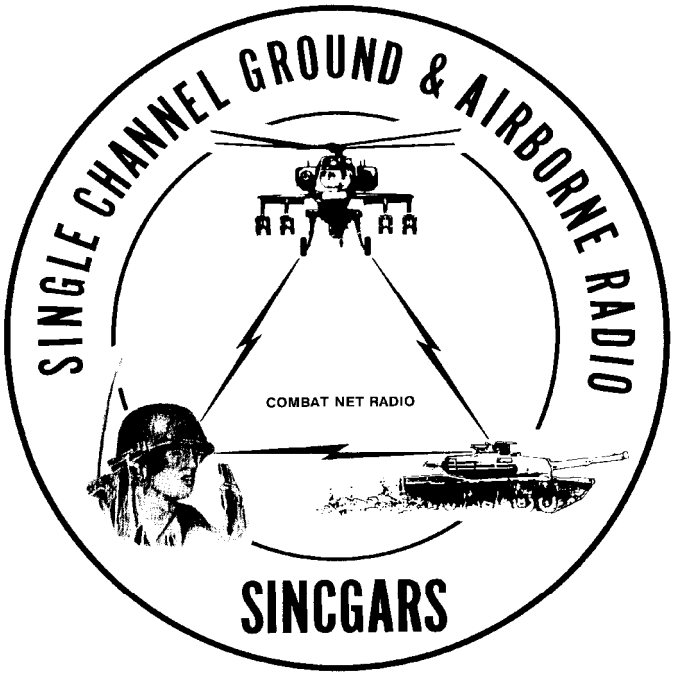
TECHNICAL BULLETIN



INSTALLATION INSTRUCTIONS FOR INSTALLATION KIT, ELECTRONIC EQUIPMENT, MK-2801/VRC (NSN 5895-01-421-0798) (EIC: N/A) TO PERMIT INSTALLATION OF RADIO SETS AN/VRC-91 SERIES IN A TRUCK UTILITY: 1 1/4 TON, 4X4, M1025A2/M1114

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HEADQUARTERS, DEPARTMENT OF THE ARMY

1 JULY 2000

TECHNICAL BULLETIN
NO. 11-5820-890-20-93

HEADQUARTERS,
DEPARTMENT OF THE ARMY
WASHINGTON, D.C., 1 JULY 2000

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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, DA Form 2028 (Recommended Changes to Publications and Blank Forms), or DA Form 2028-2 located in the back of this manual direct to: Commander, US Army Communications-Electronics Command Fort Monmouth, ATTN: AMSEL-LC-LEO-D-CS-CFO, Fort Monmouth, NJ 07703-5000. 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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0.1 SCOPE.

This technical bulletin provides installation instructions for Installation Kit, Electronic Equipment MK-2801/VRC, commonly referred to as the Mounting Kit (MK). The MK shall be installed into the following type of vehicle(s):

- Truck, Utility: 1 1/4 Ton, 4x4, M1025A2/M1114

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.

NOTES

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

This technical bulletin does not contain information on the maintenance or replacement of the MKs. This information is contained in the MAC of TM 11-5820-890-20-2, TM 11-5820-890-20-4 and RPSTL of TM 11-5820-890-20P.

0.2 GENERAL INFORMATION.

The MK becomes operable when all the radio set components are installed in the vehicle and correct power is supplied. Refer to TM 11-5820-890-20-1 or TM 11-5820-890-20-4 for installation, Operational (OP) Check instructions, and required maintenance procedures. Refer to TM 11-5820-890-20P for repair parts.

Included in the radio set AN/VRC-91 Series is:

- Radio Set AN/VRC-91 Series (for RT-1523(C)/U)

0.3 MAINTENANCE FORMS, RECORDS, AND REPORTS.

0.3.1 Reports of Maintenance and Unsatisfactory Equipment. See Section 4.2.2.3 for information.

0.3.2 Report of Packing and Handling Deficiencies. See Section 4.2.2.1 for information.

0.3.3 Discrepancy in Transportation Deficiency Report (TDR) (SF361). See Section 4.2.2.2 for information.

0.4 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 equipment.

1. PURPOSE OF INSTALLATION.

The Installation Kit Electronic Equipment MK-2801/VRC (MK) contains the items needed to mount Radio Set AN/VRC-91 Series in a Truck, Utility: 1 1/4 Ton 4x4, M1025A2/M1114.

2. END ITEM OR SYSTEM TO BE MODIFIED.

Not applicable.

3. APPLICATION TIMES.

3.1 Time for Completion of Installation. Using two people, a total of 2.5 work hours is required. Typical vehicle downtime is 3.0 hours.

3.2 Time for Installation of One Assembly or Component. The following table 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.

ITEM	SECTION	TIME
Antenna AS-3900/VRC	5.1	0.5
Mounting Base, Electrical Equipment MT-6352/VRC	5.2	1.5
Cables	5.3	1.0

PREPARATION FOR INSTALLATION.

This section explains how to prepare the vehicle and MK for installation.

4.1 Preparation of Vehicle. To prepare the vehicle for installation, insure 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 MK. Have unit vehicle mechanic temporally remove the air compressor installed under roadside rear of M1114.

4.1.1 Items to be Removed. Remove existing AN/VRC-12 radio family installation kit/harness. See TM 11-5820-401-20-2 for removing items used with intercom systems, or TM 11-5820-401-20-1 (used without intercom systems), and TM 9-2320-289-20.

4.1.2 Items to be Retained. Not applicable.

4.2 Preparation of MK. To prepare MK, unpack, inspect and check inventory.

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

a. Keep dust cover in place on connectors.

b. Do not disassemble or modify parts in MK unless authorized to do so.

c. Keep mounting hardware covered and protected until needed.

d. When exposed to moisture, rain or salt water, keep all parts dry to prevent corrosion.

4.2.2Unpack and Inspect Equipment.

4.2.2.1 Inspect Packaging for Evidence of Damage. Any shipping damage should be reported on SF364 Report of Discrepancy (ROD) as prescribed in AR 735-11-2/DLAR 4140.55/SECNAVINST 4355.18/AFR 400-54/MCO 4430.3J.

4.2.2.2 Unpack and Inventory MK. If any item is missing, fill out and forward Transportation Deficiency Report (TDR) (SF361) as described in AR 55-38/ SECNAVINST 4355.18/AFR 400-54/MCO 4430.3J..

4.2.2.3 Examine Each Item for Damage. If any item is damaged, fill out and forward SF364 Report of Discrepancy (ROD) as prescribed in AR 735-11-2/DLAR 4140.55/NAVMATINST 4355.73A/AFR-400-64/MCO 4430.3F. All damages should be reported as prescribed in DA Pam 738-750, as contained in Maintenance Management Update.

4.3 MK, Distribution and Consumables.

4.3.1 Items Supplied in MK and/or Required for Installation. Use Table 4-1 and Figure 4-1 to identify and inventory MK parts supplied to install Radio Set AN/VRC-91 Series.

4.3.2 Distribution and Issue Instructions.

a. US Forces: Do not requisition MK. They will be shipped automatically.

b. US Army Depots: Requisition MK through supply channels.

c. Multiservice: Instructions shall be included for multiservice modifications.

d. MAP/MAS Countries: Instructions shall be provided for MAP/MAS countries.

Table 4.1. Parts List for Installation of Radio Set AN/VRC-91 Series

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)	2	PAOOFA	4-1, 2
5305-00-847-1159	Screw, Cap, Hexagon (3/8-16 x 1 ¾ in) MS-35307-365	8	PAOZZA	
5310-00-913-8881	Nut, Hexagon (3/8-16 in) MS51971-3	8	PAOZZA	
5310-00-061-1258	Washer, Lock, Internal/External-Toothed (3/8 in)MS45904-76	16	PAOZZA	
5310-00-889-2527	Washer, Lock, Internal/External-Toothed (5/16 in)MS45904-72	4	PAOZZA	
5306-00-225-9086	Bolt, Machine (5/16-24 x 5/8 in) MS90726-31 (Not Used)	2	PAOZZA	
5330-01-205-2864	Gasket (A3013655-1)	2	PAOZZA	
5975-01-188-8873	Mounting Base, Electrical Equipment MT-6352/VRC(A3013367-1)	1	PAOOFA	4-1, 1
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 (Not Used)	10	PAOZZA	
5310-00-880-7746	Nut, Hexagon (5/16-24 in) MS51968-5 (Not Used)	5	PAOZZA	
5995-01-219-7035	Cable Assembly, Radio Frequency, CG-3855/VRC(18 FT, 0 IN) (A3014031-8)	1	PAOZZA	4-1, 6
5995-01-225-1660	Cable Assembly, Radio Frequency, CG-3855/VRC(21 FT, 0 IN) (A3014031-17)	1	PAOZZA	4-1, 6
5995-01-219-4932	Cable Assembly, Special Purpose, Electrical CX-13300/VRC (5 FT, 0 IN) (A3014044-3)	2	PAOZZA	4-1, 5
5995-01-303-4951	Cable Assembly, Special Purpose, Electrical CX-13313/VRC (2 FT, 7 IN) (A3018360-1)	1	PAOZZA	4-1, 8
5995-01-274-5084	Cable Assembly, Power, Electrical, CX-13302/VRC(6 FT, 0 IN) (A3014039-5)	1	PAOZZA	4-1, 7
4020-01-341-8795	Fiber Rope Assembly, Single Leg (A3167672-1)	2	PAOZZA	4-1, 3
	Bracket, Mounting-Antenna (A3014546-1)	1	XBOZZA	4-1, 4
5325-01-240-7325	Grommet, Nonmetallic ¼ (A3013068-2)	2	PAOZZA	
5310-00-761-6882	Nut, Plain, Hexagon (1/4-20 in) MS51967-2	6	PAOZZA	
5310-00-934-9751	Nut, Plain, Hexagon No. 10-32 MS35650-302	2	PAOZZA	
5310-00-880-7746	Nut, Plain, Hexagon (5/16-24 in) MS51958-5	2	PAOZZA	
5975-00-074-2072	Strap, Tiedown, Electrical Components MS3367-1-9	10	PAOZZA	
5975-00-111-3208	Strap, Tiedown, Electrical Components MS3367-5-9	10	PAOZZA	
5340-00-922-6300	Clamp, Loop (1-13/64 in) MS21333-77	3	PAOZZA	
5340-00-057-3043	Clamp, Loop (1/2-5/16 in) MS21333-112	3	PAOZZA	

Table 4.1. Parts List for Installation of Radio Set AN/VRC-91 Series Continued

NSN	ITEM DESCRIPTION AND PART NUMBER	QUANTITY IN MK	SMR CODE	FIGURE, ITEM NO.
5340-00-809-1490	Clamp, Loop (1/4-1/4 in) MS21333-98	1	PAOZZA	
5340-00-057-2904	Clamp, Loop (1/2-13/64 in) MS21333-71	7	PAOZZA	
5340-00-050-2740	Clamp, Loop (3/4-13/64 in) MS21333-75	6	PAOZZA	
5305-01-259-6322	Screw, Machine (No. 10-32 x 1/2 in) 12342499-1	15	PAOZZA	
5305-00-068-0502	Screw, Cap, Hexagon (1/4-20 x 3/4 in) MS90725-6	5	PAOZZA	
5305-00-225-9091	Screw, Cap, Hexagon (5/16-24 x 1 1/4 in) MS90726-36	7	PAOZZA	
5305-00-225-3839	Screw, Cap Hexagon (1/4-20 x 1 in) MS90725-8	1	PAOZZA	
5310-00-809-4058	Washer, Lock (1/4 in) MS35338-44	6	PAOZZA	
5310-00-889-2528	Washer, Lock IET (1/4 in) MS45904-68	2	PAOZZA	
5310-00-045-3296	Washer, Lock No. 10 MS35338-43	17	PAOZZA	
5310-00-889-2527	Washer, Lock, IET (5/16 in) MS45904-72	6	PAOZZA	

