

HEALTH AND SAFETY IN EMPLOYMENT ACT 1992

**APPROVED CODE OF PRACTICE FOR
TRAINING OPERATORS AND
INSTRUCTORS OF POWERED
INDUSTRIAL LIFT TRUCKS
(FORKLIFTS)**



This code of practice has been compiled by a joint working party of qualified forklift tutors representing members of the New Zealand Forklift Manufacturers and Distributors Association, the Occupational Safety and Health Service (OSH) of the Department of Labour and other interested parties.

Published by the Occupational Safety and Health Service
Department of Labour
Wellington
New Zealand

August 1995

ISBN 0-477-03577-9

\$10.00 (Incl. GST)

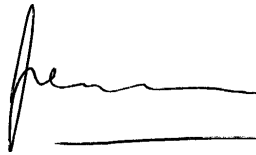
CONTENTS

<i>NOTICE OF ISSUE</i>	5
<i>FOREWORD</i>	6
<i>SUMMARY OF THE HEALTH AND SAFETY IN EMPLOYMENT ACT 1992</i>	7
APPROVED CODES OF PRACTICE	7
EMPLOYERS' DUTIES	7
HAZARD MANAGEMENT	7
WHERE THE HAZARD IS SIGNIFICANT	8
INFORMATION FOR EMPLOYEES	9
EMPLOYERS TO INVOLVE EMPLOYEES IN THE DEVELOPMENT OF HEALTH AND SAFETY PROCEDURES	9
TRAINING OF EMPLOYEES	9
SAFETY OF PEOPLE WHO ARE NOT EMPLOYEES	9
EMPLOYEES DUTIES	9
ACCIDENTS AND SERIOUS HARM (RECORDING AND NOTIFICATION)	10
OTHER LEGISLATION	10
<i>1: GENERAL</i>	11
1.1 INTRODUCTION	11
1.2 POWERED INDUSTRIAL LIFT TRUCK VEHICLE DEFINED	11
1.3 COMMONLY RECOGNISED NAMES	11
<i>2: ACCIDENTS AND SERIOUS HARM</i>	12
2.1 CAUSES OF FORKLIFT ACCIDENTS	12
2.2 SAFETY OF NON-OPERATORS	12
2.3 DAMAGE TO EQUIPMENT AND MATERIALS	12
2.4 OPERATOR MONITORING	13
2.5 SELECTION OF OPERATORS	13
2.6 OPERATORS TO OBSERVE SAFETY SYSTEMS	13
<i>3: MAINTENANCE OF FORKLIFTS</i>	14
3.1 OWNERS' AND MANAGERS' RESPONSIBILITIES	14
3.2 MAINTENANCE AND INSPECTION	14
3.3 MANUFACTURERS' AND USERS' RECOMMENDATIONS	14
<i>4: INSTRUCTOR REGISTRATION</i>	15
4.1 PROCEDURES AND REQUIREMENTS	15
4.2 REGISTRATION OF EXISTING INSTRUCTORS	16
4.3 TRAINING PROVIDERS	16
<i>5: TRAINING PROGRAMMES</i>	17
5.1 PLANNING A TRAINING PROGRAMME	17
5.2 SYLLABUS	18
5.3 ISSUE OF CERTIFICATE	23
5.4 AUTHORISATION TO OPERATE	23

PART 6: EXTRACT FROM NZS/ASME/ANSI B56.1C: OPERATING SAFETY RULES AND PRACTICES	24
APPENDIX A: SAMPLE THEORY TEST	32
ANSWERS TO SAMPLE THEORY TEST	36
APPENDIX B: PICTORIAL DISCUSSION PAPER	37
ANSWERS TO QUESTIONS IN PICTORIAL DISCUSSION PAPER	41
APPENDIX C: PRACTICAL CHECK LIST	42
A. START POSITION	42
B. PICK-UP POSITION	42
C. TRAVEL THROUGH COURSE — FORWARD AND REVERSE	42
D. DEPOSIT AND EXTRACT FROM RACKING	42
E. RETURN TO PALLET PICK-UP POSITION	43
F. RETURN FORKLIFT TO ORIGINAL POSITION	43
G. GENERAL	43
APPENDIX D: SUMMARY OF TRAINING COURSE FOR OPERATORS OF FORKLIFTS	44
THEORY: OPERATORS' SAFETY CODE	44
APPENDIX E: INSTRUCTORS	46
1. THE IMPORTANCE OF THEIR CONTRIBUTION	46
2. SELECTION	46
3. TRAINING	47
4. AIMS OF COURSES	47
5. OBJECTIVES OF TRAINING	47
6. CERTIFICATION AND REGISTRATION OF INSTRUCTORS	48
APPENDIX F: EXAMPLE OF CERTIFICATION	49
APPENDIX G: EMPLOYER'S WRITTEN AUTHORISATION TO OPERATE FORKLIFT	51
EXAMPLE OF A WRITTEN AUTHORISATION TO OPERATE A FORKLIFT	51
APPENDIX H: ACCIDENTS AND SERIOUS HARM (RECORDS AND NOTIFICATION)	53
APPENDIX I: RELATED DOCUMENTS	54

NOTICE OF ISSUE

I have issued this *Approved Code of Practice for Training Operators and Instructors of Powered Industrial Lift Trucks (Forklifts)*, being a statement of preferred work practices or arrangements for the purpose of ensuring the health and safety of persons to which this code applies and persons who may be affected by the activities covered by this code.

A handwritten signature in black ink, appearing to read 'J Chetwin', written over a horizontal line.

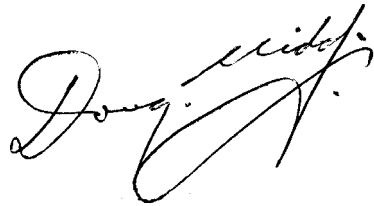
J Chetwin

Secretary of Labour

May 1995

FOREWORD

I have approved this statement of preferred work practices, which is an *Approved Code of Practice for Training Operators and Instructors of Powered Industrial Lift Trucks (Forklifts)*, under section 20 of the Health and Safety in Employment Act 1992. When a code is approved, a Court may have regard to it in relation to compliance with the relevant sections of the Health and Safety in Employment Act. This means that if an employer in an industry or using a process to which an approved code applies can show compliance with that code in all matters it covers, a Court may consider this to be compliance with the provisions of the Act to which the code relates.

A handwritten signature in black ink, appearing to read 'Doug Kidd', with a stylized flourish at the end.

Hon. Doug Kidd
Minister of Labour
May 1995

SUMMARY OF THE HEALTH AND SAFETY IN EMPLOYMENT ACT 1992

The principal object of the Health and Safety in Employment Act 1992 (HSE Act) is to prevent harm to employees at work. To do this, it imposes duties on employers, employees, principals and others, and promotes excellent health and safety management by employers. It also provides for the making of regulations and codes of practice.

APPROVED CODES OF PRACTICE

The HSE Act provides for the development and approval of statements of preferred work practice or arrangements that may be approved as "approved codes of practice". These are recommended means of compliance with provisions of the Act, and may include procedures which could be taken into account when deciding on the practicable steps to be taken. Compliance with codes of practice is not mandatory. However, they may be used as evidence of good practice in Court.

EMPLOYERS' DUTIES

Employers have the most duties to ensure the health and safety of employees. Employers have a general duty to take all practicable steps to ensure the safety of employees while at work. In particular, they are required to take all practicable steps to:

- Provide and maintain a safe working environment;
- Provide and maintain facilities for the safety and health of employees at work;
- Ensure that machinery and equipment is safe for employees;
- Ensure that working arrangements are not hazardous to employees; and
- Provide procedures to deal with emergencies that may arise while employees are at work.

HAZARD MANAGEMENT

Employers shall have an effective method to identify hazards in the place of work (previously existing, new and potential) and regularly review them to

determine whether they are significant hazards and require further action. Where there occurs any accident or harm in respect of which an employer is required to record particulars, the Act, section 7(2), requires the employers to take all practicable steps to ensure that the occurrence is so investigated as to determine whether it was caused by or arose from a significant hazard.

"Significant hazard" means a hazard that is an actual or potential cause or source of:

- Serious harm; or
- Harm (being more than trivial) where the severity of effects on any person depend (entirely or among other things) on the extent or frequency of the person's exposure to the hazard; or
- Harm that does not usually occur, or usually is not easily detectable, until a significant time after exposure to the hazard.

Where the hazard is significant, the HSE Act sets out the steps employers must take:

- Where practicable, the hazard must be eliminated.
- If elimination is not practicable, the hazard must be isolated.
- If it is impracticable to eliminate or isolate the hazard completely, then the employer must minimise the hazard to employees.

In addition, the employer must where appropriate:

- Ensure that protective clothing and equipment is provided, accessible and used;
- Monitor employees' exposure to the hazard;
- Seek consent of employees to monitor their health; and
- With informed consent, monitor employees' health.

WHERE THE HAZARD IS SIGNIFICANT

The Act sets out the steps an employer must take:

- Where practicable, the hazard must be *eliminated*.
- If elimination is not practicable, the hazards must be *isolated*.
- If it is impracticable to eliminate or isolate the hazard completely, then the employer must *minimise* the hazard to employees. In addition, the employer must, where appropriate:
 - Ensure that protective clothing and equipment is provided, accessible and used;
 - Monitor employees' exposure to the hazard;
 - Seek the consent of employees to monitor their health; and
 - With informed consent, monitor employees' health.

INFORMATION FOR EMPLOYEES

Before employees begin work, they must be informed by their employer of:

- Emergency procedures;
- Hazards employees may be exposed to while at work;
- Hazards employees may create while at work which could harm other people;
- How to minimise the likelihood of these hazards becoming a source of harm to themselves and others; and
- The location and correct use of safety equipment.

Employers are also required to inform employees of the results of any health and safety monitoring. In doing so, the privacy of individual employees must be protected.

EMPLOYERS TO INVOLVE EMPLOYEES IN THE DEVELOPMENT OF HEALTH AND SAFETY PROCEDURES

Employers need to ensure that all employees have the opportunity to be fully involved in the development of procedures for the purpose of identifying hazards and dealing with significant hazards, or dealing with or reacting to emergencies and imminent dangers.

TRAINING OF EMPLOYEES

Employers must ensure employees are either sufficiently experienced to do their work safely or are supervised by an experienced person. In addition, employees must be adequately trained in the safe use of equipment in the place of work, including protective clothing and equipment.

SAFETY OF PEOPLE WHO ARE NOT EMPLOYEES

Employers are also responsible for the health and safety of people who are not employees. Employers must take all practicable steps to ensure that employees do not harm any other person while at work, including members of the public or visitors to the place of work.

