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Course Syllabus: 523-0817473

COURSE TITLE: Pro Line Fusion® Global 5000/6000
RC Level I/ATA Level III Operations & Flightline Maintenance

PREREQUISITES:

1. 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 Global 5000/6000 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. Have an overall understanding of Pro Line Fusion Avionics principles and operation.
2. Identify system components and the functional/operational characteristics of each Line Replaceable Unit (LRU)/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. Global 5000/6000 Aircraft (if available)
2. Global 5000/6000 Test Rig, Cedar Rapids (if available)

TRAINING MATERIALS:

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

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REFERENCES:

1. Bombardier Global Vision with Pro Line Fusion® Avionics System Manual 523-0808928
2. Bombardier Global Vision 5000/6000 Pro Line Fusion® Avionics System Operator's Guide 523-0808930
3. Bombardier Global Vision with Pro Line Fusion® Avionics System Diagnostic Guide 523-0808929

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COURSE OUTLINE

0. Welcome & Introductions

- A. Introductions
- B. Registration
- C. Course Description
- D. Course Objectives
- E. Course Outline
- F. Course Evaluation
- G. Course Critique
- H. Summary
- I. Course Overview

1. Chapter 1 – Display & Display Control System (D&DCS)

- A. Overview
 - i. Adaptive Flight Displays (AFD)
 - ii. Control Tuning Panel (CTP)
 - iii. Cursor Control Panel (CCP)
 - iv. Multifunction Keyboard Panel (MKP)
 - v. Reversion Switch Panel (RSP)
- B. Equipment Location
- C. Equipment Description
 - i. Adaptive Flight Displays (AFD)
 - ii. Control Tuning Panel (CTP)
 - iii. Cursor Control Panel (CCP)
 - iv. Multifunction Keyboard Panel (MKP)
 - v. Reversion Switch Panel (RSP)
- D. Display Formats

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- E. Display Reversion
- F. Comparators/Failures
- G. AFD Theory
- H. Summary

2. Chapter 2 – Integrated Processing System (IPS)

- A. Overview
 - i. Integrated Processing Cabinet and installed modules
 - ii. Installed application software
- B. Global 5000/6000 Locations
- C. Integrated Processing System
 - i. IPC-6210
 - 1. Cover Environmental Module
 - 2. Power Environmental Module
 - 3. Digital Switching Module
 - 4. Common Computing Module
 - ii. IPC-6220
 - 1. Cover Environmental Module
 - 2. Power Environmental Module
 - 3. Digital Switching Module
 - 4. Common Computing Module
 - 5. TAWS Processing Module
 - 6. Synthetic Vision Module
- D. Installed application software
- E. IPS Theory

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3. Chapter 3 – Data Concentration System (DCS)

- A. Overview
 - i. Data Concentrator Unit Module Cabinet (DMC)
 - ii. Aircraft Personality Module
 - iii. Installed software applications
 - iv. Engine Indicating Crew Alerting System (EICAS)
 - v. Stall Protection System (SPS)
- B. Data Concentrator Unit Module Cabinet (DMC)
 - i. DMC Cover and Environmental Module (CEM-6000)
 - ii. Data Concentrator Module (DCM-6000)
 - iii. Data Concentrator Power Producing Module (PPM-6000)
 - iv. Data Concentrator Input/Output Module (IOM-6000)
 - v. Data Concentrator Input/Output Module (IOM-6500)
 - vi. Aircraft Personality Module (APM-5000)
- C. Data Concentrator System
 - i. Crew Alerting System (CAS)
 - ii. Electronic Checklist
 - iii. Aural Alerting
 - iv. Data Acquisition and Distribution
- D. EICAS
 - i. Engine Indicating System
- E. System Synoptics
- F. DCS Theory
- G. Summary

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4. Chapter 4 – Dataloading

- A. Overview
 - i. Information Management System
 - ii. IMS-6000
 - iii. Terminology
- B. Data Load Architecture
- C. Data Load Procedures
 - i. Load New Databases
 - ii. Load New Documents & Tables
 - iii. Load/Update IMA Aircraft Software Set
 - iv. Load New/Misconfigured LRU Item
 - v. Reload LRU/LRM
 - vi. Load ARINC 429 LRUs
- D. Data Loading Theory
- E. Summary

5. Chapter 5 – Onboard Maintenance System (OMS)

- A. Overview
 - i. Onboard diagnostics
 - ii. Aircraft Condition Monitoring
 - iii. Diagnostic downloads
- B. Maintenance Main Menu
 - i. View Flight Deck Effects
 - ii. View Fault Messages
 - iii. View Service Messages
 - iv. View System Exceedances
 - v. View System Trends

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- C. OMS Theory
- D. Summary

