

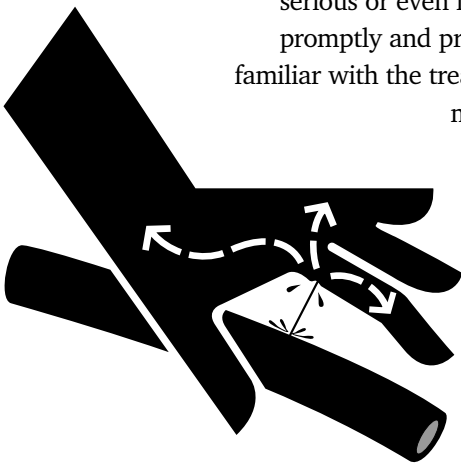
Fluid Injection Injury

– Robin Barker, engineering administrator

Hydraulic and diesel fuel systems on forestry machines operate at very high pressures, often 207 bar (3000 psi) and above. If a loose connection or a defect in a hose should occur, a fine, high velocity stream of fluid will result. Even for systems pressurized to as little as 7 bar (100 psi), this fluid stream can penetrate human skin as if it were a hypodermic needle.

Initially, an accidental fluid injection beneath the skin may only produce a slight stinging sensation. There is a danger that one will tend to ignore this, thinking that it will get better with time. Most often, it does not. Within a very short time the wound may begin to throb painfully, indicating that tissue damage has already begun. Fluid injected directly into a blood vessel can spread rapidly through your circulatory system. The human body has little ability to purge these types of fluid.

A fluid injection injury can become very serious or even fatal if not dealt with promptly and properly. A medical doctor familiar with the treatment of this type of injury must surgically remove the fluid within a few hours. The longer the delay in getting professional medical aid, the further the tissue damage can spread. If left untreated, the injury could result in disfigurement or amputation of the affected part.



What to do before a fluid injection injury occurs

- Consult your local medical facility. Advise it of the possibility of this type of injury occurring on your logging job. Determine which hospital in your area is able to perform the necessary emergency surgical procedures. Ask for additional information that will further instruct you in what to do in the event of a fluid injection injury.
- Create an emergency plan to be carried out should this injury happen to a member of

your logging crew.

- Educate your entire logging crew to the hazards of a fluid injection injury, the procedures to avoid these hazards and the crew members' roles in the emergency plan.

What to do when a fluid injection injury occurs

- Report the injury to your supervisor immediately.
- Call for an ambulance to transport the injured worker to the hospital. If an ambulance is not available, immobilize and elevate the affected limb to a comfortable position and transport the injured worker to the hospital immediately.
- Determine the type of fluid involved in the injection injury. Provide this information to the ambulance attendant.
- Provide the attendant with the MSDS (Material Safety Data Sheet) for the fluid involved.
- Advise the attendant and the injured worker that upon arrival to the hospital they should state that the worker received a fluid injection injury, the approximate time of the injury and that the worker requires medical assessment. They must also provide the fluid type and MSDS information to the medical staff.
- Do not allow the injured worker to drive to the medical facility.
- Do not leave the injured worker alone.
- Do not give food or drink to the injured worker in anticipation of anesthesia and surgery being required.
- Make the area where the worker was injured safe to prevent other workers from receiving a fluid injection injury.

How to avoid a fluid injection injury

The best defense against suffering the effects of fluid injection is to prevent the accident from occurring in the first place.

- Never grab any hydraulic or diesel fuel

connectors or hoses when they are subjected to pressure.

- Stop the engine and safely relieve all diesel fuel and hydraulic pressures before disconnecting any lines or otherwise working on these pressurized systems.
- Always ensure that hoses are rated for the pressures to which they will be subjected.
- Never use any hoses that you suspect could be defective.
- Recognize that the source of the leak and the fluid streaming from it may be very small and not easily visible. You may only be able to see the fluid that accumulates as a result of the fluid stream.
- Keep all body parts well away from the area of a suspected fluid leak.
- Never search for leaks with your hands or any other body part.
- Only place the far end of a long object such as a piece of cardboard, wood or steel in the suspected path of any fluid stream.

- Recognize that your clothing, even heavy gloves may offer little or no protection from a fluid injection.
- Be sure to wear safety goggles for eye protection.
- Recognize that the source of the leak and the fluid streaming from it may be hidden behind other components of the machine. If components are moved then the direction of the fluid stream could change to become aimed at you.
- Only use the far end of a long object such as a piece of wood or steel to move hoses or other obstacles. ■

