

# ARCHIVED REPORT

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## ARC-187(V) - Archived 10/07

### Outlook

- Last-known contract issued in March 2003; all installations are believed to have been completed
- Joint Tactical Radio System (JTRS) to replace most U.S. radios, including the ARC-187
- JTRS Alternative Communications suite does not include the ARC-187 radio
- Barring any new contracts, this report will be archived in 2007

### Orientation

**Description.** Secure UHF (Ultra High Frequency) line-of-sight and satellite communications radio for aircraft.

**Sponsor**

U.S. Navy

Naval Air Systems Command (NAVAIR)

Jefferson Plaza Building 1

Washington, DC 20361

USA

U.S. Air Force

Warner Robins Air Logistics Center

Robins AFB, GA 31098

USA

Tel: +1 (912) 926-1110

(Contracting activity for ARC-187 procurement)

**Status.** In service.

**Application.**

Airborne tactical communications platform aircraft include the P-3C, S-3B, AC-130U, EC-130E, C-17A, MC-130H, MH-53J, EP-3E, S-3B, and ES-3A.

**Price Range.**

Forecast International believes that a speculative price range would be between \$50,000 and \$80,000, depending on variant and quantity purchased. U.S. Navy February 2004 procurement documentation shows FY03 ARC-187 B kits for S-3B aircraft costing \$2.9 million for a quantity of 38 (\$76,316 each), while February 2004 P-3A/B/C aircraft documentation shows all prior years ARC-187 radios costing \$19.0 million for a quantity of 374 (\$50,802 each).

### Contractors

#### Prime

**Raytheon Network Centric  
Systems , Radios and Terminals**

<http://www.raytheon.com>, 1010 Production Rd, Fort Wayne, IN 46808 United States,  
Tel: +1 (260) 429-6780, Fax: +1 (260) 429-6736, Email: [commsys@raytheon.com](mailto:commsys@raytheon.com),  
Prime

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Contractors are invited to submit updated information to Editor, International Contractors, Forecast International, 22 Commerce Road, Newtown, CT 06470, USA; [rich.pettibone@forecast1.com](mailto:rich.pettibone@forecast1.com)

## ARC-187(V)

## Technical Data

	<u>Metric</u>	<u>U.S.</u>
<b>Dimensions</b>		
Weight		
RT-1571	8 kg	17.7 lb
C-12435 Radio Set Control	1.8 kg	4 lb
Frequency Range	225.000 MHz - 399.975 MHz	
Number of Channels	7,000	
Number of Preset Channels	20	
Channel Spacing	25 kHz increments	
	5 kHz increments with MXF-227 control	
SATCOM Modes	Wideband Digital Secure Voice	
	Narrowband with external modem	
Line-of-Sight Modes	AM voice, plain	
	AM voice, cipher	
	FM voice	
	FSK secure teletype	
	NTDS Link 11 Datalink	
	ADF	
Power Output	30 W (AM)	
	100 W (FM/FSK)	

**Design Features.** The ARC-187(V) is derived from the ARC-164(V) family of UHF radios, which covers the 225 MHz to 400 MHz range in 25 kHz increments. It has 7,000 channels, with up to 20 preselectable channels. Like the ARC-164(V), the ARC-187(V) is of modular, or “slice” construction, which provides an ability to connect two or more modules via a flexible harness, forming a number of different system configurations.

The complete system consists of the RT-1571 receiver/transmitter, the C-11950 control, a radio mount, a cooling fan module, and an audio interface.

**Operational Characteristics.** The ARC-187(V) transceiver operates as a satcom and line-of-sight UHF communications system. The radio is remotely controlled and HAVE QUICK II-capable, with AM secure voice and FM/FSK analog or digital data transmission capabilities. An MXF-900 modem supports compliance with 25 kHz and 5 kHz DAMA satellite modes.

## Variants/Upgrades

**MXF-227 Control.** This control panel option has programmable satcom offsets; a standard C-11950 control cannot access these offsets. It also enables 5 kHz channel spacing.

**MIL-STD-1553B Operation.** A databus adapter is available for integration with MIL-STD-1553B

avionics. The interface is based on a similar design for the ARC-164(V).

**NVG Lighting.** The ARC-187(V) can be furnished with either 5-volt or 28-volt green panel lighting compatible with aviator night vision goggles.

## Program Review

**Background.** The U.S. Navy first placed orders for the Magnavox ARC-187(V) in March 1987. Subsequent contracts for 182 systems were completed in September 1991. Additional production involved backfitting the radio to 171 P-3C aircraft through 1993, as part of a UHF/VHF communications upgrade for the

Orion. Each aircraft was outfitted with two ARC-187(V)s that replaced older ARC-143s. The U.S. Navy continues to be the major source of ARC-187 procurement for retrofit applications.

## ARC-187(V)

Procurement of the ARC-187 for new aircraft shifted to the U.S. Air Force in the early 1990s, for a variety of platforms such as the C-17A transport, AC-130U gunship, EC-130E ABCCC airborne command posts, MC-130H Combat Talon Special Operations aircraft, and MH-53J Pave Low search-and-rescue helicopters.

Contract activity in the early to mid-1990s included an August 1993 award for 124 RT-1571s, 79 mounting bases, 79 adapter cables, installation, and technical data for Air Force Special Operations Command MC-130H and MH-53J aircraft. An add-on contract for 53 receiver/transmitters for installation on various platforms followed in August 1994.

