



Global Avionics Training Specialists, LLC

CESSNA CITATION

SPZ-650/CITATION III & VI

LINE MAINTENANCE FAMILIARIZATION COURSE

SYLLABUS

I. INTRODUCTION

A. SYSTEM DESCRIPTION

The SPZ-650 Integrated Flight Control System provides three-axis autopilot stabilization, flight director guidance and trim functions. The FZ-500 Flight Director Computer integrates the attitude and heading reference, air data, and EFIS into a complete aircraft control system that provides computed steering commands to the autopilot and to the pilot. The SP-650 Autopilot Computer provides the stabilization and control needed to ensure optimum performance throughout the aircraft flight regime.

The System displays heading, course, radio bearing, pitch and roll attitude, barometric altitude, radio altitude, course deviation, glideslope deviation, TO-FROM and DME indications. Lighted annunciators denote selected flight mode and altitude alert. Pitch and roll steering commands developed by the Flight Director Computer in conjunction with the Mode Selector are displayed by steering pointers on the EADI to enable the pilot to reach and/or maintain the desired flight path or attitude.

An Avionics Standard Communications Bus (ASCB) is used to interface between the SG-605 Symbol Generators and the optional MG-605 MFD Symbol Generator or the optional NZ-610 Navigation Computer. Other EFIS data is transmitted on private line buses.

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The system displays heading, course, radio bearing, pitch and roll attitude, barometric altitude, alert altitude, radio altitude, rate of turn, course deviation, glideslope deviation, TO/FROM and DME indications. Lighted annunciators denote selected flight modes. Pitch and roll computed steering commands developed by the flight guidance computer are displayed on the EADI to allow the pilot to reach and/or maintain the desired flight path or attitude reference.

B. COURSE OBJECTIVES

This course of instruction is designed to familiarize and prepare line maintenance avionics specialists to operate, maintain, troubleshoot and test the SPZ-650 IFCS to the LRU level.

Equipment interface, theory of operation and flight mode operations are thoroughly discussed. Mode logic, interlocks, and ground maintenance testing procedures are covered in detail.

C. ARRANGEMENT

Based upon past experience, Global Avionics Training Specialists, LLC has arranged the course material in an order of presentation best suited to continuity and ease of comprehension.

D. DURATION

The course is 4.5 days in length, 8 hours a day, for a total of 36 class hours.

E. STUDENT PREREQUISITES

Students attending this course should be avionics specialists with a working knowledge of:

- Digital logic
- Digital bus structures
- Basic flight deck displays
- Radio communications and navigation
- Air pressure relationships
- Servo loop theory

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II. COURSE CURRICULUM

A. ORIENTATION

1. Welcome
2. Student registration
3. Course description
4. Class policies
5. Distribution of training materials
6. Location of facilities
7. Security

B. SYSTEM DESCRIPTION

1. What is an autopilot?
2. What is a flight director?
3. System Flow Diagram
 - a) Attitude and Heading Reference System (vertical and directional gyros)
 - b) AZ-810 Air Data System
 - c) AA-300 Radio Altimeter System (optional)
 - d) EDZ-605 Electronic Flight Instrument System
 - e) MDZ-605 Multifunction Display System
 - f) Flight Control System
 - g) Primus-650 Weather Radar System
 - h) FMZ-800 Flight Management System (optional)
 - i) SRZ-850 Integrated Radio System (optional)
 - j) LSZ-850 Lightning Sensor System (optional)
4. ASCB Description
5. Component Locations

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C. SUBSYSTEM DESCRIPTION

1. Attitude and Heading Reference System

- a) VG-14A Vertical Gyro
- b) C-14D Directional Gyro
- c) CS-412 Dual Remote Compensator
- d) FX-220 Flux Valve

2. ADZ-810 Air Data System

- a) AZ-810 Air Data Computer
- b) BA-141 Barometric Altitude Indicator
- c) VN-800 VNAV Computer/Controller
- d) SI-225S Mach/Airspeed Indicator
- e) DS-125 TAS/Temperature Indicator

3. AA-300 Radio Altimeter System

- a) RT-300 Receiver Transmitter
- b) AT-224 Antenna

4. EDZ-605 Electronic Flight Instrument System and optional MDZ-605 Multifunction Display System

- a) ED-600 Electronic Display Unit
 - 1) EADI Displays and Annunciators
 - 2) EHSI Displays and Annunciators
 - 3) MFD Displays and Annunciators
- b) ED-600 Functional Operation
- c) DC-811 Display Controller
- d) RI-106S Instrument Remote Controller
- e) SG-605 Symbol Generator
- f) MC-800 MFD Controller
- g) MG-605 Symbol Generator

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5. Flight Control System

- a) SP-650 Autopilot Computer
- b) FZ-500 Flight Director Computer
- c) MS-205 Mode Selector
- d) PC-500 Autopilot Controller
- e) AG-222 Accelerometer
- f) RG-204 Rate Gyro
- g) SM-200 Servo Drive and SB-201 Bracket

6. Primus 650 Weather Radar System

- a) WU-650 Receiver/Transmitter/Antenna
- b) WI-650 Weather Radar Indicator
- c) WC-650 Weather Radar Controller (installed if MFD is installed in the aircraft and no WI-650 Weather Radar Indicator)

7. FLIGHT MANAGEMENT SYSTEM

- a) NZ-XXX Navigation Computer
- b) CD-800 Control Display Unit
- c) DL-800/900 Data Loader
- d) Global Positioning System

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8. SRZ-850 Integrated Radio System

- a) RNZ-850 Integrated Navigation Unit
- b) RCZ-850 Integrated Communications Unit
- c) ML-850 Microwave Landing System Receiver
- d) RM-850 Radio Management Unit
- e) AV-850A Audio Control Unit
- f) CD-850 Clearance Delivery Control Head
- g) DI-851 DME Indicator
- h) AT-860 ADF Antenna
- i) AT-851 MLS Antenna

9. LSZ-850 Lightning Sensor System

- a) LP-850 Lightning Sensor Processor
- b) LU-850 Lightning Sensor Controller
- c) AT-850 Antenna
- d) AT-855 Antenna

D. SPZ-650 Flight Guidance Modes of Operation

- 1. System Performance/Operating Limits
- 2. Glossary of Terms
- 3. Autopilot/Yaw Damper Engage/Disengage Logic
- 4. Roll Channel Functional Operation
 - a) Roll Hold
 - b) Heading Hold (Wings Level)
 - c) Heading Select
 - d) VOR Navigation
 - e) Localizer/Localizer Approach/Back Course
 - f) Roll Autopilot Servo Loop

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5. Pitch Channel Functional Operation
 - a) Pitch Hold
 - b) Vertical Speed Hold
 - c) IAS Hold/MACH Hold
 - d) Altitude Preselect (ASEL)
 - e) Altitude Hold
 - f) ILS Approach
 - g) Vertical Navigation (VNAV)
 - h) Go Around and Wings Level
 - i) Pitch Autopilot Servo Loop
6. Yaw Damper Functional Operation
7. Ground Test Procedures