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# TM 11-2630

WAR DEPARTMENT TECHNICAL MANUAL

U.S. Dept. of Army

# ANTENNA EQUIPMENT RC-219-A AND ANTENNA AN-78-A

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*Washington: 1944*

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WAR DEPARTMENT,
WASHINGTON 25, D. C., 17 October 1944.

TM 11-2630, Antenna Equipment RC-219-A and Antenna AN-78-A, is published for the information and guidance of all concerned.

[A. G. 300. 7 (19 Sep 44).]

BY ORDER OF THE SECRETARY OF WAR:

G. C. MARSHALL,
*Chief of Staff.*

OFFICIAL:

J. A. ULIO,
*Major General,*
*The Adjutant General.*

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IBn 1: T/O & E 1-952, 1-1027.

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IC 11 (2): T/O & E 11-500, Dir Finder Team (IC), FCC-intercept and Dir Finding Team (ID), Intercept Team (IE).

For explanation of symbols, see FM 21-6.



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## DESTRUCTION NOTICE

**WHY—** To prevent the enemy from using or salvaging this equipment for his benefit.

**WHEN—**When ordered by your commander.

**HOW—** 1. Smash—Use sledges, axes, handaxes, pickaxes, hammers, crowbars, heavy tools.

2. Cut—Use axes, handaxes, machetes.

3. Burn—Use gasoline, kerosene, oil, flame throwers, incendiary grenades.

4. Explosives—Use firearms, grenades, TNT.

5. Disposal—Bury in slit trenches, fox holes, other holes. Throw in streams. Scatter.

### USE ANYTHING IMMEDIATELY AVAILABLE FOR DESTRUCTION OF THIS EQUIPMENT

**WHAT—**1. Smash—Masts, whip sections, junction box, coaxial transmission lines.

2. Cut—All wires, transmission lines, ropes.

3. Burn—All equipment, including this technical manual.

4. Bend—Masts and whip sections.

5. Bury or scatter—Any or all of the above equipment.

### DESTROY EVERYTHING



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# SECTION I

# DESCRIPTION

## 1. General

Antenna Equipment RC–219–A and Antenna AN–78–A comprise a multiband antenna system for use with intercept radio receivers.

*a.* Antenna Equipment RC–219–A provides continuous coverage at frequencies from 2 to 20 megacycles (mc) in addition to band coverages at higher frequencies. It consists of two vertical antennas and a horizontal doublet antenna. (See fig. 1.)

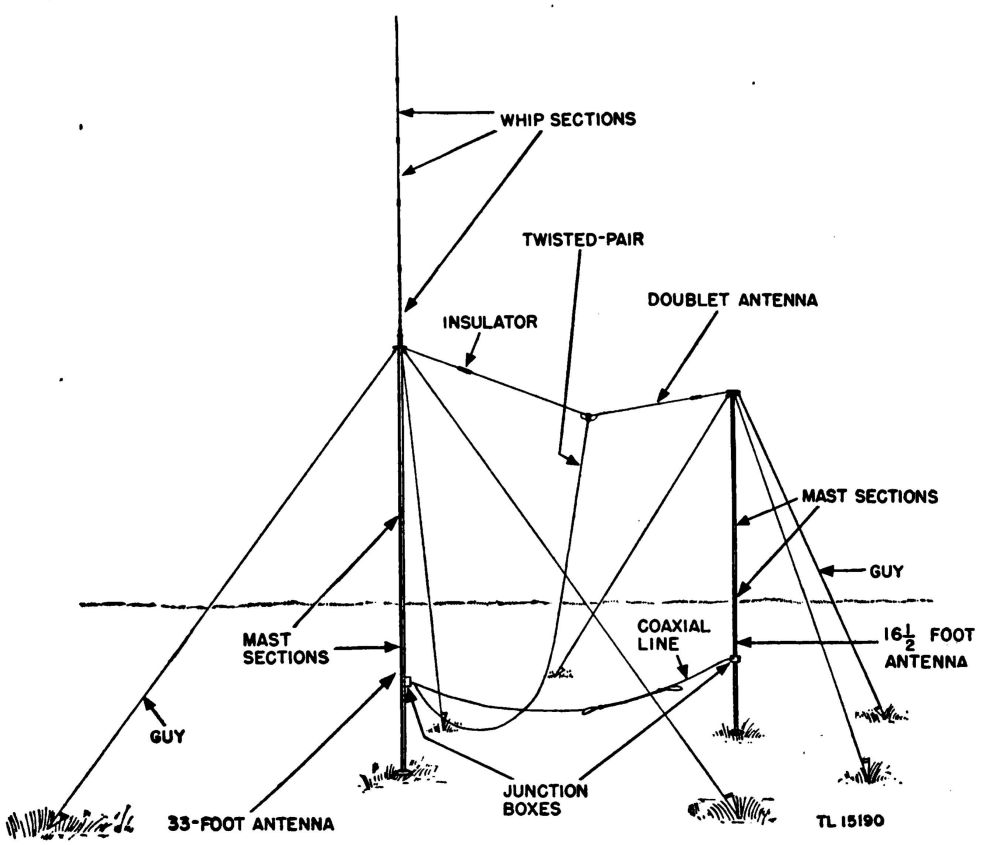



*Figure 1. Antenna Equipment RC–219–A—general view.*

(1) Two vertical masts (fig. 1) 16½ feet long are used, part of each being used as a vertical antenna. A synthane insulator, located in the



