

COLLINS **AN/TRC-75** TRANSPORTABLE HF SSB COMMUNICATION SYSTEM



DESCRIPTION

The Collins AN/TRC-75 is a transportable high frequency single sideband transceiver mounted in a watertight case. Nominal power output is 1 kw PEP. It provides transmission and reception in the 2.0 through 29.999 mc range and can be installed in a shelter, 1/4 ton or larger truck, or vessel. (A 28 v dc to 400 cps, 3 phase converter is used in the United States Marine Corps jeep installation.)

APPLICATION

The AN/TRC-75 system consists of receiver, transmitter, antenna coupler, antenna coupler control, radio set control, microphone amplifier, audio output amplifier, FSK converter-oscillator, blower, equipment case and mountings.

In the operating condition, the equipment is splash proof. Forced air ventilation of all heat generating units and the cabinet provides cooling. In the transport condition, watertight characteristics are maintained through use of gasket sealed doors and/or covers for all openings. An interlock system prevents operation when ventilation openings are covered.

The equipment is fungus proofed so that over-all spraying is not necessary.

The system is capable of transmission and reception on upper sideband suppressed carrier, lower sideband suppressed carrier, compatible AM, twin sideband suppressed carrier, CW telegraphy and FSK telegraphy.

The operator selects the desired channel by rotating four frequency control knobs which actuate direct reading indicators. All circuit tuning and antenna matching is accomplished automatically by servo systems and relays.

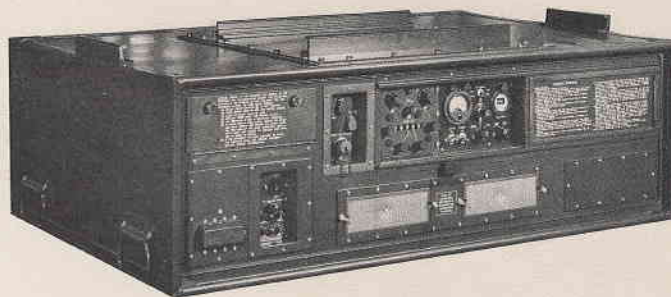
The RF power required for operation of the sidetone is obtained from a source as close as is practical to the transmitter RF output terminal. The system may be energized for automatic tuning of the receiver without breaking radio silence.

An audio tone is used as an indication that automatic transmitter and antenna coupler tuning is in progress. When the tone goes off, tuning is completed.

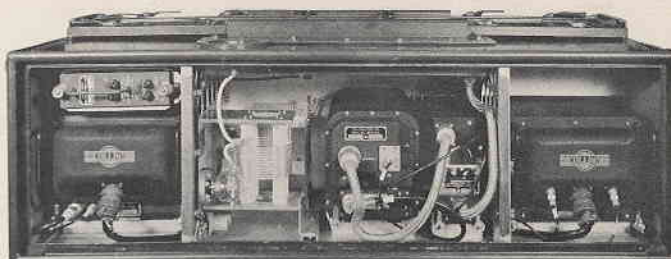
Other design features include: modular construction for ease of maintenance and supply; reduced standby power drain through extensive use of transistors and saturable reactors; efficient cooling for improved reliability; and low spurious radiation.

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FRONT VIEW



REAR, PANEL REMOVED



SPECIFICATIONS

GENERAL

FREQUENCY RANGE: 2.0 through 29.999 mc.

NUMBER OF FREQUENCY CHANNELS: 28,000 1 kc increments.

FREQUENCY SELECTION: Four knobs with direct reading indicators.

FREQUENCY STABILITY: Maintains $\pm 0.0001\%$ per 30 days.

ANTENNA: 15 ft. (whip) to long wire.

AUDIO CHARACTERISTICS: Input — Low Z dynamic or carbon microphone. Output — Low Z headset or 8 ohm speaker.

CHANNEL SELECTION TIME: 25 seconds maximum.

EXTERNAL POWER REQUIRED: 115 v, 380-400 cps, 1 phase, sine wave; 115 v, 380-400 cps, 3 phase, sine wave or square wave.

INPUT POWER: Standby — 575 watts. Tuning — 1200 watts. Transmit — 1320 watts (Voice, SSB), 1800 watts (AM) or 2100 watts (CW, FSK).

SIZE (including mounting): 49 $\frac{3}{4}$ " W, 20 $\frac{1}{4}$ " H, 30 $\frac{5}{8}$ " D (126.4 cm W, 51.4 cm H, 77.8 cm D).

WEIGHT (including mounting): 325 lbs. maximum (147.4 kg).

TRANSMITTING CHARACTERISTICS

NOISE OUTPUT: —50 db.

DISTORTION: Third order intermodulation equals —30 db 2-15 mc, —25 db 15-30 mc.

POWER OUTPUT (minimum):	High Power	Low Power
SSB	900 watts PEP, 2-15 mc 750 watts PEP, 15-30 mc	100 watts PEP
AM	180 watts	40 watts
CW/FSK	700 watts	100 watts

SPURIOUS OUTPUT: Undesired sideband —40 db; harmonic spurious —40 db; all others —50 db.

DUTY CYCLE: Continuous voice in sideband operation, 50% in AM, continuous duty cycle in FSK.

RECEIVING CHARACTERISTICS

SENSITIVITY: SSB — 1.0 uv maximum for 10 db signal-plus-noise-to-noise ratio at standard conditions. AM — 3.0 uv maximum modulated 30% at 1000 cps for 10 db signal-plus-noise-to-noise ratio at standard conditions.

SELECTIVITY: SSB — —6 db at 400 and 3000 cps from selected frequency; —55 db at 1500 and 6500 cps from selected frequency. AM — —6 db at 3000 cps from selected frequency; —55 db at 6600 cps from selected frequency.

OVER-ALL AUDIO RESPONSES: 400-3000 cps within +5 or —5.5 db throughout the range.

AVC CHARACTERISTICS: Not more than 9 db increase in audio output for RF increase from 5 uv to 100,000 uv.

AUDIO DISTORTION: 15% maximum distortion at standard conditions.

COLLINS RADIO COMPANY • CEDAR RAPIDS • DALLAS • LOS ANGELES • NEW YORK
• WASHINGTON, D. C. • INTERNATIONAL DIVISION, DALLAS, TEXAS

