



Tailgate Safety Training for Landscaping and Horticultural Services

Agricultural Safety Program, 590 Woody Hayes Drive, Columbus, OH 43210

Safe Use of Hydraulic Systems

Objective: Describe the hazards in working with hydraulic equipment and how to prevent them.

How to Use This Module

Many implements use a hydraulic system. Understanding the system makes accidents less likely. For this module:

- Read the information below on hydraulic systems.
- Review hazards of working with hydraulic systems and how to prevent them.
- Ask your supervisor to demonstrate hooking up machinery to a hydraulic system.
- Ask your supervisor to observe while you practice hook-up.
- Review the important points.
- Take the True/False quiz to check your learning.

Background

Hydraulic systems can be dangerous. Fluid can escape when adjusting or removing equipment. Fluid can be trapped in the hydraulic system even when the engine and hydraulic pump are stopped. An implement in the raised position has trapped hydraulic fluid that might be pressurized — even if it is disconnected.

The pressure of trapped fluid can be more than 2,000 pounds per square inch (psi). Pressurized fluid can penetrate the skin. You would need surgery to remove the fluid. Penetration injuries may not appear serious. But if they are not properly cared for, gangrene may result. So you could lose a body part if you don't get prompt medical attention.

Tighten all connectors before applying pressure. Cracked hoses may have pinhole leaks. Keep hands and body away from leaks and nozzles that might eject fluid under high pressure. Use a piece of cardboard or paper to search for leaks. Relieve pressure before disconnecting a hydraulic line.

Do not cross hydraulic lines. If the lines are not coupled correctly, the implement will not rise and drop as expected. Tape or color-code lines to prevent an accident.

Heat causes the fluid to expand, increasing the pressure. Always relieve hydraulic pressure before loosening hydraulic fittings. The hot, high-pressure spray of the hydraulic fluid can cause injury.

Before Servicing Hydraulic-Powered or -Controlled Equipment

- Shut off the engine.
- Engage the brake.
- Shut off hydraulic pump power.
- Lower the implement to the ground.
- Move the hydraulic control lever back and forth several times to relieve pressure.
- Follow the instructions in the operator's manual. Specific procedures for servicing hydraulic systems provide safety guidelines.
- Stay away from cracked hoses, leaks, and nozzles that might eject fluid under pressure.
- Promptly seek medical attention if fluid is injected into the skin.

Review These Important Points

- Adjusting and removing equipment when hydraulic fluid is under pressure can be hazardous.
- Keep all body parts away from cracked hoses, leaks, and nozzles that might eject fluid under pressure.
- Never cross hydraulic lines on equipment.
- Always lower the implement to the ground and relieve pressure before servicing.
- Follow all instructions in the operator's manual.
- If you notice a lock or a hose in bad condition, tell your employer to have it replaced.

About These Modules

The author team for the training modules in the landscape and horticultural tailgate training series includes Dee Jepsen, Program Director, Agricultural Safety and Health, Ohio State University Extension; Michael Wonacott, Research Specialist, Vocational Education; Peter Ling, Greenhouse Specialist; and Thomas Bean, Agricultural Safety Specialist. Modules were developed with funding from the Occupational Safety and Health Administration, U.S. Department of Labor, Grant Number 46E3-HT09.

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Answer Key: 1 = F, 2 = T, 3 = F, 4 = F, 5 = T.

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Name _____

True or False?

- | | | |
|---|---|---|
| 1. Escaping pressurized hydraulic fluid is not a safety concern. | T | F |
| 2. Keep body parts away from cracked hoses, leaks, and nozzles that might eject fluid under pressure. | T | F |
| 3. It is possible to cross hydraulic lines and have the system work correctly. | T | F |
| 4. If hydraulic fluid is injected into the skin, wash the area immediately and return to work. | T | F |
| 5. Trapped hydraulic fluid can be pressurized to 2,000 psi or more. | T | F |