LOFTNESS

Battle Ax H Series

Skid Loader Mulching Head

71 • 84

Owner's Manual and Parts Book
(Originating with Serial Number 104-106)

Model Number: _____
Serial Number: _____
Date of Purchase: _____

208522 Rev. C

04.21.26


LOFTNESS

LOFTNESS SPECIALIZED EQUIPMENT, INC.
LIMITED WARRANTY POLICY

The limited warranty policy begins upon delivery of the unit to the original customer.

The following Loftness products have a two (2) year limited warranty;

XLB10 Grain Bag Loader, Battle Ax L-series Skid Steer, Battle Ax S-series Skid Steer, Battle Ax H-series Skid Steer, Battle Ax Excavator 20-series, Battle Ax Excavator 30-series, Battle Ax Excavator 40-series, Battle Ax Excavator 50-series, Battle Ax Extreme, Bad Ax Skid Steer, Timber Ax Skid Steer, Stump Ax, BT20, Kwik Cut.

All other Loftness products have a one (1) year limited warranty.

If any Loftness product is used as rental or leased equipment the limited warranty period is for only 30 days from the delivery date to the original customers.

Loftness Specialized Equipment, Inc. ("LOFTNESS") warrants new LOFTNESS machinery 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 in the LOFTNESS Operator's Manual. The second year of limited warranty includes only parts, and not labor.

LOFTNESS' liability for any defect with respect to accepted goods shall be limited to repairing the goods at an authorized dealer or other LOFTNESS designated location, or replacing them as LOFTNESS shall elect. The above shall be in accordance with LOFTNESS warranty adjustment policies.

WARRANTY REQUIREMENTS

Warranty registration form must be filled out and returned to Loftness Specialized Equipment to validate all warranty claims. To request a warranty claim, a return authorization from LOFTNESS must be obtained. The failed part may then be returned in an untampered status. This warranty does not include freight or delivery charges incurred when returning machinery for servicing. Dealer mileage, service calls and pick-up/delivery charges are the customer's responsibility.

LIMITATIONS OF WARRANTY

LOFTNESS products are designed to provide years of dependable service when proper use and maintenance is adhered to. The potential for misuse in many applications exists; therefore, a limited warranty is provided as follows.

This warranty shall not apply to any machine or attachment which shall have been repaired or altered outside the LOFTNESS factory or authorized LOFTNESS dealership or in any way so as in LOFTNESS' judgment, to affect its stability or reliability, nor which has been subject to misuse, negligence or accident, nor to any machine or attachment which shall not have been operated in accordance with LOFTNESS' printed instructions or beyond the company recommended machine rated capacity. LOFTNESS may elect to have an area representative evaluate the condition of the machine before warranty is considered.

In addition, this limited warranty provides no coverage for general wear or maintenance items, misuse, environmental conditions and/or contamination for which they were not designed or not intended, including but not limited to the following items;

Use of machine beyond its rated capacity, Conveyors, Improper knife replacement, Auger wear, Missing knives, Saw blades, Striking foreign objects, Brakes and brake pads, Lack of lubrication, Tires, Failures caused by running in an "out-of-balance" condition, Hydraulic hoses damaged by being caught in "pinch points" or by moving parts, and Damage caused by excessive force from the power unit.

EXCLUSIONS OF WARRANTY

Except as otherwise expressly stated herein, LOFTNESS makes no representation or warranty of any kind, expressed or implied. **The implied warranty of merchantability and fitness for a particular purpose are disclaimed, and excluded from this limited warranty.** The remedies set forth in this warranty are the sole and exclusive remedies available to any person under this warranty. LOFTNESS shall have no liability to any person for incidental, consequential or special damages of any description, whether arising out of express or implied warranty or any other contract, negligence, or other tort or otherwise. This exclusion of consequential, incidental and special damages is independent from and shall survive any finding that the exclusive remedy failed of its essential purpose. Upon purchase, the buyer assumes all liability, all personal injury and property damage resulting from the handling, possession or use of the goods by the buyer.

No agent, employee or representative of LOFTNESS has any authority to bind LOFTNESS to any affirmation, representation or warranty concerning its machinery and/or attachments except as specifically set forth herein. (October 2025)


LOFTNESS

To the Dealer:

In order to ensure compatibility / performance of the Loftness attachment and the customer's power unit, it is IMPERATIVE that this Pre-Delivery Inspection ("PDI") be completed using the customer's actual power unit.

PRE-DELIVERY INSPECTION

Dealer: By initialing each line I understand and promise that I have completed the following:

____ Verified the attachment is set up properly for customers power unit. (check model code with manual)

____ Greased all grease zerks till grease purges out of bearing.

____ Removed all shipping brackets.

_____Adjusted push bar out of shipping position. (if equipped) (full forward position recommended)

____ Installed head on customer's unit that will be running the attachment and set hydraulic flow per power unit manufacturer owner's manual for preferred flow.

____ Recorded the Serial Number / Make / Model of the power unit.

Power unit. S/N _____ Make _____ Model _____GPM_____

____ Recorded the Serial Number and Model of the Loftness attachment. S/N _____ Model_____

____ Verified power unit manufacturer outlined Auxiliary coupler orientation for pressure, return & case drain line.

____ Verified/recorded rotor RPM at full throttle per model & chart in Loftness owner's manual. RPM _____

____ Performed an Auxiliary system pressure stall check on the power unit only and verified that max pressure rating is achieved per power unit manufacturer specifications. Recorded pressure observed _____ PSI

PDI completed by: _____ Print

_____ Signed/Date

Contact Loftness factory if any of the tests are not within power unit or Loftness specifications.

DELIVERY

____ Showed customer all grease zerks.

____ Showed customer adjustable push bar options. (if equipped)

____ Showed customer how to properly engage hydraulics to operate attachment.

____ Reviewed owner's manual, all on-product warnings and instructions, and safe operation with customer.

____ Assisted customer with completing / submitting Warranty Registration Form to Loftness by one of the below options.
Dealer also needs to submit a copy of this completed PDI to Loftness and maintain the copy in owner's manual for unit.

Mail to:
Loftness Specialized Equipment
PO Box 337
Hector, MN 55342

Delivered to Customer by: _____Print

_____Signed/Date

Email to: registration@loftness.com

LOFTNESS COPY

To the Dealer:

In order to ensure compatibility / performance of the Loftness attachment and the customer's power unit, it is IMPERATIVE that this Pre-Delivery Inspection ("PDI") be completed using the customer's actual power unit.

PRE-DELIVERY INSPECTION

Dealer: By initialing each line I understand and promise that I have completed the following:

____ Verified the attachment is set up properly for customers power unit. (check model code with manual)

____ Greased all grease zerks till grease purges out of bearing.

____ Removed all shipping brackets.

_____Adjusted push bar out of shipping position. (if equipped) (full forward position recommended)

____ Installed head on customer's unit that will be running the attachment and set hydraulic flow per power unit manufacturer owner's manual for preferred flow.

____ Recorded the Serial Number / Make / Model of the power unit.

Power unit. S/N _____ Make _____ Model _____GPM_____

____ Recorded the Serial Number and Model of the Loftness attachment. S/N _____ Model_____

____ Verified power unit manufacturer outlined Auxiliary coupler orientation for pressure, return & case drain line.

____ Verified/recorded rotor RPM at full throttle per model & chart in Loftness owner's manual. RPM _____

____ Performed an Auxiliary system pressure stall check on the power unit only and verified that max pressure rating is achieved per power unit manufacturer specifications. Recorded pressure observed _____ PSI

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_____ Signed/Date

Contact Loftness factory if any of the tests are not within power unit or Loftness specifications.

DELIVERY

____ Showed customer all grease zerks.

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CUSTOMER COPY


LOFTNESS

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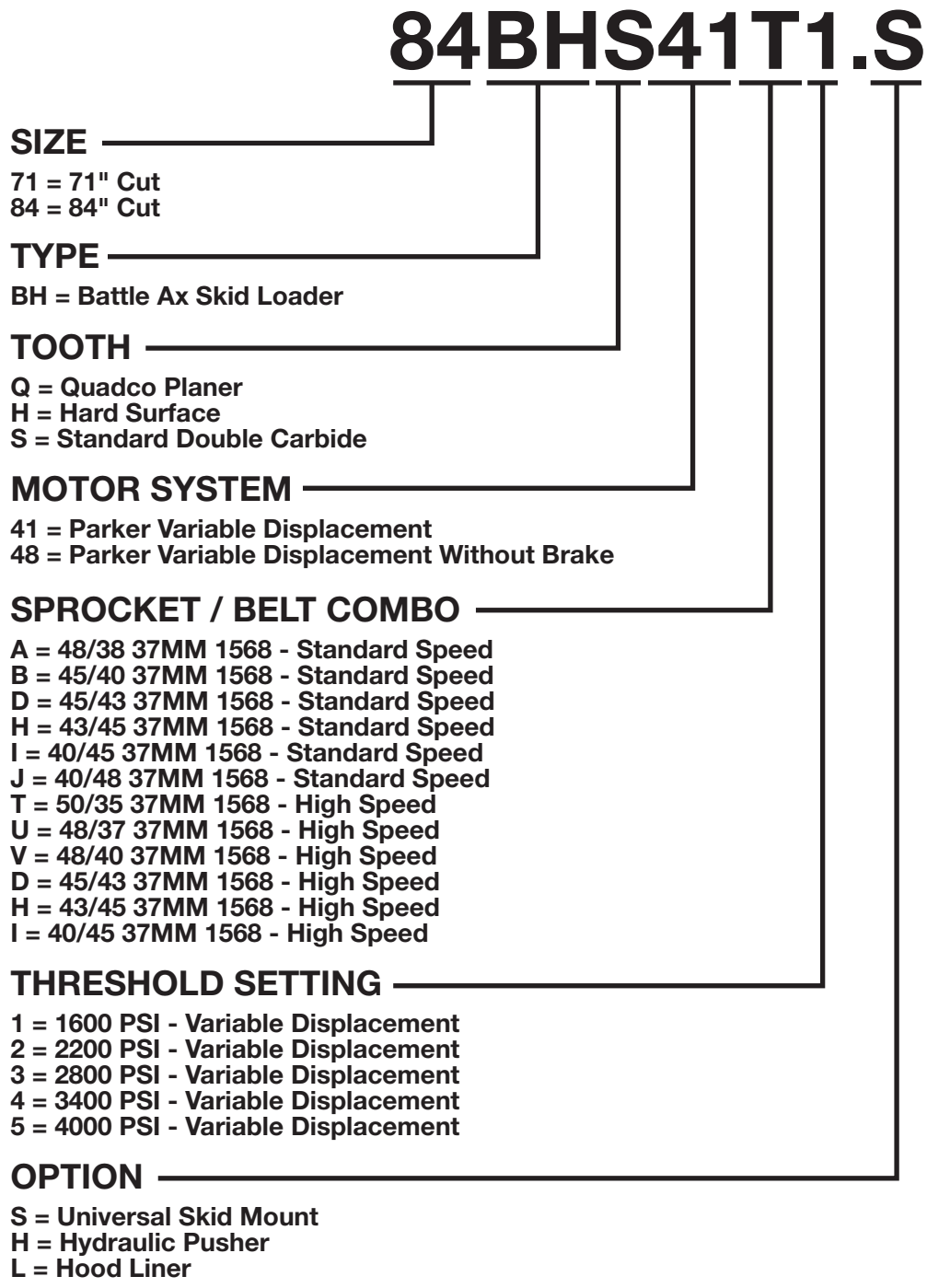
LOFTNESS

Ordering Code

Battle Ax H Series (Example)

The ordering code will consist of two numbers (machine size), two letters (machine type), one letter (tooth type), two numbers (motor system), one letter (sprocket/belt combo), one number (threshold setting), and one letter (options). An example for a Battle Ax of this type would be as shown below.




LOFTNESS

Owner Information

Thank you for your decision to purchase a Battle Ax skid loader-mounted shredder from Loftness. To ensure maximum performance of your machine, it is mandatory that you thoroughly study the owner's manual and follow its recommendations. Proper operation and maintenance are essential to prevent injury or damage and to maximize machine life.

The Loftness Battle Ax is an effective, reliable machine used for maintaining grass, weeds, brush, and trees. It efficiently cuts and mulches material up to 6" in diameter. It intermittently cuts larger diameter material. For best results, operate the machine as low to the ground as possible without the teeth striking the ground or other obstructions. Lifting or tilting the Battle Ax increases the risk of flying debris.

