

20 August 1962

Cog Service: USN FSN:

RADIO SET AN/GRC-13

Functional Class:

USA

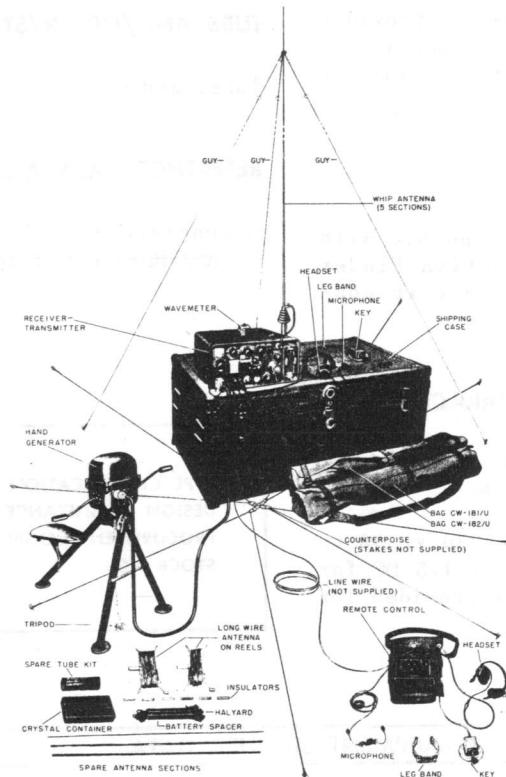
USN

USAF

TYPE CLASS: Used by

Used by

MANUFACTURER'S NAME/CODE NUMBER: RCA Victor Division, (79089).



Radio Set AN/GRC-13

#### FUNCTIONAL DESCRIPTION:

The Radio Set AN/GRC-13 is designed to provide complete facilities for two (2) way radio communications by Continuous Wave (CW) telegraphy (A1) and telephony (A3) on any one (1) of ten (10) preset frequencies in the 2 to 12 megacycle band. The complete equipment including operating accessories, hand-driven generator and operating spares, are packed in a single field case to facilitate transportation in field operations.

No field changes in effect at time of preparation (5 July 1962).

#### TECHNICAL CHARACTERISTICS:

TYPE OF EQUIPMENT: Radio.

EQUIPMENT PURPOSE: Communications.

TYPE OF FREQUENCY CONTROL: Crystal.

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**AN/GRC-13 RADIO SET**

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TYPE OF EMISSION: A1 (CW), A3 (phone).

TYPE OF CIRCUIT

RECEIVER: Superheterodyne.

TRANSMITTER: Crystal saver circuit.

NOMINAL POWER INPUT

RECEIVE: 135 W.

TRANSMIT: 200 W.

NOMINAL POWER OUTPUT

RECEIVER: 25 mw into 300 ohms non-inductive resistance.

TRANSMITTER: Hand generator A1-12 W; A3-45 W.

AUXILIARY POWER SUPPLY: A1-20 W; A3-6 W.

FREQUENCY RANGE

RECEIVE AND TRANSMIT: 2 to 12 mc.

NUMBER OF PRESET FREQUENCIES

RECEIVE AND TRANSMIT: 10.

NUMBER OF BANDS: 1 band.

INTERMEDIATE FREQUENCY: 1600 kc.

OUTPUT IMPEDANCE

RECEIVER HEADSET: 300 ohms.

TRANSMITTER ANTENNA: 3000 ohms.

INPUT IMPEDANCE

RECEIVER: 40 ohms at input to R.F. stage.

TRANSMITTER: 100 ohms (Microphone line).

RECEIVER SELECTIVITY: 6 db down at 7.5 kc off resonance.

AUDIO FREQUENCY RESPONSE

RECEIVE AND TRANSMIT: 400 to 3000 cycles.

AVC OPERATION

RECEIVER: Form 4 db between 50 to 50000 microvolts.

OPERATING POWER RQMT: 12 v dc, 24 v dc, 115 v ac.

**RELATION TO OTHER EQUIPMENT:**

The Radio Set AN/GRC-13 was formerly known as Navy Model MB0.

**EQUIPMENT REQUIRED BUT NOT SUPPLIED:** None.

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**MAJOR COMPONENTS**

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QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS.)
1	Radio Set AN/GRC-13		18 x 20-1/4 x 44-1/4	257
	consists of:			
1	Engine Generator Kit MX-1010/U		20 x 21-7/8 x 28-1/4	177
1	Power Supply Kit MX-1011/U		20-1/4 x 27-1/4 x 32-3/4	282
1	Installation Kit MX-1012/U		19-1/4 x 22-7/8 x 27-1/2	118

REFERENCE DATA AND LITERATURE:

NAVSHIPS 91235: Technical Manual for Radio Set AN/GRC-13.

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: (2) 114 (2) 1R5 (2) 1S5 (4) 1T4 (1) 2E22 (1) 3A4 (3) 3Q4 (1) 6AU6  
 (1) 5678 (1) 1006 (1) 6X5GT

CRYSTALS: (1) CR-5B/U (1) CR-18/U

SEMI-CONDUCTORS: (3) 1N47

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
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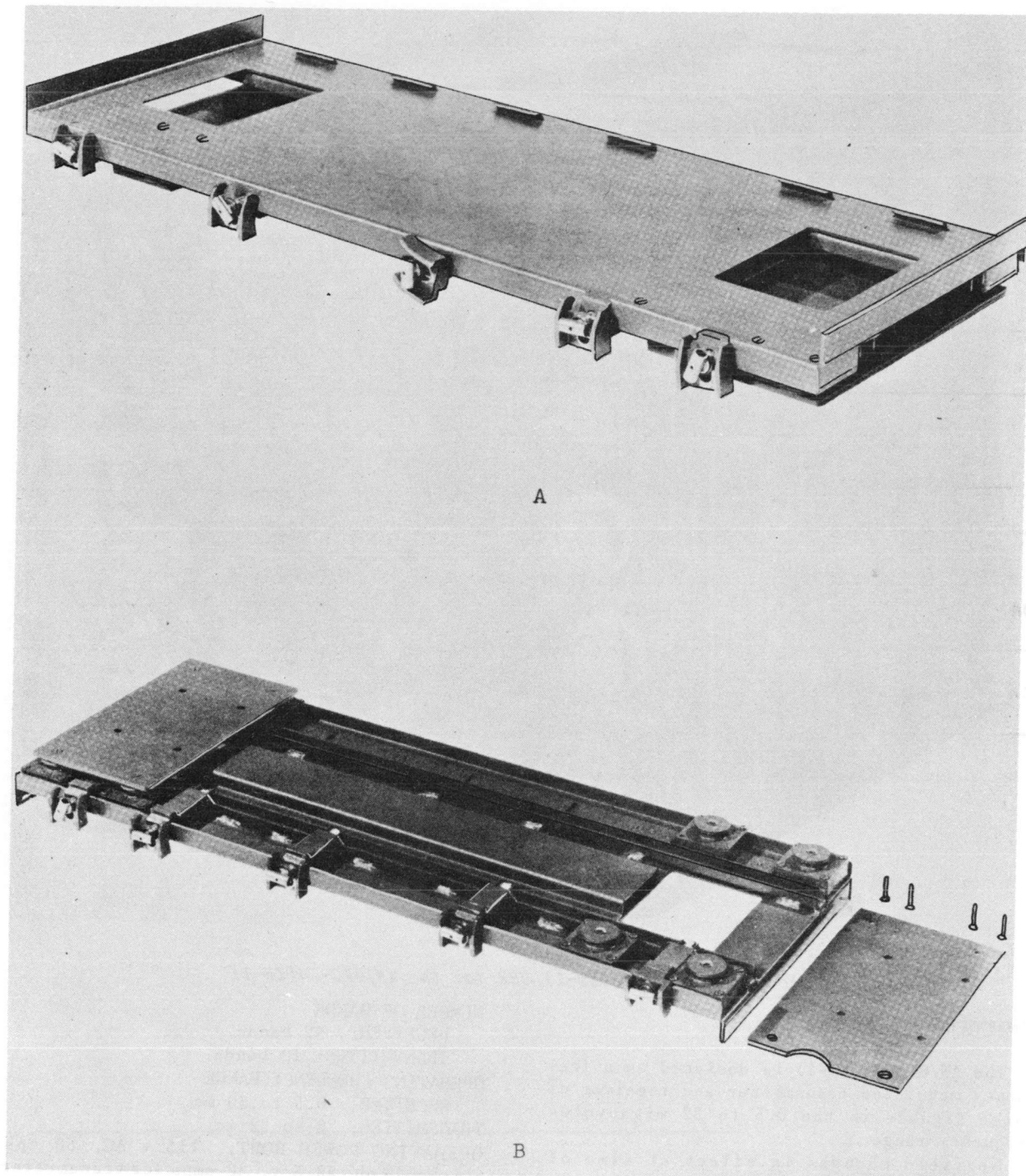
PROCUREMENT DATA

PROCURING SERVICE: USN  
 SPEC &/OR DWG:

DESIGN COG: USN, BuShips

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
RCA Victor Division	Camden, N. J.	N0bsr-42227, 27 February 1948	

**RADIO SET**



Mount MT-851(XN-1)/GRC-19; (A), Top View; (B), Bottom View

Radio-Transceivers  
**AN/GRC-14(XN-1)**

**RADIO SET**



*Radio Receiver R-392(XN-1)/URR for the AN/GRC-14(XN-1)*

**FUNCTIONAL DESCRIPTION**

The AN/GRC-14(XN-1) is designed as a frequency modulated transmitter and receiver of voice signals in the 0.5 to 32 megacycles frequency range.

No field changes in effect at time of preparation (2 February 1960).

**ELECTRICAL AND MECHANICAL CHARACTERISTICS**

TYPE OF EMISSION: A1, A3 emission.

**NUMBER OF BANDS**

RECEIVER: 32 bands.

TRANSMITTER: 10 bands.

**OPERATING FREQUENCY RANGE**

RECEIVER: 0.5 to 30 mc.

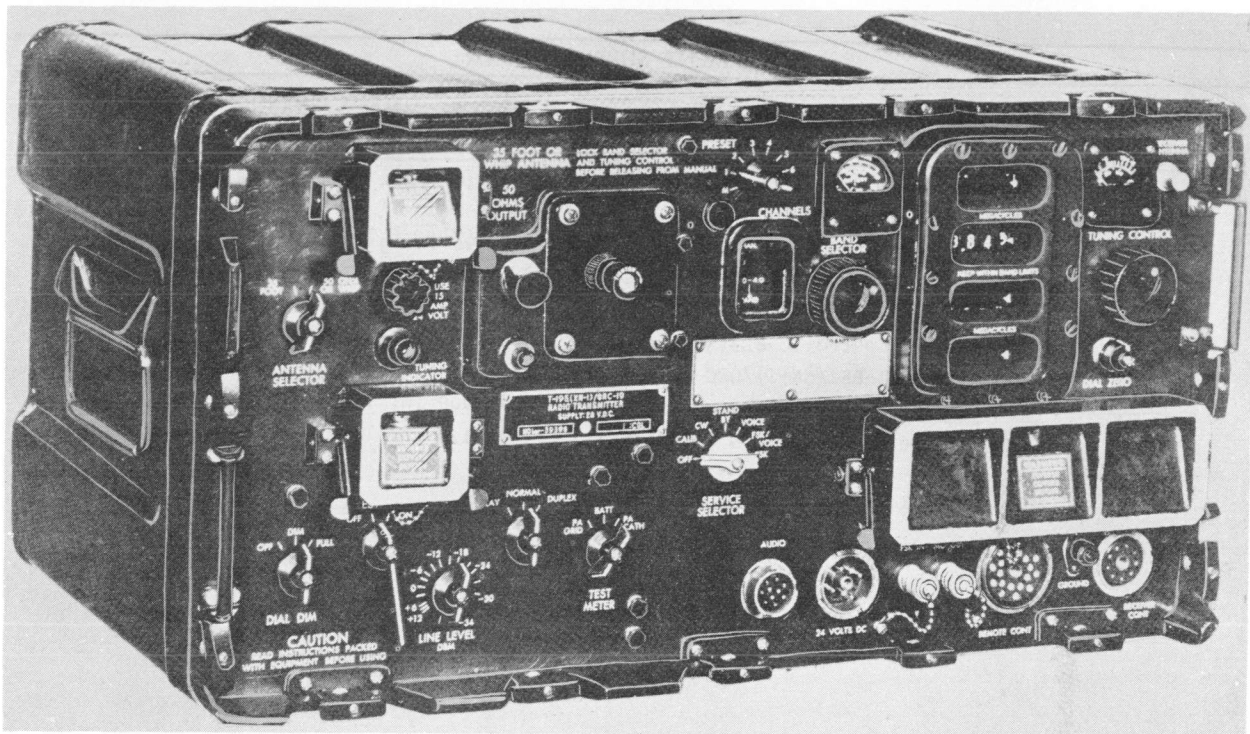
TRANSMITTER: 2 to 32 mc.

OPERATING POWER RQMT: 115 v AC, 60 cps,  
single ph, 28.5 v, 40 amps for transmitter.

