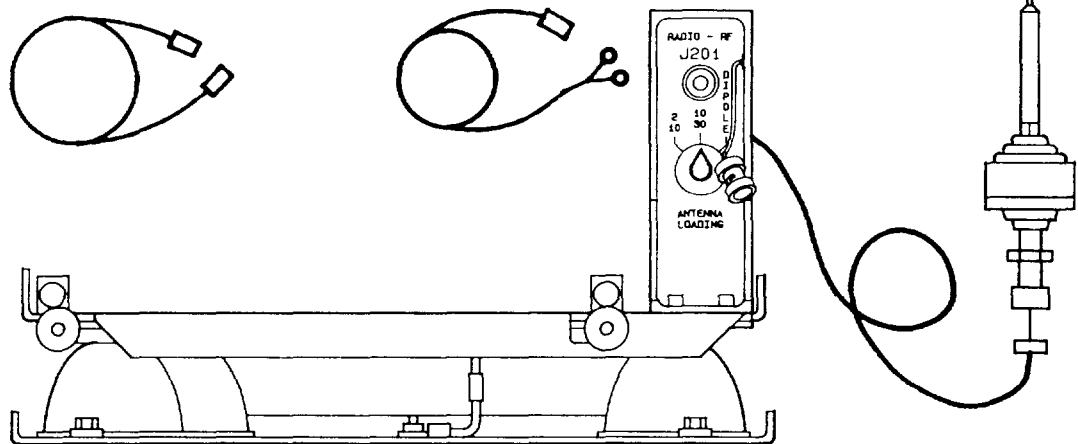


TECHNICAL MANUAL
OPERATOR'S, ORGANIZATIONAL, DIRECT SUPPORT,
AND GENERAL SUPPORT MAINTENANCE MANUAL
(INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST)

FOR

INSTALLATION KITS, ELECTRONIC EQUIPMENT:

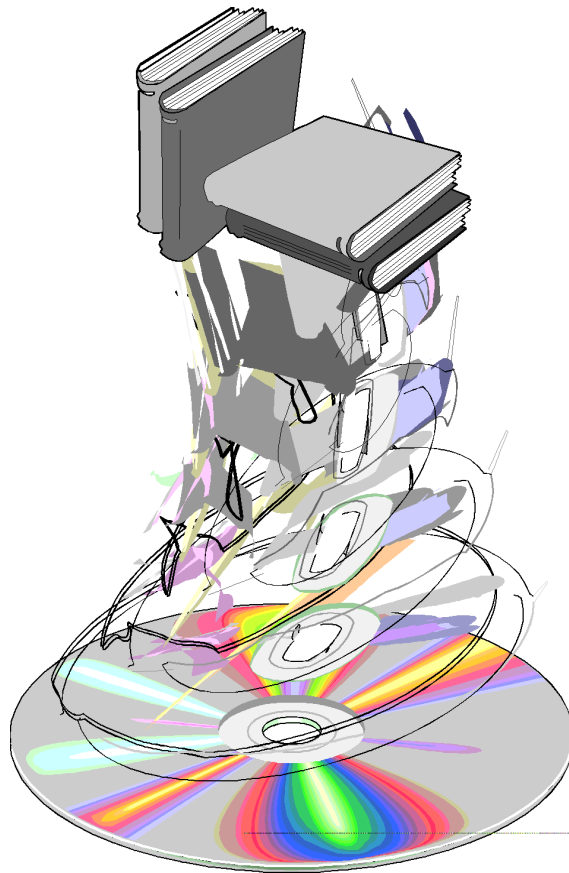
- MK-2442/GRC-213 FOR ARMORED PERSONNEL CARRIER-M113A1
(NSN 5820-01-189-9791)
- MK-2443/GRC-213 FOR UTILITY TRUCK-M151A1
(NSN 5820-01-189-9792)
- MK-2444/GRC-213 FOR CARGO TRUCK-M561
(NSN 5820-01-189-9788)
- MK-2445/GRC-213 FOR CARRIER COMMAND POST-M577A1
(NSN 5820-01-189-9793)
- MK-2446/GRC-213 FOR TRUCK-M882 OR -M1008A1 CUCV
(NSN 5820-01-189-9789)
- MK-2447/GRC-213 FOR GENERAL PURPOSE WHEELED OR TRACKED VEHICLES
(NSN 5820-01- 189-9790)



HEADQUARTERS, DEPARTMENT OF THE ARMY
1 JANUARY 1987

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CHANGE

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, DC, 1 July 1988

No. 1

**TECHNICAL MANUAL .
OPERATOR'S, UNIT, DIRECT SUPPORT
AND GENERAL SUPPORT MAINTENANCE MANUAL
(INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST)
INSTALLATION KITS, ELECTRICAL EQUIPMENT**

- MK-2442/GRC-213 FOR ARMORED PERSONNEL CARRIER-M113A1
(NSN 5820-01-189-9791)**
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- MK-2542/GRC-213 FOR CARGO/TROOP CARRIER M998/M1038 HMMWV
(NSN 5820-01-227-0528)**
- MK-2543/GRC-213 FOR M1009 CUCV
(NSN 5820-01-227-7088)**

TM 11-2300-476-14&P, 1 January 1987, is changed as follows:

1. The title of the manual is changed as shown above.
2. Remove old pages and insert new pages as indicated below. New or changed material is indicated by a vertical bar in the margin of the page. Added or revised illustrations are indicated by a vertical bar adjacent to the identification number.

<i>Remove pages</i>	<i>Insert pages</i>
A and B	A and B
i and ii	i and ii
2-1 and 2-2	2-1 and 2-2
2-9 and 2-10	2-9 and 2-10
None	2-14.1 through 2-14.4
2-77/(2-78 blank)	2-77 through 2-88

3. File this change sheet in the front of the publication for reference purposes.

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Chief of Staff

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The Adjutant General

Distribution:

To be distributed in accordance with special list.

WARNINGS AND FIRST AID DATA

WARNING

DANGEROUS VOLTAGES EXIST IN POWER LINES

Do not allow antenna to touch power lines. Tie antenna down before moving vehicle.

When vehicle is in motion, do not allow anyone to stick an arm, leg, or weapon over the sides of the vehicle. If the antenna accidentally touches a power line and a leg, arm, or weapon touches a damp bush or the ground, a serious or fatal accident can happen.

For first aid, refer to FM 21-11.

WARNING

OPERATION DURING ELECTRICAL STORMS

Operation in a storm where electrical activity is possible may be dangerous to the operator or passengers of the vehicle.

For first aid, refer to FM 21-11.

WARNING

WORK AREA CHEMICAL AND FIRE HAZARDS

When using solvents, provide proper ventilation and avoid contact with skin. Do not smoke. Solvents must meet all specifications for flammability and allergic and poisonous effects. Make certain that maintenance work area is free from open flame and sparks.

For first aid, refer to FM 21-11.

WARNING

DRILLING

Drilling operations create metal chips which may enter the eyes and cause serious injury. Eye protection is required.

WARNINGS AND FIRST AID DATA (cont)

WARNING

COMPRESSED AIR

When using a compressed airjet, use eyeshields.

WARNING

RF VOLTAGES

Dangerous rf voltages exist around antennas and antenna terminals during transmission. Protect yourself by knowing the safety procedures in TB SIG 291.

WARNING

RF RADIATION HAZARD

During 100 watt (power output) operation, personnel must remain 15-20 cm (6 inches) from the antenna. During 400 watt operation, the minimum safe distance from the antenna is 1 meter (3 feet).

TECHNICAL MANUAL

No. 11-2300-476-14&P

**HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, DC, 1 January 1987**

Operator's, Organizational, Direct Support and General
Support Maintenance Manual (Including
Repair Parts and Special Tools List)
INSTALLATION KITS, ELECTRICAL EQUIPMENT

MK-2442/GRC-213 FOR ARMORED PERSONNEL CARRIER-M113A1
(NSN 5820-01-189-9791)

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MK-2543/GRC-213 FOR M1009 CUCV
(NSN 5820-01-227-7088)

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

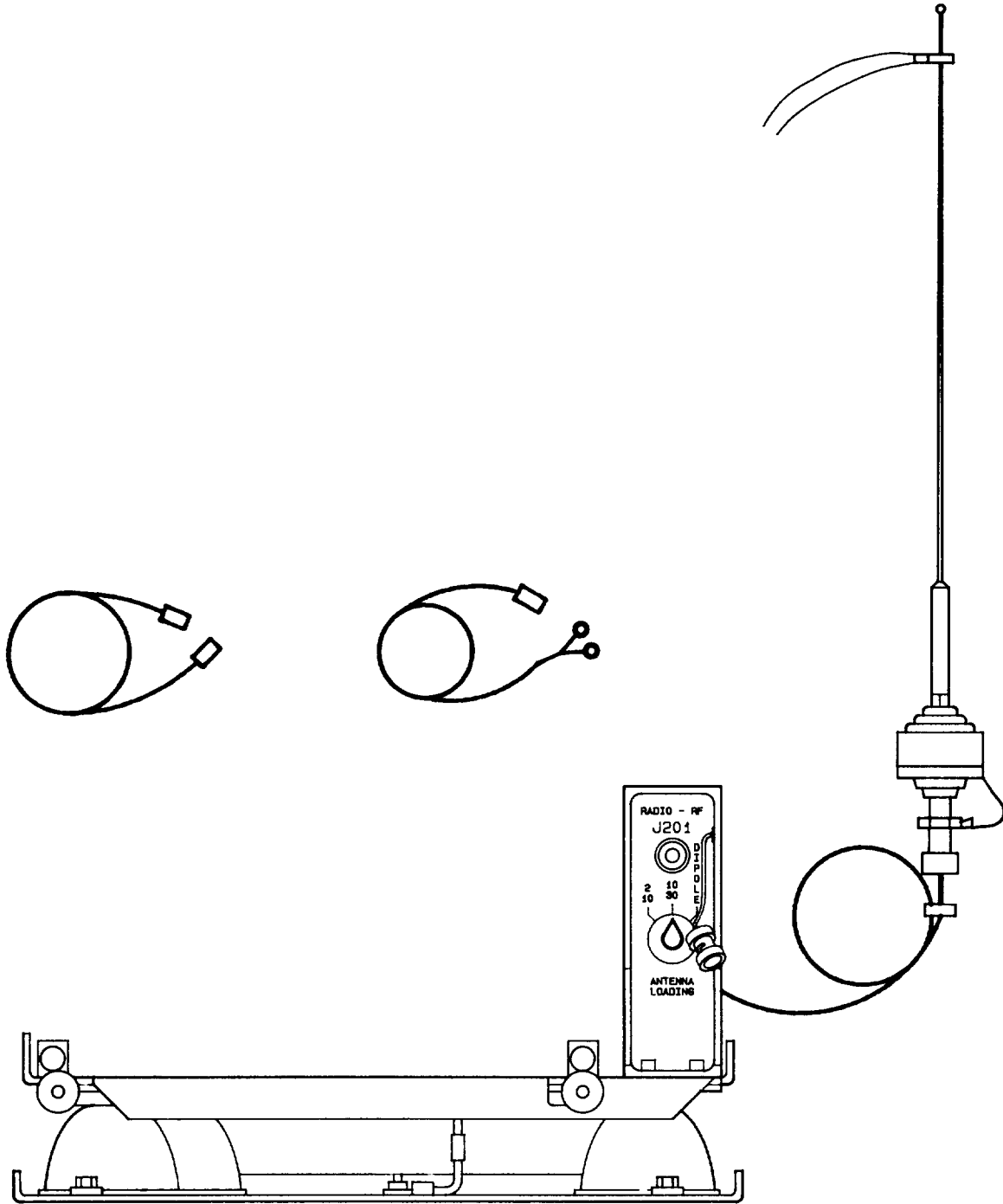
You can help improve this manual. If you find any mistakes or if you know of a way to improve the procedures, please let us know. Mail your letter, DA Form 2028 (Recommended Changes to Publications and Blank Forms), or DA Form 2028-2 located in the back of this manual direct to: Commander, U.S. Army Communications-Electronics Command and Fort Monmouth, ATTN: AMSEL-ME-MP, Fort Monmouth, New Jersey 07703-5000.

A reply will be furnished direct to you.

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CHAPTER 1

INTRODUCTION

Section I. GENERAL INFORMATION

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Scope	1-1
Maintenance Forms, Records and Reports	1-1
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Destruction of Army Materiel to Prevent Enemy Use	1-2
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Reporting Equipment Improvement Recommendations (EIR's)	1-2
Nomenclature Cross-Reference	1-3

SCOPE

This manual covers installation of the six installation kits. It includes operator, organizational, direct support, and general support maintenance instructions. A Repair Parts and Special Tools List (RPSTL) is included as an appendix. The installation kits provide a mount for the AN/GRC-213 in wheeled and tracked vehicles.

MAINTENANCE FORMS, RECORDS, AND REPORTS

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. Navy personnel will report maintenance performed utilizing the Maintenance Data Collection Subsystem (MDCS) IAW OPNAVINST 4790.2 Vol 3 and unsatisfactory material/conditions (UR submissions) IAW OPNAVINST 4790.2 Vol 2, chapter 17.

REPORTS OF PACKAGING AND HANDLING DEFICIENCIES

Fill out and forward SF 364 (Report of Discrepancy (ROD)) as prescribed in AR 735-11-2/DLAR 4140.55/NAVMATINST 4355.73B/AFR 400-54/MCO 4430.3H.

DISCREPANCY IN SHIPMENT REPORT (DISREP) (SF 361)

Fill out and forward Discrepancy in Shipment Report (DISREP)(SF 361) as prescribed in AR 55-38/NAVSUPINST 4610.33C/AFR 75-18/MCO P461D. 19D/DLAR 4500.15.

CONSOLIDATED INDEX OF ARMY PUBLICATIONS AND BLANK FORMS

Refer to the latest issue of DA Pam 310-1 to determine whether there are new editions, changes, or additional publications pertaining to the equipment.

DESTRUCTION OF ARMY MATERIEL TO PREVENT ENEMY USE

Destruction of Army material to prevent enemy use shall be in accordance with TM750-244-2.

PREPARATION FOR STORAGE OR SHIPMENT

Storage of equipment issued to and used by Army activities will have preventive maintenance performed in accordance with the PMCS charts before storing. When removing the equipment from storage, the PMCS should be performed to assure operational readiness. Disassembly and repacking of equipment for shipment or limited storage is covered in Preparation for Storage or Shipment on page 5-45.

REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIR'S)

ARMY

If your installation kit 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 the design. Put it on an SF 368 (Quality Deficiency Report). Mail it to Commander, US Army Communications-Electronics Command and Fort Monmouth, ATTN: AMSEL-PA-MA-D, Fort Monmouth, New Jersey 07703-5000. We'll send you a reply.

NOMENCLATURE CROSS-REFERENCE

Common Name	Official Nomenclature
Amplifier-power supply AN/GRC-213 AN/VIC-1(V) Antenna base adapter Antenna bottom section Antenna bracket Antenna cable Antenna center section Antenna guard Antenna loading switch Antenna support Antenna tip Antenna top section Audio amplifier Battery power cable Conduit Connector adapter Connector plug Detecting element Dummy load Electrical equipment mount Electrical group kit Electrical lead Guard assembly Installation kit Intercommunication cable Loudspeaker Mast base Mount Mounting base Mounting bracket Multimeter Power cable Raceway base Raceway cover Support bracket Support bracket assembly Switching unit Wattmeter	Amplifier Power Supply AM-7152/GRC-213 Radio Group AN/GRC-213 Vehicle Intercommunication System AN/VIC-1(V) Antenna Base Adapter SC-B-75912 Mast Section MS-116-A Antenna Bracket Assembly SC-F-446375 Antenna Lead Cable Assembly A3023311, A3023312, A3023313 Mast Section MS-117-A Antenna Guard Assembly SC-C-446008 Antenna Loading Switch S19YY24354 Antenna Support Assembly A3023295 Antenna Tip Assembly SC-C-446046 Mast Section MS-118-A Audio Amplifier AM-1780/VRC Power Cable Assembly CX-4720/VRC Conduit Assembly SC-D-446402 Connector Adapter G IV DL-SC-A-339542 Connector Plug SM-C-632655 Detecting Element 50H Dummy Load 8085 Electrical Equipment Mount MT-6234/GRC-213 Kit, Group, Electrical 0A-9161 Electrical Lead SC-B-75180GPI Guard Assembly SC-D-75288 Electrical Equipment Installation Kit Special Purpose Cable Assembly CX-4723/VRC Speaker LS-454()/U Mast Base Assembly AB-1322/GR Mount Assembly SC-F-446380 Electrical Equipment Mounting Base A3023150 Mounting Bracket Assembly A3023294 Multimeter AN/PSM-45 Power Cable Assembly CX-13089/VRC Raceway Base SC-C-681298-4 Raceway Cover SC-C-681299-4 Support Bracket SC-DL-48676 Support Bracket Assembly A3023296 Antenna Switching Unit SA-2365/GRC-213 Test Set, Radio Frequency Power AN/USM-298

Section II. EQUIPMENT DESCRIPTION AND DATA

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Equipment Characteristics, Capabilities, and Features	1-5
Location and Description of Major Components	1-6
Equipment Data	1-8
Equipment Configuration	1-8
Safety, Care, and Handling	1-9

EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES

PURPOSE OF INSTALLATION KITS

The installation kits provide a mount for an AN/GRC-213 in wheeled and tracked vehicles.

CAPABILITIES AND FEATURES OF INSTALLATION KITS

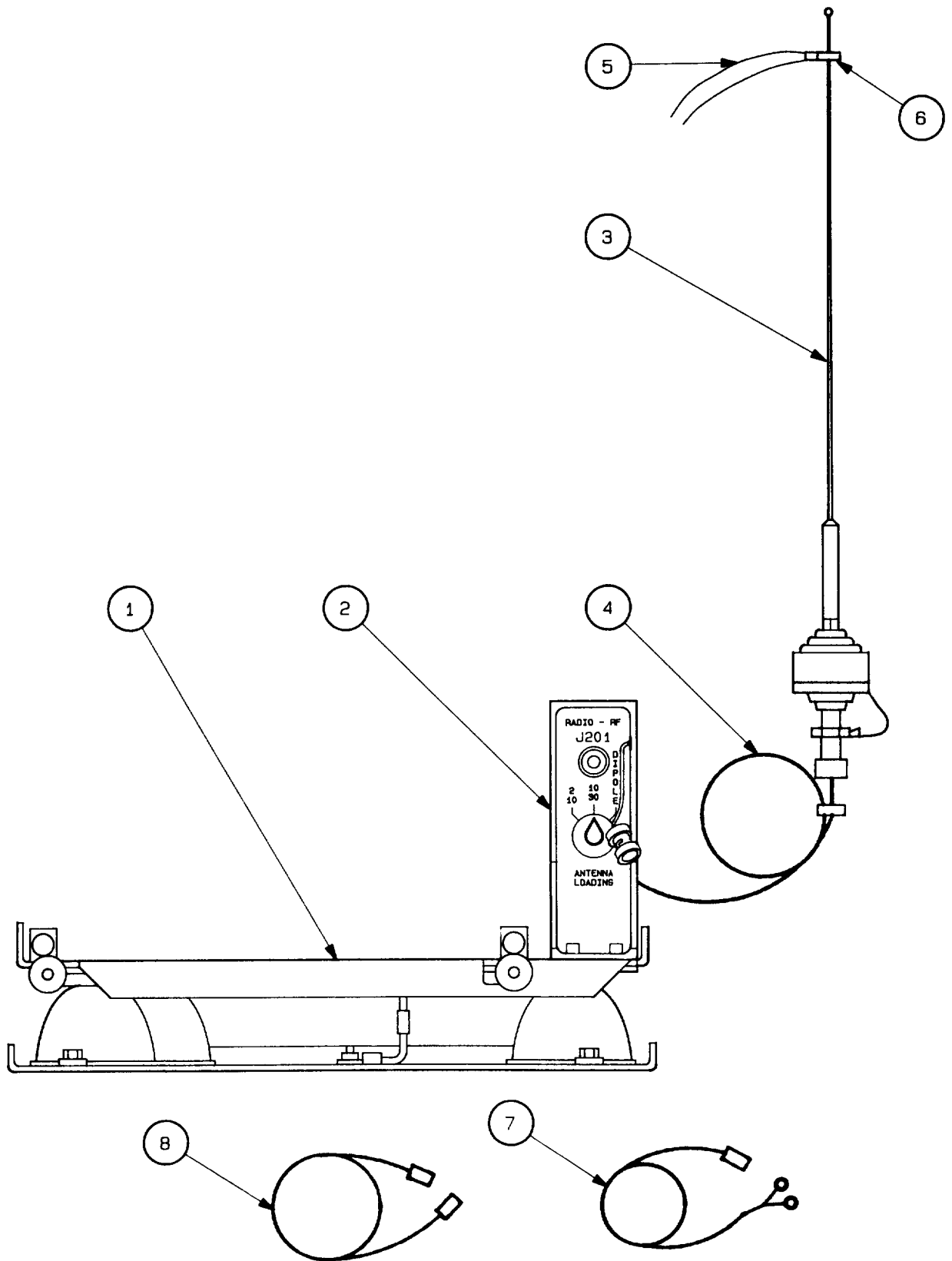
The capabilities and features of the installation kits are as follows:

- Provide a secure and shock resistant mount for the AN/GRC-213
- Provide interface between a variety of antennas and the AN/GRC-213
- Provide mounting of the AN/GRC-213 in a variety of vehicles
- Allow a choice between two or more places for mounting the AN/GRC-213 in a vehicle

LOCATION AND DESCRIPTION OF MAJOR COMPONENTS (1 of 2)

- 1 **MOUNTING BASE** - Provides a shock resistant mount for the AN/GRC-213
- 2 **SWITCHING UNIT** - Provides impedance matching between AN/GRC-213 and the antenna and enables the AN/GRC-213 to tune to the antenna
- 3 **ANTENNA** - Transmits and receives rf signals
- 4 **ANTENNA CABLE** - Connects the antenna to the switching unit
- 5 **ROPE** - Secures the antenna to the vehicle
- 6 **ROPE CLAMP** - Enables the rope to be attached to the antenna
- 7 **BATTERY POWER CABLE** - Connects the AN/GRC-213 to 24 V dc vehicle battery power
- 8 **POWER CABLE** - Connects the AN/GRC-213 to 24 V dc vehicle power

LOCATION AND DESCRIPTION OF MAJOR COMPONENTS (2 of 2)



EQUIPMENT DATA

WEIGHTS AND DIMENSIONS

Mount	
Height	8.5 inches
Weight	12 lbs
Depth	11.5 inches
Width	16.0 inches
Whip Antenna	
Height	15 ft
Antenna Cable...	
Length	
MK-2442/GRC-213 Installation Kit, Armored Personnel Carrier -M113A1	3.5 ft
MK-2443/GRC-213 Installation Kit; Utility Truck -M151A1	5 ft
MK-2444/GRC-213 Installation Kit, Cargo Truck -M561	5 ft
MK-2445/GRC-213 Installation Kit, Carrier Command Post -M577A1	4 ft
MK-2446/GRC-213 Installation Kit, Truck -M882 or -M1008A1 CUCV	4 ft
MK-2447/GRC-213 Installation Kit, General Purpose Wheeled or Tracked Vehicles	3.5 ft, 5 ft
Power Cable	
Length	
MK-2442/GRC-213 Installation Kit, Armored Personnel Carrier -M113A1	6 ft
MK-2444/GRC-213 Installation Kit: Cargo Truck -M561	9 ft
MK-2445/GRC-213 Installation Kit, Carrier Command Post -M577A1	8 ft
MK-2446/GRC-213 Installation Kit, Truck -M882 or -M1008A1 CUCV	5 ft
Battery Power Cable	
Length	
MK-2443/GRC-213 Installation Kit, Utility Truck - M151A1	12 ft
MK-2447/GRC-213 Installation Kit, General Purpose Wheeled or Tracked Vehicles	10 ft
Intercommunication Cable.	
Length	
MK-2442/GRC-213 Installation Kit, Armored Personnel Carrier -M113A1	4 ft
MK-2445/GRC-213 Installation Kit, Carrier Command Post - M577A1	9 ft
POWER REQUIREMENTS	24 V dc

WHIP ANTENNA CHARACTERISTICS

Radiation Pattern Omnidirectional

EQUIPMENT CONFIGURATION

Each installation kit has one configuration, but can be installed in two or more places in the vehicle.

SAFETY, CARE, AND HANDLING

There are no safety, care, and handling instructions for the installation kits other than the warnings, cautions, and notes in the operating and maintenance procedures.

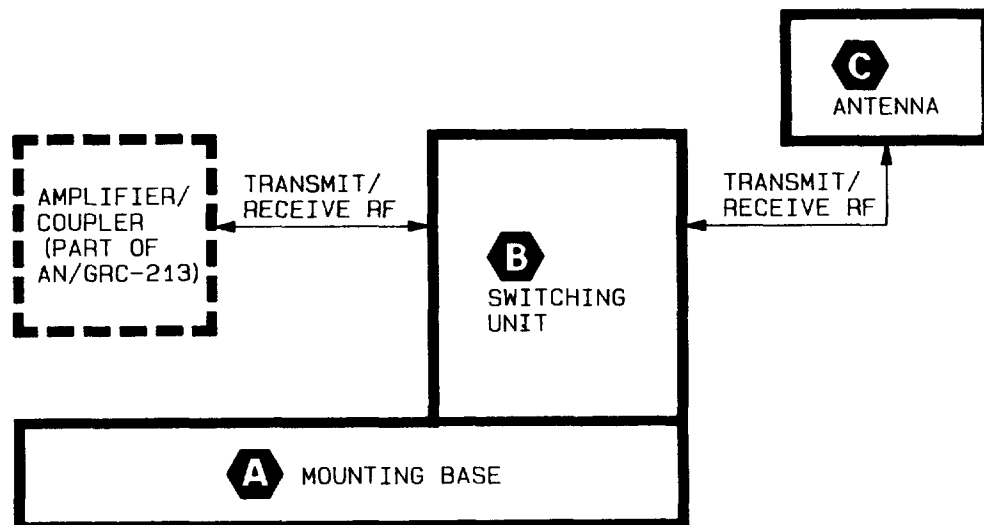
Section III. THEORY OF OPERATION

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Organizational Level	1-11
General Support Level	1-12

ORGANIZATIONAL LEVEL

Each installation kit contains an electrical equipment mount made up of a mounting base, an antenna switching unit, and an antenna.

- A MOUNTING BASE** - Provides AN/GRC-213 with a secure and shock resistant mount.
- B SWITCHING UNIT** - Provides impedance matching between the amplifier/coupler and the antenna and enables the AN/GRC-213 automatic tuner to tune the antenna to obtain a minimum vswr for a maximum level of rf signal transfer to the antenna during transmit.
- C ANTENNA** - Serves to transmit and receive rf signals.



GENERAL SUPPORT LEVEL (1 of 2)

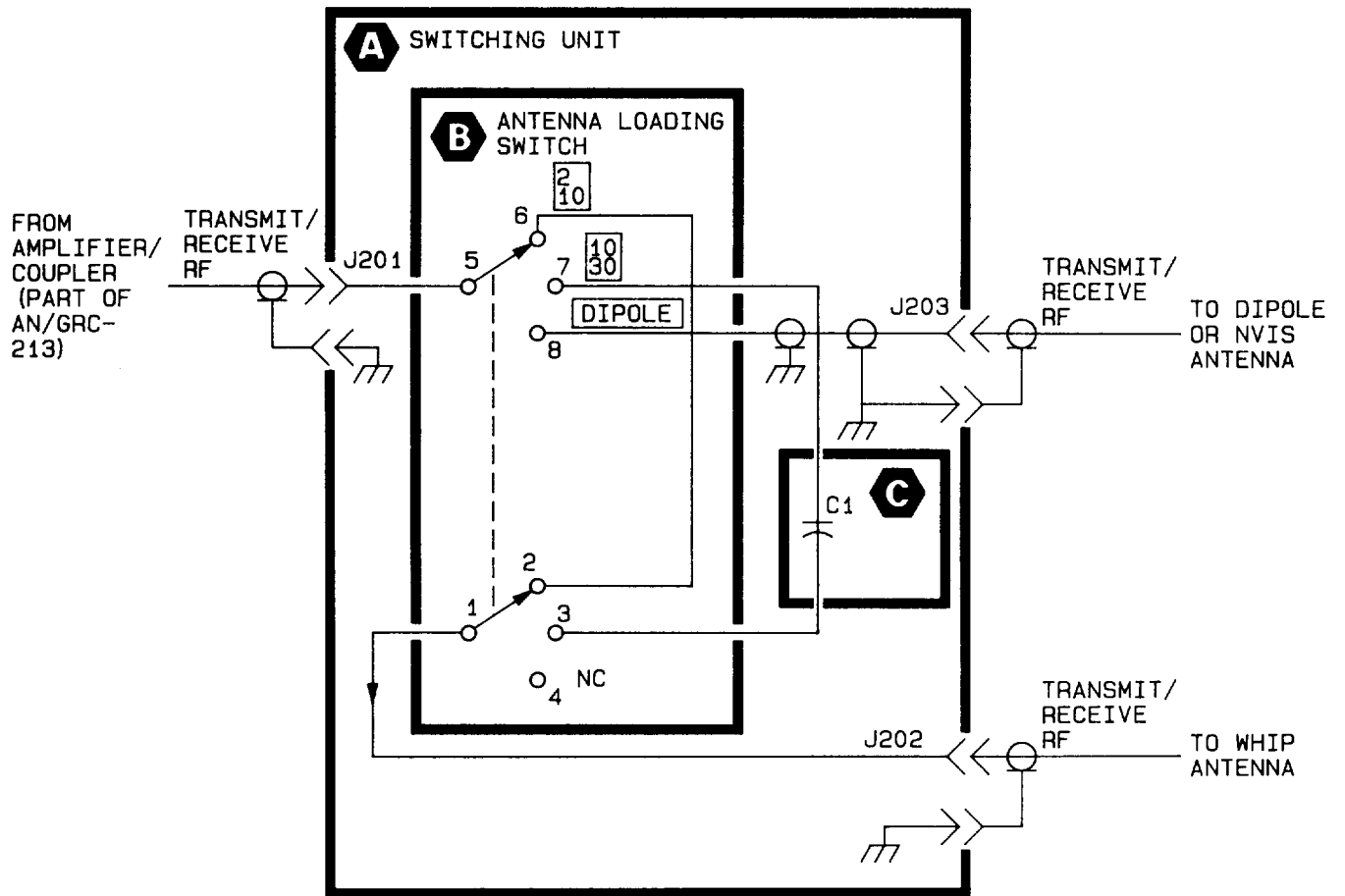
A SWITCHING UNIT - Provides impedance matching between the amplifier/coupler and the antenna and allows the AN/GRC-213 to tune the antenna for a minimum vswr. This provides a maximum signal transfer to the antenna during transmit. The switching unit consists of the antenna loading switch and capacitor C1.

B ANTENNA LOADING SWITCH - Routes the TRANSMIT/RECEIVE RF signal from J201 to J203 (for dipole or near vertical incidence skywave (NVIS) antenna) or from J201 to J202 (for whip antenna).

- **2 10-** Routes the TRANSMIT/RECEIVE RF signal from J201 directly to J202 for a whip antenna. In this position, the AN/GRC-213 can transmit or receive from the antenna in the frequency range of 2 to 10 MHz.
- **10 30** - Routes the TRANSMIT/RECEIVE RF signal from J201 to capacitor C1, and then to J202 for a whip antenna. In this position, the AN/GRC-213 can transmit or receive from the antenna in the frequency range of 10 to 29.999 MHz.
- **DIPOLE** - Routes the TRANSMIT/RECEIVE RF signal from J201 directly to J203 for a dipole or NVIS antenna.

C CAPACITOR C1 - Raises the frequency range to which the antenna tuner in the amplifier/coupler (part of AN/GRC-213) can tune. The frequency range is raised by C1 being in series with the antenna. The frequency range is raised to 10 through 29.999 MHz.

GENERAL SUPPORT LEVEL (2 of 2)



CHAPTER 2

SERVICE UPON RECEIPT AND INSTALLATION

Section I. SERVICE UPON RECEIPT OF INSTALLATION KITS

Unpacking Installation Kit Items 2-1

Checking Unpacked installation Kit Items 2-1

Items Included in Installation Kits 2-2

 MK-2442/GRC-213 Installation Kit, Armored Personnel Carrier - M113A1 2-2

 MK-2443/GRC-213 Installation Kit, Utility Truck - M151A1 2-3

 MK-2444/GRC-213 Installation Kit, Cargo Truck - M561 2-6

 MK-2445/GRC-213 Installation Kit, Carrier Command Post - M113A1 2-9

 MK-2446/GRC-213 Installation Kit, Truck - M882 or -M1008A1 CUCV 2-10

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 MK-2542/GRC-213 Installation Kit, Cargo/Troop Carrier M998/M1038 HMMWV. 2-14-1

 MK-2543/GRC-213 Installation Kit, M1009 CUCV 2-14-3

Tools and Materials Required for Installation 2-16

UNPACKING INSTALLATION KIT ITEMS

The installation kit comes packed in a throwaway container. Check container for any damage incurred during shipment.

CHECKING UNPACKED INSTALLATION KIT ITEMS

1. Inspect the equipment for damage incurred during shipment. If the equipment has been damaged, report the damaged on SF 364, Report of Discrepancy.
2. Check the equipment against the packing slip to see if the shipment is complete. Report all discrepancies in accordance with the instructions of DA Pam 738-750.
3. Check to see whether the equipment has been modified.

ITEMS INCLUDED IN INSTALLATION KITS (1 of 13)

This paragraph lists the parts included in the six installation kits.

MK-2442/GRC-213 INSTALLATION KIT, ARMORED PERSONNEL CARRIER - M113A1

Name	Qty	Description or Page Reference
Electrical equipment mount	1	Page 2-15
Mast base	1	Page 2-17
Antenna cable	1	Page 2-17
Power cable	1	Page 2-21
Gasket	1	Page 2-17
Bolt	4	3/8 x 1-1/4 in.
Lockwasher	4	3/8 in.
Antenna tip	1	Page 2-19
Antenna top section	1	Page 2-19
Antenna center section	1	Page 2-19
Antenna bottom section	3	Page 2-19
Antenna rope clamp	1	Page 2-19
Rope	2	Page 2-19
Intercommunication cable	1	Page 2-21
Cable clamp kit	1	
● Clamp strap	1	Page 2-21
● Plastic tiedown strap	12	Page 2-21
● Clamp strap fastener	6	Page 2-21
● Clamp strap fastener	6	Page 2-21
● Clamp strap fastener	12	Page 2-21
● Plastic grommet	2	Page 2-21

ITEMS INCLUDED IN INSTALLATION KITS (2 of 13)

MK-24421GRC-213 INSTALLATION KIT, ARMORED PERSONNEL CARRIER - M113A1 (cont)

Name	Qty	Description
● Nut	6	1/4 in.
● Nut	6	1/4 in.
● Lockwasher	6	1/4 in.
Bag (holds bolts, nuts, and lockwashers not in cable clamp kit, prior to installation)	1	...
Bolt	2	1/4 x 3/4 in.
Nut	2	1/4 in.
Lockwasher	2	1/4 in.
Drill Bit	1	11/32 in.
Drill Bit	1	9/32 in.

MK-2443/GRC-213 INSTALLATION KIT, UTILITY TRUCK - M151A1

Name	Qty	Description
Electrical equipment mount	1	
Mounting bracket assembly	1	
● Mounting bracket	1	
● Bolt	8	5/16 x 1-1/4 in.
● Nut	14	5/16 in.
● Machine screw	4	5/16 x 1-1/4 in.
● Lockwasher	28	5/16 in.
Mast base	1	
Antenna cable	1	
Battery power cable	1	

ITEMS INCLUDED IN INSTALLATION KITS (3 of 13)

MK-2443/GRC-213 INSTALLATION KIT, UTILITY TRUCK - M151A1 (cont)

Name	Qty	Description
Antenna support assembly	1	
● Antenna support	1	
● Bolt	6	1/4 x 3/4 in.
● Nut	6	1/4 in.
● Lockwasher	6	1/4 in.
● Flat washer	12	1/4 in.
Rubber grommet	2	
Antenna tip	1	
Antenna top section	1	
Antenna center section	1	
Antenna bottom section	3	
Antenna rope clamp	1	
Rope	2	
Cable clamp kit	1	
● Clamp strap	1	3 ft
● Plastic tiedown strap	12	
● Clamp strap fastener	6	
● Clamp strap fastener	6	
● Clamp strap fastener	12	
● Plastic grommet	2	
● Nut	6	1/4 in.
● Nut	6	1/4 in.
● Lockwasher	6	1/4 in.

ITEMS INCLUDED IN INSTALLATION KITS (4 of 13)

MK-2443/GRC-213 INSTALLATION KIT, UTILITY TRUCK - M151A1 (cont)

Name	Qty	Description
Support bracket assembly	1	
● Support bracket	1	
● Bolt	4	5/16 x 1-1/8 in.
● Nut	4	5/16 in.
● Bolt	2	5/16 x 3/4 in.
● Lockwasher	8	5/16 in.
Support bracket	1	
● Bracket	1	
● Bolt	8	5/16 x 1 in.
● Nut	8	5/16 in.
● Lockwasher	16	5/16 in.
● Flat washer	1	5/16 in.
● Reinforcement	1	7 in.
● Reinforcement	2	3 in.
● Brace	1	
Guard assembly	1	
● Guard	1	
● Tapping screw	10	#10
Reinforcement	2	
Bag (holds next three items, prior to installation)	1	...
Bolt	2	1/4 x 3/4 in.
Nut	2	1/4 in.
Antenna Guard	1	

ITEMS INCLUDED IN INSTALLATION KITS (5 of 13)

MK-2443/GRC-213 INSTALLATION KIT, UTILITY TRUCK - M151A1 (cont)

Name	Qty	Description
Lockwasher	2	1/4 in.
Drill bit	1	11/32 in.
Drill bit	1	9/32 in.

MK-2444/GRC-213 INSTALLATION KIT, CARGO TRUCK - M561

Name	Qty	Description
Electrical equipment mount	1	
Mast base	1	
Antenna cable	1	
Power cable	1	
Antenna support assembly	1	
● Antenna support	1	
● Bolt	6	1/4 x 3/4 in.
● Nut	6	1/4 in,
● Flat washer	12	1/4 in.
● Lockwasher	6	1/4 in.
Antenna bracket assembly	1	
● Antenna bracket	1	
● Rubber grommet	1	
● Bolt	16	1/4x 3 in.
● Nut	16	1/4 in.
● Flat washer	32	1/4 in.

ITEMS INCLUDED IN INSTALLATION KITS (6 of 13)**MK-2444/GRC-213 INSTALLATION KIT, CARGO TRUCK - M561 (cont)**

Name	Qty	Description
Mount assembly	1	
● Mount	1	
● Bolt	7	5/16 x 1 in.
● Nut	7	5/16 in.
● Flat washer	4	5/16 in.
● Lockwasher	3	5/16 in.
Electrical lead	1	
Raceway cover	1	
Raceway base	1	
Conduit assembly	1	
● Conduit	1	
● Bolt	3	1/4 x 2-3/4 in.
● Bolt	3	1/4 x 3/4 in.
● Nut	3	1/4 in.
● Tapping screw	1	#1 o
● Flat washer	3	1/4 in.
Antenna tip	1	
Antenna top section	1	
Antenna center section	1	
Antenna bottom section	3	
Antenna rope clamp	1	
Rope	2	

ITEMS INCLUDED IN INSTALLATION KITS (7 of 13)

MK-2444/GRC-213 INSTALLATION KIT, CARGO TRUCK - M561 (cent)

Name	Qty	Description
Cable clamp kit	1	
● Clamp strap	1	3 ft
● Plastic tiedown strap	12	
● Clamp strap fastener	6	
● Clamp strap fastener	6	
● Clamp strap fastener	12	
● Plastic grommet	2	
● Nut	6	1/4 in.
● Nut	6	1/4 in.
● Lockwasher	6	1/4 in.
Bag (holds next nine items prior to installation)	1	...
Bolt	1	1/4x 1 in.
Bolt	1	5/16 x 1 in.
Bolt	2	1/4 x 3/4 in.
Nut	2	1/4 in.
Self--locking nut	1	5/16 in.
Self--locking nut	3	1/4 in.
Lockwasher	2	1/4 in.
Lock washer	3	5/16 in.
Flat washer	6	5/16 in.
Sealing compound	AR*	Type II
Drill bit	1	11/32 in.
Drill bit	1	9/32 in,

ITEMS INCLUDED IN INSTALLATION KITS (8 of 13)**MK-2445/GRC-213 INSTALLATION KIT, CARRIER COMMAND POST - M577A1**

Name	Qty	Description or Page Reference
Electrical equipment mount	1	Page 2-51
Mast base	1	Page 2-53
Antenna cable	1	Page 2-53
Power cable	1	Page 2-57
Intercommunication cable	1	Page 2-57
Adapter	1	Page 2-53
Gasket	1	Page 2-53
Bolt	4	3/8 x 1 1/4 in.
Lock washer	4	3/8 in.
Antenna tip	1	Page 2-54
Antenna top section	1	Page 2-54
Antenna center section	1	Page 2-54
Antenna bottom section	3	Page 2-54
Antenna rope clamp	1	Page 2-54
Rope	2	Page 2-54
Cable clamp kit	1	
● Clamp strap	1	3 ft
● Plastic tiedown straps	12	Page 2-57
● Clamp strap fastener	6	Page 2-57
● Clamp strap fastener	6	Page 2-57
● Clamp strap fastener	12	Page 2-57
● Plastic grommet	2	Page 2-57
● Nut	6	1/4 in.

ITEMS INCLUDED IN INSTALLATION KITS (9 of 13)

MK-2445/GRC-213 INSTALLATION KIT, CARRIER COMMAND POST - M577A1 (cont)

Name	Qty	Description or Page Reference
● Nut	6	1/4 in.
● Lockwasher	6	1/4 in.
Bag (holds next three items, prior to installation)	1	
Bolt	2	1/4 x 3/4 in.
Nut	2	1/4 in.
Lock washer	2	1/4 in.
Drill bit	1	11/32 in.
Drill bit	1	9/32 in.

MK-2446/GRC-213 INSTALLATION KIT, TRUCK - M882 OR -M1008A1 CUCV

Name	Qty	Description or Page Reference
Electrical equipment mount	1	Page 2-59
Mast base	1	Page 2-61
Antenna cable	1	Page 2-61
Power cable	1	Page 2-65
Antenna support assembly	1	
● Antenna support	1	Page 2-60
. Antenna bracket (M1008A1 only)	1	Page 2-63
● Bolt	6	1/4 x 3/4 in.
● Nut	6	1/4 in.
● Flat washer	12	1/4 in.
● Lockwasher	6	1/4 in.

ITEMS INCLUDED IN INSTALLATION KITS (10 of 13)

MK-2446/GRC-213 INSTALLATION KIT, TRUCK - M882 OR - M1008A1 CUCV (cont)

Name	Qty	Description
Cable clamp kit	1	
● Clamp strap	1	3 ft
● Plastic tiedown strap	12	
● Clamp strap fastener	6	
● Clamp strap fastener	6	
● Clamp strap fastener	12	
● Plastic grommet	2	
● Nut	6	1/4 in.
● Nut	6	1/4 in.
● Lockwasher	6	1/4 in.
Antenna tip	1	
Antenna top section	1	
Antenna center section	1	
Antenna bottom section	3	
Antenna rope clamp	1	
Rope	2	
Plastic grommet	2	
Bag (holds next three items, prior to installation)	1	...
Bolt	2	1/4 x 3/4 in.
Nut	2	1/4 in.
Lock washer	2	1/4 in.
Drill bit	1	11/32 in.
Drill bit	1	9/32 in.

ITEMS INCLUDED IN INSTALLATION KITS (11 of 13)

MK-2447/GRC-213 INSTALLATION KIT, GENERAL PURPOSE WHEELED OR TRACKED VEHICLES

Name	Qty	Description
Electrical equipment mount	1	
Mast base	1	
Antenna cable	2	3.5 ft, 5 ft
Battery power cable	1	10 ft
Antenna guard	1	
Guard assembly	1	
● Guard	1	
● Tapping screw	10	#10
Antenna support assembly	1	
● Antenna support	1	
● Bolt	6	1/4 x 3/4 in.
● Nut	6	1/4 in.
● Flat washer	12	1/4 in.
● Lock washer	6	1/4 in.
Support bracket	1	
● Bracket	1	
● Bolt	8	5/16 x 1 in.
● Nut	8	5/16 in.
● Flat washer	1	5/16 in.
● Lockwasher	16	5/16 in.
● Brace	1	
● Reinforcement	1	7 in.
● Reinforcement	2	3 in.

ITEMS INCLUDED IN INSTALLATION KITS (12 of 13)

MK-2447/GRC-213 INSTALLATION KIT, GENERAL PURPOSE WHEELED OR TRACKED VEHICLES (cont)

Name	Qty	Description
Cable clamp kit	1	
● Clamp strap	1	3 ft
● Plastic tiedown strap	12	
● Plastic grommet	2	
● Nut	6	1/4 in.
● Nut	6	1/4 in.
● Lockwasher	6	1/4 in.
● Clamp strap fastener	6	
● Clamp strap fastener	6	
● Clamp strap fastener	12	
Antenna tip	1	
Antenna bottom section	3	
Antenna center section	1	
Antenna top section	1	
Antenna rope clamp	1	
Rope	2	
Connector adapter	1	
Connector plug	1	
Bag (holds next three items, prior to installation)	1	
Bolt	2	1/4 x 3/4 in.
Nut	2	1/4 in.

ITEMS INCLUDED IN INSTALLATION KITS (13 of 13)

MK-2447/GRC-213 INSTALLATION KIT, GENERAL PURPOSE WHEELED OR TRACKED VEHICLES (cont)

Name	Qty	Description
Lockwasher	2	1/4 in.
Sealing compound	AR*	Type II
Drill bit	1	11/32 in.
Drill bit	1	9/32 in.

*As required

ITEMS INCLUDED IN INSTALLATION KITS

MK-2542/GRC-213 INSTALLATION KIT, CARGO/TROOP CARRIER M998/M1038 HMMWV

NAME	QTY	DESCRIPTION OR PAGE REFERENCE
MOUNT MT-6232/GRC	1	
RADIO PLATE ASSY	1	
LOUD SPEAKER	1	
ANTENNA BRACKET	1	
ANTENNA MOUNT OFFSET	1	
BACKING PLATE, ANTENNA BRACKET	1	
BACKING PLATE, ANTENNA WELDMENT	1	
BACKING PLATE P/O 3	5	
MAST BASE ASSEMBLY AB-1322/GR	1	
MAST SECTION MS-116A	3	
MAST SECTION MS-117A	1	
MAST SECTION MS-118A	1	
BASE, ANTENNA ADAPTER	1	
ANTENNA TIP ASSY	1	
ANTENNA TIE DOWN KIT	1	
LEAD-IN INSULATOR ASSY	1	
GUARD ASSEMBLY	1	
GASKET RUBBER	1	
CABLE ASSY, PWR ELECT CX-4720	1	
CABLE ASSY, ANTENNA LEAD	1	
TERMINAL LUG #316	2	
CABLE CLAMPING KIT	1	
SCREW, HEX HD	13	3/8-16x1 3/4 LG

ITEMS INCLUDED IN INSTALLATION KITS

MK-2542/GRC-213 INSTALLATION KIT, CARGO/TROOP CARRIER M998/M1038 HMMWV

NAME	QTY	DESCRIPTION OR PAGE REFERENCE
NUT, HEX	13	3/8-1 6
WASHER, LOCK, SPLIT	13	13/32 I.D.
WASHER, FLAT	26	13/32 I.D. x 13/16 O.D.
SCREW, CAP	5	5/16x24x1 1/4 LG
WASHER, LOCK ET	5	5/1 6-24
SCREW, CAP	2	
NUT, HEX	2	
WASHER, LOCK	2	
SCREW, CAP, HEX HD	10	5/16-24x3/4 LG
NUT,	10	5/1 6-24
WASHER, LOCK	2	
SCREW, CAP, HEX HD	10	5/16-24x3/4 LG
NUT,	10	5/1 6-24
WASHER, LOCK	20	ET 5/16
BOLT	4	5/16-18x1 LG
WASHER, LOCK	4	5/16
SCREW, SELF TAPPING	10	#10 x 1/2 LG
SCREW, HEX HD CAP	10	1/4-20x1 LG
NUT, HEX	10	1 /4-20
WASHER, FLAT	20	1/4
CLAMP LOOP	2	
SEALANT	AR	
BACKING PLATE P/O VEHICLE	3	
GROMMET RUBBER	1	
SCREW	8	#6-32 X 3/4 LG 82° C
NUT HEX	8	SINK
WASHER, LOCK	8	#6-32
WASHER FLAT #6	8	# 6

ITEMS INCLUDED IN INSTALLATION KITS

MK-2543/GRC-213 INSTALLATION KIT, TRUCK - M1009 CUCV

NAME	QTY	DESCRIPTION OR PAGE REFERENCE
STIFFNER	1	
STIFFNER	1	
SCREW, HEX HD,	4	3/8-16x1 3/4
NUT, HEX PLAIN	12	3/8-16
WASHER, FLAT,	12	13/32 I.D. x 13/16 O.D.
SCREW, HEX HD	8	3/8-16x1 1/4 LG
MAST SECTION MS116A	3	
MAST SECTION MS117A	1	
MAST SECTION MS118A	1	
MAST BASE ASSEMBLY AB-1322 GR	1	
BASE, ADAPTER ANTENNA	1	
GASKET, RUBBER	1	
ADDITIONAL ANTENNA BRK KIT	1	
GUARD ASSEMBLY	1	
GROMMET, RUBBER	1	
NUT, PLAIN, HEX P/O 40	2	
WASHER, LOCK P/O 40	2	
SCREW, CAP P/O 40	2	
WASHER, LOCK	2	1/4 I.E.T.

ITEMS INCLUDED IN INSTALLATION KITS

MK-2543/GRC-213 INSTALLATION KIT, TRUCK - M1009 CUCV

NAME	QTY	DESCRIPTION OR PAGE REFERENCE
MOUNTING BASE MT-6234	1	
ANTENNA TIP ASSEMBLY	1	
RADIO SHELF	1	
CABLE ASSEMBLY, POWER, CX-4720/U	1	
CABLE ASSEMBLY, ANTENNA LEAD	1	
TERMINAL LUG #31 6	2	
CABLE CLAMPING KIT	1	
SCREW, HEX, HD	5	5/16-24x1 1/4 LG
NUT, HEX	5	5/16-24 P/O 2
WASHER, LOCK, ET	5	5/16 P/O 2
SCREW, HEX, HD	8	1/4-28x1 3/4 LG
NUT, HEX, PLAIN	8	1/4-28
TERMINAL BLOCK	1	
WASHER, FLAT	14	1/4
WASHER, SPLIT,	12	13/32 I.D.
CLAMP LOOP	2	
SEALANT (GENERAL PURPOSE RV)	A/R	
SHELF ASSEMBLY	1	
SHELF	1	
BRACE	1	
BRACE	1	
BRACKET	1	
BRACKET	1	

Section II. INSTALLATION PROCEDURES

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TOOLS AND MATERIALS REQUIRED FOR INSTALLATION

This paragraph lists the tools and materials required for installing the six installation kits.

App F Item No.	Name	Qty	National Stock Number
	Electronic Equipment Tool Kit TK-101/G	1	5180-00-064-5178
3	Brush, Paint	1	
	Brush, Wire	1	
7	Grease, Graphite	AR*	
8	Paint, Epoxy	AR*	
9	Paint, Primer	AR*	
	Shop Equipment, Auto Common No. 1	1	4910-00-754-0654
	C-clamp	2	
10	Sandpaper	AR*	
11	Sealing Compound		
14	Wiping Rags		

*As Required

INSTALLATION INSTRUCTIONS (1 of 61)

This paragraph lists the installation instructions for the six installation kits.

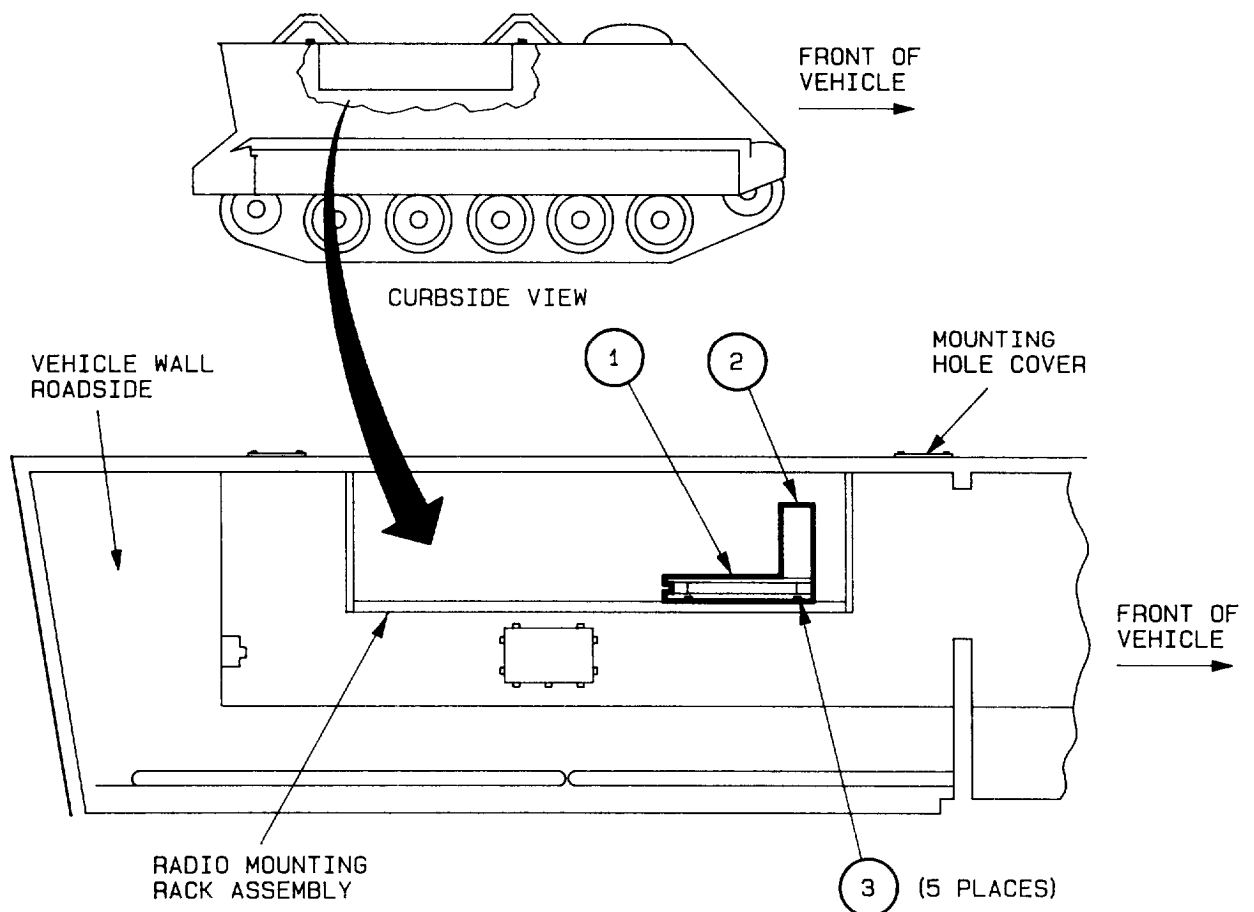
MK-2442/GRC-213 INSTALLATION KIT, ARMORED PERSONNEL CARRIER - M113A1

1. **Install electrical equipment mount**, consisting of mounting base (1) and switching unit (2), at predrilled holes **on radio mounting rack assembly** (roadside) with ten 5/16-in. lockwashers (one lockwasher on top and one lockwasher on bottom for each bolt), five 5/16-in. nuts, and five 5/16- x 1 1/8-in., where required, or 5/16- x 3/4-in. bolts (3). (Two bolt lengths are provided for you to choose from.)

NOTE

Electrical equipment mount can also be installed on the curbside of vehicle in the same manner as the roadside installation. Curbside installation requires Radio Mounting Rack Assembly SC-DL-48608, NSN 5820-00-875-0929 (not supplied in this kit).

2. **Remove vehicle antenna mounting hole cover**, cover gasket, and attaching hardware from outside top of vehicle located **nearest radio set** location.



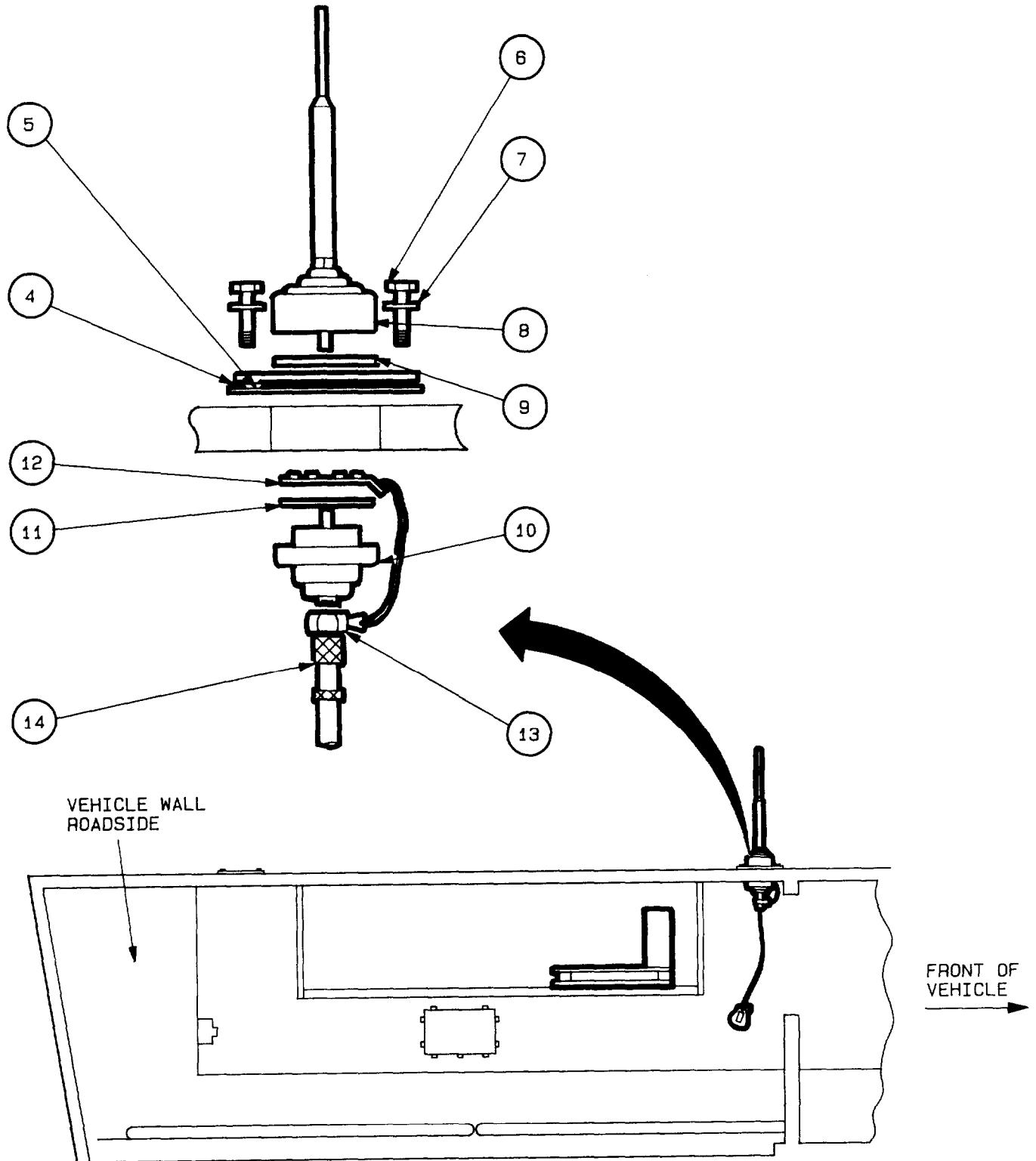
INSTALLATION INSTRUCTIONS (2 of 61)

MK-2442/GRC-213 INSTALLATION KIT, ARMORED PERSONNEL CARRIER - M113A1 (cont)

3. **Remove** enough **paint around mounting hole** on bottom of antenna base adapter (4) to permit grounding ring (part of mast base) to touch bare metal.
4. Lightly **coat bare metal** on antenna base adapter (4) around mounting hole **with graphite grease**.
5. **Attach antenna base adapter** (4) with unpainted side down. over mounting holes **on outside of vehicle** using rubber gasket (5) with four 3/8- x 1 1/4-in. bolts (6) and four 3/8-in. split lockwashers (7).
6. Carefully **unscrew** two **subassemblies** of mast base by hand.
7. **Place upper subassembly** (8) and rubber gasket (9) over hole in antenna base adapter (4) on outside top of vehicle.
8. **Place lower subassembly** (10) and rubber gasket (11) and grounding ring (12) **under hole** in vehicle from inside vehicle. Grounding ring is against bare metal of antenna base adapter (4).
9. **Mate** outer threads of **lower subassembly** (10) male section **with** inner threads of **upper subassembly** (8) female section. Screw two subassemblies together handtight.
10. **Place grounding clamp** (13) **over receptacle** that extends **from lower subassembly** (10). Do not tighten grounding clamp.
11. **Connect antenna cable** (14) to receptacle that extends from lower subassembly (10) and tighten.
12. Slip grounding clamp (13) down over knurled surface of straight connector of antenna cable (14). **Tighten grounding clamp**.

INSTALLATION INSTRUCTIONS (3 OF 61)

MK-2442/GRC-213 INSTALLATION KIT, ARMORED PERSONNEL CARRIER - M113A1 (cont)



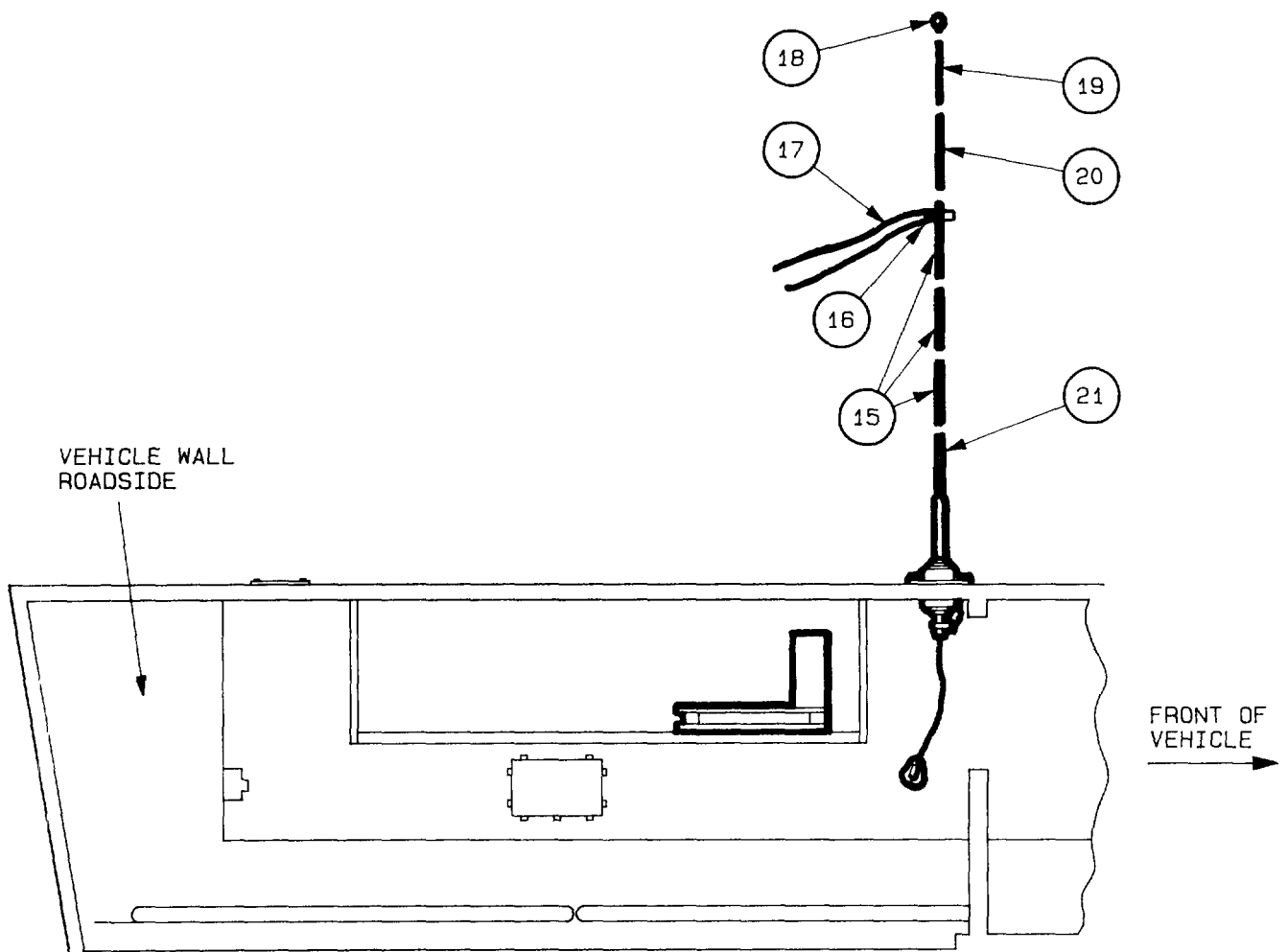
INSTALLATION INSTRUCTIONS (4 OF 61)

MK-2442/GRC-213 INSTALLATION KIT, ARMORED PERSONNEL CARRIER - M113A1 (cont)

13. **Screw** three identical antenna **bottom sections** (15) **together**.
14. **Attach** antenna **rope clamp** (16) **and rope** (17) to top antenna bottom section (15).
15. **Attach** antenna **tip** (18) **to** antenna **top section** (19) **and screw into** top of antenna **center section** (20).
16. **Screw** antenna **center section** (20) with attached tip (18) and top section (19) **into** top attached antenna **bottom section** (15) with attached rope clamp (16).
17. **Screw assembled antenna** into female section that extends from **upper subassembly** (21).
18. Secure antenna to vehicle with rope (17).

INSTALLATION INSTRUCTIONS (5 of 61)

MK_2442/GRC-213 INSTALLATION KIT, ARMORED PERSONNEL CARRIER -
M113A1 (cont)



INSTALLATION INSTRUCTIONS (6 of 61)

MK-2442/GRC-213 INSTALLATION KIT, ARMORED PERSONNEL CARRIER -
M113A1 (cont)

19. **Connect** free end of **antenna cable** (with 90-degree connector) to lower connector J202 (22) on back of switching unit.
20. **Verify** that quick-release **ground cable** (23) from back bottom side of **upper tray is connected to** quick-release **ground cable** (24) on back top side of **lower tray** on mounting base. Connect if necessary. Connection of quick-release ground cables on top side of upper tray to AN/GRC-213 is covered in Interconnections paragraph in TM 11-5820-923-12.

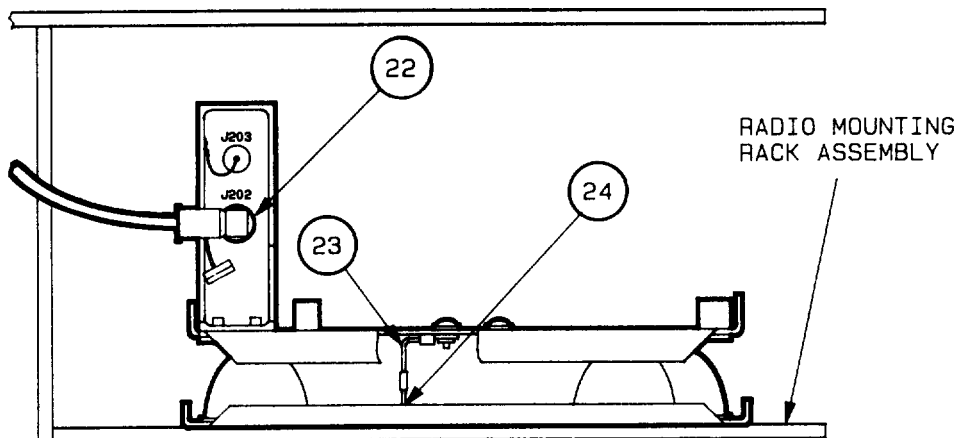
NOTE

Connections of other ends of cables connected in steps 21 and 22 are made when installing an AN/GRC-213 into the installation kit. Refer to the Interconnections paragraph in TM 11-5820-923-12.

21. **Connect intercommunication cable** (25) to **J503** on audio amplifier (part of AN/VIC-1(V)), if required. Leave unconnected end of cable wrapped to protect connector from dirt and debris.
22. **Connect power cable** (26) to **vehicle 24 V dc power receptacle** beneath and back of radio mounting rack assembly. Leave unconnected end of cable wrapped to protect connector from dirt and debris.

NOTE

Installation of attaching parts for AN/GRC-213 loudspeaker in steps 23 and 24 must be performed at the same time as AN/GRC-213 installation. Refer to Mounting paragraph in TM 11-5820-923-12.

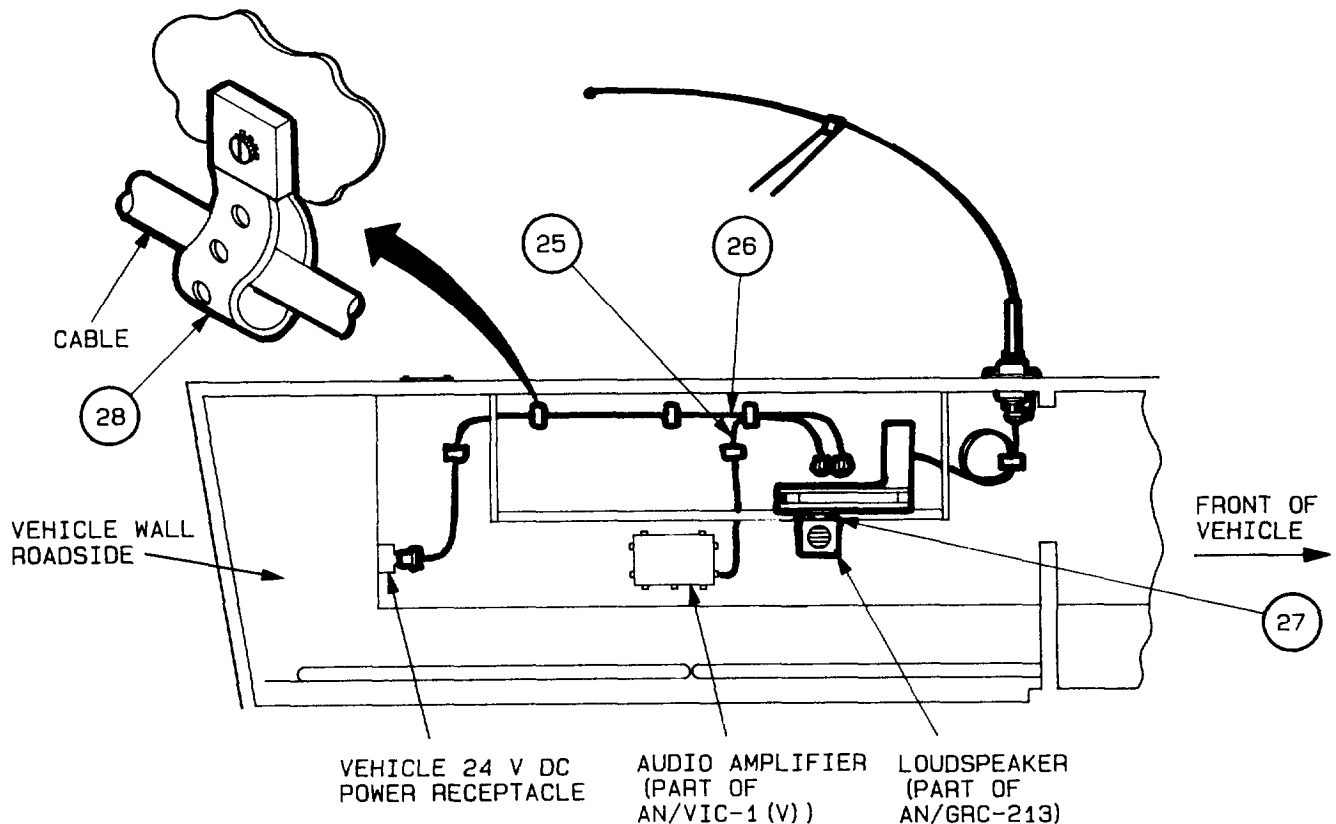


ELECTRICAL EQUIPMENT MOUNT
(REAR VIEW)

INSTALLATION INSTRUCTIONS (7 of 61)

MK-2442/GRC-213 INSTALLATION KIT, ARMORED PERSONNEL CARRIER - M113A1 (cont)

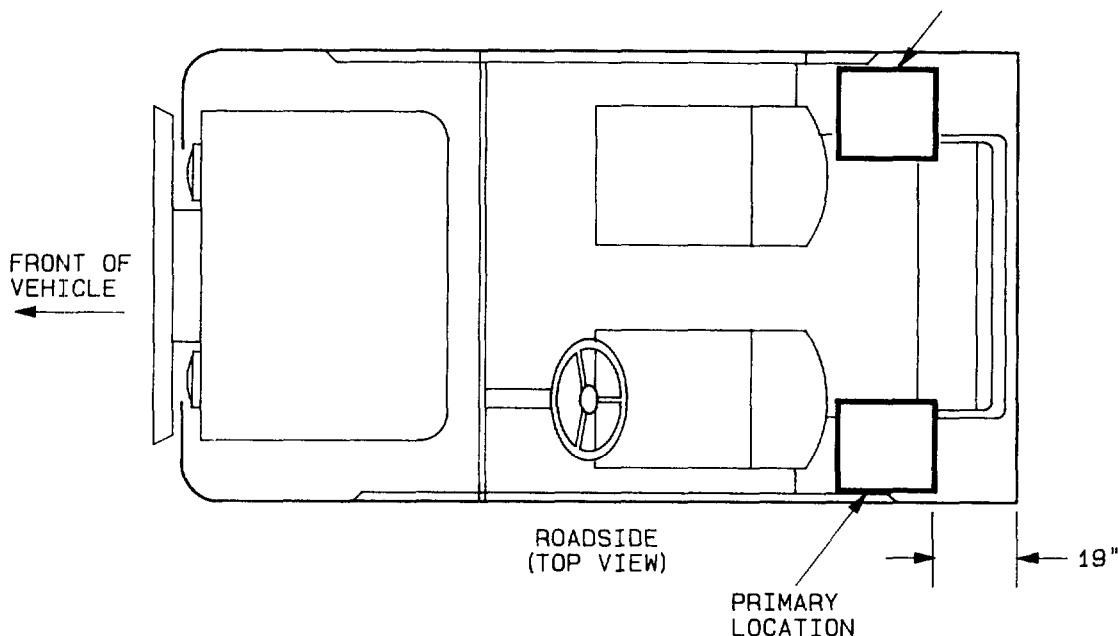
23. Hold loudspeaker (part of AN/GRC-213) in mounting location. (Position illustrated is suggested only.) **Mark** two 9/32-in. diameter mounting **holes, using support bracket** (part of loudspeaker) as a marking guide.
24. **Drill** two 9/32-in. diameter mounting holes marked in step 23. Remove all burrs and sharp edges from holes.
25. **Install loudspeaker** with two 1/4-in. star washers, two 1/4-in. nuts, and two 1/4- x 3/4-in. bolts (27).
26. **Place cable clamps** from cable clamp kit **on antenna cable, intercommunication cable, and power cable** at existing weld pads along cable routing path, as required, and secure with twelve 1/4-in. nuts, six 1/4-in. lockwashers, and clamp strap fastener assemblies (28).
27. **Dress and secure** all **cables**, using ties supplied in cable clamp kit.
28. Verify that all attaching parts and fastening devices are secure. If not, secure as necessary.
29. **Remove** all metal shavings and chips from within vehicle body.



