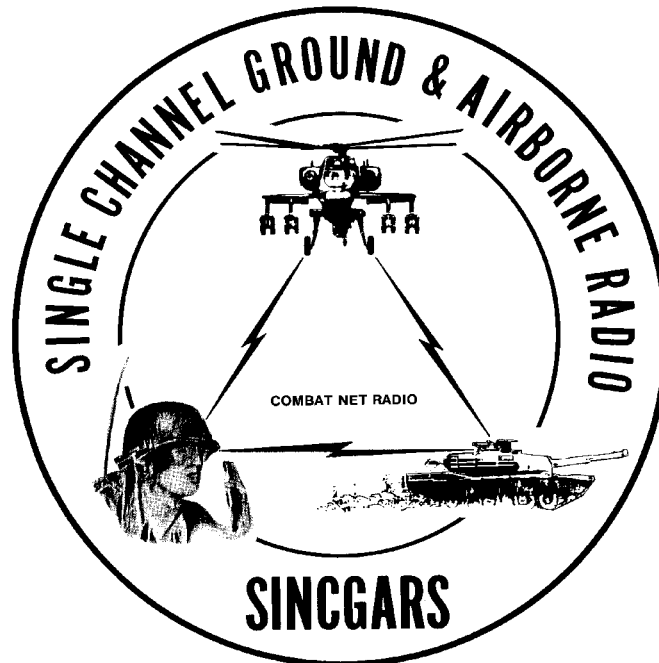


TECHNICAL BULLETIN



**INSTALLATION INSTRUCTIONS FOR
INSTALLATION KIT,
ELECTRONIC EQUIPMENT MK-2388/VRC
(NSN 5895-01-309-4604) (EIC: N/A)
TO PERMIT INSTALLATION OF RADIO SET
AN/VRC-92 SERIES
IN
OPERATIONS CONTROL GROUP OK-398/TPQ
USED WITH
AN/TPQ-36 AND AN/TPQ-37 RADAR SETS**

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HEADQUARTERS, DEPARTMENT OF THE ARMY

1 OCTOBER 2002

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Technical Bulletin
 No. 11-5820-890-20-65

HEADQUARTERS,
 DEPARTMENT OF THE ARMY
 Washington, D.C., 1 October 2002

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 INSTALLATION KIT, ELECTRONIC EQUIPMENT MK-2388/VRC
 (NSN 5895-01-309-4604) (EIC: N/A)
 TO PERMIT INSTALLATION OF RADIO SET AN/VRC-92 SERIES
 IN OPERATIONS CONTROL GROUP OK-398/TPQ
 USED WITH AN/TPQ-36 AND AN/TPQ-37 RADAR SETS**

REPORTING OF ERRORS AND RECOMMENDING IMPROVEMENTS

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

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

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0. GENERAL INFORMATION.

0.1 SCOPE.

This technical bulletin (TB) provides installation instructions for Installation Kit, Electronic Equipment MK-2388/VRC, commonly referred to as the Mounting Kit (MK). This MK shall be installed into the following type of shelter(s):

- Operations Control Group OK-398/TPQ-36 used with AN/TPQ—36 and AN/TPQ-37 Radar Sets

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

NOTE

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

0.2 CONSOLIDATED INDEX OF ARMY PUBLICATIONS AND BLANK FORMS.

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

0.3 MAINTENANCE FORMS, RECORDS, AND REPORTS.

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

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

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

0.4 DESTRUCTION OF ARMY ELECTRONICS MATERIEL.

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

0.5 REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIR).

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

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

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

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

1. PURPOSE OF INSTALLATION.

Installation Kit, Electronic Equipment MK-2388/VRC, commonly referred to as the Mounting Kit (MK), contains the items needed to install a SINCGARS AN/VRC-92 series radio set in Operations Control Group OK-398/TPQ (shelter) used with AN/TPQ-36 and AN/TPQ-37 Radar Sets.

2. END ITEM OR SYSTEM TO BE MODIFIED.

See Section 1.

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 4.0 hours.

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

Table 3-1. Installation Times		
ITEM	SECTION	TIME
Antenna AS-3900/VRC	5.1	0.5
Mounting Base, Electrical Equipment MT-6352/VRC	5.2	1.5
Cables	5.3	1.0

4. PREPARATION FOR INSTALLATION.

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

4.2 Preparation of Shelter. Inspect the shelter for damage that could affect installation. Have any such damage repaired before installing MK.

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

4.2.2 Items to be Retained for Reuse. None.

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

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

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

4.3.2 Unpack and Inspect Equipment.

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

4.3.2.2 Unpack and Inventory MK. Refer to section 4.4. Report discrepancies as stated in section 0.3.2.

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

4.4 Contents of Installation Kit

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

Table 4-1. Parts List for Installation Kit, Electronic Equipment MK-2388/VRC				
NSN	ITEM DESCRIPTION AND PART NUMBER	QUANTITY IN MK	SMR CODE	FIGURE, ITEM NO.
5985-01-297-2971	Antenna, Vehicular AS-3900/VRC (A3017899-1)	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 Not Used)	8	PAOZZA	4-1, 2
5310-00-061-1258	Washer, Lock, Internal/External-Toothed (3/8 in) MS45904-76 (16 Not Used)	16	PAOZZA	
5310-00-889-2527	Washer, Lock, Internal/External-Toothed (5/16 in) MS45904-72	4	PAOZZA	4-1, 2
5306-00-225-9086	Bolt, Machine (5/16-24 x 5/8 in)	2	PAOZZA	
5330-01-205-2864	MS90726-31 (Not Used) Gasket	2	PAOZZA	4-1, 4
5965-00-876-2375	Loudspeaker, Permanent Magnet LS-454/U	1	PAOZZA	
5975-01-188-8873	Mounting Base, Electrical Equipment MT- 6352/VRC	1	PAOFA	4-1, 1
5306-00-225-9089	(A3013367-1) Bolt, Machine (5/16-24 x 1 in)	5	PAOZZA	
5310-00-889-2527	MS90726-34 (Not Used)	10	PAOZZA	4-1, 1
5310-00-880-7746	Washer, Lock, Internal/External-Toothed (5/16 in) MS45904-72 (Not Used)	5	PAOZZA	
5995-01-300-9321	Nut, Hexagon (5/16-24 in) MS51968-5 (Not Used)	5	PAOZZA	4-1, 8
5995-01-219-7030	Cable Assembly, Power, Electrical, CX-13303/VRC (12 FT, 0 IN) (A3014040-3)	2	PAOZZA	
5995-01-219-7030	Cable Assembly, Radio Frequency, CG-3855/VRC (7 FT, 0 IN) (A3014031-3)	1	PAOZZA	4-1, 9
5995-01-219-9528	Cable Assembly, Radio Frequency, CG-3855/VRC (3 FT, 0 IN) (A3014031-1)	1	PAOZZA	
5995-01-219-7031	Cable Assembly, Radio Frequency, CG-3855/VRC (9 FT, 0 IN) (A3014031-4)	2	PAOZZA	4-1, 9
5995-01-225-0507	Cable Assembly, Special Purpose, Electrical CX-13300/VRC (16 FT, 0 IN) (A3014044-7)	1	PAOZZA	
5935-00-823-0308	Adapter, Connector, M55339/13-00492	2	PAOZZA	4-1, 6
5340-00-079-7837	Clamp, Loop (1/4-13/64 in) MS21333-67	3	PAOZZA	
	Connector, Receptacle, Electrical M55181/2-01	1	XBOZZA	4-1, 7
4020-01-341-8795	Fiber Rope Assembly, Single Leg (A3167672-1)	2	PAOZZA	
5325-00-074-3301	Grommet, Nonmetallic MS21266-2N	1	PAOZZA	4-1, 3
5965-00-043-3463	Handset, H-250/U	1	PAOZZA	

Table 4-1. Parts List for Installation Kit, Electronic Equipment MK-2388/VRC – continued				
NSN	ITEM DESCRIPTION AND PART NUMBER	QUANTITY IN MK	SMR CODE	FIGURE, ITEM NO.
	Plate, Mounting-Connector (A3018962-1)	1	XBOZZA	4-1, 5
5305-01-006-2052	Screw, Machine, Hex-Head (No. 10-32 x 5/8 in) MS51849-65	8	PAOZZA	
5305-00-179-8946	Screw, Machine, Hex-Head (No. 10-32 x 3/4 in) MS51849-66	2	PAOZZA	
5305-00-984-6193	Screw, Machine, Pan-Head (No. 8-32 x 1/2 in) MS35206-245	3	PAOZZA	
5305-00-984-4992	Screw, Machine, Pan-Head (No. 6-32 x 3/4 in) MS35206-232	4	PAOZZA	
5305-00-068-0500	Screw, Cap, Hexagon (1/4-20 x 5/8 in) MS90725-5	2	PAOZZA	
5975-00-111-3208	Strap, Tiedown, Electrical Components MS3367-5-9	30	PAOZZA	
5310-00-080-9786	Washer, Lock, Internal/External-Toothed (No. 10)) MS45904-60	10	PAOZZA	
5310-00-889-2528	Washer, Lock, Internal/External-Toothed (1/4 in) MS45904-68	6	PAOZZA	
5310-00-809-4058	Washer, Flat (1/4 in) MS27183-10	10	PAOZZA	
5310-00-082-1404	Washer, Flat (No. 6) MS27183-6	4	PAOZZA	
5310-00-929-6395	Washer, Lock (No. 6) MS35338-136	4	PAOZZA	
5310-00-933-8119	Washer, Lock (No. 8) MS35338-137	3	PAOZZA	

