

Rider-operated lift trucks

Operator training and safe use

Approved Code of Practice and guidance



This is a free-to-download, web-friendly version of L117 (Third edition, published 2013). This version has been adapted for online use from HSE's current printed version.

You can buy the book at www.hsebooks.co.uk and bookshops.

ISBN 978 0 7176 6441 2

Price £15.00

This revised edition of L117 is aimed at employers and those responsible for the safe operation of lift trucks, as well as those in control of worksites, the self-employed, managers and supervisors. It includes an outline of the main legal requirements relating to lift trucks; the Approved Code of Practice text (unchanged from the previous edition) and guidance on operator training for stacking rider-operated lift trucks. It also includes some of the guidance from HSG6 *Safety in working with lift trucks* (and replaces HSG6), for example, information about lift truck features; guidance on the safe use of lift trucks and how to protect pedestrians; and guidance on the maintenance and thorough examination of lift trucks.

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First published 1988
Second edition 1999
Third edition 2013

ISBN 978 0 7176 6441 2

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Approved Code of Practice

This Code has been approved by the Health and Safety Commission and gives advice on how to comply with the law. This Code has a special legal status. If you are prosecuted for breach of health and safety law, and it is proved that you did not follow the relevant provisions of the Code, a court will find you at fault, unless you can show that you have complied with the law in some other way.

The Code of Practice in this book was approved in 1999.

Guidance

This guidance is issued by the Health and Safety Executive. Following the guidance is not compulsory, unless specifically stated, and you are free to take other action. But if you do follow the guidance you will normally be doing enough to comply with the law. Health and safety inspectors seek to secure compliance with the law and may refer to this guidance.

Acknowledgements

HSE would like to thank all those who have contributed during the preparation of this publication.

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Notice of Approval

By virtue of section 16(4) of the Health and Safety at Work etc Act 1974, and with the consent of the Secretary of State for the Environment, Transport and the Regions, the Health and Safety Commission* has on 3 June 1999 approved the revision of the Code of Practice entitled *Rider-operated lift trucks: Operator training*.

The Code of Practice gives practical guidance with respect to the requirements of regulation 9 of the Provision and Use of Work Equipment Regulations 1998 as they relate to the basic training of operators of rider-operated lift trucks.

The Code of Practice comes into effect on 1 October 1999.

Signed

ROSEMARY BANNER
Secretary to the Health and Safety Commission

3 June 1999

* The Health and Safety Commission (HSC) and the Health and Safety Executive (HSE) merged on 1 April 2008 to form a single national regulatory body. From that date, the Health and Safety Executive became responsible for approving Codes of Practice, with the consent of the Secretary of State.

Introduction

1 Lift trucks are widely used for moving materials and goods, but they are involved in about a quarter of all workplace transport accidents. The deaths and injuries caused can ruin lives and businesses. Even when an incident does not cause injury, it can still mean costly damage to lift trucks, buildings, fittings and goods.

2 This publication is aimed at employers and those responsible for the safe operation of lift trucks, as well as those in control of worksites, the self-employed, managers and supervisors. Others involved with lift trucks, such as trade union health and safety representatives and lift-truck trainers, may also find it useful. It does not replace formal training.

3 The publication includes:

- an outline of the main legal requirements relating to lift trucks;
- the Approved Code of Practice (ACOP) text and associated guidance on operator training for stacking rider-operated lift trucks. This will help employers meet their legal obligations to make sure all operators receive adequate training. The ACOP has a special legal status, explained on page 2;
- information on features of the lift truck you need to consider;
- guidance on the safe use of lift trucks and how to protect pedestrians;
- guidance on the maintenance and thorough examination of lift trucks.

4 It combines and revises *Rider-operated lift trucks: Operator training* (L117) and parts of *Safety in working with lift trucks* (HSG6). The ACOP text in paragraphs 30-47 has **not** been altered, but the guidance on the ACOP in paragraphs 26-29 and 48-96 and the general guidance from HSG6 in paragraphs 9-25 and 97-181 has been revised.

5 Even though the ACOP and guidance on training apply to stacking rider-operated lift trucks and do not explicitly cover all types of lift truck, the general principles can be used as a guide when training operators of other truck types.

6 The general guidance in paragraphs 97-181 covers a range of lift trucks with forks, for example, industrial counterbalanced trucks, industrial reach trucks, rough-terrain counterbalanced trucks, variable reach trucks (telehandlers), side-loading trucks, container-handling trucks, articulated trucks, pedestrian-operated trucks (pallet stackers), order-picking trucks, very narrow aisle (VNA) trucks and straddle trucks. This is not an exhaustive list.

7 In this publication, an operator is anyone who operates a lift truck, even as a secondary or occasional part of their job, not only those whose job title is lift-truck operator.

8 HSE has also produced a simple leaflet for employers, *Lift-truck training: Advice for employers*¹ and a pocket card for operators, *Use lift trucks safely: Advice for operators*.²

The law

Guidance

9 Employers have a duty under health and safety law to ensure, so far as is reasonably practicable, the health, safety and welfare of their employees. The main legislation applying to the use of lift trucks is outlined in paragraphs 10-25. Look at the publications in the References section for more information.

Health and Safety at Work etc Act 1974 (HSW Act)³

10 Under the HSW Act, you, as an employer, or a self-employed person, have to ensure, so far as is reasonably practicable, the health and safety of yourself and others who may be affected by what you do or do not do. It applies to all work activities and premises.

11 Employees also have responsibilities under the Act. They must take reasonable care for their own health and safety and that of other people and must co-operate with you (and others) to help you comply with your legal duties relating to health and safety.

Management of Health and Safety at Work Regulations 1999⁴

12 The Management of Health and Safety at Work Regulations require you to carry out a suitable and sufficient risk assessment to protect your employees and others. A risk assessment is simply a careful examination of what in your work could cause harm to people, so that you can weigh up whether you have taken enough precautions or should do more to prevent harm. It helps you focus on the risks that really matter – the ones with the potential to cause real harm. This is an important part of planning lifting operations.

13 When thinking about your risk assessment, remember:

- a hazard is anything that may cause harm, such as striking pedestrians, other vehicles and structures; loss of stability; falling loads; falling from the carrier if someone is being lifted; or being crushed;
- the risk is the chance, high or low, that somebody could be harmed by these and other hazards, together with an indication of how serious the harm could be.

14 Risk assessment can be broken down into the following stages:

- Identify the hazards.
- Decide who might be harmed and how.
- Evaluate the risks and decide on precautions.
- Record your findings and implement them.
- Review your risk assessment regularly and update it if necessary.

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15 If you employ five or more people, you must record the significant findings of your assessment.

Provision and Use of Work Equipment Regulations 1998 (PUWER)⁵

16 PUWER applies to all work equipment. The Regulations require that:

- work equipment is suitable for the purpose it is used or provided for, and is properly maintained and inspected at suitable intervals;
- where the use of work equipment is likely to involve specific risks, the use, maintenance etc of that equipment is restricted to people given the task of using and/or maintaining it;
- users, supervisors and managers have received adequate training for the purposes of health and safety, including:
 - training in the methods which may be adopted when using work equipment;
 - any risks which such use may entail;
 - precautions to take.

Lifting Operations and Lifting Equipment Regulations 1998 (LOLER)⁶

17 LOLER deals with specific hazards/risks associated with lifting equipment and lifting operations. If you provide lifting equipment for use at work, or you have control of the use of lifting equipment, you should make sure that every lifting operation involving a lift truck is:

- properly planned by a competent person. This is usually the operator for most lift-truck work, so they should have the appropriate training, knowledge and expertise. For unusual complex tasks or situations, specific risk assessments and planning are likely to be required;
- appropriately supervised;
- carried out in a safe manner using suitable equipment.

18 You should make sure the lift truck has been thoroughly examined by a competent person within the previous 12 months (six months for equipment used for lifting people), or sooner if the competent person considers this appropriate, or in accordance with an examination scheme. In this context, the competent person would be a qualified engineer or similar. If a truck is assembled on site, it needs to be thoroughly examined before use. Also see paragraphs 165-173 for more information.

Workplace (Health, Safety and Welfare) Regulations 1992⁷

19 The Workplace (Health, Safety and Welfare) Regulations include requirements for:

- organisation of traffic routes to enable pedestrians and vehicles to circulate safely;
- sufficient lighting so that people can work and move around safely;
- floors and traffic routes to be constructed so they are suitable for the purpose for which they will be used and do not expose users to health and safety risks;

Guidance

- doors or gates that swing both ways, and conventionally hinged doors on traffic routes, to be fitted with a transparent viewing panel to give a clear view, when shut, of the space close to both sides.

Control of Substances Hazardous to Health Regulations 2002 (COSHH)⁸

20 The COSHH Regulations require you to carry out a suitable and sufficient assessment of the risks in the proposed work involving exposure to hazardous substances and, where necessary, introduce appropriate control measures. Examples of hazardous substances in lift-truck operations are:

- exhaust fumes from internal combustion engines;
- fuel oils;
- battery acid.

21 Maintenance operations and certain loads may expose people to other hazardous substances, so your COSHH assessment should identify these, and the methods to control exposure to them. Make all employees aware of them and make sure appropriate first-aid facilities are available.

Consulting employees

22 You are legally required to consult all your employees, in good time, on health and safety matters. In workplaces where a trade union is recognised, this will be through union health and safety representatives. In non-unionised workplaces, you can consult either directly or through other elected representatives.

23 Consultation involves employers not only giving information to employees, but also listening to them and taking account of what they say before making health and safety decisions. Issues you should consult employees on could include:

- health and safety and the work they do;
- how risks are controlled;
- the best ways of providing information and training.

24 Look at *Consulting workers on health and safety*⁹ for more information.

Construction (Design and Management) Regulations 2007 (CDM)¹⁰

25 The requirements of the Construction (Design and Management) Regulations 2007 (CDM) are not fully covered in this publication, but it does provide a framework for a minimum standard of initial training.