INSTALLATION INSTRUCTIONS (8 of 61)

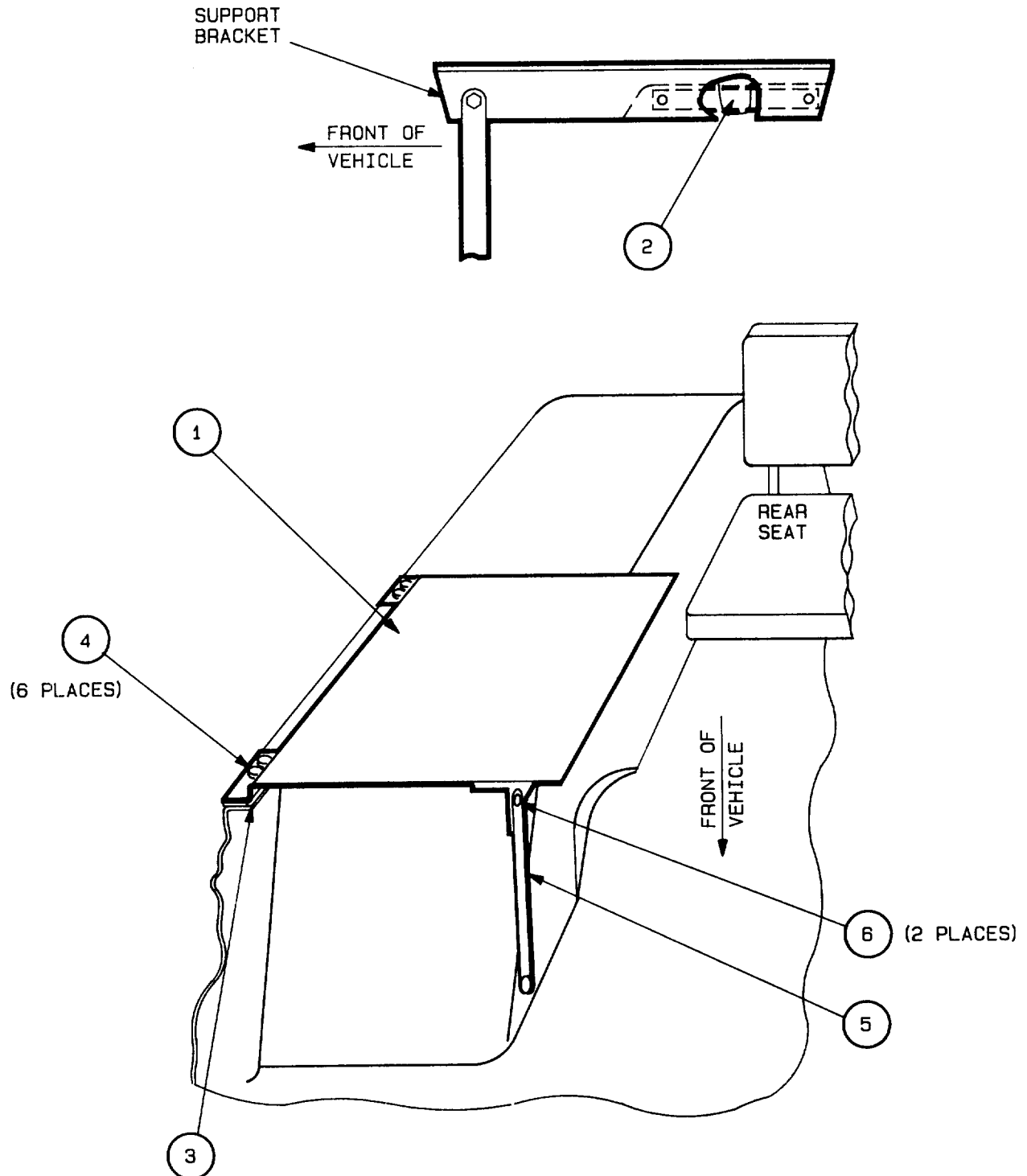
MK-2443/GRC-213 INSTALLATION KIT, UTILITY TRUCK - M151A1

1. **Hold support bracket (1) in location** on roadside (primary location) or curbside (alternate location) wheel well. **Mark** six 11/32-in. diameter mounting **holes, using bracket** as a marking guide.
2. **Drill** six 11/32-in. diameter **holes** marked in step 1. Remove all burrs and sharp edges from holes.
3. **Paint** all **bare metal** exposed during drilling **prior to installation** of hardware.
4. **Install support bracket (1), using** one 7-x3/4-in. **reinforcement (2) inside wheel well** and two 3-x3/4-in. **reinforcements (3) under wheel well**, with twelve 5/16-in. lockwashers, six 5/16-in. nuts, and six 5/16- x 1-in. bolts (4).
5. **Install brace (5) on** predrilled hole of **support bracket (1)** with one 5/16-in. lockwasher, one 5/16-in. nut, and one 5/16- x 1-in. bolt (6). Do not tighten bolt completely.
6. **Use** free end of **brace (5)** as a marking guide. Mark one 11/32-in. diameter **hole** on vertical surface of wheel well.
7. **Drill** one 11/32-in. diameter **hole** marked in step 6. Remove all burrs and sharp edges from holes.
8. **Paint** all **bare metal** exposed during drilling **prior to installation** of hardware.
9. **Install brace (5)** with one 5/16-in. lockwasher, one 5/16-in. nut, and one 5/16- x 1-in. bolt (6). Tighten bolt installed in step 5.



INSTALLATION INSTRUCTIONS (9 of 61)

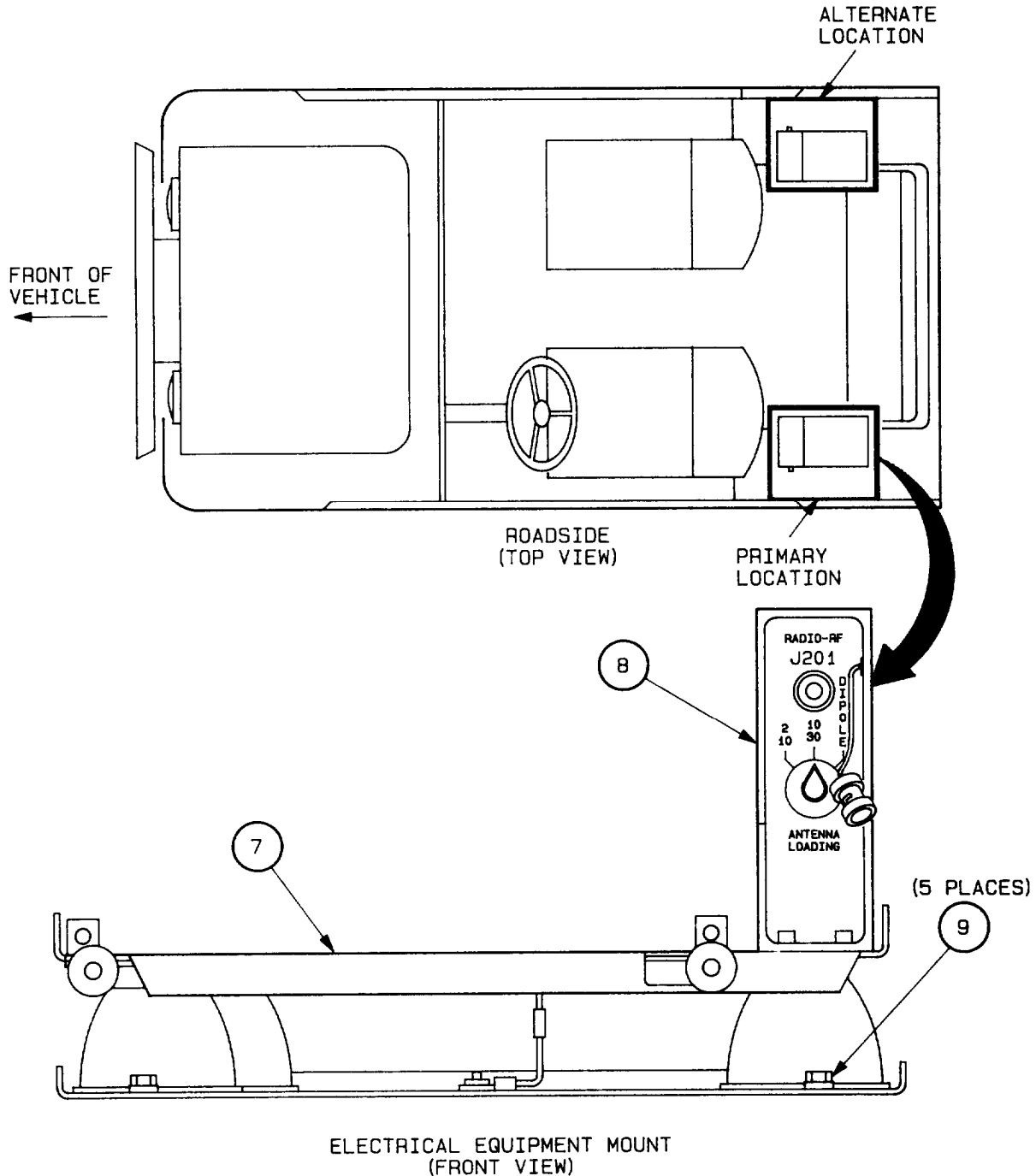
MK-2443/GRC-213 INSTALLATION KIT, UTILITY TRUCK - M151A1 (cont)



INSTALLATION INSTRUCTIONS (10 of 61)

MK-2443/GRC-213 INSTALLATION KIT, UTILITY TRUCK - M151A1 (cont)

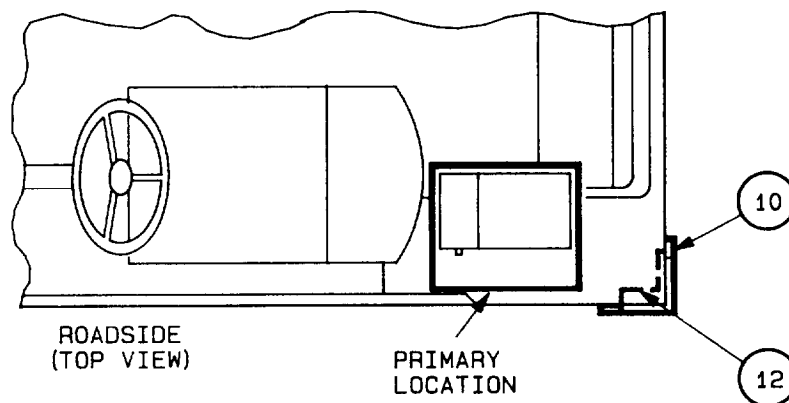
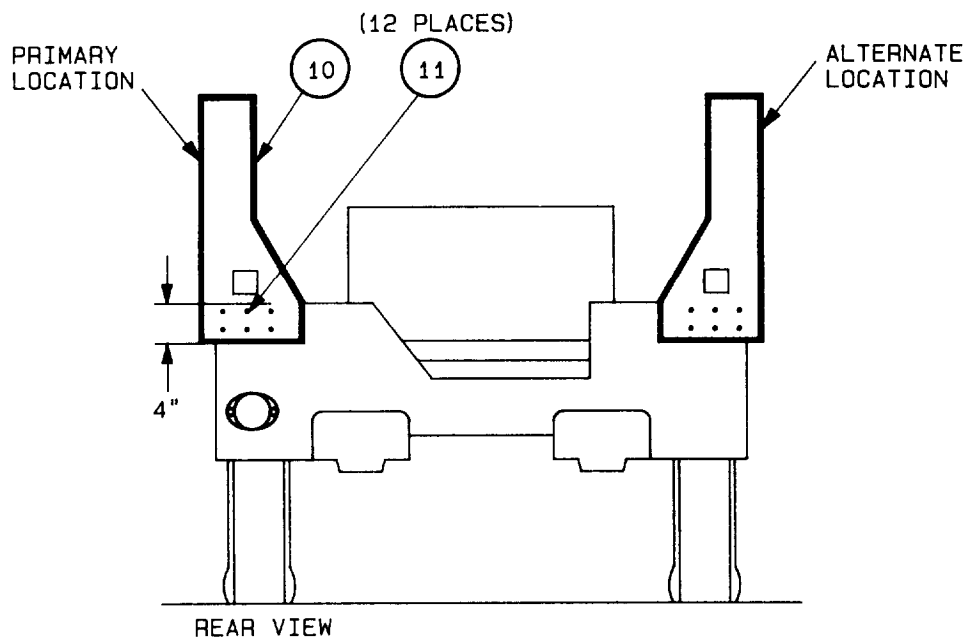
10. **Install electrical equipment mount**, consisting of mounting base (7) and switching unit (8), at predrilled holes **on support bracket** with ten 5/16-in. lockwashers (one lockwasher on top and one lockwasher on bottom, for each bolt) five 5/16-in. nuts, and five 5/16- x 1 1/8-in., where required or 5/16- x 3/4-in. bolts (9). (Two bolt lengths are provided for you to choose from.)



INSTALLATION INSTRUCTIONS (11 of 61)

MK-2443/GRC-213 INSTALLATION KIT, UTILITY TRUCK - M151A1 (cont)

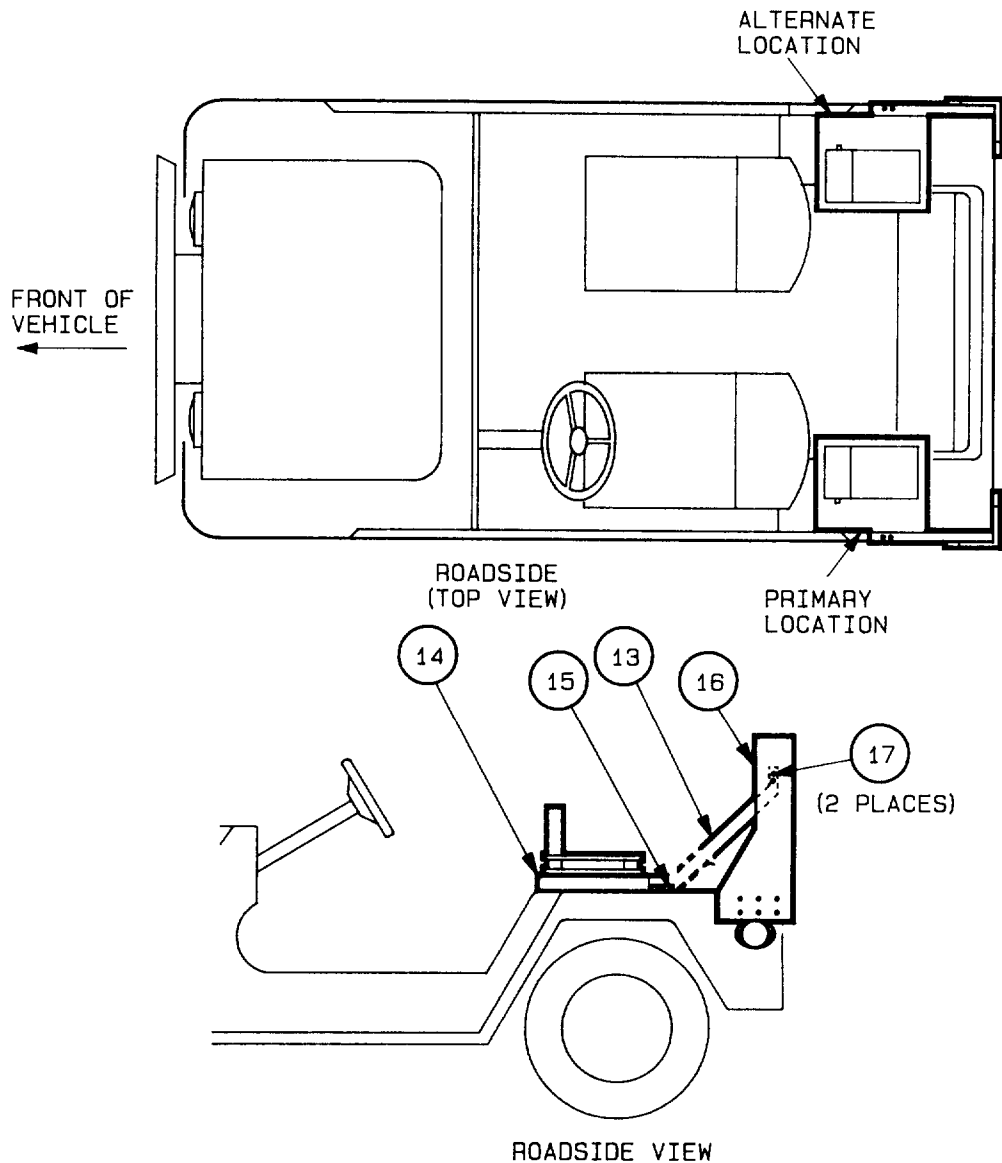
11. Hold mounting bracket (10) in position at outer rear roadside (curbside for alternate installation) corner of vehicle. **Mark** twelve 11/32-in. diameter **holes**, **using bracket** as a marking guide. Remove footman loops from vehicle, if required.
12. **Drill** twelve 11/32-in. diameter **holes** marked in step 11. Remove all burrs and sharp edges from holes.
13. **Paint** all **bare metal** exposed during drilling **prior to installation** of hardware.
14. **Install mounting bracket** (10) with twenty-four 5/16-in. lockwashers, twelve 5/16-in. nuts, eight 5/16- x 1 1/4-in. bolts, and four 5/16- x 1 1/4-in. machine screws (11). (Use four machine screws in countersunk holes.) Use reinforcements (12) inside of wheel well to-support mounting bracket (10).



INSTALLATION INSTRUCTIONS (12 of 61)

MK-2443/GRC-213 INSTALLATION KIT, UTILITY TRUCK - M151A1 (cont)

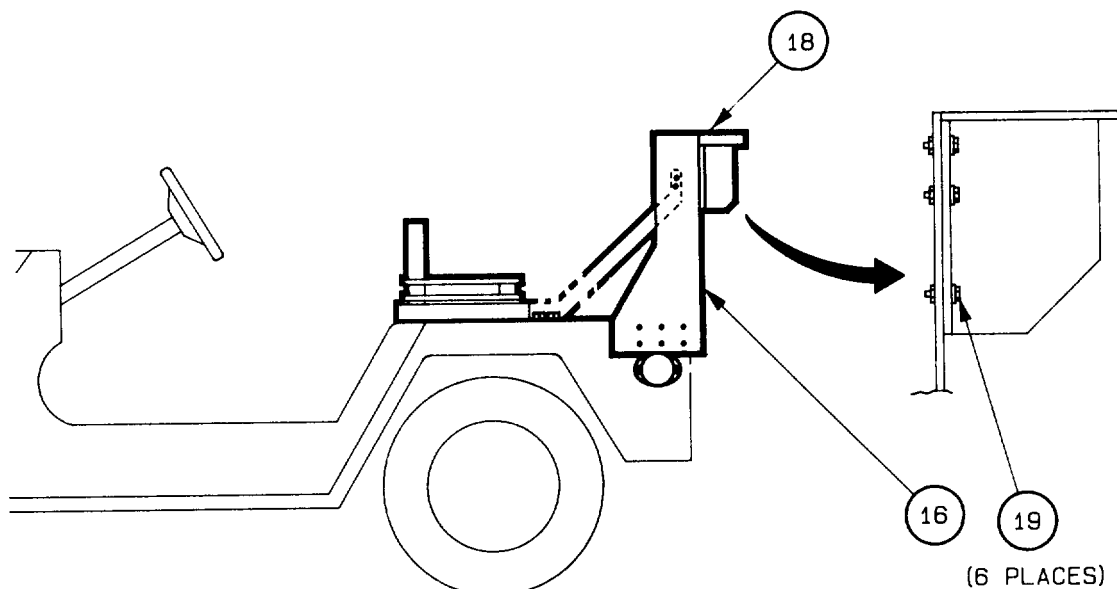
15. **Install support bracket assembly (13) on support bracket (14)** with four 5/16-in. flat washers, two 5/16-in. lockwashers, two 5/16-in. nuts, and two 5/16- x 1 1/8-in. bolts (15).
16. Hold free end of support bracket assembly (13) on mounting bracket (16). **Mark two 11/32-in. diameter holes, using support bracket assembly as a marking guide.**
17. **Drill two 11/32-in. diameter holes** marked in step 16. Remove all burrs and sharp edges from holes.
18. **Paint all bare metal** exposed during drilling **prior to installation** of hardware.
13. **Install support bracket assembly (13) on mounting bracket (16)** with four 5/16-in. flat washers, two 5/16-in. lockwashers, two 5/16-in. nuts, and two 5/16- x 1 1/8-in. bolts (17). Bolts must be installed from roadside of mounting bracket (16).



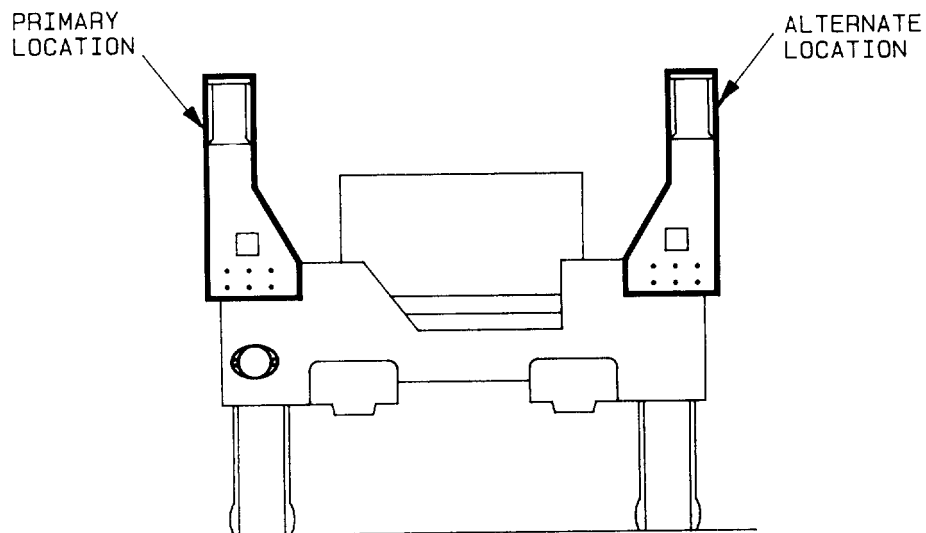
INSTALLATION INSTRUCTIONS (13 of 61)

MK-2443/GRC-213 INSTALLATION KIT, UTILITY TRUCK - M151A1 (cont)

20. **Install antenna support (18) on mounting bracket (16)** at predrilled holes with twelve 1/4-in. flat washers, six 1/4-in. lockwashers, six 1/4-in. nuts, and six 1/4- x 3/4-in. bolts (19).
21. **Remove** enough **paint around mounting hole** on underside of antenna support (18) to permit grounding ring (part of mast base) to touch bare metal.
22. Lightly **coat bare metal** on antenna support (18) around mounting hole **with graphite grease**.



ROADSIDE VIEW

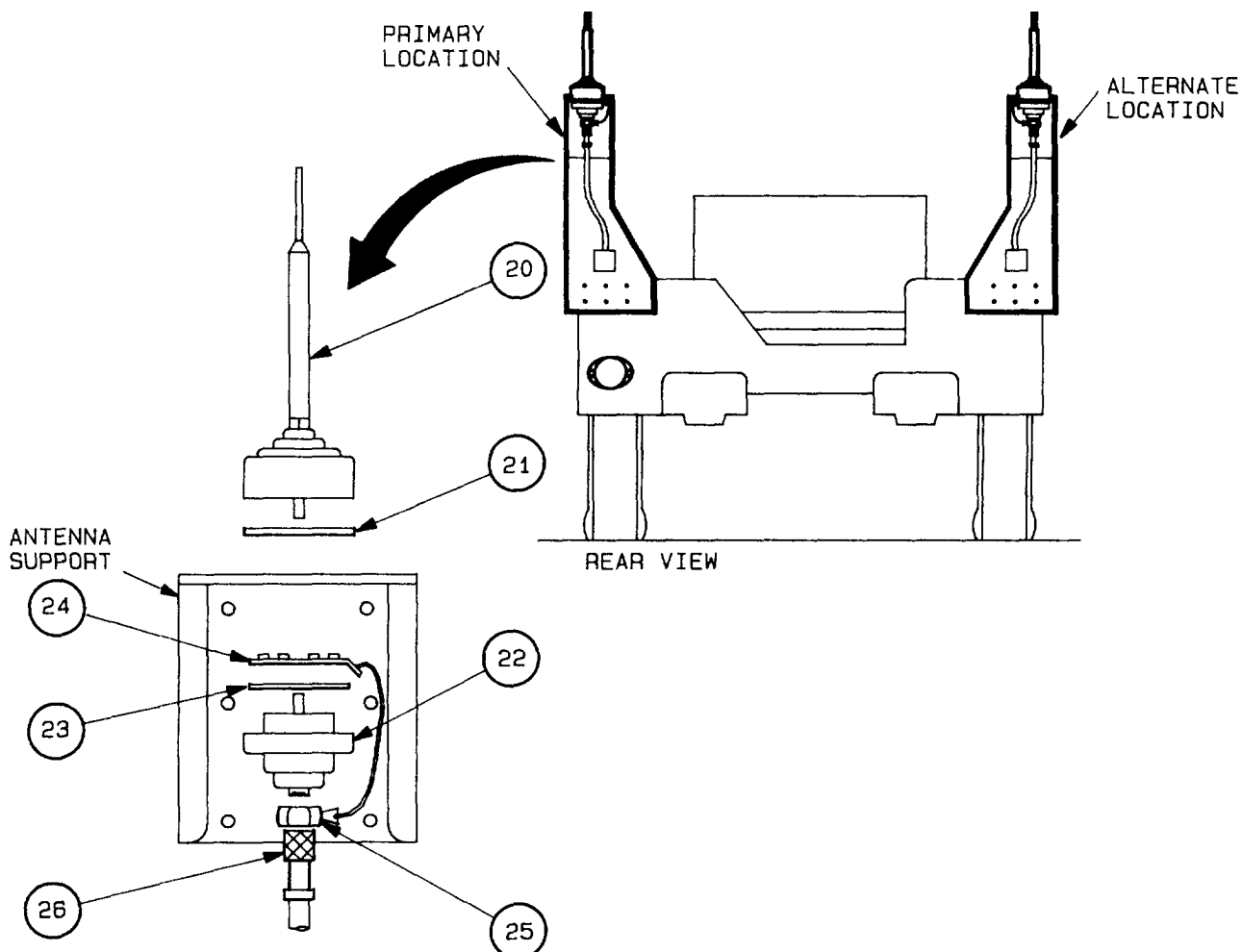


REAR VIEW

INSTALLATION INSTRUCTIONS (14 of 61)

MK-2443/GRC-213 INSTALLATION KIT, UTILITY TRUCK - M151A1 (cont)

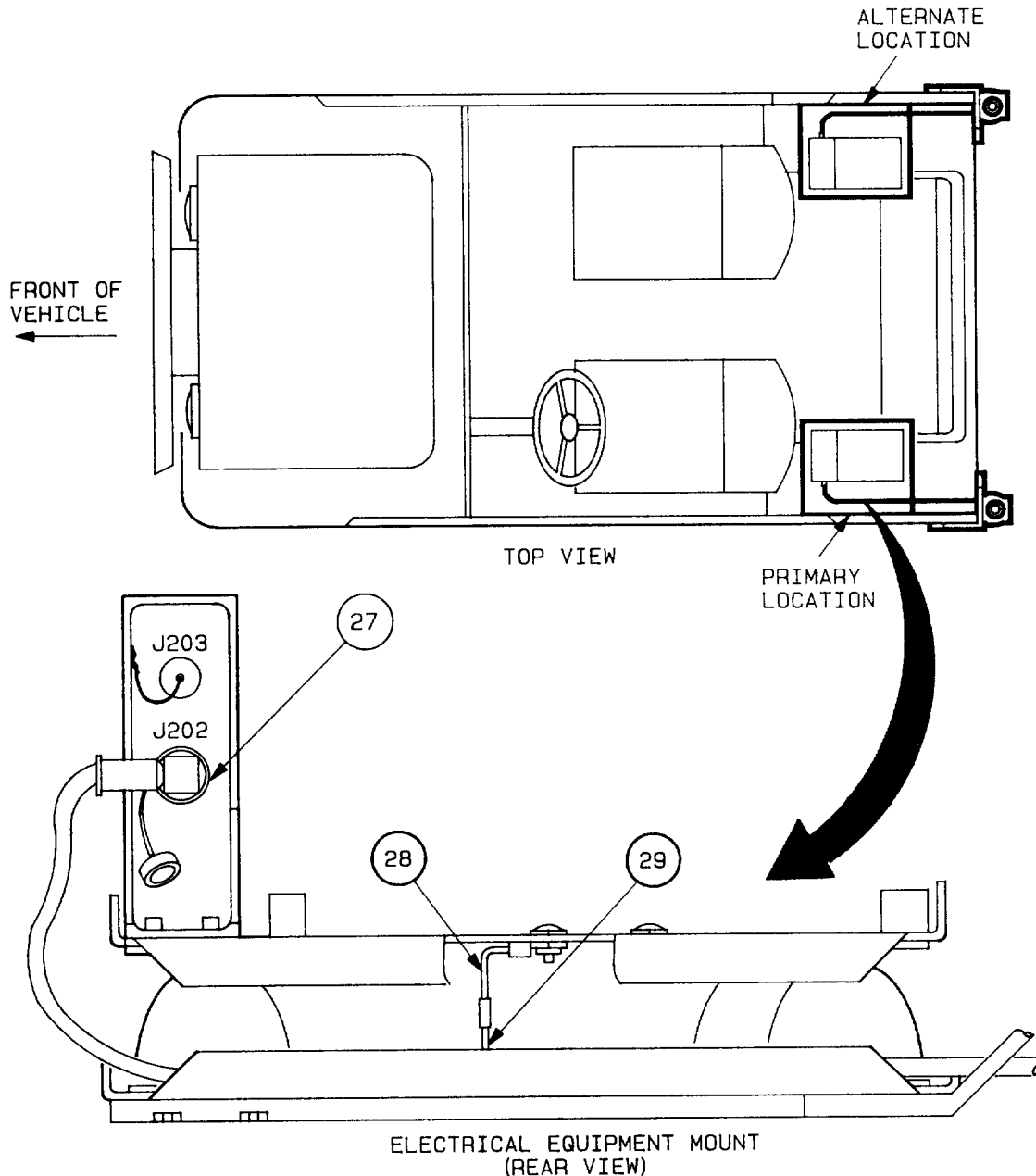
23. Carefully **unscrew** two **subassemblies** of mast base by hand.
24. **Place upper subassembly (20) and rubber gasket (21) over hole in antenna support.**
25. **Place lower subassembly (22), rubber gasket (23), and grounding ring (24) under hole in antenna support.** The grounding ring is against bare metal of antenna support.
26. **Mate** outer threads of **lower subassembly (22)** male section **with** inner threads of **upper subassembly (20)** female section. Screw two subassemblies together handtight.
27. **Place grounding clamp (25) over receptacle** that extends **from lower subassembly (22)**. Do not tighten grounding clamp.
28. **Connect antenna cable (26)** to receptacle that extends from lower subassembly (22).
29. Slip grounding clamp (25) down over knurled surface of straight connector of antenna cable (26). **Tighten grounding clamp.**



INSTALLATION INSTRUCTIONS (15 of 61)

MK-2443/GRC-213 INSTALLATION KIT, UTILITY TRUCK - M151A1 (cont)

30. Route free end of antenna cable through square hole in mounting bracket and connect to lower connector J202 (27) on back of switching unit.
31. Verify that quick-release ground cable (28) from back bottom side of upper tray is connected to quick-release ground cable (29) on back top side of lower tray on mounting base. Connect if necessary. Connection of quick-release ground cables on top side of upper tray in AN/GRC-213 is covered in Interconnections paragraph in TM 11-5820-923-12.



INSTALLATION INSTRUCTIONS (16 of 61)

MK-2443/GRC-213 INSTALLATION KIT, UTILITY TRUCK - M151A1 (cont)

32. **Screw** three identical antenna **bottom sections** (30) **together**.
33. **Attach** antenna **rope clamp** (31) **and rope** (32), to top antenna bottom section (30).
34. **Attach** antenna **tip** (33) **to** antenna **top section** (34) **and screw into** top of antenna **center section** (35).
35. **Screw** antenna **center section** (35) with attached tip (33) and top section (34) **into** top attached antenna **bottom section** (30) with attached rope clamp (31).
36. **Screw assembled antenna** into female section that extends from **upper subassembly** (36).
37. Secure antenna to vehicle with rope (32).

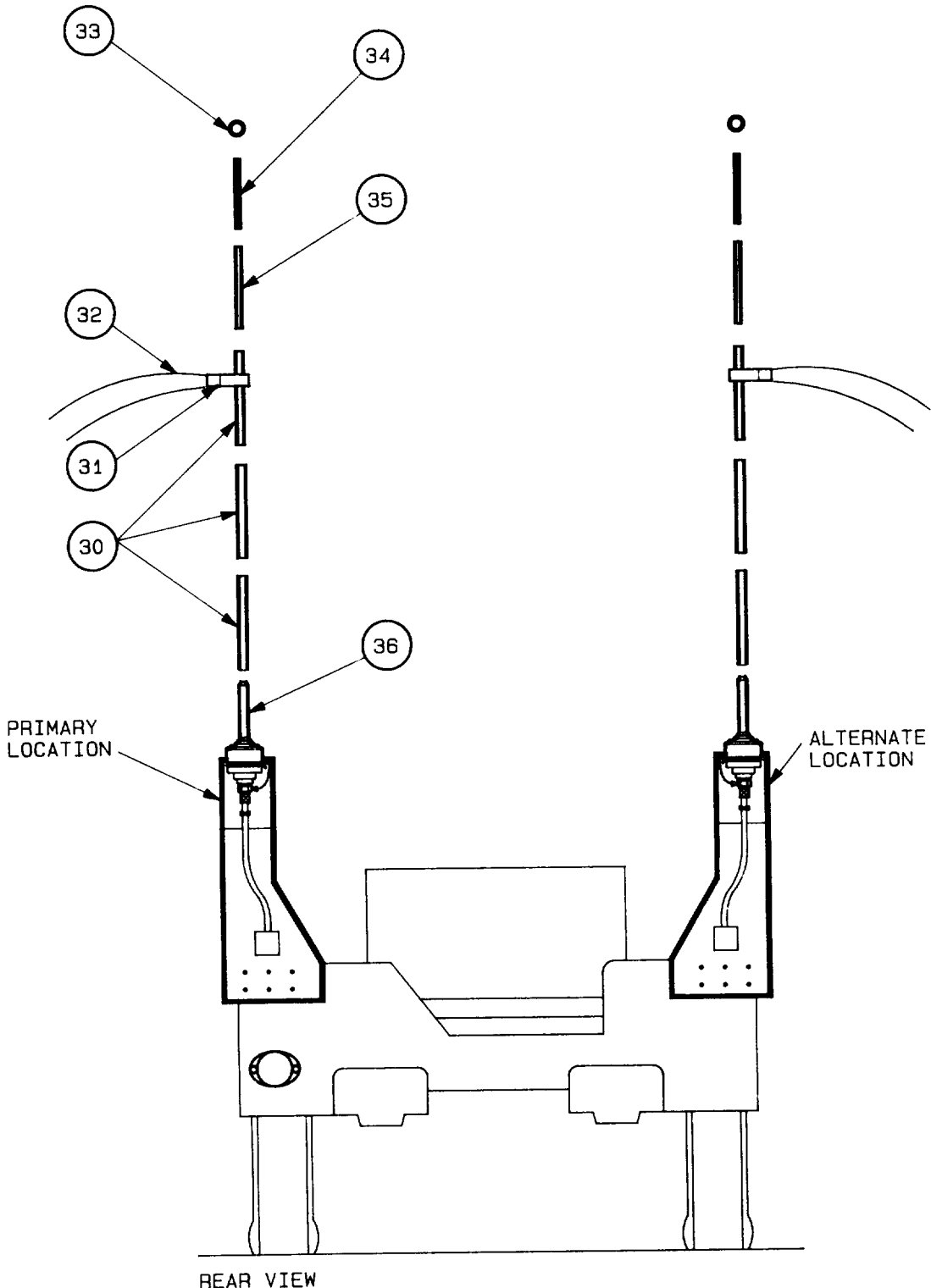
NOTE

Antenna guard is used to protect antenna mast from wear caused by antenna mast rubbing against vehicle roof or any other part of vehicle.

38. Place antenna guard on antenna mast where antenna mast touches vehicle. Install, using clamps (part of antenna guard) on top and bottom of antenna guard.

INSTALLATION INSTRUCTIONS (17 of 61)

MK-2443/GRC-213 INSTALLATION KIT, UTILITY TRUCK - M151A1 (cont)



INSTALLATION INSTRUCTIONS (18 of 61)

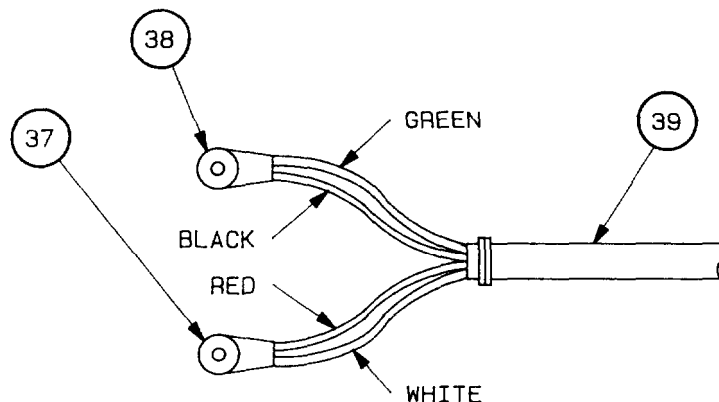
MK-2443/GRC-213 INSTALLATION KIT, UTILITY TRUCK - M151A1 (cont)

38. **Solder** one terminal lug (37) (part of battery power cable) to **connected** ends of **red and white wires**, and one terminal lug (38) to **connected** ends of **black and green wires** of battery power cable (39).
39. **Connect** terminal lug attached to red and white wires of battery power cable to positive (+) **terminal** (40) of battery nearest driver's seat. **Connect** terminal lug attached to **black and green wires** of cable to negative (-) **terminal** (41) of battery nearest curbside of truck.
40. **Insert** rubber **grommets** (42) in holes in tool compartment and **route battery power cable** through holes.

NOTE

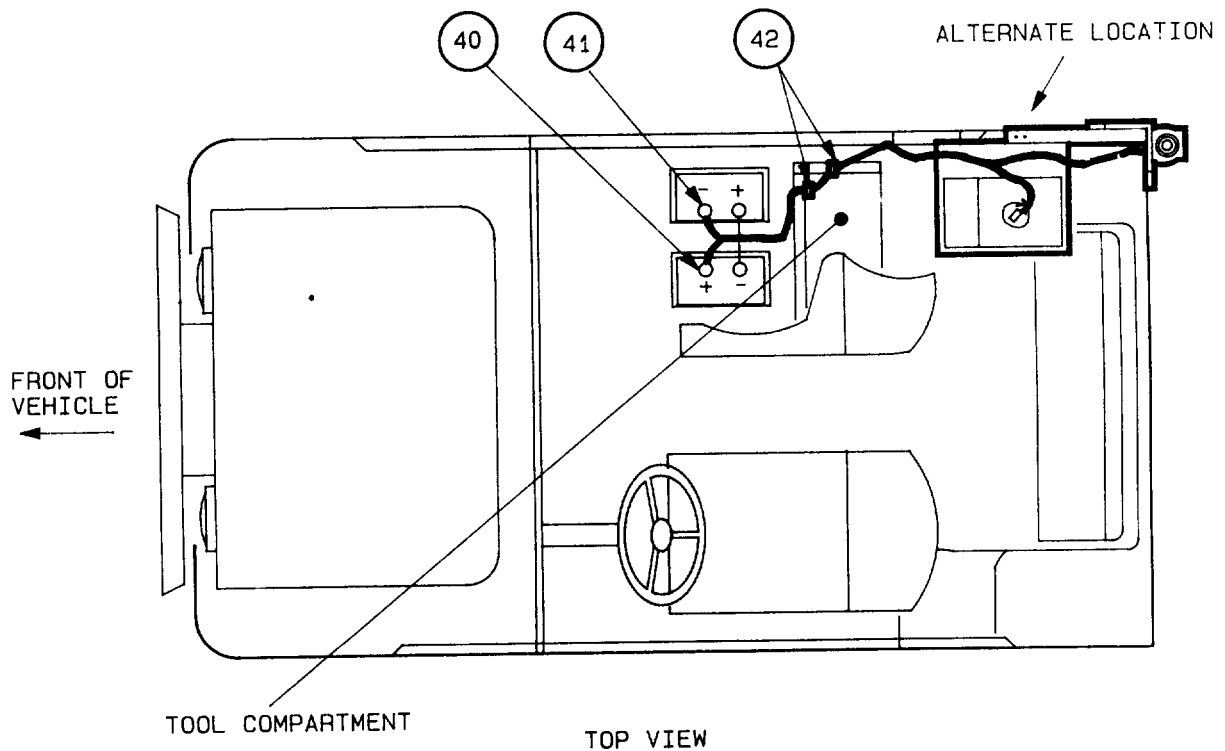
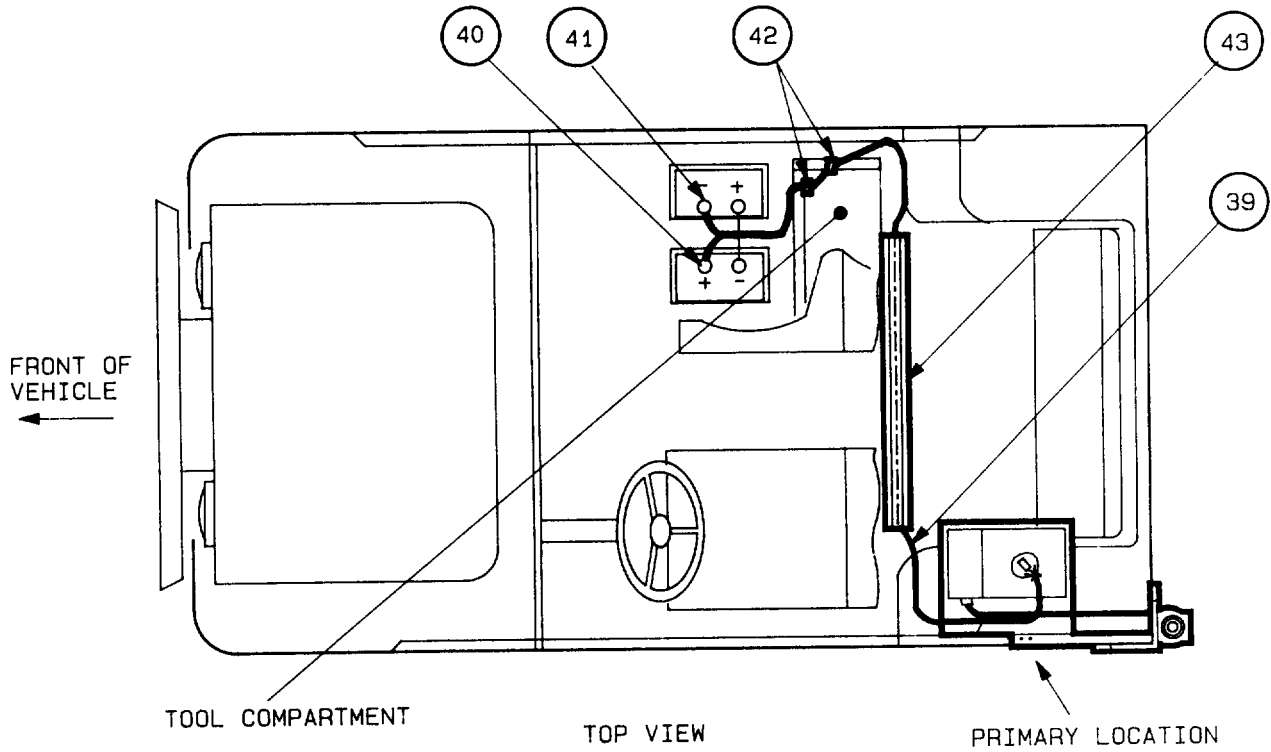
Steps 41 through 44 are for primary installation only. For alternate installation go directly to step 45.

41. Hold guard assembly (43) (for roadside installation only) in position behind vehicle seats. **Using assembly** as a marking guide, **mark** ten 1/8-in. **holes** in vehicle floor.
42. **Drill** ten 1/8-in. **holes** marked in step 41. Remove all burrs and sharp edges from holes.
43. **Paint** all **bare metal** exposed during drilling **prior to installation** of hardware.
44. **Install guard assembly** (43) with ten size 10 self-tapping screws. **Route power cable** (39) through guard assembly **during installation**.
45. Connection of battery power cable to AN/GRC-213 is covered in Interconnections paragraph in TM 11-5820-923-12.



INSTALLATION INSTRUCTIONS (19 of 61)

MK-2443/GRC-213 INSTALLATION KIT, UTILITY TRUCK - M151A1 (cont)



INSTALLATION INSTRUCTIONS (20 of 61)

MK-2443/GRC-213 INSTALLATION KIT, UTILITY TRUCK - M151A1 (cont)

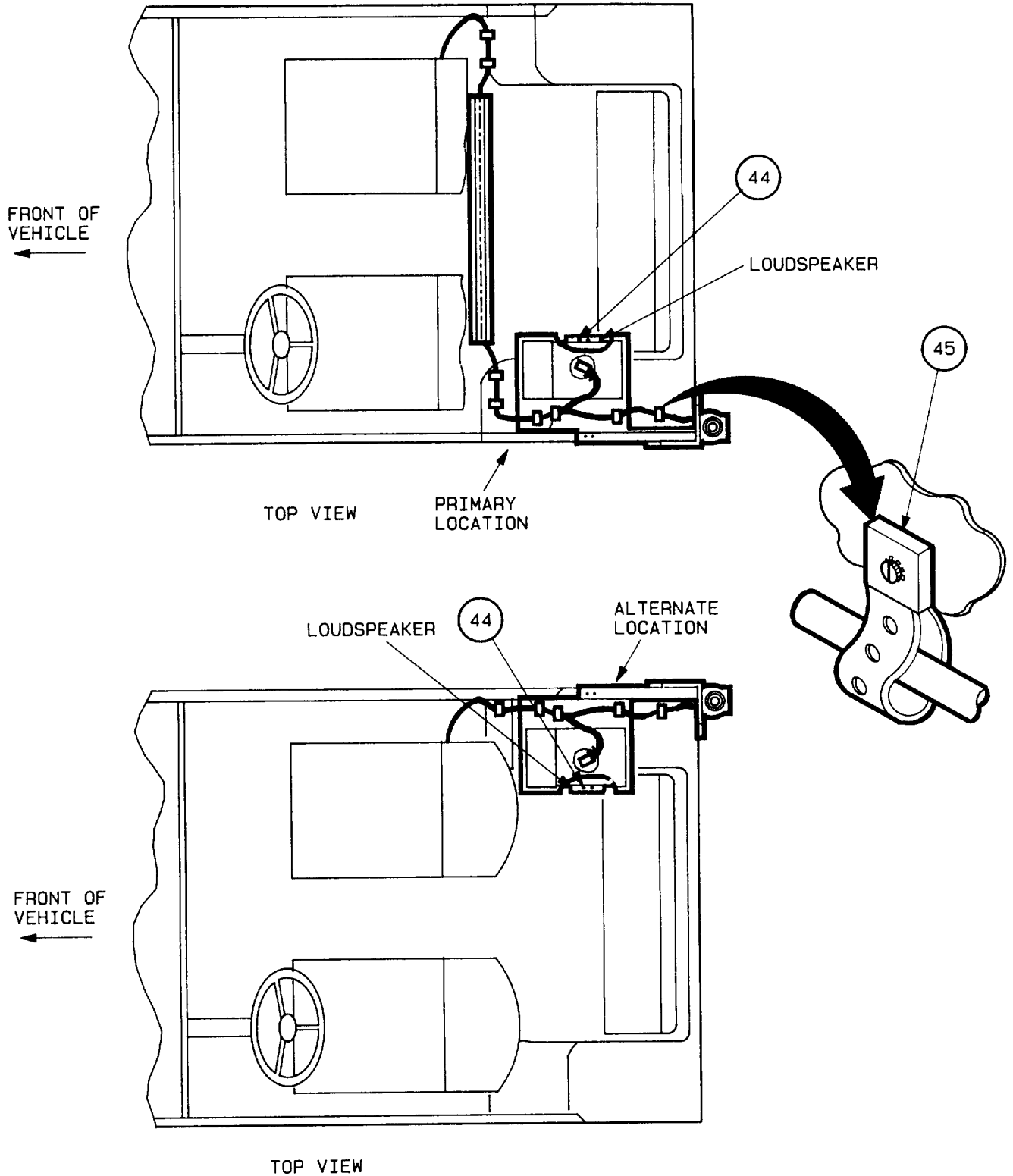
NOTE

Installation of attaching parts for AN/GRC-213 loudspeaker in steps 46 and 47 must be performed at the same time as AN/GRC-213 installation. Refer to Mounting paragraph in TM 11-5820-923-12.

46. Hold loudspeaker (part of AN/GRC-213) in mounting location (position illustrated is suggested only.) **Mark** two 9/32-in. diameter mounting **holes, using support bracket** (part of loudspeaker) as a marking guide.
47. **Drill** two 9/32-in. diameter **holes** marked in step 46. **Remove** all **burrs, sharp edges, metal shavings, and chips** from within **vehicle**.
48. **Paint** all **bare metal** exposed during drilling **prior to installation** of hardware.
49. **Install loudspeaker** with two 1/4-in. star washers, two 1/4-in. nuts, and two 1/4- x 3/4-in. bolts (44).
50. **Place cable clamps** from cable clamp kit **on battery power cable and antenna cable**, as required, and secure with twelve 1/4-in. nuts, six 1/4-in. lockwashers, and clamp strap fastener assemblies (45).
51. Verify that all attaching parts and fastening devices are secure. If not, secure as necessary.

INSTALLATION INSTRUCTIONS (21 of 61)

MK-2443/GRC-213 INSTALLATION KIT, UTILITY TRUCK - M151A1 (cont)



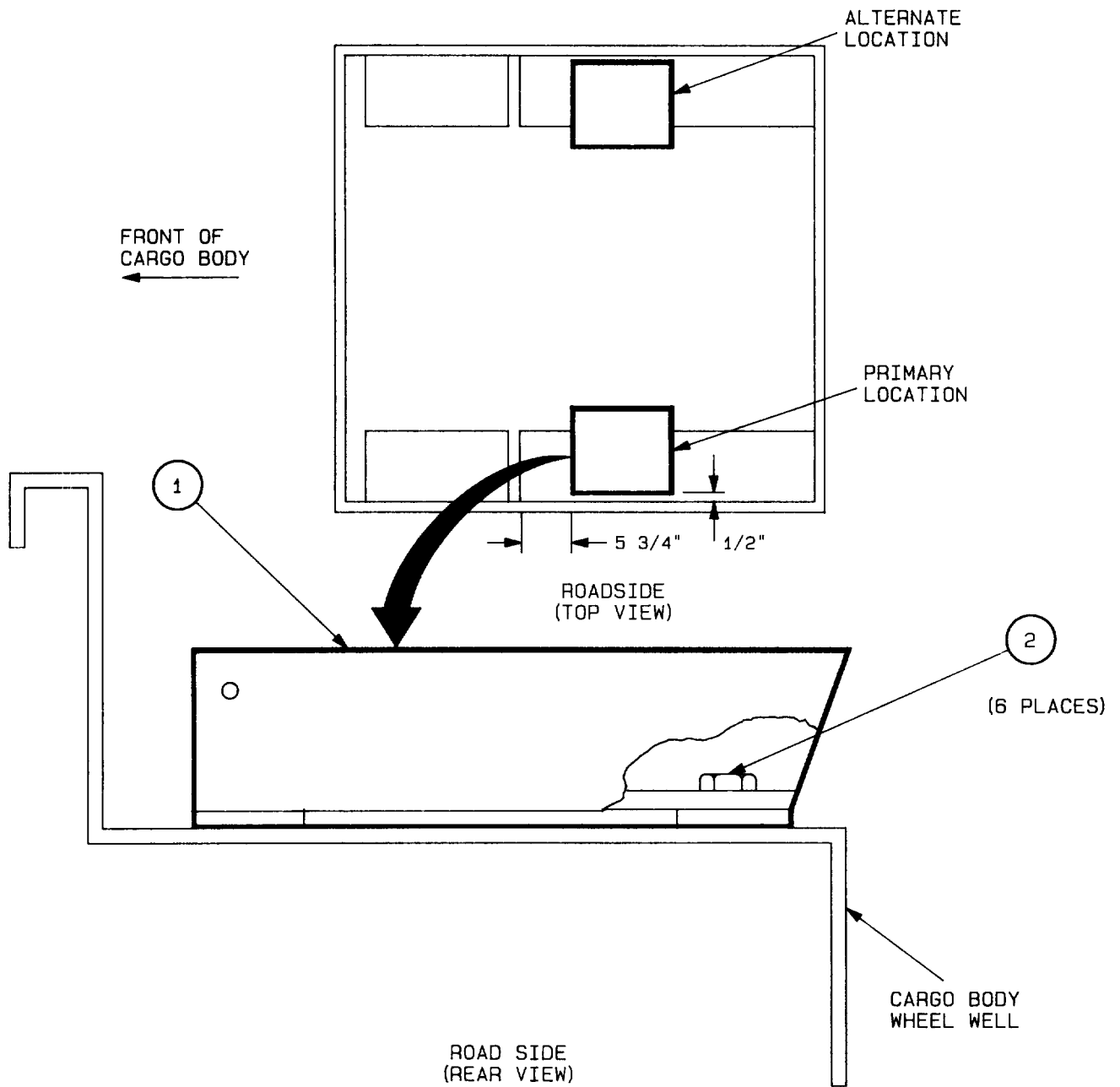
INSTALLATION INSTRUCTIONS (22 of 61)

MK-2444/GRC-213 INSTALLATION KIT, CARGO TRUCK - M561

1. Hold mount (1) in location on wheel well of cargo body (primary location roadside or alternate location curbside). **Mark** six 11/32-in. diameter mounting **holes, using mount (1)** as a marking guide.
2. **Drill** six 11/32-in. diameter **holes** marked in step 1. Remove all burrs and sharp edges from holes.
3. **Paint** all **bare metal** exposed during drilling **prior to installation** of hardware.
4. **Apply sealant** to screw heads and threads, washers, nuts, and unused holes **to maintain water tightness.**
5. **Install mount (1)** with three 5/16-in. lockwashers, six 5/16-in. flat washers, six 5/16-in. nuts, and six 5/16- x 1-in. bolts (2).

INSTALLATION INSTRUCTIONS (23 of 61)

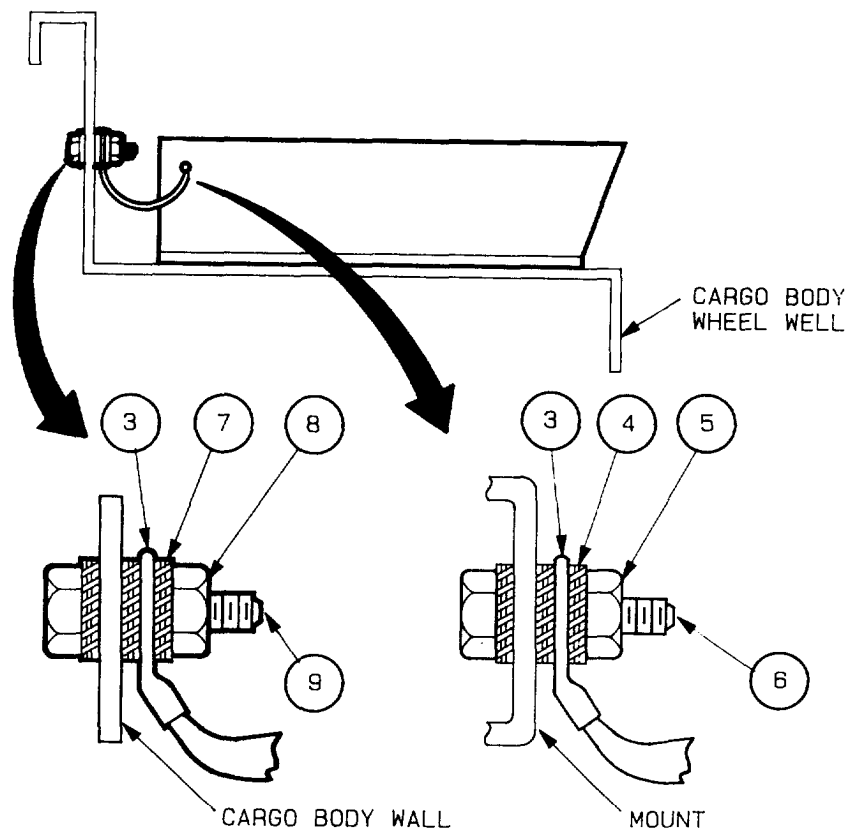
MK:2444/GRC-213 INSTALLATION KIT, CARGO TRUCK - M561 (cont)



INSTALLATION INSTRUCTIONS (24 of 61)

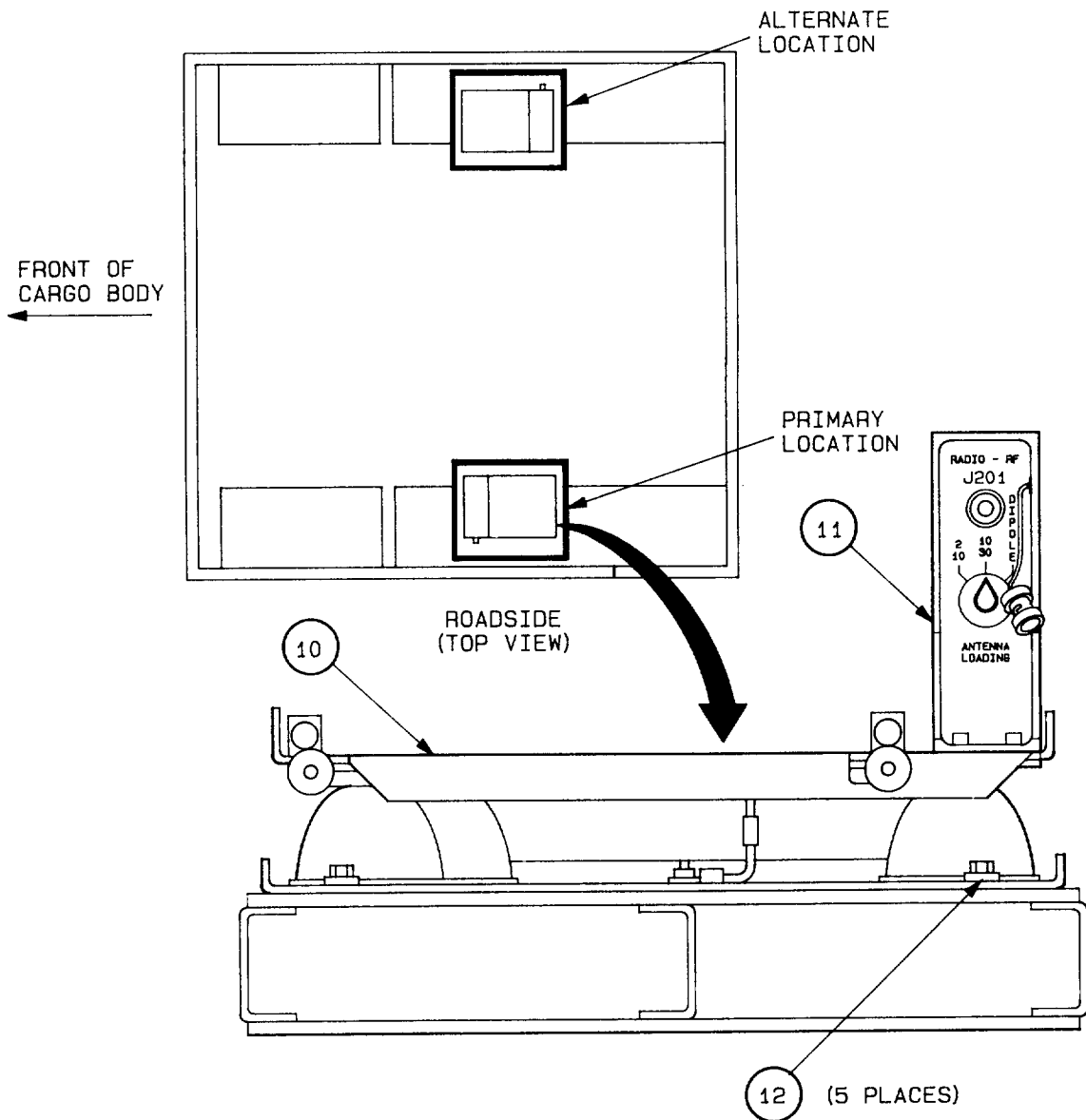
MK-2444/GRC-213 INSTALLATION KIT, CARGO TRUCK - M561 (cont)

6. **Attach electrical lead (3)** at predrilled hole **on mount** with three 5/16-in. star washers (4), one 5/16-in. nut (5), and one 5/16- x 1-in. bolt (6).
7. **Use** free end of **electrical lead (3)** as a marking guide. **Mark** one 9/32-in. **hole** on cargo body wall.
8. **Drill** one 9/32-in. **hole** marked in step 7. Remove all burrs and metal shavings from holes.
9. **Paint** all **bare metal** exposed during drilling **prior to installation** of hardware.
10. **Apply sealant** to screw head and threads, washers, and nut **to maintain water tightness**.
11. **Attach electrical lead (3) to vehicle wall** with three 1/4-in. star washers (7), one 1/4-in. nut (8), and one 1/4- x 1-in. bolt (9).
12. **Install electrical equipment mount**, consisting of mounting base (10) and switching unit (11), at predrilled holes **on mount** with ten 5/16-in. lockwashers (one lockwasher on top and one lockwasher on bottom for each bolt) five 5/16-in. nuts, and five 5/16- x 1 1/8-in., where required, or 5/16- x 3/4-in. bolts (12). (Two bolt lengths are provided for you to choose from.)



INSTALLATION INSTRUCTIONS (25 Of 61)

MK-2444/GRC-213 INSTALLATION KIT, CARGO TRUCK - M561 (cont)



INSTALLATION INSTRUCTIONS (26 OF 61)

MK-2444/GRC-213 INSTALLATION KIT, CARGO TRUCK - M561 (cont)

13. **Remove tarpaulin** holddown **hook** (part of vehicle) **and attaching parts** from front roadside (curbside for alternate installation) of carrier.
14. **Install tarpaulin** holddown **hook** at predrilled holes **on** front of **antenna bracket** (13). Use parts removed in step 13.
15. **Align** rectangular welded spacers of **antenna bracket** (13) **on** forward, **outer carrier** hat section in area of front seat hinge screws. Align inner spacer with forward bow socket.

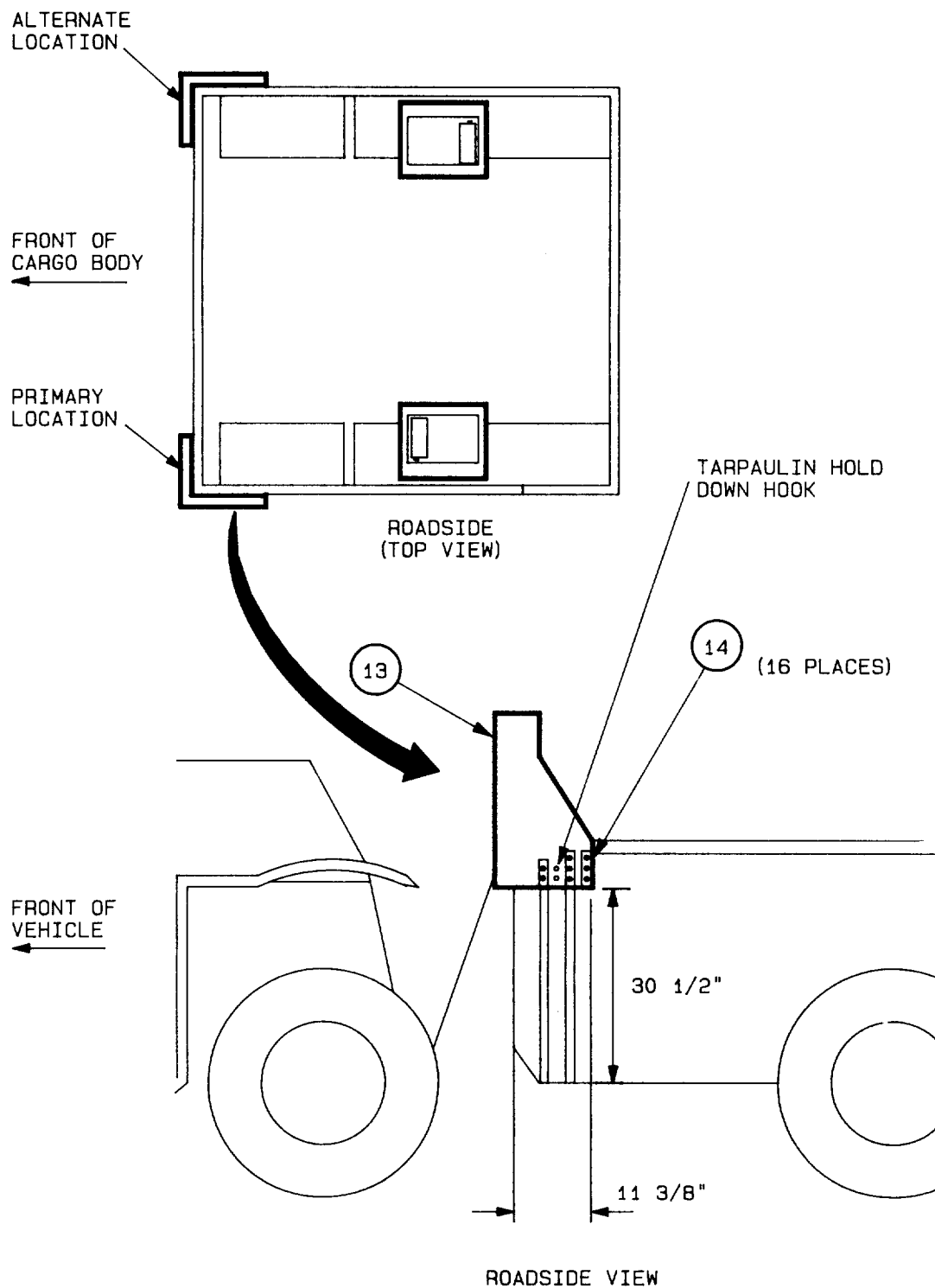
NOTE

Front bow retaining pin must be inserted so that head of retaining pin does not interfere with antenna bracket.

16. **Slide antenna bracket** (13) upward **into position** so that tops of welded spacers are under outer lip of carrier body.
17. Hold antenna bracket (13) in position with C-clamps. **Drill** sixteen 1/4-in. diameter **holes** in carrier body **using antenna bracket** as a drill guide. Remove all burrs and sharp edges from holes.
18. **Paint** all **bare metal** exposed during drilling **prior to installation** of hardware.
19. **Apply sealant** to screw heads and threads, washers, nuts, and unused holes **to maintain water tightness**.
20. **Install antenna bracket** (13) with 32 1/4-in. lockwashers, sixteen 1/4-in. nuts, and sixteen 1/4-x3-in. bolts (14). (Bolts should be installed so that heads are located on inside wall.)

