

# ARCHIVED REPORT

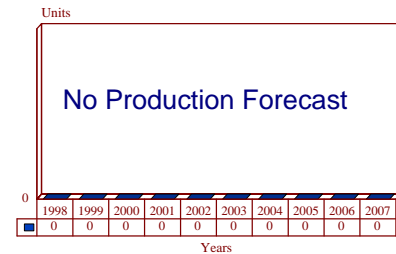
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## ARC-186(V) - Archived 9/99

### Outlook

- In the US, ARC-186(V) is being replaced by ARC-201 and ARC-222
- Production ended in 1997
- Product support to continue, especially for the export customers responsible for the latest purchases
- **This report will be dropped next year, 1999\_**

10 Year Unit Production Forecast  
1998-2007



### Orientation

**Description.** Airborne Very High Frequency (VHF) radio.

#### Sponsor

US Air Force  
Warner Robins Air Logistics Center  
Robbins AFB, Georgia (GA) 31098  
USA  
Tel: +1 912 926 1110

#### Contractors

Rockwell International Corp  
Collins Avionics & Communications Division  
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USA  
Tel: +1 319 395 1000  
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(Prime: development/production)

#### Licensee

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France  
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(French production of ARC-186(V))

**Status.** Production complete.

**Total Produced.** An estimated 21,918 units were produced through the end of 1997.

**Application.** Airborne tactical communications for a multitude of aircraft.

**Price Range.** The original unit price of one complete system was approximately US\$7,300. The price has surely risen substantially since the radio's entry into service.

## Technical Data

	<u>Metric</u>	<u>US</u>
<b>Dimensions</b>		
Size:		
Remote-Mounted RT	12.7 cm x 24.1 cm x 12.4 cm	5 in x 9.5 in x 4.89 in
Half Size Remote Control	14.6 cm x 12.4 cm x 5.7 cm	5.75 in x 4.89 in x 2.25 in
Dual UHF/VHF Control	14.6 cm x 6.6 cm x 12.7 cm	5.75 in x 2.6 in x 5 in
Weight:		
Remote-Mounted RT	3.18 kg	7 lb
Half Size Remote Control	1.14 kg	2.5 lb
Dual UHF/VHF Control	1.6 kg	3.5 lb
<b>Characteristics</b>		
Frequency Range:	30 MHz FM - 87.95 MHz FM 108 MHz AM - 115.975 MHz AM (Receive Only) 116 MHz AM - 151.979 MHz AM	
No. of Channels:	2,320 FM; 1,760 AM	
Channel Spacing:	25 kHz	
Preset Channels:	20	
Power Input:	27.5 V DC, MIL-STD-704B	
Carrier Power:	10 W minimum (AM/FM) 16 W maximum (FM) into 52 ohms	
MTBF:	9,000+ hr demonstrated	
Environmental:		
Operating	-54° C - +71° C	-65° F - 160° F
Storage	-54° C - +85° C	-65° F - 185° F

**Design Specifications.** The basic ARC-186(V) radio is a dual-band VHF/AM/FM receiver-transmitter that provides 4,080 frequency channels (1,760 AM in the 116 MHz-to-152 MHz band and 2,320 FM channels in the 30 MHz-to-88 MHz range) at 25 kHz spacing. The system automatically switches to AM or FM when the pilot chooses a frequency.

The system can be upgraded to secure-voice status as well as being compatible with baseband operations. The remote control version of the ARC-186(V) consists of the RT-1354 receiver-transmitter, a C-10605 panel-mounted control unit, radio mounts, the CM-482 comparator (which is the radio's FM homing module), and a power supply.

Up to 20 channels may be programmed on the ground or in flight for quick recall. A solid-state Metal Nitride Oxide Semiconductor (MNOS) memory stores 16-bit channel/frequency data for each of the 20 preset channels. Since the MNOS memory is nonvolatile, stored data are not erased when power is turned off.

The radio can be directly connected to a MIL-STD-1553 digital data bus. It was designed to be compatible with future-generation equipment, as well as for easy retrofit to existing installations. Since it is more compact and smaller than its predecessors, plug-in adaptor trays are used to avoid disturbing existing wiring harnesses.

## Variants/Upgrades

Receiver-Transmitters. There are four known ARC-186 RTs:

RT-1299 - Panel-mounted RT  
RT-1300 - MIL-STD-1553B bus version

RT-1354 - Remotely mounted version  
RT-1518

Within each variant, there are several models to fit differing aircraft types.