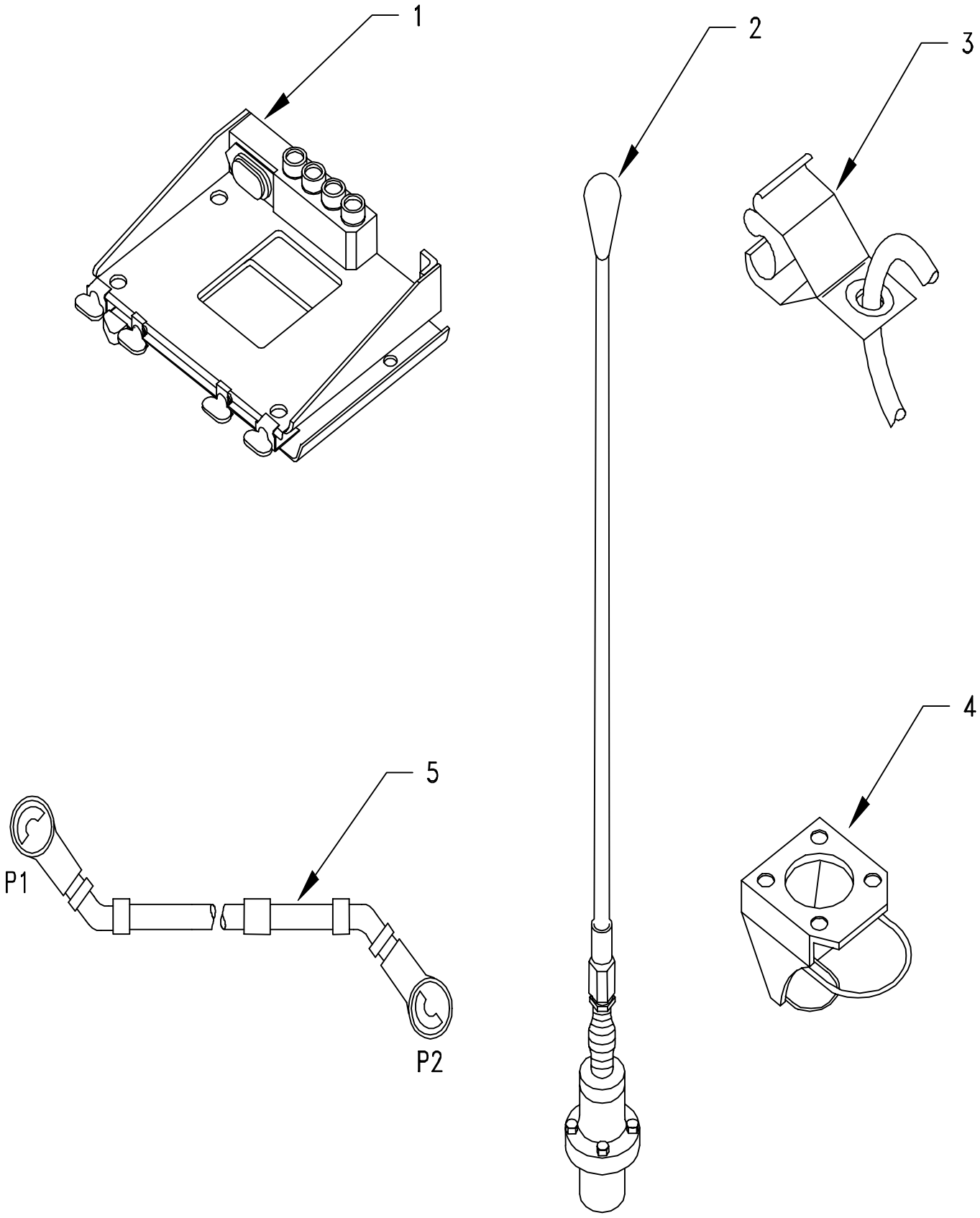


Figure 4-1 (1). MK Illustrated Parts List

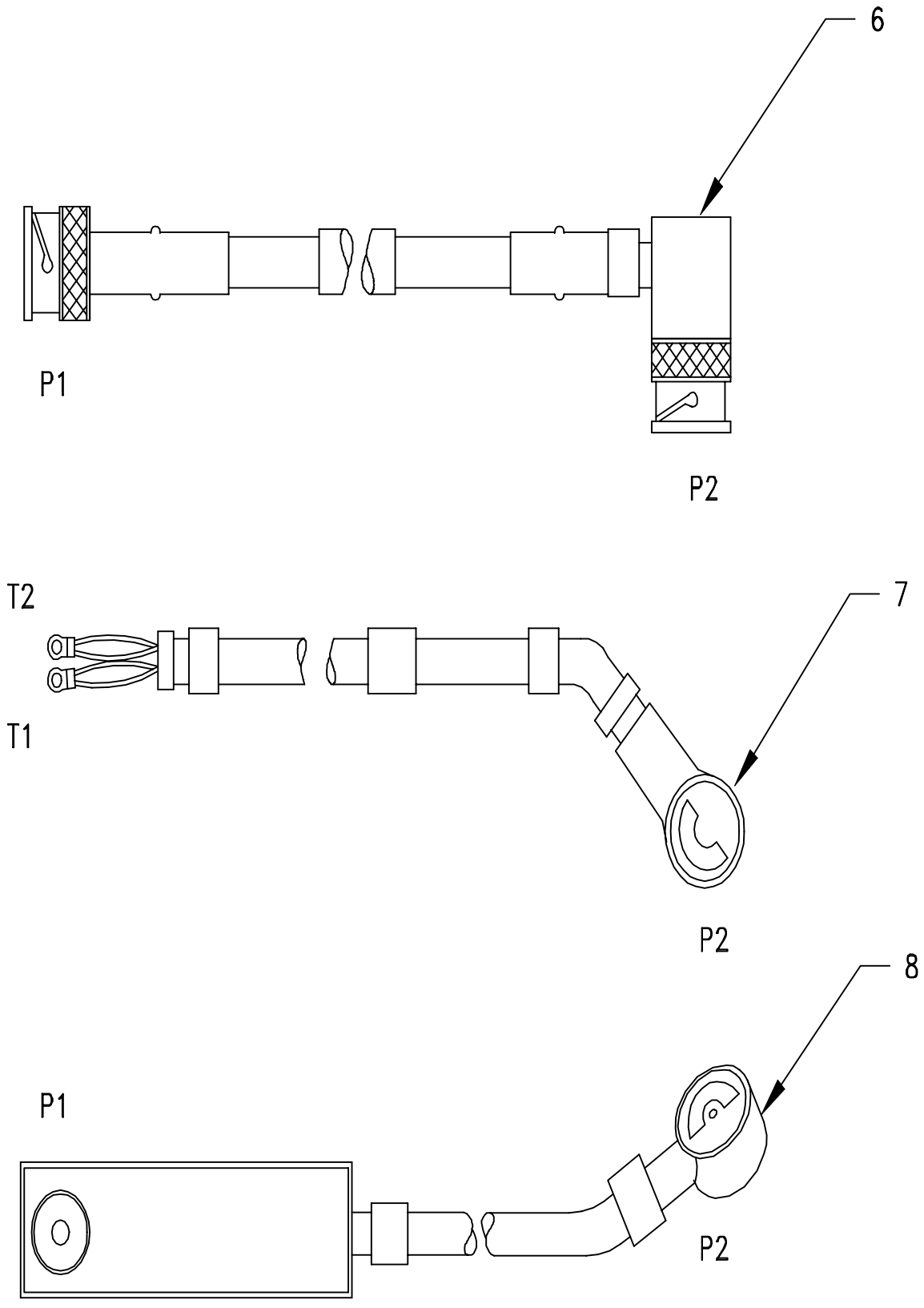


Figure 4-1 (2). MK Illustrated Parts List

4.3.3 Consumable Materials. The table below lists materials required for installation but not supplied with MK.

NSN	NOMENCLATURE
8040-00-117-8510	Adhesive-Sealant, Clear, RTV
6850-00-880-7616	Silicone Compound, MIL-S-8660
8030-00-292-1102	Conductive Anti-seize Compound

4.4 Tools and Test, Measurement, and Diagnostic Equipment (TMDE) Required. The following tools and TMDE are needed for installation.

NOMENCLATURE		NSN	QUANTITY
Radio Set*			1
Electric Grinder or Equivalent			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 Flatblade, 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:		5120-00-240-5364	1
Socket	7/16 in	5120-00-227-6703	1
	1/2 in	5120-00-237-0977	1
	9/16 in	5120-00-227-6704	1
Electric Drill		5130-00-889-8994	1
Drill Bit	9/32 in	5133-00-189-9246	1
	13/32 in	5133-00-227-9686	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.