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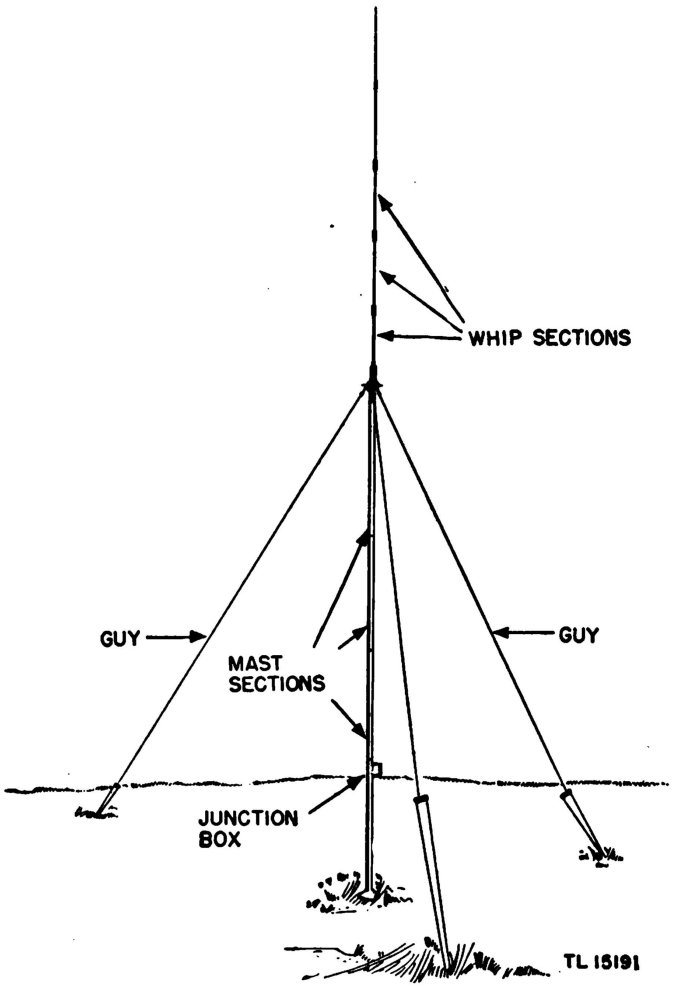



*Figure 2. Antenna AN–78–A—general view.*

lower section of each mast, insulates that part of the mast which is used as the antenna from the part of the mast which contacts the earth.

(2) The addition of a whip antenna extends the length of one vertical antenna to 33 feet.

(3) These two masts are erected 21 feet 9 inches apart. The horizontal doublet antenna, consisting of two 7½-foot antenna sections with insulators and supporting wire, is installed between the two masts which serve only as a physical support for this doublet. A "twisted-pair" is used as a transmission line for this antenna.

*b.* Antenna AN–78–A (fig. 2) consists of one mast with a whip antenna attached and is the same (excepting the junction box) as the 33-foot antenna of Antenna Equipment RC–219–A. This antenna is used to cover frequencies below 2 mc.



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*c.* These antennas can be assembled and erected by three men, and can be disassembled, repacked, and shipped with all parts reusable for erection at a new location in the field.

## 2. Weights and Dimensions

*a.* GENERAL. All component parts for Antenna Equipment RC–219–A and Antenna AN–78–A are packed in Chest CH–166. This chest weighs 273 pounds when packed. Its over-all dimensions are: 82¾ inches long by 14 inches wide by 14½ inches deep. The chest is not normally crated when received from the manufacturer since it is usually supplied as part of a complete radio installation. In the event that this equipment is used alone, the packed chest will be crated when received. In this case, the over-all weights and dimensions given above will be increased by the amount of the crating material.

*b.* CONTENTS OF CHEST CH–166. (1) *Antenna Equipment* RC-219-A.

| Quantity | Item | Length |
|---|---|---|
| 6 | Mast section (part No. 4425). | 66″ |
| 2 | Mast section (part No. 4857, bottom insulated from ground). | 78″ |
| 1 | Steel cap (flat top). | |
| 1 | Steel cap (with threaded opening for Mast Section MS–51). | |
| 1 | Mast Section MS–50 (modified). | 39½″ |
| 1 | Mast Section MS–51. | 39½″ |
| 1 | Mast Section MS–52. | 39½″ |
| 1 | Mast Section MS–53. | 39⅝″ |
| 1 | Mast Section MS–54. | 39⅝″ |
| 1 | Junction box (antenna-coupling, with one Socket SO–264). | |
| 1 | Junction box (antenna-coupling, with three Sockets SO–264). | |
| 1 | Transmission line (Interlin B–51, or equal, with Plug PL–284 on each end). | |
| 6 | Guy (Rope RP–3, or equal). | |
| 6 | Stake GP–2. | |
| 2 | Circular mast base. | |
| 1 | Antenna, doublet. | approximately 24′ |



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(2) *Antenna AN–78–A.*

| Quantity | Item | Length |
|---|---|---|
| 3 | Mast section (part No. 4425). | 66″ |
| 1 | Mast section (part No. 4857, bottom insulated from ground). | 78″ |
| 1 | Steel cap (with threaded opening for Mast Section MS–54). | |
| 1 | Mast Section MS–50 (modified). | 39½″ |
| 1 | Mast Section MS–51. | 39½″ |
| 1 | Mast Section MS–52. | 39½″ |
| 1 | Mast Section MS–53. | 39⅝″ |
| 1 | Mast Section MS–54. | 39⅝″ |
| 3 | Stake GP–2. | |
| 3 | Guy (Rope RP–3, or equal). | |
| 1 | Circular mast base. | |
| 1 | Junction box (with one Socket SO–239). | |
| *1 | Container of grease, CG 0, General Purpose Grease No. 0, U.S. Army Spec No. 2–106, *or* CG 1, General Purpose Grease No. 1, U.S. Army Spec No. 2–107. | |

* Used with both Antenna Equipment RC–219–A andAntenna AN–78–A.



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## SECTION II

# INSTALLATION

### 3. Unpacking

Place Chest CH–166 at a point convenient to the erection site. Carefully unpack and inspect the contents. Make certain that all necessary parts (par. 2) are present.

### 4. Location of Masts

Figure 3 shows a location plan. The masts are placed 21 feet 9 inches apart. The ground on which the mast bases are erected should be level. If the ground is muddy or soft, provide a firm support for the base. If the ground is hard, make a hole (for the lower section of the masts) by driving Stake GP–2 into the ground and then removing it.

