

# Publications and Training Solutions

## Course Syllabus: 523-0820277

**COURSE TITLE:** Pro Line Fusion for Airbus A220  
Level I Operations & Flight line Maintenance

**PREREQUISITES:**

Students should have a 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 Airbus A220 aircraft. This course is designed to teach troubleshooting for box replacement and does not include internal maintenance of any component

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

1. Provide an overall understanding of Pro Line Fusion avionics principles and operations.
2. Identify system components and the functional/operational characteristics of each line replaceable unit (LRU) and line replaceable module (LRM).
3. Identify typical aircraft system interface/system architecture.
4. Perform fault isolation to a faulty LRU using built-in test diagnostics.

**COURSE LENGTH:** 5 Days

**TRAINING DEVICES:**

1. A220 Aircraft (if available)
2. A220 Test Rig, Cedar Rapids (if available)

**TRAINING MATERIALS:**

1. PowerPoint Presentation with LCD projector
2. Student training manual
3. Information handouts

**REFERENCES:**

1. Airbus A220 Pro Line Fusion Flight Management System 523-0823568
2. Airbus A220 Pro Line Fusion Avionics System  
Operator's Guide 523-0823569

## **Publications and Training Solutions Course Syllabus: 523-0820277**

- |  |             |
|--|-------------|
| 3. Airbus A220 Airline Operations Center (AOC)<br>Datalink Guide | 523-0823645 |
| 4. ATN and FANS Harmonized CPDLC Application Operator Guide      | 523-0822822 |
| 5. Airbus Aircraft Maintenance Manual*                           |             |
| 6. Airbus Fault Isolation Manual*                                |             |

\*Developed and distributed by Bombardier.

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### **COURSE OUTLINE**

#### **0. Welcome & Introductions**

- A. Training Overview
  - i. Welcome
  - ii. Student Registration
  - iii. Student Policies and Procedures
  - iv. Course Overview

#### **1. System Overview**

- A. Installed Components/System Overview
  - i. Miscellaneous Components
  - ii. Display System
  - iii. DCU Module Cabinets (DMC)
  - iv. Integrated Processing System
  - v. Information Management System
  - vi. Flight Management System
  - vii. Automatic Flight Control System
  - viii. Terrain Awareness and Warning System
  - ix. Onboard Maintenance System
  - x. Application License Manager
  - xi. Flight Deck
  - xii. Radio and Surveillance Systems
- B. Integrated Modular Avionics System
- C. Summary

#### **2. ATA Chapter 22 - Automatic Flight Control System (AFCS)**

- A. Overview
- B. Flight Control System Application

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- C. Flight Control Panel
  - D. Flight Director
  - E. AFCS Theory
  - F. Summary
- 3. ATA Chapter 23 – Communications**
- A.** Digital Audio System
  - B.** Radio Management
  - C.** VHF-4000
  - D.** HF-9000
  - E.** Summary
- 4. ATA Chapter 27- Flight Controls**
- A.** Primary Flight Control Computer (PFCC)
- 5. ATA Chapter – 31 Indicating and Recording**
- A. Integrated Processing System (IPS)
    - i. Overview
    - ii. Integrated Processing Cabinet
      - 1. IPC-6220
    - iii. Installed Application Software
    - iv. IPS Theory
  - B. Data Concentration System (DCS)
    - i. Overview
      - 1. Data Concentrator Unit Module Cabinet (DMC)
      - 2. Aircraft Personality Module (APM)
      - 3. Installed Software Applications
      - 4. Engine Indicating Crew Alerting System (EICAS)
    - ii. Data Concentrator Unit Module Cabinet (DMC)
      - 1. Cover and Environment Module (CEM-6000)
      - 2. Data Concentrator Module (DCM-6000)