Due to the high operating speed of the teeth, operating in rocky terrain or areas with frequent obstructions will reduce tooth life. Areas to be mowed should be cleared of debris such as rocks, bottles, large branches, and similar hazards. The teeth cut and pulverize vegetation, and the Battle Ax evenly distributes the processed material across the full cutting width, eliminating bunching or windrowing.

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

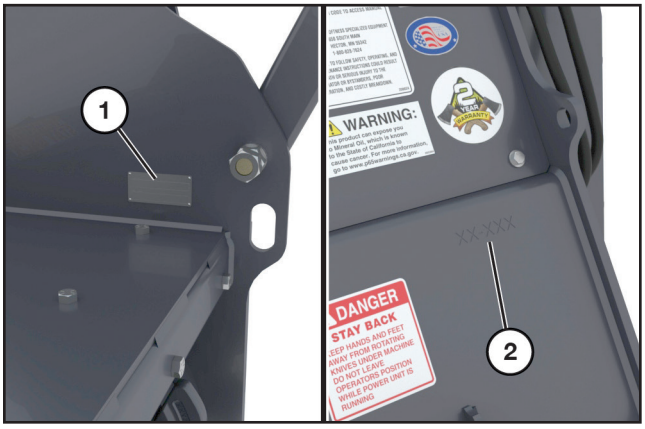
Make sure that all personnel have read this owner's manual and thoroughly understand safe and correct operating, installation, and maintenance procedures.

Continuous improvement and advancement of Loftness products may result in changes to your equipment that may not be reflected in this publication. Loftness reserves the right to make product improvements to the machine at any time. Although great care has been taken to ensure the accuracy of this publication, Loftness does not assume any liability for errors or omissions.

Warranty Policy

Be sure to read and understand the Warranty Policy at the beginning of this manual. It is also important that you fill out the Warranty Registration form(s) completely with your dealer so as not to void the warranty.

Serial Number Location



The machine serial number is shown on the tag (1) and also stamped into the rear, right side of the machine frame (2).

Always use your model and serial number when requesting information or ordering parts.

Owner's Manual Access

The Battle Ax is shipped with a printed owner's manual. The manual must be accessible to all operators. Keep it in a safe, dry location.

To access a digital owner's manual, use a smartphone to scan the QR code (1) located on the back of the motor cover. This code links to the Battle Ax owner's manual on the Loftness website.

Introduction

Battle Ax H Series Features

- Power Requirement - 90 to 150 HP
- Downward Rotation Design
- Premium Strength Steel Body and Rotor
- Front Mounted
- Hydraulic-Driven
- Universal Skid Steer Mount (other mounts available)
- Manual or Hydraulic Pusher Bar
- Claw Hooks On Tree Pusher
- 17 in. (43 cm) Diameter Rotor (1600-2300 RPM)
- 2-1/2 in. (63.5 mm) Piloted Double Taper Roller Bearings
- Anti-Wrap Bearing Protection
- Heavy-Duty Bearing Block
- Variable Displacement Piston-Type Motor
- Dual Crossover Relief Protection
- Pressure Gauge
- Steel Chain Deflectors
- Synchronous Belt
- Tapered-Lock Sprockets
- Skid Shoes - Replaceable
- Hydraulic Hoses and Hose Holder
- Adjustable Shear Bar
- Double Carbide; Quadco Planer Teeth (sharpenable); or Hardened Quadco Teeth
- Replaceable recutter
- Optional Hood Liner

Safety First

Safety Alert Symbol

This message alert symbol identifies important safety messages on the machine 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.

In the owner's manual and on decals used on the machine, the words **DANGER, WARNING, CAUTION, IMPORTANT, and NOTE** are used to indicate the following:

DANGER: This word warns of immediate hazards which, if not avoided, will result in severe personal injury or death. The color associated with Danger is RED.

WARNING: This word refers to a potentially hazardous situation which, if not avoided, could result in severe personal injury or death. The color associated with Warning is ORANGE.

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

IMPORTANT: Highlights information that must be heeded.

NOTE: A reminder of other related information that needs to be considered.

If Safety Decals on this machine are ISO two panel pictorial, decals are defined as follows:

- The first panel indicates the nature of the hazard.
- The second panel indicates the appropriate avoidance of the hazard.
- Background color is YELLOW.
- Prohibition symbols such as and if used, are RED.

Be certain all machine operators are aware of the dangers indicated by safety decals applied to the machine, and be certain they follow all safety decal instructions. Contact Loftness for safety decal replacement.

Loftness cannot anticipate every possible circumstance that may involve a potential hazard. The warnings in this owner's manual are not all inclusive.

Owner's Responsibility

Due to the potential danger of flying debris, it is the owner's responsibility and is "**ABSOLUTELY MANDATORY** that **IMPACT-RESISTANT SHIELDING**" be installed on the machine to protect the operator.

It is **ABSOLUTELY MANDATORY** that all personnel read and follow all safety precautions before operating the machine and attachment.

Make sure that all personnel have read this owner's manual, and thoroughly understand safe and correct installation, operation, and maintenance procedures.

Operate and maintain this machine in a safe manner and in accordance with all applicable local, state, and federal codes, regulations or laws; and in compliance with on-product labeling and this owner's manual instructions.

Make sure that all personnel know how to stop the machine and attachment by disengaging all controls. See "Mandatory Shut-Down Procedure" on page 5.

Make sure the attachment is installed on the machine correctly before being placed in service. At regular intervals thereafter, the attachment should be serviced in accordance with procedures outlined in this owner's manual.

Mandatory Shut-Down Procedure

- Stop the machine and attachment on a level surface and lower the attachment to the ground.
- Move throttle to idle position.
- Disengage all power to the attachment.
- Shut off engine and remove the key.

Wait until the rotor has stopped completely before inspecting the attachment.

Safety Rules

These are general safety considerations. Additional precautions may be necessary to operate your machine in a safe manner. Be certain you are operating your machine in accordance with all safety codes, OSHA rules and regulations, insurance requirements and local, state, and federal laws.

- Read and observe all warning decals on the machine before attempting to operate the attachment. Do not attempt to operate this attachment unless all factory devices and decals are in place. Keep safety decals clean of dirt and grime. Keep all guards, shields and decals in place.
- Remove from area of operation all foreign objects such as bottles, rocks, wire, and similar hazards that may become tangled in the rotor, causing damage to the machine or being thrown and striking other objects.
- Do not allow people or animals within 300 feet of the machine and attachment during operation.
- Do not allow anyone to operate the attachment until he or she has read the owner's manual and is completely familiar with all safety precautions. Keep the work area clear of all unauthorized personnel.
- Do not allow persons under the influence of alcohol, medications, or other drugs that can impair judgment or cause drowsiness to operate or maintain the machine.
- Always use an approved roll bar and seat belt for safe operation. Overturning a machine without a roll bar and seat belt can result in injury or death.
- Use the hand holds and step plates when getting on and off the machine to prevent falls. Keep steps and platform cleared of mud and debris.
- Always have an operator in the machine while the attachment is in operation. Never leave the machine and attachment running and unattended.
- Operate the attachment only from the operator's seat.
- Keep your feet on the pedals (floor plates), seat belt fastened snugly, and seat bar lowered (if equipped) when operating the attachment.
- The adjustable push bar could contact the machine in some positions. Before starting the power unit, set the push bar in the most forward position, then slowly rotate the attachment back while an assistant checks for clearance. Repeat this process in the other settings to determine which positions are usable with your machine.
- Never attempt to make any adjustments while the attachment is running or the key is in the "ON" position in the machine. Before leaving the operator's position, disengage power to the attachment, shut off engine and remove ignition key.
- Disengage auxiliary hydraulics and place all machine controls in neutral and engage the parking brake before starting the engine.
- Become familiar with and know how to operate all safety devices and controls on the machine and attachment before attempting to operate. Know how to stop the machine and attachment before starting it.
- Repeated impact of the knives with hard objects can cause excessive wear and damage to the skid-loader or attachment. Be sure to maintain recommended ground clearance as specified in this manual.
- Should excessive vibration occur, disengage the auxiliary hydraulics immediately and shut off engine. Do not continue to operate the attachment until the problem has been determined and corrected.
- Do not start, operate, or work on this attachment until you have carefully read and thoroughly understand the contents of this manual and the operator's manual for your machine.
- Keep children, bystanders and other workers off and away from the machine and attachment during operation. No riders allowed.
- Before inspecting, cleaning, lubricating, adjusting or servicing any part of the attachment, always exercise the Mandatory Shut-Down Procedure. See "Mandatory Shut-Down Procedure" on page 5. After service has been performed, be sure to restore all guards, shields and covers to their original position.
- Make sure the operator's area is clear of any distracting objects. Keep work areas clean and free of grease and oil to avoid slipping or falling.

Safety Rules (Cont'd)

- Make sure all controls (levers, pedals and switches) are in NEUTRAL position before starting the engine.
- Before leaving the operator's position for ANY reason or allowing anyone to approach the machine and attachment, always perform the mandatory shutdown procedure.
- Do not wear loose, hanging clothes, neckties or jewelry around rotating parts. Long hair is to be placed under a cap or hat. These precautions will help prevent you from becoming caught in any moving parts on the machine and attachment.
- Before working under the attachment, be certain it is securely blocked!
- Do wear safety glasses, ear protection, respirators, gloves, hard hats, safety shoes, and other protective clothing when required.
- Periodically check all guards, shields and structural members. Replace or repair anything that could cause a potential hazard.
- Do not replace components or parts with other than factory-recommended service parts. To do so may decrease the effectiveness of the machine.
- It is the operator's responsibility to be aware of machine and attachment operation and work area hazards at all times.
- Never operate the attachment without adequate light and visibility.
- Keep hands and feet clear! Never step over or climb over the attachment while the rotor is engaged or the engine is running; entanglement could occur.
- Operators are responsible for knowing the location and function of all guards and shields, including but not limited to belt drives and rotor, and must ensure all guards are in place during operation.
- Operators are responsible to be aware of safety hazard areas and follow instructions on warning, caution, or danger decals applied to the machine.
- Know the area before operating the machine. Be aware of power lines or other equipment.
- Do not lubricate parts while the machine is running.
- Do not smoke while servicing the machine.

Hydraulic Safety

- The hydraulic system is under high pressure. Make sure all lines and fittings are tight and in good condition. Fluids escaping under high pressure can have sufficient force to penetrate the skin and cause serious injury.
- Never check for leaks by using any part of your body to feel for escaping fluid.

⚠	**WARNING:** *Contact with high-pressure fluids may cause fluid penetration and burn hazards. Fluid that is under pressure can penetrate body tissue. Fluid penetration can cause serious injury and possible death. If fluid is injected into the skin, seek medical attention immediately!*

California Proposition 65 Warning

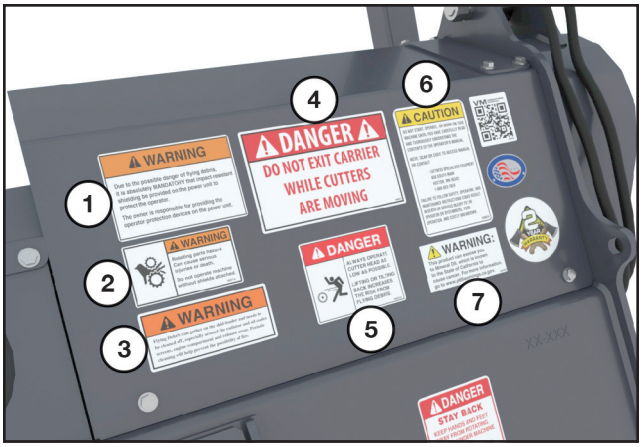
⚠	**WARNING:** *This product can expose you to Mineral Oil, which is known to the State of California to cause cancer. For more information, go to www.p65warnings.ca.gov.*

A decal with this warning statement is adhered to the machine. Replace immediately if it becomes worn or missing.

Safety Decal Locations

Check and replace any worn, torn, hard-to-read, or missing safety decals on your machine.