EMPLOYEES DUTIES

If you are an employee, the Act gives you responsibility for your own safety and health while at work. You must also ensure that your actions do not harm anyone else.

ACCIDENTS AND SERIOUS HARM (RECORDING AND NOTIFICATION)

The HSE Act requires employers to keep a register of work-related accidents and serious harm. This includes every accident that harmed (or might have harmed):

- Any employee at work;
- Any person in a place of work under the employer's control.

Employers are also required to investigate all accidents and near-misses to determine whether they were caused by or arose from a significant hazard.

Employers are required to notify serious harm that occurs to employees while at work to the Secretary of Labour (in practice, the nearest OSH office), as soon as possible. In addition, the accident must also be notified in the form prescribed within 7 days. (Suitable forms for notification are available from OSH offices and selected stationers.)

If a person suffers serious harm, the scene of the accident must not be disturbed unless to:

- Save life or prevent suffering;
- Maintain public access for essential services, e.g. electricity and gas;
- Prevent serious damage or loss of property.

The OSH office will advise whether it wishes to investigate the accident and what action may be taken in the meantime.

OTHER LEGISLATION

You should always make yourself aware of other legislation including legislation covering the transport industry, administered by the Ministry of Transport and the Land Transport Safety Authority, that may apply.

1: GENERAL

1.1 INTRODUCTION

This code of practice outlines a standard of training that should be provided by forklift owners, managers and trainers of forklift operators. Each work environment may require training to suit the needs of that environment.

While this code has been based on the existing New Zealand Standard NZS/ASME/ANSI B56.1 *Safety standard for low and high lift trucks*, any other standard providing an equal or better standard and recognised and approved by Standards New Zealand, will be acceptable.

This code has been produced so that all parties involved are better able to conform to New Zealand law. This code should be used in conjunction with the various codes of practice published by the Occupational Safety and Health Service of the Department of Labour.

The code is fundamental to ensuring a safe work environment, and should be used as an additional resource to the existing booklets — *Safety Code for Forklift Operators*, Nos. 1, 2, 3 and 4, published by the Occupational Safety and Health Service of the Department of Labour.

1.2 POWERED INDUSTRIAL LIFT TRUCK VEHICLE DEFINED

A powered industrial lift truck is a vehicle drawn or propelled by mechanical, electrical or manual power, designed incorporating a powered lift principally to lift, carry or stack goods by means of:

- (a) A fork consisting of one or more arms which support the load; or
- (b) A platform; or
- (c) Any attachment or other mechanism.

Without limiting the above definition this includes forklifts, order pickers, side loaders, reach trucks, pallet trucks, platform trucks, straddle trucks and lateral stacking trucks. While this definition does not include straddle carriers, much of this code of practice is applicable to that equipment.

1.3 COMMONLY RECOGNISED NAMES

The most commonly recognised names used for powered industrial lift trucks are forklift, forklift truck, forkhoist and fork truck; and where these are not used as part of the title of standards, or where the type of name of a vehicle described in 1.2 is used, for the purposes of this code they should be considered as reference to a "forklift".

2: ACCIDENTS AND SERIOUS HARM

2.1 CAUSES OF FORKLIFT ACCIDENTS

Analysis of the forklift accidents reported to the General Manager's Office, Occupational Safety and Health Service (OSH), of the Department of Labour indicates that the main causes of accidents are:

- Excessive speed.
- Not looking in the direction of travel.
- Carrying/lifting passengers.
- Poor stacking procedures.
- Poor forklift maintenance.
- Inadequate operator training.
- Exceeding the rated capacity of the forklift.
- Travelling with the load raised.
- Getting on and getting off a forklift.

2.2 SAFETY OF NON-OPERATORS

Persons other than the operator may be injured by being struck by forklifts. Operators should, therefore:

- (a) Look in the direction of travel and be alert to the possibility of pedestrians stepping into the path of the forklift;
- (b) Exercise due caution while manoeuvring near pedestrians;
- (c) Operate at a safe speed in alleyways and yards;
- (d) Ensure revolving or strobe lights, if fitted, and horns or other warning devices are working properly; and
- (e) Use an approved lifting platform when elevating personnel. Refer to NZS/ASME/ANSI B56.1 and subsequent amendments.

2.3 DAMAGE TO EQUIPMENT AND MATERIALS

Persistent damage to equipment and materials may indicate that several factors should be checked:

- (a) Operator's judgement of position, distance, space and speed.
- (b) Sensitivity of and to forklift controls.
- (c) Personal or health problems of the operator.

Accidents may incur substantial costs to the employer in downtime, loss of product and damaged plant. Forklift owners and managers should be aware that an adequately trained forklift operator may reduce these costs.

2.4 OPERATOR MONITORING

Employers should continue to monitor and assess forklift operators at regular intervals to ensure the operator maintains the required standards. Where the operator's performance has deteriorated, retraining should take place to prevent accidents.

Note: Refer also to the introductory section.

2.5 SELECTION OF OPERATORS

It is the employer's responsibility to ensure that the person operating the forklift is suitable in all respects .

Note: The possession of a driver's licence is not sufficient evidence that the person is qualified to operate a forklift.

2.6 OPERATORS TO OBSERVE SAFETY SYSTEMS

Forklift operators have the responsibility to comply with the relevant code of practice and be responsible for their own safety, the safety of others and the safety of property.

3: MAINTENANCE OF FORKLIFTS

3.1 OWNERS' AND MANAGERS' RESPONSIBILITIES

Owners and managers must be aware of the requirements under New Zealand Standard/ASME/ANSI B56.1 and amendments, Part II, Section 6, *Maintenance and rebuild practices*.

3.2 MAINTENANCE AND INSPECTION

Operation of forklifts may be hazardous if maintenance is neglected or repairs, rebuilds or adjustments are not performed in accordance with the manufacturer's design criteria. Therefore, maintenance facilities (on or off premises), trained personnel and detailed procedures shall be provided.

3.3 MANUFACTURERS' AND USERS' RECOMMENDATIONS

Maintenance and inspection of all forklifts shall be performed in conformance with the manufacturers' and users' recommendations and the following practices:

- (a) A scheduled planned maintenance, lubrication and inspection system shall be followed.
- (b) Only personnel who can demonstrate that they are qualified in the inspection, repair, maintenance and adjustment of forklifts, and who are authorised by their employers, shall be permitted to carry out this work in accordance with manufacturer's specifications (refer section 6.2 of NZS/ASME/ANSI B 56.1).

Note: This does not imply or mean that only personnel trained by forklift manufacturers or distributors are acceptable, but can include technicians authorised by an employer or forklift owners.

4: INSTRUCTOR REGISTRATION

4.1 PROCEDURES AND REQUIREMENTS

Applications for registration of instructors should be made to the General Manager's Office, Occupational Safety and Health Service, Department of Labour, PO Box 3705, Wellington, who will assess the applicant and may consult appropriate specialists.

Applicants who satisfy the requirements to be registered with the Occupational Safety and Health Service of the Department of Labour will be issued with a letter of registration, confirming that they have been registered as forklift operator instructors in terms of this code of practice, approved under section 20 of the Health and Safety in Employment Act 1992, for a period of three years.

Should any applicant wish to have any decision made by the Occupational Safety and Health Service reviewed, they should do so by writing to the Secretary of Labour, PO Box 3705, Wellington, or by writing to the Minister of Labour.

Applicants must meet the following requirements:

- (a) Have attended and passed at least one forklift operators' training course.
- (b) Passed an appropriate "train the trainer" course (refer appendix E), or prove to the satisfaction of the Occupational Safety and Health Service that the applicant has had previous appropriate training or teaching experience.
- (c) The applicant must demonstrate that he/she has an acceptable set of instructional material and visual aids, and test papers. Testing procedures, including test papers and answers, shall be submitted for approval.
- (d) The applicant must have a thorough understanding of both the theory and practical application of the operation of forklifts — this will be assessed by the Occupational Safety and Health Service.
- (e) The applicant must have a current appropriate driver's licence.
- (f) The applicant must present ahead of time a resumé in support of their application for review.
- (g) NZQA accreditation may become a substitute for the above requirements, subject to endorsement by the Occupational Safety and Health Service.

4.2 REGISTRATION OF EXISTING INSTRUCTORS

To allow continuity of instruction with existing instructors, an amnesty of six months from the implementation of this document is provided for existing instructors to apply for registration and demonstrate their competence in accordance with all of the requirements.

Instructor registration is valid for a three-year period, and all instructors must be reviewed for competency to retain their registration with the Occupational Safety and Health Service of the Department of Labour.

In general, not everyone has talent or ability to instruct and train. Therefore, the trainer must:

- (a) Be a trained and competent operator authorised to conduct training and have the necessary ability and skills to teach;
- (b) Have a thorough knowledge of the safety rules applicable to the operation of the machine;
- (c) Have a thorough knowledge and experience of the various machines and attachments to be used;
- (d) Be able to quickly recognise and correct faults at each stage of training;
- (e) Be able to liaise with and advise management on aspects of safe forklift operations and procedures; and
- (f) Have a current appropriate driver's licence.

4.3 TRAINING PROVIDERS

Professional training organisations including those offering "train the trainer" courses exist in several locations throughout the country, and advice on these organisations may be obtained from the Occupational Safety and Health Service of the Department of Labour.

5: TRAINING PROGRAMMES

5.1 PLANNING A TRAINING PROGRAMME

When undertaking a training programme, consideration should be given to the following:

- Instructor to trainee ratio.
- Training facilities.
- Training aids.
- Equipment.
- Duration of training.
- Syllabus.
- Assessment for theory and practice.
- Certification on passing the course.
- That for some trainees English may be their second language.

5.1.1 INSTRUCTOR TO TRAINEE RATIO

It is suggested that the preferable instructor to trainee ratio be set at a maximum of ten trainees per instructor. However, during practical sessions there should be only one machine per instructor in operation at any one time.

5.1.2 TRAINING FACILITIES

The training area should be located in an area where trainees will not be distracted and the safety of other people will not be endangered. It should preferably be under cover and must be suitable for the type of equipment in use. Suitable facilities for lectures and discussions are essential.

Layouts of practical courses should include a variety of practical operating situations, e.g. truck and racking loading and unloading, manoeuvring in intersections and aisles in forward and reverse, and high level stacking and destacking.

5.1.3 TRAINING AIDS

Training aids could consist of:

- Safety films and videos.
- Closed circuit television.
- Overhead projection transparencies.

- Slides.
- Slide-tape presentations.
- Computer-assisted learning.
- Simulation testing.
- Printed handout material such as safety booklets.
- Scale models.

