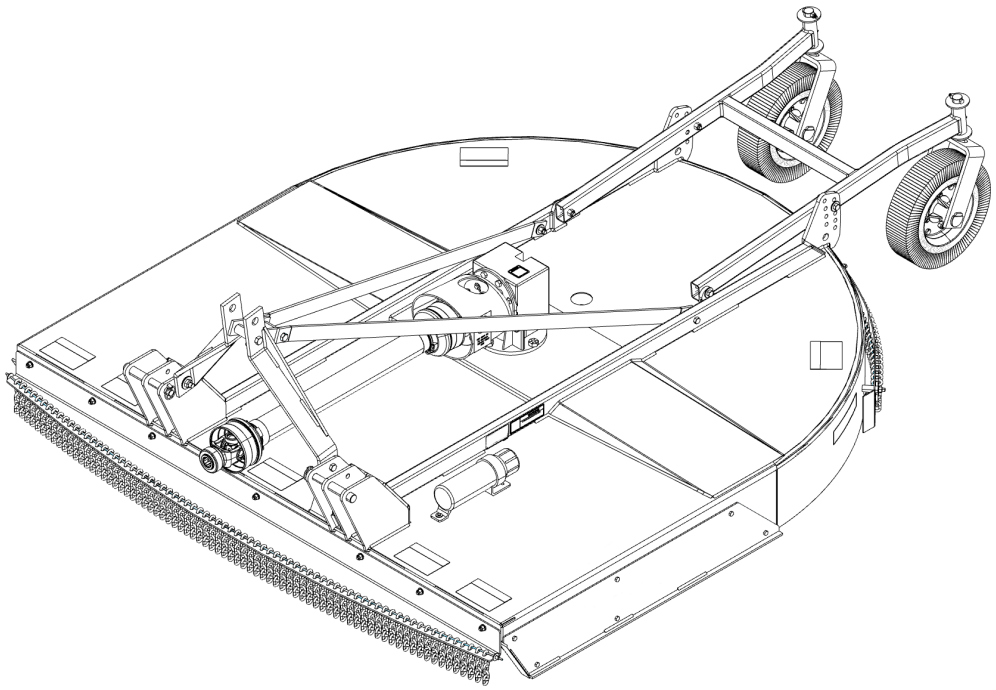
Medium Duty Tractor Rotary Cutter

Operation and Maintenance Manual



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4000658 | REV-A

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Register your WARRANTY within 30 days of purchase

BD-092

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INTRODUCTION

Owner Information

Thank you for your decision to purchase a Blue Diamond® Standard Duty Tractor Rotary Cutter. To ensure maximum performance of your equipment, it is mandatory that you thoroughly study the Operation and Maintenance Manual and follow the recommendations. Proper operation and maintenance are essential to maximize equipment life and prevent personal injury.

Operate and maintain this equipment in a safe manner and in accordance with all applicable local, state, and federal codes, regulations and /or laws. Follow all on-product labeling and instructions.

Make sure that all personnel have read this Operation and Maintenance Manual and thoroughly understand safe and correct operating, installation and maintenance procedures.

Blue Diamond® is continually working to improve its products. Blue Diamond® reserves the right to make any improvements or changes as deemed practical and possible without incurring any responsibility or obligation to make any changes or additions to equipment sold previously.

Although great care has been taken to ensure the accuracy of this publication, Blue Diamond® makes no warranty or guarantee of any kind, written or expressed, implied or otherwise with regard to the information contained within this manual. Blue Diamond® assumes no responsibility for any errors that may appear in this manual and shall not be liable under any circumstances for incidental, consequential or punitive damages in connection with, or arising from the use of this manual.

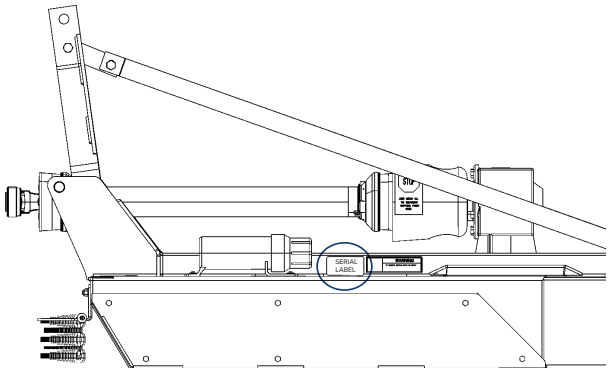
Keep this manual available for frequent reference. All new operators or owners must review the manual before using the equipment and annually thereafter. Contact your Blue Diamond® Attachments Dealer for assistance, information, or additional copies of the manual. Contact **www.bluediamondattachments.com** or call **888-376-7027** for a complete list of dealers in your area.

Operator Orientation

References made to left, right, front and rear, as mentioned throughout this manual, are as viewed from the operator's position.

Serial Number Location

The serial number label is located on the left side backstrap weldment near the manual holder.



Identifying Information

Please record attachment information in the space provided for future reference.

Model Number: _____

Serial Number: _____

Dealer Name: _____

Dealer Number: _____

Date of Purchase: _____

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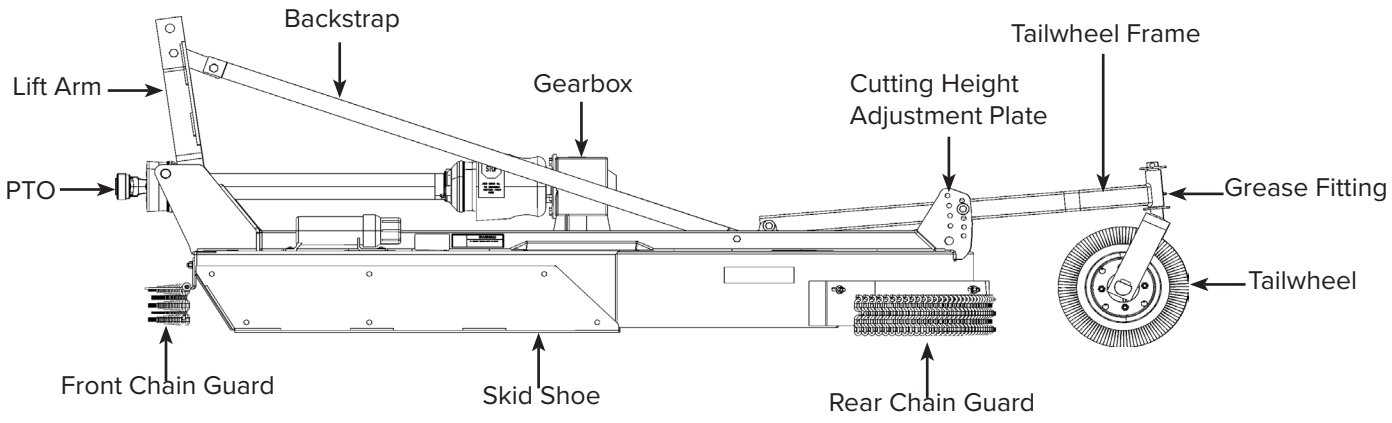
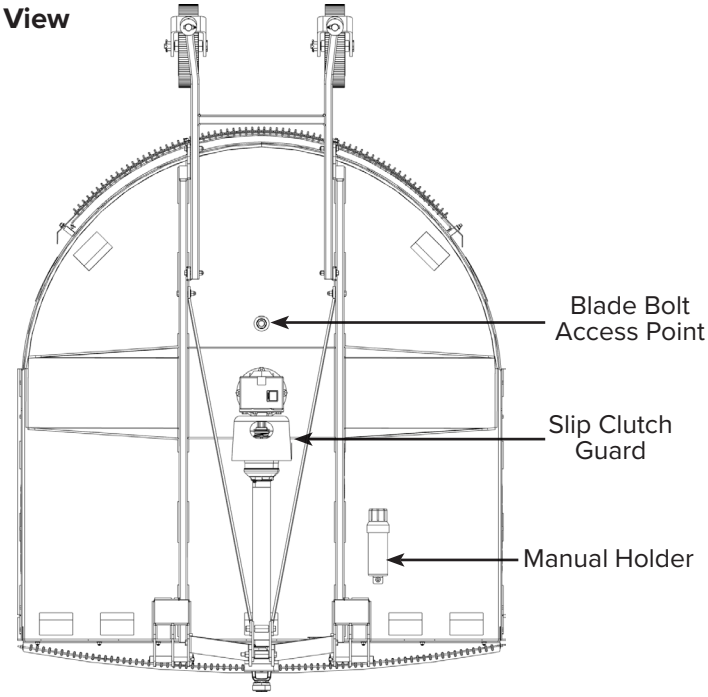
PRODUCT DESCRIPTION

The Medium Duty Rotary Cutter is intended for cutting grass and light brush up to 1” in diameter. It can be attached to a Category 1 or 2 tractor and is perfect for creating trails, mowing fields, and clearing overgrown areas for wildlife. The ten-gauge welded steel deck features replaceable skid shoes and a 32.5” diameter blade pan. Dual adjustable tailwheels allow for a cutting height range of 3” up to 11”. The 1/2” x 4” heat-treated, free-swinging blades cut at a rate of 14,380 Ft./Min., making the Medium Duty Rotary Cutter an efficient and effective tool.

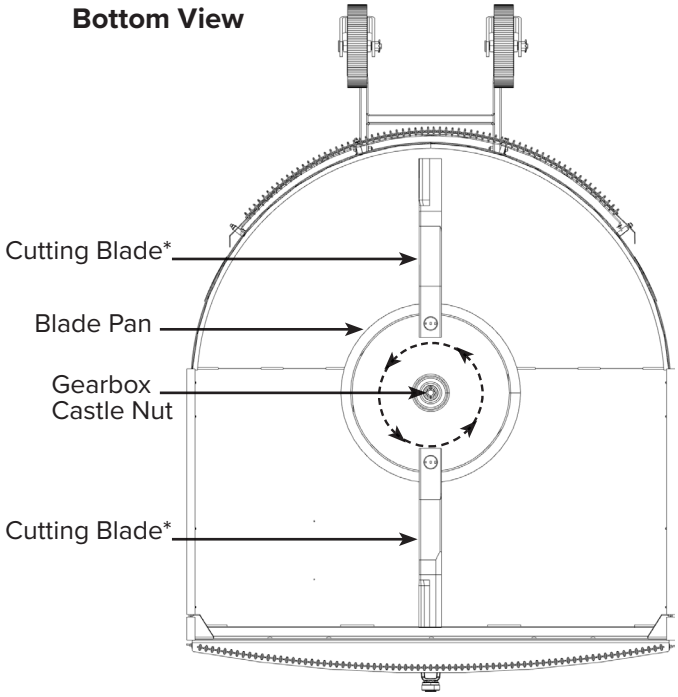
Side View



Top View



Bottom View



*Blades rotate counterclockwise.

IMPORTANT SAFETY MESSAGE FOR OWNERS/OPERATORS OF ROTARY CUTTERS
From members of the Farm Equipment Manufacturers Association

Rotary Cutter Manufacturer Product Council

Safety is a primary concern in the design, manufacture, sale, and use of rotary cutters. As manufacturers of rotary cutters, we want to confirm to you, our customers, our concern for safety. We also want to remind you about the simple, basic, and common sense rules of safety when using a rotary cutter. Failure to follow these rules can result in severe injury or death to operators or bystanders.

It is essential that everyone involved in the assembly, operation, transport, maintenance, and storage of this equipment be aware, concerned, prudent, and properly trained in safety. The majority of accidents involve entanglement on the driveline or thrown objects. These risks become greater when you do not use proper shielding specified by the manufacturer.

Our current production machines include, as standard equipment, guards or shields for drivelines and input shafts, safety signs and operators manuals. If you have an older machine which does not have current standard safety equipment, please contact your dealer about bringing your machine up to the current level of safety.

Below are some of the most important safety rules to be understood and followed by anyone who works with rotary cutters:

- Before operating a rotary cutter, an operator must read and understand all the information in the owner's manual and in the safety signs attached to the product. A person who has not read or understood the owner's manual and safety signs is not qualified to operate the cutter. Accidents occur often on machines that are loaned or rented to someone who has not read the owner's manual and is not familiar with a rotary cutter. If you do not have an owner's manual or current production safety signs, contact the manufacturer or your dealer immediately.
- Rotary cutters are designed for one-man operation. Never operate the cutter with anyone near, or in contact with, any part of the implement or PTO driveline. Be sure no one else, including bystanders, is near you when you operate this product.
- If operation of a rotary cutter around bystanders, animals, or property that may sustain damage (such as highway, park, or airport) is absolutely necessary, use safety guarding recommended by the manufacturer for thrown object prevention.

Following these simple, basic safety rules, as well as others identified in the owner's manual and in product safety signs, will help minimize the possibility of accidents and increase your productivity in using this product. Be careful and make sure that everyone who operates the cutter knows and understands that it is a very powerful piece of machinery, and if used improperly, serious injury or death may result. The final responsibility for safety rests with the operator of this machine.

FEMA

A safety manual for Rotary Cutters is available through the FEMA office.

Phone: 314.878.2304
E-mail: staff@FarmEquip.org

SAFETY GUIDELINES

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

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

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

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

⚠ SAFETY ALERT SYMBOL ⚠

This SAFETY ALERT SYMBOL identifies important safety messages on the equipment and in the owner's manual. When you see this symbol, be alert to the possibility of personal injury and carefully read the message that follows.

⚠ CAUTION ⚠

The signal word CAUTION on the machine and in the manual indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

⚠ DANGER ⚠

The signal word DANGER on the machine and in the manual indicates a hazardous situation which, if not avoided, will result in death or serious injury.

⚠ IMPORTANT ⚠

The signal word IMPORTANT identifies procedures which must be followed to avoid damage to the machine.

⚠ WARNING ⚠

The signal word WARNING on the machine and in the manual indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

NOTE: Notes are used to indicate important information. This information may be repeated in other areas of the manual.

CALIFORNIA PROPOSITION 65

WARNING: Cancer and reproductive harm
For more information about Proposition 65, please visit: www.p65warnings.ca.gov

Training

Safety instructions are important! Read all attachments and power unit manuals; follow all safety rules and safety decal information. (Replacement manuals and safety decals are available from authorized Blue Diamond® Attachments dealers.) Failure to follow instructions or safety rules can result in serious injury or death.

Operators needing assistance understanding any part of this manual should contact an authorized Blue Diamond® Attachments dealer.

Operators must be instructed in and capable of operating the equipment, its attachments, and all controls safely. No one should operate the equipment without proper instructions. Operators must know how to stop the tractor engine and attached implement quickly in an emergency.

Never allow children or untrained persons to operate equipment.

Preparation

Check that all hardware is properly installed.

Always tighten to torque chart specifications unless instructed otherwise in this manual.