NOTE: *This section shows where safety-related decals are applied on the machine. For all machine decals, see "Machine Decals and Signs" on page 71.*



1

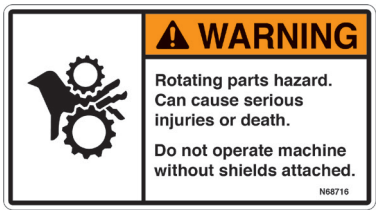
⚠ WARNING

Due to the possible danger of flying debris, it is absolutely MANDATORY that impact-resistant shielding be provided on the power unit to protect the operator.

The owner is responsible for providing the operator protection devices on the power unit.

Part No. N17013

2



Part No. N68716

3

⚠ WARNING

Flying Debris can gather on the skid-loader and needs to be cleaned off, especially around the radiator and oil cooler screens, engine compartment and exhaust areas. Periodic cleaning will help prevent the possibility of fire.

Part No. N20661

4

⚠ DANGER ⚠

DO NOT EXIT CARRIER WHILE CUTTERS ARE MOVING

200491

Part No. 200491

5

Part No. N68724

6

⚠ CAUTION

DO NOT START, OPERATE, OR WORK ON THIS MACHINE UNTIL YOU HAVE CAREFULLY READ AND THOROUGHLY UNDERSTAND THE CONTENTS OF THE OPERATOR'S MANUAL.

NOTE: SCAN QR CODE TO ACCESS MANUAL OR CONTACT

LOFTNESS SPECIALIZED EQUIPMENT
650 SOUTH MAIN
HECTOR, MN 55342
1-800-828-7624

FAILURE TO FOLLOW SAFETY, OPERATING, AND MAINTENANCE INSTRUCTIONS COULD RESULT IN DEATH OR SERIOUS INJURY TO THE OPERATOR OR BYSTANDERS, POOR OPERATION, AND COSTLY BREAKDOWN.

208824

Part No. 208824

7

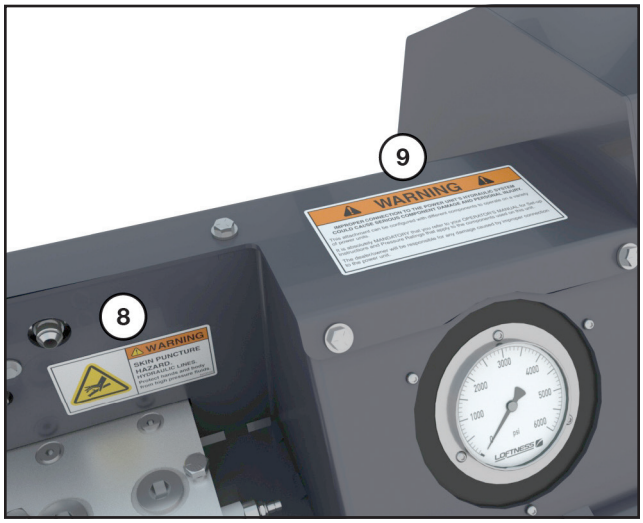
⚠ WARNING:

This product can expose you to Mineral Oil, which is known to the State of California to cause cancer. For more information, go to www.p65warnings.ca.gov.

203264

Part No. 203264

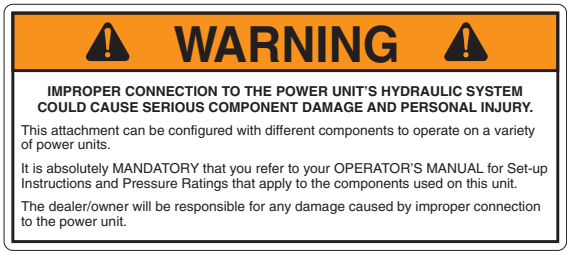
Safety Decal Locations (Cont'd)



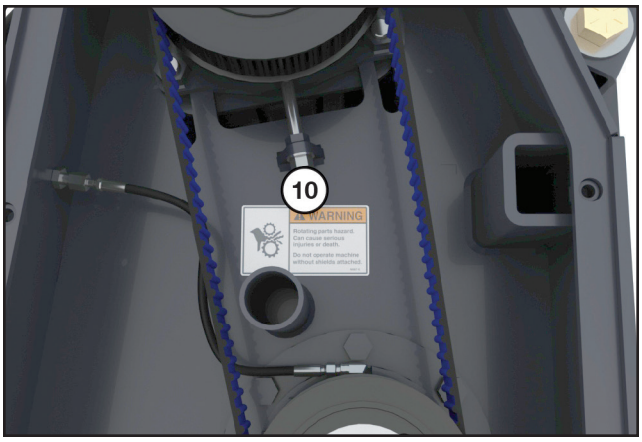
8

Part No. N23506

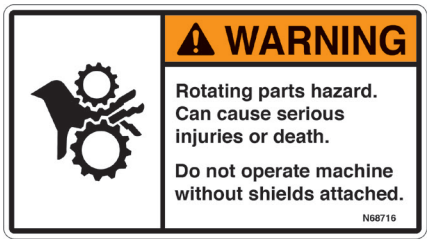
9



Part No. N28385



10

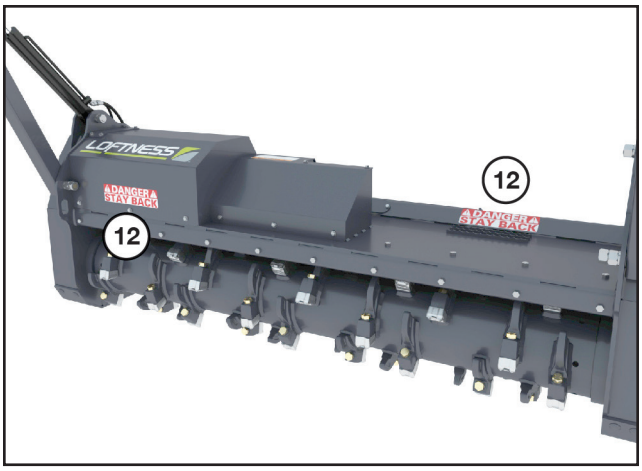


Part No. N68716

11

Part No. N28386

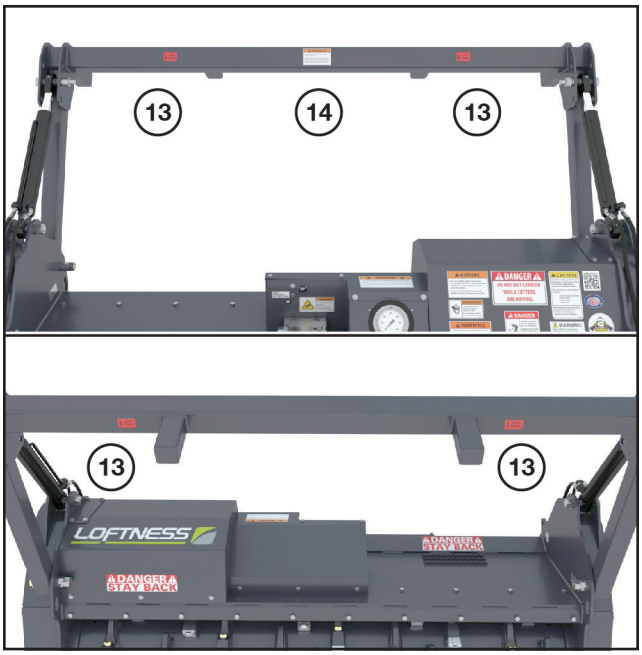
Safety Decal Locations (Cont'd)



12

DANGER
STAY BACK

Part No. 4334



13

LIFT POINT
N29769

Part No. N29769

14

WARNING

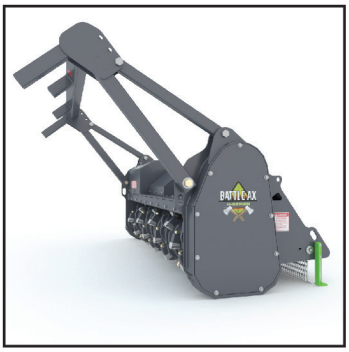
The adjustable push bar could contact the power unit in some positions.

Before starting the power unit, set the push bar in the most forward position, then slowly rotate the cutter head back while an assistant checks for clearance.

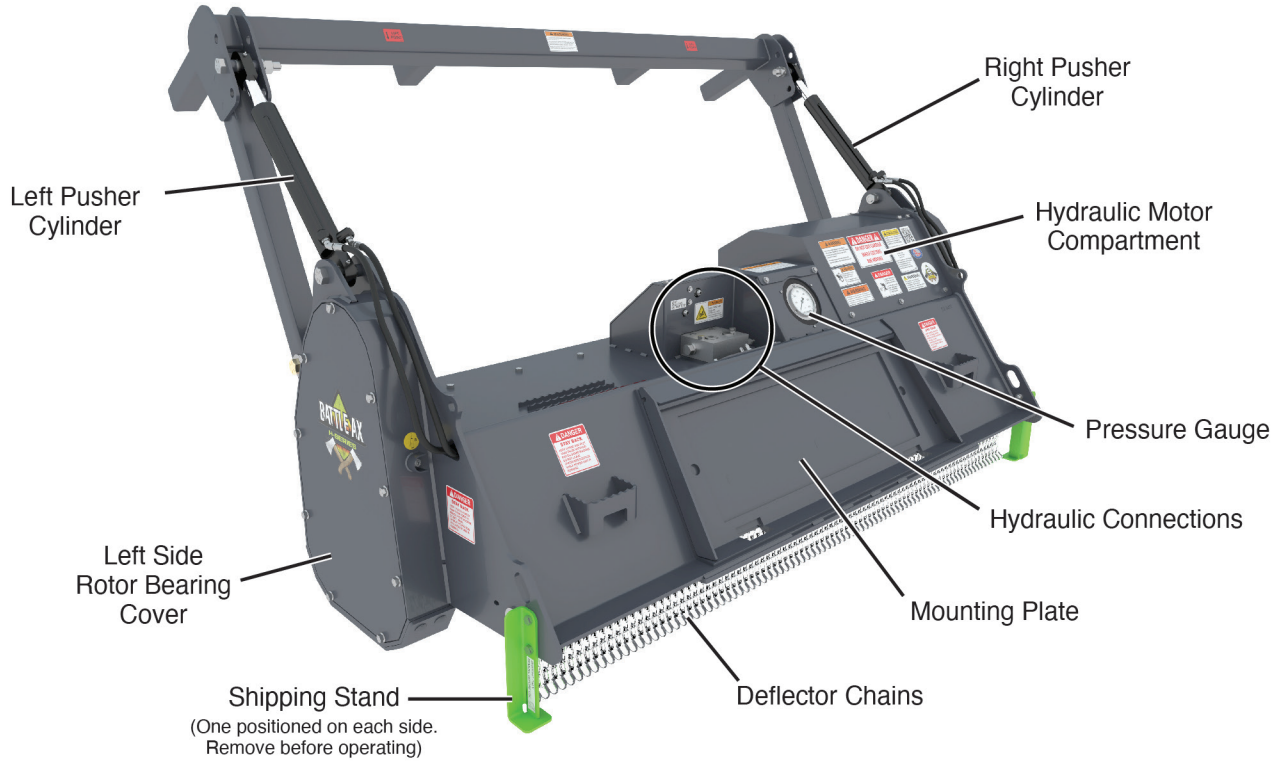
Repeat this process in the other settings to determine which positions are usable with your power unit.

Part No. N17014

Battle Ax H Series Identification



Fixed Pusher Model

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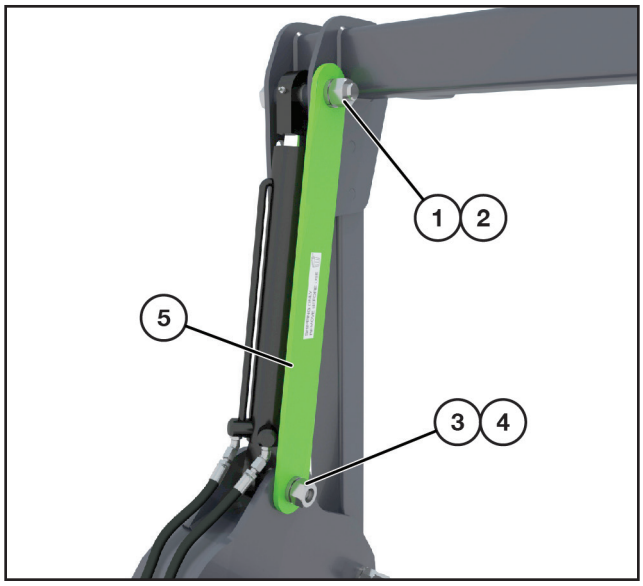
Pusher Bar Assembly

Depending on your model, follow either the Hydraulic Pusher Model or Fixed Pusher Model instructions to move the pusher bar into the operating position.

