# operator's manual

*INCLUDES SERVICE INFORMATION*

# MODEL M140, M150 & M160

## ROTARY CUTTERS

WOODS

Woods Equipment Company

F-8024 (Rev. 2-94)

**TO THE OWNER:**

Read this manual before operating your WOODS cutter. The information presented will prepare you to do a better and safer job. Keep this manual handy for ready reference.

The cutter you have purchased has been carefully engineered and manufactured to provide dependable and satisfactory use. Like all mechanical products, it will require cleaning and upkeep. Lubricate the unit as specified. Observe all safety information in this manual and safety decals on the cutter and tractor.

For service, your authorized WOODS dealer has trained mechanics, genuine WOODS service parts, and the necessary tools and equipment to handle all your needs.

Use only genuine WOODS service parts. Substitute parts will void the warranty and may not meet standards required for safe and satisfactory operation. Record the model and serial numbers of your cutter in the spaces provided:

**Model:** _____

**Serial Number:** **(see page 5 for location)** _____

Provide this information to your dealer to obtain correct repair parts.

Throughout this manual, the term IMPORTANT is used to indicate that failure to observe can cause damage to equipment. The terms CAUTION, WARNING and DANGER are used in conjunction with the Safety-Alert Symbol, (a triangle with an exclamation mark), to indicate the degree of hazard for items of personal safety.

The Safety-Alert Symbol means ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!

**CAUTION**

Denotes a reminder of safety practices or directs attention to unsafe practices which could result in personal injury if proper precautions are not taken.

**WARNING**

Denotes a hazard exists which can result in injury or death if proper precautions are not taken.

**DANGER**

Denotes an extreme intrinsic hazard exists which would result in high probability of death or irreparable injury if proper precautions are not taken.

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# SPECIFICATIONS

3-Point Hitch ..... Category I
Cutting Height Range ..... 2" – 10"
Blade Spindle ..... 1
Number of Blades ..... 2
Universal Drive ..... ASAE Category 3
Tailwheel ..... 4 x 16
Tractor PTO Speed RPM ..... 540
Cutter Frame Thickness ..... 11 Gauge Deck & Sides

| | M140 | M150 | M160 |
|---|---|---|---|
| Cutting Width ..... | 48" | 60" | 72" |
| Shipping Weight (Approximate Lbs.) ..... | 385 | 424 | 492 |
| Blade Speed (feet per minute) ..... | 11,633 | 14,541 | 14,929 |
| Recommended Maximum Tractor HP ..... | 35 | 35 | 40 |

# GENERAL INFORMATION

The purpose of this manual is to assist you in operating and maintaining your cutter. Read it carefully. It furnishes information and instructions that will help you achieve years of dependable performance. These instructions have been compiled from extensive field experience and engineering data. Some information may be general in nature due to unknown and varying operating conditions. However, through experience and these instructions, you should be able to develop procedures suitable to your particular situation.

The illustrations and data used in this manual were current at the time of printing, but due to possible inline production changes, your machine may vary slightly in detail. We reserve the right to redesign and change the machines as may be necessary without notification.

**⚠ WARNING**

- **Some illustrations in this manual show the cutter with safety shields removed to provide a better view. The cutter should never be operated with any safety shielding removed.**

Throughout this manual, references are made to right and left direction. These are determined by standing behind the equipment facing the direction of forward travel. Blade rotation is counter-clockwise as viewed from the top of the cutter.

# NOTES

# SAFETY RULES

## ⚠ ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED! ⚠

Safety is a primary concern in the design and manufacture of our products. Unfortunately, our efforts to provide safe equipment can be wiped out by a single careless act of an operator.

In addition to the design and configuration of equipment, hazard control and accident prevention are dependent upon the awareness, concern, prudence and proper training of personnel involved in the operation, transport, maintenance and storage of equipment.

It has been said *"The best safety device is an informed, careful operator."* We ask you to be that kind of an operator.

The designed and tested safety of this equipment depends on it being operated within the limitations as explained in this manual.

### TRAINING

- **Safety instructions are important! Read this manual, the tractor manual and all safety rules.**
- **Know your controls and how to stop engine and attachment quickly in an emergency.**
- **Operators must be instructed in and be capable of the safe operation of the equipment, its attachments and all controls. Do not allow anyone to operate this equipment without proper instructions.**
- **Do not allow children or untrained persons to operate equipment.**

### PREPARATION

- **Always wear relatively tight and belted clothing to avoid entanglement in moving parts. Wear sturdy, rough-soled work shoes and protective equipment for eyes, hands, hearing and head.**
- **Ensure attachment is properly mounted, adjusted and in good operating condition.**
- **Make sure driveline spring-activated locking pin slides freely and is seated firmly in tractor PTO spline groove.**
- **Inspect rubber or chain shielding before each use and replace any damaged rubber shield or missing links.**
- **Remove accumulated debris from attachment, tractor and engine to avoid fire hazard.**
- **Ensure all safety decals are installed and in good condition. (See Safety Decals section for location drawing.)**
- **Ensure shields and guards are properly installed and in good condition.**
- **A minimum 20% of tractor and equipment weight must be on tractor front wheels with attachment in transport position. Without this weight, tractor could tip over causing personal injury or death. The weight may be attained with front wheel weights, ballast in tires or front tractor weights. When attaining the minimum 20% weight on the front wheels, you must not exceed the Roll Over Protection Structure (ROPS) weight certification. Weigh the tractor and equipment. Do not estimate.**
- **Inspect area to be cut and remove stones, branches or other hard objects that might be thrown, causing injury or damage.**

### OPERATIONAL SAFETY

- **When this equipment is operated in populated areas or other areas where thrown objects could injure persons or property, full chain or rubber shielding (which is designed to reduce the possibility of thrown objects) must be installed. If this machine is not equipped with full chain or rubber shielding, operation must be stopped when anyone comes within several hundred feet.**
- **Keep bystanders away from equipment while it is in operation.**
- **Never direct discharge toward anyone.**
- **Operate only in daylight or good artificial light.**
- **Keep hands and feet away from equipment while engine is running. Stay clear of all moving parts.**
- **Only use tractor with ROPS and seat belt. Securely fasten seat belt. Falling off tractor can result in being run over.**
- **Always comply with all state and local lighting and marking requirements.**
- **No riders are allowed on equipment.**
- **Always sit in tractor seat when operating controls or starting engine. Place transmission in park or neutral, engage brake and ensure all other controls are disengaged before starting tractor engine.**
- **Operate tractor PTO at 540 rpm.**

*(Safety Rules continued on next page)*

# SAFETY RULES

## ⚠ ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED! ⚠

*(Safety Rules continued from previous page)*

- **Do not operate tractor PTO during transport.**
- **Look down and to the rear and make sure area is clear before operating in reverse.**
- **Do not operate on steep slopes.**
- **Do not stop, start or change directions suddenly on slopes.**
- **Use extreme care and reduce ground speed on slopes and rough terrain.**
- **Watch for hidden hazards on the terrain during operation.**
- **Stop tractor and attachment immediately upon striking an obstruction. Turn off engine, remove key, inspect and repair any damage before resuming operation.**
- **Before working underneath, raise cutter to highest position and block securely. Blocking up prevents cutter dropping from hydraulic leak down, hydraulic system failures, or mechanical component failures.**
- **Disengage power to cutter, lower cutter to ground, stop engine, set parking brake and remove key before dismounting tractor.**

### MAINTENANCE SAFETY

- **Always wear relatively tight and belted clothing to avoid entanglement in moving parts. Wear sturdy, rough-soled work shoes and protective equipment for eyes, hands, hearing and head.**
- **Ensure attachment is properly mounted, adjusted and in good operating condition.**
- **Lower cutter to ground or block securely, turn tractor engine off, remove key and disconnect cutter driveline from tractor PTO before performing any service or maintenance.**
- **Before working underneath, raise cutter to highest position and block securely. Blocking up prevents cutter dropping from hydraulic leak down, hydraulic system failures, or mechanical component failures.**
- **Keep all persons away from operator control area while performing adjustments, service or maintenance.**
- **Make certain all movement of attachment components has stopped before opening blade access cover.**
- **Frequently check blades. They should be sharp, free of nicks and cracks and securely fastened.**
- **Your dealer can supply genuine replacement blades. Substitute blades may not meet original equipment specifications and may be dangerous.**
- **Tighten all bolts, nuts and screws, and check that all cotter pins are installed securely to ensure equipment is in a safe condition before operating.**
- **Ensure all safety decals are installed and in good condition. (See Safety Decals section for location drawing.)**
- **Ensure shields and guards are properly installed and in good condition.**

### STORAGE

- **Block equipment securely for storage.**

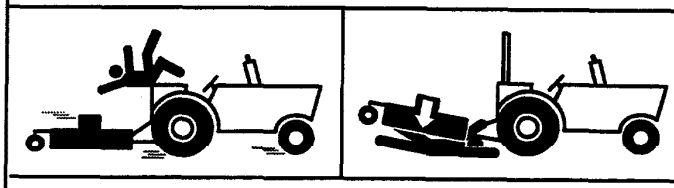
# NOTES

# SAFETY DECALS

## ⚠ ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED! ⚠

**Replace Immediately If Damaged!**

### ⚠ WARNING



**FALLING OFF CAN RESULT IN BEING RUN OVER**

- BUCKLE UP! TRACTOR SHOULD HAVE ROPS AND SEAT BELT.
- ALLOW NO RIDERS.

**RAISED MOWER CAN DROP AND CRUSH**

- SECURELY BLOCK UP AND REMOVE KEY BEFORE WORKING UNDERNEATH.

FALLING OFF OR FAILING TO BLOCK SECURELY CAN RESULT IN SERIOUS INJURY OR DEATH. 18865

**1**

### ⚠ DANGER

**ROTATING DRIVELINE**

- KEEP AWAY.
- KEEP ALL DRIVE SHIELDS AND GUARDS IN PLACE AND IN GOOD CONDITION.

ENTANGLEMENT CAN CAUSE SERIOUS INJURY OR DEATH. 18864

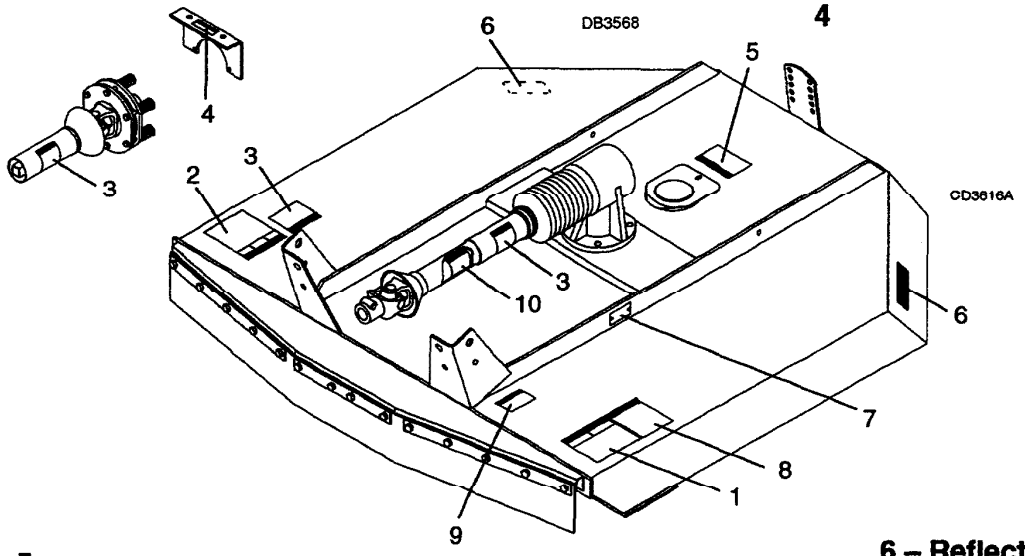
**3** DB3572

### ⚠ DANGER

**SHIELD MISSING**

DO NOT OPERATE– PUT SHIELD ON 18869

**4** DB3567




**5**

**6 – Reflector** (P/N 20106)

### ⚠ WARNING

**ROTATING COMPONENTS**

DO NOT OPERATE WITHOUT COVER IN PLACE.

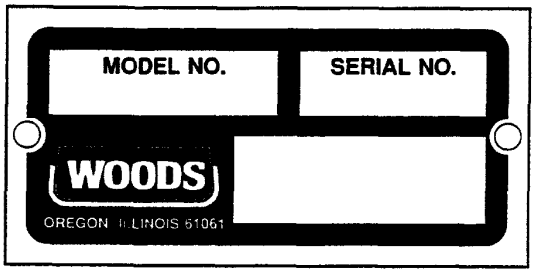
LOOK AND LISTEN FOR ROTATION. DO NOT OPEN COVER UNTIL ALL COMPONENTS HAVE STOPPED.

**CONTACT WITH ROTATING PARTS CAN CAUSE SERIOUS INJURY.**

15502

DB3651

**7 – Serial Number Plate**




*(Safety Decals continued on next page)*

# SAFETY DECALS

## ⚠ ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED! ⚠
## Replace Immediately If Damaged!

*(Safety Decals continued from previous page)*

**⚠ DANGER**

**ROTATING BLADES AND THROWN OBJECTS**

- KEEP AWAY.
- DO NOT OPERATE IN VICINITY OF OTHER PERSONS.
- CLEAR MOWING AREA OF DEBRIS.
- FULL CHAIN OR RUBBER SHIELDING MUST BE USED TO COMPLY WITH OSHA AGRICULTURAL STANDARD 1928.57, SAE J232 AND ANSI B71.4 UNLESS IT INTERFERES SUBSTANTIALLY WITH MOWER FUNCTION DURING AGRICULTURAL USE. IF NOT FULLY SHIELDED, STOP OPERATION WHEN ANYONE COMES WITHIN SEVERAL HUNDRED FEET.

BLADE CONTACT OR THROWN OBJECTS CAN CAUSE SERIOUS INJURY OR DEATH. 15503

DB3652

2

**⚠ WARNING**

PTO SPEEDS HIGHER THAN 540 RPM CAN CAUSE EQUIPMENT FAILURE AND PERSONAL INJURY.

OPERATE PTO AT **540 RPM.** 18866

DB3571

9

**⚠ WARNING**

**TO AVOID SERIOUS INJURY OR DEATH,**

- READ OPERATOR'S MANUAL (AVAILABLE FROM DEALER) AND FOLLOW ALL SAFETY PRECAUTIONS.
- KEEP ALL SHIELDS IN PLACE AND IN GOOD CONDITION.
- OPERATE MOWER FROM TRACTOR SEAT ONLY.
- LOWER MOWER, STOP ENGINE AND REMOVE KEY BEFORE DISMOUNTING TRACTOR.
- ALLOW NO CHILDREN OR UNTRAINED PERSONS TO OPERATE EQUIPMENT.

FAILURE TO OPERATE SAFELY CAN RESULT IN INJURY OR DEATH. 18877

DB3566

8

**⚠ DANGER**

**SHIELD MISSING. DO NOT OPERATE.**

**⚠ DANGER**

**SHIELD MISSING. DO NOT OPERATE.** 33347

**⚠ DANGER**

DB2410

10

# OPERATION

Safety is a primary concern in the design and manufacture of our products. Unfortunately, our efforts to provide safe equipment can be wiped out by a single careless act of an operator.

In addition to the design and configuration of equipment, hazard control and accident prevention are dependent upon the awareness, concern, prudence and proper training of personnel involved in the operation, transport, maintenance and storage of equipment.

It has been said *"The best safety device is an informed, careful operator."* We ask you to be that kind of an operator.

The operator is responsible for the safe operation of this cutter. The operator must be properly trained. Operators should be familiar with the cutter and tractor and all safety practices before starting operation. Read the safety information on pages 3 and 4.

This light-duty cutter is designed for grass and weed mowing and shredding.

Recommended mowing speed for most conditions is from two to five mph.