6. Chapter 6 – Heads Up Display/Enhanced Vision System (HUD/EVS)

- A. Overview
- B. HUD Overview
- C. HUD Components
- D. HUD Control
- E. HUD Display
- F. HUD Monitor Application (HMA)
- G. HUD Display Application (HDA)
- H. HUD Troubleshooting
- I. EVS Overview
- J. EVS Components
- K. EVS Control
- L. EVS Alignment
- M. EVS/HUD Troubleshooting
- N. EVS/HUD Theory

7. Chapter 7 – Synthetic Vision System (SVS)

- A. Overview
- B. SVS Overview
- C. SVS Components
- D. SVS Display
- E. SVS Controls
- F. SVS Theory

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8. Chapter 8 – Air Data System (ADS)

- A. Overview
- B. Air Data Computer
- C. ADC Locations
- D. ADS Displays
- E. ADS Controls
- F. Reversionary Mode
- G. Indications & Warnings
- H. ADC Data Loading
- I. ADS Theory
- J. Summary

9. Chapter 9 – Attitude Heading System (AHS)

- A. Overview
- B. Displays and Indications
- C. Reversionary modes
- D. AHS Theory
- E. Summary

10. Chapter 10 – Integrated Flight Information System (IFIS)

- A. Overview
- B. IFIS Overview
- C. Electronic Charts
- D. Enhanced Map Overlays
- E. Graphical Weather
- F. Subscriptions
- G. IFIS Theory
- H. Summary

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11.Chapter 11 – Automatic Flight Control System (AFCS)

- A. Overview
- B. Global 5000/6000 Locations
- C. Flight Control Panel
- D. Remote Electronics Unit
- E. Servos
- F. Yaw Damper Actuator
- G. Reversion Switch Panel
- H. AFCS Theory
- I. Summary

12.Chapter 12 – Flight Management System (FMS)

- A. Overview
- B. FMS Overview
- C. FMS Controls
- D. Display Operations
- E. Fault Indications
- F. FMS Theory
- G. Summary

13.Chapter 13 – Communication System (COMM)

- A. Overview
- B. Digital Audio System
- C. Radio Management
- D. Global 5000/6000 Locations
- E. VHF-4000
- F. Controller Pilot Data Link Communication (CPDLC)
- G. HF-9000

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- H. Communication Theory
- I. Summary

14. Chapter 14 – Navigation Systems (NAV)

- A. Overview
- B. NAV-4000
- C. Global 5000/6000 Locations
- D. DME-4000
- E. GPS-4000
- F. Radio Altimeter-4000
- G. Navigation Theory
- H. Summary

15. Chapter 15 – TSS/TAWS

- A. Overview
- B. Traffic Surveillance System (TSS)
 - i. TSS-4100
 - ii. Global 5000/6000 Locations
 - iii. TSS Controls
 - iv. TSS Troubleshooting
 - v. TSS CAS Messages
 - vi. TSS Theory
- C. Terrain Awareness Warning System (TAWS)
 - i. CCM-6210
 - ii. TPM-6000
 - iii. TAWS Software
 - iv. TAWS CAS Messages
- D. Summary

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16. Chapter 16 – MutliScan™ Weather Radar

- A. Receiver Transmitter Assembly (RTA)
- B. Weather Radar Fundamentals
- C. MultiScan™ Theory
- D. Operation
- E. WXR Fault Indications
- F. Hazard Area
- G. Summary

17. Chapter 90 – Course Summary

- A. Summary
- B. Final Exam
- C. Course critique

EQUIPMENT TYPE:

| EQUIPMENT | NOMENCLATURE | PART NUMBER |
|------------------|---------------------------------------|--------------------|
| AFD-6520 | Adaptive Flight Display | 822-2332-100 |
| CMA-2700-ISU | EVS Infrared Sensor Unit (ISU) | 1500-3180-001 |
| CMA-2700-WIN | EVS Infrared Window (IRW) | 1500-3190-001 |
| CMA-2700-AIT | EVS Aircraft Identification Tag (AIT) | 1500-3200-001 |
| SVM-6110H | SVS Module with integrated HUD | 822-2539-001 |
| SVM-6110 | SVS Module (Optional) | 822-2323-001 |
| ADC-3020 | Air Data Computer | 822-2504-001 |

