

# Publications and Training Solutions

## Course Syllabus: 523-0807313

**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

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### **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

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### 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)

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## Course Syllabus: 523-0807313

### **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

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#### 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:

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