Publications and Training Solutions
Course Syllabus: 523-0817524

COURSE TITLE: Pro Line 4 – CRJ200 Flight Line Maintenance
Flight Line Maintenance (Level I)

PREREQUISITES:

Students should have a basic knowledge of aircraft avionics systems and a working command of the English language. Students should be familiar with MS Windows® based Operating Systems.

PURPOSE:

This course provides line maintenance personnel with training to diagnose faults and perform flight line maintenance on the Pro Line 4 system installed in the CRJ200.

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

1. Provide an overall understanding of Pro Line 4 Avionics principles and operation.
2. Identify system components and the functional and operational characteristics of each Line Replaceable Unit (LRU).
3. Identify typical aircraft system interface and system architecture.
4. Navigate the diagnostics information viewed on the on-board displays.
5. Perform fault isolation to a faulty LRU using built-in test diagnostics.
6. Utilize the flight guidance computer diagnostics to troubleshoot the autopilot system.

COURSE LENGTH: 6 Hour 30 Minutes

REFERENCES:

1. Canadair Reginal Jet Avionics System Manual	523-0776286
2. Pro Line 4 Avionics System for the CRJ-700/900/1000 Operator's Guide	523-0778692
3. Collins FMS-4200 Flight Management System Pilot's Guide	523-0778363
4. DLM-900/CMU-900 Data Link Management and Communications Management Units Pilot's Guide	523-0780471

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COURSE OUTLINE

0. Welcome & Introductions

A. Objectives

1. Primary Flight Display (PFD)

A. Introduction – PFD

i. Description

ii. Operation

iii. Theory of Operation

B. Introduction - Air Data Reference Panel (ARP)

i. Description

ii. Operation

iii. Theory of Operation

C. Introduction – Flight Control Panel (FCP)

i. Description

ii. Operation

iii. Theory of Operation

D. Summary/Test

2. Air Data System (ADS) - Video

A. Introduction

B. Identify ADS Components

C. Define ADS Component Functionality

D. Describe Air Data Indications

E. Summary/Test

3. Attitude Heading System (AHS) - Video

A. Introduction

B. List the Components AHS replaces

C. Identify Digital Data Output Components

D. Describe AHS Components

E. Define ADC Functionality

F. Specify when to perform Compass Alignment

G. Define AHC Handling Best Practices

H. Summary/Test

4. Multifunction Display (MFD)

A. Introduction – MFD

i. Description

ii. Theory of Operation

B. Introduction – Display Control Panel (DCP)

i. Description

ii. Operation

iii. Theory of Operation

C. Introduction – Weather Radar Panel (WXP)

i. Description

ii. Operation

iii. Theory of Operation

D. Summary/Test

5. Electronic Flight Instrument System (EFIS) – Video

A. Introduction

B. Describe EFIS Components

C. Describe EFIS Component Functionality

D. Describe EFIS Operation Features

E. Define Flag Annunciations

F. Summary/Test

6. **Weather Radar System (WXR) – Video**
    A. Describe WXR Primary Components
    B. Describe WXR System Operation
    C. Describe WXR System Indicators
    D. Summary/Test
7. **Engine Indication and Crew Alert System (EICAS)**
    A. Introduction
    B. Description
    C. Operation
    D. Theory of Operation
    E. Summary/Test
8. **Display Reversion**
    A. Introduction – MFD Reversion Panel
        i. Description
        ii. Operation
        iii. Theory of Operation
    B. Introduction – Center Reversion Panel
        i. Description
        ii. Operation
        iii. Theory of Operation
    C. Summary/Test
9. **Control Display Unit (CDU)**
    A. Introduction - CDU
        i. Description
        ii. Operation
        iii. Theory of Operation

B. Introduction – Data Base Unit
    i. Description
    ii. Operation
    iii. Theory of Operation
C. Summary/Test

10. Flight Management System (FMS) – Video

A. Identify FMS Components
B. Describe FMS Functionality using CDU
C. Describe how to Update FMS using the DBU
D. Summary/Test

11. Radios

A. Introduction – Radio Tuning Unit (RTU)
    i. Description
    ii. Operation
    iii. Theory of Operation
B. Introduction – Stand-by Tuning Panel
    i. Description
    ii. Operation
    iii. Theory of Operation
C. Introduction – Audio Control Panel (ACP)
    i. Description
    ii. Operation
    iii. Theory of Operation
D. Summary/Test

