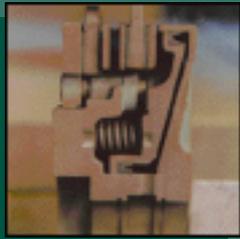


## **Power presses:**

A summary of  
guidance on  
maintenance  
and thorough  
examination



## **INTRODUCTION**

Power presses are dangerous machines which have caused many accidents over the years. The causes include poor maintenance of the press, its safeguards and its control system. This leaflet summarises what users of power presses and anyone who installs and maintains them has to do to meet their duties under the Provision and Use of Work Equipment Regulations 1998 (PUWER 98).<sup>\*</sup> It also introduces new guidance on power press maintenance and provides information on some important additions to the items that are now to be included in the thorough examination and test of a power press. These are outlined in the section on electrical control systems on page 6. In general the changes simply consolidate what is existing good practice. If there are specific things that you now need to do, these will be brought to your attention by the competent person who carries out your thorough examinations. It is anticipated that these changes should be implemented by the beginning of 2005.

*\* A power press is defined in PUWER 98 as 'a press or press brake for the working of metal by means of tools, or for die proving, which is power driven and which embodies a flywheel and clutch'.*

## **MAINTENANCE**

The law requires that work equipment, which includes presses, is maintained in an efficient state, in efficient working order and in good repair, so far as health and safety is concerned. Your arrangements for maintenance should be adequate to meet this requirement. This will include ensuring that your employees or those who maintain your presses have the necessary knowledge, skills, time and facilities to do what is needed.

### **Your duties as an employer under PUWER 98**

You must ensure that:

- your power presses and all their guards, the control systems and ancillary equipment (eg automatic feed systems) are maintained so that they do not put people at risk;

- maintenance work on power presses is carried out safely, ie machinery is shut down and isolated, and done by people who have the right skills and knowledge;
- training is provided for the 'appointed person' (see page 5) to help them fulfil their role;
- adequate health and safety information and, where appropriate, written instructions are made available to everyone using the presses or supervising and managing their use;
- an inspection and test is done by the appointed person within four hours of the start of each shift or day that the press is used, or after tool setting or adjustment, and the certificate is signed to confirm that the press is safe to use;
- any existing maintenance log\* is kept up to date; and
- your presses and safety devices are thoroughly examined by a competent person at the required intervals.

*\* You are strongly recommended to keep a log of the maintenance activities performed at a power press - it provides evidence that the power press has been properly maintained.*

### **Preventive maintenance**

Preventive maintenance is needed to identify potential failures before employees are put at risk of injury. Worn or defective parts need to be repaired or replaced and adjustments need to be made at set intervals to ensure that the press will continue to work safely.

### **What to maintain**

Target your maintenance at those parts of the power press that could cause danger if they failed or deteriorated (eg brakes, clutches, guards, safety-related parts of the control system).

### **When to maintain**

This will vary according to the press design and the way the press is used, but take into account:

- the instructions on maintenance from the machine manufacturer;
- your own experience of the way the press behaves, eg based on maintenance records and thorough examination reports;

- the usage and other service conditions, eg three shifts a day, single-cycle, heavy-duty or infrequent use for short periods; and
- discussing the frequency of your maintenance programme with your competent person or your maintenance contractor.

Parts of the press and control system which are essential to safety at the tools need more frequent maintenance than other parts, especially where danger can result from a single component failure. Maintenance intervals can be broken down into daily, weekly, monthly and six-monthly checks, with some activities (eg removing the flywheel) at intervals of two years or more. More detailed guidance and examples of maintenance checklists and records can be found in *Power presses: Maintenance and thorough examination* (HSG236) (see page 7).

### Using contractors

If you intend to use contractors to carry out maintenance activities you need to ensure that they are competent to work on your types of presses. The HSE leaflet *Working with contractors: A joint responsibility* (see page 8) provides general information on what contractors should know and do.

To make sure any contractors you use are competent to work on your presses you will need to ask them some questions, such as:

- their experience - have they worked on presses before, and what type?
- are they familiar with your type of press?
- do they have the necessary technical knowledge and skills that are needed to properly maintain the electrical, electronic, mechanical, hydraulic and pneumatic parts of the safety-related control system on your types of presses?
- are they familiar with the statutory requirements, relevant standards and published guidance on the safe use of power presses, in particular *Power presses: Maintenance and thorough examination* and *Safe use of power presses* (see page 7)?
- who else have they worked for?
- can they send you a completed specimen of the report they give after carrying out maintenance or repair work? (See the example in Appendix 2 of *Power presses: Maintenance and thorough examination* of the sort of detail they ought to be able to give you.)
- what steps do they take to ensure that measurement and test equipment is properly calibrated?
- what arrangements do they have for monitoring the standard of their own work?

## **Daily inspection and test by the appointed person**

The appointed person is someone designated by you (the employer) to inspect and test the guards and safety devices on each press:

- every day they are in use (within the first four hours of each working period); and
- after setting, resetting or adjustment of the tools.

The appointed person has to be adequately trained and competent to do the work on each type of power press. Further details on the daily inspection and testing of presses and press are contained in *Procedures for daily inspection and testing of mechanical power presses and press brakes* (see page 8).