## ⚠ WARNING

- **Do not allow children or untrained persons to operate equipment.**
- **Keep bystanders away from equipment while it is in operation.**
- **Before working underneath, raise cutter to highest position and block securely. Blocking up prevents cutter dropping from hydraulic leak down, hydraulic system failures, or mechanical component failures.**
- **Keep all persons away from operator control area while performing adjustments, service or maintenance.**
- **Make sure driveline spring-activated locking pin slides freely and is seated firmly in tractor PTO spline groove.**
- **Operate tractor PTO at 540 rpm.**

## ⚠ DANGER

- **When this equipment is operated in populated areas or other areas where thrown objects could injure persons or property, full chain or rubber shielding (which is designed to reduce the possibility of thrown objects) must be installed. If this machine is not equipped with full chain or rubber shielding, operation must be stopped when anyone comes within several hundred feet.**

## ⚠ CAUTION

- **Stop tractor and attachment immediately upon striking an obstruction. Turn off engine, remove key, inspect and repair any damage before resuming operation.**
- **Always wear relatively tight and belted clothing to avoid entanglement in moving parts. Wear sturdy, rough-soled work shoes and protective equipment for eyes, hands, hearing and head.**

### Tractor Stability (Figure 1)

## ⚠ WARNING

- **A minimum 20% of tractor and equipment weight must be on tractor front wheels with attachment in transport position. Without this weight, tractor could tip over causing personal injury or death. The weight may be attained with front wheel weights, ballast in tires or front tractor weights. When attaining the minimum 20% weight on the front wheels, you must not exceed the Roll Over Protection Structure (ROPS) weight certification. Weigh the tractor and equipment. Do not estimate.**

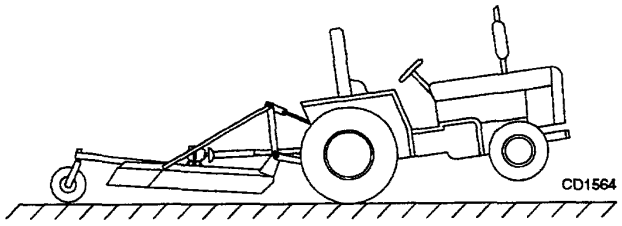



**Figure 1.** Tractor Stability

## Attaching Cutter to Tractor

Attach the cutter hitch pins to lower tractor lift arms and secure.

Attach tractor top link to cutter top clevis in hole nearest pivot. Connect driveline to tractor PTO shaft. Top link adjustment will be required; refer to that section.

The standard 1-3/8" 6B spline driveline with a QD yoke is used to connect cutter to tractor.

### ⚠ WARNING

■ **Make sure driveline spring-activated locking pin slides freely and is seated firmly in tractor PTO spline groove.**

Adjust the tractor lower 3-point arm anti-sway devices to prevent cutter from swinging side to side during transport.

### IMPORTANT

■ **If driveline contacts cutter frame when lifted with tractor 3-point, install optional hitch extensions (see page 22).**

## Cutting Height Adjustment

### IMPORTANT

■ **Avoid low cutting heights. Striking the ground with blades produces one of the most damaging shock loads a cutter can encounter. Allowing blades to contact ground repeatedly will cause damage to cutter and drive.**

### ⚠ WARNING

■ **Keep all persons away from operator control area while performing adjustments, service or maintenance.**

Level cutter from side to side. Check by measuring from cutter frame to the ground at each deck rail. Adjust, using tractor 3-point arm leveling device.

Best mowing results will be obtained with front of cutter level with or slightly lower than the rear.

Cutting height is controlled with tractor 3-point arms, rear tailwheel adjustment or optional check chains.

### ⚠ WARNING

■ **Before working underneath, raise cutter to highest position and block securely. Blocking up prevents cutter dropping from hydraulic leak down, hydraulic system failures, or mechanical component failures.**

To raise rear of cutter, move tailwheel arms down.

To raise front of cutter, raise tractor 3-point arms or shorten optional check chains.

The cutting height is the distance between the blade and the ground. The blades are approximately 6" below the deck. To check cutting height, place a straight edge along top edge of deck.

Select a cutting height; Example: 3"

| | | |
|---|---|---|
| | 3" | Desired cutting height |
| + | 6" | Distance blade cutting edge is below deck |
| = | 9" | |

For an approximate cutting height of 3", set the front edge of deck 9" above the ground. Adjust the front to rear attitude from 1/2 to 3/4" higher than the front, or from 9-1/2 to 9-3/4".

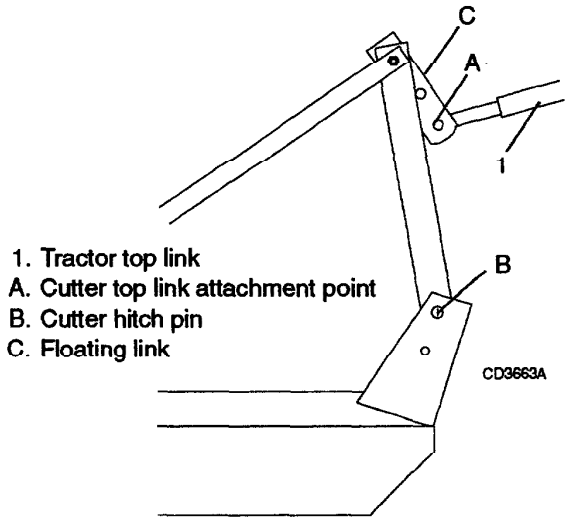
## Top Link Adjustment (Figure 2)

Use lowest hole provided in tractor top link attachment bracket to mount tractor top link.

Select a top link mounting pin that will swing through the cutter A-frame bars and attach rear portion of tractor top link in middle hole of cutter floating link. Raise cutter to transport position and adjust tractor top link until cutter is level in raised position. Some tractors are equipped with a short top link. If you cannot adjust cutter level using middle hole in cutter floating link, use the front hole and adjust cutter level in transport position.

Make sure top link pin is short enough to swing through cutter A-frame bars.

With cutter adjusted level in transport position, set upper stop on tractor lift quadrant to prevent cutter contacting driveline when being raised.




1. Tractor top link
A. Cutter top link attachment point
B. Cutter hitch pin
C. Floating link

**Figure 2.** Top Link Adjustment

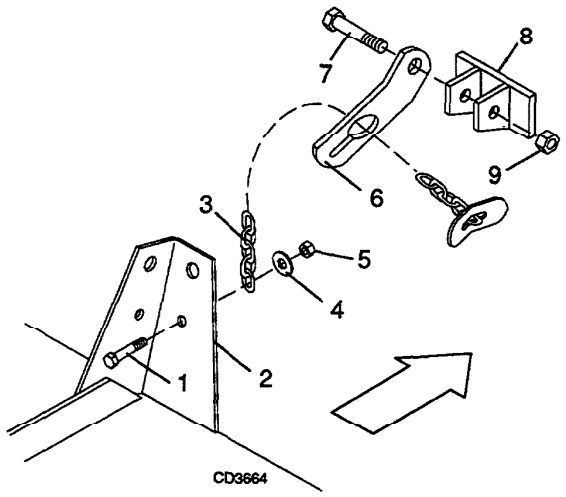
## Shredding

For shredding, it is better to set the cutter lower at the rear. How much lower depends on the material to be shredded. Determine the best setting for your situation by experimenting.

## Optional Check Chain Adjustment
**(Figure 3)**

Refer to page 21 for check chain installation.

When the cutting height has been established, adjust both chains in check chain bracket (6) so you have the same number of links on each side to ensure level cutting.




1. 5/8 x 2-1/4" Bolt
2. Cutter frame
3. Check chain
4. 5/8" Flat washer
5. 5/8" Hex locknut
6. Check chain bracket
7. 3/4 x 6" Bolt
8. Tractor top link bracket
9. 3/4" Hex locknut

**Figure 3.** Check Chain Installation

## Pre-Operation Checklist
(OWNER RESPONSIBILITY)

— Review and follow safety rules on pages 3 and 4.

— Check that cutter is properly and securely attached to tractor.

— Make sure driveline spring-activated locking pin slides freely and is seated firmly in tractor PTO spline groove.

— Set tractor PTO at 540 rpm.

— Lubricate all grease fitting locations. Make sure PTO shaft slip joint is lubricated.

— Check to be sure gear lube runs out the small check plug on rear of gearbox.

— Check that all hardware is properly installed and secured.

— Check to ensure blades are sharp and secure and cutting edge is positioned to lead in a counterclockwise rotation.

— Check that all shields and guards are properly installed and in good condition.

— Check cutting height, front to rear attitude and top link adjustment.

— Place tractor PTO and transmission in neutral before starting engine.

— Inspect area to be cut and remove stones, branches or other hard objects that might be thrown, causing injury or damage.

### IMPORTANT

■ **Vibration tends to loosen bolts during operation. All hardware should be checked regularly to maintain proper torque. It is a good practice to check cutter before each operation to ensure all hardware is secure.**

## Operating Technique

Power for operating cutter is supplied by tractor PTO. Operate PTO at 540 rpm. Know how to stop tractor and cutter quickly in case of an emergency.

Engage PTO at a low engine rpm to minimize stress on the drive system and gearbox. With PTO engaged, raise PTO speed to 540 rpm and maintain throughout cutting operation.

Gearbox protection is provided by a slip clutch with replaceable fiber disc or a shear bolt. The slip clutch is designed to slip and the shear bolt will shear when excessive torsional loads are encountered.

Move into material slowly with cutter. Adjust tractor ground speed to provide a clean cut without lugging the tractor engine. Use a slow ground speed for better shredding.

Proper ground speed will depend upon the terrain, the height, type and density of material to be cut.

Normally, ground speed will range from two to five mph. Tall dense material should be cut at a low speed; thin medium-height material can be cut at a faster ground speed.

Always operate tractor PTO at 540 rpm. This is necessary to maintain proper blade speed and produce a clean cut.

Under certain conditions, tractor tires may roll some grass down and prevent it from being cut at the same height as the surrounding area. When this occurs, reduce your ground speed, but maintain PTO at 540 rpm. The lower ground speed will permit grass to at least partially rebound.

Under some conditions, grass will not rebound enough to be cut evenly. In general, lower cutting heights give a more even cut with less tendency to leave tire tracks. However, it is better to cut grass frequently rather than too short. Short grass deteriorates rapidly in hot weather and invites weed growth during growing seasons. Follow local recommendations for the suitable cutting height in your area.

### Tips

**⚠ WARNING**

- **Inspect area to be cut and remove stones, branches or other hard objects that might be thrown, causing injury or damage.**

Extremely tall material should be cut twice. Set cutter at a higher cutting height for the first pass. Then cut at desired height at 90° to the first pass.

Remember, sharp blades produce cleaner cuts and require less power.

Analyze area to be cut to determine the best procedure. Consider height and type of grass and terrain type: hilly, level or rough.

Plan your mowing pattern to travel straight forward whenever possible. Mow clockwise around fields when necessary to minimize streaking on corners.

### Uneven Terrain

**⚠ WARNING**

- **Do not operate on steep slopes.**
- **Do not stop, start or change directions suddenly on slopes.**
- **Use extreme care and reduce ground speed on slopes and rough terrain.**
- **Watch for hidden hazards on the terrain during operation.**

Pass diagonally through sharp dips and avoid sharp drops to prevent "hanging up" tractor and cutter.

Practice will improve your skills in maneuvering rough terrain.

## Removing Cutter from Tractor

Disengage tractor PTO, raise cutter with 3-point hitch and remove check chains (if installed) from brackets attached to tractor top link brackets.

Disconnect driveline from tractor PTO.

Collapse driveline as far as possible and store it to prevent ground contact. Place blocks under cutter side skids. Lower cutter onto blocks, disconnect cutter from tractor 3-point hitch, and carefully drive tractor away from cutter.

# NOTES

# OWNER SERVICE

The information in this section is written for operators who possess basic mechanical skills. Should you need help, your dealer has trained service technicians available. For your protection, read and follow safety information in this manual.

## ⚠ WARNING

- **Before working underneath, block cutter securely. Hydraulic system leak down and failure of mechanical or hydraulic system can cause equipment to drop.**
- **Lower cutter to ground or block securely, turn tractor engine off, remove key and disconnect cutter driveline from tractor PTO before performing any service or maintenance.**
- **Keep all persons away from operator control area while performing adjustments, service or maintenance.**

## ⚠ CAUTION

- **Always wear relatively tight and belted clothing to avoid entanglement in moving parts. Wear sturdy, rough-soled work shoes and protective equipment for eyes, hands, hearing and head.**

## LUBRICATION INFORMATION (Figure 4)

Do not let excess grease collect on or around parts, particularly when operating in sandy areas.

The accompanying illustration shows lubrication points. The chart gives the frequency of lubrication in operating hours, based on normal operating conditions. Severe or unusual conditions may require more frequent lubrication.

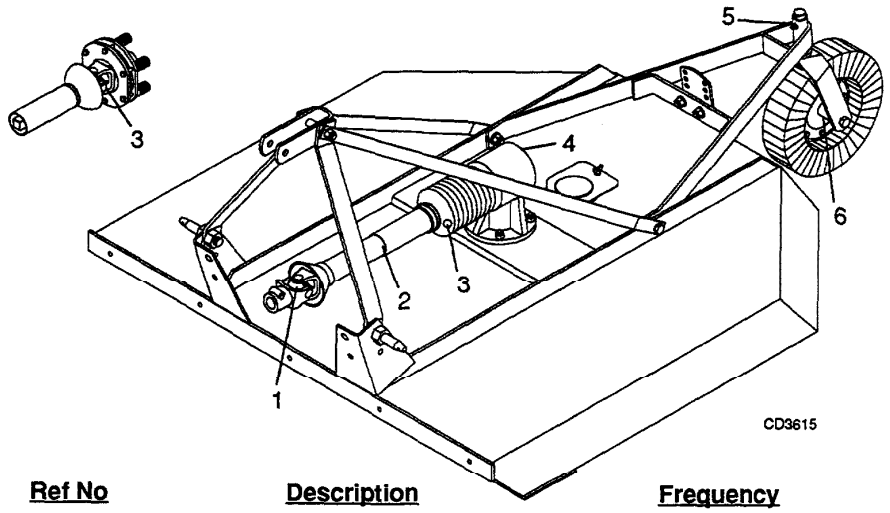
Use a lithium grease of #2 consistency with a MOLY (molybdenum disulfide) additive for all locations. Be sure to clean fittings thoroughly before attaching grease gun. When applied according to the lubrication chart, one good pump of most guns is sufficient.

Fill gearbox with SAE 90W gear lube until it runs out the lower plug on rear of gearbox. Check gearbox daily for evidence of leakage. Have your dealer assist you if you find evidence of leakage.

### Driveline Lubrication

Lubricate the driveline slip joint every eight operating hours. Failure to maintain proper lubrication could result in damage to U-joints, gearbox and driveline.

Lower cutter to ground, disconnect driveline from tractor PTO shaft and slide halves apart but do not disconnect from each other. Apply a bead of grease completely around male half where it meets female half. Slide drive halves over each other several times to distribute grease.




| Ref No | Description | Frequency |
|---|---|---|
| 1 | Front U-Joint | 8 Hrs. |
| 2 | Slip Joint (apply grease to square shaft) | 8 Hrs. |
| 3 | Rear U-Joint | 8 Hrs. |
| 4 | Gearbox | Check Daily |
| 5 | Tailwheel Pivot Tube | 8 Hrs. |
| 6 | Tailwheel | 8 Hrs. |

**Figure 4.** Lubrication Points

## BLADE SERVICING

### Blade Removal (Figure 5)

Disconnect driveline from tractor PTO.

It is necessary to gain access to bottom side of cutter for blade removal. Raise cutter and block securely.

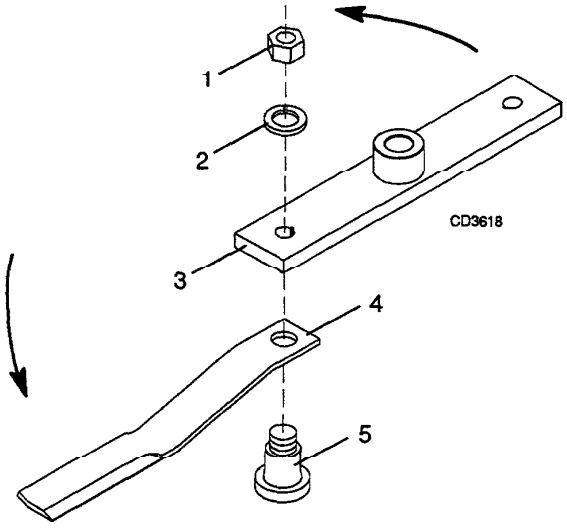
Open blade access cover and align crossbar (3) with blade access hole in the cutter frame.

