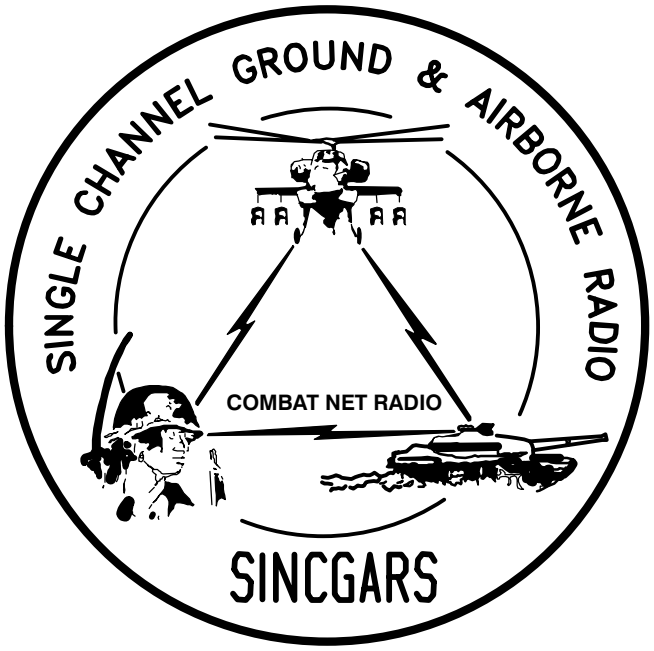
TECHNICAL BULLETIN



INSTALLATION INSTRUCTIONS FOR ELECTRONIC EQUIPMENT MK−2336/VRC (NSN 5895−01−285−2346) (EIC: N/A) TO PERMIT INSTALLATION OF RADIO SET AN/VRC−89/91/92 (DUAL) SERIES IN A CARRIER, COMMAND POST, LIGHT, TRACKED, M577 FIRE DIRECTION CENTER

Approved for public release; distribution is unlimited.

1 AUGUST 1999

TECHNICAL BULLETIN

NO. 11−5820−890−20−35

*TB 11–5820–890–20–35
HEADQUARTERS,
DEPARTMENT OF THE ARMY
WASHINGTON, DC, 1 AUGUST 1999

INSTALLATION INSTRUCTIONS FOR ELECTRONIC EQUIPMENT MK−2336/VRC (NSN 5895−01−285−2346) (EIC: N/A) TO PERMIT INSTALLATION OF RADIO SET AN/VRC−89/91/92 (DUAL) SERIES IN A CARRIER, COMMAND POST, LIGHT, TRACKED, M577 FIRE DIRECTION CENTER

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 2028–2 located in back of this manual direct to: Commander, US Army Communications–Electronics Command Fort Monmouth, ATTN: AMSEL–LC–LEO–D–CS–CFO, Fort Monmouth, New Jersey 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@ce-com3.monmouth.army.mil.

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

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*This manual supersedes TB 11–5820–890–20–35, dated 1 September 1993

LIST OF ILLUSTRATIONS

LIST OF TABLES

0.1 SCOPE.

This technical bulletin provides Installation Instructions for Electronic Equipment MK−2336/VRC, commonly referred to as the Mounting Kit (MK). The MK shall be installed into the following type of vehicle(s):

- Carrier, Command Post, Light, Tracked, M577 Fire Direction Center

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 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 11−5820−890−20−2 and RPSTL of TM 11−5820−890−20P.

Included in the Radio Set AN/VRC−89/91/92 (Dual) Series is:

- Radio Set AN/VRC−89/91/92 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 Packaging 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 Electronic Equipment MK−2336/VRC (MK) contains the items needed to mount two AN/VRC−89/91/92 radio sets series in a Carrier, Command Post, Light, Tracked, M577 Fire Direction Center (vehicle). If Radio Set AN/VRC−92 Series is authorized, see section 5.5 for instructions to install MT−6353/VRC monting base.

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 6.0 work hours is required. Typical vehicle downtime is 6.5 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 times 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	5.4	1.0

4. 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.

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 9−2320−280−20.

4.1.2 List of 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 covers 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.

4.2.2 Unpack 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/NAVMATINST 4355.73A/AFR 400−64/MCO 4430.3F.

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/NAVSUPINST 4610.33C/AFR 75−18/MCO P4610.19D/DLAR 4500.15.

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 by 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−89/91/92 (dual) Series. Refer to Table 4−2 and figure 4−2 to identify additional items required to install Radio Set AN/VRC−92 (dual) 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–89/91/92 (Dual) Series

NSN	ITEM DESCRIPTION AND PART NUMBER	QUANTITY IN MK	SMR CODE	FIGURE, ITEM NO.
5985–01–226–8171	Adapter, Antenna – OE–254 (A3014066–1)	2	PAOZZA	4–1, 5
5305–00–847–1159	Screw, Cap, Hexagon (3/8–16 x 1 3/4 in) MS35307–365	8	PAOZZA	
5310–00–080–6004	Washer, Flat (3/8 in) MS27183–14	8	PAOZZA	
5310–00–637–9541	Washer, Lock (3/8 in) MS35338–46	8	PAOZZA	
5330–01–205–2864	Gasket (A3013655–1)	2	PAOZZA	
5985–01–297–2971	Antenna AS–3900/VRC (A3017899–1)	4	PAOOFA	4–1, 2
5305–00–847–1159	Screw, Cap, Hexagon (3/8–16 x 1 3/4 in) MS35307–365	16	PAOZZA	
5310–00–913–8881	Nut, Hexagon (3/8–16 in) MS51971–3 (Not Used)	16	PAOZZA	
5310–00–061–1258	Washer, Lock, Internal/External–Toothed (3/8 in) MS45904–76 (12 Not Used)	32	PAOZZA	
5305–00–068–0502	Screw, Cap, Hexagon (1/4–20 x 3/4 in) MS90725–6	1	PAOZZA	
5310–00–889–2528	Washer, Lock, Internal/External–Toothed (1/4 in) MS45904–68	2	PAOZZA	
	Lead, Electrical (5 in) A3013552–10	1	XBOZZA	
5310–00–889–2527	Washer, Lock, Internal/External–Toothed (5/16 in) MS45904–72	8	PAOZZA	
5306–00–225–9086	Bolt, Machine (5/16–24 x 5/8 in) MS90726–31 (Not Used)	4	PAOZZA	
5330–01–205–2864	Gasket (A3013655–1)	4	PAOZZA	
5965–01–222–1420	Loudspeaker – Control Unit LS–671/VRC (A3014065–1)	3	PAOFFA	4–1, 4
5975–01–188–8873	Mounting Base, Electrical Equipment MT–6352/VRC (A3013367–1)	2	PAOOFA	4–1, 1
5306–00–225–9089	Bolt, Machine (5/16–24 x 1 in) MS90726–34	10	PAOZZA	
5310–00–889–2527	Washer, Lock, Internal/External–Toothed (5/16 in) MS45904–72	20	PAOZZA	
5310–00–880–7746	Nut, Hexagon (5/16 – 24 in) MS51968–5	10	PAOZZA	
5995–01–219–1845	Cable Assembly, Power, Electrical CX–13306/VRC (8 FT, 0 IN) (A3014043–4)	1	PAOZZA	4–1, 7
5995–01–225–0503	Cable Assembly, Power, Electrical CX–13306/VRC (5 FT, 0 IN) (A3014043–6)	1	PAOZZA	4–1, 7
5995–01–219–4932	Cable Assembly, Special Purpose, Electrical CX–13300/VRC (5 FT, 0 IN) (A3014044–3)	1	PAOZZA	4–1, 8
5995–01–225–1657	Cable Assembly, Special Purpose, Electrical CX–13292/VRC (11 FT, 0 IN) (A3014038–8)	3	PAOZZA	4–1, 10

Table 4−1. Parts List for Installation of Radio Set AN/VRC−89/91/92 (Dual) Series Continued

NSN	ITEM DESCRIPTION AND PART NUMBER	QUANTITY IN MK	SMR CODE	FIGURE, ITEM NO.
5995−01−219−7024	Cable Assembly, Radio Frequency CG−3856/VRC (4 FT, 0 IN) (A3014032−2)	2	PAOZZA	4−1, 9
5995−01−219−7026	Cable Assembly, Radio Frequency CG−3856/VRC (9 FT, 0 IN) (A3014032−4)	1	PAOZZA	4−1, 9
5995−01−219−7028	Cable Assembly, Radio Frequency CG−3856/VRC (17 FT, 0 IN) (A3014032−6)	2	PAOZZA	4−1, 9
5995−01−303−4951	Cable Assembly, Special Purpose, Electrical CX−13313/VRC (2 FT, 7 IN) (A3018360−1)	1	PAOZZA	4−1, 11
5306−00−225−8496	Bolt, Machine (5/16−18 x 5/8 in) MS90725−31	6	PAOZZA	
4020−01−341−8795	Fiber Rope Assembly, Single Leg (A3167672−1)	4	PAOZZA	4−1, 6
5340−00−067−3868	Clamp, Loop (1/4−5/16 in) MS21333−109	5	PAOZZA	
5340−00−984−8540	Clamp, Loop (1/2−1/4 in) MS21333−102	1	PAOZZA	
5340−00−088−1254	Clamp, Loop (5/8−1/4 in) MS21333−104	7	PAOZZA	
5340−00−809−1500	Clamp, Loop (1−1/4 in) MS21333−107	1	PAOZZA	
5340−00−809−1490	Clamp, Loop (1/4−1/4 in) MS21333−98	1	PAOZZA	
5965−00−043−3463	Handset H−250/U	3	PAOZZA	4−1, 3
5305−00−068−0501	Screw, Cap, Hexagon (1/4−20 x 5/8 in) MS90725−5	2	PAOZZA	
5305−00−191−3640	Screw, Tapping, Thread Cutting, Hex−Head (1/4−20 x 5/8 in) MS51851−85	6	PAOZZA	
5305−01−090−3012	Screw, Tapping, Thread Cutting, Hex−Head (5/16−18 x 3/4 in) MS51851−106	2	PAOZZA	
5975−00−111−3208	Strap, Tiedown, Electrical Components MS3367−5−9	50	PAOZZA	
5310−00−582−5965	Washer, Lock (1/4 in) MS35338−44	8	PAOZZA	
5310−00−407−9566	Washer, Lock (5/16 in) MS35338−45	5	PAOZZA	

