

NEW HOLLAND

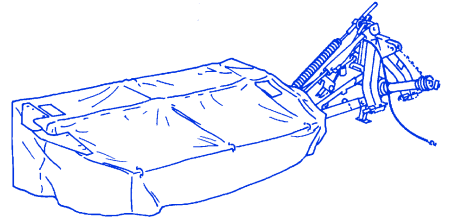
615

616

617

87572899 2/07  
Replaces 87059268

# OPERATOR'S MANUAL



**NEW HOLLAND**

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# TO THE OWNER

This manual contains information concerning the adjustment and maintenance of your New Holland Models 615, 616 and 617 Disc Mowers. You have purchased a dependable machine, but only by proper care and operation can you expect to receive the performance and long service built into this disc mower. Please have all operators read this manual carefully and keep it available for ready reference.

Your New Holland dealer will instruct you in the general operation of your disc mower. (Refer to the "Delivery Report" at the back of this manual.) Your dealer's staff of factory-trained service technicians will be glad to answer any questions that may arise regarding the operation of your disc mower.

Your New Holland dealer carries a complete line of genuine New Holland service parts. These parts are manufactured and carefully inspected to insure high quality and accurate fitting of any necessary replacement parts. Be prepared to give your dealer the model and PIN of the disc mower, when ordering parts. Locate these numbers now and record them below. Refer to the "General Information" section of this manual for the location of the model and PIN of your disc mower.

Model \_\_\_\_\_

Product Identification Number (PIN) \_\_\_\_\_



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 **WARNING** 

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

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 **WARNING** 

**Pictures in this manual may show protective shielding open or removed to better illustrate a particular feature or adjustment.**

**Be certain, however, to close or replace all shielding before operating the machine.**

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## IMPROVEMENTS

CNH America LLC is continually striving to improve its products. We reserve the right to make improvements or changes when it becomes practical and possible to do so, without incurring any obligation to make changes or additions to the equipment sold previously.

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**CALIFORNIA**

**Proposition 65 Warning**

**Diesel engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects, and other reproductive harm.**

**Battery posts, terminals and related accessories contain lead and lead compounds, chemicals known to the State of California to cause cancer and birth defects or other reproductive harm. Wash hands after handling.**

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# PRECAUTIONARY STATEMENTS

## PERSONAL SAFETY

Throughout this manual and on machine decals, you will find precautionary statements (“**DANGER**”, “**WARNING**”, and “**CAUTION**”) followed by specific instructions. These precautions are intended for the personal safety of you and those working with you. Please take the time to read them.



**DANGER**



This word “**DANGER**” indicates an immediate hazardous situation that, if not avoided, will result in death or serious injury. The color associated with Danger is RED.

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**WARNING**



This word “**WARNING**” indicates a potentially hazardous situation that, if not avoided, could result in death or serious injury. The color associated with Warning is ORANGE.

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**CAUTION**



This word “**CAUTION**” indicates a potentially hazardous situation that, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices. The color associated with Caution is YELLOW.

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**FAILURE TO FOLLOW THE “DANGER”, “WARNING”, AND “CAUTION” INSTRUCTIONS MAY RESULT IN SERIOUS BODILY INJURY OR DEATH.**

## MACHINE SAFETY

The precautionary statement (“**IMPORTANT**”) is followed by specific instructions. This statement is intended for machine safety.

**IMPORTANT:** *The word “IMPORTANT” is used to inform the reader of something he needs to know to prevent minor machine damage if a certain procedure is not followed.*

## INFORMATION

**NOTE:** *Instructions used to identify and present supplementary information.*

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# SAFETY

## PRECAUTIONARY STATEMENTS

A careful operator is the best operator. Most accidents can be avoided by observing certain precautions. To help prevent accidents, read the following precautions before operating this machine. This machine should be operated by only by those who are responsible and instructed to do so.

Carefully review the procedures given in this manual. It is important that all operators be familiar with and follow safety procedures.

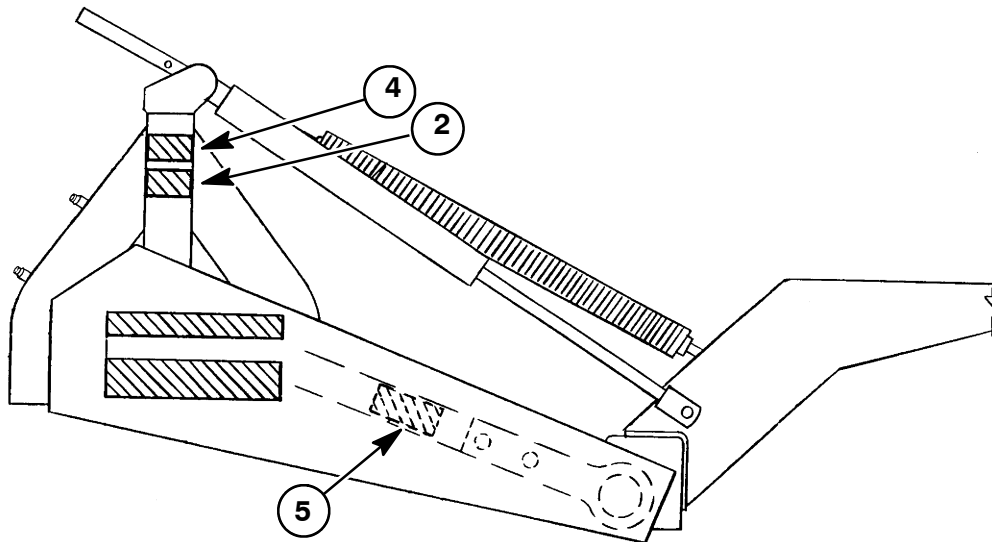
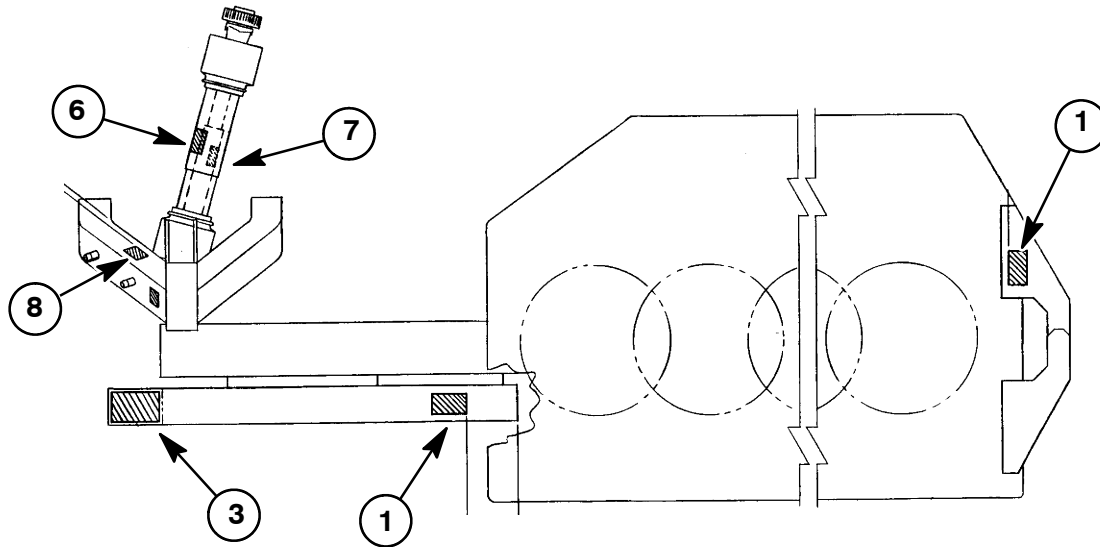
- 1. Before operating the machine, study this Operator's Manual safety messages. Read all safety signs on machine. Clear the area of other persons. Learn and practice safe use of controls before operating. It is your responsibility to understand and follow manufacturer's instructions on machine operation, service, and to observe pertinent laws and regulations. Operator and Repair Manuals may be obtained from your equipment dealer.**
- 2. ALWAYS turn OFF the tractor engine, remove the key, and make sure all motion has stopped before servicing, cleaning, lubrication or making any adjustments on the disc mower.**
- 3. Do not start the machine until you are sure that no tools are lying on it.**
- 4. Do not wear loose fitting clothing, jewelry, watches, or other items that can get caught in moving parts. Tie up long hair that can get caught in moving parts.**
- 5. Do not attempt to remove material from any part of the machine while it is in operation.**
- 6. Do not leave the tractor while the tractor PTO or hydraulic drive is engaged.**
- 7. Always replace or close all shields after making repairs, adjustments, or after lubrication. Shields are used for your protection. Keep them in place!**
- 8. Do not allow anyone to ride on the machine.**
- 9. Replace any safety signs that are missing or cannot be read. Replacement safety signs are available from your local dealer.**
- 10. Hydraulic oil leaking under pressure can penetrate the skin and cause infection or other injury. To prevent personal injury: relieve all pressure, before disconnecting fluid lines or performing work on the hydraulic system. Before applying pressure, make sure all connections are tight and components are in good condition. Never use your hand to check for suspected leaks under pressure. Use a piece of cardboard or wood for this purpose. If injured by leaking fluid, see your doctor immediately.**
- 11. Understand and comply with state and local laws governing highway safety regulations concerning transporting a machine on public roads. Make sure road lamps, safety markings, and all safety devices are installed and in working order.**
- 12. When assembling, operating or servicing the machine, wear protective clothing and personal safety devices that are necessary for the particular procedure. Some personal safety devices that may be necessary are protective shoes, face and/or eye protection, hard hat, heavy gloves, filter mask and hearing protection.**
- 13. Keep the area used for servicing the machine clean and dry. Wet or oily floors are slippery. Wet spots can be dangerous when working with electrical equipment. Be sure all electrical outlets and tools are properly grounded.**

## SAFETY DECALS

The following safety decals have been placed on your machine in the areas indicated. They are intended for your personal safety and for those working with you. Please take this manual and walk around your machine to note the content and location of these warning signs. Review these warning signs


and the operating instructions detailed in this manual with your machine operators.

Keep the decals legible. If they are not, obtain replacements from your authorized dealer. The decal replacement part numbers are listed with each decal.



1

**WARNING**



**STAND CLEAR**

- Disengage PTO and shut off tractor.
- Listen and look for evidence of rotation before lifting cover.
- Rotating cutters may continue to rotate after power is shut off.


**Failure to comply could result in death or serious injury.**

NH 102 772301

Part #86628571

2

**WARNING**



- Set machine to clear obstructions and stones.
- Machine can throw stones and debris toward operator or bystanders.

**Failure to comply could result in death or serious injury.**

NH 102 86624775 B

Part #86624775

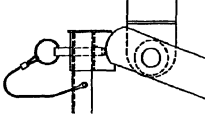
3

**WARNING**

**BEFORE DISMOUNTING MACHINE FROM TRACTOR:**

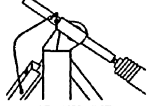
1. RAISE CUTTERBAR SO JACK PIN CAN BE REMOVED FROM FLOTATION ROD.
2. REMOVE JACK PIN FROM FLOTATION ROD AND JACK FROM FRAME.
3. INSTALL JACK AND PIN IN JACK RECEPTACLE.
4. LOWER CUTTERBAR AND JACK BASE TO GROUND.

**FAILURE TO DO SO WILL RESULT IN UNEXPECTED MOTION OF MOWER FRAME WHICH COULD RESULT IN SERIOUS INJURY.**



**AFTER MOUNTING MACHINE TO TRACTOR:**

1. LIFT THREE-POINT LIFT ARMS AND REMOVE JACK AND JACK PIN FROM RECEPTACLE.
2. STOW JACK ON FRAME.
3. RAISE CUTTERBAR UNTIL HOLE IN SPRING ROD SLIDES PAST UPPER PIVOT CASTING.
4. INSTALL JACK PIN IN FLOTATION ROD.



Part #86520230

4

**WARNING**


**Before operating machine, read operator's manual and ALL SAFETY instructions.**

If manual is missing, contact your dealer or service department.

1. Before starting engine or operation, clear area of bystanders.
2. Disengage drives including PTO. Stop engine, wait for all movement to stop before leaving operator's position.
3. Keep all shields in place, keep hands, feet, clothing and hair away from moving parts.
4. Keep riders off machines.
5. Use Slow-Moving Vehicle (SMV) identification emblem and flashing warning lights when operating on highways, except when prohibited by law.
6. Never adjust, lubricate, clean or unplug machine with engine running.

**Failure to comply could result in death or serious injury.**

code 86624301 B



Part #86624301

5

**WARNING**

**STAND CLEAR!**

**ROTATING ELEMENTS MAY CAUSE SERIOUS BODILY INJURY.**

705923

Part #705923



6



Part #849471

7



Part #849472

8



Part #87041061

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## ECOLOGY AND THE ENVIRONMENT

Soil, air, and water are vital factors of agriculture and life in general. When legislation does not yet rule the treatment of some of the substances which are required by advanced technology, common sense should govern the use and disposal of products of a chemical and petrochemical nature.

The following are recommendations which may be of assistance:



- Become acquainted with and ensure that you understand the relative legislation applicable to your country.
- Where no legislation exists, obtain information from suppliers of oils, filters, batteries, fuels, antifreeze, cleaning agents, etc., with regard to their effect on man and nature and how to safely store, use and dispose of these substances. Agricultural consultants will, in many cases, be able to help you as well.

### HELPFUL HINTS

1. Avoid filling fuel tanks using cans or inappropriate pressurized fuel delivery systems which may cause considerable spillage.
2. In general, avoid skin contact with all fuels, oils, acids, solvents, etc. Most of them contain substances which may be harmful to your health.
3. Modern oils contain additives. Do not burn contaminated fuels and or waste oils in ordinary heating systems.
4. Avoid spillage when draining off used engine coolant mixtures, engine, gearbox and hydraulic oils, brake fluids, etc. Do not mix drained brake fluids or fuels with lubricants. Store them safely until they can be disposed of in a proper way to comply with local legislation and available resources.
5. Modern coolant mixtures, i.e. antifreeze and other additives, should be replaced every two years. They should not be allowed to get into the soil but should be collected and disposed of safely.
6. Do not open the air-conditioning system yourself. It contains gases which should not be released into the atmosphere. Your dealer or air conditioning specialist has a special extractor for this purpose and will have to recharge the system properly.
7. Repair any leaks or defects in the engine cooling or hydraulic system immediately.
8. Do not increase the pressure in a pressurized circuit as this may lead to a component failure.
9. Protect hoses during welding as penetrating weld splatter may burn a hole or weaken them, allowing the loss of oils, coolant, etc.

## UNIVERSAL SYMBOLS

As a guide to the operation of your tractor, various universal symbols have been utilized on the instruments, controls, switches, and fuse box. The symbols are shown below with an indication of their meaning.

	Thermostart starting aid		Radio		P.T.O.		Position Control
	Alternator charge	<b>KAM</b>	Keep alive memory	<b>N</b>	Transmission in neutral		Draft Control
	Fuel level		Turn signals		Creepers gears		Accessory socket
	Automatic Fuel shut-off		Turn signals -one trailer		Slow or low setting		Implement socket
	Engine speed (rev/min x 100)		Turn signals -two trailers		Fast or high setting		%age slip
	Hours recorded		Front wind-screen wash/wipe		Ground speed		Hitch raise (rear)
	Engine oil pressure		Rear wind-screen wash/wipe		Differential lock		Hitch lower (rear)
	Engine coolant temperature		Heater temperature control		Rear axle oil temperature		Hitch height limit (rear)
	Coolant level		Heater fan		Transmission oil pressure		Hitch height limit (front)
	Tractor lights		Air conditioner		FWD engaged		Hitch disabled
	Headlamp main beam		Air filter blocked		FWD disengaged		Hydraulic and transmission filters
	Headlamp dipped beam		Parking brake		Warning!		Remote valve extend
	Work lamps		Brake fluid level		Hazard warning lights		Remote valve retract
	Stop lamps		Trailer brake		Variable control		Remote valve float
	Horn		Roof beacon		Malfunction! See Operator's Manual		Malfunction! (alternative symbol) See Operator's Manual
			Warning! Corrosive substance		Pressurized! Open carefully		

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# SECTION 1

## GENERAL INFORMATION

————— **⚠ DANGER ⚠** —————

**To prevent injury to bystanders, do not operate this mower in roadside or municipal mowing. This mower is intended for agricultural use only. Failure to comply will result in death or serious injury.**

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The left and right are determined by standing behind the unit, looking in the direction of travel.

The PIN plate, 1, is located on the left side of the main frame. Record this PIN in the front of this manual.

Give your dealer the model and PIN of your disc mower when ordering parts. Always order genuine factory parts from your authorized dealer.

### BEFORE USING THE NEW MACHINE

1. Thoroughly read and understand this manual. Pay particular attention to all safety precautions.
2. Check all grease fittings and the gearbox oil levels to insure that the machine has been lubricated as recommended in this manual.
3. Check all adjustments to insure that they have been made as detailed in the "Maintenance" section of this manual.

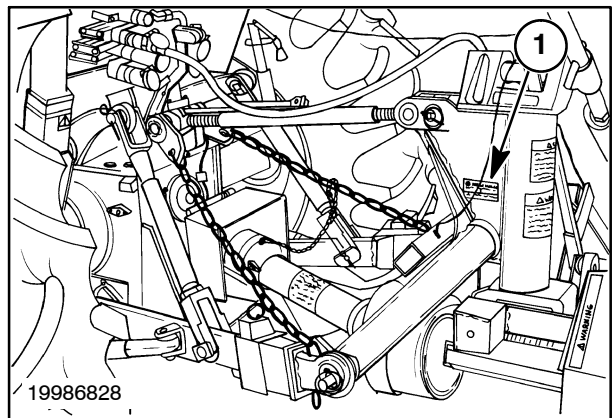
### After 8 Hours of Operation

1. Check for loose hardware and tighten any loose bolts.
2. Visually check the entire cutter bar for leakage and correct any leakage before operation.
3. Check mower drive belts for correct tension and readjust as required.

————— **⚠ WARNING ⚠** —————

**Disengage the PTO, turn off the tractor engine and remove the key. Wait for all movement to stop before leaving the operator's position. Never adjust, lubricate, clean or unplug machine with the engine running. Failure to comply could result in death or serious injury.**

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1

### Tractor Requirements

The **Model 615** disc mower with **PIN 628301 and above** is designed to fit tractors with 540 RPM PTOs with standard ASAE Category I three-point hitches.

The **Model 615** with **PIN below 628300**, the **Model 616**, and the **Model 617** disc mowers are designed to fit tractors with 540 RPM PTOs with standard ASAE Category II three-point hitches.

The tractor must also have adjustable sway bars or a means of locking the lower lift arms from moving sideways.

For the **615 disc mower above PIN 628301**, the tractor front axle weight should be 782 kg (1725 lbs.) or greater prior to attaching the disc mower. This is for tractors with a wheel base range of 1981 mm (78 in) to 2136 mm (84 in). Add additional weight if required to achieve 782 kg (1725 lbs.) or greater.

The tractor must also be equipped with one remote hydraulic circuit; with a minimum of 104 bar (1500 PSI) and a maximum of 193 bar (2800 PSI).

The tractor should have a minimum of 45 horsepower for the **Model 615**, a minimum of 55 horsepower for the **Model 616**, and a minimum of 60 horsepower for the **Model 617**. Insufficient tractor horsepower may cause stripping and poor cutting.

A tractor that does not have adequate ballasting, wheel spacing, and tire spacing can be unstable when the disc mower is operated on an incline.



**WARNING**



**A tractor with an enclosed cab is required when operating a rotary disc cutting machine. Failure to comply could result in death or serious injury.**

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## ATTACHING THE MOWER TO THE TRACTOR

Attaching the mower to the tractor in preparation for operation includes the following:

- Attaching the limit chains
- Attaching the mower to the tractor's three-point hitch
- Fitting the PTO to the tractor and attaching the PTO
- Connecting the mower's hydraulic system
- Removing the jack stand
- Adjusting the limit chains and height of the hitch.

Before attaching the mower's three-point hitch for some models, the hitch pins must be relocated from side-to-side so that the alignment of the mower is proper considering the tractor's tread width.