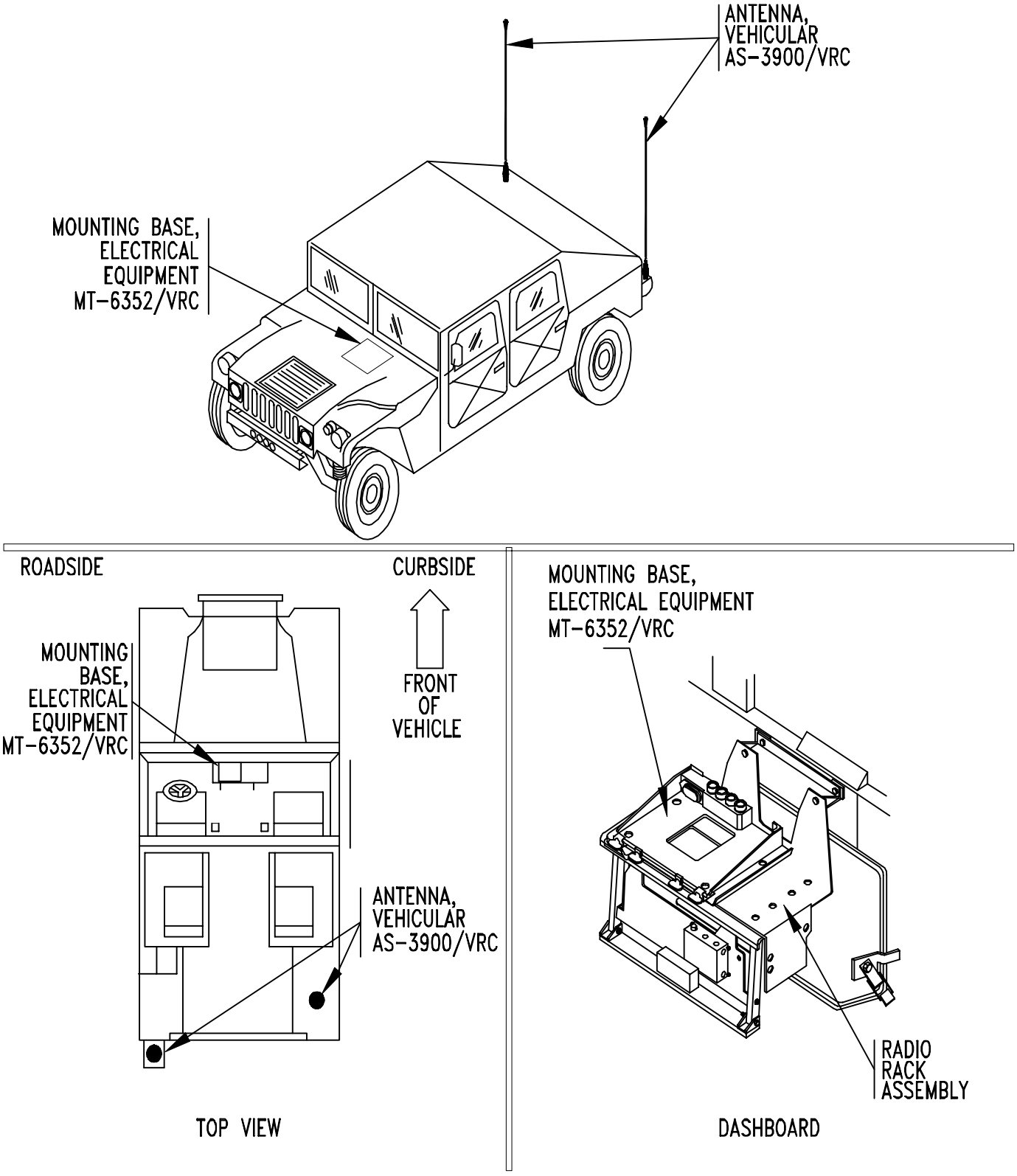


Figure 5-1 (1). MK and Radio Installation: MK Equipment Locations

5. INSTALLATION PROCEDURES. Continued.

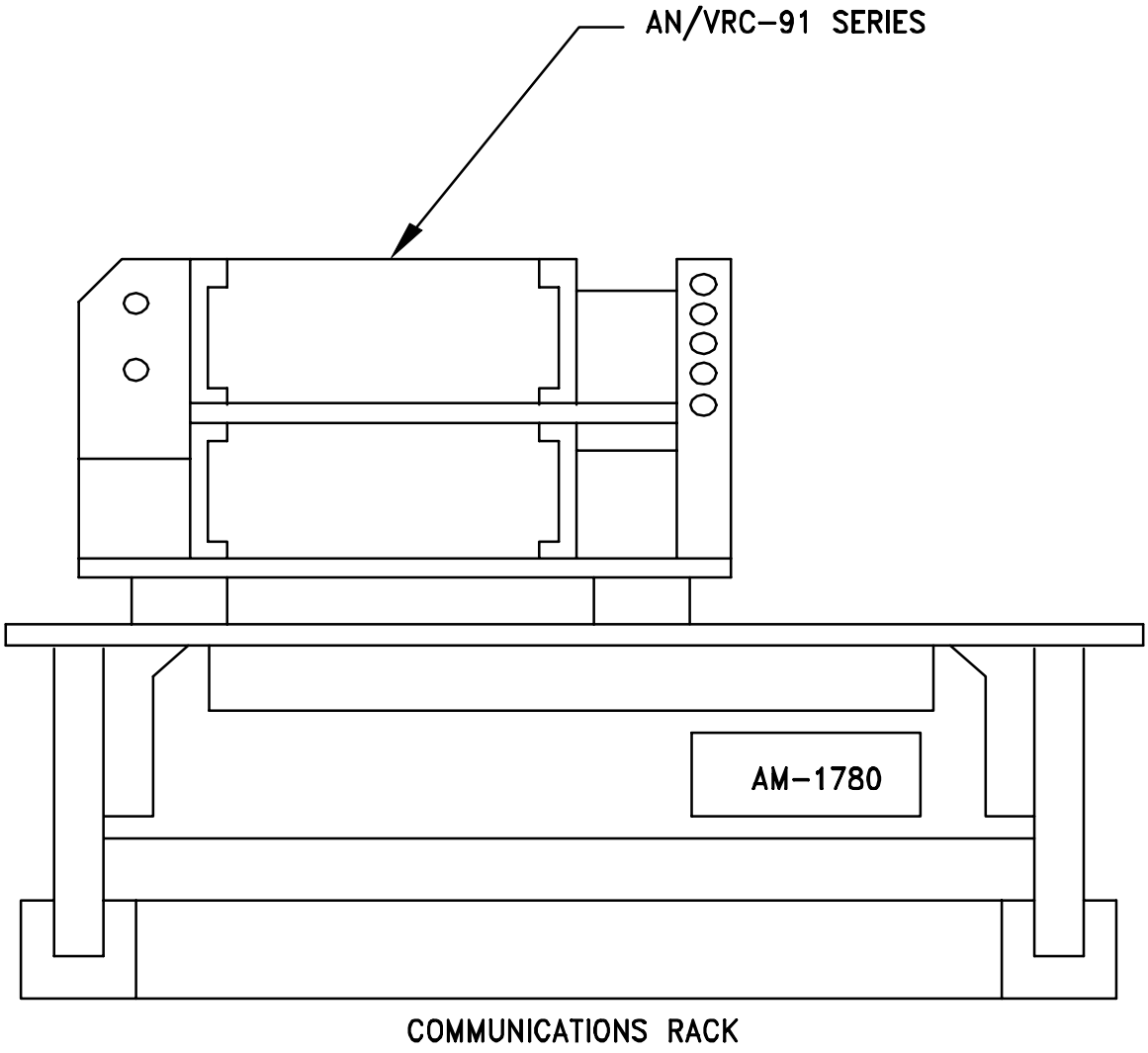
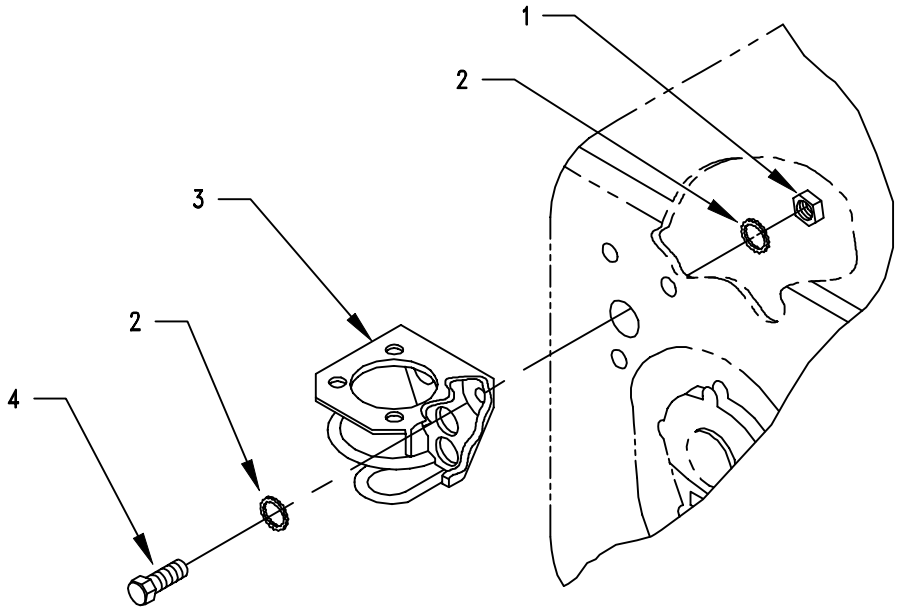


Figure 5-1 (2). MK and Radio Installation: Radio Equipment Locations

5.1 Installation of Antenna AS-3900/VRC (antenna). Use the following procedure to install both antennas. See figure 5-1 (1) for locations.

5.1.1 Installation of Antenna Base (Roadside Rear).

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 antenna bracket (3) and grommet.	If mounting holes exist, disregard this step and go to step b. Using antenna bracket (3) as a template and dimensions shown, drill three 11/32 in diameter holes and one 1 3/8 in diameter hole through rear wall of vehicle. See Figure 5-2-1	Tools: Electric drill, 11/32 in and 1 3/8 in drill bits.



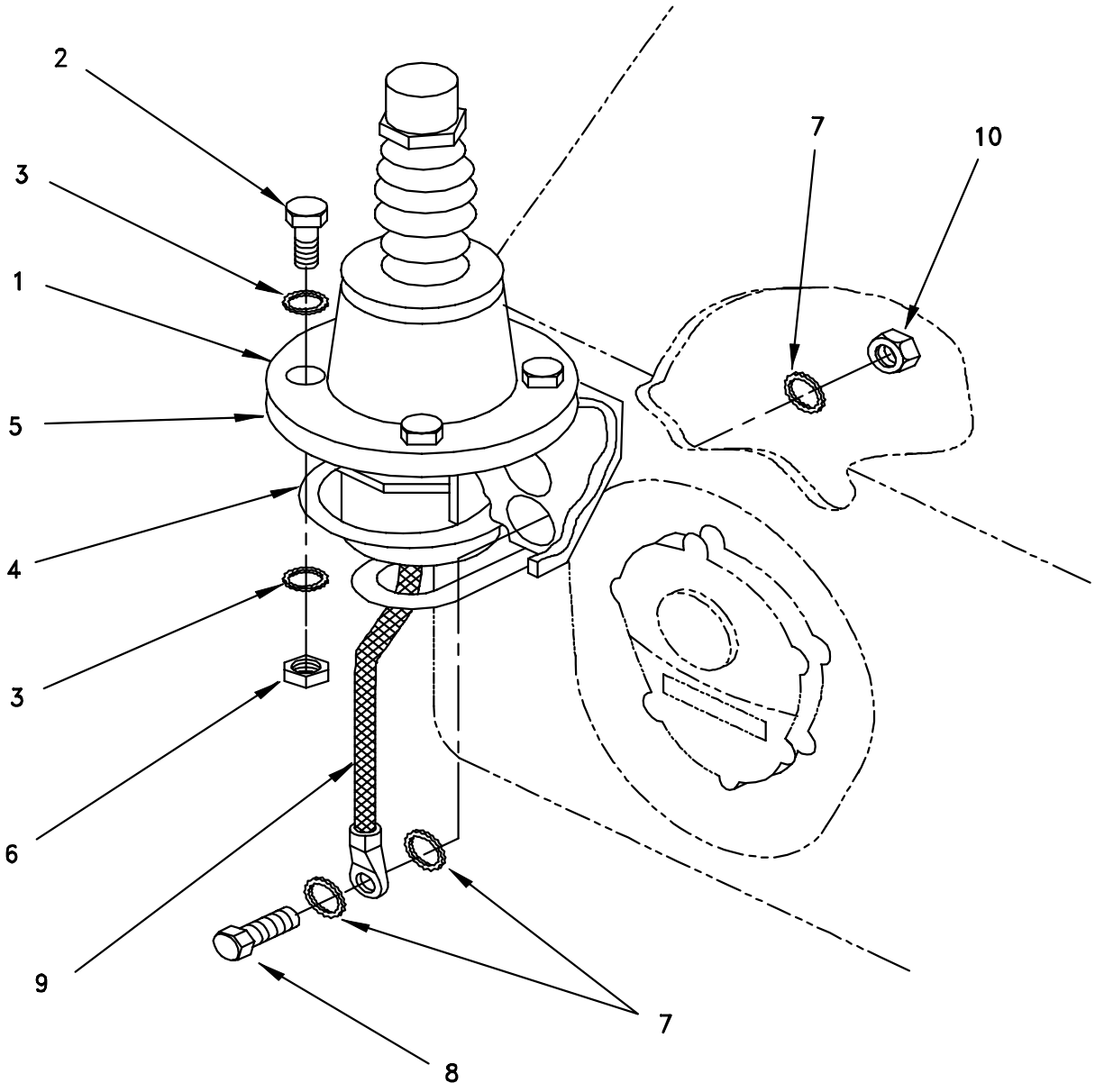
1. **NUT (5/16-24 IN)**
2. **IET WASHER (5/16 IN)**
3. **ANTENNA BRACKET**
4. **CAP SCREW (5/16-24 x 1 1/4 IN)**

Figure 5-2 (1). Antenna Base Installation: Installing Antenna Bracket

5.1.1 Installation of Antenna Base(Roadside Rear). Continued.

ITEM	ACTION	REMARKS
	NOTE To insure good electrical grounding, remove 1 in diameter of paint around mounting holes in vehicle before installing antenna bracket.	
b. Antenna bracket (3).	Align mounting holes over three 11/32 in diameter holes drilled in step a. See Figure 5-2 (1).	
c. Two cap screws (4), four internal/external-toothed (IET) washers (2) and two nuts (1).	Install and secure to two upper mounting holes in antenna bracket (3) and rear wall.	Tools: 1/2 in socket and 1/2 in open/box wrench.
d. Gasket (5).	Place on antenna bracket (4) and align mounting holes. See Figure 5-2 (2).	
e. Antenna base (1).	Place on top of gasket (5) and antenna bracket (4); then align mounting holes. See Figure 5-2 (2).	
f. Four cap screws (2), eight IET washers (3) and four nuts (6).	Install and secure to antenna base (1) and antenna bracket (4).	Tools: 9/16 in socket and 9/16 in open/box wrench.
g. Ground strap (9), cap screw (8), three IET washers (7) and nut (10).	Install and secure to bottom hole in antenna bracket (4) and rear wall.	Tools: 1/2 in socket and 1/2 in open/box wrench.