5.1.4 EQUIPMENT

The equipment used must be in safe working order. The following should be provided:

- (a) A forklift similar to the type operated by the trainee in the course of his/her employment.
- (b) An adequate supply of empty and loaded pallets or equivalent.
- (c) Containers and markers for use during practical training sessions.

Note: During the practical operating session, each trainee should wear suitable clothing and footwear for safety reasons.

5.1.5 DURATION OF TRAINING

The duration of the training courses depends upon the extent of the individual training programmes required. Employers would, therefore, choose the extent of training required for their industries. The shorter one-day courses may be more suitable for forklift operators with experience in forklift operating and/or those undergoing a refresher course. Longer courses may be required for persons with little or no experience.

5.2 SYLLABUS

A typical course will consist of at least the following:

- Introduction.
- Course objectives.
- Legal requirements of the HSE Act (see introductory section).
- Critical safety factors.
- Forklift terminology.
- Safety codes for forklift operators (refer NZS/ASME/ANSI B56.1: section 5).
- Pre-operational checks.
- Safe driving techniques.
- Handling loaded and empty pallets or equivalent loads, e.g. bales, drums.
- Stacking and destacking.
- Vehicle loading and unloading.
- Review: slides, films or videos.

- Practical exercise.
- Written theory test. (See appendix A for sample.)
- Course debrief.

(See appendix D for a summary of a basic training course programme.)

5.2.1 INTRODUCTION

This should cover the necessity of the training and the duration and format of the course.

5.2.2 COURSE OBJECTIVES

The main object of the course is to be clearly stated to encourage the operator to be more aware of the safety and mechanical implications of their driving ability.

5.2.3 FORKLIFT TERMINOLOGY

The description of the general principle of a forklift and the various components should include:

Capacity

The nominal capacity of the forklift should be explained as being an indication of the base machine capacity and not its de-rated capacity when fitted with a high-lift mast or an attachment. On most forklifts the model number indicates the nominal capacity, e.g. hundreds of kilograms that a standard forklift will lift at a defined load centre.

Centre of gravity

The counterweight, the centre of gravity of the forklift, centre of gravity of the load, and the combined centre of gravity and various locations.

Controls

A brief description of the foot controls, i.e. inch-brake, accelerator or monotrol-type controls should be described and hand controls should be covered.

Counterbalance

A forklift being a counterbalance type of machine, a brief description of the principle of counterbalance should be covered.

Front axle

The front axle being drive, brake, major load carrying and controlling the sideways stability of the forklift.

Load backrest

The necessity for the correct height and width of load back rest should be covered.

Load centre

The capacity and load centre, although covered later, should be briefly covered at this point.

Load rating chart

The load rating charts location on the machine, and how it compares to nominal capacity should be briefly covered at this point.

Mast

The various types of masts, advantages or disadvantages of visibility, free lift, overall height, etc. including chains, hydraulic hoses and forks.

Rear axle

The rear axle being the steering axle. Whether an oscillating axle or single wheel, it has the same effect on the sideways stability of the forklift. The rear axle unloaded weight multiplied by the wheel base is the rear moment of the forklift for forward stability.

Safety frame

The safety frame or the operator's overhead load guard. The necessity for a safety frame to be fitted must be clearly covered.

Types of forklift

The difference in drive and control between forklift and reach trucks.

5.2.4 OPERATING SAFETY RULES AND PRACTICES

Operators should have:

- A comprehensive knowledge of the safety standards, rules, procedures and codes applicable.
- An appreciation of the capital value of the forklift and equipment and its maintenance costs. Similarly, an appreciation of costs of damage to plant and equipment.
- An appreciation of the value and type of product being handled and, in particular, precautions to be taken.

Operators should understand:

- The rated capacities of the forklift, the nominal capacity and the actual capacity at various lift heights and load centres or various attachments can be much less than the nominal capacity of the forklift.
- The factors affecting stability; the principle of a seesaw with its pivot point and a forklift should be compared with basic forklift stability. The principle of the stability triangle, the effect of mast lift height on stability, the effect of mast forward tilt on forward stability and rear tilt on sideways stability should be clearly illustrated with diagrams or by demonstration.

The four standard tests as per NZS/ASME/ANSI B56.1: Table 1 should be shown, along with examples of the rated capacity of a common size forklift showing how the capacity reduces considerably above a certain height, the effects of widening the wheel base and stability triangle by fitting dual wheels. The effect of attachments on load capacity.

- The effect on a forklift caused by floor and ground conditions, e.g. wet surfaces, sealed and unsealed surfaces, curbs, gullies, cambers and ramps. This should again consolidate the lack of sideways stability with a raised load.

Operators should understand:

- The correct procedure on ramps, given the operating conditions, where possible keeping the load facing up the ramp whether descending or ascending. When driving a powered industrial lift truck in the empty (no load) condition, the forks should point downhill, whether descending or ascending, and never turn on a sloping surface. (Also refer to section 6.)
- The procedure for reporting faults; this can be included on the pre-operational check sheet.
- The correct procedure when vision is obscured by the load is to drive in reverse, or assistance must be obtained with guidance.
- Recognition of unsafe loads and stacks; it is the operator's responsibility to make safe any unsafe loads or stacks before attempting to move, or stack or de-stack a load.
- The correct stacking procedures using the inch-brake pedal, when applicable, should be encouraged as most forklifts have a torque converter and inch-brake pedal. It is not necessary to apply the hand brake except as a learner or in dangerous conditions such as elevating a person in an approved work platform. For internal combustion (engine) trucks that do not have an inch-brake pedal control (i.e. clutch models), select neutral and apply the park brake. On electric forklifts, apply the foot brake while stacking or destacking. The mast should have only sufficient rear tilt to maintain the forks horizontal for stacking, or to keep the load stable when stacking/destacking.
- The correct refuelling procedure for the forklift, which should include :
 - Special precautions for batteries in regard to naked flames, metal objects, etc.
 - Special precautions with LPG applicable, e.g. change of bottles and change from LPG to petrol, etc.
 - Normal procedures with combustible fuels such as petrol and diesel, smoking, etc.
 - Use of protective equipment.
 - Refilling of LPG cylinders must comply with the requirements of the Dangerous Goods legislation.
- The need for pre-operational checks and a typical pre-operation inspection sheet should be explained. Examples of how a forklift should be inspected and what to look for under each topic explained. This explanation should cover both mechanical and legal requirements.
- The following points, which should also be covered:
 - Brief description — forklift hydraulic system.
 - Brief description — torque converter and transmission systems.
 - Use of accelerator, inch-brake and foot-brake pedals.
 - Driving around tight corners.
 - Avoiding relief valve operating on steering or tilting.
 - Stacking and change in direction.
 - Use of tilt when stacking and destacking.
 - Rear axle oscillation and rear steering near sides of bay or walls.

5.2.5 PRACTICAL SKILLS

Practical skills should include the following:

- (a) Pre-operation inspection and start up**
The routine pre-shift inspection check and start up procedures as prescribed by the manufacturer's or owner's check sheet.
- (b) Operation**
The efficient operation of the forklift within the safe limits defined by the manufacturer and in accordance with NZ/ASME/ANSI B56.1.
- (c) Controls**
Correct use of foot and hand controls.
- (d) Travel**
Moving the forklift with forks in the correct travel position, laden and unladen.
- (e) Forks**
Inserting and withdrawing the forks correctly without damage to the pallet or load.
- (f) Hazards**
Awareness of hazards to people, plant and buildings; including hazards to health from exhaust fumes, etc.
- (g) Manoeuvring**
Careful manoeuvring of a loaded forklift, in both forward and reverse, in a confined space.
- (h) Stacking**
Stacking and destacking a load at three critical levels; low level, eye level and high level.
- (i) Tilt**
Demonstrate the correct use of the tilt mechanism for travel and stacking and destacking.
- (j) Loading**
Loading and unloading a truck or trailer, etc. safely without damage to load or vehicle.
- (k) Braking**
Stopping a loaded forklift without excessive braking within 150 mm of the stack or similar object.
- (l) 90° Stacking**
Approach the stacking area from the left and make a 90° turn to place the load on the floor adjacent to the stack, allowing only 50 mm (approximately) between the load faces and with the front edges aligned. Repeat approaching from the right.
- (m) Parking and shut down**
Correctly parking the forklift and correct shut down procedures.
- (n) Attachments**
The correct use of attachments e.g. side-shifts, clamps.

NOTE: The pass mark for theory and practical will depend on the examination

and test set by the trainer, and therefore should be set by the trainer so that only competent operators pass. A pass mark of at least 80% should be applied.

5.3 ISSUE OF CERTIFICATE

When the instructor is satisfied that the operator has passed the theory and practical examinations successfully and has completed the full course, a certificate will be issued to serve as proof of the training received (see appendix F).

It is recommended that retraining be undertaken every three years and that the certificate issued should reflect this.

5.4 AUTHORISATION TO OPERATE

- (a) No Person shall operate any forklifts without an authorisation to operate from their employers.
- (b) This authorisation shall be issued only after training is satisfactorily completed.

PART 6: EXTRACT FROM NZS/ASME/ANSI B56.1 C: OPERATING SAFETY RULES AND PRACTICES

12.1 OPERATOR RESPONSIBILITIES

12.1.1

Safe operation is the responsibility of the operator.

NOTE: The forklift must be operated in accordance with the OSH publication *Safety Code for Forklift Truck Operators*, Nos. 1, 2, 3 and 4 and the NZS/ASME/ANSI B56.1 and subsequent amendments.

12.1.2

The operator shall develop safe working habits and also be aware of hazardous conditions in order to protect himself, other personnel, the forklift, and other materials.

12.1.3

The operator shall be familiar with the operation and function of all controls and instruments before undertaking to operate the forklift.

12.1.4

Before operating any forklift operators shall have read and be familiar with the operator's manual for the particular forklift being operated and they shall also abide by the safety rules and practices in paragraphs 12.2 and 12.3.

NOTE: See paragraph 12.4.

12.1.5

Before operating any forklift, the operator shall be familiar with unusual operating conditions which may require additional safety precautions or special operating instructions.

12.2 GENERAL

12.2.1

Before starting to operate the forklift:

- (a) Be in operating position;
- (b) Place directional controls in neutral;
- (c) Disengage clutch on manual transmission equipped forklifts, or apply brake on power shift or automatic transmission equipped forklifts and electric forklifts;
- (d) Start engine or turn switch of electric forklift to ON position.

12.2.2

Do not start or operate the forklift, any of its functions or attachments, from any place other than from the designated operator's position.

12.2.3

Keep hands and feet inside the operator's designated area or compartment. Do not put any part of the body outside the operator compartment of the forklift.