Responsibility for ARC-187 production changed hands twice because of corporate acquisitions: Hughes bought Magnavox's defense operations in September 1995 and Raytheon bought Hughes' defense operations in 1997. The ARC-187(V) has since been a Raytheon Systems Company product.

A January 1995 contract provided for three ARC-187(V) radios to be installed in each of the 18 aircraft involved in the Royal Australian Air Force's (RAAF) AP-3C Update II Orion program. According to a *Jane's International Defense Review* article dated January 18, 2002, the first two updated RAAF aircraft were delivered in December 2001. It also stated that Raytheon planned to deliver three more AP-3C aircraft

in April 2002 and complete contract deliveries in early 2004.

Under the UHF/VHF Communications Improvement Program (CIP), the U.S. Navy began to upgrade P-3C aircraft with the ARC-187. Production and installation of the ARC-187 for the P-3 started in 1999. Under this program, 203 P-3Cs would each receive two ARC-187 radios. Originally, installations of the ARC-187 were scheduled to be completed by 2007. According to February 2002 U.S. Navy budget documentation, 162 of the 203 P-3C aircraft had ARC-187 radios installed. U.S. Navy budget documents also show that the last procurement of ARC-187 components occurred in 2003. February 2004 budget documentation stated 23 aircraft will have the ARC-187 radio installed, implying that 180 aircraft installations were complete. February 2004 documentation states, "This update reflects program funding termination as of FY03."

Also covered under the UHF/VHF CIP were the U.S. Navy S-3B Viking aircraft. Receiving two ARC-187 radios each, 79 S-3B aircraft were fitted with the ARC-187. Full production for S-3B CIP was granted in June 1995. Prior to 2002, 87 ARC-187 radios were procured for the S-3B Viking. February 2005 documentation shows that 162 ARC-187 radios were purchased. February 2006 budget documentation suggests that the last ARC-187 radio was installed in mid-FY05.

## Contracts / Orders & Options

<u>Contractor</u>	<u>Award (\$ millions)</u>	<u>Date/Description</u>
Raytheon	6.6	May 2002 – A firm-fixed-price contract for the procurement of ARC-187 radio components for the P-3C and S-3B aircraft. The components include 78 RT-1571A receiver/transmitters, 78 AM-7373 amplifiers, 78 HD-1166 coolers, and 83 C-12435 controls. Work was completed by October 2004. The Naval Air Systems Command, Patuxent River, Maryland, is the contracting agency. (N00019-02-C-3183)
Raytheon	5.7	Mar 2003 – Modification to a previously awarded firm-fixed-priced contract (N00019-02-C-3183) to exercise an option for 181 ARC-187 radio components for the P-3C and S-3B aircraft. Components include 77 RT-1571A receiver/transmitters, 52 AM-7373 amplifiers, and 52 HD-1166 coolers. Work was completed in February 2005. The Naval Air Systems Command, Patuxent River, Maryland, is the contracting agency.

## Timetable

<u>Year</u>	<u>Major Development</u>
1987	First production contract with U.S. Navy
1998	Last ARC-187(V) deliveries for U.S. Navy ES-3A and EP-3E upgrades
2001	First RAAF AP-3C Orion aircraft delivered

## ARC-187(V)

<u>Year</u>	<u>Major Development</u>
2004	RAAF AP-3C Orion upgrade program completed
2004	Installation of final U.S. Navy P-3C aircraft ARC-187 radios due to "program funding termination"
2005	Installation of U.S. Navy S-3B aircraft ARC-187 radios is believed to be completed

## Worldwide Distribution / Inventories

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The ARC-187(V) is in service with the **U.S. Navy** aboard the P-3C Orion ASW aircraft (2 each), and was retrofitted to the ES-3A, EP-3E (2 each), and S-3B Viking aircraft. It has been installed aboard the **U.S. Air Force** AC-130U, EC-130E ABCCC (3 each), MC-130H Combat Talon Special Operations, and C-17A transport aircraft, as well as MH-53J Pave Low search-and-rescue helicopters. The **Royal Australian Air Force** has taken delivery of 54 radios for 18 P-3C Update II Orion aircraft under a 1995 contract.

## Forecast Rationale

The U.S. Navy issued the last known contract for the ARC-187 in March 2003 for its Communications Improvement Program (CIP) for the P-3C and S-3B aircraft. Current U.S. Navy budget documentation indicates that all of the ARC-187 radios for this program have been procured.

The production life of the ARC-187 is not anticipated to last much longer. The U.S. Armed Forces are embarking on a major overhaul of their communications systems with the Joint Tactical Radio Systems (JTRS) program. The objective of this program is to standardize radio communications throughout all branches of the U.S. military with software-based radios. JTRS has had some program difficulties and the

U.S. military has had to initiate a JTRS Alternative Communications effort. The JTRS Alternative Communications for army helicopters consists of SINCGARS and Raytheon ARC-231 radios. The ARC-231 Skyfire is an airborne, VHF/UHF LOS (line-of-sight) and DAMA (Demand Assignment Multiple Access) SATCOM3 communication system. Forecast International believes that other airborne applications will also use this Alternative Communications suite or the popular Rockwell Collins ARC-210 (UHF/VHF DAMA SATCOM system) in place of the ARC-231. JTRS and JTRS Alternative Communications do not use the ARC-187 and so its production run should end shortly. Barring any new developments, this report will be archived in 2007.

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