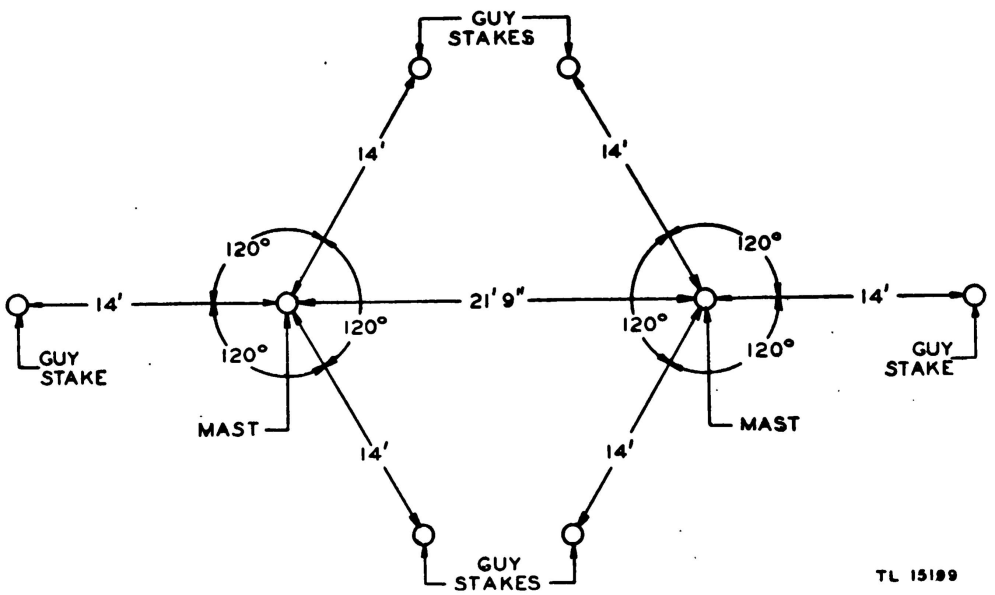



*Figure 3. Antenna Equipment RC–219–A—location plan.*

### 5. Guy Stakes

Lay out the positions of the three guy stakes for each mast by placing them 14 feet from the bases of the masts and 120° apart. (See figs. 1, 2, and 3.) Drive all stakes approximately 1 foot into the ground and at a 30° angle away from the masts.



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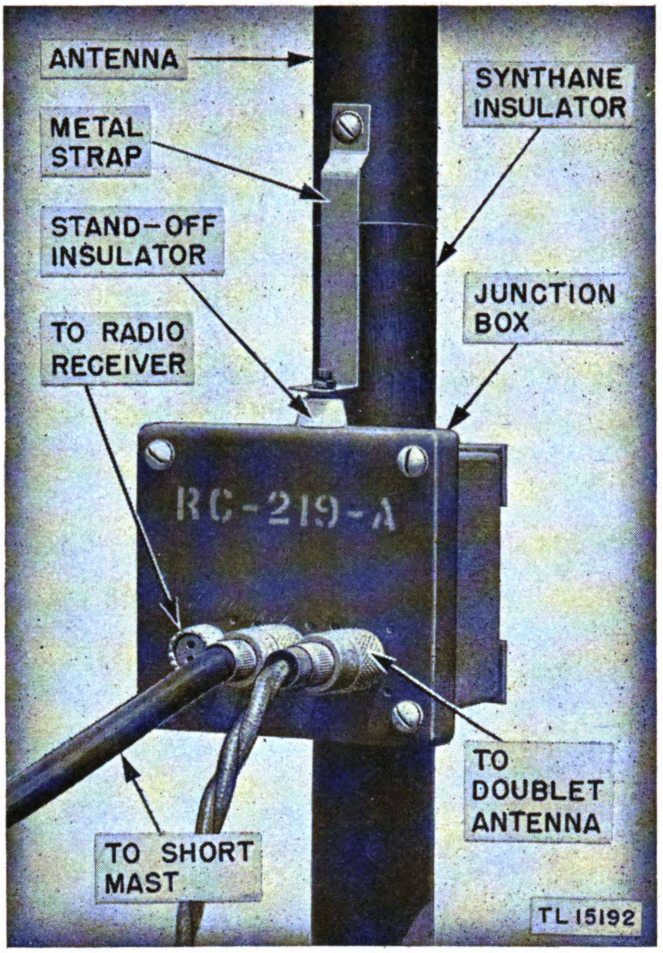



*Figure 4. Antenna Equipment RC–219–A, junction box with three sockets.*

## 6. Assembly of Masts

*a.* 33-Foot Mast of Antenna Equipment RC–219–A (fig. 7). (1) Place the circular mast base at the prepared location.

(2) Place mast section (4857) with the 3-socket junction box (fig. 4) near the circular mast base and then place three of the mast sections (4425) and the threaded steel cap on the ground.

(3) Grease the joints with a small amount of general purpose grease No. 0 or No. 1. Assemble the sections and the metal cap. Keep the sections level to prevent them from bending. Twist the sections slightly to make it easier to insert the joints.

(4) Screw Mast Section MS-54 into the threaded steel cap then attach Mast Sections MS–53, MS–52, MS–51, and MS–50 (modified), in that order.

*b.* 16½-Foot Mast of Antenna Equipment RC–219–A (fig. 7). Procedure is same as for assembling the 33-foot mast. Repeat *a*(1) through



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(3) above using a mast section (4857) with the single-socket junction box (fig. 5), and substituting the flat-top steel cap for the threaded steel cap.

*c.* ANTENNA AN–78–A (figs. 2 and 7). The procedure is the same as for assembling the 33-foot mast of Antenna Equipment RC–219–A except that a mast section (4857) with the single-socket junction box is used.

### 7. Connecting Guy Ropes and Doublet Antenna

There are four rings on the metal caps of the 33-foot mast and 16½-foot mast, three of which bend slightly downward. Attach a guy