12.2.4

Never put any part of the body into the mast structure or between the mast and the forklift.

12.2.5

Never put any part of the body within the reach mechanism of the forklift or other attachments.

12.2.6

Understand forklift limitations and operate the forklift in a safe manner so as not to cause injury to personnel. Safeguard pedestrians at all times.

- (a) Do not drive a forklift up to anyone standing in front of an object;
- (b) Ensure that personnel stand clear of the rear swing area before conducting turning manoeuvres;
- (c) Exercise particular care at cross aisles, doorways, and other locations where pedestrians may step into the path of travel of the forklift.

12.2.7

Do not allow anyone to stand or pass under the elevated portion of any forklift, whether empty or loaded.

12.2.8

Do not permit passengers to ride on forklifts unless a safe place to ride has been provided by the manufacturer.

NOTE: A safe place is defined in special notes in paragraph 8.4 of this code.

12.2.9

A powered industrial truck is attended when the operator is less than 7.6 metres (25 ft) from the truck, which remains in the operator's view.

12.2.10

A powered industrial truck is unattended when the operator is more than 7.6 metres (25 ft) from the truck, which remains in the operator's view, or whenever the operator leaves the truck and it is not in his view.

12.2.11

Before leaving the operator's position:

- (a) Bring forklift to a complete stop;
- (b) Place directional controls in neutral;
- (c) Apply the parking brake;
- (d) Lower load-engaging means fully, unless supporting an elevated platform;

In addition, when leaving the forklift unattended:

- (e) Stop the engine or turn off the controls;
- (f) If the forklift must be left on an incline, block the wheels;
- (g) Fully lower the load-engaging means.

12.2.12

Maintain a safe distance from the edge of ramps, platforms and other similar working surfaces. Do not move railroad cars with a forklift.

12.2.13

Do not use a forklift for opening or closing railroad car doors, unless the forklift utilises a device specifically designed for opening and closing railroad car doors and the operator is trained in its use. The design of the door opening device shall require the forklift to travel parallel to the railroad car, with the force applied in a direction parallel with the door travel. Care should be exercised when engaging the door opening device with the railroad car door, in order to prevent damage to the doors and/or forks of the forklift by heavy impact forces. The entire door opening operation shall be in full view of the operator. The forklift shall always be positioned to safeguard the dock attendant while removing the door lock pin. Whenever a railroad car door requires an abnormal force to open, the forklift operator shall report the condition to his supervisor or as instructed.

12.2.14

When forklifts are driven on and off highway trucks or trailers, the brakes on the highway trucks or trailers shall be applied and wheel chocks or other positive external mechanical means shall be used to prevent unintentional movement of highway trucks and trailers. Whenever forklifts are driven on and off semitrailers that are not coupled to a tractor, supports may be needed to prevent upending or corner dipping.

NOTE: See special note in paragraph 8.4 of this code since supports may still be needed when a semi trailer is coupled.

12.2.15

Provision shall be made to prevent railroad cars from being moved during loading and unloading. Wheel stops, hand brakes, or other recognised positive means shall be used to prevent movement of railroad cars during loading and unloading.

12.2.16

Care shall be taken not to contact overhead installations such as lights, wiring, pipes, sprinkler systems, etc.

12.2.17

An overhead guard shall be used on all high-lift rider trucks as protection against falling objects, unless all of the following conditions are met:

- (a) Vertical movement of the lifting mechanism is restricted to 1800 mm or less from the ground;
- (b) The forklift will be operated only in an area where:
 - (i) The bottom of the top tiered load is not higher than 1800 mm, and the top is no more than 3000 mm from the ground when tiered;

- (ii) Only stable, and preferably interlocked, unitised, or containerised, loads are handled;
 - (iii) There is protection against falling objects from adjacent, high-stack areas. An overhead guard is intended to offer protection from falling objects but cannot protect against every possible impact. It should not be considered a substitute for good judgement and care in load handling.
- (c) The forklift is marked to identify where it can be operated.

12.2.18

A load backrest extension shall be used when necessary to guard against a load, or part of it, from falling toward the operator.

12.2.19

In areas classified as hazardous, use only forklifts approved for use in those areas.

NOTE: A separate code will be issued covering hazardous areas — see paragraph 12.4 of this code.

12.2.20

Report all accidents involving personnel, building structures and equipment to the supervisor or as directed.

12.2.21

Do not add to or modify the forklift without the manufacturer's prior written approval.

12.2.22

Do not block access to fire doors, exits, aisles, stairways or fire equipment.

12.2.23

Motorised hand trucks shall not be ridden unless they are of the hand/rider design.

12.2.24

Whenever a forklift without controls that are elevatable with the lifting carriage or forks is used to elevate personnel:

- (a) Use a securely attached work platform; Refer NZS/ASME/ANSI B56.1 section 4.17;
- (b) Make sure the lifting mechanism is operating smoothly and properly;
- (c) Place mast in a vertical position and never tilt forward or rearward when elevated;
- (d) Place forklift controls in neutral and set brake;
- (e) Lift and lower smoothly and with caution;
- (f) Watch for overhead obstructions;
- (g) Keep hands and feet clear of controls other than those in use;
- (h) Move the forklift only for minor adjustments in positioning when personnel are on the work platform, and never at more than creep speed;
- (i) Remain in control position on the forklift;

- (j) Restraining means such as rails, chains, etc. should be in place, or persons on the work platform shall wear a body belt and lanyard or retractable safety device.

12.2.25

In the event that the forklift becomes inoperative, breaks down and requires removal, the forklift should be towed using the appropriate towing points or pins and a suitable wire rope or chain.

NOTE: Pushing with forks or a pallet is not advisable due to potential damage from forks slip or pallet collapse.

12.3 TRAVELLING

12.3.1

Observe all traffic regulations including authorised plant speed limits. Under normal traffic conditions, keep to the left. Maintain a safe distance, based on speed of travel, from the forklift ahead, and keep the forklift under control at all times.

12.3.2

Yield the right of way to pedestrians and emergency vehicles such as ambulances and fire trucks.

12.3.3

Do not pass another forklift travelling in the same direction at intersections, blind spots, or at other dangerous locations.

12.3.4

Slow down and sound the audible warning device(s) at cross aisles, doors and other locations where vision is obscured.

12.3.5

Cross railroad tracks at an angle wherever possible. Do not park closer than 2.5 metres to the nearest rail of a railroad track.

12.3.6

Keep a clear view of the path of travel and observe for other traffic, personnel and safe clearances.

12.3.7

If the load being carried obstructs forward view, travel with the load trailing.

12.3.8

Ascend or descend grades slowly, and with caution.*

- (a) When ascending or descending grades in excess of 5%, loaded rider trucks shall be driven with the load upgrade;
- (b) Unloaded forklifts should be operated on all grades with the load-engaging means downgrade*;
- (c) On all grades the load and load-engaging means shall be tilted back, if applicable, and raised only as far as necessary to clear the road surface;
- (d) On grades, ramps, or inclines, normally travel straight up and down, avoid turning if possible and use extreme caution.

NOTE: High-lift order picker trucks are not normally intended for

operation on a grade. Consult manufacturer's operating instructions for recommended operating procedures.

* For roll-on/roll-off ship operations see special note in paragraph 8.4 of this code.

12.3.9

Under all travel conditions, operate the forklift at a speed that will permit it to be brought to a stop in a safe manner.

12.3.10

Travel with load-engaging means or load low and, where possible, tilted back. Do not elevate the load except during stacking. This does not apply to forklifts that are intended normally to be operated with the load or load-engaging means elevated.

12.3.11

Make starts, stops, turns or direction reversals in a smooth manner so as not to shift the load and/or overturn the forklift.

12.3.12

Do not indulge in stunt driving or horseplay.

12.3.13

Slow down for wet and slippery floors.

12.3.14

Before driving over a dockboard or bridge plate, be sure that it is properly secured. Drive carefully and slowly across the dockboard or bridge plate, and never exceed its rated capacity.

12.3.15

Do not drive forklifts onto any elevator unless specifically authorised to do so. Approach elevators slowly, and then enter squarely after the elevator is properly levelled. Once on the elevator, neutralise the controls, shut off power, and set brakes. It is advisable that all other personnel leave the elevator before the forklift is allowed to enter or leave.

12.3.16

Avoid running over loose objects on the roadway surface.

12.3.17

When negotiating turns, reduce speed to a safe level consistent with the operating environment, and turn hand steering wheel in a smooth, sweeping motion. Except when manoeuvring at a very low speed, turn the hand steering wheel at a moderate, even rate.

12.3.18

The operation of a counterbalanced, centre control, high-lift trucks with a sit-down, non-elevating operator requires special safety considerations, as follows:

- (a) A forklift, loaded or unloaded, may tip over if an operator fails to slow down to a safe speed before making turns. Indications that a forklift is being driven at an excessive speed during turning manoeuvres include:
 - (i) Tyre skidding;

- (ii) Forklift side sway;
 - (iii) Wheel lift; and
 - (iv) The need to grip the steering wheel tightly to keep from sliding out of the seat.
- (b) The likelihood of lateral tip over is increased under any of the following conditions, or combinations of them;
- (i) Overloading;
 - (ii) Travelling with the load elevated;
 - (iii) Braking or accelerating sharply while turning;
 - (iv) Rearward tilt or off-centre positioning of the load;
 - (v) Travelling on an uneven surface;
 - (vi) Travelling at excessive speed.

NOTE : see special note in paragraph 8.4.

- (c) Tipping forward can occur and its likelihood is increased under the following conditions, or combination of them:
- (i) Overloading;
 - (ii) Travelling with the load tilted forward and/or elevated;
 - (iii) Hard braking while travelling forward;
 - (iv) Suddenly accelerating while travelling in reverse.
- (d) The operator should stay with the forklift if lateral or longitudinal tip over occurs. The operator should hold on firmly and lean away from the point of impact;
- (e) The operator should stay with the forklift if it falls off a loading dock or ramp. The operator should hold on firmly and lean away from the point of impact;
- (f) Where the environment presents a severe hazard, or there are other unusual operating conditions, the user may need to establish different and/or additional safety precautions and special operating instructions appropriate for the conditions.

12.3.19

An active operator protection device or system, when provided, shall be used. Operator protection in the event of tip over is intended to reduce the risk of entrapment of the head and torso between the forklift and the ground but may not protect the operator against all possible injury.

12.3.20

Motorised hand truck operation requires special safety consideration as follows:

- (a) Never operate with greasy hands.
- (b) Foot protection is recommended.
- (c) Do not ride on the truck.
- (d) Keep feet clear of truck frame while operating.
- (e) Always keep hands and fingers inside the protected area of the control handle.
- (f) Be cautious when travelling in reverse (load end leading) due to steering characteristics.