Always wear relatively tight and belted clothing to avoid getting caught in moving parts. Wear sturdy, rough-soled work shoes and protective equipment for eyes, hair, hands, ears, and head; wear respirator or filter mask where appropriate.

Make sure implement is properly secured, adjusted, and in good operating condition.

Make sure collar slides freely and is seated firmly in tractor PTO spline groove.

Before servicing equipment, check and adjust driveline length as instructed in Operation and Maintenance Manual. Driveline must not bottom out or pull apart throughout the full range of the tractor hitch. **DO NOT** operate until driveline length is correct. Make sure driveline shield safety chain is attached as shown in this manual. Replace if damaged or broken.

Check that driveline guards rotate freely on driveline before servicing equipment.

Before starting power unit, check all equipment driveline guards for damage. Replace any damaged guards.

Make sure all guards rotate freely on all drivelines. If guards do not rotate freely on drivelines, repair and replace bearings before servicing equipment.

Inspect chain or rubber guards before each use. Replace if damaged.

Remove accumulated debris from this equipment, power unit, and engine to avoid fire hazard.

Power unit must be equipped with ROPS or ROPS cab and seat belt. Keep seat belt securely fastened. Falling off power unit can result in death from being run over or crushed. Keep foldable ROPS system in “locked up” position at all times.

A minimum of 20% of tractor and equipment weight must be on the tractor’s front wheels when implements are in transport position. Without this weight, tractor could tip over, causing personal injury or death. The weight may be attained with a loader, front wheel weights, ballast in tires or front tractor weights. Weigh the tractor and equipment. **DO NOT ESTIMATE!**

Make sure all safety decals are installed. Replace if damaged. (See pp. 8-10, **SAFETY AND INSTRUCTION LABELS** section for location.)

Make sure shields and guards are properly installed and in good condition. Replace if damaged.

Inspect and clear area of stones, branches, or other hard objects that might be thrown, causing injury or damage.

Starting and Stopping

Check the tractor master shield over the PTO (power take off) stub shaft. Make sure it is in good condition and fastened securely to the tractor. Purchase a new shield if old shield is damaged or missing.

Starting and Stopping Cont'd

All tractors that are not equipped with a "live" power takeoff (PTO) must be equipped with an over-running PTO clutch. These are available through most farm equipment stores.

NOTE: The addition of an over-running PTO clutch may change the length of the PTO driveline required. Be sure to refer to the installation instructions on page 15, PTO DRIVELINE INSTALLATION. Be sure that the driveline system guarding is adequate. Implement operating power is supplied from the tractor PTO. Refer to the tractor manual for PTO engagement and disengagement instructions.

Understand how to stop tractor and implement quickly in case of an emergency.

When engaging the PTO, the engine RPM should always be at idle speed. Once engaged and ready to start, raise PTO speed to 540-RPM and maintain throughout operation.

Transportation

Power unit must be equipped with ROPS or ROPS cab and seat belt. Keep seat belt securely fastened. Falling off power unit can result in death from being run over or crushed. Keep foldable ROPS system in "locked up" position at all times.

A minimum of 20% of tractor and equipment weight must be on the tractor's front wheels when implements are in transport position. Without this weight, tractor could tip over, causing personal injury or death. The weight may be attained with a loader, front wheel weights, ballast in tires or front tractor weights. Weigh the tractor and equipment. **DO NOT ESTIMATE!** Always comply with all state and local lighting and marking requirements.

Never allow riders on power unit or implement.

DO NOT operate PTO during transport.

Watch for hidden hazards on the terrain.

DO NOT operate or transport on steep slopes.

DO NOT operate or transport equipment while under the influence of alcohol or drugs.

When encountering rough terrain during transport, reduce tractor speed to minimize the horizontal movement of implement.

Stabilizer bars should be used during transport to reduce lateral movement of implement.

Operation

DO NOT allow bystanders in the area when operating, attaching, removing, assembling, or servicing equipment.

Never discharge directly toward people, animals, or property.

Use both front and rear guards to reduce the possibility of object being thrown.

This implement is intended for agricultural applications only. **DO NOT** operate within 300 feet of bystanders or public roads or highways.

DO NOT operate or transport equipment while under the influence of alcohol or drugs.

Keep hands, feet, hair, and clothing away from equipment while engine is running. Stay clear of all moving parts.

Operate only in daylight or satisfactory artificial light.

Always comply with all state and local lighting and marking requirements.

Never allow riders on power unit or implement.

Operate tractor PTO at 540 RPM. **DO NOT exceed!**

Power unit must be equipped with ROPS or ROPS cab and seat belt. Keep seat belt securely fastened.

Falling off power unit can result in death from being run over or crushed. Keep foldable ROPS system in "locked up" position at all times.

Always sit in power unit seat when operating controls or starting engine. Securely fasten seat belt, place transmission in neutral, engage brake, and ensure all other controls are disengaged before starting power unit engine.

DO NOT operate PTO during transport.

Look down and to the rear and make sure area is clear before operating in reverse (operating in reverse is not recommended).

DO NOT operate or transport on steep slopes.

DO NOT stop, start, or change directions suddenly on slopes.

Use extreme care and reduce ground speed on slopes and rough terrain.

Watch for hidden hazards on the terrain during operation. Stop power unit and equipment immediately upon striking an obstruction. Turn off engine, remove key, inspect, and repair any damage before resuming operation.

Leak down or failure of mechanical or hydraulic system can cause equipment to lower.

Maintenance

Before detaching power unit or performing any service or maintenance, follow these steps: disengage power to equipment, lower the 3-point hitch and all raised components to the ground, set parking brake, stop engine, remove key, and unfasten seat belt.

Before performing any service or maintenance, disconnect driveline from tractor PTO.

Before working underneath, carefully read Operation and Maintenance Manual instructions, disconnect driveline, securely block up all corners, and check stability. Secure blocking prevents equipment from dropping due to hydraulic leak down, hydraulic system failures, or mechanical component failures.

DO NOT modify, alter, or permit anyone else to modify or alter the equipment or any of its components in any way.

Always wear relatively tight and belted clothing to avoid getting caught in moving parts. Wear sturdy, rough-soled work shoes and protective equipment for eyes, hair, hands, ears, and head; wear respirator or filter mask where appropriate.

Make sure implement is properly secured, adjusted, and in safe operating condition.

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

Never go underneath equipment (lowered to the ground or raised) unless it is properly blocked and secured. Never place any part of the body underneath equipment or between movable parts even when the engine has been turned off. Hydraulic system leak down, hydraulic system failures, mechanical failures, or movement of control levers can cause equipment to drop or rotate unexpectedly and cause severe injury or death. Follow Operation and Maintenance Manual instructions for working underneath and blocking procedures.

Make certain all movement of equipment components has stopped before approaching for service.

Frequently check blades/tines/shanks. They should be sharp, free of nicks and cracks, and securely fastened.

DO NOT handle blades/tines/shanks with bare hands. Careless or improper handling may result in serious injury.

Storage

Block equipment securely for storage.

Keep children and bystanders away from storage area.

Follow manual instructions for storage.

Always use a tractor to position equipment for storage. Never attempt to move equipment by hand.

Equipment Safety Guidelines

Safety of the operator and bystanders is one of the main concerns in design and development. However, accidents always occur which could have been avoided by a few seconds of thought and a more careful approach to handling equipment. Operators and others working with them can avoid many accidents by observing the following precautions.

In order to provide a better view, certain photographs or illustrations in this manual may show an assembly with a safety shield removed. However, equipment should never be operated in this condition. Keep all shields in place. If shield removal becomes necessary for repairs, replace the shield prior to use.

Replace any safety sign that is illegible or missing. Location of such safety signs are indicated in this manual.

Never use alcoholic beverages or drugs that can hinder alertness or coordination while operating this equipment. Operators should consult their doctor about operating this machine while taking prescription medications.

Under no circumstances should children under the age of 18 be allowed to operate this equipment. DO NOT allow persons to operate or assemble this unit until they have read this manual and have developed a thorough understanding of the safety precautions and how it works. Review the safety instructions with all users annually.

This equipment can be dangerous to children and persons unfamiliar with its operation. The operator should be a responsible, properly trained and physically able person familiar with farm machinery and trained in this equipment's operations.

Use a tractor equipped with a Rollover Protection System and seat belts. (ROPS)

Never exceed the limits of a piece of machinery. If its ability to perform a job safely, is in question, DON'T TRY IT.

DO NOT modify the equipment in any way. Unauthorized modification could result in serious injury or death and may impair the function and life of the equipment.

In addition to the design and the confirmation of this implement, including safety signs and safety equipment, hazard control and accident prevention are dependent upon the awareness, concern, prudence, and proper training of personnel involved in the operation, transport, maintenance, and storage of the machine. Refer also to safety messages and operation instruction in each of the appropriate sections of the tractor and implement manuals. Heed the safety signs affixed to both the tractor and implement.

SAFETY AND INSTRUCTION LABELS

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

Replace immediately if damaged!

The Medium Duty Tractor Rotary Cutter comes equipped with all safety labels in place. These labels instruct the operator on the safe use of the equipment. They inform operators about hazards associated with normal operation or foreseeable product misuse and how to avoid them to prevent physical injury or death. All operators are required to read and follow directions on the safety labels.

Safety Label Guidelines

1. Keep all safety labels clean and legible.
2. Replace all damaged or missing labels.
3. New equipment installed during repairs may require replacement safety labels to be affixed to the replaced part, if missing.
4. Contact an authorized Blue Diamond® Attachments dealer to order replacement labels.
5. Refer to Figure 1 and 2 for proper label placement.
6. When installing new labels:
   a. Clean placement surface with isopropyl alcohol wipes. Wipe in one direction to avoid spreading contamination, then wipe surface with a clean, dry rag.
   b. Ensure application surface is above 50°F (10°C) at the time of installation. When surface temperature is below the specified application temperature, use an approved heat source to increase its temperature.
   c. Peel backing from label, carefully center and place label in proper location ensuring no creases or air pockets.
   d. Press label firmly onto the surface and use a straight edge to smooth the label on the machine for a secure adhesion.

Figure 1

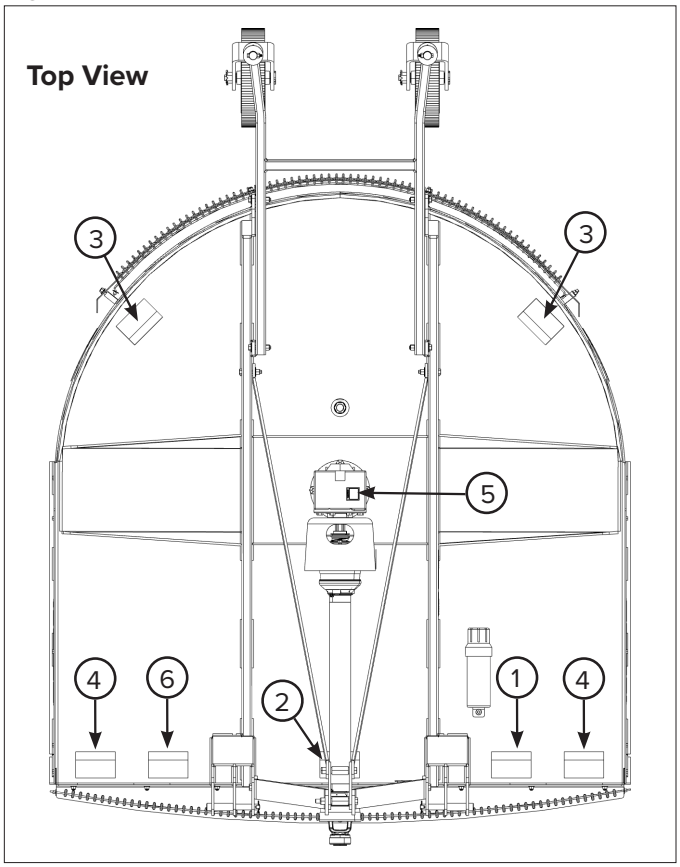
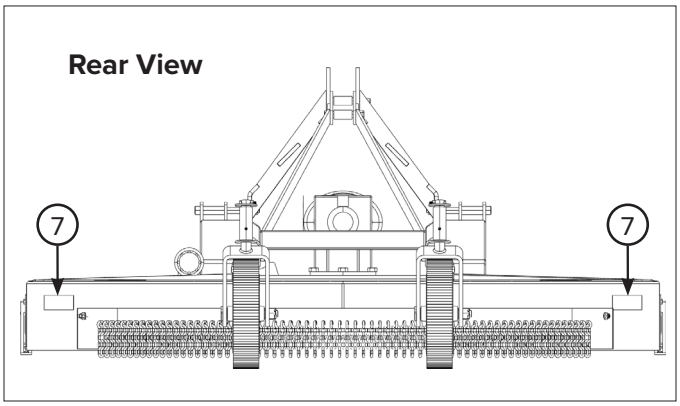


Figure 2



SAFETY AND INSTRUCTION LABELS

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

Replace immediately if damaged!

1 SERIOUS INJURY

2 ROTATING DRIVELINE

(2 needed)

3 THROWN OBJECT

(2 needed)

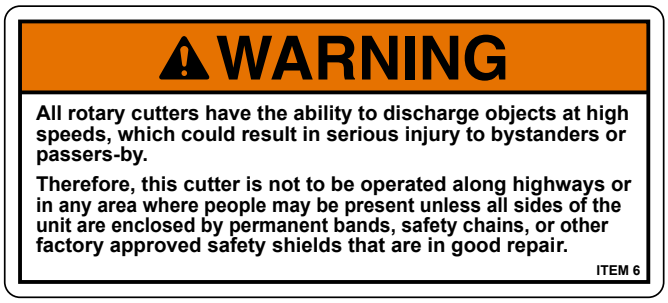
4 ROTATING BLADES

SAFETY AND INSTRUCTION LABELS

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

Replace immediately if damaged!

(5) NEEDS OIL



(6) THROWN OBJECT

(2 needed)
(7) RED REFLECTOR

ASSEMBLY

The Medium Duty Tractor Rotary Cutter ships in an upright position, securely attached to shipping stands. The lift arms and tailwheel H-frame assembly are folded flat and must be transitioned to user position for the rotary cutter to operate as intended. An authorized Blue Diamond Attachments dealer may have already performed some or all of the assembly steps outlined on page 12-19. All operators should review these instructions before attempting to use the rotary cutter to ensure that it is properly assembled.

