

WAR DEPARTMENT TECHNICAL MANUAL

# TM 11-487-R

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## ELECTRICAL COMMUNICATION SYSTEMS EQUIPMENT



### **Radio Equipment** (Chapter 14 of TM 11-487)



WAR DEPARTMENT

2 OCTOBER 1944

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TABLE OF CONTENTS (Cont'd.)

		<u>Paragraph</u>	<u>Page</u>
Section VI	Commercial Power Services		
	General	1228	304
	Distribution	1229	304
	Power Distribution Data - Foreign Countries and Cities	1230	304
	Power Distribution Data for Canada - Breakdown by Provinces (McGraw Central Station Directory - 1938)	1231	311
	Power Distribution Data for Alaska - Breakdown by Cities	1232	311
<u>CHAPTER 13 - MAINTENANCE SUPPLIES</u>			
Section I	General		
	Scope	1301	313
Section II	Maintenance		
	System of Maintenance	1302	313
	Maintenance Parts - Supply Plan	1303	315
	Signal Supply Catalogs	1304	315
	Relationship of Signal Supply Catalog to Supply Plan	1305	316
Section III	Maintenance Equipments		
	General	1306	318
	Description and Stock Numbers	1307	318
	Maintenance Equipments - Description	1308	319
	Maintenance Equipments - Stock Numbers and Logistical Data	1309	329
Section IV	Tool Equipments		
	General	1310	330
	Tool Equipments and Tool Sets - Description	1311	331
	Tool Equipments - Stock Numbers and Logistical Data	1312	337
Section V	Test Equipments		
	General	1313	337
	Test Equipments and Test Packages - Description	1314	338
	Test Equipments - Stock Numbers and Logistical Data	1315	341
Section VI	Test Sets		
	General	1316	341
	Test Sets and Test Instruments - Description	1317	342
	Test Sets - Stock Numbers and Logistical Data	1318	361
Section VII	Cross Reference Data		
	General	1319	362
	Cross Reference Table of Maintenance, Tool and Test Equipments, and Test Sets	1320	362

CHAPTER 14 - RADIO EQUIPMENT

Section I	General		
	Introduction	1401	369
	Photographs	1402	369
Section II	Tactical Radio Sets for Ground Use		
	General	1403	369
	Radio Sets - Description	1404	369
	Frequency Range Chart	1405	370
	Radio Sets - Stock Numbers and Logistical Data	1406	370
	Remote Control Equipment	1407	370
	Radio Sets for Ground Use - Tactical - Descriptive and Technical Data	1408	372
	Frequency Coverage of Tactical Radio Sets for Ground Use	1409	428
	Ground, Transportable Radio Sets - Stock Numbers and Logistical Data - Tactical	1410	430
	Vehicular Radio Sets - Stock Numbers and Logistical Data - Tactical	1411	430
	Pack Radio Sets - Stock Numbers and Logistical Data - Tactical	1412	431

TABLE OF CONTENTS (Cont'd.)

	<u>Paragraph</u>	<u>Page</u>
Air Transportable Radio Sets - Stock Numbers and Logistical Data - Tactical	1413	431
Ground, Mobile Radio Sets - Stock Numbers and Logistical Data - Tactical	1414	431
Remote Control Equipment for Radio Sets - Tactical - Description	1415	432
Remote Control Equipment - Tactical - Stock Numbers and Logistical Data	1416	440
Section III Fixed Plant Radio Equipment		
General	1417	440
Command Radio Sets - Description	1418	440
Command Radio Sets - Stock Numbers and Logistical Data	1419	441
Airways Section Radio Sets - Description	1420	441
Airways Section Radio Sets - Stock Numbers and Logistical Data	1421	441
Transmitting Equipment Commonly Used by Command Radio - Army Communication Service - Description	1422	442
Receiving Equipment Commonly Used by Command Radio - Army Communication Service - Description	1423	450
Transmitting Equipment Commonly Used by Command Radio - Army Communications Service - Stock Numbers and Logistical Data	1424	452
Receiving Equipment Commonly Used by Command Radio - Army Communications Service - Stock Numbers and Logistical Data	1425	452
Transmitting Equipment Commonly Used by Airways Section - Army Communications Service - Description	1426	453
Receiving Equipment Commonly Used by Airways Section - Army Communications Service - Description	1427	470
Combined Transmitting and Receiving Equipment Commonly Used by Airways Section - Army Communications Service - Description	1428	476
Transmitting Equipment Commonly Used by Airways Section - Army Communications Service - Stock Numbers and Logistical Data	1429	486
Receiving Equipment Commonly Used by Airways Section - Army Communications Service - Stock Numbers and Logistical Data	1430	488
Combined Transmitting and Receiving Equipment Commonly Used by Airways Section - Army Communications Service - Stock Numbers and Logistical Data	1431	489
Section IV Antennas and Associated Equipment		
General	1432	489
Antenna Kits - Tactical	1433	490
Wire Used for Antenna Equipment - Tactical	1434	491
Coaxial Cables for Radio Frequency Transmission Lines	1435	492
Mast Assemblies for Supporting Antennas - Tactical	1436	494
Mast Sections for Antenna Supports	1437	494
Metallic Mast Sections for Vertical Radiators for Ground Use	1438	494
Metallic Mast Sections for Vehicular Radiators	1439	495
Accessories Used in Constructing Tactical Antennas	1440	495
Antenna Kits - Fixed Plant	1441	496
Antenna Coupling Unit	1442	497
Base Insulated Towers Used as Vertical Radiators - Fixed Plant	1443	497
Towers for Supporting Antennas - Fixed Plant	1444	498
Ground System for Radio Towers - Fixed Plant	1445	499
Tower Lighting Equipment - Fixed Plant	1446	500

LIST OF ILLUSTRATIONS (Cont'd.)

<u>Figure</u>		<u>Page</u>
1309	Test Set I-193-A	352
1310	Test Set EE-65-C, D, or E	353
1311	Test Set TS-2/TC	353
1312	Test Set TS-26/TSM	354
1313	Test Set TS-27/TSM	354
1314	Attenuator (Western Electric Co. 5A)	355
1315	Transmission Measuring Set (Western Electric Co. 13A)	355
1316	Cable Fault Locating Equipment (Part of Tool Equipment TS-56-A)	356
1317	Oscillator (Western Electric Co. 19C)	357
1318	Transmission Measuring Set (Western Electric Co. 32A)	357
1319	Oscillator (Western Electric Co. 51A)	358
1320	Test Set (Western Electric Co. 1017E)	358
1321	Volt-ohm-milliammeter (Western Electric Co. D-166852)	359
1322	Volt-ohm-milliammeter (Western Electric Co. D-169370)	359
1323	Test Set (Teletype Corp. No. DXD-1)	360
1401	Radio Set SCR-131 or SCR-161	398
1402	Radio Set SCR-171	398
1403	Radio Set SCR-177-A	399
1404	Radio Set SCR-177-B	399
1405	Radio Set SCR-178 or SCR-179	400
1406	Radio Set SCR-188	400
1407	Radio Set SCR-188-A	401
1408	Radio Set SCR-193-( )	401
1409	Radio Set SCR-194	402
1410	Radio Set SCR-195	402
1411	Radio Set SCR-197	402
1412	Radio Set SCR-203	403
1413	Radio Set SCR-209	403
1414	Radio Set SCR-210	403
1415	Radio Set SCR-245	404
1416	Radio Set SCR-284	404
1417	Radio Set SCR-288	405
1418	Radio Set SCR-293	405
1419	Radio Set SCR-294	405
1420	Radio Set SCR-298-C	406
1421	Radio Set SCR-299	406
1422	Radio Set SCR-300	407
1423	Radio Set SCR-399	407
1424	Radio Set SCR-499	408
1425	Radio Set SCR-506	408
1426	Radio Set SCR-508	408
1427	Radio Set SCR-509	409
1428	Radio Set SCR-510	409
1429	Radio Set SCR-511	410
1430	Radio Set SCR-528	410
1431	Radio Set SCR-536	410
1432	Radio Set SCR-538	410
1433	Radio Set SCR-543	411
1434	Radio Set SCR-593	411
1435	Radio Set SCR-606	411
1436	Radio Set SCR-609	412
1437	Radio Set SCR-610	412
1438	Radio Set SCR-619	413
1439	Radio Set SCR-624	413
1440	Radio Set SCR-628	413
1441	Radio Set SCR-694-AW (Receiver Removed from case)	414
1442	Radio Set SCR-694-C	414
1443	Radio Set SCR-808	414
1444	Radio Set SCR-828	414
1445	Receiving Equipment RC-256	415
1446	Radio Transmitter RC-257	415
1447	Radio Set AN/CRC-3	415
1448	Amplifier Equipment AN/TRA-1	416
1449	Radio Set AN/TRC-1	416
1450	Radio Set AN/TRC-2	417
1451	Radio Terminal Set AN/TRC-3	417
1452	Radio Relay Set AN/TRC-4	418

LIST OF ILLUSTRATIONS (Cont'd.)

<u>Figure</u>		<u>Page</u>
1453	Radio Set AN/TRC-7	418
1454	Radio Set AN/TRC-8	419
1455	Radio Terminal Set AN/TRC-11	420
1456	Radio Set AN/TRC-12	420
1457	Radio Set AN/VRC-1	421
1458	Inverted L Antenna	421
1459	Crowfoot Antenna	422
1460	Whip Antenna and Counterpoise	423
1461	Whip Antennas	423
1462	Short Whip Antenna	423
1463	Center-fed Horizontal Dipole Antenna	424
1464	Single Wire-fed Half-wave Antenna	424
1465	Half-Wave J Antenna	424
1466	Sloping Wire Antenna	425
1467	Balanced Half Wave Dipole Antenna	425
1468	Adjustable Coaxial Antenna	425
1469	Vertical Half Rhombic Antenna	425
1470	Three Element Directional Array	426
1471	Vertical Conical Dipole Antenna	426
1472	Ground Plane Antenna	426
1473	Half-wave Corner Reflector Antenna	427
1474	Remote Control Equipment AN/TRA-2	436
1475	Remote Control Equipment RC-47-( )	436
1476	Remote Control Equipment RC-261 with Radio Set SCR-619	437
1477	Remote Control Unit RM-39-( )	437
1478	Remote Control Unit RM-7-( ) with Radio Transmitter BC-325-( )	438
1479	Remote Control Unit RM-14	439
1480	Remote Control Unit RM-21	439
1481	Remote Control Unit RM-29-( )	439
1482	Radio Transmitter BC-339-( )	444
1483	Radio Transmitter BC-365-( )	444
1484	Radio Transmitter BC-447-( ) and Remote Control Unit RM-7	444
1485	Radio Set SCR-281	444
1486	10KW Transmitting Equipment	445
1487	Radio Amplifying Equipment (Bunnell 6 KW)	446
1488	Radio Transmitter (Press Wireless PW-15-( ))	447
1489	Radio Transmitter (Press Wireless PW-40-( ))	448
1490	Radio Transmitter (Press Wireless 981-( ))	449
1491	Single Side Band Transmitter (Western Electric Co. D-156000)	449
1492	Diversity Receiver AN/FRR-3	451
1493	Radio Receiver BC-779-( ) (Hammarlund Super Pro)	451
1494	Diversity (Schuttig) Mixing Unit	451
1495	Single Side Band Receiver (Western Electric Co. D-99945)	451
1496	Radio Transmitter BC-315	458
1497	Radio Transmitter BC-325-( )	458
1498	Power Amplifier BC-340-( )	459
1499	Radio Transmitter BC-401	459
1500	Radio Transmitter BC-460	459
1501	Radio Transmitter BC-610	460
1502	Radio Transmitter BC-642	460
1503	Radio Transmitter BC-1100-( )	461
1504	Radio Transmitting Equipment RC-52-( )	461
1505	Radio Transmitter T-4/FRC & T-5/FRC Installation	462
1506	Radio Transmitter (Aircraft Accessories Corp. 500B)	463
1507	Radio Transmitter (Collins 32RA)	463
1508	Radio Transmitter (Federal FT-300)	464
1509	Radio Transmitter (Pan American Airways 12ACX-2)	464
1510	Radio Transmitter (Pan American Airways)	465
1511	Power Amplifier (Pan American Airways RFA-50)	466
1512	Radio Transmitter (Press Wireless PW-10LF)	466
1513	Radio Transmitter (Temco 250-GSC)	467
1514	Radio Transmitter (Temco 1000-AG-CW)	467
1515	Radio Transmitter (Western Electric Co. D-151249 or Pan American Airways 4WTFFA)	467

LIST OF ILLUSTRATIONS (Cont'd.)

<u>Figure</u>		<u>Page</u>
1516	Radio Transmitter (Wilcox 96-A)	468
1517	Four Radio Transmitters (Wilcox 96C) (With Modulator 50A and Rectifier 36A)	468
1518	Radio Transmitter (Wilcox 96-200-{ ) )	469
1519	Radio Receiver (Federal 128AY)	473
1520	Radio Receiver (Hallicrafters S-22-R)	473
1521	Radio Receiver (Hallicrafters S-27)	473
1522	Radio Receiver AN/GRR-3 (Hallicrafters SX-28)	473
1523	Radio Receiver (Hallicrafters S-29)	474
1524	Radio Receiver (Hallicrafters S-36)	474
1525	Radio Receiver AN/GRR-2 (National NC-100-ASC)	474
1526	Radio Receiver (National HRO)	475
1527	Radio Receiver (Wilcox CW3)	475
1528	Radio Receiver (Wilcox CW3-D)	475
1529	Radio Receiver (Wilcox F3)	475
1530	Radio Receiver and Transmitter (Collins 18-Q) (Navy TCS)	477
1531	Radio Receiver and Transmitter (Jefferson 350A)	478
1532	Radio Receiver and Transmitter (Link 50UFS)	478
1533	Radio Set Type 1498 (Link)	479
1534	Radio Set Type 1505 (Link)	479
1535	Radio Receiver and Transmitter (Motorola FMTR-25VM and FMTR-50BW)	480
1536	Transmitting Horizontal Rhombic Antenna	480
1537	Transmitting Doublet Antenna	481
1538	Intermediate Frequency Flat Top Antenna	482
1539	Receiving Horizontal Rhombic Antenna	483
1540	Double Doublet Receiving Antenna	483
1541	Double Cage Antenna	484
1542	Insulated Tower Antenna	485
1543	T Cage Antenna	485
1544	Wave Antenna	485

CHAPTER 14  
RADIO EQUIPMENT

Section I  
General

Section II  
Tactical Radio Sets for Ground Use

1401. INTRODUCTION.

a. This chapter provides descriptive, technical and logistical information pertaining to radio equipment for ground communication use. The information is given in the form of tables supplemented by photographs and sketches of radio sets and equipment.

b. This chapter covers only equipment which is used for ground to ground communication. It does not include such apparatus as direction finding, range, marker and radar equipment.

c. Section II covers the radio sets for ground use which are classified as tactical radio sets. These sets operate mainly in the HF (3.0 to 30 Mc) and VHF (30 to 300 Mc) ranges. However, some of them are capable of operating in the MF (.3 to 3.0 Mc) range. Information concerning remote control equipment which may be employed with these radio sets is included.

d. Section III gives information on fixed plant transmitting and receiving radio equipment used by the Army Communications Service. This includes Command communications and Airways communications facilities. This radio equipment is usually employed in long haul administrative and special service traffic. It is used mostly for telegraph or teletypewriter service and operates in the LF (.03 to .3 Mc), MF (.3 to 3.0 Mc), HF (3.0 to 30 Mc) and VHF (30 to 300 Mc) ranges.

e. Section IV gives information on antennas and associated equipment for both tactical and fixed plant radio sets.

f. An example of the use of information given in this chapter in planning a communication system involving radio links is given in chapter 2.

1402. PHOTOGRAPHS.

a. This chapter includes photographs of practically all of the radio sets, radio transmitters and radio receivers which are listed in the tables. It also includes photographs of remote control and other miscellaneous equipment as well as sketches which illustrate the antenna types referred to in the descriptive tables.

b. In many cases, the photographs of radio sets or equipment show the radio components only, i.e. a radio transmitter, a radio receiver, or both. Rarely do they show all of the accessory components.

1403. GENERAL.

a. Information given in this section is confined to tactical radio sets for ground use. No airborne sets are included, although a number of the sets listed are capable of communicating with aircraft radios. A few sets classified as "obsolete" are included, since they are encountered occasionally in the field.

b. Data are also given on remote control equipment which provides talking and listening facilities as well as send-receive control at a point remote from the radio set.

1404. RADIO SETS - DESCRIPTION.

a. Paragraph 1408 lists tactical radio sets for ground use in numerical sequence and gives descriptive information and technical data for each set. The information includes such items as frequency range, type of modulation, type of antenna, rated transmitter output power, power supply requirements, etc.

b. A list is given of the sets with which each radio set can communicate, excluding obsolete sets. Similar information including obsolete sets may be obtained from the chart in paragraph 1409.

c. Data are also given covering the types of emission and the corresponding military characteristic distance ranges of the sets. These are the distance ranges which were specified when the military characteristics of the sets were established and are ground wave ranges. The ground wave ranges obtained in field use may depart considerably from those shown, being greater or less depending on such factors as type and siting of the antenna, nature of the terrain, prevalence of noise, condition of set, etc. Under jungle conditions the ground wave range will usually be considerably reduced and it may be necessary to resort to sky wave transmission. Under suitable conditions sky wave transmission may provide communication over considerably greater distances.

d. In the column which indicates the type of antenna furnished with the radio set, reference is made to figures of representative antenna types. These sketches are merely illustrative and do not necessarily represent a particular Signal Corps antenna.

e. Maintenance equipment for electrical servicing is not furnished as a part of the radio set unless so indicated. For

many of these sets, the listed electrical instruments are those referred to in the respective technical manuals. They are listed as a guide to the type of equipment which should be available to any organization responsible for the maintenance of these sets. Some, but not all, of the larger radio sets include the listed electrical testing equipment for use in line-up and maintenance by the using organization. Information on maintenance equipment and test sets will be found in chapter 13.

1405. FREQUENCY RANGE CHARTS. The charts in paragraph 1409 illustrate graphically the frequency coverage of the transmitter and receiver of the tactical radio sets and are useful in rapidly identifying the various sets which operate in a given frequency range. One chart covers amplitude modulated sets and the other covers frequency modulated sets.

1406. RADIO SETS - STOCK NUMBERS AND LOGISTICAL DATA. Paragraphs 1410 to 1414, inclusive, give data such as stock number, weights and volume, etc., for the tactical radio sets for ground use. For this purpose the sets are divided into the following five categories: ground, transportable; vehicular; pack; air transportable; and ground, mobile.

1407. REMOTE CONTROL EQUIPMENT

a. Remote control equipment for use with certain tactical radio sets is described in paragraph 1415. Information on major components, range of operation, power input requirements, etc., is given.

b. Many of the radio sets are furnished with remote control equipment. For others, universal remote control equipment which will operate with a number of different types of radio sets is available but must be ordered separately. Some arrangements require a remote control unit at both ends of the associated wire line while others require only a telephone set at the remote point and a control unit at the radio set.

c. Various types of remote control equipment differ in the number of features provided. All use either dry cell batteries or power obtained from the a-c source which supplies the radio set, and in some cases, both.

d. Some kinds of remote control equipment provide only intercommunication between attendants, with the attendant at the radio set doing the necessary switching from receiving to transmitting and vice versa, while others, in addition, provide voice, CW and tone operation of the radio set from the remote point. Some units also control the power equipment associated with the radio set.

e. For most remote control equipment only one pair of wires is required. However, some equipment requires two pairs and some use the phantom circuit derived from two pairs to provide a third communication channel. Some types of remote control equipment must be located within a few feet of the radio set, while others can be located from a short distance to several miles away.

f. Paragraph 1416 gives stock numbers, weights and volumes for remote control equipment.

See following page  
for paragraph 1408

1408. RADIO SETS FOR GROUND USE - TACTICAL - DESCRIPTIVE AND TECHNICAL DATA.

Type	Major Radio Components	Frequency Range-Mc	Type Mod.	Emission & Military Char. Range in Miles <sup>a</sup>	Rated Trans. Power Output- Watts	Freq. Control <sup>b</sup>	Preset Channels	Communicates With <sup>c</sup>	Type Antenna <sup>d</sup>
SCR-131 Fig. No. 1401	Receiver and Transmitter BC-148	3.96-4.36	AM	CW-5 mi.	5	M.O.	None	SCR-131 (See Par. 1409)	Loop LP-7
SCR-161 Fig.No. 1401	Receiver and Transmitter BC-151	4.37-5.1	AM	CW-5 mi.	5	M.O.	None	SCR-161 (See Par. 1409)	Loop LP-7
SCR-171 Fig.No. 1402	Receiver and Transmitter BC-156	2.64-3.04	AM	CW-15 mi.	5	M.O.	None	SCR-171 (See Par. 1409)	60-Ft. Inv. L with Ctpse. CP-11 (Fig. 1458)
SCR-177-A Fig.No. 1403	Transmitter BC-191-A Tuning Unit TU-3-A TU-5-A TU-6-A Ant.Tun.Unit BC-306-A Receiver BC-189-A Coil Set C-144-A C-145-A C-147-A C-148-A	0.4-0.8 1.5-3.0 3.0-4.5 0.4-0.8	AM	CW-100 mi. Tone-70 Voice-30	75	M.O.	None	SCR-177,188,193, 197,203,209,210, 245,284,288,299, 399,499,506,511, 536,543,593,694, AM/TRC-2, AN/VRC-1	Crowfoot (0.4-0.8 mc); 1/4 Wave Inv. L with Ctpse. (1.5-4.5 Mc.) Figs. 1459 & 1458)
SCR-177-B Fig.No. 1404	Transmitter BC-191-C Tuning Unit TU-3-A TU-5-A TU-6-A Ant.Tun.Unit BC-306-A Receiver BC-314-C BC-312-C	0.4-0.8 1.5-3.0 3.0-4.5 0.4-0.8 0.15-1.5 1.5-18.0	AM	CW-100 mi. Tone-70 Voice-30	75	M.O.	None	SCR-177,188,193, 197,203,209,210, 245,284,288,299, 399,499,506,511, 536,543,593,694, AM/TRC-2, AN/VRC-1	Crowfoot (0.4-0.8 Mc); 1/4 Wave Inv. L with Ctpse. (1.5-4.5Mc.) (Figs. 1459 & 1458)
SCR-178 Fig.No. 1405	Transmitter BC-187 Modulator BC-188 Receiver BC-186	2.4-3.7	AM	Pt.-to-Pt. CW-25 mi. Tone-20 Voice-10 Grd.-to-Plane CW-100 mi. Tone-75 Voice-30	5 CW 2 Voice 3 Tone Tone Voice	M.O.	None	SCR-178, 179 (See Par.1409)	25-Ft. Whip (MS-49 to 56 incl.) and Ctpse. CP-12 & CP-13 (Fig. 1460)
SCR-179 Fig.No. 1405	Transmitter BC-187 Modulator BC-188 Receiver BC-186	2.4-3.7	AM	Pt.-to-Pt. CW-25 mi. Tone-20 Voice-10 Grd.-to-Plane CW-100 mi. Tone-75 Voice-30	5 CW 2 Voice 3 Tone Tone Voice	M.O.	None	SCR-178, 179 (See Par.1409)	25-Ft. Whip (MS-49 to 56 incl.) and Ctpse. (CP-12 & CP-13) (Fig. 1460)

<sup>a</sup>This is the military characteristic distance range, see paragraph 1404.

<sup>b</sup>M.O. is used to indicate Master Oscillator control and Xtal to indicate crystal control.

<sup>c</sup>Sets with which it is possible to establish communication by virtue of overlap in operating frequency ranges. Communication may also be established with airborne radio sets which operate in the same frequency range. Obsolete sets not covered, see paragraph 1409 for their frequency overlap.

<sup>d</sup>Antenna is part of set. Figure numbers refer to sketches of representative antennas.

<sup>e</sup>Power supply units are normally furnished as a part of the radio set unless stated otherwise. The recently adopted policy of shipping equipment "less batteries" requires that dry batteries, in general, be requisitioned separately. Storage batteries, except vehicular, are supplied with the set.

Power Supply <sup>e</sup>	Power Input Requirements	Maintenance Equipment <sup>g</sup>	Weight In Use (Lbs.)	TM or Inst. Book <sup>h</sup>	Remarks
<u>Xmtr</u> - Hand Gen. GN-35 <u>Rec.</u> - 3 Bat. BA-23 2 Bat. BA-2	<u>Xmtr</u> - 12.5W. 10V.DC 10W. 400V.DC <u>Rec.</u> - 0.75A at 4.5V.DC 10 Ma. at 90V. DC	AC Vacuum Tube Volt- meter	76.5	TM 11-237	OBSOLETE - Pack; loop, telegraph set using a regenerative receiver and Hartley oscillator transmitter. Can be carried by two men Replaced by SCR-284. Used by Sig.C, INF, AF.
<u>Xmtr</u> - Hand Gen. GN-35 <u>Rec.</u> - 3 Bat. BA-23 2 Bat. BA-2	<u>Xmtr</u> - 12.5W. 10V.DC 10W. 400V.DC <u>Rec.</u> - 0.75A at 4.5V.DC 10 Ma. at 90V.DC	AC Vacuum Tube Volt- meter	76.5	TM 11-237	OBSOLETE - Pack; loop telegraph set using a regenerative receiver and Hartley oscillator transmitter. Can be carried by two men. Replaced by SCR-284. Used by FA.
<u>Xmtr</u> - Hand Gen. GN-35 <u>Rec.</u> - 3 Bat. BA-23 2 Bat. BA-2	<u>Xmtr</u> - 12.5W. 10V.DC 10W. 400V.DC <u>Rec.</u> - 0.75A at 4.5V.DC 10 Ma. at 90V.DC	AC Vacuum Tube Volt- meter	179	TR-1210-31	OBSOLETE - Ground, transportable; intended for command communication use between Division Headquarters and Brigades and Regiments. Transported by vehicle. Replaced by SCR-284. Used by Sig.C, INF, FA, AAF
Power Unit PE-49 Dyn. Unit ED-69 2 Stor. Bat. EB-50 (Incl. 1 spare)	<u>Xmtr</u> - (From PE-49) 365W. at 14.4V.DC 350W. at 1000V.DC <u>Rec.</u> - 3A. at 14V. DC	Freq. Meter SCR-211, Sig.Gen.I-72, Test Set I-56, Output Meter, Dummy Antenna, 0-1A RF Ammeter	850	TM 11-232 TM 11-800 (Xmtr)	Ground, transportable; used between tactical field units. Carried in vehicle or cargo aircraft. Limited Standard. Replaced by SCR-177-B. Used by Sig.C, CAC, TD.
Power Unit PE-49-C 2 Stor. Bat. EB-46 (Incl. 1 spare)	<u>Xmtr</u> - (From PE-49) 365W. at 14.4V.DC 350W. at 1000V.DC <u>Rec.</u> - (Ea.) 4.2A. at 12V. DC	Freq. Meter SCR-211, Sig.Gen.I-72, Test Set I-56, Output Meter, Dummy Antenna, 0-1A RF Ammeter	1000	TM 11-232 TM 11-800 (Xmtr) TM 11-850 (Rec.)	Ground, transportable; used between tactical field units and as ground set in ground-to-plane communication. Two receivers. Transported by vehicle or cargo aircraft. Used by Sig.C, AAF, CAC, TD.
<u>Xmtr</u> - Hand Gen. GN-37 <u>Mod.</u> - 2 Bat. BA-23 1 Bat. BA-27 <u>Rec.</u> - 4 Bat. BA-2 2 Bat. BA-23 1 Bat. BA-27	<u>Xmtr</u> - 25W. 8V. DC 50W. 500V.DC 3V. & 4.5V.DC <u>Rec.</u> - 0.25A. at 3V.DC 7 Ma. at 90V.DC		225 (Packed for Trans- porta- tion)	TM 11-231	OBSOLETE - Ground, transportable; intended for point-to-point and ground-to-plane communication between artillery units and aircraft for observation purposes. Replaced by SCR-608, SCR-609, SCR-610 and SCR-628. Used by Sig.C, AAF, FA.
<u>Xmtr</u> - Hand Gen. GN-37 <u>Mod.</u> - 2 Bat. BA-23 1 Bat. BA-27 <u>Rec.</u> - 4 Bat. BA-2 2 Bat. BA-23 1 Bat. BA-27	<u>Xmtr</u> - 25W. 8V.DC 50W. 500V.DC 3V. & 4.5V.DC <u>Rec.</u> - 0.25A. at 3V.DC 7 Ma. at 90V.DC		225 (Packed for Trans- porta- tion)	TM 11-231	OBSOLETE - Pack; same as SCR-178 except carrying cases have pack saddle hangers for transportation by pack animal. Replaced by SCR-608, SCR-609, SCR-610 and SCR-628. Used by FA.

<sup>e</sup>Maintenance equipment is not furnished as a part of the radio set unless so indicated. Listed here are electrical instruments which may be required to provide normal servicing of the sets.

<sup>h</sup>The first TM listed for each radio set covers the complete set; subsequent TM's cover components of that set. All are normally supplied with the radio set.

Table continued on next page

RADIO SETS FOR GROUND USE - TACTICAL - DESCRIPTIVE AND TECHNICAL DATA. (Continued)

Type	Major Radio Components	Frequency Range-Mc	Type Mod.	Emission & Military Char. Range In Miles <sup>a</sup>	Rated Trans. Power Output- Watts	Freq. Control <sup>b</sup>	Preset Channels	Communicates With <sup>c</sup>	Type Antenna <sup>d</sup>
SCR-188 Fig.No. 1406	Transmitter BC-AA-191 Tuning Unit TU-AA-5 TU-AA-6 TU-AA-7 TU-AA-8 TU-AA-9 TU-AA-10 Ant.Tun.Unit BC-AA-194 Receiver BC-189-A Coil Set C-144-A C-145-A C-146-A C-147-A C-148-A C-149-A C-150-A C-151-A C-152-A	1.5-3.0 3.0-4.5 4.5-6.2 6.2-7.7 7.7-10.0 10.0-12.5 0.8-12.5 0.4-0.65 0.65-1.0 1.0-1.5 1.5-2.6 2.6-4.5 4.5-6.2 6.2-8.0 8.0-10.5 10.5-13.0	AM	CW-100 mi. Tone-70 Voice-30	75	M.O.	None	SCR-177,188,193, 197,203,209,210, 245,284,288,299, 399,499,506,511, 536,543,593,694, AN/TRC-2, AN/VRC-1	1/4 or 3/4 Wave Inv. L Ant. with Ctpse. (Fig. 1458)
SCR-188-A Fig.No. 1407	Transmitter BC-191-C Tuning Unit TU-5-A TU-6-A TU-7-A TU-8-A TU-9-A TU-10-A Receiver BC-342-C Control Unit RM-12 RM-13	1.5-3.0 3.0-4.5 4.5-6.2 6.2-7.7 7.7-10.0 10.0-12.5 1.5-18.0	AM	CW-100 mi. Tone-70 Voice-30	75 (Less at freq. above 8 Mc.)	M.O.	None	SCR-177,188,193, 197,203,209,210, 245,284,288,299, 399,499,506,511, 536,543,593,694, AN/TRC-2, AN/VRC-1	1/4- or 3/4-Wave Inv. L Ant. with Ctpse. (Fig. 1458)
SCR-193-( ) Fig.No. 1408	Transmitter BC-191 Tuning Unit TU-5-A TU-6-A Receiver BC-312	1.5-3.0 3.0-4.5 1.5-18.0	AM	Stationary- CW-60 mi. Tone-40 Voice-20 Moving - CW-30 mi. Tone-20 Voice-15	75	M.O.	None	SCR-177,188,193, 197,203,209,210, 245,284,288,299, 399,499,506,511, 536,543,593,694, AN/TRC-2, AN/VRC-1	15-Ft. Whip (MS-49 to 53 incl.), or 22-1/2 Ft. Wire AN-24 in semi-fixed loc. (Fig. 1461b)
SCR-194 Fig.No. 1409	Receiver and Transmitter BC-222	27.7-52.2	AM	Voice - 5 mi.	0.5	M.O. (Xtal Cal- ibrated)	None	SCR-194	13-Ft. Telescoping Whip AN-29-B (Fig. 1461a) and Vert. Half-Rhombic RC-63 (Ordered sepa- rately) (Fig. 1469)
SCR-195 Fig.No. 1410	Receiver and Transmitter BC-322	52.8-65.8	AM	Voice - 3 mi.	0.5	M.O. (Xtal Cal- ibrated)	None	SCR-195	6-Ft. Whip (MS-50 & 51) or 9-Ft. Telescoping Whip AN-30-B (Fig. 1461a) and Vert. Half- Rhombic RC-63 (Ordered separately) (Fig. 1469)

<sup>a</sup>This is the military characteristic distance range, see paragraph 1404.

<sup>b</sup>M.O. is used to indicate Master Oscillator control and Xtal to indicate crystal control.

<sup>c</sup>Sets with which it is possible to establish communication by virtue of overlap in operating frequency ranges. Communication may also be established with airborne radio sets which operate in the same frequency range. Obsolete sets not covered, see paragraph 1409 for their frequency overlap.

<sup>d</sup>Antenna is part of set. Figure numbers refer to sketches of representative antennas.

<sup>e</sup>Power supply units are normally furnished as a part of the radio set unless stated otherwise. The recently adopted policy of shipping equipment "less batteries" requires that dry batteries, in general, be requisitioned separately. Storage batteries, except vehicular, are supplied with the set.

Power Supply <sup>e</sup>	Power Input Requirements <sup>f</sup>	Maintenance Equipment <sup>g</sup>	Weight In Use (Lbs.)	TM or Inst. Book <sup>h</sup>	Remarks
Power Unit PE-49 Dyn. Unit BD-69 2 Stor. Bat. BB-50 (Incl. 1 spare)	Xmtr - (From PE-49) 365W. at 14.4V.DC 350W. at 1000V.DC Rec. - 3A. at 14V.DC	Freq. Meter SCR-211, Dummy Antenna, O-1A. RF Ammeter	1150	TM 11-233	Ground, transportable; used for ground-to-ground or ground-to-air communication. Transported by vehicle or cargo plane. Limited Standard. Replaced by SCR-188-A. Used by Sig.C, AAF.
Xmtr - 115V. or 230V. 60 cycle Com'l Power or Power Unit PE-75, and Rectifier RA-34 Rec. - 115V. 60 Cycle Com'l. Power if operated remote from transmitting site Control Units - 4 Bat. BA-30	Xmtr - 800W. 115V. 60 Cycle AC (200W. at 12V.DC, 350W. at 1000V.DC From Rect. RA-34) Rec. - 85W. 115V. 60 Cycle AC (or thru 0-250 ohm, 200W. Resis- tance to 230V.AC)	Freq. Meter SCR-211, Dummy Antenna, O-1A. RF Ammeter	1385	TM 11-233 TM 11-800 (Xmtr) TM 11-850 (Rec.) TM 11-900 (Power Unit)	Ground, transportable; used for ground-to-ground, or ground-to-air communication. Intended for semi-fixed use inside of buildings where commercial AC power is available. Can be operated in an emergency from the gasoline engine driven generator supplied. Control Unit RM-12 and Control Unit RM-13 are components of Remote Control Equipment RC-47. All components of RC-47 are supplied with this radio set. Can be remotely controlled over 5 Mi. of Wire W-110-B. Transported by vehicle or cargo plane. Used by Sig.C, AAF.
Dynamotor BD-77 Vehicle's 12V. Bat.	Xmtr - 57A. (Max.) at 14.2V. DC from Vehicle's Bat- tery Generator Rec. - 4.2A. at 12V.DC	Freq. Meter SCR-211, Dummy Antenna, O-1A. RF Ammeter	234	TM 11-273 TM 11-800 (Xmtr) TM 11-850 (Rec.)	Vehicular; for communication between stationary or moving vehicles. Normally installed in a vehicle equipped with a 12-volt, 180 ampere-hour storage battery and a 50-ampere generator. SCR-193 has different major components than SCR-193-( ) but operates in same frequency range. Used by Sig.C, AF, CAV, ENG.
Bat. BA-32	-13.5V, +5V, +4.5V, +14.4V.DC		30 <sup>d</sup>	TM 11-238	Pack; walkie-talkie, provides communication over relatively short distances. Two tube transceiver consisting of modulated oscillator/super regenerative detector and modulator/audio amplifier. Used for training purposes and special projects. Limited Standard. Replaced by SCR-609 and SCR-610. Used by Sig.C, AF, ENG, FA.
Bat. BA-32	-13.5V, +3V, +4.5V, +14.4V.DC		30 <sup>d</sup> Portable 58 <sup>d</sup> Vehicular	TM 11-238	OBSOLETE - Pack and vehicular; two tube transceiver consisting of modulated oscillator/super regenerative detector and modulator/audio amplifier. Used for training purposes and special projects. Replaced by SCR-609 and SCR-610. Used by Sig.C, INF.

<sup>f</sup>AC power input requirements are given in watts. To obtain volt-amperes divide watts by 0.8 to 0.9.

<sup>g</sup>Maintenance equipment is not furnished as a part of the radio set unless so indicated. Listed here are electrical instruments which may be required to provide normal servicing of the sets.

<sup>h</sup>The first TM listed for each radio set covers the complete set; subsequent TM's cover components of that set. All are normally supplied with the radio set.

<sup>d</sup>The weights of the sets are for normal field operation, excluding accessories not required for the type of operation indicated.

Table continued on next page

RADIO SETS FOR GROUND USE - TACTICAL - DESCRIPTIVE AND TECHNICAL DATA. (Continued)

Type	Major Radio Components	Frequency Range-Mc	Type Mod.	Emission & Military Char. Range In Miles <sup>a</sup>	Rated Trans. Power Output-Watts	Freq. Control <sup>b</sup>	Preset Channels	Communicatee With <sup>c</sup>	Type Antennad
SCR-197 Fig.No. 1411	Transmitter BC-325 Control Unit RM-7 Mtd. in Prime Mover, Truck K-18 3 Receivers BC-342 1 Monitor Receiver Hallicrafter S-20-R Control Unit RM-7 Mtd. in Trailer K-19	1.5-18.0      1.5-18.0  0.54-44.0	AM	CW-35 mi. Tone-35 Voice-35	400 CW 100 Voice or Tone	M.O. or Xtal	None (See Remarks)	SCR-177,188,193, 197,203,209,210, 245,284,288,299, 399,499,506,511, 536,543,593,694, AN/TRC-2, AN/VRC-1	Xmtr-45-Ft. Vert. (MS-65 to 73 incl.) Rec.-3 15-Ft. Whips (MS-49 to 53 incl.) 2 Screen Roof Ant. (Fig. 1460 without Ctpee.)
SCR-203 Fig.No. 1412	Transmitter BC-228 Receiver BC-227 Control Box BC-235	2.2-3.06  2.1-3.1	AM	Stationary- CW-30 mi. Tone-20 Voice-5 Moving- CW-10 mi. Tone-6 Voice-3	7.5       7.5 Voice or Tone	M.O.	None	SCR-177,188,193, 197,203,209,210, 245,299,399,499, 506,511,543,593, AN/TRC-2, AN/VRC-1	25-Ft. Whip (MS-49 to 56 Incl.) (Fig. 1460 with- out Ctpee.)
SCR-209 Fig.No. 1413	Transmitter BC-176 Receiver BC-312 Control Box BC-206	2.2-2.6  1.5-18.0	AM	Stationary- CW-30 mi. Tone-20 Voice-5 Moving- CW-10 mi. Tone-6 Voice-3	8.5 CW  7.5 Voice or Tone	M.O.	None	SCR-177,188,193, 197,203,209,210, 245,299,399,499, 506,511,543,593, AN/TRC-2, AN/VRC-1	15-Ft. Whip (MS-49 to 53 Incl.) (Fig. 1461b)
SCR-210 Fig.No. 1414	Receiver BC-312 (Receiver BC-189 used in earlier model, char- acteristics not shown)	1.5-18.0	AM	CW, Tone, Voice	-	-	None	SCR-177,188,193, 197,203,209,245, 284,288,299,399, 499,506,511,536 543,694, AN/TRC-2, AN/VRC-1	15-Ft. Whip (MS-49 to 53 Incl.) (Fig. 1461b)
SCR-245 Fig.No. 1415	Transmitter BC-223 Tuning Unit TU-17 TU-18 TU-25 Receiver BC-312	  2.0-3.0 3.0-4.5 3.5-5.25  1.5-18.0	AM	Stationary- CW-45 mi. Tone-35 Voice-20 Moving- CW-25 mi. Tone-20 Voice-15	10	M.O. or Xtal (Holder (FT-171)	None (See Remarks)	SCR-177,188,193, 197,203,209,210, 245,284,288,299, 399,499,506,511, 536,543,593,694, AN/TRC-2, AN/VRC-1	15-Ft. Whip (MS-49 to 53 Incl.), or 22-1/2 Ft. Wire AN-24 in semi-fixed loc. (Fig. 1461b)

<sup>a</sup>This is the military characteristic distance range, see paragraph 1404.

<sup>b</sup>M.O. is used to indicate Master Oscillator control and Xtal to indicate crystal control.

<sup>c</sup>Sets with which it is possible to establish communication by virtue of overlap in operating frequency ranges. Communication may also be established with airborne radio sets which operate in the same frequency range. Obsolete sets not covered, see paragraph 1409 for their frequency overlap.

<sup>d</sup>Antenna is part of set. Figure numbers refer to sketches of representative antennas.

<sup>e</sup>Power supply units are normally furnished as a part of the radio set unless stated otherwise. The recently adopted policy of shipping equipment "less batteries" requires that dry batteries, in general, be requisitioned separately. Storage batteries, except vehicular, are supplied with the set.

Power Supply <sup>e</sup>	Power Input Requirements <sup>f</sup>	Maintenance Equipment <sup>g</sup>	Weight In Use (Lbs.)	TM or Inet.Book <sup>h</sup>	Remarks
<u>Xmtr</u> - 115V. or 230V. 60 Cycle AC Ccm'l Power or Gen. GN-42 (Emergency) <u>Rec.</u> - 110V. 60 Cycle AC Ccm'l Power or 2 Power Units PE-75 <u>Freq. Meter</u> - 6 Bat. BA-2 4 Bat. BA-23 <u>Control Units</u> - 4 Bat. BA-30 <u>Trailer K-19</u> 1 Bat. BA-44	<u>Xmtr</u> - 4300W. 115V. or 230V. 60 Cycle AC incl. 2150W. For Heaters and Lights <u>Rec.</u> - Ba. 85W, 115V. 60 Cycle AC (or thru 0-250 ohm, 200W. Res. to 230V. AC)	Freq. Meter SCR-211 (Incl. with Set), Test Set I-56	15700 Including Vehicles K-18, K-19	TM 11-241 TM 11-805 (Transmitt- ing Com- ponents) TM 11-900 (Power Unit)	Ground, mobile; high power radio station. For use at an Air Corps base or with large field units. Transmitter installed in Truck K-18. 3 receivers, plus monitor, installed in Trailer K-19. Switch selec- tion of master oscillator or any one of five crystal frequencies. Provision for installation of telephone swbd, tele- type and typewriters in Trailer K-19. Transmitter can be remotely controlled using voice, tone or CW operation up to a distance of 7-1/2 Mi. of Wire W-110-B. Limited Standard. Replaced by SCR-399. Used by Sig.C, AAF, AF, INF.
<u>Xmtr</u> - Hand Gen. GN-35 2 Bat. BA-2 (Bias) <u>Rec.</u> - 4 Bat. BA-23 (Fil.) 4 Bat. BA-2 (Plate) 1 Bat. BA-27 (Bias)	<u>Xmtr</u> - Hand Gen. 20W. 8.25V. DC 34W. 340V. DC		162 Exclusive of Pack Saddle	TM 11-230	Pack; low power short range highly port- able command set designed to clamp on a Phillips Pack Saddle for animal-pack transportation and operation. Limited Standard. Replaced by SCR-245. Used by Sig.C, CAV, FA.
<u>Xmtr</u> - 12V. Vehicular Bat. Motor Gen. & Bat. Unit PE-48 4 Bat. BA-2 <u>Rec.</u> - 12V. Vehicular Bat.	<u>Xmtr</u> - 8V. & 12V. DC from Vehicle's Battery 90V. DC Bias Bat. <u>Rec.</u> - 4.2A. at 12V. DC		174	Inst. Book (Stock No. 6D8209)	Vehicular; for use in combat and scout cars equipped with a 12-volt, 180 ampere- hour storage battery and a 50-ampere gen- erator. Limited Standard. Replaced by SCR-508 and SCR-528. Used by AF.
12V. Vehicular Bat.	4.2A. at 12V. DC		71	TM 11-272	Vehicular; receiver only; for use in Signal Corps school and Armored Force replacement training center or for in- stallation in any vehicle requiring a separate receiver. Limited Standard. Replaced by SCR-538. Used by Sig.C, AF.
Dyn. Unit PE-55 Vehicle's 12V. Bat.	<u>Xmtr</u> - +3V., +12V. & +500V. DC Derived from PE-55 operating on vehicle's Battery <u>Rec.</u> - 50W. at 12V. DC	Freq. Meter SCR-211, 0-100 MA or 0-200 MA RF Milliam- meter, A-58 Dummy Ant., Test Set I-56, Sig. Gen. I-72, Maintenance Equipment ME-5	185	TM 11-272	Vehicular; for providing communication between stationary or moving vehicles equipped with a 12-volt, 180 ampere-hour storage battery with a 50-ampere gen- erator. Tuning Unit TU-25-A, covering fre- quency range 3.5 to 5.25 Mc, issued only to Cavalry. Switch selection of master oscillator or any one of four crystal frequencies. Replaced in Armored Force by SCR-508 or SCR-528. Used by Sig.C, AF, CAV, FA, INF.

<sup>f</sup>AC power input requirements are given in watts. To obtain volt-amperes divide watts by 0.8 to 0.9.

<sup>g</sup>Maintenance equipment is not furnished as a part of the radio set unless so indicated. Listed here are electrical instruments which may be required to provide normal servicing of the sets.

<sup>h</sup>The first TM listed for each radio set covers the complete set; subsequent TM's cover components of that set. All are normally supplied with the radio set. The stock number for the instruction book is given when no other identification is available.

Table continued on next page

RADIO SETS FOR GROUND USE - TACTICAL - DESCRIPTIVE AND TECHNICAL DATA. (Continued)

Type	Major Radio Components	Frequency Range-Mc	Type Mod.	Emission & Military Char. Range In Miles <sup>a</sup>	Rated Trans. Power Output- Watts	Freq. Control <sup>b</sup>	Preset Channels	Communicates With <sup>c</sup>	Type Antenna <sup>d</sup>
SCR-284-A Fig.No. 1416	Receiver and Transmitter BC-654 Remote Control RM-29	3.8-5.8	AM	CW-30 mi. Voice-7	High Power 20 CW 8 Voice  Low Power (GN-45) 6.5 CW 2 Voice	M.O. (Xtal Calibrated)	None	SCR-177,188,193, 197,210,245,284, 288,299,399,499, 506,511,536,543, 593,694, AN/TRC-2, AN/VRC-1	Field Use-25-Ft. Whip and Radial Ctpse., or optional (not supplied) Single-wire fed half-wave Antenna, Inv. L Ant., or Ground Ant. (Wire lying on ground) (Figs. 1460, 1464 & 1458) Vehicular - 15 Ft. Whip (Fig. 1461b)
SCR-288-A Fig.No. 1417	Receiver and Transmitter BC-474	2.3-6.5 3.5-6.3	AM	CW-30 mi Voice-15	4	M.O.	None	SCR-177,188,193, 197,210,245,284, 288,299,399,499, 506,511,536,543, 593,694, AN/TRC-2, AN/VRC-1	35-Ft. Hor. End Fed Wire with 35-Ft. Ctpse. on ground
SCR-293 Fig.No. 1418	Receiver and Transmitter BC-500 Receiver BC-499 Mounting FT-239	20.0-27.9	FM	Voice - Stationary 7 mi. Moving 5 mi.	Full Power 25  Low Power 0.5	Xtal	5 (See Remarks)	SCR-293,294,508, 509,510,528,538, 608,609,610,628, 808,828	9-Ft. Flex. Whip AN-42-A with 2-ft. Ext. (Used on 20 to 23 Mc.) (Fig. 1461b)
SCR-294 Fig.No. 1419	Receiver BC-499 Mounting FT-239	20.0-27.9	FM	Voice	-	-	5 (See Remarks)	SCR-293,508,509, 510,528,608,609, 610,628,808,828	9-Ft. Flex. Whip AN-42-A (Fig. 1461b)
SCR-298-C Fig.No. 1420	Transmitter F.M.Link 35 UFM Receiver F.M.Link 11 UF	30-40	FM	Voice - Stationary 10 mi. Moving 7 mi.	35	Xtal	1	SCR-298,608,609, 610,628,808,828, AN/CRC-3	6- or 7-Ft. Flex. Whip (Fig. 1461b)

<sup>a</sup>This is the military characteristic distance range, see paragraph 1404.

<sup>b</sup>M.O. is used to indicate Master Oscillator control and Xtal to indicate crystal control.

<sup>c</sup>Sets with which it is possible to establish communication by virtue of overlap in operating frequency ranges. Communication may also be established with airborne radio sets which operate in the same frequency range. Obsolete sets not covered, see paragraph 1409 for their frequency overlap.

<sup>d</sup>Antenna is part of set. Figure numbers refer to sketches of representative antennas.

<sup>e</sup>Power supply units are normally furnished as a part of the radio set unless stated otherwise. The recently adopted policy of shipping equipment "less batteries" requires that dry batteries, in general, be requisitioned separately. Storage batteries, except vehicular, are supplied with the set.

Power Supply <sup>a</sup>	Power Input Requirements	Maintenance Equipment <sup>b</sup>	Weight In Use (Lbs.)	TM or Inst. Book <sup>d</sup>	Remarks
Pack- Hand Gen. GN-45 Bat. BA-43 Ground, trans- portable- Hand Gen. GN-45 with Bat. BA-43 preferred, or with Power Con- verter PE-104-A. Control Unit- 1 Bat. BA-27 Vehicular- 6V. or 12V. vehic. bat. with Power Unit PE-103-A and Power Converter PE-104-A	Transmitting- 147W. 6V. DC or 174W. 12V. DC, or from GN-45 63W. 6V. & 500V. DC	Test Set I-56, Sig. Generator	111 Man Pack Operation 275 Vehicular Operation	TM 11-275	Ground, transportable; vehicular or pack. Command set to be used either in a vehicle or on the ground for communication principally between the Rifle Regiment and its Battalion in the various phases of combat. For pack operation, carried as a three-man load. When used as a ground, transportable set it may be desirable to supply a 6-volt storage battery for operation of Power Converter PE-104-A rather than to operate hand generator for receiving. When present stocks are exhausted RM-29 will no longer be furnished as a component; RC-289 will then be ordered separately as a replacement remote control. Limited Standard. Replaced by SCR-694. Used by Sig.C. CAC, FA, INF.
Imtr - Hand Gen. GN-44 Rec. - 1 Bat. BA-48 Preferred or Hand Gen. GN-44 with Filter FL-10	Transmitting - 0.1A. at 290V. DC and 1.65A. at 6.6V. DC	Freq. Meter SCR-211, Sig. Gen. I-72, Test Set I-56	71	TM 11-250	Pack and ground, transportable; carried in a vehicle or as a two man load. Temporary replacement for SCR-131, SCR-161 and SCR-171. Limited Standard. Replaced by SCR-284. Used by Sig.C, FA, INF.
12V. or 24V. Vehicular Bat. (3 Dynamotors Integral with the Imtr and Recs.) (SCR-293 for 12V. operation) (SCR-293-B for 24V. operation)		Test Meter I-87, Sig. Generator	115	Inst. Book (Stock No. 6D8293A)	Vehicular; for short range communication between units of the Armored Force. Installed in tank and scout cars. Principally intended for use by Battalion, Company and Platoon Commanders in the tactical control of their units in combat. The preset channels are limited to adjacent 100 kc. channels, two of which may be selected from the front panel, the remaining three being selected by means of switches inside the set. Limited standard. Replaced by SCR-508 and SCR-528. Used by AF.
12V. or 24V. Vehicular Bat. (Dynamotor Integral with Rec.) (SCR-294 for 12V. operation) (SCR-294-B for 24V. operation)	2A. at 28V. DC or 4A. at 14V. DC	Test Meter I-87, Sig. Generator	56	Inst. Book (Stock No. 6D8293A)	Vehicular; receiver only of SCR-293. Installed in tank and scout cars. The preset channels are limited to adjacent 100 kc. channels which may be selected by a switch inside of the receiver. Limited standard. Replaced by SCR-538. Used by Sig.C, AF.
6V. Vehicular Bat. and VPA-3A Power Supply for Rec. (Dynamotor In- tegral with Imtr)	Transmitting - 30A. at 6V. DC Receiving - 9A. at 6V. DC (Incl. Imtr Standby)	Test Set I-56	75	Inst. Book (Stock No. 6D8298C) (TM 11-609)	Vehicular; commercial police car set designed for two-way communication. Used by umpire personnel. SCR-298-( ) may have different major radio components, and somewhat different characteristics depending on the particular procurement. Substitute standard. Used by FA.

<sup>a</sup>Maintenance equipment is not furnished as a part of the radio set unless so indicated. Listed here are electrical instruments which may be required to provide normal servicing of the sets.

<sup>d</sup>The first TM listed for each radio set covers the complete set; subsequent TM's cover components of that set. All are normally supplied with the radio set. The stock number for the instruction book is given when no other identification is available.

Table continued on next page

RADIO SETS FOR GROUND USE - TACTICAL - DESCRIPTIVE AND TECHNICAL DATA. (Continued)

Type	Major Radio Components	Frequency Range-Mc	Type Mod.	Emission & Military Char. Range In Miles <sup>a</sup>	Rated Trans. Power Output- Watts	Freq. Control <sup>b</sup>	Preset Channels	Communicates With <sup>c</sup>	Type Antenna <sup>d</sup>
SCR-299 Fig.No. 1421	Transmitter BC-610 Receiver BC-312 BC-342 Ant.Tun.Unit BC-729 Speech Amp. BC-614 2 Telephones EE-8 All mounted in Truck K-51	2.0-8.0 (See Re- marks) 1.5-18.0 1.5-18.0	AM	CW, Voice 100 mi. Stationary or Moving	400 CW 300 Voice	M.O. or Xtal (Holder FT-171)	None	SCR-177,188,193, 197,203,209,210, 245,284,288,299, 399,499,506,511, 536,543,593,694, AN/TRC-2, AN/VRC-1	<u>Intr</u> - 15-Ft. Whip (MS-49 to 53 Incl., Hor. while in motion, vert. when stat.) Other options for in- creased range in stat operation, 21-Ft. Whip (2 MS-54 added to above) and between 2 to 4.5 Mc., 45-Ft. Aux. Wire Ant. (See Remarks) <u>Rec.</u> - 2 9-Ft. Whips (MS-49 to 51 incl.)  (Figs. 1461b & 1463)
SCR-300 Fig.No. 1422	Receiver and Transmitter BC-1000	40-48	FM	Voice - 3 mi. (Long Ant.)	0.5	M.O. (Xtal Cal- ibrated)	None	SCR-300,AN/VRC-3	10-Ft. 8-In. Whip (AN-131, Half-wave) or 33-In. Whip (AN-130, End Loaded) (Fig. 1461b without base & 1462) Ground- plane ant. (Fig. 1472) - See Remarks
SCR-399 Fig.No. 1423	Transmitter BC-610 Receiver BC-312 BC-342 Ant.Tun.Unit BC-939 Speech Amp. BC-614 2 Telephones EE-8 All mounted in Shelter HO-17	2.0-18.0  1.5-18.0 1.5-18.0	AM	CW, Voice 100 mi. Stationary or Moving	400 CW 300 Voice (Less at Freq. 8 Mc)	M.O. or Xtal (Holder FT-171)	None	SCR-177,188,193, 197,203,209,210, 245,284,288,299, 399,499,506,511, 536,543,593,694, AN/TRC-2, AN/VRC-1	<u>Intr</u> - 15-Ft. Whip (MS-49 to 53 Incl., hor. while in motion, vert. when stat.) Other options for increased range in stat. oper. 21-Ft. Whip (2 MS-54 added to above) and Aux. Wire Ant. 25 to 65 Ft. long depending on freq. (See Re- marks) <u>Rec.</u> - 2 9-Ft. Whips (MS-51 to 53 Incl.) Option for stat. oper.; 2 15-Ft. Whips (MS-49 and MS-50 added to above)  (Figs. 1461b & 1463)

<sup>a</sup>This is the military characteristic distance range, see paragraph 1404.

<sup>b</sup>M.O. is used to indicate Master Oscillator control and Xtal to indicate crystal control.

<sup>c</sup>Sets with which it is possible to establish communication by virtue of overlap in operating frequency ranges. Communication may also be established with airborne radio sets which operate in the same frequency range. Obsolete sets not covered, see paragraph 1409 for their frequency overlap.

<sup>d</sup>Antenna is part of set. Figure numbers refer to sketches of representative antennas.

<sup>e</sup>Power supply units are normally furnished as a part of the radio set unless stated otherwise. The recently adopted policy of shipping equipment "less batteries" requires that dry batteries, in general, be requisitioned separately. Storage batteries, except vehicular, are supplied with the set.

Power Supply <sup>e</sup>	Power Input Requirements <sup>f</sup>	Maintenance Equipment <sup>g</sup>	Weight In Use (Lbs.)	TM or Inst. Book <sup>h</sup>	Remarks
Power Unit PE-95 (Part of Trailer K-52) Incl. 12V. Stor. Bat. or optional, 115V. 60 cycle AC Com'l Power and 2 spare 6V. Stor. Bat. in Truck K-51 Freq. Meter - 6 Bat. BA-2 4 Bat. BA-23 Telephones - 4 Bat. BA-30 Analyzer - 1 Bat. BA-30 2 Bat. BA-34	Xmtr - 2000W. 115V. 60 cycle AC (Plus 1500W. for Heater and Lights) Recs. - BC-312 4.2A. at 12V.DC BC-342 85W. 115V. 60 cycle AC	Analyzer BC-1052, Frequency Meter SCR-211 (Both part of SCR-299) (Tools and spare parts are furnished to effect average repairs and maintenance)	12,375 Including Truck K-51, Trailer K-52  3200 (Approx. wt. of radio components removed from vehicles)	TM 11-280 TM 11-850 (Receivers) TM 11-904 (Power Unit) TM 11-300 (Frequency Meter) TM 11-333 (Telephone)	Ground, mobile; high power radio station for providing communication either from a stationary position or while moving at relatively high speeds over rough roads. May be remotely controlled up to a distance of one mile using the two telephones EE-8-( ) and Wire W-110-B supplied. The remote control equipment provides for remotely keying or voice modulating the transmitter, remotely listening to Receivers BC-312 and BC-342 and communicating with the operator in the radio station who assists in the foregoing operation. A noiseless portable typewriter is included. A half-wave doublet antenna kit has been made available for improving sky wave transmission, thus increasing the range and reliability of operation of this radio set when at a fixed location. (Transmitter of SCR-299-F covers frequency range of 2.0-12.0 Mc.) Frequency conversion kits are now available to extend the transmitter frequency range. Freq. Conversion Kit MC-509 gives coverage down to 1 Mc. Freq. Conversion Kit MC-516 gives coverage to 12 Mc. Freq. Conversion Kit MC-517 gives coverage to 18 Mc. Limited Standard - Replaced by SCR-399 and SCR-499. Used by Sig.C, AAF, CAV, FA, INF.
1 Bat. BA-70 & 1 Bat. BA-80 (Only one in use at a time)	Xmtr - 0.5A. at 4.5V.DC 25 Ma. at 90V.DC 45 Ma. at 150V.DC Rec. - 0.5A. at 4.5V.DC 25 Ma. at 90V.DC	ME-40 or DC Vacuum Tube Voltmeter & Volt ohmmeter I-107, and Sig. Generator or Freq. Meter SCR-211	38	TM 11-242	Pack; designed primarily for "back-pack" or "on-ground" operation, providing two-way communication over short ranges. The short whip antenna gives less distance range than the half-wave whip. Ground plane Antenna Equipment RC-291 is available for use with this set for increasing the distance range obtained by virtue of the increase in antenna height. Must be ordered separately. Used by CAC, FA, INF.
Power Unit PE-95 (Part of Trailer K-52) Incl. 12V. Stor. Bat. or optional, 115V. 60 cycle AC Com'l Power, and 2 Spare 6V. Stor. Bat. in Shelter HO-17 Freq. Meter - 6 Bat. BA-2 4 Bat. BA-23 Telephones - 4 Bat. BA-30 Analyzer - 1 Bat. BA-30 2 Bat. BA-34	Xmtr - 2000W. 115V. 60 cycle AC (Plus 1500W. for Heater, Blower & Lights). Rec. - BC-312 4.2A. at 12V.DC BC-342 85W., 115V. 60 cycle AC	Analyzer BC-1052, Frequency Meter SCR-211 (Both part of SCR-399) (Tools and spare parts are furnished to effect average repairs and maintenance)	6,595 Including Shelter HO-17, Trailer K-52	TM 11-281 TM 11-850 (Receivers) TM 11-904 (Power Unit) TM 11-300 (Frequency Meter) TM 11-333 (Telephone) Shelter HO-17 Inst. Leaf-let	Ground, mobile; high power radio station for providing communication either from a stationary position or while moving at relatively high speeds over rough roads. Installed in Shelter HO-17 combined with power plant normally carried in cargo trailer K-52. Shelter HO-17 may be mounted on a 2-1/2 ton 6 x 6 cargo truck (not a component) for vehicular operation, or on level ground for fixed operation. May be remotely controlled up to a distance of one mile using the two Telephones EE-8-( ) and Wire W-110-B supplied. The remote control equipment provides for remotely keying or voice modulating the transmitter, remotely listening to Receivers BC-312 and BC-342 and communicating with the operator in the radio station who assists in the foregoing operations. A noiseless portable typewriter is included. A half-wave doublet antenna kit is included for improving sky wave transmission, thus increasing the range and reliability of operation when at a fixed location. Frequency conversion kit MC-509 is available to extend the transmitter frequency range down to 1.0 Mc. Used by Sig.C, AAF, AF, CAV, FA, INF.

