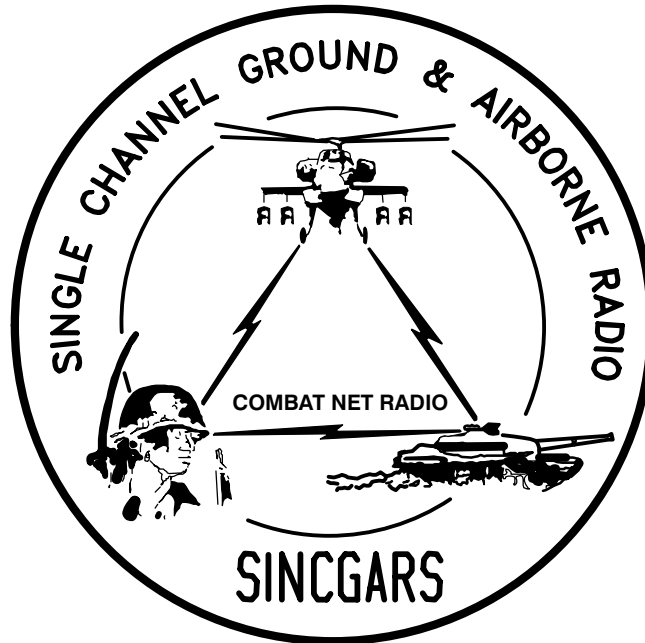


TECHNICAL BULLETIN



**INSTALLATION INSTRUCTIONS FOR
INSTALLATION KIT, ELECTRONIC EQUIPMENT,
MK-2314/VRC (NSN 5895-01-216-9748) (EIC: N/A)
TO PERMIT INSTALLATION OF
RADIO SET AN/VRC-89/91/92 SERIES
IN A
TRUCK, CARGO, TACTICAL, 1 1/4 TON, 4x4,
M1008A1**

Approved for public release; distribution is unlimited.

HEADQUARTERS, DEPARTMENT OF THE ARMY

1 AUGUST 1999

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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 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 11-5820-890-20-25, dated 1 September 1993.

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0.1 SCOPE

This technical bulletin provides Installation instructions for Installation Kit, Electronic Equipment, MK–2314/VRC, commonly referred to as the Mounting Kit (MK). The MK shall be installed into the following type of vehicle(s):

- Truck, Cargo, Tactical, 1 1/4 Ton, 4x4, M1008A1

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 11–5820–890–20–1 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 id:

- 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 Installation Kit, Electronic Equipment, MK–2314/VRC (MK) contains the items needed to mount Radio Set AN/VRC–89/91/92 Series in a Truck, Cargo, Tactical, 1 1/4 Ton, 4x4, M1008A1. If Radio Set AN/VRC–92 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 3.0 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 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	5.3	1.5
Cables	5.6	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.

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 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	PAOOF A	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		
5965-01-222-1420	Loudspeaker-Control Unit LS-671/VRC (A3014065-1)	2	PAOFFA		4-1, 7
5975-01-188-8873	Mounting Base, Electrical Equipment MT-6352/VRC (A3013367-1)	1	PAOOF A		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	10	PAOZZA		
5310-00-880-7746	Nut, Hexagon (5/16-24 in) MS51968-5	5	PAOZZA		
5995-01-219-1847	Cable Assembly, Power, Electrical CX-13306/VRC (3 FT, 0 IN) (A3014043-2)	1	PAOZZA	4-1,11	
5995-01-225-1662	Cable Assembly, Radio Frequency CG-3855/VRC (12 FT, 0 IN) (A3014031-12)	1	PAOZZA	4-1,10	
5995-01-219-7029	Cable Assembly, Radio Frequency CG-3855/VRC (5 FT, 0 IN) (A3014031-2)	1	PAOZZA	4-1,10	
5995-01-219-1844	Cable Assembly, Special Purpose, Electrical CX-13292/VRC (21 FT, 0 IN) (A3014038-6)	1	PAOZZA	4-1,12	
5995-01-219-7010	Cable Assembly, Special Purpose, Electrical CX-13292/VRC (3 FT, 0 IN) (A3014038-1)	1	PAOZZA	4-1,12	
5306-00-225-9089	Bolt, Machine (5/16-24 x 1) MS90726-34	2	PAOZZA		
	Bracket, Mounting - Reinforcement (A3050657-1)	1	XBOZZA		4-1, 5
	Bracket, Mounting (A3014069-1)	1	XBOZZA		4-1, 9
	Bracket, Mounting (A3014549-1)	2	XBOZZA		4-1, 6
5340-00-809-1490	Clamp, Loop (1/4-1/4 in) MS21333-98	1	PAOZZA		
5340-00-984-8540	Clamp, Loop (1/2-1/4 in) MS21333-102	2	PAOZZA		
5340-00-088-1254	Clamp, Loop (5/8-1/4 in) MS21333-104	8	PAOZZA		
5340-00-809-1494	Clamp, Loop (3/4-1/4 in) MS21333-105	2	PAOZZA		
5340-00-400-0002	Clamp, Loop (1 1/4-1/4 in) MS9350-19	2	PAOZZA		

Table 4-1. 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.
4020-01-341-8795	Fiber Rope Assembly, Single Leg (A3167672-1)	2	PAOZZA	4-1, 4
5325-00-174-5315	Grommet, Nonmetallic (1/4 in) MS35489-7	4	PAOZZA	
5325-00-174-9008	Grommet, Nonmetallic (1/2 in) MS35489-15	2	PAOZZA	
5965-00-043-3463	Handset H-250/U	2	PAOZZA	4-1, 3
5310-00-880-7746	Nut, Plain, Hexagon (5/16 -24 in) MS51968-5	1	PAOZZA	
5310-00-761-6882	Nut, Plain, Hexagon (1/4 -20 in) MS51967-2	7	PAOZZA	
	Nut, Sheet Spring (1/4 - 20 in) (A3013067-1)	4	XBOZZA	
	Nut Strip (A3014064-1)	1	XBOZZA	
	Plate, Mounting (A3014550-1)	1	XBOZZA	4-1, 8
	Screw, Externally-Relieved Body (A3018701-2)	2		
5305-00-068-0502	Screw, Cap, Hexagon (1/4 - 20 x 3/4 in) MS90725-6	11	PAOZZA	
5305-00-432-4253	Screw, Tapping, Thread-Forming, Pan-Head (1/4 - 14 x 3/4 in) MS51861-67	7	PAOZZA	
5975-00-111-3208	Strap, Tiedown, Electrical Components MS3367-5-9	10	PAOZZA	
5310-00-582-5965	Washer, Lock (1/4 in) MS35338-44	18	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	2	PAOZZA	
5310-00-809-4058	Washer, Flat (1/4 in) MS27183-10	2	PAOZZA	