INSTALLATION INSTRUCTIONS (27 of 61)

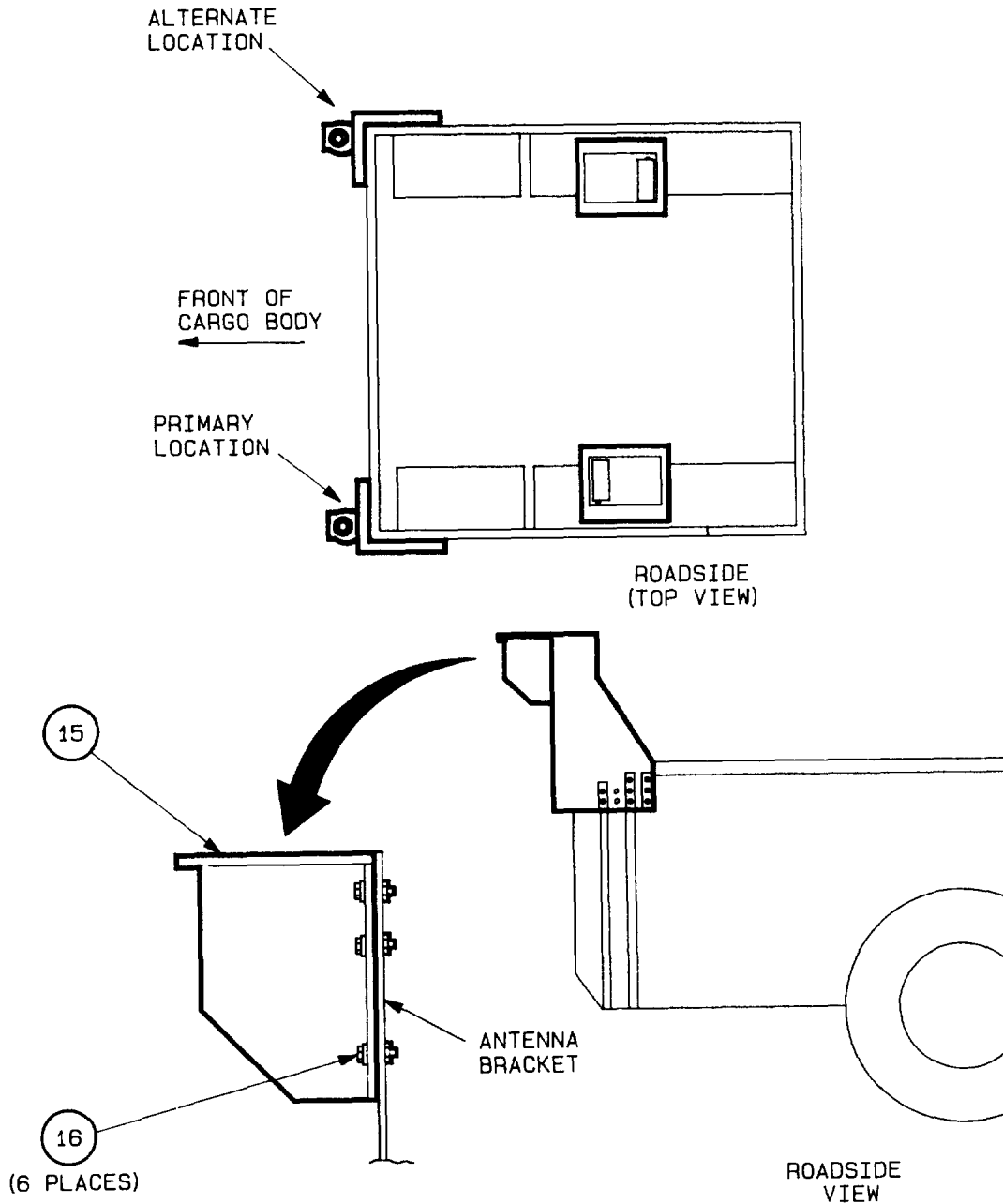
MK-2444/GRC-213 INSTALLATION KIT, CARGO TRUCK - M561 (cont)



INSTALLATION INSTRUCTIONS (28 of 61)

MK-2444/GRC-213 INSTALLATION KIT, CARGO TRUCK - M561 (cont)

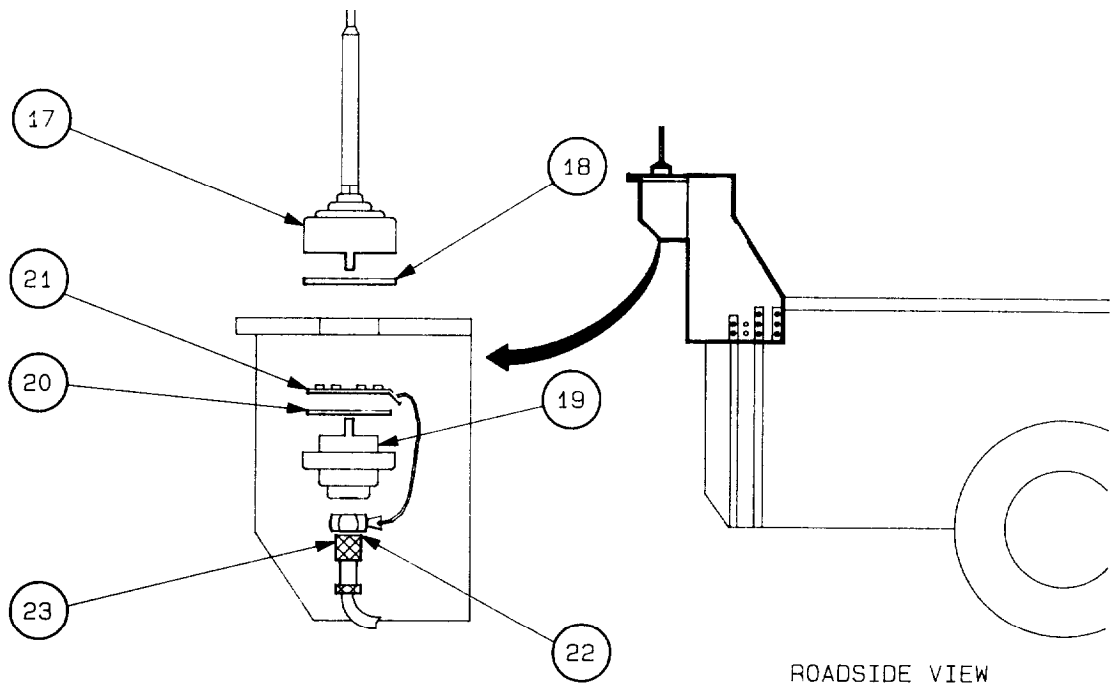
21. Install antenna support (15) at predrilled holes on antenna bracket with twelve 1/4-in. flat washers, six 1/4-in. lockwashers, six 1/4-in. nuts, and six 1/4- x 3/4-in. bolts (16).



INSTALLATION INSTRUCTIONS (29 of 61)

MK-2444/GRC-213 INSTALLATION KIT, CARGO TRUCK - M561 (cont)

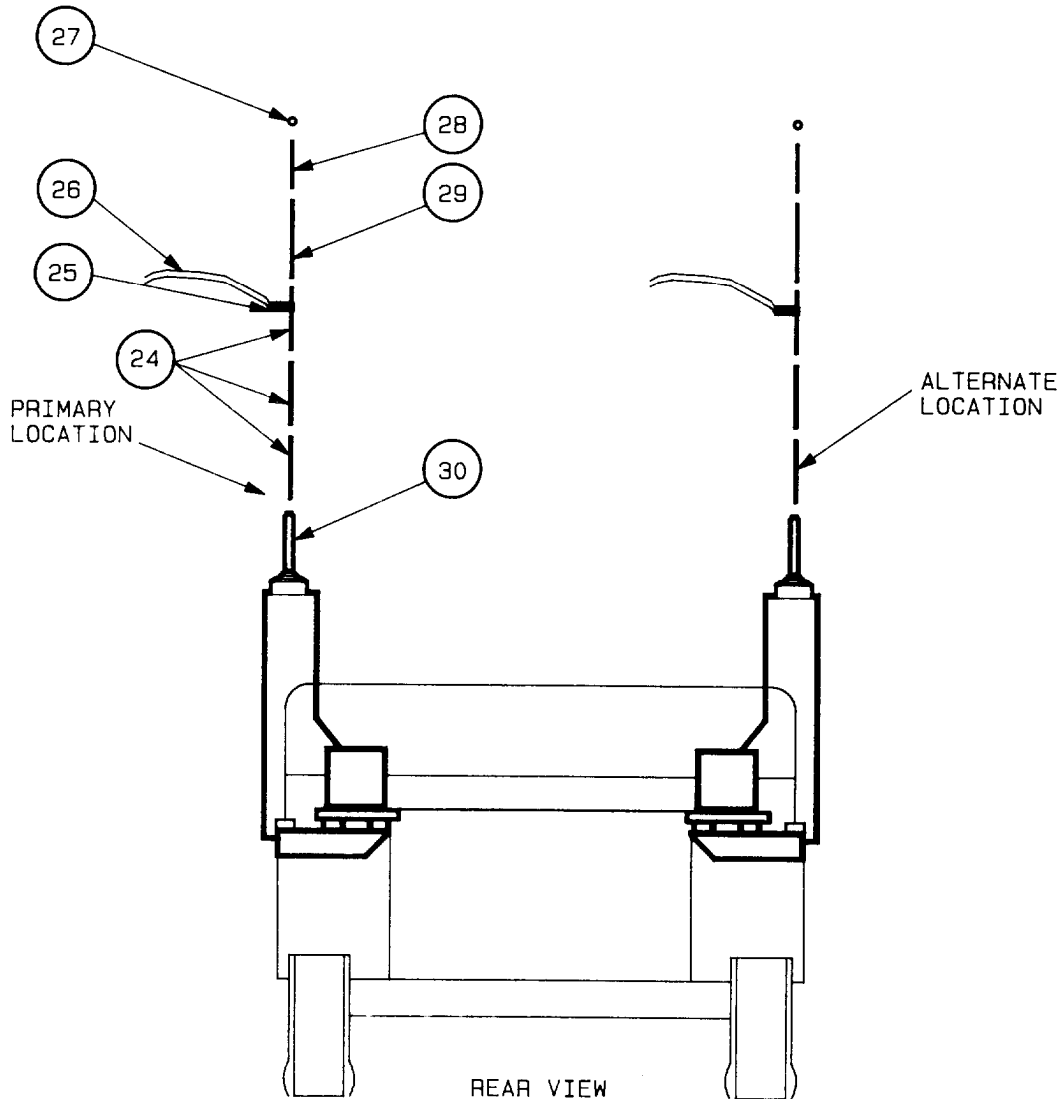
22. **Remove** enough **paint around mounting hole** on underside of antenna support (15) to permit grounding ring (21) to touch bare metal.
23. Lightly **coat bare metal** around mounting hole **with graphite grease**.
24. Carefully **unscrew** two **subassemblies** of mast base by hand.
25. **Place upper subassembly** (17) and rubber gasket (18) **over hole in antenna support**.
26. **Place lower subassembly** (19), rubber gasket (20), and grounding ring (21) **under hole in antenna support**. Grounding ring is against bare metal of antenna support.
27. **Mate** outer threads of **lower subassembly** (19) male section **with** inner threads of **upper subassembly** (17) female section. Screw two subassemblies together handtight.
28. **Place grounding clamp** (22) **over receptacle** that extends from **lower subassembly** (19). Do not tighten grounding clamp.
29. **Connect antenna cable** (23) to receptacle that extends from lower subassembly (19) and tighten.
30. Slip grounding clamp (22) down over knurled surface of straight connector of antenna cable (23). **Tighten grounding clamp**.



INSTALLATION INSTRUCTIONS (30 of 61)

MK-2444/GRC-213 INSTALLATION KIT, CARGO TRUCK - M561 (cont)

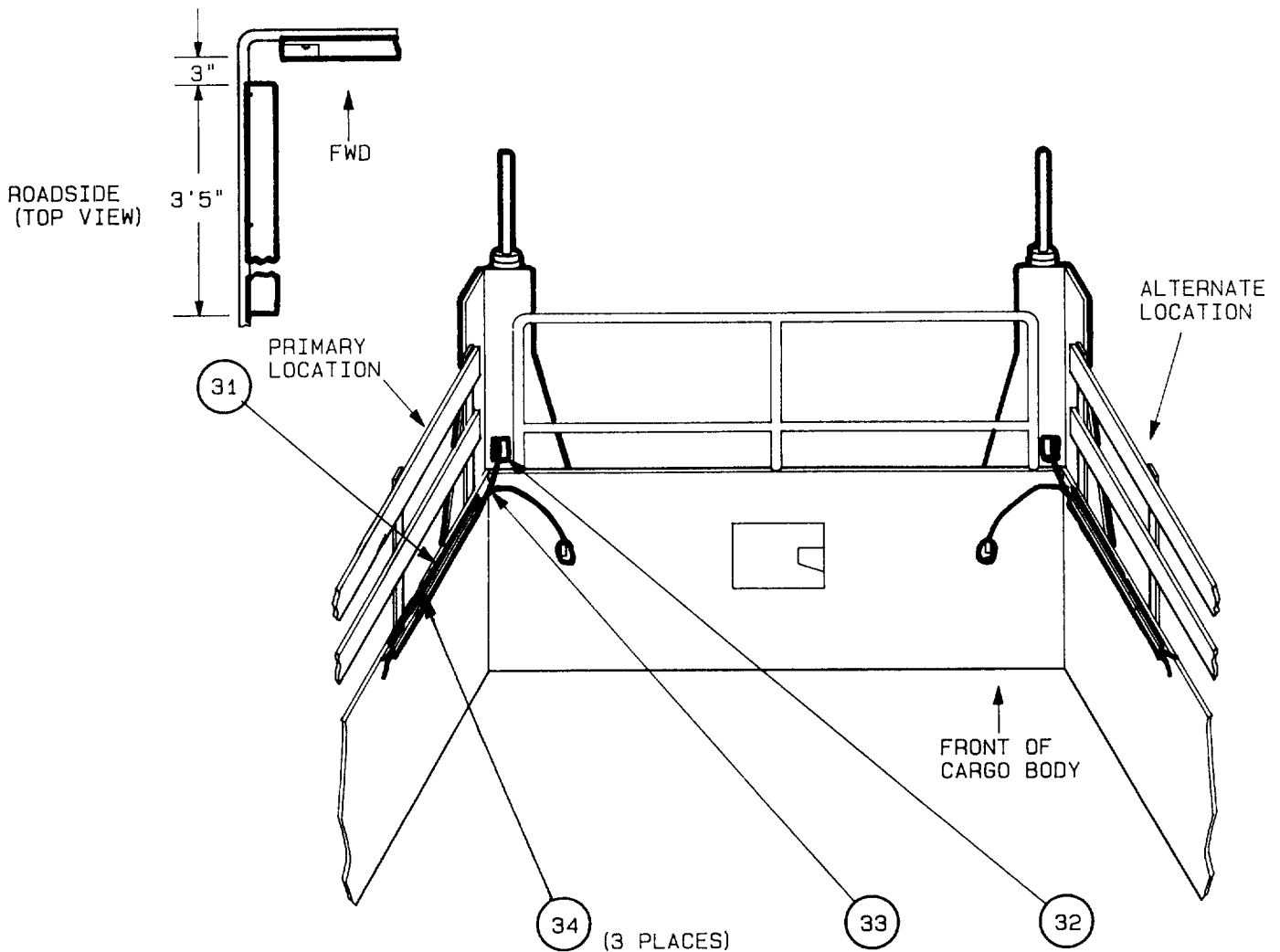
31. **Screw** three identical antenna **bottom sections** (24) **together**.
32. **Attach** antenna **rope clamp** (25) and **rope** (26), to top antenna bottom section (24).
33. **Attach** antenna **tip** (27) to antenna **top section** (28) and **screw into** top of antenna **center section** (29).
34. **Screw** antenna **center section** (29) with attached tip (27) and top section (26) **into** top attached antenna **bottom section** (24) with attached rope clamp (25).
35. **Screw assembled antenna into** female section that extends from **upper subassembly** (30).
36. Secure antenna to vehicle with rope (26).



INSTALLATION INSTRUCTIONS (30 OF 61)

MK-2444/GRC-213 INSTALLATION KIT, CARGO TRUCK - M561 (cont)

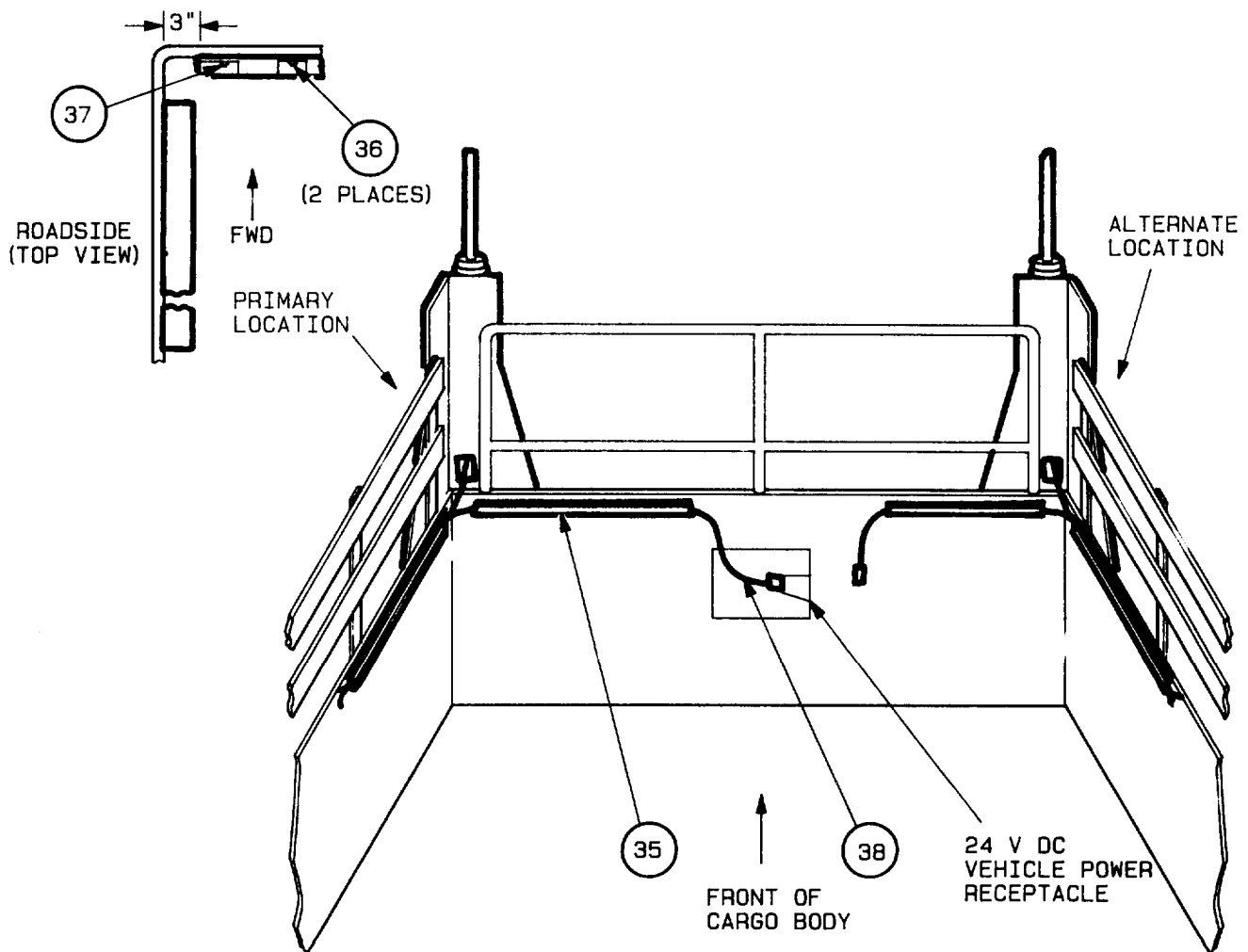
37. Hold conduit (31) in location along upper inner edge of carrier body, roadside (primary location) or curbside (alternate location), flush with top of carrier. **Mark** three 9/32-in. diameter **holes, using conduit** as a marking guide.
38. **Drill** three 9/32-in. diameter **holes** marked in step 37. Remove all burrs and sharp edges from holes.
39. **Paint** all **bare metal** exposed during drilling **prior to installation** of hardware.
40. **Apply sealant** to screw heads and threads, washers, nuts, and unused holes **to maintain water tightness**.
41. Hold antenna cable (32) and power cable (33) in position. (Route antenna cable through large square hole near bottom of antenna bracket.) **Install conduit (31)** with three 1/4-in. flat washers, three 1/4-in. self-locking nuts, and three 1/4- x 3/4-in. bolts (34). (Use sheet metal screws in blind areas.)



INSTALLATION INSTRUCTIONS (32 of 61)

MK-2444/GRC-213 INSTALLATION KIT, CARGO TRUCK - M561 (cont)

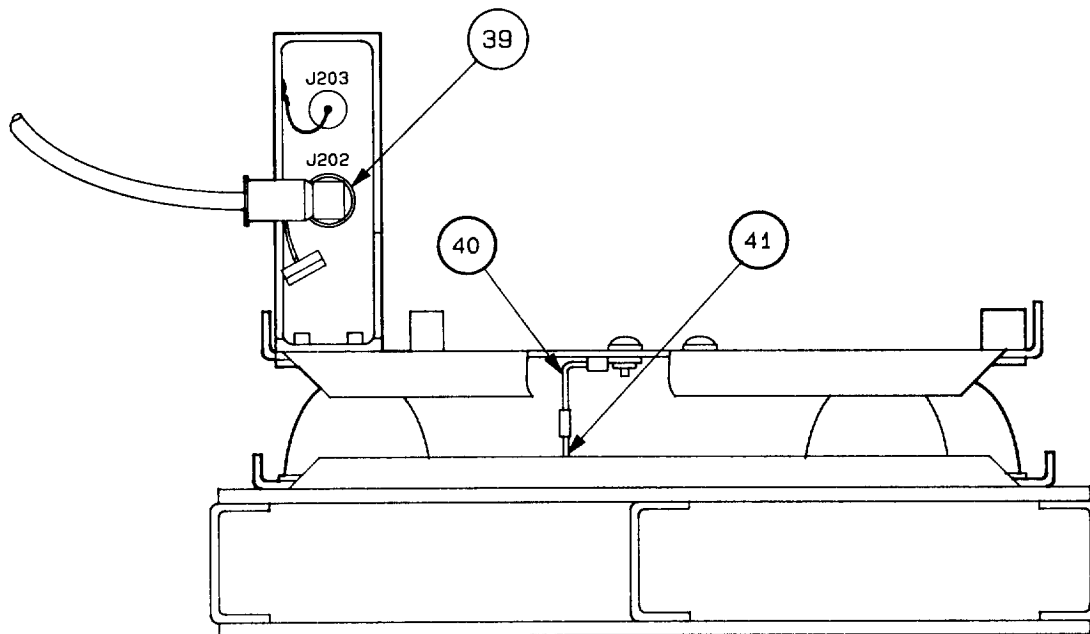
42. Cut raceway base (35) to 25 in. Hold raceway base (35) in location on forward carrier wall, roadside (primary location) or curbside (alternate location), flush with top of carrier. **Mark three 9/32-in. diameter holes, using raceway base as a marking guide.**
43. **Drill three 9/32-in. holes** marked in step 42. Remove all burrs and sharp edges from holes.
44. **Paint all bare metal** exposed during drilling **prior to installation** of hardware.
45. **Apply sealant** to screw heads and threads, washers, nuts, and unused holes **to maintain water tightness.**
46. **Install raceway base (35)** with two 1/4-in. flat washers, two 1/4-in. self-locking nuts, two 1/4- x 2 3/4-in. bolts (36), and 1 #14 sheet metal screw (37).
47. Route power cable (38) through raceway base (35) and attach raceway cover to raceway base.



INSTALLATION INSTRUCTIONS (33 of 61)

MK-2444/GRC-213 INSTALLATION KIT, CARGO TRUCK - M561 (cont)

48. **Connect power cable (38) to vehicle 24 V dc power receptacle** at forward cargo panel. Leave unconnected end of power cable wrapped to protect connector from dirt and debris. Connection of power cable to AN/GRC-213 is covered in Interconnections paragraph in TM 11-5820-923-12.
49. **Connect antenna cable to lower connector J202 (39) on back of switching unit.**
50. **Verify that quick-release ground cable (40) from back bottom side of upper tray is connected to quick-release ground cable (41) on back top side of lower tray on mounting base.** Connect if necessary. Connection of quick-release ground cables on top side of upper tray to AN/GRC-213 is covered in Interconnections paragraph in TM 11-5820-923-12.



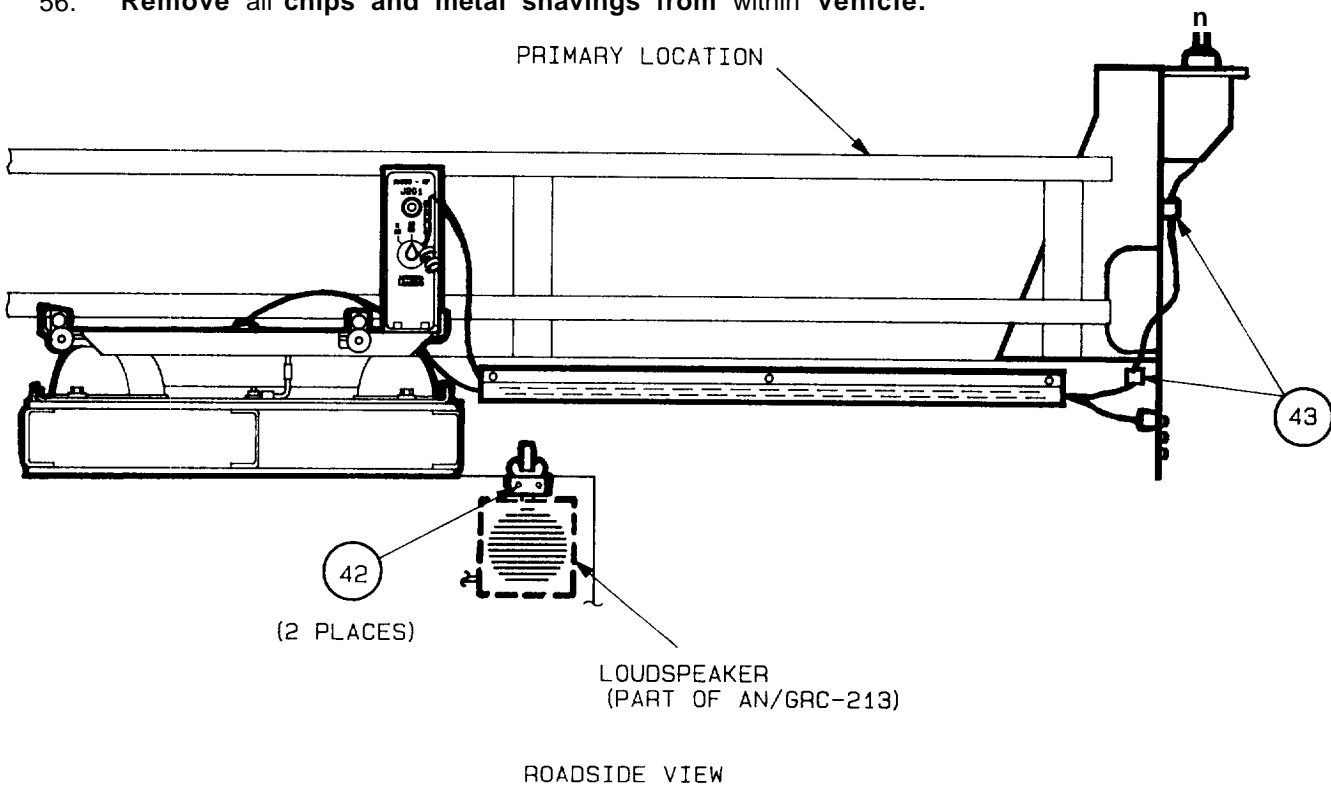
INSTALLATION INSTRUCTIONS (34 OF 61)

MK-2444/GRC-213 INSTALLATION KIT, CARGO TRUCK - M561 (cont)

NOTE

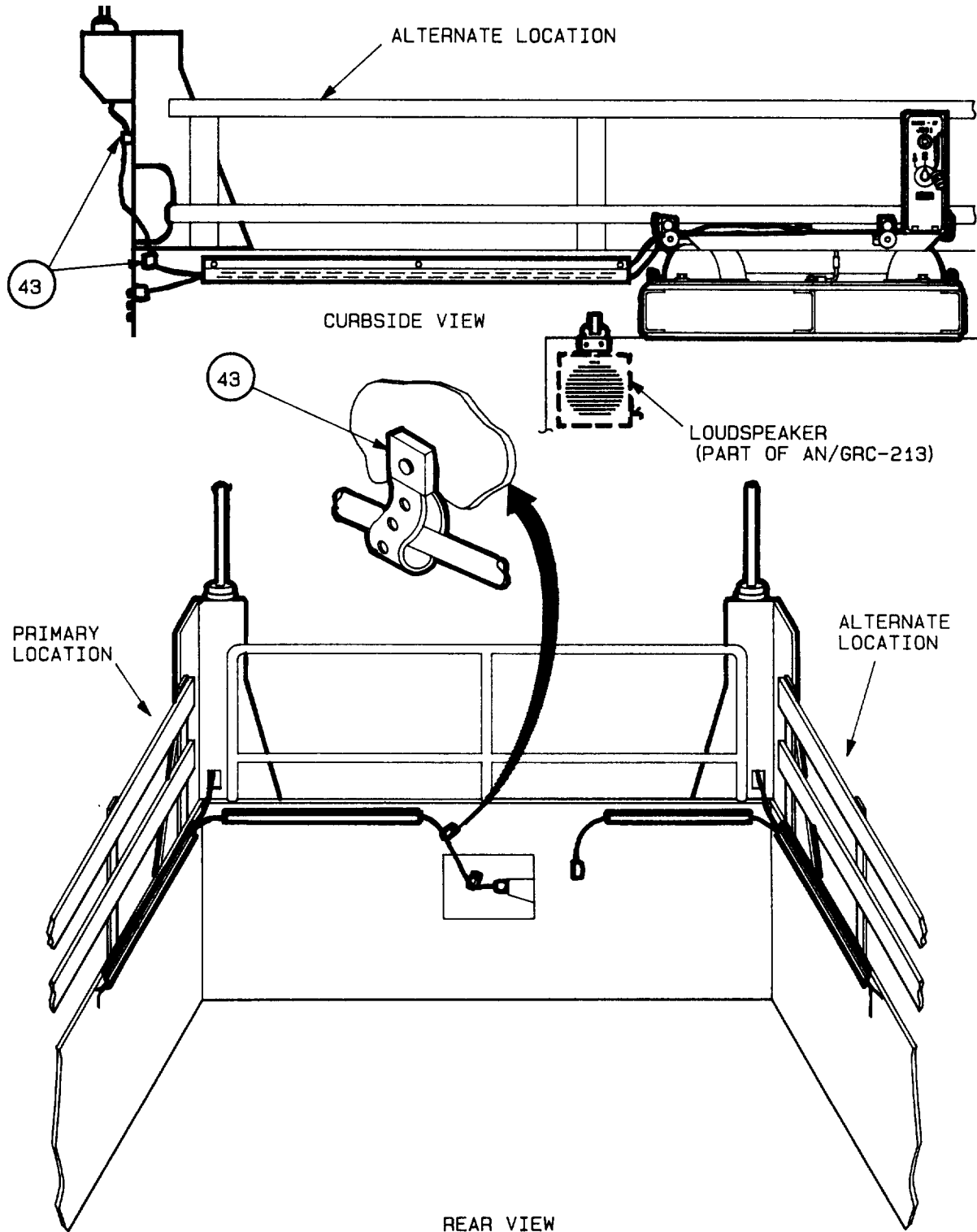
Installation of attaching parts for AN/GRC-213 loudspeaker in steps 51 and 52 must be performed at the same time as AN/GRC-213 installation. Refer to Mounting paragraph in TM 11-5820-923-12.

51. Hold loudspeaker (part of AN/GRC-213) in mounting location. (Position illustrated is suggested only.) **Mark** two 9/32-in. mounting **holes**, **using support bracket** (part of loudspeaker) as a marking guide.
52. **Drill** two 9/32-inch mounting **holes** marked in step 51. Remove all burrs and sharp edges from holes. **Install loudspeaker** with two 1/4-in. star washers, two 1/4-in. nuts, and two 1/4- x 3/4-in. bolts (42).
53. **Paint** all **bare metal** exposed during drilling **prior to installation** of hardware.
54. **Place cable clamps** from cable clamp kit **on power cable and antenna cable** as required, and secure with twelve 1/4-in. nuts, six 1/4-in. lockwashers, and clamp strap fastener assemblies (43).
55. Verify that all attaching parts and fastening devices are secure. If not, secure as necessary.
56. **Remove all chips and metal shavings from within vehicle.**



INSTALLATION INSTRUCTIONS (35 of 61)

MK-2444/GRC-213 INSTALLATION KIT, CARGO TRUCK - M561 (cont)



INSTALLATION INSTRUCTIONS (36 of 61)

MK-2445/GRC-213 INSTALLATION KIT, CARRIER COMMAND POST - M577A1

Installation of the electrical equipment mount, consisting of mounting base (1) and switching unit (2), can be in one of three different positions. To install perform the following steps:

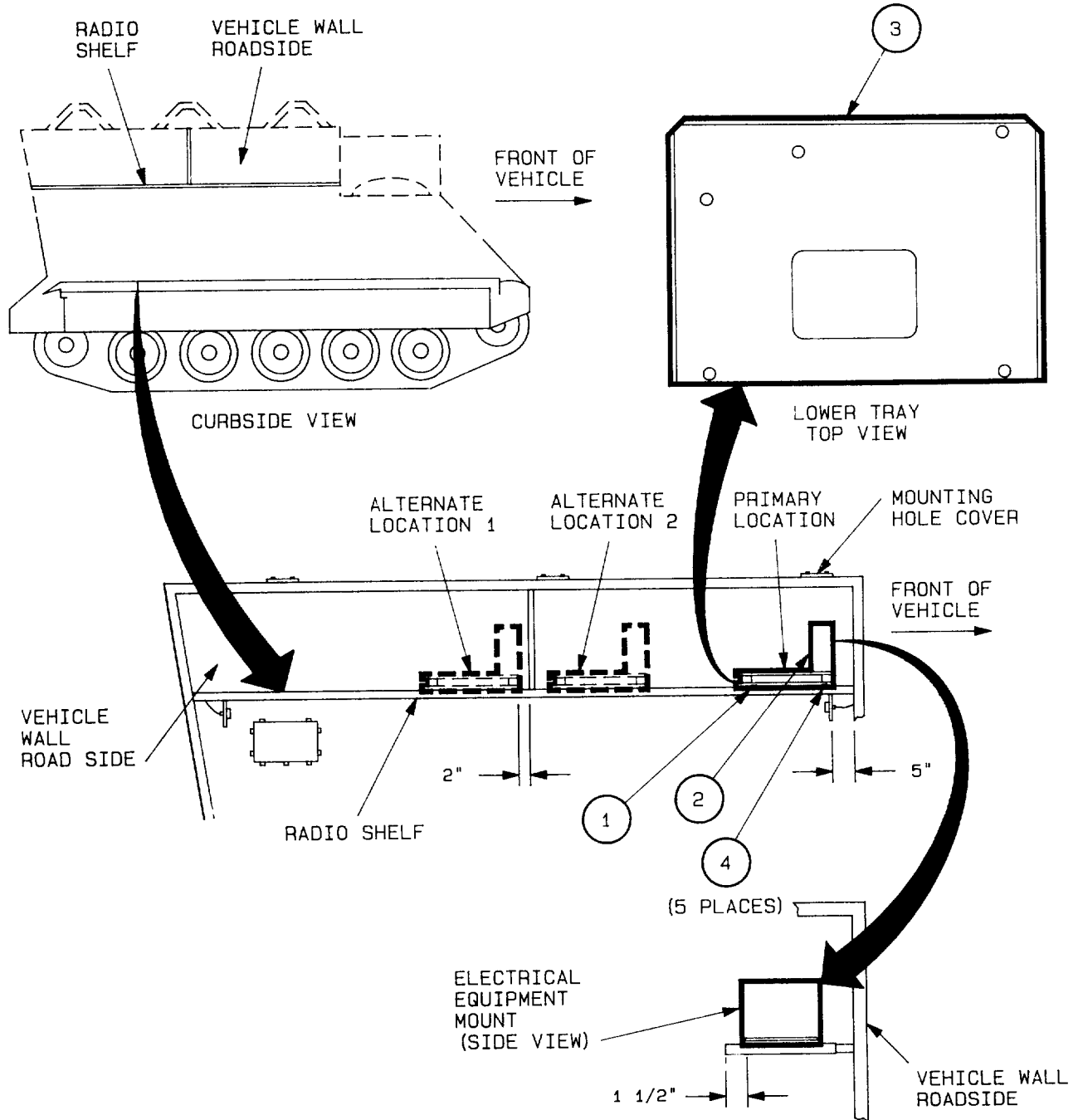
NOTE

Installation of electrical equipment mount at alternate location 2 requires no drilling because holes are predrilled.

1. **Use lower tray** (3) of mounting base as a marking guide. **Mark** five 11/32-in. diameter mounting **holes** on radio shelf at primary location or alternate location 1.
2. **Drill** five 11/32-in. diameter **holes** marked in step 1. Remove all burrs and sharp edges from around holes.
3. **Install electrical equipment mount** with ten 5/16-in. lockwashers (one lockwasher on top and one lockwasher on bottom for each bolt), five 5/16-in. nuts, and five 5/16- x 1 1/8-in., where required, or 5/16- x 3/4-in. bolts (4). (Two bolt lengths are provided for you to choose from.)
4. **Remove** vehicle antenna **mounting hole cover**, cover gasket, and attaching hardware from outside top of vehicle **closest** to **radio set** location.

INSTALLATION INSTRUCTIONS (37 of 61)

MK-2445/GRC-213 INSTALLATION KIT, CARRIER COMMAND POST - M577A1 (cont)



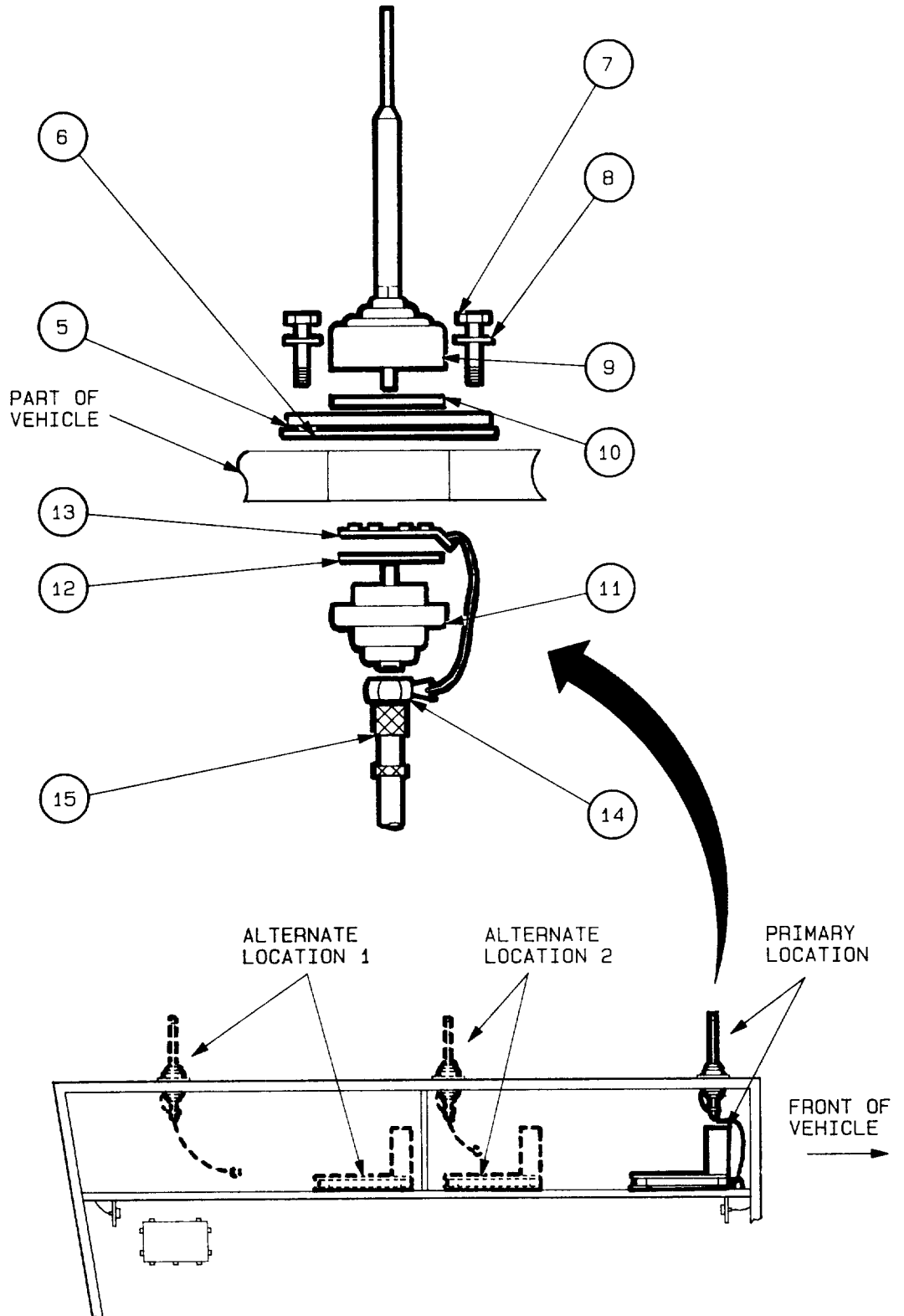
INSTALLATION INSTRUCTIONS (38 OF 61)

MK-2445/GRC-2I3 INSTALLATION KIT, CARRIER COMMAND POST - M577A1 (cont)

5. **Remove** enough **paint around mounting hole** on bottom of antenna base adapter (5) inside of vehicle to permit grounding ring (13, part of mast base) to touch bare metal.
6. Lightly **coat bare metal** on antenna base adapter (5) around mounting hole **with graphite grease**.
7. **Attach antenna base adapter** (5), with unpainted side down, over mounting holes **on outside top of vehicle** using rubber gasket (6) with four 3/8- x 1-1/4-in. bolts (7) and 3/8-in. lockwashers (8).
8. Carefully **unscrew** two **subassemblies** of mast base by hand.
9. **Place upper subassembly** (9) and rubber gasket (10) **over hole in antenna base adapter** (5) on outside top of vehicle.
10. **Place lower subassembly** (11), rubber gasket (12), and grounding ring (13) **under hole** in vehicle from inside vehicle. Grounding ring is against bare metal of antenna base adapter (5).
11. **Mate** outer threads of **lower subassembly** (11) male section **with** inner threads of **upper subassembly** (9) female section. Screw two subassemblies together handtight.
12. **Place grounding clamp** (14) **over receptacle** that extends **from lower subassembly** (11). Do not tighten grounding clamp.
13. **Connect antenna cable** (15) to receptacle that extends from lower subassembly (11) and tighten.
14. Slip grounding clamp (14) down over knurled surface of straight connector of antenna cable (15). **Tighten grounding clamp**.

INSTALLATION INSTRUCTIONS (39 of 61)

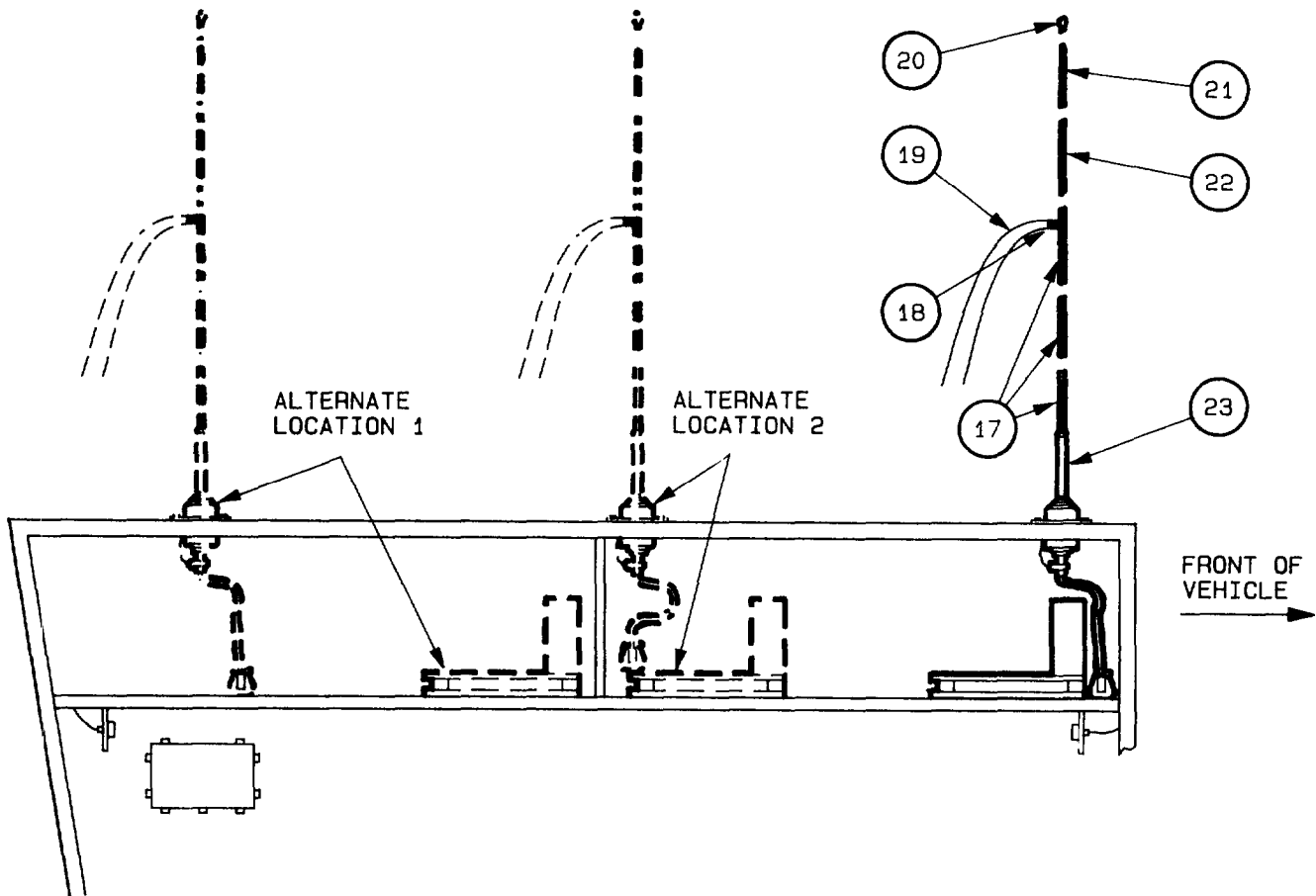
MK-2445/GRC-213 INSTALLATION, CARRIER COMMAND POST - M577A1 (cont)



INSTALLATION INSTRUCTIONS (40 of 61)

MK-2445/GRC-213 INSTALLATION KIT, CARRIER COMMAND POST - M577A1 (cont)

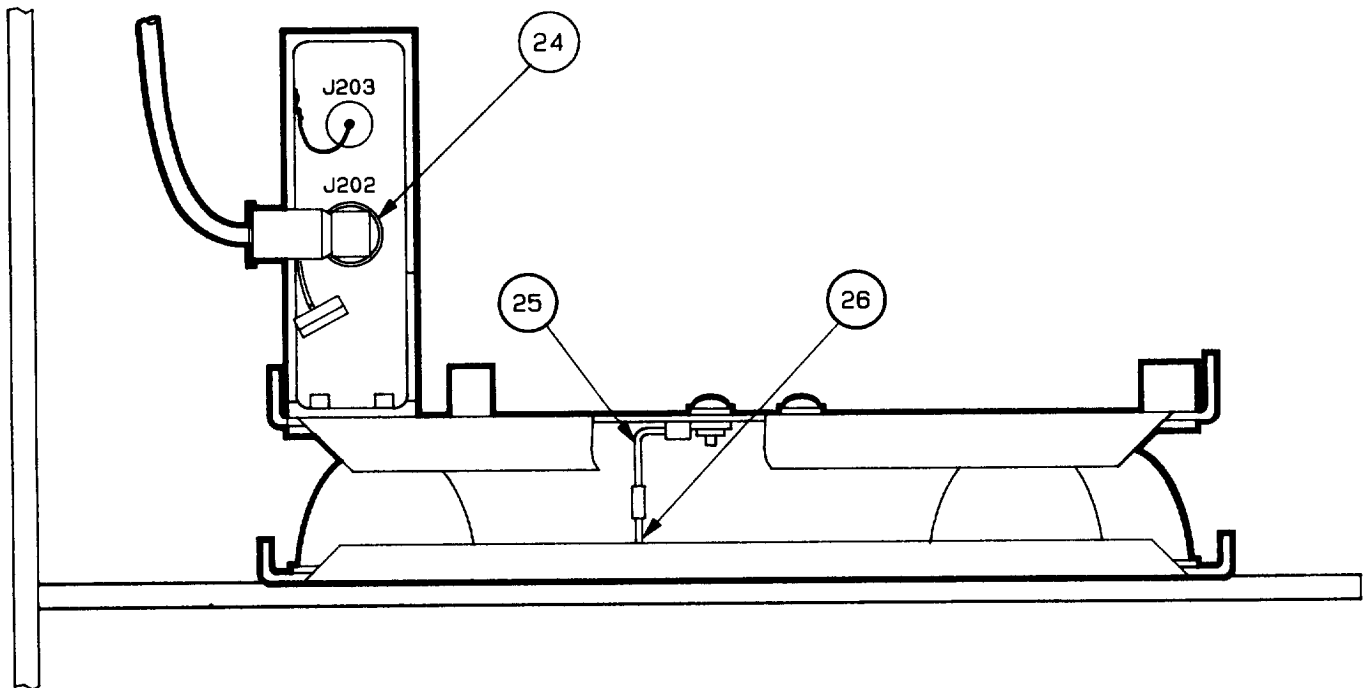
15. **Screw** three identical antenna **bottom sections** (17) **together**.
16. **Attach** antenna **rope clamp** (18) **and rope** (19) to top antenna bottom section (17).
17. **Attach** antenna **tip** (20) to antenna **top section** (21) **and screw** into top of antenna **center section** (22).
18. **Screw** antenna **center section** (22) with attached tip (20) and top section (21) **into** top attached antenna **bottom section** (17) with attached rope clamp (18),
19. **Screw** **assembled antenna** into female section that extends from **upper subassembly** (23).
20. Secure antenna to vehicle with rope (19).



INSTALLATION INSTRUCTIONS (41 of 61)

MK-2445/GRC-213 INSTALLATION KIT, CARRIER COMMAND POST - M577A1 (cont)

21. **Connect** free end of **antenna cable** with 90-degree connector **to** lower connector **J202** (24) on back of switching unit.
22. **Verify quick-release ground cable** (25) from back bottom side **of upper tray is connected to** quick-release **ground cable** (26) on back top side **of lower tray** on mounting base. Connect if necessary. Connection of quick-release ground cables on top side of upper tray to AN/GRC-213 is covered in Interconnections paragraph in TM 11-5820-923-12.



ELECTRICAL EQUIPMENT MOUNT
(REAR VIEW)

INSTALLATION INSTRUCTIONS (42 of 61)

MK-2445/GRC-213 INSTALLATION KIT, CARRIER COMMAND POST - M577A1 (cont)

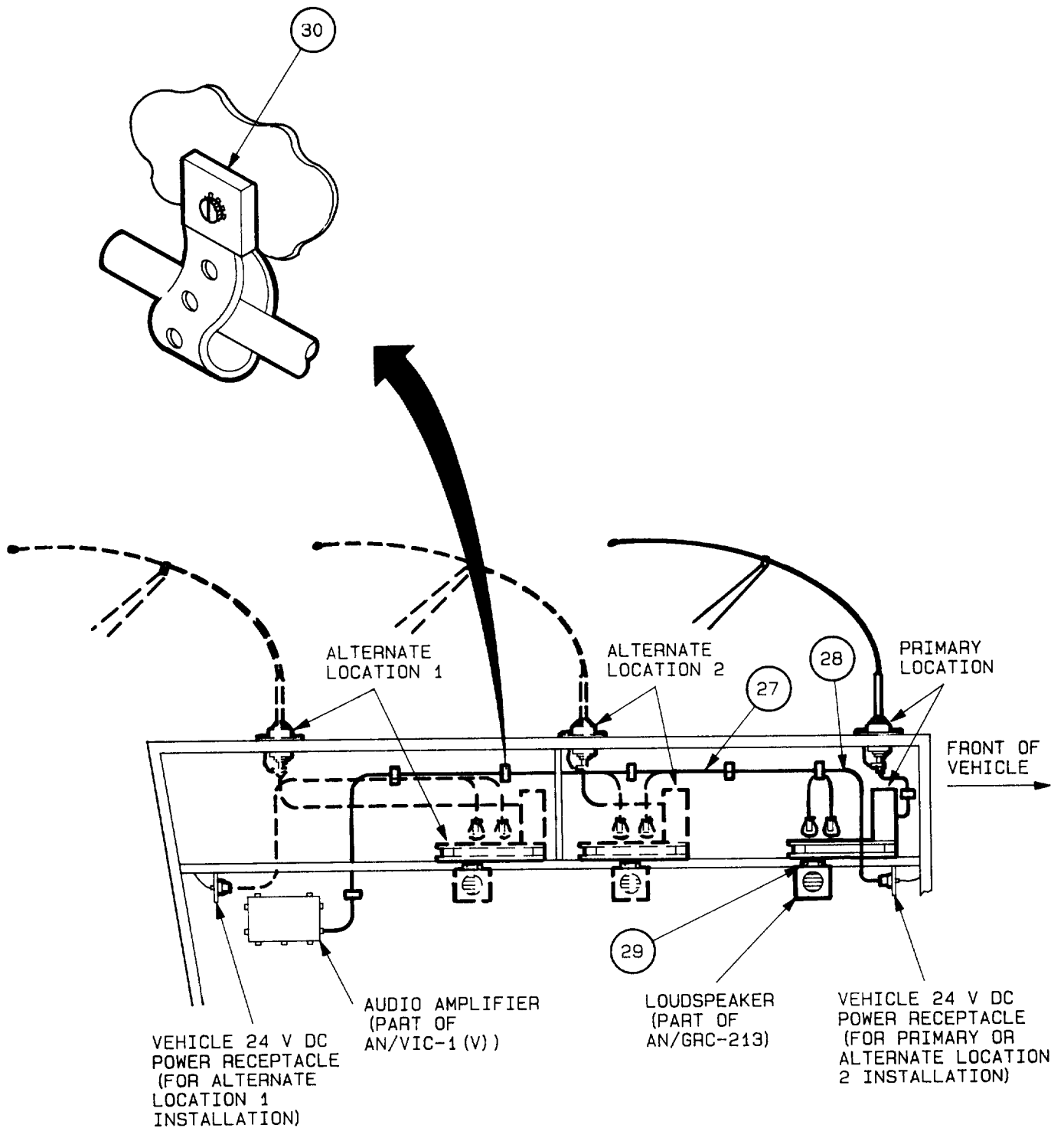
NOTE

Connections of other ends of cables connected in steps 23 and 24 are made when installing an AN/GRC-213 into the installation kit. Refer to Interconnections paragraph in TM 11-5820--923-12.

23. **Connect intercommunication cable (27) to J503** on audio amplifier (part of AN/VIC-1(V)), if required. Leave unconnected end of cable wrapped to protect connector from dirt and debris.
24. **Connect power cable (28) to vehicle 24 V dc power receptacle** at forward wall of vehicle, below radio shelf, for primary or alternate location 2 installation, or rear wall of vehicle, below radio shelf, for alternate location 1 installation. Leave unconnected end of cable wrapped to protect connector from dirt and debris.
25. Hold loudspeaker (part of AN/GRC-213) in mounting location. (Position illustrated is suggested only.) **Mark** two 9/32-in. diameter mounting **holes, using support bracket** (part of loudspeaker) as a marking guide.
26. **Drill** two 9/32-in. mounting **holes** marked in step 25. Remove all burrs and sharp edges from holes. **Install loudspeaker** with two 1/4 in. star washers, two 1/4-in. nuts, and two 1/4-x3/4-in. bolts (29).
27. **Place cable clamps** from cable clamp kit **on antenna cable, intercommunication cable, and power cable** at existing weld pads along cable routing path, as required, and secure with twelve 1/4-in. nuts, six 1/4-in. lockwashers, and clamp strap fastener assemblies (30).
28. Verify that all attaching parts and fastening devices are secure. If not, secure as necessary.
29. **Remove all chips and metal shavings from within vehicle** body.

INSTALLATION INSTRUCTIONS (43 of 61)

MK-2445/GRC-213 INSTALLATION KIT, CARRIER COMMAND POST - M577A1 (cont)



INSTALLATION INSTRUCTIONS (44 of 61)

MK-2446/GRC-213 INSTALLATION KIT, TRUCK - M882 OR - M1008A1 CUCV

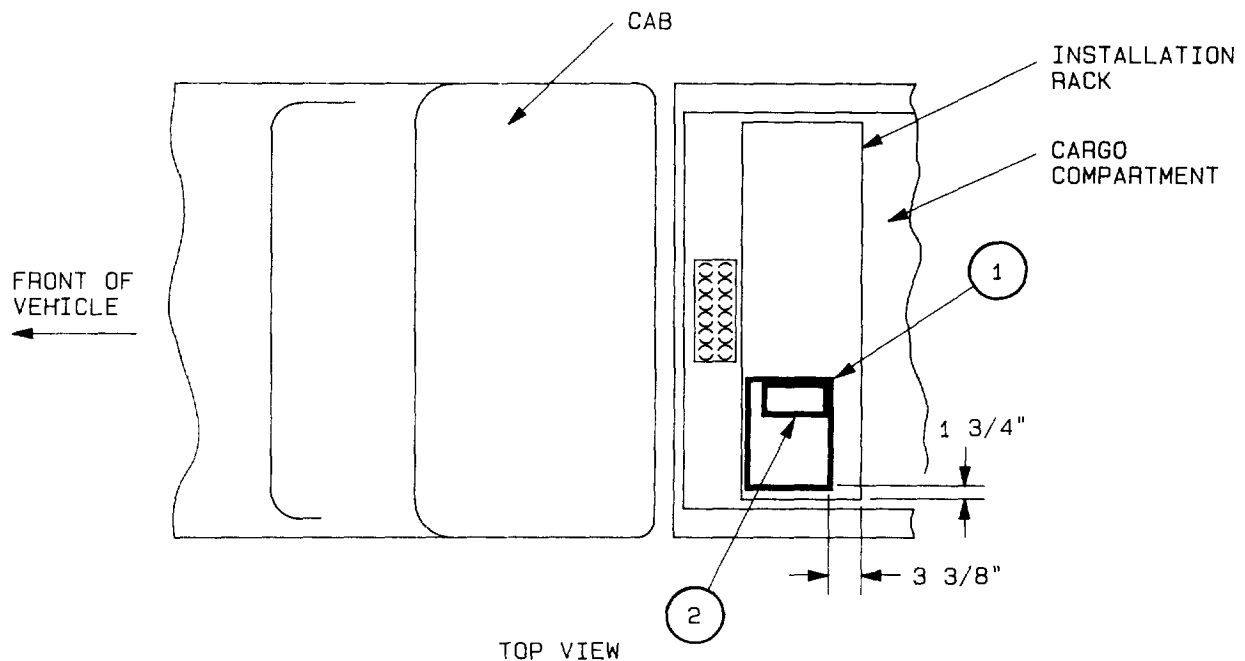
To install electrical equipment mount, consisting of mounting base (1) and switching unit (2), perform the following steps:

1. **Use lower tray (3)** of mounting base as a marking guide. **Mark** five 11/32-in. diameter mounting holes on top roadside shelf (primary location) of installation rack (part of vehicle).

NOTE

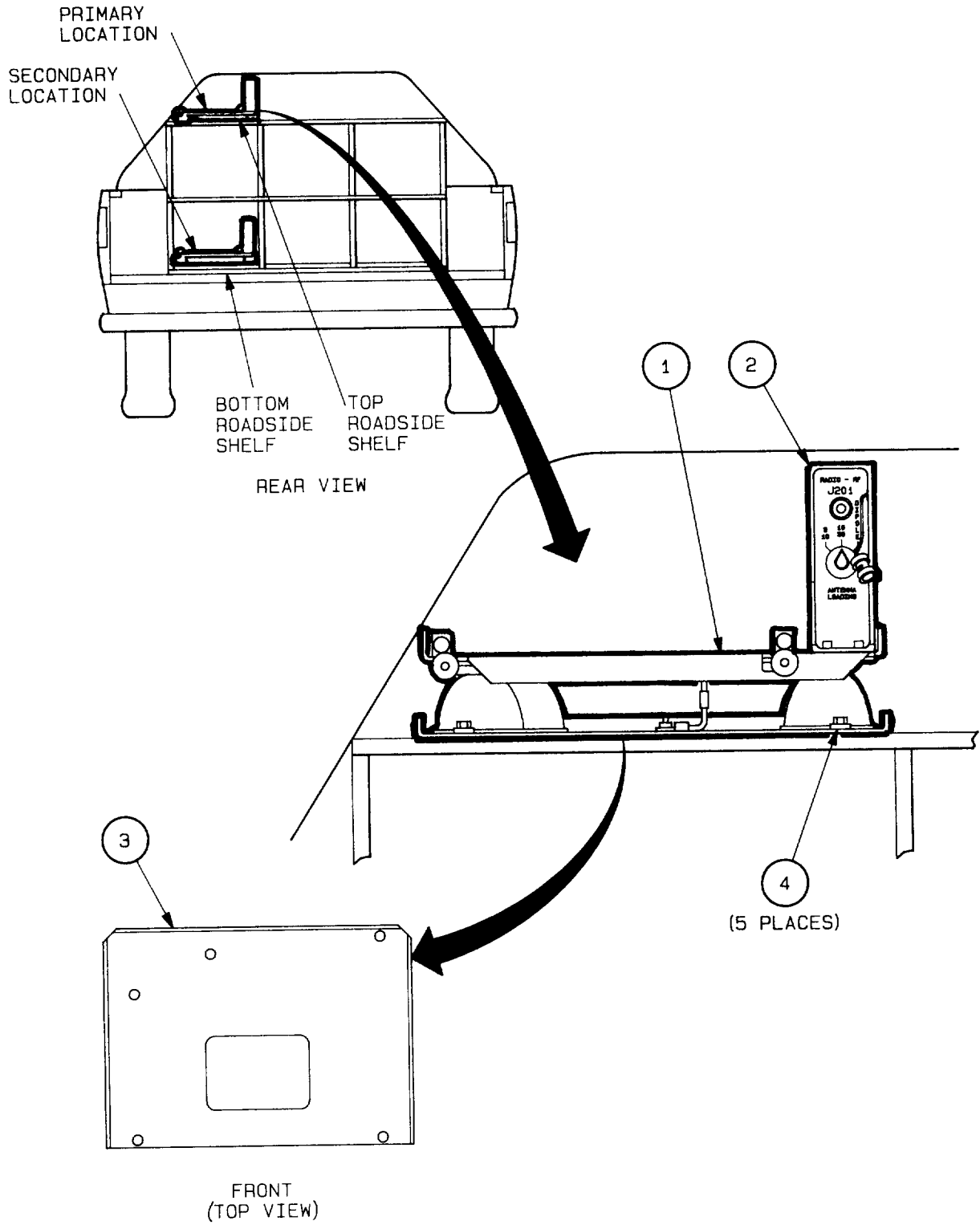
Electrical equipment mount may also be installed on bottom roadside shelf (secondary location) of installation rack (part of vehicle), using existing mounting holes.

2. **Drill** five 11/32-in. diameter **holes** marked in step 1. Remove all burrs and sharp edges from around holes.
3. **Paint** all **bare metal** exposed during drilling **prior to installation** of hardware.
4. **Install electrical equipment mount** with ten 5/16-in. lockwashers (one lockwasher on top and one lockwasher on bottom for each bolt), five 5/16-in. nuts, and five 5/16- x 1 1/8-in., where required, or 5/16-x3/4-in. bolts (4). (Two bolt lengths are provided for you to choose from.)



INSTALLATION INSTRUCTIONS (45 of 61)

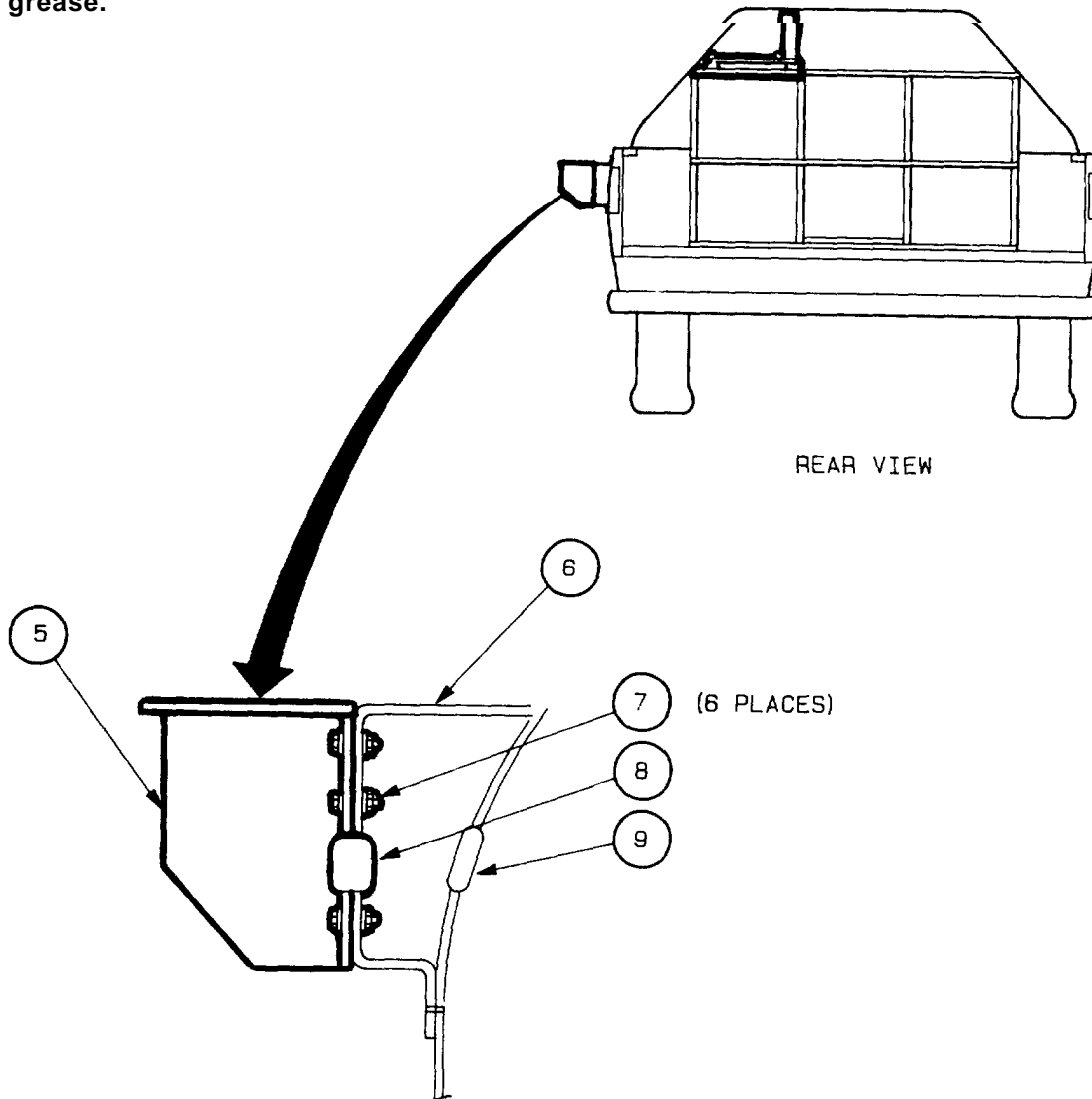
MK-2446/GRC-213 INSTALLATION KIT, TRUCK - M882 OR M1008A1 CUCV (cont)



INSTALLATION INSTRUCTIONS (46 of 61)

MK-2446/GRC-213 INSTALLATION KIT, TRUCK - M882 OR - M1008A1 CUCV (cont)

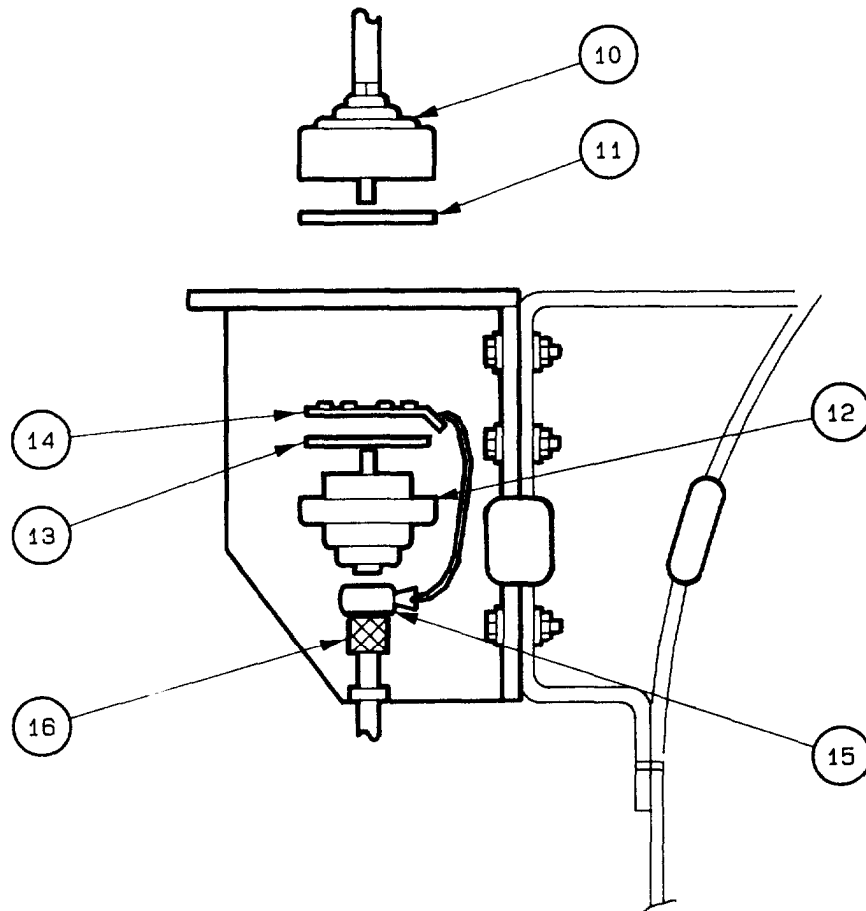
5. **Install antenna support (5)** at predrilled holes **on bracket (6, part of truck)** located on roadside front of truck cargo compartment with six 1/4-in. lockwashers, six 1/4-in. nuts, six 1/4- x 3/4-in. bolts, and twelve 1/4-in. flat washers (7).
6. **Insert wide plastic grommet material (8) in hole through antenna support and bracket.**
7. **Insert narrow plastic grommet material (9) in hole through wall of truck (behind bracket).**
8. **Remove enough paint around mounting hole** on underside of antenna support to permit grounding ring (14, part of mast base) to touch bare metal.
9. Lightly **coat bare metal** on antenna support around mounting hole **with graphite grease.**



INSTALLATION INSTRUCTIONS (47 of 61)

MK-2446/GRC-213 INSTALLATION KIT, TRUCK - M882 OR - M1008A1 CUCV (cont)

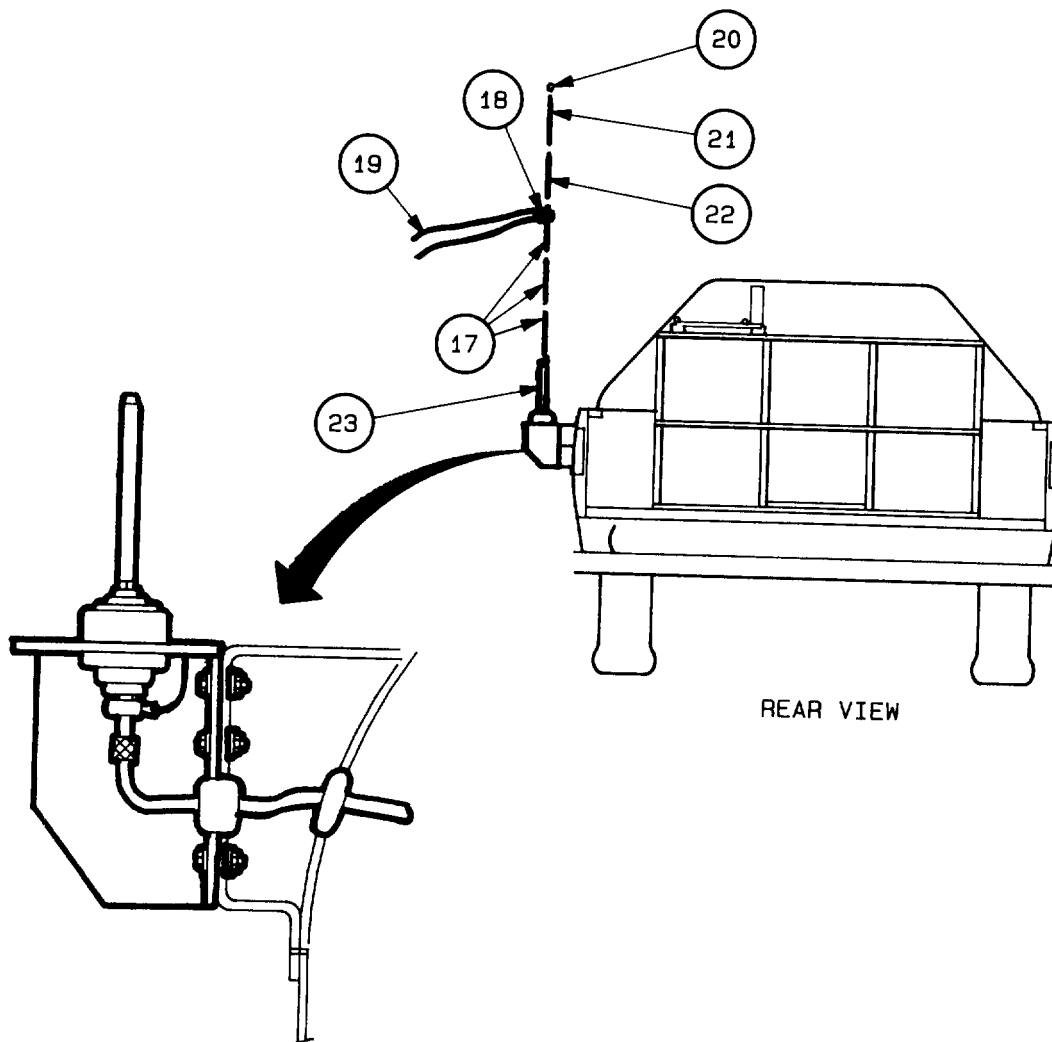
10. Carefully **unscrew** two **subassemblies** of mast base by hand.
11. **Place upper subassembly (10) and rubber gasket (11) over hole in antenna support.**
12. **Place lower subassembly (12), rubber gasket (13), and grounding ring (14) under hole in antenna support.** The grounding ring is against bare metal of antenna support.
13. **Mate** outer threads of **lower subassembly (12)** male section **with** inner threads of **upper subassembly (10)** female section. Screw two subassemblies together handtight.
14. **Place grounding clamp (15) over receptacle that extends from lower subassembly (12).** Do not tighten grounding clamp.
15. **Connect antenna cable (16)** to receptacle that extends from lower subassembly (12) and tighten.
16. Slip grounding clamp (15) down over knurled surface of straight connector of antenna cable (16). **Tighten grounding clamp.**



INSTALLATION INSTRUCTIONS (48 of 61)

MK-2446/GRC-213 INSTALLATION KIT, TRUCK - M882 OR - M1008A1 CUCV (cont)

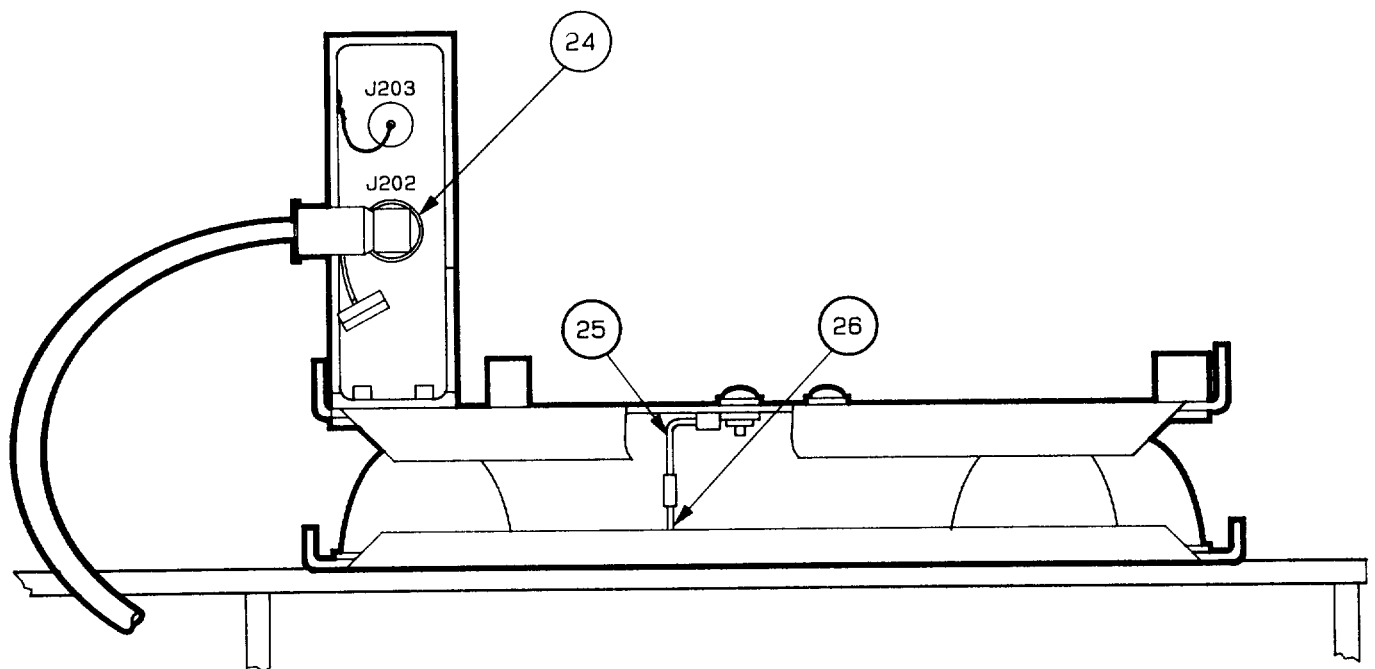
17. **Screw** three identical antenna **bottom sections** (17) **together**.
18. **Attach** antenna **rope clamp** (18) and **rope** (19), to top antenna bottom section (17).
19. **Attach** antenna **tip** (20) to antenna **top section** (21) and **screw into** top of antenna **center section** (22).
20. **Screw** antenna **center section** (22) with attached tip (20) and top section (21) **into** top attached antenna **bottom section** (17) with attached rope clamp (18).
21. **Screw assembled antenna** into female section that extends **from upper subassembly** (23).
22. Secure antenna to vehicle with rope (19).



