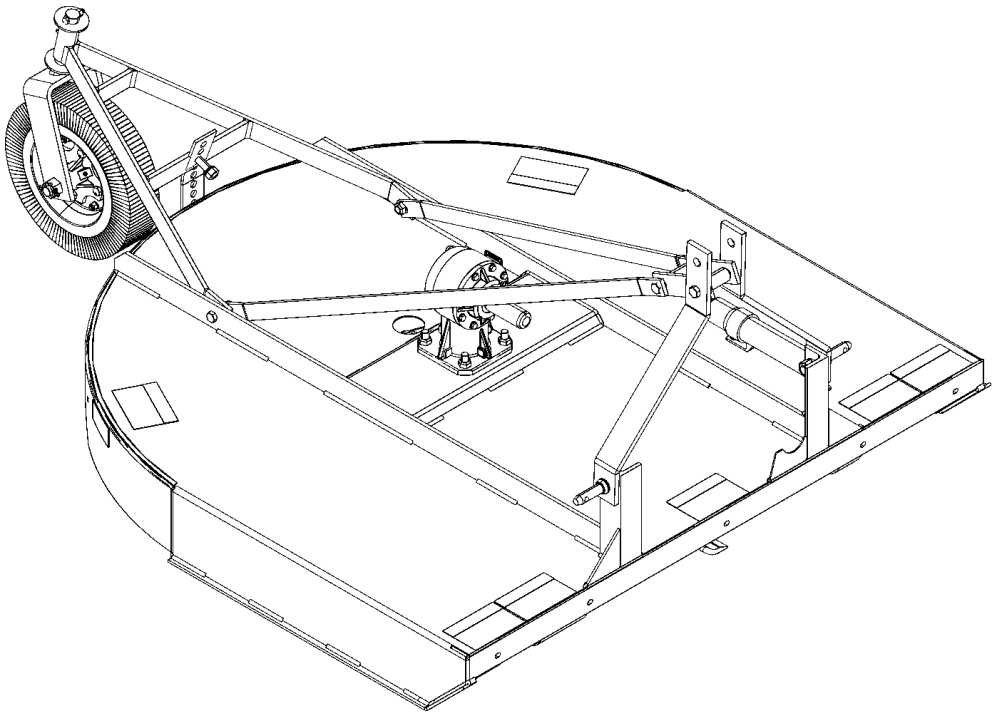
Standard Duty Tractor Rotary Cutter

Operation and Maintenance Manual



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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.

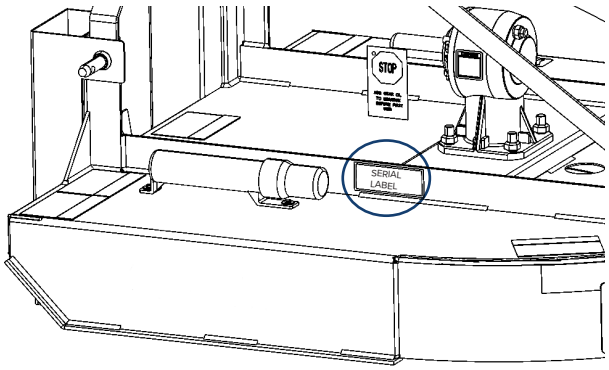
Keep this manual available for frequent reference. All new operators or owners must review the manual before using the equipment and annually thereafter. Contact your Blue Diamond® Attachments Dealer for assistance, information, or additional copies of the manual. Contact **www.bluediamondattachments.com** 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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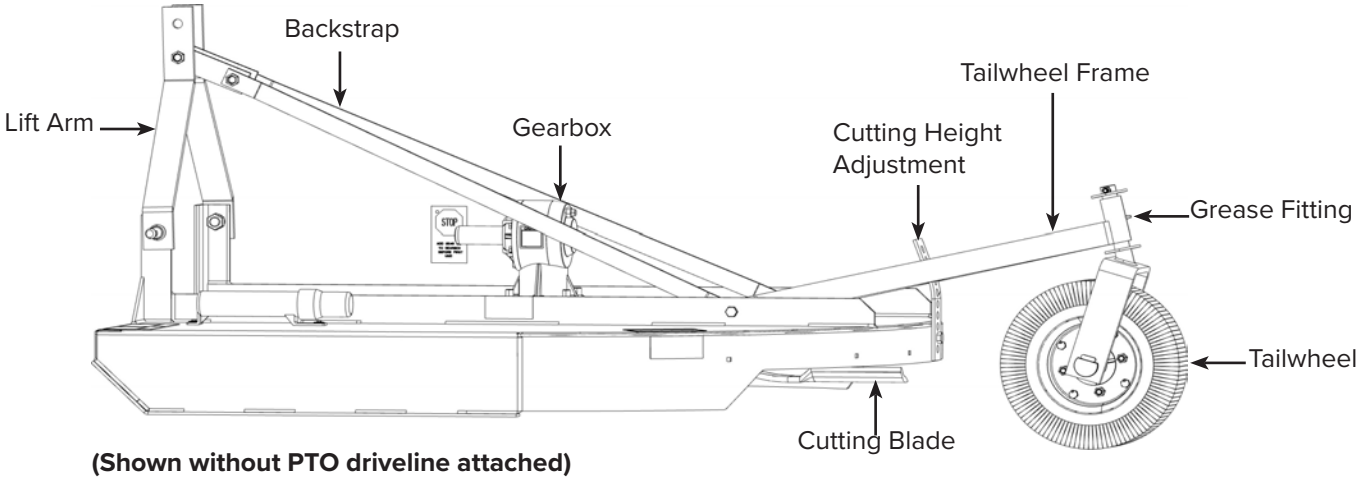
PRODUCT DESCRIPTION

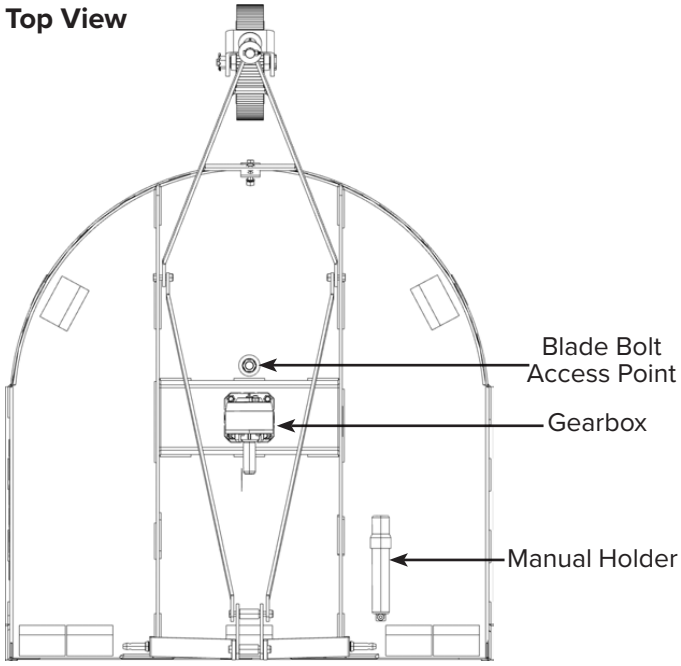
The Standard Duty Rotary Cutter is intended for cutting grass and light brush up to 1” in diameter. It can be attached to a Category 1 tractor and is perfect for creating trails, mowing fields, and clearing overgrown areas for wildlife. The ten-gauge welded steel deck features a 22.3” diameter, replaceable blade pan. The adjustable tailwheel offers a cutting height range of 1.5” up to 9” to accommodate various terrains.