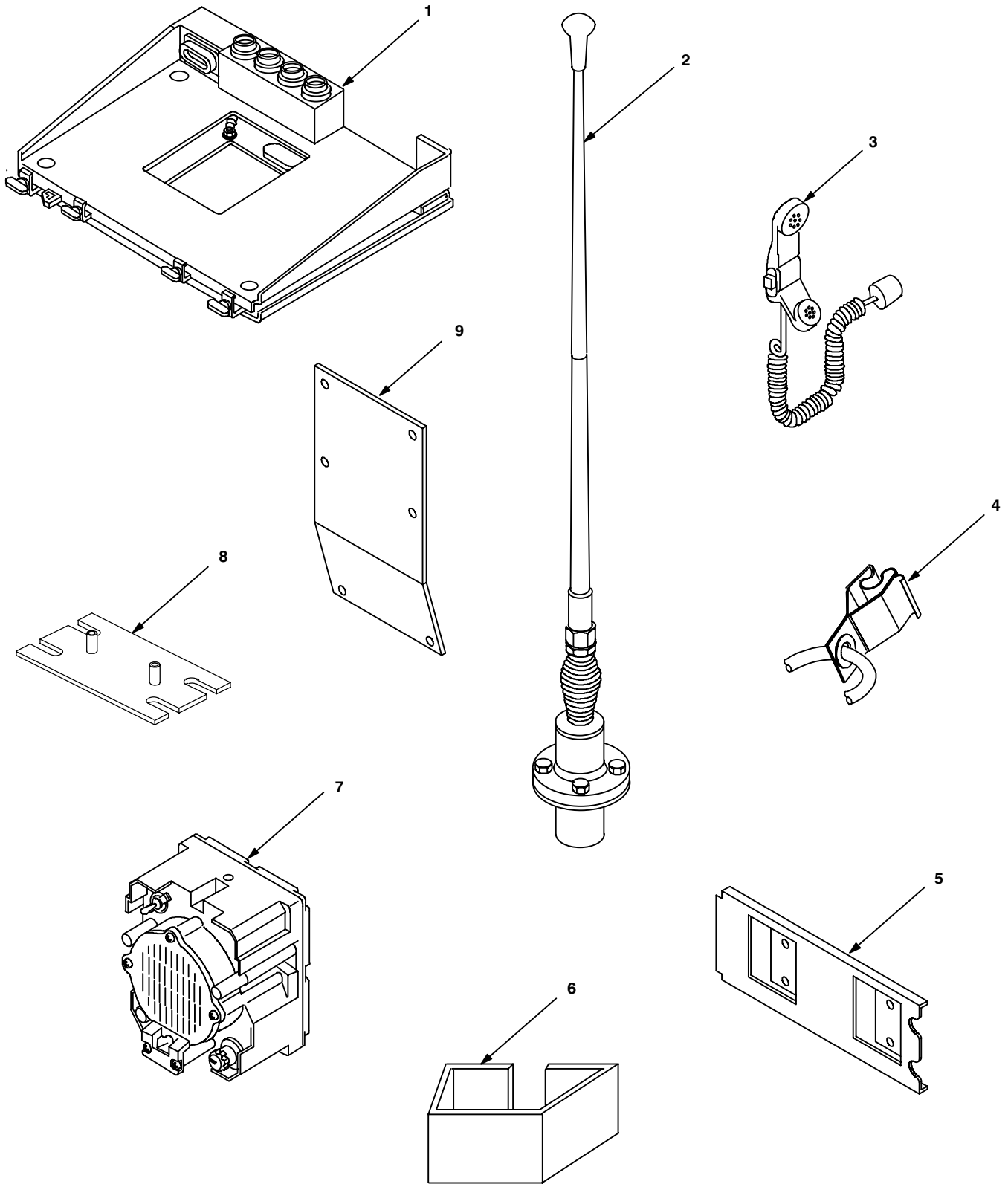


Figure 4-1 (1). MK Illustrated Parts List

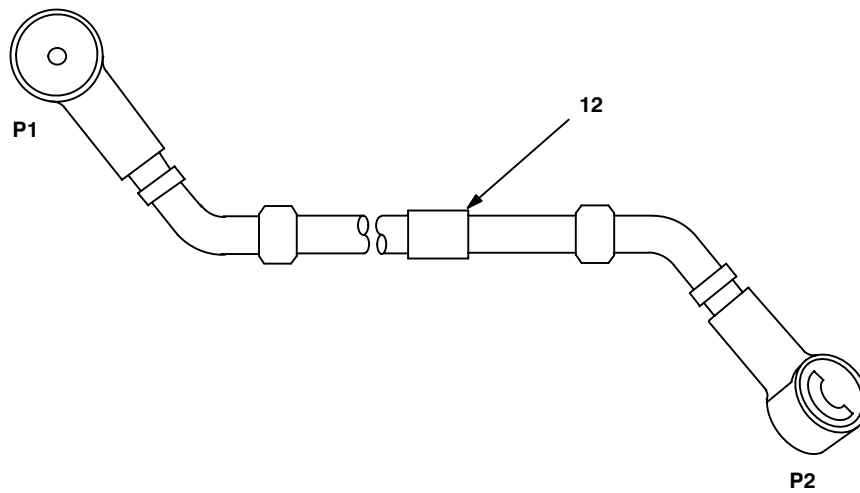
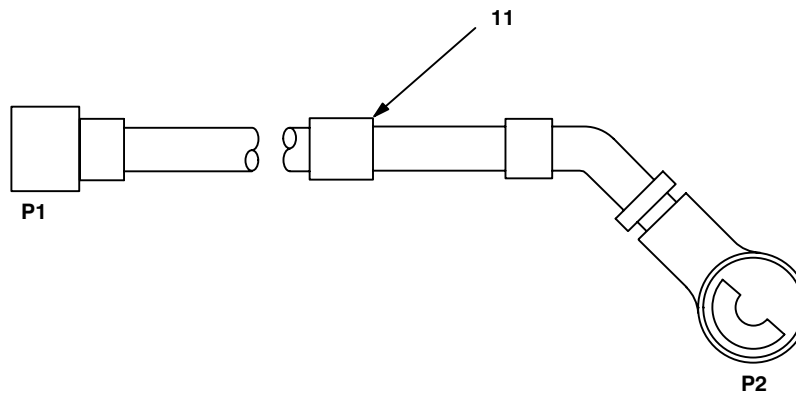
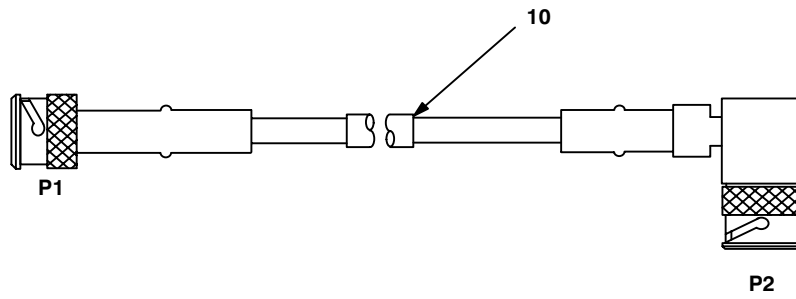


Figure 4-1 (2). MK Illustrated Parts List

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)	1	XBOZZA	4-2, 5
5975-00-111-3208	Strap, Tiedown, Electrical Components MS3367-5-9	4	PAOZZA	
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

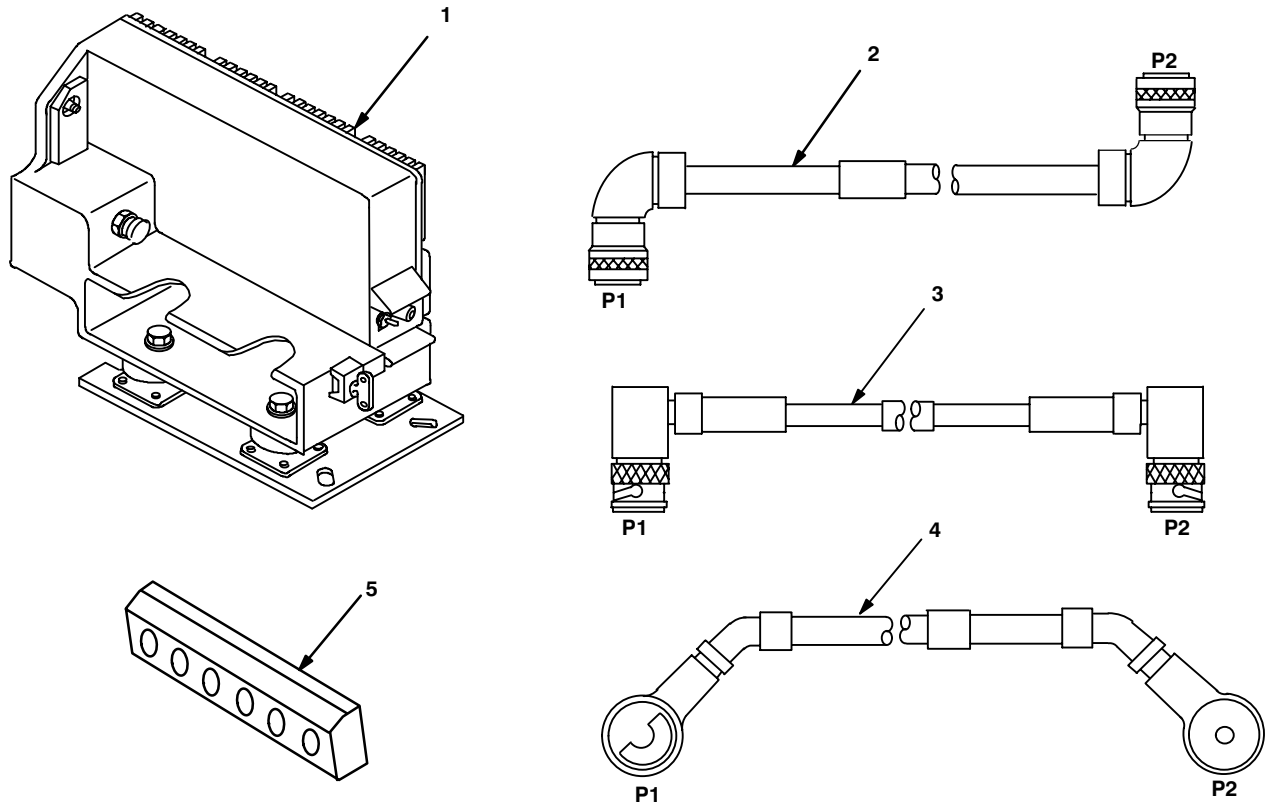


Figure 4-2. Illustrated Parts List for Table 4-2

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 Bits: 13/64 in	5133-00-243-9612	1
1/4 in	5133-00-227-9658	1
9/32 in	5133-00-222-9374	1
11/32 in	5133-00-227-9664	1
3/4 in	5133-00-266-9471	1
1 1/4 in	5133-00-263-6393	1

* Use radio issued with your vehicle if available.

5. INSTALLATION PROCEDURES.

This section describes where and how to install all MK items in the vehicle. See figure 5-1 for an overall view of where the MK equipment, as well as radio components, 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 5.7 for instructions to install MT-6353/VRC mounting base.