INSTALLATION INSTRUCTIONS (49 of 61)

MK-2446/GRC-213 INSTALLATION KIT, TRUCK - M882 OR - M1008A1 CUCV (cont)

23. **Route** free end of **antenna cable through** hole(where plastic grommets were placed, steps 6 and 7) and into cargo compartment. **Connect** free end with 90-degree connector **J202** (24) on back of switching unit.
24. **Verify** that quick-release **ground cable** (25) from back bottom side **of upper tray is connected to** quick-release **ground cable** (26) on back top side **of lower tray** on mounting base. Connect if necessary. Connection of quick-release ground cables on top side of upper tray to AN/GRC-213 is covered in the Interconnections paragraph in TM 11-5820-923-12.

ELECTRICAL EQUIPMENT MOUNT
(REAR VIEW)

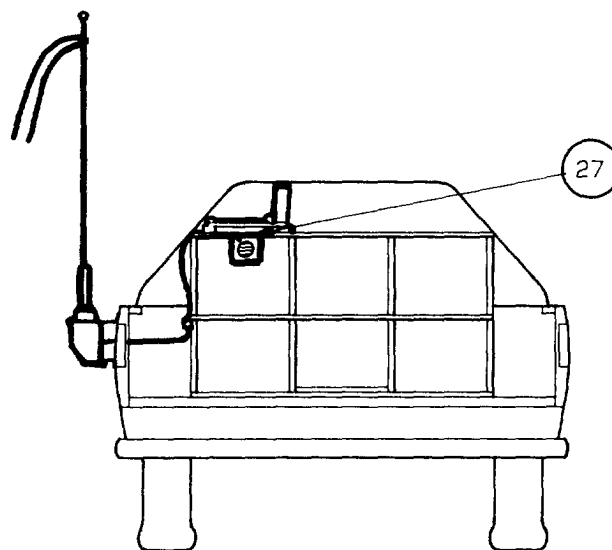
INSTALLATION INSTRUCTIONS (50 of 61)

MK-2446/GRC-213 INSTALLATION KIT, TRUCK - M882 OR - M1008A1 CUCV (cont)

NOTE

Installation of attaching parts for AN/GRC-213 loudspeaker in steps 25 and 26 must be performed at the same time as AN/GRC-213 installation. Refer to Mounting paragraph in TM 11-5820-923-12.

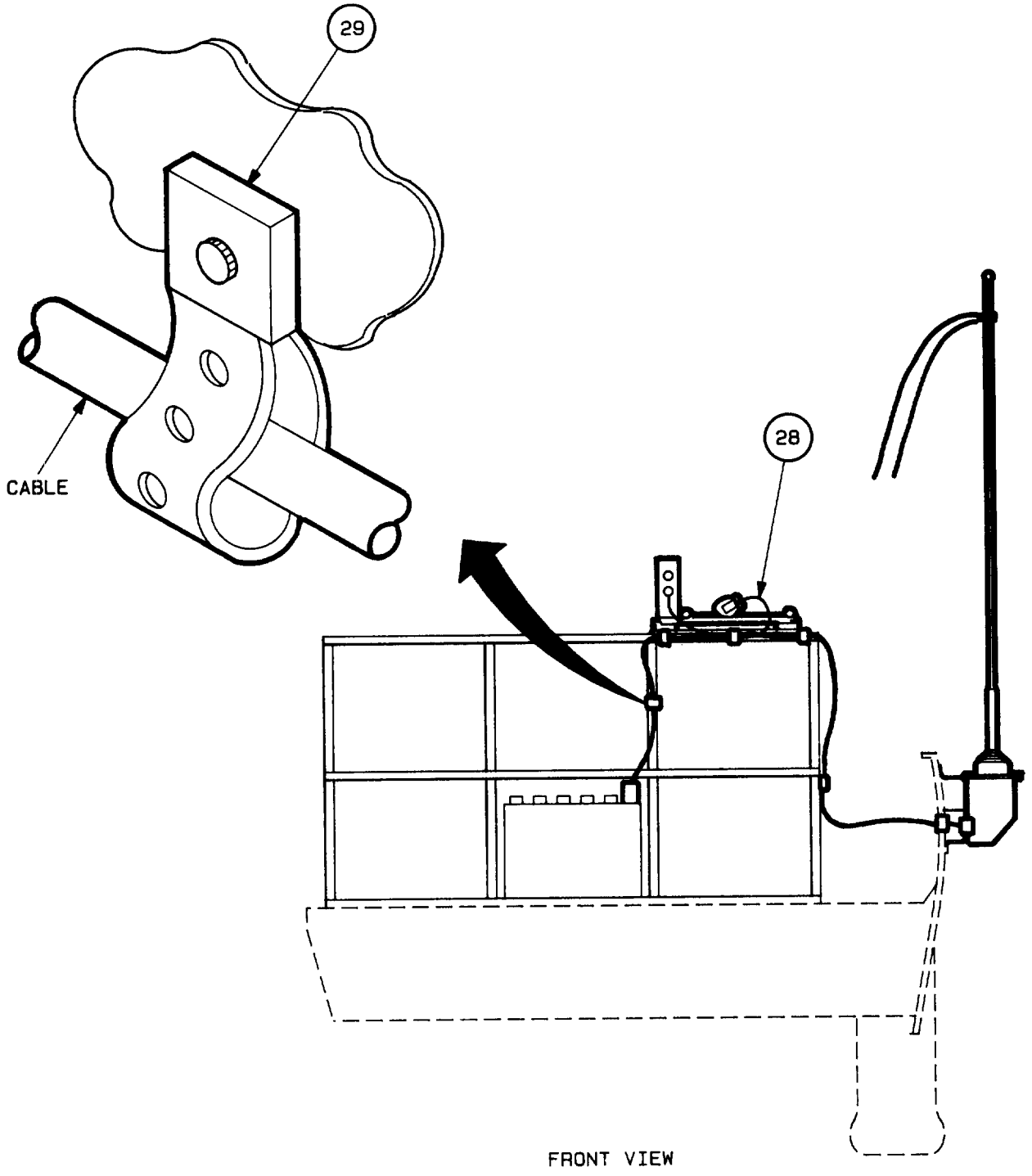
25. Hold loudspeaker (part of AN/GRC-213) in mounting location, (Position illustrated is suggested only.) **Mark** two 9/32-in. diameter mounting **holes, using support bracket** (part of loudspeaker) as a marking guide.
26. **Drill** two 9/32-in. holes marked in step 25. Remove all burrs and sharp edges from holes. **Install loudspeaker** with two 1/4-in. star washers, two 1/4-in. nuts, and two 1/4-x3/4-in. bolts (27).
27. **Connect power cable** (28) to truck 24 V dc **power receptacle** at power junction box (part of truck) in cargo compartment, forward of equipment installation rack. Connection of power cable to AN/GRC-213 is covered in the Interconnections paragraph in TM 11-5820-923-12. Leave unconnected end of cable wrapped to protect connector from dirt and debris.
28. **Place cable clamps** from cable clamp kit **on power cable and antenna cable**, as required, and secure with six 1/4--in. lockwashers, twelve 1/4-in. nuts, and clamp strap fastener assemblies (29).
29. Verify that all attaching parts and fastening devices are secure. If not, secure as necessary.
30. **Remove all metal shavings and chips from within truck body.**



REAR VIEW

INSTALLATION INSTRUCTIONS (51 of 61)

MK-2446/GRC-213 INSTALLATION KIT, TRUCK - M882 OR - M1008A1 CUCV (cont)



INSTALLATION INSTRUCTIONS (52 of 61)

MK-2447/GRC-213 INSTALLATION KIT, GENERAL PURPOSE WHEELED OR TRACKED VEHICLES

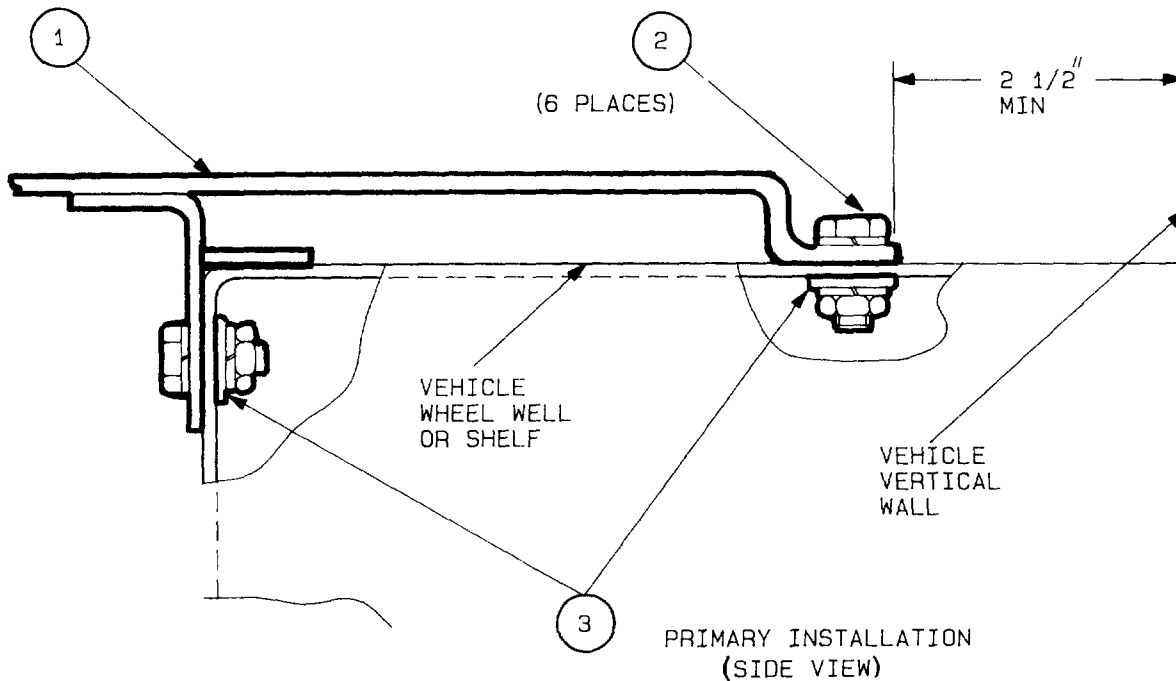
Perform steps 1 thru 5 to install electrical equipment mount on vehicle wheel well or shelf. Go directly to step 6 to install electrical equipment mount on vehicle floor.

1. **Use support bracket (1)** as a marking guide. **Mark** six 11/32-in. diameter **holes** on vehicle wheel well or shelf.
2. **Drill** six 11/32-in. diameter **holes** marked in step 1. Remove all burrs and sharp edges from holes.
3. **Paint** all **bare metal** exposed during drilling **prior to installation** of hardware.

NOTE

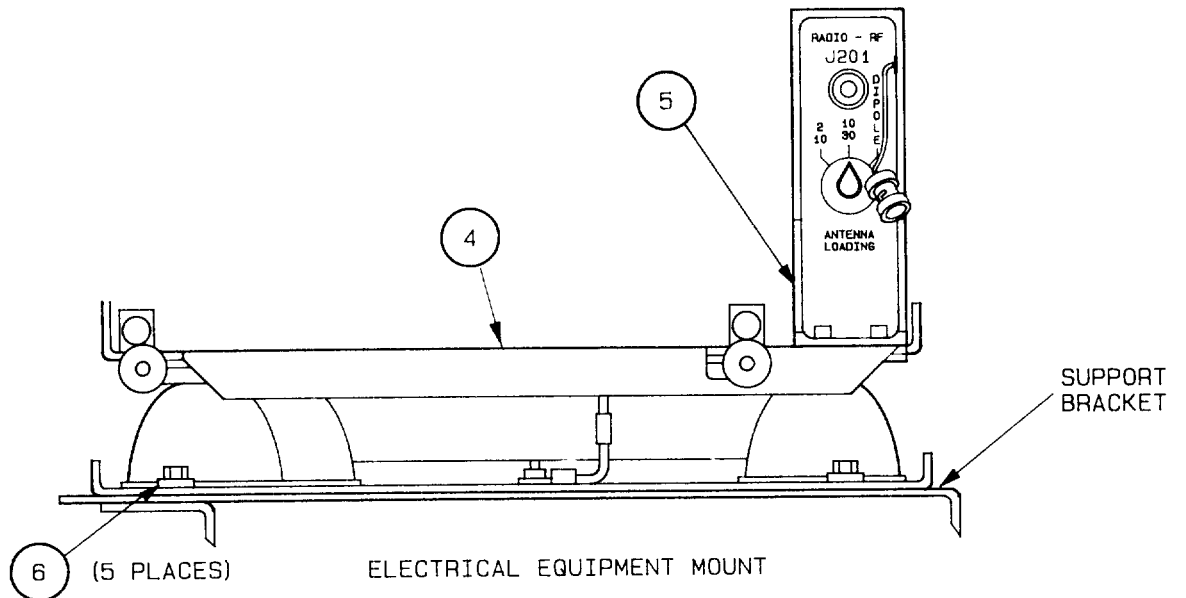
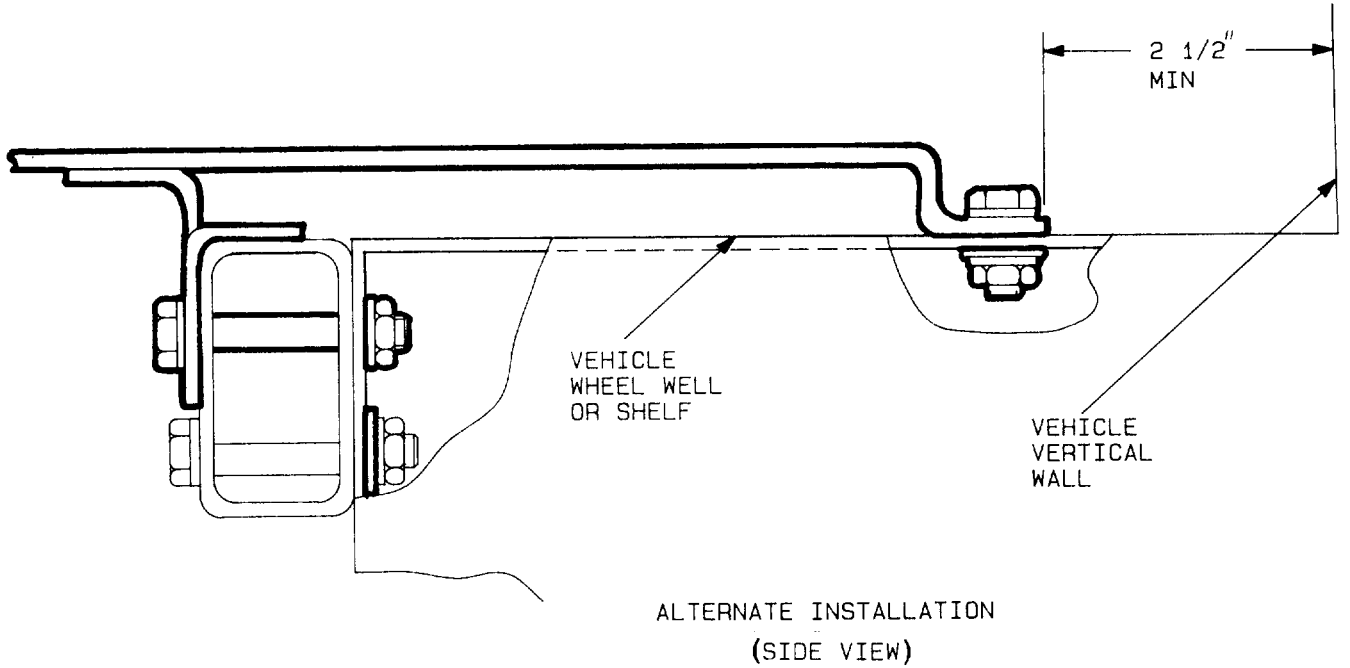
If alternate installation is chosen, some brackets or hardware that are not provided are required. These items are illustrated in alternate installation illustrations.

4. **Install support bracket (1)** with six 5/16-in. nuts, six 5/16- x 1-in. bolts, and twelve 5/16-in. lockwashers (2). **Use reinforcements (3)** inside and under wheel well, as required,
5. **Install electrical equipment mount**, consisting of mounting base (4) and switching unit (5), at predrilled holes **on support bracket (1)** (primary installation) with ten 5/16-in. lockwashers (one lockwasher on top and one lockwasher on bottom for each bolt), five 5/16-in. nuts, and five 5/16- x 1 1/8-in. where required, or 5/16- x 3/4-in. bolts (6). (Two bolt lengths are provided for you to choose from.) Go directly to step 10.



INSTALLATION INSTRUCTIONS (53 of 61)

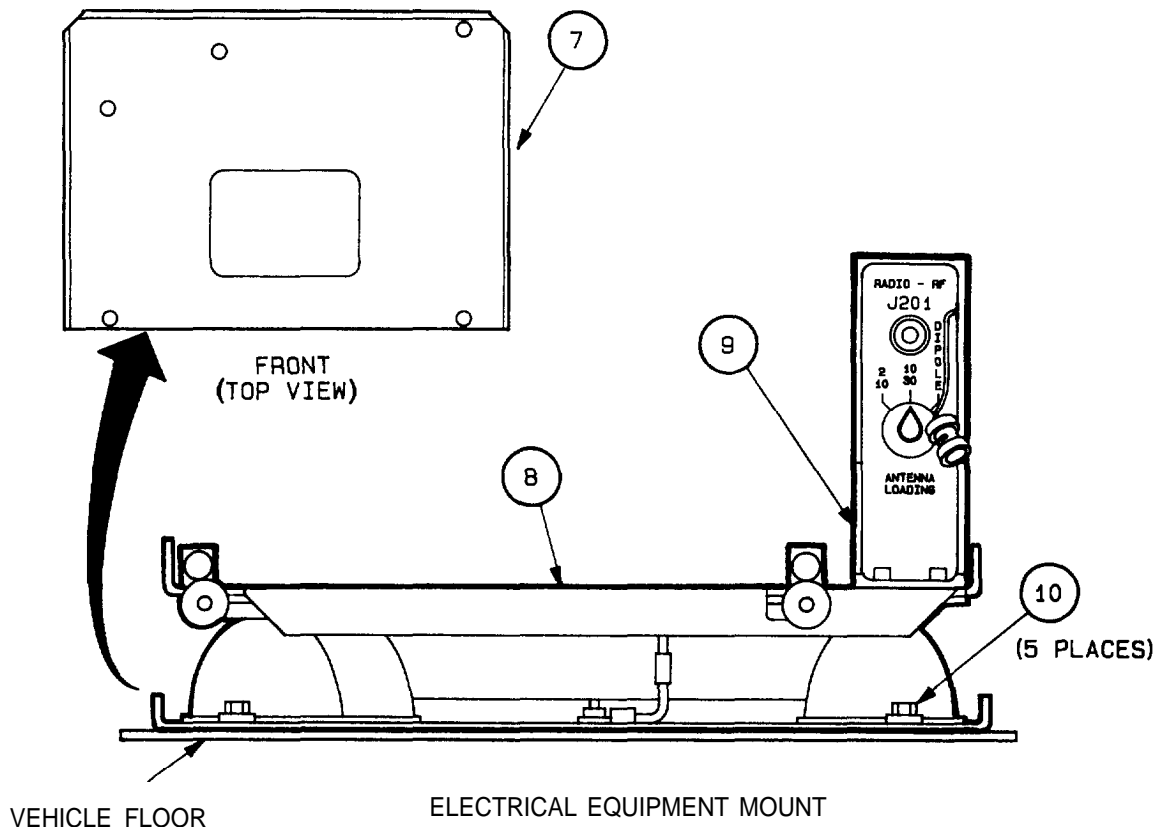
MK-2447/GRC-213 INSTALLATION KIT, GENERAL PURPOSE WHEELED OR TRACKED VEHICLES (cont)



INSTALLATION INSTRUCTIONS (54 of 61)

MK-2447/GRC-213 INSTALLATION KIT, GENERAL PURPOSE WHEELED OR TRACKED VEHICLES (cont)

6. Use **lower tray (7)** of mounting base (part of electrical equipment mount) as a marking guide. **Mark** five 11/32-in. diameter **holes** on vehicle floor.
7. **Drill** five 11/32-in. diameter **holes** marked in step 6. Remove all burrs and sharp edges from holes.
8. **Paint** all **bare metal** exposed during drilling **prior to installation** of hardware.
9. **Install electrical equipment mount**, consisting of mounting base (8) and switching unit (9), on vehicle floor with ten 5/16-in. lockwashers (one lockwasher on top and one lockwasher on bottom for each bolt), five 5/16-in. nuts, and five 5/16- x 1 1/8-in. where required or 5/16- x 3/4-in. bolts (10). (Two bolt lengths are provided for you to choose from.)
10. **For antenna installations on vehicle top, remove** vehicle antenna **mounting hole cover**, cover gasket, and attaching hardware from outside top of vehicle located **nearest radio set** location. Go direct to to step 16.



INSTALLATION INSTRUCTIONS (55 of 61)

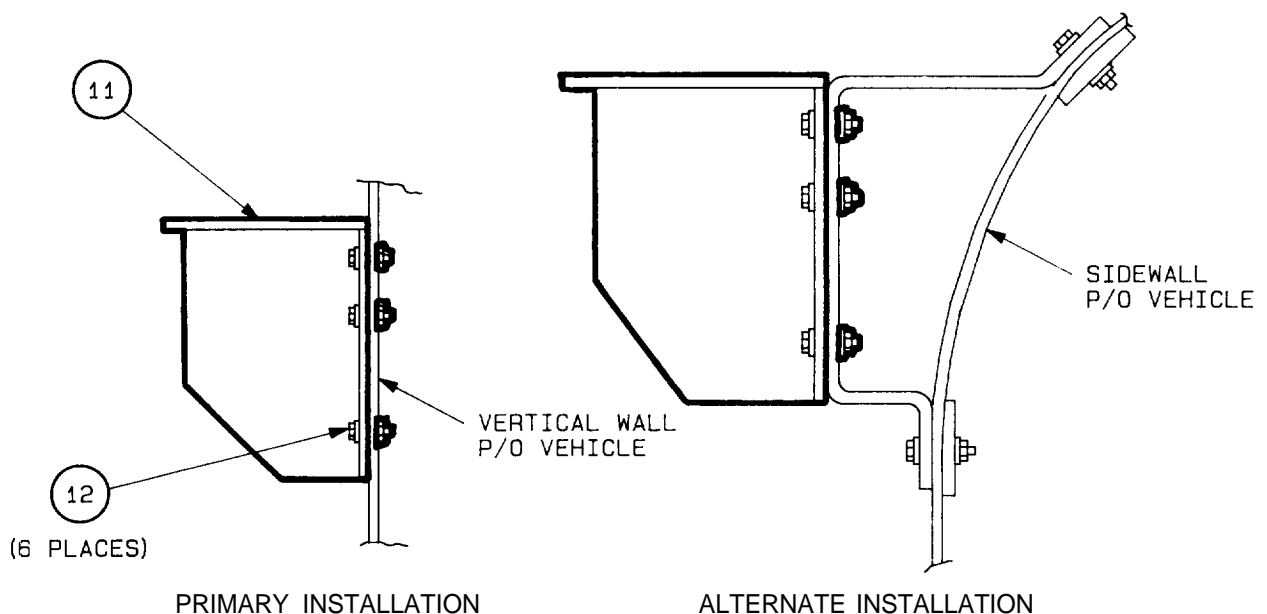
MK-2447/GRC-213 INSTALLATION KIT, GENERAL PURPOSE WHEELED OR TRACKED VEHICLES (cont)

11. For antenna installations on vehicle side, hold antenna support (11) in position on outer vehicle vertical wall (primary installation). **Mark** six 9/32-in. diameter **holes**, using **antenna support** as a marking guide.
12. **Drill** six 9/32-in. diameter **holes** marked in step 11. Remove all burrs and sharp edges from holes.
13. **Paint** all **bare metal** exposed during drilling **prior to installation** of hardware.
14. **Apply sealant** to screw heads and threads, washers, nuts, and unused holes **to maintain water tightness**, as required.
15. **Install antenna support** (11) with six 1/4-in. lockwashers, six 1/4-in. nuts, six 1/4- x 3/4-in. bolts, and twelve 1/4-in. flat washers (12).

NOTE

If alternate installation is chosen, some brackets or hardware that are not provided are required. These items are illustrated in alternate installation illustrations.

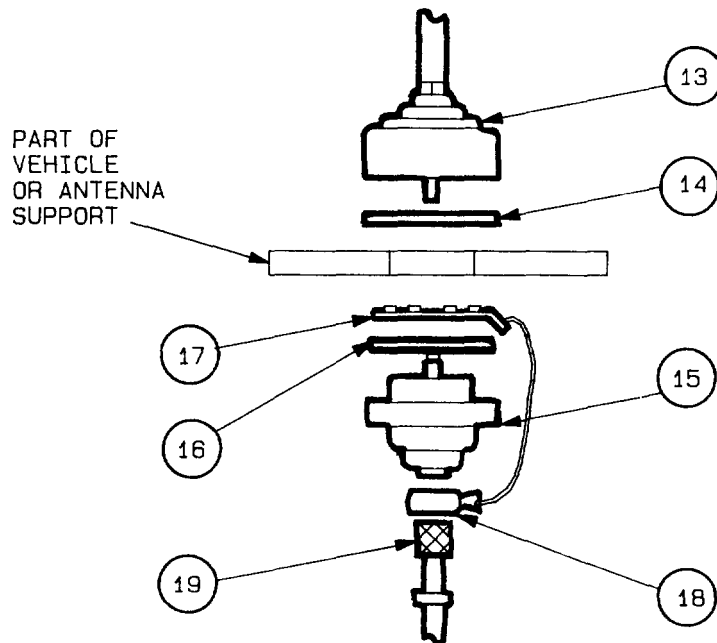
16. **Remove** enough **paint around mounting** hole on inside of vehicle (for vehicle top installations) or underside of mounting hole on antenna support (for all other installations) to permit grounding ring (part of mast base) to touch bare metal.
17. Lightly **coat bare metal** around mounting hole **with graphite grease**.



INSTALLATION INSTRUCTIONS (56 of 61)

MK-2447/GRC-213 INSTALLATION KIT, GENERAL PURPOSE WHEELED OR TRACKED VEHICLES (cont)

18. Carefully **unscrew** two **subassemblies** of mast base by hand.
19. **Place upper subassembly** (13) and rubber gasket (14) **over mounting hole** on outside top of vehicle (for vehicle top installations) or over mounting hole on outside top of antenna support assembly (for all other installations).
20. **Place lower subassembly** (15), rubber gasket (16), and grounding ring (17) **under mounting hole** on inside of vehicle (for vehicle top installations) or under mounting hole on inside of antenna support (for all other installations). The grounding ring is against bare metal.
21. **Mate** outer threads of **lower subassembly** (15) male section **with** inner threads of **upper subassembly** (13) female section. Screw two subassemblies together handtight.
22. **Place grounding clamp** (18) **over receptacle** that extends **from lower subassembly** (15). Do not tighten grounding clamp.
23. **Connect antenna cable** (19) to receptacle that extends from lower subassembly (15) and tighten.
24. Slip grounding clamp (18) down over knurled surface of straight connector of antenna cable (19). **Tighten grounding clamp**.



INSTALLATION INSTRUCTIONS (57 of 61)

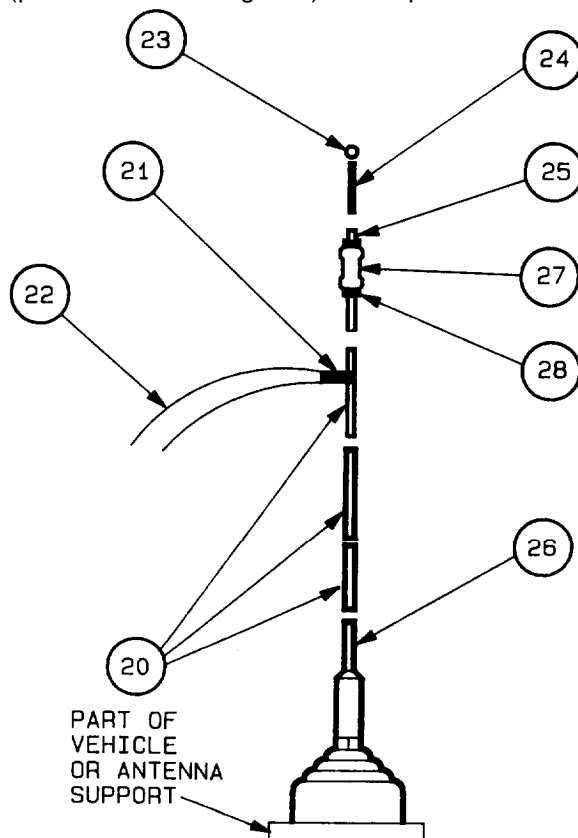
MK-2447/GRC-213 INSTALLATION KIT, GENERAL PURPOSE WHEELED OR TRACKED VEHICLES (cont)

25. **Screw** three identical antenna **bottom sections** (20) **together**.
26. **Attach** antenna **rope clamp** (21) and **rope** (22) to top antenna bottom section (20).
27. **Attach** antenna **tip** (23) to antenna **top section** (24) and **screw** into top of antenna **center section** (25).
28. **Screw** antenna **center section** (25) with attached tip (23) and top section (24) **into** top attached antenna **bottom section** (20).
29. **Screw assembled antenna into** female section that extends from **upper subassembly** (26).
30. Secure antenna to vehicle with rope (22).

NOTE

Antenna guard is used to protect antenna mast from wear caused by antenna mast rubbing against vehicle roof or any other part of vehicle.

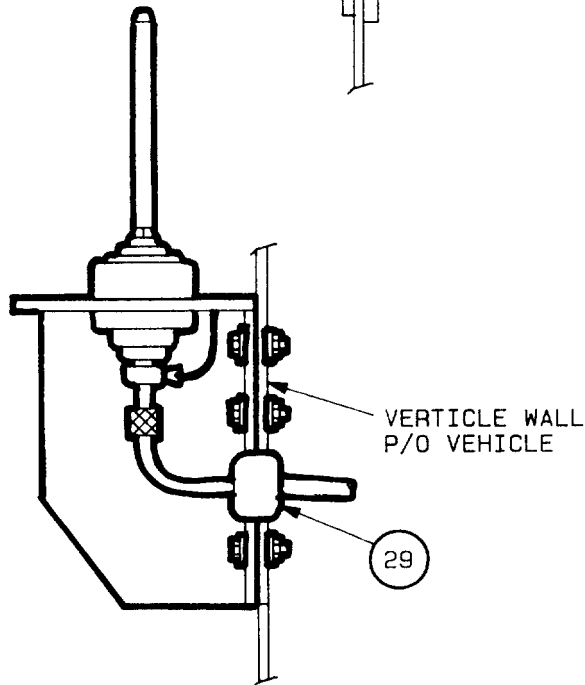
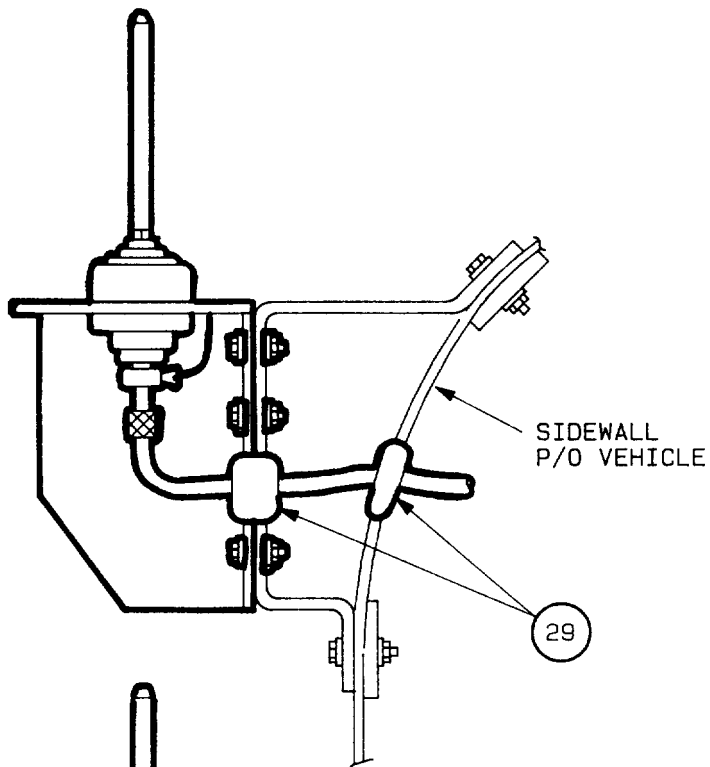
31. Place antenna guard (27) on antenna mast where antenna mast touches vehicle. Install, using clamps (28) (part of antenna guard) on top and bottom of antenna guard.



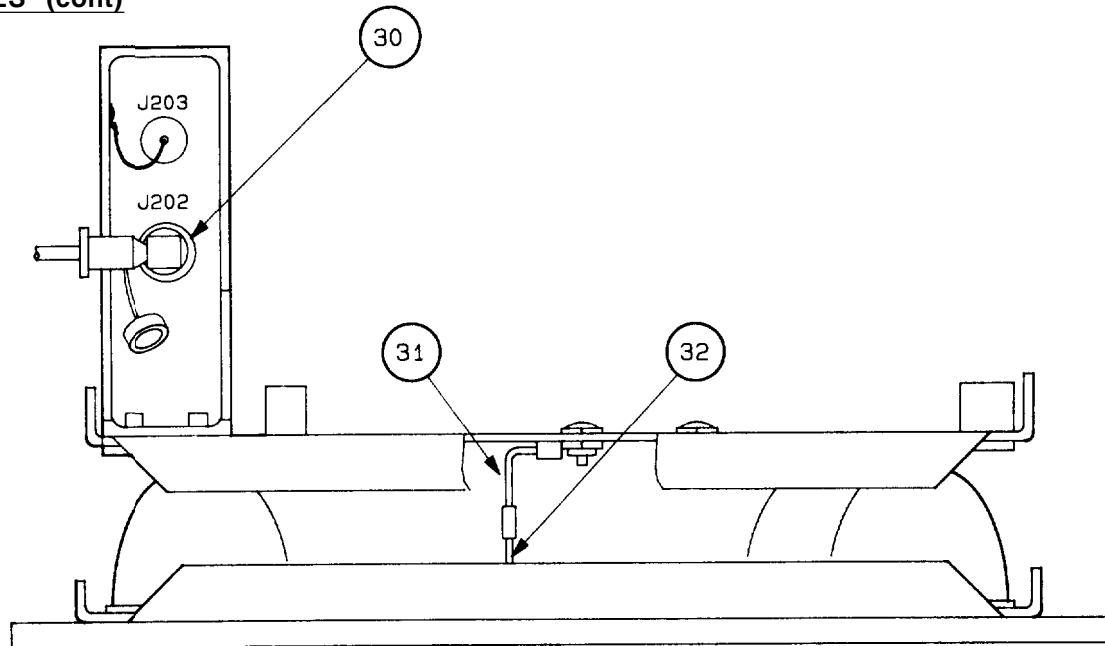
INSTALLATION INSTRUCTIONS (58 Of 61)

MK-2447/GRC-213 INSTALLATION KIT, GENERAL PURPOSE WHEELED OR TRACKED VEHICLES (cont)

32. For all installations, except vehicle top, insert plastic grommets (29) in hole in vehicle sidewall.
33. Route free end of antenna cable through hole(s) (for side mounted antennas) and connect to lower connector J202 (30) on back of switching unit.

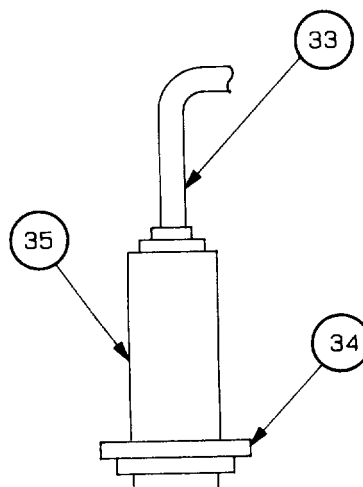


INSTALLATION INSTRUCTIONS (59 of 61)

MK-2447/GRC-213 INSTALLATION KIT, GENERAL PURPOSE WHEELED OR TRACKED VEHICLES (cont)


ELECTRICAL EQUIPMENT MOUNT
(REAR VIEW)

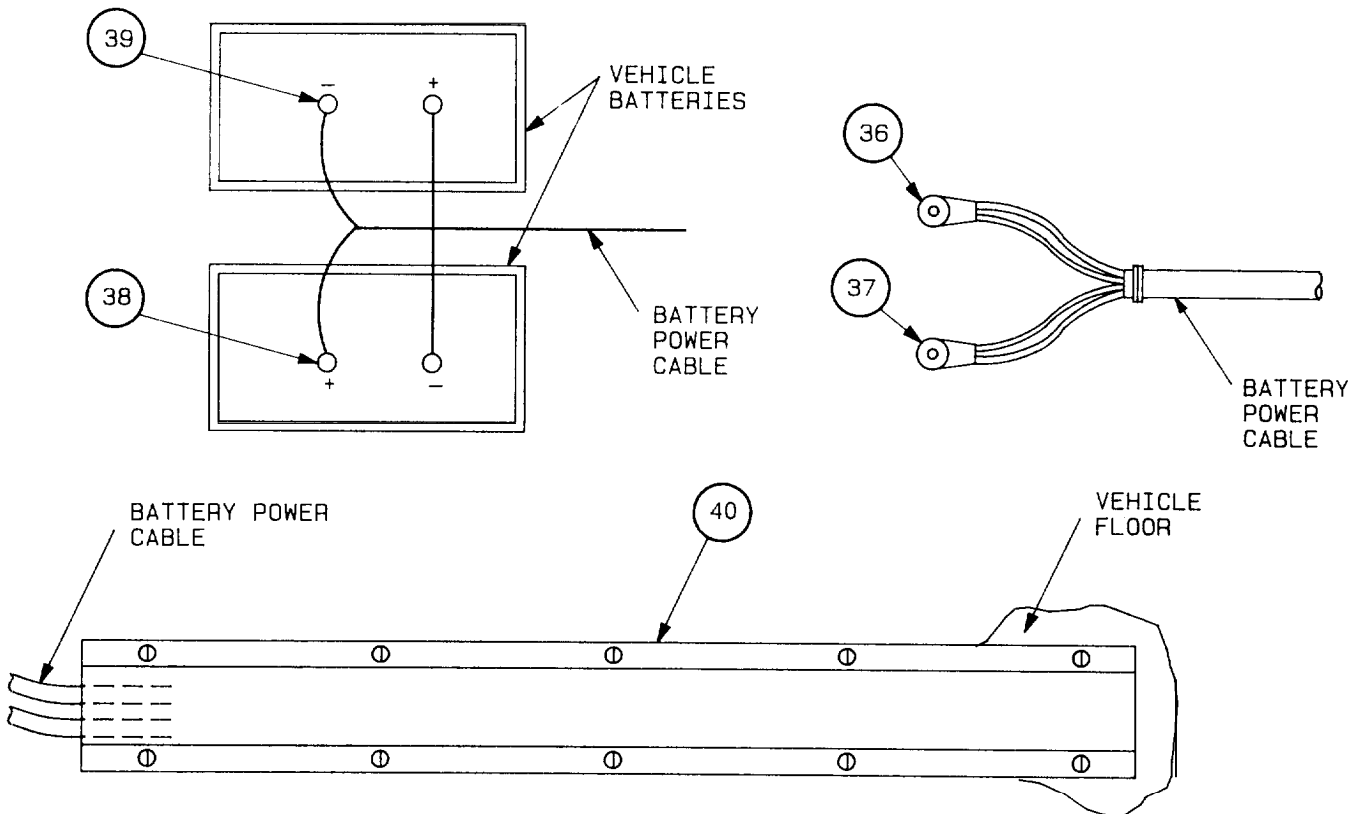
34. **Verify** quick-release **ground cable** (31) from back bottom side of upper tray is **connected to** quick-release **ground cable** (32) on back top side of lower tray on mounting base. Connect if necessary. Connection of quick-release ground cables on top side of upper tray to AN/GRC-213 is covered in the Interconnections paragraph in TM11-5820-923-12.
35. For vehicles with 24 V dc power receptacle, **connect battery power cable** (33) to **vehicle 24 V dc power receptacle**. Use connector plug (34) and connector adapter (35), as required. Leave unconnected end of cable wrapped to protect (35) connector from dirt and debris.



INSTALLATION INSTRUCTIONS (60 of 61)

MK-2447/GRC-213 INSTALLATION KIT, GENERAL PURPOSE WHEELED OR TRACKED VEHICLES (cont)

36. For vehicles without 24 V dc power receptacles, solder one terminal lug (36) (part of battery power cable) to connected ends of red and white wires and one terminal lug (37) to connected ends of black and green wires of battery power cable (38).
37. Connect terminal lug attached to red and white wires of battery power cable to positive (+) terminal (38) of one vehicle battery; connect terminal lug attached to black and green wires of battery power cable to negative (-) terminal (39) of another vehicle battery.
38. For cables running along vehicle floor, hold guard assembly (40) in position on vehicle floor. Mark ten 1/8-in. diameter holes, using guard assembly as a marking guide.
39. Drill ten 1/8-in. diameter holes marked in step 38.
40. Paint all bare metal exposed during drilling prior to installation of hardware.
41. Install guard assembly with ten size 10 self-tapping screws. Route battery power cable through guard assembly during installation. Leave unconnected end of cable wrapped to protect connector from dirt and debris. Connection of the battery power cable to AN/GRC-213 is covered in the Interconnections paragraph in TM11-5820-923-12.

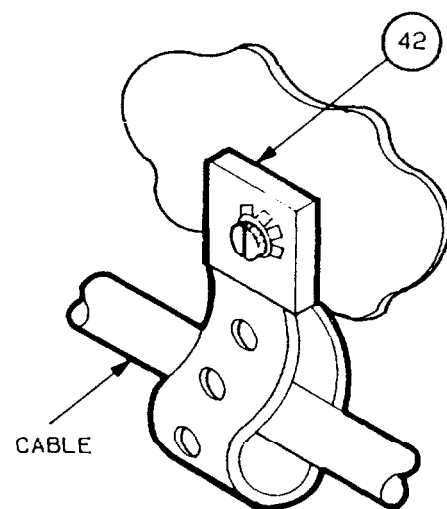
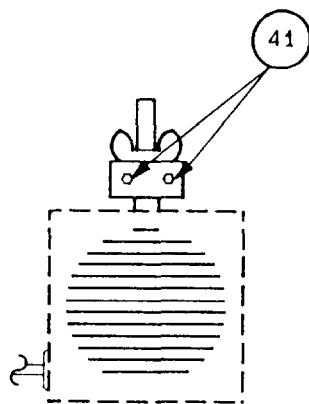


INSTALLATION INSTRUCTIONS (61 of 61)
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MK-2447/GRC-213 INSTALLATION KIT, GENERAL PURPOSE WHEELED OR TRACKED VEHICLES (cont)
NOTE

Installation of attaching parts for AN/GRC-213 loudspeaker in steps 42 and 43 must be performed at the same time as AN/GRC-213 installation. Refer to the Mounting paragraph TM11-5820-923-12.

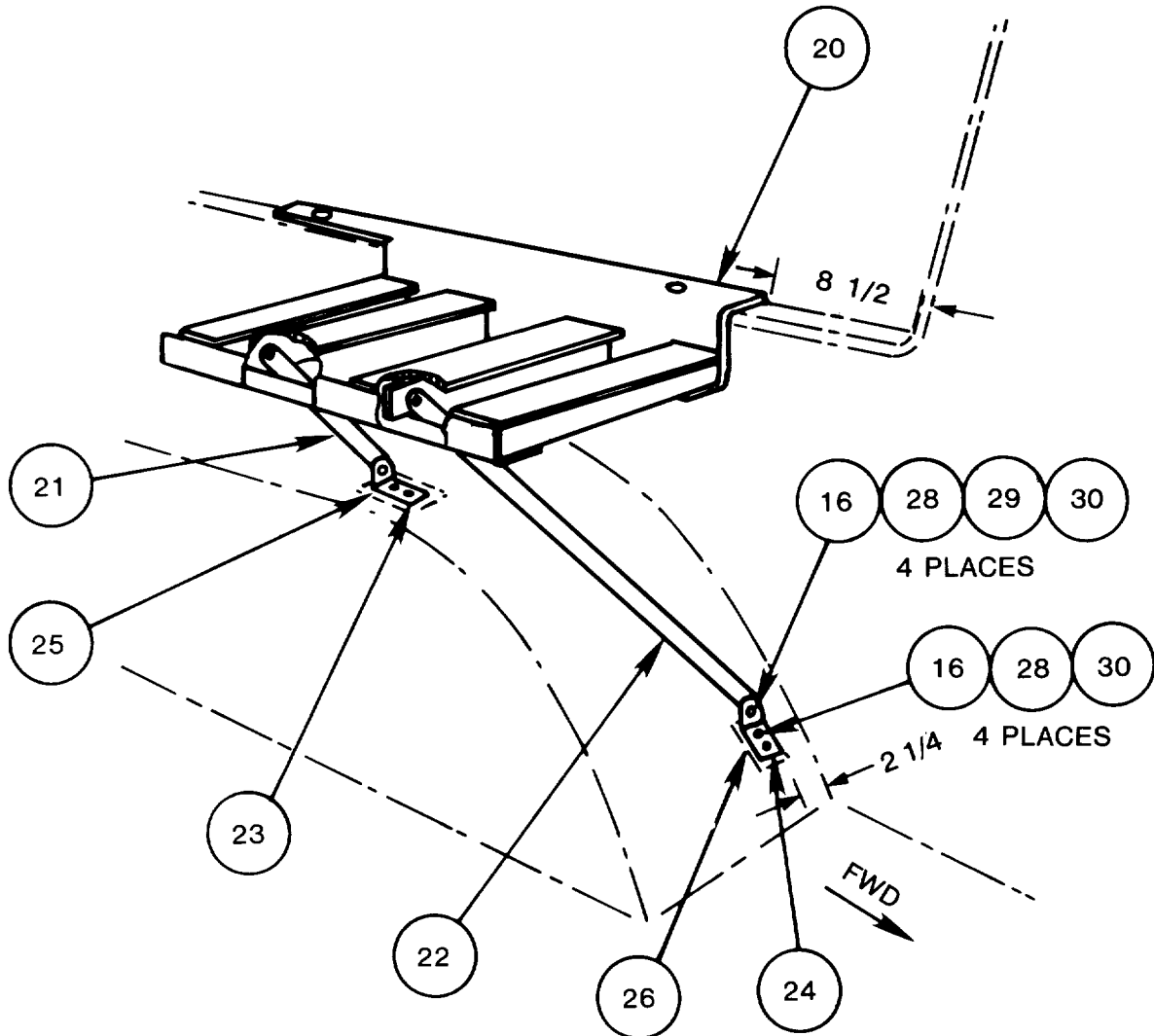
42. Hold loudspeaker (part of AN/GRC-213) in preferred mounting location. **Mark** two 9/32-in. diameter mounting **holes, using support bracket** (part of loudspeaker) as a marking guide.
43. **Drill** two 9/32-in. diameter holes marked in step 42. Remove burrs and sharp edges from holes. **Install loudspeaker** with two 1/4-in. star washers, two 1/4-in. nuts, and two 1/4- x 3/4-in. bolts (41).
44. **Paint** all **bare metal** exposed during drilling **prior to installation** of hardware.
45. **Remove** all **metal shavings and chips** from within **vehicle** body.
46. **Place cable clamps** from cable clamp kit **on antenna cable and battery power cable**, as required. Secure with twelve 1/4-in. nuts, six 1/4-in. lockwashers, and clamp strap fastener assemblies (42).
47. **Dress and secure** all **cables**, using plastic tiedown straps supplied in cable clamp kit.
48. Verify that all attaching parts and fastening devices are secure. If not, secure as necessary.



INSTALLATION INSTRUCTIONS 62 OF 72

MK-2543/GRC-213 INSTALLATION KIT, M1009 CUCV

1. Fasten shelf (20) to existing hardware on roadside window sill. Attach braces (21) and (22) to shelf, then brackets (23) and (24) to braces.
2. Drill four 13/32 dia. holes in wheel well of vehicle using brackets as drilling templates.
3. Fasten brackets to wheel well of vehicle using hardware as indicated in figure with stiffeners (25) and (26) on underside of wheel well.



INSTALLATION INSTRUCTIONS 63 OF 72**MK-2543/GRC-213 INSTALLATION KIT, M1009 CUCV**

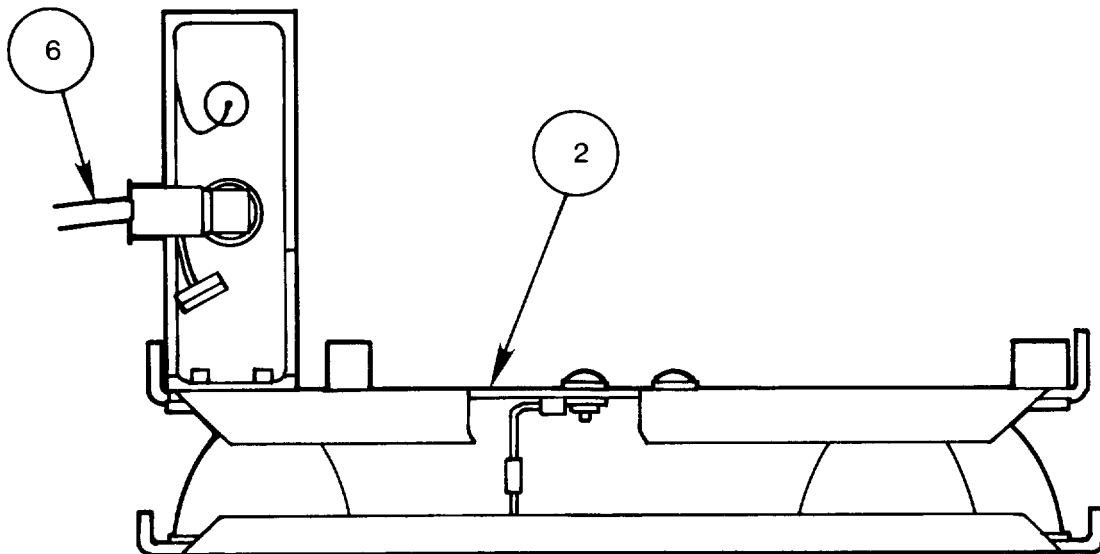
4. Attach Mount Electrical Equipment MT-6234/GRC-213 to shelf.
5. Attach mast base assembly (34), adapter antenna base (35) and rubber gasket (36) to roadside antenna bracket using indicated hardware as shown.

NOTEFor Phase I vehicle only

Attach a third antenna bracket to the front roadside of the vehicle using additional Antenna Bracket Kit PPL #10286.

Optional for Phase II vehicle only

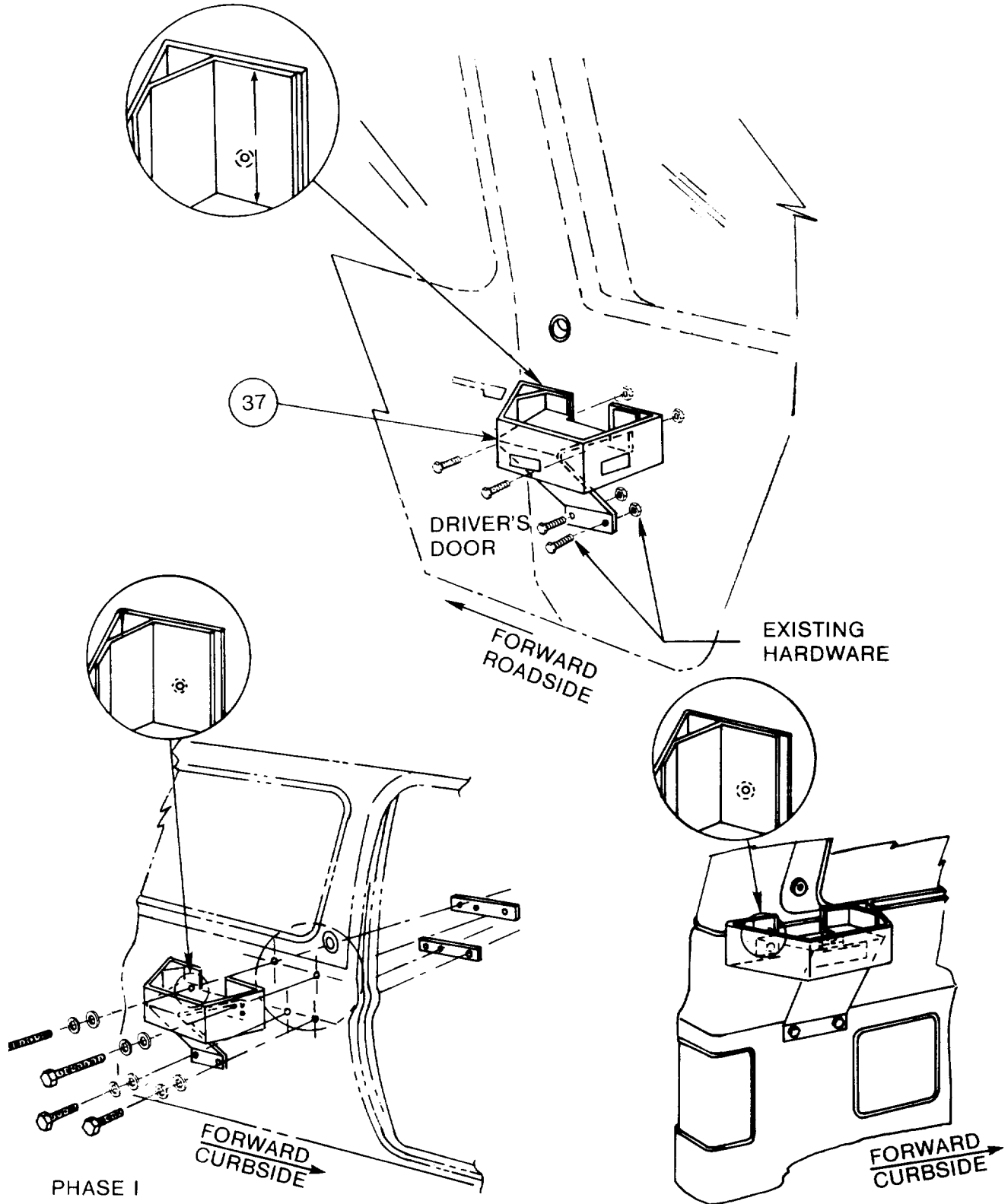
Attach a third antenna to curbside rear if needed using additional Antenna Bracket Kit PPL #10286 moving existing antenna from front roadside.



INSTALLATION INSTRUCTIONS 64 OF 72

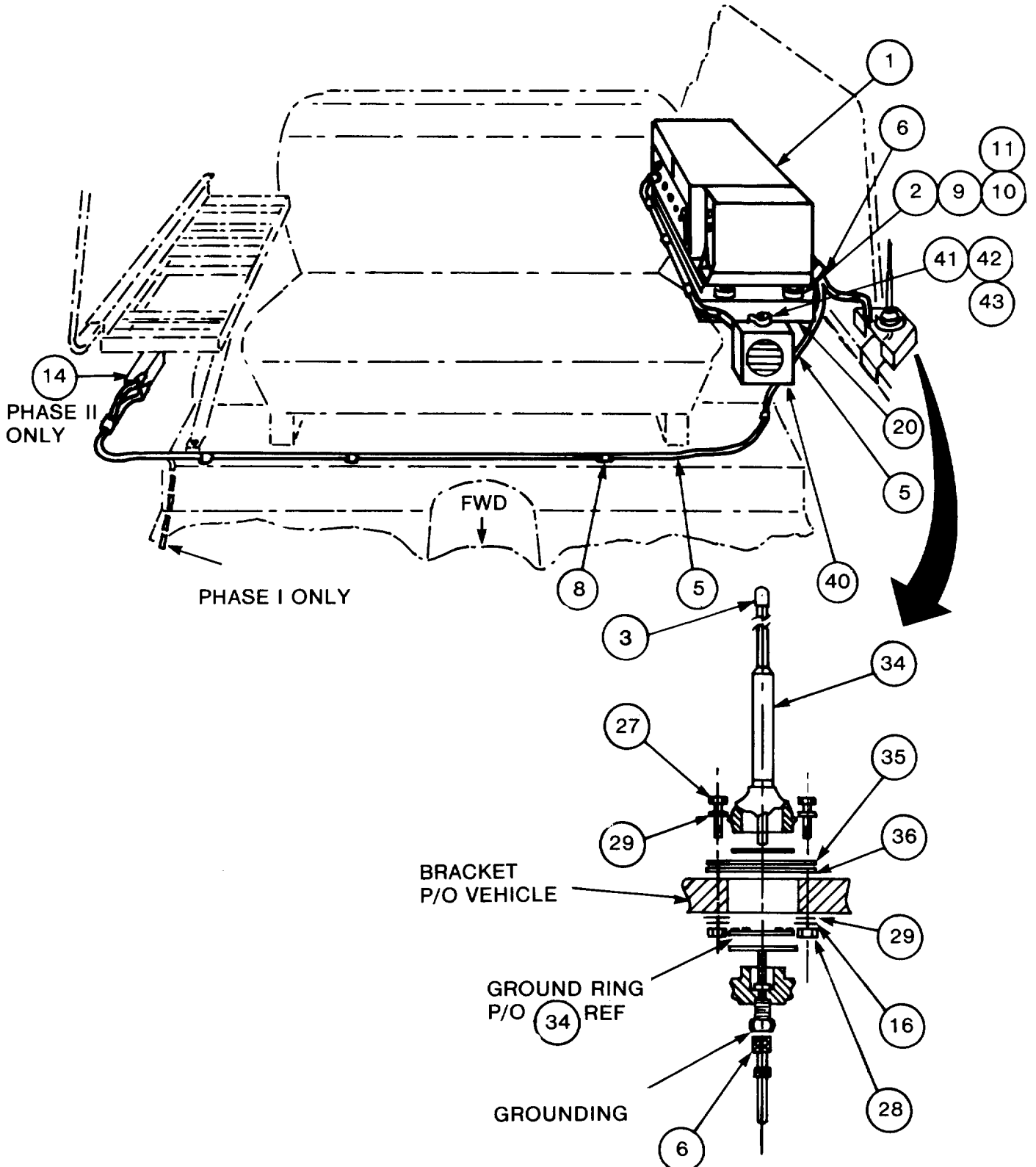
MK-2543/GRC-213 INSTALLATION KIT, M1009 CUCV

6. Attach antenna bracket guard (37) over roadside antenna bracket using the top bolts holding the antenna bracket as shown.



INSTALLATION INSTRUCTIONS 65 OF 72

MK-2543/GRC-213 INSTALLATION KIT, M1009 CUCV



INSTALLATION INSTRUCTIONS 66 OF 72

MK-2543/GRC-213 INSTALLATION KIT, M1009 CUCV

7. Add mast sections MS-116A (31) 3 ea., MS-117A (32) 1 ea., MS-118A (33) 1 ea. and antenna tip assembly (3) to mast base assembly (34).
8. Install Radio Set AN/GRC-213 onto Electrical Equipment Mount MT-6234/GRC.
9. Connect cable antenna lead assembly (6) to Radio Set AN/GRC-213 as shown.
10. Route cable thru grommet in fiberglass. Split grommet putting connector thru and return grommet to hole with split down.
11. Seal antenna cable access hole with RTV sealant.
12. Connect antenna cable (12) to mast base assembly (34).
13. Connect electrical power cable assembly, 20 ft, (5) to Radio Set AN/GRC-213.

Phase I vehicle only

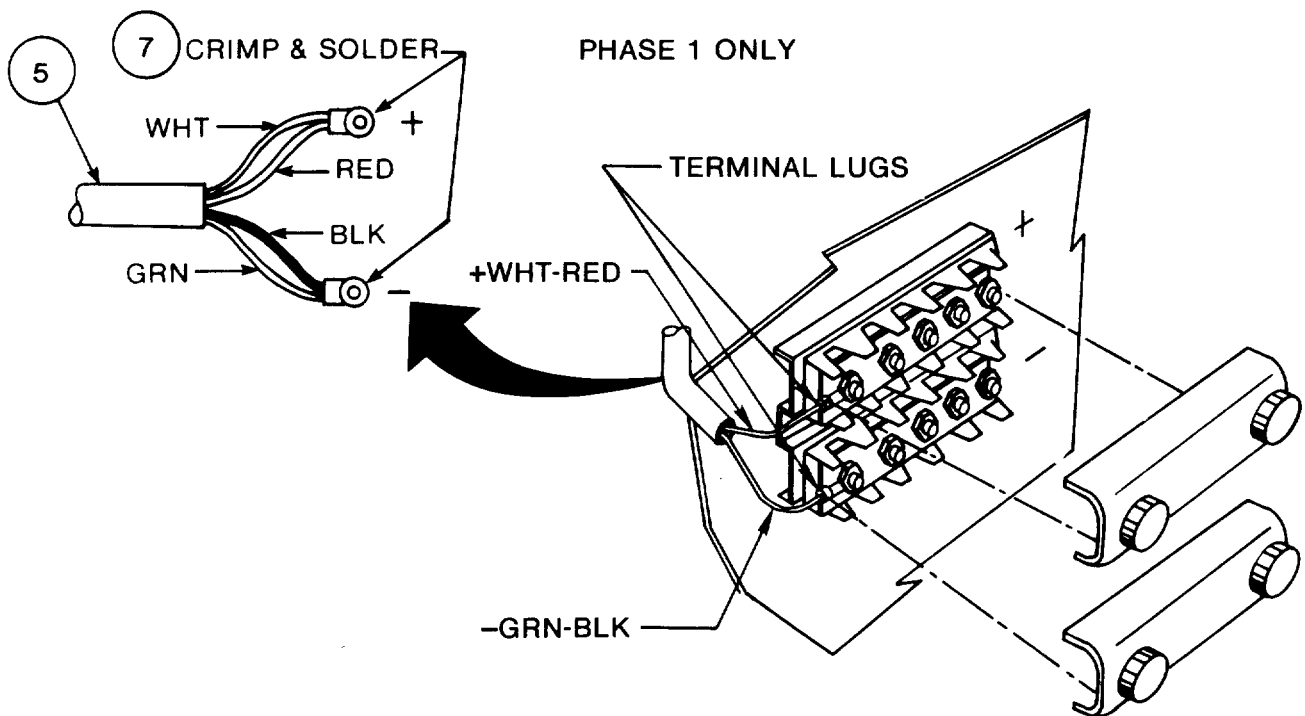
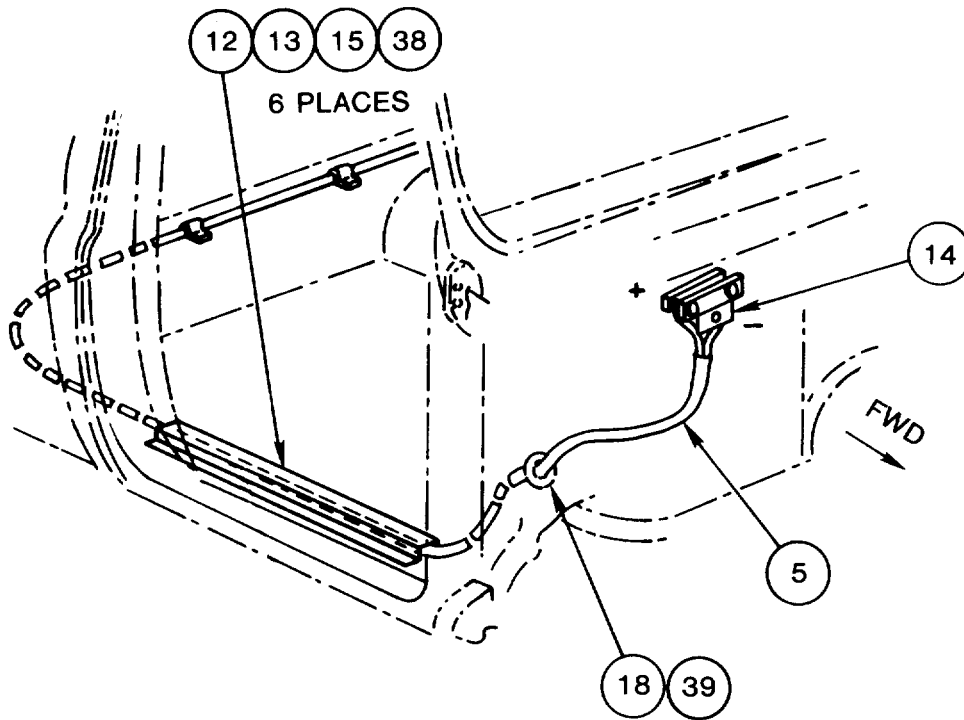
Cover power cable with guard assembly (38). Using guard assembly as template drill six 9/32 in. dia. holes in vehicle. Secure guard assembly over power cable using indicated hardware. Locate existing rubber stopper in firewall at forward curbside corner of floor mat. Remove rubber stopper and enlarge existing hole to 1 1/4 in diameter using hole saw. Put rubber grommet in hole and route power cable (20ft) thru grommet.

Phase II vehicle only

Cut power cable 20 ft to 11 ft in length and reconnect terminal lugs. Route shortened cable (5) along floor shelf in front of rear seat.

INSTALLATION INSTRUCTIONS 67 OF 72

MK-2543/GRC-213 INSTALLATION KIT, M1009 CUCV



INSTALLATION INSTRUCTIONS 68 OF 72

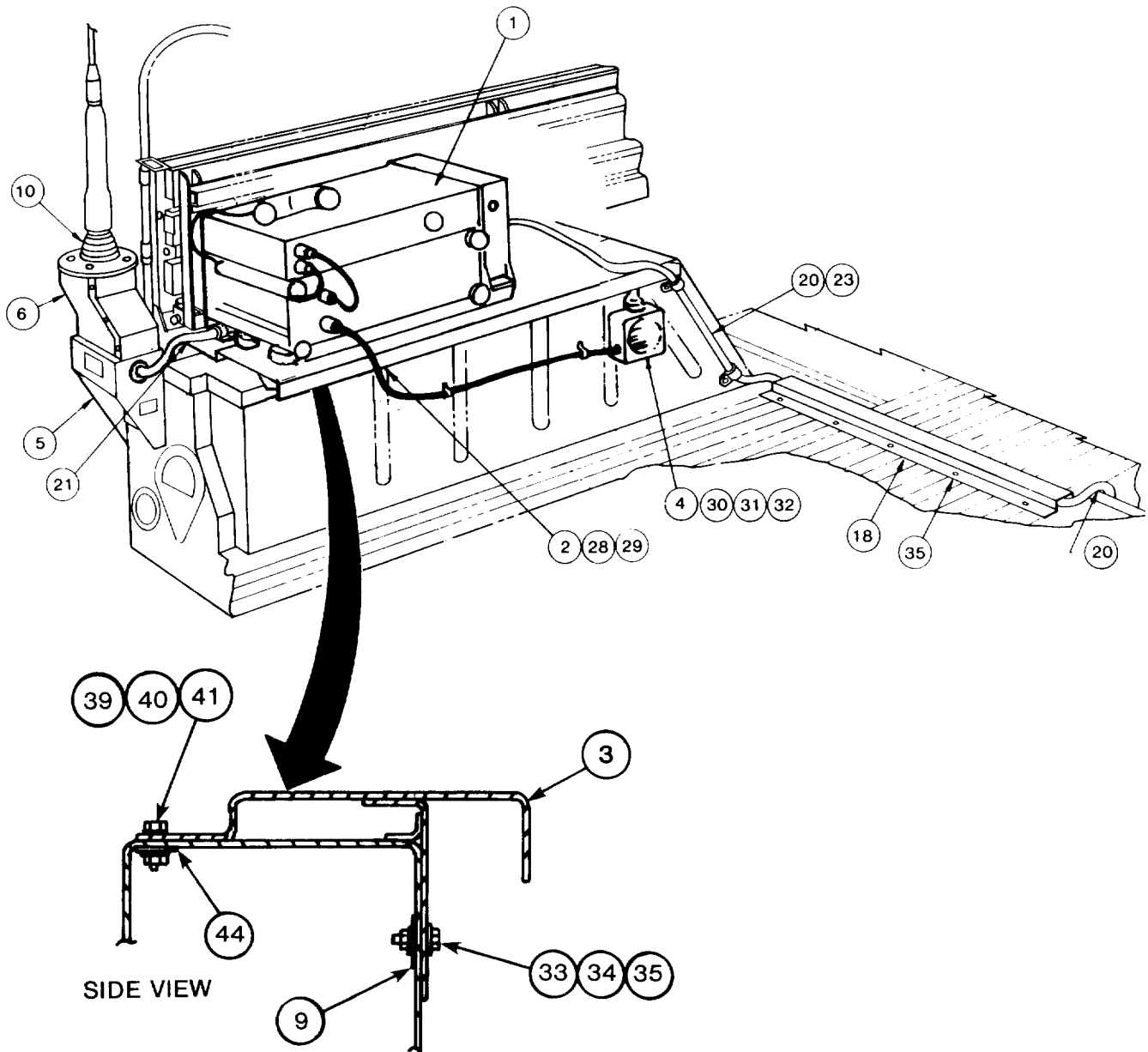
MK-2543/GRC-213 INSTALLATION KIT, M1009 CUCV

14. Connect loudspeaker (40) using bracket as template. Drill two 9/32 holes in shelf and fasten loudspeaker with indicated hardware.
15. Make sure all cables are securely clamped using clamp strap material from cable clamping kit.
16. Read manuals provided with Radio Set AN/GRC-213 before operating radio set.

