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AFQ Inspectors

MUSCULOSKELETAL ISSUES FOR CRANE DRIVERS IN THE DOCKS INDUSTRY

This SIM informs inspectors of the ergonomic issues relating to crane cabin design and layout which may increase the risk of drivers/operators developing musculoskeletal disorders. It also identifies possible control measures and improvements.

PROBLEM

1 Research carried out by HSE indicates that drivers of cranes (including quayside cranes, rubber tyred gantry cranes and straddle carriers) are at risk of developing musculoskeletal disorders. This is due to a combination of the amount of time spent in awkward postures to enable them to view the load and surrounding area, and exposure to whole body vibration. Different degrees of risk apply to different cranes, and the areas of the body affected may differ with crane type.

RISK FACTORS

2 The evidence indicates that the risk is highest for those operatives who are exposed to significant levels of whole-body vibration while in an awkward posture. Thus, in general, drivers of straddle carriers are at greatest risk, and operators of rubber tyre gantries (RTGs) at least risk, though of course the risk from particular items of plant will vary depending on how well the key risk factors are controlled whether by design, maintenance or otherwise. The key factors for plant are awkward posture, large proportion of work time spent in that posture, and vibrational jolts and shocks. Other key risk factors for some types of plant are repeated/continuous use of muscle force to maintain posture, and psycho social factors (shift work, working in isolation and working to tight deadlines) may also be relevant.

3 The main parts of the body affected in dock crane drivers are the lower back, neck and shoulder. One HSE study reported the prevalence of musculoskeletal problems as being high with between 44-77% of crane operators reporting neck problems, 44-64% reporting shoulder problems and 67-86% reporting lower back problems.

WHAT CAN BE DONE

4 The risks have been known for some years but in general, satisfactory solutions have not yet been found. HSE has considered a wide range of possible methods of controlling the risk factors including:

(1) improving the driving position, eg by the use of CCTV, relocation of the cab, use of mirrors, lying prone, sit-stand operation and kneeling, adjustable seats, swivel seats, better adjustment of seats;

(2) reducing whole-body vibration by better-matched seating, better maintenance of the boom joint, better maintenance of quay and container park surfaces;

(3) improving visibility, eg by cleaning cab windows;

(4) reduction of the working period between breaks and/or changes of task;

(5) training of drivers in making best use of seats and musculoskeletal awareness;

(6) monitoring drivers for musculoskeletal problems; and

(7) providing physiotherapy.

5 In the short term it is unlikely that much can be done to change the driver's working posture due to the cabin location and the visual demands of the task. However, action can be taken in many of the areas outlined above, including slight design modifications with respect to control panels and their position relative to the seat/driver location that may assist driver comfort.

6 Accordingly, the industry has been advised to take the following steps to control the risks of musculoskeletal injury:

(1) **container cranes** - these should be subject to an adequate system of planned maintenance which includes packing/adjusting the boom joint to reduce the jolt and cabin window cleaning;

(2) **rubber tyred gantry cranes:**

(a) these should be subject to an adequate system of planned maintenance which includes the trolley rails and cabin window cleaning; and

(b) the surfaces of the areas in which they operate should be maintained in a level state;

(3) **straddle carriers:**

(a) the feasibility of using a swivel seat and wing mirrors should be investigated**;**

(b) they should be subject to an adequate system of planned maintenance which includes the cabin window cleaning; and

(c) the surfaces of the areas in which they operate should be subject to a system of planned maintenance which ensures that they are maintained in a level state.

(4) **all operators/drivers of container cranes, RTGs and straddle carriers**:

(a) employers should:

(i) provide training to drivers and operators in adjusting and making the best use of their seats;

(ii) monitor their crane drivers/operators for musculoskeletal problems. It is suggested that this might need to be annually;

(iii) give advice regarding musculoskeletal awareness to enable drivers to realise the long term health benefits and encourage drivers/operators to maintain good physical health. Those reporting problems should be encouraged to see a physiotherapist (or other relevant clinician) at regular intervals, and encouraged to follow their advice (which may include regular exercise in order to maintain mobility and counteract the effects of their working postures);

(iv) monitor employees driving hours, ensuring that official working hours, particularly rest breaks, are adhered to; and

(v) adopt a system for job rotation, where possible, to reduce the time spent by employees driving the cranes. Care is needed to ensure that additional tasks do not expose crane drivers to similar musculoskeletal health risks.

(b) employees should:

(i) report musculoskeletal discomfort experienced either during or after operating one of these machines. Early reporting and treatment can prevent long term injury;

(ii) adjust their seats correctly to the optimum position for them and the task they are performing; and

(iii) adhere to the official work periods, including taking official breaks and not working double shifts. During break periods, movement of the upper body or short gentle stretching exercises are likely to be more beneficial for the individual than being sat in a slumped posture.

ACTION BY INSPECTORS

7 MSDs are one of the HSC Priority Programmes. When visiting docks to consider MSD issues, inspectors should discuss the issues raised in this SIM with the owners and users of cranes.

8 Inspectors should consider taking enforcement action against dock and plant owners and operators where policies and procedures for controlling these musculoskeletal risks are inadequate, and/or where there is no system to monitor the health and safety of employees.

9 Inspectors considering enforcement action should consult Specialist Group (Ergonomics) where appropriate and inform the Docks Unit promptly.

10 As yet Docks Unit is not aware of any reasonably practicable measures which will completely eliminate the musculoskeletal risks arising from the operation of these machines and would welcome any information on the development or introduction of new equipment or methods of working which provide solutions.

OTHER GUIDANCE

11 Inspectors may wish to refer to HD guidance: *Ergonomic review of Dock Crane Cabins* (subject file 202). A copy is held by Docks Unit for reference if necessary.

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