

## Appendix A

# SERVICE-UNIQUE SINGARS CHARACTERISTICS AND SUPPORT EQUIPMENT

**Table A-1. Army**

Description	Ground, Vehicular, and Manpack
Vehicular, short range	Nomenclature
Vehicular, short range, dismountable	AN/VRC-87(V)
Vehicular, long/short range	AN/VRC-88(V)
Vehicular, long range	AN/VRC-89(V)
Vehicular, long/short range, dismountable	AN/VRC-90(V)
Dual vehicular, long range	AN/VRC-91(V)
Manpack	AN/VRC-92(V)
	AN/PRC-119(V)

  

Mission Areas:
Combat, combat support, combat service support

  

Service-unique Characteristics:
<ul style="list-style-type: none"> <li>• 6 FH presets; 8 SC presets</li> <li>• TRANSEC key (1 active, 1 backup in non-ICOM; 6 active ICOM)</li> <li>• ECCM variable load (sequential, semiautomatic)</li> <li>• Multiple digital data rates</li> <li>• Whisper mode option</li> <li>• Transmit power selection options                             <ul style="list-style-type: none"> <li>•• 500 microwatts/160 milliwatts/4 watts/50 watts</li> </ul> </li> <li>• Battery life status indicator</li> </ul>

  

Support Equipment:
<p><b>Lightweight Computer Unit (LCU):</b></p> <ul style="list-style-type: none"> <li>• Microcomputer software system</li> <li>• Generation and maintenance of CEOI data</li> <li>• Contains ECCM variables for 10 radio presets</li> <li>• Contains other CEOI data (countersigns, pyrotechnics)</li> <li>• Transfers individual ECCM variables to a non-ICOM radio</li> <li>• Transfers all data for presets to an ICOM radio</li> </ul>

**Table A-1. Army (continued)**

**Airborne**

Nomenclature	Description
AN/ARC-201(V)	Airborne SINCGARS radio

**Mission Area:**

Air/ground communications for all Army fixed- and rotary-wing aircraft

**Service-unique Characteristics:**

(See characteristics of Army SINCGARS ground radios)

- Transmit power selection options
  - 2.5 watts / 10 watts / 40 watts
- Hardened against electromagnetic pulse (EMP)
- Built-in homing (amplitude)
- Single-channel (SC) scanning

**Support Equipment**

- LCU, ANCD, and remote control head (RCH-11466/ARC-201(V) for RT-1477

**Note:** 1. There is no auxiliary receiver to replace the AN/VRC-12 family's R-442 receiver. An additional SINCGARS RT-1439(P)VRC or RT-1523(P)VRC must be used for this function.

2. The airborne data rate adapter, CV-3885/ARC-201(V), is compatible with TACFIRE digital message device and the airborne target handoff system and will process 600 or 1200 BPS frequency shift key (FSK) data.

**Table A-2. Air Force**

<b>ARC-222 (Air Force Airborne SINGARS Radio)</b>	
<b>Nomenclature</b>	<b>Description</b>
AN/ARC-222	Radio set Remote mount receiver/transmitter Remote control set airborne terminal
<b>Mission Areas:</b>	
<ul style="list-style-type: none"><li>• Close air support (CAS)</li><li>• Joint air attack team (JAAT)</li><li>• Airlift</li><li>• Counter Air</li><li>• Combat search and rescue (CSAR)</li><li>• Special operations</li><li>• Air traffic control</li></ul>	
<b>Support Equipment</b>	
<ul style="list-style-type: none"><li>• Air Force Key Data Management System (AFKDMS)<ul style="list-style-type: none"><li>•• Microcomputer software system (MS-DOS/high order language [HOL]-Ada)</li><li>•• Extracts information from Army RBECS</li><li>•• Adds USAF-unique data</li><li>•• Builds USAF mission loadsets (frequencies, ECCM data)</li><li>•• Transfers mission loadsets to fill device or radio</li></ul></li><li>• Data transfer device (DTD) (AN/CYZ-10)<ul style="list-style-type: none"><li>•• Handheld fill device</li><li>•• Contains multiple mission loadsets</li><li>•• Transfers entire mission loadset to radio</li><li>•• Interim ECCM fill capability via MX-18290/VRC</li></ul></li></ul>	

**Note:** The AN/ARC-222 interfaces with OA-8697/ARD automatic direction finding equipment for the AM band and the CM-482/ ARC-186 homing module for the FM band. The radio also interfaces with the AN/PSC-2 digital communications terminal (DCT) at either 16 kbps direct interface or at 1200 bps FSK via the aircraft intercommunications subsystem (intercom). The radio directly interfaces with AIC-10, AIC-18, AIC-25, AIC-6533, and AIC-6533 intercoms.

Automated fill of AN/ARC-222 radios is built around a mission set tailored to the particular weapons system's mission. The Key Data Management System (KDMS) assigns mission sets to aircraft tail numbers allocated to various mission sorties. It stores the status of each radio fill operations by tail number during the radio load and then feeds the data back to the KDMS to complete the loop.

