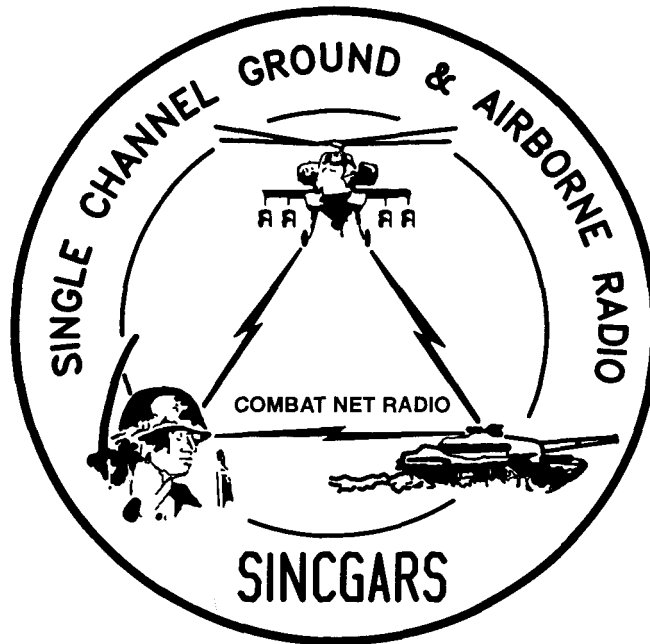


TECHNICAL BULLETIN



INSTALLATION INSTRUCTIONS FOR
INSTALLATION KIT,
ELECTRONIC EQUIPMENT, MK-2311/VRC
(NSN 5895-01-216-9744) (EIC: N/A)
TO PERMIT INSTALLATION OF RADIO SET
AN/VRC-89/91/92 SERIES
INTO
TRUCK, UTILITY, TACTICAL, 3/4 TON, 4x4, M1009

Approved for public release; distribution is unlimited.

HEADQUARTERS, DEPARTMENT OF THE ARMY

1 SEPTEMBER 1993

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 INSTALLATION KIT,
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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 and Fort Monmouth, ATTN: AMSEL-LC-ME-PS, Fort Monmouth, New Jersey 07703-5007.

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-2311/VRC, commonly referred to as the Mounting Kit (MK). The MK shall be installed into the following type of vehicle(s):

- Truck, Utility, Tactical, 3/4 Ton, 4x4, M1009

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-89/91/92 Series are:

- Radio Set AN/VRC-89/91/92 (for RT-1439/VRC)
- Radio Set AN/VRC-89A/91A/V92A (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 Installation Kit, Electronic Equipment, MK-2311/VRC (MK) contains the items needed to mount Radio Set AN/VRC-89A/91A/92A in a Truck, Utility, Tactical, 3/4 Ton, 4x4, M1009 (vehicle). If Radio Set AN/VRC-89/91/92 is to be installed, communications security equipment (TSEC/KY-57) will need to be installed also; see section 5.6 for information. If Radio Set AN/VRC-92 or AN/VRC-92A is authorized, see section 5.7 for instructions to install MT-6353/VRC mounting 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 3.5 work hours is required. Typical vehicle downtime is 3.5 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	1.0
Mounting Base, Electrical Equipment MT-6352/VRC	5.3	0.5
Cables	5.5	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 9-2320-289-20.

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 series. Refer to Table 4-2 and figure 4-2 to identify additional items required to install Radio Set AN/VRC-92 Series. Refer to Table 4-3 and figure 4-3 to identify additional items required to install when using RT-1439/VRC.

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. MK Parts List for Installation of Radio Set 89/91/92 Series

NSN	ITEM DESCRIPTION AND PART NUMBER	QUANTITY IN MK	SMR CODE	FIGURE, ITEM NO.
5985-01-297-2971	Antenna AS-3900/VRC (A3017899-1)	2	PAOFA	4-1, 2
5305-00-847-1159	Screw, Cap, Hexagon (3/8 - 16 x 1 3/4 in) MS35307-365	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	
5895-01-151-9914	Control-Monitor C-11291/VRC (A3148258-1)	1	PAOFDA	4-1, 9
5306-00-225-9089	Bolt, Machine (5/16 - 24 x 1 in) MS90726-34	2	PAOZZA	
5310-00-407-9566	Washer, Lock (5/16 in) MS35338-45	2	PAOZZA	
5310-00-081-4219	Washer, Flat (5/16 in) MS27183-12	4	PAOZZA	
5310-00-880-7746	Nut, Hexagon (5/16 - 24 in) MS51968-5	2	PAOZZA	
5305-00-068-0506	Screw, Cap, Hexagon (1/4 - 28 x 3/4 in) MS90726-6 (Not Used)	2	PAOZZA	
5310-00-582-5965	Washer, Lock (1/4 in) MS35338-44 (Not Used)	2	PAOZZA	
5310-00-809-4058	Washer, Flat (1/4 in) MS27183-10 (Not Used)	2	PAOZZA	
5965-01-222-1420	Loudspeaker-Control Unit LS-671/VRC (A3014065-1)	2	PAOFFA	4-1, 4
5975-01-188-8873	Mounting Base, Electrical Equipment MT-6352/VRC (A3013367-1)	1	PAOFA	4-1, 1
5306-00-225-9089	Bolt, Machine (5/16 - 24 x 1 in) MS90726-34 (1 Not Used)	5	PAOZZA	
5310-00-889-2527	Washer, Lock, Internal/External-Toothed (5/16 in) MS45904-72 (2 Not Used)	10	PAOZZA	
5310-00-880-7746	Nut, Hexagon (5/16 - 24 in) MS51968-5 (1 Not Used)	5	PAOZZA	
5995-01-219-1843	Cable Assembly, Power, Electrical CX-13302/VRC(13 FT, 0 IN) (A3014039-2)	1	PAOZZA	4-1,13
5995-01-219-7031	Cable Assembly, Radio Frequency CG-3855/VRC (9 FT, 0 IN) (A3014031-4)	1	PAOZZA	4-1,12
5995-01-219-7035	Cable Assembly, Radio Frequency CG-3855/VRC (18 FT, 0 IN) (A3014031-8)	1	PAOZZA	4-1,12
5995-01-219-4703	Cable Assembly, Special Purpose, Electrical CX-13292/VRC(4 FT, 0 IN) (A3014038-2)	1	PAOZZA	4-1,15
5995-01-219-4705	Cable Assembly, Special Purpose, Electrical CX-13292/VRC (14 FT, 0 IN) (A3014038-4)	1	PAOZZA	4-1,15

Table 4-1. MK Parts List for Installation of Radio Set AN/VRC-89/91/92 Series Continued

NSN	ITEM DESCRIPTION AND PART NUMBER	QUANTITY IN MK	SMR CODE	FIGURE, ITEM NO.
5995-31-218-6464	Cable Assembly, Special Purpose, Electrical CX-13290/VRC (15 FT, 0 IN) (A3014035-2)	1	PAOZZA	4-1, 14
5306-00-225-9089	Bolt, Machine (5/16-24 x 1 in) MS90726-34	2	PAOZZA	
5306-00-225-9086	Bolt, Machine (5/16-24 x 5/8 in) MS90726-31	2	PAOZZA	
	Bracket, Mounting (A3014069-1)	1	XBOZZA	4-1, 5
	Bracket, Mounting - Antenna (A3014549-1)	2	XBOZZA	4-1, 7
5340-00-809-1494	Clamp, Loop (3/4-1/4 in) MS21333-105	3	PAOZZA	
5340-00-809-1490	Clamp, Loop (1/4-1/4 in) MS21333-98	4	PAOZZA	
5340-00-809-1500	Clamp, Loop (1-1/4 in) MS21333-107	5	PAOZZA	
5340-00-400-0002	Clamp, Loop (1 1/4-1/4 in) MS9350-19	2	PAOZZA	
5340-00-067-3868	Clamp, Loop (1/4-5/16 in) MS21333-109	14	PAOZZA	
5340-00-057-3052	Clamp, Loop (3/4-5/16 in) MS21333-114	1	PAOZZA	
5340-00-764-7052	Clamp, Loop (1 3/16-5/16 in) MS21333-116	1	PAOZZA	
5340-00-151-9651	Clamp, Loop (1 1/4-3/8 in) MS21333-129	3	PAOZZA	
4020-01-341-8795	Fiber Rope Assembly, Single Leg (A3167672-1)	2	PAOZZA	4-1, 10
5325-00-174-9008	Grommet, Nonmetallic (1/2 in) MS35489-15	1	PAOZZA	
	Grommet, Nonmetallic (A3013060-1)	2	XBOZZA	
5965-00-043-3463	Handset H-250/U	2	PAOZZA	4-1, 3
5310-00-880-7746	Nut, Hexagon (5/16-24 in) MS51968-5	3	PAOZZA	
5310-00-761-6882	Nut, Hexagon (1/4-20 in) MS51967-2	17	PAOZZA	
	Nut Strip (A3014064-1)	1	XBOZZA	4-1,8
	Plate, Mounting-Speaker (A3014550-1)	1	XBOZZA	4-1, 11
	Screw, Externally-Relieved Body (A3018701-2)	2		
	Protector, Electrical Cable Assembly (A3050654-1)	1	XBOZZA	
5305-00-068-0502	Screw, Cap, Hexagon (1/4-20 x 3/4 in) MS90725-6	15	PAOZZA	
5305-00-432-4251	Screw, Tapping, Pan-Head (1/4-14 x 1/2 in) MS51861-65	4	PAOZZA	
5305-00-432-4253	Screw, Tapping, Pan-Head (1/4-14 x 3/4 in) MS51861-67	4	PAOZZA	
5305-00-071-2238	Screw, Cap, Hexagon (1/4-20 x 1 3/4 in) MS90725-13	2	PAOZZA	
	Spacer, Plate (A3014054-1)	2	XBOZZA	4-1, 6
5975-00-111-3208	Strap, Tiedown, Electrical Components MS3367-5-9	10	PAOZZA	
5310-00-407-9566	Washer, Lock (5/16 in) MS35338-45	4	PAOZZA	
5310-00-582-5965	Washer, Lock (1/4 in) MS35338-44	25	PAOZZA	
5310-00-809-4058	Washer, Flat (1/4 in) MS27183-10	12	PAOZZA	
5310-00-081-4219	Washer, Flat (5/16 in) MS27183-12	2	PAOZZA	