5.1.1 Installation of Antenna Base(Roadside Rear). Continued.



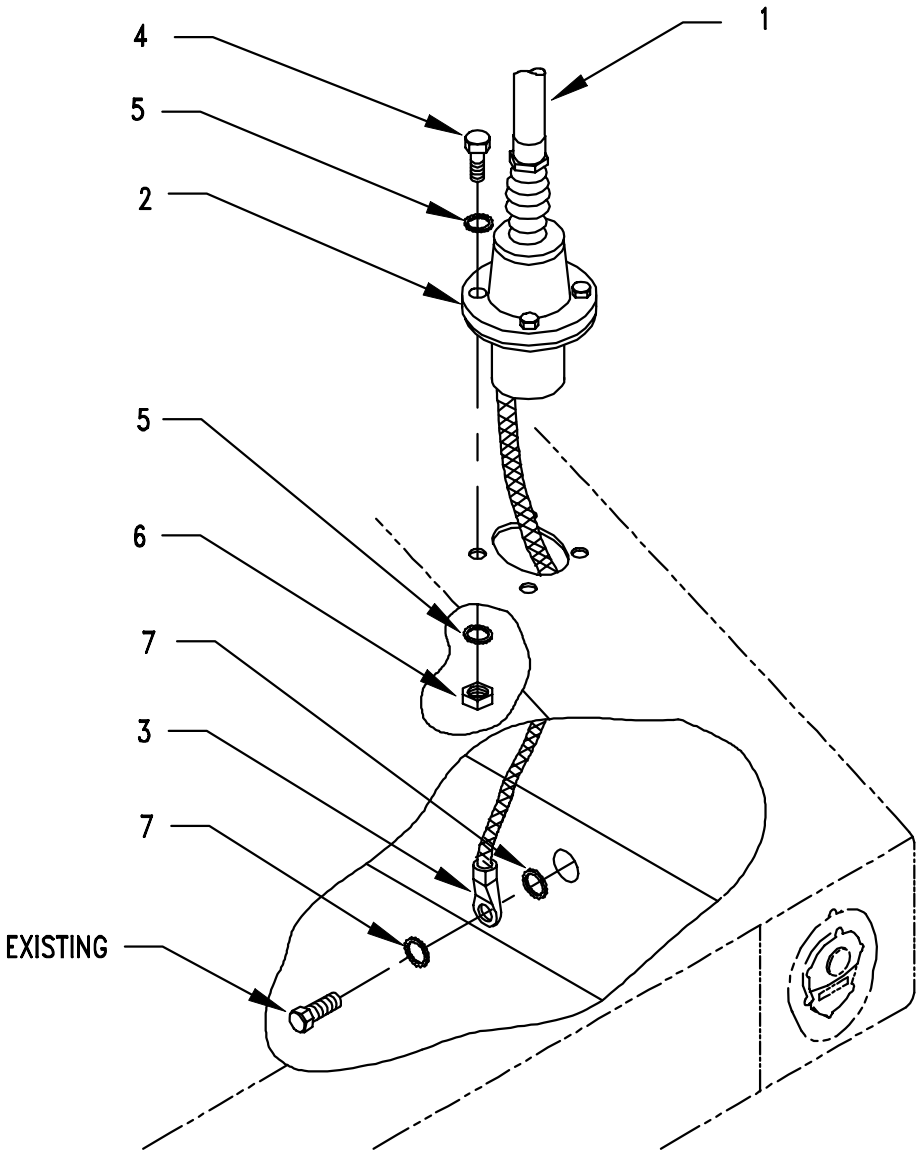
1. **ANTENNA BASE**
2. **CAP SCREW (3/8-16 x 1 3/4 IN)**
3. **IET WASHER (3/8 IN)**
4. **ANTENNA BRACKET**
5. **GASKET**
6. **NUT (3/8 IN))**
7. **IET WASHER (5/16 IN)**
8. **CAP SCREW (5/16-24 x 1 1/4 IN)**
9. **GROUND STRAP**
10. **NUT (5/16 IN)**

Figure 5-2 (2). Antenna Base Installation: Installing Roadside Antenna Base

5.1.2 Installation of Antenna Base (Hatchback).

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 (2).	Place on antenna mounting port on hatchback and align mounting holes. See Figure 5-3.	
b. Antenna base (1).	Insert ground strap (3) through antenna port on hatchback to interior of vehicle; then place antenna base (1) on top of gasket (2) and align mounting holes. See Figure 5-3.	
c. Four cap screws (4), eight IET washers (5) and four nuts (6).	Install and secure antenna base (1) to vehicle hatchback port.	Tools: 9/16 in socket and 9/16 in open/box wrench.
d. Ground strap (3) and two IET washers (7).	Install and secure to top of vertical fenderwell bracket using existing hardware and two IET washers (7) for M1114(discard existing washer(s)). For M1025A2, install ground strap during installation of cables.	

5.1.2 Installation of Antenna Base (Hatchback). Continued

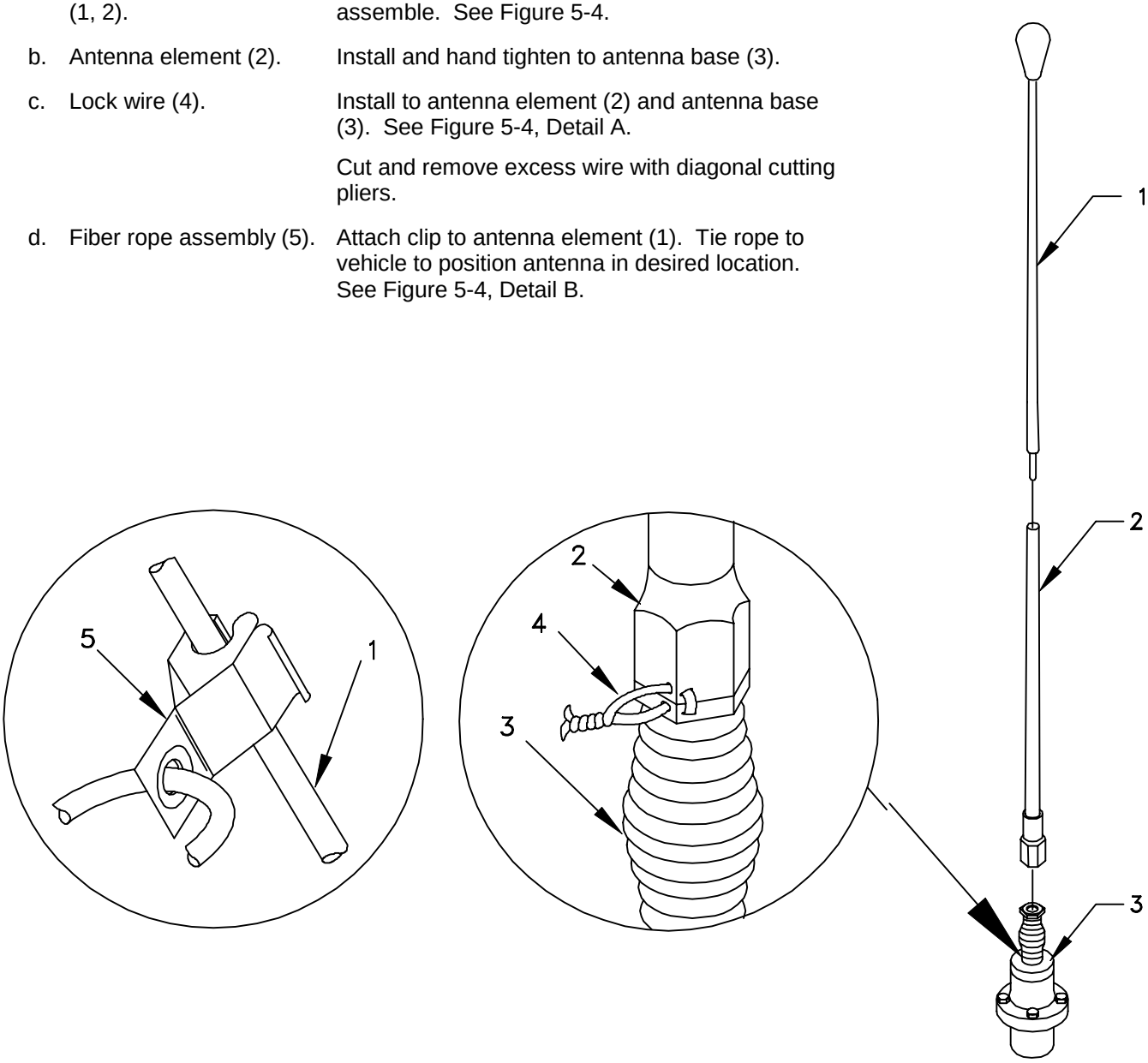


1. **ANTENNA BASE**
2. **GASKET**
3. **GROUND STRAP P/O ANTENNA**
4. **CAP SCREW (3/8-16 x 1 3/4 IN)**
5. **IET WASHER (3/8 IN)**
6. **NUT (3/8-16 IN)**
7. **IET WASHER (5/16 IN)**

Figure 5-3. Antenna Base Installation: Installing Hatchback Antenna Base

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 tiedown all antennas.

ITEM	ACTION	REMARKS
a. Antenna elements (1, 2).	Apply silicone compound to element threads and assemble. See Figure 5-4.	
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 5-4, 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 5-4, Detail B.	



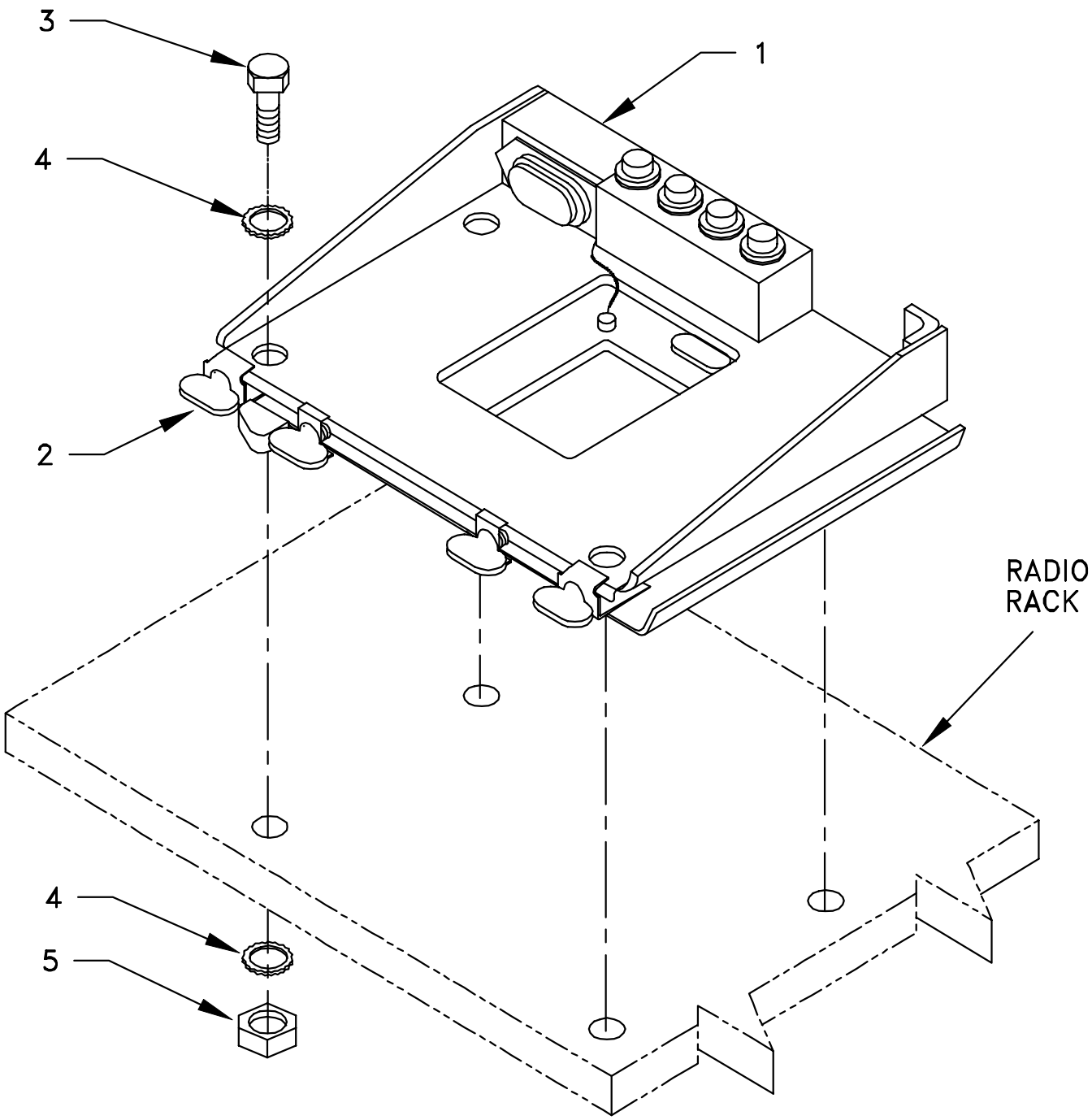
1. **ANTENNA ELEMENT (UPPER)**
2. **ANTENNA ELEMENT (LOWER)**
3. **ANTENNA BASE**
4. **LOCK WIRE**
5. **FIBER ROPE ASSEMBLY**

