

Inspection Pack - Musculoskeletal Disorders

February 2007

MSD INSPECTION PACK CONTENTS

1 BACKGROUND INFORMATION AND STATISTICS	3
1.1 Nature of the problem	3
1.2 MSD programme	3
1.3 What are musculoskeletal disorders and where are they are found?	3
2 INSPECTION - Guidance	4
2.1 Focusing on MSDs	5
2.2.1 Avoidance/control	5
2.2.2 Instruction and training.....	6
2.2.3 Management commitment/worker involvement	6
2.3 Managing cases of MSD and staying active with back pain	6
2.4 Obtaining specialist help.....	9
3 MSD Inspection aide memoire	10
4 ENFORCEMENT GUIDANCE AND LEGAL REQUIREMENTS	11
4.1 Avoidance/control enforcement policy	11
4.2 Instruction and training enforcement policy	12
4.3 Management commitment/worker involvement enforcement policy	12
4.4 Managing cases of MSD and staying active with back pain enforcement policy.....	12
4.5 Aide memoire of law for risk control indicators 1 and 2	13
4.6 Manual Handling Operations Regulations 1992 (as amended), (MHOR).....	15
5 CONTROL MEASURES AND REFERENCE MATERIAL.....	16
6 ENFORCEMENT NOTICES EXAMPLES/ TEMPLATES.....	46
6.1 Cautionary note	46
7 INSPECTION CHECKLISTS.....	54
7.1 Manual handling risk factors.....	54
7.2 Manual handling risk factors.....	54
7.3 WRULD and DSE risk factors.....	55
7.4 Manual Handling Improvements – Avoidance and Control	57
7.5 WRULD Improvements - Avoidance and Control	59
8 - Manual handling assessment Charts, (MAC), and EMM - OC 313/4.....	61

1 BACKGROUND INFORMATION AND STATISTICS

1.1 NATURE OF THE PROBLEM

Musculoskeletal disorders (MSDs) are the most common occupational illness in Great Britain. A number of surveys of self-reported work-related illness have been carried out in conjunction with the Labour Force Survey to gain a view of work-related illness based on personal perceptions. The results presented here are taken from the 2004/05 survey. SWI04/05 shows: 11.6 million working days (full-day equivalent) were lost through MSDs caused or made worse by work. On average, each person suffering took an estimated 20.5 days off work in that 12 month period.

Back pain - about 45% of work-related musculoskeletal disorders (WRMSDs) mainly affect the back accounting for an estimated 4.5 million working days (full-day equivalent) lost. On average, each person suffering took an estimated 17.4 days off work in that 12 month period. Upper limb disorders - about 37% mainly affect the upper limbs or neck. On average, each person suffering took an estimated 21.7 days off in that 12 month period. Lower limb disorders - about 18% mainly affect the lower limbs.

1.2 MSD PROGRAMME

HSC/HSE have identified MSDs as a priority. They affect large numbers of people across most industries and occupations. They have the potential to ruin people's lives and they impose heavy costs on employers and society.

The key messages are:

- you can do things to prevent or minimise MSDs
- the prevention measures are cost effective
- you cannot prevent all MSDs, so early reporting of symptoms, proper treatment and suitable rehabilitation is essential.

1.3 WHAT ARE MUSCULOSKELETAL DISORDERS AND WHERE ARE THEY ARE FOUND?

Musculoskeletal disorders (MSDs) are problems affecting the muscles, tendons, ligaments, nerves or other soft tissues and joints. The back, neck and upper limbs are particularly at risk. There are many conditions including low back pain, tennis elbow and carpal tunnel syndrome. Acute symptoms may arise as a result of an identifiable event such as unaccustomed and/or intense physical exertion resulting in pain and loss or restriction of movement, for example sprains and strains. Alternatively, there may be a more gradual onset of symptoms, with initial tingling, then slight swelling or soreness which may persist and gradually worsen.

Unlike most other workplace health issues, back pain and other MSDs commonly happen outside the work environment and then can be made worse by work. Whatever their cause they can impair ability to work at normal capacity. MSDs are often caused by, or made worse by, work activities. Initially sufferers may adopt new ways of performing tasks, or adapt tools to reduce discomfort, perhaps avoiding use of an affected limb and thus putting strain on other joints. Hence the need for prompt reporting of symptoms so that early intervention can take place to ensure an individual gets the right support and help from their employer (such as temporary modified duties or adaptations to their workplace) for them to manage their condition.

Risk factors causing MSDs can be found in virtually every workplace from commerce to agriculture, health services to construction. Please see section 7.1 and 7.2 for a comprehensive lists of risk factors

2 INSPECTION - GUIDANCE

The MSD inspection should include:

- identification and avoidance/control of significant risk.
- encouraging the management of sickness absence and return to work, (MSARTW), and
- promotion of the Better Backs “Stay active” message.

Material from the Better Backs campaign could be used to support the inspection (nb this is not a comprehensive list of all guidance (see Section 5):

Sheet 1 “Stay active” – this sheet promotes the advice that staying active helps you manage your back pain and your life. It is evidence based advice, supported by health professionals.

<http://www.hse.gov.uk/msd/campaigns/pdf/stayactive.pdf>

Sheet 2 “A short guide to managing sickness absence” – gives practical advice about how to help back pain sufferers remain at or return to work and compliments the advice in “Stay active”.

<http://www.hse.gov.uk/msd/campaigns/pdf/managingsickness.pdf>

Sheet 3 “Managing sickness absence and return to work – practical advice for employers and managers” provides a summary of HSG249.

<http://www.hse.gov.uk/msd/campaigns/pdf/managingabsence.pdf>

Sheet 4 “Managing the risks from manual handling” - sets out a simple approach to working together to manage handling and back pain.

<http://www.hse.gov.uk/msd/campaigns/pdf/managingrisk.pdf>

Sheet 5 “Manual handling assessment charts (MAC) FAQs” - answers basic questions about MAC.

<http://www.hse.gov.uk/msd/campaigns/pdf/mac.pdf>

Sheet 6 “Manual handling training courses” – shows what a good training course would cover.

<http://www.hse.gov.uk/msd/campaigns/pdf/trainingcourses.pdf>

“Lifting aids price guide” gives guide prices for purchase/hire of the lifting/handling aids shown in INDG398. <http://www.hse.gov.uk/msd/campaigns/pdf/priceguide.pdf>

INDG398 “Are you making the best use of lifting and handling aids?” illustrates handling aids and contains a selection checklist for employers. <http://www.hse.gov.uk/pubns/indg398.pdf>

“Getting to grips with manual handling” INDG143 (rev 2) gives help on assessment, pushing and pulling, handling technique and law. <http://www.hse.gov.uk/pubns/indg143.pdf>

“Manual handling assessment charts, (MAC)” INDG 383. is a basic traffic light tool to help assess the risk from lifting, carrying and team lifting operations. <http://www.hse.gov.uk/pubns/indg383.pdf>

“Manual handling inspection checklist for safety representatives” is endorsed by TUC and available in electronic form only. <http://www.hse.gov.uk/msd/campaigns/pdf/manualhandling.pdf>

Managing sickness absence and return to work: a practical guide for safety representatives –is endorsed by TUC and available in electronic form only.

<http://www.hse.gov.uk/msd/campaigns/pdf/sickness.pdf>

2.1 FOCUSING ON MSDS

Focus on MSD where there may be significant risk. In deciding whether significant risk could be present:

- Consider activities highlighted in Section 5 of this pack;
- Look at the work and discuss other tasks to identify where potential risks are/could be present. The use of adapted tools, furniture, wrist supports, bandages etc. indicates possible upper limb disorder risks. Talk to staff to identify “difficult jobs”, symptoms or illness;
- Discuss management of sickness absence and return to work and examine records for evidence of MSD problems.

In the absence of specific guidance material it may be necessary to operate from first principles to determine the relevant risk factors and degree of risk. This can be assisted by:

- the manual handling risk assessment chart (MAC), INDG 383, to examine manual handling tasks involving lifting, team lifting, carrying. (OC 313/4 “Manual Handling Assessment charts, (MAC) reproduced in section 8, and EMM,” which gives guidance on the application of the EMM to manual handling risks.) **Please note that MAC should not be applied to patient/client handling;**
- the assessment tool in HSG 60 rev, issued 2/2002, Upper limb disorders in the workplace to examine tasks with WRULD risks. HSL are researching an ULD assessment traffic light tool which may be available for 2007/8.
-
- the risk factor lists in Sections 7.1 –7.3
- reference to the duty holder’s assessment
- seeking specialist advice (see section 2.4)

2.2 MSD RISK CONTROL INDICATORS

Effective MSD management requires an holistic approach encompassing workplace precautions, staying active with back pain and managing cases of MSD (which includes MSARTW). There are 3 evidence based Risk control indicators, (RCIs), which reflect workplace and organisational factors. These are avoidance/control, instruction/training and management commitment /worker involvement. Although they have no RCIs, managing sickness absence and return to work, (MSARTW) and staying active with back pain should also be promoted during the inspection because they are important elements in tackling MSDs.

2.2.1 AVOIDANCE/CONTROL

Significant MSD risk very well controlled little lifting or low unit weights; few repetitive activities; and appropriate task design, work equipment selection and layout; mechanical aids/mechanisation.

Are Risks Being Avoided/Adequately Controlled?

Control information can be found in the generic and sector specific tables in Section 5 listing tasks, reasonably practicable controls and references and in Sections 7.3 and 7.4. The use of handling aids is a fundamental avoidance/control measure especially for SMEs, where the handling activities may be infrequent and the avoidance of risk less practicable. Their use should normally be discussed during inspection.

Remember to ask whether MSD risks are considered when purchasing materials, equipment etc to prevent new problems being introduced.

2.2.2 INSTRUCTION AND TRAINING

Clear instructions/training appropriate to task for significant risks; employee awareness concerning risk factors and early symptom reporting, safe systems of handling, use of controls/workstation adjustment, risk assessors trained and provision of periodic refresher training. Training should be complimentary to engineering controls, not in place of them. Manual handling may be necessary for an interim period before engineering solutions can be introduced, or to deal with residual risk, in which case training appropriate to those tasks should be given.

Guidance concerning the content of a good manual handling training course is set out in Sheet 6 listed in section 2.0 above.

Training provided for those at risk of ulds should include risk factors associated with the work being done, control measures to reduce risks, potential symptoms and systems in place to report them.

For those using DSE workstations training should include health and safety relating to their workstations and other measures required to comply with the DSE Regulations eg control measures, work routine, eye tests etc.

2.2.3 MANAGEMENT COMMITMENT/WORKER INVOLVEMENT

Managers and workers actively involved in addressing significant MSD risks eg set aims; assess risk; avoid/control; monitor progress; review; change where needed.

When inspecting the self-employed this section does not apply - please tick the “not applicable” box on Inspection Report Form 1, (IRF1)

Consider whether employers are committed to tackling MSD risks and whether they are working in active partnership with workers to do this. See Section 3.1, inspection aide memoire,for examples.

Management Commitment

Whilst employers have duties to manage health and safety there is no specific duty concerning commitment. Management commitment goes beyond MHSWR compliance..Research indicates that commitment is fundamental to successful WRMSD management.

Worker Involvement

Involving workers is at the heart of sensible health and safety management and is especially important in managing MSDs. It is good practice to actively involve them in identifying and solving MSD problems and also in the management of any cases of MSDs. See the aide memoire in section 3 and sheet 4 in section 2.0 for examples of worker involvement.

2 information sheets, one an inspection checklist and the other on MSARTW were produced in consultation with TUC as part of Better Backs for use by safety representatives. Please see links in section 2 above.

2.3 MANAGING CASES OF MSD AND STAYING ACTIVE WITH BACK PAIN

These elements of MSD management are not recordable as an RCI but should normally be included in inspection. Staying active advice should be restricted to back pain and **not** generally promoted for ULDs or LLDs where the position is more complex and medical advice should be sought. 80% of us suffer back pain in our lifetime, possibly from leisure, work or even normal activities. Most of us will get it more than once. Managing such cases is important.

There is much that can be done to prevent MSDs but you cannot prevent them all so appropriate management of cases i.e. early reporting of symptoms, correct diagnosis, proper treatment and suitable rehabilitation, is essential for both employers and employees. The advice on managing sickness absence and return to work is generic and therefore applicable to MSDs as a whole, however duty holders may still need professional advice to manage individual cases.

Staying active with back pain

As staying active with back pain is normally the best action for back pain sufferers to take, it is very important to promote this message. Back pain is not generally caused by serious disease or damage though sufferers should see their doctors when worried or where the pain persists or suddenly gets worse. People who cope the best are those who stay active, get back to work quickly and get on with their normal lives, despite the pain. What you do in the early stages of back pain is very important. For some people, it can be very painful. However, rest for more than a day or two usually doesn't help and may prolong the pain and make things worse. There's been a radical shift in thinking about treatment for back pain in the last decade. The old-fashioned treatment for back pain was to rest and wait for the pain to go away. We now know from studies around the world that:

- Most spells of back pain will get better on their own;
- It's bad to stay in bed;
- The best treatment is to stay active;
- It's important to carry on with normal activities, including getting back to work, even if the pain hasn't completely gone;
- Getting miserable about it just makes things worse.

This is the advice you'll hear from medical organisations, GPs, patient groups, occupational health professionals, chiropractors and osteopaths.

Guidance concerning Stay active is given in Sheet 1 listed in section 2.0 above .

Managing sickness absence and return to work, (MSARTW)

Managing sickness absence and return to work (MSARTW) is an important element in holistic MSD management and should be part of MSD inspection even though it is not compliance based. Without early intervention in cases of sickness absence due to MSDs many individuals will remain off work and may not return. There is good evidence for effective interventions in managing the return to work for people with back pain, however the evidence base for lower limb and upper limb disorders is less well developed and in such cases advice from a health professional will probably be necessary.