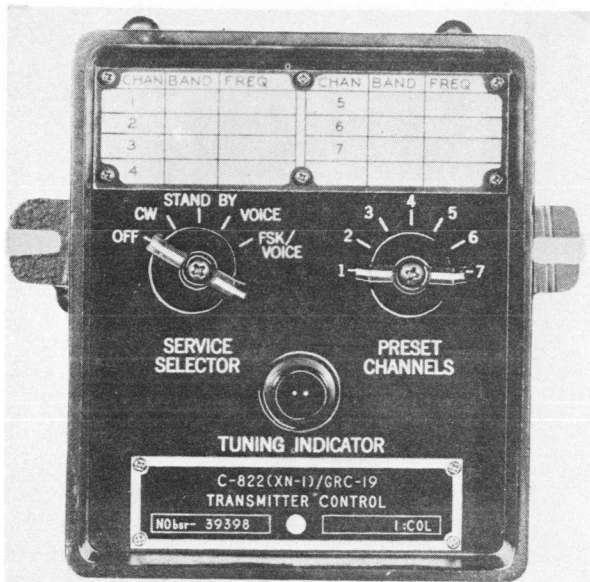
**MANUFACTURER'S OR CONTRACTOR'S DATA**

Collins Radio Co., Cedar Rapids, Iowa.

RADIO SET



Radio Transmitter T-195(XN-1)/GRC-19 for AN/GRC-14(XN-1)



Transmitter Control C-822(XN-1)/GRC-19  
for the AN/GRC-14(XN-1)

Contract NObsr-39398, dated 1 October 1953.  
Federal Telephone and Radio, Clifton,  
New Jersey.  
Contract NObsr-52538.

**TUBE AND/OR CRYSTAL COMPLEMENT**

Electron Tube and Crystal Data not available.

**REFERENCE DATA AND LITERATURE**

NAVSHIPS 92307: Technical Manual for Radio  
Set AN/GRC-14(XN-1).

TYPE CLASSIFICATION (NAVY)  
DESIGN COGNIZANCE USN, BUSHIPS  
PROCUREMENT COGNIZANCE SPEC: MIL-R-16327A  
STOCK NO. (SHIPS)  
R.D.B. IDENT. NO.

Radio-Transceivers

**AN/GRC-14(XN-1)**

**RADIO SET**

**EQUIPMENT SUPPLIED DATA**

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Radio Receiver R-392(XN-1)/URR Incl:	11-1/4 X 11-1/2 X 14-1/8	52-1/2
1	Mount MT-851(XN-1)/URR		
1	Power Cord Assembly CX-1597/U	96 in lg	
2	Technical Manual R-392(XN-1)/URR	1/4 X 8-1/2 X 11	
1	Radio Transmitter T-195(XN-1)/GRC-19 Incl:	11-1/2 X 14-1/8 X 22	120
1	Transmitter Control C-822(XN-1)/GRC-19	3-25/32 X 6-3/8 X 6-3/8	
1	Shockmount MT-851(XN-1)/GRC-19	23/32 X 12-7/16 X 22-3/8	15
1	Remote Cable (19 Conductors No. 20 AWG)	900 in. lg	
1	Power Cable (2 Conductors No. 8 AWG)	120 in. lg	

22 June 1962

Cog Service: USN FSN:

RADIO SET AN/GRC-15

Functional Class:

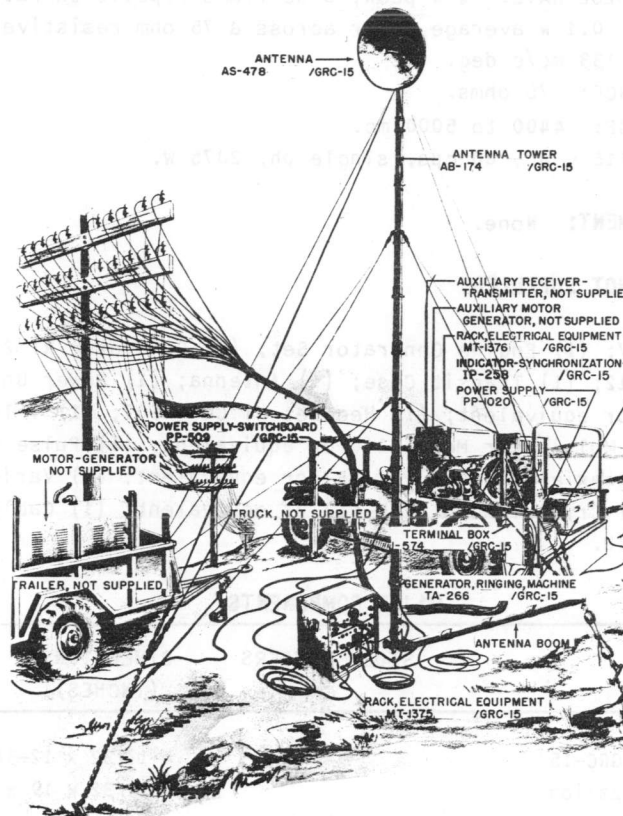
USA

USN

USAF

TYPE CLASS: Used by Used by

MANUFACTURER'S NAME/CODE NUMBER: Melpar Inc., (76394).



Radio Set AN/GRC-15

#### FUNCTIONAL DESCRIPTION:

The Radio Set AN/GRC-15 is a transportable multi-channel microwave communication system that operates in the 4400 to 5000 megacycle (MC) band. This equipment may be used under extreme climatic conditions and is capable of satisfactory operation when mounted on a 3/4-ton truck and trailer or in a suitable ground installation. Twenty-three two-way communication channels are provided for use with standard military facsimile, telegraph, teletype, or telephone line terminal equipment. It has an effective transmission range of 50 miles, depending upon topographical features and the height of the antenna. If long range communication (over 50 miles) is needed, up to ten equipments may be used as consecutive stations in a repeater station network. The repeater stations are used without demodulating or remodulating the signals.

No field changes in effect at time of preparation (16 January 1962).



## AN/GRC-15 RADIO SET

### TECHNICAL CHARACTERISTICS:

TYPE OF INSTALLATION: Transportable.  
TYPE OF EMISSION: P3F, P4F and P9F.  
TYPE OF FREQUENCY CONTROL: Automatic-receiving, thermostatic-transmission.  
TYPE OF RECEIVER: Superheterodyne.  
PEAK POWER OUTPUT AND PULSE RATE: 1 W peak; 8 kc frame repetition rate.  
NOMINAL CARRIER OUTPUT: 0.1 W average power across a 75 ohm resistive load.  
FREQUENCY STABILITY: 0.133 mc/c deg.  
OUTPUT AND INPUT IMPEDANCE: 75 ohms.  
OPERATING FREQUENCY RANGE: 4400 to 5000 mc.  
OPERATING POWER RQMT: 115 v ac, 60 cps, single ph, 2875 W.

RELATION TO OTHER EQUIPMENT: None.

### EQUIPMENT REQUIRED BUT NOT SUPPLIED:

(1) 3/4-Ton Truck M37; (1) Engine Generator Set; (1) Dynamotor NT 211330B; (1) Radio Receiver-Transmitter TCA-12; (1) Transit Case; (1) Antenna; (1) Power Unit PE-197; (1) Trailer; (1) Telephone Set EE-8 or equivalent; (1) Headset NT CW-49507; (1) Teleprinter TG-7B or equivalent; (1) Simpson Multimeter Model 260 or equivalent; (1) Pulse Generator H.P. Model 212A; (1) Waveguide to Coaxial Adapter PRD-357 or equivalent; (1) Variable Attenuator PRD 170-A or equivalent; (1) Crystal Mount PRD-612 or equivalent; (1) Cable RG-11/U; (1) Cable RG-5/U; (1) Cable RG-21/U.

### MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Terminal Box J-574/GRC-15		4-17/32 x 12-3/16 x 22-11/16	18
1	Indicator-Synchronization IP-258/GRC-15		8-23/32 x 19 x 19-11/16	62
1	Power Supply PP-1022/GRC-15		8-23/32 x 18-5/16 x 19	67-1/2
1	Power Supply PP-1021/GRC-15		8-23/32 x 18-5/16 x 19	90-1/2
1	Multiplexer TD-99/GRC-15		6-7/8 x 19 x 19-5/16	31
1	Power Supply PP-1020/GRC-15		8-11/16 x 19 x 19-5/16	75
1	Receiver-Transmitter RT-185/GRC-15		8-23/32 x 19 x 20	63
4	Voice Frequency Line Unit TT-68/U		2 x 9-3/4 x 19-11/32	5-1/4
24	Voice Frequency Hybrid TA-165/U		2 x 9-3/4 x 19-11/32	8
1	Power Supply Switchboard PP-509/GRC-15		8-5/16 x 9-15/16 x 12-1/4	13
1	Generator, Ringing Machine TA-266/GRC-15		12-7/32 x 19 x 22-1/32	194
1	Antenna Tower AB-174/GRC-15		6-13/16 dia x 612 lg	589
1	Antenna AS-478/GRC-15		27-3/8 x 48 x 53	80
1	Antenna Mounting Plate		10-9/16 x 17-7/8 x 18-3/16	32
1	Set of Equipment Spares		8-1/2 x 10 x 20-1/8	15
1	Extension Rack		2 x 9-3/4 x 33-7/16	3

**RADIO SET AN/GRC-15**

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Calibration Chart			
1	Set of Special Tools			
1	Electrical Equipment Rack MT-1376/GRC-15		18-3/32 x 19 x 47-7/32	78
1	Electrical Equipment Rack MT-1375/GRC-15		18-25/32 x 19-3/8 x 30-7/16	51
1	Electrical Equipment Cabinet Case CY-1531/GRC-15		22-7/8 x 23-5/16 x 25-1/2	68
1	Electrical Equipment Cabinet Case CY-1530/GRC-15		14-1/16 x 21-7/16 x 22-9/32	33
1	Electrical Equipment Cabinet Case CY-1528/GRC-15		23-19/32 x 22-15/16 x 52-5/32	128
1	Electrical Equipment Cabinet Case CY-1529/GRC-15		23-5/16 x 25-1/2 x 35-9/16	103
1	Hybrid Network & Line Unit CY-1576/CRC-15		12-3/4 x 12-7/8 x 22	28-3/4

**REFERENCE DATA AND LITERATURE:**

NAVSHIPS 92437: Technical Manual for Radio Set AN/GRC-15.

**TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:**

TUBES: (7) 0A2 (3) 0B2 (1) 2K22 (1) 2K54 (1) 2K55 (2) 3B24W (1) 3JP1 (1) 6AG5  
 (2) 4X150A (6) 5R4WGY (2) 6AG7 (7) 6AH6 (1) 6AN5 (36) 5814 (2) 6AS7G  
 (6) 6AU6 (2) 6C4 (3) 6X4W (135) 12AT7 (2) 5651 (5) 5654 (24) 5670  
 (25) 5687 (5) 5725 (3) 5726 (2) 5751

CRYSTALS: None used.

SEMI-CONDUCTORS: (1) 1N23

**SHIPPING DATA**

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1	14.9	425
1	25.9	565
1	5.41	110
1	11.6	300
1	17.6	111
1	80.0	212
1	16.6	195
1	7.61	162
1	19.5	187
1	18.7	233

AN/GRC-15 RADIO SET

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1	18.7	233
1	4.11	65
1	6.37	157

PROCUREMENT DATA

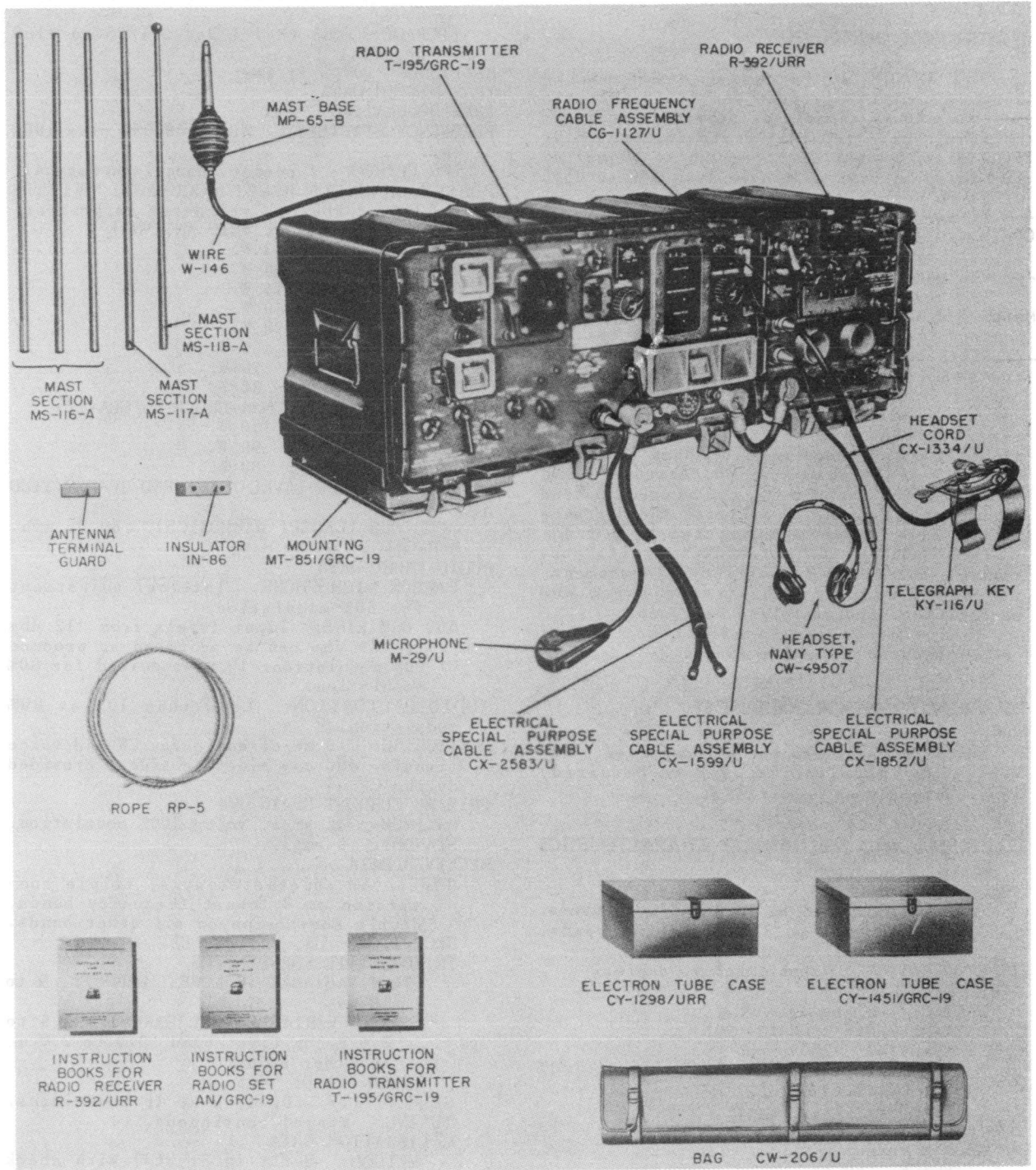
PROCURING SERVICE: USN  
SPEC &/OR DWG: CS-600 Modified

DESIGN COG: USN, BuShips

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Melpar Incorporated	Alexandria, Virginia	N0bsr-39174, 7 July 1949	

# RADIO SET

# AN/GRC-19



Radio Set AN/GRC-19

August 1957

Radio-Transceivers

**AN/GRC-19****RADIO SET****FUNCTIONAL DESCRIPTION**

The AN/GRC-19 is designed for mobile service, but can be used for fixed-portable service and is capable of providing communications over a moderate distance, providing transmission over distances up to 50 miles. Transmission over distances from 150 to 1500 miles is possible over sky-wave paths.