<sup>f</sup>AC power input requirements are given in watts. To obtain volt-amperes divide watts by 0.8 to 0.9.

<sup>g</sup>Maintenance equipment is not furnished as a part of the radio set unless so indicated. Listed here are electrical instruments which may be required to provide normal servicing of the sets.

<sup>h</sup>The first TM listed for each radio set covers the complete set; subsequent TMs cover components of that set. All are normally supplied with the radio set.

Table continued on next page

RADIO SETS FOR GROUND USE - TACTICAL - DESCRIPTIVE AND TECHNICAL DATA. (Continued)

Type	Major Radio Components	Frequency Range-Mc	Type Mod.	Emission & Military Char. Range In Miles <sup>a</sup>	Rated Trans. Power Output-Watts	Freq. Control <sup>b</sup>	Preset Channels	Communicates With <sup>c</sup>	Type Antenna <sup>d</sup>
SCR-499 Fig.No. 1424	Transmitter BC-610 Receiver BC-312 BC-342 Ant.Tun.Unit BC-939 Speech Amp. BC-614 2 Telephones EE-8	2.0-18.0  1.5-18.0 1.5-18.0	AM	CW, Voice 100 mi. Stationary or Moving (CW only when in 1/4 ton, 4x4 truck.)	400 CW 300 Voice (Less at freq. above 8 Mc.)	M.O. or Ital (Holder FT-171)	None	SCR-177,188,193, 197,203,209,210, 245,284,288,299, 399,499,506,511, 536,543,593,694 AN/TRC-2, AN/VRC-1	Xmtr - 15-Ft. Whip (MS-49 to 53 Incl.) Optional for increased range 21-Ft. Whip (2 MS-54 added to above) or, aux. wire ant. 25 to 65 Ft. long depending on freq. (See Remarks) Rec. - 2 9-Ft. Whips (MS-51 to 53 Incl.) Optional; 2 15-ft. Whips (MS-49 and MS-50 added to above)  (Figs. 1461b & 1463)
SCR-506 Fig.No. 1425	Transmitter BC-653 Receiver BC-652 Mounting FT-253	2.0-4.5  2.0-6.0	AM	CW-50 mi. Voice-25	80 CW 20 Voice	M.O. (Ital Cal- ibrated)	5 (One of which is tunable)	SCR-177,188,193, 197,203,209,210, 245,284,288,299, 399,499,506,511, 536,543,593,694, AN/TRC-2, AN/VRC-1	15-Ft. Whip (MS-49 to 53 Incl.). Optional in Semi-fixed Loc. 25-Ft. Whip (3 MS-54 added to above) or 22-1/2 Ft. Aux. Wire Ant. (Fig. 1461b)
SCR-508 Fig.No. 1426	1 Transmitter BC-604 2 Receivers BC-603 Mounting FT-237 Interphone Control Boxes BC-606 <sup>k</sup>	20.0-27.9	FM	Voice - Stationary 15 mi. Moving - 10 mi.	30	Ital (Holder FT-241)	10	SCR-293,294,508, 509,510,528,538, 608,609,610,628, 808,828	9-Ft. Whip (MS-51 to 53 Incl.) (Fig. 1461b)
SCR-509 Fig.No. 1427	Receiver and Transmitter BC-620 Case CS-79	20.0-27.9	FM	Voice - 5 mi.	1.8	Ital (Holder FT-243)	2	SCR-293,294,508, 509,510,528,538, 608,609,610,628, 808,828	8-Ft. Telescoping Whip AN-45 (Fig. 1461a)

<sup>a</sup>This is the military characteristic distance range, see paragraph 1404.

<sup>b</sup>M.O. is used to indicate Master Oscillator control and Ital to indicate crystal control.

<sup>c</sup>Sets with which it is possible to establish communication by virtue of overlap in operating frequency ranges. Communication may also be established with airborne radio sets which operate in the same frequency range. Obsolete sets not covered, see paragraph 1409 for their frequency overlap.

<sup>d</sup>Antenna is part of set. Figure numbers refer to sketches of representative antennas.

<sup>e</sup>Power supply units are normally furnished as a part of the radio set unless stated otherwise. The recently adopted policy of shipping equipment "less batteries" requires that dry batteries, in general, be requisitioned separately. Storage batteries, except vehicular, are supplied with the set.

Power Supply <sup>e</sup>	Power Input Requirements <sup>f</sup>	Maintenance Equipment <sup>g</sup>	Weight In Use (Lbs.)	TM or Inst. Book <sup>h</sup>	Remarks
Power Unit PE-95 Incl. 12V. Stor. Bat. or, optional 115V., 60 cycle AC Com'l Power, and 2 spare 6V. Stor. Bat. Freq. Meter - 6 Bat. BA-2 4 Bat. BA-23 Telephones - 4 Bat. BA-30 Analyzer - 1 Bat. BA-30 2 Bat. BA-34	<u>Xmtr</u> - 2000W. 115V. 60 cycle AC (Plus 1500W. for Heater, Blower & Lights) <u>Recs.</u> - BC-312 4.2A. at 12V. DC BC-342 85W., 115V., 60 cycles AC	Analyzer BC-1052, Frequency Meter SCR-211 (Both part of SCR-499) (Tools and spare parts are furnished to effect average repairs and maintenance)	3000	TM 11-281 TM 11-850 (Receivers) TM 11-904 (Power Unit) TM 11-500 (Frequency Meter) TM 11-333 (Telephone)	Air transportable; high power radio station similar to SCR-399, except no shelter or trailer provided and components are packed for transportation by air. May be remotely controlled up to a distance of one mile using the two Telephones EE-8-( ) and Wire W-110-B supplied. The remote control equipment provides for remotely keying or voice modulating the transmitter, remotely listening to receivers BC-312 and BC-342 and communicating with the operator in the radio station who assists in the foregoing operations. A noiseless portable typewriter is included. A half-wave doublet antenna kit is included for improving sky wave transmission, thus increasing the range and reliability of operation of this radio set. When installed in 1/4 ton, 4 x 4 truck Antenna Equipment RC-293 (end fed 3/4 wave) is supplied, which together with counterpoise CP-15, is used instead of doublet kit. Frequency Conversion Kit MC-509 is available to extend the transmitter frequency range down to 1.0 Mc. Used by Sig.C, AAF, AF, CAV, FA, INF.
Vehicular 12V. or 24V. Bat. <u>Xmtr</u> - Dynamotor DM-42, 12V. DC or DM-43, 24V. DC <u>Rec.</u> - Dynamotor DM-40, 12V. DC or DM-41, 24V. DC	<u>Receiving</u> - 7A. at 12V. DC or 3.4A. at 24V. DC <u>Transmitting</u> - 47A. at 12V. DC or 25A. at 24V. DC <u>Standby</u> - (Not Incl. Rec.) 8A. at 12V. DC or 4.7A. at 24V. DC		357	TM 11-630	Vehicular; command radio set, designed for installation in tanks, amphibian cars, personnel carriers and cars to provide communication between these vehicles and airplanes or base stations. Used by Sig.C, AF, CAV, ENG, FA, TD.
Vehicular 12V. or 24V. Bat. (Dynamotor Integral with Xmtr & Rec.) (DM-34, 12V. or DM-36, 24V. for Rec.) (DM-35, 12V. or DM-37, 24V. for Xmtr - designed for 5 Min. "On" and 15 Min. "Off" operation)	<u>Xmtr and 2 Rec.</u> - 16A. at 24V. DC or 28A. at 12V. DC	Test Set I-56, Volt-Ohmmeter I-107, FM Sig. Generator, Adapter FT-384, Precision Wavemeter, Cord CD-786	200 (Basic Unit without Installation Components)	TM 11-600	Vehicular; short range set installed in tank, armored car, scout car and truck. Interphone amplifier, integral with transmitter, provides communication for personnel in installations where noise level is high. Used by AF.
1 Bat. BA-39 1 Bat. BA-40 1 Bat. BA-41 (Internal, Bias)	<u>Receiving</u> - 0.7A. at 1.5V. DC 25 Ma. at 90V. DC <u>Transmitting</u> - 0.7A. at 1.5V. DC 45 Ma. at 90V. DC 0.3A. at 7.5V. DC 45 Ma. at 150V. DC	ME-13 or ME-73	56 <sup>j</sup>	TM 11-605	Pack; low power, intended for operation on dry batteries from a stationary position. Used by AF.

<sup>f</sup> AC power input requirements are given in watts. To obtain volt-amperes divide watts by 0.8 to 0.9.

<sup>g</sup> Maintenance equipment is not furnished as a part of the radio set unless so indicated. Listed here are electrical instruments which may be required to provide normal servicing of the sets.

<sup>h</sup> The first TM listed for each radio set covers the complete set; subsequent TM's cover components of that set. All are normally supplied with the radio set.

<sup>j</sup> The weights of the sets are for normal field operation, excluding accessories not required for the type of operation indicated.

<sup>k</sup> The number of Interphone Control Boxes will depend upon the type of vehicle in which the radio set is installed.

Table continued on next page

RADIO SETS FOR GROUND USE - TACTICAL - DESCRIPTIVE AND TECHNICAL DATA. (Continued)

Type	Major Radio Components	Frequency Range-Mc	Type Mod.	Emission & Military Char.Range In Miles <sup>a</sup>	Rated Trans. Power Output-Watts	Freq. Control <sup>b</sup>	Preset Channels	Communicates With <sup>c</sup>	Type Antenna <sup>d</sup>
SCR-510 Fig.No. 1428	Receiver and Transmitter BC-620 Case CS-79 Plate Supply Unit PE-97 Mounting FT-250	20.0-27.9	FM	Voice - 5 mi.	1.8	Xtal (Holder FT-243)	2	SCR-293,294,508, 509,510,528,538, 608,609,610,628, 808,828	<u>Vehicular Use</u> 6-Ft. Whip (MS-52, MS-53) <u>Field Use</u> 8-Ft. Telescoping Whip AN-45 or 27-Ft. Wire (Figs. 1461b & 1461a)
SCR-511 Fig.No. 1429	Receiver and Transmitter BC-745 Tuning Unit BC-746 Chest Unit T-39	2.0-6.0	AM	Voice - 5 mi.	0.75	Xtal (Holder FT-243)	1 (See Remarks)	SCR-177,188,193, 197,203,209,210, 245,284,288,299, 399,499,506,511, 536,543,593,694, AN/TRC-2, AN/VRC-1	10-1/2 Ft. Telescoping Whip (Fig. 1461a)
SCR-528 Fig.No. 1430	Transmitter BC-604 Receiver BC-603 Mounting FT-237 Interphone Control Boxes BC-606 <sup>k</sup>	20.0-27.9	FM	Voice - Stationary 15 mi. Moving 10 mi.	30	Xtal (Holder FT-241)	10	SCR-293,294,508, 509,510,528,538, 608,609,610,628, 808,828	9-Ft. Whip (MS-51 to 53 Incl.) (Fig. 1461b)
SCR-526 Fig.No. 1431	Receiver and Transmitter BC-611	3.5-6.0	AM	Voice - 100 Ft. to 1 mi.	0.02	Xtal (Holder FT-243)	1	SCR-177,188,193, 197,210,245,284, 288,299,399,499, 506,511,536,543, 593,694, AN/TRC-2, AN/VRC-1	39-In. Telescoping Whip (Fig. 1461a)
SCR-538 Fig.No. 1432	Receiver BC-603 Interphone Amplifier BC-605 Mounting FT-237 Interphone Control Boxes BC-606 <sup>k</sup>	20.0-27.9	FM	Voice	-	-	10	SCR-293,508,509, 510, 528,608,609, 610,628,808,828	9-Ft. Whip (MS-51 to 53 Incl.) (Fig. 1461b)

<sup>a</sup>This is the military characteristic distance range, see paragraph 1404.

<sup>b</sup>M.O. is used to indicate Master Oscillator control and Xtal to indicate crystal control.

<sup>c</sup>Sets with which it is possible to establish communication by virtue of overlap in operating frequency ranges. Communication may also be established with airborne radio sets which operate in the same frequency range. Obsolete sets not covered, see paragraph 1409 for their frequency overlap.

<sup>d</sup>Antenna is part of set. Figure numbers refer to sketches of representative antennas.

<sup>e</sup>Power supply units are normally furnished as a part of the radio set unless stated otherwise. The recently adopted policy of shipping equipment "less batteries" requires that dry batteries, in general, be requisitioned separately. Storage batteries, except vehicular, are supplied with the set.

Power Supply <sup>e</sup>	Power Input Requirements	Maintenance Equipment <sup>g</sup>	Weight In Use (Lbs.)	TM or Inst. Book <sup>h</sup>	Remarks
Vehicular 6V. or 12V. Bat. with Plate Supply Unit PE-97 or PE-120, and 1 Bat. BA-41 (Internal, Bias). Field Use - 1 Bat. BA-39 1 Bat. BA-40 1 Bat. BA-41 (Internal, Bias)	<u>Vehicular Operation -</u> <u>Receiving -</u> 2.8A. at 6.2V.DC or 2.1A. at 12.4V.DC <u>Transmitting -</u> 3.5A. at 6.2V.DC or 2.9A. at 12.4V.DC (Dry Bat. Operation Same as SCR-509)	ME-13 or ME-73	121	TM 11-605	Pack and vehicular; low power. Same as SCR-509 with additional components for use with 6-volt or 12-volt vehicular storage battery and equipped with shock mount for mounting in a vehicle. When present stocks of PE-97 are depleted, PE-120 which operates on 6, 12 or 24-volts DC will be supplied as a component. Used by AF, FA.
1 Bat. BA-49 or Power Supply Unit PE-157 including self contained 2V. Stor. Bat. BB-54	<u>Rec. -</u> 355 Ma. at 1.5V.DC 20 Ma. at 67.5V.DC <u>Xmtr -</u> 490 Ma. at 1.5V.DC 50 Ma. at 120V.DC	Test Set I-56, Sig. Generator	39 <sup>j</sup> Vehicular (Less Mts FT-338). 17.5 <sup>j</sup> Portable	TM 11-245	Packed and vehicular; for operation from dry battery or storage battery. Installed in vehicle or carried as guidon by man on horseback or (using dry battery) as one man load. When used with PE-157, the self-contained 2-volt storage battery can be recharged from a 6-volt or 12-volt storage battery. Spare tuning unit carried in chest unit and is readily available for a quick frequency change. Used by Sig.C, CAV, ENG, INF.
Vehicular 12V. or 24V. Bat. (Dynamotor Integral with Xmtr and Rec.) (DM-34, 12V. or DM-36, 24V. for Rec.) (DM-35, 12V. or DM-37, 24V. for Xmtr - designed for 5 Min. "On", 15 Min. "Off" operation)	<u>Xmtr and Rec.</u> 14A. at 24V.DC 24A. at 12V.DC	Test Set I-56, Volt-Ohmmeter I-107, FM Sig. Generator, Adapter FT-384, Precision Wavemeter, Cord CD-786	165 (Basic Unit without Installation Components)	TM 11-600	Vehicular; short range, installed in tank, armored car, scout car and truck. Interphone Amplifier, integral with transmitter, provides communication for personnel in installations where noise level is high. Same as SCR-508 less one receiver. Used by AF.
1 Bat. BA-37 1 Bat. BA-38	<u>Receiving -</u> 0.25A. at 1.5V.DC 11Ma. at 103.5V.DC <u>Transmitting -</u> 0.3A. at 1.5V.DC 35 Ma. at 103.5V.DC	Test Equip. IE-17 or IE-15, and RF Sig. Generator, Freq. Meter SCR-211 and Test Set I-56	5.5	TM 11-235	Pack; very short range "Handie-Talkie". Lightweight, self-contained two-way voice radio set for parachute troops. Used by INF.
Vehicular 12V. or 24V. Bat. (Dynamotor Integral with Rec. and Interphone Amplifier, DM-34, 12V. or DM-36, 24V.)	<u>Rec. and Int. Amp.</u> 5A. at 24V.DC or 8A. at 12V.DC	Test Set I-56, Volt-Ohmmeter I-107, FM Sig. Gen., Adapter FT-384, Cord CD-786	115 (Basic Unit without Installation Components)	TM 11-600	Vehicular; receiver only of SCR-528 plus a separate interphone amplifier. Installed in tank and armored car. Interphone amplifier provides communication for personnel in installations where noise level is high. Used by AF.

<sup>g</sup>Maintenance equipment is not furnished as a part of the radio set unless so indicated. Listed here are electrical instruments which may be required to provide normal servicing of the sets.

<sup>h</sup>The first TM listed for each radio set covers the complete set; subsequent TM's cover components of that set. All are normally supplied with the radio set.

<sup>j</sup>The weights of the sets are for normal field operation, excluding accessories not required for the type of operation indicated.

<sup>k</sup>The number of Interphone Control Boxes will depend upon the type of vehicle in which the radio set is installed.

Table continued on next page

## RADIO SETS FOR GROUND USE - TACTICAL - DESCRIPTIVE AND TECHNICAL DATA. (Continued)

Type	Major Radio Components	Frequency Range-Mc	Type Mod.	Emission & Military Char. Range In Miles <sup>a</sup>	Rated Trans. Power Output- Watts	Freq. Control <sup>b</sup>	Preset Channels	Communicates With <sup>c</sup>	Type Antenna <sup>d</sup>
SCR-543 Fig.No. 1433	Receiver and Transmitter BC-669 Remote Control Unit RM-21	1.68-4.45	AM	Voice - Stationary 20 mi. Moving 15 mi.	45	Ital (Holder FT-171)	6	SCR-177,188,193, 197,203,209,210, 245,284,288,299, 399,499,506,511, 536,543,593,694, AN/TRC-2, AN/VRC-1	15-Ft. Whip (MS-49 to 53 Incl.) & 7 Ft. Radial Ctpse. CP-15 added for non-vehicular use. (Fig. 1461b)
SCR-593 Fig.No. 1434	Receiver BC-728	2.0-6.0	AM	Voice	-	-	4	SCR-177,188,193, 197,203,209,245, 284,288,299,399, 499,506,511,536, 543,694, AN/TRC-2, AN/VRC-1	7-Ft. Telescoping Whip AN-75-A (Fig. 1461a)
SCR-608 Fig.No. 1435	1 Transmitter BC-684 2 Receivers BC-683 Mounting FT-237 Remote Control RM-29	27.0-38.9	FM	Voice - Stationary 15 mi. Moving 10 mi.	30	Ital (Holder FT-241)	10	SCR-293,294,298, 508,509,510,528, 538,608,609,610, 619,628,808,828, AN/CRC-3	9-Ft. Whip (MS-51 to 53 Incl.), or 6-Ft. Whip (MS-52,53) In Half-track (Fig. 1461b)
SCR-609 Fig.No. 1436	Receiver and Transmitter BC-659 Case CS-79 Remote Control RM-29	27.0-38.9	FM	Voice - 5 mi.	2	Ital (Holder FT-241)	2	SCR-293,294,298, 508,509,510,528, 538,608,609,610, 619,628,808,828, AN/CRC-3	13-Ft. Telescoping Whip AN-29-C or 27-Ft. Whip (Fig. 1461a)
SCR-610 Fig.No. 1437	Receiver and Transmitter BC-659 Case CS-79 Remote Control RM-29 Plate Supply Unit PE-117 Mounting FT-250	27.0-38.9	FM	Voice - Stationary 5 mi. Moving 3 mi.	2	Ital (Holder FT-241)	2	SCR-293,294,298, 508,509,510,528, 538,608,609,610, 619,628,808,828, AN/CRC-3	13-Ft. Telescoping Whip AN-29-C or 27-Ft. Wire for emerg. 9-Ft. Whip (MS-50-52) For Vehicular Use (Figs. 1461a & 1461b)

<sup>a</sup>This is the military characteristic distance range, see paragraph 1404.

<sup>b</sup>M.O. is used to indicate Master Oscillator control and Ital to indicate crystal control.

<sup>c</sup>Sets with which it is possible to establish communication by virtue of overlap in operating frequency ranges. Communication may also be established with airborne radio sets which operate in the same frequency range. Obsolete sets not covered, see paragraph 1409 for their frequency overlap.

<sup>d</sup>Antenna is part of set. Figure numbers refer to sketches of representative antennas.

<sup>e</sup>Power supply units are normally furnished as a part of the radio set unless stated otherwise. The recently adopted policy of shipping equipment "less batteries" requires that dry batteries, in general, be requisitioned separately. Storage batteries, except vehicular, are supplied with the set.

Power Supply <sup>e</sup>	Power Input Requirements <sup>f</sup>	Maintenance Equipment <sup>g</sup>	Weight In Use (Lbs.)	TM or Inet. Book <sup>h</sup>	Remarks
Power Unit PE-108 Incl. 12V. Stor. Bat. Power Supply Unit PE-110	<u>Receiving</u> - 220W., 115V., 60 cycle AC, or 5.5A. at 12V. DC <u>Transmitting</u> - 550W., 115V., 60 cycle AC at 85% Power Factor		919	TM 11-625	Ground, transportable and vehicular; medium power transportable command set for use in vehicle or as field station. Equipped with its own gasoline driven source of power for either application. Receiver may be operated from storage battery when gasoline driven generator is not operating. Transmitter and power unit may be controlled from a distance of 18 feet with Remote Control RM-21. Substitute Standard. Used by CAC (AAA).
Stor. Bat. BB-54 (Chargeable from 6V. or 12V. Bat.)	1.85A. at 2V. DC Battery charger 1.1A. at 6V. DC or 0.85A. at 12V. DC		24 <sup>j</sup> Portable 30 <sup>j</sup> Vehicular (Incl. FT-338)	TM 11-859	Pack and vehicular; Push button controlled radio receiver for reception of alert or warning messages. Used by CAC (AAA), ENG.
Vehicular 12V. or 24V. Bat. (Dynamotor Integral with Xntr & Rec.) (DM-34, 12V. or DM-36, 24V. for Rec.) (DM-35, 12V. or DM-37, 24V. for Xntr - Designed for 5 Min. "ON" 15 Min. "OFF" Operation) <u>Remote Control</u> - 1 Bat. BA-27	<u>Xntr and Recs.</u> - 16A. at 24V. DC or 28A. at 12V. DC	Test Set I-56, Volt-Ohmmeter I-107, FM Sig.Gen., Adapter FT-384, 4 to 20 Mc. Sensitive Precision Wavemeter, Cord CD-786	200 (Basic Unit without Installation Components and Remote Control)	TM 11-620 TM 11-308 (Remote Control)	Vehicular; short range, similar to SCR-508 except in frequency. Provides communication for Anti-Aircraft and Anti-Tank Warning and Control Nets. Basic sections at Battalion Command Post, for Fire Control and Fire Direction Nets, and for Intra-Battalion Communication. Installed in armored car, half track and truck. Arranged for remote control operation. When present stocks are exhausted, RM-29 will no longer be supplied as a component; Remote Control Equipment RC-261 will then be ordered separately. Used by FA, TD.
1 Bat. BA-39 1 Bat. BA-40 1 Bat. BA-41 (Internal, Bias) <u>Remote Control</u> - 1 Bat. BA-27	<u>Receiving</u> - 0.94A. at 1.5V. 28 Ma. at 90V. DC <u>Transmitting</u> - 0.94A. at 1.5V. DC 48 Ma. at 90V. DC 0.3A. at 7.5V. DC 50 Ma. at 150V. DC	ME-13 or ME-73	55 <sup>j</sup> without Remote Control 68 <sup>j</sup> With Remote Control	TM 11-615 or TM 11-615A TM 11-308 (Remote Control)	Pack; low power, intended for operation on dry batteries from a stationary position. Higher frequency counterpart of SCR-509. Arranged for remote control operation. When present stocks are exhausted, RM-29 will no longer be supplied as a component; Remote Control RC-261 will then be ordered separately. Used by FA, TD.
Vehicular 6V. or 12V. Bat. with Plate Supply Unit PE-117, or Power Unit PE-120 1 Bat. BA-41 (Internal, Bias) <u>Field Use</u> - 1 Bat. BA-39 1 Bat. BA-40 1 Bat. BA-41 (Internal, Bias) <u>Remote Control</u> - 1 Bat. BA-27	<u>Vehicular Operation</u> - <u>Receiving</u> - 2.7A. at 6.2V. DC or 2.25A. at 12.4V. DC <u>Transmitting</u> - 3.25A. at 6.2V. DC or 2.6A. at 12.4V. DC	ME-13 or ME-73	117 Without Remote Control 130 With Remote Control (Both wts. include Case CS-79 and Batteries)	TM 11-615 or TM 11-615A TM 11-308 (Remote Control)	Pack and vehicular; low power, same as SCR-609, with additional components for use with 6-volt or 12-volt vehicular storage battery and equipped with shock mount for mounting in a vehicle. Arranged for remote control operation. When present stocks are exhausted, RM-29 will no longer be supplied as a component; Remote Control Equipment RC-261 will then be ordered separately. When present stocks of PE-117 are depleted, PE-120 which operates on 6, 12 or 24 volts, DC, will be supplied as a component. Used by FA, TD.

<sup>f</sup> AC power input requirements are given in watts. To obtain volt-amperes divide watts by 0.8 to 0.9.

<sup>g</sup> Maintenance equipment is not furnished as a part of the radio set unless so indicated. Listed here are electrical instruments which may be required to provide normal servicing of the sets.

<sup>h</sup> The first TM listed for each radio set covers the complete set; subsequent TM's cover components of that set. All are normally supplied with the radio set.

<sup>j</sup> The weights of the sets are for normal field operation, excluding accessories not required for the type of operation indicated.

Table continued on next page

RADIO SETS FOR GROUND USE - TACTICAL - DESCRIPTIVE AND TECHNICAL DATA. (Continued)

Type	Major Radio Components	Frequency Range-Mc	Type Mod.	Emission & Military Char. Range In Miles <sup>a</sup>	Rated Trans. Power Output-Watts	Freq. Control <sup>b</sup>	Preset Channels	Communicates With <sup>c</sup>	Type Antenna <sup>d</sup>
SCR-619 <sup>j</sup> Fig.No. 1438	Receiver and Transmitter BC-1335 Mounting FT-506 3 Battery Boxes CB-291	27.0-38.9	FM	Voice	1.5	Xtal	2	SCR-293,294,298, 508,509,510,528, 538,608,609,610, 619,628,808,828, AN/CRC-3	Pack - 4-1/2 Ft. Whip (AB-23/GR, AB-24/GR) Field Use - 12-Ft. Whip (3 AB-21/GR, 1 AB-22/GR, 2 AB-23/GR, 1 AB-24/GR) Vehicular - 9-Ft. Whip (MS-116 to 118 Incl.) (Fig. 1461b) (See Remarks)
SCR-624 Fig.No. 1439	Case CS-80 Containing Transmitter BC-625 Receiver BC-624 Rack FT-244 Control Box BC-1175 BC-1171 BC-1176 2 Telephones EE-8	100-156	AM	Voice - Line-of-Sight Max. 150 mi. Grd.- to-Plane	8	Xtal (DC-11 or similar)	4	SCR-624, RC-256, RC-257, AN/TRC-7, AN/VRC-1	1/2-Wave J Ant. AN-94 on 50-Ft. Mast MA-7 (Fig. 1465)
SCR-628 Fig.No. 1440	Transmitter BC-684 Receiver BC-683 Mounting FT-237 Remote Control RM-29	27.0-38.9	FM	Voice - Stationary 15 mi. Moving 10 mi.	30	Xtal (Holder FT-241)	10	SCR-293,294,298, 508,509,510,528, 538,608,609,610, 619,628,808,828, AN/CRC-3	9-Ft. Whip (MS-51 to 53 Incl.), or 6-Ft. Whip (MS-52,53) in Half-track (Fig. 1461b)
SCR-694-AW Fig.No. 1441	Receiver and Transmitter BC-1136	3.8-6.0	AM	Field Use- CW-30 mi. Voice-15 Vehic.Use- CW-15 mi. Voice-7	Vehic.- 25 CW 7 Voice Field- 15 CW 5 Voice	M.O. (Xtal Calli- brated) or Xtal (Holder FT-243)	None (See Remarks) SCR-177,188,193, 197,210,245,284, 288,299,399,499, 506,511,536,543, 593,694, AN/TRC-2, AN/VRC-1	15-Ft. Whip (MS-49 to 53 Incl.), or 1/2-Wave Sloping Wire (Fig. 1461b without base, & 1466)	
SCR-694-C Fig.No. 1442	Receiver and Transmitter BC-1306	3.8-6.5	AM	Field Use- CW-30 mi. Tone-20 Voice-15 Vehic.Use- CW-15 mi. Tone-10 Voice-7	Vehic.- 20 CW 7 Voice or Tone Field- 10 CW 5 Voice or Tone	M.O. (Xtal Calli- brated) or Xtal (Holder FT-243)	None (See Remarks) SCR-177,188,193, 197,210,245,284, 288,299,399,499, 506,511,536,543, 593,694, AN/TRC-2, AN/VRC-1	15-Ft. Whip (MS-49 to 53 Incl.) and Ctpse. CP-12, CP-13 or 1/2-Wave Sloping Wire AN-160 (Figs. 1460 & 1466)	

<sup>a</sup>This is the military characteristic distance range, see paragraph 1404.

<sup>b</sup>M.O. is used to indicate Master Oscillator control and Xtal to indicate crystal control.

<sup>c</sup>Sets with which it is possible to establish communication by virtue of overlap in operating frequency ranges. Communication may also be established with airborne radio sets which operate in the same frequency range. Obsolete sets not covered, see paragraph 1409 for their frequency overlap.

<sup>d</sup>Antenna is part of set. Figure numbers refer to sketches of representative antennas.

<sup>e</sup>Power supply units are normally furnished as a part of the radio set unless stated otherwise. The recently adopted policy of shipping equipment "less batteries" requires that dry batteries, in general, be requisitioned separately. Storage batteries, except vehicular, are supplied with the set.

Power Supply <sup>e</sup>	Power Input Requirements <sup>f</sup>	Maintenance Equipment <sup>g</sup>	Weight In Use (Lbs.)	TM or Inst. Book <sup>h</sup>	Remarks
3 Stor. Bat. BB-54 in 3 Bat. Boxes CH-291 Rechargeable from 6V., 12V. or 24V. DC source with Bat. Charger PE-219	Transmitting - 3.5A. at 6V. DC Receiving 3.5A. at 6V. DC	ME-13 or ME-73	47 Pack 120 Vehicular		Pack and vehicular; light weight, similar in function to SCR-609 and SCR-610. Can be operated while being carried in man-pack operation on packboard. Will give approx. 6 hours operation from its 6-volt battery unit with a 2 to 1 transmitting to receiving ratio. Can be used with Remote Control RC-261. To replace in part SCR-609 and SCR-610. A ground plane antenna similar to that illustrated in Fig. 1472 may also be available for use with this set when an elevated antenna is needed for greater range. Used by FA.
Rectifier RA-62 Operating from Com'l 115V. or 230V. 60 cycle AC or from Power Unit PE-75 (Not supplied as a component part) <u>Telephones</u> - 4 Bat. BA-30	325W., 115V. 60 cycle AC	IE-19 or IE-12, and I-56; or IE-36 and I-139	698	AAF Technical Order AN 08-10-1235	Air transportable; for ground-to-plane, or ground-to-ground communication. Control Box BC-1175 is used for master control and channel selection at the set. Control Box BC-1171 provides send-receive control and channel selection at a remote point up to 500 feet from the station. Control Box BC-1176 provides only send-receive control from remote point up to 2 mi. over telephone lines. The control boxes also provide connection for land-phone communication between any two of the three locations utilizing Telephone EE-8. Similar to SCR-522 and SCR-542 airborne sets except for power source and additional equipment for ground use. Used by AAF.
Vehicular 12V. or 24V. Bat. (Dynamotor Integral or with Xmtr and Rec.) 24A. at 12V. DC (DM-34, 12V. or DM-36, 24V. for Rec.) (DM-35, 12V. or DM-37, 24V. for Xmtr - designed for 5 Min. "ON" 15 Min. "OFF" Operation) <u>Remote Control</u> - 1 Bat. BA-27	<u>Xmtr and Rec.</u> - 14A. at 24V. DC 24A. at 12V. DC	Test Set I-56, Volt-Ohmmeter I-107, FM Sig. Gen., Adapter FT-384, 4-20 MC. Sensitive Precision Wave-meter, Cord CD-786	165 (Basic Unit without Installation Components and Remote Control)	TM 11-620 TM 11-308 (Remote Control)	Vehicular; short range, for providing communication for Anti-Aircraft and Anti-Tank Warning and Control Nets. Basic sections at Battalion Command Post, for Fire Control and Fire Direction Nets, and for Intra-Battalion Communication. Installed in truck and half-track. Same as SCR-608 less one receiver. Arranged for remote control operation. When present stocks are exhausted, RM-29 will no longer be supplied as a component; Remote Control Equipment RC-261 will then be ordered separately. Used by FA, TD.
Hand Gen. GN-53 Bat. BA-37 Bat. BA-38 or 12V. Vehicular Bat. and Vib. Power Supply PE-156	11A. at 12V. DC (PE-156) (500V. DC, 6V. DC and 1.5V. DC derived from GN-53 or PE-156) (Rec. may be operated for approx. 8 hrs. on Bat. BA-37 and BA-38).		85 Field Use, 175 Complete	Preliminary Instruction Book	Pack; ground, transportable; and vehicular; provides communication for parachute troops. Switch selection of master oscillator or either of two crystal frequencies. Transported by vehicle or man pack. Limited production. Used by INF.
Hand Gen. GN-58 and Bat. BA-48, or 6V., 12V. or 24V. Vehicular Bat. and Vib. Power Supply PE-237	10A. at 12V. DC (PE-237) Approx. 50W. at 425V. DC, 6V. DC & 1.5V. DC derived from GN-58 or PE-237. (Receiver may be operated for approx. 20 hrs. on Bat. BA-48)		108 Field Use, 193 Vehicular Use	TM 11-230	Pack; ground, transportable; and vehicular; Provides communication for Parachute, Airborne and Mountain Troops. Switch selection of master oscillator or either of two crystal frequencies. Transported by vehicle or man pack. Replacement for SCR-284. Used by Sig. C, CAC, FA, INF.

<sup>f</sup> AC power input requirements are given in watts. To obtain volt-amperes divide watts by 0.8 to 0.9.

<sup>g</sup> Maintenance equipment is not furnished as a part of the radio set unless so indicated. Listed here are electrical instruments which may be required to provide normal servicing of the sets.

<sup>h</sup> The first TM listed for each radio set covers the complete set; subsequent TM's cover components of that set. All are normally supplied with the radio set.

<sup>i</sup> Not available until late in 1944.

Table continued on next page

RADIO SETS FOR GROUND USE - TACTICAL - DESCRIPTIVE AND TECHNICAL DATA. (Continued)

Type	Major Radio Components	Frequency Range-Mc	Type Mod.	Emission & Military Char. Range In Miles <sup>a</sup>	Rated Trans. Power Output-Watts	Freq. Control <sup>b</sup>	Preset Channels	Communicates With <sup>c</sup>	Type Antenna <sup>d</sup>
<u>SCR-806</u> Fig.No. 1443	1 Transmitter BC-924 2 Receivers BC-923 Mounting FT-237	27.0-38.9	FM	Voice - Stationary 15 mi. Moving 10 mi.	35 High 2 Low	M.O. (Xtal Calibrated)	4	SCR-293,294,298, 508,509,510,528, 538,608,609,610, 619,628,808,828	9-Ft. Whip (MS-51 to 53 Incl.) or 6-Ft. Whip MS-52, 53 (Fig. 1461b)
<u>SCR-828</u> Fig.No. 1444	Transmitter BC-924 Receiver BC-923 Mounting FT-237	27.0-38.9	FM	Voice - Stationary 15 mi. Moving 10 mi.	35 High 2 Low	M.O. (Xtal Calibrated)	4	SCR-293,294,298, 508,509,510,528, 538,608,609,610, 619,628,808,828	9-Ft. Whip (MS-51 to 53 Incl.) or 6-Ft. Whip MS-52, 53 (Fig. 1461b)
<u>RC-256</u> Fig.No. 1445	Receiver BC-639 Freq.Meter BC-638 Frame FM-39	100-156	AM	CW, Tone, Voice	-	-	None	SCR-624, RC-257, AN/TRC-7, AN/VRC-1	Bal. Vert. Half-wave Dipole RC-81 on 90-ft. Mast AN-56. Normally supplied with RC-257 (Fig. 1467)
<u>RC-257</u> Fig.No. 1446	Transmitter BC-640	100-156	AM	Tone, Voice Line-of- Sight	50	Xtal	1	SCR-624, RC-256, AN/TRC-7, AN/VRC-1	Bal. Vert. Half-wave Dipole RC-81 on 90-ft. Mast AN-56 (Fig. 1467)
<u>AN/CRC-3</u> Fig.No. 1447	Transmitter PA-8218 Receiver PA-8098 Xmtr Control P-8209 Rec. Control P-8208 (Combined in Xmtr Kit FMI-50BC Rec. Kit FSKR-15BC) Crystal Kit P-8214 (See Remarks)	30-40	FM	Voice - 25 mi.	50	Xtal	1	SCR-298,608,609, 610,619,628,808, 828, AN/CRC-3	Adj. Vert. Coax. Half- wave Dipole (F.M. Link 1566 or 1628), or Vert. Half-Rhombic and Coupling Unit All in Ant. Kit P-8212 (Figs. 1468 & 1469) (Ants. normally mtd. on 50-ft. plywood Mast AB-38/CR, not incl. in Ant. Kit)

<sup>a</sup>This is the military characteristic distance range, see paragraph 1404.

<sup>b</sup>M.O. is used to indicate Master Oscillator control and Xtal to indicate crystal control.

<sup>c</sup>Sets with which it is possible to establish communication by virtue of overlap in operating frequency ranges. Communication may also be established with airborne radio sets which operate in the same frequency range. Obsolete sets not covered, see paragraph 1409 for their frequency overlap.

<sup>d</sup>Antenna is part of set except for AN/CRC-3 in which case it is part of a system. Figure numbers refer to sketches of representative antennas.

<sup>e</sup>Power supply units are normally furnished as a part of the radio set unless stated otherwise. The recently adopted policy of shipping equipment "less batteries" requires that dry batteries, in general, be requisitioned separately. Storage batteries, except vehicular, are supplied with the set.

Power Supply <sup>e</sup>	Power Input Requirements <sup>f</sup>	Maintenance Equipment <sup>g</sup>	Weight In Use (Lbs.)	TM or Inst. Book <sup>h</sup>	Remarks
Vehicular 12V. or 24V. Bat. (Dynamotor Integral with Xmtr and Rec.) (DM-64, 12V. or DM-66, 24V. for Rec.) (DM-65, 12V. or DM-47, 24V. for Xmtr)	Xmtr and Rec. 24A. at 24V.DC or 40A. at 12V.DC		225 (Basic Unit without Installation Components)	TM 11-601	Vehicular; short range, used in sea coast Artillery Batteries and by Military Police. Similar to SCR-608 except using crystal calibrated, master oscillator control and interphone amplifier integral with transmitter for use in installations where noise level is high. Used by CAC, MP.
Vehicular 12V. or 24V. Bat. (Dynamotor Integral with Xmtr and Rec.) (DM-64, 12V. or DM-66, 24V. for Rec.) (DM-65, 12V. or DM-47, 24V. for Xmtr)	Xmtr and Rec. 20A. at 24V.DC or 33A. at 12V.DC		190 (Basic Unit without Installation Components)	TM 11-601	Vehicular; used in sea coast Artillery Batteries and by Military Police. Same as SCR-808 less one receiver. Used by CAC, MP.
Rectifier RA-42 and 115V. or 230V. 60 cycle Com'l. Power	90W., 115V. or 230V. 60 cycle AC	RCA Volt-ohmmyst Jr. or similar	600	AAF Technical Order AN 08-10-227	Ground, transportable; receiving equipment only, used with transmitting equipment RC-257 as a single channel radio link terminal station in conjunction with other VHF equipment. A 9x 9 x 7 ft. or larger waterproof shelter is required to house the combined equipment. May be operated from a remote point, over telephone lines, up to a distance of 8 miles; or up to 14 miles with the addition of Telephone Repeater EE-99. (EC-639 also used in VHF Fighter Control Equipment SCR-563, 564, 565, 566, 567, 574, 575, 633, 634, 637, 644, 645 and AN/CRC-2). Used by AAF.
115V. or 230V. 60 cycle Com'l Power	860W. 115V. or 230V. 60 cycle AC (1.18 KVA for RC-256 and RC-257 together)		4050	AAF Technical Order AN 08-10-227	Ground, transportable; transmitting equipment only, used with receiving equipment RC-256 as a single channel radio link terminal station in conjunction with other VHF equipment. A 9x 9 x 7 ft. or larger waterproof shelter is required to house the combined equipment. May be operated from a remote point, over telephone lines, up to a distance of 8 miles; or up to 14 miles with the addition of Telephone Repeater EE-99. (EC-640 also used in VHF Fighter Control Equipment SCR-562, 567, 573, 632, 637, 643 and 645). Used by AAF.
115V., 60 cycle AC from PE-75 (Not supplied as a component part)	Xmtr - 290W. 115V. 60 cycle AC Rec. - 75W. 115V. 60 cycle AC	Microammeter P-8100 (Part of AN/CRC-3)		Preliminary Instruction Book for Signal Aircraft Warning System Equipment	Air transportable; commercial police radio set, modified for use in Air Warning service. Packaged for transportation by air. Transmitter of AN/CRC-3 employs a frequency multiplication of 32 times crystal frequency. Replaced by AN/CRC-3A. Procurement similar to AN/CRC-3A. Type numbers of the major components are those assigned by the manufacturer (Galvin Mfg. Corp.) and are not Signal Corps designations. Used by AAF.

<sup>f</sup> AC power input requirements are given in watts. To obtain volt-amperes divide watts by 0.8 to 0.9.

<sup>g</sup> Maintenance equipment is not furnished as a part of the radio set unless so indicated. Listed here are electrical instruments which may be required to provide normal servicing of the sets.

<sup>h</sup> The first TM listed for each radio set covers the complete set; subsequent TM's cover components of that set. All are normally supplied with the radio set.

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RADIO SETS FOR GROUND USE - TACTICAL - DESCRIPTIVE AND TECHNICAL DATA. (Continued)

Type	Major Radio Components	Frequency Range-Mc	Type Mod.	Char. Range In Miles <sup>a</sup>	Rated Emission & Military Power Output- Watts	Freq. Control <sup>b</sup>	Preset Channels	Communicates With <sup>c</sup>	Type Antenna <sup>d</sup>
<u>AN/CRC-3A</u> Fig.No. 1447	Transmitter PA-8244 Receiver PA-8245 Xmtr Control P-8209 Rec. Control P-8208 (Combined in Xmtr Kit FMT-50BD Rec. Kit FSKR-15BD) Crystal Kit P-8214 (See Remarks)	30-40	FM	Voice - 25 mi.	50	Xtal	1	SCR-298,608,609, 610,619,628,808, 828, AN/CRC-3	Adj. Vert. Coax. Half-wave Dipole (F.M. Link 1566 or 1628), or Vert. Half-rhombic and Coupling Unit. All in Ant. Kit P-8212. (Figs. 1468 & 1469) (Ants. are normally mtd. on 50-ft. plywood Mast AB-38/CR, not incl. in Ant. Kit)
<u>AN/TRA-1</u> (Amplifier Equipment) Fig.No. 1448	Amplifier AM-8/TRA-1 Spare Parts Kit MK-11/TRA-1	70-100	-	-	250	-	-	-	3-Elem. Directional Array (Incl. in Ant. System AS-19/TRC-1) (Furnished with AN/TRC-1, 3 or 4) (Normally mtd. 40 ft. above ground) (Fig. 1470)
<u>AN/TRC-1</u> Fig.No. 1449	Transmitter T-14/TRC-1 Receiver R-19/TRC-1	70-100	FM	Voice - 25 mi. (Line-of-sight)	High Power 50  Low Power 10	Xtal (Holder)  Xmtr (PT-241)  Rec. (PT-243)	1	AN/TRC-1, AN/TRC-3, AN/TRC-4	3-Elem. Directional Array (Incl. in Ant. System AS-19/TRC-1) (2 supplied) (Fig. 1470) (Ant. Extension Kit MX-141/TRC-1 incl. for raising ant. from 40-ft. to 50-ft. when only one antenna is required.)

<sup>a</sup>This is the military characteristic distance range, see paragraph 1404.

<sup>b</sup>M.O. is used to indicate Master Oscillator control and Xtal to indicate crystal control.

<sup>c</sup>Sets with which it is possible to establish communication by virtue of overlap in operating frequency ranges. Communication may also be established with airborne radio sets which operate in the same frequency range. Obsolete sets not covered, see paragraph 1409 for their frequency overlap.

<sup>d</sup>Antenna is part of set except for AN/CRC-3A, in which case it is part of a system. Figure numbers refer to sketches of representative antennas.

<sup>e</sup>Power supply units are normally furnished as a part of the radio set unless stated otherwise. The recently adopted policy of shipping equipment "less batteries" requires that dry batteries, in general, be requisitioned separately. Storage batteries, except vehicular, are supplied with the set.

Power Supply <sup>e</sup>	Power Input Requirements <sup>f</sup>	Maintenance Equipment <sup>g</sup>	Weight In Use (Lbs.)	TM or Inet.Book <sup>h</sup>	Remarks
115V., 60 cycle AC from PE-75 (Not supplied as a component part)	<u>Xmtr</u> - 290W. 115V. 60 cycle AC <u>Rec.</u> - 75W. 115V. 60 cycle AC	Microammeter P-8100 (Part of AN/CRC-3A)			Air transportable; similar to AN/CRC-3 except transmitter employs a frequency multiplication of 8 times crystal frequency. Replaces AN/CRC-3. Usually obtained in groups of 30 sets. Antenna, spare parts, crystal kits, maintenance equipment, etc. except 50-foot plywood mast provided on a system basis. Type numbers of the major components are those assigned by the manufacturer (Galvin Mfg. Corp.) and are not Signal Corps designations. Used by AAF.
Power supply PP-13/TRA-1 (Operates from 115V., 60 cycle AC Com'l Power or Power Unit PE-75 normally supplied with AN/TRC-1, AN/TRC-3 or AN/TRC-4)	800W., 115V., 60 cycle AC	Test Set I-56 (Furnished with the associated AN/TRC-3 or AN/TRC-4)	282 (Less Running Spares & Spare Parts Kit MK-11/TRA-1)	TM 11-2601	Ground, transportable; amplifier equipment for use in conjunction with Radio Set AN/TRC-1, Radio Terminal Set AN/TRC-3 or Radio Relay Set AN/TRC-4. Provides approximately 6 db gain in output when used with the transmitters of the foregoing radio sets. Used by AGF, ASF.
115V., 60 cycle AC Com'l. Power or Power Unit PE-75	<u>Xmtr</u> - 250W. 115V. 60 cycle AC <u>Rec.</u> - 100W. 115V. 60 cycle AC	Test Osc. TS-32/TRC-1 (Part of AN/TRC-1) and Test Set I-56 (Not Included) (Spare parts and running spares furnished to effect average repairs and maintenance)	1435	TM 11-2601 TM 11-900 (Power Unit)	Ground, transportable; VHF FM radio transmitter and receiver together with the necessary accessories to set up a field radio station. Designed to operate with a voice frequency band from 200-12000 cycles and, in conjunction with spiral-four carrier terminal equipment, will provide four telephone circuits, any one of which may be used to provide one facsimile circuit or four voice frequency telegraph circuits. Transmitter employs a frequency multiplication of 96 times crystal frequency. Includes provision for installation as an intermediate automatic radio relay station. Provision is made for coupling directly to spiral-four cable and carrier Telephone Terminal CF-1 when the radio circuit is used as a part of the Signal Corps four-channel carrier telephone system. Alternatively, this set may be used on a single channel basis, push-to-talk, in which case it can be remotely controlled and the transmitter satisfactorily voice modulated from a distance of 2 miles over Wire W-110-B, using Remote Control Equipment AN/TRA-2. (Not furnished as a component part.) This distance may be extended to 7-1/2 miles of Wire W-110-B when used with Operations Center AN/TTQ-1 which includes an auxiliary amplifier. Used by Sig.C, AAF.

<sup>f</sup> AC power input requirements are given in watts. To obtain volt-amperes divide watts by 0.8 to 0.9

<sup>g</sup> Maintenance equipment is not furnished as a part of the radio set unless so indicated. Listed here are electrical instruments which may be required to provide normal servicing of the sets.

<sup>h</sup> The first TM listed for each radio set covers the complete set; subsequent TM's cover components of that set. All are normally supplied with the radio set.

Table continued on next page

RADIO SETS FOR GROUND USE - TACTICAL - DESCRIPTIVE AND TECHNICAL DATA. (Continued)

Type	Major Radio Components	Frequency Range-Mc	Emission & Military Type Mod.	Char. Range In Miles <sup>a</sup>	Rated Trans. Power Output-Watts	Freq. Control <sup>b</sup>	Preset Channels	Communicates With <sup>c</sup>	Type Antenna <sup>d</sup>
<u>AN/TRC-2</u> Fig.No. 1450	Receiver and Transmitter BC-1306 Receiver and Transmitter RT-12/TRC-2	3.8-6.5 2.0-3.4	AM	CW-80 mi. Tone-Voice	PE-162 20 CW 7 Tone or Voice GN-57 10 CW 5 Tone or Voice	M.O. (Xtal Cal-ibrated) or Xtal (Holder FT-243)	None (See Remarks)	SCR-177,188,193, 197,203,209,210, 245,284,288,299, 399,499,506,511, 536,543,593,694, AN/TRC-2, AN/VRC-1	1/4-Wave Inv. L Ant. with Ctpse. (for 2.0-3.4 Mc.) or 1/2-Wave Inv. L Ant. without Ctpse. (for 3.8-6.5 Mc.) (Fig. 1458)
<u>AN/TRC-3</u> Fig.No. 1451	2 Transmitters T-14/TRC-1 2 Receivers R-19/TRC-1 3 Telephones EE-8	70-100	FM	Voice - 25 mi. per link (Line-of-sight)	High Power 50 Low Power 10	Xtal (Holder) Xmtr (FT-241) Rec. (FT-243)	1	AN/TRC-1,AN/TRC-3, AN/TRC-4	3 Elem. Directional Array (Incl. in Ant. System AS-19/TRC-1 (2 supplied) Normally mtd. 40-ft. above ground (Fig. 1470)
<u>AN/TRC-4</u> Fig.No. 1452	3 Transmitters T-14/TRC-1 3 Receivers R-19/TRC-1 1 Control Box C-21/TRC-1 3 Telephones EE-8	70-100	FM	Voice- 25 mi. per link (Line-of-sight)	High Power 50 Low Power 10	Xtal (Holder) Xmtr (FT-241) Rec. (FT-243)	1	AN/TRC-1,AN/TRC-3, AN/TRC-4	3-Elem. Directional Array (Incl. in Ant. System AS-19/TRC-1 (4 supplied) Normally mtd. 40 ft. above ground (Fig. 1470)
<u>AN/TRC-7<sup>d</sup></u> Fig.No. 1453	Receiver and Transmitter RT-53/TRC-7	100-156	AM	Voice - 35 mi. Ground-to-Plane (Line-of-sight)	0.5	Xtal (DC-11 or Similar)	2	SCR-624,RC-256, RC-257, AN/TRC-7, AN/VRC-1	Vert. Conical Dipole AS-12/TRC-7 mtd. on 30-ft. alum. Mast (Incl. in Ant. Assembly AS-110/TRC-7) or 1/4-Wave Whip AT-59/TRC-7 mtd. on set with flex. Ant. Base AB-37/TRC-7 (Fig. 1471)

<sup>a</sup>This is the military characteristic distance range, see paragraph 1404.

<sup>b</sup>M.O. is used to indicate Master Oscillator control and Xtal to indicate crystal control.

<sup>c</sup>Sets with which it is possible to establish communication by virtue of overlap in operating frequency ranges. Communication may also be established with airborne radio sets which operate in the same frequency range. Obsolete sets not covered, see paragraph 1409 for their frequency overlap.

<sup>d</sup>Antenna is part of set. Figure numbers refer to sketches of representative antennas.

<sup>e</sup>Power supply units are normally furnished as a part of the radio set unless stated otherwise. The recently adopted policy of shipping equipment "less batteries" requires that dry batteries, in general, be requisitioned separately. Storage batteries, except vehicular, are supplied with the set.

Power Supply <sup>e</sup>	Power Input Requirements <sup>f</sup>	Maintenance Equipment <sup>g</sup>	Weight In Use (Lbs.)	TM or Inst. Book <sup>h</sup>	Remarks
1 Hand Gen. GN-57 or 2 Power Units PE-162 - 2 Bat. BA-48 2 Vib. Units PP-39/TRC-2 incl. 2 Stor. Bat. BB-54, re-chargeable from 6V. or 12V. vehicular bat. or GN-57 or PE-162	Approx. 50W. at 425V. DC., 6V., DC, and 1.5V. DC from GN-57, or 100W. at 500V. DC and 7V. DC from PE-162. Either receiver may be operated for approx. 10 hrs. from a fully charged BB-54 & PP-39/TRC-2 or for approx. 20 hrs. from Bat. BA-48	-	500 (Radio equipment only)	TM 11-2603	Ground, transportable; and pack; special for communication from isolated units to headquarters. Two complete receiver and transmitter combinations each provided with switch selection of master oscillator or either of two crystal frequencies. Requires 12 to 14 men for transportation. Used by Sig.C.
115V., 60 cycle AC Com'l Power or Power Unit PE-75 (3 Supplied) Test Set - 1 Bat. BA-2 1 Bat. BA-30 1 Bat. BA-31 Telephones - 6 Bat. BA-50	Xmtr - 250W. 115V. 60 cycle AC Rec. - 100W. 115V. 60 cycle AC	Test Osc. TS-32/TRC-1 and Test Set I-56 (Both part of AN/TRC-3) (Spare parts and running spares furnished to effect average repairs and maintenance)	2650	TM 11-2601 TM 11-900 (Power Unit) TM 11-333 (Telephone)	Ground, transportable; Radio Terminal Set utilizes the same basic components as Radio Set AN/TRC-1, but includes sufficient extra equipment to insure continuous 24-hour-a-day service as a four-channel carrier telephone radio terminal used in conjunction with carrier Telephone Terminal CF-1. When the radio circuit is used as a link in the spiral-four carrier telephone system, the carrier telephone terminal is located at the terminal of the wire system rather than at the radio terminal. A spare transmitter and receiver, and spare power units are furnished. Used by AAF, AGF, ASF.
115V., 60 cycle AC Com'l. Power or Power Unit PE-75 (3 Supplied) Test Set - 1 Bat. BA-2 1 Bat. BA-30 1 Bat. BA-31 Telephones - 6 Bat. BA-50	2 Xmtrs - 500W. 115V. 60 cycle AC 2 Recs. - 200W. 115V. 60 cycle AC	Test Osc. TS-32/TRC-1 and Test Set I-56 (Both part of AN/TRC-4) (Spare parts and running spares furnished to effect average repairs and maintenance)	3500	TM 11-2601 TM 11-900 (Power Unit) TM 11-333 (Telephone)	Ground, transportable; Radio Relay Set utilizes the same basic components as Radio Set AN/TRC-1, but includes sufficient extra equipment to provide an independent two-way four-channel radio repeater station with sufficient spare equipment to insure 24-hour a-day continuous service. Two transmitters and two receivers are required for the relay operation, with an extra unit of each provided as a spare. Used by AAF, AGF, ASF.
Hand Generator G-3/TRC-7, 3 Bat. BA-65 & 7 Bat. BA-211/U, or 1 Bat. BA-70	Transmitting - Approx. 22W. at 4.5V. and 150V. DC from Hand Gen. or 0.55A. at 4.5V. DC and 0.125A. at 150V. DC from Dry Bat. Receiving - 380 Ma. at 4.5V. DC 26 Ma. at 150V. DC	IE-19	85 Approx.		Pack; ground, transportable; light weight, VHF communication set. Transportable by four-man team. Can be remotely controlled up to a distance of 2 mi. of Wire W-110-B by the addition of Remote Control Equipment RC-261. It is possible, by means of the power switch, (1) to transmit and receive using battery supply only, (2) to transmit and receive using hand generator only, and (3) to transmit using hand generator and to receive using battery supply. Used by AAF.

<sup>f</sup> AC power input requirements are given in watts. To obtain volt-amperes divide watts by 0.8 to 0.9.

<sup>g</sup> Maintenance equipment is not furnished as a part of the radio set unless so indicated. Listed here are electrical instruments which may be required to provide normal servicing of the sets.

<sup>h</sup> The first TM listed for each radio set covers the complete set; subsequent TM's cover components of that set. All are normally supplied with the radio set.

<sup>j</sup> Not available until late in 1944.

