

Sam B. Shankle

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FOREWORD

This is the first of a series of nine separate manuals, each covering the standard, substitute standard, and limited standard Signal Corps equipments in a particular field. This manual covers radio communication equipment. Succeeding manuals will cover, respectively, wire communication equipment, ground radar and recognition equipment, radio direction finding equipment, power equipment, photographic equipment, meteorological equipment, test equipment, and miscellaneous equipment.

Items of equipment are presented in this manual in alpha-numerical sequence by type numbers. When the type number is known, use the Contents to find the page on which the equipment is illustrated and described. When the type number is unknown, it may be found in the Index, which is arranged alphabetically by nomenclature.

An illustration and the following information are given for each item of equipment listed: nomenclature, status, Signal Corps stock number, technical manual reference, description, technical characteristics, general application, principal components, and weight and volume.

The following abbreviations are used in this manual:

ac.....	alternating current	kw.....	kilowatt
af.....	audio frequency	lb.....	pound
am.....	amplitude modulation	lf.....	low frequency
a-m.....	amplitude-modulated	lg.....	long
amp.....	ampere	ma.....	milliampere
ave.....	automatic volume control	max.....	maximum
bfo.....	beat-frequency oscillator	me.....	megacycle
coml.....	commercial	new.....	modulated continuous wave
eps.....	cycles per second	mi.....	mile
cu ft.....	cubic foot	mmf.....	micromicrofarad
e-w.....	continuous-wave	mo.....	master oscillator
cyc.....	cycle	mv.....	microvolt
db.....	decibel	mw.....	milliwatt
dc.....	direct current	r-f.....	radio-frequency
FCC.....	Federal Communications Commission	SOS.....	International distress signal
f-m.....	frequency-modulation	std.....	standard
ft.....	foot	v.....	volt
hf.....	high frequency	v-f.....	voice-frequency
iew.....	interrupted continuous waves	v-h-f.....	very-high-frequency
kc.....	kilocycle	w.....	watt
kva.....	kilovolt-ampere		

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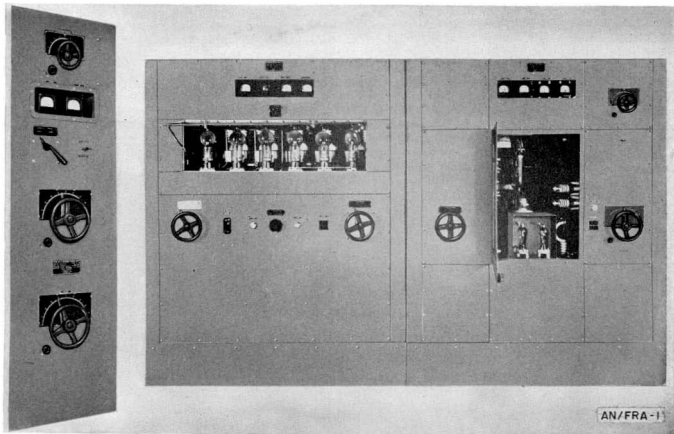


Figure 1. Amplifier Assembly AN/FRA-1.

Status: Standard. Stock No.: 2C466. Reference: TM 11-1055.

Amplifier Assembly AN/FRA-1 consists principally of a class C r-f power amplifier, a rectifier, the necessary transmission line materials, and an antenna tuning unit. It is used as final power amplifier for Radio Transmitter BC-365 or similar transmitting equipment.

The 6-kw, r-f amplifier is intended for fixed military radiotelegraph service as a 6- to 10-kw amplifying unit. It is used in conjunction with a nominal 350-watt, 0.15- to 0.55-mc radio transmitter as a source of r-f driving power.

A maximum keying speed of 200 words per minute may be utilized.

TECHNICAL CHARACTERISTICS

FREQUENCY RANGE: 0.15 to 0.55 mc.
ANTENNA: Antenna with a capacitance of 750 to 3,000 mmf and a resistance of 6 to 12 ohms.
TYPE MODULATION: C-w.
FREQUENCY CONTROL: Controlled driver unit.
POWER SOURCE: A 3-phase, 3-wire, 60-cycle, 200-, 220-, 240-v power source is required, capable of supplying 22 kva at 90 percent power factor for full-load operation.
POWER OUTPUT: Minimum power output of 6 kw at 0.15 mc is obtained when connected to an antenna of 750-mmf capacitance and 6-ohm resistance. Output power up to 10 kw can be obtained when operating into antennas of higher capacitance and resistance, and at higher frequencies.
RANGE: Long.
NUMBER OF TUBES:
Power amplifier: 3.
Rectifier: 6.

GENERAL APPLICATION

USE: Fixed military radiotelegraph service.
TO COMMUNICATE WITH: Any long-range, if communication equipment.
INSTALLATION: Fixed station.
TYPE OF SIGNAL: C-w.

PRINCIPAL COMPONENTS

Name	Dimensions (in.)	Weight (lb)
Power amplifier	78 x 60 x 36	1,400
Rectifier	78 x 60 x 36	2,540
Antenna tuning unit	120 x 97 x 68	1,600

WEIGHT AND VOLUME

Total weight (lb)	Unpacked
Total volume (cu ft)	5,540
Ship tons	3,647
	91

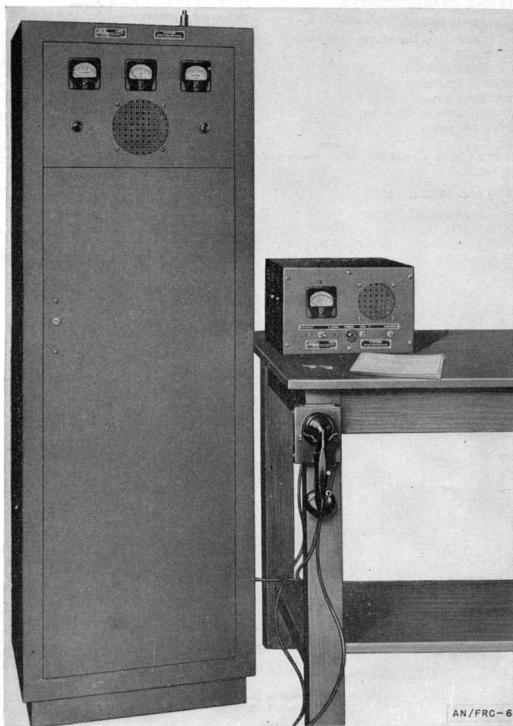


Figure 2. Radio Set AN/FRC-6.

Status: Standard. *Stock No.:* 2S2002-6. *Reference:* TM 11-5506.

Radio Set AN/FRC-6 is a complete operating f-m radio set, less primary power source, designed for fixed-station operation. It provides 2-way voice communication with similar fixed or mobile equipment over a range of not more than 20 miles of open country.

The set is operated by remote control over a pair of telephone wires up to a maximum distance of 10 miles.

The receiver is of the dual conversion superheterodyne type with two crystal oscillators.

TECHNICAL CHARACTERISTICS

FREQUENCY RANGE: 30 to 40 mc.
 NUMBER OF CRYSTALS: 1 in transmitter, 2 in receiver.
 PRESET FREQUENCIES: 1.
 ANTENNA: AS-412/FRC-6.
 TYPE MODULATION: Frequency.
 FREQUENCY CONTROL: Crystal.
 POWER SOURCE: 115-v, 60-cyc, 325-w ac.
 POWER OUTPUT: 50 w plus.
 RANGE: 20 mi.
 NUMBER OF TUBES: 10 in transmitter, 14 in receiver,
 and 4 in console unit.

GENERAL APPLICATION

USE: Military police fixed-station.
 TO COMMUNICATE WITH: Radio Sets AN/FRC-6, AN/
 VRC-2, SCR-608-A, SCR-609, SCR-610, SCR-619,
 SCR-628, SCR-808, and SCR-828.

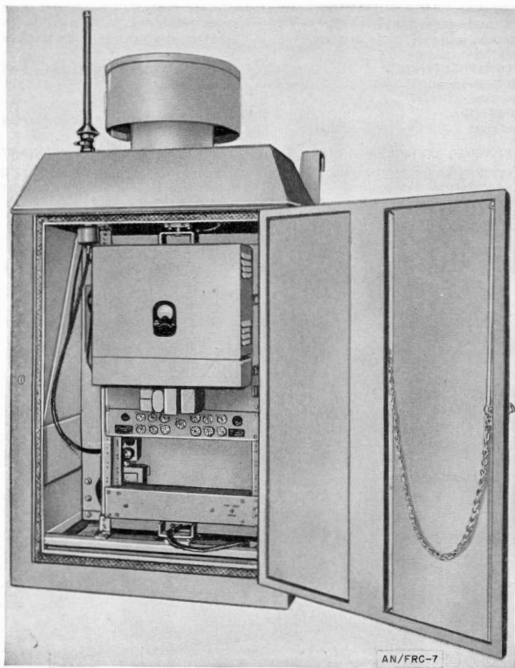
INSTALLATION: Fixed station.
 TYPE OF SIGNAL: Voice.

PRINCIPAL COMPONENTS

<i>Name</i>	<i>Dimensions (in.)</i>	<i>Weight (lb)</i>
Radio Transmitter T-215- A/FRC-6	9 x 9 x 18½	38
Radio Receiver R-276A/ FRC-6	9 x 9 x 18½	21
Radio Set Control C-560A/ FRC-6	5¼ x 6 x 18½	8
Console C-599A/FRC-6 ..	8¾ x 12 x 18	33
Rack MT-638A/FRC-6 completely assembled ..	68¼ x 22¼ x 15	173

WEIGHT AND VOLUME

<i>Name</i>	<i>Unpacked</i>	<i>Export pack</i>
Total weight (lb)	213	496
Total volume (cu ft)	16.354	40.101



*Figure 8. Radio Receiving Equipment WECO D-150420,
component of Radio Set AN/FRC-7.*

Status: Standard. *Stock No.:* 2C4570 (Radio Receiving equipment WECO D-150420); 2C6842 (Radio Transmitting Equipment WECO D-150415).

Radio Set AN/FRC-7 is a v-h-f radio communication link system for a-m reception and transmission. The receiver and transmitter are mounted in an outdoor metal cabinet or a standard 19-inch relay rack. This equipment is used as a radio link suitable for multichannel telegraph, using v-f tones and combination voice and telegraph with suitable carrier equipment.

TECHNICAL CHARACTERISTICS

FREQUENCY RANGE: 132 to 156 mc.
ANTENNA: Antennn equipment WECo D-151625.
TYPE MODULATION: Amplitude.
FREQUENCY CONTROL: Crystal.
POWER SOURCE: Power unit WECo D-150416, 50- to 60-
cye, 115-v, 390-w ac.
POWER OUTPUT: 12w.
RANGE: Line of sight.

GENERAL APPLICATION

USE: V-f and combination voice and telegraph when used
with proper equipment. A v-h-f communication system

for am. Used with, but not part of WECo 42B1 communi-
cation equipment, WECo model D-150415 radio trans-
mitting equipment, and WECo D-150420 radio receiving
equipment.

TO COMMUNICATE WITH: Radio link for multichannel
telegraph.

INSTALLATION: Fixed station.

TYPE OF SIGNAL: V-f and combination voice-telegraph.

PRINCIPAL COMPONENTS

Radio receiving equipment WECo D-150420.
Radio transmitting equipment WECo D-150415.

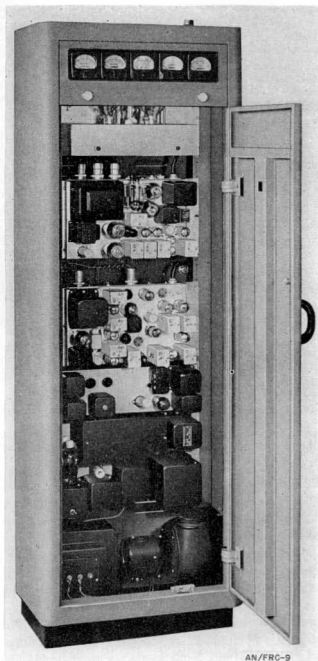


Figure 4. Radio Set AN/FRC-9, interior view.

Status: Limited standard. *Stock No:* 2C5608.

Radio Set AN/FRC-9 (Galvin Motorola FSTR-250-BR) is a fixed-station f-m transmitting and receiving equipment for point-to-point radio communication, operating in the v-h-f range. It is designed to operate over the maximum distance in the v-h-f range, with provision for remote control over a two-way telephone line.

Radio Set AN/FRC-9 includes such features as automatic overload reset, motor-driven centrifugal blower, and a full complement of meters. All connections and terminals are fully visible, and the front and back doors contain interlock safety switches.

TECHNICAL CHARACTERISTICS

FREQUENCY RANGE: 30 to 40 mc.
NUMBER OF CRYSTALS: 1 in transmitter, 2 in receiver.
PRESET FREQUENCIES: 1.
ANTENNA: Whip coaxial or other v-h-f.
TYPE MODULATION: Frequency.
FREQUENCY CONTROL: Crystal.
POWER SOURCE: 115 v, 60-cyc, 1,160-w.
POWER OUTPUT: 250 w.
RANGE: 30 mi (approx).
TUBES: 10 in transmitter, 2 in power amplifier, 2 in power supply, 2 in control unit, 14 in receiver.

GENERAL APPLICATION

USE: Point to point communication.
TO COMMUNICATE WITH: F-in sets within frequency range.

INSTALLATION: Fixed.
TYPE OF SIGNAL: Voice.

PRINCIPAL COMPONENTS

Name	Dimensions (in.)	Weight (lb)
Cabinet containing all other components	22½ x 15 x 68	350
Transmitter FST-250		
Receiver FSR-13B-1 (PA8043).		
Remote Control P-3270Y.		
Meter Panel Unit L-FST-250.		
Antenna Change-over Relay Unit 2FST-250.		
RF-Amplifier Unit FST-250.		
Extended Local Control Unit 4FST-250.		
Power and Relay Panel Unit 5-FST-250.		
Cabinet Assembly 10-FST-250.		

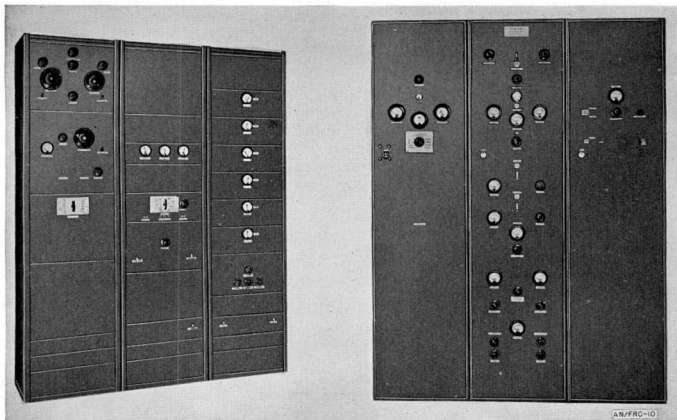


Figure 5. Navy Type Single Side-band Receiving Equipment REA, and Navy Type Radio Transmitting Equipment TEF, components of Radio Set AN/FRC-10

Status: Standard. Stock No.: 2C5110. References: TM 11-832 and TM 11-884.

Radio Set AN/FRC-10 is a long-range, h-f, fixed-station, v-f carrier telegraph system designed for single side-band operation and used with v-f carrier telegraph equipment. Navy Type Single Side-Band Radio Receiving Equipment REA (WECO D-99945) is a h-f single side-band triple detection receiver designed to operate as a companion to Navy Type Radio Transmitting Equipment TEF (WECO D-156000). It is designed for transoceanic telephony in the frequency range of from 4.5 to 22 mc. It provides for the reception of either one or both of two telephone channels arranged as a twin-channel system.

Navy Type Radio Transmitting Equipment TEF is a short-wave transmitter designed for transoceanic telephony in the frequency range from 4.5 to 22 mc. The complete transmitter provides for transmission of two telephone channels in a twin-channel single side-band system or, alternatively, one conventional double side-band channel. It may also be used as an exciter for Press Wireless PW-40 transmitter arranged for operation as a linear amplifier. This is part of an entire terminal for single side-band reduced carrier radiotelephone system for twin-channel operation, giving six two-way telegraph circuits over one two-way radiotelephone circuit. The entire terminal consists of a radio transmitter, distortion measuring set, a single side-band receiver, including its associated testing and measuring equipment, and v-f carrier telegraph equipment.

TECHNICAL CHARACTERISTICS

FREQUENCY RANGE: 4.5 to 22 mc; (may be converted to 4 to 20 mc).

PRESET FREQUENCIES: 6.

ANTENNA: Rhombic or fixed-station type.

TYPE MODULATION: Amplitude. (Single side band.)

FREQUENCY CONTROL: Crystal.

POWER SOURCE:

Navy Type Radio Transmitting Equipment TEF (WECO D-156000): 220-v. 50- to 60-cyc. 3-phase, 5 kw.

Navy Type Single Side-band Radio Receiving Equipment REA (WECO D-99945): 115-v. 50- to 60-cyc. single-phase, 600 w.

Carrier Terminals OA-63/FRC-10 and OA-64/FRC-10: 115-v. 50- to 60-cyc. single phase, 3 kw.

POWER OUTPUT: 2½ kw.

RANGE: Long.

GENERAL APPLICATION

USE: Transoceanic radio telegraphy and telephony.

TO COMMUNICATE WITH: Like equipment within frequency range.

INSTALLATION: Fixed station.

TYPE OF SIGNAL: Voice and telegraph.

PRINCIPAL COMPONENTS

<i>Name</i>	<i>Dimensions (in.)</i>	<i>Weight (lb)</i>
Navy Type Single Side-band Radio Receiving Equipment REA (WECO D-99945) mounted in 3 cabinets.	64¾ x 84 x 15¼	1,436
Navy Type Radio Transmitting Equipment TEF (WECO D-156000) mounted in 3 cabinets	64¾ x 89 x 27	2,428
Carrier Terminal OA-63/ FRC-10*	220¼ x 84 x 17	5,260
Carrier Terminal OA-64/ FRC-10*		

*OA-63/FRC-10 and OA-64/FRC-10 mounted together in 10 cabinets.

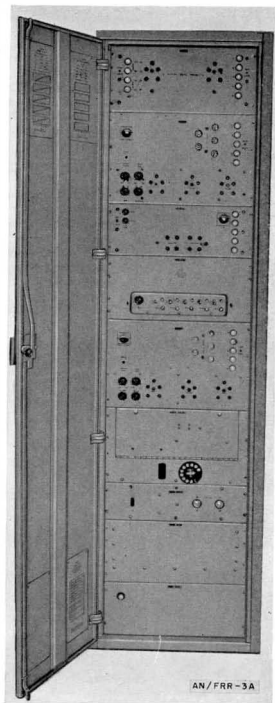


Figure 6. Diversity Receiving Equipment AN/FRR-3A.

Status: Standard. Stock No.: 2S2001-3A. Reference: TM 11-872.

Diversity Receiving Equipment AN/FRR-3A is a fixed-plant set designed for use in a point-to-point radio teletypewriter system of communication and is intended to overcome fading effects.

Diversity Receiving Equipment AN/FRR-3A uses two identical superheterodyne receivers with a common h-f oscillator and has provisions for either separate or common ave. The output of the receivers is fed to Radioteletype Terminal Equipment AN/FGC-1.

The receiving equipment is provided with a local and a remote telephone dial which may be used to turn the equipment on or off and to select any of five pretuned frequencies and any dual combination of four antennas.

TECHNICAL CHARACTERISTICS

FREQUENCY RANGE: 2.4 to 23 mc in 5 bands as follows:

- Band 1: 2.4 to 4.2 mc.
- Band 2: 4.2 to 6.9 mc.
- Band 3: 6.9 to 11.2 mc.
- Band 4: 11.2 to 17.5 mc.
- Band 5: 15 to 23 mc.

(Band 5 can be modified to cover 17.5 to 26 mc.)

ANTENNA: Rhombic or equivalent.

SENSITIVITY: 3 microvolts or less for 50 mv output (any frequency with carrier 30% modulated at 400 cps).

SELECTIVITY: 5 kc bandwidth at 6 db down.

IMAGE RATIO: Better than 60 db at any frequency.

SIGNAL TO NOISE RATIO: Better than 10 db at any frequency.

POWER SOURCE: 100- to 130-v, 50- to 60-cyc, or 200- to 260-v, 50- to 60-cyc, 400 w. (Radioteletype Terminal Equipment AN/FGC-1 extra.)

NUMBER OF TUBES: 30.

GENERAL APPLICATION

USE: Point-to-point radioteletypewriter communication to overcome fading effects.

TO COMMUNICATE WITH:

Radio Transmitter T-172/FR and Radio Transmitter T-177/FR.

Radio Transmitter Assemblies OA-60A/FRT and OA-60B/FRT.

Radio Sets AN/MRC-1 and AN/MRC-2, SCR-399-A, and SCR-499-A.

INSTALLATION: Fixed station.

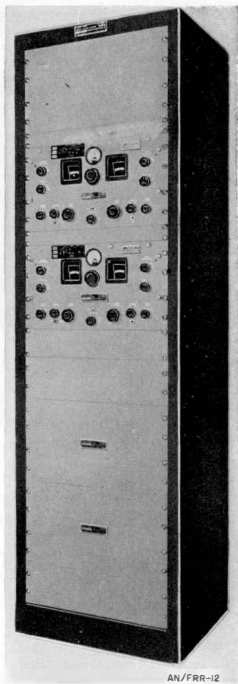
TYPE OF SIGNAL: A-m and frequency shift (radioteletypewriter).

PRINCIPAL COMPONENTS

Name	Dimensions (in.)	Weight (lb.)
Metal cabinet, containing: antenna unit, receiver B, multiplier, oscillator unit, receiver A, remote control unit, power control unit, power filter unit, and power supply unit.	85 x 17 x 22½	366.5

WEIGHT AND VOLUME

	Unpacked	Domestic pack	Export pack
Total weight (lb) ---	366.5	500	1,146
Total volume (cu ft)			53.8
Ship tons -----			1.35



AN/FRR-12

Figure 7. Radio Receiving Set AN/FRR-12.

Status: Standard. Stock No.: 2S2001-12 Reference: TM 11-896.

Radio Receiving Set AN/FRR-12 consists of a standard Rack MT-660/FRR-12, two Radio Receivers R-270/FRR, and two Power Supply Units RA-74-D. It is a fixed-station set primarily designed for dual diversity reception of radio teletypewriter signals in order to avoid the effects of fading.

The two superheterodyne Radio Receivers R-270/FRR operate independently of each other from two separate antennas suitably spaced.

TECHNICAL CHARACTERISTICS

FREQUENCY RANGE:

- Band 1: 1.25 to 2.5 mc.
- Band 2: 2.25 to 5.0 mc.
- Band 3: 5.0 to 10.0 mc.
- Band 4: 10.0 to 20.0 mc.
- Band 5: 20.0 to 40.0 mc.

Operation above 30 mc under certain conditions only.

NUMBER OF CRYSTALS: 4 in each receiver.

PRESET FREQUENCIES: None.

ANTENNA: Rhombic or doublet receiving.

FREQUENCY CONTROL: Crystals in any 3 channels of the frequency range of L5 to 26 mc.

POWER SOURCE: Power Supply Unit RA-74-B; 95/105/117/130/190/210/234/260-v, single-phase, 25- to 60-cyc, 180-w ac.

RANGE: Long.

NUMBER OF TUBES: 38. (17 in each receiver; 2 in each power supply unit.)

GENERAL APPLICATION

USE: Dual diversity reception of radioteletypewriter signals.

TO COMMUNICATE WITH:

Radio Sets AN/MRC-2 and AN/MRC-2A.

Radio Transmitters T-172/FR, BC-339, T-177/FR, BC-401, BC-610, T-4/FRC, T-158/FRT, T-158A/FRT, T-158B/FRT.

Radio Transmitting Equipment RC-52.

Radio Transmitting Assemblies OA-60/FRT, OA-60A/FRT, OA-60B/FRT, and other transmitting equipments within frequency range.

INSTALLATION: Fixed station.

TYPE OF SIGNAL: Frequency-shift radioteletypewriter.

PRINCIPAL COMPONENTS

Name	Dimensions (in.)	Weight (lb.)
2 Radio Receivers R-270/FRR	14½ x 16¾ x 19	60½
2 Power Supply Units RA-74-D	10½ x 10¼ x 19	60½
1 Rack MT-660/FRR-12	76 x 18 x 22	230

WEIGHT AND VOLUME

	Unpacked	Exportpack
Total weight (lb)	472	939
Total volume (cu ft)	23.9	44.6
Ship tons		1

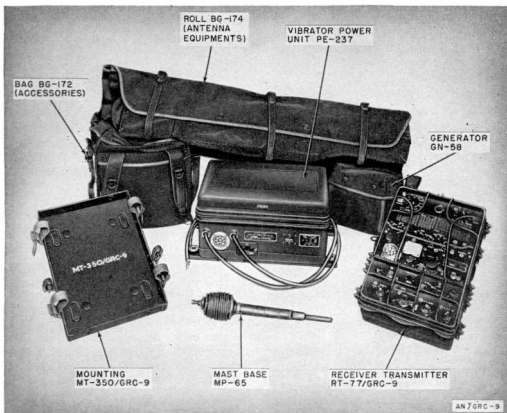


Figure 8. Radio Set AN/GRC-9, principal components.

Status: Standard. Stock No.: 2S2501-9. Reference: TM 11-263.

Radio Set AN/GRC-9 is a light-weight, man-transportable field radio set providing two-way radio-telephone and radiotelegraph service in the h-f range. It is provided with mountings and power supply for vehicular service.

This set is the same as Radio Set SCR-694 except that it provides greater frequency coverage. It replaces Radio Sets SCR-284, SCR-288, and SCR-694.

TECHNICAL CHARACTERISTICS

FREQUENCY RANGE: 2.0 to 12 mc, in three bands:

- Band 1: 6.6 to 12 mc.
- Band 2: 3.6 to 6.6 mc.
- Band 3: 2.0 to 3.6 mc.

NUMBER OF CRYSTALS:

- Transmitter: 2 in each band, or total of 6.
- Receiver: 1 for calibration.

PRESET FREQUENCIES: None.

ANTENNA: Long-wire for permanent or semipermanent installations. Vertical mast antenna for mobile vehicular installations, or when equipment must be moved rapidly and frequently from one location to another.

TYPE MODULATION: Amplitude, e-w, or m-c-w.

FREQUENCY CONTROL: TRANSMITTER: Mo operation and crystal.

POWER SOURCE:

Vibrator Power Unit PE-237; 6-, 12-, or 24-v storage battery.

Generator GN-38, hand-powered; Battery BA-48 (receiver operation only).

POWER OUTPUT:

Power switch position	Vibrator Power Unit PE-237		Generator GN-38	
	Voice	C-w	Voice	C-w
High	7w	15w	3.6w	10w
Low	1w	5w	1.2w	5w

RANGE:

C-w		Voice	
Stationary	75 mi	Stationary	25 mi
Moving	30 mi	Moving	15 mi

NUMBER OF TUBES: 14 (plus one tube of each type as running spare).

GENERAL APPLICATION

USE: To provide two-way radiotelephone and radiotelegraph communication between moving or stationary vehicles. May also be used as a portable field set.

TO COMMUNICATE WITH: Radio Sets AN/GRC-9, SCR-188 A, SCR-193, SCR-499, SCR-506-A, SCR-336, and SCR-684.

INSTALLATION: Installed and operated in vehicle or used as portable field set.

TYPE OF SIGNAL: C-w, m-c-w, and voice.

PRINCIPAL COMPONENTS

Name	Dimensions (in.)	Weight (lb)
Receiver-Transmitter RT-77/		
GRC-9 (complete)	16 x 11½ x 8½	33
Vibrator Power Unit PE-237	18 x 10 x 10	88
Generator GN-38	10 x 7½ x 7½	29
Antenna AT-101/GRC-9	12 x 8½ x 2	2¼
Antenna AT-102/GRC-9	12 x 8 x 2	2½
Mounting MT-350/GRC-9		

WEIGHT AND VOLUME

Total weight (lb)	359
Total volume (cu ft)	15.9



Figure 9. Radio Set AN/GRR-2.

Status: Limited standard. *Stock No.:* 2C4535. *Reference:* TM 11-874.

Radio Set AN/GRR-2 (Hallcrafters model SX-28) is a 15-tube superheterodyne receiver covering the frequency range of 0.55 mc to 42.0 mc in 6 bands. It is designed to receive a-m or keyed c-w signals. The set may be operated with the built-in internal power supply from an a-e source, or from an external d-c source.

TECHNICAL CHARACTERISTICS

FREQUENCY RANGE: Six bands, covering the following frequencies:

- Band 1: 0.55 to 1.6 mc.
- Band 2: 1.6 to 3.0 mc.
- Band 3: 3.0 to 5.8 mc.
- Band 4: 5.8 to 11 mc.
- Band 5: 11 to 21 mc.
- Band 6: 21 to 42 mc.

All six bands calibrated on main tuning dial for direct reading.

NUMBER OF CRYSTALS: 1.

ANTENNA: Any receiving antenna.

FREQUENCY CONTROL: Continuous tuning.

POWER SOURCE:

For a-c operation, line voltage must be within limits of 110 to 125 v at 50 to 60 cyc. A-c power consumption is 138 w for a 117-v, 60-cyc supply.

For d-c operation, a 6-v, 4.8 heater supply and a 270-v, 150-ma, high-voltage supply are needed. D-c power consumption is 108 w.

POWER OUTPUT: 8 w.

RANGE: Dependent on frequency and atmospheric conditions.

NUMBER OF TUBES: 15.

GENERAL APPLICATION

USE: General purpose receiver.

TO COMMUNICATE WITH: Any radio transmitter operating within frequency ranges of 0.55 to 42.0 mc.

INSTALLATION: Fixed station.

TYPE OF SIGNAL: A-m or keyed e-w signals.

PRINCIPAL COMPONENTS

Name	Dimensions (in.)	Weight (lb)
Radio Receiver AN/GRR-2	10 $\frac{3}{4}$ x 20 $\frac{3}{4}$ x 16 $\frac{1}{4}$	78

WEIGHT AND VOLUME

	Unpacked	Export pack
Total weight (lb)	78	125
Total volume (cu ft)		6
Ship tons		0.2

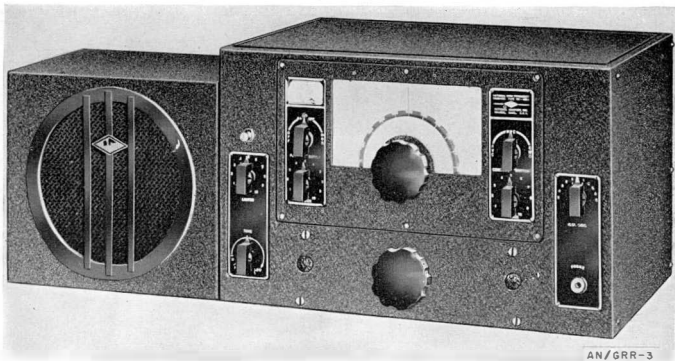


Figure 10. Radio Set AN/GRR-3.

Status: Limited Standard. *Stock No.:* 2S2505-3.

Radio Set AN/GRR-3 (National NC-100 ASC modified) is a semifixed receiving installation for the reception of air-to-ground and ground-to-ground communications and weather data.

This radio set is furnished with built-in power supply, and with external 8-inch diameter, permanent-magnet speaker. The equipment is installed in cabinets suitable for table mounting.

TECHNICAL CHARACTERISTICS

FREQUENCY RANGE: 0.2 to 0.4 mc and 1.3 to 30 mc.
NUMBER OF CRYSTALS: 1.
ANTENNA: Long-wire T-antenna, or double doublet.
TYPE MODULATION: Voice.
POWER SOURCE: 110-v, 60-cyc ac.
RANGE: Medium and long.

GENERAL APPLICATION

USE: Semifixed for air-to-ground and ground-to-ground communication.

TO COMMUNICATE WITH: Sets in same frequency range.

INSTALLATION: Fixed or portable.

TYPE OF SIGNAL: Voice.

PRINCIPAL COMPONENTS

Name	Dimensions (in.)	Weight (lb)
National Receiver NC-100 ASC		
Loudspeaker	12 x 19 x 15	65

WEIGHT AND VOLUME

Total weight (lb)	Unpacked Domestic pack	71
Total volume (cu ft)		1.8



Figure 11. Radio Set AN/MRC-1, components installed in shelter.

Status: Limited standard. *Stock No.:* 2S3007-1. *Reference:* TM 11-602.

Radio Set AN/MRC-1 comprises a radio system which provides facilities for high-speed, high-power, c-w transmission and reception in addition to the normal functions of Radio Set SCR-399. It is intended primarily for fixed-station use, but is completely mobile, being installed in three 2½ ton, 6 x 6 cargo trucks.

TECHNICAL CHARACTERISTICS

FREQUENCY RANGE: Transmitter: 2.0 to 13.0 mc. Receiver: 1.5 to 18 mc.

NUMBER OF CRYSTALS: 3 operating. (1 at a time)

PRESET FREQUENCIES: 3 in exciter stages of Radio Transmitter T-62/MRC-1.

ANTENNA: Normal operation (full power). Transmitting: doublet. Receiving: flattop. (Station uses whip antennas when mobile.)

TYPE MODULATION: Full power: e-w only. Medium power: a-m, c-w.

FREQUENCY CONTROL: Mo. crystal.

POWER SOURCE: A-e, 110-v, 60-cycle, single phase, 10-kw Power Unit PE-95.

POWER OUTPUT: Full power: e-w, 2 kw. Medium power: e-w, 275-400 w; a-m, 200 to 300 w.

RANGE: Medium and long, dependent upon antenna used, frequency and ionospheric conditions.

NUMBER OF TUBES: Transmitting shelter: 39. Receiving shelter: 37.

GENERAL APPLICATION

USE: Provides facilities for high-speed, high-power, e-w communication in addition to normal functions of Radio Set SCR-399.

TO COMMUNICATE WITH: Radio Sets AN/MRC-1, AN/VRC-1, SCR-188-A, SCR-399-A, SCR-499-A, SCR-299, SCR-694, SCR-284, SCR-511, SCR-535, SCR-177-B, SCR-193, and SCR-506.

INSTALLATION: Primarily intended for fixed station, but is installed and operated in trucks and is completely mobile.

TYPE OF SIGNAL: Voice, m-c-w. or c-w.

PRINCIPAL COMPONENTS

Name	Dimensions (in.)	Weight (lb)
(In Shelter HO-17-Transmitting)	158 x 90½ x 77	8,105
Power Amplifier AM-35/MRC-1		
Radio Transmitter T-62/MRC-1		
Radio Receiver BC-312		
Speech Amplifier BC-619		
(In Shelter HO-17-Operating)	158 x 90½ x 77	7,365
3 Radio Receivers BC-342		
Rectifier power unit		
Power Unit PE-95 (in Trailer K-52)	76½ x 108 x 76½	4,965
Antenna System AS-94/MRC-1		
Antenna System AS-95/MRC-1	100 x 17 x 17	350

WEIGHT AND VOLUME

Total weight (lb)	Domestic pack	32,945
Total volume (cu ft)		2,506
Ship tons		62½

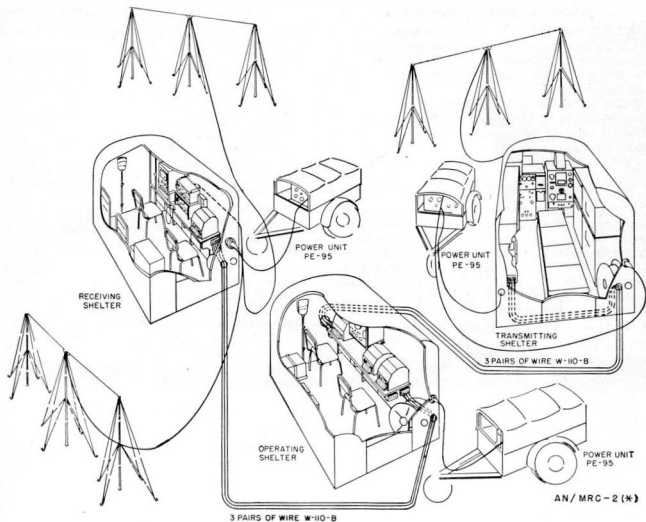


Figure 12. Radio Set AN/MRC-2(*), typical layout.

Status: Standard. Stock No.: 283007-2. Reference: TM 11-624.

Radio Set AN/MRC-2 (*) represents Radio Sets AN/MRC-2 and AN/MRC-2A. Radio Set AN/MRC-2(*) is a high-powered, mobile, radioteletypewriter station for division, army, and corps levels and is used particularly in fluid stages of operations to replace normal fixed plant equipment for administrative circuits,

The complete set is entirely mobile, requiring three or four 2½ ton 6 x 6 cargo trucks.

This set partially replaces Radio Sets SCR-299 and SCR-399.

TECHNICAL CHARACTERISTICS

FREQUENCY RANGE: 1.5 to 18.0 mc in 6 bands.
ANTENNA: Two doublet antennas, coaxial fed, and spaced approximately 3 wavelengths (1,000 ft max) apart.
TYPE MODULATION: Frequency shift and amplitude (c-w, tone, or voice).
FREQUENCY CONTROL: Mo, crystal.
POWER SOURCE: 6.5 kw (approx). 115-v, 60-cyc, a-c.
POWER OUTPUT: 2 kw (approx).
RANGE: 1,000 mi or more.
NUMBER OF TUBES: 32.

GENERAL APPLICATION

USE: Provides teletypewriter communication in either net or long range operation; however, the equipment is so designed that the operating features of Radio Set SCR-399 may be restored by disconnecting Amplifier AM-141.
TO COMMUNICATE WITH: Radio sets AN/GRC-9, AN/MRC-2, AN/VRC-1, SCR-177, SCR-188, SCR-193, SCR-399, SCR-499, SCR-506, SCR-511, SCR-536, SCR-543, SCR-694-C, and SCR-694-AW.
INSTALLATION: Installed and operated in mobile shelters.

TYPE OF SIGNAL:

Transmitted—Frequency shift teletypewriter signals. Emergency use: C-w, on full-power, or c-w and voice using Radio Transmitter BC-610-E alone.

Received—Frequency shift teletypewriter signals, dual space diversity reception. Receiver alone: C-w, tone and voice.

PRINCIPAL COMPONENTS

Name	Dimensions (in.)	Weight (lb.)
(In Transmitting Shelter		
HO-17	158 x 90½ x 77	8,800
Radio Transmitter BC-610-E		
Amplifier AM-141/MRC		
Rectifier RA-63-C		
Frequency Shift Exciter O-39/TRA-7		
Frequency Meter SCR-211		
(In Receiving Shelter HO-17)	158 x 90½ x 77	7,200
Radio Receiving Assembly OA-65/MRC-2		
Dual Diversity Converter CV-31/TRA-7		
Power Unit PE-75		
Teletypewriter TG-7-B		
(In Operating Shelter HO-17)	158 x 90½ x 77	7,200
Control Unit C-292/TRA-7		
Rectifier RA-87		
Teletypewriter TG-7-B		
Typewriter MX-322/U		
Power Units PE-95		
(3 supplied)	76½ x 108 x 76½	4,965
(installed in Trailer K-52)		

WEIGHT AND VOLUME

Total weight (lb)	39,416
Total volume (cu ft)	3,057
Ship tons	76.4

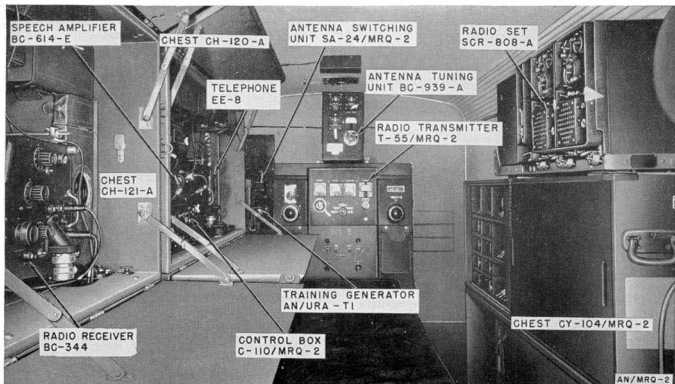


Figure 13. Radio Set AN/MRQ-2, installed in Shelter HO-17-A.

Status: Standard. Stock No.: 2S3004-2. Reference: TM 11-640.

Radio Set AN/MRQ-2 is a modification of Radio Set SCR-399-A for use as a radio countermeasures unit. To facilitate its use as a mobile unit, Radio Set AN/MRQ-2 is shipped with the operating components and the power source installed in Shelter HO-17-A and Trailer K-52, respectively.

TECHNICAL CHARACTERISTICS

FREQUENCY RANGE:

Radio Transmitter T-55/MRQ-2: 0.95 to 18 mc (3 channels).

Radio Receiver BC-342: 1.5 to 18 mc (in 6 bands).

Radio Receiver BC-344: 0.15 to 1.5 mc (in 4 bands).

NUMBER OF CRYSTALS: 3 (operating).

PRESET FREQUENCIES: Transmitter channels selected by three sets of plug-in tuning units.

ANTENNA:

Radio Transmitter T-55/MRQ-2—4 types of antennas (Antenna Assembly AS-51/MRQ-2, and Auxiliary Antenna Assembly AS-93/MRQ 2), as follows:

Antenna A—Vertically polarized, half-rhombic, for transmitting or receiving radio signals between 0.95 and 8.0 mc. Balloon or kite supported.

Antenna B—Similar to Antenna A in design, but has smaller dimensions, designed for use at frequencies between 3 and 18 mc. Balloon or kite supported.

Antenna C—Single-wire and counterpoise combination, antenna supported 30 feet from ground by 4 lance Poles PO-2 and suitably guyed by ropes.

Antenna D—3-section whip used with Radio Transmitter T-55/MRQ-2 and comprises Mast Sections MS-49, MS-50, MS-51, MS-52, and MS-53, supported by Mast Base MP-47.

Radio Receivers BC-342 and BC-344—Whip type, Mast Base MP-48, mounted in Mast Base Bracket MP-50 and Mast Sections MS-51 to MS-53.

TYPE MODULATION: Amplitude.

FREQUENCY CONTROL: Radio Transmitter T-55/MRQ-2: Crystal or mo.

POWER SOURCE:

Radio Transmitter T-55/MRQ-2: Power Unit PE-95 or commercial.

Radio Receivers BC-342 and BC-344: 110-v, 50- to 60-cyc each (7.5 kw approx.)

POWER OUTPUT: Radio Transmitter T-55/MRQ-2: C-w, 400 w (approx). Voice, 300 w (approx).

NUMBER OF TUBES:

Radio Transmitter T-55/MRQ-2: 16.

Radio Receivers BC-342 and BC-344: 10 each.

GENERAL APPLICATION

USE: Radio Set AN/MRQ-2 is a modification of Radio Set SCR-399-A for use as a radio countermeasures unit.

TO COMMUNICATE WITH: Radio Sets AN/MRQ-2, AN/VRC-1, SCR-399-A, SCR-499-A, SCR-694, SCR-536, SCR-177-B, SCR-193, and SCR-506-A.

INSTALLATION: Installed and operated in Shelter HO-17-A, which should be mounted on a 2½-ton, 6 x 6 cargo truck for mobile use.

TYPE OF SIGNAL:

Radio Transmitter T-55/MRQ-2: C-w, voice, and jamming.

Radio Receivers BC-342 and BC-344: C-w, tone, and voice.

PRINCIPAL COMPONENTS

The following principal components are installed in Shelter HO-17-A:

Radio Transmitter T-55/MRQ-2.

Speech Amplifier BC-614-E.

Control Box C-110/MRQ-2.

Radio Set SCR-808-A.

Radio Receiver BC-342.

Radio Receiver BC-344.

Training Generator AN/URA-TI.

Antenna Switching Unit SA-24/MRQ-2.

Antenna Tuning Unit BC-939-A.

Antenna Coupling Unit CU-45/MRQ-2.

Antenna Control Box C-109/MRQ 2.

Antenna system.

The following component is installed in Trailer K-52: Power Unit PE-95.

Name	Dimensions (ft)	Weight (lb)
Shelter HO-17-A (operating components installed)	6 2/3 x 7 2/3 x 13 1/4	7,255
2 Teletypewriter TG-7-B.		
Trailer K-52 (Power Unit PE-95 installed)	6 1/2 x 6 5/12 x 9 1/6	4,900
Reperforator Transmitter TG-26.		
Antenna Assemblies AS-51/MRQ-2 and AS-93/MRQ-2 (consisting of 11 boxes and 12 gas cylinders)		3,765

WEIGHT AND VOLUME

	Exportpack
Total weight (lb)	15,920
Total volume (cu ft)	1,237
Ship tons	41

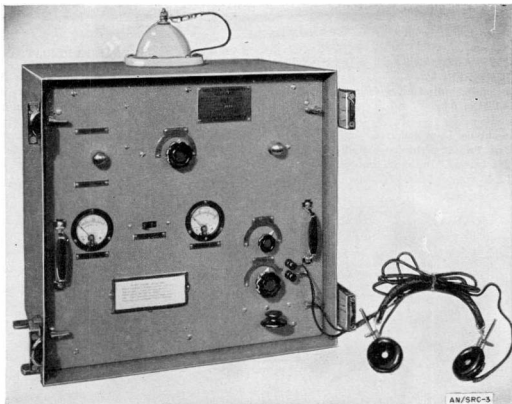


Figure 14. Radio Set AN/SRC-3.

Status: Standard. Stock No.: 2C5700.

Radio Set AN/SRC-3 (RMCA ET-S007) is designed for installation and operation in lifeboats, and receives and transmits SOS signals.

The transmitter has a fixed frequency of 0.5 mc; the receiver has a fixed frequency of from 0.35 to 0.55 mc.

TECHNICAL CHARACTERISTICS

FREQUENCY RANGE: Transmitter (fixed) 0.5 mc. Receiver 0.35 to 0.55 mc.

NUMBER OF CRYSTALS: 1 at 0.5 mc in the transmitter.

PRESET FREQUENCIES: 1.

ANTENNA: Any available lifeboat or installed antenna.

TYPE MODULATION:

Transmitter: I-c-w.

Receiver: Amplitude, i-c-w, and e-w.

POWER SOURCE: Two 12-v storage batteries in parallel and one 45-v dry battery. Draws 25 amp at 12 v.

POWER INPUT: 50 w.

RANGE: Short.

NUMBER OF TUBES: 4.

GENERAL APPLICATION

USE: Transmitting and receiving signals from lifeboat.

TO COMMUNICATE WITH: Radio sets within frequency range, and mobile stations and ships on international distress frequency.

INSTALLATION: Marine mobile.

TYPE OF SIGNAL:

Transmitter: I-c-w.

Receiver: A-m, e-w.



Figure 15. Radio Receiving Set AN/SRR-2.

Status: Standard. *Stock No.:* 2C4519-8600X.

Radio Receiving Set AN/SRR-2 (RMCA model AR-8600-X) comprises a complete automatic alarm system for use on shipboard, the components of which are mounted in the receiver-selector unit on a single panel which is hinged at the bottom to a metal cabinet. It is designed to "stand watch" on the distress frequency of 0.5 mc and to ring an alarm bell when properly coded distress signals are received (a series of 4-second dashes spaced at 1-second intervals). The alarm bells also ring to indicate a burnt-out tube, a blown fuse, and substantially low or high supply voltages. The auto-alarm also includes a warning light unit installed on the bridge. Warning lights on the front panel and on the bridge alarm unit indicate when static or other interference causes the selector relays to operate. Adjustments are provided to remedy such conditions.

