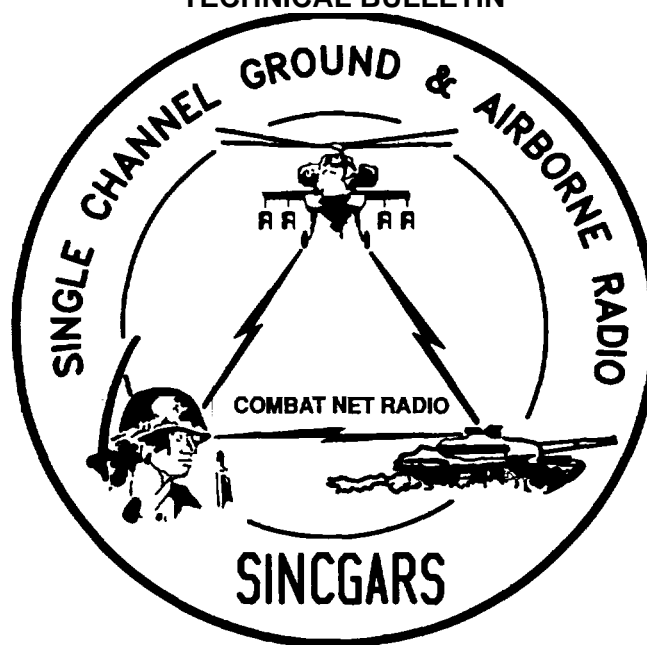


TECHNICAL BULLETIN



INSTALLATION INSTRUCTIONS FOR
INSTALLATION KIT,
ELECTRONIC EQUIPMENT MK-2368NRC
(NSN 5895-01-218-5267) (EIC: N/A)
TO PERMIT INSTALLATION OF RADIO SET
ANNRC-89/91/92 SERIES
INTO
TANK, COMBAT, FULL TRACKED: 105MM GUN,
M60A1 /A3

Approved for public release; distribution is unlimited.

HEADQUARTERS, DEPARTMENT OF THE ARMY
1 SEPTEMBER 1993

**INSTALLATION INSTRUCTIONS FOR
 INSTALLATION KIT,
 ELECTRONIC EQUIPMENT MK-2368NRC
 (NSN 5895-01-2185267) (EIC: N/A)
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 INTO
 TANK, COMBAT, FULL TRACKED: 105 MM GUN,
 M60 A1/A3**

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-LM-LT, 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-2368NRC, commonly referred to as the Mounting Kit (MK). The MK shall be installed into the following type of vehicle(s):

- Tank, Combat, Full Tracked: 105 MM Gun, M60 A1/A3

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 *ANNRC-89/91/92* Series are:

- Radio Set *ANNRC-89/91/92* (for RT-1439NRC)
- Radio Set *ANNRC-89A/91A/92A* (for RT-1523©/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-2368NRC (MK) contains the items needed to mount Radio Set ANNRC-89A/91A/ 92A in a Tank, Combat, Full Tracked: 105 MM Gun, M60 A1/A3 (vehicle). If Radio Set ANNRC-89/91/92 is to be installed, communications security equipment (TSEC/KY-57) will need to be installed also; see section 5.5 for information. If Radio Set ANNRC-92 orANNRC-92A is authorized, see section 5.6for instructions to install MT-6353NRC mounting base.

2. END ITEM OR SYSTEM TO BE MODIFIED.

Not applicable.

3. APPLICATION TIMES.

3.1 Time for Completion of Installation. Using one person, a total of 4.5 work hours is required. Typical vehicle downtime is 4.5 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-3900NRC | 5.1 | 0.5 |
| Mounting Base, Electrical Equipment MT-635/VRC | 5.2 | 0.5 |
| Cables | 5.4 | 1.0 |

4. PREPARATION FOR INSTALLATION.

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

4.1 Preparation of Vehicle. To prepare the vehicle for installation, insure that the site includes adequate lighting and a power source when drilling is required. Inspect the vehicle for damage that could affect installation. Have any such damage repaired before installing MK.

4.1.1 Items to be Removed. Remove existing ANNRC-12 radio family installation kit/harness. See TM 11-820-401-20-2 for removing items used with intercom systems, or TM 11-5820-401-20-1 (used without intercom systems),TM 9-2350-257-20 and TM 9-2350-253-20.

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. Multi-service: Instructions shall be included for multi-service modifications.
- d. MAP/MAS Countries: Instructions shall be provided for MAP/MAS countries.

Table 4-1. MK Parts List for Installation of Radio Set ANIVRC-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 (Not Used) | 8 | PAOZZA | |
| 5310-00-061-1258 | Washer, Lock, Internal/External-Toothed (3/8 in) MS45904-76 (8 Not Used) | 16 | PAOZZA | |
| 5310-00-889-2527 | Washer, Lock, Internal/External-Toothed (5/16 in) MS45904-72 (Not Used) | 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) | 2 | PAOFDA | 4-1, 3 |
| 5306-00-225-9089 | Bolt, Machine (5/16-24 x 1 in) MS90726-34 | 4 | PAOZZA | |
| 5310-00-407-9566 | Washer, Lock (5/16 in) MS35338-45 | 4 | PAOZZA | |
| 5310-00-081-4219 | Washer, Flat (5/16 in) MS27183-12 | 8 | PAOZZA | |
| 5310-00-880-7746 | Nut, Hexagon (5/16-24 in) MS51968-5 | 4 | PAOZZA | |
| 5305-00-068-0506 | Screw, Cap, Hexagon (1/4-28 x 3/4 in) (MS90726-6) | 4 | PAOZZA | |
| 5310-00-582-5965 | Washer, Lock (1/4 in) MS35338-44 | 4 | PAOZZA | |
| 5310-00-809-4058 | Washer, Flat (1/4 in) MS27183-10 | 4 | PAOZZA | |
| 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 | |
| 5995-01-219-1848 | Cable Assembly, Power, Electrical CX-13306/VRC (2 FT, 0 IN) (A3014043-1) | 1 | PAOZZA | 4-1, 5 |
| 5995-01-219-7030 | Cable Assembly, Radio Frequency CG-3855/VRC (7 FT, 0 IN) (A3014031-3) | 1 | PAOZZA | 4-1, 6 |
| 5995-01-219-7034 | Cable Assembly, Radio Frequency CG-3855/VRC (15 FT, 0 IN) (A3014031-7) | 1 | PAOZZA | 4-1, 6 |
| 5995-01-303-4951 | Cable Assembly, Special Purpose, Electrical CX-13313/VRC (2 FT, 7 IN) (A3018360-1) | 1 | PAOZZA | 4-1, 7 |
| 5995-01-219-2008 | Cable Assembly, Special Purpose, Electrical CX-13300/VRC (3 FT, 0 IN) (A3014044-2) | 2 | PAOZZA | 4-1, 8 |
| 5995-01-219-2009 | Cable Assembly, Special Purpose, Electrical CX-13290/VRC (9 FT, 0 IN) (A3014035-1) | 1 | PAOZZA | 4-1, 9 |
| 5995-01-218-6465 | Cable Assembly, Special Purpose, Electrical CX-13290/VRC (19 FT, 0 IN) (A3014035-3) | 1 | PAOZZA | 4-1, 9 |

Table 4-1. MK Parts List for Installation of Radio Set AN/VRC-89191/92 Series Continued

| NSN | ITEM DESCRIPTION AND PART NUMBER | QUANTITY IN MK | SMR CODE | FIGURE ITEM NO. |
|------------------|----------------------------------------------------------------|-------------------|-------------|--------------------|
| 5340-00-809-1490 | Clamp, Loop (1/4-1/4 in) MS21333-98 | 4 | PAOZZA | |
| 5340-00-984-8540 | Clamp, Loop (1/2-1/4 in) MS21333-102 | 2 | PAOZZA | |
| 5340-00-400-0002 | Clamp, Loop (1 1/4-1/4 in) MS9350-19 | 11 | PAOZZA | |
| 5340-00-809-1500 | Clamp, Loop (1-1/4 in) MS21333-107 | 9 | PAOZZA | |
| 5340-00-922-3382 | Clamp, Loop (1 3/4-1/4 in) MS9350-27 | 2 | PAOZZA | |
| 4020-01-341-8795 | Fiber Rope Assembly, Single Leg (A3167672-1) | 12 | PAOZZA | 4-1, 4 |
| 5305-00-068-0501 | Screw, Cap, Hexagon (1/4-20 x 5/8 in) MS90725-5 | 19 | PAOZZA | |
| 5305-00-068-0505 | Screw, Cap, Hexagon (1/4-28 x 5/8 in) MS90726-5 | 9 | 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 | 26 | PAOZZA | |
| 5310-00-889-2528 | Washer, Lock, Internal/External-Toothed (1/4 in) MS45904-68 | 4 | PAOZZA | |