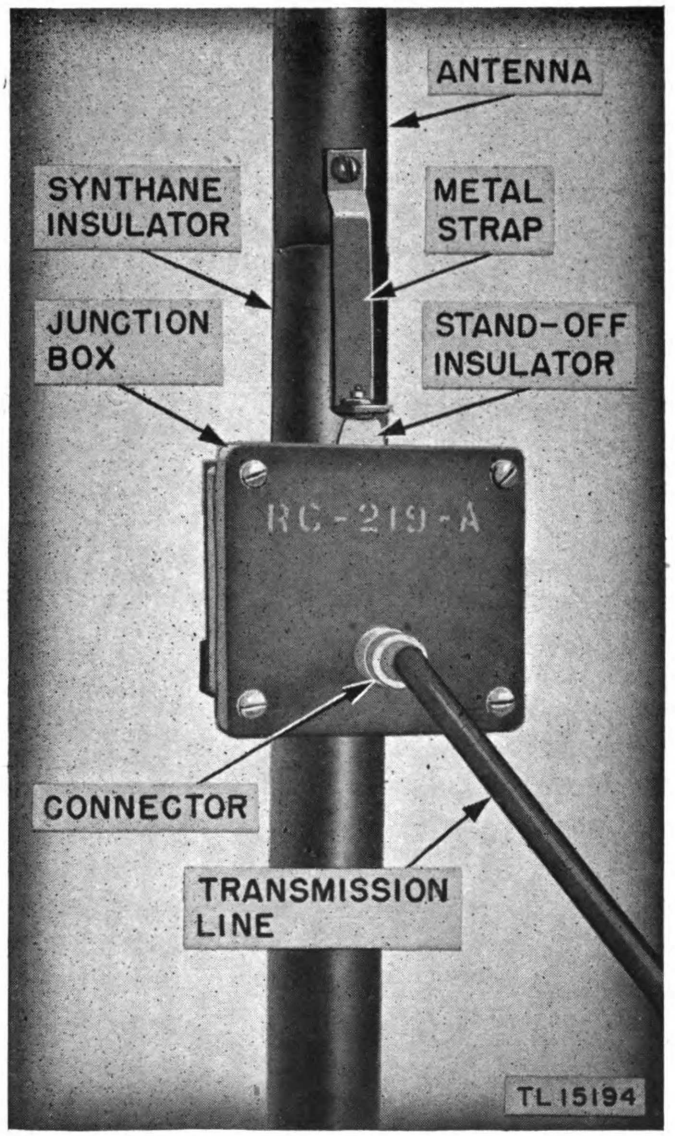



*Figure 5. Antenna Equipment RC–219–A, junction box with one socket.*



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rope using the fastener connected to each of these three rings, and attach one end of the doublet antenna to the straight ring.

### 8. Erecting Masts

*a.* To raise each completely assembled mast to a vertical position, station one man at the spike at the lower end of the bottom mast section and another man at the metal cap at the top of the upper mast section.

*b.* While the man at the upper end of the mast raises the antenna, the man at the lower end holds his foot against the spike, and a third man sights along the mast to make sure it is straight at all times to prevent strain on the synthane insulator.

*Caution:* Any undue strain on the synthane insulator will cause it to break. When erecting the antenna, protect the synthane insulator against strain when the mast is being raised or lowered. Keep the guy ropes clear and free of any obstruction while the antenna is being raised.

*c.* When the mast is vertical, lift it and place the spike in the hole in the circular mast base.

### 9. Truing Masts

*a.* Check the angle of the masts.

*b.* Make the necessary adjustment of guy ropes to put the masts in a vertical position.

### 10. Junction Box Connections (figs. 4 and 5)

Insert Plugs PL–284 into Sockets SO–264 of the junction boxes as shown in figures 4 and 5. Make sure that these plugs are firmly inserted and the locking rings tightened. Cords and plugs for connecting the antennas to receivers are not furnished with these antennas.

### 11. Disassembly

To disassemble the equipment, reverse the procedure followed in erection. Replace all parts in Chest CH–166.



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## SECTION III

# FUNCTIONING OF PARTS

### 12. Antenna Equipment RC–219–A

This equipment actually consists of three antennas: a 33-foot vertical, a 16½-foot vertical, and a horizontal doublet antenna. Suitable coupling networks are used in conjunction with these antennas to allow comparatively uniform response over a wide band of frequencies.

*a.* 33-Foot Vertical Antenna. For the reception of low frequencies, this antenna acts as a vertical Marconi antenna providing good reception of signals from vertically polarized transmitting antennas within ground-wave radius. Used for the reception of low-frequency long distance signals reflected from the ionosphere, the antenna responds to the vertically polarized component of these waves, providing satisfactory reception. The 33-foot antenna is self-resonant at approximately 14.2 mc as a half-wave dipole antenna (high impedance at base); and at approximately 7.1 mc as a quarter-wave dipole antenna (low impedance at base). At lower frequencies, the antenna presents capacitive reactance to the receiver but through the use of an antenna coupling coil, inductive loading is provided to resonate the antenna at these low frequencies. This coupling coil is inside the junction box, located directly below the synthane insulator (fig. 4), on the lower part of the mast. The manner in which this coil functions to provide a wide frequency response is explained in *e* below.

*b.* 16½-Foot Vertical Antenna. This antenna is a vertical Marconi and functions similarly to the 33-foot vertical antenna. Its length causes it to be self-resonant at approximately 28.4 mc as a half-wave dipole antenna (high impedance at base) and at approximately 14.2 mc as a quarter-wave dipole antenna (low impedance at base). This antenna also has an antenna coupling coil to widen its frequency coverage. This coil is identical in design and function to the coupling coil of the 33-foot vertical antenna. It is located in a junction box on the mast below the synthane insulator. (See fig. 5.)

*c.* Horizontal Doublet. This antenna is composed of two 7½-foot sections forming a conventional doublet antenna. Its length is equivalent to an electrical half-wavelength at 31.2 mc. A low-impedance twisted-pair transmission line is used in a center-fed arrangement.

*d.* Connections of Antennas. The junction box on the 33-foot antenna contains, in addition to the coupling coil, three Sockets SO–264 (fig. 4). All three sockets are connected in parallel. One of the sockets connects to the coupling coil and to the transmission line of the receiver.



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Another of these sockets connects to the twisted-pair from the horizontal doublet antenna, and the third socket to the transmission line from the junction box Socket SO–264 on the 16½-foot antenna. In this way, all three antennas are connected in parallel and their combined outputs are fed to the receiver.

*e.* Antenna Coupling Coils. Figure 6 shows a schematic diagram of the junction boxes of the large and small antennas. The antenna coupling coils for either antenna function in the following manner:

(1) At low frequencies, the reactance of C1 is extremely high and very little current flows between the antenna and ground through the series combination of C1 and L2, making their effect in the circuit negligible. Coil L1 then acts as an inductance to increase the effective electrical length of the antenna, making it more efficient at low frequencies. The low-frequency signal voltages are inductively coupled from L1 to L3 and the output voltages across this coil are connected directly to the load through Socket SO–264. C2 and L4 in the primary circuit have little effect at low frequencies, since the high impedance offered by C2 makes the combination of L4 and C2 appear practically as an open circuit in respect to the output line.