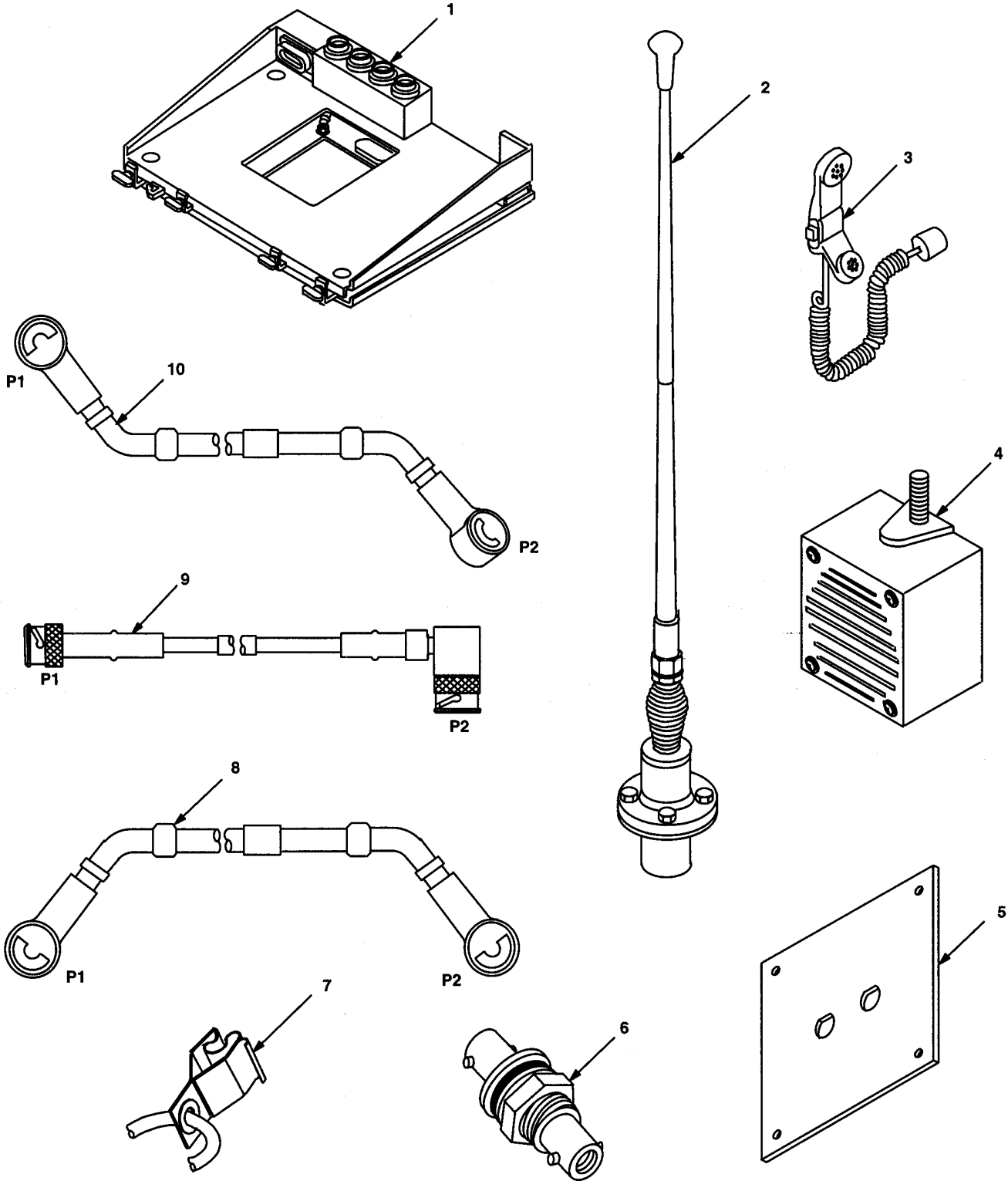


Figure 4-1. MK-2388 Illustrated Parts List

4.5 Additional Items Required.

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 speaker for "D" and "F" Series Radio Sets.

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	PAOFHA	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	
	Nut Strip (A3014064-1)	1	XBOZZA	4-2, 5
5975-00-111-3208	Strap, Tiedown, Electrical Components MS3367-5-9	12	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

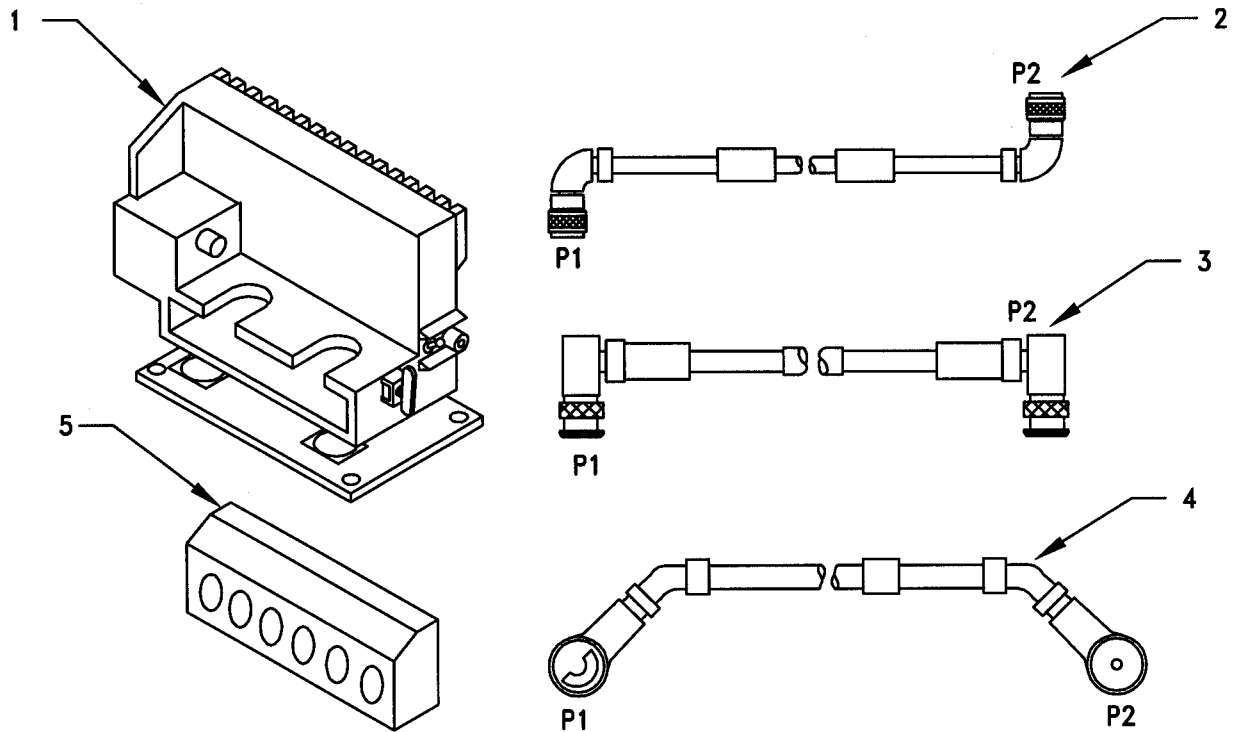


Figure 4-2. Illustrated Parts List for Table 4-2

Table 4-3. Additional Items Required for Installation of "D" and "F" Series Radio Sets				
NSN	ITEM DESCRIPTION AND PART NUMBER	QUANTITY IN MK	SMR CODE	FIGURE, ITEM NO.
5965-01-222-1420	Loudspeaker, Control-Unit LS-671/VRC (A3014065-1)	1	PAOFFA	4-3, 1
5995-01-259-9283	Cable Assembly, Special Purpose, Electrical CX-13292/VRC (8 FT, 0 IN) (A3014038-12)	1	PAOZZA	4-3, 2
	Plate, Mounting, (A3014550-1)	1	XBOZZA	4-3, 3
5306-00-225-9089	Bolt, Machine (5/16-24 x 1 in) MS90726-34	2	PAOZZA	
5310-00-880-7746	Nut, Hexagon (5/16-24 in) MS51968-5	2	PAOZZA	
5310-00-081-4219	Washer, Flat (5/16 in) MS27183-12	4	PAOZZA	
5310-00-407-9566	Washer, Lock (5/16 in) MS35338-45	2	PAOZZA	