## **THOROUGH EXAMINATION AND TEST**

### **The competent person**

The competent person is someone you arrange to carry out the thorough examination and test of the power press, its guard(s) and/or protection device(s). The competent person needs to have enough practical or theoretical knowledge and experience to detect defects and decide how far these will affect the safe operation of the press.

It is also important for the competent person to be sufficiently independent and impartial to be able to make an objective assessment of the press. You need to check that they understand what is meant by a thorough examination, and what the law requires. Accreditation by the United Kingdom Accreditation Service (UKAS) to the relevant standard (BS EN 45004:1995) for in-service inspection of power presses is an indication of the level of competence of an inspection body.

### **Purpose of the thorough examination and test**

The purpose of the thorough examination and test is to determine whether, at the time of the thorough examination, the press and its safeguards are installed safely, whether it is safe to operate and whether there are any defects that could make it unsafe in the future. **The thorough examination is not a substitute for maintenance but the information obtained can help you check that your maintenance systems are working properly.**

## **Things the competent person will ask you to do**

The competent person will ask you to:

- make the machine available and, if necessary, clear a safe working area around the machine and isolate it;
- where required, dismantle and prepare normally enclosed safety critical components for examination, for example the key, clutch and brake unit;
- remove covers from electrical and electromechanical components (switches, relays, fuse boxes) if these are part of the safety systems on the press;
- provide information and/or assistance so that the guards, enclosures and covers can be removed safely to allow the thorough examination to be carried out. For jobs like flywheel removal, or for electrical parts, you may need to arrange for your maintenance contractor to do this;
- re-energise and run the machine to perform a functional test;
- make any immediate or time-dependent repairs and adjustments as required and sign the associated immediate or time-dependent defect reports.

**If the competent person cannot gain access to parts that need to be seen and examined it may not be possible to complete the thorough examination and you will not get a statutory report. Remember it is illegal to use a press without a current statutory report of thorough examination.**

## **What will be examined?**

The competent person will look at a range of items to determine if the press and its safeguards are safe to use. The items that will be included, the tests performed and the information that the competent person may ask for will vary, depending on the type of press and whether an initial or periodic examination is being carried out. As well as the usual mechanical aspects, the safety-related parts of the electrical control system will also be considered as part of the examination.

## **Electrical control system**

*Power presses: Maintenance and thorough examination* (see page 7) includes specific reference to the safety-related aspects of the power press electrical control circuits and the need for up-to-date circuit diagrams. This has implications for the following types of thorough examination.

### **Initial thorough examination**

At the initial thorough examination of a new or second-hand press or one which has been re-located the competent person will ask for basic information, before the start of the examination, on the electrical control system, including:

- up-to-date control circuit diagrams, electrical schematic diagrams, drawings etc;
- the press manufacturer's information for using the press;
- information relevant to any modifications to the control circuit.

In addition to a visual inspection and functional test the following tests should normally be carried out as a part of the initial thorough examination unless there is satisfactory evidence that they have already been done:

- continuity test of the protective bonding circuit;
- insulation resistance test (at a minimum of twice the rated operating voltage) to assess the integrity of the electrical insulation. (Precautions may be necessary to avoid damage to electronic devices.);
- a test to determine the earth loop impedance at the press.

### **Periodic thorough examination**

At the periodic examination of an existing press, similar information on the electrical control system will be required (except for diagrams in cases where there is a very simple control circuit and no modifications have been made). The electrical tests referred to above may also be required if, following the visual inspection and other functional checks, the competent person considers them to be necessary.

### **USEFUL READING**

*Power presses: Maintenance and thorough examination* HSG236 HSE Books 2003  
ISBN 0 7176 2171 5 (replaces PM79)

*Safe use of work equipment. Provision and Use of Work Equipment Regulations 1998.  
Approved Code of Practice and guidance* L22 (Second edition) HSE Books 1998  
ISBN 0 7176 1626 6

*Safe use of power presses. Provision and Use of Work Equipment Regulations 1998 as  
applied to power presses. Approved Code of Practice and guidance* L112 HSE Books 1998  
ISBN 0 7176 1627 4

.....*Power presses: A summary of guidance on maintenance and thorough examination*.....

*Application of electro-sensitive protective equipment using light curtains and light beam devices to machinery* HSG180 HSE Books 1999 ISBN 0 7176 1550 2

*Procedures for daily inspection and testing of mechanical power presses and press brakes* INDG316 HSE Books 2003 ISBN 0 7176 1780 7 (single copy free or priced packs of 10 ISBN 0 7176 1780 7)

*Buying new machinery: A short guide to the law and some information on what to do for anyone buying new machinery for use at work* Leaflet INDG271 HSE Books 1998 (single copy free or priced packs of 15 ISBN 0 7176 1559 6)

*Use of contractors: A joint responsibility* Leaflet INDG368 HSE Books 2002 (single copy free or priced packs of 10 ISBN 0 7176 2566 4)

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## **FURTHER INFORMATION**

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HSE Information Services, Caerphilly Business Park, Caerphilly CF83 3GG.

This leaflet contains notes on good practice which are not compulsory but which you may find helpful in considering what you need to do.

This leaflet is available in priced packs of 10 from HSE Books, ISBN 0 7176 2169 3. Single free copies are also available from HSE Books.

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