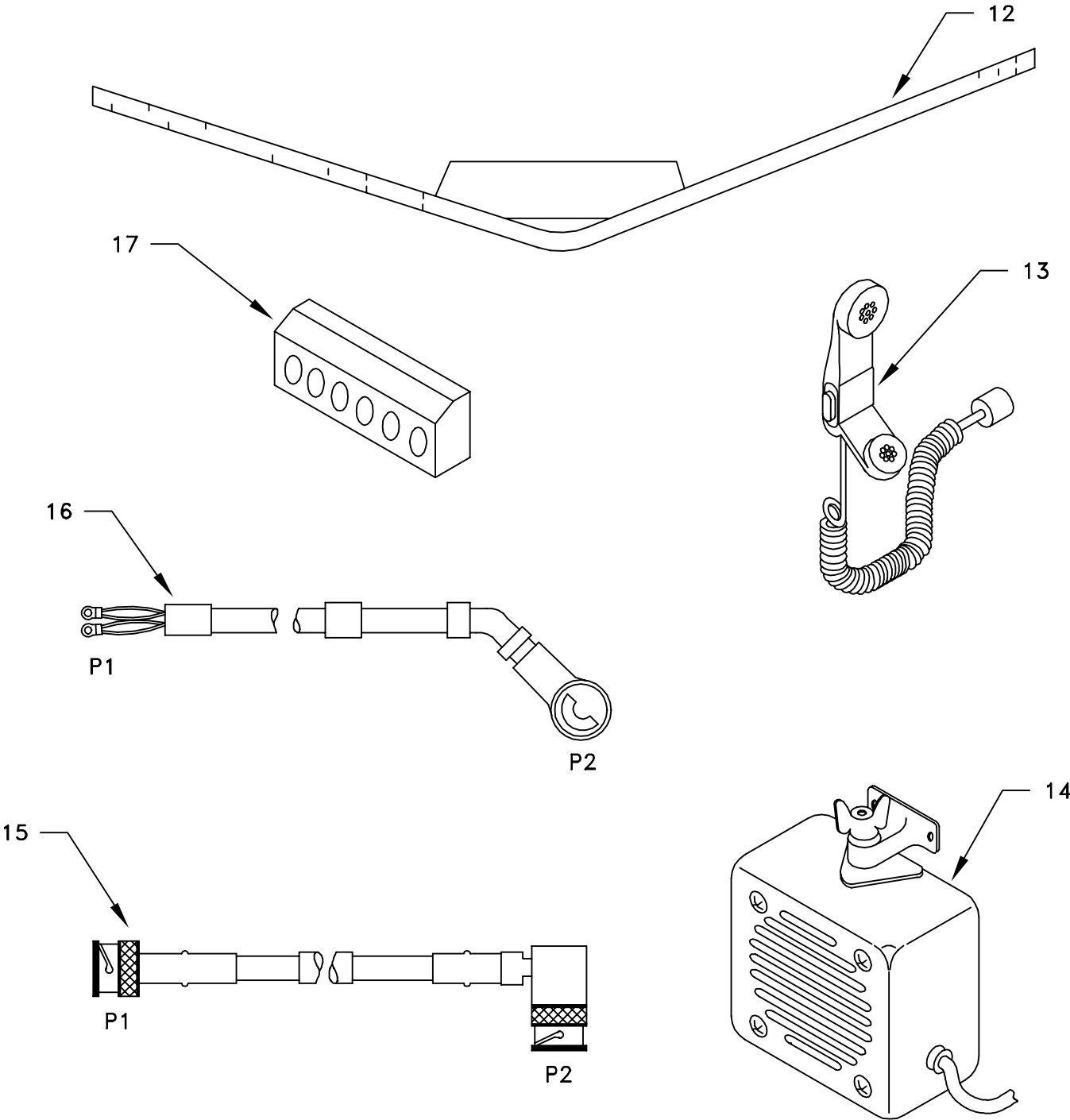


Figure 4-1 (3). MK Illustrated Parts List

4.5 Additional Items Required.

Refer to Table 4-2 and Figure 4-2 to identify additional items required to install speaker for “D” and “F” Series Radio Sets.

Table 4-2. Additional Items Required for Installation of Speaker for “D” and “F” Series Radio Sets				
NSN	ITEM DESCRIPTION AND PART NUMBER	QUANTITY IN MK	SMR CODE	FIGURE, ITEM NO.
5965-01-222-1420	Loudspeaker, Control-Unit LS-671/VRC (A3014065-1)	1	PAOZZA	4-2, 1
5995-01-219-4703	Cable Assembly, Special Purpose, Electrical CX-13292/VRC (6 FT, 0 IN) (A3014038-3)	1	PAOZZA	4-2, 2
	Plate, Mounting, (A3054550-1)	1	XBOZZA	4-2, 3

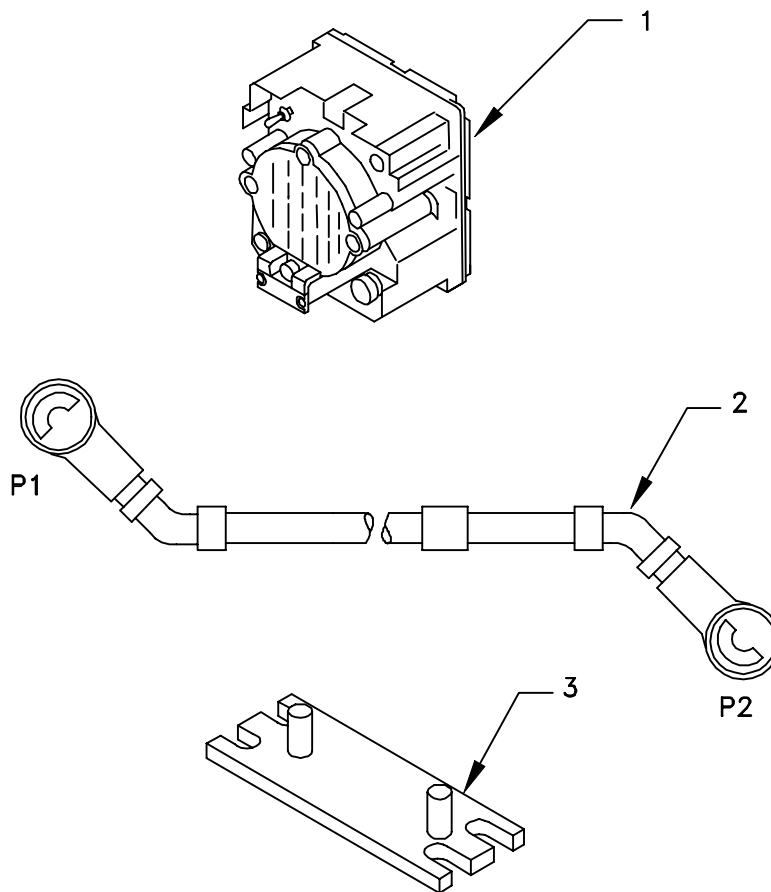


Figure 4-2. Additional Items Required for Installation of Speaker for “D” and “F” Series Radio Sets

4.6 Consumable Items Required.

Table 4-3 lists materials required for installation but not supplied with the MK.

Table 4.3. Consumable Materials Required	
NSN	NOMENCLATURE
	Adhesive-Sealant, Clear, RTV
6850-00-880-7616	Silicone Compound, MIL-S-8660
8030-00-292-1102	Conductive Anti-Seize Compound

4.7 Tools and Test, Measurement, and Diagnostic Equipment (TMDE) Required.

The following tools are needed for installation.

Table 4.4. Tools and Test, Measurement, and Diagnostic Equipment (TMDE) Required		
NOMENCLATURE	NSN	QUANTITY
Radio Set*		1
Electric Grinder (or equivalent)	N/A	1
Pocket Knife, Electrician's	5110-00-240-5943	1
Screwdriver, No. 2 Point Phillips, 4 in	5120-00-234-8913	1
Screwdriver, 1/4 in Flat blade, 4 in	5120-00-222-8852	1
Pliers, Round Nose	5120-00-240-6172	1
Pliers, Diagonal Cutting	5110-00-965-0974	1
Wrench, Open/Box:		
7/16 in	5120-00-228-9505	1
1/2 in	5120-00-228-9506	1
9/16 in	5120-00-228-9507	1
Handle, Socket Wrench:		
Socket		
7/16 in	5120-00-240-5364	1
1/2 in	5120-00-227-6703	1
9/16 in	5120-00-237-0977	1
9/16 in	5120-00-227-6704	1
Electric Drill		
Drill Bit		
5/8 in	5130-00-889-8994	1
3/4 in	5133-00-266-9466	1
3/4 in	5133-00-266-9471	1
13/32 in	5133-00-227-9668	1
5/16 in	5133-00-227-9662	1
1/4 in	5133-00-227-9658	1

* Use radio issued with your vehicle if available.

5. INSTALLATION PROCEDURES.

This section describes where and how to install MK items in the vehicle. See Figure 5-1 for an overall view of where vehicular and MK equipment, as well as radio components, typically will be installed. When installing MK equipment, be sure to read and follow instructions and illustrations carefully.

