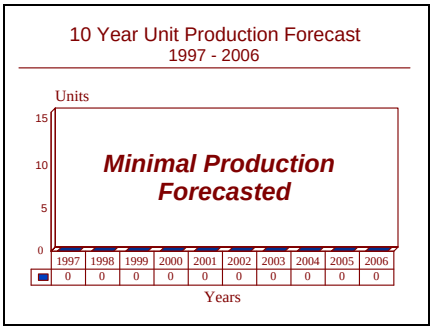
ARC-159(V) - Archived 9/98

Outlook

- Full-rate production completed in 1993
- Has been largely superseded by ARC-182 and ARC-210
- Remaining demand is for international and commercial sales sectors
- Domestic military demand for spares support is expected to continue



Orientation

Description. UHF transceiver

Sponsor
US Navy
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Contractors
Rockwell International Corp
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Status. Technically out of production, but still available on an as-needed basis.

Total Produced. An estimated 17,537 units were produced by the end of 1996.

Application. Airborne tactical communications.

Price Range. According to the manufacturer, the average price for a remote-mounted ARC-159(V) was US$40,000 in 1993.

Technical Data

Dimensions	**Metric**	**US**
Weight: ARC-159(V)1 (panel-mounted)	4.35 kg	9.5 lb
Size:	14.61 cm x 12.39 cm x 16.51 cm	5.75 in x 4.86 in x 6.50 in
Frequency Range:	225.0 MHz to 399.975 MHz; Guard Receiver: 243 MHz	
Frequency Accuracy:	+/- 2.0 kHz	
Number of Channels:	7,000	
Channel Separation:	25 kHz	
Transmitter Power Output:	10 W CW minimum; 40 W PEP	
Input Power:	+28 V dc, in accordance with MIL-STD-704, Cat B.	
MTBF:	1,000 hr	

Design Specifications. Designed as a solid-state unit, the ARC-159(V) may be either panel-mounted or installed in a remotely controlled location onboard the aircraft. A dual-control configuration is also available. The ARC-159(V) system incorporates protective measures to combat the possibility of power surging. In addition, the transceiver is capable of sustaining the effects of over-heating to within standard limits.

The system employs solid-state components, integrated circuits, MOS devices, and thin-film techniques to increase reliability and produce a mean time between failure (MTBF) exceeding 1,000 hours.

Collins has produced a number of variations of the ARC-159(V) designed to replace older radios in simplified retrofit procedures, using existing aircraft wiring and requiring no aircraft modification. The basic ARC-159(V) consists of several modules; should a component fail, only the defective module needs to be replaced. This reduces the number of spare sets required and improves operational readiness of ARC-159(V) equipped aircraft.

Operational Characteristics. The ARC-159(V), with a 10-watt power output, operates between 225 MHz and 339.975 MHz. The radio is equipped with over 7,000 channels, and of those, 20 may be preselected. The system consists of a receiver-transmitter, an indicator, control unit, mount, and switching unit. The system makes extensive use of integrated circuits and MOS techniques and features a hybrid thin-film pre-amplifier and power amplifier in the transmitter. Frequency display on the control unit and the ID-1972 remote indicator is by means of an electronic seven-bar display, allowing instantaneous reading of stored reset frequencies associated with each of the 20 channel designators.

Variants/Upgrades

There are several variants of the ARC-159(V) family, as follows:

ARC-159(V)1 - Panel-mounted version

ARC-159(V)2 - Remote version for new aircraft installations

ARC-159(V)3 - Replacement for ARC-27

ARC-159(V)4 - Replacement for ARC-52

ARC-159(V)5 - Replacement for ARC-51

ARC-159(V)8 - Replacement for ARC-34

ARC-159A(V)5 - 30-watt replacement for ARC-51

Program Review

Background. The ARC-159(V) is currently in service with a variety of domestic and overseas users in both military and civilian configurations. Once the standard UHF radio set for US Navy aircraft and international countries flying similar aircraft, it has been largely superseded by the ARC-182(V) (a dual UHF/VHF set) and its successor, the SINCGARS- and HAVE QUICK-capable ARC-210(V).

Despite the changeover, a number of ARC-159(V)s will continue in service with the US Navy for some time. Those aircraft to retain the ARC-159(V) will most likely be older aircraft such as the A-4 and F-4 that are assigned to reserve squadrons, being retired over the near term, or assigned to noncombat roles.

Technically, the ARC-159 is out of production, but Rockwell claims it continues to build them for customers

on an as-needed basis. The unit's historically strong foreign client base has perpetuated such low-level activity.

Operators in less developed nations who do not require the combination of UHF/VHF capabilities will more than likely opt for the less expensive ARC-159(V) to fulfill their UHF communications needs. The ARC-159(V) was installed as part of New Zealand's A-4 update program. The radio was also included in 24 refurbished AT-33 aircraft completed for Ecuador in 1989.

Funding

No recent funding activity identified.

Recent Contracts

No recent contracts identified.

Timetable

	1971	Initial development began
	1973	Collins developed variants for specific retrofit applications
	1981	US Navy procured 5,000th unit
Jan	1982	Collins awarded contract for 405 transceivers
Nov	1982	10,000th radio produced
	1982	Selected as part of LAMPS Mk I for SH-2F
	1984	Budget request for modifications
	1993	Full-rate production ended

Worldwide Distribution

The ARC-159(V) (commercial designation UHF 719) has been installed in over 45 different aircraft, including a variety of helicopters, supersonic jets, and many civil and military transports. In addition to the **US**, over 30 countries have selected this radio for use in their aircraft, including **Australia, Belgium, Brazil, Burma, Chile, Denmark, Ecuador, Egypt, France, Germany, Greece, India, Iran, Italy, Jordan, Kuwait, Malaysia, New Zealand, the Netherlands, Nigeria, Pakistan, Singapore, Spain, Sweden, United Kingdom,** and **Venezuela**.

Aircraft types equipped with the ARC-159(V) include the following: A-4, A-7, AT-33, Bo.105, CASA-101, CASA-212, C-130, F-4, F.27, Mirage III, S-61, SA-316, SH-2, SH-3, and Sea King.

Forecast Rationale

The fielding of the ARC-182 and the newer ARC-210 (HAVE QUICK II/SINCGARS-compatible) VHF/UHF radios has ensured the gradual obsolescence of the ARC-159(V), especially for the US Navy. Regular production was completed in 1993, and demand for the ARC-159(V) has since settled primarily into commercial and foreign military sales (FMS) sectors on an as-needed basis. US military procurement is centered upon the newer radios, although demand for ARC-159 spares support will continue.

Ten-Year Outlook

Because only minimal production is expected for the coming years, the forecast chart has been omitted.

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