

Zaxis 80 – 800 Product Overview Lesson:

- Identify the general specifications of the Zaxis Excavators
- Recognize how the Zaxis is different than the previous series
- Name the main competitors of the Zaxis Excavators
- Identify major machine components and their locations
- Distinguish available options
- Identify daily service checks and pre-start procedures
- Locate machine controls
- Recognize operational safety tips

Zaxis 200 LC - 450 LC Technical Overview Lesson:

- Identify the type of engine for the 200-450 Excavators
- Identify components, locations, and functions of the fuel system
- Identify components, locations and functions of the engine control systems
- Identify components, locations and functions of the monitor and cab controls.
- Identify components, locations and functions of the starting and charge circuits.
- Identify components, locations and functions of the inputs and outputs to the Main Controller
- Determine how the 450 pilot circuit works
- Using a schematic, trace pilot oil routing through the system
- Identify the purpose and operation of the pilot signal control valve
- Identify the main hydraulic pumps and their operation
- Determine how the pump regulator works
- Describe the operation of the following work circuits (Valve Sections)
 - Bucket and Auxiliary
 - Propel
 - Boom Down
 - Boom Up
 - Arm In
 - Arm Out
 - Swing
- Identify the differences between the 330 / 370 pilot circuits from the 200, 230, 270, and the 450
- Identify the main hydraulic pumps and their operation
- Determine how the pump regulator works (animation)
- Identify the function and location of the swing and bucket flow rate valves
- Describe the operation of the arm regenerative valve and bucket and boom regenerative valves
- Identify the operation of the flow regulator on the 330 and 370
- Determine how the travel motor works (animation)

Zaxis 600 and 800 Technical Overview Lesson

- Identify the type of engine used in the 600-800 excavators
- Identify components and locations of the fuel system
- Determine how to time a 600-800 engine

- Identify the function of (QOS) and Temperature Information Components
- Recall the location of the 600-800 excavator Battery relay and fusible links
- Identify components, locations and functions of cab controls and the monitor that are different than the 450.
- Identify the inputs and outputs to the Main Controller(MC).
- Using an electrical schematic, trace the power flow through the 600-800 start circuit
- Determine how the Quick On Start (QOS) system works schematically
- Identify the location of the hydraulic pump components
- Identify which hydraulic pump supplies oil to the various functions on the excavator
- Identify the differences in the hydraulic control valve from a 450
- Recall how the solenoid valve and pilot pressure regulator valve manifold work
- Using a schematic, determine how pilot oil is routed through the 600-800 system.

Zaxis 80, 120 and 160 Technical Overview Lesson

- Identify the engine used in the 80 excavator and the components that make up the fuel system
- Identify the engine used in the 120 and the 160 excavators
- Determine the type of fuel system used in the 120 and 160 excavators
- Determine how fuel flows through the 120 and 160 engine system
- Locate and identify the electrical components that make up the engine control system
- Recall how the electronic fuel system controls engine timing and fuel delivery
- Recall how the Engine Speed Control System is different than previous excavators
- Determine how the 80-160 excavators maintain the engine speed desired
- Determine how to access diagnostic information
- Locate the battery relays, starter relay, and fusible links
- On the 80, determine how the glow plug cold starting aid system works
- On the 120 and 160, recognize the different sensors that supply information to the PVC/MC and what information they supply
- On the 80, determine how the propel speed change solenoid works
- Locate the speed sensing solenoid (torque control solenoid) on the 120 and 160
- Identify which hydraulic pump supplies oil to the various hydraulic functions
- On the 80, describe how the pump valve plate separates the P1 and P2 pump oil.
- Determine how the hydraulic pumps regulate flow
- Determine how the speed sense system works on the 120 and 160
- Trace how pilot oil flows through the system and identify the components that use pilot oil
- Identify 4 features of the control valve that will improve hydraulic performance
- Determine the adjustments on the pumps and how it will effect the performance of the machines