

# GE Advantx LFX (12 Pulse) X-ray Controls Maintenance Course

Course length: 1 Week  
CEU's Awarded: 4

## COURSE INTRODUCTION

The GE Advantx LFX 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
  - A. Basic operation
  - B. System specifications
- II. Console operation
  - A. Knobology
  - B. Operator menus
- III. System block diagram
- IV. System on/off circuitry
- V. Primary contactor circuitry

### LAB ACTIVITIES

- I. System operation
- II. Physical layout
  - A. Cabinet layout
  - B. Module layout
- III. Calibration software operation
  - A. Loading
  - B. Restoring
  - C. Backing up

### DAY 2

- I. KV control circuitry
  - A. Voltpac control
  - B. Forced commutation
  - C. KV feedback circuitry
    1. Internal divider
    2. External divider
  - D. H-bridge drive
  - E. mA load compensation
  - F. Line compensation

### LAB ACTIVITIES

- I. KV waveform analysis
- II. KV calibration
  - A. No load
  - B. mA load
  - C. KV feedback
  - D. Static compensation

### DAY 3

- I. Filament control circuitry
  - A. Mid-frequency oscillator
  - B. Chopper circuitry
- II. Real mA feedback circuitry
- III. High voltage transformer
  - A. Tube switching
  - B. HV rectification
- IV. Timer control circuitry
- V. Exposure logic

### LAB ACTIVITIES

- I. mA waveform analysis
- II. mA calibration
  - A. mA preheat
  - B. mA overdemand
  - C. Real mA feedback
- III. Filament circuit troubleshooting

### DAY 4

- I. Automatic exposure control circuitry
  - A. Ion chamber
  - B. KV compensation
  - C. Short time compensation
  - D. Area compensation
  - E. Field selection

- II. Rotor controller circuitry
  - A. TIRC inverter
  - B. TIRC microprocessor

### LAB ACTIVITIES

- I. AEC waveform analysis
- II. AEC calibration
  - A. Ion chamber leakage test
  - B. Ion chamber area balance
  - C. Density adjustment
- III. Rotor controller waveform analysis

### DAY 5

- I. Auto brightness control circuitry
  - A. Video stabilized
  - B. Fluoro mA
  - C. Fluoro KV
  - D. TV camera iris
  - E. Video gain
- II. System review
- III. Final exam and course critique
- IV. Parts sourcing