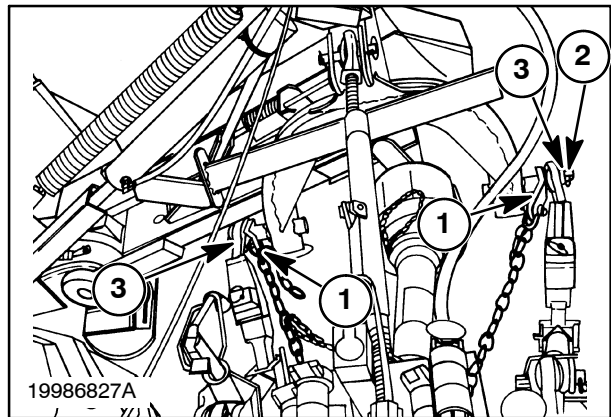
Attachment of the limit chains to the mower hitch differs on some models.

### ATTACHING THE MODEL 615 FOR PIN 628301 AND ABOVE

1. Clean all paint or rust from the hitch pins.
2. Attach to the mower hitch the limit chains for various **615 Model PIN** units as follows:

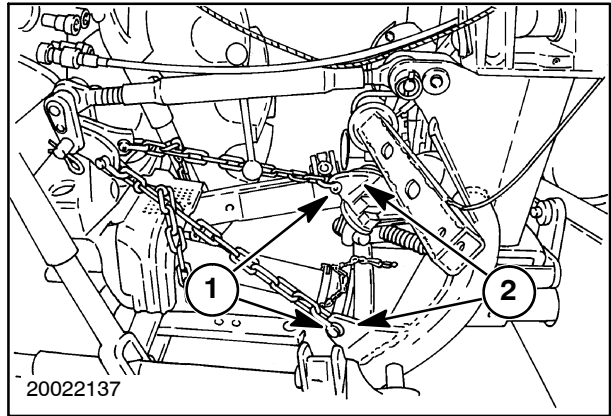
#### **Model 615 Disc Mower with PIN 628301 through 669634**

- Attach the plates, 1, on the end of the limit chains to the outer end of the frame hitch pins, 2. Install the limit chain plates before attaching the tractor lower links, 3.



**Model 615 Above PIN 669635**

- Attach a clevis, 1, to one end of the limit chain. Attach the clevis with a 1/2" x 2" clevis pin to the limit chain tab, 2, on each arm of the hitch. Secure each clevis pin with a 1/8" x 1" cotter pin.



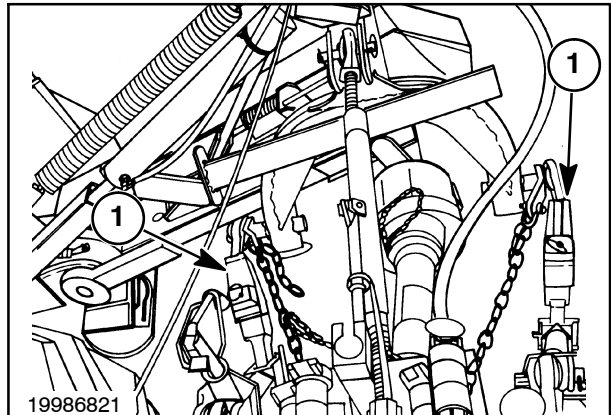
3

**Connect the Mower to the Tractor's Three-point Hitch**

1. Level the tractor's 3-point hitch lift arms.

**IMPORTANT:** On tractors with Category II lift links, install the Category II bushings that were included with the mower onto the hitch pins.

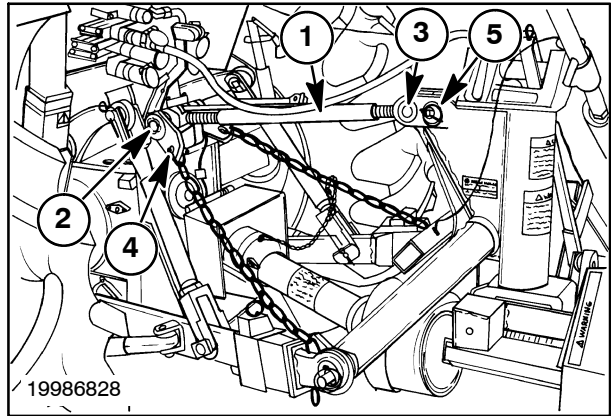
2. Back the tractor to the mower and attach the lower links, 1, to the mower frame hitch pins. Secure the links with linchpins installed from the top.



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3. Attach the top link, 1, to the tractor's upper hookup bracket, 2, using the pin provided with the tractor top link.
4. Attach the other end of the top link to the mower hookup bracket, 3, in the front hole using the pin provided with the disc mower.
5. Attach the limit chain plates to the tractor at the top link mounting position, 4, with the pin provided. The length of the limit chain will be adjusted in later steps to set the minimum height above ground of the hitch.

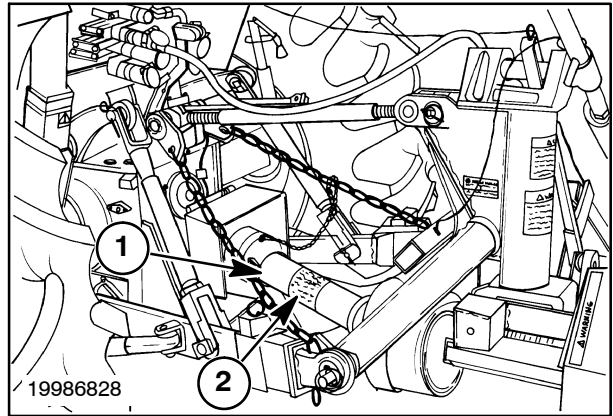
**NOTE:** The top link can be mounted in the rear hole, 5, on the mower to allow for greater top link length range.



5

**Attaching the PTO to the Tractor**

The PTO assembly must be fitted to the tractor that powers the mower. The PTO telescoping shield and drive tubes must be long enough to overlap by at least 102 mm (4 in) while the mower and tractor combination flex to a maximum distance from one another. At the same time, the tubes, 1 and 2, must be short enough so that they do not bottom out (where the end of one tube contacts the base of the other tube before the tubes are completely collapsed).

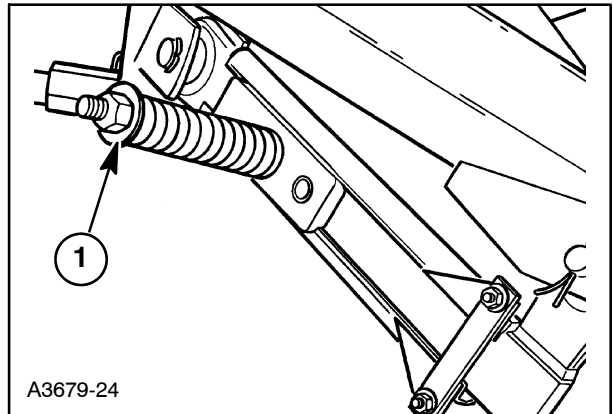


6

The assembly must have sufficient overlap so that the tubes do not separate when the breakaway system, 1, operates.

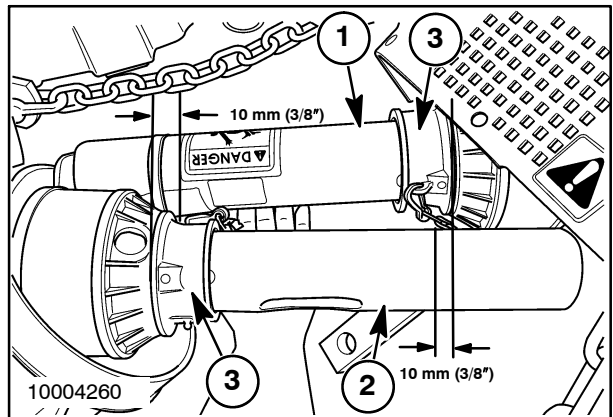
**IMPORTANT:** Most tractors will require the PTO to be shortened for **615 Disc Mower models PIN 628301 and above.**

To adjust the PTO assembly length to fit the tractor, do the following:



7

1. Separate the front part of the shaft, 1, from the rear part of the shaft, 2.
2. Connect the front half of the PTO assembly to the tractor's PTO drive shaft.
3. Connect the rear half of the PTO assembly to the disc mower's input shaft.
4. Raise and lower the machine to find the position where the distance between the tractor's drive shaft and the mower's input shaft are the shortest.
5. Hold the shafts side-by-side and mark the length to provide 10 mm (3/8 in) clearance between the ends of the shaft and the yoke, 3.

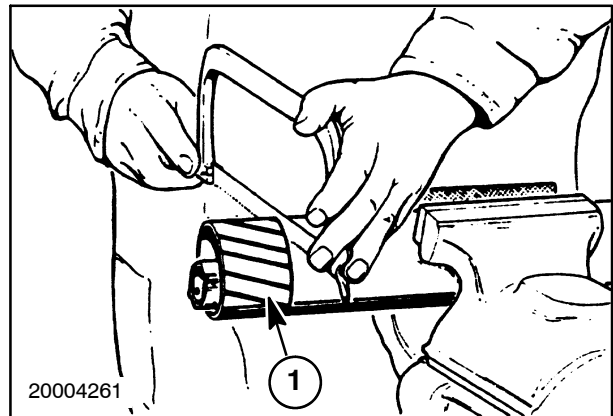


8



## SECTION 1 - GENERAL INFORMATION

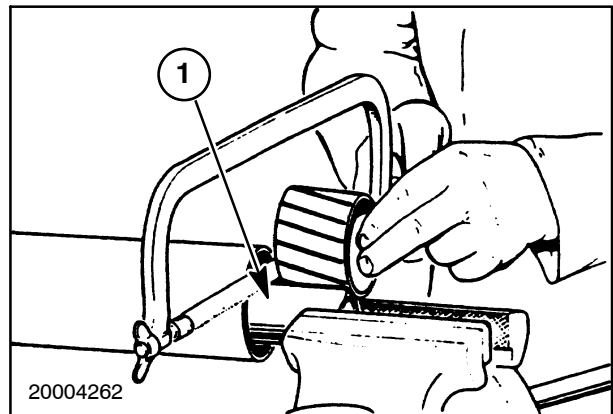
6. On the front and the rear plastic shield tubes, measure the length from the end of each tube to the inner mark on the tube to be cut off. The length measured on each shaft should be about the same.
7. Remove the front and rear shafts from the hookups.
8. Place the front and rear shafts in turn in a vise and cut off an equal length, 1, from each plastic shield tubes.



9

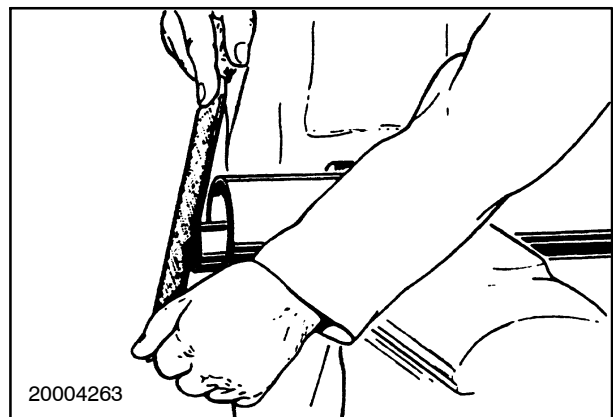
9. Shorten the PTO telescoping shafts, 1, the same amount that the plastic shields were shortened.

**IMPORTANT:** Remove the grease sleeve from the rear half of the PTO shaft before shortening the tube.



10

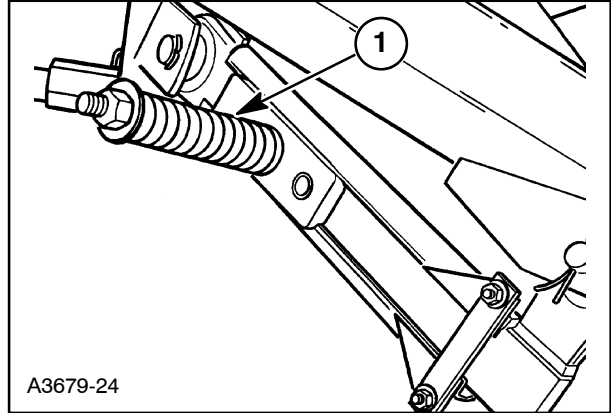
10. Remove the burrs from the shaft ends with a file or grinder and remove all metal chips and filings from the shafts.
11. Apply grease to the inside of the outer telescoping tube before assembly.
12. Reinstall the grease sleeve on the end of the rear half of the PTO shaft.
13. Reassemble the front and rear parts of the PTO.
14. Reattach the front part of the PTO to the tractor and reattach the rear part of the PTO to the mower.



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**IMPORTANT:** The PTO set must be checked out prior to operation as follows:

- Check to be sure the shafts do not bottom out by lifting and lowering the hitch and observing the free movement of the tubes when fully collapsed.
- Operate the breakaway, 1, to be sure the shafts do not separate. This can be done by first loosening and then releasing the breakaway latch and then physically forcing the cutter bar rearward with a prybar or by other means. Retighten the spring to the correct length (See the “Breakaway Latch” section in Maintenance in this manual).

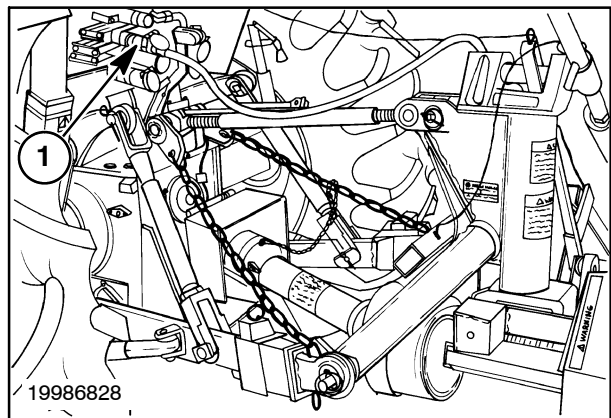


12

**Connect the Mower Hydraulic System**

Connect the hydraulic hose to the tractor, preferably to a valve section that has a float position. Select the appropriate port, 1, to allow engaging the float position when the hitch is lowered.

**IMPORTANT:** Check the tractor operator's manual for instructions on which outlet to use for single acting cylinders.



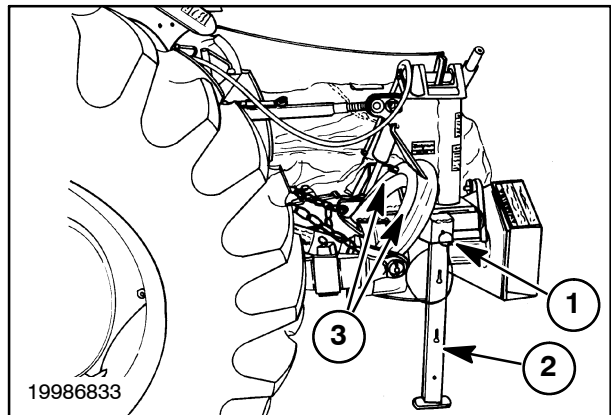
13

**Remove the Jack Stand**

Remove the jack stand as follows:

1. Raise the mower with the tractor's hydraulically controlled three-point hitch system.
2. Remove pin, 1, and remove the jack stand, 2.
3. Attach the jack stand to the mower frame by sliding the jack stand's slots over the lugs, 3, on the frame.

**NOTE:** The pin that is attached to the jack stand with a cable will be installed in the flotation system later.



14

**Adjusting the Limit chains and height of the hitch**

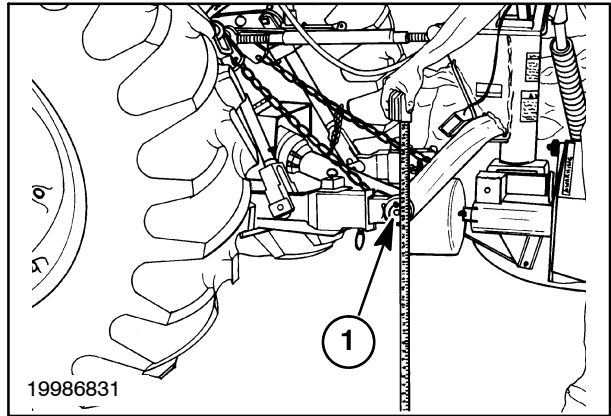
Set the limit chain length and the height of the hitch pins as follows:

1. Level the tractor lower lift links from side-to-side. Adjust and lock the sway bars to remove as much side movement as possible.

**IMPORTANT:** The tractor lower links should be positioned straight behind the tractor, or have minimal offset. Excessive offset in either direction may cause damage to the mower PTO drive shaft because of excessive operating angles or contact with hitch pins. This can also put “lead” or “lag” into the cutter bar, resulting in reduced cutting width and proper breakaway performance.

2. Adjust the limit chain length so that when the mower is supported by the limit chains that the hitch pins, 1, are a minimum of 609 mm (24 in) above the ground.

**IMPORTANT:** If the high stubble kit is installed on the mower, adjust the frame height to 660 mm (26 in) from the ground to provide adequate flotation.

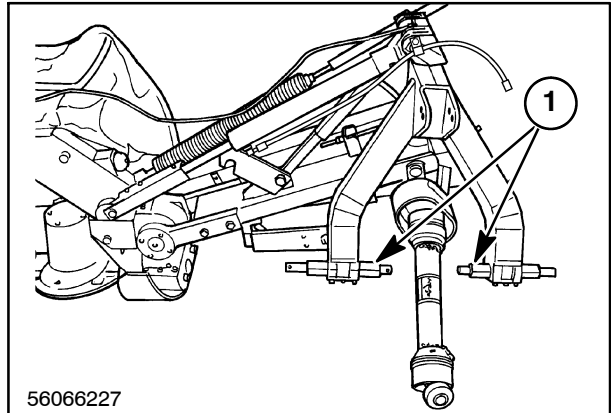


15

**ATTACHING THE MODEL 615 BELOW PIN 628300, AND MODELS 616 AND 617**

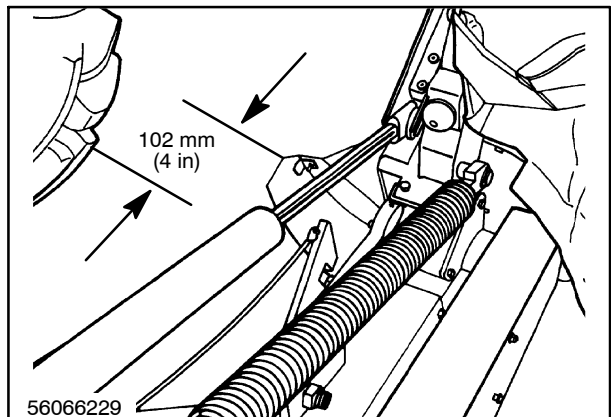
**Adjust the Hitch Pins for the Tractor’s Tread Width**

Before attaching the mower to the tractor, the mower’s hitching alignment must be adjusted to match the tractor. Depending on the size of the tractor and its wheel spacing, it may be necessary to move the hex-shaped lower lift pins, 1.



16

**IMPORTANT:** Ideally a 102 mm (4 in) clearance should be held between the outside edge of the tractor tire and the right edge of the mower’s inner shield.



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## SECTION 1 - GENERAL INFORMATION

The hex-shaped hitch pins mounted on the bottom of the main frame arms can be adjusted to position the mower behind the tractor at different alignments to account for different tread widths of the tractor.

To reposition the hitch pins to the proper location, do the following:

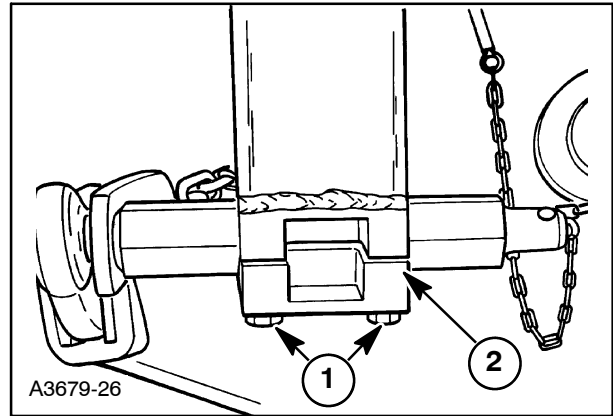
1. Loosen the four clamp bolts, 1, on each main frame arm until the hitch pins can be moved.
2. Retighten the clamp bolts evenly so that both sides of the clamp block, 2, have equal clearance to the main frame arm.

**IMPORTANT:** Always position the hitch pins so that the long round pin is toward the outside of the main frame. Do not position the long round pins inside the main frame, or damage to the mower PTO drive shaft could occur.