For guidance concerning MSARTW see Sheets 2 and 3 and the safety representative MSARTW sheet listed in section 2.0 above .

The benefits both to organisations and their employees from managing sickness absence and helping people back to work are compelling (www.hse.gov.uk/sicknessabsence/index.htm). This is regardless of whether the condition is work related or not, and the size of the organisation.

Large organisations may have MSARTW systems in place to help rehabilitate employees or examine and deal with patterns and trends in absence. Small and medium sized businesses are less likely to have a MSARTW system in place and could be most at risk financially from the absence of key workers. They are also less likely to be aware of some of the benefits that can accrue from developing such systems. Therefore it is recommended that inspectors raise the subject of MSARTW whenever looking at management of MSDs.

Engaging with duty holders on MSARTW:

There is no legal requirement for employers to assist employees who are off work sick. However, not managing sickness absence and return to work will leave many workers without the support

necessary to enable them to return to and remain in work. There is already a well-established body of good practice for managing sickness absence and return to work that employers can use and Inspectors can advise upon.

Inspectors should begin by building a picture of how an employer manages sickness absence and to identify problem areas. The following questions to duty holders can help to do this:

- What is your annual sickness absence rate?
- Do you know how much sickness absence costs your organisation?
- Do you record and measure all sickness absence?
- Can you identify overall trends/patterns/problems in sickness absence?
- Do you know/record what sickness absence is work related, or would be exacerbated by an individual's usual work activities?
- What procedures do you have for dealing with sickness absence?
- Are these set out in a policy or system that everyone in the organisation knows about and understands? If not – have you considered the advantages of setting this out (both for you and your employees)?
- Do you have established arrangements for obtaining specialist occupational health advice? If not, do you know where to access this help?

Where problems exist with MSARTW in relation to MSDs, Inspectors should bring to the employer's attention the guidance HSE has published on managing sickness absence and return to work (HSG249), which is applicable to small and medium sized enterprises, and encourage them to implement the 6 elements involved in line with their business needs:

1. Record and analyse sickness absence
 2. Keep in contact with those off sick
 3. Plan and implement workplace adjustments
 4. Make use of professional and other advice and treatment
 5. Agree and review a Return to Work plan
 6. Co-ordinate the Return to Work process
- (Detailed explanation of each element can be found in HSG249)

Simple changes to workplace tasks to reduce manual handling (pushing, lifting and working in awkward postures) can let workers with back pain return to their original job before they are 100% fit. Medical evidence shows that by staying active, workers' backs will get better faster. Return to work modifications should be transitional temporary arrangements to assist the early return of the individual. These adjustments are not permanent. If risk factors are present that require changes for prevention of ill health that is a separate matter as these would be permanent and may apply to a group of workers. Workplace modifications that allow them to return to work can also help stop back pain in the first place. Taking a passive role and not managing back pain, but waiting for a pain free period before considering normal activities and work often results in chronic problems that are much harder, but not impossible, to remedy.

SMEs are unlikely to have any system for managing sickness absence as this will normally be a rare occurrence for them, but they should be encouraged to adopt the good practice set out in INDG399 so that they can manage cases as they arise.

Inspectors who deal with the Public Services, will be aware of the guidance on the Well Managed Organisation, that has been published by the Ministerial Taskforce on Health, Safety and Productivity, HSE and the Cabinet Office and which sets out guidance for Boards, HR Directors and Senior Managers on taking a 'whole systems' approach to reducing sickness absence and managing healthy attendance.

2.4 OBTAINING SPECIALIST HELP

LA inspectors, please seek all advice via the Enforcement Liaison Officer (ELO) system in the normal manner.

HSE staff contact SG ergonomics staff direct:

ERGONOMICS			
Ahmad, Yasmeen	Glasgow	521 3090	07770 822134
Gray, Mike	Sheffield	514 2464	07768 554128
Milnes, Ed	Rose Court	522 6113	07795 451545
Monnington, Simon	Cardiff	511 3087	07798 881999
Quarrie, Chris	Bootle	523 3052	07768 553872
Tapley, Sarah	Chelmsford	507 6258	07879 661799
Tootle, Katie	Bootle	523 3989	07768 553990

SG occupational health inspectors via the Principal Specialist Inspectors listed below:

Scotland - Nancy Hamilton 0131 247 2100 VPN 520 2100

North West, Yorks & North East - Linda Shelmerdine 0161 952 8296 VPN 516 8296

Midlands, Wales & South West - Pat Sanderson 0115 971 2878 VPN 513 2878

London, East & South East - Julie Wood 0125 640 4134 VPN 502 4134

Sector specific advice eg re industry standards from the relevant FOD sector

MSD enforcement advice and queries about this topic pack via Health at Work (HAW), MSD team.

HSE sectors and the MSD team need feedback from operational staff to maintain their knowledge base. Eg case studies re unusual MSD controls/problems, employers promoting the stay active message, active employer/worker partnership in managing MSARTW.

LA feedback is also needed via the ELO system.

3 MSD INSPECTION AIDE MEMOIRE

Aim of inspection: To focus on MSD issues where there is significant risk and take action to reduce it and to promote staying active with back pain and MSARTW

Consider manual handling, (MH), upper limb disorders (ULDs) and display screen equipment, (DSE)

Is there a significant risk? Consider the evidence:

- Work in progress, adapted tools/furniture, wearing of bandages/supports
- Talk to staff to identify difficult jobs and symptoms
- Generic and industry info in MSD Topic pack Section 5
- Sickness absence, accident book, RIDDORs

If YES - address those activities which present significant risk focusing on the risk control indicators below

RISK CONTROL INDICATORS:

Avoidance / control	Instruction and training	* Management commitment / worker involvement	** MSARTW / Managing MSD cases and staying active with back pain
Identify risk factors to be controlled by:	Is it suitable /sufficient		Duty holder should:
- your knowledge and experience	- adequate for task & individual	Commitment shown by:	Recognise/manage MSDs, including injury MSARTW with: early symptom reporting, referral to health practitioner where necessary and management of return to work
- MAC assessment tool (for MH)	- does it include MSD risk factors eg MH, task, load, environment, capability	- positive ownership of identifying and controlling MSD risks and MSARTW / managing MSD cases	
- HSG 60 rev tool (for ULDs)	- knowledge of symptoms and need for early reporting		Encourage employees with back pain to stay active And review risk assessment/controls for: individual case, others doing the task
- risk factors for MH, ULDs, DSE in App 1	- trained in safe systems of work to avoid risk	Active partnership to manage risk eg both involved to:	
- specialist advice	- workstation adjustment, use of controls & lifting aids included	- plan, assess risk, write procedures, investigate and manage MSD cases	
- employer's assessment	- safe lifting techniques	- monitor performance	
Are risks being controlled?	- risk assessors trained	- review	
- generic/industry solutions, App 2	- refresher training		

* best practice ** largely best practice

4 ENFORCEMENT GUIDANCE AND LEGAL REQUIREMENTS

4.1 AVOIDANCE/CONTROL ENFORCEMENT POLICY

The presumption of issue of an enforcement notice where this RCI is 4 applies but see below and check sector guidance.

Template Notices can be found in section 6 of this pack.

Risk of Injury

To determine whether there is a significant risk, consider the evidence - see aide memoire. individual cases of injury, (which could be complicated by sports injuries etc), should not be used as supporting evidence but a pattern of injuries/ill health would support other evidence of risk.

Manual handling

Please see OC 313/4 “Manual Handling Assessment charts, (MAC), and EMM,” which gives guidance on the application of the EMM to manual handling risks. (See Appendix 8) It is based on evidence concerning back pain from frequent and heavy lifting and links it to the Manual Handling Assessment charts (MAC). Personal capabilities should be considered when using the MAC tool and it should not be applied to moving patients/clients (where sector advice should be applied).

Consider Prohibition Notices where the handling/lifting operations produce a MAC score in the purple zone (for load weight/frequency) and reasonably practicable controls are available. Specialist ergonomic advice should be sought concerning the issue of all Prohibition Notices except where explicitly supported by relevant sector specific guidance.

Consider Improvement Notices where there is evidence of significant uncontrolled risk from manual handling and reasonably practicable controls are available. Check the controls table and seek sector/specialist advice if needed.

For pushing and pulling activities specialist advice should be sought.

Repetitive handling

HSG 60 rev includes a risk assessment filter which enables logical consideration of the risk prior to completion of a detailed assessment or risk factors. HSE ergonomists are currently working on a traffic light tool to assist in the assessment of ULD risks.

For upper limb disorder risks inspectors may need advice from ergonomists on a case-by-case basis, regarding the actual risk and benchmark in order to apply the Enforcement Management Model, (EMM). See Section 2.4 about obtaining further advice and specialist help.

WRULD risk factors which need to be considered can be:

- Task related — repetition, working posture, force, duration of exposure;
- Environment related — working environment and psycho social factors; and
- Worker related — individual differences.

For lower limb disorder risk assessment seek specialist advice.

4.2 INSTRUCTION AND TRAINING ENFORCEMENT POLICY

A risk control indicator score of 4 would normally tend towards enforcement action, especially where reliance has to be placed on training as part of measures to deal with significant residual MSD risk.

Consider Improvement Notices where there is no or very inadequate training or instruction for tasks presenting significant manual handling risk. This is particularly important where reliance has to be placed on training as part of the measures to deal with significant residual risk, ie which cannot be avoided/controlled (eg by use of handling aids or other engineering controls).

4.3 MANAGEMENT COMMITMENT/WORKER INVOLVEMENT ENFORCEMENT POLICY

Management commitment/worker involvement are being examined as best practice and are not compliance based so a risk control indicator score of 4 does not require enforcement action.

Active workforce involvement in MSD management in the manner described in this pack goes beyond the duties in HSW Act 1974, MHSWR 1999, Safety Representatives and Safety Committees Regulations 1977 and the Health and Safety (Consultation with Employees) Regulations 1996.

4.4 MANAGING CASES OF MSD AND STAYING ACTIVE WITH BACK PAIN ENFORCEMENT POLICY

It is partly compliance based and partly advisory.

Managing a case may involve re-assessing the workplace risks and precautions. The general duties under HSW Act to protect the health of employees and the specific requirements of MHOR concerning individual capability, (Schedule 1), can extend to adapting work activities to rectify WRMSD risks, accommodate ongoing symptoms or effects of illness or injury, and prevent such symptoms or effects worsening or recurring. Businesses should be encouraged to use occupational and other health services. At present valid techniques do not exist which reliably indicate the early onset of specific MSDs so **MHSWR 1999 health surveillance is not enforceable.**

Specialist (occupational health and ergonomist) and operational policy advice (via the MSD team) should be sought before enforcement action is considered in relation to workplace adaptations. MSARTW and the stay active with back pain message are advisory matters.

4.5 AIDE MEMOIRE OF LAW FOR RISK CONTROL INDICATORS 1 AND 2

Law/risk control indicator	Avoidance and Control			Assessment	Instruction/training
	Manualhandling	ULDs	DSE		
Manual Handling Operations Regs 1992 (as amended)	R 4(1)(a) avoid -sfrp R 4(1)(b)(ii) control –llrp R 4(3) factors re risk/control	Often na *1	-	R 4(1)(b)(i) R 4(3) Schedule 1	Not specific reqt.*2 But see R4(3)
Health and Safety Display Screen Equipment Regs 1992 (as amended)	-	R 2, 3 + Schedule, 4 and 5. R3 amended applies to all work stations which may be used – not just to use by "users" (Misc Amendment Regs 2002)		R2	R6 and 7
Health and Safety at Work etc act 1974	S 2, 3 and 6			S 2 and 3	S 2 and 3
Management of Health and Safety at Work Regs 1999	N/A generally.*3	R 4 - principles of prevention	N/A generally.*3	N/A generally.*3 R3(1)	R 10 and 13
Workplace (Health, Safety and Welfare) Regs 1992	R 7(1) Temperature in workplaces in buildings to be reasonable R 11(1) -Workstations to be suitable R 11(3) -Suitable seat to be provided R 12(2) -Floors not to be uneven, slippery etc if causes risk to h & s			-	-
Provision and Use of Work Equipment Regs 1998	R 4(1) & R 4(2)- Selecting work equipment - consider ergonomic risks R 4(3) – Work equipment to be used only for operations for which suitable and will not affect h & s R 5 - Work equipment to be maintained in efficient order etc			-	R 8(1) -adequate h & s information re the use of work equipment
Personal Protective Equipment Regs1992	R 4(3(b)) - PPE not suitable unless it takes account of ergonomic requirements			-	-
Supply of Machinery (Safety) Regs	R12(1) Schedule 3 Essential safety requirements 1.1.2 ergonomic principles in design, 1.1.5 design to facilitate handling			-	-
Working Time Regulations 1998	R8 – Where pattern of work that employer organises puts worker at risk – eg monotonous or work rate predetermined – ensure adequate rest breaks			-	-

*1 MHOR NA unless involves a load. Implements, tools and machines are not loads while used for intended purpose. (But material on them would be. See para 15, P6, L23)

*2 There is not a **specific** legal requirement for instruction and training in MHOR, may use R4(1)(b) (ii) as part of steps to reduce risk. This is supported by R4(3).

*3 Where **overlap** with MHOR then MHSWR is not applied, see notes P1, L21 MHSWR 1999. Use if no overlap eg operation is outside definition of manual handling or MHOR assessment does not cover **all** significant risks (which go beyond scope of MHOR).

4.6 MANUAL HANDLING OPERATIONS REGULATIONS 1992 (AS AMENDED), (MHOR)

MHOR are structured/worded in a complex manner. Check carefully that they apply to the situation being examined. Where tasks are not just manual handling but include risk of WRULDs then HSW Act is often applied because tools or machines in use are not loads, see paragraph 15 of booklet L23.

“Manual handling operations” means any transporting or supporting of a load (including the lifting, putting down, pushing, pulling, carrying or moving thereof) by hand or by bodily force.”