Table continued on next page

RADIO SETS FOR GROUND USE - TACTICAL - DESCRIPTIVE AND TECHNICAL DATA. (Continued)

Type	Major Radio Components	Frequency Range-Mc	Type Mod.	Emission & Military Char. Range In Miles <sup>a</sup>	Rated Trans. Power Output-Watts	Freq. Control <sup>b</sup>	Preset Channels	Communicates With <sup>c</sup>	Type Antenna <sup>d</sup>
AN/TRC-8 <sup>d</sup> Fig.No. 1454	Transmitter T-30/TRC-8 Receiver R-48/TRC-8	230-250	FM	Voice - (Line-of-sight)	12	M.O. (Temp. Compensated Concentric Tuned Trans. Line)	None	AN/TRC-8, AN/TRC-11, AN/TRC-12	1/2 Wave Dipole with 90° Corner Reflector (Ant. Assembly AS-52/TRC-8 and Ant. Support AB-( )/TRC-8) (2 Supplied) (Fig. 1473)
AN/TRC-11 <sup>d</sup> Fig.No. 1455	2 Transmitters T-30/TRC-8 2 Receivers R-48/TRC-8 3 Telephones EE-8	230-250	FM	Voice - (Line-of-sight)	12	M.O. (Temp. Compensated Concentric Tuned Trans. Line)	None	AN/TRC-8, AN/TRC-11, AN/TRC-12	1/2 Wave Dipole with 90° Corner Reflector (Ant. Assembly AS-52/TRC-8 and Ant. Support AB-( )/TRC-8) (2 Supplied) (Fig. 1473)
AN/TRC-12 <sup>d</sup> Fig.No. 1456	3 Transmitters T-30/TRC-8 3 Receivers R-48/TRC-8 3 Telephones EE-8	230-250	FM	Voice - (Line-of-sight)	12	M.O. (Temp. Compensated Concentric Tuned Trans. Line)	None	AN/TRC-8, AN/TRC-11, AN/TRC-12	1/2 Wave Dipole with 90° Corner Reflector (Ant. Assembly AS-52/TRC-8 and Ant. Support AB-( )/TRC-8) (4 Supplied) (Fig. 1473)
AN/VRC-1 Fig.No. 1457	Transmitter BC-191 Tuning Unit TU-6 TU-7 Receiver BC-312 Case CS-80 Containing Transmitter BC-625 Receiver BC-624 Rack FT-244 Int.Cont.Box BC-606	3.0-4.5 4.5-6.2 1.5-18.0 100-156 100-156	AM	HF Portion- Stationary CW-60 mi. Tone-40 mi. Voice-20 mi. (BC-625) Moving CW-30 mi. Tone-20 mi. Voice-15 mi. VHF Portion- Voice - Line-of- Sight Max. 130 mi. Grd.-to- Plane	75 (BC-191) 6 (DC-11) 6 (BC-625 & BC-624)	M.O. BC-191, Xtal (BC-11) BC-625	None (BC-191 & BC-312) 4 (BC-625 & BC-624)	SCR-177,188,193, 197,203,209,210, 245,284,288,299, 399,499,506,511, 536,543,593,624, 694, RC-256, RC-257, AN/TRC-2, AN/TRC-7,AN/VRC-1	15-Ft. Whip (MS-49 to 53 Incl.) or 22-1/2 Ft. Wire for BC-191. 3-Ft. Whip (MS-53) for BC-625 (Fig. 1461b)
AN/VRC-3 Fig.No. 1422	Receiver and Transmitter BC-1000 Mounting FT-250 (Light Tank M5) or FT-317 (Med.Tank M4)	40-48	FM	Voice	0.5	M.O. (Xtal Cal- ibrated)	None	SCR-300, AN/VRC-3	3-Ft. Whip MS-118 or 6-Ft. Whip MS-117 & MS-118 for Vehicular Use, or 33-in. Short Whip (AN-130) for portable use (Fig. 1461b & 1462)

<sup>a</sup>This is the military characteristic distance range, see paragraph 1404.

<sup>b</sup>M.O. is used to indicate Master Oscillator control and Xtal to indicate crystal control.

<sup>c</sup>Sets with which it is possible to establish communication by virtue of overlap in operating frequency ranges. Communication may also be established with airborne radio sets which operate in the same frequency range. Obsolete sets not covered, see paragraph 1409 for their frequency overlap.

<sup>d</sup>Antenna is part of set. Figure numbers refer to sketches of representative antennas.

<sup>e</sup>Power supply units are normally furnished as a part of the radio set unless stated otherwise. The recently adopted policy of shipping equipment "less batteries" requires that dry batteries, in general, be requisitioned separately. Storage batteries, except vehicular, are supplied with the set.

Power Supply <sup>e</sup>	Power Input Requirements <sup>f</sup>	Maintenance in Use Equipment <sup>g</sup>	Weight in Use (Lbs.)	TM or Inst. Book <sup>h</sup>	Remarks
115V., 60 cycle AC Com'l Power or Power Unit PE-75 (1 Supplied)	<u>Xmtr and Rec.</u> - 410W., 115V. 60 cycle AC	(Spare parts and running spares furnished to effect average repairs and maintenance)	1224		Ground, transportable, VHF FM radio transmitter and receiver together with the necessary accessories to set up a field radio station. Designed to operate with a voice frequency band from 200-12000 cycles and, in conjunction with spiral-four carrier terminal equipment will provide four telephone circuits, any one of which may be used to provide one facsimile circuit or four voice frequency telegraph circuits. Transmitter employs a frequency multiplication of 3 times the master oscillator frequency. Includes provision for installation as an intermediate automatic radio relay station. Provision is made for coupling directly to spiral-four cable and carrier Telephone Terminal CF-1 when the radio circuit is used as a part of the Signal Corps four-channel carrier telephone system. Alternatively, this set may be used on a single channel basis, push-to-talk, in which case it can be remotely controlled and the transmitter satisfactorily voice modulated from a distance of 2 miles over Wire W-110-B, using Remote Control Equipment AN/TRA-2. (Not furnished as a component part.) Used by Sig.C, AAF.
115V., 60 cycle AC Com'l Power or Power Unit PE-75 (3 Supplied)	<u>Xmtr and Rec.</u> - 410W., 115V. 60 cycle AC	(Spare parts and running spares furnished to effect average repairs and maintenance)	2229		Ground, transportable; Radio Terminal Set utilizes the same basic components as Radio Set AN/TRC-8, but includes sufficient extra equipment to insure continuous 24-hour-a-day service as a four-channel carrier telephone radio terminal used in conjunction with carrier Telephone Terminal CF-1. When the radio circuit is used as a link in the spiral-four carrier telephone system, the carrier telephone terminal is located at the terminal of the wire system rather than at the radio terminal. A spare transmitter and receiver, and spare power units are furnished. Used by AAF, AGF, ASF.
115V., 60 cycle AC Com'l Power or Power Unit PE-75 (3 Supplied)	<u>2 Xmtrs. and 2 Recs.</u> - 820W., 115V. 60 cycle AC	(Spare parts and running spares furnished to effect average repairs and maintenance)	3036		Ground, transportable; Radio Relay Set utilizes the same basic components as Radio Set AN/TRC-8, but includes sufficient extra equipment to provide an independent two-way four-channel radio repeater station with sufficient spare equipment to insure 24-hour-a-day continuous service. Two transmitters and two receivers are required for the relay operation, with an extra unit of each provided as a spare. Used by AAF, AGF, ASF.
Dyn. BD-77 Dyn. Unit PE-98 Vehicle's 12V. Stor. Battery	<u>Xmtr - BC-191</u> 57A. (Max.) at 14.2V.DC from Vehicle's Bat. Generator. <u>Rec. - BC-312</u> 4.2A. at 12V.DC <u>Xmtr - BC-625</u> 23A. at 14V.DC <u>Rec. - BC-624</u> 22A. at 14V.DC	Test Equip. IE-36 and Test Set I-139, or IE-19 or IE-12, and I-56	334	TM 11-277 (Combined Operation) TM 11-273 (Radio Set SCR-193). AAF, Technical Order TO 08-10-105 (Radio Set SCR-542).	Ground, mobile; combines SCR-542, air-to-ground set, with SCR-193 to give a combined HF and VHF set for ground-to-air and ground-to-ground communication. Mounted in 1/4-ton 4 x 4 truck (not a component). Used by AAF.
Bat. BA-70	<u>Xmtr -</u> 0.5A. at 4.5V.DC 25 Ma. at 90V.DC 45 Ma. at 150V.DC <u>Rec. -</u> 0.3A. at 4.5V.DC 25 Ma. at 90V.DC	ME-40 or DC Vacuum Tube Voltmeter & Voltammeter I-107, and Sig. Generator or Freq. Meter SCR-211		TM 11-242	Vehicular; similar to SCR-300 except arranged for installation in Light and Medium Tanks. Used by AF.

<sup>f</sup> AC power input requirements are given in watts. To obtain volt-amperes divide watts by 0.8 to 0.9.

<sup>g</sup> Maintenance equipment is not furnished as a part of the radio set unless so indicated. Listed here are electrical instruments which may be required to provide normal servicing of the sets.

<sup>h</sup> The first TM listed for each radio set covers the complete set; subsequent TM's cover components of that set. All are normally supplied with the radio set.

<sup>j</sup> Not available until late in 1944.

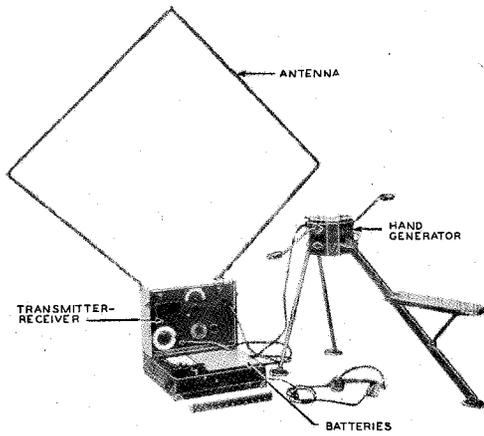


FIGURE 1401. Radio Set SCR-131 or 161

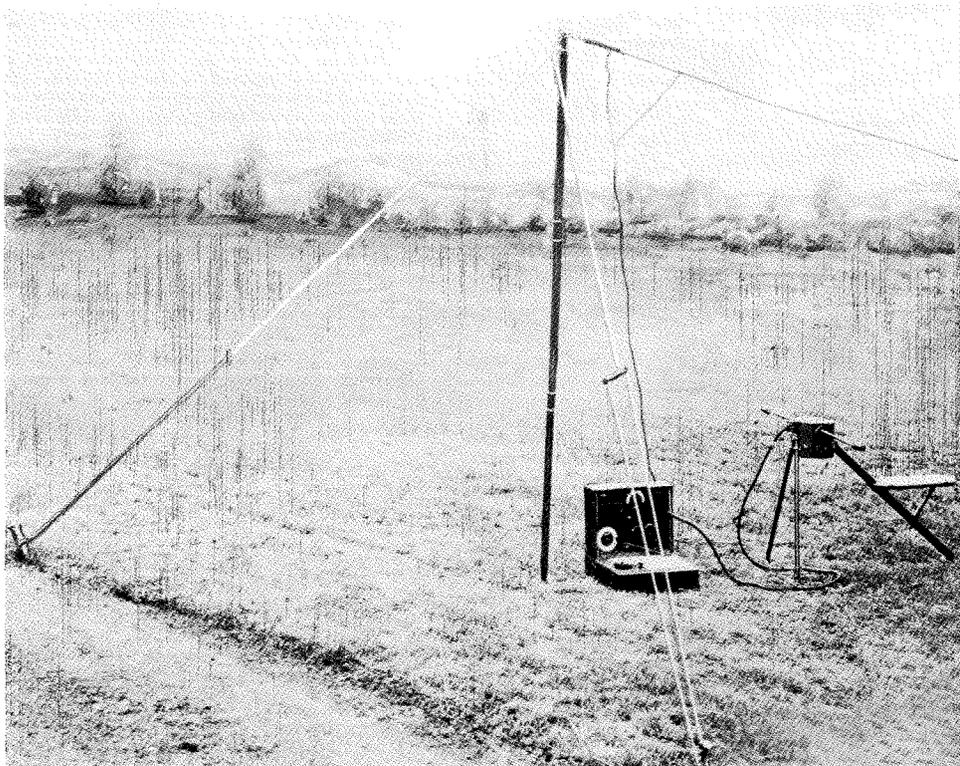


FIGURE 1402. Radio Set SCR-171

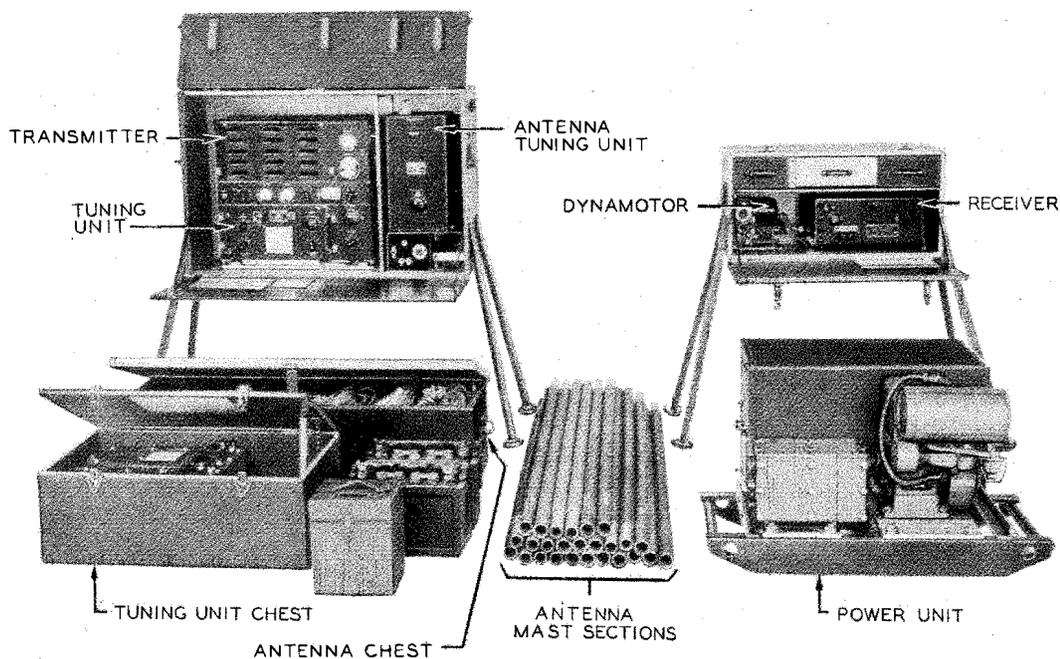


FIGURE 1403. Radio Set SCR-177-A

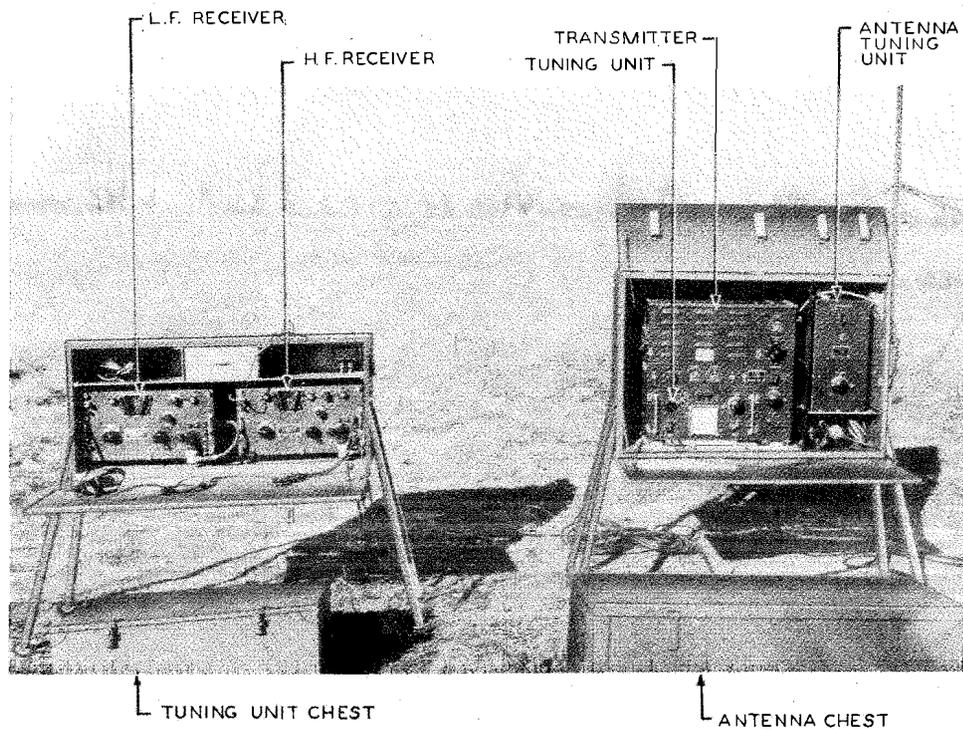


FIGURE 1404. Radio Set SCR-177-B

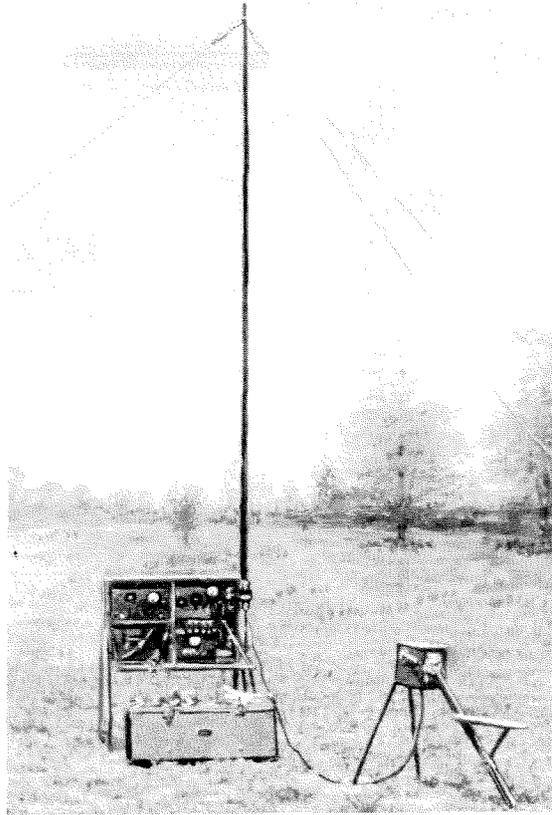


FIGURE 1405. Radio Set SCR-178 or 179

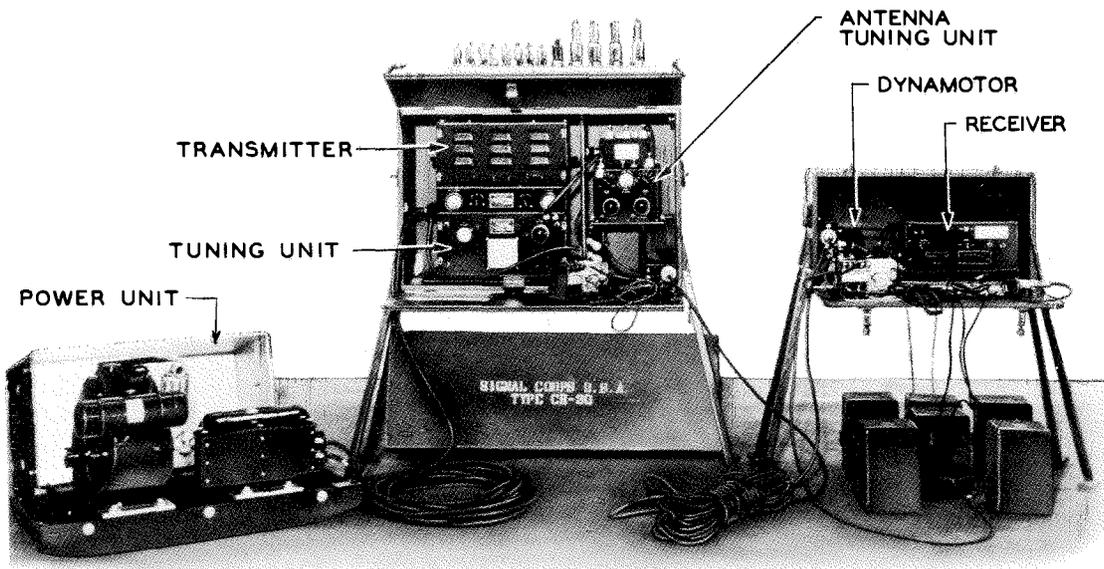


FIGURE 1406. Radio Set SCR-188

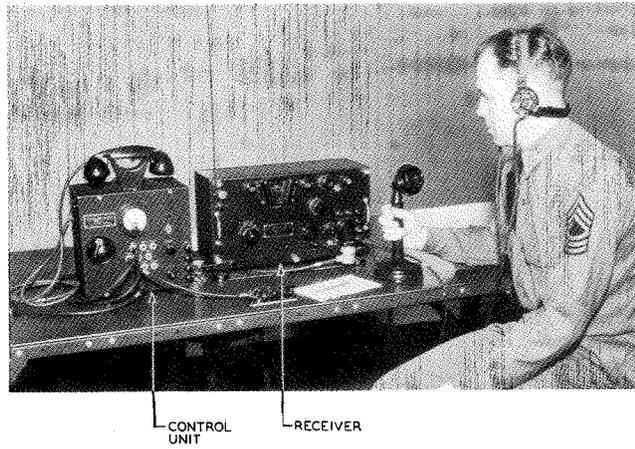
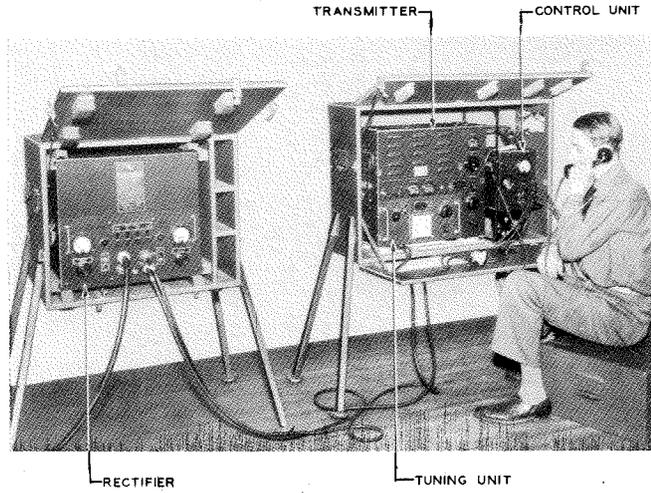


FIGURE 1407. Radio Set SCR-188-A

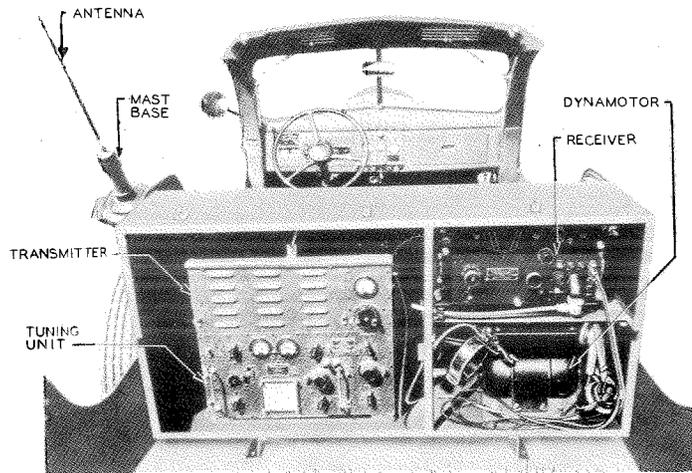


FIGURE 1408. Radio Set SCR-193-( )

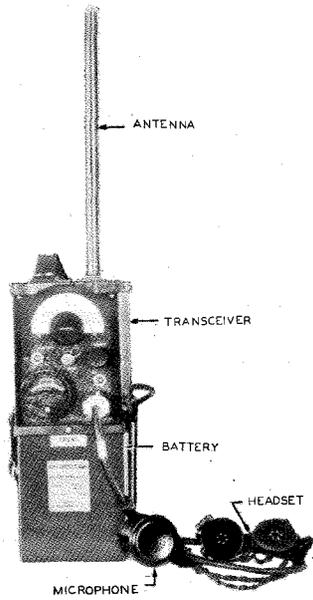


FIGURE 1409. Radio Set SCR-194

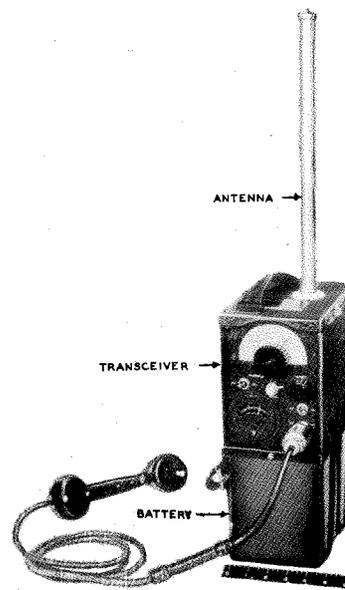


FIGURE 1410. Radio Set SCR-195

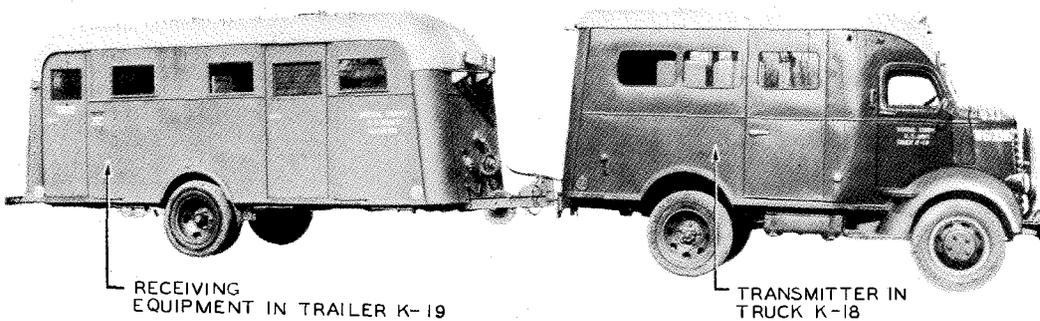
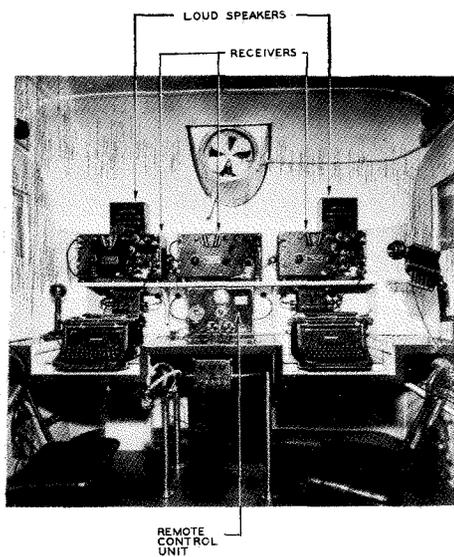


FIGURE 1411. Radio Set SCR-197

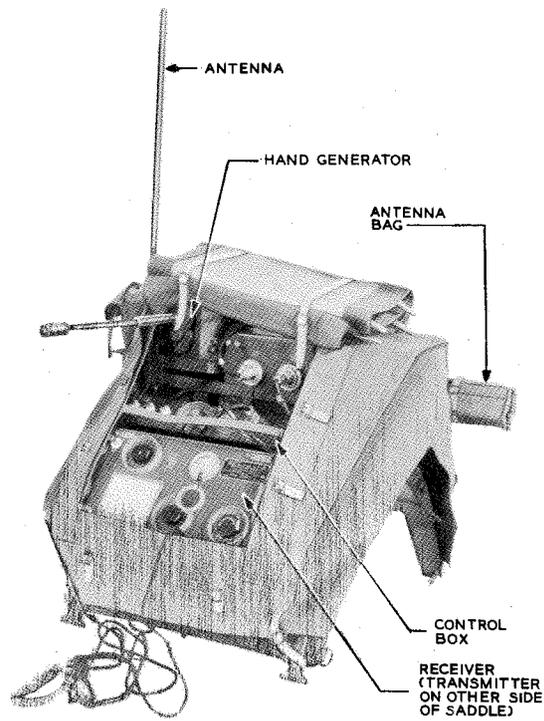


FIGURE 1412. Radio Set SCR-203

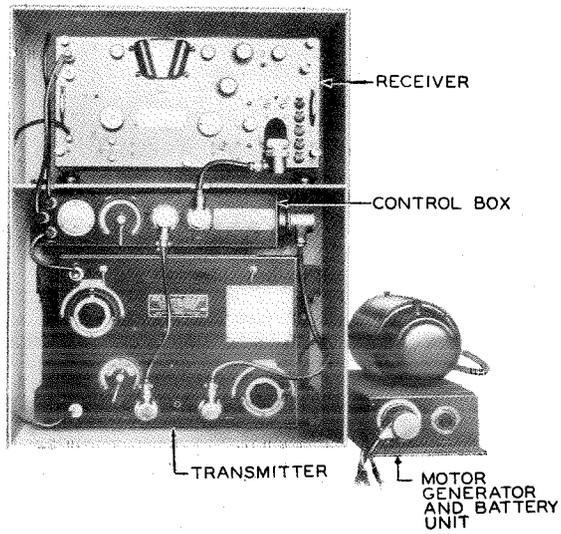


FIGURE 1413. Radio Set SCR-209

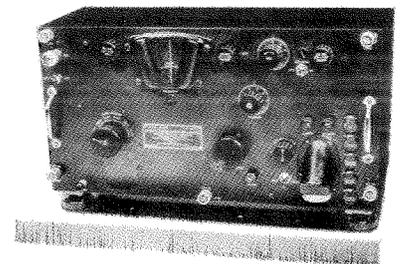


FIGURE 1414. Radio Set SCR-210

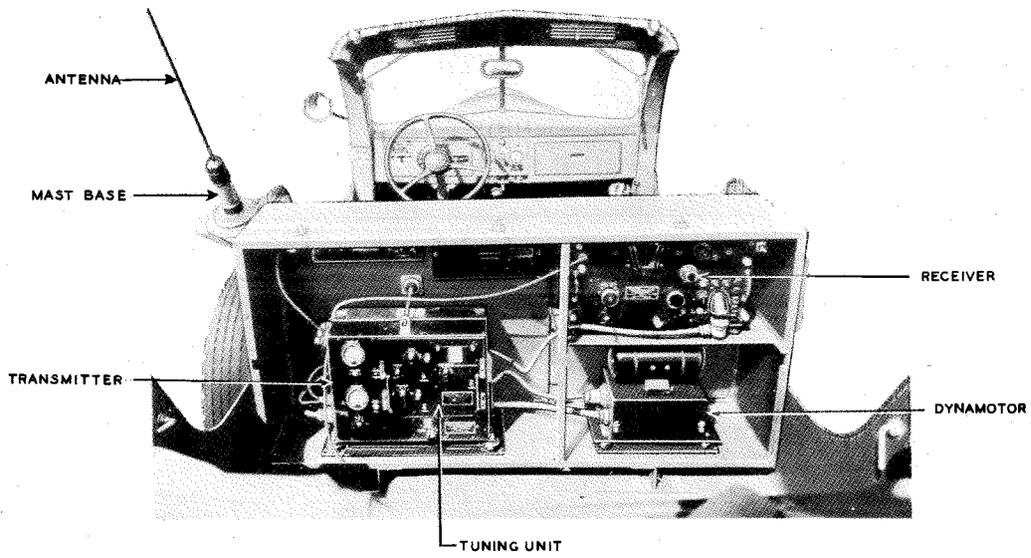


FIGURE 1415. Radio Set SCR-245

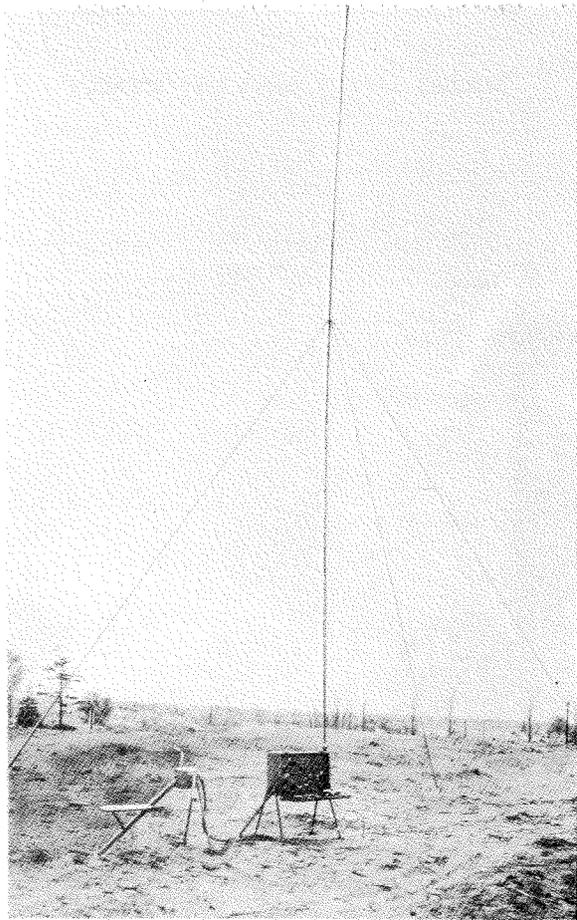


FIGURE 1416. Radio Set SCR-284

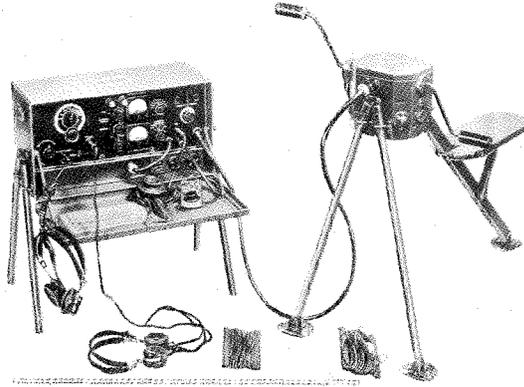


FIGURE 1417. Radio Set SCR-288

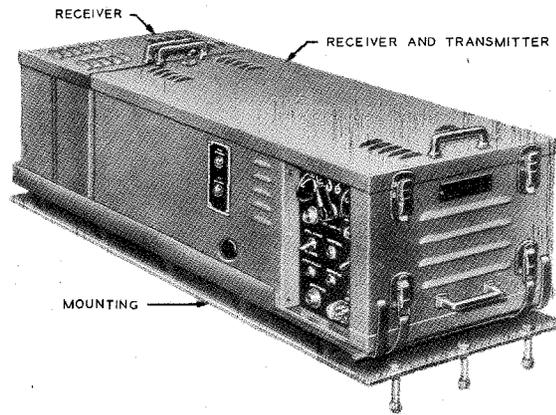


FIGURE 1418. Radio Set SCR-293

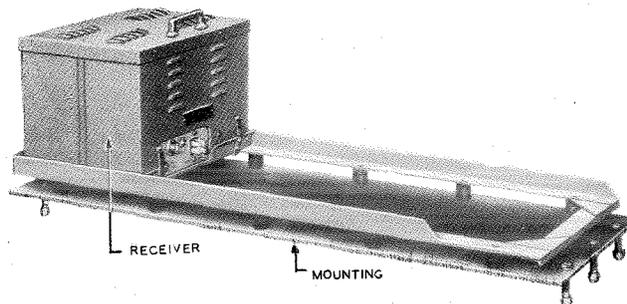


FIGURE 1419. Radio Set SCR-294

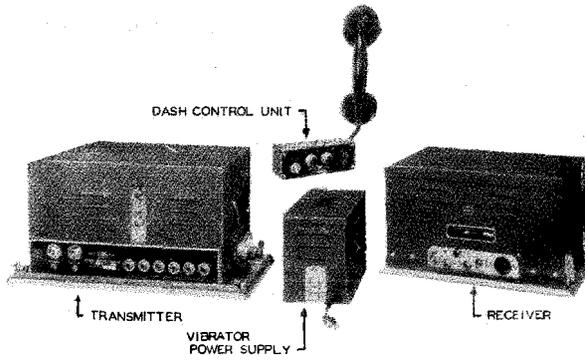


FIGURE 1420. Radio Set SCR-298-C

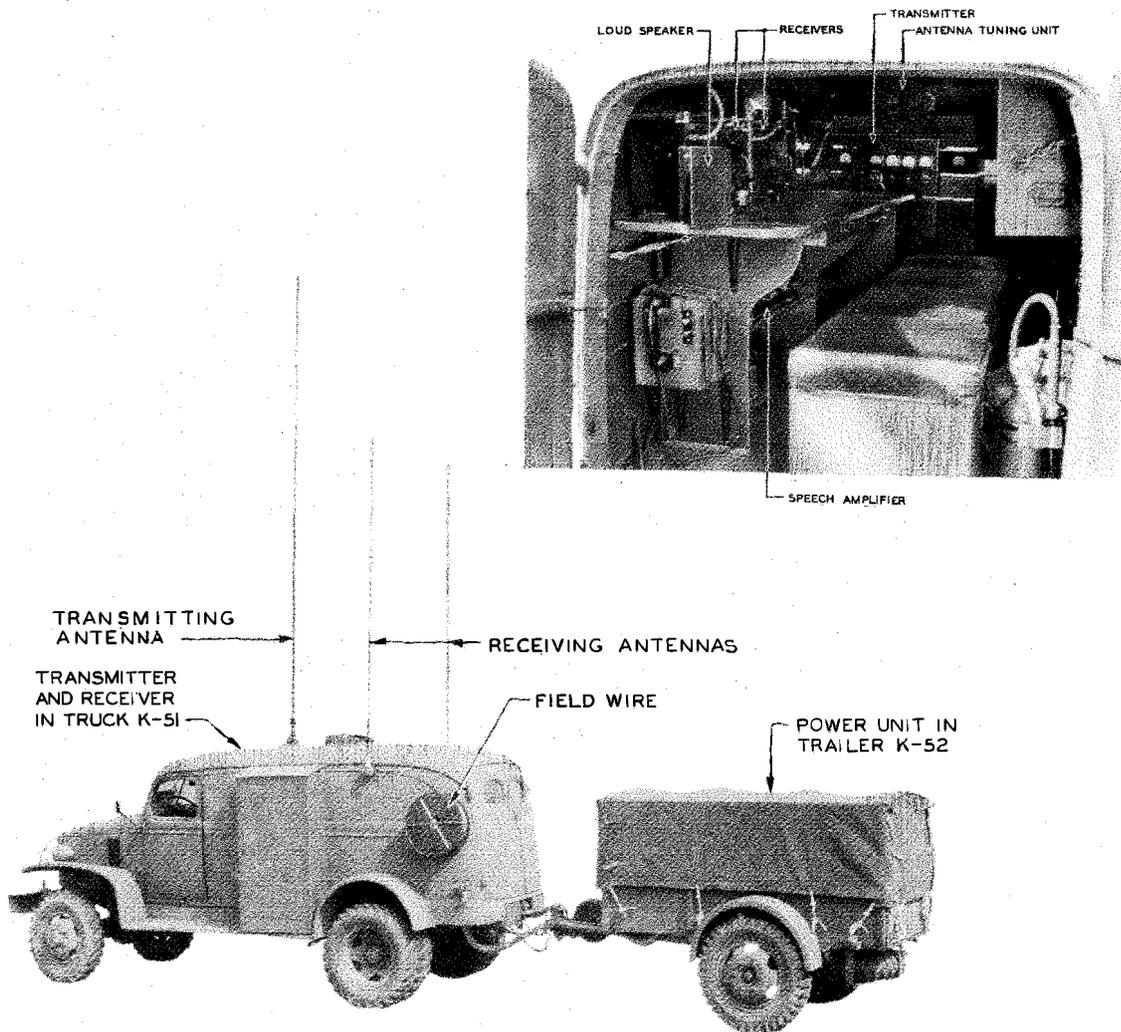


FIGURE 1421. Radio Set SCR-299

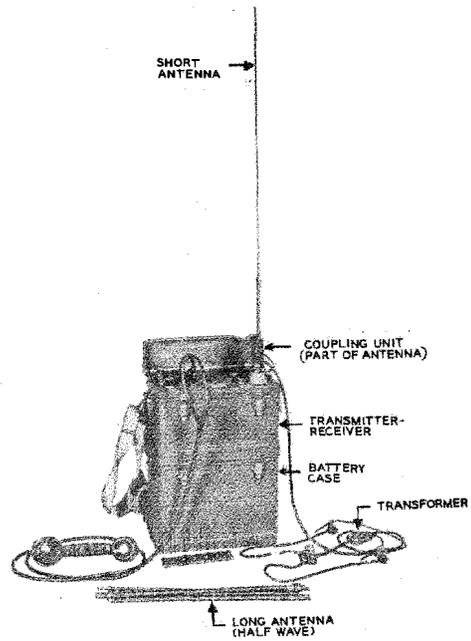


FIGURE 1422. Radio Set SCR-300

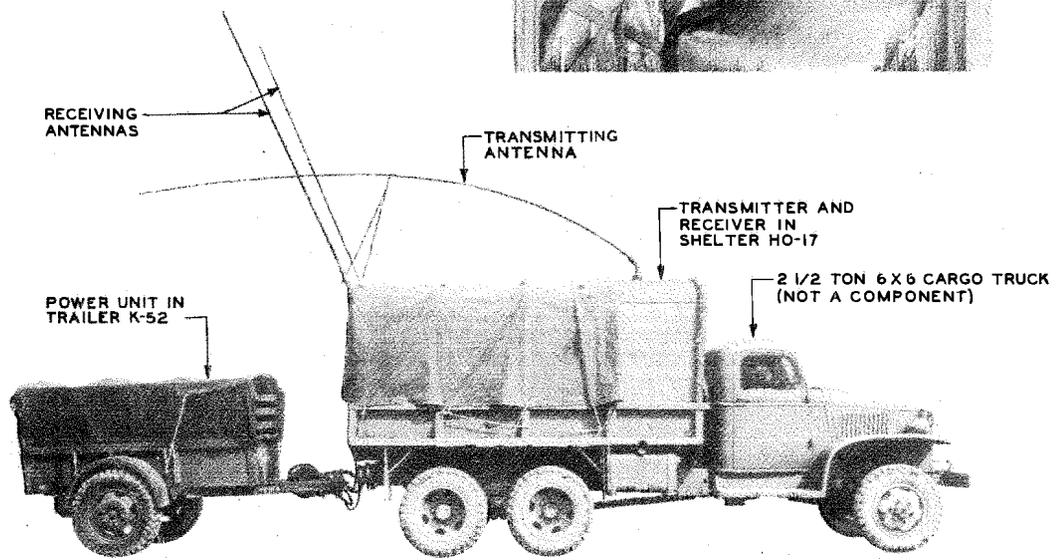
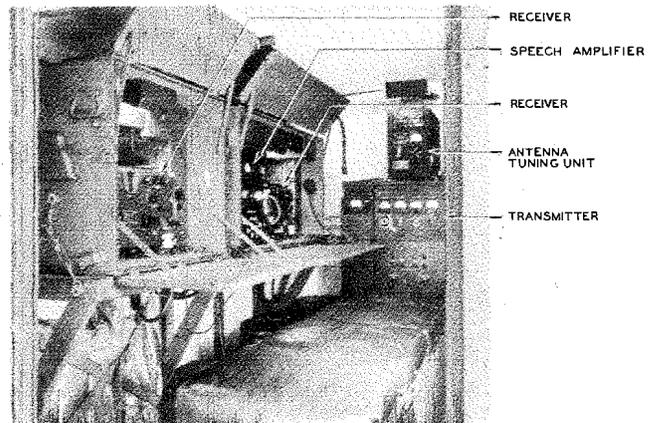


FIGURE 1423. Radio Set SCR-399

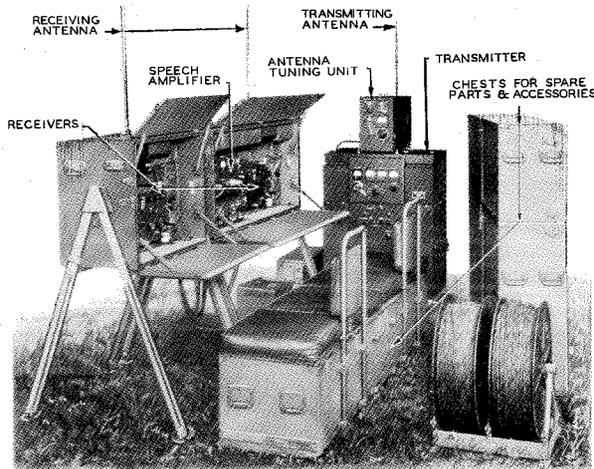


FIGURE 1424. Radio Set SCR-499

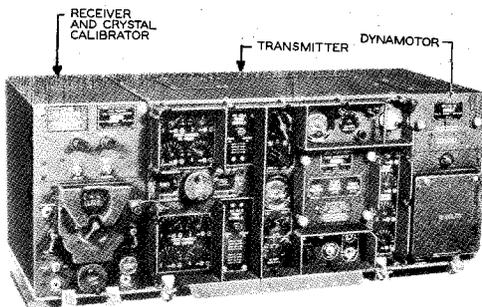


FIGURE 1425. Radio Set SCR-506

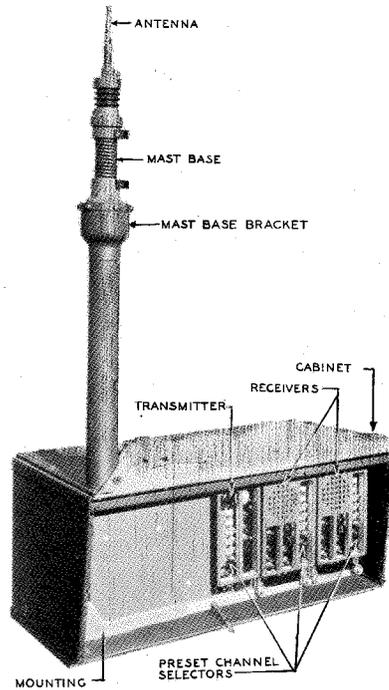


FIGURE 1426. Radio Set SCR-508

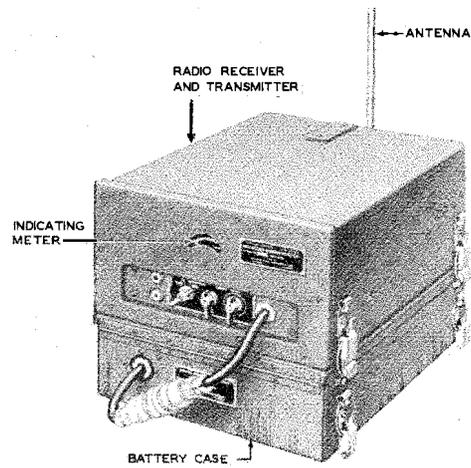


FIGURE 1427. Radio Set SCR-509

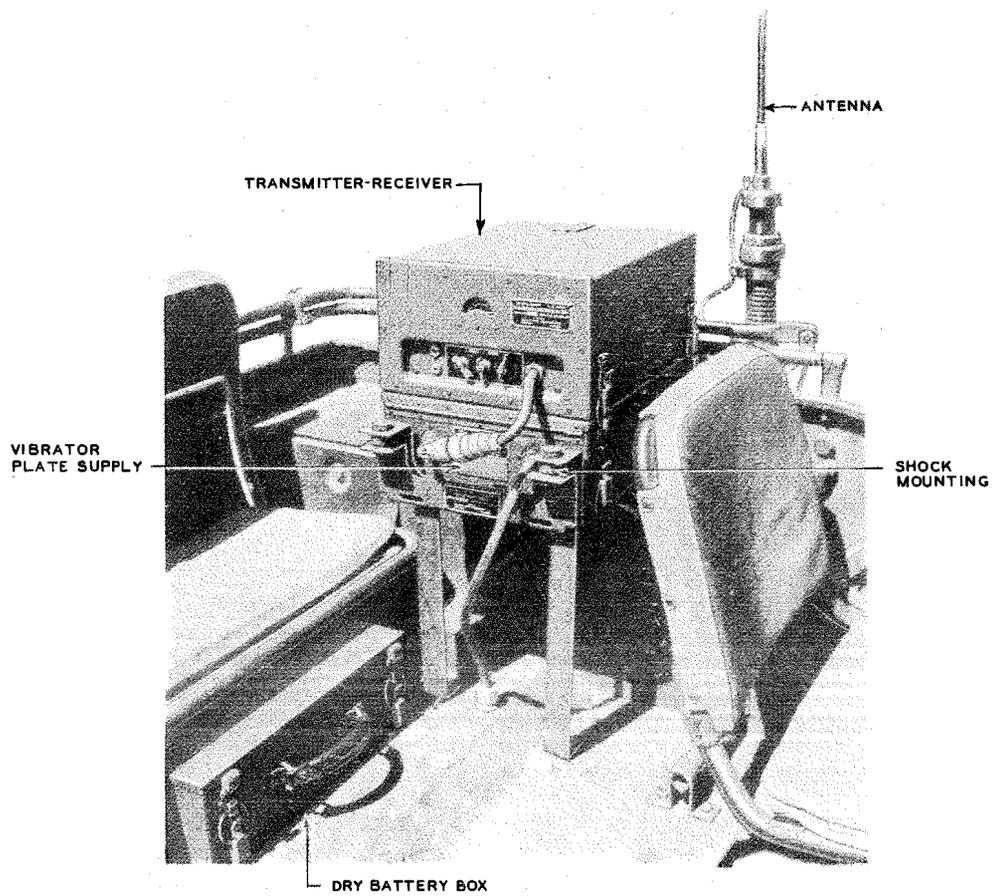


FIGURE 1428. Radio Set SCR-510

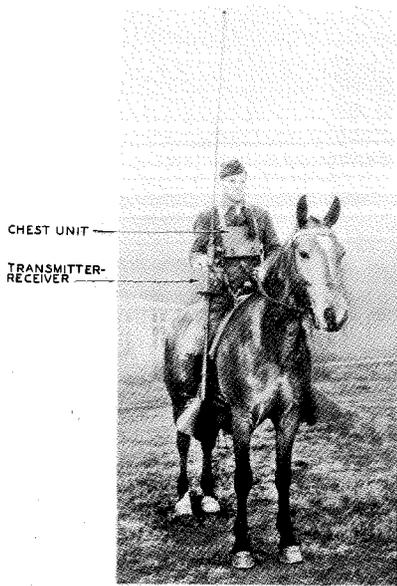


FIGURE 1429. Radio Set SCR-511

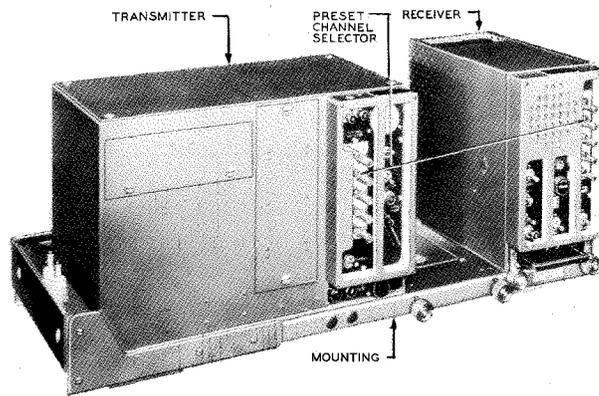


FIGURE 1430. Radio Set SCR-528

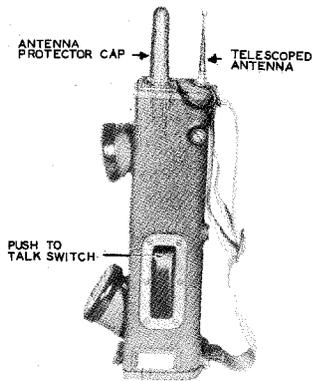


FIGURE 1431. Radio Set SCR-536

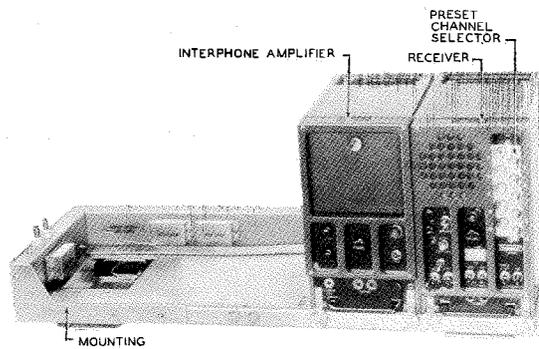


FIGURE 1432. Radio Set SCR-538

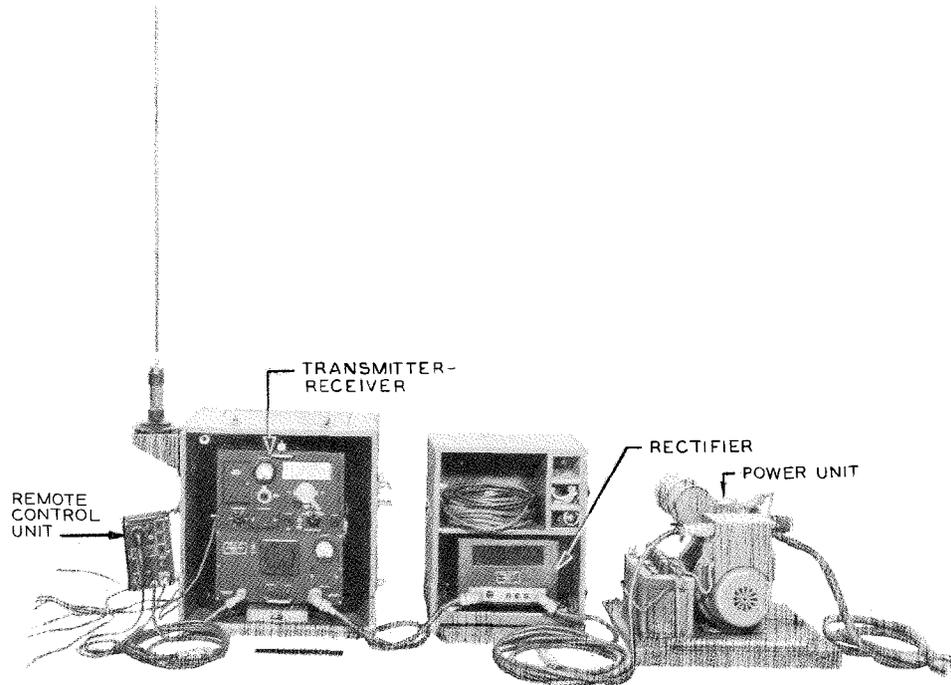


FIGURE 1433. Radio Set SCR-543

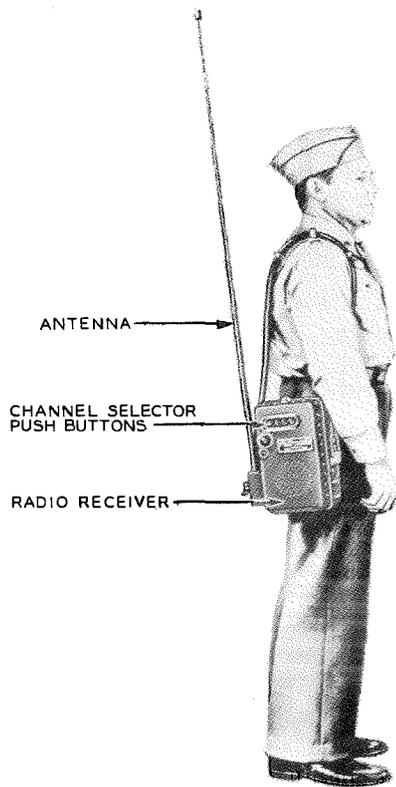


FIGURE 1434. Radio Set SCR-593

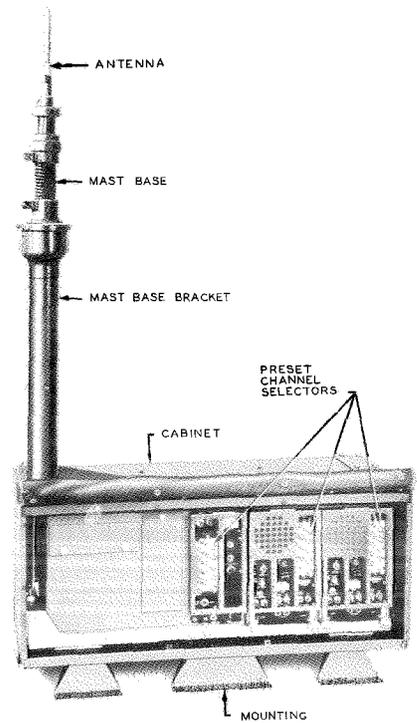


FIGURE 1435. Radio Set SCR-608

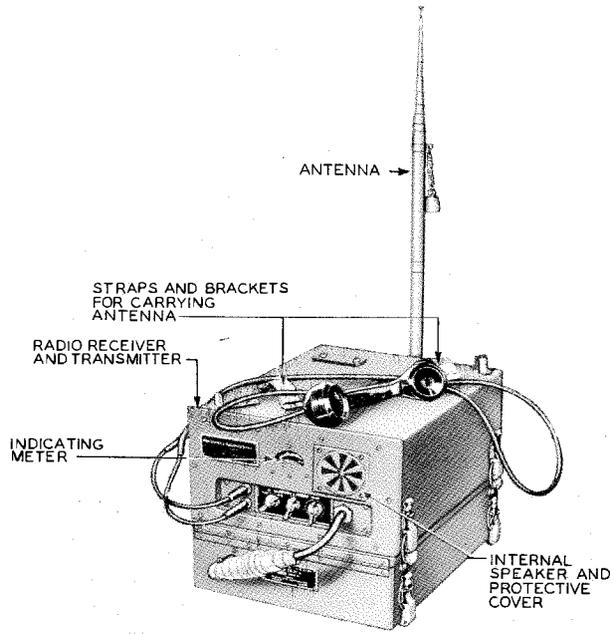


FIGURE 1436. Radio Set SCR-609

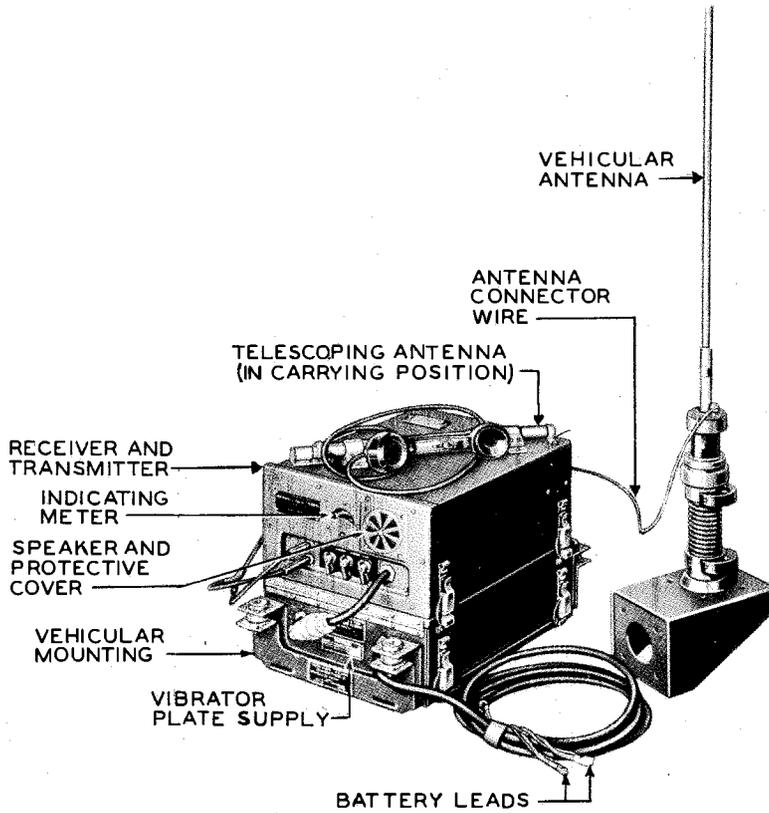


FIGURE 1437. Radio Set SCR-610

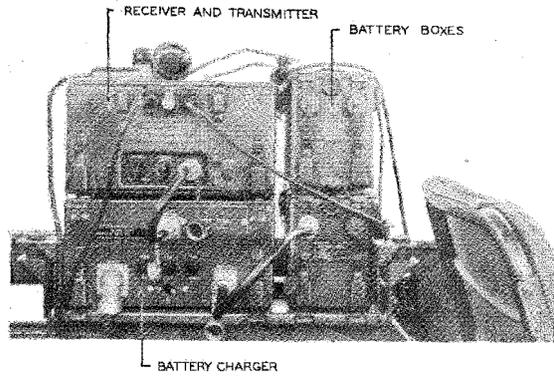


FIGURE 1438. Radio Set SCR-619

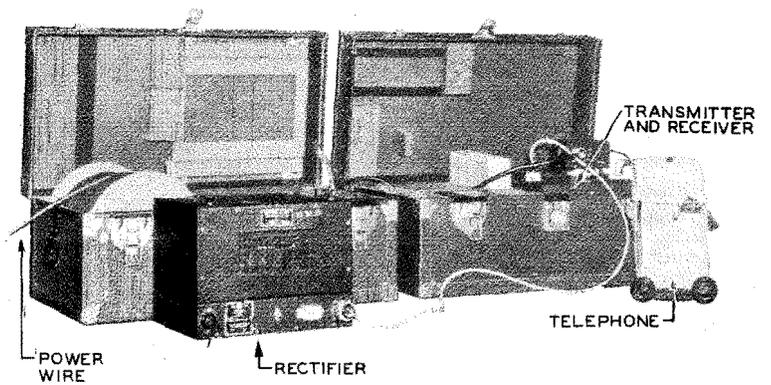


FIGURE 1439. Radio Set SCR-624

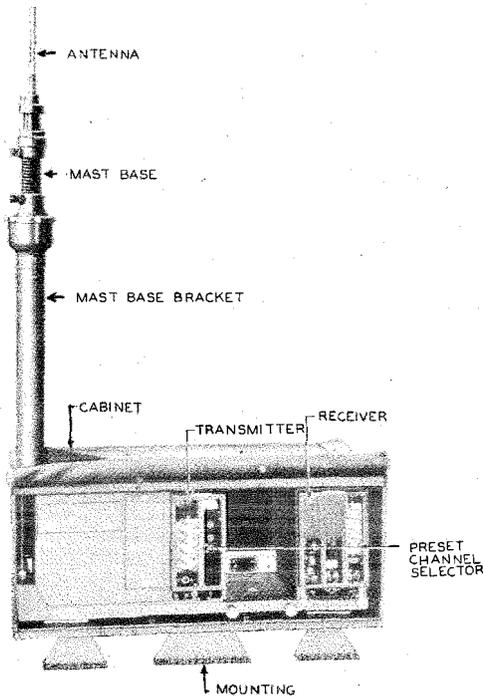


FIGURE 1440. Radio Set SCR-628

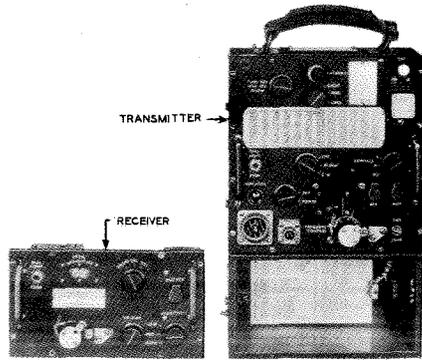


FIGURE 1441. Radio Set SCR-694-AW  
(Receiver removed from case)