TECHNICAL CHARACTERISTICS

FREQUENCY RANGE: 0.4875 to 0.5125 mc.
 PRESET FREQUENCIES: 1.
 ANTENNA: Ship's antenna.
 TYPE MODULATION: C-w.
 POWER SOURCE: 115-v a.c. 1.5 amp. 6-v storage battery,
 0.4 amp; 3 amp when all bells are ringing.
 RANGE: Short and medium.
 NUMBER OF TUBES: 9.

GENERAL APPLICATION

USE: Marine automatic alarm system.
 TO COMMUNICATE WITH: Receives signals from other
 ships at distress frequency of 0.5 mc, operating warning

signals in the operator's quarters and on the ship's bridge.
 INSTALLATION: Fixed on shipboard.
 TYPE OF SIGNAL: Bell and lamp.

PRINCIPAL COMPONENTS

Name	Dimensions (in.)	Weight (lb)
Receiver-selector	26 $\frac{1}{8}$ x 15 $\frac{1}{8}$ x 11 $\frac{3}{4}$	63
Junction box	14 $\frac{7}{8}$ x 12 $\frac{1}{8}$ x 5 $\frac{1}{2}$	23
Master switch	6 x 8 $\frac{1}{2}$	6
Bridge bell and warning light	7 x 6 $\frac{1}{8}$ x 3 $\frac{3}{4}$	5 $\frac{1}{4}$

WEIGHT

Total weight (lb)..... Domestic pack 97 $\frac{1}{4}$



Figure 16. Radio Receiving Set AN/SRR-3.

Status: Limited standard. *Stock No.:* 2C4589.

Radio Receiving Set AN/SRR-3 (Scott model SLR-F) is a superheterodyne receiver primarily intended for shipboard installation, but is also suitable for use at radio shore stations. It is adapted for the reception of radiotelephone or radiotelegraph signals (cw or mcw) by either headphones or loudspeaker.

The equipment is designed for a-c operation, being equipped with a rectifier type power supply. It permits the use of one pair of head-telephones (either 600-ohm or 20,000-ohm impedance) separately or in conjunction with the local loudspeaker of the permanent magnet type.

Radio Receiving Set AN/SRR-3 is contained in a steel cabinet designed for installation on top of an operating table or bench by means of a cradle type shock mounting. The chassis is constructed so that it may be mounted in a cabinet type standard relay rack.

TECHNICAL CHARACTERISTICS

FREQUENCY RANGE: 0.08 to 24 mc in 5 bands as follows:

- Band 1: 0.08 to 0.22 mc.
- Band 2: 0.21 to 0.56 mc.
- Band 3: 1.9 to 5.1 mc.
- Band 4: 4.5 to 12 mc.
- Band 5: 8.8 to 24 mc.

NUMBER OF CRYSTALS: None.

ANTENNA: Balanced feed line or single wire.

TYPE MODULATION: C-w or m-c-w.

POWER SOURCE: 110/120-v, 60-cycle at 85 w (0.75 amp).

RANGE: Medium and long.

NUMBER OF TUBES: 11.

GENERAL APPLICATION

USE: Marine communication.

TO COMMUNICATE WITH: Shipboard and shore stations within frequency range.

INSTALLATION: Fixed, shipboard, or shore station.

TYPE OF SIGNAL: C-w and m-c-w.

PRINCIPAL COMPONENTS

<i>Name</i>	<i>Dimensions (in.)</i>	<i>Weight (lb)</i>
Radio Receiver (Scott model SLR-F)	21 x 20 $\frac{1}{8}$ x 13 $\frac{3}{4}$	106
Inverter (Scott model 262)	8 x 10 $\frac{1}{4}$ x 8 $\frac{1}{4}$	28
Speaker (Scott model SPM-8)	10 $\frac{1}{2}$ x 5 x 9 $\frac{1}{2}$	6 $\frac{1}{2}$

WEIGHT

Total weight (lb)	140 $\frac{1}{2}$
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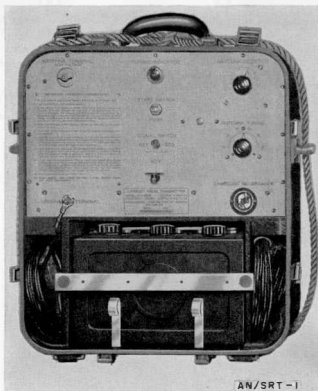


Figure 17. Radio Transmitting Set AN/SRT-1, watertight cover removed.

Status: Standard. *Stock No.:* 2C6657. *Reference:* TM 11-830.

Radio Transmitting Set AN/SRT-1 (Radiomarine Corporation of America model ET-8026) is a portable, battery-operated, lifeboat transmitter. The set operates automatically for a period of 2 minutes each time the button is pressed, and automatically stops operating upon completion of the cycle for the purpose of conserving the battery.

During each 2-minute operating period, the SOS distress signal is sent 18 times; long-dashes are also sent 6 times, to enable rescuing ship to take bearings.

The sending of these signals does not require a radio operator, although the set is provided with a hand telegraph key which may be used by a radio operator for straight m-c-w transmitting.

The battery is good for 48 operating periods of 2 minutes each, or, for 48 hours if used on an hourly schedule as is recommended.

A battery charging panel (Radiomarine Corporation of America model RM-16) consisting of an ammeter and current limiting resistors is used to charge the transmitter power supply storage battery from the 115-volt, a-c ship mains.

TECHNICAL CHARACTERISTICS

FREQUENCY RANGE: 0.5 mc (International distress frequency).
NUMBER OF CRYSTALS: None.
PRESET FREQUENCIES: 1.
ANTENNA: Attached wire antenna for use in lifeboat.
TYPE MODULATION : M.e.w.
FREQUENCY CONTROL: Preset frequency only.
POWER SOURCE: 6 v storage battery contained in set.
POWER OUTPUT: 5 w.
RANGE: 50 to 100 mi over salt water.
NUMBER OF TUBES: 2.

GENERAL APPLICATION

USE: Lifeboat emergency transmitter.
TO COMMUNICATE WITH: Transmits signals which are received on International distress frequency.
INSTALLATION: Portable set to be installed and operated in lifeboat.
TYPE OF SIGNAL: M.e.w.

PRINCIPAL COMPONENTS

Name	Dimensions (in.)	Weight (lb)
Radio transmitter	21 $\frac{1}{2}$ x 15 $\frac{1}{2}$ x 13 $\frac{1}{2}$	60
Battery charging panel		
(RMCA model RM-16).		

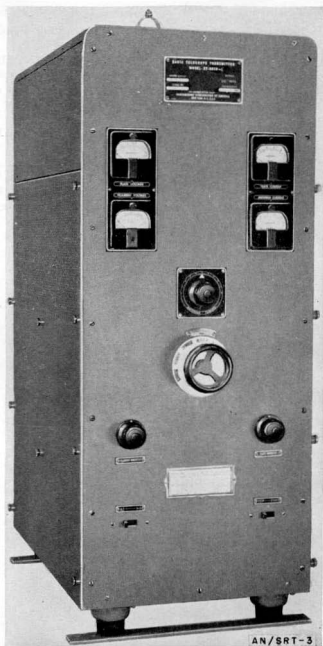


Figure 18. Radio Transmitting Set AN/SRT-3.

Status: Standard. *Stock No.:* 2C6655A.2.

Radio Transmitting Set AN/SRT-3 (RMCA model 8010-E) is a medium power, intermediate frequency radiotelegraph transmitter designed primarily for marine installation. It contains simplified controls for rapid selection of eight pretuned operating frequencies.

The complete transmitter is housed in an aluminum cabinet, the construction of which provides mechanical rigidity and adequate ventilation.

Radio Transmitting Set AN/SRT-3 may be used both as a main and emergency transmitter by the addition of an emergency power panel and a small dynamotor. It is designed as a companion installation for the RMCA model ET-8019-E h-f transmitter.

TECHNICAL CHARACTERISTICS

FREQUENCY RANGE: 0.35 to 0.515 mc.
NUMBER OF CRYSTALS: 0 to 8 (each preset frequency may use mo or a crystal).
PRESET FREQUENCIES: 8.
ANTENNA: Ship's antenna.
TYPE MODULATION: C-w, m-c-w.
FREQUENCY CONTROL: Mo or crystal.
POWER SOURCE:
D-c motor generator: 170-v or 230-v, approx 1,300 w.
A-c motor generator: 220/440-v, 4½ amp, 3-phase, 60 cyc.
POWER OUTPUT: Mew: 300 w. Cw: 200 w.
RANGE: Medium.
NUMBER OF TUBES: 5.

GENERAL APPLICATION

USE: Transmitting signals from ship-to-ship or ship-to-shore.
TO COMMUNICATE WITH: Receiving sets within frequency on shipboard or shore.
INSTALLATION: Fixed on shipboard.
TYPE OF SIGNAL: C-w and m-c-w.

PRINCIPAL COMPONENTS

Name	Dimensions (in.)	Weight (lb)
Transmitter	44¾ x 17¾ x 28¾	200
Motor generator	14¾ x 27¾ x 9¾	225

Motor starter type CR-4052Y1
Line filter unit (Wileox-Gay
dwg 25-2200).

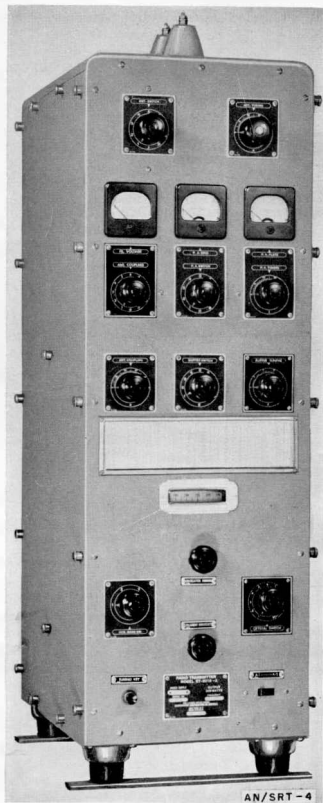


Figure 19. Radio Transmitting Set AN/SRT-4.

Status: Standard. Stock No.: 2C6656A.2.

Radio Transmitting Set AN/SRT-4 (RMCA type ET-8019-A or equal) is a complete fixed installation for transmitting from shipboard. It is mounted in a metal cabinet. The cabinet contains the

transmitter, motor-generator set, motor starter, control panel, and 2 crystal units with crystals for operation on 4,105 and 4,255 kc.

TECHNICAL CHARACTERISTICS

FREQUENCY RANGE: 2 to 22.14 mc.
NUMBER OF CRYSTALS: 10.
PRESET FREQUENCIES: 2.
ANTENNA: Ship.
TYPE MODULATION: C-w, m-c-w.
FREQUENCY CONTROL: Crystal or mo.
POWER SOURCE: Motor generator. Input 115-v dc at 1,300 w.
POWER OUTPUT: 200 w up to 17 mc; 15 w above 17 mc.
RANGE: Medium and long.
NUMBER OF TUBES: 4.

GENERAL APPLICATION

USE: Transmitting from shipboard.
TO COMMUNICATE WITH: Shore or shipboard receiving sets within frequency range.
INSTALLATION: Fixed shipboard.
TYPE OF SIGNAL: C-w, m-c-w.

PRINCIPAL COMPONENTS

Name	Dimensions (in.)	Weight (lb)
Cabinet (over-all)	45 $\frac{1}{8}$ x 13 $\frac{1}{4}$ x 19 $\frac{1}{2}$	135
Motor generator	14 $\frac{1}{2}$ x 27 $\frac{3}{4}$ x 9 $\frac{3}{4}$	225
Transmitter		
(housed in cabinet).		

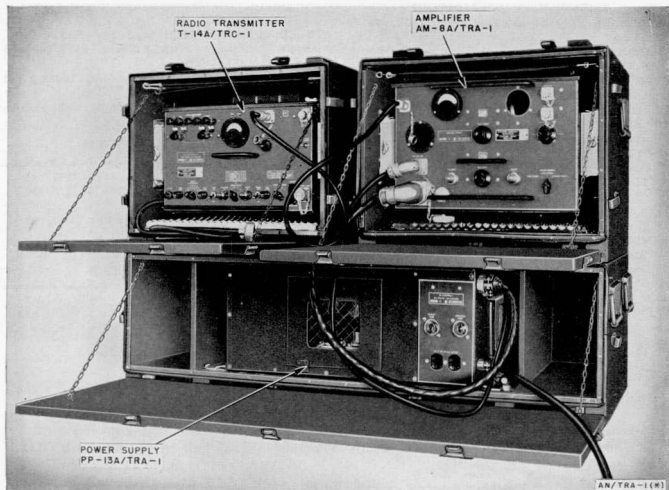


Figure 20. Amplifier Equipment AN/TRA-1 in use with Radio Transmitter T-14A/TRC-1.

Status: Standard. Stock No.: 2S5006-1. Reference: TM 11-2601.

Amplifier Equipment AN/TRA-1(*) represents Amplifier Equipment AN/TRA-1, -1A, -1B, and -1C. Amplifier Equipment AN/TRA-1(*) consists of Amplifier AM-8A/TRA-1, Power Supply PP-13A/TRA-1, and accessory components and spare parts for maintenance.

This equipment is used in conjunction with Radio Transmitter T-14A/TRC-1 to increase the power output of the transmitter to 250 watts. It is used where more power is required to maintain good communication under adverse conditions, such as unfavorable terrain or long spans between stations.

TECHNICAL CHARACTERISTICS

FREQUENCY RANGE: Amplifier AM-8/TRA-1: 70 to 100 mc.

ANTENNA: Use 3-element directional array supplied with AN/TRC-1 (*), -3 (*), and -4 (*) equipments.

TYPE MODULATION: Will handle the four voice channels provided by the transmitter of the AN/TRC-1, -3, and -4 equipments.

POWER SOURCE: Power Unit PE-75, or 115-v, 60-cyc a-c commercial power.

POWER OUTPUT:

Amplifier AM-8/TRA-1: 250 w max.

Power Supply PP-13/TRA-1:

ac, 115 v, 50 to 60 cyc. 175 w.

bins, 100 v dc.

dc, +450 v, 40 ma; +1,000 v, 250 ma.

NUMBER OF TUBES:

Amplifier AM-8/TRA-1: 5.

Power Supply PP-13/TRA-1: 3.

GENERAL APPLICATION

USE: This equipment is used in conjunction with Radio

Transmitter T-14/TRC-1 to increase the power output of the transmitter to 250 w.

TO COMMUNICATE WITH: Radio Set AN/TRC-1 (*), Radio Terminal Set AN/TRC-3 (*), and Radio Relay Set AN/TRC-4 (*).

INSTALLATION: Transported in vehicle. Installed and operated on ground.

TYPE OF SIGNAL: Voice (f-m) as provided by Radio Transmitter T-14/TRC-1.

PRINCIPAL COMPONENTS

Name	Dimensions (in.)	Weight (lb)
Amplifier AM-8/TRA-1	10 $\frac{3}{4}$ x 13 $\frac{3}{4}$ x 19 $\frac{1}{8}$	48
Power Supply PP-13/TRA-1	9 $\frac{3}{8}$ x 14 x 25	130
Case CY-15/TRA-1 (for amplifier)	17 $\frac{3}{4}$ x 16 x 22 $\frac{1}{2}$	40
Case CY-16/TRA-1.		
Cord CG-107/U.		

WEIGHT AND VOLUME

	Unpacked Export Pack	
Total weight (lb)	430	547
Total volume (cu ft)		28.1

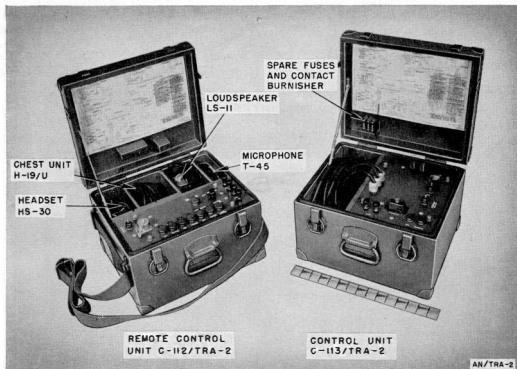


Figure 21. Remote Control Equipment AN/TRA-2.

Status: Standard. Stock No.: 2C5002-1. Reference: TM 11-2621.

Remote Control Equipment AN/TRA-2 consists of two major components, Remote Control Unit C-112/TRA-2 and Control Unit C-113/TRA-2. The remote control equipment is used with but is not a part of Radio Sets AN/TRC-1(*) and AN/TRC-8.

Control Unit C-113/TRA-2 is located at the transmitter, while Remote Control Unit C-112/TRA-2 is located at a remote point. This provides press-to-talk control of the radio set on a two- or four-wire basis; it limits the transmission input into the radio transmitter; it provides for listening at the remote station with either headphone or loudspeaker; it provides for intercommunication between attendants; it has automatic radio repeater operations and manual volume control at the remote station, with facilities for three attendants at the remote station.

When the radio receiver and transmitter are closely associated, two-wire operation is provided; when they are not located together or when two frequencies are used, four-wire operation is provided.

TECHNICAL CHARACTERISTICS

POWER SOURCE: 117- or 230-v, 50- to 60-cycle, ac.
 RANGE: ½ mi (approx).
 NUMBER OF TUBES: 0.

GENERAL APPLICATION

USE: Provides for remote control of Radio Set AN/TRC-1
 or equivalent radio communication equipment.
 INSTALLATION: Portable or fixed.

PRINCIPAL COMPONENTS

<i>Name</i>	<i>Dimensions (in.)</i>	<i>Weight (lb)</i>
Remote Control Unit C-112/TRA-2	9 x 12 x 12	20
Control Unit C-113/TRA-2	9 x 12 x 12	20

WEIGHT AND VOLUME

	<i>Domestic pack</i>
Total weight (lb)	98
Total volume (cu ft).....	5

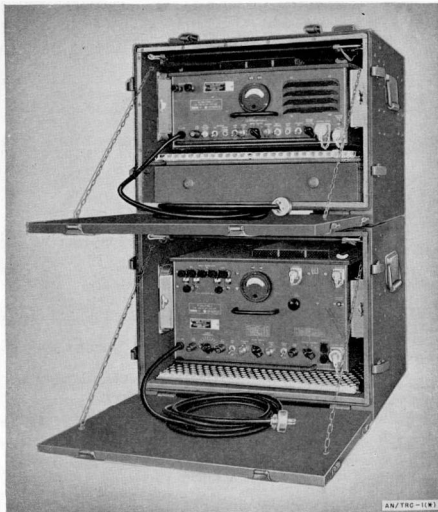


Figure 22. Radio Receiver R-19/TRC-1, mounted on Radio Transmitter T-14/TRC-1 (components of Radio Set AN/TRC-1).

Status: Standard. Stock No.: 2S5002-1. Reference: TM 11-2601

Radio Set AN/TRC-1(*) represents Radio Sets AN/TRC-1, -1A, -1B, -1C, -1D, -1E, -1F, and -1G. Radio Set AN/TRC-1(*) consists of Radio Receiver R-19/TRC-1(*), Radio Transmitter T-14/TRC-1(*), three Antenna Systems AS-19/TRC-1(*), (two in use, one spare), Power Unit PE-75, and accessory components.

Radio Set AN/TRC-1(*) is a ground transportable set, and is intended for either point-to-point or radio relay application. It provides single-channel communication in both directions simultaneously (duplex operation), or single-channel communication in one direction at a time (simplex operation).

Radio Set AN/TRC-1(*) may also be used with telephone carrier terminal equipment to provide multichannel communication when continuous service is not required.

Continuous 24-hour service is not intended for this radio set; therefore no spare transmitters or receivers are provided, and the maintenance equipment is limited in extent.

TECHNICAL CHARACTERISTICS

FREQUENCY RANGE: 70 to 100 mc (300 channels).
 NUMBER OF CRYSTALS: Bank of 16 per set (in each transmitter and receiver).
 PRESET FREQUENCIES: 1 receiving and 1 transmitting.
 ANTENNA: 3-element directional array (included in Antenna System AS-19/TRC-1(*)).
 TYPE MODULATION: Frequency (receiver and transmitter).
 FREQUENCY CONTROL: Crystal (receiver and transmitter).
 POWER SOURCE: 115-v, 60-cyc, a-c commercial power or Power Unit PE-75.
 POWER OUTPUT: High power: 50 w. Low power: 10 w.
 RANGE: 25 mi (line of sight).
 NUMBER OF TUBES: 17 in receiver. 11 in transmitter.

GENERAL APPLICATION

USE: for either point-to-point or radio-relay application. Used with Carrier Equipment CF-1 and CF-2 to provide multichannel service.
 TO COMMUNICATE WITH: Radio Set AN/TRC-1(*), Radio Terminal Set AN/TRC-3(*), and Radio Relay Set AN/TRC-4(*).
 INSTALLATION: Transported by vehicle. Installed and operated on ground.
 TYPE OF SIGNAL: Voice (f-m):
 Microphone channel: 250 to 2,500 cyc.
 High fidelity channel: 2,500 to 12,000 cyc.

PRINCIPAL COMPONENTS

Name	Dimensions (in.)	Weight (lb)
1 Radio Receiver R-19/TRC-1(*)	8 x 10 3/4 x 12 3/4	43
1 Radio Transmitter T-14/TRC-1(*)	10 1/2 x 19 1/2 x 12 3/4	66
1 Antenna System AS-19/TRC-1(*), packed in:		
3 cases CY-29/TRC-1(*)		
(two in use, one spare)	13 3/4 x 72 x 17 1/2	380 ea
3 Cases CY-30/TRC-1(*)		
(two in use, one spare)	13 3/4 x 33 1/2 x 16	90 ea
(Radio Sets AN/TRC-1F and -1G use a redesigned antenna packed in Case CY-443/TRC-1(*), Bag BG-102, and Carrying Frame CY-445/TRC 1(*)).		
1 Antenna Extension Kit MX-141/TRC-1(*)		14
1 Power Unit PE-75	26 1/2 x 36 x 19 1/2	330

WEIGHT AND VOLUME

	Unpacked	Export pack
Total weight (lb)	1,435	2,000
Total volume (cu ft)		78
Ship tons		2.0

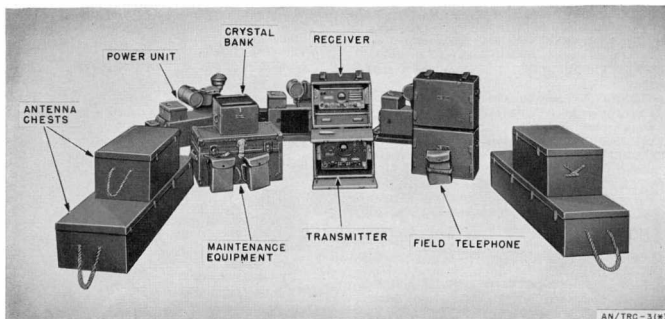


Figure 23. Radio Terminal Set AN/TRC-3, components.

Status: Standard. Stock No.: 2S5002-3. Reference: TM 11-2601.

Radio Terminal Set AN/TRC-3(*) represents Radio Terminal Sets AN/TRC-3, -3A, -3B, -3C, -3D, -3E, -3F, and -3G.

Radio Terminal Set AN/TRC-3(*) consists of two Radio Receivers R-19/TRC-1(*) (one in use, one spare), two Radio Transmitters T-14/TRC-1(*) (one in use, one spare), three Antenna Systems AS-19/TRC-1(*) (two in use, one spare), four Power Units PB-75 (two in use, two spare), and accessory components and spare parts for maintenance.

The components of Radio Set AN/TRC-3(*), except in quantity, are identical with those used in Radio Sets AN/TRC-1, -1A, -1B, -1C, -1D, -1E, -1F, and -1G.

This equipment is intended for operation at the terminals of single or multichannel radio-relay systems when continuous operation is required.

Components not in use are running spares which are supplied to insure uninterrupted service in case of failure of a major component.

TECHNICAL CHARACTERISTICS

FREQUENCY RANGE: 70 to 100 mc (300 channels).
NUMBER OF CRYSTALS: 964. (Bank of 900 on 300 frequencies, plus 64 crystals on 16 basic frequencies.)
PRESET FREQUENCIES: 1 receiving and 1 transmitting.
ANTENNA: 3-element directional array (included in Antenna System AS-16/TRC-1 (*)). Normally mounted 40 ft above ground.
TYPE MODULATION: Frequency.
FREQUENCY CONTROL: Crystal (receiver and transmitter).
POWER SOURCE: 115-v, 60-cyc a-c commercial power of Power Unit PE-75. Test Set I-56-K: 1 each Batteries BA-2, BA-30, and BA-31. Telephone EE-8: 6 Batteries BA-30.
POWER OUTPUT: High power: 50 w. Low power: 10 w.
RANGE: 25 mi per link (line of sight).
NUMBER OF TUBES:
 Radio Receiver R-11/TRC-1 (*): 17 (in each).
 Radio Transmitter T-14/TRC-1 (*): 11 (in each).
GENERAL APPLICATION
USE: To provide a single or multichannel terminal of radio-relay system when continuous operation is required.
TO COMMUNICATE WITH: Radio Set AN/TRC-1 (*), Radio Terminal Set AN/TRC-3 (*), Radio Relay Set AN/TRC-4 (*).
INSTALLATION: Transported by vehicle. Installed and operated on ground.
TYPE OF SIGNAL: Voice (f-m)

PRINCIPAL COMPONENTS

Name	Dimensions (in.)	Weight (lb)
2 Radio Receivers R-19/TRC-1 (*) (1 in use, 1 spare).	8 x 19 1/2 x 12 3/4	43 ea
2 Radio Transmitters T-14/TRC-1 (*) (1 in use, 1 spare).	10 3/4 x 19 1/2 x 12 3/4	66 ea
1 Antenna System AS-19/TRC-1 (*) packed in:		
3 Cases CY-29/TRC-1 (*) (2 in use, 1 spare)	13 1/4 x 72 x 17 1/2	380 ea
3 Cases CY-30/TRC-1 (*) (2 in use, 1 spare)	13 3/4 x 33 1/2 x 16	90 ea
(Radio Terminal Sets AN/TRC-3F and -3G use a directional antenna packed in Case CY-443/TRC-1 (*), Bag 13G-102, and Carrying Frame CY-445/TRC-1 (*)).		
4 Power Units PE-75 (2 in use, 2 spare)	26 1/2 x 36 x 19 1/2	330 ea

WEIGHT AND VOLUME

	Unpacked	Exportpack
Total weight (lb)	2,560	3,150
Total volume (cu ft)		132
Ship tons		3.3

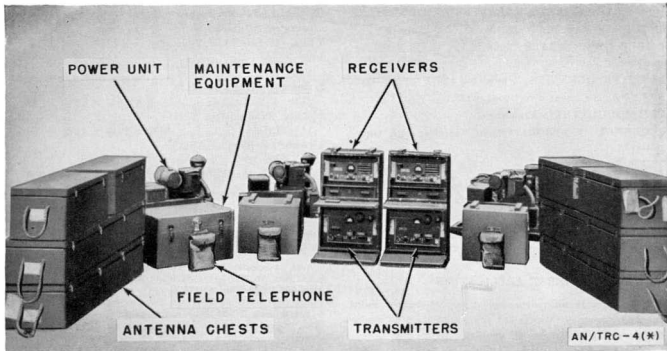


Figure 24. Radio Relay Set AN/TRC-4, components.

Status: Standard. Stock No.: 285002-4. Reference: TM 11-2601.

Radio Relay Set AN/TRC-4(*) represents Radio Relay Sets AN/TRC-4, -4A, -4B, -4C, -4D, and -4E.

Radio Relay Set AN/TRC-4(*) consists of three Radio Receivers R-14(*)/TRC-1 (two in use, one spare), three Radio Transmitters T-14(*)/TRC-1 (two in use, one spare), six Antenna Systems AS-19(*)/TRC-1 (four in use, two spare), four Power Units PE-75 (two in use, two spare), and accessory components and spare parts for maintenance.

This equipment is intended for operation as a *relay station* of a single or multichannel radio-relay communication system when continuous operation is required.

Running spares and maintenance equipment are furnished to insure uninterrupted service in case of failure of a major component.

TECHNICAL CHARACTERISTICS

FREQUENCY RANGE: 70 to 100 mc (300 channels).
 NUMBER OF CRYSTALS: 96 with set, on 16 basic frequencies.

PRESET FREQUENCIES: 1 receiving and 1 transmitting.

ANTENNA: 3-element directional array.

TYPE MODULATION: Frequency.

FREQUENCY CONTROL: Crystal (receiver and transmitter).

POWER SOURCE: 115 v, a-c, 60 cyc. single-phase, commercial power or Power Unit PE-75.

POWER OUTPUT: High power: 50 w. Low power: 10 w.
 RANGE: 25 mi per link (line of sight).

NUMBER OF TUBES: Radio Receiver R-19(*)/TRC-1: 17. Radio Transmitter T-14(*)/TRC-1: 11.

GENERAL APPLICATION

USE: To provide an independent 3-way, 4-channel radio repeater station with sufficient spare equipment to insure 24-hour-a-day continuous service.

TO COMMUNICATE WITH: Radio Set AN/TRC-1(*), Radio Terminal Set AN/TRC-3(*), and Radio Relay Set AN/TRC-4(*)

INSTALLATION: Transported by vehicle. Installed and operated on ground.

TYPE OF SIGNAL: Voice, f-m.

PRINCIPAL COMPONENTS

Name	Dimensions (in.)	Weight (lb)
2 Radio Receivers R-19(*) /TRC-1	8 x 19 $\frac{1}{2}$ x 12 $\frac{3}{4}$	43
2 Radio Transmitters T-14 (*)/TRC-1	10 $\frac{1}{4}$ x 19 $\frac{1}{8}$ x 12 $\frac{3}{4}$	66
1 Automatic System AS-19 (*)/TRC-1		
2 Power Units PE-75	26 $\frac{1}{2}$ x 36 x 19 $\frac{1}{2}$	330

WEIGHT AND VOLUME

	Unpacked	Export pack
Total weight (lb)	3,500	4,500
Total volume (cu ft)		187
Ship tons		4.7

Note: A complete radio relay system, consisting of 2 Radio Terminal Sets AN/TRC-3(*), 3 Radio Relay Sets AN/TRC-4(*), 4 Amplifier Equipments AN/TRA-1(*), 3 Telephone Terminal Sets TC-21 (one spare), 3 Telegraph Terminal Sets TC-22 (one spare), 5 Ringer Sets TC-24 (one spare), and 15 miles of spiral-four cable, packed for overseas shipment, requires 180 boxes with an aggregate weight of 23 tons and an aggregate volume of 1,650 cubic feet (41 ship tons). Up to seven Radio Relay Sets AN/TRC-4(*), may be used for a relay system. For each Radio Relay Set AN/TRC-4(*) over and above the 3 sets included in the above figures add approximately 4,000 pounds to the shipping weight.

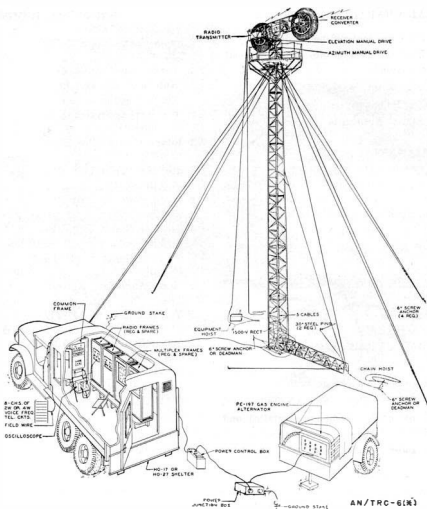


Figure 25. Radio Set AN/TRC-6(XC-2) illustrating a typical layout.

Status: Limited standard. Stock No.: 2S5002-6. Reference: TM 11-631, TM 11-632, and TM 11-633.

Radio Set AN/TRC-6(*) represents Radio Sets AN/TRC-6(XC-2), AN/TRC-6(XC-3), and modifications thereof which include Radio Set AN/TRC-6.

Radio Set AN/TRC-6(*) is a combined radio transmitter and radio receiver with facilities for providing eight 'two-way voice channels between two points over an unobstructed line of sight transmission path.

The radio sets are used in pairs and may be terminated in v-f (voice-frequency) wire lines, field switchboards, or telephone and telegraph carrier equipment. Since the distance between sets is limited by the curvature of the earth, two or more radio links may be connected back to back in a tandem arrangement to provide a longer radio circuit.

Radio Set AN/TRC-6(*) makes use of what is commonly called "pulse transmission." Multiplex Unit MX-106/TRC-6(*) translates the v-f signals of the eight channels into pulse-position-modulated time division signal for transmission over the radio link.

TECHNICAL CHARACTERISTICS

FREQUENCY RANGE: 4,350 to 4,800 mc in 4 bands.
 RINGING ON CHANNELS: 20 eye into radio channel;
 20 cyc out of radio channel.
 ANTENNA: Parabolic reflector, waveguide feed.
 TYPE MODULATION: Pulse-position (multiplex).
 FREQUENCY CONTROL: Automatic frequency control
 in the receiver.
 NUMBER OF V-F CHANNELS: 8.
 NUMBER OF TELEGRAPH CHANNELS: 1 d-c
 grounded telegraph circuit may connect to any v-f chan-
 nel. Any voice channel may be replaced by Telegraph
 Carrier CF-1 or equivalent.
 POWER SOURCE: 11.5v, 60-eye supply.
 POWER OUTPUT: Rectifier Power Unit PP-70/TRC-
 6(*): +300 v.
 RANGE: Single link, 25 to 70 mi line of sight. Average
 system (4 radio links), 100 to 200 mi.
 NUMBER OF TUBES: 154.

GENERAL APPLICATION

USE: Provides 8 two-way voice channels between two
 points, line of sight radio transmission path.
 TO COMMUNICATE WITH: Radio Set AN/TRC-6(*).
 INSTALLATION: Transported in vehicles. Installed and
 operated on ground as fixed station.
 TYPE OF SIGNAL: Pulse transmission.

PRINCIPAL COMPONENTS

Yans	Dimensions (in.)	Weight (lb)
2 Radio Transmitters T-57/ TRC-6(*)	12½ x 18 x 17	45
1 Tower AB-19/TRC-6(*)	70 feet	530
3 Antennas AT-47/TRC-6 (*) (waveguide)	4½ x 2¾ x 21½	1.5
2 Receiver Converter CV- 219/TRC-6(*)	12½ x 13 x 12½	20
1 Power Control Box MX- 120/TRC-6(*)	16¾ x 10¾ x 21½	153
1 Rectifier Power Unit PP- 56/TRC-6(*)	3¾ x 7 x 19	7
2 Rectifier Power Unit PP- 09/TRC-6(*)	8½ x 9 x 19	52
4 Rectifier Power Unit PP- 70/TRC-6(*)	8½ x 9 x 19	53.5
2 Rectifier Power Unit PP- 71/TRC-6(*)	19 x 13½ x 20	112
2 L-F Amplifier AM-30/ TRC-6(*)	5¾ x 4½ x 19	5.5
2 Video Amplifiers AM-31/ TRC-6(*)	15½ x 9 x 19	50
1 Video Repeater MX-107/ TRC-6(*)	14¾ x 9 x 19	55
1 Binding Post and Circuit Breaker P:nel J-34/TRC- 6(*)	5¾ x 7 x 19	16

WEIGHT

Total weight (lb) Domestic pack 4,684

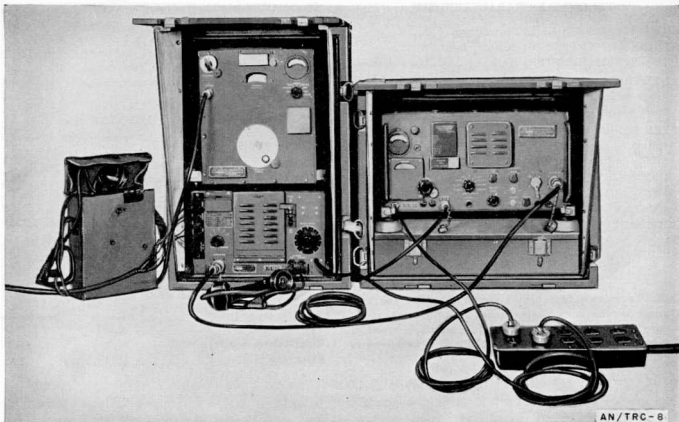


Figure 26. Radio Set AN/TRC-8, principal components.

Status: Substitute standard. *Stock No.:* 2S5002-8.1. *Reference:* TM 11-618.

Radio Set AN/TRC-8 consists of an f-m Radio Receiver R-48/TRC-8, an f-m Radio Transmitter T-30/TRC-8, Power Pack PP-115/TRC-8, two Antenna Assemblies AS-52/TRC-8, two 40-foot Antenna Supports AB-48/TRC-8, one Power Unit PE-75 and spare parts for maintenance.

Radio Set AN/TRC-8 is intended for point-to-point or radio-relay application to provide either single-channel or multichannel communication in both directions simultaneously. Spare components are not included in Radio Set AN/TRC-8 because the set is not intended for continuous uninterrupted operation.

Reliable range is 25 miles over flat terrain. Satisfactory communication can be attained as far as 100 miles when advantage is taken of high points in terrain and when a line of sight path exists between transmitter and receiver.

This equipment is intended for use as a fixed field station and not for mobile operation, but all components are transportable in a standard military $\frac{3}{4}$ -ton truck or 1-ton trailer.

This radio set may be installed by a crew of four men in approximately 1 hour after arrival at the operating site, if the equipment has previously been removed from packing cases.

TECHNICAL CHARACTERISTICS

FREQUENCY RANGE: 230 to 250 mc.

NUMBER OF CRYSTALS: None.

PRESET FREQUENCIES: None.

ANTENNA: Antenna Assembly AS-52/TRC-8. Half-wave dipole with 90° corner reflector, supported by 40-ft sectional mast. Antenna beam width 80°.

TYPE MODULATION: Receiver: frequency, ± 100 kc deviation. Transmitter: frequency ± 100 kc deviation (100% modulation).

FREQUENCY CONTROL: Tunable resonant line.

POWER SOURCE: Power Unit PE-75, or 120-v, 60 cycle commercial power.

POWER OUTPUT: 12 w.

RANGE: 25 to 100 mi, line of sight.

NUMBER OF TUBES: 23.

GENERAL APPLICATION

USE: To provide four-channel carrier telephone and telegraph service, or, single-channel, point-to-point radio-relay service. Used to extend wire lines where speed of movement prohibits line construction, and to bridge water gaps.

TO COMMUNICATE WITH: Radio Set AN/TRC-8, Radio Terminal Set AN/TRC-11, and Radio Relay Set AN/TRC-12.

INSTALLATION: Transported by truck or trailer. Installed and operated as fixed field station.

TYPE OF SIGNAL: Voice or multichannel telephone, telegraph, or facsimile f-m.

PRINCIPAL COMPONENTS

Name	Dimensions (in.)	Weight (lb)
1 Radio Receiver R-48/TRC-8, cased with tools and operating components	23 x 16 x 19	126
1 Radio Transmitter T-30/TRC-8, cased with Power Pack PP-115/TRC-8	17½ x 16 x 24½	135
2 Antenna Assemblies AS-52/TRC-8, cased	33½ x 14 x 24	110
1 Power Unit PE-75	36 x 19 x 27	325

WEIGHT AND VOLUME

	Unpacked	Domestic pack
Total weight (lb)	1,237	1,250
Total volume (cu ft)		48
Ship tons		1.8

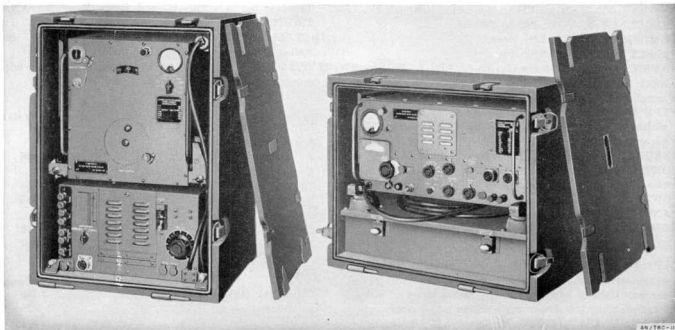


Figure 27. Radio Terminal Set AN/TRC-11, showing Radio Transmitter T-30/TRC-8 and Radio Receiver R-48/TRC-8.

Status: Substitute standard. *Stock No.:* 2S5002-11.1. *Reference:* TM 11-618.

Radio Terminal Set AN/TRC-11 consists of two Radio Receivers R-48/TRC-8 (one in use, one spare), two Radio Transmitters T-30/TRC-8 (one in use, one spare), two Power Packs PP-115/TRC-8 (one in use, one spare), two Antenna Assemblies AS-52/TRC-8, two 40-foot Antenna Supports AB-48/TRC-8, three Power Units PE-75 (two in use, one spare), and spare parts for maintenance.

Components are identical to those used in Radio Set AN/TRC-8.

Radio Terminal Set AN/TRC-11 is intended for operation at the *terminus* of single-channel or multichannel radio relay systems when continuous operation is required.

Components not in use are running spares of maintenance equipment supplied to insure uninterrupted service in the case of failure of a basic component.

Radio Terminal Set AN/TRC-11 can be installed in 1 hour by four men.

TECHNICAL CHARACTERISTICS

FREQUENCY RANGE: 230 to 270 mc.

NUMBER OF CRYSTALS: None.

PRESET FREQUENCIES: None.

ANTENNA: Antenna Assembly AS-52/TRC-8. Half-wave dipole with 90° corner reflector supported by 40-ft sectional mast. Antenna beam width 80°.

TYPE MODULATION: Receiver: frequency ± 100 kc. deviation. Transmitter: frequency ± 100 kc deviation. (100 percent modulation.)

FREQUENCY CONTROL: Tunable resonant line.

POWER SOURCE: Power Unit PE-75 or commercial power 120-v, 60-cyc.

POWER OUTPUT: 12 w.

RANGE: 25 to 100 mi. line of sight.

NUMBER OF TUBES: 23.

GENERAL APPLICATION

USE: To provide four-channel carrier telephone and telegraph service or single-channel point-to-point radio relay service. Used to extend wire lines where speed of movement prohibits line construction and to bridge water gaps.

TO COMMUNICATE WITH: Radio Set AN/TRC-8, Radio

Terminal Set AN/TRC-11, and Radio Relay Set AN/TRC-12.

INSTALLATION: Transported by truck or trailer. Installed and operated as fixed field station.

TYPE OF SIGNAL: Voice, or multichannel telephone, telegraph or facsimile, f.m.

PRINCIPAL COMPONENTS

Name	Dimensions (in.)	Weight (lb)
1 Radio Receiver R-48/TRC-8, cased with tools and operating components	23 x 16 x 19	126
1 Radio Transmitter T-30/TRC-8, cased with Power Pack PP-115/TRC-8	17½ x 16 x 24½	135
2 Antenna Assemblies AS-52/TRC-8, cased	33½ x 14 x 24	110
1 Power Unit PE-75	36 x 19 x 27	325

WEIGHT AND VOLUME

	Domestic pack
Total weight (lb)	2,300
Total volume (cu ft)	76
Ship tons	1.9

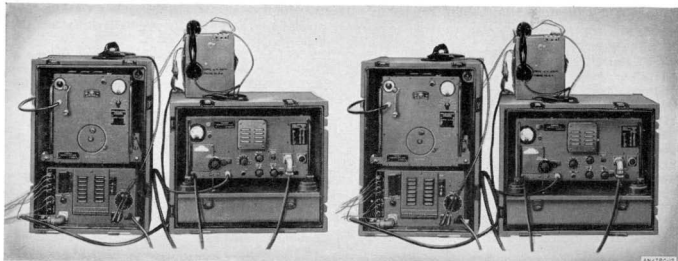


Figure 28. Radio Relay Set AN/TRC-12, showing Radio Receivers R-48/TRC-8 and Radio Transmitters T-30/TRC-8.

Status: Substitute standard. *Stock No.:* 2S5002-121. *Reference:* TM 11-618.

Radio Relay Set AN/TRC-12 consists of three Radio Receivers R-48/TRC-8 (two in use, one spare), three Radio Transmitters T-30/TRC-8 (two in use, one spare), four Antenna Assemblies AS-52/TRC-8, four Antenna Supports AB-48/TRC-8, three Power Units PU-75 (two in use, one spare), and sufficient spare parts for maintenance.

This equipment is intended for operation as a *relay station* of a single-channel or multichannel radio relay communication system when continuous operation is important.

Running spares and maintenance equipment have been selected to insure uninterrupted service in case of failure of a basic component.

Radio Relay Set AN/TRC-12 can be installed in 2 hours by four men.

Note. A complete radio relay system requires a Radio Terminal Set AN/TRC-11 at both ends, and from one to seven Radio Relay Sets AN/TRC-12 between them.

TECHNICAL CHARACTERISTICS

FREQUENCY RANGE: 230 to 250 mc.
 NUMBER OF CRYSTALS: None.
 PRESET FREQUENCIES: None.
 ANTENNA: Four Antenna Assemblies AS-52/TRC-8.
 Half-wave dipole with 90° corner reflector, supported by 40-ft sectional mast. Antenna beam width, 80°.
 TYPE MODULATION: Receiver: frequency ± 100 kc deviation. Transmitter: frequency ± 100 kc deviation (100 percent modulation).
 FREQUENCY CONTROL: Tunable resonant line.
 POWER SOURCE: Power Unit PE-75, or commercial power 120-v, 60-cyc.
 POWER OUTPUT: 12 w.
 RANGE: 25 to 100 mi, line of sight.
 NUMBER OF TUBES: 23.

GENERAL APPLICATION

USE: To provide four-channel carrier telephone and telegraph carrier service or single-channel point-to-point radio relay service. Used to extend wire lines where speed of movement prohibits line construction, and to bridge water gaps.

TO COMMUNICATE WITH: Radio Set AN/TRC-8, Radio Terminal Set AN/TRC-11, and Radio Relay Set AN/TRC-12.

INSTALLATION: Transported by truck or trailer. Installed and operated as fixed field station.

TYPE OF SIGNAL: Voice or multi-channel telephone, telegraph or facsimile, f m.

PRINCIPAL COMPONENTS

Name	Dimensions (in.)	Weight (lb.)
2 Radio Receivers R-48/TRC-8, eased with tools and operating components	23 x 16 x 19	126
2 Radio Transmitters T-30/TRC-8, eased with Power Pack PP-215/TRC-8	17½ x 16 x 24½	135
4 Antenna Assemblies AS-52/TRC-8, eased	33½ x 14 x 24	110
2 Power Units PE-75	36 x 13 x 27	325

WEIGHT AND VOLUME

Total weight (lb)	Domestic pack	3,150
Total volume (cu ft)		101
Ship tons		2,525



Figure 29. Radio Control Central AN/TRQ-1 installed in Shelter HIO-17.

Status: Standard, *Stock No.:* 2S5004-1. *Reference:* TM 11-2619.

Radio Control Central AN/TRQ-1 is a four-position, radio-control and intercept station, and is intended to be used in conjunction with Radio Set AN/MRQ-2. The entire radio equipment is installed in Shelter HIO-17, which is usually mounted in a 2½ ton, 6 x 6 cargo truck. Power Unit PE-95 is installed in Trailer K-52-E.

