Excavator Quick Hitch Procedure

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1. Purpose
The purpose of this procedure is to define the hire and purchase criteria, installation and operational requirements for excavator quick hitches.

2. Scope
This procedure applies to ALL equipment used by Fulton Hogan subcontractors and employees (owned, hired, leased) on any work site under Fulton Hogan control.

3. Responsibilities
Every person has the responsibility to understand this Significant Hazard Operating Procedure (SHOP) to ensure that all plant and equipment used on every Fulton Hogan work site complies with these requirements at all times.

3.1. Regional/Divisional/Project Manager Responsibilities
Responsibility for:
- Promoting and publishing this SHOP to all applicable persons throughout the region and branches
- Ensuring through written delegation of responsibilities that this procedure is implemented
- Reviewing ALL equipment for compliance
- Ensuring compliance of all subcontractor equipment used on Fulton Hogan work sites
- Ensuring Hire and Lease Companies comply with this procedure
- Ensure all necessary training is provided and undertaken
- Periodically have performed and reported on the auditing of the process for compliance with this procedure.
3.2. Line Manager Responsibilities

Responsibility for ensuring:
- All employees receive the SHOP and the contents are discussed and reviewed at tailgates
- Subcontractors and suppliers are informed of, trained in and comply with the procedure
- The requirements of this procedure are implemented
- ALL equipment used (owned, hired and leased) is compliant with this SHOP
- All equipment is currently maintained up to date in accordance with the plant maintenance schedule.

3.3. Employee Responsibilities

Responsibility for:
- Reading, understanding and complying with the operational requirements of this SHOP
- Verifying the attachment is correctly connected before commencing work
- Only using plant that is compliant with this SHOP, otherwise lock/tag out
- Only using plant that is currently maintained up to date
- Undertaking daily pre-start safety checks to ensure continued compliance.

3.4. Subcontractor and supplier responsibilities

Responsibility for:
- Reading understanding and complying with the operational requirements of this SHOP
- Ensuring equipment used or supplied (owned, hired and leased) is compliant with this SHOP
- Verifying the attachment is correctly connected before commencing work
- Only using and supplying plant that is currently maintained up to date
- Undertaking daily pre-start safety checks to ensure continued compliance.

4. Training

All plant operators must be licensed to the appropriate level of the machinery being used and be deemed competent to operate with regards to the requirements of this SHOP.

Operators must always use a manual locking pin unless the hydraulic quick hitch incorporates dual, independent locking systems in accordance with the Australian Standard AS4772 Earth Moving Machinery – Quick Hitches for Excavators.

Operators must always verify the attachment is correctly connected by crowding the attachment towards the cab to visually note the wedge is engaged. After placing the attachment on firm ground, a reasonable amount of ‘opening bucket’ type force should be supplied to check engagement. Finally, shake the attachment vigorously well clear of any persons/plant.

This SHOP shall be communicated at induction and pre-start tailgate sessions to all staff and to relevant subcontractors, suppliers, and visitors who may be unfamiliar with the operational requirements.

All training (including inductions) relating to this procedure must be documented and recorded in People Development Platform / training skill matrices / Competent to Operate assessments.

Operators and ground support personal must be adequately trained as required by section 13 of The Health and Safety and Employment Act 1992, and lifting operations are carried out in accordance with the approved Code of Practice for Load-Lifting-Rigging.

5. Method

5.1. Installation

Due to the large number of excavator makes and models available, it is extremely important that only properly skilled persons carry out the installation of the quick hitch.
It is important to note that if the hydraulic pressure of the carrier machine exceeds the recommended pressure of the cylinder fitted to the quick hitch, the operating pressure must be reduced to equal or less than the safe working pressure of the quick hitch cylinder.

5.2. Attachments

Quick hitches are designed to accept attachments manufactured to OEM specifications and capacities. Oversized attachments modified to suit smaller excavator linkages fitted to the quick hitch could be extremely hazardous and must not be used. Attachments used must always be approved by the manufacture of the quick hitch.

