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## H & S Guidance - Work Equipment

### INTRODUCTION

The Provision and Use of Work Equipment Regulations 1998 (PUWER) lay down important health and safety laws for the provision and use of work equipment. They also reform and rationalise the old machinery guarding laws. The regulations include:

1. definition of who has duties
2. general duties covering selection of suitable equipment, maintenance, inspection, information and instructions, training etc.
3. ensuring that equipment is able to control selected hazards.

Both 'use' and 'work equipment' are broadly defined as follows:

**'use'** - means any activity involving work equipment and includes starting, stopping, programming, setting, transporting, repairing, modifying, maintaining, servicing and cleaning.

**'work equipment'** - means any machinery, appliance, apparatus or tool or assembly of components that function as a whole.

By way of example, the following is a non-exhaustive list of work equipment subject to the regulations:

automatic car wash	car ramp	scaffolding
computer	portable drill	pressure vessel
lift truck	soldering iron	laser checkouts
vehicle hoist	meat cleaver	beer pumps
ladder	hand saw	socket set

PUWER should be linked in with the Management of Health, Safety and Welfare Regs; for example with the requirement for risk assessment regarding the selection of 'suitable' work equipment.

### AN OUTLINE OF THE REGULATIONS

#### Reg 4- Suitability

This lies at the heart of PUWER and addresses the safety of work equipment from three aspects:



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1. its initial integrity
2. its place of use
3. the purpose for which it will be used.

Any work equipment must be suitable by design, construction or adaptation for the actual work it is provided to do. Employers must take account of ergonomic risks, for example; that task design takes account of the size and shape and limitations of the operator.

### Reg 5 - Maintenance

The Regulation is framed in very broad terms and covers the need for both routine/planned preventive maintenance and repair to ensure that work equipment is safe to use. It is recommended that an up to date maintenance log is kept. Maintenance must be carried out by a competent person.

### Reg 6 – Inspection

Where a significant risk has been identified from the installation or use of work equipment, where deterioration would be likely to lead to dangerous situations, a suitable inspection must be carried out.

This may vary from simple visual inspection to detailed, comprehensive inspection, including some dismantling and/or testing.

Those who determine what form inspections take and their frequency and those who carry out the inspections must be competent to do so.

Examples of where inspection is required:

- After installation: where guarding is dependent on presence sensing devices such as pressure sensitive mats or light beams/ curtains
- Where deterioration leads to significant risk: fairground equipment, paper cutting guillotines, die-casting machines, horizontal injection moulding machines, complex automated equipment
- Where exceptional circumstances may jeopardise safety: major modifications or repair, known or suspected serious damage, change of use, after a long period of disuse



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Records of such inspections must be kept, either handwritten or electronically and details of what the records should contain can be found in the Guidance document L22.

## Reg 7- Specific Risks

Where risks cannot be adequately controlled by hardware measures such as guarding or other protection devices during its normal operation or during repair, maintenance or other similar work, only designated persons should carry out the work- having received sufficient information, instruction and training.

## Reg 8 - 9 Information, instructions, training

Employers must provide adequate training and comprehensive information and instructions (where appropriate, in writing) to users of work equipment and their supervisors. Certain groups receive special mention: young people, drivers, chainsaw operators.

## Reg 10 - Conformity with Community Requirements

When first providing work equipment, employers should ensure that it has been made to the requirements of legislation implementing any appropriate product Directives. Products should also carry a CE marking and be accompanied by relevant certificates or declarations, as required by the relevant product directive.

In practice, you will need to check that adequate operating instructions have been provided with the equipment and that there is information about residual hazards, such as noise and vibration. You should also check the equipment for obvious faults. Suppliers and manufacturers should be contacted for further advice about what the equipment is designed to do.

## Reg 11 Dangerous parts of machinery

The duty under this Regulation is an 'absolute' one. It is to prevent access to dangerous parts or to stop the movement of any dangerous part before any part of a person enters a danger zone. There is a hierarchy of measures to be taken (usually also in some degree of combination):-

1. fixed enclosing guards



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2. other guards or protection devices
3. protection appliances (e.g. jigs, holders, push sticks)
4. provision of information, instruction, training & supervision.

The features of guards & protection devices should include:

- suitable
- good construction, sound material, adequate strength
- maintained in efficient state/working order & good repair
- not to be easily by-passed or disabled
- at sufficient distance from the danger zone (i.e. comply with appropriate safe reach distances - see EN 294)
- not to unduly restrict the view of the operating cycle of the machinery, where such a view is necessary
- not increase risk to health and safety
- continue, if possible, to protect even when maintenance is in progress

There are also various other requirements specific to guards and protection devices.