**Table A-3. Navy**

**ARC-210 (Navy Airborne SINCGARS Radio)**

Nomenclature	Description
RT-1556	Single channel transceiver <ul style="list-style-type: none"> <li>• Have Quick</li> <li>• SINCGARS</li> <li>• Can be used with a remote control unit or a -1553.</li> </ul>
C-11896/11897/11898	Remote control unit <ul style="list-style-type: none"> <li>• Numbers correspond to different panel colors.</li> </ul>

**Mission Areas:**

- Close air support (CAS)
- Combat search and rescue (CSAR)
- Force projection
- Air support for amphibious assaults

**Characteristics:**

37 Single channel presets:

- 25 single frequency
- 5 half-duplex for SATCOM operations
- 5 half-duplex for SATCOM ops with SATCOM modem
- 1 SINCGARS cue channel
- 1 SINCGARS cold start channel

25 Anti-Jam presets:

- AJ presets can be configured to be Have Quick or SINCGARS

Frequency range: 30.000 to 399.975 MHz +/- 5 kHz or +/- 10 kHz offsets; AM and FM capability

Have Quick I and Have Quick II compatibility

SINCGARS JTC3A 9001C capability including ICOM TRANSEC capability (one TRANSEC per SINCGARS preset)

**Support Equipment:**

MS-DOS PC running the ARC-210 fill program (AFP)

AN/CYZ-10 DTD to fill the ARC-210 via DS-101

**Note:** ARC-210 interfaces with GPS receivers for receipt of time-of-day.

**Table A-3. Navy (continued)**

<b>AN/SRC-54 (Navy Shipboard SINCGARS Radio)</b>	
Nomenclature	Description
RT-1730/SRC (modified RT-1523B/VRC-90)	ICOM receiver-transmitter
AM-7238/VRC	50W amplifier
C-11561(C)/U	Securable remote control unit (SCRU)(Note 1)
MX-11586/SRC-54	SINCGARS ship interface unit (SIU) (Note 2)

**Mission Areas:**

Ship-to-ship and ship-to-shore (with and without airborne relay) tactical VHF communications for:

- Naval surface fire support (NSFS)
- Naval amphibious operations

**Characteristics:**

Basic AN/VRC-90(C) (V)/U capabilities, plus:

- Single channel (SC) encryption via external crypto
- Single channel AJ (FH) encryption via internal COMSEC (ICOM)
- Up to 16 kbps data transmissions; interoperable with USMC AN/PSC-2A DCTs ashore
- OTH operation to 50+ nautical miles via helicopter-borne relay (AN/ARQ-53)
- Radio integrated into shipboard communications and control systems via Navy-developed interface unit (MX-11586/SRC-54)

NOTE: Shipboard SINCGARS (AN/SRC-54) systems will replace AN/VRC-12-based VHF systems in all NSFS and amphibious ships. A similar capability will be incorporated in ships under new construction.

**Support Equipment:**

- AN/CYZ-10 Data transfer device (ECCM & COMSEC fill)
- Navy Key Distribution System (NKDS)
- Digital Communications Interface Terminal (data input to RT for interoperability with USMC AN/PSC-2 DC)
- TSEC/KY-58 External crypto for use in single-channel (SC) operations; RT will employ ICOM for AJ (FH) operation

**Notes:** 1. C-11561(C)/U will provide control, operation, data input port from a remote location, for AJ (FH) operation.

2. SIU provides interface to ship's SA-2112(V) single audio system (SAS), AN/SSQ-82 multiple unit for transmission elimination (MUTE), and AN/SSQ-33B (MIL-STD-1553B Data Bus).

**Table A-3. Navy (continued)**

<b>AN/ARQ-53 (Navy Shipboard SINCGARS Airborne Relay)</b>	
Nomenclature	Description
RT-1476/ARC-201	Non-ICOM receiver-transmitter
AM-7189/ARC	50W amplifier
CN-1679/ARQ-53	Interference cancellation system
<b>Mission Areas:</b>	
OTH 2-channel airborne relay for VHF tactical communication support of:	
<ul style="list-style-type: none"> <li>• Naval surface fire support (NSFS)</li> <li>• Naval amphibious operations</li> </ul>	
<b>Characteristics:</b>	
Basic AN/ARC-201A and AN/VRC-90A, plus:	
<ul style="list-style-type: none"> <li>• 2-Channel, automatic retransmission of               <ul style="list-style-type: none"> <li>- SC</li> <li>- FH</li> <li>- Mixed SC/FH</li> </ul> </li> <li>• Accommodates full-band hopsets with 1 percent bit-error-rate data transmissions to/from ships and shore (USMC) units</li> <li>• Fully interoperable with all services' SINCGARS units</li> <li>• Quick-on/quick-off mounting on CH-46 and UH-1 helicopters, using own provided antennas and platform power</li> <li>• Transported/deployed from LHA and LHD vessels for employment on helicopters of choice</li> </ul>	
<b>Support Equipment:</b>	
AN/CYZ-10 DTD or MX-18290/VRC for ECCM loading	

**Table A-4. Marine Corps**

<b>Nomenclature</b>	<b>Description</b>
AN/PRC-119	Manpack/tactical ground • Replaces AN/PRC-77
AN/VRC-88A	Vehicle/tactical ground • Replaces AN/GRC-125/-160 series
AN/VRC-89	Vehicle/tactical ground, short range, dismountable • Replaces AN/VRC-12 series
AN/VRC-90	Vehicle/tactical ground, long range/short range
AN/VRC-90	Vehicle/tactical ground, long range
AN/VRC-91	Vehicle/tactical ground, long/short range, dismountable
AN/VRC-92A	Vehicle/tactical ground • Replaces AN/VRC-45/-49
AN/ARC-210	Aircraft/air-to-ground, air-to-air • Replaces AN/ARC-159 and AN/ARC-114

**Mission Areas:**

- Combat
- Combat support
- Close air support (CAS)
- Counter-air

**Support Equipment:**

End user computing equipment (EUCE)  
Data transfer device (DTD)