INCLUDED HARDWARE:

Kit 1 - Tailwheel Adjustment Plate Hardware

1/2”-13 X 3” Gr. 5 Hex Bolt (x2)

1/2” Flat Washer (x2)

1/2”-13 Nylon Lock Nut (x2)

Kit 2 - Slip Clutch Shield Hardware

5/16”-18 x 1/2” Gr. 2 Hex Cap (x4)

5/16” Flat Washer (x4)

Kit 3 - Chain Guard Hardware

3/8”-16 x 1-1/4” Carriage Bolt (x7)

3/8” Flat Washer (x7)

3/8”-16 Nylon Lock Nut (x7)

7/16”-14 x 3” Carriage Bolt (x4)

7/16” Flat Washer (x4)

7/16”-14 Nylon Lock Nut (x4)

1/2” x 2” Tube (x4)

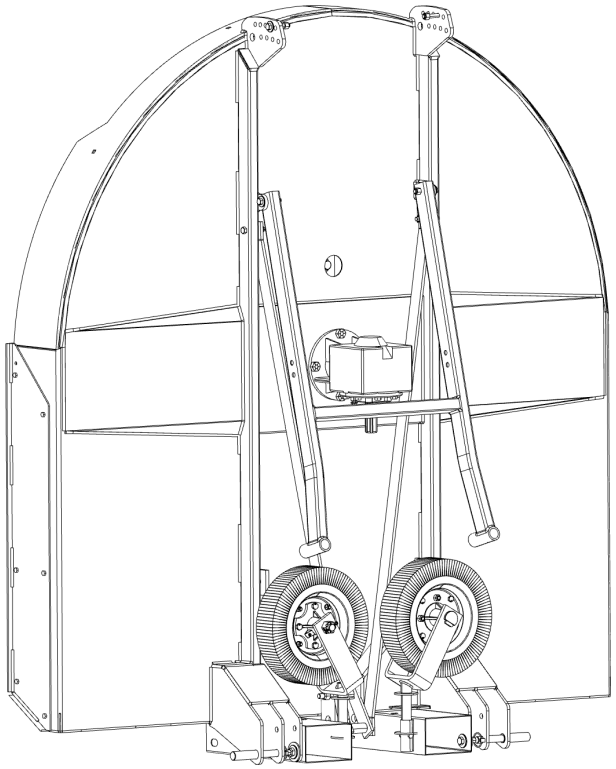
TOOLS NEEDED:

- Tie Cutters
- 9/16” Wrench or Socket
- 3/4” Wrench or Socket
- 15/16” Wrench or Socket
- Lifting or hoisting vehicle (minimum 800 lb lift capacity)
- Chain or strap with appropriate tensile strength to support rotary cutter weight
- (4) 4” x 4” solid wood blocks or other supports capable of sustaining rotary cutter weight

RECOMMENDED PERSONAL PROTECTIVE EQUIPMENT:

- Hard hat
- Safety glasses
- Work gloves
- Sturdy, rough-soled work shoes

SHIPPING POSITION:



(Zip ties and protective cardboard not shown.)

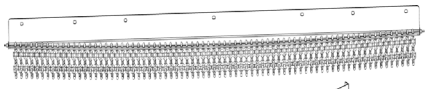
403075 Tailwheel H-frame and Lift Arm Assembly Instructions

WARNING

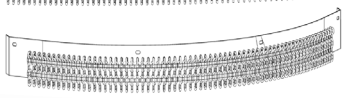
- Assemble rotary cutter on level ground.
- Watch for possible pinch points and crushing hazards.
- Wear appropriate personal protective equipment.
- Keep bystanders and persons not involved with assembly away from assembly area.

1. With rotary cutter still in shipping position, cut zip ties to remove:

- Front Chain Guard



- Rear Chain Guard



- PTO Shaft

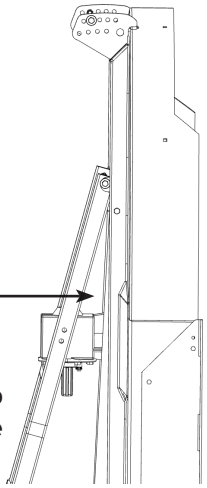
- Slip Clutch Shield

Set items aside.

2. Remove all hardware kits from manual holder and set aside.

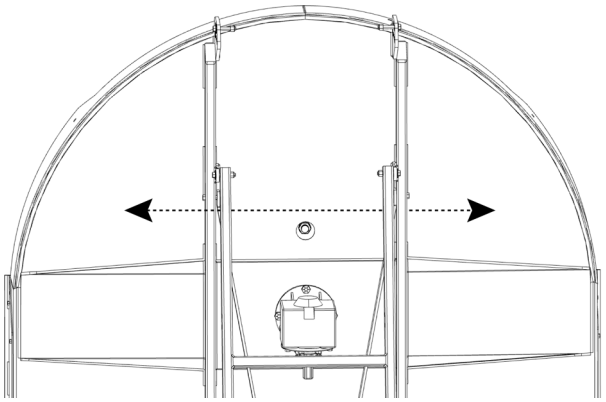
3. Thread a lift strap or chains underneath folded H-frame tailwheel assembly and securely attach to lifting vehicle or hoist.

Thread lift strap or chains underneath folded tailwheel H-frame.



Shown without zip ties or protective cardboard.

3. (Continued)

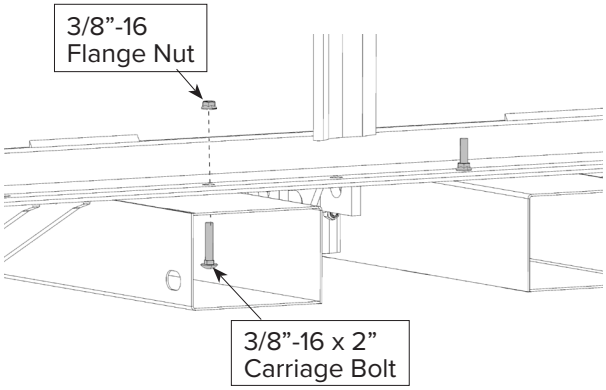


Thread lift strap or chains underneath H-frame.

WARNING

Step 4 requires assemblers to position themselves between the rotary cutter and the lifting/hoisting vehicle. Before performing this step, disengage power to the lifting/hoisting vehicle. Turn off engine, set parking brake, and remove key if applicable. Watch for pinch points and crushing hazards.

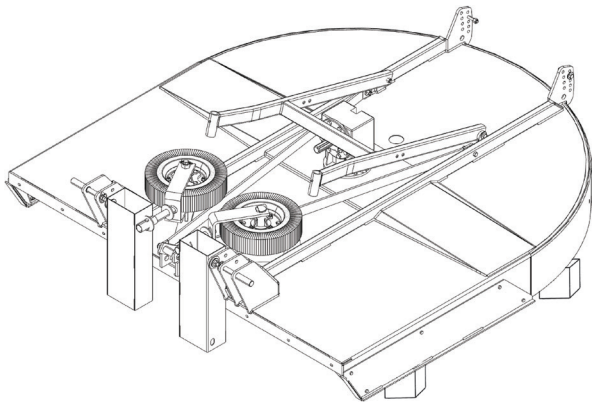
4. Use a 9/16” wrench or socket to remove the 3/8”-16 flange nut and 3/8”-16 x 2” carriage bolt connecting each shipping stand to the front of the rotary cutter deck. Discard hardware.



Remove Flange Nuts and Carriage Bolts.

403075 Tailwheel H-frame and Lift Arm Assembly Instructions Cont'd

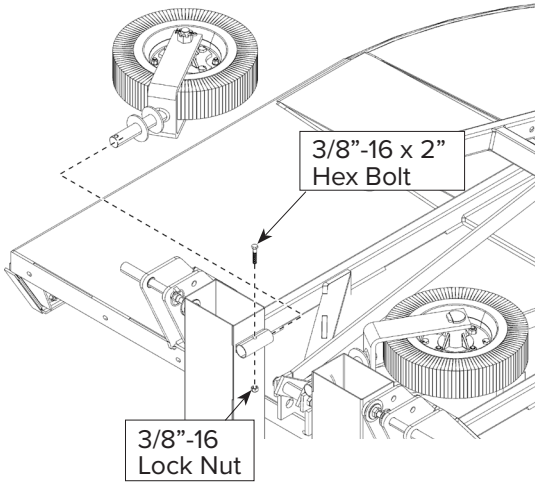
5. Use lifting vehicle or hoist to lower the rotary cutter onto support blocks. Remove the lift straps or chains and move the lifting vehicle away from the assembly area.



Lower Rotary Cutter onto support blocks.

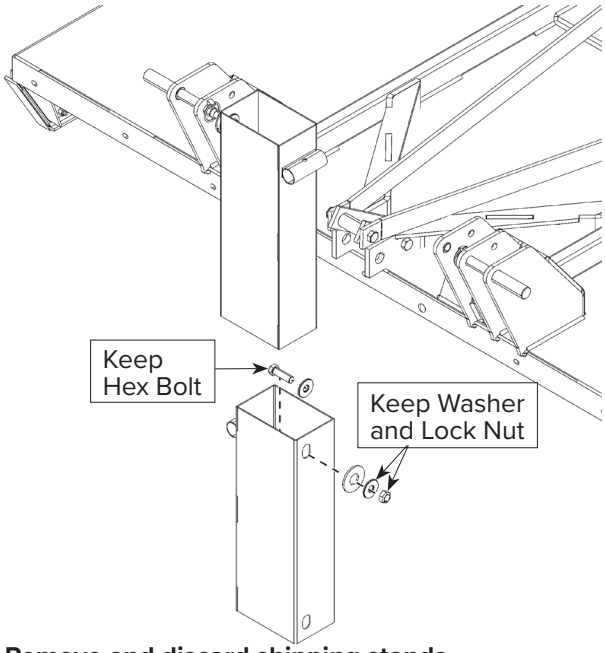
6. Cut zip ties and remove protective cardboard from hitch support straps.

7. Use a 9/16" wrench or socket to remove the 3/8"-16 nylon lock nut and the 3/8"-16 x 2" hex bolt securing each tailwheel to the shipping stands. Remove tailwheels from shipping stands and set aside. Keep all hardware for Step 11 - tailwheel installation.



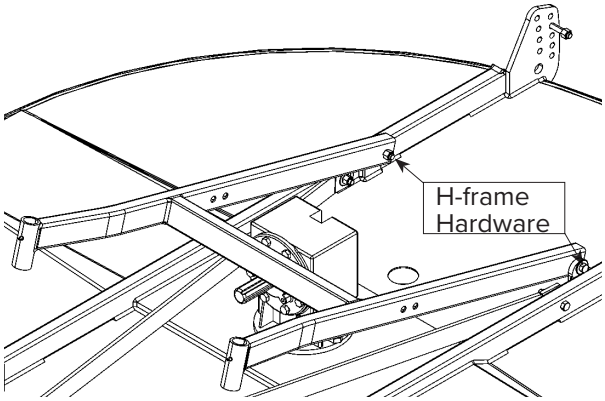
Remove tailwheels from shipping stands.

8. Use a 15/16" wrench or socket to remove the 5/8"-11 stover lock nut, 5/8"-11 x 2" hex bolt, and three flat washers securing shipping stands to rotary cutter hitch weldment, then remove shipping stands. Keep the lock nut, hex bolt and one 5/8" flat washer from each shipping stand; this hardware is needed for Step 17-18 - lift arm installation. Discard shipping stands.



Remove and discard shipping stands.

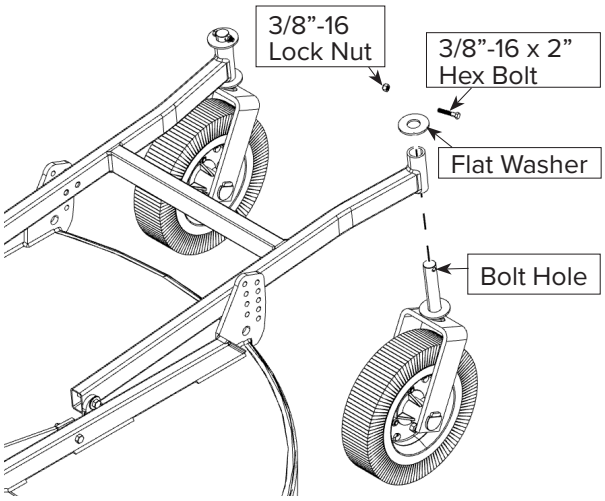
9. Using a 3/4" wrench or socket, loosen but do not remove the hardware securing tailwheel H-frame to rotary cutter.



Loosen tailwheel H-frame hardware.

10. Fold tailwheel H-frame towards the back of the rotary cutter and into operating position.

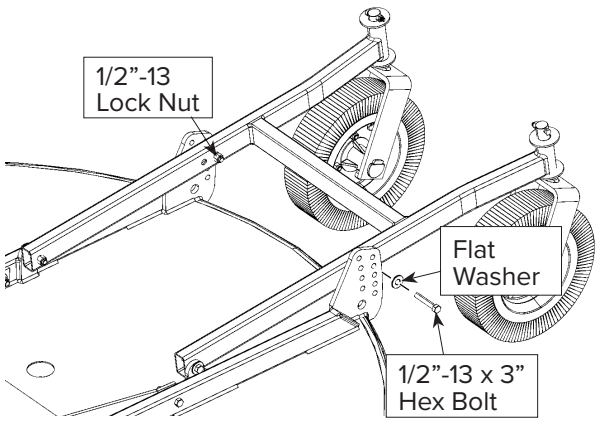
11. Install tailwheels onto the tailwheel H-frame by passing the tailwheel fork through the tailwheel attachment point. Place the flat washer removed during Step 7 onto the tailwheel fork, then insert the 3/8”-16 x 2” hex bolt retained from Step 7 into the hole at the top of the tailwheel fork. Secure the hex bolt with 3/8”-16 nylon lock nut. Tighten to correct torque specifications.



Attach tailwheels. Secure with washer and bolt.

12. Set tailwheel H-frame to desired height by passing a supplied 1/2”-13 x 3” hex bolt with 1/2” flat washer through each cutting height adjustment plate and the tailwheel H-frame. Ensure the threaded points of the bolt face inward. Both bolts should be inserted into adjacent holes on the cutting height adjustment plates so the tailwheel H-frame rests evenly.

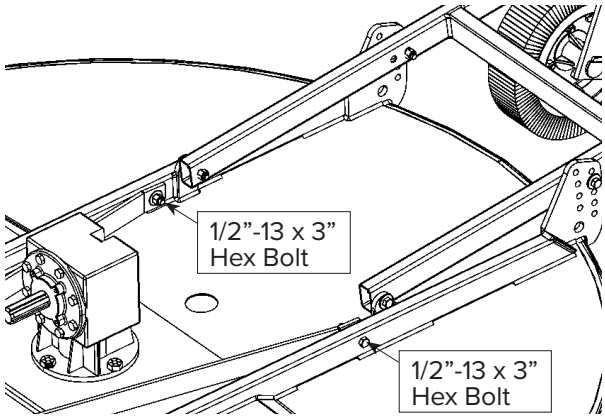
13. Use a 3/4” wrench or socket to secure each height adjustment bolt with a supplied 1/2”-13 nylon lock nut. Tighten to correct torque specifications.