INSTALLATION INSTRUCTIONS 69 OF 72

MK-2542/GRC-213 INSTALLATION KIT, CARGO/TROOP CARRIER
M998/M1038HMMWV

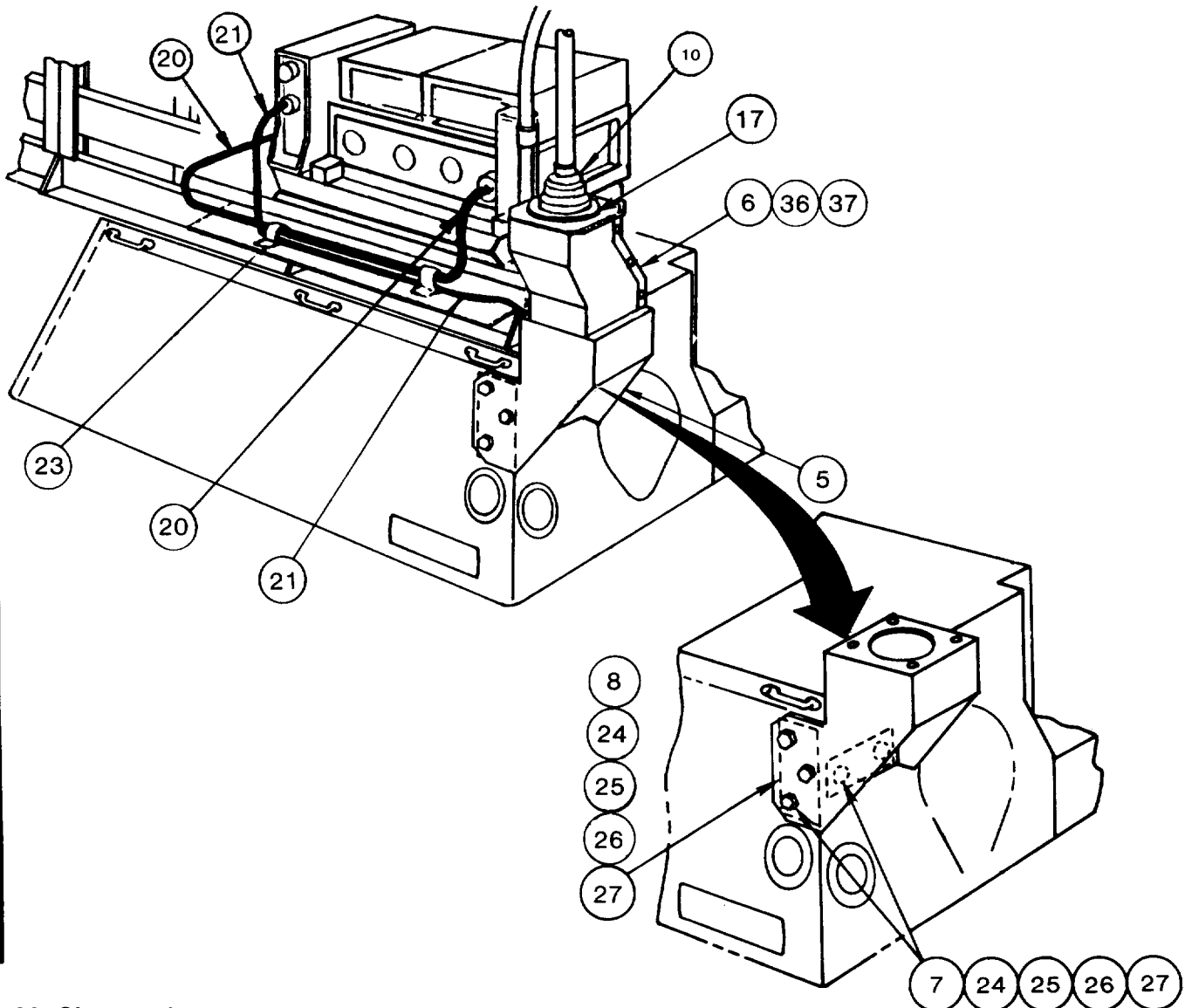
1. Install radio plate assembly (3) on roadside sponson. If troop seat exists, remove troop seat, install radio plate and then replace troop seat, alligning the troop seat mounting holes with the mounting holes of the radio plate.
2. Using the radio plate assembly as a template drill the front mounting holes through the vehicle sponson.
3. Bolt the front of radio plate assembly to vehicle using 6 5/16-24 x 3/4 lg bolts, 5/16-24 nut, 5/16 washer, and backing plate (9).



INSTALLATION INSTRUCTIONS 70 OF 72

**MK-2542/GRC-213 INSTALLATION KIT, CARGO/TROOP CARRIER
M998/M1038 HMMVW**

4. Bolt lead-in insulator assembly (17) to bracket antenna mount weldment. Remove the rear footman loop from the vehicle. Drill .437 dia. holes in the vehicle using the antenna mount as a template.
5. Bolt Mounting Base MT-6234/GRC-213 (2) to plate using 5/16" bolts by aligning mounting base holes with clinch nuts in the plate.
6. Attach Radio Set AN/GRC-213 to Mounting Base MT-6234/GRC-213.
7. Bolt adapter antenna base (10) to the antenna mount (5) or antenna mount offset (6) using 3/8" hardware.
8. Add mast section MS-116A 3 ea, MS-117A 1 ea, MS-118A 1 ea. and Antenna Tip Assembly To Antenna Base.



INSTALLATION INSTRUCTIONS 71 OF 72

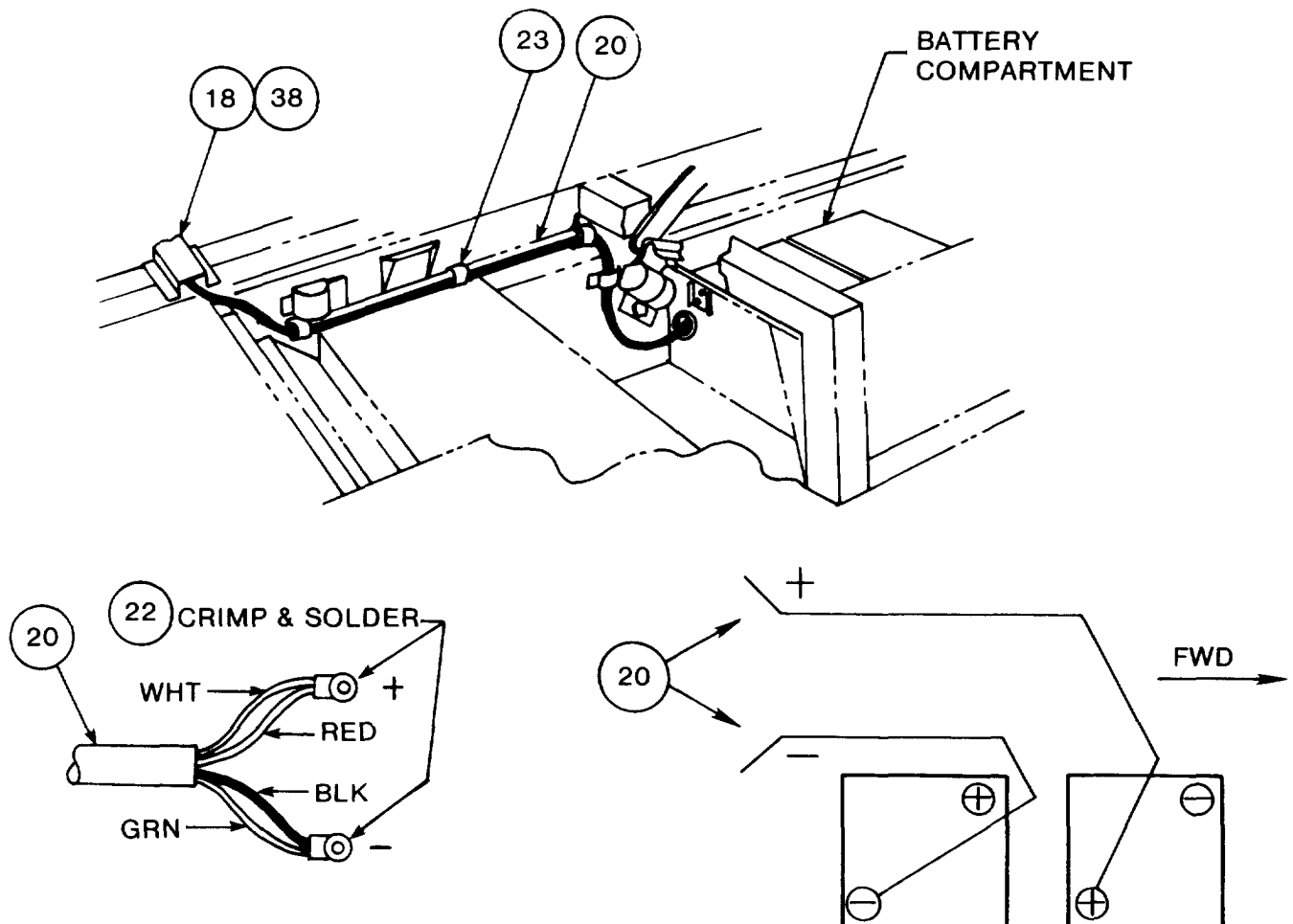
MK-2542/GRC-213 INSTALLATION KIT, CARGO/TROOP CARRIER M998/M1038 HMMWV

9. Drill 1 1/4" dia. hole in battery box approximately 1 1/4 in. from inside wall and 4 in. from the floor. Cut Grommet material to fit around circumference of hole.
10. Route and clamp power cable (20) from Radio Set AN/GRC-213 along top of sponson to battery box. Bolt guard assembly (18) over cable assembly. Drill ten (10) .159 in. dia. holes (No. 21 Drill) through the guard and the vehicle to line up with raised channels of the vehicle. Cut off any excess length of power cable and then crimp and solder one terminal lug (22) to connected ends of red and white wires, and one terminal lug (22) to connected ends of black and green wires.

CAUTION

Be careful to drill only deep enough to break through vehicle floor.

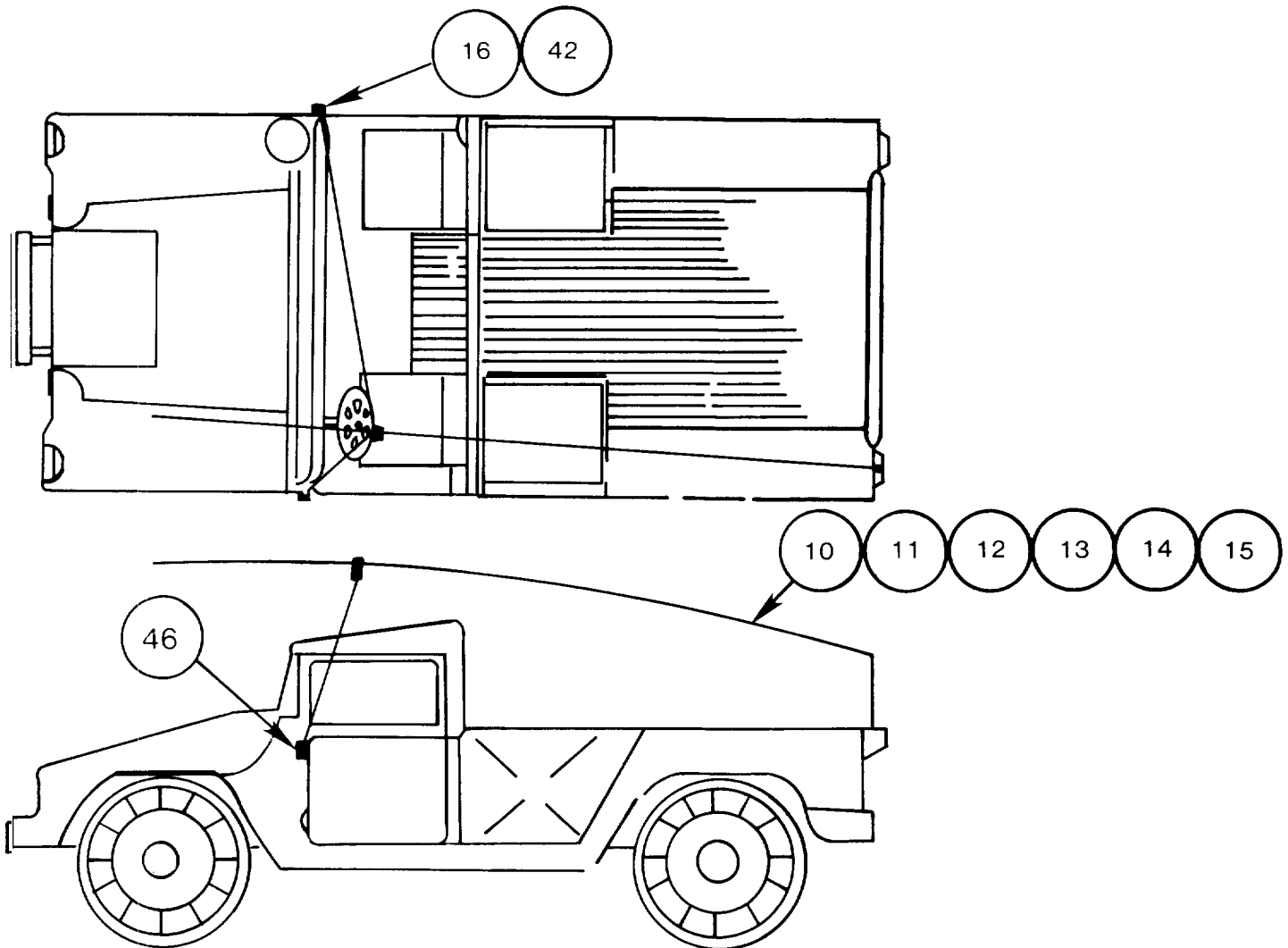
11. Connect terminal lug attached to red and white wires of power cable to positive (+) terminal of battery. Connect terminal lug attached to black and green wires to negative (-) terminal of battery.



INSTALLATION INSTRUCTIONS 72 OF 72

MK-2542/GRC-213 INSTALLATION KIT, CARGO/TROOP CARRIER
M998/M1038 HMMWV

12. Remove 1/4 bolt that attaches top hinge for the front doors of the vehicle. Place clamp loop (42) or cut some clamp strap material and place the 1/4 bolt through it replacing the 1/4" bolt back into the vehicle. Do this to both sides of the vehicle.
13. The antenna can be tied down to these clamp loops by tying a rope (16) from the tie down clip on the antenna to each loop extended.
14. Position loudspeaker using it as a template to drill (2) 9/32 in. dia. holes into vehicle. Cut cable clamping material into required lengths for clamping cable.
15. Read manual TM 11-5820-923-12 provided with Radio Set AN/GRC-213 before operating radio set.



CHAPTER 3
OPERATING INSTRUCTIONS

Section I. CONTROLS AND INDICATORS

	Page
Introduction	3-1
Controls and Indicators	3-2

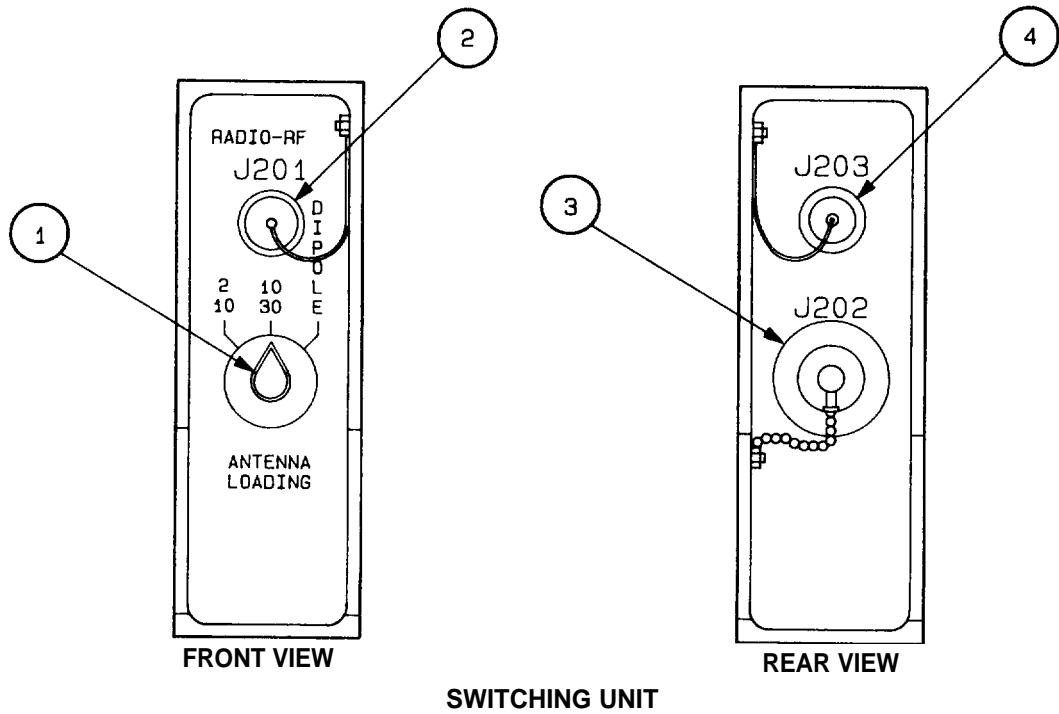
INTRODUCTION

This section describes the controls and indicators used by the operator. Also described are connectors connected during operation. These controls, indicators, and connectors are only used when an AN/GRC-213 is mounted in the installation kit.

CONTROLS AND INDICATORS (1 of 2)

Key	Control or Indicator	Function
1	ANTENNA LOADING switch	<p>2 10- Connects J201 input directly to J202 output. This position is used when a frequency in the range of 2 to 10 MHz is selected and the whip antenna is used.</p> <p>10 30- Connects J201 input to J202 output through a capacitor. This position is used when a frequency in the range of 10 to 30 MHz is selected and the whip antenna is used.</p> <p>DIPOLE - Connects J201 input directly to J203 output. This position is used when the NVIS or dipole antenna is used and any frequency in the range of 2 to 30 MHz is selected.</p>
2	Connector RADIO-RF J201	Provides connection for rf output from AN/GRC-213.
3	Connector J202	Provides connection for routing rf output from AN/GRC-213 to whip antenna.
4	Connector J203	Provides connection for routing rf output from AN/GRC-213 to dipole or NVIS antenna.

CONTROLS AND INDICATORS (2 of 2)



Section II. OPERATING INSTRUCTIONS

OPERATING INSTRUCTIONS

The installation kit operates with an AN/GRC-213 installed. Operating instructions consist of setting the antenna loading switch. The setting of the antenna loading switch is covered in the Initial Control Settings paragraph in TM 11-5820-923-12.

WARNING

- Do not allow antenna to touch power lines. Tie antenna down before moving vehicle.
- When vehicle is in motion, do not allow anyone to stick an arm, leg, or weapon over the sides of the vehicle. If the antenna accidentally touches a power line and a leg, arm, or weapon touches a damp bush or the ground, a serious or fatal accident can happen.
- For first aid, refer to FM 21-11.
- Operation in a storm where electrical activity is possible may be dangerous to the operator or passengers of the vehicle.
- For first aid, refer to FM 21-11.

CHAPTER 4
OPERATOR MAINTENANCE INSTRUCTIONS

Section I. LUBRICATION

No lubrication is required during operator maintenance.

Section II. REPAIR PARTS; SPECIAL TOOLS; TEST, MEASUREMENT, AND DIAGNOSTIC EQUIPMENT (TMDE); AND MATERIALS

	Page
Introduction	4-3
Materials	4-3

INTRODUCTION

This section lists the operator maintenance materials for the six installation kits. No repair parts, special tools, or TMDE are required for operator maintenance.

MATERIALS

Materials required for operator maintenance are listed below.

CAUTION

Adequate ventilation should be provided while using TRICHLOROTRIFLOROETHANE. prolonged breathing of vapor should be avoided. The solvent should not be used near heat or open flame, the products of decomposition are toxic and irritating. Since TRICHLOROTRIFLOROETHANE dissolves natural oils, prolonged contact with skin should be avoided. When necessary use gloves which the solvent cannot penetrate. If the solvent is taken internally, consult a physician immediately.

Compressed air shall not be used for cleaning purposes except where reduced to less than 29 psi and then only with effective chip guarding and personnel protective equipment. Do not use compressed air to dry parts when TRICHLOROTRIFLUOROETHANE has been used. Compressed air is dangerous and can cause serious bodily harm if protective means or methods are not observed to prevent chip or particle (of whatever size) from being blown into the eyes or unbroken skin of the operator or other personnel.

APP. F ITEM NO.	DESCRIPTION	NATIONAL STOCK NUMBER	UNIT OF MEASURE
2	BRUSH, BRISTLE, 2-3/4" LONG	7920-00-178-8315	EA
3	BRUSH, PAINT		EA
4	CHEESE CLOTH (81348)	8305-00-267-3015	YD
5	CLEANING COMPOUND (SOLVENT), TRICHLOROTRIFLUOROETHANE	6850-00-105-3084	OZ
6	DETERGENT, GP, LIQ.	7930-01-055-6121	GL
8	PAINT, EPOXY (TYPE 1, GREEN 24052, MIL-C-22750)		GL
9	PAINT, PRIMER (TYPE 1 KIT, MIL-P-23377)		GL
10	SANDPAPER, PP-105	5350-00-264-3485	SH
14	WIPING RAGS		EA

Section III. OPERATOR PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

	Page
Introduction	4-5
PMCS Table	4-6

INTRODUCTION

The Preventive Maintenance Checks and Services (PMCS) table lists the inspections and care of the equipment required to keep it in good operating condition.

The interval column of the PMCS table indicates how often you will perform a certain check or service. The item to be inspected column lists what you will inspect or service. The procedure column of the PMCS table explains how you will perform the check or service.

PMCS TABLE

		W - Weekly M - Monthly		Q - Quarterly S - Semiannually		A - Annually	
Item No.	Interval					Item to be Inspected	Procedures
	W	M	Q	S	A		
1		•				Electric Equipment Mount MT-6234	<p><u>Inspect for Loose Hardware</u> Check for any loose nuts and bolts; tighten if necessary,</p> <p><u>Inspect for Surface Corrosion</u> Check exterior surface for corrosion; clean and paint if necessary.</p>
2	•					Antenna Switching Unit SA-2365	<p><u>Inspect Switch Action</u> Check antenna loading switch for proper mechanical action. Refer to a higher level of maintenance, as required.</p>
3		•				Electrical Cables and Connectors	<p><u>Inspect Cables and Connectors</u></p> <ol style="list-style-type: none"> 1. Check cables for cracked or worn insulation and bare wires. Refer to higher level of maintenance, as required. 2. Inspect connectors for damage or corrosion. Tighten connectors if loose. Refer to higher level of maintenance, as required.
4				•		Antenna	<p><u>Inspect Surface</u> Check for cracks and corrosion. Refer to a higher level of maintenance, as required.</p>
5		•				Brackets	<p><u>Inspect for Loose Hardware</u> Check for any loose nuts and bolts; tighten if necessary.</p> <p><u>Inspect Surfaces</u></p> <ol style="list-style-type: none"> 1. Check surfaces for corrosion; clean and paint if necessary. 2. Check bracket welds for cracks. Refer to a higher level of maintenance, as required.

Section IV. MAINTENANCE PROCEDURES

INSTALLATION KIT MAINTENANCE INSTRUCTIONS (1 of 2)

This task covers:

CLEANING

TEST

INITIAL SETUP

Tools:

None

Material/Parts:

- Brush, Bristle (item 2, App. F)
- Brush, Paint (item 3, App. F)
- Cheesecloth (item 4, App. F)
- Cleaning Compound (solvent) (item 5, App. F)
- Detergent (item 6, App. F)
- Paint, Epoxy (item 8, App. F)
- Paint, Primer (item 9, App. F)
- Sandpaper (item 10, App. F)
- Wiping Rags (item 14, App. F)

Personnel Required:

1

CLEANING

WARNING

- When using a compressed air jet, use eyeshields.
- When using solvents, provide ventilation and avoid contact with skin. Do not smoke. Solvents must meet all specifications for flammability and allergic and poisonous effects.
- For first aid, refer to FM 21-11.

INSTALLATION KIT MAINTENANCE INSTRUCTIONS (2 of 2)

CLEANING (cont)

CAUTION

- Compressed air must be clean, dry, and at a maximum pressure of 28 psi. Do not overlook the force of the air jet when cleaning delicate parts.
 - Certain solvents will damage insulation. Do not use solvents similar to Chlorothene or Glyptal to clean connectors. Use only denatured alcohol for this purpose.
1. If a compressed air system is available, clean all outer surfaces by using an airjet. If dirt cannot be removed by the airjet alone, use a medium stiff brush to aid the airjet action.
 2. If a compressed air system is not available, an approved solvent or detergent may be used to remove grease, oil, and dirt. Do not allow solvent or detergent to run into the insulated sleeving of cable assemblies and wiring.
 3. Remove any rust and chipped paint with sandpaper.
 4. Repaint all treated areas upon removal of corrosion.

TEST

1. Perform the test in the Minimum Performance Test paragraph in TM 11-5820-923-12.

**CHAPTER 5
ORGANIZATIONAL MAINTENANCE INSTRUCTIONS**

Section I. LUBRICATION

No lubrication is required for organizational maintenance.

Section II. REPAIR PARTS; SPECIAL TOOLS; TEST, MEASUREMENT, AND DIAGNOSTIC EQUIPMENT (TMDE); SUPPORT EQUIPMENT; AND MATERIALS

	Page
Introduction	5-3
Common Tools and Equipment	5-3
Special Tools, TMDE, and Support Equipment	5-3
Materials	5-4
Repair Parts	5-4

INTRODUCTION

This section refers to or provides lists of the organizational maintenance repair parts, special tools, TMDE, and materials for the six installation kits.

COMMON TOOLS AND EQUIPMENT

For authorized common tools and equipment required for organizational maintenance, refer to the Modified Table of Organization and Equipment (MTOE) applicable to your unit.

SPECIAL TOOLS, TMDE, AND SUPPORT EQUIPMENT

Test equipment required for organizational maintenance is as follows:

- Detecting element (50H)
- Dummy load (8085)
- Multi meter (AN/PSM-45)
- Wattmeter (AN/USM-298)

Special tools required for organizational maintenance are listed in section III of appendix B, Maintenance Allocation Chart. Special tools are also listed and illustrated in appendix E, Repair Parts and Special Tools List.

MATERIALS

Materials required for organizational maintenance are listed in the following table.

App. F Item No.	Description	National Stock Number	Unit of Measure
3	Brush, Paint		ea
8	Paint, Epoxy		gl
9	Paint, Primer		gl
10	Sandpaper	5350-00-264-3485	sh

REPAIR PARTS

Repair parts required for organizational maintenance are listed and illustrated in appendix E, Repair Parts and Special Tools List.

**Section III. ORGANIZATIONAL PREVENTIVE MAINTENANCE CHECKS
AND SERVICES (PMCS)**

There are no organizational level preventive maintenance checks and services.

Section IV. TROUBLESHOOTING

	Page
Symptom Index	5-7
Procedures.	5-8

SYMPTOM INDEX

NOTE

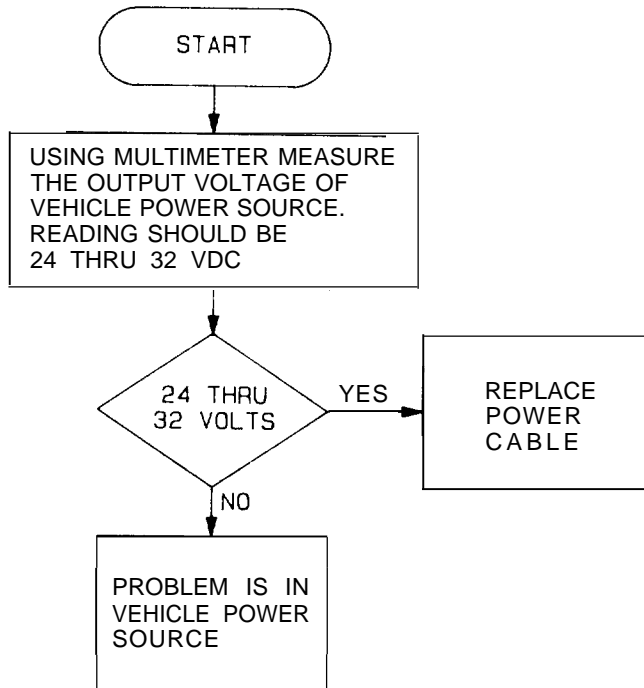
The AN/GRC-213 troubleshooting in the organizational maintenance Fault Isolation Flowchart in TM11-5820-923-12 must be run before performing this procedure.

To use the symptom index find, in the first column, the last decision block in the AN/GRC-213 Fault Isolation Flowchart (TM11-5820-923-12). Perform the corresponding corrective action.

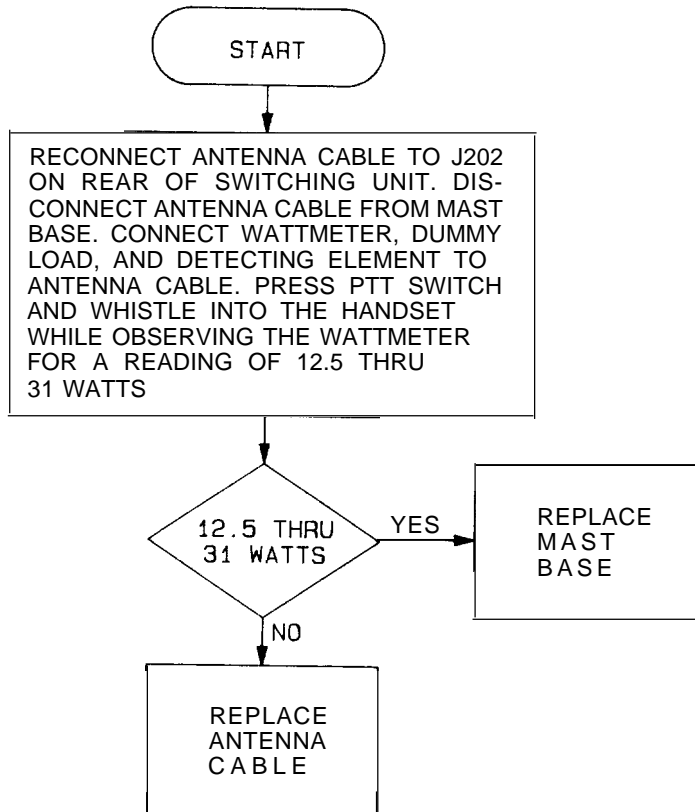
SYMPTOM INDEX		
Last Decision Block in AN/GRC-213 Fault Isolation Flowchart	Corrective Action	Page
24-32 V dc present at pins A and B	Perform Power Cable Troubleshooting procedure.	5-8
12.5-31 watts at J202	Perform Antenna Cable/Mast Base Troubleshooting procedure.	5-8
12.5-31 watts present at end of rf cable	Replace switching unit by performing Switching Unit Maintenance Instructions.	5-12
12.5-31 watts present at J203	Replace switching unit by performing Switching Unit Maintenance Instructions.	5-12

PROCEDURES

POWER CABLE TROUBLESHOOTING



ANTENNA CABLE/MAST BASE TROUBLESHOOTING



Section V. MAINTENANCE PROCEDURES

	Page
Electrical Equipment Mount Maintenance Instructions	5-10
Switching Unit Maintenance Instructions	5-12
Mast Base Maintenance Instructions	5-14
Antenna Mast Maintenance Instructions	5-16
Antenna Cable Maintenance Instructions	5-18
Power Cable Maintenance Instructions	5-20
Intercommunication Cable Maintenance Instructions	5-21
Battery Power Cable Maintenance Instructions	5-22
Antenna Support Maintenance Instructions	5-24
Antenna Base Adapter Maintenance Instructions	5-26
Support Bracket Maintenance Instructions	5-28
Antenna Bracket Maintenance Instructions	5-32
Mount Maintenance Instructions	5-34
Mounting Bracket Maintenance Instructions	5-36
Support Bracket Assembly Maintenance Instructions	5-38
Shock Mount Maintenance Instructions	5-40

ELECTRICAL EQUIPMENT MOUNT MAINTENANCE INSTRUCTIONS (1 of 2)

This task covers:

REMOVAL INSTALLATION TEST

INITIAL SETUP

Tools:

Electronic Equipment Tool Kit
TK-101/G

Materials/Parts:

None

Personnel Required:

1

REMOVAL

1. **Remove AN/GRC-213** from electrical equipment mount (1). (Refer to the Disassembly Instructions in the Preparation for Shipment para in TM11-5820-923-12.)
2. **Disconnect antenna cable from** lower connector **J202** on back of switching unit (2).
3. **Remove five bolts, nuts, and lockwashers** (3) holding electrical equipment mount (1) in place.
4. **Remove electrical equipment mount** (1).

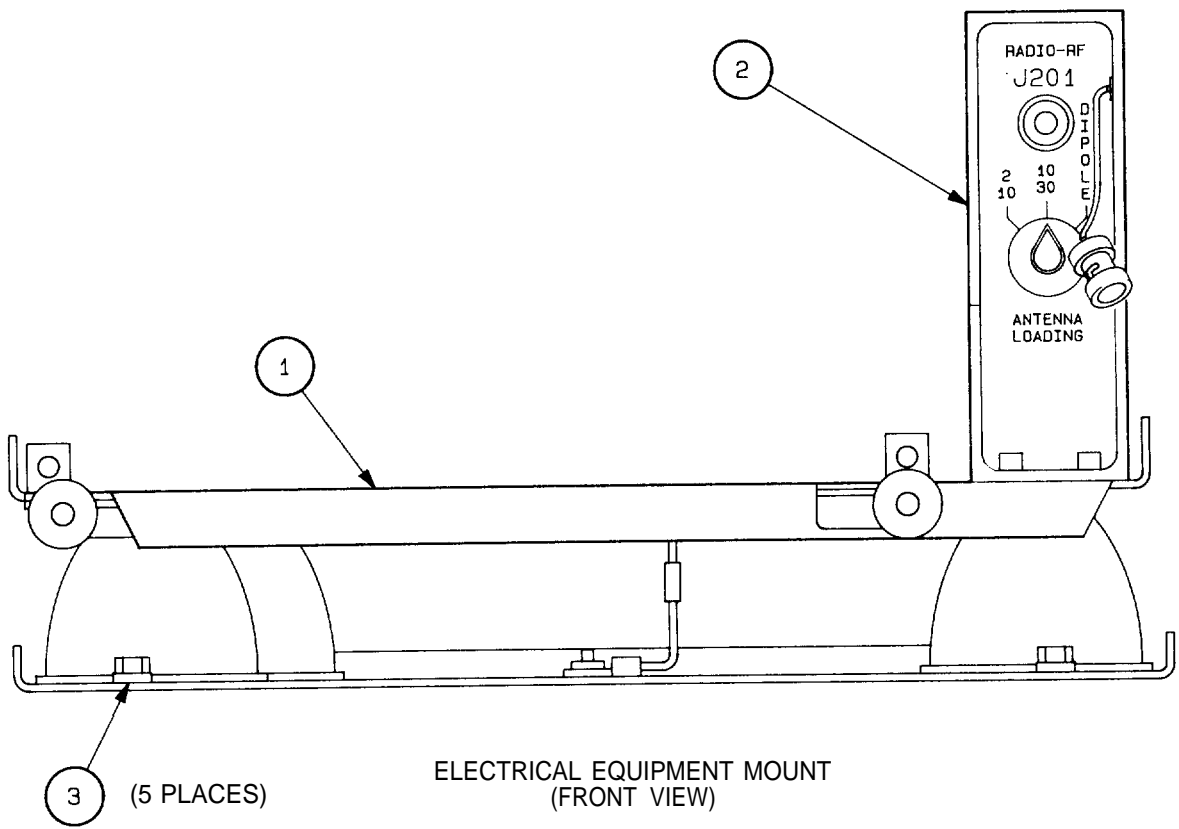
INSTALLATION

1. **Place electrical equipment mount** (1) **in position. Install** with five bolts, nuts, and lockwashers (3).
2. **Connect antenna cable to** lower connector **J202** on back of switching unit (2).
3. **Install AN/GRC-213** on electrical equipment mount (1). (Refer to Mounting para in TM11-5820-923-12.)

TEST

Perform the test in the **Minimum Performance Test** paragraph in TM11-5820-923-12.

ELECTRICAL EQUIPMENT MOUNT MAINTENANCE INSTRUCTIONS (2 of 2)



SWITCHING UNIT MAINTENANCE INSTRUCTIONS (1 of 2)

This task covers:

REMOVAL INSTALLATION TEST

INITIAL SETUP

Tools:

Electronic Equipment Tool Kit
TK-101/G

Materials/Parts:

None

Personnel Required:

1

REMOVAL

1. **Disconnect antenna cable** from lower connector **J202** (1) on back of switching unit.
2. **Remove 4 bolts, nuts, and lockwashers** (2) attaching switching unit to mounting base.
3. **Remove switching unit.**

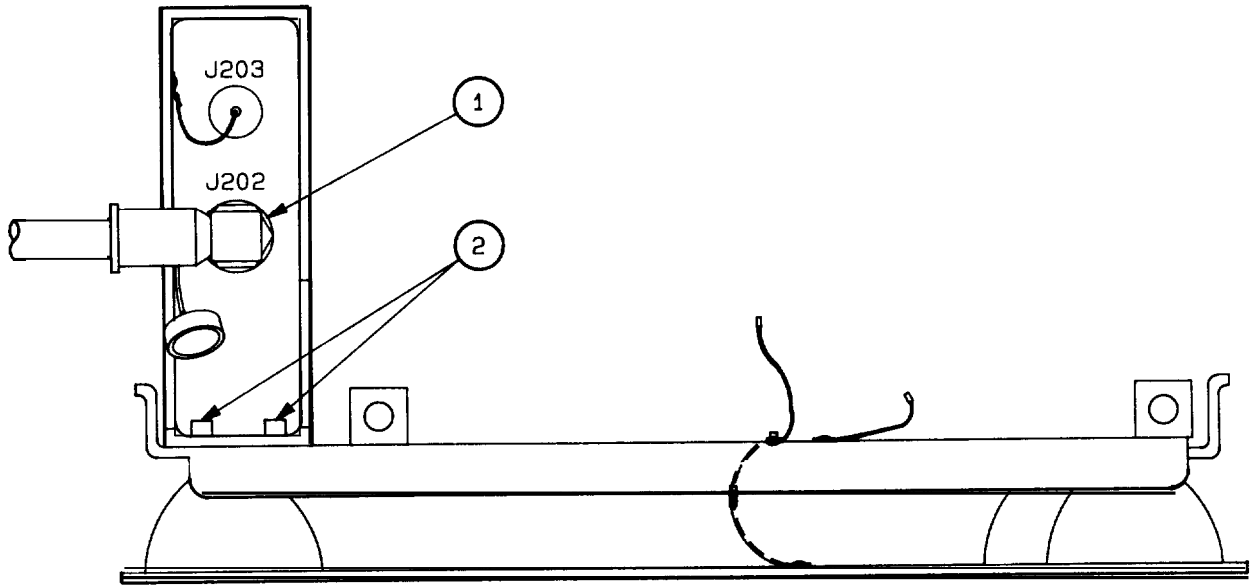
INSTALLATION

1. Place switching unit in position on mounting base. **Install with 4 bolts, nuts, and lockwashers (2).**
2. **Connect antenna cable to** lower connector **J202** (1) on back of switching unit.

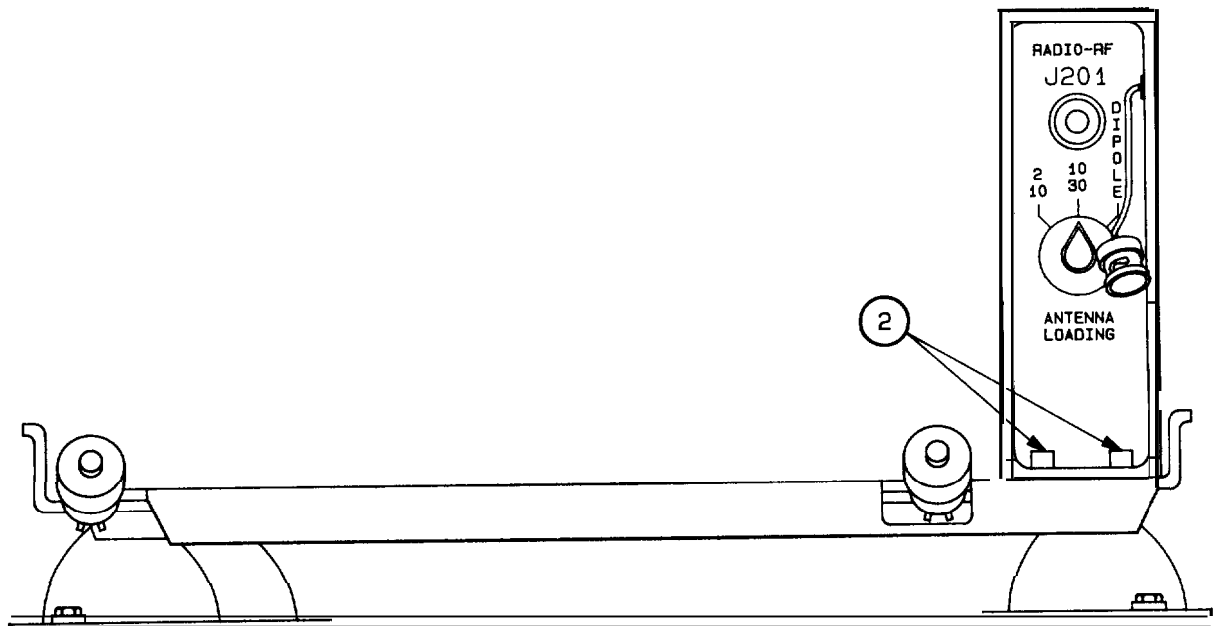
TEST

Perform the test in the **Minimum Performance Test** paragraph in TM11-5820-923-12.

SWITCHING UNIT MAINTENANCE INSTRUCTIONS (2 of 2)



ELECTRICAL EQUIPMENT MOUNT (REAR VIEW)



ELECTRICAL EQUIPMENT MOUNT (FRONT VIEW)

MAST BASE MAINTENANCE INSTRUCTIONS (1 of 2)

This task covers:

REMOVAL INSTALLATION TEST

INITIAL SETUP

Tools:

Electronic Equipment Tool Kit
TK-101/G

Materials/Parts:

None

Personnel Required:

2

REMOVAL

1. **Remove** and set aside **antenna mast** sections from mast base. (Refer to Antenna Mast Maintenance Instructions, pg 5-16.)
2. **Loosen grounding clamp** (1) from around antenna cable connector (2) on lower subassembly (3).
3. **Disconnect antenna cable** from receptacle that extends from **lower** subassembly (3).
4. **Unscrew lower** subassembly (3) **from upper** subassembly (4). **Remove both subassemblies**, grounding ring (5), and two rubber gaskets (6) from mounting hole.

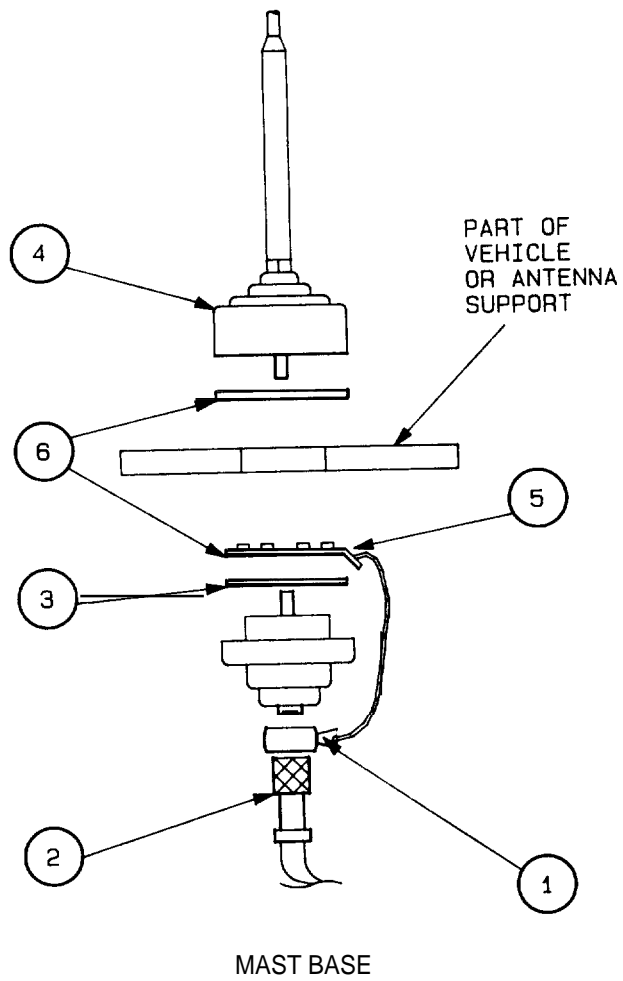
INSTALLATION

1. Carefully **unscrew** two subassemblies of mast base assembly by hand.
2. **Place** new **upper** subassembly (4) and rubber gasket (6) **over mounting hole**.
3. **Place** new **lower** subassembly (3), rubber gasket (6), and grounding ring (5) **under mounting hole**. Make certain grounding ring is against bare metal.
4. Carefully **screw** two **subassemblies together** handtight.
5. **Place grounding clamp** (1) **over receptacle** that extends **from lower** subassembly (3). Do not tighten grounding clamp (1).
6. **Connect antenna cable** (2) to receptacle that extends from lower subassembly (3) and tighten.
7. Slip grounding clamp (1) down over connector of antenna cable (2). **Tighten grounding clamp**.
8. **Install antenna mast** sections. (Refer to Antenna Mast Maintenance Instructions, pg 5-16.)

MAST BASE MAINTENANCE INSTRUCTIONS (2 of 2)

TEST

Perform the test in the **Minimum Performance Test** paragraph in TM11-5820-923-12.



ANTENNA MAST MAINTENANCE INSTRUCTIONS (1 of 2)

This task covers:

REMOVAL INSTALLATION TEST

INITIAL SETUP

Tools:

Electronic Equipment Tool Kit
TK-101/G

Materials/Parts:

None

Personnel Required:

1

REMOVAL

1. **Untie rope (1)** securing antenna to vehicle.
2. **Unscrew antenna from** upper subassembly (2) of **mast base**.
3. **Unscrew antenna center section (3)** with attached top section (4) and tip (5) **from antenna bottom section (6)**.
4. **Unscrew antenna top section (4)** from antenna **center section (3)**.
5. **Remove tip (5)** from antenna **top section (4)**.
6. **Remove rope (1), rope clamp (7), and antenna guard (8)** (if used) **from antenna bottom sections (6)**.
7. **Unscrew three identical antenna bottom sections (6)**.

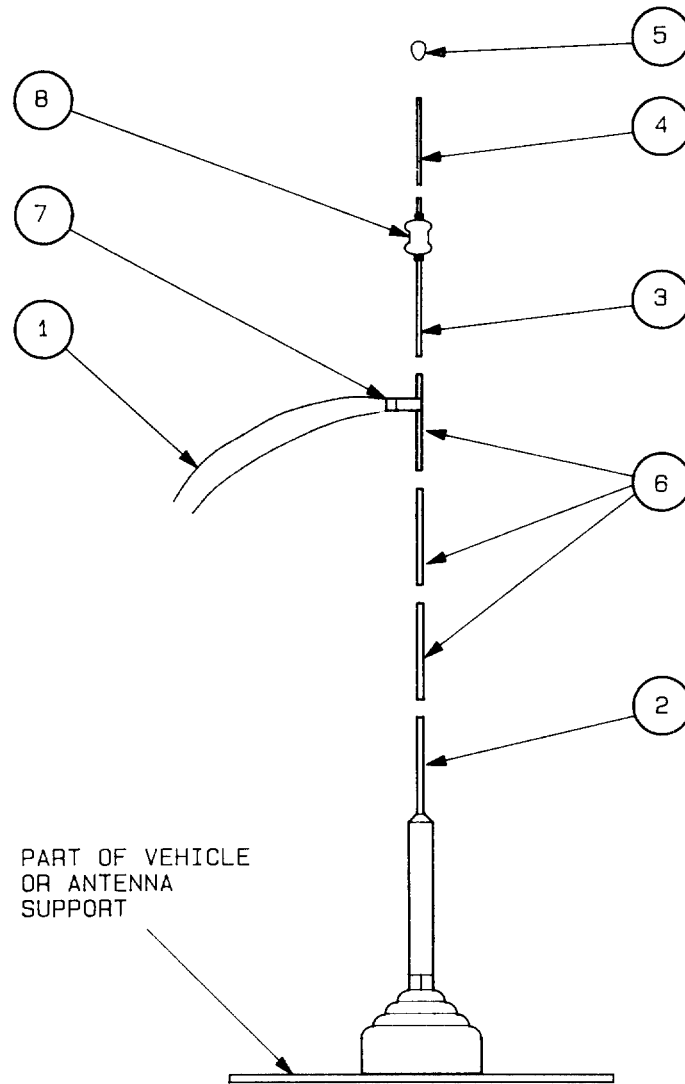
INSTALLATION

1. **Screw three identical antenna bottom sections (6) together**.
2. **Attach antenna rope clamp (7) and rope (1), to top antenna bottom section (6)**.
3. **Attach antenna tip (5) to antenna top section (4) and screw into top of antenna center section (3)**.
4. **Screw antenna center section (3) with attached tip (5) and top section (4) into top attached antenna bottom section (6) with attached rope clamp (7)**.
5. **Screw assembled antenna into female section that extends from upper subassembly (2)**.
6. **Secure antenna to vehicle with rope (1)**. Attach antenna guard (8) (if used) on antenna at point of contact with vehicle.

TEST

Perform the test in the **Minimum Performance Test** paragraph in TM11-5820-923-12.

ANTENNA MAST MAINTENANCE INSTRUCTIONS (2 of 2)



ANTENNA CABLE MAINTENANCE INSTRUCTIONS (1 of 2)

This task covers:

REMOVAL INSTALLATION TEST

INITIAL SETUP

Tools:

Electronic Equipment Tool Kit
TK-101/G

Materials/Parts:

None

Personnel Required:

1

REMOVAL

1. **Remove** and set aside all **cable clamps** securing the antenna cable.
2. **Disconnect antenna cable from** lower connector **J202 (1)** on back of switching unit.
3. **Loosen grounding clamps (2)** from around antenna cable connector (3) on lower subassembly (4) of mast base.
4. **Disconnect antenna cable** from receptacle that extends from lower subassembly (4) of **mast base**.

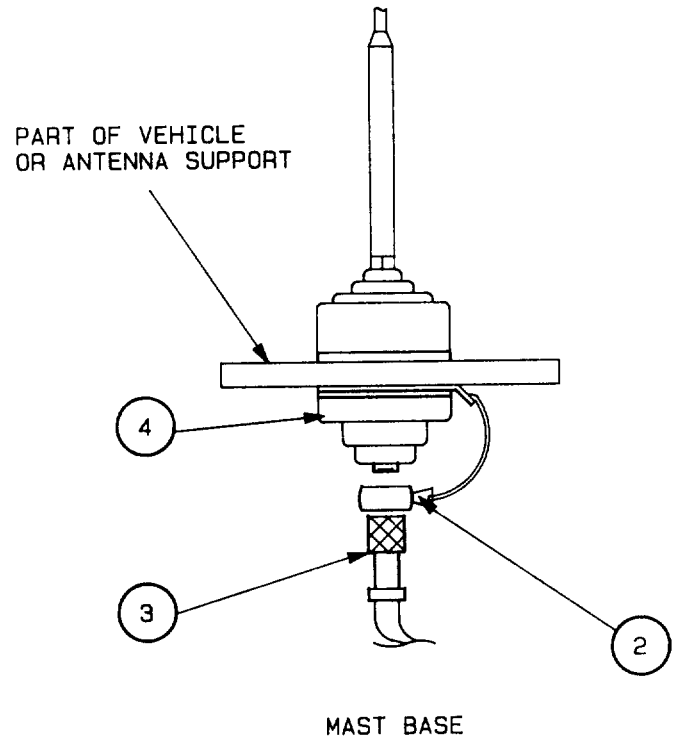
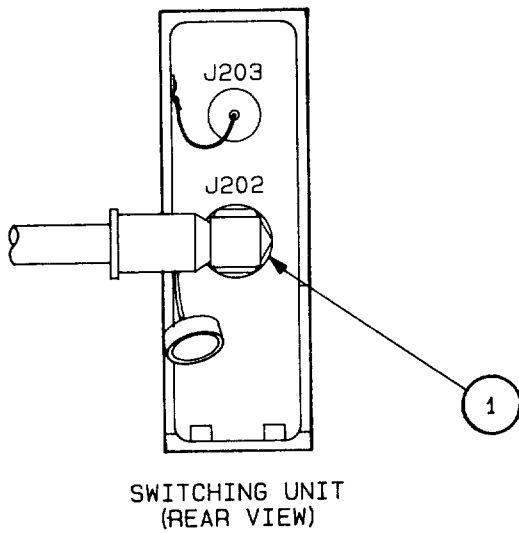
INSTALLATION

1. **Place grounding clamp (2) on receptacle** extending from **lower subassembly (4)**. Do not tighten grounding clamp.
2. **Connect antenna cable to** receptacle that extends from lower subassembly (4) of **mast base**.
3. Slip grounding clamp (2) down over connector of antenna cable (3). **Tighten grounding clamp**.
4. **Connect** other end of **antenna cable to J202 (1)** on back of the switching unit.
5. **Secure** antenna cable **with cable clamps**.

TEST

Perform the test in the **Minimum Performance Test** paragraph in TM11-5820-923-12.

ANTENNA CABLE MAINTENANCE INSTRUCTIONS (2 of 2)



POWER CABLE MAINTENANCE INSTRUCTIONS

This task covers:

REMOVAL INSTALLATION TEST

INITIAL SETUP

Applicable Configurations:

- MK-2442 Installation Kit
- MK-2444 Installation Kit
- MK-2445 Installation Kit
- MK-2446 Installation Kit

Materials/Parts:

None

Personnel Required:

1

Tools:

Electronic Equipment Tool Kit
TK-101/G

REMOVAL

1. **Remove** and set aside all **cable clamps** securing power cable.
2. **Disconnect power cable from vehicle 24 V dc power receptacle and J101** on back of amplifier-power supply (part of AN/GRC-213).

INSTALLATION

1. **Connect power cable to vehicle 24 V dc power receptacle and J101** on back of amplifier-power supply (part of AN/GRC-213).
2. **Secure** power cable with **cable clamps**.

TEST

Perform the test in the **Minimum Performance Test** paragraph in TM 11-5820-923-12.

INTERCOMMUNICATION CABLE MAINTENANCE INSTRUCTIONS

This task covers:

REMOVAL INSTALLATION

INITIAL SETUP

Applicable Configurations:

- MK-2442 Installation
- MK-2445 Installation

Materials/Parts:

None

Personnel Required:

1

Tools:

Electronic Equipment Tool Kit
TK-101/G

REMOVAL

1. **Remove** and set aside all **cable clamps** securing intercommunication cable.
2. **Disconnect intercommunication cable from J503** on audio amplifier (part of AN/VIC-1(V)) and J102 on back of amplifier-power supply (part of AN/GRC-213).

INSTALLATION

1. **Connect intercommunication cable to J503** on audio amplifier (part of AN/VIC-1(V)) and J102 on back of amplifier-power supply (part of AN/GRC-213).
2. **Secure** intercommunication cable **with cable clamps**.

BATTERY POWER CABLE MAINTENANCE INSTRUCTIONS (1 of 2)

This task covers:

REMOVAL INSTALLATION TEST

INITIAL SETUP

Applicable Configurations:

- MK-2443 Installation Kit
- MK-2447 Installation Kit

Materials/Parts:

None

Personnel Required:

1

Tools:

Electronic Equipment Tool Kit
TK-101/G
Shop Equipment, Auto Common No. 1

REMOVAL

1. **Remove** and set aside all **cable clamps** securing battery power cable.
2. **Disconnect battery power cable from** negative terminal (1) of one vehicle battery and from positive terminal (2) of other **vehicle battery**.
3. **Disconnect** other end of **battery power cable from J101** on back of amplifier-power supply (part of AN/GRC-213).

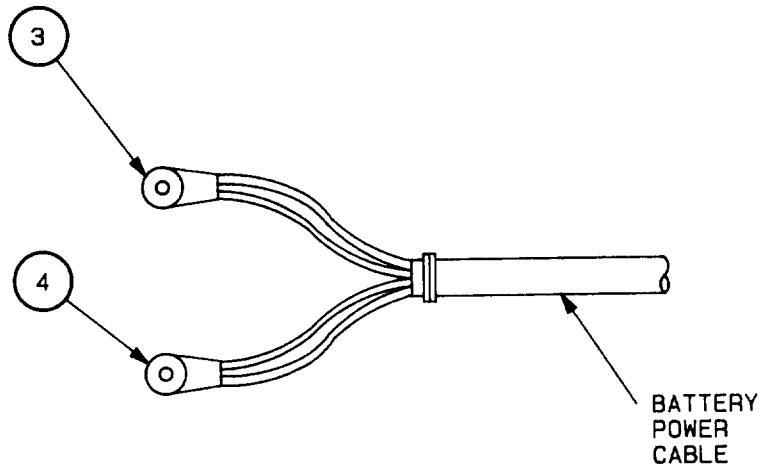
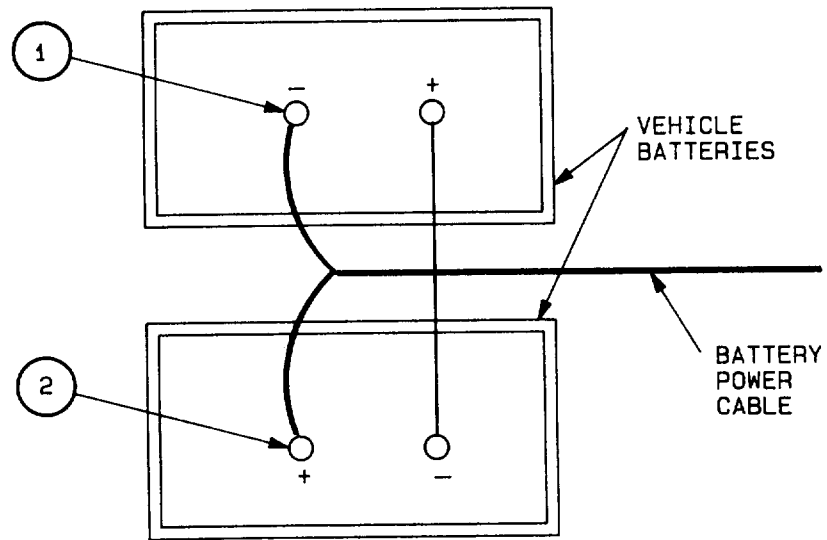
INSTALLATION

1. On battery power cable, **solder** one terminal **lug (3)** (part of battery power cable) **to connected** ends of **red and white wires** and one terminal **lug (4)** **to connected** ends of **black and green wires**.
2. **Connect** terminal lug (3) attached to **red and white wires to positive terminal (2)** of one vehicle battery; **connect** terminal lug (4) attached to **black and green wires to negative terminal (1)** of other vehicle battery.
3. **Connect** other end of replacement **battery power cable to J101** on back of amplifier-power supply (part of AN/GRC-213).
4. **Secure** replacement battery power cable with **cable clamps**.

TEST

Perform the test in the **Minimum Performance Test** paragraph in TM 11-5820-923-12.

BATTERY POWER CABLE MAINTENANCE INSTRUCTIONS (2 of 2)



ANTENNA SUPPORT MAINTENANCE INSTRUCTIONS (1 of 2)

This task covers:

REMOVAL INSTALLATION

INITIAL SETUP**Applicable Configurations:**

- MK-2443 Installation Kit
- MK-2444 Installation Kit
- MK-2446 Installation Kit
- MK-2447 Installation Kit

Tools:

Electronic Equipment Tool Kit
TK-101/G

Materials/Parts:

None

Personnel Required:

1

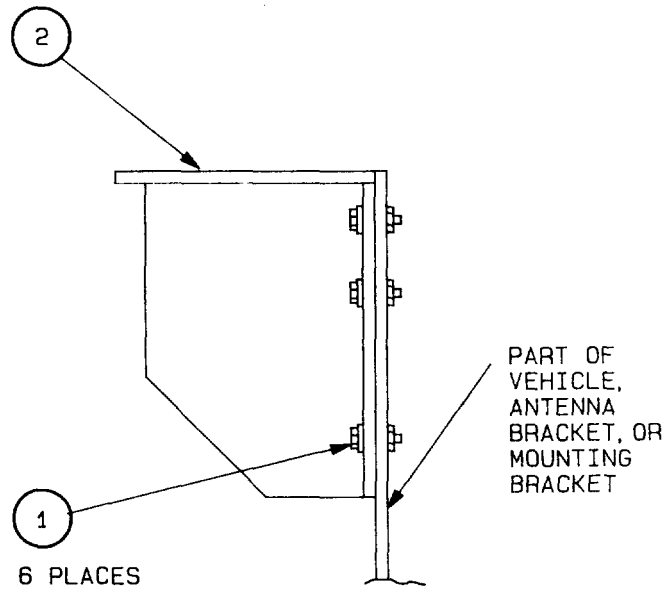
REMOVAL

1. **Remove** and set aside **mast base**. (Refer to Mast Base Maintenance Instructions, pg 5-14.)
2. **Remove 6 bolts, nuts, and lockwashers** (1) holding antenna support (2) in place.
3. **Remove antenna support** (2).

INSTALLATION

1. Place antenna support (2) in position. **Install with 6 bolts, nuts, and lockwashers** (1).
2. **Install mast base**. (Refer to Mast Base Maintenance Instructions, pg 5-14.)

ANTENNA SUPPORT MAINTENANCE INSTRUCTIONS (2 of 2)



ANTENNA BASE ADAPTER MAINTENANCE INSTRUCTIONS (1 of 2)

This task covers:

REMOVAL INSTALLATION

INITIAL SETUP

Applicable Configurations:

- MK-2442 Installation Kit
- MK-2445 Installation Kit

Materials/Parts:

None

Personnel Required:

2

Tools:

Electronic Equipment Tool Kit
TK-101/G

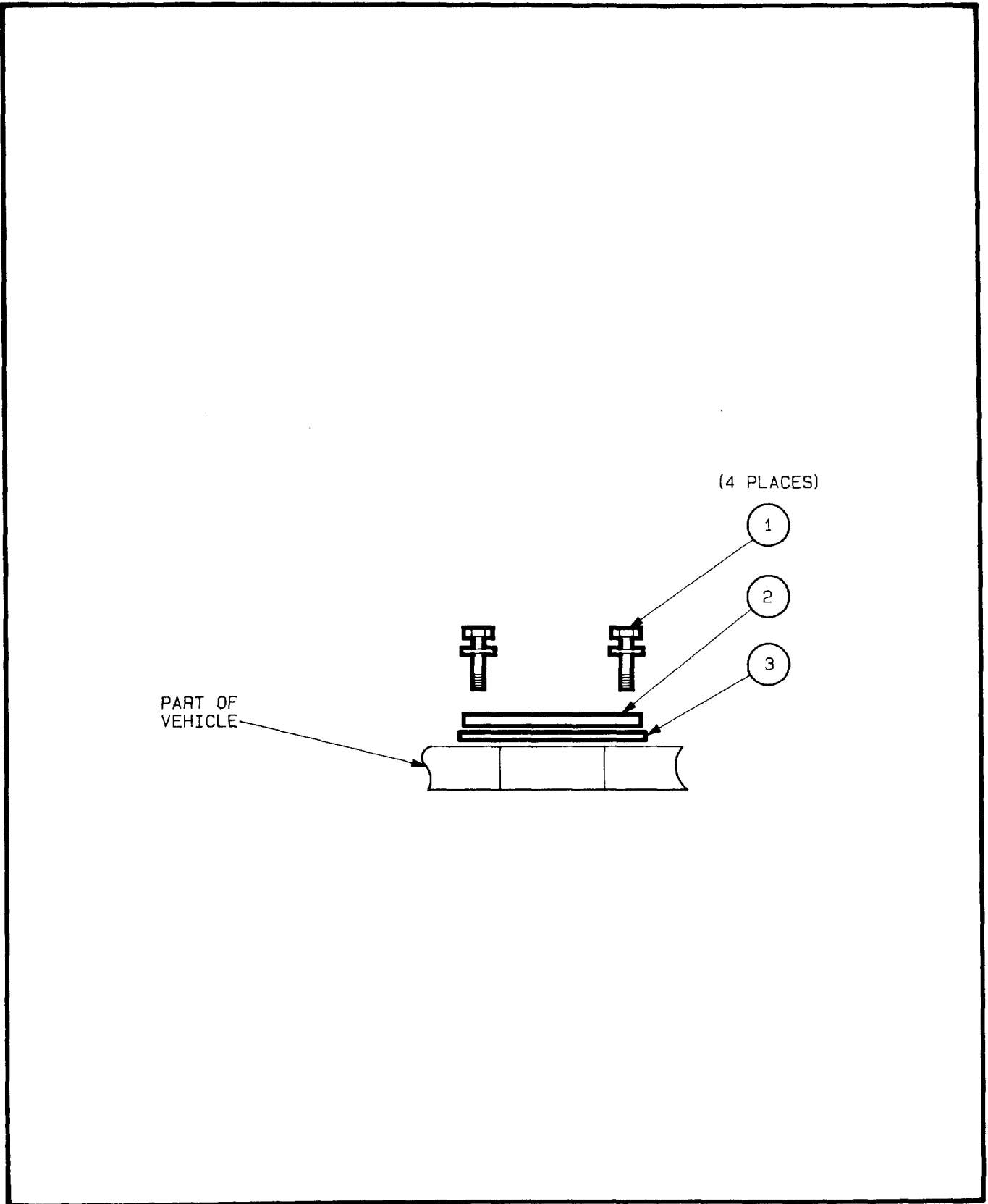
REMOVAL

1. **Remove** and set aside **mast base**. (Refer to Mast Base Maintenance Instructions, pg 5-14.)
2. **Remove 4 bolts, nuts, and lockwashers** (1) holding antenna base adapter (2) in place.
3. **Remove antenna base adapter** (2) and accompanying rubber gasket (3).

INSTALLATION

1. Hold antenna base adapter (2) and rubber gasket (3) in position. **Install with 4 bolts, nuts, and lockwashers (1).**
2. **Install mast base**. (Refer to Mast Base Maintenance Instructions, pg 5-14.)

ANTENNA BASE ADAPTER MAINTENANCE INSTRUCTIONS (2 of 2)



SUPPORT BRACKET MAINTENANCE INSTRUCTIONS (1 of 4)

This task covers:

REMOVAL INSTALLATION

INITIAL SETUP

Applicable Configurations:

- MK-2443 Installation Kit
- MK-2447 Installation Kit

Materials/Parts:

None

Personnel Required:

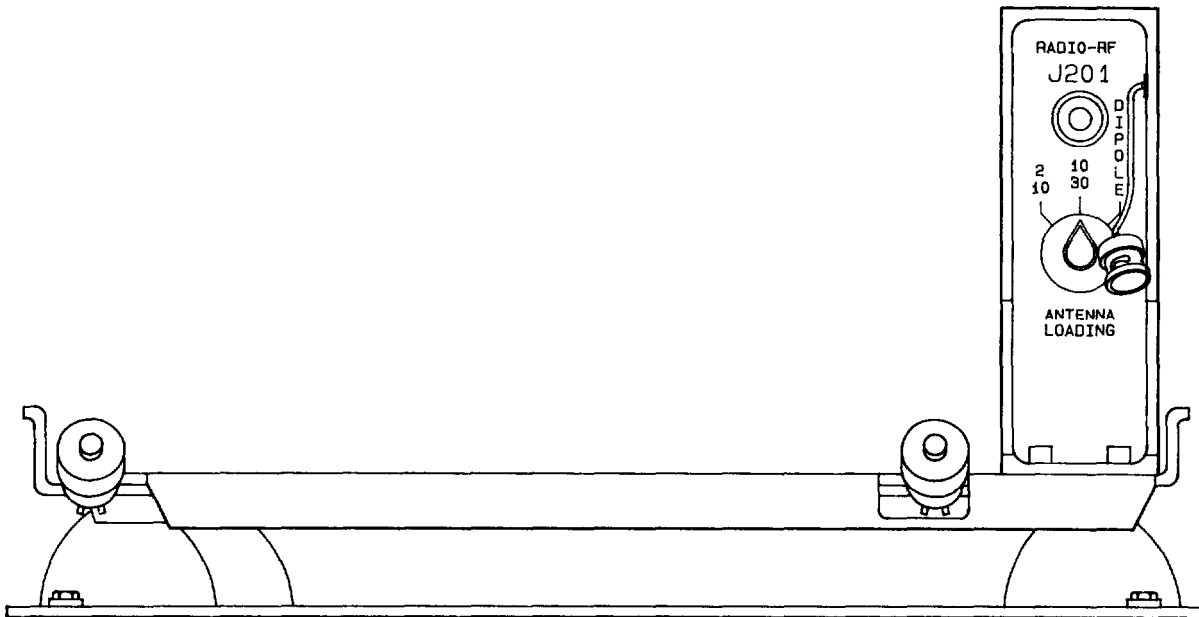
1

Tools:

Electronic Equipment Tool Kit
TK-101/G

REMOVAL

1. **Remove** and set aside **electrical equipment mount**. (Refer to Electrical Equipment Mount Maintenance Instructions, pg 5-10.)



ELECTRICAL EQUIPMENT MOUNT

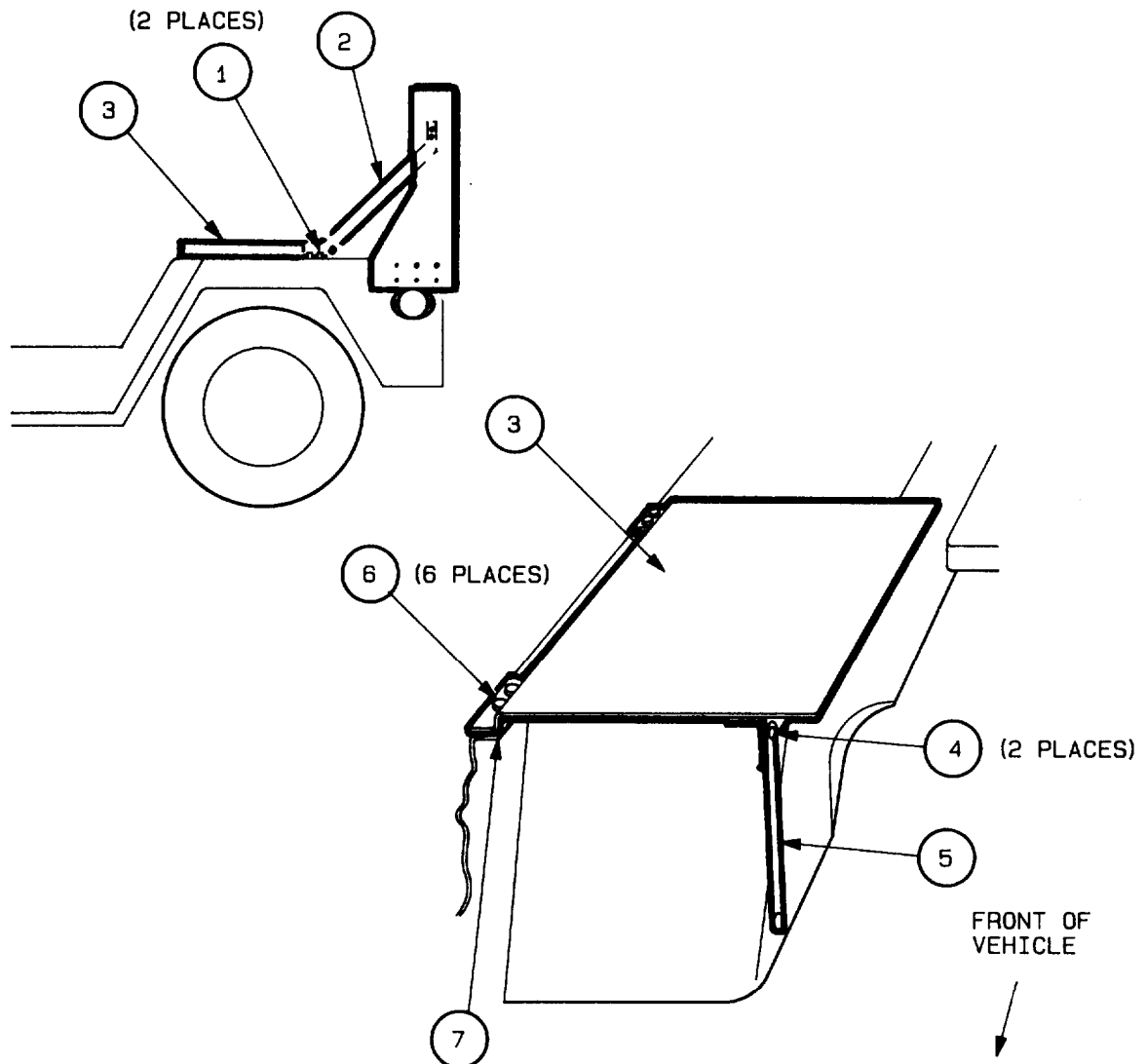
SUPPORT BRACKET MAINTENANCE INSTRUCTIONS (2 of 4)

REMOVAL (cont)

NOTE

Steps 2 and 3 are for M151A1 installation kit only.

2. **Remove** 2 bolts, nuts, and lockwashers (1) attaching **support bracket assembly** (2) to support bracket (3).
3. **Remove** 2 bolts, nuts, and lockwashers (4) holding **brace** (5) in position.
4. **Remove** 6 bolts, nuts, and lockwashers (6) holding support bracket (3) and reinforcements (7) in place.
5. **Remove** support bracket (3) and brace (5).