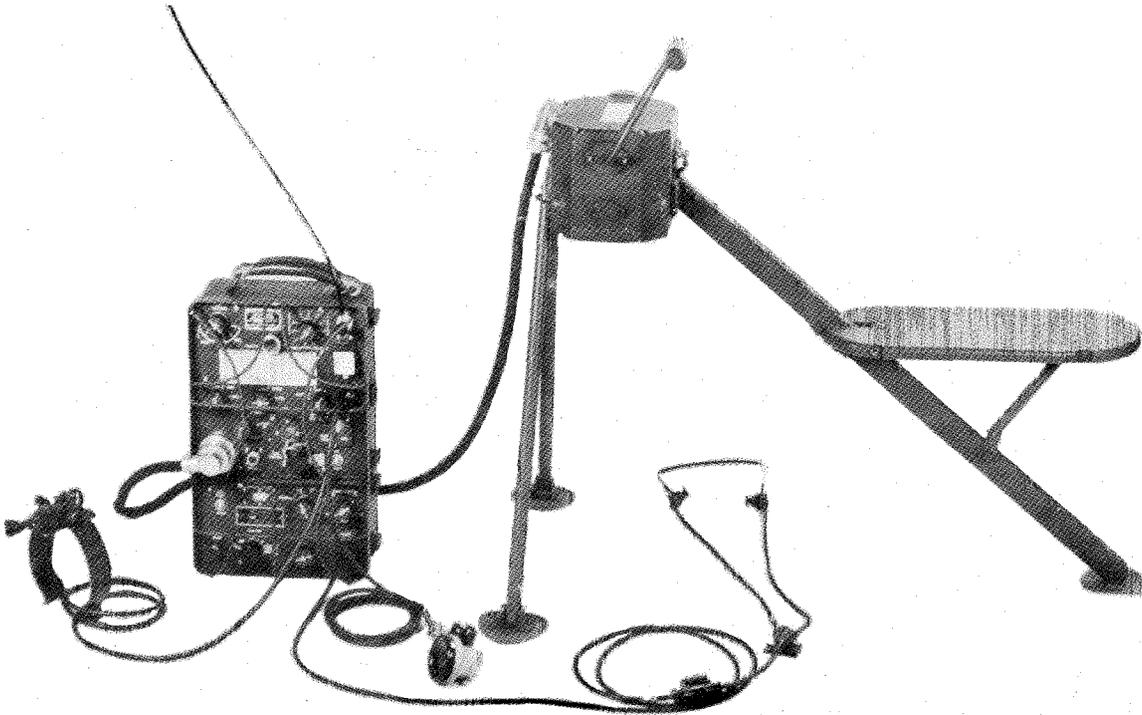


FIGURE 1442. Radio Set SCR-694-C

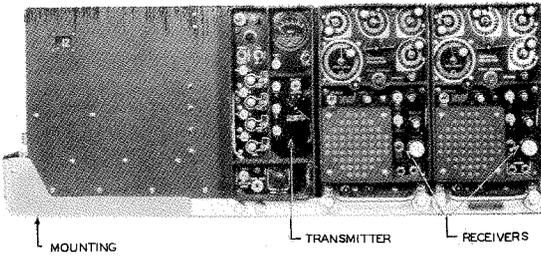


FIGURE 1443. Radio Set SCR-808

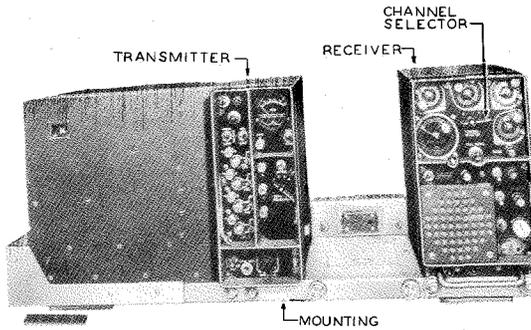


FIGURE 1444. Radio Set SCR-828

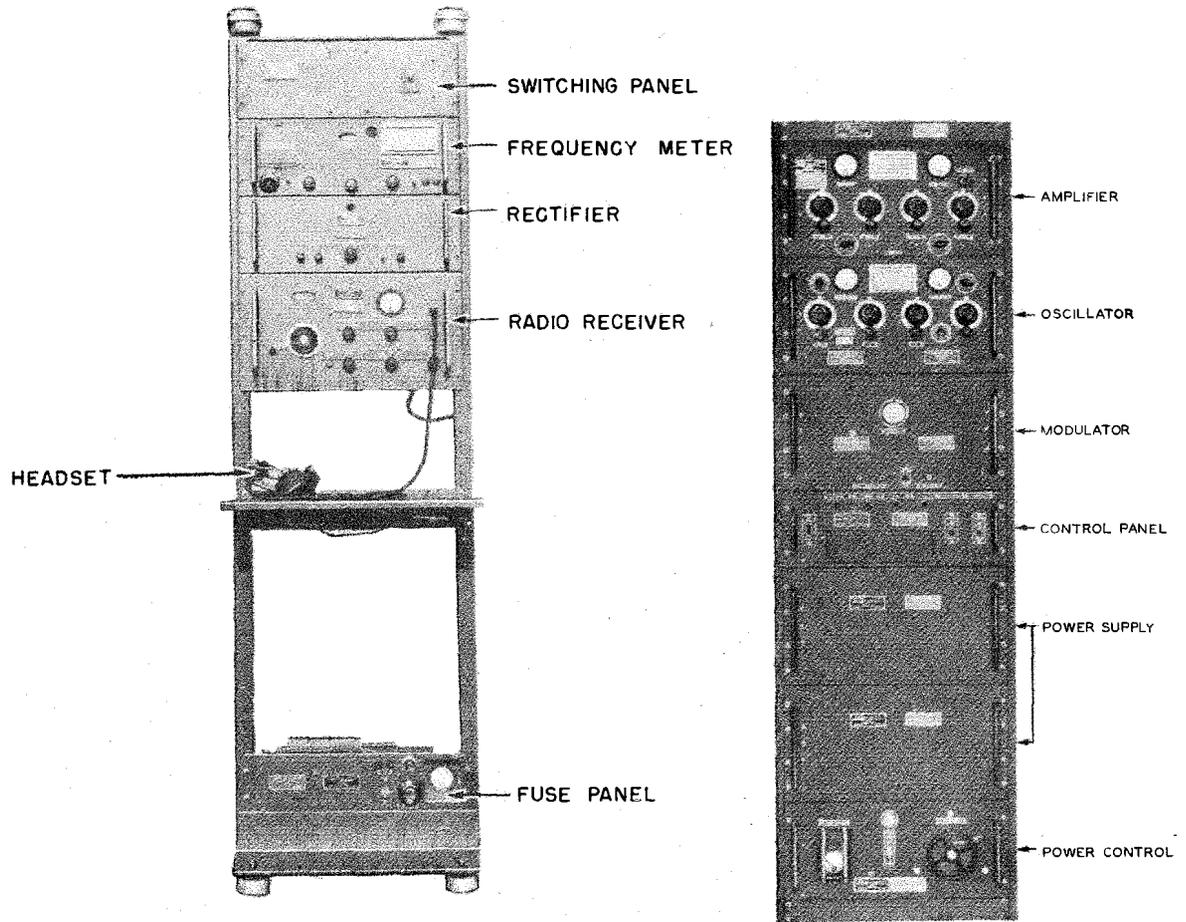


FIGURE 1445. Receiving Equipment RC-256

FIGURE 1446. Radio Transmitter RC-257

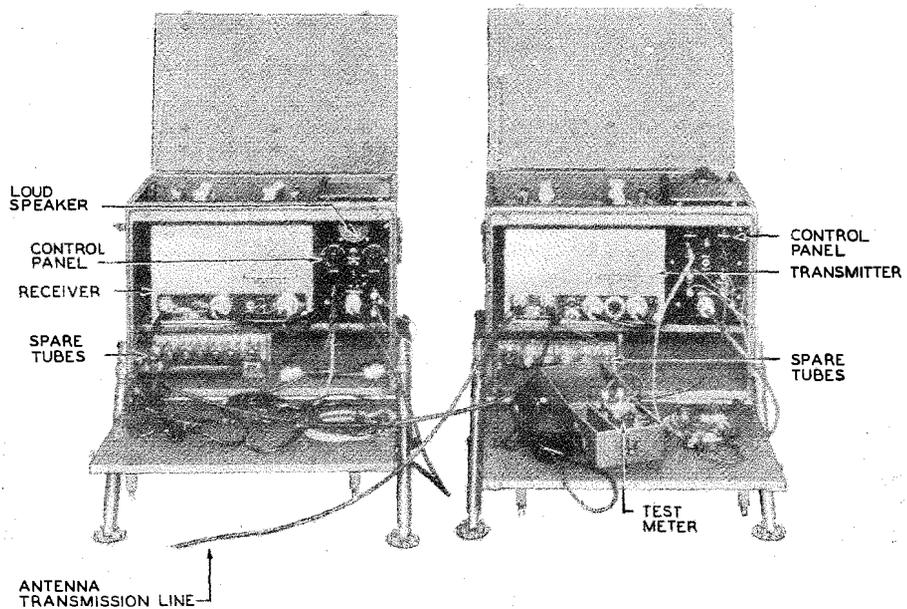


FIGURE 1447. Radio Set AN/CRC-3

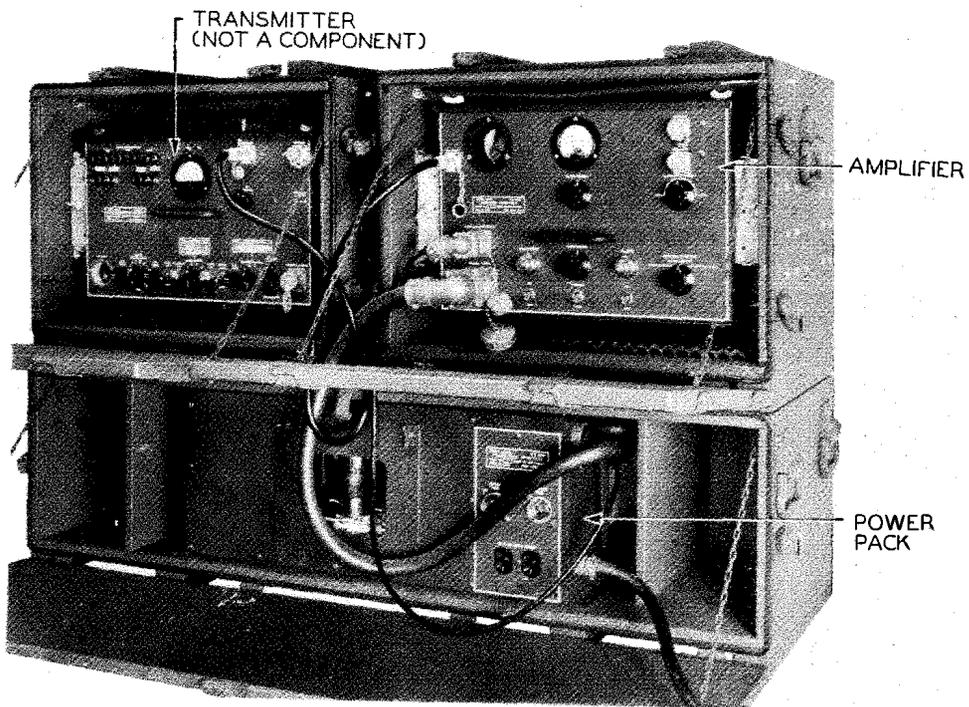


FIGURE 1448. Amplifier Equipment AN/TRA-1

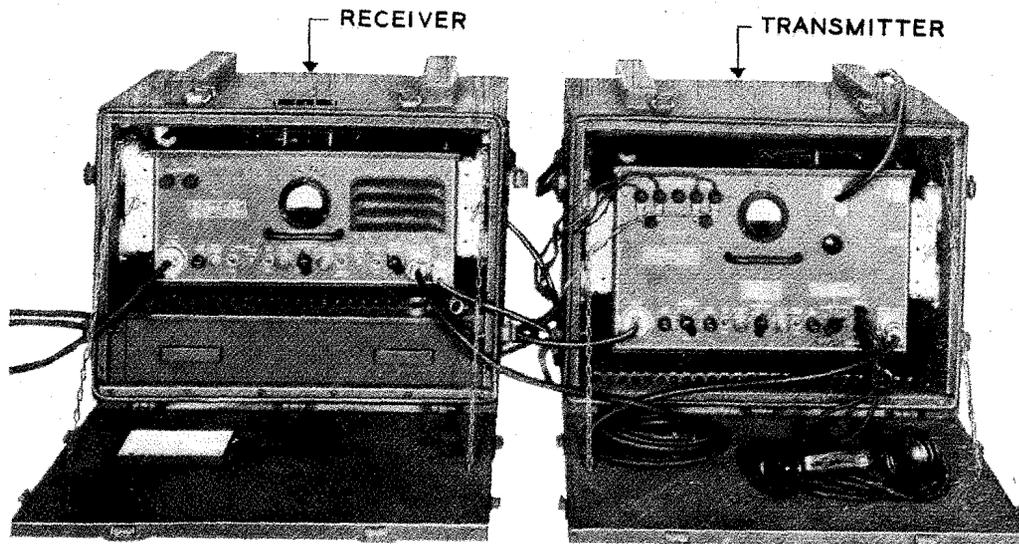
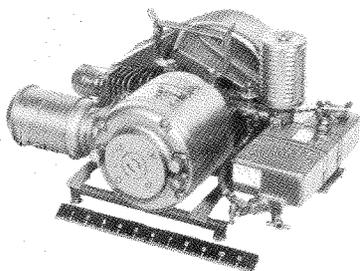
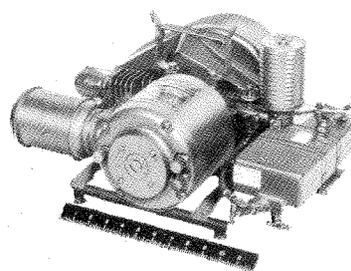


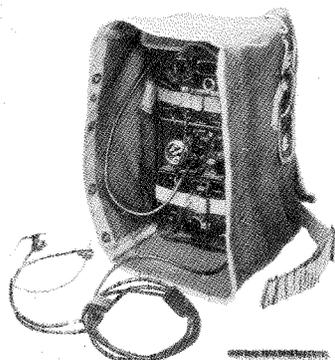
FIGURE 1449. Radio Set AN/TRC-1



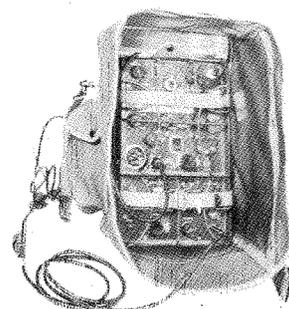
Power Unit PE-162



Power Unit PE-162



Receiver and Transmitter RT-12/TRC-2



Receiver and Transmitter BC-1306

FIGURE 1450. Radio Set AN/TRC-2

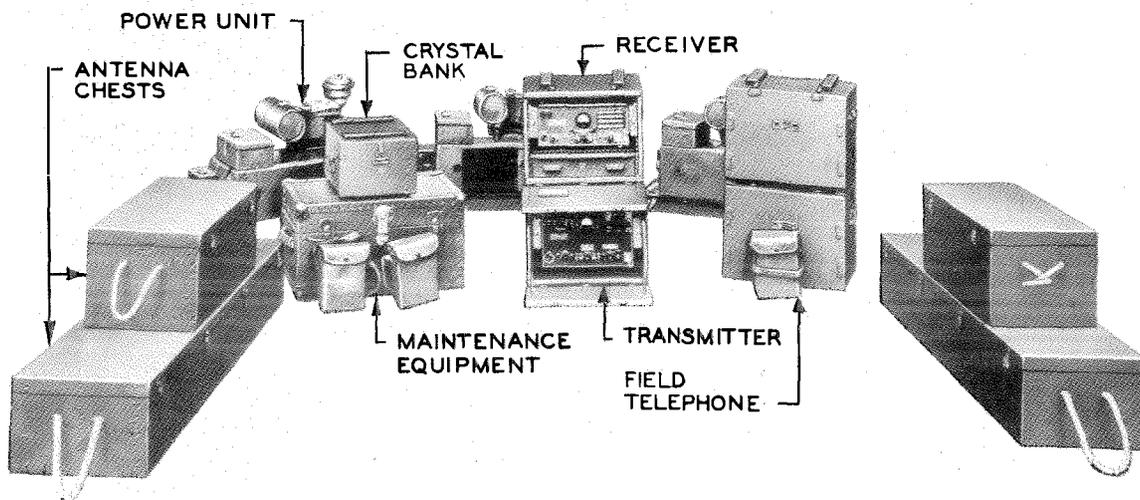


FIGURE 1451. Radio Terminal Set AN/TRC-3

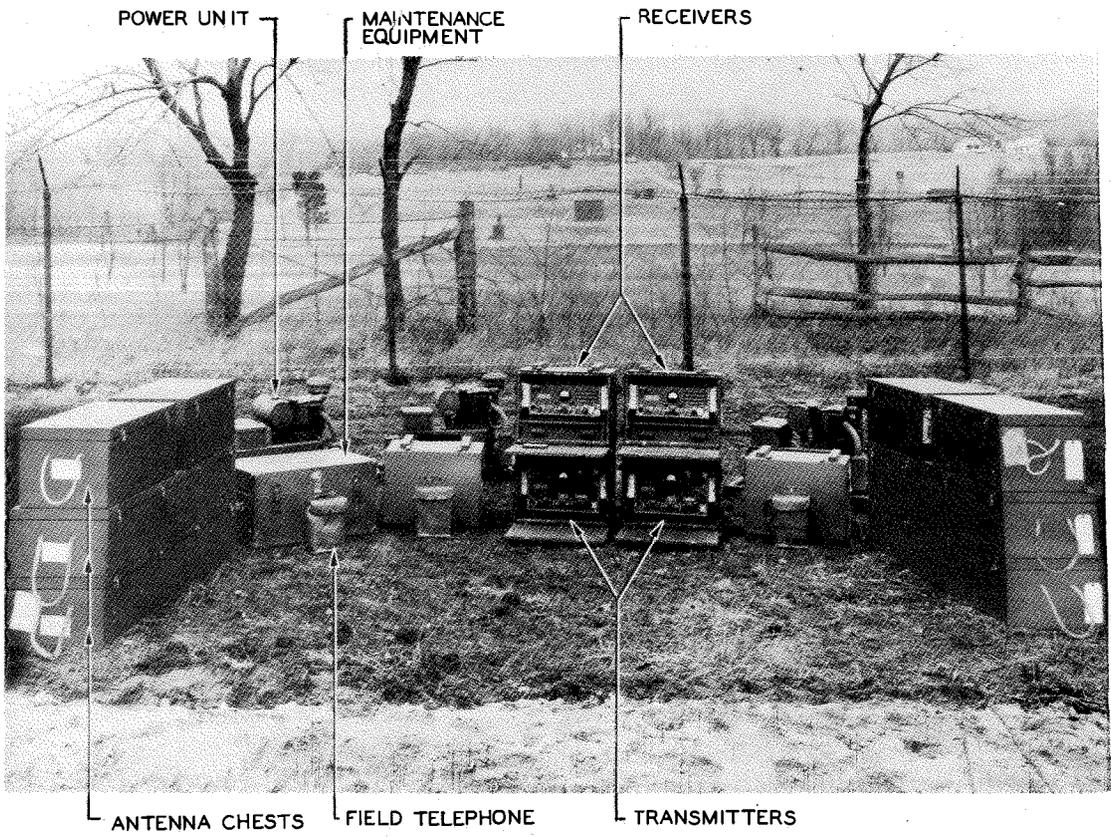


FIGURE 1452. Radio Relay Set AN/TRC-4

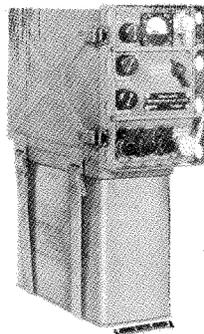
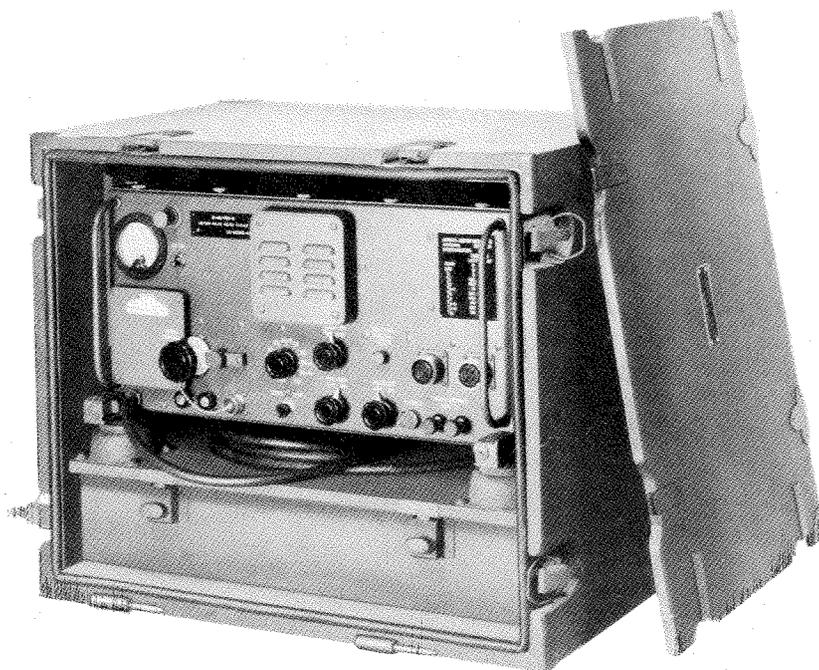
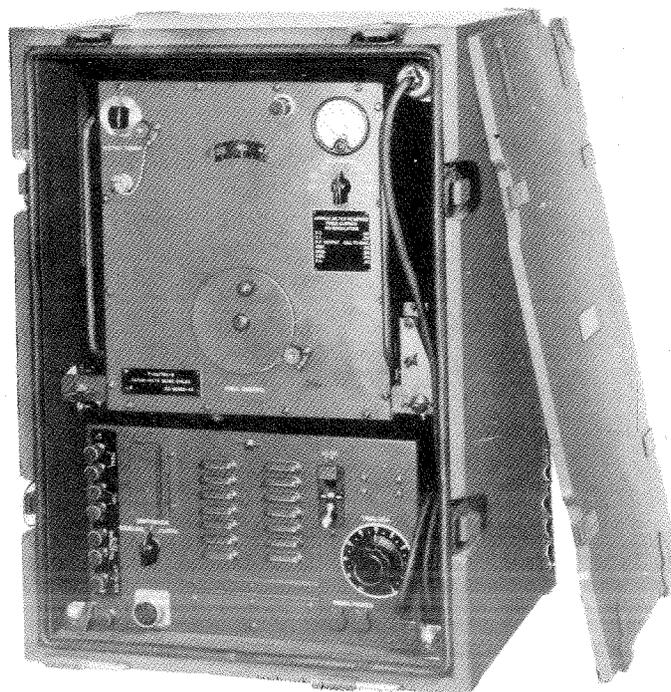


FIGURE 1453. Radio Set AN/TRC-7



Receiver



Transmitter

FIGURE 1454. Radio Set AN/TRC-8

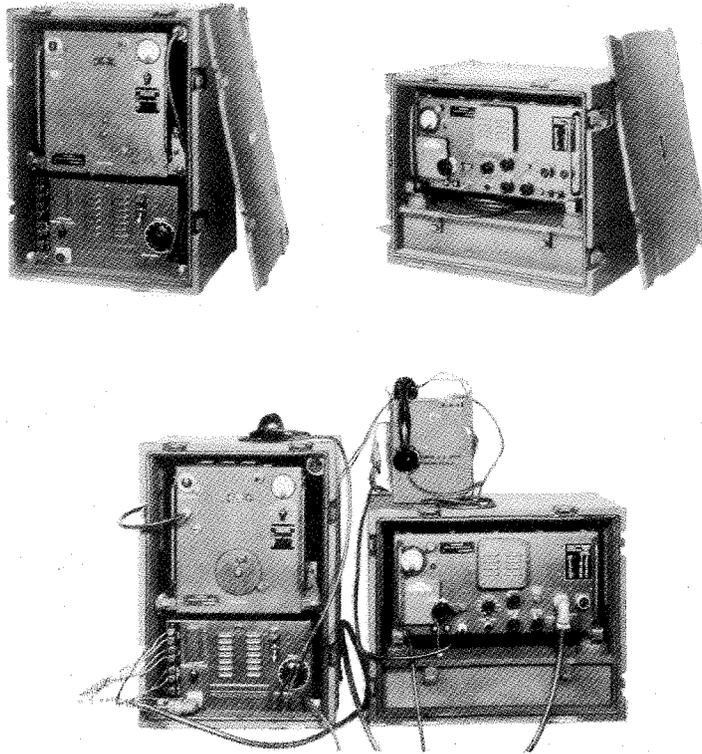


FIGURE 1455. Radio Terminal Set AN/TRC-11

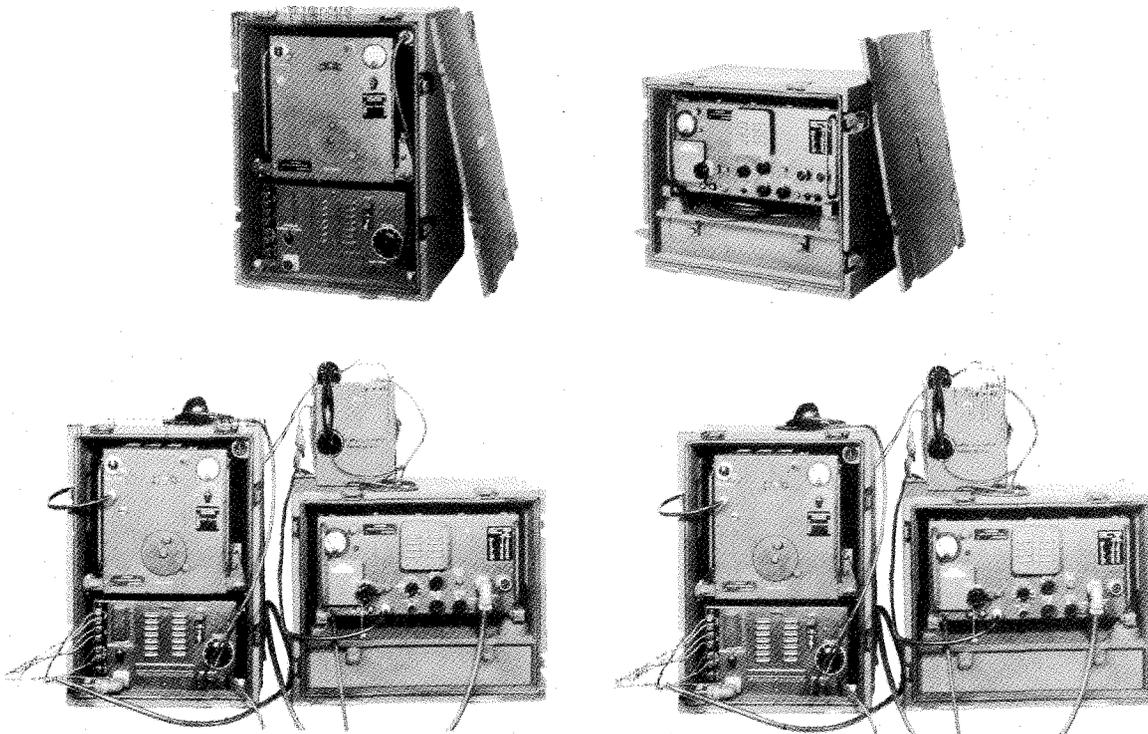


FIGURE 1456. Radio Set AN/TRC-12

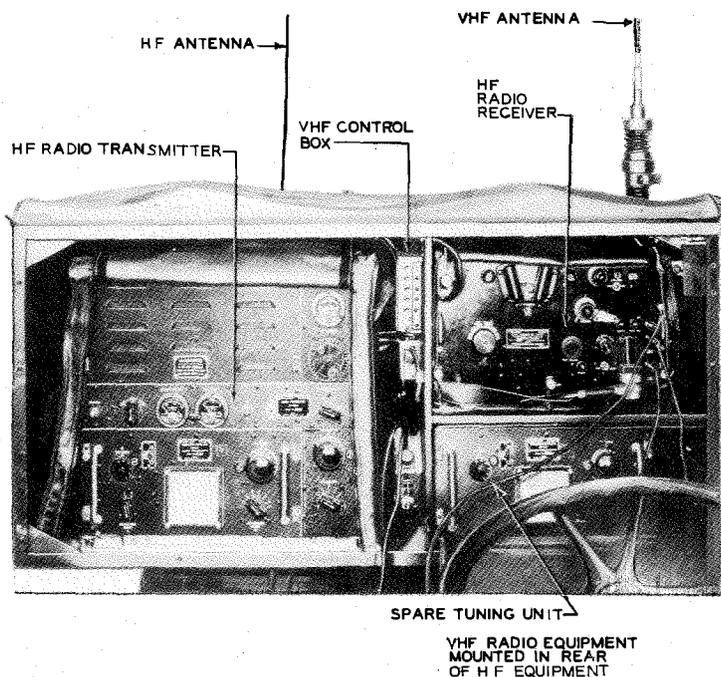


FIGURE 1457. Radio Set AN/VRC-1

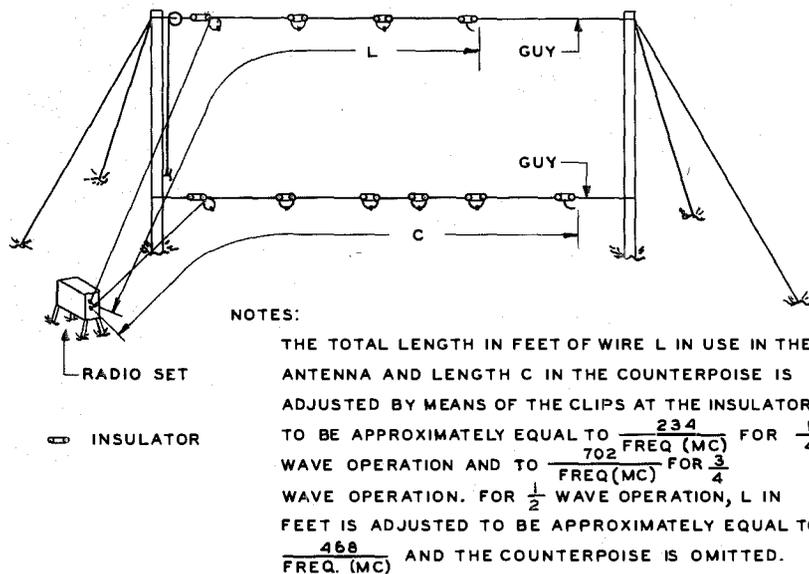


FIGURE 1458. Inverted L Antenna

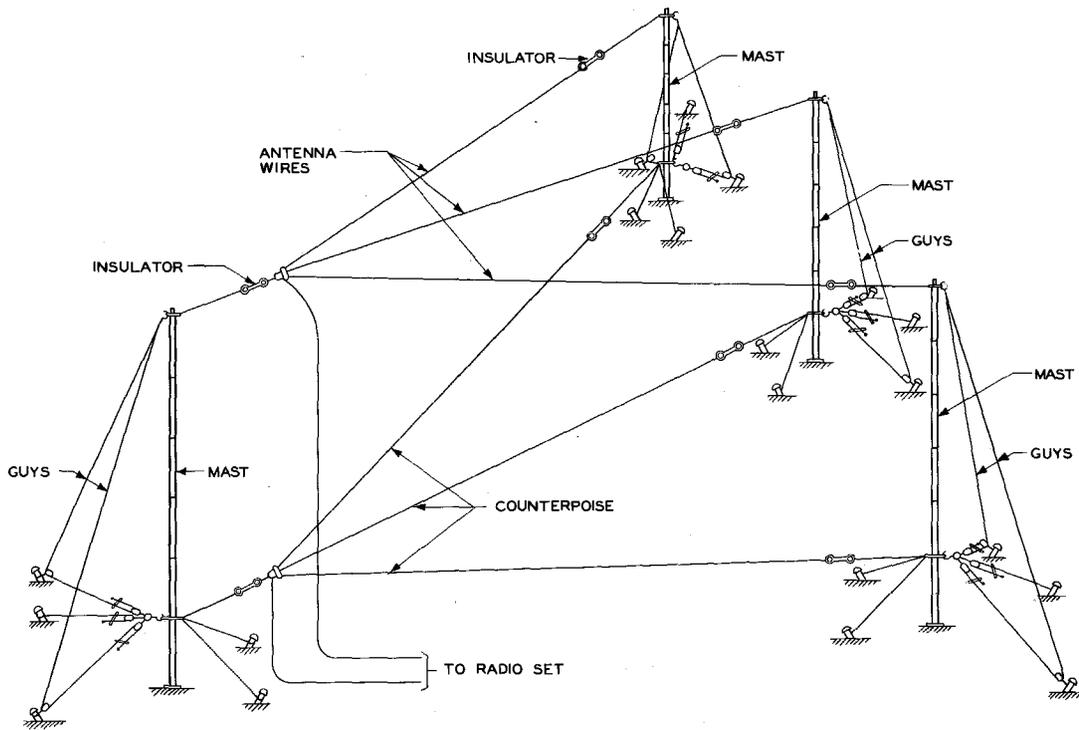
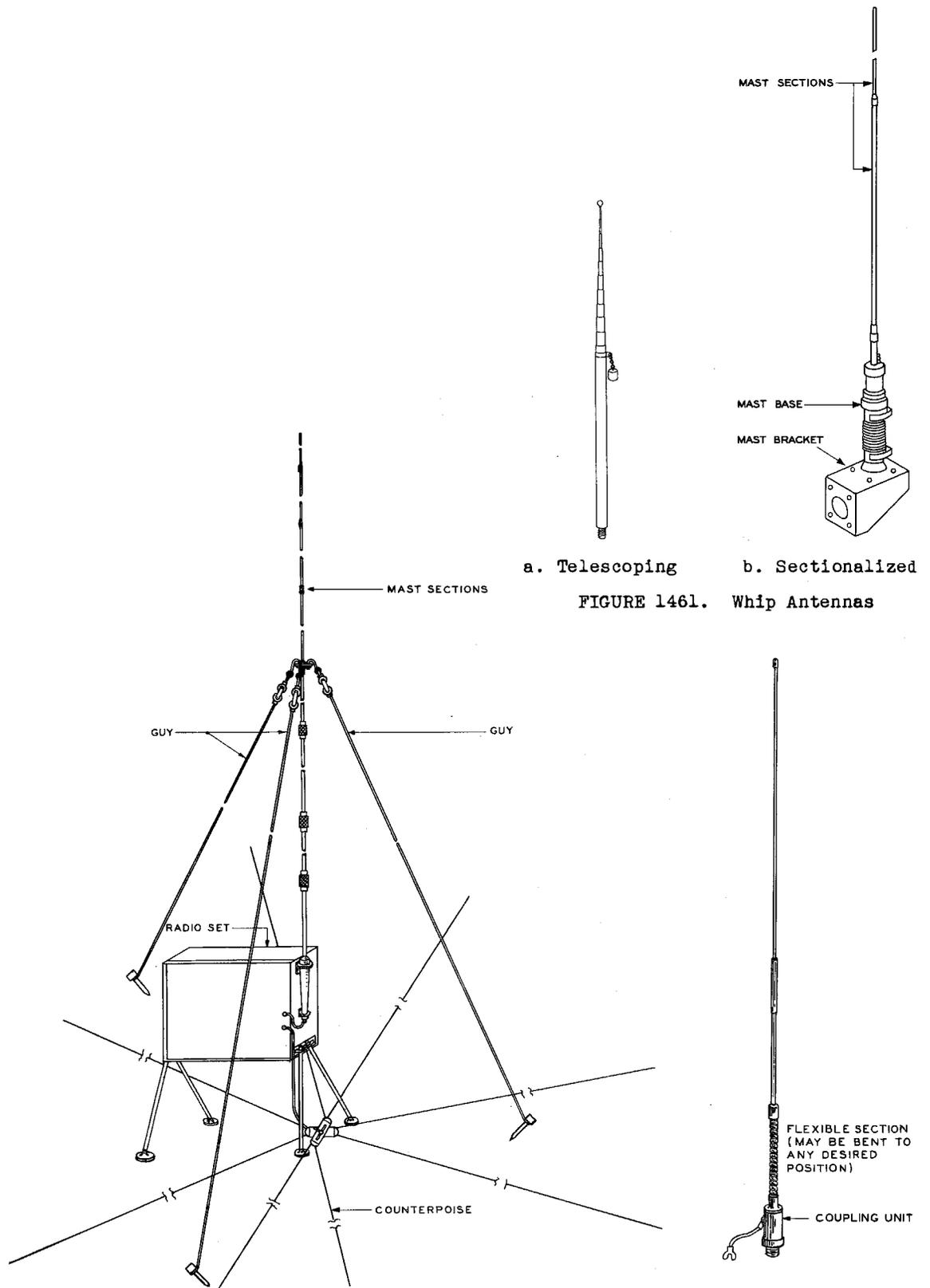


FIGURE 1459. Crowfoot Antenna



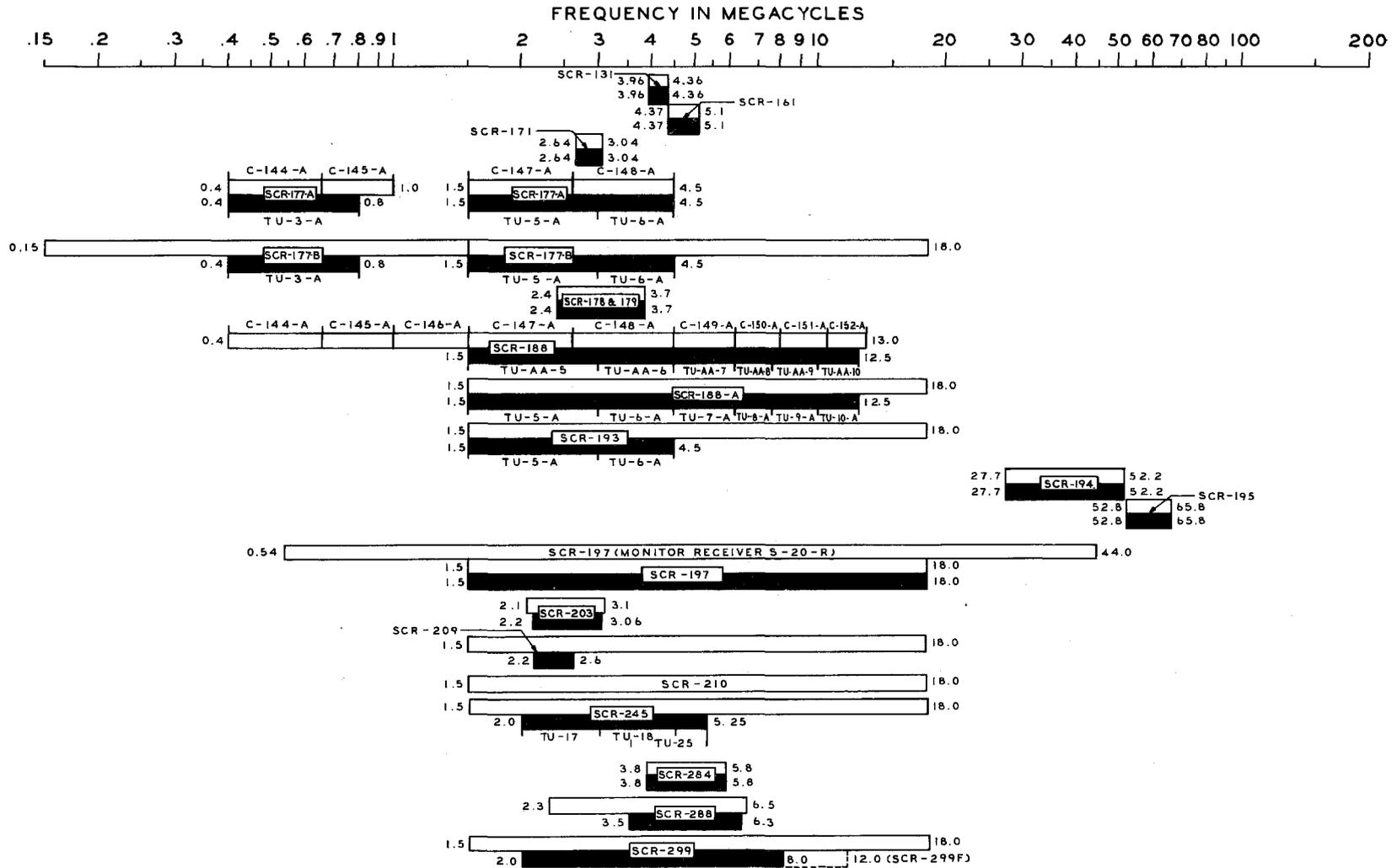
a. Telescoping      b. Sectionalized  
FIGURE 1461. Whip Antennas

FIGURE 1460. Whip Antenna and Counterpoise

FIGURE 1462. Short Whip Antenna

1409. FREQUENCY COVERAGE OF TACTICAL RADIO SETS FOR GROUND USE.

a. Amplitude Modulated Sets.



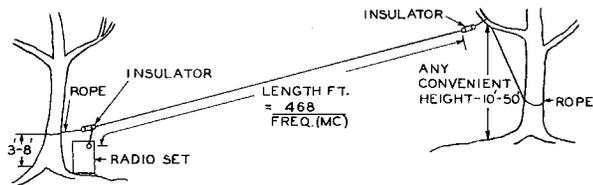


FIGURE 1466. Sloping Wire Antenna

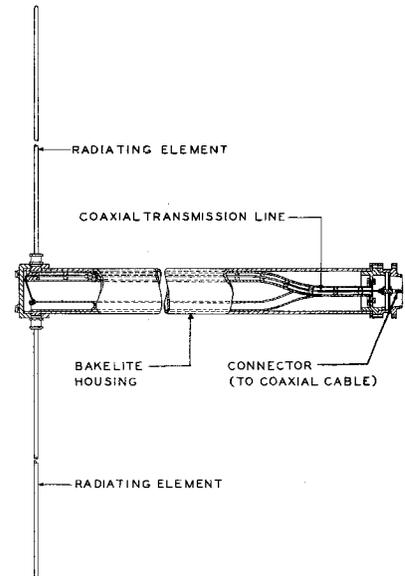
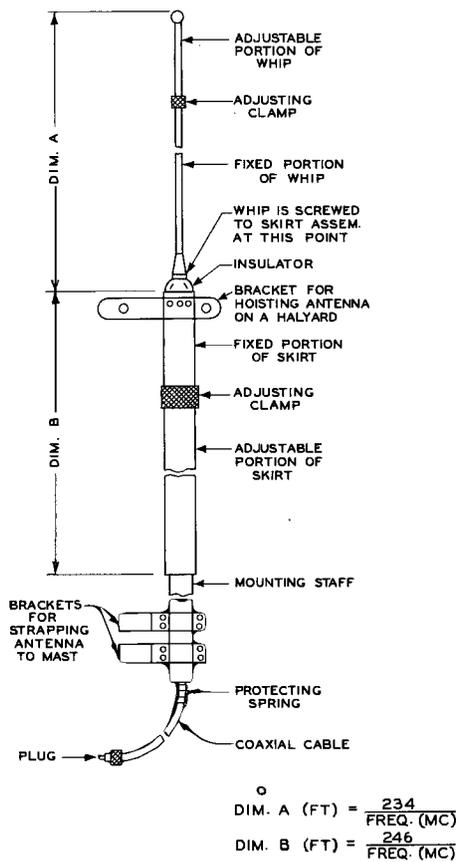


FIGURE 1467. Balanced Half-wave Dipole Antenna



$$\text{DIM. A (FT)} = \frac{234}{\text{FREQ. (MC)}}$$

$$\text{DIM. B (FT)} = \frac{246}{\text{FREQ. (MC)}}$$

FIGURE 1468. Adjustable Coaxial Antenna

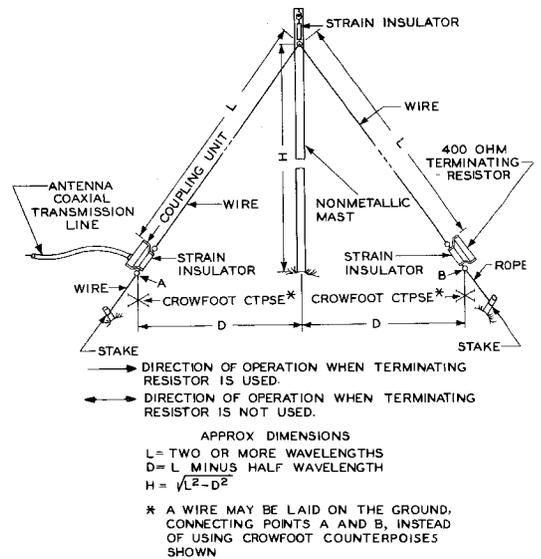


FIGURE 1469. Vertical Half Rhombic Antenna

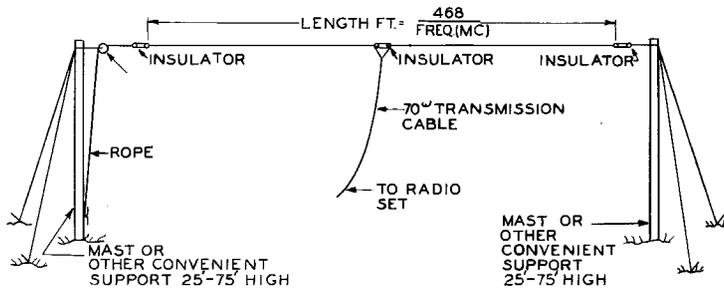
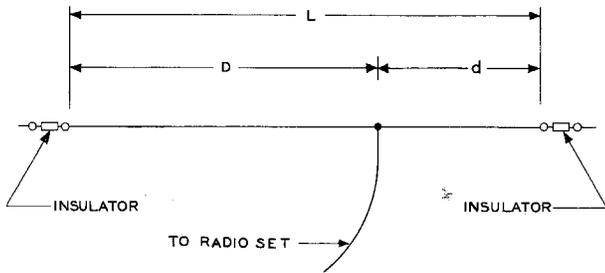


FIGURE 1463. Center-fed Horizontal Dipole Antenna



$$L = \frac{468}{\text{FREQ. (MC)}}$$

$$d = 0.364L$$

$$D = L - d$$

L, d & D ARE LENGTH IN FEET

FIGURE 1464. Single Wire Fed Half-wave Antenna

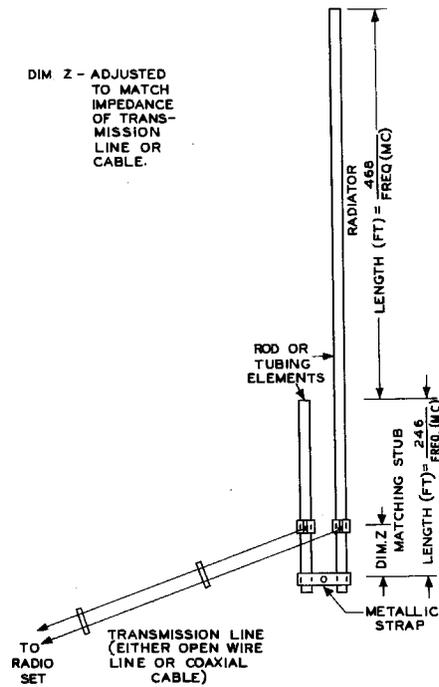


FIGURE 1465. Half-wave J Antenna

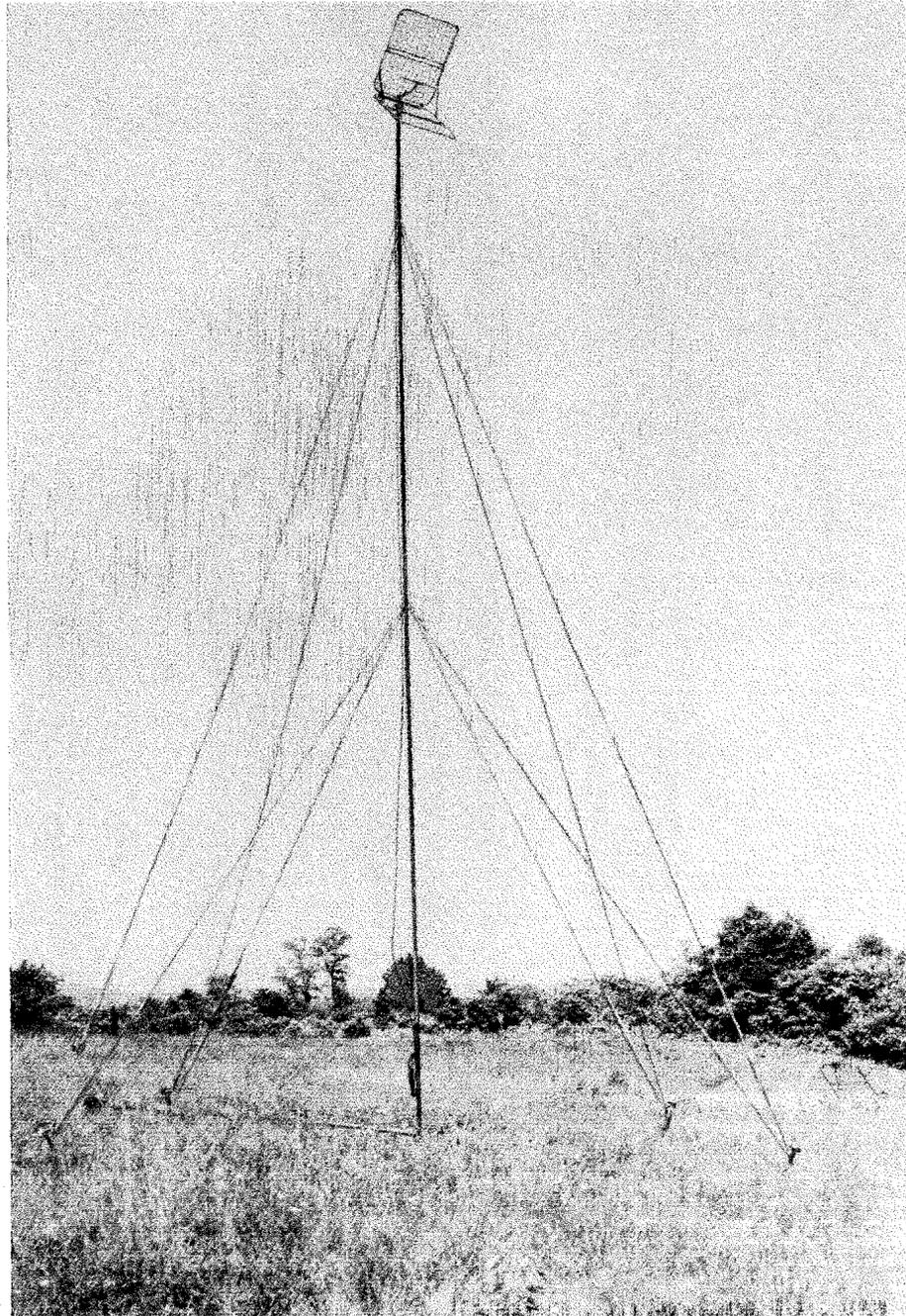


FIGURE 1473. Half-wave Corner Reflector Antenna

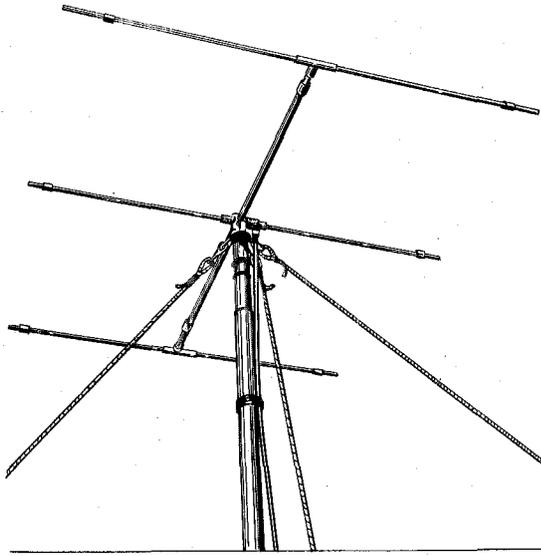


FIGURE 1470. Three Element Directional Array

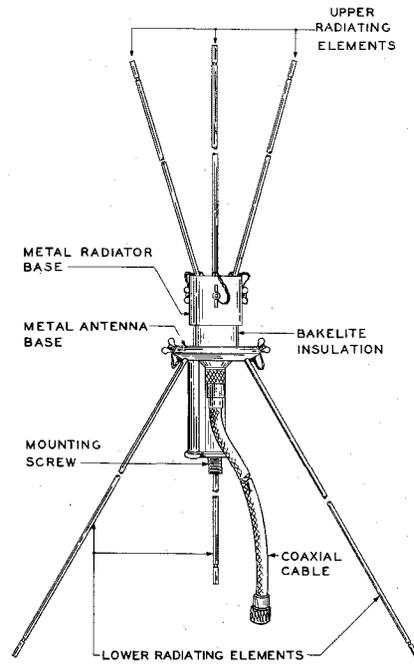


FIGURE 1471. Vertical Conical Dipole Antenna

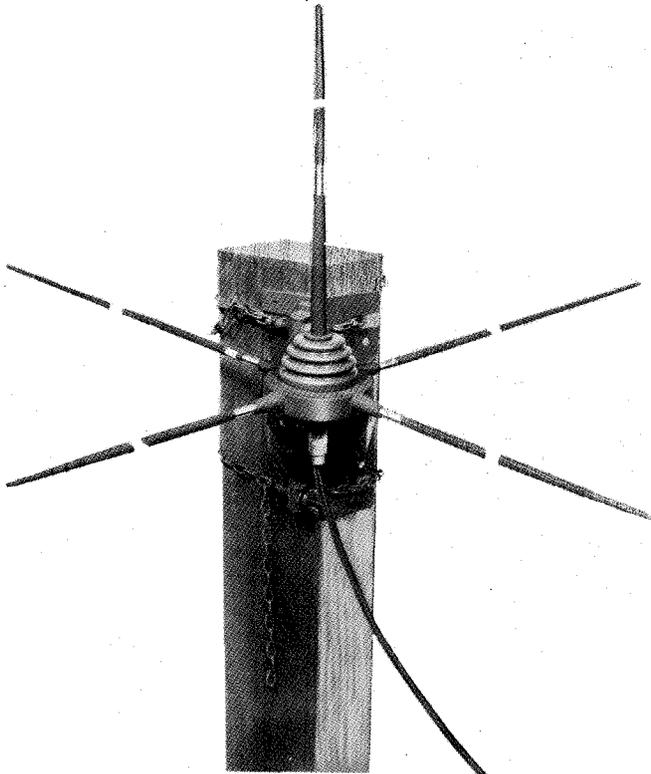
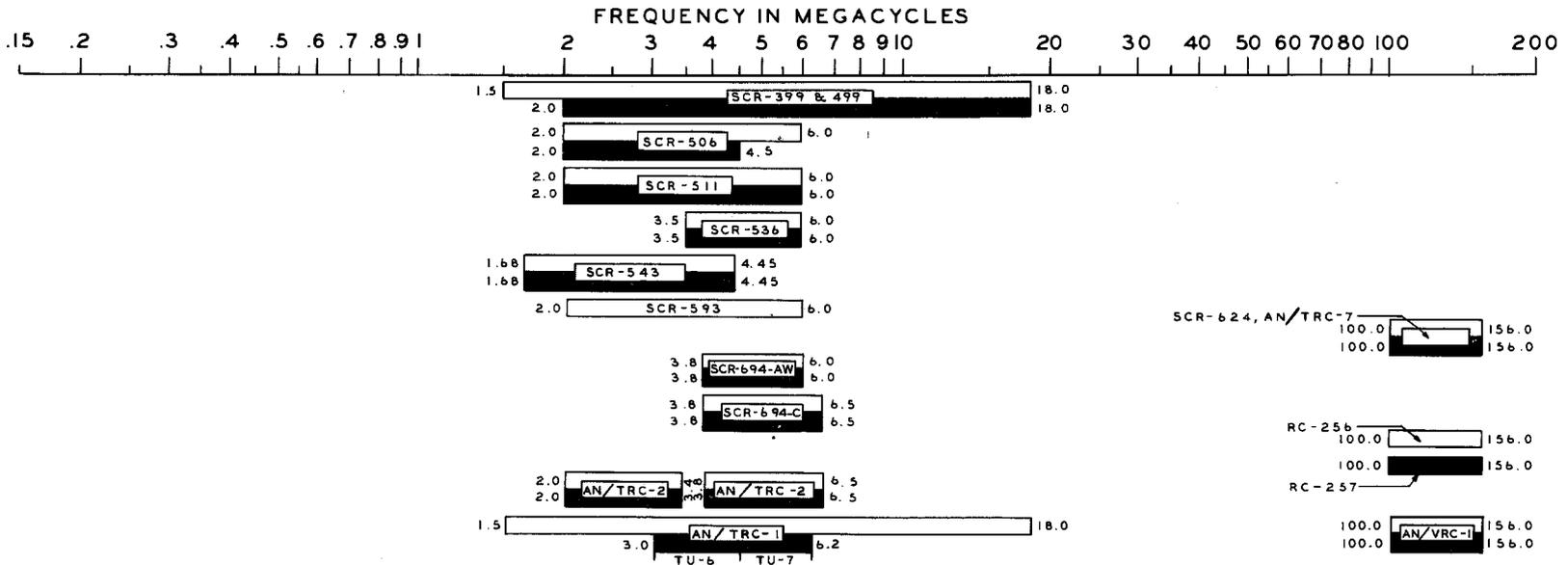
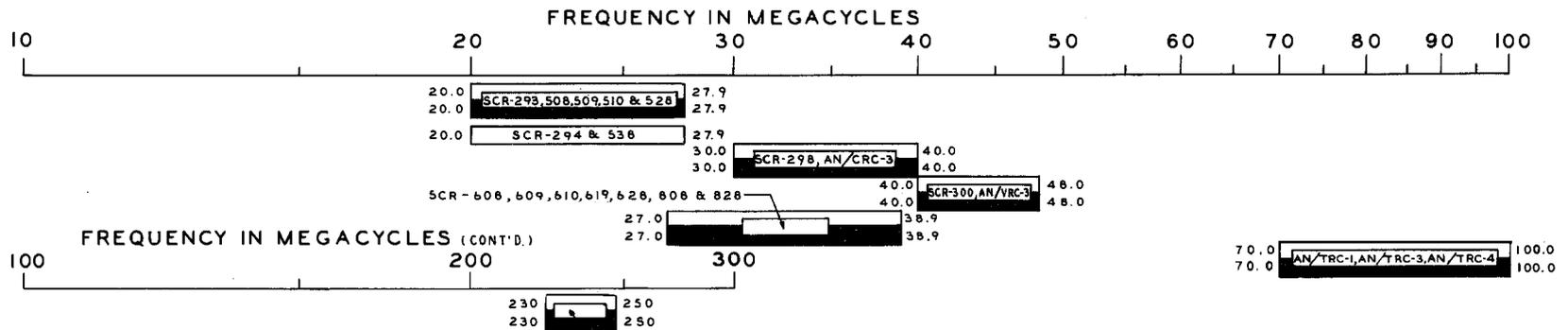


FIGURE 1472. Ground Plane Antenna



b. Frequency Modulated Sets.



