

HAZARD



Alert

POWER TAKE-OFF (PTO)

HAZARD SUMMARY

In November 2013, a farm worker on Prince Edward Island 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.

CAUSE

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. (Figure 1)
- The auger was not equipped with the implement shield (attached to gear box) as is recommended by the manufacturer. (Figure 2)
- Slippery conditions due to cold weather and snow.
- The proximity of the worker to the PTO while it was operating.



Figure 1. PTO involved in the incident

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.

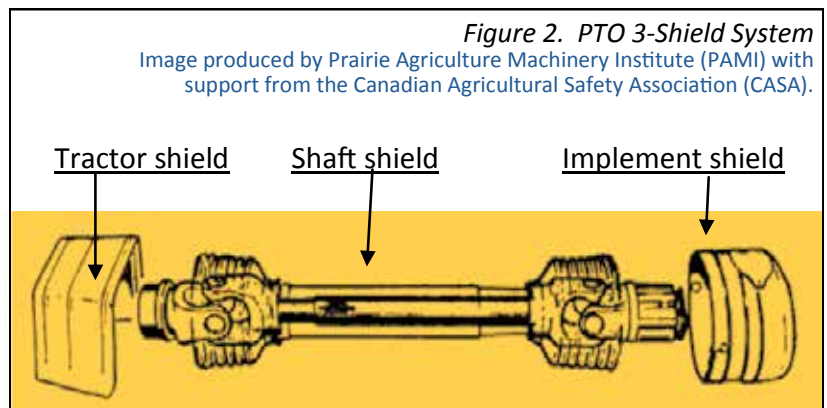


Figure 2. PTO 3-Shield System

Image produced by Prairie Agriculture Machinery Institute (PAMI) with support from the Canadian Agricultural Safety Association (CASA).

Section 5 of the *Farm Safety Code of Practice* advises the following:

- Ensure PTO drivelines are fully shielded.
- Never attempt to step over rotating PTO drivelines, no matter how slowly they may be turning.
- Never attempt to operate tractor controls from the rear of the tractor.
- Never wear loose, baggy clothing around PTO drivelines.
- Keep long hair pulled back to avoid entanglement.
- Stay well clear of rotating PTO drivelines.

To report a serious workplace incident or hazard,
call the 24hr OHS Emergency Line at 902-628-7513

RECOMMENDED PRECAUTIONS

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:**

- Ensure 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.
- Ensure 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 (See Figure 2).
- Replace or repair damaged shields, bearings and safety devices before the equipment is used.
- Ensure 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.



Available at the WCB upon request

FOR MORE INFORMATION

Visit the Workers Compensation Board website at www.wcb.pe.ca or contact the WCB Occupational Health & Safety Division at 902-368-5680 or 1-800-237-5049 (Toll free in Atlantic Canada).

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