Install cutting height adjustment hardware.

14. Tighten hardware securing tailwheel H-frame to rotary cutter deck.

15. Using a 3/4” wrench or socket, loosen but do not remove the 1/2”-13 x 3” hex bolts securing the backstraps to the rotary cutter frame.

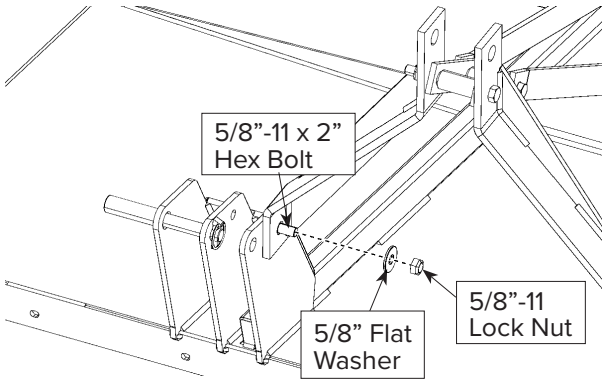


Loosen backstrap hardware.

16. Raise lift arms from shipping position into operating position.

17. Using the hardware from Step 8, pass a 5/8”-11 x 2” hex bolt through the right hitch weldment and lift arm. The threaded point of the bolt should face inward. Repeat on the left side.

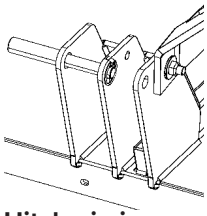
18. Secure each lift arm bolt with a 5/8”. flat washer and a 5/8”-11 stover lock nut. Tighten lift arm and backstrap hardware to correct torque specifications.



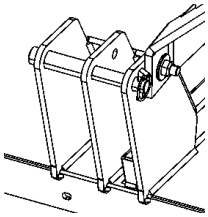
Secure lift arms with bolt, washer, and lock nut.

403075 Tailwheel H-frame and Lift Arm Assembly Instructions Cont'd

19. Remove hitch pins from hitch weldment and reinstall in the correct operating position.



Hitch pin in shipping position.



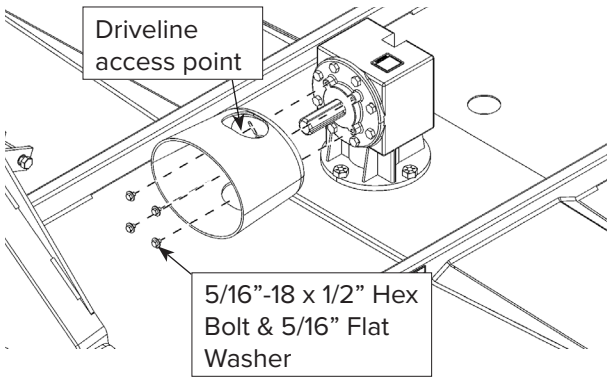
Hitch pin in user position.

20. Continue assembly with **403075 PTO Driveline Installation** instructions below.

403075 PTO Driveline Installation

1. Position the Slip Clutch Shield onto the Rotary Cutter gearbox. Align the shield so that one of the driveline access panels faces upward.

2. Insert the four 5/16"-18 x 1/2" hex bolts and 5/16" flat washers from the supplied hardware kit. Tighten bolts to correct torque specifications using a 1/2" wrench.



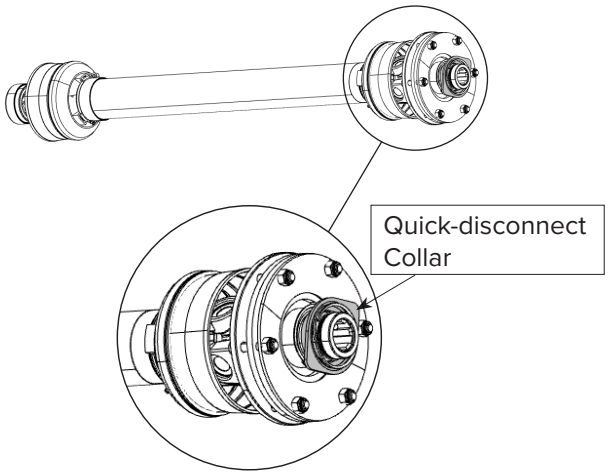
Install Slip Clutch Shield using supplied hardware. (Backstraps removed for illustration purposes.)

3. Open the driveline access panel on the Slip Clutch Shield.

WARNING

Watch for possible pinch points.

4. Position the implement end of the PTO driveline toward the gearbox. Compress the quick-disconnect collar, then push the driveline onto the gearbox shaft. Release the quick-disconnect collar and pull forward on the PTO driveline so that it meshes with the gearbox shaft. Ensure a secure connection by pulling and pushing on the PTO driveline.



5. Close the driveline access panel on the Slip Clutch Shield.

6. Remove the safety chain from the bag on the PTO driveline shaft and attach the clip to the side of the Slip Clutch Shield.

Attach PTO driveline safety chain.

7. Continue assembly with page 16, **ATTACHING FRONT CHAIN GUARDS**, and **ATTACHING REAR CHAIN GUARDS**

Attaching Front Chain Guards

Use the supplied hardware listed below to install the front chain guards.

Front Chain Guard Hardware

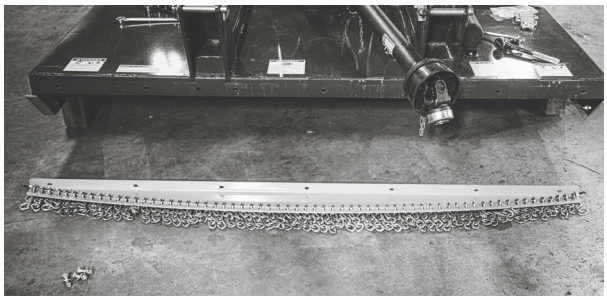
3/8”-16 x 1-1/4” Carriage Bolt (x7)

3/8” Flat Washer (x7)

3/8”-16 Nylon Lock Nut (x7)

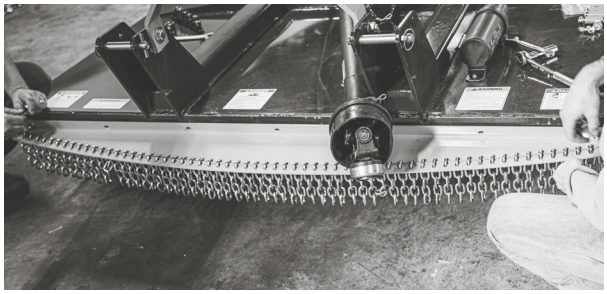
1. Lay front guard with flange and cable facing up as shown in Figure 3.

Figure 3



2. Lift guard straight up and insert one (1) 3/8”-16 x 1/4” carriage bolt through each bolt hole on the rotary cutter deck and chain guard.

NOTE: Bolt threads should face outward, away from the cutting blades.



3. Secure each bolt with a 3/8” flat washer and 3/8”-16 nylon lock nut.

4. Use a 9/16” socket to tighten the lock nuts and carriage bolts to correct torque specifications. (See torque chart on page 39.)

Attaching Rear Chain Guards

Use the supplied hardware listed below to install the rear chain guards.

Rear Chain Guard Hardware

7/16”-14 x 3” Carriage Bolt (x4)

7/16” Flat Washer (x4)

7/16”-14 Nylon Lock Nut (x4)

1/2” x 2” Tube (x4)

1. Insert one (1) 7/16”-14 x 3” carriage bolt through each bolt hold on the rotary cutter deck.

NOTE: Bolt threads should face outward, away from the cutting blades.

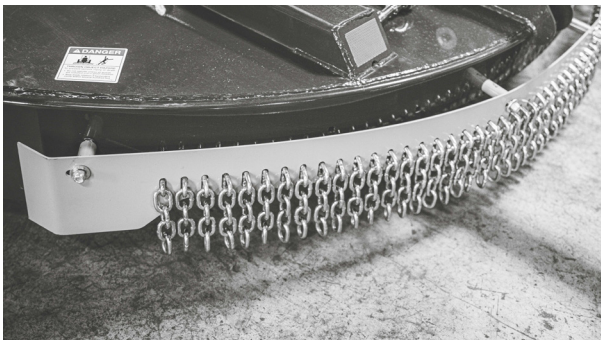
2. Slide one (1) 1/2” x 2” tube spacer onto each carriage bolt.

3. Hang the rear chain guard onto the bolts and spacers.

4. Secure each bolt with a 7/16” flat washer and 7/16”-14 nylon lock nut. Hand-tighten the lock nuts.

5. Use a 5/8” socket to tighten the lock nuts and carriage bolts to correct torque specifications. (See torque chart on page 39.)

NOTE: It is important to tighten the carriage bolts and lock nuts in sequential order, starting at one end and moving towards the opposite end.



6. Continue assembly with page 17, **INITIAL LUBRICATION.**

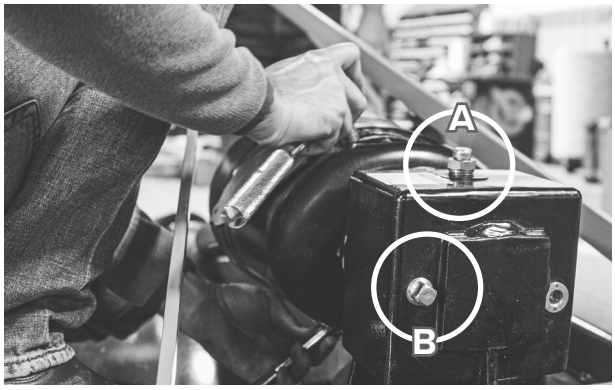
Initial Lubrication

IMPORTANT

New Rotary Cutters ship without oil in the gearbox and without grease in the grease fittings. **UNIT MUST BE SERVICED BEFORE FIRST USE!**

1. Remove the breather plug (see Figure 4, A), and check plug (see Figure 4, B).

Figure 4



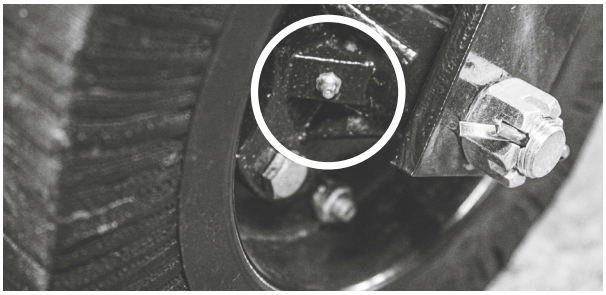
2. Add EP 80W-90 gear oil until level with check plug hole, then reinstall the breather plug and check plug.

3. Use TYPE/Grade II tube grease to lubricate the tailwheel pivot points (see Figure 5).

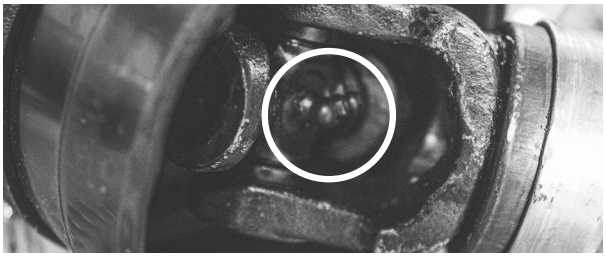
NOTE: Each tailwheel pivot point has a grease fitting.

Figure 5

4. Use TYPE/Grade II tube grease to lubricate each tailwheel hub.



5. Use TYPE/Grade II tube grease to lubricate PTO Shaft cross bearings.



6. Continue assembly with page 18, **ATTACHING TO TRACTOR 3-POINT LINKAGE**, and **DETACHING ROTARY CUTTER FROM TRACTOR,** then read page 19, **CHECKING DRIVELINE CUTTER CLEARANCE.**

Attaching to Tractor 3-Point Linkage

DANGER

To avoid bodily injury or machine damage whenever Rotary Cutter is attached, put transmission in PARK position and check the full range of hitch for interference, binding, or PTO separation. **DO NOT** stand between tractor and Rotary Cutter.

1. Back up tractor to cutter with hitch points approximately in alignment.
2. Engage tractor parking brake and/or place transmission in Park.
3. Shut off tractor engine and remove key.
4. Remove center link mounting hardware and hitch pin assemblies at both hitch masts.
5. Install tractor draft links on hitch pins. Secure with quick lock pins (stored on tractor draft links.)
6. Align center link with upper hole in cutter mast straps and install center link mounting hardware.

DANGER

Shut off tractor engine before attaching PTO driveline. Entanglement in rotating driveline can cause serious injury or death.

IMPORTANT

Keep driveline and powershaft splines clean of paint, dirt and chaff. Apply grease to tractor PTO shaft before attaching PTO driveline.

7. Shut off tractor engine.
8. Raise tractor PTO shield, if equipped.

IMPORTANT

DO NOT use shielding bell on driveline to lift driveline into position. Damage to shielding can occur.

9. Support driveline, cradling it in your hand.
10. Pull pin back toward cutter. Align splines by rotating cutter driveline. Push driveline onto tractor PTO shaft until pin snaps into place.
11. Pull back on shield to make sure driveline is locked.
12. DO NOT pull back on pin this will release latch.
13. Lower tractor PTO shield, if equipped.

Detaching Rotary Cutter from Tractor

CAUTION

To prevent personal injury caused by unexpected movement:

a. Park machine on a level surface.
b. Engage tractor parking brake and/or place transmission in PARK.
c. Disengage PTO.
d. Shut off tractor engine and remove key.

1. Park cutter on a level surface, or block tail wheels so machine cannot roll after detaching from the tractor.
2. Slowly push hitch control lever to lower cutter close to the ground.
3. Engage tractor parking brake and/or place transmission in Park.

DANGER

Shut off tractor engine before attaching PTO driveline. Entanglement in rotating driveline can cause serious injury or death.

Detaching Rotary Cutter from Tractor Cont'd

4. Shut off tractor engine and remove key.
5. Raise tractor PTO shield, if equipped.

DANGER

Ensure that all movement of PTO driveline and blades has stopped before detaching the Rotary Cutter. Entanglement in rotating driveline or being struck by blades can cause serious injury or death.

IMPORTANT

DO NOT use shielding bell on driveline to hold driveline in position. Damage to shielding can occur.

6. Push pin in and slide driveline off tractor shaft.
7. Support and collapse driveline completely and lower onto PTO holder or onto mower deck.
8. Lower tractor PTO shield, if equipped.
9. Remove quick-lock pins from hitch pins and install in storage position on tractor draft links.
10. Remove and lower tractor draft links from hitch pins.
11. Disconnect center link from mast straps. Position tractor center link in transport location. Reinstall center link pin/hardware.
12. Carefully drive tractor away.