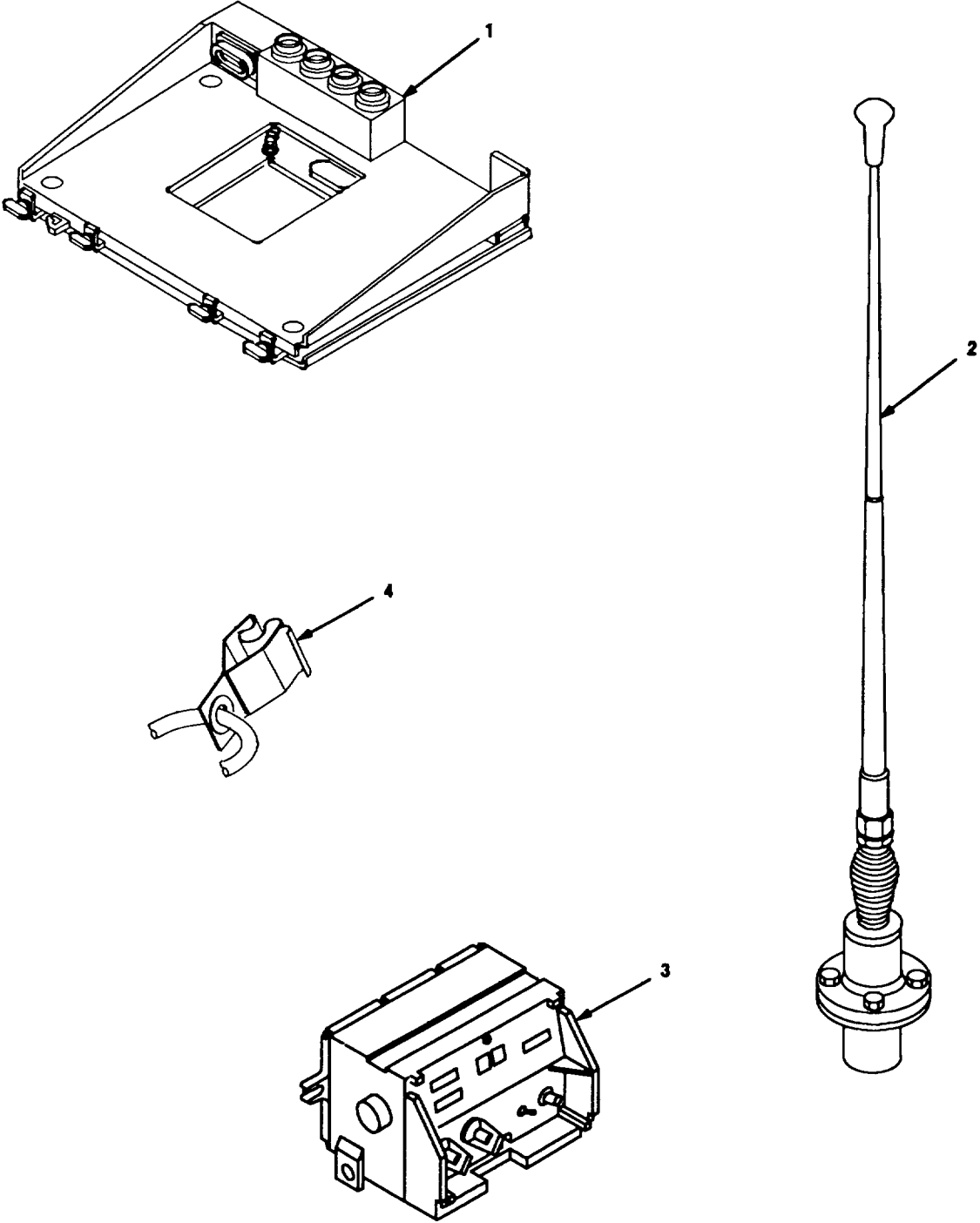


Figure 4-1(1). MK Illustrated Parts List

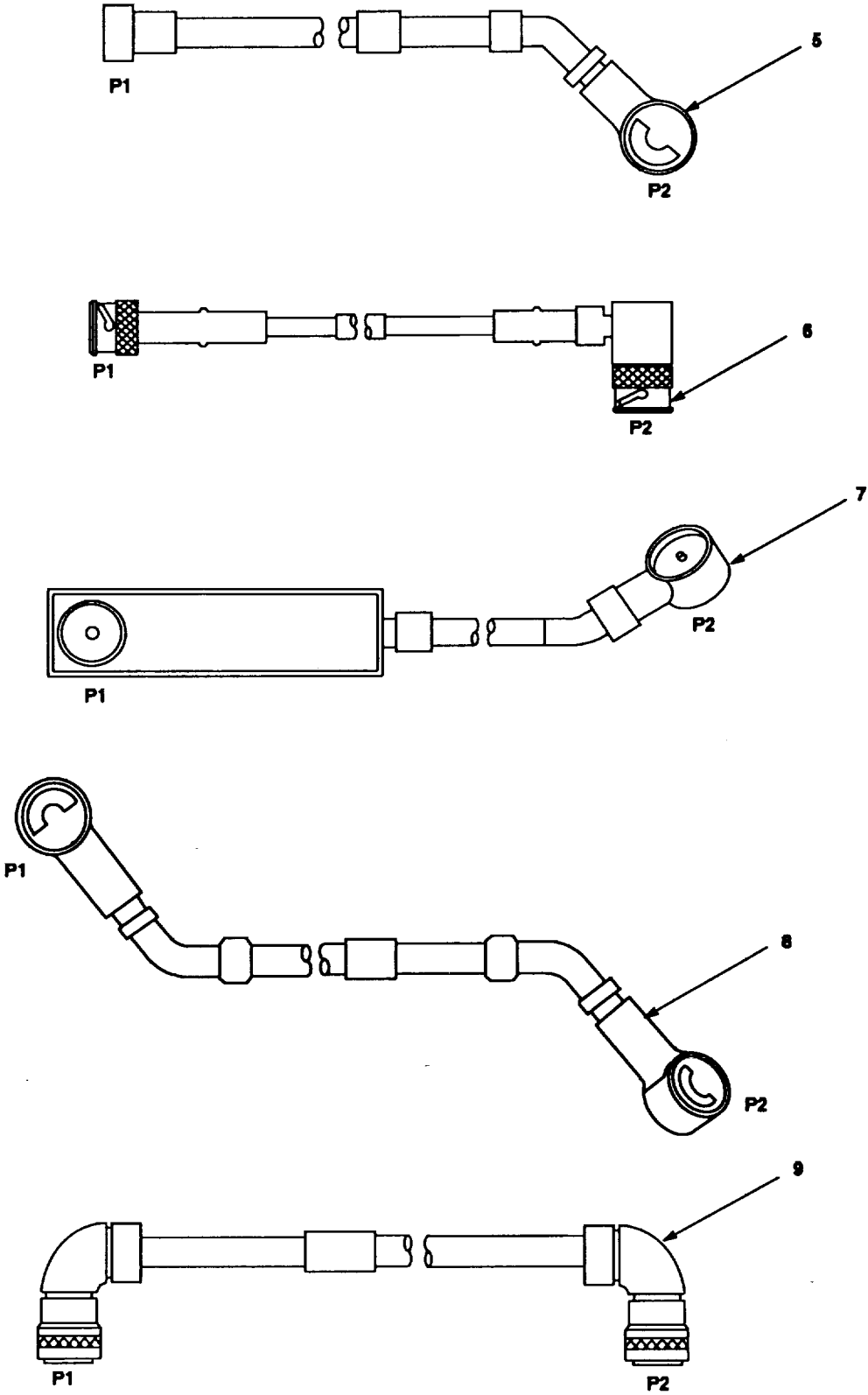


Figure 4-1 (2). MIK Illustrated Parts List

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 | 2 | PAOZZA | |
| | 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 |