The control central has four operating positions, each position having provision for wire communication with, and remote control of, the transmitting station. Radio Set AN/MRQ-2 is located within a mile radius of the control central. Three of the operating positions have as required equipment: two medium-frequency monitoring receivers, a remote-control unit, and a typewriter for maintaining a log of operations and for transcribing messages. The fourth position has two h-f monitoring receivers, a 12-position telephone switchboard with terminal facilities for 8 telephone circuits, a remote-control unit, a typewriter, a receiver-transmitter set for communication with other control centers, and a frequency meter for general utility use in all four positions. Other standard components are a 12-volt storage battery and charger, an antenna coupling unit for coupling three receivers to a single antenna, and an interphone control box for operation of Radio Set SCR-828 from the truck cab.

TECHNICAL CHARACTERISTICS

ANTENNA: Four antennas are provided: Three whip antennas and an auxiliary Antenna Assembly AS-93/MRQ-2, which consists of a horizontal, mast supported, single-wire antenna, and counterpoise combination.

TYPE MODULATION: Amplitude and frequency.

POWER SOURCE: 115-v, 60-cycle, a-c, supplied by Power Unit PE-95 in Trailer K-52-E, or a 12-v storage battery, or self-contained battery.

POWER OUTPUT: 35 w, from Radio Set SCR-828.

RANGE: Dependent upon antenna used, frequency, and ionospheric conditions.

GENERAL APPLICATION

USE: Four-position, radio control and intercept station.

TO COMMUNICATE WITH: Similar installations, or fan units in the 27 to 38.9 mc band.

INSTALLATION: Usually mounted on a 2½-ton, 6 x 6 cargo truck. (Power Unit PE-95, installed in Trailer K-52-E.)

PRINCIPAL COMPONENTS

Name	Dimensions (in.)	Weight (lb)
3 Radio Receivers BC-342	10 x 9 7/8 x 18 7/8	61.5
3 Radio Receivers BC-344	10 x 9 7/8 x 18 7/8	61.5
1 Radio Receiver R-137/GR	9 7/8 x 21 1/4 x 14 1/2	78
1 Radio Receiver BC-794	24 3/4 x 20 1/2 x 15 3/8	90
1 Radio Receiver BC-923-A	11 1/2 x 12 3/4 x 6 3/4	42
1 Radio Transmitter BC-924-A	11 1/2 x 10 1/2 x 18	49
1 Power Supply Unit RA-84.		
1 Dynamoter DM-64.		
1 Dynamoter DM-65.		
4 Remote Control Units C-103/TRQ-1.		
1 Antenna Coupling Unit CU-23/TRQ-1.		

WEIGHT AND VOLUME

	Unpacked	Domestic pack
Total weight (lb)	3,785	4,500
Total volume (cu ft)	160	225
Ship tons	4	5.5



Figure 30. Radio Receiver BC-403, component of Radio AN/TRR-3.

Status: Standard. *Stock No.:* 2S5014-3/12 for 12-v operation; 2S5014-3/24 for 24-v operation.
Reference: TM 11-4033.

Radio Set AN/TRR-3 provides frequency-modulated radiotelephone reception facilities for car, platoon, company, battalion, and regimental commanders and staff officers. This set may be installed and operated in combat vehicles such as tanks, half-truck, scout, and command cars, or in any other authorized vehicle. It is used for monitoring Radio Sets SCR-508 and SCR-528.

TECHNICAL CHARACTERISTICS

FREQUENCY RANGE: 20 to 27.6 mc.
 NUMBER OF CRYSTALS: None.
 PRESET FREQUENCIES: 10.
 ANTENNA: Whip.
 TYPE MODULATION: Frequency.
 POWER SOURCE: 12- or 24-v. vehicular battery.
 POWER OUTPUT: Speaker: 2-w. Headset: 0.2-w.
 RANGE: Short and medium.
 NUMBER OF TUBES: 10.

GENERAL APPLICATION

USE: Reception of signals and monitoring Radio Sets
 SCR-508 and SCR-528.
 TO COMMUNICATE WITH: Receivers within frequency
 range 20 to 27.9 mc.

INSTALLATION: Vehicular.
 TYPE OF SIGNAL: F-m, radiotelephone.

PRINCIPAL COMPONENTS

Name	Dimensions (in.)	Weight (lb.)
Radio Receiver BC-603	11 1/2 x 6 3/4 x 12 1/2	35
Dynamotor DM-34 (for 12-v operation)	4 1/2 x 3 x 6 1/2	4.7
Dynamotor DM-36 (for 24-v operation)	4 1/2 x 3 x 6 1/2	4.7

WEIGHT AND VOLUME

	Unpacked	Domestic pack
Total weight	39.7	45
Total volume (cu ft)	0.6	2



Figure 31. Radio Set AN/VRC-1, prepared for mobile operation.

Status: Standard. *Stock No.:* 2S4502-1. *Reference:* TM 11-277.

Radio Set AN/VRC-1 is a combination h-f and v-h-f radio set designed for installation in truck, $\frac{1}{4}$ -ton, 4 x 4, and for operation from a 12-volt vehicular storage battery.

The h-f section uses Radio Set SCR-193; the v-h-f section uses Radio Set SCR-542. Both sections are mounted in Cabinet CH-217.

Radio Set AN/VRC-1 is designed for use by United States Air Force ground organizations in the control of tactical aircraft. The h-f section is normally used for communication within a ground point-to-point net, although use as a beacon for compass-equipped aircraft and for communication with h-f equipped aircraft is also practicable.

The v-h-f section is normally used for ground-air communication with aircraft fitted with v-h-f equipment.

TECHNICAL CHARACTERISTICS

FREQUENCY RANGE: 3.0 to 6.2 mc and 100 to 156 mc.
 NUMBER OF CRYSTALS: Radio Set SCR-542: 8 crystal units DC-1L.

PRESET FREQUENCIES:

- Radio Set SCR-193:
 - Radio Transmitter BC-191: 1.
 - Radio Receiver BC-312: 1.
- Radio Set SCR-542:
 - Radio Transmitter BC-625: 4.
 - Radio Receiver BC-624: 4.

ANTENNA: Vertical rod type, 15-ft whip MS-116 to MS-118 inclusive or Radio Transmitter BC-191 3 ft whip MS-118.

TYPE MODULATION: Amplitude.

FREQUENCY CONTROL: Radio Transmitter BC-191: Mo. Radio Transmitter BC-625: Crystal.

POWER SOURCE: 12-v vehicular storage batteries and dynamotors. H-f section—

- Radio Transmitter BC-191: Dynamotor BD-77. Radio Receiver BC-312: Dynamotor DM-21. V-h-f section—
- Radio Set SCR-542: Dynamotor PE-98.

POWER OUTPUT: H-f section: Radio Transmitter BC-191—40 to 75 w. V-h-f section: Radio Transmitter BC-625—8 to 9 w.

RANGE: Variable, dependent upon frequency used and ionospheric conditions.

NUMBER OF TUBES:

- Radio Set SCR-193: 13.
- Radio Set SCR-542: 18.

GENERAL APPLICATION

USE: Ground-to-air and ground-to-ground communication.
 TO COMMUNICATE WITH: Radio Sets AN/TRC-7, AN/VRC-1, SCR-177, SCR-188, SCR-193, SCR-399, SCR-499, SCR-506, SCR-511, SCR-536, SCR-543, SCR-593, and SCR-694.

INSTALLATION: Ground, mobile; installed and operated in vehicle.

TYPE OF SIGNAL: C-w, tone, voice.

PRINCIPAL COMPONENTS

Name	Dimensions (in.)	Weight (lb)
Radio Set SCR-193:		
Radio Transmitter BC-191	21 $\frac{3}{4}$ x 23 $\frac{1}{2}$ x 9 $\frac{1}{8}$	55
Radio Receiver BC-312	10 x 9 $\frac{1}{8}$ x 18 $\frac{1}{4}$	58
Dynamotor BD-77.		
Radio Set SCR-542:		
Radio Transmitter BC-625	16 $\frac{1}{2}$ x 10 $\frac{1}{2}$ x 12 $\frac{1}{8}$	7
Radio Receiver BC-624	8 $\frac{3}{4}$ x 5 $\frac{3}{8}$ x 15 $\frac{3}{8}$	7
Rack FT-244	2 x 12 $\frac{1}{2}$ x 16	2.5
Dynamotor PE-98	6 $\frac{1}{2}$ x 8 $\frac{3}{4}$ x 12 $\frac{3}{4}$	37
Radio Control Box BC-602	2 $\frac{1}{2}$ x 5 $\frac{1}{8}$ x 7 $\frac{1}{2}$	2.5

WEIGHT AND VOLUME

	Unpacked	Domestic pack
Total weight (lb).....	343	475
Total volume (cu ft).....		22
Ship tons		0.6

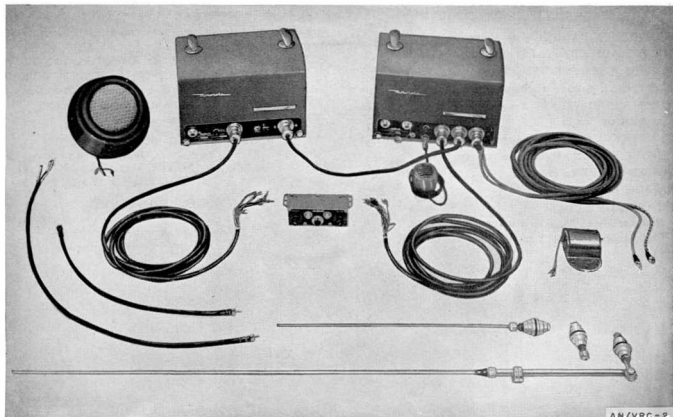


Figure 32. Radio Set AN/VRC-2, components.

Status: Standard. *Stock No.:* 2S4502-2. *Reference:* TM 11-607.

Radio Set AN/VRC-2 (Galvin type FMTR-25-VM) is a vehicular, voice-operated, f-m radio set used as a military police vehicular guard radio. It is capable of working with civil police equipment.

The receiver is crystal-controlled and pretuned to receive signals on one frequency. Power is obtained from a 6-volt storage battery through a vibrator power supply which is mounted on the receiver chassis. The transmitter is also pretuned to transmit signals on one frequency. Another crystal must be substituted and the transmitter must be retuned before signals at another frequency can be transmitted. A 6-volt vibrator power supply, mounted on the transmitter chassis, furnishes the voltage for the operation of the transmitter.

Both transmitter and receiver use a single antenna for transmitting and receiving. The antenna is switched by an antenna relay located in the transmitter. Control of the relay and of the power to the transmitter and receiver is accomplished at the control head located at the operator's position.

TECHNICAL CHARACTERISTICS

FREQUENCY RANGE: 30 to 40 mc.

NUMBER OF CRYSTALS: Transmitter: 1. Receiver: 1.

PRESET FREQUENCIES: Transmitter: 1. Receiver: 1.

ANTENNA: $\frac{1}{4}$ -wave telescopic whip.

TYPE MODULATION: Frequency resulting from phase modulation.

FREQUENCY CONTROL: Crystal-controlled oscillator.

POWER SOURCE: 6-v storage battery.

POWER OUTPUT: 25 w.

RANGE: Line of sight.

NUMBER OF TUBES:

Radio receiver: 13, 2 in vibrator power supply.

Radio transmitter: 7, 2 in vibrator power supply.

GENERAL APPLICATION

USE: Short distance voice communication between vehicle and stationary sets.

TO COMMUNICATE WITH: Radio Sets AN/FRC-6, AN/VRC-2, SCR-298, SCR-608-A, SCR-609, SCR-610, SCR-619, SCR-629-A, SCR-803-A, and SCR-828-A.

INSTALLATION: Installed and operated in vehicle.

TYPE OF SIGNAL: Voice.

PRINCIPAL COMPONENTS

Name	Dimensions (in.)	Weight (lb)
Radio Transmitter R-237/VR	11 $\frac{1}{2}$ x 10 x 15	41
Radio Receiver T-193/VRC-2	11 $\frac{1}{2}$ x 10 x 15	35

WEIGHT AND VOLUME

	Domestic pack
Total weight (lb).....	168
Total volume (cu ft).....	8

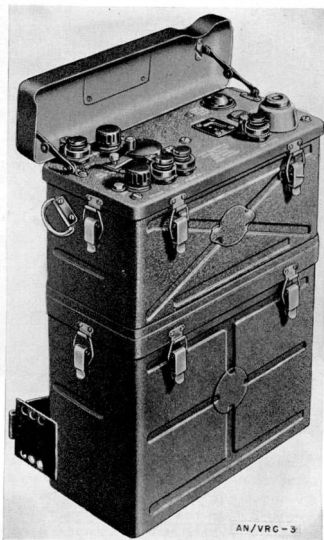


Figure 33. Radio Set AN/VRC-3, showing Radio Receiver and Transmitter BC-1000-A.

Status: Substitute standard. *Stock No.:* 2S4502-3 *Reference:* TM 11-637.

Radio Set AN/VRC-3 consists of an 18-tube, low-power, battery-operated radio receiver and transmitter and accessories. It is designed for f-m, two-way communication over short distances.

Primarily intended for installation in light and medium tanks to provide communication between tanks and supporting infantry, this set is now used in vehicles only.

The complete radio set weighs approximately 34 pounds in portable use.

Radio Set AN/VRC-3 is similar to Radio Set SCR-300, with the addition of special mounting brackets for tank installation.

TECHNICAL CHARACTERISTICS

FREQUENCY RANGE:

Transmitter: 40 to 48 mc.

Receiver: 40 to 48 mc.

NUMBER OF CRYSTALS: 2.

PRESET FREQUENCIES: None.

ANTENNA: Whip.

TYPE MODULATION: Frequency.

FREQUENCY CONTROL: Mo.

POWER SOURCE: Power Supply PP-114/VRC-3, BA-7,
or loaded Battery Case CS-139.

POWER OUTPUT:

Transmitter: 0.3 (r-f).

Receiver: 2 mw (a-f).

RANGE: 3 mi approx.

NUMBER OF TUBES: 18.

GENERAL APPLICATION

USE: To provide communication between light and medium tanks, and other vehicles.

TO COMMUNICATE WITH: Radio Sets AN/VRC-3 and SCR-300.

INSTALLATION: Vehicular operates only from 6, 12-, and 24-v vehicular supplies.

TYPE OF SIGNAL: F.m, or voice.

PRINCIPAL COMPONENTS

Name	Dimensions (in.)	Weight (lb)
Radio Receiver and Transmitter		
BC-1000-A	5 $\frac{5}{8}$ x 11 $\frac{7}{8}$ x 7 $\frac{1}{2}$	13
Mast Section MS-117.		
Mast Section MS-118.		
Mast Base AB-15/GR.		

WEIGHT

Total weight (lb)	Domestic pack
	85 $\frac{1}{2}$

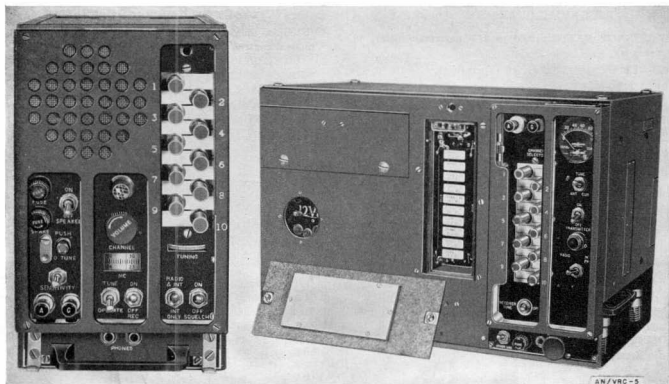


Figure 34. Radio Receiver BC-603, and Radio Transmitter BC-604;
Components of Radio Set AN/VRC-5.

Status: Substitute standard. *Stock No.:* 2S4502-5/V97. *Reference:* TM 11-600.

Radio Set AN/VRC-5 is designed for installation and operation in combat vehicles, such as tanks, scout cars, command cars, or any other authorized vehicles. The set provides f-m radiotelephone facilities, and consists, basically, of Radio Transmitter BC-604 and Radio Receiver BC-603.

Interphone Control Box BC-606 provides separate control and connection facilities for a microphone and a headset. Several control boxes may be connected in multiple, if desired.

Radio Set AN/VRC-5 and Radio Sets SCR-528-A, -C, -D, -AM, -CM, and -DM are identical except that Radio Set AN/VRC-5 has separate mountings for the transmitter and for the receiver.

TECHNICAL CHARACTERISTICS

FREQUENCY RANGE: 20.0 to 27.9 mc (transmitter, 80 channels).

NUMBER OF CRYSTALS: 10 (operating).

PRESET FREQUENCIES: 10.

ANTENNA: Whip, 10 ft long. Consists of Mast Sections MS-116, MS-117, and MS-118 mounted on Mast Base AB-15/GR.

TYPE MODULATION: Frequency.

FREQUENCY CONTROL: Crystal.

POWER SOURCE:

Radio Transmitter BC-604: 12-v vehicular battery through Dynamotor DM-35, or 24-v vehicular battery through Dynamotor DM-37.

Radio Receiver BC-603: 12-v vehicular battery through Dynamotor DM-34, or 24-v vehicular battery through Dynamotor DM-36.

POWER OUTPUT: 30 w.

RANGE: 10 to 15 mi (approx), depending upon terrain and atmospheric conditions.

NUMBER OF TUBES: Radio Transmitter BC-604: 8. Radio Receiver BC-603: 10.

GENERAL APPLICATION

USE: Used in vehicles and armored vehicles to provide tactical control.

TO COMMUNICATE WITH: Radio Sets AN/VRC-5, SCR-508, SCR-509, SCR-510, SCR-528, SCR-608-A, SCR-609, SCR-610, SCR-619, SCR-628-A, SCR-808-A, and SCR-828-A.

INSTALLATION: Installed and operated in vehicles.

TYPE OF SIGNAL: Voice.

PRINCIPAL COMPONENTS

Name	Dimensions (in.)	Weight (lb)
1 Radio Transmitter BC-604	11½ x 10¼ x 18	67
1 Radio Receiver BC-603	11½ x 6¾ x 12½	35
1 Dynamotor DM-34	4½ x 6¾ x 12½	4.7
1 Dynamotor DM-35	5½ x 4½ x 8¾	9.2
1 Mounting FT-346 (for receiver)	3¾ x 7 x 11¼	6
1 Mounting FT-508 (for transmitter)	4½ x 9½ x 19½	14.7
2 Mast Sections MS-117	39¾	0.7 (ea)
2 Mast Sections MS-118	39¾	0.8 (ea)
1 Mast Base AB-15/GR	15	2
1 Interphone Control Box		
BC-606-H	4¼ x 2½ x 4¼	1.8

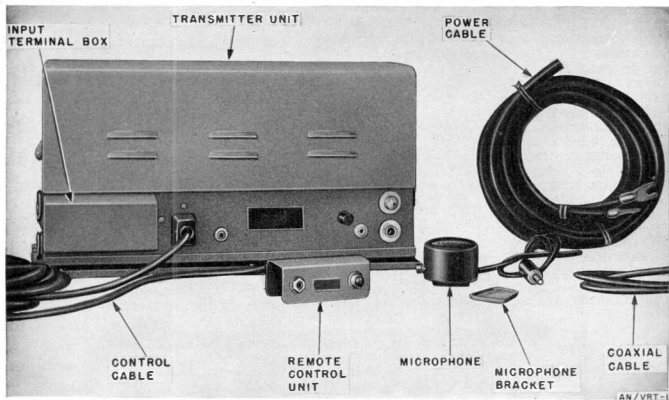


Figure 55. Radio Transmitting Set AN/VRT-1, major components.

Status: Standard. Stock No.: 2C6729. Reference: TM 11-842

Radio Transmitting Set AN/VRT-1 (Kaar type PTS-22X) is an a-m transmitting set designed and constructed for mobile use in motor vehicles.

The transmitter chassis is mounted on a special shock-mounted cradle. Transmitter operation is controlled through a remote-control unit which is installed in the driver's compartment. The transmitter uses an oscillator, multiplier, plate-modulated, power-amplifier circuit.

TECHNICAL CHARACTERISTICS

FREQUENCY RANGE: 30 to 40 mc.
 NUMBER OF CRYSTALS: 1 (operating).
 PRESET FREQUENCIES: 1.
 ANTENNA: Whip.
 TYPE MODULATION: Amplitude.
 FREQUENCY CONTROL: Crystal.
 POWER SOURCE: 6-v vehicular battery. 38 amp on transmit. 0 amp on stand-by.
 POWER OUTPUT: 22 w.
 RANGE: Line of sight.
 NUMBER OF TUBES: 5.

GENERAL APPLICATION

USE: For transmission of a-m voice signals.
 TO COMMUNICATE WITH: Radio Receiving Set AN/VRR-3 (Kaar type PRS-9X), Radio Receiver BC-787-B, Radio Set AN/GRR-2 (Hallcrafters model SX-28-A), and Radio Receiver BC-794-B.
 INSTALLATION: Installed and operated in vehicles.

TYPE OF SIGNAL: A-m, voice.

PRINCIPAL COMPONENTS

Name	Dimensions (in.)	Weight (lb)
Transmitter PTS-22X with 1 set of tubes (including 1 type E crystal when specified)	9 $\frac{1}{8}$ x 9 $\frac{1}{8}$ x 18 $\frac{1}{2}$	31
Antenna and base mounting assembly	8 $\frac{1}{2}$	3
Control unit K-TRI	2 x 2 $\frac{1}{2}$ x 4	$\frac{1}{2}$
Microphone 4-C with bracket		$\frac{3}{4}$
Coaxial cable, power cable, control cable, and kit of running spare parts		15 $\frac{1}{2}$

WEIGHT AND VOLUME

	Unpacked	Domestic pack
Total weight (lb)	50 $\frac{3}{4}$	73
Total volume (cu ft)		3.7

TECHNICAL CHARACTERISTICS

FREQUENCY RANGE:

- Band A: 1.5 to 3.0 mc.
- Band B: 3.0 to 5.0 mc.
- Band C: 5.0 to 8.0 mc.
- Band D: 8.0 to 11.0 mc.
- Band E: 11.0 to 14.0 mc.
- Band F: 14.0 to 18.0 mc.

NUMBER OF CRYSTALS: 1, except Radio Receivers BC-312-L, -M, -N, and -NX.

ANTENNA: Any suitable receiving antenna.

FREQUENCY CONTROL: Continuous tuning.

POWER SOURCE: 12- to 14-v dc, except Radio Receivers BC-312-HX and -NX, which require 24-v dc.

RANGE: Dependent upon antenna used, frequency, and ionospheric conditions.

NUMBER OF TUBES: 9.

GENERAL APPLICATION

USE: General field usage.

TO COMMUNICATE WITH: Radio Sets AN/GRC-9, AN/MRC-1, AN/MRC-2, AN/VRC-1, SCR-177-B, SCR-188-A, SCR-193, SCR-399, SCR-499, SCR-506-A, and SCR-543-B.

INSTALLATION: Suitable for vehicular, portable, or fixed operation.

TYPE OF SIGNAL: C-w, a-m, or tone.

PRINCIPAL COMPONENTS

Name	Dimensions (in.)	Weight (lb)
1 Radio Receiver BC-312-(*)	11 x 9 1/2 x 18 1/2	58
1 Dynamotor DM-21 or equivalent	3 1/4 x 5 1/2 x 6	7
1 Mounting FT-162	1 1/4 x 6 1/2 x 18	3 3/4

WEIGHT AND VOLUME

	Unpacked	Domestic pack
Total weight (lb)	68 3/4 (approx)	120 (approx)
Total volume (cu ft)		5 (approx)

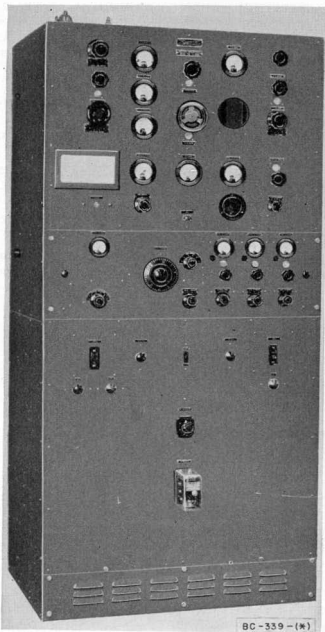


Figure 37. Radio Transmitter BC-339-J.

Status: Standard. Stock No. 2C6339 (BC-339, -A, -B, -E, -F, -G, -H, -J, -K); Stock No. 2C6339C.1 (BC-339-C); Stock No. 2C6339L (BC-339-L); Stock No. 2C6339M (BC-339-M). Reference: TM 11-836.

Radio Transmitter BC-339-(*) represents Radio Transmitters BC-339, BC-339-A, -B, -C, -E, -F, -G, -H, -J, -K, -L, and -M. Radio Transmitter BC-339-(*) is an h-f, fixed-ground, radiotelegraph transmitter usually used with doublet or rhombic antennas. The transmitter has been designed for c-w transmission. Self-contained rectifier power supplies furnish d-c voltage to all transmitter circuits. Three power supplies are operated from a commercial or auxiliary a-c power source. Provision is made for remotely starting, stopping and keying the transmitter through a 2-wire telephone cable and ground at distances as great as 6 miles, and at speeds as high as 300 words per minute. Models -K, -L, and -M, have provisions for radioteletypewriter excitation.

Radio Transmitter BC-339-(*) may be operated independently as a 1-kw transmitter or may be used as a driver for Power Amplifier BC-340-G, Rectifier RA-22, and Water Cooling Unit RU-2 to form a 10-kw transmitting station.

TECHNICAL CHARACTERISTICS

FREQUENCY RANGE: 4.0 to 26.5 mc.

NUMBER OF CRYSTALS: 6 operating.

PRESET FREQUENCIES: 6.

ANTENNA: In any resonant or wave-type antenna having a balanced 600-ohm input impedance. Normally, doublet or rhombic antennas are used but are supplied only as separate items.

TYPE MODULATION: Cw or frequency shift (radioteletypewriter).

FREQUENCY CONTROL: Crystal and mo.

POWER INPUT: From 220-v, 3-phase, 60-cycle line.

POWER OUTPUT: 1 kw.

RANGE: Dependent upon antenna used and operating frequency.

NUMBER OF TUBES: 15.

GENERAL APPLICATION

USE: May be operated independently as a 1-kw transmitter, or may be used as a driver for Power Amplifier

Equipment AN/FRA-2 (Radio Power Amplifier BC-340-C), to form a 10-kw transmitting station.

TO COMMUNICATE WITH: Radio Sets AN/MRC-1, SCR-399-A, and SCR-499-A; and Radio Receivers BC-779-A and BC-1004-A.

INSTALLATION: Fixed station.

TYPE OF SIGNAL: Cw.

PRINCIPAL COMPONENTS

Name	Dimensions (in.)	Weight (lb)
Radio Transmitter BC-339-		
(*) (in steel cabinet)	81 $\frac{1}{2}$ x 33 $\frac{3}{8}$ x 37 $\frac{1}{2}$	1,560

WEIGHT AND VOLUME

	Unpacked	Domestic pack
Total weight (lb) (approx)	2,355	
Total volume (cu ft) (approx)		156.6
Ship tons (approx)		0.4

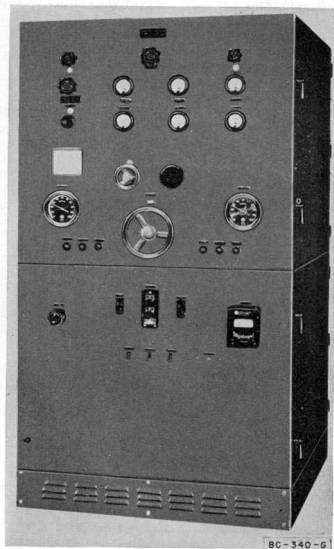


Figure 38. Power Amplifier BC-340-G.

Status: Standard. *Stock No.:* 2C2940. *Reference:* TM 11-801.

Power Amplifier BC-340-G is an amplifier of r-f energy designed to amplify the output of a telegraph transmitter. The transmitter is modulated to conform with telegraph characters and this output will be duplicated in the output of the power amplifier at a much higher level of power.

The power amplifier is designed to operate with an output of 10,000 watts over a frequency range of from 4 to 26.5 mc into a balanced 600-ohm transmission line. The complete equipment is mounted in a large metal cabinet. Associated equipment includes Rectifier RA-2, Water Cooling Unit RU-2, and a 1-kw, r-f exciter, ordinarily Radio Transmitter BC-339. This makes up a complete 10,000-watt transmitter.

TECHNICAL CHARACTERISTICS

FREQUENCY RANGE: 4 to 26.5 mc.
 ANTENNA: Rhombic or other fixed antenna.
 TYPE MODULATION: C w only.
 FREQUENCY CONTROL: Controlled in exciter transmitter.
 POWER SOURCE: 220-v., 50- to 60-cycle, 3-phase, 28.2 kw, 95% power factor.
 POWER OUTPUT: 10,000 w.
 RANGE: Long.
 NUMBER OF TUBES: 4.

GENERAL APPLICATION

USE: Used with but not part of Radio Transmitter BC-339, Rectifier RA-22, and Water Cooling Unit RU-2.
 TO COMMUNICATE WITH: Long-range, c-w, and radioteletypewriter stations.

INSTALLATION: Fixed station.
 TYPE OF SIGNAL: C w or frequency shift radioteletypewriter.

PRINCIPAL COMPONENTS

Name	Dimensions (in.)	Weight (lb)
Power Amplifier BC-340-G	83¼ x 49¼ x 42¼	2,370

ASSOCIATED EQUIPMENT

Rectifier RA-2	79¼ x 53¼ x 39¼	3,105
Water Cooling Unit RU-2	45¾ x 42½ x 48	870
Surge tank	29 x 14½ x 35	75

WEIGHT AND VOLUME

	Unpacked	Export pack
Total weight (lb)	6,520	8,486
Total volume (cu ft)		143
Ship tons		3.6



Figure 39. Radio Receiver BC-342-N.

Status: Standard. *Stock No.:* 2C4342. *Reference:* TM 11-850.

Radio Receiver BC-342-(*) represents Radio Receivers BC-342-A, -C, -D, -F, -J, -L, -M, and -N.

Radio Receiver BC-342-(*) is a superheterodyne type receiver intended for general field usage. It is ruggedly built, and it is suitable for vehicular, portable, or fixed operation. The receiver is highly sensitive and selective, and it is designed for the reception of either c-w or a-m voice or tone signals. Radio Receiver BC-342-(*) is an a-c operated receiver.

TECHNICAL CHARACTERISTICS

FREQUENCY RANGE: 1.5 to 18.0 in 6 bands.
NUMBER OF CRYSTALS: 1.
ANTENNA: Any suitable receiving antenna.
FREQUENCY CONTROL: Continuous tuning.
POWER SOURCE: 110 to 120-v ac.
RANGE: Dependent upon antenna used, operating frequency, and ionospheric conditions.
NUMBER OF TUBES: 10.

GENERAL APPLICATION

USE: General purpose receiver.
TO COMMUNICATE WITH: Radio Sets SCR-177-B,
SCR-188-A, SCR-193, SCR-309, SCR-499, SCR-506-A,

SCR-543-B, AN/GRC-9, AN/MRC-1, AN/MRC-2, and AN/VRC-1.

INSTALLATION: Suitable for vehicular, portable, or fixed operation.

TYPE OF SIGNAL: C-w, tone, and voice.

PRINCIPAL COMPONENTS

Name	Dimensions (in.)	Weight (lb)
Radio Receiver BC-342	10 x 9 $\frac{1}{8}$ x 18 $\frac{1}{8}$	61.5
Rectifier RA-20	3 $\frac{1}{4}$ x 6 $\frac{1}{2}$ x 6 $\frac{1}{2}$	10 $\frac{1}{2}$
Mounting FT-162	1 $\frac{3}{4}$ x 6 $\frac{3}{8}$ x 18	3 $\frac{3}{4}$

WEIGHT AND VOLUME

	Unpacked	Domestic pack
Total weight (lb)	75 $\frac{3}{4}$	120 (approx)
Total Volume (cu ft)	1 $\frac{1}{8}$ (approx)	5 (approx)

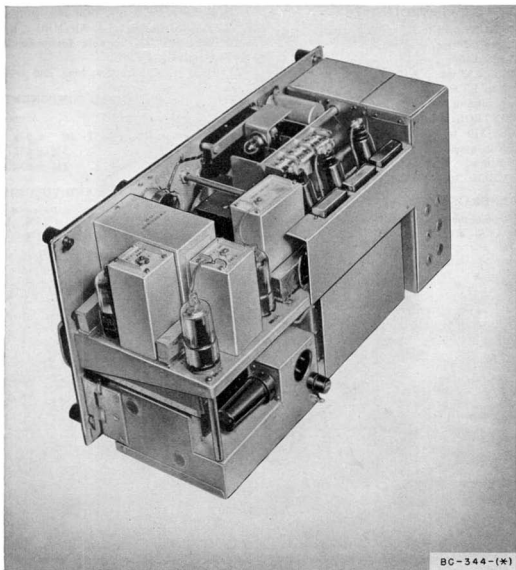


Figure 40. Radio Receiver BC-344, top view cover removed, (front view same as Radio Receivers BC-318-() and BC-342-(*)).*

Status: Standard. Stock No.: 2C4344. Reference: TM 11-850.

Radio Receiver BC-344-(*) represents Radio Receivers BC-344 and BC-344-D. Radio Receiver BC-344-(*) consists of a superheterodyne type receiver intended for general field usage. It is ruggedly built and is suitable for vehicular, portable, or field operation. The receiver is highly sensitive and selective, and is designed for the reception of either e-w, a-m, or tone signals.

Radio Receiver BC-344-(*) is a-c operated.

TECHNICAL CHARACTERISTICS

FREQUENCY RANGE: 0.15 to 1.5 mc in 4-bands:

Band A: 0.15 to 0.26 mc.

Band B: 0.25 to 0.475 mc.

Band C: 0.45 to 0.82 mc.

Band D: 0.82 to 1.5 mc.

ANTENNA: Any suitable receiving antenna.

FREQUENCY CONTROL: Continuous tuning.

POWER SOURCE: 110- to 120-v ac.

RANGE: Dependent upon antenna used, frequency, and ionospheric conditions.

NUMBER OF TUBES: 10.

GENERAL APPLICATION

USE: General purpose receiver.

TO COMMUNICATE WITH: Radio Sets SCR-177-B,

SCR-188-A, SCR-193, SCR-399, SCR-499, SCR-506-A, AN/GRC-9, AN/MRC-1, AN/MRC-2, and AN/VRC-1.
INSTALLATION: Suitable for vehicular, portable, or fixed operation.

TYPE OF SIGNAL: C-w, tone, and voice.

PRINCIPAL COMPONENTS

Name	Quantity	Dimensions (in.)	Weight (lb)
Radio Receiver BC-344-(*)	10	9 1/4 x 18-1/15	61.5
Rectifier RA-20	3 1/4	6 1/2 x 6 1/2	10.5
Mounting FT-162	1 1/4	6 1/4 x 18	3.75

WEIGHT AND VOLUME

	Unpacked	Domestic pack
Total weight (lb)	75 3/4	120
Total volume (cu ft)	1 1/8	5

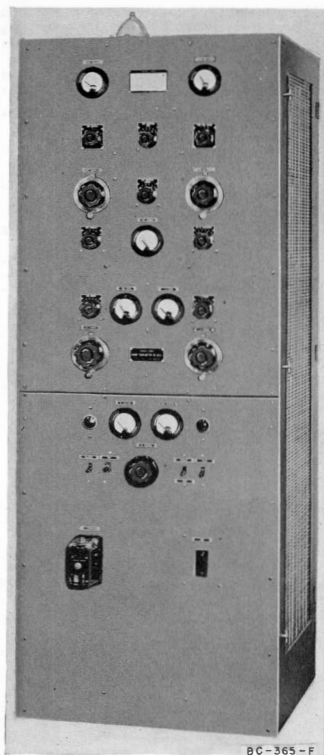


Figure 41. Radio Transmitter BC-365-F.

Status: Standard. *Stock No.:* 2C6355. *Reference:* TM 11-828.

Radio Transmitter BC-365-F is a 1-f, long-range communications transmitter designed for either e-w or radioteletypewriter operation, and is also used as an exciter for Amplifier Assembly AN/FRA-1.

This transmitter is manually adjusted if master oscillator operated. It is designed for either local or remote control, and includes Remote Control Unit RM-10.

Oscillator O-73/URT is a suitable 1-f frequency-shift keyer which can be used with Radio Transmitter BC-365-F.

TECHNICAL CHARACTERISTICS

FREQUENCY RANGE: 0.15 to 0.55 mc.

NUMBER OF CRYSTALS: None.

PRESET FREQUENCIES: 1.

ANTENNA: Intermediate flat top; Antenna Kit MX-765/FR, Tower AB-127/FR. (Any antenna having an effective resistance of 6 to 12 ohms and apparent capacity of 750 to 3,000 mmf may be used.)

TYPE MODULATION: C-w or l-f shift-keying (max shift 175 eps).

FREQUENCY CONTROL: Mo. crystal, or external oscillator.

POWER SOURCE: The entire transmitter operates from a single-phase, 50/60-cyc source of either 110. or 220-v.

The required input power is approximately, 1,800 w max at a power factor of 95 percent.

POWER OUTPUT: 350 w.

RANGE: Medium and long.

NUMBER OF TUBES: 12.

GENERAL APPLICATION

USE: Point-to-point transmission.

TO COMMUNICATE WITH: Aircraft and point-to-point stations.

INSTALLATION: Fixed station.

TYPE OF SIGNAL: C-w and l-f shift keying.

PRINCIPAL COMPONENTS

Name	Dimensions (in.)			Weight (lb)
Radio Transmitter BC-365-				
F	28	x 26	x 76	810
Remote Control Unit RM-				
10-F	19	x 1½	x 1¾	2¼
Spare parts in box	23½	x 13½	x 12¼	58

WEIGHT AND VOLUME

	Unpacked	Export pack
Total weight (lb)	870	965
Total volume (cu ft)		84
Ship tons		2.1

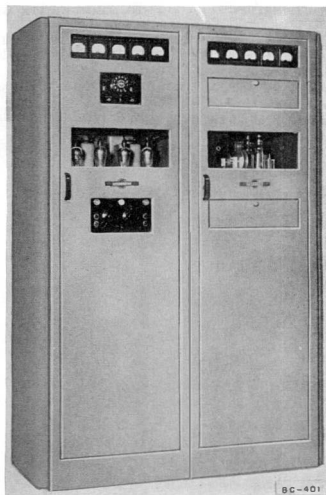


Figure 42. Radio Transmitter BC-401, with Rectifier and Modulation Unit RA-30.

Status: Limited standard. *Stock No.:* 2C6381.

Radio Transmitter BC-401 is a fixed-station transmitter with full remote control facilities. It is mounted in a metal cabinet.

Rectifier and Modulation Unit RA-30, and Remote Control Unit RM-11 are used with, but are not part of Radio Transmitter BC-401.

TECHNICAL CHARACTERISTICS

FREQUENCY RANGE: 2.0 to 18.1 mc.
NUMBER OF CRYSTALS: 10.
PRESET FREQUENCIES: 10.
ANTENNA: Double cage.
TYPE MODULATION: Amplitude.
FREQUENCY CONTROL: Crystal.
POWER SOURCE: 220-v, 3-phase, 60 cycle at 3.7 kva.
POWER OUTPUT: 400 w.
RANGE: Medium and long.

GENERAL APPLICATION

USE: Point-to-point and ground-to-air communication.

TO COMMUNICATE WITH: Aircraft and fixed-station equipment.

INSTALLATION: Fixed station.

TYPE OF SIGNAL: Voice, c-w.

PRINCIPAL COMPONENTS

<i>Name</i>	<i>Dimensions (in.)</i>	<i>Weight (lb.)</i>
Radio Transmitter BC-401 in metal cabinet	78 x 48 x 24	1,640

WEIGHT AND VOLUME

Total weight (lb) _____ *Unpacked* 1,640

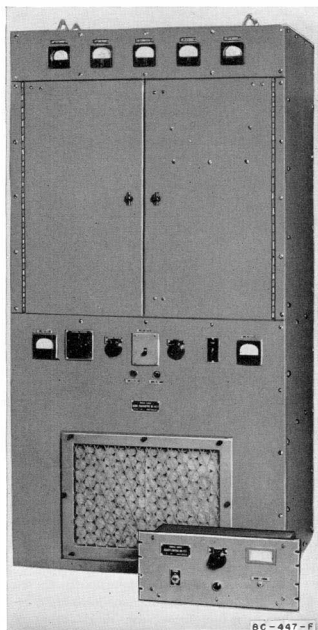


Figure 43. Radio Transmitter BC-447-F with Remote Control Unit RM-17-F.

Status: Standard. Stock No.: 2C6387-1. Reference: TM 11-827.

Radio Transmitter BC-447-F with Remote Control Unit RM-17-F and associated equipment are used in land stations for e-w radiotelegraph transmission.

Using Remote Control Unit RM-17-F, this transmitter may be controlled from a remote point by means of a single telephone pair and ground return. Either one of the two channels may be selected from the remote point.

TECHNICAL CHARACTERISTICS

FREQUENCY RANGE: Channel 1: 4.0 to 13.4 mc. Channel 2: 2.0 to 8.0 mc.

NUMBER OF CRYSTALS: 2.

PRESET FREQUENCIES: 2.

ANTENNA: Any suitable antenna using balanced 600-ohm transmission line

TYPE MODULATION: C-w.

FREQUENCY CONTROL: Crystal controlled, or external, in both channels.

POWER SOURCE: Ac operated from a 50- or 60-cycle power source of either 115- or 230-v. Draws a load of approximately 1,200 w from the supply line at a power factor of 96 percent.

POWER OUTPUT: 300 w.

RANGE: Dependent upon antenna used, frequency, and ionospheric conditions.

NUMBER OF TUBES: 13.

GENERAL APPLICATION

USE: C-w radiotelegraph transmission.

TO COMMUNICATE WITH: C-w radiotelegraph sets.

INSTALLATION: Fixed station.

PRINCIPAL COMPONENTS

Name	Dimensions (in.)	Weight (lb)
Radio Transmitter BC-447-F	72 x 35 27 $\frac{1}{8}$	871

WEIGHT AND VOLUME

	Unpacked	Export pack
Total weight (lb)	871	1,247
Total volume (cu ft)		92
Ship tons		2.3



Figure 44. Radio Transmitter BC-610-E with Antenna Tuning Unit BC-939-A.

Status: BC-610-E and F: Standard. All other models limited standard. *Stock No.:* 2C6500A.1 (BC-610-A); 2C6500B (BC-610-B); 2C6500C (BC-610-C); 2C6500D (BC-610-D); and 2C6500E (BC-610-E). *Reference:* TM 11-281.

Radio Transmitter BC-610-(*) represents Radio Transmitters BC-610-A, -B, -C, -D, -E, and -F. Radio Transmitter BC-610-(*) is designed for vehicular, portable, or fixed operation. These models are similar in appearance and identical in size.

Radio Transmitter BC-610-(*) is part of Radio Sets SCR-299, SCR-399, and SCR-499.

TECHNICAL CHARACTERISTICS

FREQUENCY RANGE:

Radio Transmitters BC-610-A, -B, -C, -D: 2 to 8 mc.

Radio transmitters BC-610-E, -F: 2 to 18 mc.

NUMBER OF CRYSTALS: 3.

PRESET FREQUENCIES: 3.

ANTENNA: Any suitable antenna: whip, long wire, etc.

TYPE MODULATION: C-w, or voice signals using amplitude.

FREQUENCY CONTROL: Mo or crystal.

POWER SOURCE: Power Unit PE-95 or commercial.

POWER OUTPUT: 400 w on cw, and 300 w on voice, approx.

RANGE: Two-way voice—100 mi. C-w—Up to 250 mi, dependent upon antenna used, frequency, and ionospheric conditions.

NUMBER OF TUBES: 13.

GENERAL APPLICATION

USE: To provide two-way voice and c-w communication.

TO COMMUNICATE WITH: Any n-m equipment within its range.

INSTALLATION: Mobile, fixed station.

TYPE OF SIGNAL: A m, voice, and c-w.

PRINCIPAL COMPONENTS

<i>Name</i>	<i>Dimensions (in.)</i>	<i>Weight (lb)</i>
Radio Transmitter BC-610-(*)	32 $\frac{7}{8}$ x 21 $\frac{1}{8}$ x 39 $\frac{7}{8}$	4.52

WEIGHT AND VOLUME

	<i>Unpacked</i>	<i>Domestic pack</i>
Total weight (lb)	497	75.5
Total volume (cu ft)		35.1
Ship tons		0.88



Figure 45. Radio Frequency Amplifier BC-642 in operating position with Rectifier Unit RA-44 and Radio Modulator Unit BC-643.

Status: Limited standard. *Stock No.:* 2C242.

Radio Frequency Amplifier BC-642, mounted in a metal cabinet, is part of Signal Corps 3-kw radio telegraph and telephone equipment. It is used with, but is not part of Radio Modulator Unit BC-643, Rectifier Unit RA-44 and Transformer and Contactor Unit BC-644.

TECHNICAL CHARACTERISTICS

FREQUENCY RANGE: 4.0 to 20.0 mc.
PRESET FREQUENCIES: 10.
ANTENNA: Fixed-station rhombic or doublet.
TYPE MODULATION: C-w and amplitude.
POWER SOURCE: 220-v, 3-phase, 60-cyc at 5 kva.
POWER OUTPUT: 3-kw.
RANGE: Long.
NUMBER OF TUBES: 12.

GENERAL APPLICATION

USE: Used with, but not part of Radio Modulator Unit BC-643, Rectifier Unit RA-44, Transformer and Contactor Unit BC-644.
TO COMMUNICATE WITH: Sets within frequency range.
INSTALLATION: Fixed.

PRINCIPAL COMPONENTS

<i>Name</i>	<i>Dimensions (in.)</i>	<i>Weight (lb)</i>
Radio Frequency Amplifier BC-642, in metal cabinet	78 x 48 x 78	590

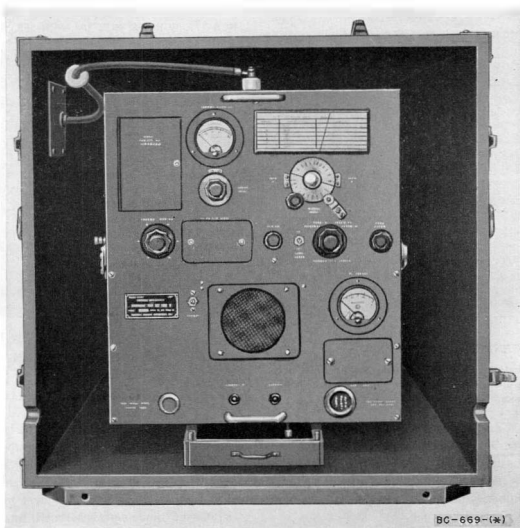


Figure 46. Radio Receiver and Transmitter BC-669-(*), in Chest CH-133.

Status: Standard. Stock No.: 2C5380-669. Reference: TM 11-625.

