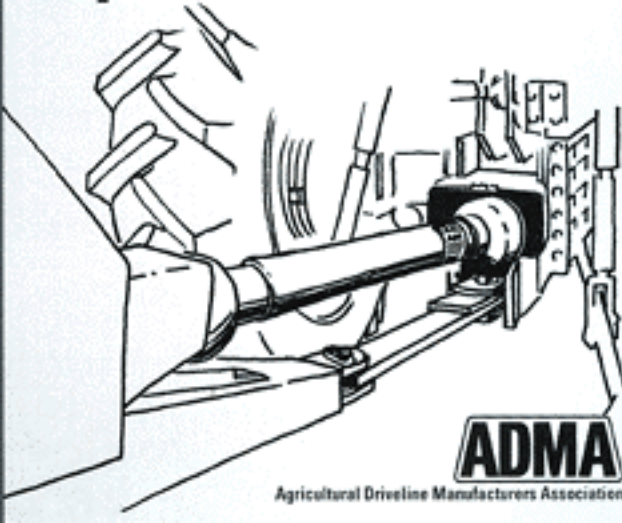




**safety
manual**

For owners
and operators

Agricultural Implement Drivelines



ACKNOWLEDGEMENT
SAFETY ALERT SYMBOL
FORWARD
A WORD TO THE USER/OPERATOR
YOU HAVE TOO MUCH TO LOSE
THE FUNCTION OF PTO DRIVELINE AND SHIELDING
THE OPERATOR'S MANUAL
PRE-OPERATION REQUIREMENTS
PRE-OPERATION REQUIREMENTS (CON'T)
PRE-OPERATION REQUIREMENTS (CON'T)
OPERATING RECOMMENDATIONS AND PRECAUTIONS
OPERATING RECOMMENDATIONS AND PRECAUTIONS (CON'T)
MAINTENANCE
MAINTENANCE (CON'T)
MAINTENANCE (CON'T)
REMEMBER, SAFETY FIRST
BOOKLET INFO
BACK COVER

ACKNOWLEDGEMENT

This booklet was prepared by members of the Agricultural Driveline Manufacturers Association (ADMA). We also wish to acknowledge the many contributions of safety professionals from farm equipment manufacturers, universities, state safety organizations and equipment industry associations in the development of this safety manual.

SAFETY ALERT SYMBOL

This Safety Alert Symbol means **ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!**



The Safety Alert Symbol identifies important safety messages on machines, safety signs, in manuals, or elsewhere. When you see this symbol, be alert to the possibility of personal injury or death. Follow the instructions in the safety message.

Why is SAFETY important to You?

3 BIG REASONS:

- * **ACCIDENTS DISABLE AND KILL**
- * **ACCIDENTS COST**
- * **ACCIDENTS CAN BE AVOIDED**

FORWARD

This Safety Manual is intended to point out some of the basic safety situations which may be encountered during the normal operation and maintenance of your driveline system and to suggest possible ways of dealing with these conditions. This manual is not a substitute for the manufacturer's manual(s).

Additional precautions may be necessary depending on attachments used and conditions at the worksite or in the service area. The manufacturer has no direct control over machine application, operation, inspection, lubrication, or maintenance. Therefore, it is YOUR responsibility to use good safety practices in these areas.

The information provided in this manual supplements the specific information about your machine that is contained in the manufacturer's manual(s). Other information which may affect the safe operation of your machine may be contained on safety signs, in vocational-agricultural and extension training materials, or in insurance requirements, employer's safety programs, safety codes, local, state/provincial, and federal laws, rules, and regulations.

IMPORTANT: IF YOU DO NOT HAVE THE MANUFACTURER'S MANUAL(S) FOR YOUR PARTICULAR MACHINE, GET A REPLACEMENT MANUAL FROM YOUR EMPLOYER, EQUIPMENT DEALER, OR FROM THE MANUFACTURER OF YOUR MACHINE. KEEP THIS SAFETY MANUAL AND THE MANUFACTURER'S MANUAL(S) WITHIN THIS MACHINE. READ AND UNDERSTAND THE MANUFACTURER'S MANUAL(S).

A WORD TO THE USER/OPERATOR

It is YOUR responsibility to read and understand this safety manual and the manufacturer's manual(s) before operating your equipment.

