



MANUAL HANDLING ASSESSMENT CHARTS



INTRODUCTION

Work-related musculoskeletal disorders (MSDs), including manual handling injuries, are the most common type of occupational ill health in the UK and their prevention is a priority for HSC/E. It is important to remember that:

- things can be done to prevent MSDs;
- preventative measures are cost-effective;
- you cannot prevent all MSDs, so early reporting of symptoms, proper treatment and suitable rehabilitation is essential.

The steps to follow

The Manual Handling Operations Regulations 1992 (as amended) establish a clear hierarchy of measures for dealing with risks from manual handling. These are:

- avoid hazardous manual handling operations so far as reasonably practicable;
- assess any hazardous manual handling operations that cannot be avoided; and
- reduce the risk of injury so far as reasonably practicable.

The MAC

The Manual Handling Assessment Charts (MAC) is a new tool designed to help health and safety inspectors assess the most common risk factors in lifting (and lowering), carrying and team handling operations. Employers, safety officers, safety representatives and others may also find the MAC useful to identify high-risk manual handling operations and help them complete their risk assessments.

Structure of the MAC

There are three types of assessment that can be carried out with the MAC:

- | | |
|-----------------------------------|--------------------|
| ■ lifting operations | <i>pages 1-4;</i> |
| ■ carrying operations | <i>pages 5-8;</i> |
| ■ team handling operations | <i>pages 9-11.</i> |

For each type of assessment there is an assessment guide and a flow chart. There is a score sheet to complete on page 12.

Note:

The MAC is **not** appropriate for some manual handling operations, for example those that involve pushing and pulling. Its use does **not** comprise a full risk assessment (see *Manual handling*, 'Further reading'). You must consider individual and psychosocial issues when completing the score sheet. Also, the MAC is **not** designed to assess risks from workplace upper limb disorders (see *Upper limb disorders in the workplace*, see 'Further reading').

How to complete a MAC assessment

- Spend some time observing the task to ensure that what you are seeing is representative of normal working procedures. Consult employees and safety representatives during the assessment process. Where several people do the same task, make sure you have some insight into the demands of the job from all workers' perspective. It may help to videotape the task so you can view it over again, away from the workplace, if necessary.
- Select the appropriate type of assessment (ie lifting, carrying or team handling). If a task involves lifting and carrying, consider both.
- Ensure you read the assessment guide before you make your assessment.
- Follow the appropriate assessment guide and flow chart to determine the level of risk for each risk factor. Information on risk reduction can be found on the website (see address below). The levels of risk are classified below:

G = GREEN - Low level of risk

The vulnerability of special risk groups (eg pregnant women, young workers etc) should be considered where appropriate.

A = AMBER - Medium level of risk - Examine tasks closely

R = RED - High level of risk - Prompt action needed

This may expose a significant proportion of the working population to risk of injury.

P = PURPLE - Very high level of risk

Such operations may represent a serious risk of injury and should come under close scrutiny, particularly when the entire weight of the load is supported by one person.

- Enter the colour band and corresponding numerical score on the score sheet on page 12. The colour bands help determine which elements of the task require attention.
- Add up the total score. The total scores help prioritise those tasks that need most urgent attention and help check the effectiveness of those improvements.
- Enter the remaining task information asked for on the score sheet.

Further information on the MAC, including on-line training, can be found at www.hse.gov.uk/msd

Remember:

The purpose of the assessment is to identify and then **reduce** the overall level of risk of the task.