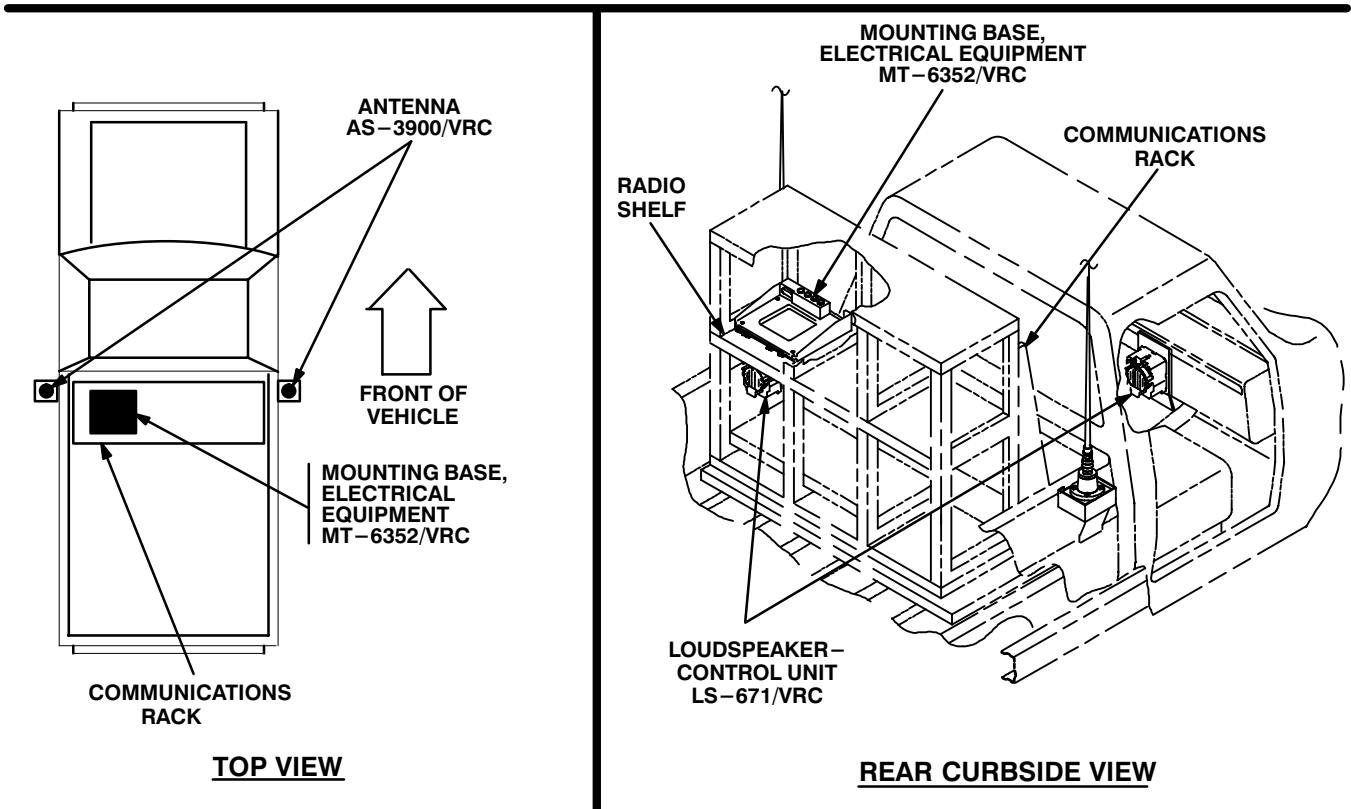
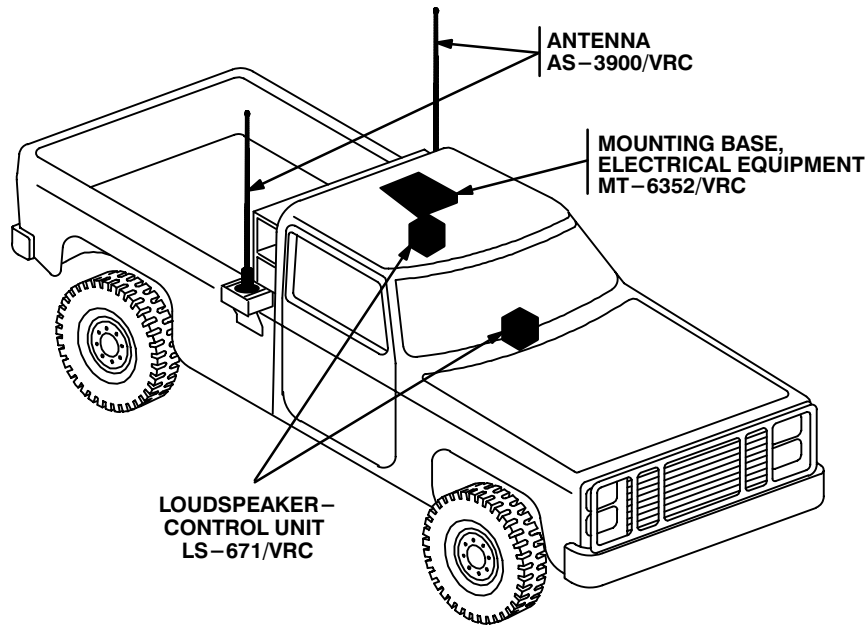
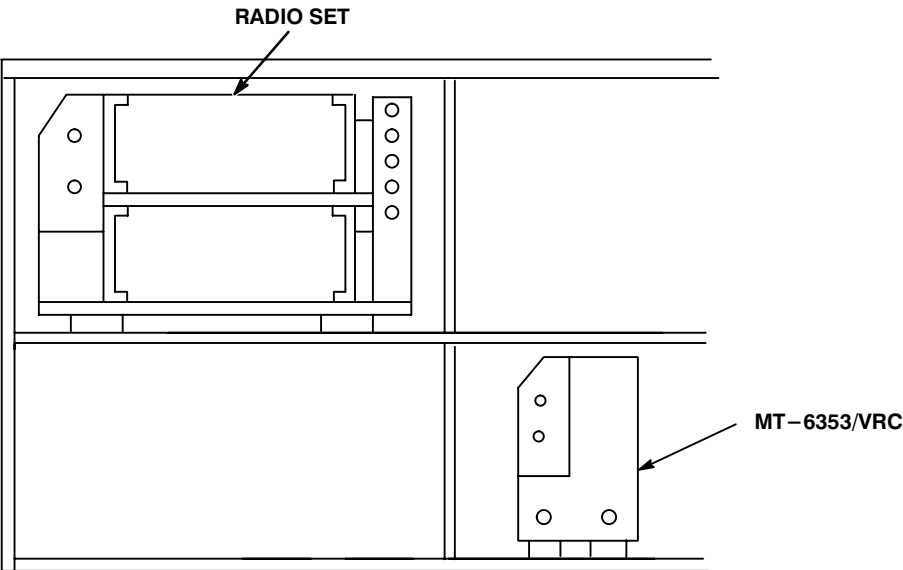


Figure 5-1 (1). MK and Radio Installation: MK Equipment Locations

5. INSTALLATION PROCEDURES. Continued

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



COMMUNICATIONS RACK

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. | |
| b. Two existing grommets. | Remove and discard if present. | |
| c. Holes for grommets. | If required, drill a 3/4 in diameter hole through outer and inner walls of fender. | Tools: Electric drill and 3/4 in drill bit. |
| d. Mounting bracket (8). | Align with two top holes in antenna bracket; then place over existing mounting holes in fender. See figure 5-2. | |

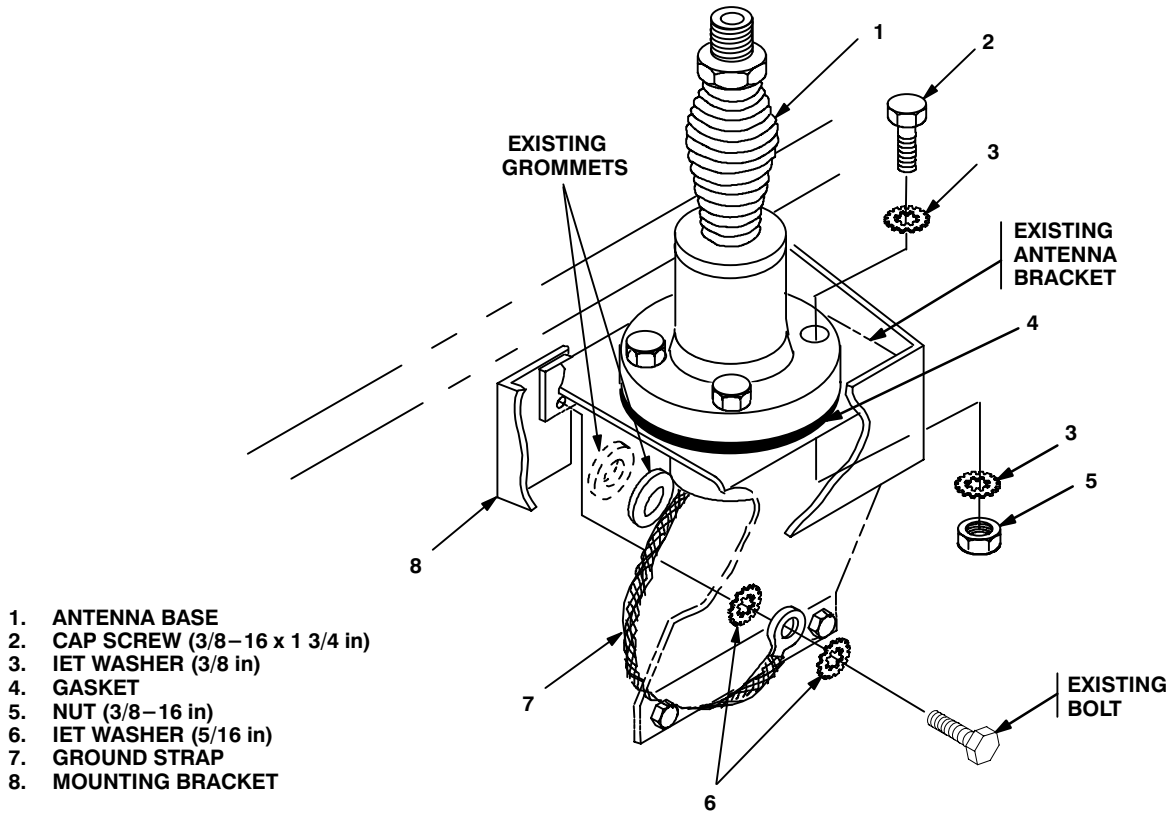


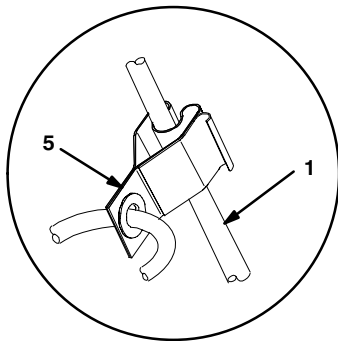
Figure 5-2. Antenna Base Installation: Rear Fender

5.1.1 Installation of Antenna Base. Continued

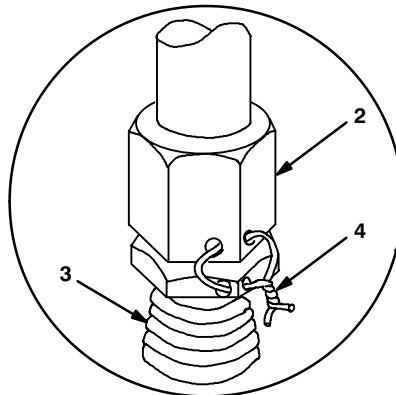
ITEM	ACTION	REMARKS
e. Existing mounting hardware removed in step a.	Install and secure to top right hole in existing antenna bracket, mounting bracket (8) and fender; then install and secure to bottom two holes in antenna bracket and fender. See figure 5-2.	
g. Gasket (4).	Place on antenna bracket and aline mounting holes.	
h. Antenna base (1).	Place on top of gasket (4) and antenna bracket; then aline mounting holes.	
i. 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.
j. Ground strap (7), existing bolt and two IET washers (6).	Install and secure to top left hole in existing antenna bracket, mounting bracket (8) and fender.	

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.	



DETAIL B



DETAIL A

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

Figure 5-3. Top Antenna Assembly Installation

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

ITEM	ACTION	REMARKS
a. Mounting hole for rear speaker (4).	Using dimensions shown, drill 11/32 in diameter hole through upper radio shelf. See figure 5–4.	Tools: Electric drill and 11/32 in drill bit.
b. Speaker (4).	Position under shelf and aline mounting hole with hole drilled in step a.	
c. Machine bolt (1), lock washer (2) and flat washer (3).	Install and secure to top of speaker (4) and shelf.	Tools: 1/2 in socket.
d. Handset (5).	Install and secure to speaker (4) connector J1.	