Rider-operated lift trucks: Operator training

Approved Code of Practice and guidance

Guidance

Introduction to the Approved Code of Practice

26 The ACOP text (paragraphs 30-47 in **bold** text) advises on the basic training of lift-truck operators. To comply with your duties under regulation 9 of the Provision and Use of Work Equipment Regulations 1998 (PUWER) (in *italic* text) and general duties under the Health and Safety at Work etc Act 1974, you as an employer must ensure that all operators you employ, both new and existing, are adequately trained and, when necessary, provide additional or refresher training. If you are self-employed, you need to ensure you have undergone the same type of training, achieving the same standard, as employers are required to provide to their employees. Basic training should be at least to the standard of this ACOP. Regulation 9 of PUWER states:

Regulation

‘(1) Every employer shall ensure that all persons who use work equipment have received adequate training for purposes of health and safety, including training in the methods which may be adopted when using the work equipment, any risks which such use may entail and precautions to be taken.

(2) Every employer shall ensure that any of his employees who supervises or manages the use of work equipment has received adequate training for purposes of health and safety, including training in the methods which may be adopted when using the work equipment, any risks which such use may entail and precautions to be taken.’

Guidance

27 The ACOP text relates to stacking rider-operated lift trucks, although the employer’s duty under PUWER to provide training also extends to operators of all other types of lift truck. Operators of types of truck not covered by the ACOP text, for example pedestrian-operated trucks, ‘stand-on’ pallet trucks that do not lift materials for stacking, and straddle carriers, will also need training. The advice given in the ACOP text (paragraphs 30-47) and the guidance on training (paragraphs 48-96 and Appendices 1 and 2) can be used as an indication of the standard of training to provide for all types of lift truck.

28 Organisations involved in lift-truck training should be able to advise on suitable training, but you will need to take account of the advice on instructor selection in this guidance when choosing a training provider, to ensure they have the relevant expertise and experience. See paragraphs 92-96 for more information on training providers.

29 Training in accordance with the ACOP and guidance is not the same as achieving vocational qualifications under the Qualifications and Credit Framework (QCF) in England, Wales and Northern Ireland and the Scottish Credit and Qualifications Framework (SCQF) in Scotland. Training (for example a lift-truck certificate of basic training) may contribute to QCF/SCQF qualifications, but neither is a substitute for the other.

ACOP

What is covered?

30 The ACOP covers stacking rider-operated lift trucks, including articulated steering truck types. 'Rider-operated' means any truck capable of carrying an operator and includes trucks controlled from both seated and stand-on positions, which may be fixed or fold-away. The purpose of this coverage is to include all types of lift truck having similar training requirements and to which the advice can reasonably be applied.

31 Straddle carriers and non-lift trucks fitted with removable attachments which modify their function, allowing them to be used temporarily as lift trucks, for example agricultural tractors with fork-lift attachments, are not included. Operators of machines adapted for temporary use as lift trucks should be adequately trained to use the attachments they need for the jobs they do.

Obligation to provide basic training

32 Employers should not allow anyone to operate, even on a very occasional basis, lift trucks within the scope of this ACOP who have not satisfactorily completed basic training and testing as described in this ACOP, except for those undergoing such training under adequate supervision.

Selection of instructors

33 When arranging for training, employers should satisfy themselves that it is in accordance with this ACOP. Operator training should only be carried out by instructors who have themselves undergone appropriate training in instructional techniques and skills' assessment.*

34 They should give instruction only on the types of lift truck and attachments for which they have been trained and successfully tested as operators. Instructors also need sufficient industrial experience to enable them to put their instruction in context and an adequate knowledge of the working environment in which the trainee will be expected to operate.

Training area and facilities

35 Basic training may be given at a suitable training centre or venue, or on an employer's premises. Where practicable, training areas should be sheltered from adverse weather conditions.

36 Basic training needs to be carried out off the job. Even when conducted on an employer's premises this means that the instructor and trainees, together with the lift truck and loads, should be wholly concerned with training, kept away from normal commercial operations, and not be diverted to other activities while training is in progress.

* Training may be carried out by suitably trained in-house trainers, or externally, if the expertise is not available in the company.

ACOP

37 Lift trucks used for training must be in good mechanical condition, properly maintained (taking into account manufacturers' recommendations), conform to all legal requirements and be suitable for the particular uses to which they will be put.

38 A suitable manoeuvring area should be provided and appropriately marked. While training is in progress, access to this area should be restricted to the instructor and trainees. The area will need to include facilities for simulating the manoeuvring space likely to be encountered in the workplace, including slopes. For rough terrain trucks an appropriate surface and obstacles representative of the conditions for which training is being provided is necessary.

39 A supply of realistic loads appropriate to the training being given, such as loaded and unloaded pallets, bags, sacks, bales, drums, bulk materials and freight containers is necessary to make training realistic. Similarly, there should be appropriate facilities for simulating loading and unloading from racking at various heights as well as road vehicles.

40 A training room or other suitable accommodation, together with appropriate training aids (for example projectors, models) should be made available to enable the instructor to cover, under reasonable conditions, the principles of lift-truck operation.

Training structure and content

41 Training should be largely practical in nature and of sufficient length to enable trainees to acquire the basic skills and knowledge required for safe operation, including knowledge of the risks arising from lift-truck operations. It should not be altered to suit immediate operational or production needs.

42 The ratio of trainees to instructors needs to allow each trainee adequate time to practise operating the truck under close supervision and to prepare for the practical tests.

43 Training should follow a carefully devised programme which ensures that each stage is introduced in an appropriate sequence, building on what has gone before, and allowing adequate time for learning and practice before the next stage is tackled. The easier driving skills should be dealt with before progressing to more difficult operations such as pallet or other load handling. At each stage the instructor will need to explain and demonstrate safe operation, which should then be practised by the trainees under direct supervision.

44 Basic training should be given on all the types of lift truck and attachments that operators will or could be required to use in their work. If the operator is subsequently required to operate another type of lift truck, or there is a change of handling attachment, additional, practical conversion training will be required. Employers should also consider the need for conversion training where the truck type does not change, but the size and weight alters significantly.

45 The course content will depend upon the lift-truck operations the trainee will be expected to carry out. The objectives of a basic training course, some of which are listed in Appendix 1, need to be tailored to fit all the lift-truck operations to be undertaken by the operator.

ACOP

Testing

46 The instructor should assess a trainee's progress continuously to ensure that the required standards are achieved at each stage of basic training. Additionally, trainees are required to pass a test or tests, practical and theoretical, of the skills and knowledge needed for safe operation.

Records

47 Employers need to keep a record for each employee who has satisfactorily completed basic training and testing in accordance with this ACOP. The record should include sufficient information to identify the employee and the nature and content of the training and testing completed. Either a copy of any certificate of basic training issued, or the relevant details, should be included in employers' records.*

Guidance

48 The guidance in paragraphs 49-96 supplements the ACOP on the basic training of lift-truck operators. Like the ACOP, it relates to stacking rider-operated lift trucks. It excludes straddle carriers and non-lift trucks fitted with removable attachments which modify their function, allowing them to be used temporarily as lift trucks, for example agricultural tractors with fork-lift attachments.

Selecting operators and trainees

49 Take care when selecting potential lift-truck operators. They should be:

- reasonably fit, both physically and mentally, to safely control and operate lift trucks, with the learning ability and potential to become competent operators;
- reliable, with a responsible attitude to their work;
- over the minimum school-leaving age (16), except in ports, where they must be at least 18 years old, unless they are undergoing a suitable course of training, properly supervised by a competent person. Children under 16 should **never** operate lift trucks. For more information, look at www.hse.gov.uk/youngpeople/index.htm.

Medical considerations

50 People selected to operate lift trucks should be free from disabilities, either physical or psychological, that might pose a threat to their own health and safety or the safety of others who might be affected by them operating lift trucks. Fitness for operating should always be judged on a case-by-case basis. You will need to do a risk assessment to identify any hazards associated with the job and working environment and to identify the areas of concern. Never allow anyone who is unfit because of alcohol or drugs (prescription or recreational) to drive a lift truck.

* Records will allow employers to demonstrate that employees have been adequately trained and indicate when new or refresher training may be needed.

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51 People with disabilities do not need to be excluded from work with lift trucks and may have developed skills which compensate for their disability. You should obtain medical advice about their suitability for the particular work they will be required to do. Reasonable adjustments may be required to enable some disabled people to work as lift-truck operators. The Equality Act 2010 is likely to apply.¹¹

52 The Drivers' Medical Unit at the Driver and Vehicle Licensing Agency (DVLA) publishes *At a glance: Guide to the current medical standards of fitness to drive*.¹² This is aimed at health professionals and applies to lift trucks on the road, but can be applied to all work with lift trucks. For most work with lift trucks, a standard of fitness equivalent to that for the Group 1 entitlement (ordinary driving licence holders) would be appropriate. Activities such as working in a particularly demanding environment, working at night or moving highly toxic or explosive materials would probably be more appropriate to the Group 2 entitlement (heavy goods vehicle licence holders).

53 HSE is not prescriptive about the need for medical assessment for fitness to drive lift trucks and there is no legislation relating directly to this topic. However, you may choose to screen potential operators before placement and then follow the guidelines for Group 2 licences in *At a glance* which require medical examination every five years from age 45, and every year from age 65 (in line with licence renewal periods). Always seek medical advice where there is any doubt about a person's fitness to operate a lift truck.

54 It may be useful to apply a selection test to avoid wasteful attempts to instruct unsuitable trainees. Lift truck training organisations, trade associations and sector skills councils may be able to give you more advice.

What should training include?

55 Operator training should always include three stages:

- Basic training: the basic skills and knowledge required to operate a lift truck safely and efficiently.
- Specific job training: knowledge and understanding of the operating principles and controls of the lift truck to be used and how it will be used in their workplace.
- Familiarisation training: applying what has been learnt, under normal working conditions, on the job.