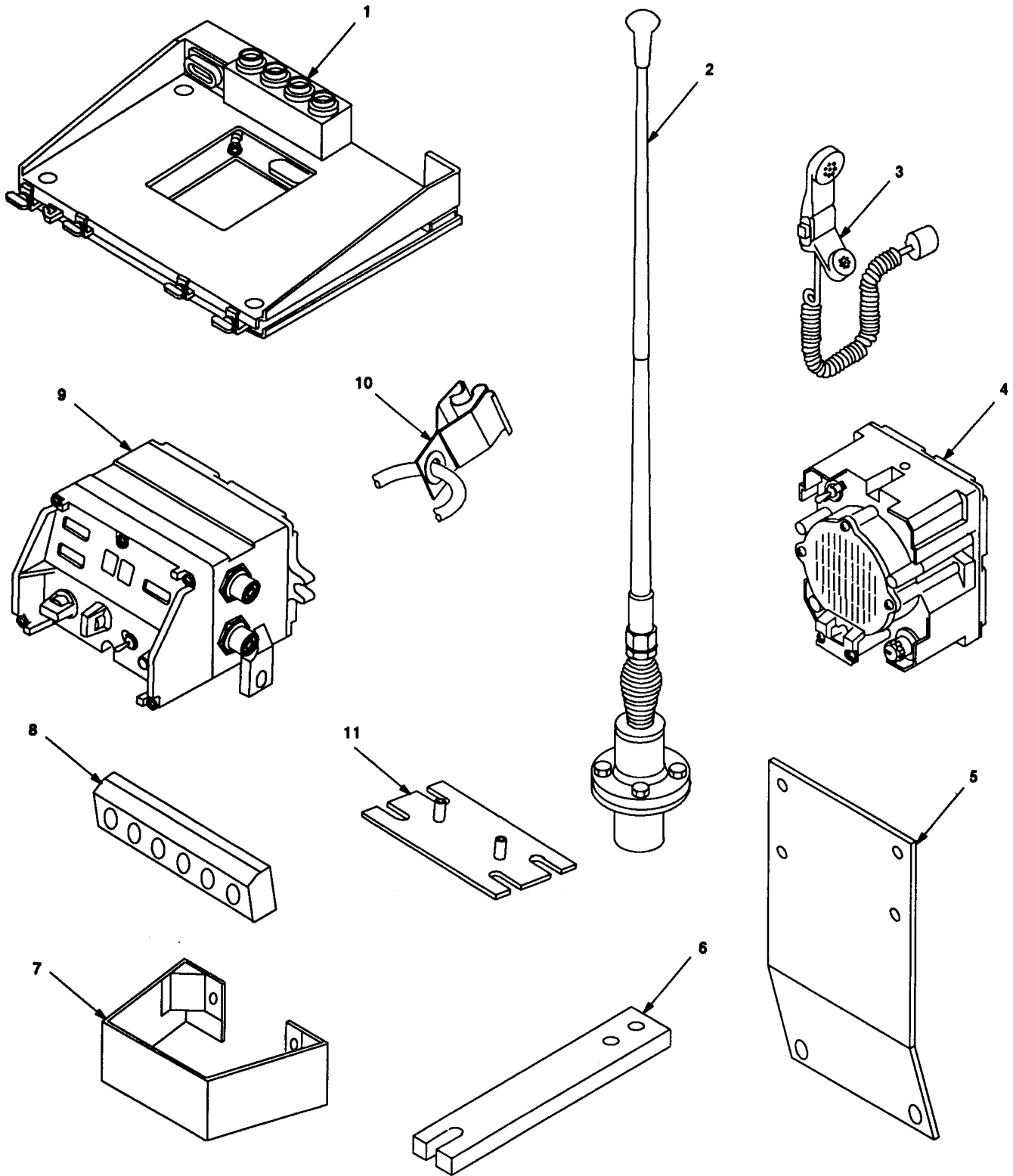


Figure 4-1 (1). MK Illustrated Parts List

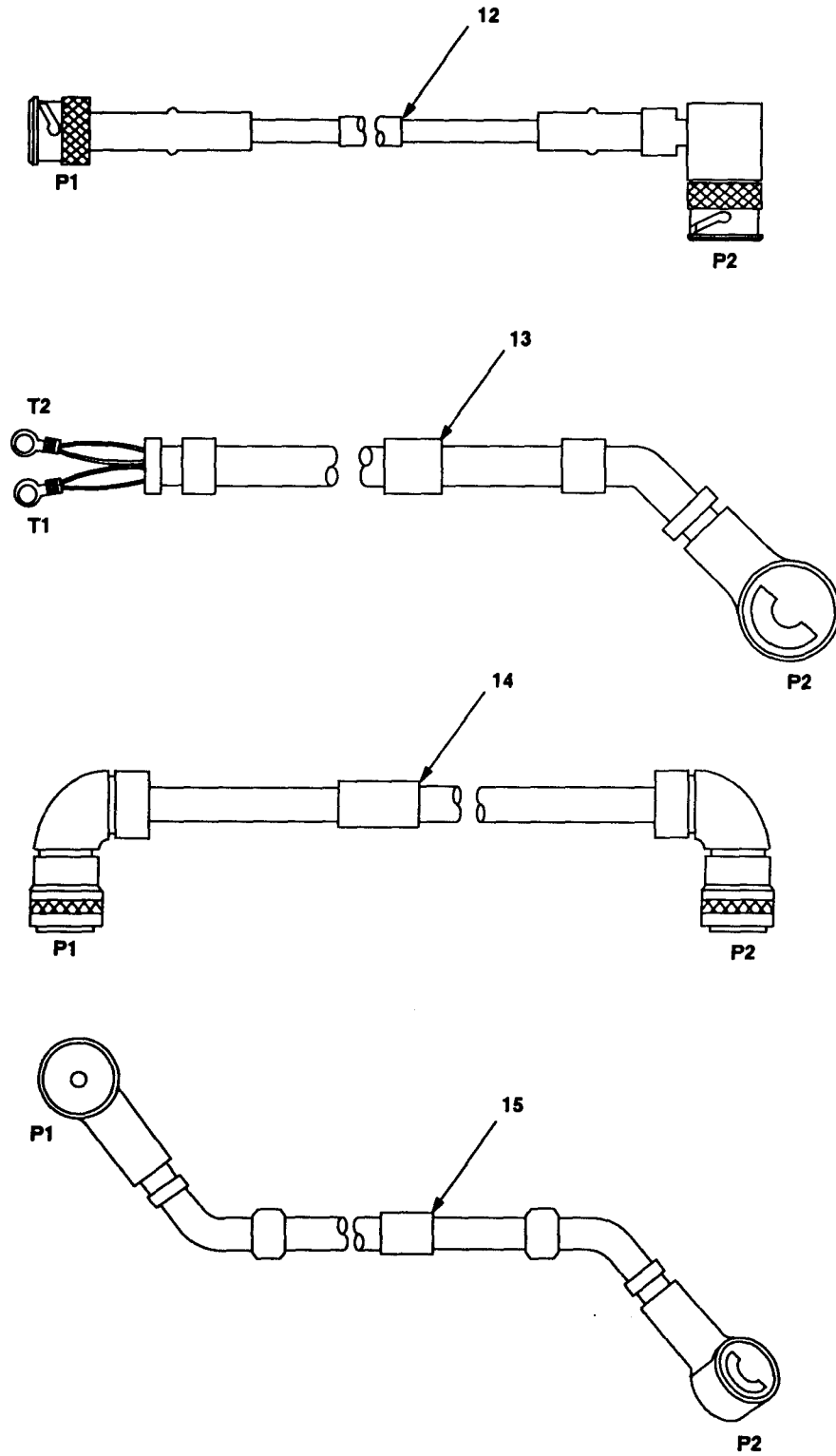


Figure 4-1 (2). MK Illustrated Parts List

Table 4-2. Additional Items Required for Installation of Radio Set AN/VRC-92 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)	1	PAOOHA	4-2, 1
5306-00-225-9089	Bolt, Machine (5/16-24 x 1 in) MS90726-34	4	PAOZZA	
5310-00-880-7746	Nut, Hexagon (5/16-24 in) MS51968-5	2	PAOZZA	
5310-00-889-2527	Washer, Lock, Internal/External-Toothed (5/16 in) MS45904-72	6	PAOZZA	
5310-00-081-4219	Washer, Flat (5/16 in) MS27183-12 (Not Used)	2	PAOZZA	
5975-00-111-3208	Nut Strip (A3014064-1) Strap, Tiedown, Electrical Components MS3367-5-9	1 4	XBOZZA PAOZZA	4-2, 5
5995-01-300-9324	Cable Assembly, Power, Electrical CX-13303/VRC (4 FT, 6 IN) (A3014040-9)	1	PAOZZA	4-2, 4
5995-01-222-4209	Cable Assembly, Special Purpose, Electrical CX-13291/VRC (3 FT, 0 IN) (A3014037-1)	1	PAOZZA	4-2, 2
5995-01-219-7025	Cable Assembly, Radio Frequency CG-3856/VRC (5 FT, 0 IN) (A3014032-3)	1	PAOZZA	4-2, 3

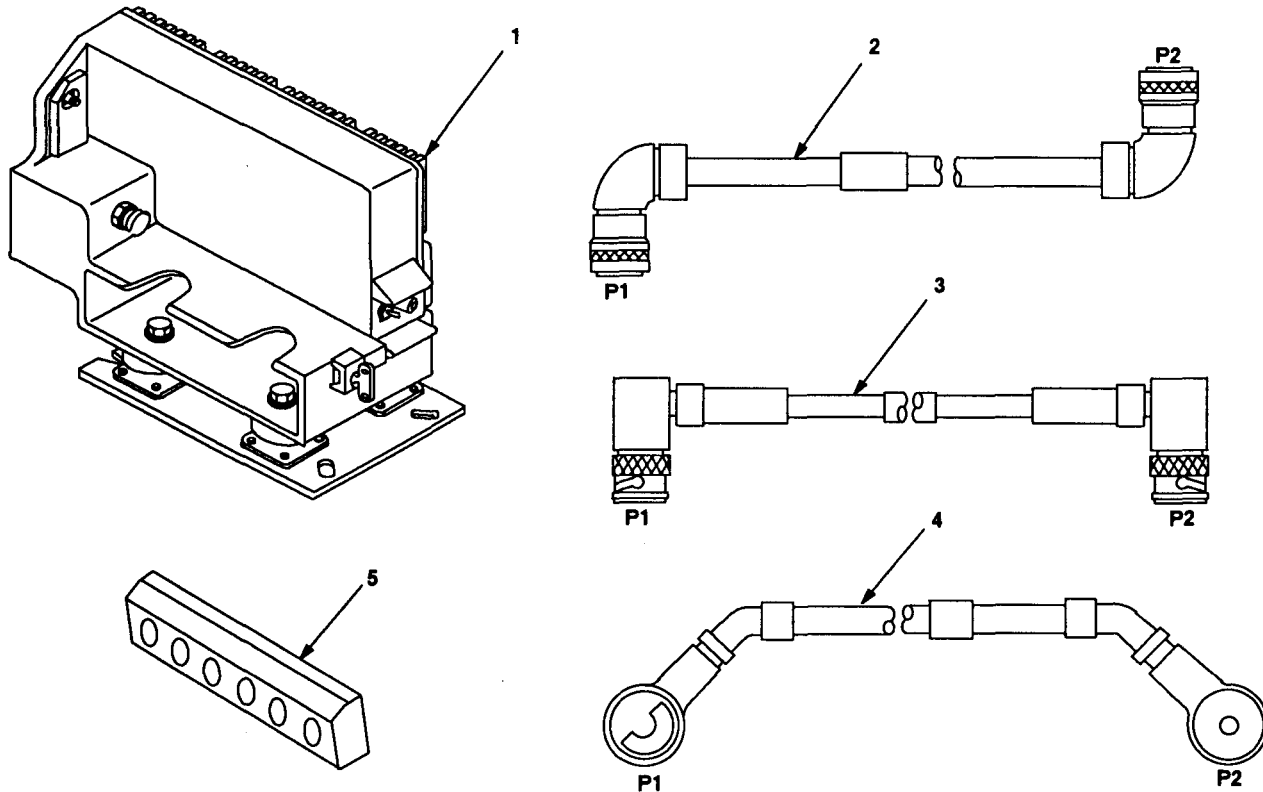


Figure 4-2. Illustrated Parts List for Table 4-2

Table 4-3. Additional Items Required for Installation When Using RT-1439/VRC

NSN	ITEM DESCRIPTION AND PART NUMBER	QUANTITY	SMR CODE	FIGURE, ITEM NO.
5995-01-222-4210	Cable Assembly, Special Purpose, Electrical CX-13293/VRC (4 FT. 0 IN) (A3014034-1)	2	PAOZZA	4-3, 1
5995-01-225-1655	Cable Assembly, Power, Electrical CX-13303/VRC (1 FT. 6 IN) (A3014040-6)	1	PAOZZA	4-3, 3
5995-01-226-5482	Cable Assembly, Power, Electrical CX-13303/VRC (2 FT, 6 IN) (A3014040-5)	1	PAOZZA	4-3, 2

