JOB AID

Hydraulic Safety

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Hydraulic Safety

IMPORTANT: Only qualified employees who have received in-depth, machine-specific installation, servicing and maintenance training should build, dismantle, maintain and repair hydraulic systems.

Hazards

Hydraulic system hazards include:

- Struck-by or caught-between injuries
- Severe cuts
- Injections of hydraulic fluid
- Crashes, falls and flying objects
- Burns
- Fires and explosions

Safety Programs

Having qualified, trained employees properly install, inspect and maintain hydraulic systems helps to prevent the release of pressurized fluids due to the failure of hydraulic system components.

Employers should establish a program for these qualified employees to regularly inspect and replace hoses, fittings and other components in accordance with manufacturer instructions.

Operators should visually and operationally inspect hydraulic systems before using equipment to complete work tasks. Everyone who works around hydraulic systems must be aware of the visual and operational indicators of impending failure so that they can react safely BEFORE failures occur.

Visual Inspections

Leaks

Observe hoses and couplings for leaks. Note that discoloration, dirt and greasy buildup may indicate a leak.

If you suspect leaks, do NOT use the equipment; consider hose and fitting replacement.

NEVER touch or examine hose assemblies. Qualified employees will service a damaged hose when they are sure that the hose no longer contains fluid under pressure.

Blisters and Deformation

Look at the outer covering of hydraulic hoses

Remember: Observe the system for problems at a distance. Use a flashlight, if needed.

If you find blisters or deformation, do NOT use the equipment. Your maintenance team may consider hose and fitting replacement.

Cuts, Damage and Corrosion

Observe the system for:

- Cuts, excessive abrasion or scrubbing on hoses
- Cracked, damaged or badly corroded fittings

Operational Inspections

After passing a visual inspection, perform an operational inspection to check for indicators of impending failure BEFORE using the hydraulic system. Wear the personal protective equipment required for operation during the inspection. At a minimum, this usually includes safety glasses or goggles and gloves. Be aware that high-pressure fluids can penetrate normal work gloves.

If there are ANY operational issues, STOP and enlist a qualified employee to further investigate and determine next steps:

- Banging, knocking and high-pitched whining **noises** are often caused by air bubbles and vapor cavities in the system due to leaks, clogs or low fluid levels
- When **fluid temperatures** are too high, they can damage seals and cause other system problems
- Poor **performance**, such as longer cycle times or slow or erratic movements, may indicate low fluid levels or leaks

Problems During Operation

If…	Then…
Hydraulic system jams	Stop, call for maintenance and stay out of the way
Hoses fail during use	Shut down the equipment and leave the area, then call for maintenance

Safe Work Practices

Precautions

When you work around hydraulic systems:

- Consult the Safety Data Sheet (SDS) for fluids
- Clean up spills and keep the work area clean to avoid slips and trips

Qualified employees must shield hydraulic lines from welders and torches.

Qualified employees should ALWAYS replace damaged hose assemblies rather than repairing them.

Lock Valves

Lock valves store pressure in hydraulic lift components to prevent loads from accidentally dropping if they lose power or if hydraulic lines suffer damage or burst.

Qualified workers use special procedures to release pressure before working with valves, lines or cylinders of any of the hydraulic systems involved in lifting or stabilizing a machine.

Lockout/Tagout

Your employer has specific lockout/tagout procedures for the equipment at your workplace. Talk to your manager if you have questions.

In general, to control hazardous hydraulic energy, qualified employees have been authorized to perform lockout and will:

1. Turn off equipment
2. Bleed pressure
3. Verify that equipment is de-energized and isolated

There are some general safety tips for hydraulic system lockout:

- Do NOT work under equipment/apparatuses being supported by hydraulics
- Employees who are qualified to do so must block, crib, pin, ground or otherwise secure machine parts that may move, rotate or fall
- NEVER assume there is no pressure in the system just because hydraulic pump equipment has been shut off

Trapped air and other issues can lead to erratic operation following repairs. Non-essential workers should stay away during testing.

Injuries Caused by Hydraulic Fluid

Every company should have a plan for hydraulic fluid incidents and injuries.

If anyone has a hydraulic fluid injury, call for emergency medical help and then consult the SDS for appropriate first aid treatment.

To help medical professionals determine the best treatment, bring the SDS to the treatment facility.

REMINDER: Throbbing, pain, redness and swelling are indications of a severe infection. Do NOT wait for these symptoms to develop; seek care without delay.