56 Basic and specific job training, which can be combined, should take place off the job (ie away from production and other pressures). Familiarisation training needs to be done on the job, under close supervision.

Basic training

57 Basic training needs to fully cover the skills and knowledge needed to safely operate the type of lift truck and handling attachments (if any) the trainee will be required to use, including being aware of the risks from lift-truck operations. As well as those directly related to the operation of trucks, include associated tasks, such as the hazards associated with refuelling. Appendix 1 'Basic training: Objectives to consider' may be used as a starting point.

58 Given the wide range of lift trucks, operator experience and company requirements, some training organisations will arrange for a basic course to be

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tailored to a client's requirements. The basic training described in Appendix 1 can be adapted for this purpose, as long as the appropriate basic training objectives are achieved.

How long does the training need to be?

59 It is difficult to specify how long a course should last as there are many issues which affect the rate of learning. Courses should be long enough to meet the requirements of Appendix 1 and Appendix 2 'Basic training: Tests of operator skills' (typically 3-5 days).

60 Operators with some experience of lift trucks or relevant experience of similar vehicles may need less extensive training than those with no experience, however, **do not overestimate the value of such experience**. An operator with basic training on one type of lift truck or handling attachment cannot safely operate others, on which they have not been trained, without additional conversion training.

61 The ability to drive private cars or other conventional road vehicles, for example, does not remove the need for proper training on lift trucks, which have very different controls and stability and handling characteristics.

Training ratios

62 The ratio of trainee: instructor: truck should enable the instructor to demonstrate each part of the practical training and enable the trainee to obtain adequate hands-on experience (for example a maximum of 3:1:1, except for theory sessions). There should be enough time for each trainee to have enough practical experience to become a safe operator and to do so under close supervision.

Testing

63 The instructor should continuously assess a trainee's progress to ensure they achieve the required standards throughout training. At the end of the training, the trainee should pass a test, or tests, to demonstrate that they have the necessary practical and theoretical knowledge and skills to operate lift trucks safely (see Appendix 2).

64 It is essential that newly trained operators are given specific job and familiarisation training as described in paragraphs 65-66. Once they have completed the three stages of training, you should give operators, including occasional users, the opportunity to put the skills and knowledge acquired during training into practice at the workplace to reinforce that training.

Specific job training

65 Specific job training is a further essential element of training. It will normally follow the completion of basic training but may be combined or integrated with it. It will be tailored to the employer's particular needs and include, where appropriate:

- knowledge and understanding of the operating principles and controls of the lift truck to be used, especially where these relate to handling attachments specific to the job, or where the controls are different from those on which the operator has been trained (to be repeated whenever the design of the truck is changed);
- routine inspection and servicing of that truck in accordance with the operator's handbook or instructions issued by the manufacturer, in so far as they may reasonably be carried out by the operator (to be repeated whenever the design of the truck is changed);

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- use of the lift truck in conditions that the operator will meet at work, for example gangways; loading bays; racking; lifts; automatic doors; confined areas; cold stores; slopes; rough terrain; loading platforms; other vehicles; and bad weather;
- instruction on site rules, for example site layout; one-way systems; speed limits; general emergency procedures; use of protective clothing and devices including operator restraints and eye and hearing protection; work near excavations and overhead lines; and other hazards;
- training in the work to be carried out, for example loading particular types of vehicle; handling loads and materials normally found at that workplace, including assessing weight; using the lift truck fitted with working platforms where appropriate;
- safe systems of work, which should include custody arrangements to ensure keys are never left in unattended lift trucks, or where they are freely available, to prevent unauthorised operators using them.

Familiarisation training

66 Familiarisation training is the third stage of training. This should be carried out on the job and under close supervision, by someone with appropriate knowledge. It could include:

- applying, under normal working conditions, the skills already learned in basic and specific training, starting with simple tasks and developing to the more complex ones;
- becoming familiar with the lift truck activities of the employer;
- familiarisation with site layout, local emergency procedures and any other feature of the work which it is not practicable to teach off the job.

Authorisation

67 After employees have successfully completed all three elements of training, you should give them written authorisation to operate the lift truck(s) they have been trained to use. You could issue authorisations on an individual basis and/or record them centrally. They should state the operator's name, the date of authorisation, the types or categories of lift truck to which they relate and any special conditions, such as operational limitations.

68 You should not allow anyone to operate lift trucks on any premises without authorisation (except a trainee under close supervision). You will also need to ensure authorised operators continue to be competent through regular monitoring and assessment (see paragraphs 75-76).

Certificates of basic training

69 There is no legal requirement to issue certificates of basic training, but they provide evidence that operators have received relevant training and achieved an appropriate level of operating ability. The employee will need evidence of training if they change jobs. It is in the interests of both employers and employees for employees to have the original certificate to limit forgery, for example using photocopies. If the employee only receives a copy, it will need to be annotated in some way to establish its validity so that it can be recognised by other employers.

Note: There is no such thing as a lift-truck 'licence'.

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Evidence of training

70 Where operators claim to be trained and experienced, you should insist on evidence. You need to make sure they have sufficient, relevant training, experience and ability for the lift trucks and handling attachments being used. Where there is any doubt about the validity of the training and/or certification, you should arrange an assessment of the person's competence (see Appendix 2) and provide any necessary training and re-assessment before allowing them to operate a lift truck. Training providers can arrange short assessment courses to judge the ability and training needs of operators who have had limited formal training.

Migrant workers

71 When employing workers from outside the UK, as well as assessing their skills and knowledge and retraining if necessary, take account of the following:

- consider and manage the needs of those who may not speak English well, or at all;
- make sure they have received and understood the information, instruction and training they need to work safely and consider how to ensure it is acted on;
- make sure they are adequately supervised and can communicate with their supervisors.

72 Look at HSE's *Protecting migrant workers*¹³ for more advice.

Competence

73 Training will not in itself ensure the competence of individuals: this will develop with experience. Competence to operate a machine does not mean workers are competent to operate in all conditions. Basic training only covers standard situations and HSE would not expect an operator to carry out complex lifts in difficult environmental conditions without further training and experience.

74 Even experienced lift-truck operators may need supervision if they have to lift an abnormal load, or lift in potentially hazardous conditions. Continued supervision will be necessary to make sure that good operating standards are maintained (see paragraphs 84-85).

Monitoring and assessment

75 Lift-truck operators, even those who are trained and experienced, need to be routinely monitored in the workplace and, where necessary, retested or refresher trained to make sure they continue to operate lift trucks safely.

76 You can identify the need for further training using a formal monitoring and assessment process, carried out by a suitably competent person, such as an instructor. Formally timetable this assessment (for example a retest) to make sure it is done at reasonable intervals. Where an operator fails this assessment, arrange further training for them. You may find it useful to record these assessments in operators' personnel records.

Refresher training

77 Regular refresher training will ensure operators:

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- maintain good driving habits;
- learn new skills where appropriate;
- reassess their abilities.

78 Refresher training or retesting might also be appropriate where operators:

- have not used trucks for some time;
- are occasional users;
- appear to have developed unsafe working practices;
- have had an accident or near miss;
- have changed their working practices or environment.

79 There is **no specific time period** after which you need to provide refresher training or formal assessment. However, you may decide that automatic refresher training or a retest after a set period (for example 3-5 years) is the best way to make sure employees remain competent. Where you adopt this approach, you will still need to monitor performance, in case operators need extra training before the set period ends.

Conversion training

80 Conversion training enables trained and experienced operators to extend the range of lift trucks they are qualified to drive. It involves learning to operate a truck of a different category, such as a counterbalanced operator converting to operate, for example, a reach truck, an articulated lift truck, or very narrow aisle man-up stacking truck.

81 It is likely to be appropriate for an operator to also go through conversion training where, for example, they are already a fully trained operator on a counterbalanced truck (for example electric, small) but want to operate a significantly larger or more powerful counterbalanced truck.

82 Approach conversion training with the same attention to detail as basic training so that all gaps in and variants on existing skills and knowledge are covered during training. There may be significant variations in the arrangement or application of controls, even in the same truck types. Conversion training should follow a similar pattern to initial lift-truck training, including basic, specific job and familiarisation training. Operators also need testing on their ability to operate the new truck in the same way as they were tested after their initial basic training.

Records

83 You should keep adequate records for each employee who has satisfactorily completed any stage of lift-truck training, including conversion and refresher training. The record will need to identify the employee and what training they have had. You should also keep records of how they perform in associated tests. The record could include a copy, or details, of any certificate of training (see Appendix 3 for an example of an employer's training record).

Supervisor training

84 The HSW Act requires you to provide adequate supervision. It is essential that supervisors have enough training and knowledge to recognise safe and unsafe practices. This does not mean they need full operator training, but they do need to

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understand the risks involved, and how to avoid or prevent them. Some organisations offer training courses for supervisors and managers of lift-truck operations.

85 Supervisors should be able to:

- carry out an effective observation and know what to look for;
- communicate effectively with operators and line managers;
- recognise unsafe practice and behaviour;
- maintain and promote health and safety standards.

Visiting operators and drivers

86 If you are not in control of premises where your employees may operate lift trucks, you need to liaise with those who do control such sites to co-ordinate your efforts and co-operate to ensure that only people trained as described in this publication are allowed to operate lift trucks. This is just as important on multi-occupied sites, such as business parks and markets where lift trucks may be shared.

87 You should ensure that your employees who use lift trucks on other people's premises are fully trained to do so, and that this information is made available to those in control of those premises.

88 If you are in control of premises used by visiting operators, you should make sure they have been adequately trained to safely operate those lift trucks, using the information from their employer. It is your responsibility to ensure the workplace is safe.

89 It is unlikely that visiting lorry drivers will have undergone training to safely use lift trucks provided by those in control of premises. Drivers with their own lift trucks or regular contractors' drivers who frequently visit the same sites may be satisfactorily trained and have sufficient site knowledge to operate safely, but you should always confirm this.