Warning: There should be no movement at all between the Quick Hitch and attachment pins.

5.3. Maintenance

It is important that the manufacturer’s recommended daily and weekly maintenance procedures be followed for all quick hitches. Typically this may include:

5.3.1. Daily
- Check all safety locking pins, manual screw devices, pin and screw retention devices, bolts and nuts for tightness on the quick hitch and attachment
- Grease all slide housing points and grease nipples
- Check hydraulic hoses and fittings for any leaks or wear
- Check audible warning buzzer, warning lights and quick hitch controls
- Check the quick hitch for correct operation.

5.3.2. Weekly
- Check hydraulic cylinder mounting bolts
- Check quick hitch for evidence of fatigue; weld failure and stress
- Clean away any material build up around the hitch locking cylinder and system.

5.4. Specification set-up

Excavator quick hitches must at least conform to the following standard.
- Be made or fully supported in NZ (should any parts be required)
- Operate with an action that locks the attachment and has the ability to take up any wear in the pins and thus maintain a tight and secure fit
- The locking system must be under constant hydraulic pressure, so that nothing can work loose and that wear is accommodated
- Check valves must be used on hydraulic hitches to prevent the bucket release if hoses are broken. Preferably, this check valve should be mounted integral with the ram, so hose breakage will not allow the hitch to open.
- The control system for connecting and releasing the hitch should incorporate two (2) separate controls that are ideally spring loaded (momentary). Thus, if either switch is bumped, they will return to the safe position. To make the system even safer, one switch could be mounted with either a hinged cover or guard around it so that it is impossible to knock. Suitable reuse of an infrequently used switch/lever may suffice, such as the back blade circuit in the fully up position.
- The locking system should utilise hydraulic pressure to release the hitch. The switching circuit should be fitted with a buzzer (and possibly a warning light) so that when pressure is applied to release the hitch, a pressure switch or the switching circuit activates the buzzer.
- Lifting operations must only be carried out where a certified lifting eye is provided as part of the quick hitch, or a certified lifting eye is provided on the back of the attachment. Any retrofitted lifting eye must be certified by a Chartered Professional Engineer (CPEng). The SWL (Safe Working Load) of the lifting eye must be displayed adjacent to the lifting eye.
Where a lifting eye is fitted, the SWL and a load / reach chart (excavator only) must be displayed for the operator, preferably in the cabin.

The suspended load must hang down from the certified lifting point without interference. Interference can lead to shackles and rings being put under stress and breaking. Where the certified lifting eye is fitted to the quick hitch, the bucket should be removed when lifting operations are performed unless the weight of the bucket has been taken into account in regards to the total load on the hitch (including the lifting load on the eye) and the bucket does not interfere with the lifting operations.

**From 1 January 2014, where certified lifting eyes are fitted**, hydraulic safety devices or anti-burst valves must be fitted to the main boom, as well as the dipper arm on all excavators 12T and above; these must be approved by the excavator manufacturer or its authorised agent in accordance with Part 16 of the Code of Practice for Cranes. Fulton Hogan has made it mandatory to fit anti-burst valves to all new excavators of any weight where certified lifting eyes are fitted. Existing excavators of 12T and above, where fitted with certified lifting eyes, must have anti-burst valves fitted before 1 January 2014.

Existing excavators of 7T and above, where fitted with certified lifting eyes, must have anti-burst valves fitted before 1 January 2016, otherwise the lifting eyes must be completely removed and the excavator cannot be used for lifting operations, and a label shall be fitted to state the excavator is not to be used for lifting operations. Regions should use common sense/judgement and where available, only use excavators with anti-burst valves for lifting operations.