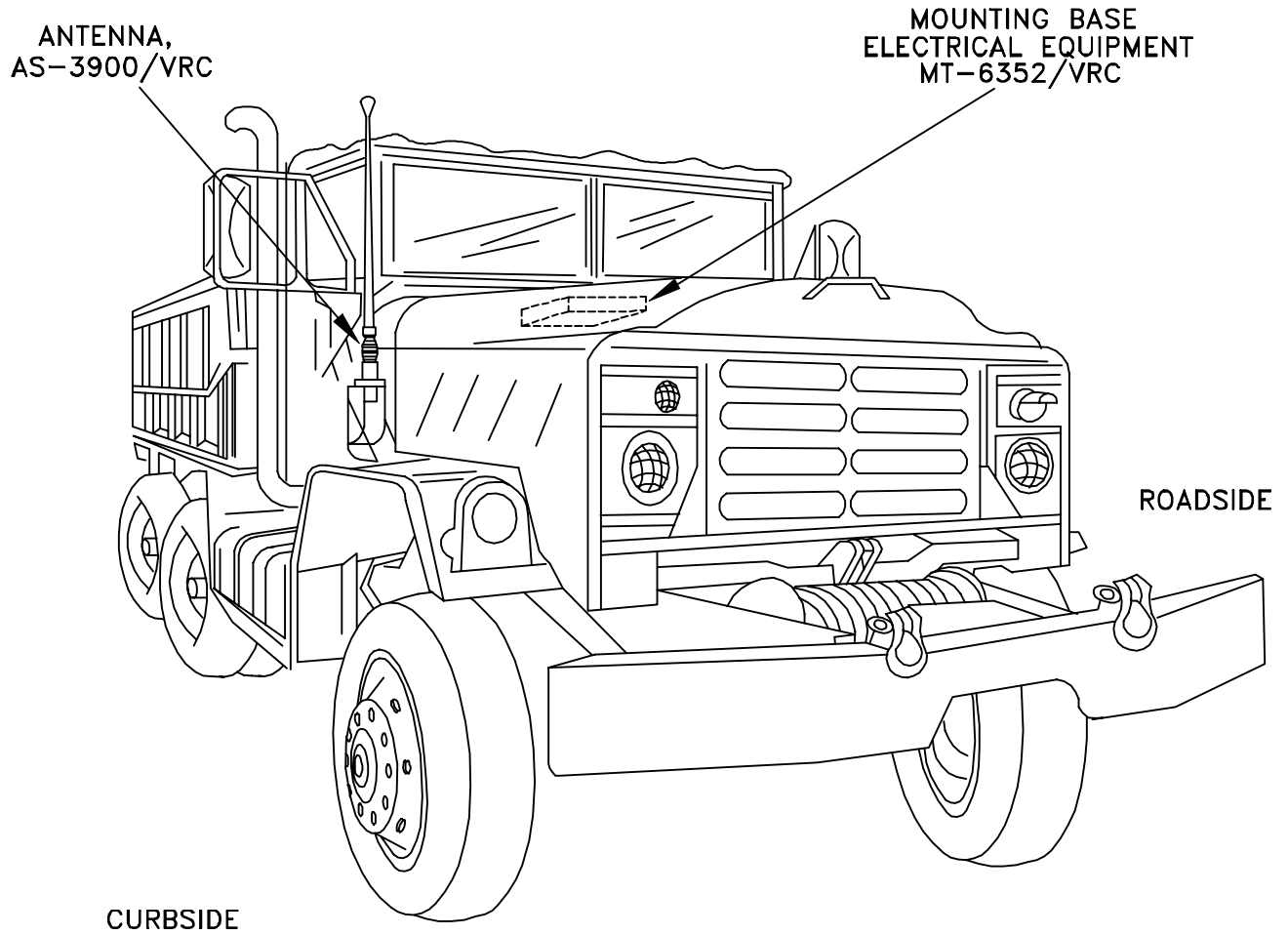


Figure 5-1 (1). MK and Radio Installation: MK Equipment Locations

5. INSTALLATION PROCEDURES - continued

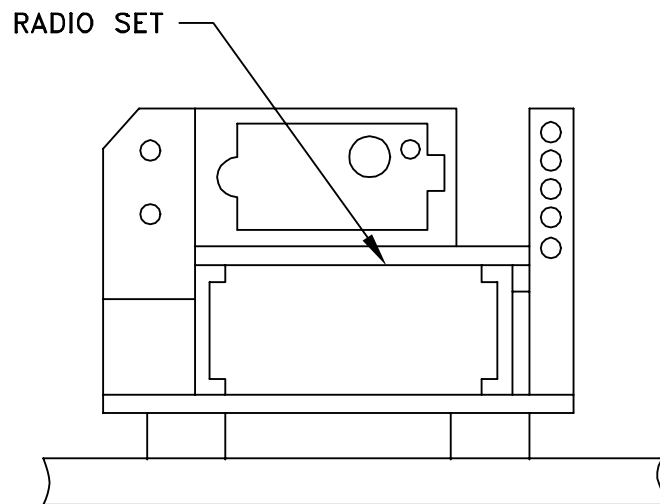


Figure 5-1 (2). MK and Radio Installation: Radio Equipment Location

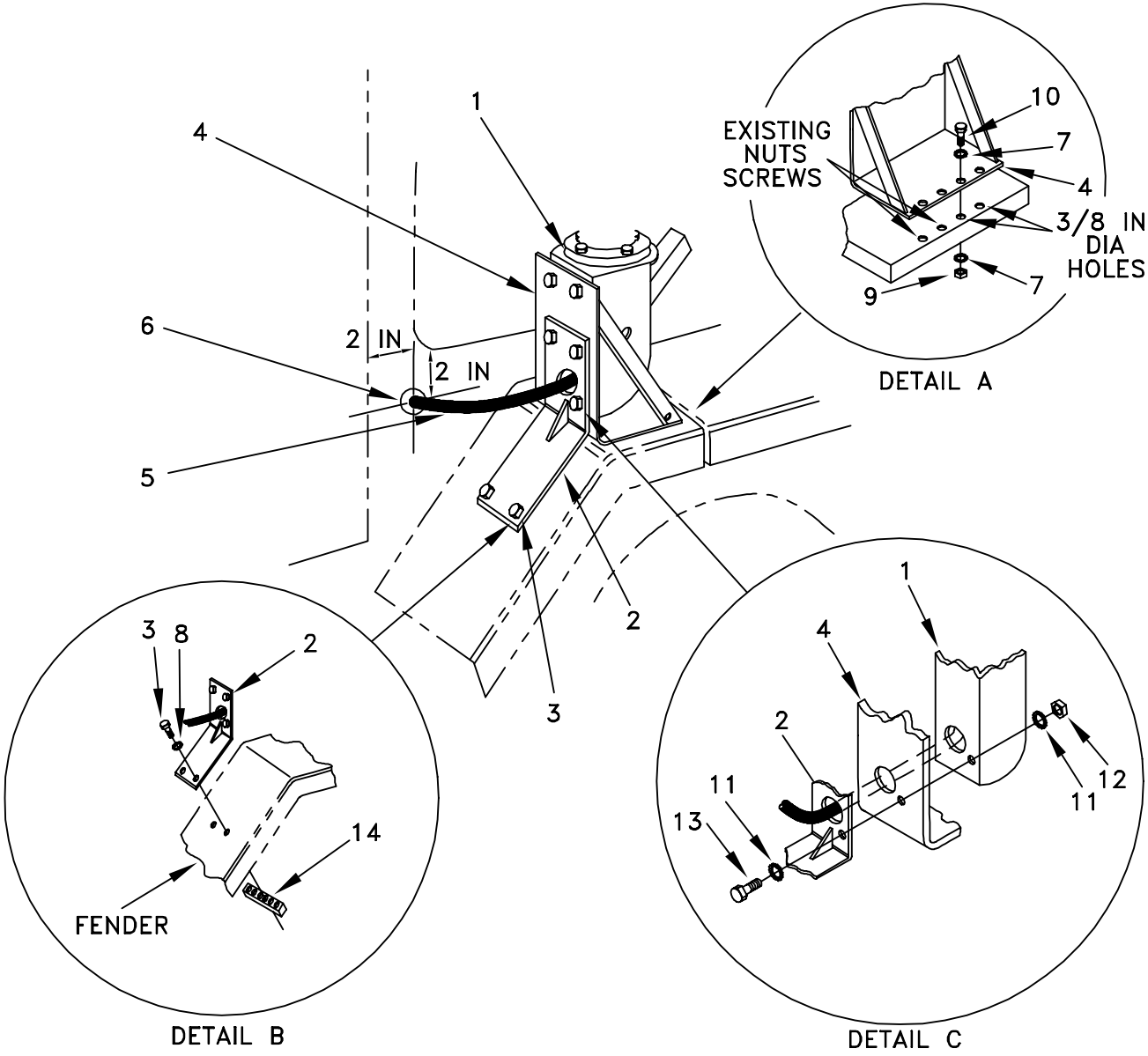
5.1 Installation of Antenna, Vehicular, AS-3900/VRC (antenna).