Remove nut (1) and lockwasher (2) then carefully drive bolt (5) out of crossbar.

**IMPORTANT**

■ **If blade bolt (5) is seized in crossbar and extreme force will be required to remove it, support crossbar from below to prevent gearbox damage.**

Rotate crossbar (3) and repeat for opposite blade.




1. Jam nut
2. Lockwasher
3. Crossbar
4. Blade
5. Blade bolt

**Figure 5**. Blade Installation

### Blade Installation (Figure 5)

Always replace or sharpen both blades at the same time.

**WARNING**

■ **Your dealer can supply genuine replacement blades. Substitute blades may not meet original equipment specifications and may be dangerous.**

Inspect blade bolt (5) for nicks or gouges; replace if any are found. Insert bolt through blade. Blade should swivel on bolt. Determine cause if it does not and correct.

Align crossbar (3) with blade access hole in the cutter frame.

Apply a liberal coating of Never Seez® or equivalent to blade bolt and crossbar hole. Make sure blade is offset away from cutter.

**IMPORTANT**

■ **Crossbar rotation is counter-clockwise when looking down on cutter. Be sure to install blade cutting edge to lead in counter-clockwise rotation.**

Insert blade bolt (5) through blade, align key on blade bolt with keyway in crossbar and push blade bolt through crossbar. Insert lockwasher (2) and nut (1) through blade access hole in the cutter frame, install on bolt (5) and tighten to 450 ft-lbs.

Repeat for opposite blade.

Replace blade access hole cover.

### Blade Sharpening (Figure 6)

**IMPORTANT**

■ **When sharpening blades, grind each blade the same amount to maintain balance. Replace blades in pairs. Unbalanced blades will cause excessive vibration which can damage gearbox bearings. Vibration may also cause structural cracks to cutter.**

Sharpen both blades at the same time to maintain balance. Follow original sharpening pattern. Do not sharpen blade to a razor edge, but leave at least a 1/16" blunt edge. Do not sharpen back side of blade.

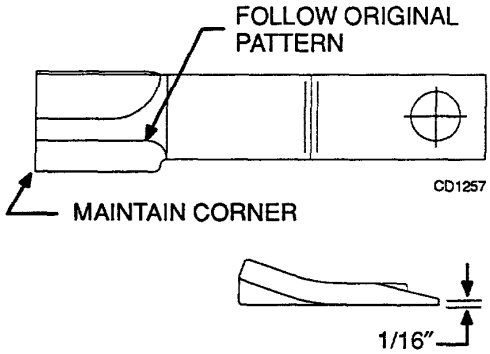



**Figure 6**. Blade Sharpening

Never Seez is a registered trademark of the Never Seez Corporation.

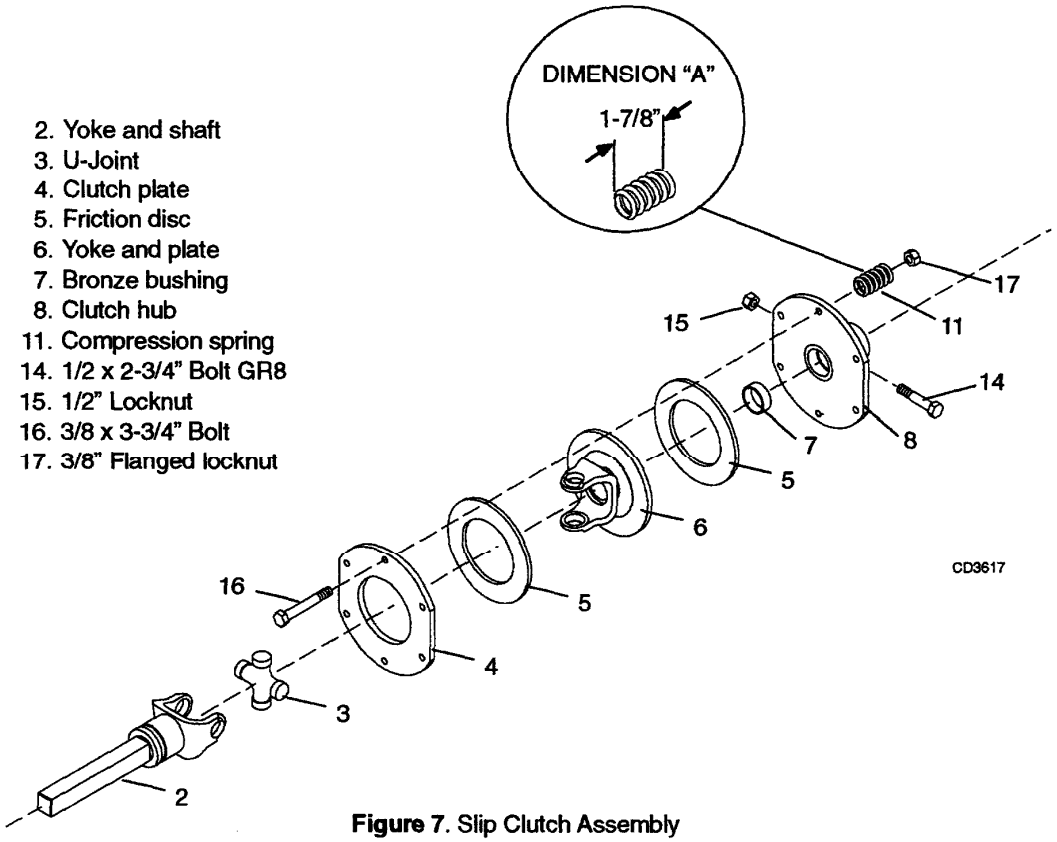



**Figure 7**. Slip Clutch Assembly

## SLIP CLUTCH ADJUSTMENT (Figure 7)

The slip clutch is designed to slip, protecting the gearbox and driveline, should the cutter strike an obstruction.

A new slip clutch, or one that has been in storage over the winter may seize. Before operating, make sure it will slip by performing this operation:

Make sure tractor engine is turned off and key is removed.

Remove driveline from tractor PTO.

Loosen the six bolts (16) to remove all tension from springs (11).

Hold clutch hub (8) solid and turn shaft (2) to make sure clutch slips.

If clutch does not slip freely, disassemble and clean the faces of clutch plate (4), yoke and plate (6), and clutch hub (8).

Reassemble clutch.

Tighten each of the six bolts evenly until the springs are compressed to 1-7/8" as shown at dimension "A".

If a clutch continues to slip when the springs are compressed to 1-7/8", check friction disc (5) for excessive wear. Discs are 1/8" when new. Replace discs after 1/16" wear. Minimum disc thickness is 1/16".

## SHEAR BOLT REPLACEMENT

### IMPORTANT

- **Always use approved 1/2" NC x 3" grade 2 shear bolt as a replacement part. Using a hardened bolt or shear pin may result in damage to driveline or gearbox.**

Remove driveline shield bell. (Refer to page 20 for instructions.)

Rotate driveline to align holes in yoke and shaft. Install shear bolt and secure with locknut.

Replace driveline shield bell. (Refer to page 20 for instructions.)

## SHIELDING REPAIR

### Chain Shielding Repair

Inspect chain shielding each day of operation and replace any broken or missing chains as required.

### Rubber Shield Repair

Inspect rubber shielding each day of operation. Replace if belting shows excessive wear or tears.

# DEALER SERVICE

The information in this section is written for dealer service personnel. The repair described herein requires special skills and tools. If your shop is not properly equipped or your mechanics are not properly trained in this type of repair, you may be time and money ahead to replace complete assemblies.

## ⚠ WARNING

■ **Before working underneath, block cutter securely. Hydraulic system leak down and failure of mechanical or hydraulic system can cause equipment to drop.**

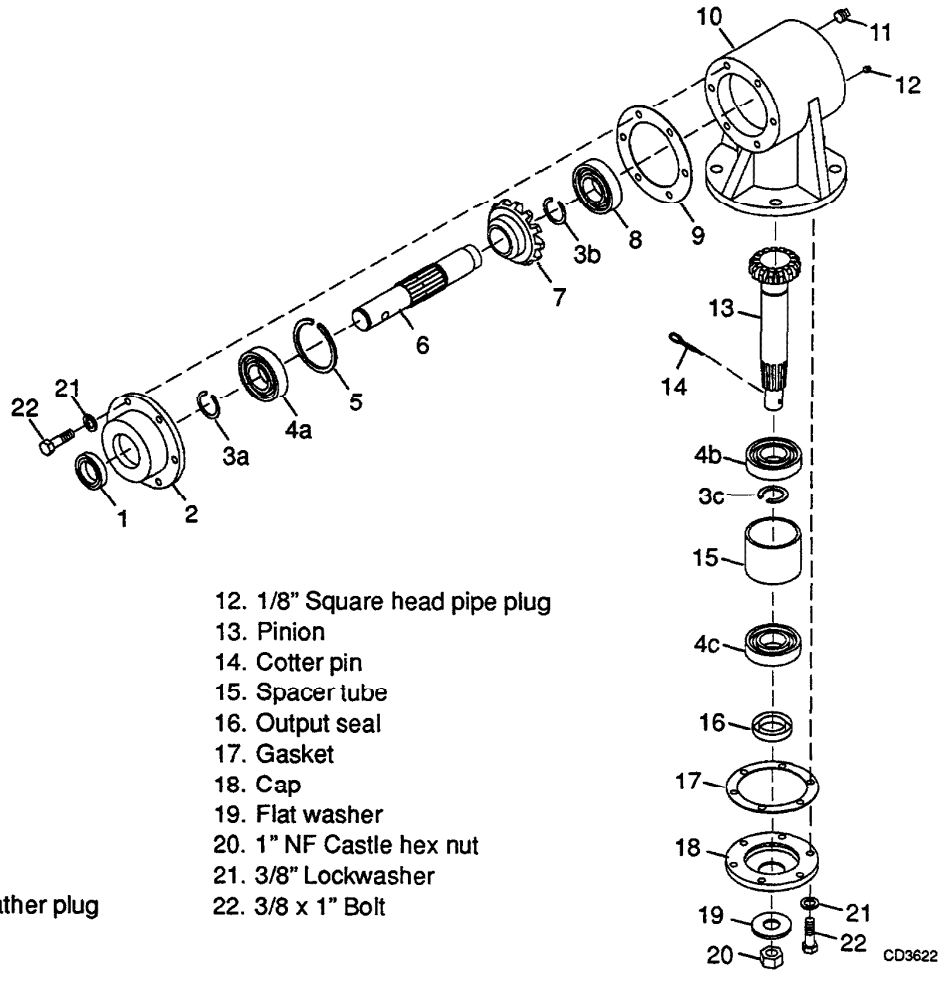
■ **Keep all persons away from operator control area while performing adjustments, service or maintenance.**

## ⚠ WARNING

■ **Lower cutter to ground or block securely, turn tractor engine off, remove key and disconnect cutter driveline from tractor PTO before performing any service or maintenance.**

## ⚠ CAUTION

■ **Always wear relatively tight and belted clothing to avoid entanglement in moving parts. Wear sturdy, rough-soled work shoes and protective equipment for eyes, hands, hearing and head.**




1. Input seal
2. Input cap
3. Retaining ring
4. Ball bearing
5. Retaining ring
6. Input shaft
7. Gear
8. Ball bearing
9. Gasket
10. Housing
11. 1/2" NPT Breather plug
12. 1/8" Square head pipe plug
13. Pinion
14. Cotter pin
15. Spacer tube
16. Output seal
17. Gasket
18. Cap
19. Flat washer
20. 1" NF Castle hex nut
21. 3/8" Lockwasher
22. 3/8 x 1" Bolt

**Figure 8.** Gearbox Assembly

## GEARBOX MAINTENANCE (Figure 8)

Read this entire section before starting any repair. Many steps are dependent on each other.

Fill gearbox with SAE 90W gear lube until it runs out the level plug (12).

Repair to this gearbox is limited to replacing bearings, seals and gaskets. Replacing gears, shafts and a housing is not cost effective. It is more economical to purchase a complete gearbox if repair other than replacing bearings, seals or gaskets is required.

Inspect gearbox for leakage and bad bearings.

Leakage is a very serious problem and must be corrected immediately.

Bearing failure is indicated by excessive noise and side to side or end play in gear shafts.

### Leakage Repair

Recommended sealant for gearbox repair is Permatex Aviation 3D Form-A-Gasket® or equivalent.

Leakage can occur at the vertical or horizontal gaskets and shaft seals.

Leakage at the horizontal gasket or seal can be repaired without removing the gearbox from the cutter.

#### Horizontal Leak Repair

Disconnect and remove the rear driveline from the gearbox.

Remove breather plug (11) and siphon gear lube from housing through this opening.

If leak occurred at the horizontal gasket, remove cap (2), clean old gasket material from cap and face of housing (10).

Apply a thin coat of Permatex to cover cap (2) and housing (10).

Replace gasket, install cap (2) and tighten cover bolts evenly.

If leak occurred at the horizontal seal (1), remove the cap (2) from housing then remove and replace the old seal. Refer to seal installation.

Fill gearbox with SAE 90W gear lube until it runs out the level plug (12).

Install driveline and place unit in service.

### Seal Installation (Figure 9 & Figure 10)

Proper seal installation is important. An improperly installed seal will leak.

Permatex Aviation 3D Form-A-Gasket is a registered trademark of the Permatex Corporation.

Clean area in cap where seal outer diameter seats and apply a thin coat of Permatex.

Inspect area of shaft where seal seats and remove any burrs or nicks with emery cloth.

Place seal (spring-loaded lip toward housing) squarely on cap. Select a piece of pipe or tubing with an OD that will set on outside edge of seal but will clear the housing. Tubing with an OD that is too small will bow seal cage and ruin seal.

Lubricate gear shaft and seal lips.

Carefully press seal into cap, preventing distortion to the metal seal cage. Vertical seal should seat firmly and squarely against machined shoulder in housing. Horizontal seal should be pressed flush with outside of cap.

Distortion to seal cage or damage to seal lip will cause seal to leak.

Lubricate gear shaft and seal lip and install cap to housing.

Remove and replace any seal damaged in installation.

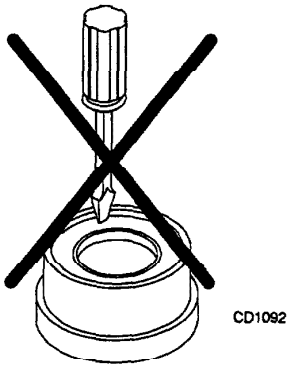
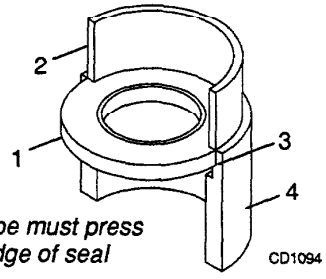



**Figure 9.** Incorrect Seal Installation




1. Seal
2. Pipe or tube
3. Seal seat
4. Casting

**Figure 10.** Seal Installation

## Removing Gearbox from Cutter (Figure 8)

Disconnect and remove the rear driveline from the gearbox.

Remove breather plug (11) and siphon gear lube from housing through this opening.

Remove cotter pin and nut from horizontal shaft and remove crossbar.

Remove the four bolts attaching gearbox to cutter and remove gearbox.

## Gearbox Disassembly

Remove horizontal cap (2).

Remove retaining ring (5) and pull gear and shaft assembly from cap.

Remove retaining rings (3a & 3b) from each end of shaft (6).

Remove bearing (4a) from shaft.

Remove seal (1) from cap (2).

Remove bearing (8) from housing if it was not removed with shaft (6).

Remove vertical cap (18) from housing.

Drive pinion shaft assembly (13) from housing with hammer and punch.

Remove bearing (4c) and spacer (15) from shaft.

Remove seal (16) from cap (18).

Remove retaining ring (3c) from pinion shaft (13) and drive bearing (4b) off of shaft.

Inspect gears for broken teeth and wear. Some wear is normal and will show on loaded side. Forged gear surfaces are rough when new. Check that wear pattern is smooth.

