Best Practice Category:	General Work *Category the document will be located on the Intranet under Best Practices*	**Document #:**	**BP072** **BP + Sequential Number = Category**
Document Title:	**Pin Removal and Installation on Heavy Equipment**		
Owner:	 *BUL of Originating Business Unit*	**Effective Date:** **May 2007**	**Revision #:** **0**

Business Unit Designation:

- [ ] BU 01 - Infrastructure
- [ ] BU 02 - BR Civil
- [ ] BU 04 - Houston Civil
- [x] BU 15 - Deep Foundations
- [ ] BU 23 - Marine
- [ ] BU 29 - BR Mechanical
- [ ] BU 30 - Houston Mechanical
- [ ] Pipe Fab Facility
- [ ] Form Fab Facility
- [ ] Westport Operations
- [ ] Cajun Office Facilities

A check next to a Business Unit indicates this best practice is required by that business unit and therefore is a mandatory Standard Operating Procedure (SOP) for that business unit.

Purpose

The following information is a basic guideline for the installation and removal of equipment pins.

Initial Assessment

1. Determine if the pin is mild or hard steel.
    - The best way to determine mild vs. hard is to use a file. Attempt to file down on a non critical portion of the pin. If you are able to make a substantial mark on the pin, it should be considered mild steel. If the file is unable to cut into the pin's surface, then you should consider that the pin is made of hard steel.
2. Attempt to position the pin in a location that allows for good (safe) body position and workability. If the pin location is unsafe or difficult to work on, provisions may have to be made for work platforms.
3. Identify the surrounding conditions. Oily or wet surfaces could potentially cause an accident, resulting in an injury to employees.
4. Assure that the load has been completely removed from the equipment being dismantled prior to removing pins.
5. **Plan your work**. Identify the job steps, potential hazards, and determine the preventive measures needed to control the hazards. Make sure you use all the proper tools, equipment, and personal protective equipment needed to perform your job safely. Minimum PPE requirements; hard hat, safety glasses, hearing protection, safety toed boots, and appropriate work clothing.

Tool Selection and Inspection

1. Cajun employees are to use domestically made tools. (Made in the U.S.A.)

2. Inspect all tools and equipment prior to use:

   - **Sledge Hammer (Maul)**: Verify that the hammer handle is in good condition (look for cracks) and assure that the head is securely seated on the handle.
   - **Drift / Softener**: The drift / softener needs to have a handle or tool holder to eliminate line of fire hazards. Remove all mushrooming from drift / softener, and ensure that the handle or holder is securely attached. The drift / softener needs to be made of mild steel and be at least one half the diameter of the pin.

   - **Porta-Power**: Inspect for visual damages, secure fittings, conditions of hoses, verify that the gauge is working properly, etc.
   - **Cutting Rig**: Verify that the oxygen and acetylene cutting rig is in good working order (i.e. flashback arrestors, no cuts in hoses, gauges, torch, bottles in good condition, fire extinguisher in place, etc.)

Pin Removal

1. **DO NOT** strike a hard steel pin or pin boss with a hammer, use a softener / drift made from mild steel.

2. If a mild steel pin begins to move and is close to flush with the pin boss, employee will need a drift / softener to completely drive the pin. The pin boss is normally a harder grade steel, so do not attempt to drive the pin after it becomes flush or recessed within the pin boss without using a drift / softener. Striking the pin boss with a tool hardened sledge hammer may cause fragmenting, and potentially resulting in personal injury.

NOTE: If the pin does not move after 3 good blows with a ten pound sledge hammer, then consider the pin seized.

STOP: Contact your project superintendent and Business Unit mechanic for assistance. Deep Foundations' Mechanic: **Craig Abney -- (225) 936-7005**

Prior to attempting any of the 4 steps listed below you will need to develop a separate **Pre-Task Plan,** including the assistance and/or instructions from mechanic.

1. Apply heat to the pin boss while attempting to cool the pin. Do not put any heat on the boom at anytime.
2. After applying heat to the pin boss, attempt to move the pin with a hammer, along with a drift / softener if pin is made of hard steel.
3. If the pin remains seized, then try using a porta-power to apply constant pressure to the pin.
4. After exhausting the following three steps, you may need to cut the pin from the pin boss.

Pin Installation

1. The pin and pin boss need to be cleaned prior to installing. Remove any rust, burs, and/or debris.

2. Coat the pin boss with a light coat of never seize.

3. Align the hole and lightly tap the pin into place.

Approvals		
Title	***Signature***	***Date***

Revision History				
Rev #	***Date***	***Reason for Changes***	***Originator***	***Effective Date***

Note: SOP Requirement
Work must be performed in accordance with the information in this Best Practice. If it is determined, that work cannot be done as required in the document or that it presents additional risk, you must obtain authorization for variance from the Business Unit Sr. Construction Manager and Business Unit Manager of Safety.