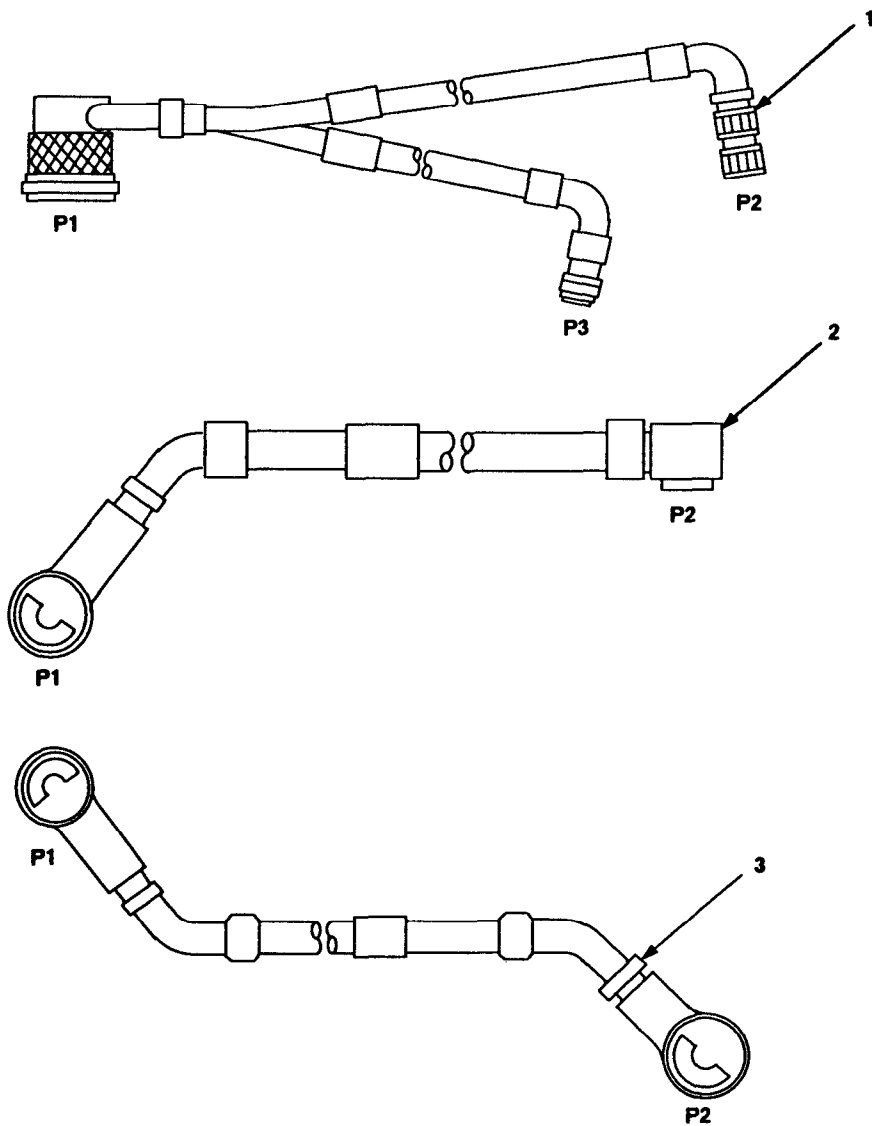


Figure 4-3. TSEC/KY-57 Illustrated Parts List

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

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
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
11/2 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
11/2 in	5120-00-237-0977	1
9/16 in	5120-00-227-6704	1
Electric Drill	5130-00-889-8994	1
Drill Bits: 11/32 in	5133-00-227-9664	1
9/32 in	5133-00-222-9374	1
13/64 in	5133-00-243-9612	1
1 1/4 in		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-89/91/92 is to be installed, communications security equipment (TSEC/KY-57) will need to be installed also; see section 5.6 for information. To install MT-6353/VRC mounting base, see section 5.7 for instructions.

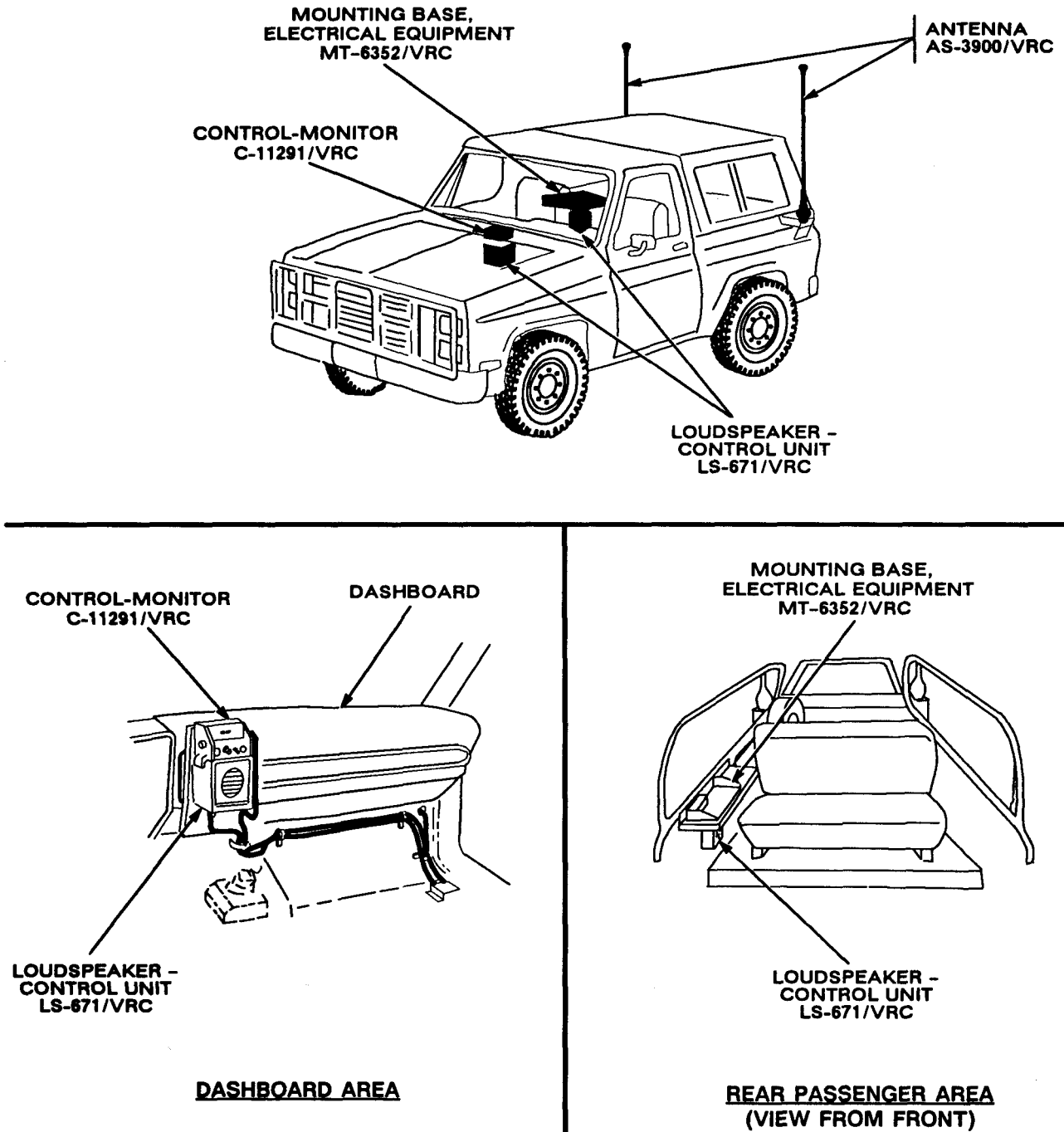
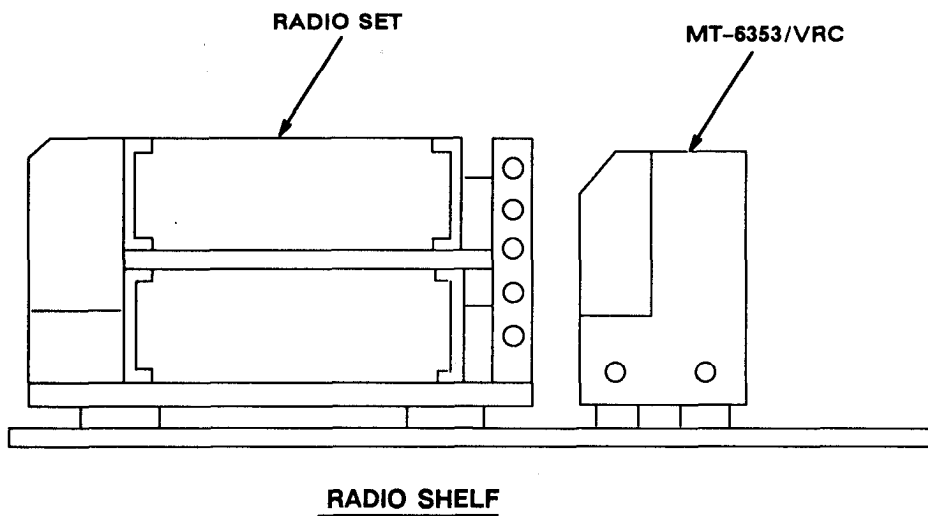


Figure 5-1 (1). MK and Radio Installation: MK Equipment Locations

5. INSTALLATION PROCEDURES. Continued.

INSTALLATION
FOR
AN/VRC-89A/91A/92A



INSTALLATION
FOR
AN/VRC-89/91/92

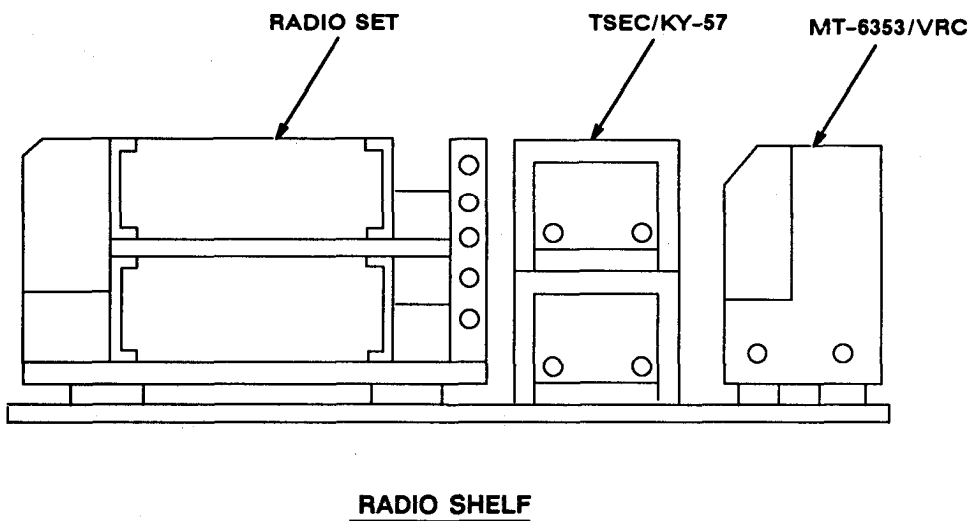


Figure 5-1 (2). MK and Radio Installation: Radio Equipment Locations

5.1 Installation of Antenna AS-3900/VRC (antenna). Use the following procedure to install both antennas. See figure 5-1 (1) 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. Existing antenna bracket and mounting hardware.	Temporarily remove from rear fender. See figure 5-2 (1).	Tools: 1/2 in socket.
b. Mounting bracket (1).	Align with two top holes of antenna bracket; then place over existing mounting holes in rear fender.	
c. Existing mounting hardware removed in step a.	Install and secure to top right hole in existing antenna bracket, mounting bracket (1) and fender; then install and secure to bottom two holes in antenna bracket and fender.	Tools: 1/2 in socket.
d. Existing grommet.	Remove and discard.	

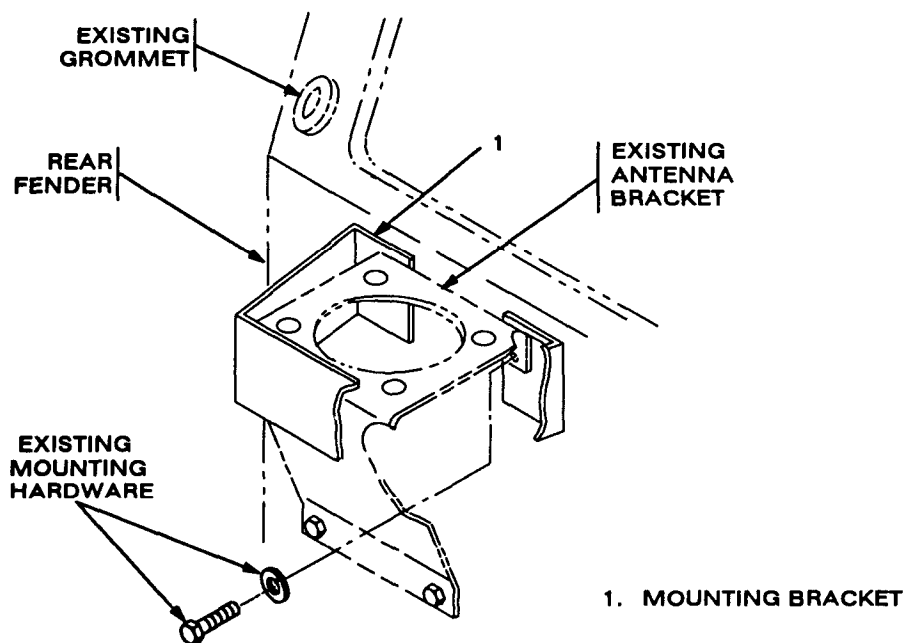


Figure 5-2 (1). Antenna Base Installation: Installing Mounting Bracket

5.1.1 Installation of Antenna Base. Continued

ITEM	ACTION	REMARKS
e. Grommet (10).	Install to existing cable hole. See figure 5-2 (2).	
f. Gasket (4).	Place on existing antenna bracket and align mounting holes.	
g. Antenna base (1).	Place on top of gasket (4) and antenna bracket; then align mounting holes.	
h. Four cap screws (2), eight IET washers (3) and four nuts (5).	Install and secure to antenna base (1) and antenna bracket.	Tools: 9/16 in socket and 9/16 in open/box wrench.
i. Ground strap (8), loop clamp (6), two IET washers (7) and existing bolt (removed in step a).	Install (without securing) to top left hole in antenna bracket, mounting bracket (9) and rear fender.	Tools: 1/2 in socket.

