Publications and Training Solutions
Course Syllabus: 523-0809440
Edition 7. Rev. 0. Nov. 2024 9E991

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 receive the skills and knowledge necessary to install and efficiently perform Level 1 onboard maintenance activities on the Collins Aerospace Tailwind 500/550 Satellite TV system.

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

1. Identify each Line Replaceable Unit (LRU) within the Tailwind 500/550 system.
2. Install and utilize the Collins TV Tool.
3. Install and utilize the RCTV-5000 spectrum analyzer.
4. Identify possible faulty areas for audio and video features.

COURSE LENGTH: 3 Days

TRAINING DEVICES:

1. Collins TV tool software and Laptop
2. RCTV-5000 Spectrum Analyzer
3. Tailwind 500/550 training device or customer supplied aircraft.

TRAINING MATERIALS:

1. Student Guide (Electronic) 523-0809440
2. System Block Diagram

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REFERENCES:

1. Tailwind® 500 Aircraft Maintenance Manual 523-0817995
2. Tailwind 500 User Guide 523-0813630
3. Tailwind® 550 (TW550) Aircraft Maintenance Manual 523-0818564
4. Collins Tailwind® 550 User Guide 523-0813628
5. Collins TV Tool User Guide 523-0834133
6. RCTV-5000 Spectrum Analyzer User Guide 523-0818198
7. RCTV-5000 Rockwell Collins Standard Graphical User Interface (GUI) 523-0818198

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COURSE OUTLINE

0. Welcome & Introductions

A. Course Overview

1. Satellite Television Overview

A. Purpose

B. Terms

C. Satellite TV providers

D. Satellite TV delivery system

E. Programming source

F. Broadcast center

G. Satellite

H. Transponder numbering

I. Satellite dish

J. Receiver

2. System Description

A. What is Tailwind 500/550?

B. Features

C. Where does it work?

D. Airborne considerations

E. Factors affecting performance

F. Varying signal strength

3. Component Overview

A. System Similarities

B. Receiver Decoder Unit (RDU) Configurations

C. System Differences

D. System Architecture

E. Antenna Subsystem

F. Decoder Subsystem

G. Tailwind Component Location

H. Tail Mounted Unit (TMU) TW-500

I. Gimbal Electronics (GEM) TW-500

J. Fuselage Mounted Unit (FMU) TW-550

K. System Signal Processor / Signal Processor Unit (SSP/SPU) Function

L. TW500/550 Block Diagram

M. Configuration Data Module (CDM)

N. Intermediate Frequency (IF) Multiplexer Unit (IMU)

O. Direct TV Single Wire Multi-Switch (SWM)

P. Receiver Decoder Unit (RDU)

Q. Receiver Decoder Unit (RDU) Indicators

R. RDUI-4000 (International)

S. RDUI

T. RDUI-4000 Maintenance Cable

U. Receiver Decoder Unit CONUS RDUC-4000 (CONUS) Functionality

V. RDUC / IRD Functionality

W. Installation Kit

4. System Interconnect

A. SSP/SPU IF Ports

B. Flap position input (TW500 only)

C. Passenger control

D. Secondary RS-485 control

E. Component Location

5. Installation Highlights

A. Special equipment

B. Radome

C. TMU/GEM Zero Procedure

D. GEM

E. SSP/SPU

F. IMU

G. RDU/RDUI/RDUC

H. Wiring and RF cables

6. Initial System Checkout

A. Customer account setup

B. Ground Test

C. Reception checks

D. System Account activation

7. Collins TV Tool

A. Installing Collins TV Tool

B. Collins TV Tool familiarization

C. Antenna alignment overview

8. AVCOM RCTV-5000

A. RCTV-5000 User Guide

B. General Overview

C. Running GUI

D. Startup

9. System Troubleshooting

A. Audio Visual Issues

B. Searching for Satellite

C. No Reception

D. Missing Odds or Even

E. IMU circuit troubleshooting

F. Remote control

G. For ordering information

H. Other Messages

I. Reading IRD Data

J. Available Channel

K. Summary

L. Questions

EQUIPMENT TYPE:

EQUIPMENT	NOMENCLATURE	PART NUMBER
Air Data Computer	TMU	932001-10X
Tail Mounted Unit	FMU	932000-100
IF Multiplexer Unit (16 Channel)	IFMU-2000	822-3690-001
Fuselage Mounted Unit	FMU	932000-20X
Fuselage Mounted Unit	FMU 4000	822-3293-001
Fuselage Mounted Unit	GEM	936006-100
Gimbal Electronics Module	GEM-1000	822-3405-001
Gimbal Electronics Module	SSP	932002-100
System Signal Processor	SPU-1000	822-3406-001
Signal Processing Unit	CDM	932003-100
Configuration Data Module	IMU	930011-02 932007-101/102
IF Multiplexer Unit (8) IF Multiplexer Unit (16)	IFMU-1000	822-3540-001
IF Multiplexer Unit	RDU	931000-2XX
Receiver Decoder Unit	RDUI-4000	822-3152-001
Receiver Decoder Unit International	RDUC	822-3539-001
Receiver Decoder Unit Conus	RCTV-5000	983-9767-002
Portable Spectrum Analyzer	TAIT	SSP0060-06
Tailwind Antenna Installation Tool	TMU	932001-10X