NOTES:

A. RECEIVER  
 TRANSMITTER

B. THE NUMERALS SHOWN AT THE EXTREMES OF THE BLOCKS REPRESENT THE FREQUENCY COVERAGE OF THE RESPECTIVE UNITS.

C. WHEN COIL SETS OR TUNING UNITS ARE EMPLOYED THEIR RANGES ARE INDICATED ABOVE AND BELOW THE RECEIVER AND TRANSMITTER BLOCKS RESPECTIVELY.

1410. GROUND, TRANSPORTABLE RADIO SETS - STOCK NUMBERS AND LOGISTICAL DATA - TACTICAL.

Type	Stock No.	Total Weight (lbs.)		Total Cu. Ft. Packed for Export	Ship Tons <sup>a</sup>
		Packed for Export	Net		
SCR-171	2S171	259	179	12	Obsolete
SCR-177-A	2S177A	1,030	850	28	0.7
SCR-177-B	2S177B	1,250	1,000	40	1.0
SCR-178	2S178.3	292	225	16	Obsolete
SCR-188	2S188	2,133	1,150	101	2.5
SCR-188-A	2S188A	2,018	1,385	100	2.5
SCR-284-A	2S284A	408	275	17	0.4
SCR-288	2S288	131	71	7	0.2
SCR-543-( )	2S543( )	1,253	919	54	1.4
SCR-694-AW	2S694AW				
SCR-694-C	2S694C				
RC-256	2S55-256	725	600	44	1.1
RC-257	2S55-257	5,075	4,050	300	7.5
AN/CRC-3					
AN/CRC-3A					
AN/TRA-1	2S5006-1	547	402	32	0.8
AN/TRC-1	2S5002-1	2,000	1,435	78	2.0
AN/TRC-2	2S5002-2	1,001		52.5	1.3
AN/TRC-3	2S5002-3	3,150	2,560	132	3.3
AN/TRC-4	2S5002-4	4,500	3,500	187	4.7
AN/TRC-8					
AN/TRC-11					
AN/TRC-12					

1411. VEHICULAR RADIO SETS - STOCK NUMBERS AND LOGISTICAL DATA - TACTICAL.

Type	Stock No.	Total Weight (lbs.)		Total Cu. Ft. Packed for Export	Ship Tons <sup>a</sup>
		Packed for Export	Net		
SCR-193-( )	2S193( )	375	234	18.5	0.5
SCR-195	2S195	145	96	7.5	Obsolete
SCR-209	2S209	217	174	8	0.2
SCR-210-( )	2S210( )	160	71	7	0.2
SCR-245-( )	2S245( )	220	185	11	0.3
SCR-284-A	2S284A	408	275	17	0.4
SCR-293-( )	2S293( )	268	149	18	0.5
SCR-294-( )	2S294( )	121	72	8	0.2
SCR-298-C	2S298C	187	75	15	0.4
SCR-506	2S506	535	357	25	0.6
SCR-508-( )	2S508( )	265 <sup>b</sup>	200 <sup>b</sup>	14	0.3
SCR-510-( )	2S510( )	235	137	12	0.3
SCR-511-( )	2S511( )	98	65	4	0.1
SCR-528-( )	2S528( )	215 <sup>b</sup>	165 <sup>b</sup>	12	0.3
SCR-538-( )	2S538( )	155 <sup>b</sup>	115 <sup>b</sup>	7	0.2
SCR-543-( )	2S543( )	1,253	919	57	1.4
SCR-593-( )	2S593( )	63	38	3	0.1
SCR-608-( )	2S608( )	265 <sup>b,c</sup>	200 <sup>b,c</sup>	14	0.3
SCR-610-( )	2S610( )	280	176	12	0.3
SCR-619					
SCR-628-( )	2S628( )	215 <sup>b,c</sup>	165 <sup>b,c</sup>	12	0.3
SCR-694-AW	2S694AW				
SCR-694-C	2S694C				
SCR-808	2S808		225 <sup>b</sup>		
SCR-828	2S828		190 <sup>b</sup>		
AN/VRC-3	2S4502-3				

<sup>a</sup> 40 cu. ft. assumed equivalent to 1 ship ton. Obsolete sets are so indicated in this column.

<sup>b</sup> Weight of basic unit without installation components.

<sup>c</sup> Weight of Remote Control RM-29 not included.

1412. PACK RADIO SETS - STOCK NUMBERS AND LOGISTICAL DATA - TACTICAL.

<u>Type</u>	<u>Stock No.</u>	<u>Total Weight (lbs.)</u>		<u>Total Cu. Ft. Packed for Export<sup>a</sup></u>
		<u>Packed for Export</u>	<u>Net</u>	
SCR-131	2S131	130	77	6 (Obsolete)
SCR-161	2S161	180	77	10 (Obsolete)
SCR-179	2S179	292	225	16 (Obsolete)
SCR-194	2S194	140	81	7
SCR-195	2S195	145	96	7.5(Obsolete)
SCR-203	2S203	330 <sup>b</sup>	162 <sup>b</sup>	17 <sup>b</sup>
SCR-284-A	2S284A	408	275	17
SCR-288	2S288	131	71	7
SCR-300	2S300	65	38	2.5
SCR-509-( )	2S509( )	210	130	9
SCR-510-( )	2S510( )	235	137	12
SCR-511-( )	2S511( )	98	65	4
SCR-536-( )	2S536( )	13	10.5	0.6
SCR-593-( )	2S593( )	63	38	3
SCR-609-( )	2S609( )	125	97	4
SCR-610-( )	2S610( )	280	176	12
SCR-619				
SCR-694-AW	2S694AW			
SCR-694-C	2S694C			
AN/TRC-2	2S5002-2	1001		52.5
AN/TRC-7				

<sup>a</sup> Obsolete sets are so indicated in the export volume column.

<sup>b</sup> Exclusive of Phillips Pack Saddle.

1413. AIR TRANSPORTABLE RADIO SETS - STOCK NUMBERS AND LOGISTICAL DATA - TACTICAL.

<u>Type</u>	<u>Stock No.</u>	<u>Total Weight (lbs.)</u>		<u>Total Cu. Ft. Packed for Export</u>	<u>Ship<sup>a</sup> Tons</u>
		<u>for Export</u>	<u>Net.</u>		
SCR-499	2S499	5,703	3,000	272	6.8
SCR-624	2S624	1,005	698	65	1.6
AN/CRC-3					
AN/CRC-3A					

<sup>a</sup> 40 cu. ft. assumed equivalent to 1 ship ton.

1414. GROUND, MOBILE RADIO SETS - STOCK NUMBERS AND LOGISTICAL DATA - TACTICAL.

<u>Type</u>	<u>Stock No.</u>	<u>Total Weight (lbs.)</u>		<u>Total Cu. Ft. Packed for Export</u>	<u>Ship<sup>a</sup> Tons</u>
		<u>for Export</u>	<u>Net</u>		
SCR-197-( )	2S197( )	25,000	15,700	5,000	*125
SCR-299-( )	2S299( )	16,800	12,375	1,567	39.2
SCR-399-( )	2S399( )	10,025	6,595	895	22.4
AN/VRC-1	2S4502-1	475	334	22	0.6

<sup>a</sup> 40 cu. ft. assumed equivalent to 1 ship ton.

## 1415. REMOTE CONTROL EQUIPMENT FOR RADIO SETS - TACTICAL - DESCRIPTION.

Nomenclature Name	Shown in Type No.	Fig.No.	Major Components <sup>a</sup>	Weight Pounds	Dimensions - Inches			Used with Radio Sets	Range - Miles of Number		Power Input Requirements <sup>c</sup>	Technical Manual	Remarks
					H	W	D		Wire W-110-B <sup>b</sup>	Of Pairs			
Remote Control Equipment	AN/TRA-2 <sup>e</sup>	1474	Control Unit C-112/TRA-2-()	20	9	12	12						Used with but not a part of Radio Set AN/TRC-1 and -8. Consists of 2 units, a transmitter control unit C-113/TRA-2 located at the radio transmitter and a remote station unit C-112/TRA-2 located at a remote point. Provides: Press-to-talk control of the radio set on a 2 or 4-wire basis; volume limiter for limiting the transmission level input into the radio transmitter; listening at remote station with either phones or loudspeaker; inter-communication between attendants; manual volume control for the headphones at the remote station; automatic radio repeater operation; facilities for 3 attendants at the remote station. Two-wire operation is normally provided when the radio receiver and transmitter are closely associated with each other or when automatic repeater operation is used in which case the radio receiver is located with the remote station unit. Four-wire operation is provided when the radio receiver and transmitter are not located together or when the radio system uses two frequencies to provide simultaneous two-way communication.
			(Remote Station)					AN/TRC-1 AN/TRC-8	2	1 or 2			
			Control Unit C-113/TRA-2-() (Transmitter)	20	9	12	12			105V-125V 50"-60"			
Remote Control Equipment	RC-47-( ) <sup>d</sup>	1475	Unit RM-13-() (Remote Station)	34	15	11	9				110V-60" or 220V-50" 2 Batteries		Part of Radio Set SCR-188-A. Designed to control Radio Transmitter BC-191-() from the radio receiver location which may be at a remote point. Consists of two principal units, RM-12-() at the radio transmitter and RM-13-() at the radio receiver. Provides: Press-to-talk remote control for switching from receiving to transmitting; manual volume control; volume indicators at remote point and radio transmitter input; one stage of speech input amplification at remote point; receiver disabling when transmitting with voice or telegraph. A microphone modulator channel and a local battery telephone channel are provided on two separate pairs, and a telegraph channel on the phantom derived from these two pairs. At the receiver point, any one of three microphones, three telegraph keys or three radio receivers may be selected through a rotary type three-position selection switch. This equipment permits operating the transmitter on phone, CW, or Tone from either the transmitter location or from the remote point.
								SCR-188-A	6 wet 10 dry	2		BA-30 (1.5V) 2 Batteries BA-30 (1.5V)	
			Control Unit RM-12-() (Transmitter)	28	15	10	9						

<sup>a</sup> Running spares included.

<sup>b</sup> Other wire lines may be used where they are equivalent to or better than Wire W-110-B, for transmission and signaling.

<sup>c</sup> AC power, where indicated, is supplied from radio set.

<sup>d</sup> Part of radio set with which it is used.

<sup>e</sup> Not available until late in 1944.

Nomenclature		Shown in Fig.No.	Major Components <sup>a</sup>	Weight Pounds	Dimensions - Inches			Used with Radio Sets	Range - Miles of Number		Power Input Requirements <sup>c</sup>	Technical Manual	Remarks
Name	Type No.				H	W	D		Wire- W-110-B <sup>b</sup>	of Pairs			
Remote Control Equipment	RC-261	1476	Control Unit RM-52 (Remote Station)	3	6	8	4	SCR-608 SCR-609 SCR-610	2	1	4 Batteries BA-30 (1.5V)		Used with but not a part of the radio sets listed. Consists of two units, a Control Unit RM-52 located at a remote point and a Control Unit RM-53 located with the transmitter. By means of a three-position selection switch in the RM-53 the following types of traffic are provided for, corresponding to the switch positions indicated: Remote - Press-to-talk remote control from the RM-52 for switching from receiving to transmitting and voice modulating the transmitter. Radio - When the Control Unit RM-53 is used in this switch position, normal control at the radio set itself is relinquished and the operator at the control unit has press-to-talk control of the radio set. Interphone - Both control units function as a telephone and the operators can talk to each other. However, no means for ringing are provided. The radio set cannot be used by either operator on this switch position.
			Control Unit RM-53 (Transmitter)	4	5	9	5	SCR-619 SCR-628 SCR-300 SCR-509 SCR-510 AN/TRC-7			2 Batteries EA-30 (1.5V)		
			Bag BG-186	2	11	17	9						
Remote Control Equipment	RC-289	1477	Control Unit RM-39-( ) (Transmitter)	14	7	10	6	SCR-178 SCR-284 SCR-608 SCR-609 SCR-610	5	1	1 Battery BA-27 (4.5V) 2 Batteries BA-34 (7.5V)	TM 11-333	Used with but not a part of the radio sets listed. Consists of the Control Unit RM-39-( ) at the transmitter location and a Telephone KE-8-( ) and Key J-47 at the remote station. Operates similar to RM-29-( ) providing the same features under control of a manually operated locking type selection switch. However, an additional feature is obtained which provides means for CW keying the transmitter from either the remote station or the control unit.
			Telephone KE-8-( ) Key J-47 (Remote Station)	10	10	8	4	SCR-628 SCR-694			2 Batteries BA-30 (1.5V)		
			Control Unit RM-29-( ) (Transmitter)	14	7	10	6	SCR-178 SCR-284 SCR-608			1 Battery BA-27 (4.5V) Current Drain 50-95 MA		
Remote Control Equipment	RC-290		Control Unit RM-29-( ) (Transmitter)	14	7	10	6	SCR-178 SCR-284 SCR-608	2	1	1 Battery BA-27 (4.5V) Current Drain 50-95 MA	TM 11-308	Used with but not a part of the radio sets listed and other models of similar design. Consists of the Control Unit RM-29-( ) at the transmitter location and a Telephone KE-8-( ) at the remote station. All operating features are the same as described for the RM-29-( ).
			Telephone KE-8-( ) (Remote Station)	10	10	8	4	SCR-609 SCR-610 SCR-628			2 Batteries BA-30 (1.5V)		
			Case CS-76-( )	2	10	11	7						

<sup>a</sup>Running spares included.

<sup>b</sup>Other wire lines may be used where they are equivalent to or better than Wire W-110-B, for transmission and signaling.

<sup>c</sup>AC power supplied from radio set.

Table continued on next page

REMOTE CONTROL EQUIPMENT FOR RADIO SETS - TACTICAL - DESCRIPTION (Continued)

Nomenclature Name	Shown in Type No.	Fig.No.	Major Components	In Operation Dimensions -			Used with Radio Sets	Range - Miles of Number Wire of		Power Input Requirements <sup>b</sup>	Technical Manual	Remarks	
				Weight Pounds	Inches H W D			W-110-B <sup>a</sup>	Pairs				
Remote Control Unit.	RM-7- c	( ) 1478		56	11	18	12	SCR-197	7.5	2	110V-60 <sup>~</sup> 220V-60 <sup>~</sup> 60 watts	TM 11-241 TM 11-305	Two Remote Control Units RM-7-( ) are furnished as part of Radio Set SCR-197. Each unit provides two operating positions, either of which can be used for telegraph keying or voice modulating the Radio Transmitter BC-325-( ). The control unit can be used at either of two operating locations, in the truck for local operation with the transmitter or in the receiver trailer at a remote point. The control unit includes the chassis of Telephone EE-8-( ) making possible intercommunication between units over a pair of wires. Another pair is used for voice modulating the transmitter. Telegraph keying can be obtained on one of three different channels; on the simplex of line 1, the simplex of line 2 or the phantom derived from Line 1 and Line 2. Provides: Audio gain control, audio level indicator; receiver disabling; one stage of speech input amplification at the remote point.
Remote Control Unit	RM-14	1479		16	10	11	7	SCR-194 SCR-195	2	1	1 Battery BA-2 (22.5V) 2 Batteries BA-30 (1.5V)		Used with but not a part of radio sets listed. Provides for operation of radio sets at the control unit, which is always located at the radio set, or from a remote Telephone EE-8-( ) and also functions as a telephone for the operator to communicate with an EE-8-( ) telephone connected to the line. By means of a three-position locking type selection switch similar traffic to that obtained with the RM-29-( ) is obtained with this unit.
Remote Control Unit	RM-21 c	1480		10	9	13	6	SCR-543	18 ft.	7 con- ductor cord	None	TM 11-625	Part of Radio Set SCR-543. Control panel for operating radio set. Provided with a short cord and plug for direct connection to Radio Receiver and Transmitter BC-669-A for operation at the radio set. Using Cord CD-513-A as an extension, the unit may be placed up to 18 feet from the radio set. Provides means for: starting, choking, or stopping Power Unit PE-108-A; listening on the receiver, volume control of signal received in the headset or headset by means of a variable resistor; switching from receiving to transmitting by means of the press-to-talk switch on headset or microphone; voice modulating transmitter.

<sup>a</sup>Other wire lines may be used where they are equivalent to or better than Wire W-110-B, for transmission and signaling.

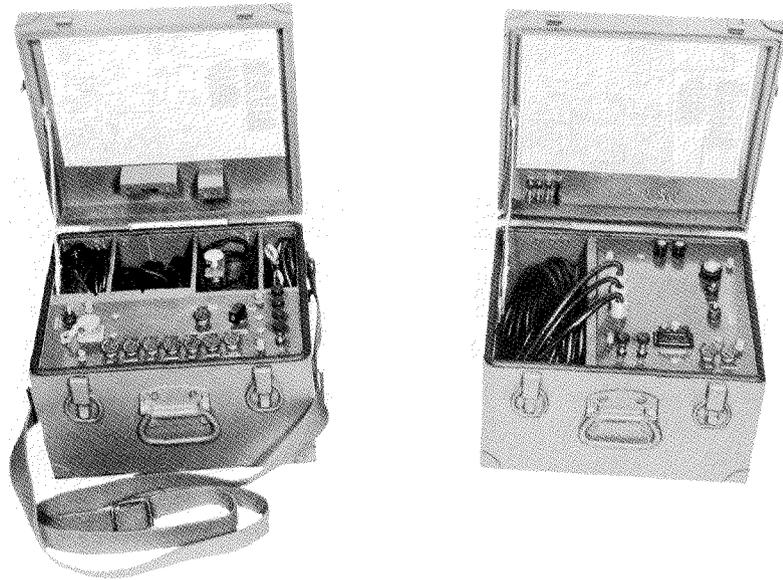
<sup>b</sup>AC power supplied from radio set.

<sup>c</sup>Part of radio set with which it is used.

Nomenclature Name	Type No.	Shown in Fig. No.	Major Components	In Operation Dimensions -			Used with Radio Sets	Range - Miles of Number Wire of		Power Input Requirements <sup>b</sup>	Technical Manual	Remarks	
				Weight Pounds	Inches H W D			W-110-B <sup>a</sup>	Pairs				
Remote Control Unit	RM-29-( )	1481		16	10	11	7	SCR-178 SCR-284 SCR-608 SCR-609 SCR-610 SCR-628	2	1	1 Battery BA-27 (4.5V) Current Drain 50-95 MA	TM 11-308	Part of RC-290. Used with but not a part of the radio sets listed. In earlier models was part of SCR-284, 608, 609, 610 and 628. It is a complete and self contained unit always located not further than the length of the cord from the radio set and operates with a Telephone EE-8-( ) or a Switchboard BD-71 or BD-72 at the remote station. An operator is always required when this unit is being used. By means of a three-position locking type selection switch the following types of traffic are provided, corresponding to the switch positions indicated: Through - The radio set is controlled by the operator at the control unit. However, he cannot transmit but can only monitor the signals passing over the line between the radio receiver and the remote Telephone EE-8-( ), or between that telephone and the radio transmitter. Since no press-to-talk control of the radio transmitter is provided from the remote station telephone, the operator at the control unit must switch manually from the transmitter to the receiver in accordance with instructions received while monitoring. The operator at the remote station can listen to the radio receiver or voice modulate the radio transmitter. Radio - When the control unit is used in this switch position, normal control at the radio set itself is relinquished and the operator at the control unit has press-to-talk control of the radio set. Telephone - Control unit functions as a telephone and the operator can communicate with the distant Telephone EE-8-( ). However, neither the operator at the remote telephone nor the operator at the control unit can transmit to or receive from the radio set in this switch position.

<sup>a</sup>Other wire lines may be used where they are equivalent to or better than Wire W-110-B, for transmission and signaling.

<sup>b</sup>AC power supplied from radio set.



Control Unit C-112/TRA-2

Control Unit C-113/TRA-2

FIGURE 1474. Remote Control Equipment AN/TRA-2

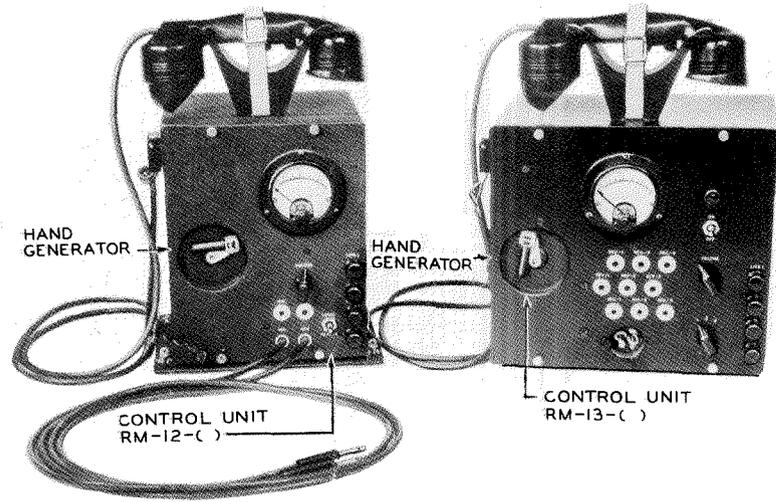


FIGURE 1475. Remote Control Equipment RC-47-( )

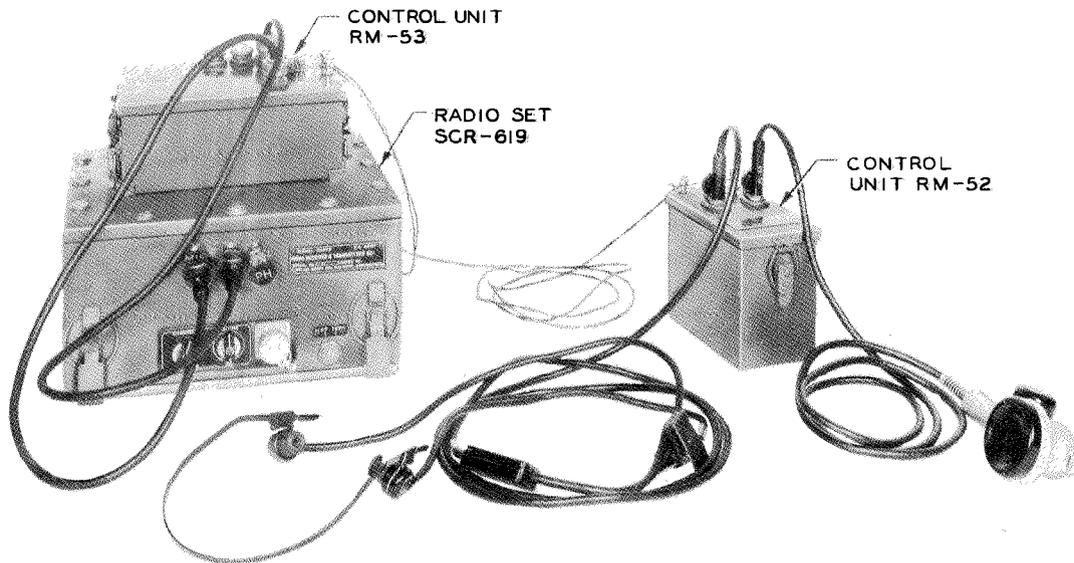


FIGURE 1476. Remote Control Equipment RC-261 with Radio Set SCR-619

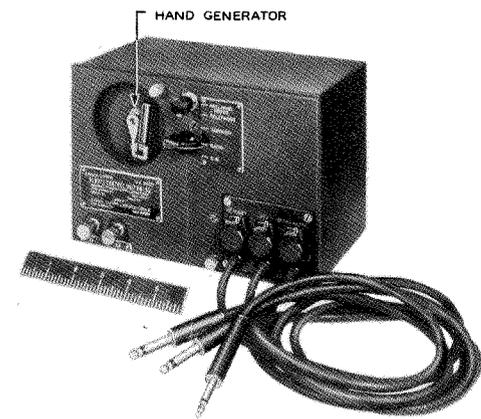


FIGURE 1477. Remote Control Unit  
RM-39- ( )

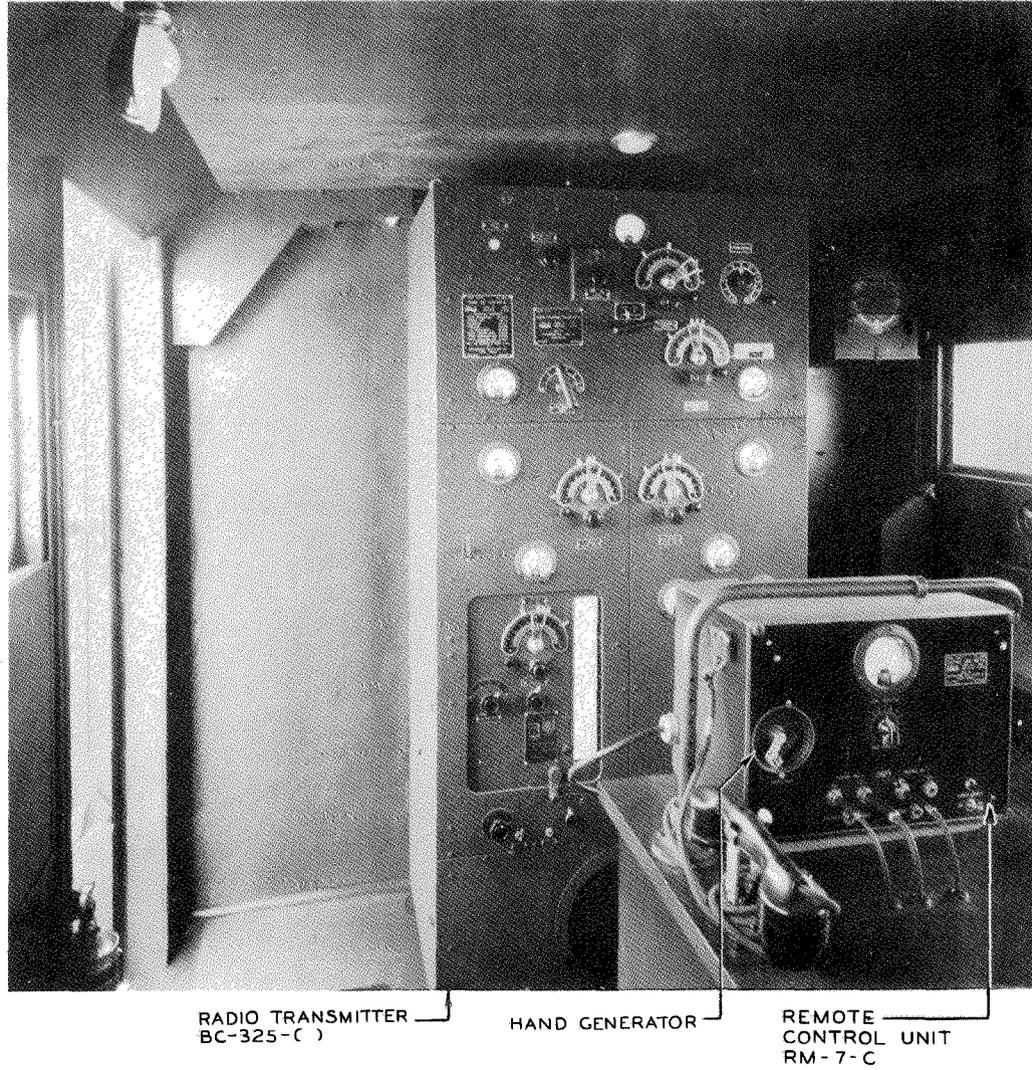


FIGURE 147B. Remote Control Unit RM-7-( ) with Radio Transmitter BC-325-( )

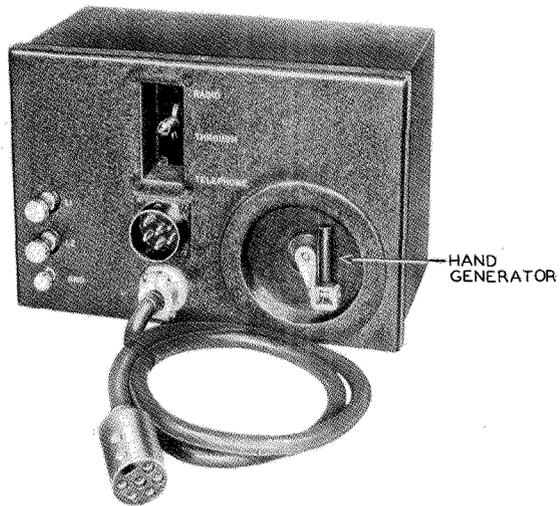


FIGURE 1479. Remote Control Unit RM-14

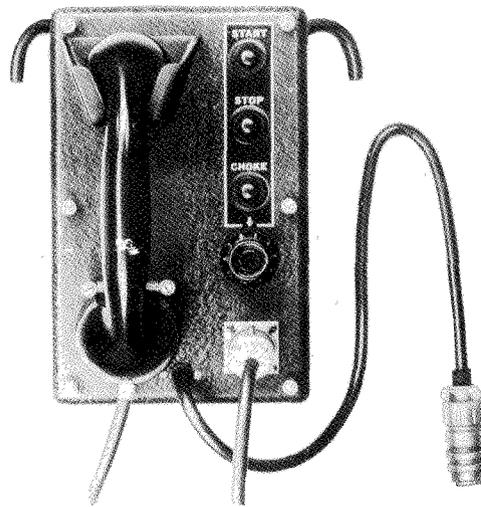


FIGURE 1480. Remote Control Unit RM-21



FIGURE 1481. Remote Control Unit RM-29-( )

1416. REMOTE CONTROL EQUIPMENT - TACTICAL-STOCK NUMBERS AND LOGISTICAL DATA

<u>Nomenclature</u>		<u>Stock Number</u>	<u>Packed for Export</u>	
<u>Name</u>	<u>Type No.</u>		<u>Total Weight Pounds</u>	<u>Total Cubic Feet</u>
Remote Control Equipment	AN/TRA-2	2S5006-2	45	2.5
Remote Control Equipment	RC-47 ( ) a, b	2S47( )	266	9.0
Remote Control Equipment	RC-261	2C7600-261	15	1.0
Remote Control Equipment	RC-289	2C7600-289	33	1.7
Remote Control Equipment	RC-290 c & d.	2C7600-290	35	1.8
Remote Control Unit	RM-7( )	2C677( )	60	2.5
Remote Control Unit	RM-14	2C7614	14	0.5
Remote Control Unit	RM-21	2C7621	18	0.8
Remote Control Unit	RM-29( )	2C7629( )	22	0.6

<sup>a</sup>Part of the radio sets.

<sup>b</sup>Includes RM-12-( ), stock number 2C678( ) and RM-13-( ), stock number 2C679( ).

<sup>c</sup>Requires 2 Batteries BA-30 for Telephone EE-8-( ).

<sup>d</sup>Requires 1 Battery BA-27, 1 Headset P-19 and 1 Microphone T-17.

Section III  
Fixed Plant Radio Equipment

1417. GENERAL.

<sup>a</sup>. This section covers radio transmitting and receiving equipment commonly used by the Army Communications Service. Navigational aid equipment has not been included unless it is also used for ground communications. Data concerning antennas, towers and other accessory equipment are given in section IV.

<sup>b</sup>. In general, fixed plant installations are engineered individually, based on proposals submitted by the theater regarding equipment requirements. The data tabulated in this section cover the major equipment components which are available through Army Communications Service and provide information useful in making the preliminary engineering estimates in the theater. Information on typical installations is available through the office of the Chief Signal Officer, SPSLP.

<sup>c</sup>. The equipment is divided into two categories, that used by Command Radio and that used by the Airways Section, respectively. In a few cases, the same equipment types are listed in both categories, but the associated stock numbers may differ, indicating that the assemblies differ in some respect.

<sup>d</sup>. The stock number listed for a major component, such as a transmitter, frequently does not cover such essential accessories as crystals, tuning coils, etc. Requirements for such accessories will depend on the specific installation, necessitating separate procurement.

<sup>e</sup>. Equipment supplied upon requisition by specific stock number may not always be identical with that designated in the descriptive tables, depending on the particular type available at the time. It will, however, have comparable operating characteristics.

<sup>f</sup>. The pictures of apparatus are representative of the designated equipment. The remote control equipment sometimes shown is not a component of the assembly unless so stated in the descriptive tables.

<sup>g</sup>. The descriptive tables refer to figures which give sketches of antenna types and, in some cases, associated ground systems normally used with a given equipment. These sketches are merely illustrative and do not necessarily represent any specific Signal Corps antenna assembly.

1418. COMMAND RADIO SETS - DESCRIPTION.

<sup>a</sup>. Paragraph 1422 lists transmitting equipment and paragraph 1423 lists receiving equipment commonly used by Command Radio. Descriptive information and technical data are given for each set. The information includes such items as frequency range, type of modulation and emission, type of antenna, transmitter output power, power supply requirements, etc.

<sup>b</sup>. In general, Command Radio installations are engineered individually, based on information supplied by the theater concerning the proposed circuit. This information includes; the anticipated traffic load and associated circuits, equipment already in operation, equipment and power available for this installation, location of and distances between sites for transmitter, receiver and message center installations. Army Communications

Service, Plant Engineering Agency, upon receipt of such information, together with War Department approval, initiates the supply action to provide all material necessary for the installation, operation and maintenance of the station, including specifications and drawings.

c. Materials issued for new stations which are not additions to existing installations will normally include, in addition to major radio items, all tools for installation of equipment and antennas; all materials for wiring of power, light and signal circuits in the building, based on typical layouts which permit considerable latitude in floor plans. In addition, materials will be provided to construct a complete power plant at each radio and message center building, including sufficient subterranean power cable to permit a 25-foot separation between the power plant and associated building. Approximately 3 miles of subterranean cable and adequate splicing materials will be provided for control and voice frequency transmission circuits between the transmitter and the message center buildings, and cable and splicing material will also be provided for control and voice frequency transmission circuits between the receiver and the message center buildings when a separate receiver building is required. Telephones for use over control circuits, test equipment and stationery will also be furnished.

d. Buildings, furniture, operators' benches for manual positions, cement for concrete foundations, and short poles for R.F. transmission lines are not supplied.

e. Transmitters used by Command Radio, which are capable of remote keying, normally may be operated over distances up to 5 miles of 22 ga. cable.

1419. COMMAND RADIO SETS - STOCK NUMBERS AND LOGISTICAL DATA.

a. Paragraph 1424 gives data such as stock number, shipping weight and volume for transmitting equipment used by Command Radio.

b. Paragraph 1425 gives similar information for receiving equipment used by Command Radio.

1420. AIRWAYS SECTION RADIO SETS - DESCRIPTION.

a. Paragraph 1426 lists transmitting equipment, paragraph 1427 lists receiving equipment and paragraph 1428 lists combined transmitting and receiving equipment commonly used by the Airways Section. Descriptive information and technical data are given for each type of equipment. The information includes such items as frequency range, type of modulation and emission, type of antenna, transmitter output power, power supply requirements, etc.

b. Under the column in paragraph 1426 "Additional Equipment Required" are listed such key items as exciter units, rectifiers, modulators, antenna tuning units, etc. which normally will be required for the designated transmitting equipment installation.

1421. AIRWAYS SECTION RADIO SETS - STOCK NUMBERS AND LOGISTICAL DATA.

a. Paragraphs 1429, 1430 and 1431 give data such as stock number, shipping weights and volume for transmitting equipment, receiving equipment and for combined transmitting and receiving equipment, respectively, used by the Airways Section.

## 1422. TRANSMITTING EQUIPMENT COMMONLY USED BY COMMAND RADIO - ARMY COMMUNICATIONS SERVICE - DESCRIPTION

Type <sup>a</sup>	Fig. No.	Rated Power Output	Type of Emission <sup>b</sup>	Freq. Range-Mc	Freq. Control <sup>c</sup>	Normal Antenna <sup>d</sup>	Power Req. <sup>e</sup>	Size in Oper. ft. <sup>f</sup>	Weight in Use (Lbs.) <sup>g</sup>	Instr. Book or Tech. Man. <sup>h</sup>	Remarks
BC-339-( )	1482	1 KW	A1 & Special	4.0-26.5	M.O. or Xtal (Holder FT-164)	Rhombic or Doublet (Fig. 1536 & 1537)	4.8 KVA 220 V. 3 $\phi$ 60 cyc.	3.5x 3x7	1355	6D7339( )	One unit - transmitter. Telegraph or teletype operation; local or remote start-stop and remote keying; switch selection of master oscillator or one of six crystals. Requires external exciter for teletype operation; also used as exciter for Power Amplifier BC-340 (see paragraph 1426.)
BC-365-( )	1483	350 W.	A1	0.15-0.55	M.O.	Intermediate Freq. Flat Top (Fig. 1538)	1.8 KVA 110/220 V. 1 $\phi$ , 60 cyc.	2.5x 2.5x 6.5	629	TM 11-828	Includes two units - transmitter and remote control unit RM-10. Telegraph operation only; local or remote control; manual adjustment of master oscillator; also used as exciter for Bunnell 6 KW Amplifier.
BC-447-( )	1484	300 W.	A1	2.0-8.0 & 4.0-13.4	M.O. or Xtal (Holder FT-164)	Doublet (Fig. 1537)	1.3 KVA 110/220 V. 1 $\phi$ , 50/60 cyc.	3x2.5 x6	645	TM 11-827	Includes two units - transmitter and remote control unit RM-17. Telegraph operation; local or remote control; local or remote selection of two pre-tuned channels (one channel modified to operate 2 to 8 Mc); can be modified for teletype operation using external exciter.
O-5/Fk Oscillator, Exciter (Press Wireless FS-1240)	See paragraph 1027										
SCR-281-( )	1485	25 W.	A3	1.7-2.75	Xtal (Bliley Holder A-AR7)	Single Wire (85' or longer)	<u>Transmitting</u> - 230 W. at 115 V, 1 $\phi$ , 60 cyc. <u>Receiving</u> - 110 W. at 115 V, 1 $\phi$ , 60 cyc.	2x2x 2.5	93	TM 11-244	One unit - receiver and transmitter BC-441-( ). For use on coastal and harbor vessels or at inland stations for communication with such vessels. Four preset channels. Operation of the equipment approximates that of an ordinary hand telephone in simplicity of operation.
10-KW Transmitting Equipment	1486	10 KW	A1 & Special	4.0-26.5	M.O. or Xtal (Holder FT-164)	Rhombic (Fig. 1536)	33 KVA 220 V. 3 $\phi$ 60 cyc.	15x 5x7	6456	2C2940( )/1	Includes five units - Power amplifier BC-340, Transmitter BC-339 (exciter), Rectifier RA-22, Water Cooling Unit RU-2 and expansion tank. Telegraph or teletype operation; local or remote start-stop and remote keying; switch selection of master oscillator or one of six crystals.
Bunnell <sup>j</sup> 6 KW (Amplifier)	1487	10 KW (6 KW out of Tuning House)	A1	0.15-0.55	-	Intermediate Freq. Flat Top (Fig. 1538)	23 KVA, 220 V. 3 $\phi$ 50/60 cyc.	10x3x6.5 Plus Tuning House 6x5x7	6110	2C466/M	Includes three units - power amplifier, rectifier and antenna tuning house. Used with transmitter BC-365.

Type <sup>a</sup>	Fig. No.	Rated Power Output	Type of Emission <sup>b</sup>	Freq. Range-Mc	Freq. Control <sup>c</sup>	Normal Antenna <sup>d</sup>	Power Req. <sup>e</sup>	Size in Oper. ft. <sup>f</sup>	Weight in Use (Lbs.) <sup>g</sup>	Instr. Book or Tech. Man. <sup>h</sup>	Remarks
Press Wireless <sup>j</sup> PW-15-( )	1488	15 KW	A1 & Special	4.0-21	Xtal (Holder FT-164)	Rhombic (Fig. 1536)	37 KVA, 220 V. 3 $\phi$ 60 cyc.	9x5x7	6948	2C6890/BT	One unit - transmitter. Telegraph or teletype operation; local start-stop, remote keying; manual selection of one of six crystals; requires external exciter for teletype operation.
Press Wireless <sup>j</sup> PW-40-( )	1489	40 KW	A1 & Special	4.0-21	M.O. or Xtal (Holder FT-164)	Rhombic (Fig. 1536)	94 KVA, 220 V. 3 $\phi$ 60 cyc.	18x5x7	11000	TM 11-825	Includes five units - rectifier, exciter, power amplifier, water cooling unit and expansion tank. Telegraph, teletype or single side-band operation; local start-stop remote keying; manual selection of master oscillator, one of six crystals or external exciter; external exciter, for teletype operation required. May also be arranged to operate as a linear amplifier for single side-band operation requiring W.E.Co., D-156000 transmitter as an exciter.
Press Wireless <sup>j</sup> PW-981-( )	1490	2.5 KW	A1 & Special	2.5-26	M.O. or Xtal (Holder FT-164)	Rhombic (Fig. 1536)	9.6 KVA 220 V. 3 $\phi$ 50/60 cyc.	3x3x7	2000	TM 11-834	One unit - transmitter. Telegraph or teletype operation, local or remote start-stop and remote keying, manual frequency selection from master oscillator, one of five crystals or teletype exciter; requires remote control unit.
Western Electric Co. <sup>j</sup> D-156000	1491	2 KW	Special	4.5-22	Xtal (Spec. Holder)	Rhombic (Fig. 1536)	5 KVA 230 V. 3 $\phi$ 50/60 cyc.	5x2.5x7	2428	FTNP 6D9652	One unit-transmitter, mounted in 3 bays. Local start-stop, remote signaling, fixed frequency operation. May also be used as exciter for PW-40 arranged for operation as a linear amplifier. Part of entire terminal for single-side band, reduced carrier, radio telephone system for twin channel operation, giving 6 two-way telegraph circuits over one two-way radio telephone circuit. Entire terminal consists of radio transmitter; distortion measuring set; single side-band receiver (W.E.Co. D-99945, par.1423) including its associated testing and measuring equipment; and V.F. Carrier Telegraph Equipment (par. 1025). The entire terminal is listed under one stock number (par. 1424).

<sup>a</sup> The listed type identification refers to the radio transmitting equipment only. The material provided under corresponding stock numbers given in paragraph 1424 includes the additional items listed under "Remarks".

<sup>b</sup> A1 indicates continuous wave telegraphy; A3 indicates voice transmission.

<sup>c</sup> M.O. is used to indicate Master Oscillator control and Xtal to indicate crystal control.

<sup>d</sup> Figure numbers refer to sketches of representative antennas shown in paragraph 1428.

<sup>e</sup> Includes power required for equipment shown in "Remarks" column.

<sup>f</sup> The first two dimensions are width and depth, respectively, and represent the area required by the designated equipment plus the accessory equipment listed in the "Remarks" column and do not represent the floor space required for the complete station installation. Allowance is not made for opening of apparatus doors or drawers, space between units, and operating and maintenance space for personnel. The last dimension is the height of the tallest unit.

<sup>g</sup> Includes weight of equipment listed in "Remarks" column.

<sup>h</sup> When other identification is not available for instruction books, the stock number is shown.

<sup>j</sup> Type number assigned by the manufacturer.

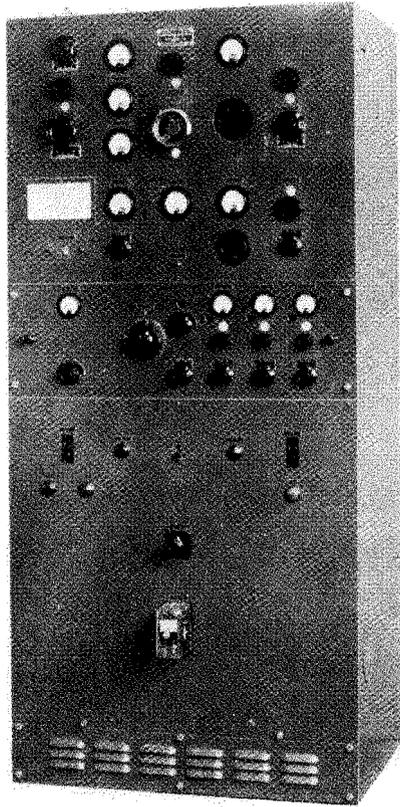


FIGURE 1482. Radio Transmitter BC-339-( )

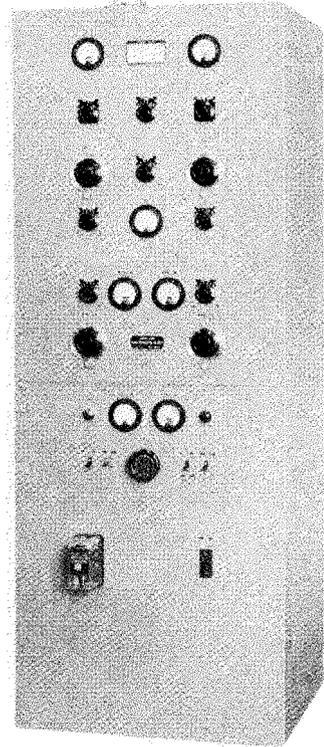


FIGURE 1483. Radio Transmitter BC-365-( )

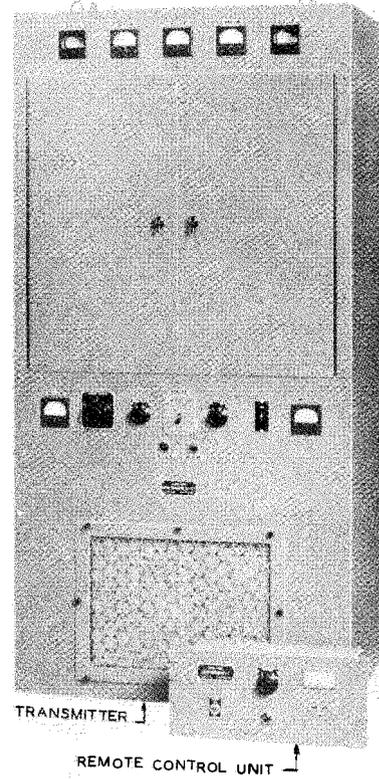


FIGURE 1484. Radio Transmitter BC-447-( ) and Remote Control Unit RM-17

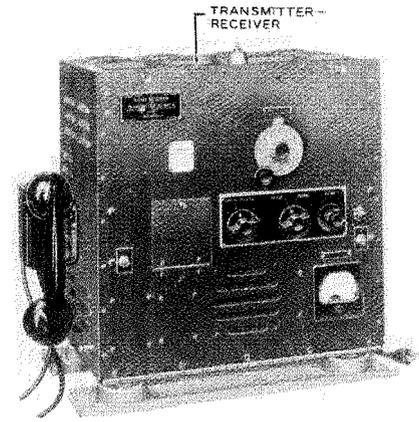


FIGURE 1485. Radio Set SCR-281

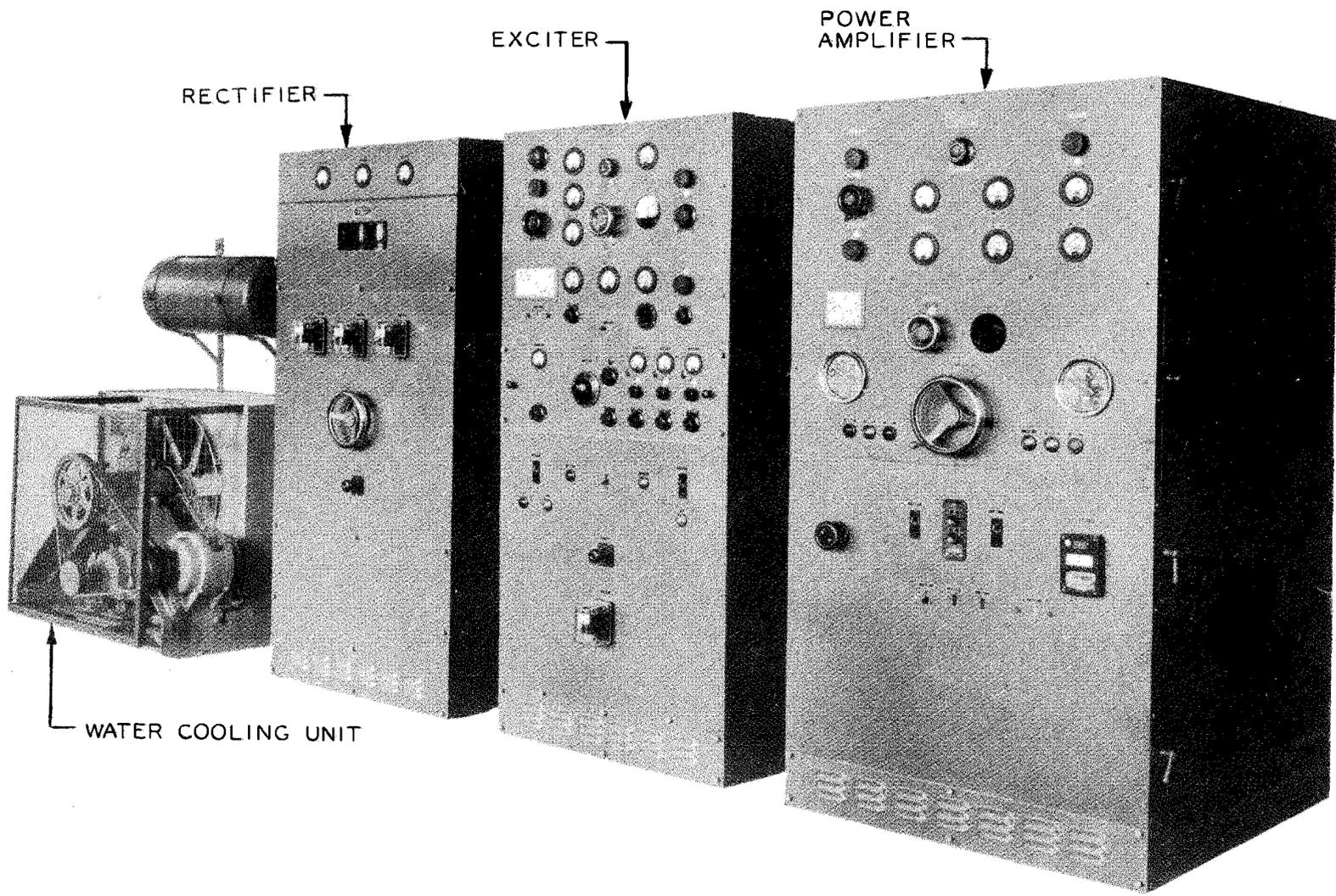
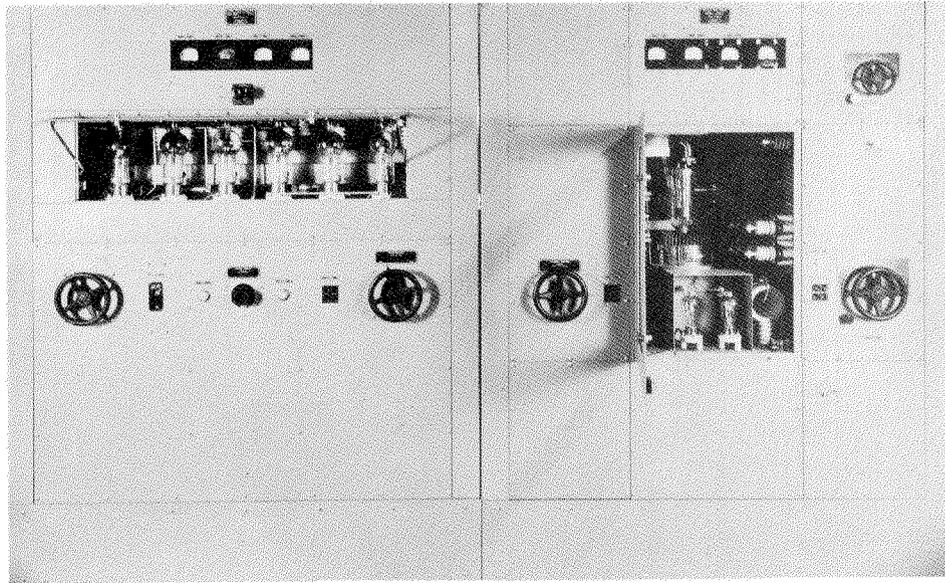
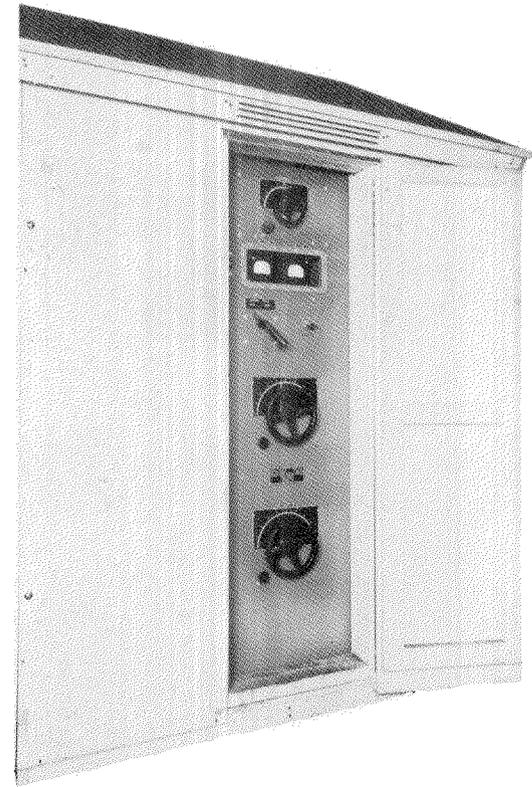


FIGURE 1486. 10KW Transmitting Equipment



RA-1A Rectifier - PA-1A Power Amplifier



AT-1A Antenna Tuning House

FIGURE 1487. Radio Amplifying Equipment (Bunnell 6 KW)

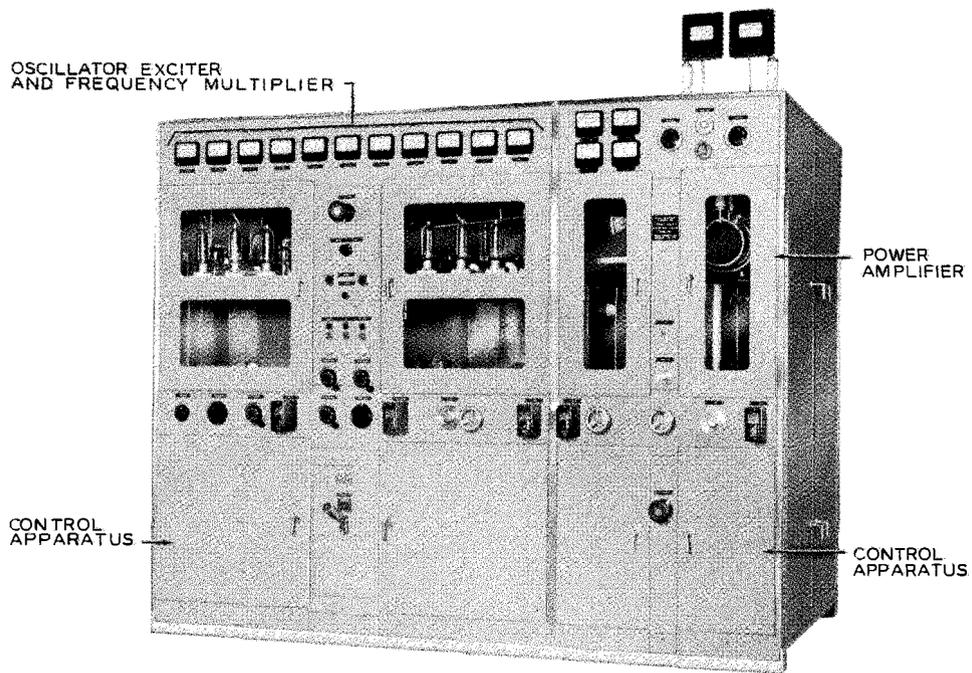


FIGURE 1488. Radio Transmitter (Press Wireless PW-15-( ))

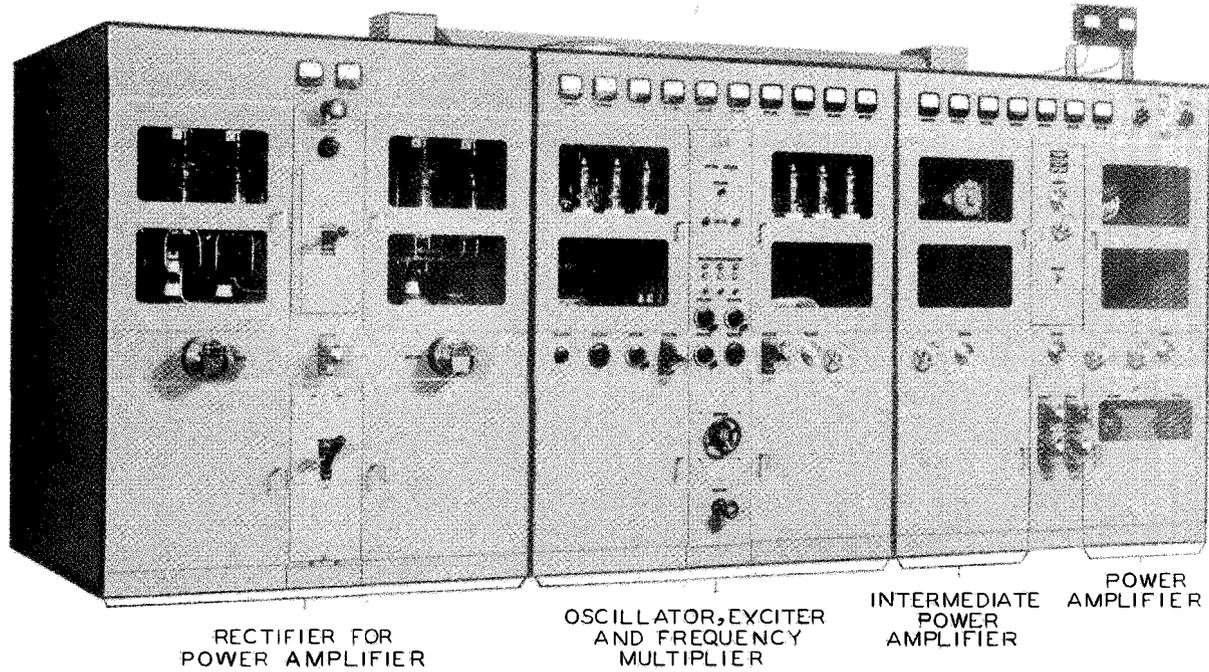


FIGURE 1489. Radio Transmitter (Press Wireless PW-40-( ))

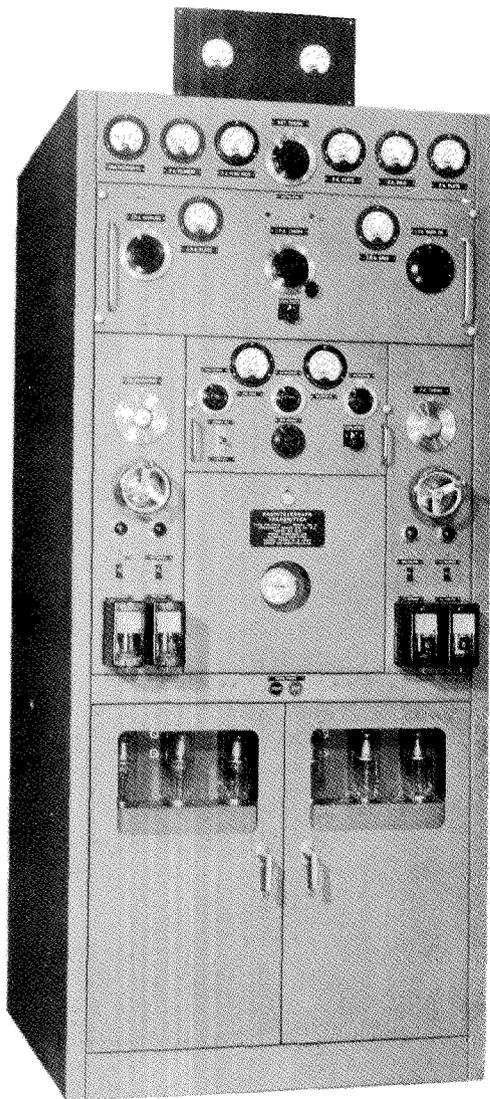


FIGURE 1490. Radio Transmitter  
(Press Wireless 981-( ))

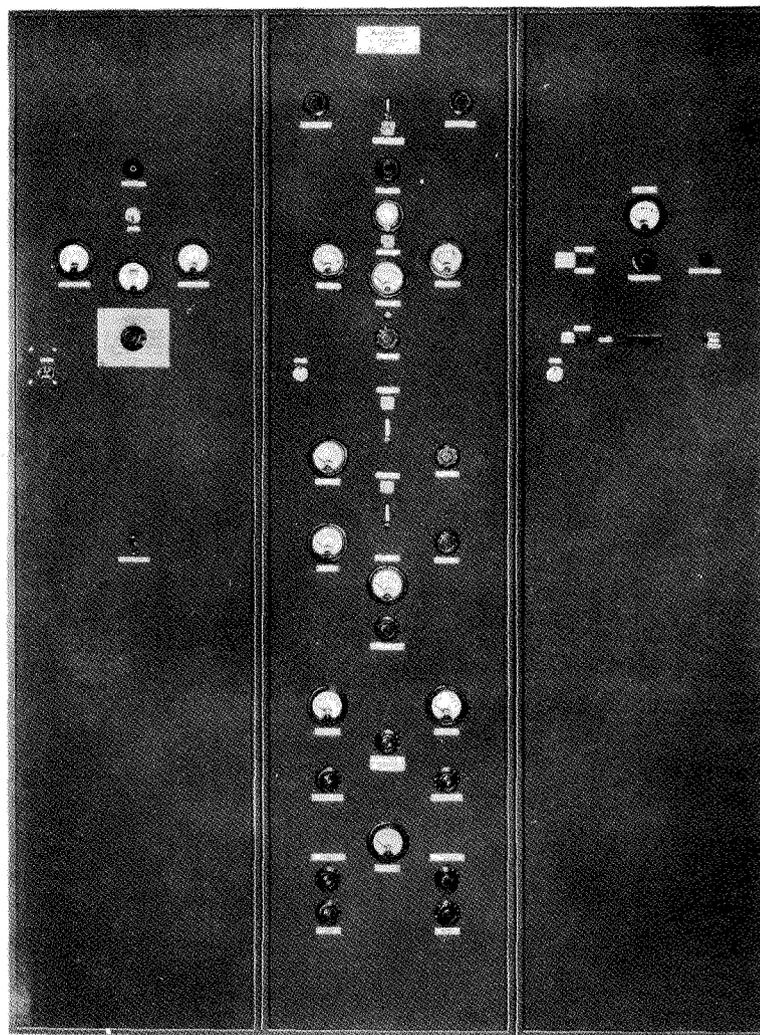


FIGURE 1491. Single Side Band Transmitter  
(Western Electric Co. D-156000)

## 1423. RECEIVING EQUIPMENT COMMONLY USED BY COMMAND RADIO - ARMY COMMUNICATIONS SERVICE - DESCRIPTION

Type	Fig. No.	Type Emission Received <sup>a</sup>	Freq. Range-Mc	Freq. Control	Normal Antenna <sup>b</sup>	Type Output	Power Req.	Size in Oper. ft. <sup>c</sup>	Weight in Use (Lbs.)	Inst. Book or Tech. Man. <sup>d</sup>	Remarks
AN/FGC-1 Radio-teletype terminal equipment	-	See paragraph 1027									
AN/FRR-3 Press Wireless Diversity	1492	Special	2.4-23	Xtal (Holder FT-249)	2 Rhombics (Fig.1539)	Dual Bal.600 ohm	400W., 110/220 V, 1 $\emptyset$ , 50/60 cyc.	2x 1.5x7	650	TM 11-872	One unit; local or remote control; requires one terminal unit AN/FGC-1; used as radioteletype receiving station.
BC-779-( )	1493	A1, A2 & A3	0.1-0.4 & 2.5-20	Manual	Rhombic or Double Doublet (Figs.1539 & 1540)	SW. 600 or 8000 ohm, grounded	180W., 115/230 V, 1 $\emptyset$ , 50/60 cyc.	2x2x1	100	TM 11-866	Includes two units, receiver and power supply RA-94. For 105/115/125 volts, 50/60 cycles, use RA-84 and for 95-130/190-260 volt, 25/60 cycles, use RA-74 which must be ordered separately. Three of these receivers used with each Schuttig Diversity equipment. Also used as manual receiving station. Similar to Hammarlund Super-Pro receiver.
BC-794-( )	1493	A1, A2 & A3	1.25-40	Manual	Rhombic or Double Doublet (Figs.1539 & 1540)	SW. 600 or 8000 ohm, grounded	180W., 115/230 V, 1 $\emptyset$ , 50/60 cyc.	2x2x1	100	TM 11-866	Same as BC-779 except for frequency range.
Schuttig Diversity <sup>e</sup> (Mixing unit only)	1494	A1	-	Manual A.F. only	-	6MW Bal.600 ohm	40W., 110/220 V, 1 $\emptyset$ , 50/60 cyc.	4x 1.5x7	850	2C863.1/B2	One unit; local operation only; requires 2 racks, 3 ea. BC-779-( ) or BC-794-( ) and power supplies; used as receiving station for high speed tape circuit.
Western Electric Co. <sup>e</sup> D-98945	1495	Special	4.5-22	Xtal (Spec. Holder)	Rhombic (Fig. 1539)	60MW Bal.600 ohm	600W., 115 V, 1 $\emptyset$ , 50/60 cyc.	5.5x 1.5x7	1436	FTNP 2C4522/B1	One unit; single-sideband triple detection receiver, contained in three bays. Used with VF Carrier Telegraph Equipment (par.1025), single-sideband radio transmitting equipment (W.E.Co. D-156000 par.1422) and associated testing and measuring equipment to form a single-sideband HF radio telegraph terminal.