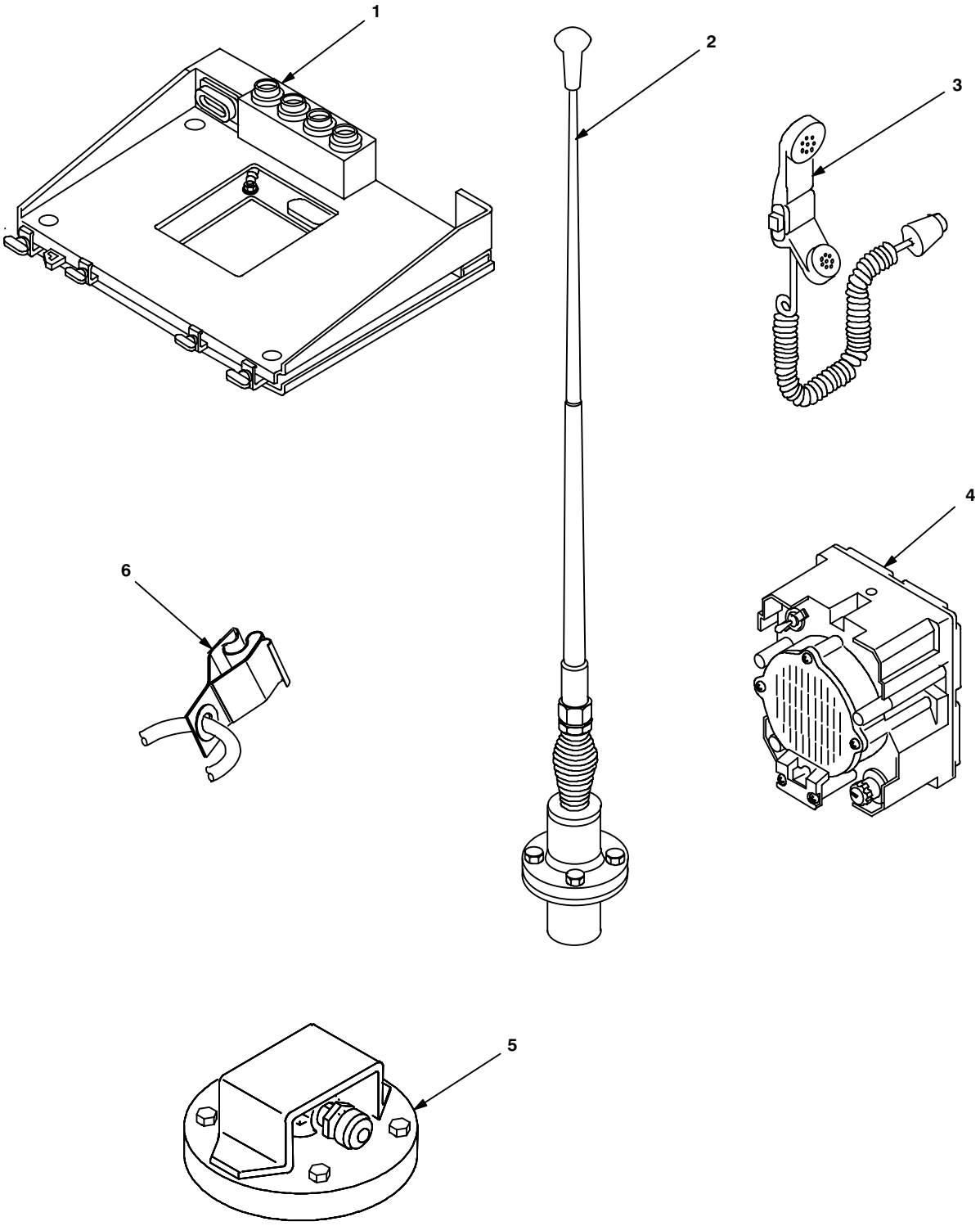


Figure 4−1 (1). MK Illustrated Parts List

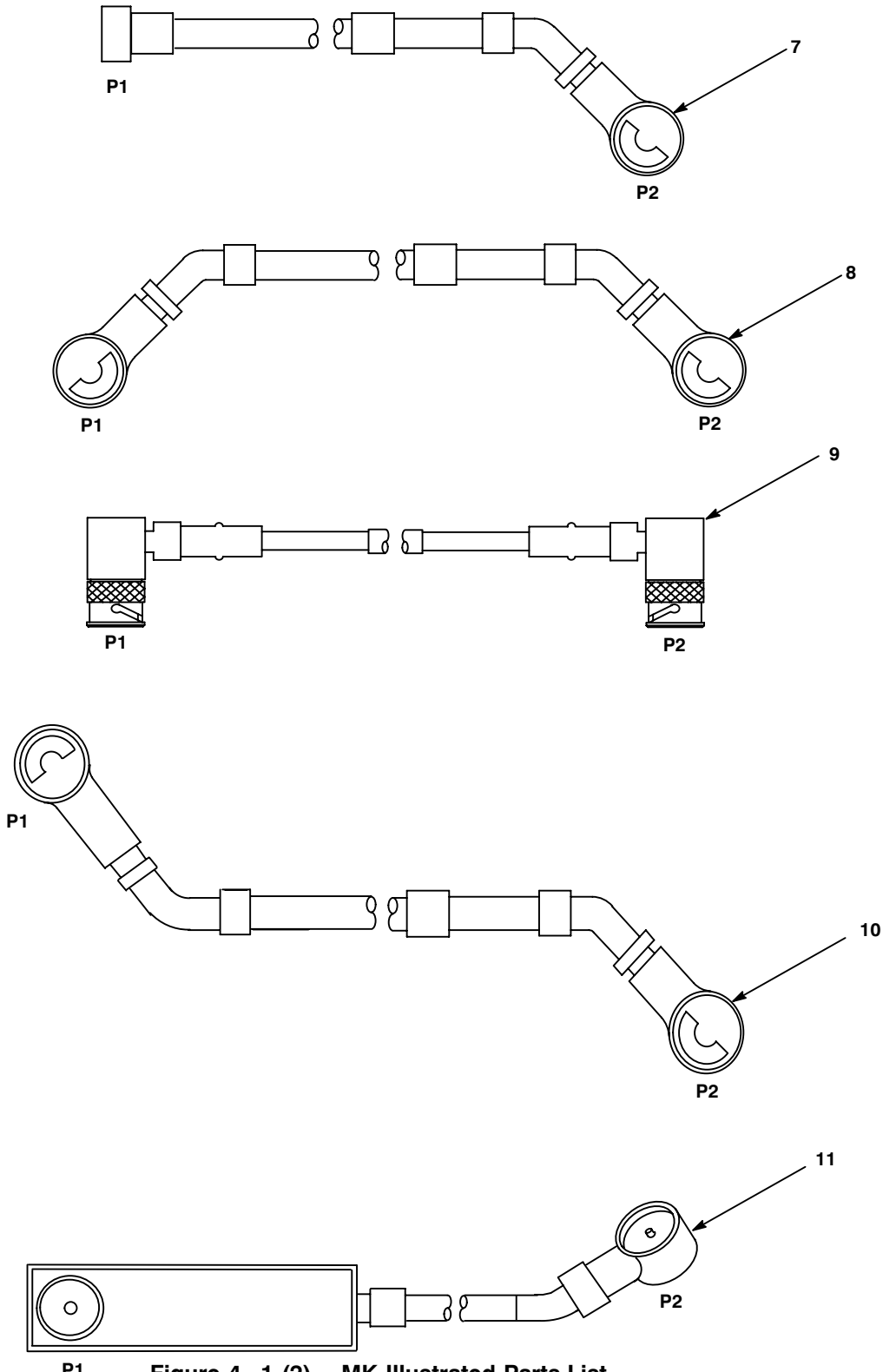


Figure 4−1 (2). MK Illustrated Parts List

Table 4−2. Additional Items Required for Installation of Radio Set AN/VRC−92 (Dual) Series

NSN	ITEM DESCRIPTION AND PART NUMBER	QUANTITY IN MK	SMR CODE	FIGURE, ITEM NO.
5975−01−235−1962	Mounting Base, Electrical Equipment MT−6353/VRC (A3014053−1)	2	PAOOHA	4−2, 1
5306−00−225−9089	Bolt, Machine (5/16−24 x 1 in) MS90726−34	8	PAOZZA	
5310−00−880−7746	Nut, Hexagon (5/16−24 in) MS51968−5	4	PAOZZA	
5310−00−889−2527	Washer, Lock, Internal/External−Toothed (5/16 in) MS45904−72	12	PAOZZA	
5310−00−081−4219	Washer, Flat (5/16 in) MS27183−12	4	PAOZZA	
	Nut Strip (A3014064−1)	2	XBOZZA	4−2, 5
5975−00−111−3208	Strap, Tiedown, Electrical Components MS3367−5−9	8	PAOZZA	
5995−01−300−9324	Cable Assembly, Power, Electrical CX−13303/VRC (4 FT, 6 IN) (A3014040−9)	2	PAOZZA	4−2, 4
5995−01−222−4209	Cable Assembly, Special Purpose, Electrical CX−13291/VRC (3 FT, 0 IN) (A3014037−1)	2	PAOZZA	4−2, 2
5995−01−219−7025	Cable Assembly, Radio Frequency CG−3856/VRC (5 FT, 0 IN) (A3014032−3)	2	PAOZZA	4−2, 3

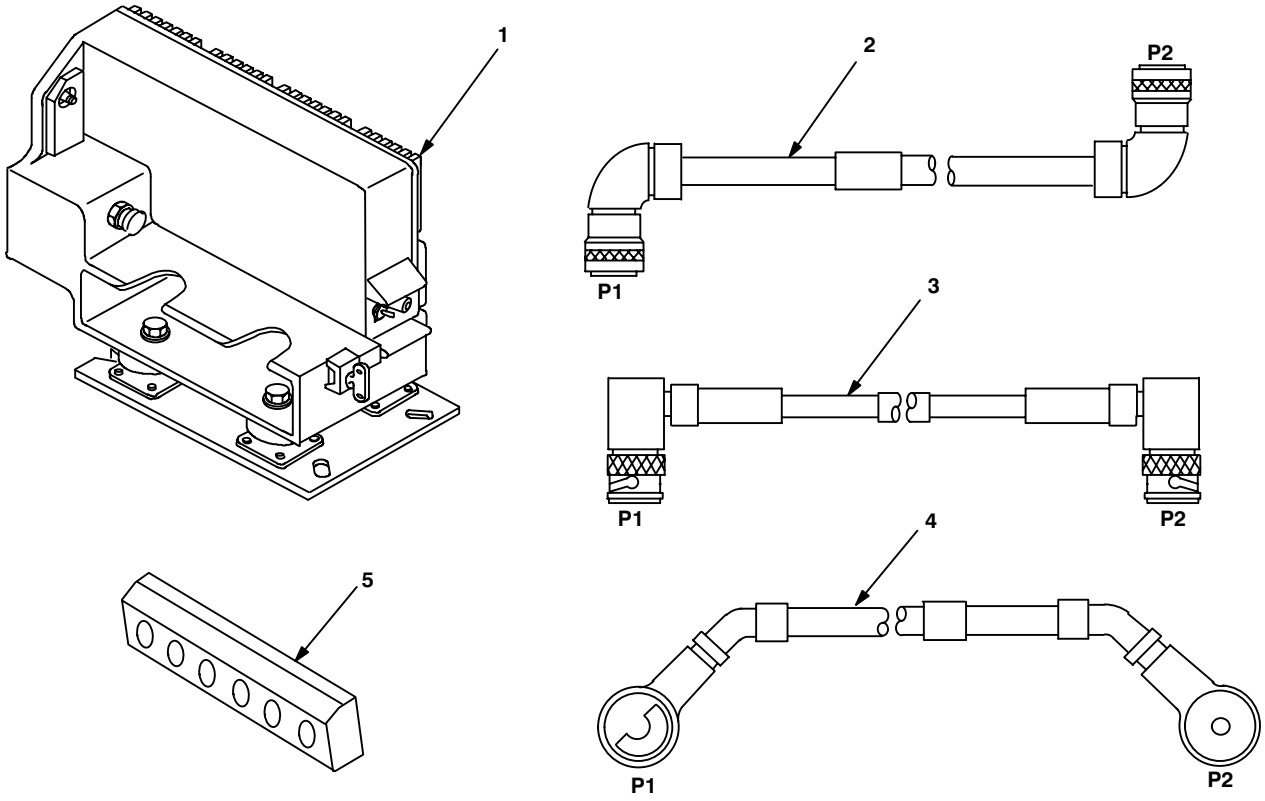


Figure 4−2. Illustrated Parts List for Table 4−2

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 11/32 in	5133–00–227–9664	1
Size L (.290 in)	5133–00–262–2160	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 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. If Radio Set AN/VRC−92 Series is authorized, see section 5.5 for instructions to install MT−6353/VRC mounting base.