### Reg 12 - Protection against specified hazards

Employer has a duty to prevent or, where this is not reasonably practicable, to adequately control exposure to specified hazards (other than by the use of personal protective equipment or information, instruction, training or supervision, so far as is reasonably practicable).

The specified hazards are:

- ejected or falling articles or substances;
- rupture or disintegration of parts of the work equipment;
- fire or overheating of the work equipment;
- unintended or premature discharge or rejection of any article, gas, dirt, liquid, vapour or substance produced, stored or used in work equipment; and
- unintended or premature explosion of the work equipment or any article or substance produced, used or stored in it.

**NB:** This regulation covers not just safety but also health; however it does not apply where other regulations (e.g.. COSHH '94) do.



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## Reg 13 - High or very low temperature

Protection against burns, scalds or sears arising from (use of) work equipment.

## Reg 14 - 18 Controls and control systems

Require provision of controls and certain arrangements 'where appropriate' (i.e. depending on features and functioning of the work equipment and any associated risk with its use). Usually appropriate to provide all of the controls required by Regs 14-18 where work equipment is powered by means other than human effort.

Reg 14 - Controls for starting, restarting and changing operation conditions (speed, pressure, temperature, power etc.)

Reg 15 - Stop Controls - should bring the equipment to a safe condition in a safe manner. A complete stop should be achieved where necessary for health and safety, otherwise machines may come to rest gradually/at the end of the cycle.

Reg 16 - Emergency Stop Controls - need to be provided where the other safeguards are not adequate to prevent risk when some irregular event occurs. Should be in addition to the stop controls. Guidance on their specific features may be found in National, European and International Standards.

Reg 17 - Controls need to be clearly visible and identifiable; safely located; operators to be able to see the work equipment or safe system of work (e.g.. permit to work); audible/visible or other suitable warning when work equipment is about to start.

Reg 18 - Control Systems to be safe so far as is reasonably practicable. Should lead to 'fail-to-safe' condition.

Reg 19 - Isolation - Suitable means to isolate work equipment from its source of energy. For portable powered work equipment a plug and socket disconnection would be satisfactory.

Reg 20 - Stability - Work equipment to be stabilised by clamping or other means where necessary, e.g.. counterbalancing, outriggers, footing of ladders etc.



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Reg 21 - Lighting - This is in addition to Reg. 8 of the Workplace (Health, Safety and Welfare) Regulations 1992 and should be used where lighting is required at the work station or work area specifically to enable the safe operation of work equipment.

Reg 22 - Maintenance - Requires work equipment to be constructed or modified to allow maintenance operations to be carried out safely.

Reg 23/24 - Markings/Warnings - Where risks cannot be reduced by 'hardware' measures alone, and reliance is placed on safe systems of work, markings and warnings may form a part of such systems.

Reg 25-30 – Mobile Work Equipment – These requirements relate to equipment when it is travelling. All new mobile work equipment, which came into use after 5th December 1998, must comply with the requirements. Equipment existing before that must comply after 5th December 2002.

Reg 25 – Protection for people being carried - Where used for carrying people, equipment must be suitable and safe. Account should be taken of the potential for falling; unexpected movements that may occur when in motion or stopping and the environment and place of work. The following items may be needed to prevent injury:

- seating
- side, front, rear barriers/guard rails
- secure handholds
- falling object protective structures(FOPS)
- restraining systems: full-body seat belts, lap belts
- adjustments to speed
- separation from wheels/tracks by guard rails, fenders

Reg 26 - Roll-over protection - Risks from rolling over of equipment when moving to be minimised. Roll over can occur due to uneven surfaces, variable or slippery ground conditions, excessive gradients, inappropriate speeds, incorrect tyre pressures, sudden direction changes. Risks can be reduced by:

stabilising the equipment, e.g.. using counterbalance weights, increasing track width by use of more or wider wheels, locking up moveable parts;



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- providing structures that allow equipment to only fall to one side (known as 'ROPS'- roll over protective structures);
- providing structures to give sufficient clearance if overturned (ROPS);
- providing restraining systems to prevent workers being carried from being crushed between any part of the work equipment and the ground or impacting with the inside of the cab/structure.

Exemptions apply to: fork lift trucks (FLT) already fitted with above structures; where risks to safety would be increased and where it would not be reasonably practicable (due to environment, e.g., in an orchard or where anchorage points of sufficient strength cannot be provided). If it is impractical to fit ROPS, you may need to use other equipment with ROPS or to which ROPS can be attached.

