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Code of Practice for
Safe use of Quick Hitches

M&EE Networking Group
Background

A sub-group of the M&EE Networking Group has reviewed HSE document SIM02/2007/01 Version 2 Safe use of Quick Hitch Devices on Excavators and CPA 1001 Safe Use of Quick Hitches on Excavators published by CPA dated April 2012, which were produced following several incidents that have been notified to the industry including fatalities. This document provides clarification and covers the safety issues regarding this equipment and is provided by the M&EE group as industry good practice.

M&EE COPs are produced for the benefit of any industry partner who wishes to follow the good practice on any railway infrastructure. Where an infrastructure manager has mandated their own comparable requirements, the more onerous requirements should be followed as a minimum for work on their managed infrastructure.

The M&EE Networking Group makes no warranties, express or implied, that compliance with this document is sufficient on its own to ensure safe systems of work or operation. Users are reminded of their own duties under health and safety legislation.

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Purpose
This Code of Practice identifies the types of quick hitches as categorised by the HSE and details the safety issues and provides safe systems of work related to the use of manual and fully automatic quick hitches for the rail industry.

Scope
This Code of Practice concerns quick hitches when used on on-track machines, on-track plant and construction plant, including lifting operations.
Definitions

**Adaptor plate**  
The arrangement fitted to an attachment that enables it to be used with a quick hitch designed to securely to match the quick hitch.

**NOTE**  
where the adaptor plate is a fixture or semi-permanent fixture attached to the attachment (e.g. bucket) and requires tools (spanner, wrench etc.) to be removed, it should be classed as a part of the attachment and hence the attachment and adaptor plate would be subject to the Provision and Use of Work Equipment Regulations (PUWER).

where the adaptor can be removed without the need for tools e.g. fixed in place by pins secured by 'R' clips then the adapter plate should be classed as lifting equipment and subjected to LOLER as it is the interface between host machine and attachment.

**Lifting Equipment**  
The lifting machine as defined in Lifting Operations and Lifting Equipment Regulations (LOLER).

**Lifting Accessory**  
Any Item or device between the lifting equipment and the load, as defined in LOLER.

**Quick hitch**  
A device that enables attachments including buckets to be connected to the machine and interchanged quickly.

**Thorough examination**  
An inspection carried out by a competent person as defined in LOLER.
1 Categories of quick hitch

1.1 General

1.1.1 Quick hitches will extend the length of the dipper arm and with certain attachments could hit the cab in some positions.

1.1.2 All unnecessary attachments should be removed from the quick hitch before carrying out any lifting operations.

1.2 Manual system

1.2.1 Requires the operator to change the bucket/attachment manually, for example by winding a screw thread to open and close a latch, or using a bar to open a spring-actuated latch.

1.3 Semi-automatic system

1.3.1 Requires the operator to manually insert a retaining bar in the hitch after he has operated the quick hitch latch. This bar works by locking the latch in its closed position and is often referred to as the “safety bar”. It cannot be inserted unless the latch is in its fully closed position.
1.3.2 Semi-automatic quick hitches should not be fitted, and should not be used.

![Example of semi-automatic quick hitch and safety pin](image)

Fig 2 Example of semi-automatic quick hitch and safety pin

1.4 **Automatic system**

1.4.1 Is operated entirely from the cab and usually has an independent locking system which functions automatically and which does not rely on hydraulic pressure to hold the latch in its closed position.

1.4.2 Irrespective of whether the quick hitch is thought to be an automatic type or not the operator must visually inspect the locking arrangements.

1.4.3 It should be noted that the use of large attachments may inhibit the automatic action.
1.5 Compatibility of different quick hitches

1.5.1 There is little standardisation of quick hitch attachment pin sizes and distance between pins. Care must be taken to ensure that a compatible match of quick hitch to the attachment adaptor plate is achieved prior to use.

1.5.2 Any other attachment that has also got an inbuilt quick hitch (e.g., tilt rotator) should also meet the requirements of 1.4.1.

2 Installation of the quick hitch to host machine

2.1 The quick hitch can be a permanent or not permanent installation on the host machine. See 5.4 for the difference this makes to the maintenance arrangements.

2.2 Permanently fitted quick hitches could have been installed after the machine has been tip tested and duty tables produced. Where machines are used for lifting they should comply with 2.3. There are some machines where it is not permitted to remove the quick hitch as its weight forms part of the basic machine stability.
2. 3 Where the quick hitch is permanently attached to the host machine after original certification, consideration should be given to setting up the RCI to produce the load radius tables taking this into account, or duty chart annotated “these capacities to be reduced by ***kg for quick hitch”.

3  Connection of attachments to the quick hitch

3. 1 The adaptor plate must be of sufficient strength and compatible with the quick hitch both in terms of pin diameter, pin centres, width between cheek plates and load rating.

3. 2 The adaptor plate on non-lifting attachments e.g. buckets should be subject to regular statutory (PUWER) mechanical inspection.