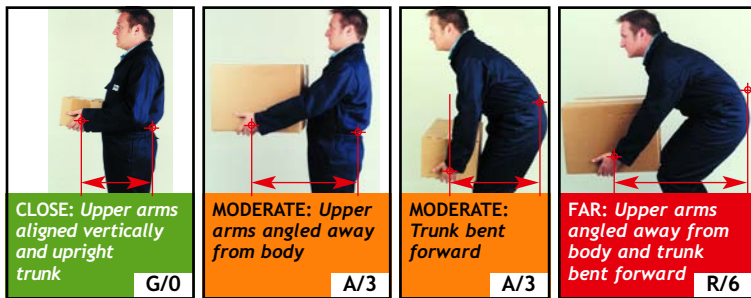
ASSESSMENT GUIDE FOR LIFTING OPERATIONS

A Load weight/frequency

Note the weight of the load and the repetition rate of the lifting operation. Read off the risk banding on the graph on page 4 and enter the colour band and numerical score on the score sheet. If the colour band is purple the task should be examined very closely, such operations may represent a serious risk of injury and should come under close scrutiny, particularly when the entire weight of the load is supported by one person. *Note: High frequency handling operations of light weights will fall within the GREEN zone, but may be associated with upper limb problems. Please refer to [Upper limb disorders in the workplace](#) (see 'Further reading') for advice on further assessment.*

B Hand distance from the lower back

Observe the task and examine the horizontal distance between the operative's hands and their lower back. Always assess the 'worst case scenario'. Use the following to guide your assessment:

**C Vertical lift region**

Observe the position of the operative's hands at the start of the lift and as the lift progresses. Always assess the 'worst case scenario'. Use the following illustrations as a guide:



D Trunk twisting and sideways bending

Observe the operative's trunk as the load is lifted. If the trunk twists in relation to the hips and thighs or the operative leans to one side as the load is lifted, the colour band is amber and the numerical score is 1. If the trunk both twists AND bends to the side as the load is lifted the colour band is red and the numerical score is 2.

E Postural constraints

If the movements of the operative are unhindered, the colour band is green and the numerical score is 0. If the operative adopts restricted postures during the lift because of the space available (eg a narrow gap between pallet load and hopper) or the workstation design (eg an excessively high monorail conveyor), the colour band is amber and the numerical score is 1. If the posture is severely restricted, the colour band is red and the numerical score is 3 (eg work in confined areas such as baggaholds).

F Grip on the load

| GOOD | REASONABLE | POOR |
|---|---|---|
| G/0 | A/1 | R/2 |
| Containers with well-designed handles or handholds, fit for purpose | Containers with poor handles or handholds | Containers of poor design. Loose parts, irregular objects, bulky or difficult to handle |
| Loose parts enabling comfortable grip | Fingers to be clamped at 90 degrees under the container | Non-rigid sacks or unpredictable loads |

G Floor surface

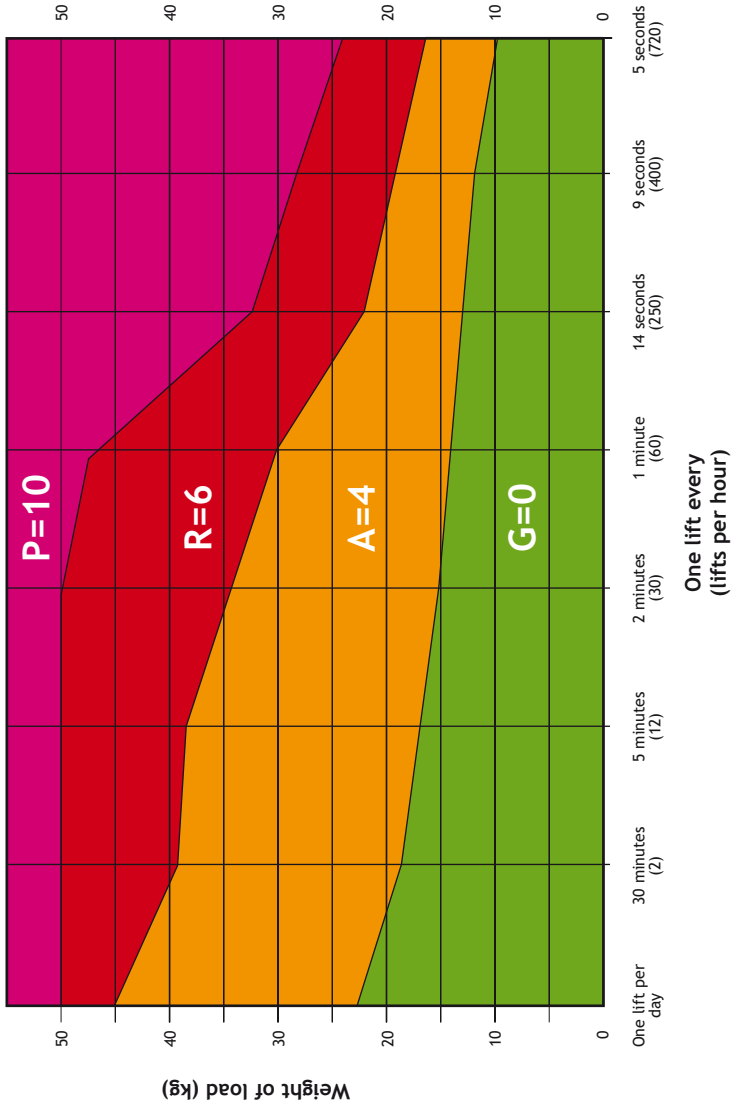
| Dry and clean floor in good condition | Dry floor but in poor condition, worn or uneven | Contaminated/wet or steep sloping floor or unstable footing |
|---------------------------------------|---|---|
| G/0 | A/1 | R/2 |
| | | |