Loaders typically do not require a certified lifting eye, and in general these should not be fitted. Where a loader is required to have a certified lifting eye, a load / reach chart is not required to be displayed for the operator, but the rating of the lifting eye must be displayed. Where certified lifting eyes are fitted to new loaders, Fulton Hogan requires that anti-burst valves (3 of) are fitted on vehicles 8T and above. Smaller loaders, where certified lifting eyes are retrofitted, are not required to be fitted with anti-burst valves; however, some certifying engineers may not certify the lifting eye without these safety devices fitted.

Existing loaders must comply with the requirements for certified lifting eyes and anti-burst valves on vehicles 8T and above by 1 January 2014.

Unless the hydraulic hitch incorporates dual, independent locking systems in accordance with Australian standard AS4772 Earth Moving Machinery – Quick Hitches for Excavators, a manual safety-locking pin must be provided, and this pin must always be used.

Where a manual safety-locking pin is required; before installing or uninstalling the safety-locking pin, all practical steps must be taken to identify, assess and control hazards (in conjunction with the manufacturer’s requirements and specifications) before the work is carried out. This will ensure that all potential harm involved in the process is eliminated, isolated or minimised when using manual safety-locking pins.

Any manual safety-locking pin, used either on a manual hitch or on a hydraulic hitch, must have a retention device such as a Lynch pin (or similar) that prevents the locking pin from falling out. Any manual screw type manual hitches must have a safety pin mechanism to ensure the screw-drive does not loosen under load.

### 5.5. Approved hitch brands

All Automatic – Hydraulic quick hitches fitted to Fulton Hogan excavators from 1st January 2017 must be classified against the NSW WorkCover position paper as “Automatic – detach and swing”, meaning that they prevent falling and swinging in the event that the primary system fails.

Existing Automatic – Hydraulic quick hitches that are classified against the NSW WorkCover position paper as “Automatic – detach only”, meaning that they prevent attachments falling off but does not prevent swinging in the event that the primary system fails or loses its retention force, may continue to be used. These hitches do not require a manual locking pin.

All other existing Automatic – Hydraulic quick hitches retained in the fleet must utilise a manual locking pin at all times.
5.6. Verify attachment is connected

The attachment must be checked visually by crowding the attachment towards you until you can see that the wedge is engaged under the pin. Place the attachment on firm ground and apply a reasonable amount of ‘opening bucket’ type force to check the engagement. Then shake the attachment vigorously to check the connection. This action and general operation must always be carried out well clear of property and persons.

**Warning:** There must be no movement at all between the Quick Hitch and attachment pins.

6. Emergency response

Should an incident occur whereby any person, plant, equipment or property is damaged in some way with a failure of a Quick Hitch, then the below process shall be followed:

- If required, CONTACT EMERGENCY SERVICES immediately.
- Inform Supervisor and/or Line Manager of the incident giving details of location, what happened, extent of damage/injury/loss
- If the incident involves significant damage, serious personal harm or death, the scene must not be disturbed other than to:
  - Save life or limit suffering
  - Maintain access by the public to an essential service
  - Prevent serious damage or loss of property
- If it is safe to do so, immediate and appropriate action should be taken, e.g. barricade off the incident area, lock out/tag the item of plant or equipment
- If the incident is declared an Emergency, the requirements of the site Emergency Response Plan must be executed
- The Police or MBIE will advise when the scene can be released
- If able, take photos of the scene, and get contact details of any other person(s) involved in the incident
- Complete an OFI, a Lumley Glove Box Insurance Guide (contained in all Fulton Hogan vehicles) and any other documentation required as outlined in the Emergency Response Plan.

7. Definitions

**Assessment**

In relation to hazards or tasks, it is a process whereby the potential consequences of a task are weighed up against the likelihood of occurrence, thereby deciding what controls need to be put in place to reduce the exposure of a hazard to a person, plant or the environment.

**Competency**

The end point of a process which begins with appropriate training. This training is followed by practice which builds experience. Training backed by sufficient experience will develop expertise, and at this stage one starts to become competent.