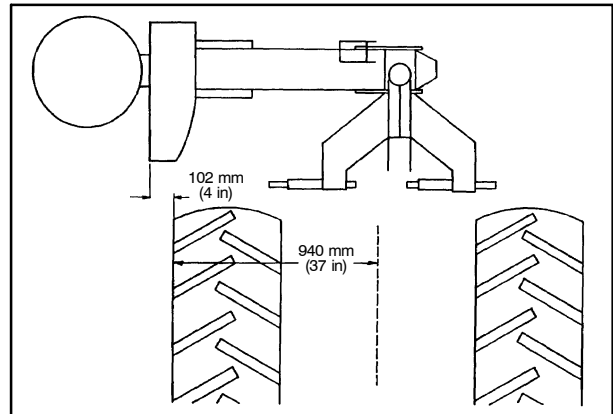
3. Measure from the center of the tractor to the right side of the right tire.
4. Position the hitch pins for various width treads:
  - For tractors that measure 940 mm (37 in) or less, place both hitch pins to the right so that only the round pin protrudes on the left side of the main frame arms. This will position the mower towards the left, moving the cutter bar closer to the right side tractor tire.

**IMPORTANT:** the tractor lower link arms may need to be offset slightly to the left to prevent the mower PTO shaft from contacting the inner end of the left hitch pin.

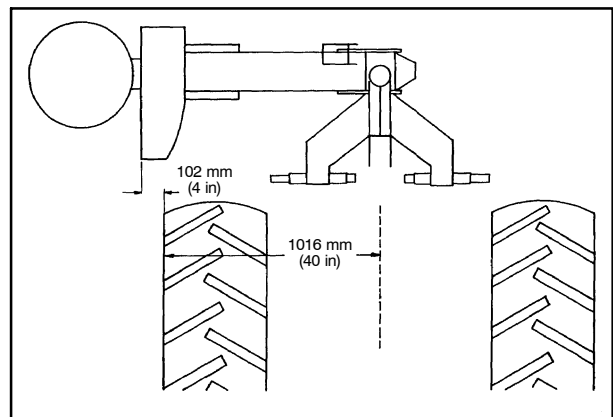
- For tractors that measure 1016 mm (40 in), center the hitch pins in the main frame arm.



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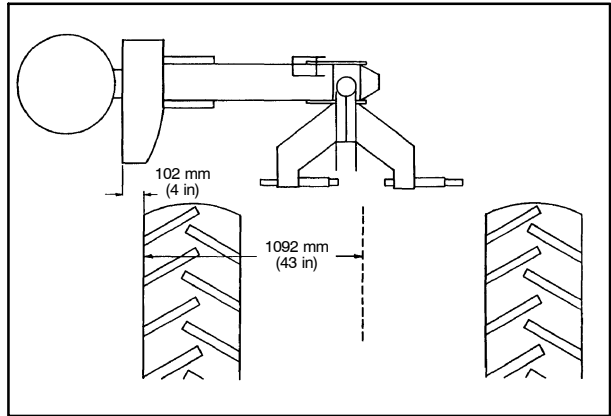


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- For tractors that measure 1092 mm (43 in), position the hitch pins to the left so that only the round pin protrudes on the right side of the main frame arms. This will position the mower towards the right, away from the right side tractor tire.

**IMPORTANT:** the tractor lower link arms may need to be offset slightly to the right to prevent the mower PTO shaft from contacting the inner end of the right hitch pin.

- For tractors that measure more than 1092 mm (43 in), the tractor lower link arm sway bars or the check chains can be adjusted to further offset the mower to the right, or the right side tire should be moved inward.

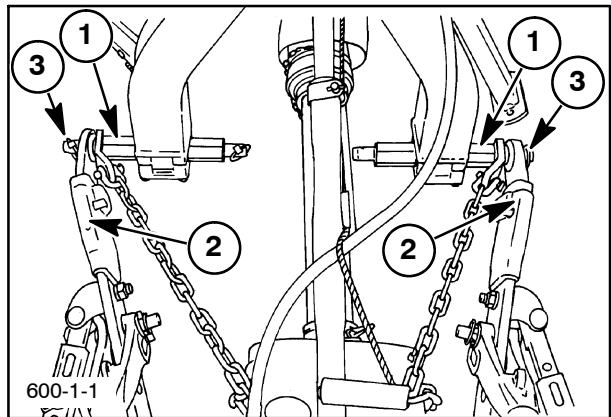


**IMPORTANT:** The tractor lower links should be placed straight behind the tractor, or the links location should provide minimal offset. Excessive offset in either direction may cause damage to the mower PTO drive shaft due to excessive operating angles or contact with hitch pins. The offset could also put "lead" or "lag" into the cutter bar, resulting in reduced cutting width and proper breakaway performance.

**Attaching the mower to the tractor's three-point hitch**

Attach the mower to the tractor's three-point hitch as follows:

1. Clean all paint and rust from the hitch pins, 1.
2. Attach the plate on the end of the limit chains to the inner or outer end of the frame hitch pins, 1, as required to clear obstructions on the tractor. If installing on the outer end of the hitch pins, install the limit chain plates before attaching the tractor lower links.
3. Back the tractor to the mower and attach the lower links, 2, to the outer end of the frame hitch pins. Secure the links with linchpins, 3. Install the linchpins from the top down.



**IMPORTANT:** Attach the tractor lower links to the outside pins only. Do not attach the lower links to the pins to the inner side of the mower frame or damage to the mower PTO drive shaft could occur.

4. Attach the top link to the tractor, 1, using the pin provided with the tractor top link.
5. Attach the top link to the mower, 2, in the front hole using the pin provided with the mower.

**NOTE:** If necessary, the top link can be mounted in the rear hole on the mower to allow greater top link length range.

6. Attach the limit chain plates to the tractor at a top link mounting position, 3, with the pin provided. The limit chain length will be adjusted in following steps for the minimum height of the hitch pins above ground.

**IMPORTANT:** If the limit chains interfere with or could damage the tractor PTO shield, relocate the limit chain plates to the opposite end of the mower frame hitch pins or attach to a different location on the tractor.

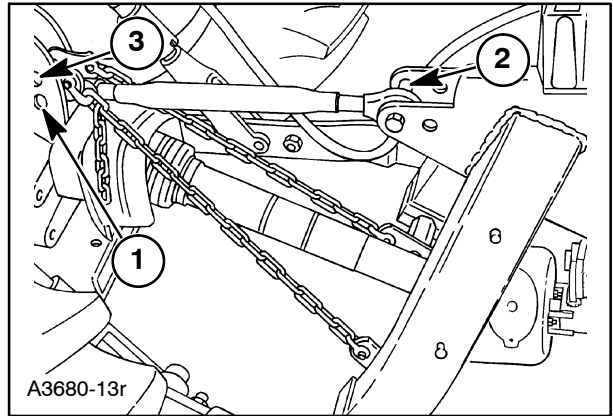
**IMPORTANT:** It may be necessary to position the tractor drawbar to the side or remove it to prevent interference with the check chains or PTO shaft.

**Attaching the PTO to the Tractor**

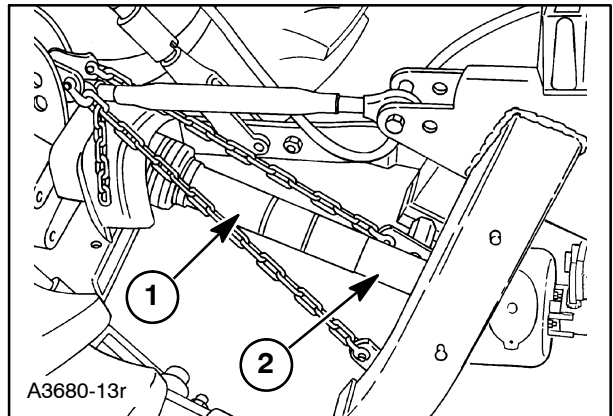
The PTO assembly must be fitted to the tractor that powers the mower. The PTO telescoping shield and drive tubes must be long enough to overlap by at least 102 mm (4 in) while the mower and tractor combination flex to a maximum distance from one another. At the same time, the tubes, 1 and 2, must be short enough so that they do not bottom out, where the end of one tube contacts the base of the other tube before the tubes are completely collapsed.

The assembly must have sufficient overlap so that the tubes do not separate when the breakaway system, 1, operates.

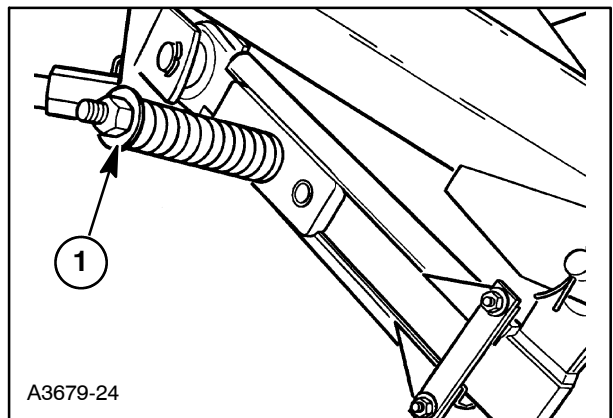
**NOTE:** Most tractors will require the PTO to be shortened for **615 Disc Mower models PIN 628301 and above.**



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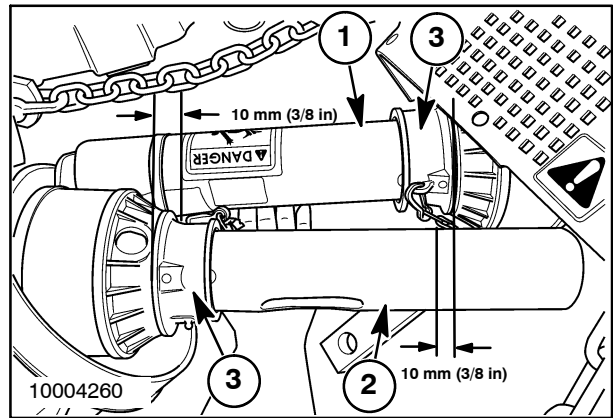


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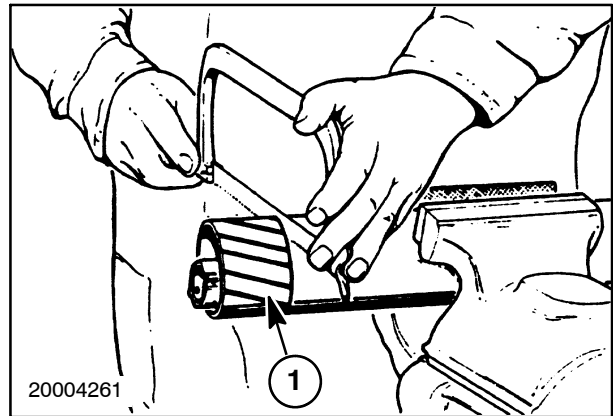
## SECTION 1 - GENERAL INFORMATION

To adjust the PTO assembly length to fit the tractor, do the following:

1. Separate the front part of the shaft, 1, from the rear part of the shaft, 2.
2. Connect the front half of the PTO assembly to the tractor's PTO drive shaft.
3. Connect the rear half of the PTO assembly to the disc mower's input shaft.
4. Raise and lower the machine to find the position that where the distance between the tractor's drive shaft and the mower's input shaft will be the shortest.
5. Hold the shaft's side-by-side and mark the length to provide 10 mm (3/8 in) clearance between the ends of the shaft and the yoke, 3.
6. On the front and rear plastic shield tubes, measure the length from the end of each tube to the inner mark on the tube to be cut off. The length measured on each shaft should be about the same.
7. Remove the front and rear shafts from the hookups.
8. Place the front and rear shafts in turn in a vise, cut off an equal length of the front and rear plastic shield, 1, as determined in step 6.



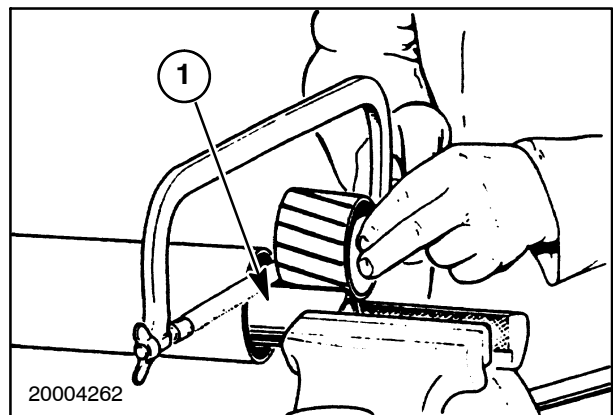
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9. Shorten the PTO telescoping shafts, 1, the same amount that the plastic shields were shortened.

**IMPORTANT:** Remove the grease sleeve from the rear half of the PTO shaft before shortening the tube.

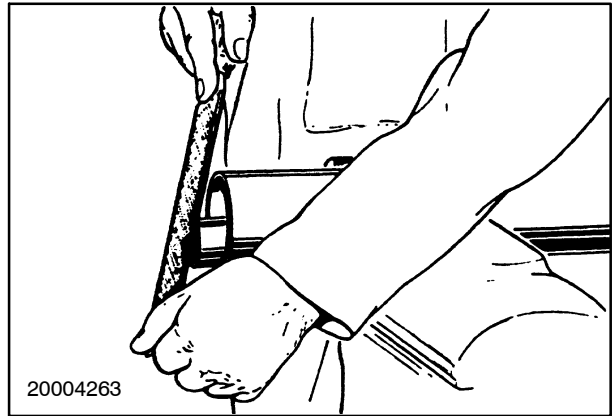


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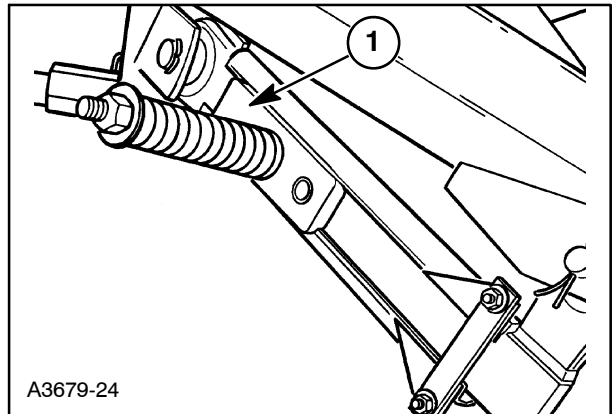
10. Remove the burrs from the shaft ends with a file or grinder and remove all metal chips and filings from the shafts.
11. Apply grease to the inside of the outer telescoping tube before assembly.
12. Reinstall the grease sleeve on the end of the rear half of the PTO shaft.
13. Reassemble the front and rear parts of the PTO.
14. Reattach the front part of the PTO to the tractor and reattach the rear part of the PTO to the mower.

**IMPORTANT:** The PTO set must be checked out prior to operation as follows:

- Check to be sure the shafts do not bottom out by lifting and lowering the hitch and observing the free movement of the tubes when fully collapsed.
- Operate the breakaway, 1, to be sure the shafts do not separate. This can be done by first loosening and then releasing the breakaway latch and then physically forcing the cutter bar rearward with a prybar or by other means. Retighten the spring to the correct length (See the "Breakaway Latch" section in Maintenance in this manual).



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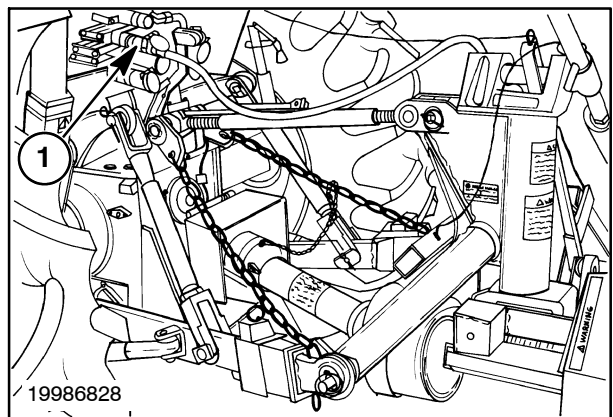


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**Connect the Mower Hydraulic System**

Connect the hydraulic hose to the tractor, preferably to a valve section that has a float position. Select the appropriate port, 1, to allow engaging the float position when the hitch is lowered.

**IMPORTANT:** Check the tractor operator's manual for instructions on which outlet to use for single acting cylinders.



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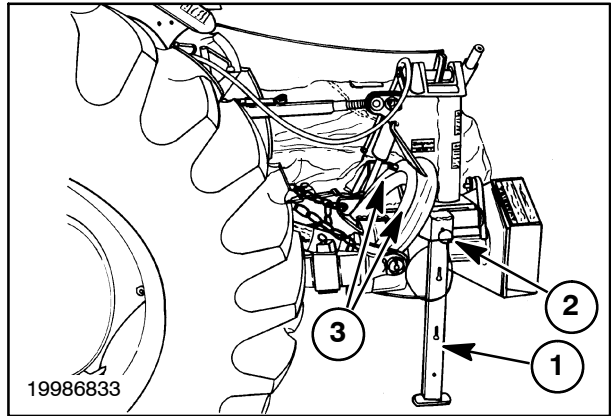


**Remove the Jack Stand**

Remove the jack stand as follows:

1. Raise the mower with the tractor's hydraulically controlled three-point hitch system.
2. Remove pin, 1, and remove the jack stand, 2.
3. Attach the jack stand to the mower frame by sliding the jack stand's slots over the lugs, 3, on the frame.

**NOTE:** The pin that is attached to the jack stand with a cable will be installed in the flotation system later.



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**Adjusting the Limit chains and height of the hitch**

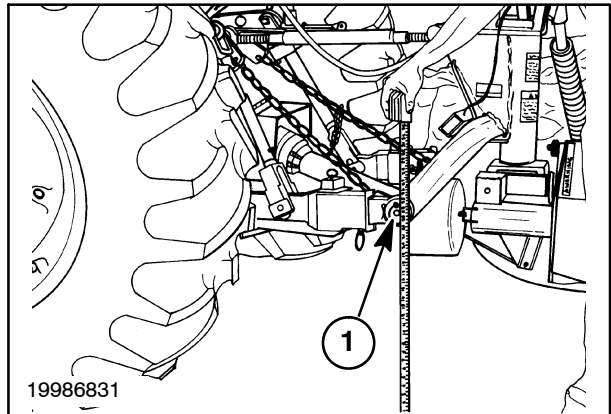
Set the limit chain length and the height of the hitch pins as follows:

1. Level the tractor lower lift links from side-to-side. Adjust and lock the sway bars to remove as much side movement as possible.

**IMPORTANT:** The tractor lower links should be positioned straight behind the tractor, or have minimal offset. Excessive offset in either direction may cause damage to the mower PTO drive shaft because of excessive operating angles or contact with hitch pins. This can also put "lead" or "lag" into the cutter bar, resulting in reduced cutting width and proper breakaway performance.

2. Adjust the limit chain length so that when the mower is supported by the limit chains that the hitch pins, 1, are a minimum of 457 mm (18 in) above the ground.

**IMPORTANT:** If the high stubble kit is installed on the mower, adjust the frame height to 508 mm (20 in) from the ground to provide adequate flotation.



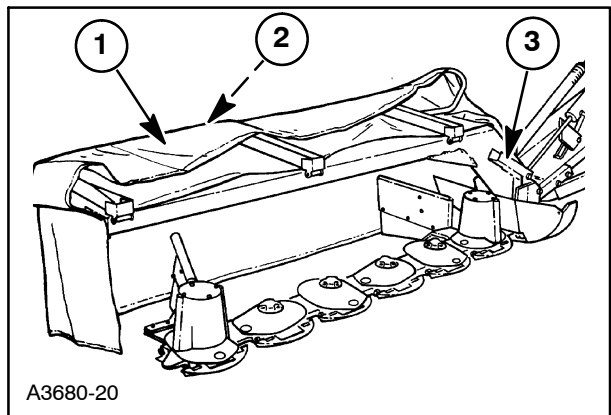
33

**SETTING UP THE FLOTATION SYSTEM**

To ready the flotation system for operation, do the following:

**NOTE:** Optional left and right swathboards are shown.

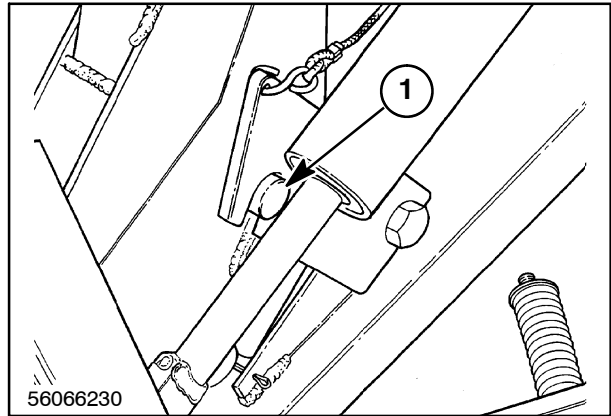
1. Fold the front half of the cutter bar curtain, 1, rearward.
2. Secure the curtain with the rubber tie strap, 2.
3. Flip the cutter bar up-stop channel, 3, toward the cutter bar and against the brace.