Checking Driveline/Cutter Clearance

IMPORTANT

Prevent driveline damage from contact with frame or machine damage from contact with tractor tires. Raise cutter slowly and check for interference. If necessary, shorten center link or lengthen lift links to provide clearance to full lift height.

1. Raise cutter slowly and check for clearance between driveline shield and cutter deck.
2. Check clearance between tractor tires and foot guards or chain deflector.
3. Check to see if hitch height position will provide clearance desired.

NOTE: Final adjustments should be made before operating cutter. See p. 23 **ADJUSTING CUTTING HEIGHT AND ANGLE**. Center link should be installed in lowest hole at tractor end if there are multiple holes. Lift height may also be limited by installing stops on rockshaft control lever bracket.

4. Shorten center link or lengthen lift links to provide clearance. (See tractor Operator's manual.)

IMPORTANT

PTO driveline may be too long for some tractor models, causing tractor transaxle damage. Hold driveline sections parallel to each other and check for a minimum of 6 inches overlap.

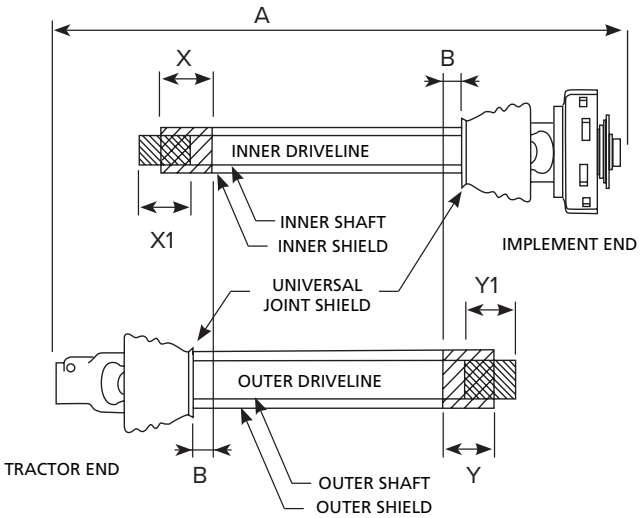
5. Raise and lower cutter slowly to check for binding or interference. Check cutter-to-tractor driveline telescoping length to ensure that it does not bottom out. Modify driveline if necessary. (See pp. 20-21, **SIZING THE PTO SHAFT, CHECK DRIVELINE MAXIMUM LENGTH, CHECK DRIVELINE MAXIMUM ANGLE.**)

Sizing the PTO Shaft

Refer to Figure 6

1. Detach the driveline from tractor PTO shaft and pull outer and inner drivelines apart.
2. Reattach outer driveline to tractor PTO shaft. Pull on inner and outer drivelines to ensure universal joints are properly secured.
3. Hold inner and outer drivelines parallel to each other:
   a. Measure 1" ("B" dimension) back from outer driveline universal joint shield and make a mark at this location on the inner driveline shield.
   b. Measure 1" ("B" dimension) back from inner driveline universal joint shield and make a mark at this location on the outer driveline shield.
4. Remove driveline from tractor and gearbox shafts.
5. Measure from end of inner shield to scribed mark ("X" dimension). Cut off inner shield at the mark. Cut same amount off the inner shaft ("X1" dimension).
6. Measure from end of outer shield to scribed mark ("Y" dimension). Cut off outer shield at the mark. Cut same amount off the outer shaft ("Y1" dimension).
7. Remove all burrs.
8. Continue with "Check Driveline Maximum Length".

Figure 6 - Driveline Shortening



Check Driveline Maximum Length

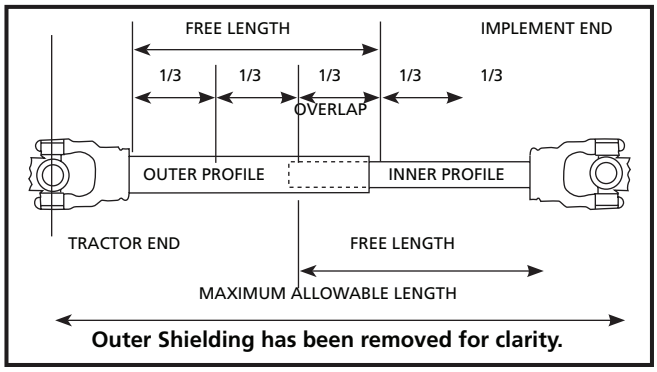
Refer to Figure 7

Make sure driveline's collapsible length is acceptable.

The driveline maximum allowable length must, when fully extended, have a minimum overlap of the profile tubes by not less than 1/3 the free length with both inner and outer profile tubes being of equal length.

1. Apply multi-purpose grease to the inside of the outer shaft and reassemble the driveline.
2. Assemble the two driveline profiles together with 1/3 of the profile tubes overlapping as shown below. Once assembled, measure and record the maximum allowable length for future reference.
3. Attach inner driveline yoke to the cutter's gearbox shaft. Attach outer driveline yoke to the tractor's PTO shaft.

Figure 7 - Driveline Maximum Extended Length



4. Move yoke ends of driveline back and forth to Ensure they are secured to the tractor and cutter shafts. Reattach any end that is loose.

Check Driveline Maximum Length Cont'd

IMPORTANT

Small chains are supplied with the driveline. They must be attached to the inner and outer driveline shields and to the cutter and tractor to restrict shield rotation.

5. Hook driveline safety chain on the tractor end of driveline to cutter frame. Re-latch safety chain to the driveline shield.
6. Hook driveline safety chain on the Rotary Cutter end of driveline to the cutter frame. Re-latch safety chain to driveline shield.
7. Start tractor and raise Rotary Cutter just enough to remove support blocks.
8. Slowly engage tractor hydraulic 3-point control lever to lower the cutter while checking for sufficient drawbar clearance. Move drawbar in, aside or remove if required.
9. Raise and lower implement to find maximum extended driveline length. Check to make certain the driveline does not exceed maximum allowable length recorded in Step 2.
10. If needed, set tractor 3-point lift height to stop driveline from exceeding maximum allowable length.
11. Continue with **CHECK DRIVELINE MAXIMUM ANGLE**.

Check Driveline Maximum Angle

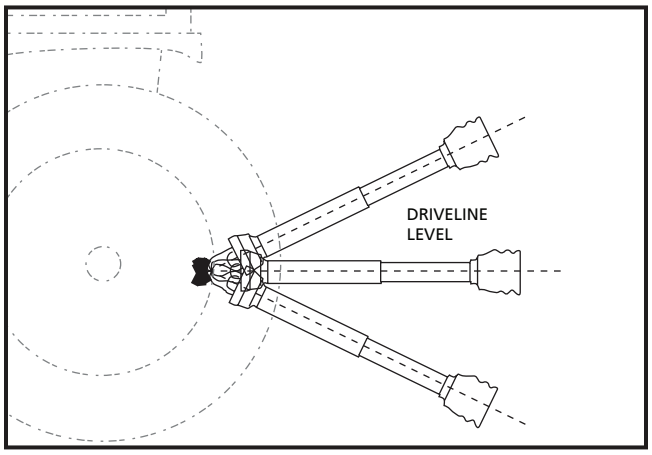
Refer to Figure 8

IMPORTANT

To avoid premature driveline breakdown, **DO NOT** exceed an angle of 25° up or down with the driveline while driveline is rotating. If needed, set tractor 3-point left lever to limit driveline angle at a maximum of 25° up.

1. Raise and lower implement to find maximum driveline angle. Check to make certain the driveline does not exceed 25° up or down.
2. If needed, set tractor 3-point lift height to keep driveline from exceeding 25° up.

Figure 8 - Check Driveline Maximum Angle



Preoperation Checklist

Operators should verify the following before using the Rotary Cutter.

1. All decals in place and legible. (Pg. 8)
2. Rotary Cutter is completely assembled. (Pg. 11-17)
3. Gearbox is filled with oil and checked for possible leaks. (Pg. 17)
4. PTO driveline is the correct length to operate Rotary Cutter with intended tractor. (Pg. 19-21)
5. All shields in place and in good condition. (Pg. 27-28)
6. All fittings are lubricated. (Pg. 30)
7. All fasteners torqued to specifications in torque chart. (Pg. 39)
8. Overall condition good (i.e. paint, welds).
9. Operator has reviewed the entire Operation and Maintenance Manual.

Preparing Rotary Cutter for Operation

DANGER

To help prevent severe injury or death to operators and bystanders:

a. DO NOT engage tractor PTO when cutter is in fully raised position (transport position).
b. Keep all persons away from machine when raising and lowering Rotary Cutter.

IMPORTANT

To avoid damaging the machine from impact on ground when lowering, adjust rate at which hitch will lower.

1. Adjust tractor rockshaft rate-of-drop. Allow at least two seconds for machine to lower from full lift height to the ground. (See tractor Operator's manual.)
2. If equipped, disengage tractor hitch/rockshaft control lever from transport lock position and lower cutter to the ground. (See tractor Operator's manual.)
3. Adjust tractor lift links to level machine side-to-side. (See tractor Operator's manual.)
4. Adjust cutting height and angle. (See p. 23, **ADJUSTING CUTTING HEIGHT AND ANGLE**)

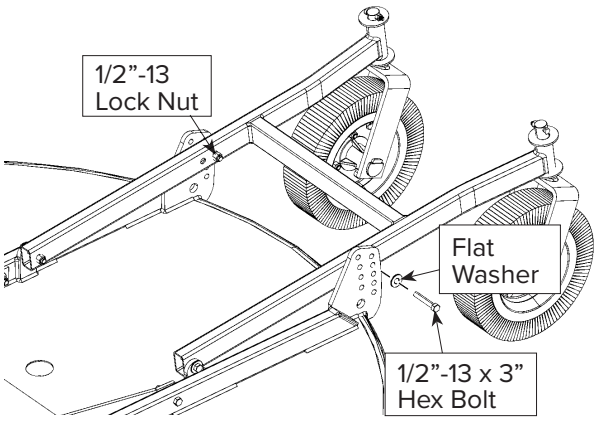
Adjusting Cutting Height and Angle

DANGER

Ensure that all movement of PTO driveline and blades has stopped before detaching the Rotary Cutter. Entanglement in rotating driveline or being struck by blades can cause serious injury or death.

1. Lower machine until rear wheel just touches or is slightly above ground.
2. Engage tractor parking brake and/or place transmission in PARK.
3. Disengage PTO.
4. Shut off tractor engine and remove key.
5. Wait until all moving parts have stopped.
6. Disconnect PTO driveline from tractor.
7. Loosen and remove bolt and lock nut from both tailwheel adjustment plates (See Figure 9).

Figure 9



8. Raise tail wheels to highest position and install bolt, washer and lock nut.
9. Using rockshaft control lever, position front of cutter at desired cutting height at location.
10. Adjust depth stop. (See tractor Operator’s manual.)
11. Adjust center link so rear of cutter is approximately 2 inches (51 mm) higher than front.

NOTE: The rotary cutter should be operated at the highest position for optimal cutting results. This will help prevent the blades from striking the ground, reducing blade wear and placing undue strain on the cutter. For best results under heavier cutting conditions, always tilt the rotary cutter approximately 2 inches (51mm) lower in the front. This tilt decreases horsepower requirements and increases potential ground speed. When fine shredding is desired, adjust rotary cutter deck level to slightly lower in the rear. This will keep the foliage under the rotary cutter until thoroughly shredded. More power is required for shredding.

12. Lower tail wheel to support rear of the cutter.
13. Install bolt, washers and lock nut (See Figure 9) into one of seven holes that aligns with hole in wheel support. Tighten lock nut.

NOTE: The tail wheels support the rear of the machine and the draft links support the front to allow the cutter to follow the ground contour. Each rotary cutter can be adjusted to several cutting heights from 3 inches to 11 inches of cutting height by moving the rockshaft control lever in conjunction with moving the tail wheel adjustment bolt among the height adjustment holes. (See Figure 9).

IMPORTANT

Loosening the center link may allow the driveline to contact the cutter frame or tractor tires in order to contact the foot guards or chain shield. Raise the cutter slowly and check for interference. Lengthen tractor lift links to provide clearance to full height.

NOTE: Lift height may also be limited by installing stops on rockshaft control lever bracket.

14. Lengthen tractor lift links, if necessary, to provide clearance.

Follow Safe Operating Procedures

1. BEFORE EACH USE, perform maintenance as required in the **MAINTENANCE** section, pp. 26-33.
2. Start tractor per tractor operator's manual.
3. Raise/lower 3-point hitch to place cutter in working position.
4. Look to be sure no one is near cutter.
5. With tractor at idle speed, slowly engage PTO drive.

DANGER

Stay clear of rotating driveline. Only operate with driveline shields in place and with all equipment in good condition. Failure to heed these warnings may result in personal injury or death.

6. Set the tractor throttle for appropriate PTO speed (540 RPM).

DANGER

Rotating cutter blades. Stand clear until all motion has stopped. To avoid an accidental fall from tractor and possible injury by mower, it is recommended that tractor be equipped with rollover protection system (ROPS) and that a seatbelt be used by the operator for all mowing operations.

7. Place the tractor in gear and proceed forward.

NOTE: Tractor forward speed should be controlled by gear selection, not engine speed. For maximum cutting efficiency, forward speed should allow cutter to maintain a constant, maximum blade speed. If cutter stalls or tractor engine bogs,disengage PTO. Before re-engaging PTO, position cutter in a cut area and reduce tractor throttle to idle. If rotary cutter continuously stalls, select lower gear and/or increase cutting height.

DANGER

Keep riders off. Riders are subject to injury or death such as being struck by foreign objects and being thrown off the machine. Riders may also fall off and be run over by machine. Riders also obstruct the operator's view resulting in the machine being operated in an unsafe manner.

DANGER

To help prevent severe injury or death to you or someone else: Never operate cutter when other people are in the vicinity. Debris can be thrown hundreds of feet. Keep all deflectors in place, including those on discharge opening at front and rear of deck. Before starting machine, lower to the ground. Engage tractor PTO and gradually increase the speed. Operate tractor at rated PTO speed. If engine speed is too slow or too fast, machine may not perform properly. Where conditions make it necessary to slow ground speed, shift to a lower gear rather than reducing engine speed. The engine will maintain rated speed and keep cutter running at optimum cutting speed. Operate machine from tractor seat only. Never adjust machine while in motion. Slow down when turning or traveling over rough ground. Avoid holes when operating on hillsides. Tractor roll-over could result. Shut off tractor engine and engage tractor parking brake and/or place transmission in Park when leaving tractor. Remove key when leaving tractor unattended. Components behind shields may rotate several minutes after power is shut off. Look and listen for evidence of rotation before removing shielding.

