Philips SCP 50/80/100 X-ray Controls Maintenance Course

Course length: 1 Week
CEU's Awarded: 4

COURSE INTRODUCTION

The Philips SCP 50/80 course is designed to teach the experienced service professional those skills necessary to fully service this x-ray control. This includes complete calibration procedures, functional checks, troubleshooting and Philips documentation interpretation. The course consists of integrated lecture, 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 course or the equivalent electronics and service experience. A strong microprocessor background is recommended.

DAY 1

I. Introduction
  A. High frequency concepts
  B. Falling load concepts
  C. Basic operation
  D. System specifications
  E. Option packages
II. Physical layout
  A. Cabinet layout
  B. Control module
III. Control module operation
  A. Knobology
  B. Anatomical programming
IV. System block diagram

LAB ACTIVITIES

I. System operation
II. Physical layout
  A. Control console
  B. Power cabinet
  C. Component location
III. System programming
IV. APRT Programming

DAY 2

I. Power circuit logic diagram
  A. Turn-on circuit
  B. Mains adaption
  C. Rectifier group
  D. Converter group
  E. Power supplies
II. KV control logic diagrams
  A. KV selection
  B. H-bridge inverter drive
  C. Load range selection
  D. H-bridge inverter switchover
  E. Safety circuits
  F. Fluoroscopic KV control

LAB ACTIVITIES

I. Turn-on circuit analysis
II. Power supply calibration
III. KV waveform analysis
IV. KV calibration
  A. D/A converter calibration
  B. Radiographic KV calibration
  C. Fluoroscopic KV calibration
V. Troubleshooting

DAY 3

I. Filament control logic diagram
  A. Tube current setpoint selection
  B. Tube current setpoint limitation
  C. Focal spot selection
  D. Filament feedback circuits
  E. Filament inverter drive circuit
  F. mAs measuring circuits
II. Rotor control logic diagrams
  A. Rotor inverter drive
  B. Rotor control safety circuits
  C. Rotor control braking circuits

LAB ACTIVITIES

I. Filament control waveform analysis
II. Maximum filament limit calibration
III. Tube adaption
IV. Max "R" calibration
V. mAs calibration
VI. Rotor control waveform analysis
VII. Troubleshooting

DAY 4

I. Amplimat 20 logic diagram
  A. Chamber selection
  B. Field selection
  C. PMT signal processing
  D. System programming
  E. Density selection
II. Auxiliary selection logic diagram
  A. Auxiliary programming
  B. Fatal error detecting
III. Exposure control logic diagram
  A. Ready 1 circuitry
  B. Ready 2 circuitry
  C. Exposure termination circuits

LAB ACTIVITIES

I. Amplimat 20 programming
II. Amplimat 20 calibration
III. Amplimat 20 waveform analysis
IV. Error trace analysis
V. Troubleshooting

DAY 5

I. Fluoroscopic control logic diagram
  A. Max fluoroscopic KV limitation
  B. Max fluoroscopic mA limitation
  C. Rise time limitation
  D. Settle time compensation
II. System review
III. Final exam and course critique
IV. Parts sourcing