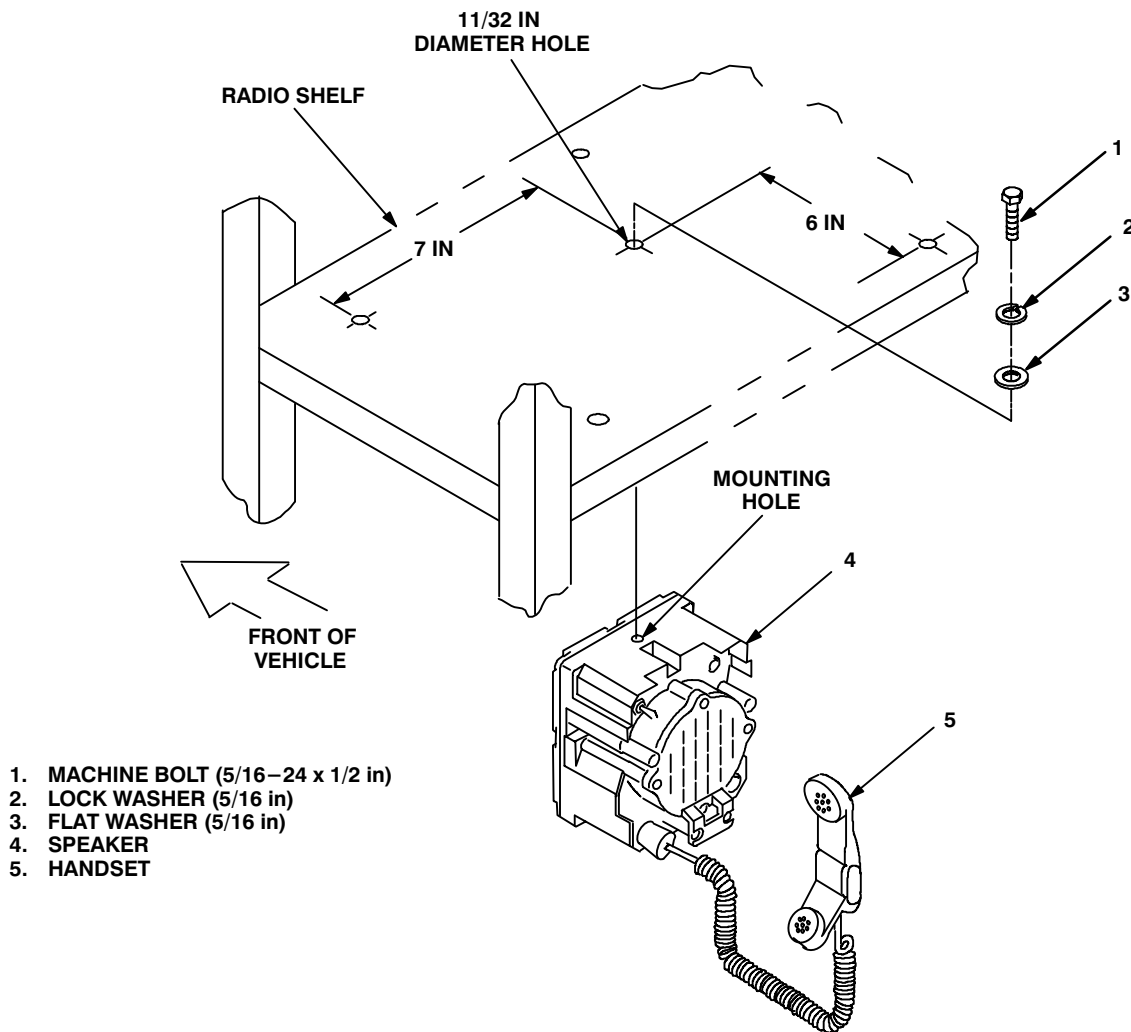


Figure 5–4. Rear Speaker Installation: Communications Rack

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 5-1 for location; then see figure 5-5 and perform the following steps.

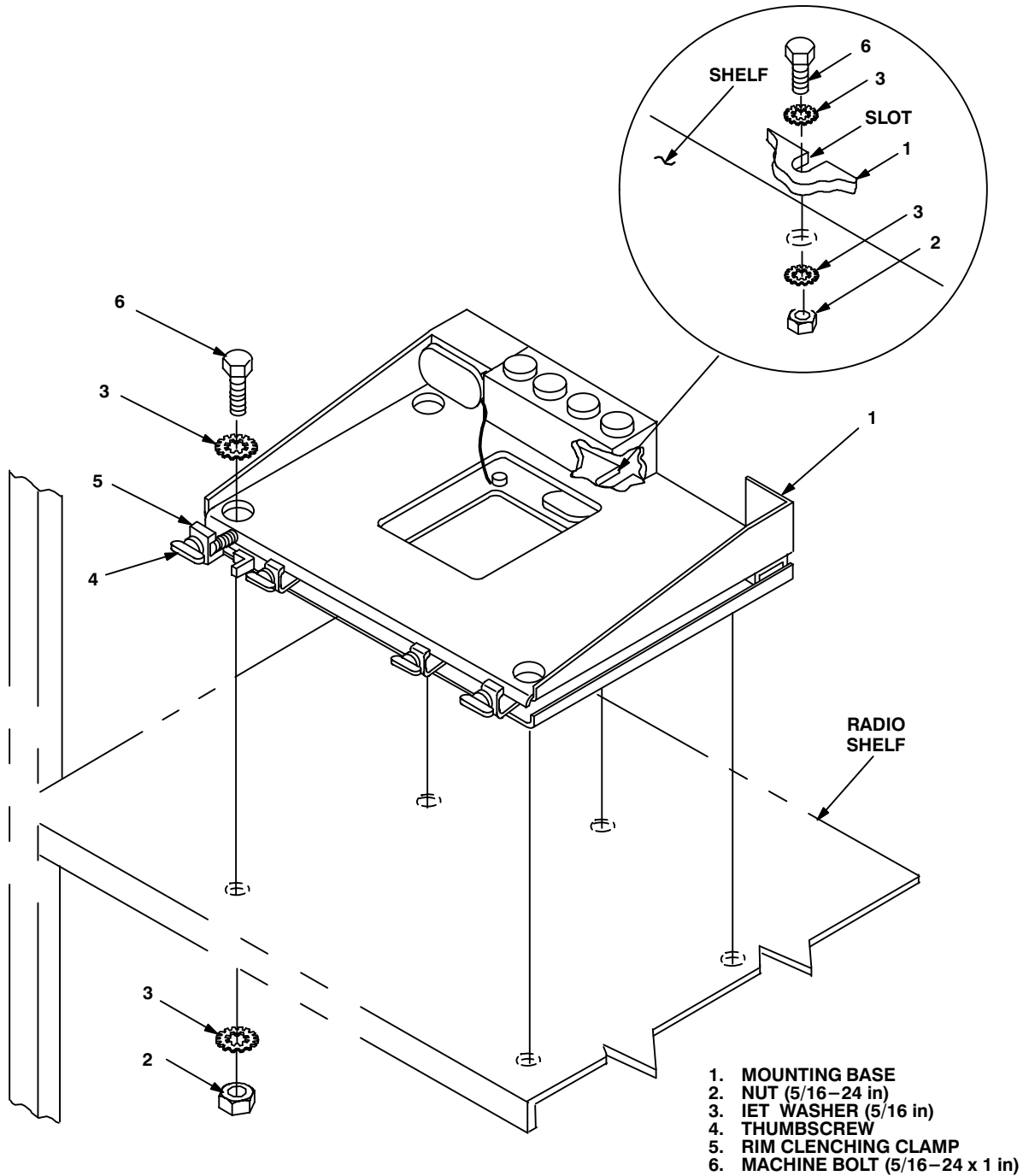


Figure 5-5. Mounting Base Installation: Communications Rack

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. Mounting base (1) and existing radio shelf.	Remove a 2” area of paint on the underside of mounting base (1) around left front and rear mounting holes. Remove a 2” square area of paint on the existing mounting holes that mate with left front and rear 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. Mounting base (1).	Place on radio shelf. See Figure 5–5.	
c. Two outer thumbscrews (4).	Turn ccw until both sets of threads have cleared center of holes.	
d. Mounting base (1).	Align four holes and rear slot with matching hole pattern in shelf.	
e. Five machine bolts (6), ten internal/external–toothed (IET) washers (3) and five nuts.	Install and secure to mounting base (1) and shelf..	Tools: 1/2 in socket and 1/2 in open/box wrench.
f. Two outer thumbscrews (4).	Tighten and secure to rim clenching clamps (5) and mounting base (1).	

5.4 Modification to Dashboard. If reinforcement bracket is not part of the vehicle, perform the following procedure to modify the dashboard.

ITEM	ACTION	REMARKS
a. Dashboard trim (trim).	Measure 9 3/4 in from left edge of trim; then scribe a line from top to bottom edge. See figure 5-6 (1).	

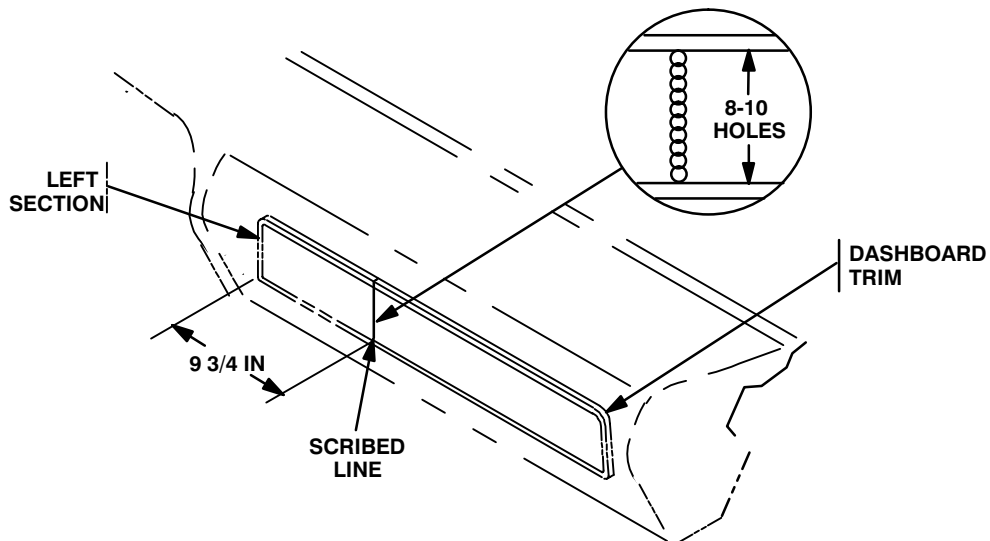


Figure 5-6 (1). Dashboard Modification: Removing Trim

WARNING

Use safety eyewear when drilling.