TROUBLESHOOTING

Problem	Possible Cause	Possible Remedy
Leaves a streak of uncut or partially cut grass.	Rotary cutter not level, side to side.	Level 3-pt. hitch linkage on tractor.
	Blade dull or bent.	Sharpen or replace blades.
	Blades unable to cut that part of grass pressed by path of tractor.	Slow ground speed of tractor but keep engine running at full PTO rpm. Cutting lower will help.
	Build up of material under rotary cutter.	Clean rotary cutter.
Blade cuts grass lower in center of swath than at the edge.	Height of rotary cutter lower at rear or at front.	Adjust rotary cutter height and altitude so that rotary cutter rear and front are within 1/2” of same height.
Material discharges from cutter unevenly, or discharges clumps of grass.	Grass or brush may be too high or thick.	Reduce ground speed but maintain 540 rpm at tractor PTO, or make two passes over material. Raise rotary cutter for the first pass and lower for the second pass, preferably cutting 90° to the first pass. Raise rear of rotary cutter high enough to permit material to discharge.
	Grass wet.	Allow grass to dry. Slow ground speed of tractor but keep engine running at full PTO rpm. Cutting lower will help.
Gearbox overheating.	Low on lubricant.	Fill to proper level.
	Improper lubricant type.	Replace with proper lubricant.
	Excessive trash build up around gearbox.	Remove trash.
Rotary cutter will not cut all the time.	Slip clutch slipping.	Adjust slip clutch according to guidelines on p. 28.
Excessive vibration.	Possible build up of material on blade.	Clean blade pan.
	Blades locked into position.	Free blades they swing free.
	Uneven wear on blade tips.	Weigh each blade. Weight should be within 1 oz.
	Broken blade.	Replace broken blade(s). Always replace in pairs.
	New blade or bolts not matched with worn blade or bolts.	Replace all blades and/or blade bolts.
Gearbox noisy.	Low oil in gearbox.	Check oil level. Add oil.

Maintenance Safety Guidelines

DANGER

Ensure that all movement of PTO driveline and blades has stopped before detaching the Rotary Cutter. Entanglement in rotating driveline or being struck by blades can cause serious injury or death. Components will be hot after operation. Let all components cool before servicing. Replace all shields after lubricating or servicing.

CAUTION

To help prevent personal injury caused by unexpected movement, be sure to service machine on a level surface.

Before servicing or adjusting machine connected to a tractor:

1. Lower machine to the ground.
2. Engage tractor parking brake and/or place transmission in Park.
3. Disengage PTO.
4. Shut off tractor engine and remove key.
5. Wait until all moving parts have stopped.
6. Disconnect PTO driveline from tractor.

The blades and blade pan may rotate for several minutes after PTO is shut off. Look and listen for rotating driveline to stop before working on the cutter.

When servicing blades or blade pan, it will be necessary to work underneath cutter. Be sure to support cutter frame at all four corner locations with safety shop stands to prevent accidental lowering.

DO NOT position safety stands under wheel support because these components can rotate.

Maintenance Schedule

Perform scheduled maintenance as outlined below. Lower machine to ground, turn off tractor and set parking brake before doing maintenance inspections or work. All bolts should be torqued as recommended in the Torque Specifications (See p. 39) unless otherwise indicated.

CAUTION

DO NOT clean, lubricate, or adjust machine while it is in motion.

MAINTENANCE BEFORE EACH USE

1. Check tractor tire air pressure. Refer to tractor Operator's manual.
2. Check blades and spindles to be sure that no foreign objects such as wire or steel strapping bands are wrapped around them.
3. Check blade bolts for tightness. Locate blade hardware under hole in deck behind gear box. (Tighten to 425 ft./lbs.)

IMPORTANT

Operating with loose blade hardware will damage the blade holder and blades.

4. Inspect blades for wear (See p. 31, **CHECKING BLADE WEAR**). Always replace both blades and bolts on the blade holder at the same time.
5. Make certain driveline shields are in place and in good repair.
6. Inspect tail wheels for wear, damage, or foreign objects. (Repair or replace if necessary.)
7. Before each use, see the Rotary Cutter diagram on page 31 for lubrication intervals and locations in this section.
8. During operation, listen for abnormal sounds, which might indicate loose part, damaged bearings, or other damage.

Maintenance Schedule Cont'd

MAINTENANCE AFTER EACH USE

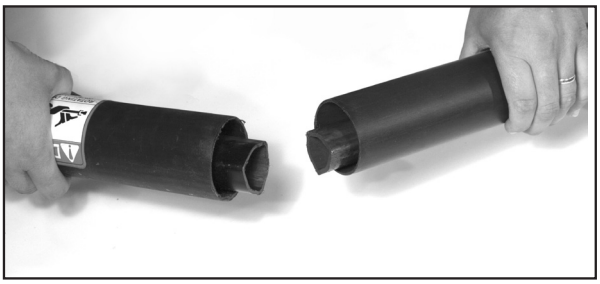
1. Clean all debris from rotary cutter especially underside of deck. When cleaning underside of deck, securely block machine into position.

IMPORTANT

To help prevent structural damage caused by loose hardware, check all hardware after first eight (8) hours of use and tighten all hardware to specifications.

Disassembling Driveline Shield

1. Unhook driveline safety chain from one end of driveline.
2. Separate driveline into two (2) pieces.



3. Slide the PTO shield back by using a screwdriver to apply pressure and release the locking collar. (There will be 3 tabs on the locking collar) Once the locking collar is released, slide the PTO shield back.

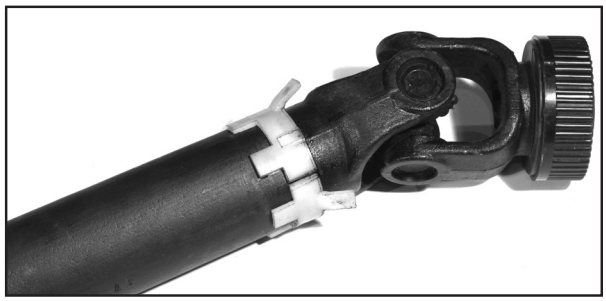
4. If needed, separate white tab collar and slide shield tube back.

CAUTION

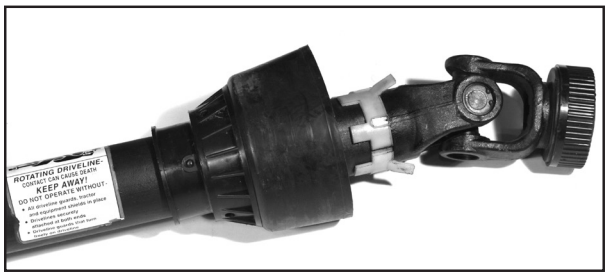
DO NOT operate PTO shaft without shielding installed.

Reassembling Driveline Shield

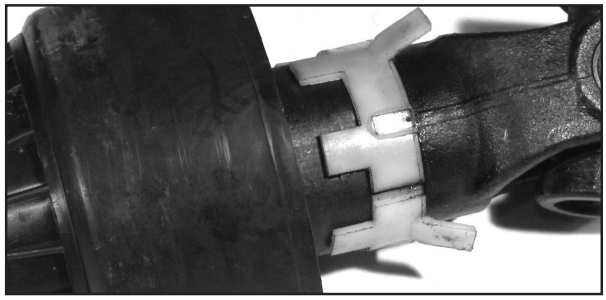
1. Replace white tabbed collar in groove of PTO shaft.



2. Slide driveline shield tube over white tab collar. Align slots/holes with holes in tube.



3. Slide universal joint cover up tube toward universal joint. Align grease fitting on shield with white square tabs on collars. This will properly align the position notch and all three (3) tabs.



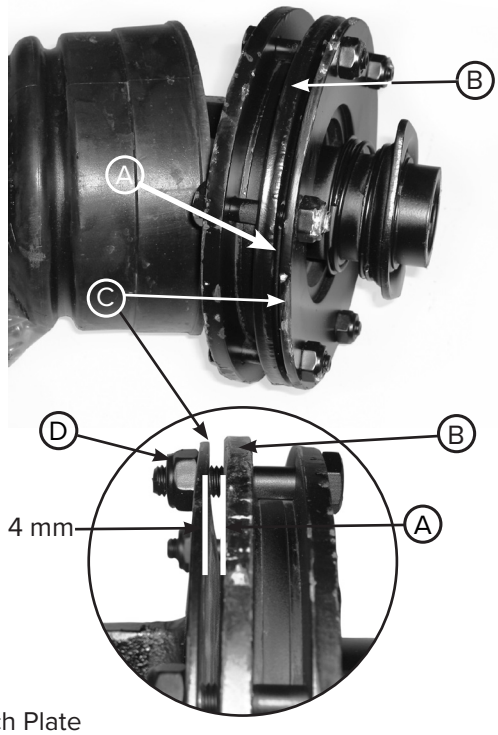
4. Slide collar shield into place until locked.

Slip Clutch Operational Check

Slip clutch components must be free to rotate when necessary. After thirty days or more, linings of slip clutch may draw moisture. Linings may bond to metal parts causing slip clutch to be ineffective, resulting in machine damage. After the implement has been stored for thirty days or more perform the following operational check.

1. Loosen bolts and lock nuts (See Figure 10, D) progressively until tension is relieved.
2. To aid in determining slippage, scribe/mark a line across clutch plate and Belleville Spring.
3. With tractor at idle speed, engage tractor PTO drive 2 - 3 seconds. Clutch should slip without turning blades. **If clutch does not slip, contact an authorized Blue Diamond® Attachments dealer.**
4. Tighten bolts and lock nuts progressively, leaving a gap of 4 mm between clutch plate and Belleville spring.

Figure 10



A - Gap
B - Clutch Plate
C - Belleville Spring
D - Cap Screw
Lock Nut (6 used)

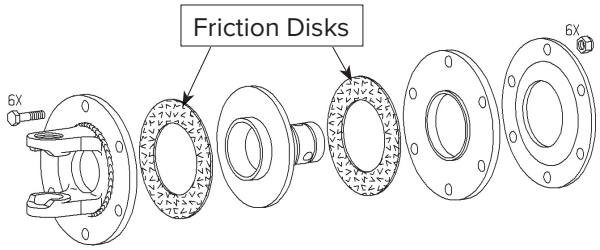
Disassembling and Inspecting Slip Clutch

1. Remove slip clutch driveline.

IMPORTANT

Belleville springs, which are part of the clutch, keep tension on all components. When disassembling, release tension by loosening hardware progressively.

2. Loosen bolts and lock nuts (See p. 28, Figure 10, D) progressively until tension is relieved.
3. Friction disks may appear to be part of the hub or yoke, tap lightly on edge to separate.
4. Inspect clutch components for wear or damage. Repair parts as necessary.



Slip clutch components.

Assembling Slip Clutch

Assemble slip clutch in reverse order of disassembly using the following instructions:

1. Install Belleville spring with concave side facing towards yoke end.

IMPORTANT

To avoid driveline damage, **DO NOT** overtighten bolts and lock nuts. A gap must be left between clutch plate and Belleville spring (See p. 28, Figure 10, B and C).

2. Tighten bolts and lock nuts progressively, leaving a 4 mm gap, between clutch plate and Belleville spring.

Lubrication Schedule

LUBRICATION BEFORE EACH USE

A. Tail wheel Pivot Tubes
1. Apply multi-purpose grease with grease gun.

B. Tail wheel
1. Apply multi-purpose grease with grease gun.

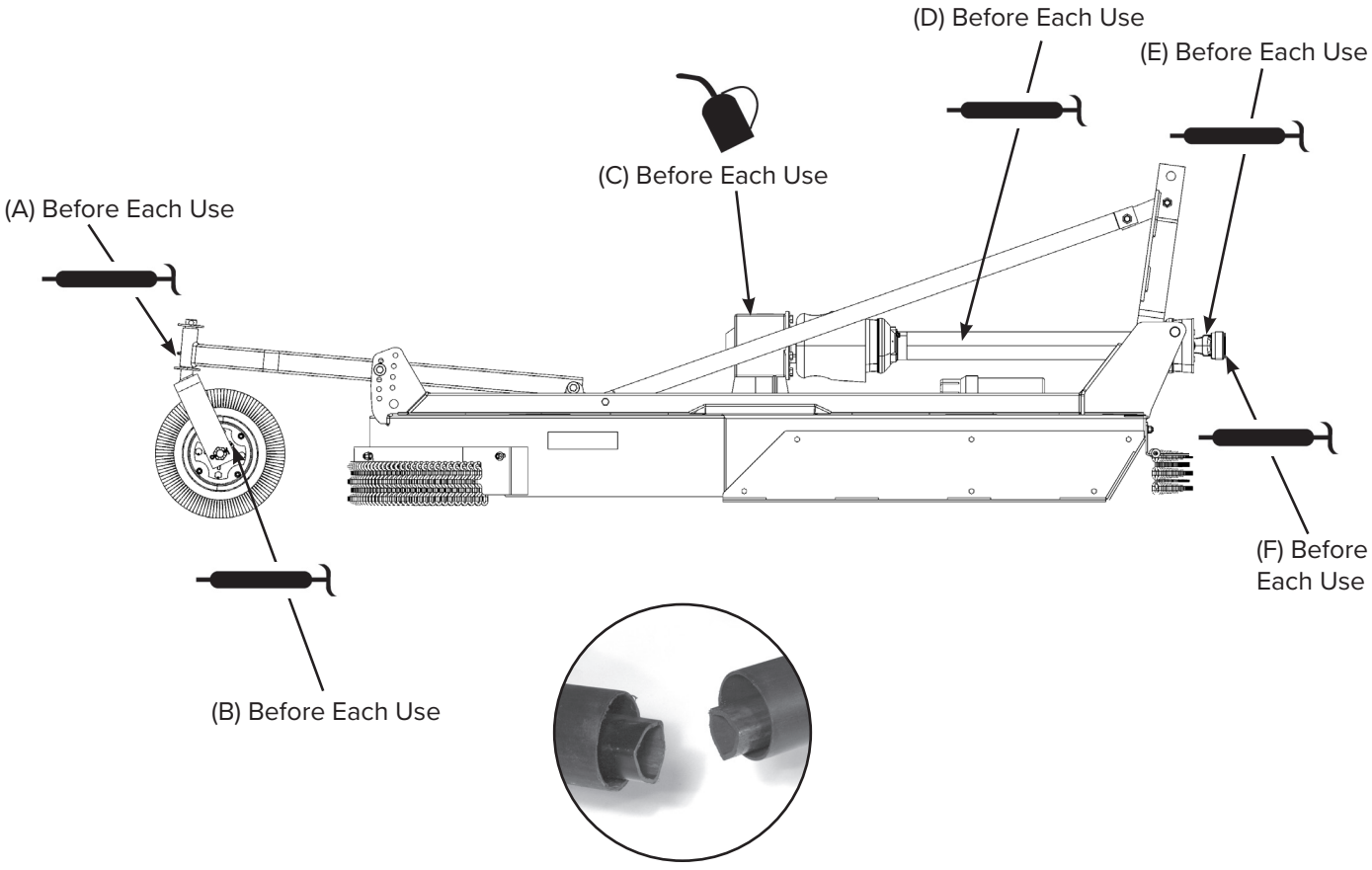
C. Gearbox
1. Check oil level by removing oil level check plug on side of gearbox.
2. Add 80W/90 or 85W/140 gear oil if necessary to bring oil level to check plug hole.

