



SAFETY UNLIMITED, INC.

# Weekly Safety Meeting

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## Dangers of Hydraulic Hoses

Leaks from high-pressure hydraulic lines are not just messy, they are dangerous. Leaks create slip and fall hazards, fire danger, and they contaminate the environment. Leaks can cause skin burns and, under high pressure, can penetrate the skin. The most common causes of leaking hoses are abrasions and improper assembly. If you work with hydraulic hoses, you should become skilled at anticipating problems, preventing them, and fixing them.

### Preventing Problems:

- Prevent abrasion by using hoses of the correct length and diameter.
- Run the hose in the manner specified by the manufacturer, making sure it is supported and restrained by all provided hangars and/or brackets.
- If chaffing guards were originally installed but are now missing, they must be replaced.
- Do not ignore a damaged outer jacket. This allows moisture to attack the exposed hose reinforcement, leading to rust. Corrosion could lead to hose failure.

### Recognized hazards from high-pressure lines:

- Injection Injuries;
- Dangerous properties of fluid (toxicity);
- Contact with hot fluid; and
- Other material movement (explosion, whipping hose, etc.).

In the case of injection injuries, pressurized fluids can puncture and penetrate the skin and body tissue. Injected substances can then pass rapidly thru the subcutaneous tissue and enter the tendons and deep spaces of hand/body.

A pinhole leak in a hydraulic hose that's under pressure can release toxic fluid at a speed of 600+ feet per second (That's over 400 mph).

That's like being close to the muzzle velocity of a gun. Injection injuries typically occur when the operator is trying to wipe clear a blocked nozzle or is attempting to steady the gun with a free hand during the testing or operation of equipment.

### Avoiding injection injuries:

- Check a hose for leaks while pressurized, run a piece of cardboard or paper along the hose, wear gloves, long sleeves, and safety glasses.

- Don't "crack" high pressure connectors or lines to "check" for pressure and/or flow.
- Shut down all equipment when looking for leaks. Relieve pressure in lines (also known as "bleeding the line").
- Check to ensure pressure is relieved. Lockout/tagout - deactivation to zero energy.
- The Wrong Way to Find and Fix Leaks:

What do you do when you find a leaking fitting? Find a wrench and give the fitting another turn?

That extra turn could cause a greater leak or cause the fitting to fail entirely. Do not use your hand to find the leak. Use a piece of cardboard or wood instead. Hydraulic fluid is hot and can burn the skin. A pinhole leak, under pressure could actually inject fluid under your skin, causing poisoning, infection, and threaten life and limb. It can and has happened.

### **Test for Tightness:**

But before doing this, shut the machine off and bleed hydraulic pressure from the line. If the fitting threads were to strip or a connection were to fail under pressure, injury or fire could result from the sudden release of hot oil. The usual cause of a leak at a fitting is improper assembly or damage. Make sure that:

1. Both ends are clean inside and out, and that no physical damage has occurred;
2. New seals are used, and they have been cleaned and lubricated before installation;
3. Fittings are not over-tightened—which can distort seals and ferrules, causing metal fatigue or cracking flared ends;
4. Fittings are compatible. There are many different thread ends and some may almost go together properly, but not quite.

### **Proper Assembly of Hose Ends is Important:**

Hoses that come apart under pressure can whip back with great force and release a lot of hot oil. If the failure occurs at the fitting, the usual reason is improper crimping, an incorrectly cut hose, or a stem that was not inserted into the hose all the way. If you assemble your own hoses, check your crimping dies for wear. On some types of crimping machines, if the dies become worn, the crimp is looser than it should be. Screw-type hose clamps are not to be used on pressurized hydraulic hoses.

### **Remember:**

People who work with any type of fluid piping system know it takes clean, careful workmanship to prevent dangerous leaks. If you see a leak, report it. If your job requires you to fix the leaks, do it properly and safely.

**Make it your mission, not to live in unsafe condition.**

### Safety Meeting Sign-In Sheet

Supervisor:	Subject:
Location:	Date:
Conducted By:	Trainer Signature:

Name (print clearly)	Signature	Comments / Safety Concerns / Training Requests