Manual Handling Operations Regulations 1992 (as amended)	
R 4(1)(a)	sfrp <u>avoid</u> the need to undertake MHO which involve a risk of injury
R 4(1)(b)(i)	(where it is not rp to avoid) — make suitable and sufficient assessment of MHO (having regard to factors in Schedule 1, Columns 1&2)
R 4(1)(b)(ii)	(where it is not rp to avoid) — take appropriate steps to reduce risk... to lowest level reasonably practicable AND
R 4(1)(b)(iii)	take appropriate steps to provide... employees ... with general indications (and where it is reasonably practicable to do so precise information) on... the load
R 4(2)	assessments to be reviewed — validity, significant change and make changes where required
R 4(3) (Misc Amendment Regs 2002)	<p>R 4(3) applies when:</p> <p>(1) considering whether a MH operation "involves a risk of injury" and</p> <p>(2) determining appropriate risk reduction measures</p> <p>and requires regard to be paid to:</p> <p>physical suitability of employees; clothing/footwear/personal effects they are wearing; their knowledge and training; the result of any relevant risk assessment under MHSWR 1999 including whether they are identified by that assessment as being especially at risk; and the results of any health surveillance under MHSWR Reg 6.</p>

5 CONTROL MEASURES AND REFERENCE MATERIAL

This section includes information for use by Local Authority and HSE Inspectors. It comprises generic and sector / industry examples including those applicable to both HSE and Local Authority enforced premises. There is also information on managing sickness absence and return to work which is applicable across all sectors. Please note that these groupings are not mutually exclusive as tasks, activities and controls can be applicable to several areas eg the deliveries and handling section contained in the Local Authority enforced list.

Managing sickness absence and return to work

Managing sickness absence and return to work	General Guidance
Applicable across all sectors	<p>HSG 249 Managing sickness absence and return to work: An employer's and manager's guide</p> <p>INDG 397 Off sick and worried about your job? Steps you can take to help your return to work (web version: www.hse.gov.uk/pubns/indg397.pdf).</p> <p>Leaflet Web02 Working together to prevent sickness absence becoming job loss: Practical advice for safety and other trade union representatives (web version: www.hse.gov.uk/pubns/web02.pdf).</p> <p>Further information on managing sickness absence available at www.hse.gov.uk/sicknessabsence/</p>

CONTROL MEASURES AND GUIDANCE

GENERIC EXAMPLES OF ACTIVITIES			
Task	Activity	Examples of reasonably practicable control measures	General Guidance
Bag/Sack handling/feeding material	Manual stacking and de-stacking, carrying and discharge.	Conveyors, vacuum lifting devices, bulk storage and transfer, scissor lifts, bag splitters, trolleys, minimise lifting heights, reduce unit weights	<p>L23 Manual Handling: Guidance on the Regulations</p> <p>INDG 383 Manual Handling Assessment Charts – MAC</p> <p>OC 313/4 Manual Handling</p>
Barrel, drum, cylinder handling	Carrying and manipulating by hand to point of use/storage.	Bulk storage tanks and piped systems, cylinders transported in carry cage by hoist/trolley, tail lift, fork truck etc drum attachment, reduce unit weights	

GENERIC EXAMPLES OF ACTIVITIES			
Task	Activity	Examples of reasonably practicable control measures	General Guidance
Unit weights where smaller units could be used or are being promoted	Raw materials and products etc packaged/designed in heavy unit weights.	Bulk storage and transfer or reduce unit weights	Assessment Charts (MAC) and EMM IND(G)143rev2 Getting to Grips with Manual Handling: A Short Guide for Employers.
Pushing/pulling	Loading vessels, furnaces, ovens, machines, setting machines	Trolleys, roll cages etc design eg larger wheels, improved bearings reduced friction guides, maintenance. Properly designed handles to containers. Maintain flooring to remove bumps, potholes etc and design door threshold etc ramps with gentle slope. Star wheeled trolleys where steps.	INDG 398 Are you making the best use of lifting and handling aids HSG115 Manual Handling: Solutions You Can Handle
Storing/warehousing /order picking /Delivery	Manual picking of mixed loads or single items.	Automation. Storage takes account of handling needs. Space for mechanical aids. Use of mobile platforms and order pickers. Gravity feed racking to avoid unnecessary reaching. Use a tool to move packages to front of shelf. Arrange items given their size and weight to allow easy reaching and sensible postures. Manual picking heavier loads from waist height, only light goods above head height. Turntables to rotate pallets etc, tilting and variable height tables. Packages have handles See also delivery section in LA list below.	OC 313/2 (rev) The Manual Handling Operations Regulations HSG121 A Pain in Your Workplace: Ergonomic Problems and Solutions HSG60 rev Upper Limb Disorders in the Workplace
Assisting or moving people or handling animals	People, for example being helped with their mobility or undergoing treatment, and handling animals.	People - see Public sector programme on MSD. Assisting disabled or incapacitated passengers at airports - see section on Transport. Animals - see section on agriculture.	INDG 90 (rev 2) Understanding ergonomics at work INDG 171(rev 1) Aching arms (or RSI) in small businesses (rev1)
Packing /picking/ assembly	Repetitive tasks assembling, finishing, boxing products etc	Workbenches and component etc holders dimensions, height and angle adjustable, turntables, rollers, workpiece supports. Adequate lighting for fine assembly work etc.	

GENERIC EXAMPLES OF ACTIVITIES			
Task	Activity	Examples of reasonably practicable control measures	General Guidance
Handtools etc	Hand finishing wruld risks and lifting /carrying of heavy hand tools	Good ergonomic design of tools to reduce grip force, twisting etc, counterbalanced, well maintained. Adequate power to Reduce additional force/awkward posture by user. e.g. ensuring powered screwdrivers are suited to the task - handle orientation, pistol grip or cylindrical grip, avoids excessive wrist bending when the tool is used in the direction required by the work and set up so it doesn't impart excessive torque which then has to be countered by the user.	Handle with Care: Assessing musculoskeletal risks in the chemical industry - ISBN 0 7176 1770 X L26 Work with display screen equipment
DSE use	Typing/ word processing. Handling of bulk deliveries paper.	Furniture adjustable, suitable lighting window blinds, users trained to adjust work equipment.	HSG90 The law on VDUs An Easy Guide INDG36 rev 1 Working with VDUs
Office activities	Office moves. Drinking water.	Store consumables near point of use, use trolleys etc.. Plan handling aspects of office moves or furniture changes, use trolleys, furniture skids etc. Consider handling aspects of office work during office design. Water bottles avoid by using piped supply to cooling point, smaller containers, use of trolleys	OC 202/1 The DSE Regulations HSG 57 Seating at Work.
Maintenance and cleaning tasks	Tools, spare parts, supporting heavy items. Cooling tower consumables, disinfectants. Cleaners' machines.	Store tools, spares and consumables near point of use, consider cleaning needs during design eg provide fixed access to reduce need for carrying access equipment. Cleaning products bulk delivery. Handling/carrying aids for cleaners.	HSG 38 Lighting at Work HSG 137 Health Risk Management: A Practical Guide for managers in SMEs
Carrying	Carrying boxes, sacks and other containers and individual large items/equipment etc	Provide mechanical aids, wheeled trolleys, conveyors, carrying handles.	Good Health is Good Business - employers guide Phase 4 MISC 196 INDG242L In the driving seat INDG385 Take a fresh look at health and safety

CONTROL MEASURES AND GUIDANCE

LOCAL AUTHORITY ENFORCED SECTOR			
Task	Activity	Examples of reasonably practicable control measures	Guidance
<p>Some examples of tasks and controls for the LA enforced sector are set out below. Many of these are also applicable to work activities also enforced by HSE staff. Please also see the generic section above. Other examples applicable to the LA enforced sector may also be found in the industry sections which follow. Most notably these are in food, construction, engineering, metals and woodworking. Operational Circulars (OCs), Sector Information Minutes (SIMs) are available to LA inspectors via Enforcement Liaison Officers.</p>			<p>LAC 56/1 MHOR 1992 LAC 16/1, 2 and 3 DSE Regs 1992</p>
Deliveries and handling by supplier /retailer etc	General	Planned deliveries and agreed offloading arrangements between customer and supplier. Provision of suitable equipment, eg tail hoist, fork truck, crane, ramp, trolleys etc. Shelf stacking and stock taking using adjustable height handling aids. Arrange items given their size and weight to allow easy reaching and sensible postures.	<p>INDG 379 Health and Safety in Road Haulage HSG196 Moving Food and Drink</p> <p>FIS31 Reducing injuries caused by sack handling in the food and drink industries</p> <p>FIS33 Roll cages and wheeled racks in the food and drink industries – Reducing manual handling injuries</p>
	Security industry handling bulk coins	Use of wheeled trolleys. Minimisation of height through which bags are raised/lowered.	
	Barrel and crate handling Public Houses cafes/leisure facilities	Use of delivery vehicle hoists, ramps, cellar hoists and ramps, trolleys	<p>LAC 56/3 Manual Handling in beer delivery</p> <p>HSG 119 Manual Handling in drinks delivery</p>
	Glass	Glass handled using vacuum lifting frames, trolleys and hand tool suction devices. Appropriate protective clothing.	LAC 34/4 Glass handling storage and transport
	White goods and TVs.	Design storage to enable use of lifting aids. eg demonstration platforms in retail sector ramped or flat to floor. Wheeled trolleys and two person lifting used where practicable. Carrying handles provided on loads. Heavy end of load marked. Use of vehicle tail hoists and ramps, trolleys, star wheel trolleys for stairs and TV handling trolleys where appropriate.	SIM 05/2004/14 MSD risks from manual handling of TV sets.

LOCAL AUTHORITY ENFORCED SECTOR

Task	Activity	Examples of reasonably practicable control measures	Guidance
	Mattresses	Mattresses handled using trolleys, conveyors, trailer with loading hoist, team lifting. Delivery still problem area where vehicles single person operated.	
	Carpets	Carpets handled using fork trucks with carpet boom, trolleys, carpet hoists in retail and warehouse premises. Delivery still a problem area.	Furniture distribution: warehouse to delivery brief guide for inspectors.
	Furniture removals/relocation	Use of wheeled trolleys and team lifting. Minimisation of slope inclines. Still a problem area.	http://www.hse.gov.uk/movinggoods/furniture.pdf
	Tyres	Use of conveyors to transport tyres between levels. Control stock heights. Use powered pedestrian operated trucks to assist moving large tyres	SIM 03/2005/12: Industry guidance tackling the risks of manual handling injuries in tyre collection and delivery of tyres: A practical Guide HSE. http://www.hse.gov.uk/mvr/handlingtyres.pdf
	Steel stockholding	Written delivery plans, and use of hoists, cranes, fork trucks.	LAC 56/5 Safe unloading of steel stock: sector initiative 2001/3 LAC 56/7 Safe delivery of metal stock – written delivery plans LAC 56/8 Contribution to 2002/3 HSE Priority Topics on MSD and Transport reducing injuries in metal stock handling and storage.
Transport/haulage	Road haulage industry This also falls to HSE, e.g. deliveries to docks, airports, construction sites and factories	Provision of handstraps on lorries. Manual operation of trailer legs on HGVs (non-manual systems are available for trailer legs). Proper training. Good maintenance.	

LOCAL AUTHORITY ENFORCED SECTOR			
Task	Activity	Examples of reasonably practicable control measures	Guidance
Catering and hospitality industry		<p>Storage designed to enable use of handling aids. Storage of items at appropriate height. Break down of heavy loads into smaller units for manual handling. Use of trolleys / other lifting aids where practicable.</p> <p>Use of dumb waiters to reduce lifting and carrying. Use of trays on folding legs. Training for waiter/ess on lifting.</p>	<p>LAC 31/8 New HSE Publications on reducing manual handling injuries in the food and drink industries</p> <p>LAC 31/10 Revitalising actions in catering and hospitality</p> <p>HSG 196 Moving food and drink,</p> <p>CAIS 24 : Preventing back pain and other aches and pains to kitchen and food service staff.</p>
Residential care		<p>Design of premises where practicable to facilitate access and use of lifting, handling and assisting aids. Stair hoist or passenger lift between floors. Provision of equipment such as hoists, bath seats, stand aids, turntables, slide sheets, emergency-lifting cushion. Appropriate floor surfaces for wheelchairs. Care plans take account of individual mobility needs. Provision of sliders or wheels to furniture to assist movement. Use of self help aids such as handrails, support rails, Care should be taken in the selection of handling aids which take into account clients' rights to autonomy, privacy and dignity. See health sector guidance.</p>	<p>HSG 225 Handling Home Care</p> <p>SIM 07/2006/05 Public sector programme 2006/07: Musculoskeletal disorders (MSD) in the health services</p>
Repetitive work	Checkout handling of goods	<p>Checkout designed to reduce risk</p> <p>Other areas are distribution where envelope stuffing,</p>	LAC 58/1 Supermarket checkouts and MSDs.
DSE	Call centre working Office Banks	<p>Appropriate workstation design, DSE, building environment (including layout, temperature, humidity, lighting, space), work period - length and frequency of breaks, organisational working practices, training in MSD risk, workstation set up, changing posture etc.</p>	<p>LAC 94/1 Advice regarding call centre working practices.</p> <p>Report in preparation on Merseyside Call Centre Project</p>
Window cleaning	Window cleaning: Erection of ladders. Use of cleaning poles.	<p>Use cleaning cradles to avoid manual handling associated with ladders.</p> <p>Proper training. Good maintenance. Use of ladderless cleaning systems.</p>	

