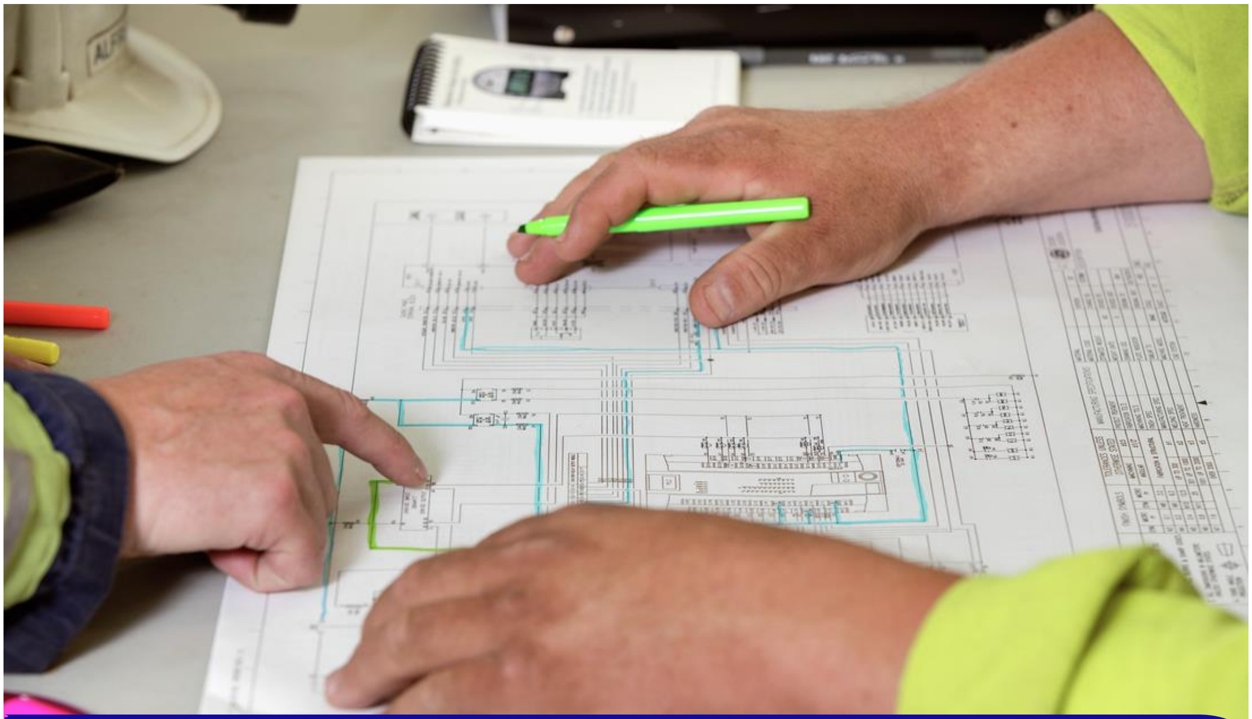

Basic Technical Training eLearning Catalog

KOMATSU

Product Training and Publications

Contents

**Denotes lesson is available in Spanish*

Global Mining Solutions eLearning

Product Training and Publications has identified eLearning as a delivery option for fundamental knowledge and product specific training. eLearning provides several advantages over traditional training methods:

- eLearning content can be accessed through the Internet by any individual who has the appropriate login and password credentials.
- Immediate availability of training content which provides a quicker, more productive workforce.
- Online training reduces the cost of training by eliminating travel, living, and other expenses associated with Instructor-Led Training.
- eLearning provides students with the ability to learn at their own pace and in their own comfortable environment.
- The training content can be delivered to a large contingent of people in varying locations and be technically consistent across the board.
- When used as a prerequisite to Instructor-Led Training, eLearning can level the playing field between novice and senior personnel. This makes the Instructor-Led Training more effective by allowing the Instructor to spend more time developing skills rather than knowledge-based components.

This Course Catalog contains descriptions of the eLearning Lessons available to you through Product Training and Publications.

Lesson Duration:
Each eLearning Lesson is designed to be less than 60 minutes in duration. However, because eLearning is self-paced training, actual duration may vary per student.

Target Audience:
Anyone who works for Komatsu or Equipment Operators, Technicians, and Engineers who will operate and/or perform maintenance on P&H/ Komatsu Mining Shovels and Blasthole Drills. These lessons are also targeted to those in the construction, agriculture, or outdoor power equipment industries.