Radio Receiver and Transmitter BC-669-(*), represents Radio Receivers and Transmitters BC-669-A, -B, -C, and -D.

Radio Receiver and Transmitter BC-669-(*), can be used as a vehicular radio set to provide radio-telephone communications for anti-aircraft artillery regiments and brigades, or it can be used as a fixed station for a medium-range and short-range communication. The set can be used in a $1\frac{1}{2}$ -ton pick-up truck or in a $\frac{3}{4}$ -ton command and reconnaissance car and other vehicles, if 110-volt a-c is available.

The receiver is of the superheterodyne type. Radio Receivers and Transmitters BC-669-A, -B, and -C detect both voice-modulated and tone-modulated signals. Radio Receiver and Transmitter BC-669-D, in addition, provides for reception of c-w signals.

The transmitter of Radio Receivers and Transmitters BC-669-A, -B, and -C sends a-m signals for distances of 20 to 30 miles if operating as a fixed station, or 15 or more miles when operating from a moving vehicle. Radio Receiver and Transmitter BC-669-D, in addition, provides for transmission of c-w signals for distances of 50 miles if operating as a fixed station, or 25 miles when operating from a moving vehicle.

Radio Receiver and Transmitter BC-669-(*), is ordinarily used as a component of Radio Sets SCR-543-A, -B, and -C.

TECHNICAL CHARACTERISTICS

FREQUENCY RANGE: 1.68 to 4.45 mc.

NUMBER OF CRYSTALS: 12.

PRESET FREQUENCIES: 6.

ANTENNA: BC-669-A: 1.5-ft whip attached to Mast Base MP-37 with lead of Wire W-128. BC-669-B and -C: 20-ft whip attached to Mast Base MP-37 with lead of Wire W-128. BC-669-D: 18-ft whip attached to Mast Base MP-65-A with lead of Wire W-128.

TYPE MODULATION: BC-669-A, -B, and -C: Amplitude. BC-669-D: Amplitude and e-w.

FREQUENCY CONTROL: Transmitter: crystal. Receiver: crystal or manual.

POWER SOURCE: 115-v, 60-cyc. single-phase ac. In stand-by periods, receiver operates from 12-v storage battery.

POWER OUTPUT: 45 w.

RANGE: Fixed: 20 to 30 mi. Moeing: 1.5 or more mi, varying according to weather, height, location, and frequency used.

NUMBER OF TUBES: 15.

GENERAL APPLICATION

USE: Firing battery, barrage balloon, and antiaircraft units. Can be operated by means of remote control from limited distances.

TO COMMUNICATE WITH: Radio Sets AN/VRC-1, SCR-177, SCR-188, SCR-193, SCR-399, SCR-499, SCR-506, SCR-536, SCR-593, and SCR-694.

INSTALLATION: Easily assembled portable components for use in 1/2-ton pick-up truck or 3/4-ton command and reconnaissance ear and other vehicles.

TYPE OF SIGNAL: BC-669-A, -B, -C: a-m. BC-669-D: a-m and e-w.

PRINCIPAL COMPONENTS

Name	Dimensions (in.)	Weight (lb)
Radio Receiver and Transmitter BC-669-A, -B, or -C in Chest CH-133	20 3/4 x 29 3/4 x 28 1/2	182
Radio Receiver and Transmitter BC-669-D in Chest CH-133-D	22 1/2 x 28 3/4 x 27 1/2	216
Power Units PE-108-A, -B, -C, and -D in Chest CH-131	24 x 23 3/4 x 28	265
Remote Control Units RM-21-A, -B, -C, and -D, in Chest CH-73	4 1/2 x 10 1/2 x 16 1/2	5

WEIGHT AND VOLUME

	Domestic pack
Total weight (lb)	235.3
Total volume (cu ft)	12.5



Figure 47. Amplifier BC-730.

Status: Limited standard. *Stock No.:* 2C330.

Amplifier BC-730 (Federal Telegraph model C.A.-421) is a compressor amplifier with a constant output. The frequency response is within 1 db from 100 to 4,000 cycles. Inputs from -40 to -25 db at a noise level of 0 db are allowed a distortion of 10 average value at full gain -40 db; for inputs of -60 to -35 db the gain is between 35 and 38 db. The gain varies inversely for inputs between -35 and -25 with the input level, giving an output level of 0 db constant within 1 db. The compression time is about 0.05 seconds and the release time about 2 seconds.

TECHNICAL CHARACTERISTICS

POWER SOURCE: 110- to 220-v, 60-cyc at 80 w.

POWER OUTPUT: 0.06 w.

NUMBER OF TUBES: 5.

GENERAL APPLICATION

USE: Amplifier BC-730 is used as preamplifier to prevent overmodulation of transmitter.

INSTALLATION: Fixed.

TYPE OF SIGNAL: Voice.

PRINCIPAL COMPONENTS

Name	Dimensions (in.)	Weight (lb)
Amplifier BC-730	19 x 7 x 8 $\frac{1}{4}$	25

WEIGHT AND VOLUME

	Unpacked	Domestic pack
Total weight (lb)	25	28.5
Total volume (cu ft)	0.9	1.8



Figure 48. Radio Receiver BC-779-(*).

Status: Standard. *Stock No.:* 2C4779. *Reference:* TM 11-866.

Radio Receiver BC-779-(*), represents Receiver BC-779-A and -B. Radio Receiver BC-779-(*), is a superheterodyne receiver intended primarily for fixed-station use, although mountings for vehicular installation may be provided.

The receiver uses a conventional superheterodyne circuit and is designed for the reception of either c-w or a-m voice or tone signals, with either manual or auto.

The receiver uses an external power supply, but in emergency, can be operated from batteries.

This equipment is the same as Radio Receivers BC-794-A, -B; BC-1004-B, -C, -D; and R-129/U, except in frequency coverage.

TECHNICAL CHARACTERISTICS

FREQUENCY RANGE: 0.01 to 20 mc in 5 bands.

NUMBER OF CRYSTALS: 1 (i-f filter).

PRESET FREQUENCIES: None.

ANTENNA: Doublet antenna with balanced transmission line, or single wire and ground.

TYPE MODULATION: Amplitude or c-w.

POWER SOURCE: One of the following: Power Supply Units RA-74, RA-84, RA-84-A (95 to 260 v, 25/60 cyc ac, 180 w) or in an emergency one 6-v storage battery, five 45-v B batteries, and one 4.5-v C battery.

RANGE: Long.

NUMBER OF TUBES: 18.

APPLICATION

USE: General purpose communication receiver.

TO COMMUNICATE WITH: Radio Sets AN/GRC-9, AN/MRC/2A, AN/VRC-1, SCR-177, SCR-188, SCR-193, SCR-399, SCR-499, SCR-536, SCR-543, and SCR-694.

INSTALLATION: Fixed station, although mountings may be provided for vehicular installation.

TYPE OF SIGNAL: C-w, tone, and voice.

PRINCIPAL COMPONENTS

Name	Dimensions (in.)	Weight (lb)
Radio Receiver RC-779-(*), with power and battery cables and dust cover (Above, with Cabinet CH- 104-A instead of dust cov- er)	10 1/2 x 13 3/8 x 19	55
Power supply unit with dust cover)	12 1/4 x 16 1/2 x 23	73
	10 1/2 x 10 x 19	60

WEIGHT AND VOLUME

	Unpacked	Domestic package	Export package
Total weight (lb)	115	120	179
Total volume (cu ft)	3.0	4.4	7.5



Figure 49. Radio Receiver BC-787-B and Mounting FT-377-A.

Status: Substitute standard. *Stock No.:* 2C4787. *Reference:* TM 11-867.

Radio Receiver BC-787-B is a three-band superheterodyne receiver for mobile or fixed-station use. It is designed for the reception of either a-m or f-m signals in the frequency range of 27.8 to 143 mc. It is also possible to receive e-w signals by using the bfo. If desired, stand-by operation of the receiver can be controlled at some remote point. The receiver may be operated with the internal power supply or the external A and B batteries. This receiver is used as a component of Radio Set SCR-607.

TECHNICAL CHARACTERISTICS

FREQUENCY RANGE: 27.8 to 143 mc in 3 bands:

Band 1: 27.8 to 47 mc.

Band 2: 46 to 82 mc.

Band 3: 82 to 143 mc.

NUMBER OF CRYSTALS: None.

ANTENNA: Single wire or double doublet.

TYPE Modulation: Amplitude and frequency.

POWER SOURCE: 115- or 230-v, 50- to 60-cyc ac or 6-v storage battery and 270-v B battery dc.

RANGE: Dependent upon antenna used, frequency, and ionospheric conditions.

NUMBER OF TUBES: 13.

GENERAL APPLICATION

USE: For monitoring.

TO COMMUNICATE WITH: Sets within frequency.

INSTALLATION: Fixed or mobile station.

TYPE OF SIGNAL: Voice, a-m, f-m, or c-w.

PRINCIPAL COMPONENTS

Name	Dimensions (in.)	Weight (lb)
1 Radio Receiver BC-737-B	9 $\frac{1}{8}$ x 21 $\frac{1}{4}$ x 14 $\frac{1}{2}$	78
1 Mounting FT-377-A	4 $\frac{7}{8}$ x 21 $\frac{1}{4}$ x 14 $\frac{1}{2}$	12

WEIGHT AND VOLUME

	Unpacked
Total weight (lb) _____	90
Total volume (cu ft) _____	1.6

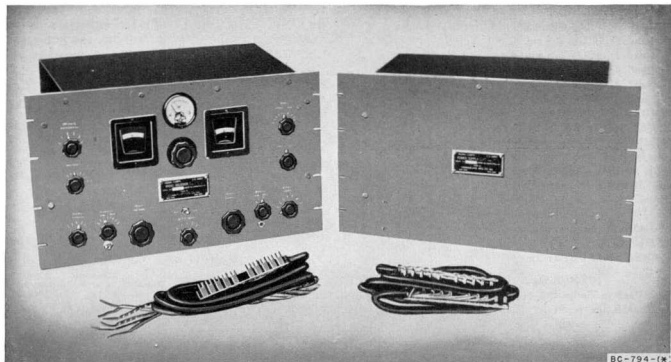


Figure 50. Radio Receiver BC-794-B with associated power supply.

Status: Standard. *Stock No.:* 2C4794. *Reference:* TM 11-866.

Radio Receiver BC-794-(*) represents Radio Receivers BC-794-A and -B. Radio Receiver BC-794-(*) is a superheterodyne receiver intended primarily for fixed-station use, although mounting for vehicular use may be provided.

The receiver uses a conventional superheterodyne circuit and is designed for the reception of either e-w or a-m voice or tone signals, with either manual or ave.

This receiver uses an external power supply but in an emergency can be operated from batteries.

Same as Radio Receivers BC-779-A and -B; BC-1004-B, -C, -D; and R-129/U, except in frequency coverage.

Radio Receivers BC-794-A and -B are components of Radio Set SCR-704.

TECHNICAL CHARACTERISTICS

FREQUENCY RANGE: 1.25 to 40 mc in 5 bands:

- Band 1: 1.25 to 2.5 mc.
- Band 2: 2.5 to 5 mc.
- Band 3: 5 to 10 mc.
- Band 4: 10 to 20 mc.
- Band 5: 20 to 40 mc.

NUMBER OF CRYSTALS: 1 (i.f. filter).

PRESET FREQUENCIES: None.

ANTENNA: Doublet antenna with balanced transmission line or with single wire and ground.

TYPE MODULATION: Amplitude or e-w.

POWER SOURCE: One of the following: Power Supply Units RA-74, RA-84, RA-94-A (95 to 260 v, 25/60 cyc ac, 180 w) or, in an emergency, one 6-v storage battery, five 45-v B batteries, and one 45-v C battery.

RANGE: Long.

NUMBER OF TUBES: 18.

GENERAL APPLICATION

USE: Used in Radio Set SCR-704, or as general purpose communication receiver.

TO COMMUNICATE WITH: Radio Sets AN/GRC-9, AN/MRC-2A, AN/VRC-1, SCR-177, SCR-188, SCR-193, SCR-399, SCR-499, SCR-536, SCR-543, and SCR-694.

INSTALLATION: Fixed station, although mountings may be provided for vehicular installation.

TYPE OF SIGNAL: C-w, tone, and voice.

PRINCIPAL COMPONENTS

Name	Dimensions (In.)	Weight (lb)
Radio Receiver RC-794-(*) with power and battery cables and dust cover	10½ x 15¾ x 19	55
(Above, with Cabinet CH-10+ A instead of dust cover)	12¼ x 16½ x 23	73
Power supply unit with dust cover	10½ x 10 x 19	60

WEIGHT AND VOLUME

	Unpacked pack	Domestic pack	Export pack
Total weight (lb)	115	120	179
Total volume (cu ft)	3.0	4.4	7.0

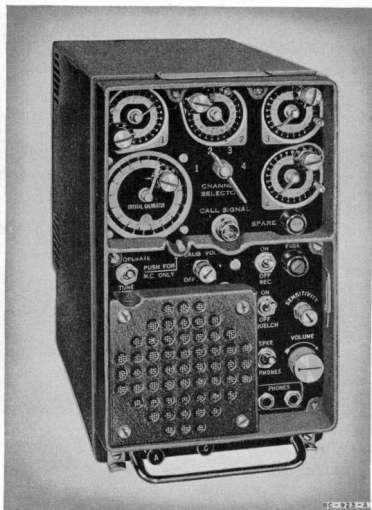


Figure 51. Radio Receiver BC-923-A.

Status: Standard. *Stock No.:* 2C4923. *Reference:* TM 11-601.

Radio Receiver BC-923-A is a basic component of Radio Sets SCR-508 and SCR-828-A. It is a double-superheterodyne, f-m radio receiver designed to operate within a temperature range of -40° C. to $+55^{\circ}$ C. The receiver operates into either its self-contained speaker or into headsets.

The receiver is provided with four sets of tuning controls. Included in the receiver is a crystal-controlled heterodyne frequency meter unit, which gives accurately determined reference signals every 100 ke across the entire frequency range of the receiver.

When in use, the receiver, with other components of the set, is mounted on Mounting FT-237-(#). All connections between the receiver and transmitter units and Mounting FT-237-(#) are made through multicontact plugs and receptacles, which are automatically engaged when the individual units are inserted in their proper positions on the mounting.

TECHNICAL CHARACTERISTICS

FREQUENCY RANGE: 27 to 38.9 mc.
 NUMBER OF CRYSTALS: 1 (for calibration).
 PRESET FREQUENCIES: 4.
 ANTENNA: Uses same antenna as transmitter, usually whip.
 TYPE MODULATION: Frequency.
 FREQUENCY CONTROL: Built-in, crystal-frequency calibrator.
 POWER SOURCE: 12- or 24-v. battery supply, through Dynamotor DM-64-A (12-v); Dynamotor DM-66-A (24-v).
 RANGE: Stationary: 15 mi. Moving: 10 mi.
 NUMBER OF TUBES: Receiver chassis: 12. Crystal frequency calibrator chassis: 3.

GENERAL APPLICATION

USE: General purpose vehicular receiver.
 TO COMMUNICATE WITH: F-m sets with the same frequency range.
 INSTALLATION: Installed and operated in vehicle or on ground.
 TYPE OF SIGNAL: Voice.

PRINCIPAL COMPONENTS

Name	Dimensions (in.)	Weight (lb)
Radio Receiver BC-923	11½ x 12¾ x 6¾	42
Mounting FT-237-(#)	5½ x 13 x 33⅝	44
Dynamotor DM-64-A	4¼ x 3¼ x 6⅝	5.25
Dynamotor DM-66-A	5½ x 4½ x 8¾	13.25

WEIGHT AND VOLUME

Total weight (lb)	42	Export pack
Total volume (cu ft)	2.2	

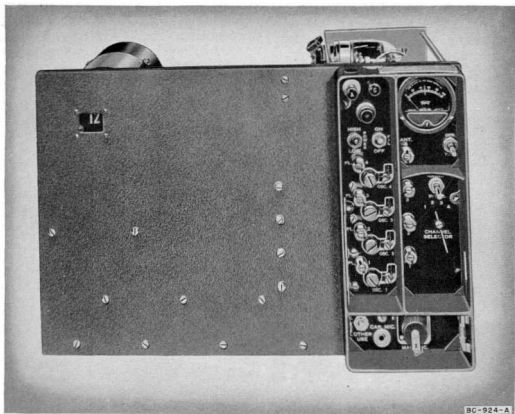


Figure 52. Radio Transmitter BC-924-A.

Status: Standard. *Stock No.:* 2C6596-924. *Reference:* TM 11-601.

Radio Transmitter BC-924-A is a component of Radio Sets SCR-808-A and SCR-828-A. It is an f-m transmitter designed to provide line of sight, voice communication over distances of 10 to 15 miles, and is intended for use in mobile Coast Artillery batteries.

The transmitter has a frequency range of 27.0 to 38.9 me, and can be preset to 4 predetermined channels. Connections are provided for either a carbon button or magnetic microphone.

TECHNICAL CHARACTERISTICS

FREQUENCY RANGE: 27.0 to 38.9 mc in 120 channels.

NUMBER OF CRYSTALS: None.

PRESET FREQUENCIES: 4.

ANTENNA: Whip, 10 ft. (Consists of Mast Base AB-13/GR and Mast Sections MS-116, MS-117, and AB 24/GR.)

TYPE MODULATION: Frequency (reactance tube).

FREQUENCY CONTROL: Vacuum tube oscillator circuit which can be preset in four channels.

POWER SOURCE: 12-v storage battery through Dynamotor DM-65-A; 24-v storage battery through Dynamotor DM-47-A.

POWER OUTPUT: High. 30 to 35 w. Low: 2 w.

RANGE: 10 to 15 mi. line of sight.

NUMBER OF TUBES: 9.

GENERAL APPLICATION

USE: Short range voice communication.

TO COMMUNICATE WITH: SCR-298, SCR-608-A, SCR-628-A, SCR-609, SCR-610, SCR-619, SCR-808-A, and SCR-828-A.

INSTALLATION: Mobile; installed and operated in vehicle.

TYPE OF SIGNAL: F-m (voice).

PRINCIPAL COMPONENTS

Name	Dimensions (in.)	Weight (lb)
1 Radio Transmitter BC-924-A	11½ x 18 x 10½	49

WEIGHT AND VOLUME

	Unpacked	Domestic pack	Export pack
Total weight (lb)	49		
Total volume (cu ft)		3.75 (approx)	3.75 (approx)

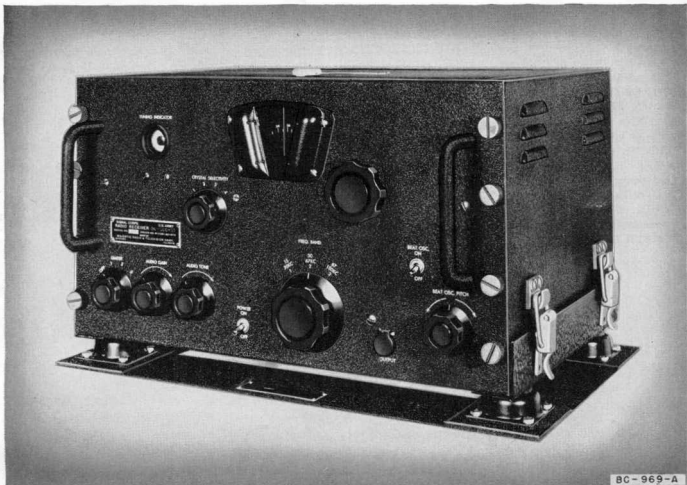


Figure 53. Radio Receiver BC-969-A.

Status: Standard. Stock No.: 2C4969. Reference: TM 11-873.

Radio Receiver BC-969-A is a superheterodyne, l-f receiver, used for intercept purposes.

It is equipped with an avc, a noise limiter, a crystal filter, a beat oscillator, and an electron-ray tuning indicator.

Radio Receiver BC-969-A is the main component of Radio Set SCR-614, and may be used as a fixed or vehicular station.

TECHNICAL CHARACTERISTICS

FREQUENCY RANGE: 0.015 to 0.15, mc in three bands:

Band 1: 0.015 to 0.030 mc.

Band 2: 0.030 to 0.075 mc.

Band 3: 0.075 to 0.15 mc.

NUMBER OF CRYSTALS: 1 in filter.

PRESET FREQUENCIES: None.

ANTENNA: 30-ft whip, 100-ohm balanced antenna. Long-wire or beverage antennas also suitable.

TYPE MODULATION: Amplitude.

POWER SOURCE: Usually Power Supply Unit RA-61, but power may be supplied by Power Supply Unit PE-223, or by dry batteries.

RANGE: Dependent upon antenna used, frequency, and ionospheric conditions.

NUMBER OF TUBES: 12.

GENERAL APPLICATION

USE: L-f interception.

TO COMMUNICATE WITH: Any radio transmitter operating within frequency range of 0.015 to 0.15 mc.

INSTALLATION: Fixed or vehicular.

TYPE OF SIGNAL: C-w, tone, and voice.

PRINCIPAL COMPONENTS

Name	Dimensions (in.)	Weight (lb)
Radio Receiver RC-969-A	19 x 10 $\frac{1}{2}$ x 15 $\frac{3}{4}$	49.3

WEIGHT AND VOLUME

	Unpacked	Domestic pack
Total weight (lb)	49.3	63
Total volume (cu ft)	1.34	2.75

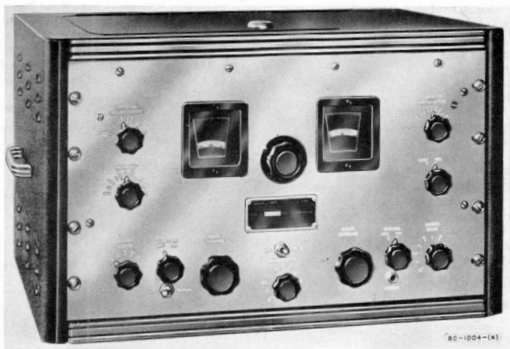


Figure 54. Radio Receiver BC-1004-D.

Status: Standard. Stock No.: 2C5004. Reference: TM 11-866.

Radio Receiver BC-1004-(*) represents Radio Receivers BC-1004-B, -C, and -D.

Radio Receiver BC-1004-(*) is a superheterodyne receiver intended primarily for fixed-station use, although mountings for vehicular installation may be provided.

The receiver uses a conventional superheterodyne circuit and is designed for the reception of either e-w or a-m voice or tone signals, with either manual or automatic volume control.

The receiver uses an external power supply, but in an emergency can be operated from batteries.

The equipment is the same as Radio Receivers BC-779-A, -B; BC-794-A, -B; and R-129/U, except in frequency coverage.

Radio Receiver BC-1004-(*) is a component of Radio Sets SCR-244-A and -B and Radio Set AN/FRR-4.

TECHNICAL CHARACTERISTICS

FREQUENCY RANGE: 0.54 to 20.0 in 5 bands:

Band 1: 0.54 to 1.16 mc.

Band 2: 1.16 to 2.5 mc.

Band 3: 2.5 to 5 mc.

Band 4: 5 to 10 mc.

Band 5: 10 to 20 mc.

NUMBER OF CRYSTALS: 1 (i.f. filter).

PRESET FREQUENCIES: None.

ANTENNA: Doublet antenna with balanced transmission line or single wire and ground.

TYPE MODULATION: Amplitude.

POWER SOURCE: One of the following: Power Supply

Unit RA-74, RA-84, or RA-94-A, 95 to 260-v 25/60-cycle ac, 180 w, or battery; one 6-v storage battery; five 45-v B batteries; one 4.5-v C battery.

RANGE: Long.

NUMBER OF TUBES: 18.

GENERAL APPLICATION

USE: Radio Receiver BC-1004-(*) is a component of

Radio Sets SCR-244-A and -B and Radio Set AN/FRR-4, TO COMMUNICATE WITH: Radio Sets SCR-177, AN/MRC-2A, SCR-188, SCR-193, SCR-399, SCR-499, AN/VRC-1, SCR-543, AN/GRC-9, SCR-536, and SCR-694.

INSTALLATION: Primarily designed for fixed-station use, but mountings for vehicular installation may be provided.

TYPE OF SIGNAL: C-w, tone, and voice.

PRINCIPAL COMPONENTS

Items	Dimensions (in.)	Weight (lb)
Radio Receiver BC-1004-(*) with power and battery cables and dust cover	10½ x 15½ x 19	55
Power Supply RA-74, RA-84, or RA-94-A with dust cover	10½ x 10 x 19	60

WEIGHT AND VOLUME

Total weight (lb)	178
Total volume (cu ft)	7.5

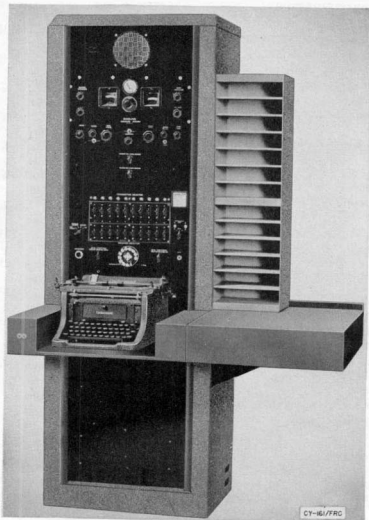


Figure 55. Remote Control Console CY-161/FRC (monitoring receiver shown is used with but not part of Remote Control Console CY-161/FRC).

Status: Standard commercial. *Stock No.:* 2C7603-161. *Reference:* TM 11-2622.

Remote Control Console CY-161/FRC (Wileox Electric type CS212) and control equipment (Wileox Electric type CS390) contains complete equipment for remote control of a group of transmitters and receivers. All necessary amplifiers, oscillators, control and selector switches are mounted within the console cabinet.

Several consoles are usually mounted together to form a parallel group of remote control positions. From these positions, a group of operators can select and control a number of radio transmitters and receiver channels. Either c-w or phone messages may be transmitted or received by any of the operators.

From each position it is possible to select and control any one of as many as nine Radio Transmitters T-158/FRT (Wileox Electric type 96A), T-158A/FRT (Wileox Electric type 96C), T-158B/FRT (Wileox Electric type 96C3), or Radio Transmitters T-4/FRC. Provision is made at each console for the selection of any one of four modulators for the transmission of phone messages.

TECHNICAL CHARACTERISTICS

POWER SUPPLY: 110- to 120-v. 60-cyc.

POWER INPUT: 250 w per console.

FREQUENCY: Keying oscillator (Wilcox Electric type 90A2): 1000 cyc. Volume limiting amplifier (Wilcox electric type M57D1): audio range. Dual Channel Amplifier AM-43/FRC: audio range.

SIGNAL INPUT: Key- or microphone.

SIGNAL OUTPUT:

Keying oscillator (Wilcox Electric type 90A2): 0 db (0.006 w).

Volume limiting amplifier (Wilcox Electric type M57D1): 0 db (0.006 w).

Dual Channel Amplifier AM-43/FRC: 0 db (0.006 w)

NUMBER OF TUBES:

Keying oscillator (Wilcox Electric type 90A2): 3.

Volume limiting amplifier (Wilcox Electric type M67 D1): 7.

Dual Channel Amplifier AM-43/FRC: 5.

GENERAL APPLICATION

USE: Designed for use with Radio Transmitters T-4/FRC, and either T-158/FRT, T-158A/FRT, or T-158B/FRT. Remote Control Console CY-161/FRC contains complete equipment for remote control of a group of transmitters and receivers.

INSTALLATION: Fixed station.

TYPE OF SIGNAL: Controls are by means of grounding circuits, 1000-cyc. keying oscillator, and standard telephone type dial.

PRINCIPAL COMPONENTS

Name	Dimensions (in.)	Weight (lb)
1 Cabinet, relay rack (Wilcolec type 112A).....	72 x 17½ x 24	177
1 Speaker panel (Wilcolec type 108A).....	7 x 3¾ x 19	8

Name	Dimensions (in.)	Weight (lb)
1 Control panel (Wilcolec type 109B).....	12¼ x 8 x 19	22½
1 Blank panel (Wilcolec type 112A-10).....	10½ x 1¾ x 19	7-14 oz
1 Blank panel (Wilcolec type 112A-13).....	3½ x 1¾ x 19	2-3 oz
1 Blank panel (Wilcolec type 112A-14).....	8¾ x 1¾ x 19	6-7 oz
1 Dual Channel Amplifier AM-43/FRC.....	5¼ x 8¾ x 19	23
1 Volume limiting amplifier (Wilcolec type M57D1).....	5¾ x 7½ x 19	23
1 Keying oscillator (Wilcolec type 90A2).....	3½ x 6¾ x 19	12
1 Typewriter well (Wilcolec type 116A).....	10½ x 15¾ x 24	20
1 Microphone assembly (Wilcolec type 95468).....	12¼ x 5½ diam	3¾
1 Desk front (Wilcolec type 117A).....	11¼ x 25 x 20	24
1 Message rack (Wilcolec type 111A).....	33½ x 8½ x 9½	23
2 Cables, approximately 18" long terminating in Jones plugs. (With each group of 4 of these units a 10-foot, 33-conductor cable and wall terminal box (Wilcolec type 118A) is provided.)		

WEIGHT AND VOLUME

Each Remote Control Equipment CY-161/FRC is packed in 5 wooden boxes with an aggregate weight of 850 pounds, an aggregate volume of 57.0 cubic feet, and approximately 14 ship tons.

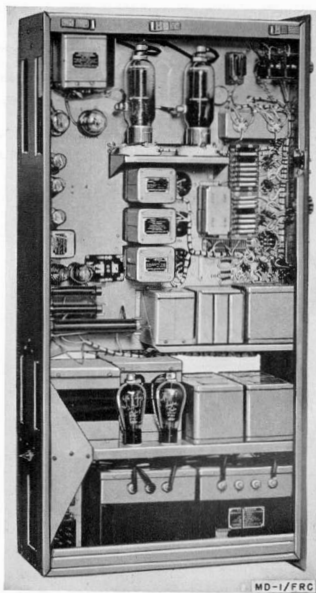


Figure 56. Modulator MD-1/FRC, left side view, covers removed.

Status: Standard. *Stock No.:* 2C2537-1. *Reference:* TM 11-820.

Modulator MD-1/FRC is used in conjunction with Power Rectifier PP-1/FRC, Radio Transmitter T-4/FRC, and/or Radio Transmitter T-5/FRC for airport traffic control work, homing, and fixed point-to-point.

The dual modulator unit provides 2 complete speech-amplifier and modulator channels having a nominal power output of 300 watts each. The frequency response is such that amplification is constant within 2 db from 200 to 4,000 cps.

TECHNICAL CHARACTERISTICS

POWER SOURCE: Power Rectifier PP-1/FRC and 220-v, single-phase ac.

POWER OUTPUT: Each channel (2 available).

Response: Maximum variation of 2 db from 200 to 4,000 cps. (1,000 cps reference frequency.)

Nominal power output: 300 w.

Harmonic distortion at 300 w. Output: 10 percent max at 400 cps.

Input impedance: 500 ohms.

Output impedance: 2,300 and 4,600 ohms (to modulate 4 or 2 JAN-810 tubes).

Noise level: -40 db.

NUMBER OF TUBES: 22.

GENERAL APPLICATION

USE: Multichannel airport traffic control (when used in conjunction with associated equipment).

INSTALLATION: Fixed station.

TYPE OF SIGNAL: Audio.

PRINCIPAL COMPONENTS

Name	Dimensions (in.)	Weight (lb)
Modulator MD-1/FRC	61 x 24 x 12	310

WEIGHT AND VOLUME

	Unpacked	Domestic pack
Total weight (lb)	510	525
Total volume (cu ft)	10.2	17.5

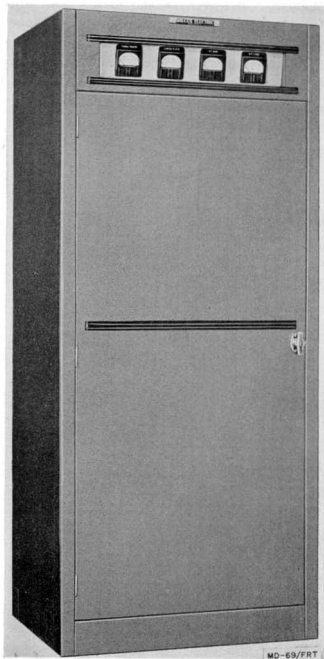


Figure 57. Modulator MD-69/FRT, front view.

Status: Standard commercial. *Stock No.:* 2C2510-50A. *Reference:* TM 11-2650.

Modulator MD-69/FRT (Wilcox Electric type 50A) is a single unit enclosed in a steel cabinet. In addition to the modulator component, the case contains a high-voltage filter section, a dialing unit, and an auxiliary unit.

The dialing and auxiliary relay units are used to permit dialing the modulator into the circuit of any one of 1 to 10 Radio Transmitters T-158/FRT (Wilcox Electric type 96C or 96C3) or Radio Transmitters T-171/FR (Wilcox Electric type 96-200B or 96-200C).

Dialing may be accomplished from the modulator panel or from Remote Control Console CY-161/FRC at a remote point.

Modulator MD-69/FRT and modulator (Wilcox Electric type 50A3) are identical except for terminal arrangement.

Power is supplied to Modulator MD-69/FRT and to the transmitters by Radio Power Supply PP-219/PRT (Wileox Electric type 36A). Power is supplied to Modulator Wileox Electric type 50A3, and to the transmitters by rectifier (Wileox Electric type 36A4).

TECHNICAL CHARACTERISTICS

TYPE MODULATION: Audio input 0 to 3 db.
POWER SOURCE: Modulator plate supply 4,000-v dc at 400 ma; a-c power, 220 v single-phase at 15 amp; relay power, 12-v dc approx, 3 amp max.
POWER OUTPUT: 1,600 w.
NUMBER OF TUBES: 15.

GENERAL APPLICATION

USE: This equipment is intended primarily for point-to-point and ground-to-air communication.

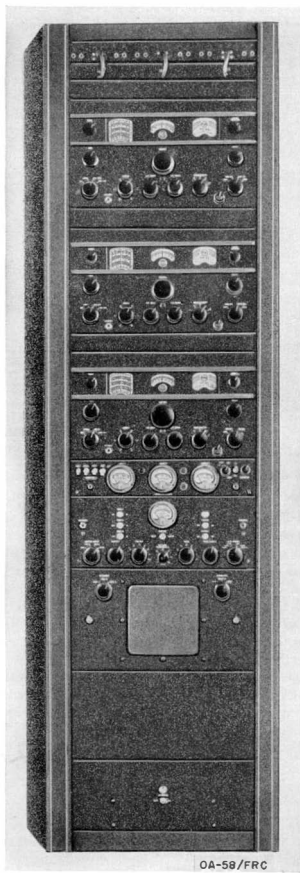
INSTALLATION: Fixed station.

PRINCIPAL COMPONENTS

Name	Dimensions (in.)	Weight (lb)
Steel cabinet	72 x 24½ x 28½	963
Modulator type 30A-10	8¾ x 21 x 23	97.5
Dialing unit type 168C	11¼ x 3½ x 19	10.25
Auxiliary control relay unit type 169D	8¾ x 3½ x 19	10
Filter choke	8¾ x 10¼ x 18¼	183
Modulation transformer	9¼ x 10½ x 20¼	178

WEIGHT AND VOLUME

	Unpacked	Domestic pack
Total weight (lb)	1,930.8	19,320
Total volume (cu ft)	67.38	122.1
Ship tons	1.68	3.5



OA-58/FRC

Figure 58. Radio Receiver Assembly OA-58/FRC.

Status: Standard. Stock No.: 2C589. Reference: TM 11-889.

Radio Receiver Assembly OA-58/FRC consists of a triple-diversity arrangement containing three superheterodyne receivers, a tone keyer unit, and a monitoring unit in a cabinet rack with all necessary power supplies, cords, and speaker. The tone keyer unit electronically selects the strongest signal of the three receivers suppressing the two weaker signals.

The receivers may be operated individually.

For diversity reception a space diversity arrangement of three antennas is used. Nominal input impedance of receivers is 200-ohms.

TECHNICAL CHARACTERISTICS

FREQUENCY RANGE: 0.54 to 32.0 mc in 6 bands:

- Band 1: 0.54 to 1.6 mc.
- Band 2: 1.57 to 4.75 mc.
- Band 3: 4.45 to 12.15 mc.
- Band 4: 11.9 to 16.6 mc.
- Band 5: 16.1 to 22.7 mc.
- Band 6: 22.0 to 32.0 mc.

NUMBER OF CRYSTALS: 1 in monitoring unit, and crystal i-f filter in each receiver.

PRESET FREQUENCIES: None.

ANTENNA: 3 required, preferably 5 wavelengths apart; usually double doublet or rhombics.

POWER SOURCE: 100- to 160- or 190- to 260-v, 50- to 60-cycle ac at 450 w.

POWER OUTPUT: 12 mw.

RANGE: Long, dependent upon antenna used, frequency, and ionospheric conditions.

NUMBER OF TUBES:

- 14 in each receiver.
- 8 in tone keyer unit.

5 in monitoring unit.

2 in monitoring unit power supply.

GENERAL APPLICATION

USE: A complete diversity receiving unit for reception of c-w, m-c-w, or a-m signals to minimize fading effects.
TO COMMUNICATE WITH: Specifically designed for long range c-w.

INSTALLATION: Fixed.

TYPE OF SIGNAL: c-w, m-c-w, or a-m.

PRINCIPAL COMPONENTS

Name	Dimensions (in.)	Weight (lb)
Radio Receiver Assembly OA-58/FRC	22 x 84 x 21	650

WEIGHT AND VOLUME

	Unpacked	Domestic pack
Total weight (lb)	1,122	
Total volume (cu ft)		78.74

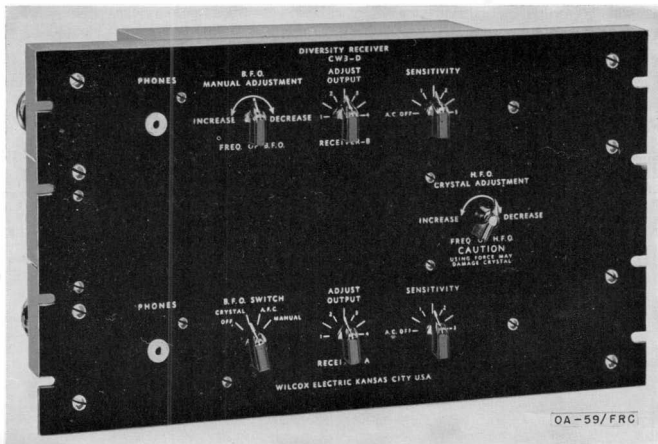


Figure 59. Radio receiver (Wilcox Electric type CW3-D), component of Radio Receiver Assembly OA-59/FRC.

Status: Limited standard. *Stock No.:* 2C5404. *Reference:* TM 11-2204.

Radio Receiver Assembly OA-59/FRC, dual-diversity receiving equipment, consisting of two receivers (Wilcox Electric type CW3-D) is used with Radioteletype Terminal Equipment AN/FGC-1, to provide two identical fixed-frequency diversity receivers with common h-f and bfo.

The two Wilcox Electric type CW3-D receivers (A and B) are identical electrically, but differ slightly in tube arrangement, each diversity receiver being constructed by the conversion of two non-diversity receivers. An h-f oscillator and three arrangements of bfo are provided and are common to both diversity receivers. Two power supplies are required because of method of conversion.

These receivers are highly selective, crystal-controlled superheterodyne units, operative at any fixed frequency in the range of 1.9 to 24.0 mc. The total range is covered by means of six sets of plug-in coils.

Ordinarily 2 Radio Receiver Assemblies OA-59/FRC (4 Wilcox Electric type CW3-D receivers) are mounted in a metal cabinet (115 A-D Type Cabinet), 72 inches high, 24 inches wide, and 17 inches deep.

TECHNICAL CHARACTERISTICS

FREQUENCY RANGE: 1.9 to 24.0 mc with 6 sets of plug-in coils.

Band 1: 1.9 to 3.6 mc.

Band 2: 4.4 to 5.9 mc.

Band 3: 5.8 to 9.4 mc.

Band 4: 9.4 to 16.5 mc.

Band 5: 16.5 to 20 mc.

Band 6: 20 to 24 mc.

NUMBER OF CRYSTALS: 2 per receiver.

PRESET FREQUENCIES: 1.

ANTENNA: Two rhombic or two other matched antennas.

POWER SOURCE: 110-v, 60-cyc, single-phase ac, 1.3 amp.

RANGE: Long, dependent upon antenna used, frequency, and ionospheric conditions.

NUMBER OF TUBES: 16.

GENERAL APPLICATION

USE: Radioteletypewriter or other dual diversity use.

TO COMMUNICATE WITH: Long-range stations.

INSTALLATION: Fixed station.

TYPE OF SIGNAL: A-m or e-v.

PRINCIPAL COMPONENTS

<i>Name</i>	<i>Dimensions (in.)</i>
Radio Receiver Assembly OA-59/FRC, consisting of 2 Wilcox type CW3-D receivers (ea)	10½ x 19 x 11½

WEIGHT AND VOLUME

	<i>Export pack</i>
Total weight (lb)	528
Total volume (cu ft)	37
Ship tons	0.9

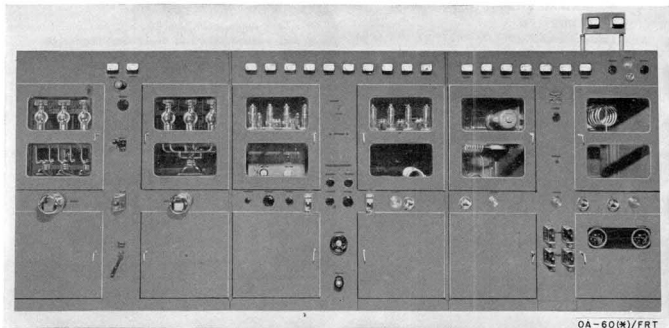


Figure 60. Radio Transmitter Assembly OA-60(*)/FRT.

Status: Standard. Stock No.: 2C6893. Reference: TM 11-835.

Radio Transmitter Assembly OA-60 (*)/FRT represents Radio Transmitter Assembly OA-60A/FRT (Radio Telegraph Transmitter, Press Wireless type PW-40-B) and Radio Transmitter Assembly OA-60B/FRT (Radio Telegraph Transmitter, Press Wireless type PW-40-BA). The equipments are similar in design, but differ in the frequency range covered.

This high-powered transmitting assembly is designed for radiotelegraph operation over long distances. It is also used for single side-band transmission.

Radio Transmitter Assembly OA-60(*)/FRT is so designed that the carrier may be controlled automatically from a local or remote operating point, or controlled manually from a local point.

TECHNICAL CHARACTERISTICS

FREQUENCY RANGE:

Radio Transmitter Assembly OA-60A/FRT: 5.3 to 21 mc.

Radio Transmitter Assembly OA-60B/FRT: 4 to 21 mc.

NUMBER OF CRYSTALS: Receptacles for holding six different crystals are provided in the oven.

PRESET FREQUENCIES: 1.

ANTENNA: Transmitter usually functions with a rhombic or other long-distance antenna.

TYPE MODULATION: C-w or single side band.

FREQUENCY CONTROL: Crystal or mc.

POWER SOURCE: Existing commercial power facilities or 100-kw power available from 240-v. a-c, 3-phase generating equipment. Power Unit PE-220, 100 kw, 240 v may be used to supply power to the transmitter.

POWER OUTPUT: 40,000 w.

RANGE: Long, dependent upon antenna used, frequency, and ionospheric conditions.

NUMBER OF TUBES: 33.

GENERAL APPLICATION

USE: Long-range, point-to-point, c-w, and radioteletype-writer; used as 13,000 w, linear amplifier for the single side-band transmitter of Radio Set AN/FRC-10.

TO COMMUNICATE WITH: Other long-range equipment.

INSTALLATION: Fixed station.

TYPE OF SIGNAL: C-w.

PRINCIPAL COMPONENTS

Name	Dimensions (in.)	Weight (lb)
High-voltage rectifier	82 x 56 x 72	4,860
R-f exciter	82 x 56 x 72	3,090
R-f power amplifier	82 x 56 x 72	3,290
Water-cooling unit	66 x 66 x 60	1,093 (filled)

WEIGHT AND VOLUME

	Domestic pack
Total weight (lb)	25,588
Total volume (cu ft)	1,665.5
Ship tons	41.64

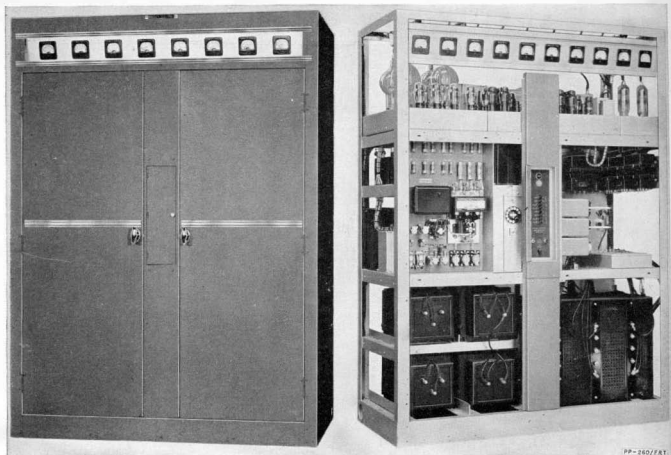


Figure 61. Rectifier-Modulator PP-260/FRT, showing metal covers in place and removed

Status: Limited standard. *Stock No.* 2C7126B.

Rectifier-Modulator PP-260/FRT (Wilcox Electric model 26B Rectifier-Modulator Unit) is used with Radio Transmitters T-158/FRT and T-171/FRT and Control Console C-418/FRT. It is designed to furnish the necessary power and modulation of up to eight channels of the transmitters, and is controlled by an automatic dial system.

TECHNICAL CHARACTERISTICS

TYPE MODULATION: Amplitude.

POWER SOURCE: 20-kva, 3-phase, 220-v, 50- to 60-cyc.

POWER OUTPUT: Rectifier output: 4,000-v, d.c. 3 amp;
2,000 v at 0.5 amp; 12-v. d.c. 4 amp filtered, 2 modu-
later channels of 1,250 w each; 3 supplies of 500 v at
0.35 amp each.

NUMBER OF TUBES: 39.

GENERAL APPLICATION

USE: Used with Radio Transmitters T-158/FRT and T-
171/FRT, and Control Console C-418/FRT.

INSTALLATION: Fixed.

PRINCIPAL COMPONENTS

<i>Name</i>	<i>Dimensions (in.)</i>
Rectifier-Modulator PP-260/FRT, floor- mounted.	72 x 24 $\frac{3}{4}$ x 52

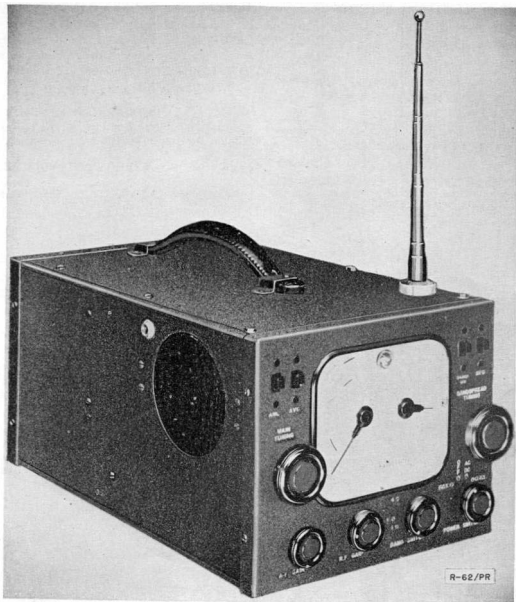


Figure 62. Radio Receiver R-62/PR.

