**COURSE TITLE:** Tailwind 500/550 Installation and Maintenance

**PREREQUISITES:**

1. Familiarity with computers, DOS commands, and Windows Operating Systems
2. Basic understanding of electronics
3. Proficiency in speaking and reading simplified English
4. Ability to read system block diagrams
5. Familiarity with avionics system testing and troubleshooting

**PURPOSE:**

Through the use of classroom lectures, installation and maintenance personnel will be provided sufficient information that they will be confident in their ability to install, checkout and troubleshoot common issues on the Rockwell Collins Tailwind 500/550 Satellite TV system.

**OBJECTIVES:** Upon completing this course, the student should be able to:

1. Identify Line Replaceable Units (LRU) within the Tailwind 500/550 system.
2. Install and utilize Tailwind Antenna Installation Tool (TAIT).
3. Install and utilize the RCTV 5000 spectrum analyzer.
4. Identify possible faulty areas for audio and video failures.

**COURSE LENGTH:** 3Days

**TRAINING DEVICES:**

1. TAIT Laptop
2. RCTV 5000 Laptop
3. Tailwind 500/550 training device or customer supplied aircraft

**TRAINING MATERIALS:**

1. PowerPoint Presentation
2. Student Reference material provided on Universal Serial Bus (USB) thumb drive
3. System Block Diagram

**REFERENCES:**

1. Tailwind 500 Installation and Maintenance Manual 523-0817995
2. Tailwind 500 User Guide 523-0813630
3. Tailwind 550 Installation and Maintenance Manual 523-0818564
4. Tailwind 550 User Guide 523-0813628
5. Tailwind Antenna Installation Tool (TAIT) User Guide 523-0814519
6. RCTV 5000 User Guide 523-0818198
7. AVCOM of Virginia RCTV-5000 and Rockwell Collins Standard Graphical User Interface GUI User Guide

**COURSE OUTLINE**

1. Welcome & Introductions
   1. Course Overview
      1. Welcome
      2. Student Registration
2. **Satellite Television Overview**
   1. Purpose
   2. Terms
   3. Satellite TV providers
   4. Satellite TV delivery system
   5. Programming source
   6. Broadcast center
   7. Satellite operation
   8. Transponders
   9. Satellite polarization
   10. Transponder numbering
   11. Satellite dish
   12. Receiver
3. **System Description**
   1. What is Tailwind 500/550?
   2. Tailwind 500/550 features
   3. Where does it work?
   4. Airborne considerations
   5. Factors affecting performance
   6. Tailwind 500/550 system similarities
   7. Tailwind 500/550 system differences
4. **Component Overview**
   1. Tail Mount Unit (TMU) (Antenna)
   2. Gimbal Electronics (GEM)
   3. Fuselage Mounted Unit (FMU) (Antenna)
   4. System Signal Processor (SSP and SPU)
   5. Configuration Data Module (CDM)
   6. Intermediate Frequency (IF) Multiplexer Unit (IMU)
   7. Receiver Decoder Unit (RDU and RDUI)
5. **System Interconnect**
   1. SSP ports
   2. Flap position input (TW500 only)
   3. Passenger control
   4. IR or Primary RS-485 control?
   5. Secondary RS-485
6. **Installation Highlights**
   1. Special equipment
   2. Radome
   3. TMU
   4. SSP/SPU
   5. IMU
   6. RDU/RDUI
   7. Wiring and RF cables
7. **Initial System Checkout**
   1. Customer account setup
   2. Ground Test
   3. Operational test
   4. Reception checks
   5. Account activation before delivery
8. **Tailwind Antenna Installation Tool (TAIT)**
   1. Installing TAIT
   2. TAIT familiarization
   3. Antenna alignment overview
9. **Troubleshooting**
   1. No reception
   2. Missing only odds or evens
   3. IMU circuit troubleshooting
   4. Remote control
   5. For ordering information
10. **Hands On**
    1. Hardware familiarization
    2. TAIT operation
    3. Perform antenna alignment

**EQUIPMENT TYPE:**

|  |  |  |
| --- | --- | --- |
| **EQUIPMENT** | **NOMENCLATURE** | **PART NUMBER** |
| TMU | Tail Mounted Unit | 932001-10X |
| FMU | Fuselage Mounted Unit | 932000-20X |
| FMU-201 | Fuselage Mounted Unit | 822-3407-001 |
| FMU-202 | Fuselage Mounted Unit | 822-3408-001 |
| FMU-203 | Fuselage Mounted Unit | 822-3409-001 |
| FMU 4000 | Fuselage Mounted Unit | 822-3293-001 |
| GEM | Gimbal Electronics Module | 936006-100 |
| GEM-1000 | Gimbal Electronics Module | 822-3405-001 |
| SSP | System Signal Processor | 932002-100 |
| SPU-1000 | Signal Processing Unit | 822-3406-001 |
| CDM | Configuration Data Module | 932003-100 |
| IMU | IF Multiplexer Unit (8)  IF Multiplexer Unit (16) | 930011-02  932007-101/102 |
| RDU | Receiver Decoder Unit | 931000-2XX |
| RDUI-4000 | Receiver Decoder Unit International | 822-3152-001 |
| RCTV-5000 | Portable Spectrum Analyzer | 983-9767-002 |
| TAIT | Tailwind Antenna Installation Tool | SSP006-06 |