



## HYDRAULICS

COURSE 650: 4 DAYS: Max 4 Candidates

This course provides maintenance personnel and production operators etc with the skills and knowledge necessary to carry out maintenance tasks on industrial hydraulic systems.

### PARTICIPANTS

This course is suitable for anyone who wishes to work on or maintain industrial hydraulic systems. No prior knowledge of hydraulics is necessary.

### COURSE PRESENTATION

Participants gain useful practical experience on purpose-built training rigs which make use of typical commercial components and are designed specifically to simulate the hydraulic systems found in industry. Comprehensive course notes are provided.



### COURSE OBJECTIVES

On completion of the course, participants will be able to

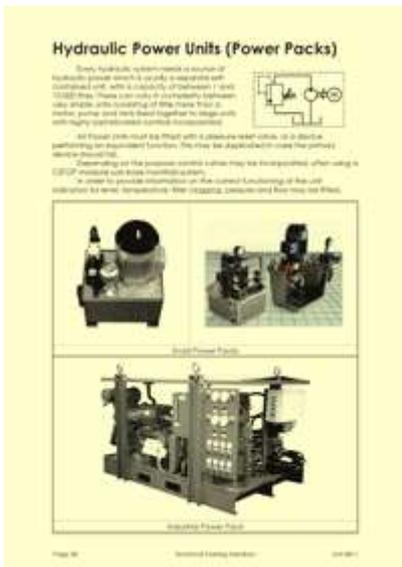
- apply safe working practices when working with hydraulic systems
- understand the relevant theory (units, flow, pressure, temperature, forces, etc.)
- understand the operation of hydraulic circuits and components typically used in industry
- correctly maintain power units (fixed / variable pumps, reservoirs, filters, strainers and gauges)
- use hydraulic test equipment to determine the nature and position of faults
- construct a range of functional hydraulic circuits
- assess the condition of a hydraulic system by oil analysis
- use hydraulic circuit drawings and fault-finding charts as a systematic aid to fault-finding
- select the correct tubing and fittings for hydraulic applications
- correctly cut and bend tubing
- understand how to form ferrules
- understand the importance of pressure testing
- understand the importance of correct filter selection.

**Successful completion of the course leads to the award of the Technical Training Solutions Certificate of Competence 650: Hydraulics.**

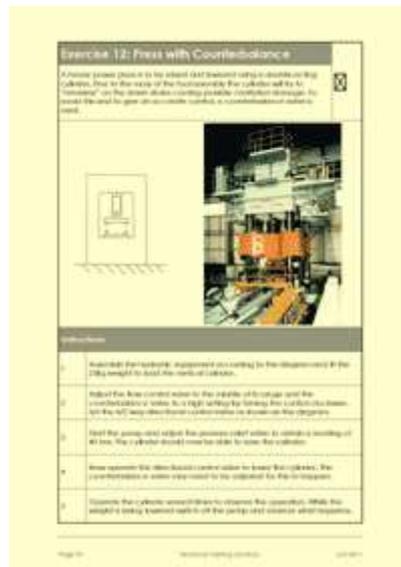
# What do candidates on the Hydraulics course actually do?

The hydraulics course provides an extensive understanding of hydraulic systems and components. Candidates investigate the devices used to control the pressure, flow and direction of linear and rotary actuators.

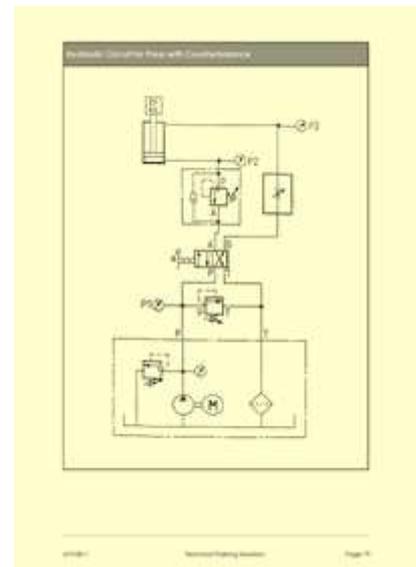
The course notes are extensive and explain the various devices used in engineering applications. The course takes a practical approach *avoiding any unnecessary mathematics*. Some sample pages from the course notes give an indication of this approach.



**Page 38 of the course notes used on the training course**



**Page 78 of the course notes, describing practical exercise No 12 of the training course**



**Page 79 of the course notes, describing practical exercise No 12 of the training course**

Safety is emphasized throughout the course and reinforced when practical exercises are carried out. Candidates are provided with a selection of hydraulic components (with clearly marked terminals) which they use to build various hydraulic circuits.



**One of the piloted check valves**



**One of the hydraulic accumulator blocks**



**One of the 4/3 way directional control valves**



**One of the hydraulic pressure gauges**



**One of the check valves**



**One of the flow meters**



**One of the manifold blocks**



**One of the hydraulic motors**



**One of the hydraulic cylinders**



**One of the hydraulic power units**

A mobile hydraulic pump is used to power our equipment and candidates use our oil analysing equipment to check the condition of oil in the system.