5.1.1 Installation of Antenna Mounting Bracket. Use the following procedures to install the antenna mounting bracket. See Figure 5-1 (1) for location.

5.1.1 Installation of Antenna Mounting Bracket - continued

ITEM	ACTION	REMARKS
NOTE		
Apply a thin coat of adhesive-sealant to both sides of each internal/external -toothed (IET) washer during installation and to the area of contact where IET washer is to be placed.		
a. Mounting holes for support mounting plate (4).	Remove the existing hardware and using support mounting plate (4) as a template, drill two 3/8 in diameter holes in curbside fender. See Figure 5-2 (1), Detail A. Remove a 1" diameter area of paint around both sides of the two drilled holes and two existing holes. Clean the paint removed areas and apply a thin coat of conductive anti-seize compound.	Tools: Electric drill and 3/8 in drill bit. Electric grinder or equivalent.
b. Support mounting plate (4).	Remove a 1" diameter area of paint around all holes on both sides of support mounting plate (4). Clean the paint removed areas and apply a thin coat of conductive anti-seize compound.	Tools: Electric grinder or equivalent.
c. Support mounting plate (4).	Install to curbside fender using existing hardware (bolts and nuts), eight IET washers (7), two cap screws (10) and two nuts (9).	Tools: 9/16 in socket and 9/16 in open/box wrench.
d. Brace, antenna mount (2).	Using brace, antenna mount (2) as a template, drill two 3/8 in diameter holes in curbside fender. See Figure 5-2 (1) for location(s). Remove a 1" diameter area of paint around both sides of the drilled holes. Clean the paint removed areas and apply a thin coat of conductive anti-seize compound.	Tools: Electric drill and 3/8 in drill bit. Electric grinder or equivalent.
e. Brace, antenna mount (2).	Remove a 1" diameter area of paint around all holes on both sides of brace, antenna mount (2). Clean the paint removed areas and apply a thin coat of conductive anti-seize compound.	Tools: Electric grinder or equivalent.
f. Two cap screws (3), two IET washers (8) and nut strip (14).	Install and secure brace, antenna mount (2) to curbside fender. See Figure 5-2 (1), Detail B.	Tools: 1/2 in socket.
g. Antenna mounting bracket (1).	Remove a 1" diameter area of paint around the six holes on both sides of antenna mounting bracket (1).. Clean the paint removed areas and apply a thin coat of conductive anti-seize compound.	Tools: Electric grinder or equivalent.
h. Five cap screws (13), ten IET washers (11) and five nuts.	Install and secure brace, antenna mount (2), support mounting plate (4), and antenna mounting bracket (1). Leave the right center screw off at this time as it will be used later to install the antenna base ground strap. See Figure 5-2 (1) and Detail C.	Tools: 7/16 in socket and 7/16 in open/box wrench.
i. Hole for RF cable (5).	Drill a 5/8 in diameter hole through outer and inner wall of vehicle. See Figure 5-2 (1) for location.	Tools: Electric drill and 5/8 in drill bit.

5.1.1 Installation of Antenna Mounting Bracket - continued



- 1. ANTENNA MOUNTING BRACKET
- 2. BRACE, ANTENNA MOUNT
- 3. CAP SCREW (5/16-24 x 1 IN)
- 4. SUPPORT MOUNTING PLATE
- 5. RF CABLE, CG-3855/VRC (12 FT, 0 IN)
- 6. GROMMET, NONMETALLIC
- 7. IET WASHER (3/8 IN)

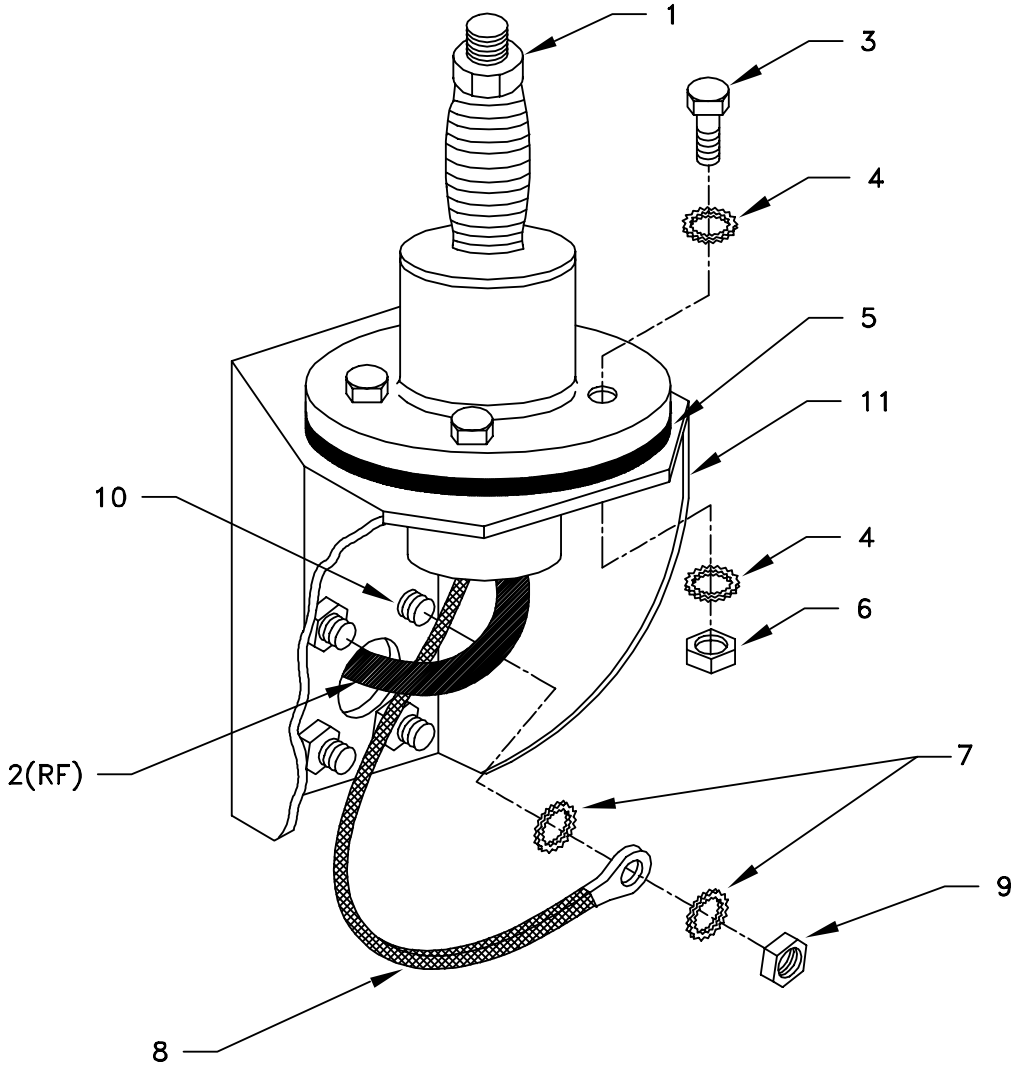
- 8. IET WASHER (5/16 IN)
- 9. NUT (3/8-16 IN)
- 10. CAP SCREW (3/8-16 x 1 IN)
- 11. IET WASHER (1/4 IN)
- 12. NUT (1/4-20 IN)
- 13. CAP SCREW (1/4-20 x 1 IN)
- 14. NUT STRIP

Figure 5-2 (1). Antenna Mounting Bracket Installation

5.1.2 Installation of Antenna Base. Use this procedure to install the antenna base at location shown in Figure 5-1 (1).

ITEM	ACTION	REMARKS
NOTE		
Apply a thin coat of adhesive-sealant to both sides of each internal/external -toothed (IET) washer during installation and to the area of contact where IET washer is to be placed.		
a. Gasket (5).	Place on antenna mounting bracket (11) and align mounting holes. See Figure 5-2 (2).	
b. Antenna base (1).	Place on top of gasket (5) and antenna mounting bracket (11); then align mounting holes.	
c. Four cap screws (3), eight IET washers (4) and four nuts (6).	Install and secure to antenna base (1) and antenna mounting bracket (11).	Tools: 9/16 in socket and 9/16 in open/box wrench.
d. Ground strap (8), three IET washers (7), one nut (9) and one cap screw (10).	Install and secure to right center mounting hole in antenna mounting bracket, support mounting plate and brace, antenna mount. See Figure 5-2 (2).	Tools: 7/16 in socket and 7/16 in open/box wrench.

