



Milwaukee Training

Course Duration

4 days

TARGET AUDIENCE:

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

Description

This course introduces the student to the operation and maintenance of the P&H Electrical mining shovel. It focuses on critical knowledge and skills required in supporting current production P&H Electrical mining shovels. The topics include The Electrotorque Plus B Digital Drive System and the Centurion 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 a basic knowledge of power electronics and computers.

It is also suggested that students complete Power, Drive and Control System eLearning training modules.

Course Location

Milwaukee

Course Objectives

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

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

Main Concepts

- Electro-Torque Plus B Hardware Overview
- Drives Window (DW 2.1) Overview
- DW 2.1 Procedures
- Drive fault analysis
- AC800M (Advant Controller 800) Hardware Overview
- Remote I/O devices
- Control Builder Overview
- Control Builder Procedures
- System Maintenance and Troubleshooting

Course Plan



Day 1

- Introductions
- Pre-Assessment

- Safety
- ESD
- Single line Block Diagram

- Drive System Block Diagram
- Centurion Control System Block Diagram
- Shovel Schematics 101

- Touch Panel Overview

Lab

- GUI Navigation

- Shop Tour
Orchard Street

Day 2

- Advant Controller 800 Hardware & Remote I/O Hardware Overview
- Introduction to Control Builder Forcing and Monitoring I/O Status

Lab

- AC800 IP Configuration
- Loading AC800 Firmware
- Loading AC800 Applications

Lab

- Install I/O Stations
 - Verify connectivity
 - Test Inputs
 - Test Outputs
 - I/O System Troubleshooting

Day 3 & 4

- Electrotorque Plus B Hardware Overview (DCM)

- Introduction to Drives Windows

Lab

- Loading Back Up Packages & Flashing the CON 2 Type

Lab

- CON-2 Firmware Download Drive Monitor & Data logger

Lab

- Drive System Troubleshooting

- Shop Tour
Main Plant
- Post-Assessment
- Course Evaluation & Course Wrap Up