Hydraulic Pusher Models

Before the Battle Ax with the hydraulic pusher option can be put into service, the shipping bar must be removed.



Remove the top nut (1) and washer (2), then the bottom nut (3) and washer (4) securing the shipping bar (5).

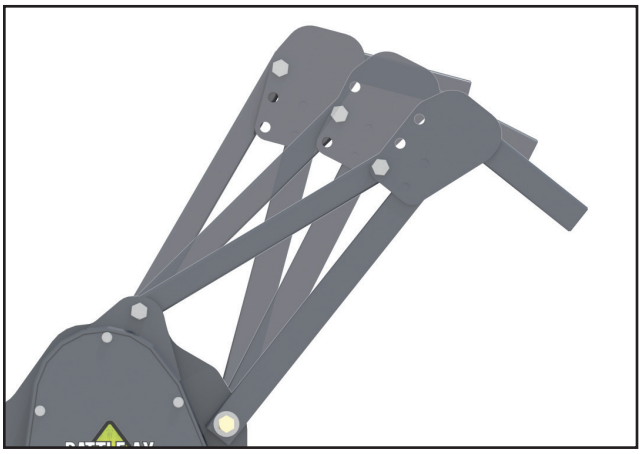
Keeping the bolts in position, slide the shipping bar off the bolts.

Reinstall the hardware and tighten securely.

The shipping bar may be discarded.

Fixed Pusher Models

The Battle Ax with the fixed pusher bar is shipped with the pusher bar in an upright position. Refer to the following procedure to move the machine into the operating position.



The pusher bar can be set into one of three operating positions. Determine the desired position before assembling.

NOTE: *Assembling the pusher bar requires two people or an approved lifting device (1) to support the bar during positioning.*

Ensure the pusher bar (2) is safely supported.

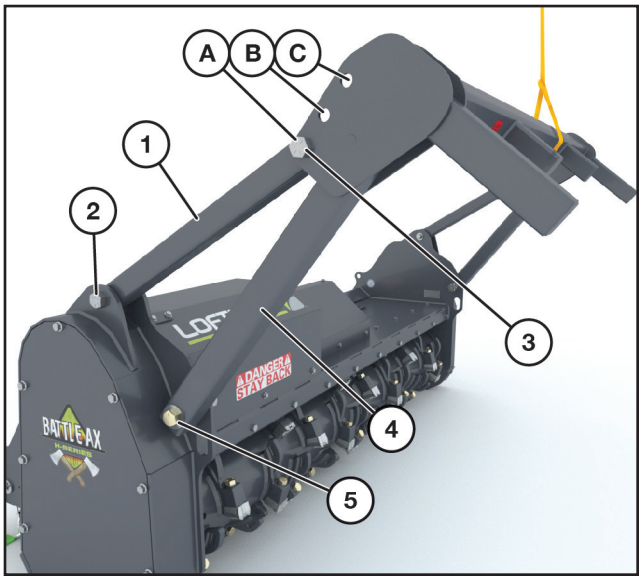
Loosen nuts at locations 3 and 4. Then remove nut (5), bolt (6), and washer (7) securing the rear arm (8) to the rear of the frame.

Repeat the procedure on the opposite side of the Battle Ax.

(Procedure continued on following page.)

Pusher Bar Assembly (Cont'd)

Fixed Pusher Models (Cont'd)



Move the rear arm (1) into position so the hole in the lower end of the arm aligns with the top hole (2) of the side plate (indicated by the shipping tag). Remove the shipping tag.

NOTE: *The pusher bar is factory-set so the upper hole in the rear arm aligns with hole "A". If a different pusher bar angle is desired, remove nut and bolt (3) while holding the rear arm (1). Once the hardware is removed, let the rear arm rest on pusher bar side assembly (4).*

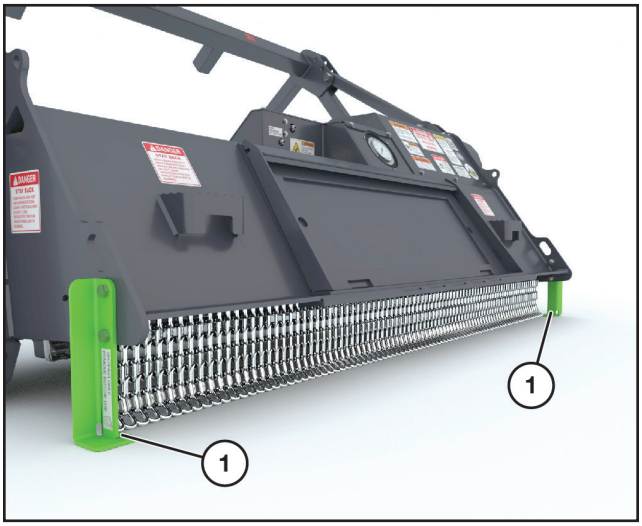
Repeat the procedure on other side of the Battle Ax.

Raise or lower the pusher bar and align the rear arm (1) with the desired hole (A ,B, or C) on the pusher bar side assembly.

Reinstall all hardware and tighten (2, 3, and 5) securely. This must be done on both sides.

Remove lifting device.

Remove Shipping Stands

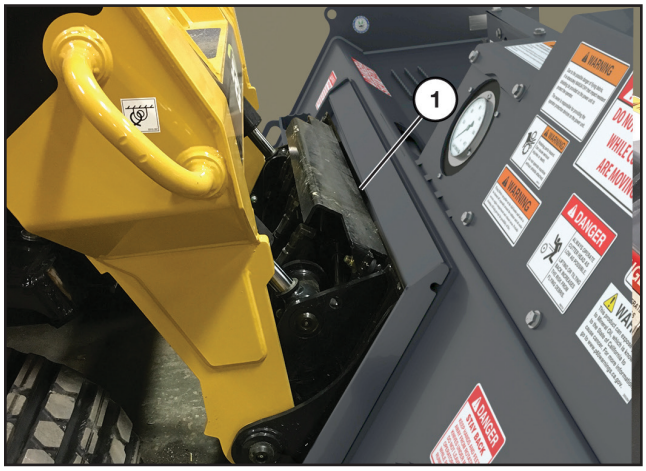


A shipping stand (1) is secured on each end of the Battle Ax to keep it stable during shipping. These can be removed after the pusher bar is in the operating position.

NOTE: *Do not discard the shipping stands and hardware. They are used to stabilize the Battle Ax during storage. Keep them in a secure location until ready to store.*

Installing the Battle Ax to the Loader

Fully raise the attachment-locking levers on the loader mounting plate.



Tilt the loader mounting plate forward. Drive forward with the loader and hook the top edge of the loader mounting plate under the top flange (1) on the Battle Ax mounting plate. Be careful not to damage the locking levers on the loader mounting plate.

Tilt the loader mounting plate back until the Battle Ax mounting plate is firmly against the loader mounting plate, but do not lift the attachment off the ground.

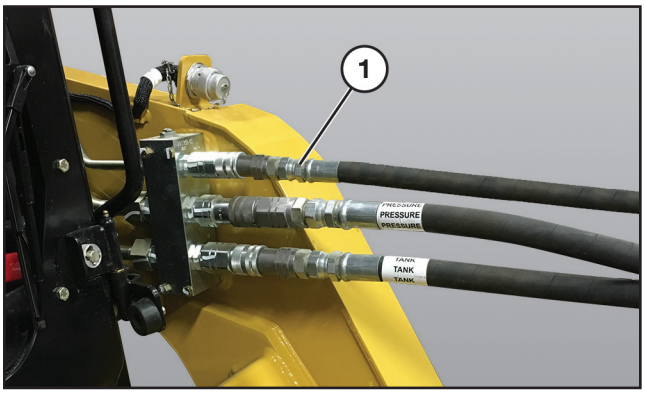
WARNING: *Before leaving the operator's seat, lower the lift arms, place the attachment on the ground, stop the engine, remove the ignition key, and engage the parking brake.*

Fully lower the attachment-locking levers on the loader mounting plate.

WARNING: *Locking-wedge pins must extend through the holes in attachment-mounting plate. Levers must be fully down in the locked over-center position. Failure to secure wedge pins can allow attachment to come off, causing serious injury or death.*

Hydraulic Connections

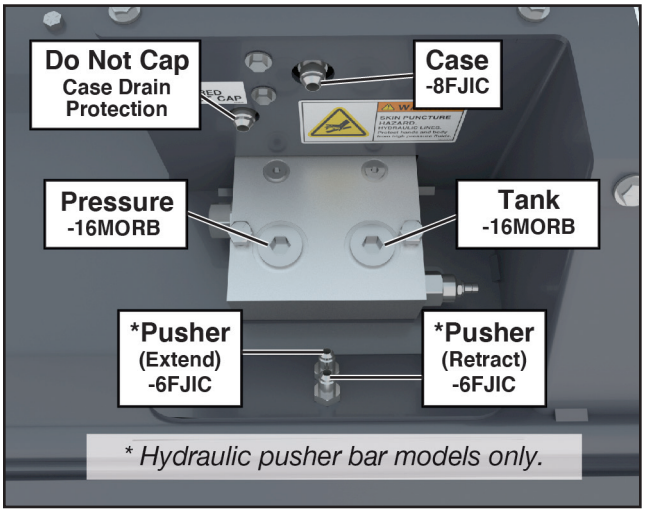
WARNING: *Hydraulic Lines. Protect hands and body from high-pressure fluids. Pressurized fluids can penetrate the skin. Disconnect and lock out power source before disconnecting or connecting hydraulic hoses.*



NOTE: *The hydraulic hose quick couplers shown above are not supplied with the Battle Ax.*

Install the Battle Ax quick couplers to the loader.

NOTE: *The case drain quick coupler (1) of the Battle Ax must be connected to the loader's auxiliary hydraulic system for proper operation.*



IMPORTANT: *It is the owner's responsibility to assure that the hydraulic hoses from the power unit to the attachment are not caught in pinch points, or in any way damaged by moving parts.*

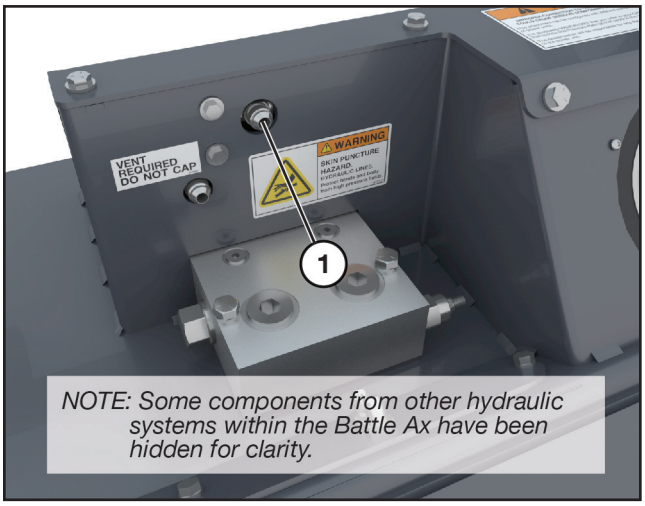
Flushing Loop (#41 Closed Motor Models only)

Note: *Use the loader hydraulics to set the Battle Ax on blocks for this procedure. Refer to "Checking Rotor Rotation" on page 16 for reference.*

⚠	**DANGER:** *Shut down and lock out power from the loader before removing the motor cover. Failure to do so could result in serious injury or death.*

Remove the motor cover. See "Removing Motor Cover and Access Plate" on page 24 for instructions.