- (g) Be careful of drive end swing when turning while operating with load end leading.
- (h) Use caution when turning into an aisle. The load wheels tend to cut the corner.
- (i) Never travel at a speed greater than normal walking speed (approximately 5.0 km/h).
- (j) Always place both hands on the control handle when operating with the load end leading.
- (k) Always operate with one hand on controls, and when possible, walk ahead and to the side of the tongue when travelling forward (load end trailing).
- (l) Enter elevator or other confined areas with the load end leading.

12.4 SPECIAL NOTES

Section 4.1.2. of Part II of NZS/ASME/ANSI B56.1 states that "unusual operating conditions may require additional safety precautions and special operating instructions".

In such circumstances the following special notes may apply to the paragraphs indicated:

12.2.8

A safe place is defined as a seat or place to stand specifically built on by the manufacturer of the forklift.

12.2.14

Whenever forklifts are driven on and off semi trailers, supports may still be necessary to prevent upending or corner dipping even when still coupled to the tractor unit.

12.2.19

Hazardous areas: A separate code will be issued covering hazardous areas.

12.3.8

For certain stevedoring and shipboard operations e.g. Roll On-Roll Off work, it may not be always possible to travel on ramps with the load up grade. In such cases given the operating conditions assistance must be gained with guidance.

NOTE: High-lift order picker trucks are not normally intended for operation on a grade. Consult the manufacturer's operating instructions for recommended operating procedures.

12.3.18 (b)

In addition, the following can increase the likelihood of lateral tip over:

- (i) under inflated or punctured tyres;
- (ii) unladen forklift turning at speed.

12.1.4

Where a forklift operator's manual is no longer available from the New Zealand distributors for the forklift, then an appropriate forklift operator's safety handbook may be substituted.

APPENDIX A:

SAMPLE THEORY TEST

The instructor should select at least 20 appropriate questions from the list of questions below, or similar, with a pass mark of 80%.

1. ***The forklift load chart shows a rating of 2220 kg at a 600 mm load centre. What does this mean?***
 - (a) That the forklift will safely lift any weight up to 2220 kg.
 - (b) That the forklift will safely lift up to 2220 kg provided that the centre of gravity of the load is not more than 600 mm forward from the face (heel) of the forks.
 - (c) That the forklift will only safely lift up to 2220 kg if the load measures more than 1200 mm in length.
2. ***What procedure do you follow when the load on your forklift obscures your view in front?***
 - (a) Dismount, check that the way is clear, then drive slowly forward sounding the horn.
 - (b) Travel in reverse looking in the direction of travel.
 - (c) Raise the load so that you can see under it.
3. ***How should you normally drive your forklift?***
 - (a) Slowly and deliberately at all times.
 - (b) At a speed consistent with the type of load and general work conditions.
 - (c) Fast enough to keep up with the pressure of work.
4. ***A fault occurs while driving your forklift. What action do you take?***
 - (a) Park the forklift as safely as possible and follow company procedures, or remove its key and report the fault to your supervisor.
 - (b) Carry on until a convenient break and then report it.
 - (c) Try to repair the fault yourself.
5. ***What position should the forks be in while driving a forklift?***
 - (a) As near to the ground as possible and level.
 - (b) About 100 mm to 150 mm from the ground and level.
 - (c) About 100 mm to 150 mm from the ground and tilted back.
 - (d) As near to the ground as practicable but high enough to clear obstructions — and tilted back.
6. ***What is the procedure to follow when you discover a patch of oil on the floor of the aisle or roadway?***

- (a) Tell your supervisor the next time you see him/her.
 - (b) Drive carefully around it.
 - (c) Stop your forklift and clean it up.
7. ***What position do you place the forks when parking your forklift?***
- (a) 100 mm to 150 mm from ground tilted fully forward.
 - (b) Resting on the floor tilted fully back.
 - (c) Resting on the floor tilted forward.
8. ***Who is responsible for the safety of persons working in a forklift area?***
- (a) The forklift operator.
 - (b) Each person within the area.
 - (c) The manager.
9. ***Are you allowed to hoist personnel on your forks?***
- (a) Only if a sound wooden pallet is fitted.
 - (b) Only in an approved work platform is fitted.
 - (c) Only if an observer is present.
10. ***When must you use the back tilt on your forklift when travelling?***
- (a) When the forks are loaded.
 - (b) When the forks are not loaded.
 - (c) At all times.
11. ***When driving an empty forklift down a ramp, in what direction should the forks point?***
- (a) Downhill.
 - (b) Uphill.
12. ***When driving a loaded forklift down a ramp, in what direction should the forks point?***
- (a) Downhill.
 - (b) Uphill.
13. ***Is the carrying of passengers allowed on forklifts?***
- (a) Never.
 - (b) Only if travelling a long distance.
 - (c) Only if travelling a short distance.
 - (d) Only if a passenger seat is provided by the manufacturer.
14. ***Are fork extensions permitted where a load is too long?***
- (a) Never.
 - (b) Only on long loads.
 - (c) Only if authorised by the manufacturer.
15. ***How should the rated capacity of a forklift be determined by you?***
- (a) Testing with various loads.
 - (b) Reading the load plate.
 - (c) Guesswork.

- 16. When is the forklift operator required to look in the direction of travel?**
- (a) Always.
 - (b) When persons are in the area.
 - (c) When driving on uneven surfaces.
- 17. How often is a forklift operator required to check the brakes?**
- (a) Pre-operation.
 - (b) Weekly.
 - (c) Monthly.
- 18. What action is required when a load is unstable?**
- (a) Back tilt the load.
 - (b) Stop and restack.
 - (c) Call for assistance to support the load.
- 19. Are you allowed to turn a forklift on a ramp or slope?**
- (a) Only if the forklift is not loaded.
 - (b) Only if travelling down the ramp.
 - (c) Only if travelling up the ramp.
 - (d) Not at any time.
- 20. Are you permitted to cross a bridge plate with a forklift when loading a truck from a docking platform?**
- (a) Not at any time.
 - (b) Only if ordered to do so.
 - (c) Only if the truck wheels are secured and the bridge plate is strong enough.
- 21. Is it permissible to stack goods on an incline?**
- (a) Only if the load is on pallets.
 - (b) Only if a temporary measure.
 - (c) Not at any time.
- 22. Is it permissible for any person to operate a forklift?**
- (a) Only if a holder of a drivers licence.
 - (b) Only if trained and authorised to do so.
 - (c) Yes, but only temporarily.
- 23. When is it allowable to move your forklift with its load fully raised?**
- (a) Any time.
 - (b) To assist when turning.
 - (c) When stacking and destacking.
- 24. Is it permissible to park your forklift on a ramp or slope?**
- (a) Only if left in gear.
 - (b) Only if wheel chocks are used.
 - (c) Only if the forks are on the ground.
- 25. Should the load capacity of a forklift ever be exceeded?**
- (a) Only if the counterweight is increased.

- (b) Only if lifting the load within 1 metre.
 - (c) Not at any time.
- 26. *In what position should a gas cylinder safety valve be when fitted to a forklift?***
- (a) At the top.
 - (b) At the bottom.
 - (c) Mid-point.
- 27. *Is it permissible to tow a railway wagon using a forklift?***
- (a) Only if moving it short distances.
 - (b) Not at any time.
 - (c) Only to align it with the platform.
- 28. *Can the counterweight of a forklift have its weight increased?***
- (a) Only if the load to be lifted is too heavy.
 - (b) Only to allow more traction and steering control.
 - (c) Not at any time.
 - (d) Only if approved by the manufacturer.
- 29. *From which position in a narrow aisle should a forklift approach a narrow corner?***
- (a) From the inside of the aisle.
 - (b) From the outside of the aisle.
 - (c) From the middle of the aisle.
- 30. *What distance should there be between moving forklifts?***
- (a) Close up to communicate with the driver.
 - (b) As far apart as possible.
 - (c) A safe braking distance.
- 31. *When is the forklift horn to be used?***
- (a) Only when necessary.
 - (b) To acknowledge your friend.
 - (c) Only if operating on a public road.
- 32. *How close can you park to a railway line?***
- (a) 1 metre.
 - (b) 2.5 metres.
 - (c) 5 metres.
- 33. *May you cross railway lines on a forklift?***
- (a) Cross diagonally and only if the lines are recessed
 - (b) Cross at right angles to the railway track.
 - (c) Not at any time.
- 34. *What action do you take should the brakes fail on your forklift?***
- (a) Lower the forks to the ground.
 - (b) Use the gear change to attempt a stop.
 - (c) Jump clear.

35. Which of the points below affect the stability of a forklift?

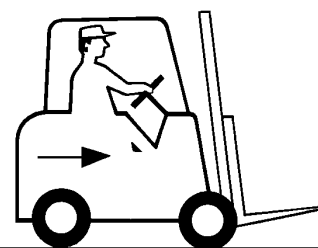
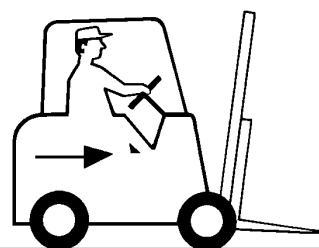
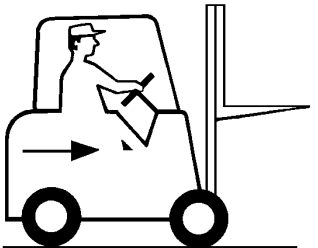
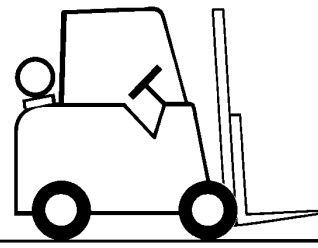
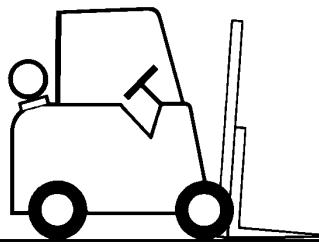
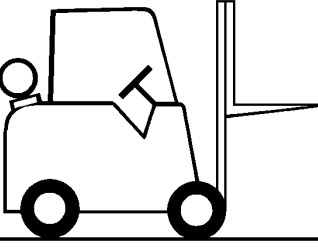
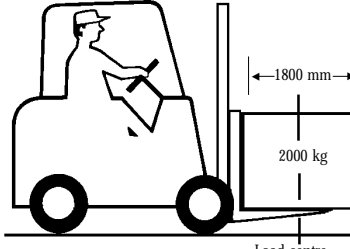
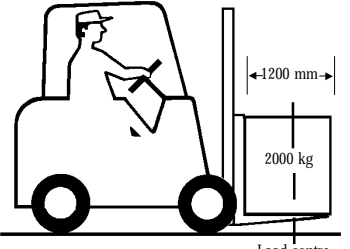
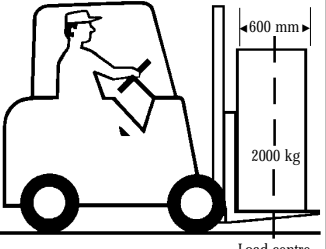

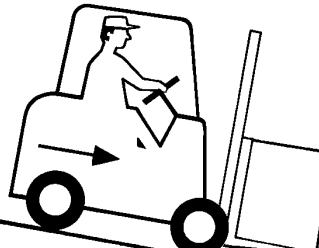
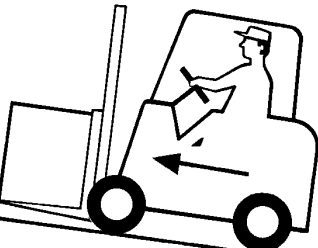
- (a) Driving too fast.
- (b) Load too heavy.
- (c) Driving over drainage.
- (d) Driving on an incline.
- (e) Driving on uneven surfaces.
- (f) Cornering too sharply.
- (g) Driving with the load raised.