D. Driveline Profile
1. Disconnect PTO Driveline.
2. Pull two sections apart.
3. Apply thin coat of multi-purpose grease to inside of female section.
4. Re-assemble sections.

NOTE: Pull each section to be sure driveline and shields are securely connected. Make certain PTO shielding is in good condition. **DO NOT** grease outer or inner plastic shields.

E. Driveline Guard
1. Apply 2-3 shots of multipurpose grease with grease gun to plastic fitting.

F. Driveline Universal Joints
1. Apply multi-purpose grease with a grease gun.

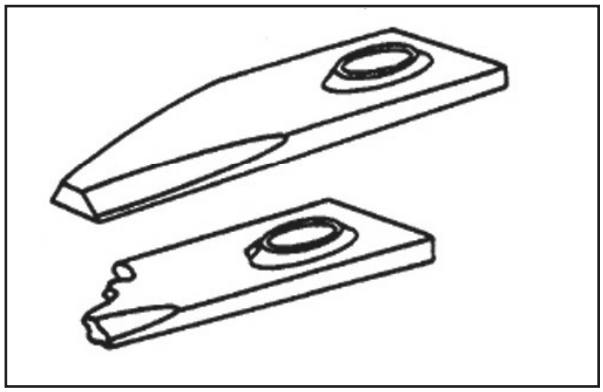


D2. Pull two sections apart.

Checking Blade Wear

IMPORTANT

Operating with blades that are not alike will cause vibration. Always replace worn or broken blades in pairs. Never replace a single blade. Check blades regularly for wear or breakage.



Replacing Blades

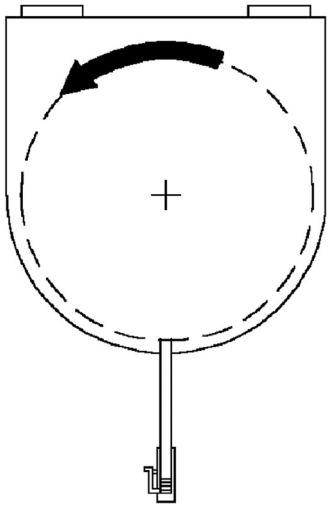
IMPORTANT

Operating with loose blade hardware will damage the blade pan and blades. Whenever the blades have been removed or replaced, blade hardware MUST also be replaced. Check blade hardware torque after one hour of operation and every eight (8) hours thereafter.

NOTE: Suction blades have cutting edge on one side only. Take note of blade rotation when installing blades. (See **DIRECTION OF BLADE ROTATION** in this section.)

DIRECTION OF BLADE ROTATION

NOTE: Cutter shown is viewed from the top. Blades rotate counterclockwise.



CAUTION

When replacing blades, blade hardware, and blade pan it will be necessary to work underneath cutter. Be sure to support cutter frame at all four corner locations with safety shop stands, blocks, or other firm supports to prevent accidental lowering. **DO NOT** position safety stands under wheel support because these components can rotate.

Replacing Blades Cont'd

1. Manually rotate driveline to align blade lock nut with access hole in top of deck behind gearbox.

2. Remove old blade bolts and blades.
3. Use new blade bolt hardware to install new blades.
4. Tighten blade bolt lock nuts to 425 ft-lbs.

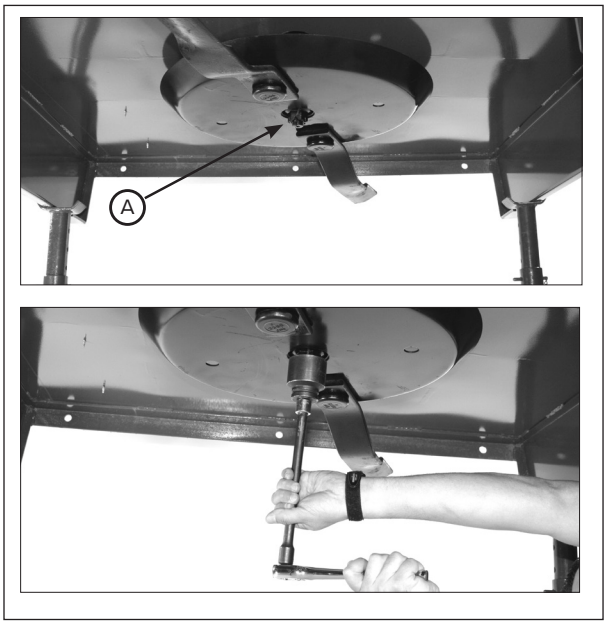
Replacing Blade Pan

CAUTION

When replacing blades, blade hardware, and blade pan it will be necessary to work underneath cutter. Be sure to support cutter frame at all four corner locations with safety shop stands, blocks, or other firm supports to prevent accidental lowering. **DO NOT** position safety stands under wheel support because these components can rotate.

1. Remove the blades. (See p. 31, **REPLACING BLADES**)
2. Remove cotter pin from output shaft of the gearbox underneath cutter.
3. Loosen castle nut on the bottom of the output shaft (See Figure 11, A). **DO NOT** remove castle nut as it must hold the blade pan when it becomes loose.

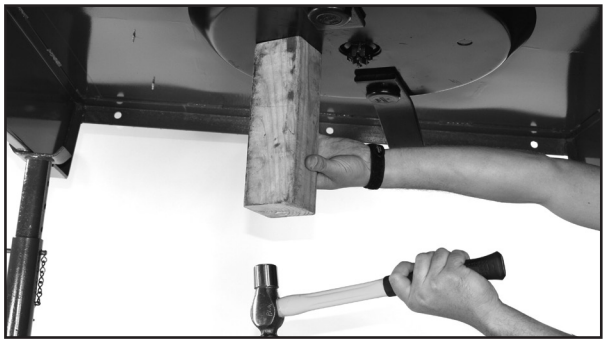
Figure 11



Replacing Blade Pan Cont'd

4. Tap with a hammer around the hub using a block of wood as shown Figure 12.

Figure 12



NOTE: The output shaft of the gearbox is tapered. A few taps around the hub will loosen the blade pan.

5. Remove castle nut slowly and allow the blade pan to be removed.
6. Remove blade pan.
7. To reinstall blade pan, reverse the above steps. Be sure to tighten the castle nut and replace the cotter pin.
8. Replace blades. (See p. 31, **REPLACING BLADES** in this section.)

Long-term Storage

IMPORTANT

When the unit is going to be stored for an extended amount of time please perform the following steps to keep the oil seals from deteriorating.

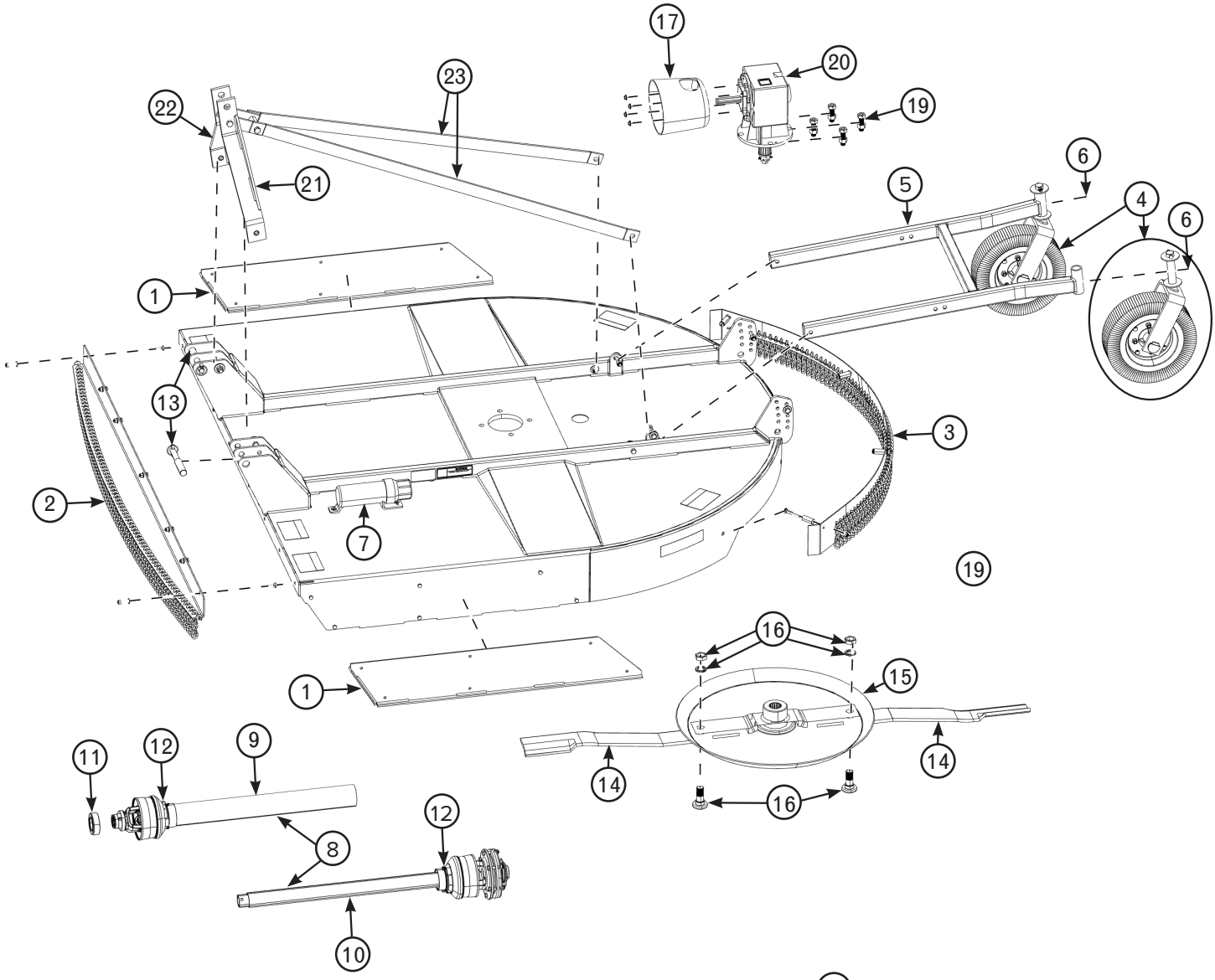
1. Spray shaft extensions with a suitable dry film or similar preservative.
2. Pack grease around seal to prevent drying and cracking.
3. Fill the gearbox with enough oil so that it covers the top of the input seal.
4. Remember to drain the oil back to the correct level before using again.
5. Check (and replace where necessary) blades, bolts, and nuts on the cutter.
6. Clean cutter and touch up any rust spots that may have appeared.
7. Replace any safety decals if damaged.
8. Store rotary cutter in a clean dry location.

CAUTION

Always use a tractor to position equipment for storage. Never attempt to move equipment by hand.

	403075
Model	7’
Horsepower Required	45-90 HP
Weight	1,100 LB
Overall Length (Including Tailwheel)	124”
Overall Width	88”
Cutting Width	84”
Cutting Height	3 - 11”
Cutting Capacity	UP TO 1”
Deck Height	9.8”
Deck Material Thickness	10 GA.
Hitch	CLEVIS-STYLE CATEGORY 1 & 2
Quick Hitch Compatible	YES
Gearbox	65 HP CAST IRON HOUSING, PRECISION FORGED STEEL GEARS
Power Take-Off Speed (RPM)	540
Gearbox Lubrication	80W/90
Gearbox Lubrication Capacity	23 OUNCES
Stump Jumper	HD 32.5” DIAMETER BLADE PAN
Blades	0.5 x 4” HEAT-TREATED, FREE SWINGING, WITH FULL SUCTION LIFT
Blade Tip Speed	14,380 FT./MIN.
Driveline Protection	HD SLIP CLUTCH PTO WITH ERGONOMIC QUICK COUPLER
Driveline	SLIP CLUTCH
Tailwheel	DUAL 15 IN. LAMINATED TIRE
Safety Guards	FRONT/REAR CHAIN (STANDARD)

Overall Parts List - 403075



18

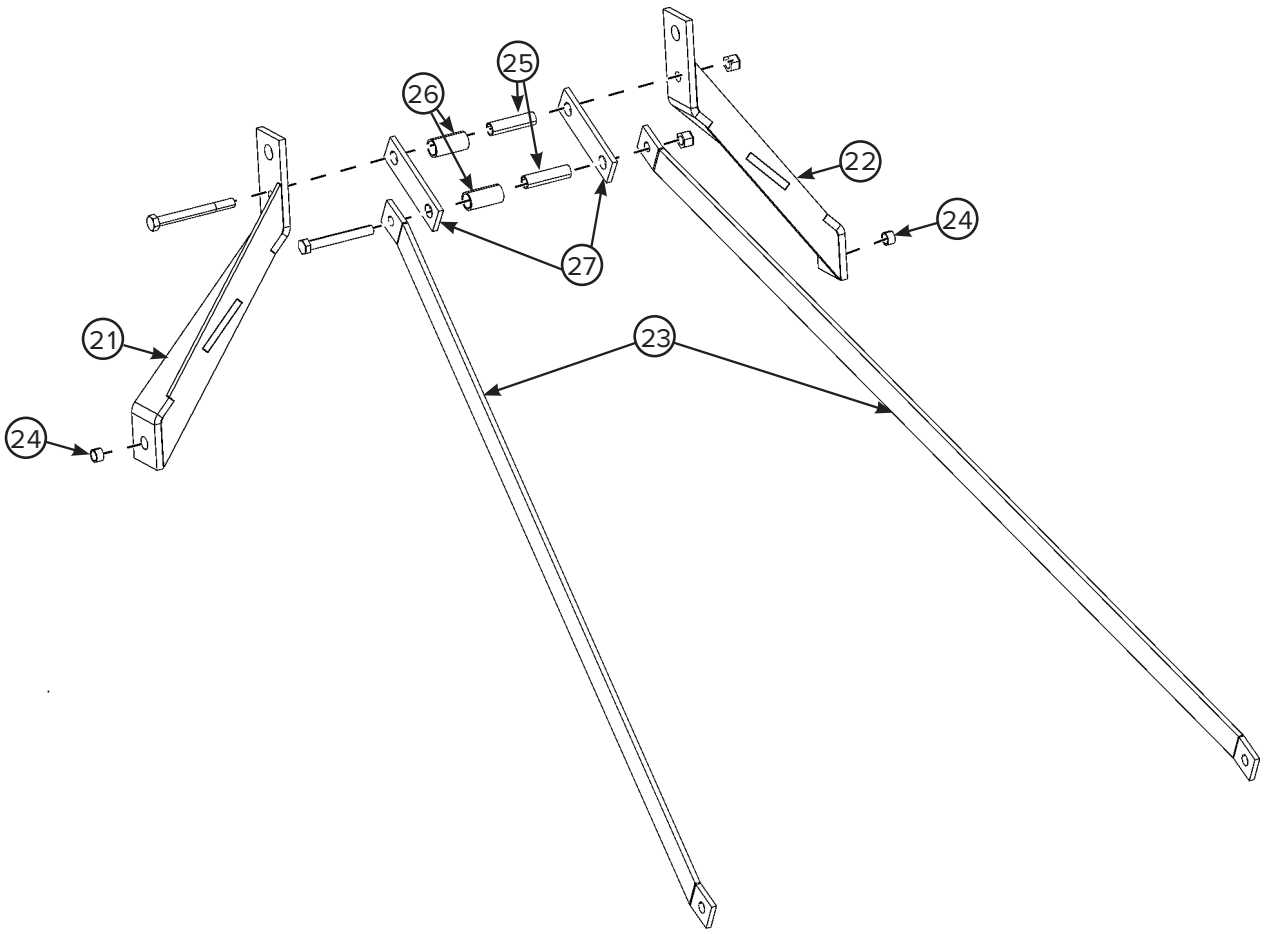
7/16”-14 x 3” Carriage Bolt (x4)		7/16” Flat Washer (x4)	
7/16”-14 Ny-lon Lock Nut (x4)		1/2” x 2” Tube (x4)	