It is used for transmitting and receiving voice, radiotelegraph, and radioteletype signals with voice and radioteletype service at the same time possible.

The transmitter may be remotely controlled from a distance up to 75 feet by Transmitter Control C-822/GRC-19 (not supplied), but the receiver has no preset channels and cannot be controlled from the remote-control unit. Normal operation is used with only one antenna, while duplex or relay operation is possible when two antennas are installed properly at the operating site. When installed as a fixed-portable station, Antenna Group AN/GRA-12 (not supplied), can be used instead of the whip antenna to increase the distance range. When properly connected to a frequency-shift keyer, a frequency-shift converter, and other radioteletype equipment, it can be used for the transmission and reception of radioteletype messages.

No field changes in effect at time of preparation (29 November 1956).

**RELATION TO OTHER EQUIPMENT**

Equipment Required but not Supplied: (1) Vehicular Installation Unit as Required, Test Equipment as Required.

**ELECTRICAL AND MECHANICAL CHARACTERISTICS****FREQUENCY RANGE**

TRANSMITTER: 1.5 to 20.0 mc in 10 bands.

RECEIVER: 0.5 to 32.0 mc in 32 bands.

TYPE SERVICE: A1, A3, F1.

TYPE OPERATION: Normal, relay, duplex.

**POWER REQUIREMENTS**

VOLTAGE: 22 to 30 v DC.

PRIMARY CURRENT DRAIN (MAX)

STARTING: 250 amps.

OPERATING: 45 amps for voice, 100% modulation.

STANDBY: 11.9 amps.

**DISTANCE RANGE****GROUND WAVE**

VOICE: 50 mi.

CW: 75 mi.

SKY WAVE: 150 to 1500 mi depending on conditions.

**TEMPERATURE RANGE**

OPERATING: -40 to +65 deg C (-40 to +149 deg F).

STORAGE: -65 to +71 deg C (-85 to +160 deg F).

ALTITUDE: 10000 ft max.

**TRANSMITTER DATA**

TYPE MODULATION: AM.

FREQUENCY STABILITY: Within 0.03% plus 1000 cps.

TUNING METHOD: 7 preset channels and manual.

PRESET CHANNELS RESET ACCURACY: Within 0.005% or 500 cps whichever is greater.

**RADIATED POWER (15 ft WHIP ANTENNA)**

1.5 to 2.0 MC: 13 W.

2.0 to 3.0 MC: 28 W.

3.0 to 4.0 MC: 45 W.

4.0 to 5.0 MC: 60 W.

5.0 to 6.0 MC: 90 W.

6.0 to 12.0 MC: 100 W.

12.0 to 16.0 MC: 90 W.

16.0 to 20.0 MC: 80 W.

**RADIATED POWER (ANTENNA GROUP AN/GRA-12)**

1.5 to 12.0 MC: 100 W.

12.0 to 16.0 MC: 90 W.

16.0 to 20.0 MC: 80 W.

**RADIATION (BELOW LEVEL OF DESIRED TRANSMITTED SIGNAL)**

SPURIOUS (EXCEPT HARMONICS): 60 db min.

HARMONIC: 40 db min.

**AUDIO INPUT DATA**

CARBON MICROPHONE: Internal adjustment for 80% modulation.

600 OHM LINE: Input levels from +12 dbm to -34 dbm can be adjusted to produce 80% modulation. 12 mv required for 80% modulation.

AUDIO DISTORTION: Less than 10% at 80% modulation.

MONITORING: 10 mw of audio for CW and voice signals. 400 cps sidetone signal provided during CW.

**PRIMARY CURRENT DRAIN**

MAXIMUM: 42 amps, voice 100% modulation.

STANDBY: 9 amps.

**RECEIVER DATA**

TYPE: AM superheterodyne, triple conversion on 8 lowest frequency bands, double conversion on all other bands.

RECEPTION: A1, A2, A3, F1.

**INTERMEDIATE FREQUENCIES**

FIRST VARIABLE (8 LOWEST BANDS): 9 to 18 mc.

SECOND VARIABLE (ALL BANDS): 2.5 to 2.0 mc on first band, 3.0 to 2.0 mc on other bands.

THIRD FIXED: 455 kc.

SELECTIVITY: 8, 4, 2 kc IF bandwidths.

TUNING: Manual continuous.

**CALIBRATION DATA**

METHOD: Built-in crystal with check points every 100 kc.

ACCURACY: Within 300 cps when calibrated at nearest 100 kc check point.

**SENSITIVITY**

MODULATED SIGNALS: 5 uv or better for

**RADIO SET**

10 mw output with signal-plus-noise to noise ratio of 10 to 1.  
 CW SIGNALS: 2 uv or better for 10 mw output with signal-plus-noise to noise ratio of 10 to 1.  
 AUDIO POWER OUTPUT: 200 mw at 500 ohm impedance.  
 PRIMARY CURRENT DRAIN (MAX) OPERATING: 3.0 amps.  
 STANDBY: 2.9 amps.

(3) 6005/6A05W (3) 5751  
 (2) 12AT7 (1) 5726/6AL5W  
 (1) 5814 (1) OA2  
 (2) 5749/6BA6W  
 Total Tubes: (44)  
 (4) 1N67 (2) CK-705  
 (23) CR-18/U (1) CR-47/U  
 Total Crystals: (30)

**MANUFACTURER'S OR CONTRACTOR'S DATA**

Collins Radio Company, Cedar Rapids, Ia.

**REFERENCE DATA AND LITERATURE**

TM11-274: Technical Manual for Radio Set AN/GRC-19.

**TUBE AND/OR CRYSTAL COMPLEMENT**

(11) 26A6 (2) 26C6  
 (4) 6AJ5 (4) 12AU7  
 (1) 26A7 (1) 26D6  
 (1) 6AU6WA (2) 6AK6  
 (2) 5763 (3) 4X150D

TYPE CLASSIFICATION  
 DESIGN COGNIZANCE TASSA  
 PROCUREMENT COGNIZANCE  
 STOCK NO.

**SHIPPING DATA**

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Radio Transmitter T-195/GRC-19 including: Technical Manual for T-195/GRC-19 Technical Manual for AN/GRC-19 Electron Tube Case CY-1451/GRC-19 Set of Spares for T-195/GRC-19 Cable Assembly CX-1599/U Cable Assembly CG-1127/U Cable Assembly CX-2583/U Antenna Terminal Guard	5.2	14 X 17-1/2 X 29-11/16	160
1	Radio Receiver R-392/URR including: Technical Manual for R-392/URR Electron Tube Case CY-1298/URR Set of Spares for R-392/URR	2.4	14 X 17-1/2 X 18-15/16	80
1	Mast Base, MP-65-B including: (5) Mast Section MS-116-A (2) Mast Section MS-117-A (2) Mast Section MS-118-A (2) Microphone M-29/U (1) Telegraph Key KY-116/U (2) Headset NT-49507 (2) Insulator IN-86 (1) Rope RP-5 (2) Headset Cord CX-1334/U (2) Cable Assembly CX-1852/U (1) Bag CW-206/U (1) Technical Manual for AN/GRC-19 (1) Technical Manual for T-195/GRC-19 (1) Technical Manual for R-392/URR	23.2	8-5/8 X 11-1/8 X 43-1/8	50
1	Mounting MT-851/GRC-19 including: Wire W-146	0.9	4 X 16 X 36	61

August 1957

Radio-Transceivers

## AN/GRC-19

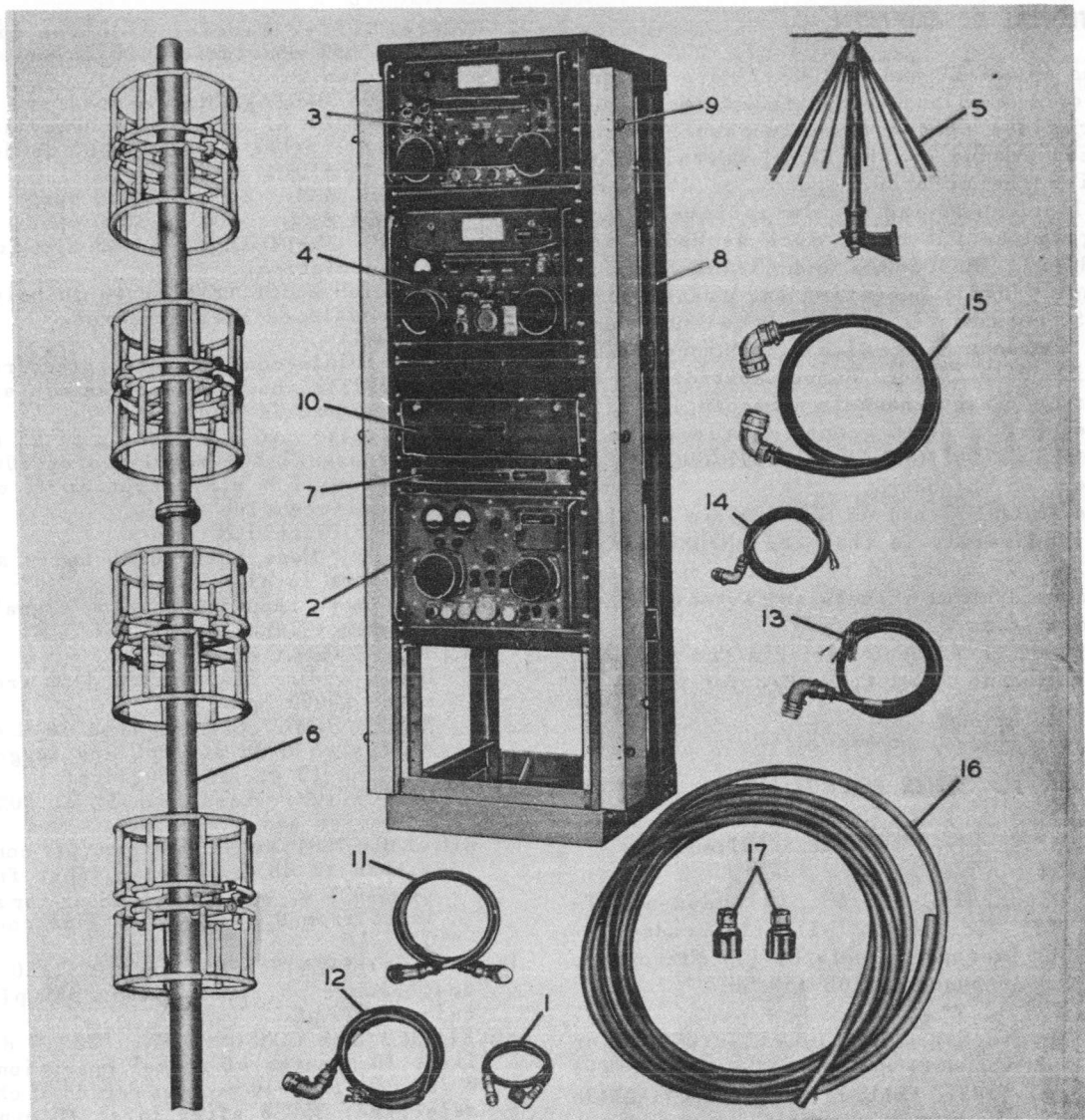
## RADIO SET

## EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Radio Transmitter T-195/GRC-19	11-1/2 X 14-1/8 X 22	125
1	Radio Receiver R-392/URR	11-1/4 X 11-1/2 X 14-3/16	52.25
1	Mounting MT-851/GRC-19	1-11/16 X 14-9/32 X 33-7/8	45
1	Cable Assembly CX-1599/U	9 lg	0.94
1	Cable Assembly CG-1127/U	10 lg	0.37
2	Cable Assembly CX-1852/U	78 lg	0.31
1	Cable Assembly CX-2583/U	120 lg	2.5
5	Mast Section MS-116-A	39-1/2 lg	0.25
2	Mast Section MS-117-A	39-1/2 lg	0.13
2	Mast Section MS-118-A	39-1/2 lg	0.06
1	Mast Base MP-65-B	3-1/4 X 3-1/4 X 17-1/2	2.5
2	Microphone M-29/U	1-5/8 X 4-1/2 X 8-1/2	0.88
1	Telegraph Key KY-116/U	2 X 4-1/4 X 5-1/2	1
2	Headset NT-49507	5 X 6-1/4 X 7-1/4	0.69
2	Headset Cord CX-1334/U	39 lg	0.25
2	Insulator IN-86	1-1/2 X 2 X 4-1/2	0.19
1	Rope RP-5	300 lg	0.38
1	Wire W-146	60 lg	0.31
1	Antenna Terminal Guard	1-1/8 X 1-1/4 X 1-5/8	0.05
1	Bag CW-206/U	3 X 5 X 40	3.5
1	Electron Tube Case CY-1451/GRC-19	3-1/16 X 4 X 10-1/8	2
1	Electron Tube Case CY-1298/URR	3-1/16 X 4 X 10-1/8	2
1	Set of Spares for T-195/GRC-19		3.25
1	Set of Spares for R-392/URR		2.5
2	Technical Manual for T-195/GRC-19	1/2 X 8-1/2 X 11	1
2	Technical Manual for R-392/URR	1/2 X 8-1/2 X 11	1
2	Technical Manual for AN/GRC-19	1/2 X 8-1/2 X 11	1

