



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:	<u>RT-1505A</u> Panel	<u>RT-1518C</u> Panel	<u>RT-1504</u> Remote	<u>RT-1614</u> 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:	Receiver: 35 watts to 16 watts typical Transmitter: 110 watts to 85 watts typical at 24 to 33 Vdc			
R/T	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:	<u>Narrowband</u>	<u>Wideband</u>		
6 dB	±12 kHz minimum	±35 kHz minimum		
40 dB	±25 kHz maximum			
60 dB		± 75 kHz		
Audio Output Power Level:	<u>Normal</u>	<u>Wideband</u>		
Power Level:	200 mW Min (Adj)			
Voltage Level:			2.0 Vrms min	
Load Impedance	150 ohms	500 ohms		
Response	+1, -3 dB (300 to 3500 Hz)	+3, -5 dB (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 Level	-110 dBm/Hz maximum ±10 MHz from carrier -130 dBm/Hz maximum > ±20 MHz from carrier	

Guard Receiver Characteristics Same as Main Receiver Except:

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

Configuration (in.)	Width (in.)	Height (in.)	Depth (in.)	Weight (lb.)
RT-1504	4.98	4.730	8.32	8.84
RT-1505A	5.75	4.875	8.85	9.25
RT-1518C	5.75	4.875	8.85	9.25
RT-1614	4.98	4.730	9.11	9.75
C-11718	5.75	4.875	5.44	4.32
MXF-243	5.74	2.980	5.45	3.00

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	J1 UHF - MS3126F22-55S		

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*RT-1614 MIL-STD-1553B Data Bus Connectors
RAYCHEM D621-0411 with D-602-54 insert, 2 each