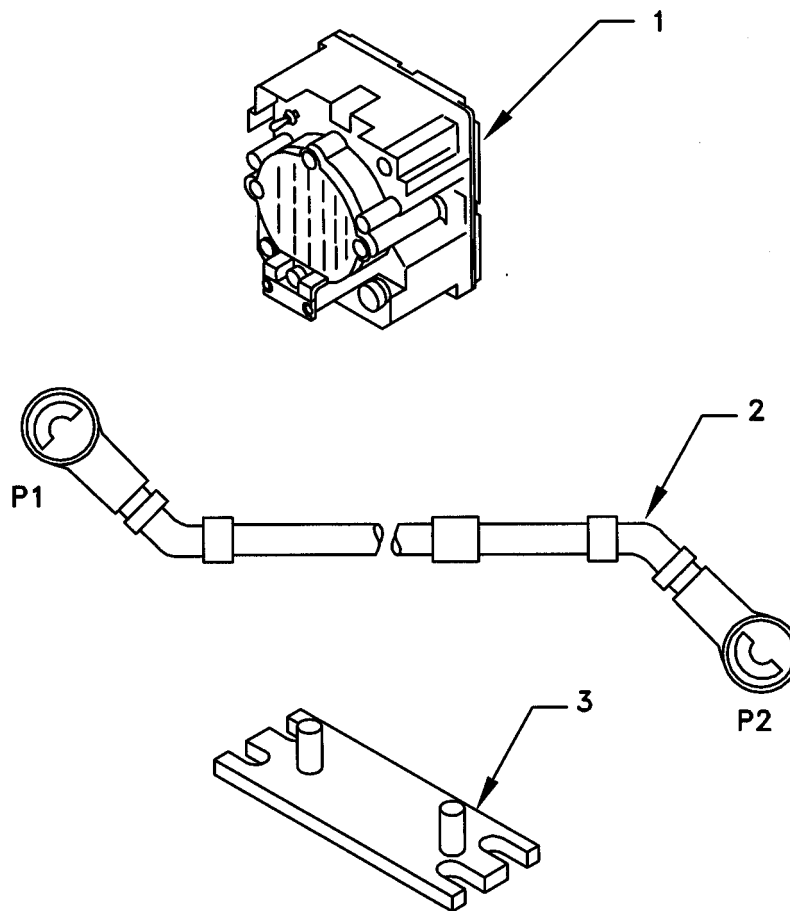


Figure 4-3. Additional Items Required for Installation "D" and "F" Series Radio Sets

4.6 Consumable Items Required.

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

Table 4-4. Consumable Materials Required	
NSN	NOMENCLATURE
8040-01-331-7133	Adhesive-Sealant, Clear, RTV
6850-00-880-7616	Silicone Compound, MIL-S-8660
8030-00-292-1102	Conductive Anti-Seize Compound

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

The following tools are needed for installation.

Table 4-5. Tools and Test, Measurement, and Diagnostic Equipment (TMDE) Required		
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 Flat blade, 4 in	5120-00-222-8852	1
Pliers, Round Nose	5120-00-240-6172	1
Pliers, Diagonal Cutting	5110-00-965-0974	1
Wrench, Open/Box:		
7/16 in	5120-00-228-9505	1
1/2 in	5120-00-228-9506	1
9/16 in	5120-00-228-9507	1
5/8 in	5120-00-228-9508	1
Handle, Socket Wrench:		
Socket		
7/16 in	5120-00-240-5364	1
1/2 in	5120-00-227-6703	1
9/16 in	5120-00-237-0977	1
5/8 in	5120-00-227-6704	1
Electric Drill		
Drill Bit		
13/32 in	5130-00-889-8994	1
5/16 in	5133-00-227-9668	1
	5133-00-227-9662	1

* Use radio issued with your vehicle if available.

5. INSTALLATION PROCEDURES.

This section describes where and how to install MK items in the shelter. When installing MK equipment, be sure to read and follow instructions and illustrations carefully. See Figure 5-1 for an overall view of where MK equipment, as well as radio components, will be installed. See section 5.6 for instructions to install MT-6353/VRC mounting base.

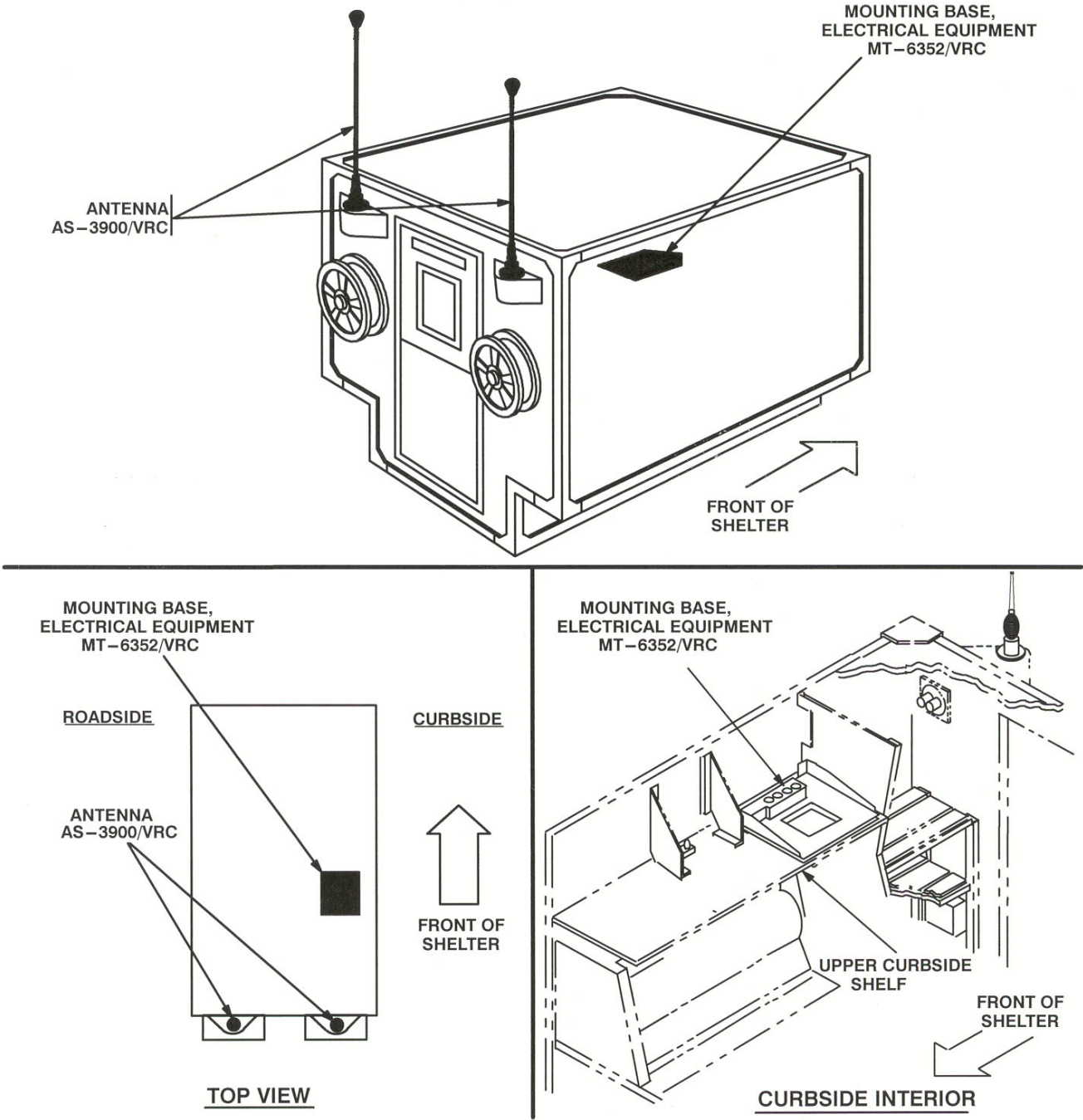


Figure 5-1 (1). MK and Radio Installation: MK Equipment Locations

5. INSTALLATION PROCEDURES. Continued

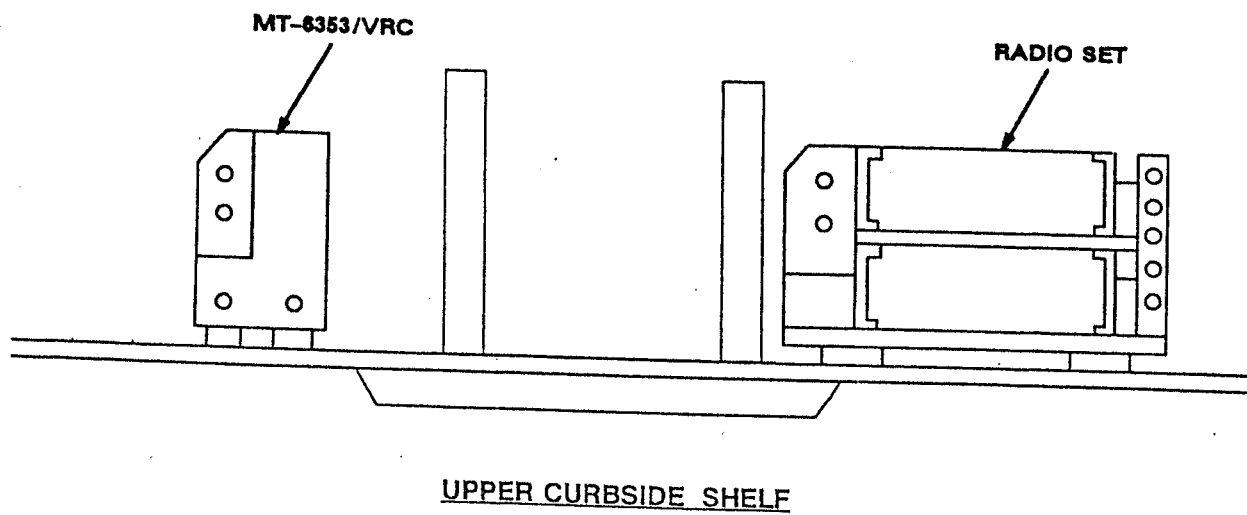


Figure 5-1 (2). MK and Radio Installation: Radio Equipment Location

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

5.1.1 Installation of Antenna Base. Use the following procedure to install two antenna bases. See figure 5-1 (1) for locations.