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4. Raise the cutter bar with the tractor hydraulics until the transport latch, 1, is engaged.

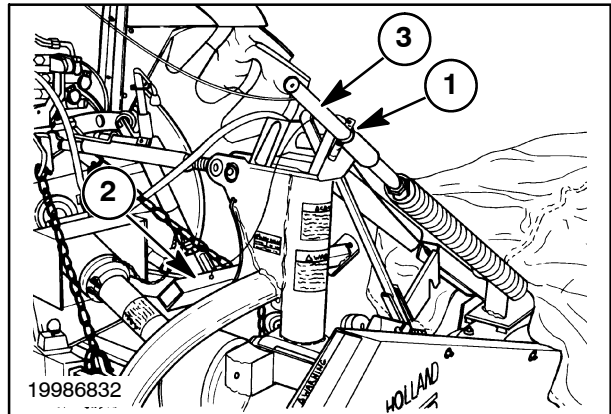
**IMPORTANT:** Before raising the cutter bar with the hydraulic cylinder, make sure there is adequate clearance between the machine and the tractor. Lengthen the top link of the three point hitch if more clearance is needed.



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5. Install the pin, 1, that is attached to the jack stand, 2, into the upper flotation spring rod, 3. The pin has two detent balls and is properly installed when the detents are on either side of the flotation spring rod.

**IMPORTANT:** If the pin is inserted too far, the retaining ring can be knocked off and the pin can be lost. Flotation will be lost if the pin comes out of the rod.



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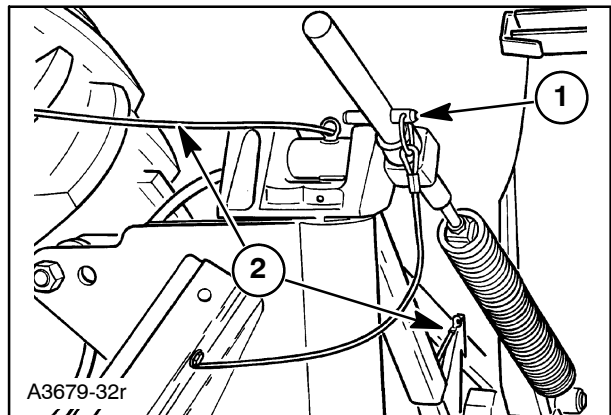
## LOWERING THE CUTTER BAR FOR FIELD OPERATION

**IMPORTANT:** Be sure that the flotation pin, 1, is installed in the spring rod.

**IMPORTANT:** Be sure the limit chains are attached and adjusted as explained in the section "Attaching the Mower to the Tractor" in this section.

To lower the cutter bar for field operation, do the following:

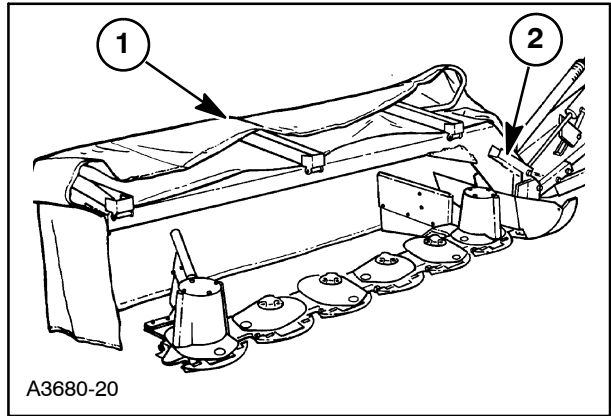
1. Pull the transport latch release rope, 2. Raise or lower the lift cylinder with the tractor hydraulics until the latch can be released.



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2. Lower the mower into the operating position and place the tractor valve in the float position. This will allow the mower to follow the ground properly. Be sure the up-stop channel, 2, is positioned over the lift cylinder rod to limit the lift height while the curtain is down.
3. Unhook the curtain transport tie-down strap, 1, and fold the curtain forward into the mowing position.

**NOTE:** Optional left and right swathboards are shown.



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**⚠ WARNING ⚠**

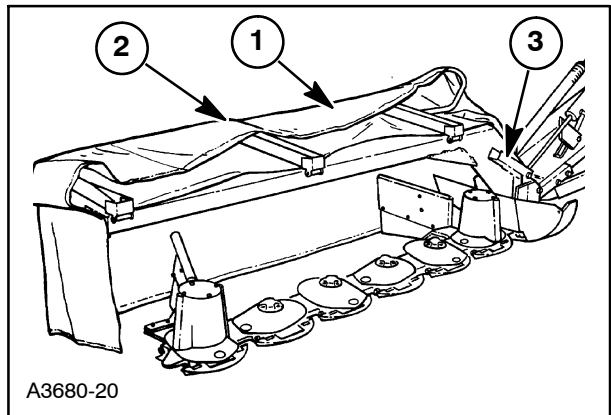
**Never operate the mower with the curtain folded rearward in the transport position. Failure to comply could result in death or serious injury.**

**TRANSPORTING THE MOWER**

To prepare the mower for transporting, do the following:

1. Fold the front half of the cutter bar curtain, 1, rearward.
2. Secure the curtain with the rubber tie strap, 2.
3. Flip the cutter bar up-stop channel, 3, toward the cutter bar and against the brace.

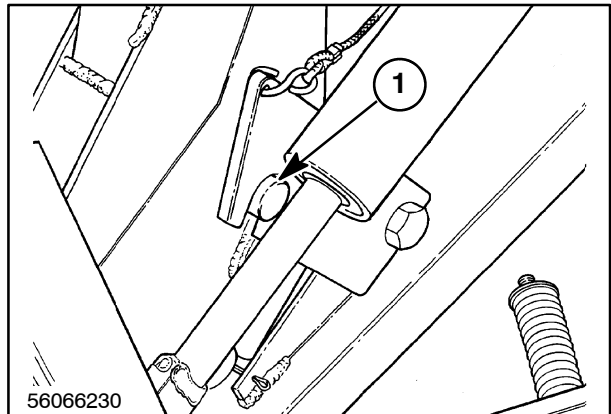
**NOTE:** Optional left and right swathboards are shown.



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4. Raise the cutter bar with the tractor hydraulics. Raise it high enough to engage the transport latch, 1.

**IMPORTANT:** Before raising the cutter bar with the hydraulic cylinder, make sure there is adequate clearance between the machine and the tractor. The top link may have to be lengthened for the cutter bar to clear the cab.



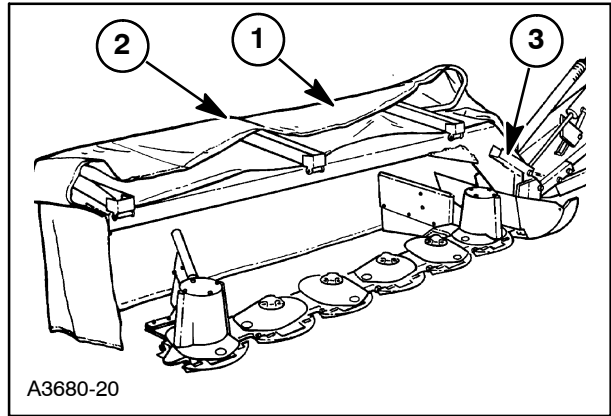
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## REMOVING THE MOWER FROM THE TRACTOR

To remove the mower from the tractor, do as follows:

1. Fold the front half of the cutter bar curtain, 1, rearward.
2. Secure the curtain with the rubber tie strap, 2.
3. Flip the cutter bar up-stop channel, 3, toward the cutter bar and against the brace.

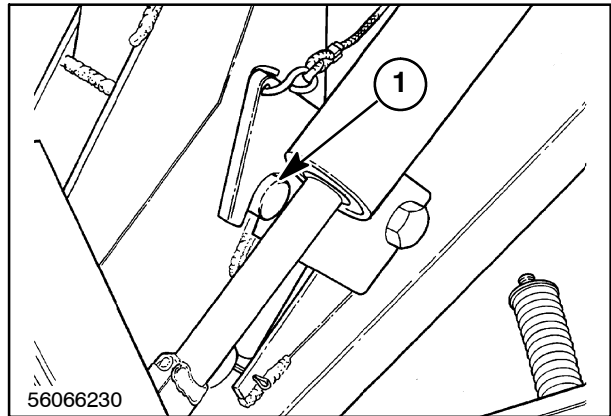
**NOTE:** Optional left and right swathboards are shown.



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1. Raise the cutter bar with the tractor hydraulics high enough to engage the transport latch, 1.

**IMPORTANT:** Before raising the cutter bar with the hydraulic cylinder, make sure there is adequate clearance between the machine and the tractor. The top link may have to be lengthened for the cutter bar to clear the cab.

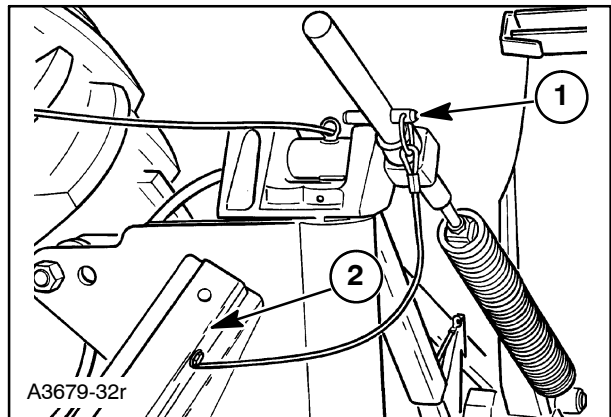


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2. Remove the flotation spring pin, 1, from the spring rod.
3. Remove the jack stand, 2, from the storage position.

**⚠ WARNING ⚠**

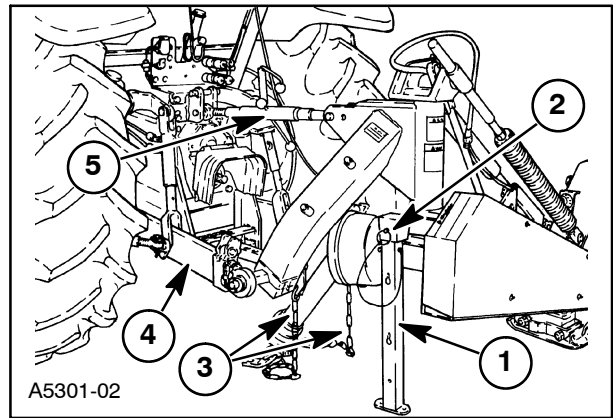
**Disconnect the flotation system before attempting to remove the disc mower from the tractor. Failure to disconnect the flotation system may result in sudden main frame move. Failure to comply could result in death or serious injury.**



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## SECTION 1 - GENERAL INFORMATION

4. Raise the tractor three-point hitch high enough to install the jack, 1, in the lift frame mount and install the pin, 2, to secure it.
5. Disconnect the limit chains, 3, from the rear of the tractor.
6. Lower the cutter bar to the ground in the mowing position and lower the tractor three-point high so that the mower frame is sitting on the jack as shown.
7. Loosen, unlock, or remove the tractor sway bars or equivalent.
8. Disconnect the three-point hitch arms from the lift links, 4, and the top link, 5, from the mower.
9. Disconnect the hydraulic hose, transport latch rope, and the PTO from the tractor.



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# SECTION 2

## OPERATION

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**⚠ DANGER ⚠**

To prevent injury to bystanders, this mower is not intended for roadside or municipal mowing. This mower is intended for agricultural use only. Failure to comply will result in death or serious injury.

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**⚠ WARNING ⚠**

Disengage the PTO, turn off the tractor engine and remove the key. Wait for all movement to stop before leaving the operator's position. Never adjust, lubricate, clean or unplug machine with the engine running. Failure to comply could result in death or serious injury.

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**⚠ WARNING ⚠**

A tractor with an enclosed cab is required when operating a rotary disc cutting machine. Failure to comply could result in death or serious injury.

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After the 600 Series disc mower has been lubricated, attached to the tractor, and adjusted correctly, it is ready for field operation. Refer to other sections of this manual for the above information.

Lower the cutter bar onto the ground and position the tractor hydraulic valve in the "Float" position. Ensure that the up-stop channel is positioned over the lift cylinder rod, and the cutter bar curtain is folded forward over the cutter bar. Refer to the "General Information" section of this manual for further information.

---

**⚠ WARNING ⚠**

Never operate the mower with the curtain folded rearward in the transport position. Failure to comply could result in death or serious injury.

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**IMPORTANT:** Do not engage the PTO with the tractor running at high speed or the mower driveline may be damaged.

Slowly engage the PTO before the unit is moved up to the standing material. Be sure the tractor PTO is running at 540 RPM before starting to cut.

**IMPORTANT:** Operating at excessive PTO speeds will shorten the machine life and cause structural failure.

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**⚠ WARNING ⚠**

Loose stones and foreign objects can be deflected toward the operator on machines with rotary discs. Keep all curtains and shields in place. Failure to comply could result in death or serious injury.

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### OPENING FIELDS

Fields can be opened the same way with a disc mower as with sickle bar-type mowers by cutting the back swath first; cut backwards around the field, running the cutter bar along the edge of the field. After the backswath is cut, reverse direction and cut around the field in a clockwise direction; reduce ground speed to pick up most of the crop run down by the tractor tires on the backswath.

### FIELD CUTTING

1. To cut square corners:

Start turning the tractor as the rear wheels approach the edge of the standing crop; turn the tractor sharply in order to keep the cutter bar in the crop. Using the right wheel brake on the tractor may allow a sharper turn, but may also gouge the ground.

It may be necessary to slow the ground speed to turn corners, although it is almost impossible to make clean square corners. Corners will tend to stretch out as cutting continues. This operation will not cause plugging as with other types of mowers.

After the field is cut, the corners may be cut out by cutting from the center of the field to the corners to mow any standing crop; the cutter bar will not plug when cutting through previously cut material.

## 2. To cut oversquare corners:

Continue cutting in forward direction until the cutter bar approaches the end of the corner; turn the tractor sharply to the right, leaving the cutter bar on the ground to finish cutting the corner.

The cutter bar can be left on the ground while traveling back to the standing crop; the cutter bar will not plug when cutting through previously cut material.

**IMPORTANT:** *Maintain full PTO speed when crossing previously cut material, even if the cutter bar is raised off the ground. Failure to do so may cause cutter bar wrappage and plugging.*

During field operation, the tractor hydraulic valve should remain in the "Float" position, to allow the cutter bar to follow the ground contours. Raise the cutter bar to clear obstacles or when turning on headlands by retracting the lift cylinder. Do not raise the cutter bar using the three-point hitch; if the tractor hydraulic valve is in "Float" position, the right end of the cutter bar will stay on the ground as the three-point hitch is raised, causing the end of the cutter bar to gouge into the ground.

**IMPORTANT:** *Do not raise the cutter bar using the three-point hitch, as this may cause PTO U-joint failure and/or damage to the cutter bar.*

When making left turns in the field, the cutter bar should be raised off the ground to prevent damage due to "whipping" the cutter bar around at high speed. Leaving the cutter bar on the ground during a fast left turn could cause damage to the cutter bar components and/or cause the breakaway latch to trip. If it is necessary to make a sharp left turn while cutting, reduce ground speed.

The 600 Series disc mower ground speed capabilities are variable, depending on field terrain and crop conditions. Generally, 6.4 – 9.6 km/hr (4 – 6 MPH) yields good results. Slower speeds may be necessary depending on crop conditions, tractor horsepower, and terrain. In light, easy to cut crops and smooth fields, higher speeds are possible.

**IMPORTANT:** *Adjust the tractor ground speed by changing gears. Do not adjust ground speeds by moving the tractor throttle from the proper PTO speed. Do not overspeed the PTO or driveline damage may occur.*

If the machine vibrates, STOP OPERATION IMMEDIATELY. Determine and correct the cause of the vibration before continuing operation. FAILURE

TO DO THIS WILL CAUSE SERIOUS DAMAGE TO THE UNIT.



**WARNING**



**Do not attempt to remove material from the disc mower while it is in operation. Shut the tractor off and allow the rotating discs to stop before leaving the tractor. Failure to comply could result in death or serious injury.**



**WARNING**



**Do not operate the disc mower without the cutter bar curtain in place and in good condition. Failure to comply could result in death or serious injury.**

The 600 Series disc mowers are intended for use in difficult cutting conditions. The knife speed is approximately 298 km/hr (185 MPH) and relies on plant stem integrity and strength to cut. The cutter bar operates on an impact cutting principle.

The high centrifugal force of the knife could permit crop blowdown in light or thin crops, resulting in uncut strips, or streaks. In light or thin crops, cutting a shorter stubble will sometimes reduce streaking. Do not tilt the cutter bar for a shorter stubble in stony fields.

**IMPORTANT:** *Take extra precautions to prevent accumulation of baler twine or wire in fields to be cut with the 600 Series disc mowers. Twine or wire that is wrapped beneath the discs can cause the disc bearings to overheat, the shaft seals to leak, and the possible failure of the module.*



**WARNING**



**Disengage the PTO, turn off the tractor engine and remove the key. Wait for all movement to stop before leaving the operator's position. Never adjust, lubricate, clean or unplug machine with the engine running. Failure to comply could result in death or serious injury.**

The cutter bar may plug with dirt and debris between the stone guards when operating in newly planted fields with soft loose soil. This plugging may cause streaking to occur. Tilt the cutter bar back towards horizontal to increase the cutting height, and lighten cutter bar flotation to reduce plugging in these conditions. Clean the cutter bar off frequently to avoid unnecessary knife and disc wear. In severe conditions, install the high stubble kit to increase the cutting height.

**OPERATING RECOMMENDATIONS**

**⚠ WARNING ⚠**

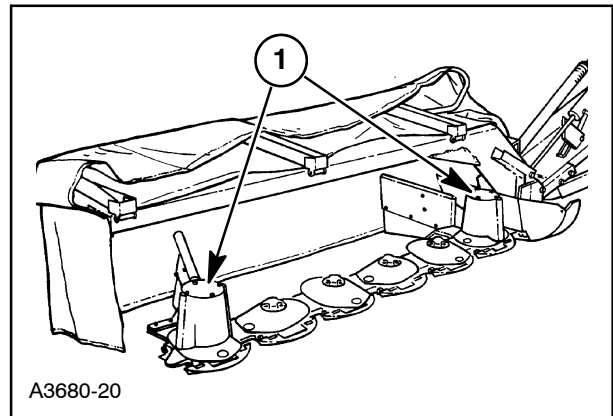
**Never operate the mower without the cutter bar curtain in place. Failure to comply could result in death or serious injury.**

**NOTE:** *Optional left and right swathboards are shown.*

1. Never operate the mower without the covers, 1, on the rotating crop divider drums.
2. Engage the tractor PTO and slowly increase to 540 RPM. Always operate the tractor at 540 RPM. **DO NOT OVERSPEED.** Overspeeding or underspeeding could damage the mower and will cause stripping or streaking in light crops.
3. Regulate ground speed according to crop conditions. A slower ground speed may be necessary in heavy down crops.
4. Make sure the knives can pivot. Replace knives if they are bent.
5. Knives can be removed and turned over to use the other cutting edge. Knives should be turned or replaced before they become excessively worn.
6. Replace knives in pairs or sets so disc balance is retained. When changing knives, always replace worn or damaged knife hardware. Refer to the "Maintenance" section of this manual for further knife information.

**⚠ WARNING ⚠**

**Do not attempt to remove material from the mower while it is in operation. Turn off the tractor engine and allow the rotating discs to stop before leaving the tractor. Failure to comply could result in death or serious injury.**



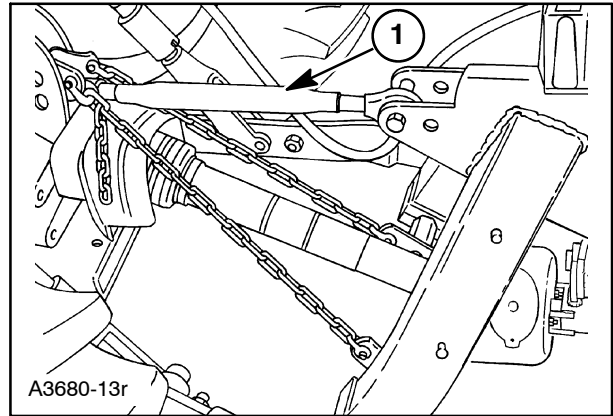


**ADVERSE FIELD CONDITIONS**

**IMPORTANT:** Do not use this machine in rocky field conditions.

Take extra care and precautions in rough, stony, or debris-ridden fields. Make the following adjustments to the mower in these conditions to minimize the possibility of stones and foreign objects being deflected by cutting blades.