Figure 5-4. Top Antenna Assembly Installation

5.2 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.

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 (1) and existing communications rack.	Remove a 2” in diameter of paint from around the left two mounting holes on the bottom of the mounting base (1) and the left two mating mounting holes on the top of the existing communications rack. Clean the paint removed areas and apply a thin coat of conductive anti-seize compound.	Tools: Electric grinder or equivalent.
b. Mounting base (1).	Place on existing communications rack over existing mounting holes.	
c. Two outer thumbscrews (2).	Turn ccw until both sets of threads have cleared center of holes.	
d. Mounting base (1).	Align four holes with matching hole pattern in existing communications rack.	
e. Four machine bolts (3), eight IET washers (4) and four nuts (5).	Install and secure to mounting base (1) and existing communications rack.	Tools: 1/2 in socket and 1/2 in open/box wrench.
f. Two outer thumbscrews (2).	Tighten and secure to rim clenching clamps and mounting base (1).	

5.2 Installation of Mounting Base, Electrical Equipment MT-6352/VRC (mounting base). Continued.



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

Figure 5-5. Mounting Base Installation

5.3 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.

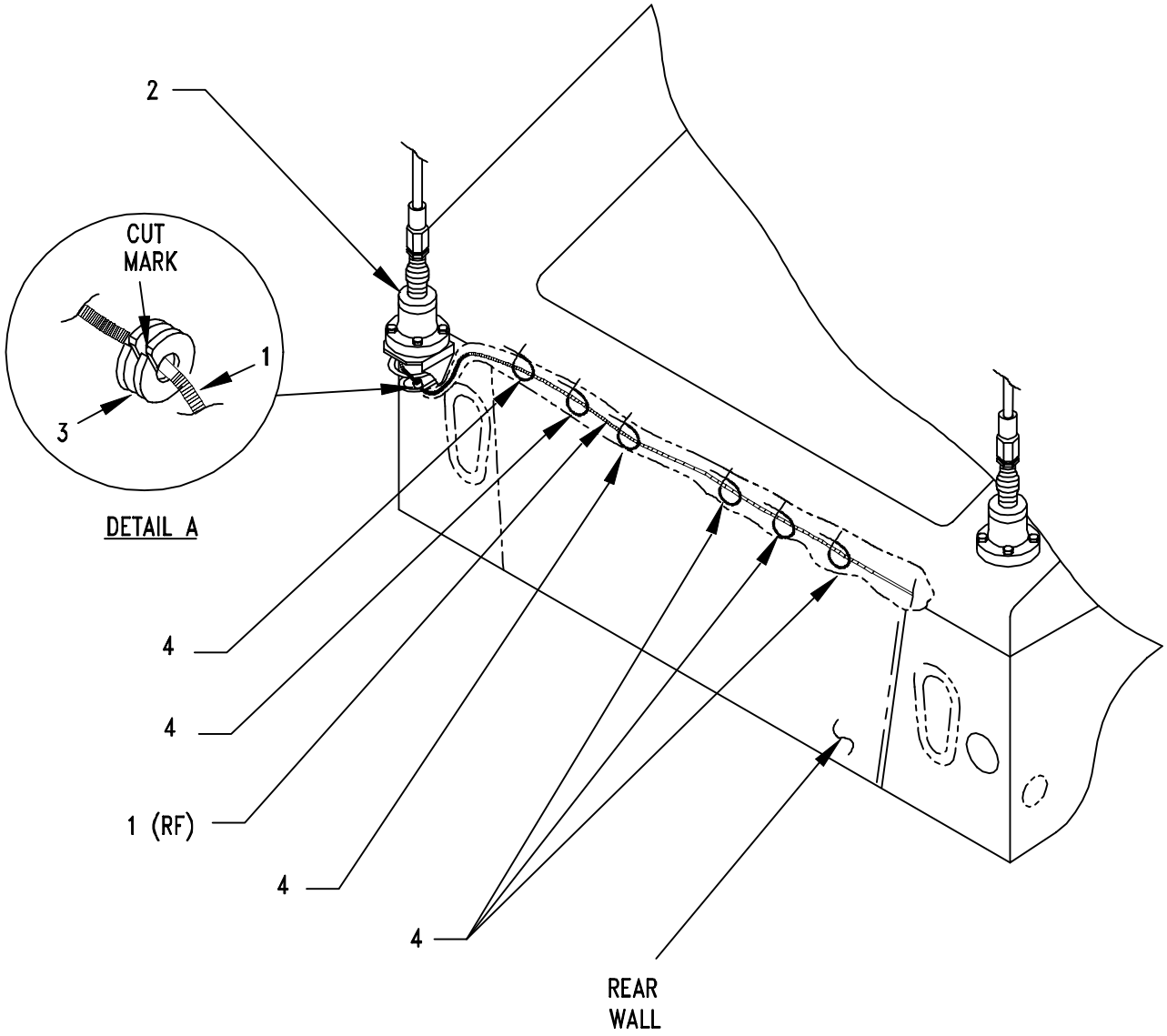
5.3.1 Installation of Cables: RF Cables (M1114).

WARNING

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

ITEM	ACTION	REMARKS
a. RF cable (1) connector P1.	Insert through grommet hole in rear roadside wall and antenna bracket; then connect and secure to antenna base (2) connector J1. See Figure 5-6(1).	
b. Grommet (3).	Cut through on mark shown; then wrap around RF cable (1) and install to grommet hole in rear wall. See Figure 5-6(1), Detail A.	Tools: Pocket knife.
c. RF cable (1).	From rear roadside wall, route below frame and with existing cable bundle to rear curbside wheel well. See Figure 5-6(1).	
d. Tiedown strap (4).	Wrap around RF cable (1), then install to existing cable bundle as required.	
e. RF cable guard covers	Temporarily remove the two RF cable guard covers on the curbside cargo compartment floor and curbside rear wheelwell.	Tools: Phillips screwdriver and flatblade screwdriver.
f. RF cable (1).	Route up through grommet hole in curbside rear cargo compartment floor next to curbside rear wheelwell. See Figure 5-6(2).	
g. Grommet (2).	Cut through on mark shown; then wrap around RF cable (1) and install to grommet hole in floor. See Figure 5-6(1), Detail A.	Tools: Pocket Knife
h. RF cable (3) connector P1.	Connect and secure to antenna base (4) connector J1.	
i. RF cable (3).	Route down to floor to where RF cable (1) exits the grommet (2). See Figure 5-6(2).	
j. RF cables (1, 3).	Route forward to bulkhead in cargo floor depression where cable guard cover was temporarily removed in step e; then route under sliding door bulkhead into curbside rear passenger compartment. See Figure 5-6(2).	
k. RF cable guard covers.	Re-install the cable guard covers temporarily removed in step e.	Tools: Phillips screwdriver and flatblade screwdriver.

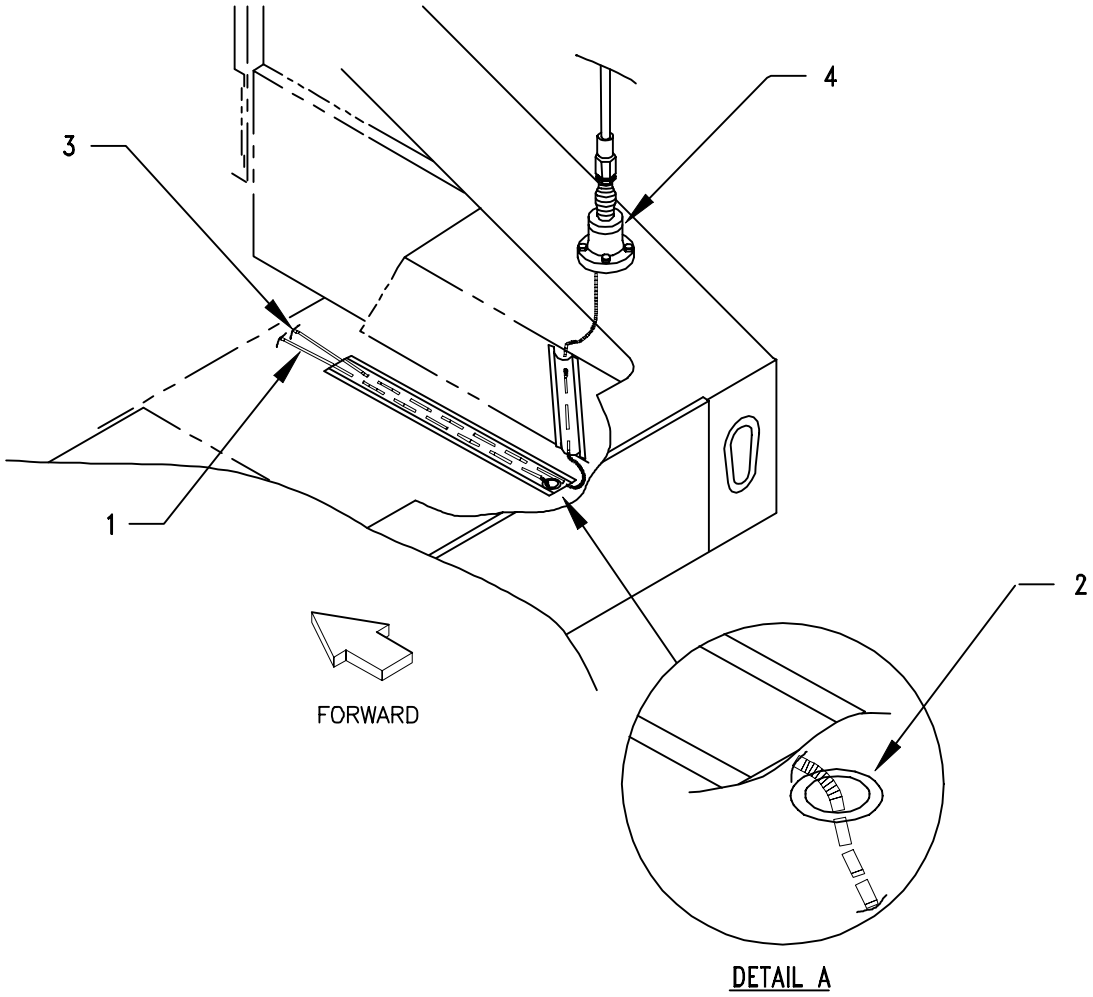
5.3.1 Installation of Cables: RF Cables (M1114). Continued