Apr 11 1958

## RADIO SET

Radio-Transceivers  
AN/GRC-27, -27A

Radio Set AN/GRC-27, -27A

## Index No.

- 1 Cable CG-707/U
- 2 Modulator-Power Supply MD-129/GR
- 3 Radio Receiver R-278/GR
- 4 Radio Transmitter T-217/GR
- 5 Antenna AT-197/GR
- 6 Antenna AS-505/GR
- 7 Desk Shelf MX-1058/U
- 8 Rack MT-686/GR

## Index No.

- 9 Electrical Conduit MX-1174/U
- 10 Distribution Panel J-390/GR
- 11 Cable CG-693/U
- 12 Cable CX-1539/U
- 13 Cable CX-1540/U
- 14 Cable CX-1541/U
- 15 Cable CX-1564/U
- 16 Cable RG-17/U
- 17 Connector UG-495/U



**AN/GRC-27, -27A****RADIO SET**

April 1958

**FUNCTIONAL DESCRIPTION**

The AN/GRC-27 and AN/GRC-27A are designed to provide amplitude-modulated radiotelephone and radiotelegraph two-way communication between ground or shipboard installations to airborne or other ground or shipboard installations having similar radio sets operating in the UHF band, such as Radio Sets AN/ARC-19, AN/ARC-27, and AN/ARC-33.

They provide reception and transmission on 1750 channels in the 225.0 to 399.9 megacycle frequency range with each channel spaced 100 kilocycles apart. Remote control for any one of 10 preset channels is accomplished by control C-806/GR at ground stations, or by controls C-1180/GRC-27, C-1897/GRC-27, or NT-23496 on shipboard.

The AN/GRC-27 and AN/GRC-27A are similar, differing mainly in that the AN/GRC-27A is an AN/GRC-27 modified to permit continuous-duty aboard naval vessels and at naval Training activities.

Data on this sheet reflects the following field changes: FC-1 thru FC-8 for AN/GRC-27 (29 November 1957).

**RELATION TO OTHER EQUIPMENT**

Equipment Required but not Supplied:  
AN/GRC-27

(1) Control C-806/GR, (1) Headset NT-49507, (1) Microphone T-17, (1) Headset H-23/U, (1) Microphone M-19/U, (1) Microphone T-32, (1) Antenna Mast AB-158/GR.

AN/GRC-27A

(1) Radio Set Control C-1180/GRC-27 or C-1897/GRC-27, (1) Headset NT-49985-A, (1) Headset NT-51081, Control Indicator NT-23496 as Required.

**ELECTRICAL AND MECHANICAL CHARACTERISTICS**

FREQUENCY RANGE: 225.0 to 399.9 mc.

CHANNELS: 1750, spaced at 100 kc.

PRE-SET CHANNELS: 10.

EMISSION AND RECEPTION: A2, A3.

FREQUENCY CONTROL: Crystal.

POWER OUTPUT

TRANSMITTER: 100 W.

RECEIVER: 3 W into 600 ohm load.

FREQUENCY STABILITY:  $\pm 10$  kc.

TRANSMITTER DATA

DISTORTION: Less than 12% measured thru

rectified carrier sidetone circuit with 95% modulation, 20 db audio compression.

SPURIOUS RADIATION: Second and third harmonics of output frequency down 40 db, all other harmonics 60 db down.

AUDIO BANDWIDTH

BROAD BAND: 200 to 20000 cps.

NARROW BAND: 400 to 3000 cps.

AUDIO INPUT LEVEL: -45 dbm for 95% modulation.

CARRIER NOISE LEVEL: 40 db below 95% modulated carrier level.

RECEIVER DATA

TYPE: Triple-conversion superheterodyne.

SELECTIVITY: Bandwidth 85 kc min at 6 db. 225 kc max at 60 db.

SENSITIVITY: At max setting of RF gain a 6 uv signal 30% modulated at 1000 cps produces 1 W min output at 10 db min signal-to-noise ratio.

FREQUENCY REJECTION

IMAGE: More than 60 db below signal input level.

IF: More than 80 db below signal frequency input level.

AUDIO FREQUENCY RESPONSE

BROAD BAND: Flat within 4 db from 200 to 20000 cps.

NARROW BAND: Greater than 10 db at 200 cps to 0 db at 1000 cps to greater than 10 db at 50000 cps.

DISTORTION: Less than 5% at 30% modulation and 3 W output.

AVC CHARACTERISTICS: Audio output constant within  $\pm 2$  db for signal input from 10 uv to 0.1 v, and within  $\pm 6$  db for signal input from 0.1 v to 2 v. Time constant 0.1 sec.

POWER REQUIREMENTS: 115 or 230 v, 50 to 60 cps, single ph, transmitter 88% pf, receiver 95% pf.

RECEIVER POWER CONSUMPTION: 385 W during first 10 minutes of normal operation; 470 W during first 10 minutes period of channel selection, 350 W after first 10 minutes.

ANTENNA DATA

TYPE

AT-197/GR: Omni-directional discone.

AS-505/GR: 4-bay stacked vertical array consisting of 4 squirrel-cage antennas.

INPUT IMPEDANCE: 52 ohms.

**MANUFACTURER'S OR CONTRACTOR'S DATA**

Collins Radio Company, Cedar Rapids, Iowa.  
Contract AF33(038)-19516, dated 15 December 1953 (AN/GRC-27).

Contract NObsr-64809, dated 15 June 1955 (AN/GRC-27A).

John R. Hollingsworth, Phoenixville, Pa.  
Contract NObsr-64728, dated 29 April 1955 (AN/GRC-27A).

April 1958

## RADIO SET

AN/GRC-27, -27A

## TUBE AND/OR CRYSTAL COMPLEMENT

AN/GRC-27

(5) 12AT7WA	(5) 12AU7
(4) 12AY7	(2) 12AY7
(3) 2C39A	(3) 3B22
(4) 3B28	(2) 4-65A
(2) 4X150A	(11) 5654/6AK5W
(5) 5726/6AL5W	(3) 5749/6BA6W
(2) 6AU6WA	(2) 6C4WA
(10) 6J4WA	(2) 6X4WA
(8) 6005/6AQ5W	(1) 6626/OA2WA

Total Tubes: (74)

(2) 1N21B	(20) CR-18/U
(20) CR-23/U	(18) CR-32/U

Total Crystals: (60)

AN/GRC-27A

(5) 12AT7WA	(7) 12AU7
(5) 12AX7	(1) 12AY7
(3) 2C39A	(3) 3B22
(4) 3B28	(2) 4-65A
(2) 4X150A	(11) 5654/6AK5W
(4) 5726/6AL5W	(3) 5749/6BA6W
(1) 6AU6WA	(2) 6C4WA
(10) 6J4WA	(1) 6X4WA
(6) 6005/6AQ5W	(1) 6626/OA2WA

Total Tubes: (71)

(2) 1N23B	(20) CR-18/U
(20) CR-23/U	(18) CR-32/U

Total Crystals: (60)

## REFERENCE DATA AND LITERATURE

T.O. 16-30GRC27-1: Technical Manual for Radio Set AN/GRC-27.  
 NAVSHIPS 92383.31: Technical Manual for Radio Set AN/GRC-27A.

TYPE CLASSIFICATION  
 DESIGN COGNIZANCE BUSHIPS  
 PROCUREMENT COGNIZANCE  
 STOCK NO.

## SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Radio Transmitter T-217/GR or T-217A/GR	11.4	21-1/2 X 29 X 31-1/4	191
1	Radio Receiver R-278/GR or R-278B/GR	11.4	21-1/2 X 29 X 31-1/4	191
1	Modulator-Power Supply MD-129/GR or MD-129A/GR	6.1	22-1/4 X 24 X 25-1/2	200
1	Rack MT-1589/GRC-27A	8.9	10 X 23-3/4 X 67-1/4	206
1	Power Amplifier (Spare)	11.9	22 X 22 X 36	110
1	Frequency-Multiplier Amplifier (Spare)	2.0	13-1/2 X 13-1/2 X 15	32
1	IF and Oscillator (Spare)	2.8	13-1/2 X 13-1/2 X 21	24
1	Equipment Spares for Receiver	5.8	17-1/2 X 22-1/2 X 25	65
1	Equipment Spares for Modulator	1.9	9 X 19-1/2 X 20	70

## AN/GRC-27, -27A

## RADIO SET

April 1958

## EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT		NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
AN/GRC-27	27A			
1		Radio Transmitter T-217/GR or	12-1/4 X 19 X 20	130.0
	1	T-217A/GR		
1		Modulator-Power Supply MD-129/GR or	12-1/4 X 19 X 20	140.0
	1	MD-129A/GR		
1		Radio Receiver R-278/GR or	12-1/4 X 19 X 20	115.0
	1	R-278B/GR		
1	1	Distribution Panel J-390/GR	3-1/4 X 5-1/4 X 19	5.5
1	1	Antenna AT-197/GR	18-3/4 dia X 26	7.0
1	1	Antenna AS-505/GR	18 X 26-1/4 X 152-1/4	50.5
1		Rack MT-686/GR or	21-3/8 X 22-5/8 X 72-1/2	96.0
	1	MT-1589/GRC-27A	21 X 25-3/4 X 63	113.0
1		Desk Shelf MX-1058/U	3-1/2 X 19 X 20-3/8	11.3
2	2	Electrical Conduit MX-1174/U	2-3/8 X 5-3/8 X 66-1/4	10.0
2	2	Power Cable Assembly CX-1541/U	60 lg	1.0
1	1	Special Purpose Cable Assembly CX-1540/U	66 lg	2.6
1	1	Special Purpose Cable Assembly CX-1564/U	72 lg	2.9
1	1	HV Cable Assembly CG-693/U	66 lg	1.4
2	2	RF Cable Assembly CG-707/U	24 lg	0.6
1	1	Special Purpose Cable Assembly CX-1539/U	72 lg	2.7
1	1	Coaxial Cable RG-17/U		
	1	RF Cable CG-690/U	72 lg	1.4
2	2	RF Connector UG-495/U		0.6

April 1958

## RADIO SET

AN/GRC-29

## FUNCTIONAL DESCRIPTION

The AN/GRC-29 is a UHF ground radio set designed to communicate primarily with aircraft equipped with Radio Set AN/ARC-19( ) and Radio Set AN/ARC-33( ) to give complete coverage of all line of sight ranges to be experienced in aircraft operation. Designed for installation and operation in temporary field and standard mobile shelters for control of aircraft.

No field changes in effect at time of preparation (20 June 1958).

## RELATION TO OTHER EQUIPMENT

The AN/GRC-29 is to be used with but is not apart of the AN/ARC-19( ) and the AN/ARC-33( ).

## ELECTRICAL AND MECHANICAL CHARACTERISTICS

TYPE OF EMISSION: A2, A3 type.  
 NUMBER OF CHANNELS: 1750 channels.  
 SPACING OF CHANNELS: 100 kc apart.  
 POWER OUTPUT: 100 W.  
 OPERATING FREQUENCY RANGE: 225 to 399.9 mc.  
 OPERATING POWER RQMT: 115 or 230 v, 50 to 60 cps, single ph.

## MANUFACTURER'S OR CONTRACTOR'S DATA

Collins Radio Corp., Cedar Rapids, Iowa.

## TUBE AND/OR CRYSTAL COMPLEMENT

(1) 0A2WA (5) 12AT7WA (8) 12AU7  
 (5) 12AX7 (1) 12AY7 (3) 2C39A  
 (3) 3B22 (4) 3B28 (2) 4-65A  
 (2) 4X150A (11) 5654-6AK5W (5) 5726-6AL5W  
 (1) 6AU6WA (3) 5749-6BA6W (2) 6C4WA  
 (10) 6J4WA (2) 6X4WA (6) 6005-6AQ5W  
 Total Tubes: (74)  
 (2) 1N23B  
 Total Crystals: (2)

## REFERENCE DATA AND LITERATURE

T.O. No. 16-30GRC29-4 Technical Manual for Radio Set.  
 Nomenclature Card for AN/GRC-29 Radio Set.