Inspect vertical and horizontal shafts for grooves nicks or bumps in the areas where the seals seat. Resurface any damage with emery cloth.

Inspect housing and caps for cracks or other damage.

## Gearbox Assembly

Repair to this gearbox is limited to replacing bearings, seals and gaskets. Replacing gears, shafts and a housing is not cost effective. It is more economical to purchase a complete gearbox if repairs other than replacing bearings, seals or gaskets are required.

Clean housing, paying specific attention to areas where gaskets will be installed.

Install a new bearing (4b) on shaft (13), then put retaining ring (3c) in upper groove.

Slide spacer tube (15) over shaft (13), then press new bearing (4c) on shaft, tight against spacer tube (15).

Clean areas of vertical cap (18) where seal and gasket will be installed, then coat lightly with Permatex.

Refer to seal installation and install seal (16) in cap. Lightly coat cap and housing gasket seating areas with Permatex and install gasket.

Lubricate lip of seal (16) and shaft (13) and slide cap over shaft, using care to prevent damage to seal lip.

Place a lockwasher (21) on each bolt (22), install through vertical cap (18) and tighten evenly.

Clean area of horizontal cap where seal and gasket will be installed, then coat lightly with Permatex.

Press bearing (8) on end of shaft (6).

Press bearing (4a) on shaft (6) and secure with *retaining ring (3a)*.

Press seal (1) into cap (2).

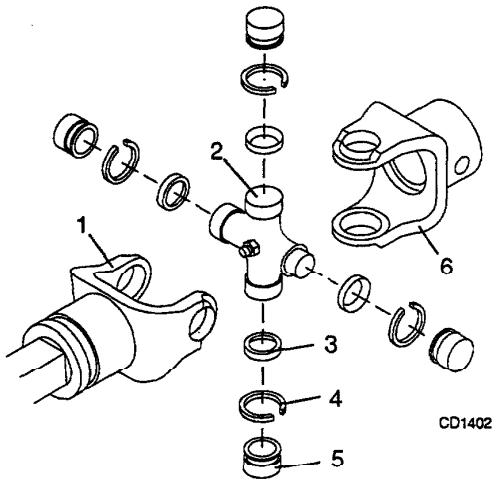
Lubricate shaft (6) and lip of seal (1), then insert shaft assembly into cap.

Put gasket (9) on cap (2) and place on housing (10)

Place a lockwasher (21) on each bolt (22), install through horizontal cap (2) and tighten evenly.

Replace and refill gearbox.

## UNIVERSAL JOINT REPAIR




1. Yoke
2. Journal cross
3. Seal
4. Snap ring
5. Cup and bearings
6. Yoke

**Figure A.** U-Joint Exploded View

## U-Joint Disassembly

1 Remove snap rings from inside of yokes in four locations as shown in Figure B.

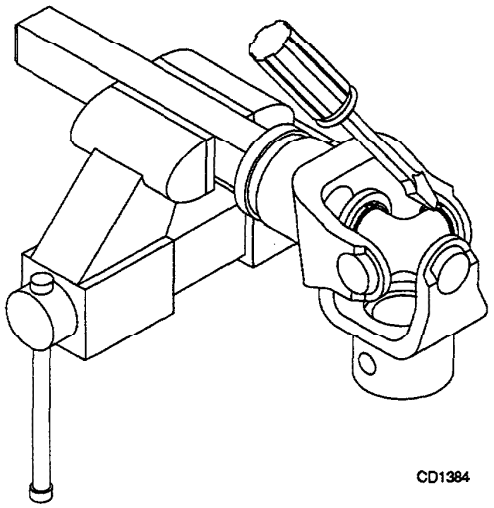



**Figure B**

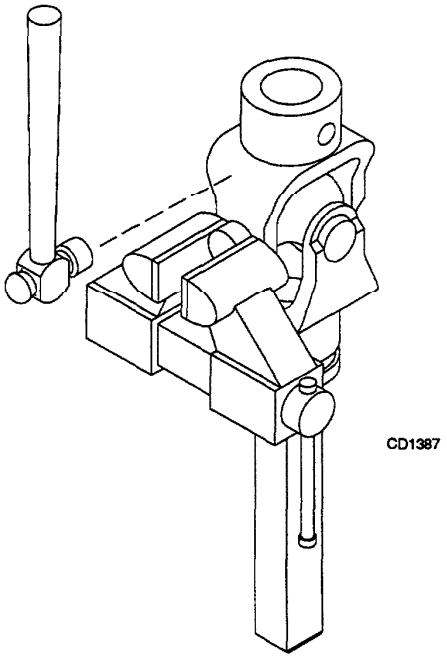



**Figure D**

2 With snap rings removed, support drive in vise, hold yoke in hand and tap on yoke to drive cup up out of yoke. See Figure C.

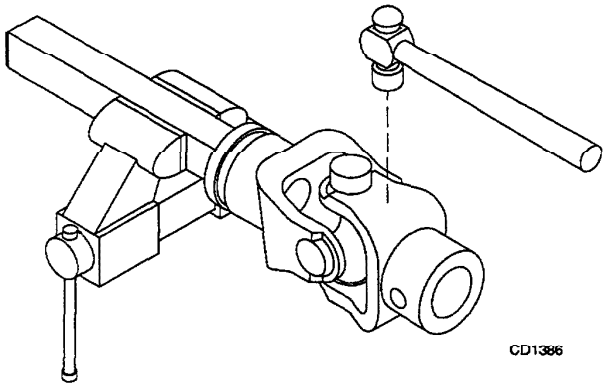



**Figure C**

3 Clamp cup in vise as shown in Figure D and tap on yoke to completely remove cup from yoke. Repeat steps two and three for opposite cup.

4 Place universal cross in vise as shown in Figure E and tap on yoke to remove cup. Repeat step three for final removal. Drive remaining cup out with a drift and hammer.

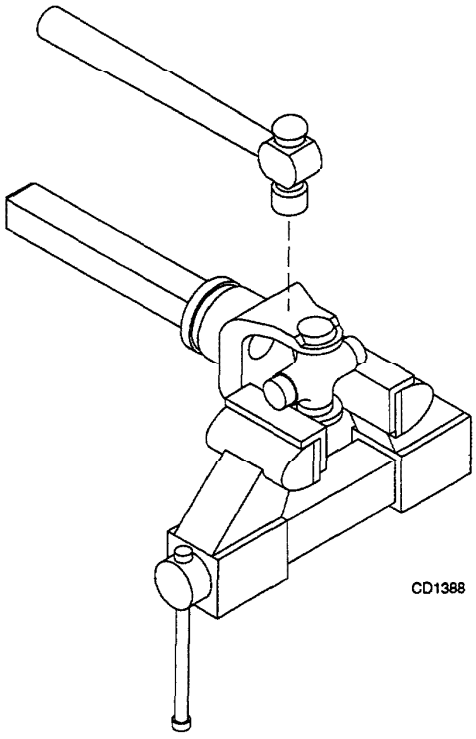



**Figure E**

## U-Joint Assembly

1 Place seals securely on bearing cups. Insert cup into yoke from outside and press in with hand pressure as far as possible. Insert journal cross into bearing cup with grease fitting away from shaft. Be careful not to disturb needle bearings. Insert another bearing cup directly across from first cup and press in as far as possible with hand pressure.

Trap cups in vise and apply pressure. Be sure journal cross is started into bearings and continue pressure with vise, squeezing in as far as possible. Tap yoke to aid in process.

2 Seat cups by placing a drift or socket (slightly smaller than the cup) on cup and rapping with a hammer. See Figure F. Install snap ring and repeat on opposite cup.

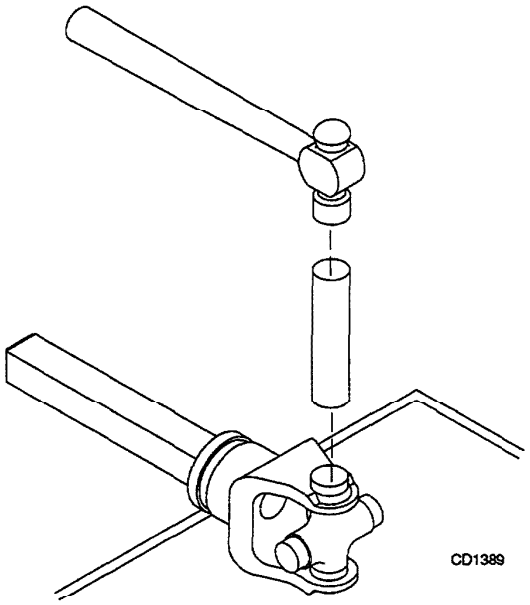



**Figure F**

3 Repeat steps one and two to install remaining cups in remaining yoke.

Move both yokes in all directions to check for free movement. Should movement be restricted, rap on yokes sharply with a hammer to relieve any tension. Repeat until both yokes move in all directions without restriction.

# NOTES

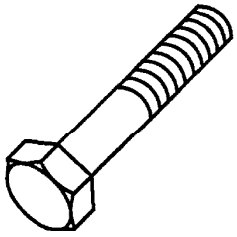
# TROUBLE SHOOTING
## MOWING CONDITIONS

| PROBLEM | POSSIBLE CAUSE | SOLUTION |
|---|---|---|
| Grass cut lower in center of swath than at edge | Height of cutter lower at rear or front | Adjust cutter height and attitude so that cutter rear and front are within 1/2" of same height. See instructions. |
| Streaking conditions in swath | Conditions too wet for mowing | Allow grass to dry before mowing. |
| | Blades unable to cut that part of grass pressed down by path of tractor tires | Slow ground speed of tractor but keep engine running at full PTO rpm. Cutting lower will help. |
| | Dull blades | Sharpen or replace blades. |
| Material discharges from cutter unevenly; bunches of material along swath | Material too high and too much material | Reduce ground speed but maintain 540 rpm at tractor PTO, or make two passes over material. Raise cutter for the first pass and lower to desired height for the second and cut at 90° to first pass. Raise rear of cutter high enough to permit material to discharge, but not so high that conditions listed above occur. |
| | Grass wet | Allow grass to dry before mowing. Slow ground speed of tractor but keep engine running at full PTO rpm. Cutting lower will help. |
| | Rear of cutter too low, trapping material under cutter | Adjust cutter height and attitude. (See instructions.) |
| Cutter will not cut (Shear bolt drive only) | Shear bolt sheared | Install new shear bolt. |
| Cutter will not cut all of the time (Slip clutch drive only) | Slip clutch slipping | Adjust slip clutch according to instructions in the Owner Service section. |

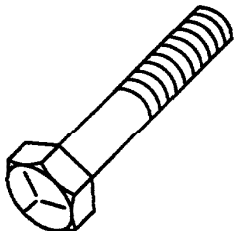
# PROPER TORQUE FOR FASTENERS

The chart lists the correct tightening torque for fasteners used on WOODS equipment. When bolts are to be tightened or replaced, refer to this chart to determine the grade of bolts and the proper torque **except** when specific torque values are assigned in manual text.

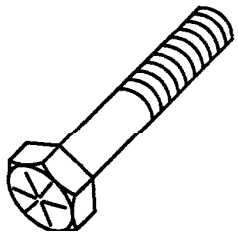
## Bolt Head Markings



**SAE Grade 2**
**(No Dashes)**



**SAE Grade 5**
**(3 Radial Dashes)**



**SAE Grade 8**
**(6 Radial Dashes)**

## Recommended Torque in Foot Pounds (Newton-Meters)

| Bolt Diameter (In.) | SAE Grade 2 | | SAE Grade 5 | | SAE Grade 8 | |
|---|---|---|---|---|---|---|
| 1/4 | 6 | (8) | 11 | (15) | 14 | (19) |
| 5/16 | 13 | (18) | 21 | (28) | 25 | (34) |
| 3/8 | 23 | (31) | 38 | (52) | 55 | (75) |
| 7/16 | 37 | (50) | 55 | (75) | 80 | (110) |
| 1/2 | 57 | (77) | 85 | (115) | 120 | (165) |
| 9/16 | 82 | (111) | 125 | (170) | 180 | (245) |
| 5/8 | 111 | (150) | 175 | (240) | 230 | (310) |
| 3/4 | 200 | (270) | 300 | (410) | 440 | (600) |
| 7/8 | 280 | (380) | 450 | (610) | 720 | (975) |
| 1 | 350 | (475) | 680 | (925) | 1035 | (1400) |
| 1–1/8 | 450 | (610) | 885 | (1200) | | |
| 1–1/4 | 600 | (815) | 1255 | (1700) | | |
| 1–3/8 | 675 | (915) | 1620 | (2200) | | |
| 1–1/2 | 920 | (1250) | 2200 | (2990) | | |

## HARDWARE ABBREVIATIONS

ATF . . Automatic Transmission Fluid
CV . . . . . Constant Velocity
F . . . . . Female
GA . . . . . Gauge
GR (5, etc.) . . . . . Grade (5, etc.)
HT . . . . . Heat Treated
m . . . . . Meter
mm . . . . . Millimeter
M . . . . . Male
MPa . . . . . Mega Pascal
N . . . . . Newton
NC . . . . . National Coarse
NF . . . . . National Fine
NPSM . . . . . National Pipe Straight Mechanical
NPT . . . . . National Pipe Thread
P . . . . . Pitch
psi . . . . . Pounds per Square Inch
SAE . . . . . Society of Automotive Engineers
UNC . . . . . Unified Coarse
UNF . . . . . Unified Fine
UNS . . . . . Unified Special

# ASSEMBLY INSTRUCTIONS

## DEALER SET-UP INSTRUCTIONS

Assembly of this cutter is the responsibility of the WOODS dealer. It should be delivered to the owner completely assembled, lubricated and adjusted for normal cutting conditions.

Complete check lists when assembly is complete.

The cutter is shipped partially assembled. Assembly will be easier if components are aligned and loosely assembled before tightening hardware. Recommended torque values for hardware are located on page 18.

Select a suitable working area. Refer to illustrations, accompanying text, parts lists and exploded view drawings.

**⚠ WARNING**

- **Make sure cutter driveline spring-activated locking pin slides freely and is seated firmly in tractor PTO spline groove.**
- **Operate tractor PTO at 540 rpm.**

**⚠ CAUTION**

- **Always wear relatively tight and belted clothing to avoid entanglement in moving parts. Wear sturdy, rough-soled work shoes and protective equipment for eyes, hands, hearing and head.**

**⚠ DANGER**

- **When this equipment is operated in populated areas or other areas where thrown objects could injure persons or property, full chain or rubber shielding (which is designed to reduce the possibility of thrown objects) must be installed. If this machine is not equipped with full chain or rubber shielding, operation must be stopped when anyone comes within several hundred feet.**

### Mast Installation (Figure 11)

Position cutter flat and block under the rear to raise tailwheel off of the ground.

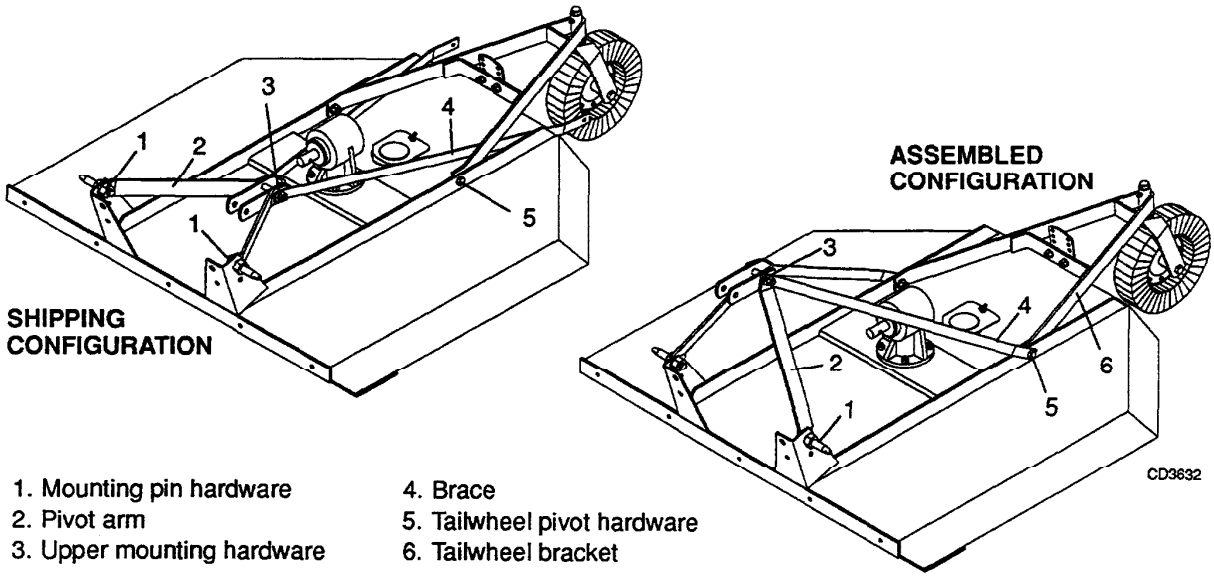
Refer to the shipping configuration illustration and remove tailwheel pivot hardware (5). Loosen both hitch pins (1) and hardware at location (3).

