KOMATSU

Product Training and Publications

250/285XPC Blasthole Drill – Electro/Mechanical Systems Training

Course Duration

Four days, 32 hours (Additional one to two days, 8 to 16 hours, for none English speaking customers)

Target Audience

This training is targeted for Electrical and Mechanical Maintenance and Supervisory personnel responsible for preventive and corrective maintenance, troubleshooting and servicing of P&H 250XPC Blasthole drill.

Description

The course introduces the student to the operation, troubleshooting and maintenance of P&H 250XPC Blasthole drill. It focuses on critical knowledge and skills required in supporting 250XPC Blasthole drill. All electrical and mechanical systems and adjustments are discussed. Recommended preventive and corrective maintenance procedures and practices are also discussed.

Prerequisites

Students should have a basic knowledge of electrical and mechanical terminology and practical experience with maintenance equipment. Some Blasthole drills systems are operated at high electrical voltage (120/220 VAC) which requires certified electricians for servicing.

Course Location

Field

Course Objectives

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

- Recognize safety hazards associated with inspection, repair and maintenance of Blasthole drill electrical and mechanical systems.
- Version 1.0
- Identify controls in the cab.
- Identify and describe general purpose of all electrical and mechanical systems.
- Use GUI to locate relevant information.
- Identify and use available P&H reference material, such as Maintenance Manuals and Schematics to troubleshoot, repair and maintain the Blasthole drill.
- Describe the relationship between the control system (PLC) and the machine hardware (Sensors, IO Modules, Hydraulics, Mechanical systems and etc.).
- Conduct preventive maintenance inspections.
- Perform maintenance adjustments and repairs.

Main Concepts

- Review of relevant P&H reference material
- Blasthole drill motions and major components
- Cab controls and GUI
- Power module and mechanical systems
- Automatic lubrication system
- Main air system, water injection
- Main hydraulic systems (propel, rotary and pull down), Auxiliary hydraulic systems
- Electrical control systems, CAN bus, CAN components
- Preventive and corrective maintenance procedures

Day 1

Course Introduction
- Instructor and participants introduction
- Course objectives
- General, on site safety
- Knowledge evaluation

Sources of Information
- Maintenance and operator manual
- Schematics and diagrams
- Service bulletins and notices

Safety Overview
- Safety decals and signs
- Electrical and mechanical hazards
- Stored energy

Blasthole Drill Orientation and Introduction
- Blastehole Drill Orientation
- Major Systems Overview

Controls in Cab
- Describe every button, joystick and display in the cab
- Touch screens and GUI. Present all relevant GUI screens. Explain screens navigation.

Preventive Maintenance
- Preventive maintenance intervals and procedures

Power Unit
- Engine installation and alignment
- PDT, PDT lubrication
- Main air compressor (general description and alignment)

Day 2

Main Air System and Compressor Lubrication
- Air compressor lubrication
- Air inlet valves (GD only)
- Air compressor regulation (displacement and pressure)
- T tank and oil separators
- Oil cooler Butterfly valve

Water Injection System
- Water tank, water pump
- Water heaters

Main Hydraulic System
- Hydraulic tank and pressurization
- Main pumps description, adjustments, troubleshooting
- Propel system description, adjustments, troubleshooting. Propel brakes.
- Rotary system description, adjustments, troubleshooting
- Pull down system description, adjustments, troubleshooting. Pull down brakes

Day 3

Auxiliary Hydraulic System
- Hydraulic tank and pressurization
- Auxiliary hydraulic pump description and adjustment
- Pilot system
- Fan drives description, adjustments, troubleshooting
- Left and right leveling systems description, adjustments, troubleshooting
- High flow valve banks and systems
- Low flow valve banks and systems

Automatic Lubrication
- Hydraulic motor
- Auto lube pump
- Auto lube components (vent valve, pluming, pressure switches)
- SL V injector description, operation, troubleshooting

Day 4

Electrical system

- 24VDC batteries and battery charger
- Stand-by generator (optional). Warning: high voltage present
- Power inverters. Warning: high voltage
- UPS, operator cab and main I/O cabinet
- DC to DC converter
- CAN bus networks
- Controllers description, troubleshooting
- CAN bus components description, addressing, troubleshooting: Joysticks, pressure/temperature sensors, I/O modules (200A, CR2032, CR2031, and CR2016), Encoders, Graphical displays and etc.)

Air Conditioner

- Description of controls, sensors, pressure switches.

NOTE: this training module does not include charging the A/C system.

Course evaluation and Wrap Up

- Transfer of knowledge questionaries'
- Course (reaction) evaluation form
- Wrap up