



MIOSHA Fact Sheet

Construction Safety & Health Division

Quick-Couplers on Construction Equipment

Construction companies want their excavation equipment to be as versatile as possible. This has led to equipment that is designed for multiple uses. It is not uncommon for excavation equipment to be used with a hydraulic jackhammer, a bucket (including different sizes), and a hydraulic tamper (used for backfill compression), sometimes all in the same day. Equipment manufacturers and suppliers are making it possible to change attachments quickly through the use of devices commonly referred to as "quick-couplers". With a quick-coupler, an excavator can be converted from one operation to another often in a matter of minutes. If a quick-coupler is not fully engaged and locked, is not maintained properly or coupler springs have loosened or lost tension, it can unintentionally release causing the piece of equipment to detach and fall.

Quick-couplers are increasingly popular after-market devices that are used on hydraulic excavators. Most quick-couplers have a lifting eye to use for lifting material. By removing the bucket, a large amount of weight is removed from the excavator increasing the lifting capacity of the excavator, and removal of the bucket improves the excavator operator's view of the lift. The unexpected release of equipment in many cases is due to the failure of the quick-coupler to be properly engaged and locked.

Various manufacturers make quick-couplers. Manufacturers of quick-couplers have recognized the hazard of the bucket or other attachments being unexpectedly released from the quick-couplers and, in most cases, have provided users with a retrofit locking pin which is manually inserted behind the front lever (stick pin) or rear lever (link pin) of the couplers to prevent unintended releases.

[Part 10. Lifting and Digging Equipment](#)

MIOSHA Construction Safety Standard [Part 10](#), addresses the installation, inspection, and use of these attachments.

- Rule 1041a (24)- The employer must comply with the Power Crane and Shovel Association's, Mobile Hydraulic Crane standard No. 2, or the USA Standard Safety Code for Crawler, Locomotive, and Truck Cranes USAS B30.5, which require that manuals for equipment be available at the worksite.
- Rule 1041a - The employer must provide training for the equipment operator on how to make daily inspections, and the capabilities of equipment and attachments.
- Rules 1051a (1) – Requires annual inspections for excavation equipment in regular service.

Safety Measures to Prevent Accidents

Employers using hydraulic excavators with quick-coupling devices can protect employees from the unintended release of attachments by:

- Inspect all quick-couplers to determine if they are subject to unexpected release hazards. Determine whether a manually installed locking pin and installation procedures have been provided by the manufacturer.

- If necessary, obtain and install retrofits recommended by the manufacturer, including positive locking pins and other devices that need to be manually installed. On a used excavator, contact the quick-coupler manufacturer to see if there are any Technical Service Bulletins that relate to the quick-coupler.
- Consider the use of newer models of quick-couplers that have been specifically designed to prevent the unintended release of attachments.
- Follow the manufacturer's recommendations for maintenance and inspection of the quick-coupler to prevent a malfunction that could cause an unintended release of the attachments. Include the inspection of the quick-coupler in the excavator's annual/periodic inspection.
- Follow the manufacturer's installation procedures and recommendations on testing quick-coupler and attachment connections every time an attachment is made.
- Train employees in the proper use of quick-couplers, making visual inspections, procedures for engaging attachments and methods for testing connections.
- Require employees to use the proper procedures for engaging excavation attachments and incorporate the procedures into the company's Accident Prevention Program required by MIOSHA [Part 1. General Rules](#), Rule 114.
- Check the machine or manual for warning signs or symbols.

The key to preventing injuries and fatalities related to the use of quick-couplers is good employee training and frequent/thorough inspections of equipment to identify problems. Additional information on quick-couplers can be viewed at www.osha.gov/dts/shib/shib072205a.html.

LEO is an equal opportunity employer/program.



Construction Safety and Health Division
 530 West Allegan Street • P.O. Box 30645 • Lansing, MI 48909-8145
www.michigan.gov/miosha • 517-284-7680
 CSH Fact Sheet - #016 • Revised 08/24/2015