12. Aircraft Communication and Reporting System (ACARS) – Video

A. Define Purpose of ACARS

B. Describe ACARS Components

C. Describe ACARS Functionality

D. Describe How to Perform an ACARS System Check

E. Summary/Test

13. Radio Sensor System (RSS) – Video

A. List RSS Components

B. Describe RTU Functionality

C. Describe Automatic Instruments

D. Summary/Test

14. Miscellaneous Controls

A. Introduction – Compass Panel

i. Description

ii. Operation

iii. Theory of Operation

B. Introduction – Yaw Damper Panel

i. Description

ii. Operation

iii. Theory of Operation

C. Introduction – Flight Control Switches

i. Description

ii. Operation

iii. Theory of Operation

D. Introduction – Miscellaneous Test Panel

i. Description

ii. Operation

iii. Theory of Operation

E. Introduction – Caution/Warning Lights
   i. Description
   ii. Operation
   iii. Theory of Operation
F. Summary/Test

15. Flight Control System (FCS) – Video

A. Describe FCS Component Functionality
B. Describe FCS Operations
C. Summary/Test

16. Integrated Avionics Process System (IAPS) – Video

A. List IAPS Components
B. Describe IAPS Component Functionality
C. Summary/Test

17. ARINC 429 Diagnostic Word

A. Identify the Make Up of a 429 Diagnostic Word
B. Interpret Diagnostic Guide Codes
C. Identify Diagnostic Word Layout on MFD
D. Summary/Test

18. Maintenance Diagnostics

A. Enter Maintenance Diagnostics
B. Identify Maintenance Diagnostics Data
C. Exit Maintenance Diagnostics
D. Summary/Test

19. Flight Control Computer (FCC) Diagnostics

A. Identify FCC Diagnostic Description
B. Identify FCC Diagnostic Modes

C. Summary/Test

20. Diagnose FCC Fault

A. Perform a Quick Test

B. Enter FCC Diagnostics

C. Perform Fault Diagnosis

D. Exit Diagnostics

E. Summary/Test

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EQUIPMENT TYPE:

EQUIPMENT	NOMENCLATURE	PART NUMBER
Electronic Flight Display	EFD-4076	622-9810-002 / 004 / 006 / 008 / 010 /012 /016
Air Data Reference Panel	ARP-4000	622-9819-004 / 104
Flight Control Panel	FCP-4002	822-0044-001
Air Data Computer	ADC-850A	822-0372-115 / 125 / 140 / 143 / 145
Attitude Heading Computer	AHC-85E	622-9336-400
Flux Detector Unit	FDU-70	622-5812-006
Remote Compensation Panel	RCP-65	622-6174-001
Receiver/Transmitter Antenna	RTA-844	622-9302-003
Weather Radar Control Panel	WXP-4120	622-9929-002
Receiver/Transmitter Antenna (Turb)	RTA-854	622-8440-003
Weather Radar Control Panel (Turb)	WXP-4220	622-9932-002
EICAS Control Panel	ECP-4000	622-9821-002
Control Display Unit	CDU-4100	822-0021-002
Data Base Unit	DBU-4000	622-9865-002
Display Control Panel	DCP-4000	622-9812-002 / 006 / 008
Flight Management Computer	FMC-4100	822-0022-001
Flight Management	FMC-4200	822-0783-002 / 006 / 011

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EQUIPMENT	NOMENCLATURE	PART NUMBER
Computer		
Radio Tuning Unit	RTU-4000	622-9852-003 / 006 / 106 / 108 / 208
Flight Control Computer	FCC-4000	622-9815-004 / 104 / 204 / 304 / 404 / 604 / 704
Aileron Servo	SVO-85A	622-4404-001 / 101
Elevator Servo	SVO-85B	622-5027-001 / 101
Linear Actuator (Rudder)	SVL-4000	622-9968-001
IAPS Card Cage	ICC-4004	822-0198-001
IAPS Environmental Controller	IEC-4000	822-0288-001
Lightning/HIRF Protection (Left)	LHP-4000	822-0287-401
Lightning/HIRF Protection (Right)	LHP-4001	822-0332-401
IAPS Power Supply	PWR-4000	622-9945-001 / 003
Input/Output Concentrator	IOC-4000	622-9814-001 / 002 / 003 / 004 / 005 / 008 / 009
Configuration Strapping Unit	CSU-4000	822-0049-001
Configuration Strapping Unit	CSU-4100	822-1364-002
Maintenance Diagnostic Computer	MDC-4000	622-9818-001 / 002 / 003 / 004 / 005 / 006 / 020