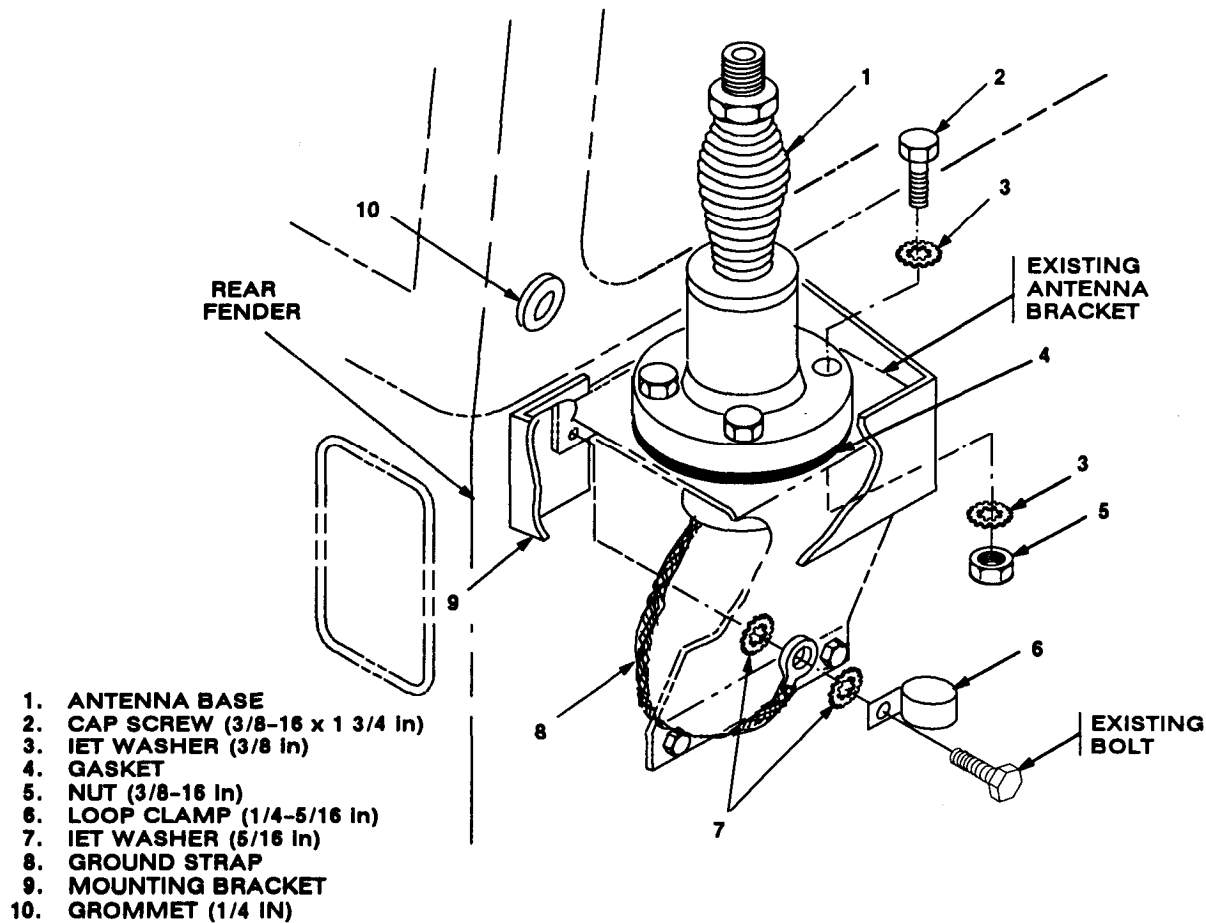


Figure 5-2 (2). Antenna Base Installation: Installing Antenna Base

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.	

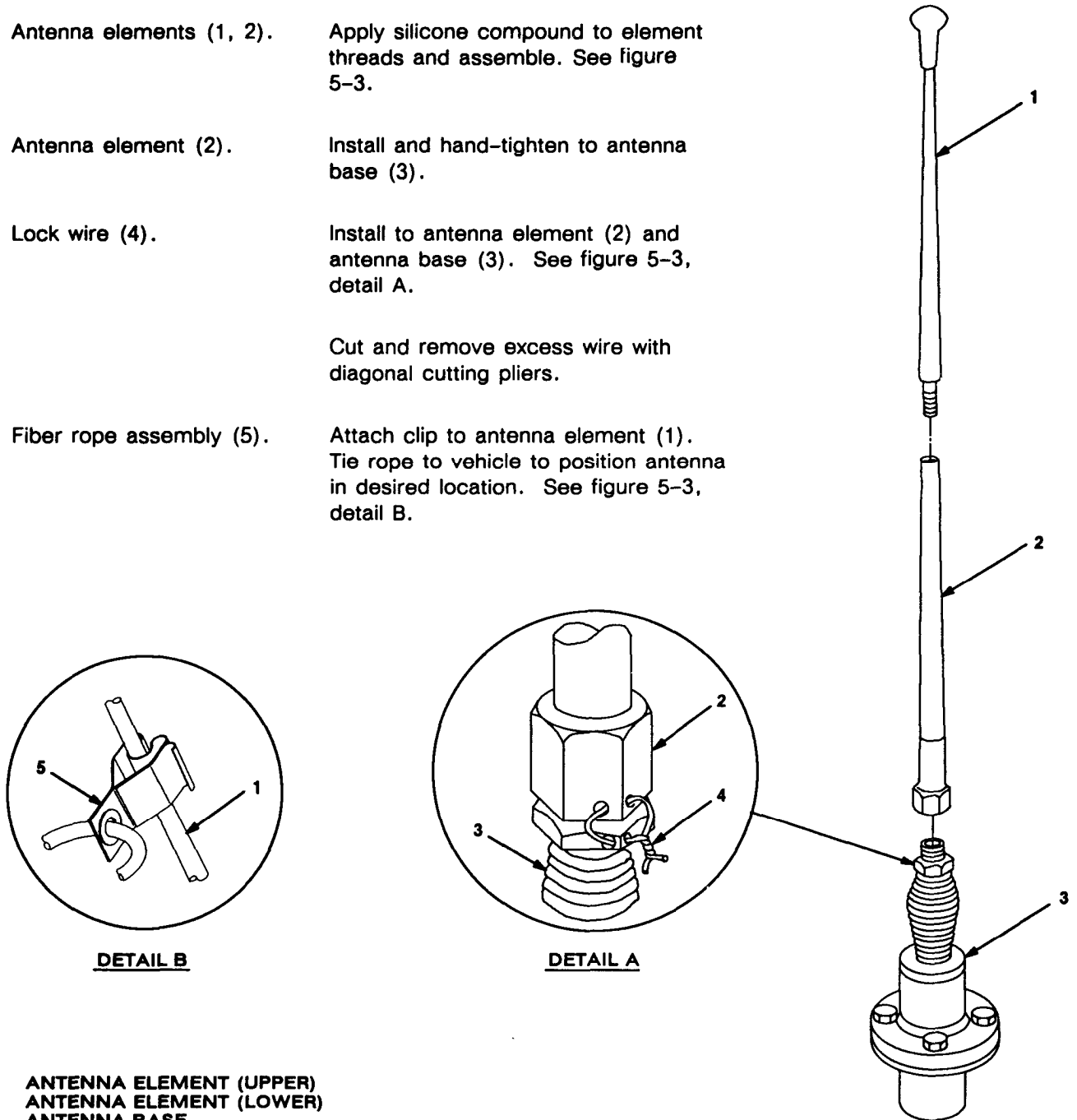


Figure 5-3. Top Antenna Assembly Installation

5.2 Installation of Rear Loudspeaker - Control Unit LS-671/VRC (speaker).

ITEM	ACTION	REMARKS
a. Existing radio shelf.	Using dimensions shown, drill a 11/32 in diameter hole through bottom of front angle support. See figure 5-4.	Tools: Electric drill and 11/32 in drill bit.
b. Speaker (4).	Position top under hole drilled in step a.	
c. Machine bolt (1), lock washer (2) and flat washer (3).	Install and secure to speaker (4) and radio shelf.	Tools: 1/2 in socket,
d. Handset (5).	Connect and secure to speaker (4)	

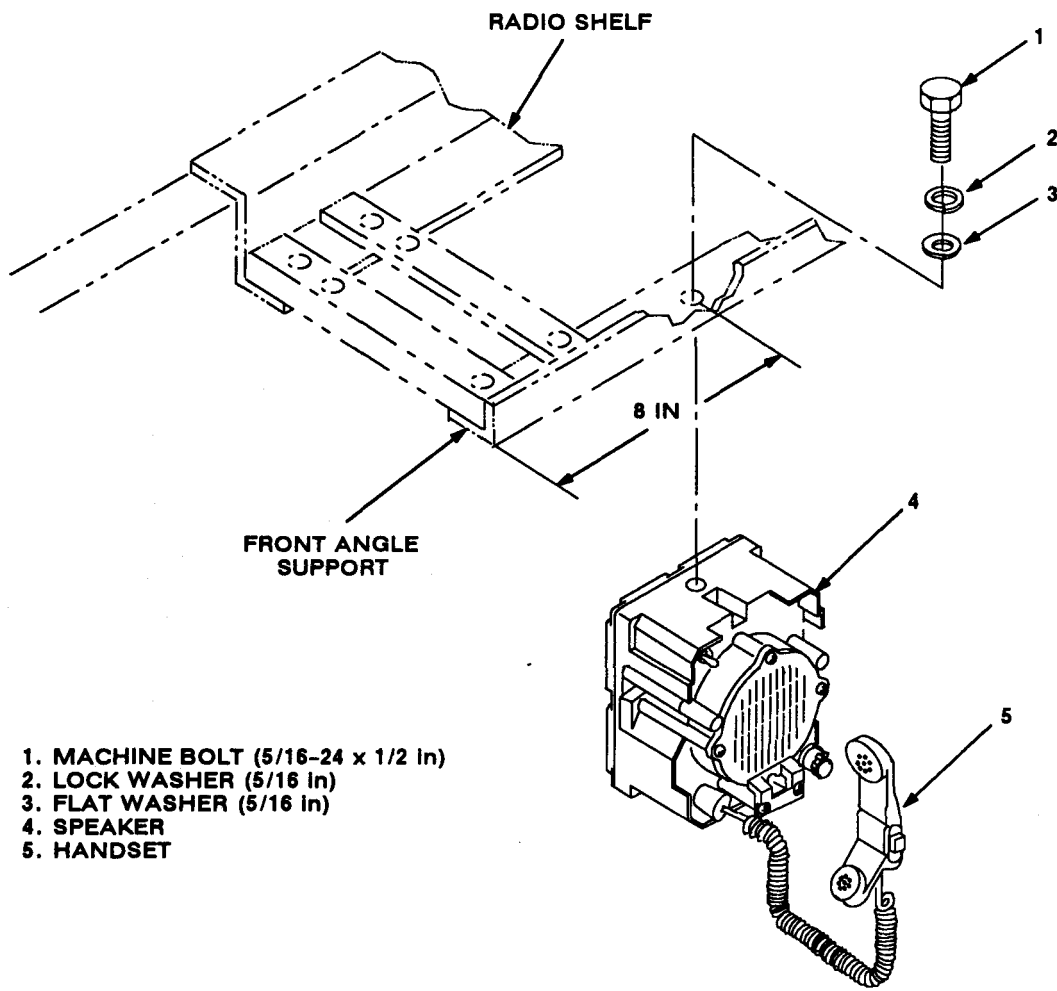


Figure 5-4. Rear Speaker Installation: Radio Shelf

5.3 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 base. See figure 5-5 and perform the following steps.