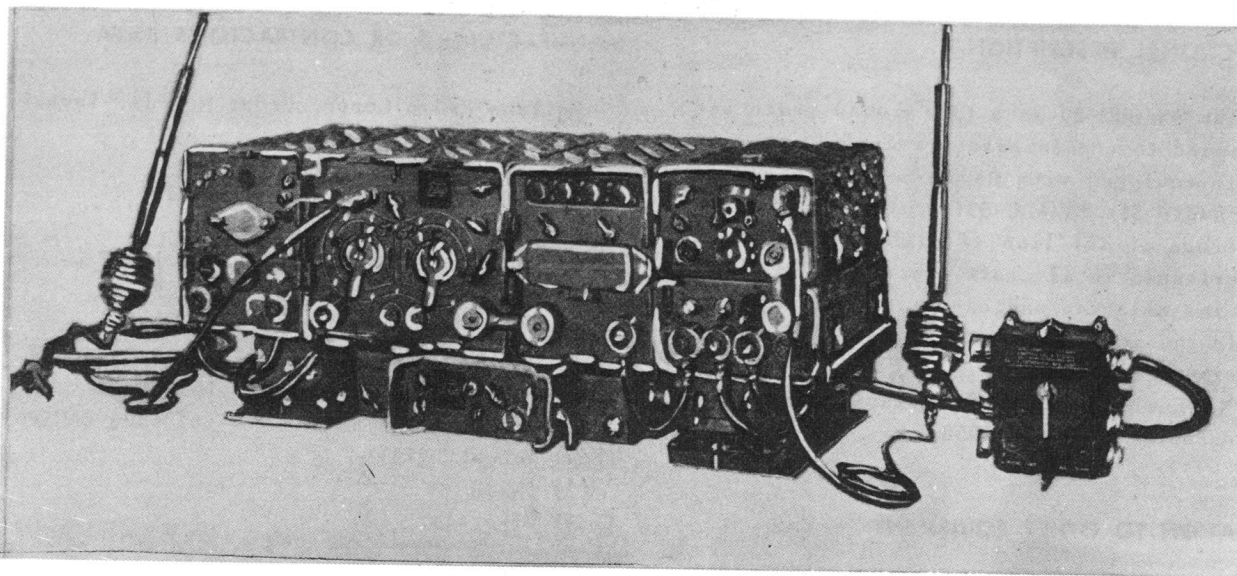
TYPE CLASSIFICATION  
 DESIGN COGNIZANCE USAF  
 PROCUREMENT COGNIZANCE WLENG-210A  
 STOCK NO.

## EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Radio Set AN/GRC-29 Including: (1) Transmitter Group OA-104/GR (1) Radio Receiver R-278/GR (1) Radio Control Set C-565/GR (1) Radio Control Set C-566/GR (1) Antenna AT-197/GR (1) Antenna AS-450/GR (1) Terminal Box J-306/GR (1) Mast AB-158/GR (1) Radio Receiver R-279/GR		

April 1958

## RADIO SET

Radio-Transceivers  
AN/GRC-3 thru -8

Radio Set AN/GRC-3 thru 8

## FUNCTIONAL DESCRIPTION

The AN/GRC-3 thru -8 are short-range FM radio-telephone transceivers for use within and between armored, artillery, and infantry units. They may be installed in trucks, personnel carriers, tanks, armored utility vehicles, weapons carriers and other authorized vehicles. Specifically, AN/GRC-3 and -4 are for armored use, AN/GRC-5 and -6 are for artillery and AN/GRC-7 and -8 for use by foot troops.

The AN/GRC-3 and -4 are the same except that the AN/GRC-3 used an auxiliary receiver; the AN/GRC-5 and -6 are similar except for the auxiliary receiver employed by the AN/GRC-5; and the AN/GRC-6 and -7 are the same except for the auxiliary receiver with the AN/GRC-7.

No field changes in effect at time of preparation (27 November 1957).

## RELATION TO OTHER EQUIPMENT

Equipment Required but not Supplied: In addition to the basic unit supplied, an installation unit is required varying with the type vehicle for which the radio set is intended. Also (4) 1.5 v BA-30 batt and (1) 45 v BA-414/U batt for use w/control group AN/GRA-6.

## ELECTRICAL AND MECHANICAL CHARACTERISTICS

## GENERAL

## RANGE

DISTANCE: 10 mi.

## FREQ SET 1

AN/GRC-3: 20 to 27.9 mc.  
AN/GRC-4: 20 to 27.9 mc.  
AN/GRC-5: 27 to 38.9 mc.  
AN/GRC-6: 27 to 38.9 mc.  
AN/GRC-7: 38 to 54.9 mc.  
AN/GRC-8: 38 to 54.9 mc.

## FREQ SET 2

AN/GRC-3: 47 to 58.4 mc.  
AN/GRC-4: 47 to 58.4 mc.  
AN/GRC-5: 47 to 58.4 mc.  
AN/GRC-6: 47 to 58.4 mc.  
AN/GRC-7: 47 to 58.4 mc.  
AN/GRC-8: 47 to 58.4 mc.

## FREQ AUXILIARY

AN/GRC-3: 20 to 27.9 mc.  
AN/GRC-4: Not used.  
AN/GRC-5: 27 to 38.9 mc.  
AN/GRC-6: Not used.  
AN/GRC-7: 38 to 54.9 mc.  
AN/GRC-8: Not used.

TRANSMISSION AND RECEPTION: F3.

FEATURES: Monitoring, push-to-talk operation from local or remote control stations, interphone, automatic retransmission of received sig, full duplex operation (telephone and radio).

Radio-Transceivers

**AN/GRC-3 thru -8**

**RADIO SET**

April 1958

POWER SOURCE REQUIRED: 10 or 24 v DC, 110 to 280 W. 12 v PP-281/GRC and 24 v PP-282/GRC for use w/R-108/GRC-3, R-109/GRC-5 and R-110/GRC-7; 12 v PP-109/GR and 24 v PP-112/GR for use w/RT-66/GRC-3, RT-67/GRC-5 and RT-68/GRC-7.

**TRANSMITTER-RECVR**

**POWER OUTPUT**

TRANSMITTER NO 1: 9.0 to 16.0 W on "high"; 1.0 to 2.0 W on "low".

TRANSMITTER NO 2: 500 mw.

RECVR NO 1: 1.0 W and 50 mw at spkr and phone output respectively; 30 mw at retransmission output terminals.

RECVR NO 2: 75 mw.

RECVR BANDWIDTH: 80 kc, 6 db down.

RECVR SENSITIVITY: 30 db sig +noise to noise ratio w/1/4 uv input.

RECVR OUTPUT IMPEDANCE: 600 ohms.

TUNING: Continuous w/detent provisions for preselection of any three freq.

OUTPUT: 1 W and 50 mw at spkr and phone output respectively; 30 mw at retransmission output.

**INTERPHONE**

SET NO 1 + INTERPHONE: 350 mw output.

SET NO 1 + SET NO 2 + INTERPHONE: 1800 mw output.

SET NO 2 + INTERPHONE: 350 mw output.

**TUBE AND/OR CRYSTAL COMPLEMENT**

RECEIVER-TRANSMITTERS (RT-66, -67, -68/GRC)

- (3) 3A5 (4) 1R5 (1) 3A4 (2) 1AE4
- (2) 3B4 (1) 2E24 (4) 3Q4 (2) 114
- (1) 1S5 (1) 6AK5 (4) 1U4 (2) 1A3

Total Tubes: (27)

RECEIVER-TRANSMITTER (RT-70/GRC)

- (5) 3Q4 (1) 3A5 (5) 1U4 (1) 1AE4
- (2) 1L4 (1) 3B4 (2) 1R5 (1) 1S5
- (1) 304

Total Tubes: (19)

RADIO RECEIVERS R-108/GRC, R-109/GRC, R-110/GRC (not used with AN/GRC-4, 6 and 8).

- (2) 6AK5 (2) 3A5 (4) 1U4 (1) OB2
- (1) 1L4 (1) 1A3 (2) 1S5 (2) 3Q4

Total Tubes: (15)

AF AMPLIFIER (AM-65/GRC)

- (3) 12AU7 (2) 6AK6 (2) OB2

Total Tubes: (7)

POWER SUPPLY (PP-109/GR or PP-112/GR)

- (2) 1007 (1) OA2 (1) OB2

Total Tubes: (4)

Total Tubes: (72) (All equipments)

No Crystals.

**REFERENCE DATA AND LITERATURE**

TM11-284: Technical Manual for Radio Sets AN/GRC-3, -4, -5, -6, -7, and -8.

TYPE CLASSIFICATION  
DESIGN COGNIZANCE TASSA  
PROCUREMENT COGNIZANCE  
STOCK NO.

**SHIPPING DATA**

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	C/O AN/GRC-3 and -4 (1) Receiver-Transmitter RT-66/GRC (1) Power Supply PP-109/GR or PP-112/GR	2		100
1	C/O (1) Receiver-Transmitter RT-70/GRC (1) Radio Receiver R-108/GRC (1) AF Amplifier AM-65/GRC	1.70		90

April 1958

## RADIO SET

Radio-Transceivers

AN/GRC-3 thru -8

## SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	C/O (1 ft) Wire W-142 (2) Mast Base AB-15/GR (2) Mast Section MS-116-A (2) Mast Section MS-117-A (2) Mast Section MS-118-A (2) Mast Section AB-22/GR (2) Mast Section AB-24/GR (1) Control Group AN/GRA-6 (2) Adapter UG-273/U (2) Adapter UG-306/U (1) Special Purpose Cable Assembly CX-1211/U (1) Special Purpose Cable Assembly CX-1213/U (1) Bag CW-206/GR (1) Case CY-684/GR (2) Power Supply PP-281/GRC or PP-282/GRC (2) Technical Manual TM11-284	4.1		131
1	C/O (10 ft) Special Purpose Cable WM-46/U (1) Control Box C-375/VRC (1) Control Box C-435/GRC (1) Mounting MT-297/GRC (1) RF Cable Assembly CG-530/U (1) RF Cable Assembly CG-568/U (1) Connector and Bondnut AN/GRC-5 and -6	2.68		120
1	C/O (1) Receiver-Transmitter RT-67/GRC (1) Power Supply PP-109/GR or PP-112/GR	2		100
1	C/O (1) Receiver-Transmitter RT-70/GRC (1) Radio Receiver R-109/GRC (1) AF Amplifier AM-65/GRC	1.70		90
1	C/O (1 ft) Wire W-142 (2) Mast Base AB-15/GR (2) Mast Section MS-116-A (2) Mast Section MS-117-A (2) Mast Section MS-118-A (2) Mast Section AB-22/GR (2) Mast Section AB-24/GR (1) Control Group AN/GRA-6 (2) Adapter UG-273/U (2) Adapter UG-306/U (1) Special Purpose Cable Assembly CX-1211/U (1) Special Purpose Cable Assembly CX-1213/U (1) Bag CW-206/GR (1) Case CY-684/GR (2) Power Supply PP-281/GRC or PP-282/GRC (2) Technical Manual TM11-284	4.1		131
1	C/O (10 ft) Special Purpose Cable WM-46/U (1) Control Box C-375/VRC (1) Control C-435/GRC (1) Mounting MT-297/GR	2.68		120

Radio-Transceivers

## AN/GRC-3 thru -8

## RADIO SET

April 1958

## SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	(2) RF Cable Assembly CG-530/U AN/GRC-7, and -8 C/O	2		100
1	(1) Receiver-Transmitter RT-68/GRC (1) Power Supply PP-109/GR or PP-112/GR C/O	1.70		90
1	(1) Receiver-Transmitter RT-70/GRC (1) Radio Receiver R-110/GRC (1) A.F. Amplifier AM-65/GRC C/O	4.1		131
1	(1 ft) Wire-142 (2) Mast Base AB-15/GR (2) Mast Sections MS-117-A (2) Mast Sections AB-22/GR (4) Mast Section AB-24/GR (1) Control Group AN/GRA-6 (2) Adapter UG-273/U (2) Adapter UG-306/U (1) Special Purpose Cable Assembly CX-1211/U (1) Special Purpose Cable Assembly CX-1213/U (1) Bag CW-206/GR (1) Case CY-684/GR (2) Power Supply PP-281/GRC or PP-282/GRC (2) Technical Manual TM11-284 C/O	2.68		120
	(10 ft) Special Purpose Cable WM-46/U (1) Control Box C-375/VRC (1) Control C-435/GRC (1) Mounting MT-297/GR (2) RF Cable Assembly CG-530/U (1) Connector and Bondnut			

## EQUIPMENT SUPPLIED DATA \*

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Receiver-Transmitter RT-66/GRC ** or RT-67/GRC *** or RT-68/GRC ****	9 X 11-1/4 X 13 9 X 11-1/4 X 13 9 X 11-1/4 X 13	38 38 38
1	Receiver-Transmitter RT-70/GRC	4-3/4 X 7-7/8 X 13	17
1	Radio Receiver R-108/GRC # or R-109/GRC ## or R-110/GRC ###	7-1/4 X 9 X 13 7-1/4 X 9 X 13 7-1/4 X 9 X 13	28 28 28