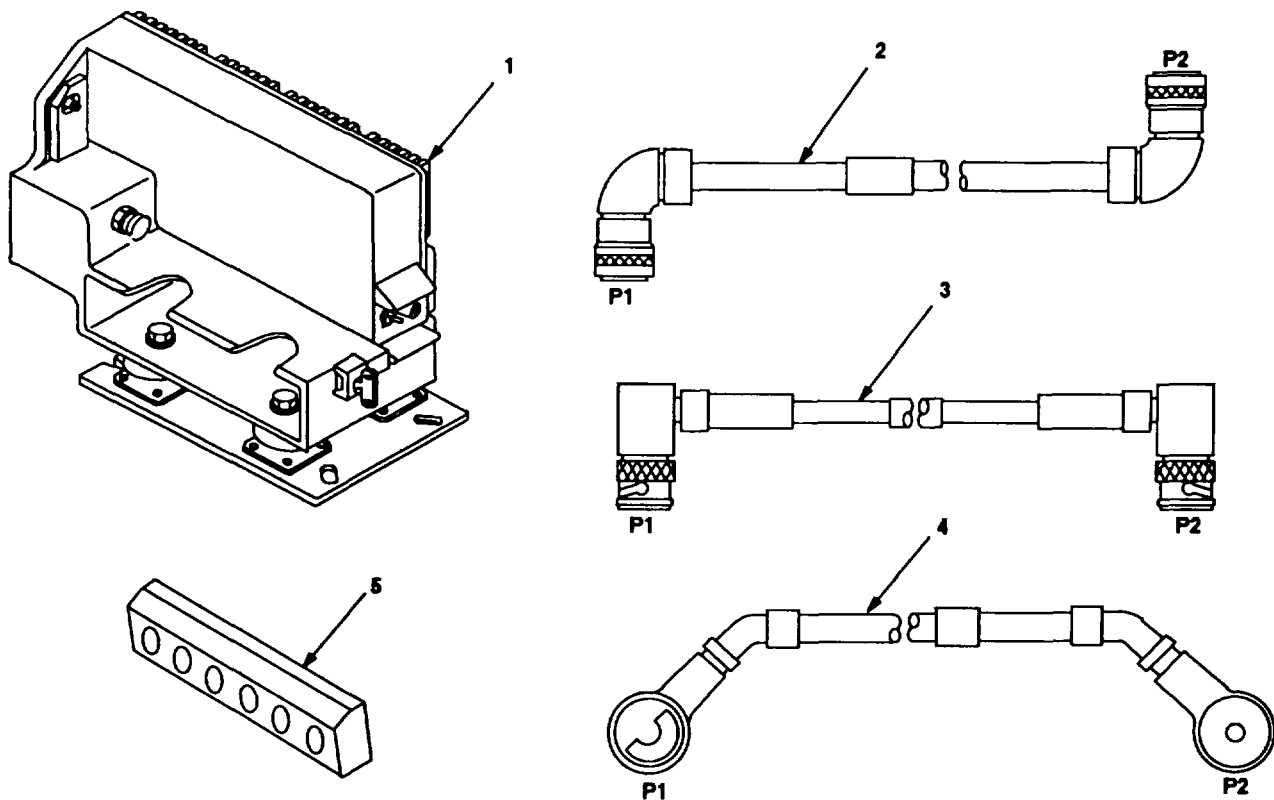


Figure 4-2. Illustrated Parts List for Table 4-2

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

| NSN | ITEM DESCRIPTION AND PART NUMBER | QUANTITY IN MK | 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 |

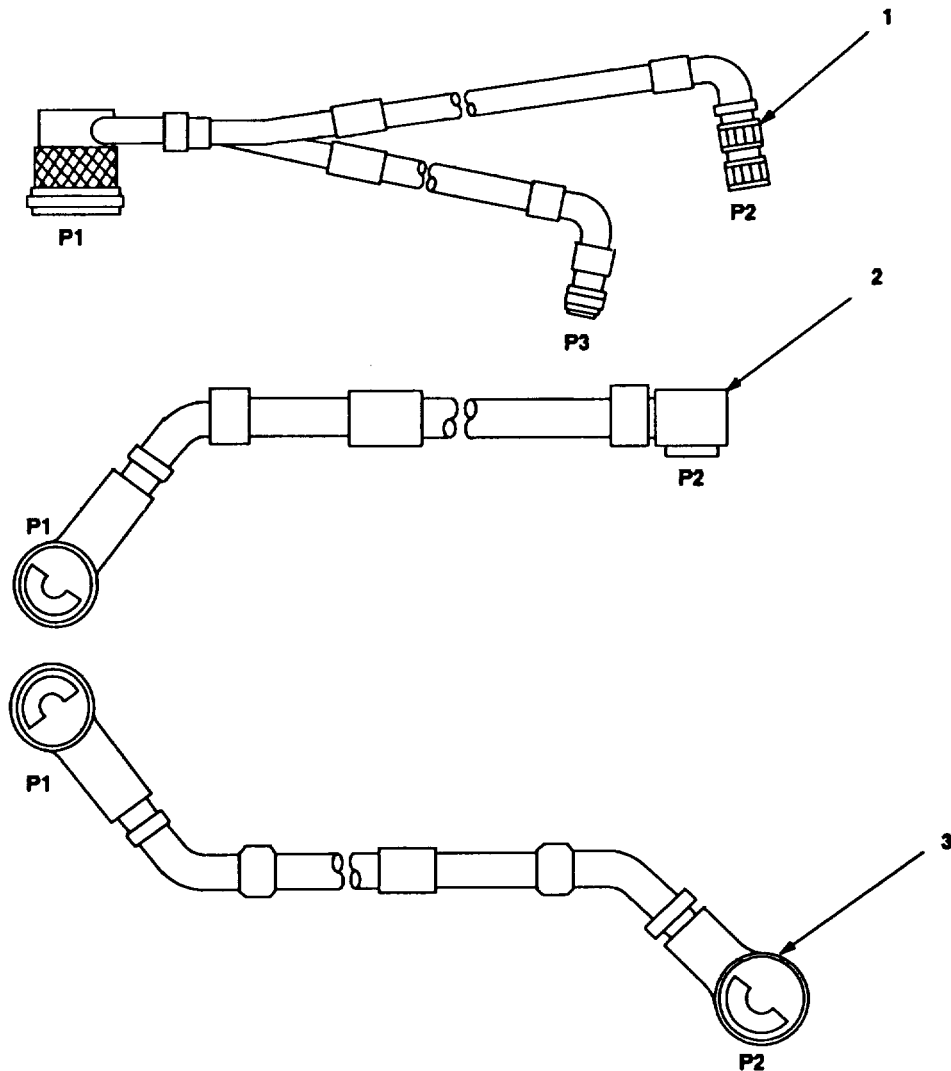


Figure 4-3. TSEC/KY Illustrated Parts List

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, ¼ 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 |
| ½ 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 |
| ½ in | 5120-00-237-0977 | 1 |
| 9/16 in | 5120-00-227-6704 | 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 5.5 for information. If Radio Set AN/VRC-92 or AN/VRC-92A is authorized, see section 5.6 for instructions to install MT-6353/VRC mounting base.

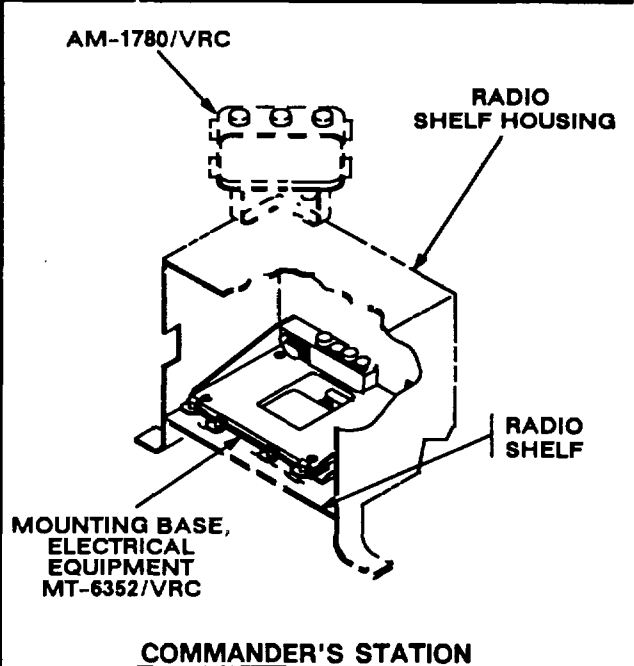
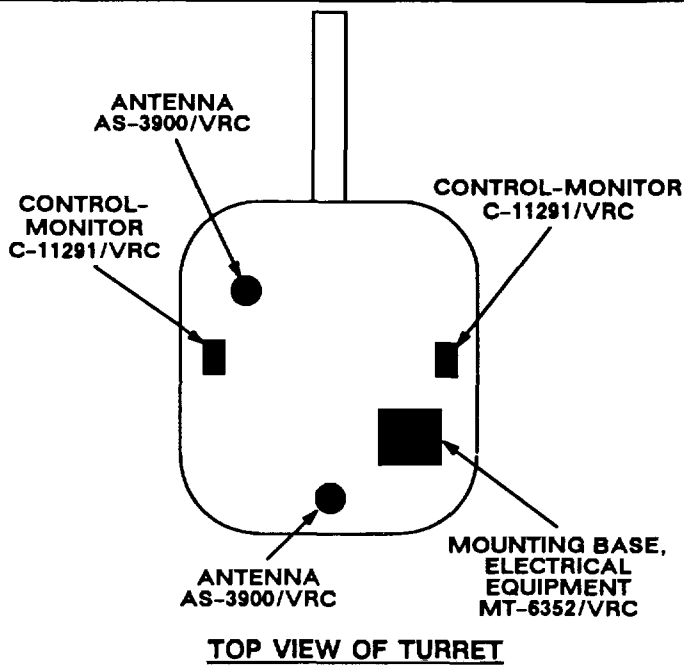
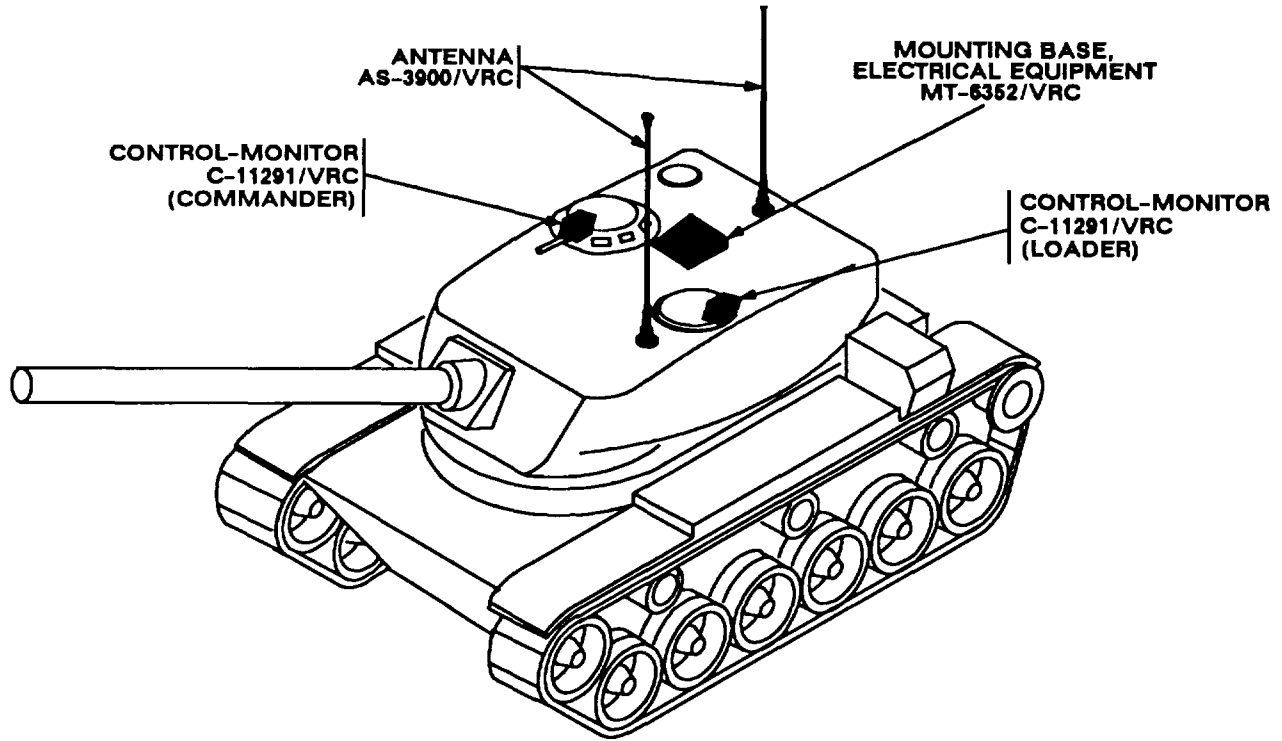
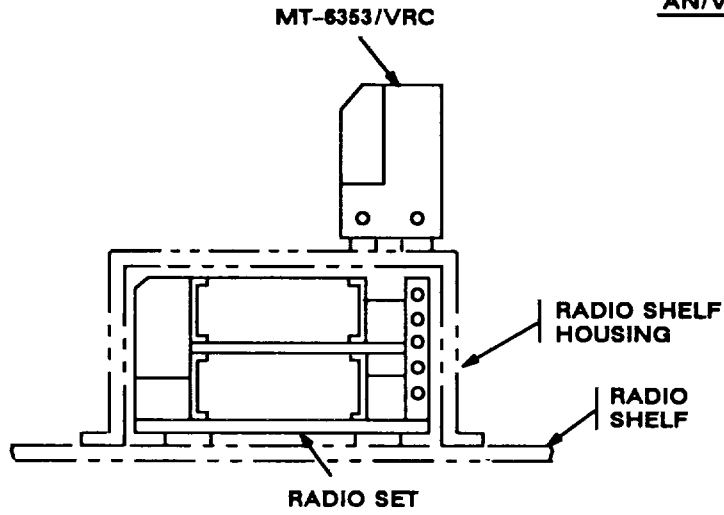