H Other environmental factors

Observe the work environment and score if the lifting operation takes place: in extremes of temperature; with strong air movements; or in extreme lighting conditions (dark, bright or poor contrast). If one of the risk factors are present score 1, if two or more of the risk factors are present score 2.



Load weight/frequency graph for lifting operations



Weight of load (kg)

One lift every
(lifts per hour)

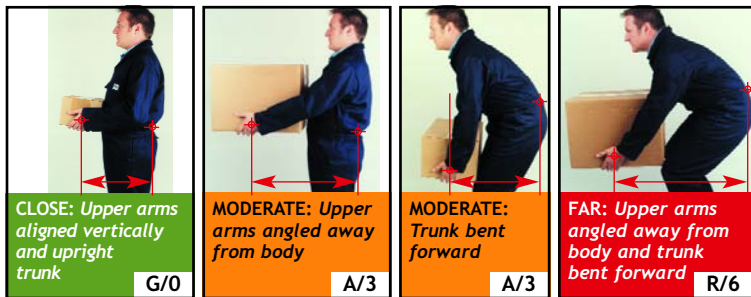
ASSESSMENT GUIDE FOR CARRYING OPERATIONS

A Load weight/frequency

Note the weight of the load and the frequency of the carrying operation. Read off the risk banding on the graph on page 8 and enter the colour band and numerical score on the score sheet. If the colour band is purple the task should be examined very closely, such operations may represent a serious risk of injury and should come under close scrutiny, particularly when the entire weight of the load is carried by one person.

B Hand distance from the lower back

Observe the task and examine the horizontal distance between the operative's hands and their lower back. Always assess the 'worst case scenario'. Use the following illustrations to guide your assessment:

**C Asymmetrical trunk/load**

The operative's posture and the stability of the load are risk factors associated with musculoskeletal injury. The following illustrations should guide your assessment.



D Postural constraints

If the operative's movements are unhindered, the colour band is green and the numerical score is 0. If the operative adopts restricted postures during the carry (eg a narrow doorway making the operative turn or move the load to get through) the colour band is amber and the numerical score is 1. If the posture is severely restricted, the colour band is red and the numerical score is 3 (eg carrying loads in a forward bent posture in areas with low ceilings such as cellars).

E Grip on load

| GOOD | REASONABLE | POOR |
|---|---|---|
| G/0 | A/1 | R/2 |
| Containers with well-designed handles or handholds, fit for purpose | Containers with poor handles or handholds | Containers of poor design. Loose parts, irregular objects, bulky or difficult to handle |
| Loose parts enabling comfortable grip | Fingers to be clamped at 90 degrees under the container | Non-rigid sacks or unpredictable loads |

F Floor surface

| Dry and clean floor in good condition | Dry floor but in poor condition, worn or uneven | Contaminated/wet or steep sloping floor or unstable footing |
|---------------------------------------|---|---|
| G/0 | A/1 | R/2 |

G Other environmental factors

Observe the work environment and score if the carrying operation takes place: in extremes of temperature; with strong air movements; or in extreme lighting conditions (dark, bright or poor contrast). If one of the risk factors are present score 1, if two or more of the risk factors are present score 2.