<sup>a</sup> A1 indicates continuous wave telegraphy; A2 indicates tone modulated telegraphy; A3 indicates voice transmission.

<sup>b</sup> Figure numbers refer to sketches of representative antennas shown in paragraph 1426.

<sup>c</sup> The first two dimensions are width and depth, respectively, and represent the area required by the designated equipment and do not represent the floor space required for the complete station installation. Allowance is not made for opening of apparatus doors or drawers, space between units, and operating and maintenance space for personnel. The last dimension is the height of the tallest unit.

<sup>d</sup> The stock number is given when no other identification is available for the instruction book.

<sup>e</sup> Type numbers assigned by the manufacturer.

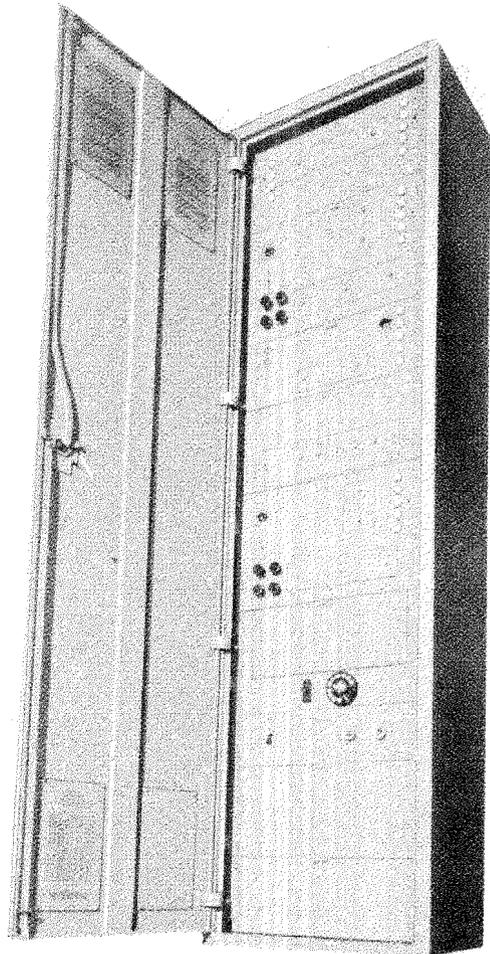


FIGURE 1492. Diversity Receiver  
AN/FRR-3

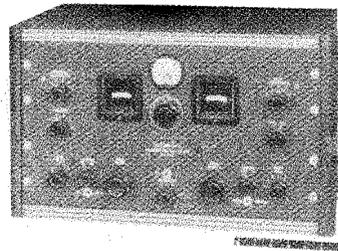


FIGURE 1493. Radio Receiver  
BC-779-( ) (Hammarlund  
Super Pro)

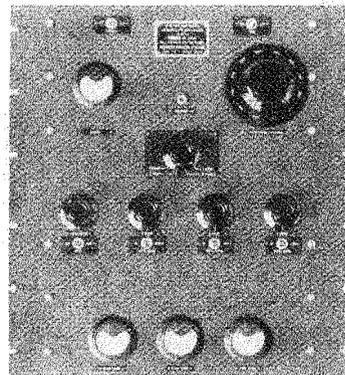


FIGURE 1494. Diversity  
(Schuttig) Mixing  
Unit

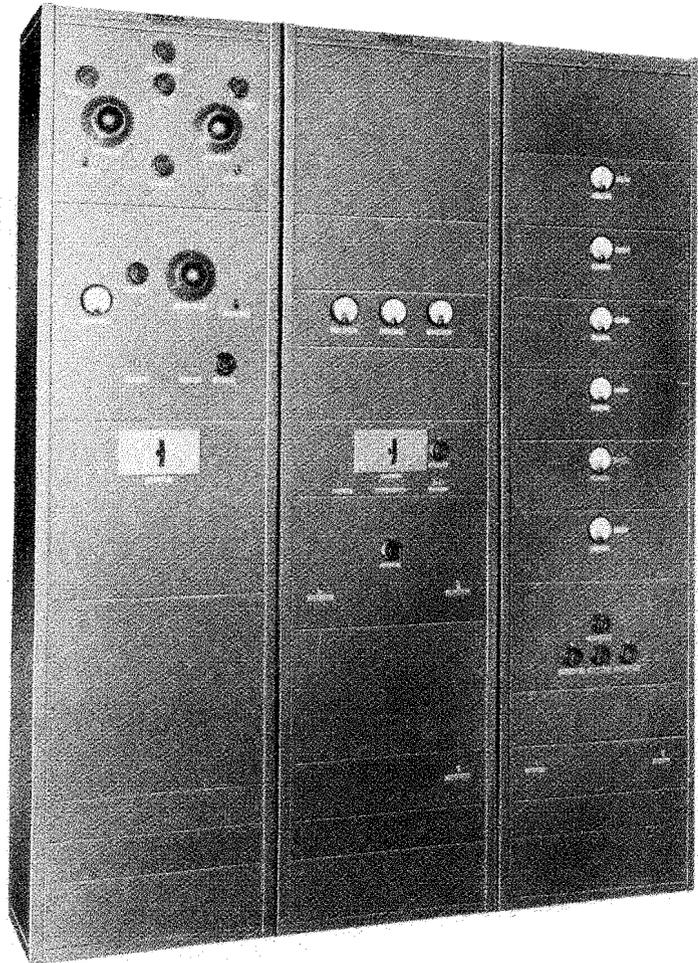


FIGURE 1495. Single Side Band Receiver (Western  
Electric Co. D-99945)

1424. TRANSMITTING EQUIPMENT COMMONLY USED BY COMMAND RADIO - ARMY COMMUNICATIONS SERVICE - STOCK NUMBERS AND LOGISTICAL DATA.

<u>Type No.</u>	<u>Stock No.</u>	<u>Export Weight Lbs.</u>	<u>Export Volume Cu. Ft.</u>	<u>Ship Tons<sup>a</sup></u>
BC-339-( )	2C6339( )	2173	153	3.8
BC-365-( )	2C6905-3.5( )	965	84	2.1
BC-447-( )	2C6903-31-1( )	1247	92	2.3
SCR-281-( )	2S281( )	150	6.5	0.2
10 KW Transmitting Equipment	2C6905-100( )	8294	470	11.8
Bunnell 6 KW <sup>b</sup>	2C466	10092	672	16.8
Press Wireless <sup>b</sup> PW-15-( )	2C6890	12000	850	21.3
Press Wireless <sup>b</sup> PW-40-( )	2C6895.1	21715	1661	41.6
Press Wireless <sup>b</sup> PW-981-( )	2C6781A	3317	188	4.7
Western Electric Co. <sup>b</sup> D-156000 (Entire single-sideband radio telegraph terminal)	None (Part of entire terminal 2C5110) 2C5110 (without double modulation) 2C862.1 (double modulation eqpt.)	3724 11550 1190	315 758 60	7.9 19.0 1.5

1425. RECEIVING EQUIPMENT COMMONLY USED BY COMMAND RADIO - ARMY COMMUNICATIONS SERVICE - STOCK NUMBERS AND LOGISTICAL DATA.

<u>Type No.</u>	<u>Stock No.</u>	<u>Export Weight Lbs.</u>	<u>Export Volume Cu. Ft.</u>	<u>Ship Tons<sup>a</sup></u>
AN/FGC-1 Radioteletype Terminal Equipment	See paragraph 1027			
AN/FRR-3 Press Wireless Diversity	2S2001-3	1175	55	1.4
BC-779-( )	2C4779( )	210	11	0.3
BC-794-( )	2C4794( )	210	11	0.3
Schuttig Diversity <sup>b</sup> (Mixing unit only)	2C863.1	243	14	0.4
Western Electric Co. <sup>b</sup> D-99945	2C4522 (Also part of entire terminal 2C5110)	1906	161	4.0

<sup>a</sup>40 cu.ft. assumed equivalent to 1 ship ton.

<sup>b</sup>Type numbers assigned by the manufacturer.

**1426. TRANSMITTING EQUIPMENT COMMONLY USED BY AIRWAYS SECTION — ARMY COMMUNICATIONS SERVICE — DESCRIPTION.**

Type No.	Fig. No.	Additional Equipment Required	Power Output	Type of Emission <sup>a</sup>	Frequency Range-Mc	Freq. Control <sup>b</sup>	Preset Channels	Normal Antenna <sup>c</sup>	Power Required <sup>d</sup>	Dimensions in Operation - ft. <sup>e</sup>	Weight in Use (Lbs.) <sup>f</sup>	Instr. Book or Manual <sup>g</sup>	Remarks
BC-315	1496	Rect. & Modulator RA-18 Ant. Tuning Unit BC-316 Remote Control Unit RM-5	400W	A1,A2,A3	2.0 - 18.1	Xtal (Holder FT-249)	10	Double Cage (Figure 1541)	4.5 KVA 220V, 3Ø 60 cycles	7x2.5x6.5	2000	6D9040 6D9040.1	Point-to-point and ground-to-air. Dial selection of preset channel frequencies. No longer procured.
BC-325-( )	1497	Remote Control Unit RM-7-( )	400W 100W	A1 A2,A3	1.5 - 18.0	M.O. or Xtal (Holder FT-171)	None (See Remarks)	Double Cage (Figure 1541)	2.2 KVA 110/220V 1Ø 60 cycles	3.5x2x6	900	6D7325D	Point-to-point and ground-to-air. Switch selection of master oscillator or any one of five crystal frequencies. Also used as transmitter of SCR-197. No longer procured.
BC-339-( )	1482		1 KW	A1	4.0 - 26.5	M.O. or Xtal (Holder FT-164)	None (See Remarks)	Rhombic or Doublet (Figures 1536 & 1537)	4.8 KVA 220V, 3Ø 60 cycles	3.5x3x7	1335	6D7339( )	Point-to-point. Switch selection of master oscillator or any one of six crystal frequencies. May also be used as exciter for Power Amplifier BC-340-( ).
BC-340-( ) (Amplifier)	1498	Transmitter BC-339-( ) Rectifier RA-22-( ) Water Cooling Unit RU-2-( )	10 KW	A1	4.0 - 26.5	-	None	Rhombic or Doublet (Figures 1536 and 1537)	33 KVA 220V, 3Ø 60 cycles	15x5x7	2038	2C2940 ( )/1	Point-to-point. Provides approx. 10 db increase in power output when used with Transmitter BC-339.
BC-365-( )	1483	Remote Control Unit RM-10-( )	350W	A1	0.15-0.55	M.O.	None	Intermediate Frequency Flat Top (Figure 1538)	1.8 KVA 110/220V 1Ø, 60 cycles	2.5x2.5x6.5	629	TM 11-826	Point-to-point.
BC-401-( )	1499	Rect. & Modulator RA-30-( ) Remote Control Unit RM-11-( )	400W	A1,A2,A3	2.0 - 18.1	Xtal (Holder FT-249, Collins 1D or WE-5A)	10	Double Cage (Figure 1541)	3.7 KVA 220V, 3Ø 60 cycles	5x1x6.5	600	6D9040-2	Point-to-point and ground-to-air. Dial selection of preset channel frequencies. No longer procured.
BC-460-( )	1500	Remote Control Unit RM-20-( )	250W 200W	A1 A2,A3	2.0 - 18.0	M.O. or <sup>h</sup> Xtal (Holder FT-249)	10	Double Cage (Figure 1541)	1.8 KVA 220V, 1Ø 60 cycles	3x2x6.5	1050	6D9020-3 6D9020-4	Point-to-point and ground-to-air. Dial selection of preset channel frequencies.

<sup>a</sup>A1 indicates continuous wave telegraphy; A2 indicates amplitude modulated tone telegraphy; A3 indicates amplitude modulated telephony.

<sup>b</sup>M.O. is used to indicate Master Oscillator control and Xtal to indicate crystal control.

<sup>c</sup>Figure numbers refer to sketches of representative antennas shown in paragraph 1428 except where reference is made to paragraph 1408.

<sup>d</sup>Includes power required for equipment shown in "Additional Equipment Required" column.

<sup>e</sup>The first two dimensions represent width and depth respectively, and indicate the area required by the designated equipment plus the equipment listed in the "Additional Equipment Required" column, and do not represent the floor space required for the complete station installation. Allowance is not made for opening of apparatus doors or drawers, space between units, and operating and maintenance space for personnel. The last dimension is the height of the tallest unit.

<sup>f</sup>This weight does not include that for equipment shown in "Additional Equipment Required" column.

<sup>g</sup>When other identification is not available for instruction books, the stock number is shown.

<sup>h</sup>Later models are same as Navy TDO and are M.O. controlled only.

Table continued on next page

## TRANSMITTING EQUIPMENT COMMONLY USED BY AIRWAYS SECTION -- ARMY COMMUNICATIONS SERVICE -- DESCRIPTION. (Continued)

Type No.	Fig. No.	Additional Equipment Required	Power Output	Type of Emission <sup>a</sup>	Frequency Range-Mc	Freq. Control <sup>b</sup>	Preset Channels	Normal Antenna <sup>c</sup>	Power Required <sup>d</sup>	Dimensions in Operation - ft. <sup>e</sup>	Weight in Use, (Lbs.) <sup>f</sup>	Instr. in Use, Book or Manual <sup>g</sup>	Remarks
BC-610	1501		400W 300W	A1 A3	2.0 - 18.0	M.O. or Xtal (Holder FT-171)	None	1/4-or 3/4-Wave Inverted L or Doublet (Figures 1458 par. 1408, and 1537)	2 KVA 115V, 1Ø 50/60 cycles	2.5x2x3	446	TM 11-813	Point-to-point and ground-to-air. Similar to Halli-crafters commercial type HT-4-B and transmitter of SCR-299, SCR-399 and SCR-499. Includes Speech Amplifier BC-614-E and Antenna Tuning Unit BC-639-A.
BC-642	1502	Modulator BC-643 Rectifier RA-44 Transformer and Contactor BC-644 Remote Control Unit RM-15	5 KW	A1,A3	4.0 - 20.0	Xtal (Holder Collins 1D)	10	Rhombic or Doublet (Figures 1415 & 1537)	10 KVA 220V, 3Ø 60 cycles	6.5x4x6.5	590	208905.30- 1/1	Point-to-point. Dial selection of preset channel frequencies. No longer procured.
BC-1100-( )	1503		75W 50W	A1 A3	1.5 - 10.0	Xtal (Holder FT-249)	4	1/4-or 3/4-Wave Inverted L or Doublet (Figures 1458 par. 1408, and 1537)	520W 110/220V 1Ø, 25-60 cycles	3.5x2.5x1.5	483		Point-to-point and ground-to-air. May be remotely controlled by addition of Remote Control Unit RM-40-A. Part of Radio Transmitter Equipment RC-265.
O-5/FR - See paragraph 1027 Oscillator, Exciter (Press Wireless FS-12A)													
RC-52-( )	1504		300W	A1,A2,A3	1.5 - 7.0	Xtal (Holder FT-164)	2	Rhombic or Doublet (Figures 1536 & 1537)	2.5 KVA 115V/230V 1Ø, 60 cycles	3.5x2x6	1250	6D8C52( )	Point-to-point and air warning. Includes Radio Transmitter BC-452-( ) and Remote Control Unit RM-22-( ).
T-4/FRC	1505	Rectifier PP-1/FRC Modulator MD-1/FRC Operator Control Console CY-161/FRC (Formerly CS-212)	400W	A1,A2,A3	2.0 - 18.0	M.O. or Xtal (Holder FT-249)	1	Rhombic or Doublet (Figures 1536 & 1537)	8 KVA (4 Channels) 230V 1Ø, 50/60 cycles	1x2x5 per channel (Transmitter Only)		TM 11-820	Point-to-point and ground-to-air. May be used in conjunction with Transmitter T-5/FRC. Typical installation uses four T-4/FRC, one T-5/FRC, one MD-1/FRC and one PP-1/FRC.

<sup>a</sup>A1 indicates continuous wave telegraphy; A2 indicates amplitude modulated tone telegraphy; A3 indicates amplitude modulated telephony.

<sup>b</sup>M.O. is used to indicate Master Oscillator control and Xtal to indicate crystal control.

<sup>c</sup>Figure numbers refer to sketches of representative antennas shown in paragraph 1428 except where reference is made to paragraph 1408.

<sup>d</sup>Includes power required for equipment shown in "Additional Equipment Required" column.

<sup>e</sup>The first two dimensions represent width and depth respectively, and indicate the area required by the designated equipment plus the equipment listed in the "Additional Equipment Required" column, and do not represent the floor space required for the complete station installation. Allowance is not made for opening of apparatus doors or drawers, space between units, and operating and maintenance space for personnel. The last dimension is the height of the tallest unit.

<sup>f</sup>This weight does not include that for equipment shown in "Additional Equipment Required" column.

<sup>g</sup>When other identification is not available for instruction books, the stock number is shown.

Type No.	Fig. No.	Additional Equipment Required	Power Output	Type of Emission <sup>a</sup>	Frequency Range-Mc	Freq. Control <sup>b</sup>	Preset Channels	Normal Antenna <sup>c</sup>	Power Required <sup>d</sup>	Dimensions in Operation - ft. e	Weight in Use (Lbs.) <sup>f</sup>	Inst. Book or Manual <sup>g</sup>	Remarks
T-5/FRC	1506	Rectifier PP-1/FRC Modulator MD-1/FRC Operator's Control Console CY-161/FRC (Formerly CG-212)	600W	A1, A2, A3	0.15-0.55	M.O. or Xtal (Holder FT-249)	1	Insulated Tower or Intermediate (4 Channels) Frequency Flat Top (Figures 1542 & 1538)	8 KVA 230V, 1Ø 50/60 cycles	2x2x5 per channel (Transmitter Only)		TM 11-820	Point-to-point and homing. May be used in conjunction with Transmitter T-4/FRC. Rectifier PP-1/FRC will supply power for four transmitter units and one dual modulator unit.
Aircraft Accessories Corp. 500B	1506		1000W	A1, A2, A3	0.275-0.4 & 1.6-10.0	Xtal (Holder FT-249)	2	LF-90-ft. or 180-ft. Insulated Tower or Intermediate Frequency Flat Top (Figures 1542 & 1538)  HF-Rhombic or Doublet (Figures 1536 & 1537)	6.5 KVA 195/245V, 1Ø, 60 cycles	6x2x7		206809/B1	Point-to-point and homing. Includes Antenna Tuning Unit 500 BAT and Remote Control 500 BLC. Provides two RF channels for simultaneous operation. Either channel may be modulated, the other operating on CW. Simultaneous operation requires two antennas.
Collins <sup>h</sup> 32-RA	1507		75W 50W	A1 A3	1.5-15.0	M.O. or Xtal (Holder Collins 1C)	4	1/4-or 3/4-Wave Inverted L or Doublet (Figures 1458 par. 1406, and 1537)	115V, 1Ø 50/60 cycles	2x1.5x1	120	6DK9152-RA6P or 6DK9132-RA7P	Point-to-point, ground-to-air and airport control. Includes HF unit, modulator and power supply in one case.
Federal <sup>h</sup> FT-300	1508		3 KW	A1, A3	2.0-20.0	Xtal (Holder FT-249)	1 (per RF unit)	Rhombic or Doublet (Figures 1536 & 1537)	220V, 3Ø 60 cycles	11x3x6		206700/B1	Point-to-point. Normally 8 channels per rectifier and modulator. Includes Power Supply 115-A, Audio Amplifier 123-A, remote control unit, and 8 Radio Frequency Units 164-A. Dial selection of desired channel.
Pan American Airways <sup>h</sup> 12-ACX-2	1509		1200W	A1, A3	1.6-24.0	Xtal (Holder FT-249)	2	Rhombic or Doublet (Figures 1536 & 1537)	3 KVA 210/250V, 1Ø, 60 cycles	2x1.5x1.5			Point-to-point. Push button selection of either preset channel frequency.

<sup>a</sup>A1 indicates continuous wave telegraphy; A2 indicates amplitude modulated tone telegraphy; A3 indicates amplitude modulated telephony.

<sup>b</sup>M.O. is used to indicate Master Oscillator control and Xtal to indicate crystal control.

<sup>c</sup>Figure numbers refer to sketches of representative antennas shown in paragraph 1428 except where reference is made to paragraph 1406.

<sup>d</sup>Includes power required for equipment shown in "Additional Equipment Required" column.

<sup>e</sup>The first two dimensions represent width and depth respectively, and indicate the area required by the designated equipment plus the equipment listed in the "Additional Equipment Required" column, and do not represent the floor space required for the complete station installation. Allowance is not made for opening of apparatus doors or drawers, space between units, and operating and maintenance space for personnel. The last dimension is the height of the tallest unit.

<sup>f</sup>This weight does not include that for equipment shown in "Additional Equipment Required" column.

<sup>g</sup>When other identification is not available for instruction books, the stock number is shown.

<sup>h</sup>Type numbers assigned by the manufacturer.

Table continued on next page

TRANSMITTING EQUIPMENT COMMONLY USED BY AIRWAYS SECTION -- ARMY COMMUNICATIONS SERVICE -- DESCRIPTION. (Continued)

Type No.	Fig. No.	Additional Equipment Required	Power Output	Type of Emission <sup>a</sup>	Frequency Range-Mc	Freq. Control <sup>b</sup>	Preset Channels	Normal Antenna <sup>c</sup>	Power Required <sup>d</sup>	Dimensions in Operation - ft. e	Weight in Use (Lbs.) <sup>f</sup>	Inst. Book or Manual <sup>g</sup>	Remarks
Pan American Airways <sup>h</sup> 12-GLX-2	1510		1200W 750W	A1 A2,A3	0.26-1.75	Xtal (Holder FT-249)	2	T Cage (Furnished) (Figure 1543)	3.2 kVA 210/250V, 1Ø, 60 cycles	2.5x1.5x5.5			Point-to-point and homing. Includes Modulator GM-8, Antenna Tuning Unit ATU-12, and Remote Control Unit TMC-R. Dial selection of either preset channel frequency.
Pan American Airways <sup>h</sup> RPA-50 (Amplifier)	1511	Transmitter PAA 12-ACX-2	5 KW	A1,A2,A3	5.0-24.0	-	None	Rhombic or Doublet (Figures 1536 & 1537)	200/240V, 3Ø 50/60 cycles	5x2x6.5			Point-to-point. No longer procured.
Press Wire- less <sup>h</sup> PW-10LF	1512		10 KW	A1	0.11-0.14	M.O.	None	Insulated Tower or Wave Antenna (Figures 1542 & 1544)	220V, 3Ø 60 cycles	9x5x7 (See Remarks)		206888/B1	Point-to-point and Radio- teletype. Consists of two units, transmitter and rectifier, normally bolted together. Antenna coil mounts on top of trans- mitter and adds 3-1/2 ft. in height.
Temco <sup>h</sup> 250-GSC	1513		200W	A1,A2,A3	2.0-16.0	M.O. or Xtal (Holder FT-249)	None	1/4-or 3/4-Wave Inverted L or Doublet (Figures 1458 par. 1408, and 1537)	1.2 KVA 205/235V, 1Ø 50/60 cycles	2x2x6	530	P4-30390	Point-to-point and ground- to-air. Switch selection of master oscillator or any one of four crystal frequencies. May be con- trolled over 1000 yds. of #18 Ga. copper wire by use of remote control box furnished.
Temco <sup>h</sup> 1000-AG-CW	1514		1000W	A1	2.0-16.0	Xtal (Holder Bliley MC-7)	6	1/4-or 3/4-Wave Inverted L or Doublet (Figures 1458 par. 1408, and 1537)	3.2 KVA 115V, 1Ø 50/60 cycles	3x2.5x7	2200	6D9500	Point-to-point and ground- to-air. No longer procured.
Western Electric Co. <sup>h</sup> D-151249 (Pan Amer. Airways 4WTFA)	1515		350W 100W	A1 A3	1.6-13.2	Xtal (Holder WE-5A or FT-249)	2	Doublet (Figure 1537)	220/250V, 1Ø 50/60 cycles	2x2x6	571	6D9654	Point-to-point and ground- to-air. Consists of radio frequency chassis, modula- tor and power supply mounted in one cabinet. Relay selection of either of the preset channel frequencies. No longer procured.

<sup>a</sup>A1 indicates continuous wave telegraphy; A2 indicates amplitude modulated tone telegraphy; A3 indicates amplitude modulated telephony.

<sup>b</sup>M.O. is used to indicate Master Oscillator control and Xtal to indicate crystal control.

<sup>c</sup>Figure numbers refer to sketches of representative antennas shown in paragraph 1428 except where reference is made to paragraph 1408.

<sup>d</sup>Includes power required for equipment shown in "Additional Equipment Required" column.

<sup>e</sup>The first two dimensions represent width and depth respectively, and indicate the area required by the designated equipment plus the equipment listed in the "Additional Equipment Required" column, and do not represent the floor space required for the complete station installation. Allowance is not made for opening of apparatus doors or drawers, space between units, and operating and maintenance space for personnel. The last dimension is the height of the tallest unit.

<sup>f</sup>This weight does not include that for equipment shown in "Additional Equipment Required" column.

<sup>g</sup>When other identification is not available for instruction books, the stock number is shown.

<sup>h</sup>Type numbers assigned by the manufacturer.

Type No.	Fig. No.	Additional Equipment Required	Power Output	Type of Emission <sup>a</sup>	Frequency Range-Mc	Freq. Control <sup>b</sup>	Preset Channels	Normal Antenna <sup>c</sup>	Power Required <sup>d</sup>	Dimensions in Operation - Ft. <sup>e</sup>	Weight in Use (Lbs.) <sup>f</sup>	Inst. Book or Manual <sup>g</sup>	Remarks
Wilcox <sup>h</sup> 96A	1516	Rect. & Mod. 26A or 26B Dialing Unit 168&B	2.5 KW	A1,A3	2.0 - 12.0	Xtal (Holder FT-249)	1	1/4-or 3/4-Wave Inverted L, Doublet or Rhombic (Figures 1458 par. 1408, 1536 and 1537)	220V, 3ϕ 60 cycles	1x2x6 per channel (Transmitter Only)		6D9096A	Point-to-point and radio-teletype. Normally 8 channels per rectifier. No longer procured.
Wilcox <sup>b</sup> 96C & 96C-3	1517	Rectifier 36A Modulator 50A Operator's Control Console CY-161/PRC (Formerly CS-212)	3 KW	A1,A2,A5	2.0 - 20.0	Xtal (Holder FT-249)	1	1/4-or 3/4-Wave Inverted L, Rhombic or Doublet (Figures 1458 par. 1408, 1536 & 1537)	20 KVA (4 channels) 220V, 3ϕ 60 cycles	1x2x6 per channel Plus 8.5 x 3x6		6D9696C F4-29689	Point-to-point and radio-teletype. Normally 4 channels per rectifier.
Wilcox <sup>b</sup> 96-200A	1518	Rect. & Mod. 26A or 26B Operator's Control Console CS-380	2 KW	A1,A2,A3	0.195-0.525	M.O. or Xtal (Holder FT-249)	1	Insulated Tower or Wave Antenna (Figures 1542 & 1544)	10 KVA 220V, 3ϕ 60 cycles	3x2x6 per channel (Transmitter Only)			Point-to-point and homing. No longer procured.
Wilcox <sup>b</sup> 96-200B	1518	Rect. & Mod. 26A or 26B Operator's Control Console CS-380	2 KW	A1,A2,A3	0.195-0.525	M.O. or Xtal (Holder FT-249)	1	Insulated Tower or Wave Antenna (Figures 1542 & 1544)	10 KVA 220V, 3ϕ 60 cycles	3x2x6 per channel (Transmitter Only)			Point-to-point and homing.

<sup>a</sup>A1 indicates continuous wave telegraphy; A2 indicates amplitude modulated tone telegraphy; A3 indicates amplitude modulated telephony.

<sup>b</sup>M.O. is used to indicate Master Oscillator control and Xtal to indicate crystal control.

<sup>c</sup>Figure numbers refer to sketches of representative antennas shown in paragraph 1428 except where reference is made to paragraph 1408.

<sup>d</sup>Includes power required for equipment shown in "Additional Equipment Required" column.

<sup>e</sup>The first two dimensions represent width and depth respectively, and indicate the area required by the designated equipment plus the equipment listed in the "Additional Equipment Required" column, and do not represent the floor space required for the complete station installation. Allowance is not made for opening of apparatus doors or drawers, space between units, and operating and maintenance space for personnel. The last dimension is the height of the tallest unit.

<sup>f</sup>This weight does not include that for equipment shown in "Additional Equipment Required" column.

<sup>g</sup>When other identification is not available for instruction books, the stock number is shown.

<sup>h</sup>Type numbers assigned by the manufacturer.

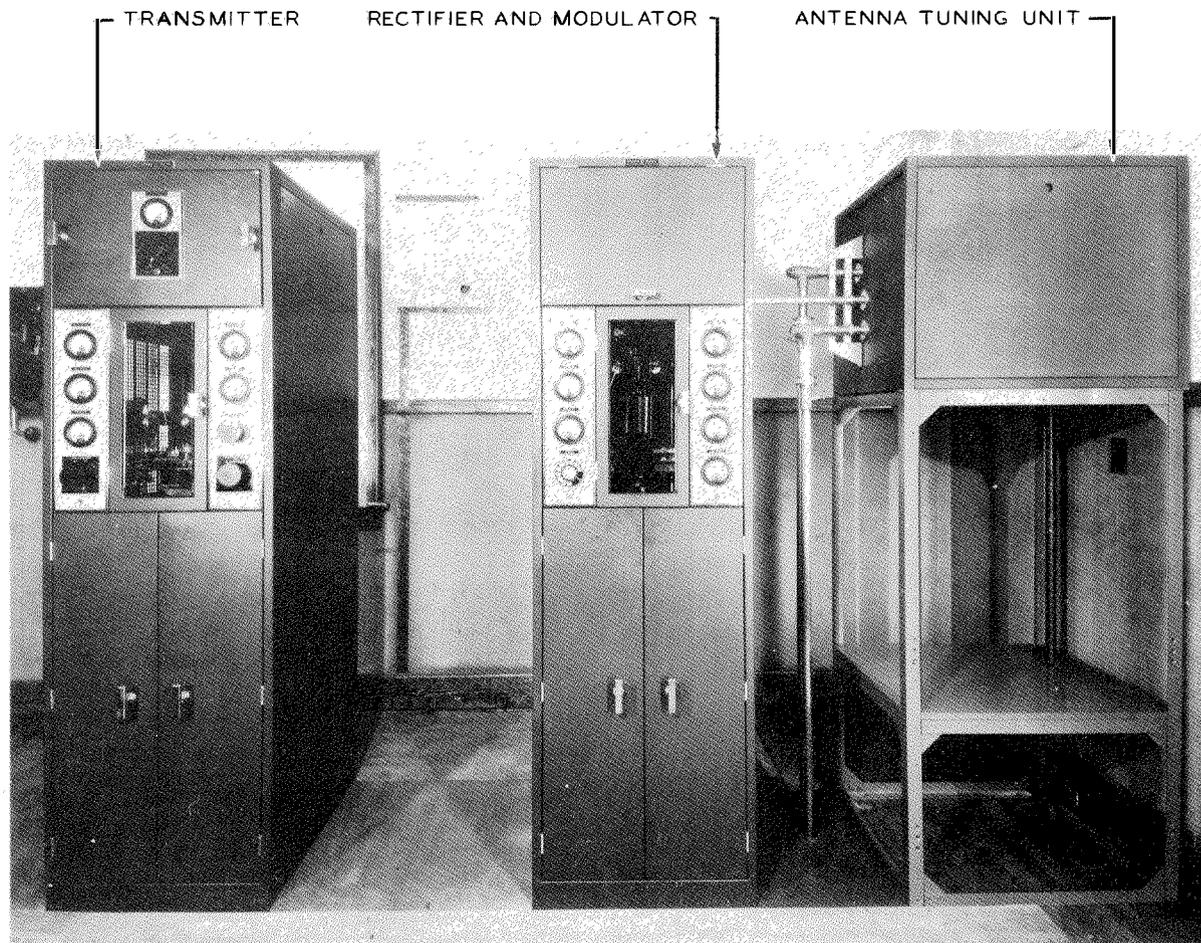


FIGURE 1496. Radio Transmitter BC-315

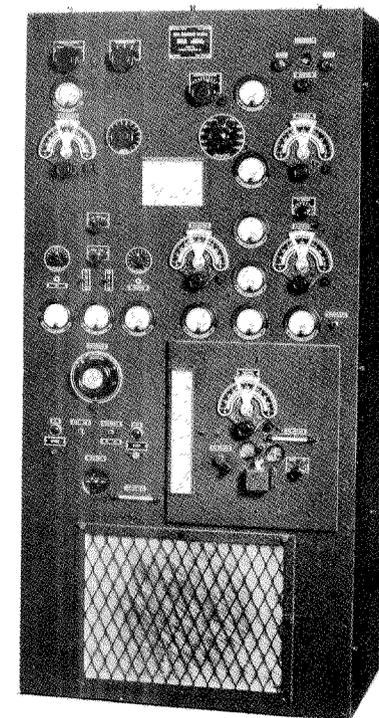


FIGURE 1497. Radio Transmitter BC-325-( )

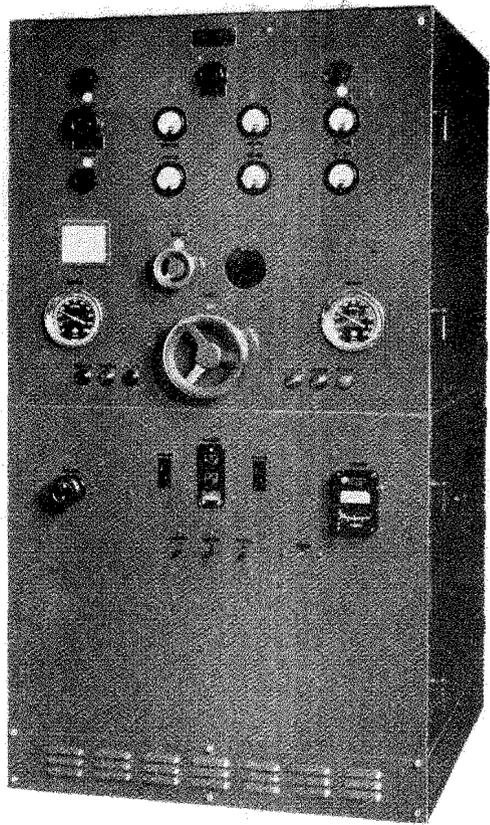


FIGURE 1498. Power Amplifier  
BC-340-( )

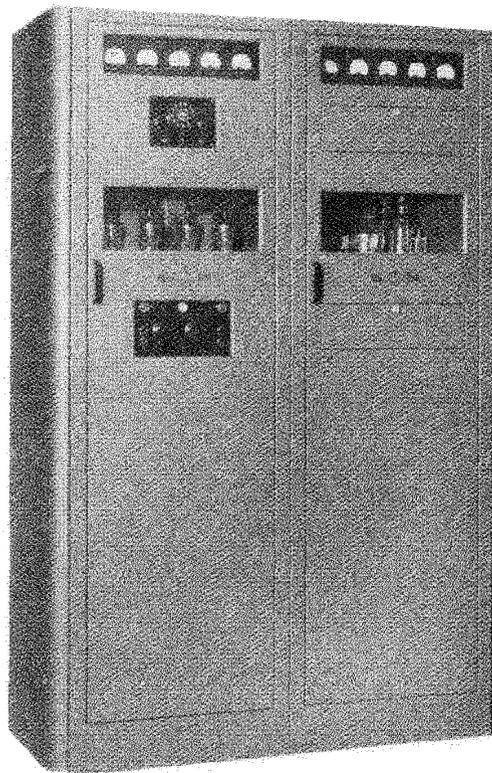


FIGURE 1499. Radio Transmitter BC-401

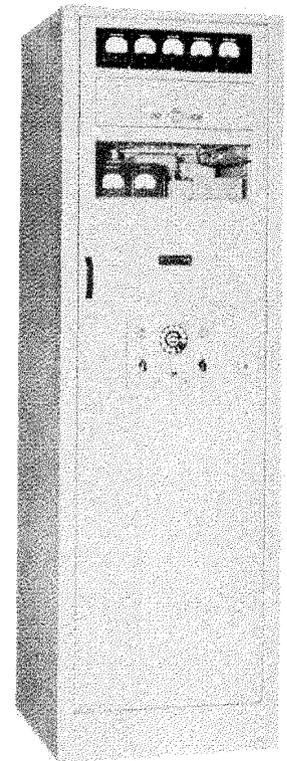
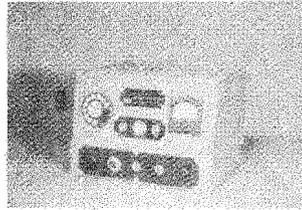
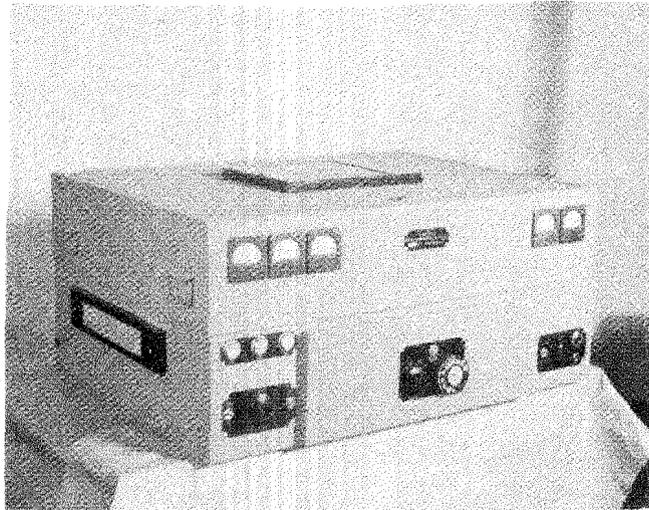


FIGURE 1500. Radio  
Transmitter BC-460





Remote Control Unit RM-40



Radio Transmitter

FIGURE 1503. Radio Transmitter BC-1100-( )

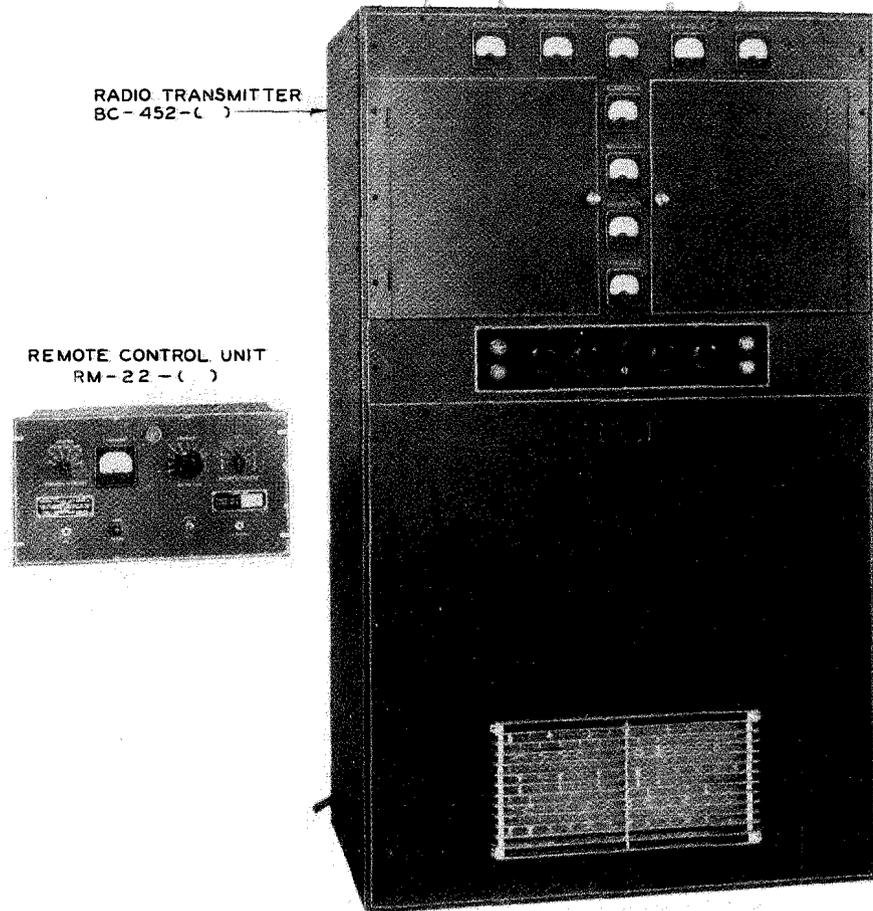


FIGURE 1504. Radio Transmitting Equipment RC-52-( )

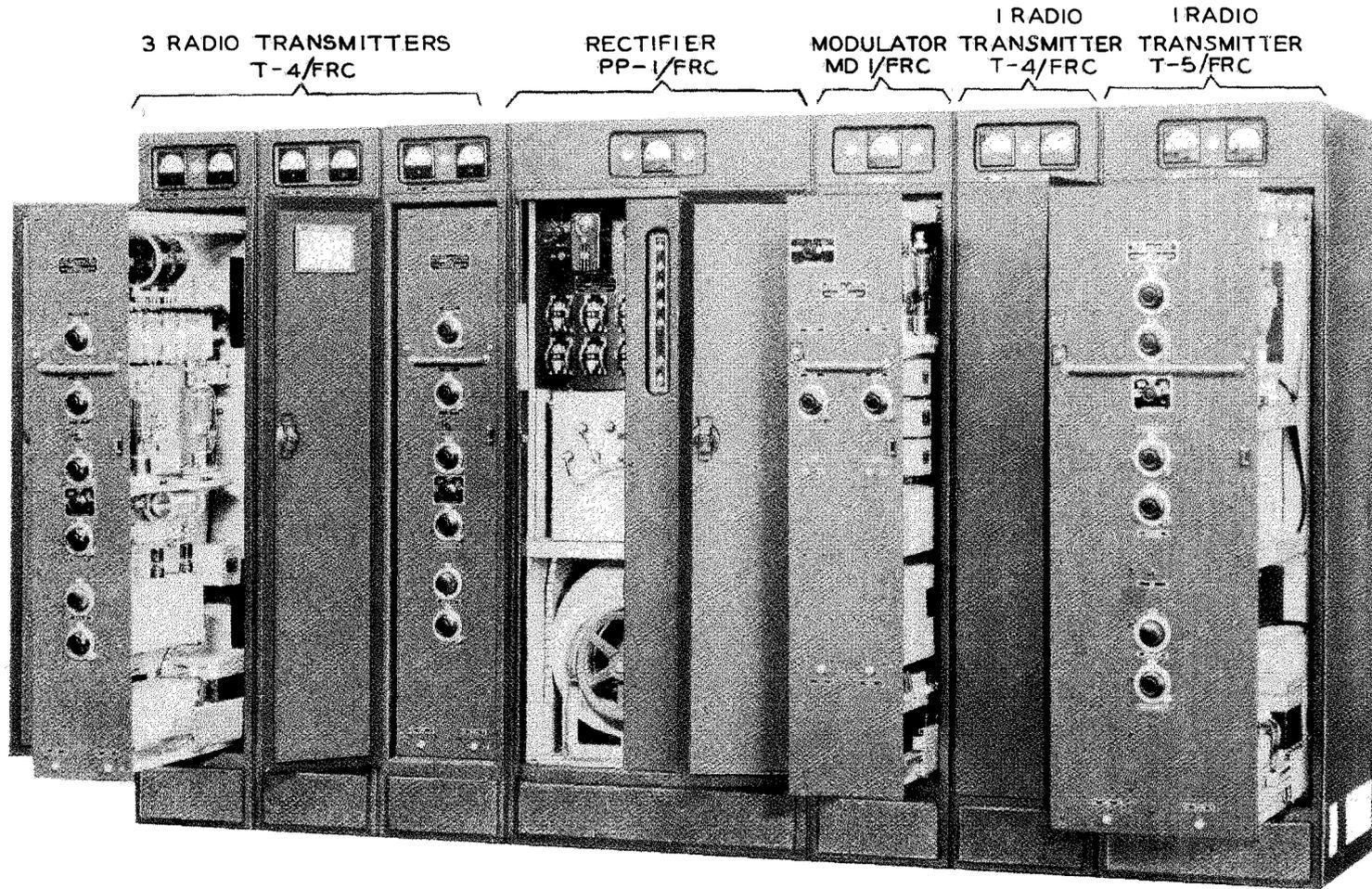


FIGURE 1505. Radio Transmitter T-4/FRC and T-5/FRC Installation

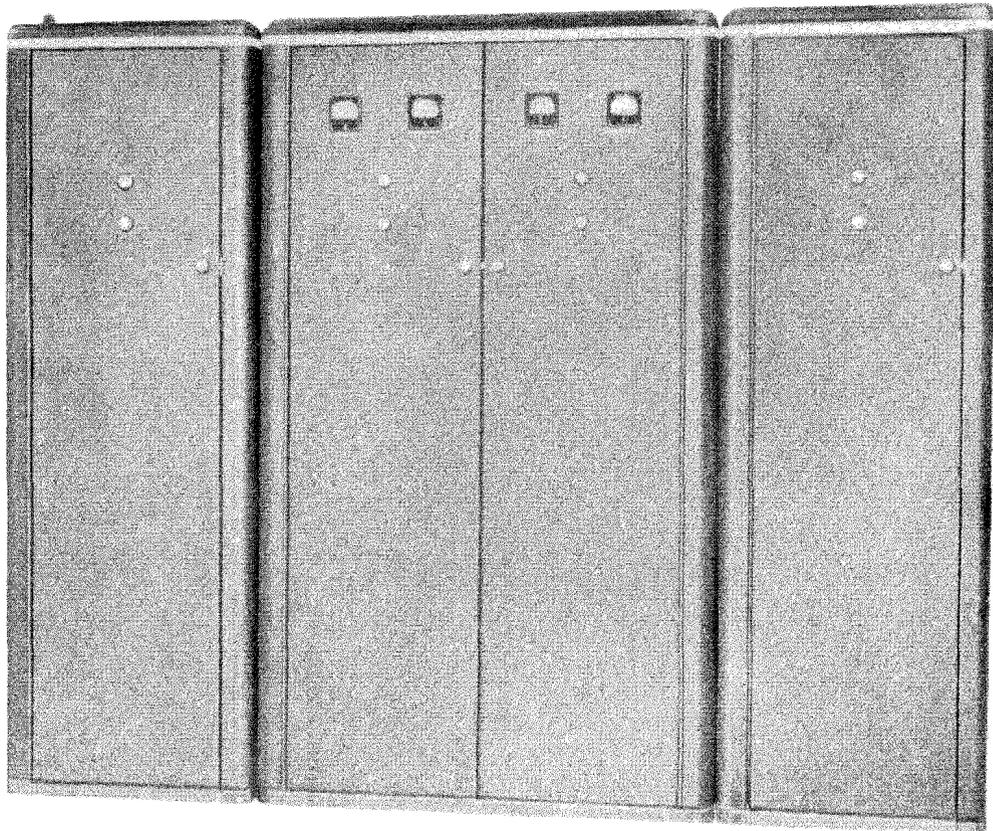


FIGURE 1506. Radio Transmitter (Aircraft Accessories Corp. 500B)

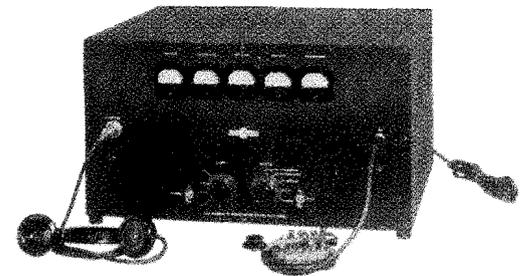


FIGURE 1507. Radio Transmitter (Collins 32RA)

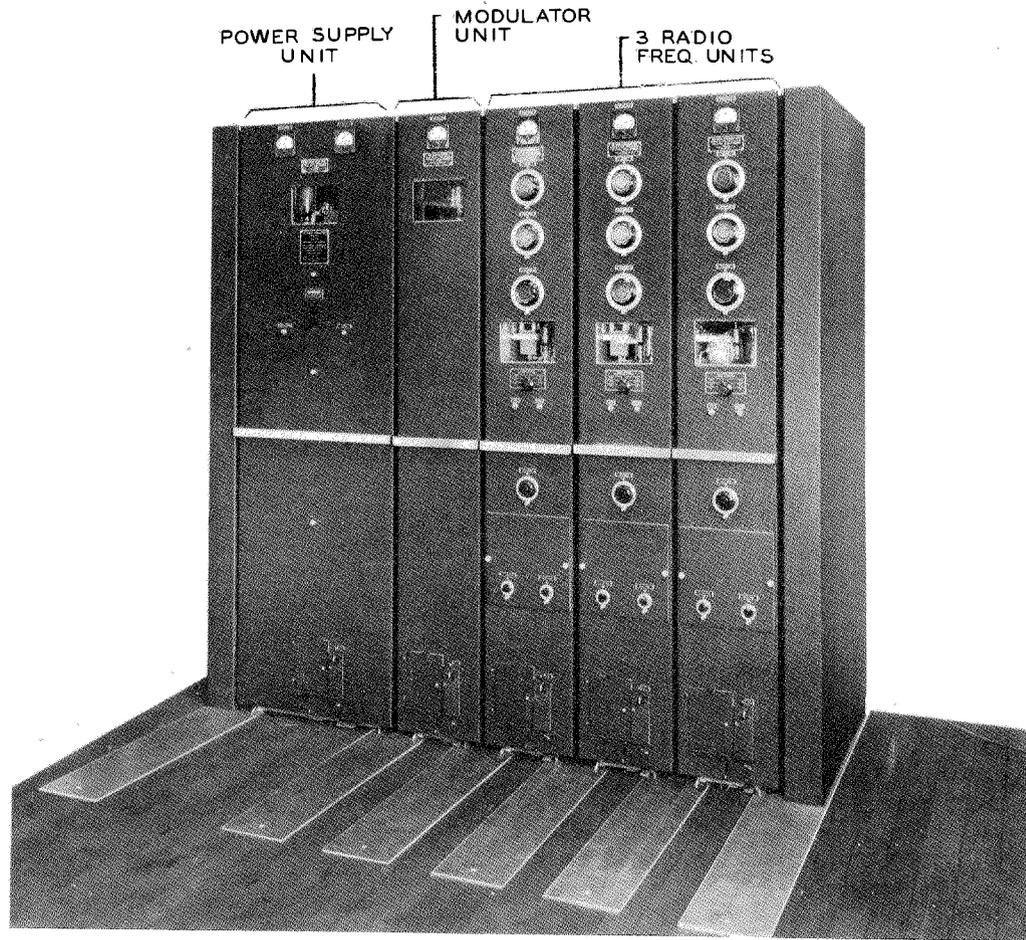


FIGURE 1508. Radio Transmitter (Federal FT-300)

