



Weekly Safety Meeting

Hydraulic Hoses and Leakage

You may find it hard to believe, but hydraulic hose assemblies are not designed to leak--though they do. And when they do, something is wrong. 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.

High-pressure fluid injection injuries usually occur when fluid under pressure (usually 2,000 to 6,000 psi or more), whether the equipment is running or not, punctures the fingers or hand usually due to a leak. The injury may not be immediately noticeable because the size of the entrance wound can be as small as a pin head or entry can occur through an existing injury.

Once inside your body, this caustic fluid will cause tissue to die quickly, creating a situation where bacterial infections may cause gangrene. The fluid will also travel, causing tissue in the hand and arm to be affected.

Three kinds of hazards exist: burns from the hot, high-pressure spray of fluid, bruises, cuts, or abrasions from flailing hydraulic lines, and hydraulic injection of fluid into 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 machine manufacturer, making sure it is supported and restrained by all provided hangers and/or brackets. If chaffing guards were originally installed but 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.

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; and
4. Fittings are compatible; there are many different threaded 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 a fitting, the usual reasons are 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.

Summary:

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...TO KNOW HOW TO WORK IN SAFE
CONDITIONS!!***