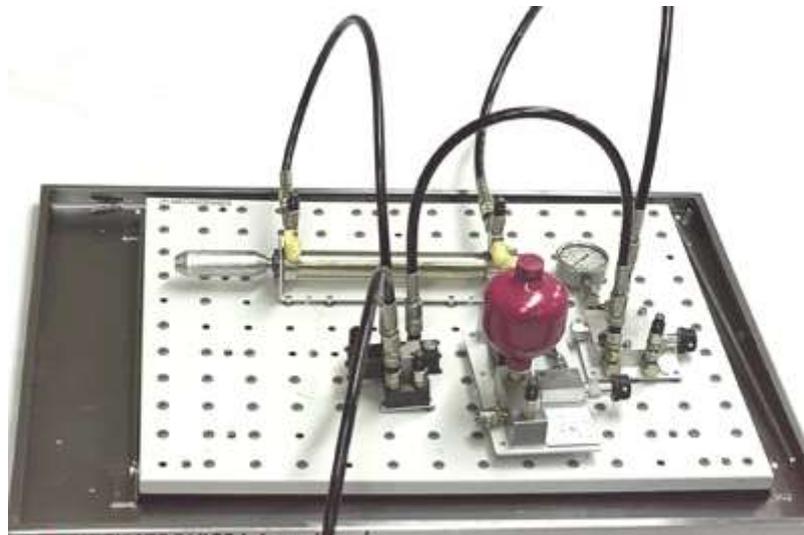


**The mobile hydraulic power pack**



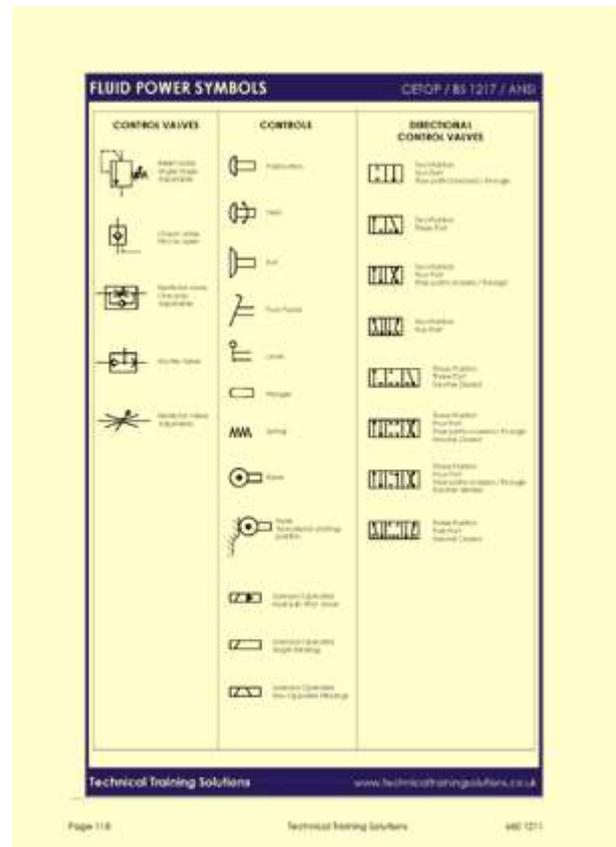
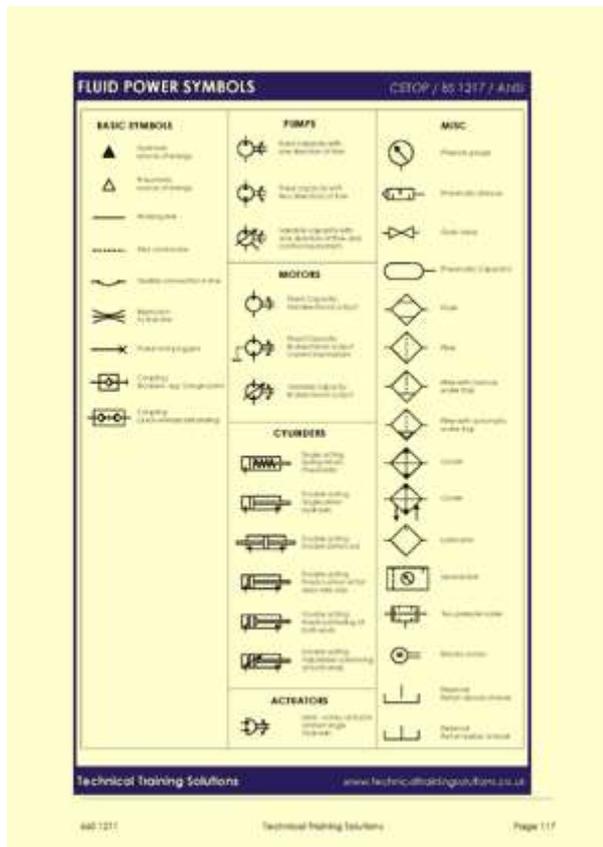
**The industry-standard contamination monitor**

Candidates build the various circuits on modular boards, thereby gaining the experience of reading hydraulic circuit diagrams, identifying the symbols and understanding the systems. Faultfinding techniques are also covered at this stage.



**Candidates build hydraulic circuits on the modular boards  
by connecting together the necessary components**

The course notes include various useful references, for example hydraulic oil specifications and symbols used in hydraulic systems.



These are extracts from the course notes, showing CETOP symbols to ISO 1219-1 and BS 2917

**If you would like to see some of the equipment used on the hydraulics course for yourself, then please call us to arrange a visit to our offices in Kent. Alternatively, we can visit you anywhere in the British Isles.**

**CONTACT US**

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