5.1.2 Installation of Antenna Base - continued

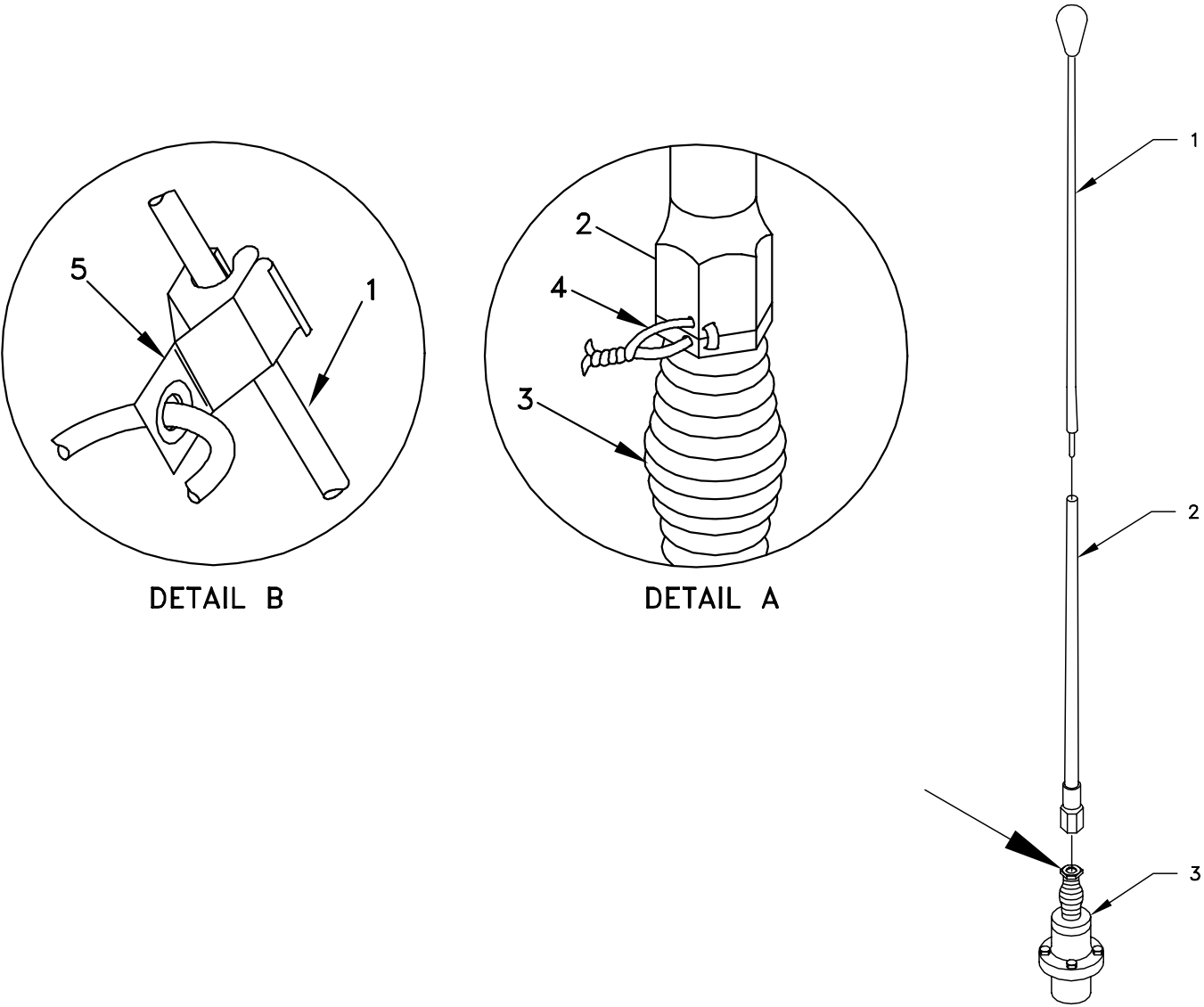


- 1. ANTENNA BASE
- 2. RF CABLE, CG-3855/VRC (12 FT, 0 IN)
- 3. CAP SCREW (3/8-16 x 1 3/4 IN)
- 4. IET WASHER (3/8 IN)
- 5. GASKET
- 6. NUT (3/8-16 IN)
- 7. IET WASHER (1/4 IN)
- 8. GROUND STRAP (P/O 1)
- 9. NUT (1/4 IN)
- 10. CAP SCREW (1/4-20 x 1 IN)
- 11. ANTENNA MOUNTING BRACKET

Figure 5-2 (2). Antenna Base Installation

5.1.3 Installation of Top Antenna Assembly. The top portion of the antenna includes a lower element and an upper element (with installed cap). Use the following procedure to assemble, install and tie down all antennas.

ITEM	ACTION	REMARKS
a. Antenna elements (1, 2.)	Apply silicone compound to element threads and assemble. See Figure 5-3.	
b. Antenna element (2).	Install and hand tighten to antenna base (3).	
c. Lock wire (4).	Install to antenna element (2) and antenna base (3). See Figure 5-3, Detail A.	
	Cut and remove excess wire with diagonal cutting pliers.	
d. Fiber rope assembly (5).	Attach clip to antenna element (1). Tie rope to vehicle to position antenna in desired location. See Figure 5-3, Detail B.	



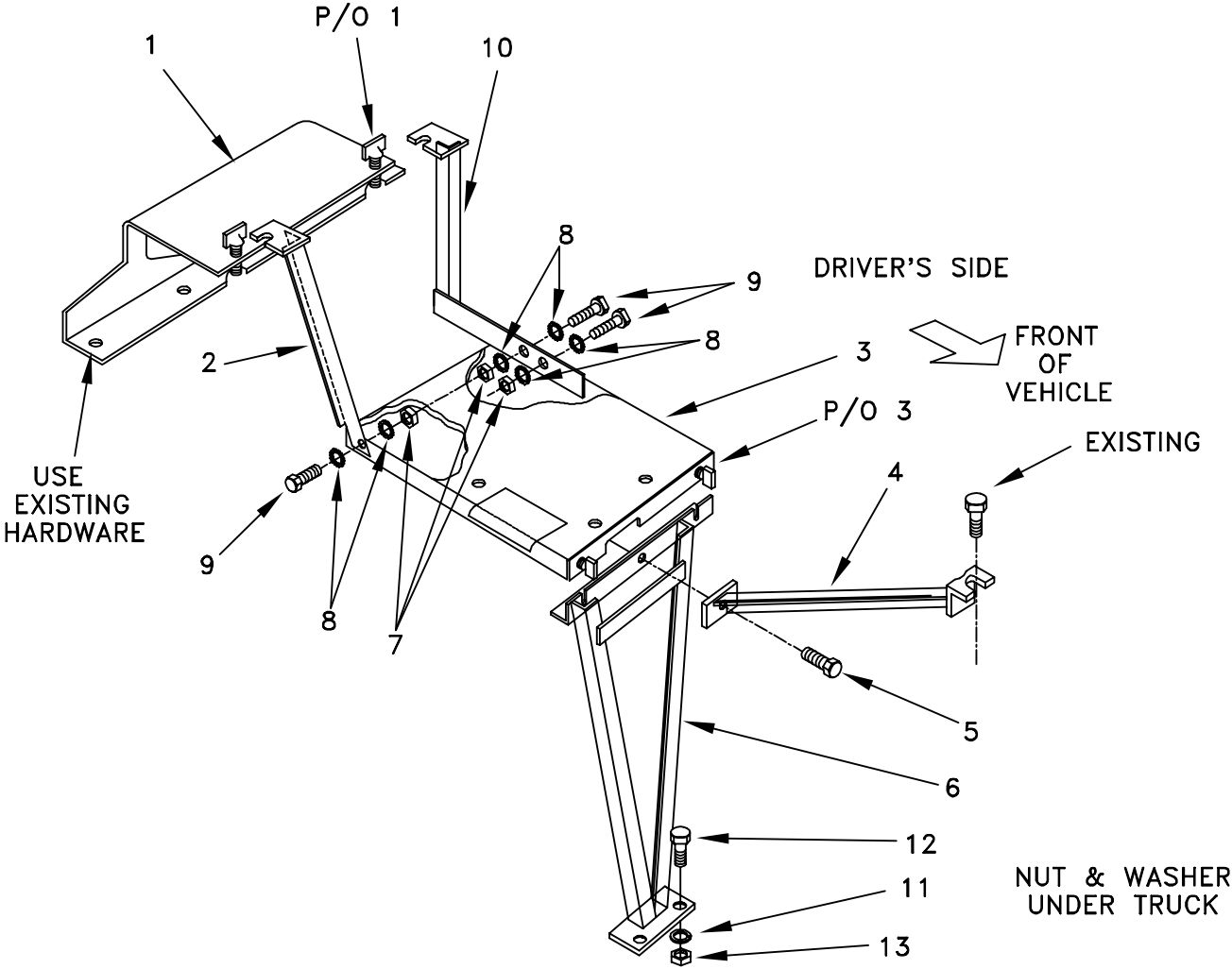
- 1. ANTENNA ELEMENT (UPPER)
- 2. ANTENNA ELEMENT (LOWER)
- 3. ANTENNA BASE
- 4. LOCK WIRE
- 5. FIBER ROPE ASSEMBLY