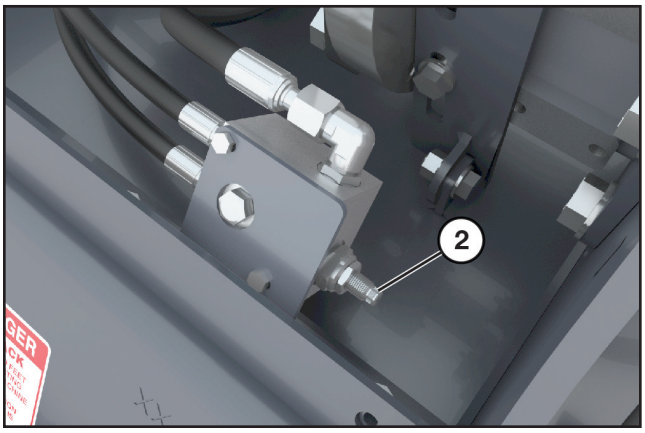
Inserting Flow Meter



NOTE: Some components from other hydraulic systems within the Battle Ax have been hidden for clarity.

Disconnect the case drain hose from the case drain fitting (1) and insert a hydraulic flow meter into the case drain line between the fitting and the case drain hose. Make sure all connections are tight.

Start the loader and engage the hydraulics.



Locate the manifold behind motor and the adjust cartridge (2) to achieve 2-1/2 gallons per minute (GPM).

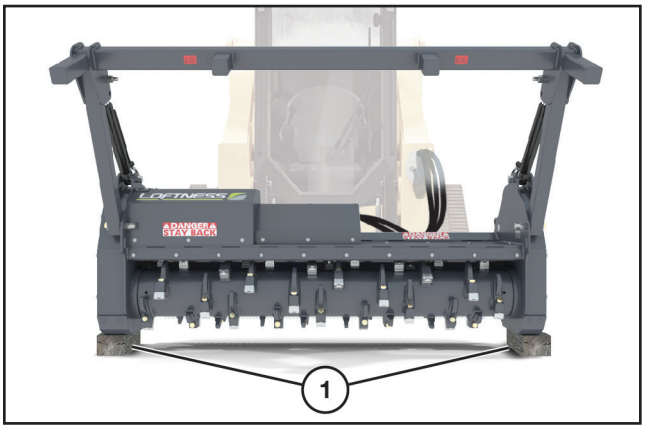
Once the proper GPM is reached, shut down the loader.

⚠	**DANGER:** *Shut down power from the loader before proceeding.*

Remove the flow meter and reconnect the case drain line to the manifold fitting. Tighten the connection.

Checking Rotor Rotation

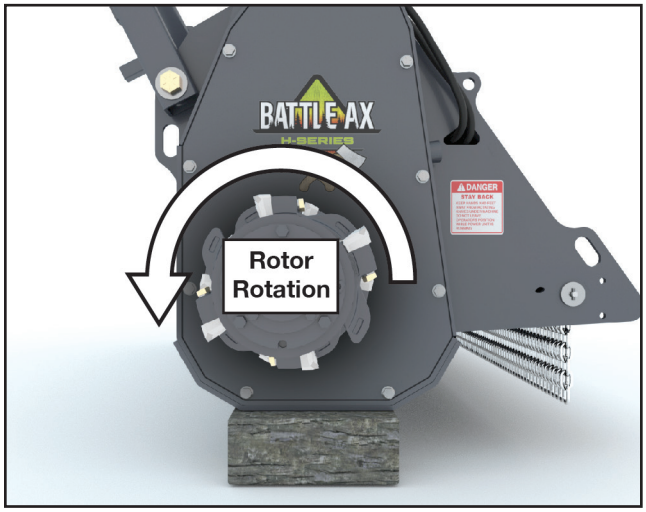
⚠	**DANGER:** *Keep hands, feet, and clothing clear of the rotor and bearings while the loader is running.*



Raise the Battle Ax off the ground and place blocks (1) underneath the skids. Lower the Battle Ax onto the blocks.

(Procedure continued on following page.)

Checking Rotor Rotation (Cont'd)



Engage the loader auxiliary hydraulics; the rotor should rotate forward (counterclockwise from the left side of the Battle Ax).

NOTE: *If the rotor rotates backward, reverse the quick couplers (not supplied) on the Battle Ax hydraulic hoses. Reinstall and test for correct rotation.*

⚠	**WARNING:** *The Battle Ax can be damaged if the rotor is operated in reverse rotation.*

NOTE: *Keep the Battle Ax on the blocks for checking the rotor speed. See next procedure for instructions.*

Checking Rotor Speed

⚠	**DANGER:** *Shut down the power from the loader before removing the belt cover and applying reflective tape to the sprocket. Keep the Battle Ax skids on blocks for this procedure.*

Remove the belt cover. See "Removing Belt Cover and Left End Bearing Cover" on page 23 for instructions.

Apply a small piece of reflective tape (1) to the outer edge of the lower sprocket.

Start the loader and engage the auxiliary hydraulics.

⚠	**DANGER:** *Keep hands, feet, and clothing clear of the rotor, belt, and sprockets while the loader is running.*

Point an electronic (photo) tachometer (2) towards the edge of the sprocket to check the rotor speed.

NOTE: *The tachometer is not supplied.*

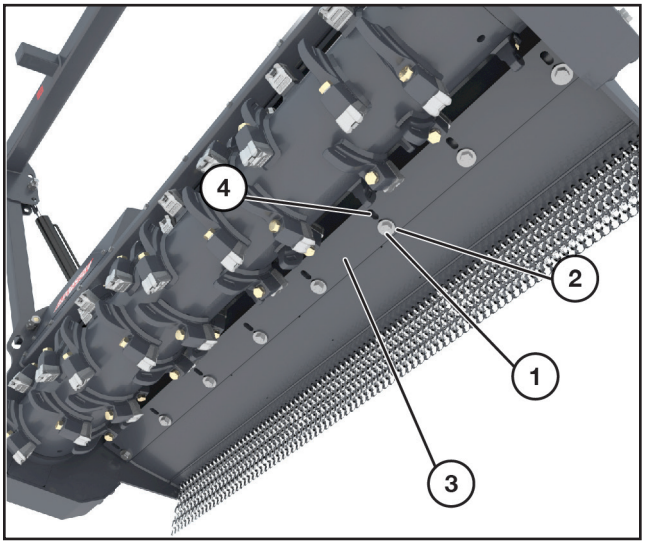
Test the rotor RPM with the loader engine at full throttle.

Shut down the loader when finished.

See "Motor & Sprocket Selection Chart" beginning on page 31 for rotor RPM. If it is outside this recommended range, it may be necessary to disconnect the Battle Ax and test the hydraulic output of the loader with a flow meter to see if it corresponds with the factory specifications.

Turn power off from the loader and reinstall the belt cover, securing with the nine bolts.

Cutter Bar Adjustment



NOTE: *The cutter bar can be adjusted back or forward to increase or decrease the distance between the bar and the rotor.*

Most operators find the best performance is achieved by adjusting the cutter bar as close as the slots will allow (approximately a 1/4" gap from knife to cutter bar). A wider gap generally increases finished particle size and horsepower requirements.

WARNING: *Shut down and disconnect the hydraulic hoses from the loader before adjusting the cutter bar.*

Loosen the series of bolts (1) with washers (2) securing the cutter bar (3) to the frame. Move the cutter bar either forward or backward making sure the distance moved is consistent through the entire length of the cutter bar. Retighten bolts.

Over time, the cutter bar edge will become worn and rounded from use. There are a total of 4 wear edges available by removing and flipping the bar, side to side and front to back.

CAUTION: *If adjusting the cutter bar after the machine has been used, the cutter bar should be completely removed to clear any debris away from contact surfaces before assembly and tightening. FAILURE TO DO SO COULD RESULT IN SEVERE DAMAGE TO THE MACHINE!.*

Getting Started

Visually inspect the unit before starting. Check for loose or missing parts and ensure all bolts are tight.

For best results, the areas to be mowed should be free of debris such as bottles, metal objects, rocks, wire, etc. The teeth cut and pulverize brush, grass, and weeds.

For first-time users, start the machine in a clear, open area to become familiar with the controls. Run the throttle at half speed and travel at a low speed. Raise the mulching head only slightly until you are comfortable with the machine's operation.

WARNING: *Due to the potential danger of flying debris, it is the owner's responsibility and is "ABSOLUTELY MANDATORY that IMPACT-RESISTANT SHIELDING" be installed on the machine to protect the operator.*

WARNING: *Lifting or tilting the Battle Ax increases the risk of flying debris.*

DANGER: *Keep hands and feet clear! Do not step on or climb over the unit while the engine is running or the machine is in operation. Do not carry passengers.*

WARNING: *Do not operate the attachment above the rated RPM. Check with your Loftness dealer to ensure your attachment is set up with the correct sprockets to match the hydraulic flow GPM (Gallons Per Minute) of your machine.*

WARNING: *Flying debris can accumulate on the loader and must be cleaned off, especially around the radiator, oil cooler screens, engine compartment, and exhaust areas. Periodic cleaning will help prevent the possibility of fire.*

DANGER: *DO NOT allow ANY people or animals within 300 feet of the work area while operating this machine.*

Operation

WARNING: *Always stop the engine and remove the key before leaving the operators seat.*

Tilt the attachment mounting frame back and raise the Battle Ax slightly above the ground when moving the machine.

NOTE: *Operate the Battle Ax as low to the ground as possible without the teeth striking the ground or other obstructions.*

WARNING: *Lifting or tilting the Battle Ax increases the risk of flying debris.*

Lower the mulching head so the skids are on the ground.

Set engine speed to low idle and engage the mulching head.

Slowly increase engine speed to high idle.

Move the loader and Battle Ax forward and begin mowing.

NOTE: *Various mowing conditions and the desired finished cut appearance will determine the proper ground speed.*

Operating Tips

To reduce rotor jams, approach brush and trees at a slow speed.

When operating the mulching head near the ground, keep it as low as possible without the teeth striking the ground or other obstructions.

NOTE: *Because of the high speed of the rotor, the life of the teeth will be reduced if operated in rocky terrain or in areas with many obstacles.*

Clearing Jams

If the rotor stalls or becomes jammed with debris, stop the rotor and raise it slightly. Start the rotor again to free debris.

⚠	**WARNING:** *Do not attempt to dislodge jams by hand while the loader is running. Shut down and lock out power from the loader before attempting to remove debris by hand.*

Log Moving

Disengage hydraulic power to the rotor before moving logs and brush with the pusher bars.

Raise the loader lift arms and tilt the Battle Ax forward until the pusher bar extensions are over the log or item being moved.

Lower the lift arms and position the log between the push bar extensions and the Battle Ax.

Move the loader backward, dragging the log to the desired location.

Detaching Battle Ax

Park the loader on a dry, level surface. Place blocks under the skids if necessary.

Lower the Battle Ax to the ground.

Shut off the engine and remove the key.

Ensure the rotor has stopped completely before continuing.

Disconnect hydraulic hoses connected to the Battle Ax.

Detach the loader from the mounting plate.

⚠	**WARNING:** *Do not attempt to detach the Battle Ax while the loader is running. Shut down and lock out power from the loader before detaching.*

General Maintenance

To ensure efficient operation, inspect, lubricate, and perform necessary adjustments and repairs at regular intervals. Parts that are beginning to show wear should be ordered ahead of time to prevent costly breakdowns and delays while waiting for replacement parts. Keep detailed maintenance records and thoroughly clean your Battle Ax after each use.

Proper lubrication is critical. Too little lubricant can cause premature bearing failure, while too much lubrication can result in high operating temperatures and early seal failure. Always follow the lubrication instructions and schedules provided in this section.

Maintenance Schedule

HOURS	SERVICE POINTS	SERVICE REQUIRED					
		CHECK	CLEAN	CHANGE	GREASE	ADJUST	OIL
Every 8	Machine		X				
	Loose Bolts					X	
	Hoses and Wiring	X					
	Oil Leaks	X					
	Rotor Bearing				X		
	Teeth	X					
Every 100	Belt Tension	X					
	Drive Belt	X					
	Safety Labels	X					
Every 500	Hydraulic Motor	X					
	Overhung Load Adapter			X			X

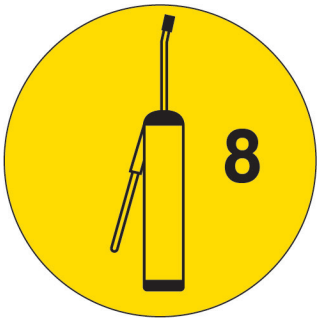
Lubrication

Grease Points Location

Use a #2 general-purpose lithium-based grease unless otherwise noted.

