

# **6 Ft. (1.83 m) and 12 Ft. (3.66 m) Mower Bars**



**JOHN DEERE**

## **OPERATORS MANUAL**

**6 Ft. (1.83 m) and 12 Ft. (3.66 m)  
Mower Bars**

OME73483 A4    English

**John Deere Ottumwa Works  
OME73483 A4**

LITHO IN U.S.A.  
ENGLISH



# Introduction



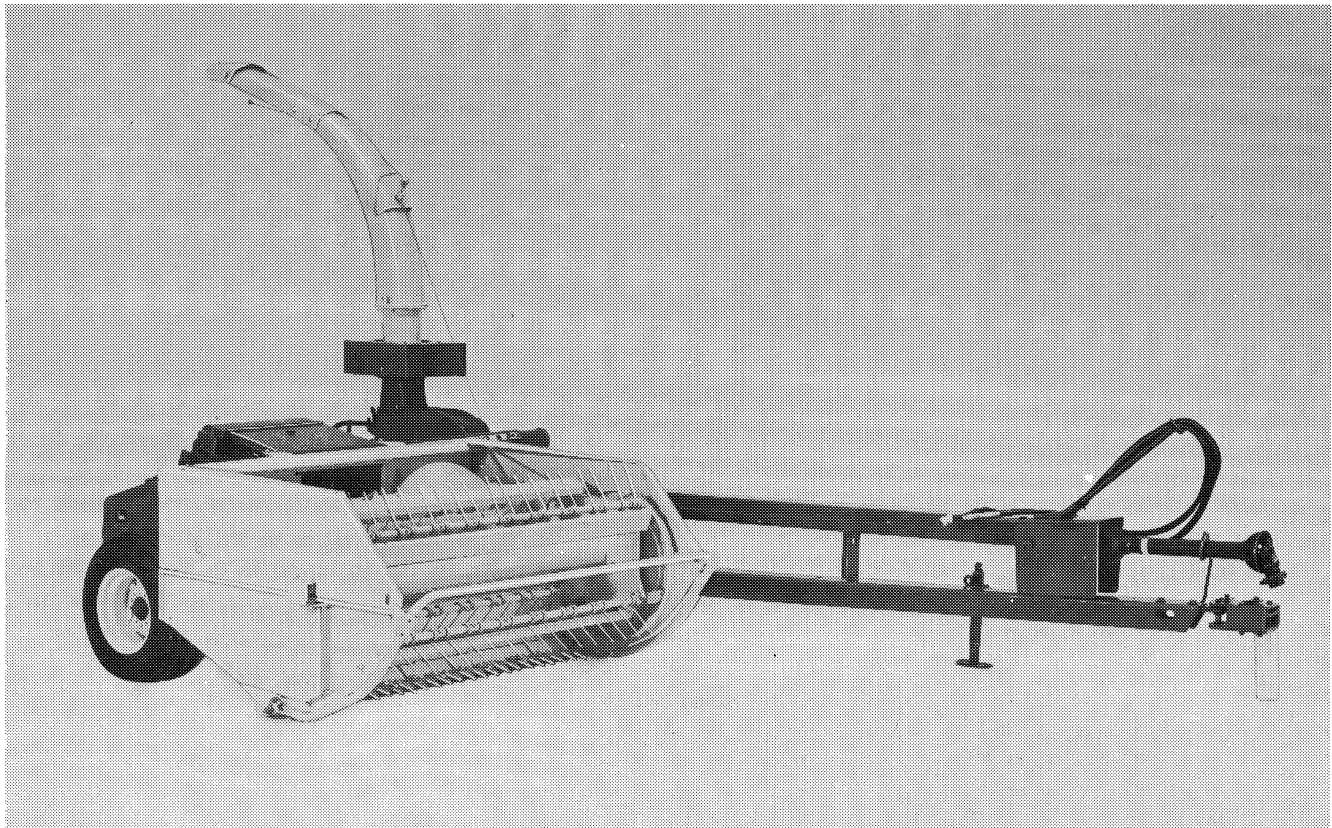
**This safety alert symbol identifies important safety messages in this manual. When you see this symbol, be alert to the possibility of personal injury and carefully read the message that follows.**

This operator's manual contains SI Metric equivalents which follow immediately after the U.S. customary units of measure.

"Right-hand" and "left-hand" sides are determined by facing in the direction the harvesting unit will travel when in use.

Your warranty appears on your copy of the purchase order which you should have received from your dealer.

Record your model and serial numbers on page 57.



# 6 Ft. (1.83 m) and 12 Ft. (3.66 m) Mower Bars

## PREDELIVERY CHECK LIST

After the harvesting unit has been completely assembled and lubricated, inspect it thoroughly to be certain it is in good running order before delivering it to the customer. The following check list is a reminder of points to inspect. Check off each item as it is found satisfactory or after proper adjustment has been made. Consult the operator's manual for proper adjustment.

- ☐ All shields open and close freely.
- ☐ Harvesting unit has been properly assembled.
- ☐ Nuts on all bolts have been tightened.
- ☐ All grease fittings have been lubricated.
- ☐ Check tire inflation pressures.
- ☐ Remove shipping plug from cutterbar drive case and install breather plug. Check knife drive case mounting bolts and knife arm nut torque.
- ☐ Check tension of all belts and adjust if necessary.
- ☐ Slip clutch has been checked for proper adjustment. (See page 14.)
- ☐ All moving parts are working freely.
- ☐ Check all chains for proper installation and adjustment.
- ☐ Check auger and reel speed and position.
- ☐ This harvesting unit has been run and, to the best of my knowledge, is ready for delivery to the customer.
- ☐ Harvesting unit has been cleaned and touched up wherever paint is nicked or scratched.

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## OWNER REGISTER

Name .....

Rural Route No. ....

City.....State.....Zip .....

Serial No. ....

Operator's Manual No. OM-E73483 .....

Date Sold .....

MRBRU/B/130183

## DELIVERY CHECK LIST

Items in the Delivery Check List should be performed when delivering the harvesting unit to the customer. Customer satisfaction will be further insured if the items in the "After Sales Check List" are performed as listed.

- ☐ Discuss proper harvesting management practices required for good silage.
- ☐ Give operator's manual to customer and fully explain all operating adjustments.
- ☐ Advise the customer of the proper weights and fluids that must be used in the tires, depending upon the forage harvester.

- ☐ Advise the customer of the importance of regular lubrication at scheduled intervals and point out all lubrication points.
- ☐ Advise the customer of safety precautions that must be observed while using the harvesting unit.
- ☐ Invite the customer to come in and discuss any problems that may be encountered while operating the harvesting unit.
- ☐ Advise the customer to record the serial number.

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(Date Delivered)

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(Signature)

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## AFTER-SALE CHECK LIST

It is suggested that the following items be checked sometime during the first season's operation.

- ☐ Go over entire machine for loose or missing nuts and bolts.
- ☐ All chains are properly adjusted.
- ☐ All safety shields are in place and fastened securely.

- ☐ Check for broken or damaged parts.
- ☐ If possible, run the harvesting unit to see if it is functioning properly.
- ☐ Check with the customer as to the performance of the harvesting unit thus far. Make sure the customer understands the best methods of row crop operation.
- ☐ Review the entire operator's manual with the customer and **stress the importance of proper and regular lubrication and safety precautions.**

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(Date checked)

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(Signature)

MRBR/D/130183

# Contents

|                                  |    |
|----------------------------------|----|
| SAFETY.....                      | 2  |
| PREPARING THE HARVESTER .....    | 6  |
| ATTACHING AND DETACHING.....     | 8  |
| TRANSPORTING.....                | 12 |
| OPERATING THE MOWER BAR.....     | 13 |
| ATTACHMENTS.....                 | 18 |
| LUBRICATION AND MAINTENANCE..... | 20 |
| TROUBLESHOOTING .....            | 25 |
| SERVICE .....                    | 29 |
| STORAGE .....                    | 54 |
| ASSEMBLY .....                   | 55 |
| SPECIFICATIONS.....              | 57 |

# Safety

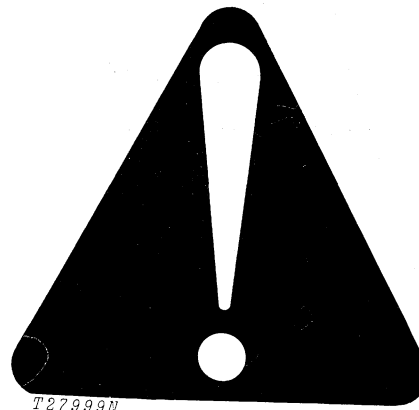
## OBSERVE SAFETY SIGNS AND MESSAGES



**CAUTION:** This message is used for general reminders of good safety practices or to direct attention to unsafe practices. The message will appear in your operator's manual and/or the sign will appear on the machine with the color combination of yellow and black.

**WARNING:** This message denotes a specific potential hazard. The sign will be displayed on the machine in areas of potential hazard. The sign will have the color combination of yellow and black.

**DANGER:** This message denotes the most serious specific potential hazard. The sign will be displayed on the machine in areas of potential hazard. The sign will have the color combination of red and white.



T27999/MRBRC/A/130184

## OBSERVE "IMPORTANT" MESSAGES

Messages labeled "Important" will appear in your operator's manual and/or on the machine to provide specific instructions for performing adjustments, services, etc. If these instructions are not followed, it could result in damage to the machine.

MRBRC/B/130184

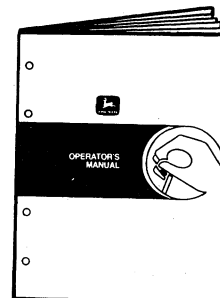
## DO NOT MODIFY MACHINE

Unauthorized modifications to the machine may impair the function and/or safety and affect machine life.

MRBRC/C/130184

## BEFORE OPERATING

1. Read operator's manual, machine decals, and SAFETY section of this manual.
2. Remove foreign objects from machine.
3. All shields must be in place and secure.
4. Become familiar with all controls affecting machine functions.



E23482/MRBRC/D/130184

## PROTECT AGAINST NOISE

Prolonged exposure to loud noise can cause impairment or loss of hearing. Wear a suitable hearing protective device such as earmuffs (A) or earplugs (B) to protect against objectionable or uncomfortable loud noise.

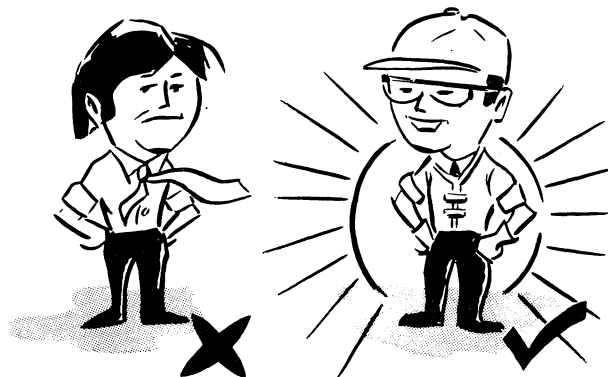
A—Earmuffs  
B—Earplugs



E19364/MRBRC/E/130184

## OPERATE SAFELY

Keep all shields in place when operating machine. Wear relatively tight and belted clothing to prevent catching on some machine parts. Never clean, lubricate or adjust machine when it is running. Stand clear of rotating teeth. DO NOT hand feed material into harvesting unit.



E19363/MRBRC/F/130184

Always operate machine at rated speed. Drive slowly over rough ground.

MRBRC/G/130184

## SERVICE HARVESTING UNITS SAFELY

Before servicing, adjusting, or removing material from the harvesting units:

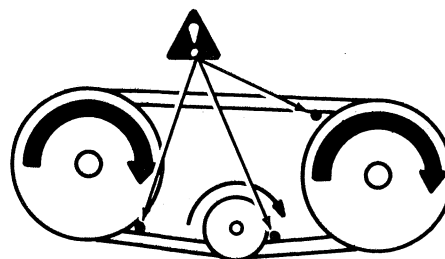
1. Disengage all power.
2. Shut off engine.
3. THEN WAIT until all moving parts have stopped moving.

MRBRC/H/130184

## AVOID CONTACT WITH MOVING PARTS

Keep hands, feet, and clothing away from power-driven parts.

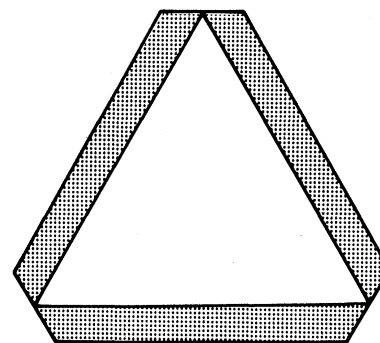
Never clean, lubricate or adjust the machine when it is running.



E21834/MRBRC/I/130184

## DRIVING ON PUBLIC ROADS

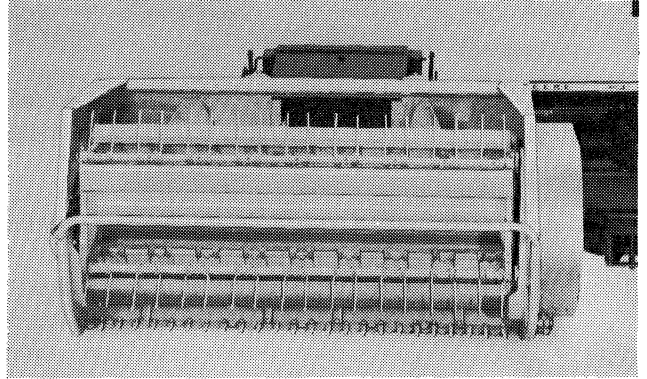
When transporting the harvesting units, raise the unit to the highest position to prevent damage. When transporting the equipment on a road or highway at night or during the day, use accessory lights and devices for adequate warning to operators of other vehicles. In this regard, check local governmental regulations. Various safety devices are available from your John Deere dealer.



E21836/MRBRC/J/130184

To avoid injury or death by being pulled into the machine:

1. Disengage drives and shut off engine before attempting to unplug the harvesting unit or machine. The feed rolls can feed crop material faster than you can release your grip on the material.
2. Never use your hands or feet to feed crop into the forage harvester, with or without a harvesting unit.
3. This harvesting unit is intended for mobile field operation only. Never use or modify machine to be used in a stationary operation.



E23185/MRBRC/K/130184

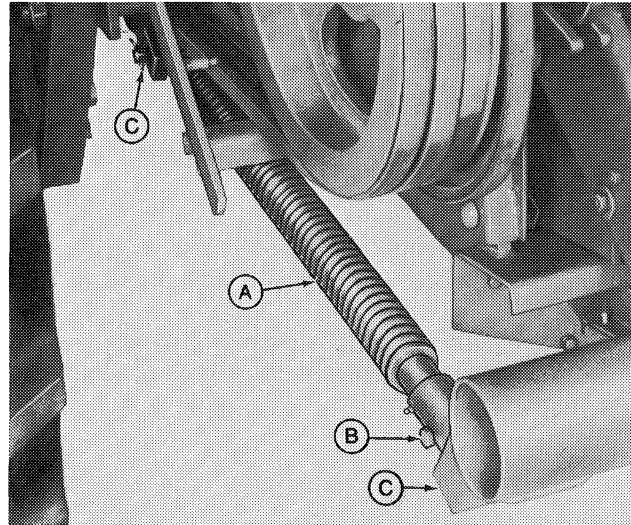
# Preparing the Harvester

## PREPARING TO INSTALL MOWER BAR (Self-Propelled Harvesters)

Use the following procedure when mower bar is installed for first time, or if the unit has been removed to permit installation of other harvesting units.

**IMPORTANT:** Raise cutterhead assembly with another harvesting unit mounted until pin or bolt can be placed in lock-out hole (B) to relieve pressure from lift spring (A). The springs should be locked out whenever springs or harvesting unit are removed from harvester.

1. After springs (A) are locked out, remove harvesting unit and block up cutterhead assembly.
2. Remove standard lift spring (A) assemblies from harvester by removing pins (C).



A—Spring  
B—Lock-out Hole

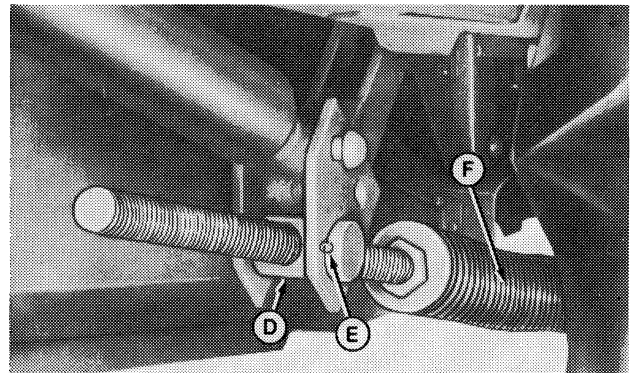
C—Pin

E13861/MRBRX/A/130184

3. Install pivot pins (D) in arms and secure with roll pins (E).
4. Slide heavy duty lift springs (F) through pivot pins.

D—Pivot Pins  
E—Roll Pins

F—Lift Springs

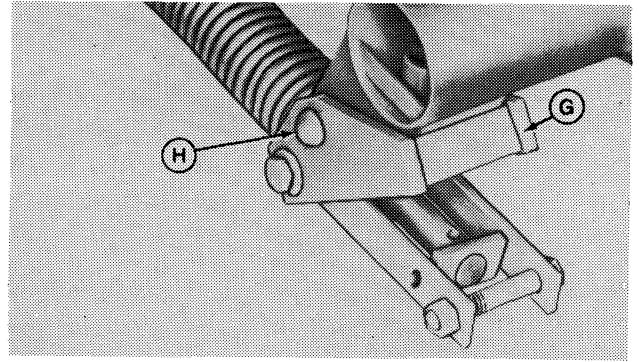


E23822/MRBRX/B/130184

5. Attach spring adapter (G) to harvester using drilled pins (H) and spring locking pins.

**IMPORTANT:** The heavy-duty lift springs must be replaced with standard lift springs when a hay pickup is attached. The rear pivot pins may be left in place for future use with the mower bar.

6. Attach mower bar to harvester.



G—Spring Adapter

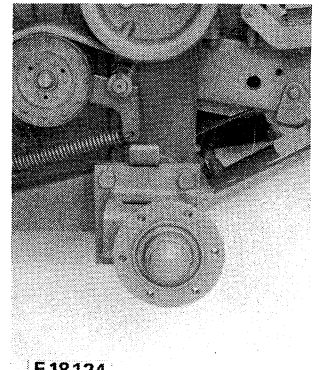
H—Drilled Pin

E23823/MRBRX/C/130184

## WHEELS AND SPINDLES (Pull-Type Harvester)

*NOTE: Wheel removed for illustration purposes.*

When operating in rocky fields, or fields where the crop has been ridged, elevate the unit to allow the knife assembly to clear obstructions. Raise the harvesting units by lowering the wheel spindles. For mower bars in average conditions frame and spindles should be in middle position.



Spindles Middle/Front

E 18124

E18124/MRBRX/D/130184

# Attaching and Detaching

## BASIC MACHINE DRIVE SPROCKETS

The following drive sprockets shown in the chart at right are required when installing Mower Bars on forage harvesters.