ITEM	ACTION	REMARKS
NOTE		
Apply a thin coat of adhesive-sealant to both sides of each internal/external -toothed (IET) washer during installation and to the area of contact where IET washer is to be placed.		
a. Gasket (4).	Place on existing antenna mounting bracket and align mounting holes. See Figure 5-2.	
b. Antenna base (1).	Place on top of gasket (4) and antenna bracket; then align mounting holes.	
c. 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.
d. Ground strap (8), cap screw (6) and two IET washers (7),	Install and secure to existing mounting hole in antenna bracket and rear wall.	Tools: 7/16 in socket.

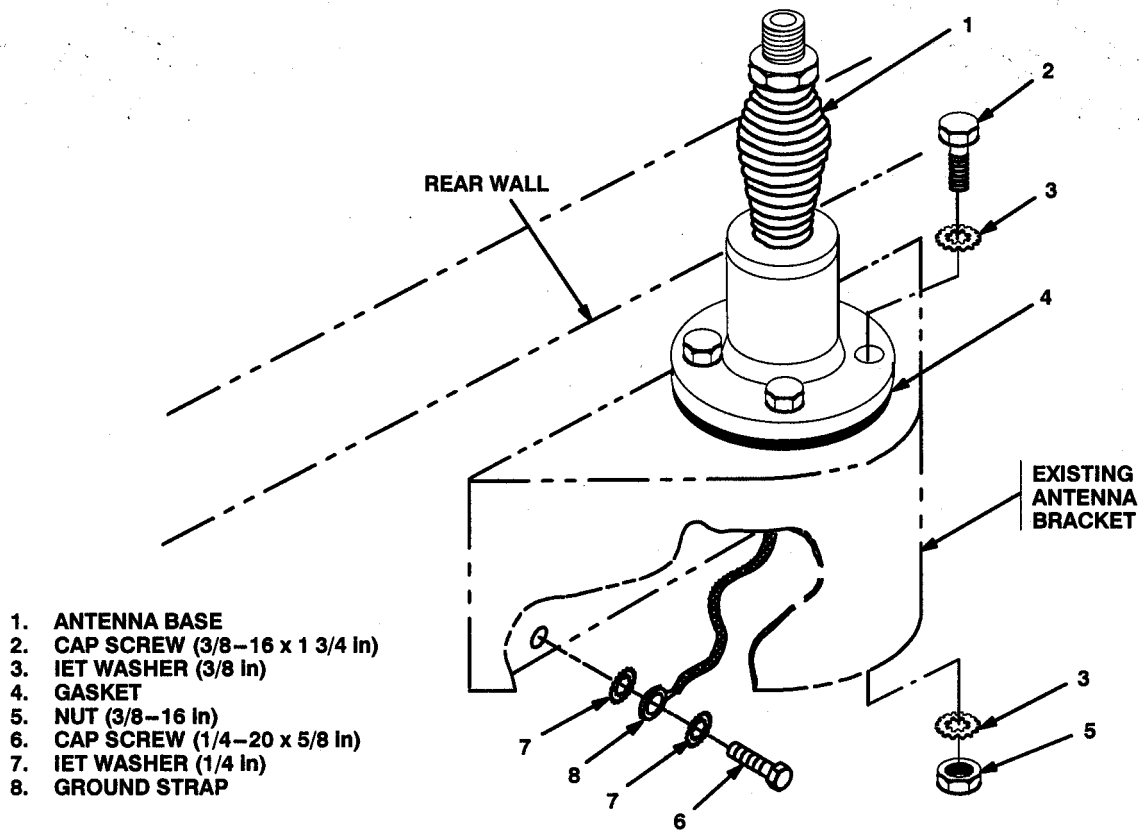
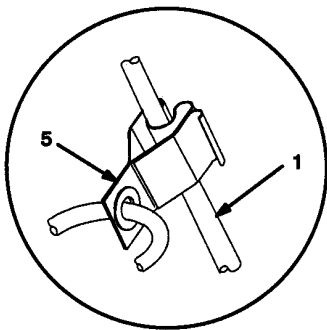
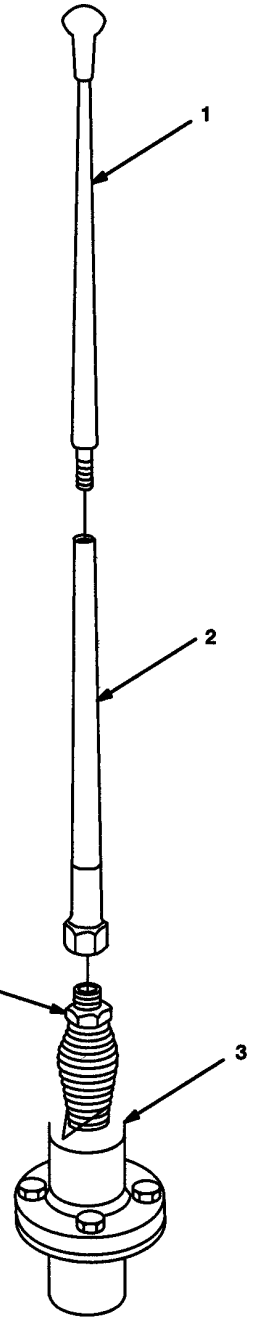


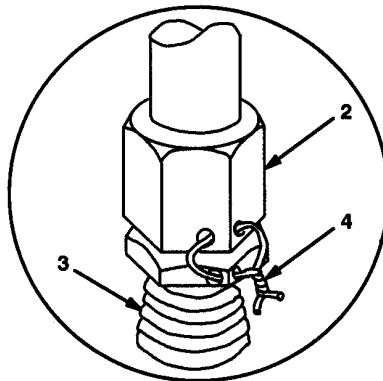
Figure 5-2. Antenna Base Installation: Rear Shelter wall

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

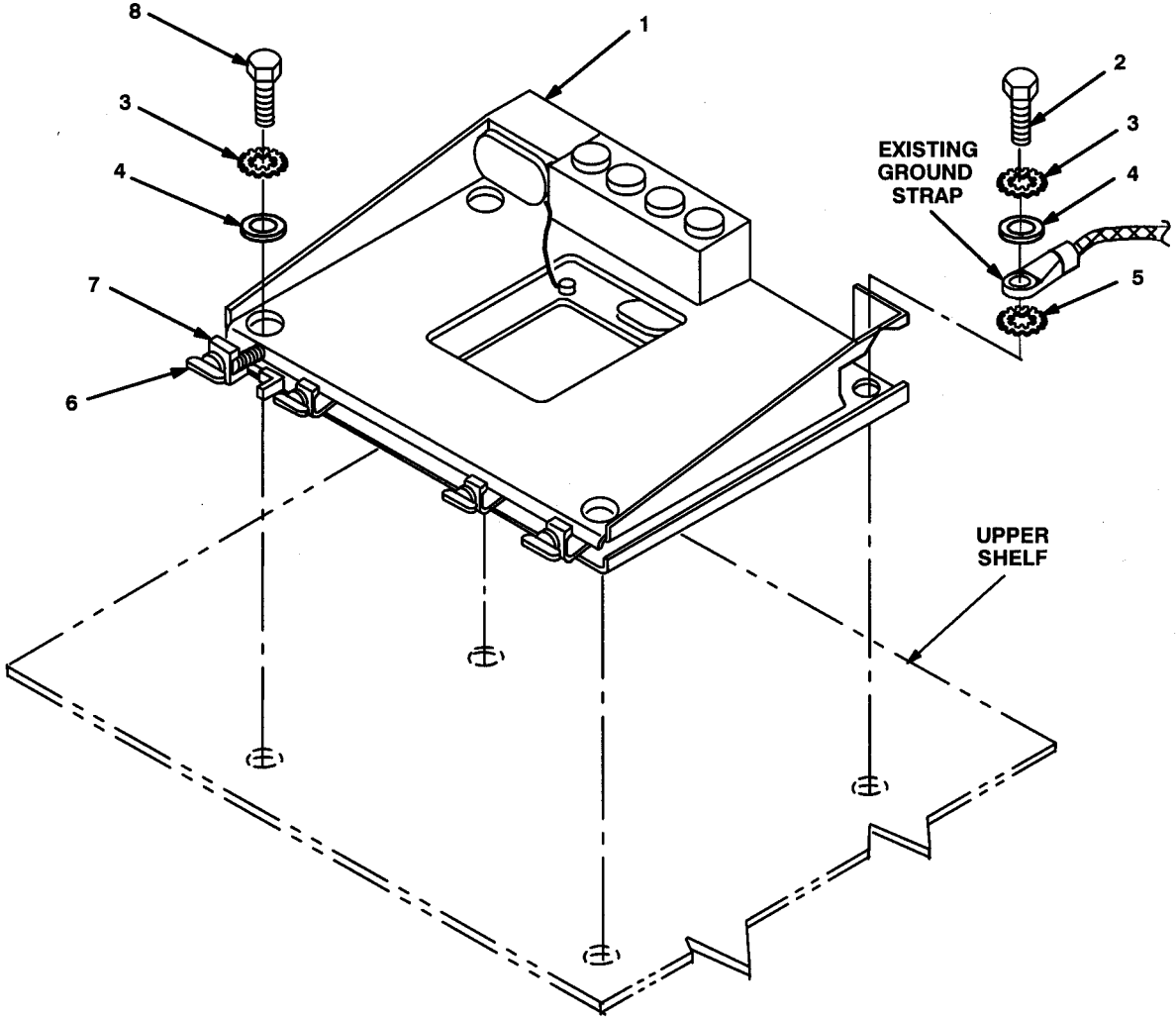


DETAIL A

- 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 Mounting Base, Electrical Equipment MT-6352/VRC (mounting base). Remove and retain attaching bag of 5/16 in mounting hardware. To insure good electrical grounding, any rust, corrosion or paint around mounting holes in mounting plate should be removed before installing the mounting base. See Figure 5-1(1) for location; then see Figure 5-4 and perform the following steps.