1. **RF CABLE, CG-3855/VRC (21 FT, 0 IN)**
2. **ANTENNA BASE**
3. **GROMMET**
4. **TIEDOWN STRAP**

Figure 5-6 (1). Cable Installation: RF Cabling (M1114)

5.3.1 Installation of Cables: RF Cables (M1114). Continued

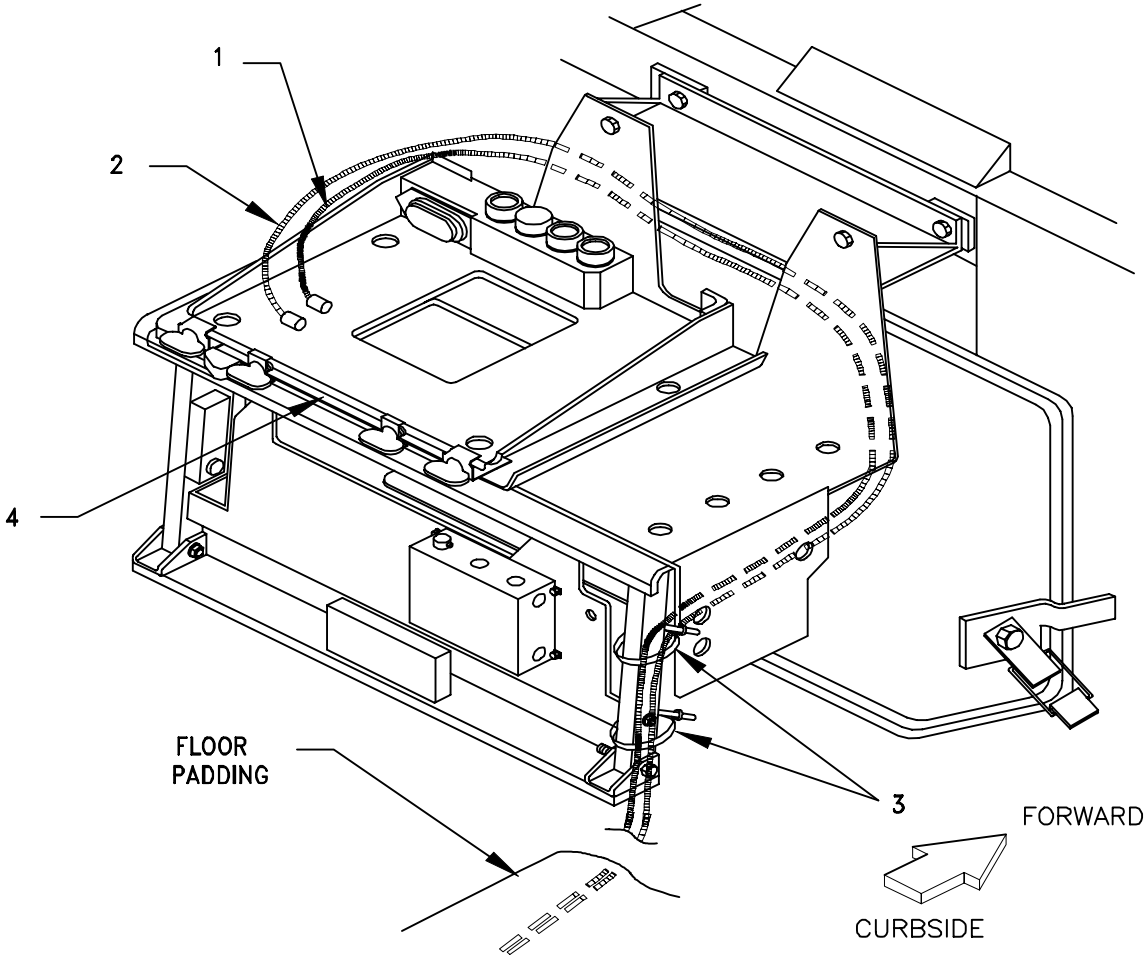


1. **RF CABLE, CG-3855/VRC (21 FT, 0 IN)**
2. **GROMMET**
3. **RF CABLE, CG-3855/VRC (18 FT, o IN)**
4. **ANTENNA BASE**

Figure 5-6 (2). Cable Installation: RF Cabling (M1114)

5.3.1 Installation of Cables: RF Cables (M1114). Continued

ITEM	ACTION	REMARKS
l. Three loop clamps (3), three hex-head tapping screws (no. 10-32 x 1/2) and three lock washers (no. 10).	Wrap clamps around RF cables (1, 2); then install to existing holes in curbside rear passenger compartment area. See Figure 5-6(4) for locations.	Tools: 5/16 in socket.
m. Front curbside floor padding.	Secure over RF cables (1, 2). See Figure 5-6 (3).	
n. Two tiedown strap (3).	Wrap around RF cables (1, 2) and secure to existing communications rack curbside support leg. See Figure 5-6 (3) for locations	
o. F cables (1, 2) connector P2.	Route under existing communications rack toward roadside and position on top of mounting base (4).	



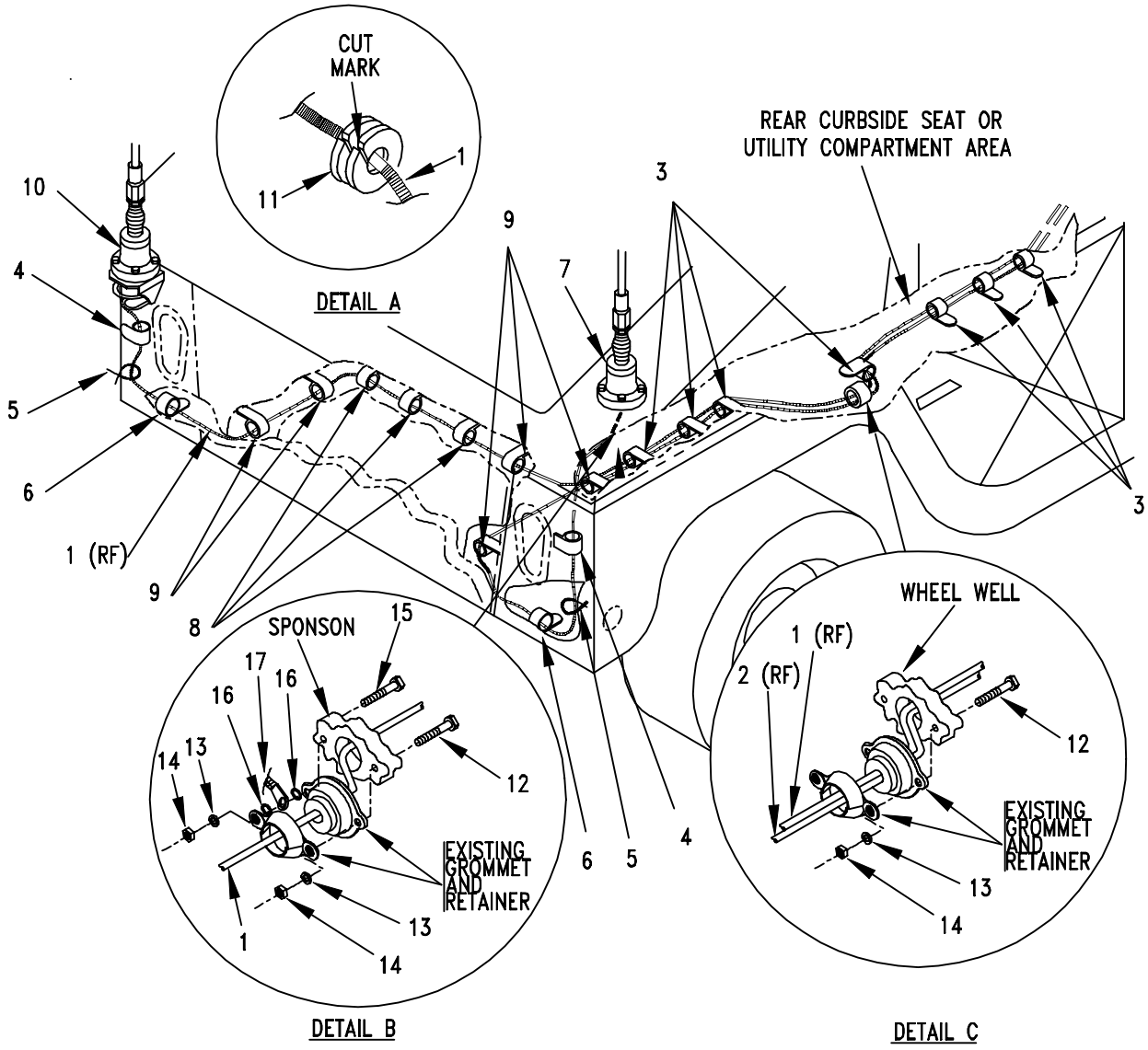
1. **RF CABLE, CG-3855/VRC (21 FT, 0 IN)**
2. **RF CABLE, CG-3855/VRC (18 FT, 0 IN)**
3. **TIEDOWN STRAP**
4. **MOUNTING BASE**

Figure 5-6 (3). Cable Installation: RF Cabling

5.3.2 Installation of Cables: RF Cables (M1025A2).

ITEM	ACTION	REMARKS
a. RF cable (1) connector P1.	Insert through grommet hole in rear roadside wall and antenna bracket; then connect and secure to antenna base (10) connector J1. See Figure 5-6 (4).	
b. Grommet (11).	Cut through on mark shown; then wrap around RF cable (1) and install to grommet hole in rear wall. See Figure 5-6 (1), Detail A.	
c. RF cable (1).	From rear roadside wall, route below frame to rear curbside wheel well. See Figure 5-6 (4).	
d. Loop clamp (4) and existing mounting hardware.	Wrap clamp around RF cable (1); then install to rear roadside reflector (on inside corner of rear wall). See Figure 5-6 (4) for location.	
e. Tiedown strap (5).	Wrap around RF cable (1), then install loosely to rear roadside taillight wiring harness.	
f. Loop clamp (6), hex-head machine screw (no. 10-32 x 5/8 in), lock washer (no. 10) and nut (no. 10-32 in).	Wrap clamp around RF cable (1) and existing harness; then install to bottom edge of rear roadside wall.	Tools: 5/16 in socket and 5/16 in open/box wrench.
g. Two loop clamps (9), two hex-head tapping screws (no. 10-32 x 1/2 in) and two lock washers (no. 10).	Wrap clamps around RF cable (1) and existing cable harness; then install to mounting holes on bottom of rear curbside frame.	Tools: 5/16 in socket.
h. Three loop clamps (8), one loop clamp (9), four hex-head tapping screws (no. 10-32 x 1/2 in) and four lock washers (no. 10).	Wrap clamps around RF cable (1) and existing cable harness; then install across bottom surface of rear frame. See Figure 5-6 (4).	Tools: 5/16 in socket.
i. Existing grommet and retainer.	Temporarily remove from grommet hole in rear curbside fender sponson. See Figure 5-6(4), Detail B. Discard old mounting hardware.	
j. RF cable (2).	Insert connector P1 through grommet hole and secure to antenna base (7) connector J1. See Figure 5-6 (4).	
k. Existing grommet (removed in step i).	Wrap around RF cable (2); then insert in grommet hole.	
l. Existing retainer, ground strap (17), cap screw (15), cap screw (12), two IET washers (16), two lock washers (13) and two nuts (14).	Install and secure grommet along with ground strap to rear curbside fender sponson. See Figure 5-6 (4), Detail B.	Tools: 7/16 in socket and 7/16 in open/box wrench.