Reg 27 – Roll-over protection for FLTs - Requires risks to be reduced as low as is reasonably practicable on FLT. A vertical mast will generally prevent overturning but, ROPS will be needed where a variable reach truck is used in circumstances where it could roll over 180 degrees or more. A restraining system/seat belt will also be required to prevent people falling out or being trapped by the FLT or it's ROPS in the event of roll-over. If it is impractical to fit restraints on older trucks (pre December 1998) and the risks are sufficiently high, you may have to use an alternative FLT with restraints.

Reg 28 – Self-propelled work equipment - Covers the risks from the use of self-propelled work equipment and prevention strategies such as:

- Preventing unauthorised start-up
- Minimising collision of rail mounted equipment
- Stopping and braking devices
- Secondary emergency braking provision
- Ensuring drivers field of vision
- Use of appropriate lighting
- Provision of fire fighting appliances

Reg 29 – Remote controlled work equipment - Covers the risks from the use of remote controlled/radio controlled work equipment and the provision of such features to prevent it's operation when out of range; prevent crushing or impact; use of alarms/flashing lights to alert to it's presence; sensing or contact devices; stopping



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safely.

Reg 30 – Drive shafts- Requires safeguards where the seizing of drive shafts would lead to risk.

## **CHECKLIST - WORK EQUIPMENT**

1. Do you comply with Regulations 5 - 24 of PUWER for all your work equipment?

Reg 4 Suitability	YES / NO
Reg 5 Maintenance	YES / NO
Reg 6 Inspection	YES / NO
Reg 8 Information and Instruction	YES / NO
Reg 9 Training	YES / NO
Reg 10 Conformity with EC Requirements	YES / NO
Reg 11 Dangerous Parts	YES / NO
Reg 12 Protection against Specified Hazards	YES / NO
Reg 13 High/Low Temperatures	YES / NO
Reg 14 Controls for Starting, Re-starting	YES / NO
Reg 15 Stop controls	YES / NO
Reg 16 Emergency stop controls	YES / NO
Reg 17 Controls (visibility, location, systems etc.)	YES / NO
Reg 18 Control systems	YES / NO
Reg 19 Isolation	YES / NO
Reg 20 Stability	YES / NO
Reg 21 Lighting	YES / NO
Reg 22 Maintenance	YES / NO
Reg 23/24 Markings/warnings	YES / NO
Reg 25-Mobile Work Equipment for Carrying People	YES / NO
Reg 26 Rolling over of Work Equipment	YES / NO
Reg 27 Overturning of Fork Lift Trucks	YES / NO
Reg 28 Self-propelled Work Equipment	YES / NO
Reg 29-Remote Controlled Self-propelled Work Equipment	YES / NO
Reg 30-Drive shafts	YES / NO

2. For work equipment first provided in your premises/undertaking, the following flow chart may be of help.





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## EMPLOYERS DUTIES UNDER PUWER

### Regs 1 - 10

Section/suitability

Maintenance

Specific Risks

Inf/Instruction

Conformity with

### Regs 11 - 24

Machinery Guarding

Specified Hazards

High/Low Temperatures

Controls

Isolation

Stability

Lights

Design for maintenance

Do you provide work equipment in your premises/undertaking?

YES

You must comply with **Regs 1 - 10**

For work equipment first provided in your premises/undertaking  
(after 1st January 1993)?

Is it new, i.e. first place on the market?

YES

Does it comply with the legislation

implementing any relevant

EC Product Directive?

YES

It therefore complies with any  
corresponding requirement in **Regs 11-  
24**; it must also comply with any  
requirement of **Regs 11-24** not already  
covered by the product Directives'  
legislation

Is it second hand, hired  
or leased?

YES

You must comply with

**Regs 11 - 24**

NO

Do not use if product  
Directive legislation  
should apply; if it does  
not apply then you must  
comply with **Regs 11-24**



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### **REFERENCES/FURTHER DETAILS**

1. Booklet L22 - Work Equipment - Guidance on Regulations (Provision and Use of Work Equipment Regulations 1998). (HSE) ISBN 0-7176-1626-6
2. Leaflet INDG 338 (03/01) C1500 'Power Tools: how to reduce vibration health risks' guide for employers (HSE) ISBN 0 7176 2008 5.
3. Booklet HSG187: Control of Diesel Engine Exhaust Emissions in the Workplace. (HSE)(ISBN 0-7176 1662 2)(£6.95)
4. PUWER 1998: Open Learning Package (HSE) (ISBN 0 7176 1626 6)