- 1. MOUNTING BASE
- 2. MACHINE SCREW (NO. 10-32 x 3/4 in)
- 3. IET WASHER (NO. 10)
- 4. FLAT WASHER (1/4 in)
- 5. IET WASHER (1/4 in)
- 6. THUMBSCREW
- 7. RIM CLENCHING CLAMP
- 8. MACHINE SCREW (NO. 10-32 x 5/8 in)

Figure 5-4. Mounting Base Installation: Upper Curbside Shelf

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 before it is installed, and to the area of contact where IET washer is to be placed.		
a. Mounting base (1) and existing radio shelf.	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 upper curbside radio shelf around the existing mounting holes that mate with left front and rear mounting holes and 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 existing radio shelf over existing mounting holes. See Figure 5-4.	
c. Two outer thumbscrews (6).	Turn ccw until both sets of threads have cleared center of holes.	
d. Mounting base (1).	Align holes with matching hole pattern in radio shelf. See Figure 5-4.	
e. Existing ground strap, machine screw (2), IET washer (3), IET washer (5) and flat washer (4).	Install and secure to hole in rear corner of mounting base (1) and shelf.	Tools: 5/16 in socket
f. Three machine bolts (8), three IET washers (3) and three flat washers (4).	Install and secure to remaining holes in mounting base (1) and radio shelf.	Tools: 5/16 in socket and 5/16 in open/box wrench.
g. Two outer thumbscrews (6).	Tighten and secure to rim clenching clamps (7) and mounting base (1).	

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

WARNING

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

ITEM	ACTION	REMARKS
a. Two O-rings (14)	Apply a thin coat of silicone compound to both sides; then place on two connector adapters (13). See figure 5-5 (1).	

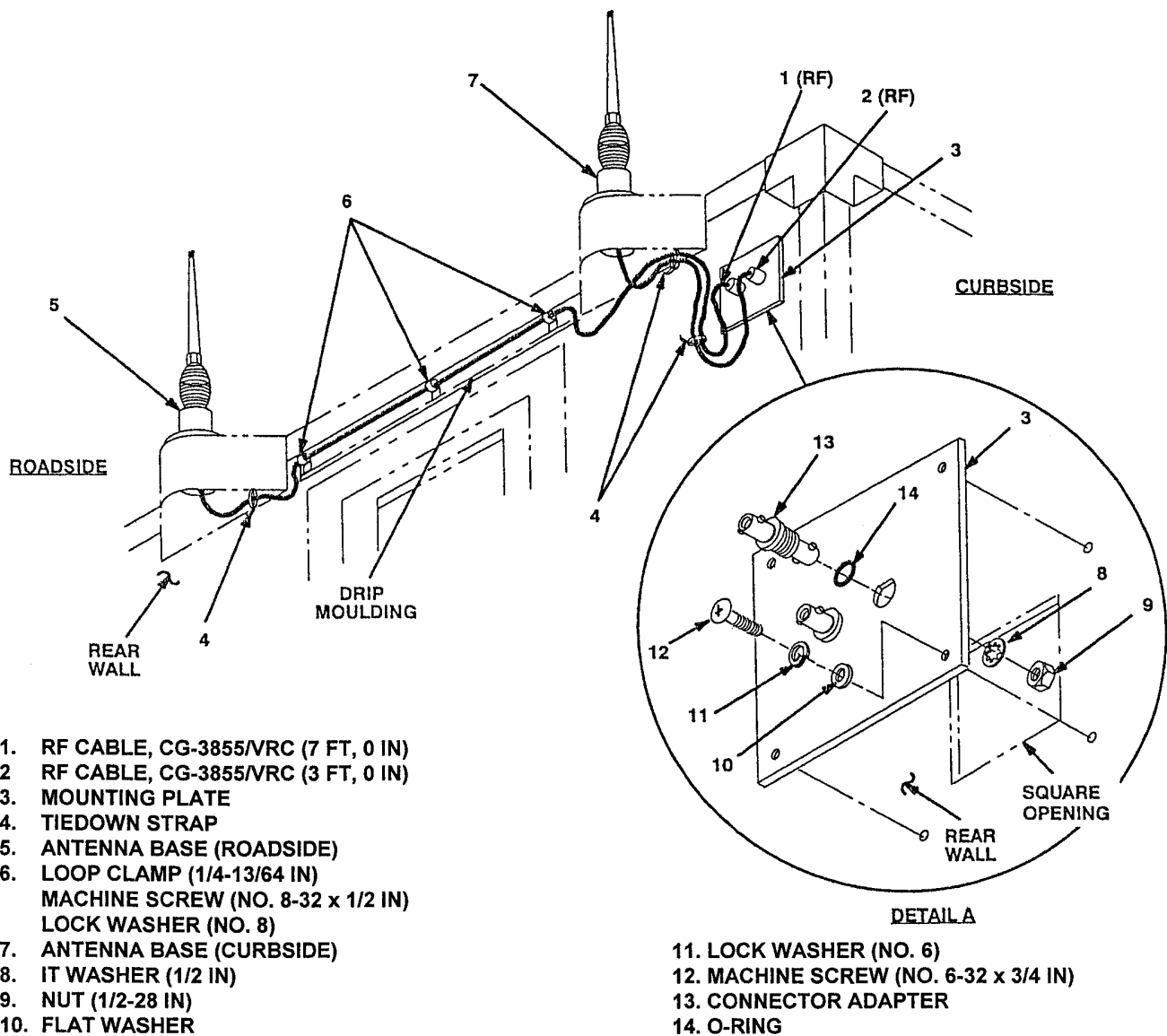
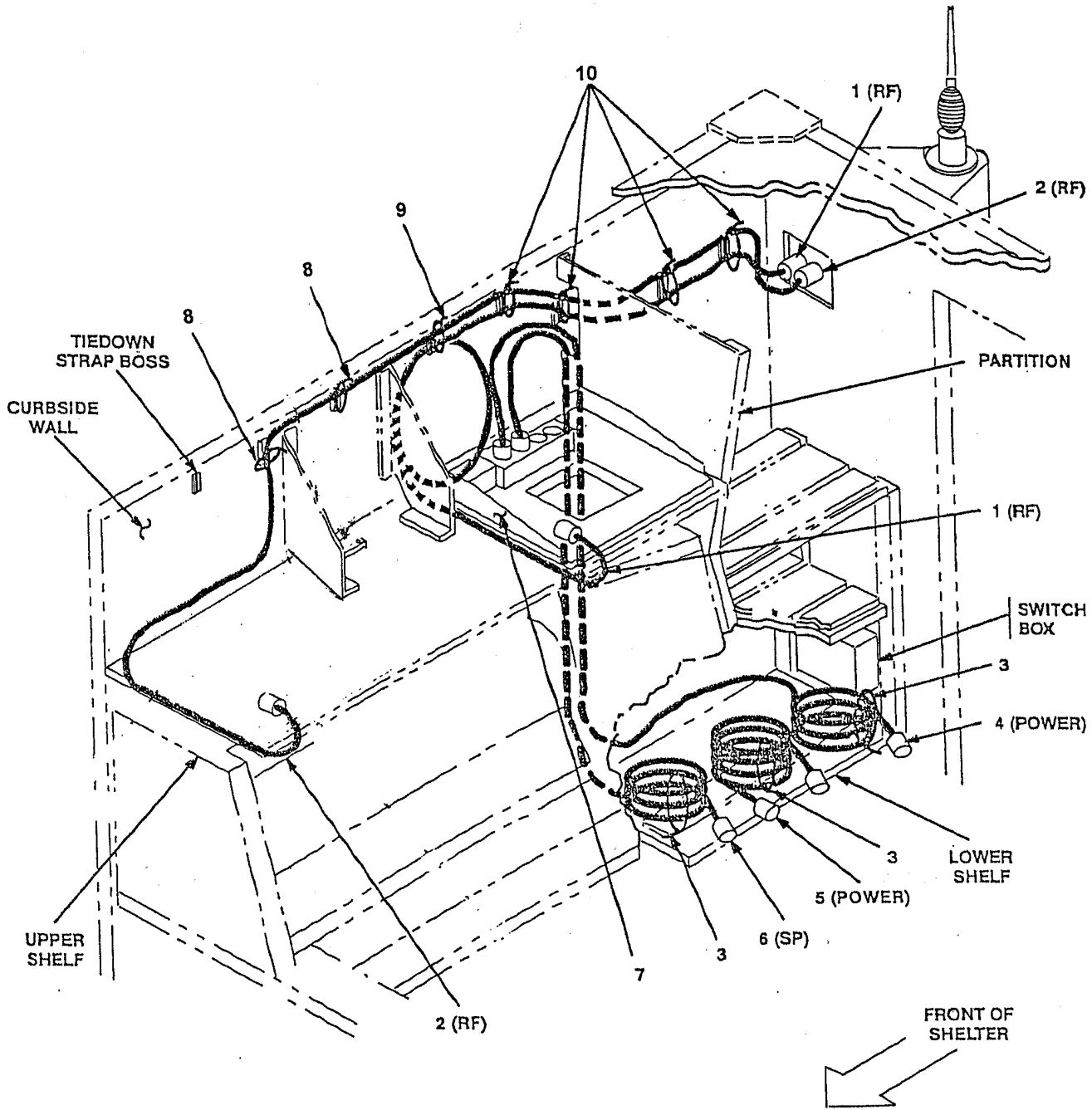