April 1958

## RADIO SET

AN/GRC-3 thru -8

## EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	AF Amplifier AM-65/GRC	4-1/4 X 7-7/8 X 13	15.5
####	Power Supply PP-281/GRC or PP-282/GRC	3 X 4-1/2 X 6	6
1	Power Supply PP-109/GR or PP-112/GR	7-1/4 X 9 X 13	33
1	Control Box C-375/VRC	4 X 7 X 7	3
1	Control Group AN/GRA-6 c/o		
	(1) Local Control C-434/GRC	3-1/2 X 8-3/4 X 10-1/8	10.5
	(1) Remote Control C-433/GRC	3-1/2 X 7-3/32 X 8-1/4	7
	(1) Handset H-33/PT	2-1/16 X 3 X 7-7/8	1-1/8
	(1) Bag CW-189/GR	7-3/4 X 10-5/8 X 11	2-1/2
1	Control C-435/GRC	3-1/2 X 8-3/4 X 10-1/2	8
1	Mounting MT-297/GR	5 X 12 X 34	58
2	Adapter UG-273/U		.36
2	Adapter UG-306/U	7/16 X 1 X 1	.36
1	Bag CW-206/GR	3 X 5 X 40	3.5
1	Special Purpose Cable WM-46/U	0.6 dia X 120	9
1	RF Cable Assembly CG-568/U **	50 lg	.5
+	RF Cable Assembly CG-530/U	50 lg	.5
1	Special Purpose Cable Assembly CX-1211/U		.4
1	Special Purpose Cable Assembly CX-1213/U		.4
1	Case CY-684/GR		3
1	Connector and Bondnut		.5
2	Mast Section MS-116-A ++	39.5 lg	1.6
2	Mast Section MS-117-A	39.5 lg	1.4
2	Mast Section MS-118-A ++	39.5 lg	.5
2	Mast Section AB-22/GR	23.5 lg	1.36
+++	Mast Section AB-24/GR	23.5 lg	.13
2	Mast Base AB-15/GR	3-1/8 X 15	3.36
1	Wire W-142 +++	12 lg	.043
2	Technical Manuals TM11-284	1/2 X 8 X 10	1.0

## NOTES:

- \*Does not incl vehicular installation units.
- \*\*\*Supplied w/AN/GRC-3 and -4 only.
- \*\*\*Supplied w/AN/GRC-5 and -6 only.
- \*\*\*Supplied w/AN/GRC-7 and -8 only.
- #Supplied w/AN/GRC-3 only.
- ##Supplied w/AN/GRC-5 only.
- ###Supplied w/AN/GRC-7 only.
- #### Quantity of 2 supplied w/AN/GRC-3,-5 and -7 only.
- Quantity of 1 supplied w/AN/GRC-4,-6 and -8 only.
- +Quantity of 1 supplied w/AN/GRC-3 and -4 only.
- Quantity of 2 supplied w/AN/GRC-5,-6,-7 and -8 only.
- ++Supplied w/AN/GRC-3,-4,-5 and -6 only.
- +++Quantity of 2 supplied w/AN/GRC-3,-4,-5 and -6 only.
- Quantity of 4 supplied w/AN/GRC-7 and -8 only.
- ++++Supplied w/AN/GRC-3,-5 and -7 only.

# RADIO SET

# AN/GRC-32

## FUNCTIONAL DESCRIPTION

The AN/GRC-32 provides ground-to-air communications in forward areas for the control and guidance of aircraft equipped with UHF receivers. The equipment provides modulated continuous wave and voice signals over the frequency range of 225 to 400 megacycles per second at 10 watts maximum power output. It uses a single band and has 18 preset and 1 guard channel.

No field changes in effect at time of preparation (4 April 1957).

N.Y.

Contract AF33(038)-20782.

## TUBE AND/OR CRYSTAL COMPLEMENT

Tubes and Crystals: Not Available.

## REFERENCE DATA AND LITERATURE

Nomenclature Card for Radio Set AN/GRC-32 amended 29 December 1955.

## ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 225 to 400 mc.  
NUMBER OF BANDS: Single.  
TYPE OF SIGNAL: A2, A3.  
NUMBER OF CHANNELS: 18 preset, 1 guard.  
TRANSMITTER POWER OUTPUT: 10 w max.  
POWER SOURCE REQUIRED: 115 or 230 v, 50 to 60 cps, single ph.

TYPE CLASSIFICATION  
DESIGN COGNIZANCE USAF  
PROCUREMENT COGNIZANCE  
STOCK NO.

## MANUFACTURER'S OR CONTRACTOR'S DATA

Federal Mfg and Engineering, Brooklyn,

## EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Mast Erection Kit Case CY-1186/GRC		
1	Mast AB-282/GRC		
1	Mast Case CY-1185/GRC		
1	Antenna Group OA-306/GRC		
1	Radio Set Group OA-384/GRC		
1	Radio Set Group OA-385/GRC-32		
	Interconnecting Cables		

January 1958

Radio-Transceivers

## RADIO SET

AN/GRC-32B

## FUNCTIONAL DESCRIPTION

The AN/GRC-32B is used in portable ground installations to provide ground-to-air communications in forward areas for the control and guidance of aircraft equipped with UHF receivers.

No field changes in effect at time of preparation (27 September 1957).

## RELATION TO OTHER EQUIPMENT

Similar to Radio Set AN/GRC-32A except a lightweight Power Supply PP-894/GRC-32B replaces Power Supply PP-823A/GRC, also necessary cabling changes.

## ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 225 to 400 mc.  
 TYPE OF EMISSION: A2.  
 TRANSMITTER POWER OUTPUT: 10 W max.  
 NUMBER OF BANDS: Single.  
 NUMBER OF CHANNELS: 18 preset and 1 guard  
 TYPE OF RECEPTION: A2, A3.

POWER SOURCE REQUIRED: 115 v or 230 v, 50 to 60 cps, single ph.

## MANUFACTURER'S OR CONTRACTOR'S DATA

Federal Mfg and Engineering Corp, Brooklyn, N. Y.  
 Contract AF33(038)-20782.

## TUBE AND/OR CRYSTAL COMPLEMENT

No Electron Tubes.

## REFERENCE DATA AND LITERATURE

Nomenclature Card for AN/GRC-32B, Radio Set dated 27 June 1955.

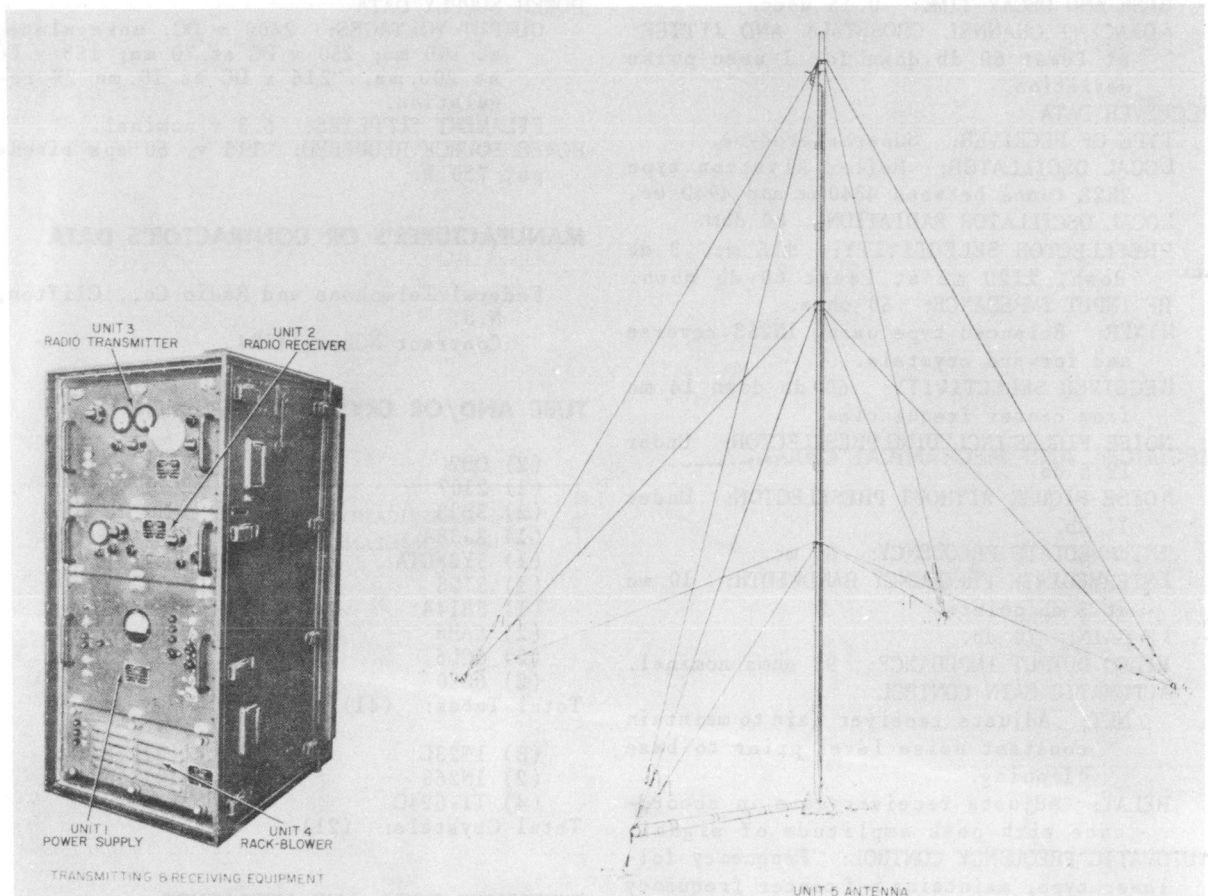
TYPE CLASSIFICATION DESIGN COGNIZANCE USAF PROCUREMENT COGNIZANCE STOCK NO.
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## EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Case, Receiver-Transmitter CY-1287/GRC		
1	Case, CY-1288/GRC		
1	Mounting MT-821/ARC-27		
1	Microphone T-17		
1	Headset HS-33A		
1	Dynamic Loudspeaker LS-166/U		
1	Cord Assembly, Electrical CD-307A	65 lg	
1	Cable Assembly, Special Purpose, Electrical CX-2007A/U		
1	Cable Assembly, Special Purpose, Electrical CX-2054/U	48 lg	
1	Cable Assembly, Special Purpose, Electrical CX-2053/U	48 lg	
1	Cable Assembly, Radio Frequency CG-690A/U	27 lg	
1	Cable Assembly, Radio Frequency CG-895/U	900 lg	
1	Wire WD-1/TT: On reel DR-8	1/4 mile lg	
1	Antenna AT-197/GR		
1	Mast AB-282/GRC		
1	Radio Set Control C-626/ARC-27		
1	Radio Set Control C-628/ARC-27		
1	Receiver-Transmitter RT-178/ARC-27		
1	Control Set, Control Group AN/GRA-11		
1	Case, Antenna CY-728/GR		
1	Interconnecting Box J-499/GRC		
1	Cable Assembly, Special Purpose, Electrical CX-2163/U	1200 lg	
1	Power Supply PP-894/GRC-32B		

January 1958

## RADIO SET



Radio Set AN/GRC-37(XN-1)

## FUNCTIONAL DESCRIPTION

The AN/GRC-37(XN-1) is capable of operation in time division, pulse position modulated microwave link relay and net control systems. It is designed to operate as a net control station for up to six similar radio sets (such as the AN/TRC-27). All associated subsidiary stations will be on the same frequency and their pulses will be received at the site of the AN/GRC-37 with proper time interlace. The receiver when placed in net operation will clip and limit the signal from the six stations to the same amplitude, after which they may either be sent to a demultiplex equipment or may be retransmitted by the AN/GRC-37 transmitter.

No field changes in effect at time of preparation (22 April 1957).

## ELECTRICAL AND MECHANICAL CHARACTERISTICS

## TRANSMITTER DATA

TYPE OF TRANSMISSION: Pulse time modulation (PTM) and AM.

TUNING RANGE: 4400 to 5000 mc.

POWER OUTPUT AT RF: 150 W peak.

RF PULSE WIDTH: 0.4 usec.

RF BANDWIDTH:  $\pm 1$  mc 2 db down,  $\pm 6$  mc 20 db down,  $\pm 60$  mc 50 db down.

PULSE REPETITION RATE: 25,000 to 200,000 pulses per sec.

FREQUENCY STABILITY:  $\pm 0.05\%$ .

MODULATING SIGNAL INPUT: 1 to 5 v positive.

MODULATING SIGNAL INPUT IMPEDANCE: 93 ohms.

MODULATING INPUT PULSE DURATION: 0.45  $\pm 0.05$  usec.

Radio-Transceivers  
**AN/GRC-37(XN-1)**

**RADIO SET**

RISE AND DECAY TIME: 0.15 usec.  
ADJACENT CHANNEL CROSSTALK AND JITTER:  
at least 60 db down for 1 usec pulse deviation.

**RECEIVER DATA**

TYPE OF RECEIVER: Superheterodyne.  
LOCAL OSCILLATOR: Reflex Klystron type  
2K22 tunes between 4340 mc and 4940 mc.  
LOCAL OSCILLATOR RADIATION: 80 dbm.  
PRESELECTOR SELECTIVITY:  $\pm 15$  mc, 3 db  
down,  $\pm 120$  mc at least 60 db down.  
RF INPUT IMPEDANCE: 50 ohms.  
MIXER: Balanced type using 1N263 reverse  
and forward crystals.  
RECEIVER SELECTIVITY: 60 db down 14 mc  
from center frequencies.  
NOISE FIGURE INCLUDING PRESELECTOR: Under  
12.5 db.  
NOISE FIGURE WITHOUT PRESELECTOR: Under  
11 db.  
INTERMEDIATE FREQUENCY: 60 mc.  
INTERMEDIATE FREQUENCY BANDWIDTH: 10 mc  
at 3 db points.  
IF GAIN: 70 db.  
VIDEO OUTPUT IMPEDANCE: 93 ohms nominal.  
AUTOMATIC GAIN CONTROL  
NET: Adjusts receiver gain to maintain  
constant noise level prior to base  
clipping.  
RELAY: Adjusts receiver gain in accord-  
ance with peak amplitude of signal.  
AUTOMATIC FREQUENCY CONTROL: Frequency fol-  
lower type, maintains i-f center frequency  
to  $\pm 1$  mc at 60 mc.