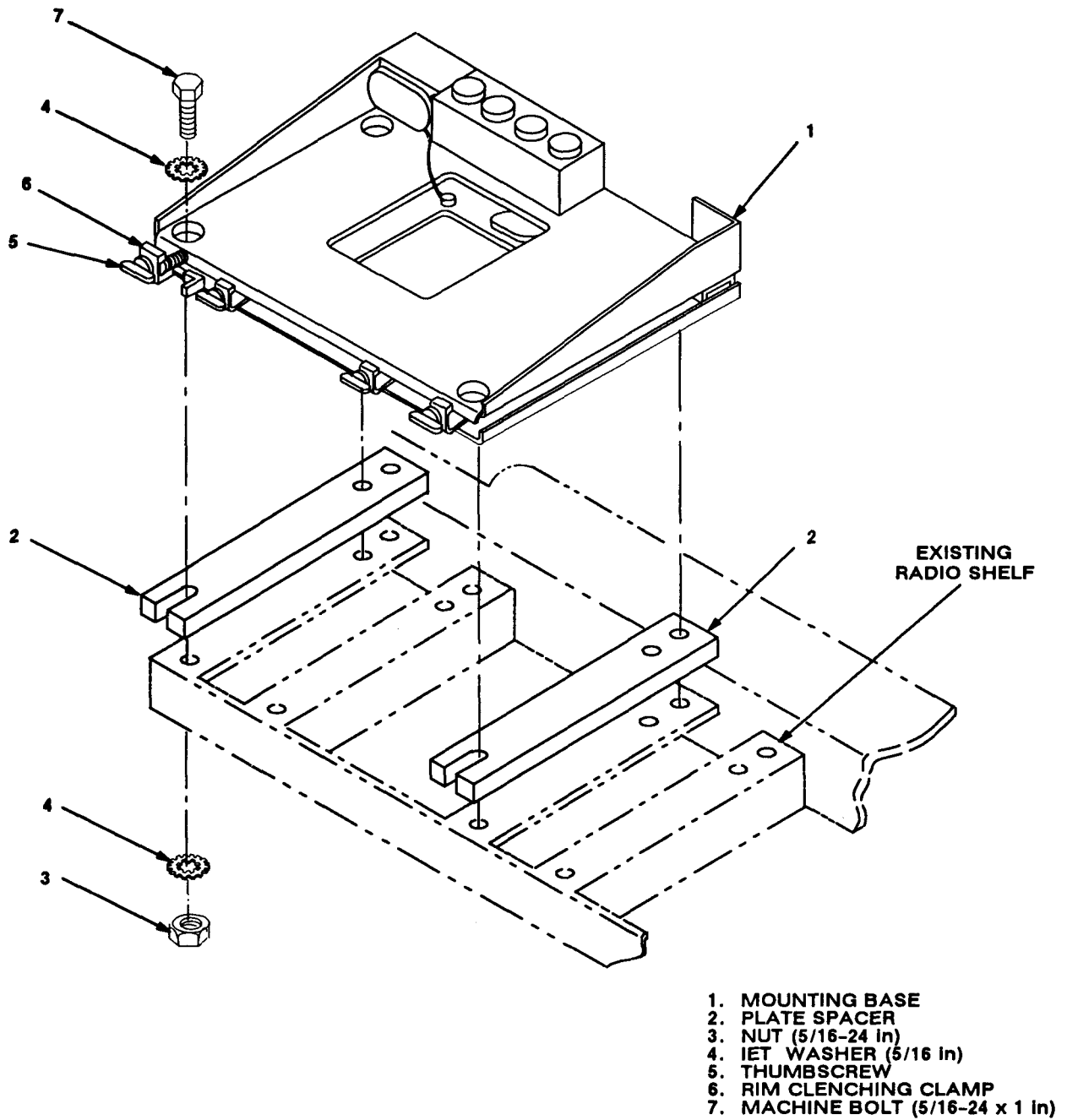


Figure 5-5. Mounting Base Installation: Rear Curbside Passenger Area

5.3 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. Two plate spacers (2).	Place on existing radio shelf; then aline rear holes and front slots with matching hole pattern in shelf. See figure 5-5.	
b. Two outer thumbscrews (5).	Turn ccw until both sets of threads have cleared center of holes.	
c. Mounting base (1).	Place on top of two plate spacers (2); then aline holes with rear holes and front slots in plate spacers (2).	
d. Four machine bolts (7), eight IET washers (4) and four nuts (3).	Install and secure to mounting base (1) and shelf,	Tools: 1/2 in socket and 1/2 in open/box wrench.
e. Two outer thumbscrews (5).	Tighten and secure to rim clenching clamps (6) and mounting base (1).	

5.4 Installation of Control Monitor C-11291/VRC (control-monitor) and Front Speaker.

ITEM	ACTION	REMARKS
a. Mounting bracket (1).	Place against dashboard bracket and align holes to locate two existing screws in lower dashboard: then temporarily set mounting bracket aside. See figure 5-6 (1).	Screws should be visible through two slotted holes.
b. Two existing screws (located in step a).	Remove and discard.	
c. Two existing holes in lower dashboard.	if required, enlarge to 9/32 in diameter.	Tools: Electric drill and 9/32 in drill bit.
d. Mounting bracket (1).	Reset against dashboard bracket and align holes.	

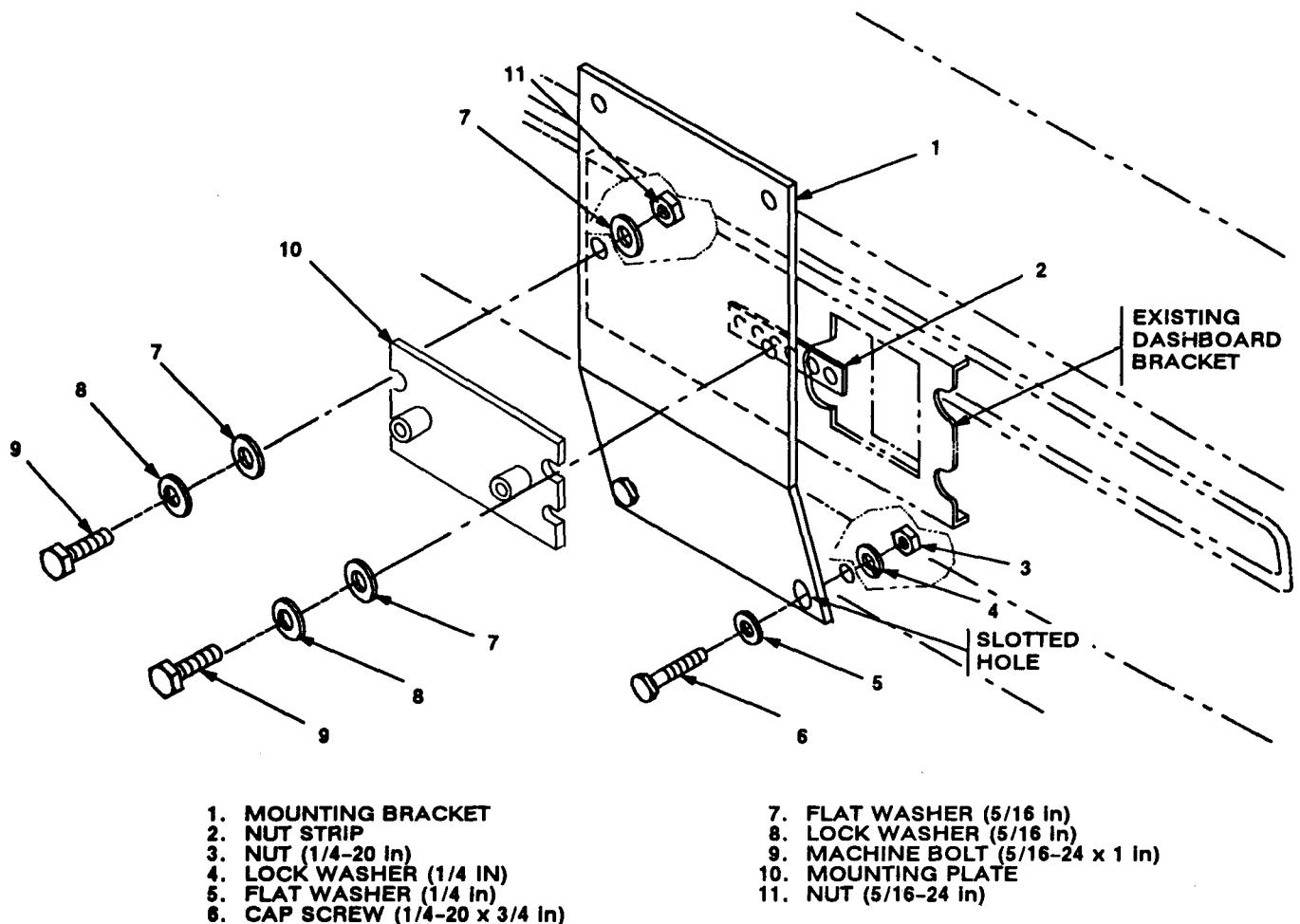
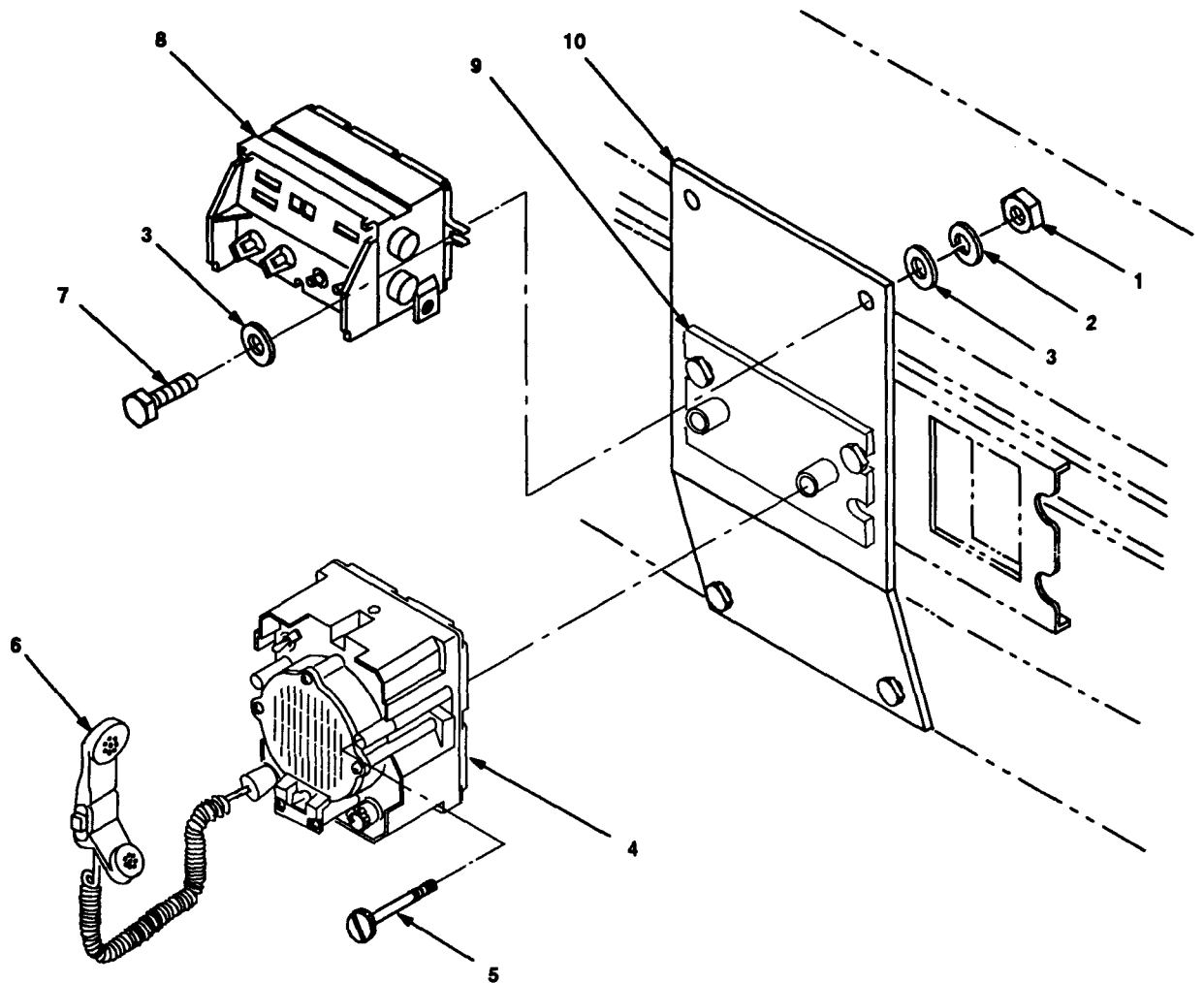