Status: Substitute standard. *Stock No.:* 2C4180.

Radio Receiver R-62/PR (Hallcrafters Sky Ranger model S-29) is a complete portable, nine-tube, superheterodyne receiver.

The components are contained in a steel cabinet. The internal whip antenna has provisions for connection to an external antenna.

This receiver operates from either an a-c or d-c, 115-v power source or from batteries.

When operating from batteries, the 2 B batteries and 1 A battery should give approximately 100 hours of intermittent service.

This receiver is highly portable for miscellaneous monitoring.

TECHNICAL CHARACTERISTICS

FREQUENCY RANGE: 0.5 to 30.5 mc.
 NUMBER OF CRYSTALS: None.
 PRESET FREQUENCIES: None.
 ANTENNA: Self-contained whip antenna, with connection provision to outside antenna.
 FREQUENCY CONTROL: Manual.
 POWER SOURCE: 115-v ac or dc, 40 w. or batteries contained in receiver (Two 45-v B batteries and one 6-v A battery.)
 RANGE: Dependent upon power of signal, frequency used, and ionospheric conditions.
 NUMBER OF TUBES: 9.

GENERAL APPLICATION

USE: General purpose portable receiver.
 TO COMMUNICATE WITH: Receives signals from sets of like frequencies within short or medium range.
 INSTALLATION: Portable or fixed.
 TYPE OF SIGNAL: A-m and c-w.

PRINCIPAL COMPONENTS

Name	Dimensions (in.)	Weight (lb)
Radio Receiver R-62/PR	7 x 8½ x 13¼	18

WEIGHT AND VOLUME

	Unpacked	Export pack
Total weight (lb)	18	48
Total volume (cu ft)		2

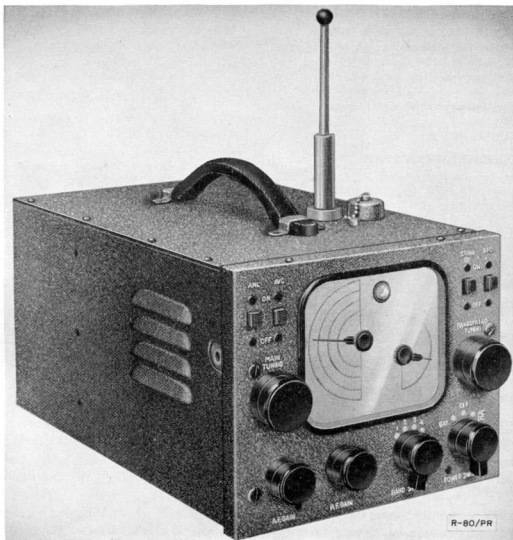


Figure 65. Radio Receiver R-80/PR.

Status: Substitute standard. *Stock No.:* 2C4180-80. *Reference:* TM 11-876.

Radio Receiver R-80/PR (Hallicrafters Sky Ranger model S-39) is a complete 4-band, portable superheterodyne receiver. All components, including the telescoping whip antenna, are self-contained in a steel cabinet fitted with a carrying handle.

This receiver operates from either an a-c or d-c, 110- to 117-volt power source, or from batteries. When operating on batteries, the 2 B batteries and the 1 A battery should give approximately 100 hours of intermittent service.

TECHNICAL CHARACTERISTICS

FREQUENCY RANGE: 0.50 to 30.5 mc in 4 bands.
ANTENNA: Self-contained, telescoping rod, or long wire.
POWER SOURCE: 110- to 117-v ac or dc, 50 w, or batteries contained in receiver. (One 6-v A battery, and two 45-v B batteries.)
RANGE: Dependent upon power of signal, frequency, and ionospheric conditions.
NUMBER OF TUBES: 9.

GENERAL APPLICATION

USE: General purpose portable receiver.

TO COMMUNICATE WITH: Short-range to medium-range communication.

INSTALLATION: Portable or fixed.

TYPE OF SIGNAL: A-m and e-w.

PRINCIPAL COMPONENTS

<i>Name</i>	<i>Dimensions (in.)</i>	<i>Weight (lb)</i>
Radio Receiver R-80-PR	9 x 9 x 15*	28

*Over-all height from bottom of receiver to top of telescoping antenna, when fully extended. 39½ inches.

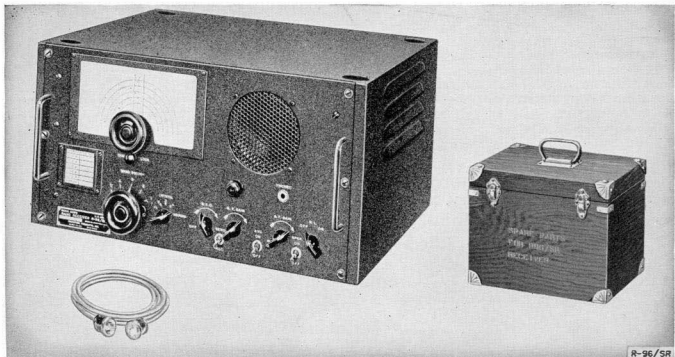


Figure 64. Radio Receiver R-96/SR with spare parts box.

Status: Standard. *Stock No.:* 2C4180-96. *Reference:* TM 11-878.

Radio Receiver R-96/SR is intended for use in harbor and seagoing vessels where extreme conditions such as tropical climates and salt-sea atmosphere may be prevalent, and where severe vibrations and shock may be encountered. It is designed for operation alone or in combination with Radio Transmitter T-83/SR.

Terminals are provided in the receiver to accommodate the necessary interconnecting cables so that sending and receiving operations may be secured through the action of the push-to-talk handset and relays incorporated in the radio transmitter.

The receiver is provided with four crystal-controlled channels for operation in a frequency range of 1.700 to 8.700 mc and a fifth position for manual tuning over the frequency ranges of 0.135 to 0.260 mc, 0.255 to 0.510 mc, 1.485 to 3.030 mc, 2.870 to 6.060 mc, and 5.940 to 12.120 mc.

C-w, m-e-w, and voice-modulated signals (phone) may be received with either automatic or manual volume control.

TECHNICAL CHARACTERISTICS

FREQUENCY RANGE: 1.7 to 8.7 mc in four bands.
 NUMBER OF CRYSTALS: 4.
 PRESET FREQUENCIES: 4.
 ANTENNA: Any suitable antenna.
 TYPE MODULATION: I-c-w, m-e-w, and amplitude.
 FREQUENCY CONTROL: Crystal and manual.
 POWER SOURCE: 115-v, 50- to 60-cycle a-c or 115-v d-c;
 requires approximately 0.4 amp or approximately 45 w.
 RANGE: Dependent upon antenna used, frequency, and
 ionospheric conditions.

GENERAL APPLICATION

USE: General communication service with special reference
 to harbor and seagoing vessels.

TO COMMUNICATE WITH: Any radio transmitter with
 in frequency range.

INSTALLATION: Shipboard.

TYPE OF SIGNAL: I-c-w, m-e-w, e-w, and a-m.

PRINCIPAL COMPONENTS

Name	Dimensions (in.)	Weight (lb)
Radio Receiver (lb) _____	10 x 20 $\frac{1}{8}$ x 17 $\frac{1}{2}$	69.5
Spare parts box _____	9 x 11 x 14	18

WEIGHT AND VOLUME

	Domestic		Export
	Unpacked	pack	pack
Total weight (lb) _____	87.5	112	160.5
Total volume (cu ft) _____			7.69

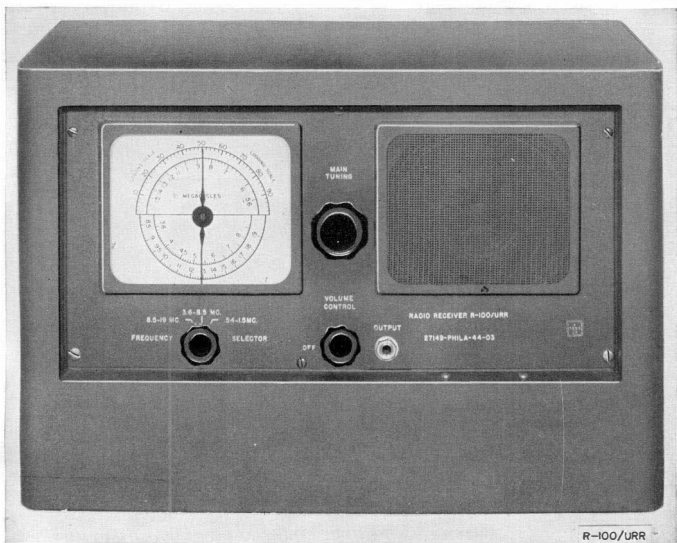


Figure 65. Radio Receiver R-100/URR.

Status: Standard. Stock No.: 2C4180-100.

Radio Receiver R-100/URR, called the morale builder, is a portable multichannel, superheterodyne receiver designed for entertaining and maintaining morale of troops. It provides the reception of voice-modulated signals in the broadcast and h-f bands.

TECHNICAL CHARACTERISTICS

FREQUENCY RANGE: 0.54 to 19 mc in 3 bands.

Band 1: 0.54 to 1.5 mc.

Band 2: 3.6 to 8.5 mc.

Band 3: 8.5 to 19 mc.

NUMBER OF CRYSTALS: None.

ANTENNA: Single wire provided.

POWER SOURCE: Battery or 115- to 220-v ac or dc.

RANGE: Medium and short.

NUMBER OF TUBES: 7.

GENERAL APPLICATION

USE: For reception of voice signals for entertainment purposes.

TO COMMUNICATE WITH: Receives signals from transmitters within frequency range.

INSTALLATION: Portable.

TYPE OF SIGNAL: Voice.

PRINCIPAL COMPONENTS

Name
Radio Receiver R-100/URR Dimensions (in.)
17½ x 9¼ x 11¼



Figure 66. Radio Receiver R-129/U.

Status: Limited standard. *Stock No.:* 2C4180-129. *Reference:* TM 11-866.

Radio Receiver R-129/U is a superheterodyne receiver intended primarily for fixed-station use, although mountings for vehicular installation may be utilized.

The receiver uses a conventional superheterodyne circuit and is designed for the reception of either e-w or a-m voice or tone signals, with either manual or automatic volume control.

This receiver uses an external power supply, but in an emergency can be operated from batteries.

Radio Receiver R-129/U is the same as Radio Receivers BC-779-A and -B; BC-794-A and -B; BC-1004-B, -C, and -D except in frequency coverage.

TECHNICAL CHARACTERISTICS

FREQUENCY RANGE: 0.3 to 10 mc in 5 bands:

- Band 1: 0.3 to 0.54 mc.
- Band 2: 0.54 to 1.16 mc.
- Band 3: 1.16 to 2.5 mc.
- Band 4: 2.5 to 5 mc.
- Band 5: 5 to 10 mc.

NUMBER OF CRYSTALS: 1 (filter).

ANTENNA: Doublet antenna with balanced transmission line or single wire and ground.

TYPE MODULATION: Amplitude or c-w.

POWER SOURCE: Power Supply Units RA-74, RA-84, and RA-94-A: 95- to 260-v, 25- to 60-cyc, a-c, 180-w. In an emergency, the following battery supply: one 6-v storage battery, five 45-v B batteries, and one 45-v C battery.

RANGE: Long.

NUMBER OF TUBES: 18.

GENERAL APPLICATION

USE: General purpose communication receiver.

TO COMMUNICATE WITH: Radio Sets AN/GRC-9, AN/

MRC-2A, AN/VRC-1, SCR-177, SCR-188, SCR-193, SCR-399, SCR-499, SCR-536, SCR-543, and SCR-694.

INSTALLATION: Fixed station, although mountings may be provided for vehicular installation.

TYPE OF SIGNAL: C-w, tone, and voice.

PRINCIPAL COMPONENTS

Name	Dimensions (in.)	Weight (lb)
Radio receiver with power and battery cables and dust cover	10½ x 15½ x 19	55
Radio receiver or with power and battery cables using Cabinet CII-104-A instead of dust cover	12½ x 16½ x 23	73
Power supply unit with dust cover	10½ x 10 x 19	60

WEIGHT AND VOLUME

	Unpacked	Domestic pack	Export pack
Total weight (lb)	115	120	179
Total volume (cu ft)	3.0	4.4	7.5

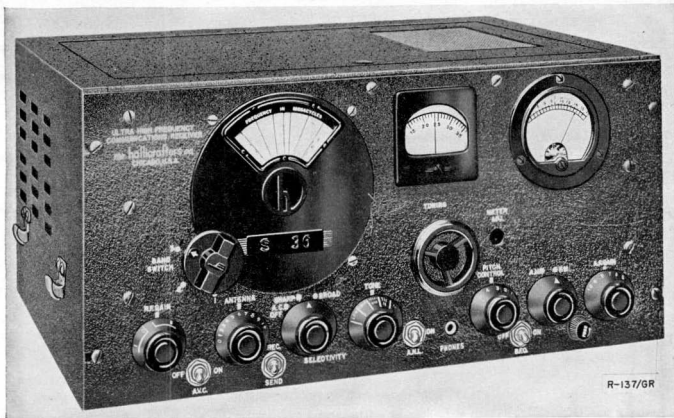


Figure 67. Radio Receiver R-137/GR.

Status: Limited standard. *Stock No.:* 2C4180-137.

Radio Receiver R-137/GR is a three-band, superheterodyne u-h-f receiver for mobile or fixed-station use. Although designed for the reception of a-m or f-m signals, e-w signals may also be received by using the bfo.

A jack for a headset and 500-ohm impedance output to feed a loudspeaker are provided. Stand-by operation may be controlled from a remote point. Either manual or ave may be used.

TECHNICAL CHARACTERISTICS

FREQUENCY RANGE: 27.8 to 143.0 mc in 3 bands, continuous frequency coverage.

NUMBER OF CRYSTALS: None.

PRESET FREQUENCIES: 3-band switch.

ANTENNA: 3 whip. Half-waves cut to misband frequency or a single-wire.

TYPE MODULATION: Amplitude, frequency, and e-w.

POWER SOURCE: 115. to 230-v, 50. to 60-cyc, or A battery, 6 v at 4.5 amp, B battery, 270 v at 145 ma.

RANGE: Dependent upon antenna used, frequency, and ionospheric conditions.

NUMBER OF TUBES: 15.

GENERAL APPLICATION

USE: Used in v-h-f intercept, ground-to-plane control, and v-h-f air warning systems.

TO COMMUNICATE WITH: Receives signals from transmitters within frequency range.

INSTALLATION: Mobile or fixed station.

TYPE OF SIGNAL: A-m, f-m, and e-w.

PRINCIPAL COMPONENTS

<i>Name</i>	<i>Dimensions (in.)</i>	<i>Weight (lb)</i>
Radio Receiver R-137/GR	19 x 9 x 14	66

WEIGHT

Total weight (lb) _____ *Unpacked*
66

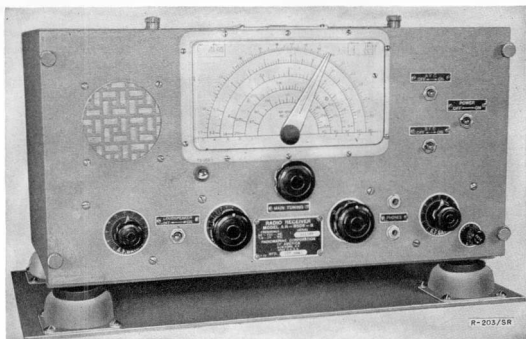


Figure 68. Radio Receiver R-203/SR.

Status: Standard. *Stock No.:* 2C4519-8506B.2. *Reference:* TM 11-875.

Radio Receiver R-203/SR (Radiomarine Corporation of America model AR-8506B) is a self-contained, cabinet type, 5-band, intermediate and h-f superheterodyne receiver designed for the reception of a-m and c-w communication signals, and complies with FCC rules governing ship service.

The receiver is provided with ave and bfo. electrical hand-spread tuning control, built-in loudspeaker, and dual jacks for ether high- or low-impedance phones.

This receiver is designed for installation and operation on shipboard or inland stations.

Radio Receiver R-203/SR is similar to Radio Receiver R-213/SR except for the difference in frequency range.

TECHNICAL CHARACTERISTICS

FREQUENCY RANGE: 0.085 to 25.0 mc in 5 bands:

Band 1: 0.085 to 0.22 mc.

Band 2: 0.21 to 0.55 mc.

Band 3: 1.9 to 5.4 mc.

Band 4: 5.2 to 12 mc.

Band 5: 11.5 to 25 mc.

NUMBER OF CRYSTALS: None.

PRESET FREQUENCIES: None.

ANTENNA: Doublet, or other suitable antenna.

POWER SOURCE:

Direct line, 115-v ac or dc, 45 w.

Direct line, 250-v ac or dc, with 325-ohm, 75-w external resistor unit, 90 w.

RANGE: Dependent upon antenna used, frequency, and ionospheric conditions.

NUMBER OF TUBES: 10 (also 1 voltage regulator tube).

GENERAL APPLICATION

USE: For service on shipboard or inland stations.

TO COMMUNICATE WITH: Medium-range and long-range stations within frequency range.

INSTALLATION: Installed and operated on shipboard and inland stations.

TYPE OF SIGNAL: A-m and e-w.

PRINCIPAL COMPONENTS

Name	Dimensions (in.)	Weight (lb)
Radio Receiver R-203/SR	11 $\frac{3}{4}$ x 21 x 13 $\frac{1}{4}$	63
Line filter unit	7 $\frac{1}{4}$ x 6 $\frac{1}{8}$ x 3 $\frac{1}{2}$	5
External resistor unit		

WEIGHT AND VOLUME

	Unpacked	Domestic pack
Total weight (lb)	68	100
Total volume (cu ft)		4.5

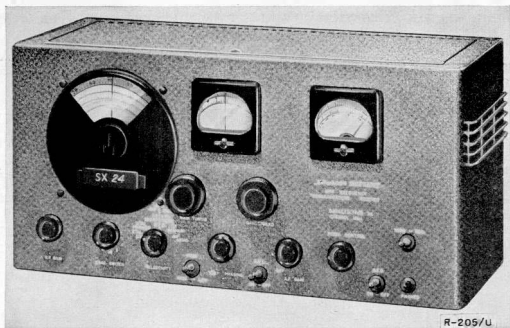


Figure 69. Radio Receiver R-205/U.

Status: Limited standard. *Stock No.:* 2C4544.

Radio Receiver R-205/U (Hallicrafters model SX-24) is a nine-tube superheterodyne receiver designed for the reception of a-m and c-w signals in fixed-station communications. It maintains frequency stability throughout a wide range of line voltage, humidity, and temperature variations.

This receiver is equipped with a d-c operation socket for battery or vibrapack and contains a noise-limiter circuit. It has six-point variable selectivity from c-w crystal to high-fidelity, and terminals are provided for break-in relay operation. A single-signal crystal filter is a part of the standard equipment.

The controls include an r-f gain, a selectivity switch, crystal phasing, audio gain, pitch control, main tuning control, band spread tuning control, an ANL switch, high-low tone, send-receive switch, and a bfo switch.

This receiver is table-mounted in a steel cabinet.

TECHNICAL CHARACTERISTICS

FREQUENCY RANGE: 0.054 to 43.5 mc in 4 bands as follows:

Band 1: 0.054 to 1.73 mc.

Band 2: 1.7 to 5.1 mc.

Band 3: 5.0 to 15.7 mc.

Band 4: 15.2 to 43.5 mc.

NUMBER OF CRYSTALS: 1.

PRESET FREQUENCIES: None.

ANTENNA: Standard receiving.

POWER SOURCE: 110v, 50 - to 60-cyc ac at 70 w, or 6-v, d-c No. 301 Electronic Converter.

RANGE: Medium, dependent upon antenna used, frequency, and ionospheric conditions.

NUMBER OF TUBES: 9.

GENERAL APPLICATION

USE: For reception of signals from sets in frequency range.

TO COMMUNICATE WITH: Receives signals from transmitters in frequency range.

INSTALLATION: Fixed.

TYPE OF SIGNAL: A-m, c-w, and m-e-w.

PRINCIPAL COMPONENTS

Name	Dimensions (in.)	Weight (lb)
Radio Receiver R-205/U	19½ x 9¼ x 10½	56

WEIGHT

Total weight (lb)	Domestic pack
.....	56

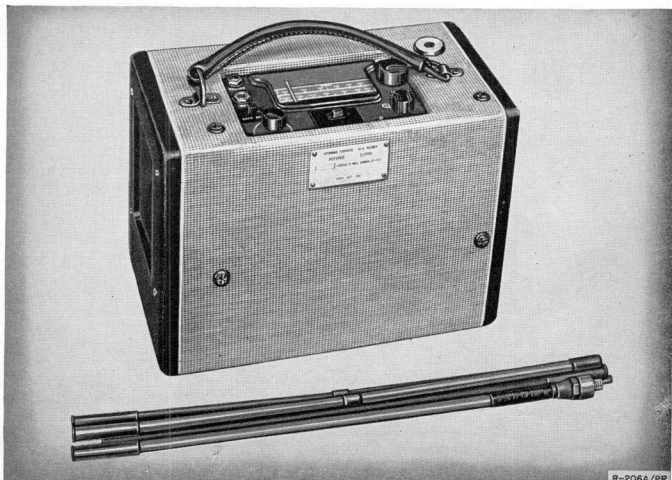


Figure 70. Radio Receiver R-206A/PR.

Status: Substitute standard. *Stock No.:* 2C4180-206A. *Reference:* TM 11-5011.

Radio Receiver R-206A/PR is a portable, superheterodyne, a-m communications receiver covering three tuning ranges in three bands. It is designed to operate from a 105- to 125-volt, a-c, d-c power source, or from self-contained dry batteries. A collapsible whip antenna may be used on all three bands, or a self-contained loop antenna may be used on bands one and two. A built-in speaker or headset may be used for listening, a panel-mounted jack being provided for a headset. When a power output meter is connected to the meter jack and used as a level indicator, the receiver may be used for comparative measurement of field strength.

TECHNICAL CHARACTERISTICS

FREQUENCY RANGE: 0.195 to 6.2 mc in three bands:

Band 1: 0.195 to 0.41 mc.

Band 2: 0.54 to 1.56 mc.

Band 3: 2.2 to 6.2 mc.

PRESET FREQUENCIES: None.

ANTENNA: Whip for Band Nos. 1, 2, and 3. Loop for Band Nos. 1 and 2 only.

POWER SOURCE: 10.5- to 125-v, 50- to 60-cycle, at 40-w ac or 10.5- to 125-v, at 40-w d-c operation.

Battery operation: 1 each 7½-v A-battery—2 each 45-v B-batteries. (Battery BA-68)

POWER OUTPUT: 50 mw on battery operation. 0.5 w on a-c or d-c operation.

RANGE: Short and medium.

NUMBER OF TUBES: 7.

GENERAL APPLICATION

USE: Receiving signals from sets within frequency range. **TO COMMUNICATE WITH:** Other sets of like frequency range or to take field strength measurements.

INSTALLATION: Portable.

TYPE OF SIGNAL: A-m tone; a-m voice.

PRINCIPAL COMPONENTS

Name	Dimensions (in.)	Weight (lb)
Radio receiver	8½ x 6 x 12	9¾
Whip antenna:		
(extended)	128¾	¾
(collapsed)	17¾	

WEIGHT AND VOLUME

Total weight (lb)	21½
Total volume (cu ft)	2¼



Figure 71. Radio Receiver R-208/FR, front view.

Status: Standard. *Stock No.:* 2C4547-2.5. *Reference:* TM 11-853.

Radio Receiver R-208/FR (Wileox Electric type CW3) is a highly selective superheterodyne receiver designed for the reception of e-w signals. It is operated from ground station installations for point-to-point communication, or for the reception of signals from aircraft to ground.

Radio Receiver R-209/FR (Wileox Electric type CW3) is designed for use with receiver bay (Wileox Electric type 113A).

TECHNICAL CHARACTERISTICS

FREQUENCY RANGE: 1.95 to 16.5 mc with 4 sets of plug-in coils:

Set 1: 1.95 to 3.6 mc.

Set 2: 3.5 to 6.1 mc.

Set 3: 5.6 to 10 mc.

Set 4: 9.4 to 16.5 mc.

NUMBER OF CRYSTALS: 1 (operating).

PRESET FREQUENCIES: 1 preset operation only.

ANTENNA: Doublet, rhombic, or other suitable type.

TYPE MODULATION: C-w only.

FREQUENCY CONTROL: Crystal.

POWER SOURCE: 115-v, 50- to 60-cyc. 70-w.

RANGE: Dependent upon antenna used, frequency, and ionospheric conditions.

NUMBER OF TUBES: 7.

GENERAL APPLICATION

USE: Point-to-point and air-to-ground. Designed for use in receiver bay (Wileox Electric type 113A), with long-range remote control.

TO COMMUNICATE WITH: Long-range stations or aircraft.

INSTALLATION: Fixed station.

PRINCIPAL COMPONENTS

Name	Dimensions (in.)	Weight (lb)
Radio Receiver R-208/FR	3 15/32 x 12 1/2 x 19	20.6

WEIGHT AND VOLUME

	Unpacked	Domestic Pack	Export pack
Total weight (lb)	20.6	25	40
Total volume (cu ft)		0.95	2.5

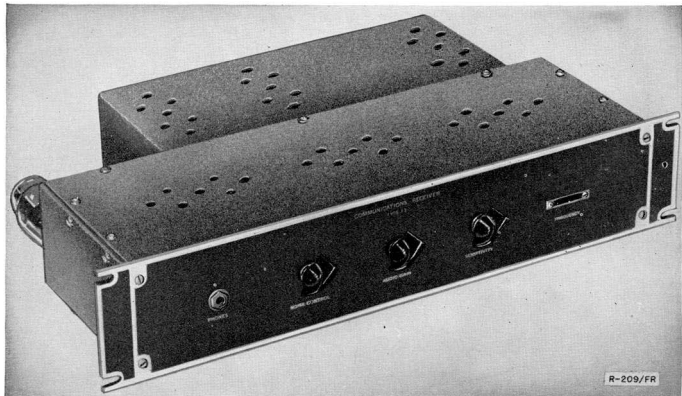


Figure 72. Radio Receiver R-209/FR.

Status: Limited standard. *Stock No.:* 2C4547.1-1. *Reference:* TM 11-853.

Radio Receiver R-209/FR (Wilcox Electric type F3) is a highly selective superheterodyne receiver designed for the reception of voice a-m signals. It is operated from ground station installations for point-to-point communication or for the reception of signals from aircraft to ground.

Radio Receiver R-209/FR is similar in appearance and functioning to Radio Receiver R-208/FR. The receiver circuit of R-209/FR consists of an r-f amplifier stage, a mixer and an h-f oscillator stage, an i-f amplifier stage, detector, automatic volume-control stage, and an output and noise suppressor stage. This receiver also contains its own power supply circuit.

Radio Receiver R-209/FR is designed for use with receiver bay (Wilcox Electric type 113A).

TECHNICAL CHARACTERISTICS

FREQUENCY RANGE: 1.95 to 16.50 mc with 4 sets of plug-in coils:

Set 1: 1.95 to 3.6 mc.

Set 2: 3.5 to 6.1 mc.

Set 3: 5.6 to 10 mc.

Set 4: 9.4 to 16.5 mc.

NUMBER OF CRYSTALS: 1 operating.

PRESET FREQUENCIES: 1 preset operation only.

ANTENNA: Any suitable antenna.

TYPE MODULATION: Voice and amplitude.

FREQUENCY CONTROL: Crystal.

POWER SOURCE: 110-v, 60-cyc.

RANGE: Dependent upon terrain, weather conditions, antennas, and frequency used.

NUMBER OF TUBES: 6.

GENERAL APPLICATION

USE: For use in receiver bay Wilcox Electric type 113A as a fixed station, with long range remote control.

TO COMMUNICATE WITH: Long-range stations or aircraft.

INSTALLATION: Fixed station.

TYPE OF SIGNAL: Voice and a-m.

PRINCIPAL COMPONENTS

<i>Name</i>	<i>Dimensions (in.)</i>
Radio Receiver R-209/FR	3 15/32 x 12 1/4 x 19

WEIGHT AND VOLUME

	<i>Unpacked</i>	<i>Domestic pack</i>
Total weight (lb)	20	50
Total volume (cu ft)	0.467	2.39

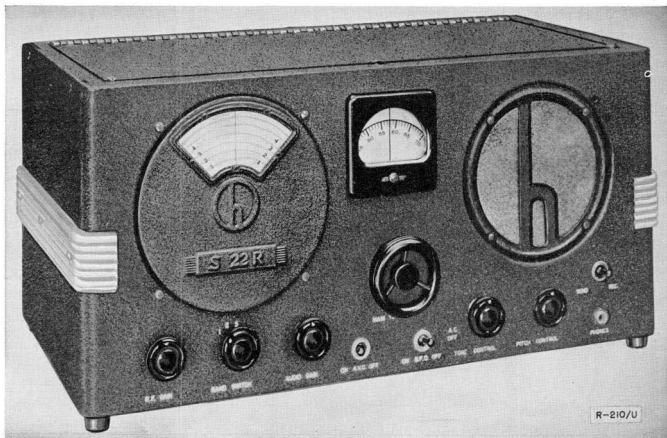


Figure 78. Radio Receiver R-210/U.

Status: Limited standard. *Stock No.:* 2C4534.

Radio Receiver R-210/U (Hallcrafters model S-22-R) is an eight-tube superheterodyne receiver, table-mounted and encased in a metal cabinet. It has built-in speaker, and it is designed for the reception of a-m and e-w signals in fixed-station communication.

TECHNICAL CHARACTERISTICS

FREQUENCY RANGE: 0.11 to 18.0 mc in 4 bands.
NUMBER OF CRYSTALS: None.
PRESET FREQUENCIES: None.
ANTENNA: Long wire.
POWER SOURCE: 110- to 125-v dc, or ac at 50-w.
RANGE: Medium and long.
NUMBER OF TUBES: 8.

GENERAL APPLICATION

USE: Point-to-point communication.

TO COMMUNICATE WITH: Receives signals from stations within frequency range.
INSTALLATION: Fixed.
TYPE OF SIGNAL: A-m or C-w.

PRINCIPAL COMPONENTS

Name	Dimensions (in.)
Receiver R-210/U	18 x 8½ x 9¼

WEIGHT AND VOLUME

	Domestic pack	Export pack
Total weight (lb)	31	55
Total volume (cu ft)		2



Figure 74. Radio Receiver R-211/U with power supply (National Type SPU-697).

Status: Limited standard. *Stock No.:* 2C4529-22. *Reference:* TM 11-885.

Radio Receiver R-211/U (National HRO Series of Receivers) is a nine-tube superheterodyne receiver. This equipment is designed for the reception of voice or tone, a-m and e-w signals, and can be used in fixed stations.

TECHNICAL CHARACTERISTICS

FREQUENCY RANGE: 0.05 to 30.0 mc in 9 coil sets (except from 0.430 to 0.480 mc) as follows:

- Type J: 0.05 to 0.1 mc.
- Type H: 0.1 to 0.2 mc.
- Type G: 0.18 to 0.43 mc.
- Type F: 0.48 to 0.96 mc.
- Type E: 0.90 to 2.05 mc.
- Type D: 1.7 to 4.0 mc.
- Type C: 3.5 to 7.3 mc.
- Type B: 7.0 to 14.4 mc.
- Type A: 14.0 to 30.0 mc.

NUMBER OF CRYSTALS: 1 filter band pass (built-in) 0.456 mc.

PRESET FREQUENCIES: None.

ANTENNA: Doublet 500-ohm input, or single wire.

POWER SOURCE: External: 115-v, 50- to 60-cyc ac, National type SPU-697; or, 6-v dc, National type SPU-686-S.

POWER OUTPUT: 2 w.

NUMBER OF TUBES: 9 in receiver, 1 in power supply.

GENERAL APPLICATION

USE: In fixed station for reception of voice or tone a-m, or c-w signals.

TO COMMUNICATE WITH: Receives signals from medium and long-range stations.

INSTALLATION: Designed for fixed station.

TYPE OF SIGNAL: A-m, c-w, and m-c-w.

PRINCIPAL COMPONENTS

Name	Dimensions (in.)	Weight (lb)
Radio Receiver R-140/FSM-1	8 $\frac{3}{4}$ x 19 x 12	37
Power supply SPU-697	5 $\frac{1}{4}$ x 19 x 9 $\frac{1}{4}$	22
Coil box with 8 coil sets	4 $\frac{1}{4}$ x 20 $\frac{1}{2}$ x 11 $\frac{1}{2}$	22

WEIGHT AND VOLUME

	Domestic pack	Unpacked
Total weight (lb)	81	211
Total volume (cu ft)	2.4	9.1



Figure 75. Radio Receiver R-212/SR.

Status: Standard. Stock No.: 2C4498. Reference: TM 11-868.

Radio Receiver R-212/SR (Federal model Mackey 128-AV) is a self-contained cabinet type, tuned r-f regenerative-detector receiver designed for use on ships and also at fixed stations. It covers the intermediate and l-f bands, and can be used for the reception of both code and modulated signals.

TECHNICAL CHARACTERISTICS

FREQUENCY RANGE: 0.015 to 0.65 mc in 4 bands:

Band A: 0.015 to 0.041 mc.

Band B: 0.037 to 0.105 mc.

Band C: 0.095 to 0.26 mc.

Band D: 0.24 to 0.65 mc.

NUMBER OF CRYSTALS: None.

ANTENNA: Long-wire.

POWER SOURCE: Any one of the following:

A-c line—115-v, 60-cyc, 36-w.

D-c line with A battery—115-v, 0.17 amp, A battery 6.3-v, 1.9 amp.

Batteries—B Battery, 90-v, 7-12 ma, A battery 6.3-v, 1.9 amp.

RANGE: Medium, dependent upon antenna used, frequency, and ionospheric conditions.

NUMBER OF TUBES: 6.

GENERAL APPLICATION

USE: Marine or fixed-station service.

TO COMMUNICATE WITH: Any transmitter operating within frequency range.

INSTALLATION: Shipboard or fixed station.

TYPE OF SIGNAL: A-m and e-w.

PRINCIPAL COMPONENTS

Name	Dimensions (in.)	Weight (lb)
Radio Receiver R-212/SR	9½ x 17 x 12½	43

WEIGHT AND VOLUME

	Export pack	Unpacked
Total weight (lb)	43	74
Total volume (cu ft)		0.2



Figure 76. Radio Receiver R-213/SR.

Status: Limited standard. *Stock No.:* 2C4519-8506BC. *Reference:* TM 11-875.

Radio Receiver R-213/SR (Radiomarine Corporation of America model AR-8506BC) is a self-contained, cabinet type, 4-band intermediate and h-f superheterodyne receiver designed for the reception of a-m and c-w communication signals, and complies with FCC rules governing ship service.

This receiver is provided with ave and bfo, electrical band spread tuning control, built-in loudspeaker, and dual jacks for either high- or low-impedance phones.

This receiver is designed for installation and operation on shipboard or inland stations.

Radio Receiver R-213/SR is similar to Radio Receiver R-203/SR except for the difference in frequency range.

TECHNICAL CHARACTERISTICS

FREQUENCY RANGE: 0.21 to 25.0 mc, in 4 bands:

- Band 1: 0.21 to 0.55 mc.
- Band 2: 1.9 to 5.4 mc.
- Band 3: 5.2 to 12 mc.
- Band 4: 11.5 to 25 mc.

NUMBER OF CRYSTALS: None.

PRESET FREQUENCIES: None.

ANTENNA: Doublet, or other suitable antenna.

POWER SOURCE: Direct line, 115-v ac or dc, 45 w. Direct line, 250-v ac or dc, with 325-ohm, 75-w external resistor unit, 90 w.

RANGE: Dependent upon antenna used, frequency, and ionospheric conditions.

NUMBER OF TUBES: 10 (also 1 voltage regulator tube).

GENERAL APPLICATION

USE: For service on shipboard or inland stations.

TO COMMUNICATE WITH: Medium-range and long-range stations within frequency range.

INSTALLATION: Installed and operated on shipboard and inland stations.

TYPE OF SIGNAL: A-m and e-w.

PRINCIPAL COMPONENTS

Name	Dimensions (in.)	Weight (lb)
Radio receiver	11 $\frac{1}{4}$ x 21 x 13 $\frac{1}{8}$	63
Line filter unit	7 $\frac{1}{2}$ x 6 $\frac{7}{8}$ x 3 $\frac{3}{8}$	5
External resistor unit		

WEIGHT AND VOLUME

	Domestic pack	Unpacked
Total weight (lb)	68	100
Total volume (cu ft)		4.5

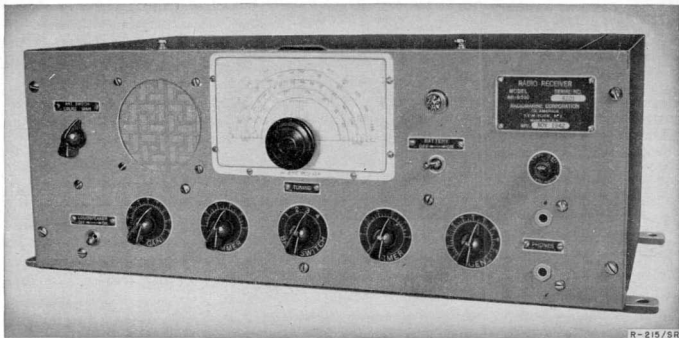


Figure 77. Radio Receiver R-215/SR.

Status: Limited standard. *Stock No.:* 2C4519-8510.

Radio Receiver R-215/SR (RCA model AR-8510) is designed for use on shipboard. Encased in a steel cabinet, it contains integral coils, a built-in 3-inch speaker, a charging panel, and headphones. This receiver is operated by external power supply batteries and is designed for reception of signals from stations on shore and shipboard.

TECHNICAL CHARACTERISTICS

FREQUENCY RANGE: 0.015 to 0.65 mc in 4 bands:

- Band 1: 0.015 to 0.038 mc.
- Band 2: 0.038 to 0.1 mc.
- Band 3: 0.1 to 0.25 mc.
- Band 4: 0.25 to 0.65 mc.

NUMBER OF CRYSTALS: None.

PRESET FREQUENCIES: None.

ANTENNA: Long-wire or shipboard.

POWER SOURCE: 6-v battery and 90-v battery only.
110-v dc or 115-v ac 60-cyc at 35 w.

RANGE: Short to medium.

NUMBER OF TUBES: 5.

GENERAL APPLICATION

USE: Ship-to-ship or shore-to-ship communication.

TO COMMUNICATE WITH: Receiver signals from stations within frequency range.

INSTALLATION: Fixed or shipboard.

TYPE OF SIGNAL: A-m, m-c-w, and c-w.

PRINCIPAL COMPONENTS

Name	Dimensions (in.)	Weight (lb)
Radio receiver	8¼ x 22 x 13	39
Power supply	11½ x 9¼ x 8¾	21½

WEIGHT

Total weight (lb) _____ *Unpacked*
50.5

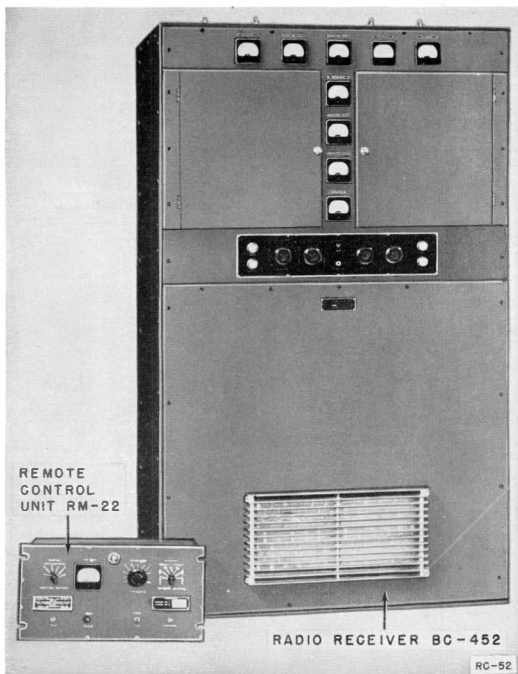


Figure 78. Radio Transmitter BC-452 and Remote Control Unit RM-22, components of Radio Transmitting Equipment RC-52.

Status: Limited standard. *Stock No.:* 2C6903-52.

Radio Transmitting Equipment RC-52 is a local or remote-controlled transmitting equipment, designed for point-to-point communication. The equipment consists of Radio Transmitter BC-452 and Remote Control Unit RM-22 and it is designed to start and stop automatically by full remote control.

Either of two preset frequencies may be selected, as well as the type of emission.

Radio Transmitting Equipment RC-52 is operated as a fixed station.

TECHNICAL CHARACTERISTICS

FREQUENCY RANGE: 1.5 to 7.0 mc in 4 bands.
NUMBER OF CRYSTALS: 2.
PRESET FREQUENCIES: 2.
ANTENNA: Rhombic or doublet, fixed station.
TYPE MODULATION: Amplitude.
FREQUENCY CONTROL: Crystal.
POWER SOURCE: 115-v, 60-cyc, single-phase ac.
POWER OUTPUT: 300 w.
RANGE: Medium, dependent upon antenna used, frequency,
and ionospheric conditions.
NUMBER OF TUBES: 2½.

GENERAL APPLICATION

USE: Point-to-point and air warning.

TO COMMUNICATE WITH: Equipment within frequency range.

INSTALLATION: Fixed.

TYPE OF SIGNAL: A-m, e-w, and m-e-w.

PRINCIPAL COMPONENTS

Name	Dimensions (in.)
Radio Transmitter BC-452 _____	29 x 24 x 7 1/2
Remote Control Unit RM-22	
Microphone T-27-B.	

WEIGHT AND VOLUME

	Unpacked	Exportpack
Total weight (lb) _____	1250	1,750
Total volume (cu ft) _____		50
Ship tons _____		1.3

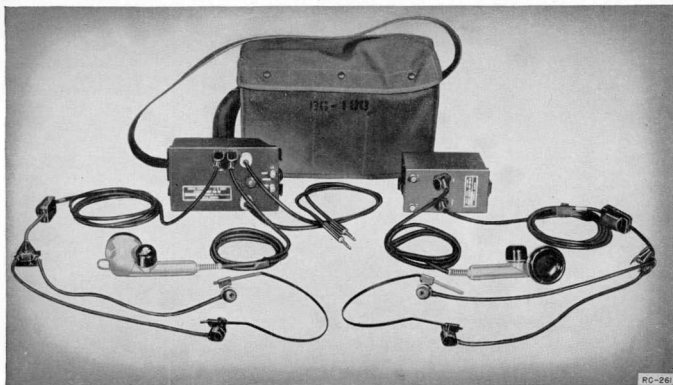


Figure 79. Remote Control Equipment RC-261.

Status: Standard. *Stock No.:* 2C7600-261. *Reference:* TM 11-2632.

Remote Control Equipment RC-261 provides remote press-to-talk operation of voice radio sets when $\frac{1}{2}$ mile of field wire is used. Wire communication between local and remote points is also provided without operation of the radio set.

Remote Control Unit RM-52 and Control Unit RM-53 are the major components of Remote Control Equipment RC-261. Additional components required are two Microphones T-17, two Headsets HS-30/U with Cord CD-605 attached, and field wire.

A canvas carrying Bag BG-186 is provided. This bag holds one Remote Control Unit RM-52, one Control Unit RM-53, one Microphone T-17, and one Headset HS-30/U with Cord CD-605 attached.

TECHNICAL CHARACTERISTICS

POWER SOURCE:

Remote Control Unit RM-52 operates from 6-v dc supplied by four Batteries BA-30.

Control Unit RM-53 operates from 3-v dc supplied by two Batteries BA-30.

RANGE: $\frac{1}{2}$ mi.

NUMBER OF TUBES: None.

GENERAL APPLICATION

USE: Provides for remote operation of, and voice communication over voice-operated sets on a preset frequency, with a preset adjustment of the volume control for distances up to $\frac{1}{2}$ mile from radio set.

INSTALLATION: Portable or fixed.

TYPE OF SIGNAL: Audio.

PRINCIPAL COMPONENTS

Name	Dimensions (in.)	Weight (lb)
Remote Control Unit RM-52	$7\frac{1}{8} \times 3\frac{1}{4} \times 5\frac{1}{8}$	$3\frac{1}{2}$
Control Unit RM-53	$8\frac{1}{2} \times 4\frac{3}{8} \times 4\frac{3}{8}$	$4\frac{1}{2}$
Bag BG-186	$15\frac{1}{2} \times 5 \times 9\frac{5}{8}$	2
Microphone T-17		
Headset HS-30/U		

WEIGHT AND VOLUME

Total weight (lb)	Export pack $71\frac{3}{8}$
Total volume (cu ft)	4



Figure 30. Control Unit RM-39, main component of Remote Control Equipment RC-289.

Status: Standard. Stock No.: 2C7600-289. Reference: TM 11-2667.

Remote Control Equipment RC-289 provides for remote c-w and phone operation of radio sets such as Radio Set SCR-509 and Radio Set AN/GRC-9.

Control Unit RM-39 is the major component of Remote Control Equipment RC-289. One each of the following additional items are provided: Telephone EE-8, Headset HS-30 or equivalent, Microphone T-17, Key J-47, a leg band mounting, and Cords CD-2154, CD-1255, and CD-1256. Case CS-76-J is provided for carrying Control Unit RM-39, cords, and accessories.

TECHNICAL CHARACTERISTICS

POWER SOURCE: One Battery BA-27, $4\frac{1}{2}$ -v and two Batteries BA-34, $7\frac{1}{2}$ -v each.
 RANGE: Up to 5 mi of Wire WD-1/TT.
 NUMBER OF TUBES: None.

GENERAL APPLICATION

USE: Provides remote c-w and phone operation of radio sets such as Radio Set SCR-509 and Radio Set AN/GRC-9.

TO COMMUNICATE WITH: Telephone EE-8 at the remote control sight or various Signal Corps radio sets by means of the local radio set.

INSTALLATION: Portable or semifixed station.

TYPE OF SIGNAL: Voice or d-c.

PRINCIPAL COMPONENTS

Name	Dimensions (in.)	Weight (lb)
Control Unit RM-39	$9\frac{1}{8} \times 6\frac{1}{2} \times 5$	12.9
Telephone EE-8	$9\frac{1}{8} \times 7\frac{1}{4} \times 3\frac{1}{2}$	9.5
Case CS-76-J	$9\frac{1}{8} \times 8\frac{1}{2} \times 6\frac{1}{4}$	2.0
Cord CD-1254	60	0.5
Cord CD-1255	72	0.25
Cord CD-1256	32	0.3
Key J-47.		
Leg band mounting.		

WEIGHT AND VOLUME

Total weight (lb)	57
Total volume (cu ft)	2.6



Figure 81. Remote Control Unit RM-29 and Case CS-76 components of Remote Control Equipment RC-290.

Status: Standard. *Stock No.:* 2C7600-290. *Reference:* TM 11-308.

Remote Control Equipment RC-290 provides local push-to-talk control and local or remote modulation of a radio transmitter.