Left-Side View

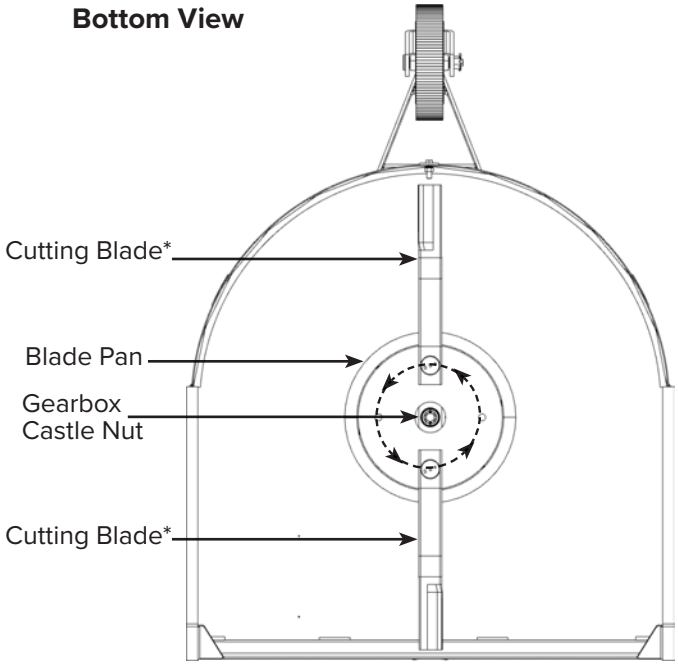


(Shown without PTO driveline attached)

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 14, INSTALL SHEAR BOLT PTO. 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. You, the operator, can avoid many accidents by observing the following precautions and insist those working with you, follow them.

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 Standard 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

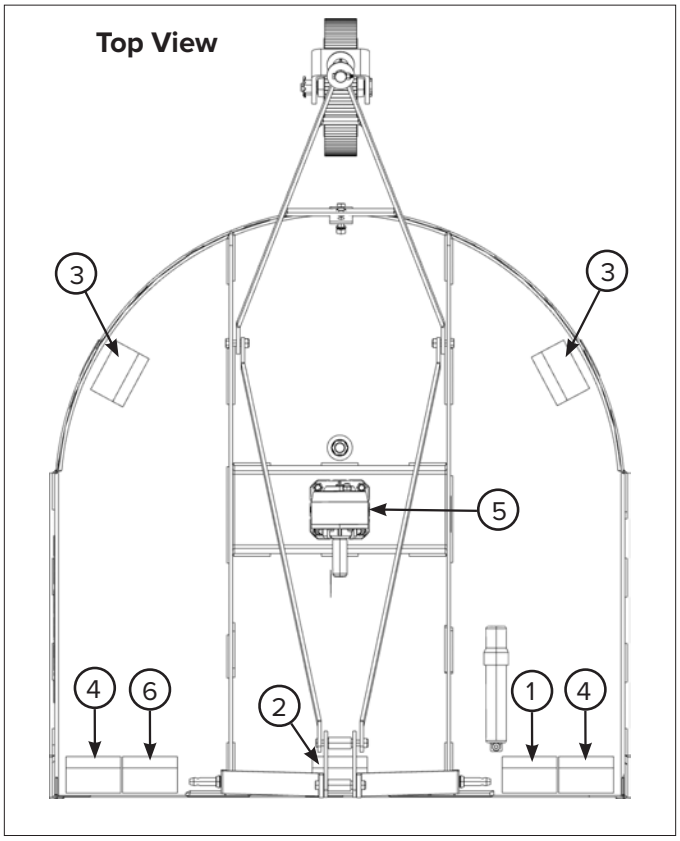
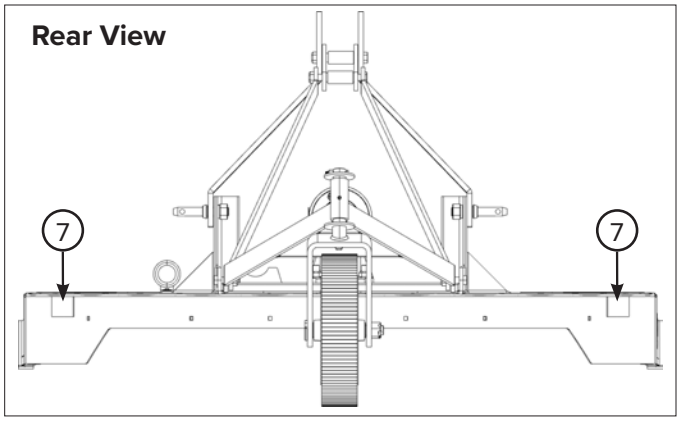


Figure 2



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)

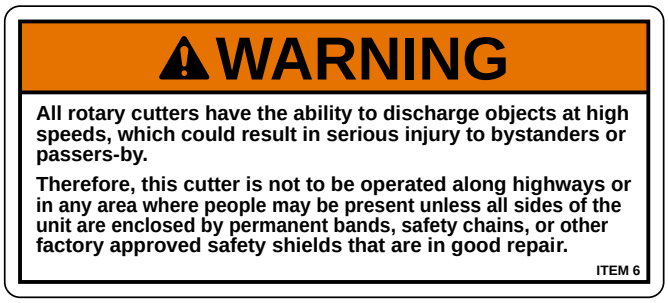
4 ROTATING BLADES

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

Tools Required

- SOCKETS AND WRENCHES: 9/16”, 3/4”, 15/16”, 7/8”, 1-5/16” (Impact wrench is preferred)
- PLIERS
- RATCHET
- TIN SNIPS
- SCREWDRIVER
- VICE GRIPS

Instructions:

1. Cut the zip ties and remove the PTO Shaft from the backside of the rotary cutter.

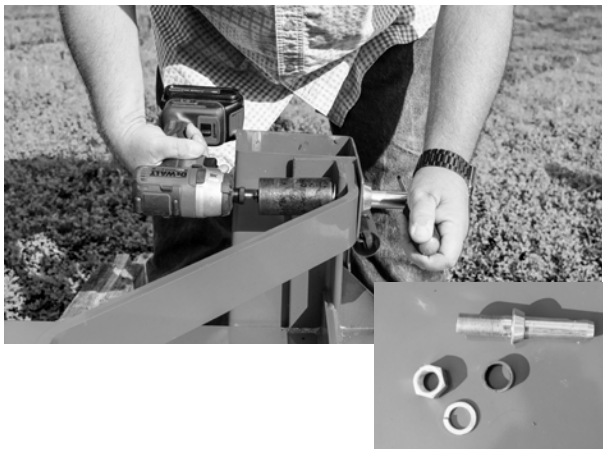
2. Use a 9/16” wrench to remove the 3/8”-16 x 2” bolt and nut from the tailwheel holder on the shipping boot. **DO NOT DISCARD HARDWARE!**

3. Remove the tailwheel and 3” washer.

4. Place the rotary cutter on a level spot. Block up the front and back of the rotary cutter.

5. Install the tailwheel with 3” washer on top. Secure with 3/8” – 16 x 2” bolt and nut. Tighten.

6. Using 1-5/16” wrench/socket, remove the CAT 1 pins, hex nuts, flat washers, and spacer bushings from the shipping boots. Set hardware aside.



Instructions Cont'd

CAUTION

Shipping boots may fall off when CAT 1 pins are removed. Watch for possible crushing hazards.

7. Once the CAT 1 pins are removed, lift up on the cutter to remove from the shipping boots.

8. Line up the holes on the A-frame and re-insert CAT 1 pins, bushing, washer and nut. Hand tighten only.

9. Remove the two zip ties from the tailwheel assembly and back braces.

10. Raise the lift arms in the upright position, using the bottom pivot point.

CAUTION

Watch for possible pinch points.

11. Remove nut on one side of the A-frame using 15/16" wrench.

12. Place the backstrap brace on the bolt, as pictured, using the locknut. Hand tighten. Repeat for other side.

Instructions Cont'd

13. Pull lift arms until they are into place.

14. Go back and tighten the CAT 1 pins, on both sides, using a 1-5/16" wrench/socket.

15. Tighten the nuts on the backstraps.

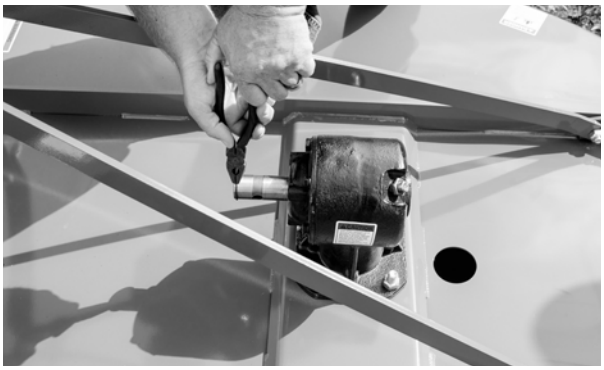
16. Remove the warning label on the gearbox.