Figure 5-3. Top Antenna Assembly Installation

5.2 Installation of Mounting Assembly. Use the following procedures to install the mounting assembly.

ITEM	ACTION	REMARKS
NOTE		
<p>Apply a thin coat of adhesive-sealant to both sides of each internal/external -toothed (IET) washer during installation and to the area of contact where IET washer is to be placed. Do not securely tighten hardware until complete bracket assembly has been installed.</p>		
a. Back panel bracket (1).	Remove 1/4 in bolts and nuts from the cab rear window sill. Install back panel bracket (1) using the removed 1/4 in bolts. See Figure 5-4.	Tools: 7/16 in socket and 7/16 in open/box wrench.
b. Support assembly (2).	Install to back panel bracket (1) using bolt (P/O 1).	
c. Support assembly (10).	Install to back panel bracket (1) using bolt (P/O 1).	
d. Mounting plate (3), cap screw (9), nut (7) and two IET washers (8).	Install mounting plate (3) to support assembly (2).	Tools: 9/16 in socket and 9/16 in open/box wrench.
e. Mounting plate (3), two cap screws (9), two nuts (7) and four IET washers (8).	Install mounting plate (3) to support assembly (2).	Tools: 9/16 in socket and 9/16 in open/box wrench.
f. Support assembly (6).	Attach to mounting plate (3) using wing bolts (P/O 3).	
g. Brace mounting plate (4) and cap screw (5).	Loosen 1/4 in bolt in front window sill (see Figure 5-4). Attach brace mounting plate (4) to support assembly (6) and to front window sill using cap screw (5).	
h. Support assembly (6).	Using support assembly (6) as a template drill two 13/32 in diameter holes through vehicle floor.	Tools: Electric drill and 13/32 in drill bit.
i. Support assembly (6), two cap screws (12), two lock washers (11) and two nuts (7).	Install and secure support assembly (6) to vehicle floor, It is necessary to go under the vehicle to attach the nuts to the screws. Ensure pieces fit properly, then securely tighten all hardware.	Tools: 9/16 in socket and 9/16 in open/box wrench.

5.2 Installation of Mounting Assembly - continued



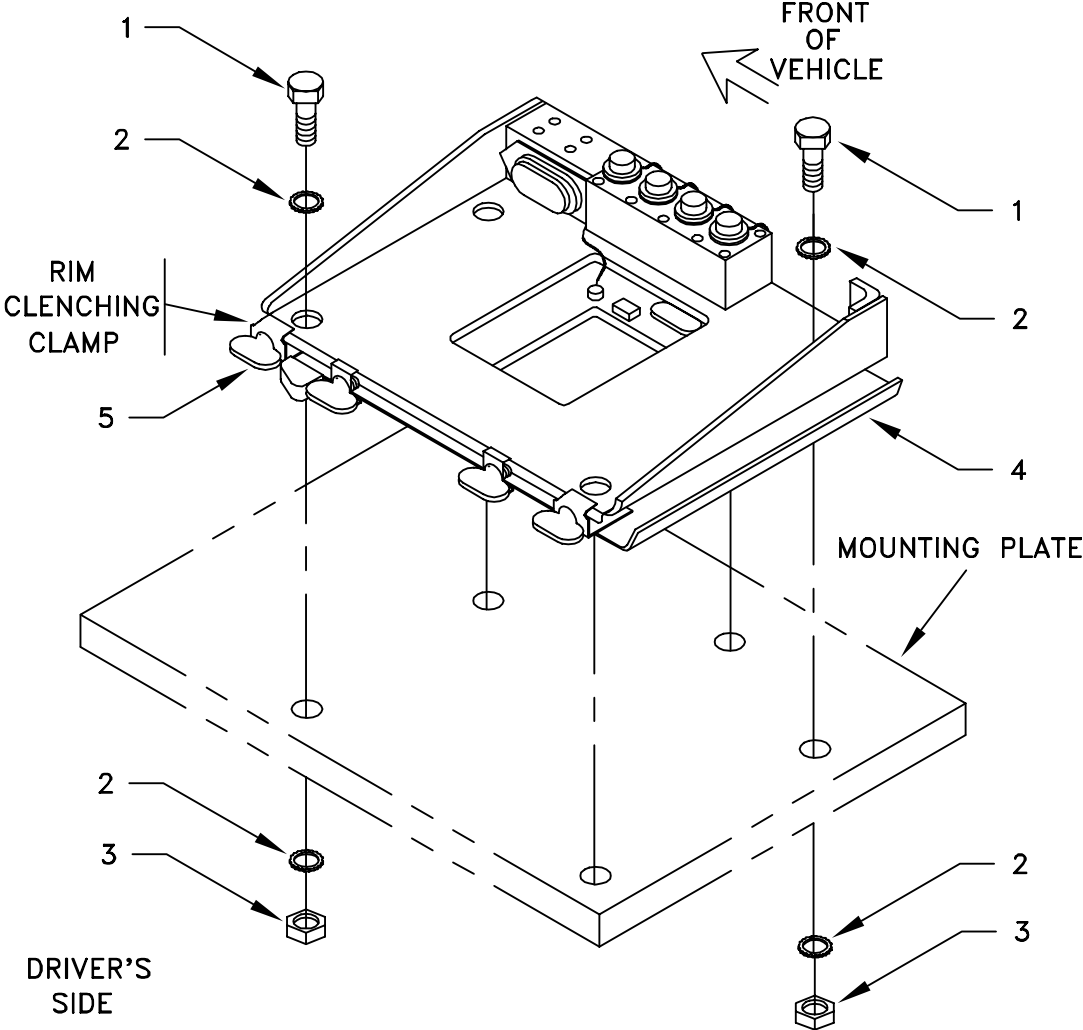
- 1. BACK PANEL BRACKET
- 2. SUPPORT ASSEMBLY (RIGHT)
- 3. MOUNTING PLATE
- 4. BRACE, MOUNTING PLATE
- 5. CAP SCREW (3/8-24 x 1IN)
- 6. SUPPORT ASSEMBLY
- 7. NUT (3/8-16 IN)
- 8. IET WASHER (3/8 IN)
- 9. CAP SCREW (3/8-16 x 1 IN)
- 10. SUPPORT ASSEMBLY (LEFT)
- 11. LOCK WASHER (3/8 IN)
- 12. CAP SCREW (3/8-16 x 1 1/2 IN)

Figure 5-4. Mounting Assembly Installation

5.3 Installation of Mounting Base, Electrical Equipment MT-6352/VRC (mounting base). Remove and retain attaching bag of 5/16 mounting hardware. To insure good electrical grounding, any rust, corrosion or paint around mounting holes in mounting plate should be removed before installing the mounting base. See Figure 5-1(1) for location; then see Figure 5-5 and perform the following steps.

ITEM	ACTION	REMARKS
NOTE		
Apply a thin coat of adhesive-sealant to both sides of each internal/external-toothed (IET) washer during installation, and to the area of contact where IET washer is to be placed.		
a. Mounting base (4).	Place on mounting plate over existing holes. See Figure 5-5.	
b. Two outer thumbscrews (5).	Turn ccw until both sets of threads have cleared center of holes.	
c. Mounting base (4).	Align four holes and rear slot with matching hole pattern in mounting plate.	
d. Five machine bolts (1), ten IET washers (2) and five nuts (3).	Install and tighten to mounting base (4) and mounting plate.	Tools: 1/2 in socket and 1/2 in open/box wrench.
e. Two outer thumbscrews (5).	Tighten and secure to rim clenching clamps and mounting base (4).	

5.3 Installation of Mounting Base, Electrical Equipment MT-6352/VRC (mounting base) - continued



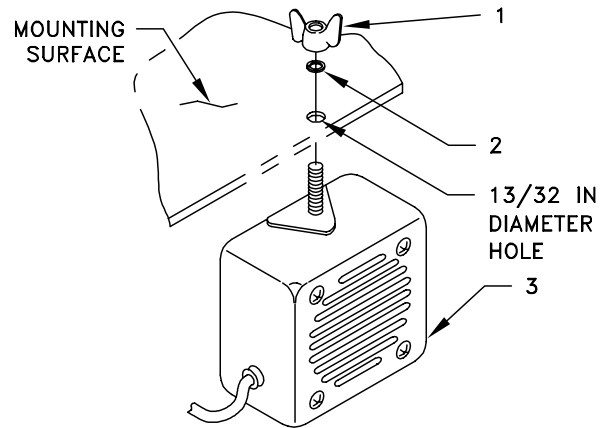
- 1. MACHINE BOLT (5/16-24 x 3/4 IN)
- 2. IET WASHER (5/16 IN)
- 3. NUT (5/16-24 IN)
- 4. MOUNTING BASE
- 5. THUMBSCREW

Figure 5-5. Mounting Base Installation

5.4 Installation of Loudspeaker, Permanent Magnet LS-454/U (speaker). Mounting location for speakers to be determined by vehicle commander. Typical methods used for mounting the speaker are as follows:

Method A. See Figure 5-6 (1).

- a. Determine speaker (3) location.
- b. Drill $13/32$ in diameter hole through mounting surface.
- c. Insert stud on speaker (3) through drilled hole; then secure with lock washer (2) and wing nut (1).



1. WING NUT (3/8-24 IN)
2. LOCK WASHER (3/8 IN)
3. SPEAKER
4. CAP SCREW (1/4-20 x 1/IN)
5. SPEAKER BRACKET
6. LOCK WASHER (1/4 IN)
7. NUT (1/4-20 IN)

Figure 5-6 (1). Speaker Installation - A

NOTE

Items (4), (6) and (7) are not supplied in kit.