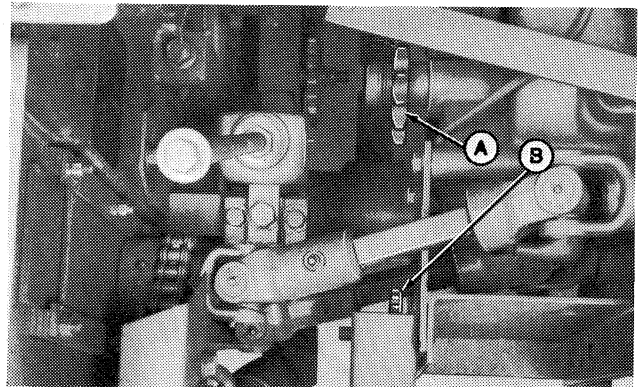
| Harvester | Drive Sprocket |
|-----------|----------------|
| 3940-3960 | 17-Tooth RC60  |
| 3950-3970 | 17-Tooth RC60  |
| 5440-5460 | 21-Tooth RC80  |
| 5720-5820 | 16-Tooth RC80  |

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## INSTALLING DRIVE SPROCKET AND IDLER ON SELF-PROPELLED HARVESTER

Install drive sprocket (A) and idler (B). Leave idler loose.

*NOTE: If you have an older harvester that is not equipped with a chain cover over the idler, obtain one through your John Deere dealer.*



E19366/MRBRW/B/130184

## ATTACHING HARVESTING UNIT TO SELF-PROPELLED HARVESTER

1. Move the harvesting unit height control lever until the lower attaching points align with the lower attaching clips on the harvesting unit. Secure on both sides with a rectangular, tapered pin.

MRBRW/C/130184

2. Move the height control lever until the two upper attaching points are seated in the clips. Install two round drilled pins and lower harvesting unit to ground. Remove drilled pins and install clevis.

*NOTE: Upper attaching shaft is properly located when it is between clevis and pin.*

Reinstall drilled pins and secure with spring pins. Raise harvesting unit off the ground and remove float spring lockout pins.

**IMPORTANT: Before removing harvesting unit, always place lift springs in the lockout position.**

MRBRW/D/130184

4. Loop the mower bar drive chain (A) around the drive sprocket. The chain must go over the idler (B).

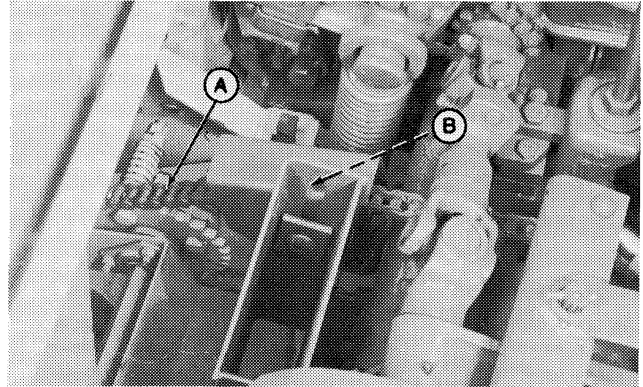
*NOTE: Loosen idler (B) hardware and chain cover.*

5. Align the idler and chain cover.

6. Connect the chain and adjust the idler to give 1/4 to 1 in. (6 to 25 mm) "free movement" on the lower strand.



**CAUTION: DO NOT run harvester without chain cover and clutch shield in place.**



*NOTE: Reverse procedure to detach from harvester.*

E23101/MRBW/E/130184

See your harvester operator's manual for the following:

- Adjusting harvester downstop
- Adjusting harvester rate of drop
- Rear wheel spacing
- Front wheel spacing
- Wheels, tires, and ballast
- Suitcase ballast weights

For 3940, 3950, 3960, 3970, 5200, 5400, 5440, 5460, 5720 and 5820 Harvesters, see the following section for information concerning rear wheel ballast and suitcase ballast weights.

MRBW/F/130184

## ATTACHING HARVESTING UNIT TO PULL-TYPE HARVESTER

1. (Not Illustrated.) Move tongue to extreme left-hand position.



**CAUTION:** To prevent harvester from tipping over, do not attach any harvesting unit until tongue has been installed. See harvester operator's manual.

MRBRW/G/130184

2. Extend or retract the lift cylinder until the lower attaching points on the harvester align with the lower attaching clips on the harvesting unit to be installed. Secure the unit at the two lower points with two rectangular, tapered pins.

*NOTE: If cutterhead will not lower without harvesting unit, shut tractor off. Move control lever (manual) or toggle switch (remote controls) to lower housing.*

MRBRW/H/130184

3. Extend the lift cylinder slightly to remove weight from support stands. Pull support stands in storage location.

4. Slowly retract the lift cylinder until the two upper attaching points are aligned. Secure with two round drilled pins and spring locking pins.

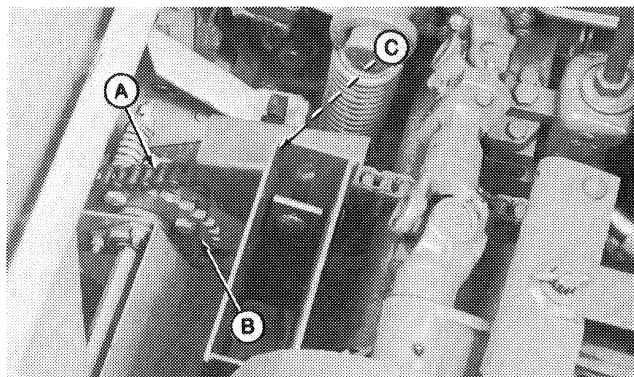
MRBRW/I/130184

5. Loop the harvesting unit drive chain (A) around the sprockets (B). The chain must go over the idler (C).

Align the idler; then connect the chain and adjust the idler to give 1/4 to 1-in. (6 to 25 mm) "free movement" on the lower stand.

*NOTE: Reverse procedure to detach from harvester.*

A—Harvesting Unit Drive Chain  
B—Drive and Driven Sprockets  
C—Idler

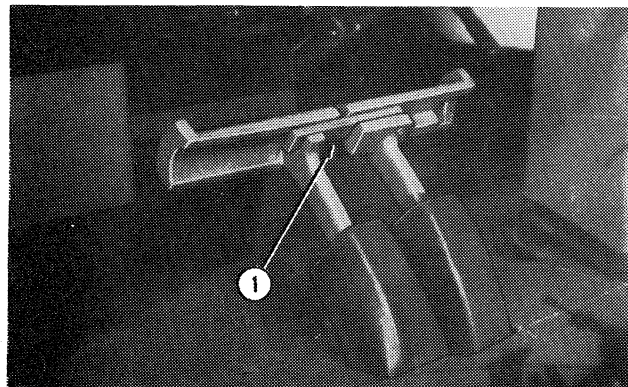


E22735/MRBRW/J/130184

# Transporting

## SELF-PROPELLED FORAGE HARVESTERS

1. Couple harvester brake pedals together.
2. Turn on harvester warning lamps.
3. Raise mower bar to highest position.



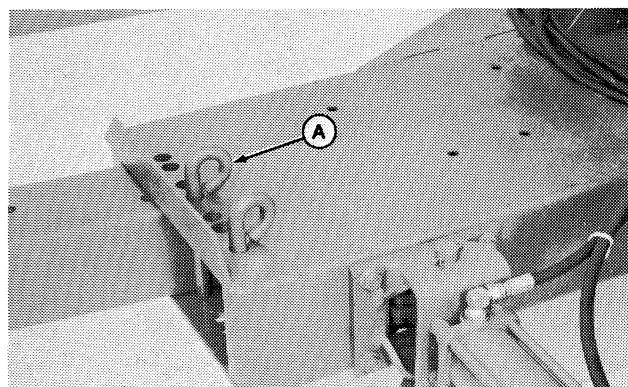
E19376/MRBRL/A/170184

## PULL-TYPE FORAGE HARVESTERS



**CAUTION:** If harvester is equipped with hydraulic tongue positioner, use pin (A) as a mechanical locator to hold tongue in transport position when transporting on road.

**NOTE:** Without hydraulic tongue positioner, move tongue to the extreme right-hand position by placing a block behind the right-hand wheel of the harvester and backing the tractor toward the right-hand side. Be sure the tongue locating pins are removed before moving tongue with tractor or damage could result in harvester main frame and tongue.



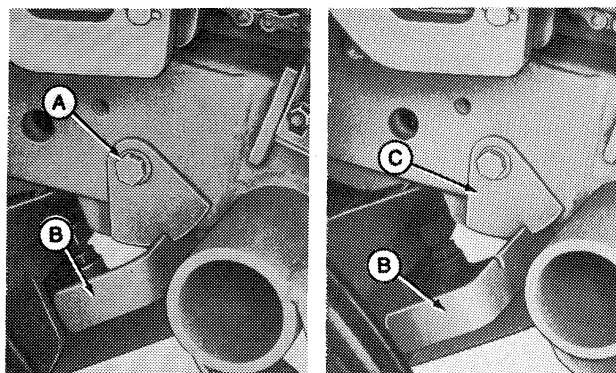
E23078/MRBRL/B/170184

Always place stop in locked (A) position when transporting machine.

Raise harvesting unit to extreme upper position, rotate lever stop out of way and push handle (B) in until lever stop engages first notch.

Before operating machine, be sure stop is in the unlocked (B) position. Raise harvesting unit to extreme upper position before moving handle to unlocked (C) position.

A—Locked  
B—Handle  
C—Unlocked

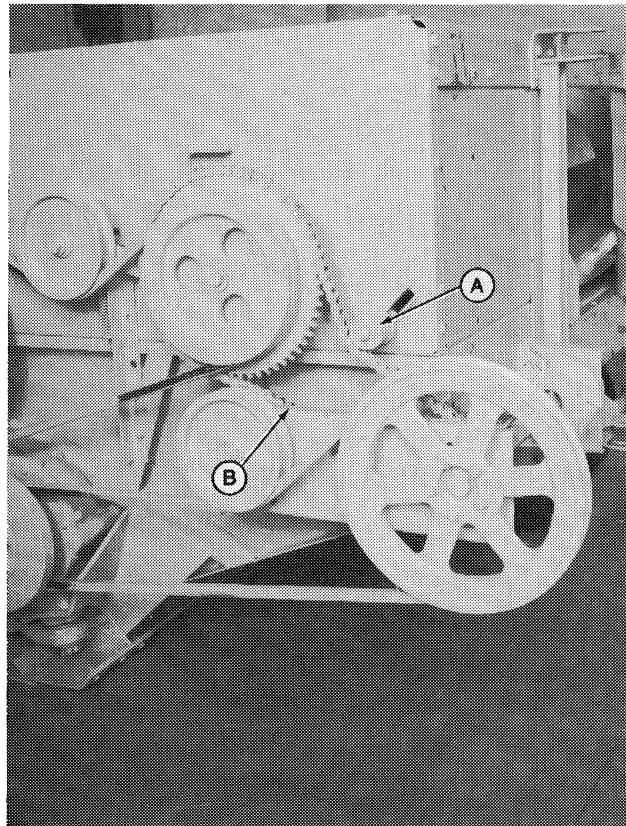


E22736, E22737/MRBRL/C/170184

# Operating the Mower Bar

## ADJUSTING AUGER DRIVE CHAIN ON 6-FT (1.83 M)

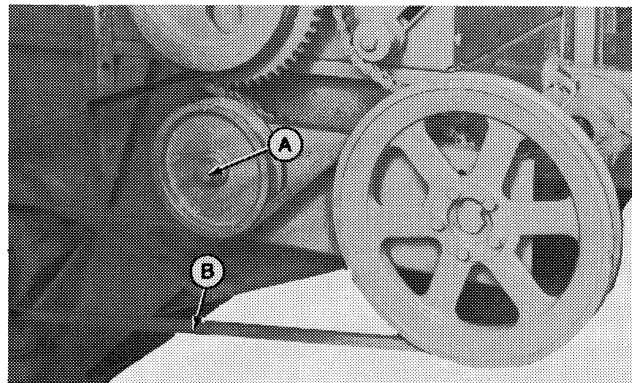
1. Loosen idler (A).
2. Adjust to 6 to 13 mm (1/4 to 1/2-in.) "free movement" on side of chain opposite idler (B).
3. Tighten idler.



E23145/MRBRJ/A/170184

## ADJUSTING KNIFE DRIVE BELT (6 FT. [1.83 M])

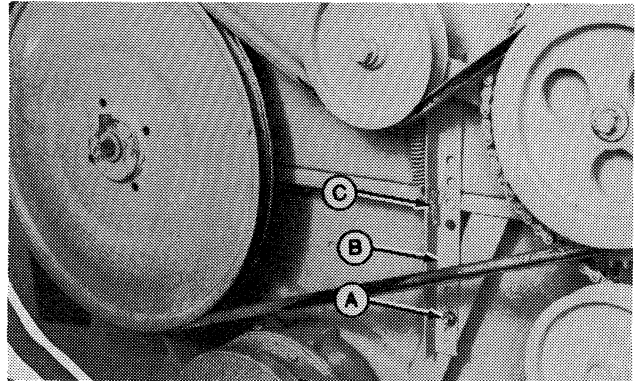
1. Loosen idler bolt on idler (A).
2. Adjust idler (A) until belt deflects 1 to 1-1/2-in. (25 to 38 mm) when 30 lbs. (134.4 N) of pressure is applied at center of belt (B) opposite idler (A).
3. Tighten idler bolt.



E23087/MRBRJ/B/170184

### ADJUSTING REEL DRIVE BELT (6 FT. [1.83 M])

1. Remove adjusting nut (A).
2. Move arm (B) until centered in vertical slot.
3. Place arm (B) in closest hole and install nut (A).
4. Tighten nut (A) until parts move freely.
5. Adjust spring tension by moving cotter pin (C) to desired position.



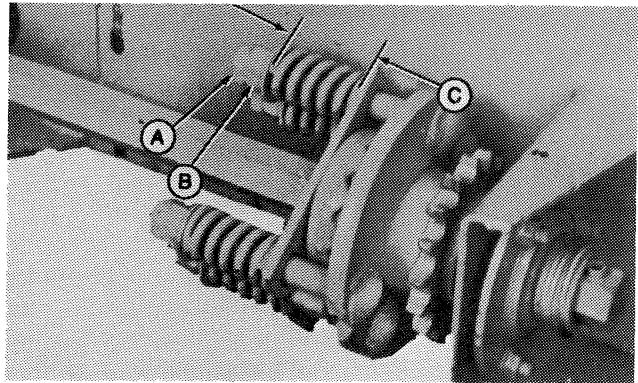
E23808/MRBRJ/C/170184

### ADJUSTING SLIP CLUTCH

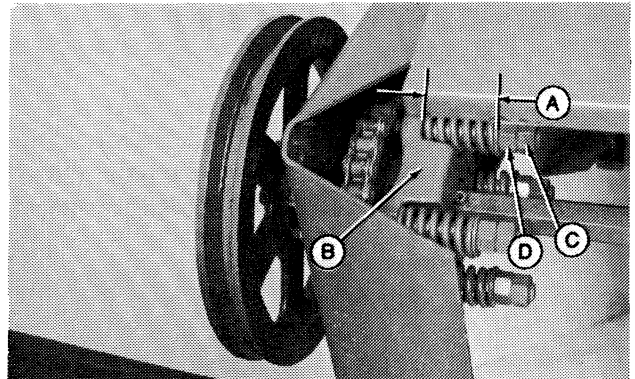
1. Loosen outer nuts (A).
2. Turn spring adjusting nuts (B) until dimension (C) is attained.
3. Retighten nuts (A) securely.
4. A slip clutch consisting of new parts is properly adjusted when the actual spring length (C) is 54 mm (2-1/8-in).

**IMPORTANT:** The slip clutch has been designed to furnish protection to the drive train; overtightening will lessen this protection.

6' (1.83 m)



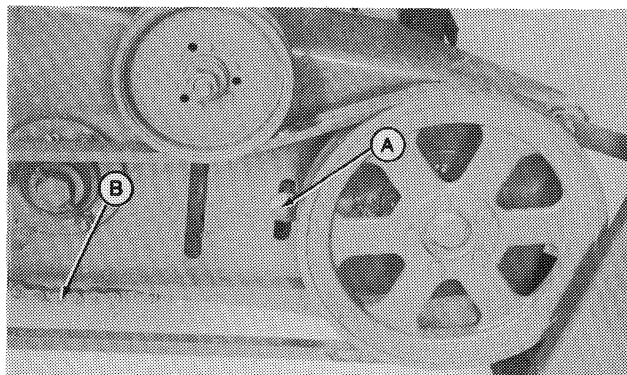
12' (3.66 m)



E22859/E23174/MRBRJ/D/170184

### ADJUSTING MAIN DRIVE CHAIN ON 12-FT. (3.66 M)

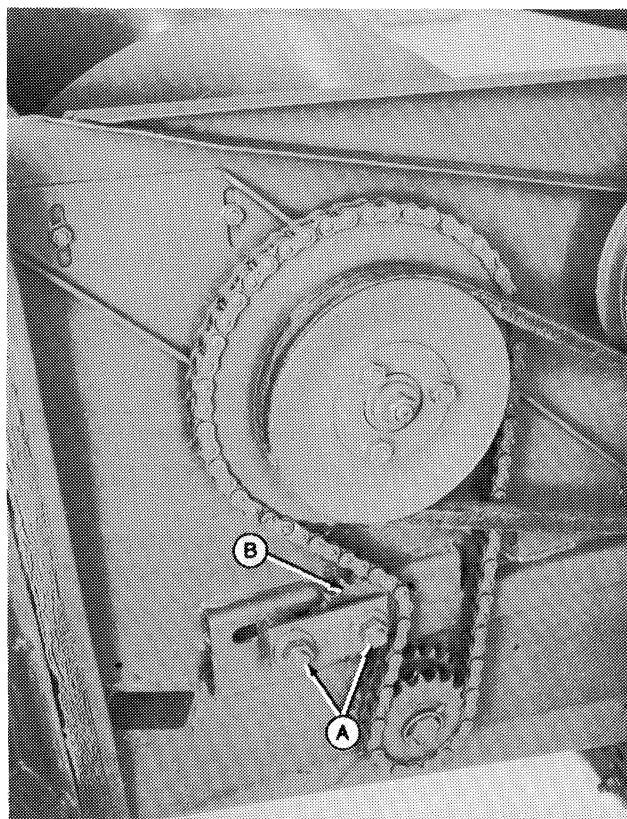
1. Loosen idler mounting bolt (A).
2. Push idler until drive chain (B) deflects 13 mm (1/2-in.) at midspan between sprockets.
3. Tighten mounting bolt (A).



E22881/MRBRJ/H/170184

### ADJUSTING AUGER DRIVE CHAIN ON 12-FT. (3.66 M)

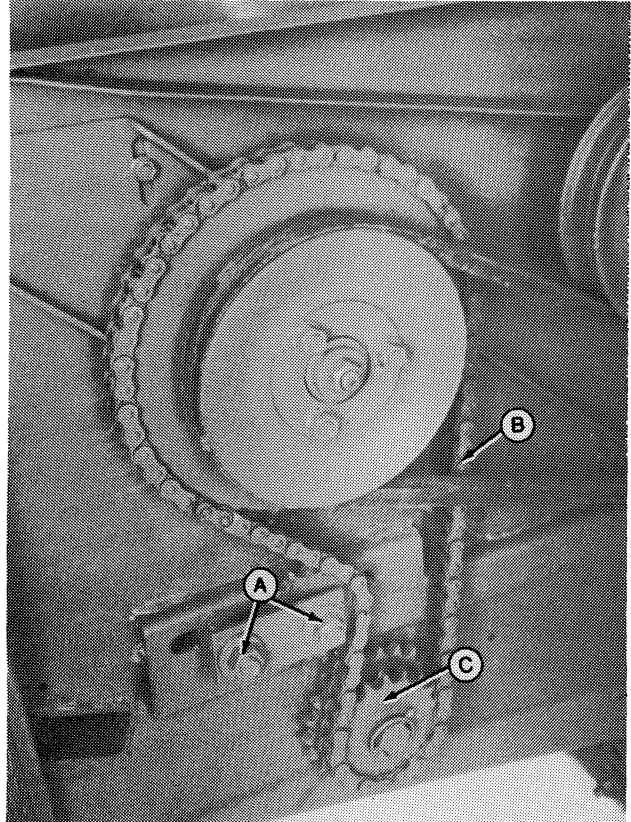
1. Loosen idler mounting bolts (A).
2. Push idler (B) forward until chain deflects 13 mm (1/2-in.) at midspan between sprockets.
3. Tighten mounting bolt (A).