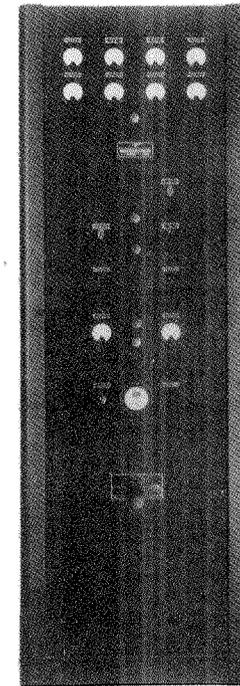
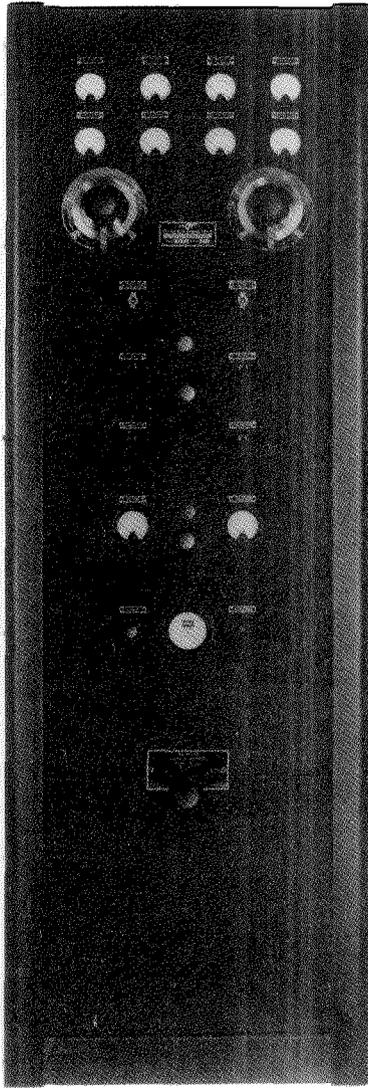
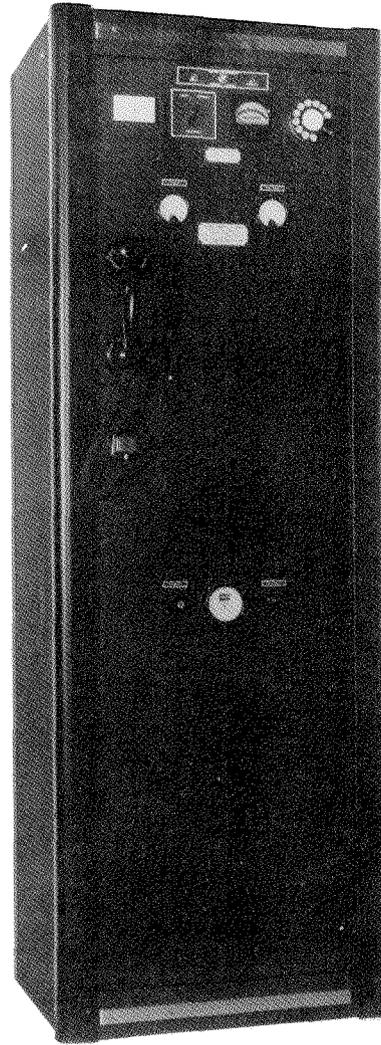


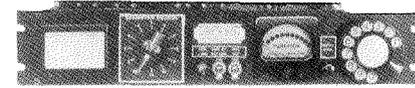
FIGURE 1509. Radio Transmitter (Pan American Airways 12ACX-2)



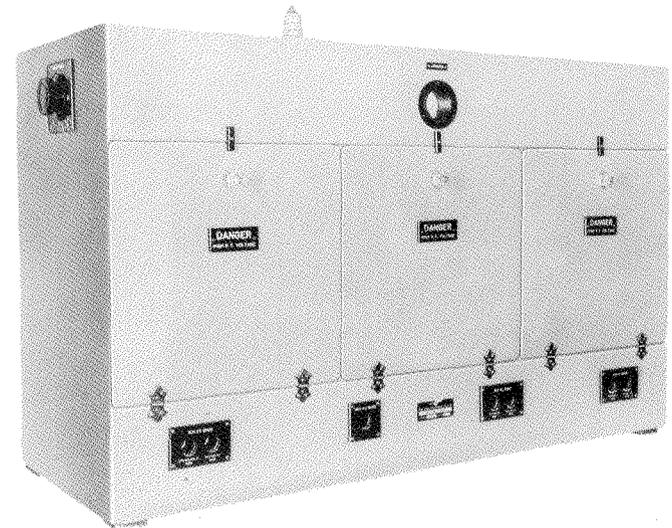
Transmitter 12 GLX-2



Modulator GM-8



Transmitter Control TMC-R



Antenna Tuning Unit ATU-12

FIGURE 1510. Radio Transmitter (Pan American Airways)

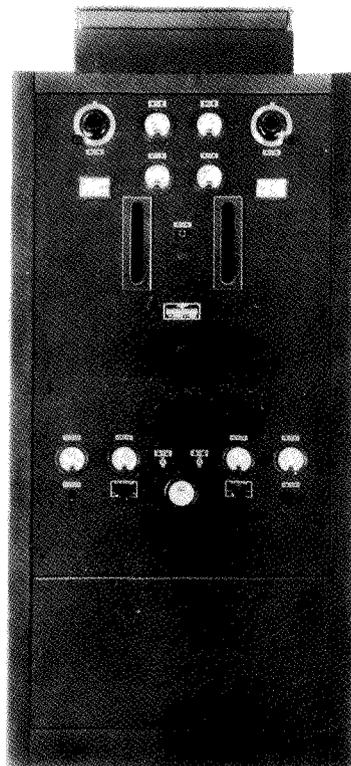


FIGURE 1511. Power Amplifier  
(Pan American Airways  
RFA-50)

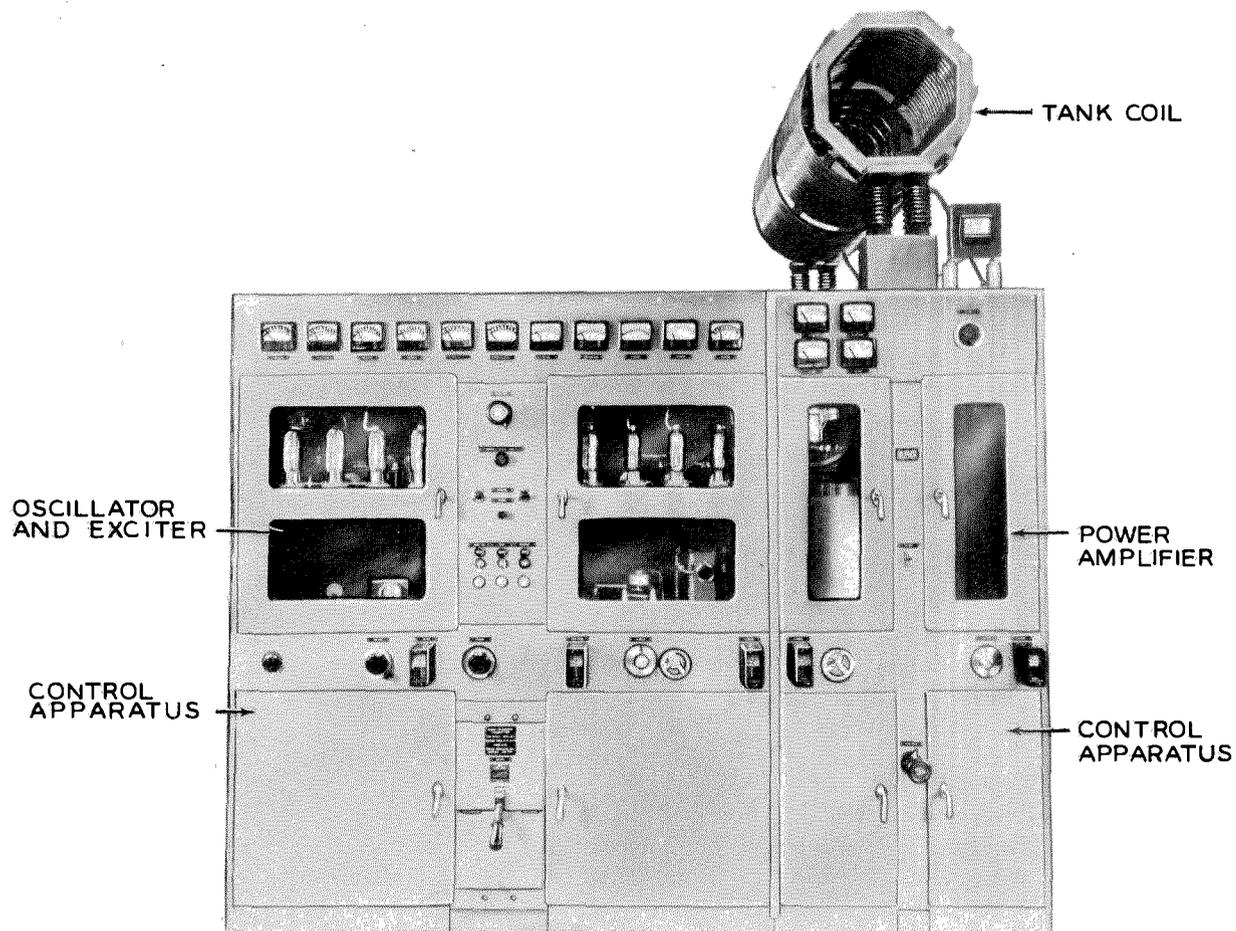


FIGURE 1512. Radio Transmitter (Press Wireless PW-10LF)

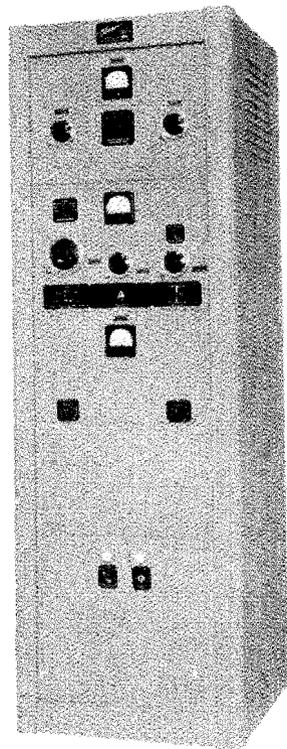


FIGURE 1513. Radio Transmitter  
(Temco 250-GSC)

REMOTE CONTROL BOX

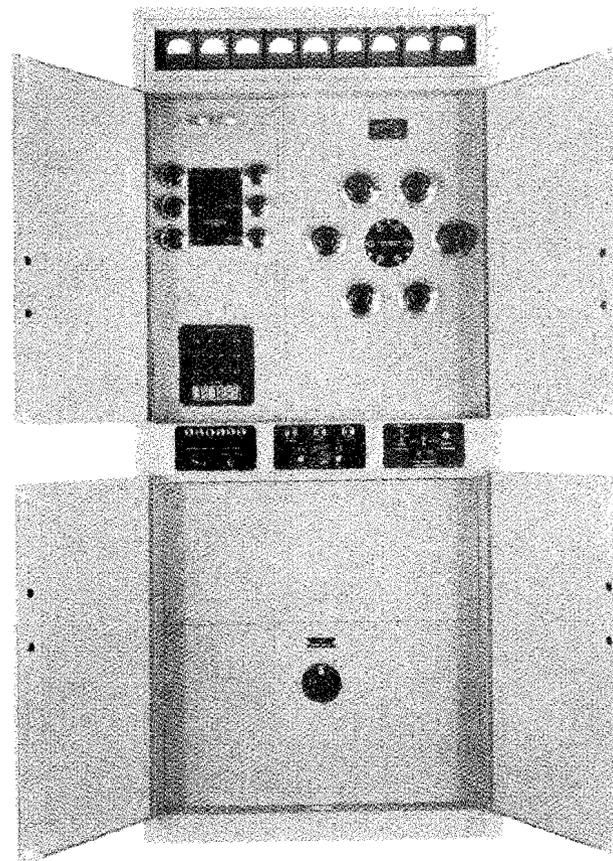
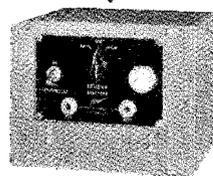


FIGURE 1514. Radio Transmitter (Temco 1000-AG-CW)

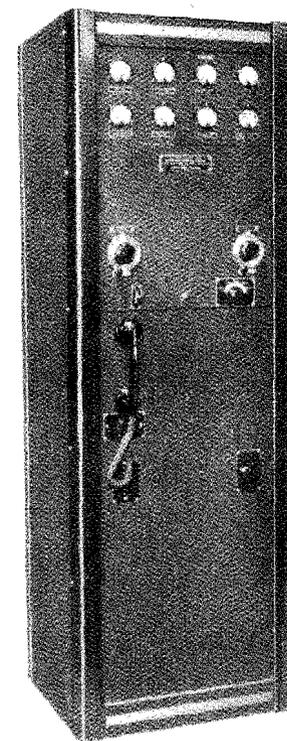


FIGURE 1515. Radio Transmitter (Western Electric Co. D-51249 or Pan American Airways 4WTF A)

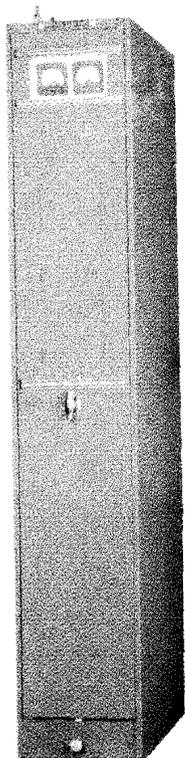


FIGURE 1516. Radio Transmitter (Wilcox 96A)

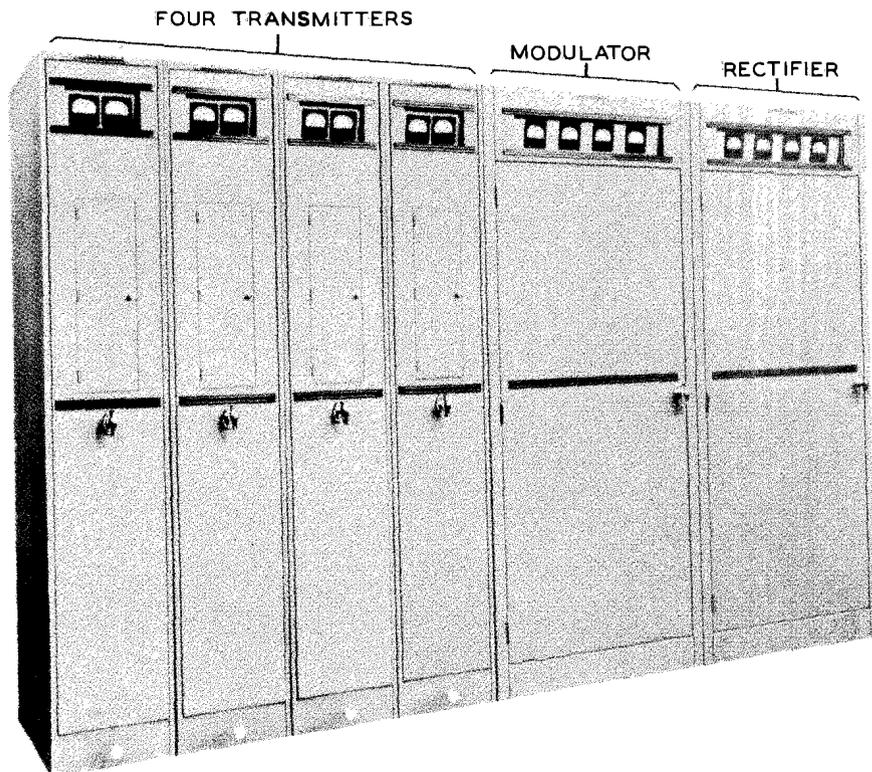


FIGURE 1517. Four Radio Transmitters (Wilcox 96C) (With Modulator 50A and Rectifier 36A)

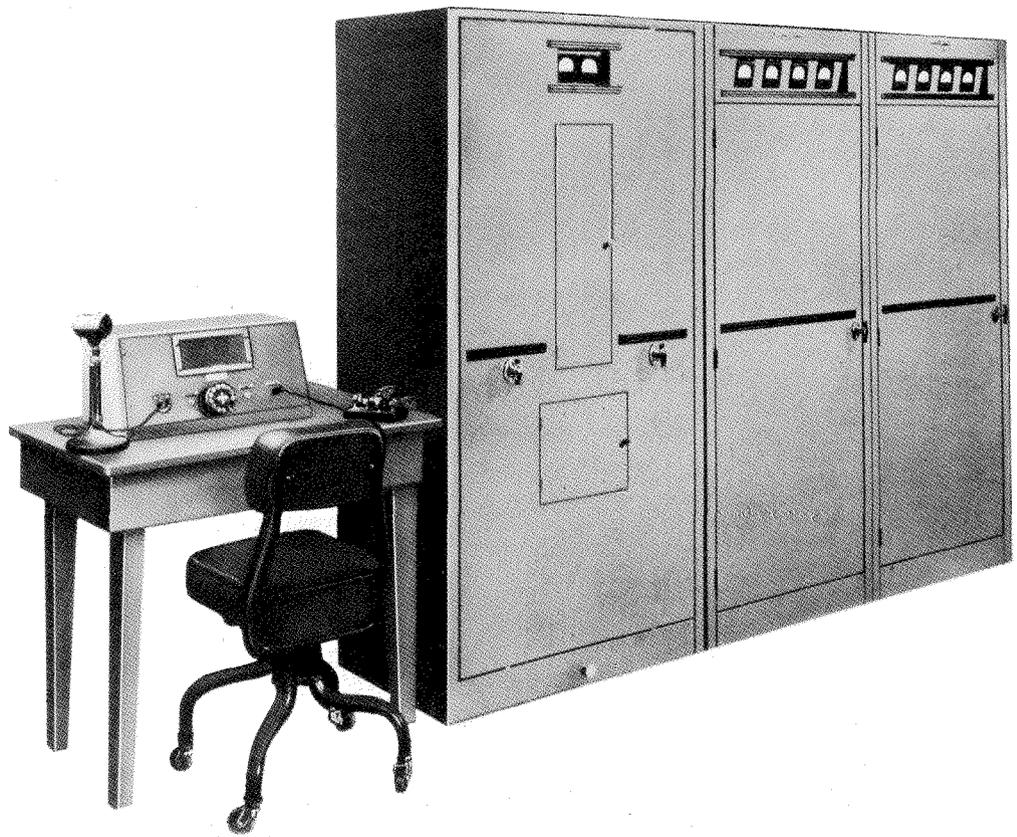


FIGURE 1518. Radio Transmitter (Wilcox 96-200-( ))

1427. RECEIVING EQUIPMENT COMMONLY USED BY AIRWAYS SECTION -- ARMY COMMUNICATIONS SERVICE -- DESCRIPTION.

Type No. <sup>a</sup>	Fig. No.	Type Emission Received <sup>b</sup>	Frequency Range - Mc	Freq. Control	Normal Antenna <sup>c</sup>	Type Output	Power Required	Weight in Use (Lbs.)	Instr. Bk. or Manual <sup>d</sup>	Remarks
AN/FGC-1 Radioteletype Terminal Eqpt.	-	See paragraph 1027								
AN/FRR-3 Press Wireless Diversity	1492	A1,A2,A3 Special	2.4-26	Crystal (Holder FT-249)	Double Doublet or Rhombic (Figures 1540 & 1539)	Into Teletype Term.Eqpt. AN/FGC-1	110/220V 50/60 cycles			Five preset channels. For point-to-point communication and radioteletype. Used with Radioteletype Terminal Unit AN/FGC-1.
Federal 128-AY	1519	A1,A2,A3	0.015-0.65	Manual	Single wire	Speaker or Headset	115V, 60 cycle AC or batteries	28	6D1947	Marine or fixed station service. Table model. Built-in power supply unit.
Hallicrafters S-22-R	1520	A1,A2,A3	0.11-1.5 & 1.7-18	Manual	Single wire or Double Doublet (Figure 1540)	Built-in Speaker, or Headset	115V, 60 cycle AC or DC	25	6D9461	Marine or fixed station service. Table model. Built-in power supply.
Hallicrafters S27	1521	A1,A2,A3 & FM	27-145	Manual	Single wire or Double Doublet (Figure 1540)	Speaker or Headset 500 or 5000 ohms	115V, 50/60 cycle AC	75	6D9462	Airport control and air warning. Table model. Built-in power supply.
Hallicrafters SX-28 AN/GRR-3	1522	A1,A2,A3	0.55-42	Manual	Single wire or Double Doublet (Figure 1540)	Speaker or Headset 500 or 5000 ohms	110/125V 50/60 cycle AC	85	6D9471	Point-to-point and ground-to-air. Table model. Built-in power supply.
Hallicrafters S29	1523	A1,A2,A3	0.54-30.5	Manual	3 ft. Built-in tele-scope whip	Built-in Speaker or Headset	110/125V AC or DC, or self-cont. batteries	18	6D9464	Highly portable for miscellaneous monitoring.

<sup>a</sup>Except for AN/FGC-1, AN/FRR-3 and AN/GRR-3 the type numbers are those assigned by the manufacturer.

<sup>b</sup>A1 indicates continuous wave telegraphy; A2 indicates amplitude modulated tone telegraphy; A3 indicates amplitude modulated telephony; FM indicates frequency modulated telephony and tone telegraphy.

<sup>c</sup>Figure numbers refer to sketches of representative antennas shown in paragraph 1428.

<sup>d</sup>When no other identification is available for the instruction book, the stock number is given.

Type No. <sup>a</sup>	Fig. No.	Type Emission Received <sup>b</sup>	Frequency Range - Mc	Freq. Control	Normal Antenna <sup>c</sup>	Type Output	Power Required	Weight in Use (Lbs.)	Instr. Bk. or Manual <sup>d</sup>	Remarks
Hallicrafters S-38	1524	A1,A2,A3 & FM	27.8-143	Manual	Single wire or Double Doublet (Figure 1540)	Speaker or Headset 5000 or 5000 ohms	115V, 50/60 cycle AC	75	2C4537.36/B1	Similar to Hallicrafters S-27 receiver except treated for tropical use. Airport control and air warning. Built-in power supply. Table model.
Hammarlund SF-110-LX (Super Pro)	1493	A1,A2,A3	0.1-0.4 & 2.5-20	Manual	Single wire or Double Doublet (Figure 1540)	Speaker or Headset 600 or 6000 ohms	110/125V 25 cycle AC, or batteries	100	P4-17275	Airport control, point-to-point and ground-to-air. Separate power supply included. Modified table model.
Hammarlund SF-210-LX (Super Pro)	1493	A1,A2,A3	0.1-0.4 & 2.5-20	Manual	Single wire or Double Doublet (Figure 1540)	Speaker or Headset 600 or 6000 ohms	110/125V 60 cycle AC, or batteries	100	6D9450B1	Airport control, point-to-point and ground-to-air. Separate power supply included. Rack mounting.
National NC-100-ASC AN/GRR-2	1525	A1,A2,A3	0.2-0.4 & 1.5-30	Manual	Single wire or Double Doublet (Figure 1540)	Speaker or Headset	115V, 50/60 cycle or 115V, 25 cycle AC	65	6D9520	Point-to-point and ground-to-air. Table model. Built-in power supply. Separate loud speaker included.
National HERO	1526	A1,A2,A3	1.7-30	Manual	Single wire or Double Doublet (Figure 1540)	Speaker or Headset	115V, 50/60 cycle AC or batteries	90	P4-16986	Point-to-point and ground-to-air. Table model. Uses plug-in coils which are inserted as a unit. Coil sets must be procured separately. Separate power supply included.
Wilcox CW3	1527	A1	1.15-25.5	Crystal (Holder FT-249)	Single wire or Double Doublet or Rhombic (Figures 1540 & 1539)	Speaker or Headset	115V, 50/60 cycle AC		6D9695	Point-to-point and ground-to-air. Rack mounting. Uses plug-in coils and crystal which must be procured separately. Eight CW3 Receivers, in a pre-wired rack, available as a unit (Wilcox 113A Receiver Bay).

<sup>a</sup>Except for AN/GRR-2 the type numbers are those assigned by the manufacturer.

<sup>b</sup>A1 indicates continuous wave telegraphy; A2 indicates amplitude modulated tone telegraphy; A3 indicates amplitude modulated telephony; FM indicates frequency modulated telephony and tone telegraphy.

<sup>c</sup>Figure numbers refer to sketches of representative antennas shown in paragraph 1428.

<sup>d</sup>The stock number is given for identification of the instruction book.

## RECEIVING EQUIPMENT COMMONLY USED BY AIRWAYS SECTION -- ARMY COMMUNICATIONS SERVICE -- DESCRIPTION. (Continued)

Type No. <sup>a</sup>	Fig. No.	Type Emission Received <sup>b</sup>	Frequency Range - Mc	Freq. Control	Normal Antenna <sup>c</sup>	Type Output	Power Required	Weight in Use (Lbs.)	Instr. Bk. or Manual <sup>d</sup>	Remarks
Wilcox 4 CW3-D	1528 (See Remarks)	Special, A1	2.0-26	Crystal (Holder FT-249)	Double Doublet or Rhombic (Figures 1540 & 1539)	Into Teletype Terminal AN/FGC-1	115V, 50/60 cycle AC			Four preset channels. Radioteletype. Used with Radioteletype Terminal Unit AN/FGC-1. The 4 CW3-D is an assembly of four CW3-D units in a single cabinet. Figure 1528 depicts one CW3-D unit.
Wilcox F3	1529	A2, A3	1.9-16.5	Crystal (Holder FT-249)	Single wire, Double Doublet or Rhombic (Figures 1540 & 1539)	Speaker or Headset	115V, 50/60 cycle AC		6D12011-853	Point-to-point and ground-to-air. Airport control. Rack mounting.

<sup>a</sup>The type numbers are those assigned by the manufacturer.

<sup>b</sup>A1 indicates continuous wave telegraphy; A2 indicates amplitude modulated tone telegraphy; A3 indicates amplitude modulated telephony.

<sup>c</sup>Figure numbers refer to sketches of representative antennas shown in paragraph 1428.

<sup>d</sup>The stock number is given for identification of the instruction book.



FIGURE 1519. Radio Receiver (Federal 128AY)



FIGURE 1521. Radio Receiver (Hallicrafters S-27)

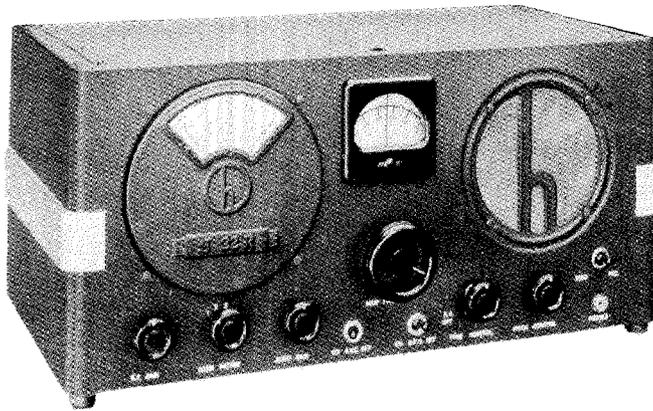


FIGURE 1520. Radio Receiver (Hallicrafters S-22-R)

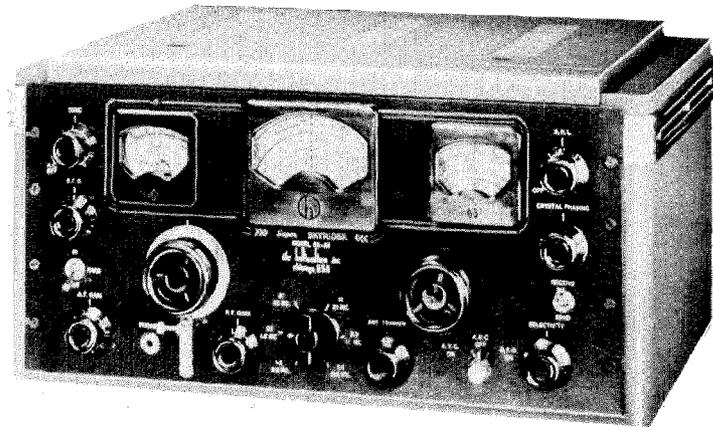


FIGURE 1522. Radio Receiver AN/GRR-3 (Hallicrafters SX-28)



FIGURE 1524. Radio Receiver (Hallicrafters S-36)

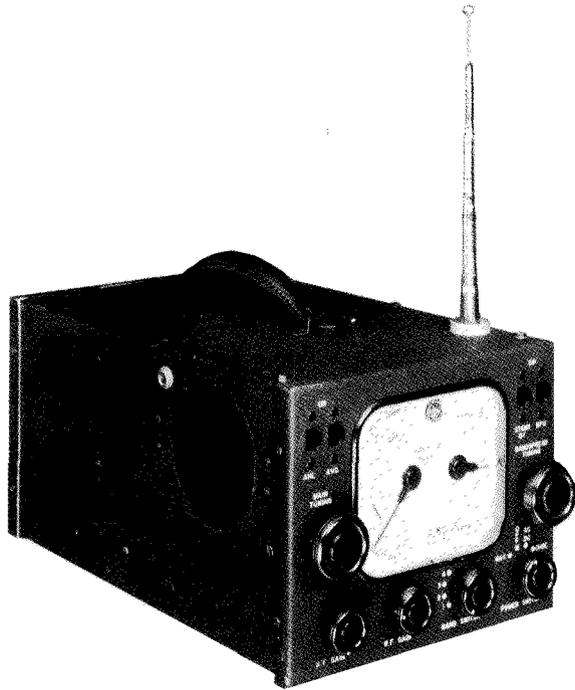


FIGURE 1523. Radio Receiver (Hallicrafters S-29)

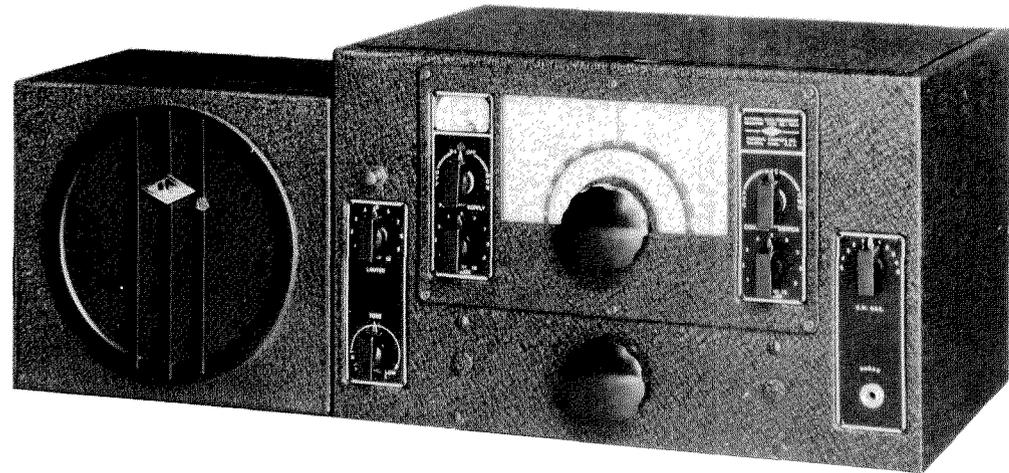


FIGURE 1525. Radio Receiver AN/GRR-2 (National NC-100-ASC)

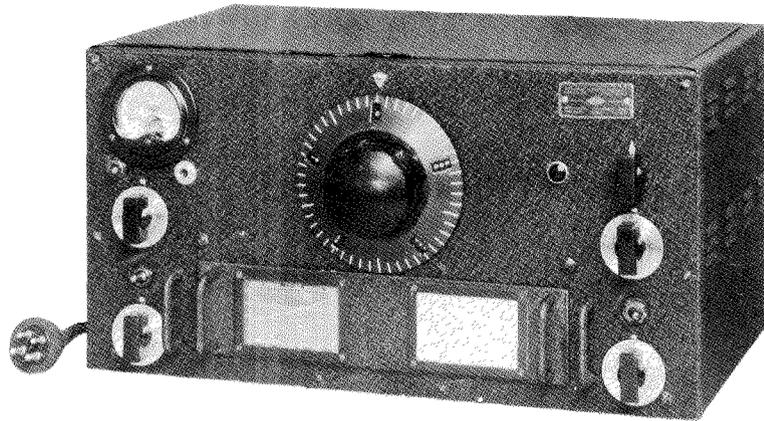


FIGURE 1526. Radio Receiver (National HR0)

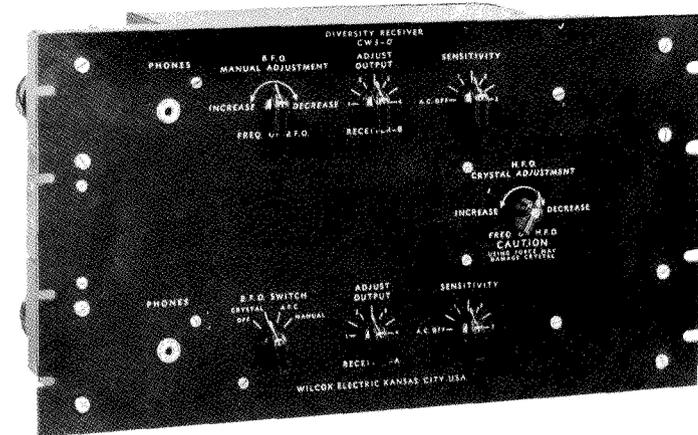


FIGURE 1528. Radio Receiver (Wilcox CW3-D)



FIGURE 1527. Radio Receiver (Wilcox CW3)



FIGURE 1529. Radio Receiver (Wilcox F3)

1428. COMBINED TRANSMITTING AND RECEIVING EQUIPMENT COMMONLY USED BY AIRWAYS SECTION -- ARMY COMMUNICATIONS SERVICE --  
DESCRIPTION.

Type No. <sup>a</sup>	Fig. No.	Power Output	Type of Emission <sup>b</sup>	Frequency Range - Mc	Freq. Control <sup>c</sup>	Preset Channels	Normal Antenna <sup>d</sup>	Power Required	Dimensions in Operation - ft. <sup>e</sup>	Weight in Use (Lbs.)	Instr. Book or Manual <sup>f</sup>	Remarks
AN/CRC-3	See paragraph 1408											
Collins 18-Q (Navy TCS)	1530	25 W 10 W	A1 A3	1.5-12.0	M.O. or Xtal (Holder FT-249 or Collins IG)	None (See Remarks)	23-ft. Whip (Figure 1460)	115V, 60 cycle AC or 12V DC	2 x 1 x 1			Transmitter and receiver. Point-to-point and ground-to-air. Switch selection of five crystal frequencies.
Jefferson Travis 350A	1531	50 W 40 W	A1 A3	1.5-12.0	M.O. or Xtal	None (See Remarks)	23-ft. Whip or 1/4-wave Inverted L (Figures 1460 & 1458)	12V DC, 24V DC, 32V DC, 115V DC or 115V, 60 cycle AC	3 x 2 x 2	232 (Without Power Supply Equipment)		Transmitter-receiver equipment for fixed mobile communication. Switch selection of four crystal frequencies.
Link 25-FMTR	1420 par. 1408	25 W	FM	30-40	Xtal (Holder FT-171)	1	6-ft. Whip (Figure 1461b)	6V DC	3 x 1 x 1	65	6D8298	Commercial police car equipment for providing two-way mobile communication. Similar to SCR-298. Includes Transmitter 25-UFM, Receiver 11-UF, Vibrator Power Supply VPA-3A and dash control unit.
Link 35-FMTR	1420 par. 1408	35 W	FM	30-40	Xtal (Holder FT-171)	1	6-ft. Whip (Figure 1461b)	6V DC	3 x 1 x 1	65	6D8298A	Commercial police car equipment for providing two-way mobile communication. Similar to SCR-298-C. Includes Transmitter 35-UFM, Receiver 11-UF, Vibrator Power Supply VPA-3A and dash control unit.
Link 50UFS	1532	50 W	FM	30-40	Xtal (Holder FT-171)	1	(Non-Adjustable Coaxial Half-Wave Dipole (Figure 1468))	115V, 60 cycle AC	2 x 1 x 3	175		Self contained transmitter, receiver and power supply. For fixed control station in mobile net.
Link 1498	1533	50 W	FM	70-100	Xtal (Holders FT-171 & FT-243)	1	Adjustable Coaxial Half-Wave Dipole (Figure 1468)	115V, 50/60 cycle AC Xmnt- 210W. Rec.- 75W.	2 x 1 x 3	151		Self contained transmitter, receiver and power supply. For providing radio telephone communication when essentially line-of-sight operation is possible. May be remotely controlled at distances up to 5 miles of Wire W-110-B by the addition of Remote Control Unit Type 1504.

<sup>a</sup>Except for AN/CRC-3 the type numbers are those assigned by the manufacturer.

<sup>b</sup>A1 indicates continuous wave telegraphy; A3 indicates amplitude modulated telephony; FM indicates frequency modulated telephony.

<sup>c</sup>M.O. is used to indicate Master Oscillator control and Xtal to indicate crystal control.

<sup>d</sup>Figure numbers refer to sketches of representative antennas shown in paragraph 1408. Antennas are not normally included with the set unless so indicated.

<sup>e</sup>The dimensions are width, depth and height, respectively. The width and depth do not include space for opening of apparatus doors.

<sup>f</sup>When other identification is not available for instruction books, the stock number is shown.

Type No. <sup>a</sup>	Fig. No.	Power Output	Type of Emission <sup>b</sup>	Frequency Range - Mc	Freq. Control <sup>c</sup>	Preset Channels	Normal Antenna <sup>d</sup>	Power Required	Dimensions in Operation - ft. <sup>e</sup>	Weight in Use (Lbs.)	Instr. Book or Manual <sup>f</sup>	Remarks
Link 1505	1534	250 W	FM	70-100	Xtal (Holders FT-171 & FT-243)	1	Adjustable Coaxial Half-Wave Dipole (Figure 1468)	115V, 50/60 cycle AC Xmtr-1800W. Rec- 75W.	2 x 1 x 6	358	TM 11-823	Self contained transmitter, receiver and power supply, similar to Link 1498 except provides approximately 7 db greater power output.
Motorola FMTR-25VM	1535	25 W	FM	30-40	Xtal (Holder Bliley B5R)	1	Whip (Furnished) (Figure 1461b)	6V DC	2 x 1 x 1		2C5101/B1	Commercial police car equipment for providing two-way mobile communication. Separate transmitter and receiver; each with built-in power supply.
Motorola FMTR-50BW	1535	50 W	FM	30-40	Xtal (Holder Bliley B5R)	1	Non-Adjustable Coaxial Half-Wave Dipole (Furnished) (Figure 1468)	115V, 60 cycle AC	2 x 1 x 1		2C5102/B1	Transmitter-Receiver for fixed control station in mobile net. Transmitter and receiver each have built-in power supply.

<sup>a</sup>The type numbers are those assigned by the manufacturer.

<sup>b</sup>FM indicates frequency modulated telephony.

<sup>c</sup>Xtal is used to indicate crystal control.

<sup>d</sup>Figure numbers refer to sketches of representative antennas shown in paragraph 1409. Antennas are not normally included with the set unless so indicated.

<sup>e</sup>The dimensions are width, depth and height, respectively. The width and depth do not include space for opening of apparatus doors.

<sup>f</sup>When other identification is not available for instruction books, the stock number is shown.

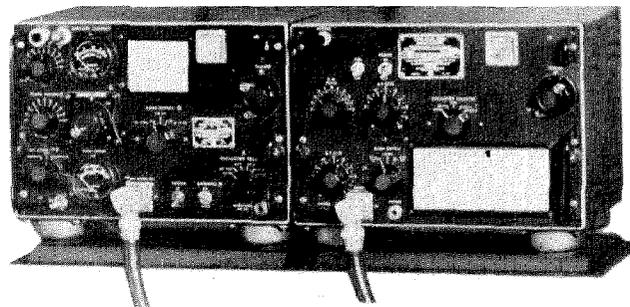


FIGURE 1530. Radio Receiver and Transmitter (Collins 18-Q)(Navy TCS)

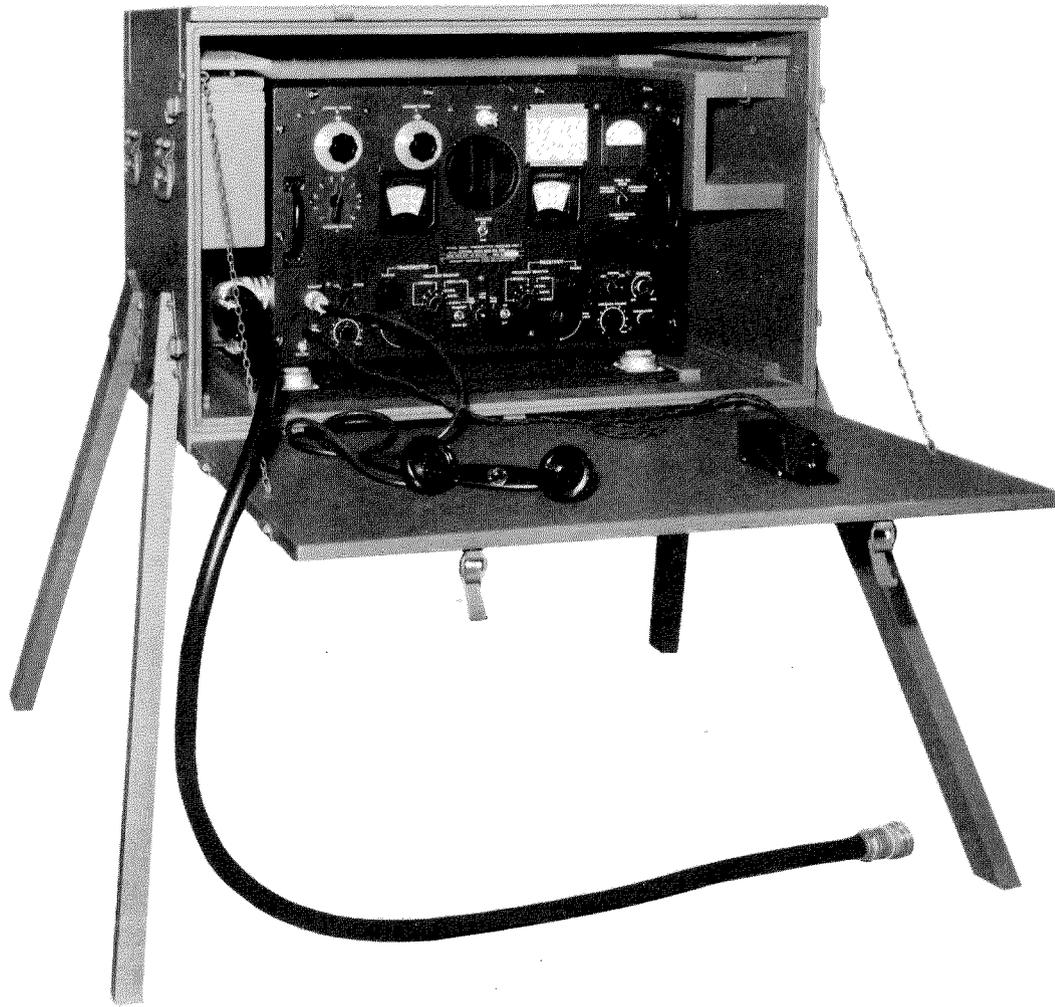


FIGURE 1531. Radio Receiver and Transmitter (Jefferson 350A)

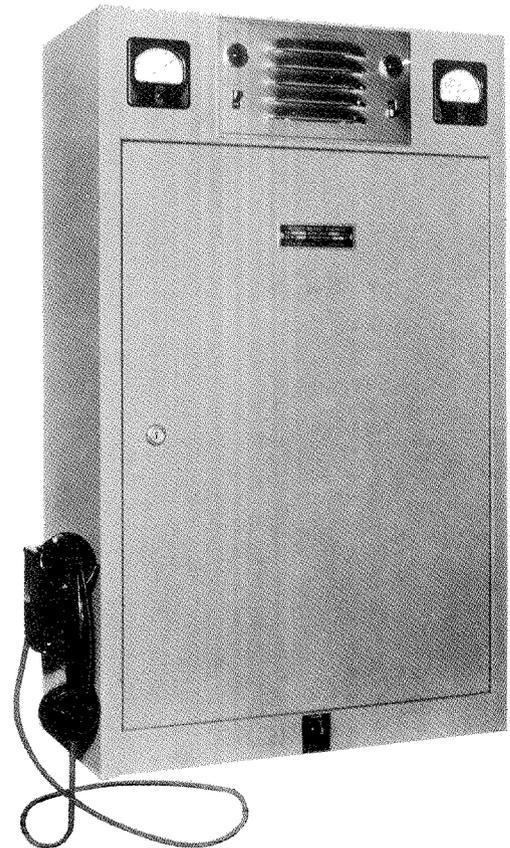
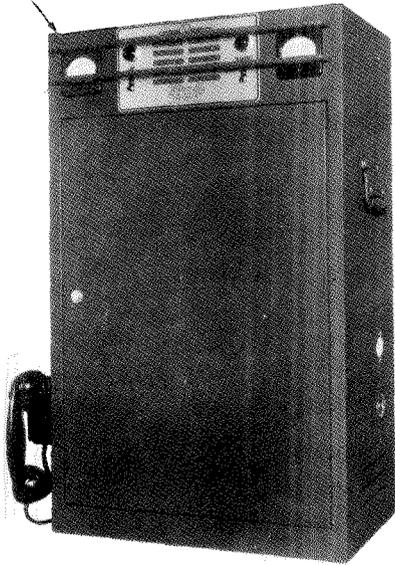


FIGURE 1532. Radio Receiver and Transmitter (LINK 50UFS)

TRANSMITTER AND RECEIVER



REMOTE CONTROL UNIT  
TYPE 1504

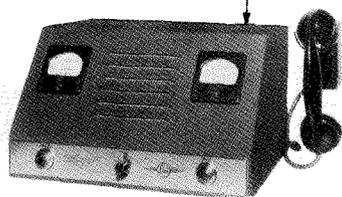
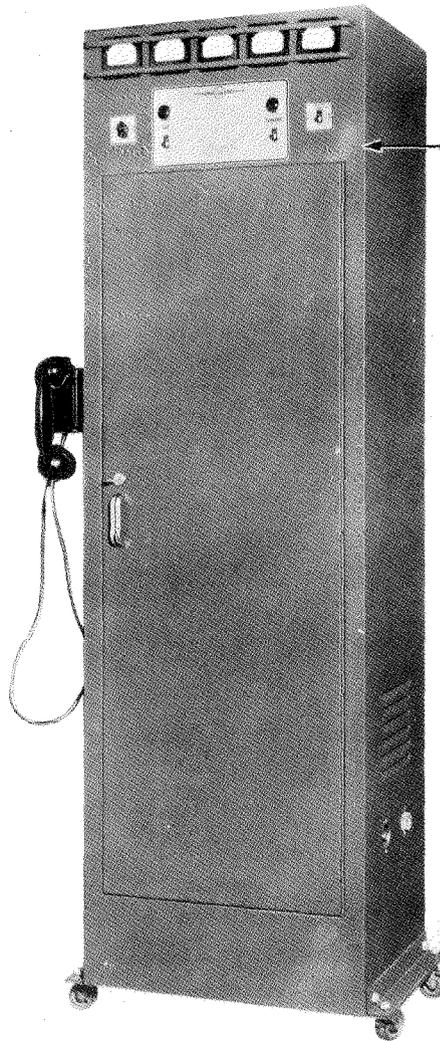


FIGURE 1533. Radio Set Type 1498 (LINK)

TRANSMITTER  
AND RECEIVER



REMOTE CONTROL UNIT  
TYPE 1504

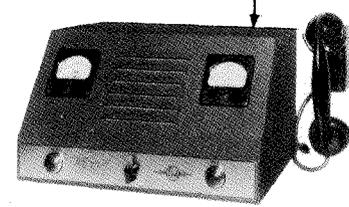


FIGURE 1534. Radio Set Type 1505 (LINK)



FIGURE 1535. Radio Receiver and Transmitter (Motorola FMTR 25VM and FMTR 50BW)

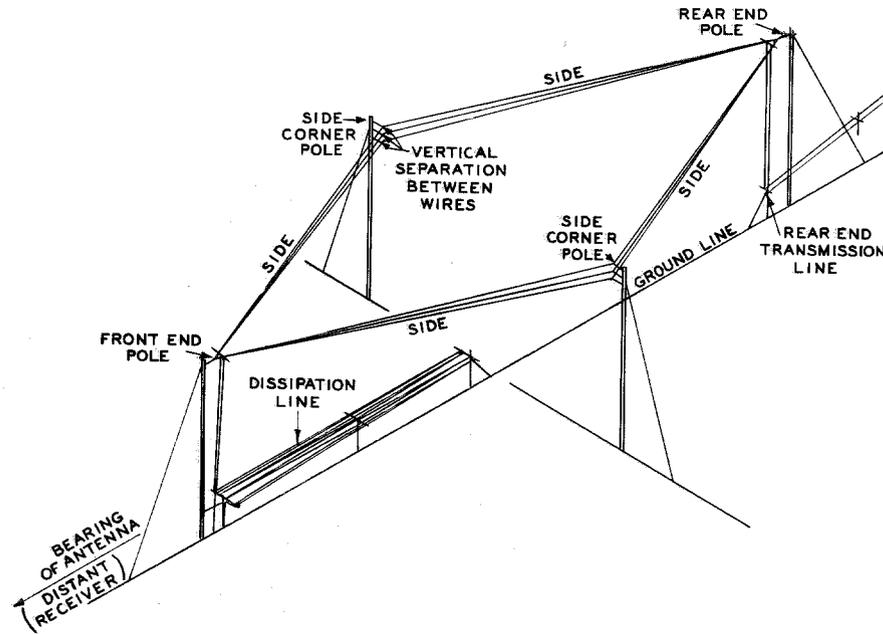


FIGURE 1536. Transmitting Horizontal Rhombic Antenna

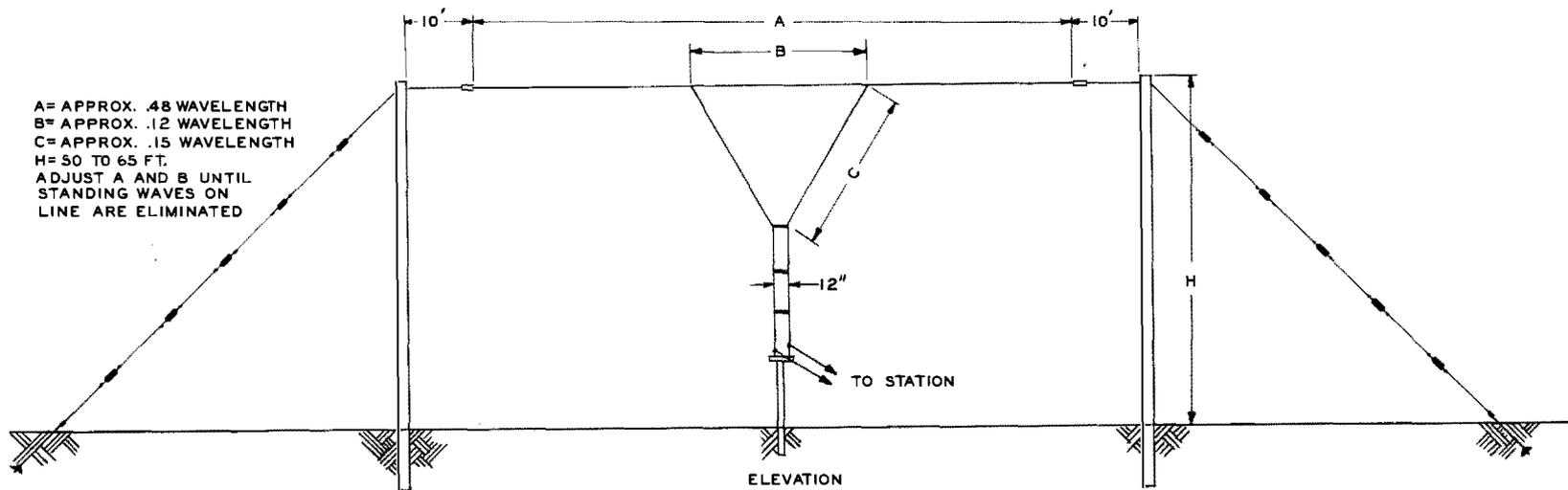
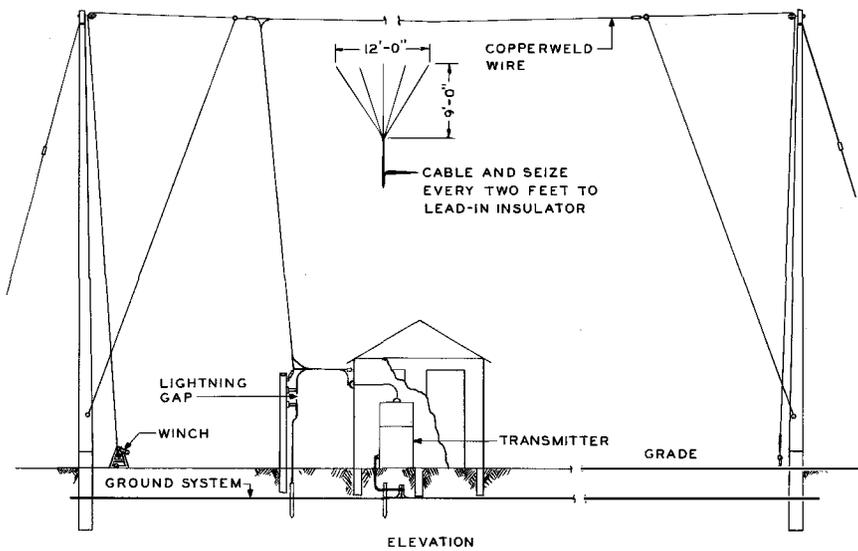
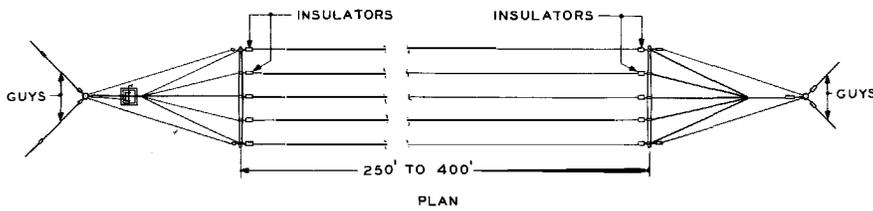


FIGURE 1537. Transmitting Doublet Antenna



INTERMEDIATE FREQUENCY FLAT TOP ANTENNA

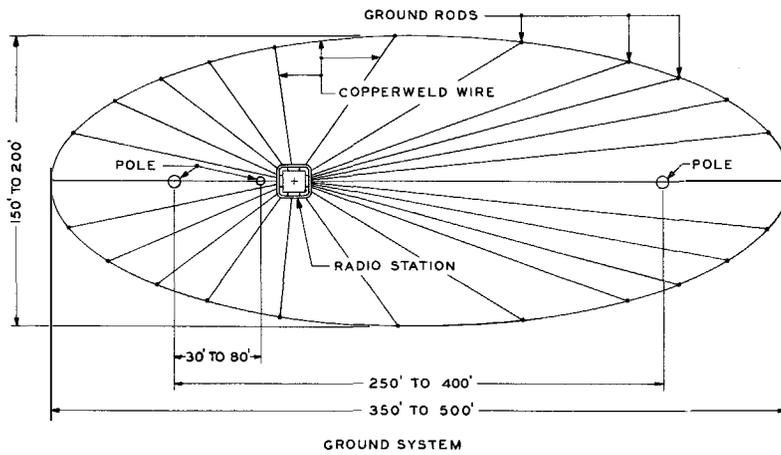


FIGURE 1538. Intermediate Frequency Flat Top Antenna

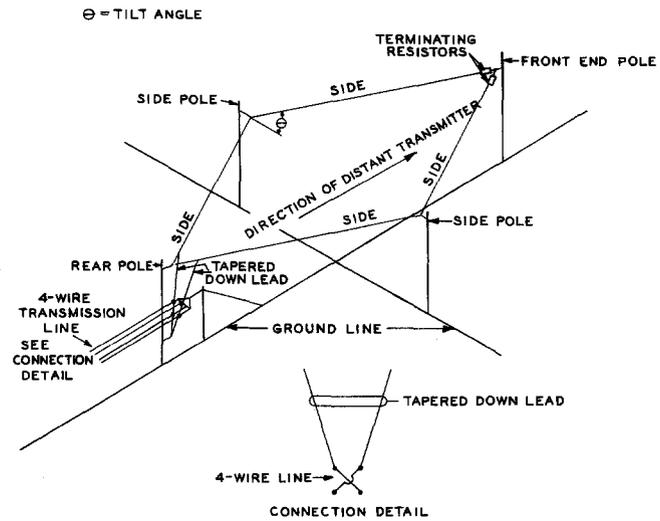


FIGURE 1539. Receiving Horizontal Rhombic Antenna

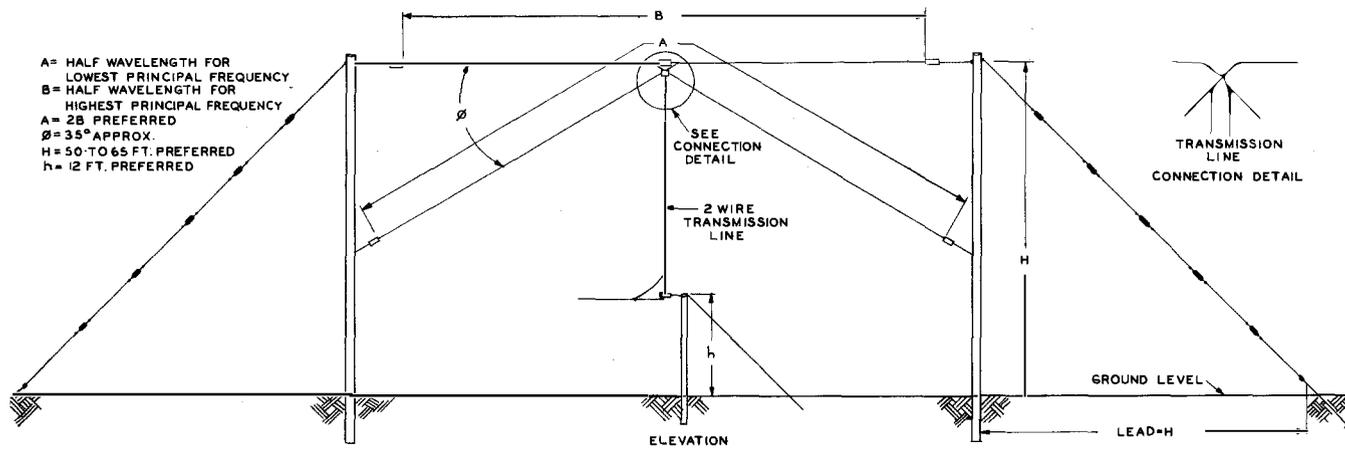


FIGURE 1540. Double Doublet Receiving Antenna

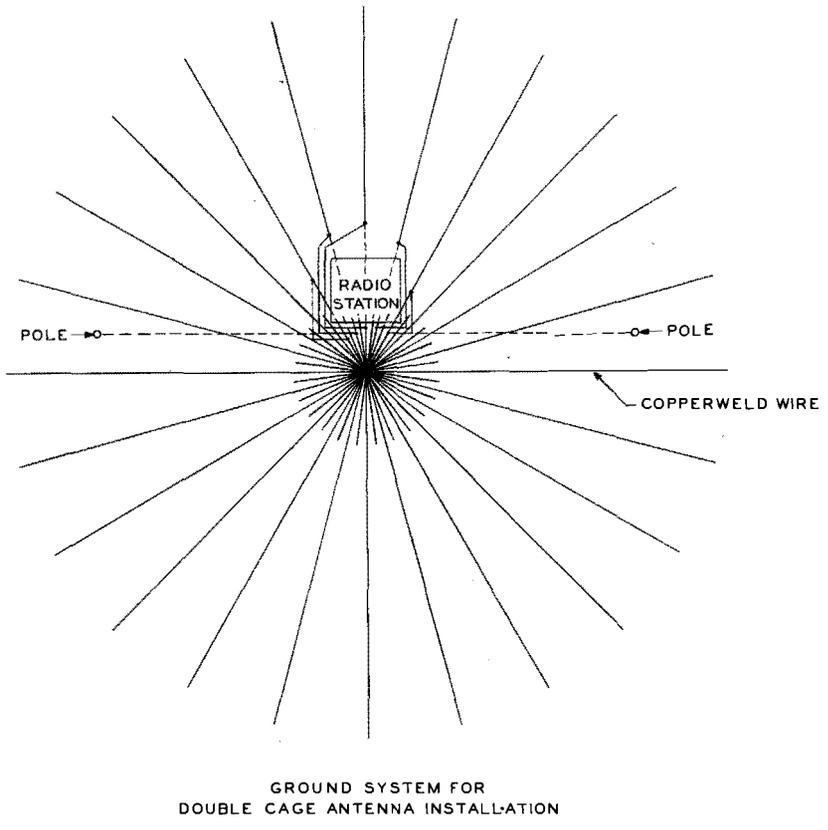
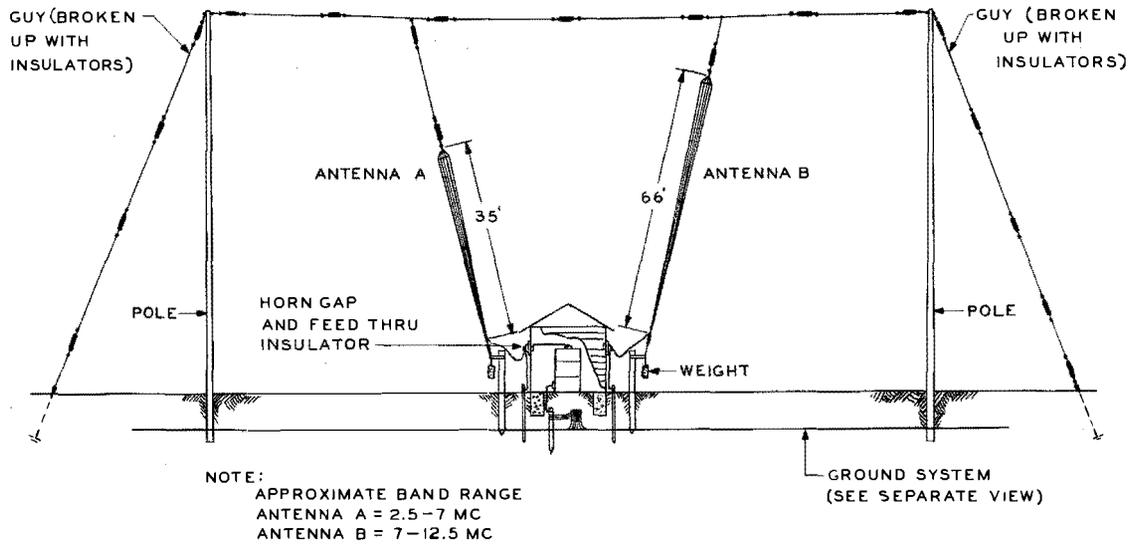


FIGURE 1541. Double Cage Antenna

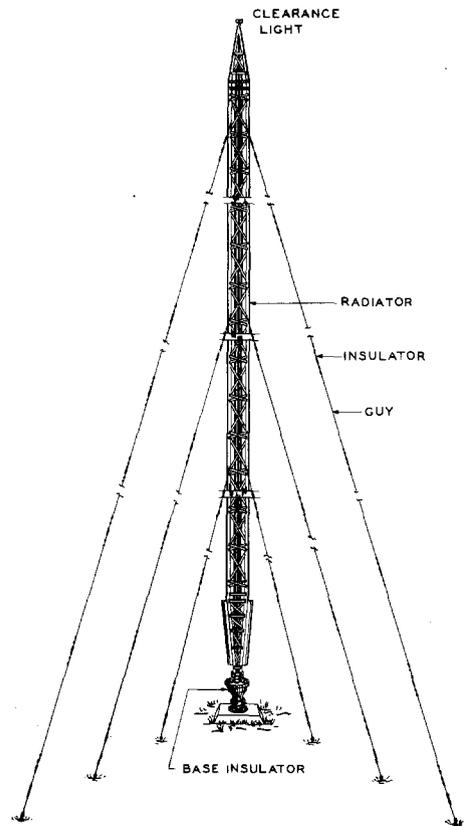


FIGURE 1542. Insulated Tower Antenna

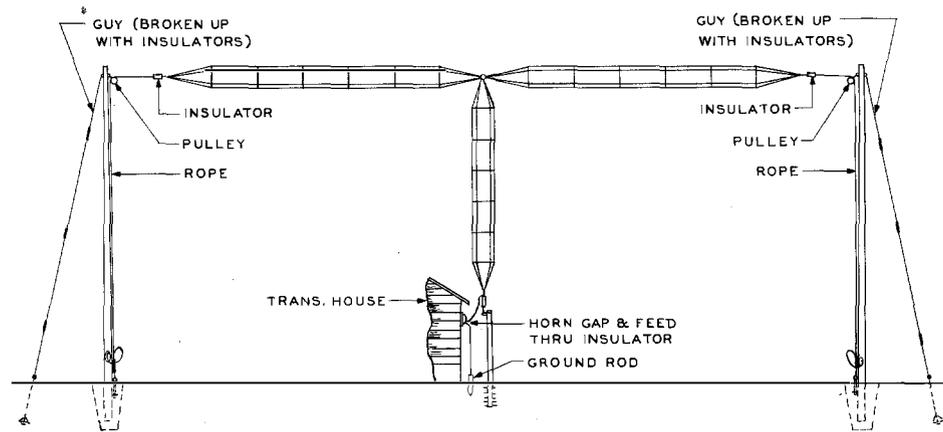
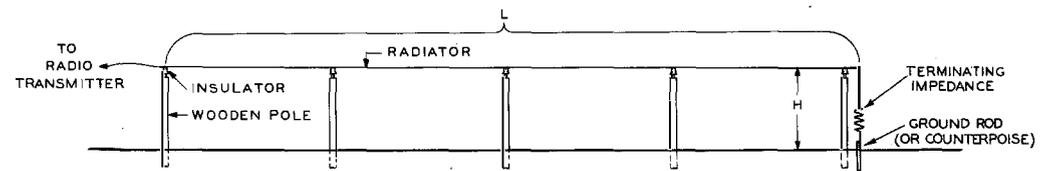


FIGURE 1543. T Cage Antenna



NOTE:  
 L = FROM  $\frac{1}{2}$  TO SEVERAL WAVE LENGTHS  
 H = ANY CONVENIENT HEIGHT (10 TO 20 FT)

FIGURE 1544. Wave Antenna

1429. TRANSMITTING EQUIPMENT COMMONLY USED BY AIRWAYS SECTION - ARMY COMMUNICATIONS SERVICE - STOCK NUMBERS AND LOGISTICAL DATA

<u>Type No.</u>	<u>Stock No.</u>	<u>Additional Equipment Required</u>		<u>Export Weight Lbs.</u>	<u>Export Volume Cu. Ft.</u>	<u>Ship Tons<sup>b</sup></u>
		<u>Type No.</u>	<u>Stock No.</u>			
BC-315	2C6315	Rect. & Modulator RA-18	2Z7510			
		Ant. Tuning Unit BC-316	2C526			
		Rem. Control Unit RM-5	2C7605			
BC-325-()	2C6325()	Rem. Control Unit RM-7-()	2C677()			
BC-339-()	2C6339()			2173	153	3.8
BC-340-() (Amplifier)	2C2940()	Transmitter BC-339-()	2C6339()	3080	143	3.6
		Rect. RA-22-()	3H4662			
		Water Cooling Unit RU-2-()	2ZA1002			
BC-365-()	2C6355()	Remote Control Unit RM-10-()	2C7610()	965	84	2.1
BC-401-()	2C6381()	Rect. & Modulator RA-30-()	2C7030()			
		Rem. Control Unit RM-11-()	2C7611			
BC-460-()	2C6400()	Rem. Control Unit RM-20-()	2C7620()			
BC-610	2C6910			868	43.4	1.1
BC-642	2C242	Modulator BC-643	2C2500-643			
		Rectifier RA-44	3H4683-44			
		Transformer and Contactor BC-644	3H6500-644			
		Rem. Control Unit RM-15	2C7615			
BC-1100-()	2C6596-1100()			700	40	1.0
RC-52-()	2C6903-52()			1750	50	1.3
T-4/FRC	2C6900-4	Rect. PP-1/FRC	3H4698-1			
		Mod. MD-1/FRC	2C2537-1			
		Opr's. Control Console CY-161/FRC (Formerly CS-212)	2C7604-212			
T-5/FRC	2C6900-5	Rect. PP-1/FRC	3H4698-1			
		Mod. MD-1/FRC	2C2537-1			
		Opr's. Control Console CY-161/FRC (Formerly CS-212)	2C7604-212			
Aircraft Accessories Corp. <sup>a</sup> 500B	2C6609					

<sup>a</sup>Type numbers assigned by the manufacturer.