IMPORTANT

Add gear oil to gearbox before first use! Refer to p. 15, Step 5-7 in **BEFORE PUTTING THE TRACTOR ROTARY CUTTER INTO SERVICE**,

17. Remove the shaft boot on the gearbox.

18. Remove the snap ring.



19. Continue assembly with p. 14, **INSTALL SHEAR BOLT PTO**.

Install Shear Bolt PTO

1. 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.




2. Remove the PTO shear bolt.

3. Slide the PTO shaft onto the gearbox shaft.

4. Replace the snap ring.

5. Align the shear bolt holes, install, and tighten the PTO shaft shear bolt.

6. Assembly is not complete. Please read pp. 15-17, **BEFORE PUTTING THE TRACTOR ROTARY CUTTER INTO SERVICE, ATTACHING TO TRACTOR 3-POINT LINKAGE, DETACHING ROTARY CUTTER FROM TRACTOR,** and **CHECKING DRIVELINE/CUTTER CLEARANCE** before operating the Standard Duty Tractor Rotary Cutter.

Before Putting The Tractor Rotary Cutter Into Service

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. Use TYPE/Grade II Tube Grease to grease the two fittings on the PTO shaft. There is one on each end of the shaft in the universal joint.


2. Use TYPE/Grade II Tube Grease to grease the two fittings on each end of the PTO Shield.


3. Re-install the PTO shield by sliding the shield over the universal joint making sure the shield locks in place.


4. Use TYPE/Grade II Tube Grease to grease the two fittings in the rear tailwheel assembly.


5. Using a 7/8” wrench, remove the fill plug and using a 7mm wrench, remove the drain plug. Both are located on the backside of the gearbox.


6. Fill the gearbox with 80W/90 or 85W/140 gear oil until level with the drain plug. (Holds approx. 1 quart)

7. Replace and tighten both plugs on the gearbox.

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.)

NOTE: If the tractor draft links will not open wide enough to fit over hitch pin assemblies in their normal configuration the hitch pins can be inverted so that the draft links can hook up to the inside.

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 wheel 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.

Detaching Rotary Cutter from Tractor Cont'd

DANGER

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

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. 21 **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. 18-19, **SIZING THE PTO SHAFT, CHECK DRIVELINE MAXIMUM LENGTH, CHECK DRIVELINE MAXIMUM ANGLE.**)

Sizing the PTO Shaft

Refer to Figure 3

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".

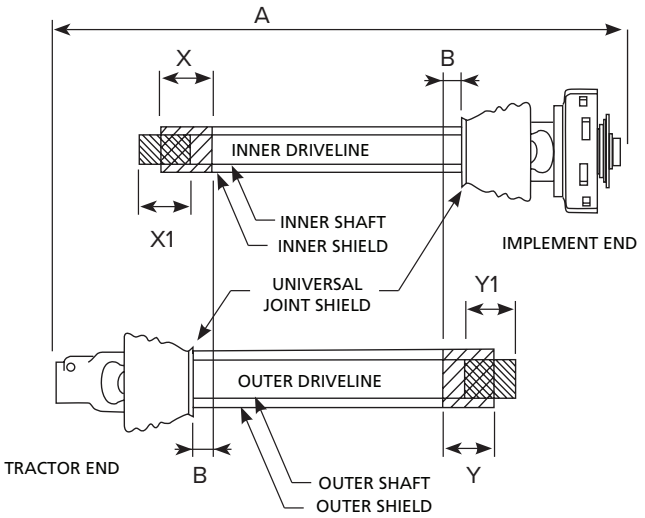


Figure 3 - Driveline Shortening

Check Driveline Maximum Length

Refer to Figure 4

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.

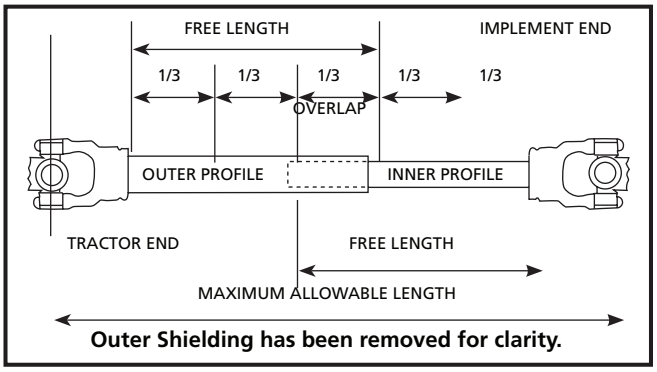


Figure 4 - Driveline Maximum Extended Length

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 5

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.

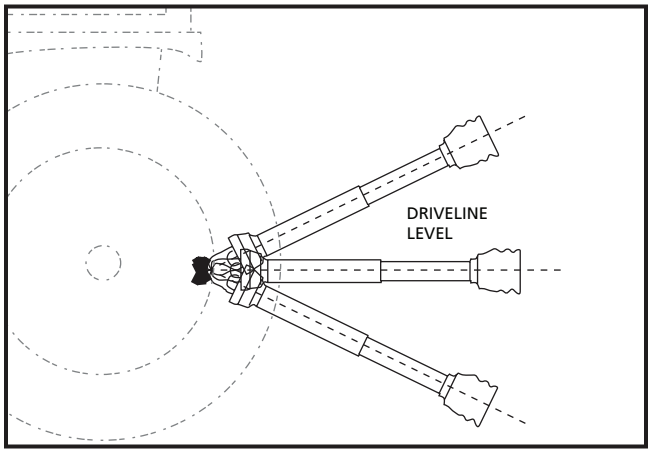


Figure 5 - Check Driveline Maximum Angle

Preparing Rotary Cutter for Operation

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. Snap ring is correctly installed on gearbox input shaft. (Pg. 13-14)
4. Shear bolt is SAE Grade 2 and correctly installed. (Pg. 14 and Pg. 30)
5. Gearbox is filled with oil and checked for possible leaks. (Pg. 15)
6. PTO driveline is the correct length to operate Rotary Cutter with intended tractor. (Pg. 17-19)
7. All shields in place and in good condition. (Pg. 29-30)
8. All fittings are lubricated. (Pg. 31)
9. All fasteners torqued to specifications in torque chart. (Pg. 39)
10. Overall condition good (i.e. paint, welds).
11. Operator had reviewed the entire Operation and Maintenance Manual.

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. 21, **ADJUSTING CUTTING HEIGHT AND ANGLE**)

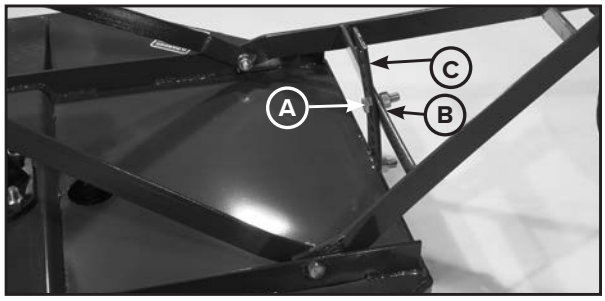
Adjusting Cutting Height and Angle

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 bolt and lock nut (Figure 6, A-B), remove bolt, washers and lock nut (A-B), raise tail wheel to highest position and install bolt, washer and lock nut (A-B).

Figure 6



A-B Lock Nut, Washers, Bolt
C- Adjustment holes

8. Using rockshaft control lever, position front of cutter at desired cutting height at location.
9. Adjust depth stop. (See tractor Operator's manual.)
10. 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.

11. Lower tail wheel to support rear of the cutter.
12. Install bolt, washers and lock nut (A-B) into one of seven holes (C) that aligns with hole in wheel support. Tighten lock nut.

NOTE: The tail wheel supports 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 1.5 inches to 9 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 6).

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.

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

Follow Safe Operating Procedures

1. BEFORE EACH USE, perform maintenance as required in the Lubrication and Maintenance section.
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.