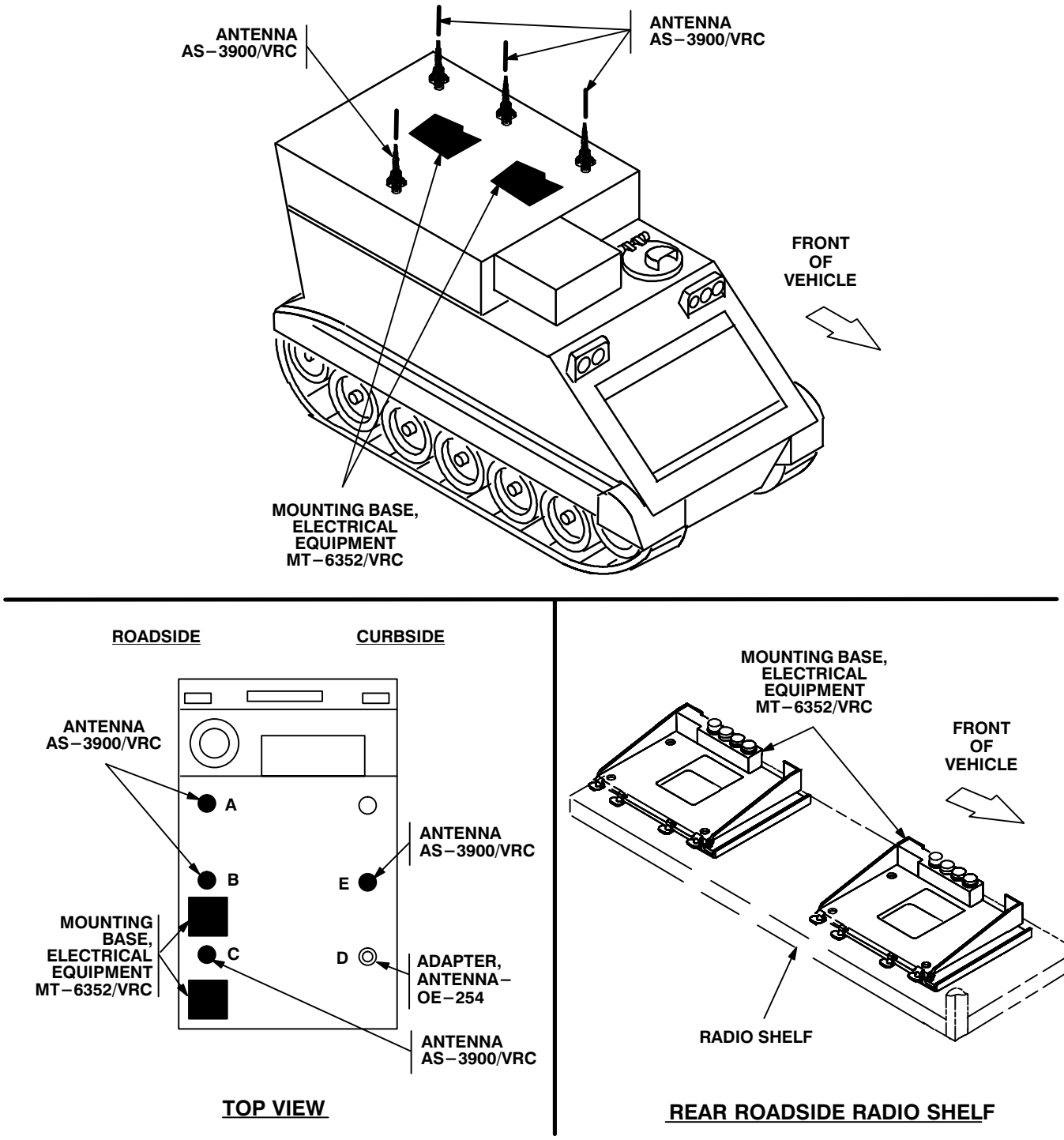
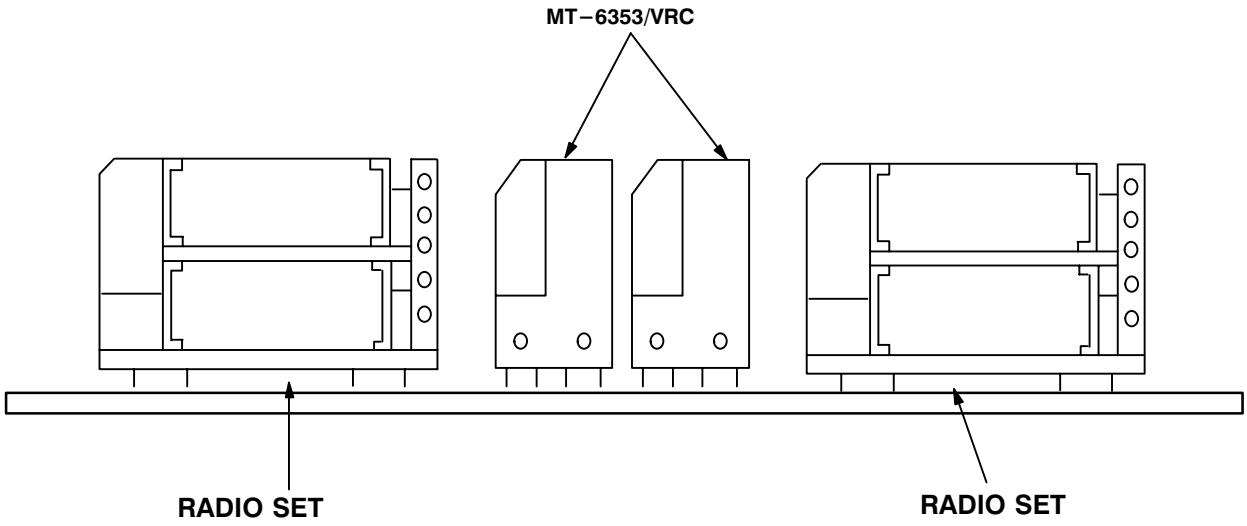


Figure 5−1 (1). MK and Radio Installation: MK Equipment Locations

5. INSTALLATION PROCEDURES. Continued.

INSTALLATION FOR
DUAL AN/VRC−89/91/92 Series



REAR ROADSIDE RADIO SHELF

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

5.1 Installation of Antenna AS−3900/VRC (antenna)and OE−254 Antenna Adapter. Use the following procedure to install four antennas. See figure 5−1 (1) for locations.

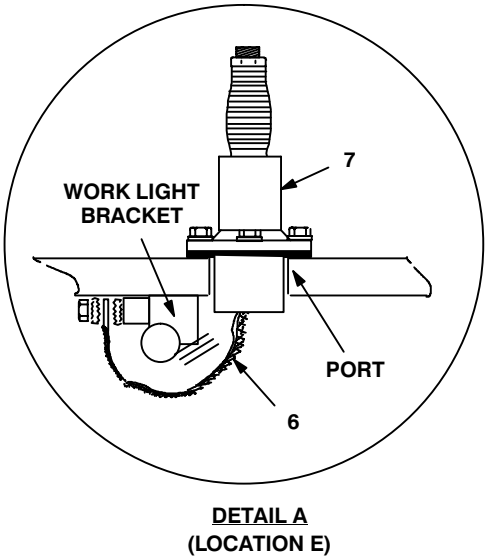
5.1.1 Installation of Antenna Base.

ITEM	ACTION	REMARKS

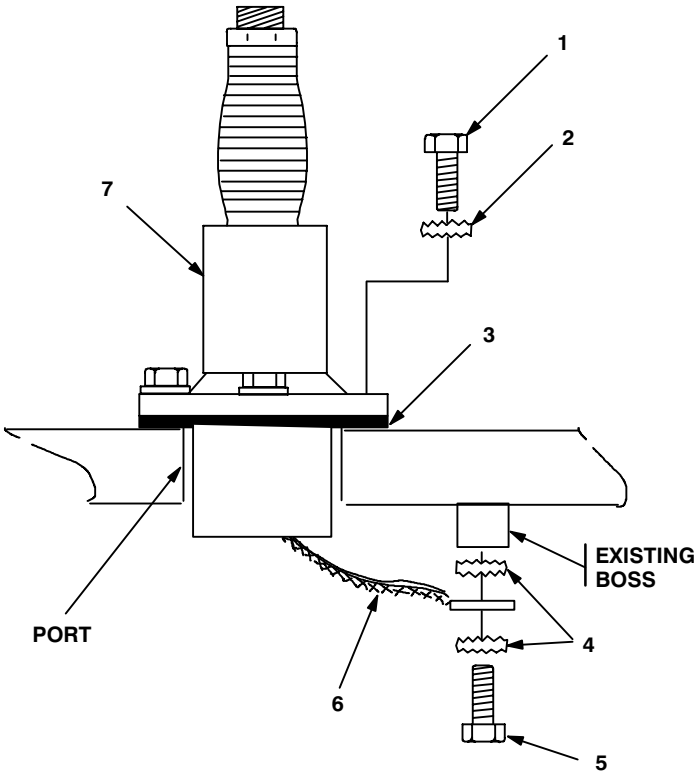
NOTE

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. Locations A, B, C, and E: Existing port covers and gaskets. — Remove. See figure 5−1 (1) for locations.