3. 3 For all categories of quick hitch the operator must get out of the cab to confirm the quick hitch and any safety devices are correctly engaged and to ensure that any necessary safety devices are correctly engaged. This is the only way to ensure the integrity of the attachment and must be undertaken every time connections are made.

3. 4 Consideration should be made during the planning process to allow for the operator’s safe access/egress from the machine cab to ground when undertaking this operation, as this may not be possible in all locations or superstructure positions.

3. 5 Consideration should be given to how the attachment is connected to the quick-hitch jaws. Particularly when removing an attachment some quick-hitches require the attachment to be placed at an unacceptable angle (eg the crowding ram fully extended to release the quick-hitch locking mechanism to be able to get the attachment detached). Where the quick-hitch is required to be fully crowded to detach the attachment, the adaptor plate must designed to maintain the angle permitted by the manufacturer, or another design of quick-hitch used.
Fig 4 Example of removal of attachment requiring an unacceptable orientation of the attachment

4 Additional site requirements when using attachments on a quick hitch

4.1 Quick hitches should only be used by operators competent in the use of the specific make/model of the quick hitch – see section 6.

4.2 The use of a quick hitch introduces an additional risk to the operation of the host machine and therefore an increased exclusion zone should be set up when using quick hitches. This should be calculated by an assessment which should always be made of the load to be carried, the reach of the machine and possible momentum of any accidental detachment. Under no circumstance should personnel ever be underneath a quick hitch or any suspended load.

4.3 If attachments are changed on site there should be a suitable area for changing and storage of the attachments when not connected – this should be clear of any walking/working areas.

4.4 Wherever possible the adaptor plate should be an integral part of the attachment. Where an attachment has changeable adaptor plates (to suit different quick hitches) the joint between attachment and adaptor plate must always be fit for purpose.
4.5 The adaptor plate pins must always be fitted to both jaws of a quick hitch. Adaptor plates must never be attached to the quick hitch by a single pin.

4.6 Attachments requiring the freedom to articulate should be attached to a two pin adaptor plate – which in turn is fitted to the quick hitch.

4.7 Any defect which affects the safe use of the quick hitch should be reported immediately and the log book endorsed. The use of the quick hitch should cease immediately until the defect is rectified.

5 Lifting operations through a quick hitch

5.1 Where the quick hitch and anything attached to it via its jaws is intended to be used for lifting any load, they must be approved for lifting by the manufacturer. It should be marked up with its safe working load and have a current Thorough Examination certificate. This includes items like tilt rotators that may also act as a quick hitch.

5.2 Where an adaptor plate is used to enable a lifting accessory to be attached to a quick hitch the adaptor plate will become part of the lifting accessory and be included in the six monthly thorough examination.

5.3 Unless designed for a specific application, all lifting accessories should be used in a pendant configuration free hanging under all operating conditions from the lifting point or quick hitch, so that the lifting accessories are not subjected to loads for which they were not designed.

5.4 The quick hitch can be permanently or not permanently fitted to the host machine and the machine owner should record the status on the machine records:

- If the quick hitch is permanently installed and is likely to be used in any lifting operations then the record of Thorough Examination should cover both the host machine and quick hitch and should have a Thorough Examination on an annual basis. In this case the quick hitch must be uniquely identified on the host machine record of thorough examination, which should be carried on the machine at all times.
Where the quick hitch is not permanently fitted but is likely to be used in any lifting operations it should be classed as a lifting accessory and marked with a unique ID and Safe Working Load. It should have a Thorough Examination on a six monthly basis and the current certificate (or copy) carried on the machine that it is currently fitted to.

5.5 If the crowding ram is not fitted with burst hose protection then the quick hitch must be rotated such that the lifting point is directly under the dipper arm nose pin, as shown in Fig 5.

Fig 5 Example of correct orientation of quick hitch

6 Training and competence

6.1 Plant selection

6.1.1 The person ordering the host machine should be competent to check with the supplier that any quick hitch and the equipment to be attached are compatible and suitably certificated (this should be done at the planning stage).
6.2 **Operator**

6.2.1 The operator should:

- Be trained and competent in the use and checking of the quick hitch being used.
- Be trained and competent to confirm the quick hitch is coupled correctly, any safety lock is engaged and ensure that any necessary safety bar is always in place – see 3.2.
- Only use the quick hitch in accordance with the manufacturer’s instructions.
- Only use attachments known to be compatible with the quick hitch.

6.3 **Machine/crane controller**

6.3.1 The Machine/crane Controller should:

- Be aware whether or not a quick hitch is fitted and what type e.g. manual, semi-automatic (see 1.3.2) or fully automatic.
- Confirm with the operator that pre work checks of the quick hitch have been carried out.
- Observe the operator at each change of attachment undertaking a physical check of the connection.

7 **Labelling for quick hitches**

7.1 Every machine fitted with a quick hitch should have a label fitted adjacent to the quick hitch stating one of the following options. This includes items like tilt rotators that may also act as a quick hitch.

a) Manual quick hitch fitted.

b) Automatic quick hitch fitted.