**ANTENNA DATA**

ARRAY: Composed of vertically and hori-  
zontally polarized radiating elements.  
AVERAGE GAIN: 8.5 db.  
BEAM WIDTH IN ELEVATION:  $10^\circ$  at the half  
power points.  
PATTERN OF ARRAY IN AZIMUTH: Omnidirec-  
tional to within approximately  $\pm 1$  db.  
STANDING WAVE: Less than 2.3 from 4400  
to 5000 mc.

**POWER SUPPLY DATA**

OUTPUT VOLTAGES: 2400 v DC, unregulated  
at 100 ma; 250 v DC at 70 ma; 150 v DC  
at 200 ma, -216 v DC at 10 ma 2% re-  
gulation.  
FILAMENT SUPPLIES: 6.3 v nominal.  
POWER SOURCE REQUIRED: 115 v, 60 cps single  
ph, 750 W.

**MANUFACTURER'S OR CONTRACTOR'S DATA**

Federal Telephone and Radio Co., Clifton,  
N. J.  
Contract NObsr-64194.

**TUBE AND/OR CRYSTAL COMPLEMENT**

(2) OB2	(1) 4X150A
(1) 2107	(1) 2K22
(2) 3B28	(1) 3B24WA
(1) 3-38A	(2) 5R4WGA
(1) 5Y3WGTA	(6) 5654
(1) 5725	(3) 5726
(1) 5814A	(2) 5842
(2) 6AH6	(3) 6AU6
(2) 6CL6	(2) 6005
(2) 6080	(5) 12AT7GA
Total Tubes: (41)	
(3) 1N23C	(2) 1N21CR
(2) 1N263	(10) 1N38A
(4) TI-624C	
Total Crystals: (21)	

**REFERENCE DATA AND LITERATURE**

NAVSHIPS 92865, Technical Manual for Radio  
Set AN/GRC-37(XN-1).

TYPE CLASSIFICATION  
DESIGN COGNIZANCE BUSHIPS  
PROCUREMENT COGNIZANCE  
STOCK NO.

**SHIPPING DATA**

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Radio Set Transit Case (1) Rack-Blower (1) Power Supply (1) Radio Receiver (1) Radio Transmitter (1) Technical Manual (1) Calibration Chart Book	20.9	23 X 32-1/2 X 46-1/2	500

January 1958

## RADIO SET

AN/GRC-37(XN-1)

## SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	Antenna Transit Case (1) Antenna (1) Dry Air Pump (1) Block and Tackle with Rope (14) Guy Cables (3) Guy rings (1) Gin Pole Cap (5) Heliac Cable Clamps (4) Turnbuckle Assemblies (1) Base Plate (4) Base Plate Bolts (15) Quick Clamps (5) Canvas Bags (14) Mast Sections (13) Coupling Sleeves (4) Anchor Stakes (2) Heliac Cables plus two fittings (2) Coaxial Cables RG-9A/U (2) Coaxial Cables RG-9A/U	8.18	14-1/2 X 20 X 48-3/4  15 ft 1g 5 ft 1g	260

## EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Radio Set Transit Case	23 X 32-1/2 X 46-1/2	
1	Rack-Blower Unit 4	20-1/8 X 22 X 42-9/32	
1	Power Supply Unit 1	19 X 21 X 13-13/16	
1	Radio Receiver Unit 2	7 X 19 X 21-3/8	
1	Radio Transmitter Unit 3	12-3/16 X 19 X 22-3/4	
1	Technical Manual NAVSHIPS 92865		
1	Calibration Chart Book		
1	Antenna Transit Case	14-1/2 X 20 X 48-3/4	
1	Antenna Unit 5		
1	Dry Air Pump		
1	Block and Tackle w/rope		
14	Guy Cables		
3	Guy Rings		
1	Gin Pole Cap		

### RADIO SET

#### FUNCTIONAL DESCRIPTION

The AN/GRC-37 is a pulse position modulated radio receiver and transmitter used for communications. The equipment contains switches and controls for applying its output to the other units. The three major units are housed in a rack which also contains inter-cabling, thermostatic controls and main blower. The rack in turn is shock mounted within a laminated transmit case.

No field changes in effect at time of preparation (1 May 1957).

#### MANUFACTURER'S OR CONTRACTOR'S DATA

Federal Telephone Laboratories.  
Contract NObsr-64914.

#### TUBE AND/OR CRYSTAL COMPLEMENT

Tubes and Crystals: Not Available.

#### REFERENCE DATA AND LITERATURE

Nomenclature Card for Radio Set AN/GRC-37  
amended 27 August 1956.

#### ELECTRICAL AND MECHANICAL CHARACTERISTICS

EMISSION AND RECEPTION: P9f pulse position modulated.

TRANSMITTER POWER OUTPUT: 250 and 400 W.

FREQUENCY RANGE: 4400 to 5000 mc.

NUMBER OF BANDS: One.

NUMBER OF CHANNELS: 60.

POWER SOURCE REQUIRED: 115 v, 60 cps, single ph.

TYPE CLASSIFICATION  
DESIGN COGNIZANCE BUSHIPS  
PROCUREMENT COGNIZANCE  
STOCK NO.

#### EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Radio Transmitter		
1	Radio Receiver		
1	Power Supply Group		
1	Rack and Blower Assembly		
1	Antenna		
1	Mast		

# RADIO SET

# AN/GRC-41

## FUNCTIONAL DESCRIPTION

The AN/GRC-41 is a radio transmitting and receiving station which provides communication facilities for continuous wave (cw) telegraphy and amplitude-modulated (AM) phone operation at ranges up to 1000 miles depending on ionospheric conditions, frequency of operation and terrain. The set may be operated while in motion (mobile) with whip antennas, in semifixed locations (shelter and equipment still truck-mounted) or in fixed locations with the shelter unloaded from the truck. In fixed locations, the transmitter and one receiver may be connected to the doublet antenna.

No field changes in effect at time of preparation (6 May 1957).

ANTENNA: Whip and doublet.  
TYPE OF SIGNALS RECEIVED: A1, CW and Voice.  
POWER SOURCE REQUIRED: 115 v, 60 cps, single ph.

## TUBE AND/OR CRYSTAL COMPLEMENT

Tubes and Crystals: Not Available.

## REFERENCE DATA AND LITERATURE

TM11-621, Technical Manual for Radio Set AN/GRC-41.

## ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 1.5 to 20 mc transmitter;  
.5 to 32 mc rec.  
DISTANCE RANGE: 1000 mi.  
TYPE OF MODULATION: Amplitude.  
POWER OUTPUT  
CW OPERATION: 450 W.  
PHONE OPERATION: 450 W approximately.

TYPE CLASSIFICATION  
DESIGN COGNIZANCE TASSA  
PROCUREMENT COGNIZANCE  
STOCK NO.

## EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Radio Set AN/GRC-41 C/O (1) Radio Transmitter T-368C/URT (1) Radio Receiver R-390/URR (1) Generator Set PU-248/U (1) Telephone Set TA-43/PT (1) Radio Set Control C-2019/GR (1) Storage Cabinet CY-1721A/GRC (1) Shelter S-56A/G (1) Electrical Special Purpose Cable Assembly		



## RADIO SET

AN/GRC-47

## FUNCTIONAL DESCRIPTION

The AN/GRC-47 is a high frequency, very high frequency and ultra-high-frequency amplitude modulated radio set, installed in light-weight transit cases, which are capable of being mounted in a 1/4 ton, 2 W, cargo trailer or other vehicles. The equipment includes a light-weight "prefabricated" shelter for ground or trailer mounting. Provides communication facilities between ground Air rescue and Search parties and Air parties, also with other ground communication stations.

No field changes in effect at time of preparation (14 May 1957).

## ELECTRICAL AND MECHANICAL CHARACTERISTICS

EMISSION AND RECEPTION: A3.  
 TRANSMITTER POWER OUTPUT: 100 W, 12 W and 8 W nom depending on operating frequency.  
 FREQUENCY RANGES: 2 to 18.5 mc, 100 to 156 mc and 225 to 400 mc.  
 NUMBER OF BANDS: 3.

## NUMBER CHANNELS

2 to 18.5 mc BAND: 10.  
 100 to 156 mc BAND: 8.  
 225 to 400 mc BAND: 18.  
 GUARD CHANNEL: 1.

POWER SOURCE REQUIRED: 24 and 32 v DC.

## MANUFACTURER'S OR CONTRACTOR'S DATA

Collins Radio Co., Cedar Rapids, Iowa.

## TUBE AND/OR CRYSTAL COMPLEMENT

Tubes and Crystals: Not Available.

## REFERENCE DATA AND LITERATURE

Nomenclature Card for Radio Set AN/GRC-47 dated 16 October 1956.

TYPE CLASSIFICATION DESIGN COGNIZANCE BUSHIPS PROCUREMENT COGNIZANCE STOCK NO.
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## EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIP	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Dynamotor Unit DY-22/ARC-3		
1	Power Junction Box J-68/ARC-3		
1	Control Unit C-197/ARC-3		
1	Control Box C-118/ARC-3		
1	Mounting FT-240-A		
1	Mounting Base MT-238/ARC-3		
1	Mounting Base MT-237/ARC-3		
1	Mounting Base MT-236/ARC-3		
1	Antenna Assembly AS-112/TRC-7		
3	Mast Sections MS-116		
1	Mast Section MS-117		
1	Mast Section MS-118		
1	Mast Bracket MP-50		
1	Radio Receiver-Transmitter RT-178/ARC-27		
1	Mounting MT-822/ARC-27		
1	Radio Set Control C-626/ARC-27		
1	Mounting MT-821/ARC-27		
1	Radio Set Control C-628/ARC-27		
3	Loudspeakers LS-11		
3	Headsets HS-33		
3	Microphones T-17		
1	Antenna AT-463/MRC-20		
1	Radio Set AN/URC-4		
1	Radio Receiver R-77/ARC-3		
1	Radio Transmitter T-67/ARC-3		

Radio-Transceivers

January 1958

AN/GRC-47

## RADIO SET

## EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Dynamotor Unit DY-21/ARC-3		
1	Mast Base MP-65		
6	Equipment Cases		
1	H. F. Antennas		
1	VHF Antenna Mast		
1	UHF Antenna Mast		
1	30 ft Light-Weight Mast		
1	Transportable Shelter		
1	Transceiver		
1	Mounting for Transceiver		
1	Antenna Matching Network		
1	Mounting for Matching Network		
1	Control Unit		
1	Heating Unit		
1	Cooling Unit		

September 1956

**RADIO SET****AN/GRC-75****FUNCTIONAL DESCRIPTION**

The AN/GRC-75 is a transportable VHF radio transmitting and receiving equipment for use with multichannel carrier telephone terminal apparatus.

No field changes in effect at time of preparation (1 August 1956).

FREQUENCY RANGE: 50 to 100 mc, 1 band, 200 channels.

OPERATING POWER: 115 v, 50 cps, single ph, or 230 v 60 cps, single ph.

**TUBE AND/OR CRYSTAL COMPLEMENT**

No Electron Tubes.

**ELECTRICAL AND MECHANICAL CHARACTERISTICS****TRANSMITTER**

TYPE EMISSION: F9.

POWER OUTPUT: 120 W.

FREQUENCY RANGE: 50 to 100 mc, 1 band, 200 channels.

**RECEIVER**

TYPE EMISSION: F9.

**REFERENCE DATA AND LITERATURE**

Nomenclature Card for Radio Set AN/GRC-75.

TYPE CLASSIFICATION
DESIGN COGNIZANCE
PROCUREMENT COGNIZANCE
STOCK NO.

**EQUIPMENT SUPPLIED DATA**

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Radio Set AN/GRC-75		

December 1956

**RADIO SET****AN/GRC-78****FUNCTIONAL DESCRIPTION**

The AN/GRC-78 is a transportable VHF-UHF radio transmitting and receiving equipment for use with multichannel carrier telephone terminal apparatus.

No field changes in effect at time of preparation (31 July 1956).

FREQUENCY: 100 to 225 mc and 400 to 600 mc, 2 bands, 383 channels.

OPERATING POWER: 115 v, 50 cps, single ph or 230 v, 60 cps, single ph.

**TUBE AND/OR CRYSTAL COMPLEMENT**

No Electron Tubes.

**ELECTRICAL AND MECHANICAL CHARACTERISTICS****TRANSMITTER**

TYPE EMISSION: F9.

POWER OUTPUT: 120 W.

FREQUENCY: 100 to 225 mc and 400 to 600 mc, 2 bands, 383 channels.

**RECEIVER**

TYPE EMISSION: F9.

**REFERENCE DATA AND LITERATURE**

Nomenclature Card for Radio Set AN/GRC-78.

TYPE CLASSIFICATION
DESIGN COGNIZANCE
PROCUREMENT COGNIZANCE
STOCK NO.

**EQUIPMENT SUPPLIED DATA**

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Transmitter Radio Set AN/GRC-78		

September 1956

## RADIO SET

Radio Transceiver

AN/GRC-81

## FUNCTIONAL DESCRIPTION

The AN/GRC-81 is a transportable VHF-UHF transmitting and receiving equipment for use with multi-channel carrier telephone terminal apparatus.

No field changes in effect at time of preparation (1 August 1956).

FREQUENCY RANGE: 225 to 400 mc, 1 band, 175 channels.

OPERATING POWER: 115 v, 50 cps, single ph, or 230 v, 60 cps, single ph.

## TUBE AND/OR CRYSTAL COMPLEMENT

No Electron Tubes.

## ELECTRICAL AND MECHANICAL CHARACTERISTICS

## TRANSMITTER

TYPE EMISSION: F9.

POWER OUTPUT: 120 W.

FREQUENCY RANGE: 225 to 400 mc, 1 band, 175 channels.

## RECEIVER

TYPE EMISSION: F9.