SUPPORT BRACKET MAINTENANCE INSTRUCTIONS (3 of 4)

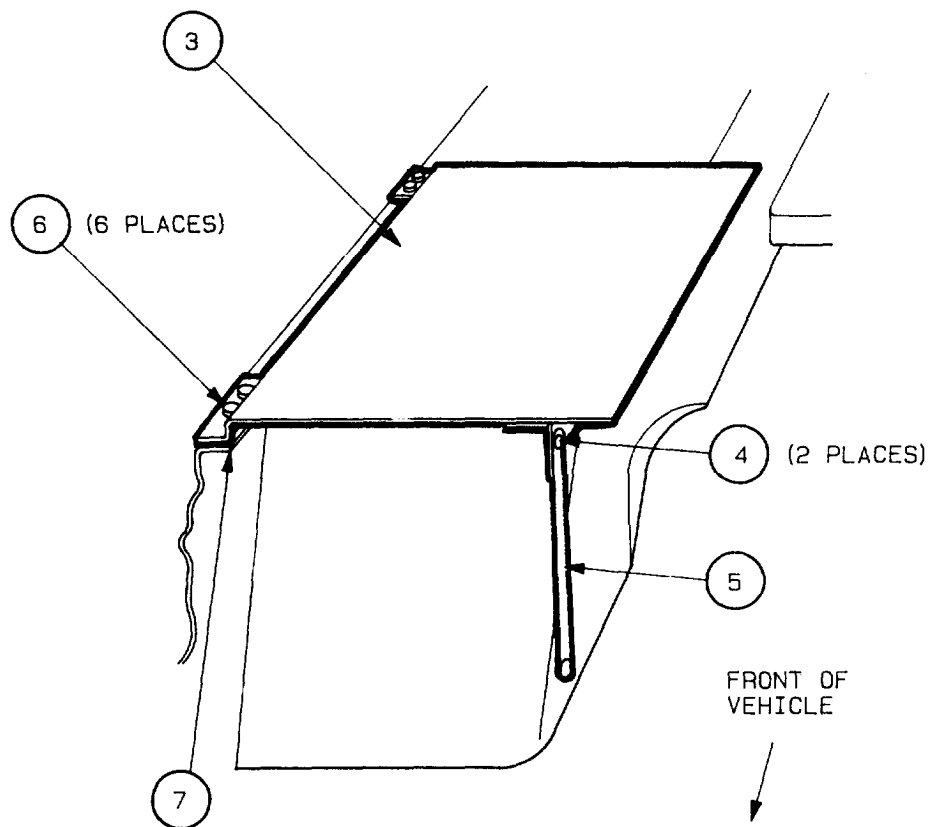
INSTALLATION

1. **Hold support bracket (3) in position, with reinforcements (7) inside and under sponson, and install with 6 bolts, nuts, and lockwashers (6).**

NOTE

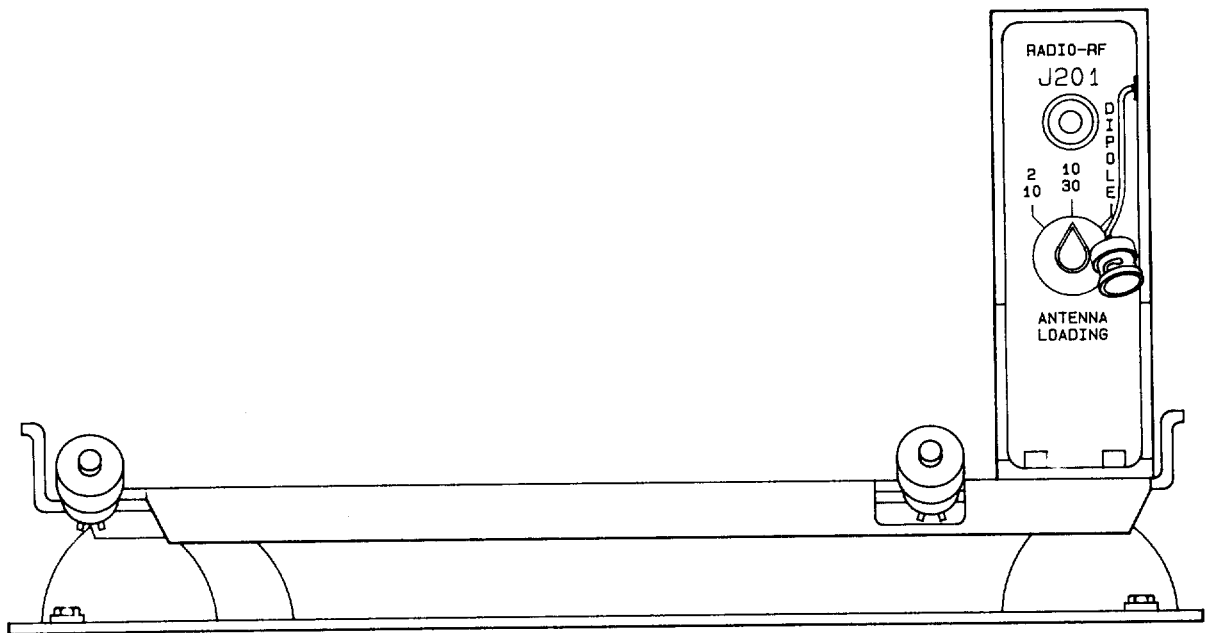
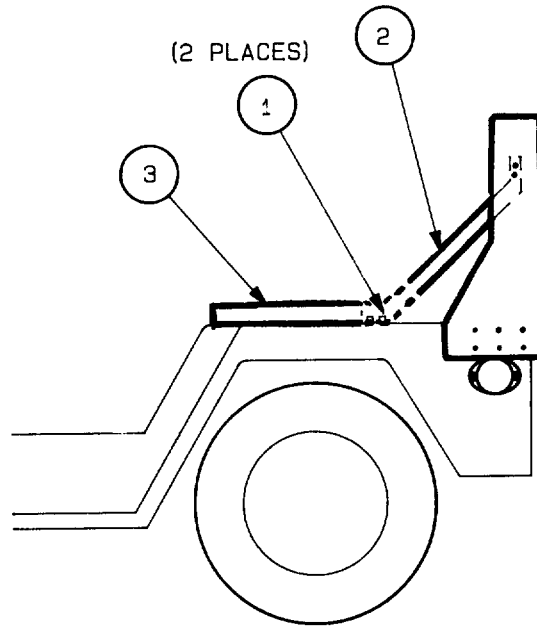
Steps 2 and 3 are for M151A1 installation kit only.

2. **Hold brace (5) (part of support bracket) in position. Install with 2 bolts, nuts, and lockwashers (4).**
3. **Attach support bracket assembly (2) to support bracket (3) with 2 bolts, nuts, and lockwashers (1).**
4. **Install electrical equipment mount on support bracket (4), (Refer to Electrical Equipment Mount Maintenance Instructions, pg 5-10.)**



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SUPPORT BRACKET MAINTENANCE INSTRUCTIONS (4 of 4)



ELECTRICAL EQUIPMENT MOUNT

ANTENNA BRACKET MAINTENANCE INSTRUCTIONS (1 of 2)

This task covers:

REMOVAL INSTALLATION

INITIAL SETUP

Applicable Configurations:

- MK-2444 Installation Kit

Materials/Parts:

None

Personnel Required:

1

Tools:

Electronic Equipment Tool Kit
TK-101/G

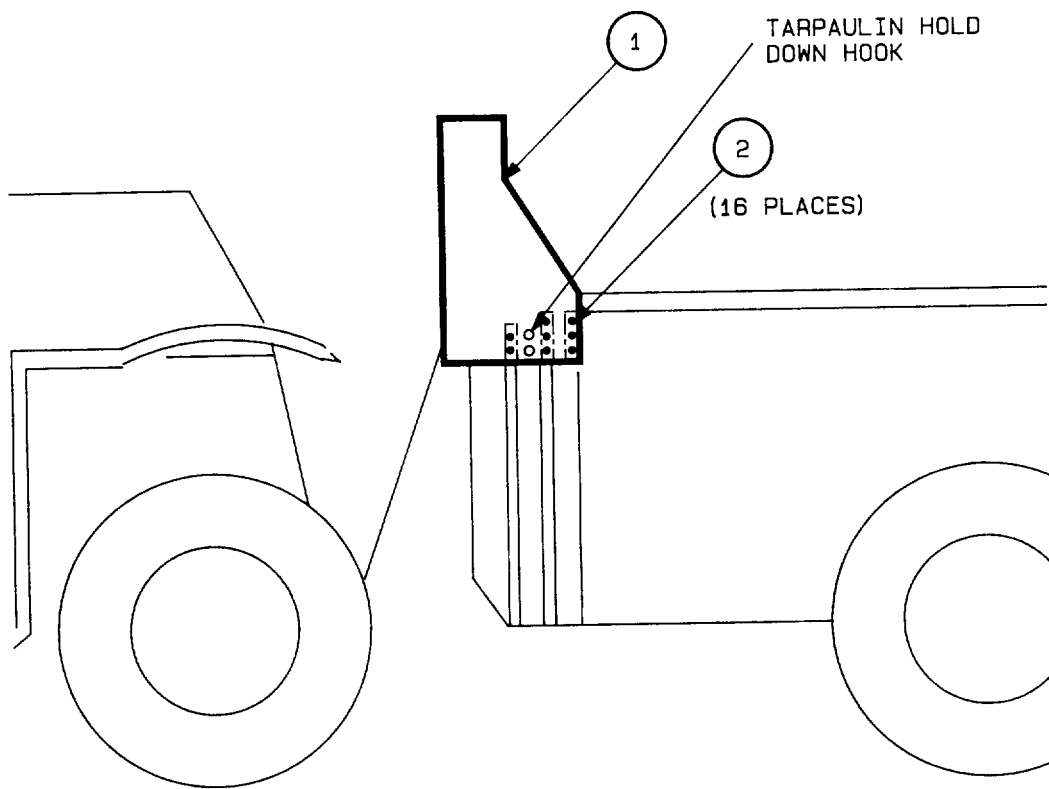
REMOVAL

1. **Remove** and set aside **antenna support**. (Refer to Antenna Support Maintenance Instructions, pg 5-24.)
2. **Remove** and set aside **tarpaulin hold down hook** from front roadside of **antenna bracket (1)**.
3. **Remove 16 bolts, nuts, and lockwashers (2)**, holding antenna bracket (1) in place.
4. **Remove antenna bracket (1)**.

INSTALLATION

1. Place antenna bracket (1) in position. **Install with 16 bolts, nuts, and lockwashers (2)**.
2. **Install tarpaulin hold down hook** on front roadside of **antenna bracket (1)**.
3. **Install antenna support**. (Refer to Antenna Support Maintenance Instructions, pg 5-24.)

ANTENNA BRACKET MAINTENANCE INSTRUCTIONS (2 of 2)



MOUNT MAINTENANCE INSTRUCTIONS (1 of 2)

This task covers:

REMOVAL INSTALLATION

INITIAL SETUP

Applicable Configurations:

- MK-2444 Installation Kit

Materials/Parts:

None

Personnel Required:

1

Tools:

Electronic Equipment Tool Kit
TK-101/G

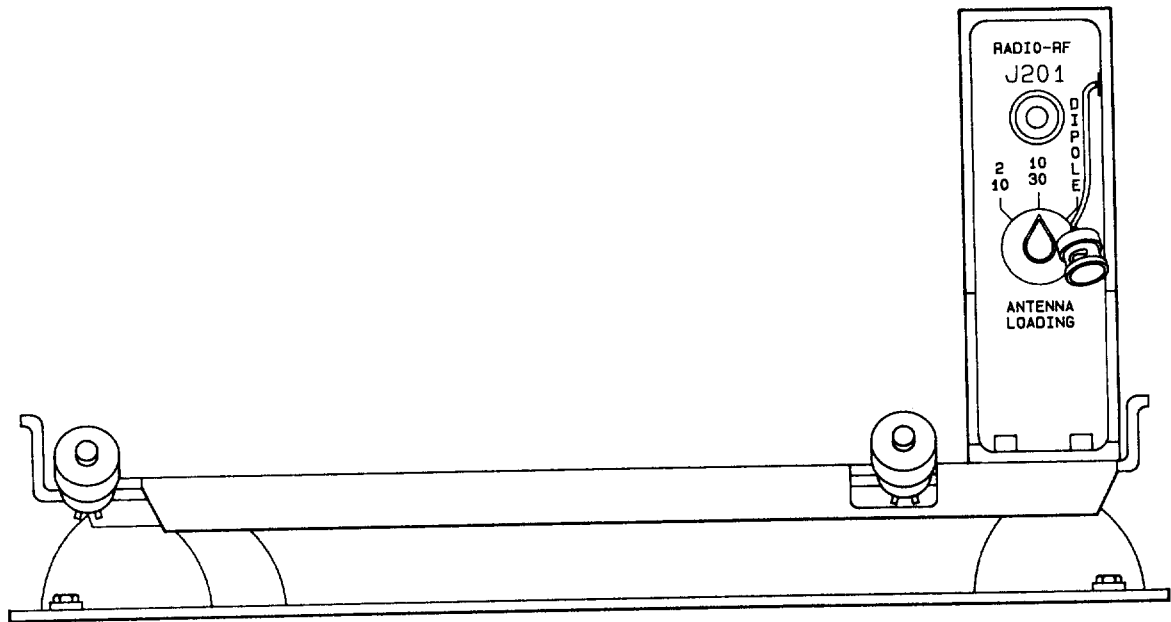
REMOVAL

1. **Remove** and set aside the **electrical equipment mount**. (Refer to Electrical Equipment Mount Maintenance Instructions, pg 5-10.)
2. **Remove** 1 bolt (1), nut (2), and three star washers (3) attaching **electrical lead** (4) to mount (5).
3. **Remove 6 bolts, nuts, and lockwashers** (6) holding mount (5) in place.
4. **Remove mount** (5).

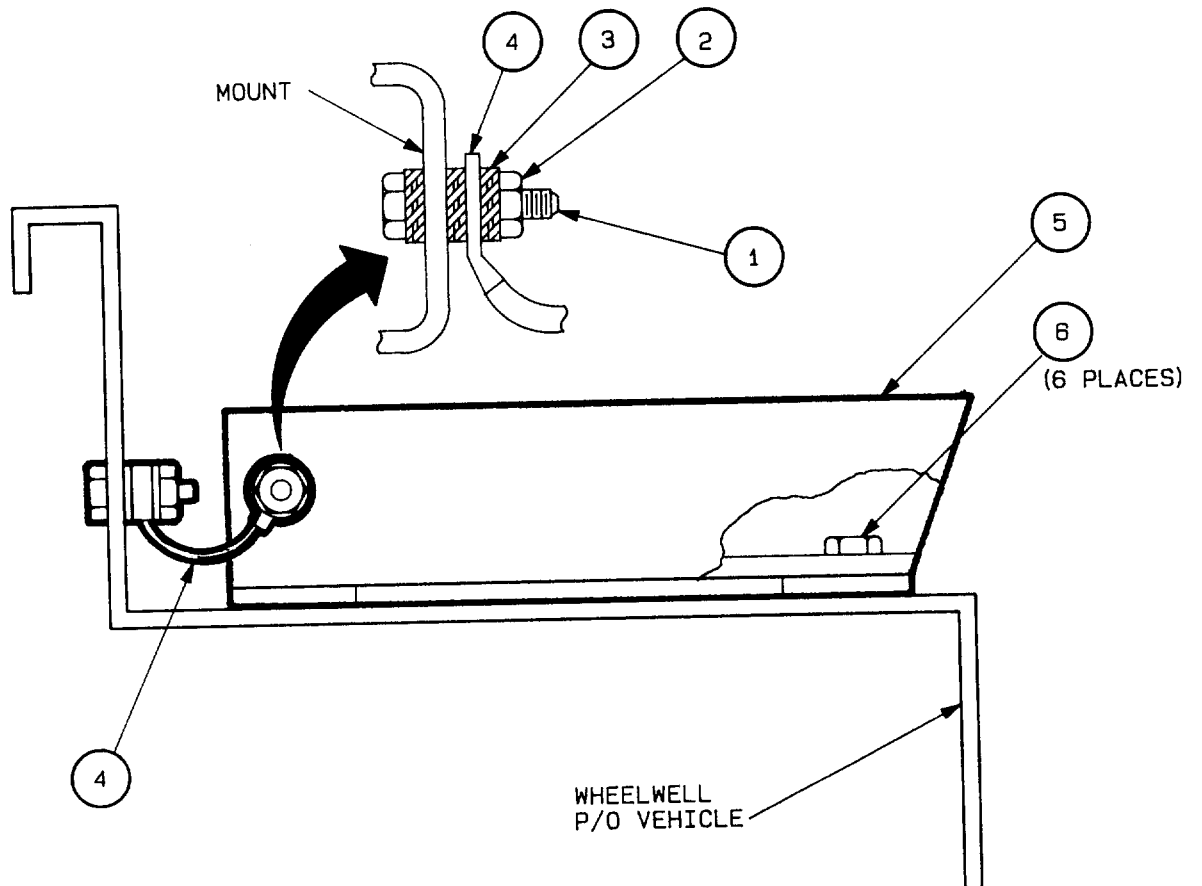
INSTALLATION

1. Place mount (5) in position. **Install with 6 bolts, nuts, and lockwashers** (6).
2. **Attach electrical lead** (4) to mount (5) with 1 bolt (1), nut (2), and 3 star washers (3).
3. **Install electrical equipment mount** on mount (5). (Refer to Electrical Equipment Mount Maintenance Instructions, pg 5-10.)

MOUNT MAINTENANCE INSTRUCTIONS (2 of 2)



ELECTRICAL EQUIPMENT MOUNT



MOUNTING BRACKET MAINTENANCE INSTRUCTIONS (1 of 2)

This task covers:

REMOVAL INSTALLATION

INITIAL SETUP

Applicable Configurations:

- MK-2443 Installation Kit

Materials/Parts:

Brush, Paint (item 3, App. F)
 Paint, Epoxy (item 8, App. F)
 Paint, Primer (item 9, App. F)
 Sandpaper (item 10, App. F)

Personnel Required:

1

Tools:

Electronic Equipment Tool Kit
 TK-101/G
 Shop Equipment, Auto Common No. 1

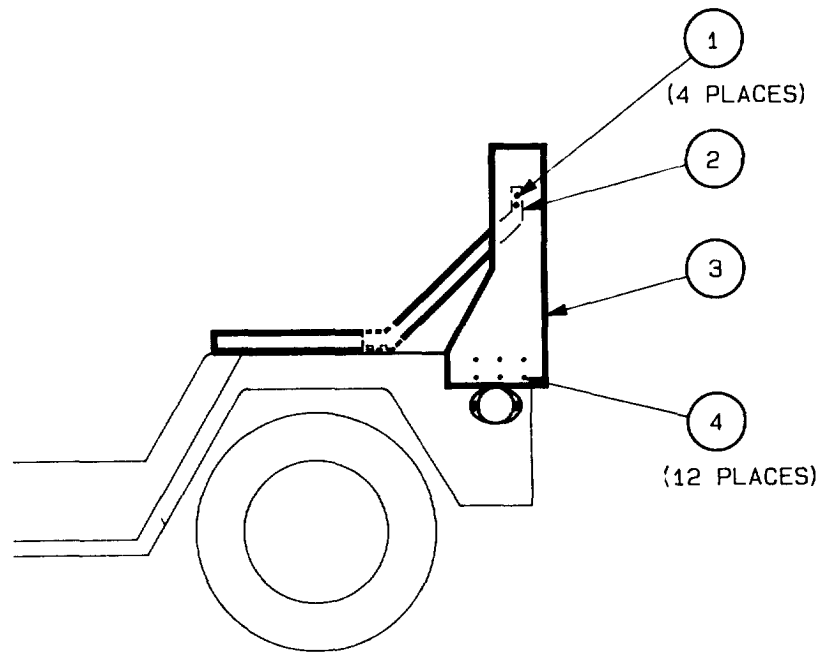
REMOVAL

1. **Remove** and set aside **antenna support**. (Refer to Antenna Support Maintenance Instructions, pg 5-24.)
2. **Remove** 2 bolts, nuts, and lockwashers (1) attaching **support bracket assembly** (2) to mounting bracket (3).
3. **Remove** 12 bolts, nuts, and lockwashers (4) holding mounting bracket (3) in place.
4. **Remove** mounting **bracket** (3).

INSTALLATION

1. Place mounting bracket (3) in position. **Install with 12 bolts, nuts, and lockwashers** (4).
2. **Using support bracket assembly** (2) as a marking guide, **mark** two 11/32-in. diameter holes on mounting bracket (3).
3. **Drill** two 11/32-in. diameter **holes** marked in step 2. Remove all burrs and sharp edges from around holes.
4. **Paint** all **bare metal** exposed during drilling **prior to installation** of hardware.
5. **Attach support bracket assembly** (2) to **mounting bracket** (3) with 2 bolts, nuts, and lockwashers (1).
6. **Remove** all **chips and metal shavings** from within **vehicle**.
7. **Install antenna support**. (Refer to Antenna Support Maintenance Instructions, pg 5-24.)

MOUNTING BRACKET MAINTENANCE INSTRUCTIONS (2 of 2)



SUPPORT BRACKET ASSEMBLY MAINTENANCE INSTRUCTIONS (1 of 2)

This task covers:

REMOVAL INSTALLATION

INITIAL SETUP

Applicable Configurations:

- MK-2443 Installation Kit

Materials/Parts:

None

Personnel Required:

1

Tools:

Electronic Equipment Tool Kit
TK-101/G

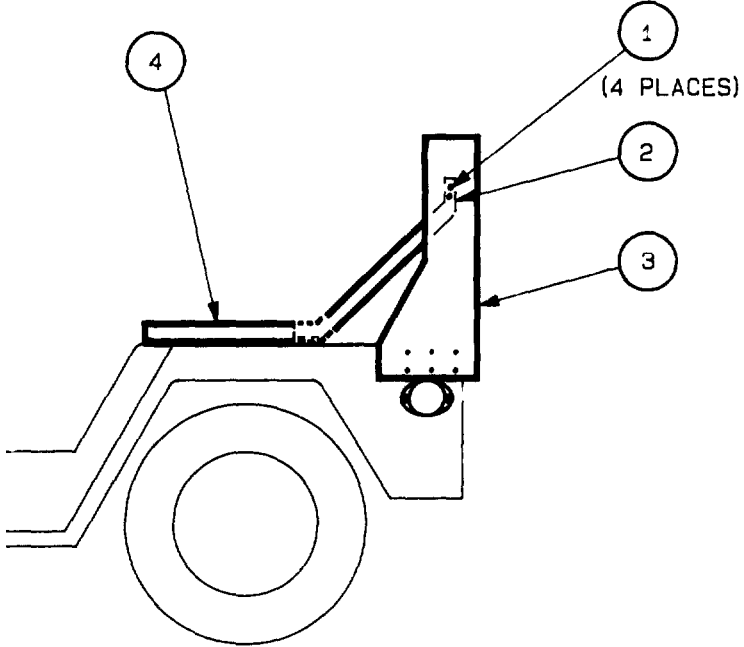
REMOVAL

1. **Remove 4 bolts, nuts, and lockwashers** (1) attaching support bracket assembly (2) to mounting bracket (3) and support bracket (4).
2. **Remove support bracket assembly** (2).

INSTALLATION

1. Place support bracket assembly (2) in position. **Install with 4 bolts, nuts, and lockwashers** (1).

SUPPORT BRACKET ASSEMBLY MAINTENANCE INSTRUCTIONS (2 of 2)



SHOCK MOUNT MAINTENANCE INSTRUCTIONS (1 of 5)

This task covers:

REMOVAL INSTALLATION TEST

INITIAL SETUP

Tools:

Electronic Equipment Tool Kit
TK-105/G

Materials/Parts:

None

Personnel Required:

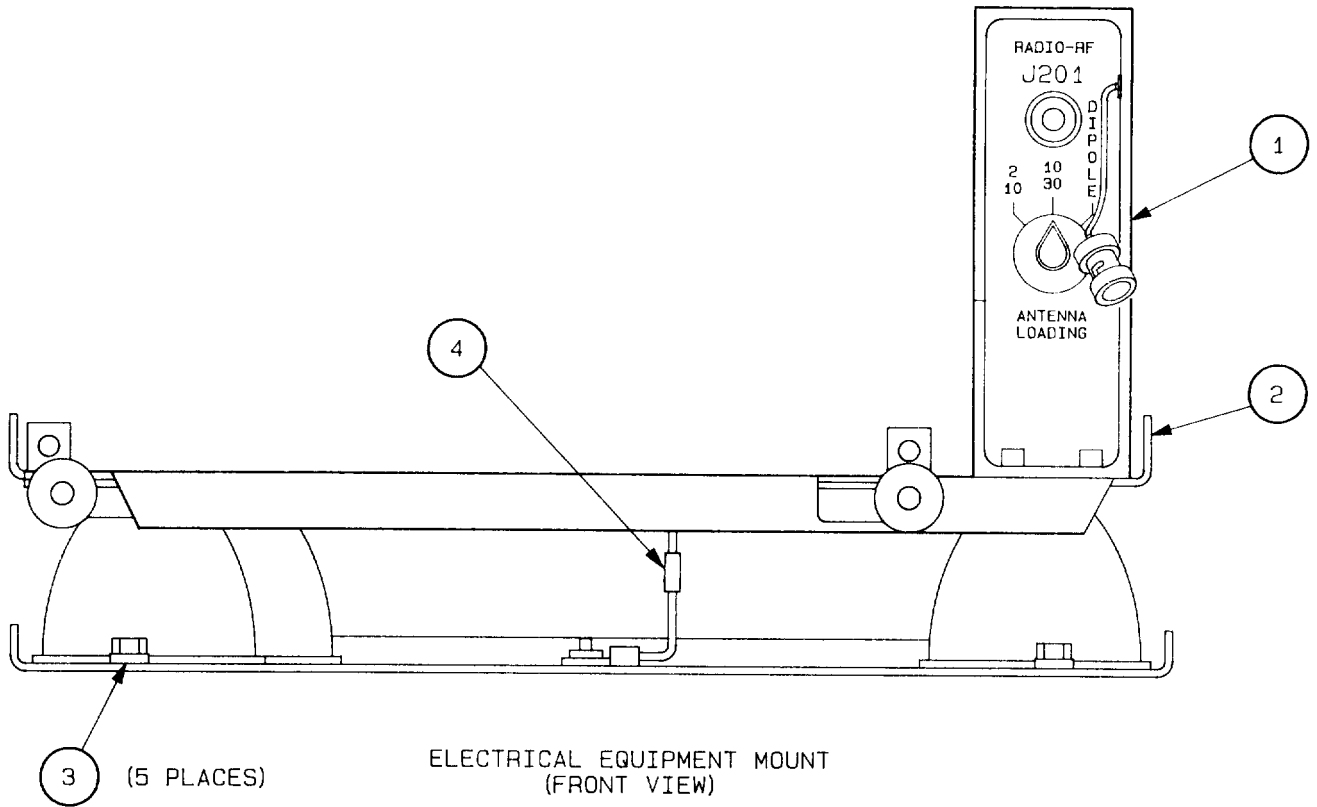
1

REMOVAL

1. **Remove AN/GRC-213** from the electrical equipment mount. (Refer to the Disassembly Instructions in the Preparation for Shipment para in TM 11-5820-923-12.)
2. **Remove switching unit** (1) from mounting base (2). (Refer to Switching Unit Maintenance Instructions, pg 5-12.)
3. **Remove five bolts, nuts, and lockwashers** (3) holding mounting base (2) in place.
4. **Remove mounting base** (2).
5. **Disconnect** quick release **grounding cable** (4).

SHOCK MOUNT MAINTENANCE INSTRUCTIONS (2 of 5)

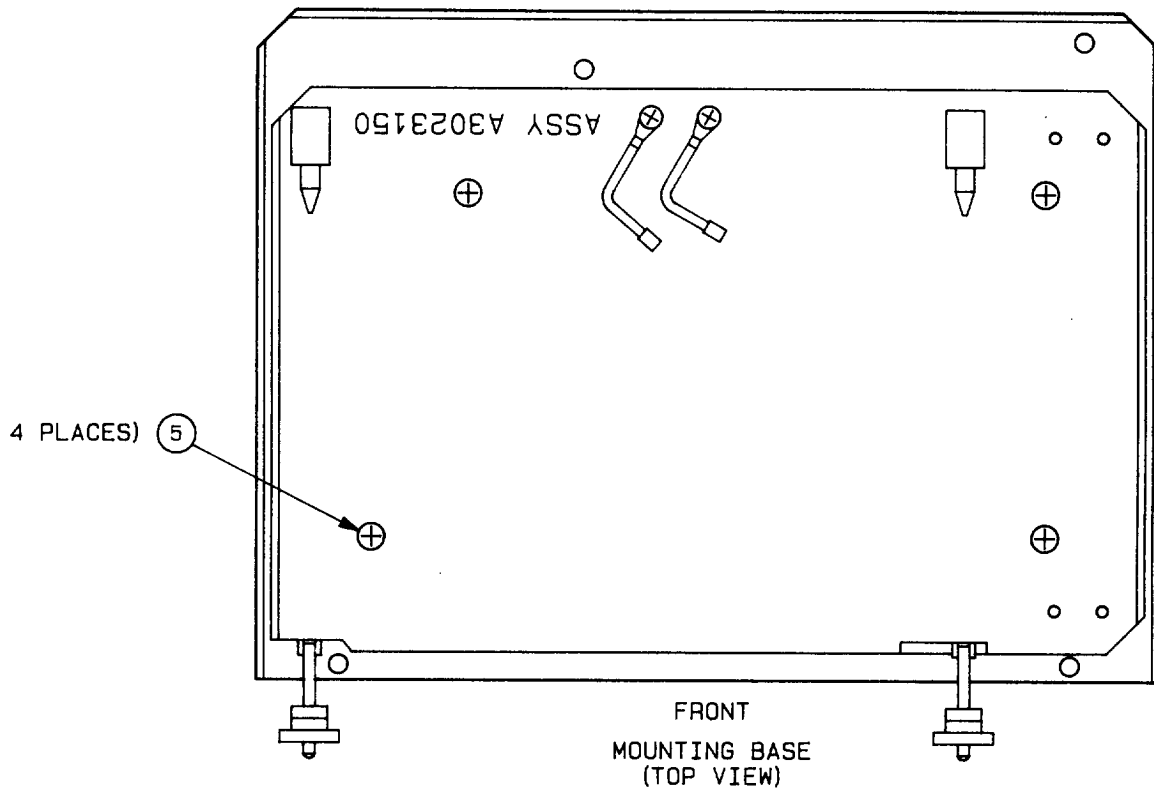
REMOVAL (cont)



SHOCK MOUNT MAINTENANCE INSTRUCTIONS (3 of 5)

REMOVAL (cont)

6. Remove four screws, nuts, and lockwashers (5) attaching upper tray (6) to shock mounts (7).
7. Remove upper tray (6) and four spacers (8).
8. Remove four screws, nuts, flat washers, and lockwashers (9) attaching shock mount (7) to the lower tray (10).
9. Remove the shock mount (7).



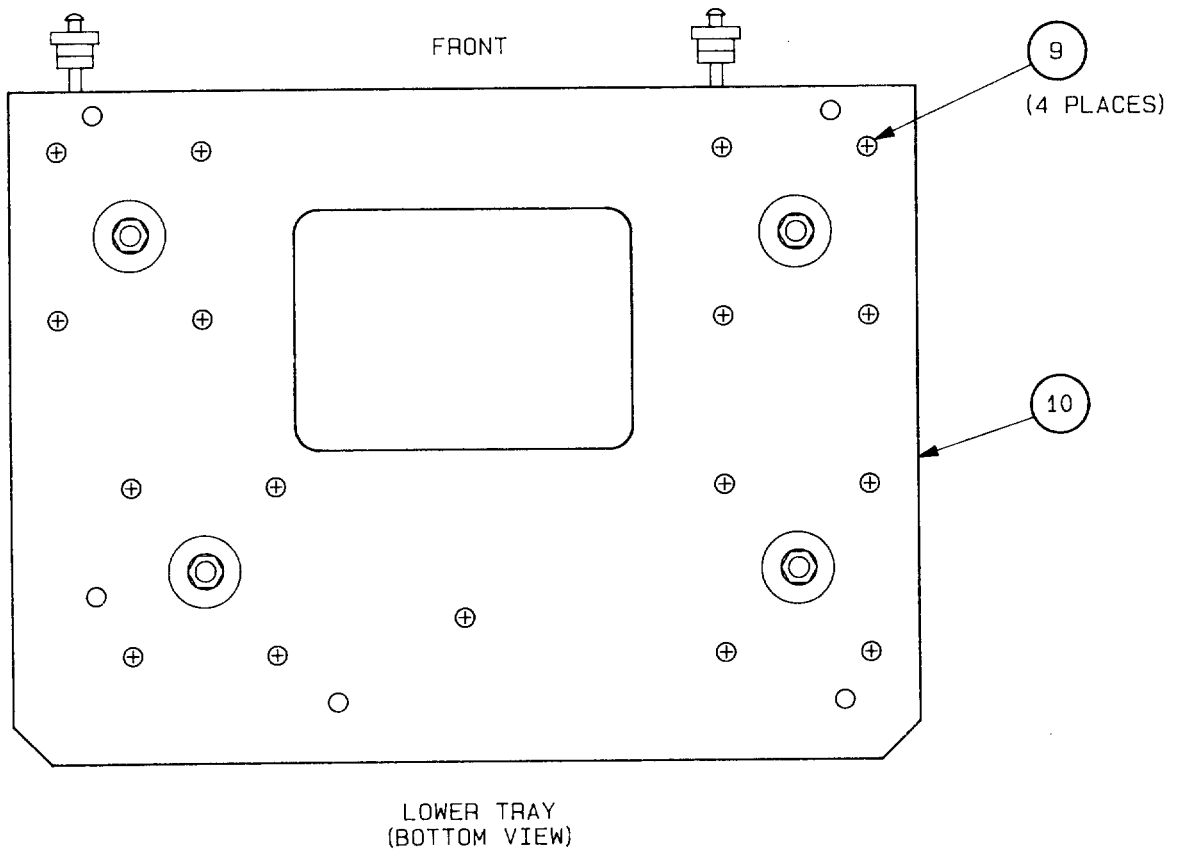
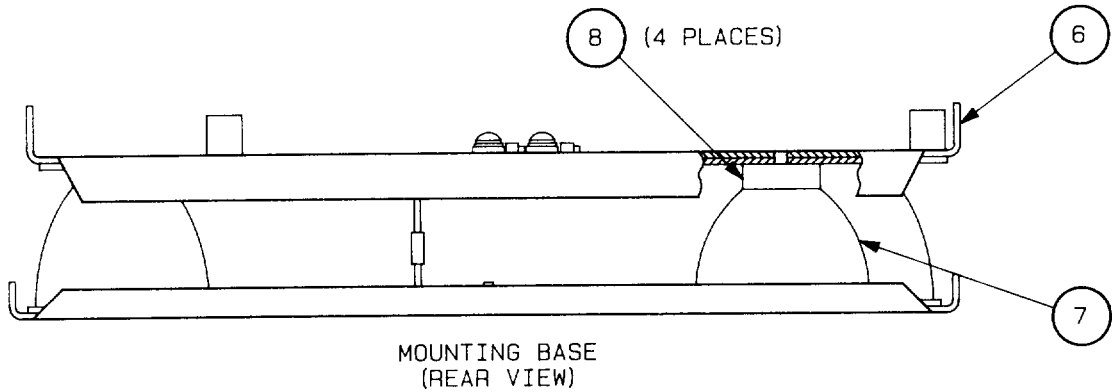
INSTALLATION

1. Place shock mount (7) in position on lower tray (10). Install with four screws, nuts, flat washers, and lockwashers (9).
2. Place four spacers (8) in position on shock mounts (7).

SHOCK MOUNT MAINTENANCE INSTRUCTIONS (4 of 5)

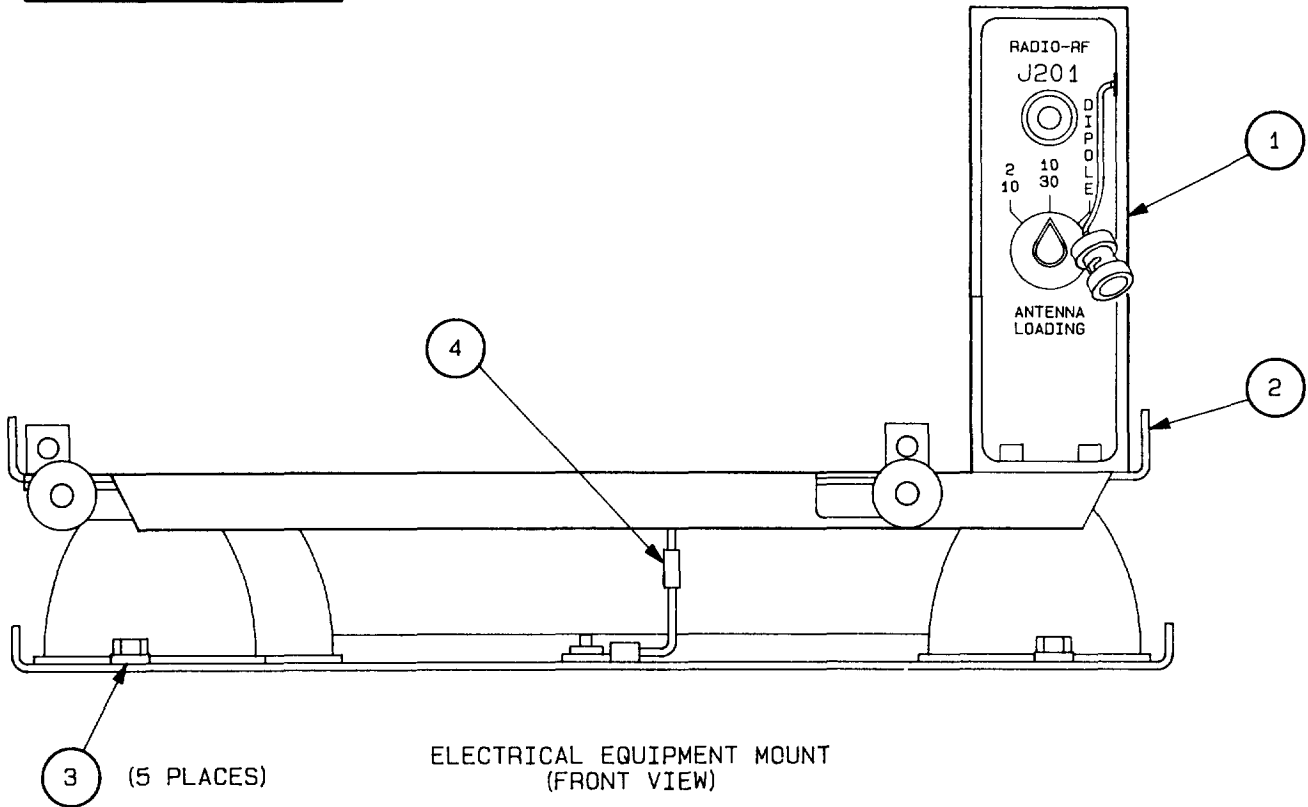
INSTALLATION (cont)

3. Place upper tray (6) in position on shock mounts (7). Install with four screws, nuts, and lockwashers (5).



SHOCK MOUNT MAINTENANCE INSTRUCTIONS (5 of 5)

INSTALLATION (cont)



ELECTRICAL EQUIPMENT MOUNT
(FRONT VIEW)

4. **Connect** quick release **ground cable** (4).
5. **Place mounting base** (2) **in position**. **Install** with five bolts, nuts, and lockwashers (3).
6. **Install switching unit** (1) on mounting base (2). (Refer to Switching Unit Maintenance Instructions, pg 5-10.)
7. **Install An/GRC-213** on mount. (Refer to the Mounting para in TM 11-5820-923-12.)

TEST

Check the shock mounts by moving the mount and looking for too much free play.

Section VI. PREPARATION FOR STORAGE OR SHIPMENT

	Page
Short Term	5-45

SHORT TERM

Store the installation kit in the best available site for storage that will provide protection from the weather and from unauthorized personnel. A covered space is best. When there is not enough covered space for all items, keep items covered that are most likely to be damaged by the weather. Hard surfaces that drain well should be used for any portion of the storage site that is in the open. Trucks, vans, and containers may be used if they give the best available protection. Comply with fire plan for fire fighting equipment and personnel.

Ship the installation kit in a container able to provide protection from shock or freight damage.

CHAPTER 6
DIRECT SUPPORT MAINTENANCE INSTRUCTIONS

Direct support maintenance provides technical assistance to organizational maintenance in isolating to faulty units. Direct support also turns in faulty units to general support for direct exchange. There are no direct support maintenance tasks for the installation kits. For storage or shipment, refer to Preparation for Storage or Shipment on page 1-2.

**CHAPTER 7
GENERAL SUPPORT MAINTENANCE INSTRUCTIONS**

**Section I. REPAIR PARTS; SPECIAL TOOLS; TEST, MEASUREMENT,
AND DIAGNOSTIC EQUIPMENT (TMDE); SUPPORT EQUIPMENT; AND MATERIALS**

	Page
Introduction	7-1
Common Tools and Equipment.	7-1
Special Tools, TMDE, and Support Equipment	7-1
Materials	7-2
Repair Parts	7-2

INTRODUCTION

This section refers to or provides lists of the general support maintenance repair parts, special tools, TMDE, and materials for the six installation kits.

COMMON TOOLS AND EQUIPMENT

For authorized common tools and equipment required for general support maintenance, refer to the Modified Table of Organization and Equipment (MTOE) applicable to your unit.

SPECIAL TOOLS, TMDE, AND SUPPORT EQUIPMENT

Test equipment required for general support maintenance is as follows:

- Electrical group kit (OA-9161/GRC-213)
- Multimeter (AN/PSM-45)

Special tools required for general support maintenance are listed in section III of appendix B, Maintenance Allocation Chart. Special tools are also listed and illustrated in appendix E, Repair Parts and Special Tools List.

MATERIALS

Materials required for general support maintenance are listed in the following table.

App. F Item No.	Description	National Stock Number	Unit of Measure
1	Bonding Compound		oz
12	Strap, Tie Down, Plastic		ea
13	Tape, Masking		ea

REPAIR PARTS

Repair parts required for general support maintenance are listed and illustrated in appendix E, Repair Parts and Special Tools List.

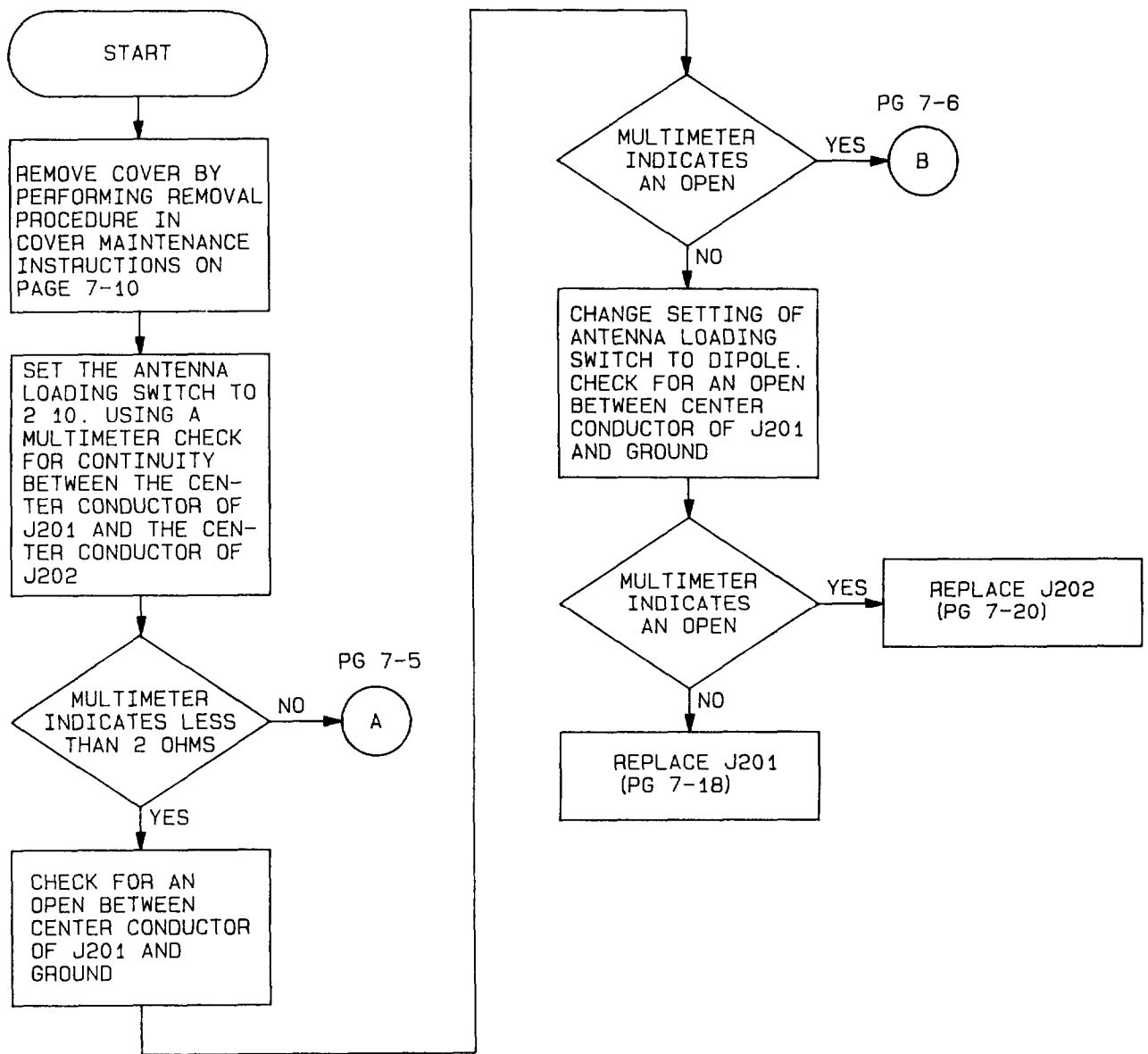
Section II. TROUBLESHOOTING

	Page
Introduction	7-3
Troubleshooting Chart	7-4

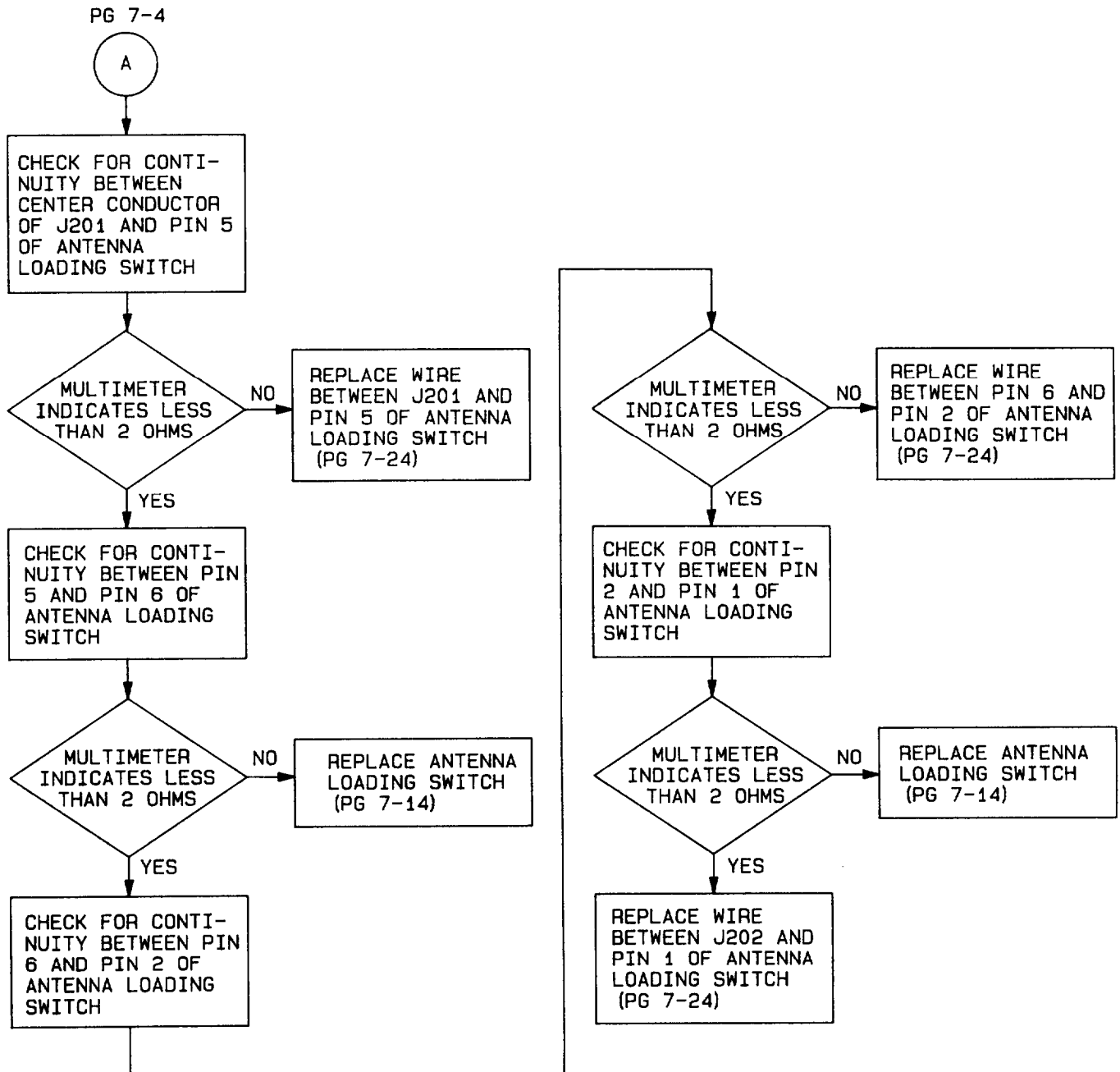
INTRODUCTION

Switching unit troubleshooting is done by performing a fault isolation test. Troubleshooting is presented in flowchart form and will aid in isolating to the faulty part or wire.

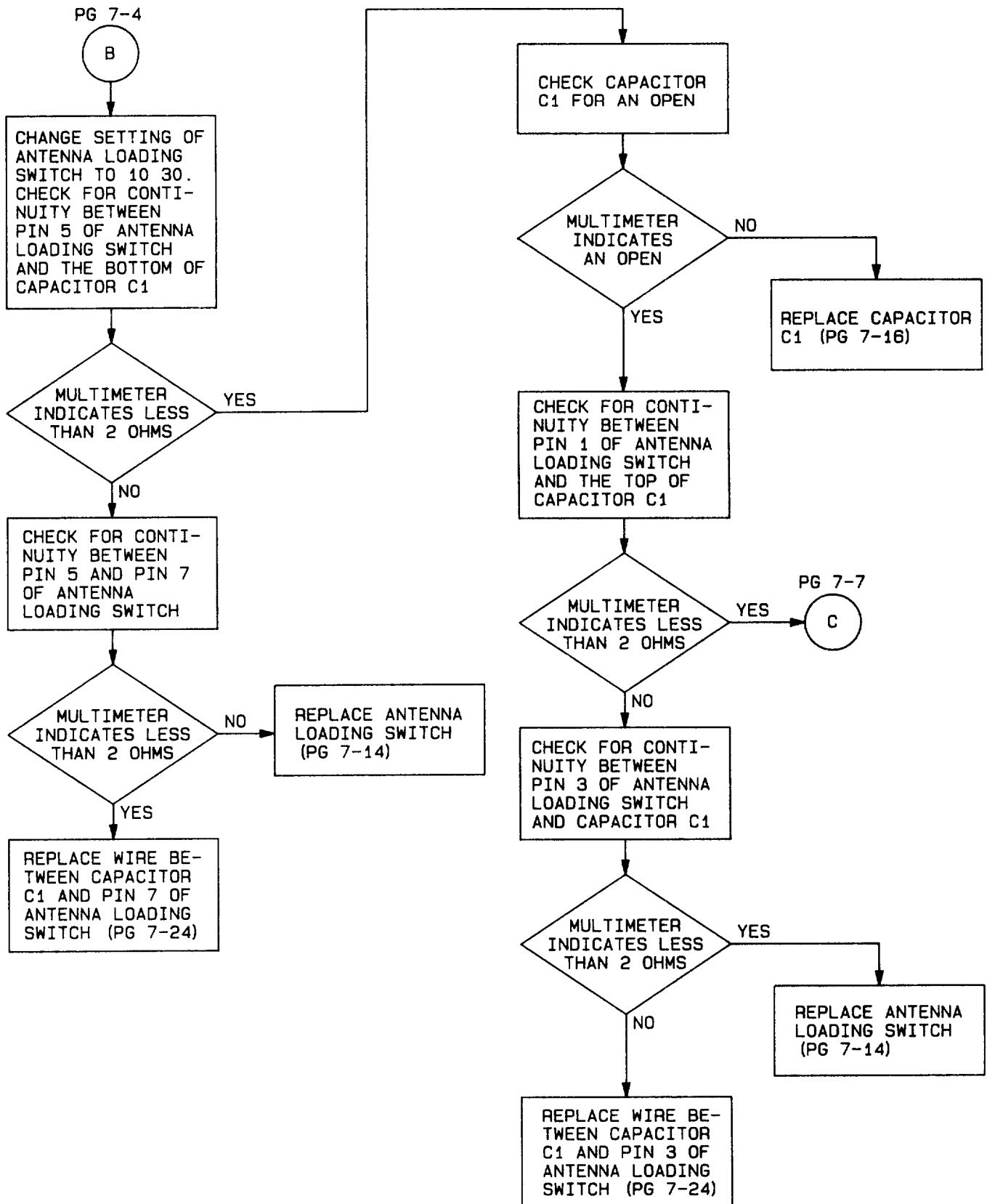
TROUBLESHOOTING CHART (1 of 4)



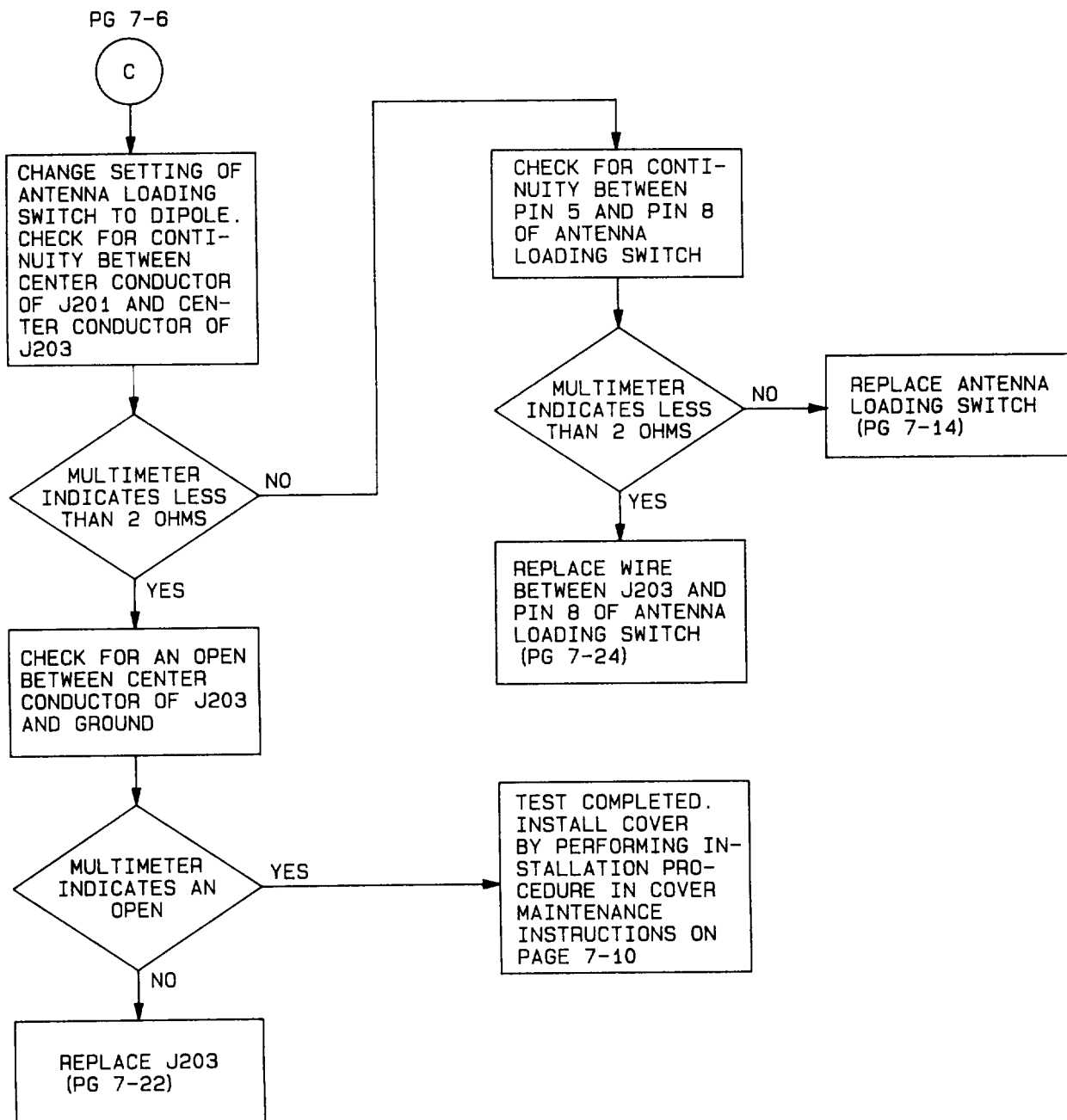
TROUBLESHOOTING CHART (2 of 4)



TROUBLESHOOTING CHART (3 of 4)



TROUBLESHOOTING CHART (4 of 4)



Section III. MAINTENANCE PROCEDURES

	Page
Cover Maintenance Instructions	7-10
Seal Maintenance Instructions	7-12
Antenna Loading Switch Maintenance Instructions	7-14
Capacitor C1 Maintenance Instructions	7-16
J201 Maintenance Instructions	7-18
J202 Maintenance Instructions	7-20
J203 Maintenance Instructions	7-22
Wiring Maintenance Instructions	7-24

COVER MAINTENANCE INSTRUCTIONS (1 of 2)

This task covers:

REMOVAL INSTALLATION

INITIAL SETUP

Tools:

Electrical Equipment Tool Kit
TK-105/G

Materials/Parts:

None

Personnel Required:

1

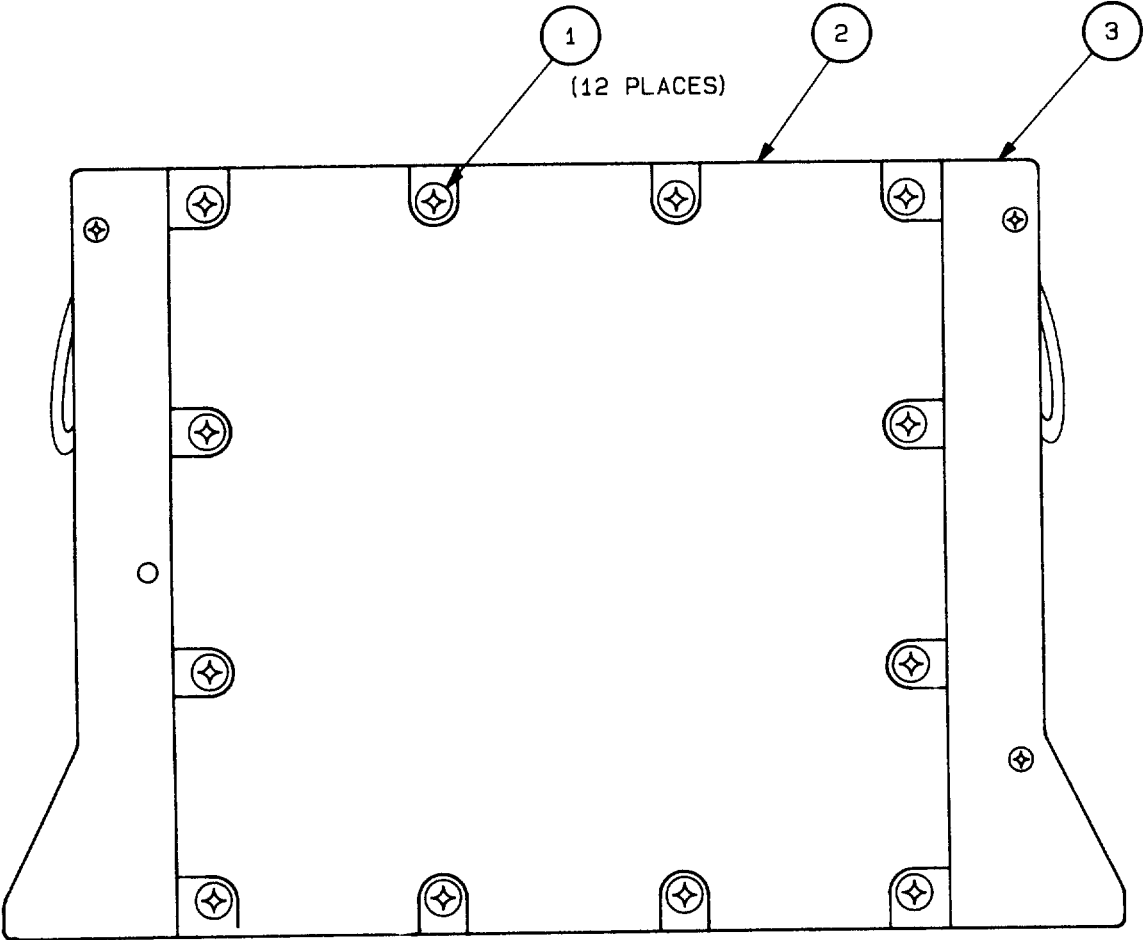
REMOVAL

1. **Remove 12 screws and flat washers (1)** attaching cover (2) to switching unit housing (3).
2. **Remove cover (2)** from switching unit housing (3).
3. **Perform Seal Maintenance Instructions** on page 7-12.

INSTALLATION

1. **Install cover (2)** on switching unit housing (3) with 12 flat washers and screws (1).

COVER MAINTENANCE INSTRUCTIONS (2 of 2)



SEAL MAINTENANCE INSTRUCTIONS (1 of 2)

This task covers:

INSPECTION REMOVAL INSTALLATION

INITIAL SETUP

Tools:

Electrical Equipment Tool Kit
TK-105/G

Materials/Parts:

None

Personnel Required:

1

INSPECTION

1. **Inspect seal (1)** for cracks or damage.
2. **Inspect** areas around seal (1) and **inside of switching unit housing for signs of leaks** through seal into housing.
3. **If any cracks, damage, or signs of leakage are present, replace seal (1) by performing Removal and Installation.**

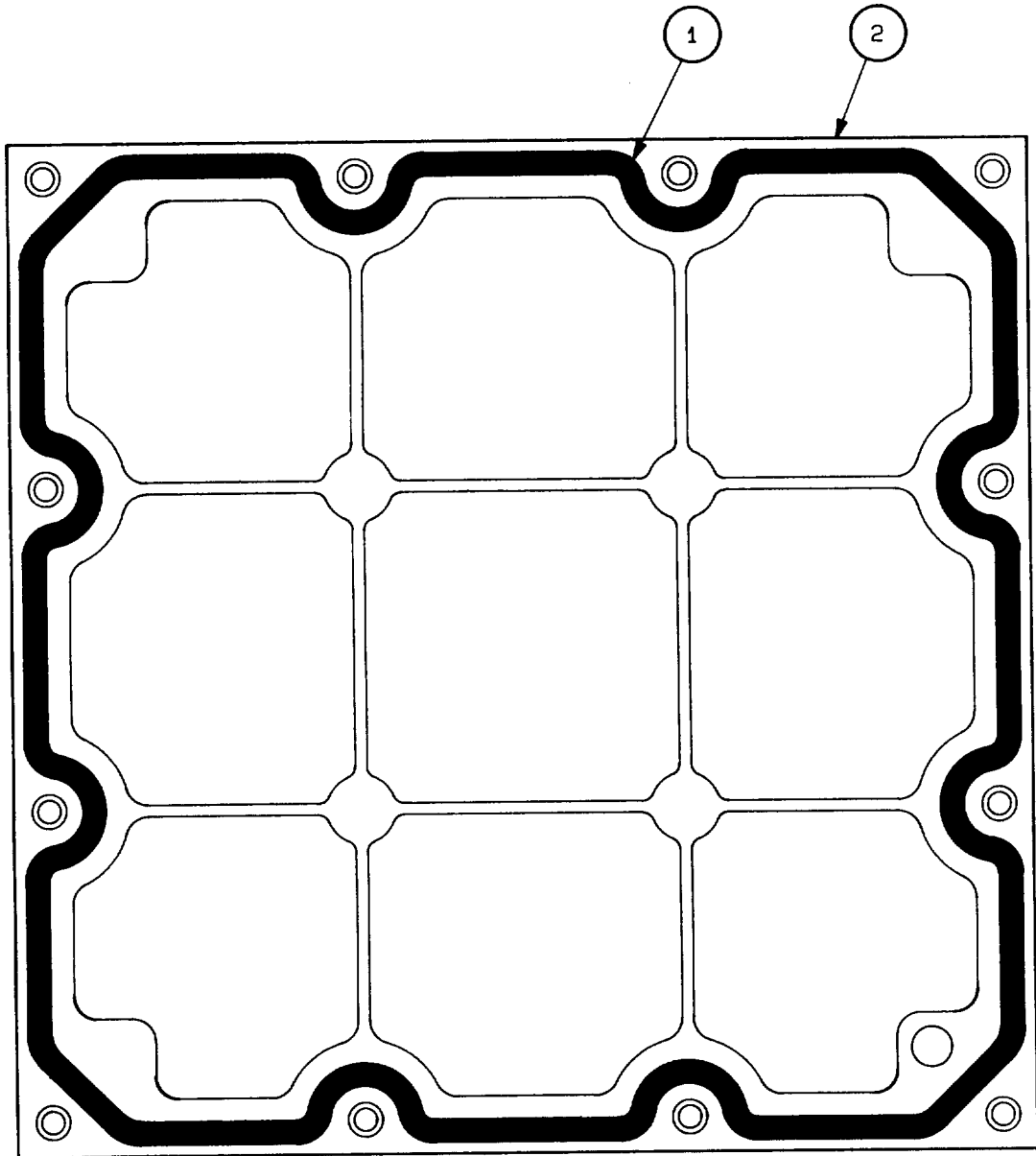
REMOVAL

1. **Remove seal (1)** from groove in cover (2).

INSTALLATION

1. **Install seal (1)** into groove in cover (2).

SEAL MAINTENANCE INSTRUCTIONS (2 of 2)



ANTENNA LOADING SWITCH MAINTENANCE INSTRUCTIONS (1 of 2)

This task covers:

REMOVAL INSTALLATION TEST

INITIAL SETUP**Tools:**

Electrical Equipment Tool Kit
TK-105/G

Materials/Parts:

Masking Tape (item 13, App. F)

Personnel Required:

1

REMOVAL

1. **Remove cover** by performing Removal procedure in Cover Maintenance Instructions on page 7-10.
2. **Tag and mark**, with the correct location, the ends of **each wire** attached to the antenna loading switch (1).
3. **Unsolder** and remove **each wire** attached to antenna loading switch (1).
4. **Remove** two allen screws (2) attaching knob (3) to antenna loading switch (1). **Remove knob.**
5. **Remove nut and lockwasher** (4) attaching antenna loading switch (1) to switching unit housing (5).
6. **Remove antenna loading switch** (1).

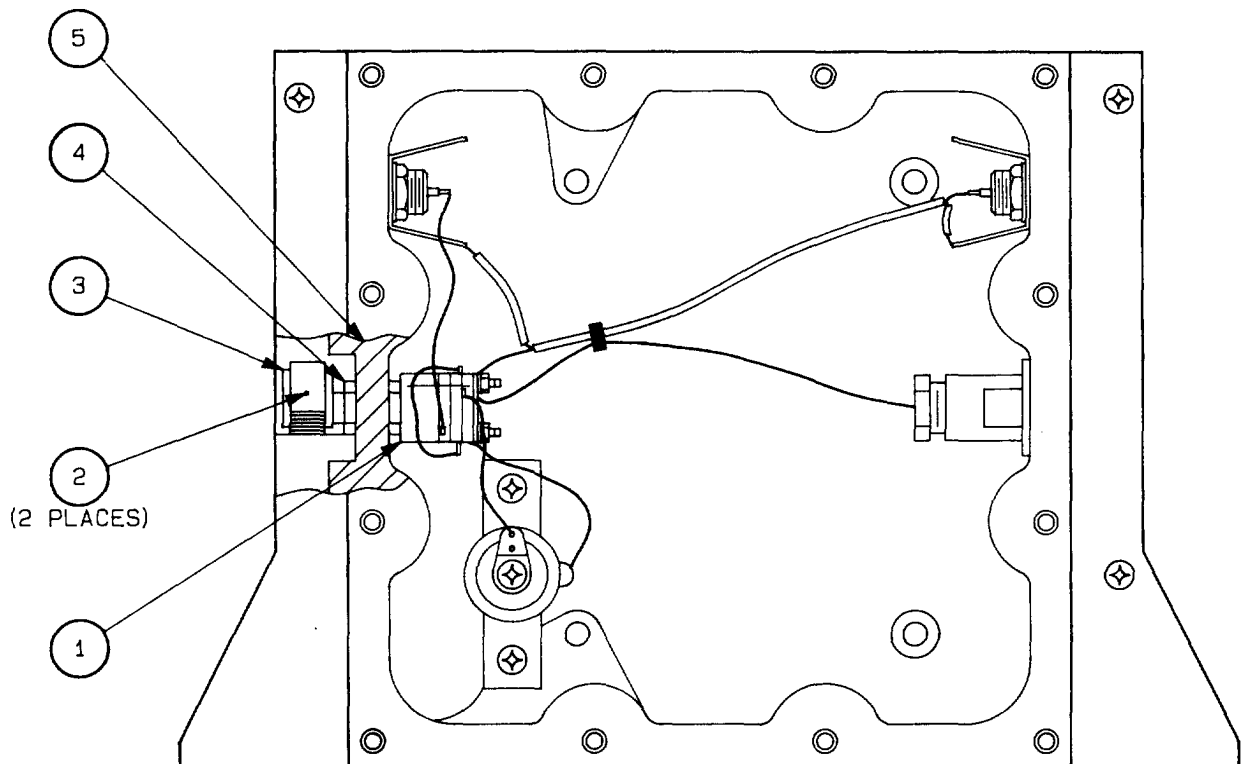
INSTALLATION

1. The antenna loading switch (1) is a three position switch. **Verify the antenna loading switch is in the middle position.** If not, turn the stem of the antenna loading switch to the middle position.
2. **Slide** the **stem** of the antenna loading switch (1) **through** the **hole** on the inside **of the switching unit housing** (5). Position the flat surface of the stem so that it is facing the bottom of the switching unit.
3. **Attach the antenna loading switch** (1) to the switching unit housing (5) with nut and lockwasher (4). **Verify** that the **flat surface** of the antenna loading **switch stem is facing the bottom of the switching unit.** If not, loosen the nut and turn the antenna loading switch to that position.
4. **Slide** the **knob** (3) **onto** the **stem** of the antenna loading switch (1). Position the knob so that it is pointing to 10 30.
5. **Attach** the **knob** (3) onto the stem of the antenna loading switch (1) with two allen screws (2). **Verify** that the **knob is pointing to 10 30.** If not, loosen the allen screws and turn the knob to 10 30.

ANTENNA LOADING SWITCH MAINTENANCE INSTRUCTIONS (2 of 2)

INSTALLATION (cont)

6. Using the marked tags, find the correct location of each wire to be soldered to the antenna loading switch (1). **Solder each wire to the antenna loading switch.**
7. **Remove all tags** from wires. **Install cover** by performing Installation procedure in Cover Maintenance Instructions on page 7-10.

**TEST**

Perform the Troubleshooting Chart **fault isolation** procedure on page 7-4.

