Meuangvang Development Co.LTD
Standard Working Procedure 058
Use of Hydraulic Torqueing Devices

1. Application

To provide a standard work procedure for Use of Hydraulic Torqueing Devices as required in accordance with Meuangvang Development Co Ltd Safety Management Program

2. Revision Schedule

Rev #	Old Section Ref	New Section Ref	Description of Changes
0			New document created July 2008

3. Table of Contents

4. Personal Protective Equipment (PPE) / Special Equipment

- Safety glasses
- Safety helmet
- Protective gloves
- Hearing protection as appropriate
- Steel capped safety boots

5. Accountability

- Supervisor are to closely observe and worker's using Hydraulic Torqueing devices and beware of:
  - The act of tensioning a bolt or nut involves the application of torque and storing of energy in the bolt or stud being tensioned.
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  - All tensioning devises have inherent risks associated with their use which should be controlled through the appropriate selection of tooling for the application and the completion of a Job Hazard & Environmental Analysis (JHEA) prior to using torqueing equipment to identify the job specific controls which are required to prevent injury to personnel and damage to equipment.
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  - This Standard Work Practice applies to the use of hydraulic devices eg. (Hytorc) intended to deliver high levels of torque to nuts, bolts, studs and other fixings.

6. Training Requirements

- Only experienced employees should use these type of tools, and should be closely observed my supervisors

7. Document Storage

The electronic master version of this document, together with the associated Forms and Templates, is stored on the Safety Managers computer.
Safety Manager/ officer are responsible of maintaining the document.

8. Definitions'

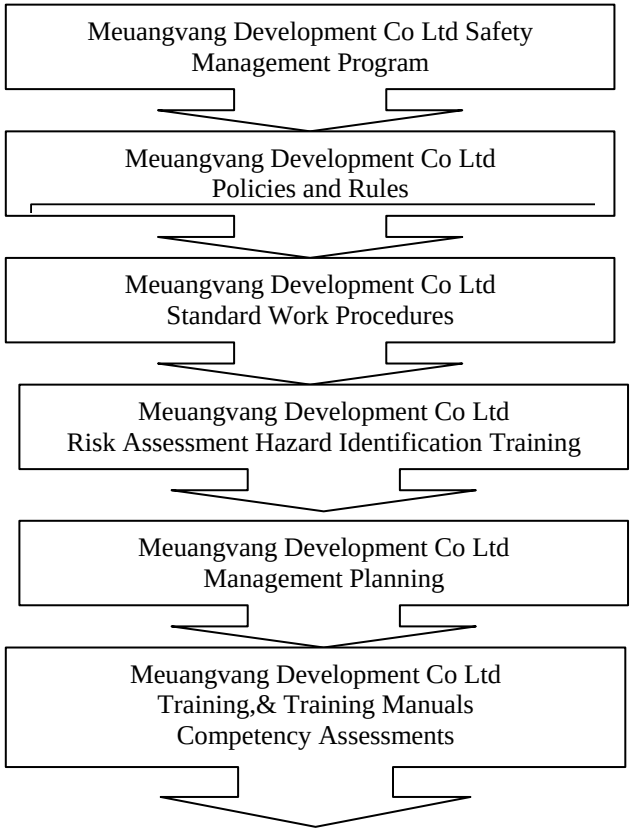
JHEA= Job Hazard Environmental Analysis

9. Purpose and Expected Outcomes and Flowchart

To provide a standard process for the creation, review, authorisation and issue of documents which require control, specifically those operational documents shown in the document structure below.

To ensure a common format of documentation is followed, to eliminate duplication and to ensure accurate and current information is readily available to all employees.

PROCESS FLOWCHART .