DETAIL A
(LOCATION E)



1. CAP SCREW (3/8−16 x 1 3/4 in)
2. IET WASHER (3/8 in)
3. GASKET
4. IET WASHER (5/16 in)
5. MACHINE BOLT (5/16−18 x 5/8 in)
6. GROUND STRAP
7. ANTENNA BASE

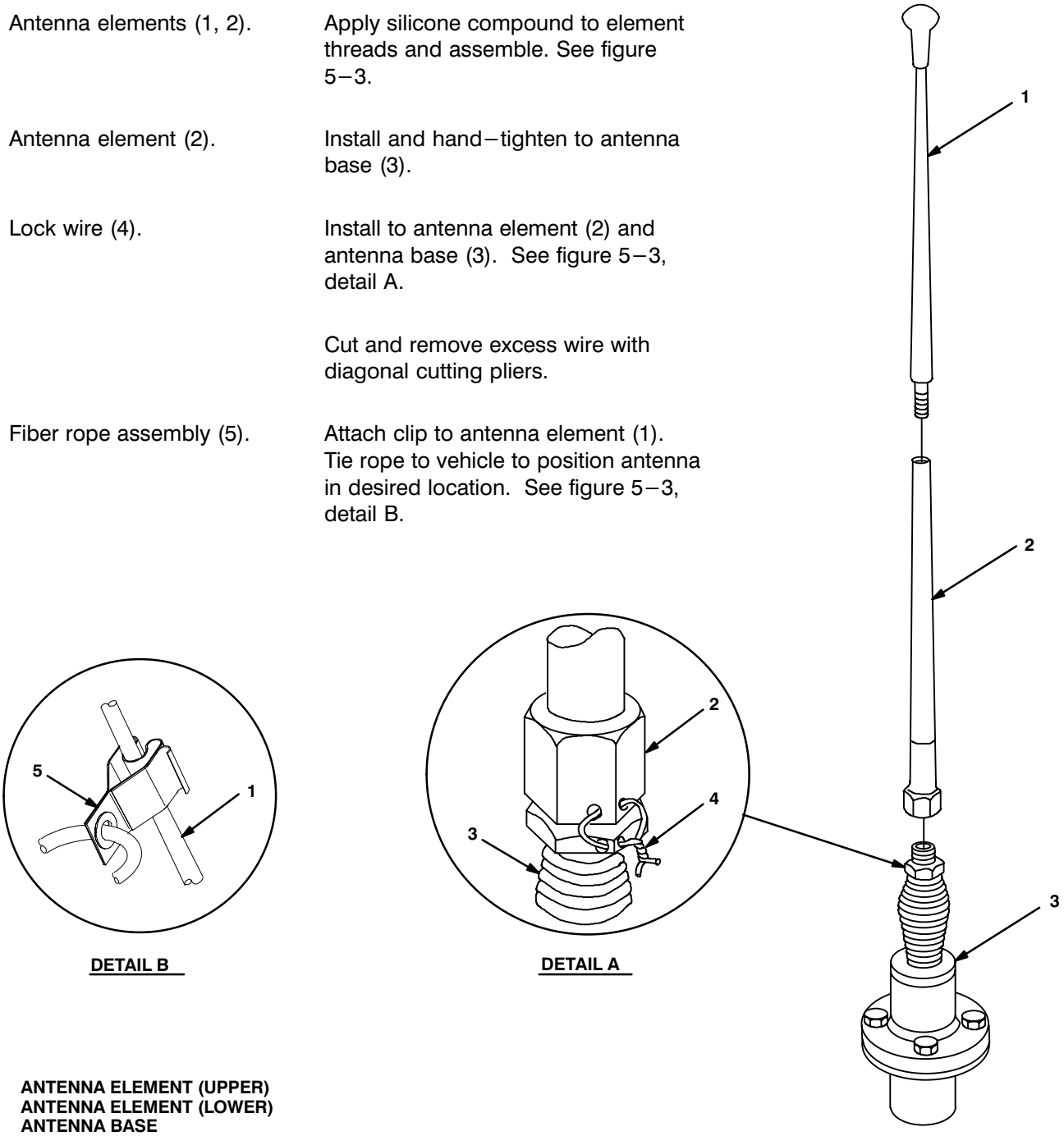
Figure 5−2. Antenna Base Installation

5.1.1 Installation of Antenna Base. Continued

ITEM	ACTION	REMARKS
b. Gasket (3).	Apply a thin coat of silicone compound to both sides. Place on port and align mounting holes. See figure 5−2.	
c. Locations A, B, C, and E: Antenna base (7).	Place on top of gasket (3) and port. Align holes with mounting holes.	
d. Locations A, B, C, and E: Four cap screws (1) and four internal/external−toothed (IET) washers (2).	Install and secure.	Tools: 9/16 in socket.
e. Locations A, B and C: Ground strap (6), machine bolt (5) and two IET washers (4).	Install and secure to existing boss.	Tools: 1/2 in socket.
f. Location E: Ground strap (6) and existing mounting hardware.	Install and secure to back of work light bracket. See figure 5−2, detail A.	

5.1.2 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.	

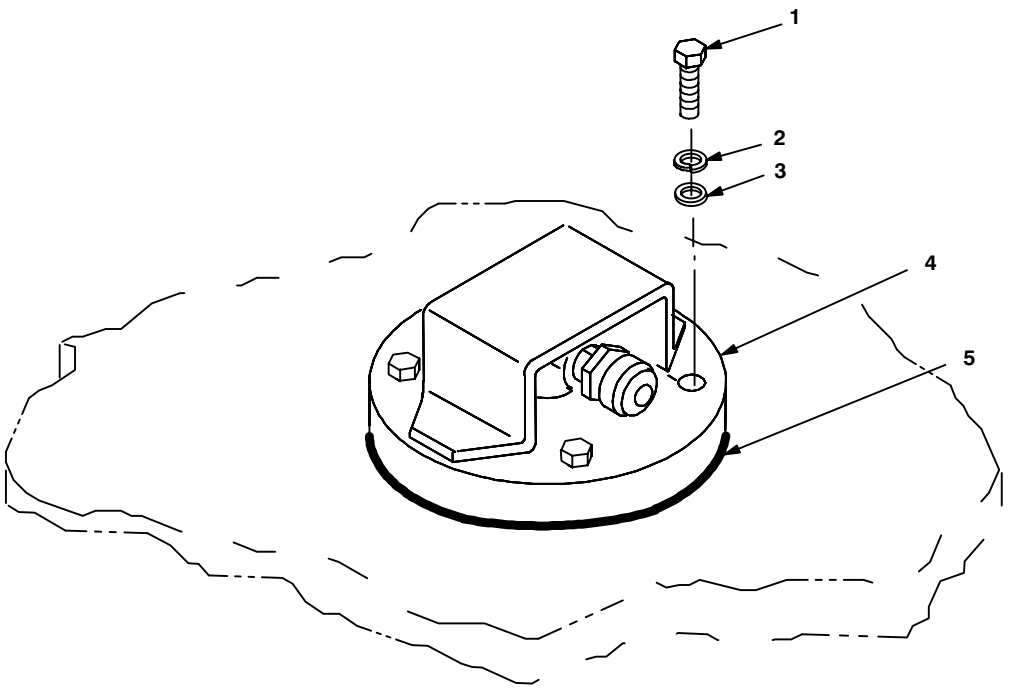


1. ANTENNA ELEMENT (UPPER)
2. ANTENNA ELEMENT (LOWER)
3. ANTENNA BASE
4. LOCK WIRE
5. FIBER ROPE ASSEMBLY

Figure 5−3. Top Antenna Assembly Installation

5.1.3 Installation of OE−254 Antenna Adapter. See figure 5−1 (1) for location to install one OE−254 antenna adapter. Stowage location for additional OE−254 antenna adapter may be determined by the vehicle commander.

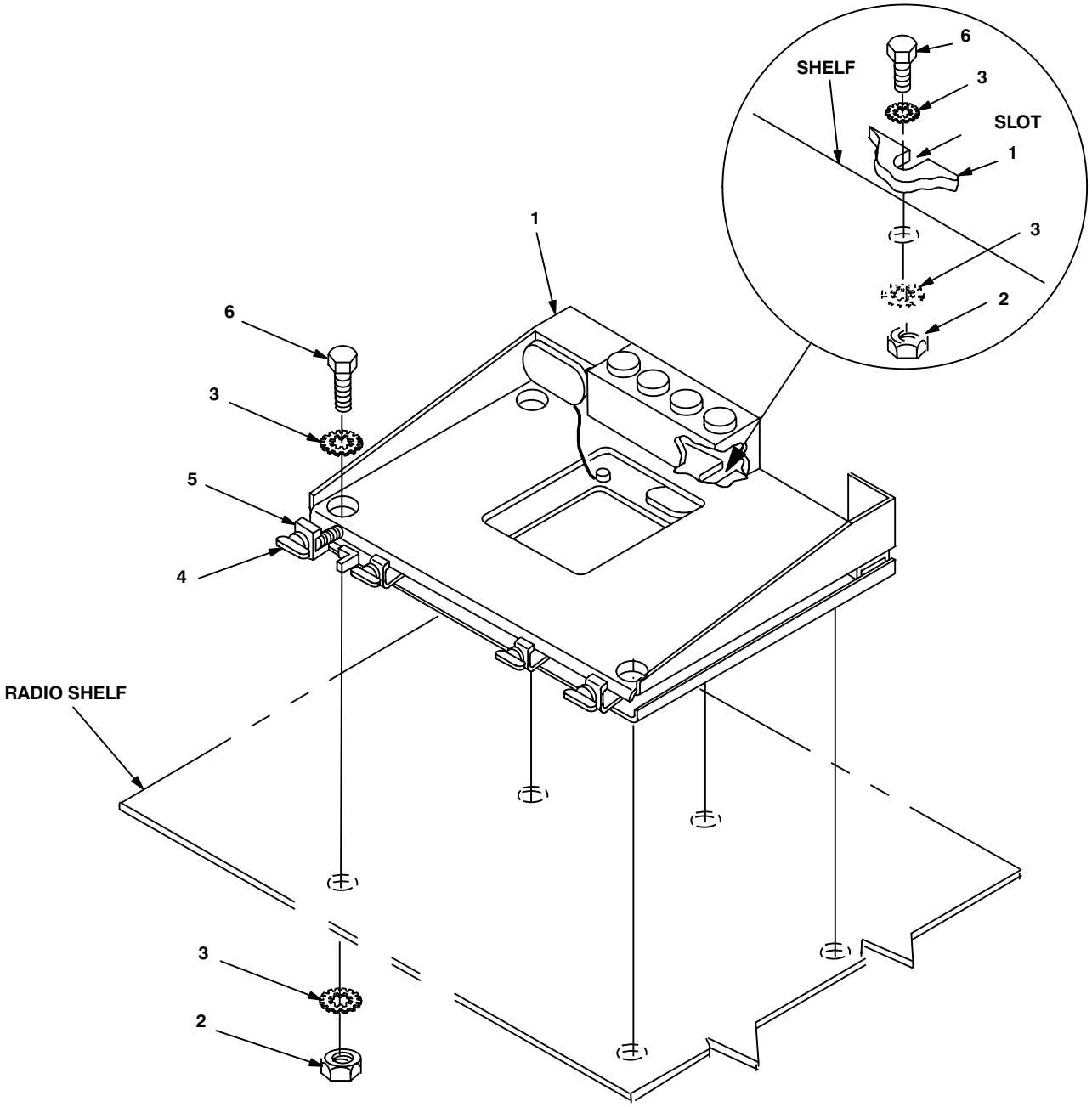
ITEM	ACTION	REMARKS
a. Existing port cover and gasket.	Remove.	
b. Gasket (5).	Apply a thin coat of silicone compound to both sides. Place on port and align mounting holes. See figure 5−4.	
c. OE−254 antenna adapter (4).	Place on top of gasket (5) and port. Align holes with mounting holes.	
d. Four cap screws (1), four lock washers (2) and four flat washers (3).	Install and secure.	Tools: 9/16 in socket.



1. CAP SCREW (3/8−16 x 1 3/4 in)
2. LOCK WASHER (3/8 in)
3. FLAT WASHER (3/8 in)
4. OE−254 ANTENNA ADAPTER
5. GASKET

Figure 5−4. OE−254 Antenna Adapter Installation

5.2 Installation of Mounting Base, Electrical Equipment MT−6352/VRC (mounting base). Remove and retain attaching bag of 5/16 in mounting hardware for installation. To insure good electrical grounding, any rust, corrosion or paint around mounting holes in radio shelf should be removed before installing the mounting bases. See figure 5−5 and perform the following steps to install both mounting bases. See figure 5−1 (1) for locations.