CONTROL MEASURES AND GUIDANCE

AGRICULTURE			
Task	Activities	Examples of reasonably practicable control measures	General Guidance
Bag/Sack handling/ feeding material	Loading 50kg sacks into drills/ spreaders, slug pellets, etc.	Where not reasonably practicable to change unit size. Use of mechanical handling for pallets which are stored on trailers/ or at a convenient height to aid loading of spreader/drill.	<p>Agriculture: AS23(rev3) - Manual handling solutions for farms</p> <p>Video: 'Back on the Farm – farm lifting solutions' 2001 ISBN0 7176 1866 8</p> <p>Forestry/arboriculture:</p> <p>INDG145 - Watch your back: avoiding back strain in timber handling and chains work</p> <p>Video: 'Watch your back – Avoiding back strain in chainsaw work' 1992 ISBN 0 7176 2021 2</p> <p>See also the manual handling guidance on the agriculture communities site</p>
	Adding feed and other admixtures in mill and mix units	Induction hoppers at low level to avoid lifting/do not extend so high as to require bags to be lifted. Do not compromise distance guarding where mesh/grilles are not practicable. Change to bulk system with mechanical handling/augers.	
	Bagging off feed from mill/mixer units for transfer to animals	Switch to bulk/mechanical handling in place of bags eg bulk bins/feeder wagons or use automatic dispensing for animals wearing transponders. Mechanise by providing access for bucket loader and in-pen feed/tote bins. Ensure good access to outlet chute of mixer units at suitable height. Reduce weight of bags. Provision of tractor mounted transport box, barrows and carts to transport bags. Pallet cages may be useful.	
	Handling peat bales in horticulture	Should only be handling by two people using a short section of rope as a sling under the bale at 1/3 distance from end. Alternatively, change to bulk systems.	
	Feeding wood chippers	Arboriculture System of work to ensure risings are cut up into pieces less than 25 kg.	
Barrel, drum, cylinder handling	Antifreeze, oils, silage additives in 200 ltr barrels, gas cylinders	Proprietary trolleys and decanting pumps, drum handling attachment on FLT.	
	Dairy chemicals	Install automated systems for bulk tank and milking machine washing. Decanting pumps or racked on their sides with decanting taps.	
	Fuelling combines in the field	Use a fuel bowser to replace 25 litre drums lifted manually to fuel tank.	
Unit weights	Animal feed concentrates	Source supply of bagged feeds unit weights of 25 kg or less.	
	Wearing parts - ploughs etc	Reduce pack sizes for parts and use lifting equipment to install larger items.	
	Animal lick blocks	Select products less than 25 Kg for manual handling or greater than 80 Kg for mechanical handling only.	

AGRICULTURE			
Task	Activities	Examples of reasonably practicable control measures	General Guidance
Pushing/ pulling	Calving cows	Delivery assisted with use of a calf aid ('calf puller' or 'calving jack') or change to breeds that can calf unaided.	
	Rolling out big round bales	At large units consider mechanisation with an automated unwrapper or straw chopper. Tractor mounted silage pusher can be used to push nosed out silage/hay to the feed barrier.	
	Moving Danish Trolleys	Use a purpose made trailer for moving DTs over long distances or for heavy plants.	
	Gates	Fit long gates with wheels to take the weight or install gates with pedestrian pop holes. Fit motorised doors or other gate automation eg powered shutters. Adjust hinges and latches to enable gates to be secured without lifting.	
	Sweeping yards/drives	Tractor or telehandler mounted sweeping attachments or pedestrian controlled machine for smaller areas.	
	Barrows of feed	Change to bought-in feed, stored in tote bins and distributed through flexible augers or other mechanical handling.	
Storing/ warehousing	Front tractor weights	Provide rack for storage of weights at convenient height (eg, horizontally mounted section of RSJ). Weights attached to a frame lifted on and off by FLT or as a unit attached to three point linkage.	
	Palleting bagged up potatoes	Sack elevator from the bag stitcher to palleting point. Pallets raised off ground (by placing additional pallet underneath) or preferably mounted on a revolving platform to aid loading. Pallets moved by FLT or pallet truck.	
Packing/ picking	Fruit, vegetables, eggs & mushrooms	Where automation not reasonably practicable, many factors need to be considered (m/c pacing, payment, environmental conditions, training etc.). Use mobile packing trailers where hand harvested items are loaded onto conveyors for transfer to the unit. For boxes packed on the ground ensure minimum carrying with frequent collection points.	
Handtools etc.	Harvesting and preparation of vegetables	Work environment, station design, tool design, job rotation.	
	Pot placing on wide benches	Horticulture long handled tools to reduce reaching over benches.	
	Chain saws in forestry	Formal training: breaker bar to lever trees, team handling/ winches for heavy sections of timber, saw horse for log work.	
	Brush cutters/strimmers	Harness to support the machine during use, or use ride-on brush cutter.	

AGRICULTURE			
Task	Activities	Examples of reasonably practicable control measures	General Guidance
Maintenance and cleaning tasks	Tractor wheel changing.	Mechanical wheel handler as free standing unit or attachment on lift truck.	
	Lifting/ supporting m/c parts	Workshop gantry, engine hoist, mobile crane, transmission jack, mini tractor lifts, axle stands and other proprietary lifting equipment.	
	Mucking out enclosed spaces with a fork	Keep animals in another area. Increase frequency of clearing out to prevent consideration of muck. Alter access to building to allow mechanised clear out. Use skid steer loader or compact tractor.	
	Mucking out in low buildings	Use compact telehandlers and machines with low-level cab eg cab height less than 2 metres to pass below beams or a pedestrian controlled loader	
Awkward loads (incl. animals)	Casting sheep, foot trimming	Sheep turnover crate. Use light -weight aluminium hurdles and portable systems where permanent facilities are unavailable.	
	De-horning or tagging calves	Eliminate by using chemical paste or use proprietary de-horning crate to secure calf. For catching a calf in the field eg for tagging, use a proprietary calf catching/holding system.	
	Moving calves/piglets	Use a calf trolley. If adapted so that both axles pivot and linked with a track rod, front and rear wheels follow the same turning circle, an advantage in confined spaces (same for other applications).	
	Belly clipping cattle	Use good husbandry techniques to avoid cattle becoming dirty. Use handling system with appropriate crush. Long handled clippers may help.	
	Removing dead stock eg pigs from crates	Use mini/compact tractor with winch.	
	Dealing with "downer" cows	Use cow lifting harness or net attached to tractor or FLT.	
	Transporting livestock	Livestock trailer with light-weight aluminum deck/ramp or pneumatic lift for the ramp/tailgate.	
	Dry stone walling	Lever stones out of ground into transport box and raise to suitable work height. Use powered barrows and mini diggers.	
	Fencing work	Use tractor/skid steer-mounted post-hole digger/auger and hydraulic/mechanical post knocker. As a minimum, knock in posts from a raised position (eg standing on trailer). Tractor or trailer mounted wire dispensers are available.	
Carrying	Small bales /feed bags	Store near point of use. Use mechanical assistance, eg tractor mounted transport box, trolleys, barrows for distance transport and traditional aids such as pitchforks, bale hooks etc for handling.	

AGRICULTURE			
Task	Activities	Examples of reasonably practicable control measures	General Guidance
	Collecting small bales in the field	Tow a bale sledge behind baler. Handle/stack bales with a flat eight attachment on tractor/telehandler. Bales collected by self-loading accumulator.	
	Handling large square bales	Straw chopper for spreading or use mechanical loader to break off sections and load onto a trolley for transfer into building or use large bale trolley to move bale to where needed.	
	Feeding stock in the field	Use feed spreader/snacker feeder drawn by ATV to replace handling 25 kg bags/troughs.	
	Placing paper/feed for chicks	Use ATV or tractor drawn chick feeder to lay paper and feed.	
	Littering in poultry houses	Use tractor or FLT mounted dispenser for shavings or other bedding materials. Self-propelled or ride-on machines available for cow cubicles.	
	Handling and moving timber	Timber tongs and pulp hook when putting cord wood into bundles for mechanical haulage by forwarder.	
	Bale wrap/net rolls	Position rolls at a suitable height for lifting/carrying to avoid need to lift from ground level. Use two-person lift for loading rolls of net wrap.	
	Buckets of milk for calves	Use a bucket carrying aid or switch to automatic calf feeding machine.	
	Irrigation pipes	Use purpose designed trailer for pipes.	
	Moving container plants	Use small four wheeled trailers linked together to form a land train and pulled by compact tractor, or use a self-propelled cart.	
	Transporting growing plants in horticulture	Use a proprietary roller table system to move plants around the nursery. Roller tables can be moved on rails by battery-powered carts. For transporting plants for cut flower production as above, but with trolleys moved mechanically around the glasshouse and packing shed, the drive system can be a combination of electric motors and air driven supports/guides.	

CONTROL MEASURES AND GUIDANCE

CONSTRUCTION			
Task	Activities	Examples of reasonably practicable control measures	Guidance
Unit weights	Building blocks	Specify/use lightest block possible (less than 20 kg), transport pallets by mechanical means as close as possible to point of use.	<p>CIS 37 Handling Heavy Blocks</p> <p>HSG149 Backs for the Future Safe Manual Handling in Construction</p> <p>HSG 150 Health and safety in construction</p> <p>HSL Report - Musculoskeletal problems in bricklayers, carpenters and plasterers - Literature review and results of site visits.</p>
	Bagged products	Obtain all bagged products to be manually handled in sacks weighing a maximum of 25kg, or obtain in bulk and handle mechanically (see above).	CIS 26 Cement
	Handling kerbstones, coping stones and paving stones	Transport and lay by mechanical means where reasonably practicable (eg pneumatic kerb laying machines where sufficient quantity being laid). Provide lifting aids; ensure adequate access for lifting aids etc. Specify /use lightest available product where manually handled.	CIS 57 Handling kerbs: reducing the risk of musculoskeletal disorders (MSDs)
Handtools	Wiring up rebar	Use specialist tool available.	
Maintenance and cleaning tasks	Work in confined spaces/ awkward postures.	Design equipment with handling requirements in mind, maintain clear access and provide suitable access equipment.	
Repetitive tasks and awkward tasks	Bricklayers, Plasterers, Carpenters	Materials provided at suitable height and provide suitable access platforms	
Carrying	Scaffold tubes, boards and fittings	Position vehicle near workplace, use gin wheels.	
Carrying and handling	Plaster board	<p>Design work to eliminate handling need and maintain access or allow mechanical handling as close to operation as possible.</p> <p>Use proprietary board handling and manipulation devices to position board prior to fixing.</p>	

CONSTRUCTION			
Task	Activities	Examples of reasonably practicable control measures	Guidance
Pushing/ pulling	Use of wheel barrows	Avoid use of wheelbarrows by using conveyors to move materials/waste; pump fluid materials such as cement. Where wheelbarrows are used ensure flat surfaces by boarding out and laying paths and do not overload.	

CONTROL MEASURES AND GUIDANCE

CERAMICS, GLASS, CONCRETE			
Task	Activities	Examples of reasonably practicable control measures	Guidance
Bag/Sack handling/ feeding material	Loading ceramic body preparation m/cs (blunger, mixer, pug mill, etc.)	Lifting aids for large containers of products, vacuum lifters for bagged materials, inclined conveyors for charging large pug mills and other machines.	CERAMICS Picking up the Pieces (CERIAC) Manual Packing of Bricks INDG332 GLASS SIM 03/2002/50 - MSD and Manual Handling in the Glass Industries GGF Health and Safety Manual
	Handling bags of cement, aggregate etc.	Lifting aids for large containers of products, vacuum lifters for bagged materials.	
	Handling plate glass (feeding m/cs, stacking etc)	Vacuum lifting devices for large sheets. Essential for employees manually lifting sheets to be provided with suitable PPE.	
Barrel, drum, cylinder handling	Barreled additives, pottery glazes	Large wheeled trolleys designed to wheel and tip drums. Maintain floors	
	Additives to Concrete mixes (self compacting chemicals)	Large wheeled trolleys designed to wheel and tip drums. Maintain floors.	
Unit weights	Raw materials	Use smallest container possible, or only receive loads in bulk which can only be moved by machine.	
Pushing/ pulling	Loading and unloading pug mills, filter presses, kilns, furnaces. Setting m/cs etc.	Inclined conveyors, pallets to place under filter presses, trolleys with large wheels. Power driven kiln car movers (eg winches), well-maintained floors and tracks. Maintain wheels and bearings on manual kiln cars.	

CERAMICS, GLASS, CONCRETE			
Task	Activities	Examples of reasonably practicable control measures	Guidance
Storing/ warehousing /order picking	Selection or inspection of pottery ware, finished products	Well designed work stations, proper seats, avoidance of drafts, good heating.	
Packing/ picking/ assembly	Brick packing (heavy clay and concrete)	Where automation not reasonably practicable, multiplicity of factors need to be taken account of (eg machine pacing, payment schemes, environmental conditions, training etc.).	
Handtools etc.	Fettling & decorating of pottery ware & articles	Work station design, tool design, job rotation.	
	Concrete finishing, trowels and floats	Long handled tools to reduce reaching over moulds.	
Maintenance and cleaning tasks	Filter sock changing.	Design equipment with handling requirements in mind, lifting gantries.	
	Kiln car maintenance tasks (wheels etc.)	Work stations and handling aids suitable for kiln car maintenance.	
	Tool/mould changing on presses, making machines, extruders, etc.	Design tools/equipment with handling requirements in mind, lifting gantries.	
	Cleaning spillage from conveyors	Vacuum methods.	
	Dismantling machinery for cleaning	Design considerations eg guard clearance, space around when machines at installation.	
Awkward loads	Plate glass	Vacuum lifting devices for large sheets. PPE for employees manually lifting sheets.	
	Sanitary ware	Use trolleys, handling devices, overhead gantries etc..	
	Concrete	Lifting aids and trolleys for smaller finished products	
Carrying	Plate glass	Vacuum lifting devices for large sheets. PPE for employees manually lifting sheets.	

CERAMICS, GLASS, CONCRETE			
Task	Activities	Examples of reasonably practicable control measures	Guidance
	Sanitary ware	Avoid long carry distances by using trolleys, handling devices, overhead gantries etc.	