(2) At high frequencies, the reactance of capacitor C1 becomes very low and maximum current flows through coil L2 (coil L2 is smaller and has a lower reactance value than coil L1). The shunt reactance of L1 is thus high by comparison and little current flows through this coil. The voltage across L2 is inductively coupled to inductor L4 which is connected across the output line through the low reactance offered by capacitor C2. The presence of C2, however, lowers the output impedance and allows a more favorable match with the low impedance transmission line. Inductor L3, having a high reactance, in shunt with the combination of C2 and L4, has little effect in the circuit.

(3) At medium frequencies, part of the signal voltages flow through the path explained above which is more efficient at high frequencies and part through the low-frequency path, giving a resultant and favorable output at the medium frequencies.

*f.* Transmission Lines. All transmission lines used in conjunction with these three antennas are low-impedance lines. The transmission line for the horizontal doublet antenna is the twisted-pair type while the other lines are flexible, nonresonant coaxial lines.

*g.* Bleeder Resistors. Figure 6 Ⓑ and Ⓒ shows 10,000-ohm resistors connected across the load. These resistances drain off electrostatic charges which may accumulate.

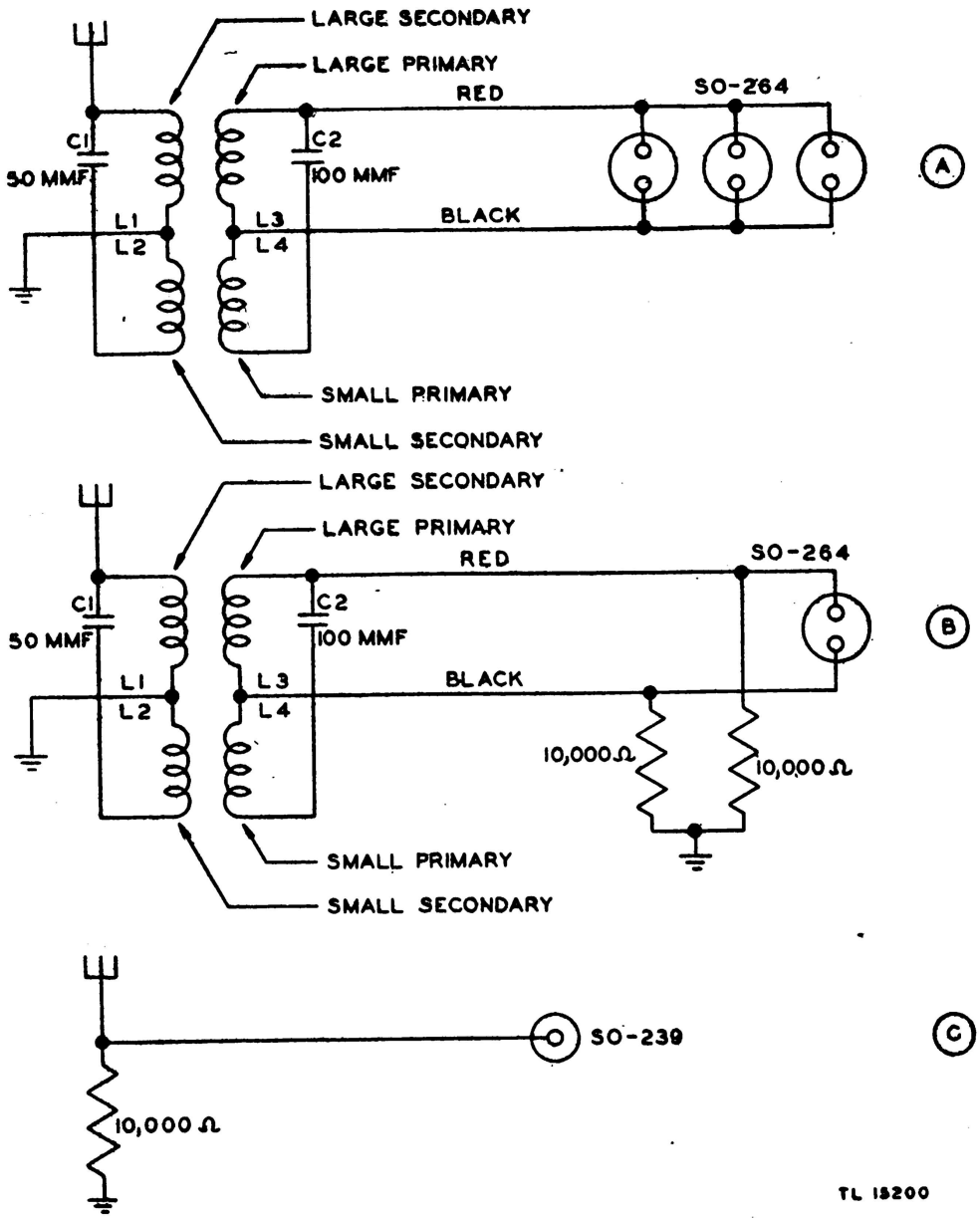
### 13. Antenna AN–78–A

This antenna functions the same as the 33-foot vertical antenna of Antenna Equipment RC–219–A. No coupling coil, however, is used in



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conjunction with this antenna. It has a junction box located below the synthane insulator on the lower part of the mast. The sole purpose of this box is to provide a good mechanical and electrical connection between the lower end of the antenna and the transmission line of the receiver.




Ⓐ *Connections inside junction box on 33-foot mast of Antenna Equipment RC-219-A*

Ⓑ *Connections inside junction box on 16½-foot mast of Antenna Equipment RC-219-A*

Ⓒ *Connections inside junction box on 16½-foot mast of Antenna AN-78-A*

*Figure 6. Antenna Equipment RC-219-A and Antenna AN-78-A, schematic diagrams.*



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## SECTION IV

# MAINTENANCE

*Note.* Failure or unsatisfactory performance of equipment will be reported on W.D., A.G.O. Form No. 468. If this form is not available, see TM 38-250.

### 14. Inspections

*a.* DAILY. Inspect the guys and masts. If the guys should become slack, tighten and true the masts as explained in paragraph 9. If the masts have been set up properly, no other maintenance should be necessary for short periods of time. After a hard rain, inspect the stakes to make certain they have not loosened. If the stakes are loose, pull them out and drive them into new positions.