1. Tilt the angle of the cutter bar back by adjusting the top link length, 1, to raise the cutting height of the knives. Do not tilt the cutter bar rearward past horizontal position or premature knife wear will result.
2. Make sure the cutting knives can pivot if an obstruction is hit.
3. Install the high stubble kit, if crop conditions allow a higher cutting height, to provide additional clearance from stones or foreign objects.



2

————— **⚠ WARNING ⚠** —————

**Never operate the mower without the cutter bar curtain in place. Failure to comply could result in death or serious injury.**

————— **⚠ WARNING ⚠** —————

**Do not lean or stand on the curtain or curtain support. The support is not designed for such loads and could fail, causing injury. Failure to comply could result in death or serious injury.**

————— **⚠ WARNING ⚠** —————

**Loose stones and foreign objects can be deflected toward the operator on machines with rotary blades. Failure to comply could result in death or serious injury.**

————— **⚠ WARNING ⚠** —————

**Tilt the cutter bar back in fields where stones and foreign objects are present to raise the cutting knives and minimize deflection from the knives. Failure to comply could result in death or serious injury.**

————— **⚠ WARNING ⚠** —————

**Stand clear! never leave the tractor with the mower running. Never operate the mower if bystanders are near. Rotating elements may cause serious bodily injury. Failure to comply could result in death or serious injury.**

## CUTTER BAR FLOTATION

Cutter bar flotation is controlled by the height of the frame above the ground and by the length of the flotation spring.

Adjust the limit chains so that the hitch pins, 1, are as close to but not less than the distance above the ground as set out below for the various models. See "Attaching the Mower to the Tractor" section of this manual.

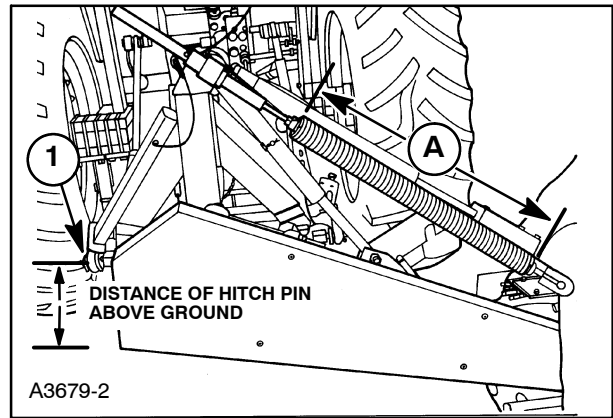
Model	PIN	Distance of hitch pin above ground-Standard	Distance of hitch pin above ground-with High Stubble kit
615	628301 and above	609 mm (24 in)	660 mm (26 in)
615	628300 and below	457 mm (18 in)	508 mm (20 in)
616, 617	All	457 mm (18 in)	508 mm (20 in)

**NOTE:** Raising the mower frame height will increase the flotation. Some tractors may need this adjustment.

Initially, adjust the flotation spring to the length, A, between the ends of the spring coils as set out in the following table:

Model	PIN	Length A
615	603822 and below	864 mm (34 in)
615	603823 and above	845 mm (33-1/4 in)
616	606812 and below	902 mm (35-1/2 in)
616	606813 and above	902 mm (35-1/2 in)
617	607111 and below	902 mm (35-1/2 in)
617	607112 and above	921 mm (36-1/4 in)

The flotation spring can be adjusted, as field conditions vary, to achieve the flotation desired. Lengthening the spring increases the amount of flotation (making the cutter bar lighter), while shortening the spring decreases the amount of flotation (making the cutter bar heavier).

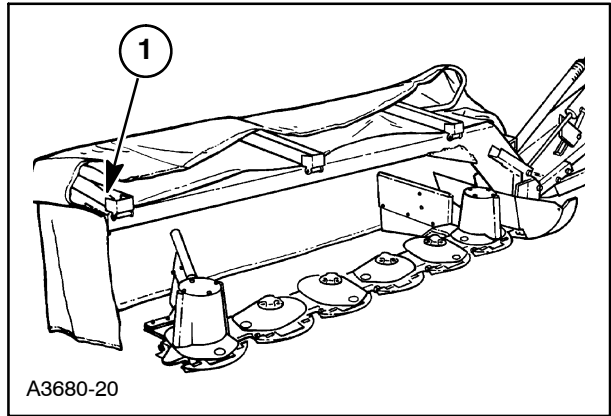


3

## SECTION 2 - OPERATION

A lighter cutter bar weight will reduce the pull on the tractor, but setting the flotation too light will prevent the cutter bar from staying on the ground at faster ground speeds. The cutter bar weight may be felt by lifting the right end of the canopy support, 1.

**NOTE:** *Optional left and right swathboards are shown.*



To adjust the flotation, do the following:

1. Fully raise the cutter bar to the transport position.

**NOTE:** The flotation spring may slightly rub the canopy support top plate or the belt shielding when the mower is in the transport position.

The hole in the flotation spring rod, 1, should be fully visible above the upper mount, 2, to allow installation of the flotation engagement pin, 3. If the hole is not visible, or is only partially visible, lengthen the spring and rod assembly as follows:

**⚠ WARNING ⚠**

Disengage the PTO, turn off the tractor engine and remove the key. Wait for all movement to stop before leaving the operator's position. Never adjust, lubricate, clean or unplug machine with the engine running. Failure to comply could result in death or serious injury.

Loosen the jam nut, 1, and thread the rod out of the spring assembly until the hole is fully visible. Retighten the jam nut.

**IMPORTANT:** Do not thread the rod out more than 114 mm (4-1/2 in) from the spring nut to the shoulder on the rod or failure of the rod and spring can occur.

If additional adjustment is required to gain access to the rod hole, loosen the jam nut, 2, between the lower mount rod and the spring nut, and thread the spring away from the lower mount. Retighten the jam nut.

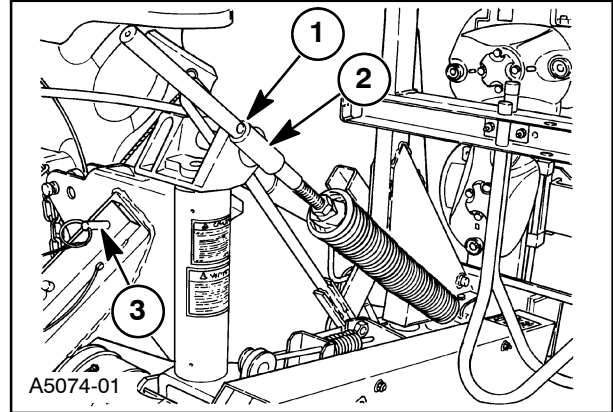
**IMPORTANT:** Do not thread the lower mount rod out of the lower mount, 3, or failure of the spring assembly can occur. Ensure that there is a minimum of 5/8" thread engagement in both the lower mount and the spring assembly, or rod failure will occur.

2. After adjustment of the spring, reinstall the pin, 2 Figure 5, which is wired to the jack stand in the flotation spring rod hole. The pin has two detent balls and is properly installed when a detent is on either side of the flotation spring rod.

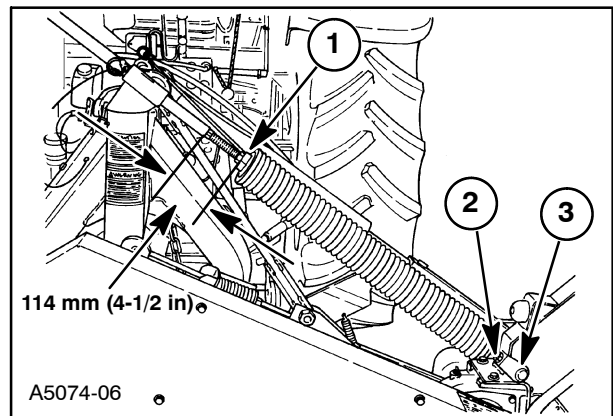
**IMPORTANT:** If the pin is inserted too far, the retaining ring can be knocked off and the pin can be lost. This would cause loss of flotation.

**NOTE:** When completing the adjustment, position the flotation spring rod, 1, Figure 5, so that the hole is slightly above horizontal when viewed from the rear before tightening the jam nut. This will ease flotation pin installation.

**IMPORTANT:** The tractor hydraulic valve should be placed in the "float" position to allow the cutter to follow the contour of the ground.



5



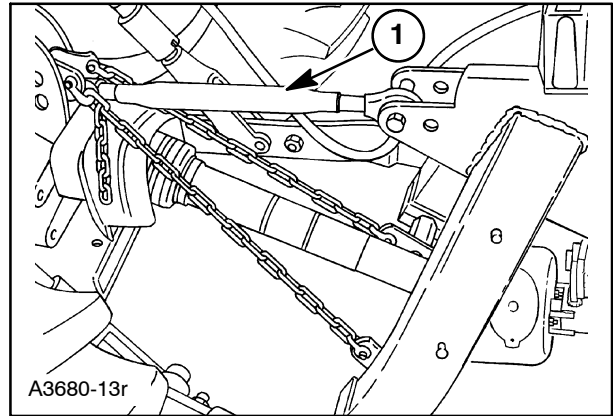
6

## CUTTING HEIGHT

Change the cutting height by tilting the angle of the cutter bar. Adjust top link length, 1, until the desired cutting height is obtained. To determine the cutting height, position a knife to the front of the cutter bar, and measure from it to the ground.

Cutting too close to the ground will cause excessive wear on the discs and knives. Cutting too high in fine grasses may cause a ragged cut. Generally, a cutting height of less than 51 mm (2 in) is required for most crops.

Do not tilt the cutter bar rearward past horizontal position or premature knife wear will result.



7

### ⚠ WARNING ⚠

**Tilt the cutter bar back in fields where stones and foreign objects are present to raise the cutting knives and minimize ejections from the knives. Failure to comply could result in death or serious injury.**

## BREAKAWAY LATCH

The mower can be operated at high speeds depending on crop and field conditions. In rough field conditions, the ground speed should be reduced. The mower is protected with a breakaway system. If an obstruction is hit, the breakaway latch, 1, will break away and the cutter bar will swing rearward.

**IMPORTANT:** *If the latch releases, stop the tractor immediately and disengage the PTO.*

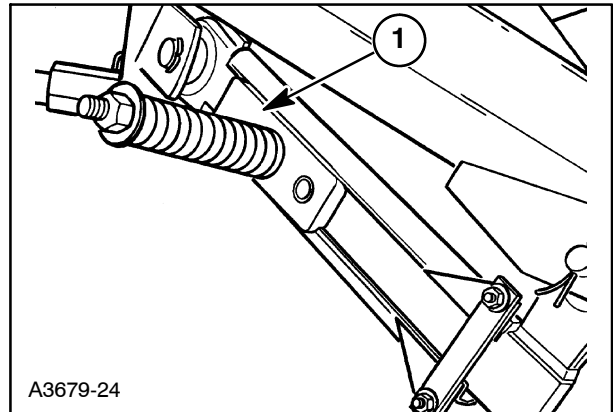
To reset the cutter bar, back the tractor and mower until the cutter bar latches and is in its normal position. Do not raise the cutter bar to re-latch the breakaway.

Check for any cutter bar damage if an obstruction is encountered.

If the cutter bar continues to break away, refer to the "Maintenance" section of this manual.

### ⚠ WARNING ⚠

**Disengage the PTO, turn off the tractor engine and remove the key. Wait for all movement to stop before leaving the operator's position. Never adjust, lubricate, clean or unplug machine with the engine running. Failure to comply could result in death or serious injury.**



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# SECTION 3

## LUBRICATION

Adequate lubrication and maintenance on a regular schedule is vital to maintaining your equipment. To ensure long service and efficient operation, follow the lubrication and maintenance schedules outlined in this manual. The use of proper fuels, oils, grease and filters, as well as keeping the systems clean, will also extend machine and component life.

**IMPORTANT:** Always use genuine **New Holland** replacement parts, oils and filters to ensure proper operation, filtration of engine and hydraulic systems. See your **New Holland** dealer for additional oil quantities.

### GENERAL INFORMATION

Regular lubrication is the best insurance against delays and repairs. Proper lubrication will extend machine life. Refer to the following charts for lubricants and service intervals.

**IMPORTANT:** Failure to complete the required maintenance at the recommended intervals can cause unnecessary downtime and premature wear of components.

The intervals listed in the Lubrication Chart are guidelines to be used when operating in normal conditions. Adjust the intervals for operating in adverse environmental and working conditions. The intervals should be shortened for sandy, dusty and extremely hot operating conditions.



### WARNING

Observe these safety precautions before performing lubrication and maintenance.

1. Shut off engine.
2. Disengage all drives.
3. Lower all attachments to the ground or raise and engage all locks.
4. Close all shields opened and reinstall any shields removed for lubrication and maintenance proposes.

Failure to comply could result in death or serious injury.

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### WARNING

Some illustrations in this manual show shields opened or removed to show areas being serviced. Replace all shields before operating this machine. Failure to comply could result in death or serious injury.

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Always clean the area around dipsticks, fill caps, and check plugs when checking fluid levels. Failure to clean these areas may allow contamination to enter the system. Drain, flush and refill the system anytime you suspect it is contaminated.

### Grease Fittings

Wipe dirt from fittings before greasing.

Pump fresh grease into fitting to adequately lubricate the component and force out any contamination from the grease passage.

Wipe off excess grease.

Use a grease gun containing clean high grade of multipurpose grease.

### Chains

Stop all drives before lubricating chains.

Lubricant	Type and Description
Hydraulic Oil	MULTI G 134
	MULTI G
Gear Oil	HYPOIDE 90 GEAR LUBE
	HYPOIDE SSL GEAR LUBE (SYNTHETIC)
Grease	GR-9 MULTI-PURPOSE GREASE
	HI-TEMP GREASE

**⚠ CAUTION ⚠**

The cutter bar should be resting on the ground during lubrication or maintenance. Failure to comply could result in moderate injury.

**IMPORTANT:** The machine should be checked daily for oil leaks. Any leak should be fixed immediately.

**IMPORTANT:** Clean the area around all plugs and grease fittings prior to removing or greasing.

**IMPORTANT:** All oil levels are checked with the cutter bar level both from front to back and side to side.

**Grease Fittings**

Grease fittings are identified by numbers in the following figures. Recommended lubrication intervals are listed after each description.

**⚠ WARNING ⚠**

Disengage the PTO, turn off the tractor engine and remove the key. Wait for all movement to stop before leaving the operator's position. Never adjust, lubricate, clean or unplug machine with the engine running. Failure to comply could result in death or serious injury.

**BEVEL GEARBOX**

Check the bevel gearbox oil every 50 hours. The oil level should be at the bottom of check plug, 1. Remove plug, 2, to add oil.

Change the bevel gearbox oil after the first 50 hours of use to remove any contaminants from the break-in process. After this, change the oil every 200 hours or yearly, whichever occurs first. Drain oil by removing plug, 1, with the cutter bar in the vertical (transport) position. The bevel gearbox holds 1100 ml (37 oz.).

**⚠ WARNING ⚠**

Lower the three-point hitch to support the cutter bar on blocking prior to draining the oil. Ensure the transport lock is engaged. Failure to comply could result in death or serious injury.

Maintain oil level using Hypoide 90 (API GL5 80W90) gear oil or Hypoide SSL (75W90, synthetic).

**NOTE:** Belt and belt shielding shown removed for clarity.

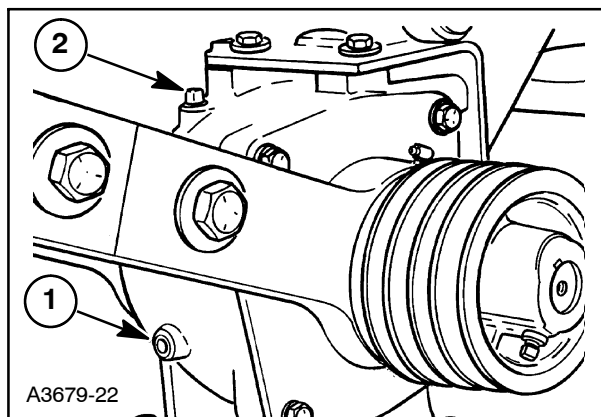
**Gearboxes**

Oil for the gearboxes and cutter bar modules is available from your New Holland dealer.

Maintain oil level using Hypoide 90 (API GL 5 80W90) gear oil or Hypoide SSL (75W90, synthetic).

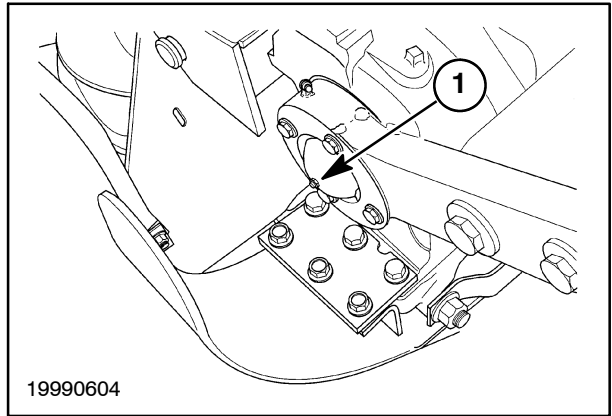
**IMPORTANT:** Failure to use the correct specification of oil may lead to premature failure of the gearbox components.

**IMPORTANT:** Change the oil in all gearboxes after the first 50 hours of use to remove any contaminants from the break-in process.



**Bevel Gearbox Breather**

Check and clean the bevel gearbox breather, 1, every 200 hours or yearly, whichever occurs first.

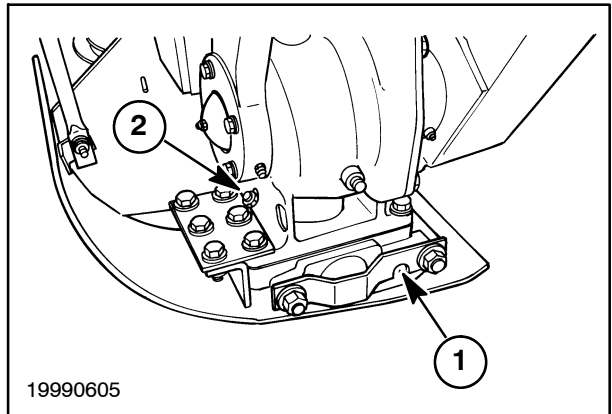


2

**DRIVE MODULE**

Check the drive module oil every 50 hours. The oil level should be at the bottom of check plug, 1. Remove breather/fill plug, 2, to add oil.

Change the drive module oil after the first 50 hours of use to remove any contaminants from the break-in process. After this, change the oil every 200 hours or yearly, whichever occurs first. Drain the oil by raising the cutter bar to the transport position and removing plug, 1. The drive module holds 300 ml (10 oz.). The same plug is used to drain and check the oil.



3

**WARNING**

**Lower the three-point hitch to support the cutter bar on blocking prior to draining the oil. Ensure the transport lock is engaged. Failure to comply could result in death or serious injury.**

Maintain oil level using Hypoide 90 (API GL5 80W90) or Hypoide SSL (75W90, synthetic) gear oil.

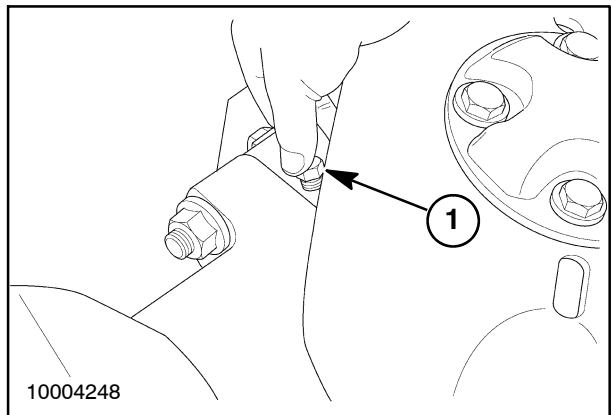
**Drive Module Breather**

Check and clean the drive module breather/fill plug, 2, every 200 hours or yearly, whichever occurs first.

