**COURSE TITLE:** PRO LINE II (Generic)  
Level I Operator & Flightline Maintenance

**EQUIPMENT TYPES:**

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

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

### 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 Proline 2 systems.

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

1. Provide an overall understanding of Proline 2 Avionics principles and operation.
2. Identify system components and the functional/operational characteristics of each line replaceable unit (LRU).
3. Identify typical aircraft system interface/system architecture.
4. Perform fault isolation to a faulty LRU.

### COURSE LENGTH:
4.5 Days

### TRAINING MATERIALS:
1. PowerPoint Presentation with LCD projector
2. Information sheets
3. Course Notebook
REFERENCES:

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

PRO LINE 2 (GENERIC) COURSE OUTLINE

I. Welcome
   A. Training Overview (Customer Ambassador)
      1. Welcome
      2. Student Registration
      3. Student Policies and Procedures

II. Introduction to Materials and Handouts
    A. System manual introduction and use
    B. Test and troubleshooting guide introduction
    C. Equipment Description
    D. Equipment Specifications
       1. Business & Regional Systems Equipment – Leading Particulars

III. EHSI-74 Electronic HSI System
    A. Overview
    B. Electronic HSI (EHSI-74)
       1. Description
       2. Theory of operation
    C. Electronic HSI Control Panel (HCP-74)
       1. Description
       2. Theory of operation
D. Electronic HSI Processor Unit (HPU-74)
   1. Description
   2. Theory of operation

E. Maintenance Test Mode Diagnostics

IV. EFIS-84, -85, -86 Electronic Flight Instrumentation Systems

A. Overview

B. Electronic Flight Displays (EFD)
   1. Description
   2. Theory of operation

C. Display Control / Display Select Panel (DCP/DSP)
   1. Description
   2. Theory of operation

D. Electronic Display Processor Unit (DPU)
   1. Description
   2. Theory of operation

E. Multifunction Displays (MFD)
   1. Description
   2. Theory of operation

F. Multifunction Display Processor Unit (MPU)
   1. Description
   2. Theory of operation

G. Maintenance Test Mode Diagnostics
   1. Diagnostics Pages
   2. Reversionary switching and drive transfer techniques

V. Air Data System (ADS-81, -82, -8X)

A. Overview

B. Air Data Computer (ADC)
   1. Description
   2. Theory of operation

C. Indicators (ALI, ASI/MSI, VSI, PRE)
   1. Description
   2. Theory of operation
D. Maintenance and troubleshooting
   1. Built in test

VI. Attitude Heading and Reference System (AHS)

A. Overview

B. Attitude Heading Computer (AHC)
   1. Description
   2. Theory of operation

C. Internal Compensation Unit (ICU)
   1. Description
   2. Theory of operation

D. Flux Detector Unit (FDU)
   1. Description
   2. Theory of operation

E. Maintenance and troubleshooting
   1. Diagnostics
   2. Compass swing procedure

VII. Magnetic compass System (MCS)

A. Overview

B. Directional Gyrocope (DGS-65)
   1. Description
   2. Theory of operation

C. Compass Compensation/Control Unit (CCU/RCU)
   1. Description
   2. Theory of operation

D. Flux Detector Unit (FDU)
   1. Description
   2. Theory of operation

E. Maintenance and troubleshooting
   1. Compass swing procedure

VIII. Autopilot System (APS-65)

A. Overview
B. Autopilot/ Flight Guidance Computers (APC/FGC)
   1. Description
   2. Theory of operation

C. Flight Control Panel (FCP)
   1. Description
   2. FCP switchology description
   3. Theory of operation

D. Autopilot Panel (APP)
   1. Description
   2. APP switchology description

E. Primary Servo (SVO)
   1. Description
   2. Theory of operation

F. Autopilot diagnostics
   1. Entering and using autopilot diagnostics
      a. In flight test mode
      b. On ground test mode

IX. Digital Autopilot System (APS-85)
   A. Overview

   B. Flight Control Computers (FCC)
      1. Description
      2. Theory of operation

   C. Mode Select Panel (MSP)
      1. Description
      2. MSP switchology description
      3. Theory of operation

   D. Auto Pilot Panel (APP)
      1. Description
      2. APP switchology description
      3. Theory of operation

   E. Primary Servo (SVO)
      1. Description
      2. Theory of operation

   F. Autopilot and yaw damp detailed theory of operation
      1. Description of fail passive system
2. Description of null seeking servo loops
3. Description of yaw damp system

G. Autopilot diagnostics
   1. Entering and using autopilot diagnostics
      a. Input mode
      b. Output mode
      c. Report Mode
   2. Servo Spin test

X. Radio Sensor System

A. Overview

B. Radio Control Units (CTL-XX)
   1. Description
   2. Operation
   3. Theory of operation

C. VHF Comm receiver/transmitter (VHF)
   1. Description
   2. Theory of operation

D. VOR/ILS/MB Receiver (VIR)
   1. Description
   2. Theory of operation

E. Distance Measuring Equipment (DME)
   1. Description
   2. Theory of operation

F. Automatic Direction Finder receiver (ADF)
   1. Description
   2. Theory of operation

G. Radio Altimeter (ALT) and Radio Altimeter Converter (RAC)
   1. Description
   2. Theory of operation

H. Mode S transponder (TDR-94D) with Traffic Alert and Collision Avoidance System (TCAS)
   1. Description
   2. Theory of operation
   3. Video presentation (TCAS 2 operations with change 7.0)

I. General Maintenance Procedures for Comm /Nav /Pulse Equipment
   1. Flight line diagnostic procedures
2. Antenna maintenance considerations

XI. Weather Radar (WXR)

A. Overview

B. Microwave Radiation Hazards
   1. AC 20-68B

C. Weather radar theory
   1. Mediums that reflect
   2. VIP or Z levels
   3. Path attenuation correction
   4. Auto tilt
   5. Turbulence detection and ground clutter suppression

D. Receiver Transmitter Assembly (RTA-8xx)
   1. Description
   2. Theory of operation

E. Weather Radar System (WXR-2XX, -35X-)
   1. Description
   2. Theory of operation

F. Maintenance
   1. Radome maintenance (AC 43-13)
   2. Flight line diagnostic procedures (RTA-8XX)
   3. Flight line diagnostic procedures (WXR-2XX, -35X-)

XII. Course Conclusion

A. Review

B. Course critique