Installing Optional Front Guard - All Models

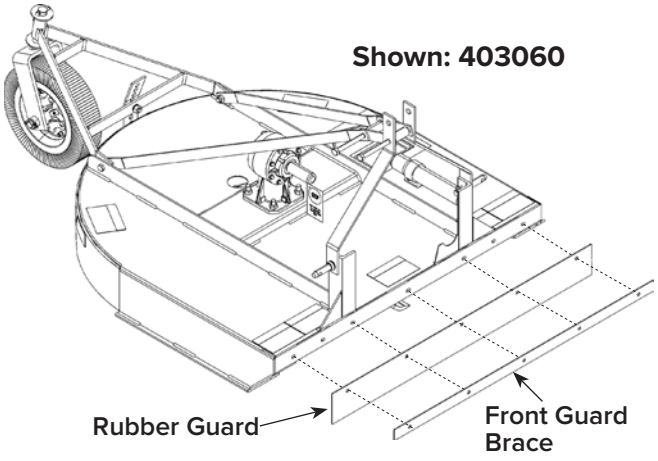
DANGER

DO NOT install the front guard while the implement is attached to a tractor. Guard installation must be completed with the Rotary Cutter securely blocked up on sufficient supports.

Included Hardware
(Qty varies based on guard size)

- Carriage Bolt 3/8″-16 x 1-1/2″
- Flat Washer 3/8″
- Nylon Lock Nut 3/8″-16

Reference Diagram



1. Align the bolt holes of the front guard brace and rubber guard with bolt holes on front of Rotary Cutter deck.
2. Starting with the holes closest to the center of the deck, insert a 3/8”-16 x 1-1/2” carriage bolt through the deck, rubber guard, and front guard brace, with threads facing outward (away from Rotary Cutter blades).
3. Secure each carriage bolt with a 3/8” flat washer and 3/8”-16 nylon lock nut. Torque lock nuts to correct specifications.

Installing Optional Rear Guard - 403060

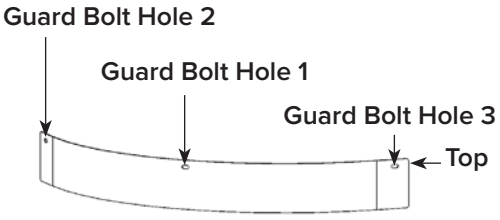
DANGER

DO NOT install the rear guard while the implement is attached to a tractor. Guard installation must be completed with the Rotary Cutter securely blocked up on sufficient supports.

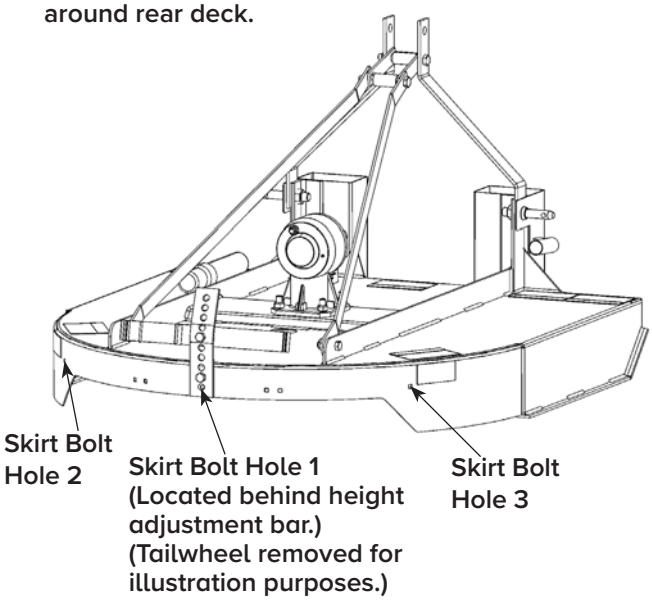
Included Hardware

- Carriage Bolt (x3) 3/8″-16 x 1-1/4″
- Flat Washer (x3) 3/8″
- Nylon Lock Nut (x3) 3/8″-16

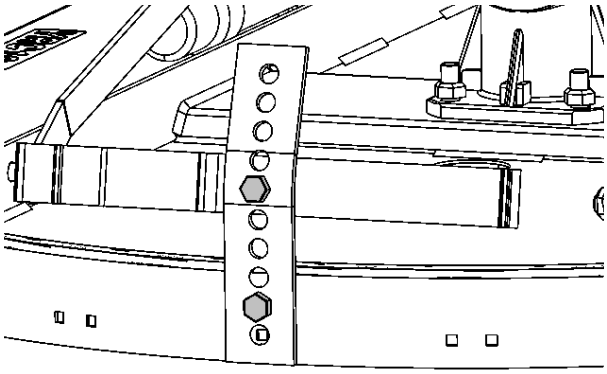
Reference Diagrams



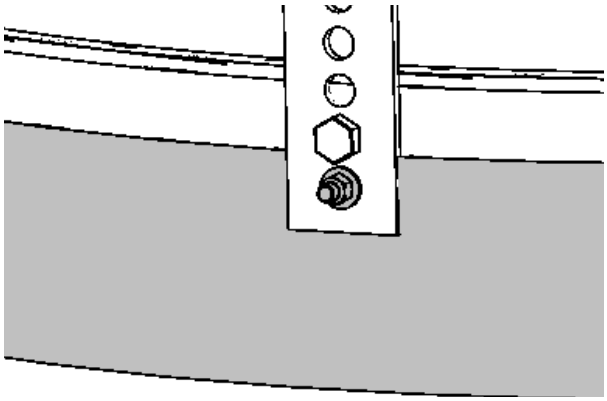
Guard ships flat and must be formed around rear deck.



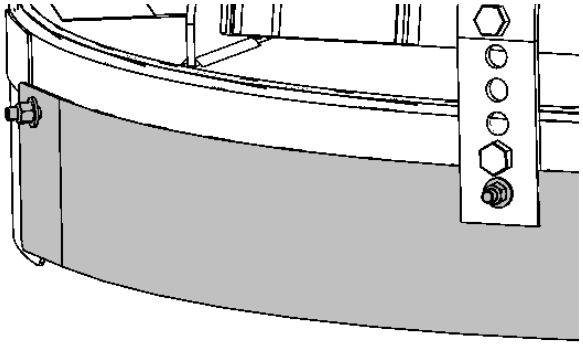
1. Loosen, but DO NOT remove the two 5/8”-11 x 2 hex bolts securing the height adjustment bar to the tailwheel assembly and rotary cutter skirt to create slack in the connection. The slack allows installers to slide the top of the rear guard between the height adjustment bar and the rotary cutter skirt.



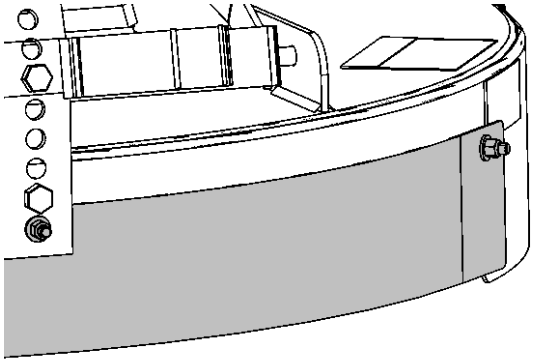
2. Align Guard Bolt Hole 1 with Skirt Bolt Hole 1 and the bottom bolt hole of the height adjustment bar.
3. Insert one carriage bolt through all the bolt holes. Bolt threads should face outward, away from the blade pan.
4. Secure bolt with one flat washer and one nylon lock nut and hand tighten.



5. Smooth the guard around the left side of the rotary cutter skirt, following the curve of the cutter deck.
6. Align Guard Bolt Hole 2 with Skirt Bolt Hole 2, then insert one carriage bolt through both bolt holes. Bolt threads should face outward, away from the blade pan.
7. Secure bolt with one flat washer and one nylon lock nut and hand tighten.



8. Smooth the guard around the right side of the rotary cutter skirt, following the curve of the cutter deck.
9. Align Guard Bolt Hole 3 with Skirt Bolt Hole 3, then insert one carriage bolt through both bolt holes. Bolt threads should face outward, away from the blade pan.
10. Secure bolt with one flat washer and one nylon lock nut and hand tighten.



11. Fully tighten all carriage bolts and lock nuts by order of installation, then fully tighten the hex bolts securing the height adjustment bar to the tailwheel assembly and rotary cutter skirt.
12. Assembly of the rear guard is now complete.