Remote Control Equipment RC-290 consists of Remote Control Unit RM-29, Telephone EE-8, Case CS-76, Battery BA-27, and accessories.

Remote Control Equipment RC-290 is usually located adjacent to the radio set; however, it can be located at a distance from some types of radio sets under certain conditions. It has no remote push-to-talk control.

It can be used for connections between radio sets and wire lines. Two Remote Control Units RM-29 may be used back-to-back to interconnect two radio sets. In all cases, an attendant is required at the control unit to perform the push-to-talk control.

Remote Control Unit RM-29 operates in conjunction with Telephone EE-8 over a two-wire telephone line. Although the control may be used only at the remote control unit, the terminus for signals transmitted and received may be either Remote Control Unit RM-29 or Telephone EE-8.

TECHNICAL CHARACTERISTICS

POWER SOURCE: One Battery BA-27; two Batteries

BA-30 in Telephone EE-8.

RANGE: 2 mi of Wire WD-1/TT.

GENERAL APPLICATION

USE: Local push-to-talk control of radio sets.

TO COMMUNICATE WITH: Remote control site.

INSTALLATION: Ground, semifixed.

TYPE OF SIGNAL: Voice.

PRINCIPAL COMPONENTS

Name	Dimensions (in.)	Weight (lb)
Remote Control Unit RM-29	9 $\frac{1}{8}$ x 6 $\frac{1}{8}$ x 5 $\frac{1}{8}$	13.5
Telephone EE-8	9 $\frac{1}{8}$ x 7 $\frac{1}{8}$ x 3 $\frac{1}{2}$	9.5
Case CS-76	10 $\frac{1}{2}$ x 9 $\frac{1}{4}$ x 7	2

WEIGHT AND VOLUME

Total weight (lb)	Domestic pack	85
Total volume (cu ft)		3

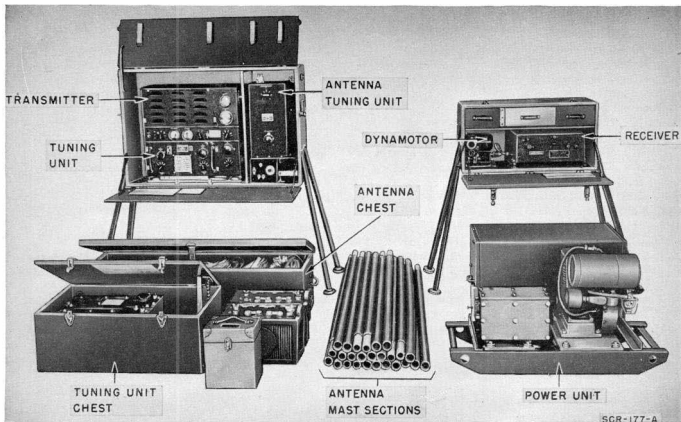


Figure 82. Radio Set SCR-177-A.

Status: Limited standard. *Stock No.:* 2S177A.

Radio Set SCR-177-A is a transportable ground set used between tactical field units. It is transported in vehicles or cargo aircraft. This set differs from Radio Set SCR-177-B in that only one receiver (Radio Receiver BC-189-A), with a frequency range from 0.4 to 4.5 mc, is used.

TECHNICAL CHARACTERISTICS

FREQUENCY RANGE:

Transmitter: 0.4 to 4.0 mc in 3 bands:

Band 1: 0.4 to 0.8 mc.

Band 2: 1.5 to 3.0 mc.

Band 3: 3.0 to 4.0 mc.

Receiver: 0.4 to 4.5 mc in 4 bands.

NUMBER OF CRYSTALS: None.

PRESET FREQUENCIES: None.

ANTENNA: Crowfoot, 0.4 to 0.8 mc, $\frac{1}{4}$ -wave inverted L.

Antennas AN-21-A, 22-A, 23, 25, 26, and 27.

TYPE MODULATION: Amplitude.

FREQUENCY CONTROL: Mo.

POWER SOURCE: Power Unit PE-49; Dynamotor Unit

BD-69; one 12-v storage Battery BB-50.

POWER OUTPUT: 75 w.

RANGE: C-w, 100 mi; tone, 70 mi; voice, 80 mi.

NUMBER OF TUBES:

5 in transmitter.

8 in receiver.

GENERAL APPLICATION

USE: Signal Corps, CAC, TD.

TO COMMUNICATE WITH: Radio Sets SCR-177-B, SCR-188, SCR-153, SCR-399, SCR-499, SCR-506, SCR-536, SCR-543, SCR-694, and AN/VRC-1.

INSTALLATION: Ground, vehicle transported.

TYPE OF SIGNAL: C-w, tone, voice, a-m.

PRINCIPAL COMPONENTS

Name	Dimensions (in.)	Weight (lb)
Transmitter BC-191-A	21 $\frac{1}{4}$ x 23 $\frac{1}{2}$ x 9 $\frac{3}{8}$	55
Receiver BC-189-A	7 $\frac{1}{4}$ x 16 $\frac{1}{4}$ x 7 $\frac{1}{8}$	12.5

WEIGHT AND VOLUME

	Unpacked	Exportpack
Total weight (lb)	850	1,030
Total volume (cu ft)		28
Ship tons		1

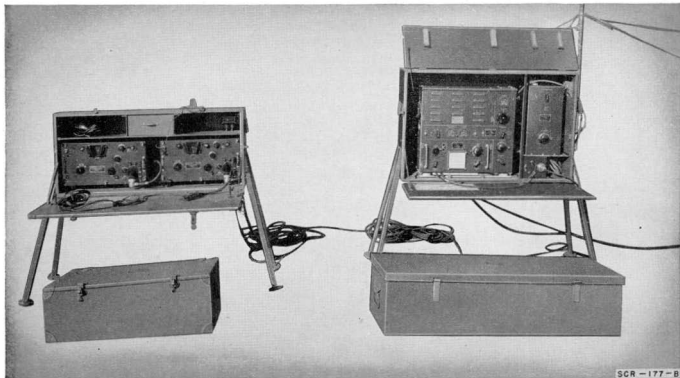


Figure 83. Radio Set SCR-177-B principal components.

Status: Standard. Stock No.: 2S177B. Reference: TM 11-232.

Radio Set SCR-177-B is a transportable field set used for communication between tactical field units and as a ground set in ground-to-plane communication. It is transported by vehicle or by cargo aircraft. Unlike Radio Set SCR-177-A, Radio Set SCR-177-B uses two receivers: one of lf and one of hf.

The receivers are of the superheterodyne type intended for general field use. They are ruggedly built and are highly sensitive and selective. They are identical in size and appearance, differing only in the frequency range.

TECHNICAL CHARACTERISTICS

FREQUENCY RANGE:

Transmitter: 0.4 to 0.8 mc in 3 bands.

Receiver (hf): 0.15 to 1.5 mc.

Receiver (hf): 1.5 to 18.0 mc.

NUMBER OF CRYSTALS: None.

PRESENT FREQUENCIES: None.

ANTENNA: Crowfoot, inverted L, $\frac{1}{4}$ -wave. Antennas AN-21-A, 22-A, 23, 25, 26, and 27.

TYPE MODULATION: Amplitude.

FREQUENCY CONTROL: Mo.

POWER SOURCE: Power Unit PE-49-C: storage Battery BB-46.

POWER OUTPUT: 75 w.

RANGE: C-w, 100 mi; tone, 70 mi; voice, 30 mi.

NUMBER OF TUBES: 5 in transmitter; 9 in each receiver.

GENERAL APPLICATION

USE: Communication in two-way net communication with the same or other sets within the frequency range.

TO COMMUNICATE WITH: Radio Sets SCR-177-A,-188,-193,-399,-499,-506,-536,-543,-593,-694, and AN/VRC-1.

INSTALLATION: Grounded, transported by vehicle or cargo aircraft.

TYPE OF SIGNAL: C-w, tone, voice.

PRINCIPAL COMPONENTS

Name	Dimensions (in.)	Weight (lb)
Radio Transmitter BC-191-C	21 $\frac{1}{4}$ x 23 $\frac{1}{2}$ x 9 $\frac{3}{4}$	55
Radio Receiver BC-312-C	10 $\frac{1}{4}$ x 18 $\frac{1}{2}$ x 9	49.5
Radio Receiver BC-314-C	10 $\frac{1}{4}$ x 18 $\frac{1}{2}$ x 9	47.5
Power Unit PE-49-C	22 x 35 x 22	260.00

WEIGHT AND VOLUME

	Unpacked	Domestic pack
Total weight (lb)	1,000	1,265
Total volume (cu ft)		40
Ship tons		1

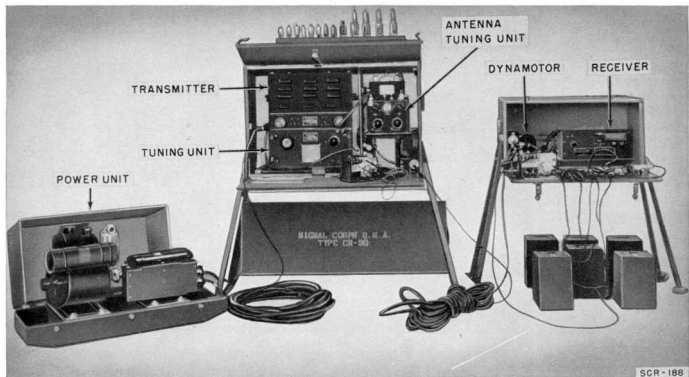


Figure 84. Radio Set SCR-188, principal components.

Status: Limited standard. *Stock No.:* 2S188.

Radio Set SCR-188 is a ground, transportable set, used for ground-to-ground or ground-to-air communication. It is transported by vehicle or cargo plane.

TECHNICAL CHARACTERISTICS

FREQUENCY RANGE:

Transmitter: 1.5 to 12.5 mc.

Receiver: 0.4 to 13.0 mc.

NUMBER OF CRYSTALS: 1.

PRESET FREQUENCIES: None.

ANTENNA: Inverted L. $\frac{1}{4}$ - or $\frac{3}{4}$ -wave. Antennas AN-22-A, AN-23-A, AN-25, AN-26, AN-27, and AN-28.

TYPE MODULATION: Amplitude.

FREQUENCY CONTROL: Mo.

POWER SOURCE: Power Unit PE-49, Dynamotor Unit MD-69, with 12-v storage Battery BR-50.

POWER OUTPUT: 75 w.

RANGE: C-w, 100 mi; tone, 70 mi; voice, 30 mi.

NUMBER OF TUBES: 13.

GENERAL APPLICATION

USE: Ground-to-ground or ground-to-air, medium-range command set used by Signal Corps and USAF.

TO COMMUNICATE WITH: Radio Sets AN/VRC-1, SCR-177, SCR-188, SCR-193, SCR-399, SCR-499, SCR-506, SCR-536, SCR-543, SCR-593, SCR-694.

INSTALLATION: Ground station.

TYPE OF SIGNAL: C-w, tone, voice, and a-m.

PRINCIPAL COMPONENTS

Name	Dimensions (in.)	Weight (lb)
Transmitter BC-AA-191	20 $\frac{1}{2}$ x 21 x 9 $\frac{1}{4}$	32
Receiver Unit BC-189-A	7 $\frac{1}{4}$ x 16 $\frac{3}{4}$ x 7 $\frac{1}{8}$	12.5
Power Unit PE-49	21 x 35 x 16	145

WEIGHT AND VOLUME

	Unpacked	Export pack
Total weight (lb.)		
Total volume (cu ft)	101	
Ship tons		2.5

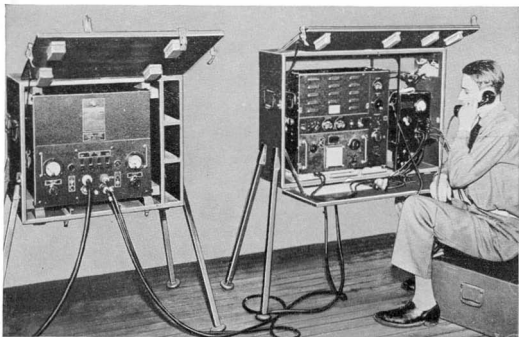


Figure 85. Radio Set SCR-188-A showing components in operating position.

Status: Standard. *Stock No.:* 2S188-A. *Reference:* TM 11-233.

Radio Set SCR-188-A is a ground transportable set, used for ground-to-ground or ground-to-air communication. It is primarily intended for fixed or semifixed use inside building where commercial a-e power and suitable operating tables are available. However, in an emergency this set can be operated on Power Unit PE-75 (only the control units can be powered by batteries).

The transmitting units are provided with rugged operating chests and can be erected out-of-doors but the receiving units must be installed under adequate shelter.

Radio Set SCR-188-A can be remotely controlled up to a distance of 5 miles when Wire W-110-B is used or up to a distance of approximately $7\frac{1}{2}$ miles when commercial open wire line or cable is used.

This set is transported by vehicle or cargo plane.

TECHNICAL CHARACTERISTICS

FREQUENCY RANGE:

Transmitter: 1.5 to 12.5 mc.

Receiver: 1.5 to 18.0 mc.

NUMBER OF CRYSTALS: 1 in receiver.

ANTENNA: Inverted L ($\frac{1}{4}$ or $\frac{3}{4}$ wave). Antennas AN-22-A, 23-A, 25, 26, and 27.

TYPE MODULATION: Amplitude.

FREQUENCY CONTROL: Mo.

POWER SOURCE: Transmitter: 115-v or 230-v, 60-cycle commercial power or Power Unit PE-75 and Rectifier RA-34. Receiver: 115-v, 60-cycle commercial power if operated remote from transmitting site. Control units: 4 batteries BA-30.

POWER OUTPUT: 75 w (less at frequencies above 8 mc).

RANGE: C-w, 100 mi, tone, 70 mi, and voice, 30 mi.

NUMBER OF TUBES: 19.

GENERAL APPLICATION

USE: Ground-to-ground or ground-to-plane communications.

TO COMMUNICATE WITH: Radio Sets AN/VRC-1, SCR-177, SCR-188, SCR-193, SCR-245, SCR-399, SCR-499, SCR-506, SCR-536, SCR-543, SCR-583, SCR-694.

INSTALLATION: Operated on ground only. Transported in vehicle or plane.

TYPE OF SIGNAL: C-w, tone, and voice.

PRINCIPAL COMPONENTS

Name	Dimensions (in.)	Weight (lb)
1 Transmitter BC-191-C (in Chest CH-27-A)	21 $\frac{1}{2}$ x 23 $\frac{1}{8}$ x 9 $\frac{1}{8}$	55
1 Receiver BC-342-C (in Chest CH-56)	10 x 9 $\frac{1}{2}$ x 15 $\frac{1}{2}$	61.5
6 Transmitter Tuning Units: TU-5-A up to and including TU-10-A in 2 Chests CH-32-A (each)	7 $\frac{5}{8}$ x 16 $\frac{1}{4}$ x 8 $\frac{3}{4}$	12 approx (each)
1 Rectifier RA-34-B		240.0
1 Power Unit PE-75	36 x 19 $\frac{1}{2}$ x 26 $\frac{1}{2}$	290
1 Remote Control Equipment RC-47	3 $\frac{1}{8}$ x 3 $\frac{1}{2}$ x 2 $\frac{1}{2}$	0.418

WEIGHT AND VOLUME

	Unpacked	Export pack
Total weight (lb)	1,385	2,018
Total volume (cu ft)		100
Ship tons		2.5



Figure 86. Radio Set SCR-193-J in operation.

Status: Standard. *Stock Nos.:* 2S193D (SCR-193-D), 2S193G (SCR-193G); 2S193H-V12 (SCR-193-H); 2S193J (SCR-193-J); 2S193K-V26 (SCR-193-K); 2S193L-V11 (SCR-193-L); 2S193M-V60 (SCR-193-M); 2S193KB-V26 (SCR-193-KB); 2S193KW-V26 (SCR-193-KW); 2S193P-V17 (SCR-193-P); 2S193Q-V15 (SCR-193-Q); 2S193R-V82 (SCR-193-R); 2S193S-V33 (SCR-193-S); 2S193T-V68 (SCR-193-T); and 2S193U-V36 (SCR-193-U). *Reference:* TM 11-273.

Radio Set SCR-193-(*) represents Radio Sets SCR-193-I, -G, -H, -J, -K, -KB, -KW, -L, -M, -P, -Q, -R, -S, -T, and -U. Radio Set SCR-193-(*) is a vehicular set designed for two-way communication between moving or stationary vehicles, using c-w, tone, and voice signals over distances ranging from approximately 15 to 30 miles moving, and approximately 20 to 60 miles stationary, depending upon type of signal used.

The various models of the sets listed above are adapted for installation and operation in different types of vehicles, including scout cars, combat cars, command trucks, etc.

TECHNICAL CHARACTERISTICS

FREQUENCY RANGE:

Radio Transmitter BC-181: 1.5 to 6.2 mc (frequency range determined by plug-in tuning units as follows: Tuning Unit TU-5: 1.5 to 3.0 mc. TU-6: 3.0 to 4.5. TU-7: 4.5 to 6.2)

Radio Receiver BC-312: 1.5 to 18 mc.

NUMBER OF CRYSTALS: 1 in receiver.

PRESET FREQUENCIES: None.

ANTENNA: Fishpole type, 15½ ft on Mast Base MP-57 or MP-65.

TYPE MODULATION: Amplitude.

FREQUENCY CONTROL: Mo.

POWER SOURCE: 12-v vehicular storage battery.

POWER OUTPUT: Approx 75 w.

RANGE: Voice, 20 mi stationary, 15 mi moving; tone, 40 mi stationary, 20 mi moving; c-w, 60 mi stationary, 30 mi moving. Dependent upon terrain and atmospheric conditions.

NUMBER OF TUBES:

Transmitter: 5.

Receiver: 9.

GENERAL APPLICATION

USE: for two-way communication between moving or stationary vehicles, or between vehicle and air.

TO COMMUNICATE WITH: Radio Sets AN/VRC-1, SCR-177-B, SCR-188-A, SCR-193, SCR-399-A, SCR-489-A, SCR-506-A, SCR-536, SCR-694.

INSTALLATION: Installed and operated in vehicle.

TYPE OF SIGNAL: C-w, tone, and voice.

PRINCIPAL COMPONENTS

Name	Dimensions (in.)	Weight (lb)
Radio Transmitter BC-191	20½ x 23½ x 9½	55.75
Radio Receiver BC-312	10¾ x 18 x 9	58
Dynamotor Unit BD-77	11 x 11 x 7½	37.3
Transmitter Tuning Unit TU-5	7¼ x 16¼ x 8¾	14.43
Transmitter Tuning Unit TU-6	7¾ x 16¼ x 8¾	14.43
Transmitter Tuning Unit TU-7	7¾ x 16¼ x 8¾	14.43

WEIGHT AND VOLUME

	Domestic pack
Total weight (lb)	648
Total volume (cu ft)	20
Ship tons	¾

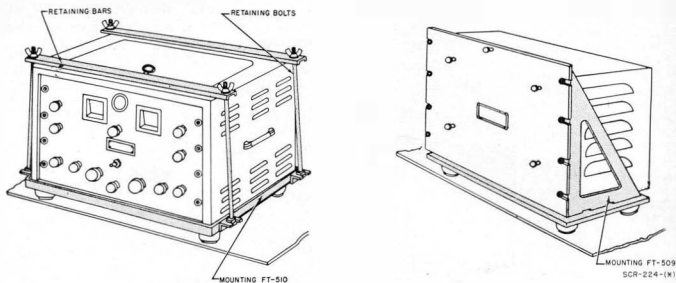


Figure 87. Radio Set SCR-244-(*), showing Radio Receiver BC-1004 and Power Supply EA-84 mounted.

Status: Standard. Stock No.: 2S244A (SCR-244-A) and 2S244B (SCR-244-B). Reference: TM 11-866.

Radio Set SCR-244-(*), represents Radio Sets SCR-244-A and -B.

Radio Set SCR-244-(*), consists of a superheterodyne receiver and an external power supply unit. The receiver uses a conventional circuit and is designed for the reception of c-w, a-m, or tone signals with either manual or automatic control.

The receiver has a jack for a headset and phone terminals so that it may be used as an audio amplifier.

This set uses an external power supply unit, but may also be operated from batteries in an emergency.

Radio Set SCR-244-(*), is primarily intended for fixed-station use, although mountings for vehicular installation may be utilized.

TECHNICAL CHARACTERISTICS

FREQUENCY RANGE: 0.54 to 20 mc, in 5 bands:

- Band 1: 0.54 to 1.16 mc.
- Band 2: 1.16 to 2.5 mc.
- Band 3: 2.5 to 5.0 mc.
- Band 4: 5.0 to 10.0 mc.
- Band 5: 10.00 to 20.0 mc.

NUMBER OF CRYSTALS: 1 built-in crystal filter (for signal selectivity).

PRESET FREQUENCIES: 5-position band switch.

ANTENNA: Single wire and ground, or doublet with balanced transmission line.

TYPE MODULATION: C-w, amplitude, or tone.

POWER SOURCE:

Radio Set SCR-244-A: Power Supply Unit RA-84, 105-, 115-, 125-v, 50/60-cyc ac.

Radio Set SCR-244-B: Power Supply Unit RA-84-A, 115- or 230-v, 50/60-cyc ac, or 6-v storage battery, 45-v B batteries.

RANGE: Long.

NUMBER OF TUBES: 16 in receiver; 2 in power supply unit.

GENERAL APPLICATION

USE: To receive c-w, a-m, or tone signals, or used as an audio amplifier.

TO COMMUNICATE WITH: Radio sets AN/GRC-9, AN/MRC-2A, AN/VRC-1, SCR-177, SCR-188, SCR-193, SCR-499, SCR-536, SCR-543.

INSTALLATION: Designed for fixed-station use, but mountings for vehicular installation may be utilized.

TYPE OF SIGNAL: C-w and a-m.

PRINCIPAL COMPONENTS

Name	Dimensions (in.)	Weight (lb)
Radio Receiver BC-1004	10½ x 19 x 15¾	55
Cabinet CH-104-A	12¼ x 23 x 16½	18
Power Supply Unit RA-84 or RA-94-A	10½ x 19 x 10	60
Headset HS-30/U		1.7
Cords, wires, insulators, etc.		11.9

WEIGHT AND VOLUME

	Unpacked	Export pack
Total weight (lb)	146.6	175
Total volume (cu ft)	5.281	7.4



Figure 88. Radio Receiver and Transmitter BC-441-B,
principal component of Radio Set SCR-281-(*).

Status: Standard. *Stock No.:* 2S281A (SCR-281-A); 2S281B (SCR-281-B); and 2S281D (SCR-281-D). *Reference:* TM 11-244.

Radio Set SCR-281-(*), represents Radio Sets SCR-281-A, -B, and -D. Radio Set SCR-281-(*), consists of an a-m, radiotelephone transmitter and receiver designed for operation on coastal and harbor vessels or in land stations for communication with such vessels.

These sets cannot be used for radiotelegraph transmission or reception.

TECHNICAL CHARACTERISTICS

FREQUENCY RANGE: 1.7 to 2.75 mc (both receiver and transmitter).
 NUMBER OF CRYSTALS: 4 receiving, 4 transmitting.
 PRESET FREQUENCIES: 4.
 ANTENNA: Single-wire antenna and ground; or Antenna Tuning Unit BC-619-A, Antenna AN-44-A; or a 35-ft. whip-type antenna.
 TYPE MODULATION: Amplitude.
 FREQUENCY CONTROL: Crystal.
 POWER SOURCE: 115 v, 60-cyc, single-phase ac. Transmitter 230 w, receiver 107 w.
 POWER OUTPUT: Transmitter 25 w.
 RANGE: 10 mi over land. 25 mi over water.
 NUMBER OF TUBES: 13.

GENERAL APPLICATION

USE: Operation on coastal and harbor vessels or in land stations for communication with such vessels.

TO COMMUNICATE WITH: Radio Sets SCR-177-B, SCR-188-A, SCR-193, SCR-399-A, and SCR-499-A.
 INSTALLATION: Shipboard installation and operation or fixed land installation for communication with shipboard stations.
 TYPE OF SIGNAL: Transmitter: a-m, voice. Receiver: a-m, voice, m-c-w.

PRINCIPAL COMPONENTS

Notes	Dimensions (in.)	Weight (lb)
Radio Receiver and Transmitter		
BC-441-D	16 $\frac{1}{4}$ x 10 x 16	102
or		
Radio Receiver and Transmitter		
BC-441-A or BC-441-B	16 $\frac{1}{8}$ x 10 x 16	93

WEIGHT AND VOLUME

Total weight (lb)	143	<i>Domestic pack</i>
Total volume (cu ft)	6	



Figure 89. Radio Receiver and Transmitter BC-500-B in Mounting FT-239, part of Radio Set SCR-293-B.

Status: Limited standard. Stock No.: 2S293B.

Radio Set SCR-293-(*) represents Radio Sets SCR-293 and SCR-293-B. Radio Set SCR-293-(*) is a short-range vehicular set designed to provide two-way f-m voice communication between mobile units. This set was developed particularly for use in light tanks and scout cars.

Radio Receiver BC-499 used with this set is an 11-tube, crystal-controlled, 5-channel, f-m, super-heterodyne receiver, and is designed for the reception of f-m signals of the type generated by Radio Receiver and Transmitter BC-500.

Mounting FT-239 is used for all installations involving either Radio Sets SCR-293-(*) or SCR-294. It consists of a welded steel framework designed to accommodate Radio Receiver BC-499 or Radio Receiver and Transmitter BC-500, or both.

This set has been replaced by Radio Sets SCR-508 and SCR-528.

By omitting Radio Receiver and Transmitter BC-500 this set is identical with Radio Set SCR-294. Radio Set SCR-294 has been replaced by Radio Set SCR-538.

TECHNICAL CHARACTERISTICS

FREQUENCY RANGE: 20 to 27.9 mc.

NUMBER OF CRYSTALS: 5 in transmitter; 5 in each receiver.

PRESET FREQUENCIES:

Radio Receiver BC-499: 5.

Radio Receiver and Transmitter BC-500: 5.

ANTENNA: 9-ft flexible whip Antenna AN-42-A (2-ft extension for use on 20 to 23 mc).

TYPE MODULATION: Frequency.

FREQUENCY CONTROL: Crystal.

POWER SOURCE:

12-v vehicular battery for Radio Sets SCR-293 and SCR-294.

24- or 28-v vehicular battery for Radio Sets SCR-293-B and SCR-294-B.

POWER OUTPUT: High, 25 w; low, 1/2 w.

RANGE: 5 mi moving; 7 mi stationary (15 mi maximum).

NUMBER OF TUBES: 29.

GENERAL APPLICATION

USE: Short-range mobile communication between armored force units.

TO COMMUNICATE WITH: Radio Sets SCR-293-(*), SCR-294, SCR-508, SCR-509, SCR-510, SCR-528, SCR-538, SCR-608, SCR-609, SCR-610, SCR-808, SCR-828.

INSTALLATION: Installed and operated in vehicle.

TYPE OF SIGNAL: Voice.

PRINCIPAL COMPONENTS

<i>Name</i>	<i>Dimensions (in.)</i>
Radio Receiver and Transmitter BC-500	} Mounted... 12 x 14 1/2 x 34
Radio Receiver BC-499	
Mounting FT-239	
Antenna AN-42-A.	

WEIGHT AND VOLUME

	<i>Unpacked</i>
Total weight (lb)	115
Total volume (cu ft)	2.6



Figure 90. Radio Set SCR-298, components.

Status: Limited standard. *Stock No.:* 2S298.

Radio Set SCR-298 is an f-m, 25-watt set designed for installation and operation in a vehicle, and provides 2-way voice communication.

It is powered by a 6-watt vehicular storage battery.

The minimum range of this set is approximately 10 miles stationary, and approximately 7 miles moving, depending upon terrain and atmospheric conditions.

TECHNICAL CHARACTERISTICS

FREQUENCY RANGE: 20 to 28 mc.
 NUMBER OF CRYSTALS: 1 in transmitter; 2 in receiver.
 PRESET FREQUENCIES: 1.
 ANTENNA: Whip.
 TYPE MODULATION: Frequency.
 FREQUENCY CONTROL: Crystal.
 POWER SOURCE: 6 v vehicular storage battery (2.25 amp stand-by, 32 amp transmitting).
 POWER OUTPUT: 25 w.
 RANGE: Approximately 10 mi minimum stationary, approximately 7 mi minimum moving (depending upon terrain and atmospheric conditions).
 NUMBER OF TUBES: 11 in receiver; 7 in transmitter.

GENERAL APPLICATION

USE: Two-way vehicular voice communication.

TO COMMUNICATE WITH: Radio Sets SCR-298, SCR-608, SCR-609, SCR-610, SCR-628, SCR-808, SCR-828.
 INSTALLATION: Installed and operated in vehicle.
 TYPE OF SIGNAL: Voice.

PRINCIPAL COMPONENTS

<i>Name</i>	<i>Dimensions (in.)</i>	<i>Weight (lb)</i>
Radio transmitter (Link 35-UFM)	9 x 17 x 8¼	29
Radio receiver (Link 11-UF)	9 x 13 x 7½	17½
Power unit	8½ x 4¼ x 5	7¼

WEIGHT AND VOLUME

	<i>Unpacked</i>	<i>Export pack</i>
Total weight (lb)	75	185
Total volume (cu ft)		15

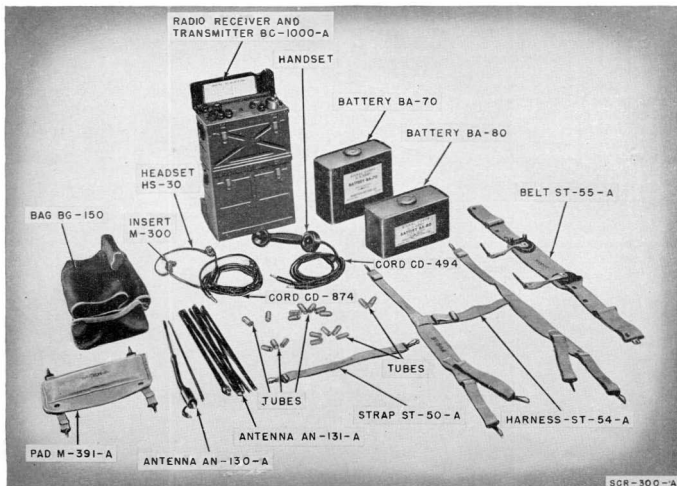


Figure 91. Radio Set SCR-300-A; component parts.

Status: Standards. Stock No.: 2S300. Reference: TM 11-242.

Radio Set SCR-300-A consists of an 18-1 tube, low-power, dry-battery-operated portable radio receiver and transmitter with accessories. It is designed for f-m, two-way communication over short distances. It is primarily intended as a walkie-talkie for foot combat troops. The complete radio installation weighs 38.23 pounds.

TECHNICAL CHARACTERISTICS

FREQUENCY RANGE: 40.0 to 48.0 mc.
 NUMBER OF CRYSTALS: 2.
 PRESET FREQUENCIES: None (continuously tunable).
 ANTENNA: Whip, type AN-130-A, or AN-131-A, or ground plane antenna types RC-291 and RC-296.
 TYPE MODULATION: Frequency.
 FREQUENCY CONTROL: Mo.
 POWER SOURCE: Battery BA-80 (weight, 15 lb), or loaded Battery Case C-139.
 POWER OUTPUT: Transmitter 0.3 m/w (rf). Receiver 2 mv (af).
 RANGE: 3 mi approx.
 NUMBER OF TUBES: 18.

GENERAL APPLICATION

USE: Combat Troop control, vehicle control, and small boat control.

TO COMMUNICATE WITH: Radio Set SCR-300 and Radio Set AN/VRC-3.
 INSTALLATION: Ground, pack, or portable.
 TYPE OF SIGNAL: Voice.

PRINCIPAL COMPONENTS

Name	Dimensions (in.)	Weight (lb)
Radio Receiver and Transmitter BC-1000	5 $\frac{3}{8}$ x 11 $\frac{3}{8}$ x 7 $\frac{1}{8}$	13.00
Antenna AN-130-A (2 secs)	33	0.39
Antenna AN-131-A (8 secs)	128	0.93

WEIGHT AND VOLUME

	Unpacked	Domestic pack	Export pack
Total weight (lb)	23.23	26.50	44.57 (4 sets per case)
Total volume (cu ft)		2	3

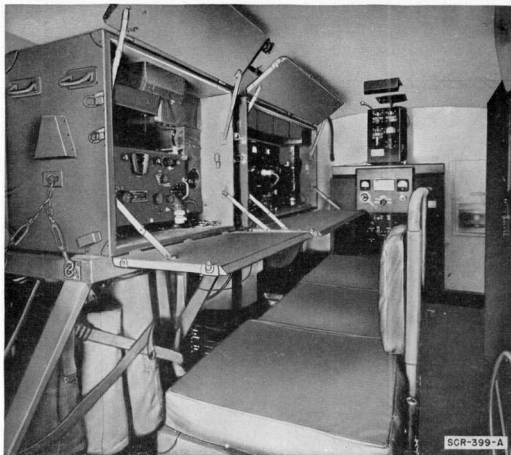


Figure 92. Radio Set SCR-399-A, components installed in Shelter HO-17-A, showing operating positions.

Status: Standard. *Stock No.:* 2S399. *Reference:* TM 11-281.

Radio Set SCR-399-A is a medium-power mobile station providing voice or c-w communication from mobile or stationary positions, for a distance of 100 miles under all conditions. Components are installed in Shelter HO-17-A, mounted on a 2½-ton truck. Power Unit PE-75 is installed in Trailer K-52.

Radio Set SCR-399-A may be remotely controlled up to a distance of 1 mile by use of the two Telephones EE-8 and Wire W-110-B, which are supplied. The remote control equipment provides for remotely keying or voice modulating the transmitter, remotely listening to Radio Receivers BC-312 and BC-342, and communicating with the operator in the radio station, who assists in the operation. A typewriter is provided with the set. The half-wave doublet antenna kit included will improve the sky-wave transmission, increasing the range and reliability of operation.

Frequency Conversion Kit MC-509 is available to extend the transmitter frequency range down to 1.0 mc.

Radio Set SCR-399-A is similar to Radio Set SCR-499-A except that it is not transportable by air.

TECHNICAL CHARACTERISTICS

FREQUENCY RANGE:

Radio Transmitter BC-610-E: 2 to 18 mc (3 channels).
Radio Receivers BC-312 and BC-342: 1.5 to 18 mc in 6 bands as follows:

- Band 1: 1.5 to 3 mc.
- Band 2: 3 to 5 mc.
- Band 3: 5 to 8 mc.
- Band 4: 8 to 11 mc.
- Band 5: 11 to 14 mc.
- Band 6: 14 to 18 mc.

NUMBER OF CRYSTALS: 3 in transmitter, 1 in each receiver.

PRESET FREQUENCIES: Radio Transmitter BC-610-E: 3 channels selected by plug-in tuning units.

ANTENNA: Whip, 15 ft long (Mast Section MX-49 to MX-53 inclusive). Extended whip, 25 ft long (add 1 or 2 Mast Sections MS-54 to Mast Section MS-53). Straight wire, 25 to 100 ft long. Doublet antenna kit.

TYPE MODULATION: Radio Transmitter BC-610-E: Amplitude or c-w.

FREQUENCY CONTROL: Mo or crystal (Crystal Holder FT-171-B).

POWER SOURCE: Power Unit PE-95 and 12-v storage battery. Optional 115-v, 60-eyc, a-c commercial power (minimum of 2,500 w). Frequency Meter SCR-211: 6 Batteries BA-2, 4 Batteries BA-23. Telephones EE-8: 4 Batteries BA-30. Analyzer BC-1052-E: 1 Battery BA-30, 2 Batteries BA-34.

POWER OUTPUT: Radio Transmitter BC-610-E: C-w, 400 w approx. Voice, 300 w approx.

RANGE: C-w: stationary 250, moving 100 mi. Voice: stationary 100, moving 100 mi.

NUMBER OF TUBES:

- Radio Transmitter BC-610-E: 16.
- Radio Receiver BC-312: 9.
- Radio Receiver BC-342: 10.

GENERAL APPLICATION

USE: Medium power, mobile point-to-point and tactical control.

TO COMMUNICATE WITH: Radio Sets AN/VRC-1, SCR-177-B, SCR-188-A, SCR-193, SCR-399-A, SCR-499-A, SCR-506-A, SCR-536, SCR-543, SCR-593, and SCR-694.

INSTALLATION: Vehicular; components installed in Shelter HO-17-A on 6 x 6, 2½-ton truck. Power Unit PE-95 installed in Trailer K-52.

TYPE OF SIGNAL: Radio Transmitter BC-610-E: C-w and voice. Radio Receivers BC-312 and BC-342: C-w, tone, and voice.

PRINCIPAL COMPONENTS

Name	Dimensions (in.)	Weight (lb)
1 Radio transmitter BC-610-E	32½ x 21¾ x 39¾	452
1 Radio Receiver BC-312	10 x 9¼ x 18¼	58
1 Radio Receiver BC-342	10 x 9¼ x 18¼	61.5
1 Speech Amplifier BC-614-E	16 x 9¼ x 11	
1 Antenna Tuning Unit BC-939-A		
2 Telephones EE-8	9½ x 7¼ x 3½	
1 Power Unit PE-95	72½ x 28½ x 38½	1,545

WEIGHT AND VOLUME

	Unpacked	Export pack
Total weight (lb)	6,595	10,025
Total volume (cu ft)		895
Ship tons		22.4

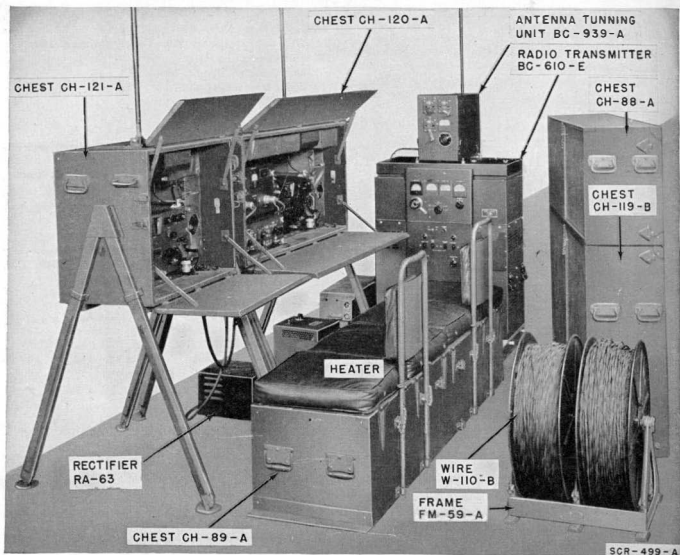


Figure 95. Radio Set SCR-499-A, principal components set up for operation.

Status: Standard. *Stock No.:* 2S499. *Reference:* TM 11-281.

Radio Set SCR-499-A is a medium power radio station similar to Radio Set SCR-399-A, except that neither shelter nor trailer is provided, and the components, which are the same as those of Radio Set SCR-399-A, are packed for transportation by air.

This set can be quickly assembled and set up as a field station in a tent or shelter or in the open. The installed radio set can be easily dismantled into a number of component parts for air transportation to a new site. Canvas covers are issued to provide protection for components while they are in transit or when the station is set up in the open.

Radio Set SCR-499-A may also be installed for operation in any suitable covered vehicle, with trailer for Power Unit PE-75. When installed in a 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 a doublet kit.

Frequency Conversion Kit MC-509 is available to extend the transmitter frequency range down to 1.0 me.

TECHNICAL CHARACTERISTICS

FREQUENCY RANGE:

Radio Transmitter BC-610-E: 2 to 18 mc in 3 channels.
Radio Receivers BC-312 and BC-342: 1.5 to 18 mc in 6 bands as follows:

- Band 1: 1.5 to 3 me.
- Band 2: 3 to 5 me.
- Band 3: 5 to 8 mc.
- Band 4: 8 to 11 mc.
- Band 5: 11 to 14 mc.
- Band 6: 14 to 18 me.

NUMBER OF CRYSTALS: 3 in transmitter, 1 in each receiver.

PRESET FREQUENCIES: Radio Transmitter BC-610-E: Channels selected by 3 sets of plug-in tuning units.

ANTENNA: Radio Transmitter BC-610-E: 15-ft whip (Mast Section MS-49 to MS-53 inclusive). Optional to increase range: 21-ft whip (2 Mast Sections MS-54 added to above), or, auxiliary wire antenna 25 to 65 ft long, depending on the frequency. Radio Receivers BC-312 and BC-342: 2, 9-ft whips. Optional: Add 2, 15-ft whips (Mast Sections MS-49 and MS-50 to above).

TYPE MODULATION: Radio Transmitter BC-610-E: Amplitude or c-w.

FREQUENCY CONTROL: Mo or crystal (Crystal Holder FT-171-B).

POWER SOURCE: Power Unit PE-95 and 12-v storage battery. Optional: 115-v, 60-cyc, a-c commercial power (minimum of 2,500 w). Frequency Meter SCR-211: 6 Batteries BA-2, 4 Batteries BA-23. Telephones EE-8: 4 Batteries BA-30. Analyzer BC-1052-E: 1 Battery BA-30, 2 Batteries BA-34.

POWER OUTPUT: Radio Transmitter BC-610-E: C-w, 400 w approx. Voice, 300 w approx.

RANGE: C-w: stationary 250. Voice: stationary 100.

NUMBER OF TUBES:

- Radio Transmitter BC-610-E: 16.
- Radio Receiver BC-312: 9.
- Radio Receiver BC-342: 10.

GENERAL APPLICATION

USE: Medium power, point-to-point, air-to-ground, and tactical control.

TO COMMUNICATE WITH: Radio Sets AN/VRC-1, SCR-177-B, SCR-188-A, SCR-193, SCR-399-A, SCR-499-A, SCR-506-A, SCR-536, SCR-543, SCR-593, and SCR-694.

INSTALLATION: Fixed or mobile.

TYPE OF SIGNAL: Radio Transmitter BC-610-E: C-w and voice. Radio Receivers BC-312 and BC-342: C-w, tone, and voice.

PRINCIPAL COMPONENTS

Name	Dimensions (in.)	Weight (lb)
1 Radio Transmitter BC-610-E	32 $\frac{1}{2}$ x 21 $\frac{1}{2}$ x 39 $\frac{1}{2}$	452
1 Radio Receiver BC-312	10 x 9 $\frac{1}{4}$ x 18 $\frac{1}{4}$	58
1 Radio Receiver BC-342	10 x 9 $\frac{1}{4}$ x 18 $\frac{1}{4}$	61.5
1 Speech Amplifier MC-614-E	16 x 9 $\frac{1}{4}$ x 11	
2 Telephones EE-8	9 $\frac{1}{2}$ x 7 $\frac{1}{4}$ x 3 $\frac{1}{2}$	
1 Antenna Tuning Unit BC-939-A		
1 Power Unit PE-95	72 $\frac{1}{2}$ x 28 $\frac{1}{2}$ x 38 $\frac{1}{2}$	1,545

WEIGHT AND VOLUME

	Unpacked	Export pack
Total weight (lb)	3,000	5,703
Total volume (cu ft)		272
Ship tons		6.8

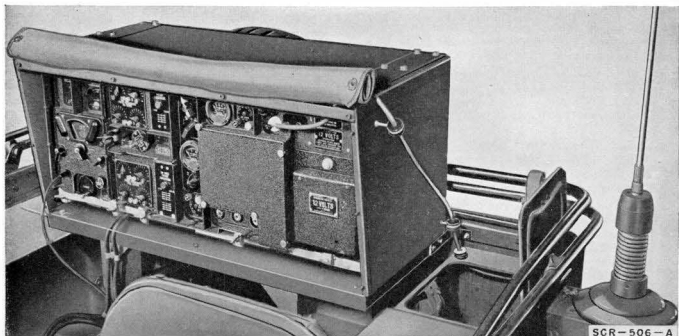


Figure 94. Radio Set SCR-506-A installed in truck, $\frac{1}{4}$ ton, 4 x 4.

Status: Standard. *Stock No.:* 2S506/12 for 12-volt operation; 2S506/24 for 24-volt operation.
Reference: TM 11-630.

Radio Set SCR-506-A is a medium-power, a-m set consisting of Radio Receiver BC-652-A, Radio Transmitter BC-653-A, and certain operating components. It is designed for installation in tanks, amphibian trucks, personnel carriers, and other vehicles to provide c-w and voice communication from one vehicle to another or between these vehicles and airplanes or base stations.

TECHNICAL CHARACTERISTICS

FREQUENCY RANGE: Transmitter 2.0 to 4.5 mc. Receiver continuously tunable in two bands: 2.0 to 3.5 mc and 3.5 to 6.0 mc.

NUMBER OF CRYSTALS: 1 (for calibration only).

PRESET FREQUENCIES: 4.

ANTENNA:

Whip antenna: 15 ft long (Mast Sections MS-49 to MS-53).

Extended whip antenna: 25 ft long (Mast Sections MS-49 to MS-53 plus 3 additional mast sections MS-54).

Straight wire antenna: Antenna AN-24-A, 22½ ft long.

TYPE MODULATION: Amplitude.

FREQUENCY CONTROL: Mc.

POWER SOURCE:

Transmitter: 12-v vehicular battery through Dynamotor DM-42-A, or 24-v vehicular battery through Dynamotor DM-43-A.

Receiver: 12-v vehicular battery through Dynamotor DM-40-A or 24-v vehicular battery through Dynamotor DM-41-A.

POWER OUTPUT: Transmitter: C-w operation, 50 to 90 w. Voice operation, 10 to 25 w. Depending upon frequency.

RANGE: For c-w: stationary, 75 mi; moving, 35 mi. Voice: stationary, 25 mi; moving 15 mi.

NUMBER OF TUBES: 18.

GENERAL APPLICATION

USE: To provide c-w and voice communication from one vehicle to another or between these vehicles and airplanes or base stations.

TO COMMUNICATE WITH: Radio Sets SCR-177-B, SCR-188-A, SCR-193, SCR-309-A, SCR-499-A, SCR-506-A, SCR-536-A, SCR-543, SCR-694.

INSTALLATION: Designed for installation in tanks, amphibian trucks, personnel carriers, and other vehicles.

TYPE OF SIGNAL: Transmitter: c-w and voice. Receiver: c-w, tone, and voice.

PRINCIPAL COMPONENTS

Name	Dimensions (in.)	Weight (lb)
Radio Transmitter BC-653	12½ x 25⅞ x 14¾	143
Radio Receiver BC-652-A	12½ x 7¾ x 14¾	46.5
Mounting FT-253-A	2 x 33 x 12¼	34

WEIGHT AND VOLUME

	Domestic pack	Export pack
Total weight (lb)	377	377
Total volume (cu ft)	16.1	16.1

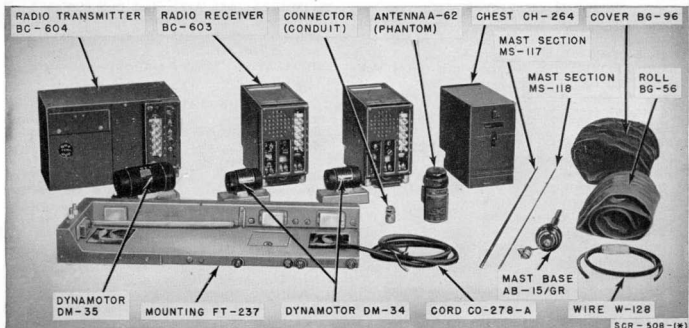


Figure 96. Radio Set SCR-508-(*).