5.3.2 Installation of Cables: RF Cables (M1025A2). Continued



1. RF CABLE, CG-3855/VRC (21 FT, 0 IN)
2. RF CABLE, CG-3856/VRC (18 FT, 0 IN)
3. LOOP CLAMP (1/2-13/64 IN)
   TAPPING SCREW (NO. 10-32 x 1/2 IN)
   LOCK WASHER (NO. 10)
4. LOOP CLAMP (1/4-1/4 IN)
5. TIEDOWN STRAP)
6. LOOP CLAMP (3/4-113/64 IN)
   MACHINE SCREW (NO. 10-32 x 5/8 IN))
   LOCK WASHER (NO. 10)
   NUT (NO. 10)
7. ANTENNA BASE (CURBSIDE)
8. LOOP CLAMP (1/2-13/64 IN)
   TAPPING SCREW (NO. 10-32 x 1/2 IN)
   LOCK WASHER (NO. 10)
9. LOOP CLAMP (1/2-13/64 IN)
   TAPPING SCREW (NO. 10-32 x 1/2 IN)
   LOCK WASHER (NO. 10)
10. ANTENNA BASE (ROADSIDE)
11. GROMMET
12. CAP SCREW (1/4-20 x 3/4 IN)
13. LOCK WASHER (1/4 IN)
14. NUT (1/4-20 IN)
15. CAP SCREW (1/4-20 x 1 IN)
16. IET WASHER (1/4 IN)
17. GROUND STRAP P/O ANTENNA

Figure 5-6 (4). Cable Installation: RF Cabling (M1025A2)

5.3.2 Installation of Cables: RF Cables (M1025A2). Continued

ITEM	ACTION	REMARKS
m. RF cable (2).	Route down rear curbside frame and along bottom of curbside frame to rear wheel well. See Figure 5-6 (4).	
n. Loop clamp (4) and existing hardware.	Wrap clamp around RF cable (2); then install to rear curbside reflector (on inside corner of rear wall).	
o. Tiedown strap (5).	Wrap around RF cable (2), then install loosely to taillight wiring harness. See Figure 5-6 (4) for location.	
p. Loop clamp (6), hex-head machine screw (no. 10-32 x 5/8 in), lock washer (no. 10) and nut (no. 10-32 in)	Wrap clamp around RF cable (2) and existing cable harness; then install to bottom edge of rear wall.	Tools: 5/16 in socket.
q. Loop clamp (9), hex-head tapping screw (no. 10-32 x 1/2 in) and lock washer (no. 10).	Wrap clamp around RF cable (2) and existing cable harness; then install to mounting hole on bottom of rear curbside frame.	Tools: 5/16 in socket.
r. Three loop clamps (3), one loop clamp (9), four hex-head tapping screws (no. 10-32 x 1/2 in) and four lock washers (no. 10).	Wrap clamps around RF cables (1, 2) and existing cable harness; then install to mounting holes on bottom of rear curbside frame.	Tools: 5/16 in socket.
s. Existing retainer and grommet.	Temporarily remove from grommet hole in rear curbside wheelwell. Discard old mounting hardware. See Figure 5-6 (4), Detail C.	
t. RF cables (1, 2).	Insert P2 connectors through grommet hole; then route cables through rear curbside seat or utility compartment area to radio rack. See Figure 5-6 (4).	
u. Existing grommet (removed in step s).	Wrap around RF cables (1, 2); then insert in grommet hole.	
v. Existing retainer, two cap screws (12), two lock washers (13) and two nuts (14).	Install and secure grommet to wheelwell. See Figure 5-6 (4), Detail C.	Tools: 7/16 in socket and 7/16 in open/box wrench.
w. Four loop clamps (3), four hex-head tapping screws (no. 10-32 x 1/2 in) and four lock washers (no. 10).	Wrap clamps around RF cables (1, 2); then install to existing holes in rear curbside seat or utility compartment area. See Figure 5-6 (4) for locations.	Tools: 5/16 in socket.
x. Front curbside floor padding.	Secure over RF cables (1, 2). See Figure 5-6 (3).	

5.3.2 Installation of Cables: RF Cables (M1025A2). Continued

ITEM	ACTION	REMARKS
y. Two tiedown strap (3).	Wrap around RF cables (1, 2) and secure to existing communications rack curbside support leg. See Figure 5-6 (3) for locations	
z. RF cables (1, 2) connector P2.	Route under existing communications rack toward roadside and position on top of mounting base (4).	

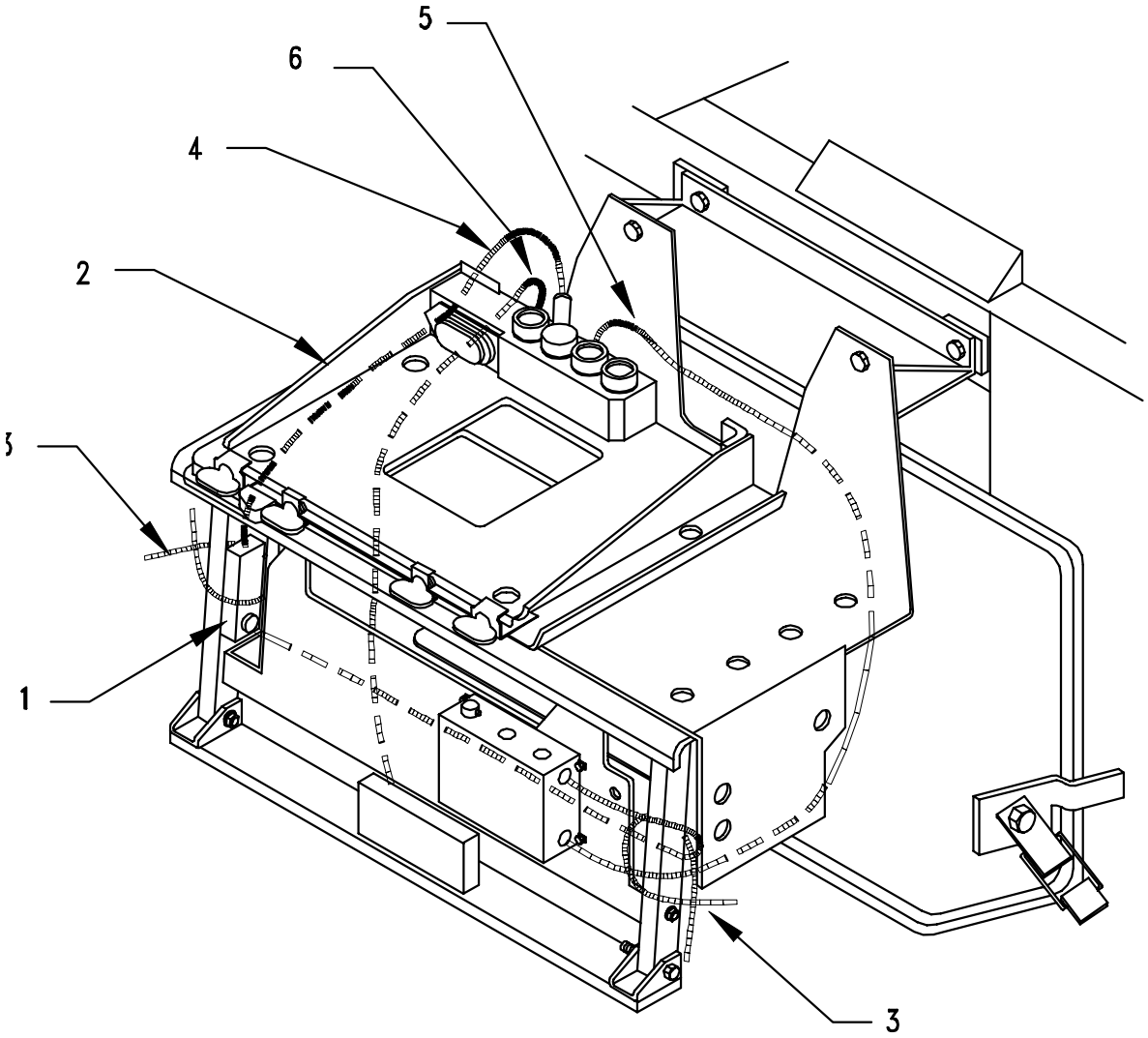
5.3.3 Installation of Cables: Power and SP Cables. Continued

ITEM	ACTION	REMARKS
a. Existing communications rack dashboard mounting bolts.	Temporarily remove the bolts securing the existing communications rack to the dashboard; then tilt the communications rack rearward to the full vertical position. Temporarily remove the cover to the power strip.	
b. Power cable (6) terminal leads: T1 (red) and T2 (black).	Connect and secure to proper terminal studs of the power strip with existing hardware. See Figure 5-6 (5).	Positive (+) stud is to roadside and negative (-) stud is to curbside.
c. Power strip cover.	Reinstall the power strip cover; then tilt the communications rack back to original position and reinstall and secure the bolts temporarily removed in step a.	
d. Power cable (6) connector P2.	Position on top of mounting base (2).	
e. SP cable (1) connector P2.	Connect and secure to mounting base (2) connector J3. See Figure 5-6 (5).	
f. SP cable (1) and three tiedown straps (3).	Route SP cable (1) to left rear of mounting base (2); then route down and forward to roadside existing communications rack support leg and secure to support leg with tiedown strap (3). See Figure 5-6 (5).	
g. SP cable (4) connector P2.	Connect and secure to SP cable (1) connector P1.	
h. SP cable (5) connector P2.	Connect and secure to mounting base (2) connector J4.	
i. SP cable (5) and tiedown strap (3).	Route to roadside rear of mounting base (2); then down and forward to roadside radio rack support leg. Use tiedown strap (3) to secure cables as required.	
j. SP cables (4, 5).	Route under existing communications rack toward curbside to the curbside existing communications rack support leg; then up to AM-1780/VRC. See Figure 5-6 (6).	

5.3.3 Installation of Cables: Power and SP Cables. Continued

ITEM	ACTION	REMARKS
k. SP cable (4) connector P1.	Connect and secure to AM-1780/VRC connector J501.	
l. SP cable (5) connector P1.	Connect and secure to AM-1780/VRC connector J503.	
m. Tiedown strap (3).	Use tiedown straps (3) to secure SP cables (4, 5) to the curbside leg of existing communications rack as required..	
n. Sealant	Apply to and around previously installed grommets and drilled holes.	
o. Power cable (6) connector P2.	Connect and secure to mounting base (2) connector J1. See Figure 5-6 (5).	

5.3.3 Installation of Cables: Power and SP Cables. Continued



1. SP CABLE, CX-13313/VRC (2 FT, 7 IN)
2. MOUNTING BASE
3. TIEDOWN STRAP
4. SP CABLE, CX-13300/VRC (8 FT, 0 IN)
5. SP CABLE, CX-13300/VRC (8 FT, 0 IN)
6. POWER CABLE, CX-13302/VRC (6FT, 0IN)

Figure 5-6 (5). Cable Installation: Power and SP Cables

5.4 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 5-7 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 11-5820-890-20-4 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.	