Installing Optional Rear Guard - 403065, 403060

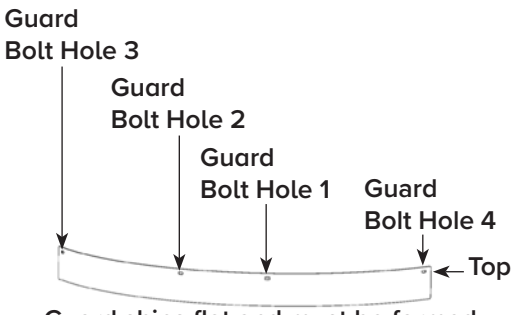
DANGER

DO NOT install the rear guard while the implement is attached to a tractor. Guard installation must be completed with the Rotary Cutter securely blocked up on sufficient supports.

Included Hardware

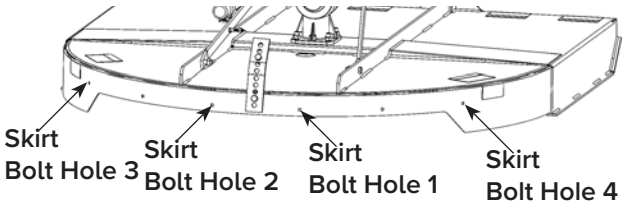
- Carriage Bolt (x4) 3/8"-16 x 1-1/4"
- Flat Washer (x4) 3/8"
- Nylon Lock Nut (4) 3/8"-16

Reference Diagrams

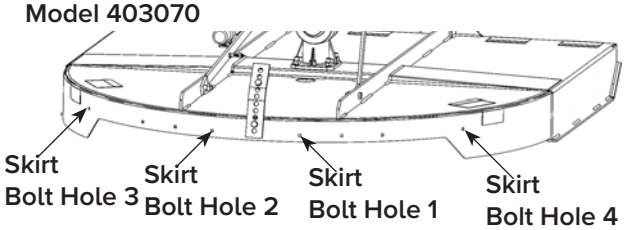


Guard ships flat and must be formed around rear deck.

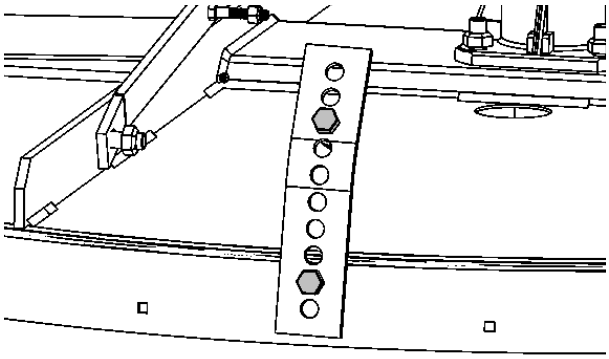
Model 403065



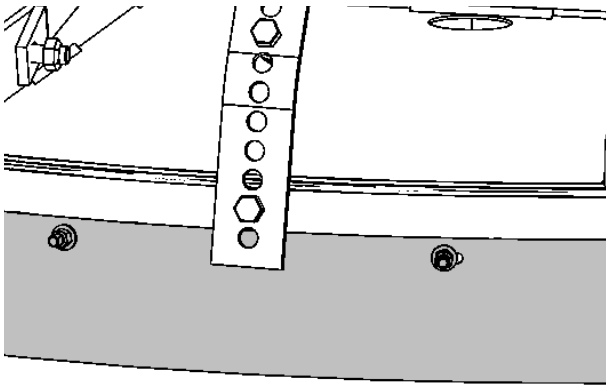
Model 403070



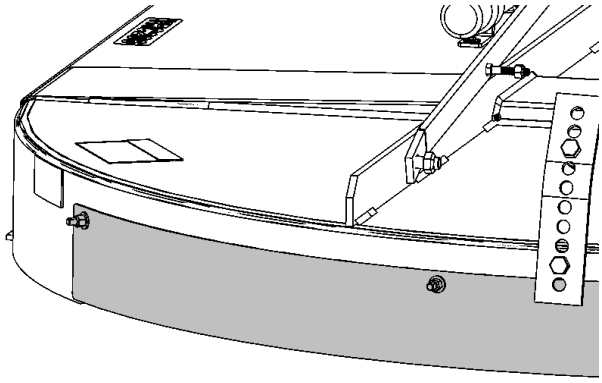
1. Loosen, but DO NOT remove the two 5/8"-11 x 2 hex bolts securing the height adjustment bar to the tailwheel assembly and rotary cutter skirt to create slack in the connection. The slack allows installers to slide the top of the rear guard between the height adjustment bar and the rotary cutter skirt.



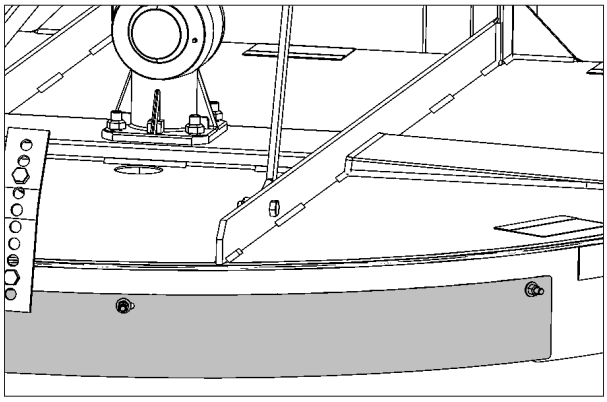
2. Align Guard Bolt Hole 1 with Skirt Bolt Hole 1, then insert one carriage bolt through both bolt holes so that the threads face outward, away from the blade pan. Secure bolt with one flat washer and one nylon lock nut and hand tighten.
3. Align Guard Bolt Hole 2 with Skirt Bolt Hole 2, then insert one carriage bolt through both bolt holes so that the threads face outward, away from the blade pan. Secure bolt with one flat washer and one nylon lock and hand tighten.



4. Smooth the guard around the left side of the rotary cutter skirt, following the curve of the cutter deck.
5. Align Guard Bolt Hole 3 with Skirt Bolt Hole 3, then insert one carriage bolt through both bolt holes with the threads facing outward, away from the blade pan. Secure bolt with one flat washer and one nylon lock and hand tighten.



6. Smooth the guard around the right side of the rotary cutter skirt, following the curve of the cutter deck.
7. Align Guard Bolt Hole 4 with Skirt Bolt Hole 4, then insert one carriage bolt through both bolt holes with the threads facing outward, away from the blade pan. Secure bolt with one flat washer and one nylon lock and hand tighten.



8. Fully tighten all carriage bolts and lock nuts by order of installation, then fully tighten the hex bolts securing the height adjustment bar to the tailwheel assembly and rotary cutter skirt. Assembly of the rotary cutter rear metal guard is now complete.

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.	Shear bolt sheared.	Install new shear bolt. (Grade 2 Shear Bolt)
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 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. 32, **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 wheel 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

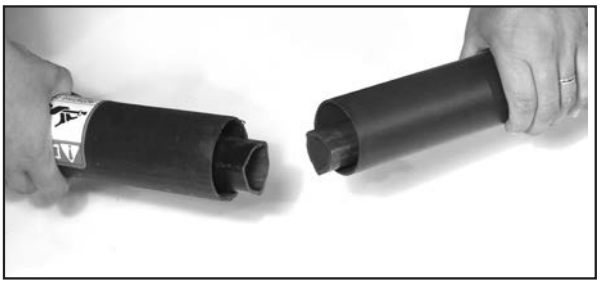
1. Clean all debris from rotary cutter especially underside of deck. When cleaning underside of deck, securely block machine into position.

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.

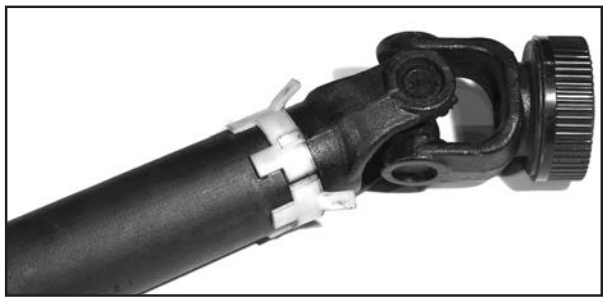
4. If needed, separate white tab collar and slide shield tube back.