CAUTION

When drilling through trim, hole depth must not exceed 5/16 in.

b. Trim.	For removal of left section, drill eight to ten 1/4 in diameter holes through scribed line from top to bottom.	Tools: Electric drill and 1/4 in drill bit.
c. Left section of trim.	Pry out from dashboard; then remove remaining pieces and discard.	
d. Reinforcement bracket.	Set in place as shown; then aline left tab holes with left mount location in dashboard trim. See figure 5-6 (2). Hold in place and draw outline of right tab (approximately 1 1/2 in x 2 1/2 in rectangle) onto dashboard padding surface. Temporarily remove bracket and set aside.	Make sure bracket is level and squarely seated before drawing drilling pattern.

5.4 Modification to Dashboard. Continued

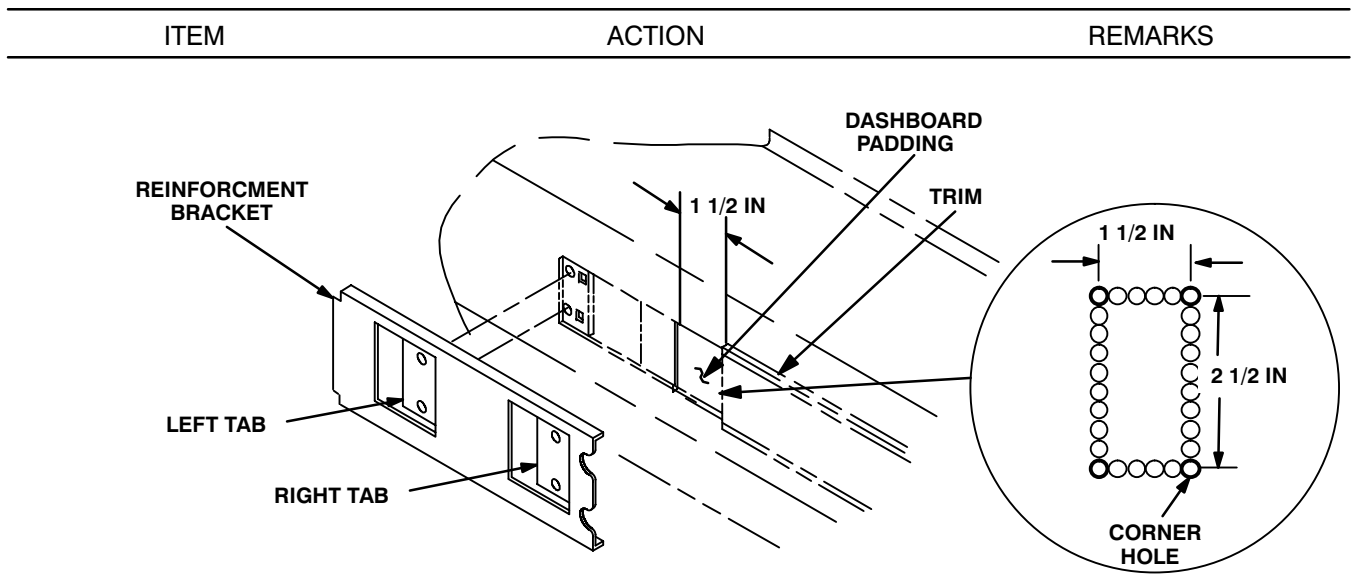


Figure 5-6 (2). Dashboard Modification: Drill Pattern for Padding Removal

WARNING

Be careful of burrs and sharp edges on dash.

CAUTION

When drilling through padding, hole depth must not exceed 3/8 in.

- | | | |
|------------------------------|--|---|
| e. Dashboard padding. | Drill starter hole at each of four corners. From corner to corner, drill adjoining holes as shown in figure 5-6 (2). | Tools: Electric drill and 1/4 in drill bit. |
| f. Drilled piece of padding. | Remove and discard. See figure 5-6 (3). | Tools: Diagonal cutting pliers or pocket knife. |

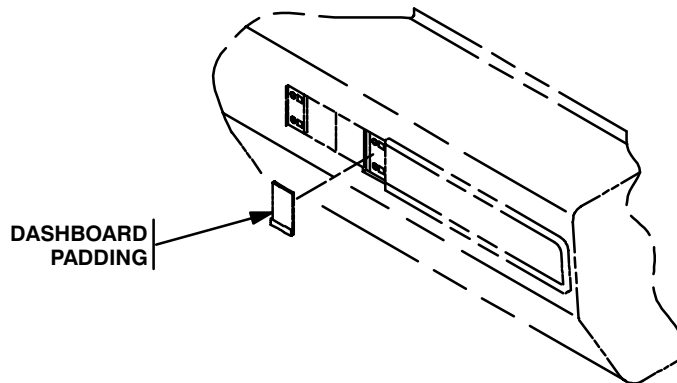
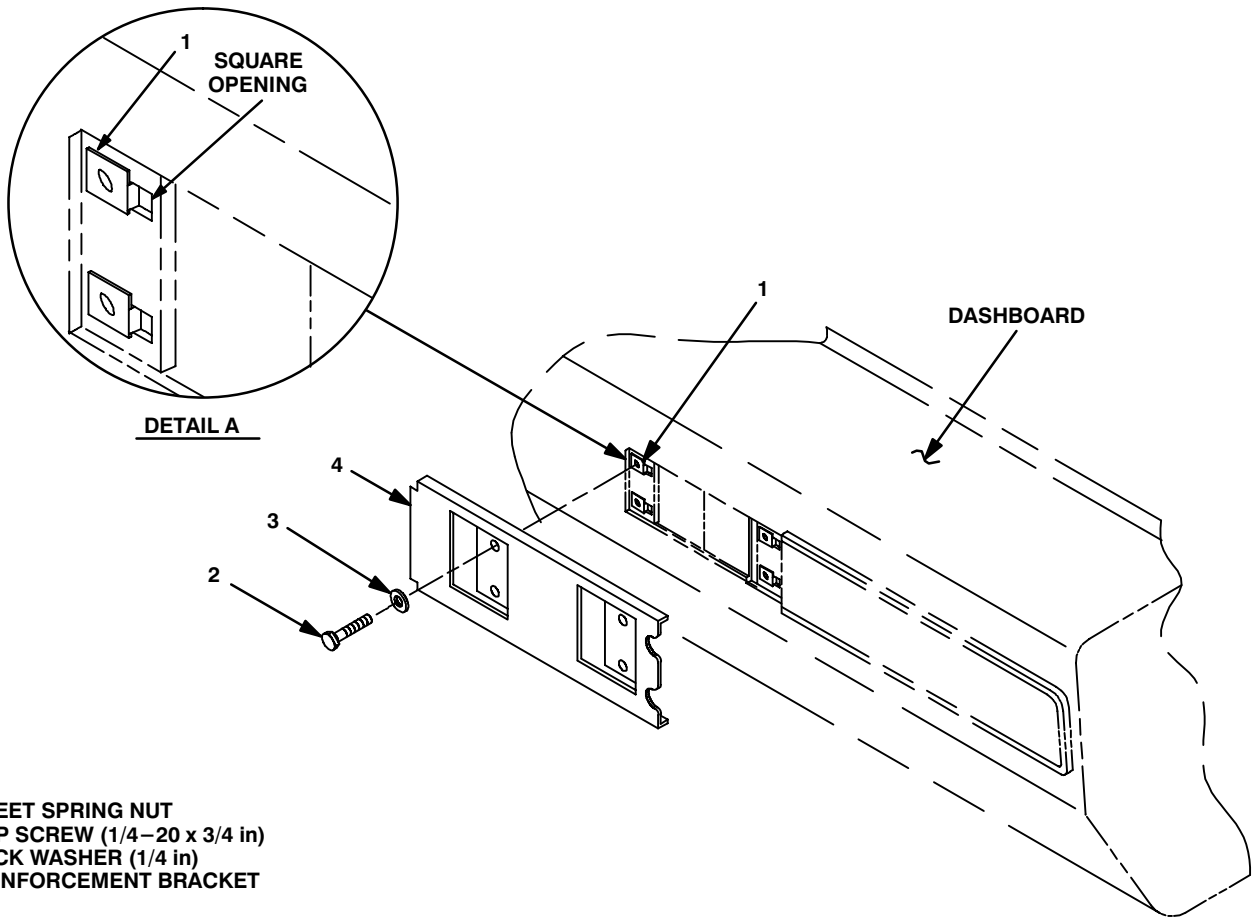


Figure 5-6 (3). Dashboard Modification: Removing Padding

5.4 Modification to Dashboard. Continued

ITEM	ACTION	REMARKS
g. Four sheet spring nuts (1).	Insert into square openings in dashboard; then slide over and aline with matching round holes. See figure 5-6 (4), detail A.	
h. Reinforcement bracket (4).	Aline holes with sheet spring nuts (1); then hold in place. see figure 5-6 (4).	
i. Four cap screws (2) and four lock washers (3).	Install and secure to reinforcement bracket (4) and dashboard.	Tools: 7/16 in socket.