10. Tasks

Task Steps	Hazards	Additional Information and Controls
Detail of each step in the task, presented in a logical sequence.	*Identification of any hazards involved with the task step.*	*Any other relevant detail or information that will assist with the performing of the task and any requirements for risk mitigation.*
Controls	Serious Injury	• Equipment being worked on shall be correctly isolated and tagged out • Appropriate lighting, access, stable footing and fall restraint shall be provided as required to ensure work can be conducted safely. • The equipment manufacture's manuals shall be referenced for the correct tightening tension of bolts. • Torque measuring tooling shall be included on the sites calibration register and regularly calibrated.
Control of Hazards	Serious Injury	• Common risks which exist with the use of this equipment and controls are listed below. The list is not exhaustive and other hazards may be present due to the design of the particular equipment, location, environment and task it will be used for. **Key Risks:** • Operator and any assistant not familiar with correct use of equipment. • Tool weight – risk of manual handling and risk of falling unit causing damage or injury. • Slipping of torque reaction arm or breakage of the reaction point on the equipment – risk of sudden movement, ejection of the unit or falling due to loss of restraint causing injury or damage. • Failure of hydraulic hose under high pressure. • Oil leakage creating slip / fire hazards. Breakage of bolt being tensioned – risk of sudden movement and falling of one or more of the hydraulic tensioner, bolt being tensioned, items being bolted. • Note the longer the bolt being tensioned the greater the energy that will be stored in the bolt of any given size. • Pinching / crushing of body parts through operation

Task Steps	Hazards	Additional Information and Controls
Detail of each step in the task, presented in a logical sequence.	*Identification of any hazards involved with the task step.*	*Any other relevant detail or information that will assist with the performing of the task and any requirements for risk mitigation.*
Specific Controls	Serious Injury	• **Always** ensure that only those personnel who are appropriately skilled and familiarised with the equipment operate the equipment. • **Always** ensure that the pressure gauge being used to monitor torque applied on hydraulic tooling is correctly calibrated, that you clearly understand the units the gauge is reading in and what the target pressure is to achieve the required torque on the bolt / nut / stud. • **Always** repair any hydraulic leaks prior to using the equipment. • **Always** ensure that hydraulic hose shields are in place where they are provided and that personnel are kept clear of hydraulic lines under high pressure. • **Always** ensure that no fire risk would occur as a result of loss of hydraulic oil from the unit and contract with hot components. • **Always** undertake a separate risk assessment to identify the controls required to ensure safe work where circumstances / hazards differ from those covered by this procedure prior to commencing work. • **Always** ensure that no fire risk would occur as a result of loss of hydraulic fluid from the unit contacting hot components. • **Always** provide access such that the unit being used is able to be used a an appropriate working height and ensure hand held or operated units are operated at below shoulder level. • **Always** inspect all tooling prior to using to ensure that it is fit for use. In particular, inspect the output drive and socket for signs of damage or cracking and the tooling for signs of damage. • **Always** use proper manual handling techniques, seek assistance if required and use mechanical lifting devices where appropriate. • **Always** use recognised safe work practices when using hand tools and other equipment. • **Always** be aware of the hidden danger that bolts / studs may be damaged, distorted or cracked. Inspect all bolts prior to installation. • **Always** ensure that nuts and bolts screw freely into or onto whatever they are being fitted to. Never use a torqueing device to run the nut or bolt over the free threaded area if the nut or bolt cannot be hand turned.