**CUTTER BAR MODULES**

Check the module oil every 50 hours. Each module must be checked. The cutter bar must be level from side to side and front to back. Park on a level surface and adjust the top link to level cutter bar.

1. Remove dipstick, 1; wipe it clean.
2. Hold the dipstick firmly in place into the hole but do not thread it in.



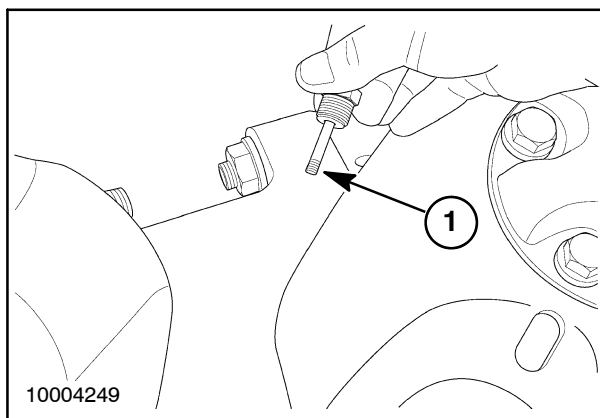
4



## SECTION 3 - LUBRICATION

3. Remove the dipstick and observe the oil level. The level is correct when it is anywhere within the marked area at the end, 1, of the dipstick.

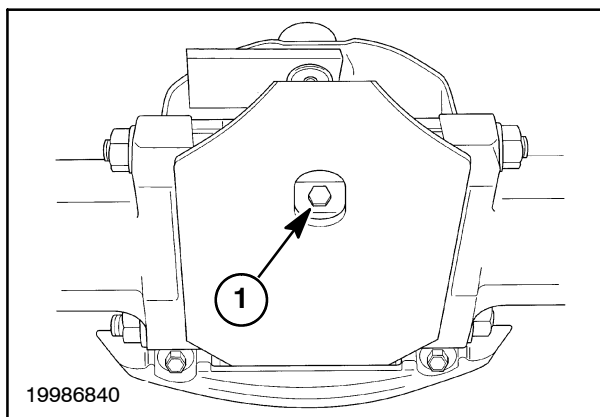
Maintain the oil level using Hypoide 90 (API GL5 80W90) or Hypoide SSL (75W90, synthetic) gear oil.



5

Change the module oil after the first 50 hours of use to remove any contaminants from the break-in process. After this, change the oil every 200 hours or yearly, whichever occurs first.

Drain the oil by removing the drain plug, 1, on the bottom of the module.

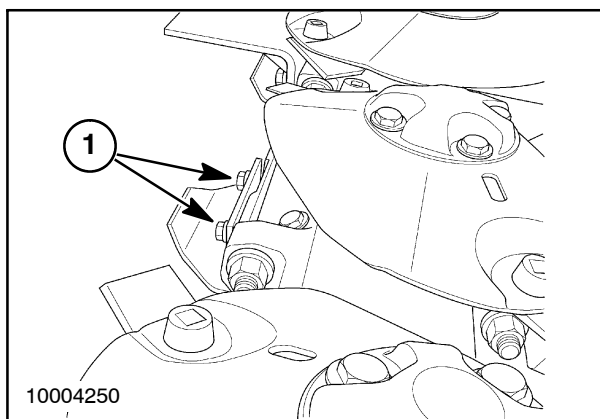


6

To change the oil on models without the oil drain access hole in Figure 6, the skid shoe must first be removed by removing two bolts at 1.

To change the oil, remove the skid shoe by removing the two bolts at 1. Drain the oil by removing the allen socket head plug on the bottom of the module. The modules hold 300 ml (10 oz.).

Refill the modules to the correct level using Hypoide 90 (API GL5 80W90) or Hypoide SSL (75W90, synthetic) gear oil.



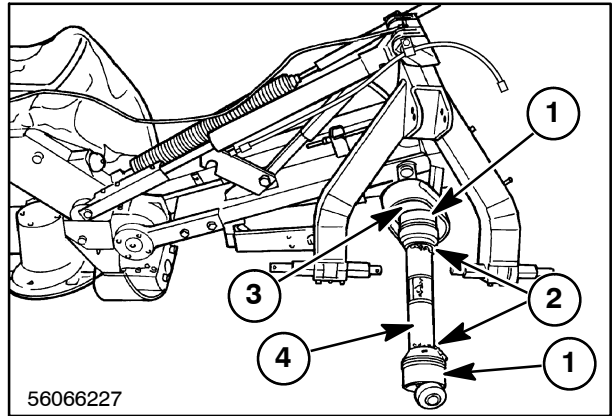
7

**GREASE FITTINGS**

Grease the PTO shaft crosses, 1; shield, 2; and overrunning clutch, 3, daily or every 8 hours of use.

Grease the telescoping sections, 4, every 20 hours.

**NOTE:** After lubricating the telescoping sections, the PTO shaft should be extended and retracted fully to spread the grease.

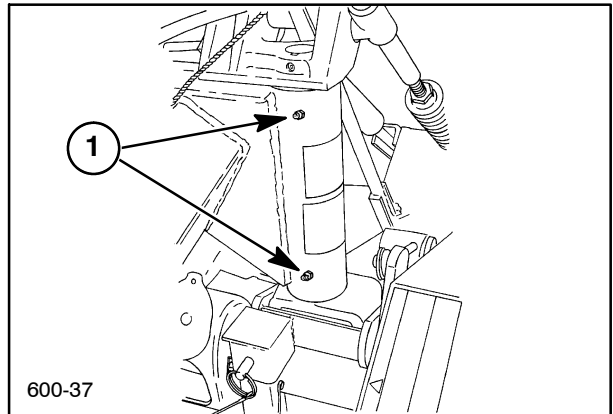


8

Grease the main frame pivot bushings, 1, every 40 hours.

**⚠ WARNING ⚠**

**Disengage the PTO, turn off the tractor engine and remove the key. Wait for all movement to stop before leaving the operator's position. Never adjust, lubricate, clean or unplug machine with the engine running. Failure to comply could result in death or serious injury.**

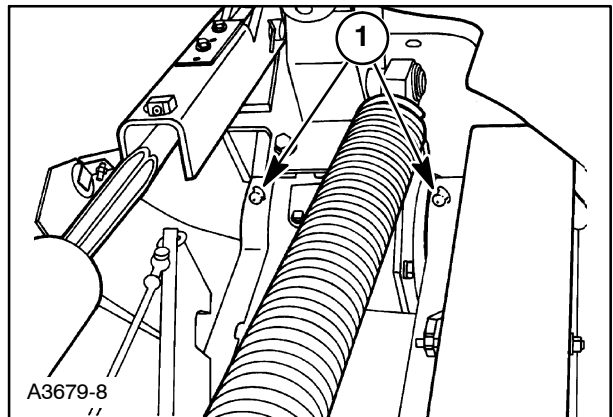


9

Grease the cutter bar pivots, 1, daily.

Pump grease into pivots until grease can be seen coming out past seals.

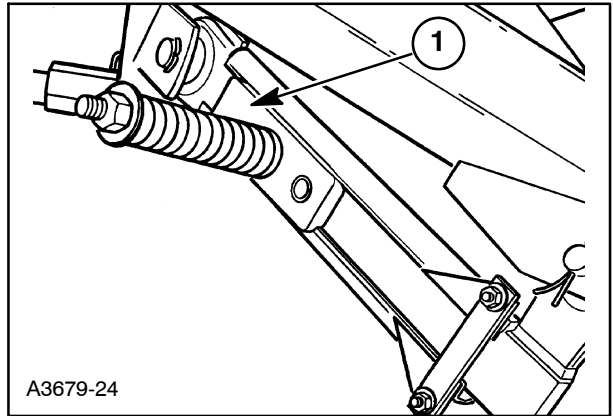
**NOTE:** Grease zerks are located on both top and bottom of pivot arms.



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SECTION 3 - LUBRICATION

Grease the breakaway pawl, 1, every 40 hours.



A3679-24

# SECTION 4

## MAINTENANCE

### MINIMUM HARDWARE TIGHTENING TORQUES

IN NEWTON-METERS (FOOT POUNDS) FOR NORMAL ASSEMBLY APPLICATIONS

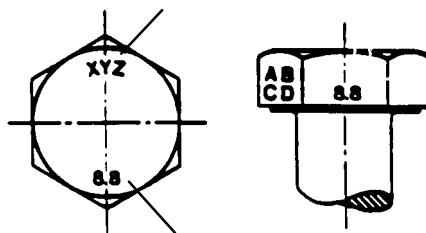
#### METRIC NON-FLANGED HARDWARE AND LOCKNUTS

NOMINAL SIZE	CLASS 5.8		CLASS 8.8		CLASS 10.9		LOCKNUT CL.8 W/CL8.8 BOLT
	UNPLATED	PLATED W/ZnCr	UNPLATED	PLATED W/ZnCr	UNPLATED	PLATED W/ZnCr	
M4	1.7 (15)*	2.2 (19)*	2.6 (23)*	3.4 (30)*	3.7 (33)*	4.8 (42)*	2.3 (20)*
M6	5.8 (51)*	7.6 (67)*	8.9 (79)*	12 (102)*	13 (115)*	17 (150)*	7.8 (69)*
M8	14 (124)*	18 (159)*	22 (195)*	28 (248)*	31 (274)*	40 (354)*	19 (169)*
M10	28 (21)	36 (27)	43 (32)	56 (41)	61 (45)	79 (58)	38 (28)
M12	49 (36)	63 (46)	75 (55)	97 (72)	107 (79)	138 (102)	66 (49)
M16	121 (89)	158 (117)	186 (137)	240 (177)	266 (196)	344 (254)	164 (121)
M20	237 (175)	307 (226)	375 (277)	485 (358)	519 (383)	671 (495)	330 (243)
M24	411 (303)	531 (392)	648 (478)	839 (619)	897 (662)	1160 (855)	572 (422)

**NOTE:** Torque values shown with \* are inch pounds.

#### IDENTIFICATION HEX CAP SCREW AND CARRIAGE BOLTS CLASSES 5.6 AND UP

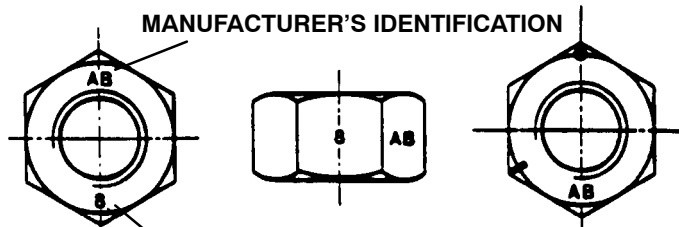
##### MANUFACTURER'S IDENTIFICATION



##### PROPERTY CLASS

#### HEX NUTS AND LOCKNUTS CLASSES 05 AND UP

##### MANUFACTURER'S IDENTIFICATION



##### PROPERTY CLASS

##### CLOCK MARKING

# MINIMUM HARDWARE TIGHTENING TORQUES

IN NEWTON-METERS (FOOT POUNDS) FOR NORMAL ASSEMBLY APPLICATIONS

## INCH NON-FLANGED HARDWARE AND LOCKNUTS

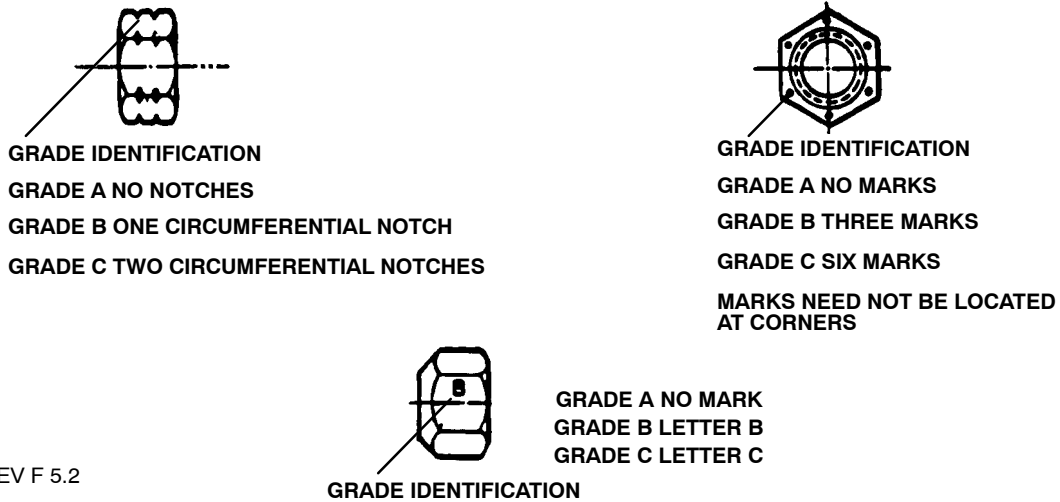
NOMINAL SIZE	SAE GRADE 2		SAE GRADE 5		SAE GRADE 8		LOCKNUTS		NOMINAL SIZE
	UNPLATED or PLATED SILVER	PLATED W/ZnCr GOLD	UNPLATED or PLATED SILVER	PLATED W/ZnCr GOLD	UNPLATED or PLATED SILVER	PLATED W/ZnCr GOLD	GR.B w/GR5 BOLT	GR.C w/GR8 BOLT	
1/4	6.2 (55)*	8.1 (72)*	9.7 (86)*	13 (112)*	14 (121)*	18 (157)*	8.5 (75)*	12.2 (109)*	1/4
5/16	13 (115)*	17 (149)*	20 (178)*	26 (229)*	28 (250)*	37 (324)*	17.5 (155)*	25 (220)*	5/16
3/8	23 (17)	30 (22)	35 (26)	46 (34)	50 (37)	65 (48)	31 (23)	44 (33)	3/8
7/16	37 (27)	47 (35)	57 (42)	73 (54)	80 (59)	104 (77)	50 (37)	71 (53)	7/16
1/2	57 (42)	73 (54)	87 (64)	113 (83)	123 (91)	159 (117)	76 (56)	108 (80)	1/2
9/16	81 (60)	104 (77)	125 (92)	163 (120)	176 (130)	229 (169)	111 (82)	156 (115)	9/16
5/8	112 (83)	145 (107)	174 (128)	224 (165)	244 (180)	316 (233)	153 (113)	215 (159)	5/8
3/4	198 (146)	256 (189)	306 (226)	397 (293)	432 (319)	560 (413)	271 (200)	383 (282)	3/4
7/8	193 (142)	248 (183)	495 (365)	641 (473)	698 (515)	904 (667)	437 (323)	617 (455)	7/8
1	289 (213)	373 (275)	742 (547)	960 (708)	1048 (773)	1356 (1000)	654 (483)	924 (681)	1

NOTE: Torque values shown with \* are inch pounds.

### IDENTIFICATION CAP SCREWS AND CARRIAGE BOLTS



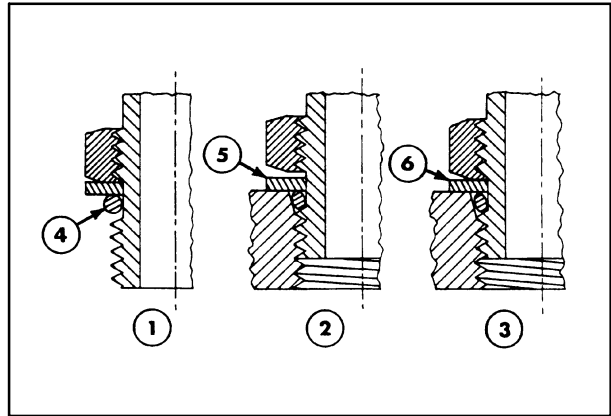
### LOCKNUTS



**INSTALLATION OF ADJUSTABLE FITTINGS IN STRAIGHT THREAD O-RING BOSSES**

1. Lubricate the O-ring by coating it with a light oil or petroleum. Install the O-ring in the groove adjacent to the metal backup washer which is assembled at the extreme end of the groove, 4.
2. Install the fitting into the SAE straight thread boss until the metal backup washer contacts the face of the boss, 5.

**NOTE:** Do not over tighten and distort the metal backup washer.



1

3. Position the fitting by turning out (counterclockwise) up to a maximum of one turn. Holding the pad of the fitting with a wrench, tighten the locknut and washer against the face of the boss, 6.

**STANDARD TORQUE DATA FOR HYDRAULIC TUBES AND FITTINGS**

SIZE	TUBING OD		THREAD SIZE	TORQUE				O-RING BOSS PLUGS ADJUSTABLE FITTING LOCKNUTS, SWIVEL JIC - 37° SEATS			
	mm	In.		NEWTON METERS		FOOT POUNDS		NEWTON METERS		FOOT POUNDS	
				Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
4	6.4	1/4	7/16-20	12	16	9	12	8	14	6	10
5	7.9	5/16	1/2-20	16	20	12	15	14	20	10	15
6	9.5	3/8	9/16-18	29	33	21	24	20	27	15	20
8	12.7	1/2	3/4-18	47	54	35	40	34	41	25	30
10	15.9	5/8	7/8-14	72	79	53	53	47	54	35	40
12	19.1	3/4	1-1/16-12	104	111	77	82	81	95	60	70
14	22.2	7/8	1-3/16-12	122	136	90	100	95	109	70	80
16	25.4	1	1-5/16-12	149	163	110	120	108	122	80	90
20	31.8	1-1/4	1-5/8-12	190	204	140	150	129	158	95	115
24	38.1	1-1/2	1-7/8-12	217	237	160	175	163	190	120	140
32	50.8	2	2-1/2-12	305	325	225	240	339	407	250	300

These torques are not recommended for tubes of 12.7 mm (1/2 in) OD and larger with wall thickness of 0.889 mm (0.035 in) or less. The torque is specified for 0.889 mm (0.035 in) wall tubes on each application individually.

Before installing and torquing 37° flared fittings, clean the face of the flare and threads with a clean

solvent or Loctite cleaner and apply hydraulic sealant Loctite no. 569 to the 37° flare and the threads.

Install fitting and torque to specified torque, loosen fitting and retorque to specifications.

**PIPE THREAD FITTING TORQUE**

Before installing and tightening pipe fittings, clean the threads with a clean solvent or Loctite cleaner and apply sealant Loctite no. 567 for all fittings including stainless steel or no. 565 for most metal fittings. For high filtration/zero contamination systems use no. 545.

THREAD SIZE	TORQUE (MAXIMUM)
1/8" - 27	13 N·m (10 ft-lb)
1/4" - 18	16 N·m (12 ft-lb)
3/8" - 14	22 N·m (16 ft-lb)
1/2" - 14	41 N·m (30 ft-lb)
3/4" - 14	54 N·m (40 ft-lb)

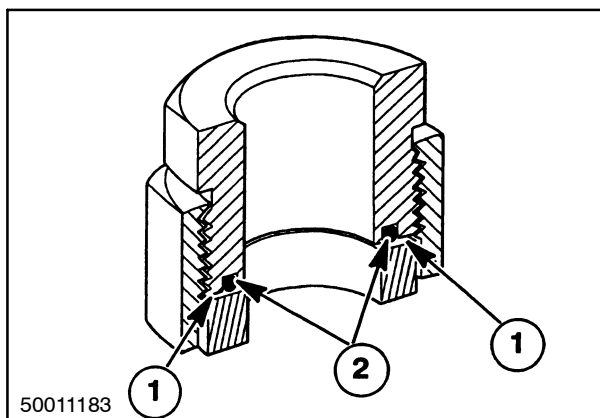
**INSTALLATION OF ORFS (O-RING FLAT FACED) FITTINGS**

When installing ORFS fittings thoroughly clean both flat surfaces of the fitting, 1, and lubricate the O-ring, 2, with light oil. Make sure both surfaces are aligned properly. Torque the fitting to specified torque listed throughout the repair manual.

**IMPORTANT:** If the fitting surfaces are not properly cleaned, the O-ring will not seal properly. If the fitting surfaces are not properly aligned, the fittings may be damaged and will not seal properly.

**IMPORTANT:** Always use genuine factory replacement oils and filters to ensure proper lubrication and filtration of engine and hydraulic system oils.

The use of proper oils, grease, and keeping the hydraulic system clean will extend machine and component life.



2

**DRIVE BELT**



**WARNING**

Disengage the PTO, turn off the tractor engine and remove the key. Wait for all movement to stop before leaving the operator's position. Never adjust, lubricate, clean or unplug machine with the engine running. Failure to comply could result in death or serious injury.