Method B. See Figure 5-6 (2).

- a. Determine speaker (3) location.
- b. Drill two $5/16$ in diameter holes through mounting surface.
- c. Install and secure two cap screws (4), two lock washers (6) and two nuts (7) to speaker bracket (5) and mounting surface.
- d. Insert speaker (3) stud through speaker bracket (5) hole; then secure with lock washer (2) and wing nut (1).

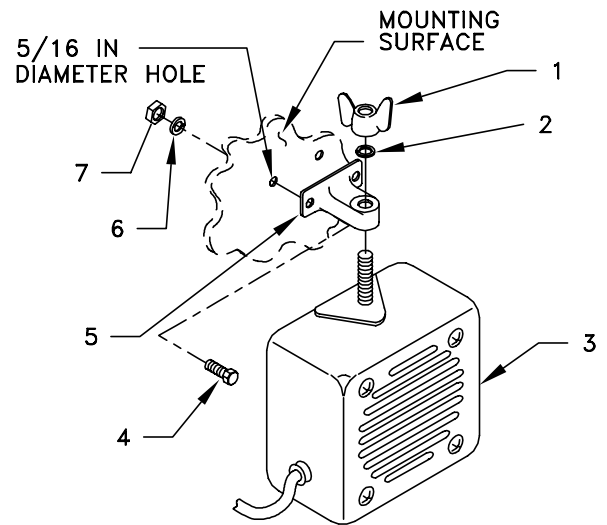


Figure 5-6 (2). Speaker Installation - B

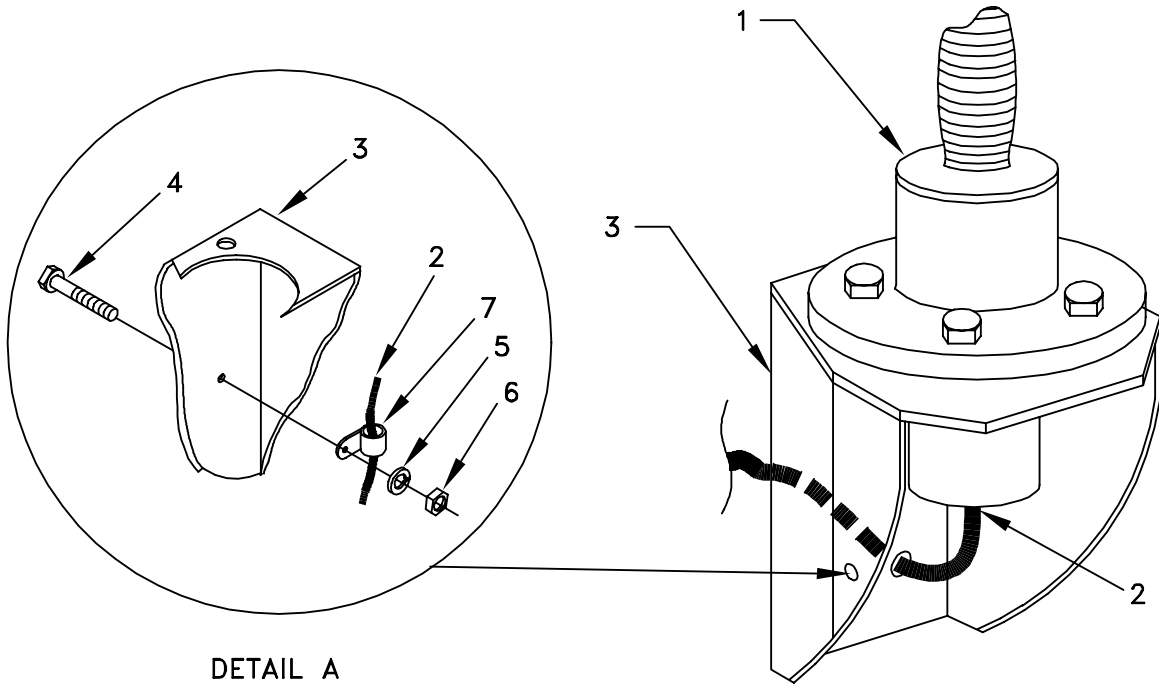
5.5 Installation of Cables. To accomplish the installation, leave loop clamps and tiedown straps loose enough to adjust cable slack and allow easy adjustment of equipment. When installation is complete, tighten and secure all clamps, clips and tiedown straps.

WARNING

Make sure vehicle power source is positioned OFF or disconnected before installing cables.

ITEM	ACTION	REMARKS
a. RF cable (2) connector P1.	Connect and secure to antenna base (1) connector J1. See Figure 5-7 (1).	
b. RF cable (2), loop clamp (7), one cap screw (4), one lock washer (5) and one nut (6).	Wrap loop clamp (7) around RF cable (2) and secure to inside of antenna mounting bracket (3). See Figure 5-7 (1), Detail A.	Tools: 7/16 in socket and 7/16 in open/box wrench.
c. RF cable (2).	Route RF cable (2) through hole in antenna mounting bracket (3). See Figure 5-7 (1).	
d. RF cable (1) and grommet (3).	Route RF cable (1) through hole drilled in step I of paragraph 5.1.1 and insert grommet (3) to inner and outer wall. See Figure 5-7 (2).	
e. RF cable (1).	Route along interior curbside wall and down the brace mounting plate to the left side of mounting base (3). See Figure 5-7 (2) and 5-7 (3).	
f. Loop clamp (2) mounting holes.	Drill four 1/4 in diameter holes across the underside of the dashboard. See Figure 5-7 (2) for locations.	Tools: Electric drill and 1/4 in drill bit.
g. Four loop clamps (2) and four cap screws (4).	Wrap around RF cable (1) and install to holes drilled in step f.	Tools: 7/16 in open/box wrench.
h. Two loop clamps (2).	Wrap around RF cable (1) and install to dashboard using existing screws. See Figure 5-7 (2), Detail A.	Tools: 7/16 in open/box wrench.
i. Tiedown strap (4).	Wrap around RF cable (1) and secure to brace mounting plate. See Figure 5-7 (3).	

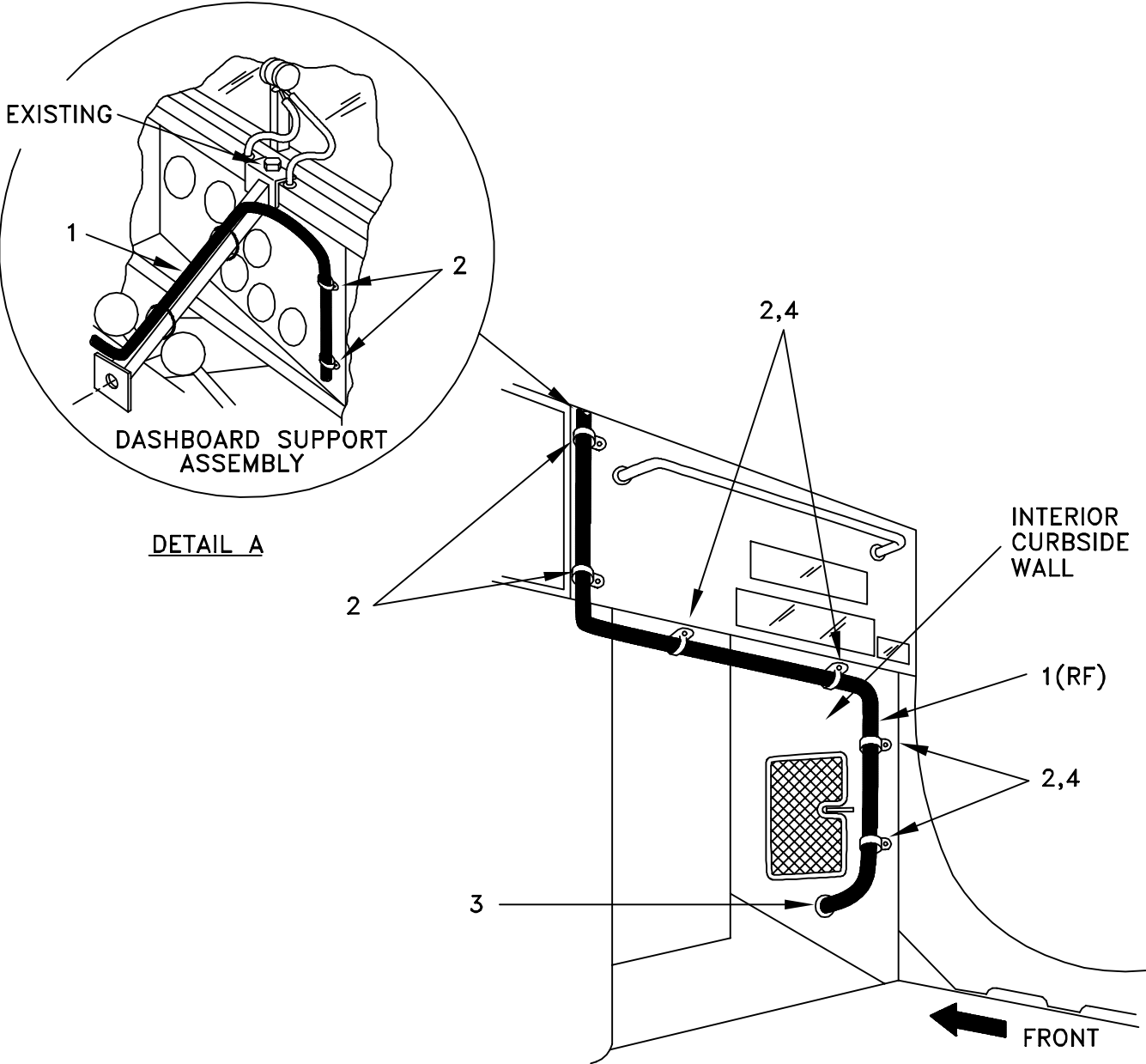
5.5 Installation of Cables - continued



- 1. ANTENNA BASE
- 2. RF CABLE, GG-3855/VRC (12 FT, 0 IN)
- 3. ANTENNA MOUNTING BRACKET
- 4. CAP SCREW (1/4-20 x 3/4 IN)
- 5. LOCK WASHER (1/4 IN)
- 6. NUT (1/4-20 IN)
- 7. LOOP CLAMP (1/4-1/4 IN)

