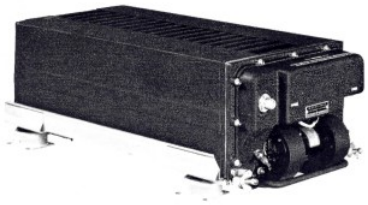
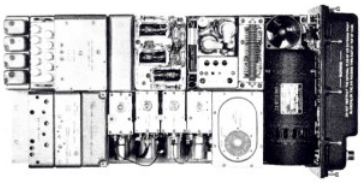
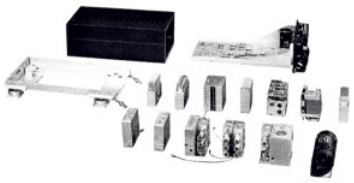


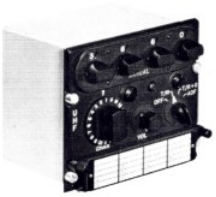
RECEIVER/TRANSMITTER RT-332/ARC-52
AND MOUNTING MT-1447/ARC-52



INTERIOR VIEW, TOP RT-332/ARC-52



ARC-52 DISASSEMBLED, SHOWING
CASE, CHASSIS AND MODULES



RADIO SET CONTROL C-1607/ARC-52

Collins

AN ARC-52
AIRBORNE RECEIVER/TRANSMITTER

APPLICATION

The AN/ARC-52 design is the outgrowth of more than ten years VHF-UHF development experience. Its size and weight factors fulfill the needs of the newer space and weight-premium aircraft without compromise in performance due to high altitude operation. The modular construction provides a flexibility in packaging which makes it readily adaptable to integrated packages. This flexibility is demonstrated by the latest developments in the ARC-52 program. Utilizing a common chassis, power supply modules can be changed to provide an ARC-52 for combined AC and DC power (as in the XN-1 model), AC only with DC only for relays, or DC only. A pressurized case affords triple features of a R.F. shield, a rugged protective cover and an efficient heat exchanger. It withstands altitudes in excess of 70,000 feet.

DESCRIPTION

The AN/ARC-52 Receiver/Transmitter permits operation on 1750 crystal controlled channels in the frequency range of 225.0 to 399.9 mc. The frequency generation system was chosen to provide common use of stable and reliable quartz crystals for both transmitting and receiving. Use of a simple frequency synthesis system results in an overall economy of tubes providing full utility of all 1750 channels, with only 36 crystals.

Operational simplicity is provided by remote control of the automatically tuned equipment. The C-1607/ARC-52 remote control box permits selection of 19 pre-set channels as well as direct control of all 1750 channels. The latter may be selected by means of four separate dials; selection of Guard Channel and ADF operation are also conveniently available.

Throughout the design, full use has been made of modern constructional features such as printed wiring, circuits cast in resin, and subminiature components such as tubes, crystals and connectors, resulting in more uniform, compact assemblies, less affected by extreme vibration.

Moduler construction offers not only the advantages of standardized plug-in subassemblies from maintenance and repair viewpoint, but also makes possible the interchangeable use of subassemblies in several different equipments.

Reliability is a most important feature of the AN/ARC-52. Only forty-three tubes for both Receiver/Transmitter and guard-receiver functions is a marked reduction. As a result, 30 to 40% fewer components are necessary. Tested, reliable components, generously derated add another magnitude of reliability to the design. No rotating components, employing brushes, are operated continuously. Pressurization is used for effective internal circulation, preventing "hot spots" at high altitudes, where the air density becomes a small fraction of sea level density.

The mounting base is ruggedly constructed to withstand the repeated high shocks of catapult take-offs and arrested carrier landings.

sheet 1 ☆ click for larger image. use your browser's backup button to return.