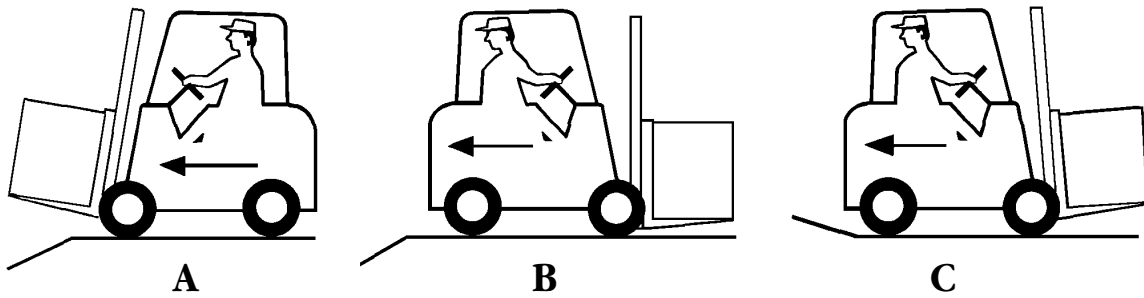
ANSWERS TO SAMPLE THEORY TEST

- | | | | |
|-------|-------|-------|----------------------------|
| 1. B | 12. B | 23. C | 34. A |
| 2. B | 13. D | 24. B | 35. A, B, C, D, E, F and G |
| 3. B | 14. C | 25. C | |
| 4. A | 15. B | 26. A | |
| 5. C | 16. A | 27. B | |
| 6. C | 17. A | 28. D | |
| 7. C | 18. B | 29. A | |
| 8. A | 19. D | 30. C | |
| 9. B | 20. C | 31. A | |
| 10. C | 21. C | 32. B | |
| 11. A | 22. B | 33. C | |

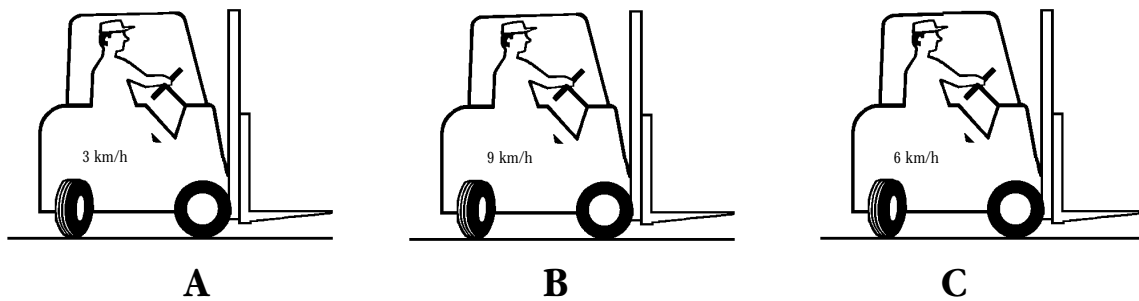
APPENDIX B: PICTORIAL DISCUSSION PAPER

The illustrations on the following four pages are designed to create discussion and so the answers may be expanded upon.

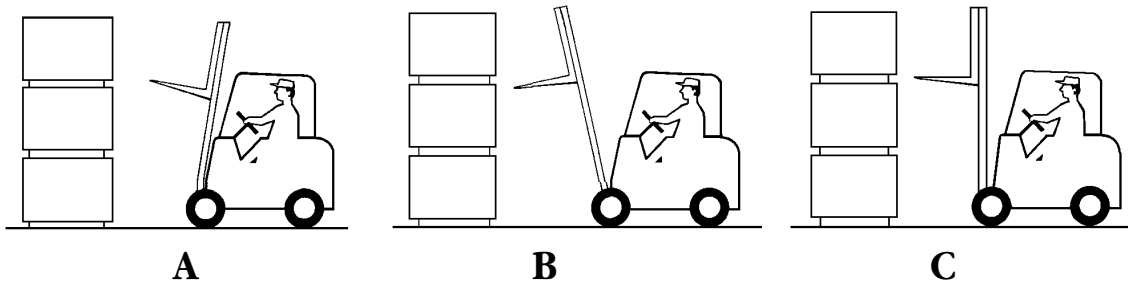
 <p>A</p>	 <p>B</p>	 <p>C</p>
<p>1. Which forklift is travelling safely?</p>		
 <p>A</p>	 <p>B</p>	 <p>C</p>
<p>2. Which truck is parked safely?</p>		
 <p>A</p>	 <p>B</p>	 <p>C</p>
<p>3. Which forklift truck is overloaded? (Rated capacity 2000 kg at 600 mm)</p>		
 <p>A</p>	 <p>B</p>	 <p>C</p>
<p>4. Which one is using the ramp correctly?</p>		



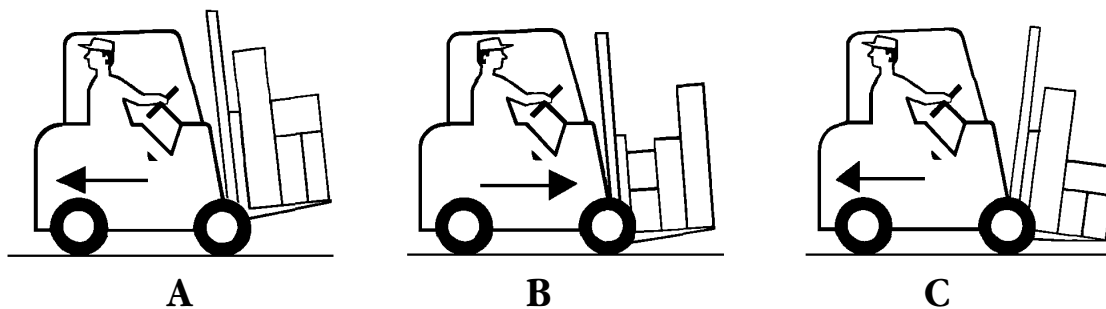
5. Which one is driving toward the ramp safely?



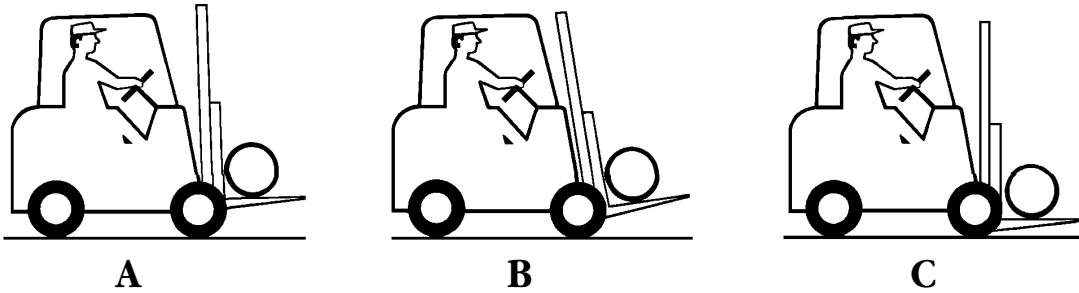
6. These short-based forklift trucks are turning at full lock. The forward speed is 3 km/h, so the rear end swing will travel at?



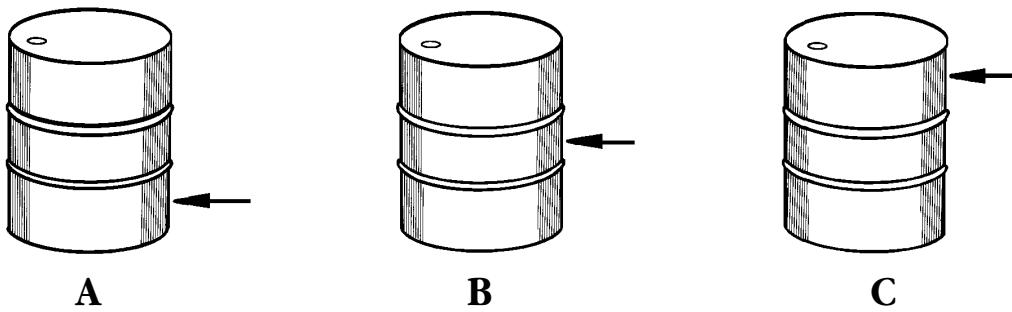
7. Which driver is approaching the stack correctly?



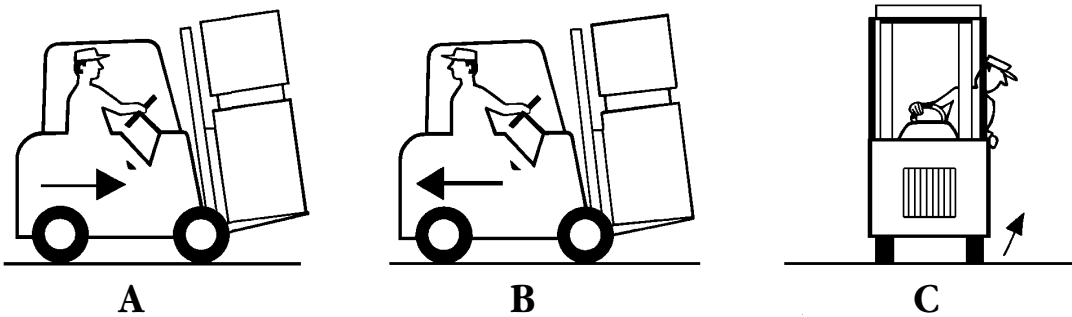
8. Which driver has the safest load?