H Carry distance

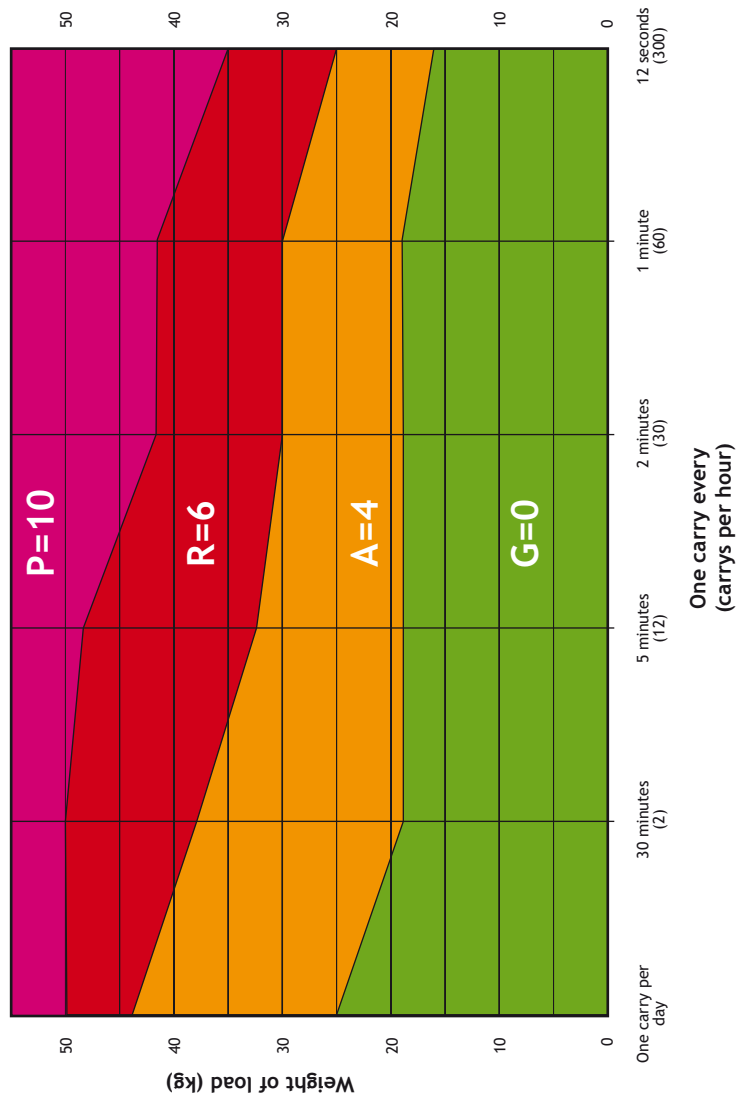
Observe the task and estimate the total distance that the load is carried (not the distance 'as the crow flies').

I Obstacles en route

Observe the route. If the operator has to carry a load up a steep slope, up steps, through closed doors or around tripping hazards, the coloured band is amber and the numerical score is 2. If the task involves carrying the load up ladders, enter 'R' (red) for the colour band and 3 for the numerical score. If the task involves more than one of the risk factors (ie a steep slope and then up ladders) total the scores on the score sheet. Enter the ladder height data and/or the angle in the task description box on the score sheet.



Load weight/frequency graph for carrying operations



One carry every
(carries per hour)

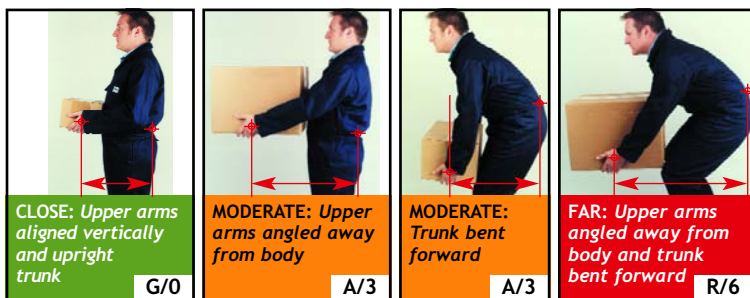
ASSESSMENT GUIDE FOR TEAM HANDLING OPERATIONS

A Load weight

Note the weight of the load and the number of operatives performing the task. Enter the colour band and numerical score on the score sheet. If the colour band is purple the task should be examined very closely, such operations may represent a serious risk of injury and should come under close scrutiny, particularly when the entire weight of the load is supported by the team.