NOTE: *Replace any broken or missing grease fittings. Always clean fittings before greasing to prevent contamination.*

DANGER: *Shut down and lock out power from the loader before lubricating the Battle Ax. Failure to do so could result in serious injury or death.*



NOTE: *Lubricate each grease point at the interval indicated on the decal adjacent to the grease point (every "X" hours).*

See "Battle Ax H Series Identification" on page 11 for component location and identification.

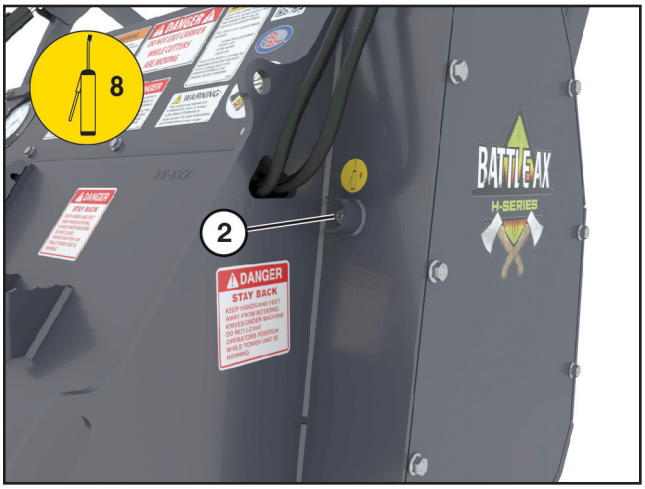
(Procedure continued on following page.)

Lubrication (Cont'd)

Grease Points Location (Cont'd)

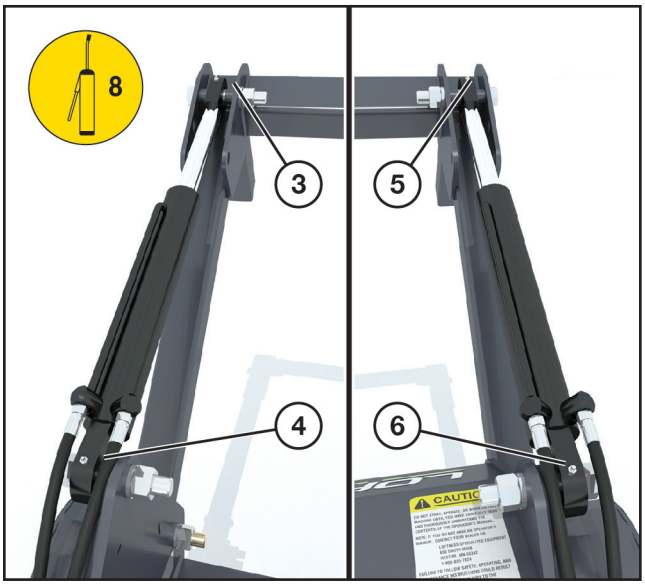
Location: Left side rotor bearing (1).
Interval: Every 8 hours of operation.

NOTE: *Rotor bearings cannot be damaged by over-greasing. Lubricate until a small amount of grease is purged from the bearing.*



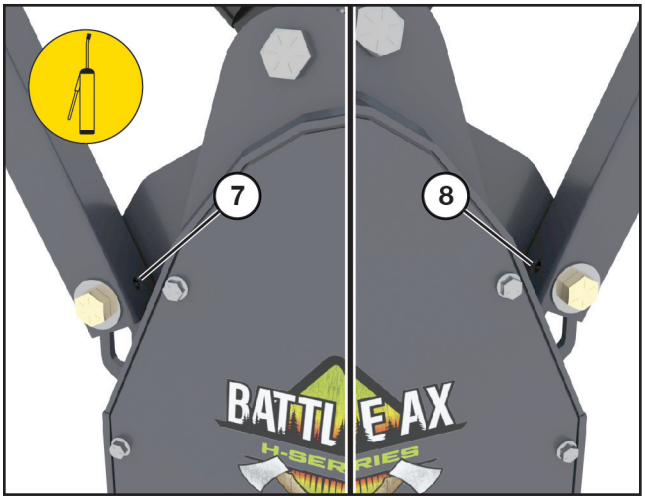
Location: Right side rotor bearing (2).
Interval: Every 8 hours of operation.

NOTE: *Rotor bearings cannot be damaged by over-greasing. Lubricate until a small amount of grease is purged from the bearing.*



Location: Left side pusher cylinder (3 and 4).
(Hydraulic pusher models only.)
Interval: Every 8 hours of operation.

Location: Right side pusher cylinder (5 and 6).
(Hydraulic pusher models only.)
Interval: Every 8 hours of operation.

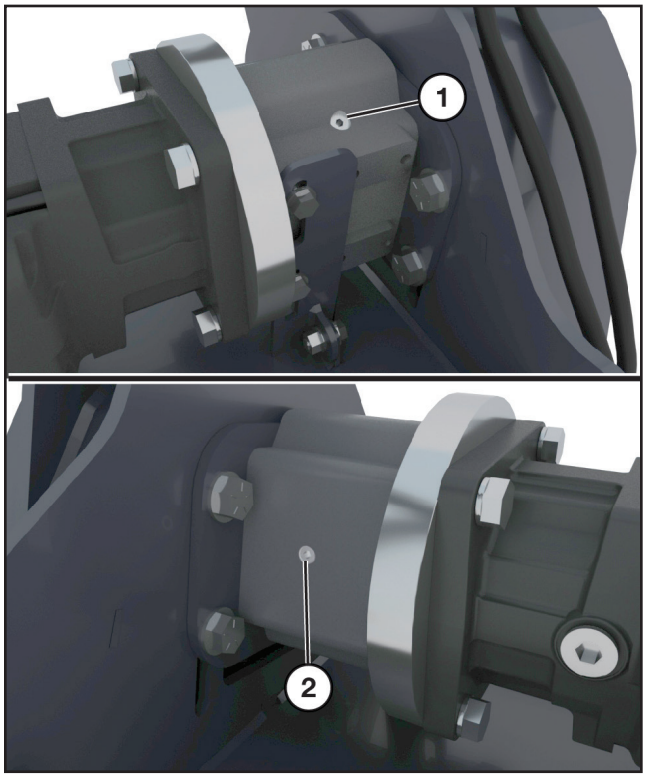


Location: Pusher Arms (7 and 8).
(Fixed and hydraulic pusher models; Pusher arm may need to be tilted forward to access.
Interval: Every 50 hours of operation.

Lubrication (Cont'd)

Overhung Load Adapter

The motor cover must be removed to access the overhung load adapter. Refer to "Removing Motor Cover and Access Plate" on page 24 for instructions.



Place a container under the overhung load adapter to capture the draining fluid.

Remove the plug from the upper port (1) located on the rear side of the overhung load adapter.

Remove the plug from the lower port (2) located on the front side.

Start the loader, lift the Battle Ax slightly, and tilt the front of the machine downward to allow fluid to drain from the lower port. Once the fluid has drained, lower the Battle to the ground. Turn off the loader.

Using a funnel, add hydraulic fluid into the upper port (1) until it begins to flow from the lower port (2), approximately 6 oz. of fluid.

Reinsert and tighten the plug into the lower port (2).

Return and tighten the plug into the upper port (1).

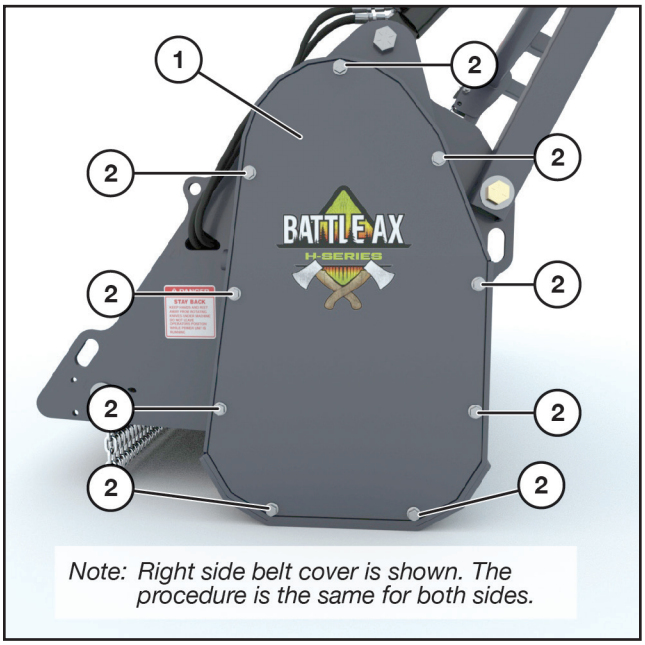
Return the motor cover to its original position and tighten all bolts securely.

NOTE: *If replacing bearings or seals in the overhung load adapter, be certain to refill with hydraulic fluid after reassembly.*

Removing Belt Cover and Left End Bearing Cover

NOTE: *The removal procedure is the same for the right side belt cover and the left side bearing cover. The right side cover is shown for the removal procedure.*

⚠	**DANGER:** *Shut down power from the loader before removing the cover(s). Failure to do so could result in serious injury or death.*



Note: Right side belt cover is shown. The procedure is the same for both sides.

⚠	**CAUTION:** *The cover is heavy. Support the cover when removing.*

To remove the cover (1), unscrew the nine bolts (2) and lift the cover off the frame.

When maintenance or repairs are complete, return the cover(s) to their original position and tighten all bolts securely.

Removing Motor Cover and Access Plate

DANGER: *Shut down power from the loader before removing the motor cover or access plate. Failure to do so could result in serious injury or death.*

Remove the three bolts with washers (1) on the front of the motor cover (2), followed by the three bolts with washers (3) at the rear.

Motor Access Plate

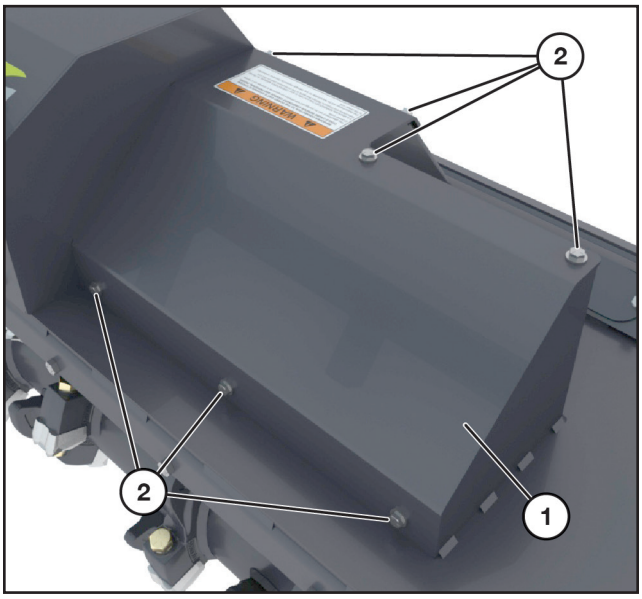
The motor cover features a plate (4) that can be removed to access the motor mounting hardware without removing the entire cover.

Remove the four bolts with washers (2) to remove the plate.

When maintenance or repairs are complete, return the cover and/or access plate to their original position and tighten all hardware securely.

Removing Center Cover

DANGER: *Shut down power from the loader before removing the center cover. Failure to do so could result in serious injury or death.*



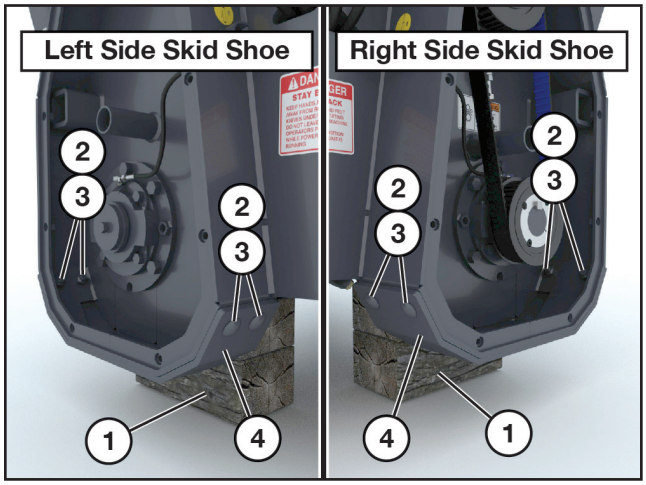
Remove the seven bolts (1) and lift the cover (2) off.