Rotate pivot arms (2) and braces (4) forward, aligning braces (4) with tailwheel brackets (6). Place braces (4) outside the frame rails and install tailwheel pivot hardware (5).

Torque hardware at locations (3) and (5) to 85 ft-lbs and hitch pins (1) to 300 ft-lbs.

### Blade Preparation

Blades were wired together for shipment. Remove wire from blades.




1. Mounting pin hardware
2. Pivot arm
3. Upper mounting hardware
4. Brace
5. Tailwheel pivot hardware
6. Tailwheel bracket

**Figure 11.** Mast Installation

## Rear Driveline Installation

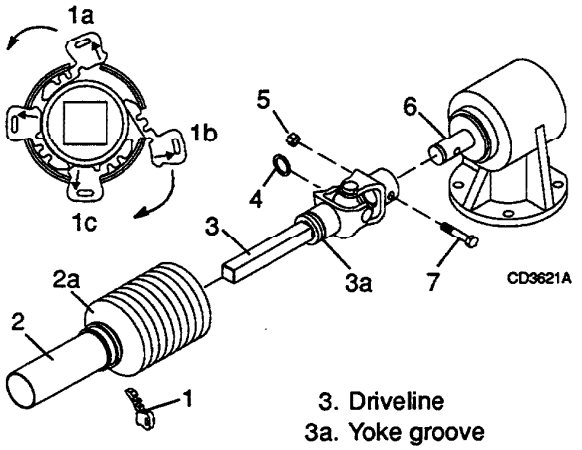
Select either the standard shear bolt or optional slip clutch driveline.

### Shear Bolt Driveline Installation (Figure 12)

Remove retaining ring (4) from gearbox input shaft (6).

Remove rear drive shield (2) from driveline.

Note: A small arrow on the shield bearing indicates which end to twist up with a screwdriver for removal. There are four shield bearings (1) attaching shield to driveline (3). Insert a screwdriver into each bearing slot and twist in the direction of the arrow shown at location (1a). After snapping all four bearings out, pull them out of the shield as shown at location (1b).




1. Shield bearings
2. Rear drive shield tube

2a. Shield bell

3. Driveline

3a. Yoke groove

4. Retaining ring
5. 1/2" Hex locknut
6. Gearbox input shaft
7. 1/2 x 3" Shear bolt

**Figure 12.** Shear Bolt Driveline Installation

To prevent seal damage, carefully push driveline onto gearbox input shaft until it contacts gearbox housing.

Install retaining ring (4) and then pull driveline ahead.

## IMPORTANT

■ **A grade 2 bolt must be used for the shear bolt to provide gearbox protection.**

Align the holes in the driveline yoke and gearbox input shaft and install and tighten shear bolt (7) and nut (5).

Install rear drive shield to driveline.

Align the slots in shield tube (2) with those in shield bell (2a) and push the two together, aligning the slots.

Hold shield assembly and insert driveline (3) into it.

Align yoke groove (3a) with the slots in the shield.

Insert bearing (1) into shield slot and push with thumb until bearing is in place as shown at location (1c).

The bearings must be inserted in the same direction to fit properly.

The first three bearings will go in easily, the last bearing will require more force to snap into place.

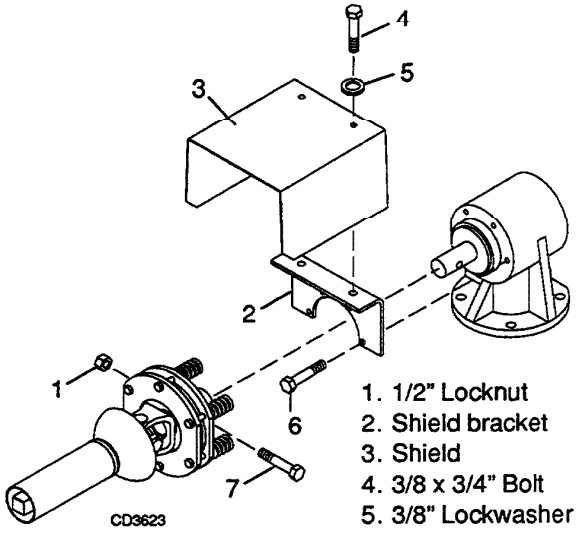
Before installing the last bearing, apply grease into bearing groove (3a) through the last slot to prolong bearing life.

Make sure all four bearings are seated into the shield as shown in location (1c). Do not allow the bearing heel to stick up out of the tube.

Lubricate rear driveline half and install front driveline half.

### Slip Clutch Driveline Installation (Figure 13)

A new slip clutch, or one that has been in storage over the winter may seize. Before operating, make sure it will slip. Refer to slip clutch adjustment on page 13.




1. 1/2" Locknut
2. Shield bracket
3. Shield
4. 3/8 x 3/4" Bolt
5. 3/8" Lockwasher
6. Gearbox bolt
7. 1/2 x 2-3/4" Bolt, GR8

**Figure 13.** Slip Clutch Driveline Installation

Remove the retaining ring from the gearbox input shaft; it will not be reinstalled.

Position shield bracket (2) against gearbox. Determine which gearbox bolts (6) need to be removed to mount the shield bracket (2), top angle horizontal. Remove the four bolts and immediately install shield bracket and torque bolts to 38 ft-lbs.

Install driveline onto gearbox input shaft.

## IMPORTANT

■ **A grade 8 bolt must be used to attach driveline to gearbox.**

Align the holes in the driveline yoke and gearbox input shaft and install bolt (7) and nut (1).

Install slip clutch shield (3) to shield bracket (2). Put lockwasher (5) on bolt (4); install and tighten.

Lubricate rear driveline half and install front driveline half.

## Chain or Belt Shielding Installation

**⚠ DANGER**

■ **When this equipment is operated in populated areas or other areas where thrown objects could injure persons or property, full chain or rubber shielding (which is designed to reduce the possibility of thrown objects) must be installed. If this machine is not equipped with full chain or rubber shielding, operation must be stopped when anyone comes within several hundred feet.**

The chain or rubber shield assemblies are ready for installation when you receive them.

Refer to the parts lists for your cutter and attach as shown by inserting the bolts from inside the cutter frame out through shielding. Use and install hardware as shown in parts drawings.

# OPTIONAL EQUIPMENT INSTALLATION

## Optional Stump Jumper Installation

**(Figure 14)**

Disconnect driveline from tractor PTO.

It is necessary to gain access to bottom side of cutter to install stump jumper. Raise cutter and block securely.

Open blade access cover and align crossbar (3) with access hole.

Remove nut (1) and lockwasher (2), then carefully drive bolt (6) out of crossbar.

### IMPORTANT

■ **If blade bolt (6) is seized in crossbar and extreme force will be required to remove it, support crossbar from below to prevent gearbox damage.**

Rotate crossbar (3) and repeat for opposite blade.

Apply a liberal coating of Never Seez® or equivalent to blade bolt and crossbar hole.

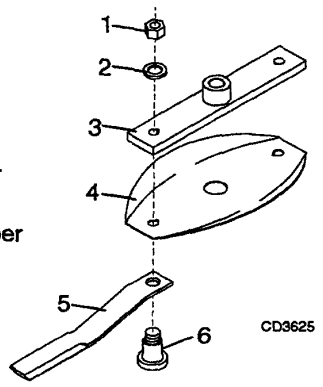
Place stump jumper (4) under crossbar as shown.

Make sure blade is offset away from cutter.

Insert blade bolt (6) through blade and stump jumper. Align key on blade bolt with keyway in crossbar and push blade bolt through crossbar. Insert lockwasher (2) and nut (1) through access hole in cutter frame, install on bolt (6) and tighten to 450 ft-lbs.

Repeat for opposite blade.

Replace blade access hole cover.




1. Jam nut
2. Lockwasher
3. Crossbar
4. Stump jumper
5. Blade
6. Blade bolt

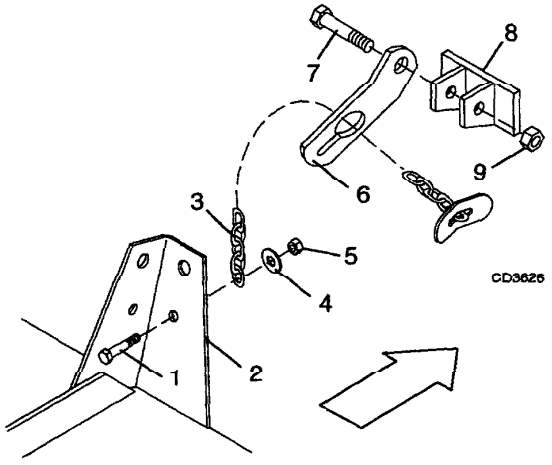
**Figure 14**. Optional Stump Jumper Installation

## Optional Check Chain Installation

**(Figure 15)**

Check chains may be used to carry cutter front at a set height.

Thread check chains (3) through check chain bracket (6). Attach lower end of check chain (3) to cutter frame (2) with bolt (1), washer (4) and nut (5) as shown. Attach keyhole brackets (6) to each side of tractor top link bracket (8) with bolt (7) and nut (9) as shown.




1. 5/8 x 2-1/4" Bolt
2. Mast plate
3. Check chain
4. 5/8" Flat washer
5. 5/8" Hex locknut
6. Check chain bracket
7. 3/4 x 6" Bolt
8. Tractor top link bracket
9. 3/4" Hex locknut

**Figure 15**. Optional Check Chain Installation

## CHECK LISTS

### Pre-Delivery Check List

(DEALER RESPONSIBILITY)

Inspect cutter thoroughly after assembly to be certain it is set up properly before delivering it to customer. The following check list is a reminder of points to inspect. Check off each item as it is found satisfactory, corrections made or services performed.

— Check all bolts to be sure they are tight.

— Check that all cotter pins are properly installed and secured.

— Check that PTO shaft is properly installed.

**IMPORTANT**

■ **Gearbox was not filled at factory. It must be serviced before operating cutter. (See page 11.) Failure to service will result in damage to gearbox.**

— Check that gearbox is properly serviced and seals are not leaking.

— Refer to lubrication instructions and lubricate cutter.

— Check that blades have been properly installed.

### Delivery Check List

(DEALER RESPONSIBILITY)

— Show customer how to make adjustments.

— Explain importance of lubrication to customer and point out lubrication points on cutter.

— Point out safety features and options, especially rubber or chain shielding.

— For mounted units, add wheel weights, ballast in front tires, and/or front tractor weight to enhance front end stability. A minimum 20% of tractor and equipment gross weight must be on front tractor wheels. When adding weight to attain 20% of tractor and equipment weight on front tractor wheels, you must not exceed the ROPS weight certification. Weigh the tractor and equipment. Do not estimate!

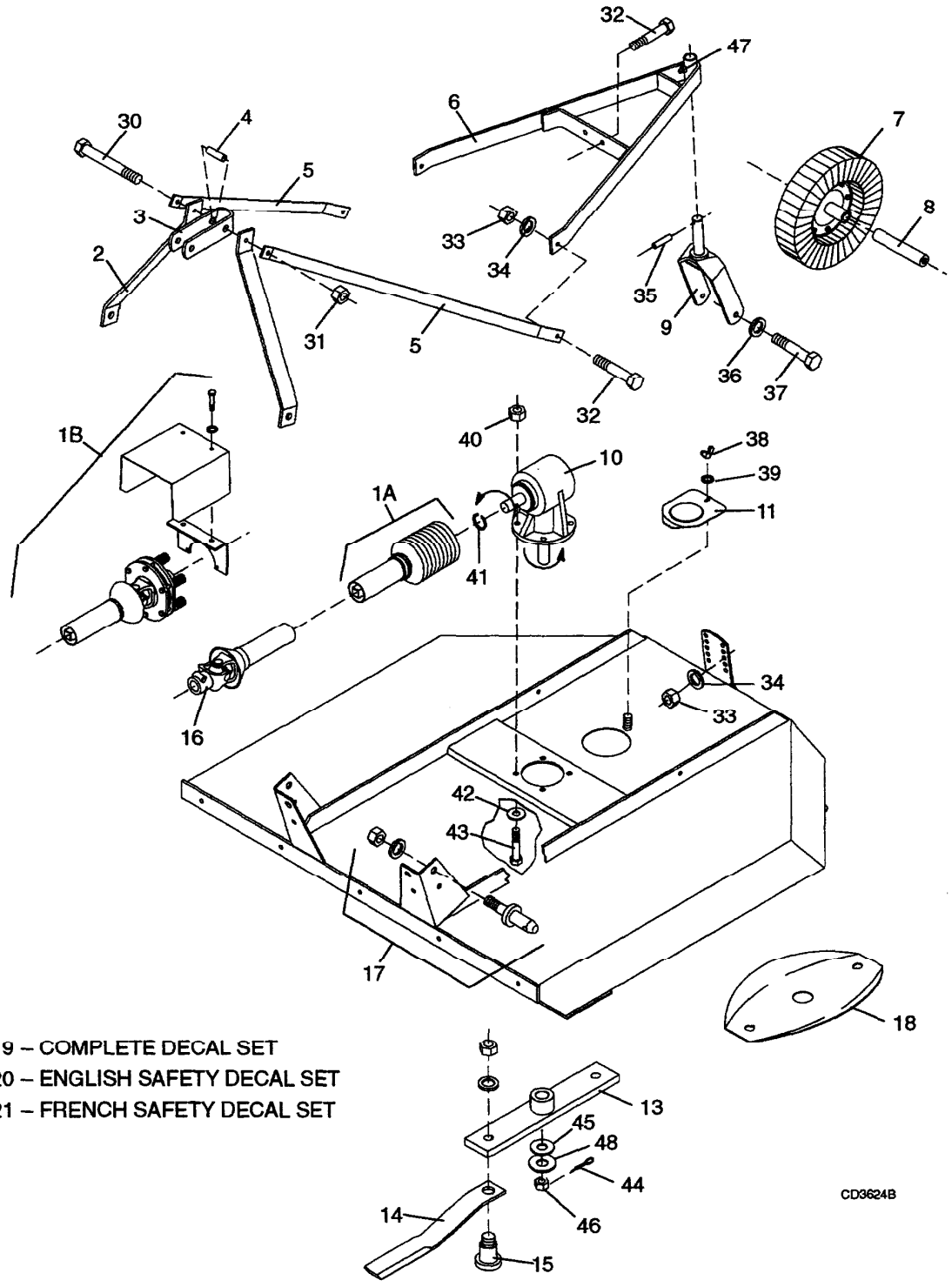
— Give Operator's Manual to customer and recommend that customer become familiar with all sections, especially the safety information.

— Explain to customer that when transporting cutter on road or highway, day or night, safety devices should be used to provide adequate warning to operators of other vehicles.

