

# TerranearPMC Safety Share

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## Week of October 7, 2019 – Whip Checks

One of the most common workplace injuries, especially in the construction field, are “strike-bys.” These injury-types are one of OSHA’s Construction Focus Four topics (along with falls, electrocution, and caught-in-between). Collectively these four hazards, year-after-year, comprise more than half the fatalities in the construction industry.

For 2016, the Bureau of Labor Statistics reported that contact with objects or equipment – known as “strike-bys,” caused 761 fatalities in the American workforce – and as their subsequent investigations revealed – all were preventable. Among the Focus Four, *struck-by* comprises the widest range of individual hazards, consisting of being struck by flying objects, falling objects, swinging or rotating parts, as well as items slipping or a rolling out-of-control.

A flying object hazard exists when something has been thrown, hurled, or propelled across space. It can include instances when a piece of material separates from a tool, machine, or other equipment, striking a worker. A very severe type of this type of incident is when a cable snaps and breaks and personnel are situated in the line-of-site. This is one major reason why it is important to minimize the number of persons in the immediate work area and have only workers that are essential to the operation present. At the same time, persons that need to be in the vicinity, should be situated away from the immediate line-of-sight where, if the cable does fail, the chances of a serious “strike-by” incident will be minimized. .

A major type of “strike-by” occurrence, and similar to the example of a failed cable under tension, involves the improper use of, or lack of, whip-checks.

When a pressurized air hose becomes accidentally uncoupled or a hose or fitting failure occurs, the rapid expansion of air (or fluid) causes the hose to whip violently creating a potentially lethal situation. Whip checks are designed to prevent injuries or accidents resulting from a hose or coupling failure by connecting pressurized lines across the coupling and thereby preventing the hoses from flying around should the connection inadvertently separate. Therefore, whip checks are designed to prevent a pressurized line from contacting personnel that has the potential to cause a serious laceration or contusion. Body parts such as eyes and faces are quite susceptible. Even a persons’ torso or arm, can suffer a major injury. In other words, a whip check extends across the connection between a hose and a fitting, that restrains a loose end from violently flailing and coming into contact with another object (i.e. human). They are simple to install, requiring the spring to be pulled back and slipped over the two connecting pieces of equipment; such as two hoses or a hose and a pipe.

Whip Checks are recommended in all pressurized hose applications in order to keep operators and job sites safe. To prevent serious injury, whip checks should be installed at each hose connection and from equipment air/fluid sources to the hose. Spring-loaded loops easily adjust to slip over the couplings and maintain a firm grip on the hose. Also known as whip arrestors or hose choker cables, these cables are a necessity for all pneumatic supply hose applications.

Hose Safety Whip Checks, along with pneumatic check valves and safety clips, are integral products for a safe hose system. Regular inspection and replacement of worn components is also



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imperative in maintaining a safe system and workplace. Always replace whip checks after a failure incident occurs (This is a standard procedure for any piece for safety equipment, including hard hats, body harnesses and lanyards used for fall protection).

Whip checks are required as a hazard control as per the OSHA regulation for construction, 29 CFR 1926, subpart I (Tools – Hand and Power), section 302, Power Operated Hand Tools, paragraph (b)(1):

“Pneumatic power tools shall be secured to the hose or whip by some positive means to prevent the tool from becoming accidentally disconnected.”

In addition, the Mine Safety and Health Administration, MSHA, also has a regulation that requires whip-checks: 30 CFR 56. (Subpart L – compressed air and boilers), paragraph 13021 - High-pressure hose connections.

“Except where automatic shutoff valves are used, safety chains or other suitable locking devices shall be used at connections to machines of high-pressure hose lines of 3/4-inch inside diameter or larger, and between high-pressure hose lines of 3/4-inch inside diameter or larger, where a connection failure would create a hazard.”

Other things that need attention when using whip checks:

- Regular inspection before each use for wear, damage and ‘use-by’ dates, including hoses and components and are appropriately rated to handle the maximum operating pressure.
- Always release the pressure in air hoses and tools prior to uncoupling.
- Never kink or squash a hose to permit it, or a tool attached to it, to be uncoupled.
- Always close the valve to which the hose is connected when not in use.
- All airlines are to be stored off the ground so that no dirt entry is possible at hose ends.
- Do not use compressed air hoses for other products such as oils or fuels.
- Do not fit a tail-tail component to extend air hoses.
- Always use appropriate couplings.
- Employers are required to establish an inspection and maintenance schedule for all compressed air equipment. This schedule should be based on:
  - The results of the risk assessment for the equipment.
  - The relevant government Standards for each component.
  - The age and condition of the equipment.
- All inspection and maintenance activities are required to be documented (e.g. completed checklists, service reports)
- Defected item shall be removed from service and either repaired or replaced.
- No maintenance work is to be undertaken on air compressors or compressed air tools unless the equipment has been completely de-energized and locked out by the maintenance personnel.

**Repetition does not transform a lie into a truth** - Franklin D. Roosevelt

