

FOREST MACHINERY MAINTENANCE

- Between January 2000 and December 2003 there were 25 lost time injuries (LTI) while maintaining forest machinery.
- These injuries resulted in 328 days lost from work.
- Maintenance injuries can be severe. An average of 13 days was lost per LTI, the most severe injury causing the worker to be off work for 90 days.
- There were also 125 minor injuries reported between 2000 and 2003 and 72 reported near miss incidents.
- Most maintenance injuries are sustained when the worker is struck by an object such as moving engine parts or wire rope.



The main hazards associated with maintenance of forest machinery are:

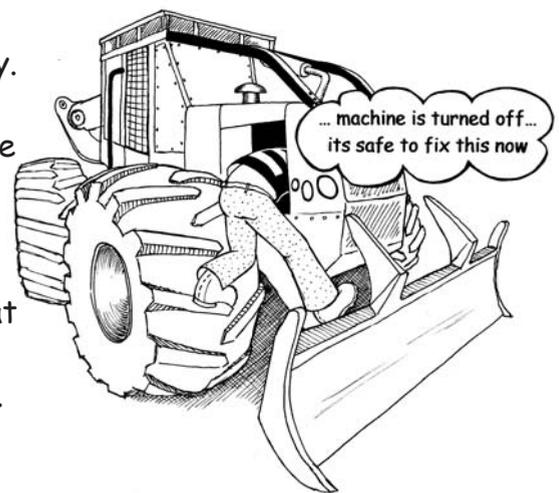
- Moving machinery and moving parts.
- Hot mufflers and engines.
- Sprains and strains while using tools.
- Working in confined or cramped spaces.
- Working alone or at night.
- Working at heights or on slippery surfaces.
- Hydraulic hoses under pressure.
- Exposure to heat and cold.
- Physically demanding work.
- Working under (unsupported) equipment.

WORKING SAFELY DURING MACHINE MAINTENANCE

- During maintenance of machinery, equipment should be switched off and the key removed - let people know by using a "do not use" sign.
- Lock levers and switches to avoid accidental start-up during maintenance.
- Ensure all guards and safety screens are in place and in good order.
- Always replace guards and close access doors especially when machinery is unattended.
- Use jacks, blocks or other stable supports if working under raised machinery, including blades and accessories. Block hydraulically operated attachments so they cannot move.
- Wear appropriate protective clothing and equipment such as close fitting high-visibility cotton overalls. Do not wear polar fleece garments when welding, acetylene gas cutting or when subject to direct heat.
- Anyone maintaining machinery should read and understand the relevant parts of the operator's handbook or manual.

WORKING ON RUNNING ENGINES

- Only work on running machinery if absolutely necessary.
- Always use two people if working on a running engine: repairs or adjustments should never be made with the machine moving.
- Start the engine from the operator's seat and keep clear of moving parts.
- Make sure your pockets are free of loose objects that could fall into machinery. Do not wear loose clothing: ensure hair & clothing cannot catch on machine parts.



WORKING ALONE OR IN THE DARK

- The work area should be well lit if working at night.
- If working alone at any time, follow correct company procedures and make sure you have a way of getting help in an emergency such as a radio.
- Ensure someone knows where you are and when you'll be back.

HANDLING FUEL AND HYDRAULICS

- Handle fuel and oil carefully and avoid spilling fuel either on the ground or on a person.
- Store fuels and oils well away from the main working area.
- Wear protective clothing and eyewear for fuel and oil handling and filling.
- Make sure at least two hand-held fire extinguishers of the correct type are available.
- Refuelling of machines should take place after the daily maintenance checks have been carried out.
- Wear full protective equipment if working with live or pressurised hydraulic systems.
- Wash hands after handling grease, fuel and hydraulic fluid.

MANUAL HANDLING

- Avoid unnecessary handling of heavy or awkward objects.
- Use correct equipment and use good techniques when carrying out manual handling tasks.
- Make sure you have a balanced and secure posture before starting.
- Always work from a secure and stable work surface.