The belt must be properly tensioned at all times to prevent excessive slipping and vibration. A loose belt will cause poor cutting and premature failures.

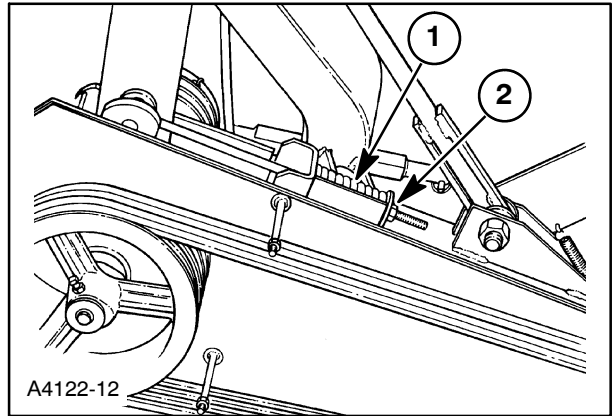
Check the belt tension each day for the first few days. Check weekly thereafter.

The belt is tensioned by a spring. It is properly tensioned when the spring length matches the length of gauge, 1.

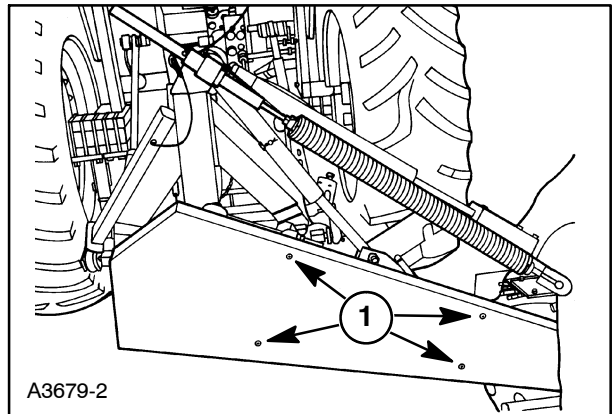
Tighten the locknut, 2, until the spring length matches the length of gauge, 1.

**Drive Belt Replacement**

Remove the outer belt shield by removing the four locknuts and flat washers at 1.



3

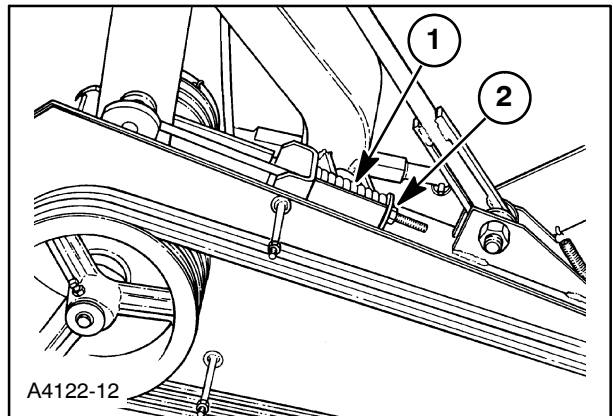


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Reduce the belt tension by loosening the locknut, 2, until the belt can be removed from the sheaves. Install the new belt onto the sheaves, and tighten the locknut until the spring length matches the length of gauge, 1.

Reinstall the outer belt shield using the four locknuts and flat washers previously removed.

**IMPORTANT:** A new belt will stretch significantly during the first few hours of use. Check new belt tension frequently.



5



## BREAKAWAY LATCH

The breakaway latch assembly consists of a spring-loaded assembly with machined dog and pawl. The spring mount is designed to provide a range of adjustment for the different widths of mowers and different operating conditions; initially, adjust the spring length, 1, as follows:

615 disc mower: 172 mm (6-3/4 in)

616 disc mower: 165 mm (6-1/2 in)

617 disc mower: 159 mm (6-1/4 in)

If the disc mower is operated in rough terrain, and excessive breakaways are experienced, the spring may be further tightened as necessary to eliminate nuisance breakaways.

**IMPORTANT:** Do not tighten spring to a length less than 149 mm (5-7/8 in) or structural failure of the mower may occur.

If the spring nut is fully tightened, and excessive breakaways are still experienced, check the following areas:

- Excessive wear on breakaway dog and pawl.
- Insufficient cutter bar flotation force.
- Excessive ground speed.

Periodically loosen the spring and operate the breakaway to be sure it is not rusted fast. Retighten the spring to the correct spring length.

### ⚠ WARNING ⚠

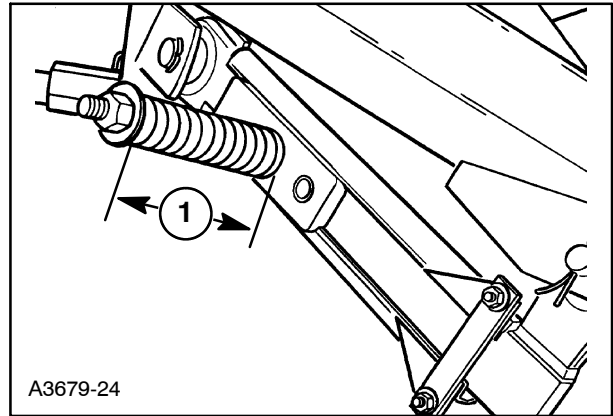
**Disengage the PTO, turn off the tractor engine and remove the key. Wait for all movement to stop before leaving the operator's position. Never adjust, lubricate, clean or unplug machine with the engine running. Failure to comply could result in death or serious injury.**

## DISCS

Each time knives are replaced or turned, check the discs for damage and wear. If a disc is bent or cracked, replace it. When the leading edge of the disc wears thin, it can be installed on an opposite rotating module to utilize the second face.

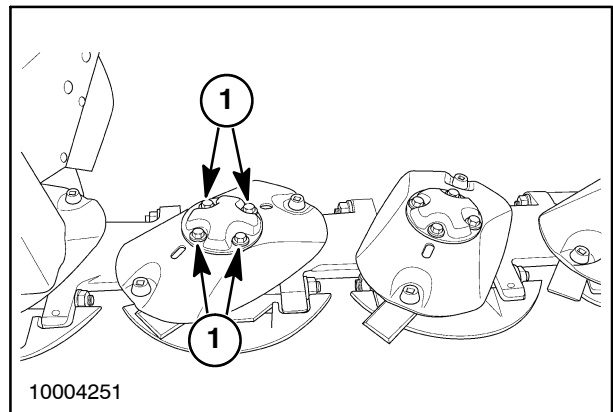
**IMPORTANT:** Do not make weld repairs to the discs, as this will affect disc strength and balance.

Remove discs by removing four bolts, 1.



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Discs with drums can be removed by first removing the drum covers, 1; the four disc/drum retaining bolts can then be removed.

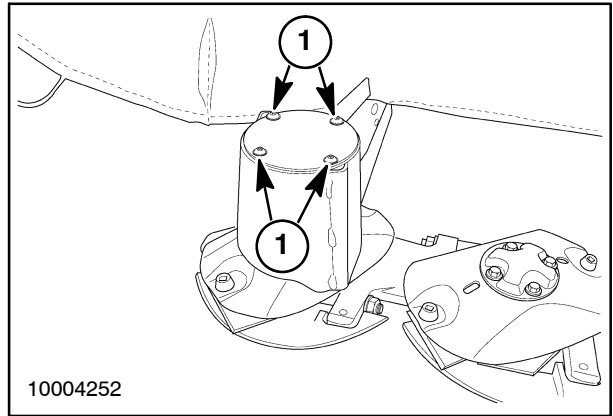
Reinstall discs at right angles to each other, as shown in Figure 9. Be sure the correct hardware is installed as follows:

- Discs with caps . . . . . 1/2" x 1" cap screws  
cupped lock washers
- Discs with drums . . . . . 1/2" x 1-1/4" cap screws  
thick hardened washers

**IMPORTANT:** Use of incorrect disc retaining hardware may cause cutter bar lock-up and potential damage, or may prevent proper retention of discs.

Torque retaining bolts to 113 N-m (83 ft-lb).

**NOTE:** Do not overtighten as bolts may yield causing failure.

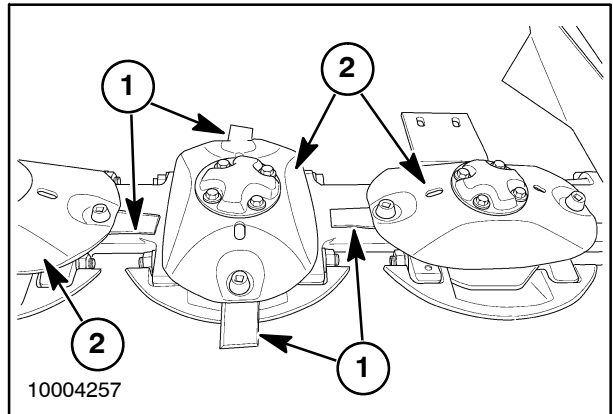


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**CUTTER BAR INSPECTION**

The cutter bar should be inspected for damage or wear on a regular basis, such as when turning or replacing knives. Inspect the cutter bar more frequently when operating in known rocky conditions.

- Inspect the external components for damage, paying particular attention to the knives, 1, and discs, 2. Broken knives and bent or cracked discs and lifters are a result of contact with solid foreign objects, and may indicate possible internal damage. A disc out of time may also indicate internal damage; the discs are properly timed when they are positioned 90° to each other as shown.



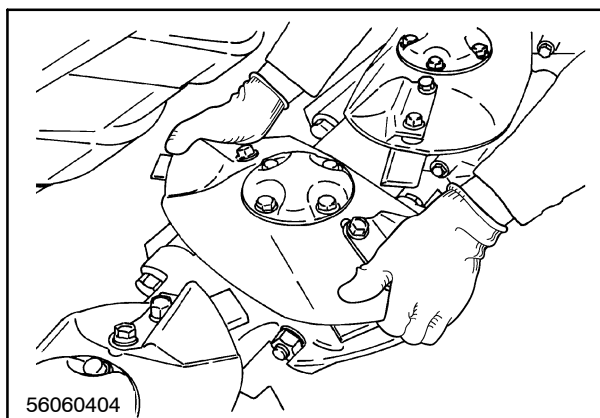
9

**⚠ WARNING ⚠**

**Replace damaged knives, knife hardware or discs immediately to prevent an accident. Failure to comply could result in death or serious injury.**

Misalignment or gaps between the disc modules and spacers may indicate the tie bolts are loose or broken, or the dowel pins between the components have failed or are missing.

- Carefully grab both ends of each disc, and try to “rock” the disc up and down. A small amount of movement [1 mm (0.040 in)] is normal; an excessive amount of movement may be the result of a loose disc hub retaining bolt, or could indicate a worn top cap housing or bearings. Disc modules with excessive disc “rock” should have the disc bolts and disc hub bolt checked for proper torque. The proper torque is 203 N·m (150 ft-lb). If a torque wrench is not available, tighten the bolt 1/4 turn past contacting the washer. Replace the disc hub retaining bolt if it has loosened; the bolt is equipped with a locking agent. If the bolts are tight, and movement still exists, the top cap assembly may need to be replaced. Contact your New Holland dealer for more information.



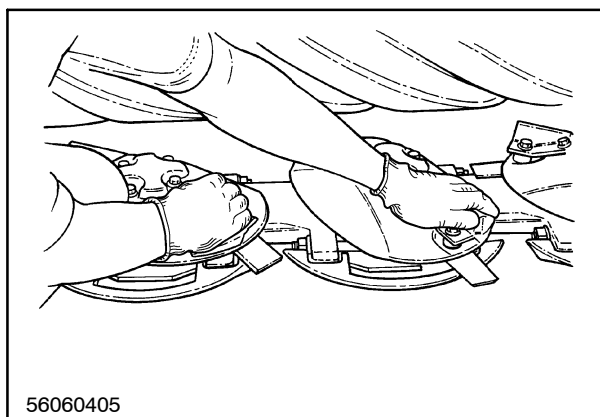
10

### ⚠ CAUTION ⚠

The bottom leading edge of worn discs can become very sharp. Wear gloves to prevent injury. Failure to comply could result in moderate injury.

- Starting at the left end of the cutter bar, grab both the #1 and #2 discs, and slowly rotate both discs while applying pressure to one of the discs against the direction of rotation. If one disc suddenly moves, it may indicate damage to the gear teeth in that module. Excessive free play between discs, or if one disc may be turned freely without the other disc moving, may indicate excessive wear or failure of the intermodule shaft. Some rotational free play [5 mm (3/16 in)] between adjacent discs is normal, as a result of the backlash in both gear sets.

Check all disc modules by working across the cutter bar, checking each disc to the next disc. If a problem is discovered, contact your New Holland dealer for repair assistance.



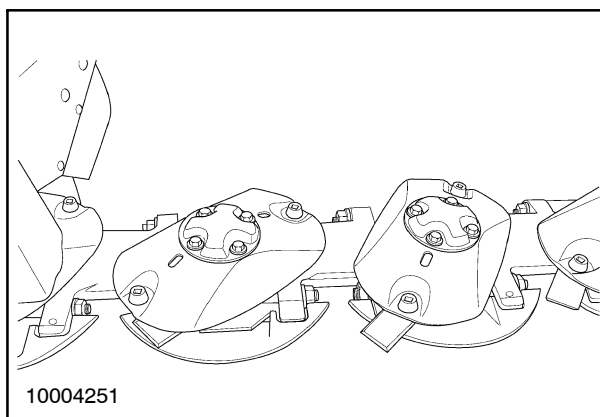
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### Knife and Bolt Inspection

Inspect the cutter bar daily for damaged components. The quality of cut and safety of operation depends on regular inspection of the cutter bar. Check the discs, knives, and hardware systematically for wear or damage.

Operating over rough terrain and rocky conditions can cause the knives to crack or deform leading to cutting problems, increase of safety risks, and possible cutter bar damage.

**IMPORTANT:** Striking an object can cause knife hardware to loosen. If an obstacle is struck, STOP! Check all hardware and retighten.



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The knives must be replaced or turned over to a new cutting edge on a timely basis to maintain good cutting performance. Dull knives will require more horsepower to cut the crop and will leave a ragged stubble.

Replace the knives if they are bent, severely worn, or if the hole is elongated. Replace the knife bolt if wear is found or if it can be threaded into the knife nut by hand.

The three knives shown are: knife, 1, is new; knife, 2, worn requires turning; knife, 3, requires replacement.

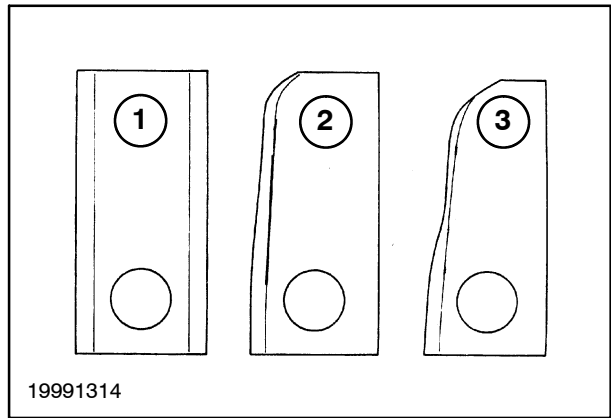
Replace the knife nut if the shoulder or threads show wear.

Rotate the bolt protectors to a new area when changing knives and replace them if they are worn around the full circumference.

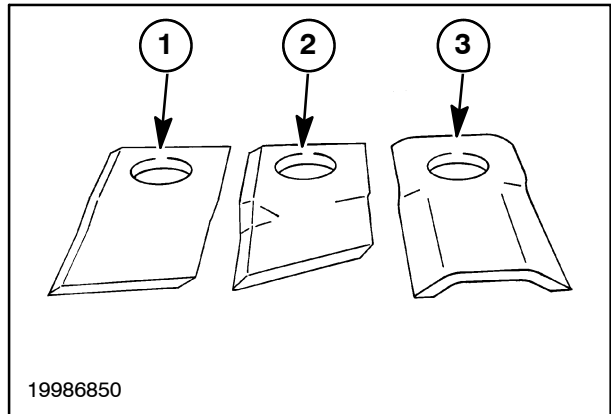
**IMPORTANT:** The knife bolts have a locking patch on them. If the knife bolts can be threaded into the nut by hand, replace the bolt.

When a knife or securing hardware is in question, replace it.

There are three styles of knives to choose from. Each style is designed for general field conditions. The 7° twist knives, 1, are recommended for abrasive (sandy) cutting conditions. In most crop conditions, the standard 14° twist knives, 2, may provide a cleaner cut than the standard 7° knives. Where excessive knife bending is a concern; for example, in rocky conditions, the V knives, 3, may be used.



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**WARNING**

**Replace cracked or severely deformed knives immediately to prevent an accident. Failure to comply could result in death or serious injury.**

If the cutter bar cannot be turned by hand due to material buildup under the discs, start the tractor and operate the PTO at 1/3 rated speed for 30 seconds. Shut the tractor off and recheck. If the cutter bar still cannot be turned by hand, it will be necessary to remove the discs and clean out material buildup.

**WARNING**

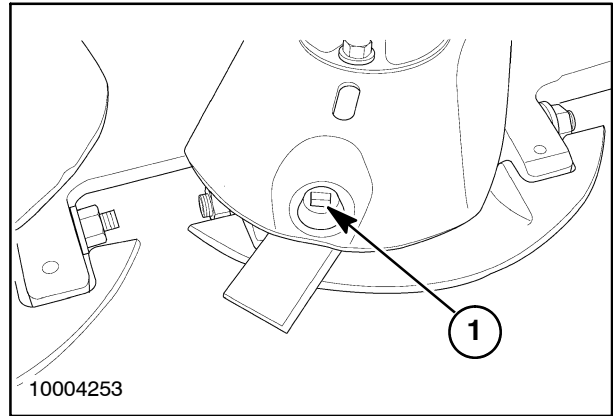
**Never operate the mower with the curtain folded rearward in the transport position. Failure to comply could result in death or serious injury.**

**KNIFE REPLACEMENT**

**IMPORTANT:** Inspect the cutter bar for leaks or other needed repairs whenever performing service work on the bar. If a leak is found, repair it immediately to prevent future failures.

**IMPORTANT:** Always replace both knives on a disc to maintain balance. Do not intermix old and new knives on a disc.

1. Remove the dirt from the square of the knife bolt, 1.

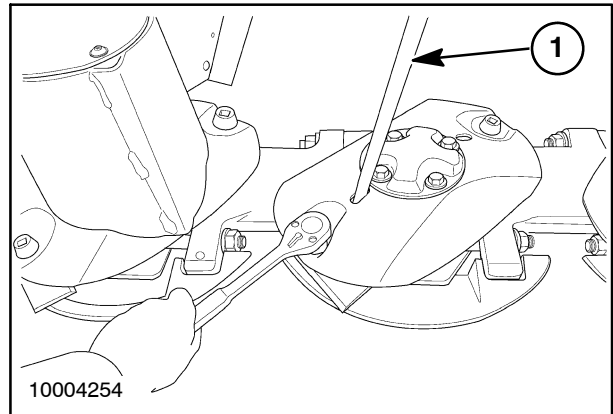


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2. Block the discs in place with a prybar, 1.
3. Remove the bolt with a 1/2" drive ratchet as shown. Hold the nut in place from the bottom with your hand. This will keep the nut from turning.

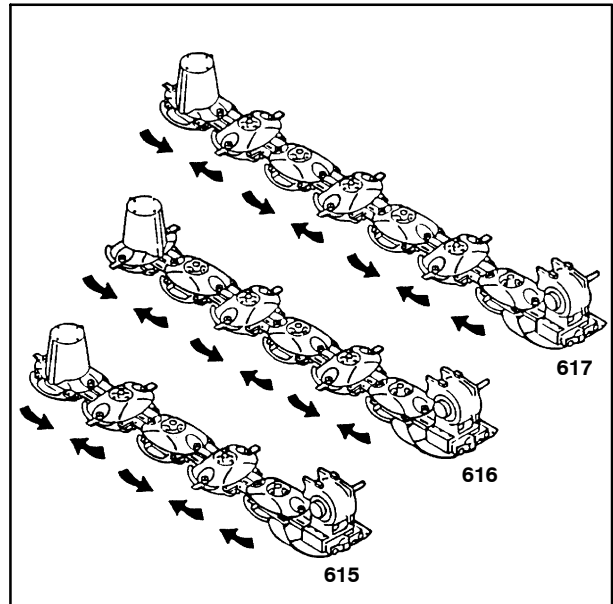
**NOTE:** If you are using an impact wrench, use a bar to hold the nut in place, not your hand.