Figure 5-5 (1). Cable Installation: Exterior Cabling

5.3 Installation of Cables. Continued

ITEM	ACTION	REMARKS
b. Two connector adapters (13).	Insert in mounting plate (3) holes. See figure 5-5 (1), Detail A.	
c. Two internal-toothed washers (8) and two nuts (9).	Install and secure to two connector adapters.	Tools: 5/8 in open/box wrench.
d. Adhesive sealant.	Apply a thin coat around square opening in rear wall and to mounting plate (3) surface that will contact wall.	
e. Mounting plate (3).	Position against rear wall and align mounting holes.	
f. Four pan-head machine screws (12), four lock washers (11), and four flat washers (10).	Install and secure to mounting plate (3) and rear wall.	Tools: Phillips screwdriver.
g. RF cable (1) connector P1.	Connect and secure to antenna base (5) connector J1. See Figure 5-5 (1).	
h. RF cable (1).	Route across drip moulding on rear wall to mounting plate; then connect and secure to left connector adapter (3) connector J3.	
i. Tiedown strap (4).	Wrap around RF cable (1) and secure loosely to existing boss below roadside antenna bracket. See figure 5-5 (1) for locations(s).	
j. Three loop clamps (6), three pan-head machine screws (No. 8-32 x ½ in) and three lock washers (No. 8).	Wrap clamps (7) around RF cable (1); then install to drip moulding on rear wall.	Tools: Phillips screwdriver.
k. RF cable (2) connector P1.	Connect and secure to antenna base (7) connector J1. See Figure 5-5 (1).	
l. RF cable (2) connector P2.	Connect and secure to right connector adapter (3) connector J4.	
m. Tiedown strap (4).	Wrap around RF cables (1, 2) and secure loosely to existing boss below curbside antenna bracket. See figure 5-5 (1) for locations(s).	
n. Tiedown strap (4).	Wrap around RF cables (1, 2) and secure.	
o. RF cable (1) connector P1.	Connect and secure to left connector adapter J4. See figure 5-5 (2).	
p. RF cable (2) connector P1.	Connect and secure to right connector adapter J3.	

5.3 Installation of Cables. Continued



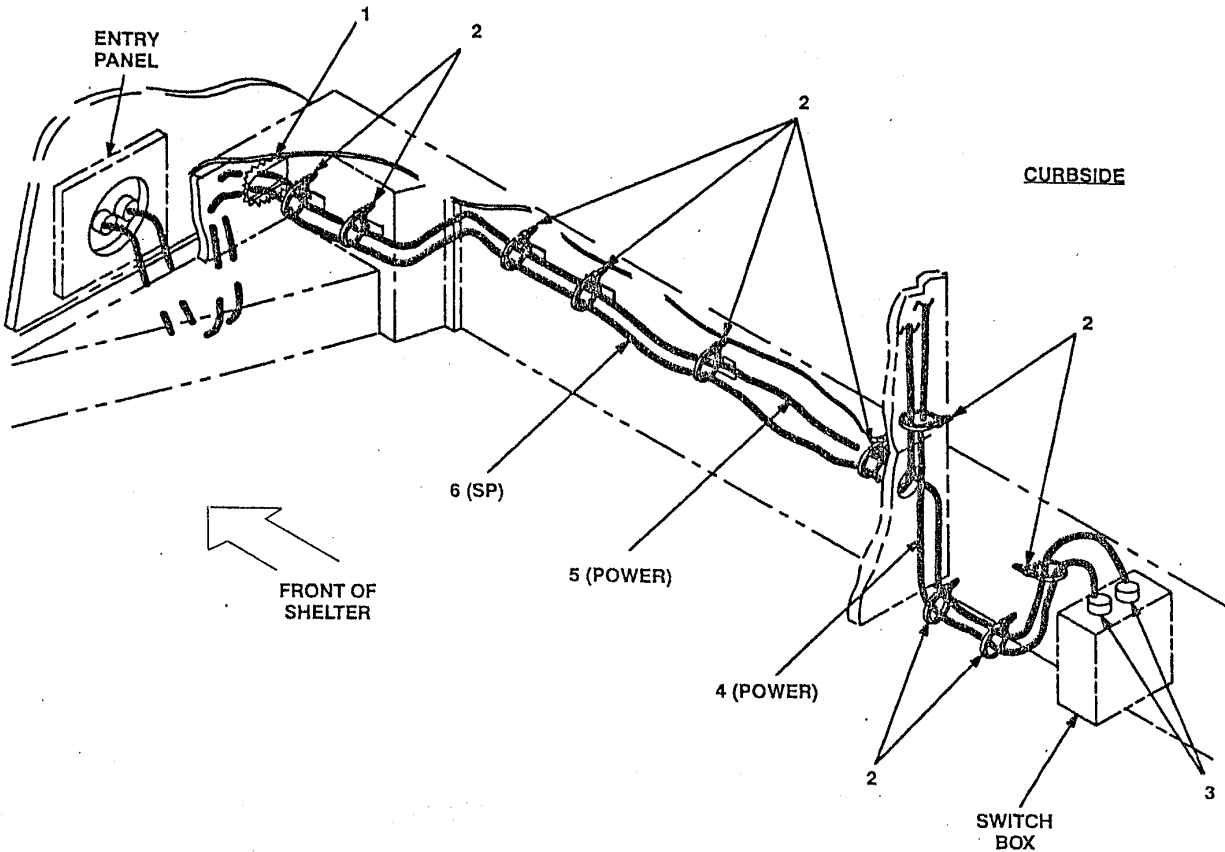
- | | |
|--|---|
| 1. RF CABLE, CG-3855/VRC (9 FT, 0 IN) | 6. SP CABLE, CX-13300/VRC (16 ft, 0 IN) |
| 2. RF CABLE, CG-3855/VRC (9 FT, 0 IN) | 7. MOUNTING BASE |
| 3. TIEDOWN STRAP | 8. TIEDOWN STRAP |
| 4. POWER CABLE, CX-13302/VRC (12 FT, 0 IN) | 9. TIEDOWN STRAP |
| 5. POWER CABLE, CX-13302/VRC (12 FT, 0 IN) | 10. TIEDOWN STRAP |

Figure 5-5 (2). Cable Installation: Interior Cabling

5.3 Installation of Cables. Continued

ITEM	ACTION	REMARKS
q. RF cables (1, 2).	Route through opening in partition to mounting base (7). See figure 5-5 (2).	
r. Four tiedown straps (10).	Wrap around RF cables (1, 2) and secure loosely to existing tiedown strap bosses on curbside wall. See Figure 5-5 (2) for location(s).	
s. Tiedown strap (9).	Coil excess RF cable (1); then wrap around RF cables (1, 2) and install loosely to existing tiedown strap boss.	
t. RF cable (1) connector P2.	Position on top of mounting base (7). See figure 5-5 (2).	
u. RF cable (2).	Route forward along curbside wall.	
v. Two tiedown straps (8).	Wrap around RF cables (2) and secure loosely to existing tiedown strap bosses on curbside wall. See Figure 5-5 (2) for location(s).	
w. RF cable (2) connector P2.	Position on top of radio shelf.	
x. Power cable (4) connector P2.	Position on top of mounting base (7). See figure 5-5 (2).	
y. SP cable (6) connector P2.	Connect and secure to mounting base (7) connector J3.	
z. Power cable (4) and SP cable (6).	Route through opening in partition and down to lower shelf. Coil excess on lower shelf.	
aa. Power cable (5).	Coil, then place on lower shelf.	
ab. Three tiedown straps (3).	Install loosely around power cables (4, 5) and SP cable (6). See figure 5-5 (2) for location(s).	
ac. Power cables (4, 5), SP cable (6), receptacle connector (3), grommet (1) and ten tiedown straps (2), figure 5-5 (3).	Complete in accordance with Fort Sill, Field Artillery School, Modification to Control Group OK-398/TPQ used with Radar Sets AN/TPQ-36 and AN/TPQ-37.	
ad. Power cable (4) connector P2.	Connect and secure to mounting base (7) connector J1. See figure 5-5 (2).	
ae. Power cables (4, 5).	Refer to figure 5-5 (3) for remaining connections and routing.	