# NOTES

# M140, M150 & M160
# INDEX TO PARTS LISTS

## M140, M150 & M160 MAIN ASSEMBLY




19 – COMPLETE DECAL SET
20 – ENGLISH SAFETY DECAL SET
21 – FRENCH SAFETY DECAL SET

# M140, M150 & M160 MAIN ASSEMBLY

| Ref No | M140 Part No | M150 Part No | M160 Part No | No Used | Description |
|---|---|---|---|---|---|
| 1A | 15399 | 15399 | 15399 | 1 | Rear drive with shear bolt (see breakdown on page 27) |
| | –or– | –or– | –or– | | –or– |
| 1B | 15525 | 15525 | 15525 | 1 | Rear drive with slip clutch (see breakdown on page 28) |
| 2 | 15319 | 15319 | 15319 | 2 | Link, Offset .38 x 2.5 x 22.50 |
| 3 | 15321 | 15321 | 15321 | 1 | Link, Bent .38 x 2.5 x 9.13 |
| 4 | 64814 | 64814 | 64814 | 1 | 1/2 Schedule 40 x 2-3/4 pipe |
| 5 | 15338 | ——— | ——— | 2 | Link, Offset .25 x 1.5 x 44.98 – M140 (for S/N 1999 & below) |
| | –or– | –or– | –or– | | –or– |
| 5 | 20706 | ——— | ——— | 2 | Link, Offset .25 x 1.5 x 46.3 – M140 (for S/N 2000 thru 2499) |
| | –or– | –or– | –or– | | –or– |
| 5 | 19093 | ——— | ——— | 2 | Link, Offset .25 x 1.5 x 50.7 – M140 (for S/N 2500 & above) |
| 5 | ——— | 15320 | ——— | 2 | Link, Offset .25 x 1.5 x 50.5 – M150 (for S/N 3999 & below) |
| | –or– | –or– | –or– | | –or– |
| 5 | ——— | 20707 | ——— | 2 | Link, Offset .25 x 1.5 x 53.5 – M150 (for S/N 4000 thru 4999) |
| | –or– | –or– | –or– | | –or– |
| 5 | ——— | 19092 | ——— | 2 | Link, Offset .25 x 1.5 x 57.4 – M150 (for S/N 5000 & above) |
| 5 | ——— | ——— | 15332 | 2 | Link, Offset .25 x 1.5 x 61.8 – M160 (for S/N 2999 & below) |
| | –or– | –or– | –or– | | –or– |
| 5 | ——— | ——— | 20118 | 2 | Link, Offset .25 x 1.5 x 63.9 – M160 (for S/N 3000 thru 3699) |
| | –or– | –or– | –or– | | –or– |
| 5 | ——— | ——— | 19094 | 2 | Link, Offset .25 x 1.5 x 69.24 – M160 (for S/N 3700 & above) |
| 6 | 15309 | 15309 | 15309 | 1 | Tailwheel arm |
| 7 | 15373 | 15373 | 15373 | 1 | Tire, 4 x 16 Notat |
| 8 | 15396 | 15396 | 15396 | 1 | Shaft. 1.00 x 5.39 |
| 9 | 15314 | 15314 | 15314 | 1 | Yoke, Tailwheel |
| 10 | 15350 | 15350 | ——— | 1 | Gearbox, 1.71:1 CCW – M140 & M150 |
| 10 | ——— | ——— | 15354 | 1 | Gearbox, 1.47:1 CCW – M160 |
| 11 | 3444 | 3444 | 3444 | 1 | Access hole cover |
| 13 | 15324 | 15324 | 15324 | 1 | Crossbar weldment |
| 14 | 15327 | ——— | ——— | 2 | Blade, 3/8 x 3 x 14.5 CCW Formed – M140 |
| 14 | ——— | 15326 | ——— | 2 | Blade, 3/8 x 3 x 20.5 CCW Formed – M150 |
| 14 | ——— | ——— | 15325 | 2 | Blade, 3/8 x 4 x 26.5 CCW Formed – M160 |
| 15 | 15331 | 15331 | 15331 | 2 | Blade pin, 1.5 x .38 with nut and lockwasher |
| 16 | 15347 | ——— | ——— | 1 | Drive, Tractor 1/2, 1800 x 25.13 tube – M140 |
| 16 | ——— | 15378 | ——— | 1 | Drive, Tractor 1/2, 1800 x 31.06 tube – M150 |
| 16 | ——— | ——— | 15397 | 1 | Drive, Tractor 1/2, 1800 x 37.4 tube – M160 |
| 17 | 33661 | 33661 | 33661 | 2 | Category 1 mounting pin with hardware |
| 18 | 15330 | 15330 | 15330 | 1 | Stump jumper (Optional) |
| 19 | 15360 | 15361 | 15365 | 1 | Complete decal set |
| 20 | 15358 | 15358 | 15358 | 1 | English safety decal set |
| 21 | 55358 | 55358 | 55358 | 1 | French safety decal set |

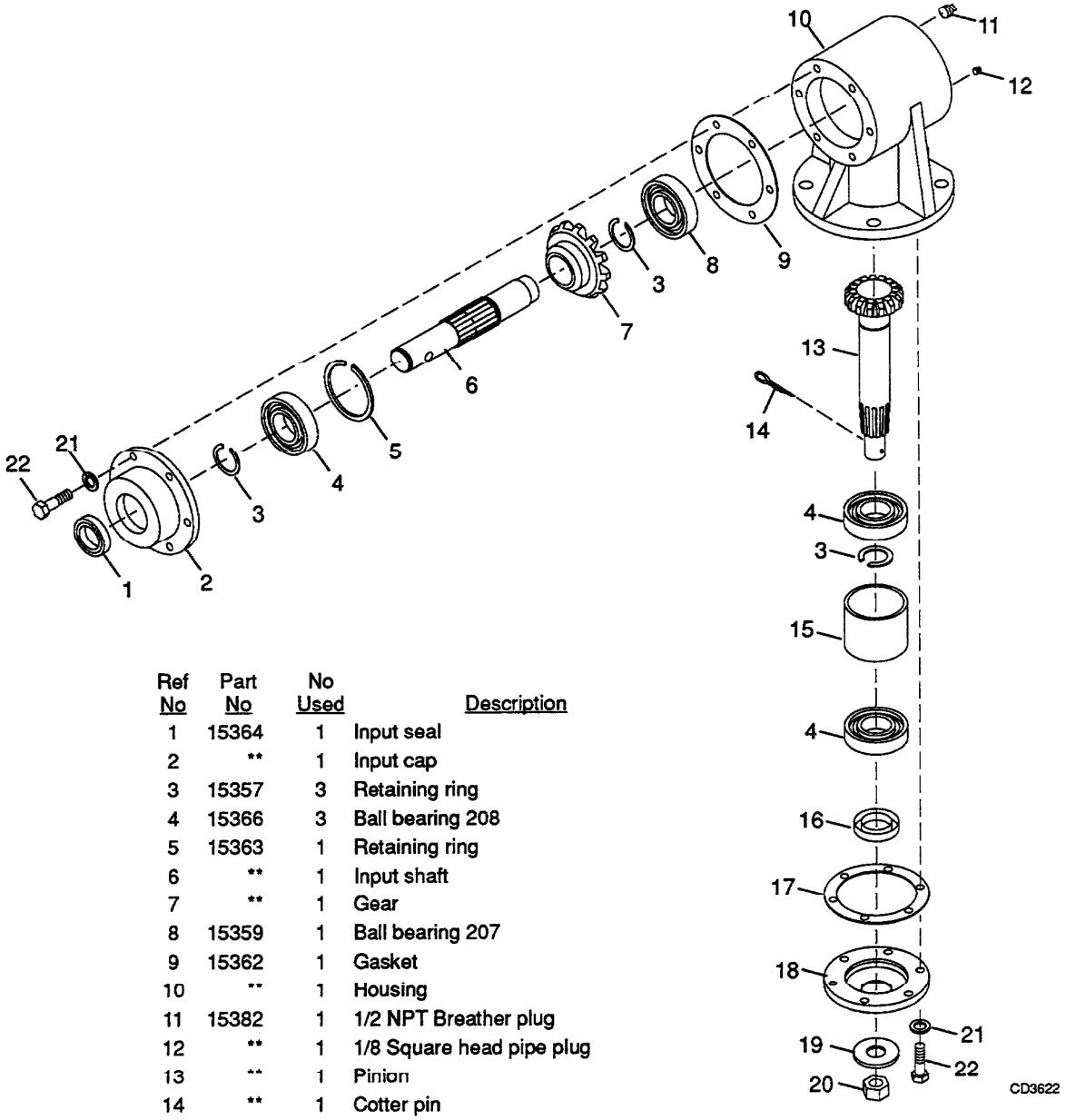
## HARDWARE

(Same for All Models)

| Ref No | Part No | | Description |
|---|---|---|---|
| 30 | 3508 | | 1/2 NC x 4-1/2 Hex head cap screw GR5 |
| 31 | 765 | * | 1/2 NC Hex locknut |
| 32 | 24576 | | 1/2 NC x 1-3/4 Hex head cap screw GR5 |
| 33 | 1093 | | 1/2 NC Heavy hex nut |
| 34 | 855 | * | 1/2 Extra-heavy lockwasher |
| 35 | 13853 | | 3/8 x 1-3/4 Spirol pin |
| 36 | 1286 | * | 5/8 Heavy lockwasher |
| 37 | 7832 | * | 5/8 NC x 1-1/2 Hex head cap screw GR5 |
| 38 | 1287 | * | 3/8 NC Wing nut |
| 39 | 838 | * | 3/8 Standard lockwasher |
| 40 | 6239 | * | 5/8 NC Hex locknut |
| 41 | 15345 | | Snap ring, External .05 x 1.38 |
| 42 | 3632 | * | 5/8 Standard SAE flat washer |
| 43 | 4548 | * | 5/8 NC x 1-3/4 Hex head cap screw GR5 |
| 44 | 15346 | | 3/16 x 2 Cotter pin, special |
| 45 | 15344 | | Flat washer |
| 46 | 514 | | 1" NF Castle hex nut |
| 47 | 12296 | * | 1/4–28 Straight grease fitting, 15/32" |
| 48 | 24636 | | 1 x 2 x 10 GA Flat washer |

* Obtain Locally

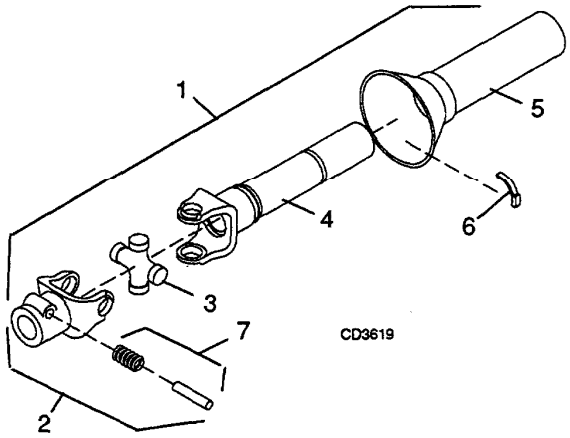
# M140, M150 & M160
# GEARBOX ASSEMBLY




| Ref No | Part No | No Used | Description |
|---|---|---|---|
| 1 | 15364 | 1 | Input seal |
| 2 | ** | 1 | Input cap |
| 3 | 15357 | 3 | Retaining ring |
| 4 | 15366 | 3 | Ball bearing 208 |
| 5 | 15363 | 1 | Retaining ring |
| 6 | ** | 1 | Input shaft |
| 7 | ** | 1 | Gear |
| 8 | 15359 | 1 | Ball bearing 207 |
| 9 | 15362 | 1 | Gasket |
| 10 | ** | 1 | Housing |
| 11 | 15382 | 1 | 1/2 NPT Breather plug |
| 12 | ** | 1 | 1/8 Square head pipe plug |
| 13 | ** | 1 | Pinion |
| 14 | ** | 1 | Cotter pin |
| 15 | ** | 1 | Spacer tube |
| 16 | 15369 | 1 | Output seal |
| 17 | 15367 | 1 | Gasket |
| 18 | ** | 1 | Cap |
| 19 | 15344 | 1 | Flat washer |
| 20 | 514 | – | 1" NF Castle hex nut |
| 21 | 838 * | – | 3/8 Lockwasher |
| 22 | 839 * | – | 3/8 NC x 1 Hex head cap screw GR5 |

* Obtain Locally
** Not Sold Separately

## M140, M150 & M160
## FRONT DRIVE ASSEMBLY

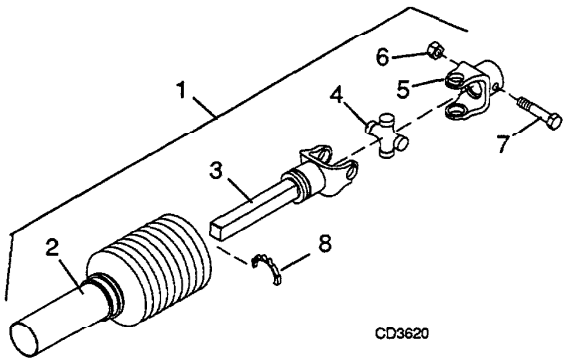



| Ref No | M140 Part No | M150 Part No | M160 Part No | No Used | Description |
|---|---|---|---|---|---|
| 1 | 15347 | ——— | ——— | 1 | Front drive, 1800 x 25.13 tube complete – M140 |
| 1 | ——— | 15378 | ——— | 1 | Front drive, 1800 x 31.06 tube complete – M150 |
| 1 | ——— | ——— | 15397 | 1 | Front drive, 1800 x 37.4 tube complete – M160 |
| 2 | 15510 | 15510 | 15510 | 1 | 1-3/8 Quick-disconnect splined yoke, 1800 |
| 3 | 15511 | 15511 | 15511 | 1 | U-Joint repair kit, 1800 |
| 4 | 15513 | ——— | ——— | 1 | Yoke and tube assembly, 1800 x 25.1 – M140 |
| 4 | ——— | 15514 | ——— | 1 | Yoke and tube assembly, 1800 x 31.0 – M150 |
| 4 | ——— | ——— | 15515 | 1 | Yoke and tube assembly, 1800 x 37.4 – M160 |
| 5 | 15355 | 15355 | 15355 | 1 | Plastic shield with bearings, 1800 |
| 6 | 31412 | 31412 | 31412 | 3 | Nylon shield retaining bearing |
| 7 | 117 | 117 | 117 | 1 | Lock pin and spring |

## M140, M150 & M160
## REAR SHEAR BOLT DRIVE

| Ref No | Part No | No Used | Description |
|---|---|---|---|
| 1 | 15399 | 1 | Rear shear bolt drive, 1800 x 24 complete |
| 2 | 15521 | 1 | Plastic shield with bearings, 1800 |
| 3 | 15519 | 1 | Yoke and shaft assembly, 1800 |
| 4 | 15511 | 1 | U-Joint repair kit, 1800 |
| 5 | 15518 | 1 | Shear bolt yoke, 1800 |
| 6 | 765 * | – | 1/2 NC Hex locknut |
| 7 | 15349 | 1 | 1/2 NC x 3 Shear bolt |
| 8 | 15522 | 1 | Shield bearing kit |