Figure 5-6 (1). Control-Monitor and Front Speaker installation: Installing Bracket and Plate

5.4 Installation of Control Monitor C-11291/VRC (control-monitor) and Front Speaker. Continued.

ITEM	ACTION	REMARKS
e. Two cap screws (6), two flat washers (5), two lock washers (4) and two nuts (3) .	Temporarily hand tighten to slotted holes in mounting bracket (1) and lower dashboard. See figure 5-6 (1).	Helps hold mounting bracket in place while installing upper portion to dashboard bracket.
f. Two middle holes in mounting bracket (1).	Aline with matching holes in dashboard bracket.	
g. Mounting plate (10).	Aline top slots with middle mounting holes in mounting bracket (1).	
h. Machine bolt (9), lock washer (8), two flat washers (7) and nut (11).	Install and secure top left slot of mounting plate (10) to mounting bracket (1) and dashboard bracket.	Tools: 1/2 in socket and 1/2 in open/box wrench.
i. Nut strip (2).	Insert through square opening in dashboard bracket; then aline with two center holes in dashboard bracket and right hole in mounting bracket (1).	
j. Machine bolt (9), lock washer (8) and flat washer (7).	Install and secure top right slot of mounting plate (10) to mounting bracket (1), dashboard bracket and nut strip (2).	Tools: 1/2 in socket.
k. Mounting hardware installed in step e.	Securely tighten.	Tools: 7/16 in socket and 7/16 in open/box wrench.
l. Speaker (4).	Place on mounting plate (9). See figure 5-6 (2).	
m. Two externally-relieved body screws (5).	Thread through speaker (4) and secure to mounting plate (9).	Tools: Flatblade screwdriver.
n. Handset (6).	Connect and secure to speaker (4) connector J2.	
o. Control-monitor (8).	Aline slots with top mounting holes in mounting bracket (10).	
p. Two machine bolts (7), four flat washers (3), two lock washers (2) and two nuts (1).	Install and secure to control-monitor (8) and mounting bracket (10).	Tools: 1/2 in socket and 1/2 in open/box wrench.

5.4 Installation of Control Monitor C-11291/VRC (control-monitor) and Front Speaker. Continued.



1. NUT (5/16-24 in)
2. LOCK WASHER (5/16 in)
3. FLAT WASHER (5/16 in)
4. SPEAKER
5. BODY SCREW
6. HANDSET
7. MACHINE BOLT (5/16 - 24 x 1 in)
8. CONTROL-MONITOR
9. MOUNTING PLATE
10. MOUNTING BRACKET

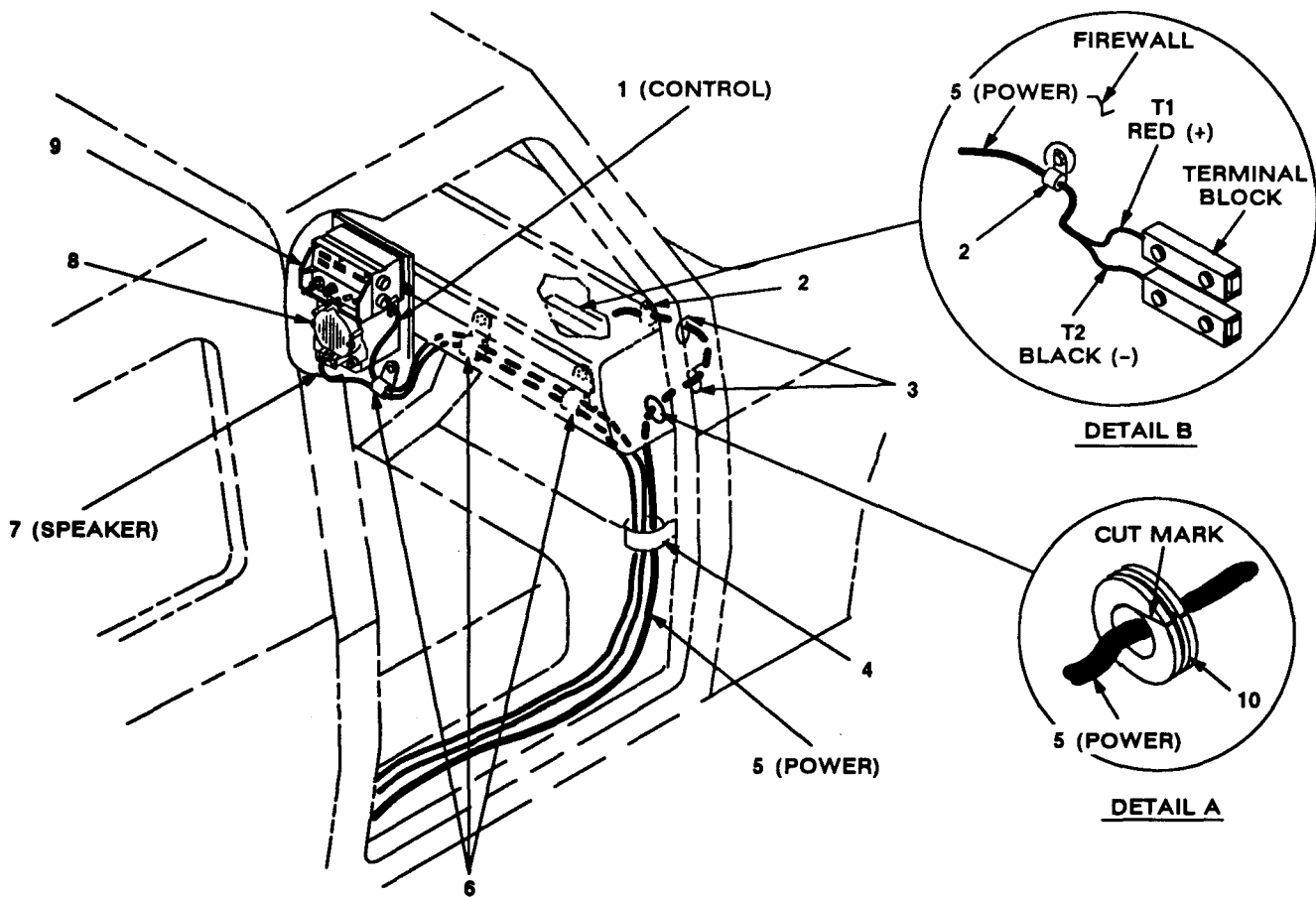
Figure 5-6 (2). Control-Monitor and Front Speaker Installation: Installing Speaker and Control-Monitor

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 clamps and tiedown straps.

WARNING

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

ITEM	ACTION	REMARKS
a. Existing grommet and grommet hole in upper right floorboard.	Remove grommet and enlarge hole to 1 1/4 in diameter. See figure 5-7 (1) for location.	Electric drill and 1 1/4 in drill bit.
b. Power cable (5) terminal leads: T1 (red) and T2 (black).	Insert through hole drilled in step a.	



- | | |
|--|--|
| 1. CONTROL CABLE, CX-13290/VRC (15 FT, 0 IN) | 6. LOOP CLAMP (1 - 1/4 in) |
| 2. LOOP CLAMP (1 1/4 - 1/4 in) | TAPPING SCREW (1/4-14 x 3/4 in) |
| 3. TIEDOWN STRAP | LOCK WASHER (1/4 in) |
| 4. LOOP CLAMP (1 1/4 - 1/4 in) | 7. SPEAKER CABLE, CX-13292/VRC (14 FT, 0 IN) |
| TAPPING SCREW (1/4-14 x 3/4 in) | 8. SPEAKER |
| LOCK WASHER (1/4 in) | 9. CONTROL-MONITOR |
| 5. POWER CABLE, CX-13302/VRC (13 FT, 0 IN) | 10. GROMMET |

Figure 5-7 (1). Cable Installation: Front Curbside Area

5.5 Installation of Cables. Continued

ITEM	ACTION	REMARKS
c. Grommet (10).	Cut through on mark shown; then wrap around power cable (5) and install to hole drilled in step a. See figure 5-7 (1), detail A.	Tools: Pocket Knife.
d. Power cable (5) terminal leads: T1 (red) and T2 (black).	Connect and secure to proper posts on terminal block. See figure 5-7 (1), detail B.	Red (+) lead connects to top terminal posts. Black (-) lead connects to bottom terminal posts.
e. Loop clamp (2) and existing mounting hardware.	Wrap clamp around power cable (5) and existing wiring harness; then install to existing mounting hole in firewall. See figure 5-7 (1), detail B for location (s).	
f. Two tiedown straps (3).	Wrap around power cable (5), then install loosely to existing wiring harness. See figure 5-7 (1) for location (s).	
g. Control cable (1) connector P1.	Connect and secure to control-monitor (9) connector J1. See figure 5-7 (1).	
h. Speaker cable (7) connector P1.	Connect and secure to speaker (8) connector J1.	
i. Control cable (1) and speaker cable (7).	Route across upper floorboard to curbside door.	
j. Mounting holes for loop clamps (4, 6).	Drill four 13/64 in diameter holes in transmission hump and upper right floorboard. See figure 5-7 (1) for location (s).	Tools: Electric drill and 13/64 in drill bit.
k. Three loop clamps (6), three pan-head tapping screws (1/4-14 x 3/4 in) and three lock washers (1/4 in).	Wrap clamps around control cable (1) and speaker cable (7); then install to three holes drilled in step j.	Tools: Phillips screwdriver.
l. Power cable (5), speaker cable (7) and control cable (1).	Route along inner edge of curbside door to rear curbside passenger area.	
m. Loop clamp (4), pan-head tapping screw (1/4-14 x 3/4 in) and lock washers (1/4 in).	Wrap clamp around control cable (1), speaker cable (7) and power cable (5); then install to hole drilled in step j (near curbside doorway).	Tools: Phillips screwdriver.
n. RF cable (3) connector P1, figure 5-7 (2).	Insert through grommet (10) and loop clamp (6), figure 5-2 (2); then connect and secure to antenna base (1) connector J1.	
o. RF cable (3).	Route along window seal and rear wheelwell to roadside doorway. See figure 5-7 (2).	

