COURSE TITLE: ARC-220 & AN/VRC-100  
Level II Intermediate Maintenance

PREREQUISITES: Students should have basic knowledge of aircraft avionics systems and HF communications. A working command of the English language (interpreters are available for special cases).

PURPOSE: This course provides personnel with the training necessary to perform an intermediate level of maintenance on the VRC-100 system. The VRC-100 system consists of the line replaceable units (LRUs) identified in the section titled EQUIPMENT TYPE by nomenclature and part number, including associated peripheral equipment identified as deliverable hardware.

OBJECTIVES: Upon completing this course, the student will be able to:
1. Operate the VRC-100 HF Communication System in each of its modes and functions, including Normal and Emergency, as outlined in the Technical Manual.
2. Describe the purpose of the Controls, Indicators, and Connectors associated with the VRC-100.
3. Briefly describe normal and fault indications associated with Built-In-Test (BIT) capabilities.
4. Troubleshoot the VRC-100 to the faulty Shop-Replaceable-Unit (SRU) level. Remove and replace the faulty SRU.
5. Observe all personnel and equipment related Warnings and Cautions described in the Technical Manual.

COURSE LENGTH: 5 Days

TRAINING DEVICES:
1. Handset H-250/U (or equivalent)
2. AN/VRC-100
TRAINING MATERIALS:

1. PowerPoint Presentation with LCD/Box Light projector
2. Student Guide – Flash drive (pdf) – Training Presentation
   Appendix 1 – 4
   Information Sheets

REFERENCES:

1. AN/VRC-220(V)3/4 High Frequency Communications System 523-0780606
COURSE OUTLINE

0. Welcome & Introductions
   A. Course Overview
      i. Welcome
      ii. Student Registration

1. Chapter 1 – VRC-100 General Description
   A. Purpose
   B. Capabilities and Characteristics
   C. Units Comprising the AN/VRC-100
      i. VRC-100 Case Assembly
      ii. C-12436/URC Radio Set Control (RSC)
      iii. RT-1749A/URC Receiver-Transmitter
      iv. AM-7531/URC Power Amplifier Coupler

2. Chapter 2 – Principles of Operation
   A. Power Distribution
   B. HF Communications
   C. Datafill/Keyfill Operation
   D. Automatic Link Establishment (ALE) Operation
   E. Electronic Counter Countermeasure (ECCM) Operation
      i. Mode Not Available this Radio
   F. Built-In Test (BIT)
      i. Power-up BIT (P-BIT)
      ii. Continuous BIT (C-Bit)
      iii. Initiated BIT (I-BIT)
3. Chapter 3 – Controls, Indicators, and Connectors
   A. C-12436/URC Controls, Indicators, and Connectors
   B. RT-1749A/URC Connectors
   C. AM-7531/URC Controls, Indicators, and Connectors
4. Chapter 4 – System Operation (LAB)
   A. Operation under Usual Conditions
      i. Initial adjustments, checks, and self-test
      ii. Fill Options
   B. Manual Mode
      i. Configuration Editing
      ii. Transmit Position Report
      iii. Manual Radio Operation
   C. ALE Operation
      i. Normal ALE Communication
      ii. Position Reporting
      iii. ALE Link Hold Operation
      iv. Editing ALE Configuration
   D. ECCM Mode Operation
      i. Mode Not Available
   E. Data Messages
      i. Recalling Received Data Messages
      ii. Programming/Editing Data Messages
   F. Shutdown Procedures
   G. Operation under Unusual Conditions
      i. Emergency Procedures
         1. Emergency Communication
         2. Emergency Shutdown Procedures
5. Chapter 5 – Troubleshooting (LAB)
   A. Radio Set Control Theory
   B. Receiver/Transmitter Theory
   C. Power Amplifier Theory

6. Chapter 6 – External Interface
   A. 100 to 100 Cable
   B. PLGR or DAGR
   C. Computer (Datafill)
   D. KY-100 or other Security devices

7. Chapter 7 – Antenna Set-up

8. Chapter 8 – Summary – Review - Critique
   A. Test
   B. Critiques

EQUIPMENT TYPE:

<table>
<thead>
<tr>
<th>EQUIPMENT</th>
<th>NOMENCLATURE</th>
<th>PART NUMBER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Radio Set Control (RSC)</td>
<td>C-12436/URC</td>
<td>822-0786-001</td>
</tr>
<tr>
<td>HF Receiver-Transmitter</td>
<td>RT-1749A/URC (AN/ARC-220)</td>
<td>822-0788-002/003</td>
</tr>
<tr>
<td>RF Power Amplifier/Coupler</td>
<td>AM-7531/URC</td>
<td>822-0787-001</td>
</tr>
</tbody>
</table>