E23160/MRBRJ/I/170184

### ADJUSTING AUGER SPEED (12-FT. [3.66 M])

1. Loosen idler (A).
2. Remove chain (B).
3. Adjust auger speed by reversing double (18 & 22 tooth) sprocket (C).
4. Reinstall chain (B) and adjust.



E23809/MRBRJ/F/170184

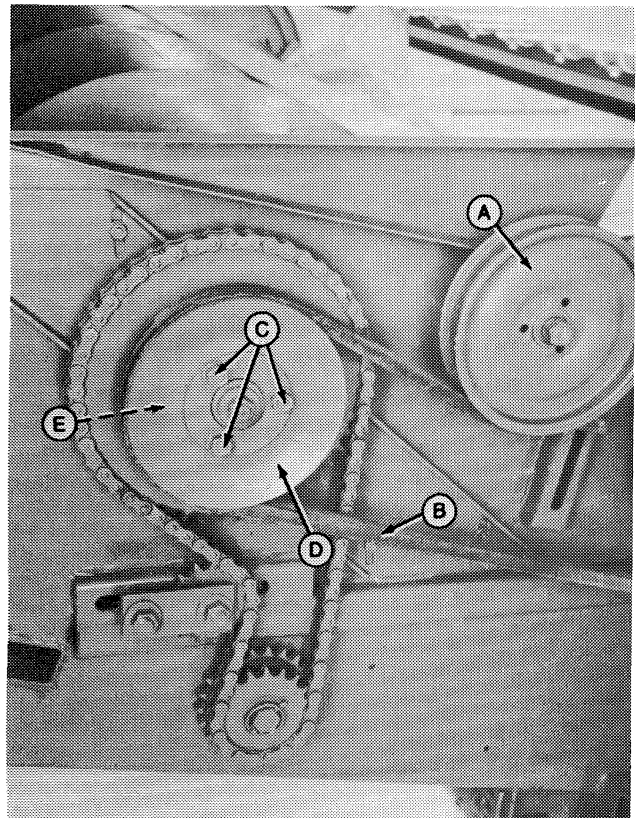
### ADJUSTING REEL SPEED (12 FT. [3.66 M])

Increase reel speed by adjusting sheave halves closer together. Decrease speed by adjusting halves further apart.

1. Loosen idler sheave (A).
2. Remove drive belt (B).
3. Remove three nuts (C) and adjustable sheave half (D).

**IMPORTANT:** At least three shims must remain between the sheave halves or damage to the belt may occur.

4. Move outer shims (E) to between sheave halves to decrease speed or move shims from between sheaves to increase speed.
5. Reinstall sheave half (D) and nuts (C).
6. Install drive belt (B) and adjust.

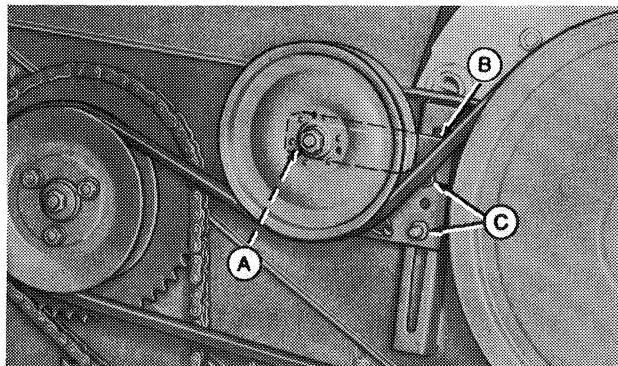


E23810/MRBRJ/G/170184

### ADJUSTING REEL DRIVE BELT ON 12-FT. (3.66 M)

The reel drive is properly adjusted when the upper surface of the reel idler arm (A), is parallel with the upper surface of the idler bracket (B).

1. Loosen mounting bolt nuts (C).
2. Move idler bracket (B) up or down, using punch through hole in side sheet, until adjustment is obtained.
3. Tighten mounting bolt nuts (C).

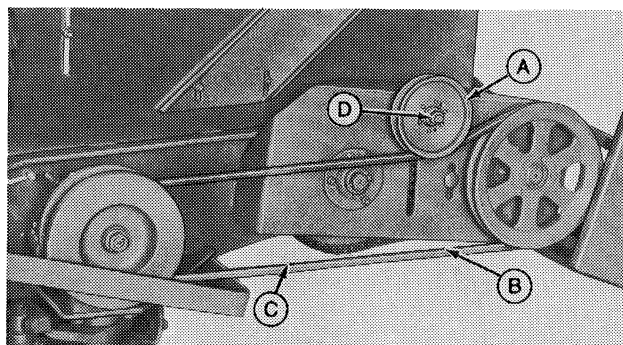


E19042/MRBRJ/J/170184

### ADJUSTING KNIFE DRIVE BELT ON 12-FT. (3.66 M)

1. Loosen idler (A).
2. Adjust until the belt (B) deflects 25 to 38 mm (1 to 1-1/2-in.) when 178 N (40 lb) of pressure is applied at the center of the belt opposite the idler.
3. Tighten the idler.

A—Idler  
B—Drive Belt  
C—Check Here  
D—Adjusting Bolt



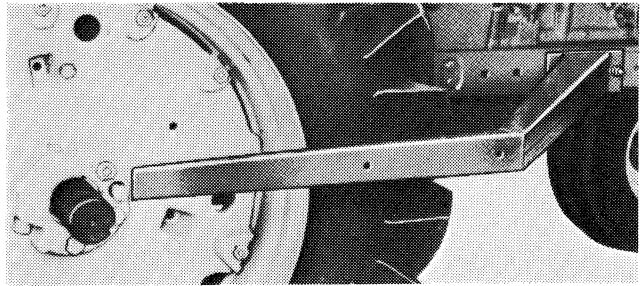
E14331/MRBRJ/K/170184

# Attachments

## TRACTOR AXLE GUARD

Recommended for tractors with axle length of 98 in. (2489 mm) to 130 in. (3302 mm) maximum.

*NOTE: Axle guard may need to be shimmed or extended for some tractors.*



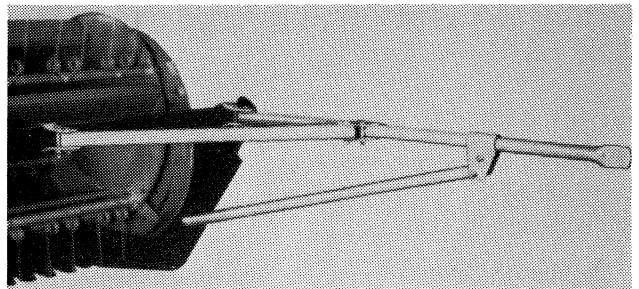
E22980/MRBRK/A/170184

## TALL CROP DIVIDERS

Tall crop dividers help prevent “hair-pinning” of material around the lower part of the dividers.

The dividers will also separate tall crops, helping to prevent wrapping on the reel.

*NOTE: 12-ft. (3.66 m) illustrated.*



E13576/MRBRK/B/170184

## GUARD ALIGNING TOOL

This tool is available for adjusting guards up and down.

MRBRK/C/170184

## CUTTERBAR KNIFE SECTIONS

Use overserrated knife sections in coarse, stiff-stemmed crops (sudex, straw, alfalfa, clover and most all hay crops).

Underserrated knife sections are for use in fine-stemmed crops (wild hay or Bermuda grass) to prevent stuffing or plugging of material along the cutterbar.

Smooth knife sections are for use in crops that are fine-stemmed and are prone to excessive juice buildup from the cutting operation.

MRBRK/D/170184

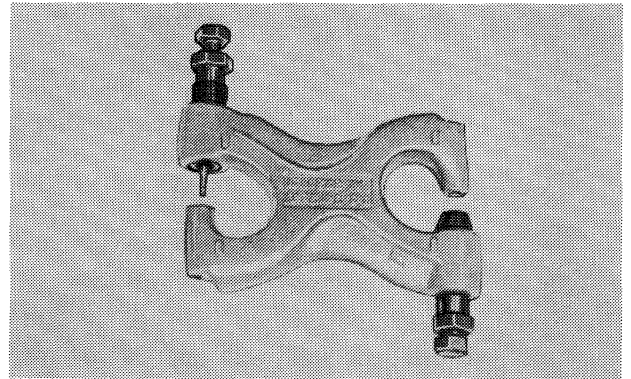
## NON-CLOG CUTTING PARTS

Non-clog cutting parts are available for severe cutting conditions.

MRBRK/E/170184

## RIVETING TOOL

A riveting tool is available for removing and installing cutterbar sections.



E19545/MRBRK/F/170184

# Lubrication and Maintenance

## PERFORM LUBRICATION AND MAINTENANCE AT RECOMMENDED INTERVALS

**IMPORTANT:** The intervals recommended are based on normal conditions; severe or unusual conditions may require more frequent lubrication or oil changes.

Clean grease fittings before using grease gun. Replace any lost or broken fittings immediately. If a new fitting fails to take grease, remove and check for failure of adjoining parts.



**CAUTION:** Do not clean, lubricate, or adjust the harvesting unit while it is running.

Perform each lubrication and service illustrated in this section.

MRBRN/A/170184

## OBSERVE LUBRICATION SYMBOLS



Lubricate with John Deere Multipurpose Lubricant or an equivalent SAE multipurpose-type grease (unless otherwise specified) at hourly intervals indicated on the symbols.



Lubricate with SAE 30 or heavier oil at hourly intervals indicated on the symbols.



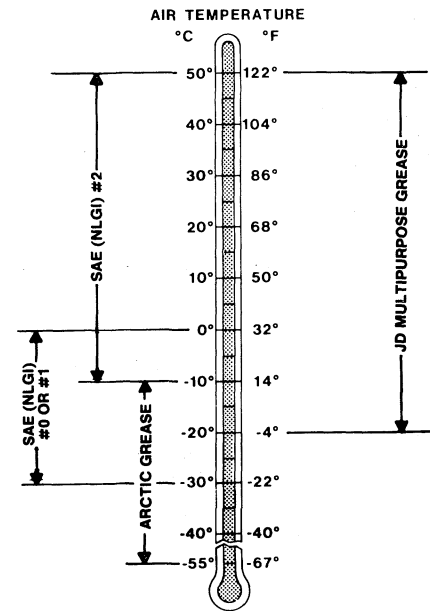
Brush periodically with John Deere Multipurpose Lubricant or an equivalent SAE multipurpose-type grease.

MRBRN/B/170184

## CHOOSING A GREASE

John Deere Multipurpose Grease is recommended in all grease fittings at hourly intervals indicated. If other grease is used, use:

- SAE Multipurpose Grease
- SAE Multipurpose Grease containing 3 to 5 percent molybdenum disulfide.

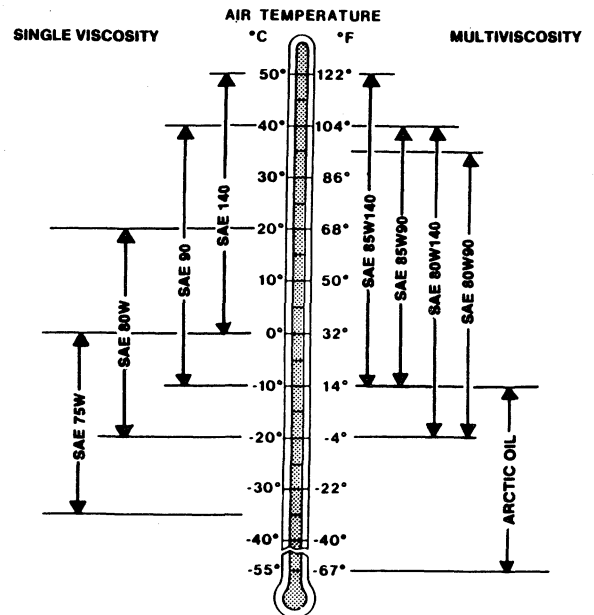


X9326/MRBRN/C/170184

## CHOOSING GEAR CASE LUBRICANTS

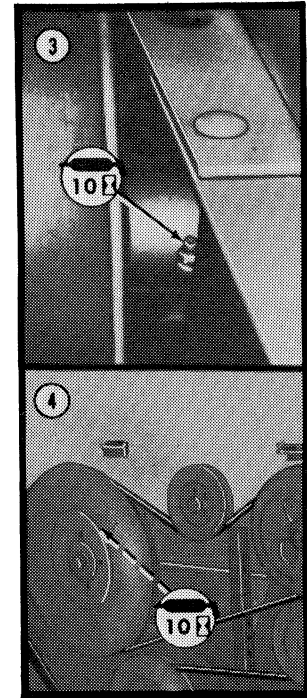
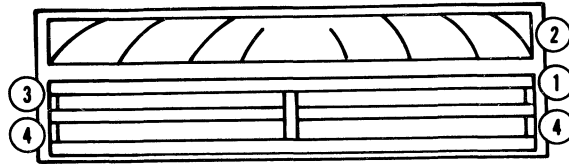
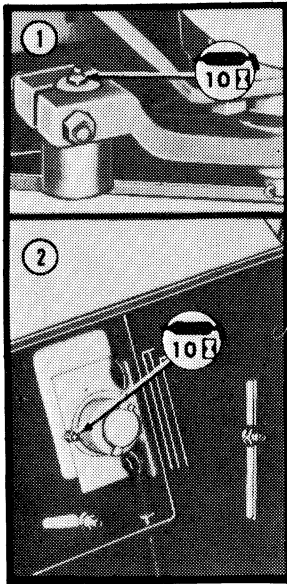
- John Deere SAE 85W140 API or GL-5 Gear Oils
- Oils meeting performance requirements of:  
API Service Classification GL-5  
Military Specification MIL-L-2105C

Depending on the expected prevailing temperature for the fill period, use oil of viscosity as shown in the chart.



X9322/MRBRN/D/170184

## EVERY 10 HOUR



1—Knife Head  
2—Left-Hand Reel End 12-Foot (3.66 m)  
(Shield removed for illustration purposes.)

3—Right-Hand Reel End 12-Foot (3.66 m)  
4—Reel (Both Sides) 6-Foot (1.83 m)

E23816/MRBRN/E/170184

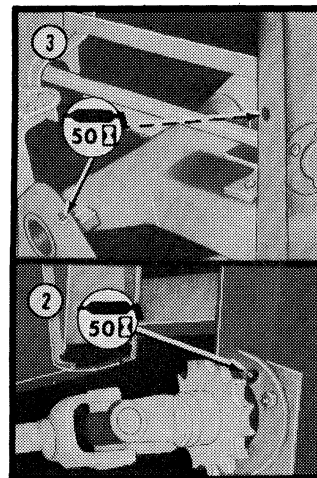
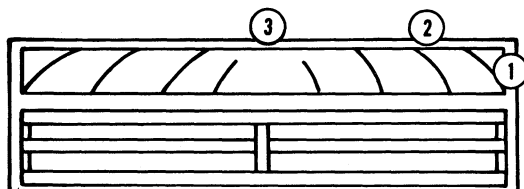
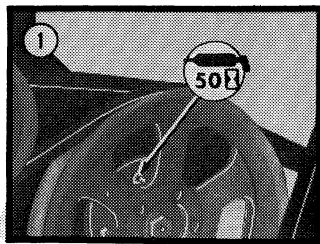
## CHAINS

Liberal apply SAE 30 or heavier oil to chains every 10 hours of operation.

Lubricate chains immediately after operation when the chains are still warm. Let the machine stand idle for a short period to insure effective oil penetration, resulting in longer chain life.

MRBRN/F/170184

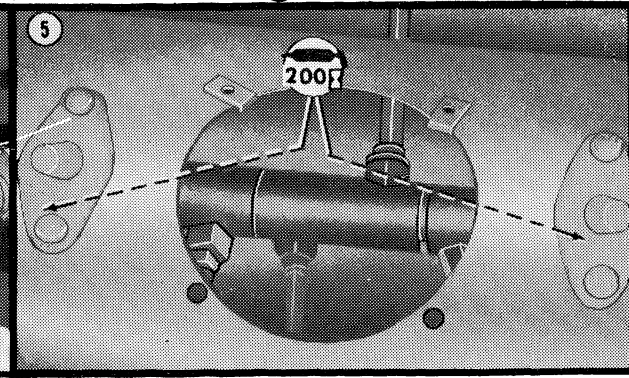
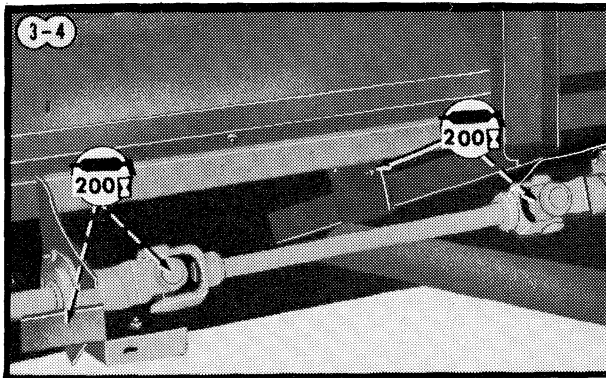
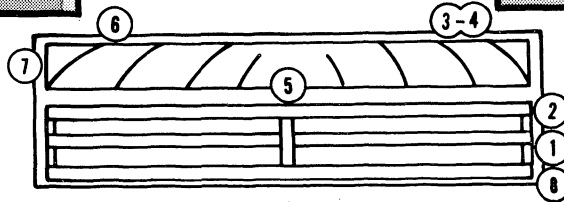
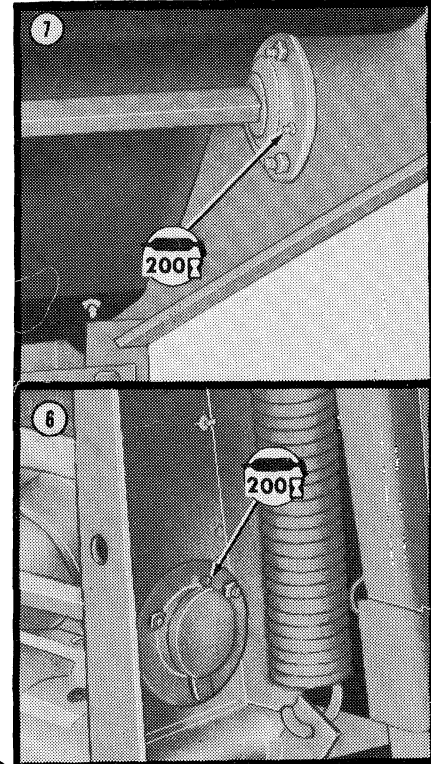
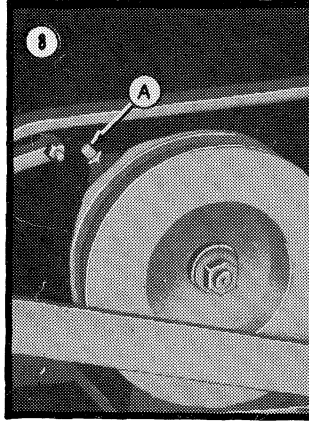
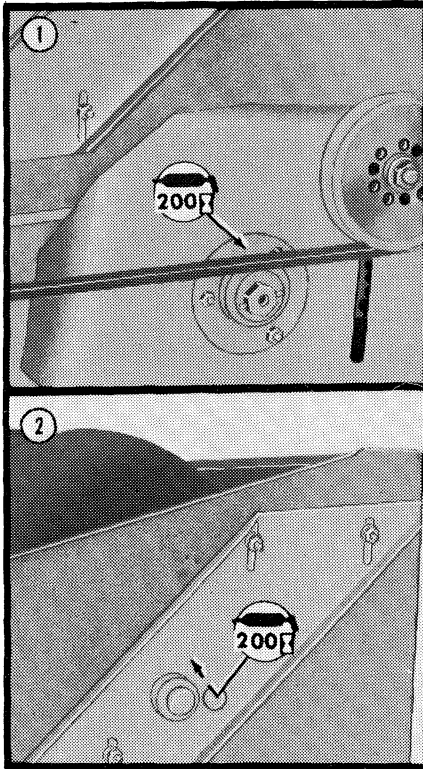
## EVERY 50 HOURS