CONTROL MEASURES AND GUIDANCE

ENGINEERING			
Task	Activity	Examples of reasonably practicable control measures	Guidance
General handling	Blasting media	Specify supply of blasting grit in sacks of 25 kg or less.	<p>HSG 129 Health and safety in engineering workshops (pages 12 to 15)</p> <p>SIM 03/2002/16 Safety in steel and other metal stockholders</p> <p>SIM 03/2002/07 Contribution to 2002/03 HSE Priority Topics on MSD and Transport Reducing Injuries in Metal Stock Handling and Storage</p> <p>INDG 313 Safe unloading of steel stock</p> <p>SIM 03/2002/08 Contribution to 2002/03 HSE Priority Topic on MSD Progress with Sector Priority on Reducing Manual Handling Injuries in the Engineering Industries</p> <p>EIS16 Preventing injuries from the manual handling of sharp edges in</p>
	Loading machining centres	Lifting aids for large components, Job design to reduce the number of transfers.	
	Guillotines/body presses	Vacuum lifting devices for large sheets, roller tables. Essential for employees manually lifting sheets to be provided with suitable PPE	
Barrel, drum, cylinder handling	Cutting fluids and hydraulic oil in bulk drums. Lubricating oils	Large wheeled trolleys designed to wheel and tip drums. Maintain floors. Pumped distribution systems from central tank store where practicable.	
	Cutting and welding gases	Large wheeled trolleys; Maintain floors. Good housekeeping to maintain clear working space to allow easy handling	
Bobbin/reel handling/movement	Loading/unloading of machinery in cable and wire industries	Powered trucks with appropriate attachments ie pole lift trucks. Pneumatic assistors for moving large reels. Reduce physical effort moving large reels by providing steel floor surface, using floor-mounted sliding plates/turntables, reel turning skate placed under a flange of a drum, height adjustable reel transporting trolleys, L – shaped bars or levers with a "T" shaped handle at one end can be used to move and manoeuvre heavy reels.	
Handling of lubricant (soap powder)	Filling of soap boxes on wire drawing machines.	Use bulk lubricant containers placed on a stand under which wheelie bins are placed for storing the lubricant and transporting it to where it is needed in the factory.	
Unit weights	Component bins in assembly operations	Use the smallest container possible, or alternatively only receive loads in bulk which can only be moved by machine etc.	
Pushing/pulling	Loading and unloading	Plan steel stock deliveries to avoid "barring off", use of FLT's/sideloaders	

ENGINEERING			
Task	Activity	Examples of reasonably practicable control measures	Guidance
Storing/ warehousing / order picking	Finished products and also MVR premises parts departments.	Well designed work stations, proper seats, avoidance of draughts, good heating	the engineering industry
Assembly/ packing	Assembly especially in electric/electronics and automotive sub- assemblies.	Automated board population, jigs and holders to allow ergonomic working. Where automation not reasonably practicable, multiplicity of factors need to be taken account of (eg machine pacing, payment schemes, environmental conditions, training etc.)	
Handtools etc.	Assembly especially in automotive sub- assemblies.	Work station design, tool design, job rotation (as a last resort!)	
Maintenance and cleaning tasks	Tool changing on CNC machining centres	Design tools/equipment with handling requirements in mind, lifting arms can be fitted to avoid the need to reach into the machine.	
	Cleaning swarf from machining centres	Automatic systems to remove swarf rather than manually scraping. Conveyor systems to remove to large disposal skip.	
	Dismantling machinery for cleaning	Design equipment with handling requirements in mind eg guard clearance, space around machines at installation stage.	
Awkward loads	Large body panels, eg lightweight aircraft components.	Vacuum lifting devices for large sheets. PPE for employees manually lifting sheets.	
	Large automotive parts eg axles, wheels	Manipulators and handling devices, overhead gantries etc.	
Carrying	Sharp edges of metal sheets.	Vacuum lifting devices for large sheets. PPE for employees manually liftingsheets.	
	All finished products	Avoid long carry distances by using trolleys, handling devices, overhead gantries, roller conveyors etc.	

CONTROL MEASURES AND GUIDANCE

FOOD			
Task	Activity	Examples of reasonably practicable control measures	Guidance
Bag/sack handling/feeding material	Feeding mixing machines. Unloading shipping containers.	Replace sacks with bulk storage arrangements. Mechanical handling - conveyors, vacuum bag lifters, scissor lifts, automatic bag splitters. Reduce sack weights	Food Information Sheet (FIS) 31 'Sack handling'
Barrel, drum, cylinder handling	Oils and other ingredients	Replace drums - bulk storage. Mechanical handling - wheeled trolleys etc Reduce drum weights	HSG196 Moving food and drink
	Beer and drinks delivery to retail premises	Delivery vehicle – full-length side lift (eg Whitbread FBD delivery vehicle), various designs of hoist/gantry hoist, tail lifts, wheeled trolleys. Retail premises - cellar lift.	HSG119 MH in drinks delivery. HSG196 see above (FIS) 23 Manual handling in food/drink BLRA Guidance booklet (Subject File 525, see OC525/2).
Unit weights	Sacks, boxes, drums.	Reduce unit weights to 25 kg or below	FIS 23 and 31 . HSG196 see above
	Drinks deliveries retail	Reduce barrel/keg sizes delivered to retail premises	HSG119 see above
Pushing/pulling	Wheeled trolley transport around factory and in/out of ovens and freezers. Deliveries off-site	Larger wheels (esp. on rough concrete or outside). High quality castors, eg stainless steel castors with PTFE spindle bushes. Proper handles at appropriate working height. Good maintenance.	FIS 23 see above FIS 33 Roll Cages and wheeled racks in the food and drink industries: reducing manual handling injuries. HSG196 see above
Live awkward loads	Slaughtering	Proper penning and segregation. Space to carry out work. Safe systems of work and training.	BMMA Guidance Notes

FOOD			
Task	Activity	Examples of reasonably practicable control measures	Guidance
Packing /picking/ assembly	Food production lines - packing biscuits, cakes, sandwiches, ready meals etc	Automation. Job design/layout. Reduce rate of work and/or job rotation.	FIS 23 and HSG196 . SIM 01/2005/08 Musculoskeletal Disorders in Traditional Cheesemaking
Handtools etc.	Meat, poultry fish and veg preparation. Cake icing.	Good ergonomic design of knife/sharp knife. Job rotation. Cake turntables, powered icers.	FIS 23 and HSG196 see above BMMA Guidance Notes British Poultry Meat Federation: Guidance on work related upper limb disorders in poultry processing.
Carrying	Boxes/containers of product.	Wheeled trolleys. Conveyors. Reduce unit loads.	HSG196 see above

CONTROL MEASURES AND GUIDANCE

METALS			
Task	Activity	Examples of reasonably practicable control measures	Guidance
Bag/Sack handling/ feeding material	Additives, sand etc mainly at investment casting	Trolleys for moving sacks and vacuum lifting aids for loading sand raining machines etc	Best practice guidance to be incorporated in FIAC Target Initiative during 2003/4. Inspectors kept up to date by issue of SIMs.
Barrel, drum, cylinder handling	Resins for sand binder systems, hydraulic oil etc	Large wheeled trolleys designed to wheel and tip drums.	
Pushing/ pulling	Castings in trolleys, sand bins etc; loading/unloading heat treatment furnaces	Roller conveyors for transfer to furnaces etc, trolleys for individual items. Even floors	

METALS			
Task	Activity	Examples of reasonably practicable control measures	Guidance
Storing/ warehousing / order picking	Picking up/examining castings in warehouse, eg dispatch or quality checks	Weight suitable for operator. Bins at convenient heights to avoid excessive bending, use of tilting/self-levelling bins (with drop-down sides).	
Packing /picking/ assembly	Stacking and packing of ingots	Mechanical aids used. Work practices reviewed to implement job rotation etc to avoid excessive repetitive actions.	
Handtools etc.	Fettling tools, including heavy grinders (swing frame)	Counterweighted heavy fettling tools. Rotation at swing frame grinders. Proprietary manipulators and/or rotating benches to avoid turning and rotating heavy castings during fettling. Jibs and lifting aids to place castings on fettling benches etc.	
Maintenance and cleaning tasks	Mould changes at foundry moulding machines	Lifting aids incorporated in machines.	
Carrying	Boxed moulds, heavy castings, large core boxes, ingots, pig iron, ladles during casting	Roller conveyors, lifting aids - Or change to boxless moulds (if commercially viable). Palletisation of moulds allows use of FLT. Moulds weights designed with lifting points to allow mechanical handling.	

CONTROL MEASURES AND GUIDANCE

METALS MISC			
Task	Activity	Examples of reasonably practicable control measures	Guidance
Barrel, drum, cylinder handling	Scrap metal: handling gas bottles	Normal precautions, eg use of trolleys	British Metals Federation Health and Safety Manual
Pushing/ pulling	Scrap metal: sorting, pushing/pulling various metal items	Mechanical lifting aids, heavy duty trolleys	
Handtools etc.	Scrap metal: tools used in breaking, - sledgehammers	Mechanical breakers, burning tools (where possible - fire risk!)	

METALS MISC			
Task	Activity	Examples of reasonably practicable control measures	Guidance
Carrying	Scrap metal and waste Carrying irregular loads	Mechanical lifting aids, heavy duty trolleys	SIM 03/2002/58 Musculoskeletal disorders and manual handling in foundries
	Foundries	Mechanical lifting devices	
Sorting waste on conveyors	Waste Industry Material recycling facilities (MeRFs)	Conveyor system designed to suite operators, correct height, no over reaching, speed controlled by operator etc. Practise –ve/+ve picking to reduce exposure.	

CONTROL MEASURES AND GUIDANCE

PRINTING AND PUBLISHING			
Task	Activity	Examples of reasonably practicable control measures	Guidance
	Transporting and handling of reels	Use of a lifting aid. E.g. a reel trolley	http://www.hse.gov.uk/printing
	Transporting and handling of paper sheets	Use of a mechanical handling aid. E.g. a pallet truck	
	Loading and unloading guillotines	Use of lifting aids. E.g. Scissor lifters and high lift pallet trucks.	
		Air fed table	
	Knocking up of sheets and paper stacking	Use of a jogging table	
	Pile turning	Use of a pile turner	
	Print finishing (various tasks)	Various good practice controls	Printers guide to health and safety 2 nd edition. Chapter 4, pages 62-67
	Handling newspaper/periodical bundles	Maximum bundle weight agreement in production and delivery chain	Free Leaflet IACL 105 Handling the news: Advice for employers on manual handling of bundles.

PRINTING AND PUBLISHING			
Task	Activity	Examples of reasonably practicable control measures	Guidance
			Free Leaflet IACL 106 Handling the news: Advice for newsagents and employees on safe handling of bundles.

PAPER			
Task	Activity	Examples of reasonably practicable control measures	Guidance
	Sorting recovered paper, feeding additions into pulper	Semi-automatic handling systems, workstation design, lifting aids	Manual Handling in Paper Mills (ISBN 0717608018) INDG392 Guidance for the recovered paper industry
	Transporting and handling of reels/bales	Automatic or semi-automatic handling system, clamp trucks, AGV, semi-automatic de-wiring	Manual Handling in Paper Mills (ISBN 0717608018) INDG392 Guidance for the recovered paper industry
	Reelsplitting	Work-rest regimes, reel splitters	
	Paper Broke removal	Safe systems of work - plant design, automatic broke detection	Manual Handling in Paper Mills (ISBN 0717608018)

CONTROL MEASURES AND GUIDANCE

PLASTICS AND RUBBER			
Task	Activity	Examples of reasonably practicable control measures	Guidance
	Polymer granule feeding of moulding machines	Vacuum filling of hoppers from low level bins.	SIM 03/2003/63 Re EMM and falls from height loading feed hoppers plastics. http://intranet/operational/sims/manuf/3_03_63.htm

PLASTICS AND RUBBER			
Task	Activity	Examples of reasonably practicable control measures	Guidance
	Handling sacks of powders	Change to bulk delivery, reduce sack weight, height adjusting tables, vacuum lifts, sack trolleys, tables and platforms, job rotation	Manual handling in the rubber industry (ISBN 0 71762566 8)
	Handling bales of rubber compound	Vacuum lift or pronged hoist	Video: Handling rubber – Reducing manual handling injuries in the rubber industry (ISBN 0 7176 1854 4)
	Working at a two roll mill	Use a stock blender, use a conveyor to transfer compound from mill to calender	Manual handling in the rubber industry (ISBN 0 71762566 8) Video: Handling rubber – Reducing manual handling injuries in the rubber industry (ISBN 0 7176 1854 4)
	Transporting and handling of reels of film	Mechanical hoists, lift trucks, trolleys, tables and platforms	
	Loading sheets of rubber compound into mixer – sticking together	Use either waxed cotton or plain/dimpled plastic sheets to separate layers. Use low platforms or height adjustable pallet tables	Manual handling in the rubber industry (ISBN 0 71762566 8)
	Rolls of material	Arrange storage of material to allow mechanical handling, provide roller conveyors, specifically designed hand trolleys, booms for lift trucks.	Video: Handling rubber – Reducing manual handling injuries in the rubber industry (ISBN 0 7176 1854 4)
	Lifting moulds in and out of moulding machines and loose mould presses	Use lift trucks and hoists. Fit height adjustable table directly in front of the press. Top and centre sections can then be lifted individually. Improve design of mould.	