<sup>b</sup>40 cu. ft. assumed equivalent to 1 ship ton.

<u>Type No.<sup>a</sup></u>	<u>Stock No.</u>	<u>Additional Equipment Required</u>		<u>Export Weight Lbs.</u>	<u>Export Volume Cu.Ft.</u>	<u>Ship Tons<sup>b</sup></u>
		<u>Type No.</u>	<u>Stock No.</u>			
Collins 32-RA	2C6632RA-()			237	18	0.5
Federal FT-300	2C6700			4333	305	7.6
Pan American Airways 12-ACX-2	2C6885			987	80	2.0
Pan American Airways 12-GLX-2	2C6908-1			2217	221	5.5
Pan American Airways RFA-50 (Amplifier)		Transmitter Pan American Airways 12-ACX-2	2C6885			
Press Wireless PW-1OLF	2C6888					
Temco 250-GSC	2C6825			773	35	0.9
Temco 1000-AG-CW	2C6800AG.1			3780	152	3.8
Western Electric Co. D-151249 (Pan American Airways 4WTFA)	2C6872			800 (Approx.)	33	0.8
Wilcox 96A	2C6840.1	Rect. & Modu- lator 26A or 26B Dialing Unit 168AB	2C7126() 2C7126B/P1			
Wilcox 96C and 96C-3	2C6840C	Rectifier 36A Modulator 50A Opr's. Control Console CY-161/FRC (Formerly CS-212)	3H4841 2C2510-50A 2C7604-212)			
Wilcox 96-200A	2C6845A	Rect. & Modula- tor 26A or 26B Opr's. Control Console CS-380	2C7126() 2C7604-380			
Wilcox 96-200B	2C6845B	Rect. & Modula- tor 26A or 26B Opr's. Control Console CS-380	2C7126() 2C7604-380			

<sup>a</sup>Type numbers assigned by the manufacturer.

<sup>b</sup>40 cu. ft. assumed equivalent to 1 ship ton.

1430. RECEIVING EQUIPMENT COMMONLY USED BY AIRWAYS SECTION - ARMY COMMUNICATIONS SERVICE - STOCK NUMBERS AND LOGISTICAL DATA.

<u>Type No.<sup>a</sup></u>	<u>Stock No.</u>	<u>Export Weight Lbs.</u>	<u>Export Volume Cu. Ft.</u>	<u>Ship Tons<sup>b</sup></u>
AN/FRR-3 Press Wireless Diversity	2S2001-3	1200	57	1.4
Federal 128-AY	2C4498	74	6	0.2
Hallcrafters S-22-R	2C4534.1	55	2	0.1
Hallcrafters S-27	2C4537-27	110	4	0.1
Hallcrafters SX-28 AN/GRR-3	2C4534-1	150	7	0.2
Hallcrafters S-29	2C4537-29	48	2	0.1
Hallcrafters S-36	2C4537-36	110	3.5	0.1
Hammarlund SP-110-LX	2C4528.4-1	130	6	0.2
Hammarlund SP-210-LX	2C4528.6	130	6	0.2
National NC-100-ASC AN/GRR-2	2C4529	125	6	0.2
National HRC	2C4529-21	100	4	0.1
Wilcox CW3	2C4547-2 2C5403 <sup>c</sup>	40 350	2.5 17	0.1 0.4
Wilcox 4 CW3-D	P4-31116	528	37	0.9
Wilcox F3	2C4547-1	40	2.5	0.1

<sup>a</sup> Except for AN/FRR-3, AN/GRR-2, and AN/GRR-3 the type numbers are those assigned by the manufacturer.

<sup>b</sup> 40 cu. ft. assumed equivalent to 1 ship ton.

<sup>c</sup> Wilcox 113A Receiver Bay consisting of eight CW3 Receivers.

**1431. COMBINED TRANSMITTING AND RECEIVING EQUIPMENT COMMONLY USED BY AIRWAYS  
SECTION - ARMY COMMUNICATIONS SERVICE - STOCK NUMBERS AND LOGISTICAL DATA**

<u>Type No.<sup>a</sup></u>	<u>Stock No.</u>	<u>Export Weight Lbs.</u>	<u>Export Volume Cu. Ft.</u>	<u>Ship Tons<sup>b</sup></u>
AN/CRC-3	See paragraph 1413			
Collins 18-Q (Navy TCS)		435	24	0.6
Jefferson Travis 350A	2C5516	425	13	0.3
Link 25-FMTR		165	14	0.4
Link 35-FMTR	2C5535	170	14	0.4
Link 50 UFS	2C5529	250	15	0.4
Link 1498	2C5520	250	15	0.4
Link 1505	2C5528	605	25	0.6
Motorola FMTR-25VM	2C5101	167	14	0.4
Motorola FMTR-50BW	2C5104( )	167	14	0.4

<sup>a</sup>Except for AN/CRC-3 the type numbers are those assigned by the manufacturer.

<sup>b</sup>40 cu. ft. assumed equivalent to 1 ship ton.

Section IV  
Antennas and Associated Equipment

**1432. GENERAL.**

a. This section supplies descriptive information and stock numbers for antennas, masts, towers and miscellaneous materials which may be required to construct radio antenna systems. As presented, the data are divided into tactical and fixed plant categories. This has been done for convenience and not with any idea of limiting the field of use of these antenna equipments, as some may be suitable for either tactical or fixed plant installations. Reference should be made to sketches of typical antennas in paragraphs 1408 and 1428.

b. Complete tactical antenna systems which are available in kit form are

listed and described in paragraph 1433. Materials such as wire, coaxial cable and supporting masts, which are used in the construction of antenna systems primarily for tactical use, are listed in paragraphs 1434 to 1437, inclusive. Some of the coaxial cables listed in paragraph 1435 are also used for purposes other than radio communication, but are included for completeness.

c. Metallic mast sections which are available for assembling vertical radiators (whips) for tactical ground use and for vehicular mounting are covered in paragraphs 1438 and 1439, respectively.

d. Paragraph 1440 gives information on accessories which are required in the construction of tactical antenna systems. Items such as counterpoises, ground rods, insulators, etc. are covered.

e. Fixed plant antenna systems which are available in kit form are listed in paragraph 1441. Paragraph 1442 describes two antenna coupling units, one being for use primarily with rhombic antennas and the other being a multicoupler for feeding up to ten receivers from a single antenna.

f. Base insulated radio towers which are employed in the fixed plant as vertical radiators are covered in paragraph 1443, and towers which are employed as antenna supports are covered in paragraph 1444.

g. Materials employed in the construction of ground systems for fixed plant vertical antennas are listed in paragraph 1445.

h. Equipment required for lighting fixed plant radio towers and antenna supports is listed in paragraph 1446.

#### 1433. ANTENNA KITS - TACTICAL.

a. Antenna Assembly AS-110( )/TRC-7; Stock No. 2A289-293. This antenna assembly consists of a broad band, lightweight, vertical conical dipole Antenna AS-112/TRC-7 (figure 1471) for use in the frequency range of 100 to 156 Mc and includes two 37-1/2-foot lengths of standard 52-ohm solid dielectric radio frequency coaxial transmission cable equipped with standard coaxial fittings, and includes components for constructing and installing a 30-foot aluminum supporting mast consisting of ten 3-foot sections. The complete assembly weighs 26-1/2 pounds net and is normally furnished as a part of Radio Set AN/TRC-7.

b. Antenna Equipment RC-63; Stock No. 2A278-63. The antenna is a vertical half rhombic unidirectional antenna similar to that shown in figure 1469. The assembly is used with, but not part of, Radio Set SCR-194, covering a frequency range of 27.7 to 52.2 Mc, Radio Set SCR-195, covering a frequency range of 52.8 to 65.8 Mc and Radio Sets SCR-609 and SCR-610, covering a frequency range of 27.0 to 38.9 Mc. The over-all antenna wire length is 100 feet, and is equipped with a counterpoise 85 feet long and a 500-ohm, 1-watt resistance termination. The assembly weighs 57 pounds net, including materials for constructing and installing a 32-foot supporting mast, consisting of four 8-foot sections. The equipment may be carried and erected by one man.

c. Antenna Equipment RC-291; Stock No. 2A289-291. The antenna is a ground plane antenna (figure 1472) for use in the frequency range of 40 to 48 Mc. The assembly includes a 60-foot length of standard 52-ohm solid dielectric radio frequency coaxial cable terminated in standard coaxial cable fittings, a coupling network for matching the coaxial cable to the output of Radio Set SCR-300, and a universal mounting base for fastening the antenna to a tree or pole. No antenna supporting mast is provided in the kit at present. The equipment is

used with, but is not part of Radio Set SCR-300 and weighs 28 pounds net.

d. Antenna Equipment RC-293; Stock No. 2A289-293. This equipment contains material for constructing an end-fed three-quarter wave antenna and includes two telescoping aluminum masts (extended length 25 feet), two guy assemblies, each with its stakes and polystyrene insulator attached, 300 feet of Wire W-148 on spool, one 100-foot steel measuring tape and one Bag BG-193.

It is supplied as a part of Installation Kit MC-549 for mounting Radio Set SCR-499 in a 1/4-ton, 4 x 4 truck and is for use when at fixed locations. In this application, use is made of radial Counterpoise CP-15 which is normally furnished with the radio set.

e. Antenna System AS-19( )/TRC-1; Stock No. 2A264-19. This antenna system contains all the equipment necessary to erect a three-element, horizontally polarized, directional array (figure 1470) for use in the 70-100 Mc range. It includes adjustable Antenna Array AS-20/TRC-1, eleven 5-foot steel sections and nylon guys for constructing, supporting and erecting a 40-foot 2-1/2 inch diameter, rotatable mast, four 50-foot lengths of 52-ohm solid dielectric coaxial cable RG-8/U terminated in standard coaxial cable fittings, and required installation equipment. The antenna array provides a forward gain of about 6 db and a front-to-back ratio of approximately 8 db. Two assemblies are normally furnished with Radio Set AN/TRC-1 and Radio Terminal Set AN/TRC-3, and four with Radio Relay Set AN/TRC-4. An Extension Kit MX-141/TRC-1 (Stock No. 2A1591-141) (consisting of five 60-foot guys and one guy plate) is available for raising the antenna from 40 to 50 feet when only one antenna of the two supplied with the AN/TRC-1 set is required. By lowering the antenna to the ground it may be readily readjusted to operate on any frequency between 70 and 100 Mc. The assembly is normally packed in two carrying chests, one of which weighs approximately 90 pounds and the other approximately 300 pounds packed.

f. Doublet Antenna Kit; Stock No. 2A1652. This is a half-wave doublet antenna kit per Specification 71-1683 for use with Radio Sets SCR-399 and SCR-499 for improving skywave transmission, thus increasing the range and reliability of operation of these radio sets.

Materials are provided for constructing a half-wave center-fed doublet antenna for use in the 2 to 18 Mc frequency range, including 50 feet of 72-ohm solid dielectric flexible coaxial transmission line, 250 feet of Wire W-28, twenty-one 5-foot steel tubing mast sections for constructing three 35-foot supports (one at each end and one in the middle to support the weight of the transmission line), necessary guys and insulators, and coils for coupling to the output tank circuit of Radio Transmitter BC-610.

(Another Doublet Antenna Kit, similar to that above except including variable

link tank coils for insertion in Radio Transmitter BC-610 instead of the old tank coils and coupling coils mentioned above, is now furnished with Radio Sets SCR-299, SCR-399, and SCR-499. When cir-

cumstances permit, Radio Sets SCR-399 and SCR-499 will be delivered equipped with these variable link tank coils and such coils will then no longer be included as a part of this Doublet Antenna Kit.)

1434. WIRE USED FOR ANTENNA EQUIPMENT - TACTICAL.

Type No.	Stock No.	Solid or Equiv. AWG (B&S) Gauge	No. of Strands and Gauge of Each Conductor	Material	Insulation	Breaking Load Lbs.	Wt. Per 1000 Ft. in Lbs.	Remarks
W-28	1A28	12	7/20	Bronze	Bare	550	23.5	Antenna
W-29	1B29	16	42/32	Bronze	Black Weather-proof Cotton Braid	200	14.4	Antenna
W-30	1B30	16	42/32	Bronze	Rubber	200	70	Counterpoise
W-120	1A120	16	42/32	Silicon Bronze	Bare		8	Conductor composed of 6 groups of 7 strands each twisted around a 5 ply cotton cord so as to make a solid cylindrical conductor. Same as Wire W-29, except without insulation.
W-128	1B128	14	41/30	Tinned Copper	Rubber			Aircraft ignition cable with ozone-resisting rubber insulation. Used for antenna and ground connections for vehicular radio sets.
W-140	1B140	18	16/30	Tinned Copper	Rubber and Black Cotton Braid			Extra flexible. Belden Mfg. Co.
W-146	1B146	12		Tinned Copper	Rubber and Black Cotton Braid			Flexible lead-in wire. Similar to Wire W-128 except improved for high frequency transmission
W-148	1A148	0.035	16/35	Phosphor Bronze	Bare	50		Antenna; 300 ft. length; used with, but not part of, Reel RL-48

## 1435. COAXIAL CABLES FOR RADIO FREQUENCY TRANSMISSION LINES.

Army Navy Type No.	Stock No.	Replaces Old Cable Number	Inner Conductor	Nominal Diameter <sup>a</sup> Dielectric (In.)	Number of Shielding Braids	Protective Covering	Nominal Over-all Dia. (In.)	Weight Pounds Per Foot	Nominal Imped- ance Ohms	Nominal Capacitance Per Foot	Maximum Attenuation db/ft		Max. Oper- ating Voltage RMS	Average Power Rating (Watts) <sup>b</sup>		Remarks
											100 MC	3000 MC		200 MC	3000 MC	
RG-5/U		RMA 16 <sup>c</sup>	16 A.W.G. Copper	0.185	2	Vinyl	0.332	0.087	51	30	0.04	0.28	3,000	310	65	Small microwave cable
RG-6/U		KS-9168 <sup>c</sup> KS-9226 <sup>c</sup>	21 A.W.G. Copperweld	0.185	2	Vinyl	0.332	0.082	75	20	0.037	0.26	2,700	-	-	Small size video and I.F. double shielded cable
RG-7/U	1F425-7	AS-48, WC547 62064, K31 <sup>c,d</sup> 21B-225-7/30-XV <sup>c,d</sup>	19 A.W.G. Copper	0.250	1	Vinyl	0.370	0.080	95	14 (max.)	0.030	-	-	-	-	Low capacitance air spaced dielectric cable
RG-8/U	1F425-8	PT5, WC543 WC549 CASSF-50-1	7/21 A.W.G. Copper	0.285	1	Vinyl	0.405	0.106	52	29	0.027	0.25	4,000	480	90	General purpose, medium size, flexible cable
RG-9/U		B452	7/21 A.W.G. Copper	0.280	2	Vinyl	0.420	0.150	52	29	0.027	0.25	4,000	480	90	Double shielded, medium size, low level circuit cable
RG-10/U	1F425-10	CASSF-50-1A	7/21 A.W.G. Copper	0.285	1	Vinyl and Armor	0.445	0.148	52	29	0.027	0.25	4,000	480	90	Same as RG-8/U armored for Naval equipment
RG-11/U	1F425-11	WC552 WC562 <sup>c</sup> CASSF-70-1 <sup>c</sup>	7/26 A.W.G. Copper	0.285	1	Vinyl	0.405	0.096	75	20	0.027	0.25	3,500	-	-	Medium size, flexible video and communication cable
RG-12/U		CASSF-70-1A <sup>c</sup>	7/26 A.W.G. Copper	0.285	1	Vinyl and Armor	0.445	0.141	75	20	0.027	0.25	3,500	-	-	Same as RG-11/U armored for Naval equipment
RG-13/U	1F425-13	21B-290-7/26-XXV B492	7/26 A.W.G. Copper	0.280	2	Vinyl	0.420	0.126	75	20	0.027	0.25	3,500	-	-	Double shielded I.F. cable
RG-14/U	1F425-14	RMA 10 KS-9269 <sup>c</sup>	10 A.W.G. Copper	0.370	2	Vinyl	0.545	0.216	51	30	0.022	0.20	6,000	730	135	General purpose semi- flexible power transmission cable
RG-15/U	1F425-15	KS-9220	15 A.W.G. Copperweld	0.370	2	Vinyl	0.545	0.197	75	20	0.022	0.20	5,500	650	115	Medium power cable designed for continuous flexing
RG-16/U		KS-9286	0.125 Copper Tube	0.460	1	Vinyl	0.630	0.254	52	30	0.018	0.16	7,500	940	165	Medium power cable with hollow inner conductor for pressurization
RG-17/U		CASSF-50-2 KS-9256	0.188 Copper	0.680	1	Vinyl	0.870	0.460	51	30	0.014	0.15	11,000	1,460	225	Large, high power trans- mission cable
RG-18/U	1F425-18	CASSF-50-2A	0.188 Copper	0.680	1	Vinyl and Armor	0.910	0.585	51	30	0.014	0.15	11,000	1,460	225	Same as RG-17/U armored for Naval Equipment
RG-19/U		CASSF-50-3	0.25 Copper	0.910	1	Vinyl	1.12	0.740	51	30	0.012	0.125	14,000	2,050	285	Very large high power trans- mission cable
RG-20/U	1F425-20	CASSF-50-3A	0.25 Copper	0.910	1	Vinyl and Armor	1.16	0.925	51	30	0.012	0.125	14,000	2,050	285	Same as RG-19/U armored for Naval equipment.

Army Navy Type No.	Stock No.	Replaces Old Cable Number	Inner Conductor	Nominal Diameter of Dielectric <sup>a</sup> (In.)	Number of Shielding Braids	Protective Covering	Nominal Over-all Dia. (In.)	Weight Per Foot	Nominal Imped- ance Ohms	Nominal Cap. Per Foot	Maximum Attenuation db/ft		Max. Oper- ating Voltage RMS	Average Power Rating (Watts) <sup>b</sup>		Remarks
											100 MC	3000 MC		200 MC	3000 MC	
RG-21/U	1F425-21	KS-9230	16 A.W.G. Resistance Wire	0.185	2	Vinyl	0.332	0.087	51	30	0.16	0.93	-	-	-	Special attenuating cable with small temperature coefficient of attenuation
RG-22/U	1F425-22	WC551	2 Cond. 7/26 A.W.G. Copper	0.285	1	Vinyl	0.405	0.107	95	17	0.04	-	1,000	-	-	Small size, twin conductor cable
RG-23/U	1F425-23	B601 B602	2 Cond. 7/21 A.W.G. Copper	0.400	2	Vinyl	0.650 x 0.905	0.490	125	13	0.05	-	3,000	-	-	Balanced dual coaxial cable
RG-24/U	1F425-24	B601A B602A	2 Cond. 7/21 A.W.G. Copper	0.400	2	Vinyl and Armor	0.715 x 1.010	0.670	125	13	0.05	-	3,000	-	-	Same as RG-23/U armored for Naval equipment
RG-25/U	1F425-25	A2, 62101 KS-8623 <sup>c</sup> KS-9311	19/0.0117 Tinned Copper	0.308 <sup>f</sup>	2	Neoprene	0.565	0.205	50	60	1 MC 0.007	-	8,000 (Peak)	-	-	Medium size, pulse cable
RG-26/U	1F425-26	AA1 KS-9347	19/0.0117 Tinned Copper	0.308 <sup>f</sup>	1	Vinyl and Armor	0.475	0.280	50	60	1 MC 0.007	-	8,000 (Peak)	-	-	Similar to RG-25/U armored for Naval equipment
RG-27/U		B1, 62102 KS-9036	19/0.0185 Tinned Copper	0.455 <sup>f</sup>	1	Vinyl and Armor	0.650	0.273	50	60	1 MC 0.004	-	17,000 (Peak)	-	-	Large size pulse cable armored for Naval equipment
RG-28/U		B2 62103	19/0.0185 Tinned Copper	0.455 <sup>f</sup>	2	Neoprene	0.805	0.370	50	60	1 MC 0.004	-	17,000 (Peak)	-	-	Large size pulse cable
RG-39/U	1F425-39	KS-8086	22 A.W.G. Copperweld	0.196 <sup>e</sup>	2	Waxed Cotton Braid	0.292	0.10	70	28	10 MC 0.018	-	1,000	-	-	Rubber cable to be used where high flexibility is required
RG-41/U	1F425-41	62039 <sup>c</sup> KS-8496 <sup>c</sup>	16/30 A.W.G. Tinned	0.250 <sup>e</sup>	1	Neoprene	0.425	0.15	70	28	10 MC 0.014	-	1,000	-	-	Rubber cable used for twisting applications
RG-57/U	1F425-57	RG-43/U TCSSF-95-1 WC550	2 Cond. 7/21 A.W.G. Copper	0.472	1	Vinyl	0.617	0.225	95	17	0.04	-	3,000	-	-	Large size twin conductor cable
RG-58/U	1F425-58	RG-4/U <sup>c</sup>	20 A.W.G. Copper	0.116	1	Vinyl	0.195	0.025	51	30	0.062	0.403	1,900	160	35	General purpose small size flexible cable
RG-59/U		Uniradio 32 <sup>c</sup> EX-391C	22 A.W.G. Copperweld	0.146	1	Vinyl	0.242	0.032	70	22	0.050	0.33	2,300	225	45	General purpose small size video cable

<sup>a</sup>All cables have dielectric material of stabilized polyethylene unless noted otherwise.

<sup>b</sup>Average power rating calculated on basis of inner conductor having 70°F rise in temperature above ambient.

<sup>c</sup>Replaces with minor mechanical variations.

<sup>d</sup>Replaces with minor electrical variations.

<sup>e</sup>Dielectric material is synthetic rubber compound.

<sup>f</sup>The dielectric material is a synthetic rubber compound with layers of conducting rubber and the diameter is that over the second layer of conducting rubber.

1436. MAST ASSEMBLIES FOR SUPPORTING ANTENNAS - TACTICAL.

a. 50-Foot Plywood Mast AB-38/CR; Stock No. 2A2056. This lightweight mast (Maryland Engineering Company #3050) is composed of eight 6-foot 3-inch long cylindrical plywood sections fastened together by metal couplings and supported by 8 guy ropes. It may be assembled and raised by two men in about one hour and it is shipped in a single bundle 7 x 1 x 1 feet, weighing about 120 pounds, including complete accessories and tools. It is used with, but is not part of, Radio Set AN/CRC-3.

b. 30-Foot Plywood Mast; Stock No. This lightweight mast (Maryland Engineering Co. #2630) is composed of eight 45-inch long cylindrical plywood sections fastened together by metal couplings and supported by 8 guy ropes. It can be transported, assembled and erected in the field by one man. The entire mast, accessories and tools are packed into a canvas carrying bag 11 inches in diameter and 4 feet 9 inches long and weighs approximately 49 pounds.

1437. MAST SECTIONS FOR ANTENNA SUPPORTS.

a. General. This paragraph gives information on mast sections which may be employed in constructing masts for supporting antennas. In addition to the material listed, other items such as guy ropes, ground stakes and other rigging are required. See paragraph 1440.

b. Mast Sections MS-18 to MS-22 Incl.

(1) DESCRIPTION. Mast Sections MS-18 to 22 inclusive are 8-1/2 foot long spruce sections which may be joined to form a supporting mast 42 feet or more in height. The two upper sections are 2-1/2 inches in diameter and the three other sections are 3-1/4 inches in diameter. The intermediate sections have a hole in one end and a coupling tube projecting 12 inches on the other end. The top section has a hole in each end, one to fit Mast Cap MP-6 and the other to fit over the coupling tube of the next lower section. The bottom section has a coupling tube at each end, one to fit Insulator IN-4 and the other to fit into the hole of the next higher section.

(2) STOCK NUMBERS

Mast Section	Location	Supported by	Stock No.
MS-18	Top	MS-19	2A2318
MS-19	Intermediate	MS-19 or 20	2A2319
MS-20	Intermediate	MS-20 or 21	2A2320
MS-21	Intermediate	MS-21 or 22	2A2321
MS-22	Bottom	IN-4	2A2322

c. Mast Section MS-44; Stock No. 2A2344. This is a 5-foot long aluminum alloy tube equipped with an aluminum alloy sleeve which protrudes an additional 6 inches. The outside diameter of sleeve is 1.355 inches. Sections may be fitted end to end to form an antenna supporting

mast 30 feet high. Normally used with Mast Base MP-19 (Stock No. 2A2079) and Guy Plate MP-20 (Stock No. 2A1350).

d. Mast Section MS-44-A; Stock No. 2A2344A. This is the same as MS-44 except that it is made of cold rolled electric welded steel tubing, SAE-1010 unannealed.

e. Mast Section MS-91 to MS-94 Incl.

(1) DESCRIPTION. Mast Sections MS-91 to MS-94 inclusive are straight grain fir sections 8 feet long x 1-19/32 inches in diameter which may be joined to form a 32-foot antenna support. Brass tubing and sleeves are fitted to the ends of the mast sections for making connections to other sections. They are a part of Antenna Equipment RC-63.

(2) STOCK NUMBERS.

Mast Section	Location	Supported by	Stock No.
MS-91	Top	MS-92	2A2391
MS-92	Intermediate	MS-93	2A2392
MS-93	Intermediate	MS-94	2A2393
MS-94	Bottom	-	2A2394

1438. METALLIC MAST SECTIONS FOR VERTICAL RADIATORS FOR GROUND USE.

a. Mast Sections MS-49 to MS-56 Incl.

(1) DESCRIPTION. Mast Sections MS-49 to MS-56 inclusive may be joined to form an antenna 25 feet high. They are made of chrome molybdenum steel tubing 37 inches long. The ends of the mast sections are painted different colors to facilitate the lining up of mast sections during assembly. They are a part of Radio Sets SCR-178, 179, 203 and 284-A.

(2) STOCK NUMBERS.

Mast Section	Location	Outside Diam. - Inches	Supported by	Stock No.
MS-49	Top	0.179	MS-50	2A2349
MS-50	Intermediate	0.265	MS-51	2A2350
MS-51 <sup>a</sup>	Intermediate	0.357	MS-52	2A2351
MS-52 <sup>b,c</sup>	Intermediate	0.438	MS-53	2A2352
MS-53	Intermediate	0.500	MS-54	2A2353
MS-54 <sup>b</sup>	Intermediate	0.562	MS-55	2A2354
MS-55	Intermediate	0.593	MS-56	2A2355
MS-56	Bottom	0.625	IN-85 or IN-91	2A2356

<sup>a</sup>Also fits Mast Base MP-22.

<sup>b</sup>Also fits Mast Bases MP-14, 14-A, 37, 48 and 57.

<sup>c</sup>Seating plug and threads will also fit into upper end of MS-55.

b. Mast Sections MS-65 to 73 Incl.

(1) DESCRIPTION. Mast Sections MS-65 to MS-73 may be joined to form a 45-foot vertical antenna. They are made up of aluminum sections 66 inches long. These mast sections are a part of Radio Set SCR-197.

(2) STOCK NUMBERS.

Mast Section	Location	Outside Diam. - Supported		Stock No.
		Inches	by	
MS-65	Bottom	2-1/4	Insulator IN-102 <sup>a</sup>	2A2365
MS-66	Intermediate	2-1/4	MS-65	2A2366
MS-67	Intermediate	2	MS-66	2A2367
MS-68	Intermediate	1-3/4	MS-67	2A2368
MS-69	Intermediate	1-1/2	MS-68	2A2369
MS-70	Intermediate	1-1/4	MS-69	2A2370
MS-71	Intermediate	1	MS-70	2A2371
MS-72	Intermediate	3/4	MS-71	2A2372
MS-73	Top	3/8	MS-72	2A2373

<sup>a</sup> Part of MS-65.

1439. METALLIC MAST SECTIONS FOR VEHICULAR RADIATORS.

a. Mast Sections MS-49 to 53, Incl. These masts are commonly used with Mast Bases MP-37 or MP-57 on vehicular installations to form a 15-foot whip antenna. They are also used for ground installations as covered in paragraph 1438 a.

b. Mast Sections MS-116, 117 and 118. (1) DESCRIPTION. These mast sections are copper plated seamless tubing 39-1/2 inches long. They are fastened together by female and male threads at the top and bottom respectively. A 6-foot whip antenna made up of two Mast Sections MS-117 and 118 with Mast Base AB-15/GR can be used to replace Mast Sections MS-52 and 53 with Mast Base MP-48. A 9-foot whip antenna made up of one each of Mast Sections MS-116, 117 and 118 with Mast Base AB-15/GR can be used to replace MS-51, 52 and 53 with Mast Base MP-48 or 48-A. A 15-foot whip made up of one each of Mast Sections MS-116, MS-117 and MS-118 with Mast Base MP-65 can be used to replace Mast Sections MS-49 to 53 inclusive with Mast Base MP-37 or MP-57.

(2) STOCK NUMBERS

Mast Section	Diameter - Inches	Supported by	Stock No.
MS-116	3/8	MP-65 or AB-15/GR	2A2416
MS-117	3/8 tapering to 1/4	MS-116	2A2417
MS-118	1/4 tapering to 1/8	MS-117	2A2418

1440. ACCESSORIES USED IN CONSTRUCTING TACTICAL ANTENNAS.

a. The following materials, listed alphabetically, are commonly used in constructing antennas for use with tactical radio sets.

Name and Description	Stock No.
Block FT-127: Single swivel eye; malleable iron, galvanized. Part of Radio Sets SCR-177-( ) and SCR-188-( ).	2A347
Counterpoise CP-12: Metal clamp bar with stud and wing nut and two 25-foot lengths of wire on each end. One end also has a 48-inch lead-in wire. Used with Counterpoise CP-13. Part of Radio Set SCR-284-A.	2A712
Counterpoise CP-13: Same as Counterpoise CP-12 except that it has no lead-in wire and clamp has a slot for slipping into place under the wing nut of Counterpoise CP-12. Part of Radio Set SCR-284-A.	2A713
Fastener FT-9: 5/8 x 3 inch cast iron slide adjuster for test and antenna guy ropes.	2Z4309
Fitting FT-128: Cadmium-plated steel, rope wedge. Part of Radio Sets SCR-177-( ) and SCR-188-( ).	2A1128
Fitting FT-148: Guy rope fitting; same as fitting FT-128 except one end enlarged to take a larger thimble measuring approximately 1/4 inch square at end. Part of Guys GY-22, GY-23 and GY-24.	2A1148
Ground Rod GP-16: A round galvanized iron rod, 1/2 inch diameter, 24 inches long, pointed at one end and equipped with a loose iron ring at the other end; the rod is slightly flattened 3/4 inch below the ring and a machine screw for making line connections is threaded through the rod. Formerly called "Type E". Net weight 1.5 pounds.	5B4416
Ground Rod GP-24: Hexagonal galvanized steel rod; 18 inches long; pointed on one end and bent in a goose-neck with 10 feet of insulated wire at the other end. Net weight 1 pound.	4G724
Ground Rod GP-26: Round galvanized iron rod; 1/2-inch diameter, 6 foot long; one end pointed; other end has copperwire with free end 5 inches long for attaching to ground wires. Hubbard No. 9506 or equal. Net weight 4 pounds.	5B4426

<u>Name and Description</u>	<u>Stock No.</u>	<u>Name and Description</u>	<u>Stock No.</u>
Ground Rod GP-28: Hubbard No. 9425 rod (modified); copper-weld, with clamp and 8 foot lead of No. 8 stranded wire. 4 feet long x 1/2 inch diameter. Used to ground Truck K-18-( ). Part of Radio Set SCR-197-( ). Net weight 4 pounds.	3Z3328	Rope RP-3: Sash cord; No. 5; white braided cotton, No. 12 yarn; 5/32 inch diameter to 11/64 inch diameter.	6Z7925
Ground Rod GP-29: Steel pipe, 33 inches long, with pointed end, a driving head and means for attaching ground lead. Net weight 8 pounds.	3Z3329	Rope RP-5: Sash cord; No. 6; white; 3/16 inch diameter, minimum breaking strength 200 pounds.	6Z7926
Hook FT-93: S shape, cold-rolled steel; cadmium-plated; with open links; over-all dimensions, 2-1/4 x 1 x 1/4 inches thick. Part of Ring FT-74. Net weight 1-1/4 ounce.	2A1493	Rope-Nylon: 1150 foot length, 3/16 inch diameter; olive drab, 3 strands; 650 pounds test, very slightly affected by moisture.	6Z7920
Hook FT-131: S shape, cold-rolled steel; cadmium-plated; with open links; over-all dimensions, 2 x 7/8 x 3/16 inches thick. Similar to Hook FT-93 except different dimensions. Part of Guy GY-34 and Radio Sets SCR-177-( ) and SCR-188-( ). Net weight one ounce.	2A1501	Snap FT-126: Polo bit; steel; cadmium-plated. Part of Radio Sets SCR-177-( ) and SCR-188-( ).	2A3212
Insulator IN-55: Strain; hard-rubber; 3-1/2 inches long x 5/8 inch diameter; has a hole 7/32 inch diameter through each end.	3G555	Stake GP-2: Solid galvanized iron rod; 16 inches long x 3/4 inch diameter, head 1-1/8 inch diameter; used for fastening guy ropes and antennas.	2A3302
Insulator IN-86: Strain; Isolantite body 2 inches long x 3/4 inch diameter, with 9/16 inch eye bolt screwed into each end; Isolantite may be replaced if broken and eye bolts used again. Part of Radio Sets SCR-177-( ) and SCR-188-( ).	3G586	Stake GP-8: Ground; 18 inches long; 3/8 inch steel gas pipe with a rivet on the upper end; the lower end is pointed; binding post attached on one side, 2-3/4 inches from head.	2A3308
Insulator IN-87: Spreader; for transmission line to half-wave antenna; consists of Isolantite body 5/8 inch diameter x 2-3/4 inch long, with a catch at each end.	3G587	Twine RP-11: Braided; breaking strength, 70 to 80 pounds; treated with insulating compound.	6Z8811
Insulator IN-88: Strain, cylindrical; Grade G ceramic per spec. 71-229; 1/2 inch diameter x 2-3/4 inches long; an improvement over Insulators IN-78 and IN-78-A. For use in aircraft antennas where a small strain type may be required; test load 300 lbs.	3G588		
Line Clamp: (Stanley Pull-Tite No. 7070) For use on 3/16 inch nylon rope in place of Fastener FT-9; causes less wear on the rope.			
		<u>1441. ANTENNA KITS - FIXED PLANT.</u>	
		a. <u>General.</u> Drawings accompany each of the antenna kits described below, giving design dimensions for the antennas for all frequencies within their range of usefulness. The materials provided in the antenna kit are sufficient to construct the largest antenna shown in these designs.	
		b. <u>Rhombic Transmitting Antenna;</u>	
		<u>Stock No.</u>	
		Antenna, Horizontal Rhombic, Transmitting; per Signal Corps drawing ES-E-368-C (less poles, guys, transmission line and dissipation line).	
		Dissipation Line Kit, for Rhombic Transmitting Antenna, per Signal Corps drawing ES-E-368-C.	
		Pole Guy Kit, type 75PXX, Signal Corps drawing ES-B-32502-A. Extra heavy duty. Two required for antenna supported with poles. For long diagonal.	
		Pole Guy Kit, type 75PX, Signal Corps drawing ES-B-32500-A. Heavy duty. Two required for antenna supported with poles. For short diagonal.	
		Transmission Line Kit, for Rhombic Transmitting Antenna, Signal Corps drawing ES-E-368-C.	

c. Doublet Transmitting Antenna, Delta; Stock No.

Antenna System, Doublet Transmitting Delta match, Signal Corps drawing ES-D-252-E, less supports.

Pole Guy Kit, type 75P, per Signal Corps drawing ES-D-252-E. (Light duty type. 2 required with each Doublet Antenna when used with poles.)

d. Intermediate Frequency Antenna; Stock No. 2A299-GP7.

Antenna, Intermediate Frequency, Transmitting, 5-wire flat-top, Signal Corps drawing ES-E-335-B.

e. Double Vertical Cage; Stock No. 2A299-GP2.

Antenna System, dual vertical cage, Signal Corps drawing ES-E-299-B (less supports and ground system).

f. Rhombic Receiving Antenna; Stock No.

Antenna Kit, Rhombic Receiving per Signal Corps drawing ES-E-386-C (less transmission line).

Transmission Line Kit, for Rhombic Receiving Antenna, per Signal Corps drawing ES-E-386-C (500 ft.)

Pole Guy Kit, type 75P, per Signal Corps drawing ES-B-19424-B. (Light duty type. 4 required for each Rhombic Receiving Antenna, when used with poles.)

g. Double-Doublet Receiving Antenna, Stock No.

Antenna Kit, Double-Doublet, Receiving per Signal Corps drawing ES-E-276 (less supports, but including 150 feet of transmission line).

Transmission Line Kit, per Signal Corps drawing ES-E-386-D. (1 required for each Double-Doublet Antenna if over 150-foot line is required.)

Pole Guy Kit, type 75P, per Signal Corps drawing ES-B-19424-C. (Light duty type. 2 required for each Double-Doublet when used with poles.)

h. Resonated Vertical Whip, Receiving; Stock No. 2A298.

Antenna, receiving vertical whip, adjustable, with resonating circuit box, less coils and condensers (Signal Corps drawing ES-D-348-C).

1442. ANTENNA COUPLING UNITS.

a. Antenna coupling transformer, Western Electric Co. D-163678 (Stock No. 2C471) is intended to operate over the frequency range of 4 to 20 Mc between a balanced horizontal rhombic receiving antenna and an unbalanced 72-ohm coaxial transmission line, or between a 200-ohm balanced line and an unbalanced 72-ohm coaxial transmission line. It is equipped with lightning protector gaps. The overall dimensions of the transformer are 12 x 11-3/8 x 14 inches.

b. Antenna Multicoupler, R.C.A. Model S-8853-1 (Stock No. 2A2698) for use in the frequency range of 4 to 24 Mc, provides facilities for feeding up to ten receivers from a single antenna. By its use, excessive loss due to the paralleling of numerous receiver input circuits is avoided. Crosstalk interference from

the high-frequency oscillators in the receivers is effectively reduced and radiation by the antenna minimized. The Antenna Multicoupler is supplied with two input transformers. One, with unbalanced input, is designed to work from a 75-ohm coaxial line and the other, with balanced input, has windings which are connected in parallel for input impedances between 75 and 300 ohms and in series for impedances between 300 and 1000 ohms. The output of the multicoupler appears as ten separate circuits, each being terminated in a Western Electric 75-ohm coaxial jack (WE-464A) which may be connected to the receivers through either 50 or 75-ohm coaxial cable. This multicoupler utilizes thirteen 6AC7 vacuum tubes for isolation purposes. An AC or DC filament supply of 6.3 volts and 5.9 amperes and a DC plate supply of 125 to 135 volts and about 0.13 ampere is required for operation. The multicoupler weighs 9 pounds without tubes and is arranged to mount on a standard 19-inch rack, occupying 5-1/4 inch of vertical space and a depth, including tubes, of 5-1/4 inch.

1443. BASE INSULATED TOWERS USED AS VERTICAL RADIATORS - FIXED PLANT.

a. 180-Foot Windcharger, Type 101.

(1) DESCRIPTION. The 180-foot Windcharger Type 101 tower is of the guyed vertical type with base insulation. It consists of nine 20-foot sections triangular in shape and lattice braced, with guys at 5 different levels, 3 to each level. Erection of the tower is accomplished by first setting up the bottom 20-foot section on the base insulator and then through use of a gin pole arrangement raising additional 20-foot sections, fitting each on top of the other until the tower is full height. The tower is supplied complete with all guys, plates, insulators, concrete for base, gin pole, and all tools and other accessories required for its erection. The base insulator supplied is Lapp Type 10027 or a Locke type 91439, which has a dry flashover of 75 KV and a wet flashover of 35 KV. If the tower is to be used at low frequencies (150 to 450 KC) with a power exceeding 2 KW, guy insulators suitable for the high voltage developed should be ordered separately. This tower is suitable for use with such transmitters as the T-5/FRC, Wilcox 96-200, BC-365, etc.

(2) MATERIAL LIST.

Quantity	Name	Stock No.
1	Windcharger tower, complete with base insulator, guys, anchors, etc.	2A3451
50	Suspension type insulators	3G1350-38
As Required	Pole Lighting Material	(par. 1446b)
As Required	Material for Ground or Counterpoise	(par. 1445b)
1	Transformer tower lighting unit, Type I	(par. 1446a)

**b. 125-Foot Self-Supporting (BlawKnox)**

(1) DESCRIPTION. 125-foot self-supporting insulated towers were procured on CAA Specification 98. The towers are of two types. Blaw Knox Type 9A is a heavy duty tower and the Blaw Knox Type 10 is the standard tower. The 9A should be specified where extreme wind and icing conditions prevail. Both are of the 5 point suspension type, having 4 compression type insulators supporting the corner members and 1 compression type for the center hold down. They are equipped with a ladder to the top and are furnished with standard CAA lighting which includes prismatic type fixtures. These towers are primarily intended for use with the CAA 400 watt SHA radio range. However, they are available for other uses such as homing or low frequency point-to-point communication installations. Base insulators have a dry flashover of 40 KV at 60 cycles and will withstand 12 KV unmodulated RF at 400 KC. The insulation is suitable for powers up to 1000 watts at low frequencies. The towers are supplied complete with lighting fixtures, a counterpoise system consisting of a steel mesh 50-foot square mounted on a steel frame, small tools and complete instructions for installation. No base material other than base steel members is furnished.

(2) MATERIAL LIST

Quantity	Name	Stock No.
1	Blaw Knox Type 10 (Standard)	2A3449
or 1	Blaw Knox Type 9A (Heavy Duty) (Both towers are complete except for isolating lighting transformer)	
1	Transformer, tower lighting unit Type II	(par. 1446a)

**c. 90-Foot Insulated Tower.**

(1) DESCRIPTION. This 90-foot guyed insulated tower is of triangular lattice construction. It is equipped with one set of guys located 30 feet from the top of the tower. The guys are attached to a special compression type insulator which simplifies greatly the guy insulation problem. The tower rests on a special compression type insulator. The sub-base is steel of pyramid design and is buried in the ground over most of its height and therefore requires no concrete. The tower is erected by fitting a section at a time on the bottom and jacking up the entire tower with a special jack arrangement. Complete erection details are furnished. The tower is normally used with a counterpoise system consisting of 36 radials extending out from the base of the tower for a distance of 65 feet and suspended 8 feet above ground for 50 feet of their length. When a radio range kit, is furnished, towers and counterpoise are included in the kit.

When towers are ordered as separate items and counterpoises are required, they must be ordered as separate items. These towers are intended for use with the Adcock Radio Range Assembly, but 500 extra towers were ordered for converting loop ranges and for other use. Erection equipment is not furnished, but is available to sectors for team use. Base insulator and primary guy insulators have a flashover rating of 40 KV and will withstand an RF unmodulated voltage of 12 KV at 400 KC. Insulation is suitable for power up to 1000 watts at low frequencies.

(2) MATERIAL LIST

Quantity	Name	Stock No.
1	Tower, complete with guys, anchors and hardware	2A3447.1
1	Counterpoise	2A736
As Required	Pole Lighting Kit	(par. 1446 b)
100 ft.	Wraplock	PA-30183
As Required	2-conductor underground cable (Parkway Cable No. 12 - 85-foot length)	1D662-1
1	Transformer, tower lighting unit, Type II	(par. 1446 a)

**d. Light Duty 90-Foot Insulated Tower.**

(1) DESCRIPTION. This 90-foot guyed tower is of the base insulated type for use as a vertical radiator. The tower is extremely light and is of triangular lattice braced design. It is air transportable and is designed to be assembled on the ground and raised as a unit. Except for the addition of a base insulator, the tower is similar to the 75- and 90-foot noninsulated light duty antenna supporting towers described in paragraph 1444 a. Complete instructions for erection are furnished with the tower. Each tower is supplied complete with gin pole for erection; blocks and rope are not supplied. Insulation of the tower is limited by the guy insulators which have a dry flashover voltage of 16 KV at 60 cycles. The tower should not be used as a radiator at powers exceeding 1000 watts at low frequencies.

(2) MATERIAL LIST.

Quantity	Name	Stock No.
1	90-Foot Tower, including base insulator	FTN-37577
As Required	Material for Ground System	(par. 1445 b)
1	Pole Lighting Kit	626934-90 (par. 1446 b)
1	Transformer, tower lighting unit Type II	(par. 1446 a)

**1444. TOWERS FOR SUPPORTING ANTENNAS - FIXED PLANT.**

**a. 75- and 90-Foot Light Duty Towers.**

(1) DESCRIPTION. These 75 and 90-foot guyed towers are of the noninsulated

type for use as antenna supports. They are extremely light, of triangular lattice braced design, and are suitable for supporting light receiving antennas; such as a single wire or doublet. They are designed for a 1000-pound head load and any load over this amount will greatly decrease their safety factor. They were originally procured as 90-foot towers. Some were shipped as 90-foot towers and were later furnished with a modification kit to reduce them to 75 feet. Except for the absence of base insulation, these towers are similar to the base-insulated 90-foot light duty tower described in paragraph 1443 d. They are air transportable and are designed to be assembled on the ground and raised as a unit. Complete instructions for erection are furnished with the towers. They are supplied complete, including a gin pole for erection; blocks and rope are not supplied.

(2) MATERIAL LIST.

Quantity	Name	Stock No.
1	90-Foot Tower, complete with erection system	2A3447
1	75-Foot Tower (same as 90-foot tower except shorter)	FIN-37699
1	Pole Lighting Kit	(par. 1446 b)
1	Transformer, tower lighting unit, Type II	(par. 1446 a)

b. 73-Foot 7-Inch Rhombic Tower.

(1) DESCRIPTION. The 73-foot 7-inch heavy duty tower is designed for supporting heavy Rhombics and similar applications. It is a fabricated, triangular, lattice braced, galvanized steel tower which is shipped knocked down for assembly in the field. The tower will withstand a horizontal load of 11,000 pounds at the center antenna attachment plate, or horizontal loads of 1,450 pounds at each of the three antenna attachment plates. The tower is designed for complete assembly on the ground and erection in one piece with a gin pole arrangement. The tower is complete with all guys, instruction books and anchors, but less erection equipment.

(2) MATERIAL LIST.

Quantity	Name	Stock No.
1	Tower, complete	2A3448
1	Shackle, galv. steel, 5/8" pin, 7/8" clevis opening	5B15414
2	Thimble PF-43, galv. iron, grooved for 3/8" guy wire	5B18043
As Required	Pole Lighting Kit, 90-foot	6Z6934-90 (par. 1446 b)
100 Ft.	Wraplock	P4-30183

The following items are to be supplied to each location for erection purposes only and are needed in addition to Tool Equipment TE-87-A.

1	Erection equipment kit consisting of:	
5	Ancor, Screw Type, 6"	FINP-2826
2	Clip, wire tape, 1/2"	5B4108
2	Thimble PF-44, galv. iron, grooved for 1/2" guy wire	5B18044
1	Pulley, for gin pole	6Q8806.1
1	Pole, wood 35-foot, class 6	P4-30543

1445. GROUND SYSTEM FOR RA IO TOWERS - FIXED PLANT.

a. Description. (1) A ground system to be used with the 90 or 180-foot vertical radiator may consist of 36 radials spaced 10 degrees apart extending outward from a common terminal at the base of the tower for at least 350 feet with each radial buried in a trench to a depth of 6 to 8 inches. Each radial ground wire should consist of copper or copperweld conductor not smaller than #12 B & S gauge, soldered at its free end to a ground rod driven to a depth of six feet. When the 180-foot vertical radiator is used where extensive snow storms or poor conducting soils are found, the ground screen described below may be furnished in addition to the ground system just outlined. If snow drifts do not form on the antenna site, the ground screen may be placed on the earth. If drifting occurs on the installation site, the ground screen should be suspended so as to be above the snow drifts.

(2) A ground screen support may be constructed as follows: The 4 x 4's furnished should be erected on 12-foot centers, connected at their tops with 2 x 6's to form a support frame for the screen mesh at the required height above the earth. The screen mesh should be stapled on top of this supporting frame and each adjacent sheet bonded together using No. 12 BWG wire (stock No. 1A812). Each joint should be soldered. The suspended ground screen should be connected to the buried ground system at the tower base and points on the outer edge of the screen should also be connected directly to the ground wire radial immediately beneath. A connection from the ground system to the antenna tuning house should be made at the tower base. This connection should be short and have a very low resistance. One hundred forty sheets of Econo mesh will cover an area of 96 feet x 96 feet with two sheets to spare.

**b. Material List.**

Quantity	Name	Stock No.
The following items are used to construct the ground system described in <u>a</u> (1) of this paragraph.		
12,000 ft.	Copperweld wire, .080", #12 gauge	1A153
2,640 ft.	Wire, #12 BWG, GI (1/2 mile coil)	1A812
40 ea.	Ground Rod GP-26	5B4426
5 gal.	Paint, black, ready mixed	6G1419
3 gal.	Preservative, wood	6G1624
1 keg	Nails, 20 d, 100 lbs.	6L1420
10 can	Paste, soldering 2 oz. can	6N4102
10 lbs.	Solder M-30	6N7530

The following items are used to construct the ground screen described in a (2) of this paragraph.

140 shts.	Econo mesh, United States Gypsum Co., style 3-9-175, mesh size 3 x 8, gauge 9, strand 5/32 x 9/64, width 6 ft., length 12 ft. galvanized or equal	6Z6988
100 pc.	Lumber, 4" x 4" x 12", #1 grade pine or equal	
250 pc.	Lumber, 2" x 6" x 12", #1 grade pine, or equal	
50 lbs.	Staples, 1-1/2" galvanized	

**1446. TOWER LIGHTING EQUIPMENT - FIXED PLANT.**

**a. Transformers.** (1) DESCRIPTION. Special transformers for lighting vertical radiator towers have been procured. These transformers are for the purpose of isolating the power source from the RF tower circuits. The transformers consist basically of one circular secondary winding connected to the tower circuit thus placing this winding assembly at the RF potential of the tower. The primary, circular in design, is completely isolated from the secondary and the entire assembly is immersed in oil. Two types are available; one is designed for a peak RF voltage of 45 KV and one for 90 KV, under wet conditions. The transformers are

designed for either 110 or 220-volt 60-cycle 1-phase input and have a tapped secondary for various loads. The transformers are intended for mounting on the tower base. Material for mounting transformers is available in set assembly 57A, drawing ES-D-32577. The transformer is equipped with a lightning gap and rain shield.

**(2) STOCK NUMBERS.**

Name	Stock No.
Type I Transformer, Tower lighting unit, in accordance with Spec. 171-229, 90 KV RF insulation.	3H5600A25
Type II Transformer, Tower lighting unit, in accordance with Spec. 171-229, 45 KV RF insulation	3H5600A25-1
As required, Plant Set Assembly 57A, material for mounting transformer (Dwg. ES-D-32577)	

**b. Lighting Kits.** (1) DESCRIPTION.

Four types of lighting kits have been procured for poles and can be adapted for towers. All kits have conduit, condulets, fixtures, connector blocks, wire, lamps, clamps, etc. and are complete for mounting the fixtures on the pole or tower. Three of the kits are for 90-foot poles and the other one is for a 60-foot pole. Two of the 90-foot pole kits have red prismatic fixtures as recommended by CAA, and the others have red vapor proof obstruction lights. Miscellaneous fixtures, blocks, straps and other material for pole or tower lighting are also available.

**(2) STOCK NUMBERS.**

Name	Stock No.
Pole Lighting Kit, complete with 80 feet of conduit, 4 sets of lamps and equipment for lighting a 60-foot pole. Includes 200 feet of 2-conductor underground cable.	6Z6934-60
As above, but for 90-foot pole.	6Z6934-90
Pole Lighting Kit, complete with 80 feet of conduit, fixtures, lamps and equipment for lighting a 90-foot pole. Includes 85 feet of 2-conductor underground cable (procured on order 1460-Ph-44)	
Lighting Kit, for lighting 90-foot pole or tower, complete with all fixtures, clamps, conduits, etc. Meets new AN Specifications. Does not include underground cable. (Ordered on PR-44-3564, Drawing ES-C-32578)	