When maintenance or repairs are complete, return the cover to its original position and tighten all bolts securely.

Skid Replacement

To replace worn or damaged skids, lift the Battle Ax off of the ground about 6 inches. Place blocks under the rotor (not under teeth) to support the Battle Ax when lowered. Do not place blocks under the skids.

> **WARNING:** *Shut down and lock out power from the loader before replacing the skid(s). Failure to do so could result in serious injury or death.*



> **CAUTION:** *The skids are heavy. Support each skid when removing.*

Remove the belt or bearing cover. Refer to “Removing Belt Cover and Left End Bearing Cover” on page 23 for instructions.

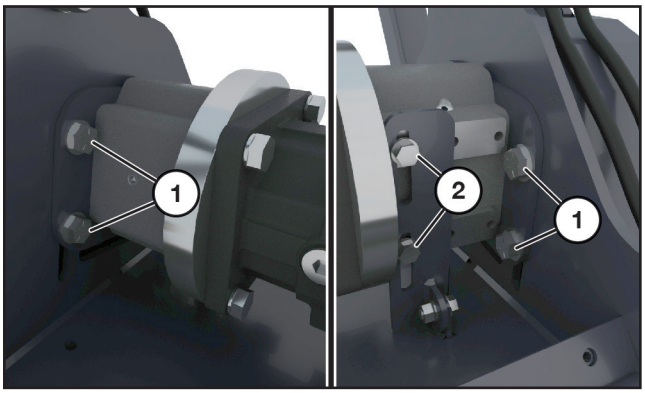
Remove the nuts (2) and slide the carriage bolts (3) out. Lower the skid (4) and remove.

To install a new skid shoe, align the holes in the skid shoe with the holes on frame. Re-install the bolts, add the nuts and tighten securely.

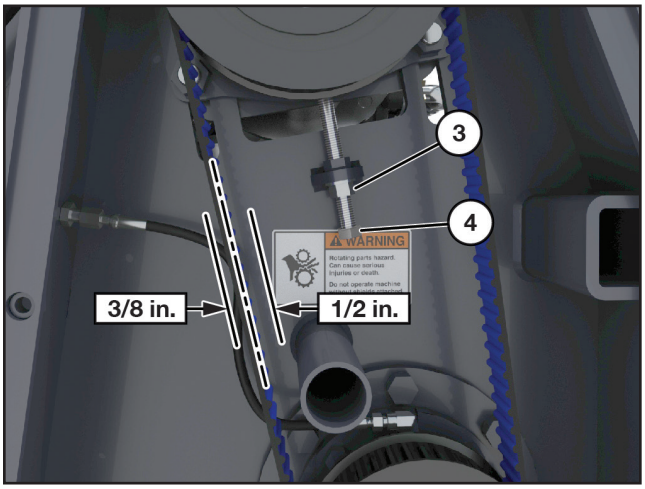
Belt Tension Adjustment

> **DANGER:** *Shut down and lock out power from the loader before adjusting the drive belt. Failure to do so could result in serious injury or death.*

Remove the belt cover and motor cover. Refer to “Removing Belt Cover and Left End Bearing Cover” on page 23 and “Removing Motor Cover and Access Plate” on page 24 for instructions.



Loosen the four mounting bolts (1), then loosen the overhung load adapter support bracket bolts (2).



Loosen the jam nut (3), and turn the hex bolt (4) to either increase or decrease belt tension.

The belt should move no more than 3/8 in. (9.5 mm) to the left and no more than 1/2 in. (12.7 mm) to the right when pressure is applied at the midpoint.

After adjusting, retighten the jam nut (3), followed by the overhung load adapter support bolts (2) and the mounting bolts (1).

Replacing Belt

To replace the belt, first follow the procedures in “Belt Tension Adjustment” and decrease the belt tension further to allow the belt to slide over the top sprocket.

NOTE: *When replacing or installing a new belt, align the grooves in the belt with the upper and lower pulleys.*

Install the belt and adjust the tension as required. Refer again to “Belt Tension Adjustment” on page 25 and follow the instructions completely.

Sprocket Removal

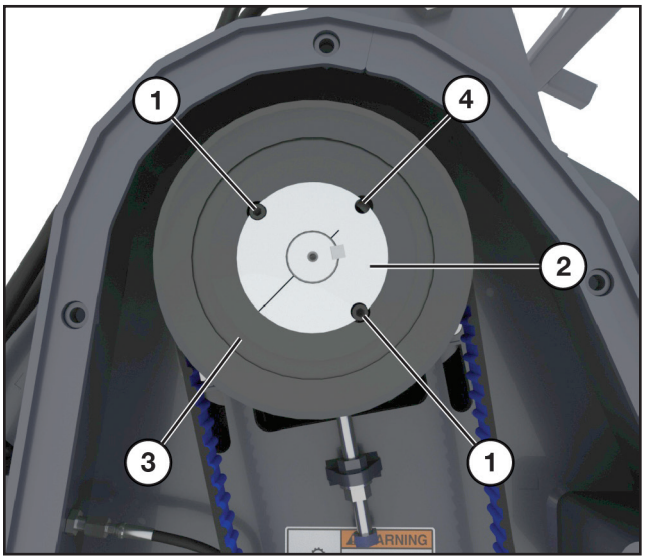
The steps to remove either the upper or lower sprocket are identical. This procedure references the upper sprocket; follow the same steps to remove the lower sprocket.

NOTE: *See page 44 for a master drawing of all belt/sprocket combinations. The page provides a reference to an exploded view with a complete parts list for each combination.*

1. Disconnect or turn off all power to the Battle Ax.

⚠	**DANGER:** *Shut down and lock out power from the loader before removing sprockets. Failure to do so could result in serious injury or death.*

Remove the drive belt by following the instructions in “Belt Tension Adjustment” on page 25, and “Replacing Belt” on page 26.



2. Remove the two screws (1) from the taper lock bushing (2) of the sprocket (3).
3. Insert one of the screws into the threaded hole (4).
4. Tighten the screw until bushing grip is released. (If excessively tight, lightly hammer face of sprocket using drift pin or sleeve).

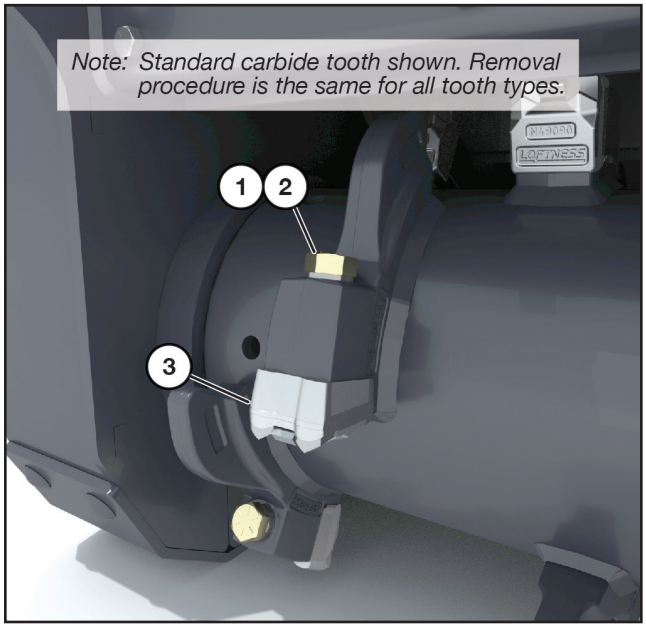
NOTE: *Never hit sprocket directly with hammer.*

5. Replace the sprocket by cleaning the shaft, bore of bushing, outside of bushing and hub bore of all oil, paint and dirt. File away any burrs.
6. Insert bushing into hub. Match the hole pattern, not threaded holes (each complete hole will be threaded on one side only).
7. Apply a thread-locking compound to screws and thread into the two opposing holes.
8. Position assembly on shaft and alternately torque screws to 35 ft.-lbs.
9. To increase gripping force, hammer face of bushing using drift or sleeve.

NOTE: *Do not hit bushing directly with hammer.*

10. Re-torque screws after hammering.
11. Recheck screw torque after initial run-in, and periodically thereafter, repeat steps 4, 5 & 6 if loose.
12. Check alignment of the sprocket. Repeat sprocket removal and assembly procedures if necessary.

Tooth Removal and Installation



Remove the bolt and washer (1 and 2) and tooth (3).

Use copper based anti-seize when reinstalling the bolts. Torque to 240 ft.-lbs.

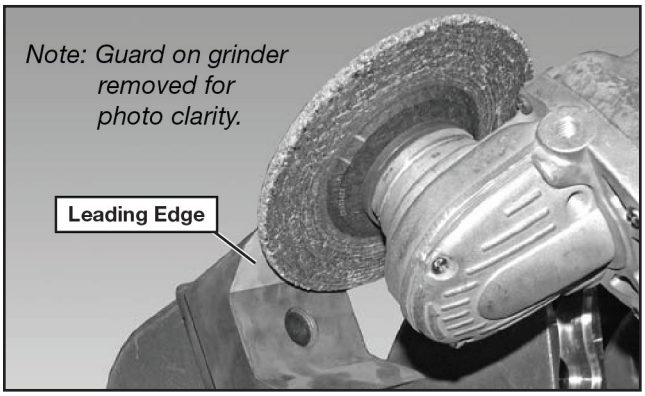
IMPORTANT: *When a damaged tooth is replaced, the tooth directly opposite (180 degrees) must be replaced at the same time to retain balance.*

Tooth Sharpening (Quadco tooth only)

NOTE: *The teeth need to be kept sharp to maintain the most effective operation of the attachment. Daily inspection and touch up is recommended.*

NOTE: *The teeth can either be removed from the attachment or remain installed for sharpening.*

⚠	**WARNING:** *Rotor must be stabilized to prevent accidental rotation any time the rotor is exposed for service work.*



NOTE: *The cutter teeth have been heat treated to a specific hardness. Care must be taken to avoid overheating the leading edge of the tooth while sharpening. If the coloring in the tooth changes to either a blue or brown during the sharpening, you have removed the temper and the tooth will not hold it's cutting edge.*

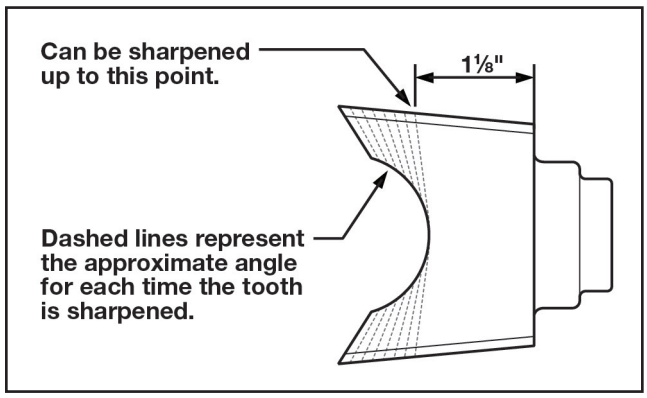
NOTE: *When re-sharpening teeth using machine shop equipment, avoid overheating the teeth by using a flood coolant system.*

NOTE: *When re-sharpening teeth using a hand grinder, avoid overheating the tooth by lightly grinding each tooth, moving across the entire row of teeth before returning to the first tooth to repeat the procedure.*

NOTE: *Sharpen each tooth equally to maintain rotor balance. Always return tooth to it's original location if it is removed from the rotor for sharpening.*

(Procedure continued on following page.)

