

# FIRE SERVICES EXAMINATIONS BOARD

## STUDY NOTE

EXAMINATION

LEADING FIREFIGHTER

PAPER

HUMAN RESOURCE MANAGEMENT

SUBJECT

HEALTH, SAFETY AND WELFARE

ITEM

MANUAL HANDLING

STUDY NOTE No.

1310

### *INTRODUCTION TO THE STUDY NOTE*

*This study note has been prepared as the basis of study in connection with the qualifying examinations for promotion.*

*Candidates will be expected to demonstrate knowledge of the information contained in the study note and understand how it should be applied:*

*The 'References' made at the end of the Study Note are included for information only and candidates will not be expected to study these as part of the bibliography.*

## THE MANUAL HANDLING OPERATIONS REGULATIONS 1992

### 1. Introduction

It is important for a Crew Commander to have an awareness of the impact of these regulations because of the supervisory nature of the post.

Crew Commanders need to ensure that personnel who are handling equipment etc, both on the fireground and at the station are doing so in a safe and correct manner and in a way that reduces the possibility of injury to the personnel concerned.

Failure to comply with the spirit of the regulations could lead to increased sickness and injury leave and to claims for negligence against the fire authority if the supervision or instructions were incorrect or inadequately given.

This study note is a brief summary of the regulations.

### 2. The Regulations

These Regulations are intended to reduce the incidence of injury caused through manual handling – the transporting or supporting of a load by hand (including the lifting, putting down, pushing, pulling, carrying or moving), or by bodily force.

The Regulations apply to a wide range of Fire Service activities, including:

- Operational duties; and
- Maintenance activities.

### 3. Operational Duties

- (a) Vehicle loading/unloading.
- (b) Lifting of light portable pumps.
- (c) Lifting of generators.
- (d) Handling of equipment.
- (e) Casualty rescue and handling.

### 4. Maintenance Activities

- (a) Vehicle operations, eg maintenance.
- (b) Movement of office equipment.
- (c) Reprographic paper handling.
- (d) Building and maintenance works.

## 5. Health Issues

Typical injuries and conditions associated with manual handling can be external and internal. External injuries include:

- (a) crush injuries;
- (b) bruises; and
- (c) lacerations.

Internal injuries include:

- (a) ligament tears;
- (b) hernias;
- (c) muscle tears;
- (d) prolapsed intervertebral discs; and
- (e) damage to knee, ankle, shoulder and elbow joints.

Internal injuries are generally more serious than external ones.

Many of these conditions result in long term absence from work and, often, permanent disability.

## 6. General Requirements

The Manual Handling Operations Regulations place duties on employers to take certain actions to:

- (a) avoid the need for hazardous manual handling as far as reasonably practicable;
- (b) assess the risk of injury from any hazardous manual handling that cannot be avoided; and
- (c) reduce the risk of injury from hazardous manual handling as far as reasonably practicable.

They also require employers to:

- (a) provide mechanical aids to avoid manual handling operations where there is a risk of injury and where it is reasonably practical to do so; and
- (b) provide information on the loads to be moved/carried to include, where possible:
  - the weight of the load; and
  - the centre of gravity of the load.

## 7. Reducing the Risk of Injury

Schedule 1 of the Regulations specifies the factors that should be taken into account when assessing manual handling operations. These are:

- the task;
- the load;
- the working environment; and
- individual capability.

Consider these factors when making improvements:

- |                              |  |
|------------------------------|--|
| (a) The Task:                | Automation;<br>Mechanisation;<br>Redesign of the layout;<br>Use of handling aids; and/or<br>Development of team work.                      |
| (b) The Load:                | Reduction of the weight;<br>Improvement to the grip; and/or<br>Provide rest periods.   |
| (c) The Working Environment: | Improve - space constraints, lighting,<br>floors and untidy areas.<br>Protect: by using appropriate personal<br>protective equipment (PPE) |
| (d) Individual Capability:   | Improve handling technique;<br>Train to raise the awareness of the problems;<br>and/or<br>Maintain physical fitness.                       |

## 8. Solutions

Many manual handling operations can be avoided/reduced at little or no cost, for example by:

- reducing the size of the load which is purchased;
- splitting the load into smaller loads;
- improving ergonomic design; and
- training in kinetic lifting methods.

## 9. Adopt a Good Handling Technique

Training personnel in good handling techniques is no substitute for reducing the risk in the first place, eg improvements to the task, load or working environment.

Consider moving the load by rocking, pivoting, rolling or sliding in preference to lifting in situations where scope for risk reduction is limited.

There is no single correct way to lift - good handling technique should be tailored to the particular handling operation being undertaken.

### (a) Stop and think

Plan the lift. Where is the load going to be placed? Use appropriate handling aids if possible. Do you need help with the load? Remove obstructions such as discarded wrapping materials. For a long lift, such as floor to shoulder height, consider resting the load mid-way on a table or bench to change grip.