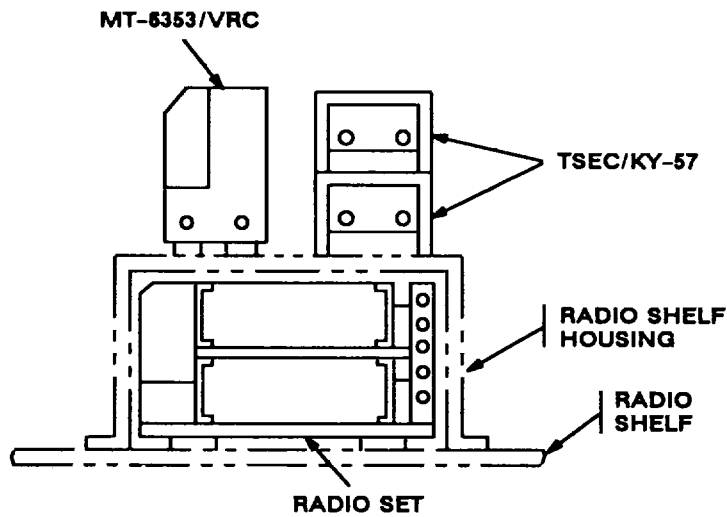
Figure 5-1(1). MK and Radio Installation: MK Equipment Location

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



COMMANDER'S STATION

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



COMMANDER'S STATION

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

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

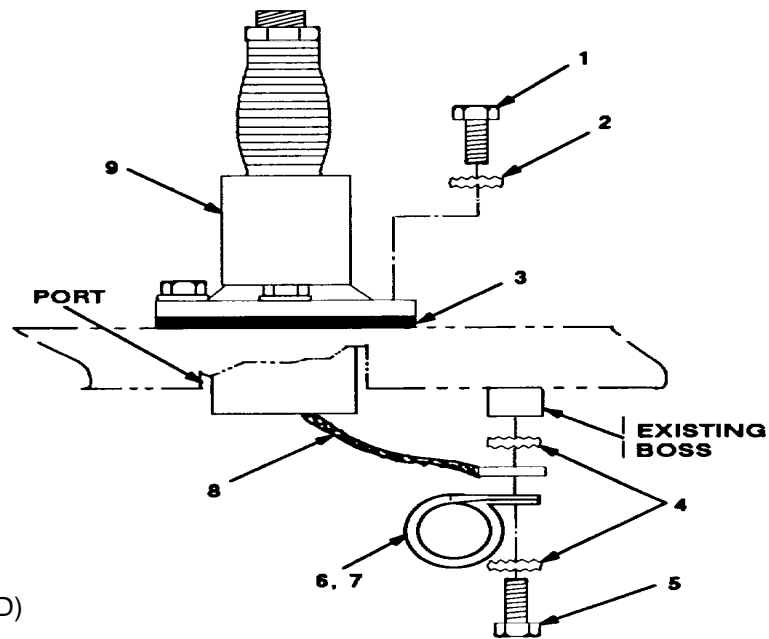
5.1.1 Installation of Antenna Base.

| ITEM | ACTION | REMARKS |
|------|--------|---------|
|------|--------|---------|

NOTE

Apply a thin coat of adhesive-sealant to both sides of each internal/external-toothed (IET) washer during installation, and to the area of contact where IET washer is to be placed.

- | | |
|------------------------------------|---------------------------------------------------------------------------------------------------------------|
| a. Existing port cover and gasket. | Remove. See figure 5-1 (1) for locations. |
| b. Gasket (3). | Apply a thin coat of silicone compound to both sides. Place on port and align mounting holes. See figure 5-2. |



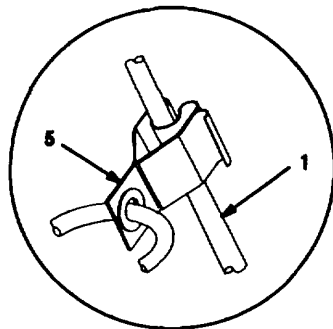
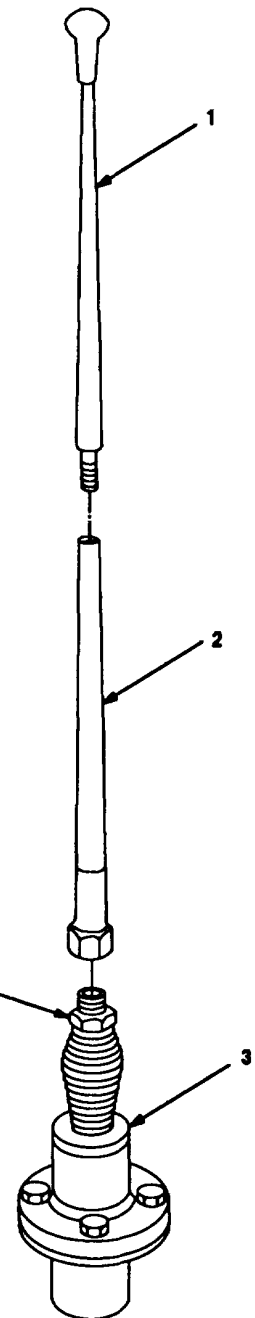
- 1. CAP SCREW (318-16 x 1 3/14 In)
- 2. IET WASHER (318 In)
- 3. GASKET
- 4. IET WASHER (1/4 In)
- 6. CAP SCREW (114-20 x 5/8 In)
- 6. LOOP CLAMP (1/4-114 In) (REAR)
- 7. LOOP CLAMP (1/2-1/4 in) (FORWARD)
- 8. GROUND STRAP
- 9. ANTENNA BASE

Figure 5-2. Antenna Base Installation: Forward and Rear Ports

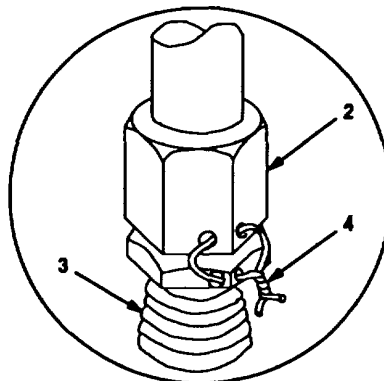
- | | | |
|---------------------------------------------------------------------------------------------|----------------------------------------------------------------|------------------------|
| c. Antenna base (9) then align mounting holes. | Place on top of gasket (3) and port; | |
| d. Four cap screws (1) and four internal/external-toothed (IET) washers (2). | Install and secure to antenna base (9) and port. | Tools: 9/16 in socket. |
| e. Ground strap (8), two IET washers (4), loop clamp (6 rear, 7 forward) and cap screw (5). | Install (without securing) to existing boss on turret ceiling. | Tools: 7/16 in socket. |

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-6352IVRC (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 (1) for location; then see figure 5-4 and perform the following steps.