- 1. SHEET SPRING NUT
- 2. CAP SCREW (1/4-20 x 3/4 in)
- 3. LOCK WASHER (1/4 in)
- 4. REINFORCEMENT BRACKET

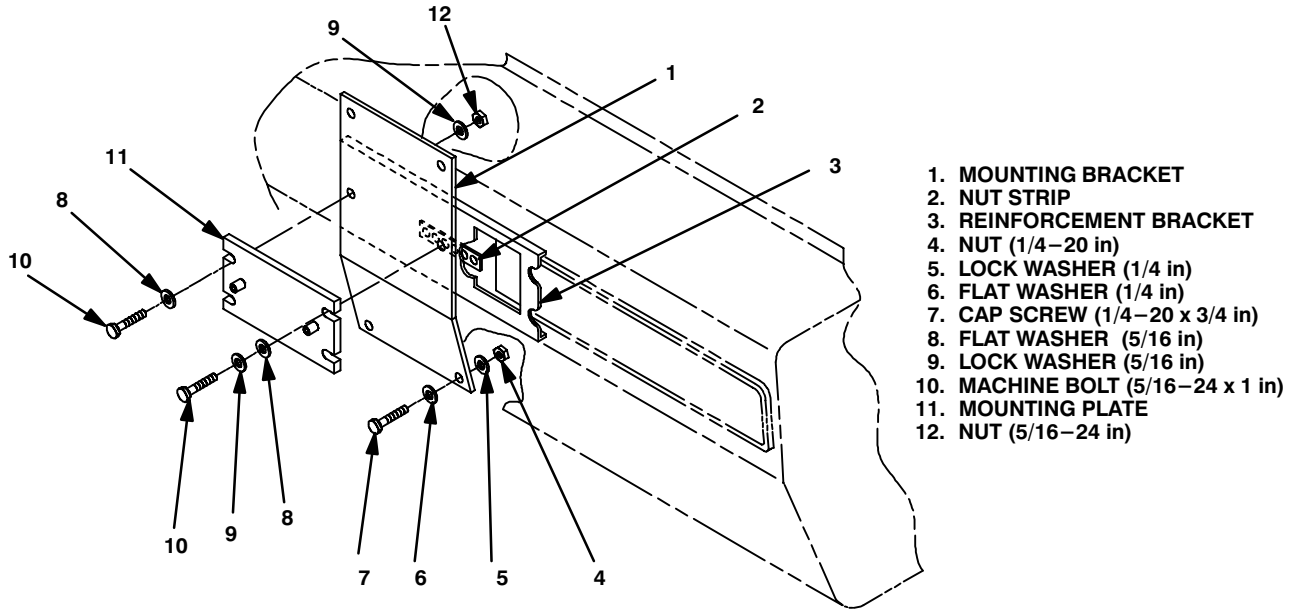
Figure 5-6 (4). Dashboard Modification: Installing Reinforcement Bracket

5.5 Installation of Front Speaker.

ITEM	ACTION	REMARKS
a. Mounting bracket (1).	Place against reinforcement bracket (3) and aline holes to locate two existing screws in lower dashboard; then temporarily set mounting bracket aside. See figure 5-7 (1).	
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 reinforcement bracket (3) and aline holes.	
e. Two cap screws (7), two flat washers (6), two lock washers (5) and two nuts (4).	Temporarily hand tighten to slotted holes in mounting bracket (1) and lower dashboard.	Screws will help hold bracket in position while installing upper mounting hardware.
f. Mounting bracket (1).	Aline two middle holes with matching holes in reinforcement bracket (3); then hold in place.	
g. Nut strip (2).	Insert through square opening in reinforcement bracket (3); then aline with two center holes in reinforcement bracket (3) and right-hand hole in mounting bracket (1).	
h. Machine bolt (10), lock washer (9) and flat washer (8).	Install through right-hand hole in mounting bracket (1) and aline to nut strip (2). Tighten until bolt threads are engaged and partly seated in nut strip.	
i. Mounting plate (11).	Place against mounting bracket (1) and position top right-hand slot between mounting hardware and mounting bracket (1) surface.	
j. Machine bolt (10), flat washer (8), lock washer (9) and nut (12).	Install and secure top left slot of mounting plate (11).	Tools: 1/2 in socket and 1/2 in open/box wrench.
k. Mounting hardware installed in steps e and h.	Securely tighten.	Tools: 1/2 in socket.

5.5 Installation of Front Speaker. Continued

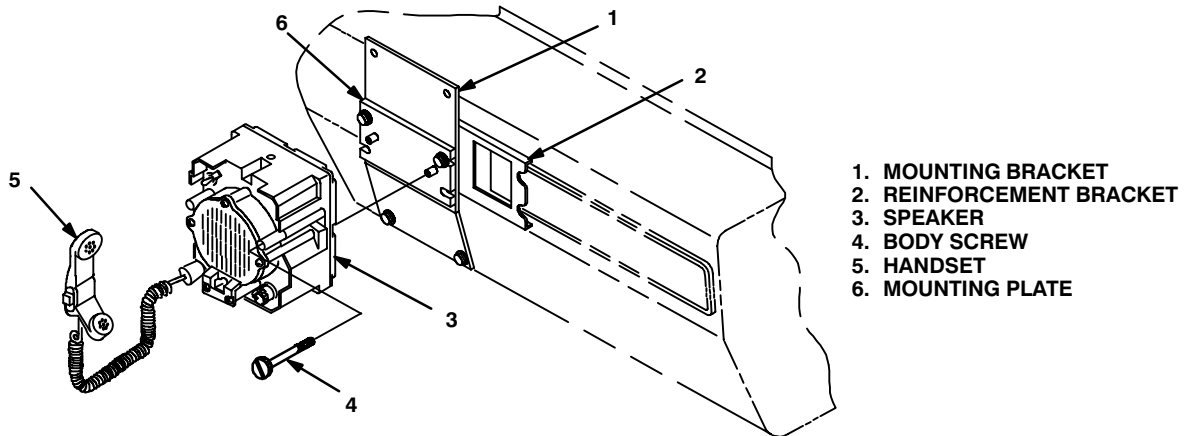
ITEM	ACTION	REMARKS
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- 1. MOUNTING BRACKET
- 2. NUT STRIP
- 3. REINFORCEMENT BRACKET
- 4. NUT (1/4-20 in)
- 5. LOCK WASHER (1/4 in)
- 6. FLAT WASHER (1/4 in)
- 7. CAP SCREW (1/4-20 x 3/4 in)
- 8. FLAT WASHER (5/16 in)
- 9. LOCK WASHER (5/16 in)
- 10. MACHINE BOLT (5/16-24 x 1 in)
- 11. MOUNTING PLATE
- 12. NUT (5/16-24 in)

Figure 5-7 (1). Front Speaker Installation: Installing Bracket and Plate

- j. Speaker (3). Place against mounting plate (6). See figure 5-7 (2).
- k. Two externally-relieved body screws (4). Thread through and secure to speaker (3) and mounting plate (6). Tools: Flatblade screwdriver.
- l. Handset (5). Connect to speaker (2) connector J2.



- 1. MOUNTING BRACKET
- 2. REINFORCEMENT BRACKET
- 3. SPEAKER
- 4. BODY SCREW
- 5. HANDSET
- 6. MOUNTING PLATE

Figure 5-7 (2). Front Speaker Installation: Installing Speaker

5.6 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. RF cable (12) connector P1.	Insert through two existing curbside grommet holes, figure 5–2; then connect and secure to antenna base (8) connector J1. See figure 5–8 (1).	Existing grommets were removed in section 5.1.1.
b. Two grommets (7).	Cut through on mark shown; then wrap around RF cable (12) and install to existing grommet holes near curbside antenna base (8). See figure 5–8 (1), detail A and figure 5–8 (1) for location(s).	Tool: Pocket knife.
c. RF cable (12).	Route up side and behind communication rack to rear of mounting base (11). See figure 5–8 (1).	
d. RF cable (12) connector P2.	Position on top of mounting base (11).	
e. RF cable (13) connector P1.	Insert through two existing roadside grommet holes, figure 5–2; then connect and secure to antenna base (15) connector J1. See figure 5–8 (1).	Existing grommets were removed in section 5.1.1.
f. Two grommets (7).	Cut through on mark shown; then wrap around RF cable (13) and install to existing grommet holes near roadside antenna base (15).	Tool: Pocket knife.
g. RF cable (13) connector P2.	Insert through existing grommet hole in rack support; then position on top of mounting base (11). See figure 5–8 (1) and figure 5–8 (2) for grommet hole location.	
h. Two loop clamps (14), two cap screws (1/4–20 x 3/4 in), two lock washers (1/4 in) and two nuts (1/4–20 in).	Wrap clamps around RF cables (12,13); then install to existing mounting holes in communications rack. See figure 5–8 (1) for location(s).	Tools: 7/16 in socket and 7/16 in open/box wrench.
i. Power cable (1) connector P1.	Connect and secure to power distribution box. See figure 5–8 (1).	
j. Power cable (1) connector P2.	Position on top of mounting base (11).	
k. Speaker cable (9) connector P2.	Connect and secure to mounting base (11) connector J4.	
l. Speaker cable (9) connector P1.	Connect and secure to speaker (10) connector J1.	