Prerequisites:
Students should have a basic working knowledge of computers. For further details, see lesson description.

Lesson Location:
eLearning content can be accessed through the Internet by any individual who has the appropriate login and password credentials.

Computer Requirements:
It is recommended that all computers accessing eLearning content have the basic minimum requirements:

- Internet Explorer version 7 or better
- Adobe Reader version 8 or better

Note:
Our eLearning content is periodically revised and updated.

Terms and Conditions:
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Basic Technical Training Lesson Descriptions

*Basic Electrical Lesson 1**

Lesson description:
The purpose of this course is to introduce the student to the basic concepts of electricity as they apply to machines in the construction, agriculture, or outdoor power equipment industries. This course assumes that the student has minimal knowledge of electricity. The concepts in this course are presented in a progressive manner.

Objectives:
Upon completion of this lesson the student will:

- Understand electrical fundamentals
- Identify electrical and electromechanical components

Lesson outline:

- Topic 1: Electrical Safety
- Topic 2: Electrical Fundamentals
- Topic 3: Electrical Components
- Topic 4: Electromechanical Components

*Basic Electrical Lesson 2**

Lesson description:
The purpose of this course is to introduce the student to the basic concepts of electricity as they apply to machines in the construction, agriculture, or outdoor power equipment industries. This course assumes that the student has minimal knowledge of electricity. The concepts in this course are presented in a progressive manner. This course is a continuation of Basic Electrical Lesson 1.

Objectives:
Upon completion of this lesson the student will:

- Identify basic electrical circuits
- Interpret an electrical schematic
- Interpret a wiring diagram

Lesson outline:

- Topic 5: Electrical Circuits
- Topic 6: Schematics
- Topic 7: Wire Harness Diagrams
- Topic 8: Examples of Circuits

*Basic Electrical Lesson 3**

Lesson description:
The purpose of this course is to introduce the student to the basic concepts of electricity as they apply to machines in the construction, agriculture, or outdoor power equipment industries. This course assumes that the student has minimal knowledge of electricity. The concepts in this course are presented in a progressive manner. This course is a continuation of Basic Electrical Lesson 1 & 2.

Objectives:
Upon completion of this lesson the student will:

- Demonstrate the use of multimeter
- Understand procedures for repairing electrical connectors
- Understand and demonstrate the electrical troubleshooting process

Lesson outline:

- Topic 9: Basic Electrical Tools
- Topic 10: Troubleshooting
- Scenario Exercises

*Basic Hydraulics Lesson 1**

Lesson description:
The purpose of this course is to introduce the student to the basic concepts of hydraulics as they apply to machines in the construction, agriculture, or outdoor power equipment industries. This course assumes that the student has minimal knowledge of hydraulics. Because of the involved nature of hydraulic systems, this course is not intended to replace advanced, instructor-led, hands-on training, rather it serves as a foundation for additional training. The concepts in this course are presented in a progressive manner.

Objectives:
Upon completion of this lesson the student will:

- Understand hydraulic fundamentals
- Identify hydraulic components

Lesson outline:

- Topic 1: Hydraulic Safety
- Topic 2: Hydraulic Fundamentals
- Topic 3: Hydraulic Components

*Basic Hydraulics Lesson 2**

Lesson description:
The purpose of this course is to introduce the student to the basic concepts of hydraulics as they apply to machines in the construction, agriculture, or outdoor power equipment industries. This course assumes that the student has minimal knowledge of hydraulics. Because of the involved nature of hydraulic systems, this course is not intended to replace advanced, instructor-led, hands-on training, rather it serves as a foundation for additional training. The concepts in this course are presented in a progressive manner. This course is a continuation of Basic Hydraulics Lesson 1.

Objectives:
Upon completion of this lesson the student will:

- Identify basic hydraulic circuits
- Interpret a hydraulic schematic

Lesson outline:

- Topic 4: Hydraulic Circuits
- Topic 5: Schematics
- Topic 6: Examples of Circuits

*Basic Hydraulics Lesson 3**

Lesson description:
The purpose of this course is to introduce the student to the basic concepts of hydraulics as they apply to machines in the construction, agriculture, or outdoor power equipment industries. This course assumes that the student has minimal knowledge of hydraulics. Because of the involved nature of hydraulic systems, this course is not intended to replace advanced, instructor-led, hands-on training, rather it serves as a foundation for additional training. The concepts in this course are presented in a progressive manner. This course is a continuation of Basic Hydraulics Lesson 1 & 2.