*b.* TEN DAY. Inspect the pins on the connectors every 10 days to be sure that they have not become corroded. Check to see if they are making a good electrical contact. Polish the pins if they are dirty.

*c.* THIRTY DAY. If the masts are left standing for 30 days, they should be lowered and disassembled. Inspect contacts for corrosion, and polish if necessary. Polish the mast joints and lubricate with general purpose grease No. 0 or No. 1.

*Note.* Crocus cloth or jewelers rouge should be used on metal surfaces when polishing is required.

### 15. Moistureproofing and Fungiproofing

*a.* GENERAL. The operation of Signal Corps equipment in tropical areas where temperature and relative humidity are extremely high requires special attention. The following items represent problems which may be encountered in operation:

(1) Resistors, capacitors, coils, etc., fail.

(2) Electrolytic action takes place in resistors, coils, chokes, transformer windings, etc., causing eventual break-down.

(3) Hook-up wire and cable insulation break down. Fungus growth accelerates deterioration.

(4) Moisture forms electrical leakage paths on terminal boards and insulating strips, causing flash-overs.

*b.* TREATMENT. A moistureproofing and fungiproofing treatment has been devised which, if properly applied, provides a reasonable degree



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of protection against fungus growth, insects, corrosion, salt spray, and moisture. The treatment involves the use of a moisture- and fungus-resistant varnish applied with a spray gun or brush. See TB SIG 13, Moistureproofing and Fungiproofing Signal Corps Equipment, for a detailed description of the varnish-spray method of moistureproofing and fungiproofing.

*Caution:* Varnish spray may have toxic effects if inhaled. To avoid inhaling spray, use respirator if available; otherwise, fasten cheesecloth or other cloth over nose and mouth.

*c.* STEP-BY-STEP INSTRUCTIONS FOR TREATING ANTENNA EQUIPMENT RC–219–A. (1) *Preparation.* (*a*) Make all repairs and adjustments necessary for proper operation of the equipment.

(*b*) Clean all dirt, dust, rust, fungus, oil, grease, from the equipment to be processed.

(2) *Disassembly.* (*a*) Disconnect all cables connected to the two antenna junction boxes.

(*b*) Remove each junction box from its respective mast. Each box is held in place by two clamps and four screws in the rear of the box.

(*c*) Remove the four screws which retain the cover of the junction box.

(*d*) Lift the cover off the box and tilt the cover to one side.

*Caution:* A short piece of wire which is attached to the cover prevents the cover from being completely removed. Do not break this connection.

(3) *Masking.* (*a*) Masking of the antenna junction box is not necessary.

(*b*) Apply masking tape to the surfaces of the lower mast section that are used to make contact to the upper mast section and the junction box.

(*c*) Mask the connector on the antenna lead-in of the doublet antenna.

(4) *Drying.* (*a*) Bake the antenna junction box and cover at a temperature not to exceed 130° F., for 3 hours.

(*b*) If the lower section of the antenna mast fits in the drying oven, bake it with the junction box. Otherwise dry the bakelite insulator, which is located on the upper portion of the mast section, by wiping and exposing to sunlight.

(*c*) Bake, or thoroughly air dry the three insulators and the cotton covered lead-in of the doublet section of the antenna.



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(5) *Varnishing.* (*a*) Apply three coats of Lacquer, Fungus-resistant, Spec. No. 71-2202 (stock No. 6G1005.3), or equal, as follows:

*1.* Spray the interior of the antenna junction box and the rear of cover.

*2.* Spray or brush-coat the bakelite insulator on the mast section.

*3.* Spray or brush-coat the three insulators and the cotton covered lead-in of the doublet antenna. To obtain a good coating on the lead-in wire, dip it in the lacquer.

(*b*) The following steps complete the processing of Antenna Equipment RC-219-A:

*1.* Bake the junction box for 10 minutes.

*2.* Bake or air dry the bakelite insulator until the varnish is dry.

*3.* Bake or air dry the doublet insulators and antenna lead.

(6) *Reassembly.* (*a*) Remove all masking tape.

(*b*) Clean all contacts with varnish remover, and burnish the contacts.

(*c*) Reassemble the antenna (sec. II) and test its operation.

(7) *Marking.* Mark the antenna with the letters "MFP" and the date of treatment. *Example:* MFP—3 Aug 44.

*d.* STEP-BY-STEP INSTRUCTIONS FOR TREATING ANTENNA AN–78–A. (1) *Preparation.* Same as given in *c* (1) above.

(2) *Disassembly.* (*a*) Disconnect cable leading to receiver.

(*b*) Disconnect strap attached to stand-off insulator on top of antenna junction box.

(*c*) Remove junction box from mast. The box is held in place by two clamps and four screws at the rear of the box.

(*d*) Remove the four screws which retain the cover of the junction box.

(*e*) Lift the cover off the box and tilt the cover to one side.

*Caution:* A short piece of wire which is attached to the cover prevents the cover from being completely removed. Do not break this connection.

(3) *Masking.* (*a*) Masking of the antenna junction box is not necessary.

(*b*) Apply masking tape to the surfaces of the lower mast section that are used to make contact to the upper mast sections and the junction box.



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(4) *Drying.* (*a*) Bake the antenna junction box and cover at a temperature not to exceed 130° F., for 3 hours.

(*b*) If the lower section of the antenna mast fits in the drying oven, bake it with the junction box. Otherwise dry the bakelite insulator, which is located on the upper portion of the mast section by wiping and exposing it to sunlight.

(5) *Varnishing.* (*a*) Apply three coats of Lacquer, Fungus-resistant, Spec No. 71-2202 (stock No. 6G1005.3), or equal, as follows:

*1.* Spray the interior of the antenna junction box and the rear of cover.

*2.* Spray or brush-coat the bakelite insulator on the lower mast section.

(*b*) The following steps complete the processing of Antenna AN–78–A:

*1.* Bake the junction box for 10 minutes.

*2.* Bake or air dry the bakelite insulator until the varnish is dry.

(6) *Reassembly.* (*a*) Remove all masking tape.