In reading this manual, you will note that any illustration depicting an unsafe work procedure or situation is labeled both with the words "wrong" and the mark of an



on the illustration. Each illustration is also numbered and the same number appears in the text in parenthesis. This number is placed at the end of the written text that refers to the illustration.

Remember that you are the key to safety. Good safety practices not only protect you but also protect the people around you. Study this manual and the manufacturer's manual(s) for your implement. Make them a working part of your safety program. Practice all other usual and customary safe working precautions and above all:

**REMEMBER, SAFETY IS UP TO YOU
YOU CAN PREVENT SERIOUS INJURY OR DEATH**

YOU HAVE TOO MUCH TO LOSE

The area between the tractor and the PTO-driven implement is a DANGER zone. This can be one of the most dangerous places on your farm – for you, every member of your family, and employees.

We know that almost every driveline accident happens during the day and near the barnyard.

Certain operating conditions are particularly dangerous:

- * If your equipment is missing guards or shields...
- * If you are not paying attention...
- * If children are playing near where you are working... (1)



- * If you are operating a stationary piece of equipment...
- * If you are wearing loose-fitting clothes... (2)



- * If you are tired or in a hurry to get finished...

Do you know that most driveline accidents happen when drivelines are operated without shields or guards or they are improperly maintained?

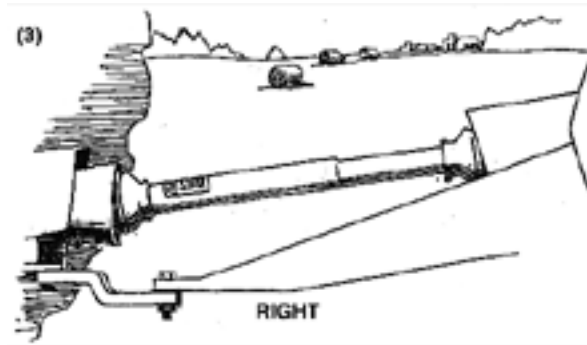
THE FUNCTION OF PTO DRIVELINE AND SHIELDING

What is the function of a PTO driveline and shielding system?

The PTO driveline transmits power from the tractor to the implement. It must be able to operate safely across a wide range of performance demands and different environmental conditions. The driveline shielding system can help you ensure your own personal safety and the safety of others. The purpose of the driveline shielding system is to help prevent inadvertent contact and entanglement in the driveline.

The total shielding system includes the tractor master shield, driveline guards, and implement shield.

Because you and others are around drivelines, the purpose of this booklet is to help you use drivelines carefully and thoughtfully and to remind you to:



keep all guards and shields in place. The tractor master shield and implement shield must be installed to work with the driveline guard and provide the intended coverage. (3)

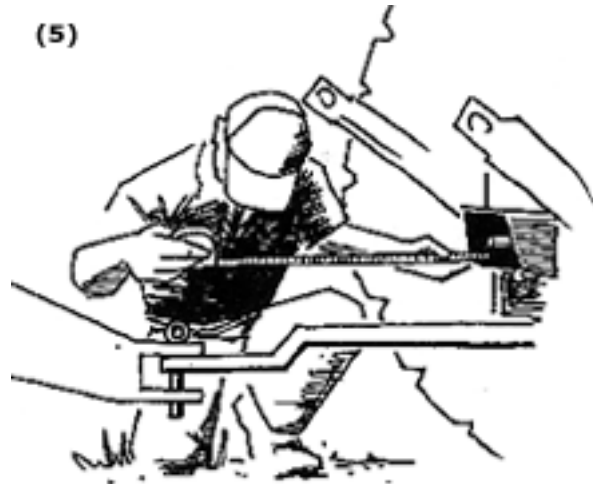
THE OPERATOR'S MANUAL

- * Read the manual! (4)
- * Understand the contents!
- * Heed all safety messages in the operator's manual and safety signs on machines