Objectives:
Upon completion of this lesson the student will:

- Understand the basic tools used for testing hydraulic systems
- Understand the hydraulic troubleshooting process

Lesson outline:

- Topic 7: Basic Hydraulic Tools
- Topic 8: Guided Troubleshooting
- Scenario Exercises

CAN Bus System Overview

Lesson description:
The purpose of this course is to introduce the student to the CAN Bus System and CAN Bus system components as they apply to machines in the construction, agriculture, or outdoor power equipment industries. **CAN** is short for **C**ontroller **A**rea **N**etwork and **Bus** is short for **B**inary **U**nit **S**ystem.

Objectives:
Upon completion of this lesson the student will:

- Understand the benefits of a CAN Bus System
- Identify the components of a CAN Bus System
- Understand the inputs and outputs of a CAN Bus System
- Identify common CAN Bus symptoms

Lesson outline:

- Topic 1: CAN Bus System
- Topic 2: CAN Bus System and Components
- Topic 3: CAN Bus System Theory of Operation
- Topic 4: Common CAN Bus Symptoms

Failure Analysis Overview

Lesson description:
The purpose of this course is to introduce the student to the basic concepts of failure analysis as they apply to machines in the construction, agriculture, or outdoor power equipment industries. This course assumes that the student has minimal knowledge of failure analysis. The concepts in this course are presented in a progressive manner.

Objectives:
Upon completion of this lesson the student will:

- Understand safety practices
- Distinguish differences between failure, failure mode, and root causes
- Use probing questions to collect evidence and history of the machine
- Follow a systematic process of analysis to determine cause of failure
- Recognize difference causes of failure

Lesson outline:

- Topic 1: Safety
- Topic 2: Failure Analysis Overview
- Topic 3: Failure Analysis Process
- Topic 4: Engine Failure Analysis

HVAC Fundamentals

Lesson description:
The purpose of this course is to introduce the student to the basic concepts of Heating, Ventilation, and Air-Conditioning (HVAC) as they apply to machines in the construction, agriculture, or outdoor power equipment industries. This course assumes that the student has minimal knowledge of HVAC systems. This course does not constitute authorization or approval of the United States Environmental Protection Agency (US EPA) for the certification of technicians. The concepts in this course are presented in a progressive manner.

Objectives:
Upon completion of this lesson the student will:

- Understand basic principles of heating and refrigeration
- Understand HVAC fundamentals
- Identify HVAC components as they apply to machines in the construction, agriculture, or outdoor power equipment industry

Lesson outline:

- Topic 1: Safety
- Topic 2: HVAC Fundamentals
- Topic 3: HVAC Systems and Components

Precision Measuring Tools

Lesson description:
The purpose of this course is to introduce the student to the basic precision measuring tools, how they are used, and proper adjustments as they apply to machines in the construction, agriculture, or outdoor power equipment industries. This course assumes that the student has minimal knowledge of precision measuring tools.

Objectives:
Upon completion of this lesson the student will:

- Recognize safety issues involved with precision measuring tools
- Identify basic precision measuring tools
- Comprehend the various types of each precision measuring tool
- Understand the fundamentals of proper use of precision measuring tools
- Understand proper care techniques of precision measuring tools

Lesson outline:

- Topic 1: Safety
- Topic 2: Introduction
- Topic 3: Torque
- Topic 4: Distance
- Topic 5: Velocity
- Topic 6: Weight/Force
- Topic 7: Temperature
- Topic 8: Pressure/Flow Tools
- Topic 9: Volume
- Topic 10: Electricity
- Topic 11: Safe Use
- Topic 12: Tool Care

Tier 4 Emissions

Lesson description:
The purpose of this course is to introduce the student to the basic concepts of Final Tier 4 diesel exhaust emissions and aftertreatment systems as they apply to machines in the construction, agriculture, or outdoor power equipment industries. This course assumes that the student has minimal knowledge of diesel exhaust emissions and aftertreatment systems. The concepts in this course are presented in a progressive manner.

Objectives:
Upon completion of this lesson the student will:

- Understand basic exhaust emission requirements and tier ratings
- Identify common Final Tier 4 aftertreatment components as they apply to machines in the construction, agriculture, or outdoor power equipment industries
- Understand Final Tier 4 diesel exhaust emission aftertreatment operation

Lesson outline:

- Topic 1: Safety
- Topic 2: Tier 4 Emissions Overview
- Topic 3: Aftertreatment Systems and Components
- Topic 4: Tier 4 Theory of Operation