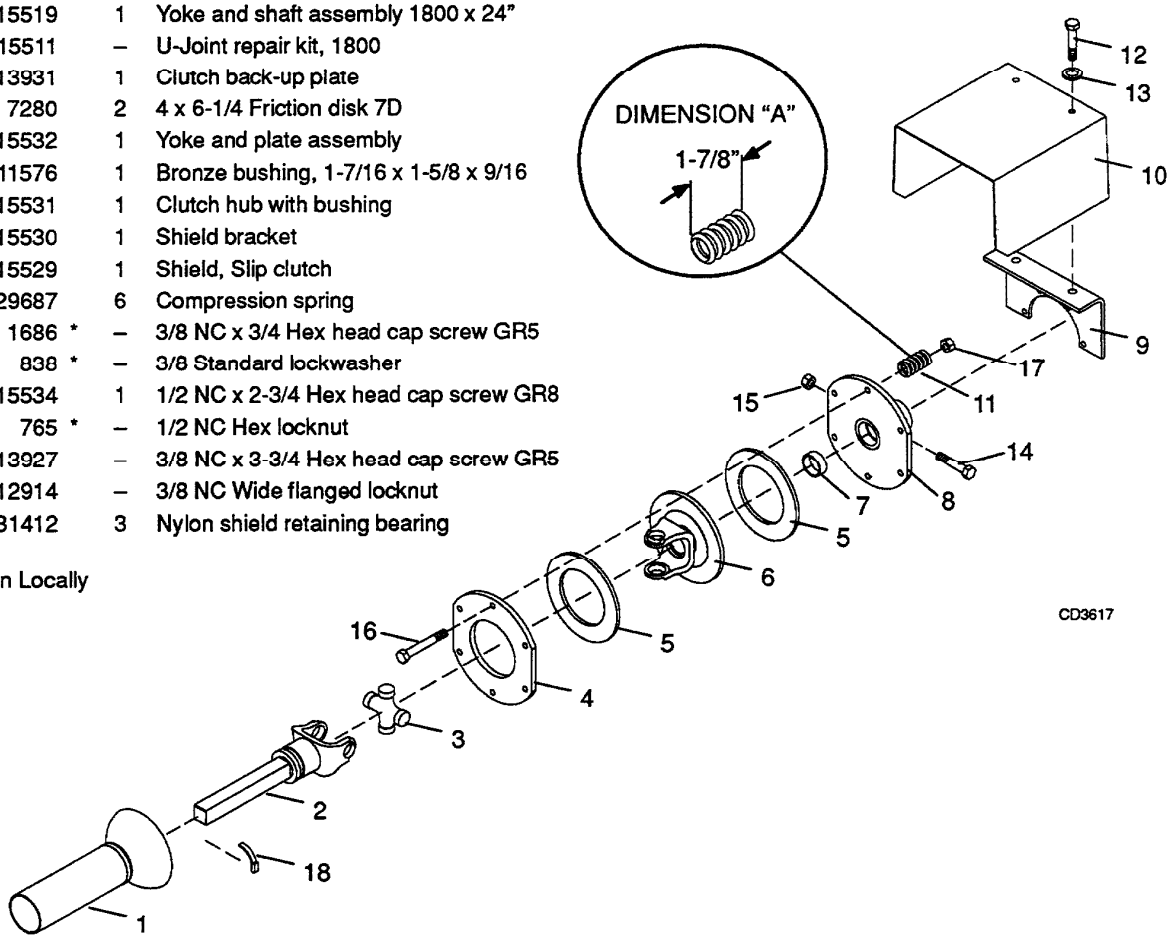
* Obtain Locally



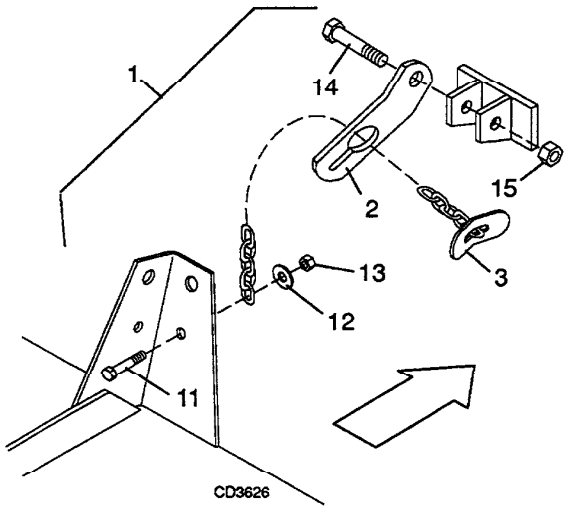
## M140, M150 & M160 REAR DRIVE WITH SLIP CLUTCH

| Ref No | Part No | No Used | Description |
|---|---|---|---|
| 1 | 15356 | 1 | Shield, Plastic with bearing |
| 2 | 15519 | 1 | Yoke and shaft assembly 1800 x 24" |
| 3 | 15511 | – | U-Joint repair kit, 1800 |
| 4 | 13931 | 1 | Clutch back-up plate |
| 5 | 7280 | 2 | 4 x 6-1/4 Friction disk 7D |
| 6 | 15532 | 1 | Yoke and plate assembly |
| 7 | 11576 | 1 | Bronze bushing, 1-7/16 x 1-5/8 x 9/16 |
| 8 | 15531 | 1 | Clutch hub with bushing |
| 9 | 15530 | 1 | Shield bracket |
| 10 | 15529 | 1 | Shield, Slip clutch |
| 11 | 29687 | 6 | Compression spring |
| 12 | 1686 * | – | 3/8 NC x 3/4 Hex head cap screw GR5 |
| 13 | 838 * | – | 3/8 Standard lockwasher |
| 14 | 15534 | 1 | 1/2 NC x 2-3/4 Hex head cap screw GR8 |
| 15 | 765 * | – | 1/2 NC Hex locknut |
| 16 | 13927 | – | 3/8 NC x 3-3/4 Hex head cap screw GR5 |
| 17 | 12914 | – | 3/8 NC Wide flanged locknut |
| 18 | 31412 | 3 | Nylon shield retaining bearing |

* Obtain Locally



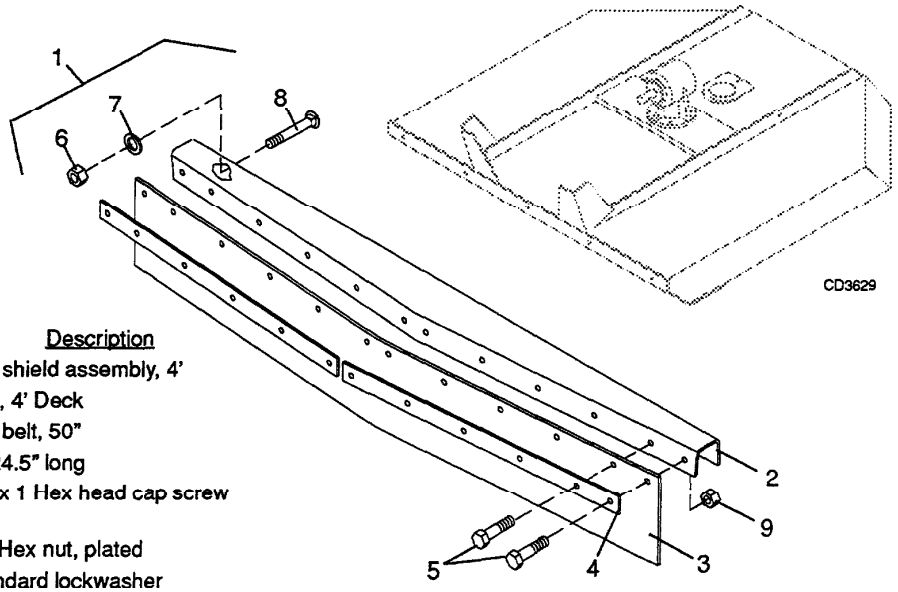

## CHECK CHAIN ASSEMBLY (OPTIONAL)




| Ref No | Part No | No Used | Description |
|---|---|---|---|
| 1 | 10521 | 1 | Check chain kit complete |
| 2 | 7906 | 2 | Check chain bracket |
| 3 | 18048 | 2 | 3/8 Chain, 32-link and check lug |
| 11 | 12274 * | – | 5/8 NC x 2-1/4 Hex head cap screw GR5 |
| 12 | 3632 * | – | 5/8 NC Standard SAE flat washer |
| 13 | 6239 * | – | 5/8 NC Hex locknut |
| 14 | 2377 * | – | 3/4 NC x 6 Hex head cap screw GR5 |
| 15 | 2371 * | – | 3/4 NC Hex locknut |

* Obtain Locally

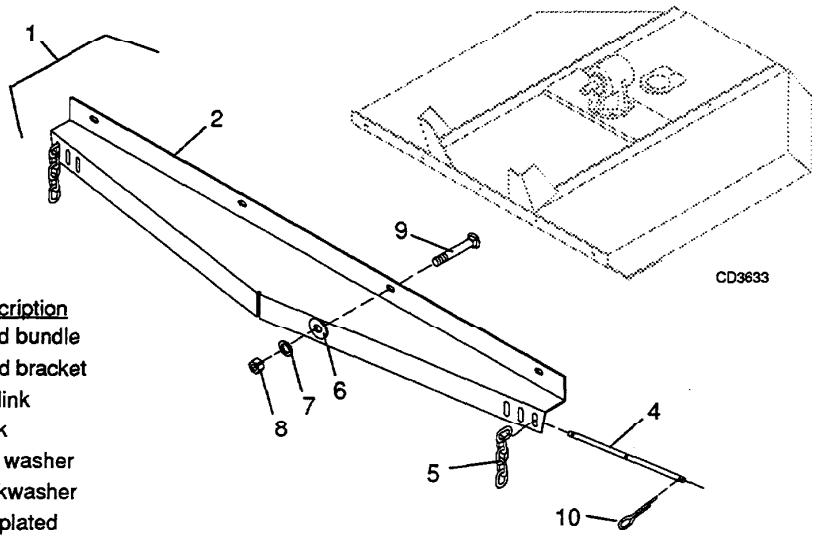
## M140 RUBBER SHIELDING




| Ref No | Part No | No Used | Description |
|---|---|---|---|
| 1 | 15504 | 1 | Rubber shield assembly, 4' |
| 2 | 15385 | 1 | Bracket, 4' Deck |
| 3 | 15386 | 1 | Rubber belt, 50" |
| 4 | 15387 | 2 | Strap, 24.5" long |
| 5 | 839 * | – | 3/8 NC x 1 Hex head cap screw GR5 |
| 6 | 835 * | – | 3/8 NC Hex nut, plated |
| 7 | 838 * | – | 3/8 Standard lockwasher |
| 8 | 6697 * | – | 3/8 NC x 1 Carriage bolt GR5 |
| 9 | 14350 | – | 3/8 NC Flanged hex locknut |

* Obtain Locally

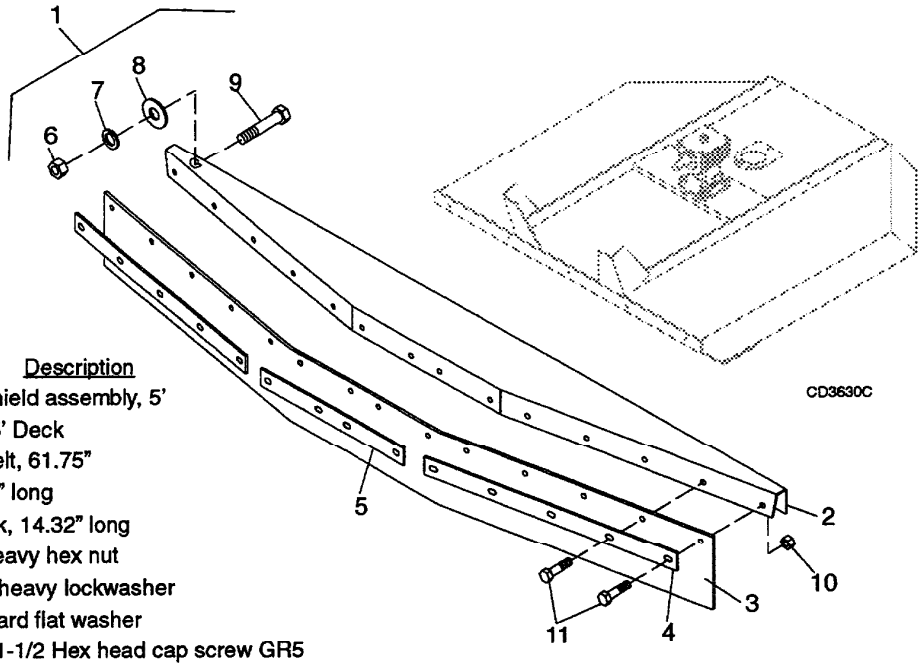
## M140 CHAIN SHIELDING




| Ref No | Part No | No Used | Description |
|---|---|---|---|
| 1 | 31125 | 1 | Front chain shield bundle |
| 2 | 15536 | 1 | Front chain shield bracket |
| 4 | 7994 | 2 | 3/8 x 25 Pin, 21-link |
| 5 | 3994 | 40 | 5/16 Chain, 5-link |
| 6 | 565 * | – | 3/8 Standard flat washer |
| 7 | 838 * | – | 3/8 Standard lockwasher |
| 8 | 835 * | – | 3/8 NC Hex nut, plated |
| 9 | 6697 * | – | 3/8 NC x 1 Carriage bolt GR5 |
| 10 | 1256 * | – | 3/16 x 1 Cotter pin |

* Obtain Locally

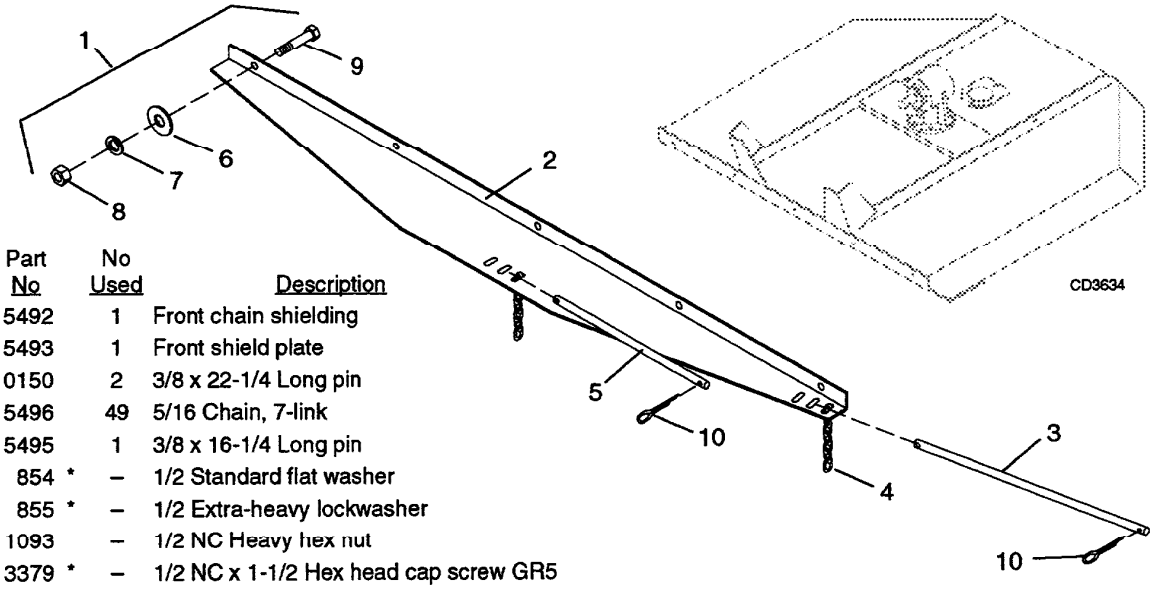
## M150 RUBBER SHIELDING




| Ref No | Part No | No Used | Description |
|---|---|---|---|
| 1 | 15505 | 1 | Rubber shield assembly, 5' |
| 2 | 15388 | 1 | Bracket, 5' Deck |
| 3 | 15389 | 1 | Rubber belt, 61.75" |
| 4 | 15390 | 2 | Link, 21.5" long |
| 5 | 15391 | 1 | Center link, 14.32" long |
| 6 | 1093 * | – | 1/2 NC Heavy hex nut |
| 7 | 855 * | – | 1/2 Extra-heavy lockwasher |
| 8 | 854 * | – | 1/2 Standard flat washer |
| 9 | 3379 * | – | 1/2 NC x 1-1/2 Hex head cap screw GR5 |
| 10 | 14350 | – | 3/8 NC Flanged hex locknut |
| 11 | 839 * | – | 3/8 NC x 1 Hex head cap screw GR5 |