1. MOUNTING BASE
2. NUT (5/16 − 24 in)
3. IET WASHER (5/16 in)
4. THUMBSCREW
5. RIM CLENCHING CLAMP
6. MACHINE BOLT (5/16 − 24 x 1 in)

Figure 5−5. Mounting Base Installation

5.2 Installation of Mounting Base, Electrical Equipment MT–6352/VRC (mounting base). 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. Existing shelf support.	Deinstall and retain. Discard existing washers from mounting hardware.	
b. Mounting base (1), existing radio shelf and shelf support.	Remove a 2” square area of paint on the underside of the mounting base (1) around left front and rear mounting holes. Remove a 2” square area of paint on the existing radio shelfaround the existing mounting holes that mate with left front and rear mounting holes of mounting base (1). Remove a 1” square area of paint on existing ceiling mount around the existing mounting hole that mates with top existing mounting hole in shelf support. Remove a 1” square area of paint on one side on top and both sides on bottom of existing shelf support around existing mounting holes that mate with existing ceiling mount on top and existing radio shelf on bottom. Remove a 1” square area of paint on existing radio shelf around the existing mounting holes that mate with bottom of shelf support. Remove the paint from existing wall bosses and rear of shelf. Clean the paint removed areas and apply a thin coat of conductive anti–seize compound.	Tools: Electric grinder or equivalent.
c. Lead, electrical, one machine bolt (1/4–20 x 3/4 in) and two IET washers (1/4 in).	Install to first existing wall boss forward of split in shelf just below shelf level.	Tools: 7/16 in socket.
d. Rear of existing shelf.	Drill one 11/32 in diameter hole through shelf.	Tools: Electric drill and 11/32 in drill bit.
e. Lead electrical, one machine bolt (5/16–24 x 100) three IET washers (5/16 in) and one nut (5/16 –24 in)	Install and secure to hole drilled in step d. clamps (5) and mounting base (1).	Tools: 1/2 in socket and 1/2 in open/box wrench.
f. Existing shelf support.	Reinstall to shelf using existing nuts and bolts and four IET washers (3/8 in).	
g. Mounting base (1).	Place on roadside radio shelf. See Figure 5–5.	
h. Two outer thumbscrews (4).	Turn ccw until both sets of threads have cleared center of holes.	
i. Mounting base (1).	Align four holes and rear slot with matching hole pattern in shelf.	.
j. Five machine bolts (6). ten IET washers (3) and five nuts (2).	Install and secure mounting base (1) and radio shelf.	Tools: 1/2 in socket and 1/2 in open/box wrench.
k. Two outer thumbscrews (4).	Tighten and secure to rim clenching clamps (5) amd mounting base (1).	

5.3 Installation of Loudspeaker − Control Unit LS−671/VRC (speaker). Use the following procedure to mount three speakers. Mounting location of speakers may be determined by the vehicle commander.

ITEM	ACTION	REMARKS
a. Mounting hole for speaker (4).	Drill 11/32 in diameter hole through mounting surface. See figure 5−6.	Tools: Electric drill and 11/32 in drill bit.
b. Speaker (4).	Position under mounting surface; then aline mounting hole in top of speaker (4) with hole in mounting surface.	
c. Machine bolt (1), lock washer (2) and flat washer (3).	Install and secure to speaker (4) and mounting surface.	Tools: 1/2 in wrench.

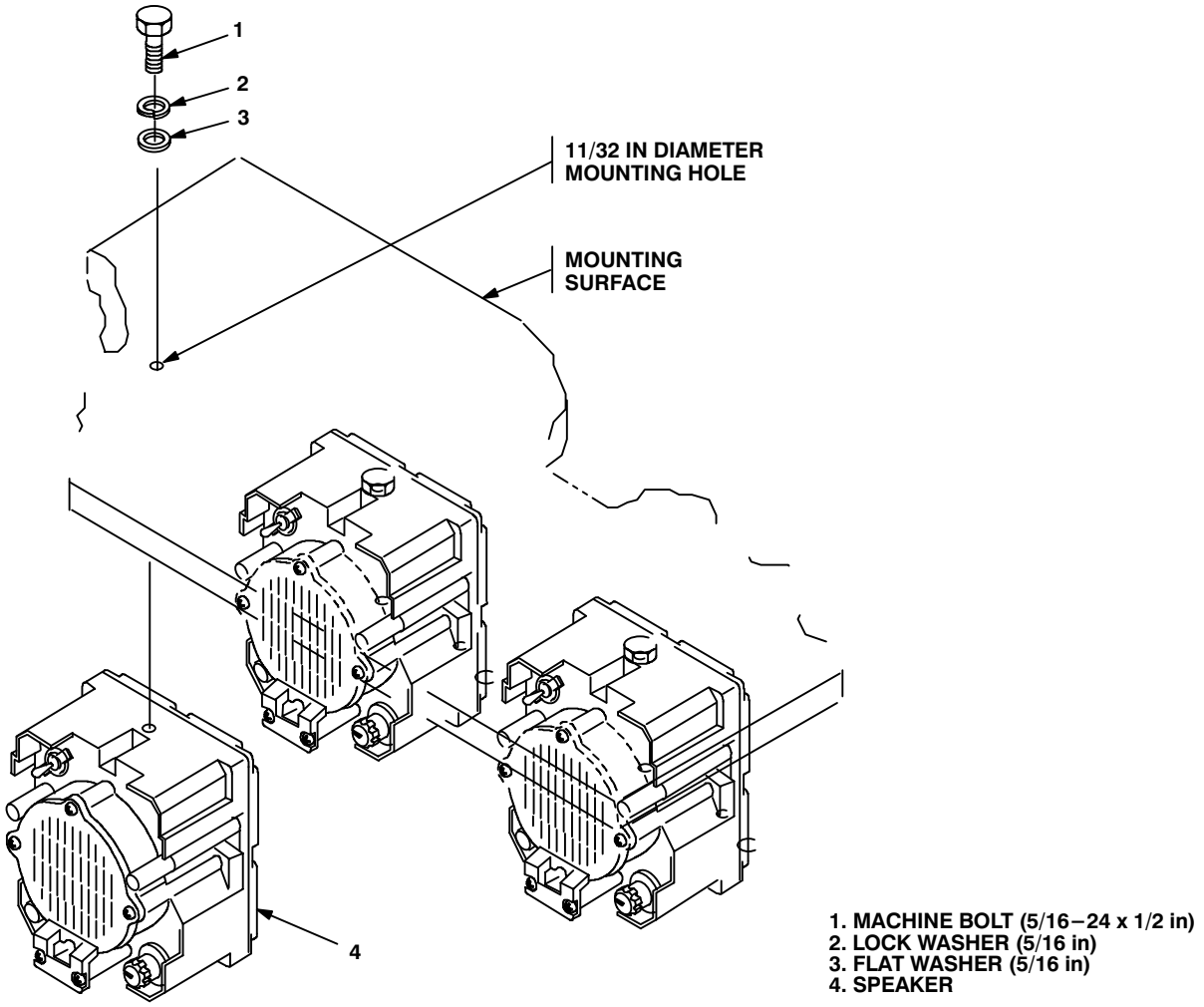


Figure 5−6. Speaker Installation

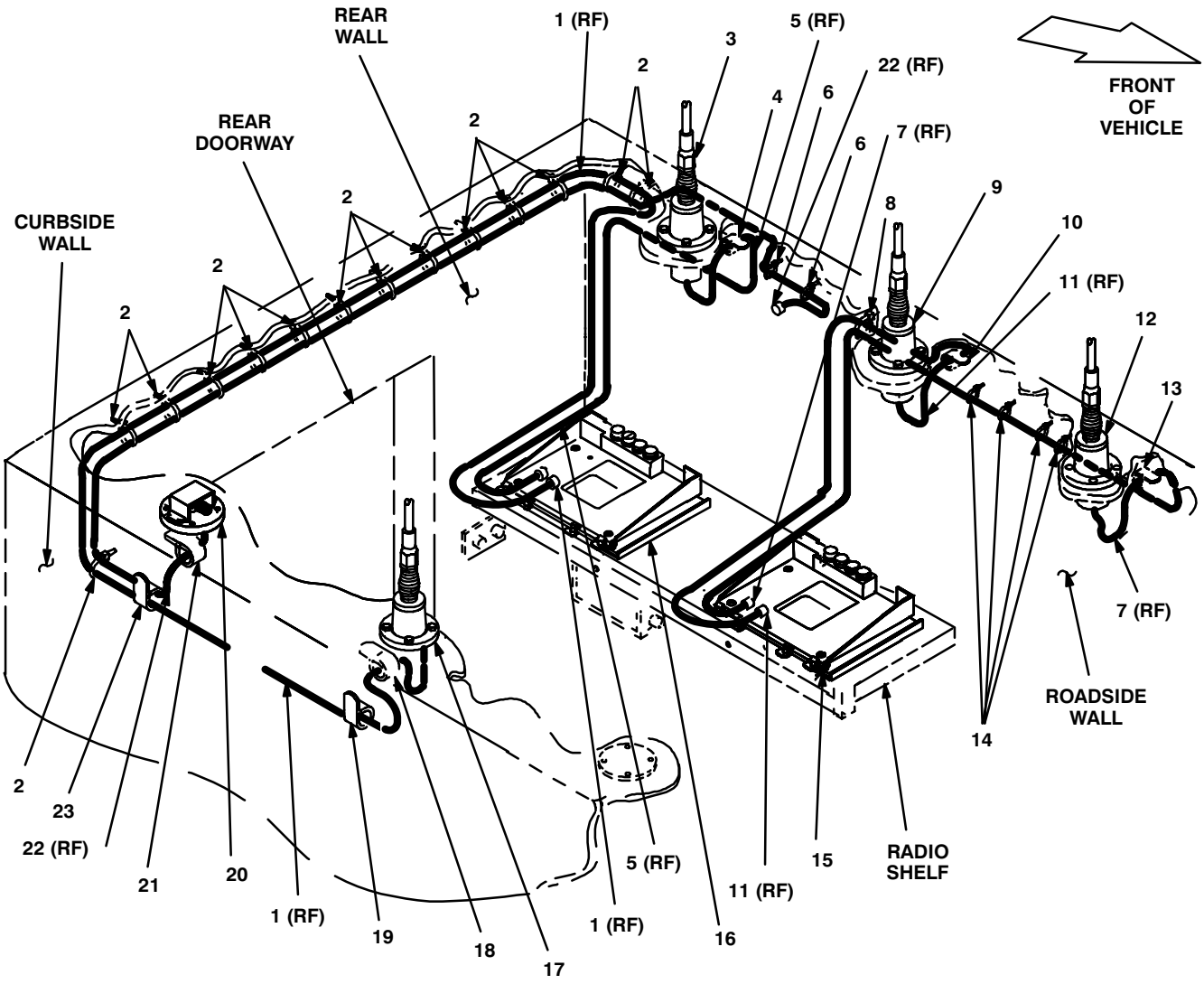
5.4 Installation of Cables. To accomplish the installation, leave loop clamps and tiedown straps loose enough to adjust cable slack and allow easy adjustment of equipment. When installation is complete, tighten and secure clamps and tiedown straps.