- 1—Drive Shaft Bearings
- 2—Drive Shaft Bearings
- 3—Pivot

E23817/MRBRN/G/170184

EVERY 200 HOURS



- 1—Left-Hand Cross Shaft Bearing 12-Ft. (3.66 m)
- 2—Left-Hand Auger Bearing 12-Ft. (3.66 m)
- 3—4—Left-Hand Center Cross Shaft Bearing and U-Joint 12-Ft. (3.66 m)
- 5—Auger Finger Bearings 6-Ft. (1.83 m) 12-Ft. (3.66 m)

- 6—Right-Hand Attaching Shaft 12-Ft. (3.66 m)
- 7—Right-Hand Cross Shaft Bearing 12-Ft. (3.66 m)
- 8—Cutterbar Drive Case  
Lubricant should be 2-1/2 to 3-1/2-in. (64 to 89 mm) below fill plug (A).  
Use SAE 85-140 API-GL-5 Gear Lubricant

# Troubleshooting

| Problem                                               | Possible Cause                                         | Possible Remedy                                                                                              | Reference |
|-------------------------------------------------------|--------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|-----------|
| <b>Crop Carries Over Top of Auger</b>                 | Incorrect stripper adjustment.                         | Readjust clearance between strippers and auger.                                                              | 53        |
| <b>Crop Plugs in Front of Auger</b>                   | Clutch slipping or worn clutch hubs.                   | Adjust clutch. Replace hubs if worn excessively.                                                             | 14        |
| <b>Leaf Loss or Crop Damage</b>                       | Reel speed not coordinated with ground speed.          | Change reel drive to coordinate reel speed with ground speed so reel will move material smoothly and evenly. |           |
|                                                       | Ground speed too fast for condition of crop.           | Slow down.                                                                                                   | —         |
|                                                       | Crop carrying over top of reel.                        | Reduce reel speed and rotate cam for earlier release.                                                        | —         |
| <b>Excessive Breakage of Knife Sections or Guards</b> | Cutterbar operating too low in rocky field conditions. | Raise cutterbar, using gauge shoes 4 m (12 ft), gauge wheels 2 m (6 ft) and by reducing guard angle.         | —         |
|                                                       | Improper float spring adjustment.                      | Readjust float springs.                                                                                      |           |
|                                                       | Bent or broken guard.                                  | Replace.                                                                                                     | —         |
|                                                       | Improper hold-down adjustment.                         | Readjust hold-downs.                                                                                         | 49        |
|                                                       | Reel teeth too low (teeth into knife).                 | Raise reel and replace damaged parts.                                                                        | 30        |
|                                                       | Ground speed too fast.                                 | Reduce speed.                                                                                                | —         |
|                                                       |                                                        |                                                                                                              |           |
| <b>Knife Back Breakage</b>                            | Worn wear plates.                                      | Replace.                                                                                                     | 43&47     |
|                                                       | Worn knife head pin.                                   | Replace                                                                                                      |           |
|                                                       | Bent or broken guard.                                  | Replace.                                                                                                     | 43&47     |
|                                                       | Dull knife.                                            | Sharpen or replace.                                                                                          | 38        |
|                                                       | Wear plates not in line against knife back.            | Adjust wear plates forward.                                                                                  | 43,45,48  |
|                                                       | Wear plates on wrong guards.                           | Check location.                                                                                              | 42,44,46  |

MRBRO/A/170184

| Problem                                   | Possible Cause                                                         | Possible Remedy                                                                                              | Reference |
|-------------------------------------------|------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|-----------|
| <b>Knife Plugging</b>                     | Knife drive belt slips.                                                | Adjust belt tension.<br>Replace if burned.                                                                   | 17        |
|                                           | Dull or broken knife sections.                                         | Resharpener or replace.                                                                                      | 38        |
|                                           | Bent or broken guard.                                                  | Replace.                                                                                                     | 42,44,47  |
|                                           | Improper float spring adjustment.                                      | Readjust float springs.                                                                                      |           |
|                                           | Improper hold-down adjustment.                                         | Readjust hold-downs.                                                                                         | 48        |
|                                           | Improper reel adjustment.                                              | Adjust reel and cam.                                                                                         | 32,33,34  |
| <b>Knife Gumming</b>                      | Juice buildup due to cutting operation.                                | Use smooth knife sections and periodically clean knife.                                                      | —         |
| <b>Mud and Dirt Build-Up on Mower Bar</b> | Cutterbar too low.                                                     | Raise cutterbar using gauge shoes or wheels and by reducing speed angle.                                     | —         |
| <b>Leaving Long Stubble</b>               | Gauge shoes or wheels set too high.                                    | Lower gauge shoes or wheels.                                                                                 | —         |
| <b>Ragged and Uneven Cutting of Crop</b>  | Worn, damaged, or broken knife sections, guards or wear plates.        | Check and replace all worn and broken parts on cutterbar.                                                    | 38&45     |
|                                           | Bent knife, causing binding of cutting parts.                          | Straighten bent knife. Check guard alignment and align if necessary.                                         | 40        |
|                                           | Hold-downs worn or not adjusted to permit knife to work freely.        | Adjust or align hold-downs so knife will work freely, but still keep knife sections from lifting off guards. | 48        |
|                                           | Looseness between knife back and guard.                                | Adjust hold-downs so knife back is snug to guard.                                                            | 48        |
|                                           | Ground speed too fast.                                                 | Slow down.                                                                                                   | —         |
|                                           | Drive shaft speed too slow.                                            | Increase engine speed.                                                                                       |           |
|                                           | Lips of guard out of adjustment or bent, causing poor shearing action. | Adjust lip of guard so it is parallel to shear edge of guard.                                                |           |
|                                           | Loose knife drive belt.                                                | Adjust belt tension.                                                                                         | 17        |
|                                           | Improper float spring adjustment.                                      | Readjust float springs.                                                                                      |           |
|                                           | Guards or knife in poor condition.                                     | Adjust, sharpen or replace worn parts.                                                                       |           |
| <b>Ragged Stubble on Ground</b>           |                                                                        |                                                                                                              |           |

| <b>Problem</b>                        | <b>Possible Cause</b>                    | <b>Possible Remedy</b>                                                                             | <b>Reference</b> |
|---------------------------------------|------------------------------------------|----------------------------------------------------------------------------------------------------|------------------|
| <b>Crop Carrying Over Top of Reel</b> | Too much gap between auger and stripper. | Readjust.                                                                                          | 53               |
|                                       | Worn cutterbar components.               | Replace                                                                                            | 42,44,46         |
|                                       | Worn cam angle.                          | Rotate cam for early release.                                                                      |                  |
|                                       | Reel speed too fast.                     | Reduce reel speed.                                                                                 |                  |
| <b>Down Crop Left Uncut</b>           | Incorrect location of reel.              | Place reel well ahead and down.                                                                    |                  |
|                                       | Ground speed too fast.                   | Slow down.                                                                                         | —                |
|                                       | Very heavy crop.                         | Cut less than full width of mower bar.                                                             | —                |
| <b>Reel Hesitation</b>                | Inadequate belt tension.                 | Tighten drive belt.                                                                                | 17               |
|                                       | Heavy, lodged material.                  | Slow down.                                                                                         | —                |
| <b>Cam Rollers Leave Cam Track</b>    | Loose bat clamps.                        | Realign clearance between roller arm and cam track and tighten bat clamp bolts.                    |                  |
|                                       | Roller not in cam far enough.            | Reshim clearance between roller arm and cam track.                                                 |                  |
| <b>Broken Belt</b>                    | Burned by driver after cutterbar plugs.  | Stop machine immediately if cutterbar plugs.                                                       | —                |
|                                       | Adjusted too tight.                      | Readjust.                                                                                          | 17               |
|                                       | Reel running too fast.                   | Reduce reel speed.                                                                                 |                  |
| <b>Strips of Uncut Material</b>       | Crowding uncut crop.                     | Allow enough room for crop to be fed to cutterbar.                                                 | —                |
|                                       | Foreign objects on cutterbar.            | Disengage drive and stop engine. After moving parts are completely stoped, remove foreign objects. | —                |
|                                       | Broken knife sections.                   | Replace.                                                                                           | 38               |

| Problem | Possible Cause | Possible Remedy | Reference |
|---------|----------------|-----------------|-----------|
|---------|----------------|-----------------|-----------|

## LIFT AND FLOAT SYSTEM



**CAUTION:** Always block raised harvesting unit and shut off engine before servicing or adjusting.

### Harvesting Unit Will Not Raise or Lower

|                                                                                |                                                       |    |
|--------------------------------------------------------------------------------|-------------------------------------------------------|----|
| Hydraulic pump does not function.                                              | Check hydraulic pump.                                 | ** |
| Engine at slow idle.                                                           | Increase engine speed to 1500 rpm.                    | ** |
| Hose to left-hand lift cylinder poppet(s) failed.                              | Replace hose.                                         | ** |
| Control valve linkage out of adjustment.                                       | Check harvesting unit lift control lever and linkage. | ** |
| Faulty base module for rear outlet valve (electric solenoid controlled valve). | See your John Deere dealer.                           | *  |

### Harvesting Unit Drops Too Fast or Too Slow

|                                                    |                                             |    |
|----------------------------------------------------|---------------------------------------------|----|
| Harvesting unit drop rate screw out of adjustment. | Adjust drop rate on 3 spool valve.          | ** |
| Control lever linkage out of adjustment.           | Check control lever and linkage.            | ** |
| Poppet stop not in 3-spool valve outlet port.      | See your John Deere dealer.                 | *  |
| Low oil supply in hydraulic tank.                  | Fill system with proper oil to sight glass. | ** |
| Clogged suction line to hydraulic pump.            | Clean line.                                 | -  |

### Harvesting Unit Will Not Lower to Ground

|                                                                 |                                |    |
|-----------------------------------------------------------------|--------------------------------|----|
| Harvesting unit down stop not properly adjusted.                | Adjust down stop valve.        | ** |
| Float springs are too tight.                                    | Loosen float springs.          | ** |
| Heavy duty float springs being used with light harvesting unit. | Install correct float springs. | ** |
| Too much air in the large front tires.                          | Adjust air pressure in tires.  | ** |

### Harvesting Unit Digs Into Ground

|                                     |                              |    |
|-------------------------------------|------------------------------|----|
| Float springs set too loose.        | Tighten float springs.       | ** |
| Down stop set too low.              | Correct down stop setting.   | ** |
| Gauge wheels or shoes set too high. | Lower gauge wheels or shoes. | ** |

\* See your John Deere dealer.

\*\* See your harvester manual.

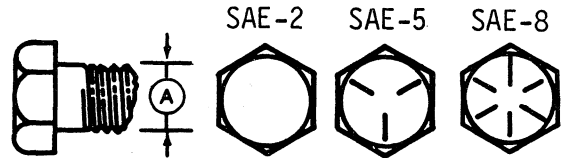
# Service

## BOLT TORQUE CHARTS

The tables shown below give correct torque values for various bolts and cap screws. Check tightness of bolts periodically, using bolt torque chart as a guide.

### U.S. MEASUREMENT

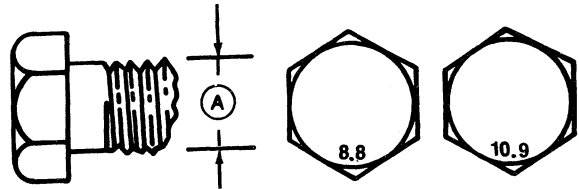
| Bolt<br>Diameter<br>"A" | Bolt Torque in Ft-Lbs (N·m) |       |       |        |       |        |
|-------------------------|-----------------------------|-------|-------|--------|-------|--------|
|                         | SAE 2                       |       | SAE 5 |        | SAE 8 |        |
| 1/4"                    | Not                         | Used  | 14    | (10)   | 19    | (14)   |
| 5/16"                   | Not                         | Used  | 27    | (20)   | 41    | (30)   |
| 3/8"                    | 23                          | (31)  | 35    | (47)   | 50    | (68)   |
| 7/16"                   | 35                          | (47)  | 55    | (75)   | 80    | (108)  |
| 1/2"                    | 55                          | (75)  | 85    | (115)  | 120   | (163)  |
| 9/16"                   | 75                          | (102) | 130   | (176)  | 175   | (237)  |
| 5/8"                    | 105                         | (142) | 170   | (231)  | 240   | (325)  |
| 3/4"                    | 185                         | (251) | 300   | (407)  | 425   | (576)  |
| 7/8"                    | 160                         | (217) | 445   | (603)  | 685   | (929)  |
| 1"                      | 250                         | (339) | 670   | (910)  | 1030  | (1396) |
| 1-1/4"                  | 330                         | (450) | 910   | (1235) | 1460  | (1979) |



Replace hardware with the same strength bolt.

### METRIC MEASUREMENT

| Bolt<br>Diameter<br>"A" | Bolt Torque in Ft-Lbs (N·m) |        |      |        |
|-------------------------|-----------------------------|--------|------|--------|
|                         | 8.8                         |        | 10.9 |        |
| 5 mm                    | 5                           | (6)    | 7    | (9)    |
| 6 mm                    | 9                           | (11)   | 13   | (17)   |
| 8 mm                    | 20                          | (28)   | 30   | (40)   |
| 10 mm                   | 40                          | (55)   | 59   | (80)   |
| 12 mm                   | 70                          | (95)   | 103  | (140)  |
| 16 mm                   | 173                         | (235)  | 258  | (350)  |
| 20 mm                   | 350                         | (475)  | 498  | (675)  |
| 24 mm                   | 608                         | (825)  | 863  | (1170) |
| 30 mm                   | 1201                        | (1630) | 1712 | (2320) |

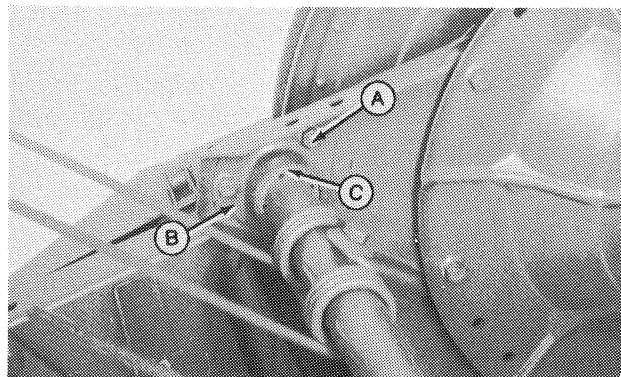


**NOTE:** Bolts having lock nuts should be torqued to approximately 65% of amounts shown in above chart.

## REPLACING REEL TEETH (6 FT. [1.83 M])

*NOTE: Reel does not have to be removed to replace reel teeth.*

1. Remove three carriage bolts, lock nuts (A) and flange (B).
2. Repeat on opposite side.
3. Remove bushing pin and pipe bushing (C).
4. Remove carriage bolts, lock nuts, special washers, and teeth necessary to replace damaged teeth.



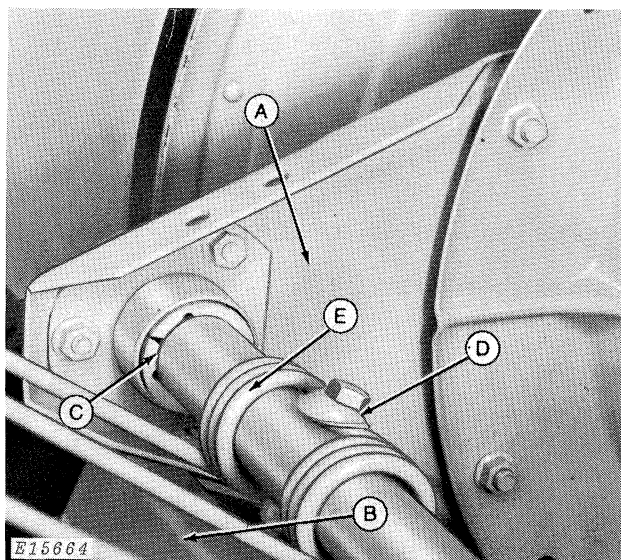
E23819/MRBRP/C/170184

## REPLACING REEL TEETH (12 FT. [3.66 M])

*NOTE: Reel does not have to be removed to replace reel teeth.*

1. Remove two lock screws and lock nuts securing reel pipe bracket (A).
2. Loosen two carriage bolts, lock nuts and clamp plate securing reel bat (B).
3. Remove bushing pin and pipe bushing (C).
4. Remove cap screws, lock nuts, special washers and teeth necessary to replace damaged teeth.

A—Reel Pipe Bracket  
B—Reel Bat  
C—Pipe Bushing  
D—Special Washer  
E—Reel Tooth



E15664/MRBRP/D/170184

5. Remove washers and cotter pin (A).

**IMPORTANT:** Note exact location of washers and cotter pin. These are necessary for reassembly.

6. Loosen two carriage bolts, lock nuts and plate clamp securing reel bat (B).

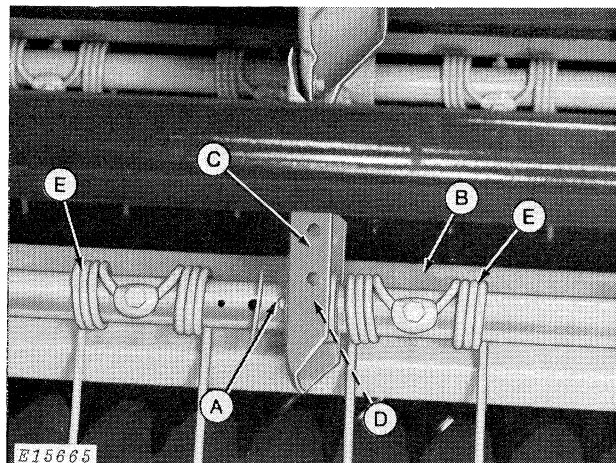
7. Remove two lock screws, lock nuts and reel pipe bracket (C).

8. Remove bushing pin and pipe bushing (D).

9. Remove carriage bolts, lock nuts, special washers and teeth as necessary to replace damaged tooth.

*NOTE: When necessary to replace teeth in the left hand portion of the reel, remove the lock screws and lock nuts securing the reel pipe brackets (C). Remove the tooth bar.*

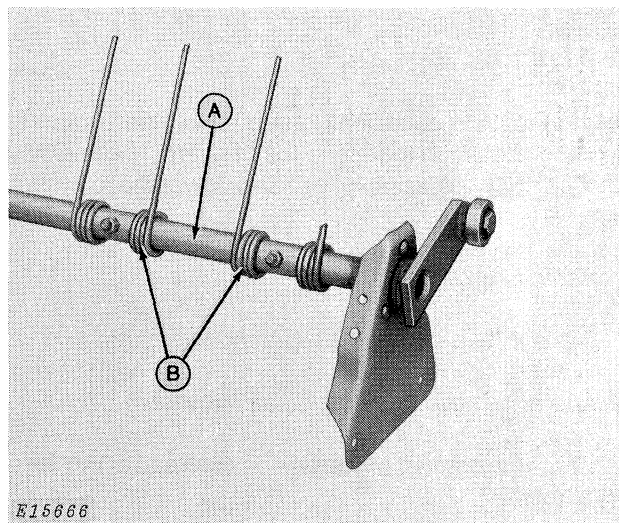
10. Loosen carriage bolts, lock nuts and plate clamps securing reel bat (B).