PLASTICS AND RUBBER

Task	Activity	Examples of reasonably practicable control measures	Guidance
	Handling tyre casings during retreading, stacking, delivery and collection.	Variety of lifting aids available for use in premises and on vehicles e.g. automatic tyre lifters – see guidance for details.	<p>Manual handling in the rubber industry (ISBN 0 71762566 8)</p> <p>Video: Handling rubber – Reducing manual handling injuries in the rubber industry (ISBN 0 7176 1854 4)</p> <p>INDG 380 Tread safely: A guide to health and safety in the tyre retread industry</p> <p>SIM 03/2005/12 Industry Guidance tackling the risks of manual handling injuries in tyre collection and delivery: A practical guide</p> <p>Collection and delivery of tyres: Tackling risk of manual handling injuries: A practical guide. http://www.hse.gov.uk/mvr/handlingtyres.pdf</p>
	Handling sheets of foam rubber	Use a palletiser and lift trucks	<p>Manual handling in the rubber industry (ISBN 0 71762566 8)</p> <p>Video: Handling rubber – Reducing manual handling injuries in the rubber industry (ISBN 0 7176 1854 4)</p>

CONTROL MEASURES AND GUIDANCE

QUARRIES			
Task	Activity	Examples of reasonably practicable control measures	Guidance
Bag/Sack handling/ feeding material	Bagging industrial minerals, aggregates,	Use of auto bagging and palletising, Lifting aids, vacuum lifters for bagged materials, conveyors, forklifts etc for container loading.	HS(G) 149 Backs for the future.
	Handling bags of additives etc. for processing plants.	Lifting aids for large containers of products, vacuum lifters for bagged materials	
Barrel, drum, cylinder handling	Barrelled additives, oils, chemical additives.	Replace with bulk stores, Large wheeled trolleys designed to wheel and tip drums Maintain floors	
Unit weights	Raw materials	Use the smallest container possible, or alternatively only receive loads in bulk which can only be moved by machine etc.	
Pushing/ pulling	Loading and unloading various machines.	General precautions eg Inclined conveyors, trolleys with large wheels, well maintained floors and tracks.	
Storing/ warehousing /order picking	Spare parts etc.	Well designed work stations, lifting aids, tyre handlers.	
Packing /picking/ assembly	Packing slate etc.	Where automation not reasonably practicable, multiplicity of factors need to be taken account of (eg. machine pacing, payment schemes, environmental conditions, training weight of loads, etc)	
Handtools etc.	Hand drilling	Use drill rigs, air legs etc.	
Maintenance and cleaning tasks	Filter sock changing.	Design equipment with handling requirements in mind, lifting gantries.	
	Cleaning spillage from conveyors	Design out the problem - belt scrapers etc use vacuum/water/mechanical methods	
	Dismantling machinery for repair and replacement	Design considerations eg guard clearance, space around when machines at installation, cranage, lifting devices, telehandlers and access provision	
Awkward loads	Free stone	Suitable cranage and lifting points and assessment of weights.	

QUARRIES			
Task	Activity	Examples of reasonably practicable control measures	Guidance
Carrying	Spare parts, machinery etc.~	Use of correct equipment, telehandlers etc. Wheel loaders should be discouraged unless adapted to use handling devices (when the bucket has been removed) due to poor operator vision of the lifting operation.	
	Stone masonry: Handling headstones, stone blocks	Mechanical lifting aids in workshops, inc FLT's. Lifting equipment to transfer headstones from vehicles. Trolleys or FLT to transfer headstones on site. Consider things like: adequate training, selection of people capable for the job, site layout and work planning	

CONTROL MEASURES AND GUIDANCE

TRANSPORT			
Task	Activity	Examples of reasonably practicable control measures	Guidance
Bag/Sack handling	Baggage/cargo handling and catering, ports and cruise liner terminals, kitchens, stores, parcel carrying industry	<p>Airports:</p> <ul style="list-style-type: none"> • Loading/unloading of aircraft on airport aprons and in baggage handling halls, including security and screening staff; reducing weight of baggage/items, properly positioned and maintained handling equipment, conveyors or other lifting aids; ergonomic design of check-in desks and security check conveyors etc. • 32 kilo bag weight limit enforced or heavy bag tags; industry proposals for 23 kilo limit in 2007 (BA introducing Feb 2007); use of new technology eg Rampsnake, Powerstow. <p>Ports:</p> <ul style="list-style-type: none"> • Loading/unloading passenger luggage and catering supplies. MCA involvement where ship's crew and equipment involved. • Cargo handling/gearbulk at ports. Breaking loads and loading/unloading containers <p>Replace sacks with bulk storage arrangements or reduce sack weights. Mechanical handling, conveyors, vacuum bag-lifters, scissor lifts, automatic bag splitters. Trolleys, sack trucks, loading bays, etc.</p>	<p>SIM 05/2002/60 MH Risks During Baggage Handling on the Ramp.</p> <p>Contact Transportation section for latest information on proposed research/enforcement etc. This is a live issue.</p> <p>Information on Air Transport Community of Interest.</p> <p>SIM 052002/50 Guidance for Utilities sector also relevant for parcel carriage.</p>

TRANSPORT			
Task	Activity	Examples of reasonably practicable control measures	Guidance
Pushing/pulling	Trolleys and catering carts, baggage dollies, a/c steps & Unit Load Devices on a/c, general dock work, firefighters	Loading/unloading of aircraft on airport aprons; reducing weight of items, properly positioned and maintained handling equipment, conveyors or other lifting aids. Maintenance of ULDs, roller beds, dollies and other equipment. Mechanise activity wherever possible. Maintenance of equipment and floor surfaces. Provision of appropriate handles or grips where handling is necessary. Design and maintenance of ground handling equipment.	SIM as above 05/2002/60 and information sheet as above. Case study for Liverpool Airport (link on web pages and Col) re powered access a/c steps. http://www.hse.gov.uk/msd/experience/aircraftsteps.htm
Assisting or moving people or handling animals	Client/victim handling and restraint, casualty and disabled passenger handling on aircraft, cruise liners and buses/coaches.	Use of properly designed and maintained equipment for handling persons, relevant to situation and environment. Ambulifts, carry-chairs and air bridges at airports where practicable. Assisting disabled and incapacitated passengers into and off aircraft or liners. Further research and guidance to be issued relating to assistance into and out of seats on board aircraft. Sector working with DfT and CAA on new guidance – European legislation puts onus on airport to ensure facilities available – DfT/DPTAC guidance for passengers being revised. Training for bus/coach drivers and information for passengers on disabled access and access to vehicles for wheelchairs.	SIM 05/2003/05 on access to and egress from aircraft when assisting disabled or incapacitated passengers. See AT Community of interest for links to relevant DfT/CAA guidance and recent enforcement SIM 07/2002/03 refers to procuring expertise in client/patient handling. Other health services guidance may be applicable.
Vehicle/postural whole body vibration	Ro-ro tugs and dockside cranes, wheeled gantry cranes and straddle carriers, other heavy plant, eg. MoD	Maintenance, provision of adjustable seating, rotatable seats and controls for Ro-ro tugs, heating in cold weather, appropriate mirrors, windows and other viewing aids, driver training, monitoring of drivers hours, job rotation. Further research on WBV in docks planned in 2007.	SG HSL report on Ro-ro tugs. SIM 05/2002/58 on dockside crane driving.
Handtools etc	Works department, dock work	Consider ergonomic factors in purchase of hand tools and equipment. Maintenance and cleanliness of tools, and working environment.	SIM 05/2002/59 Safe Working on Vessels – Star Chamber Plan of Work for Targeting Priority Topics Jointly with the Maritime and Coastguard Agency (MCA) refers to targeting MSD with MCA.

TRANSPORT			
Task	Activity	Examples of reasonably practicable control measures	Guidance
Maintenance and cleaning tasks	Premises, vehicle, a/c, hold/quay & equipment cleaning and maintenance	Safe means of access. Properly maintained equipment and PPE provided. Appropriate equipment for handling loads during maintenance and cleaning tasks. Consider maintenance needs during equipment/workplace design.	
Carrying	Baggage, catering supplies/galley boxes, sacks, individual large loads	Mechanisation where possible. Maintenance of lifting aids/control measures eg roller beds. Consider ergonomic factors when designing workplace and equipment being carried. Where m handling necessary, provide appropriate handles or grips. CAA responsible for in-flight cabin crew issues.	SIMs 05/2004/53 on airport design and 05/2004/54 on design of port facilities include MSDs.

CONTROL MEASURES AND GUIDANCE

SERVICES			
Task	Activity	Examples of reasonably practicable control measures	Guidance
Assisting or moving	Client/victim handling and restraint, casualty and disabled handling.	Use of properly designed and maintained equipment for handling persons, relevant to situation and environment. Ambulifts, carry-chairs. Hoists and lifting/handling aids in residential homes and domestic premises where practicable.	<p>SIM 07/1999/18 - PUWER & LOLER re Equip in Health Services & Social Care.</p> <p>HS(G) 225 Handling Home Care.</p> <p>SIM 07/2002/03 refers to procuring expertise in client/patient handling.</p> <p>Manual Handling in the Health Service. ISBN 0 717612481</p> <p>SIM 07/2006/05 Public sector programme 2006/07: Musculoskeletal disorders (MSDs) in the health services</p>

SERVICES			
Task	Activity	Examples of reasonably practicable control measures	Guidance
Barrel, drum, cylinder handling	Gas cylinders in swimming pools, education, works depts and BA, military equipt, stores & kitchens	Bulk storage and piped systems, cylinders transported in carry cages or by forklift truck, trolleys, or other mechanical lifting aids. Appropriately designed and accessible storage for breathing apparatus cylinders on vehicles.	British Compressed Gas Association; GN3: Safe Cylinder Handling
Unit weights	General stores, ration packs	Reduce unit weight, or replace with bulk delivery system. Mechanise lifting/handling.	
Storing/ warehousing / order picking	School & residential prems kitchens, larders, general stores.	Well designed workstations, with tables at appropriate heights. Take account of handling requirements in the design of workplace. Consider mechanisation. Safe means of access to high shelves.	
Handtools, etc.	Works Department, fire fighters, military	Consider ergonomic factors in purchase of hand tools and equipment. Maintenance and cleanliness of tools, and working environment	

CONTROL MEASURES AND GUIDANCE

TEXTILES			
Task	Activity	Examples of reasonably practicable control measures	Guidance
Bag/Sack handling/feeding material	Bale handling Box handling Transfer in dyeing and finishing	Use of lift and clamp trucks, use of hand trucks, maintenance of floor surface, provision of roller conveyors, bale hooks and avoidance of lone working. Box handling use of pneumatic handling. Transfer in dyeing and finishing Use of lifting tackle and A-frames, runways etc.	IAC 103 Manual Handling in the Textiles Industry. Safe Handling of Bales, CATIAC (Available from Sector)
Barrel, drum, cylinder handling	Dyeing and Finishing chemicals Yarn packages	Purpose made drum trolleys with base same level as storage shelf, ventilated booths designed to remove need to lift drums Mechanical lifting aids	
Pushing/pulling	Textile trolleys and hand carts leather transfer 'horses'	Maintenance. Regular checks and record kept of checks	

TEXTILES			
Task	Activity	Examples of reasonably practicable control measures	Guidance
Storing/ warehousing / order picking	Handling bundles of processed fibre	Design workplace to improve access, mechanise, job rotation	
Awkward loads	Loosely folded fabric Rolls of material	Use of lightweight stretcher boards. Rolls of material in storage arranged to allow mechanical handling. Roller conveyors, specifically designed hand trolleys, lift truck booms	
Packing /picking/ assembly	Packing garments Loading vehicles Creels. Bobbin lifting Working at sewing m/cs	Powered conveyors for vehicle loading. Creels design of access to reduce need for lifting and reaching, job rotation, training. Specially designed hand tools to aid lifting of bobbins. Adequate adjustment of workstations, design workflow & bin/conveyor position to avoid bending twisting, job rotation	
Clothing manufacture	Sewing	Workplace design, job rotation	SIM 03/2002/70 Musculoskeletal disorders in the clothing industry: Stand and sew working
Maintenance & cleaning	Roller/cylinder changes	Use of standard mechanical lifting aids, design of machinery and layout to allow use of mechanical lifting	

CONTROL MEASURES AND GUIDANCE

UTILITIES			
Task	Activity	Examples of reasonably practicable control measures	Guidance
Pushing/ pulling	The bulk movement of parcels	Trolleys and conveyors	INDG 348 Mark a parcel save a back SIM 05/2002/50 Manual handling risks in the parcel carrying industry
DSE	Typing parcel destination information	See generic	

CONTROL MEASURES AND GUIDANCE

WOODWORKING			
Task	Activity	Examples of reasonably practicable control measures	Guidance
Bag/Sack handling/ feeding material	Bales of wood shavings;	Conveyors; vacuum lifting devices.	INDG318 Manual handling solutions in woodworking, [A list of suppliers of handling aids and solutions suitable for use in woodworking, ie including those featured in INDG318, is available from the Ag & Wood Sector.]
	Loading waste wood into granulators, chippers, boilers etc.	Conveyors; mechanical grabs; improved access.	
	Manual loading and feeding of woodworking m/cs, e.g. loading beam panel saw or CNC router.	Vacuum handling devices where practicable (taking account of risk and machine useage); in-feed and out-feed extension tables or roller beds; height adjustable feed tables (some panel trolleys can convert into these); power feed units; adjustment of height of machine table to suit operator.	
Barrel, drum, cylinder handling	Surface coatings; solvents and adhesives;	Trolleys designed to wheel drums.	
	Wood preservatives.	Delivery from road tankers directly into intermediate bulk containers (IBCs).	
Pushing /pulling	Loading treatment vessels/tanks; furniture in spray booths; setting machines.	Use of bogies to load timber into treatment vessels; use of hoists to load timber into treatment tanks; roller-floors in spray-booths.	
Storing/ warehousing / order picking	Panel products, eg MDF etc. joinery (eg fire doors etc); furniture; jigs, eg for CNC routers.	(see "Carrying - Panel products" below)	

WOODWORKING			
Task	Activity	Examples of reasonably practicable control measures	Guidance
Packing/picking/assembly	Upholstery; furniture and joinery assembly.	Height and angle adjustable workbenches; work station design (see also "Awkward loads - Mattresses and divans" below)	
Handtools etc.	Hand sanders; nailing & stapling guns (e.g. pallets & upholstery); spray guns.	Use of inertial balance systems to suspend tools above workstation; workstation design, eg use of vacuum workstands to allow workpiece to be raised/swivelled to correct position; tool design; roller-floors in spray booths for easy movement of item being sprayed.	
Maintenance and cleaning tasks	Tool changing, eg saw blades, cutterblocks, (heavy awkward, very sharp).	Suitable gloves to protect against cuts; store tooling close to machines to avoid excessive carrying; use purpose made 'transit board' for carrying band saw blades; use protective carriers (wooden boxes etc) and trolleys for milling tools and hooks for circular saw blades.	
	Cleaning-up (sweeping) wood waste	Vacuum/suction methods.	
Awkward loads	Pallet inspection (prior to repair)	Vacuum-handling device with pallet attachment.	
	Mattresses and divans (& other large furniture)	Mobile storage and retrieval vehicles; conveyors, including ski-lift and sail types; trolleys; wheeled transport carts; extendable conveyor belts leading into vehicles; pallets & pallet trucks.	
	Roof trusses	Team handling (2 persons up to 48 kg; 3 persons 70 kg; 4 persons 95 kg; trusses > 95 kg should not be handled by manual means alone); use of block & tackle, hoist systems etc.	SIM 03/2003/69 Manual handling in teams during the fabrication of roof trusses
	Round timber and logs	Log tongs.	
	Coffins	Conveyors, trolleys etc.	
Carrying	Panel products, eg MDF etc.	Lifting hooks; cam-type panel handles; panel trolleys; vacuum lifting devices.	
	Lengths of timber	Extending trolleys; vacuum lifting devices.	
	Furniture and joinery	Trolleys (eg for stacks of chairs etc.); bogie wheel sets; vacuum lifting devices.	

