

Publications and Training Solutions

Course Syllabus: 523-0779470

COURSE TITLE: Pro Line II (Generic)
Level I Operations & Flight Line Maintenance

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

PURPOSE: This course provides line maintenance personnel with training to operate and perform flightline maintenance for the Pro Line 2 System. This course is designed to teach troubleshooting for replacement of line replacement units (LRUs) and does not include internal maintenance of any component.

The Pro Line 2 System consists of the 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. Provide an overall understanding of Pro Line 2 Avionics Principles and Operation.
2. Identify System Components and the Functional/Operational Characteristics of each LRU.
3. Identify Typical Aircraft System Interface/System Architecture.
4. Perform Fault Isolation to a faulty LRU.

COURSE LENGTH: 5 Days

TRAINING MATERIALS:

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

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REFERENCES:

- | | |
|---|-------------|
| 1. PL 2 COMM, NAV, PULSE Pilot Guide | 523-0773070 |
| 2. ADS-80/82/85 Pilot Guide | 523-0768038 |
| 3. APS-85 Test and Troubleshooting Diagnostic Guide | 523-0774402 |
| 4. COMM, NAV, PULSE Flow Charts | 523-0775841 |
| 5. APS-65 A/G Diagnostic card (pink) | 523-0777118 |
| 6. APS-65 A/G Diagnostic card (blue) | 523-0774287 |
| 7. PL 2 FLM C-N-P WXR FLM (Self-Study Guide) | 523-0775289 |
| 8. B-1900 FLM booklet (Self-Study Guide) | 523-0776871 |
| 9. SF-340 FLM booklet (Self-Study Guide) | 523-0775031 |

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Pro Line 2 (Generic) COURSE OUTLINE

0. Welcome & Introductions

- A. Course Overview
 - i. Welcome
 - ii. Student Registration
- B. Course Description and Objectives

1. EHSI-74 Electronic HSI System

- A. Overview
- B. Electronic HSI (EHSI-74)
 - i. Description
 - ii. Theory of Operation
- C. Electronic HSI Control Panel (HCP-74)
 - i. Description
 - ii. Theory of Operation
- D. Electronic HSI Processor Unit (HPU-74)
 - i. Description
 - ii. Theory of Operation
- E. Maintenance Test Mode Diagnostics

2. Electronic Flight Instrumentation Systems (EFIS) (EFIS-84, -85, -86)

- A. Overview
- B. Electronic Flight Displays (EFD)
 - i. Description
 - ii. Theory of Operation
- C. Display Control/Display Select Panel (DCP/DSP)
 - i. Description
 - ii. Theory of Operation
- D. Electronic Display Processor Unit (DPU)
 - i. Description

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- ii. Theory of Operation
 - E. Multifunction Displays (MFD)
 - i. Description
 - ii. Theory of Operation
 - F. Maintenance Test Mode Diagnostics (MDC)
 - i. Diagnostic Pages
 - ii. Reversionary Switching and Drive Transfer Techniques
- 3. Air Data System (ADS) (ADS-81, -82, -8X)**
 - A. Overview
 - B. Air Data Computer (ADC)
 - i. Description
 - ii. Theory of Operation
 - C. Indicators (ALI, ASI/MSI, VSI, PRE)
 - i. Description
 - ii. Theory of Operation
 - D. Maintenance and Troubleshooting
 - i. Built-In Test
- 4. Attitude Heading and Reference System (AHS)**
 - A. Overview
 - B. Attitude Heading Computer (AHC)
 - i. Description
 - ii. Theory of Operation
 - C. Internal Compensation Unit (ICU)
 - i. Description
 - ii. Theory of Operation
 - D. Flux Detector Unit (FDU)
 - i. Description

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- ii. Theory of Operation

- E. Maintenance and Troubleshooting

- i. Diagnostics

- ii. Compass Swing Procedure

5. Magnetic Compass System (MCS)

- A. Overview

- B. Directional Gyroscope (DGS-65)

- i. Description

- ii. Theory of Operation

- C. Compass Compensation/Control Unit (CCU/RCU)

- i. Description

- ii. Theory of Operation

- D. Maintenance & Troubleshooting

- i. Compass Swing Procedure

6. Autopilot System (APS65)

- A. Overview

- B. Autopilot/Flight Guidance Computer (APC/FGC)

- i. Description

- ii. Theory of Operation

- C. Flight Control Panel (FCP)

- i. Description

- ii. FCP Switch Description

- iii. Theory of Operation

- D. Autopilot Panel (APP)

- i. Description

- ii. APP Switch Description

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- E. Primary Servo (SVOO)
 - i. Description
 - ii. Theory of Operation
- F. Autopilot Diagnostics
 - i. Entering and Using Autopilot Diagnostics
 - 1. In Flight Test Mode
 - 2. On Ground Test Mode