A—Cotter Pin  
B—Reel Bat  
C—Reel Pipe Bracket  
D—Pipe Bushing  
E—Reel Teeth

E15665/MRBRP/E/170184

11. With all hardware removed from right-hand portion of tooth bar (A), remove cap screws, lock nuts, special washers and teeth (B).

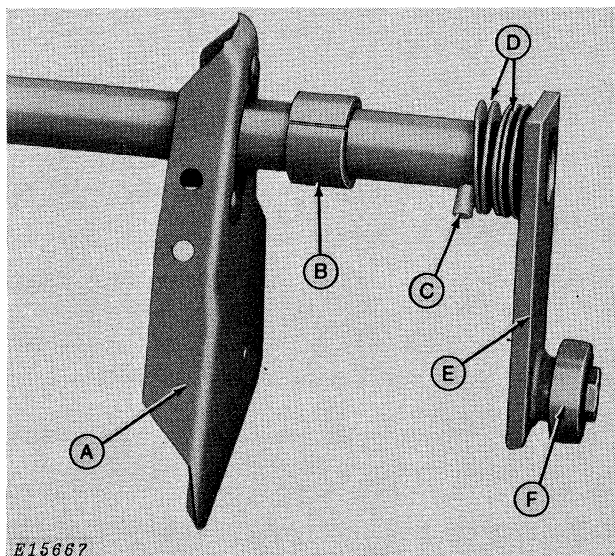


E15666

E15666/MRBRP/F/170184

12. To replace tooth bar, remove reel pipe bracket (A), bushing (B), pin (C) and washers (D).

A—Reel Pipe Bracket  
B—Pipe Bushing  
C—Bushing Pin  
D—Washers  
E—Tooth Bar  
F—Cam Follower Bearing

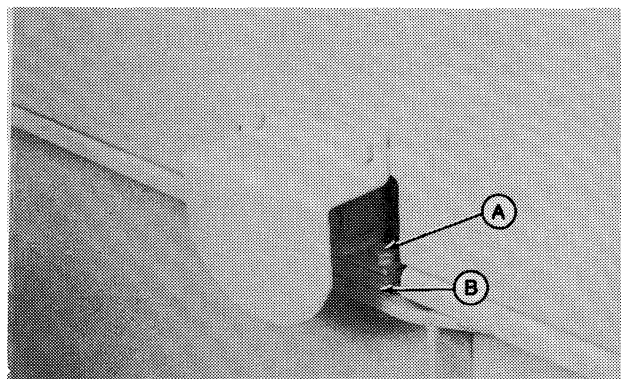


E15667/MRBRP/G/170184

## ADJUSTING REEL VERTICALLY (6 FT. [1.83 M])

For normal field conditions, there should be 8 mm (5/16-in.) clearance between tooth and top of guard. Under difficult conditions, it may be desirable to raise or lower the reel more than 8 mm (5/16-in.).

1. Remove shields.
2. Remove two cap screws (A) and lock nuts.
3. Add or remove spacers (B) as necessary.
4. Use same amount of spacers on each end of reel for uniform adjustment.
5. Secure with cap screws and lock nuts.
6. Install shields.

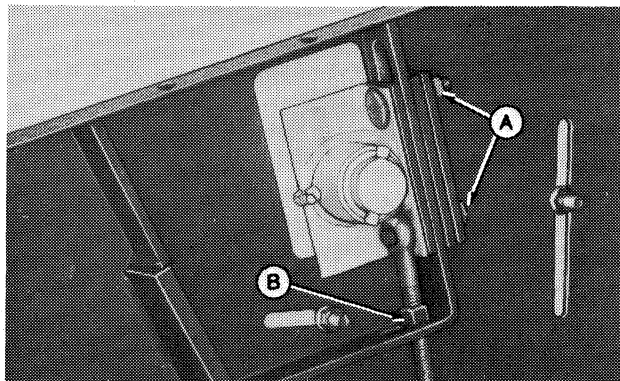


E22840/MRBRP/H/170184

**ADJUSTING REEL VERTICALLY 12 FT. (3.66 M)**

For normal field conditions, there should be 5/16-in. (8 mm) clearance between tooth and top of guard. Under difficult conditions, it may be desirable to raise or lower the reel more than 5/16-in. (8 mm).

1. Loosen two bolts (A) on each end of reel.
2. Adjust eyebolts (B) to obtain desired clearance.
3. After making uniform adjustment at both ends of reel, tighten bolts (A).



E23820/MRBRP/J/170184

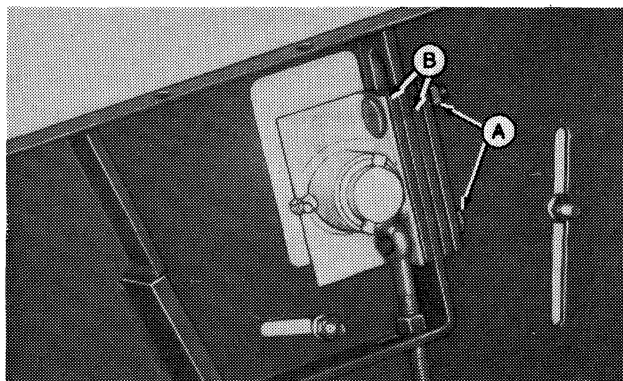
**ADJUSTING REEL HORIZONTALLY 12 FT. (3.66 M)**

For normal conditions, run the reel in the rearmost position. In extremely heavy or tall crops, move the reel forward.

1. Remove clamp bolts (A).
2. To move reel rearward, remove spacers (B) from in front of bearing mounting and place behind bearing mounting.

To move reel forward, remove spacers (B) from behind bearing mounting and place in front of bearing mounting.

3. After adjusting both ends of reel equally, install and tighten bolts (A).
4. Adjust reel drive belt.



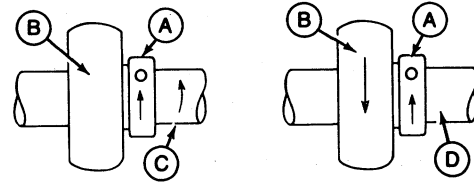
E23821/MRBRP/J/170184

## BEARING LOCKING COLLARS

Locking collars on bearings must be kept tight.

Tighten all locking collars (A) on running shafts (C) in the direction of the shaft rotation.

Tighten all locking collars (A) on stationary shafts (D) in the opposite direction from that of the bearing (B) rotation.



A—Locking Collar  
B—Bearing

C—Running Shaft  
D—Stationary Shaft

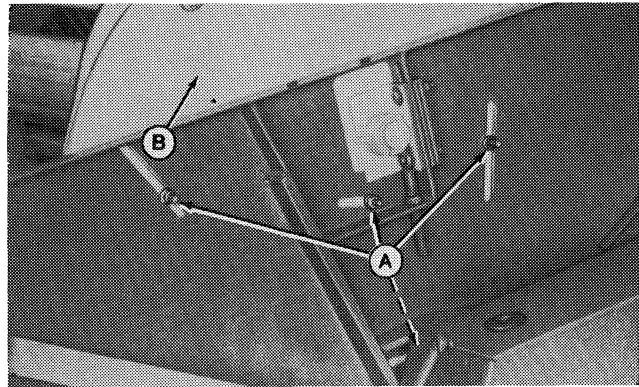
E12580/MRBRP/K/170184

## ADJUSTING REEL CAM

Reel speed will affect the cam adjustment. Fast reel speed will require material to be released sooner than will a slow reel speed.

1. Loosen the cam adjustment bolts (A) on the left-hand reel support.
2. Rotate top of cam (B) forward for a late material release, or rearward for an early material release.
3. Tighten bolts.

*NOTE: 12 Ft. (3.66 m) illustrated.*

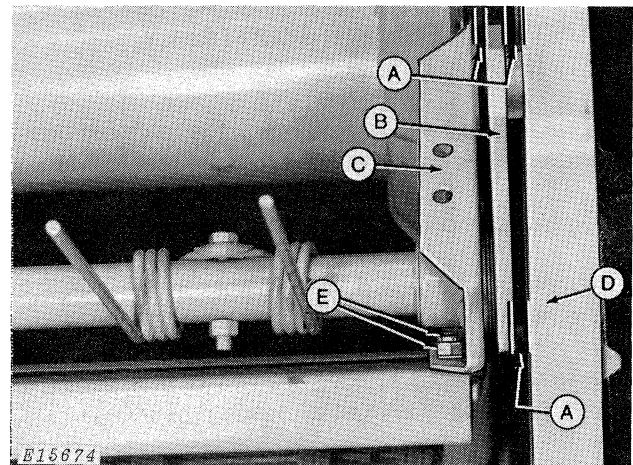


E20262/MRBRP/L/170184

## ADJUSTING CAM FOLLOWERS

1. A 3 mm (1/8-in.) clearance (A) is necessary between the cam follower arm (B) and the bracket (C), and cam follower arm (B) and cam (D).
2. To adjust, loosen two carriage bolts and lock nuts (E) and slide mounting plate until 3 mm (1/8-in.) clearance is obtained.
3. Tighten carriage bolts securely.
4. Rotate reel and check clearance on remaining cam followers.

*NOTE: If 3 mm (1/8-in.) clearance cannot be obtained using the above procedure, adjust the tooth bar.*

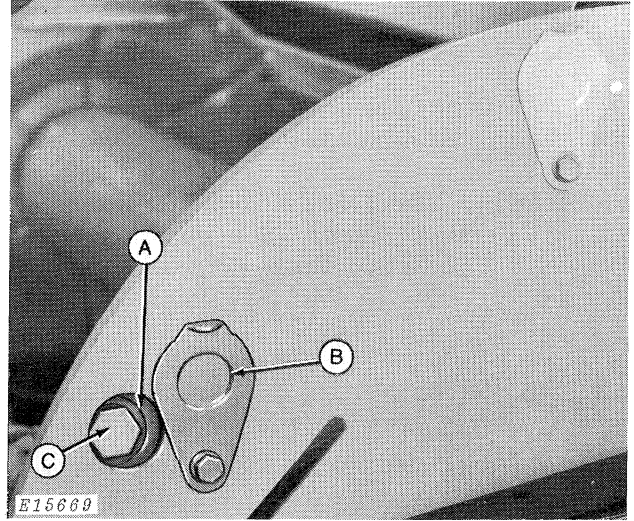


A—3 mm (1/8-in.) Clearance  
B—Cam Follower Arm  
C—Tooth Bar Bracket  
D—Cam  
E—Lock Nut

E15674/MRBRP/M/170184

## REPLACING CAM FOLLOWER BEARINGS

1. Slide cam cover (B) away and remove cap screw (C) and lock nut. Slide bearing (A) out of cam.
2. Torque cap screw to 230 N·m (170 lb-ft).

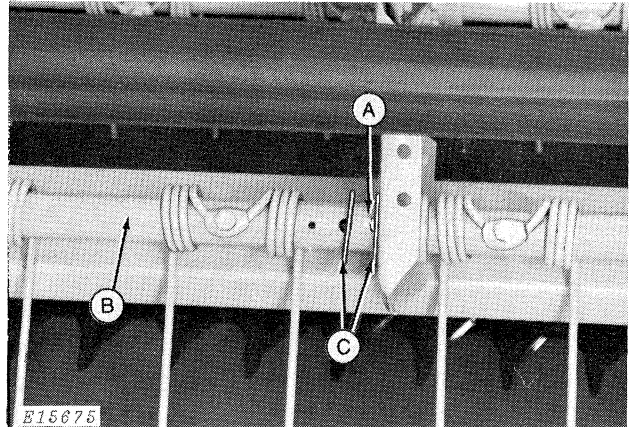


E15669/MRBRP/N/170184

## ADJUSTING TOOTH BAR

1. Remove cotter pin (A) and adjust cam follower by moving tooth bar (B) until 3 mm (1/8-in.) clearance (A) is obtained.
2. Position washers (C) to secure tooth bar and lock washer into place with cotter pin.
3. Rotate reel and check clearance on remaining cam followers.

**NOTE:** If the 3 mm (1/8-in.) clearance still cannot be obtained by either adjusting the cam or tooth bar, adjustment must be made by removing spacer washers from one end of reel and placing on opposite side of reel.



E15675/MRBRP/O/170184

## REMOVING KNIFE ON BOTH STANDARD AND NON-CLOG CUTTERBARS

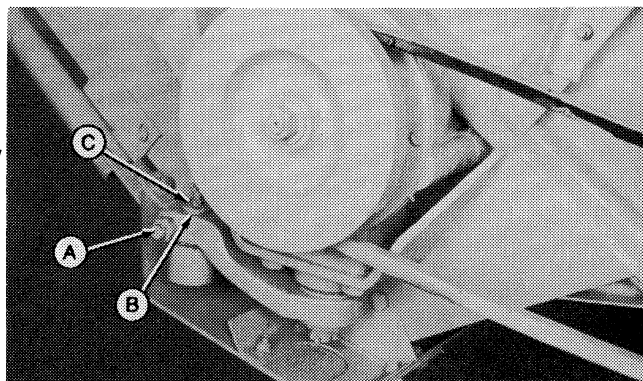


**CAUTION:** Always stand to the rear when removing or installing knife to reduce risk of injury.

**IMPORTANT:** Always readjust knife hold-downs after installing knife. (See Non-Clog Knife Hold-Down Section).

MRBRP/P/170184

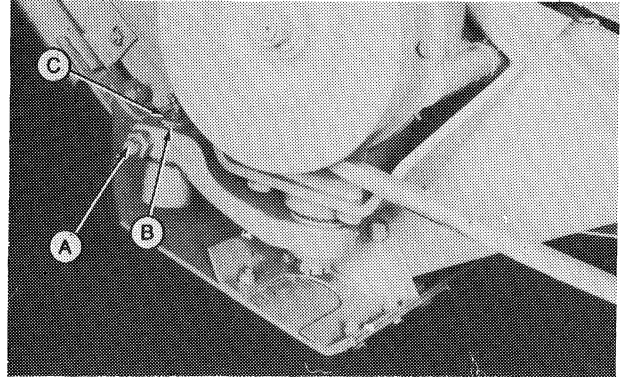
1. For non-clog cutterbars only, loosen adjusting clips.
2. Remove clamp bolt (A).
3. Fit a screwdriver into small groove in connecting pin and pry up on connecting pin (C) until knife is free.
4. Pull knife to remove from cutterbar.
5. Torque bolt (A) to 160 ft-lbs (217 N·m) after reinstalling knife.



E23171/MRBRP/Q/170184

## INSTALLING KNIFE ON BOTH STANDARD AND NON-CLOG CUTTERBARS

1. Install knife and connecting pin (C) until groove (B) is flush to the top of drive arm. Torque clamp bolt (A) to 217 N·m (160 lb-ft.)



E23170/MRBPR/R/170184

2. Move knife to outer end (to right) of stroke.
3. Set wear plates close to knife back without bending the knife back or by forcing too tight against guards. Wear plates should hold the knife forward in the guard.
4. Oscillate knife by hand to make certain parts do not bind or cause interference.
5. Correct any problems before installing adjustment clips.
6. Tighten lock nut until a minimum clearance of .13 to 3.8 mm (0.005 to 0.015-in.) is obtained between the knife section and hold-down or guard.
7. For more efficient cutting as parts wear, the hold-downs may need adjusting. See Adjust Non-Clog Knife Hold-Downs.

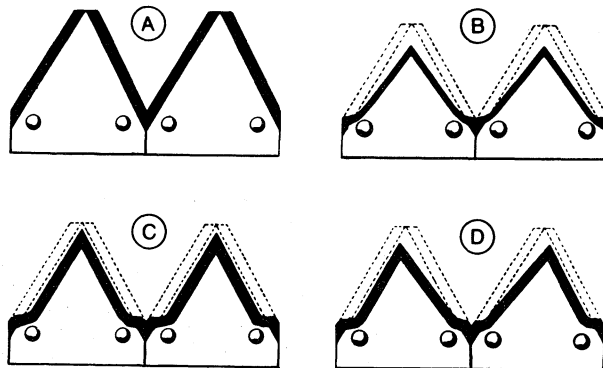
MRBPR/S/170184

## SHARPENING KNIFE SECTIONS ON BOTH NON-CLOG AND STANDARD CUTTERBARS

**IMPORTANT:** Do not sharpen the knife to rapidly. It will cause the steel in the cutting edge to burn. This is indicated by a blue discoloration.

Keep the knife straight and sharp, with sections firmly riveted to knife back.

When sharpening the knife, restore the original shear angle and bevel of 20 to 35 degrees.



- A—New sections—proper bevel and angle for good work.  
 B—Improperly ground sections; narrow bevel and wrong angle which changes the angle of “shear”.  
 C—Sections properly ground. Even after repeated grinding, proper bevel and angle are retained.  
 D—Sections ground off center, destroying the register of blade of guard.

E15520/MRBRP/T/170184

## REPLACING KNIFE SECTIONS ON BOTH NON-CLOG AND STANDARD CUTTERBARS

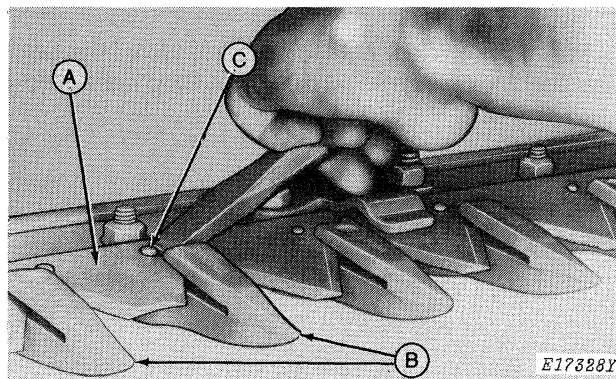
**NOTE:** To use riveting tool on non-clog cutterbar, guards may need to be removed.

- Using chisel, remove tops of rivets (C) holding damaged section (A).

**IMPORTANT:** Strike rivet from side as shown rather than from front to keep knife section aligned.

Remove old rivet with rivet tool (D, next page) or shear old rivet heads (C) with chisel and heavy hammer.

- Lift off section.
- Back off punch sleeve of riveting tool to open it.
- Back off punch screw until punch can be pushed completely back into sleeve.

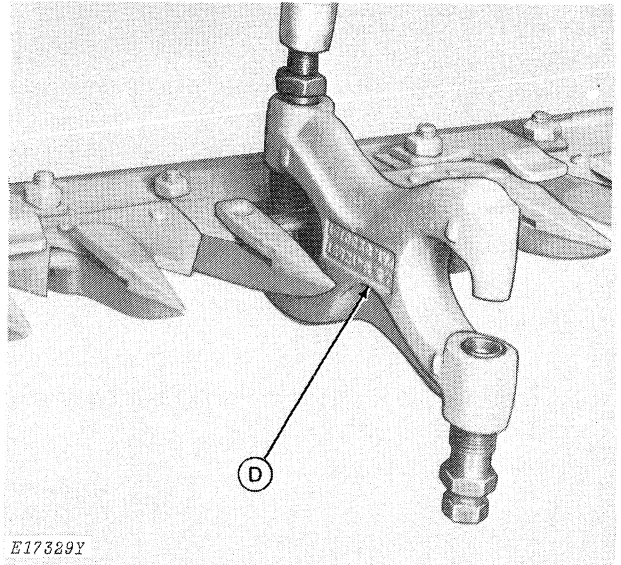


E17328/MRBRP/U/170184

5. Position new knife section on knife and insert (soft) mild steel rivets from below.

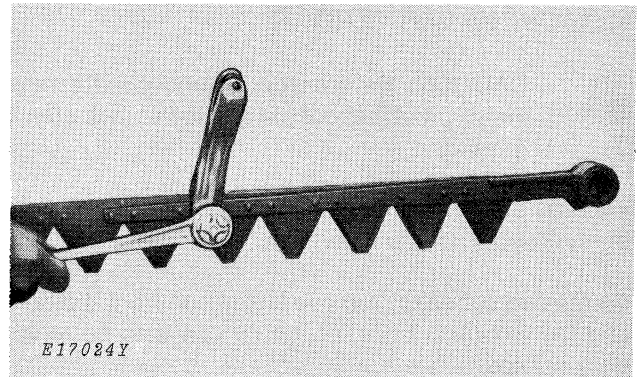
*NOTE: Replace damaged sections with the same type used on the knife. Do not intermix.*

6. Position tool (D) on knife.
7. Fit cupped lower jaw of riveter to head of rivet.
8. Turn sleeve until both rivet and section are firmly clamped to knife bar.
9. Turn rivet screw down with wrench to swage the rivet.
10. Back off rivet sleeve to remove tool.