CAUTION

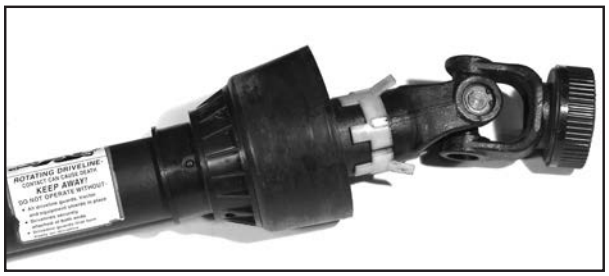
DO NOT operate PTO shaft without shielding installed.

Reassembling Driveline Shield

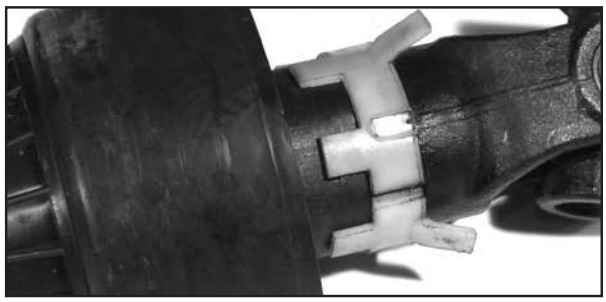
1. Replace white tabbed collar in groove of PTO shaft.



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.

Removing and Installing Driveline Shear Bolt

IMPORTANT

Avoid shear bolt failure at startup by engaging the PTO slowly at low engine RPMs.

1. Disconnect driveline shield chain.
2. Bend back driveline shield cone.
3. Remove shear bolt and lock nut.

NOTE: If shear bolt has failed, it may be necessary to remove bolt using a hammer and punch.

4. Realign holes in yoke and shaft.
5. Install new 1/2”x3-1/2” Grade 2 bolt and lock nut.

IMPORTANT

Failure to use correct shear bolt may damage gearbox and/or PTO Shaft, thus voiding the warranty.

Shear Bolt and Lock Nut

NOTE: Driveline shield pulled back for illustration purposes. Cutter drive components are protected from shock loads by a shear bolt.

Lubrication Schedule

LUBRICATION BEFORE EACH USE

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

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

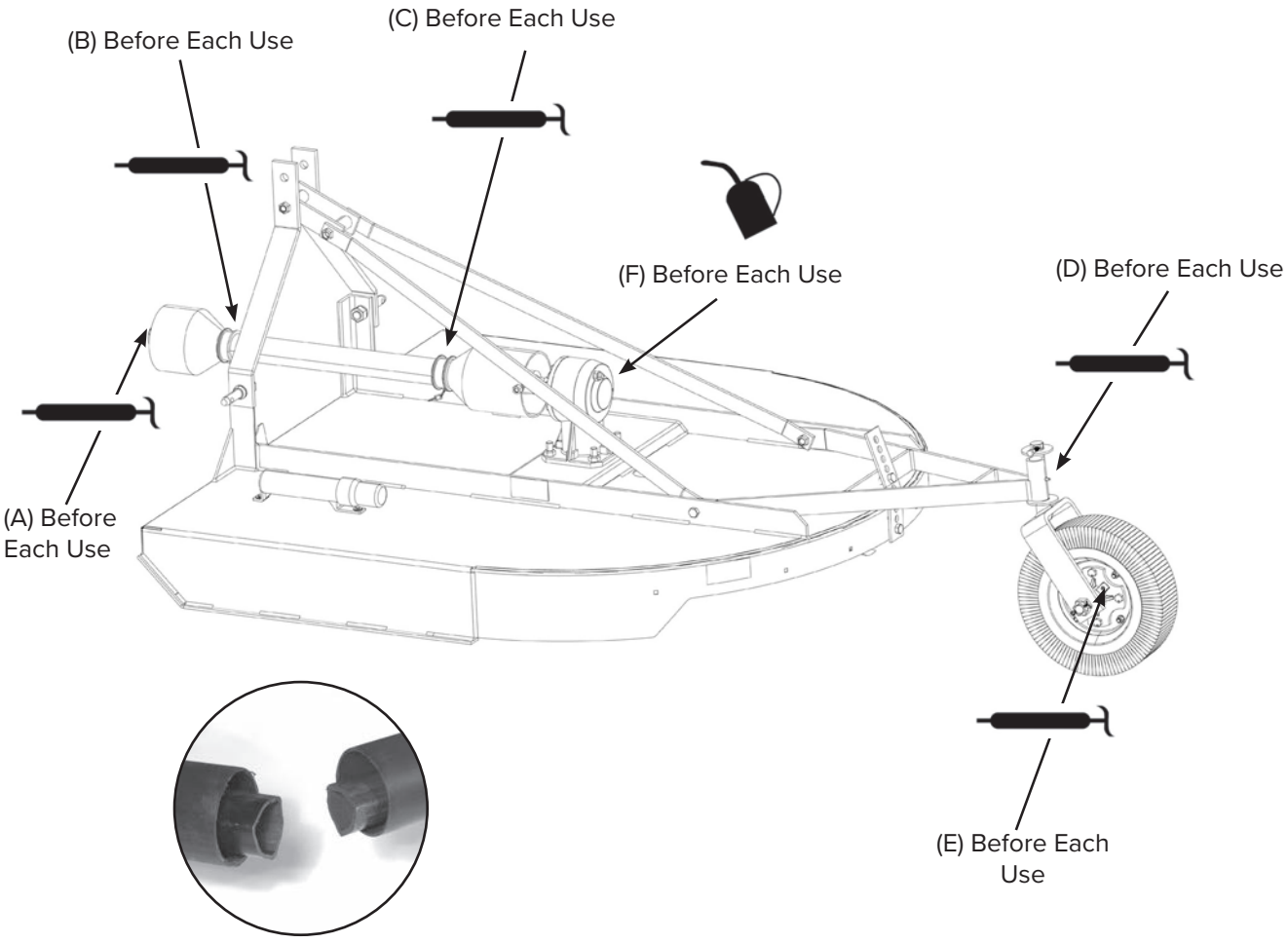
C. Driveline Profile
   1. Disconnect PTO Driveline.
   2. Pull two sections apart.
   3. Apply thin coat of multi-purpose grease to inside of female section.
   4. Re-assemble sections.

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.

D. Tail wheel Pivot Tube
   1. Apply multi-purpose grease with grease gun.

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

F. 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.

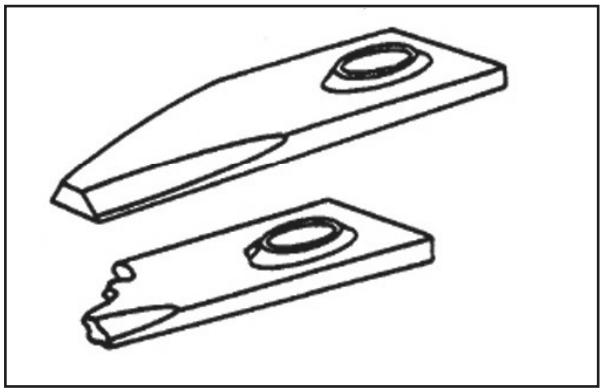


C2. Pull two sections apart.

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

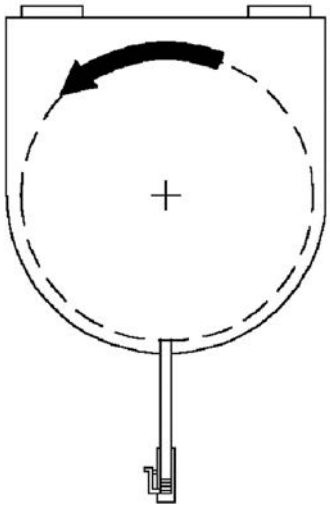
IMPORTANT

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.