5.5 Installation of Cables. Continued

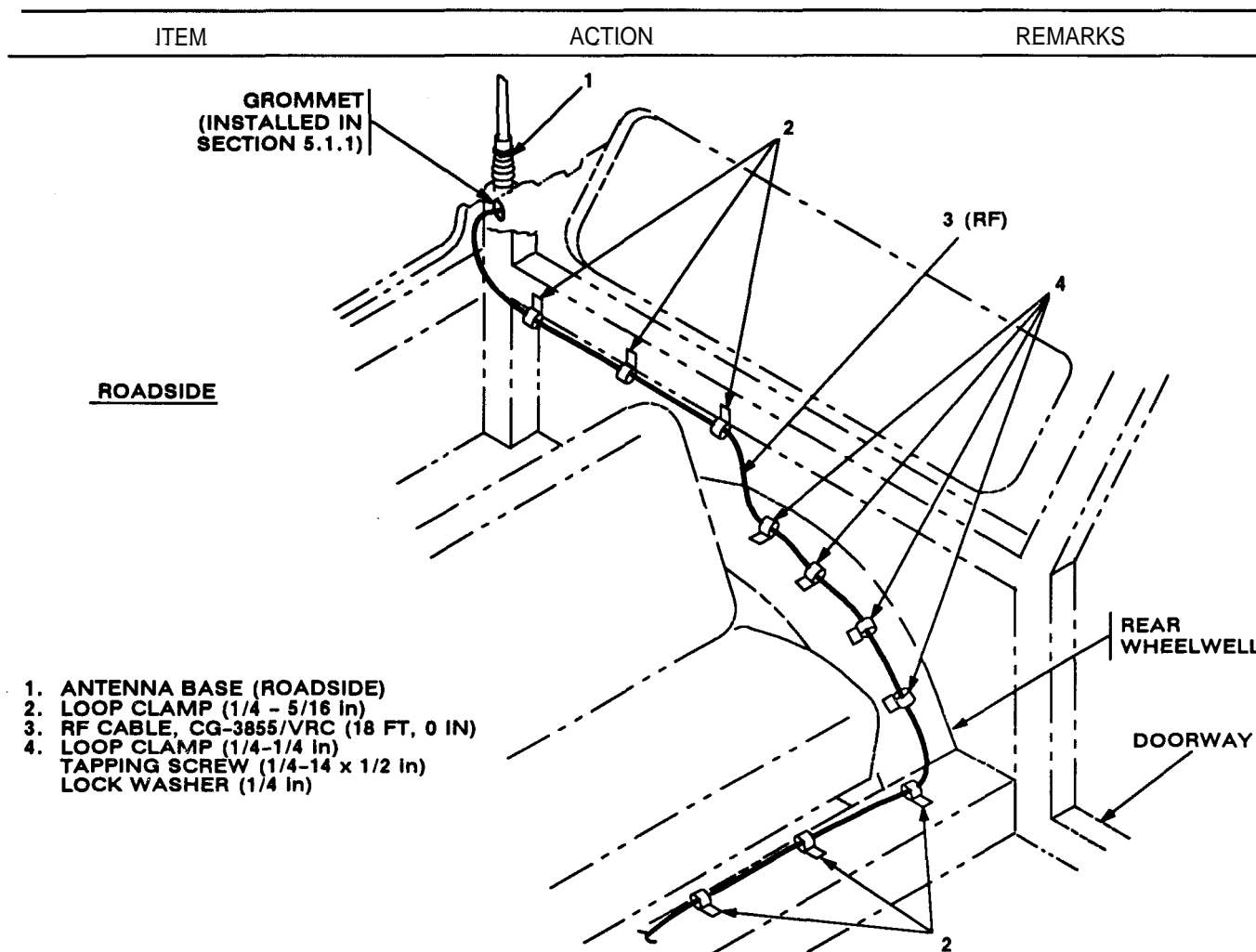


Figure 5-7 (2). Cable Installation: Rear Roadside Area

- | | | |
|---|---|--|
| <p>p. Three loop clamps (2) and existing mounting hardware.</p> | <p>Wrap clamps around RF cable (3); then install to existing holes below window seal. See figure 5-7 (2) for location (s).</p> | |
| <p>q. Mounting holes for loop clamps (4).</p> | <p>Drill four 13/64 in diameter holes through wheelwell.</p> | <p>Tools: Electric drill and 13/64 in drill bit.</p> |
| <p>r. Four loop clamps (4), four hex-head tapping screws (1/4-14 x 1/2 in), and four lock washers (1/4 in).</p> | <p>Wrap clamps around RF cable (3); then install and secure to holes drilled in step q.</p> | <p>Tools: 7/16 in socket.</p> |
| <p>s. RF cable (3).</p> | <p>Route across rear floorboard (below rear seat) to curbside door pillar. See figures 5-7 (2) and 5-7 (3).</p> | |
| <p>t. Six loop clamps (2, 8) and existing mounting hardware.</p> | <p>Wrap clamps around RF cable (3); then install to existing holes in floorboard. See figures 5-7 (2) and 5-7 (3) for location (s).</p> | |

5.5 Installation of Cables. Continued

ITEM	ACTION	REMARKS
		<ol style="list-style-type: none"> 1. CONTROL CABLE, CX-13290/VRC (15 FT, 0 IN) 2. RF CABLE, CG-3855/VRC (9 FT, 0 IN) 3. RF CABLE, CG-3855/VRC (18 FT, 0 IN) 4. MOUNTING BASE 5. POWER CABLE, CX-13302/VRC (13 FT, 0 IN) 6. SPEAKER 7. SPEAKER CABLE, CX-13292/VRC (14 FT, 0 IN) 8. SPEAKER CABLE, CX-13292/VRC (4 FT, 0 IN) 9. LOOP CLAMP (3/4-1/4 in) CAP SCREW (1/4-20 x 3/4 in) LOCK WASHER (1/4 in) NUT (1/4-20 in) 10. CABLE PROTECTOR 11. NUT (1/4-20 in) 12. FLAT WASHER (1/4 in) 13. LOCK WASHER (1/4 in) 14. CAP SCREW (1/4-20 x 3/4 in) 15. LOOP CLAMP (1 1/4 - 3/8 in) 16. LOOP CLAMP (1 1/4 - 3/8 in) 17. LOOP CLAMP (1 3/16 - 5/16 in) 18. LOOP CLAMP (3/4 - 5/16 in) 19. LOOP CLAMP (1/4 - 5/16 in) 20. ANTENNA BASE (CURBSIDE)

Figure 5-7 (3). Cable Installation: Rear Curbside Area

- | | | |
|---|---|--|
| u. Cable protector (10). | Place over power cable (5), speaker cable (7) and control cable (1), then aline with existing holes. See figure 5-7(3). | |
| v. Ten cap screws (14), ten lock washers (13), ten flat washers (12) and ten nuts (11). | Install and secure to cable protector (10) and curbside floor. | Tools: 7/16 in socket and 7/16 in open/box wrench. |
| w. Power cable (5), speaker cable (7), control cable (1) and RF cable (3). | Route up curbside door pillar to radio shelf; then position P2 connectors on top of mounting base (4). | |

5.5 Installation of Cables. Continued

ITEM	ACTION	REMARKS
x. Loop clamp (15) and existing mounting hardware.	Wrap clamp around power cable (5), speaker cable (7) and control cable (1); then install to existing mounting hole in door pillar. See figure 5-7 (3) for location(s).	
y. Mounting holes for loop clamps (16).	Drill two 11/32 in diameter holes in curbside door pillar.	Tools: Electric drill and 11/32 in drill bit.
z. Two loop clamps (16), two machine bolts (5/16-24 x 5/8 in), two lock washers (5/16 in) and two nuts (5/16-24 in).	Wrap clamps around power cable (5), speaker cable (7), control cable (1) and RF cable (3); then install to holes drilled in step y.	Tools: 1/2 in socket and 1/2 in open/box wrench.
aa. Loop clamp (17) and existing mounting hardware.	Wrap clamp around power cable (5) and control cable (1) and speaker cable (7); then install to edge of window seal.	
ab. RF cable (2) connector P1, figure 5-7 (3).	Insert through grommet (10) and loop clamp (6), figure 5-2 (2); then connect and secure to antenna base (1) connector J1.	
ac. RF cable (2).	Route along curbside window seal to radio shelf; then position P2 connector on top of mounting base (4). See figure 5-7 (3) .	
ad. Three loop clamps (19) and existing mounting hardware.	Wrap clamps around RF cable (2); then install to existing holes below window seal. See figure 5-7 (3) for location (s).	
ae. Loop clamp (18) and existing mounting hardware.	Wrap clamp around RF cable (2) and control cable (1); then install to rear of radio shelf.	
af. Speaker cable (8) connector P1.	Connect and secure to speaker (6) connector J1. See figure 5-7 (3).	
ag. Speaker cable (8) connector P2.	Connect and secure to mounting base (4) connector J4.	
ah. Speaker cable (7) connector P2.	Connect and secure to mounting base (4) connector J3.	
ai. Mounting holes for loop clamps (9).	Drill three 9/32 in diameter holes in radio shelf. See figure 5-7 (3) for location (s).	Tools: Electric drill and 9/32 in drill bit.
aj. Three loop clamps (9), three cap screws (1/4-20 x 3/4 in), three lock washers (1/4 in) and three nuts (1/4-20 in).	Wrap clamps around RF cables (2, 3) and speaker cable (8); then install to holes drilled in step ai.	Tools: 7/16 in socket and 7/16 in open/box wrench.

5.5 Installation of Cables. Continued

ITEM	ACTION	REMARKS
ak. Sealant.	Apply to and around previously installed grommets and drilled holes.	
al. Power cable (5) connector P2.	Connect and secure to mounting base (4) connector J1. See figure 5-7 (3).	

5.6 Installation of MK-2499/VRC. For Radio Set AN/VRC-89/91/92, install MK-2499/VRC (TSEC/KY-57 security equipment) in the location shown in figure 5-1 (2). Refer to section 5.8 for connection of cables.

5.7 Installation of Mounting Base, Electrical Equipment MT-6353/VRC. If Radio Set AN/VRC-92 or AN/VRC-92A is authorized, use the following instructions to install MT-6353/VRC mounting base in the location shown in figure 5-1 (2). Refer to section 5.8 for connection of cables.

ITEM	ACTION	REMARKS
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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. MT-6353/VRC mounting base (1). Place on radio shelf over existing holes. See figure 5-8.

