

GE MVP 60/80/100 X-ray Controls Maintenance Course

Course length: 1 Week
CEU's Awarded: 4

COURSE INTRODUCTION

The GE MVP course is designed to teach the service professional those skills necessary to fully service this x-ray control. This includes all calibration procedures, functional checks, and troubleshooting techniques. The course includes integrated lectures, labs, and documentation which complement each other ensuring the maximum learning environment.

COURSE OBJECTIVES

At the conclusion of this course, attendees will be able to:

- Troubleshoot to the component or board level.
- Calibrate all circuitry to the manufacturer's specification.
- Perform all related CDRH compliance testing.
- Verify the system performance.

PREREQUISITES FOR ADMISSION

Attendees must possess the knowledge acquired through attendance at our Advanced Concepts of Radiographic Imaging Maintenance-Level II or the equivalent electronics and service experience. A strong microprocessor background is recommended.

DAY 1

- I. Introduction
- II. Console operation
 - A. Knobology
 - B. Technique selection
 - C. Radiographic versus R/F layout
- III. Block diagram electrical operation
- IV. Forced commutation microprocessor

LAB ACTIVITIES

- I. System operation
- II. Physical layout
 - A. Cabinet layout
 - B. Component identification
- III. Introduction to CD4 operation
 - A. Keyboard/display
 - B. L0, L1, L2 programs

DAY 2

- I. Turn on circuitry
- II. Static contacting circuitry
- III. Voltpac control circuitry
 - A. H-bridge drive
 - B. Forced commutation
 - C. Load compensation
 - D. Line compensation
- IV. KV feedback circuitry
 - A. Internal divider
 - B. External divider
- V. Power unit microprocessor
 - A. Interfaces
 - B. Analog feedbacks

- C. Watchdog timer
- D. Diagnostics

LAB ACTIVITIES

- I. KV waveform analysis
- II. KV calibration
 - A. No load, L4 program
 - B. mA load, L4 program
 - C. Line compensation
- III. Software downloading
- IV. KV troubleshooting

DAY 3

- I. Filament drive circuitry
 - A. Mid-frequency oscillator
 - B. PW modulation
 - C. Overdemand
 - D. Real mA feedback
 - E. Auto-calibration
 - F. Rad/fluoro switching
- II. HV transformer circuitry
 - A. Tube selection
 - B. HV rectification

LAB ACTIVITIES

- I. mA waveform analysis
- II. mA calibration
 - A. Preheat, L5 program
 - B. Overdemand, L5 program
 - C. Space charge, L6 program
- III. mA troubleshooting

DAY 4

- I. Rotor controller block diagram
- II. Rotor controller circuitry -TIRC
 - A. Inverter circuit
 - B. TIRC microprocessor
 - C. Fault LEDs
 - D. Interface circuits
 - E. Feedback circuits
- III. Automatic exposure control circuitry
 - A. KV compensation
 - B. Area selection compensation
 - C. Density control

LAB ACTIVITIES

- I. Rotor waveform analysis
- II. AEC calibration, L11 program
- III. AEC troubleshooting

DAY 5

- I. Fluoro ABC
 - A. Video stabilizer
 - B. mA control
 - C. KV override
- II. Universal system interface
 - A. R/F interface
 - B. System interfaces
- III. System review
- IV. Final exam and course critique
- V. Parts sourcing