Figure 5-7 (1). Installation of Cables: RF Cable

5.5 Installation of Cables - continued



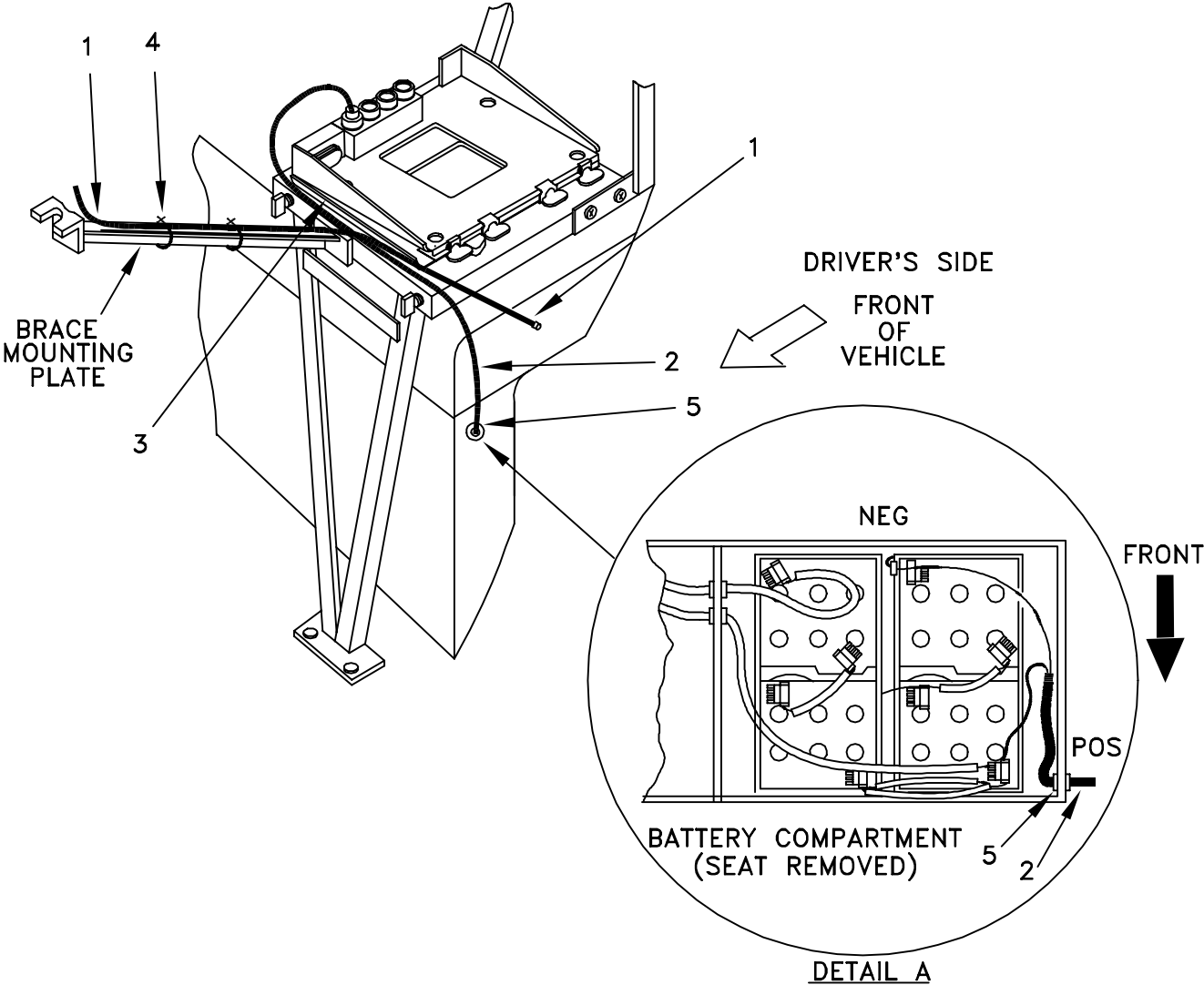
- 1. RF CABLE, GG-3855/VRC (12 FT, 0 IN)
- 2. LOOP CLAMP (1/4-1/4 IN)
- 3. GROMMET, NONMETALLIC
- 4. CAP SCREW (1/4-14 x 3/4 IN)

Figure 5-7 (2). Installation of Cables: RF Cable Routing

5.5 Installation of Cables - continued

ITEM	ACTION	REMARKS
j. Passenger seat.	Remove mounting tray and brackets over passenger seat installed in paragraph 5.2a, b, c, and f using quick release thumb screws. Lift passenger seat over battery compartment.	Tools: No. 2 Phillips screwdriver.
k. Grommet hole for power cable (2).	Drill one 3/4 in diameter hole through battery compartment approximately as shown. See Figure 5-7 (3), Detail A.	Tools: Electric drill and 3/4 in drill bit.
l. Power cable (2) connector P2.	Position on top of mounting base (3).	
m. Power cable (2).	Route down through cable hole in battery compartment.	
n. Power cable (2) connector P1.	Connect and secure red wires to positive (+) terminal on battery and black wires to negative (-) terminal. See Figure 5-7 (3), Detail A.	
o. Grommet (5).	Wrap around power cable (2) and install to hole in battery compartment drilled in step k.	
p. Adhesive-sealant.	Apply to and around all previously installed grommets and drilled holes.	
q. Passenger seat.	Restore passenger seat to normal position. Reinstall mounting tray and brackets previously deinstalled in step j.	
r. Power cable (2) connector P2.	Connect and secure to mounting base (3) connector J1.	

5.5 Installation of Cables - continued



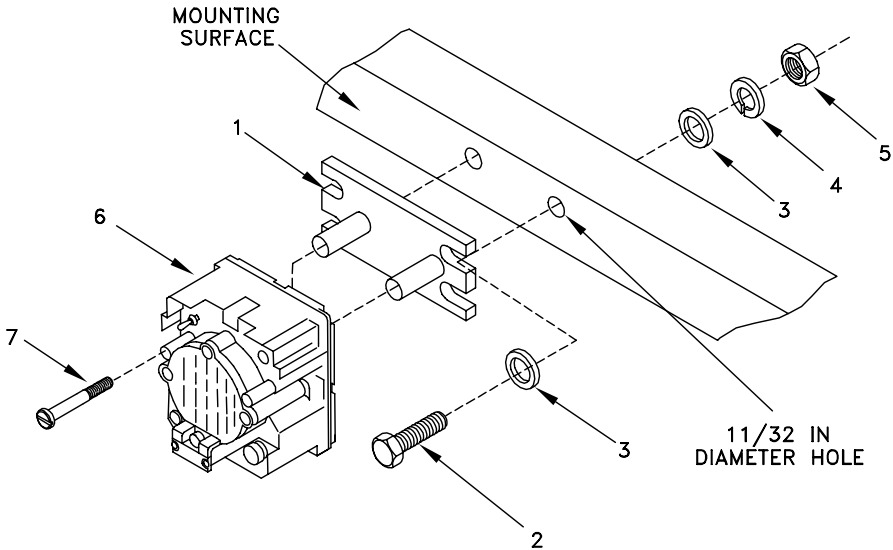
- 1. RF CABLE, GG-3855/VRC (12 FT, 0 IN)
- 2. POWER CABLE CX-13302/VRC (7 FT, 0 IN)
- 3. MOUNTING BASE
- 4. TIEDOWN STRAP
- 5. GROMMET, NONMETALLIC

Figure 5-7 (3). Installation of Cables: Power Cable

5.6 Installation of Loudspeaker, Control-Unit, LS-671/VRC (speaker). Use the following procedures to install the speaker required for "D" and "F" series radio sets. Refer to section 5-7, paragraph b for connection of speaker cable.