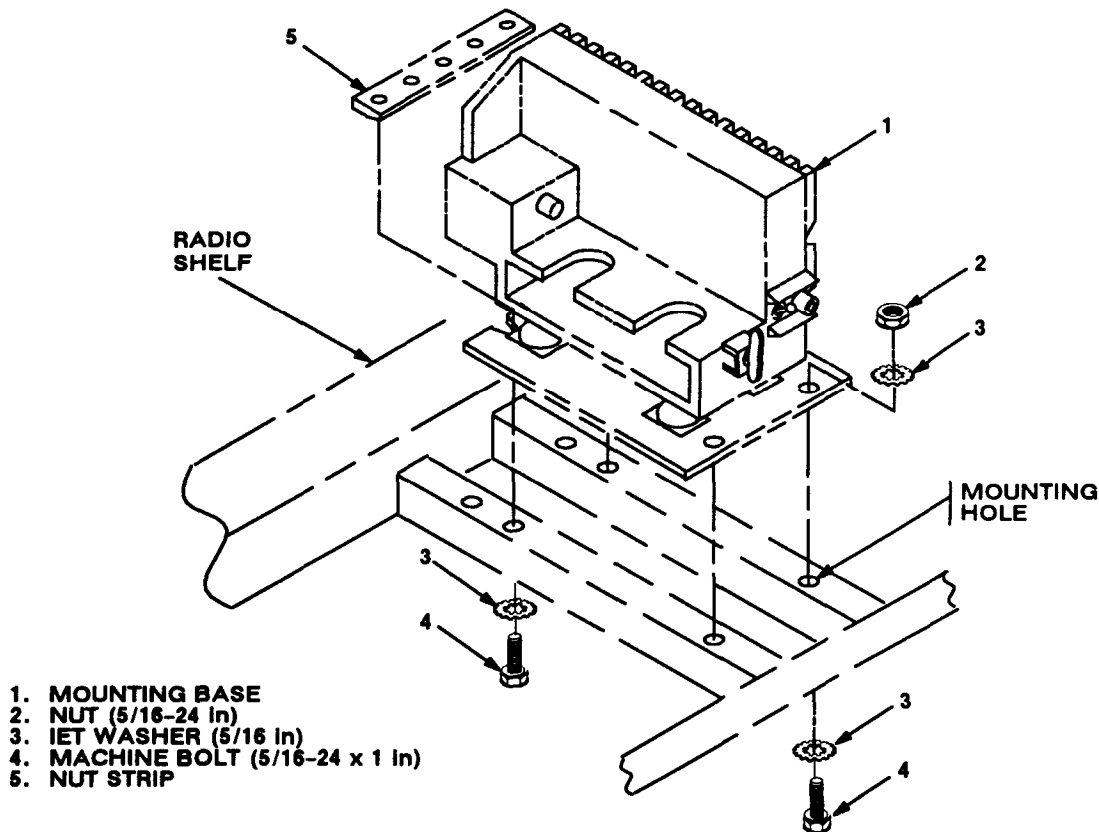


Figure 5-8. MT-6353/VRC Mounting Base Installation

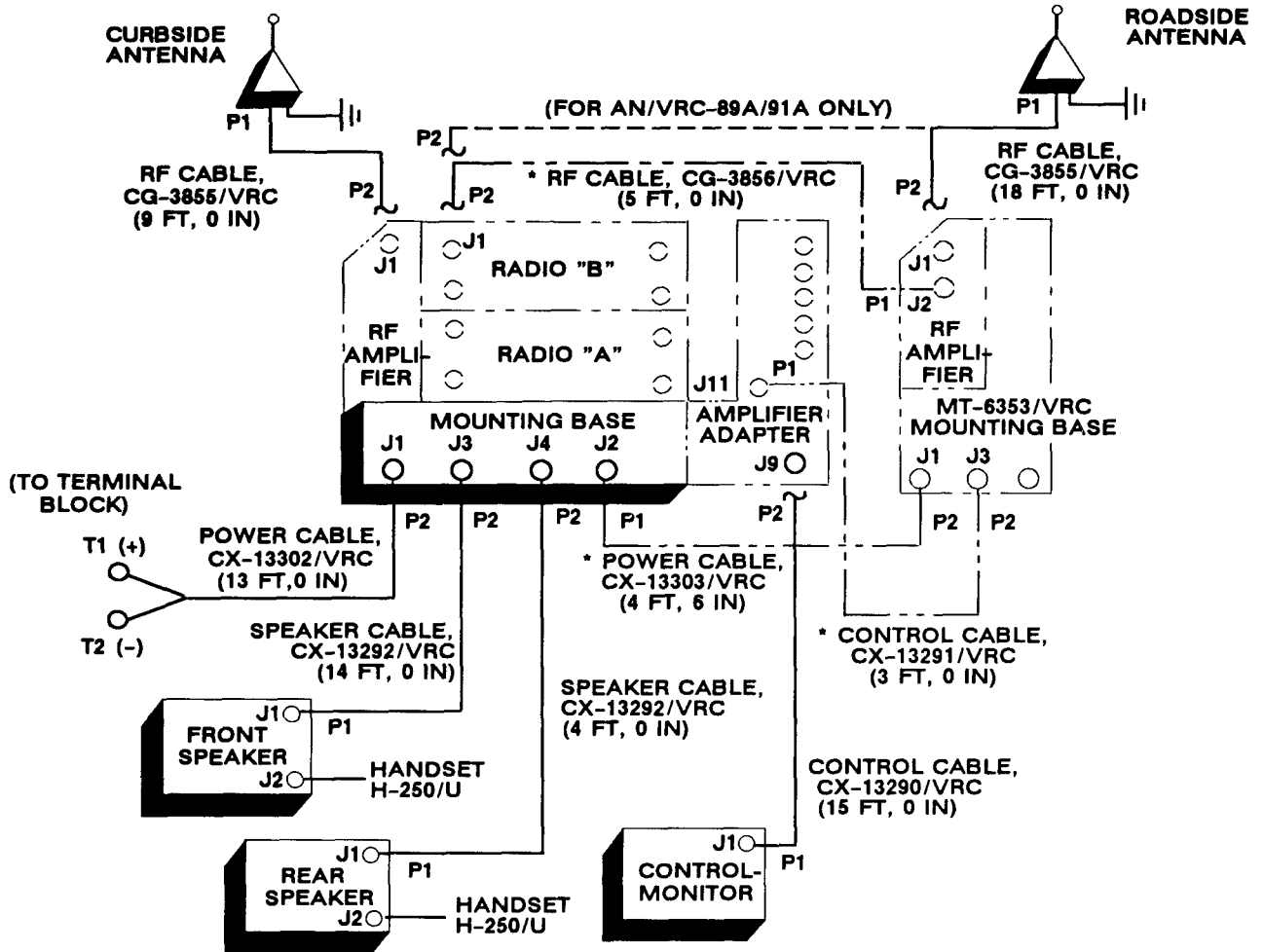
5.7 Installation of Mounting Base, Electrical Equipment MT-6353/VRC. Continued

ITEM	ACTION	REMARKS
NOTE		
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 5.8, step b.)		
b. MT-6353/VRC mounting base (1).	Aline front holes and rear slots with matching hole pattern in radio shelf. See figure 5-8.	
c. Two machine bolts (4), two IET washers (3) and nut strip (5).	Install and secure to rear slots in MT-6353/VRC mounting base (1) and shelf.	Tools: 1/2 in socket.
d. Two machine bolts (4), four IET washers (3) and two nuts (2).	Install and secure to front holes in MT-6353/VRC mounting base(1) and shelf.	Tools: 1/2 in socket and 1/2 in open/box wrench.

5.8 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 11-5820-890-20-4 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.	

5.8 Post-Installation



* NOT SUPPLIED IN THIS MK.

CABLE ASSEMBLY	FROM			TO		
	CABLE CONN.	UNIT	UNIT CONN.	CABLE CONN.	UNIT	UNIT CONN.
CX-13302/VRC (13 FT, 0 IN)	P2	Mounting base	J1	T1: Red (+) T2: Black (-)	Terminal block	(+) post (-) post
CX-13292/VRC (14 FT, 0 IN)	P2	Mounting base	J3	P1	Speaker (front)	J1
CX-13292/VRC (4 FT, 0 IN)	P2	Mounting base	J4	P1	Speaker (rear)	J1
CG-3855/VRC (9 FT, 0 IN)	P2	RF amplifier	J1	P1	Curbside antenna base	J1

Figure 5-9 (1). Cable Diagram: For AN/VRC-89A/91A/92A

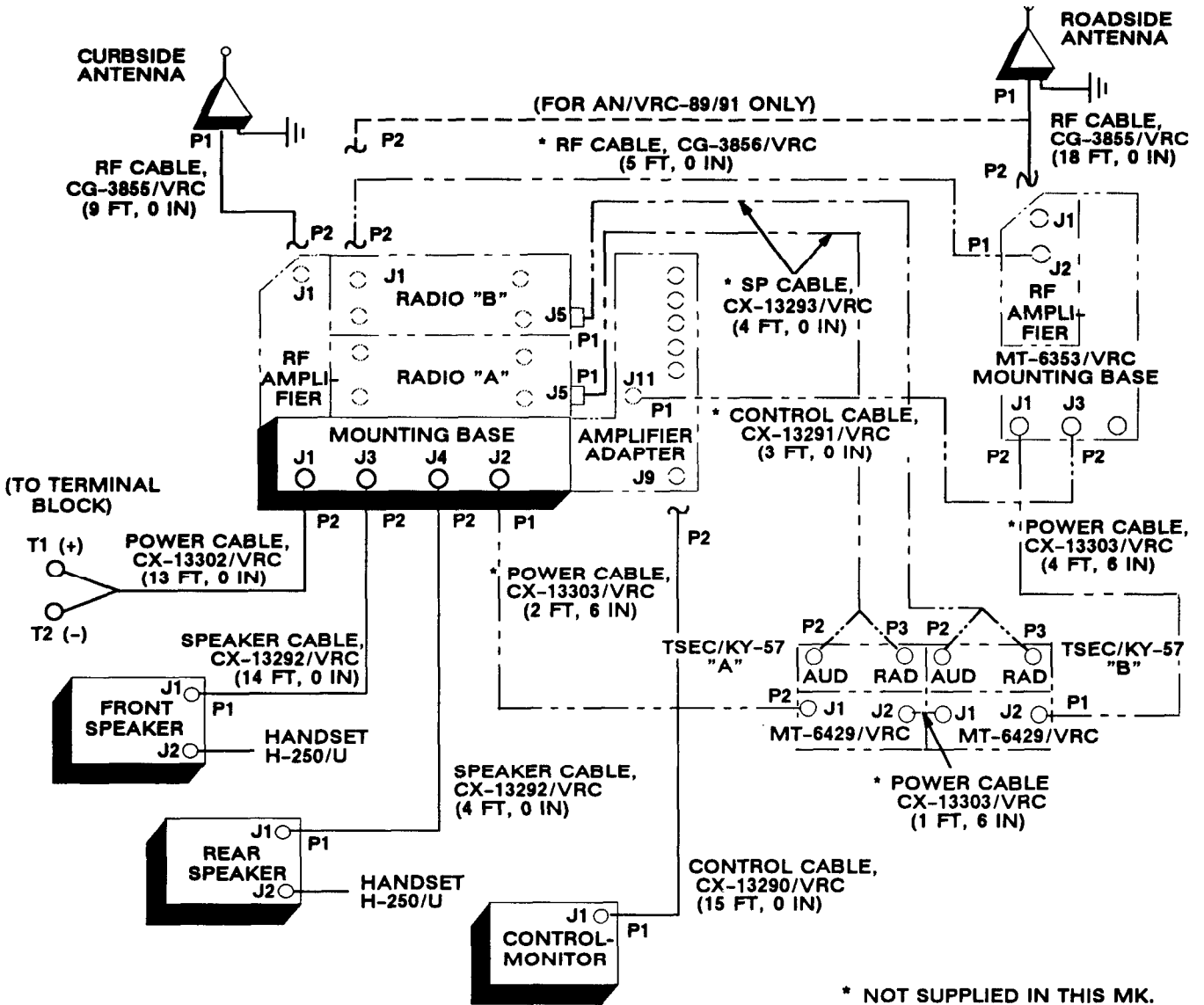
5.8 Post-installation and Checkout. Continued

CABLE ASSEMBLY	FROM			TO		
	CABLE CONN.	UNIT	UNIT CONN.	CABLE CONN.	UNIT	UNIT CONN.
CG-3855/VRC (18 FT, 0 IN)	P2	Radio "B" or RF amplifier (MT-6353/VRC)	J1	P1	Roadside antenna base	J1
CX-13290/VRC (15 FT, 0 IN)	P1	Control-monitor	J1	P2	Amplifier-adapter	J9
* CX-13291/VRC (3 FT, 0 IN)	P1	Amplifier-adapter	J11	P2	MT-6353/VRC mounting base	J3
* CG-3856/VRC (5 FT, 0 IN)	P2	Radio "B"	J1	P1	RF amplifier (MT-6353/VRC)	J2
* CX-13303/VRC (4 FT, 6 IN)	P1	Mounting base	J2	P2	MT-6353/VRC mounting base	J1

* Not supplied in this MK.

Figure 5-9 (1). Cable Diagram: For AN/VRC-89A/91A/92A Continued

5.8 Post-Installation and Checkout. Continued



CABLE ASSEMBLY	FROM			TO		
	CABLE CONN.	UNIT	UNIT CONN.	CABLE CONN.	UNIT	UNIT CONN.
CX-13302/VRC (13 FT, 0 IN)	P2	Mounting base	J1	T1: Red (+) T2: Black (-)	Terminal block	(+) post (-) post
CX-13292/VRC (14 FT, 0 IN)	P2	Mounting base	J3	P1	Speaker (front)	J1
CX-13292/VRC (4 FT, 0 IN)	P2	Mounting base	J4	P1	Speaker (rear)	J1

Figure 5-9 (2). Cable Diagram: For AN/VRC-89/91/92

5.8 Post-installation and Checkout. Continued

CABLE ASSEMBLY	FROM			TO		
	CABLE CONN.	UNIT	UNIT CONN.	CABLE CONN.	UNIT	UNIT CONN.
CG-3855/VRC (9 FT, 0 IN)	P2	RF amplifier	J1	P1	Curbside antenna base	J1
CG-3855/VRC (18 FT, 0 IN)	P2	Radio "B" or RF amplifier (MT-6353/VRC)	J1	P1	Roadside antenna base	J1
CX-13290/VRC (15 FT, 0 IN)	P1	Control-monitor	J1	P2	Amplifier-adapter	J9
* CX-13303/VRC (1 FT, 6 IN)	P1	MT-6429/VRC "A"	J2	P2	MT-6429/VRC "B"	J1
* CX-13303/VRC (2 FT, 6 IN)	P1	Mounting base	J2	P2	MT-6429/VRC "A"	J1
* CX-13293/VRC (4 FT, 0 IN)	P1	Radio "B"	J5	P2 P3	TSEC/KY-57 "B"	AUD RAD
* CX-13293/VRC (4 FT, 0 IN)	P1	Radio "A"	J5	P2 P3	TSEC/KY-57 "A"	AUD RAD
* CX-13291/VRC (3 FT, 0 IN)	P1	Amplifier-adapter	J11	P2	MT-6353/VRC mounting base	J3
* CG-3856/VRC (5 FT, 0 IN)	P2	Radio "B"	J1	P1	RF amplifier (MT-6353/VRC)	J2
* CX-13303/VRC (4 FT, 6 IN)	P1	MT-6429/VRC "B"	J2	P2	MT-6353/VRC mounting base	J1

* Not supplied in this MK.

Figure 5-9 (2). Cable Diagram: For AN/VRC-89/91/92 Continued

APPENDIX A

REFERENCES

AMDF	Army Master Data File (Microfiche)
AR710-2	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

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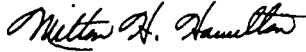
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