



## Worksheet HI05 & Training Record Hydraulic Circuit Basics

## Explore Hydraulics

Email:

Course:

Provider:

Learning Objectives/Expected Outcomes: (60-120mins)

1. Appreciate how different hydraulic components are arranged to complete a circuit.
2. Recognise how symbols are used to represent the components in the circuit.
3. Appreciate which valves are used to control the direction, flow rate, and leak-free, load holding in a hydraulic circuit.

Previous Knowledge Required:

Students should have completed worksheet HI04 'Basic hydraulic components' or have a good knowledge of what different components are used for.

Terminology:

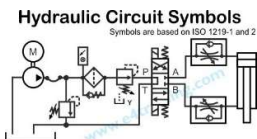
Hydraulic symbols, directional valve, spool valves, poppet valves, flow control, valve leakage.

Record of Achievement:



Click the mail icon to post your results to any free or standard LRS/LMS systems. See [www.e4training.com/xapi/](http://www.e4training.com/xapi/) for more details. Complete and keep this training record sheet along with any additional written work or sample calculations.

*Coursework investigation and instructional video*



Study the 'Basic hydraulic circuit' section and video at [www.e4training.com/hyd\\_newbie/basic\\_circ1.php](http://www.e4training.com/hyd_newbie/basic_circ1.php) and 2.php

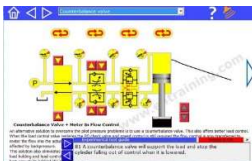
- Learn to recognise simple hydraulic symbols.
- Appreciate the wide range of valve options available.
- Learn what is meant by a flow control valve.
- Understand which valves hold loads with virtually zero leakage.

Estimated time: 15 minutes, skill level 2

Date:

Complete

*Virtual test rig experiments*



Experiment with the 'basic hydraulic control circuit' simulation at [www.e4training.com/hyd\\_newbie/basic\\_circ3.php](http://www.e4training.com/hyd_newbie/basic_circ3.php)

- Follow the suggested exercises and observations list below the simulation.

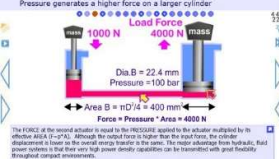
Estimated time: 20 minutes, skill level 2

Date, score:

Tick when posted



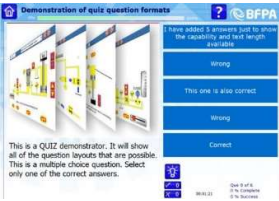
## Interactive tutorial



Complete the 'Introduction to hydraulics' tutorial at [www.e4training.com/hydraulic\\_courses/intro\\_to\\_hyd1.php](http://www.e4training.com/hydraulic_courses/intro_to_hyd1.php)  
 Complete quick quiz at the end and post results via LRS/LMS.

**Estimated time:** 25 minutes, skill level 2  
**Date, score:** Tick when posted

## Interactive quiz to check and reinforce learning



Complete the 'Introduction to hydraulics' questions at [www.e4training.com/hydraulic\\_test1.php?Quiz - Hydraulics Fee](http://www.e4training.com/hydraulic_test1.php?Quiz - Hydraulics Fee)  
 Post result via LRS/LMS when complete.

**Estimated time:** 15 minutes, skill level 2  
**Quiz name, date, score:** Tick when posted

## Key questions / Plenary

What valve would you use to raise and lower a cylinder?  
 What valve would you use to control the speed of a cylinder?  
 What would happen to the cylinder if the check valve was not pilot-operated?  
 Are all hydraulic circuits the same?

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:

Suggested follow-on worksheet:

- HS01 – Safe Operation of Hydraulic Equipment
- HF01 – General Theories and Formulas
- HV01 – Hydraulic check valves

For more specialist course worksheets visit

[www.e4training.com/hydraulic\\_courses/worksheets1.php](http://www.e4training.com/hydraulic_courses/worksheets1.php)