6 ENFORCEMENT NOTICES EXAMPLES/ TEMPLATES

6.1 CAUTIONARY NOTE

MHOR are structured/worded in a complex manner and can be difficult to apply. See Section 4 above. The examples below are targeted at employers' duties and are the starting point for drafting a suitable Notice.

Manual Handling

1 Lifting - avoidance

Law

Manual Handling Operations Regulations 1992, Regulation 4(1)(a) Health and Safety at Work etc Act, Section 2(1),

You have failed so far as is reasonably practicable to avoid the need for your employees to undertake a manual handling operation, namely the manual lifting of... which involves a risk of their being injured

Schedule

In order to comply with this notice you should:

Automate ... to avoid so far as is reasonably practicable manual handling which has a risk of injury;

OR

Provide suitable mechanical lifting aids to for use when ... to avoid manual handling which has a risk of injury

Alternatively ...

2 Lifting — control

Law

Manual Handling Operations Regulations 1992, Regulation 4(1)(b)(ii) Health and Safety at Work etc Act, Section 2(1),

You have not taken appropriate steps to reduce the risk of injury to those employees who undertake manual handling of ... to the lowest level reasonably practicable

Schedule

In order to comply with this notice you should:

Install mechanical lifting devices to aid the manual handling of ... which weigh in excess of ... The lifting devices shall be designed to be capable of lifting the heaviest load handled in the factory.

Alternatively...

3 Lifting - complex/long-term controls

Law

Management of Health and Safety at Work Regulations 1999, Regulation 5

Health and Safety at Work etc Act, Section 2(1),

You have failed to make and put into practice arrangements for the effective planning, organisation, control, monitoring, and review of the preventive and protective measures that will so far as is reasonably practicable avoid, or reduce to as low a level as is reasonably practicable, the risk of injury to employees from... (specify manual handling activity)

Schedule

Taking into account any assessment of risks to persons from manual handling at the location overleaf, & having regard to the nature of your activities and the size of your undertaking, you should:

1 determine what arrangements are appropriate to ensure that the introduction of those preventive and protective measures is effectively planned. You should also determine what arrangements are appropriate to ensure the effective organisation, control, monitoring and review of the preventive and protective measures,

and

2 you should implement those arrangements.

Alternatively, other equally effective steps can be taken which discharge the duty created by Regulation 4 of MHOR.

4 DSE - Workstation

Law

Health and Safety (Display Screen Equipment) Regulations 1992 Regulation 2(3)

Health and Safety at Work etc Act, Section 2(1),

You have failed to reduce the risks to the health and safety of cashiers identified in the assessments of the workstation dated... to the lowest extent reasonably practicable.

Schedule

In order to comply with this notice you should:

Redesign the... workstation to comply with the requirements laid down in the Schedule to the Regulations and associated guidance in Annex A of Guidance on Regulations, Health and Safety (Display Screen Equipment) Regulations 1992.

Alternatively...

5 Assessment - manual handling

Cautionary Note - MHOR, Reg 4(1)(b)(i) does not require control measures so refer to Reg 4(1)(b)(ii) as well - (as part of the appropriate steps to reduce the risk)

Law

the Manual Handling Operations Regulations 1992, Regulation 4(1)(b)(i) and (ii) (**latter will also need to be specified if the assessment is to include identification of control measures**) Health and Safety at Work etc Act 1974 S2(1)

A suitable and sufficient risk assessment has not been carried out for... which is a /are manual handling operation(s) involving a risk of injury (specify the following if the assessment is to include control measures) and appropriate steps to reduce the risk to the lowest level that is reasonably practicable have not been identified.

Schedule

In order to comply with this notice you should

1 make a suitable and sufficient assessment of the risk of injury from... having regard to the factors which are specified in Regulation 4(3) and column 1 of Schedule 1 to the Manual Handling Operations Regulations 1992 and, considering the questions which are specified in the corresponding entry in column 2 of that Schedule.

And (if assessment is to include identification of control measures)

2 identify means to avoid the manual handling operation or if that is not reasonably practicable then, having regard to the factors which are specified in Regulation 4(3), identify appropriate steps to reduce the risk of injury to the lowest level reasonably practicable.

Alternatively...

6 Assessment - Upper limb disorder risks

Law

Management of Health and Safety at Work Regulations 1999 Regulation 3

Health and Safety at Work etc Act 1974 S2(1)

A suitable and sufficient risk assessment has not been carried out for (work activity) which involves a risk of musculoskeletal injury

Schedule

In order to comply with this notice you should:

Carry out a suitable and sufficient assessment of the musculoskeletal risks to employees from (specify task(s))... You should identify activities presenting hazards; who might be harmed and how; the risk presented by the identified hazards; and then identify the control measures required to reduce significant risks so far as is reasonably practicable.

I draw your attention to an HSE publication HSG 60 rev "Upper limb disorders in the workplace" which gives comprehensive guidance including a 2 step approach to assessment. The first is a risk filter which identifies work activities requiring a more detailed assessment and the second a detailed assessment protocol.

Alternatively

7 Assessment - DSE

Law

Health and Safety (Display Screen Equipment) Regulations 1992 Regulation 2(1) Health and Safety at Work etc Act 1974 S2(1)

You have not performed a suitable and sufficient analysis of ... (specify workstation) for the purpose of assessing health and safety risks to Users/Operators as a consequence of that use.

Schedule

In order to comply with this notice you should:

Assess the health and safety risks to staff working at... (specify workstation location(s) and include shared workstations and homeworkers if appropriate either here or as a separate requirement in the Schedule) taking account of the Schedule to the Regulations, and Annex A and B in Guidance on Regulations, Health and Safety (Display Screen Equipment Regulations 1992.

Alternatively...

8 Control WRULD - Manipulation

Law

the Health and Safety at Work etc Act, Section 2(1)

The reasons for my said opinion are:

You have failed to ensure so far as is reasonably practicable the health and safety of those of your employees who assemble... because the task design is such that the operations involved are likely to cause upper limb soft tissue damage.

Schedule

In order to comply with this notice you should:

redesign the assembly task to eliminate, so far as is reasonably practicable, the need for operators to adopt excessively awkward body postures or joint positions

Alternatively...

(Accompanying letter would list those aspects of the task design which would be most likely to effective in terms of eliminating the risk eg provision of power screwdrivers, improved design of fastener etc).

9 Control WRULD - HANDTOOL

Law

The Health and Safety at Work etc Act, section 2(1)

You have failed to ensure so far as is reasonably practicable the health and safety of those of your employees who undertake scalloping because they use knives which are of an unsatisfactory design likely to cause upper limb soft tissue damage.

Schedule

In order to comply with this notice you should:

recall from use all knives currently used by your employees for... and replace them with knives with the following features:

1 the handle has a round cross section with a diameter between 25 mm and 40mm

2 the handle is constructed of a material, or coated with a material, which is resilient and slip resistant when gripped by a hand encased in a rubber glove.

Alternatively ...

(Information contained in the above draft notice is extracted from Technical review of Hand tools - a short report prepared by CV Smith, HD D2, January 1997. Copies are held in each SG.)

10 Control WRULD - complex/long term controls

NB This Notice links with the WRULD assessment which should have been completed.

Law

Management of Health and Safety at Work Regulations 1999, Regulation 5

Health and Safety at Work etc Act, Section 2(1),

You have failed to make and put into practice arrangements for the effective planning, organisation, control, monitoring, and review of the preventive and protective measures that will reduce, so far as is reasonably practicable, the risk of injury to employees undertaking... (specify task) which is likely to cause ... (specify injury eg musculoskeletal injury, upper limb soft tissue damage etc).

Schedule

Taking into account any assessment of risks to persons from ... at the location overleaf, and having regard to the nature of your activities and the size of your undertaking, you should:

1 determine what arrangements are appropriate to ensure that the introduction of those preventive and protective measures is effectively planned. You should also determine what arrangements are appropriate to ensure the effective organisation, control, monitoring and review of the preventive and protective measures, and

2 you should implement those arrangements.

Alternatively...

11 Control - Reach

Law

The Workplace (Health, Safety and Welfare) Regulations 1992, Regulation 11(1) Health and Safety at Work etc Act, Section 2(1)

The work station at which your employees sort scones on a belt conveyor is not suitable because the employees are unable to carry out the work without undue bending and stretching

Schedule

In order to comply with this notice you should:

Alter the work station so that:

1 the height of the conveyor is not less than xmm or more than ymm above the working floor level;

AND

2 the horizontal distance from the operating position to the furthest position at which the operator needs to touch work material carried on the conveyor shall not exceed zmm

(Note: Specify distances on the basis of specialist advice.)

Alternatively...

12 Control - Seating

Law

Workplace (Health, Safety and Welfare) Regulations, Regulation 11(3)

Health and Safety at Work etc Act, Section 2(1)

You have failed to provide suitable seats for those persons whose work involves (specify task), this being work of a kind which can be done sitting.

Schedule

In order to comply with this notice you should:

Provide at each workstation where persons assemble (specify task):

A suitable seat for each person. Each seat should:

(a) be provided with adequate support for the lower back

(b) allow each person who performs the assembly work to do so safely and comfortably.

This includes the facility to place the seat at a suitable height in relation to the work surface

AND

2. You shall make arrangements at each work station to provide a suitable footrest for any person likely to work there who cannot comfortably place his or her feet flat on the floor

Alternatively...

13 Information and training

(This example is specifically for manual handling and WRULD. For DSE, use Reg 6-7 DSE Regs.)

Law

Manual Handling Operations Regulations 1992, Regulation 4(1)(b)(ii) **(where WRULD only omit MHOR.)**

Management of Health and Safety at Work Regulations 1999, Regulations 10 and 13. Health and Safety at Work etc. Act 1974, Section 2(1)

You have not reduced the risk of injury to employees when undertaking manual handling operations to the lowest level reasonably practicable (**where WRULD only specify SFRP and omit LLRP**) as they are not provided with adequate information and training for the manual handling operations (**where WRULD specify accordingly**) found in their employment.

Schedule

In order to comply with this notice you should:

1 Provide employees with clear information and training concerning

(a) the risks to their health and safety from the manual handling tasks (**where WRULD specify accordingly**) which they carry out, and

(b) the measures necessary to ensure their health and safety, such as safe systems of working, the use of engineering controls and methods to avoid manual handling (**where WRULD specify accordingly**); and

(c) the techniques of manual handling necessary to ensure their health and safety when performing manual handling operations; (**where WRULD omit (C)**) and

2 Establish a system to provide refresher training.

Alternatively...

PROHIBITION NOTICES

14 Manual Handling PN

Activities

(the activity)... involves (specify the nature of the 'manual handling operation' from the selection given in MHOR Reg 2(1))... using hand or bodily force which is likely to cause serious musculoskeletal injury.

Risk

Musculoskeletal injury

Law

Manual Handling Operations Regulations 1992, Regulations 4(1)(a) and 4(1)(b)(ii)

Health and Safety at Work etc Act 1974, Section 2(1)

Because

No safe system of work was in use, to reduce so far as is reasonably practicable, the risks from...

15 Manual handling PN

Activities

Laying of block work involving the repetitive handling and lifting of dense blocks weighing more than 20 kg by a single person

Risk

Manual handling injuries such as back injuries and upper limb disorders.

Law

Manual Handling Operations Regulations 1992, Reg 4(1)(b)(i) and 4(1)(b)(ii);

Health and Safety at Work Etc Act 1974, Section 2(1)

Because

No safe system of work was in use, to reduce to the lowest level reasonably practicable, the risks from the manual handling of the blocks being laid by a single persons.

16 WRULDs PN

Activities

(the activity) involves forceful repetitive gripping, twisting, reaching and awkward posture(text amended as necessary depending on the exact nature of the activity)

Risk

upper limb soft tissue damage, affecting in particular the soft tissues of the hand, wrist, arm and shoulder

Law

the Health and Safety at Work etc Act 1974, Section 2(1)

Because

No safe system of work was in use, to reduce so far as is reasonably practicable, the risks from....