5.3 Installation of Cables. Continued



- 1. GROMMET-PLASTIC EDGING
- 2. TIEDOWN STRAP
- 3. ELECTRICAL RECEPTACLE CONNECTOR
- 4. POWER CABLE, CX-13303/VRC (12 FT, 0 IN)
- 5. POWER CABLE, CX-13303/VRC (12 FT, 0 IN)
- 6. SP CABLE, CX-13300/VRC (16 FT, 0 IN)

Figure 5-5 (3). Cable Installation: After Modifications

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

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

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

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

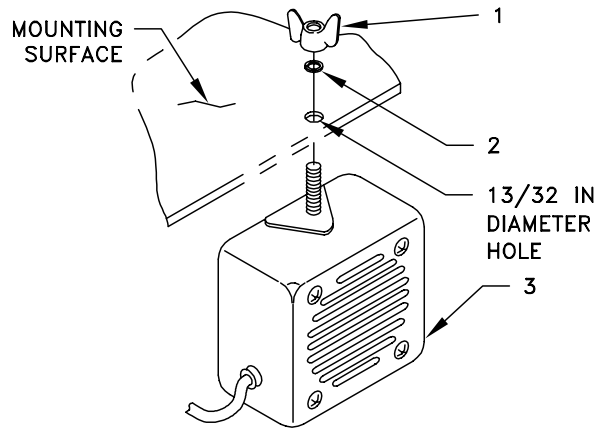


Figure 5-6 (1). Speaker Installation - A

NOTE

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

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

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

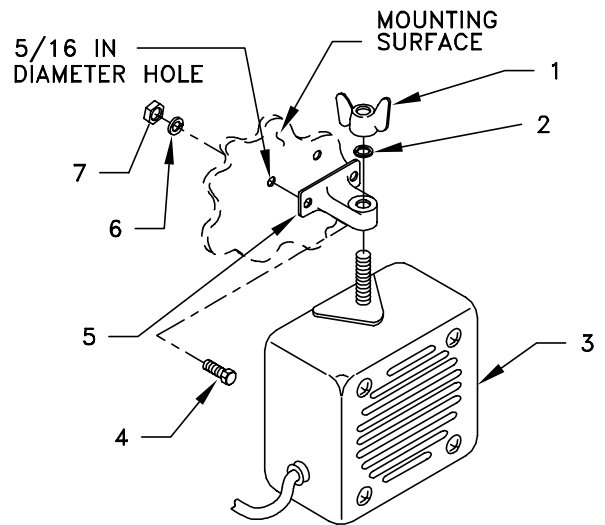


Figure 5-6 (2). Speaker Installation - B

5.5 Installation of Loudspeaker, Control-Unit, LS-671/VRC (speaker). Use the following procedures to install the speaker for "D" and "F" series radio sets. Mounting location may be determined by the shelter commander.

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

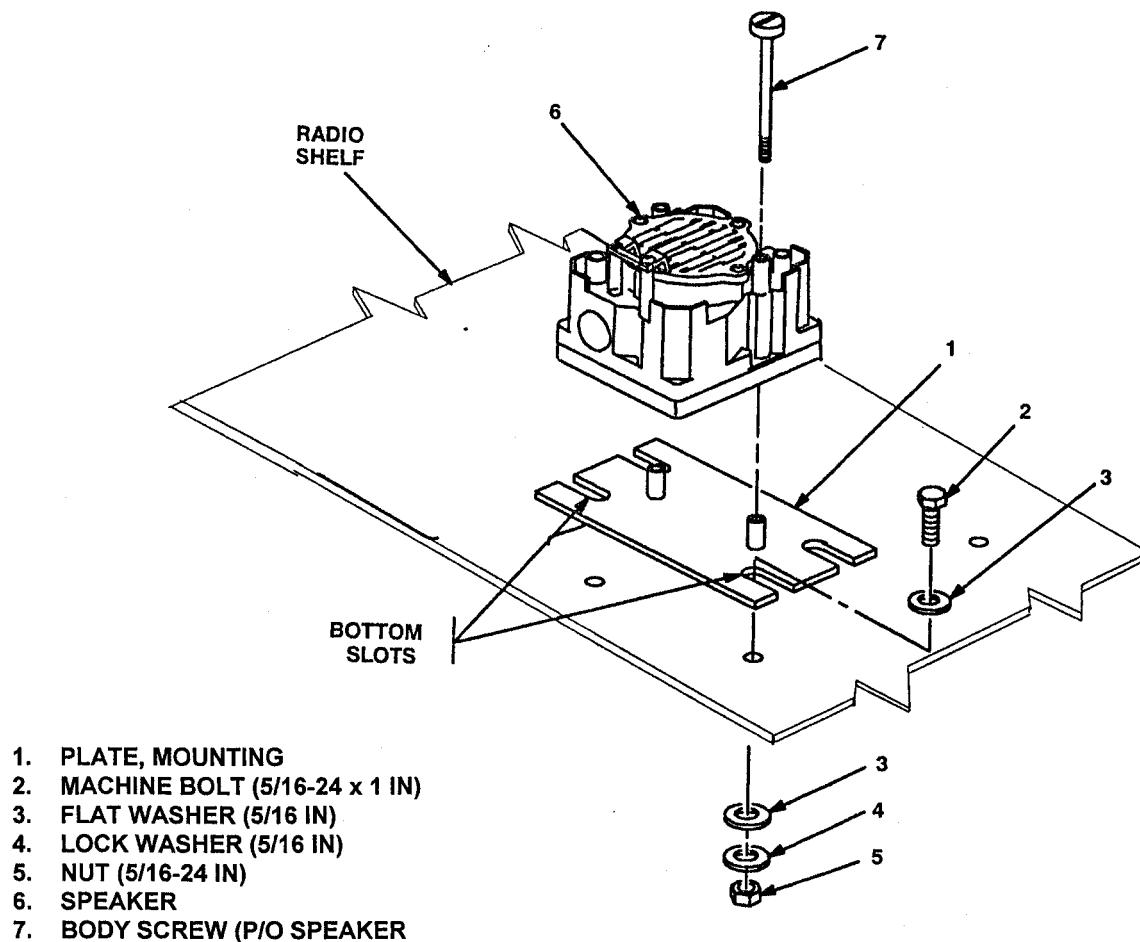
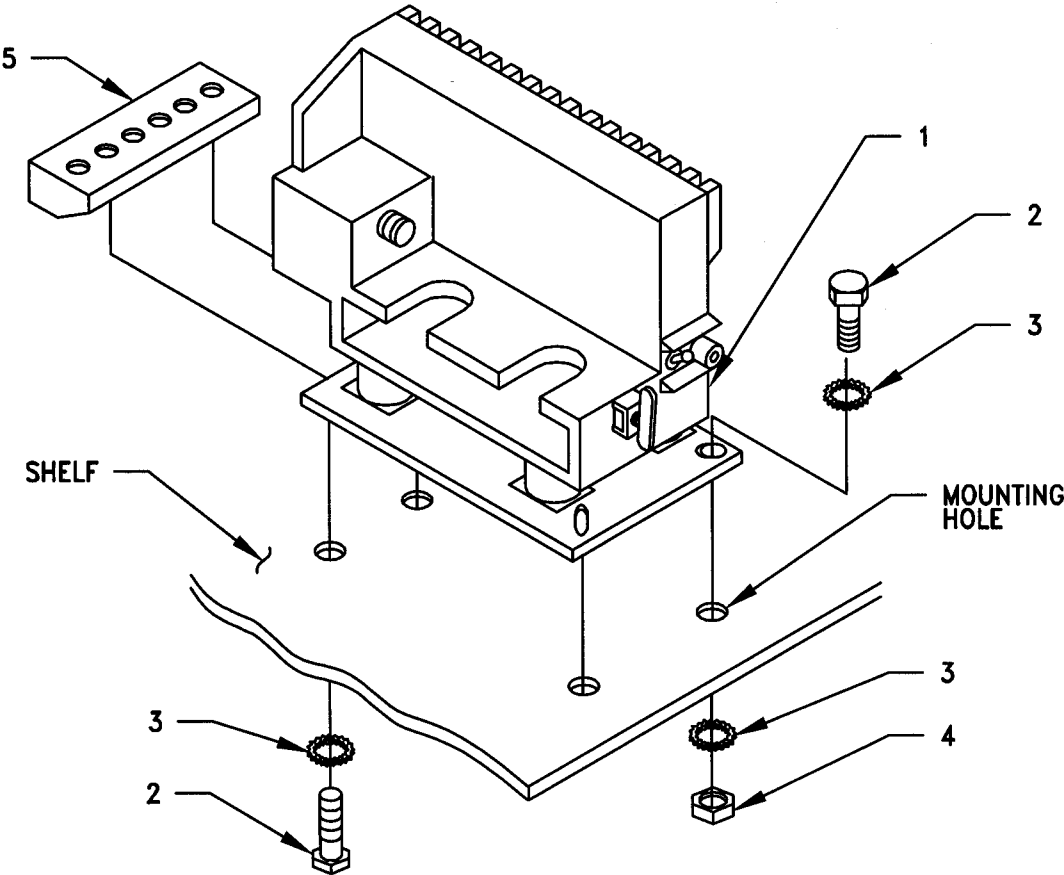


Figure 5-7. Installation of Loudspeaker, Control-Unit LS-671/VRC

5.6 Installation of Mounting Base, Electrical Equipment MT-6353/VRC. Use the following instructions to install MT-6353/VRC mounting base. Refer to section 5.7 for connection of cables.