Task Steps	Hazards	Additional Information and Controls
Detail of each step in the task, presented in a logical sequence.	*Identification of any hazards involved with the task step.*	*Any other relevant detail or information that will assist with the performing of the task and any requirements for risk mitigation.*
Specific Controls	Serious Injury	• **Always** ensure you know the grade of bolt / stud and nut being worked on and the recommended torque which is to be applied. • **Always** remain aware of the dangers of crushing hands or fingers between tooling and equipment. • **Always** ensure that clear communications are in place between all members of the work crew where more than one person is involved in the task. • **Always** make sure that no person is working on the other side of a bolt being tensioned or in a location where they could be injured if that bolt failed during tensioning. • **Always** ensure that personnel not involved in the tensioning job are kept clear. • **Always** ensure that the anchor point for the torque reaction arm is capable of supporting the load that will be applied without undue deflection or damage to machine components and that the torque reaction arm seats squarely and firmly on the anchor point. • **Always** ensure threads are clean and in serviceable condition and appropriately lubricated (refer to OEM Tensioning Instructions). • **Always** ensure on pneumatic / hydraulic powered units that the units air supply pressure is within the required specification and all hoses and fittings comply with appropriate standards. • **Always** ensure that on units with an electric / hydraulic power pac, power leads are in current inspection, that the unit is free of damage and the power source is earth leakage protected. • **Always** use sockets which are rated to carry the required torque. Note normal hand tool sockets are unlikely to be rated to carry the load applied by a torqueing device

Task Steps	Hazards	Additional Information and Controls
Detail of each step in the task, presented in a logical sequence.	*Identification of any hazards involved with the task step.*	*Any other relevant detail or information that will assist with the performing of the task and any requirements for risk mitigation.*
Specific Controls	Serious Injury	• **Never** modify or use makes shift devices to restrain the torque reaction arm on any torqueing device. • **Never** leave unused tooling in a location where it could fall and injure others working below. • **Never** use output drive extensions unless the use of these is permitted by the manufacturer as the increased deflection could cause the socket to come free of the not or cause failure of the socket / extension piece. • **Never** use a hydraulic torqueing device that does not clearly display its name plate, ratio maximum torque rating and model number. • **Never** use a hydraulic torqueing device without first referring to the manufacturer's safe operating instructions for its inspection, set up and use. • **Never** place hands on or near the socket or torque arm during operation. Only hold the unit by the designated handles.
Task and Hazard Assessment	Serious Injury	• Due to the varied nature of how this equipment can be used, it is not possible to develop a generic safe work practice suitable for each individual situation. • Prior to commencing work, carefully inspect work area and equipment to be used and carry out a Job Hazard Environmental Analysis (JHEA) to identify the hazards which need to be controlled in the particular task, taking into account the equipment specific hazards listed above and any other hazards which exist in either the tooling, the task or the environment. • Where units are used for repetitive tasks generic Standard Work Procedure (SWP's) should be developed for those tasks.

Task Steps	Hazards	Additional Information and Controls
Detail of each step in the task, presented in a logical sequence.	*Identification of any hazards involved with the task step.*	*Any other relevant detail or information that will assist with the performing of the task and any requirements for risk mitigation.*
Task Execution	Serious Injury	• Before commencing work, ensure the area is clear of persons who are not required to complete the tasks required and that appropriate warning signs / barricades are in place to restrict entry while work proceeds. • Ensure that site isolations and tagging procedures are complied with. • Ensure the work area has adequate lighting, that sufficient room is available and that housekeeping is maintained. • Work in accordance with the safe work procedure developed as a result of the JHEA above and continue to monitor the work to ensure that new or unrecognised risks do not appear as the job progresses. • Where new risks occur, stop work until these are assessed through the JHEA process and the safe work procedure modified to control the risks

11. References

13. Written Acknowledgement

I have read and understood this procedure and have had any questions in regard to this procedure thoroughly explained.

Name: _____

Signature: _____ **Date:** _____

Training Coordinator: _____

Signature: _____ **Date:** _____

13. Improvement Suggestion

	Possible Cause	Corrective Action	Additional Information

14. Approval

Revision 01 ຈຳນວນຜູ້ທົບທວນ	Approved by(position) ຮັບຮອງໂດຍ(ຕຳແໜ່ງ)		Signature of Approver ລາຍເຊັນຂອງຜູ້ຮັບຮອງ	Date ວັນທີ
Prepared by ກະກຽມໂດຍ	P Brears	Safety Consultant		
Reviewed				
Approved				