5.6 Installation of Cables. Continued

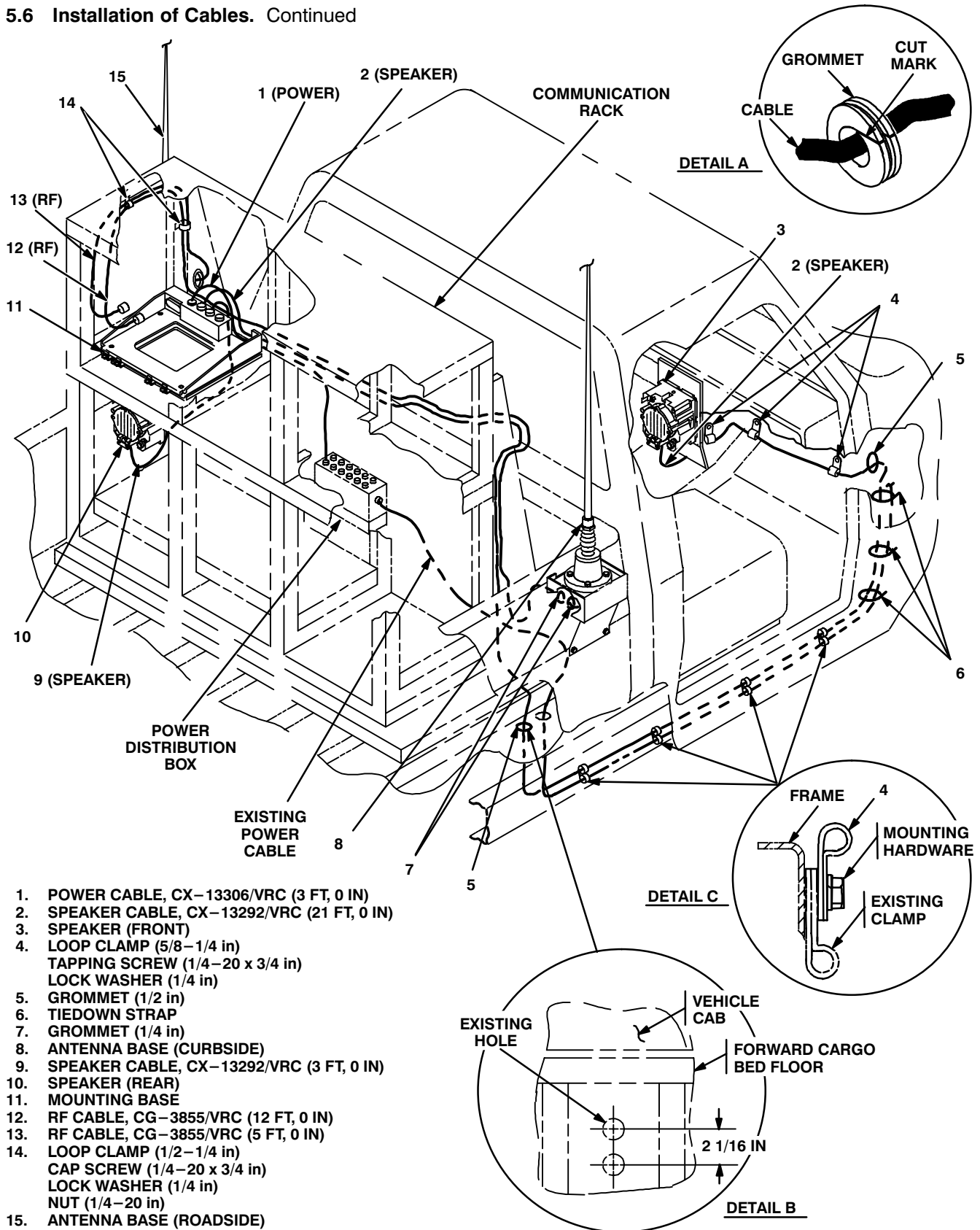


Figure 5-8 (1). Cable Installation: Cargo Bed and Cab Areas

5.6 Installation of Cables. Continued

ITEM	ACTION	REMARKS
m. Speaker cable (2) connector P2.	Connect and secure to mounting base (11) connector J3.	
n. Speaker cable (2).	Route behind communications rack to forward curbside cargo bed floor. See figure 5–8 (1).	
o. Through-hole for speaker cable (2).	Using dimensions shown, drill a 1 1/4 in diameter hole through forward curbside cargo bed floor. See figure 5–8 (1), detail B and figure 5–8 (1).	Tools: Electric drill and 1 1/4 in drill bit.
p. Speaker cable (2) connector P1.	Insert through hole drilled in step o.	
q. Grommet (5).	Cut through mark shown; then wrap around speaker cable (2) and install to hole drilled in step o. See figure 5–8 (1), detail A and figure 5–8 (1) for location (s).	Tool: Pocket knife.
r. Speaker cable (2).	Route along frame to curbside cab floorboard.	
s. Mounting hardware secured to four existing clamps on frame.	Remove and discard. See figure 5–8 (1) for location(s).	
t. Four loop clamps (4), four pan-head tapping screws (1/4–20 x 3/4 in) and four lock washers (1/4 in).	Wrap clamps around speaker cable (2); then install to top of existing clamps on frame. See figure 5–8 (1), detail C for stackup and figure 5–8 (1) for location(s).	Tools: Phillips screwdriver.
	If required, drill four new 13/64 in diameter holes.	Tools: Electric drill and 13/64 in drill bit.
u. Existing grommet and grommet hole in upper curbside cab floorboard.	Remove grommet and enlarge hole to 1 1/4 in diameter. See figure 5–8 (1) for location(s).	Tools: Electric drill and 1 1/4 in drill bit.
v. Speaker cable (2) connector P1.	Insert through hole enlarged in step u.	
w. Grommet (5).	Cut through mark shown; then wrap around speaker cable (2) and install to hole enlarged in step u. See figure 5–8 (1), detail A and figure 5–8 (1) for location (s).	Tools: Pocket knife.
x. Three tiedown straps (6).	Install loosely around speaker cable (2) and existing power cable. See figure 5–8 (1) for location(s).	
y. Speaker cable (2).	Route across upper curbside floorboard to speaker (3). See figure 5–8 (1).	
z. Speaker cable (2) connector P1.	Connect and secure to speaker (3) connector J1.	

5.6 Installation of Cables. Continued

ITEM	ACTION	REMARKS
aa. Mounting holes for loop clamps (4).	Drill three 13/64 in diameter holes in upper curbside floorboard and transmission hump. See figure 5-8 (1) for location(s).	
ab. Three loop clamps (4), three pan-head tapping screws (1/4-20 x 3/4 in) and three lock washers (1/4 in).	Wrap clamps around speaker cable (2); then install to holes drilled in step aa. See figure 5-8 (1).	Tools: Phillips screwdriver.

1. POWER CABLE, CX-13306/VRC (3 FT, 0 IN)
2. SPEAKER CABLE, CX-13292/VRC (21 FT, 0 IN)
3. LOOP CLAMP (1/4-1/4 in)
CAP SCREW (1/4-20 x 3/4 in)
LOCK WASHER (1/4 in)
NUT (1/4-20 in)
4. LOOP CLAMP (1 1/4-1/4 in)
CAP SCREW (1/4-20 x 3/4 in)
LOCK WASHER (1/4 in)
NUT (1/4-20 in)

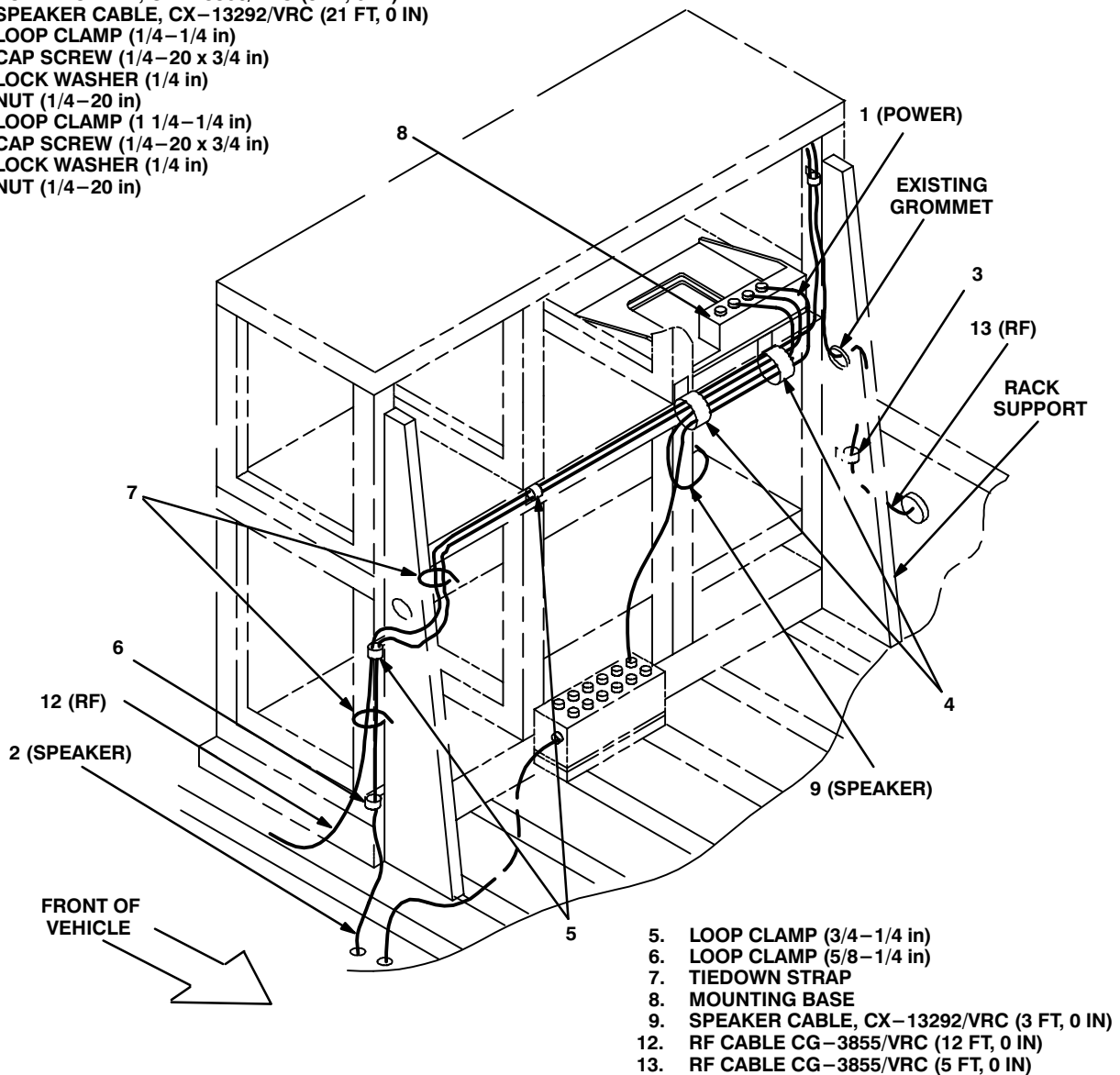


Figure 5-8 (2). Cable Installation: Communications Rack

5.6 Installation of Cables. Continued

ITEM	ACTION	REMARKS
ac. Loop clamp (3), cap screw (1/4–20 x 3/4 in), lock washer (1/4 in) and nut (1/4–20 in).	Wrap clamp around RF cable (13) and install to existing hole in rack support. See figure 5–8 (2).	Tools: 7/16 in socket and 7/16 in open/box wrench.
ad. Two loop clamps (4), two cap screws (1/4–20 x 3/4 in), two lock washers (1/4 in) and two nuts (1/4–20 in).	Wrap clamps around power cable (1), speaker cables (2, 9) and RF cable (12); then install to existing mounting holes in communications rack.	Tools: 7/16 in socket and 7/16 in open/box wrench.
ae. Two loop clamps (5) and existing mounting hardware.	Wrap clamps around speaker cable (2) and RF cable (12); then install to existing mounting hole.	
af. Loop clamp (6) and existing mounting hardware.	Wrap around speaker cable (2); then install to existing mounting hole.	
ag. Two tiedown straps (7).	Install loosely around speaker cable (2) and RF cable (12).	
ah. Power cable (1) connector P2.	Connect and secure to mounting base (8) connector J1.	