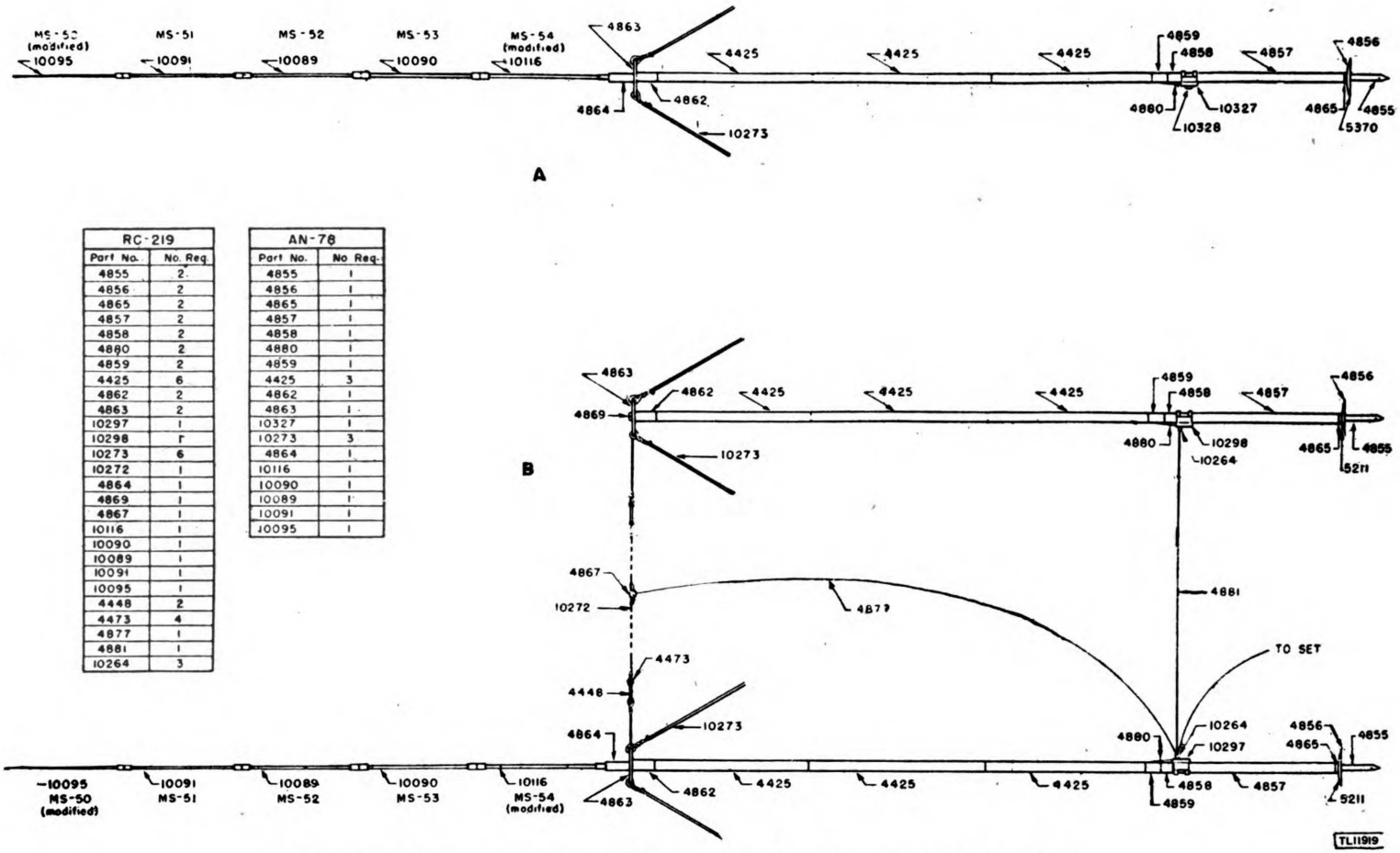
(*b*) Clean all contacts with varnish remover and burnish the contacts.

(*c*) Reassemble the antenna (sec. II) and test its operation.

(7) *Marking.* Mark the antenna with the letters "MFP" and the date of treatment. *Example:* MFP—1 Aug 44.



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| RC-219 | |
|---|---|
| Part No. | No. Req. |
| 4855 | 2 |
| 4856 | 2 |
| 4865 | 2 |
| 4857 | 2 |
| 4858 | 2 |
| 4880 | 2 |
| 4859 | 2 |
| 4425 | 6 |
| 4862 | 2 |
| 4863 | 2 |
| 10297 | 1 |
| 10298 | 1 |
| 10273 | 6 |
| 10272 | 1 |
| 4864 | 1 |
| 4869 | 1 |
| 4867 | 1 |
| 10116 | 1 |
| 10090 | 1 |
| 10089 | 1 |
| 10091 | 1 |
| 10095 | 1 |
| 4448 | 2 |
| 4473 | 4 |
| 4877 | 1 |
| 4881 | 1 |
| 10264 | 3 |

| AN-78 | |
|---|---|
| Part No. | No Req. |
| 4855 | 1 |
| 4856 | 1 |
| 4865 | 1 |
| 4857 | 1 |
| 4858 | 1 |
| 4880 | 1 |
| 4859 | 1 |
| 4425 | 3 |
| 4862 | 1 |
| 4863 | 1 |
| 10327 | 1 |
| 10273 | 3 |
| 4864 | 1 |
| 10116 | 1 |
| 10090 | 1 |
| 10089 | 1 |
| 10091 | 1 |
| 10095 | 1 |

*Figure 7. Antenna Equipment RC–219–A and Antenna AN–78–A, details.*

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# SECTION V

# SUPPLEMENTARY DATA

## 16. Maintenance Parts List for Antenna Equipment RC–219–A

| Ref symbol | Signal Corps stock No. | Name of part and description | Quan per unit | Running spares | Orgn stock | 3d ech | 4th ech | 5th ech | Depot stock |
|---|---|---|---|---|---|---|---|---|---|
| 10272 | 2A276–17 | ANTENNA ASSEMBLY; doublet: Brach No. M–10272; (wires, insulators, snaps, plug, cut and soldered to correct lengths; twisted pair lead-in 25′ long; 11′ of Wire W–29). | 1 | | | * | * | | * |
| | 2Z4309 | FASTENER, slide: FT–9; Brach No. 4472; (used to adjust guy rope). | 6 | | | * | * | | * |
| 10273 | 6Z7925 | GUY ASSEMBLY: Brach No. 10273; (25 foot 3/16″ rope; snap; clamp; fastener; assembly). | 6 | | | * | * | | * |
| 4863 | 2A275–78A/H1 | MAST HEAD ASSEMBLY: Brach No. 10426; (collar; plate; tube; assembled; for connecting guy assemblies and mast sections). | 2 | | | * | * | | * |

* Indicates stock available.



