

Hazard Alert



Power Take-Off

Hazard Summary

In November 2013, a farm worker was unloading a tank of soybeans at a farm when he fell into the Power Take-Off (PTO) driveline of a grain auger. The universal joint of the PTO was not properly guarded and the worker became entangled in the PTO driveline, resulting in extensive injuries. Injuries included a fractured left arm, punctured lung, fractured ribs, and a severed spinal cord resulting in paralysis of the legs.



Contributing Factors

The following hazards were identified at the scene and may have contributed to the serious workplace injury:

- The universal joints on both ends of the PTO shaft were exposed due to inadequate guarding.
- The auger was not equipped with the implement shield, which should be attached to gear box, as is recommended by the manufacturer.
- Slippery conditions due to cold weather and snow.
- The proximity of the worker to the PTO while it was operating.

Legislated Requirements

Section 12 of the Occupational Health and Safety Act states:

(1) An employer shall ensure:

- a) that every reasonable precaution is taken to protect the occupational health and safety of persons at or near the workplace;
- b) that any item, device, material, equipment or machinery provided for the use of workers at a workplace is properly maintained, and is properly equipped with the safety features or devices, as recommended by the manufacturer or required by the regulations;
- c) that such information, instruction, training, supervision and facilities are provided as are necessary to ensure the occupational health and safety of the workers.

Recommendations

Power Take-Off (PTO) drivelines are among the oldest and most common machinery hazards. Exposed bolts, universal joints, burrs, or other projections on rotating components can grab clothing, resulting in instant entanglement. **All employers and workers are advised to take the following precautions:**

- Make sure that the PTO is properly maintained and that PTO drivelines are fully shielded.
- Regularly check all components of the PTO guarding system for nicks or damage.
- Make sure that all sections of the PTO driveline, including universal joints, are fully shielded. PTO guards should include a tractor shield, a shaft shield and an implement shield.
- Replace or repair damaged shields, bearings and safety devices before the equipment is used.
- Make sure that PTO driven equipment is maintained and guarded according to manufacturer's recommendations.
- Never operate equipment with damaged or missing PTO guards.
- Stay well clear of rotating PTO drivelines.

Additional recommendations include:

- Always shut down equipment and remove the key from the ignition before repairing or adjusting equipment.
- Keep long hair pulled back to avoid entanglement.
- Never wear loose, baggy clothing around PTO drivelines. Frayed coats, drawstrings, and bootlaces can be grabbed by rotating parts.
- Never attempt to operate tractor controls from the rear of the tractor.
- Never attempt to step over rotating PTO drivelines.
- Never allow an untrained person to operate or work around rotating PTO drivelines.



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