AN/ARC-164 UHF Airborne Radio

The AN/ARC-164 standard avionics radio provides the DoD and NATO standard anti-jam UHF voice communications in support of modern military operations.

Benefits
- 10 watts AM; 25 kHz channel spacing
- Have Quick II ECCM
- Line-of-sight voice
- 2,000 hours demonstrated mean-time-between-failures (MTBF)
- COMSEC/secure speech compatible
- ANVIS Green A front panel lighting and electronic fill port
- Form, fit, function replacement for obsolete UHF radios
- Upgradable in the field

The AN/ARC-164 is the standard avionics radio for the U.S. Air Force and U.S. Army. It provides the DoD and NATO standard anti-jam ultra-high frequency (UHF) voice communications in support of modern military operations. The latest AN/ARC-164 radios feature MIL-STD-1553B interfaces.

Raytheon developed the RT-1614 to provide anti-jam UHF voice communications to an avionics management system. The RT-1614 is in service on U.S. Air Force, U.S. Army, and international platforms that have federated avionics systems. Raytheon provides modification kits to upgrade other ARC-164s to this configuration.

The RT-1505A (USAF), RT-1518 (U.S. Army), and the C-11718 feature a front panel with ANVIS Green A lighting and a fill port for electronic insertion of the Have Quick II multiple-word-of-day (MWOD). Modification kits to upgrade other ARC-164s with this new front panel are also available.

The MXF-243 radio set control was designed to meet the need for remote electronic fill of the Have Quick II MWOD in a smaller package.

The AN/ARC-164 is in production and available for immediate needs. Over 60,000 units have been delivered to date.

This product meets the definition of commercial item as defined by FAR 2.101.
Technical Specifications

General Characteristics:
- C-11718, MXF-243, RT-1505A, RT-1518C, RT-1504, RT-1614

Mounting Configuration:
- RT-1505A Panel
- RT-1518C Panel
- RT-1504 Remote
- RT-1614 Remote

Frequency Range:*
- 225.000 to 399.975 MHz

No. of Channels:
- UHF 7000 (including 20 preset and 1 Guard channel available from panel mount RT and the radio set control), MXF-243 has 20 additional presets for VHF

Modulation Type:
- AM (FM available for VHF/UHF MXF-243 control)

Primary Power:
- R/T Receiver: 35 watts to 16 watts typical
  - Transmitter: 110 watts to 85 watts typical at 24 to 33 Vdc
  - 20 watts at 24 to 33 Vdc

Control Boxes
- Channel Time Change
- 0.25 second maximum in normal mode
  - *MXF-243 includes 30 to 87.975 MHz (2,320 channels), and 108 to 151.975 MHz (1,760 channels)

Main Receiver Characteristics:
- RT-1505A, RT-1518C, RT-1504, RT-1614

Sensitivity (10 dB S+N/N):
- Typical: 2.5 µV
- Standard Conditions: 4 µV maximum
- Service Conditions: 6 µV maximum

Receive Signal Range:
- Receives AM signals at levels between -101 dBm and +2 dBm

AGC:
- +5, -4 dB from 4 µV to 0.5 V (all receivers) (1 mV ref)

Squelch:
- Adjustment Range: 0 to 4 µV minimum
- Hysteresis: 2 to 8 dB
- Attack Time: 50 minutes maximum

Selectivity:
- Narrowband: 6 dB ±12 kHz minimum
  - 40 dB ±25 kHz minimum
  - 60 dB ±75 kHz
- Wideband: 6 dB ±35 kHz minimum
  - 40 dB ±75 kHz minimum
  - 60 dB ±100 kHz minimum

Audio Output
- Normal
- Wideband

Power Level:
- 200 mW Min (Adj)

Voltage Level:
- Load Impedance: 150 ohms
  - Response: +1, -3 dB (300 to 3500 Hz)
    - (70 to 25 kHz)
- Distortion at 50% Mod: 10% maximum

Noise Quieting:
- 35 dB
- No squelch

Volume Control Range:
- 37 dB
- Not controlled

Environmental Characteristics
- Data: MIL-E-5400 Class II modified
- Temperature Range: -55 to +71°C
- Altitude: 0 to 70,000 feet
- Vibration: 5 g, 10 to 2000 Hz
- Shock: 15 g Service, 30 g Crash Safety
- Humidity: 95%, 10 days, with temperature cycling

Transmitter Characteristics

Power Output:
- Standard conditions: 10 watts minimum
- Service conditions: 8 watts minimum

Frequency Accuracy:
- ±500 Hz maximum

Voice Modulation:
- Level (adjusted): 0.7 Vrms input for 90% modulation
- Distortion: 10% maximum
- Response: +1, -3 dB (300 to 3500 Hz)
- Noise Level: 40 dB below 80% modulation
- Input Impedance: 150 ohms
- Tone Modulation: 1020 Hz, 80% modulation
- Carrier Rise Time: 40 to 80 m
- Sidetone Level: 100 mW at 90% modulation (adjusted)
- Wideband Noise: -110 dBm/Hz maximum ±10 MHz from carrier
- Level: -130 dBm/Hz maximum > ±20 MHz from carrier

Guard Receiver Characteristics
- Same as Main Receiver Exempt:

Channel Frequency:
- 243.000 MHz nominal

Adjustment Range:
- 238.000 to 248.000 MHz (with crystal change)

Selectivity:
- 6 dB ±30 kHz minimum
- 60 dB ±80 kHz maximum

Physical Characteristics

Mating Connectors
- Configuration: J1 Main J2 RF J3 Aux.
- RT-1504: MS27473T18B-32S UG-1185/U MS27467T11B-35P
- RT-1505A: MS27473T18B-32S M39012/26-0010 MS27473T18B-32SA
- RT-1518C: MS27473T18B-32S UG-1366/U (TPS) MS27473T18B-32SA
- RT-1614*: MS27473T18B-32S UG-1185/U MS27473T18B-32SA
- C-11718: MS27473T20B-41S
- MXF-243: MS27473T20B-41S
- MXF-243: J1 UHF - MS3126F22-55S

*RT-1614 MIL-STD-1553B Data Bus Connectors
RAYCHEM 0621-0411 with D-602-54 insert, 2 each

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