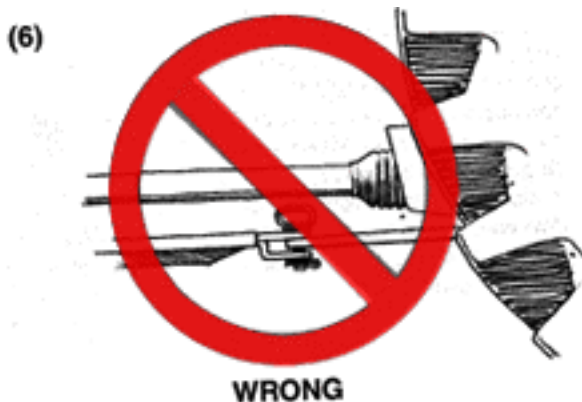


PRE-OPERATION REQUIREMENTS

- * Be sure to disengage the PTO shaft and turn off the tractor before making any inspections or working around the PTO driveline.
- * Follow the manufacturer's recommendation for attaching the implement to the tractor. Make sure the distance from the tractor PTO shaft to the hole in the drawbar is the distance recommended by the implement manufacturer in the operator's manual. (5)

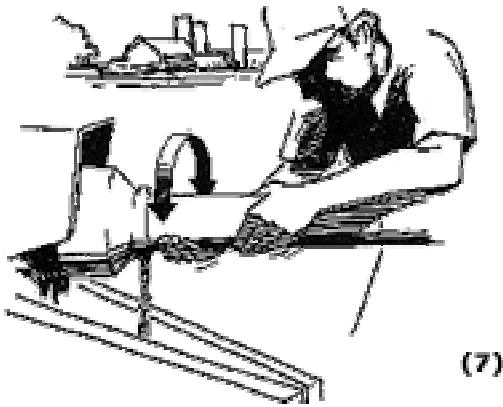


- * If your drawbar has an offset end, be sure it is in the down position so it won't interfere with the driveline guard when you are using PTO-driven equipment. Make sure your three-point hitch and drawbar are correctly positioned so neither interferes with the driveline. Lock the three-point hitch when you are not using it.
- * Use a drawbar hitch pin with a low head. When the hitch pin or other parts of the drawbar connection are too close to the driveline, field operation on uneven or terraced terrain will often result in guard damage. (6)



PRE-OPERATION REQUIREMENTS (CON'T)

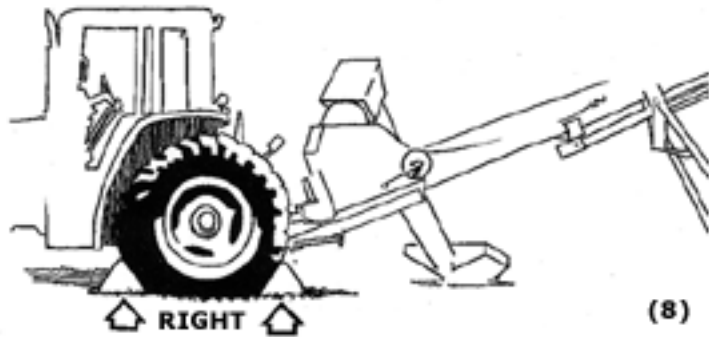
- * Don't weld any protruding device onto the head of your hitch pin. Be especially careful to remove clevis straps mounted on top of the drawbar.
- * The driveline must be attached securely to the tractor and the implement. If a set screw or bolt is the recommended means for attachment, make sure it is the correct length and follow the original manufacturer's recommendations. Don't attach drivelines with bolts or pins which are longer than recommended. They can not only catch loose clothing, boot-laces or a pant cuff, but, while spinning rapidly, they can cause serious bodily injury.
- * The driveline shielding system is one of the most important components for your safety and the safety of others. Make sure all guards are in good repair and in place prior to hooking up your driveline. This will greatly reduce the risk of an accident, serious injury, or even death.
- * Make sure the driveline guard can rotate independent of the shaft a full rotation and can telescope freely. (7)



- * If the driveline has been provided with a retaining chain, make sure the chain is in place and has been properly connected to the tractor or the implement attachment point.
- * Make sure that any shear pins are correctly installed and that the proper replacement pins are readily available. Check any other overload devices to ensure they are operable and have been serviced according to the manufacturer's instructions.