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| Ref symbol | Signal Corps stock No. | Name of part and description | Quan per unit | Running spares | Orgn stock | 3d ech | 4th ech | 5th ech | Depot stock |
|---|---|---|---|---|---|---|---|---|---|
| | 2A2490 | MAST SECTION, antenna: Brach No. 10428; (tube with sleeve on one end, spring receptacle built into other end; 5½′ x 1.5″ OD x 1.384 ID). | 6 | | | * | * | | * |
| 10095 | 2A2350 | MAST SECTION, antenna: MS–50; Brach No. 10095; 39¼″ ±1/16″ long. | 1 | | | * | * | | * |
| 10091 | 2A2351 | MAST SECTION, antenna: MS–51; Brach No. 10091; 39 5/16″ ±1/16″ long. | 1 | | | * | * | | * |
| 10089 | 2A2352 | MAST SECTION, antenna: MS–52; Brach No. 10089; 39½″ ±1/16″ long. | 1 | | | * | * | | * |
| 10090 | 2A2353 | MAST SECTION, antenna: MS–53; Brach No. 10090; 39⅝″ ±1/16″ long. | 1 | | | * | * | | * |
| 10116 | 2A2354 | MAST SECTION, antenna: MS–54; Brach No. 10116; 39⅝″ ±1/16″ long. | 1 | | | * | * | | * |
| | 2A2490–1 | MAST TUBE ASSEMBLY: Brach No. 10422; (has ground rod and collar riveted on; 6¾″ long overall; includes 4855 and 4865). | 2 | | | * | * | | * |
| 4856 | 2A289–219A/P1 | PLATE: bearing; iron disk; Brach No. 4856; (10″ OD x ⅜″ max thickness; 1⅛″ center hole). | 2 | | | * | * | | * |

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| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 10264 | 2Z7226–284 | PLUG PL–284: Brach No. 10264; male; 2–prong; (on transmission line and doublet lead-in). | 3 | | | * | * | | * |
| | 2Z8799–264 | SOCKET SO–264: Brach No. 10260; female; 2–prong; (mounted in transformer boxes). | 4 | | | * | * | | * |
| 10298 | 2Z5691–5 | TRANSFORMER ASSEMBLY: Brach No. 10298; (iron box containing potted coils and capacitors; insulator, copper strip, mounting brackets, receptacle; box size 3 3/16″ x 2″ x 3 1/4″). | 1 | | | * | * | | * |
| | 2A289–219A/C1 | TRANSFORMER ASSEMBLY: Brach No. 10299; (iron box containing potted coils and capacitors; insulator, copper strip; mounting brackets, receptacle; box size 3 3/16″ x 3 1/4″ x 2″). | 1 | | | * | * | | * |
| | 2A3302.1 | STAKE, guy: GP–2; ground; Brach No. 4882; (metal; for holding guy assembly). | 6 | | | * | * | | * |
| | 3E1927 | TRANSMISSION LINE CD–927; Brach No. 10414; (32′ coaxial cable with Plug PL–284 at each end). | 1 | | | * | * | | * |

## 17. Maintenance Parts List for Antenna AN-78-A

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 2Z4309 | FASTENER, slide: FT–9; Brach No. 4472; (used to adjust guy rope). | 3 | | | * | * | | * |
| | 2A275–78A/R1 | GUY ASSEMBLY: Brach No. 10273; (25 foot 3/16″ rope snap; fastener; assembled). | 3 | | | * | * | | * |

* Indicates stock available.



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| Ref symbol | Signal Corps stock No. | Name of part and description | Quan per unit | Running spares | Orgn stock | 3d ech | 4th ech | 5th ech | Depot stock |
|---|---|---|---|---|---|---|---|---|---|
| | 2A275–78A/H1 | MAST HEAD ASSEMBLY: Brach No. 10426; (collar; plate tube; assembled; for connecting guy assemblies and mast section). | 1 | | | * | * | | * |
| | 2A2490 | MAST SECTION, antenna: Brach No. 10428; (tube with sleeve on one end, spring receptacle built into other end; 5½′ x 1.5″ OD). | 3 | | | * | * | | * |
| 10095 | 2A2350 | MAST SECTION, antenna: MS–50; Brach No. 10095; 39¼″ ±1/16″ long. | 1 | | | * | * | | * |
| 10091 | 2A2351 | MAST SECTION, antenna: MS–51; Brach No. 10091; 39 5/16″ ±1/16″ long. | 1 | | | * | * | | * |
| 10089 | 2A2352 | MAST SECTION, antenna: MS–52; Brach No. 10089; 39½″ ±1/16″ long. | 1 | | | * | * | | * |
| 10090 | 2A2353 | MAST SECTION, antenna: MS–53; Brach No. 10090; 39⅝″ ±1/16″ long. | 1 | | | * | * | | * |
| 10116 | 2A2354 | MAST SECTION, antenna: MS–54; Brach No. 10116; 39⅝″ ±1/16″ long. | 1 | | | * | * | | * |
| | 2A2490–1 | MAST TUBE ASSEMBLY: Brach No. 10422; (has ground rod and collar riveted on 6¾″ long over-all; includes 4855 and 4865). | 1 | | | * | * | | * |

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| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4856 | 2A289–219A/P1 | PLATE, bearing: iron disk; Brach No. 4856; (10″ OD x 3/8″ max thickness; 1 1/8″ center hole). | 1 | | | * | * | | * |
| | 2Z8799–239 | SOCKET SO–239: Brach No. 10328; female; (mounted in transformer box). | 1 | | | * | * | | * |
| | 2A3302 | STAKE, guy: GP–2; ground; Brach No. 4882; (metal; for holding guy assembly). | 3 | | | * | * | | * |
| 10327 | 2A289–219A/C1 | TRANSFORMER ASSEMBLY: Brach No. 10327; (iron box containing potted coils and capacitors; insulator, copper strip mounting brackets, socket; box size 3 9/16″ x 3 1/4″ x 2″). | 1 | | | * | * | | * |

*. Indicates stock available.

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