

Collins

AN/URC-8 HF COMMUNICATION SET

APPLICATION

The AN/URC-8 provides medium power voice and CW communication in the 2.0 to 30.0 mc frequency range. The equipment is of extremely rugged construction and is ideally suited for military service in shipboard, fixed station and mobile applications. It is an improved, modern and more versatile version of the widely accepted Collins built TCS equipment. Some outstanding characteristics are stable frequency control, ease of maintenance, simplified operation, improved setup accuracy, versatility of application, long term reliability, and low interference to or by other equipment.

DESCRIPTION

The equipment consists of a transmitter, receiver and power supply. Each is housed in a splashproof cabinet. Covers make each unit completely watertight. The units may be mounted in a standard rack or can be shockmounted and stacked vertically or side by side.

Radio Transmitter T-474/URC-8 may be easily tuned by only three simple adjustments. The audio system includes a clipper with high and low pass filters which eliminates overmodulation and undesirable splatter. The clipper circuit permits transmission of audio power at a higher level. The P. A. tubes are protected from serious overload damage when shorts or grounds are accidentally placed on the antenna.

Radio Receiver R-627/URC-8 employs Collins a permeability tuned oscillator for the first injection and the second converter is crystal controlled. This arrangement effects high image rejection and excellent frequency stability due to the low drift of the permeability tuned oscillator. Linear calibration on each band and a dial identical to that of the transmitter allows ease of tuning. Mechanical filters in the i-f amplifier provide ideal selectivity without critical tuned circuits. Two different bandwidths may be selected by a front panel control.

Power Supply PP-1190/URC-8 operates from 115 or 230 volts, 50, 60, or 400 cps. With an accessory converter it can, also, operate from 12, 28, 115 or 230 volt d-c source.

All circuits use a minimum of components to insure a high degree of reliability. Only 34 tubes of nine different types are employed. Plug-in modulator construction allows modules to be removed quickly and easily to facilitate maintenance. Special mounting slides enable the technician complete access to all wiring and components to facilitate inspection and maintenance.



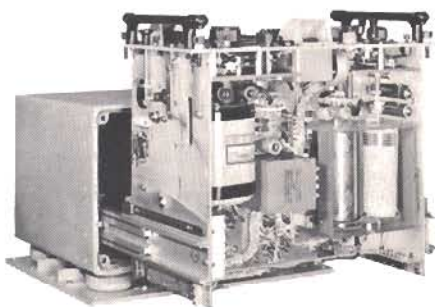
Radio Transmitter T-474/URC-8



Radio Receiver R-627/URC-8



Power Supply PP-1190/URC-8



Transmitter in 90° Service Position



Accessory D. C. Converter

EQUIPMENT SPECIFICATIONS

POWER REQUIREMENTS: Any one of: 230 v a-c- 2.65 amps
115 v a-c- 5.30 amps
230 v d-c- 5 amps
115 v d-c- 10 amps
28 v d-c- 42 amps
12 v d-c-110 amps

WEIGHT: (Shockmounted and waterproof)
Power Supply — 137 lbs.
Transmitter — 102 lbs.
Receiver — 107 lbs.
D-C Converter — 187 lbs. with watertight case less shock-mounts

DIMENSIONS:

	Width	Height	Depth
Transmitter	18	12-11/32	18-1/4
Receiver	18	12-11/32	18-19/32
Power Supply	18	12-11/32	17-31/32
Converter	21-7/8	20-7/8	11-3/4

VIBRATION: Meets requirements of MIL-T-17113 specification

TRANSMITTER

FREQUENCY RANGE: 2 - 30 mc inclusive

FREQUENCY CONTROL: Permeability tuned or crystal oscillator (4 crystal positions)

FREQUENCY STABILITY: $\pm .03\%$ with P.T.O., $\pm .007\%$ with crystal oscillator

CALIBRATION ACCURACY: $\pm .03\%$ with P.T.O., and $\pm .015\%$ using nearest 100 kc check point

TYPE OF TRANSMISSION: CW or AM

NOMINAL POWER OUTPUT: 42 watts carrier into 200 ohms

MINIMUM POWER OUTPUT: 32 watts carrier under combined adverse conditions of high temperature, low input voltage and high humidity

CW KEYING RATE: Up to 40 words per minute

ANTENNA CHARACTERISTICS: 15 to 35 foot whip antennas with 52 ohm coax from zero to 25 feet in length

OPERATING TEMPERATURE RANGE: -30 degrees C to +65 degrees C

ENVIRONMENT: Splashproof when in cabinet
Waterproof to a depth of 3 feet with watertight cover in place

DUTY CYCLE: Splashproof enclosure — continuous duty, 100% modulation, under any conditions

Waterproof enclosure — 1 min. ON, 5 min. OFF for 30 min. in 20 degrees C water

AUDIO FREQUENCY RESPONSE: 300 - 3500 cycles ± 2 db

DISTORTION: Less than 7% at 90% modulation

SPURIOUS OUTPUT: Greater than 50 db below fundamental

HUM AND NOISE: Greater than 40 db below 100% modulation

INTERUNIT INTERFERENCE: Radiated or conducted noise less than specification MIL-I-16910

MODULATION CONTROL: Peak limiting clipper eliminates overmodulation with signal up to 20 db greater than 100% modulation level

RECEIVER

FREQUENCY RANGE: 2 - 30 mc inclusive

FREQUENCY CONTROL: MO or Crystal (4 crystal positions)

FREQUENCY STABILITY: .035% +1 kc

TYPE OF RECEPTION: CW, MCW, or Voice

TEMPERATURE RANGE: -30 to +65 degrees C

ENVIRONMENT: Splashproof when in cabinet
Waterproof to a depth of 3 feet with watertight cover in place

ANTENNA: 15 to 35 foot whip; input unbalanced

SIGNAL TO NOISE: 3 uv for 20 db signal-plus-noise to noise ratio on CW. 5 uv for 10 db signal-plus-noise to noise ratio on MOD, with signal modulated 30% at 1000 cps.

SENSITIVITY: 3 uv for 6 mw into 600 ohms on CW. 5 uv for 6 mw into 600 ohms on MOD, with signal modulated 30% at 1000 cps.

SELECTIVITY: Narrow position: At least 2 kc at 6 db down; less than 5.5 kc at 60 db down.
Broad position: At least 9 kc at 6 db down; less than 19 kc at 60 db down.

IMAGE AND I-F REJECTION: Greater than 70 db.

AUDIO OUTPUT: Power: 1-1/2 watts into 600 ohm load.

Distortion: Less than 5% at 1 kc with 1-1/2 watts into 600 ohm load.

Response: 300 to 3500 cycles ± 2 db

COLLINS RADIO COMPANY

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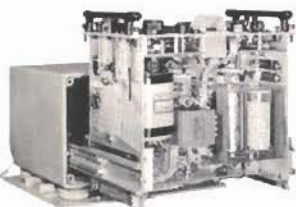
RADIO TRANSMITTER T-474/URC-8



RADIO RECEIVER R-627/URC-8



POWER SUPPLY PP-1190/URC-8



TRANSMITTER IN 90° SERVICE POSITION



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