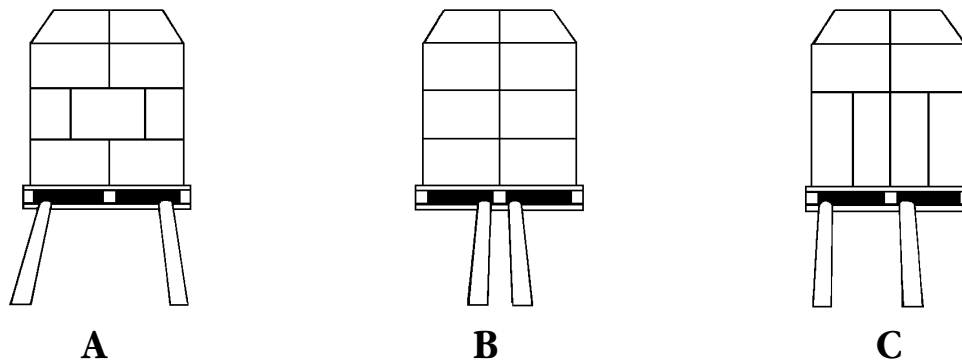
9. Which driver is carrying the load correctly?



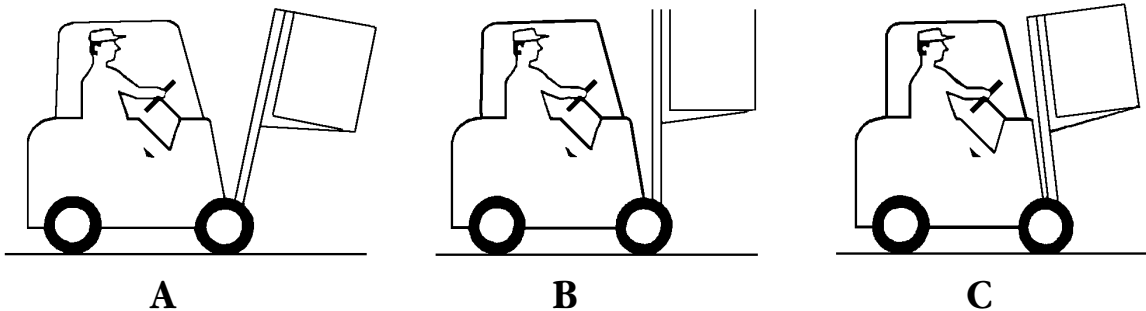
10. Which is the correct clamping point for a steel drum if using a squeeze clamp attachment?



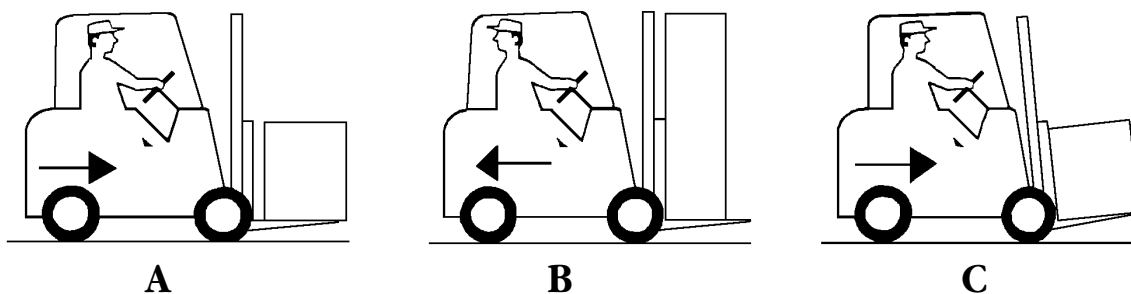
11. Which driver is travelling safely?



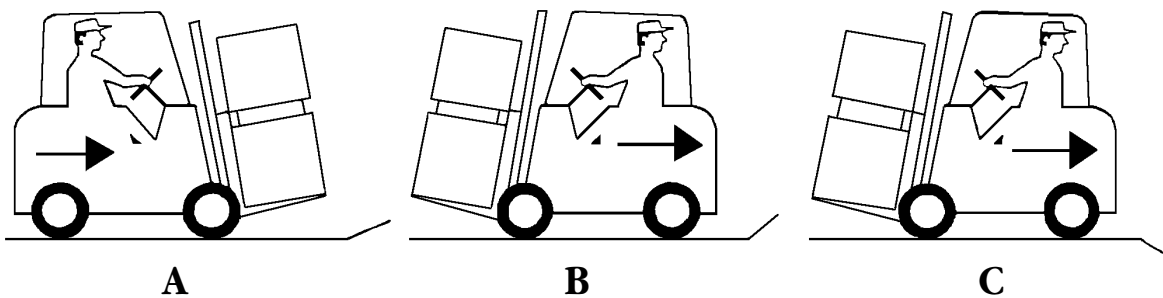
12. Which pair of forks is spaced correctly?



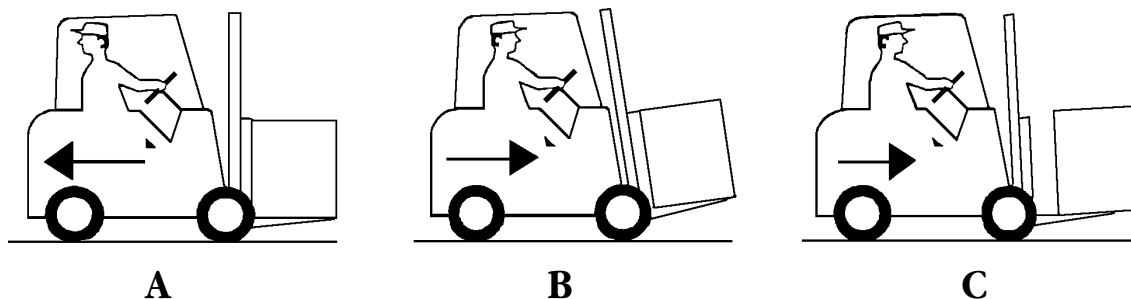
13. Each load contains 1 tonne evenly distributed. Which forklift truck has most weight on its back wheel?



14. All these trucks are travelling on a public road. Which one is technically breaking the law?



15. Which driver is approaching the ramp in the safest way?



16. Which driver is carrying the load safely?

ANSWERS TO QUESTIONS IN PICTORIAL DISCUSSION PAPER

- | | | | |
|------|------|-------|-------|
| 1. A | 5. B | 9. B | 13. C |
| 2. B | 6. B | 10. B | 14. B |
| 3. A | 7. C | 11. B | 15. C |
| 4. C | 8. A | 12. A | 16. B |

APPENDIX C: PRACTICAL CHECK LIST

The list of faults set out below are common faults which should not occur during the practical tests:

A. START POSITION

1. Fails pre-start machine check.
2. Fails to ensure forklift is in neutral.*
3. Fails to release handbrake.
4. Fails to raise forks to an acceptable height and tilt fork backward.
5. Fails to check steer-wheels are straight.
6. Fails to ensure way is clear.
7. Makes jerky start.

B. PICK-UP POSITION

1. Forks scrape ground.
2. Fails to enter pallet correctly.
3. Hits pallet.
4. Incorrect positioning of forks in pallet.
5. Fails to use inch-brake pedal when fitted while operating hydraulic controls.
6. Hits load hard when lifting.
7. Fails to apply some rear tilt after lifting load a little.

C. TRAVEL THROUGH COURSE — FORWARD AND REVERSE

1. Hits walls.
2. Jerky driving.
3. Puts hands or legs outside body of machine.
4. Uses inch-brake pedal (if fitted), instead of brake only for travel, particularly on ramp.
5. Uses left foot on brakes while throttle applied.

D. DEPOSIT AND EXTRACT FROM RACKING

1. Incorrect approach to racking.
2. Turns when load raised high when unnecessary.

3. Fails to use inch-brake pedal if equipped to declutch transmission and brake forklift in a controlled operation while operating hydraulics.
4. Lift load with mast tilted fully back thus requiring forward tilt at height prior to placing load.
5. Hits stack with bottom of mast due to excess rear tilt.
6. Tilts forward before load over racking.
7. Hits racking.
8. Unsatisfactory placing of pallet on racking.
9. Fails to stop and lower forks when empty.
10. Incorrect positioning of forks in pallet.
11. Travels too far in reverse before lowering pallet to safe travel height.
12. Fails to tilt forks backward before travelling.
13. Hoists or lowers while travel in racking.

E. RETURN TO PALLET PICK-UP POSITION

1. Poor alignment of load on original pallet pick-up position.
2. Drops load too heavily.
3. 'Forks' pallet on withdrawal.

F. RETURN FORKLIFT TO ORIGINAL POSITION

1. Fails to raise forks to correct travel height.
2. Fails to check way is clear.
3. Poor alignment of forklift in marked area.
4. Fails to leave forks flat on ground with tips touching ground.
5. Fails to ensure forklift is in neutral.
6. Fails to apply handbrake.
7. Fails to ensure steer-wheels straight.

G. GENERAL

1. Fails to look before and when reversing.
2. Excessive manoeuvring.
3. Stalls engine.
4. Excessive use of foot brake.
5. Unnecessarily races engine.
6. General appraisal.
7. Climbs on or off forklift incorrectly.
8. Uses brake and throttle simultaneously.
9. Incorrect use of inch-brake and foot brake pedals.
10. Incorrect use of mast tilt.

* Neutral gear position is dependent on the type of forklift used.

APPENDIX D: SUMMARY OF TRAINING COURSE FOR OPERATORS OF FORKLIFTS

THEORY: OPERATORS' SAFETY CODE

DRIVING

- Introduction to controls.
- Moving forward/reverse, in straight line, open area.*
- Steering left and right, forward/reverse, open area.*
- Steering forward/reverse around object, easier side, open area.
- Steering forward/reverse around object, other side, open area.
- Steering forward/reverse around object, enclosed area.
- Steering forward/reverse around object, more difficult course.

THEORY: FORKLIFT STABILITY

THEORY: WORKING OF HYDRAULIC SYSTEMS

- Use of hydraulic controls.
- Daily inspection procedures. **
- Picking up/setting down empty pallet, ground level, straight-line approach.
- Driving forward/reverse around simple course with loaded pallet.

DRIVING THEORY: OPERATING PRACTICES AND LOAD HANDLING

- Picking up/setting down pallet, 90° approach, in enclosed area.
- Vehicle loading/unloading.
- Stacking pallets at various heights, straight-line approach.
- Stacking pallets at various heights, 90° approach, in enclosed area.
- Vehicle loading/unloading.
- Short theoretical test paper.