PRE-OPERATION REQUIREMENTS (CON'T)

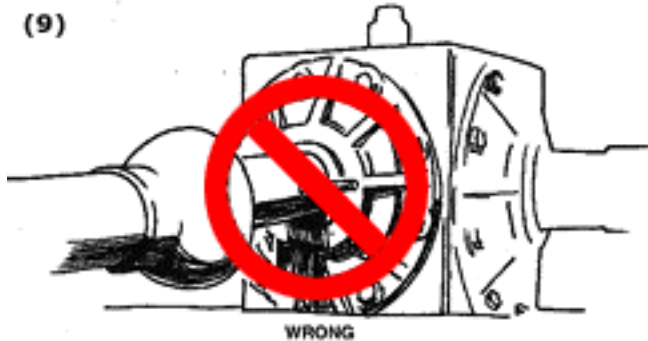
* For stationary equipment which is not attached to the tractor, proper spacing must be maintained. After setting the tractor brake, block the wheels on both the tractor and implement to insure proper spacing at all times. (8)



* Before operating, determine what the recommended PTO operating speed is for the implement and make sure it will not be exceeded. Consult implement operator's manual.

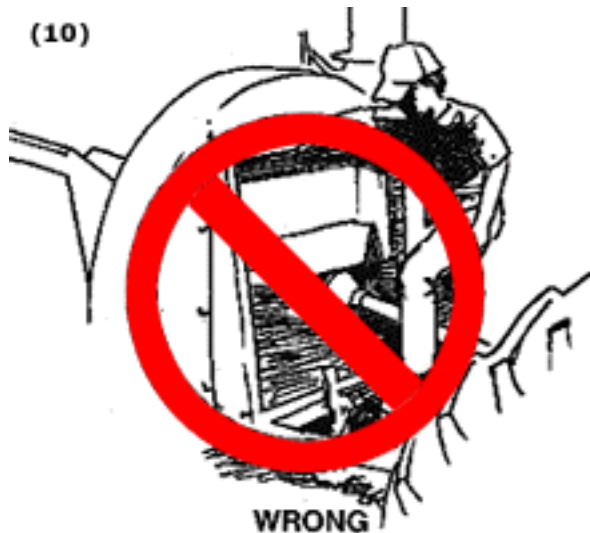
OPERATING RECOMMENDATIONS AND PRECAUTIONS

- * Be certain only a properly trained and physically able person will operate the machinery.
- * Wear close fitting clothes and keep long hair tied back or under a hat.
- * Don't allow any hydraulic hoses, electric cords, ropes, or other items to drape over the driveline guard. This could result in damage to the hoses, cords, or guards.
- * When you turn, be careful not to hit the driveline with tractor tires. This often happens in non-working conditions.
- * Never allow guards to pull apart. Guards could be cut or crushed when pushed back together.
- * Be certain to disengage PTO shaft and to turn off the tractor before making any operational maintenance inspections or repairs. Keep clear of the machine until all parts have stopped moving.
- * Don't remove the tractor master shield or the implement shield and continue to operate.
- * Remember that a protrusion anywhere is a potential entanglement hazard. (9)

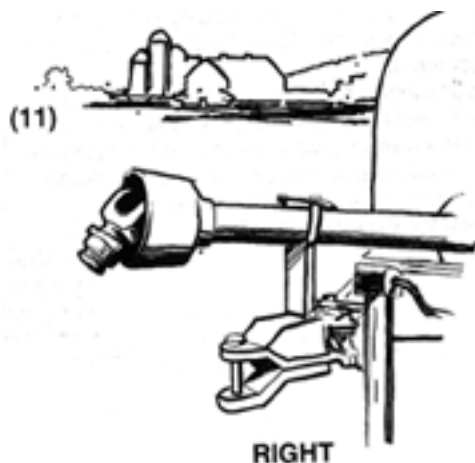


OPERATING RECOMMENDATIONS AND PRECAUTIONS (CON'T)

- * Don't remove the driveline guard or expose guarded parts of the driveline by cutting or enlarging the grease access holes.
- * Be aware of special precautions for stationary equipment. Avoid contact with drivelines in this close working environment. Do not step on or over a driveline. (10)



- * Never operate an implement with driveline guards in a damaged condition.
- * To transport the machinery, follow the implement manufacturer's recommendation for storing the driveline. If no provision for storage is available, make sure the driveline is properly secured to prevent damage to the guarding system during transport. (11)



MAINTENANCE

Driveline & Shielding System

* Inspect driveline shielding system including tractor master shield, driveline guard, and implement shield. If the driveline guard does not rotate free from the shaft, is damaged, or the safety signs are missing or illegible, parts must be repaired or replaced. Perform maintenance per operator manuals. Check connection means for securing tractor to implement.