## REFERENCE DATA AND LITERATURE

Nomenclature Card for Radio Set AN/GRC-81.

TYPE CLASSIFICATION
DESIGN COGNIZANCE
PROCUREMENT COGNIZANCE
STOCK NO.

## EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Radio Set AN/GRC-81		

UNCLASSIFIED

August 1957

Radio-Transceivers  
**AN/GRC-85**

## RADIO SET

### FUNCTIONAL DESCRIPTION

The AN/GRC-85 is a single sideband radio set operating in the frequency range of 2 to 30 megacycles and is capable of operating on any one of 10 pre-set channels.

No field changes in effect at time of preparation (12 December 1956).

### RELATION TO OTHER EQUIPMENT

Equipment Required but not Supplied: (1) Antenna.

### ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 2 to 30 mc.

CHANNELS: 10 pre-set.

EMISSION AND RECEPTION: A1, A3b.

POWER OUTPUT: 1 kw.

POWER REQUIREMENTS: 115 or 230 v, 60 cps, single ph.

### TUBE AND/OR CRYSTAL COMPLEMENT

No Electron Tubes.

### REFERENCE DATA AND LITERATURE

Nomenclature Card for Radio Set AN/GRC-85.

TYPE CLASSIFICATION  
DESIGN COGNIZANCE  
PROCUREMENT COGNIZANCE  
STOCK NO.

### EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
2	Rack, Electrical Equipment		
2	Remote Control Panel		
2	Terminal and Junction Panel		
2	Receiver Audio-RF Tuner		
2	Control Panel		
2	Crystal Oscillator		
6	Power Supply		
1	Power Amplifier Unit		
1	Balance Modulator - RF Tuner		

UNCLASSIFIED

1.7 AN/GRC-85: 1

UNCLASSIFIED

August 1957

Radio-Transceivers  
**AN/GRC-86**

## RADIO SET

### FUNCTIONAL DESCRIPTION

The AN/GRC-86 is a single sideband radio set designed to operate in the frequency range of 2 to 30 megacycles and is capable of operating on any one of 28,000 channels.

No field changes in effect at time of preparation (12 December 1956).

### TUBE AND/OR CRYSTAL COMPLEMENT

No Electron Tubes.

### REFERENCE DATA AND LITERATURE

Nomenclature Card for Radio Set AN/GRC-86.

### ELECTRICAL AND MECHANICAL CHARACTERISTICS

FREQUENCY RANGE: 2 to 30 mc.

CHANNELS: 28000.

EMISSION AND RECEPTION: A1, A3b.

POWER OUTPUT: 1 kw.

POWER REQUIREMENTS: 115 or 230 v, 60 cps,  
single ph.

TYPE CLASSIFICATION  
DESIGN COGNIZANCE  
PROCUREMENT COGNIZANCE  
STOCK NO.

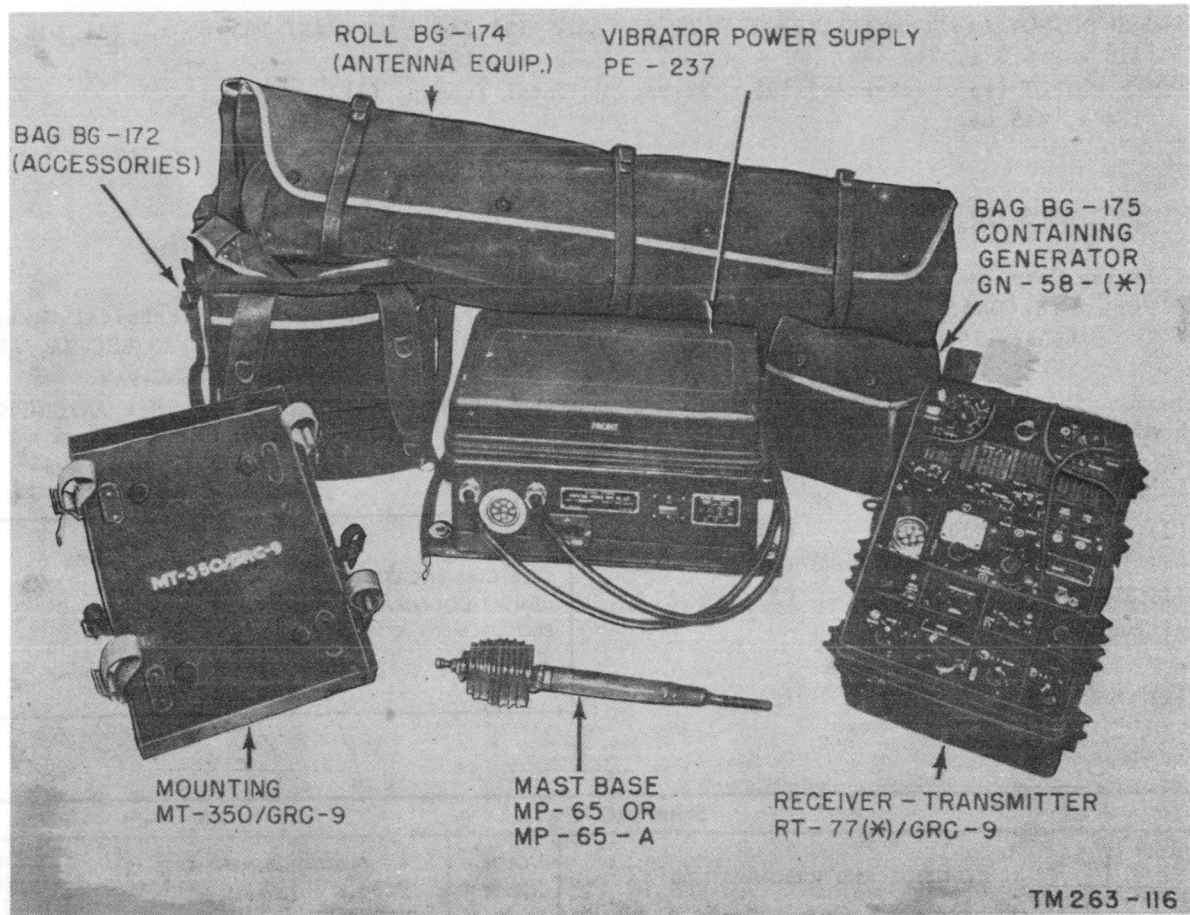
### EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
2	Rack, Electrical Equipment		
2	Remote Control Panel		
2	Frequency Divider Unit		
2	Oscillator, RF		
2	Power Supply		
1	Terminal and Junction Box		
1	Tuner		
2	Control Panel		
2	Stabilized Master Oscillator		
1	Balance Modulator -RF Tuner		
1	Power Amplifier Unit		

UNCLASSIFIED

1.7 AN/GRC-86: 1

April 1958

**RADIO SET AN/GRC-9, -9A, -9X, -9Z, -9AX**

Radio Set AN/GRC-9, -9A, -9X, -9Z, -9AX

**FUNCTIONAL DESCRIPTION**

The AN/GRC-9, -9A, -9X, -9Z, and -9AX are low powered radio transmitters and receivers that may be used in either ground or vehicular installations. Each radio set receives and transmits continuous wave (cw), amplitude modulated (am), and modulated continuous wave (mcw) radio frequency (rf) signals in the 2 to 12 megacycle (mc) range.

Each of these equipments are used to communicate with any cw, mcw, or phone equipment that operates within the 2 to 12 mc band. It can be used as an isolated unit or in a net group.

All of these equipments are similar except for included power supplies.

No field changes in effect at time of preparation (7 January 1958).

**ELECTRICAL AND MECHANICAL CHARACTERISTICS****TRANSMITTER**

FREQ RANGE: 2 to 12 mc in 3 bands.  
 TRANSMISSION: A1, A2, A3.  
 FREQ CONTROL: Xtal or MO.  
 CHANNEL FACILITIES: 2 xtal channels in ea band.  
 POWER OUTPUT: 7 W on A3, 15 W on A1, using vibrator power unit; 3.6 W on A3, 10 W on A1 using hand generator.

**RECVR**

FREQ RANGE: 2 to 12 mc in 3 bands.  
 IF: 456 kc.  
 RECEPTION: A1, A2, A3.  
 DESIGN: Superheterodyne.  
 FREQ CONTROL: Xtal osc.

**VIBRATOR POWER UNIT**

POWER SOURCE REQUIRED: 6 v DC, 27 amp or 12 v DC, 13.2 amp or 24 v DC, 7 amp (from vehicular batt).  
 GENERATOR UNIT (hand-operated)



## Radio-Transceivers

**AN/GRC-9, -9A, -9X, -9Z, 9AX****RADIO SET**

April 1958

POWER OUTPUT (to transmitter): 425 v,  
115 ma, 6.3 v, 2.5 amp.

POWER OUTPUT (to receiver): 105 v, 32 ma;  
1.4 v, 465 ma.

(3) 3A4

(3) 1R5

(1) 3Q4

(1) 1S5

Total Tubes: (12)

No Crystals.

**MANUFACTURER'S OR CONTRACTOR'S DATA**

Teleking Corp, New York, N.Y.

Contract DA36-039-SC-30750 dated 8  
February 1952 (AN/GRC-9A).

**REFERENCE DATA AND LITERATURE**

TM11-263, TO 31R2-2GRC9-1: Technical Manual  
for Radio Sets AN/GRC-9, AN/GRC-9A, AN/  
GRC-9X, AN/GRC-9Y and AN/GRC-9AX.

Nomenclature Card for Radio Set AN/GRC-9Z  
dated 13 December 1956.

**TUBE AND/OR CRYSTAL COMPLEMENT**

AN/GRC-9, -9X, -9Z

(1) OC3W (1) 1005 (1) 3Q4

(2) 1L4 (1) 1006 (3) 1R5

(1) 2E22 (1) 1S5 (3) 3A4

Total Tubes: (14)

AN/GRC-9A, -9AX

(1) OC3W (1) 2E22 (2) 1L4

**TYPE CLASSIFICATION**

DESIGN COGNIZANCE BUSHIPS

PROCUREMENT COGNIZANCE MIL-R-12531(SIG C)

STOCK NO.

(AN/GRC-9Z)

**SHIPPING DATA**

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	c/o (1) Receiver-Transmitter RT-77/GRC-9 or RT-77A/GRC-9 (1) Panel Cover CW-109/GRC-9 Manuals (1) Cord CD-1119 (1) Bag CW-140/GRC-9	3.7	15-1/2 x 16-5/8 x 25	79
1	c/o (1) Bag BG-172 and contents (1) Bag BG-174 and contents (1) Roll BG-174 and contents (1) Generator GN-58 or GN-58-A (1) Mast Base MP-65 (1) Mounting MT-350/GRC-9* (1) Hardware Kit	7.6	12-5/8 x 21 x 47-3/4	142
1	c/o (1) Dynamotor Power Supply DY-88/GRC-9 (1) Electrical Special Purpose Cable Assy CX-2031/U or CX-2031A/U (1) Cord CD-1086 (1) Hardware Kit or	1.6	12 x 15-1/2 x 15-1/2	69

April 1958

## RADIO SET AN/GRC-9, -9A, -9X, -9Z, 9AX

## SHIPPING DATA

NUMBER OF BOXES	CONTENTS AND IDENTIFICATION	VOLUME (Cu.Ft.)	OVERALL DIMENSIONS (inches)	WEIGHT PACKED (lbs.)
1	c/o (1) Dynamotor-Power Supply DY-105/GRC-9X	1.6	12 x 15-1/2 x 15-1/2	72
1	(1) Electrical Special Purpose Cable Assy CX-2031/U or CX-2031A/U (1) Cord CD-1086 (1) Hardware Kit or			
1	c/o (1) Vibrator Power Supply PE-237 (1) Cord CD-1086 (1) Hardware Kit or	4.6	14-7/8 x 19-1/2 x 26-5/8	138
	c/o (1) Power Supply PP-327/GRC-9Y or PP-327A/GRC-9Y			
	NOTES: *not supplied w/AN/GRC-9Z			

## EQUIPMENT SUPPLIED DATA

QUANTITY PER EQUIPT	NAME AND NOMENCLATURE	OVERALL DIMENSIONS (inches)	WEIGHT (lbs.)
1	Vibrator Power Supply PE-237 (AN/GRC-9) or	10-1/2 x 10-3/4 x 20	74
1	Dynamotor-Power Supply DY-88/GRC-9 (AN/GRC-9A) or	9-1/2 x 11-1/4 x 13	35
1	Dynamotor-Power Supply DY-105/GRC-9X (AN/GRC-9X)	10 x 13-1/8 x 14-1/2	38
1	Generator GN-58 or GN-58-A	7-1/2 x 8 x 10-1/2	22-3/4
2	Technical Manuals		1
1	Mast Base MP-65	3-1/4 x 3-1/4 x 17-1/2	3
6	Mounting MT-350/GRC-9* Hardware Kit for Mounting MT-350/GRC-9*	39-1/2 lg	4
1	Receiver-Transmitter RT-77/GRC-9 or RT-77A/GRC-9		1/2
1	Cord CD-1086	8 x 13 x 16	32
1	Cord CD-1086	84 lg	2
1	Bag BG-175	44 lg	1-1/4
1	Bag BG-175	8 x 10 x 10-1/2	2
1	Bag BG-175	12-1/2 x 15 x 16-1/2	2
1	Cord CD-1119	34-1/2 lg	1
1	Panel Cover CW-109/GRC-9	3-1/4 x 11-1/2 x 16-1/2	1
1	Bag BG-172 and contents	10 x 13 x 13	25
1	Roll BG-174 and contents	4-1/2 x 10 x 42	25
1	Set of Tuning Spares		
	NOTES: *not supplied w/AN/GRC-9Z		