B Hand distance from the lower back

Observe the task and examine the horizontal distance between each operatives' hands and their lower back. Always assess the 'worst case scenario'. Use the following illustrations to guide your assessment:

**C Vertical lift region**

Observe the position of the operatives' hands at the start of the lift and as the lift progresses. Always assess the 'worst case scenario'. Use the following illustrations as a guide:



D Trunk twisting and sideways bending

Observe the operatives' trunks as they lift the load. If the trunk twists in relation to the hips and thighs or if the operatives lean to one side as the load is lifted, the colour band is amber and the numerical score is 1. If the trunk both twists AND bends to the side as the load is lifted, the colour band is red and the numerical score is 2.

E Postural constraints

If the movements of the operatives are unhindered, the colour band is green and the numerical score is 0. If the operatives adopt restricted postures during the lift because of the space available (eg narrow space between team members) or the workstation design (eg an excessively high monorail conveyor), the colour band is amber and the numerical score is 1. If the postures are severely restricted, the colour band is red and the numerical score is 3 (eg work in confined areas such as baggage holds).

F Grip on load

| GOOD | REASONABLE | POOR |
|---|---|---|
| G/0 | A/1 | R/2 |
| Containers with well-designed handles or handholds, fit for purpose | Containers with poor handles or handholds | Containers of poor design. Loose parts, irregular objects, bulky or difficult to handle |
| Loose parts enabling comfortable grip | Fingers to be clamped at 90 degrees under the container | Non-rigid sacks or unpredictable loads |

G Floor surface

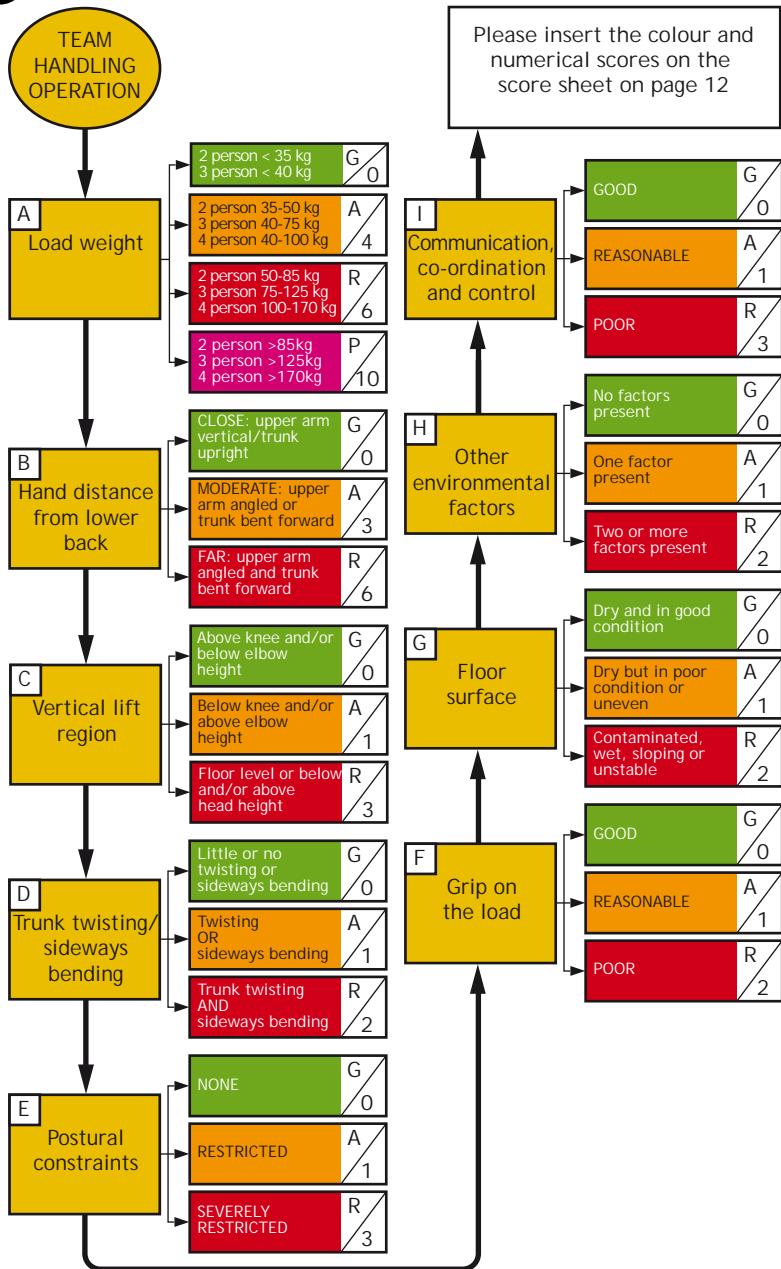
| Dry and clean floor in good condition | Dry floor but in poor condition, worn or uneven | Contaminated/wet or steep sloping floor or unstable footing |
|---------------------------------------|---|---|
| G/0 | A/1 | R/2 |