Agency workers and contractors

90 When you use agency workers or contractors, you should establish their competence before contracting them. Consider them in your risk assessments, taking into account their level of experience and familiarity with the work. The same health and safety standards that apply to permanent employees also apply to agency workers and contractors. They are likely to need some specific job and familiarisation training, as well as additional supervision.

91 An employer's health and safety duties towards agency workers or contractors cannot be passed to another party by civil contracts. Employment agencies and employers of lift-truck operators should make sure there is a clear understanding of who is responsible for the day-to-day management of the health and safety of agency workers or contractors, preferably recorded in writing.

Guidance

Instructor selection and training

92 When choosing how to carry out training, you could:

- send your employees to an external training organisation for training on their premises;
- use a suitably trained employee from your own company to train your own employees on your premises;
- employ a commercial or self-employed instructor to conduct training on your premises.

Instructor competence

93 Successful training depends on the competence of instructors so you should have a system in place to check their competence and suitability. Ask them to supply evidence of:

- training and post-training experience on the type of truck to be used, both as an instructor and operator;
- knowledge of and familiarity with conditions in the industry where the trainees will work;
- expertise in any requirements peculiar to the operation of the truck(s) and in the work trainees will be expected to do;
- documentation such as:
 - a valid certificate of training (instructor qualification);
 - an insurance certificate (public liability at least);
 - proof they can train on the vehicles concerned.

94 Instructors should:

- be skilled in lift-truck operations and instructional techniques;
- have the ability to adapt their approach to suit the needs of different trainees;
- be able to communicate effectively;
- be able to lead and control the training sessions effectively;
- be able to supervise and evaluate trainees;
- keep their own training and experience as instructors up to date, especially if not training regularly, and be reassessed on an ongoing basis.

Voluntary accreditation for lift-truck training

95 It is important that lift-truck operators are trained to the standards outlined in this ACOP, whether using in-house trainers or external training providers. There are a number of organisations who provide accreditation for lift-truck training schemes. These voluntary schemes are intended to:

- help set and maintain professional training standards;
- help employers select training organisations or lift-truck suppliers who offer a good standard of training.

96 HSE no longer administers an accrediting bodies scheme. However, you can get information about voluntary accreditation schemes from HSE's website: www.hse.gov.uk/workplacetransport/lift-trucks/accreditation.htm.

Features of the lift truck

Guidance

97 The law requires work equipment to be suitable and safe for the way it is intended to be used. Machinery manufacturers also have a legal duty to reduce risks on new machinery by ensuring it is designed and constructed to be safe. Make sure you are familiar with the features of lift trucks outlined in paragraphs 98-118 and ask for professional advice when necessary.

Lift truck capacity

98 The capacity of a lift truck is important because you need to ensure it will do the work you want it to do. The size of your loads will affect the capacity you need. The actual capacity (safe working load) is the maximum load that can be carried at a set distance from the heels of the forks to a specified height. This should be stated on the lift-truck capacity plate or capacity chart. Do not load lift trucks beyond their actual capacity. Also look at the information on stability in paragraphs 130-135.

Attachments

99 Some loads can be handled more efficiently and safely by using suitable attachments, for example fork extensions, booms, rotating heads, drum clamps, paper roll clamps, bale clamps, load stabilisers etc. Attachments, including fork extensions, will affect stability and must not be used without first seeking advice from the supplier or manufacturer.

100 Fitting an attachment will require a reduction in the actual capacity of the lift truck, called derating. Where this is necessary, only a person with appropriate knowledge and experience should carry it out. Consult the manufacturer or authorised supplier about the suitability of an attachment for a particular lift truck and the necessary derating. A new capacity plate relating to the attachment should be applied to the lift truck before it is used with the attachment.

101 Attachments may be mounted on the forks or directly onto the carriage. They should be securely fastened and you should make sure that the attachment or securing device does not interfere with any part of the mast structure during raising or lowering of the attachment. Always follow the instructions for using the attachment supplied by the manufacturer or authorised supplier.

102 Working platforms on lift trucks are attachments. See paragraphs 148-153 for more information about the different types of platform and when they can be used.

Lift truck power sources

103 Most lift trucks are powered by electric batteries or internal combustion engines (liquefied petroleum gas (LPG), petrol or diesel). There are risks associated with each, so you need to take proper precautions. Follow the advice from the

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manufacturer. Also see paragraphs 142-145 for advice on refuelling and paragraphs 174-178 for charging and changing batteries.

104 In workplaces where lift trucks are powered by internal combustion engines it is important that there is adequate ventilation to remove exhaust fumes, and that the engines are properly maintained. Exhaust fumes may be significantly reduced by using filter systems or catalytic converters. However, these systems are not a substitute for providing adequate ventilation. Make sure exhaust filters are checked regularly to maintain their effectiveness. There may be occasions where monitoring for the presence of gases such as carbon monoxide could be helpful, either to establish if there is a problem or to make sure the control measures are adequate.

Restraining systems and protective structures

105 Since 2002, counterbalanced trucks, rough-terrain trucks and side-loading trucks, one side only, must be fitted with an operator restraining system (for example a seat belt). For older trucks which do not have one, you should fit a restraining system if the risk assessment indicates that there is a risk of the vehicle overturning and where the operator may be trapped between the truck and the ground. Where restraining systems are fitted they should be used.

106 Where a restraining system cannot be fitted, and the risks are sufficiently high, it will be necessary to use another lift truck which has such a system. Any lift truck fitted with a roll-over protective structure (ROPS) to protect operators from the risk of injury resulting from 180° or more roll-over should be fitted with a restraining system.

107 A falling object protective structure (FOPS) should be provided where there is a significant risk of falling materials endangering the operator. ROPS and FOPS are designed and manufactured to specific European standards to ensure they meet the required performance criteria. Do not modify them in any way and if they are damaged, consult the truck manufacturer to see if they need replacing.

Load back-rest extensions

108 A load back-rest extension should be fitted if the lift truck is used to move objects liable to fall on the operator. It should be high enough to prevent the load, or part of the load, rolling over the top of it.

Protection from the weather

109 Where lift trucks are used outside, provide adequate protection for the operator from the effects of bad weather. Do not allow operators to apply *ad hoc* or temporary weather proofing to lift trucks. Do not use boards, shrink-wrap or plastic sheeting to cover the seating position because vision will be reduced, particularly overhead, and the covering may come loose and cause a hazard. Where possible, use lift trucks fitted with cabs and wiper systems.

Guards for dangerous moving parts

110 Guards should be provided to prevent access to any dangerous moving parts of the lift truck within the operator's reach from the normal operating position.

Guidance

Wheels and tyres

111 Wheels for lift trucks vary, depending on how they will be used. They may be one-piece rims; split or divided rims; or multi-piece rims, with two to five pieces. Tyres may be solid or pneumatic. The tyre construction and material depends on how they will be used.

112 Solid tyres are generally fitted to warehouse trucks and trucks used on smooth surfaces. They may be press-on band or snap-in tyres.

113 Pneumatic tyres are generally fitted to rough-terrain trucks and larger trucks and may be tubed or tubeless. They have considerable stored energy and there have been accidents due to the sudden release of pressure, particularly during inflation. Also see paragraphs 179-181 on tyre and wheel maintenance.

Brakes

114 Lift trucks should have a braking system capable of correctly stopping a laden lift truck smoothly and efficiently, and holding the lift truck when parked. The braking system should be properly maintained and tested regularly.

Lights

115 There should be suitable lights at the front and rear if the lift truck has to be driven at night, or in areas with insufficient natural or artificial light, such as in drive-in racking. Consider fitting a flashing warning beacon on the lift truck.

Noise

116 When selecting lift trucks, consider the likely effects on noise levels in the workplace by using particular types of truck and whether there are quieter ones available. Manufacturers are required to give information on the noise emission of their lift trucks. Further guidance on noise at work is given in *Controlling noise at work. The Control of Noise at Work Regulations 2005. Guidance on Regulations*.¹⁴

Seat design and vibration

117 Many operators have to sit on their lift truck for much of the working day so it is important that the design and maintenance of the seat reduces fatigue and discomfort and prevents ill health caused by vibration. Modern lift trucks do not produce much vibration and seats are now ergonomically designed and adjustable. However, contact the manufacturer for advice if the seat proves to be unreasonably tiring or passes on excessive vibration, as this is probably due to damage or a fault, which should be rectified as soon as possible (see *Whole-body vibration. The Control of Vibration at Work Regulations 2005. Guidance on Regulations*).¹⁵

Visibility

118 Select lift trucks to make sure there is sufficient visibility for the environment and loads that have to be handled. Make an assessment to see if additional visibility aids are required, for example convex mirrors or CCTV. Where visibility aids are fitted, include their condition and correct setting as part of the daily checks.

Safe use of lift trucks

Guidance

119 Think about the safe movement of lift trucks and loads as part of your overall safety policy for people, plant and equipment. Reduce risks at points where lift trucks might meet other traffic or pedestrians, including areas where lift trucks load and unload other vehicles. This risk assessment should form the basis of a safe system of work, and you should take account of the extra risk when planning lifting operations.

120 Also look at HSE's pocket card, *Use lift trucks safely: Advice for operators* for guidance on how to operate lift trucks safely.