WARNING

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

ITEM	ACTION	REMARKS
a. Mounting hole for loop clamp (18).	Drill a size L (.290 in) diameter hole (1 in deep) in ceiling approximately halfway between antenna base (17) and curbside wall. See figure 5−7 (1) for location(s).	Tools: Electric drill and size L drill bit.
b. RF cable (1) connector P1.	Connect and secure to antenna base (17) connector J1. See figure 5−7 (1).	
c. RF cable (1).	Route along curbside wall to rear wall.	
d. Loop clamp (18), hex−head tapping screw (5/16−18 x 3/4 in) and lock washer (5/16 in).	Wrap clamp around RF cable (1); then install to hole drilled in step a.	Tools: 1/2 in socket.
e. Loop clamp (19), cap screw (1/4−20 x 5/8 in) and lock washer (1/4 in).	Wrap clamp around RF cable (1); then install to existing boss on curbside wall. See figure 5−7 (1) for location(s).	Tools: 7/16 in socket.
f. Mounting hole for loop clamp (21).	Drill a size L (.290 in) diameter hole (1 in deep) in ceiling approximately halfway between OE−254 antenna adapter (20) and curbside wall.	Tools: Electric drill and size L drill bit.
g. RF cable (22) connector P1.	Connect and secure to OE−254 antenna adapter (20) connector J1. See figure 5−7 (1).	
h. RF cable (22).	Route along curbside wall to rear wall.	
i. Loop clamp (21), hex−head tapping screw (5/16−18 x 3/4 in) and lock washer (5/16 in).	Wrap clamp around RF cable (22); then install to hole drilled in step f.	Tools: 1/2 in socket.
j. Loop clamp (23), cap screw (1/4−20 x 5/8 in) and lock washer (1/4 in).	Wrap clamp around RF cables (1, 22); then install to existing boss on curbside wall. See figure 5−7 (1) for location(s).	Tools: 7/16 in socket.
k. Tiedown strap (2).	Wrap around RF cables (1, 22); then secure to existing cable harness on curbside wall.	

5.4 Installation of Cables. Continued



1. RF CABLE, CG−3856/VRC (17 FT, 0 IN)
2. TIEDOWN STRAP
3. ANTENNA BASE
4. LOOP CLAMP (1/4−5/16 in)
   MACHINE BOLT (5/16−18 x 5/8 in)
   LOCK WASHER (5/16 in)
5. RF CABLE, CG−3856/VRC (4 FT, 0 IN)
6. TIEDOWN STRAP
7. RF CABLE, CG−3856/VRC (9 FT, 0 IN)
8. TIEDOWN STRAP
9. ANTENNA BASE
10. LOOP CLAMP (1/4−5/16 in)
    MACHINE BOLT (5/16−18 x 5/8 in)
    LOCK WASHER (5/16 in)
11. RF CABLE, CG−3856/VRC (4 FT, 0 IN)
12. ANTENNA BASE
13. LOOP CLAMP (1/4−5/16 in)
    MACHINE BOLT (5/16−18 x 5/8 in)
    LOCK WASHER (5/16 in)
14. TIEDOWN STRAP
15. MOUNTING BASE (RIGHT)
16. MOUNTING BASE (LEFT)
17. ANTENNA BASE
18. LOOP CLAMP (1/4−5/16 in)
    TAPPING SCREW (5/16−18 x 3/4 in)
    LOCK WASHER (5/16 in)
19. LOOP CLAMP (1/4−1/4 in)
    CAP SCREW (1/4−20 x 5/8 in)
    LOCK WASHER (1/4 in)
20. OE−254 ANTENNA ADAPTER
21. LOOP CLAMP (1/4−5/16 in)
    TAPPING SCREW (5/16−18 x 3/4 in)
    LOCK WASHER (5/16 in)
22. RF CABLE, CG−3856/VRC (17 FT, 0 IN)
23. LOOP CLAMP (1/2−1/4 in)
    CAP SCREW (1/4−20 x 5/8 in)
    LOCK WASHER (1/4 in)

Figure 5−7 (1). Cable Installation: RF cabling

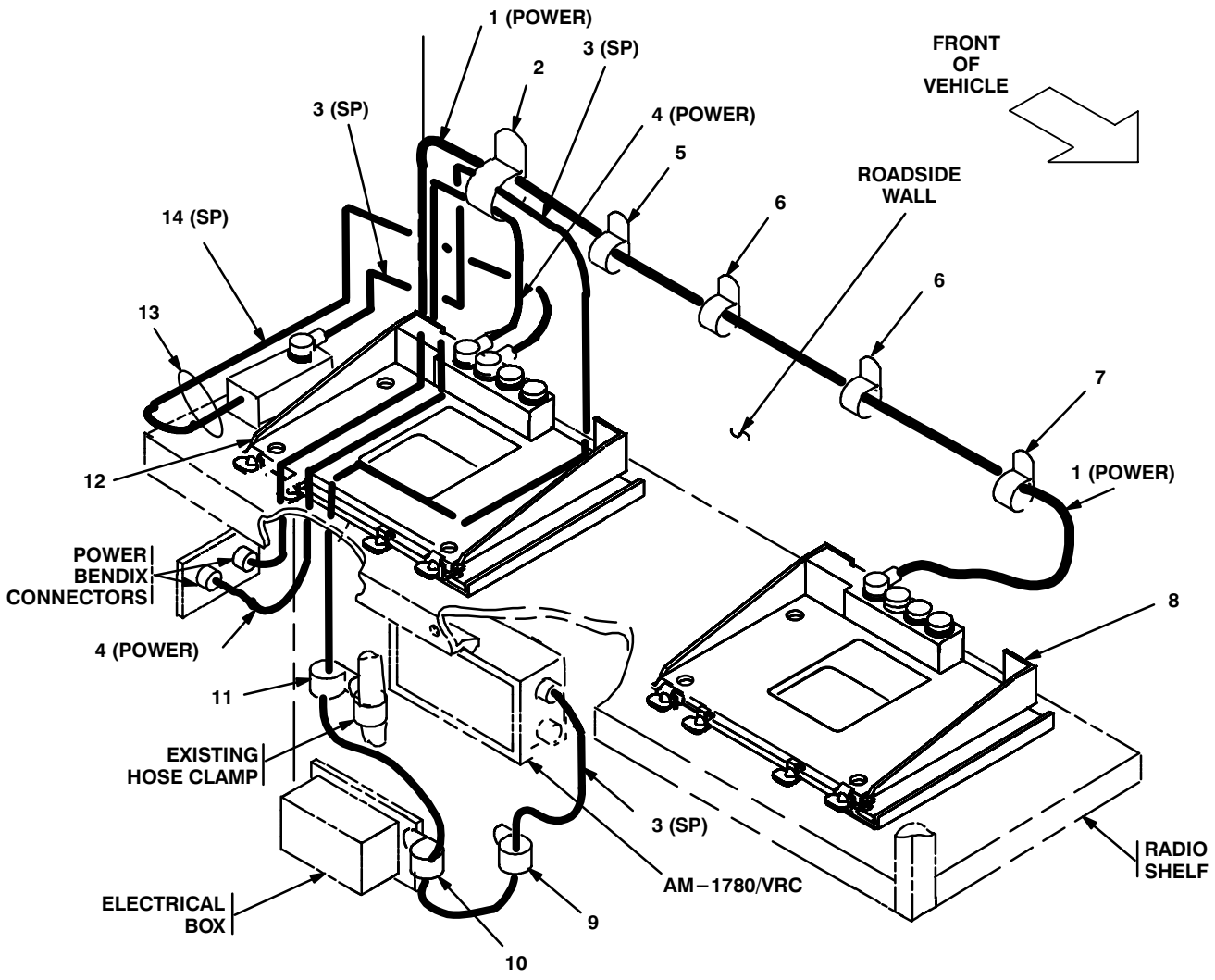
5.4 Installation of Cables. Continued

ITEM	ACTION	REMARKS
l. RF cables (1, 22).	Route along rear wall (near ceiling) to roadside wall above mounting base (16). See figure 5−7 (1).	
m. Thirteen tiedown straps (2).	Wrap around RF cables (1, 22); then secure to existing harness on rear and roadside walls. See figure 5−7 (1) for location(s).	
n. RF cable (1) connector P2.	Position on top of mounting base (16). See figure 5−7 (1).	
o. Two tiedown straps (6) and RF cable (22).	Wrap tiedown straps (6) around RF cable (22); then secure to existing cable harness on roadside wall. See figure 5−7 (1) for location(s).	
p. RF cable (5) connector P1.	Connect and secure to antenna base (3) connector J1. See figure 5−7 (1).	
q. Loop clamp (4), machine bolt (5/16−18 x 5/8 in) and lock washer (5/16 in).	Wrap around RF cable (5); then install to existing boss on ceiling. See figure 5−7 (1) for location(s).	Tools: 1/2 in socket.
r. RF cable (5) connector P2.	Position on top of mounting base (16). See figure 5−7 (1).	
s. RF cable (7) connector P1.	Connect and secure to antenna base (12) connector J1.	
t. RF cable (7).	Route along roadside wall (near ceiling) to left side of mounting base (15).	
u. Loop clamp (13), machine bolt (5/16−18 x 5/8 in) and lock washer (5/16 in).	Wrap clamp around RF cable (7); then install to existing boss on ceiling. See figure 5−7 (1) for location(s).	Tools: 1/2 in socket.
v. Four tiedown straps (14).	Wrap around RF cable (7); then secure to existing cable harness on roadside wall.	
w. RF cable (11) connector P1.	Connect and secure to antenna base (9) connector J1. See figure 5−7 (1).	
x. RF cable (11).	Route along roadside wall to left side of mounting base (15).	
y. Loop clamp (10), machine bolt (5/16−18 x 5/8 in) and lock washer (5/16 in).	Wrap clamp around RF cable (11); then install to existing boss on ceiling. See figure 5−7 (1) for location(s).	Tools: 1/2 in socket.
z. Tiedown strap (8).	Wrap around RF cables (7, 11); then secure to existing cable harness on roadside wall.	
aa. Connector P2 of RF cables (7, 11).	Position on top of mounting base (15). See figure 5−7 (1).	