CAPACITOR C1 MAINTENANCE INSTRUCTIONS (1 of 2)

This task covers:

REMOVAL INSTALLATION TEST

INITIAL SETUP

Tools:

Electrical Equipment Tool Kit
TK-105/G

Materials/Parts:

None

Personnel Required:

1

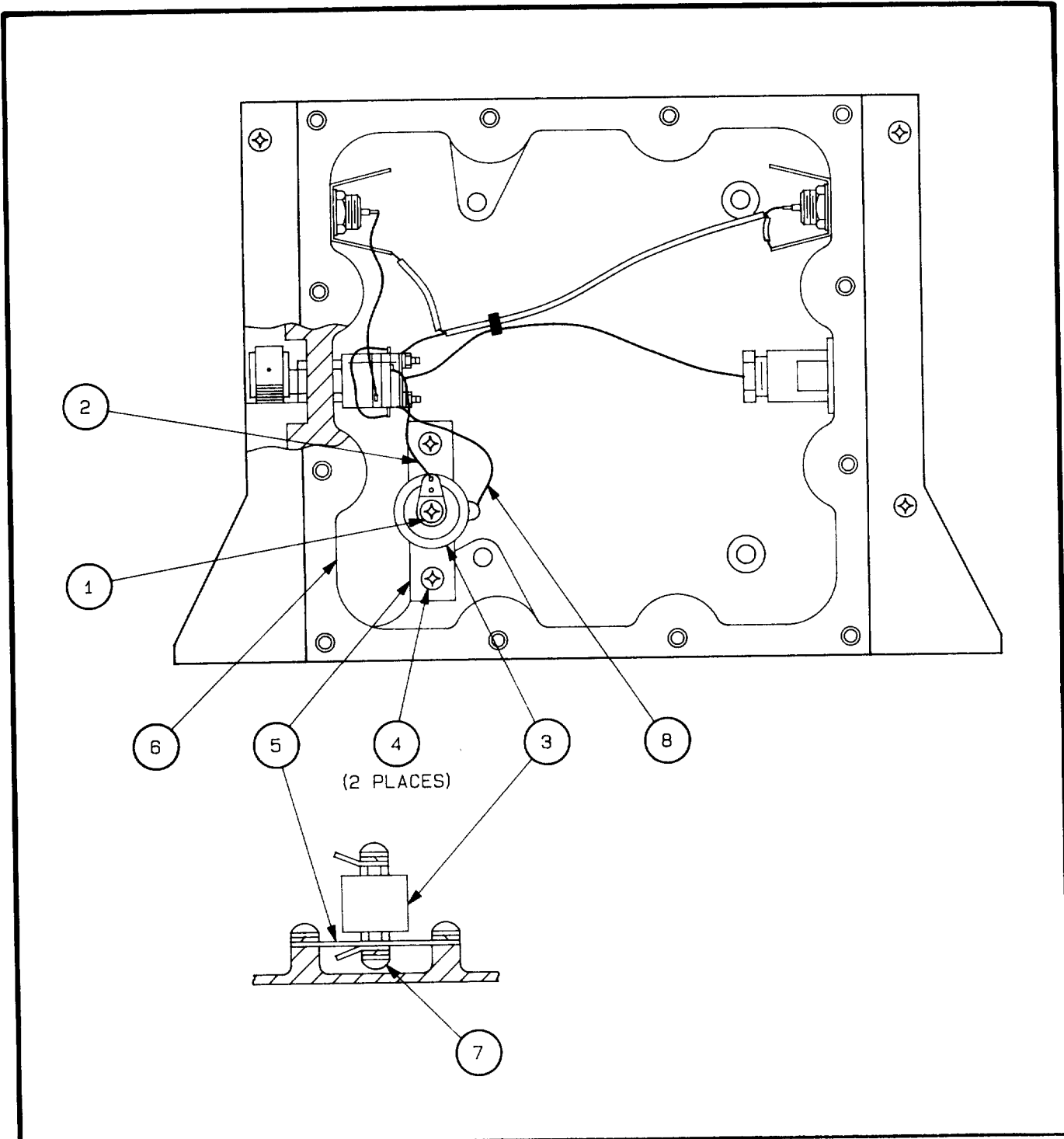
REMOVAL

1. **Remove cover** by performing removal procedure in Cover Maintenance Instructions on page 7-10.
2. **Remove** screw, lockwasher, and flat washer (1) attaching **wire (2) from pin 3** of antenna loading switch to top of capacitor C1 (3).
3. **Remove** two screws, lockwashers, and flat washers (4) attaching **capacitor mounting bracket (5)** to switching unit housing (6).
4. **Remove** screw, lockwasher, and flat washer (7) attaching **capacitor C1 (3) and wire (8)** to capacitor mounting bracket (5). **Remove capacitor C1.**

INSTALLATION

1. **Attach capacitor C1 (3) and wire (8) to capacitor mounting bracket (5)** with flat washer, lockwasher, and screw (7).
2. **Install capacitor mounting bracket (5)** on switching unit housing (6) with two flat washers, lockwashers, and screws (4).
3. **Attach wire (2) from pin 3** of antenna loading switch to top of capacitor C1 (3) with flat washer, lockwasher, and screw (1).
4. **Install cover** by performing Installation procedure in Cover Maintenance Instructions on page 7-10.

CAPICITOR C1 MAINTENANCE INSTRUCTIONS (2 of 2)



TEST

Perform the Troubleshooting Chart fault isolation procedure on page 7-4.

J201 MAINTENANCE INSTRUCTIONS (1 of 2)

This task covers:

REMOVAL INSTALLATION TEST

INITIAL SETUP

Tools:

Electrical Equipment Tool Kit
TK-105/G

Materials/Parts:

Masking Tape (item 13, App. F)

Personnel Required:

1

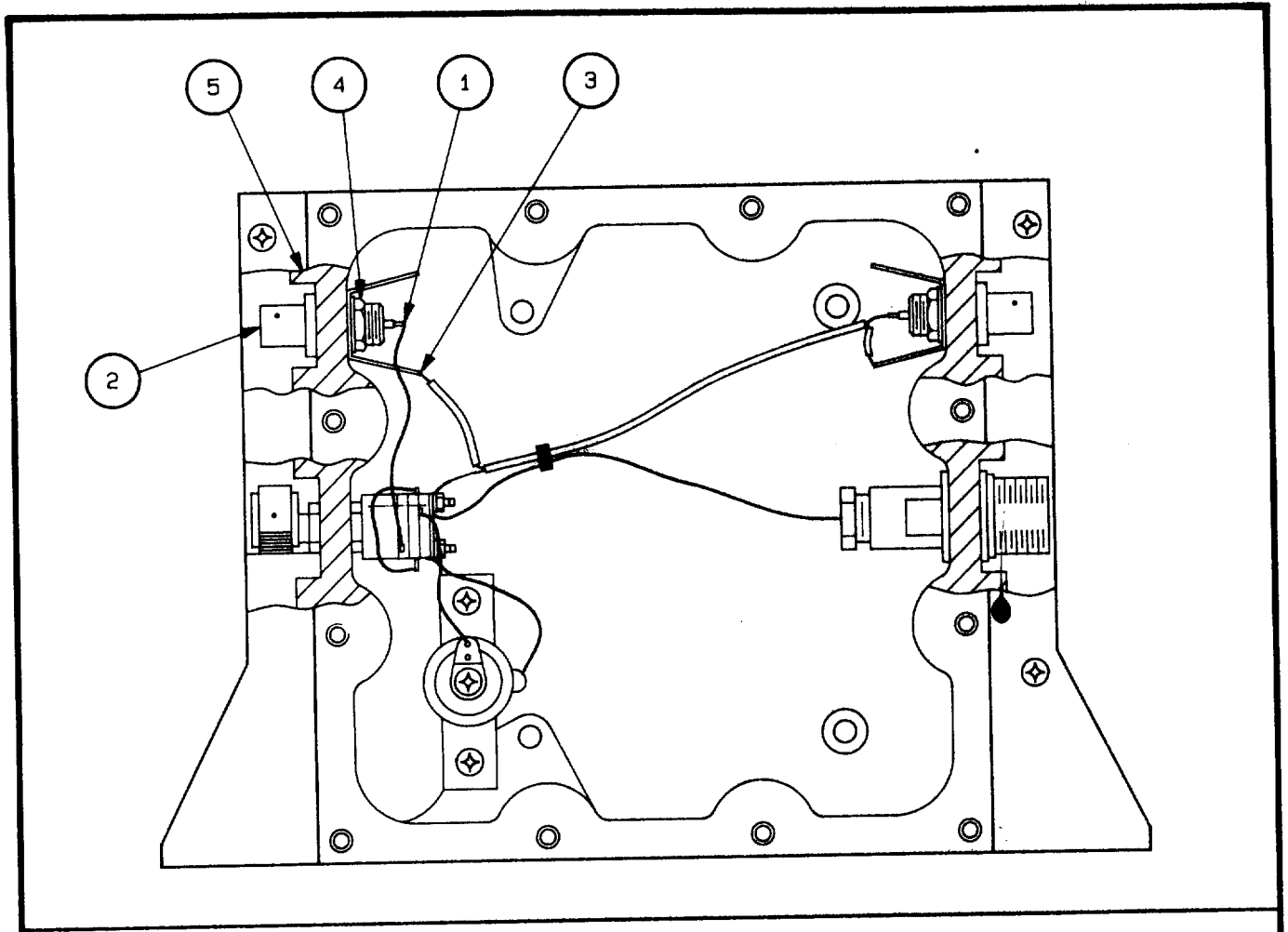
REMOVAL

1. **Remove cover** by performing Removal procedure in Cover Maintenance Instructions on page 7-10.
2. **Tag and mark**, with the correct location, the end of the **wire attached** to the center conductor (1) of J201 (2).
3. **Tag and mark**, with the correct location, the end of the **shield attached to the terminal lug** (3) of J201 (2).
4. **Unsolder** and remove the end of the **wire attached** to the **center conductor** (1) of J201 (2).
5. **Unsolder** and remove the end of the shield attached to the terminal lug (3) of J201 (2).
6. **Remove nut, flat washer** (4), **and terminal lug** (3) attaching J201 (2) to switching unit housing (5).
7. **Remove J201** (2).

INSTALLATION

1. **Insert** threaded side of **J201** (2) **through hole** on outside of switching unit housing (5).
2. **Attach J201** (2) to switching unit housing (5) with terminal lug (3), flat washer, and nut (4).
3. **Solder** tagged and marked wire to center conductor (1) of J201 (2).
4. **Solder** tagged and marked **shield to terminal lug** (3) of J201 (2).
5. **Remove tags** from shield and wire. **Install cover** by performing Installation procedure in Cover Maintenance Instructions on page 7-10.

J201 MAINTENANCE INSTRUCTIONS (2 of 2)



TEST

Perform the Troubleshooting Chart **fault isolation** procedure on page 7-4.

J202 MAINTENANCE INSTRUCTIONS (1 of 2)

This task covers:

REMOVAL INSTALLATION TEST

INITIAL SETUP

Tools:

Electrical Equipment Tool Kit
TK-105/G

Materials/Parts:

Masking Tape (item 13, App. F)

Personnel Required:

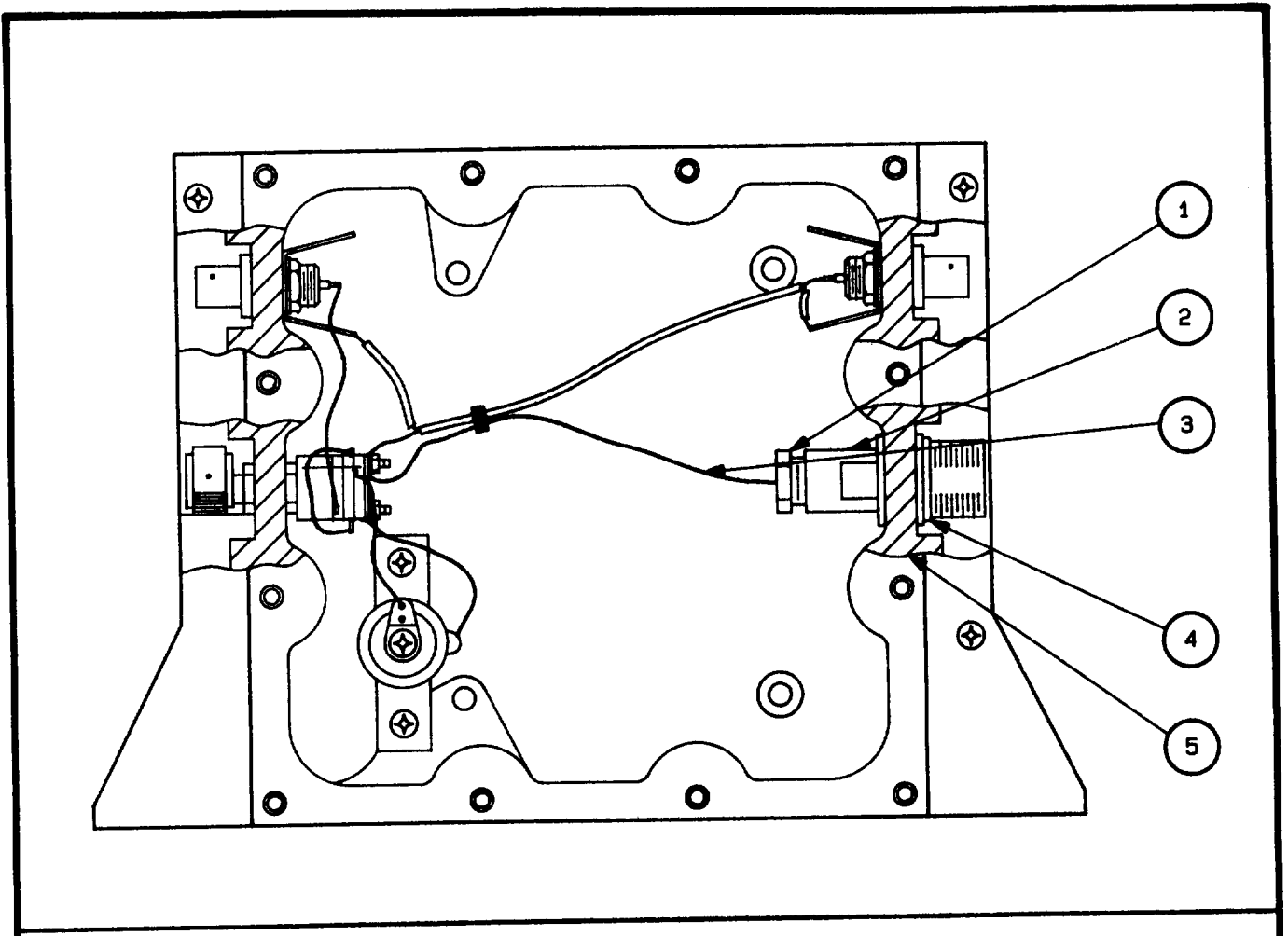
1

REMOVAL

1. **Remove cover** by performing Removal procedure in Cover Maintenance Instructions on page 7-10.
2. **Unscrew plug (1) from rear of J202 (2).**
3. **Tag and mark**, with the correct location, the end of the **wire (3) attached to** the center conductor of **J202 (2).**
4. **Unsolder** and remove the **wire (3)** attached to the center conductor of **J202 (2).**
5. **Remove nut and lockwasher (4)** attaching J202 (2) to switching unit housing (5).
6. **Remove J202 (2).**

-
1. **Insert** threaded side of **J202 (2)** through hole on inside of switching unit housing (5).
 2. **Attach J202 (2) to switching unit housing (5)** with lockwasher and nut (4).
 3. **Solder** tagged and marked **wire (3) to** center conductor of **J202 (2).** Remove tag.
 4. **Screw plug (1)** into rear of **J202 (2).**
 5. **Install cover** by performing Installation procedure in Cover Maintenance Instructions on page 7-10.

J202 MAINTENANCE INSTRUCTIONS (2 of 2)



TEST

Perform the Troubleshooting Chart **fault isolation** procedure on page 7-4.

J203 MAINTENANCE INSTRUCTIONS (1 of 2)

This task covers:

REMOVAL INSTALLATION TEST

INITIAL SETUP

Tools:

Electrical Equipment Tool Kit
TK-105/G

Materials/Parts:

Masking Tape (item 13, App. F)

Personnel Required:

1

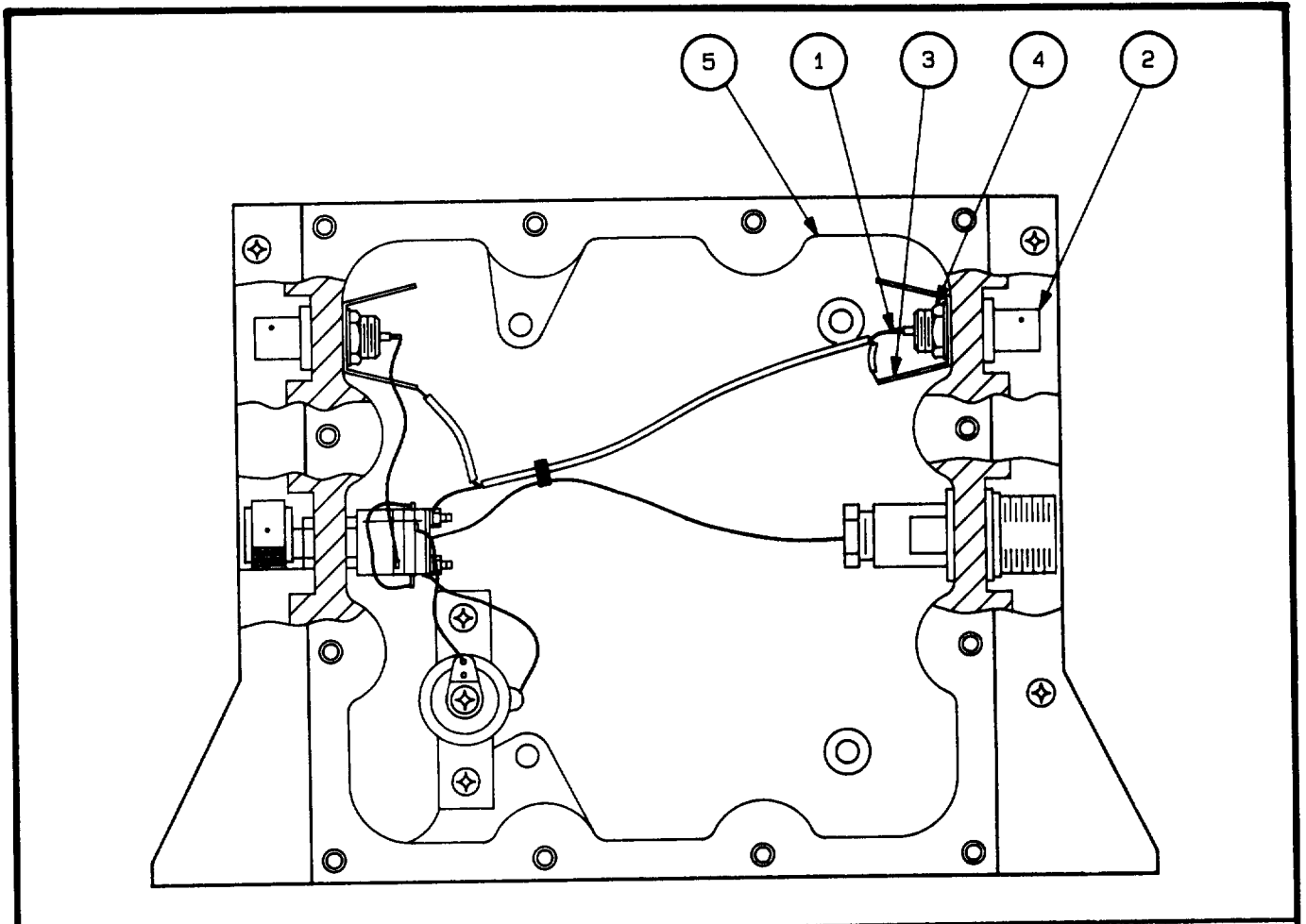
REMOVAL

1. **Remove cover** by performing Removal procedure in Cover Maintenance Instructions on page 7–10.
2. **Tag and mark**, with the correct location, the end of the **shielded wire attached to the center conductor** (1) of J203 (2).
3. **Tag and mark**, with the correct location, the end of the shield attached to the **terminal lug** (3) of J203 (2).
4. **Unsolder** and remove the end of the shielded wire attached to the center conductor (1) of J203 (2).
5. **Unsolder** and remove the end of the **shield attached to the terminal lug** (3) of J203 (2).
6. **Remove nut, flat washer** (4), **and terminal lug** (3) attaching J203 (2) to switching unit housing (5).
7. **Remove J203** (2).

INSTALLATION

1. **Insert** threaded side of **J203** (2) **through hole** on outside of switching unit housing (5).
2. **Attach J203** (2) to switching unit housing (5) with terminal lug (3), flat washer, and nut (4).
3. **Solder** tagged and **marked shielded wire to center conductor** (1) of J203 (2).
4. **Solder** tagged and marked **shield to terminal lug** (3) of J203 (2).
5. **Remove tags** from each wire. **Install cover** by performing Installation procedure in Cover Maintenance Instructions on page 7-10.

J203 MAINTENANCE INSTRUCTIONS (2 of 2)



TEST

Perform the Troubleshooting Chart **fault isolation** procedure on page 7-4.

WIRING MAINTENANCE INSTRUCTIONS (1 of 2)

This task covers:

REMOVAL INSTALLATION TEST

INITIAL SETUP

Tools:

Electronic Equipment Tool Kit
TK-105/G

Materials/Parts:

Bonding Compound (item 1, App. F)
Plastic Tie Down Strap (item 12,
App. F)

Personnel Required:

1

REMOVAL

1. **Remove cover** by performing Removal procedure in Cover Maintenance Instructions on page 7-10.
2. If removing a wire secured by cable strap (2), **remove cable strap and bonding compound** securing wires to switching unit housing (1).
3. **Unsolder** both ends of **wire** and remove wire.

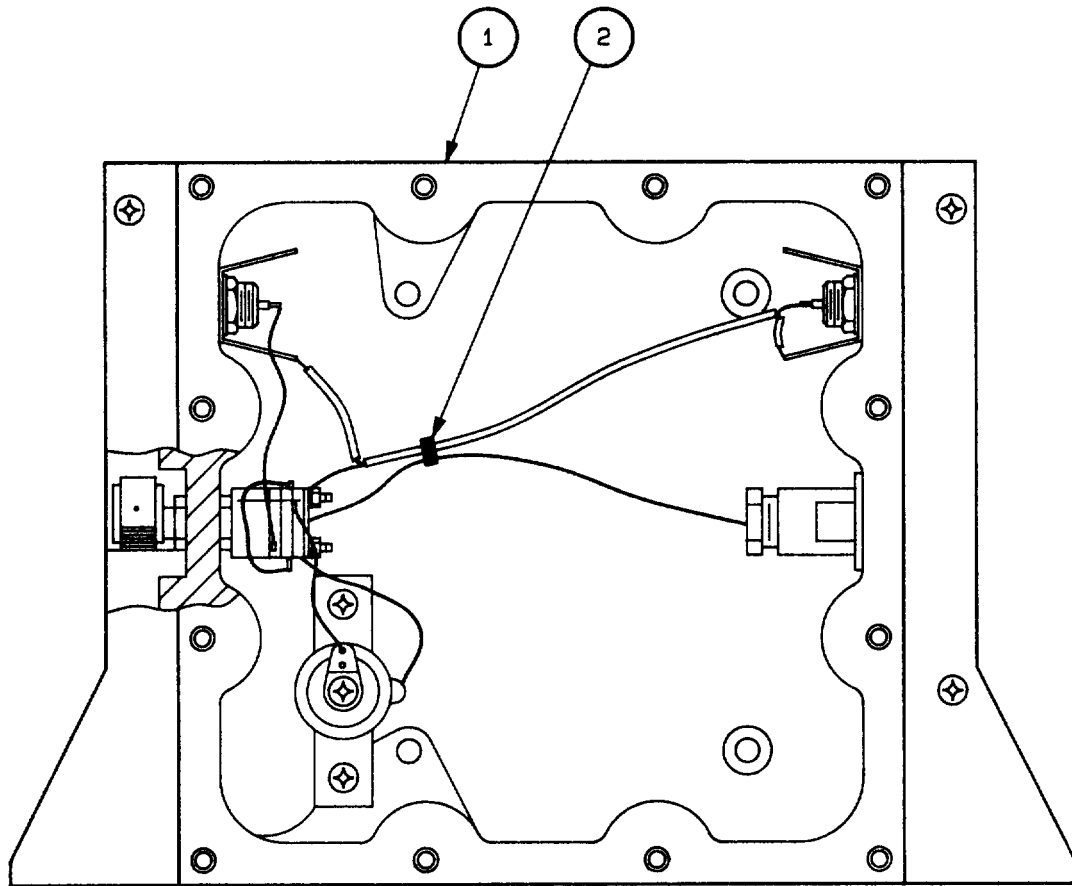
INSTALLATION

1. **Place wire in position and solder** each end of wire.
2. If a wire secured by cable strap (2) was replaced, **install cable strap** around wires **and secure** to switching unit housing (1) **with bonding compound**.
3. **Install cover** by performing Installation procedure in Cover Maintenance Instructions on page 7-10.

TEST

Perform the Troubleshooting Chart **fault isolation** procedure on page 7-4.

WIRING MAINTENANCE INSTRUCTIONS (2 of 2)



Section IV. PREPARATION FOR STORAGE OR SHIPMENT

	Page
Short Term	7-27

SHORT TERM

For short term storage or shipment, refer to Preparation for Storage or Shipment on page 1-2.

APPENDIX A

REFERENCES

SCOPE

This appendix lists all forms, field manuals, technical manuals, and miscellaneous publications referenced in this manual.

FORMS

DA Form 2028	Recommended Changes to Publications and Blank Forms
DA Form 2028-2	Recommended Changes to Equipment Technical Publications
SF 361	Discrepancy in Shipment Report (DISREP)
SF 368	Quality Deficiency Report

FIELD MANUALS

FM 21-11	Artificial Respiration
FM 21-26	Map Reading

TECHNICAL MANUALS

TM 11-5820-919-12	Operator's and Organizational Maintenance Manual for Radio Set AN/PRC-104A (NSN 5820-01-141-7953)
TM 11-5820-919-40-1	Field & Depot Maintenance Instructions for Radio Set AN/PRC-104A (NSN 5820-01-141-7953)
TM 11-5820-919-40-2	Maintenance Prints for Radio Set AN/PRC-104A (NSN 5820-01-141-7953)
TM 11-5820-919-24P	Organizational and General Support Maintenance Repair Parts and Special Tools List for Radio Set AN/PRC-104A (NSN 5820-01-141-7953)
TM 11-5820-923-12	Operator's and Organizational Maintenance Manual for Radio Set AN/GRC-2130 (NSN 5820-01-128-3935)
TM 11-5820-923-10-HR	Technical Manual Hand Receipt Covering Contents of Components of End Item (COEI), Basic Issue Items (BI), and Additional Authorization List (AAL) for Radio Set AN/GRC-213 (NSN 5820-01-128-3935)
TM 11-5820-923-40	General Support Maintenance Manual for Amplifier-Power Supply AM-7152/GRC-213 (NSN 5820-01-127-5855)
TM 11-5820-923-20P	Organizational Maintenance Repair Parts and Special Tools List for Radio Set AN/GRC-213 (NSN 5820-01-128-3935)
TM 11-5820-923-40P	General Support Maintenance Repair Parts and Special Tools List (Including Depot Maintenance Repair Parts and Special Tools) for Amplifier-Power supply AM-7152/GRC-213 (NSN 5820-01-127-5855)

TECHNICAL MANUALS (cont)

TM 11-5820-467-15 Operator, Organizational, Field, and Depot Maintenance Manual, Antenna Group AN/GRA-50 (NSN 5985-00-892-0758)

TM 11-5985-379-14&P Operator's, Organizational, Direct Support, and General Support Maintenance Manual (Including Repair Parts and Special Tools List) for Antenna AS-2259/GR and Adapter (NSN 5985-00-106-6130)

TM 740-90-1 Administrative Storage of Equipment

TM 750-244-2 Procedures for Destruction of Army Electronic Materiel to Prevent Enemy Use (Electronic Command)

MISCELLANEOUS PUBLICATIONS

AMDF (AR708-1) IAW Packaging Segment of AMDF by NSN

AR 735-11-2 Reporting of Item and Packaging Discrepancies

TM 750-244-2 Destruction of Army Materiel

CTA 8-100 Army Medical Department Expendable/Durable Items

CTA 50-970 Expendable/Durable Items (Except Medical, Class V, Repair Parts, and Heraldic Items)

DA Pam 310-1 Consolidated Index of Army Publications and Blank Forms

DA Pam 738-750 The Army Maintenance-Management System (TAMMS)

SB 11-573 Painting and Preservation of Supplies Available for Field Use for Electronics Command Equipment

SB 11-614 Caution Notice for Antenna Bases, Towers, and Other Mast Structures

TB 43-0118 Field Instructions for Painting and Preserving Electronics Command Equipment Including Camouflage Pattern Painting of Electrical Equipment Shelters

TB SIG 291 Safety Measures to be Observed When Installing and Using Whip Antennas, Field Type Masts, Towers, Antennas, and Metal Poles That Are Used with Communication, Radar, and Direction Finder Equipment

APPENDIX B MAINTENANCE ALLOCATION CHART

Section 1. INTRODUCTION

GENERAL

This appendix provides a summary of the maintenance operations for AN/GRC-213. It authorizes categories of maintenance for specific maintenance functions on repairable items and components and the tools and equipment required to perform each function. This appendix may be used as an aid in planning maintenance operations.

MAINTENANCE FUNCTIONS

Maintenance functions will be limited to and defined as follows:

- a. Inspect.** To determine the serviceability of an item by comparing its physical, mechanical, and/or electrical characteristics with established standards through examination.
- b. Test.** To verify serviceability and to detect incipient failure by measuring the mechanical, or electrical characteristics of an item and comparing those characteristics with prescribed standards.
- c. Service.** Operations required periodically to keep an item in proper operating condition, ie, to clean (decontaminate), to preserve, to drain, to paint, or to replenish fuel, lubricants, hydraulic fluids, or compressed air supplies.
- d. Adjust.** To maintain, within prescribed limits, by bringing into proper or exact position, or by setting the operating characteristics to the specified parameters.
- e. Aline.** To adjust specified variable elements of an item to bring about optimum or desired performance.
- f. Calibrate.** To determine and cause corrections to be made or to be adjusted on instruments or test, measuring, and diagnostic equipments used in precision measurement. Consists of comparisons of two instruments, one of which is a certified standard of known accuracy, to detect and adjust any discrepancy in the accuracy of the instrument being compared.
- g. Install.** The act of emplacing, seating, or fixing into position an item, part, or module (component or assembly) in a manner to allow the proper functioning of an equipment or system.

h. Replace. The act of substituting a serviceable like type part, subassembly, or module (component or assembly) for an unserviceable counterpart.

i. Repair. The application of maintenance services (inspect, test, service, adjust, align, calibrate, replace) or other maintenance actions (welding, grinding, riveting, straightening, facing, remachining, or resurfacing) to restore serviceability to an item by correcting specific damage, fault, malfunction, or failure in a part, subassembly, module (component or assembly), end item, or system.

j. Overhaul. That maintenance effort (service/action) necessary to restore an item to a completely serviceable/operational condition as prescribed by maintenance standards (ie, DMWR) in appropriate technical publications. Overhaul is normally the highest degree of maintenance performed by the Army. Overhaul does not normally return an item to like new condition.

k. Rebuild. Consists of those services/actions necessary for the restoration of unserviceable equipment to a like new condition in accordance with original manufacturing standards. Rebuild is the highest degree of materiel maintenance applied to Army equipment. The rebuild operation includes the act of returning to zero those age measurements (hours/miles, etc) considered in classifying Army equipment/components.

EXPLANATION OF COLUMNS IN THE MAC, SECTION II

a. Column (1) - Group Number. Column 1 lists group numbers, the purpose of which is to identify components, assemblies, subassemblies, and modules with the next higher assembly.

b. Column (2) - Component/Assembly. Column 2 contains the noun names of components, assemblies, subassemblies, and modules for which maintenance is authorized.

c. Column (3) - Maintenance Function. Column 3 lists the functions to be performed on the item listed in column 2. When items are listed without maintenance functions, it is solely for purpose of having the group numbers in the MAC and RPSTL coincide.

d. Column (4) - Maintenance Category. Column 4 specifies, by the listing of a "work item" figure in the appropriate subcolumn(s), the lowest level of maintenance authorized to perform the function listed in column 3. This figure represents the active time required to perform that maintenance function at the indicated category of maintenance. If the number or complexity of the tasks within the listed maintenance function varies at different maintenance categories, appropriate "work time" figures will be shown for each category. The number of task-hours specified by the "work time" figure represents the average time required to restore an item (assembly, subassembly, component, module, end item, or system) to a serviceable condition under typical field operating conditions. This time includes preparation time, troubleshooting time, and quality assurance/quality control time in addition to the time required to perform the specific tasks identified for the maintenance functions authorized in the maintenance allocation chart. Subcolumns of column 4 are as follows:

- C - Operator/Crew
- O - Organizational
- F - Direct Support
- H - General Support
- D - Depot

e. Column (5)-Tools and Equipment. Column 5 specifies, by code, those common tool sets (not individual tools) and special tools, test, and support equipment required to perform the designated function.

f. Column (6) - Remarks. Column 6 contains an alphabetic code which leads to the remark in section IV, Remarks, which is pertinent to the item opposite the particular code.

EXPLANATION OF COLUMNS IN TOOL AND TEST EQUIPMENT REQUIREMENTS, SECTION III

a. Tool or Test Equipment Reference Code. The numbers in this column coincide with the numbers used in the tools and equipment column of the MAC. The numbers indicate the applicable tool or test equipment for the maintenance functions.

b. Maintenance Category. The codes in this column indicate the maintenance category allocated the tool or test equipment.

c. Nomenclature. This column lists the noun name and nomenclature of the tools and test equipment required to perform the maintenance functions.

d. National/NATO Stock Number. This column lists the National/NATO stock number of the specific tool or test equipment.

e. Tool Number. This column lists the manufacturer's part number of the tool followed by the Federal Supply Code for manufacturers (5-digit) in parentheses.

EXPLANATION OF COLUMNS IN REMARKS, SECTION IV

a. Reference Code. This code refers to the appropriate item in section II, column 6.

b. Remarks. This column provides the required explanatory information necessary to clarify items appearing in section II.

**SECTION II MAINTENANCE ALLOCATION CHART
FOR
INSTALLATION KIT (BASIC)**

(1) GROUP NUMBER	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE CATEGORY					(5) TOOLS AND EQPT.	(6) REMARKS
			c	o	F	H	D		
00	Installation Kit, Basic	Install		4.0				1,8	A B B C D E,F
		Service	1.0						
		Inspect	0.1						
		Test	0.2						
		Test Repair		0.2 .5			3-6 1		
01	Mount, Electrical Equipment, MT-6234	Replace		0.5			1	G E	
		Inspect		0.1					
		Repair		0.5		1			
0101	Antenna Switching Unit, SA-2365	Replace		0.4			3	F H E	
		Test				0.5			
		Repair				0.5			2-7

SECTION III TOOL AND TEST EQUIPMENT REQUIREMENTS
FOR
INSTALLATION KIT (BASIC)

TOOL OR TEST EQUIPMENT REF CODE	MAINTENANCE CATEGORY	NOMENCLATURE	NATIONAL/NATO STOCK NUMBER	TOOL NUMBER
1	O	TOOL KIT, ELECTRONIC EQUIPMENT,TK-101/G	5180-00-064- 5178	
2	H,D	TOOL KIT, ELECTRONIC EQUIPMENT,TK-105/G	5180-00-610- 8177	
3	O,H,D	MULTIMETER,AN/PSM-45	6625-01-139- 2512	
4	O,H,D	TEST SET, RADIO FREQUENCY POWER, AN/USM-298	6625-00-880- 5119	
5	O,H,D	DETECTING ELEMENT,50H	6625-00-945- 6092	
6	O,H,D	DUMMY LOAD,8085	5985-00-477- 8165	
7	H,D	KIT,GROUP,ELECTRICAL,OA-9161/GRC-213	5820-01-159- 1646	
8	O	SHOP EQUIPMENT,AUTO COMMOM NO.1	4910-00-754- 654	

NOTE:ALL EQUIPMENT DEFINED IN THIS SECTION(III) MAY BE
SUBSTITUTED WITH EQUIVALENT ITEMS. EACH MAINTENANCE
SHOP SHOULD EVALUATE THEIR CURRENT EQUIPMENT
AVAILBE AGAINST THEIR REQUIREMENTS.

SECTION IV. REMARKS

REFERENCE CODE	REMARKS
A	The tools, procedures, and hardware utilized to perform this task are identified within the "Service Upon Receipt and Installation" chapter of TM 11-2300-476-14&P.
B	The task requires visual inspection of the installation kit subassemblies and general cleaning practices. See PMCS table of TM 11-2300-476-14&P.
C	This is the operational status/capability test. The task is normally performed by the same task at the system level (AN/GRC-213)
D	This test is required to define defective assemblies, components, or wiring problems. Normally, this task is performed in conjunction with the fault isolation test of the AN/GRC-213. Specific fault isolation procedures are defined in the "Organizational Maintenance Instructions" chapter of TM 11-2300-476-14&P.
E	This repair task identifies the replacement of an assembly (repairable/non-repairable), and/or piece part items.
F	This task can include the replacement of the Antenna Switching Unit SA-2365.
G	This test is performed by visual observation and physical movement of Mounting Assembly MT-6234 to reveal any excessive wear (i.e., shock mounts, upper or lower mounting trays).
H	This task is required to fault isolate the Antenna Switching Unit SA-2365 to a defective piece-part or wiring problem.

APPENDIX D COMPONENTS OF END ITEM AND BASIC ISSUE ITEMS LISTS

Section 1. INTRODUCTION

SCOPE

This appendix lists integral components of and basic issue items for the installation kits to help you inventory items required for safe and efficient operation.

GENERAL

This Components of End Item List is divided into the following sections:

a. Section II. Integral Components of the End Item. These items, when assembled, comprise the installation kit and must accompany it whenever it is transferred or turned in. The illustrations will help you identify these items.

b. Section III. Basic Issue Items (BII). These are the minimum essential items required to place the installation kit in operation, to operate it, and to perform emergency repairs. Although shipped separately packed, they must accompany the installation kit during operation and whenever it is transferred between accountable officers. The illustrations will assist you with hard-to-identify items. This manual is your authority to requisition replacement BII, based on TOE/MTOE authorization of the end item.

EXPLANATION OF COLUMNS

a. Illustration Number. Indicates the number of the illustration on which the item is shown.

b. National Stock Number. Indicates the National stock number assigned to the item and which will be used for requisitioning.

c. Description. Indicates the Federal item name and, if required, a minimum description to identify the item. The physical location of each item follows the description in this column. The lists are designed to inventory all items in one area of the major item before moving on to an adjacent area.

d. FSCM and Part Number. Indicates the primary number used by the manufacturer, which controls the design and characteristics of the item by means of its engineering drawings, specifications, standards, and inspection requirements to identify an item or range of items. Preceding the part number, the Federal Supply Code for Manufacturers (FSCM) is shown in parentheses. If the item you require differs between serial numbers of the same model, effective serial numbers are shown in the last line of the description.

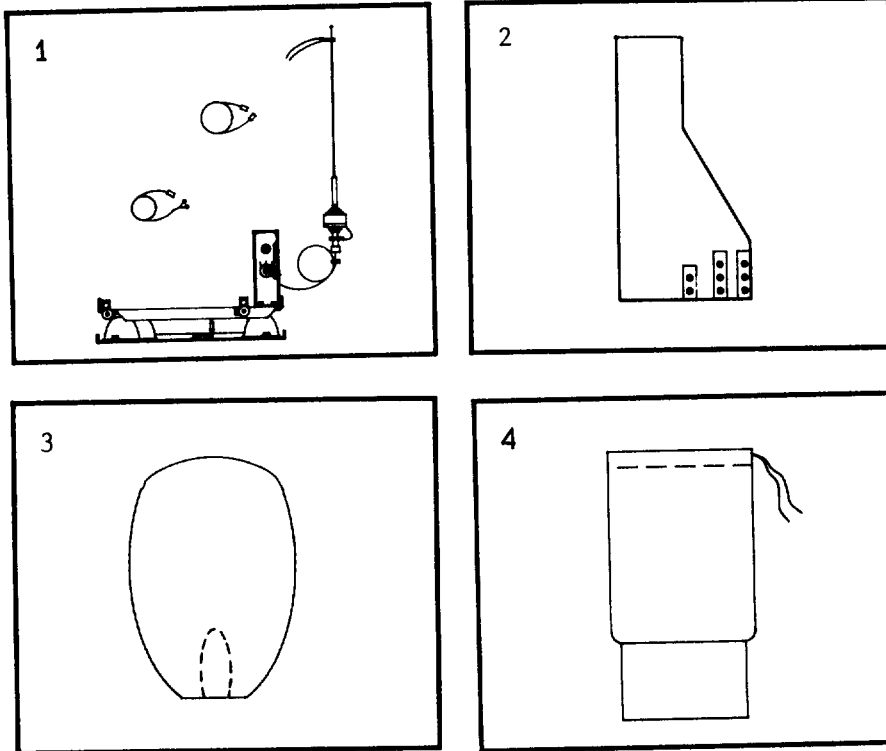
e. Usable on Code. "USABLE ON" codes, when included, help you identify which component items are used on the different models. Identification of the codes used in these lists are:

<u>Code</u>	<u>Used on</u>
PAA	Model MK-2442
PAB	Model MK-2443
PAC	Model MK-2444
PAD	Model MK-2445
PAE	Model MK-2446
PAF	Model MK-2447

f. Unit of Measure (U/M). Indicates the measure used in performing the actual operational/maintenance function. This measure is expressed by a two-character alphabetical abbreviation (for example, ea, in., pr).

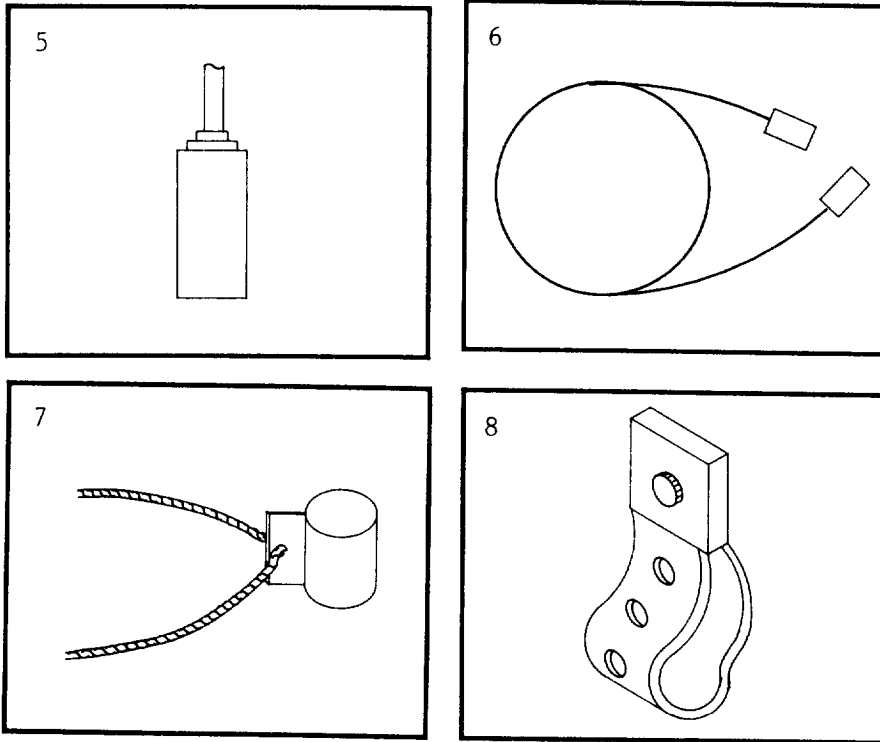
g. Quantity Required (Qty Reqd). This column lists the quantity of each item required for a complete major item.

Section II. COMPONENTS OF END ITEM



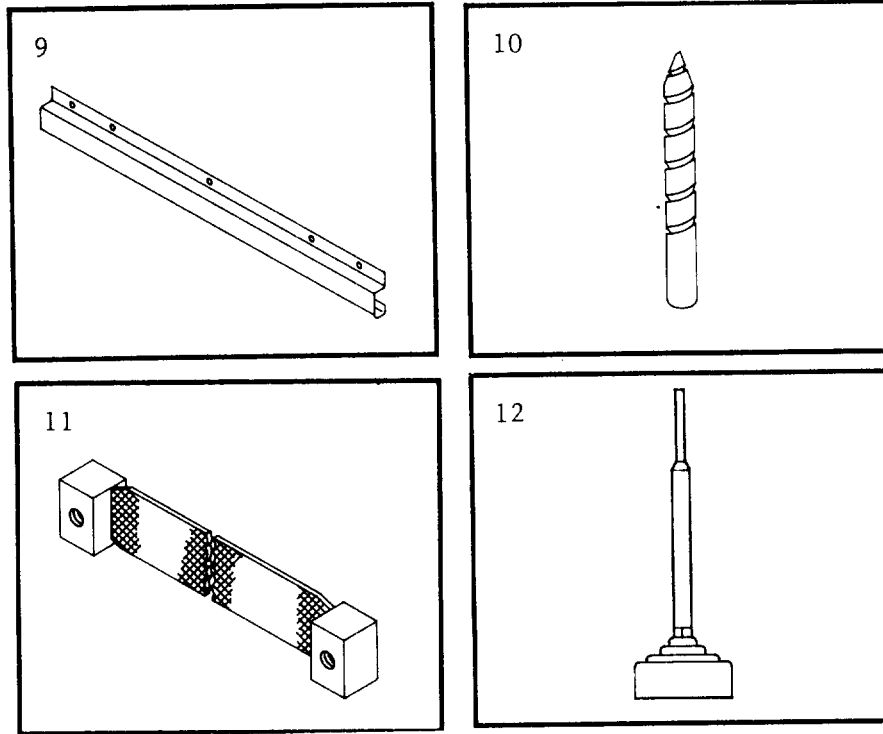
(1) ILLUS NO.	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION (FSCM) AND PART NUMBER	USABLE ON CODE	(4) U/M	(5) QTY REQD
1	5820-01-189-9791 5820-01-189-9792 5820-01-189-9788 5820-01-189-9793 5820-01-189-9789 5820-01-189-9790	INSTALLATION KITS (80059) MK-2442/GRC-213 OR (80058) VK-2443/GRC-213 OR (80063) MK-2444/GRC-213 OR (80058) MK-2445/GRC-213 OR (80058) MK-24461CRC-213 OR (80058) MK-2447/GRC-213		EA	1
2	5820-00-493-3046	ANTENNA BRACKET ASSEMBLY (80063) SC-F-446375	PAC	EA	1
3	5985-00-930-7223	ANTENNA TIP ASSEMBLY FOR MS-118 (ANTENNA TOP) (80063) SC-C-446046		EA	1
4		BAG (DISPOSABLE) (80063) SC-B-49729-2		EA	1

Section II. COMPONENTS OF END ITEM (Cont)



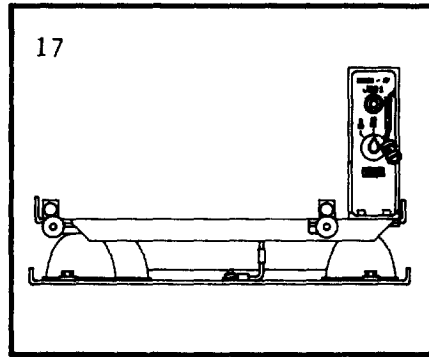
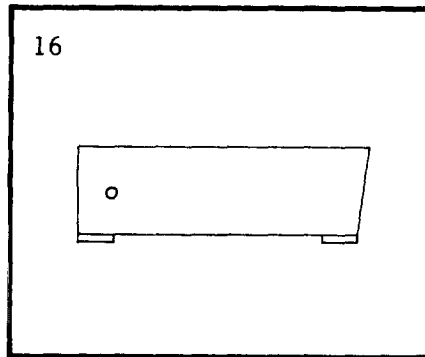
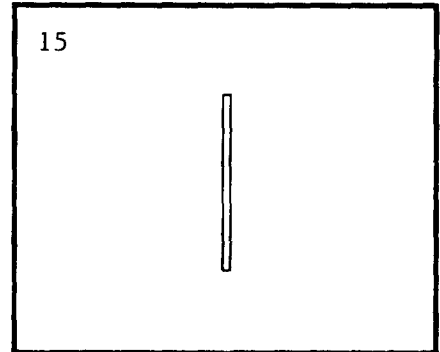
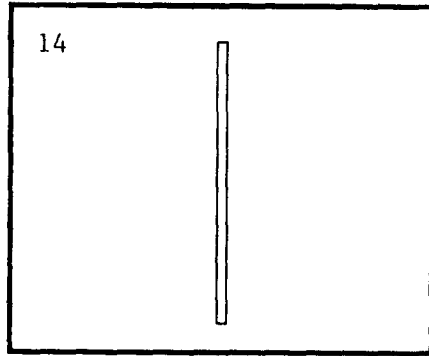
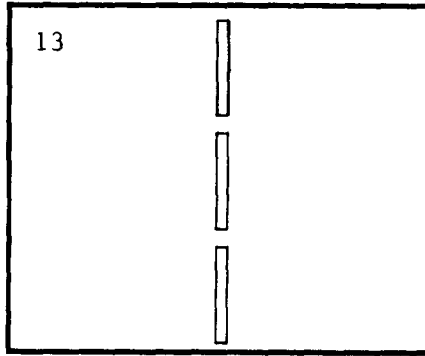
(1) ILLUS NO.	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION (FSCM) AND PART NUMBER	USABLE ON CODE	(4) U/M	(5) QTY REQD
5	5935-00-892-8931	CONNECTOR ADAPTER, GROUP IV (ON POWER CABLE) (80063) DL-SC-A-337542	PAF	EA	1
6	5995-01-213-7933	CABLE ASSEMBLIES (80063) A3023313	PAC, PAF	EA	1
	5995-01-213-7916	(80063) CX-13089-9FT	PAC	EA	1
	5995-01-214-6349	(80063) CX-13089-6FT	PAA	EA	1
	5995-01-823-2832	(80063) CX-4723-4FT	PAA	EA	1
	5995-01-213-7905	(80063) A3023312	PAD, PAE	EA	1
	5995-01-073-5597	(80063) CX-13089-8FT	PAD	EA	1
	5995-00-823-2836	(80063) CX-4723-9FT	PAD	EA	1
	5995-01-062-8176	(80063) CX-13089-4FT	PAE	EA	1
7	5985-00-935-8653	CLAMP, ROPE MAST SECTION FOR MS-116-A (80063) SC-B-19491	PAA, PAB, PAC PAD, PAE PAF (ONLY)	EA EA	1 3
8	5820-01-045-3153	CABLE CLAMPING KIT, UNIVERSAL (ON CABLES) (80063) PPL 5170		EA	1

Section II. COMPONENTS OF END ITEM (Cont)



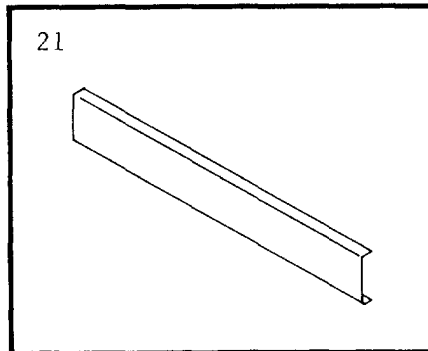
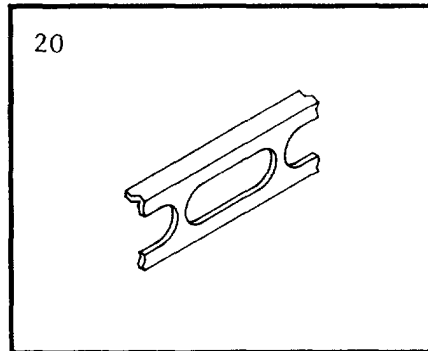
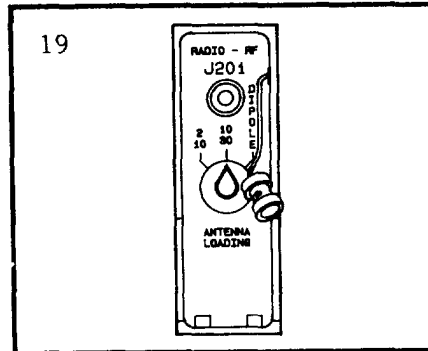
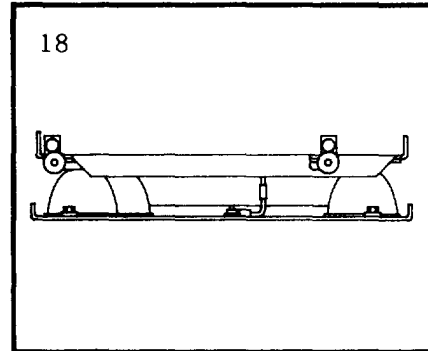
(1) ILLUS NO,	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION (FSCM) AND PART NUMBER	(4) U/M USABLE ON CODE	(5) QTY REQD
9		CONDUIT ASSEMBLY (OVER CONDUIT) (80063) SC-D-446402	PAC, PAD	1
10		DRILL TWIST, 9/32 (05869) 4191590-235	EA	1
		DRILL TWIST, 11/32 (05869) 4191500-236	EA	1
11		LEAD, ELECTRICAL (ON MOUNT) (80063) SC-B-75180 GPI	PAC	1
12	5820-01-195-6655	MAST BASE ASSEMBLY (ON ANTENNA BRACKET ASSEMBLY) (80058) AB-1322/GR	EA	1

Section II. COMPONENTS OF END ITEM (Cont)



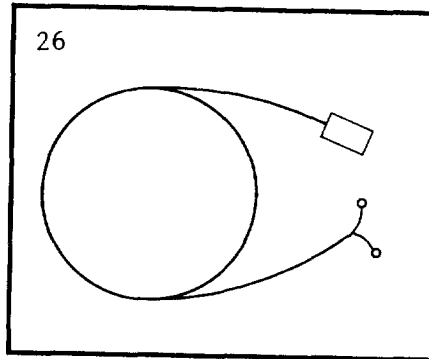
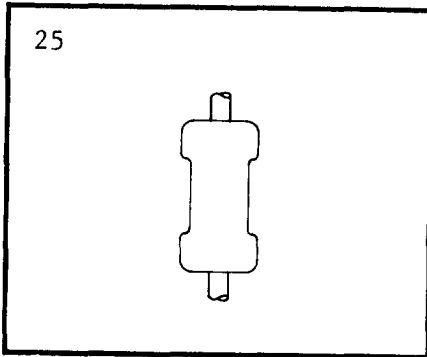
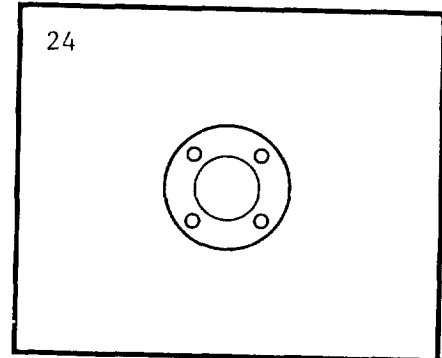
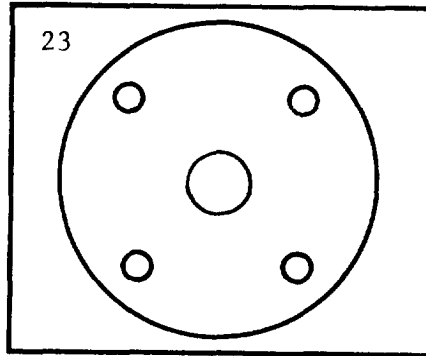
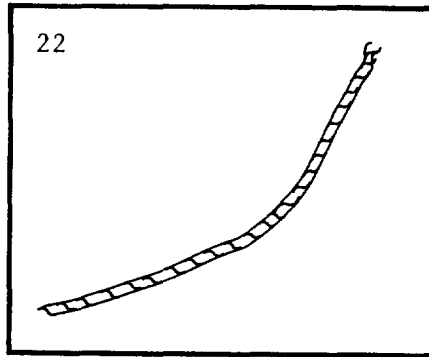
(1) ILLUS NO.	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION (FSCM AND PART NUMBER)	USABLE ON CODE	(4) U/M	(5) QTY REQD
13	5985-00-199-883	MAST SECTION (ON MAST BASE) (80063) MS-116-A		EA	3
14	5985-00-115-714	MAST SECTION (ON MAST BASE) (80063) MS-117-A		EA	1
15	5985-00-238-7474	MAST SECTION (ON MAST BASE) (80063) MS-118-A		EA	1
16		MOUNT ASSEMBLY (WHEEL WELL OF VEHICLE) (80063) SC-F-446380	PAC	EA	1
17	5820-01-133-3973	MOUNT, ELECTRICAL EQUIPMENT (ON MOUNT ASSEMBLY) (80058) MT-6234/GRC-213		EA	1

Section II. COMPONENTS OF END ITEM (Cont)



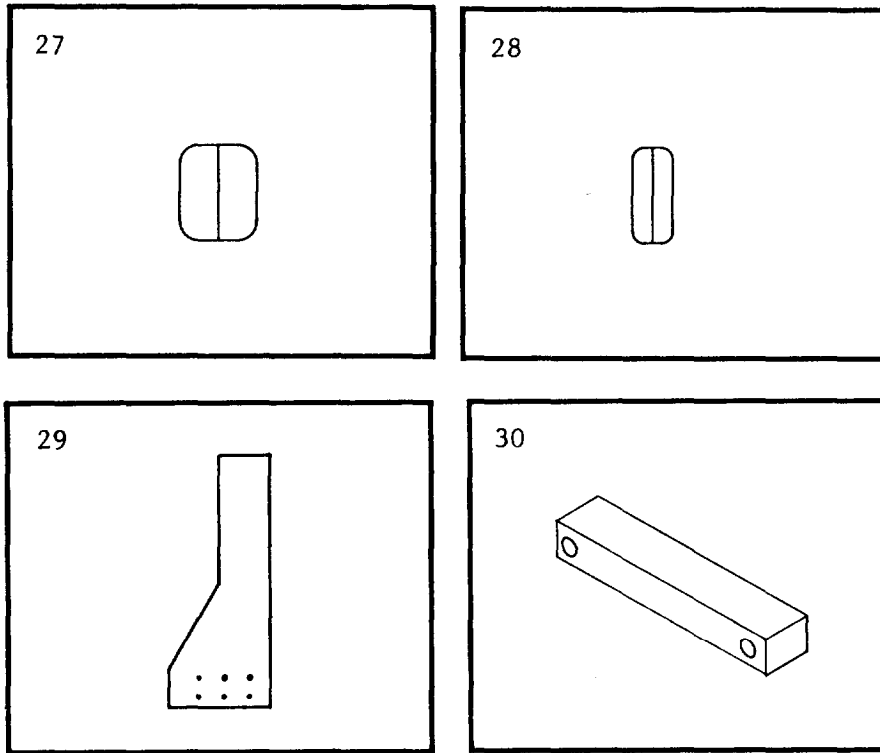
(1) ILLUS NO.	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION (FSCM) AND PART NUMBER	USABLE ON CODE	(4) U/M	(5) QTY REQD
18	5985-01-127-5773	MOUNTING BASE , ELECTRICAL EQUIPMENT (ON ELECTRICAL EQUIPMENT MOUNT) (80063) A3023150		EA	1
19		SWITCHING UNIT, ANTENNA (ON MOUNTING BASE) (80058) SA-2365/GRC-213		EA	1
20		RACEWAY BASE (35 in. LG) (ALONG VEHICLE TRAILER) (80063) SC-C-681298-4	PAC	EA	1
21		RACEWAY COVER (34 in. LG) (ALONG VEHICLE TRAILER) (80063) SC-C-681299-4	PAC	EA	1

Section II. COMPONENTS OF END ITEM (Cont)



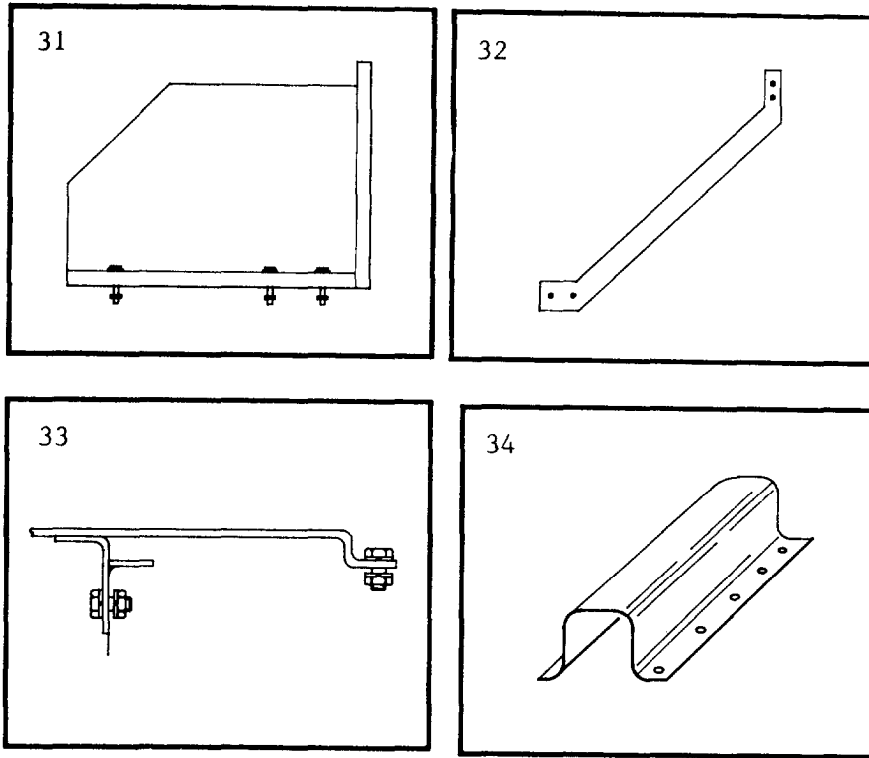
(1) ILLUS NO.	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION (FSCM) AND PART NUMBER	USABLE ON CODE	(4) U/M	(5) QTY REQD
2 3		ROPE (ON ANTENNA) (80063) SM-B-500418		EA	2
2 4	5330-00-078-4184	ADAPTER, ANTENNA BASE (BETWEEN ANTENNA BASE AND VEHICLE CHASSIS) (80063) SC-B-75912	PAA, PAD	EA	1
2 5		GASKET (ON ANTENNA BASE ADAPTER) (80063) SC-B-160382	PAA, PAD	EA	1
2 6		ANTENNA GUARD ASSEMBLY (ON ANTENNA) (80063) SC-C-446008	PAB, PAF	EA	1
	5995-00-889-1253 5995-00-823-2726	CABLE ASSEMBLIES, POWER (TO VEHICLE POWER SUPPLY) (80063) CX-4720-12FT (80063) CS-4720-10FT	PAB PAF	EA EA	1 1

Section II. COMPONENTS OF END ITEMS (Cont)



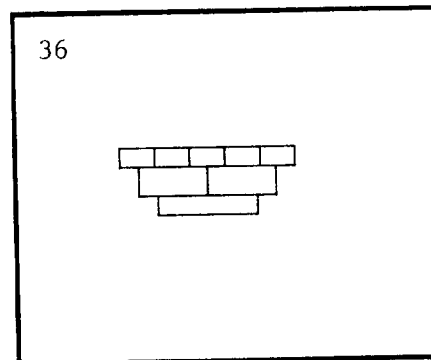
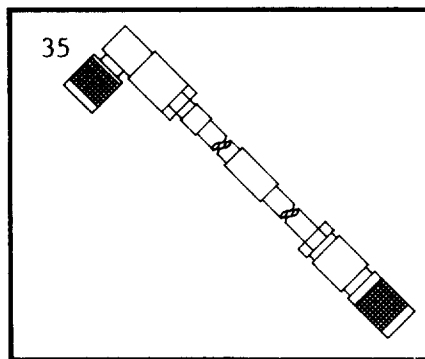
(1) ILLUS NO.	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION (FSCM) AND PART NUMBER USABLE ON CODE	(4) U/M	(5) QTY REQD
27	5325-01-097-0347	GROMMETS RUBBER SPLIT (ON ANTENNA SUPPORT AND INTERFACE BRACKET) (96906) MS35490-16	PAB	EA 2
	5325-00-926-1394	PLASTIC EDGING (WIDE) (ON INTERFACE BRACKET) (96906) MS21266-3N	PAE	EA 1
28	5325-00-923-9512	PLASTIC EDGING (NARROW) (ON ANTENNA SUPPORT AND INTERFACE BRACKET) (96906) MS21266-4N	PAE	EA 1
29		MOUNTING BRACKET ASSEMBLY (80063) A3023294	PAB	EA 1
30		REINFORCEMENT (ON WHEEL WELL) (80063) SC-C-446060	PAB	EA 1

Section II. COMPONENTS OF END ITEM (Cont)



(1) ILLUS NO,	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION (FSCM) AND PART NUMBER	(4) U/M	(5) QTY REQD
31		SUPPORT ASSEMBLY, ANTENNA (ON ANTENNA BRACKET ASSEMBLY) (80063) A3023295	EA	1
32		SUPPORT BRACKET ASSEMBLY (BETWEEN SUPPORT BRACKET AND ANTENNA BRACKET ASSEMBLY) (80063) A3023296	EA	1
33	320-00-875-0932	SUPPORT BRACKET (80063) SC-DL-48676	EA	1
34	5820-00-856-7819	GUARD ASSEMBLY (OVER CABLES) (80063) SC-D-75288	EA	1

Section II. COMPONENTS OF END ITEM (Cont)



(1) ILLUS NO.	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION (FSCM) AND PART NUMBER	USABLE ON CODE	(4) U/M	(5) QTY REQD
35	5995-01-215-6157	CABLE ASSEMBLIES, ANTENNA LEADS (3 ft, 6 in.) (BETWEEN SWITCHING UNIT AND ANTENNA) (80063) A3023311	PAA, PAF	EA	1
	5995-01-213-7933	(5 ft ONLY) (BETWEEN SWITCHING UNIT AND ANTENNA) (80063) A3023313	PAB	EA	1
36	5935-00-856-842	CONNECTOR-PLUG , ELECTRICAL (ON POWER CABLE) (80063) SM-C-632655	PAF	EA	1

SECTION III. BASIC ISSUE ITEMS TM11-2300-476-14&P

(1)	(2)	(3)	(4)	(5)
ILLUS	NATIONAL STOCK	DESCRIPTION	Usable	QTY
NUMBER	NUMBER	FSCM and Part Number	On Code	RQR
		TM 11-2300-476-14&P	EA	1

APPENDIX E
OPERATOR'S, ORGANIZATIONAL, DIRECT SUPPORT, AND GENERAL
SUPPORT MAINTENANCE REPAIR PARTS AND SPECIAL TOOLS LIST
(INCLUDING DEPOT MAINTENANCE REPAIR PARTS AND SPECIAL TOOLS)

Section 1. INTRODUCTION

E-1. Scope

This manual lists and authorizes spares and repair parts; special tools; special test, measurement, and diagnostic equipment (TMDE); and other special support equipment required for performance of organizational, direct support, and general support maintenance of the AN/GRC-213. It authorizes the requisitioning, issue, and disposition of spares, repair parts and special tools as indicated by the source, maintenance and recoverability (SMR) codes.

E-2. General

This Repair Parts and Special Tools List is divided into the following sections:

a. Section II. Repair Parts List. A list of spares and repair parts authorized by this RPSTL for use in the performance of maintenance. The list also includes parts which must be removed for replacement of the authorized parts. Parts lists are composed of functional groups in ascending numeric sequence, with the parts in each group listed in ascending item number sequence. Figure numbers are listed directly beneath the group header.

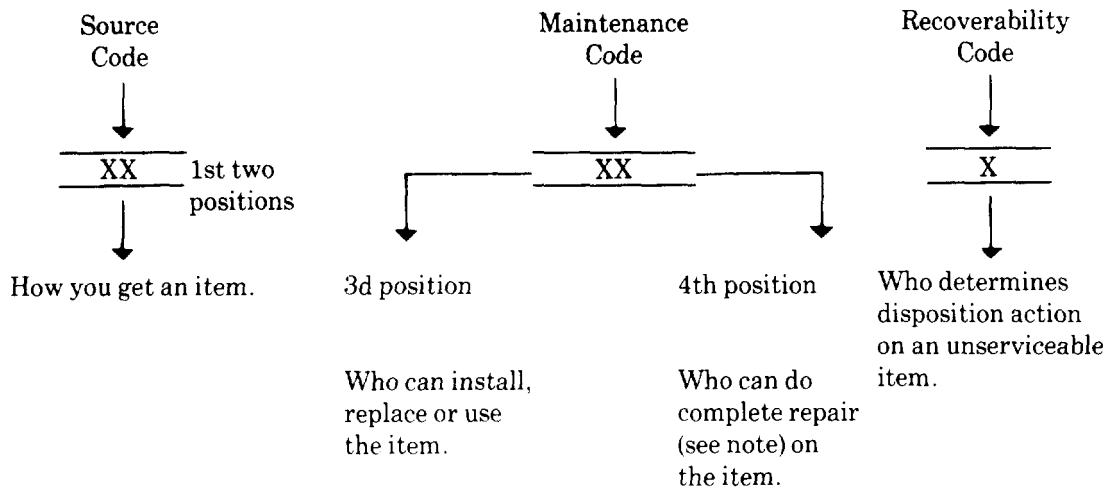
b. Section III, Special Tools List. Not applicable.

c. Section IV. National Stock Number and Part Number Index. A list, in National item identification number (NIIN) sequence, of all National stock numbered items appearing in the listing, followed by a list in alphameric sequence of all part numbers appearing in the listings. National stock numbers and part numbers are cross-referenced to each illustration figure and item number appearance.

E-3. Explanation of Columns (Section II and III)

a. Item No. (Column (1)). Indicates the number used to identify items called out in the illustration.

b. SMR Code (Column (2)). The source, maintenance, and recoverability (SMR) code is a five-position code containing supply requisitioning information, maintenance category authorization criteria, and disposition instruction, as shown in the following breakout:



NOTE

Complete repair: Maintenance capacity, capability, and authority to perform all corrective maintenance tasks of the "Repair" function in a use/user environment in order to restore serviceability to a failed item.

(1) *Source code.* The source code tells you how to get an item needed for maintenance, repair, or overhaul of an end item/equipment. Explanations of source codes follows:

<i>Code</i>	<i>Explanation</i>
PA PB PC PD PE PF PG	Stocked items; use the applicable NSN to request/requisition items with these source codes. They are authorized to the category indicated by the code entered in the third position of the SMR code. <p style="text-align: center;">NOTE</p> Items coded PC are subject to deterioration.

AO—Assembled by org/AVUM category AF—Assembled by DS/AVIM category AH—Assembled by GS category AL—Assembled by SRA AD—Assembled by Depot	Items with these codes are not to be requested/requisitioned individually. The parts that make up the assembled item must be requisitioned or fabricated and assembled at the category of maintenance indicated by the source code. If the third position code of the SMR code authorizes you to replace the item, but the source code indicates the item is assembled at a higher category, order the item from the higher category of maintenance.
--	--

KD KF KB	Items with these codes are not to be requested/requisitioned individually. They are part of a kit which is authorized to the maintenance category indicated in the third position of the SMR code. The complete kit must be requisitioned and applied.
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MO—Made at org/AVUM category MF—Made at DS/AVUM category MH—Made at GS category ML—Made at Specialized Repair Activity (SRA) MD—Made at Depot	Items with these codes are not to be requested/requisitioned individually. They must be made from bulk material which is identified by the part number in the description and usable on code (UOC) column and listed in the Bulk Material group of the repair parts list. If the item is authorized to you by the third position of the SMR code, but the source code indicates it is made at a higher category, order the item from the higher category of maintenance.
---	--

<i>Code</i>	<i>Explanation</i>
XA	DO not requisition an “XA” coded item. Order its next higher assembly.
XB	If an “XB” item is not available from salvage, order it using the FSCM and part number given.
XC	Installation drawing, diagram, instruction sheet, field service drawing, that is identified by manufacturers part number.
XD	Item is not stocked. Order an “XI” coded item through normal supply channels using the FSCM and part number given, if no NSN is available.

NOTE

Cannibalization or controlled exchange, when authorized, may be used as a source of supply for items with the above source codes, except for those source coded “XA” or those aircraft support items restricted by requirements of AR 750-1.

(2) *Maintenance code.* Maintenance codes tell you the category of maintenance authorized to USE and REPAIR support items. The maintenance codes are entered in the third and fourth positions of the SMR code as follows:

(a) The maintenance code entered in the third position tells you the lowest maintenance category authorized to remove, replace, and use an item. The maintenance code entered in the third position will indicate authorization to one of the following categories of maintenance.

<i>Code</i>	<i>Application/Explanation</i>
C	Crew or operator maintenance done within organizational or aviation maintenance.
O	Organizational or aviation unit category can remove, replace, and use the item.
F	Direct support or aviation intermediate category can remove, replace, and use the item.
H	General support category can remove, replace, and use the item.
L	Specialized repair activity can remove, replace, and use the item.
D	Depot category can remove, replace, and use the item.

(b) The maintenance code entered in the fourth position tells whether or not the item is to be repaired and identifies the lowest maintenance category with the capability to do complete repair (i.e., perform all authorized repair functions). This position will contain one of the following maintenance codes.

NOTE

Some limited repair may be done on the item at a lower category of maintenance, if authorized by the Maintenance Allocation Chart (MAC) and SMR codes.

<i>Code</i>	<i>Application/Explanation</i>
O	Organizational or aviation unit is the lowest category that can do complete repair of the item.
F	Direct support or aviation intermediate is the lowest category that can do complete repair of the item.
H	General support is the lowest category that can do complete repair of the item.
L	Specialized repair activity (designate the specialized repair activity) is the lowest category that can do complete repair of the item.
D	Depot is the lowest category that can do complete repair of the item.
Z	Nonreparable, No repair is authorized.
B	No repair is authorized. (No parts or special tools are authorized for the maintenance of a "B" coded item). However, the item may be reconditioned by adjusting, lubricating, etc., at the user category.