7. Digital Autopilot System (APS-85)

- A. Overview
- B. Flight Control Computers (FCC)
 - i. Description
 - ii. Theory of Operation
- C. Mode Select Panel (MSP)
 - i. Description
 - ii. MSP Switch Description
 - iii. Theory of Operation
- D. Autopilot Panel (APP)
 - i. Description
 - ii. APP Switch Description
 - iii. Theory of Operation
- E. Primary Servo (SVO)
 - i. Description
 - ii. Theory of Operation
- F. Autopilot and Yaw Damp Detailed Theory of Operation
 - i. Description of Fail Passive System
 - ii. Description of Null Seeking Servo Loops
 - iii. Description of Yaw Damp System

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- G. Autopilot Diagnostics
 - i. Entering and Using Autopilot Diagnostics
 - 1. Input Mode
 - 2. Output Mode
 - 3. Report Mode
 - ii. Servo Spin Test
- 8. Radio Sensor System (RSS)**
 - A. Overview
 - B. Radio Control Units (CTL-XX)
 - i. Description
 - ii. Operation
 - iii. Theory of Operation
 - C. VHF COMM Receiver/Transmitter (VHF)
 - i. Description
 - ii. Theory of Operation
 - D. VOR/ILS/MB Receiver (VIR)
 - i. Description
 - ii. Theory of Operation
 - E. Distance Measuring Equipment (DME)
 - i. Description
 - ii. Theory of Operation
 - F. Automatic Direction Finder Receiver (ADF)
 - i. Description
 - ii. Theory of Operation
 - G. Radio Altimeter (ALT) and Radio Altimeter Converter (RAC)
 - i. Description
 - ii. Theory of Operation

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- H. Mode S Transponder (TDR-94D) with TCAS
- I. Description
- J. Theory of Operation
 - i. Video - TCAS II Operations CHANGE 7.0 523-0779512
- K. Maintenance and Troubleshooting
 - i. Flight Line Diagnostic Procedures
 - ii. Antenna Maintenance Considerations
- 9. Weather Radar (WXR)**
 - A. Overview
 - i. Video – The Next Generation Weather Radar 523-0778191
 - B. Microwave Radiation Hazards
 - i. AC 20-68B
 - C. Weather Radar Theory
 - i. Mediums that Reflect
 - ii. Path Attenuation Correction
 - iii. Auto Tilt
 - iv. Turbulence Detection and Ground Clutter Suppression
 - D. Receiver/Transmitter Assembly (RTA-8xx)
 - i. Description
 - ii. Theory of Operation
 - E. Weather Radar System (WXR-2XX, -35X)
 - i. Description
 - ii. Theory of Operation
 - F. Maintenance and Troubleshooting
 - i. Radome Maintenance (AC 43-13)
 - ii. Flight Line Diagnostic Procedures (RTA-8XX)
 - iii. Flight Line Diagnostic Procedures (WXR-2XX, -35X)

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10. Summary – Review - Critique

- A. Review
- B. Critiques

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EQUIPMENT TYPE:

EQUIPMENT	NOMENCLATURE
Display Select Panel	DSP-8X
Display Control Panel	DCP-8X
Multifunction Display	MFD-85X
Multifunction Processor Unit	MPU-85
Display Processor Unit	DPU-8X
Electronic Flight Display	EFD-8X
Altitude Preselector / Alerter	PRE-8XX
Vertical Speed Indicator	VSI-8X
Altitude Indicator	ALI-8X
Air Speed/Mach Speed Indicator	ASI/MSI-8X
Air Data Computer	ADC-81, -82, -8X
Attitude Heading Computer	AHC-85/85E
Internal Compensation Unit	ICU-85
Flux Detector Unit	FDU-70
Autopilot / Flight Guidance Computer	APC / FGC-65X
Autopilot panel	APP-65X
Flight Control Panel	FCP-65X
Flight Control Computer	FCC-85/-86
Autopilot Panel	APP-85
Mode Select Panel	MSP-85
Primary Servo	SVO-85
Servo Mount	SMT-85
Radio Control Unit(s)	CTL-XX
VHF Comm Transceiver	VHF-22X
VHF Navigation Receiver	VIR-32

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EQUIPMENT	NOMENCLATURE
DME Transceiver	DME-42
Radio Altimeter	ALT-55B
Mode C Transponder	TDR-90
Control Adapter	CAD-870
Automatic Direction Finder	ADF-60/-462
Mode S Transponder	TDR-94D
Radar Antenna Assembly	ANT-3XX
Weather Radar Indicator	IND-2XX
Weather Radar Receiver Transmitter	WXT-2XX
Receiver/Transmitter/Antenna	RTA-8XX
Weather Radar Control Panel	WXP-8X