

ACCIDENT/INCIDENT ALERT

October 2004

Operator's Hand Amputated in Hay Baler Accident

The set up

The roller hay baler machine bales large round hay bales. It is drawn behind a tractor and is powered by the PTO shaft. The baler has many moving parts including chain and sprocket drives and shafts which are normally guarded during operation. The tractor needs to be totally stopped and the engine turned off to make the baler inert.

On the day of the accident, the hay baler was being maintained with the transmission guards lifted while still having the PTO shaft on the tractor engaged, so the victim was able to access the exposed and moving transmission. The operating manual clearly states that roller chains must be lubricated frequently with clean engine oil to keep their high efficiency and give long, problem-free service. The baler control console monitors the total bale count and tells the operator to lubricate the baler at specified lubrication intervals.

The manual also clearly states:

“always disengage the tractor PTO and shut off the tractor engine before:

- Leaving tractor seat
- Lubricating
- Cleaning the machine
- Adjusting the machine”.

and:

“Never check or lubricate the chains while the machine is running”.



Guard that had been lifted to oil the chains



Area where the victim's hand was caught

The accident

The tractor driver was servicing the hay baler in preparation for work. He had lifted the guard to provide access to the transmission chains and sprockets. The tractor engine was running and the PTO shaft on the tractor was engaged ready for operation; so all transmission on the hay baler was working.

The victim proceeded to oil the stuffer knotter drive chain, using a small plastic bottle that had a very short nipple. While oiling, he accidentally dropped the oiling bottle down behind the stuffer knotter drive chain, he inadvertently reached in to retrieve the bottle when the cog grabbed his thumb, then his wrist, and continued pulling him into the machine until it reached his biceps.

The victim was working alone, and there was no way of stopping the machine.

To avoid being fully dragged into the machine he pulled until he finally released himself from the machine, leaving his hand behind in the machine while he ran to his employer's house to get help.

Contributing factors

- There was no automatic lubrication system on the hay baler.
- The employer trained the victim to lift the guard and to oil chains while the machine was running, despite all the safety instructions in the operator's manual.
- The company had no formal health and safety systems in place.
- The oil container was a plastic squeeze bottle with a short nipple. Use of an oilcan with an extended nipple and handgrip may have prevented loss of grip and the can getting close to the chain.

The hay baler was near new. An optional extra was to have an automatic lubrication system fitted. The contractor stated that they had always oiled

transmissions while they were operating the machine as it provided much better distribution and penetration of the oil. The contractor had also given the victim the operator's manual to take home to read. The supplier had advised that it was not necessary to oil the chains.

Injuries received

The victim's right hand was amputated in the accident. It was surgically reattached but, nine months later, the prognosis appears that he has 90% loss of function.

Recommendations

Designers, manufacturers, and suppliers of plant must be aware of their obligations as set out under sections 66 and 67 of The Health And Safety in Employment Regulations 1995 and section 18(A) of the Health and Safety in Employment Act 1992. Specifically, they must ensure that their advice is in line with the manufacturer's instructions and any available safety modifications are provided. In this case, an automatic lubrication system would have avoided any exposure to the moving parts.

Employers must fully set up their health and safety systems. In regard to this baler, the employee should have been fully informed and trained on the hazards of the baler and how to use it safely. The manufacturer's instructions should form part of the documentation, and it is not sufficient to merely give an employee an operator's manual to study without additional training and supervision.

Wherever possible, persons should not work alone around hazardous machinery.