



# Straight Facts About PTO Shafts and Shields



**George Maher**  
Ag Safety Specialist

Power Take Off (PTO) shafts are used to transmit power from a tractor or other source of power to an implement. Two speeds are commonly used with PTO shafts, 540 and 1000 rpm. RPM means revolutions per minute, the number of complete turns of the shaft in 60 seconds.

## ■ Did You Know?

The typical PTO shaft can;

- Wrap up 424 feet of shoe lace in one minute at 540 rpm, or 785 feet of shoe lace at 1000 rpm. How long is your shoe lace?
- Wrap your arm or leg around the PTO shaft nine times in one second at 540 PTO rpm, or nearly 16 times in one second at 1000 PTO rpm. Is your body that flexible?
- Produce second degree burns on your skin, even if you are lucky enough to have the PTO strip only the cotton clothing

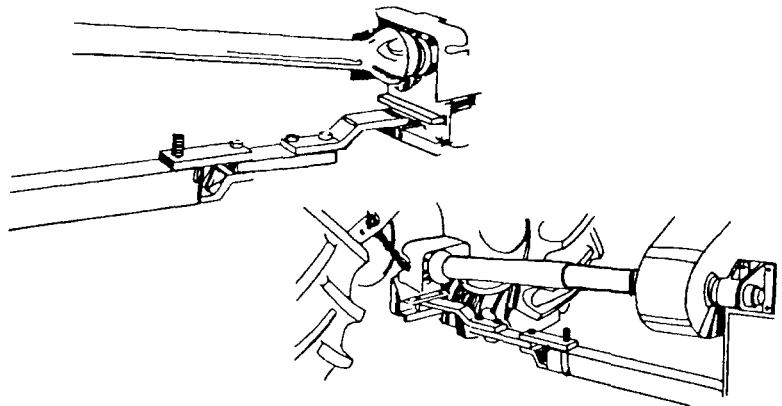
from your body. Nylon and other synthetics will cut into skin and muscle tissue rather than rub across it.

- Grind away skin, muscles, tendons, and break bones starting in less than three-fourths of one second when you are caught by an unshielded PTO shaft.
- A very strong man can generate about three-fourths of one horsepower. A tractor transmits nearly all of the engine horsepower to the PTO shaft. There is simply no contest; even between a very strong man and a PTO shaft – the tractor will win.

## ■ PTO Entanglements

North Dakota usually has from four to six PTO entanglements per year that result in severe injury or death. There are many more entanglements, however, that result in someone's clothing being partially or completely torn off. This can result in severe skin burns when the clothing tightens up as it is pulled from the body.

Most farmers don't have to try too hard to remember someone who has been caught by an unshielded PTO shaft. Some older people will chuckle about a long-past entanglement. But that chuckle is more of a nervous



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reaction than true humor. PTO entanglement is not funny!

Any machine that is powered by an unshielded PTO shaft is dangerous. The brand of machinery has nothing to do with its safety, if the PTO is not shielded. You can work with any color of machinery you wish; red, green, blue, yellow, orange – take your choice – if the PTO shield is missing, it is dangerous!

## ■ How Can You Be Safe When Using PTO Shafts?

- First, make sure the shaft is shielded. This includes the driveline shield that covers the implement driveline, and the master shield which covers the universal joint and PTO stub shaft on the tractor.
- Maintain the shield so it can work for you. PTO driveline shields are usually mounted on bearings, so they need to be maintained. Always **REPLACE** the shield when it is damaged or missing.
- Next, keep a safe distance from it when in use. Keep others away, too. How far? A distance of twice your height is a good start.
- Allow only those who absolutely must be in the area to be there. Keep all children away!
- Always pay attention to what is happening. Most PTO victims were caught by surprise.
- If something goes wrong – stop the machinery; take the PTO out of gear, stop the engine and set the brake. Put the keys in your pocket before working on the machinery.
- When stopping the machinery for any reason – end of work, lunch, repairs, or communication – take the PTO out of gear, stop the engine and set the brake.

## ■ More Thoughts About PTO Shafts and Shields

- The average replacement PTO shield should cost **less than \$50** according to North Dakota implement dealers, and will take **less than two hours to install**.
- Can you get an ambulance ride to the hospital for less than \$50?
- How much health/hospitalization insurance can you buy for \$50?
- Can you buy an artificial arm or leg for \$50 or less?
- Can you buy a funeral for less than \$50?
- Can you look at a picture of your wife or family and say that PTO shields are not worth the cost or effort?

A replacement PTO shield is simply the cheapest insurance you can buy. The time spent to install and maintain a PTO shield is clearly the most valuable and productive time you can spend in your life!

## Helping You Put Knowledge To Work



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3M-3-94