**Emergency Response Plan**

A plan developed by Management to assist staff in the event of an emergency. It contains the protocol to be followed in a pre-determined emergency situation (such as motor vehicle accident, personal injury, major spill, etc) and contact numbers. ALL Fulton Hogan vehicles must have an Emergency Response Plan on board.

**Hazard**

A source or situation with potential for harm in terms of human injury or ill health, damage to property, damage to the environment or a combination of these.

**Legal Requirements**

This includes all obligations established by Government Legislation (Acts, Regulations, Codes of Practice, Guide lines etc). Such obligations will be specific to a particular site or operation and established by regulatory authorities contained in licenses, permits, planning consents, environmental improvement notices etc.

Client-specific obligations to a particular site or operation are contained in the service contract or alliance agreement between Fulton Hogan and the client, or in supporting documentation.

**Lifting eye**

A lifting eye may be attached to either the Quick Hitch of directly to an attachment to enable the excavator to be used as a crane and lift objects.

**Load**

Any material, plant or equipment that is stored or transported in or on a vehicle. It includes any equipment or objects used in securing or containing of the material, plant or equipment.

**Lock Out / Tag Out (LOTO)**

A safety procedure consisting of a prominent written sign placed on the energy-isolating device(s) indicating the isolating mechanism, e.g. switch, valve, circuit breaker etc., is out of service, and the mechanism is not to be energised until the LOTO label has been removed. LOTO tags should be durable, legible and substantial (so they do not come off easily). They should identify the individual who has placed it there, with a warning that they can only be removed by the initiator.

**Operate**

In relation to a vehicle; means to drive or use the vehicle on a road, or to cause or permit the vehicle to be on the road or to be driven on a road, whether or not the person is present with the vehicle.

**Quick hitch**

A quick hitch on an excavator is a latching device that enables attachments to be connected to the dipper arm of the plant and interchanged quickly.

**Significant Hazard Operational Procedure (SHOP)**

A procedure developed to provide safe operations guidance in managing significant hazards identified throughout the Company. A SHOP is normally developed for any hazard that has a risk rating of High or Extreme and would be evident in more than one Region or Project. SHOPs are mandatory and part of the Fulton Hogan audit programme.

**Significant hazard**

A hazard that is an actual or potential cause or source of:

- serious harm
- harm (being harm that is more than trivial), the severity of which effects on any person depend (entirely or among other things) on the extent or frequency of the person’s exposure to the hazard
- harm that does not usually occur, or usually is not easily detectable, until a significant time after exposure to the hazard
- A hazard rated high or above using the Fulton Hogan Risk Assessment Matrix.

**Standard Operating Procedure (SOP)**

Is an activity associated with the production, storage, loading and sale of products. It can be routine or repetitive; however, it has been standardised and formally documented within Fulton Hogan’s business management system to provide reference and training resource to ensure safe good practice.

Work covered by a SOP may be done by Fulton Hogan employees or an outside approved subcontractor.

Such work as instrument calibration, mechanical adjustment, and checking and cleaning or plant and equipment could be regarded as such.
Subcontractor
A person or business entity engaged by Fulton Hogan (or a subcontractor of Fulton Hogan) to do any work for gain or reward (other than as an employee).

Supervisor
The person authorised by Fulton Hogan to be responsible for the overall administration of an operation, which may include a number of work teams on different project sites, e.g. Chip-sealing supervisor.

Supplier
Any person or business entity engaged by Fulton Hogan to provide resources, materials or services for gain or reward.

Workplace
Any place where a person is, for the purposes of his or her employment, carrying out work duties. This is irrespective of whether they are on active duty or not, including all of the following:
- travelling to and from the place of work during work hours
- travelling to and from the place of work including the start and finish of the day if:
  - the vehicle is provided by the employer
  - the vehicle used is provided for the purpose of transporting employees
  - the vehicle is driven by an employee or someone directed to by the employer
  - having a break from work for a meal or rest or refreshment at the place of work.