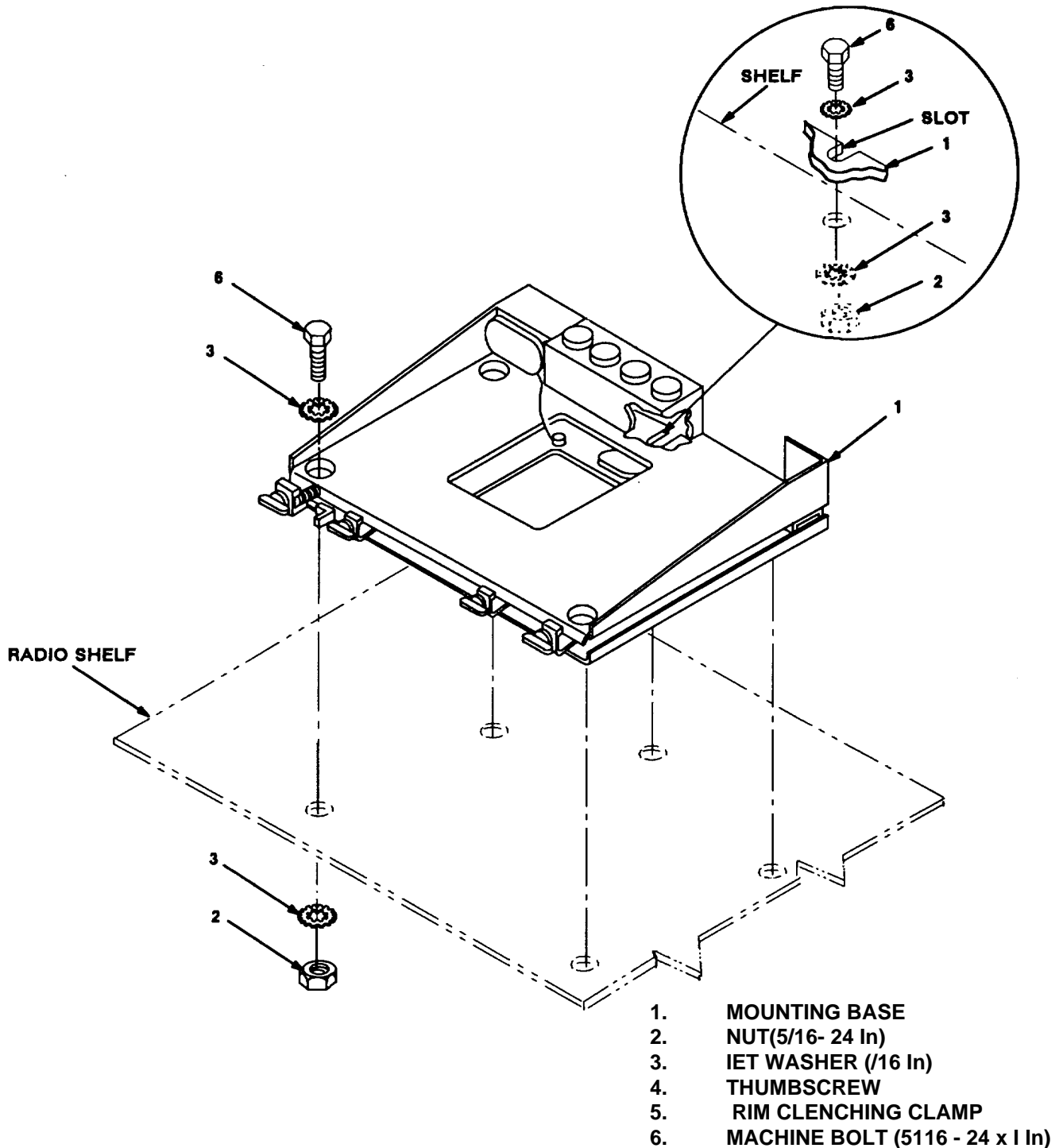


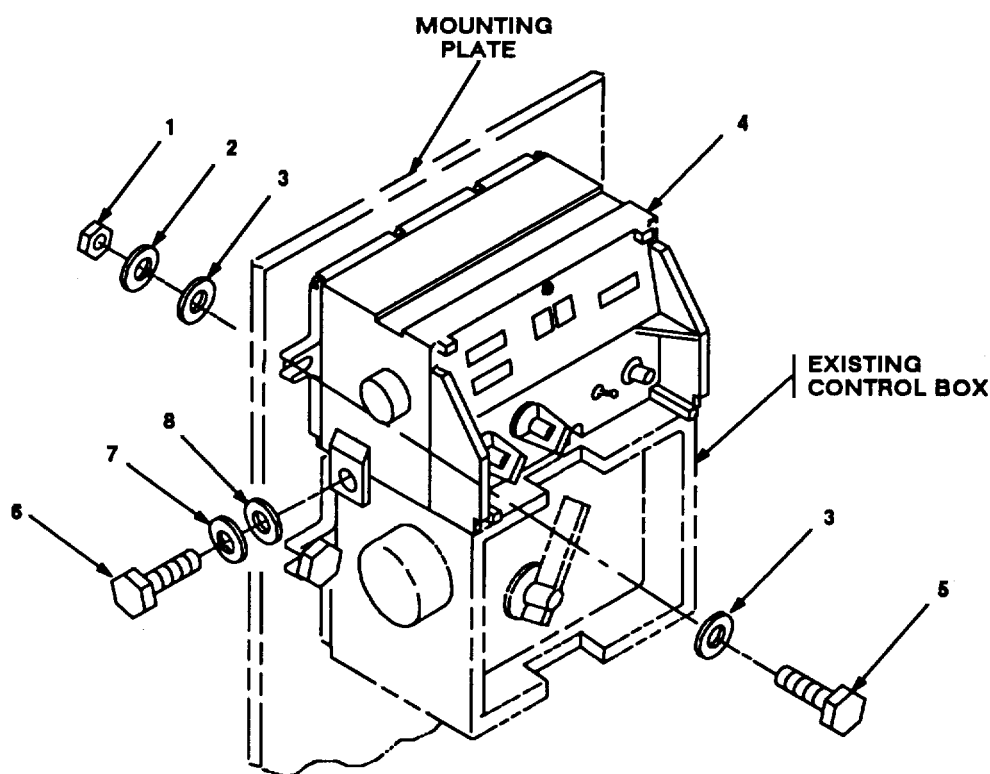
Figure 5-4. Mounting Base Installation: Radio Shelf Housing

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

| ITEM | ACTION | REMARKS |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|----------------------------------------------|
| NOTE | | |
| Apply a thin coat of adhesive-sealant to both sides of each internal/external-toothed (IET) washer during installation, and to the area of contact where IET washer is to be placed. | | |
| a. Drawer below radio shelf. | Temporarily remove. See figure 5-4. | |
| b. Mounting base (1). | Place on radio shelf over existing holes. | |
| 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 (2). | Install and tighten to mounting base (1) and shelf. | Tools: ½ in socket and ½ in open/box wrench. |
| f. Two outer thumbscrews (4). | Tighten and secure to rim clenching clamps (5) and mounting base (1). | |

5.3 Installation of Control-Monitor C-11291/VRC (control-monitor). Perform the following steps to Install both control-monitors. See figure 5-1 (1) for locations.

| ITEM | ACTION | REMARKS |
|--------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|----------------------------------------------|
| a. Control-monitor (4). | Place on top of existing control box and align mounting holes. See figure 5-5. | |
| b. Two cap screws (6), two lock washers (7) and two flat washers (8). | Install and secure to control-monitor (4) and control box. | Tools: 7/16 in socket. |
| c. Two hex-head machine bolts (5), four flat washers (3), two lock washers (2) and two nuts (1). | Install and secure to control-monitor (4) and mounting plate. | Tools: ½ in socket and ½ in open/box wrench. |



1. NUT (5/16-24 In)
2. LOCK WASHER (5/16 In)
3. FLAT WASHER (5/16 In)
4. CONTROL-MONITOR
5. MACHINE BOLT (5116 - 24 x 1 In)
6. CAP SCREW (114-28 x ¾ In)
7. LOCK WASHER (1/4 In)
8. FLAT WASHER (1/4 In)

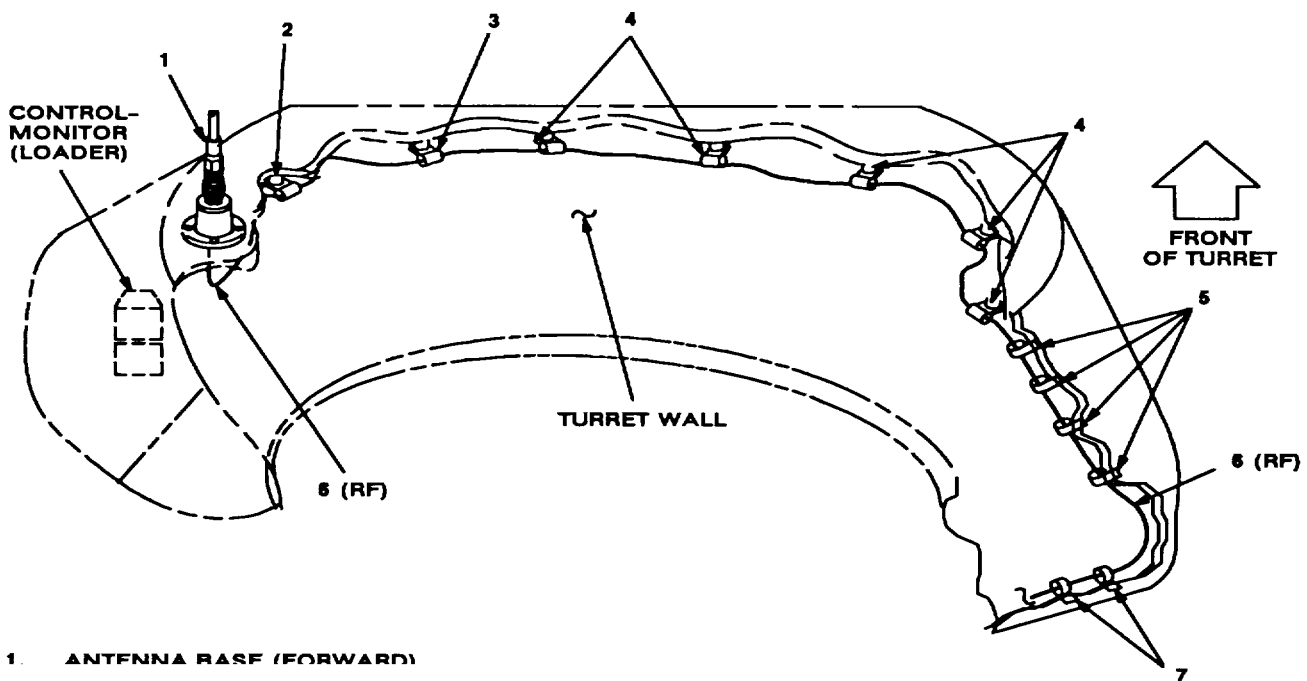
Figure 5-5. Control-Monitor Installation: Loader and Commander Stations

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

WARNING

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

| ITEM | ACTION | REMARKS |
|--------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|------------------------|
| a. RF cable (6) connector P1. | Connect and secure to antenna base (1) connector J1. See figure 5-6 (1). | |
| b. RF cable (6). | Route around turret wall near ceiling. | |
| c. Previously installed loop clamp (2), ground strap, and mounting hardware. location (s). | Remove; then wrap clamp around RF cable (6) and reinstall to existing boss on turret ceiling. See figure 5-6 (1) for location (s). | Tools: 7/16 in socket. |
| d. Loop clamp (3), cap screw (1/4-20 x 5/8 in) and lock washer (1/4 in). | Wrap clamp around RF cable (6); then install to existing boss on turret ceiling. | Tools: 7/16 in socket. |