E17329/MRBRP/V/170184

11. Repairs in the knife head area will mean removal of knife from machine. See Remove Knife.



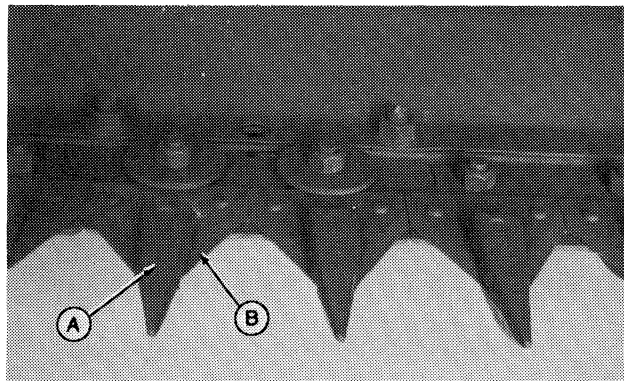
E17024/MRBRP/W/170184

## ALIGNING GUARDS

1. Raise harvesting unit and place blocks under each end.
2. Set each guard (A) up or down as necessary to obtain a shear cut between the knife section (B) and the guard (A).
3. Tighten the bolt as each guard is aligned.

**NOTE:** Guard lip must be parallel with shear edge of guard, or up 1.56 mm (1/16-in.).

If it is necessary to replace guards (A), be certain to align new guards to insure a shear cut.



A—Guard  
B—Knife Sections  
C—Knife Hold-Down  
D—Wear Plate

E23169/MRBRP/X/170184

## REMOVING CUTTERBAR



**CAUTION:** Before working underneath mower bar install pivot lockout pin and lower jack stand to the ground.

For easy access to cutterbar parts, the complete cutterbar can be removed from the mower bar.

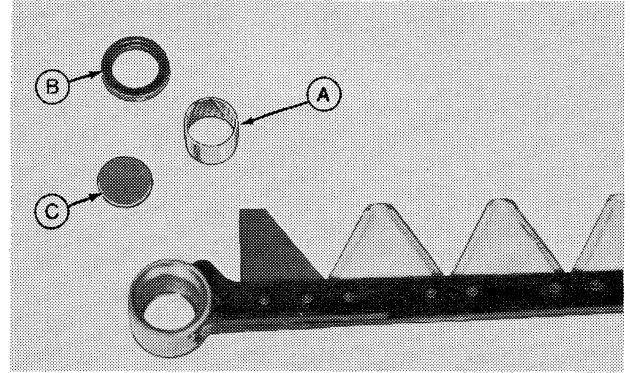
To remove cutterbar, remove knife head from the drive case, and the mounting bolts. Cutterbar can then be removed for easy service.

MRBRP/Y/170184

## REPLACING KNIFE HEAD BUSHING

If side play is evident between the knife head connecting pin and the knife head, replace the bushing (A) in the knife head.

1. Remove knife from machine.
2. Use a one-inch (25 mm) pipe or shaft and remove seal (B).
3. Drive the plug (C) and bushing (A) out through the bottom of the knife head. Be careful when removing plug (C) not to deform it.
4. Replace plug (C) into bottom of knife head, install a new bushing (A) and seal (B).
5. Reinstall knife in machine.



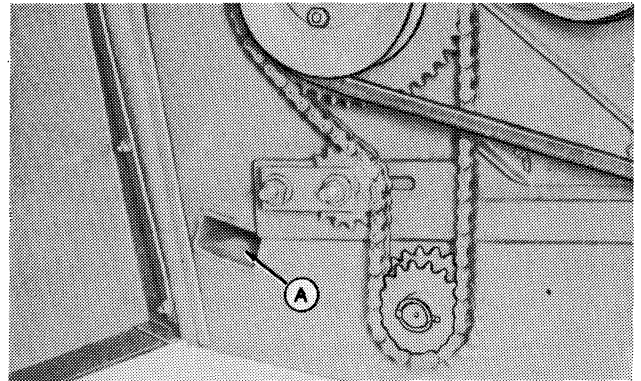
A—Bushing  
B—Seal

C—Plug

E12571/MRBRP/Z/170184

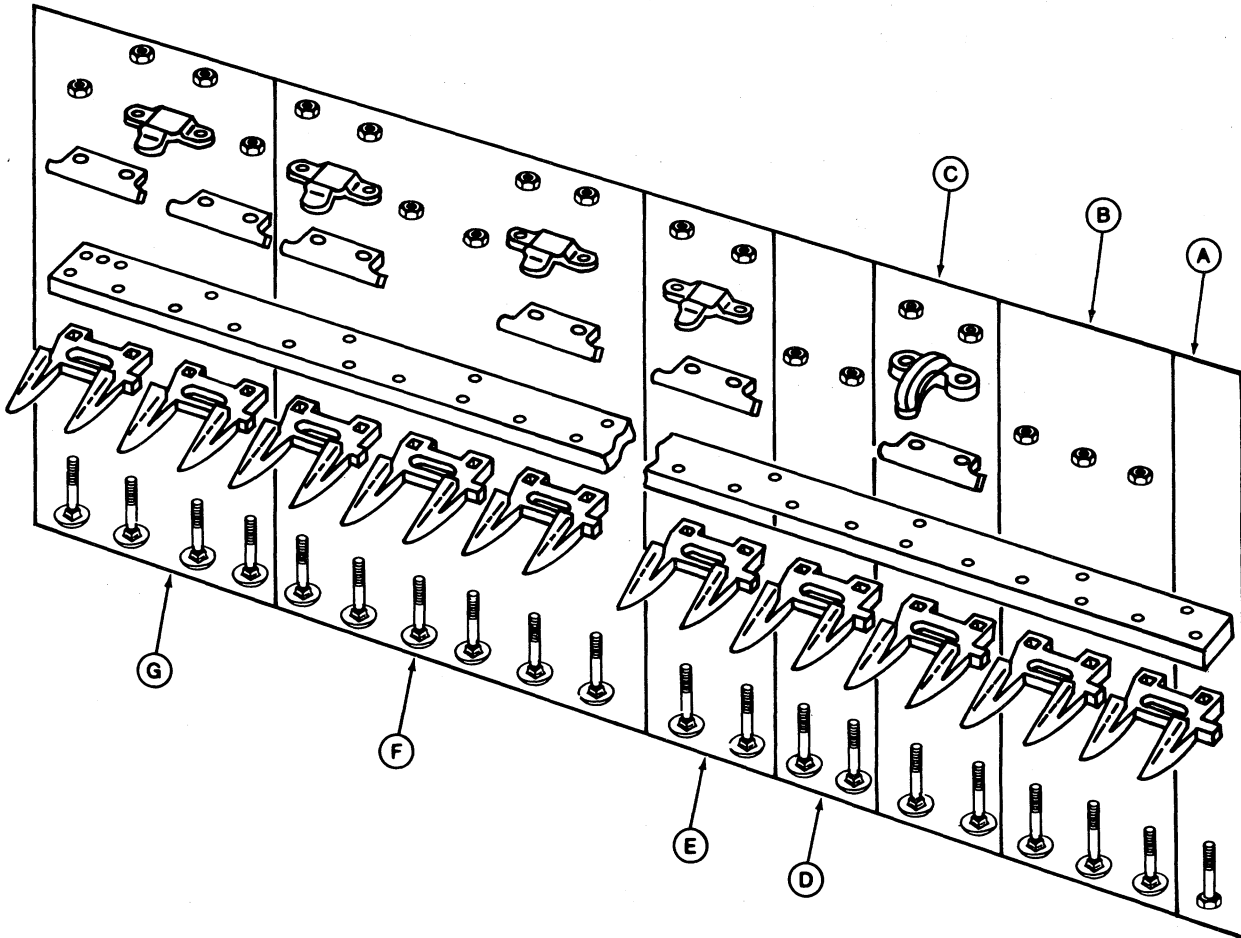
## CUTTERBAR KNIFE STORAGE

When operating in the field, keep an extra cutterbar knife in the storage area (A) provided in the frame tube.



E20427/MRBRP/AA/170184

## INSTALLING STANDARD CUTTERBAR PARTS 6 FT. (1.83 M)



**IMPORTANT:** Assemble cutterbar as illustrated. Failure to do so may cause machine damage.

*NOTE:* The following instructions are for a changeover from non-clog to standard cutterbar parts.

1. Remove cutterbar knife (See Knife Removal).
2. Remove all guards and hold-downs.
3. Refer to location (A). In first hole on left-hand side of cutterbar, place a double guard on left-hand end using existing cap screw and nut and carriage bolt and lock nut in second hole. Torque to 68 N·m (50 lb-ft).
4. Refer to location (B). In third and fourth holes from left-hand side of cutterbar, install double guard using carriage bolts and lock nuts. Torque nuts to 68 N·m (50 lb-ft).
5. Install knife.
6. Attach knife to drive arm using connecting pin and clamping cap screw. Torque clamping cap screw to 217 N·m (160 lb-ft).

7. Move knife to outer end (to right) of the stroke.

*NOTE: At wear plate and hold-down positions do not tighten any nuts until all the parts have been assembled.*

8. Refer to location (C). Using 7/16 x 1-3/4-in. carriage bolts in fifth and sixth holes, install double guard, wear plate, high-arch hold-down and lock nuts.

9. Refer to location (D). In seventh and eighth holes, install double guard using 7/16 x 1-3/4-in. carriage bolts lock nuts.

10. Refer to location (E). Using 7/16 x 1-3/4-in. carriage bolts in ninth and tenth holes, install double guard, wear plate, regular hold-down and lock nuts.

11. Refer to location (F). For remainder of cutterbar except for the last four holes on right-hand side, install every other double guard with wear plate, regular hold-down and lock nuts using 7/16 x 1-3/4-in. carriage bolts. Double guards installed.

MRBRP/AC/170184

12. Refer to location (C). Starting at right-hand end of cutterbar, install two wear plates on holes one, two, three and four. On holes two and three, install a regular hold-down. Secure wear plate with a 7/16 x 1-1/2-in. cap screw in the first hole. In the second and third holes, secure wear plates and regular hold-down with a 7/16 x 1-3/4-in. carriage bolt and lock nut.

13. Set wear plates close to knife back without bending the knife back or by forcing too tight against guards. Wear plates should hold the knife forward in the guard. Torque nuts to 68 N·m (50 lb-ft).

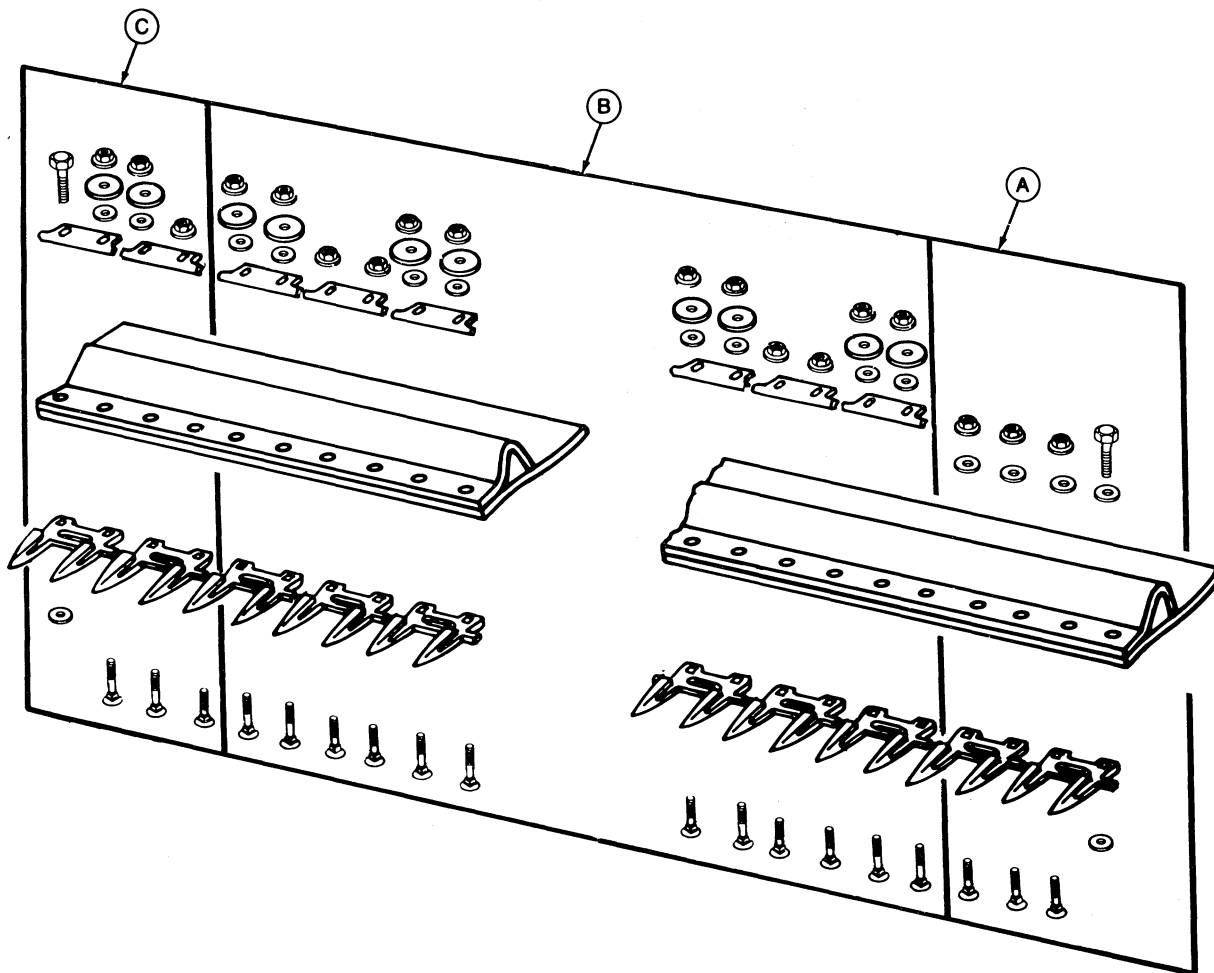
14. Oscillate knife by hand to make certain parts do not bind or cause interference.

15. Check for a minimum clearance of .13 to 3.8 mm (0.005 to 0.015-in.) is obtained between the knife section and hold-down or guard.

16. Run mower bar for 1 minute to ensure there is no heating or binding of knife sections. Correct any problems.

MRBRP/AD/170184

# **INSTALLING STANDARD GUARD CUTTERBAR PARTS 12 FT. (3.66 M)**



E20417/MRBRP/AE/170184

1. Refer to location (A). In the first four holes on the left-hand side of cutterbar, place two double guards. In the first hole use a cap screw, spacer and washer. In holes two, three and four, use carriage bolts, spacers and lock nuts. Torque nuts to 50 ft-lbs (68 N·m).

MRBRP/AF/170184

**IMPORTANT: At wear plate positions do not tighten any nuts until all the parts have been assembled and knife installed. See Adjust Wear Plates.**

2. For remainder of cutterbar install every double guard with a wear plate.
3. Refer to location (B). In the fifth and sixth holes using carriage bolts, install spacers, hold-down washers and lock nuts. Skip two bolts between all remaining pairs of spacers and hold-down washers as illustrated in location (B). On holes with double guards and wear plates only, use carriage bolts. On remaining holes use carriage bolts.
4. Refer to location (C). Starting at right-hand end of cutterbar in the first hole, use cap screw and washer.
5. In the second and third holes using carriage bolts, install spacers, hold-down washers and lock nuts.
6. In the fourth hole use a carriage bolt and lock nut.

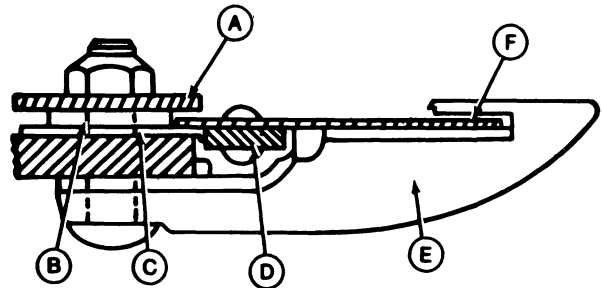
MRBRP/AG/170184

## ADJUSTING STANDARD CUTTERBAR WEAR PLATES

1. Move knife to the right-hand end of stroke.
2. Set all wear plates to hold knife as far forward as possible without putting a bend in knife back or making knife tight against guards.
3. Run the mower bar to ensure there is no binding or heating of knife sections. Correct any problems.

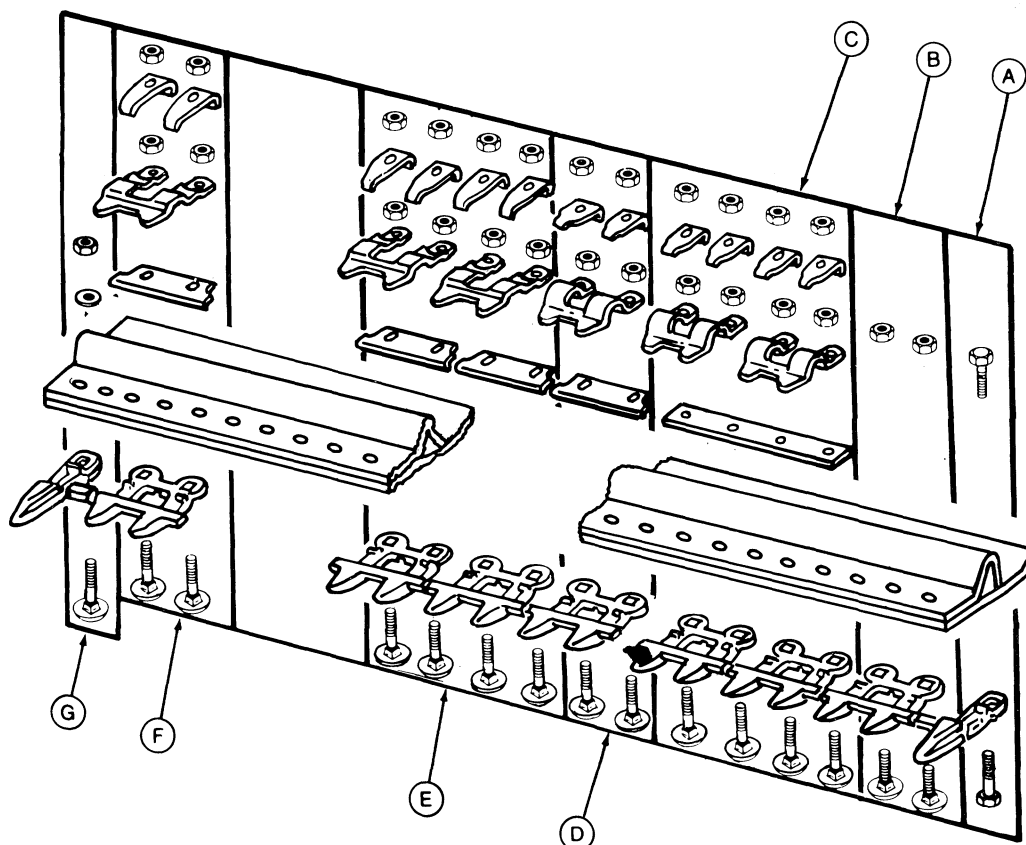
A—Washer  
B—Spacer  
C—Wear Plate

D—Knife  
E—Knife Guard  
F—Knife Section



E20416/MRBRP/AH/170184

## USING NON-CLOG CUTTERBAR



E19519/MRBRP/AJ/170184

**IMPORTANT: Do not operate a dull knife. It wastes power, leaves crop, and causes part failures.**

The non-clog cutterbar is useful in cutting down tangled crops or in fields with light trash buildup such as weeds.