5.4 Installation of Cables. Continued

ITEM	ACTION	REMARKS
ab. SP cable (3) connector P1.	Connect and secure to AM−1780/VRC connector J501. See figure 5−7 (2).	
ac. Loop clamp (9), hex−head tapping screw (1/4−20 x 5/8 in) and lock washer (1/4 in).	Wrap clamp around SP cable (3); then install to existing boss on roadside wall. See figure 5−7 (2) for location(s).	Tools: 7/16 in socket.
ad. Loop clamp (10) and existing mounting hard−ware.	Wrap clamp around SP cable (3); then install to electrical box.	
ae. Loop clamp (11) and existing mounting hard−ware.	Wrap clamp around SP cable (3); then install to existing hose clamp.	
af. SP cable (3).	Route up roadside wall (behind radio shelf) to left side of mounting base (12).	
ag. Power cable (1) connector P1.	Connect and secure to power Bendix connector. See figure 5−7 (2).	
ah. Power cable (4) connector P1.	Connect and secure to power Bendix connector.	
ai. Power cables (1, 4).	Route up roadside wall (behind radio shelf) to rear of mounting base (12).	
aj. Loop clamp (2), hex−head tapping screw (1/4−20 x 5/8 in) and lock washer (1/4 in).	Wrap clamp around power cables (1, 4) and SP cable (3); then install to existing boss on roadside wall. See fig−ure 5−7 (2) location(s).	Tools: 7/16 in socket.
ak. SP cable (3) connector P2.	Connect and secure to SP cable (14) connector P1. See figure 5−7 (2).	
al. SP cable (14) connector P2.	Connect and secure to mounting base (12) connector J3.	
am.Tiedown strap (13).	Wrap around SP cable (14) and secure. See figure 5−7 (2) for location(s).	
an. Power cable (4) connector P2.	Position on top of mounting base (12). See figure 5−7 (2).	
ao. Power cable (1).	Route along roadside wall to rear of mounting base (8).	
ap. Loop clamp (5), hex−head tapping screw (1/4−20 x 5/8 in) and lock washer (1/4 in).	Wrap clamp around power cable (1); then install to existing boss on roadside wall. See figure 5−7 (2) for location(s).	Tools: 7/16 in socket.
aq. Two loop clamps (6), two hex−head tapping screws (1/4−20 x 5/8 in) and two lock washers (1/4 in).	Wrap clamps around power cable (1); then install to existing boss on roadside wall.	Tools: 7/16 in socket.
ar. Loop clamp (7), hex−head tapping screw (1/4−20 x 0 5/8 in) and lock washer (1/4 in).	Wrap clamp around power cable (1); then install to existing boss on roadside wall.	Tools: 7/16 in socket.
as. Power cable (1) connector P2.	Connect and secure to mounting base (8) connector J1. See figure 5−7 (2).	
at. Power cable (4) connector P2.	Connect and secure to mounting base (12) connector J1.	

5.4 Installation of Cables. Continued



1. POWER CABLE, CX−13306/VRC (8 FT, 0 IN)
2. LOOP CLAMP (1−1/4 in) TAPPING SCREW (1/4−20 x 5/8 in) LOCK WASHER (1/4 in)
3. SP CABLE, CX−13300/VRC (5 FT, 0 IN)
4. POWER CABLE, CX−13306/VRC (5 FT, 0 IN)
5. LOOP CLAMP (5/8−1/4 in) TAPPING SCREW (1/4−20 x 5/8 in) LOCK WASHER (1/4 in)
6. LOOP CLAMP (5/8−1/4 in) TAPPING SCREW (1/4−20 x 5/8 in) LOCK WASHER (1/4 in)
7. LOOP CLAMP (5/8−1/4 in) TAPPING SCREW (1/4−20 x 5/8 in) LOCK WASHER (1/4 in)
8. MOUNTING BASE (RIGHT)
9. LOOP CLAMP (5/8−1/4 in) TAPPING SCREW (1/4−20 x 5/8 in) LOCK WASHER (1/4 in)
10. LOOP CLAMP (5/8−1/4 in)
11. LOOP CLAMP (5/8−1/4 in)
12. MOUNTING BASE (LEFT)
13. TIEDOWN STRAP
14. SP CABLE, CX−13313/VRC (2 FT, 7 IN)

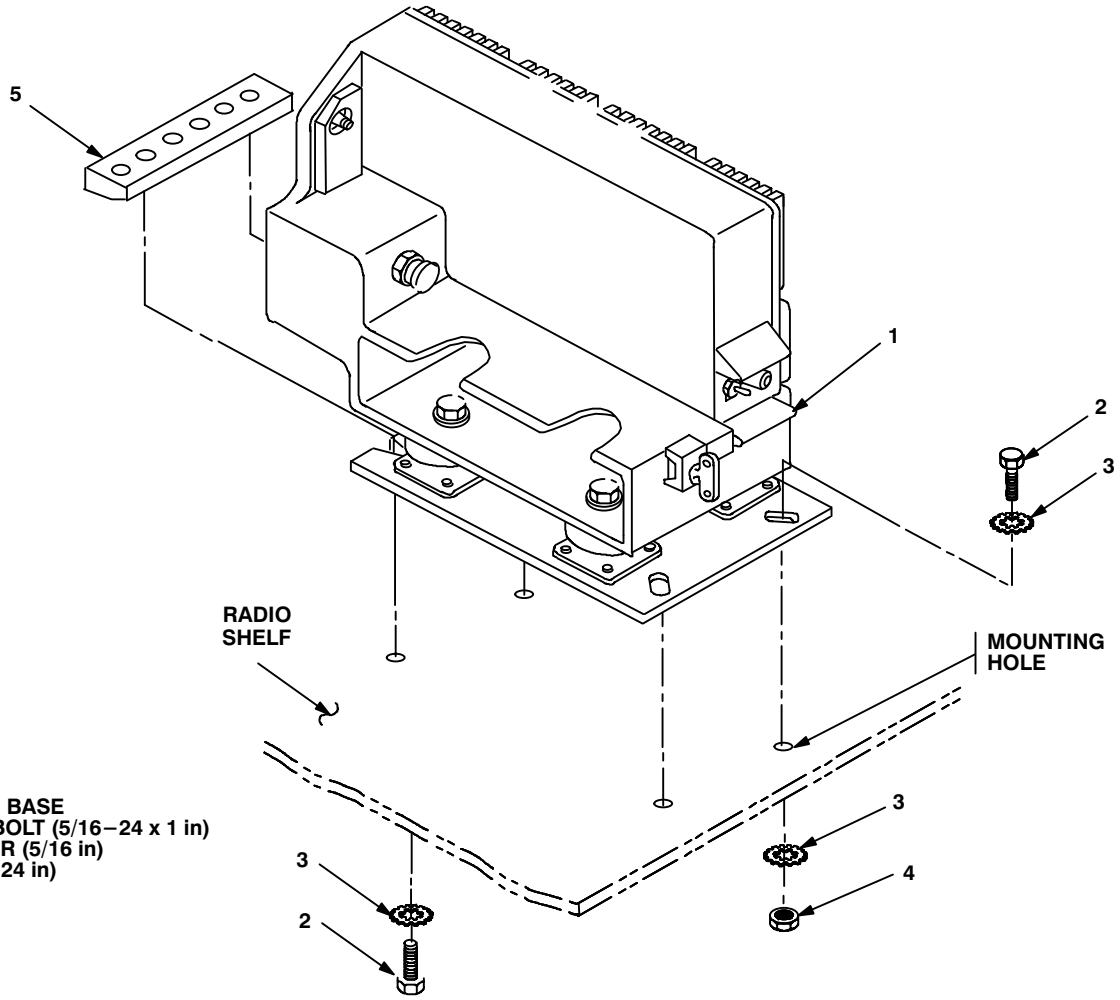
Figure 5−7 (2). Cable Installation: Power and SP Cabling

5.5 Installation of Mounting Base, Electrical Equipment MT−6353/VRC. If Radio Set AN/VRC−92 Series is authorized, use the following instructions to install MT−6353/VRC mounting base in the locations shown in Figure 5−1 (2). Refer to section 5.6 for connection of cables.

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. Before proceeding, connect and secure CX−13291/VRC control cable and CX−13303/VRC power cable to MT−6353/VRC mounting base. (Refer to Section 5.6, step b.)



1. MOUNTING BASE
2. MACHINE BOLT (5/16−24 x 1 in)
3. IET WASHER (5/16 in)
4. NUT (5/16−24 in)
5. NUT STRIP

Figure 5−8. MT−6353/VRC Mounting Base Installation

5.5 Installation of Mounting Base, Electrical Equipment MT−6353/VRC. Continued

ITEM	ACTION	REMARKS
a. MT−6353/VRC mounting base (1) and existing radio	Remove a 2” square area of paint on the underside of the mounting base (1) around the front two mounting holes. Remove a 2” square area of paint on the radio shelf around two existing mounting holes that mate with mounting holes of mounting base (1). Clean the paint removed areas and apply a thin coat of conductive anti−seize compound.	Tools: Electric grinder or equivalent.
b. MT−6353/VRC mounting base (1).	Place on radio shelf over existing holes. See Figure 5−8.	
c. MT−6353/VRC mounting base (1).	Align front holes and rear slots with matching hole pattern in radio shelf.	
d. Two machine bolts (2), two IET washers (3) and nut strip (5).	Install and secure to rear slots in MT−6353/VRC mounting base (1) and electrical equipment shelf.	Tools: 1/2 in socket.
e. Two machine bolts (2), four IET washers (3) and two nuts (4).	Install and secure to front two holes in MT−6353/VRC mounting base (1) and radio shelf.	Tools: 1/2 in socket and 1/2 in open/box wrench.

5.6 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 5−6 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) Check instructions.	
f. MK line replaceable units.	See TM 11−5820−890−20P for Repair Parts and Special Tools List (RPSTL) information.	