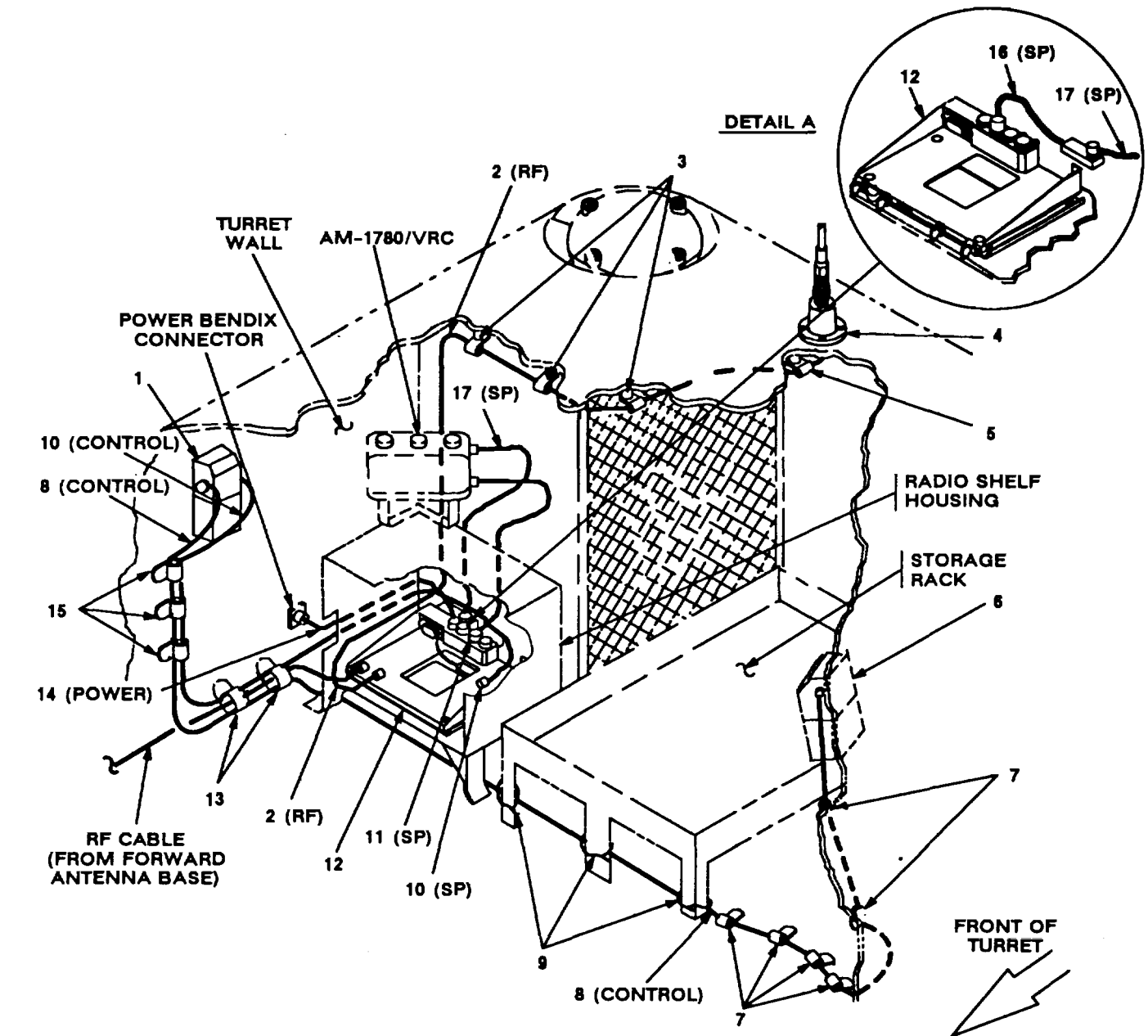
- 1. ANTENNA BASE (FORWARD)**
- | | |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>1. ANTENNA BASE (FORWARD)</p> <p>2. LOOP CLAMP (112-114 In)</p> <p>3. LOOP CLAMP (1/2-1/4 In) CAP SCREW (1/4-20 x 5/8 In) LOCK WASHER (1/4 In)</p> <p>4. LOOP CLAMP (1 1/4-114 In) CAP SCREW (1/4-20 x 5/8 In) LOCK WASHER (1/4 In)</p> | <p>5. LOOP CLAMP (1 1/4-1/4 In) CAP SCREW (1/4-20 x 5/8 In) LOCK WASHER (114 In)</p> <p>6.. RF CABLE, CG-3855/VRC (15 FT, 0 I)</p> <p>7. LOOP CLAMP (1 3/4-114 In) CAP SCREW (1/4-20 x 5/8 In) LOCK WASHER (114 In)</p> |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Figure 5-6(1). Cable Installation: RF cabling (Forward Antenna Base)

5.4 Installation of Cables. Continued

| ITEM | ACTION | REMARKS |
|------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|------------------------|
| e. Five loop clamps (4), five cap screws (1/4-20 x 5/8 in) and five lock washers (1/4 in). | Wrap clamps around RF cable (6); then install to existing bosses on turret ceiling See figure 5-6 (1) for location(s). | Tools: 7/16 in socket. |
| f. Four loop clamps (5), four cap screws (1/4-20 x 5/8 in) and four lock washers (1/4 in). | Wrap clamps around RF cable (6); then install to existing bosses on turret wall. | Tools: 7/16 in socket. |
| g. Two loop clamps (7), two cap screws (1/4-20 x 5/8 in) and two lock washers (1/4 in). | Wrap clamps around RF cable (6); then install to existing bosses on turret wall. | Tools: 7/16 in socket. |
| h. RF cable (6) connector P2, figure 5-6 (1). | Position on top of mounting base (12), figure 5-6 (2). | |
| i. RF cable (2) connector P1. | Connect and secure to antenna base (4) connector J1. See figure 5-6 (2). | |
| j. RF cable (2). | Route along turret ceiling and behind radio shelf housing to rear of mounting base (12). | |
| k. Previously installed loop clamp (5), ground strap and mounting hardware. | Remove; then wrap clamp around RF cable (2) and reinstall to existing boss on turret ceiling. See figure 5-6 (2) for location (s). | |
| l. Three loop clamps (3), three cap screws (1/4-20 x 5/8 in) and three lock washers (1/4 in). | Wrap clamps around RF cable (2); then install to existing bosses on turret ceiling. | Tools: 7/16 in socket. |
| m. RF cable (2). | Route between radio shelf housing and left side of mounting base (12). See figure 5-6 (2). | |
| n. RF cable (2) connector P2. | Position on top of mounting base (12). | |
| o. Control cable (10) connector P2. | Connect and secure to control-monitor (1) connector J1. | |
| p. Control cable (10). | Route down turret wall and along outer left side of radio shelf housing to rear of mounting base (12). | |
| q. Control cable (10) connector P1. | Position on top of mounting base (12). | |
| r. Control cable (8) connector P1. | Connect and secure to control-monitor (1) connector J3. | |
| s. Control cable (8). | Route down turret wall and behind front legs of radio shelf housing and storage rack to opposite side of turret. | |
| t. Three loop clamps (15), three cap screws (1/4-28 x 5/8 in) and three lock washers (1/4 in). | Wrap clamps around two control cables (8, 10); then install to existing bosses on turret wall. See figure 5-6 (2) for location(s). | Tools: 7/16 in socket. |

5.4 Installation of Cables. Continued



- | | |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>1. CONTROL-MONITOR (COMMANDER) 2. RF CABLE, CG-38551/VRC (7 FT, 0 IN) 3. LOOP CLAMP (1/4-1/4 In) CAP SCREW (114-20 x 5/8 In) LOCK WASHER (114 In) 4. ANTENNA BASE (REAR) 5. LOOP CLAMP (1/4-1/4 In) 6. CONTROL-MONITOR (LOADER) 7. LOOP CLAMP (1-1/4 In) CAP SCREW (114-28 x 5/8 In) LOCK WASHER (114 In) 8. CONTROL CABLE, CX-13290/VRC (19 FT, 0 IN) 9. TIEDOWN STRAP 10. CONTROL CABLE, CX-13290/VRC (9 FT, 0 IN)</p> | <p>11. SP CABLE, CX-13300/VRC (3 FT, 0 IN) 12. MOUNTING BASE 13. LOOP CLAMP (1 1/4-1/4 In) CAP SCREW (114-20 x 5/8 In) rJ LOCK WASHER (1/4 In) 14. POWER CABLE, CX-13306/VRC (2 FT, 0 IN) 15. LOOP CLAMP (1-1/4 In) CAP SCREW (1/4-28 x 5/8 In) LOCK WASHER (1/4 In) 16. SP CABLE, CX-13313/VRC (2 FT, 7 IN) 17. SP CABLE, CX-13300/VRC (3 FT, 0 IN)</p> |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