They are not recommended for all conditions.

MRBRP/AJ/170184

## INSTALLING NON-CLOG CUTTERBAR PARTS

**IMPORTANT:** Assemble cutterbar as illustrated. Failure to do so may cause machine damage.

*NOTE:* A complete non-clog cutterbar may be assembled and complete cutterbars exchanged as cutting conditions vary.

1. Remove cutterbar knife (See Knife Removal Section).
2. Remove all guards.
3. Install non-clog guards.

*NOTE:* A single guard is made by using a two prong guard and removing the center crossbars.

4. Refer to location (A). In the first hole on left-hand side of cutterbar, place a single guard on left-hand end using existing cap screw and **washer**. Torque 50 ft-lb (68 N·m).
5. Refer to location (B). In second and third holes from the left-hand side of cutterbar, install one non-clog double guard using two carriage bolts and lock nuts. Torque 50 ft-lb (68 N·m).
6. Refer to location (C). Using carriage bolt in fourth, fifth, sixth and seventh holes, install two non-clog double guards, inner wear plate, two high-arch hold-downs and regular nuts. Torque nuts to 50 ft-lbs (68 N·m). Install six high-arch adjusting clips and lock nuts. Adjust nuts so knife section is at a minimum clearance of 0.005 to 0.015 in. (0.13 to 0.38 mm) between knife section and high-arch hold-downs. Do not bind the section tight.

**IMPORTANT:** Do not tighten any nuts or install adjusting clips on steps 7 and 8 until guards have been assembled and knife is installed. See Adjusting Wear Plates.

7. Refer to location (D). Using carriage bolt in eighth and ninth holes, install one non-clog double guard, wear plate, high-arch hold-down, and regular nuts. Torque nuts to 50 ft-lbs (68 N·m). Install high-arch adjusting clips and lock nuts.

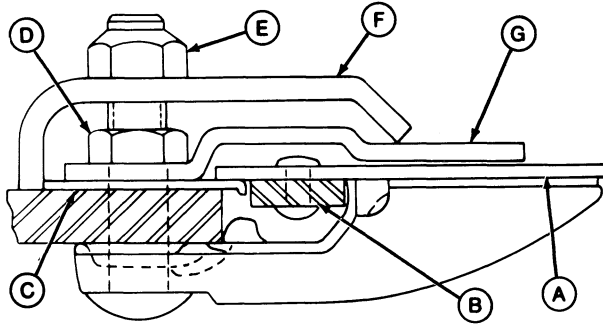
Adjust nuts so knife section is at a minimum clearance of 0.005 to 0.015-in. (0.13 to 0.38 mm) between knife section and high-arch hold-downs. Do not bind the section tight.

8. Refer to locations (E) and (F). For the remainder of the cutterbar except for the last hole on right-hand side, use the following procedure.

9. Using carriage bolts, install non-clog double guards, wear plate, regular hold-downs and regular nuts. Torque regular nuts to 50 ft-lbs (68 N·m). Install adjusting clips and lock nut. Adjust nuts so knife section is at a minimum clearance of 0.005 to 0.015-in. (0.13 to 0.38 mm) between knife section and regular hold-downs. Do not bind the section tight.

10. Refer to location (G). For the last hole on right-hand side of cutterbar, install single guard using carriage bolt, washer and nut. Torque to 50 ft-lbs (68 N·m). Insert right guard in pipe divider.

MRBRP/AK/170184



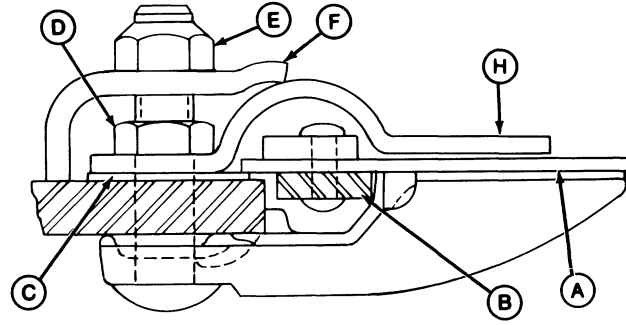
A—Knife Section  
B—Knife

C—Inner Wear Plate  
D—Regular Nut

## INSTALLING NON-CLOG CUTTERBAR KNIFE

**NOTE:** The underserrated knife is recommended for use with non-clog cutterbar, but the smooth knife may be suited to your conditions.

1. Install knife.
2. Attach knife to drive arm using connecting pin and clamping cap screw. Torque clamping cap screw to 160 ft-lbs (217 N·m).
3. Move knife to right-hand end of the stroke.
4. Set wear plates close to knife back without bending the knife back or by forcing too tight against guards.
5. Wear plates should hold the knife forward in the guard.
6. Oscillate knife by hand to make certain parts do not bind or cause interference.
7. Run the mower bar to ensure there is no heating of knife sections. Correct any problems before installing adjustment clips.
8. For more efficient cutting as parts wear, the hold-downs may need adjusting. See Adjusting Non-Clog Knife Hold-Downs.



E—Lock Nut  
F—Adjustment Clip

G—Regular Hold-Down  
H—High-Arched Hold-Down

## ADJUSTING WEAR PLATES

Turned-down edges of wear plates (C) must line up with each other to give knife back a straight bearing along its entire length.

1. With knife installed, remove adjustment clips (F) and loosen regular nuts (D).
2. Move knife to right-hand end of the stroke.
3. Set wear plates (C) up close to knife back without bending knife back or by forcing too tight against guards. Torque regular nuts (D) to 50 ft-lbs (68 N·m).
4. Run mower bar for 1 minute to ensure there is no heating or binding of knife sections. Correct any problems before installing adjusting clips.
5. Shut off power to machine.
6. Install adjustment clips.
7. Tighten lock nut until a minimum clearance of 0.005 to 0.015-in. (.13 to .38 mm) is obtained between the knife section and hold-down.

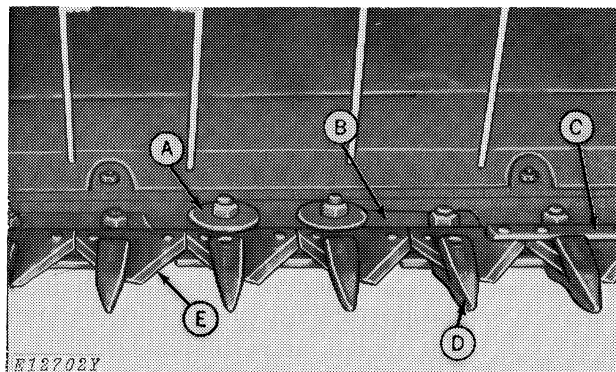
## ADJUSTING NON-CLOG KNIFE HOLD-DOWNS

Knife hold-downs (G) and (H) must keep knife sections (A) from lifting off guards, permitting the knife (B) to slide without binding.

Adjust by loosening or tightening lock nuts (E) until a minimum clearance of 0.005 to 0.015-in. (.13 to .38 mm) is obtained between knife section and hold-down.

## ADJUSTING HOLD-DOWN WASHERS 12 FT. (3.66 M)

1. Hold-down washers (A) must keep knife sections from lifting off the knife guards (D) and permit the knife (E) to slide without bending.
2. The hold-down washers (A) have three wear surfaces on each side. To change wear surface, loosen nut and rotate hold-down washer until new surface contacts the knives. When all wear surfaces have been used on one side, turn hold-down washer (A) over for a new wear surface.



- A—Hold-Down Washer
- B—Wear Plate
- C—Knife Head
- D—Knife Guard
- E—Knife

E12702/MRBRP/AM/170184

## ADJUSTING MOWER BAR FLOAT (Self-Propelled Harvesters)

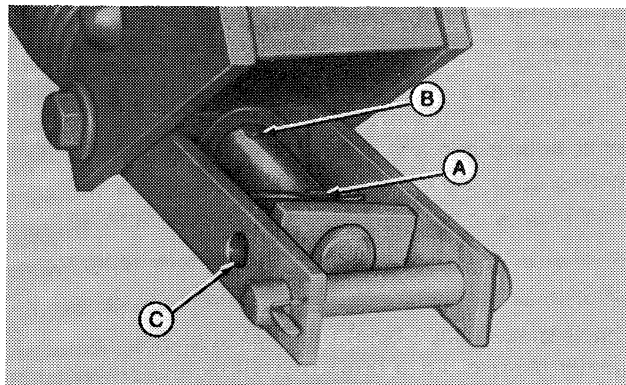
1. Raise mower bar until cylinders are fully extended.
2. Place lock-out pin in operating position (A) to set float.

**IMPORTANT:** Pin must be in operating position (A) for float in field operation. Always install pin in lock-out position (B) when removing spring assemblies or harvesting units.

A—Lock-Out Pin Hole  
(Operating Position)

B—Lock-Out Pin Hole  
(Lock-Out Position)

C—Hole (Spring Tension Gauge)



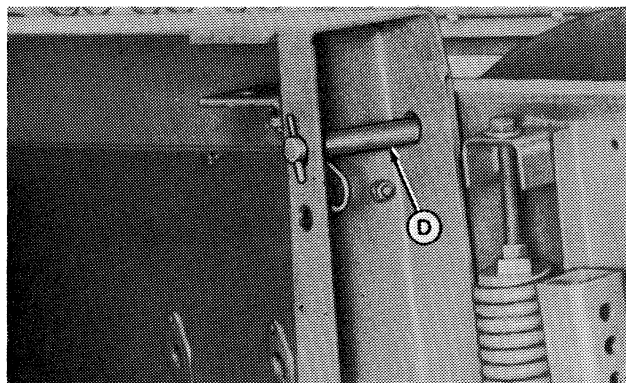
E20260/MRBRP/AN/170184

3. Remove pivot lock-out pin (D) and place in storage hole as shown.

**NOTE:** When operating with the mower bar on the ground, the pivot lock-out pin must be removed to provide lateral float. While transporting or cutting off the ground pivot may be left engaged.

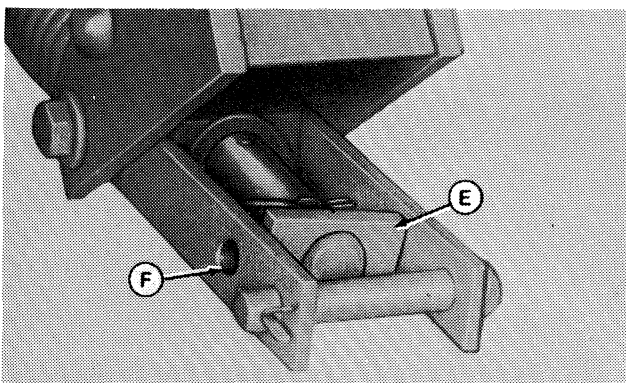
4. Place harvester on level ground.
5. Place gauge shoes at desired setting. See Adjust Mower Bar Gauge Shoes.

D—Pivot Lock-Out Pin



E20424/MRBRP/AO/170184

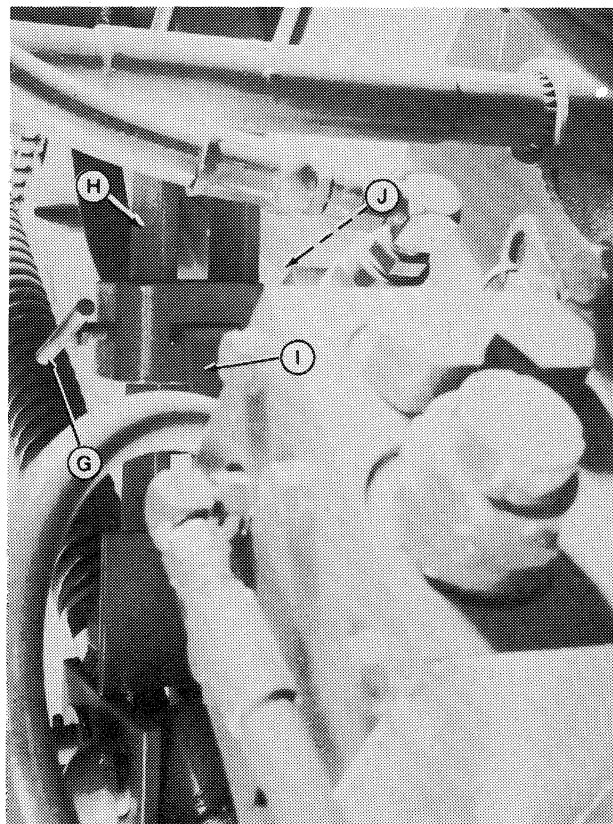
6. Lower hydraulic cylinders until plate (E) on lift shaft is centered in hole (F) on straps. Check left-hand side only.



E20425/MRBRP/AP/170184

7. Set the downstop. Loosen T-bolt clamp (G) located in the left-hand cylinder swing arm (H).

Raise the actuator (I) until it pushes the shut off pin up into the valve (J).



E20426/MRBRP/AQ/170184

8. Adjust spring adjusting nuts, both sides equally, until it takes a 150 pound (667 N) force to lift mower bar at center of knockdown bar.

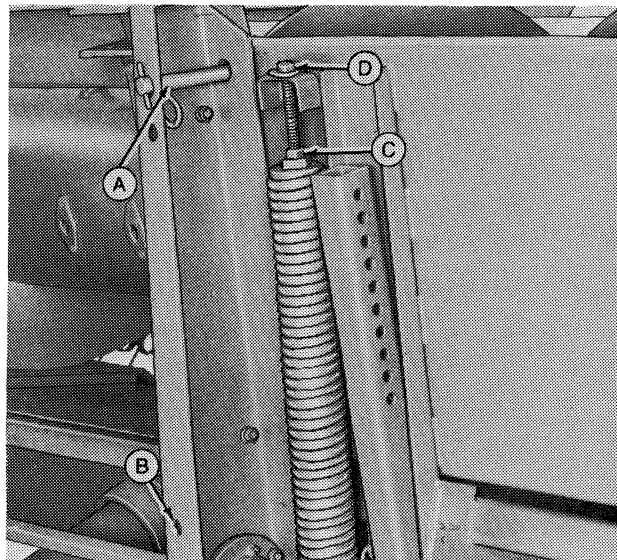
9. Adjust rate of drop. See Hydraulics Section.

10. Raise and lower the mower bar to make sure the downstop stops the spring with plate (E) centered in hole (F). (See Step 6).

MRBRP/AR/170184

## LEVELING MOWER BAR (12-Ft [3.66 m])

1. Park harvester on flat, level surface and raise mower bar approximately 12 inches (305 mm).
2. Be certain main drive wheel tires are properly inflated.
3. Remove pivot lock-out pin (A) and place in storage hole (B).
4. Loosen jam nut (C) and turning the adjusting bolt (D) until the right-hand and left-hand ends of the mower bar are an equal distance above the ground.
5. Tighten jam nut.



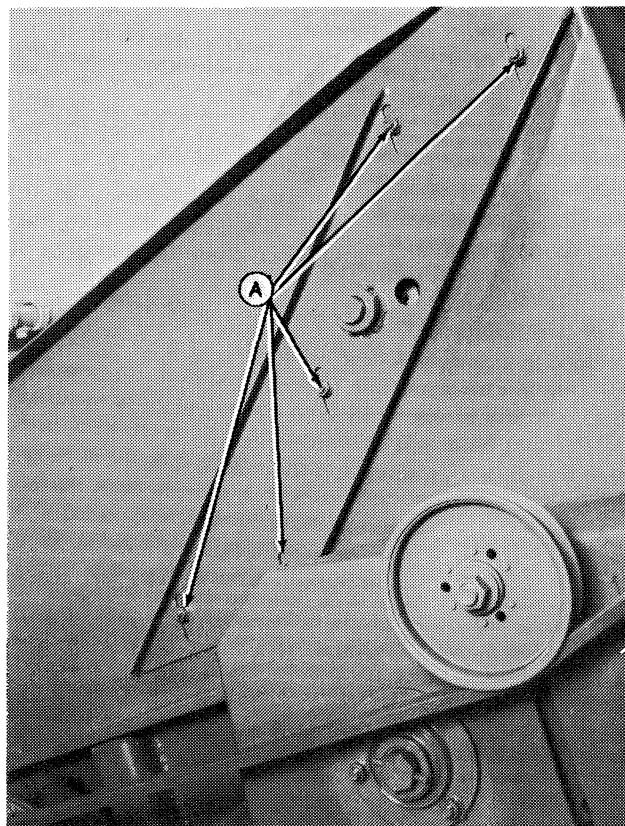
E13906/MRBPR/AS/170184

## ADJUSTING AUGER VERTICALLY (12-Ft [3.66 m])

1. Loosen adjustment bolts (A).
2. Adjust support up or down until auger flighting clears deck by 6 mm (1/4-in.) at widest point.

**NOTE:** The closer the flighting is to the deck, the more aggressive the mower bar will be.

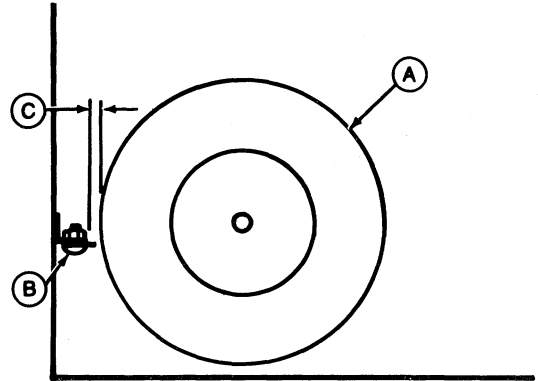
3. Tighten adjustment bolts.
4. Repeat procedure on opposite end.



E22867/MRBPR/AT/170184

## ADJUSTING AUGER STRIPPERS

1. Adjust auger (A) to stripper (B) clearance to 3 mm (1/8-in.) (C). DO NOT exceed 6 mm (1/4-in.) at widest point. Repeat on opposite side.

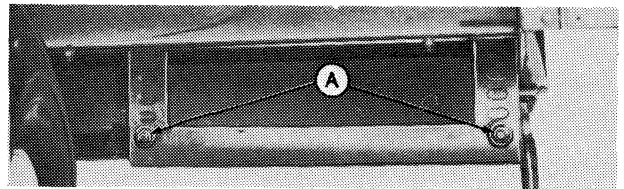


E22866/MRBRP/AU/170184

## ADJUSTING GAUGE SHOES

Gauge shoes help to obtain a uniform cutting height when operating over irregular ground. The gauge shoes are adjustable to give a cutting height from 1 to 4 inches (25 to 102 mm).

Remove adjusting bolts (A) and move up or down to obtain proper cutting height.