## Program Review

**Background.** In April 1978, a US\$5.5 million contract provided for the manufacture of 18 prototypes and 731 production ARC-186 radios. In service since 1979, the Rockwell Collins ARC-186(V) VHF AM/FM receiver-transmitter is used on a variety of US Army and Air Force aircraft, as well as aircraft of several nations supplied through the US Foreign Military Sales (FMS) program.

With the aid of retrofit kits, the ARC-186(V) can directly replace the ARC-114, ARC-115, ARC-131, and ARC-134 radios without any wiring changes. The ARC-186(V) was originally installed in F-4, F-16, and various transport aircraft used in an air-to-ground scenario. It has also been procured for other aircraft not always associated with the ground arena, such as the EC-135 and KC-135.

The 1988 selection of the ARC-186(V) by France for its new AS.332 Super Puma helicopters paved the way for

sales in some highly competitive areas within the European market, such as the mid-1989 Belgian selection of the system for its Agusta A109 helicopters.

In 1984, Rockwell developed a SINCGARS conversion panel that would make ARC-186 radios ready for airborne SINCGARS, hoping to stretch the ARC-186's 9,000-hour MTBF. The US Army is procuring the ITT ARC-201 SINCGARS airborne radio to replace older-generation VHF-FM sets, the ARC-114 and ARC-131, as well as the ARC-186(V). The US Army was originally scheduled to procure SINCGARS through 2004, but has opted for an extremely rapid acquisition of the system in recent years; the service wishes to field all systems to operational units by 2000.

With the US Air Force replacing its ARC-186(V) with the new ARC-222 and the Army fielding its ARC-201, the ARC-186(V) is now being phased out. Production of the radio ended in 1997.

## Funding

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Maintenance funding for the ARC-186(V) is not mentioned in current budget documents.

## Recent Contracts

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None identified since the following:

<u>Contractor</u>	<u>Award (\$ millions)</u>	<u>Date/Description</u>
Rockwell Collins	8.6	Sep 1992 – Spares for ARC-186(V) radio. Completed Sep 1994. (F09603-92-D-1372)

## Timetable

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<u>Month</u>	<u>Year</u>	<u>Major Development</u>
Apr	1978	Collins Avionics Division received \$5.5 million to build 18 prototypes and 731 production radios
Aug	1978	US Air Force began flight testing the ARC-186
May	1979	First production delivery
Dec	1988	Rockwell Collins licensed production of ARC-186(V) in France
Jul	1992	US Air Force selected Magnavox design for ARC-222 to replace ARC-186(V) in CAS, FAC, and SOF aircraft
	1997	Placed on special-order production status; last orders received; production ended

## Worldwide Distribution

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The ARC-186(V) is standard on the following **US Air Force** and **US Army** tactical aircraft: A-7, A-10, AC-130, AH-1, AH-64, B-52, C-5, C-9, C-130, C-135, C-27, CH-47, EC-130, EC-135, E-8, EH-60, F-16, HC-130, HH-1, HH-3, HH-53, KC-135, MC-130, OA-37, OV-10, OH-6, OH-58, OV-1, RC-135, UH-1, UH-60, and WC-130. The ARC-186(V) is also in service with all NATO nations and additional countries including **Australia, Brazil, Dominican Republic, El Salvador, Egypt, Greece, Honduras, Israel, Japan, Jordan, Korea, Malaysia, New Zealand, Pakistan, the Philippines, Saudi Arabia, Singapore, South Korea, Thailand, Tunisia, and Zaire.**

## Forecast Rationale

Domestic demand for the ARC-186(V) has declined as both the Air Force and the Army deploy newer frequency-hopping airborne VHF radios. The ARC-222, an airborne SINGARS-compatible set, was intended to replace the ARC-186(V) in close air support (CAS), forward air controller (FAC), Special Operations Forces (SOF) and Joint STARS aircraft. The ARC-201 SINGARS is also a direct ARC-186(V) successor.

In 1997, Rockwell issued a last call for orders of the ARC-186(V) radio, as production would not continue beyond that year. The company will offer ongoing support; this is particularly important to export clients, many of which lack the financial resources to acquire newer, more expensive communication systems, but need to maintain dual-band capability in the ARC-186's compact package.

## Ten-Year Outlook

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There will be no further production. **This report will be dropped next year, 1999.**

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