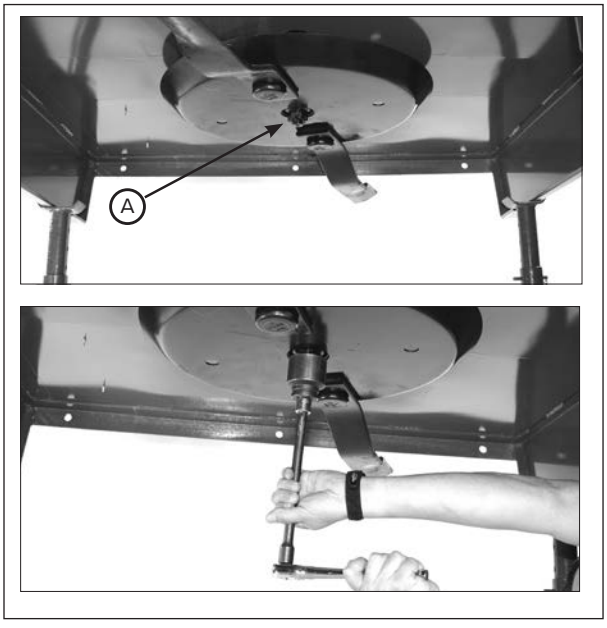
Replacing Blade Pan

CAUTION

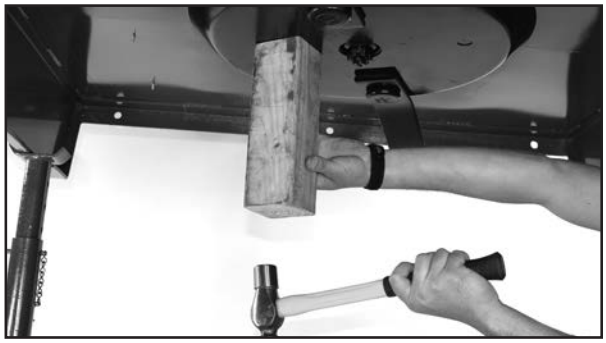
When replacing blades, blade hardware, and blade pan it will be necessary to work underneath cutter. Be sure to support cutter frame at all four corner locations with safety shop stands, blocks, or other firm supports to prevent accidental lowering. **DO NOT** position safety stands under wheel support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

1. Remove the blades. (See **REPLACING BLADES** in this section.)
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 7, A). **DO NOT** remove castle nut as it must hold the blade pan when it becomes loose.

Figure 7



4. Tap with a hammer around the hub using a block of wood as shown in photo.



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. 32, **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.

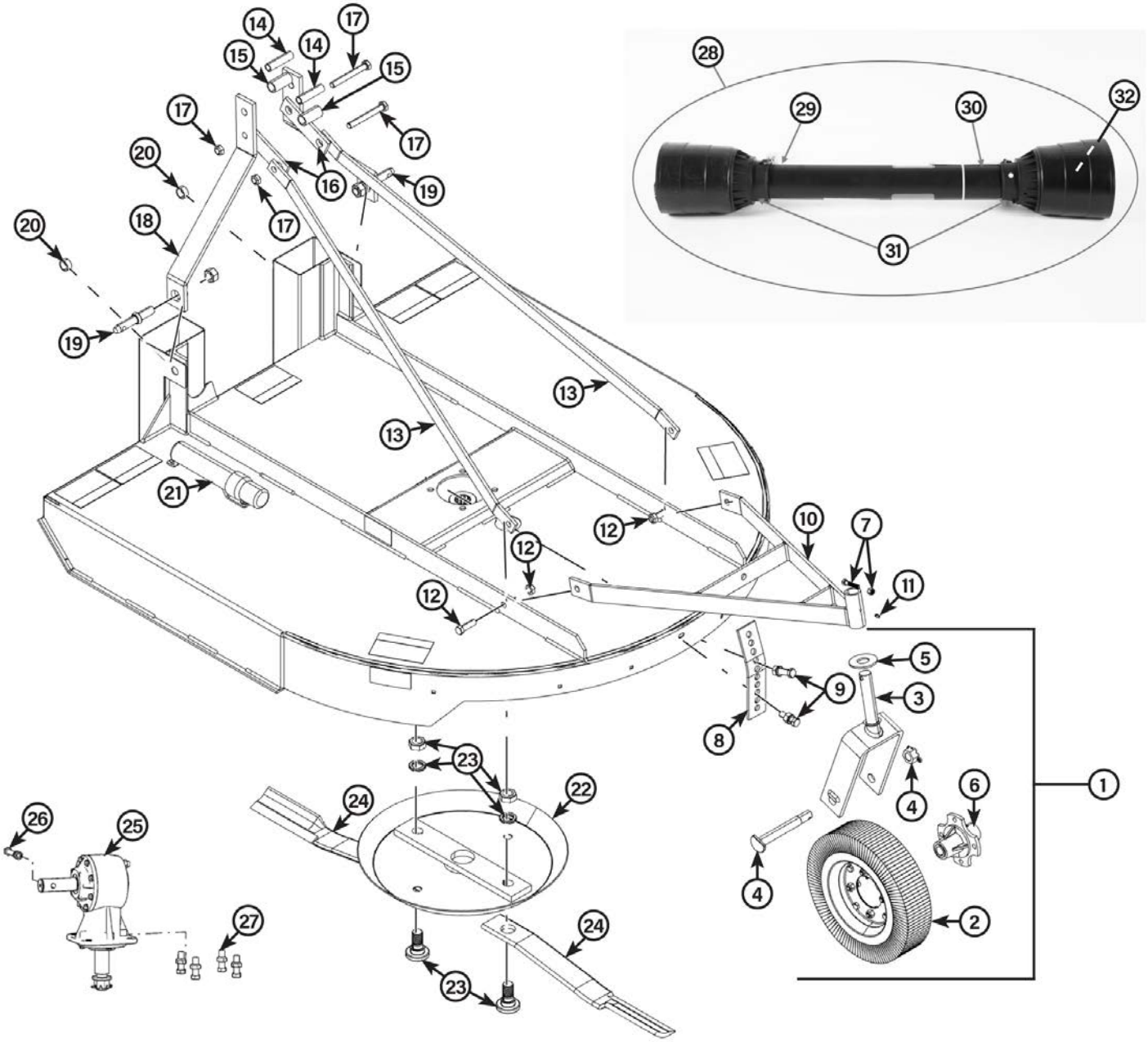
CAUTION

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

SPECIFICATIONS

	403060	403065	403070
Model	4’	5’	6’
Horsepower Required	18-45 HP	20-50 HP	25-60 HP
Weight	463 lbs	530 lbs	623 lbs
Overall Length (Including Tailwheel)	77"	86"	93"
Overall Width	51"	64"	75"
Cutting Width	48"	60"	72"
Cutting Height	1.5-9"		
Cutting Capacity	Up to 1"		
Deck Height	7.5"		
Deck Material Thickness	12 Ga.		
Hitch	Category 1		
Quick Hitch Compatible	Yes		
Gearbox	45 hp cast iron housing, precision forged steel gears		
Power Take-Off Speed (RPM)	540		
Gearbox Lubrication	80W/90		
Gearbox Lubrication Capacity	23 ounces		
Castle Nut on Gearbox	38mm socket		
Stump Jumper	1/8" Thick, Round 22.3" pan-type		
Blades	1/2"x3" Heat Treated Free Swinging w/ Suction Lift		
Blade Bolt Size	42mm socket		
Blade Tip Speed	9,982 ft./min.	12,478 ft./min.	14,974 ft./min.
Driveline Protection Options	Shear Bolt		
Shear Bolt	1/2" x 3-1/2" Grd 2 Hex Bolt		
Driveline	ASAE Cat 4 Shear Bolt Protection		
Tailwheel	15" Laminated Tire		
Safety Guards	. Optional: Rubber Front/Metal Rear		