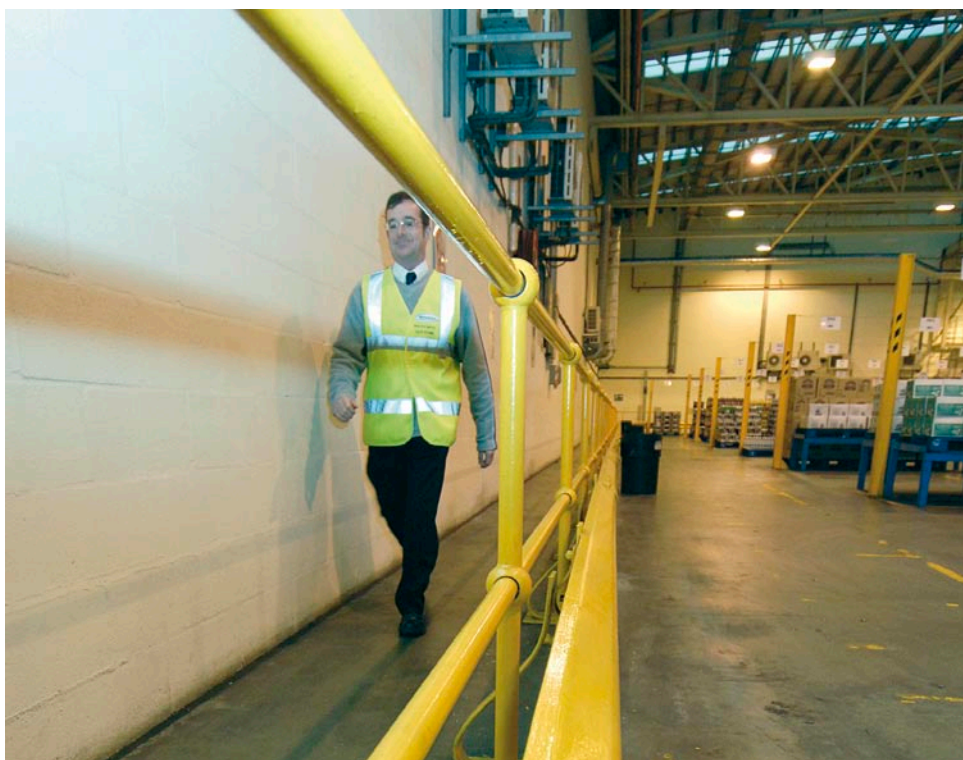


Figure 1 Segregation

Pedestrians

121 Where possible, prohibit pedestrians from areas where lift trucks are operating and only allow access to those who operate truck equipment, or supervisors. If this is not possible, assess the risks to pedestrians and, where necessary, provide ways to adequately control the risks:

- separate pedestrian activities from areas where lift trucks are operating, where reasonably practicable. Use a physical barrier where possible;

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- define, designate and clearly mark pedestrian routes and crossing places;
- provide sufficient clear and unambiguous warning signs to inform people that trucks operate in the premises or area;
- display notices instructing lift-truck operators to sound horns at appropriate locations. All warning and safety signs should conform to the Health and Safety (Safety Signs and Signals) Regulations 1996.¹⁶

122 You could also use other measures such as:

- audible warning devices, for example automatic reversing beepers;
- flashing warning beacons;
- visibility aids, for example convex mirrors or CCTV;
- high-visibility clothing for pedestrians where the risks to their safety cannot be adequately controlled by other methods. Lift-truck operators should be provided with such clothing at all times and instructed to wear it whenever they leave the operating position of the lift truck;
- presence-sensing equipment which sounds a warning when an object or person is detected. Some automatically stop the truck to prevent a collision.

Banksmen

123 You should only consider using a banksman (also known as a signaller) when there is no other way to control reversing risks. To do their job, they have to stand close to where a vehicle is manoeuvring, which can put them at risk. If you have to use a banksman, make sure they are visible to operators at all times, in a safe position, and are able to communicate with and give clear instructions to the operator, using recognised signals. Everyone involved should be trained and competent. See *Workplace transport safety: An employers' guide*¹⁷ and *Safety signs and signals. The Health and Safety (Safety Signs and Signals) Regulations 1996. Guidance on Regulations* for more information.

Members of the public

124 The public should not be allowed in lift-truck operating areas. If a lift truck needs to enter an area when the public has access, such as during normal opening hours in a retail warehouse, there should be a written procedure outlining the precautions, based on your risk assessment, for example barricading off the area where the lift truck is operating and giving loudspeaker warnings. See *Warehousing and storage: A guide to health and safety*.¹⁸

Lift-truck operating areas

125 All lift-truck operating areas should be suitably designed and properly maintained. Make sure the surfaces used by lift trucks are as level and firm as possible, and preferably surfaced with concrete or other suitable material. Some lift trucks, however, are designed to operate on rough or uneven surfaces.

126 Take account of the following:

- Repair potholes and remove accumulations of loose material on the ground as they are particularly hazardous to small-wheeled lift trucks.
- Remember, road humps are unsuitable for lift trucks. If they are used to reduce the speed of other traffic, provide a bypass for lift trucks.
- Try to eliminate gradients where possible. Never allow lift trucks to be driven up or down gradients that exceed the maximum specified by the manufacturer or authorised supplier. Do not allow travelling or turning across a gradient in a lift truck.

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- Make sure roads, gangways and aisles have sufficient width and overhead clearance for the largest lift truck using them to do so safely, whether loaded or unloaded, and if necessary, to allow other vehicles and loads to pass each other safely. Be aware of the risks of contacting overhead power lines.
- Use one-way traffic systems to reduce the risk of collisions.



Figure 2 A lift truck passing through an interrupted road hump

Hazard warning and visibility

127 Take account of the following:

- Avoid sharp bends, blind spots, and overhead obstructions where possible. Where you cannot remove them, use clearly marked barriers, for example with black and yellow diagonal stripes. Clearly mark any overhead obstructions.
- Where you cannot use barriers, you could use signs (for example instructing operators to restrict speed) or mirrors.
- Identify, protect and clearly mark, for example by black and yellow diagonal stripes, features of the building or operating area, such as support columns, racking, pipework or other plant.
- Clearly mark the edges of loading bays, excavations and pits, for example by black and yellow diagonal stripes, if lift trucks are operating nearby. Where possible, put barriers around the edges.
- Flexible doors of transparent or translucent material may reduce risks where vehicles have to pass through. The lift truck operator should have a clear view through the closed doors before proceeding.

Lighting

128 Make sure the workplace is adequately lit, particularly:

- where there is regular movement of vehicles;
- where pedestrians and vehicles circulate and cross;
- near buildings and plant.

129 Arrange lighting to avoid glare and avoid sudden changes of lighting levels (for example, where lift trucks may pass from bright sunlight into the building).

Guidance

Lift-truck stability

130 Lift-truck stability (both longitudinal and lateral) can be affected by the load, the task and the environment where it is operating. Lateral stability is affected by the forces generated, such as when turning, or if the truck is tilted sideways by, for example, travelling across an incline or running into a pothole.

Counterbalanced trucks

131 A counterbalanced truck can be tipped forward if the load is too heavy or incorrectly placed on the forks; if travelling with the load raised; if the lift truck is accelerated or braked harshly while carrying a heavy load; or it strikes an overhead obstruction.

132 Counterbalanced trucks are fitted with a counterweight to counteract the weight of the load. Do not change the weight of the counterweight, as this will affect the lift truck's stability and safety, unless approved by the manufacturer or authorised supplier. On electric lift trucks, only use batteries of the size and weight specified by the lift-truck manufacturer, as they are part of the counterweight and an incorrect weight will affect stability.

Variable reach trucks (telehandlers)

133 Telehandlers (used mainly in agriculture and construction) are able to raise loads to greater heights and reaches than conventional lift trucks, which increases operating hazards, particularly overturning. Some types have stabilisers or chassis levelling devices. Extending the boom can increase the danger of tipping forwards or sideways and so it should be fully retracted for travelling, except at creep speed (and then only if on relatively hard and level ground). The load capacity of the truck will vary according to how far the boom is extended and to what height.

134 Your telehandler will be fitted with a device which warns of approaching overload (longitudinal load moment indicator (LLMI), or, on new machines, longitudinal load moment control (LLMC)). Never ignore the warnings from these devices and check their calibration periodically according to the manufacturer's instructions.

135 See *Safe use of telehandlers in construction*¹⁹ for more detailed information.

Controlling the use of lift trucks

136 You should have a system in place to ensure that only authorised operators use lift trucks and that they are parked safely:

- Lift trucks should be fitted with a device to prevent unauthorised use, such as a switch with a removable key, a keypad with a PIN number or a programmable fob.
- Keep keys, where used, in a secure place when the lift truck is not in use, such as the supervisor's or gatekeeper's office. They should be issued by a responsible person and retained by the operator(s) until the end of the work period.
- Never leave lift trucks unattended with the keys in the ignition or the keypad energised. At the end of the shift, lift trucks should be parked safely on level ground with the parking brake applied, the forks or attachment fully lowered, the engine switched off and the keys returned to the responsible person or the keypad de-energised.
- On LPG trucks, the gas supply should be turned off at the storage tank if the truck is to be left for some time, for example at the end of a shift or overnight.

Guidance

Parking areas

137 Provide enough parking areas for all lift trucks. As far as possible, park lift trucks in a secure compound or in a supervised area where they will not be easily accessible to unauthorised people, and preferably separate from main thoroughfares and operating areas. Wherever possible, provide suitable areas for recharging or maintenance.



Figure 3 A parking area away from the flow of traffic

Using lift trucks in potentially explosive atmospheres

138 Lift trucks should not be used in areas where flammable vapour, gases or dusts are liable to be present, unless they have been designed or adapted for such use. Ask the manufacturer or authorised supplier for advice.

139 The Dangerous Substances and Explosive Atmospheres Regulations 2002 (DSEAR) require employers to control the risks from fire and explosions in potentially explosive atmospheres. You must carry out a risk assessment, identify and classify areas of the workplace where explosive atmospheres may occur and avoid ignition sources in those areas. See *Fire and explosion: How safe is your workplace?*²⁰ for more information on DSEAR.

140 There are two main hazards associated with using lift trucks in potentially explosive atmospheres:

- direct ignition, for example by hot surfaces, unprotected electrical equipment or hot sparks from the exhaust;
- ingestion of flammable vapour into the engine air intake. If this happens, the engine is liable to accelerate out of control causing overspeeding, and possible flashback through the intake to ignite the surrounding, potentially explosive, atmosphere.