Status: Standard. *Stock No.:* 2S508/12 for 12-volt operation; 2S508/24 for 24-volt operation.
Reference: TM 11-600.

Radio Set SCR-508-(*), represents Radio Sets SCR-508-A, -C, -D, -AM, -CM, and -DM. Radio Set SCR-508-(*), is designed for installation and operation in combat vehicles, such as tanks, scout cars, half-tracks, command cars, or any other authorized vehicles.

This set consists basically of one Radio Transmitter BC-604 and two Radio Receivers BC-603. Radio Transmitter BC-604 operates on 10 preset frequencies.

Interphone Control Box BC-606 provides separate control and connection facilities for a microphone and a headset. Several control boxes may be connected in multiple if desired.

TECHNICAL CHARACTERISTICS

FREQUENCY RANGE: 20.0 to 27.0 mc (transmitter, 80 channels).

NUMBER OF CRYSTALS: 10 operating.

PRESET FREQUENCIES: 10 transmitter. 10 on each receiver, plus manual tuning.

ANTENNA: Whip, 10 ft long. Consists of Mast Sections MS-116, MS-117, and MS-118 mounted on Mast Base AB-15/GR.

TYPE MODULATION: Frequency.

FREQUENCY CONTROL: Crystal.

POWER SOURCE:

Radio Transmitter BC-604: 12-v vehicular battery through Dynamotor DM-35, or 24-v vehicular battery through Dynamotor DM-37.

Radio Receiver BC-603: 12-v vehicular battery through Dynamotor DM-34, or 24-v vehicular battery through Dynamotor DM-36.

POWER OUTPUT: 30 w.

RANGE: Approx 10 to 15 mi depending upon terrain and atmospheric conditions.

NUMBER OF TUBES:

Radio Transmitter BC-604: 8.

Radio Receiver BC-603: 10.

GENERAL APPLICATION

USE: Particularly in armored units.

TO COMMUNICATE WITH: Radio Sets SCR-608-A and SCR-628-A; SCR-609, SCR-610, SCR-619, SCR-808-A, SCR-828A, SCR-508, SCR-528; and AN/VRC-5, SCR-509, and SCR-510.

INSTALLATION: Installed and operated in vehicle.

TYPE OF SIGNAL: Voice.

PRINCIPAL COMPONENTS

Name	Dimensions (in.)	Weight (lb)
1 Radio Transmitter BC-604	11½ x 10¼ x 18	67
2 Radio Receivers BC-603	11½ x 6¾ x 12½	35 (ea)
2 Dynamotors DM-34	4½ x 3 x 6½	4.7 (ea)
1 Dynamotor DM-35	5½ x 4½ x 8¼	9.2
1 Mounting FT-237	5½ x 13 x 33½	44
1 Mounting FT-284	5 x 12 x 33	26
2 Mast Sections MS-117		39½ 0.7 (ea)
2 Mast Sections MS-118		39½ 0.8
1 Mast Base AB-15/GR	15	2
1 Interphone Control Box BC-606-H	4½ x 2¼ x 4¼	1.8

WEIGHT AND VOLUME

	Domestic pack
Total weight (lb)	710
Total volume (cu ft)	31.6
Ship tons	¾

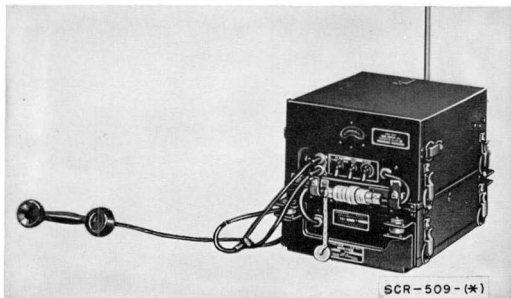


Figure 96. Radio Set SCR-509-(*), showing operating position on ground.

Status: Standard. *Stock No.:* 2S509. *Reference:* TM 11-605.

Radio Set SCR-509-(*), represents Radio Sets SCR-509-A and -B. Radio Set SCR-509-(*), is a low-power, dry battery-operated, f-m pack set designed for two-way voice communication over short ranges. This set uses an 8-foot telescoping antenna, and can be operated from ground or another stationary support.

TECHNICAL CHARACTERISTICS

FREQUENCY RANGE: 20 to 27 mc.

NUMBER OF CRYSTALS: 80.

PRESET FREQUENCIES: 2.

ANTENNA: Antenna AN-45 or 27-ft length of Wire W-129.

TYPE MODULATION: Frequency.

FREQUENCY CONTROL: Crystal.

POWER SOURCE: 1 Battery BA-39, 1 Battery BA-40, and 1 Battery BA-41.

POWER OUTPUT: 1.8 w.

RANGE: Approximately 5 mi.

NUMBER OF TUBES: 13.

GENERAL APPLICATION

USE: Portable pack set for armored units, Field Artillery, and Infantry.

TO COMMUNICATE WITH: Radio Sets SCR-510, SCR-

528, SCR-608, SCR-609, SCR-610, SCR-628, SCR-808, SCR-838.

INSTALLATION: Operated from ground or any other stationary support.

TYPE OF SIGNAL: Voice.

PRINCIPAL COMPONENTS

Name	Dimensions (in.)	Weight (lb)
Radio Receiver and Transmitter BC-620	6 $\frac{3}{4}$ x 13 $\frac{3}{8}$ x 14 $\frac{1}{2}$	27.20
Case CS-79 (for batteries)	4 $\frac{1}{2}$ x 13 $\frac{3}{8}$ x 15 $\frac{3}{8}$	10.00
Antenna AN-45:		
(collapsed)	17 $\frac{3}{8}$ h	$\frac{1}{2}$ diam
(extended)	98 $\frac{1}{2}$ h	0.63

WEIGHT AND VOLUME

	Unpacked	Exportpack
Total weight (lb)	50	210
Total volume (cu ft)		9

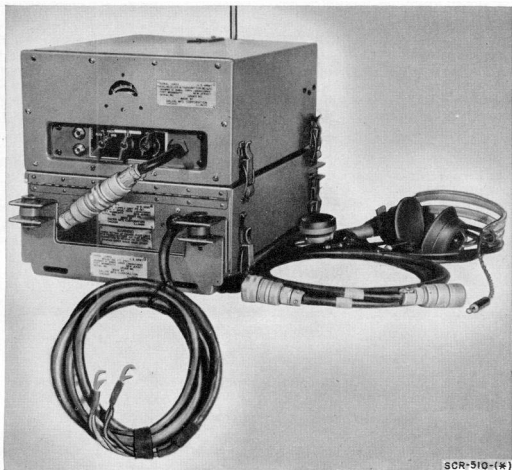


Figure 97. Radio Set SCR-510-(* shown without battery case. (Case CS-79).

Status: Standard. *Stock No.:* 2S510. *Reference:* TM 11-605.

Radio Set SCR-510-(* represents Radio Sets SCR-510-A and -B. Radio Set SCR-510-(* is a pack and vehicular, low-power, f-m set designed for two-way voice communication over short ranges.

Radio Set SCR-510-(* is the same as Radio Sets SCR-509-A and -B, with additional components for use with 6- or 12-volt vehicular storage battery and equipped with shock mounts for installation in vehicle.

TECHNICAL CHARACTERISTICS

FREQUENCY RANGE: 20.0 to 27.9 mc.

NUMBER OF CRYSTALS: 80.

PRESET FREQUENCIES: 2.

ANTENNA: Mast Base AB-15/GR, Mast Sections MS-117 and MS-118, Mast Base MP-48, or Mast Sections MS-52 and MS-53. Two 24-in. lengths of wire are used to connect the set to the vehicular antenna. The length of this connecting wire is critical.

TYPE MODULATION: Frequency.

FREQUENCY CONTROL: Crystal.

POWER SOURCE: For vehicular operation: 6- or 12-v vehicular storage battery, 1 Battery BA-41, and Power Supply Unit PE-9701-PE-120.

POWER OUTPUT: 1.8 w.

RANGE: Approximately 5 mi.

NUMBER OF TUBES: 13.

GENERAL APPLICATION

USE: Mobile command set.

TO COMMUNICATE WITH: Radio Sets SCR-510, SCR-528, SCR-608, SCR-609, SCR-610, SCR-628, SCR-808, SCR-828.

INSTALLATION: Installed and operated in vehicle.

TYPE OF SIGNAL: Voice.

PRINCIPAL COMPONENTS

Name	Dimensions (in.)	Weight (lb)
Radio Receiver and Transmitter BC-620	6 $\frac{1}{4}$ x 13 $\frac{3}{8}$ x 14 $\frac{1}{2}$	27.20
Power Supply Unit PE-120	Case CS-79	

WEIGHT AND VOLUME

Total weight (lb)	Unpacked 96	Exportpack 235
Total Volume (cu ft)		12

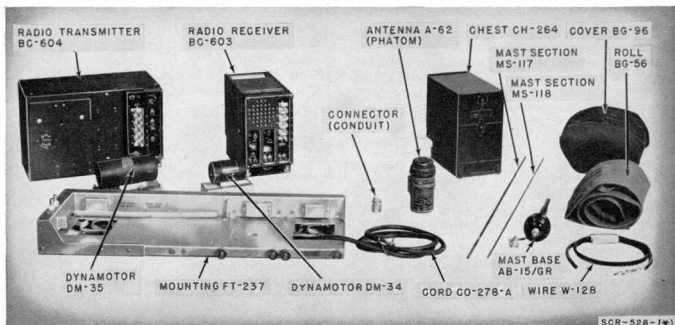


Figure 98. Radio Set SCR-528-(*), components.

Status: Standard. *Stock No.:* 2S528-1. *Reference:* TM 11-600.

Radio Set SCR-528-(*), represents Radio Sets SCR-528-A, -C, -D, -AM, -CM, and -DM. Radio Set SCR-528-(*), is designed for installation and operation in combat vehicles such as tanks, scout cars, half-tracks, command cars, or any other authorized vehicle.

This set consists basically of Radio Transmitter BC-604 and Radio Receiver BC-603. Radio Transmitter BC-604 operates on 10 preset frequencies.

Interphone Control Box BC-606 provides separate control and connection facilities for a microphone and a headset. Several control boxes may be connected in multiple, if desired.

TECHNICAL CHARACTERISTICS

FREQUENCY RANGE: 20.0 to 27.9 mc (transmitter, 80 channels).

NUMBER OF CRYSTALS: 10 operating.

PRESET FREQUENCIES: 10.

ANTENNA: Whip, 10 ft lg. (Mast Sections MS-116, MS-117, and MS-118 mounted on Mast Base AB-15/GR.)

TYPE MODULATION: Frequency.

FREQUENCY CONTROL: Crystal.

POWER SOURCE:

Radio Transmitter BC-604: 12-v vehicular battery and Dynamotor DM-35, or, 24-v vehicular battery and Dynamotor DM-37.

Radio Receiver BC-603: 12-v vehicular battery and Dynamotor DM-34, or, 24-v vehicular battery and Dynamotor DM-36.

POWER OUTPUT: 30 w.

RANGE: Approximately 10 to 15 mi. depending upon terrain and atmospheric conditions.

NUMBER OF TUBES: Radio Transmitter BC-604: 8.

Radio Receiver BC-603: 10.

GENERAL APPLICATION

USE: Designed particularly for use in tank units.

TO COMMUNICATE WITH: Radio Sets AN/VRC-5, SCR-528, SCR-509, SCR-510, and in overlap only: SCR-608-A, SCR-609, SCR-610, SCR-619, SCR-628-A, SCR-808-A, SCR-828-A.

INSTALLATION: Installed and operated in vehicle.

TYPE OF SIGNAL: Voice.

PRINCIPAL COMPONENTS

Name	Dimensions (in.)	Weight (lb)
Radio Transmitter BC-604	11½ x 10¼ x 18	67
Radio Receiver BC-603	11½ x 6¾ x 12½	35
Dynamotor DM-35 (or Dynamotor DM-37)	5½ x 4½ x 8¾	9.2
Dynamotor DM-34 (or Dynamotor DM-36)	4½ x 3 x 6½	4.7
Mounting FT-237	5½ x 13 x 33¾	44
Mounting FT-284	5 x 12 x 33	26
Interphone Control Box BC-606	4½ x 2½ x 4¾	1.8

WEIGHT AND VOLUME

	Unpacked	Exportpack
Total weight (lb)	165	215
Total volume (cu ft)		12

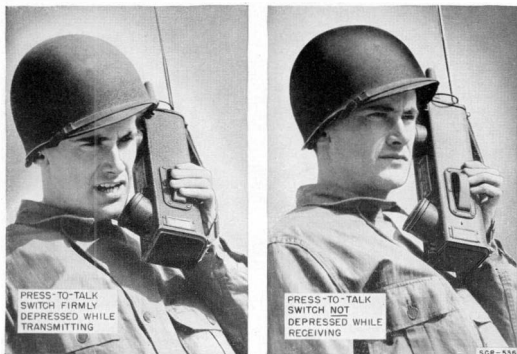


Figure 99. Radio Set SCR-536, showing transmitting and receiving operations.

Status: Standard. *Stock No.:* 2S536. *Reference:* TM 11-235.

Radio Set SCR-536 consists of a five-tube, low-power, dry-battery-operated radio receiver and transmitter with certain accessories. It is designed for a-m, two-way communication over short distances. The outstanding feature of its design and construction is its extreme portability. It is intended primarily as a handy-talkie for foot combat troops. All operating components are contained in one case.

TECHNICAL CHARACTERISTICS

FREQUENCY RANGE: 3.5 to 6.0 mc (any one of 50 channels).

NUMBER OF CRYSTALS: One transmitting and one receiving crystal required for each channel.

PRESET FREQUENCIES: One preset channel provided.

ANTENNA: 40-in. telescopic rod. Telescopes into set. Receiver is turned on when antenna is extended.

TYPE MODULATION: Amplitude.

FREQUENCY CONTROL: Crystal.

POWER SOURCE: Self-contained dry batteries (1 Battery BA-37, 1.5 v and 1 Battery BA-38, 103.5 v).

POWER OUTPUT: 0.02 w.

RANGE: Over land, approx 1 mi. Over salt water, approx 3 mi.

NUMBER OF TUBES: 5.

GENERAL APPLICATION

USE: Used by parachute troops, airborne troops, and anti-tank units of the infantry for short-range communication.

TO COMMUNICATE WITH: Radio Sets AN/GRC-9, AN/TRC-2, AN/VRC-1, SCR-188-A, SCR-399-A, SCR-499-A, SCR-694, SCR-536, SCR-193, SCR-506-A.

INSTALLATION: Man pack.

TYPE OF SIGNAL: Transmitter: voice. Receiver: voice and tone.

PRINCIPAL COMPONENTS

Name	Dimensions (in.)	Weight (lb)
Radio Receiver and Transmitter BC-611 with coils, crystals, and tubes (without batteries).	15 $\frac{1}{4}$ x 3 $\frac{3}{8}$ x 5 $\frac{1}{2}$	3.85

WEIGHT AND VOLUME

	Unpacked	Export pack
Total weight (lb)	10.5	17
Total volume (cu ft)		0.6

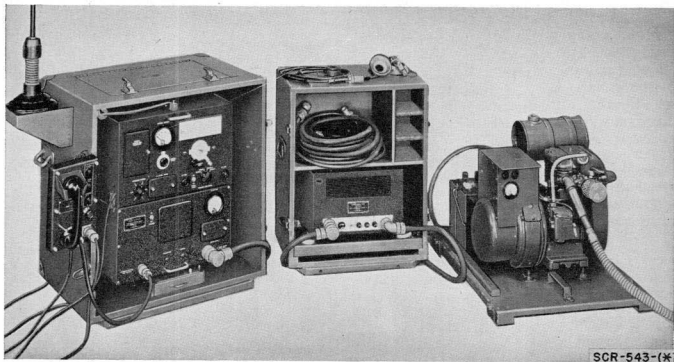


Figure 100. Radio Set SCR-543-A, operating components.

Status: Limited standard. *Stock No.:* 2S543. *Reference:* TM 11-625.

Radio Set SCR-543-(*) represents Radio Sets SCR-543-A, -B, and -C. Radio Set SCR-543-(*) is a medium range command set for use in vehicle or as a field station. It is equipped with its own gasoline-driven source of power. The receiver may be operated from a storage battery when the gasoline-driven generator is not operating. The transmitter and power unit may be controlled from a distance of 18 feet with Remote Control Unit RM-21.

TECHNICAL CHARACTERISTICS

FREQUENCY RANGE: 1.68 to 4.45 mc.
 NUMBER OF CRYSTALS: 6.
 PRESET FREQUENCIES: 6.
 ANTENNA: 15-ft whip.
 TYPE MODULATION: Amplitude.
 FREQUENCY CONTROL: Transmitter: crystal. Receiver: crystal or variable.
 POWER SOURCE: Power Unit PE-108, or storage battery.
 POWER OUTPUT: 45 w.
 RANGE: Moving 15 mi; stationary, 20 to 30 mi.
 NUMBER OF TUBES: 21.

GENERAL APPLICATION

USE: Fixed or vehicular radiotelephone communication.
 TO COMMUNICATE WITH: Radio Sets AN/VRC-1, SCR-177, SCR-188, SCR-193, SCR-309, SCR-490, SCR-506, SCR-536, SCR-543, SCR-593, SCR-694.
 INSTALLATION: Vehicle. Can be dismantled quickly and operated with increased range as a field station.
 TYPE OF SIGNAL: Voice only (am).

PRINCIPAL COMPONENTS

Name	Dimensions (in.)	Weight (lb)
Radio Receiver and Transmitter BC-699-A, -B, -C, in Chest CH-133	20½ x 29¼ x 28½	182
Radio Receiver and Transmitter BC-669-D, in Chest CH-133-D	22½ x 28¾ x 27½	216
Power Supply Unit PE-110-A, -B, -C, in Chest CH-132	15¼ x 26¾ x 22½	168
Power Supply Unit PE-110-D, in Chest CH-294	16¾ x 28¾ x 27½	143
Power Unit PE-108-A, -B, -C, -D in Chest CH-131	24 x 23¾ x 28	265
Remote Control Unit RM-21-A, -B, -C, and -D, in Chest CH-73	4½ x 10½ x 16½	5

WEIGHT AND VOLUME

	Unpacked	Domestic pack	Export pack
Total weight (lb)	919	1,253	1,253
Total Volume (cu ft)		54	54
Ship tons		1.4	1.4



Figure 101. Radio Set SCR-593, prepared for operation.

Status: Standard. Stock No.: 2S593/12. Reference: TM 11-859.

Radio Set SCR-593-A is a self-contained, push-button controlled radio receiver, designed for portable or vehicular operation and used for the reception of alert or warning messages.

TECHNICAL CHARACTERISTICS

FREQUENCY RANGE: 2 to 6 mc.
 NUMBER OF CRYSTALS: None.
 PRESET FREQUENCIES: 4.
 ANTENNA: Vertical rod (Antenna AN-75-A used for either portable or vehicular operation; extended 84 in.; collapsed 12 in.).
 TYPE MODULATION: Amplitude.
 POWER SOURCE: Battery BB-54-A, 2 v, 1.85 amp. (Battery charger: 6-v vehicular battery, 1.1 amp. 12-v vehicular battery 0.85 amp).
 RANGE: Short.
 NUMBER OF TUBES: 7.

GENERAL APPLICATION

USE: For reception of alert or warning messages.
 TO COMMUNICATE WITH: Radio Sets AN/VRC-1, SCR-177, SCR-188, SCR-193, SCR-399, SCR-499, SCR-506, SCR-536, SCR-543, SCR-694.

INSTALLATION: One-man pack. Operated on ground or in vehicle.

TYPE OF SIGNAL: Voice.

PRINCIPAL COMPONENTS

Name	Dimensions (in.)	Weight (lb)
Radio Receiver BC-728-A	11 1/8 x 8 3/8 x 5 5/8	15
Antenna AN-75-A:		
(extended)	84 (lg)	4
(collapsed)	12 (lg)	4
Mounting FT-338-A and accessories		5.77
Vibrator VB-8-A	3 3/8 diam 1 1/2	0.26
Vibrator VB-9-A	3 3/8 diam 1 1/2	0.26
Battery BB-54-A	5 3/4 x 3 5/8 x 3	4.75

WEIGHT AND VOLUME

	Unpacked	Domestic pack
Total weight (lb)	36.75	63
Total volume (cu ft)		3

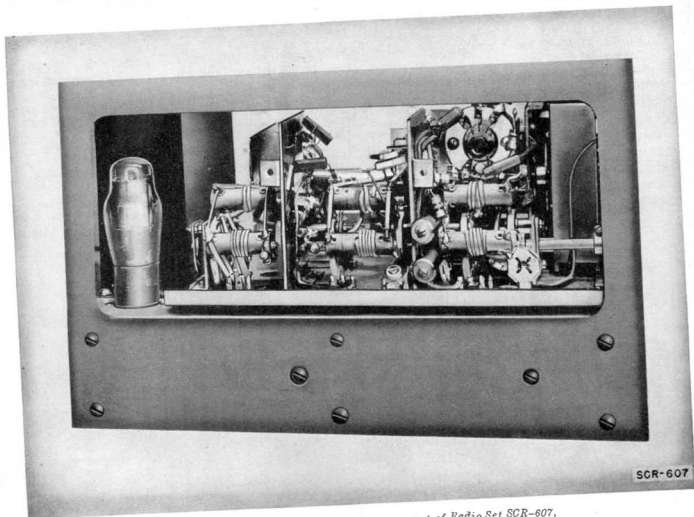


Figure 102. Radio Receiver RC-787-B, component of Radio Set SCR-607,
Showing r-f section with shield removed.

Status: Substitute standard. Stock No.: 2S607. Reference: TM 11-867.

Radio Set SCR-607 consists of Radio Receiver RC-787-B (a three-band superheterodyne receiver designed for mobile or fixed-station use), Antenna RC-154, and Mounting FT-377-A. This set is designed for intercept and monitoring use, and remote control may be used for stand-by reception.

In addition, to the reception of a-m and f-m, it is possible to receive c-w signals by using the bfo.

TECHNICAL CHARACTERISTICS

FREQUENCY RANGE: 27.8 to 143 mc, in 3 bands:

Band 1: 27.8 to 47 mc.

Band 2: 46 to 82 mc.

Band 3: 82 to 143 mc.

NUMBER OF CRYSTALS: None.

PRESET FREQUENCIES: None.

ANTENNA: 3 tiers, horizontal dipoles (one for each of the 3 bands of the receiver) mounted on 21½-foot mast.

TYPE MODULATION: Amplitude and frequency.

POWER SOURCE: 115 to 230-v, 50/60-cyc; or A battery, 6 v at 4.5 amp; B battery, 270 v at 145 ma.

NUMBER OF TUBES: 15.

GENERAL APPLICATION

USE: Intercept and monitoring.

INSTALLATION: Fixed or mobile.

TYPE OF SIGNAL: A-m, f m; and by using bfo, c-w.

PRINCIPAL COMPONENTS

Name	Dimensions (in.)	Weight (lb)
Radio Receiver BC-787-B	9⅞ x 19 x 14	78
Mounting FT-377-A	4⅞ x 21¼ x 14½	12
Antenna Equipment RC-154		200

WEIGHT AND VOLUME

	Unpacked	Domestic pack
Total weight (lb)	290	300 (approx)
Total volume (cu ft)		3 (approx)

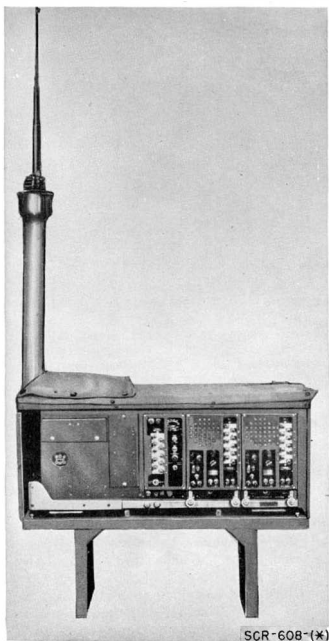


Figure 105. Radio Set SCR-608-(*).

Status: Standard. *Stock No.:* 2S608/12 for 12-volt operation; 2S608/24 for 24-volt operation. *Reference:* TM 11-620.

Radio Set SCR-608-(*), represents Radio Sets SCR-608-A and -B. Radio Set SCR-608-(*), is designed to provide f-m radiotelephone facilities. It may be installed and operated in combat vehicles such as tanks, scout cars, half-tracks, command cars, or any other authorized vehicles.

Radio Set SCR-608-(*), consists basically of Radio Transmitter BC-684-BM and two Radio Receivers BC-683-BM, and is arranged for control operation through interphone equipment. This set is similar to Radio Set SCR-508-(*), except in frequency.

TECHNICAL CHARACTERISTICS

FREQUENCY RANGE: 27.0 to 38.9 mc in 120 channels.

NUMBER OF CRYSTALS: 120.

PRESET FREQUENCIES: 10 (push-button selection).

ANTENNA: Whip, 10 ft long, consisting of Mast Sections

MS-116, MS-117, and MS-118, in some installations, mounted on Mast Base AB-16/GR.

TYPE MODULATION: Indirect frequency.

FREQUENCY CONTROL: Transmitter: Crystal.

POWER SOURCE:

Transmitter: 12-v vehicular battery through Dynamotor DM-35, or 24-v vehicular battery through Dynamotor DM-37.

Receiver: 12-v vehicular battery through Dynamotor DM-34, or 24-v vehicular battery through Dynamotor DM-36.

POWER OUTPUT: 20 w.

RANGE: Stationary, 15 mi; moving, 10 mi.

NUMBER OF TUBES: 13.

GENERAL APPLICATION

USE: Armored combat vehicles and tactical ground units.

TO COMMUNICATE WITH: Radio Sets SCR-298, SCR-509, SCR-510, SCR-528, SCR-608, SCR-609, SCR-610, SCR-619, SCR-628, SCR-808, and SCR-828-A.

INSTALLATION: Installed and operated in vehicle.

TYPE OF SIGNAL: Voice.

PRINCIPAL COMPONENTS

Name	Dimensions (in.)	Weight (lb)
1 Radio Transmitter BC-684-BM.	11½ x 10¼ x 18	67
2 Radio Receivers BC-683-BM.	11½ x 6¾ x 12½	35
1 Mast Base AB-15/GR	15	2
1 Mast Section MS-116*	39¾	0.6
1 Mast Section MS-117*	39¾	0.7
1 Mast Section MS-118	39¾	0.8
2 Dynamotors DM-34	4½ x 3 x 6½	4.7
1 Dynamotor DM-35	5½ x 4½ x 8¼	9.2
1 Mounting FT-237	5½ x 13 x 33¾	44

*Mast Section MS-116 or Mast Section MS-117 may be used as the bottom section of the antenna when Mast Base AB-15/GR is used.

WEIGHT AND VOLUME

	Unpacked	Export Pack
Total weight (lb)	349.41	600
Total volume (cu ft)	14.58	31.6
Ship tons (approx)		0.75

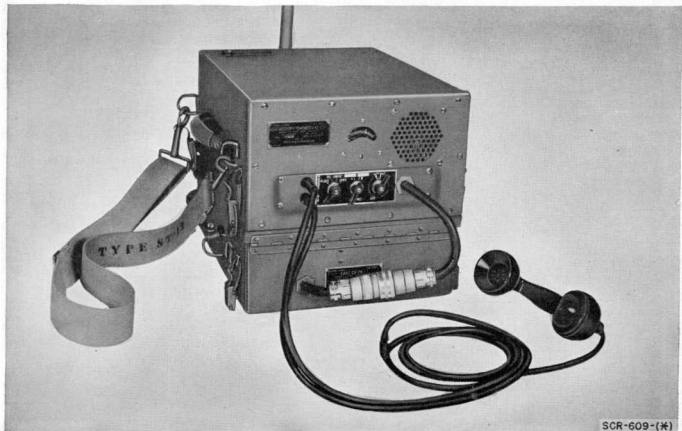


Figure 104. Radio Set SCR-609-(*), prepared for field operation.

Status: Substitute standard. *Stock No.:* 2SG09. *Reference:* TM 11-615.

Radio Set SCR-609-(*), represents Radio Sets SCR-609-A and SCR-609-B. Radio Set SCR-609-(*), is a low-power, f-m set which is designed to provide two-way communication over short distances from a stationary ground position. Power for the operation of the units is supplied by dry batteries.

Radio Set SCR-609-(*), is a complete installation and is not intended or designed for use as part of any other system.

Radio Set SCR-609-(*), may be converted to Radio Sets SCR-610-A and SCR-610-B by adding the components necessary for vehicular mounting and operation.

TECHNICAL CHARACTERISTICS

FREQUENCY RANGE: 27.0 to 38.9 mc.

NUMBER OF CRYSTALS: 2 operating.

PRESET FREQUENCIES: 2.

ANTENNA: Telescopic (Antenna AN-29-C).

TYPE MODULATION: Frequency.

FREQUENCY CONTROL: Crystal.

POWER SOURCE:

Receiving: Battery BA-40; A, 1.5 v and B, 90 v.

Transmitting: Batteries BA-39 and BA-40; A, 7.5 v and B, 150 v.

Internal bias Battery BA-41 is also required.

POWER OUTPUT: 1.3 w.

RANGE: 5 mi (approx).

NUMBER OF TUBES: 14.

GENERAL APPLICATION

USE: Battery fire control from observation posts or liaison planes. Also general communication between vehicles.

TO COMMUNICATE WITH: Radio Sets SCR-608-A, SCR-609, SCR-610, SCR-628-A, SCR-803-A, SCR-828-A, and the following if they are operating between 27 and 27.9 mc; SCR-509, SCR-510, and SCR-528.

INSTALLATION: Installed and operated on ground.

TYPE OF SIGNAL: F-m and voice.

PRINCIPAL COMPONENTS

<i>Name</i>	<i>Dimensions (in.)</i>	<i>Weight (lb)</i>
Radio Receiver and Transmitter BC-659-J	11 $\frac{1}{4}$ x 16 $\frac{3}{8}$ x 21 $\frac{1}{2}$	35.13
Antenna AN-29-C	154 (extended), 15 $\frac{1}{2}$ (collapsed)	2.0

WEIGHT AND VOLUME

Total weight (lb)	<i>Domestic pack</i> 137.5
Total volume (cu ft)	7.4

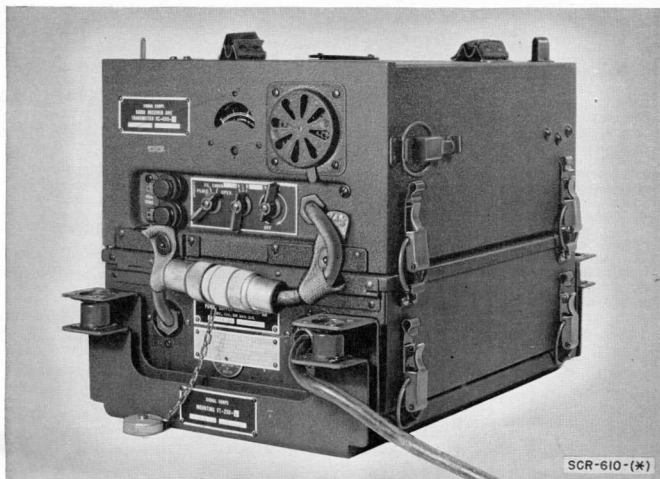


Figure 105. Radio Set SCR-610-B, shown without battery case (case cs-79).

Status: Substitute standard. *Stock No.:* 2S610/12 for 12-v operation; 2S610/24 for 24-v operation. *Reference.* TM 11-615.

Radio Set SCR-610-(*) represents Radio Sets SCR-610-A and SCR-610-B. Radio Set SCR-610-(*) is a low-power, f-m set designed for installation and operation in vehicles and to provide two-way communication over short distances.

This set is intended to serve as a complete installation and is not designed for use as a part of any other system.

Radio Set SCR-610-(*) and Radio Sets SCR-600-A and SCR-600-B are identical, except that Radio Set SCR-610-(*) is provided with additional components necessary for vehicular installation.

TECHNICAL CHARACTERISTICS

FREQUENCY RANGE: 27.0 to 38.9 mc (receiver and transmitter).

NUMBER OF CRYSTALS: 2 (operating).

PRESET FREQUENCIES: 2.

ANTENNA: 3-section mast antenna.

TYPE MODULATION: Frequency.

FREQUENCY CONTROL: Crystal.

POWER SOURCE: Plate Supply Unit PE-117-C from 6 or 12-v storage battery, or Power Supply Unit PE-120-A from 6, 12, or 24-v storage battery.

POWER OUTPUT: 1.3 w.

RANGE: 5 mi (approx).

NUMBER OF TUBES: 14.

GENERAL APPLICATION

USE: Battery fire control from observation posts or liaison planes. Also general communication between vehicles.

TO COMMUNICATE WITH: Radio Sets SCR-298, SCR-509, SCR-510, SCR-528, SCR-608-A, SCR-609, SCR-610, SCR-628-A, SCR-808-A, SCR-828-A.

INSTALLATION: Installed and operated in vehicles.

TYPE OF SIGNAL: F-m, voice.

PRINCIPAL COMPONENTS

Name	Dimensions (in.)	Weight (lb)
1 Radio Receiver and Transmitter BC-659-J	11 $\frac{7}{8}$ x 16 $\frac{3}{4}$ x 21 $\frac{1}{2}$	35.13
1 Power Supply Unit PE-120-A	8 $\frac{7}{8}$ x 16 $\frac{1}{2}$ x 18 $\frac{3}{8}$	33.8
1 Mounting FT-250	4 $\frac{1}{2}$ x 11 $\frac{3}{4}$ x 20	11.5
1 Antenna AN-29-C:		
(collapsed)	15 $\frac{1}{2}$ (lg) $\frac{7}{8}$ (diam)	2.0
(extended)	154 (lg) $\frac{7}{8}$ (diam)	2.0
2 Mast Sections MS-116	39 $\frac{1}{4}$ (lg) $\frac{7}{8}$ (diam)	
2 Mast Sections MS-117	39 $\frac{1}{4}$ (lg) $\frac{7}{8}$ (diam)	
2 Mast Sections MS-118	39 $\frac{1}{4}$ (lg) $\frac{7}{8}$ (diam)	

WEIGHT AND VOLUME

	Unpacked	Domestic pack	Export pack
Total weight (lb)	176	248 $\frac{1}{2}$	260
Total volume (cu ft)			13.04

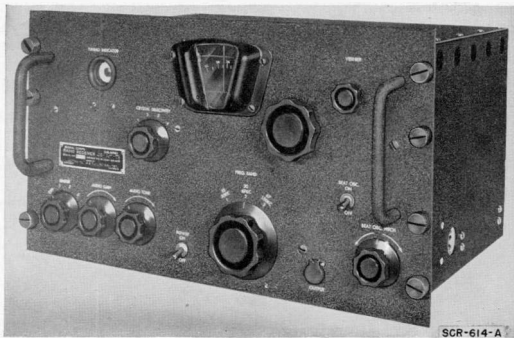


Figure 106. Radio Receiver BC-969-A, principal component of Radio Set SCR-614-A.

Status: Standard. Stock No.: 2S614. Reference: TM 11-873.

Radio Set SCR-614-A is a 1-f communication set used for intercept purposes. The principal components of this set are Radio Receiver BC-969-A (superheterodyne type), Case CS-109-A, Mounting FT-411-A Power Supply Unit RA-61, and Mounting FT-414.

Radio Set SCR-614-A may be operated on ground as a fixed station or installed and operated in vehicles.

TECHNICAL CHARACTERISTICS

FREQUENCY RANGE: 0.015 to 0.15 mc in three bands:

Band 1: 0.015 to 0.030 mc.

Band 2: 0.030 to 0.0675 mc.

Band 3: 0.0675 to 0.015 mc.

NUMBER OF CRYSTALS: 1 in filter.

PRESET FREQUENCIES: None.

ANTENNA: 30-ft whip, or 100-ohm balanced antenna.

Long-wire or beverage type antennas also suitable.

TYPE MODULATION: Amplitude.

POWER SOURCE: Usually Power Supply Unit RA-61,
but power may be supplied by Power Supply Unit PE-
223 or dry batteries.

RANGE: Long.

NUMBER OF TUBES: 12.

GENERAL APPLICATION

USE: L.f.

TO COMMUNICATE WITH: Long-range, l-f stations.

INSTALLATION: Fixed or vehicular.

TYPE OF SIGNAL: C-w, a-m, voice, or tone.

PRINCIPAL COMPONENTS

Name	Dimensions (in.)	Weight (lb)
Radio Receiver BC-969-A	19 x 10½ x 15⅞	49.3
Case CS-109-A	20½ x 10½ x 13½	18.5
Mounting FT-411-A	21¼ x 3½ x 13½	10.2
Power Supply Unit RA-61	19 x 4 x 13⅞	52.1
Mounting FT-414	18¼ x 3½ x 11¾	9.5

WEIGHT AND VOLUME

Total weight of this equipment (lb) _____ *Unpacked*
141.7

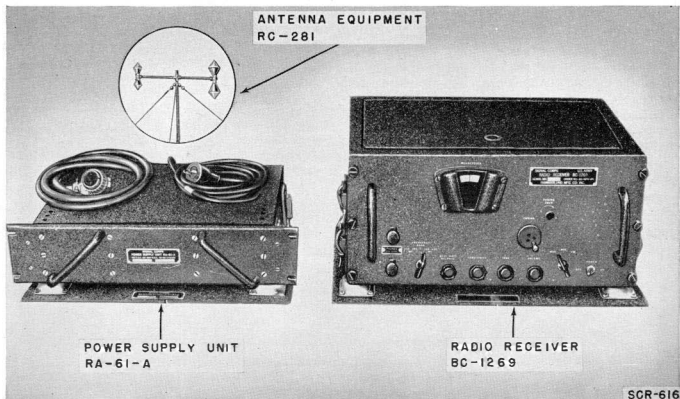


Figure 107. Radio Set SCR-616, principal components.

Status: Standard. Stock No.: 2S616. Reference: TM 11-260.

Radio Set SCR-616 consists of Radio Receiver BC-1269, Antenna Equipment RC-281, and Power Supply Unit RA-61-A. The radio receiver is a superheterodyne type. Separate antenna inputs and r-f sections for each band are incorporated in the receiver. The antenna consists of two biconical dipoles, one for each frequency band.

TECHNICAL CHARACTERISTICS

FREQUENCY RANGE: 145 to 600 mc in 2 bands:

Band 1: 145 to 300 mc.

Band 2: 300 to 600 mc.

NUMBER OF CRYSTALS: None.

ANTENNA: Dipole antenna, 15 ft long. Consists of two biconical antennas, AN-169 and AN-170, and Mast Sections MS-122 to MS-125 inclusive.

TYPE MODULATION: Amplitude, frequency, and c-w.

FREQUENCY CONTROL: Manual.

POWER SOURCE: Power Supply Unit RA-61-A; 115- or 230-v, 0.85- or 0.45-amp, 50- to 60-cyc ac.

RANGE: Line of sight.

NUMBER OF TUBES: 17.

GENERAL APPLICATION

USE: Interception and communication.

TO COMMUNICATE WITH: Receives signals from any transmitter within frequency range and line of sight.

INSTALLATION: Installed and operated on ground.

TYPE OF SIGNAL: A-m, f-m, and c-w.

PRINCIPAL COMPONENTS

Name	Dimensions (in.)	Weight (lb)
Radio Receiver BC-1269	19 x 16 x 8 $\frac{3}{4}$	44
Antenna Equipment RC-281		40.5
Power Supply Unit RA-61-A	19 x 18 $\frac{7}{8}$ x 4	52.1

WEIGHT AND VOLUME

	Domestic pack
Total weight (lb) _____	250
Total volume (cu ft) _____	11

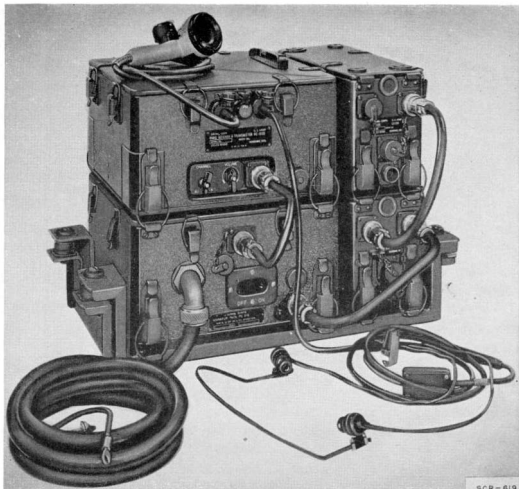


Figure 108. Radio Set SCR-619.

Status: Standard. *Stock No.:* 2S619/6-12-24. *Reference:* TM 11-619.

Radio Set SCR-619 is a low-power, 18-tube, crystal-controlled, f-m set consisting of a single unit Receiver-Transmitter BC-1335, Battery Charger PE-219, and additional operating components.

Although designed for field operation, Radio Set SCR-619 may be operated from a 6-, 12-, or 24-volt vehicular supply system with modification in the use of components. The set may be operated by untrained personnel, may be quickly and easily changed to various types of operation, and is adaptable to emergency use in close combat areas.

TECHNICAL CHARACTERISTICS

FREQUENCY RANGE: 27.0 to 38.9 mc.

NUMBER OF CRYSTALS: 120.

PRESET FREQUENCIES: 2.

ANTENNA:

For combat: 56-in., impedance-matched by Mast Base MP-74 to the transmitter.

For vehicular: 9-ft. impedance-matched to transmitter by Terminal Box J-72/GR and Cord CG-67/MRQ-2 with Amphenol connector.

For field: 12 ft. requiring no impedance matching.

Emergency: Wire W-29, 27-ft. requiring no external impedance matching.

TYPE MODULATION: Frequency.

FREQUENCY CONTROL: Crystal.

POWER SOURCE: 6- or 12-v storage battery, rechargeable from 6, 12, or 24-v d.c. source with Battery Charger PE-219.

POWER OUTPUT: 1.5 w.

RANGE: 5 mi (approx).

NUMBER OF TUBES: 18.

GENERAL APPLICATION

USE: Battery fire control from observation posts or liaison

planes. Also, general communication between vehicles.

TO COMMUNICATE WITH: Radio Sets SCR-298, SCR-608-A, SCR-609, SCR-610, SCR-619, SCR-628-A, SCR-805-A, SCR-828-A, and the following if they are operated between 27 and 27.9 mc: SCR-508, SCR-509, SCR-510, SCR-528.

INSTALLATION: Pack and vehicular. Can be operated while being carried in man pack or operated while installed in vehicle.

TYPE OF SIGNAL: Voice.

PRINCIPAL COMPONENTS

Name	Dimensions (in.)	Weight (lb)
1 Receiver and Transmitter BC-1335	6 $\frac{1}{2}$ x 12 $\frac{1}{2}$ x 13 $\frac{1}{2}$	22.75
1 Mounting FT-506	10 $\frac{1}{2}$ x 4.11/18 x 21 $\frac{1}{2}$	12.25
9 Batteries BB-54-A	5 $\frac{1}{2}$ x 3 $\frac{1}{2}$ x 3	4.3
1 Battery Charger PE-219	6 $\frac{1}{2}$ x 12 $\frac{1}{2}$ x 12 $\frac{1}{2}$	25.0

WEIGHT AND VOLUME

Total weight (lb)	333	<i>Export pack</i>
Total volume (cu ft)	15.04	

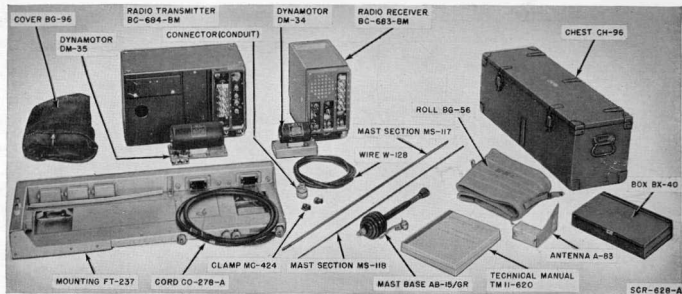


Figure 109. Radio Set SCR-628-A, component parts.

Status: Standard. Stock No.: 2S628A. Reference: TM 11-620.

Radio Set SCR-628-A is identical to Radio Sets SCR-608-A and -B, except that Radio Set SCR-628-A has one Radio Receiver BC-683-M instead of two.

This set is designed to provide f-m, radiotelephone facilities. It may be installed and operated in combat vehicles such as tanks, scout cars, half-tracks, command cars, or any other authorized vehicles. Radio Set SCR-628-A consists basically of one Radio Transmitter BC-684-BM and one Radio Receiver BC-683-BM.

TECHNICAL CHARACTERISTICS

FREQUENCY RANGE: 27.0 to 38.9 mc in 120 channels.
NUMBER OF CRYSTALS: 120.

PRESET FREQUENCIES: 10 (push-button selection).

ANTENNA: Whip, 10 ft long (consists of Mast Sections MS-116, MS-117, and MS-118 in some installation), mounted on Mast Base AB-15/GR. In half-track installation, Mast Section MS-116 is replaced by Mast Base Bracket MP-52.

TYPE MODULATION: Frequency.

FREQUENCY CONTROL: Crystal.

POWER SOURCE: Transmitter:

12-v vehicular battery through Dynamotor DM-35, or 24-v vehicular battery through Dynamotor DM-37.

Receiver: 12-v vehicular battery through Dynamotor DM-34, or 24-v vehicular battery through Dynamotor DM-36.

POWER OUTPUT: 20 w.

RANGE: Stationary, 15 mi. Moving, 10 mi.

NUMBER OF TUBES: 18.

GENERAL APPLICATION

USE: Armored-combat and other vehicles.

TO COMMUNICATE WITH: Radio Sets SCR-298, SCR-

509, SCR-510, SCR-528, SCR-608, SCR-610, SCR-619, SCR-628, SCR-808, and SCR-828-A.

INSTALLATION: Installed and operated in vehicle.

TYPE OF SIGNAL: Voice.

PRINCIPAL COMPONENTS

Name	Dimensions (in.)	Weight (lb)
1 Radio Transmitter BC-684-BM	11½ x 10¼ x 18	67
1 Radio Receiver BC-683-BM	11½ x 6¾ x 12½	35
1 Mounting FP-237	5½ x 13 x 33¾	44
1 Dynamotor DM-34	4½ x 3 x 6½	4.7
1 Dynamotor DM-35	5½ x 4½ x 8¼	9.2
1 Mast Base AB-15/GR	15 (lg)	2
2 Mast Sections MS-117	39½ (lg)	0.7
2 Mast Sections MS-118	39¾ (lg)	0.8
1 Mast Base Bracket MP-52	26 (lg)	20

WEIGHT AND VOLUME

	Unpacked	Domestic pack	Export pack
Total weight (lb)	349.41	595	660
Total volume (cu ft)	14.58	29.6	31.6
Ship tons (approx)		0.76	0.78



Figure 110. Radio Receiver BC 683-A (front view), component of Radio Set SCR-678.

Status: Standard. *Stock No.:* 2S678 for 12-volt operation; 2S678 for 24-volt operation. *Reference:* TM 11-620 and TM 11-4036.