5.6 Post−Installation and Checkout. Continued

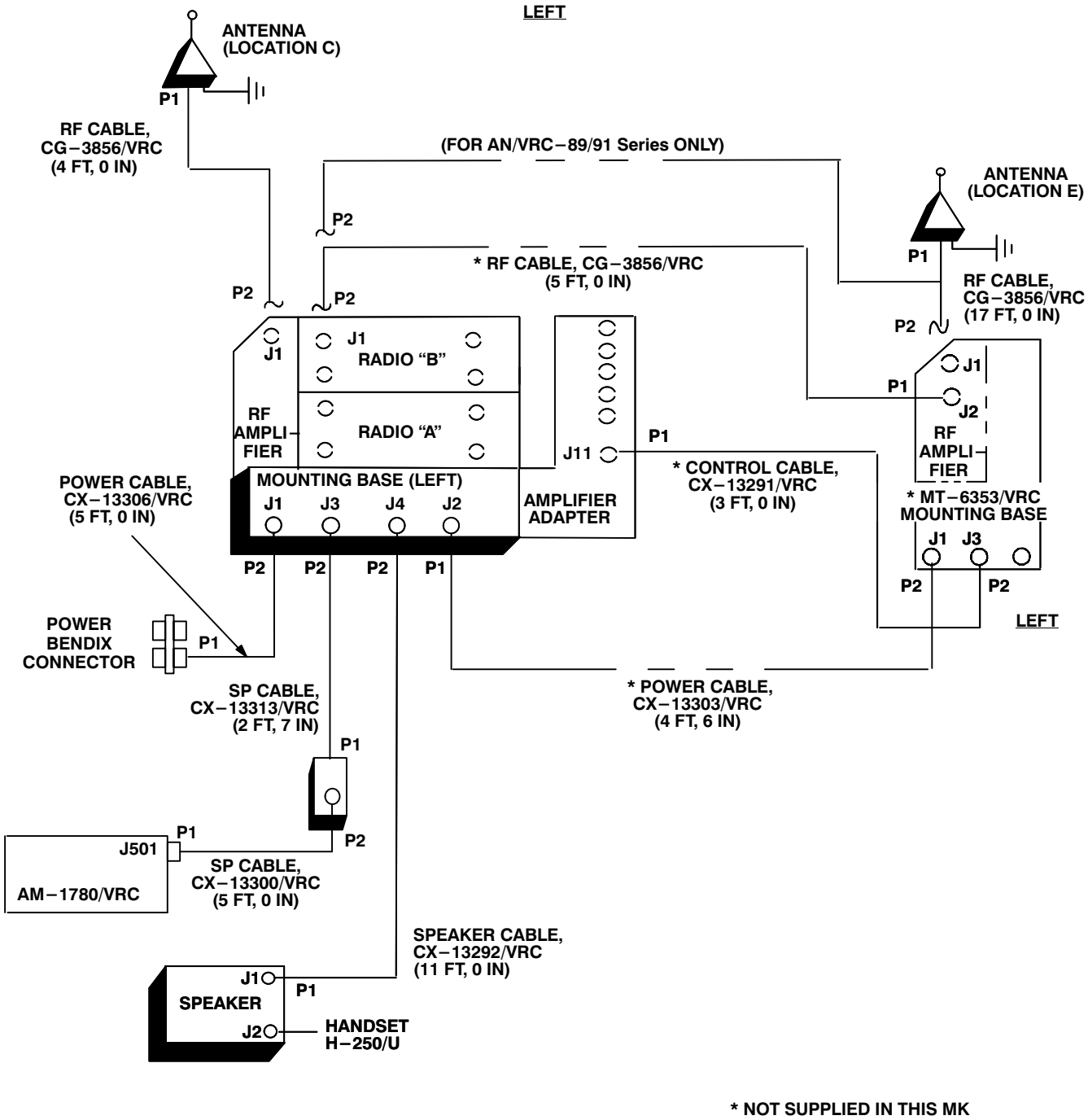


Figure 5−9. Typical Cable Diagram: For Dual AN/VRC−89/91/92 Series Radio Sets

5.6 Post−Installation and Checkout. Continued

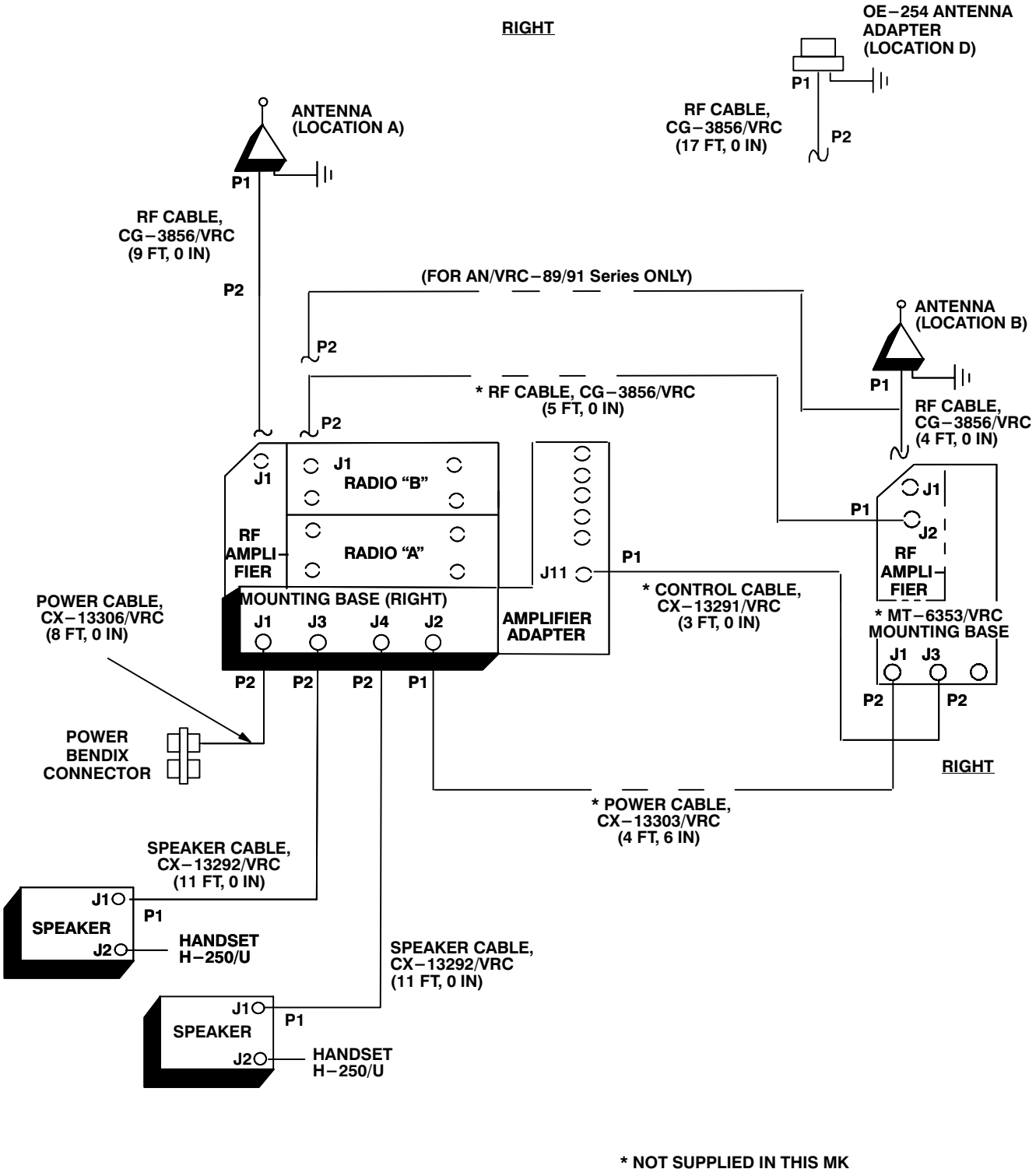


Figure 5−9. Typical Cable Diagram: For Dual AN/VRC−89/91/92 Series Radio Sets Continued

5.6 Post−Installation and Checkout. Continued

CABLE ASSEMBLY	FROM			TO		
	CABLE CONN.	UNIT	UNIT CONN.	CABLE CONN.	UNIT	UNIT CONN.
CX−13306/VRC (5 FT, 0 IN)	P2	Mounting base (left)	J1	P1	Power Bendix connector	
* CG−3856/VRC (5 FT, 0 IN)	P2	Radio “B” (left)	J1	P1	MT−6353/VRC RF amplifier (left)	J2
CG−3856/VRC (4 FT, 0 IN)	P1	Antenna base (location C)	J1	P2	RF amplifier (left)	J2
CG−3856/VRC (17 FT, 0 IN)	P1	Antenna base (location E)	J1	P2	RF amplifier (left)	J1
CX−13313/VRC (2 FT, 7 IN)	P2	Mounting base (left)	J3	P1	CX−13300/VRC (5 FT, 0 IN)	P2
CX−13292/VRC (11 FT, 0 IN)	P2	Mounting base (left)	J4	P1	Speaker	J1
CX−13300/VRC (5 FT, 0 IN)	P2	CX−13313/VRC (5 FT, 0 IN)	P1	P1	AM−1780/VRC	J501
* CX−13303/VRC (4 FT, 6 IN)	P1	Mounting base (left)	J2	P2	MT−6353/VRC mounting base (left)	J1
* CX−13291/VRC (3 FT, 0 IN)	P1	Amplifier-adapter (left)	J11	P2	MT−6353/VRC mounting base (left)	J3
* CG−3856/VRC (5 FT, 0 IN)	P1	MT−6353/VRC RF amplifier (right)	J2	P2	Radio “B” (right)	J1
CG−3856/VRC (17 FT, 0 IN)	P1	OE−254 antenna (location D)	J1	P2	determined by commander	
CG−3856/VRC (4 FT, 0 IN)	P1	Antenna base (location B)	J1	P2	MT−6353/VRC RF amplifier (right) or Radio “B”	J1
CX−13292/VRC (11 FT, 0 IN)	P2	Mounting base (right)	J3	P1	Speaker	J1
CX−13292/VRC (11 FT, 0 IN)	P2	Mounting base (right)	J4	P1	Speaker	J1
CX−13306/VRC (8 FT, 0 IN)	P2	Mounting base (right)	J1	P1	Power Bendix connector	
CG−3856/VRC (9 FT, 0 IN)	P1	Antenna base (location A)	J1	P2	MT−6353/VRC RF amplifier (right)	J1
* CX−13291/VRC (3 FT, 0 IN)	P2	MT−6353/VRC mounting base (right)	J3	P1	Amplifier-adapter (right)	J11
* CX−13303/VRC (4 FT, 6 IN)	P2	MT−6353/VRC mounting base (right)	J1	P1	Mounting base (right)	J2

* Not supplied in this MK.

Figure 5−9. Typical Cable Diagram: For Dual AN/VRC−89/91/92 Series Radio Sets 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	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)
TM 11−5820−890−20−2	Unit Maintenance Manual (Non−ICOM Radio Sets)
TM 11−5820−890−20P	Repair Parts and Special Tools List

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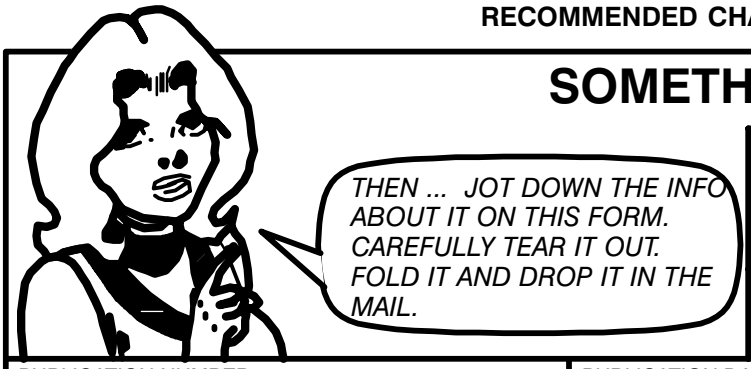

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PAGE NO	PARA-GRAPH	FIGURE NO	TABLE NO	IN THIS SPACE TELL WHAT IS WRONG AND WHAT SHOULD BE DONE ABOUT IT:
2–25	2–28			Recommend that the installation antenna alignment procedure be changed throughout to specify a 20 IFF antenna lag rather than 10 REASON: Experience has shown th[illegible]th 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.
3–10	3–3		3–1	Item 5, Fu[illegible]ctional co[illegible]n. Change ☐ 2 dB" to ☐ 3 dB". REA[illegible]djustment procedure for the TRANS POWER FAULT [illegible]r call for a 3 dB (500 watts) adjustment to light the TRA[illegible]POWER FAULT indicator.
5–6	5–8			A[illegible]d new step f.1 to read, ☐ Replace cover plate removed in step d 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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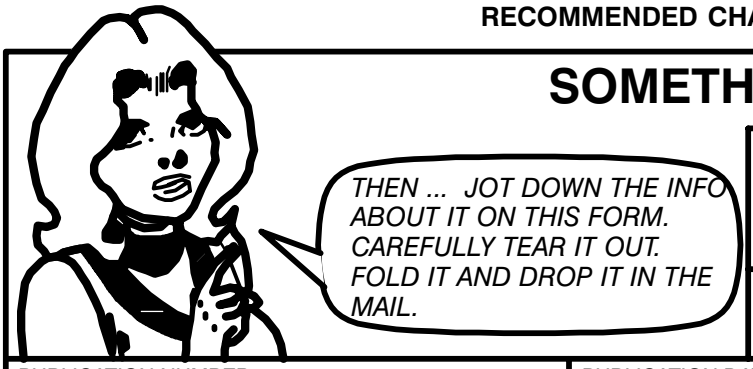

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