8. Document review
This document shall be reviewed on an annual basis or earlier as may be required as a result of an incident, audit, hazard review or suggestion for improvement.

The review shall ensure that all codes, standards, design specifications, compatibility assessments and generally accepted practices have been met.

9. References
AS4772 Earth-Moving Machinery – Quick Hitches for Excavators
Approved Crane Code of Practice, 3rd Edition, January 2010
GE M0018 Excavator Quick Hitches minimum standard issued Nov/Dec 2003
Fulton Hogan Operational Health and Safety System

10. Revision History

<table>
<thead>
<tr>
<th>Date</th>
<th>Author</th>
<th>Brief Description of Change</th>
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<tbody>
<tr>
<td>11/12/2009</td>
<td>Graham Eaton</td>
<td>Minimum standard GE M0018 converted to SHOP</td>
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<tr>
<td>24/06/2011</td>
<td>Graham Eaton</td>
<td>Updated section 5.5. Miller and Doherty hitches added</td>
</tr>
<tr>
<td>09/12/2011</td>
<td>Graham Eaton</td>
<td>Updated section 4 added paragraph 4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Updated section 5.4 bullet point 7 and 9</td>
</tr>
<tr>
<td>02 May 12</td>
<td>Michelle McPherson</td>
<td>Changed Pay Global to People Development Platform</td>
</tr>
<tr>
<td>09/05/2012</td>
<td>Graham Eaton</td>
<td>Updated Section 5.4 Specification Set Up, Paragraph 8 re Where Certified Lifting Eyes are fitted</td>
</tr>
<tr>
<td>21/08/2012</td>
<td>Graham Eaton</td>
<td>Updated Section 5.4, Burst valves on existing excavators and new/existing Loaders clarified</td>
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<tr>
<td>31/10/2012</td>
<td>Graham Eaton</td>
<td>Updated section 5.5. Dromone hitches added</td>
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<tr>
<td>12/11/2012</td>
<td>Graham Eaton</td>
<td>Updated section 5.5. Everdigm EQX hitches added</td>
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<tr>
<td>Date</td>
<td>Author</td>
<td>Change Description</td>
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<tr>
<td>17/04/2013</td>
<td>G Rensford</td>
<td>Updated reference and Link to Risk Assessment Matrix - left styles &quot;as is&quot; as OHSS Manual referenced documents under review</td>
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<tr>
<td>28/11/2013</td>
<td>Graham Eaton</td>
<td>Section 5.5, Everdigm EQX hitch updated to EQD</td>
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<tr>
<td>28/11/2013</td>
<td>G Rensford</td>
<td>Updated references from DoL to MBIE</td>
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<tr>
<td>29/1/2014</td>
<td>Graham Eaton</td>
<td>Updated Section 5.4, Burst valves on existing excavators to include new legal requirements for 7T or more excavators</td>
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<tr>
<td>8/7/2014</td>
<td>Graham Eaton</td>
<td>Updated Section 5.4 to cover off the removal of the bucket when lifting where the lifting eye is fitted to the quick hitch to avoid interference.</td>
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<tr>
<td>17/3/2015</td>
<td>Graham Eaton</td>
<td>Updated section 5.5. JCB JS Surelock Quick Hitch System added</td>
</tr>
<tr>
<td>3/12/2015</td>
<td>Graham Eaton</td>
<td>The word “other” added into the statement “All other Wedgelock hitches require a manual pin” in section 5.5</td>
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<tr>
<td>13/7/2016</td>
<td>Graham Eaton</td>
<td>Section 5.1 amended in regards to clarifying removing buckets while lifting. Section 5.5 amended, approval added for hitches that are classified as “Automatic – detach and swing”.</td>
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<tr>
<td>6/3/2017</td>
<td>Graham Eaton</td>
<td>Section 5.5 amended with the change for all new Automatic – Hydraulic quick hitches to be classified as “Automatic- Detach and Swing” from 1st January 2017.</td>
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