

Worksheet HW01 & Training Record

Skid-Steer Operation and Components

Hydraulic Projects

Email:

Course:

Provider:

Expected Outcomes: (1-2 hours)

1. To engage students' interest in mobile equipment.
2. To understand the controls that operate a typical skid-steer excavator.
3. Appreciate the basic systems that make the vehicle work.
4. Recognize the components that make up a hydrostatic circuit.

Previous Knowledge Required:

No previous knowledge or experience is required although students should gain a better understanding if they have already studied the introduction, fundamentals, and component sections.

Terminology:

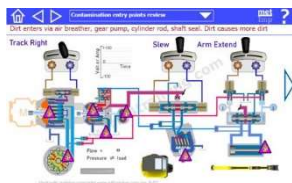
Fluid power, hydraulics, mobile equipment, drive system, boom lift, cab slew, hydrostatic drives, hydraulic symbols, circuit drawing.

Record of Achievement:



Click the mail icon to post your results, once training is complete. Enter your unique username and LRS endpoint details. Also, record your progress on this training record sheet and retain along with all written coursework assignments. See www.e4training.com/xapi/ for information on the automatic record stores.

Coursework investigations

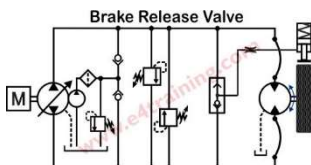


Study the detailed information and instructional video at www.e4training.com/hydraulic_projects/skidsteer1.php & 2.php
Key points include:

- How drive, slew, and boom lift operate.
- How drive, slew, and boom lift system work.
- Hydrostatic drive system components.

Date & duration

Complete



Study the detailed information and instructional video at www.e4training.com/hydraulic_circuits/hydrostatic1.php & 2.php
Key points include:

- Charge pump and flushing valve.
- Crossline relief and brake release valve.

Dates & durations:

Complete

Virtual test rig experiments



Operate the skid-steer excavator at

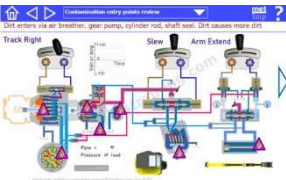
www.e4training.com/hydraulic_projects/skidsteer3.php?drive

- Steer by using the left and right wheel drive.
- Cab slew system. Right and left.
- Boom extend and retract.

Drive between a path of boxes, hitting as few boxes as possible.

App date & duration

Post when complete



Experiment with the skid-steer excavator hydraulic systems

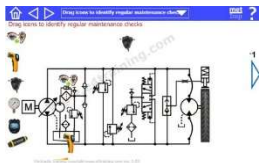
www.e4training.com/hydraulic_projects/skidsteer3.php?system

- Explore how the drive system and components work.
- Explore how the slew system and components work.
- Explore how the boom system and components work.
- Explore how the load sensing system and components work.
- Explore how the charge and pilot pressure systems work.

Observe and identify the key performance and risk points within each system. Follow the suggested exercises and observations list below the simulation.

App date & duration

Post when complete



Experiment with the hydrostatic drive system

www.e4training.com/hydraulic_projects/skidsteer3.php?circuit

- Explore the closed-circuit components.
- Practice building the hydrostatic circuit diagram.

Identify key types of hydraulic components. Follow the suggested exercises and observations list below the simulation.

App date & duration

Post when complete

Key questions / Plenary

- Can you explain the difference between ON/OFF and proportional control?
 Can you name the components used to remove contaminants from the fluid?
 Can you describe the difference between an open and closed hydraulic circuit?

Repeat above if the answer is no

And Finally:

Complete this worksheet and keep for your records. Submit any written coursework etc. to your training course provider.

Follow-on Course Worksheets:

Potential follow-on worksheets include:

HW02 – Maintenance of a mobile skid-steer excavator
or HW03 – Industrial hydraulic system designs

Or refer to your individual lesson plan or search the worksheet lists at
www.e4training.com/hydraulic_courses/worksheets1.php or [courses1.php](http://www.e4training.com/hydraulic_courses/courses1.php)

Notes