Overall Parts List - 403060, 403065, 403070

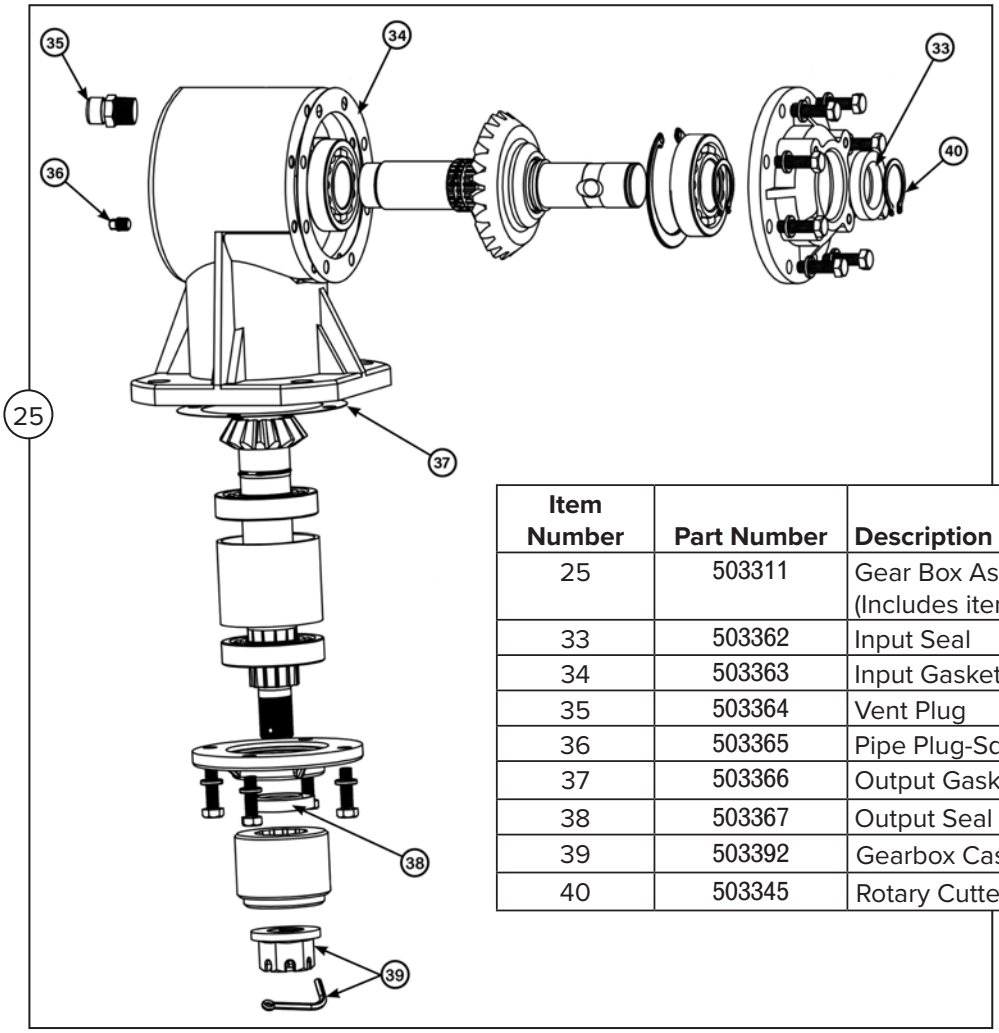


Item Number	Part Number	Description	Qty
1	503309	Rotary Cutter Tire/Wheel & Fork Assembly	1
2	503331	Laminated Tire & Wheel w/ Bolts	1
3	503332	RC Wheel Fork	1
4	503333	Fork & Hub Bolt w/ Nut	1
5	503334	1-1/4" Flat Washer	1

Overall Parts List - 403060, 403065, 403070

Item Number	Part Number	Description	Qty
6	503340	Wheel Hub for Rotary Cutters	1
7	503341	Wheel Fork Bolt w/ Nut	1
8	503330	Rotary Cutter A-Frame Height Adjuster (Black)	1
9	503337	RC A-Frame Height Adjuster Hardware (4pk)	1
10	503321	4' Rotary Cutter A-Frame Assy (Black)	1
10	503322	5' & 6' Rotary Cutter A-Frame Assy (Black)	1
11	503346	Grease Zerk (5pk)	1
12	503336	New Style RC Backstrap Hardware (4pk)	1
13	503323	RBRC402 Back Brace (2pk) (Black)	1
13	503324	RBRC502 Back Brace (2pk) (Black)	1
13	503325	RBRC602 Back Brace (2pk) (Black)	1
14	503342	Inner Pivot Plate Bushing (2pk) (Black)	1
15	503343	Outer Pivot Plate Bushing (2pk) (Black)	1
16	503326	4' Pivot Plate (2pk) (Black)	1
16	503327	5',6', 7' Pivot Plate (2pk) (Black)	1
17	503338	Rotary Cutter Pivot Plate Hardware (2pk)	1
18	503328	New Style 4' Lift Arms (2pk) (Black)	1
18	503329	New Style 5' & 6' Lift Arms (2pk) (Black)	1
19	503315	Category 1 Lift Pin	2
20	503348	4' Pin Bushing (2pk) (Black)	1
20	503349	5' & 6' Pin Bushing (2pk) (Black)	1
21	503339	RBRC manual Holder w/ Hardware	1
22	503316	Rotary Cutter Blade Holder	1
23	503317	Blade Bolt Set (2pk)	1
24	503318	4' Rotary Cutter Blades (2pk)	1
24	503319	5' Rotary Cutter Blades (2pk)	1
24	503320	6' Rotary Cutter Blades (2pk)	1
25	503311	Rotary Cutter Gearbox w/ Castle Nut & Cotter Pin	1
26	503344	Shear Pin PTO Shaft Hardware Kit	1
27	503335	Rotary Cutter Gearbox Hardware (4pk)	1
28	503312	4' PTO Shaft w/ hardware	1
28	503313	5' PTO Shaft w/ hardware	1
28	503314	6' PTO Shaft w/ Hardware	1
29	503393	4' Implement Half PTO Shaft	1
29	503394	5' Implement Half PTO Shaft	1
29	503395	6' Implement PTO Shaft	1
30	503396	4' Tractor Half PTO Shaft	1
30	503397	5' Tractor Half PTO shaft	1
30	503398	6' Tractor Half PTO Shaft	1
31	503399	Plastic Shield Locking Collar (All Shafts)	1
32	503347	PTO Shaft Grease Zerk w/ 45 degree bend	2

Gearbox Parts List - 403060, 403065, 403070



Item Number	Part Number	Description	Qty
25	503311	Gear Box Assembly (Includes items 33-39)	1
33	503362	Input Seal	1
34	503363	Input Gasket	1
35	503364	Vent Plug	1
36	503365	Pipe Plug-Sq. Head	1
37	503366	Output Gasket	1
38	503367	Output Seal	1
39	503392	Gearbox Castle Nut w/Cotter Key	1
40	503345	Rotary Cutter Snap Ring (3pk)	1

Optional Guard Kits - 403060, 403065, 403070

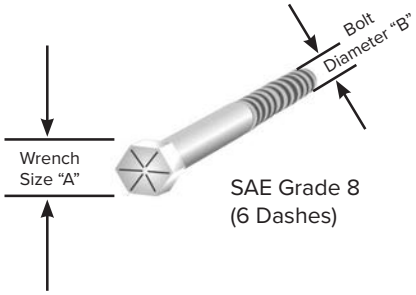
Item Number	Part Number	Description	Qty
Not Shown	503351	RBRC402 Front Rubber Guard Kit (Black)	1
Not Shown	503354	RBRC502 Front Rubber Guard Kit (Black)	1
Not Shown	503355	RBRC602 Front Rubber Guard Kit (Black)	1
Not Shown	503356	RBRC402 Rear Metal Guard Kit (Black)	1
Not Shown	503357	RBRC502 Rear Metal Guard Kit (Black)	1
Not Shown	503358	RBRC602 Rear Metal Guard Kit (Black)	1
Not Shown	503359	RBRC402 Front Rubber & Rear Metal Guard Kit (Black)	1
Not Shown	503360	RBRC502 Front Rubber & Rear Metal Guard Kit (Black)	1
Not Shown	503361	RBRC602 Front Rubber & Rear Metal Guard Kit (Black)	1

TORQUE SPECIFICATIONS

AMERICAN
Bolt Head Markings

SAE Grade 2
(No Dashes)

SAE Grade 5
(3 Dashes)

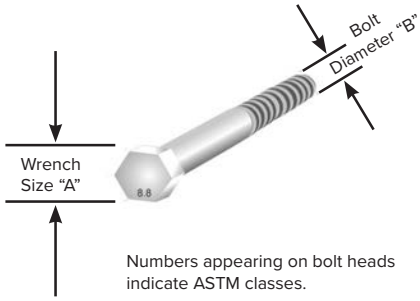


SAE Grade 8
(6 Dashes)

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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