

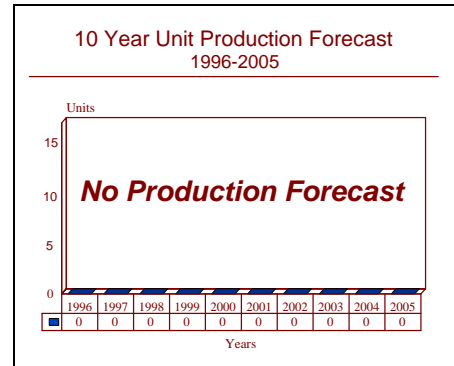
ARCHIVED REPORT

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GRC-193(V) - Archived 7/97

Outlook

- Production complete
- No future production forecast



Orientation

Description. Lightweight battlefield vehicular HF radio.

Sponsor

US Navy
Space and Naval Warfare Systems Command
(SPAWAR)
Washington, DC
USA
(USMC/Navy Program Management)

US Army

Communications & Electronics Command
Ft Monmouth, New Jersey (NJ)
USA
(Army Program Management)

Contractors

Hughes Electronics Corp
Hughes Aircraft Co
1901 W Malvern Avenue
Fullerton, California (CA) 92634
USA
(GRC-193A/B production)

Harris Corp

RF Communications Group
1680 University Avenue
Rochester, New York (NY) 14610
USA
Tel: +1 716 244 5830
Fax: +1 716 325 1572
(GRC-193A production)

Status. Production complete.

Total Produced. Approximately 5,000 units have been produced.

Application. The standard 100/400 watt single sideband vehicular or base station radio set of the US Army Improved High Frequency Radio (IHFR) program.

Price Range. Approximately \$38,000 for GRC-193A.

Technical Data

Dimensions (GRC-193B)	Metric	US
RT-1209 Receiver: size	6.6 cm x 18.4 cm x 18.4 cm	2.6 in x 7.25 in x 7.25 in
AM-6879 Exciter: size	14.5 cm x 25.4 cm x 17.8 cm	5.7 in x 10 in x 7 in
RT-1209/AM-6879: total weight	2.6 kg	5.8 lb
AM-6545 Power Amplifier: size	20.3 cm x 29 cm x 41.7 cm	8 in x 11.4 in x 16.4 in
weight	24.5 kg	54 lb
CU-2064 Antenna Coupler: size	20.3 cm x 29 cm x 37.6 cm	8 in x 11.4 in x 16.4 in
weight	24.5 kg	54 lb
Frequency:	2.0000 to 29.9999 MHz, fully synthesized	
Channels:	280,000 in 100-Hz steps	
Modes:	LSB, USB, Voice, or TTY	
RF Power Output:	100/400 watts PEP/Avg	
Current Drain:	Transmit - 45 amps at 400 watts average power output Receive only - 1.5 amps	
Environmental:	Meets applicable requirements of MIL-STD-810B for shock, vibration, dust humidity, leakage, altitude, temperature, and fungus	

Design Features. The GRC-193(V) high-frequency radio set, a component of the US Army's IHFR family, is a rugged 100/400 watt, single-sideband tactical transceiver system. The GRC-193(V) is designed to provide reliable, long-range HF voice and data communications for both mobile and fixed stations.

The GRC-193(V) set consists of the RT-1209 URC receiver-exciter, the AM-6879 amplifier-converter, the AM-6545 power amplifier, and the CU-2064 antenna coupler. The RT-1209 receiver-exciter is also common to the PRC-104 20 watt HF manpack and the C-213 20 watt HF vehicular transceiver that, together, form the IHFR family. Building block design allows a wide variety of configurations to meet operational and tactical requirements (remoting the antenna and antenna coupler, shelter installations like the TPQ-27 and UYQ-3A).

Operational Characteristics. The GRC-193(V) is fully compatible with existing HF radios, including the GRC-

106, MRC-138, PRC-104, PRC-74, PRC-87, GRC-165, URC-58, and the URC-94(V). Complete automatic tuning is accomplished in less than six seconds after frequency and mode selection, and momentary keying of the radio set. It is full rated 400 watts PEP or average output at continuous duty cycle under any worst-case combination of environmental (e.g., temperature) and primary power supply conditions. The unit features modular construction with meter and fault isolation indicators to aid in maintenance.

The radio is also compatible with various ancillary equipment such as the VIC-1 intercom, TGC-14A and UGC-74 teletype, GRA-39C radio control group, a variety of standard and field expedient antennas (AS-2259 NVIS, AT-1011, GRA-50, RF-1912, long wire, etc.), KY-65, KY-84 voice security equipment, and the RF-3466T High Speed Tactical HF Data Modem available from Harris.

Variants/Upgrades

GRC-193A STAJ-Compatible Radio. Proposed as an enhancement to the Army's IHFR program, Hughes has developed the Short-Term Anti-Jam (STAJ) versions of the GRC-193 command radio. STAJ was to provide the Army HF radio operator with a swift response to current and projected threats to tactical HF radio operations from communications jammers. The upgrade consisted of internal modifications to the IHFR radios to accommodate

a frequency-hopping capability and the addition of the STAJ controller module or applique, which actually performs the anti-jam function. The STAJ compatible production contracts were awarded in September 1987. While Hughes has produced STAJ-compatible variants of the IHFR family, company representatives have stated that the STAJ module portion of the program was canceled by the US Army.

Program Review

Background. The Integrated Tactical Communications System (INTACS) Update of 1979, performed by the US Army Signal Corps, established the requirement for a non developmental item (NDI) High Frequency radio for the US Army. The Communications Electronics Test Board, Ft. Gordon, Ga. was tasked to evaluate existing NDI HF radios available off the shelf. In April 1980, the HF radio CEP (Concept Evaluation Program) was initiated. The GRC-193 was selected in June 1980 for the high power IHFR.

During Operation Desert Storm, the IHFR family was deployed with various US ground forces, including USAF

Tactical Air Control Parties (TACPS), for coordinating air support among allied units. The radios were well received by their users, demonstrating reliability and longer range that proved essential during desert operations. The long-range nature of HF communications gear is well suited for the wide-open areas of the desert, making it particularly attractive to potential Middle East buyers.

The US Army and Marine Corps are presently the major users of the GRC-193. The off-the-shelf radio now forms part of the Army's Improved High Frequency program.

Funding

With the last of the current production contract delivered in 1992, additional procurement funding has not been identified. Spares and support funding for the GRC-193(V) is included within US Army Operations and Maintenance accounts and is not broken out as an individual line item.

Recent Contracts

Contractor	Award (\$ millions)	Date/Description
Harris	0.06	April 1991 - GRC-193B(V) STAJ compatible spares (M67004-91-R-0065/M67004-91-C-0096).

Timetable

	1979	IHFR Requirement established
Jun	1980	Harris GRC-193A selected for IHFR
	1985	Entered production
	FY86	DT/OT II for STAJ
	FY87	STAJ developmental testing completed, STAJ compatible production contract awarded
	1992	Production completed

Worldwide Distribution

The US armed forces are the primary user of the GRC-193, although there have apparently been minor foreign sales that neither Harris nor Hughes will elaborate upon.

Forecast Rationale

Production of the GRC-193 was completed in 1992. The total production of the three IHFR radios, i.e., the PRC-104, GRC-193 and GRC-213, through 1992, was 23,000 units. The production breakdown for the three types have

not been released by Hughes, but it is believed that the total number of GRC-193s produced was approximately 5,000 units.

Ten-Year Outlook

With production complete, the forecast chart has been omitted. Barring a surge in activity over the next 12 months, this report will be omitted from future supplements.

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