TESTING

- Standard practical test.

This specimen shows how a course may be developed, step by step, so as to prepare trainees for testing. Each element builds on previous elements. Theoretical instruction is essential but should be spread through the course at appropriate stages. At each stage of practical instruction, the instructor should: EXPLAIN, DEMONSTRATE, then supervise trainees' PRACTICE.

- * Instructor to set forks in travel/parking position.
- ** Daily inspection can usefully be practised by trainees, under supervision, at the beginning of successive days' training.

APPENDIX E: INSTRUCTORS

1. THE IMPORTANCE OF THEIR CONTRIBUTION

Successful training of forklift operators is dependent on the effectiveness of instructors. Good instructors are essential for laying the all-important foundation to the development of a safe and efficient working environment.

It is customary for forklift instructors, once qualified, not only to take charge of operator training, but also to carry out testing of their trainees' operating ability and to certificate those who reach the prescribed standard.

The role of the instructor is a valid one and should be undertaken in a responsible manner.

2. SELECTION

Potential instructors must be selected with care.

They must be highly skilled, and have a reasonable depth of experience, in operating the type or types of forklifts on which they are expected to instruct.

Experience alone is not enough (at worst this may be founded on initial instruction which itself was hasty or even incompetent) and may only have served to reinforce bad habits.

Conversely, operating skill which is newly acquired and unsupported by reasonable operating experience is insufficient basis for undertaking an instructor course.

The training of operators is largely accomplished through demonstration/explanation followed by supervised practice. It is essential that each demonstration by the instructor is a model, free from technical errors and misjudgements. Anyone who is not highly proficient would not be a suitable choice and would not merit the investment of an instructor training course.

In addition to operating skill and experience, individuals should have a strong interest in becoming an instructor. Also they should:

- Have a confident manner, be able to get on with people from a variety of backgrounds and to adapt their approach to suit different needs;
- Be literate, numerate and articulate;
- Be able to lead and supervise others;
- Be reasonably intelligent — sufficiently to be able to devise, implement and supervise operator courses on completion of an instructor's training course;
- Be reliable and mature with the ability to do their important job in a responsible and efficient manner.

3. TRAINING

Once selected, the potential instructors will require training.

A number of training courses for instructors are available, leading to qualification.

Only instructors who have successfully completed a recognised "train the trainer" course in instructional techniques will be considered qualified to provide training, to test operators and to issue certificates. For example, attendance at any approved training course such as the New Zealand Institute of Management "train the trainer" course or equivalent.

4. AIMS OF COURSES

To achieve the required standard, the recognised approved courses will cover the following:

- Techniques for structuring training material into a logical sequence for teaching skills and knowledge;
- An effective style for teaching skills appropriate to the type of forklift involved and its associated application;
- An objective and critical approach towards the effectiveness of the instruction they present; and
- An appropriate, approved method of assessment of trainees' progress and the testing of basic skills.

5. OBJECTIVES OF TRAINING

On completion of their training, individuals should be able to prove, by examination, their ability to:

- Prepare a breakdown of instruction by analysis of the task or skills required;
- Plan, prepare and present periods of instruction appropriate to the content of the task;
- Obtain maximum trainee involvement by use of appropriate participation techniques;
- Select and use appropriate training aids;
- Discriminate between basic training, specific job training and familiarisation training;
- Apply the recognised "pattern for instruction" when presenting instruction;
- Identify errors in trainee performance and take appropriate remedial action;
- Conduct recognised tests of trainee operating ability;
- Analyse trainee performance and produce appropriate reports; and
- Certificate operators who have achieved the recognised standard in basic operating skills.

6. CERTIFICATION AND REGISTRATION OF INSTRUCTORS

The instructional techniques content of approved courses provides skills which are transferable. In addition, it is essential that instructors are competent and experienced in operating whatever equipment they are required to use. The certificates issued to instructors are evidence that their names are recorded by the appropriate accrediting body.

These certificates to be valid for a period of three years, after which instructors should attend a period of refresher training and be re-examined to ensure that they are sufficiently competent to remain registered. Experience has shown that candidates who have had minimal opportunity to practise their instruction skills stand little chance of achieving the standard required to be re-registered by accrediting bodies.

APPENDIX F: EXAMPLE OF CERTIFICATION

1. Trainees who have passed practical tests of basic operating skills, carried out by a registered forklift instructor/examiner, should receive a certificate.
2. Certificates may be issued as appropriate by accredited commercial training organisations, by employers who have their own training scheme which is accredited, or by the accrediting bodies themselves.
3. Essentially, the certificate is intended to note what basic training has been provided and to record the trainee's known standard of operating ability. For this to be realised, the following criteria information should be provided:
 - Name and full initials of successful trainee.
 - Dates on which training took place.
 - Date of completion of testing.
 - Description of forklift (to include type, motive power and rated capacity, together with attachments if any) used for training and testing.
 - Name (legibly written), signature and registration number of instructor responsible for training.
 - Name (legibly written) and signature of registered examiner responsible for testing.

Note: Training and testing may be carried out by the same person, but in those instances where separate individuals are involved, details of both must be provided.

 - Name either of accredited training organisation or of the employing company responsible for its own training.
4. An example of a certificate is given on page 50.
5. These certificates should not refer to "competence" as this description may be misleading when applied to someone who has, at this stage, received no more than basic training and has yet to progress to specific job training and familiarisation training.
6. A register should be kept of all certificates issued.
7. It is recommended that retraining be undertaken every three years and that the certificate issued should reflect this.

ABC Training Ltd, Newtown

CERTIFICATE

This is to certify that

JOE BLOGGS

has attended a course of training
and has passed safety, theory and practical test(s)
of forklift operating skills in accordance with the OSH publication
*Approved Code of Practice for Training Operators and Instructors
of Powered Industrial Lift Trucks (Forklifts).*

Duration of Course: _____

Date of Test: _____

Name of Instructor/Examiner: _____

Instructor's Registration No: _____

Signature: _____

Date of Issue: _____

Certificate No: _____

*It is recommended that retraining be undertaken every three years
and that the certificate issued should reflect this.*

APPENDIX G: EMPLOYER'S WRITTEN AUTHORISATION TO OPERATE FORKLIFT

1. Employers should not allow personnel to operate forklifts without written authority. An example of such authorisation is given below.
2. This authorisation should be issued only after training, including specific job training and familiarisation training, is satisfactorily completed in respect of each forklift/attachment named on the certificate.
3. Authorisations to operate may only be issued by the employer; they are the employer's acknowledgement that the named holder is authorised to operate a specified forklift or forklifts unsupervised. The authorisation may be limited to specific environments or place of work, which may include certain public roads on which forklifts may be driven (by a route specified by the employer) .
4. Authorisations should be kept by the employer. A copy should be issued to the named holder, and it may usefully be combined with a statement or summary of the company's own rules affecting working with forklifts within a defined area or place of work.
5. Authorisations are not transferable to other employment, as they relate to the named employer's forklifts for use with the loads in the operator's work situation.
6. When training is given for additional forklifts in all three aspects, the individual's authorisation should be amended to include the extra details.
7. These certificates will normally be acceptable as the basis of satisfactory evidence that employers have fulfilled their duty, under the Health and Safety in Employment Act 1992, to provide adequate training for their forklift operators.

EXAMPLE OF A WRITTEN AUTHORISATION TO OPERATE A FORKLIFT

We recommend this written authorisation should include both the certification of basic training section completed by the training authority and the authorisation to operate a lift truck section completed by company management. A sample of our recommended authorisation is shown on page 52.

ABC Training Co.

CERTIFICATE

This is to certify that

has attended a course of training on

at

and has passed safety, theory and practical test(s)
of basic operating skills in accordance with the
*Approved Code of Practice for Training Operators
and Instructors of Powered Industrial Lift Trucks
(Forklifts).*

Issuing Authority: _____

Date of Test: _____

Name of Instructor/
Examiner: _____

Signature: _____

AUTHORITY TO OPERATE A FORKLIFT

(Company Name)

This is to certify that

having successfully completed specific, job
and familiarisation training is authorised to
operate the following forklift(s):

Job Type: _____

Area(s): _____

Forklift Type: _____

Date of Issue: _____

APPENDIX H: ACCIDENTS AND SERIOUS HARM (RECORDS AND NOTIFICATION)

1. The Act defines :

“Accident “ means an event that :

- (a) Causes any person to be harmed; or
- (b) In different circumstances, might have caused any person to be harmed.

This means that “accident” includes both near misses and accidents that result in harm to a person or might have caused any person to be harmed.

2. Every employer is required to maintain a register of accidents and serious harm, and record particulars relating to:

- (a) Every accident that harmed (or, as the case may be, might have harmed):
 - (i) any employee at work; or
 - (ii) any person in a place of work controlled by the employer; and
- (b) Every occurrence of serious harm to an employee at work, or as a result of any hazard to which the employee was exposed while at work, in the employment of the employer.

3. Where there occurs any serious harm or accident an employer must :

- (a) As soon as possible after its occurrence, notify the Secretary of Labour of the occurrence; and
- (b) Within 7 days of the occurrence, give the Secretary of Labour written notice, in the prescribed form, of the circumstances of the occurrence.

4. The notification to the Secretary of Labour applies to :

- (a) Every occurrence of serious harm to an employee at work, or the occurrence of serious harm as a result of any hazard to which the employee was exposed while at work, in the employment of the employer; and
- (b) Accidents of a kind or description required by the regulations.

APPENDIX I: RELATED DOCUMENTS

- ACC, NZ. Audit System. *Powered Industrial Lift Trucks*, 1984.
- OSH, Department of Labour, NZ. *Safe Stacking and Storage*, 1985.
- OSH, Department of Labour, NZ. *Safety Code for Forklift Operators*. Nos. 1, 2, 3 and 4, 1995
- The Health and Safety in Employment Act 1992.
- The New Zealand Transport Act and Amendments.
- NZS/ASME/ANSI B56.1C. *Safety standard for low and high lift trucks and subsequent amendments*.
- AS 2359.1:1985 *Design and manufacture of industrial trucks*.
- AS 2359.2:1985 *Industrial truck operation*.
- South Australia, Department of Labour. *Forklift Training*, 1990.
- Manpower Services Commission, UK. *Trainability Testing*, 1979.
- Health and Safety Executive, UK. *Code of Practice for Lift Truck Operator Training*, 1986.
- BS 4430:1986 *Safety of powered industrial trucks, Part 2*.
- JCITB, UK. *Training Operators and Instructors*, 1988.
- RTITB, UK. *Lift Truck Trainers' Guide*, 1990.
- NIOSH Training, USA. *Powered Industrial Truck Operators*, 1978.