E19588/MRBRP/AV/170184

# Storage

## END OF SEASON SERVICE

1. Clean the harvesting unit thoroughly. Chaff and dirt will draw moisture and cause rust.
2. Lubricate the harvesting unit. Grease the threads on adjusting bolts.
3. Paint all parts from which paint has worn.
4. Shelter the harvesting unit in a dry place.
5. Store with support stands lowered on firm, level ground.
6. Order repair parts needed for next season.
7. Remove and wash chains in solvent. Dry well and coat with a heavy oil.
8. Remove tension from all belts.

MRBRQ/A/170184

## BEGINNING OF SEASON SERVICE

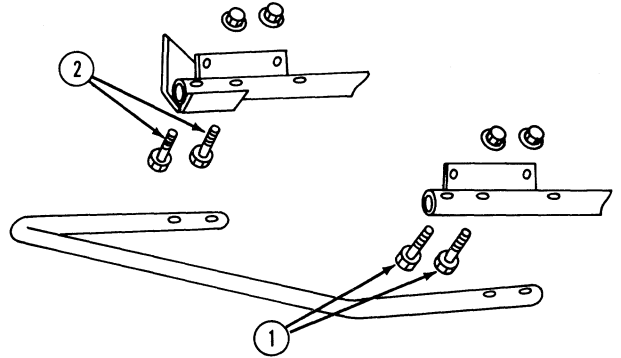
1. Clean the harvesting unit thoroughly.
2. Adjust chains to proper tension.
3. Lubricate harvesting unit completely.
4. Go over complete harvesting unit and see that all bolts are tight and cotter pins are spread.
5. Run harvesting unit at half-speed for a few minutes. Check bearings for overheating or excessive looseness. Be sure slip clutch operates freely.
6. If any major moving parts or bearings have been replaced, machine should be run and checked for overheated bearings.
7. Review your operator's manual.
8. Adjust belts, making sure they have proper tension.
9. Wipe excess heavy oil from drive chains and reinstall. Lubricate with SAE 30W or heavier oil.

MRBRQ/B/170184

# Assembly

## INSTALL CROP DEFLECTOR (6 Ft. [1.83 m])

1. Move crop deflector to the operating position by removing the two cap screws and lock nuts from deflector tube. Extend tube and reinstall cap screws and lock nuts in left-hand mounting. Tighten securely.
2. Remove two carriage bolts and lock nuts that are stored in the right-hand frame panel. Install in two holes on the right-hand deflector tube mounting. Tighten securely.

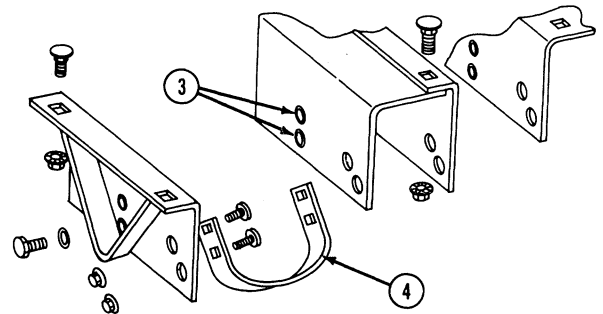


E16197

E16197/MRBRR/A/170184

## ADJUST GAUGE WHEEL

1. Adjust gauge wheel carriage for different cutting heights by sliding the carriage in the frame slots and relocating the wheels in the other axle position. The recommended position to leave a stubble height of 3-in. (76 mm) would be midway in the slots with the axle in the position.



E16198

E16198/MRBRR/B/170184

2. Adjust mud scrapers by loosening four lock nuts and sliding scraper to the desired position. Tighten lock nuts securely. The recommended position is approximately 1/4-in. (6.4 mm) from the tire.

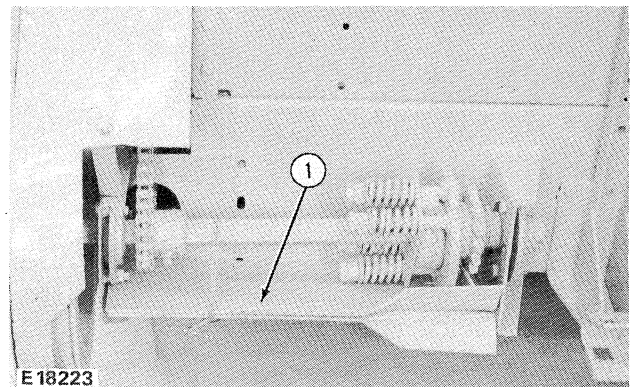
3. Inflate gauge wheel tire to 28 psi (193 kPa) (1.9 bar).

**NOTE:** No auxiliary float spring bundles are needed with this unit.

MRBRR/C/170184

## INSTALL ADJUSTABLE FILLER PLATE

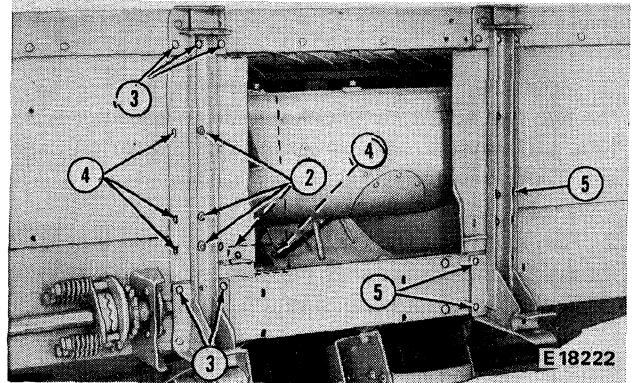
1. Remove filler plate from shipping position.



E 18223

E18223/MRBRR/D/170184

2. Remove existing carriage bolts and lock nuts.
3. Loosen upper three bolts and lower two bolts of attaching brackets.
4. Position both filler plate and stripper extension to 20 inch (508 mm) opening for 3960 (shown) and 3970 and 16 inch (406 mm) for 3940-3950.
5. Reinstall original hardware and use additional bolt provided to secure stripper extension for 3940-3950.
6. Tighten all bolts securely.
7. Repeat steps 1-6 on opposite side.



E18222/MRBRR/E/170184

# Specifications

## Cutterbar

Guards ..... Regular all double forged  
steel non-clog  
Knives (Chrome) ..... Underserrated standard,  
smooth available  
Speed ..... 6 Ft. 1410 strokes per min-  
ute  
12 Ft. 1440 strokes per  
minute  
Type Drive ..... Enclosed, running in oil  
Operating Speed ..... Up to 6 mph (9.7 km/h)

## Reel

Diameter ..... 42 in. (1 067 mm)  
Drive ..... V-belt  
Speed; Variable ..... 44 to 72 rpm  
Tooth Bars ..... 4

## Weight

6-Foot ..... 980 lbs. (444.5 kg)  
12-Foot ..... 2860 lbs. (1 297.3 kg)

## Width of Cut

6-Foot (1 829 mm).... 6 ft. 3 in. (1 905 mm)  
12-Foot (3 658 mm)... 12 ft. 3 in. (3 734 mm)

*(Specifications and design subject to change without notice.)*

MRBRS/A/170184

## SERIAL NUMBERS

When ordering parts, always furnish model and serial number as given on serial number plate. It will assist your John Deere dealer in giving you prompt, efficient service. For your convenience, a space is provided for recording this number.

## SERIAL NUMBER

Mower Bar No. \_\_\_\_\_

Date of Purchase \_\_\_\_\_ 19\_\_\_\_

*(To be filled in by purchaser)*

MRBRS/B/170184

The 6 Ft. (1.83 m) Mower Bar serial number is located on the lower right-hand side of frame.

The 12 Ft. (3.66 m) Mower Bar serial number is located on the left-hand side, above the auger and on the front of the deck sheet.

MRBRS/C/170184

# Index

| <b>A</b>                                                       | <b>Page</b> |
|----------------------------------------------------------------|-------------|
| Adjustable filler plate .....                                  | 55          |
| Adjusting                                                      |             |
| Auger drive chain (6 Ft [1.83 m]) .....                        | 13          |
| Auger speed (12 Ft [3.66 m]) .....                             | 16          |
| Auger strippers .....                                          | 53          |
| Auger vertically .....                                         | 52          |
| Cam followers .....                                            | 34          |
| Gauge shoes .....                                              | 53          |
| Gauge wheel .....                                              | 55          |
| Hold-down washers .....                                        | 49          |
| Knife drive belt (12 Ft [3.66 m]) .....                        | 17          |
| Main drive chain (12 Ft [3.66 m]) .....                        | 15          |
| Mower bar float .....                                          | 50          |
| Non-clog knife hold-downs .....                                | 48          |
| Reel cam .....                                                 | 34          |
| Reel drive belt (6 Ft [1.83 m]) .....                          | 14          |
| Reel drive belt (12 Ft [3.66 m]) .....                         | 17          |
| Reel horizontally (12 Ft [3.66 m]) .....                       | 33          |
| Reel speed (12 Ft [3.66 m]) .....                              | 16          |
| Reel vertically (6 Ft [1.83 m]) .....                          | 32          |
| Reel vertically (12 Ft [3.66 m]) .....                         | 33          |
| Slip clutch .....                                              | 14          |
| Standard cutterbar wear plates .....                           | 45          |
| Tooth bar .....                                                | 35          |
| Wear plates .....                                              | 48          |
| Aligning guards .....                                          | 40          |
| Aligning tool, guard .....                                     | 18          |
| Assembly .....                                                 | 55          |
| Attaching and detaching .....                                  | 8           |
| Attaching harvesting unit to pull-type harvester ..            | 11          |
| Attaching harvesting unit to self-propelled<br>harvester ..... | 9           |
| Attachments .....                                              | 18          |
| Auger drive chain, adjusting (6 Ft [1.83 m]) .....             | 13          |
| Auger drive chain, adjusting (12 Ft [3.66 m]) .....            | 15          |
| Auger speed, adjusting (12 Ft [3.66 m]) .....                  | 16          |
| Auger strippers, adjusting .....                               | 53          |
| Auger vertically, adjusting .....                              | 52          |
| Avoid contact with moving parts .....                          | 4           |
| Axle guards, tractor .....                                     | 18          |
| <b>B</b>                                                       |             |
| Basic machine drive sprocket .....                             | 8           |
| Bearing locking collars .....                                  | 34          |
| Before operating .....                                         | 3           |
| Beginning of season service .....                              | 54          |
| Bolt torque values .....                                       | 29          |

| <b>C</b>                                              | <b>Page</b> |
|-------------------------------------------------------|-------------|
| Cam, adjusting reel .....                             | 34          |
| Cam followers, adjusting .....                        | 34          |
| Cam follower bearings, replacing .....                | 35          |
| Chains .....                                          | 22          |
| Choosing a grease .....                               | 21          |
| Choosing gear case lubricants .....                   | 21          |
| Crop deflector, install .....                         | 55          |
| Crop dividers, tall .....                             | 18          |
| Cutterbar, installing standard (6 Ft [1.83 m]) .....  | 42          |
| Cutterbar, installing standard (12 Ft [3.66 m]) ..... | 44          |
| Cutterbar knife, installing non-clog .....            | 48          |
| Cutterbar knife sections .....                        | 19          |
| Cutterbar knife storage .....                         | 41          |
| Cutterbar parts, installing non-clog .....            | 47          |
| Cutterbar, using non-clog .....                       | 46          |
| Cutterbar wear plates, adjusting standard .....       | 45          |
| Cutting parts, non-clog .....                         | 19          |
| Contents .....                                        | 1           |

| <b>D</b>                      |   |
|-------------------------------|---|
| Detaching and attaching ..... | 8 |
| Do not modify machine .....   | 2 |
| Driving on public roads ..... | 4 |

| <b>E</b>                    |    |
|-----------------------------|----|
| End of season service ..... | 54 |
| Every 10 hours .....        | 22 |
| Every 50 hours .....        | 23 |
| Every 200 hours .....       | 24 |

| <b>F</b>                         |    |
|----------------------------------|----|
| Filler plate, adjustable .....   | 55 |
| Float, adjusting mower bar ..... | 50 |

| <b>G</b>                             |    |
|--------------------------------------|----|
| Gauge shoes, adjusting .....         | 53 |
| Gauge wheel, adjust .....            | 55 |
| Gear case lubricants, choosing ..... | 21 |
| Grease, choosing a .....             | 21 |
| Guards aligning .....                | 40 |
| Guard aligning tool .....            | 18 |

| <b>H</b>                                   |    |
|--------------------------------------------|----|
| Hold-downs, adjusting non-clog knife ..... | 48 |
| Hold-down washers, adjusting .....         | 49 |

|                                                                    | Page |                                                                    | Page |
|--------------------------------------------------------------------|------|--------------------------------------------------------------------|------|
| <b>I</b>                                                           |      | <b>O</b>                                                           |      |
| Install                                                            |      | Observe "Important" messages                                       | 2    |
| Crop deflector                                                     | 55   | Observe lubrication symbols                                        | 20   |
| Drive sprocket and idler on self-propelled harvester               | 8    | Observe safety signs and messages                                  | 2    |
| Knife on both standard and non-clog cutterbars                     | 37   | Operate safely                                                     | 3    |
| Mower bar, preparing to install                                    | 6    | Operating the mower bar                                            | 13   |
| Non-clog cutterbar knife                                           | 48   |                                                                    |      |
| Non-clog cutterbar parts                                           | 47   | <b>P</b>                                                           |      |
| Standard cutterbar (6 Ft [1.83 m])                                 | 42   | Perform lubrication and maintenance at recommended intervals       | 20   |
| Standard cutterbar (12 Ft [3.66 m])                                | 44   | Preparing the harvester                                            | 6    |
|                                                                    |      | Preparing to install mower bar (self-propelled harvester)          | 6    |
| <b>K</b>                                                           |      | Protect against noise                                              | 3    |
| Knife drive belt, adjusting (6 Ft [1.83 m])                        | 13   |                                                                    |      |
| Knife drive belt, adjusting (12 Ft [3.66 m])                       | 17   | <b>R</b>                                                           |      |
| Knife head bushing, replacing                                      | 41   | Reel arm, adjusting                                                | 34   |
| Knife on both standard and non-clog cutterbars, installing         | 37   | Reel drive belt, adjusting (6 Ft [1.83 m])                         | 14   |
| Removing                                                           | 36   | Reel drive belt, adjusting (12 Ft [3.66 m])                        | 17   |
| Knife sections, cutterbar                                          | 19   | Reel horizontally, adjusting (12 Ft [3.66 m])                      | 33   |
| Knife sections on both non-clog and standard cutterbars, replacing | 38   | Reel teeth, replacing (6 Ft [1.83 m])                              | 30   |
| Sharpening                                                         | 38   | Reel teeth, replacing (12 Ft [3.66 m])                             | 30   |
| Knife storage, cutterbar                                           | 41   | Reel vertically, adjusting (6 Ft [1.83 m])                         | 32   |
|                                                                    |      | Removing knife on both standard and non-clog cutterbars            | 36   |
| <b>L</b>                                                           |      | Replacing cam follower bearings                                    | 35   |
| Leveling mower bar                                                 | 52   | Replacing knife head bushing                                       | 41   |
| Locking collars, bearing                                           | 34   | Replacing knife sections on both non-clog and standard cutterbars  | 38   |
| Lubrication and maintenance                                        | 20   | Replacing reel teeth (6 Ft [1.83 m])                               | 30   |
|                                                                    |      | Replacing reel teeth (12 Ft [3.66 m])                              | 30   |
| <b>M</b>                                                           |      | Riveting tool                                                      | 19   |
| Main drive chain, adjusting (12 Ft [3.66 m])                       | 15   |                                                                    |      |
| Maintenance and lubrication                                        | 20   | <b>S</b>                                                           |      |
| Mower bar float, adjusting                                         | 50   | Safety                                                             | 2    |
| Mower bar, leveling                                                | 52   | Sections, cutterbar knife                                          | 19   |
|                                                                    |      | Serial numbers                                                     | 57   |
| <b>N</b>                                                           |      | Service                                                            | 29   |
| Non-clog cutterbar knife, installing                               | 48   | Service harvesting unit safely                                     | 4    |
| Non-clog cutterbar parts, installing                               | 47   | Sharpening knife sections on both non-clog and standard cutterbars | 38   |
| Non-clog cutterbar, using                                          | 46   | Shoes, adjusting gauge                                             | 53   |
| Non-clog cutting parts                                             | 19   | Slip clutch, adjusting                                             | 14   |
| Non-clog knife hold-downs, adjusting                               | 48   | Specifications                                                     | 57   |
|                                                                    |      | Spindles and wheels (pull-type harvester)                          | 7    |
|                                                                    |      | Standard cutterbar, installing (12 Ft [3.66 m])                    | 44   |
|                                                                    |      | Standard cutterbar parts, installing (6 Ft [1.83 m])               | 42   |
|                                                                    |      | Standard cutterbar wear plates, adjusting                          | 45   |

|                                                  | Page |
|--------------------------------------------------|------|
| <b>S</b>                                         |      |
| Storage .....                                    | 54   |
| Storage, cutterbar knife .....                   | 41   |
| Strippers, adjusting auger .....                 | 53   |
| <b>T</b>                                         |      |
| Tall crop dividers .....                         | 18   |
| To avoid injury or death .....                   | 5    |
| Tool, aligning guard .....                       | 18   |
| Tool, riveting .....                             | 19   |
| Tooth bar, adjusting .....                       | 35   |
| Tractor axle guards .....                        | 18   |
| Transporting .....                               | 12   |
| Transporting (pull-type forage harvesters) ..... | 12   |
| Transporting (self-propelled harvesters) .....   | 12   |
| Troubleshooting .....                            | 25   |
| <b>U</b>                                         |      |
| Using non-clog cutterbar .....                   | 46   |
| <b>W</b>                                         |      |
| Washers, adjusting hold-down .....               | 49   |
| Wear plates, adjusting .....                     | 48   |
| Wear plates, adjusting standard cutterbar .....  | 45   |
| Wheels and spindles (pull-type harvester) .....  | 7    |

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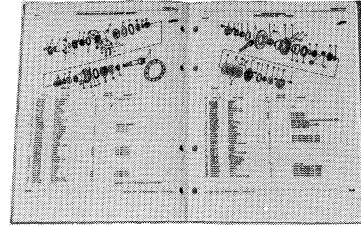
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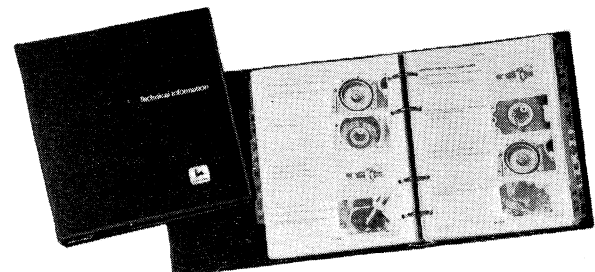
A parts catalog containing exploded view illustrations and lists of all parts is useful when purchasing service parts. Helps identify the correct parts. Useful in assembling and disassembling.

## OPERATOR'S MANUAL



An extra copy of the operator's manual may be important if the copy furnished with your machine is misplaced.

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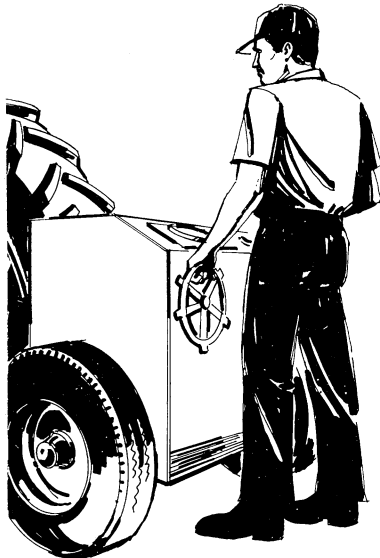
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