ITEM	ACTION	REMARKS
a. Plate, mounting (1).	Use plate, mounting (1) as a template and drill two 11/32 in diameter holes in back panel bracket. See Figure 5-8.	Tools: Electric drill and 11/32 in drill bit.
b. Plate, mounting (1).	Align bottom slots over holes drilled in step a.	
c. Two machine bolts (2), four flat washers (3), two lock washers (4) and two nuts (5).	Install and secure to plate, mounting (1) and back panel bracket.	Tools: 1/2 in socket and 1/2 in open/box wrench.
d. Speaker (6).	Place on plate, mounting (1).	
e. Two externally-relieved body screws (7).	Thread through and secure to speaker (6) and plate, mounting (1).	Tools: Flat blade screwdriver.
f. Handset.	Connect and secure to speaker (6) connector J2.	
g. Speaker cable.	See Figure 5-9 for speaker cable connection.	

5.6 Installation of Loudspeaker, Control-Unit, LS-671/VRC (speaker) - continued



- 1. PLATE, MOUNTING
- 2. MACHINE BOLT (5/16-24 x 1IN)
- 3. FLAT WAHER (1/4 IN)
- 4. LOCK WASHER (1/4 IN)
- 5. NUT (5/16-24 IN)
- 6. SPEAKER
- 7. BODY SCREW (P/O SPEAKER)

Figure 5-8. LS-671/VRC Speaker Installation

5.7 Post-Installation and Checkout. After equipment is installed and cables are connected, perform the following steps.

ITEM	ACTION	REMARKS
a. Equipment.	Check for secure mounting. Check for loose parts, connectors, and mounting hardware.	
b. Cables.	Check for proper installation and connection of cables. See figure 5-9 for cable connections. Unused cables should be stowed in appropriate place inside the vehicle.	
c. Loop clamps.	Check that all have been properly installed and tightened.	
d. Protective covers.	Insure that all installed cables are covered when not in use or connected.	
e. Radio issued with vehicle.	Install and connect cables. See TM 11-5820-890-20-1 or TM 11-5820-890-20-2 for installation and operational (OP) checks and instructions.	
f. MK line replaceable units.	See TM 11-5820-890-20P for Repair Parts and Special Tools List (RPSTL) information.	

5.7 Post-Installation and Checkout - continued

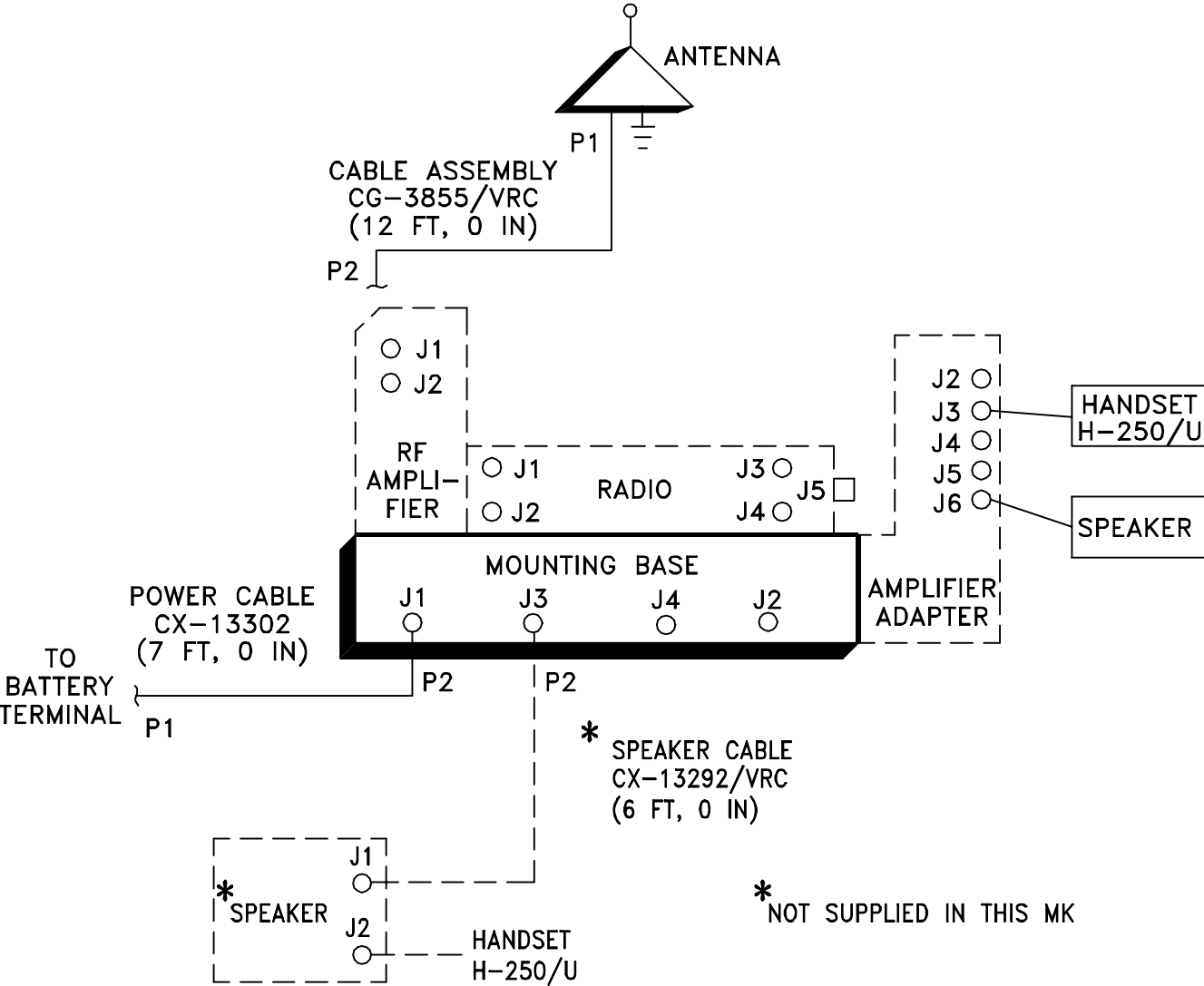


Figure 5-9. Cable Diagram - AN/VRC-87/88/90 Series

5.7 Post-Installation and Checkout - continued

CABLE ASSEMBLY	FROM			TO		
	CABLE CONN.	UNIT	UNIT CONN.	CABLE CONN.	UNIT	UNIT CONN.
CX-13302/VRC (7 FT, 0 IN)	P2	Mounting base	J1	P1	Vehicle Battery	Red (+) Black (-)
CG-3855/VRC (12 FT, 0 IN)	P2	"RT" or RF amplifier	J1	P1	Antenna base	J1
LS-454/U speaker cable		Amplifier-adapter	J6		LS-454/U speaker	
Handset cable		Amplifier-adapter	J3		Handset	
*CX-13292/VRC (6 FT, 0 IN)	P2	Mounting base	J3	P1	*Speaker	J1

* Not supplied in this MK.

APPENDIX A

REFERENCES

DA PAM 25-30	Consolidated Index of Army Publications and Blank Forms (Contained on EM 0001)
DA PAM 710-2-1	Using Unit Supply System Manual Procedures as Contained in Unit Supply UPDATE
EM 0071	Radio, SINCGARS, Ground/Airborne
SB 11-131-2	Vehicular Radio Sets and Authorized Installations (SINCGARS)
TM 11-5820-890-10-1	Operator's Manual (ICOM Radio Sets) (Included in EM 0071)
TM 11-5820-890-10-3	Operator's Manual (Non-ICOM Radio Sets) (Included in EM 0071)
TM 11-5820-890-10-8	Operator's Manual (ASIP Radio Sets) (Included in EM 0071)
TM 11-5820-890-20-1	Unit Maintenance Manual (ICOM Radio Sets, Vol. 1) (Included in EM 0071)
TM 11-5820-890-20-2	Unit Maintenance Manual (ICOM Radio Sets, Vol. 2) (Included in EM 0071)
TM 11-5820-890-20-3	Unit Maintenance Manual Handbook (ICOM Radio Sets) (Included in EM 0071)
TM 11-5820-890-20P	Repair Parts and Special Tools List (Included in EM 0071)



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2-25

2-28

Recommend that the installation antenna alignment procedure be changed throughout to specify a 20 IFF antenna lag rather than 10.

REASON: Experience has shown that with only a 10 lag, the antenna servo system is too sensitive to wind gusting in excess of 25 knots, and has a tendency to rapidly accelerate and decelerate as it hunts, causing stress to the drive train. Hunting is minimized by adjusting the lag to 20 without degradation of operation.

3-10

3-3

3-1

Item 5, Functional Test Plan. Change 2 dB" to 3 dB".

REASON: The adjustment procedure for the TRANS POWER FAULT indicator calls for a 3 dB (500 watts) adjustment to light the TRANS POWER FAULT indicator.

5-6

5-8

and new step f.1 to read, Replace cover plate removed in step above."

REASON: To replace the cover plate.

FO-3

Zone C 3. On J1-2, change +24 VDC" to +5 VDC".

REASON: This is the output line of the 5 VDC power supply. +24 VDC is the input voltage.

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