Overall Parts List - 403075

ITEM#	PART#	DESCRIPTION	QTY
1	503368	RC7MD Rotary Cutter Skid Shoe (Black)	2
2	503369	7' Front Chain Guard w/Hardware (Black)	1
3	503370	7' Rear Chain Guard w/Hardware (Black)	1
4	503309	Rotary Cutter Tire/Wheel & Fork Assembly	2
5	503371	RC7MD Rotary Cutter Tailwheel Frame (Black)	1
6	503346	Grease Zerk (5pk)	2
7	503372	Manual Holder w/Hardware	1
8	503373	7' Slip Clutch PTO	1
9	503374	7' Slip Clutch Tractor 1/2 PTO	1
10	503375	7' Slip Clutch Implement 1/2 PTO	1
11	503376	Quick Collar Connect Kit	1
12	503347	PTO Shaft Grease Zerk w/45 degree bend	2
13	503377	Hitch Pin w/Clip	2
14	503378	7' MD Blade Pair	1
15	503379	7' MD Blade Pan	1
16	503317	Blade Bolt Set (2pk)	1
17	503380	Slip Clutch Shield Cone w/Hardware	1
18	503381	7' Rear Chain Guard Hardware Kit	1
19	503383	Gearbox Bolt Kit	1
20	503385	7' MD Gearbox	1
21	503386	7' MD Rotary Cutter A-Arm LH (Black)	1
22	503387	7' MD Rotary Cutter A-Arm RH (Black)	1
23	503388	7' MD Back Brace (2 pk.) (Black)	2

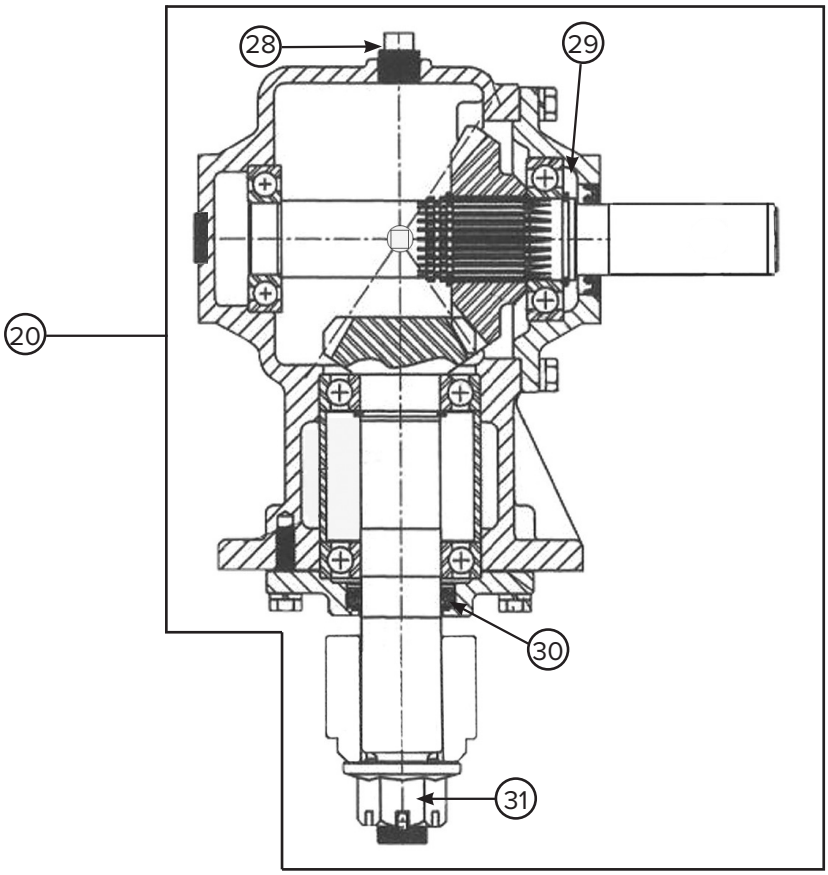
PARTS

Hitch Assembly - 403075



ITEM#	PART#	DESCRIPTION	QTY
21	503386	7' MD Rotary Cutter A-Arm LH (Black)	1
22	503387	7' MD Rotary Cutter A-Arm RH (Black)	1
23	503388	7' MD Back Brace (2 pk.) (Black)	1
24	503389	MD Rotary Cutter A-Arm Pivot Bushing (Black)	2
25	503342	Inner Pivot Plate Bushing (2 pk) (Black)	1
26	503343	Outer Pivot Plate Bushing (2 pk) (Black)	1
27	503327	Pivot Plate (2 pk.) (Black)	1

Gearbox Parts List - 403075



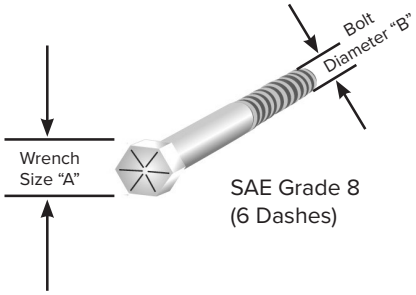
ITEM#	PART#	DESCRIPTION	QTY
20	503385	7' MD Gearbox	1
28	503364	Gearbox Breather	1
29	503390	7' MD Gearbox Input Seal	1
30	903391	7' MD Gearbox Output Seal	1
31	503392	Gearbox Castle Nut w/Cotter Key	1

TORQUE SPECIFICATIONS

AMERICAN
Bolt Head Markings

SAE Grade 2
(No Dashes)

SAE Grade 5
(3 Dashes)

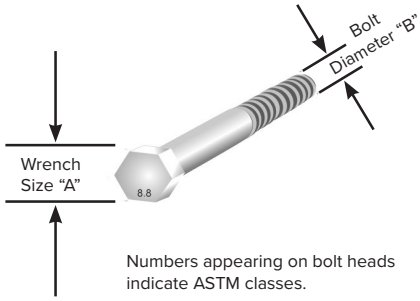


SAE Grade 8
(6 Dashes)

Proper torque for American fasteners used on manufactured implement.
Recommended Torque in Foot Pounds (Newton Meters).*

WRENCH SIZE(IN.)"A"	BOLT DIAMETER (IN.)"B" AND THREAD SIZE	SAE GRADE 2	SAE GRADE 5	SAE GRADE 8
7/16	1/4 -20 UNC	6 (7)	8 (11)	12 (16)
7/16	1/4 - 24 UNF	6 (8)	10 (13)	14 (18)
1/2	5/16 -18 UNC	11 (15)	17 (23)	25 (33)
1/2	5/16 - 24 UNF	13 (17)	19 (26)	27 (37)
9/16	3/8 - 16 UNC	20 (27)	31 (42)	44 (60)
9/16	3/8 -24 UNF	23 (31)	35 (47)	49 (66)
5/8	7/16 -14 UNC	32 (43)	49 (66)	70 (95)
5/8	7/16 - 20 UNF	36 (49)	55 (75)	78 (106)
3/4	1/2 - 13 UNC	49 (66)	76 (103)	106 (144)
3/4	1/2 - 20 UNF	55 (75)	85 (115)	120 (163)
7/8	9/16 -12 UNC	70 (95)	109 (148)	153 (207)
7/8	9/16 - 18 UNF	79 (107)	122 (165)	172 (233)
15/16	5/8 - 11 UNC	97 (131)	150 (203)	212 (287)
15/16	5/8 - 18 UNF	110 (149)	170 (230)	240 (325)
1-1/8	3/4 - 10 UNC	144(195)	266 (360)	376 (509)
1-1/8	3/4 - 16 UNF	192 (260)	297 (406)	420 (569)
1-5/16	7/8 - 9 UNC	166 (225)	430 (583)	606 (821)
1-5/16	7/8 - 14 UNF	184 (249)	474 (642)	668 (905)
1-1/2	1-8 UNC	250 (339)	644 (873)	909 (1232)
1-1/2	1 - 12 UNF	274 (371)	705 (955)	995 (1348)
1-1/2	1-14 UNF	280 (379)	721 (977)	1019 (1381)
1-11/16	1-1/8 - 7 UNC	354 (480)	795 (1077)	1288 (1745)
1-11/16	1-1/8 -12 UNF	397 (538)	890 (1206)	1444 (1957)
1-7/8	1-1/4 - 7 UNC	500 (678)	1120 (1518)	1817 (2462)
1-7/8	1-1/4 - 12 UNF	553 (749)	1241 (1682)	2013 (2728)
2-1/16	1-3/8 - 6 UNC	655 (887)	1470 (1992)	2382 (3228)
2-1/16	1-3/8 -12 UNF	746 (1011)	1672 (2266)	2712 (3675)
2-1/4 2-1/4	1-1/2 - 6 UNC 1-1/2 - 12 UNF	870 (1179) 979 (1327)	1950 (2642) 2194 (2973)	3161 (4283) 3557 (4820)

METRIC



Numbers appearing on bolt heads indicate ASTM classes.

*Use 75% of the specified torque value for plated fasteners. Use 85% of the specified torque values for lubricated fasteners.

Proper torque for metric fasteners used on manufacturer implement.
Recommended Torque in Foot Pounds (Newton Meters).*

WRENCH SIZE (mm) "A"	BOLT DIA. (mm) "B"	ASTM 4.6	ASTM 8.8	ASTM 9.8	ASTM 10.9
8	5	1.8 (2.4)		5.1 (6.9)	6.5 (8.8)
10	6	3 (4)		8.7 (12)	11.1 (15)
13	8	7.3 (10)		21.1 (29)	27 (37)
16	10	14.5 (20)		42 (57)	53 (72)
18	12	25 (34)	74 (100)	73 (99)	93 (126)
21	14	40 (54)	118 (160)	116 (157)	148 (201)
24	16	62 (84)	167 (226)	181 (245)	230 (312)
30	20	122 (165)	325 (440)		449 (608)
33	22		443 (600)		611 (828)
36	24	211 (286)	563 (763)		778 (1054)
31	27		821 (1112)		138(1542)
46	30	418 (566)	1119 (1516)		1547(2096)

MANUFACTURER'S LIMITED WARRANTY

BLUE DIAMOND® ATTACHMENTS, a manufacturer of quality attachments, warrant new BLUE DIAMOND® ATTACHMENTS products and/or attachments at the time of delivery to the original purchaser, to be free from defects in material and workmanship when properly set up and operated in accordance with the recommendations set forth by BLUE DIAMOND® ATTACHMENTS, LLC.

BLUE DIAMOND® ATTACHMENTS liability for any defect with respect to accepted goods shall be limited to repairing the goods at a BLUE DIAMOND® ATTACHMENTS designated location or at an authorized dealer location, or replacing them, as BLUE DIAMOND® ATTACHMENTS shall elect. The above shall be in accordance with BLUE DIAMOND® ATTACHMENTS warranty adjustment policies. BLUE DIAMOND® ATTACHMENTS obligation shall terminate twelve (12) months for the 100/200 Series Rotary Cutter after the delivery of the goods to original purchaser.

This warrant shall not apply to any machine or attachment which shall have been repaired or altered outside the BLUE DIAMOND® ATTACHMENTS factory or authorized BLUE DIAMOND® ATTACHMENTS dealership or in any way so as in BLUE DIAMOND® ATTACHMENTS judgment to affect its ability or reliability, nor which has been subject to misuse, negligence or accident beyond the company recommended machine rated capacity.

WARRANTY CLAIM

To submit a warranty claim, a return authorization from BLUE DIAMOND® ATTACHMENTS must be obtained. The failed part may then be returned. Tampering with the failed part may void the warranty. This warranty does not include freight or delivery charges incurred when returning machinery for servicing. Dealer mileage, service recalls, and pickup/delivery charges are the customers' responsibility.

EXCLUSIONS OF WARRANTY

Except as otherwise expressly stated herein, BLUE DIAMOND® ATTACHMENTS makes no representation or warranty of any kind, expressed or implied, AND MAKES NO WARRANTY OF MERCHANTABILITY IN RESPECT TO ITS MACHINERY AND/OR ATTACHMENTS ARE FIT FOR ANY PARTICULAR PURPOSE. BLUE DIAMOND® ATTACHMENTS shall not be liable for incidental or consequential damages for any breach of warranty, including but not limited to, inconvenience, rental or replacement equipment, loss of profits or other commercial loss. Upon purchase, the buyer assumes all liability for all personal injury and property resulting from the handling, possession, or use of the goods by the buyer.

No agent, employee, or representative of BLUE DIAMOND® ATTACHMENTS has any authority to bind BLUE DIAMOND® ATTACHMENTS to any affirmation, representation, or warranty concerning its machinery and/or attachments except as specifically set forth herein.

This warranty supersedes any previous documents.

NOTE: Blue Diamond® Attachments is a trademark of BLUE DIAMOND® ATTACHMENTS

QUALITY | DEPENDABILITY | INTEGRITY

Blue Diamond® Attachments

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