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| EQUIPMENT | NOMENCLATURE | PART NUMBER |
|-----------|--|--------------|
| ACT-3020 | Aircraft Configuration Table, Generic | 810-0071-102 |
| ACP-4120 | Audio Control Panel (Base+VHF+HF1/2+SAT+ADF1/2) | 822-1950-503 |
| RIU-4110 | Radio Interface Unit (SELCAL) | 822-1864-171 |
| RIU-4010 | Radio Interface Unit (SELCAL, Data Link) | 822-1863-171 |
| ECU-3000 | External Compensation Unit, unprogrammed | 822-1200-997 |
| VHF-4000 | VHF Comm Transceiver - 8.33kHz, DataLink | 822-1468-302 |
| VHF-4000 | VHF Comm Transceiver - 8.33kHz | 822-1468-102 |
| VHFA-4000 | VHF Comm Antenna | 822-2778-010 |
| HF-9031A | HF Transceiver | 822-0101-002 |
| HF-9041 | HF Antenna Coupler | 685-0350-002 |
| NAV-4000 | VOR/ILS/MB/ADF Receiver | 822-1465-101 |
| ANT-462B | Dual ADF Antenna | 622-7384-001 |
| DME-4000 | DME Transceiver | 822-1466-001 |
| GPS-4000S | Global Positioning System, SBAS Capable | 822-2189-003 |
| ALT-4000 | Radio Altimeter | 822-0615-207 |

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| EQUIPMENT | NOMENCLATURE | PART NUMBER |
|-----------|--|--------------|
| RTA-4118 | MultiScan™ Weather Radar, 18" | 822-2256-001 |
| TSS-4100 | TCAS and Transponder Unit | 822-2132-001 |
| TSSA-4100 | TSS TCAS & Transponder Software Application | 810-0052-003 |
| TSA-4100 | Directional Antenna For TSS | 866-0016-001 |
| ECU-3000 | External Compensation Unit - TDR, TCAS, Ext Sqtr | 822-1200-803 |
| TDR-94D | Diversity Transponder, ADS-B & EHS | 622-9210-410 |
| CCM-6210 | Common Computing Module with Mass Storage | 822-2192-001 |
| CCM-5110 | Common Computing Module | 822-1991-002 |
| TPM-6000 | TAWS Processing Module | 822-2586-001 |
| TPMA-6000 | Terrain Processing Module Application | 810-taws |
| AFD-6520 | Adaptive Flight Display, 15.1" | 822-2332-100 |
| CTP-6000 | Control Tuning Panel | 822-2493-001 |
| CCP-6000 | Cursor Control Panel | 822-2831-001 |
| MKP-6000 | Multifunction Keyboard Panel | 822-2471-001 |
| RSP-6200 | Reversion Switch Panel | 822-2335-002 |

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| EQUIPMENT | NOMENCLATURE | PART NUMBER |
|-----------|---|--------------|
| IPC-6210 | Integrated Processing Cabinet, Common Computing | 822-2404-001 |
| CEM-6210 | Cover and Environmental Module | 822-2405-001 |
| PEM-6210 | Power Environment Module, DC Power | 822-2352-001 |
| DSM-5110 | Digital Switching Module (24 Port AFDX Switch) | 822-2133-001 |
| CCM-5110 | Common Computing Module | 822-1991-002 |
| IPC-6220 | Integrated Processing Cabinet, Situational Awareness | 822-2142-001 |
| CEM-6220 | Cover and Environmental Module | 822-2406-001 |
| FMCA-6200 | Flight Management Computer Application | 810-0067-xxx |
| FCP-5120 | Flight Control Panel | 822-2468-001 |
| FCSA-5000 | Flight Control System Application | 810-0046-002 |
| SVO-5000 | Primary Servo | 822-2136-001 |
| SMT-5001 | Dual Servo mount | 822-2431-103 |
| REU-6000 | Remote Electronics Unit | 822-2461-001 |
| FSA-6000 | File Server Application | 810-0072-001 |
| ECH-5000 | Electronic Charts Application Key | 810-0137-001 |
| OVL-6200 | Enhanced Map Overlay Application Key | 810-0134-001 |

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| EQUIPMENT | NOMENCLATURE | PART NUMBER |
|-----------|---|--------------|
| IMS-6000 | Information Management System | 822-2327-001 |
| DMC-6000 | DCU Module Cabinet | 822-2403-101 |
| CEM-6000 | DMC Cover and Environmental Module | 822-2401-001 |
| DCM-6000 | Data Concentrator Module | 822-2394-002 |
| PPM-6000 | Data Concentrator Power Producing Module | 822-2395-002 |
| IOM-6000 | Data Concentrator Input / Output Module | 822-2396-002 |
| IOM-6500 | Data Concentrator Input / Output Module | 822-2397-001 |
| APM-5000 | Aircraft Personality Module | 822-2195-001 |
| OMSA-6000 | Onboard Maintenance System Application | 810-0106-001 |
| XMWR-1000 | XM Weather Receiver | 822-2031-002 |
| GWX-3000 | XM Graphical Weather Key | 810-0007-001 |
| GWX-3001 | XM Graphical Weather Key, Expanded Features | 810-0058-001 |
| GWX-3002 | XM Graphical Weather Key, Growth Features | tbd-gwx3002 |