141 A truck that is intended to be used in a potentially explosive atmosphere should comply with the ATEX Directive 94/9/EC.²¹ Also look at BS EN 1755: 2000 *Safety of industrial trucks. Operation in potentially explosive atmospheres. Use in flammable gas, vapour mist and dust*²² for more information.

Guidance

Refuelling lift trucks with internal combustion engines

142 Areas for refuelling lift trucks with internal combustion engines should be outside and you should be aware of the risk of fire and explosion. Do not refuel where there is a likelihood of an accumulation of flammable vapours if there is a spillage, for example drains, pits, gulleys. Prohibit smoking, clearly display warning notices in these areas and make sure engines are switched off before refuelling. Use appropriate personal protective equipment (PPE) when handling fuel oils or fuelling a lift truck, for example protective gloves.

LPG

143 LPG is heavier than air and can accumulate in low, unventilated areas. Where possible, change the fuel cylinders of LPG-powered lift trucks outside buildings away from pits, drains, lift shafts and sources of ignition, in an adequately ventilated area and where notices prohibiting smoking are clearly displayed. Wear appropriate PPE, such as safety glasses, gloves and protective footwear.

144 All transportable LPG cylinders should comply with the construction and testing requirements of the Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2009.²³

145 If the lift truck is fitted with integral tanks or if you refill your own cylinders, the installation for refilling should comply with the advice given in the UKLPG Code of Practice 1 *Part 1, Bulk LPG storage at fixed installations*.²⁴ Also see UKLPG Code of Practice 12 *Recommendations for safe practice in the design and operation of LPG cylinder filling plants*.²⁵ Contact UKLPG for further information on using LPG.

Petrol

146 Your local Petroleum Licensing Authority can advise on the standards necessary to comply with the Petroleum (Consolidation) Act 1928 as amended by the Dangerous Substances and Explosive Atmospheres Regulations 2002 (DSEAR).²⁶ In England and Wales the licensing authority can either be the fire and rescue authority (in Greater London or a metropolitan county) or the county council, and in Scotland it is the local council.

Confined spaces

147 Do not use lift trucks with internal combustion engines in confined spaces or where there is inadequate ventilation. Guidance on the Confined Spaces Regulations 1997 is in the Approved Code of Practice *Safe work in confined spaces*.²⁷

Working platforms on lift trucks

148 Before using a working platform on a lift truck, make sure you are familiar with the requirements of *Working platforms (non-integrated) on forklift trucks*.²⁸

149 Primarily, lift trucks are intended for lifting materials and not people. People should **never** be lifted on the forks or on a pallet, or similar, balanced on the forks of a lift truck because they can easily fall off. However, for planned work, lift trucks can be used with integrated working platforms to allow people to work at height.

Guidance

150 There are two types of platforms available for lift trucks:

- **Integrated working platforms** are attachments with controls that are linked to and isolate the truck controls so that only a person in the platform can control the lift height of the platform and truck movements.
- **Non-integrated working platforms** are attachments with no controls in the platform, so a person in the platform cannot control the lift height of the platform or move the lift truck. All lift truck and platform movements are controlled by the truck operator.

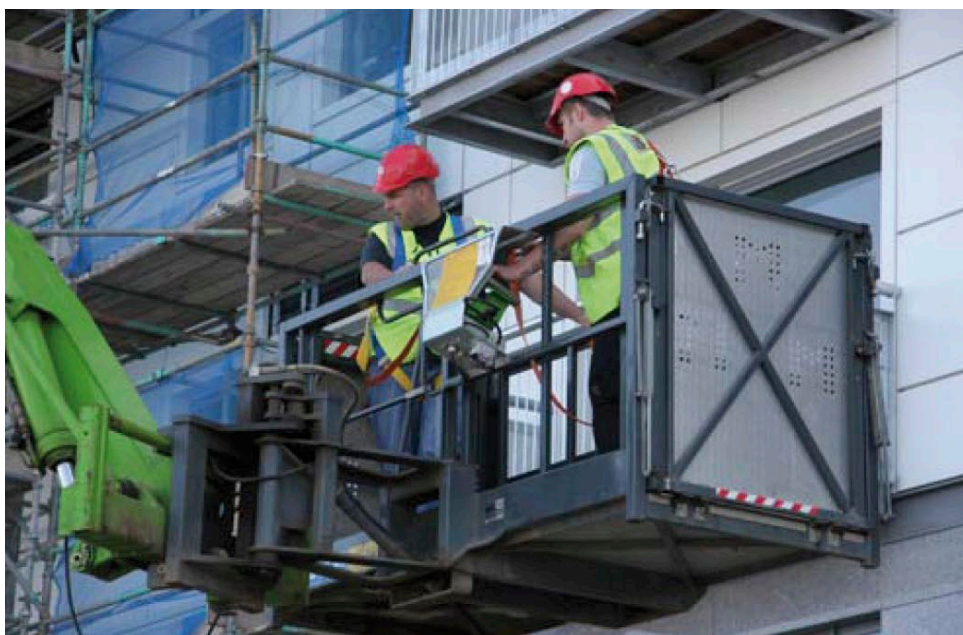


Figure 4 An integrated working platform

151 A non-integrated working platform may only be used in exceptional circumstances for 'occasional unplanned use', for example:

- non-routine maintenance tasks for which it is impractical to hire in purpose-built access equipment;
- tasks that would otherwise be carried out using less safe means of access such as ladders, because it is impractical to hire in purpose-designed people-lifting equipment due to the short duration and occasional nature of the task;
- checking on high-level damage to racking suspected of causing an immediate risk or checking on the condition of damaged roof lights.

152 Routine or planned tasks, particularly those associated with production or pre-planned activities such as periodic maintenance or stocktaking, are not exceptional circumstances and are not examples of occasional unplanned use.

153 Lift trucks fitted with non-integrated working platforms are not suitable for stock checking, order picking, routine maintenance or the transfer of goods or people from one level to another. However, stocktaking within cold stores is currently permitted using non-integrated work platforms, due to the lack of an effective alternative.

Guidance

Lift trucks on loading platforms and trailers

Loading platforms

154 Permanent loading platforms, as used in warehouses or in factories, should be constructed and designed to carry the foreseeable maximum load safely. Temporary loading platforms, for example on building sites, should be clearly marked with the maximum load they are designed to carry, and lift truck operators should be advised of this. When manoeuvring, ensure the lift truck does not damage the platform or its supporting structure.

Trailers

155 Trailers of articulated lorries are less stable when they have been disconnected from their towing units. They should always be braked when parked. Make sure the trailer deck is strong enough to support the lift truck and load. If the lift truck has to drive onto the trailer for loading or unloading, provide and securely fix bridge plates, strong enough to support the lift truck and its load. You should also ensure the landing legs at the front of the trailer can support the additional weight of a lift truck.

156 Where ramps are used to provide access into the rear of trailers, make sure they are properly secured to the rear of the trailer so that one cannot move relative to the other. The ramps should be marked with the maximum load they are designed to carry and they should be regularly inspected.

157 Take extra care when loading and unloading from curtain-siders as they have no edge protection, so you should carry out a risk assessment and consider what may happen if the lift truck goes out of control.

Using lift trucks on the public road

158 When using lift trucks outside the workplace is unavoidable, for example to load or unload lorries which cannot enter the workplace and are parked on public roads, your risk assessment should include extra hazards which are not part of the work activity, such as movement of road vehicles and pedestrians.

159 Anyone driving a lift truck on the public road must comply with the appropriate road traffic legislation. Any questions regarding the need for driver and vehicle licensing when lift trucks are used on the road should be addressed to the Driver and Vehicle Licensing Agency (DVLA), Swansea SA6 7JL, Tel: 0300 790 6801 or e-mail: www.direct.gov.uk/emaildvla. You can also get more practical information about using lift trucks on the public road from BITA and FLTA (see Appendix 4 for contact details).

Maintenance, inspection and thorough examination of lift trucks

Guidance

160 The law requires all work equipment to be regularly maintained and the non-lifting parts (for example tyres, brakes and lights) inspected (also see paragraph 16). In addition, lifting equipment must be thoroughly examined at suitable intervals, and inspected if necessary, to make sure it remains in a safe condition (also see paragraph 18).

161 Always follow the manufacturer's or authorised supplier's instructions on inspection, maintenance and servicing. You should make sure there is:

- a documented pre-shift check;
- a system for reporting defects and ensuring remedial work is carried out;
- a planned routine maintenance system;
- a periodic thorough examination and regular safety inspection.

Pre-shift checks

162 At the beginning of each shift, the operator should check the lift truck in accordance with the vehicle handbook and document the results. They should report to the supervisor any defects which might affect its safe operation to ensure they are put right. Checks may typically include:

- damage to tyres, for example swarf, nails and other embedded material, cuts and bubbles. Pay particular attention to the side walls;
- tyre pressures on pneumatic tyres;
- the condition of the wheels, particularly the flanges on rims fitted with pneumatic tyres;
- the tightness and security of wheel nuts;
- a functional test on the parking brake, service brakes and steering gear to ensure they are working efficiently;
- fluid levels, for example check fuel, water, engine and transmission oils are correct in internal combustion engine lift trucks;
- the batteries of battery-operated lift trucks to check they are adequately charged and leak free, the charger is switched off, the charge lead disconnected and properly stored, and the battery retention device is in place;
- a functional test on systems for lifting, tilting and manipulation, including attachments to ensure they are working properly;
- a visual inspection of hydraulic systems to check for obvious leaks, and make sure hydraulic fluid levels are correct when the forks are in the parked position;
- the condition and security of the overhead guard and load back-rest extension;
- the forks, for cracks, particularly on the heels and mounting hooks, bent or damaged fork tips and missing or damaged fork positioning locks;
- the chains, for secure anchor pins, fixing bolts, damaged or elongated links and lubrication;
- any audible warning signal, for example a horn;

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- lights;
- mirrors and any other visibility aids, if fitted.