H Other environmental factors

Observe the work environment and score if the lifting operation takes place: in extremes of temperature; with strong air movements; or in extreme lighting conditions (dark, bright or poor contrast). If one of the risk factors are present score 1, if two or more of the risk factors are present score 2.

I Communication, co-ordination and control

Communication between the operatives is essential when lifting as part of a team. Examples of good communication would be that you may hear the operatives counting 'one, two, three' etc prior to the lift. Look to see if the team have control of the load, that it is lifted smoothly, and that all members lift together. An uncoordinated team lift may leave one member of the team bearing the entire weight.



MAC: Score sheet

Company Name: _____

Task Description: _____

Are there indications that the task is high risk?
(Tick the appropriate boxes)

- Task has a history of manual handling incidents (eg company accident book, RIDDOR reports).
- Task is known to be hard work or high risk.
- Employees doing the work show signs that they are finding it hard work (eg breathing heavily, red-faced, sweating).
- Other indications, if so, what? _____

Date: _____

Signature: _____

| Risk factors | Colour band (G, A, R or P) | | | Numerical score | | |
|--|-------------------------------|-------|------|-----------------|-------|------|
| | Lift | Carry | Team | Lift | Carry | Team |
| Load weight and lift/carry frequency | | | | | | |
| Hand distance from the lower back | | | | | | |
| Vertical lift region | | | | | | |
| Trunk twisting/sideways bending | | | | | | |
| Asymmetrical trunk/load (carrying) | | | | | | |
| Postural constraints | | | | | | |
| Grip on the load | | | | | | |
| Floor surface | | | | | | |
| Other environmental factors | | | | | | |
| Carry distance | | | | | | |
| Obstacles en route (carrying only) | | | | | | |
| Communication and co-ordination (team handling only) | | | | | | |
| Other risk factors, eg individual factors, psychosocial factors etc (see website - address on page 13) | | | | | | |
| TOTAL | | | | | | |
| SCORE: | | | | | | |

FURTHER READING

Manual handling. Manual Handling Operations Regulations 1992. Guidance on Regulations L23 (Second edition) HSE Books 1998
ISBN 0 7176 2415 3

Upper limb disorders in the workplace HSG60 (Second edition)
HSE Books 2002 ISBN 0 7176 1978 8

Further information on the MAC, including on-line training, can be found at
www.hse.gov.uk/msd

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For information about health and safety ring HSE's Infoline Tel: 0845 345 0055 Fax: 0845 408 9566 Textphone: 0845 408 9577 e-mail: hse.infoline@natbrit.com or write to HSE Information Services, Caerphilly Business Park, Caerphilly CF83 3GG.

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

This leaflet is available in priced packs of 10 from HSE Books, ISBN 0 7176 2741 1. Single free copies are also available from HSE Books.

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