(3) *Recoverability code.* Recoverability codes are assigned to items to indicate the disposition action on unserviceable items. The recoverability code is entered in the fifth position of the SMR Code as follows:

<i>Recoverability codes</i>	<i>Application/Explanation</i>
Z	Nonreparable Item. When unserviceable, condemn and dispose of the item at the category of maintenance shown in the third position of SMR Code.
O	Reparable item. When uneconomically repairable, condemn and dispose of the item at organizational or aviation unit category.
F	Reparable item. When uneconomically repairable, condemn and dispose of the item at direct support or aviation intermediate category.
H	Reparable item. When uneconomically repairable, condemn and dispose of the item at general support category.
D	Reparable item. When beyond lower category repair capability, return to depot. Condemnation and disposal of item not authorized below depot category.
L	Reparable item. Condemnation and disposal not authorized below specialized repair activity (SRA).
A	Item requires special handling or condemnation procedures because of specific reasons (e.g., precious metal content, high dollar value, critical material, or hazardous material). Refer to appropriate manuals/directives for specific instructions.

c. *FSCM (Column (3)).* The Federal Supply Code for Manufacturer (FSCM) is a 5-digit numeric code which is used to identify the manufacturer, distributor, or Government agency, etc., that supplies the item.

d. *Part Number (Column (4)).* Indicates the primary number used by the manufacturer (individual, company, firm, corporation, or Government activity), which controls the design and characteristics of the item by means of its engineering drawings, specifications, standards, and inspection requirements to identify an item or range of items.

NOTE

When you use a NSN to requisition an item, the item you receive may have a different part number from the part ordered.

e. *Description and Usable on Code (UOC) (Column (5)).* This column includes the following information.

(1) The Federal item name and, when required, a minimum description to identify the item.

(2) The statement “END OF FIGURE” appears just below the last item description in Column (5) for a given figure in both section II and section III.

f. Qty (Column (6)). Indicates the quantity of the item used in the breakout shown on the illustration figure, which is prepared for a functional group, subfunctional group, or an assembly. A “V” appearing in this column in lieu of a quantity indicates that the quantity is variable and the quantity may vary from application to application.

E-4. Explanation of Columns (Section IV)

a. National Stock Number (NSN) Index.

(1) *Stock number column.* This column lists the NSN by National item identification number (NIIN) sequence. The NIIN consists of the last nine digits of the NSN. When using this column to locate an item, ignore the first four digits of the NSN. When requisitioning items use the complete NSN (13 digits).

(2) *Fig column.* This column lists the number of the figure where the item is identified/located. The illustrations are in numerical sequence in sections II and III.

(3) *Item column.* The item number identifies the item associated with the figure listed in the adjacent Fig. column. This item is also identified by the NSN listed on the same line.

b. Part Number Index. Part numbers in this index are listed by part number in ascending alphameric sequence.

(1) *FSCMcolumn.* This column lists the Federal supply code for manufacturer (FSCM).

(2) *Part number column.* This column indicates the part number assigned to the item.

(3) *Stock number column.* This column lists the National stock number for the associated part number and manufacturer identified in the part number and FSCM columns to the left.

(4) *Fig. column.* This column lists the number of the figure where the item is identified/located in sections II and III.

(5) *Item column.* The item number is that number assigned to the item as it appears in the figure referenced in the adjacent figure number column.

E-5. Special Information

National stock numbers (NSN’S) that are missing from P source coded items have been applied for and will be added to this TM by future change/revision when they are entered in the Army Master Data File (AMDF). Until the NSN’S are established and published, submit exception requisitions to: Commander, US Army Communications-Electronics Command and Fort Monmouth, ATTN: AMSEL-MM, Fort Monmouth, NJ 07703-5000 for the part required to support your equipment.

E-6. How to Locate Repair Parts

a. When National stock number or part number is not known.

(1) *First.* Using the table of contents, determine the assembly group or subassembly group to which the item belongs. This is necessary since figures are prepared for assembly groups and subassembly groups, and listings are divided into the same groups.

(2) *Second.* Find the figure covering the assembly group or subassembly group to which the item belongs.

(3) *Third.* Identify the item on the figure and note the item number.

(4) *Fourth.* Refer to the Repair Parts List for the figure to find the part number for the item number noted on the figure.

(5) *Fifth.* Refer to the Part Number Index to find the NSN, if assigned.

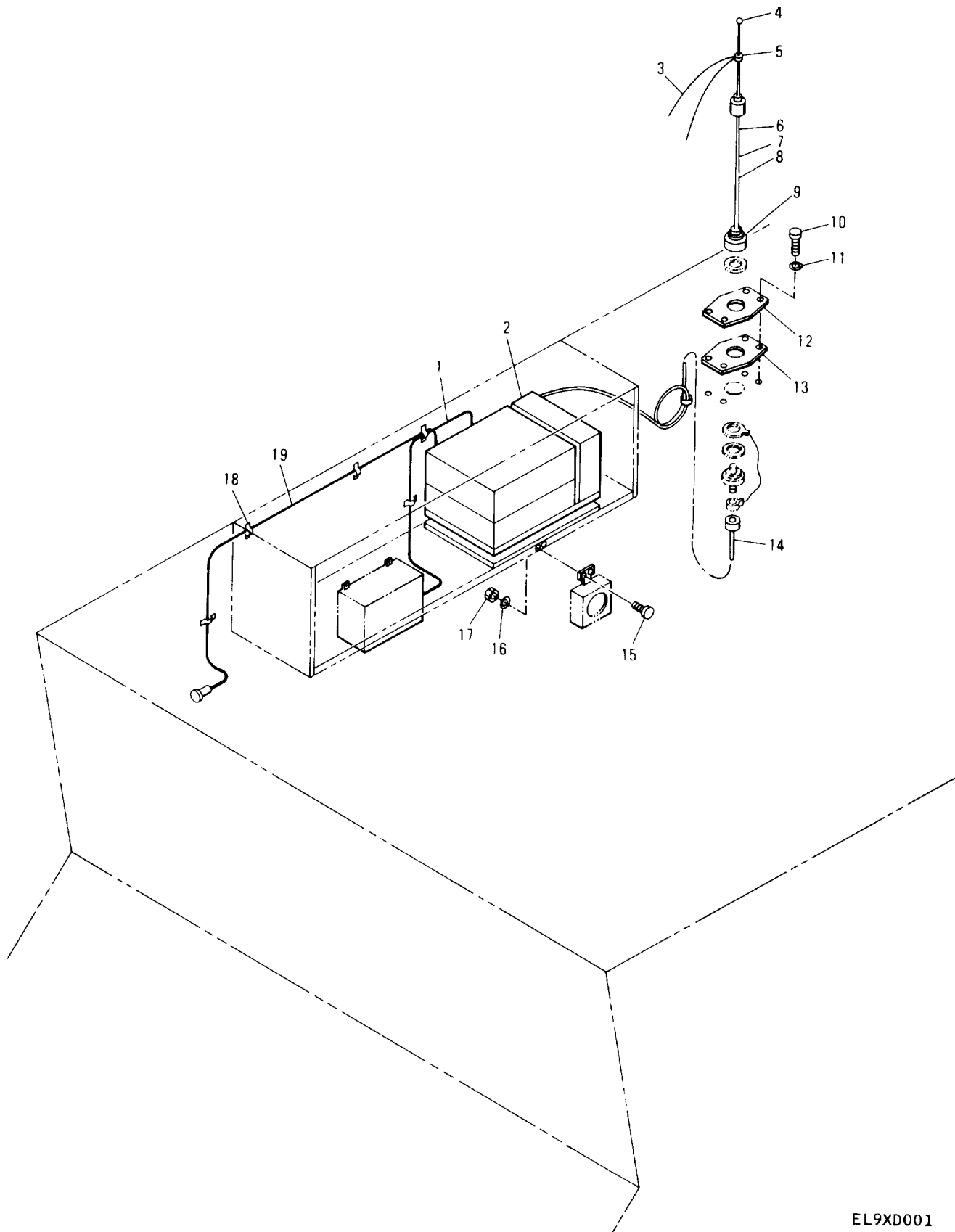
b. When National stock number or part number is known.

(1) *First.* Using the index of National stock numbers and part numbers, find the pertinent National stock number or part number. The NSN index is in National item identification number (NIIN) sequence (para 4a(1)). The part numbers in the part number index are listed in ascending alphameric sequence (para 4b). Both indexes cross-reference you to the illustration figure and item number of the item you are looking for.

(2) *Second.* After finding the figure and item number, verify that the item is the one you’re looking for, then locate the item number in the repair parts list for the figure.

E-7. Abbreviations

Not applicable.

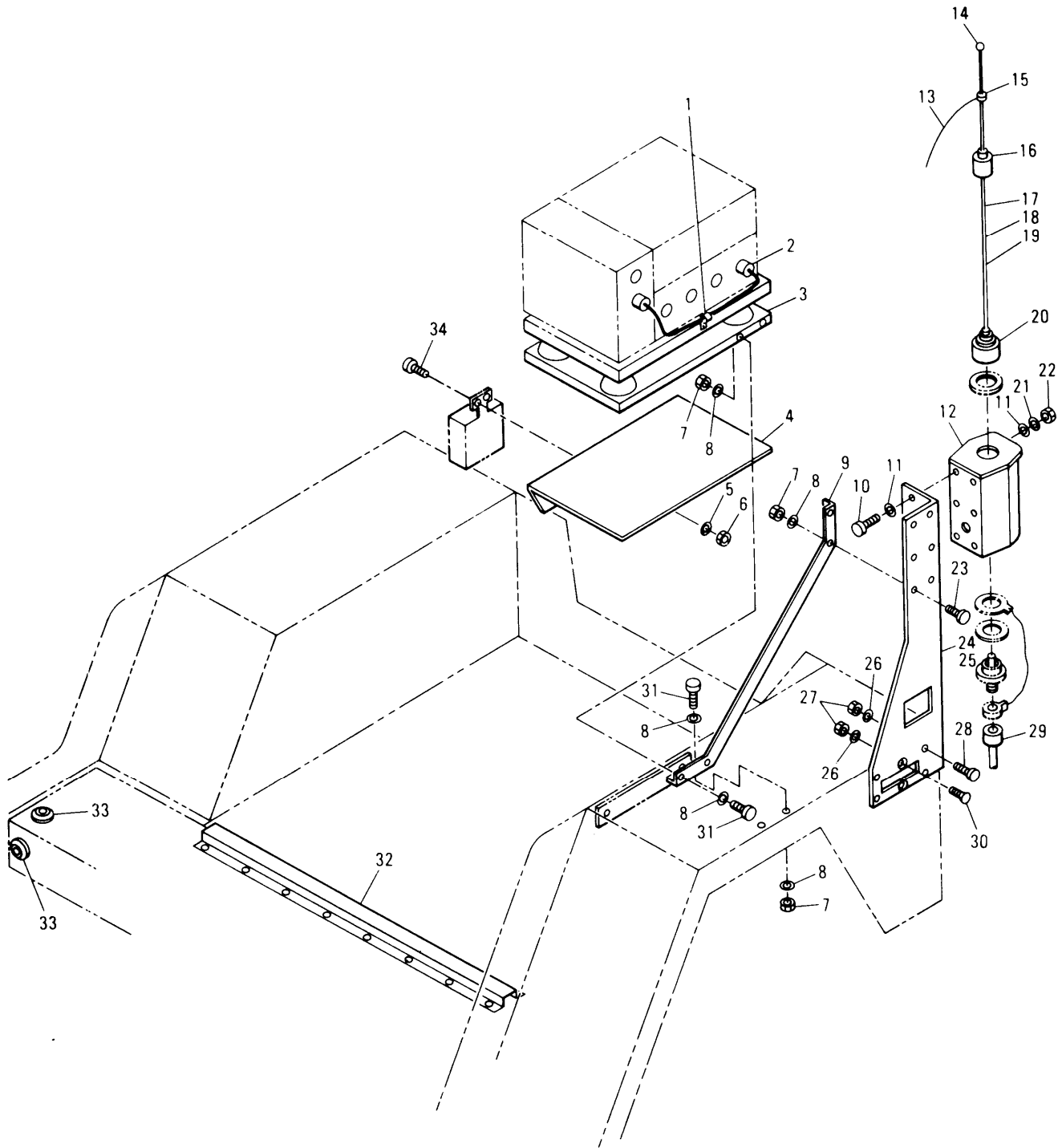


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Figure 1. MK-2442/GRC-213 for Armored Personnel Carrier-M 113A1

(1) ITEM NO	(2) SMR CODE	(3) FSCM	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODE (UOC)	(6) QTY
GROUP 00 MK-242/GRC-213 FOR ARMORED PERSONNEL CARRIER-M113A1					
FIGURE 1					
1	PAOZZ	80058	CX4723VRC4FT	CABLE,ASSEMBLY SPCL	1
2	XBOOO	80058	MT-6234/GRC-213	MOUNTING BASE,ELEC (SEE FIG 7 FOR BREAKDOWN)	1
3	XBOZZ	80063	SM-B-500418	ROPE	2
4	PAOZZ	80063	SC-C-446046	ANTENNA TIP ASSY	1
5	PAOZZ	80063	SC-B-19491	CLAMP ASSY, ANTENNA	1
6	PAOZZ	80063	271-1606	MAST SECTION	3
7	PAOZZ	80063	SC-D-12521MS117A	ANTENNA ELEMENT	1
8	PAOZZ	80063	MS-118-A	ANTENNA ELEMENT	1
9	PAOZZ	80058	AB-1322/GR	BASE,MAST	1
10	PAOZZ	96906	MS90725-62	SCREW,CAP,HEXAGON	4
11	PAOZZ	96906	MS45904-76	WASHER,LOCK	4
12	XBOZZ	80063	SC-B-75912	ADAPTER	1
13	PAOZZ	80063	SC-B-160382	GASKET	1
14	PAOZZ	80063	A3023311	CABLE ASSY,ANT LEAD	1
15	PAOZZ	96906	MS90726-6	SCREW,CAP,HEXGON	2
16	PAOZZ	96906	MS45904-68	WAHSER,LOCK	2
17	PAOZZ	96906	MS51968-2	NUT,PLAIN,HEXAGON	2
18	PAOZZ	80063	PPL5170	CABLE CLAMPING KIT	1
19	PAOZZ	80058	CX-13089/VRC6FT	CABLE ASSY POWER	1

END OF FIGURE

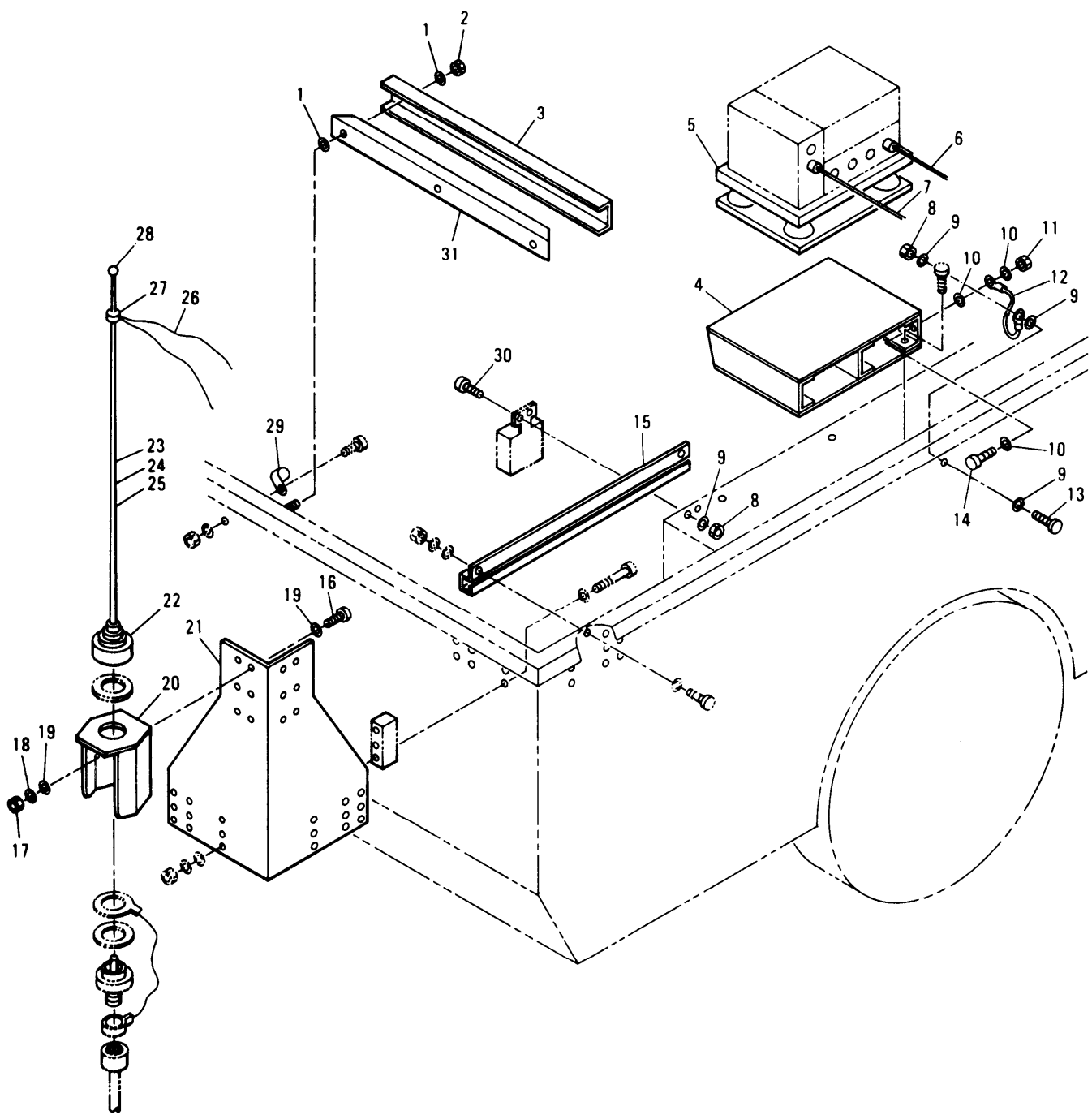


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Figure 2. MK-2443/GRC-213 for Utility Truck-M151A1

(1) ITEM NO	(2) SMR CODE	(3) FSCM	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODE (UOC)	(6) QTY
GROUP 00MK-2443/GRC-213 FOR UTILITY TRUCK-M151A1					
FIGURE 2					
1	PAOZZ	80063	PPL-5170	CABLE CLAMPING KIT	1
2	PAOZZ	80058	CX4720/VRC-12FT	CABLE ASSEMBLY, PWR	1
3	XBOOO	80058	MT-6234/GRC-213	MOUNTING BASE, ELEC (SEE FIG 7 FOR BREAKDOWN)	1
4	XBOZZ	80063	SC-DL-48676	SUPPORT, BRACKET	1
5	PAOZZ	96906	MS45904-68	WASHER, LOCK	2
6	PAOZZ	96906	MS51968-2	NUT, PLAIN, HEXAGON	2
7	PAOZZ	96906	MS51968-5	NUT, PLAIN, HEXAGON	4
8	PAOZZ	96906	MS45904-72	WASHER, LOCK	8
9	XBOZZ	80063	A3023296	SPRT, BRKT ASSY	1
10	PAOZZ	96906	MS90725-6	SCREW, CAP, HEXAGON	6
11	PAOZZ	96906	MS27183-10	WASHER, FLAT	12
12	XBOZZ	80063	A3023295	SPRT ASSY, ANT	1
13	XBOZZ	80063	SM-B-500418	ROPE	2
14	PAOZZ	80063	SC-C-446046	ANTENNA TIP ASSY	1
15	PAOZZ	80063	SC-B-19491	CLAMP ASSY, ANTENNA	1
16	PAOZZ	80063	SC-C-446008	SLEEVE, ANTENNA SPRT	1
17	PAOZZ	80063	MS-118-A	ANTENNA ELEMENT	1
18	PAOZZ	80063	SC-DL-100588TYPE -MS-117-A	ANTENNA ELEMENT	1
19	PAOZZ	80063	SC-D-12521TYPE-M S-116-A	MAS SECTION	3
20	PAOZZ	80058	AB-1322/GR	BASE, MAST	1
21	PAOZZ	96906	MS35338-44	WASHER, LOCK	6
22	PAOZZ	96906	MS51967-2	NUT, PLAIN, HEXAGON	6
23	PAOZZ	96906	MS90726-32	BOLT, MACHINE	2
24	XBOZZ	80063	A3023294	BRKT ASSY, MTG	1
25	XBOZZ	80063	SC-C-446060	REINFORCEMENT	2
26	PAOZZ	96906	MS45904-72	WASHER, LOCK	28
27	PAOZZ	96906	MS51968-5	NUT, PLAIN, HEXAGON	14
28	PAOZZ	96906	MS90726-36	SCREW, CAP, HEXAGON	8
29	PAOZZ	80063	A3023313	CABEL ASSEMBLY ANT	1
30	PAOZZ	96906	MS35191-309	SCREW, MACHINE	4
31	PAOZZ	96906	MS90727-35	BOLT, MACHINE	4
32	XBOZZ	80063	SC-D-75288	GUARD ASSEMBLY	1
33	PAOZZ	96906	MS35490-16	GROMMET, NONMETALLIC	2
34	PAOZZ	96906	MS90726-6	SCREW, CAP, HEXAGON	2

END OF FIGURE

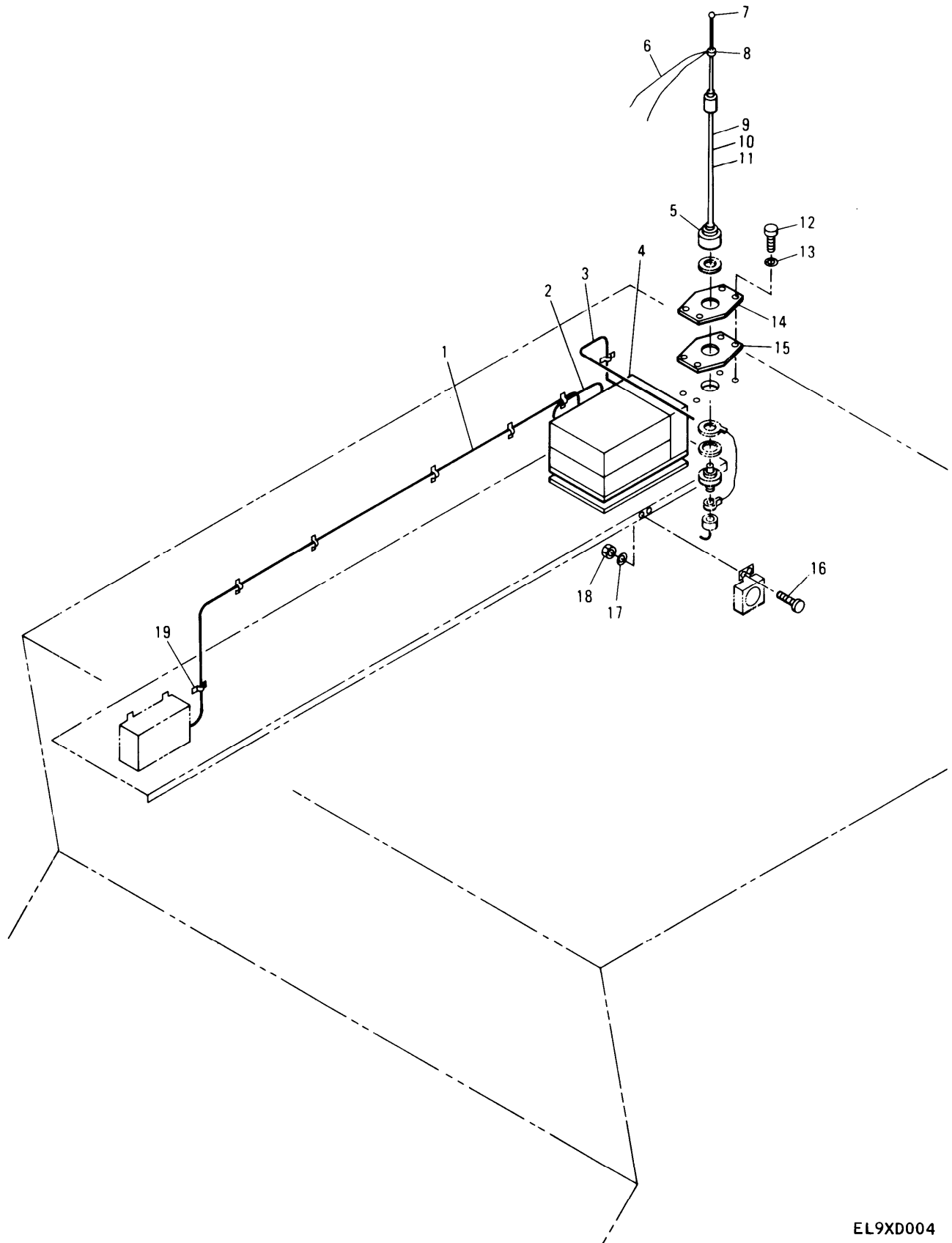


EL9XD003

Figure 3. MK-2444/GRC-213 for Cargo Truck-M561

(1) ITEM NO	(2) SMR CODE	(3) FSCM	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODE (UOC)	(6) QTY
GROUP 00 MK-2444/GRC-213 FOR CARGO TRUCK-M561					
FIGURE 3					
1	PAOZZ	96906	MS27183-11	WASHER, FLAT	6
2	PAOZZ	96906	MS21044N4	NUT, SELF-LOCKING	3
3	XBOZZ	80063	SC-C-681299-4	RACEWAY COVER	1
4	XBOZZ	80063	SC-F-446380	MOUNT ASSEMBLY	1
5	XBOOO	80058	MT-6234/GRC-213	MOUNTING BASE, ELEC (SEE FIG 7 FOR BREAKDOWN)	1
6	PAOZZ	80058	CX-13089/VRC9FT	CABLE ASSEMBLY PWR	1
7	PAOZZ	80063	A3023313	CABLE AND CONDUIT	1
8	PAOZZ	96906	MS51968-2	NUT, PLAIN, HEXAGON	3
9	PAOZZ	96906	MS45904-68	WASHER, LOCK	5
10	PAOZZ	96906	MS45904-72	WASHER, LOCK	3
11	PAOZZ	96906	MS21044N5	NUT, SELF-LOCKING	1
12	PAOZZ	80063	SC-B-75180GPI	LEAD, ELEC	1
13	PAOZZ	96906	MS90726-8	SCREW, CAP, HEXAGON	1
14	PAOZZ	96906	MS90726-34	BOLT, MACHINE	1
15	XBOZZ	80063	SC-D-446402	CONDUIT ASSEMBLY	1
16	PAOZZ	96906	MS90725-6	SCREW, CAP, HEXAGON	6
17	PAOZZ	96906	MS51967-2	NUT, PLAIN, HEXAGON	6
18	PAOZZ	96906	MS35338-44	WASHER, LOCK	6
19	PAOZZ	96906	MS27183-10	WASHER, FLAT	12
20	XBOZZ	80063	A3023295	SPRT ASSY, ANT	1
21	XBOZZ	80063	SC-F-446375	ANTENNA BRACKET	1
22	PAOZZ	80058	AB-1322/GR	BASE, MAST	1
23	PAOZZ	80063	SC-D-12521TYPE-M S-116-A	MAST SECION	3
24	PAOZZ	80063	SC-DL-100588TYPE -MS-117-A	ANTENNA ELEMENT	1
25	PAOZZ	80063	MS-118-A	ANTENNA ELEMENT	1
26	XBOZZ	80063	SM-B-500418	ROPE	2
27	PAOZZ	80063	SC-B-19491	CLAMP ASSY, ANTENNA	1
28	PAOZZ	80063	SC-C-446046	ANTENNA TIP ASSY	1
29	PAOZZ	80063	PPL-5170	CABLE CLAMPING KIT	1
30	PAOZZ	96906	MS90726-6	SCREW, CAP, HEXAGON	2
31	XBOZZ	80063	SC-C-681298-4	RACEWAY BASE	1

END OF FIGURE

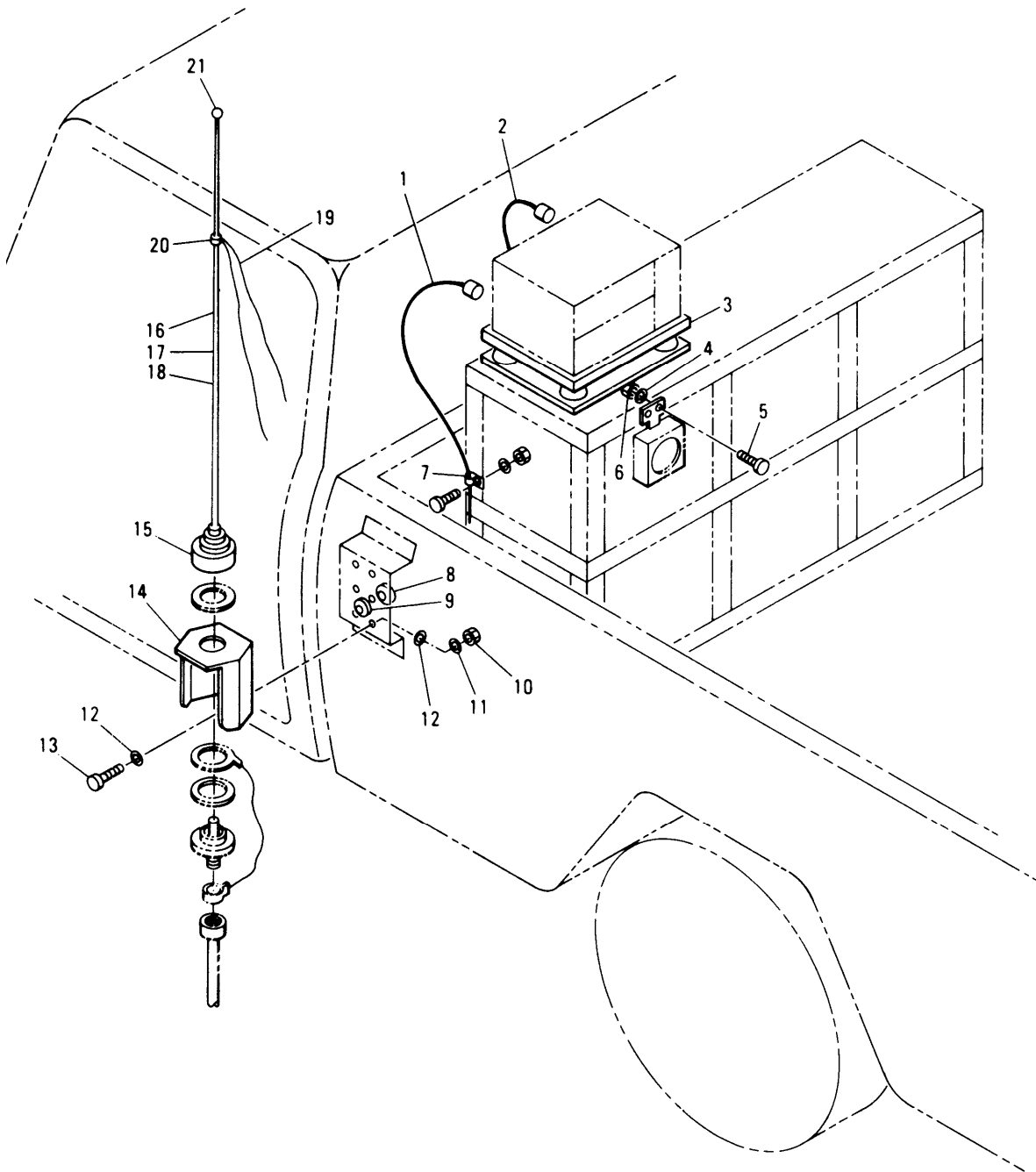


EL9XD004

Figure 4. MK-2445/GRC-213 for Carrier Command Post-M577A1

(1) ITEM NO	(2) SMR CODE	(3) FSCM	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODE (UOC)	(6) QTY
GROUP 00 MK-2445/GRC-213 FOR CARRIER COMMAND POST-M577A1					
FIGURE 4					
1	PAOZZ	80058	CX4723VRC9FT	CABLE, ASSY, SPCL	1
2	PAOZZ	80058	CX-13089/VRC8FT	CABLE ASSEMBLY, PWR	1
3	PAOZZ	80063	A3023312	CABLE ASSEMBLY ANT	1
4	XBOOO	80058	MT-6234/GRC-213	MOUNTING BASE, ELEC (SEE FIG 7 FOR BREAKDOWN)	1
5	PAOZZ	80058	AB-1322/GR	BASE, MAST	1
6	XBOZZ	80063	SM-B-500418	ROPE	2
7	PAOZZ	80063	SC-C-446046	ANTENNA TIP ASSY	1
8	PAOZZ	80063	SC-B-19491	CLAMP ASSY, ANTENNA	1
9	PAOZZ	80063	MS-118-A	ANTENNA ELEMENT	1
10	PAOZZ	80063	SC-DL-100588TYPE -MS-117-A	ANTENNA ELEMENT	1
11	PAOZZ	80063	SC-D-12521TYPE-M S-116-A	MAST SECTION	3
12	PAOZZ	96906	MS90725-62	SCREW, CAP, HEXAGON	4
13	PAOZZ	96906	MS45904-76	WASHER, LOCK	4
14	XBOZZ	80063	SC-B-75912	ADAPTER	1
15	PAOZZ	80063	SC-B-160382	GASKET	1
16	PAOZZ	96906	MS90726-6	SCREW, CAP, HEXAGON	2
17	PAOZZ	96906	MS45904-68	WASHER, LOCK	2
18	PAOZZ	96906	MS51968-2	NUT, PLAIN, HEXAGON	2
19	PAOZZ	80063	PPL-5170	CABLE CLAMPING KIT	1

END OF FIGURE

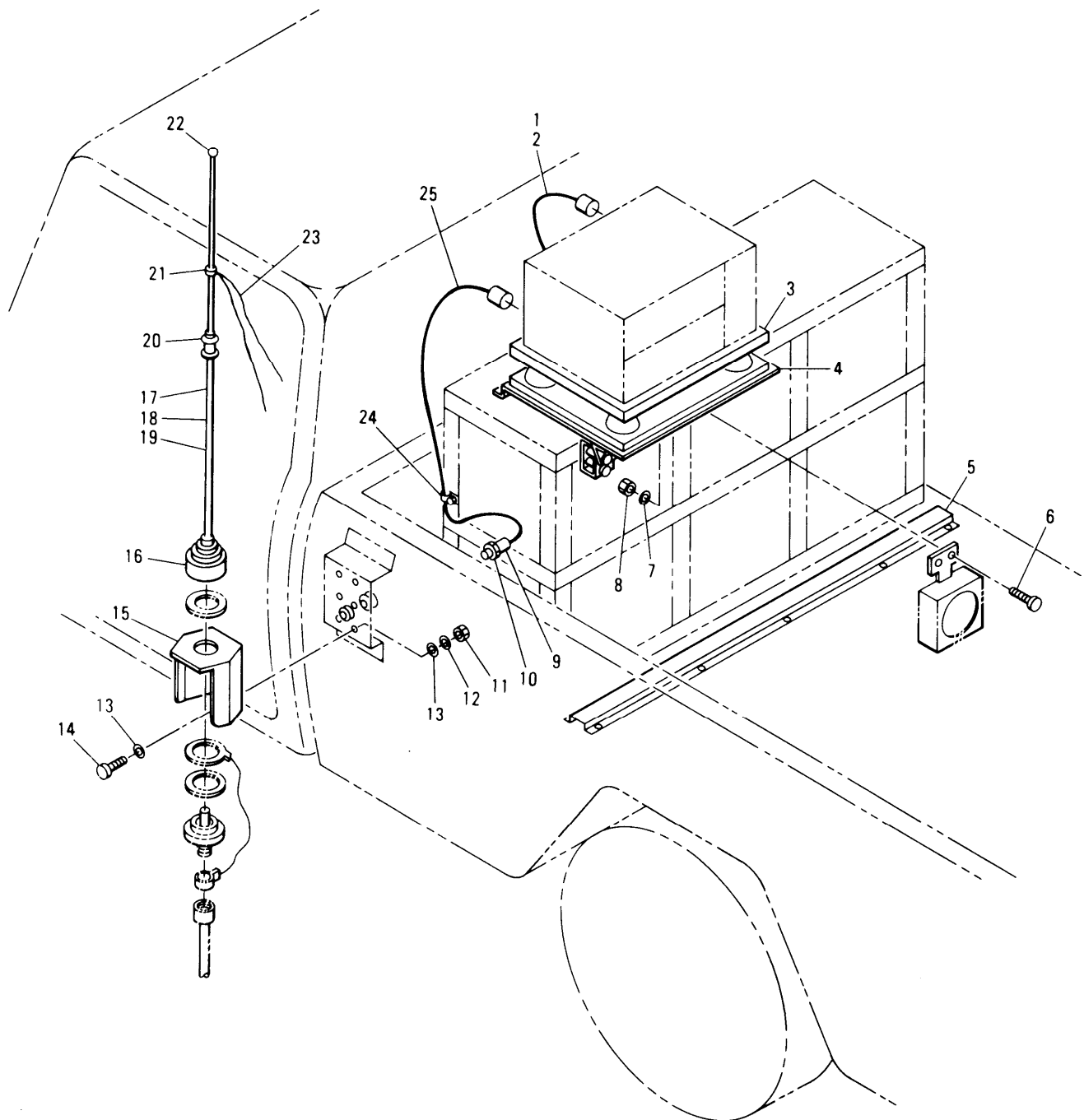


EL9XD005

Figure 5. MK-2446/GRC-213 for Truck-M882 or M1008A1 CUCV

(1) ITEM NO	(2) SMR CODE	(3) FSCM	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODE (UOC)	(6) QTY
GROUP 00 MK-2446/GRC-213 FOR TRUCK- M882 OR M1008A1 CUCV					
FIGURE 5					
1	PAOZZ	80058	CX-13089/VRC4FT	CABLE ASSEMBLY,PWR	1
2	PAOZZ	80063	A3023312	CABLE ASSEMBLY ANT	1
3	XBOOO	80058	MT-6234/GRC-213	MOUNTING BASE,ELEC (SEE FIG 7 FOR BREAKDOWN)	1
4	PAOZZ	96906	MS45904-68	WASHER,LOCK	2
5	PAOZZ	96906	MS90726-6	SCREW,CAP,HEXAGON	2
6	PAOZZ	96906	MS51968-2	NUT,PLAIN,HEXAGON	2
7	PAOZZ	80063	PPL-5170	CABLE CLAMPING KIT	1
8	PAOZZ	96906	MS21266-3N	GROMMET,NONMETALLIC	1
9	PAOZZ	96906	MS21266-4N	GROMMET,NONMETALLIC	1
10	PAOZZ	96906	MS51967-2	NUT,PLAIN,HEXAGON	6
11	PAOZZ	96906	MS35338-44	WASHER,LOCK	6
12	PAOZZ	96906	MS27183-10	WASHER,FLAT	12
13	PAOZZ	96906	MS90725-6	SCREW,CAP,HEXAGON	6
14	XBOZZ	80063	A3023295	SPRT ASSY,ANT	1
15	PAOZZ	80058	AB-1322/GR	BASE,MAST	1
16	PAOZZ	80063	SC-D-12521TYPE-M S-116-A	MAST SECTION	3
17	PAOZZ	80063	SC-DL-100588TYPE -MS-117-A	ANTENNA ELEMENT	1
18	PAOZZ	80063	MS-118-A	ANTENNA ELEMENT	1
19	XBOZZ	80063	SM-B-500418	ROPE	2
20	PAOZZ	80063	SC-B-19491	CLAMP ASSY, ANTENNA	1
21	PAOZZ	80063	SC-C-446046	ANTENNA TIP,ASSY	1

END OF FIGURE

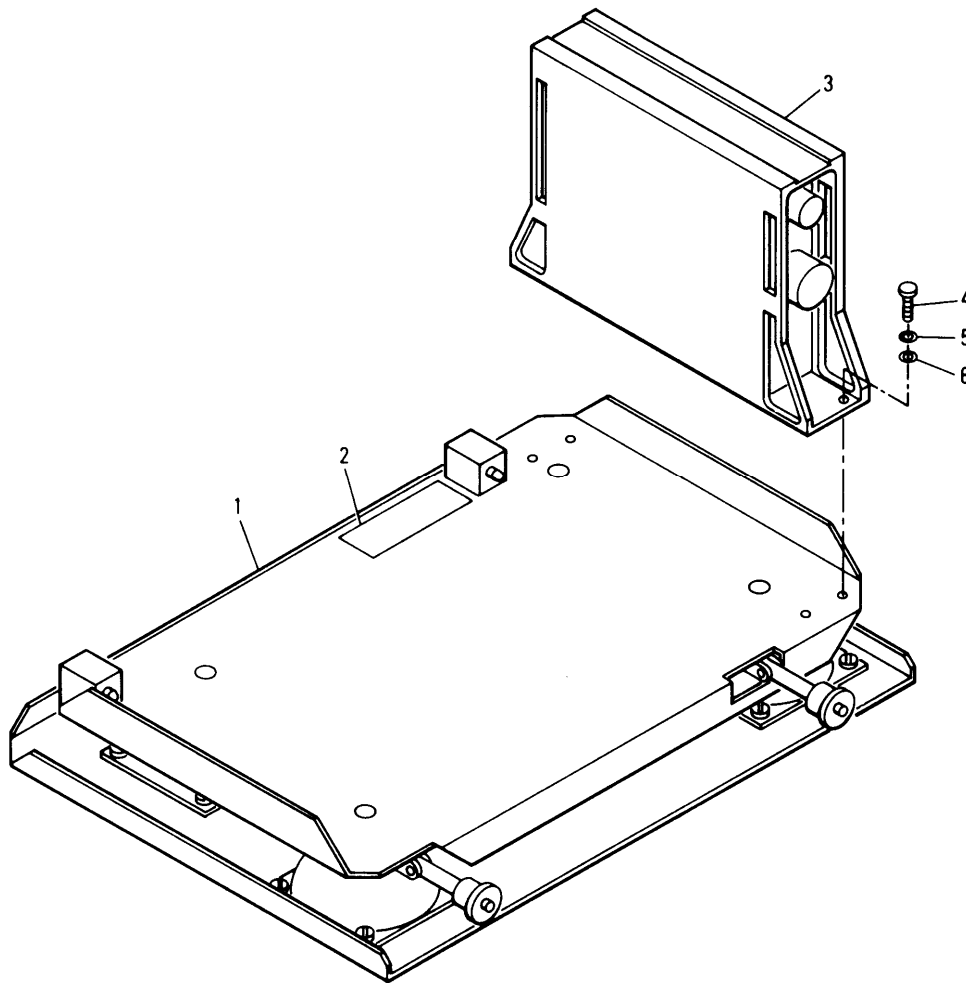


EL9XD006

Figure 6. MK-2447/GRC-213 for General Purpose Wheeled or Tracked Vehicles

(1) ITEM NO	(2) SMR CODE	(3) FSCM	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODE (UOC)	(6) QTY
GROUP 00 MK-2447/GRC-213 FOR GENERAL PURPOSE WHEELED OR TRACKED VEHICLES					
FIGURE 6					
1	PAOZZ	80063	A3023311	CABLE ASSY, ANT LEAD	1
2	PAOZZ	80063	A3023313	CABEL ASSEMBLY ANT	1
3	XBOOO	80058	MT-6234/GRC-213	MOUNTING BASE, ELEC (SEE FIG 7 FOR BREAKDOWN)	1
4	XBOZZ	80063	SC-DL-48676	SUPPORT, BRACKET	1
5	XBOZZ	80063	SC-D-75288	GUARD ASSEMBLY	1
6	PAOZZ	96906	MS90726-6	SCREW, CAP, HEXAGON	2
7	PAOZZ	96906	MS45904-68	WASHER, LOCK	2
8	PAOZZ	96906	MS51968-2	NUT, PLAIN, HEXAGON	2
9	PAOZZ	80063	DL-SC-A-339542	ADAPTER, CABLE CLAMP	1
10	PAOZZ	80063	SM-C-632655	CONNECTOR, PLUG, ELEC	1
11	PAOZZ	96906	MS51967-2	NUT, PLAIN, HEXAGON	6
12	PAOZZ	96906	MS35338-44	WASHER, LOCK	6
13	PAOZZ	96906	MS27183-10	WASHER, FLAT	12
14	PAOZZ	96906	MS90725-6	SCREW, CAP, HEXAGON	6
15	XBOZZ	80063	A3023295	SPRT ASSY, ANT	1
16	PAOZZ	80058	AB-1322/GR	BASE, MAST	1
17	PAOZZ	80063	SC-D-12521TYPE-M S-116-A	MAST SECTION	3
18	PAOZZ	80063	SC-DL-100588TYPE -MS-117-A	ANTENNA ELEMENT	1
19	PAOZZ	80063	MS-118-A	ANTENNA ELEMENT	1
20	PAOZZ	80063	SC-C-446008	SLEEVE, ANTENNA SPRT	1
21	PAOZZ	80063	SC-B-19491	CLAMP ASSY, ANTENNA	1
22	PAOZZ	80063	SC-C-446046	ANTENNA TIP ASSY	1
23	XBOZZ	80063	SM-B-500418	ROPE	2
24	PAOZZ	80063	PPL-5170	CABLE CLAMPING KIT	1
25	PAOZZ	80058	CX4720VRC10FT	CABLE ASSEMBLY, PWR	1

END OF FIGURE

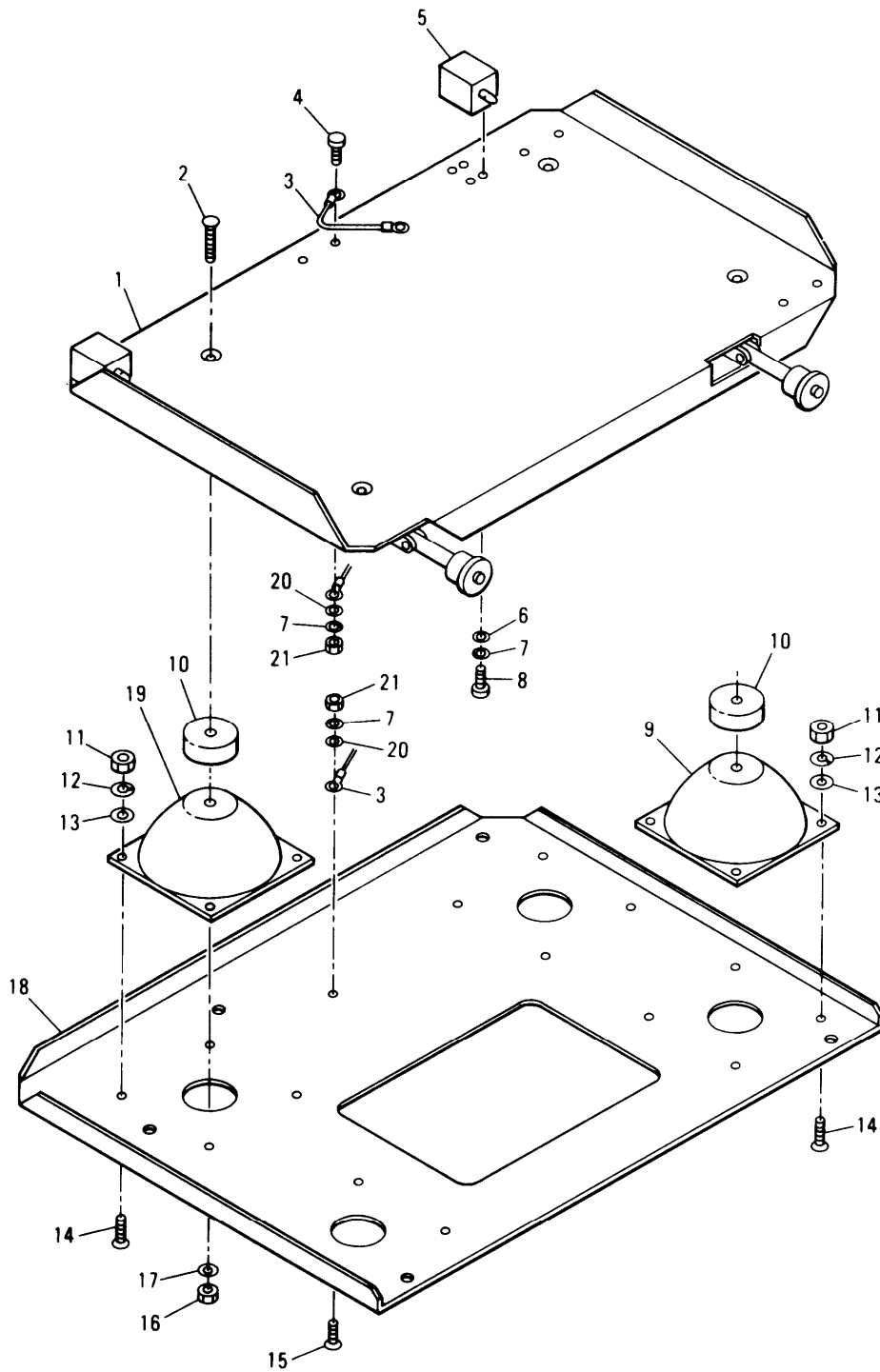


EL9XD007

Figure 7. MT-6234, Mount Electrical Equipment

(1) ITEM NO	(2) SMR CODE	(3) FSCM	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODE (UOC)	(6) QTY
GROUP 01 MT-6234, MOUNT ELECTRICAL EQUIPMENT					
FIGURE 7					
1	XBOOO	80063	A3023150	MTG BASE, ELEC (SEE FIG 8 FOR BREAKDOWN)	1
2	XBOZZ	80063	A3023299-1	PLATE IDENT	1
3	PAOHH	80058	SA-2365/GRC-213	SWITCHING UNIT ANT (SEE FIG 9 FOR BREAKDOWN)	1
4	PAOZZ	96906	MS16996-10	SCREW, CAP, SOCKET	4
5	PAOZZ	96906	MS35338-138	WASHER, LOCK	4
6	PAOZZ	80205	NAS620C10L	WASHER, FLAT	4

END OF FIGURE

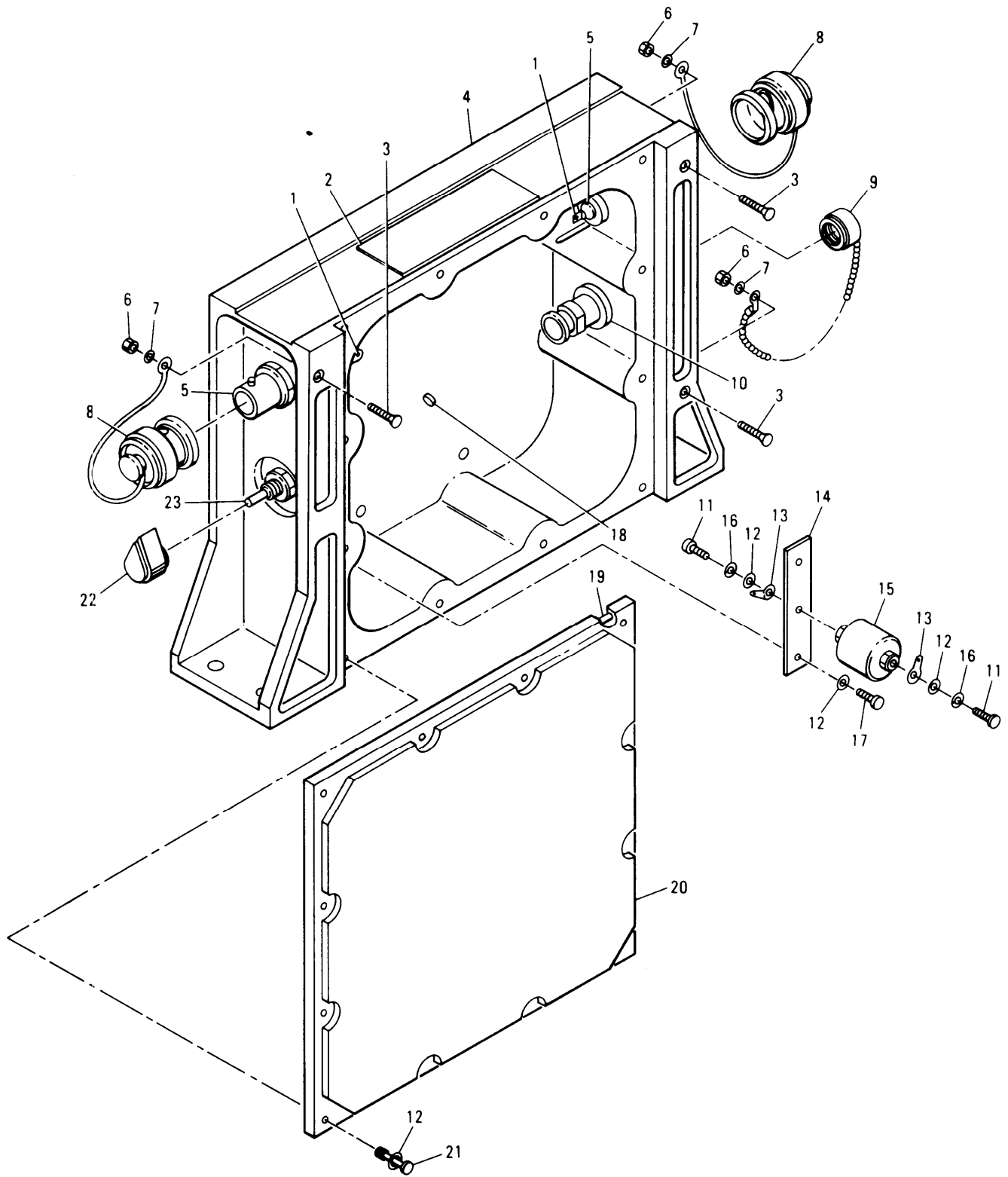


EL9XD008

Figure 8. Electrical Equipment, Mounting Base

(1) ITEM NO	(2) SMR CODE	(3) FSCM	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODE (UOC)	(6) QTY
GROUP 01 ELECTRICAL EQUIPMENT, MOUNTING BASE					
FIGURE 8					
1	XBOZZ	80063	A3023154	TRAY, MTG-UPR	1
2	PAOZZ	96906	MS24693C303	SCREW, MACHINE	4
3	PAOZZ	81349	M83413/8-D06BB	LEAD, ELECTRICAL	3
4	PAOZZ	96906	MS51957-45	SCREW, MACHINE	2
5	XBOZZ	13636	3098-005-000-AN	PIN GUIDE	2
6	PAOZZ	80205	NAS620C8L	WASHER, FLAT	8
7	PAOZZ	96906	MS35338-137	WASHER, LOCK	11
8	PAOZZ	96906	MS51957-44	SCREW, MACHINE	8
9	XBOZZ	13636	92276-12	MOUNT, RESILIENT	2
10	XBOZZ	80063	A3023157	SPACER, MOUNTING	4
11	PAOZZ	96906	MS35650-304	NUT, PLAIN, HEXAGON	16
12	PAOZZ	96906	MS35338-138	WASHER, LOCK	16
13	PAOZZ	81349	AN960C10L	WASHER, FLAT	16
14	PAOZZ	96906	MS24693C272	SCREW, MACHINE	16
15	PAOZZ	96906	MS24693C48	SCREW, MACHINE	1
16	PAOZZ	96906	MS21044C4	NUT, SELF-LOCKING	4
17	PAOZZ	81349	AN960C416L	WASHER, FLAT	4
18	XBOZZ	80063	A3023155	TRAY, MTG-LWR	1
19	XBOZZ	13636	92276-13	MOUNT, RESILIENT	2
20	PAOZZ	81349	AN960C8L	WASHER, FLAT	5
21	PAOZZ	80205	NAS671C8	NUT, PLAIN, HEXAGON	3

END OF FIGURE



EL9XD009

Figure 9. SA-2365, Antenna Switching Unit

(1) ITEM NO	(2) SMR CODE	(3) FSCM	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODE (UOC)	(6) QTY
GROUP 0101 SA-2365,ANTENNA SWITCHING UNIT					
FIGURE 9					
1	PAHZZ	74868	31-759	TERMINAL, LUG	2
2	XBHZZ	80063	A3023299-2	PLATE, IDENT	1
3	PAOZZ	96906	MS24693C6	SCREW, MACHINE	3
4	XBHZZ	80063	A3023167	HSG, ANT SW UNIT	1
5	PAHZZ	81349	M39012-24-0002	CONNECTOR, RCPT	2
6	PAOZZ	96906	MS21043-04	NUT, SELF-LOCKING	3
7	PAOZZ	80205	NAS620C4L	WASHER, FLAT	3
8	PAOZZ	91836	KC-89-177	COVER, ELECTRICAL	2
9	PAOZZ	81349	M39012-25-0011	COVER, ELECTRICAL	1
10	PAHZZ	91836	KN-19-168	CONNECTOR, RCPT	1
11	PAHZZ	96906	MS51957-27	SCREW, MACHINE	2
12	PAHZZ	80205	NAS620C6L	WASHER, FLAT	16
13	PAHZZ	96906	MS77068-2	TERMINAL, LUG	2
14	XBHZZ	80063	A3023166	BRKT, MTG-CAP	1
15	PAHZZ	51406	DCC510NP0500KH	CAPACITOR	1
16	PAHZZ	96906	MS35338-136	WASHER, LOCK	2
17	PAHZZ	96906	MS51957-28	SCREW, MACHINE	2
18	PAHZZ	96906	MS3367-1-0	STARP, TIEDOWN, ELEC	1
19	XBHZZ	8X321	A3023298-1	PACKING, PREFORM	1
20	XBHZZ	80063	A3023168	CVR, ANT SW UNIT	1
21	PAHZZ	08524	D792103	SCREW, EXTERNAL	12
22	PAHZZ	96906	MS91528-0K3B	KNOB	1
23	PAHZZ	81073	9YY24354	SWITCH, ROTARY	1

END OF FIGURE



NATIONAL STOCK NUMBER AND PART NUMBER INDEX

NATIONAL STOCK NUMBER INDEX					
STOCK NUMBER	FIG.	ITEM	STOCK NUMBER	FIG.	ITEM
5305-00-051-0227	8	14	5820-00-493-3055	2	16
5306-00-051-4077	2	31		6	20
5305-00-052-6456	7	4	5940-00-500-7227	9	1
5310-00-054-0041	9	12	5310-00-515-7449	8	17
5305-00-054-6651	9	11	5310-00-558-6207	8	20
5305-00-054-6652	9	17	5310-00-582-5965	2	21
5305-00-054-6669	8	8		3	18
5305-00-054-6670	8	4		5	11
5310-00-061-1258	1	11		6	12
	4	13	6150-00-583-3516	8	3
5305-00-068-0502	2	10	5310-00-723-9676	9	7
	3	16	5310-00-761-6882	2	22
	5	13		3	17
	6	14		5	10
5305-00-068-0506	1	15		6	11
	2	34	5310-00-768-0319	1	17
	3	30		2	6
	4	16		3	8
	5	5		4	18
	6	6		5	6
5305-00-068-6605	9	3		6	8
5330-00-078-4184	1	13	5310-00-781-9483	7	6
	4	15	5310-00-809-3078	3	1
5310-00-088-0553	3	11	5310-00-809-4058	2	11
5935-00-113-0352	9	9		3	19
5985-00-115-7149	1	7		5	12
	2	18		6	13
	3	24	5995-00-823-2726	6	25
	4	10	5995-00-823-2832	1	1
	5	17	5995-00-823-2836	4	1
	6	18	5940-00-827-2653	9	13
5310-00-167-0812	8	13	5310-00-837-1381	8	21
5985-00-199-8831	1	6	5935-00-856-8426	6	10
	2	19	5310-00-877-5796	3	2
	3	23	5310-00-878-3292	9	6
	4	11	5310-00-880-5975	8	6
	5	16	5310-00-880-7746	2	7
	6	17		2	27
5306-00-225-9087	2	23	5995-00-889-1253	2	2
5306-00-225-9089	3	14	5310-00-889-2527	2	8
5305-00-225-9091	2	28		2	26
5985-00-238-7474	1	8		3	10
	2	17	5310-00-889-2528	1	16
	3	25		2	5
	4	9		3	9
	5	18		4	17
	6	19		5	4
5305-00-267-8974	3	13		6	7
5305-00-269-3213	1	10	5310-00-889-2589	8	16
	4	12	5305-00-889-2991	8	15

NATIONAL STOCK NUMBER AND PART NUMBER INDEX

STOCK NUMBER	NATIONAL STOCK NUMBER INDEX		FIG.	ITEM
	FIG.	ITEM		
5935-00-892-8931	6	9		
5325-00-923-9512	5	9		
5325-00-926-1394	5	8		
5310-00-929-6395	9	16		
5985-00-930-7223	1	4		
	2	14		
	3	28		
	4	7		
	5	21		
	6	22		
5310-00-933-8119	8	7		
5310-00-933-8120	7	5		
	8	12		
5310-00-934-9765	8	11		
5985-00-935-8653	1	5		
	2	15		
	3	27		
	4	8		
	5	20		
	6	21		
5305-00-959-2698	2	30		
5975-00-984-6582	9	18		
5935-00-997-8026	9	5		
5820-01-045-3153	1	18		
	2	1		
	3	29		
	4	19		
	5	7		
	6	24		
5995-01-062-8176	5	1		
5935-01-069-6051	9	8		
5305-01-070-1098	9	21		
5995-01-073-5597	4	2		
5325-01-097-0347	2	33		
5985-01-127-5773	7	3		
5820-01-195-6655	1	9		
	2	20		
	3	22		
	4	5		
	5	15		
	6	16		
5995-01-213-7905	4	3		
	5	2		
5995-01-213-7916	3	6		
5995-01-213-7933	2	29		
	3	7		
	6	2		
5995-01-214-6349	1	19		
5995-01-215-6157	1	14		
	6	1		

NATIONAL STOCK NUMBER AND PART NUMBER INDEX

FSCM	PART NUMBER	PART NUMBER INDEX		FIG.	ITEM
		STOCK NUMBER			
80058	AB-1322/GR	5820-01-195-6655		1	9
				2	20
				3	22
				4	5
				5	15
				6	16
81349	AN960C10L	5310-00-167-0812		8	13
81349	AN960C416L	5310-00-515-7449		8	17
81349	AN960C8L	5310-00-558-6207		8	20
80063	A3023150			7	1
80063	A3023154			8	1
80063	A3023155			8	18
80063	A3023157			8	10
80063	A3023166			9	14
80063	A3023167			9	4
80063	A3023168			9	20
80063	A3023294			2	24
80063	A3023295			2	12
				3	20
				5	14
				6	15
				2	9
				9	19
80063	A3023296			2	9
8X321	A3023298-1			9	19
80063	A3023299-1			7	2
80063	A3023299-2			9	2
80063	A3023311	5995-01-215-6157		1	14
				6	1
80063	A3023312	5995-01-213-7905		4	3
				5	2
80063	A3023313	5995-01-213-7933		2	29
				3	7
				6	2
				5	1
80058	CX-13089/VRC4FT	5995-01-062-8176		1	19
80058	CX-13089/VRC6FT	5995-01-214-6349		4	2
80058	CX-13089/VRC8FT	5995-01-073-5597		3	6
80058	CX-13089/VRC9FT	5995-01-213-7916		2	2
80058	CX4720/VRC-12FT	5995-00-889-1253		6	25
80058	CX4720VRC10FT	5995-00-823-2726		1	1
80058	CX4723VRC4FT	5995-00-823-2832		4	1
80058	CX4723VRC9FT	5995-00-823-2836		9	15
51406	DCC510NP0500KH			9	15
80063	DL-SC-A-339542	5935-00-892-8931		6	9
08524	D792103	5305-01-070-1098		9	21
91836	KC-89-177	5935-01-069-6051		9	8
91836	KN-19-168			9	10
80063	MS-118-A	5985-00-238-7474		1	8
				2	17
				3	25
				4	9
				5	18
				6	19

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		STOCK NUMBER			
96906	MS16996-10	5305-00-052-6456		7	4
96906	MS21043-04	5310-00-878-3292		9	6
96906	MS21044C4	5310-00-889-2589		8	16
96906	MS21044N4	5310-00-877-5796		3	2
96906	MS21044N5	5310-00-088-0553		3	11
96906	MS21266-3N	5325-00-926-1394		5	8
96906	MS21266-4N	5325-00-923-9512		5	9
96906	MS24693C272	5305-00-051-0227		8	14
96906	MS24693C303			8	2
96906	MS24693C48	5305-00-889-2991		8	15
96906	MS24693C6	5305-00-068-6605		9	3
96906	MS27183-10	5310-00-809-4058		2	11
				3	19
				5	12
				6	13
96906	MS27183-11	5310-00-809-3078		3	1
96906	MS3367-1-0	5975-00-984-6582		9	18
96906	MS35191-309	5305-00-959-2698		2	30
96906	MS35338-136	5310-00-929-6395		9	16
96906	MS35338-137	5310-00-933-8119		8	7
96906	MS35338-138	5310-00-933-8120		7	5
				8	12
96906	MS35338-44	5310-00-582-5965		2	21
				3	18
				5	11
				6	12
96906	MS35490-16	5325-01-097-0347		2	33
96906	MS35650-304	5310-00-934-9765		8	11
96906	MS45904-68	5310-00-889-2528		1	16
				2	5
				3	9
				4	17
				5	4
				6	7
96906	MS45904-72	5310-00-889-2527		2	8
				2	26
				3	10
96906	MS45904-76	5310-00-061-1258		1	11
				4	13
96906	MS51957-27	5305-00-054-6651		9	11
96906	MS51957-28	5305-00-054-6652		9	17
96906	MS51957-44	5305-00-054-6669		8	8
96906	MS51957-45	5305-00-054-6670		8	4
96906	MS51967-2	5310-00-761-6882		2	22
				3	17
				5	10
				6	11
96906	MS51968-2	5310-00-768-0319		1	17
				2	6
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				6	8
96906	MS51968-5	5310-00-880-7746		2	7
				2	27
96906	MS77068-2	5940-00-827-2653		9	13
96906	MS90725-6	5305-00-068-0502		2	10
				3	16
				5	13
				6	14
				1	10
				4	12
96906	MS90726-32	5306-00-225-9087		2	23
96906	MS90726-34	5306-00-225-9089		3	14
96906	MS90726-36	5305-00-225-9091		2	28
96906	MS90726-6	5305-00-068-0506		1	15
				2	34
				3	30
				4	16
				5	5
				6	6
				3	13
				2	31
				9	22
				1	2
80058	MT-6234/GRC-213			2	3
				3	5
				4	4
				5	3
				6	3
81349	M39012-24-0002	5935-00-997-8026		9	5
81349	M39012-25-0011	5935-00-113-0352		9	9
81349	M83413/8-D06BB	6150-00-583-3516		8	3
80205	NAS620C10L	5310-00-781-9483		7	6
80205	NAS620C4L	5310-00-723-9676		9	7
80205	NAS620C6L	5310-00-054-0041		9	12
80205	NAS620C8L	5310-00-880-5975		8	6
80205	NAS671C8	5310-00-837-1381		8	21
80063	PPL-5170	5820-01-045-3153		2	1
				3	29
				4	19
				5	7
				6	24
				1	18
80063	PPL5170	5820-01-045-3153		1	18
80058	SA-2365/GRC-213	5985-01-127-5773		7	3
80063	SC-B-160382	5330-00-078-4184		1	13
				4	15
80063	SC-B-19491	5985-00-935-8653		1	5
				2	15
				3	27
				4	8
				5	20

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80063	SC-B-75180GPI		3	12
80063	SC-B-75912		1	12
			4	14
80063	SC-C-446008	5820-00-493-3055	2	16
			6	20
80063	SC-C-446046	5985-00-930-7223	1	4
			2	14
			3	28
			4	7
			5	21
			6	22
80063	SC-C-446060		2	25
80063	SC-C-681298-4		3	31
80063	SC-C-681299-4		3	3
80063	SC-D-12521MS117A	5985-00-115-7149	1	7
80063	SC-D-12521TYPE-M S-116-A	5985-00-199-8831	2	19
			3	23
			4	11
			5	16
			6	17
80063	SC-D-446402		3	15
80063	SC-D-75288		2	32
			6	5
80063	SC-DL-100588TYPE -MS-117-A	5985-00-115-7149	2	18
			3	24
			4	10
			5	17
			6	18
80063	SC-DL-48676		2	4
			6	4
80063	SC-F-446375		3	21
80063	SC-F-446380		3	4
80063	SM-B-500418		1	3
			2	13
			3	26
			4	6
			5	19
			6	23
80063	SM-C-632655	5935-00-856-8426	6	10
80063	271-1606	5985-00-199-8831	1	6
13636	3098-005-000-AN		8	5
74868	31-759	5940-00-500-7227	9	1
81073	9YY24354		9	23
13636	92276-12		8	9
13636	92276-13		8	19

**APPENDIX F
EXPENDABLE/DURABLE SUPPLIES AND MATERIALS LIST**

Section I. INTRODUCTION

SCOPE

This appendix lists expendable supplies and materials you will need to operate and maintain the installation kits. This listing is for informational purposes only and is not authority to requisition the listed items. These items are authorized to you by CTA 50-970, Expendable/Durable Items (except Medical, Class V, Repair Parts, and Heraldic Items) or CTA 8-100, Army Medical Department Expendable/Durable Items.

EXPLANATION OF COLUMNS

- a. Column (1) - Item Number.** This number is assigned to the entry in the listing and is referenced in the narrative instructions to identify the material (eg, "Use cleaning compound (item 5, App. F)").
- b. Column (2) - Level.** This column identifies the lowest level of maintenance that requires the listed item.
- C – Operator/Crew
 - O – Organizational Maintenance
 - F – Direct Support Maintenance
 - H – General Support Maintenance
- c. Column (3) - National Stock Number.** This is the National stock number assigned to the item; use it to request or requisition the item.
- d. Column (4) - Description.** Indicates the Federal item name and, if required, a description to identify the item. The last line for each item indicates the part number followed by the Federal Supply Code for Manufacturer (FSCM) in parentheses, if applicable.
- e. Column (5) - Unit of Measure (U/M).** Indicates the measure used in performing the actual maintenance function. This measure is expressed by a two-character alphabetical abbreviation (eg, ea, in., pr). If the unit of measure differs from the unit of issue, requisition the lowest unit of issue that will satisfy your requirements.

SECTION II. EXPENDABLE SUPPLIES AND MATERIALS LIST

(1)	(2)	(3)	(4)	(5)
Item Number	Level	National Stock Number	Description	U/M
1	H		BONDING COMPOUND	OZ
2	C	7920-00-178-8315	BRUSH,BRISTLE,2-3/4 LONG	EA
3	C		BRUSH,PAINT	EA
4	C	8305-00-267-3015	CHEESECLOTH (81348)	YD
5	C	6850-00-105-3084	CLEANING COMPOUND (SOLVENT), TRICHLORORIFLUOROETHANE	OZ
6	C	7930-01-055-6121	DETERGENT,GP,LIQ.	GL
7	O		GREASE,GRAPHITE (9150) MIL-G-21164	LB
8	C		PAINT,EPOXY (TYPE 1, GREEN 24052, MIL-C-22750)	GL
9	C		PAINT,PRIMER (TYPE 1 KIT, MIL-P-23377)	GL
10	C	5350-00-264-3485	SANDPAPER, PP-105	SH
11	O		SEALING COMPOUND, TYPE 2	OZ
12	O		STRAP,TIE DOWN, PLASTIC	EA
13	H		TAPE,MASKING (8135)	EA
14	C		WIPING RAGS	EA

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THEN... JOT DOWN THE DOPE ABOUT IT ON THIS FORM. CAREFULLY TEAR IT OUT, FOLD IT AND DROP IT IN THE MAIL!

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 Commander
 Stateside Army Depot
 ATTN: AMSTA-US
 Stateside, N.J. 07703-5007

DATE SENT
 10 July 1975

PUBLICATION NUMBER
 TM 11-5840-340-12

PUBLICATION DATE
 23 Jan 74

PUBLICATION TITLE
 Radar Set AN/PRC-76

BE EXACT PIN-POINT WHERE IT IS

PAGE NO	PARA-GRAPH	FIGURE NO	TABLE NO
2-25	2-28		
3-10	3-3		3-1
5-6	5-8		
		FO3	

IN THIS SPACE TELL WHAT IS WRONG AND WHAT SHOULD BE DONE ABOUT IT:

Recommend that the installation antenna alignment procedure be changed throughout to specify a 2° IFF antenna lag rather than 1°.

REASON: Experience has shown that with only a 1° 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 2° without degradation of operation.

Item 5, Function column. Change "2 db" to "3db."

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.

Add new step f.1 to read, "Replace cover plate removed in step e.1, 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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 SSG I. M. DeSpirito 999-1776

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TM 11-2300-476-14&P

PUBLICATION DATE

1 January 1987

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Installation Kits, Electronic Equipment:
MK2442/GRC-213 - MK2447/GRC-213

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PAGE NO.

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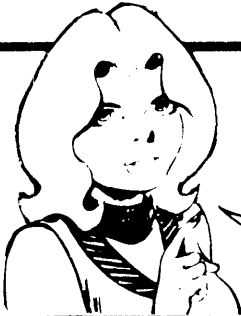
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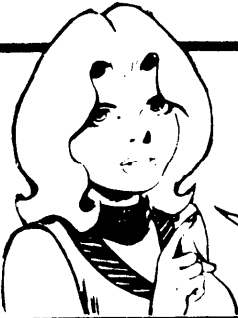
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JOHN A. WICKHAM, JR.
General, United States Army
Chief of Staff

Official:

R.L. DILWORTH
Brigadier General, United States Army
The Adjutant General

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