* Check Quick Disconnect Pin, Slide, or Twist Collar attachment yoke. Check Clamp Bolts and Set Screws for proper torque.

* Store your equipment inside and do not allow the driveline to rest on the ground. (12)



Make sure the driveline is stored in a manner which will not damage guards. Rust and mud may interfere with the driveline locking device or you could unknowingly run over it with the tractor or other farm equipment.

* To replace driveline guards and safety signs, go to your farm equipment dealer. Brand name original equipment replacement parts are recommended. If they cannot supply the guarding or safety signs needed, contact the equipment manufacturer. If the manufacturer is not able to supply the guarding, retrofits are available at dealers or farm stores.

MAINTENANCE

When replacing the driveline guard:

- * Make sure the proper guard bearings are used for installation.
- * Lubricate the bearing grooves per implement manufacturer's recommendation.
- * Make sure the ADMA safety sign is on the replacement guard. (13)

(13)



RIGHT

- * Install the ADMA "Guard Missing" safety sign to the outer telescoping member. (14)

(14)



RIGHT

- * If the driveline is old and will not accept a guard, replace the driveline!

Don't modify the driveline when you repair or replace it. The driveline was engineered and manufactured for a specific implement application.

Proper maintenance of all shields, guards, and overload devices is important to safe operation. A shield must be fitted to the implement input connection so that it will overlap with the driveline guard.

MAINTENANCE OVERLOAD DEVICES

Overrunning Clutch

- * Lubricate per the manufacturer's recommendation.

Shear Bolt Torque Limiter

- * Replace sheared bolts with the manufacturer's recommended diameter, length, and grade only.
- * Lubricate per the manufacturer's recommendation.

Friction Disc Clutch

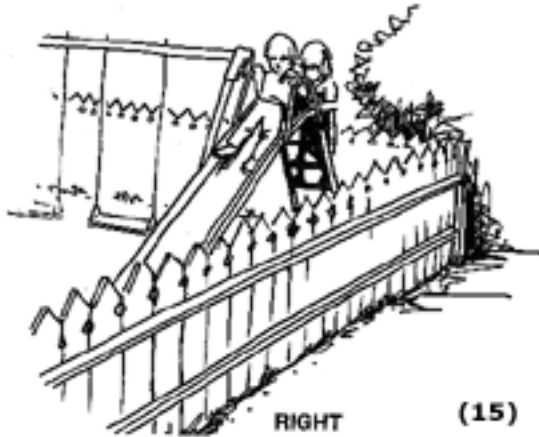
- * To avoid damage to the implement, driveline, or tractor, do not exceed the manufacturer's recommended settings, or use a spring that is not recommended.
- * All friction clutches should be inspected for freeze-up after long periods of non-use. Check the operator's manual or consult your equipment dealer for the proper procedure to reestablish the correct torque setting.

Other Clutches

- * Maintain according to manufacturer's recommendations.

REMEMBER, SAFETY FIRST

- * Exercise extreme caution when operating machinery.
- * Stay at least your height away from a rotating driveline.
- * Never operate equipment without proper guarding.
- * You have an obligation to keep children away. There is NO reason for any child to be near operating equipment. (15)



- * If the elderly are assisting with farm work, their physical limitations need to be recognized and accommodated.
- * It only takes a moment for a shoelace, a pants cuff, or even a strand of hair to become entangled in a driveline.
- * Don't wear loose fitting clothes, windbreakers, or jackets with long drawstrings.
- * Keep long hair tucked securely under a hat.
- * Never step across any driveline.
- * Don't use the tractor drawbar or the implement tongue as a step.
- * Never use the driveline as a step.
- * Slippery conditions increase your risk of injury.
- * Fatigue is a warning you should never ignore.
- * Heed all safety warnings in the operator's manual and on safety sign

This booklet has been prepared by ADMA, the Agricultural Driveline Manufacturers Association, for the express purpose of promoting driveline safety.

ADMA

Form # ADMA 1997

Printed in Canada