5.7 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 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. 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.)

- | | | |
|--|--|---|
| a. Mounting holes for MT-6353/VRC mounting base (1). | Using dimensions shown, drill four 11/32 in diameter holes through lower rack shelf. See Figure 5-9. | Tools: Electric drill and 11/32 in drill bit. |
| b. MT-6353/VRC mounting base (1) and lower rack shelf. | 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 lower rack shelf around the two front mounting holes. Clean the paint removed areas and apply a thin coat of conductive anti-seize compound. | Tools: Electric grinder or equivalent. |

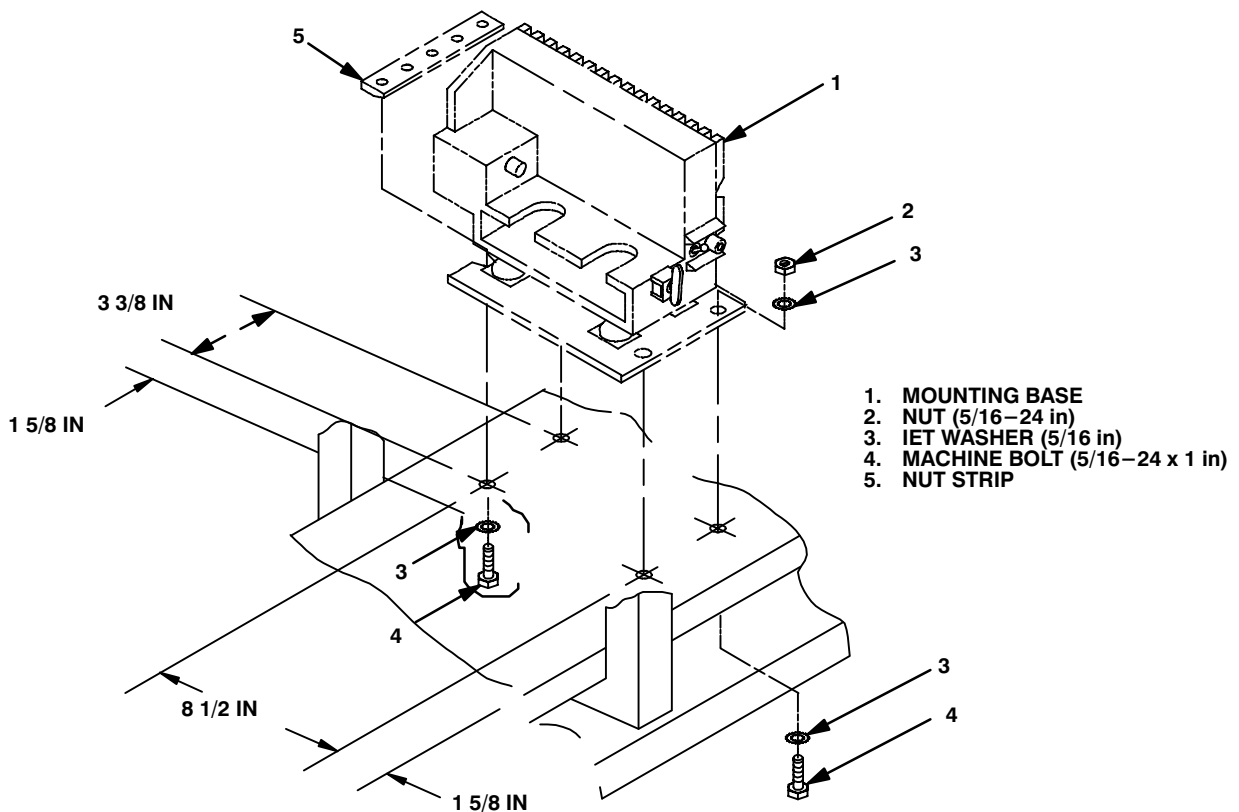


Figure 5-9. MT-6353/VRC Mounting Base Installation

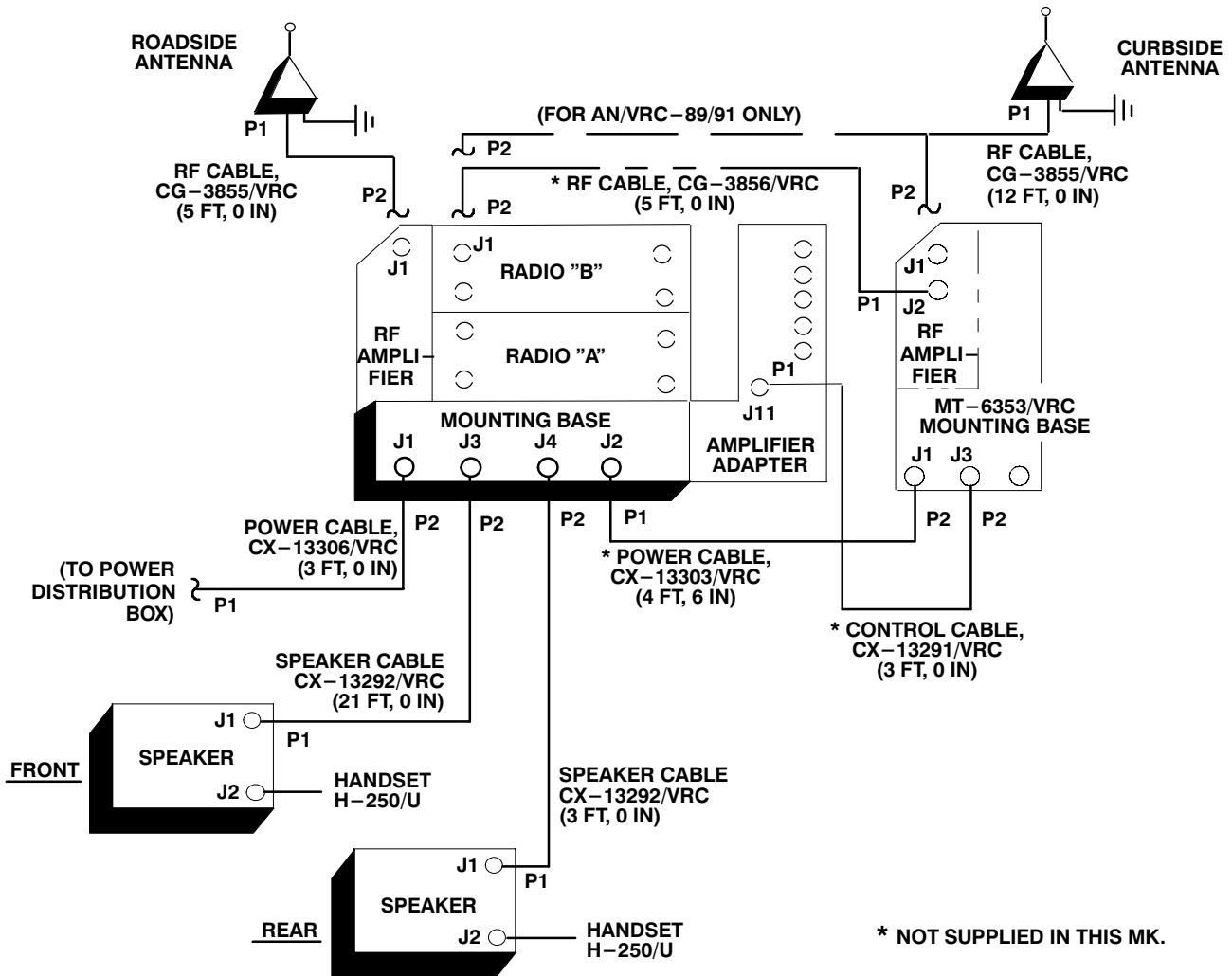
5.7 Installation of Mounting Base, Electrical Equipment MT–6353/VRC. Continued

ITEM	ACTION	REMARKS
c. MT–6353/VRC mounting base (1).	Place on lower rack shelf over holes drilled in step a.	Tools: Electric drill 11/32 in drill bit.
d. MT–6353/VRC mounting base (1).	Align front holes and rear slots with matching hole pattern in radio shelf. See Figure 5–9.	
e. Two machine bolts (4). four IET washers (3) and nut strip (5).	Install and secure to rear slots in MT–6353/VRC mounting base and shelf.	Tools: 1/2 in socket and 1/2 in open/box wrench.
f. 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 5–10 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 and Checkout. Continued



CABLE ASSEMBLY	FROM			TO		
	CABLE CONN.	UNIT	UNIT CONN.	CABLE CONN.	UNIT	UNIT CONN.
CX-13306/VRC (3 FT, 0 IN)	P2	Mounting base	J1	P1	Power distribution box	
CG-3855/VRC (5 FT, 0 IN)	P2	RF amplifier	J1	P1	Roadside antenna base	J1
CG-3855/VRC (12 FT, 0 IN)	P2	Radio "B" or RF amplifier (MT-6353/VRC)	J1	P1	Curbside antenna base	J1
CX-13292/VRC (21 FT, 0 IN)	P2	Mounting base	J3	P1	Front speaker	J1

Figure 5-10. Cable Diagram: For AN/VRC-89/91/92 Series

5.8 Post-Installation and Checkout. Continued

CABLE ASSEMBLY	FROM			TO		
	CABLE CONN.	UNIT	UNIT CONN.	CABLE CONN.	UNIT	UNIT CONN.
CX-13292/VRC (3 FT, 0 IN)	P2	Mounting base	J4	P1	Rear speaker	J1
* 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 5-10. Cable Diagram: For AN/VRC-89/91/92 Series Continued

APPENDIX A

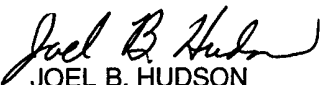
REFERENCES

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

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5-6	5-8		
		FO-3	

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

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

Item 5, Functional column. Change 2 dB" to 3 dB".

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

Add 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.

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