EQUIPMENT SPECIFICATIONS

FREQUENCY RANGE: 225.0 to 399.9 mc
CHANNELS: 1750 spaced 100 kc
FREQUENCY STABILITY: ±10 kc
CHANNEL SELECTION TIME: 3 sec., 6 sec. max. service conditions
PRESET CHANNELS: 19 including guard channel
DUTY CYCLE: 5 minutes transmit, 10 minutes receive
ALTITUDE: Equipment is pressurized to stand altitudes in excess of 70,000 feet
WEIGHT: RT-332/ARC-52 RECEIVER/TRANSMITTER—47.0 pounds
MT-1477/ARC-52 Shockmount—3 pounds
C-1607/ARC-52 Control Unit—2.7 pounds

TRANSMITTER CHARACTERISTICS

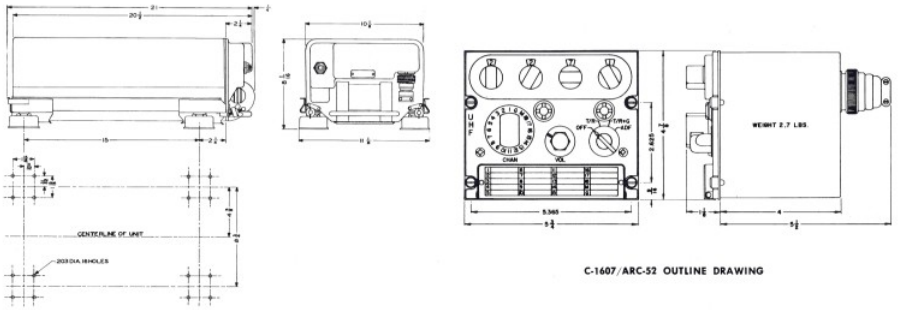
POWER OUTPUT: 20 watts unmodulated power into a 50 ohm load. Power output independent of altitude.
MODULATION: AM and MCW
TONE TRANSMISSION: MCW at 1020 cps is available
MODULATION SENSITIVITY: Carbon microphone input of 0.10 volt or dynamic microphone input of 10 mv produce full modulation
MODULATION CAPABILITY: 100% negative modulation with at least 70% positive modulation
TRANSMITTER FIDELITY: —3 to —7 db at 300 cps and ±3 db at 20 kc to permit use with data systems
TRANSMITTER DISTORTION: Less than 10% with modulation 3 db below clipping level
NOISE MODULATION: At least 40 db below the maximum modulation under all service conditions
FREQUENCY MODULATION: Less than 1 kc under all service conditions, including vibration

RECEIVER CHARACTERISTICS

SENSITIVITY: 5 microvolts mod. 30% at 1000 cycles produce at least 50 mw at a signal to noise ratio of 10 db or greater
SELECTIVITY: 6 db—90 kc min., 60 db—200 kc max.
IMAGES AND OTHER SPURIOUS RESPONSES: 60 db down
IF REJECTION: 80 db down
AVC CHARACTERISTICS: Output with ±3 db from 10 to 100,000 microvolts
BLOCKING: Protected for input signals up to 1 volt
NOISE PEAK LIMITER: Signals of 0.1 v peak amplitude composed of 10 microsecond width pulses at 1,000 prf on the desired frequency require no more than 50 microvolts desired signal for 3 db signal to noise ratio
SQUELCH OPERATION: One db change in input signal effects a change in audio output of at least 10 decibels
NOISE MODULATION: At least 30 db down
AUDIO OUTPUT: 250 mw into a 300 ohm load
AUDIO FIDELITY: ±3 db from 300 to 4,000 cps
AUDIO DISTORTION: Less than 10% at 250 mw output
AUXILIARY OUTPUT: At least 0.25 volt across 20,000 ohm with ±3 db fidelity from 70 cps to 7 kcs
GUARD RECEIVER SELECTIVITY: 6 db—90 kc min., 60 db—400 kc max. (Complete separate receiver, except audio amplifier)
POWER REQUIREMENTS:

Receive	
27.5 v d-c	115 watts
115 v 400 cps	100 VA
Transmit	
27.5 v d-c	275 watts
115 v 400 cps	100 VA

OUTLINE DIMENSIONAL DRAWING



C-1607/ARC-52 OUTLINE DRAWING

Collins CREATIVE LEADER IN MILITARY ELECTRONICS

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