### (b) Place the feet

Have the feet apart, giving a balanced and stable base for lifting. Have the leading leg as far forward as is comfortable. Orientate yourself, so that you are facing the direction of travel. Stand so that your centre of gravity is over the load.

### (c) Adopt a good posture

Bend the knees so that the hands when grasping the load are as nearly level with the waist as possible. But do not kneel or overflex the knees. Keep the back straight, maintaining its natural curve (tucking in the chin while gripping the load helps). Lean forward a little over the load if necessary to get a good grip. Keep shoulders level and facing in the same direction as the hips.

### (d) Get a firm grip

Try to keep the arms between your legs. The optimum position and nature of the grip depends on the circumstances and individual preference, but it must be secure. A hook grip is less fatiguing than keeping the fingers straight. If it is necessary to vary the grip as the lift proceeds, do this as smoothly as possible.

### (e) Don't jerk

Carry out the lifting movement smoothly, raising the chin as the lift begins, keeping control of the load. Look straight ahead as this will help you develop good posture.

### (f) Move the feet.

Don't twist the trunk when turning to the side.

- (g) Keep close to the load

Keep the load close to the trunk for as long as possible. Keep the heaviest side of the load next to the trunk. If a close approach to the load is not possible try sliding it towards you before attempting to lift it.

- (h) Put down, *then* adjust.

If precise positioning of the load is necessary, put it down first, then slide it into the desired position.

These techniques should be practiced in practical training sessions. Different pieces of equipment should be used and selected so that individuals can learn the handling techniques for a variety of shapes and weights.

## 10. To Make the Task Easier – Economy of Effort

A few further points to remember centre around economy of effort – or making the task easier. Try to adopt the following methods when handling:

- (a) RAISE the centre of gravity of the LOAD before lifting.
- (b) GET UNDER THE LOAD if lifting up to shoulder height, eg like a weight-lifter.
- (c) USE INTERMEDIATE SUPPORTS, eg, one hand on a knee when lifting small objects from ground level, and KINETIC TECHNIQUES, eg, swinging sacks, etc.
- (d) AVOID ASYMMETRIC LOADS, carry loads centrally or if they have handles, carry one in each hand.
- (e) USE GRAVITY when lowering, eg, by holding the sack close to the body and allow it to slide to the floor.
- (f) REDUCE THE SIZE of the load – can containers be opened and the contents be moved in manageable quantities.
- (g) DEVELOP PUSHING AND PULLING TECHNIQUES – roll drums and slide containers in order to reduce the effort of moving them.
- (h) IMPROVE GRIP by using suitable gloves or handling straps.
- (i) COMMUNICATE when working together and develop team working techniques.

The recovery rate from muscle fatigue will vary, so keep the following points in mind:

- (a) Frequent short pauses are more beneficial than occasional long rests.
- (b) The time taken to recover is less if a person rests when becoming fatigued.
- (c) Do not work to the point of exhaustion.
- (d) Develop the use of 'warm up' and 'warm down' exercises if your tasks are arduous.

## 11. Mechanical Solutions

Mechanical aids of the types identified below can be used for many activities:

- (a) fork lift trucks;
- (b) hoists and lifting gear; and
- (c) trolleys and small trucks.

Some lifting and handling operations may justify a completely mechanical solution.

## 12. Risk Assessment

Where manual handling is identified as a substantial hazard in the course of carrying out a risk assessment, a proper analysis of problems should be carried out to identify the most suitable control measures.

This applies equally to operational and non-operational work. In operational work, the scope for avoiding manual handling is much less than in workshops and other premises.

In emergency situations there is not time to carry out written risk assessments, but generic and model risk assessments can be completed beforehand for situations operational personnel are likely to encounter. Furthermore, dynamic risk assessment should identify risks which have to be avoided or controlled during operational work.

The guidance to the regulations qualifies the duty to avoid manual handling by 'so far as is reasonably practicable'. This means that the duty is satisfied where the cost of preventive steps is disproportionate to any benefits that might be derived.

Therefore, when it can be shown that the preventive measures to avoid manual handling would make it unduly difficult to achieve the efficient discharge of the Service's emergency functions, this may be used as a defence against a claim against the fire authority, as the fire brigade employer.

The preventive measures that a brigade may adopt will generally be expressed in terms of:

- (a) equipment provision;
- (b) training in combined lifting techniques;
- (c) making personnel aware of the risk to their health in trying to lift loads which are too heavy for them;
- (d) use of labels to indicate the number of personnel required to lift the load; and
- (e) stowage of equipment. Eg Tilting trays.

### **13. Employee Duties**

The regulations also place a duty on employees to make full use of any systems of work provided for use by the employer.

#### **References**

A Guide for Managers - Fire Service Health and Safety Guide Volume 2 issued by H M Inspector of Fire Services, publications section.

Manual Handling Operations Regulations Guidance on Regulations.