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

5.4 Installation of Cables. Continued

| ITEM | ACTION | REMARKS |
|------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|
| u. Two loop clamps (13), two cap screws (1/4-20 x 5/8 in) and two lock washers (1/4 in). | Wrap clamps around RF cable (6), figure 5-6 (1), and two control cables (8, 10); then install to existing bosses on turret wall. See figure 5-6 (2) for location(s). | Tools: 7/16 in socket. |
| v. Control cable (8) connector P2. | Connect and secure to control-monitor (6) connector J3. See figure 5-6 (2). | |
| w. Six loop clamps (7), six cap screws (1/4-28 x 5/8 in) and six lock washers (1/4 in). | Wrap clamps around cable (8); then install to existing bosses on turret wall. See figure 5-6 (2) for location(s). | Tools: 7/16 in socket. |
| x. Three tiedown straps (9). | Install loosely around control cable (8) and front legs of storage rack. | |
| y. SP cable (11) connector P1. | Connect and secure to AM-1780/VRC connector J503. See figure 5-6 (2). | |
| z. SP cable (11). | Route down and behind radio shelf housing to rear of mounting base (12). | |
| aa. SP cable (11) connector P2. | Connect and secure to mounting base (12) connector J4. | |
| ab. SP cable (17) connector P1. | Connect and secure to AM-1780/VRC connector J501. See figure 5-6 (2) and figure 5-6 (2), detail A. | |
| ac. SP cable (17). | Route down and behind radio shelf housing to rear of mounting base (12). See figure 5-6 (2). | |
| ad. SP cable (17) connector P2. | Connect and secure to SP cable (16) connector P1. See figure 5-6 (2), detail A. | |
| ae. SP cable (16) connector P2. | Connect and secure to mounting base connector J3. | |
| af. Power cable (14) connector P1. | Connect and secure to power Bendix connector on turret wall. See figure 5-6 (2). | |
| ag. Power cable (14). | Route between radio shelf housing and left side of mounting base (12). | |
| ah. Power cable (14) connector P2. | Connect and secure to mounting base (12) connector J1. | |
| ai. Drawer removed in section 5-2, step a. | Reinstall below radio shelf housing. | |

5.5 Installation of MK-24991VRC. 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 5-7 for connection of cables.

5.6 **Installation of Mounting Base, Electrical Equipment MT-6353VRC.** 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 5.7 for connection of cables.

| ITEM | ACTION | EMARKS |
|------|--------|--------|
|------|--------|--------|

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 housing over existing holes. See figure 5-7. |
|-----------------------------------|-------------------------------------------------------------------|

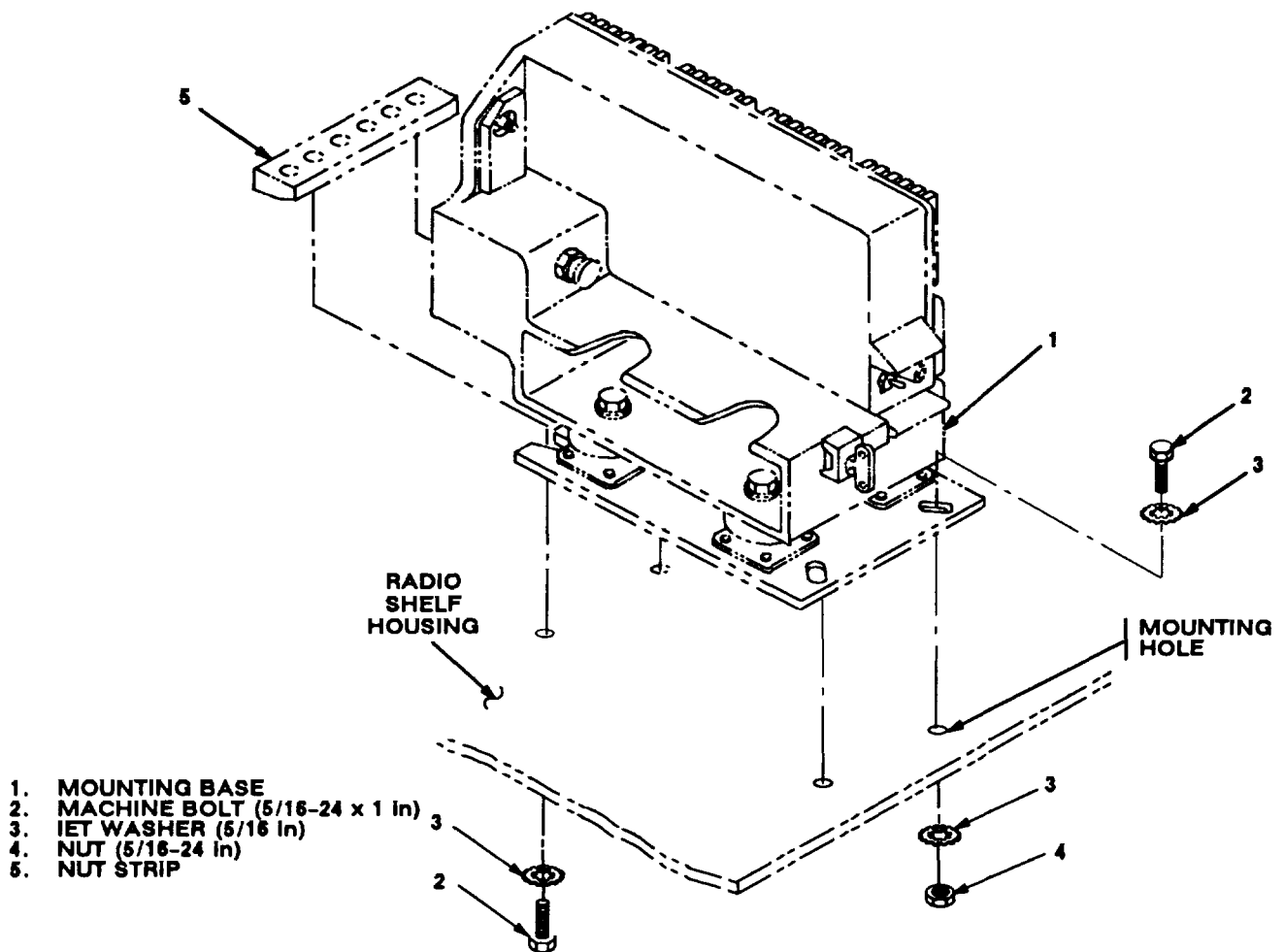


Figure 5-7. MT-6353/VRC Mounting Base Insallation

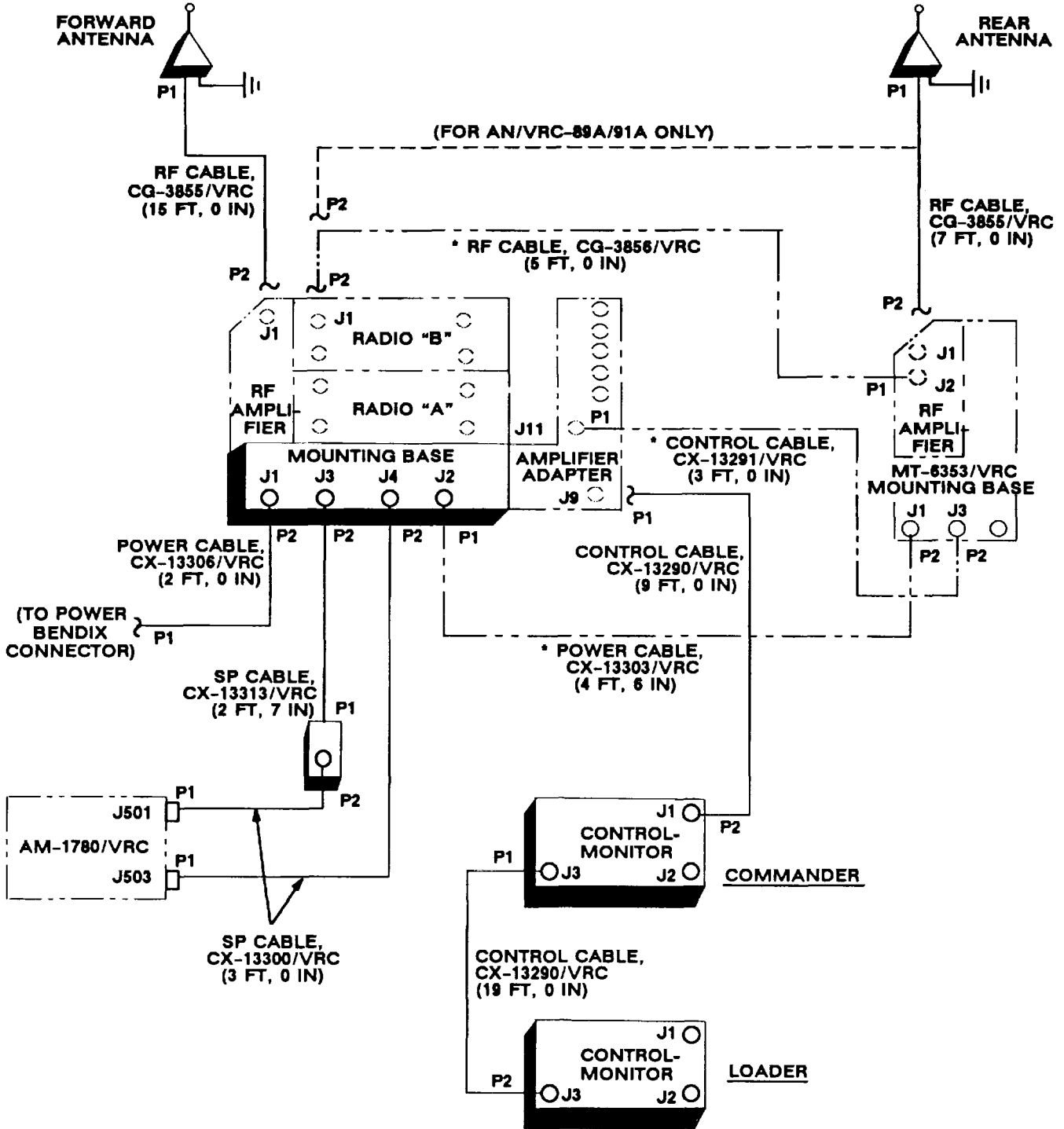
5.6 Installation of Mounting Base, Electrical Equipment MT-6353NRC. Continued

| ITEM | ACTION | REMARKS |
|---------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|----------------------------------------------|
| NOTE | | |
| Before proceeding, connect and secure CX-13291NRC control cable and CX-13303NRC power cable to MT-353NRC mounting base. (Refer to section 5.7, step b.) | | |
| b. MT-6353NRC mounting base (1). | Align front holes and rear slots with matching hole pattern in radio shelf housing. See figure 5-7. | |
| c. Two machine bolts (2), two IET washers (3) and nut strip (5). | Install and secure to rear slots in MT-353NRC mounting base (1) and radio shelf housing. | Tools: ½ in socket. |
| d. Two machine bolts (2), four IET washers (3) and two nuts (4). | Install and secure to front two holes in MT-353NRC mounting base and radio shelf housing. | Tools: ½ in socket and ½ in open/box wrench. |