Planned routine maintenance

163 Thorough and regular planned maintenance in accordance with the manufacturer's recommendations in the vehicle handbook helps to ensure lift trucks operate safely and efficiently and can identify problems before they become an issue. Most lift trucks are maintained on an 'hours run' regime. Consult the manufacturer for maintenance regimes on seldom-used trucks. Maintenance in addition to the recommendations in the handbook may be required where trucks operate in unusually harsh (for example corrosive) environments.

164 Only allow people who have had the relevant information, instruction and training to carry out maintenance work. Operators, unless suitably qualified and authorised, should not carry out repairs and adjustments to lift trucks. There is no legal requirement to keep a record of maintenance checks, but, if you do, you must keep it up to date. Keeping a maintenance log will allow you to identify recurring trends and problems.

Thorough examination

165 Lifting parts of lift trucks, such as the mast, chains, carriage, forks and tilt mechanism, need to be thoroughly examined by a competent person at least every 12 months, or in accordance with an examination scheme drawn up by a competent person. The competent person will issue a 'report of thorough examination' and this must be retained by the employer for at least two years.

166 Lift trucks and attachments used to lift people, even on an occasional basis, and lifting accessories must be thoroughly examined at least every six months, or in accordance with an examination scheme drawn up by a competent person.

167 Thorough examination certificates are not required for lifting equipment less than one year old (or six months for machines used for lifting people). In these cases, a copy of the manufacturer's Declaration of Conformity covers this requirement of LOLER.

168 The competent person:

- should have enough appropriate practical and theoretical knowledge and experience of the lifting equipment so that they can detect defects or weaknesses, and assess how important they are in relation to the safety and continued use of the equipment;
- should be sufficiently independent and impartial to make objective decisions, especially if they are also servicing and maintaining the truck;
- may be employed by a separate company, or selected by an employer from suitably trained and competent members of their own staff.

169 If the competent person considers there is a defect indicating an existing or imminent risk of **serious** personal injury to the operator or others, they should state this on the report of thorough examination and recommend to a person in authority that the equipment is withdrawn from service immediately. The competent person is required to copy any report made under these circumstances to the appropriate enforcing authority (HSE or the local authority).

Guidance

Thorough examination of hired lift trucks

170 Both the hire company and users hiring a lift truck have a duty to ensure they are safe for use and are thoroughly examined at the appropriate intervals. It is important for both the hire company and the user to agree and confirm who will carry out safety-related maintenance and thorough examinations. The user will need to ensure that necessary inspections and pre-use checks are carried out and defects reported and remedied as necessary. A copy of the last examination report must accompany the truck and be available for inspection.

Inspection

171 Inspection will identify whether work equipment can be operated, adjusted and maintained safely. It is necessary for any equipment where significant risks to health and safety may arise from incorrect installation, reinstallation, deterioration or any other circumstances. Risk assessment will determine the need for inspection and how often it needs to be carried out. Inspection and thorough examination are not the same, although a competent person may suggest combining them, if appropriate. Lifting equipment may also need to be inspected at suitable intervals **between** thorough examinations, usually where the risk assessment has identified a significant risk from the use of the equipment.

172 Any defects identified should be reported and if safety critical, the lift truck should not be used until the fault is rectified.

173 For more detailed advice look at *Safe use of work equipment*,⁵ *Safe use of lifting equipment*⁶ and *Thorough examination of lifting equipment: A simple guide for employers*.²⁹

Battery care and maintenance: Electrically powered lift trucks

174 Charging batteries, including those described as maintenance free, gives off explosive hydrogen gas. If this is allowed to collect and there is a source of ignition (a naked flame or spark), then the gas and battery will explode.

175 Operators should be instructed and trained to enable them to carry out general low-level battery care and maintenance according to the manufacturer's instructions. The manufacturer should have determined topping up intervals and these should be followed to make sure the electrolyte levels are maintained at the level specified so that charging can be safely carried out. After charging is completed, make sure the electrolyte level is within the limits specified by the manufacturer/supplier and topped up as necessary. Automatic battery watering systems are available.

176 When charging vehicle batteries:

- use a designated, well-ventilated area where smoking, naked flames or other ignition sources (including mobile phones) are prohibited;
- keep electrical apparatus (and any other potential sources of ignition) a safe distance from the battery, but not where any electrolyte could spill onto it;
- wear the appropriate PPE, for example an acid-proof apron, protective gloves and suitable eye protection.

177 See *Using electric storage batteries safely*³⁰ for further information.

Guidance

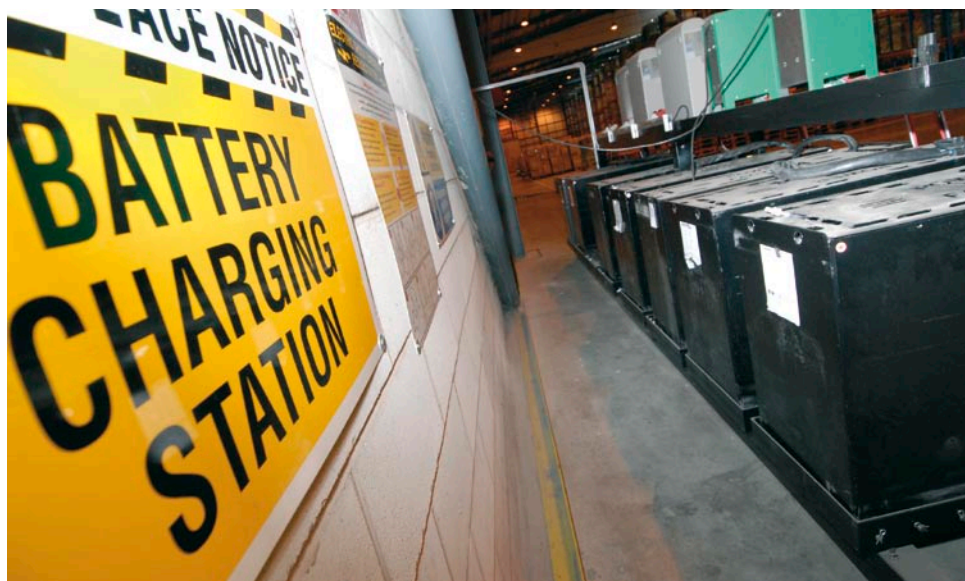


Figure 5 A battery charging station

178 Where batteries have to be changed, for example in a double shift, a safe system of work should be in place. The person responsible for changing the batteries should have suitable training and instruction on how to change them safely. If battery acid may be splashed, wear appropriate protection, for example protective gloves, suitable eye protection and acid-proof clothing.

Tyre and wheel maintenance

179 It is important to check and maintain tyres and wheels:

- Inspect all tyres for damage daily (also see pre-shift checks in paragraph 162).
- Change tyres as recommended by the manufacturer.
- Always replace tyres with the equivalent type (the same size, type, ply and performance specification).
- Check pressures on pneumatic tyres weekly or more often if there is evidence of deflation. They should be maintained at the manufacturer's recommended pressure. Failure to do this can result in instability and reduced tyre life.
- If safety critical defects are identified, such as displaced locking rings and flanges, damaged flanges or rims, the wheel/tyre must be withdrawn from use.
- Do not attempt to repair or modify a wheel or its components because this can affect the strength and integrity of the assembly.

Removal of wheels and tyre fitting

180 Removing wheels can involve risks, particularly when they are fitted with pneumatic tyres, which can suddenly release pressure and cause injury. No one should ever attempt to repair or remove a wheel with a pneumatic tyre using heat with the tyre in place. Wheels and tyres should only be removed by trained and competent people with the appropriate equipment for the wheel and tyre combination.

181 Guidance on the servicing of tyres is in *Safety during tyre inflation in motor vehicle repair*.³¹ Further guidance is in *Health and safety in motor vehicle repair and associated industries*,³² *Hot work on vehicle wheels*³³ and BITA guidance GN67 *Multi-piece pneumatic tyred wheels – Inspection, maintenance and repairs*.³⁴

Appendix 1 Basic training: Objectives to consider

On completion of training, the trainee should be able to do the following:

- 1 State the reasons for operator training, the risks associated with lift-truck operations and the causes of lift-truck accidents.
- 2 State the responsibilities of operators to themselves and others, including their duties under the Health and Safety at Work etc Act 1974 (HSW Act) to take reasonable care of their own health and safety and that of other people, and co-operate with employers and others to help them comply with their legal duties.
- 3 Identify the basic construction and main components of the lift truck, stating its principles of operation and load-handling capabilities and capacities.
- 4 Identify, as appropriate, handling attachments which may be used with the lift truck.
- 5 Locate and state the purpose of all controls and instruments and how to use them.
- 6 Place the forks or other handling attachment in predetermined positions using the appropriate controls.
- 7 Identify various forms of load, and state the procedures for their stacking, destacking and separation; assess the weight, and, where relevant, the load centre of a load; and decide if the load with its known weight and load centre is within the truck's actual capacity (safe working load).
- 8 State the factors which affect machine stability, including: turning, especially the speed and sharpness of turn; load security and integrity; rated capacity and rated load centres; centres of gravity; ground conditions; and speed and smoothness of operation.
- 9 Follow correct procedures when loading and unloading vehicles.
- 10 Make visual checks to ascertain the safety, soundness and rating of structures designed to receive loads, and place and remove loads on and from those structures at various heights.
- 11 Pick up and place loads, and drive and manoeuvre the machine forward and in reverse, laden and unladen, on inclines, in restricted spaces and on level ground (including rough terrain as applicable), following correct procedures and precautions.
- 12 Park the machine, following correct procedures and precautions.

