KOMATSU

Product Training and Publications

AC Shovel Electrical Systems Training

Course Duration
2 days

Target Audience

Electricians, Technicians and Engineers who service and maintain P&H Mining shovels.

Description
The student is introduced to the operation and maintenance of the P&H Electrical mining shovel. Furthermore the course focuses on critical knowledge and skills required in supporting present day P&H Electrical mining shovels. Topics included are the Centurion AC Shovel Control System. The concepts that are covered in the classroom are reinforced in a laboratory environment that allows the students to load, install and configure application software.

Prerequisites
Students should have knowledge of power electronics and computers. It is suggested that students complete Power, Drive and Control System elearning training modules.

Course Location
Field

Course Objectives
Upon completion of this course the student will be able to:

- Identify and explain the purpose of all the major components utilized.
- Use application software and programs as required.
- Remove and replace faulty components including a failure analysis.
- Explain the inter-relationship of the shovel systems.
- Analyze schematics and control diagrams utilized for troubleshooting and repair.

Main Concepts

- AC Drive Line up overview
- Drives Windows overview
- AC800M (Advant Controller 800) Hardware overview
- Control Builder overview
- Auxiliary Systems Operation
- System Maintenance and Troubleshooting

Day 1

Course Introduction
- Pre-assessment
- General safety
- ESD

Electrical System Diagrams
- Systems diagram overview
- Shovel schematics
- Use of the index
- Use of location codes
- Reading P&H Schematics
- *Schematic Exercises*

Touch Panel & GUI Systems
- Touch panel navigation
- Touch panel software tools and calibration
- *Touch Panel Navigation Lab*

AC Power Systems

IGBT Devices (101)
- Basic theory of operation
- Basics troubleshooting techniques

IGBT Supply Unit (ISU)
- Theory of operation
- Hardware overview
- Reduced run feature
- Fault tracing

Inverter Unit (INV)
- Theory of operation

Auxiliary Control Unit (ACU)
- Theory of operation
- Hardware overview

Drive Control Unit (RDCU)
- Theory of operation
- Hardware overview
- Software chains
- Group 19 data transfer
- *Student Lab Activities*

Day 2

Advant Controller 800 and Remote I/O
- Advant Controller Components
- Remote I/O Components
- Control builder overview
- Monitoring I/O Status
- *Student Lab Activities*

Air System
- Theory of operation
- Hardware overview
- Troubleshooting
- *Student lab activities*

Brake System
- Theory of operation
- Hardware overview
- Troubleshooting

Automatic Lubrication System
- Theory of operation
- Hardware overview
- Troubleshooting
- *Student lab activities*

Hoist Lube Pump System
- Theory of operation
- Hardware overview

Rear House Blower System
- Theory of operation
- Hardware overview

Auto Crowd Belt Tensioning System (4100XPC)
- Theory of operation

Course Evaluation and Wrap
- Post –assessment
- Course evaluation