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- 3. Power Producing Module (PPM-6000)
    - 4. Input/Output Module (IOM-6000)
    - 5. Input/Output Module (IOM-6500)
  - iii. Aircraft Personality Module (APM-5000)
  - iv. Installed Software Applications
    - 1. Crew Alerting System (CAS)
    - 2. Electronic Checklists
    - 3. Aural Alerting
    - 4. Data Acquisition and Distribution
  - v. Engine Indicating
    - 1. Engine Indicating System
    - 2. System Synoptic Pages
    - 3. EICAS Theory
- C. Display & Display Control System (D&DCS)
  - i. Overview
    - 1. Adaptive Flight Displays (AFD)
    - 2. Control Tuning Panel (CTP)
    - 3. Cursor Control Panel (CCP)
    - 4. Multifunction Keyboard Panel (MKP)
    - 5. Reversion Switch Panel (RSP)
  - ii. Equipment Description
    - 1. Adaptive Flight Displays (AFD)
    - 2. Control Tuning Panel (CTP)
    - 3. Cursor Control Panel (CCP)
    - 4. Multifunction Keyboard Panel (MKP)
    - 5. Reversion Switch Panel (RSP)
  - iii. Equipment Location
  - iv. Display Formats
  - v. Display Reversion
  - vi. Comparators/Failures
  - vii. AFD Theory

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D. Summary

### **6. ATA Chapter 34 – Navigation**

A. Standby Flight Instrument System (SFIS)

B. MultiScan™ Weather Radar (WXR)

i. Receiver Transmitter Assembly (RTA)

ii. Weather Radar Fundamentals

iii. MultiScan™ Theory

iv. Operation

C. Terrain Avoidance Warning System (TAWS)

i. Component Description

ii. Component Location

iii. System Operation

D. Traffic Surveillance System (TSS)

i. Component Description

ii. Component Location

iii. System Operation

E. Radio Altimeter (RALT)

F. Navigation Receiver (NAV)

G. Automatic Direction Finder (ADF)

H. Distance Measuring Equipment (DME)

I. ATC Transponder (XPDR)

J. Global Navigation Satellite System (GNSS)

K. Flight Management System (FMS)

i. Overview

ii. FMS Theory

iii. Summary

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### **7. ATA Chapter 45 – Diagnostic and Maintenance System**

- A. Onboard Maintenance System (OMS)
  - i. Overview
    - 1. Onboard diagnostics
    - 2. Aircraft Condition Monitoring
    - 3. Diagnostic downloads

### **8. ATA Chapter 46 – Information Systems**

- A. Data Loading
  - i. Overview
    - 1. Information Management System
    - 2. IMS-6000
    - 3. Terminology
  - ii. Data Load Architecture
  - iii. Data Load Procedures
    - 1. Load Aircraft Software Set
    - 2. Load New Databases
    - 3. Load New Documents & Tables
    - 4. Load Aircraft Software Set
    - 5. Load New/Misconfigured LRU Item
    - 6. Reload LRU
    - 7. Enable Application License Keys
  - iv. Data Loading Theory
  - v. Summary

### **9. Optional Equipment**

- A. Integrated Flight Information System (IFIS)
  - i. Electronic Charts
  - ii. Graphical Weather
  - iii. Document Reader
- B. Surface Management

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- C. Datalink
- D. Head Up Display (HUD)

#### **10. Course Summary**

- A. Review
- B. Summary
- C. Final Test
- D. Critique

#### **EQUIPMENT TYPE:**

<b>EQUIPMENT</b>	<b>NOMENCLATURE</b>	<b>PART NUMBER</b>
ACP-6020	Audio Control Panel	822-2983-010
ACP-6020	Audio Control Panel	822-2983-020
ACP-6020	Audio Control Panel	822-2983-030
ACP-6020	Audio Control Panel	822-2983-040
ACP-6020	Audio Control Panel	822-2983-060
ACP-6020	Audio Control Panel	822-2983-070
ACP-6020	Audio Control Panel	822-2983-130
ACP-6020	Audio Control Panel	822-2983-190
ACP-6020	Audio Control Panel	822-2983-240
AFD-6510	Adaptive Flight Display	822-2276-200
AFDA-6500	AFD Application	810-0063-100