5.4 Post-Installation and Checkout. Continued.

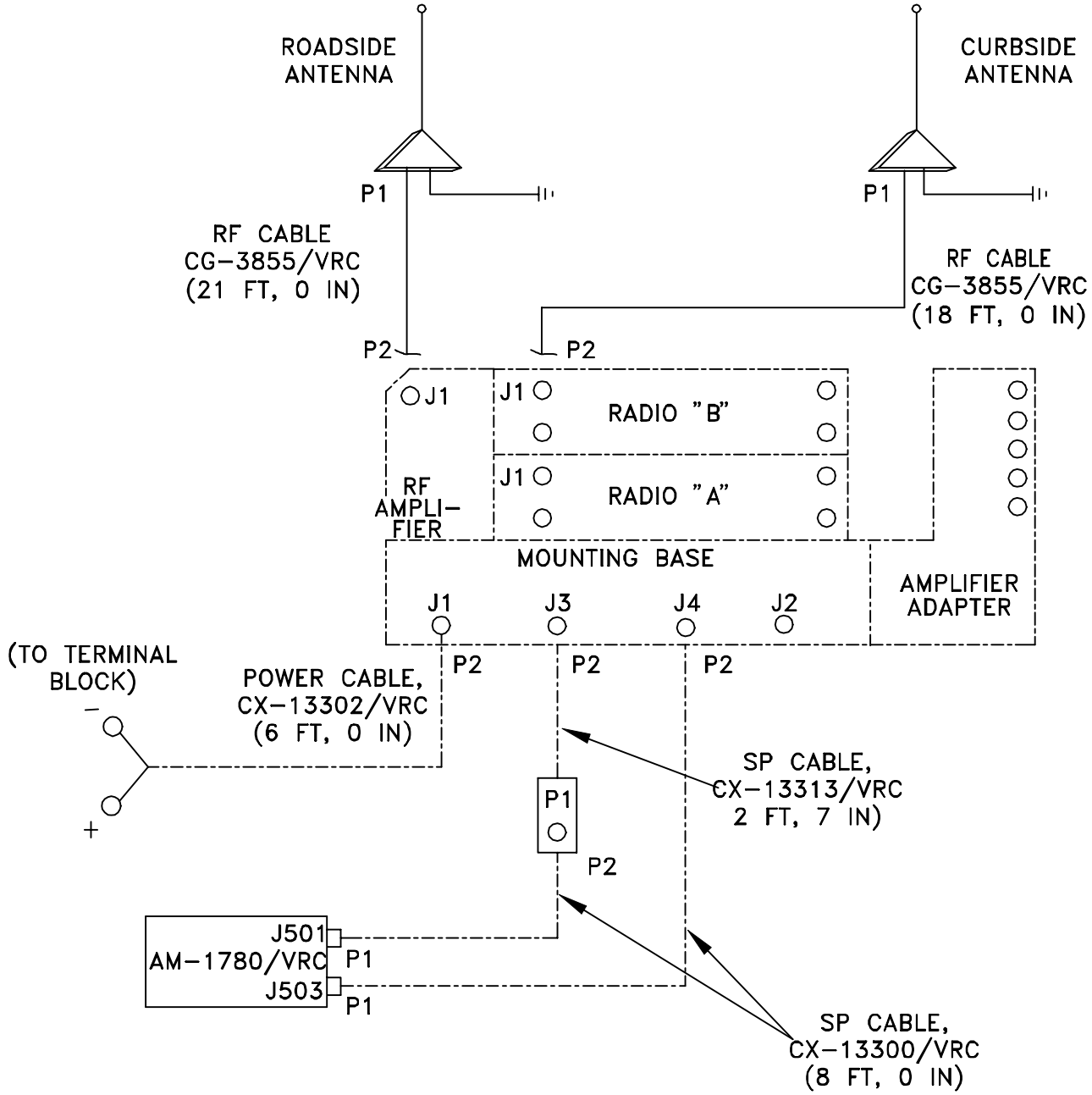


Figure 5-7. Cable Diagram: For AN/VRC-91 Series

54 Post-Installation and Checkout. Continued.

CABLE ASSEMBLY	FROM			TO		
	CABLE CONN.	UNIT	UNIT CONN.	CABLE CONN.	UNIT	UNIT CONN.
CX-13302/VRC (6 FT, 0 IN)	P2	Mounting base	J1	T1: Red (+) T2: Black (-)	Terminal lugs	(+) Post (-) Post
CG-3855/VRC (18 FT, 0 IN)	P1	Hatchback antenna base	J1	P2	RF amplifier or RT	J1
CG-3855/VRC (21 FT, 0 IN)	P1	Roadside antenna base	J1	P2	RT B	J1
CX-13300/VRC (8 FT, 0 IN)	P2	CX-13313/VRC (2 FT, 7 IN)	P1	P1	AM-1780/VRC	J501
CX-13300/VRC (8 FT, 0 IN)	P1	AM-1780/VRC	J503	P2	Mounting base	J4
CX-13313/VRC (2 FT, 7 IN)	P1	CX-13300/VRC (8 FT, 0 IN)	P2	P2	Mounting base	J3

Figure 5-7. Cable Diagram: For AN/VRC-91 Series. Continued.

APPENDIX A

REFERENCES

AMDF	Army Master Data File (Microfiche)
AR 710-2	Supply Policy Below the Wholesale Level as Contained in Unit Supply UPDATE
AR 725-50	Requisitioning, Receipt and Issuing System in UPDATE
DA PAM 25-30	Consolidated Index of Army Publications (Microfiche)
DA PAM 710-2-1	Using Unit Supply System Manual Procedures as Contained in Unit Supply UPDATE
SB 11-131-2	Vehicular Radio Sets and Authorized Installations (SINCGARS)
TM 11-5820-890-10-1	Operator's Manual (ICOM Radio Sets)
TM 11-5820-890-10-3	Operator's Manual (Non-ICOM Radio Sets)
TM 11-5820-890-20-1	Unit Maintenance Manual (ICOM Radio Sets, Vol. 1)
TM 11-5820-890-20-2	Unit Maintenance Manual (ICOM Radio Sets, Vol. 2)
TM 11-5820-890-20-3	Unit Maintenance Manual Handbook (ICOM Radio Sets)
TM 11-5820-890-20-4	Unit Maintenance Manual (Non-ICOM Radio Sets)
TM 11-5820-890-20P	Repair Parts and Special Tools List

By Order of the Secretary of the Army:

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General, United States Army
Chief of Staff

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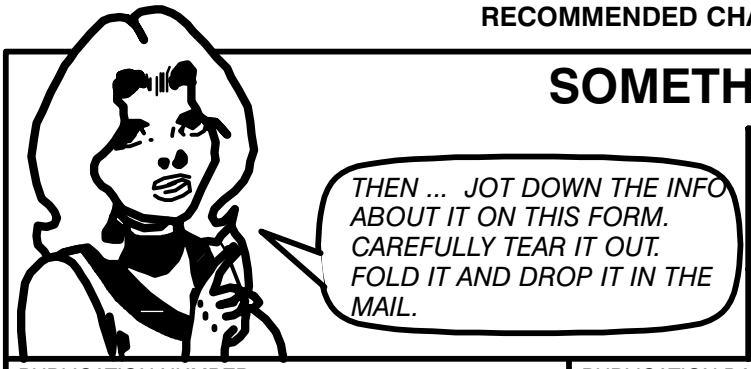

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PAGE NO	PARA-GRAPH	FIGURE NO	TABLE NO
2–25	2–28		
3–10	3–3		3–1
5–6	5–8		
		FO–3	

IN THIS SPACE TELL WHAT IS WRONG AND WHAT SHOULD BE DONE ABOUT IT:

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

REASON: Experience has shown th[illegible] only a 10 lag, the antenna servo system is too sensitive to [illegible] gusting in excess of 25 knots, and has a tendency to rapidly accelerate and decelerate as it hunts, caus[illegible] strain to the drive train. Hunting is minimized by adjusting th[illegible] to 20 without degradation of operation.

Item 5, Fu[illegible]ctional co[illegible]n. Change ☐ 2 dB" to ☐ 3 dB".

REA[illegible] adjustment procedure for the TRANS POWER FAULT [illegible]r call for a 3 dB (500 watts) adjustment to light the TRA[illegible] POWER FAULT indicator.

A[illegible]d new step f.1 to read, ☐ Replace cover plate removed in step d above."

REASON: To replace the cover plate.

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.

PRINTED NAME, GRADE OR TITLE AND TELEPHONE NUMBER

SSG I. M. DeSpiritof 999–1779

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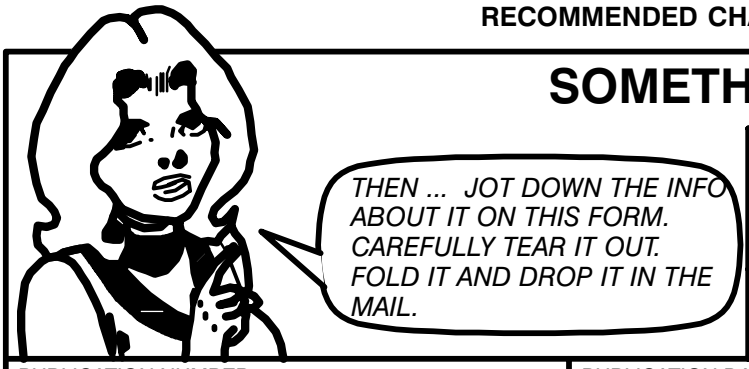

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THE METRIC SYSTEM AND EQUIVALENTS

'NEAR MEASURE

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

'VEIGHTS

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

LIQUID MEASURE

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

SQUARE MEASURE

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

CUBIC MEASURE

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

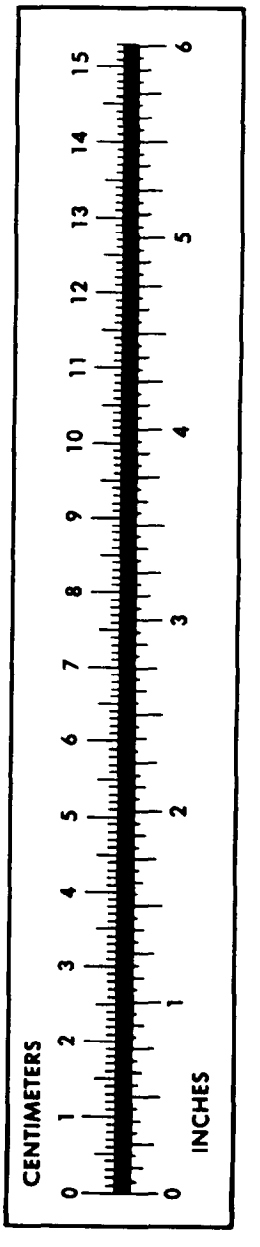
TEMPERATURE

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

APPROXIMATE CONVERSION FACTORS

TO CHANGE	TO	MULTIPLY BY
Inches	Centimeters	2.540
Feet	Meters	0.305
Yards	Meters	0.914
Miles	Kilometers	1.609
Square Inches	Square Centimeters	6.451
Square Feet	Square Meters	0.093
Square Yards	Square Meters	0.836
Square Miles	Square Kilometers	2.590
Acres	Square Hectometers	0.405
Cubic Feet	Cubic Meters	0.028
Cubic Yards	Cubic Meters	0.765
Fluid Ounces	Milliliters	29.573
ıts	Liters	0.473
arts	Liters	0.946
allons	Liters	3.785
Ounces	Grams	28.349
Pounds	Kilograms	0.454
Short Tons	Metric Tons	0.907
Pound-Feet	Newton-Meters	1.356
Pounds per Square Inch	Kilopascals	6.895
Miles per Gallon	Kilometers per Liter	0.425
Miles per Hour	Kilometers per Hour	1.609

TO CHANGE	TO	MULTIPLY BY
Centimeters	Inches	0.394
Meters	Feet	3.280
Meters	Yards	1.094
Kilometers	Miles	0.621
Square Centimeters	Square Inches	0.155
Square Meters	Square Feet	10.764
Square Meters	Square Yards	1.196
Square Kilometers	Square Miles	0.386
Square Hectometers	Acres	2.471
Cubic Meters	Cubic Feet	35.315
Cubic Meters	Cubic Yards	1.308
Milliliters	Fluid Ounces	0.034
Liters	Pints	2.113
Liters	Quarts	1.057
ers	Gallons	0.264
ms	Ounces	0.035
ograms	Pounds	2.205
Metric Tons	Short Tons	1.102
Newton-Meters	Pounds-Feet	0.738
Kilopascals	Pounds per Square Inch	0.145
lometers per Liter	Miles per Gallon	2.354
meters per Hour	Miles per Hour	0.621



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