7 INSPECTION CHECKLISTS

7.1 MANUAL HANDLING RISK FACTORS

For manual handling assessment consider the factors and questions in MHOR Schedule 1 — these link to Reg 4(1)(b)(i) and Reg 4(3)(a), (b) and (c). There are worked examples of a risk assessment and a risk filter for lifting/carrying and pushing/pulling in *Manual Handling: Guidance on Regulations*, L23, 2004.

Lifting/carrying

Task: does the work involve the following:

- | | |
|---|---|
| -holding loads away from trunk? | - unpredictable movement of loads? |
| - twisting, stooping, reaching upwards? | - repetitive handling? |
| - large vertical movements, long carry distances? | - insufficient rest or recovery? |
| - strenuous pushing/pulling of loads? | - work rate imposed by process eg automated line? |

Load: does the nature of the load present difficulties because it :

- | | |
|---|--|
| - is heavy, bulky/unwieldy, difficult to grasp, unstable/unpredictable, | - intrinsically harmful (eg sharp/hot) |
|---|--|

Working environment: is the work area causing problems because there are:

- | | |
|---|------------------------------|
| - constraints on posture, poor floors, variations in level? | - hot/cold/humid/conditions? |
| -strong air movements? | - poor lighting conditions |

Individual capabilities: are individual capabilities taken into account, does the job:

- | | |
|--|--|
| - require unusual capability? | - pose a risk to those who are pregnant |
| - pose a risk to those with a health problem or a physical or learning disability? | - call for special information/training? |

Other factors

- | | |
|--|--|
| <p>Protective clothing:</p> <ul style="list-style-type: none"> - is movement or posture hindered by clothing or PPE? - is there an absence of the correct/suitable PPE being worn? | <p>Work organisation (psychosocial factors):</p> <ul style="list-style-type: none"> - do workers feel there has been a lack of consideration given to the planning and scheduling of task/rest breaks? - do workers feel there is poor communication between managers and employees? - are there sudden changes in workload/seasonal variations with out mechanisms for dealing with the change? - do workers feel that they have not been given enough training and information to carry out the task successfully? |
|--|--|

7.2 MANUAL HANDLING RISK FACTORS

Pushing/pulling

Task: does the work involve the following:

- | | |
|--|---|
| - high initial forces to get the load moving,? | - the hands below the waist or above shoulder height? |
| - high forces to keep the load in motion? | - movement at high speed and/or over long distances? |

- sudden movement to start, stop or manoeuvre the load	- repetitive pushing/pulling?
- twisting/manoeuvring of the load into position or around obstacles?	- one handed-operations?
Load: does the nature of the load present difficulties because:	
- it lacks good handholds, is unstable/unpredictable??	- vision over/around it is restricted?
If there are wheels/ castors, are they: - unsuitable for the type of load, floor surface/work environment? - difficult to steer, easily damaged or defective?	- without breaks or difficult to stop? - with breaks but the breaks are poor/ineffective? - without a planned inspection and maintenance regime?
Working environment: is the work area causing problems because there are:	
- constraints on body posture/positioning, confined spaces/narrow doorways?	-trapping/tripping hazards?
-surfaces or edges to cause cuts/abrasions/burns to hands or body?	- poor lighting conditions
- rutted/damaged/slippery floors, ramps/slopes/uneven surfaces	- hot/cold/humid conditions, strong air movements
Individual capabilities: are individual capabilities taken into account, does the job:	
- require unusual capability?	- pose a risk to those who are pregnant
pose a risk to those with a health problem or a physical or learning disability?	- call for special information/training?
Other factors	
Equipment: - is movement or posture hindered by clothing or PPE? - is there an absence of the correct/ suitable PPE being worn? - are trolleys/carts/floor surfaces poorly maintained/cleaned/repaired? - is there a lack of a regular maintenance procedure for the equipment?	Work organization (psychosocial factors): - do workers feel there has been a lack of consideration given to the planning and scheduling of task/rest breaks? - do workers feel there is poor communication between managers and employees? - are there sudden changes in workload/seasonal variations with out mechanisms for dealing with the change? - do workers feel that they have not been given enough training and information to carry out the task successfully?

7.3 WRULD AND DSE RISK FACTORS

For WRULD assessment consider task, environment and worker related risk factors. <i>HSG 60 rev</i> , contains case studies, a risk filter and risk assessment worksheets. For DSE consider risks to users/operators, full details of factors are given in booklet <i>L26 Display screen equipment work: guidance on Regulations</i> .	
Task: does the task require/involve:	
- strong force and awkward movement/posture eg bent wrists	-rapid/frequent movement eg piecework, automation
- forceful use of finger/hand/forearm eg to insert components	- frequent repetition of similar movements eg reaching

- excessive force to grip raw materials, product or tools	- awkward movement eg wrist twists/rotates/moves side to side
- inadequate tools for repetitive use screwdrivers, pliers, hammers	- a history of ill health/injury associated with this/similar tasks
- insufficient breaks or change of activity for recovery	- DSE software causing unnecessary keying or use of mouse
Working environment: is the work environment causing problems because of:	
- awkward/static posture eg, crouching, stooping, reaching up	- DSE screen poor character readability, flicker, lighting, glare, reflections, monitor swivel/tilt facility
- dim light, shadow, flickering light, cold/adverse conditions	- DSE desk/table too small, poor layout, no work holders etc inappropriate for work or user
- noise which could cause stress and muscle tension	- DSE keyboard not tiltable, glare, character readability, no space to rest hands in front of keyboard
- PPE that compromises grip/effort/dexterity/mobility	- DSE chair not stable, adjustable or suitable and no footrest where needed
- vibration which can exacerbate MSD problems	
Worker-related factors: are individual capabilities etc taken into account:	
- see manual handling table most factors apply here too	- equipment designed for different body size or strength
- work can be at slower pace while learning task	- DSE eye tests availability
- WRULD/DSE assessors adequately trained, assessment, risk reduction, DSE Regs requirements	- DSE users trained re risks, correct adjustment, importance posture, work breaks, symptom reporting etc
Psychosocial Factors: are there work organisation issues which increase the likelihood of MSDs:	
- workers have little control over their work and work methods (including shift patterns)	- work demands are perceived as excessive
- tasks require high levels of attention/concentration especially where the worker has little control over allocation of effort to the task	- payment systems encourage working too quickly/ without breaks
- workers are unable to make full use of their skills	- work systems limit opportunity for social interaction
- they are not as a rule involved in making decisions that affect them	- high levels of effort are not balanced by sufficient reward (resources, remuneration, self-esteem, status)
- work is machine or system paced (and may be monitored inappropriately)	

7.4 MANUAL HANDLING IMPROVEMENTS – AVOIDANCE AND CONTROL

Task

Can the task be avoided or changed to control the risk? For example:

- provision of equipment eg fill a bucket using a hose instead of lifting it up to the tap/sink
- automation such as linking processes in a production line to avoid handling
- manoeuvring or sliding loads instead of lifting/carrying them eg roller conveyor, delivery chute
- enabling patients to move themselves eg by using handrails and grips

Is it possible to use mechanical aids? For example

- trolleys, hoists, lift trucks, counter balanced lifters, stackers, tools etc

Could the pattern of work be changed?

- to enable sufficient rest breaks to allow recovery from physically demanding work
- to reduce the frequency that an individual does the task by spreading it out during the day or rotating workers between tasks which use different muscle groups.

Can the need for stooping, bending, reaching or twisting be reduced? For example by

- matching workstation height with trolleys/conveyors etc
- using variable height platforms, trolleys, scissor and tilt tables, workstations etc
- storing heavier items at optimum height/position for use of mechanical aids/lifting
- angling work surfaces/storage trays etc towards the operative
- placing work on turntable
- encouraging operators to move their feet, rather than reach or twist

Load

Can the load weight be altered? For example by:

- reducing weight eg by using smaller containers, limiting quantity of material in containers (e.g. paint maximum fill lines on containers).
- increasing weight by supplying in bulk and handling mechanically eg big bag, silos etc.
- team handling for less frequent operations.

Are the weights clearly marked or made known?

- mark load with weight/indication of uneven weight distribution to help plan the handling.

Can the load bulk/shape be altered?

- to keep the load as close to the body as possible during handling and to reduce the hand distance to lower back during lifting/carrying

- to improve vision

- to improve grip by changing the load shape, dimensions, packaging material, rigidity, sharpness, temperature, provision of handles/handholds, handling frames/jigs or use of tools eg a hook for panel carrying which provides a handle and extends operatives effective reach?

Working environment

Does the layout confine or spread out the work too much?

- design out unnecessary carrying/handling between workstations or changes in level at a workstation by relocation/leveling/provision of chutes etc

- tackle confined spaces and housekeeping which are restricting movement/affecting posture /causing twisting/excessive reaching etc or the ability to use equipment/handling aids.

Are floors and access routes adequate?

-remove slip and trip hazards through provision of appropriate floor surfaces and

good housekeeping

- reduce carry distances and avoid steps, provide gently graded ramps.

Is the temperature too hot/cold, lighting inadequate etc?

- the thermal environment may need to be changed as heat, cold and air movement can affect handling performance, fatigue, posture, ability to grip

- clothing/PPE may prevent sufficient movement for the task or reduce capability eg to grip consider handling needs when selecting workwear/gloves

- lighting can affect ability to avoid tripping hazards etc.

Is communication difficult?

- reduce noise levels/distractions which could cause communication failure/mistiming during a team lift or patient handling etc.

Psychosocial factors

Adverse psychosocial factors can increase the potential for manual handling injuries. A workers psychological response to work and the workplace conditions can affect their health in general and MSDs in particular. The factors include the content, design, organisation and management of the work.

Are staff working too quickly/too long with unreasonable workloads or deadlines outside their control?

- consider a package of measures to provide a supportive culture, ensure reasonable workload/deadline, report problems, encourage teamwork, monitor and control overtime and shiftwork, reduce piecework and provide appropriate training.

Individual Capability:

Is more instruction/training appropriate for this task?

- to carry out the task safely including use of safe techniques, handling aids

- see section 2.2.2 inspection topic pack for more detail.

Does the job/environment need changing to meet individual needs where:

- it requires different strength/height/reach etc to their capability
- workstations/equipment are not adjustable to suit their needs
- it creates a hazard because of an existing health problem/injury
- it creates special hazards for new or expectant mothers eg postural problems may increase as pregnancy progresses

7.5 WRULD IMPROVEMENTS - AVOIDANCE AND CONTROL

Task:

Avoidance

Can the task be avoided/changed to reduce the risk? For example by:

- better design reducing the need to “finish” workpieces
- automation eg cryogenic removal of excess rubber from mouldings
- using well designed/supported power tool in place of manual screwdriver
- replacing a trigger operation with an automatic device.

Repetition:

Can the number of repetitions/pace of the work be reduced? For example by:

- replacing piecework with hourly payment system
- changing the way the work is organised to reduce bottle necks in production
- enabling sufficient rest breaks to allow recovery from repetitive work
- reducing the frequency that an individual does the task by spreading it out during the day or rotating workers between tasks which use different muscle groups
- avoiding in particular, repetition, strong force and awkward movement/posture eg bent wrists
- reducing duration of repetition, e.g. limit or control over time

Working posture:

Can a better/more neutral posture be achieved for finger/thumb/hand/wrist, arms and shoulders/ head and neck? - see HSG60 for examples of poor posture

- ensure that DSE equipment is set up correctly
- consider how a workstation can be modified to suit the task and minimise poor and static postures eg angle the workbench towards the worker or provide a cut-out in the bench to reduce the reach distance
- avoid putting storage bins etc behind the worker to reduce repetitive twisting of the torso

- for close work provide adequate, glare free lighting to reduce likelihood of the worker leaning forward over the work
- provide appropriate/adjustable seating and where needed footrests
- select hand tools designed for repetitive use which should reduce adoption of poor posture eg bent handle pliers to avoid wrist bending, tools that do not require too wide a hand span
- select tools which are designed for right/left hand use as appropriate
- select power tools best suited to orientation of use, e.g. pistol grip for horizontal alignment, inline grip for vertical alignment.
- reduce fatigue due to prolonged standing, eg anti fatigue matting, footrests, leaning bar.

Force

Can any excessive force required for the task be reduced? For example by:

- making components less tight a fit
- installing components at a different point in the assembly where this can be done in a less forceful way
- using power tools suitably designed for the task in place of non powered tools
- using jigs/clamps to hold workpieces
- reducing force required to operate a trigger or button
- suspending heavy power tools

Working environment:

- see items above re workstation design/layout

Is there significant vibration?

- replace rotary/impulsive power tools with vibration reduced ones which do not produce excessive vibration

Is the work done in a cold environment or involve handling cold objects?

- reduce exposure to cold air and draughts blowing over the hands
- clothing/PPE may compromise grip/effort/dexterity/mobility

Is the environment noisy?

- reduce noise which could cause stress and muscle tension

Psychosocial factors

Adverse psychosocial factors can increase the potential for ULD problems. A workers psychological response to work and the workplace conditions can affect their health in general and MSDs in particular. The factors include the content, design, organisation and management of the work.

Are staff working too quickly/too long with unreasonable workloads or deadlines outside their control?

- consider a package of measures to provide a supportive culture, ensure reasonable workload/deadline, report problems, encourage teamwork, monitor and control overtime and

shiftwork, reduce piecework and provide appropriate training

Individual capability

- NB see manual handling table most factors apply here too

Are individual needs taken into account?

- take account of individual capability when selecting workstations, tools etc and build in the necessary adjustability

- can work be at slower pace while staff are learning the task or when returning from a long break?

- take account of individuals with health issues or being part of vulnerable groups seek advice on special requirements - eg young or old workers, new or expectant mothers

See HSG 60 rev Upper limb disorders in the workplace for detailed information re WRULDs

**8 - MANUAL HANDLING ASSESSMENT CHARTS, (MAC), AND
EMM - OC 313/4**