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<b>EQUIPMENT</b>	<b>NOMENCLATURE</b>	<b>PART NUMBER</b>
ALMA-6000	Application License Manager App	810-0208-004
ALMA-6000	Application License Manager App	810-0208-201
ALMA-6000	Application License Manager App	810-0208-301
ALMA-6000	Application License Manager App	810-0208-302
ALT-4000	Radio Altimeter	822-0615-206
AMMK-6100	Airport Moving Maps Key	810-0323-001
AMMT-6000	Airport Moving Maps Table	810-0322-1E0001
ANT-4030	Antenna	822-2776-010
ANT-462B	Antenna	622-7384-001
ANT-53	Antenna	822-3201-001
ANT-70B	Antenna	822-3203-001
ANT-80	Antenna	866-5036-010
ANT-81	Antenna	866-5035-010
APM-5000	Aircraft Personality Module	822-2195-001
ATN-6200	Avionics Telecon Network	810-0187-001
CCM-5110	Common Computing Module	822-1991-002
CCM-6210	Common Computing Module	822-2192-002
CCP-6000	Common Computing Module	822-2831-010

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<b>EQUIPMENT</b>	<b>NOMENCLATURE</b>	<b>PART NUMBER</b>
CEM-6000	Common Computing Module	822-2401-001
CEM-6220	Cover Environment Module	822-2406-101
CMB-6510	Combiner Unit	1500-3280-001
CMB-6510	Combiner Unit	1500-3280-002
CMSA-6000	Configuration Manager System Application	810-0229-003
CMSA-6000	Configuration Manager System Application	810-0229-005
CTP-6000	Control Tuning Panel	822-2493-101
DCM-6000	Data Concentrator Module	822-2394-002
DLNA-2100B	Data Link Network Application	822-2246-101
DMC-6000	Data Concentrator Module Cabinet	822-2403-291
DME-4000	Distance Measuring Equipment	822-1466-001
DOC-6100	Document Reader	810-0149-001
DOC-6200	Document Reader	810-0150-001
DSM-5110	Digital Switching Module	822-2133-001
ECDA-6000	ECDU Application	810-0233-001
ECDA-6000	ECDU Application	810-0233-002
ECDA-6000	ECDU Application	810-0233-003
ECDA-6000	ECDU Application	810-0233-004

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<b>EQUIPMENT</b>	<b>NOMENCLATURE</b>	<b>PART NUMBER</b>
ECH-6200	Electronic Checklist keys	810-0137-001
ECU-3000	Electronic Checklist keys	822-1200-803
ECU-3000	Electronic Checklist keys	822-1200-997
ENR-6200	Enroute charts	810-0147-001
EQUIPMENT TRAY, 2 MCU ARINC	Equipment Tray	270-2712-010
FAN-6200	Data Link Key	810-0186-001
FCP-5120	Flight Control Panel	822-2468-010
FCST-5000	Flight Control System Table	810-0046-001
FCST-5000	Flight Control System Table	810-0236-1E0001
FCST-5000	Flight Control System Table	810-0236-1L0001
FCST-5000	Flight Control System Table	811-3665-1G0003
FCST-5000	Flight Control System Table	811-3666-1G0003
FCST-5000	Flight Control System Table	811-3667-1G0003
FCST-5000	Flight Control System Table	811-3668-1G0003
FL-9006	HF Feed Line	988-8095-001
FSA-6000	File Server Applications	810-0072-101
FSA-6000	File Server Applications	810-0072-301
FSA-6000	File Server Applications	810-0072-302

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<b>EQUIPMENT</b>	<b>NOMENCLATURE</b>	<b>PART NUMBER</b>
GNA-925	Antenna	822-2033-030
GPS-4000S	GPS Receiver	822-2189-010
HF-9031A	HF R/T	822-0101-002
HF-9041	HF Antenna Coupler	685-0350-002
IMAT-6000	IMA Tables	810-0181-1B0005
IMAT-6000	IMA Tables	810-0181-1B0006
IMAT-6000	IMA Tables	810-0181-1B0405
IMAT-6000	IMA Tables	810-0181-1E0001
IMAT-6000	IMA Tables	810-0181-1E0002
IMS-6000	Information Management System	822-2327-201
IMT-6500	Instrument Mounting Tray	822-2337-007
IOM-6000	Input Output Module	822-2396-092
IOM-6500	Input Output Module	822-2397-091
IPC-6220	Integrated Processing Cabinet	822-2142-205
IPSA-6000C	IPS Application	810-0132-001
IPSA-6000C	IPS Application	810-0139-001
IPSA-6000C	IPS Application	810-0140-001
IPSA-6000C	IPS Application	810-0284-001