ITEM	ACTION	REMARKS
NOTE		
<p>Apply a thin coat of adhesive-sealant to both sides of each internal/external-toothed (IET) washer during installation, and to the area of contact where IET washer is to be placed. Before proceeding, connect and secure CX-13291/VRC control cable and CX-13303/VRC power cable to MT-6353 mounting base. Refer to section 5.7 step b.</p>		
<p>a. MT-6353/VRC mounting base (1).</p>	<p>Using MT-6353/VRC as a template, mark and drill four 11/32 in diameter holes in radio shelf. See Figure 5-1 (2) for location.</p>	<p>Tools: Electric drill and 11/32 in drill bit.</p>
<p>b. MT-6353/VRC mounting base (1) and existing radio shelf.</p>	<p>Remove a 2" square area of paint on the underside of MT-6353/VRC mounting base (1) around the front two mounting holes. Remove a 2" square area of paint on the existing radio shelf around the front two holes drilled in step a. Clean the paint removed areas and apply a thin coat of conductive anti-seize compound.</p>	<p>Tools: Electric grinder or equivalent.</p>
<p>c. MT-6353/VRC mounting base (1).</p>	<p>Align front holes and rear slots with matching hole pattern in radio shelf. See figure 5-8.</p>	
<p>d. Two machine bolts (2), two IET washers (3) and nut strip (5).</p>	<p>Install and secure to rear slots in MT-6353/VRC mounting base (1) and radio self.</p>	<p>Tools: 1/2 in socket</p>
<p>e. Two machine bolts (2), four IET washers (3) and two nuts (4).</p>	<p>Install and secure to front two holes in MT-6353/VRC mounting base (1) and radio shelf.</p>	<p>Tools: 1/2 in socket and 1/2 in open/box wrench.</p>

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



- 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

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

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

5.7 Post-Installation and Checkout - continued

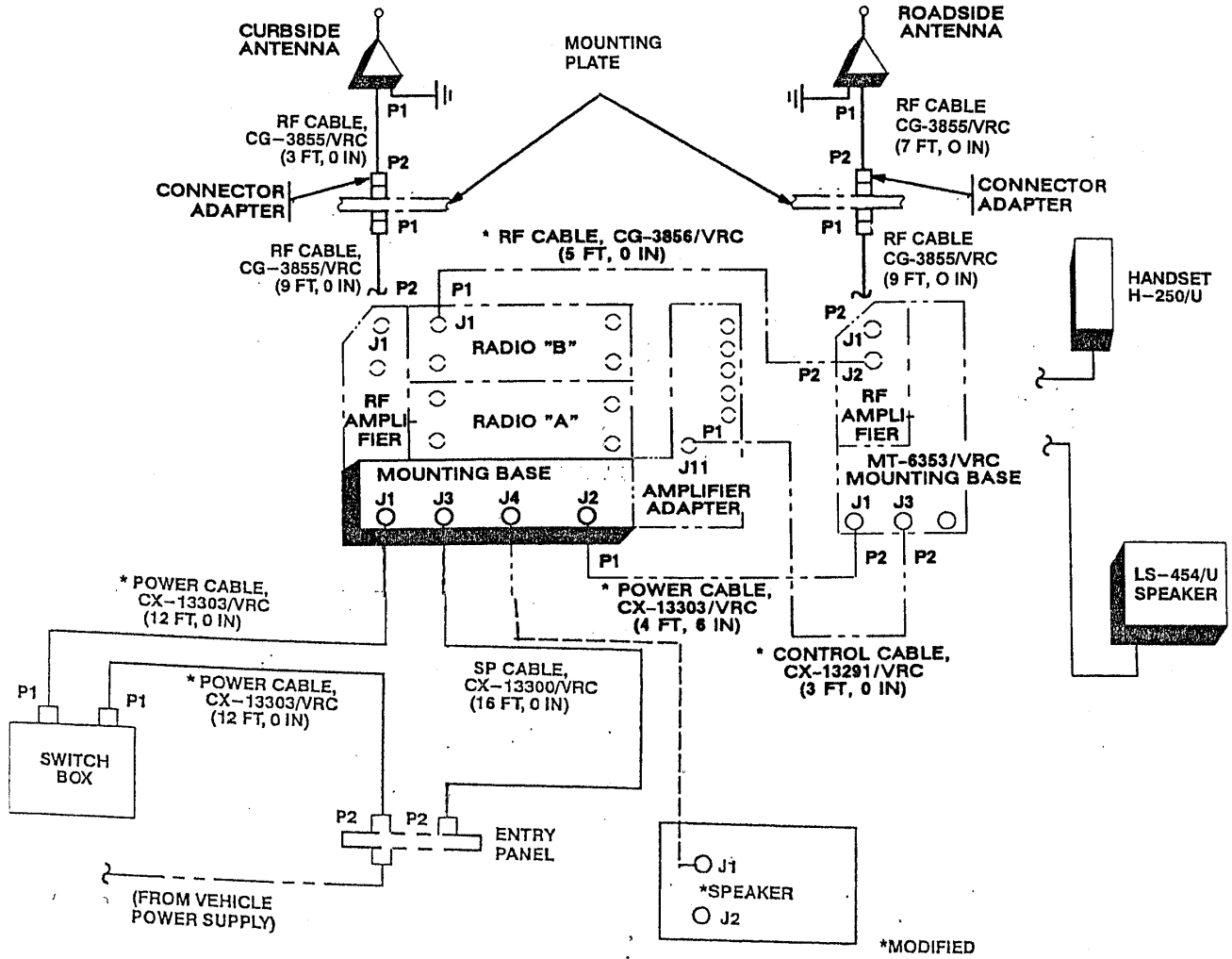


Figure 5-9. Cable Diagram - AN/VRC-92 Series

5.7 Post-Installation and Checkout. Continued

CABLE ASSEMBLY	FROM			TO		
	CABLE CONN.	UNIT	UNIT CONN.	CABLE CONN.	UNIT	UNIT CONN.
CX-13303/VRC (12 FT, 0 IN)	P2	Entry panel		P1	Switch box	
CX-13303/VRC (12 FT, 0 IN)	P1	Switch box		P2	Mounting base	J1
CX-13300/VRC (16 FT, 0 IN)	P2	Entry panel		P1	Mounting base	J3
CG-3855/VRC (3 FT, 0 IN)	P1	Antenna base (curbside)	J1	P2	Connector adapter	J4
CG-3855/VRC (9 FT, 0 IN)	P1	Connector adapter	J4	P2	RF amplifier	J1
CG-3855/VRC (7 FT, 0 IN)	P1	Antenna base (roadside)	J1	P2	Connector adapter	J3
CG-3855/VRC (9 FT, 0 IN)	P1	Connector adapter	J3	P2	RF amplifier (MT-6353/VRC)	J1
Handset cable		Handset			Amplifier-adapter	J3
Speaker cable		LS-454/U speaker			Amplifier-adapter	J6
*CX-13303/VRC (4 FT, 6 IN)	P1	Mounting base	J2	P2	MT-6353/VRC mounting base	J1
*CX-13291/VRC (3FT, 0 IN)	P1	Amplifier-adapter	J11	P2	MT-6353/VRC mounting base	J3
*CG-3856/VRC (5 FT, 0 IN)	P1	MT-6353/VRC RF amplifier	J2	P2	RT "B"	J1
*CX-13292/VRC (8 FT, 0 IN)	P2	Mounting base	J4	P1	*LS-671/VRC loudspeaker	J1

* Not supplied in this MK.

APPENDIX A

REFERENCES

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



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PAGE NO	PARA GRAPH	FIGURE NO	TABLE NO	
2-25	2-28			<p>Recommend that the installation antenna alignment procedure be changed throughout to specify a 20 IFF antenna lag rather than 10.</p> <p>REASON: Experience has shown that with only a 10 lag, the antenna servo system is too sensitive to wind gusting in excess of 25 knots, and has a tendency to rapidly accelerate and decelerate as it hunts, causing strain to the drive train. Hunting is minimized by adjusting the lag to 20 without degradation of operation.</p>
3-10	3-3		3-1	<p>Item 5, Functional column. Change • 2 dB" to • 3 dB".</p> <p>REASON: The adjustment procedure for the TRANS POWER FAULT indicator calls for a 3 dB (500 watts) adjustment to light the TRANS POWER FAULT indicator.</p>
5-6	5-8			<p>Add new step f.1 to read, • Replace cover plate removed in step f.1, above."</p> <p>REASON: To replace the cover plate.</p>
		FO-3		<p>Zone C 3. On J1-2, change • +24 VDC" to • +5 VDC".</p> <p>REASON: This is the output line of the 5 VDC power supply. +24 VDC is the input voltage.</p>

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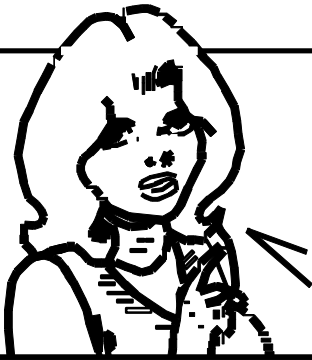
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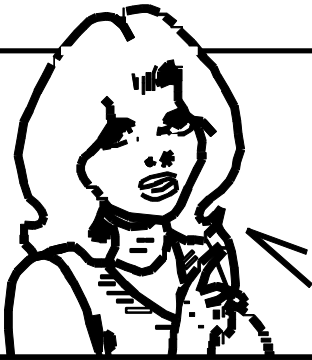
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