Radio Set SCR-678 is an f-m, general-purpose, vehicular radio receiving set, consisting of Radio Receiver BC-683-A, Dynamotor DM-34 or DM-36, and necessary mounting, cords, and antenna.

Radio Set SCR-678 is used for monitoring Radio Sets SCR-608 and SCR-628.

TECHNICAL CHARACTERISTICS

FREQUENCY RANGE: 27.0 to 38.9 mc.
 NUMBER OF CRYSTALS: None.
 PRESET FREQUENCIES: 10.
 ANTENNA: Whip.
 TYPE MODULATION: Frequency.
 POWER SOURCE: 12-v dc at 4 amp or 24-v dc at 2 amp
 if Dynamotor DM-34 is replaced by Dynamotor DM-36.
 POWER OUTPUT: 2 w, audio.
 RANGE: Radio Receiver BC-683 in communication with
 Radio Set SCR-608, has a range of approximately 15
 miles over average rolling terrain using whip antenna.
 NUMBER OF TUBES: 10.

GENERAL APPLICATION

USE: General purpose f-m reception and monitoring use.
 Used in signal installation and maintenance units.
 TO COMMUNICATE WITH: Radio Sets SCR-608 and
 SCR-638.
 INSTALLATION: Vehicular.
 TYPE OF SIGNAL: Voice.

PRINCIPAL COMPONENTS

<i>Name</i>	<i>Dimensions (in.)</i>	<i>Weight (lb)</i>
Radio Receiver BC-683	11½ x 6¾ x 12½	3.5
Dynamotor DM-34		4.7
or		
Dynamotor DM-36	4½ x 3 x 6½	4.7

Necessary mountings,
 cords, and antenna

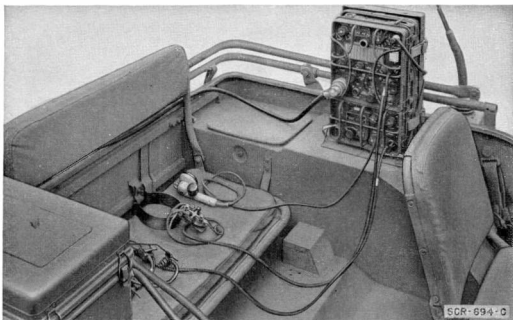


Figure 111. Radio Set SCR-694-C, installed in truck, $\frac{3}{4}$ ton 4 x 4.

Status: Limited standard. *Stock No.:* 2S694/6-12-24. *Reference:* TM 11-230-C.

Radio Set SCR-694-C is a light-weight, low-power, man-transportable, front-line command set which provides two-way radio telephone and telegraph communication. It can be used as a portable field set or installed and operated in vehicles.

Radio Set SCR-694-C is particularly adapted to amphibious or jungle operation.

TECHNICAL CHARACTERISTICS

FREQUENCY RANGE: 3.8 to 6.5 mc.

NUMBER OF CRYSTALS: Transmitter: 2. Receiver: 1.

PRESET FREQUENCIES: Transmitter: 2.

ANTENNA: Whip, when equipment must be moved quickly from one location to another. Long, half-wave horizontal antenna when used as field set.

TYPE MODULATION: Amplitude.

FREQUENCY CONTROL: Mo, crystal A, or crystal B.

POWER SOURCE: When operated in vehicle, vehicular 6-, 12-, or 24-v storage battery. When operated as a field set, Generator GN-58. Battery BA-48 may be used to operate receiver alone.

POWER OUTPUT (TRANSMITTER):

POWER SWITCH	VIBRATOR POWER UNIT PE-237		GENERATOR GN-58	
	Phone	Cw	Phone	Cw
High	8.5w	25w	6w	17w
Medium	4.5w	21w	4w	14w
Low	2.2w	13w	2w	8.5w

POWER OUTPUT (RECEIVER): The maximum output of the receiver exceeds 75 mw in normal operation from either the vehicular supply or the hand generator. When operated from Battery BA-48, slightly lower power is obtained.

RANGE: (Between moving vehicles) voice up to 15 mi, c-w up to 30 mi.

NUMBER OF TUBES: 10.

GENERAL APPLICATION

USE: To provide two-way radio telephone and telegraph communication between moving or stationary vehicles. Can also be used as portable field set.

TO COMMUNICATE WITH: Radio Sets AN/GRC-9, AN/VRC-1, SCR-188, SCR-193, SCR-399, SCR-499, SCR-506, SCR-536, SCR-543, SCR-593, and SCR-694.

INSTALLATION: Ground or vehicular.

TYPE OF SIGNAL: C-w and voice.

PRINCIPAL COMPONENTS

Name	Dimensions (in.)	Weight (lb)
Receiver and Transmitter BC-1306	14½ x 9 x 5	27
Vibrator Power Supply PE-237	11 x 20½ x 9½	
Generator GN-58	8 x 6 x 6	25.7
Antenna AN-160		
Mast Base MP-65	16½ x 3 (diameter over-all)	
Mast Bracket MP-50	8 x 5 x 5	

WEIGHT AND VOLUME

	Unpacked Domestic pack	
Total weight (lb)	191.5	250
Total volume (cu ft)	3	7.5

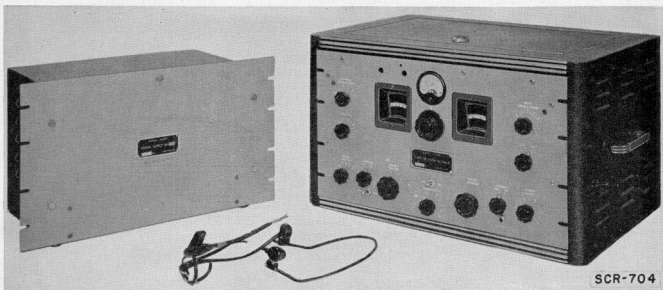


Figure 112. Radio Set SCR-704, receiver and power supply unit.

Status: Standard. *Stock No.:* 2S704. *Reference:* TM 11-866.

Radio Set SCR-704 consists of a superheterodyne receiver and an external power supply unit. The receiver uses a conventional circuit and is designed for the reception of c-w, a-m, or tone signals, with either manual or automatic control.

The receiver has facilities to enable it to be used as an audio amplifier.

This set uses an external power supply unit, but may also be operated from batteries in an emergency.

Radio Set SCR-704 is primarily intended for fixed-station use. However, vehicular installation may be made.

TECHNICAL CHARACTERISTICS

FREQUENCY RANGE:

- Band 1: 1.250 to 2.50 mc.
- Band 2: 2.50 to 5.0 mc.
- Band 3: 5.0 to 10.0 mc.
- Band 4: 10.0 to 20.0 mc.
- Band 5: 20.0 to 40.0 mc.

NUMBER OF CRYSTALS: 1 built-in crystal filter.

PRESET FREQUENCIES: 5-position band switch.

ANTENNA: Doublet, with balanced transmission line or single wire and ground.

TYPE MODULATION: C-w, amplitude, or tone.

POWER SOURCE: External: Power Supply Unit RA-94-A, 115- or 230-v, 50- to 60-cyc ac, or batteries, as follows: one 6-v storage battery, five 45-v B batteries, and 45-v C battery.

RANGE: Long.

NUMBER OF TUBES: 16 in receiver; 2 in power supply unit.

GENERAL APPLICATION

USE: To receive c-w, a-m or tone signals or as an audio amplifier.

TO COMMUNICATE WITH: Radio Sets SCR-177, AN/MRC-2A, SCR-188, SCR-193, SCR-499, AN/VRC-1, SCR-543, AN/GRC-9, and SCR-536.

INSTALLATION: Primarily intended for fixed-station use, but mountings for vehicular installation may be provided.

TYPE OF SIGNAL: C-w, a-m, or tone.

PRINCIPAL COMPONENTS

Name	Dimensions (in.)	Weight (lb)
Radio Receiver BC-794.....	10½ x 19 x 15¾	55
Cabinet CH-104-A	12½ x 23 x 16½	18
Power Supply Unit RA-94-A....	10½ x 19 x 10	60
Headset HS-30/U		1.7
Cords, wires, insulators, etc....		11.9

WEIGHT AND VOLUME

	Unpacked	Export pack
Total weight (lb).....	146.6	179
Total volume (cu ft).....	5.281	7.5

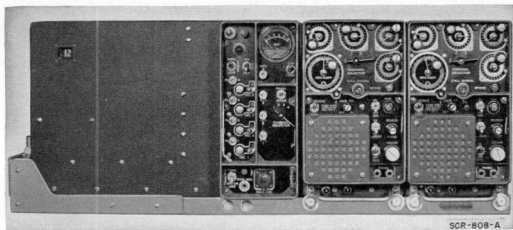


Figure 115. Radio Set SCR-808-A, on Mounting FT-237-D.

Status: Limited standard. *Stock No.:* 2S808/12. *Reference:* TM 11-601.

Radio Set SCR-808-A is an f-m vehicular set intended for use in mobile Coast Artillery batteries and Military Police units. The set uses two Radio Receivers BC-923-A and one Radio Transmitter BC-924-A, and is provided with four sets of tuning controls and four preset channels.

The transmitter has a low-power output, providing line of sight communication. A crystal calibrator is provided in the receiver for calibration of both the transmitter and receiver.

This radio set operates from a 12- or 24-v storage battery, which, if possible, should be under charge during operation.

TECHNICAL CHARACTERISTICS

FREQUENCY RANGE: 27.0 to 38.9 mc in 120 channels.
 NUMBER OF CRYSTALS: 1 per receiver.
 PRESET FREQUENCIES: 4.
 ANTENNA: Whip, 10-ft long (approx), consisting of Mast Sections MS-117 and MS-118, mounted on Mast Base AB-15/GR.
 TYPE MODULATION: Frequency.
 FREQUENCY CONTROL: Crystal calibrated mo.
 POWER SOURCE:

Radio Transmitter BC-924-A: With 12-v storage battery, uses Dynamotor DM-64-A. With 24-v storage battery, uses Dynamotor DM-66-A (max amp on 12 v, 26).

Radio Receiver BC-923-A: With 12-v storage battery, uses Dynamotor 65-A. With 24-v storage battery, uses Dynamotor 47-A (max amp on 12-v, 7.2 per receiver).

POWER OUTPUT: High: 30 to 35 w. Low: 2 w.

RANGE: Line of sight.

NUMBER OF TUBES: Transmitter, 9. Receivers 15 each.

GENERAL APPLICATION

USE: For mobile communication in Coast Artillery batteries and Military Police units.

TO COMMUNICATE WITH: Radio Sets SCR-298, SCR-509, SCR-510, SCR-528, SCR-608-A, SCR-609, SCR-610, SCR-616, SCR 628-A, SCR-808-A, and SCR-928-A.
 INSTALLATION: Installed and operated in vehicle.
 TYPE OF SIGNAL: Voice.

PRINCIPAL COMPONENTS

Name	Dimensions (in.)	Weight (lb)
1 Radio Transmitter BC-924-A	11 1/2 x 10 1/2 x 18	49
2 Radio Receivers BC-923-A		
(complete with tubes, fuses, and lamps)		
1 Mounting FT-237	11 1/2 x 12 1/4 x 6 1/2	42 (est)
1 Mast Section MS-117	5 1/2 x 13 x 35%	44
2 Mast Sections MS-118	39 1/2	0.66
2 Mast Sections MS-118	39%	0.81
1 Mast Base AB-15/GR	15	2
2 Dynamotors DM-64	4 1/2 x 3 1/4 x 6 1/2	5.25
1 Dynamotor DM-65	5 1/2 x 4 1/2 x 8 1/4	13.25

WEIGHT AND VOLUME

	Unpacked	Domestic pack
Total weight (lb)	373	533 (approx)
Total volume (cu ft)		28 (approx)

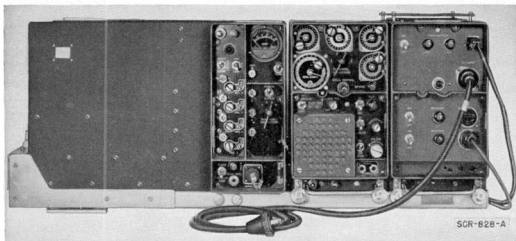


Figure 114. Radio Set SCR-828-A in operating position.

Status: Limited standard. *Stock No.:* 2S828A. *Reference:* TM 11-601.

Radio Set SCR-828-A (the same as Radio Set SCR-808-A except that it uses only one Radio Receiver BC-923-A and one Radio Transmitter BC-924-A) is designed for installation and operation in a vehicle, and provides line of sight communication.

This f-m set has four sets of tuning controls and can be preset to four predetermined channels by operating the channel selector switch.

The transmitter has a low-power output. A crystal calibrator is provided in the receiver for calibration of both the transmitter and the receiver.

This set is used for mobile communication, in Coast Artillery batteries and by Military Police units.

TECHNICAL CHARACTERISTICS

FREQUENCY RANGE: 27.0 to 38.9 mc in 120 channels.

NUMBER OF CRYSTALS: 1 per receiver.

PRESET FREQUENCIES: 4.

ANTENNA: Whip, 10 ft long (approx) consisting of Mast Sections MS-117 and MS-118 mounted on Mast Base AB-15/GR.

TYPE MODULATION: Frequency.

FREQUENCY CONTROL: Crystal calibrated, master oscillator.

POWER SOURCE:

Radio Transmitter BC-924-A: With 12-v storage battery, use Dynamotor DM-64-A. With 24-v storage battery, use Dynamotor DM-66-A. (Max amp on 12 v: 26.)

Radio Receiver BC-923-A: With 12-v storage battery, use Dynamotor DM-65-A. With 24-v storage battery, use Dynamotor 47-A. (Max amp on 12 v: 7.2.)

POWER OUTPUT: High: 30 to 35 w. Low: 2 w.

RANGE: Line of sight.

NUMBER OF TUBES: 24.

GENERAL APPLICATION

USE: For mobile communication in Coast Artillery batteries and Military Police units.

TO COMMUNICATE WITH: Radio Sets SCR 298, SCR-500, SCR-510, SCR 528, SCR-608-A, SCR-609, SCR-610, SCR 619, SCR-628-A, SCR-808-A, and SCR-828-A.

INSTALLATION: Installed and operated in vehicle.

TYPE OF SIGNAL: Voice.

PRINCIPAL COMPONENTS

Name	Dimensions (in.)	Weight (lb)
1 Radio Transmitter BC-924-A	11½ x 10½ x 18	49
1 Radio Receiver BC-923-A (complete with tubes, fuses, and lamps)	11½ x 12¼ x 6¾	42
1 Mounting FT-237	5½ x 13 x 33%	44
2 Mast Sections MS-117	39½	0.66
2 Mast Sections MS-118	39%	0.81
1 Mast Base AB-15/GR	15	2
1 Dynamotor DM-64	4½ x 3¾ x 6%	5.25
1 Dynamotor DM-65	5¾ x 4½ x 8¾	13.25

WEIGHT AND VOLUME

	Domestic pack
Total weight (lb).....	373½ (approx)
Total volume (cu ft).....	18 (approx)



Figure 115. Radio Transmitter T-4/FRC and associated equipment, front view, units pulled out from rack.

Status: Standard. Stock No.: 2C6900-4. Reference: TM 11-820.

Radio Transmitter T-4/FRC is designed for multichannel airport traffic control work. It is used in conjunction with Power Rectifier PP-1/FRC, Modulator MD-1/FRC, and Radio Transmitter T-5/FRC.

This high frequency r-f transmitter may provide a maximum output of 400 watts and may be used for c-w, m-e-w, frequency-shift-keying and voice-modulated emission.

It is intended for operation into a 400- to 600-ohm antenna transmission line and can be remotely controlled for all types of operation. A complete installation includes four Radio Transmitters T-4/FRC, one Radio Transmitter T-5/FRC, one Modulator MD-1/FRC, and one Power Rectifier PP-1/FRC.

TECHNICAL CHARACTERISTICS

FREQUENCY RANGE: 2 to 18 mc.
NUMBER OF CRYSTALS: 1 per T/4 channel.
PRESET FREQUENCIES: 1 per T/4 channel.
ANTENNA: Delta match doublet or rhombic antenna, balanced 400- to 600-ohm transmission line.
TYPE MODULATION: C-w, m-e-w, frequency-shift-keying, or voice.
FREQUENCY CONTROL: Crystal; master oscillator or external frequency-shift keyer.
POWER SOURCE: Single-phase, 220-v. ac.
POWER OUTPUT: Carrier power output, 400 w max.
RANGE: Dependent upon antenna used, frequency, and ionospheric conditions.

NUMBER OF TUBES: 15.

GENERAL APPLICATION

USE: Used for airport traffic control work. Point-to-point.
TO COMMUNICATE WITH: Long-range communication stations and aircraft.
INSTALLATION: Fixed station.
TYPE OF SIGNAL: C-w, m-e-w, frequency-shift-keying, voice-modulated.

PRINCIPAL COMPONENTS

<i>Name</i>	<i>Dimensions (in.)</i>	<i>Weight (lb)</i>
Radio Transmitter T-4/FRC...	61 x 24 x 12	330

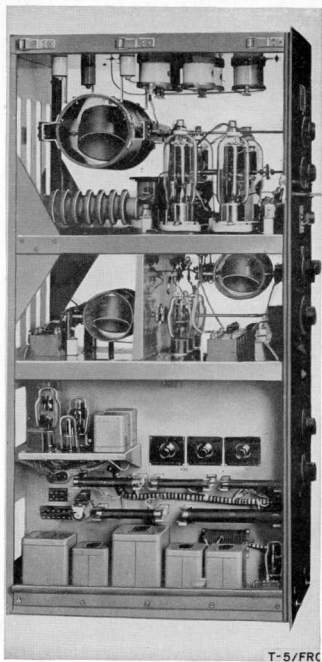


Figure 116, Radio Transmitter T-5/FRC, side view, covers removed.

Status: Standard. *Stock No.:* 2C6900-5. *Reference:* TM 11-820.

Radio Transmitter T-5/FRC is designed for multichannel airport traffic control work and homing. It is used in conjunction with Power Rectifier PP-1/FRC, Modulator MD-1/FRC, and Radio Transmitter T-4/FRC.

This l-f transmitter may provide a nominal power output to antenna of 500 watts (power input to antenna tuning unit approximately 900 watts). (Antenna tuning unit efficiency 5 percent to 80 percent, dependent upon frequency and antenna used.)

Normally, a complete transmitter installation includes only one low-r-f unit.

TECHNICAL CHARACTERISTICS

FREQUENCY RANGE: 0.15 to 0.55 mc.

NUMBER OF CRYSTALS: 1 per equipment.

PRESET FREQUENCIES: 1 per equipment.

ANTENNA: Tower AB-127A/FR, Tower AB-127B/FR, or other vertical radiator. Beverage antenna or Antenna Kit MX-765/FR. Uses tuning house supplied with Radio Transmitter T-5/FRG.

TYPE MODULATION: C-w, m-e-w, low-frequency shift-key, or amplitude.

FREQUENCY CONTROL: Crystal, mo, or external frequency shift.

POWER SOURCE: 220-v ac, single-phase.

POWER OUTPUT: 500 w nominal.

RANGE: Dependent upon frequency, antenna used, and

ionospheric conditions.

NUMBER OF TUBES: 18.

GENERAL APPLICATION

USE: Airport traffic control and homing.

TO COMMUNICATE WITH: Airborne and fixed point-to-point hf equipment.

INSTALLATION: Fixed station.

TYPE OF SIGNAL: C-w, m-e-w, voice, or frequency shift radioteletypewriter.

PRINCIPAL COMPONENTS

Name	Dimensions (in.)	Weight (lb)
Radio Transmitter T-5/FRG (less tuning house)	61 x 24 x 18	450
Antenna tuning house (old model)	42 x 42 x 250	

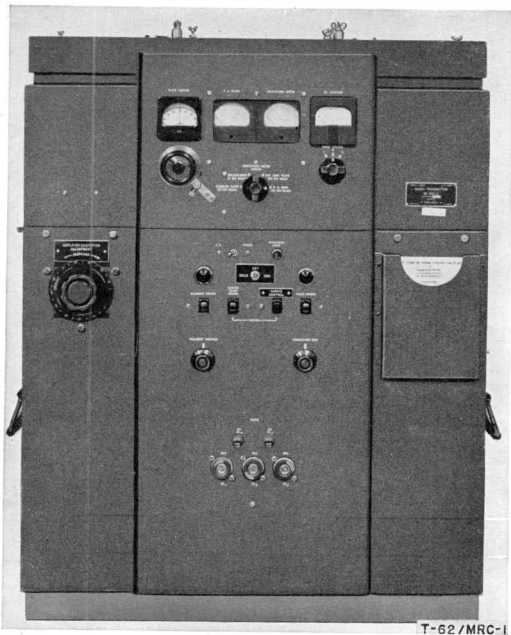


Figure 117. Radio Transmitter T-62/MRC-1.

Status: Limited standard. *Stock No.:* 2C6900-62.

Radio Transmitter T-62/MRC-1 (Hallierafers model IIT-4) is a high-powered transmitter providing for transmission of voice and high-speed, c-w signals. It is similar to Radio Transmitter BC-610-E, except for the addition of a variac to control the input voltages to the high-power supply transformer and a switch to change from oscillator keying to doubler keying. Both controls are located on the front panel of the transmitter.

Selection of any one of three frequencies in the exciter stages is provided by a switch on the front panel.

This transmitter is intended for use with Power Amplifier AM-35/MRC-1. (When using Power Amplifier AM-35/MRC-1, no voice transmission is possible).

TECHNICAL CHARACTERISTICS

FREQUENCY RANGE: 2 to 18 mc.
NUMBER OF CRYSTALS: 3 crystal sockets provided.
PRESET FREQUENCIES: 3.
ANTENNA: Doublet or fixed-station antenna, Antenna System AS-95/MRC-1.
TYPE MODULATION: C-w and voice.
FREQUENCY CONTROL: Mo or crystal.
POWER SOURCE: 110-v, 50- to 60-cycle ac.
POWER OUTPUT: Phone: 325 w. C-w: 450 w.
RANGE: Medium and long.
NUMBER OF TUBES: 15.

GENERAL APPLICATION

USE: Used with, but not part of Power Amplifier AM-35/MRC-1.
TO COMMUNICATE WITH: Sets within frequency range.
INSTALLATION: Fixed or mobile.
TYPE OF SIGNAL: High speed c-w; voice.

PRINCIPAL COMPONENTS

<i>Name</i>	<i>Dimensions (in.)</i>	<i>Weight (lb)</i>
Radio Transmitter T-62/MRC-1.	29 x 19 x 37	420

WEIGHT

	<i>Unpacked</i>	<i>Domestic pack</i>
Total weight (lb).....	420	550

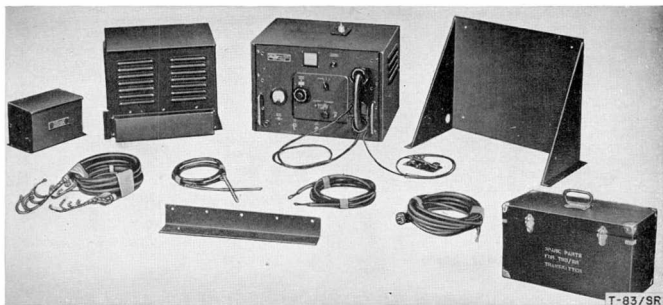


Figure 118. Radio Transmitter T-83/SR, major components.

Status: Standard. *Stock No.:* 2C6900-83. *Reference:* TM 11-837.

Radio Transmitter T-83/SR is a 50-watt telephone and telegraph marine radio transmitter. Either e-w or phone transmission is available on any of 5 preset channels in the frequency range between 1,700 and 8,700 kc. Three separate units house the entire transmitter installation, the transmitter cabinet, converter-starter box, and the power supply cabinet.

Provisions are made for remote-control operation of the radio transmitter.

Radio Transmitter T-83/SR, designed for operation from a 115-volt, 50- to 60-cycle, a-c power source requires approximately 460 watts at 100 percent modulation, or about 390 watts when used for telegraphy. During stand-by periods, the power required is approximately 162 watts.

TECHNICAL CHARACTERISTICS

FREQUENCY RANGE: 1.7 to 8.7 me.
 NUMBER OF CRYSTALS: 5 operating.
 PRESET FREQUENCIES: 5.
 ANTENNA: None supplied.
 TYPE MODULATION: Amplitude.
 FREQUENCY CONTROL: Crystal.
 POWER SOURCE: 115-v, 50 to 50-cyc ac, source capable of supplying approximately 460 w for telephony or about 390 w when used for telegraphy. During stand-by periods, the power required is approximately 162 w.
 POWER OUTPUT: 75 w.
 RANGE: Dependent upon antenna and operating frequency.
 NUMBER OF TUBES: 10.

GENERAL APPLICATION

USE: Used for communication from shore-to-ship and ship-to-shore.

TO COMMUNICATE WITH: Medium- and long-range stations within its frequency range.
 INSTALLATION: Ship or shore stations.
 TYPE OF SIGNAL: C-w or phone.

PRINCIPAL COMPONENTS

Name	Dimensions (in.)	Weight (lb)
Radio transmitter	13½ x 21 x 16	118
Power Supply	13¾ x 15¼ x 18½	127
Converter starter box	6 x 6½ x 10½	8½
External antenna load inductor (applied only when required)	13 x 7¾ x 7¼	11½
Spare parts box	9 x 20 x 11	26

WEIGHT AND VOLUME

	Unpacked	Domestic pack	Unpacked
Total weight (lb)	456	470	470
Total volume (cu ft)	6.6	17.06	17.06



Figure 119. Radio Transmitter T-158(*)/FRT.

Status: Standard commercial. Stock No.: 2C6840 (Radio Transmitter T-158/FRT); 2C6840C.1 (T-158B/FRT); and 2C6840C.2 (T-158A/FRT). Reference: TM 11-2671.

Radio Transmitter T-158(*)/FRT represents Radio Transmitter T-158/FRT (Wilcox Electric type 96A), Radio Transmitter T-158A/FRT (Wilcox Electric type 96C), and Radio Transmitter T-158B/FRT (Wilcox Electric type 96C3). Radio Transmitter T-158(*)/FRT is designed to generate 2,500 watts of carrier power at any frequency from 2 to 18 mc. The transmitter is housed in a steel cabinet

which contains all the transmitter equipment, but not the power supply nor the modulator. The rectifier and modulator are separate units.

In conjunction with its associated control and power equipment, Radio Transmitter T-158(*)/FRT may be used for c-w, m-e-w, voice-amplitude-modulated or frequency-shift radioteletypewriter transmissions.

This equipment is intended primarily for point-to-point and ground-to-air communications and is usually controlled by Remote Control Console CY-161/FRC.

TECHNICAL CHARACTERISTICS

FREQUENCY RANGE: 2 to 18 mc.

NUMBER OF CRYSTALS: 1.

PRESET FREQUENCIES: 1.

ANTENNA: Any suitable antenna having balanced 600-ohm input.

TYPE MODULATION: Amplitude, frequency-shift, and m-e-w.

FREQUENCY CONTROL: Crystal, external.

POWER SOURCE: Plate and bias supplies from Radio Power Supply PP-219/FRT (Wilcox Electric type 36A) and rectifier (Wilcox Electric type 36A4). For 3 channels, 15 kva maximum at 220-v, 3-phase 60 cyc for simultaneous c-w operation.

POWER OUTPUT: C-w, m-e-w, or voice; 2,500 w.

RANGE: Long, dependent upon antenna used, frequency, and ionospheric conditions.

NUMBER OF TUBES:

Radio Transmitter T-158/FRT, exciter stage: 8.

Radio Transmitter T-158A/FRT, exciter stage: 9.

Radio Transmitter T-158B/FRT, exciter stage: 9.

Final amplifier: 2 (all models).

GENERAL APPLICATION

USE: Point-to-point and ground-to-air communications.

TO COMMUNICATE WITH: Radio Set AN/MRC-1.

Radio Receivers BC-779-B, BC-794, BC-1004-C, R-208/

FR, R-209/FR; Radio Sets SCR-399-A, SCR-499-A.

INSTALLATION: Fixed station.

TYPE OF SIGNAL: C-w, m-e-w, voice, or frequency-shift-keying.

PRINCIPAL COMPONENTS

Name	Dimensions (in.)	Weight (lb)
Radio transmitter in steel cabinet	73¼ x 26¼ x 12¼	365
Exciter Unit Wilcox Electric 96C3-10	8¾ x 8¾ x 17¼	27
Coil Set		6.7
Tube set, operating		11
Radio teletypewriter modification kit		6

WEIGHT AND VOLUME

Total weight (lb)	732	<i>Domestic pack</i>
Total volume (cu ft)	51.6	
Ship tons	1.25 (approx)	

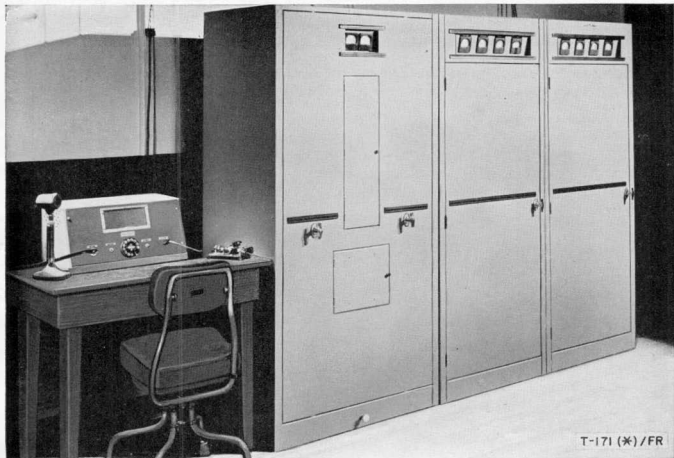


Figure 190. Radio Transmitter T-171B/FR and associated equipment.

Status: Standard commercial. *Stock No.:* 2C6845A (Radio Transmitter T-171/FR); 2C6845B (T-171A/FR); and 2C6845C (T-171B/FR). *Reference:* TM 11-802.

Radio Transmitter T-171(*)/FR represents Radio Transmitter T-171/FR (Wileox Electric type 96-200A), Radio Transmitter T-171A/FR (Wileox Electric type 96-200B), and Radio Transmitter T-171B/FR (Wileox Electric type 96-200C).

Radio Transmitter T-171(*)/FR transmits 2,000 to 2,400 watts of carrier power at any frequency 0.125 to 0.525 mc. The transmitter is assembled in a steel cabinet which contains all of the transmitter equipment except the antenna tuning unit, the power supplies, and the modulator. Power is supplied by adjacent rectifiers and modulators. In conjunction with its associated control and power equipments, the unit forms a complete station for the transmission of e-w or voice-modulated message.

The equipment is intended primarily for homing and point-to-point communication.

TECHNICAL CHARACTERISTICS

FREQUENCY RANGE: 0.125 to 0.525 mc.

NUMBER OF CRYSTALS: 1.

PRESET FREQUENCIES: 1.

ANTENNA: Horizontal antenna system extending a minimum of 500 ft, or a 200-ft insulated tower; also, a radial ground system extending at least 100 ft in all directions from the transmitter.

TYPE MODULATION: Amplitude.

FREQUENCY CONTROL: Crystal or mo.

POWER SOURCE:

Radio Transmitter T-171/FR: rectifier-modulator type 26E.

Radio Transmitter T-171A/FR and T-171B/FR: rectifier type 36A4 and modulator type 503B.

POWER OUTPUT:

Radio Transmitter T-171/FR and T-171A/FR: 2,000 w.

Radio Transmitter T-171B/FR: 2,400 w.

RANGE: Long.

NUMBER OF TUBES: 17.

GENERAL APPLICATION

USE: Low-frequency transmitter primarily for homing and point-to-point communication.

TO COMMUNICATE WITH: Any a-m equipment tuned to this range.

INSTALLATION: Fixed station.

TYPE OF SIGNAL: C-w, voice, or tone.

PRINCIPAL COMPONENTS

Name	Dimensions (in.)	Weight (lb)
Radio Transmitter T-171 (^o)/FR complete with electronic keying unit type 182A.	72 x 24 $\frac{1}{2}$ x 36 $\frac{1}{2}$	533.5

WEIGHT AND VOLUME

	Domestic pack	Unpacked
Total weight (lb) _____	724.87	1,342
Total volume (cu ft) _____	37.9	152.6
Ship tons _____	0.95	3.8

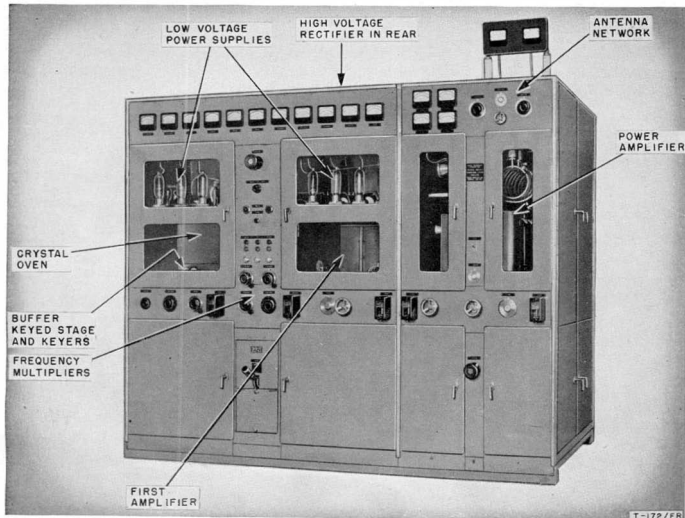


Figure 121. Radio Transmitter T-172/FR.

Status: Limited standard. *Stock No.:* 2C6890. *Reference:* TM 11-821.

Radio Transmitter T-172/FR (Press Wireless type PW-15A) is designed for c-w operation, but may be used for radioteletypewriter operation with the necessary additional equipment. This transmitter is capable of c-w operation at a speed of 350 words per minute.

This transmitter is made up of two basic units, a rectifier and exciter unit and a power amplifier unit. These are mounted on a common base, and housed in two separate metal cabinets. The output circuits work into a balanced 2-wire transmission line of 550 to 650 ohms impedance. The set may be operated automatically from a remote or local point, or controlled manually from a local point.

Because of its size and weight this equipment is used primarily in fixed-station installations for point-to-point communication.

TECHNICAL CHARACTERISTICS

FREQUENCY RANGE: 4 to 21 mc.
 NUMBER OF CRYSTALS: 6.
 PRESET FREQUENCIES: None.
 ANTENNA: Fixed-station directional types.
 TYPE MODULATION: C-w.
 FREQUENCY CONTROL: Crystal or external oscillator.
 POWER SOURCE: 220-v, 60-cyc, 3-phase, 35-kw ac; plus
 12-v storage battery.
 POWER OUTPUT: 15 kw.
 RANGE: Long, dependent upon antenna used, frequency,
 and ionospheric conditions.
 NUMBER OF TUBES: 31.

GENERAL APPLICATION

USE: Point-to-point, c-w, and radioteletypewriter communication.

TO COMMUNICATE WITH: Radio Sets AN/MRC-1;
 AN/MRC-2; SCR-399-A; SCR-499-A; Radio Receiver
 BC-1004-C.

INSTALLATION: Fixed station.

TYPE OF SIGNAL: C-w, and radioteletypewriter.

PRINCIPAL COMPONENTS

Name	Dimensions (in.)	Weight (lb)
Radio Transmitter T-172/FR	108 x 8½ x 56¾	6,948

WEIGHT AND VOLUME

	Unpacked	Export pack
Total weight (lb)	6,948	11,227
Total volume (cu ft)	294.2	885.4
Ship tons		22.1



Figure 125. Radio Transmitter T-173/FR.

Status: Limited standard. *Stock No.:* 2C6714.

Radio Transmitter T-173/FR (Hallicrafter model HT-9) is a medium power transmitter. It is completely self-contained, requiring only a microphone or key antenna, and a source of a-c power to go on the air.

The transmitter is constructed on a heavy cadmium-plated steel chassis which is mounted on heavy rubber feet in a steel cabinet.

Five individual plug-in tuning units may be accommodated in the exciter section simultaneously. Band switching is accomplished by changing one coil in the final amplifier and selecting the desired frequency by means of a panel switch. Exciter units are pretuned, and the only additional operation needed is a slight adjustment of the final tank tuning capacitor.

Separate meters are provided for the power amplifier plate and grid circuits and a third meter may be switched either into the exciter or the modulator cathode circuits.

TECHNICAL CHARACTERISTICS

FREQUENCY RANGE: 1.5 to 30 mc in 5 bands.
NUMBER OF CRYSTALS: 5.
PRESET FREQUENCIES: 5.
ANTENNA: 10 to 600 ohms impedance.
TYPE MODULATION: Amplitude.
FREQUENCY CONTROL: Crystal.
POWER SOURCE: 105 to 125-v, 50- to 60-*eye*, ac, 500 va.
POWER OUTPUT: 100 w on c-w, 75 w on phone.
RANGE: Medium and long, dependent upon antenna used,
frequency, and ionospheric conditions.
NUMBER OF TUBES: 14.

GENERAL APPLICATION

USE: Medium-power, a-m transmitter.
TO COMMUNICATE WITH: Sets within frequency range.
INSTALLATION: Fixed or mobile.
TYPE OF SIGNAL: Voice, c-w, or radiotelegraph.

PRINCIPAL COMPONENTS

Name	Dimensions (in.)	Weight (lb)
Radio Transmitter T-173/FR	20½ x 12½ x 20½	120

WEIGHT

Total weight (lb)	Unpacked	Domestic pack
.....	120	125

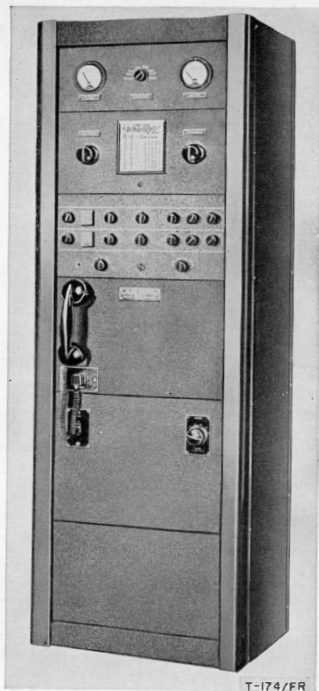


Figure 123. Radio Transmitter T-174/FR.

Status: Limited standard. *Stock No.:* 2C6733A. *Reference:* TM 11-818.

Radio Transmitter T-174/FR (Western Electric model 33A) is a two-channel, h-f, radiotelephone and radiotelegraph transmitter for point-to-point, aeronautical ground station, and similar applications. It delivers a carrier power of 350 watts into a suitable antenna in its frequency range (from 3 to 13 mc).

It can be modulated for voice transmission and provides facilities for c-w and two-tone telegraph transmission. Radio Transmitter T-175/FR is the same as this set, except for the a-f panel which is replaced by a panel containing necessary conversion circuit elements.

These transmitters are designed so that one can be converted to the other by interchanging the audio-

amplifier panel on Radio Transmitter T-174-FR with the voltage-divider panel on Radio Transmitter T-175/FR.

TECHNICAL CHARACTERISTICS

FREQUENCY RANGE: 3 to 13 mc in 4 bands:

Band 1: 3 to 4.5 mc.

Band 2: 4.5 to 6 mc.

Band 3: 6 to 9 mc.

Band 4: 9 to 13 mc.

NUMBER OF CRYSTALS: 2.

PRESET FREQUENCIES: 2.

ANTENNA: Any suitable antenna.

TYPE MODULATION: Amplitude, high level.

FREQUENCY CONTROL: Crystal.

POWER SOURCE: 200- to 250-v ac, 50- to 60-cyc, single-phase.

POWER OUTPUT: 350 w.

RANGE: Medium and long, dependent upon terrain, antenna used, and ionospheric conditions.

NUMBER OF TUBES: 19.

GENERAL APPLICATION

USE: Point-to-point, ground-to-air, and ground stations.

TO COMMUNICATE WITH: Long-range ground stations and aircraft.

INSTALLATION: Fixed station.

TYPE OF SIGNAL: Phone, c-w, and two-tone (frequency shift keying) telegraphy.

PRINCIPAL COMPONENTS

Name	Dimensions (in.)	Weight (lb)
Radio transmitter	76 x 27 x 25	550
Fan and housing	27 x 21 x 14	64
Transformers	18 x 12 x 19	192
Relays (packed in vacuum tube box)	26 x 20 x 26	85
Power amplifier plate coils.		

WEIGHT AND VOLUME

	Domestic pack	
Total weight (lb)	1,700	(approx)
Total volume (cu ft)	87	(approx)
Ship tons	2.2	(approx)



Figure 124. Radio Transmitter T-175/FR.

Status: Limited standard. *Stock No.:* 2C6734A. *Reference:* TM 11-818.

Radio Transmitter T-175/FR (Western Electric model 34A) is a two-channel, h-f radiotelephone and radiotelegraph transmitter for point-to-point, aeronautical ground station, and similar applications. It can be modulated for voice transmission, and provides facilities for e-w and two-tone telegraph transmission.

Radio Transmitter T-175/FR (Western Electric model 34A) is the same as Radio Transmitter T-174/FR (Western Electric model 33A) except for the a-f channel which is replaced by a panel containing necessary conversion circuit elements for transmission of e-w and two-tone signals. These transmitters

have been designed so that one can be converted to the other by interchanging the a-f panel on Radio Transmitter T-174/FR with the voltage-divider panel on Radio Transmitter T-175/FR.

TECHNICAL CHARACTERISTICS

FREQUENCY RANGE: 3 to 13 mc in 4 bands:

Band 1: 3 to 4.5 mc.

Band 2: 4.5 to 6 mc.

Band 3: 6 to 9 mc.

Band 4: 9 to 13 mc.

NUMBER OF CRYSTALS: 2.

PRESET FREQUENCIES: 2.

ANTENNA: Any suitable antenna.

TYPE MODULATION: Amplitude, high level.

FREQUENCY CONTROL: Crystal.

POWER SOURCE: 200- to 250-v ac, 50- to 60-cycle, single-phase.

POWER OUTPUT: 350 w.

RANGE: Medium and long, dependent upon antenna used, frequency, and ionospheric conditions.

NUMBER OF TUBES: 13.

GENERAL APPLICATION

USE: Point-to-point, aeronautic, and ground stations.

TO COMMUNICATE WITH: Aircraft and long-range ground stations.

INSTALLATION: Fixed station.

TYPE OF SIGNAL: C-w and two-tone telegraphy.

PRINCIPAL COMPONENTS

Name	Dimensions (in.)	Weight (lb)
Radio transmitter	76 x 27 x 25	515
Fan and housing	27 x 21 x 14	64
Transformers	15 x 12 x 21	166
Vacuum tubes	26 x 20 x 26	64
Relays (packed in vacuum tube box)		

Power amplifier plate coils.

Note. Weights of components shown above are weights packed for shipment.

WEIGHT AND VOLUME

Total weight (lb)	809	Domestic pack
Total volume (cu ft)	43½	
Ship tons	1 (approx)	

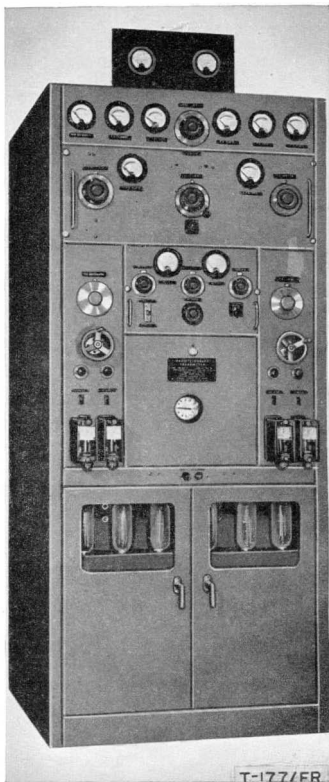


Figure 125. Radio Transmitter T-177/FR.

Status: Limited standard. *Stock No.:* 2C6892. *Reference:* TM 11-834.

Radio Transmitter T-177/FR (Press Wireless type PW-981-A) is designed for radioteletypewriter and radiotelegraph operation over a frequency range of 2.5 to 23 mc. It is capable of being keyed at speeds up to 150 words per minute (5 characters per word, average). Power consumption is approximately 8 kw. The transmitter is provided with an internal frequency shifter capable of shifting the carrier 1,000

eps; however, an external frequency shifter may be used if desired. The transmitter has provision for remote control in turning the equipment on and off, and for remote keying.

TECHNICAL CHARACTERISTICS

FREQUENCY RANGE: 2.5 to 23.0 mc.
NUMBER OF CRYSTALS: 5.
PRESET FREQUENCIES: 5.
ANTENNA: Any suitable fixed-station antenna.
TYPE MODULATION: Frequency shift for radioteletype-writer.
FREQUENCY CONTROL: Crystal or mo.
POWER SOURCE: 220- to 230-v, 50- to 60-cyc, 3-phase.
POWER OUTPUT: 2,500 w.
RANGE: Long.
NUMBER OF TUBES: 30.

GENERAL APPLICATION

USE: C-w and radioteletypewriter fixed-station operation.

TO COMMUNICATE WITH: Long-range, point-to-point stations.
INSTALLATION: Fixed station.
TYPE OF SIGNAL: Radiotelegraph or radioteletype writer.

PRINCIPAL COMPONENTS

Name	Dimensions (in.)	Weight (lb)
Radio Transmitter 'F-177/FR	77 x 33 x 36	1,717

WEIGHT AND VOLUME

Total weight (lb)	Unpacked 1,914	Domestic pack 3,326
Total volume (cu ft)		196.8
Ship tons		5 (approx)

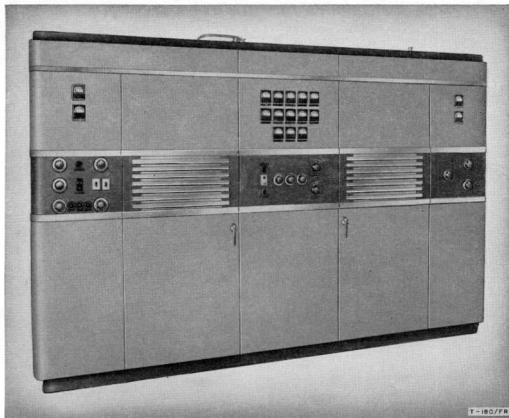


Figure 186. Radio Transmitter T-180/FR.

Status: Standard. Stock No.: 2C6898.

Radio Transmitter T-180/FR (RCA type ET-4750) is a crystal controlled transmitter designed for point-to-point and ground-to-air transmission. It has high-level, Class-B modulation and Class-C final.

TECHNICAL CHARACTERISTICS

FREQUENCY RANGE: 2 to 22 mc.
NUMBER OF CRYSTALS: 1.
TYPE MODULATION: Amplitude.
FREQUENCY CONTROL: Crystal.
POWER SOURCE: 220-v, 50- to 60-cyc, 3-phase ac.
POWER OUTPUT: 7.5 kw.
RANGE: Long.

GENERAL APPLICATION

USE: Point-to-point.
TO COMMUNICATE: Receivers within frequency range.
INSTALLATION: Fixed.
TYPE OF SIGNAL: Voice.

PRINCIPAL COMPONENTS

<i>Name</i>	<i>Dimensions (in.)</i>
Transmitter T-180/FR	122 x 90 x 49

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