WORKING AT HEIGHTS

- Do not climb over machinery unnecessarily.
- Take special precautions if required to work from a height - get help and use the correct equipment such as platforms or harnesses, rails and ladders.
- Use correct methods to enter and leave the machine, such as facing the machine and using the steps and rails. Maintain three points of contact.
- Ensure access areas on machines are a suitable size, slip-free and are free from fuel and dirt.



WORKING CONDITIONS - weather and terrain

- Ensure machines are stable for maintenance tasks and take care with footing when mounting or leaving the machine.
- Wear clothing suitable to protect you from cold or heat.

CHAINSAW MAINTENANCE

- Refuel and sharpen the chain at a comfortable working height to avoid bending.
- Support your body weight when leaning over: stand upright and stretch regularly, especially if you have been working bent over for long periods.
- Use file handles and guides and replace worn files.
- Always rotate the chain towards the bar tip.
- Do not rush when maintaining your saw.
- No maintenance should be carried out with the chainsaw running, except for fine tuning.

The Big Picture

Having a healthy and happy crew is good business. Management commitment towards worker health and safety can go a long way towards helping reduce the risk of injury and illness.

Planning

- Plan maintenance work in advance - have specific times for regular checks.
- Ensure sufficient sized safe zone for machinery maintenance tasks.
- Aim to have enough crew members familiar with the machines to help the operator when needed.

Supervising

- Provide operators with feedback on their maintenance methods - encourage safe practice with positive feedback.
- Check that visiting mechanics have the correct equipment and tools for the job.

Training/Education

- Encourage operators to update skills and knowledge by allowing training time and resources.

Monitor/Review

- Ensure visiting mechanics are aware of site safety rules and follow them.
- Record all maintenance related injuries and near misses and act on any highlighted hazards.

Case Study

The problem

Contractor Steve was getting tired of so many breakdowns of the skidder. Jim, the skidder operator, was always stopping work to repair some problem, then the machine would break down again soon afterwards. Jim also complained that he kept hurting himself when trying to fix these problems in a rush. The final straw came when he was repairing the grapple and badly crushed his finger as he replaced a linking pin.

The issues

Although Jim did the weekly maintenance checks, they were a bit haphazard and unorganised, often last thing on a Friday. Some weeks the checks weren't as thorough as they could have been. Jim had no one else in the crew with the skills to help him operate the controls when he was repairing the skidder, especially looking for hydraulic problems. Jim was always working without help and usually rushing to get the job done.

What to do

Steve and Jim decided to get a better system set up to regularly maintain the skidder and all the other machines. They made sure they did the maintenance at the same time every week and didn't leave it until the end of Friday afternoon. One of the skiddies showed a real interest in becoming a backup skidder operator - he could drive the skidder but didn't have much mechanical knowledge about the machine. Contractor Steve allowed the skiddie to spend more time with Jim the operator to learn how to find faults and what to listen out for, like failing bearings.

The results

Because the routine maintenance was better planned, Jim felt less rushed and did a better job. This meant fewer breakdowns and less rushing to fix things. After the skiddie became more clued up about the skidder he was able to help Jim find faults and repair the machine more quickly, e.g. Jim had someone else to operate the controls while he looked and listened for faults. Whenever the skiddie operated the machine he was on the lookout for new sounds and vibrations which may be a sign of something about to break. The better systems and teamwork led to improved maintenance for the other machines too with fewer injuries among the operators.

Further information

The forest industry guidance leaflets can be downloaded from www.acc.co.nz/safer-industries/forestry.

This Guidance Leaflet has been prepared by the "ACC Safer Industries Working Group" which consists of representatives from ACC, COHFE, Forest Industry Contractors Association and FITEC. This leaflet contains notes on good practice which are not compulsory but which you may find helpful in considering what you need to do. It is a reference tool for **supervisors/foremen** to help them ensure that safe working practices are being carried out at their forest work sites.

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