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<b>EQUIPMENT</b>	<b>NOMENCLATURE</b>	<b>PART NUMBER</b>
IPSA-6000C	IPS Application	810-0315-001
MBS-4000	Marker Beacon Antenna	822-2777-010
MBS-4000	Marker Beacon Antenna	822-2777-020
MDT-3110	Maintenance Diagnostic Tables	810-0163-001
MDT-3110	Maintenance Diagnostic Tables	810-0169-001
MGCM-30	Magnetic Compass	866-0216-010
MIOA-6000	MKP Input / Output Application	810-0228-1B0002
MKP-6000	Multifunction Keyboard Panels	822-2471-010
MKPA-6300	MKP Application	810-0223-001
MMT-125	Equipment Mount	622-9670-001
MMT-125	Equipment Mount	622-9670-002
MMT-125/-125	Equipment Mount	653-9078-102
MMT-130	Mount Assy	622-9671-001
MMT-150	Mount Assy	622-9672-001
MT-9030A	Mount Assy	622-8116-001
MT-9042A	Mount Assy	622-8124-001
NAV-4000	Nav Receiver	822-1465-101
NAV-4500	Nav Receiver	822-1579-101

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<b>EQUIPMENT</b>	<b>NOMENCLATURE</b>	<b>PART NUMBER</b>
OCM-3900	Options Control Module	866-0210-010
OCMT-3900	OCM Table	810-0253-1E0003
OCMT-3900	OCM Table	810-0253-1G0002
OCMT-3900	OCM Table	810-0253-1G0003
OHU-6510	Overhead unit	1500-3270-001
OMSA-6000	OMS Application	810-0106-020
OMSA-6000	OMS Application	810-0106-250
OVL-6200	Overlay Key	810-0134-001
PEM-6210	Power Environmental Module	822-2352-001
PMA-6000	Protocol Manager Application	810-0192-002
PMA-6000	Protocol Manager Application	810-0192-003
PMA-6000	Protocol Manager Application	810-0192-010
PMA-6000	Protocol Manager Application	810-0192-011
PMA-6000	Protocol Manager Application	810-0192-012
PMA-6000	Protocol Manager Application	810-0192-013
PMA-6000	Protocol Manager Application	810-0192-100
PPM-6000	Power Producing Module	822-2395-002
PRINTR-5	Printer	866-0208-010

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<b>EQUIPMENT</b>	<b>NOMENCLATURE</b>	<b>PART NUMBER</b>
RFS-80	RF Switch	866-5037-020
RIU-4010	Radio Interface Unit	822-1863-611
RIU-4010	Radio Interface Unit	822-1863-612
RIU-4110	Radio Interface Unit	822-1864-251
RSP-6240	Reversion Select Panel	866-0230-001
RTA-4218	MultiScan Radar	822-2259-001
RTSA-6000	Radio Tuning System Application	810-0048-001
SFIS-3900	Standby Instrument	866-0205-201
SFIS-MNT	Stby Instrument Mount	139-0969-040
SVM-6110H	Synthetic Vision Module	822-2539-001
TDR-94D	Transponder	622-9210-410
TLAF-5000	Takeoff and Landing Awareness	810-0165-001
TPM-6000	TAWS Processing Module	822-2586-001
TPMA-6000	TPM Application	810-0088-001
TPMA-6000	TPM Application	810-0088-110
TPMA-6000	TPM Application	810-0088-210
TPSA-6000	TAWS Processing System App	810-0083-120
TPSA-6000	TAWS Processing System App	810-0083-210

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<b>EQUIPMENT</b>	<b>NOMENCLATURE</b>	<b>PART NUMBER</b>
TRE-940	TCAS Antenna	822-2775-010
TSA-4100	TCAS Application	866-0016-101
TSM-4100	TAWS Mount	866-0128-020
TSS-4100	Traffic Surveillance System	822-2132-001
TSSA-4100	TSS Application	810-0052-010
UMT-12	Mount Assy	622-5212-004
UMT-19	Mount Assy	866-5007-110
VHF-4000	VHF Radio	822-1468-310
VHFA-4000	Antenna	822-2778-010
XMA-1000	XM Weather Receiver Antenna	822-2030-001
XMGWX-6200	XM Weather Key	810-0144-001
XMWR-1000	XM Weather Receiver	822-2031-002