* Obtain Locally

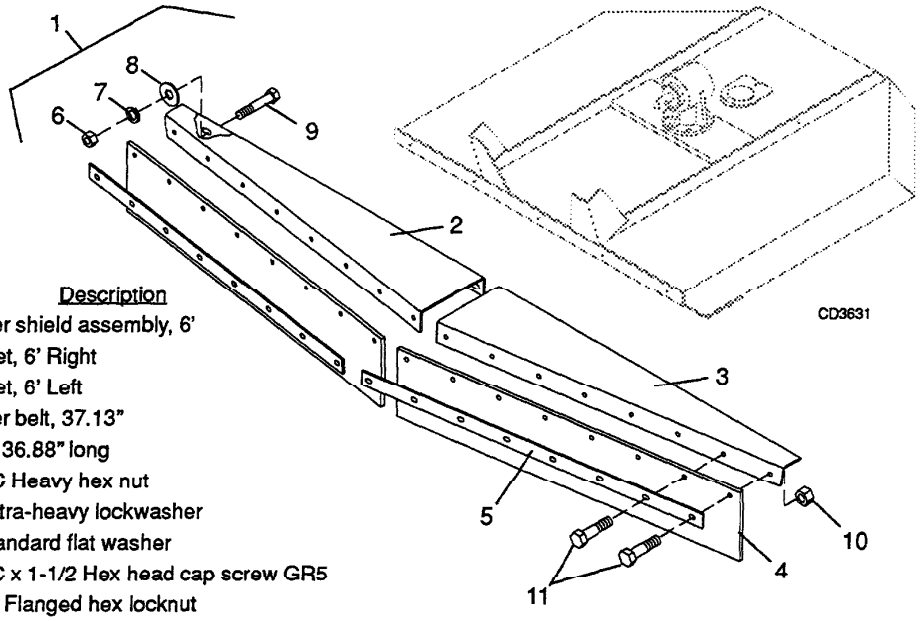
## M150 CHAIN SHIELDING




| Ref No | Part No | No Used | Description |
|---|---|---|---|
| 1 | 5492 | 1 | Front chain shielding |
| 2 | 5493 | 1 | Front shield plate |
| 3 | 10150 | 2 | 3/8 x 22-1/4 Long pin |
| 4 | 5496 | 49 | 5/16 Chain, 7-link |
| 5 | 5495 | 1 | 3/8 x 16-1/4 Long pin |
| 6 | 854 * | – | 1/2 Standard flat washer |
| 7 | 855 * | – | 1/2 Extra-heavy lockwasher |
| 8 | 1093 | – | 1/2 NC Heavy hex nut |
| 9 | 3379 * | – | 1/2 NC x 1-1/2 Hex head cap screw GR5 |
| 10 | 1256 * | – | 3/16 x 1 Cotter pin |

* Obtain Locally

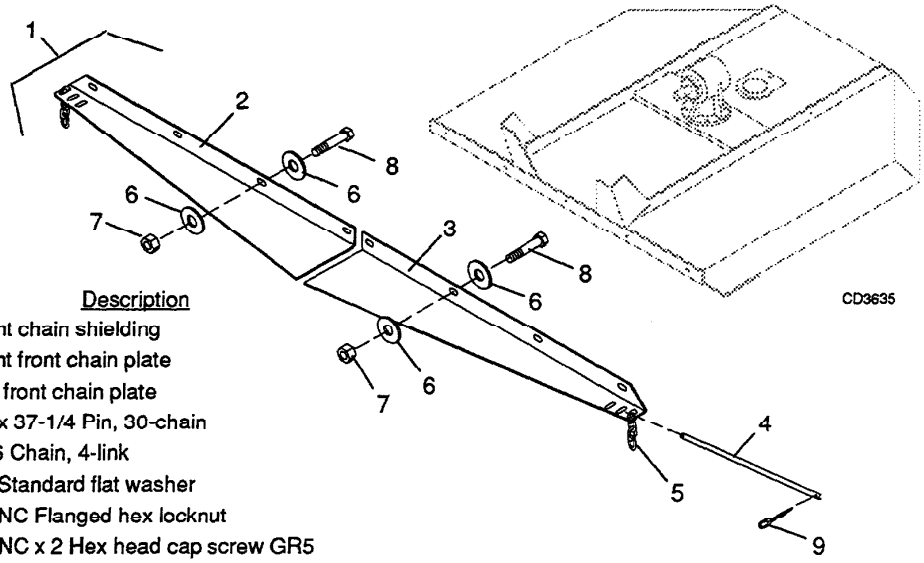
## M160 RUBBER SHIELDING




| Ref No | Part No | No Used | Description |
|---|---|---|---|
| 1 | 15506 | 1 | Rubber shield assembly, 6' |
| 2 | 15392 | 1 | Bracket, 6' Right |
| 3 | 15393 | 1 | Bracket, 6' Left |
| 4 | 15394 | 2 | Rubber belt, 37.13" |
| 5 | 15395 | 2 | Strap, 36.88" long |
| 6 | 1093 * | – | 1/2 NC Heavy hex nut |
| 7 | 855 * | – | 1/2 Extra-heavy lockwasher |
| 8 | 854 * | – | 1/2 Standard flat washer |
| 9 | 3379 * | – | 1/2 NC x 1-1/2 Hex head cap screw GR5 |
| 10 | 14350 | – | 38 NC Flanged hex locknut |
| 11 | 839 * | – | 3/8 NC x 1 Hex head cap screw GR5 |

* Obtain Locally

## M160 CHAIN SHIELDING




| Ref No | Part No | No Used | Description |
|---|---|---|---|
| 1 | 15526 | 1 | Front chain shielding |
| 2 | 11336 | 1 | Right front chain plate |
| 3 | 11337 | 1 | Left front chain plate |
| 4 | 11333 | 2 | 3/8 x 37-1/4 Pin, 30-chain |
| 5 | 4069 | 60 | 5/16 Chain, 4-link |
| 6 | 854 * | – | 1/2 Standard flat washer |
| 7 | 11900 * | – | 1/2 NC Flanged hex locknut |
| 8 | 3699 * | – | 1/2 NC x 2 Hex head cap screw GR5 |
| 9 | 1256 * | – | 3/16 x 1 Cotter pin |

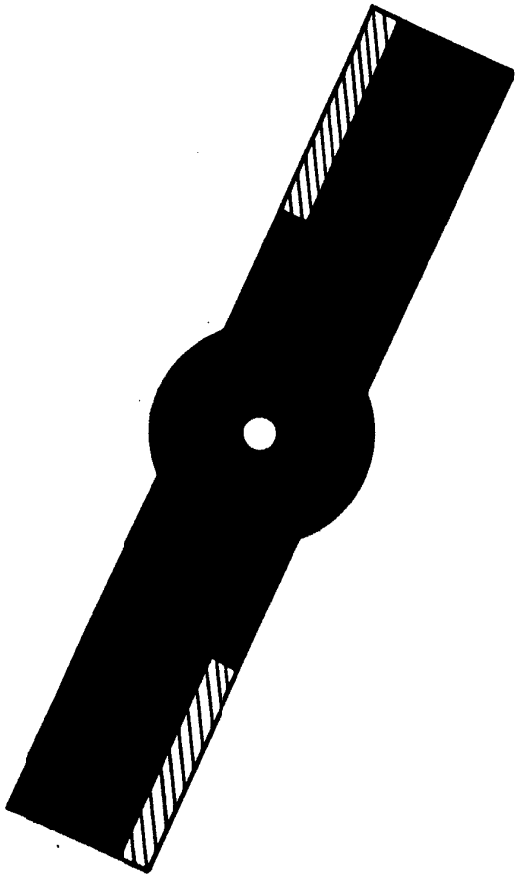
* Obtain Locally

# INDEX

# Safety with Rotary Mowers

U.S. Department of Labor
Occupational Safety and
Health Administration
1976

OSHA 2283



An accident with a rotary mower can cost you your life! Following safety practices, using proper equipment correctly and keeping equipment in good repair are the best accident preventives.

A rotary mower can also injure innocent bystanders, so it is important that they, too, be alert and follow safety rules.

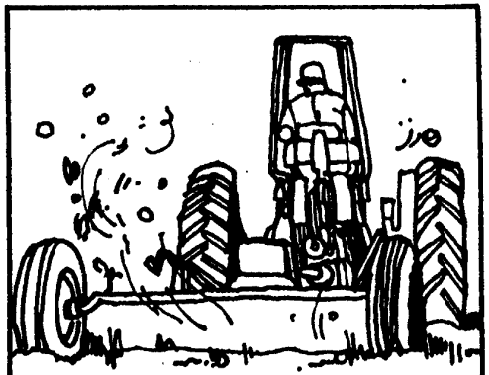
Many accidents have happened when basic safety rules weren't followed:

- A limb knocked a passenger off a tractor pulling a rotary mower. Before the tractor could be stopped, the rotary mower ran over the victim.
- An operator accidently hit a stump while clearing out brush. He fell from the tractor and was run over by the mower.
- While watching a rotary mower in operation, a bystander was severely injured by a piece of barbed wire thrown by the mower blade.

These accidents, and many others, could have been prevented had safety practices been followed.

## Safety Practices for Rotary Mowers

- Use the right type of mower for the job . . .
  Know the job you are going to do, and use the correct kind of mower for it. For example, don't try to cut brush with a mower designed only for forage. You could be exposed to hazards caused by machine failure. Use heavy-duty blades where they are needed, and use a large enough machine to do the job properly. Check your operator's manual for the type of job your mower is designed to do.
- Keep others away . . .
  Don't allow extra riders on your tractor, and keep other people out of your working area. Serious injury or death can result from falling off the tractor and being run over by the mower, the tractor wheel or being hit by a thrown object.
- Watch for objects that can be thrown by the mower . . .
  Watch for objects like tin cans, stones, wire or other items that could be hurled by the mower blades. These can cause serious injury.



WATCH FOR THROWN OBJECTS

**⚠ WARNING**

**INSPECT AND CLEAN THE MOWING AREA.**

Although carefully shielded, rotary mowers will sometimes discharge tin cans or other refuse with substantial force.

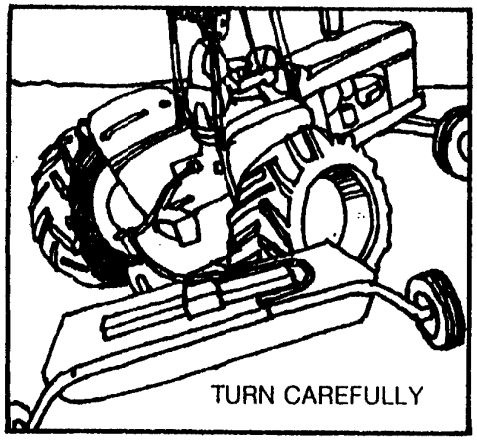
**DON'T LET PEDESTRIANS COME NEAR WHEN MOWING.**

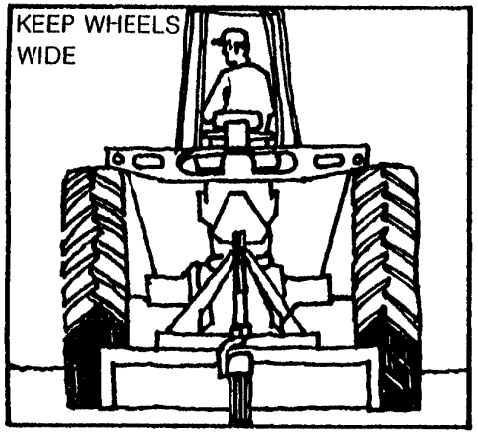
**SAFETY FIRST.**

- Be alert to obstacles . . .
  Obstacles such as ditches, rocks, and stumps can throw you off the tractor or cause a tractor upset. Be especially alert when objects may be hidden by tall grass, weeds or brush. If your tractor is equipped with roll-over protection, use the seat belt.

## SAFETY WITH ROTARY MOWERS

■ Disengage pto, set brakes . . .
Disengage the power take-off (pto) and set the brakes before dismounting your tractor **for any reason.**




■ Be sure blades are stopped . . .
Many rotary mowers have blades that continue to rotate for some time after the pto is disengaged. Be sure they have stopped turning before approaching the mower.

■ Be careful when turning sharp corners . . .
On pull-type mowers, the rear tractor wheels could catch the mower frame and throw it toward you. With three-point-hitch mounted mowers, the mower swings outward when you make a turn. Front wheel weights may be needed to help you keep control.

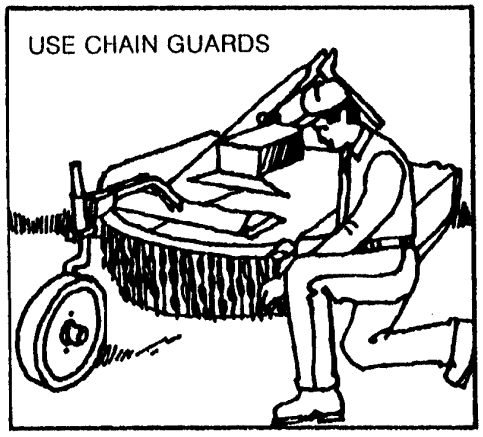
### Maintenance for Safety

Before operating your mower, familiarize yourself with its maintenance procedures. Study your operator's manual carefully.

Begin your pre-operational check by making sure the power take-off is disengaged and the engine is shut off. Look for loose nuts and bolts.

Blade sharpness is a key to efficient mowing. Inspect the blades often, and when they become too dull for additional sharpening, replace them. Dull blades can be dangerous, because mowing will be more difficult. Hazards increase when you are having problems with the equipment.

Rotary mowers are often equipped with runners and safety chain guards. To avoid excessive wear on the runners, keep the mower just high enough so that it doesn't ride on the runner shoes.




The chain guards reduce the possibility of objects being thrown from under the mower. Be sure chain guards are maintained and kept in place. If you must remove them or raise them for certain crops, be sure to replace or readjust them as soon as you are finished.

Power transmission shafts should be protected by shields or guards. Keep them in place on the machine. Always replace shields and guards after maintenance or repair jobs are complete.

### If You Are Under 16 . . . .

A Federal child labor law affects you. Unless you are working for your parent or guardian on a farm owned or operated by that person, you may not operate a tractor over 20 pto hp and certain other farm machinery. You may do so at age 14, if you have special training.

Young people under 14 may be employed to do any job that is not classified as particularly hazardous if they have the written consent of their parent or guardian. There is one exception: those under 12 are not permitted to work on farms that used 500 or more man-days of farm labor during any quarter of the preceding calendar year. Check with your county Extension office for full details.

See also "Farm Tractor Safety" (OSHA 2235)

by
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Developed under contract with the
U.S. Department of Labor
in cooperation with the
U.S. Department of Agriculture

Please enter information below and

## SAVE FOR FUTURE REFERENCE

Date Purchased: _____ From (Dealer): _____

Model Number: _____ Serial Number: _____

## WARRANTY

Woods warrants each new Rotary Cutter (Models M140, M150 and M160) to be free from defects in material and workmanship for a period of 12 months from the date of delivery to the original purchaser. When used in a rental or commercial application, the Rotary Cutter gearbox is warranted for 90 days to be free from defects in material or workmanship.

Genuine Woods replacement parts and components will be warranted for 90 days from date of purchase, or the remainder of the original equipment warranty period, whichever is longer.

Under no circumstances will it cover any merchandise or components thereof, which, in the opinion of the company, has been subjected to negligent handling, misuse, alteration, an accident, or if repairs have been made with parts other than those obtainable through Woods.

The company in no way warrants engines, batteries, tires or other trade accessories since these items are warranted separately by their respective manufacturers.

Our obligation under this warranty shall be limited to repairing or replacing, free of charge to the original purchaser, any part that in our judgement shall show evidence of such defect, provided further that such part shall be returned within thirty (30) days from date of failure to Woods, routed through the dealer and distributor from whom the purchase was made, transportation charges prepaid.

This warranty shall not be interpreted to render us liable for injury or damages of any kind or nature to person or property. This warranty does not extend to loss of crops, loss because of delay in harvesting, or any expense or loss incurred for labor, supplies, substitute machinery, rental or for any other reason.

Except as set forth above, WOODS SHALL HAVE NO OBLIGATION OR LIABILITY OF ANY KIND ON ACCOUNT OF ANY OF ITS EQUIPMENT AND SHALL NOT BE LIABLE FOR SPECIAL OR CONSEQUENTIAL DAMAGES. WOODS MAKES NO OTHER WARRANTY, EXPRESS OR IMPLIED, AND, SPECIFICALLY, WOODS DISCLAIMS ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. SOME STATES OR PROVINCES DO NOT PERMIT LIMITATIONS OR EXCLUSIONS OF IMPLIED WARRANTIES OR INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE LIMITATIONS OR EXCLUSIONS IN THIS WARRANTY MAY NOT APPLY.

This warranty is subject to any existing conditions of supply which may directly affect our ability to obtain materials or manufacture replacement parts.

Woods reserves the right to make improvements in design or changes in specifications at any time, without incurring any obligations to owners of units previously sold.

No one is authorized to alter, modify, or enlarge this warranty nor the exclusions, limitations and reservations.

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