- 13 Where applicable state the purpose of, and demonstrate how to use, safety devices including stabilisers, level indicators, and load indicators, if fitted, including the importance of using seat restraints.
- 14 Carry out inspection and maintenance tasks appropriate to operators as required by the machine manufacturers (including pre-shift checks) and any relevant legislation.
- 15 State what to do in an emergency while in control of a lift truck, for example, if there is a tipover.
- 16 State why it is essential to have vehicle key custody arrangements.

Appendix 2 Basic training: Tests of operator skills

Testing could include the following as appropriate:

- 1 Operation of the truck within the safety limits defined by the manufacturer.
- 2 Carrying out a pre-shift check when the truck is to be used.
- 3 Correct mounting and dismounting procedure and correct driving position (including the importance of using seat restraints and seat belts).
- 4 Competent use of controls.
- 5 Movement of the truck with forks or attachments in the correct travel position, laden and unladen.
- 6 Correct insertion and withdrawal of forks or other handling attachments without damage to the pallet or load.
- 7 Manoeuvring a laden and unladen truck forward and in reverse in a narrowly confined area.
- 8 Performing both a left and a right 90° turn (if appropriate for the type of truck) with a loaded truck in a narrowly confined area without touching the sides of the area.
- 9 Stacking and destacking loads:
 - at different levels;
 - in front of a fixed vertical face;
 - on the floor alongside similar loads.
- 10 Loading/unloading a vehicle (a suitable simulation may be used where a vehicle is not available).
- 11 Correct parking of the truck.

Appendix 3 Example of an employer's training record

Company name:

Company address:

Employee's full name:

Department:

Date to review this summary sheet:

Training courses successfully completed (attach copies)

Course title	Truck type	Date achieved	Limitations of use

Specific vehicles the employee is authorised to operate:

1		6	
2		7	
3		8	
4		9	
5		10	

Basic training

Lift truck(s) used for training:

Model/capacity:

Attachments:

Organisation carrying out training:

Course description, location and reference number:

Duration and dates of course: days from to

Name of instructor:

Reference number:

Date of test:

Name of examiner:

Reference number:

Specific job training

Lift truck(s) used for training:

Model:

Number:

Instructed by:

Duration of training:

Date of training:

Familiarisation training

Lift truck(s) used for training:

Model:

Number:

Instructed by:

Duration of training:

Date of training:

Refresher training

Lift truck(s) used for training:

Model:

Number:

Instructed by:

Duration of training:

Date of training:

Appendix 4 Useful contacts

Accrediting Bodies Association (ABA) for workplace transport training
Website: www.abawt.co.uk

British Industrial Truck Association (BITA), 5-7 High Street, Sunninghill, Ascot,
Berkshire SL5 9NQ Tel: 01344 623800 email: info@bita.org.uk
Website: www.bita.org.uk

Fork Lift Truck Association (FLTA), 34B Kingfisher Court, Hambridge Road,
Newbury, Berkshire RG14 5SJ Tel: 01635 277577 email: mail@fork-truck.org.uk
Website: www.fork-truck.org.uk

UKLPG, Camden House, Warwick Road, Kenilworth, Warwickshire CV8 1TH
email: mail@uklpg.org

References

- 1 *Lift-truck training: Advice for employers* Leaflet INDG462 HSE Books 2013
www.hse.gov.uk/pubns/indg462.htm
- 2 *Use lift trucks safely: Advice for operators* Pocket card INDG457 HSE Books 2013
www.hse.gov.uk/pubns/indg457.htm
- 3 *Health and Safety at Work etc Act 1974 (c.37)* The Stationery Office 1974
ISBN 978 0 10 543774 1 www.legislation.gov.uk
- 4 *The Management of Health and Safety at Work Regulations 1999*
SI 3242/1999 The Stationery Office 1999 www.legislation.gov.uk
- 5 *Safe use of work equipment. Provision and Use of Work Equipment Regulations 1998. Approved Code of Practice and guidance L22* (Third edition) HSE Books 2008 ISBN 978 0 7176 6295 1 www.hse.gov.uk/pubns/books/l22.htm
- 6 *Safe use of lifting equipment. Lifting Operations and Lifting Equipment Regulations 1998. Approved Code of Practice and guidance L113* HSE Books 1998 ISBN 978 0 7176 1628 2 www.hse.gov.uk/pubns/books/l113.htm
- 7 *Workplace health, safety and welfare. Workplace (Health, Safety and Welfare) Regulations 1992. Approved Code of Practice L24* HSE Books 1992
ISBN 978 0 7176 0413 5 www.hse.gov.uk/pubns/books/l24.htm
- 8 *Control of substances hazardous to health (Fifth edition). The Control of Substances Hazardous to Health Regulations 2002 (as amended). Approved Code of Practice and guidance L5* (Fifth edition) HSE Books 2005
ISBN 978 0 7176 2981 7 www.hse.gov.uk/pubns/books/l5.htm
- 9 *Consulting workers on health and safety. Safety Representatives and Safety Committees Regulations 1977 (as amended) and Health and Safety (Consultation with Employees) Regulations 1996 (as amended). Approved Codes of Practice and guidance L146* (Second edition) HSE Books 2012 ISBN 978 0 7176 6461 0
www.hse.gov.uk/pubns/books/l146.htm
- 10 *Managing health and safety in construction. Construction (Design and Management) Regulations 2007. Approved Code of Practice L144* HSE Books 2007 ISBN 978 0 7176 6223 4 www.hse.gov.uk/pubns/books/l144.htm
- 11 *The Equality Act 2010 (c.15)* The Stationery Office 2010
ISBN 978 0 10 541510 7 www.legislation.gov.uk
- 12 *At a glance: Guide to the current medical standards of fitness to drive* DVLA 2012 (Advice for medical practitioners which is updated regularly)
www.dft.gov.uk/dvla/medical/ata glance.aspx

- 13 *Protecting migrant workers* HSE 2010
www.hse.gov.uk/migrantworkers/employer/protecting.pdf
- 14 *Controlling noise at work. The Control of Noise at Work Regulations 2005. Guidance on Regulations* L108 (Second edition) HSE Books 2005
ISBN 978 0 7176 6164 0 www.hse.gov.uk/pubns/books/l108.htm
- 15 *Whole-body vibration. The Control of Vibration at Work Regulations 2005. Guidance on Regulations* L141 HSE Books 2005 ISBN 978 0 7176 6126 8
www.hse.gov.uk/pubns/books/l141.htm
- 16 *Safety signs and signals. The Health and Safety (Safety Signs and Signals) Regulations 1996. Guidance on Regulations* L64 (Second edition) HSE Books 2009
ISBN 978 0 7176 6359 0 www.hse.gov.uk/pubns/books/l64.htm
- 17 *Workplace transport safety: An employers' guide* HSG136 (Second edition)
HSE Books 2005 ISBN 978 0 7176 6154 1
www.hse.gov.uk/pubns/books/hsg136.htm
- 18 *Warehousing and storage: A guide to health and safety* HSG76 (Second edition) HSE Books 2007 ISBN 978 0 7176 6225 8
www.hse.gov.uk/pubns/books/hsg76.htm
- 19 *Safe use of telehandlers in construction* CPA/Strategic Forum for Construction Plant Safety Group 2011 www.cpa.uk.net/p/Telehandlers/
- 20 *Fire and explosion - how safe is your workplace? A short guide to the Dangerous Substances and Explosive Atmospheres Regulations* Leaflet INDG370
HSE Books 2002 www.hse.gov.uk/pubns/indg370.htm
- 21 *ATEX Directive 94/9/EC on equipment and protective systems intended for use in potentially explosive atmospheres* www.hse.gov.uk/fireandexplosion/atex.htm
- 22 BS EN 1755: 2000+ A1:2009 *Safety of industrial trucks. Operation in potentially explosive atmospheres. Use in flammable gas, vapour mist and dust*
British Standards Institution
- 23 *The Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2009* SI 1348/2009 The Stationery Office
ISBN 978 01 1148012 0 www.legislation.gov.uk
- 24 UKLPG Code of Practice 1 Part 1: 2009 (amended May 2012) *Bulk LPG storage at fixed installations: Design, installation and operation of vessels located above ground*
- 25 UKLPG Code of Practice 12: 2005 (amended 2012) *Recommendations for safe practice in the design and operation of LPG cylinder filling plants*
- 26 *Petroleum (Consolidation) Act 1928 (c.32)* The Stationery Office 1928
ISBN 978 0 10 850212 5 www.legislation.gov.uk
- 27 *Safe work in confined spaces. Confined Spaces Regulations 1997. Approved Code of Practice, Regulations and guidance* L101 (Second edition) HSE Books 2009 ISBN 978 0 7176 6233 3 www.hse.gov.uk/pubns/books/l101.htm
- 28 *Working platforms (non-integrated) on forklift trucks* Plant and Machinery Guidance Note PM28 HSE Books 2013 www.hse.gov.uk/pubns/pm28.htm

29 *Thorough examination of lifting equipment: A simple guide for employers*
Leaflet INDG422 HSE Books 2008 www.hse.gov.uk/pubns/indg422.pdf

30 *Using electric storage batteries safely* Leaflet INDG139(rev1) HSE Books 2006
www.hse.gov.uk/pubns/indg139.htm

31 *Safety during tyre repair and inflation in motor vehicle repair* Leaflet INDG433
HSE Books 2010 www.hse.gov.uk/pubns/indg433.pdf

32 *Health and safety in motor vehicle repair and associated industries and
Addendum February 2011* HSG261 HSE Books 2009 ISBN 978 0 7176 6308 8
www.hse.gov.uk/pubns/books/hsg261.htm

33 *Hot work on vehicle wheels* Engineering Information Sheet EIS1 HSE Books
1992 www.hse.gov.uk/pubns/eis1.pdf

34 *Multi-piece pneumatic tyred wheels – Inspection, maintenance and repairs*
GN67 British Industrial Truck Association

Further information

For information about health and safety, or to report inconsistencies or inaccuracies in this guidance, visit www.hse.gov.uk. You can view HSE guidance online and order priced publications from the website. HSE priced publications are also available from bookshops.

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