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 5-8 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. | |

5.7 Post-Installation and Checkout. Continued



* NOT SUPPLIED IN THIS MK

Figure 5-8(1). Cable Diagram: For AN/VRC-89A/91A/92A

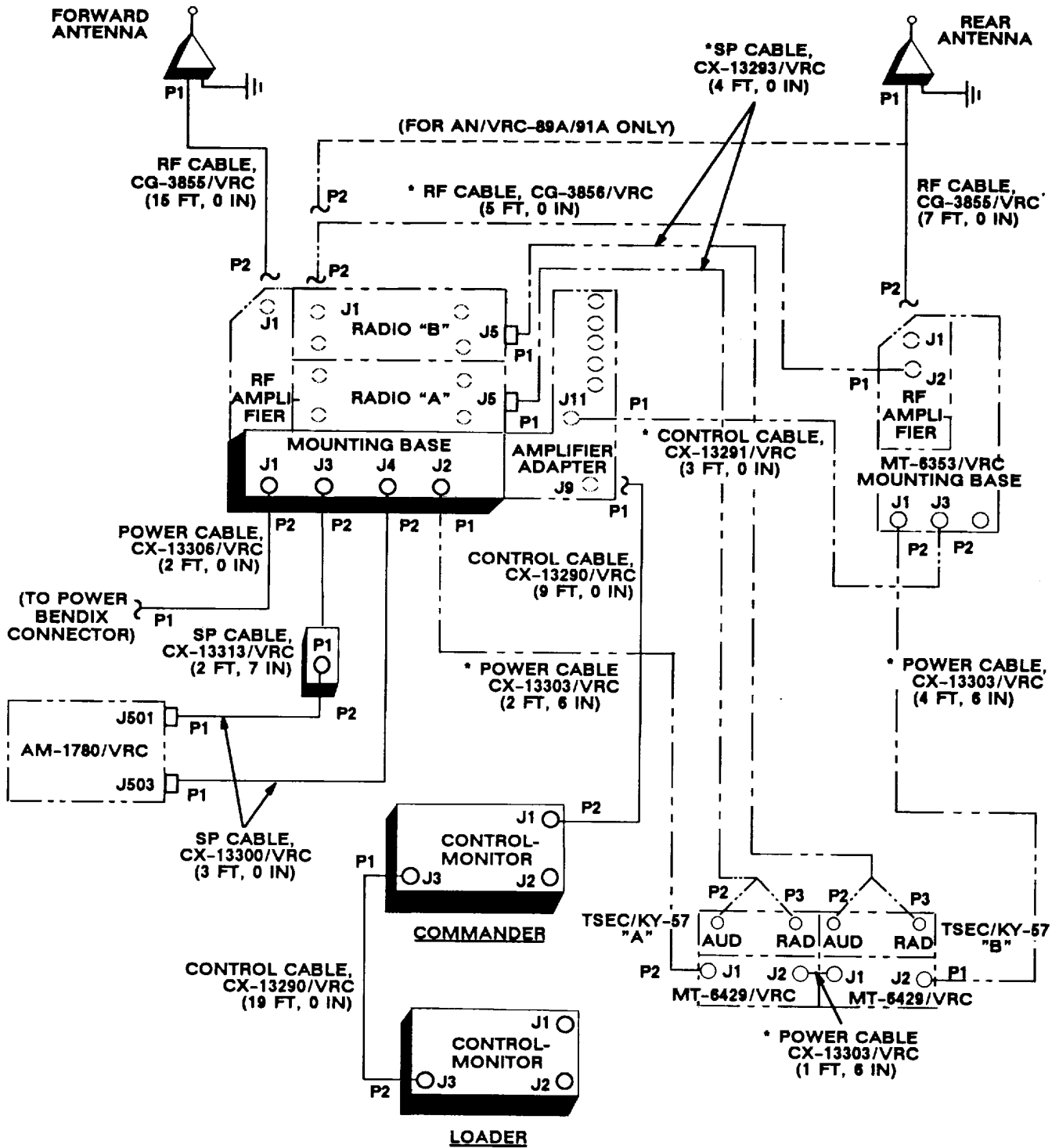
5.7 Post-Installation and Checkout. Continued

| CABLE ASSEMBLY | FROM | | | TO | | |
|--------------------------------|-------------|------------------------------|------------|-------|--------------------------------|------------|
| | CABLE CONN. | UNIT CONN. | UNIT CONN. | CABLE | UNIT | UNIT CONN. |
| CX-13306/VRC (2 FT, 0 IN) | P2 | Mounting base | J1 | P1 | Power Bendix connector | |
| CG-3856/VRC (5 FT, 0 IN) | P2 | Radio | J1 | P1 | MT-6353/VRC RF amplifier | J2 |
| CG-3855/VRC (7 FT, 0 IN) | P1 | Antenna base (rear) | J1 | P2 | RF amplifier or Radio "B" | J2 |
| CX-13313/VRC (2 FT, 7 IN) | P2 | Mounting base | J3 | P1 | CX-13300/VRC (3 FT, 0 IN) | P2 |
| CX-13300/VRC (3 FT, 0 IN) | P2 | Mounting base | J4 | P1 | AM-1780/VRC | J503 |
| CX-13300/VRC (3 FT, 0 IN) | P2 | CX-13313/VRC (2 FT, 7 IN) | P1 | P1 | AM-1780/VRC | J501 |
| CX-13303/VRC (4 FT, 6 IN) | P1 | Mounting base | J2 | P2 | MT-6353/VRC mounting base | J1 |
| CX-13291 I/VRC (3 FT, 0 IN) | P1 | Amplifier-adapter | J11 | P2 | MT-6353/VRC mounting base | J3 |
| CG-3855/VRC (15 FT, 0 IN) | P1 | Antenna base (forward) | J1 | P2 | RF amplifier | J1 |
| CX-13290/VRC (19 FT, 0 IN) | P2 | Control-monitor (loader) | J3 | P1 | Control-monitor (commander) | J3 |
| CX-13290/VRC (9 FT, 0 IN) | P1 | Amplifier-adapter | J9 | P2 | Control-monitor (commander) | J1 |

Not supplied in this MK.

Figure 5-8(1). Cable Diagram: For AN/VRX-89A/91A/92A Continued

5.7 Post-Installation and Checkout. Continued



* NOT SUPPLIED IN THIS MK

Figure 5-8(2). Cable Diagram: For AN/VRC-89/91-92

5.7 Post-Installation and Checkout. Continued

| CABLE ASSEMBLY | FROM | | | TO | | |
|--------------------------------|-------------|------------------------------|------------|----------|--------------------------------|------------|
| | CABLE CONN. | UNIT CONN. | UNIT CONN. | CABLE | UNIT | UNIT CONN. |
| CX-13306/VRC (2 FT, 0 IN) | P2 | Mounting base | J1 | P1 | Power Bendix connector | |
| CG-3856/VRC (5 FT, 0 IN) | P2 | Radio ^{***} | J1 | P1 | MT-6353/VRC RF amplifier | J2 |
| CG-3855/VRC (7 FT, 0 IN) | P1 | Antenna base (rear) | J1 | P2 | RF amplifier or radio "B" | J2 |
| CX-13313/VRC (2 FT, 7 IN) | P2 | Mounting base | J3 | P1 | CX-13300/VRC (3 FT, 0 IN) | P2 |
| CX-13300/VRC (3 FT, 0 IN) | P2 | Mounting base | J4 | P1 | AM-1780/VRC | J503 |
| CX-13300/VRC (3 FT, 0 IN) | P2 | CX-13313/VRC (2 FT, 7 IN) | P1 | P1 | AM-1780/VRC | J501 |
| CX-13291/VRC (3 FT, 0 IN) | P1 | Amplifier-adapter | J11 | P2 | MT-6353/VRC mounting base | J3 |
| CG-3855/VRC (15 FT, 0 IN) | P1 | Antenna base (forward) | J1 | P2 | RF amplifier | J1 |
| CX-1 3290/VRC (19 FT, 0 IN) | P2 | Control-monitor (loader) | J3 | P1 | Control-monitor (commander) | J3 |
| CX-13290/VRC (9 FT, 0 IN) | P1 | Amplifier-adapter | J9 | P2 | Control-monitor (commander) | J1 |
| CX-13303/VRC (2 FT, 6 IN) | P1 | Mounting base | J2 | P2 | MT-6429/VRC ^{"A"} | J1 |
| CX-13303/VRC (1 FT, 6 IN) | P1 | MT-6429/VRC ^{"A"} | J1 | P2 | MT-6429/VRC ^{"B"} | J2 |
| CX-13293/VRC (4 FT, 0 IN) | P1 | Radio ^{"A"} | J5 | P2 P3 | TSEC/KY-57 ^{"A"} | AUD RAD |
| CX-13293/VRC (4 FT, 0 IN) | P1 | Radio ^{"B"} | J5 | P2 P3 | TSEC/KY-57 ^{"B"} | AUD RAD |
| 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 5-8(2). Cable Diagram: For ANIVRC-89191192 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 (SINGARS) |
| TM 11-5820-890-1 0-1 | 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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TM 11-5820-890-20-49

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