4. The knife and the nut can be removed from under the disc after the bolt is removed.
5. Knives can be turned over to use the opposite cutting edge after they become dull or nicked. All knives are angled. Knives are referred to as clockwise or counterclockwise depending on which disc they are attached to.



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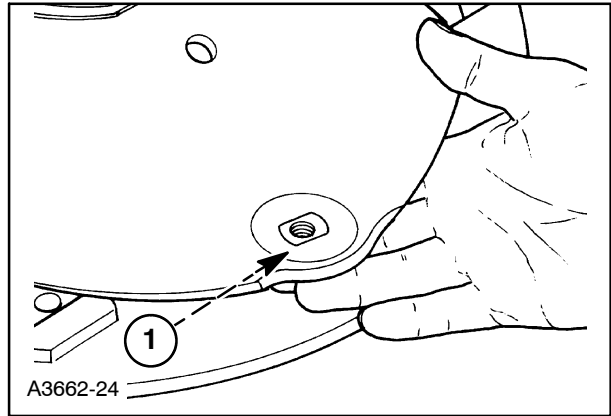
6. The leading edge of the knives must be lower than the rear edge. Refer to the figure as to which way the discs turn on each model. Note that on a 615 and 617, the #1 and #2 discs both rotate in the same direction (co-rotate); the remaining discs counterrotate like the 616.



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## SECTION 4 - MAINTENANCE

7. Install the nut through the knife and insert the nut, 1, into the bottom of the discs aligning it with the slot in the disc.

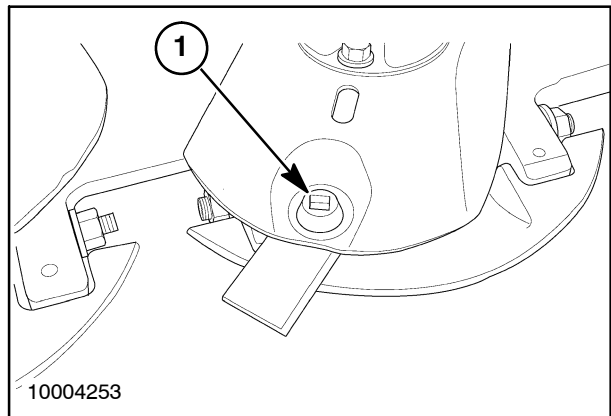


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8. Install the bolt, 1. Torque the bolts to 137 N·m (101 ft-lb).

**IMPORTANT:** After all knives are installed, turn the cutter bar by hand and check to be sure all knives are installed in the right direction.

**IMPORTANT:** Check for clearance between knives and swathboards anytime knives are turned or replaced. Adjust swathboards as required to eliminate interference.



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**ROCK GUARDS**

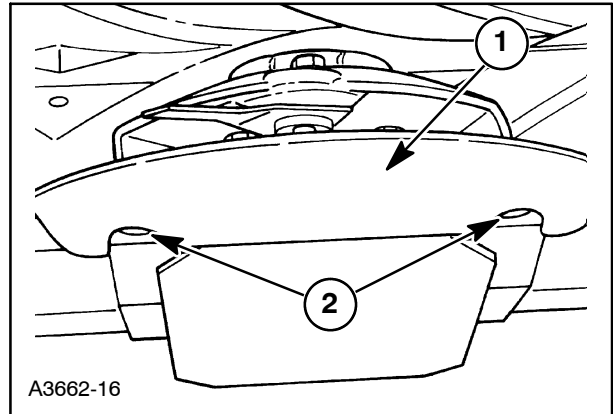
Rock guards, 1, can be removed by removing bolts, 2.

Replace broken rock guards immediately.

Replace rock guards which are worn thin before they break.

— **⚠ WARNING ⚠** —

**Disengage the PTO, turn off the tractor engine and remove the key. Wait for all movement to stop before leaving the operator's position. Never adjust, lubricate, clean or unplug machine with the engine running. Failure to comply could result in death or serious injury.**



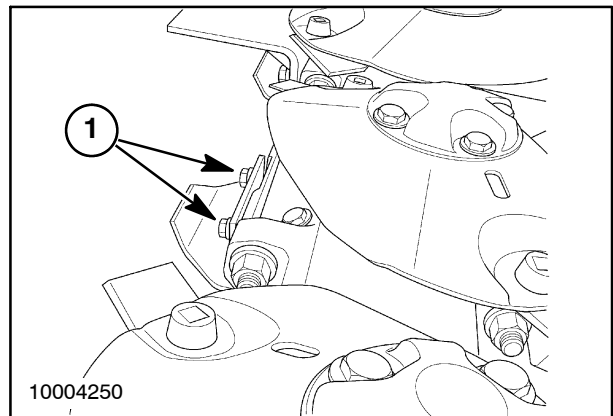
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**SKID SHOES**

Skid shoes can be removed by removing bolts, 1.

Replace broken skid shoes immediately.

Replace skid shoes which are worn thin before they break.



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**STORING THE MOWER**

1. Clean the mower. Grease all fittings.
2. Drain the oil from the bevel gearbox and all modules and refill with new, clean oil to the correct level. Run the mower for a few minutes.
3. Store the cutter bar in the operating position.
4. Remove the drive belt and store it in a dry place.
5. Clean the cutter bar rusted areas and touch up with factory paint. Spray cans are available from your authorized dealer.

# SECTION 5

## TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE	CORRECTION
Vibration.	<p>PTO shaft or U-joint damage.</p> <p>Material buildup in cutter bar drums.</p> <p>Cutter bar components damaged or missing.</p>	<p>Inspect and repair PTO shaft.</p> <p>Remove top cover and clean out drums.</p> <p>Inspect and repair components.</p>
Cutter bar not floating.	<p>Main frame setting incorrect.</p> <p>Cutter bar pivot points binding.</p> <p>Flotation system not engaged.</p> <p>Flotation spring adjustment.</p> <p>High stubble kit installed.</p>	<p>Adjust check chains to carry main frame 457 mm (18 in) (160 mm [24 in] on CAT I <b>615</b>) from ground and parallel.</p> <p>Raise frame height to 483 - 508 mm (19 - 20 in).</p> <p>Clean and lubricate pivot points.</p> <p>Install jack pin into flotation spring upper rod.</p> <p>Adjust flotation spring tension.</p> <p>Readjust check chains to carry main frame 508 mm (20 in) (660 mm [26 in] on CAT I <b>615</b> frame) from ground and parallel.</p>
Machine breaking back too easily.	<p>Insufficient tension on breakaway spring.</p> <p>Ground speed too fast for crop conditions.</p> <p>Insufficient cutter bar flotation.</p>	<p>Tighten breakaway spring until nut bottoms out.</p> <p>Reduce ground speed.</p> <p>Check and adjust flotation system.</p>
Difficulty in obtaining correct angle on cutter bar.	Lack of adjustment on top link.	Reposition top link to rear hole in main frame.



SECTION 5 - TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE	CORRECTION
Uneven stubble/streaking.	<p>Too much tilt on cutter bar.</p> <p>Low PTO speed.</p> <p>Excessive forward speed.</p> <p>Knives dull or broken.</p> <p>Knives stuck under disc.</p> <p>Knives installed on wrong discs.</p> <p>Drive belt loose.</p>	<p>Reduce tilt.</p> <p>Run PTO at 540 RPM. (Do not overspeed)</p> <p>Reduce forward speed.</p> <p>Install new knives.</p> <p>Straighten or replace knives.</p> <p>Install knives on correct discs.</p> <p>Tighten drive belt spring to correct length.</p>
Stubble too long.	<p>Incorrect angle on cutter bar.</p> <p>Ground speed too fast.</p> <p>Worn or damaged knives.</p> <p>Low PTO speed.</p>	<p>Change cutter bar angle.</p> <p>Reduce ground speed.</p> <p>Replace knives.</p> <p>Run PTO at 540 RPM. (do not overspeed)</p>
Drive belt failure.	Incorrect alignment or tension.	Check sheave alignment and belt tension.
Soil buildup on front of cutter bar.	Very wet crop conditions.	<p>Adjust main frame and cutter bar flotation. Reduce cutter bar angle.</p> <p>Install high stubble kit.</p>
Excessive power consumption.	Crop wrappage on end drum and swathboard. (if equipped)	Remove swathboard. (if equipped)

# SECTION 6

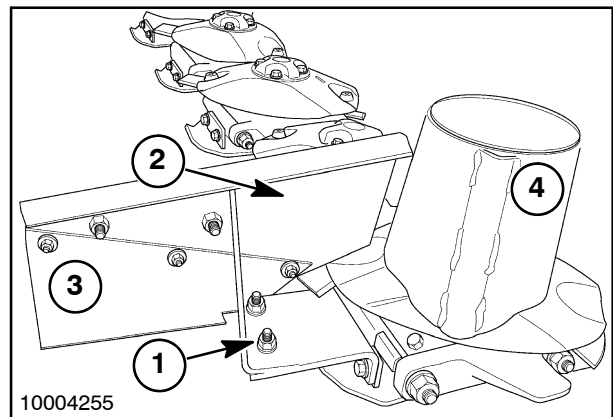
## OPTIONAL EQUIPMENT

Optional parts can be ordered through your authorized dealer.

### RIGHT SWATHBOARD KIT

**NOTE:** It may be necessary to remove the swathboards in some extreme crop conditions to prevent crop wrappage on the end drum.

The right swathboard kit consists of a support leg, 1, that mounts to the mount plate, a swathboard, 2, and a plastic flap, 3, that mounts behind the end tower, 4. The swathboard moves the crop inward to the right side, providing a narrowed swath, and may make it possible for the tractor to straddle the cut crop. The swath size is not adjustable.

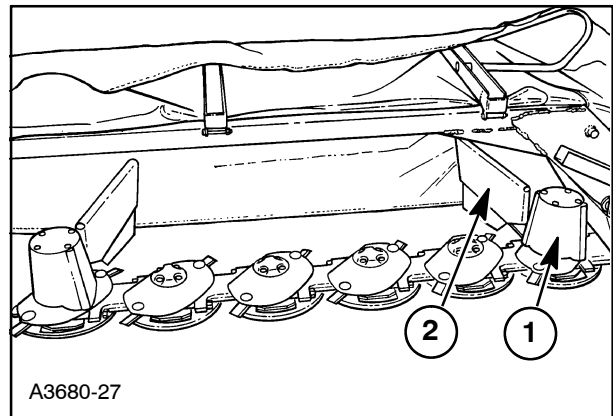


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### LEFT SWATHBOARD KIT

The left swathboard kit consists of a drum, 1, that installs on the No. 1 disc and a swathboard, 2, that mounts behind the No. 1 disc and drum. This moves the crop inward on the left side, providing a narrowed swath effect, and may make it possible for the tractor to straddle the cut crop. The swath size is not adjustable.

The swathboard clearance to the end drum flighting should be checked and adjusted, if necessary, anytime the knives are turned or replaced, or if crop wrappage is occurring.

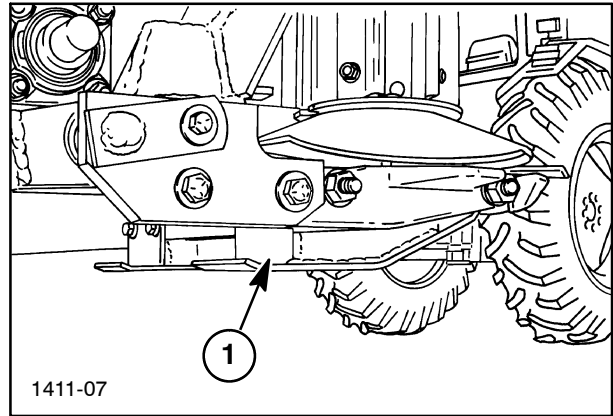


2

**HIGH STUBBLE KIT (3-1/2 - 5 IN)**

The high stubble kit is intended to provide a higher cutting height for clipping pastures, or for crops where a higher stubble height is desired. The cutting height range is approximately 127 mm (5 in) at 0 degrees cutter bar tilt to approximately 89 mm (3-1/2 in) at 10 degrees cutter bar tilt.

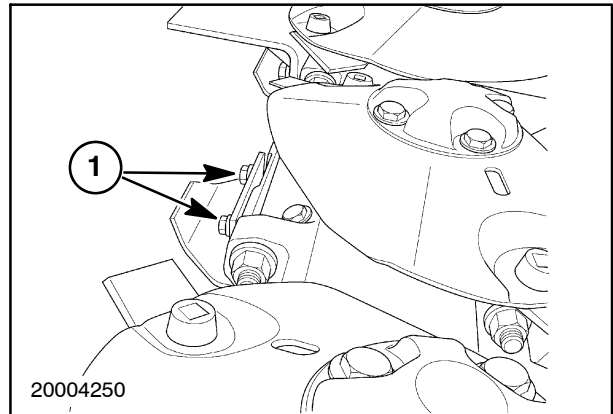
The high stubble kit consists of eight high skid shoes, 1. A high skid shoe should be installed under each disc module; extra skid shoes may be saved as spares.



3

To install the skid shoes, remove the standard skid shoes by removing the two 1/2" x 1-1/4" cap screws, 1, and cupped lock washers at the back of each disc module. Install the high skid shoe by inserting the front edge into the gap in the rock guard, and lift the skid shoe up to align the bolt holes. Reinstall the cap screws and torque to 113 N·m (83 ft. lbs.).

**IMPORTANT:** Longer 1/2" x 1-1/2" cap screws are used to retain the swathboard mounts and skid shoes to the inner and outer disc modules. Do not mix up the cap screws, as use of these longer cap screws at another disc module may cause module damage.

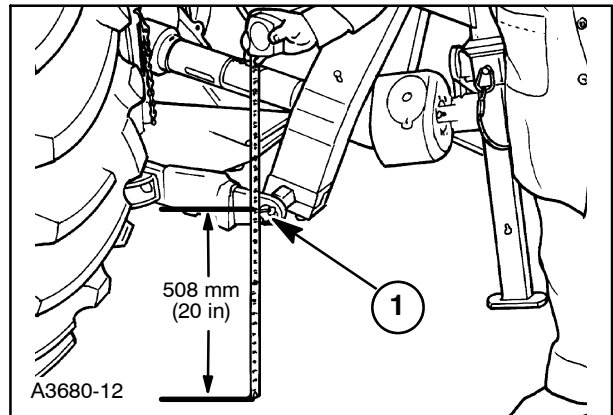


4

After installing the high stubble kit, readjust the cutter bar flotation to compensate for the increased cutter bar height. Readjust the check chains so that the hitch pins, 1, are as close to (but not less than) 508 mm (20 in) from the ground on **Model 615 below PIN 628300 and Models 616 and 617.**

On **Model 615 PIN 628301 and above**, readjust the check chains so that the hitch pins, 1, are as close to (but not less than) 660 mm (26 in).

Adjust the flotation spring length to the correct length as described in "Cutter Bar Flotation" in the Operation section of this manual.



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## KNIVES

New Holland has several disc mower and disc mower-conditioner knife blades available through Service Parts. Each type of knife is designed to function well in specific crop and field conditions. Contact your New Holland dealer for the disc mower/mower-conditioner knife that will work best in your conditions.

### 7 Degree Twist Knives

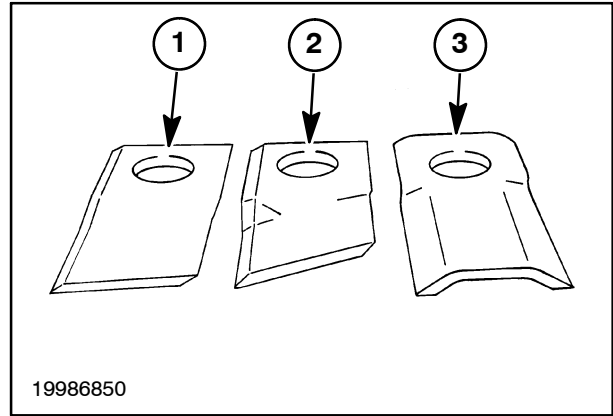
The 7 degree twist knives, 1, are recommended for abrasive (sandy) cutting conditions.

### 14 Degree Twist Knives

The standard 14 degree twist knives, 2, are recommended in most crop conditions. A greater knife twist angle enables the knife's cutting edge to cut closer to the ground while providing more lifting action to move the crop over the cutter bar into the conditioner producing a cleaner cut in most light crop conditions. However, because of the greater twist angle of the knife these knives are more susceptible to rock damage.

### V Knives

The V knives, 3, are recommended in rocky conditions where excessive knife bending is a concern. The V knife is to be installed with the concave side facing downward. This style knife has a greater resistance to bending when coming in contact with a foreign object. The cutting quality of this knife is not as good as with the twisted knives and will deteriorate with knife wear. However, they are more resistant to bending in rocky field conditions.



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# SECTION 7

## SPECIFICATIONS

	615	616	617
<b>Cutter Bar</b>			
Cutting Width .....	2040 mm (6 ft 8 in)	2400 mm (7 ft 10 in)	2800 mm (9 ft 2 in)
Cutting Height .....	32 – 89 mm (1.25 – 3.5 in)	32 – 89 mm (1.25 – 3.5 in)	32 – 89 mm (1.25 – 3.5 in)
Cutter Bar Tilt Angle .....	0 to -10°	0 to -10°	0 to -10°
Cutter Bar Operating Range .....	+18 to -32°	+18 to -30°	+18 to -28°
Breakaway Angle .....	19°	30.5°	30.5°
Type .....	Modular	Modular	Modular
No. of Discs .....	5	6	7
Knives Per Discs .....	2	2	2
Disc Cutting Diameter .....	500 mm (19.7 in)	500 mm (19.7 in)	500 mm (19.7 in)
Disc Drive .....	Bevel gears in sealed modules	Bevel gears in sealed modules	Bevel gears in sealed modules
Disc Speed .....	3000 RPM	3000 RPM	3000 RPM
 <b>Driveline</b>			
PTO HP Required - (minimum) .....	45	55	60
Input Speed .....	540 RPM	540 RPM	540 RPM
Driveline Protection .....	Belt drive to cutter bar, overrunning clutch on PTO shaft	Belt drive to cutter bar, overrunning clutch on PTO shaft	Belt drive to cutter bar, overrunning clutch on PTO shaft
Belt Tension .....	Spring loaded tensioner w/ adjustment gauge	Spring loaded tensioner w/ adjustment gauge	Spring loaded tensioner w/ adjustment gauge
 <b>Hydraulics and Hitch</b>			
Hydraulic Circuits Required .....	One remote	One remote	One remote
Minimum Relief Pressure Required ..	104 bar (1500 PSI)	104 bar (1500 PSI)	104 bar (1500 PSI)
Hitch .....	Category I	Category II	Category II
 <b>Dimensions and Weight</b>			
Overall Width .....	3524 mm (138.75 in)	4070 mm (160.25 in)	4616 mm (181.75 in)
Overall Length .....	1283 mm (50.5 in)	1283 mm (50.5 in)	1283 mm (50.5 in)
Height, Transport Position* .....	2489 mm (98 in)	3035 mm (119.5 in)	3581 mm (141 in)
Weight .....	546 kg (1200 lb)	639 kg (1405 lb)	698 kg (1535 lb)

\* Transport height is based on hitch pins being 609 mm (24 in) above ground on **Model 615 PIN 628301 and above** and 457 mm (18 in) above ground on **Model 615 below PIN 628300 and Models 616 and 617** as specified earlier in this manual.



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# DELIVERY REPORT

MODELS 615, 616, 617 DISC MOWERS

Delivery Date \_\_\_\_\_

Owner's Name \_\_\_\_\_

Address \_\_\_\_\_

Dealer's Name \_\_\_\_\_

Address \_\_\_\_\_

Model \_\_\_\_\_

PIN \_\_\_\_\_

Using the operator's manual as a guide, instruction was given as indicated by the check marks.

- Safety Precautions**
- Attaching to the Tractor
- Lubrication
- Maintenance
- Operation
- Field Operation
- Adjustments

Dealer representative signature \_\_\_\_\_ Date \_\_\_\_\_

I have been instructed in the operation, maintenance and safety features of this machine as detailed in the operator's manual.

Owner's signature \_\_\_\_\_ Date \_\_\_\_\_



# DELIVERY REPORT

MODELS 615, 616, 617 DISC MOWERS

Delivery Date \_\_\_\_\_

Owner's Name \_\_\_\_\_

Address \_\_\_\_\_

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