

Publications and Training Solutions

Course Syllabus: 523-0807245

COURSE TITLE: Piaggio P-180 Pro Line 21
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 21 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 21 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 21 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 using Built-In Maintenance Diagnostics.

COURSE LENGTH: 5 Days

TRAINING DEVICES:

1. Special Test Equipment
 - a. Piaggio P-180 Test Rig, Cedar Rapids (if available)
 - b. Piaggio P-180 Aircraft (if available)

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TRAINING MATERIALS:

1. PowerPoint Presentation with LCD/Box Light projector
2. Student Guide – Flash drive (pdf) – Training Presentation
Information Sheets
3. Piaggio P-180 Avionics System Diagnostic Guide 523-0806487

REFERENCES:

1. Piaggio P-180 Avionics System Manual 523-0806486
2. Piaggio P--180 Avionics System Diagnostic Guide 523-0806487
3. Piaggio P-180 Operator's Guide 523-0806484

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COURSE OUTLINE

0. Welcome & Introductions

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

1. Data Bus

- A. Why We Use Data Buses
- B. ARINC Data Buses
 - i. ARINC 429
 - ii. ARINC 453

2. Integrated Avionics Processing System (IAPS)

- A. Overview
- B. System Architecture
- C. Integrated Card Cage (ICC)
- D. Lightning/HIRF Protector (LHP)
- E. Power Supply Module (PWR-4000)
- F. IAPS Environmental Controller (IEC-4000)
- G. Input/Output Concentrator (IOC-4000)
- H. Maintenance Diagnostic Computer (MDC-3110)
- I. Configuration Strapping Unit (CSU-4100)
- J. Maintenance and Troubleshooting

3. Maintenance Diagnostics

- A. Overview
- B. Maintenance Diagnostic Computer (MDC)

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4. Electronic Flight Instrument System (EFIS)

- A. Overview
- B. Description
- C. Theory of Operation
- D. Maintenance and Troubleshooting

5. Engine Indicating System (EIS)

- A. Overview
- B. Description
- C. Theory of Operation
- D. Maintenance and Troubleshooting

6. Integrated Flight Information System (IFIS)

- A. Overview
- B. Description
- C. Theory of Operation
- D. Maintenance and Troubleshooting

7. Air Data System (ADS)

- A. Overview
- B. Description
- C. Theory of Operation
- D. Maintenance and Troubleshooting

8. Flight Guidance System (FGS)

- A. Overview
- B. Description
- C. Theory of Operation
- D. Maintenance and Troubleshooting

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9. Flight Management System (FMS)

- A. Overview
- B. Description
- C. Theory of Operation
- D. Maintenance and Troubleshooting

10. Radio Sensor System (RSS)

- A. Overview
- B. Description
- C. Theory of Operation
- D. Maintenance and Troubleshooting

11. Weather Radar (WXR)

- A. Overview
- B. Description
- C. Theory of Operation
- D. Maintenance and Troubleshooting

12. Database Loading Operations

- A. Overview
- B. Database Subscriptions
- C. Database Loading Operations
 - i. DBU
 - ii. PCD-3000
 - iii. CPAS

13. Summary – Review - Critique

- A. Test
- B. Critiques

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EQUIPMENT TYPE:

EQUIPMENT	NOMENCLATURE	PART NUMBER
IAPS Card Cage	ICC-3000	822-1129-001
IAPS Environmental Controller	IEC-3001	822-1167-001
IAPS Power Supply	PWR-3000	822-1137-001
Options Control Module	OCM-3100	822-1484-205, -201, -200
Maintenance Diagnostic Computer	MDC-3110	822-1987-004
Configuration Strapping Unit	CSU-3100	822-1363-002
Air Data Computer	ADC-3000	822-1109-018
Attitude Heading Computer	AHC-3000	822-1110-002
External Compensation Unit	ECU-3000	822-1200-003, -998
Flux Detector Unit	FDU-3000	822-1193-001
Data Concentrator Unit	DCU-3001	822-1483-301
Adaptive Flight Display	AFD-3010	822-1084-602
Adaptive Flight Display (w/Ethernet)	AFD-3010E	822-1753-602
Cursor Control Panel	CCP-3000	822-1746-002
Display Control Panel	DCP-3030	822-1828-062, -162
File Server Unit	FSU-5010	822-1543-101
Flight Guidance Computer	FGC-3003	822-2012-036
Flight Guidance Panel	FGP-3000	822-1107-108
Servo Mount (Aileron)	SMT-65	622-5735-103
Servo Mount (Elevator and Rudder)	SMT-65	622-5735-105
Primary Servo (Aileron)	SVO-3000	822-1168-021
Primary Servo (Elevator and Rudder)	SVO-3000	822-1168-022
Control Display Unit	CDU-3000	822-0884-462
Data Base Unit	DBU-4100	822-0014-104
Flight Management Computer	FMC-3000	822-0883-462

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EQUIPMENT	NOMENCLATURE	PART NUMBER
ADF Antenna (Single)	ANT-462A	622-7383-001
ADF Antenna (Dual)	ANT-462B	622-7384-001
Radio Altimeter	ALT-4000	822-0615-002
DME Transceiver	DME-4000	822-1466-001
VOR/ILS/MB/ADF Receiver	NAV-4000	822-1465-001
VOR/ILS/MB Receiver	NAV-4500	822-1579-001
Receiver Transmitter Antenna	RTA-854	622-8440-004
TCAS Directional Antenna	TRE-920	622-8973-001
TCAS II Receiver/Transmitter	TTR-4000	822-1294-001
TCAS II Directional Antenna	TRE-920	622-8973-001
Diversity Transponder	TDR-94D	622-9210-008
Control Display Unit	CDU-6200	822-1485-402
Communication Management Unit	CMU-4000	822-1739-003
GPS Receiver	GPS-4000A	822-1377-001
GPS Antenna	GPS ANT	822-0006-010
Radio Tuning Unit	RTU-4220	822-0730-462
Radio Tuning Unit	RTU-4200	822-0668-262
VHF Comm Transceiver	VHF-4000	822-1468-102
Receiver/Transmitter/Antenna	RTA-800	822-1050-001
Receiver/Transmitter/Antenna	RTA-842	622-9301-004
Receiver/Transmitter/Antenna	RTA-852	622-8439-004