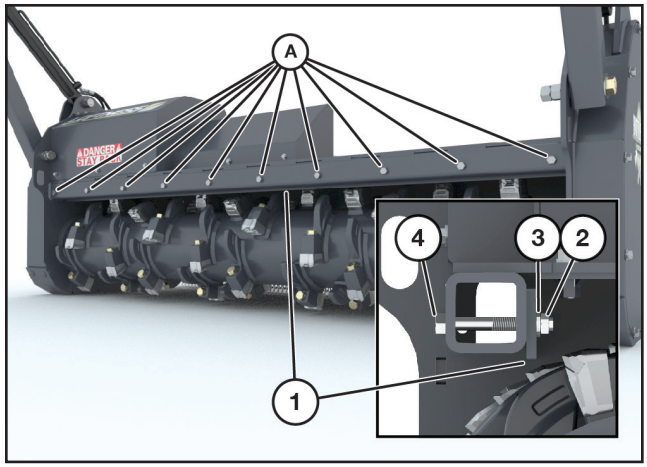
Tooth Sharpening (Quadco tooth only) (Cont'd)



NOTE: *It is not necessary to match the factory angle on the underside of the cutting edge when re-sharpening. Sharpen each tooth at a slight angle for each successive sharpening (represented by the dashed lines shown in the illustration above). When the cutting edge of the tooth is 1-1/8 in. from the back side of the tooth, the tooth must be replaced.*

Recutter Removal/Replacement

DANGER: *Shut down power from the loader before removing or replacing the recutter. Failure to do so could result in serious injury or death.*



NOTE: *Mounting hardware for the recutter is shown at the locations above (A). There are nine hardware locations for the 71" Battle Ax and ten locations for the 84" Battle Ax.*

To remove the recutter (1), unfasten all hardware shown at locations "A" - the 1/2" nuts (2), 1/2" washers (3), and the 4" bolts (4). Support the recutter before removing the last two bolts.

Over time, the recutter edge will become worn and rounded from use. There are a total of four wear edges available by removing and flipping the bar side to side and front to back.

CAUTION: *If adjusting the recutter after the machine has been used, the recutter should be completely removed to clear any debris away from contact surfaces before assembly and tightening. FAILURE TO DO SO COULD RESULT IN SEVERE DAMAGE TO THE MACHINE!*

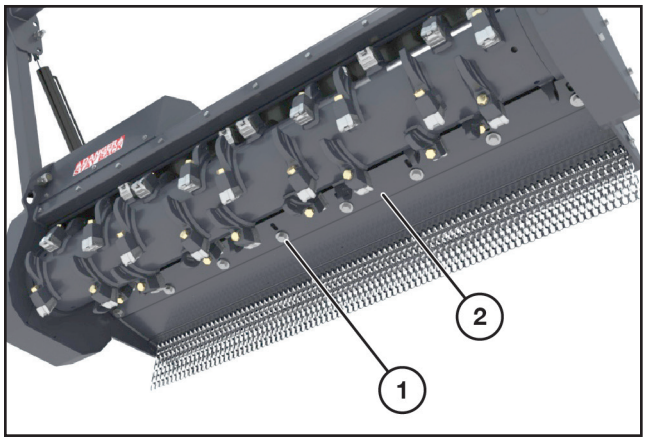
To install a clean or new recutter, align the holes in the recutter with the holes on the frame. Reinstall the bolts, then add the washers and nuts. Torque to 83 ft.-lbs.

Installing/Removing the Hood Liner

DANGER: *Shut down power from the loader before installing or removing the hood liner. Failure to do so could result in serious injury or death.*

Clearing the Cutter Bar

For a new or unused machine:



Loosen (do not remove) the hardware (1) securing the cutter bar (2). This will provide enough room to mount the hood liner without removing the cutter bar.

For a machine that has already been used or put into service:

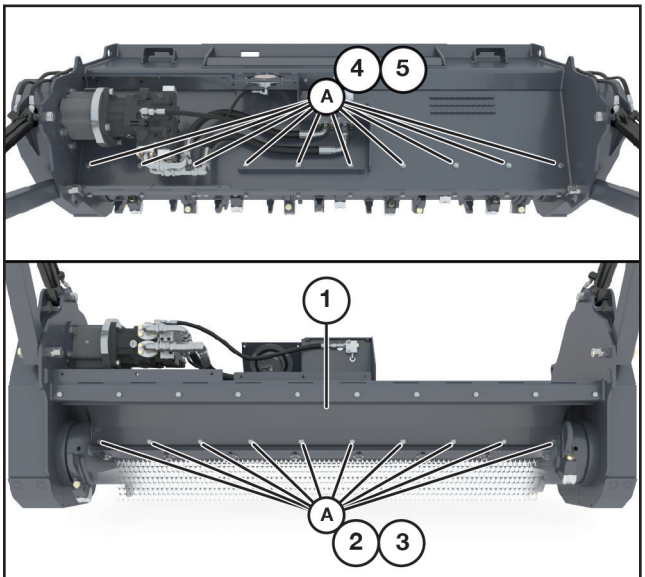
IMPORTANT: *Over time, a Battle Ax in service will collect dirt, debris, and other matter on and around the cutter bar and recutter. For this reason, it is important that both are completely removed and all contact surfaces cleaned before reinstalling them.*

To remove the cutter bar, see “Cutter Bar Adjustment” on page 18 for complete instructions. To remove the recutter, see “Recutter Removal/Replacement” on this page. Obey all cautions and warnings described in each procedure.

CAUTION: *The cutter bar must be completely removed to clear any debris away from contact surfaces before assembly and tightening. FAILURE TO DO SO COULD RESULT IN SEVERE DAMAGE TO THE MACHINE!*

Mounting the Hood Liner

Remove the motor cover to access some hardware locations that are used to secure the hood liner. Refer to “Removing Motor Cover and Access Plate” on page 24 for instructions.



NOTE: Rotor partially hidden in this image for clarity. The rotor does not need to be removed to install or remove the hood liner.

NOTE: *Before installing the hood liner, remove the factory-installed hardware shown at the locations above (A). This hardware is no longer used.*

There are eighteen hardware locations for the 71" Battle Ax, and twenty locations for the 84" Battle Ax.

Clean the rotor chamber as well as all hardware locations shown above.

Place the hood liner (1) into position, then align the holes in the hood liner with the threaded holes in the frame made available after removing the factory-installed hardware.

Install the supplied 1-3/4" bolts (2) with 1/2" washers (3) through the back of the liner and into the threaded holes on the frame. Then install the 1-1/4" bolts (4) with 1/2" washers (5) through the top of the frame and into the weld nuts on the hood liner. Tighten securely.

(Procedure continued on following page.)

Installing/Removing the Hood Liner (Cont'd)

Retightening/Reinstalling the Cutter Bar and Recutter

If the hood liner was installed onto a new or unused Battle Ax, retighten all hardware securing the cutter bar.

If the hood liner was installed onto a Battle Ax that has been used or already put into service, ensure all contact surfaces on the cutter bar, the recutter, and the Battle Ax are thoroughly cleaned and clear of debris.

Remount the cutter bar. See "Cutter Bar Adjustment" on page 18 for installation instructions.

Remount the recutter. See "Recutter Removal/ Replacement" on page 28 for installation instructions.

Storage

End of Season

- Clean entire Battle Ax thoroughly.
- Clean belt and sprockets, relax the belt tension.
- Lubricate all parts of the machine. See "Lubrication" on page 21.
- Make a list of all worn or damaged parts and replace them.
- Paint all parts that are worn or rusted.
- Store Battle Ax in a clean, dry area.
- Review the Battle Ax operator's manual.
- Secure hoses on the machine to prevent damage.

Beginning of the Season

- Review the Battle Ax operator's manual.
- Lubricate all parts of the machine. See "Lubrication" on page 21.
- Tighten all bolts, nuts, and set screws. See "Torque Specifications" on page 77.
- Adjust belt tension. See "Belt Tension Adjustment" on page 25.
- Replace all damaged, worn, or missing decals.
- Install the Battle Ax on a loader and test for proper operation.

⚠	**WARNING:** *DO NOT allow ANY people or animals within 300 feet of the work area while operating this machine.*

Motor & Sprocket Selection Chart

Standard Speed

GPM	VARIABLE DISPLACEMENT MOTOR NUMBER PARKER	DISPLACEMENT LOFTNESS MOTOR NUMBER	ROTOR RPM	TOP SPROCKET (LOFTNESS NUMBER) BOTTOM SPROCKET (LOFTNESS NUMBER) BELT LENGTH (LOFTNESS NUMBER)
33	41,48	90cc - 110cc (5.4921ci - 6.71ci) 207679	1753	48 Top Sprocket N38492 38 Bottom Sprocket N38490 1568 37 Synchronous Belt N34646 Model Code “A”
34			1806	
35			1859	
36			1912	
37			1965	
38	41,48	90cc - 110cc (5.4921ci - 6.71ci) 207679	1798	45 Top Sprocket N47578 40 Bottom Sprocket N38491 1568 37 Synchronous Belt N34646 Model Code “B”
39			1845	
40			1892	
41			1940	
42			1988	
43	41,48	90cc - 110cc (5.4921ci - 6.71ci) 207679	1893	45 Top Sprocket N47578 43 Bottom Sprocket N34647 1568 37 Synchronous Belt N34646 Model Code “D”
44			1937	
45			1981	
46			2025	
47			2069	
48	41,48	90cc - 110cc (5.4921ci - 6.71ci) 207679	1929	43 Top Sprocket N34647 45 Bottom Sprocket N47578 1568 37 Synchronous Belt N34646 Model Code “H”
49			1969	
50			2010	
51			2050	
52			2090	
53	41,48	90cc - 110cc (5.4921ci - 6.71ci) 207679	1981	40 Top Sprocket N38491 45 Bottom Sprocket N47578 1568 37 Synchronous Belt N34646 Model Code “I”
54			2019	
55			2056	
56			2093	
57			2131	
58	41,48	90cc - 110cc (5.4921ci - 6.71ci) 207679	2033	40 Top Sprocket N38491 48 Bottom Sprocket N38492 1568 37 Synchronous Belt N34646 Model Code “J”
59			2068	
60			2103	
61			2138	
62			2173	

(High Speed chart on following page.)

Motor & Sprocket Selection Chart (Cont'd)

High Speed

GPM	VARIABLE DISPLACEMENT MOTOR NUMBER PARKER	DISPLACEMENT LOFTNESS MOTOR NUMBER	ROTOR RPM	TOP SPROCKET (LOFTNESS NUMBER) BOTTOM SPROCKET (LOFTNESS NUMBER) BELT LENGTH (LOFTNESS NUMBER)
32	41,48	90cc - 110cc (5.4921ci - 6.71ci) 207679	1923	50 Top Sprocket N38471 35 Bottom Sprocket 203001 1568 37 Synchronous Belt N34646 Model Code "T"
33			1983	
34			2043	
35			2103	
36			2163	
37			2223	
38	41,48	90cc - 110cc (5.4921ci - 6.71ci) 207679	2073	48 Top Sprocket N38492 37 Bottom Sprocket 203003 1568 37 Synchronous Belt N34646 Model Code "U"
39			2128	
40			2182	
41			2237	
42			2292	
43	41,48	90cc - 110cc (5.4921ci - 6.71ci) 207679	2171	48 Top Sprocket N38492 40 Bottom Sprocket N38491 1568 37 Synchronous Belt N34646 Model Code "V"
44			2221	
45			2272	
46			2322	
47			2372	
48	41,48	90cc - 110cc (5.4921ci - 6.71ci) 207679	2113	45 Top Sprocket N47578 43 Bottom Sprocket N34647 1568 37 Synchronous Belt N34646 Model Code "D"
49			2157	
50			2201	
51			2245	
52			2289	
53	41,48	90cc - 110cc (5.4921ci - 6.71ci) 207679	2130	43 Top Sprocket N34647 45 Bottom Sprocket N47578 1568 37 Synchronous Belt N34646 Model Code "H"
54			2170	
55			2210	
56			2250	
57			2290	
58	41,48	90cc - 110cc (5.4921ci - 6.71ci) 207679	2168	40 Top Sprocket N38491 45 Bottom Sprocket N47578 1568 37 Synchronous Belt N34646 Model Code "I"
59			2206	
60			2244	
61			2281	
62			2318	

(Variable Motor Setting chart on following page.)

Motor & Sprocket Selection Chart (Cont'd)

Variable Motor Settings

LOADER HYDRAULIC SYSTEM PRESSURE VARIABLE MOTORS	SETTING NUMBER	MOTOR THRESHOLD SETTING
Muncie Motor (no setting available)	0	N/A
2800psi - 3499psi (Parker only)	1	1600 (110 bar)
3500psi - 3899psi (Parker only)	2	2200 (152 bar)
3900psi - 4399psi (Parker only)	3	2800 (193 bar)
4400psi - 5099psi (Parker only)	4	3400 (234 bar)
5100psi - 5999psi (Parker only)	5	4000 (275 bar)

NOTE: *Consult factory for instructions to change threshold setting. Variable Motors arrive from factory at setting #2.*

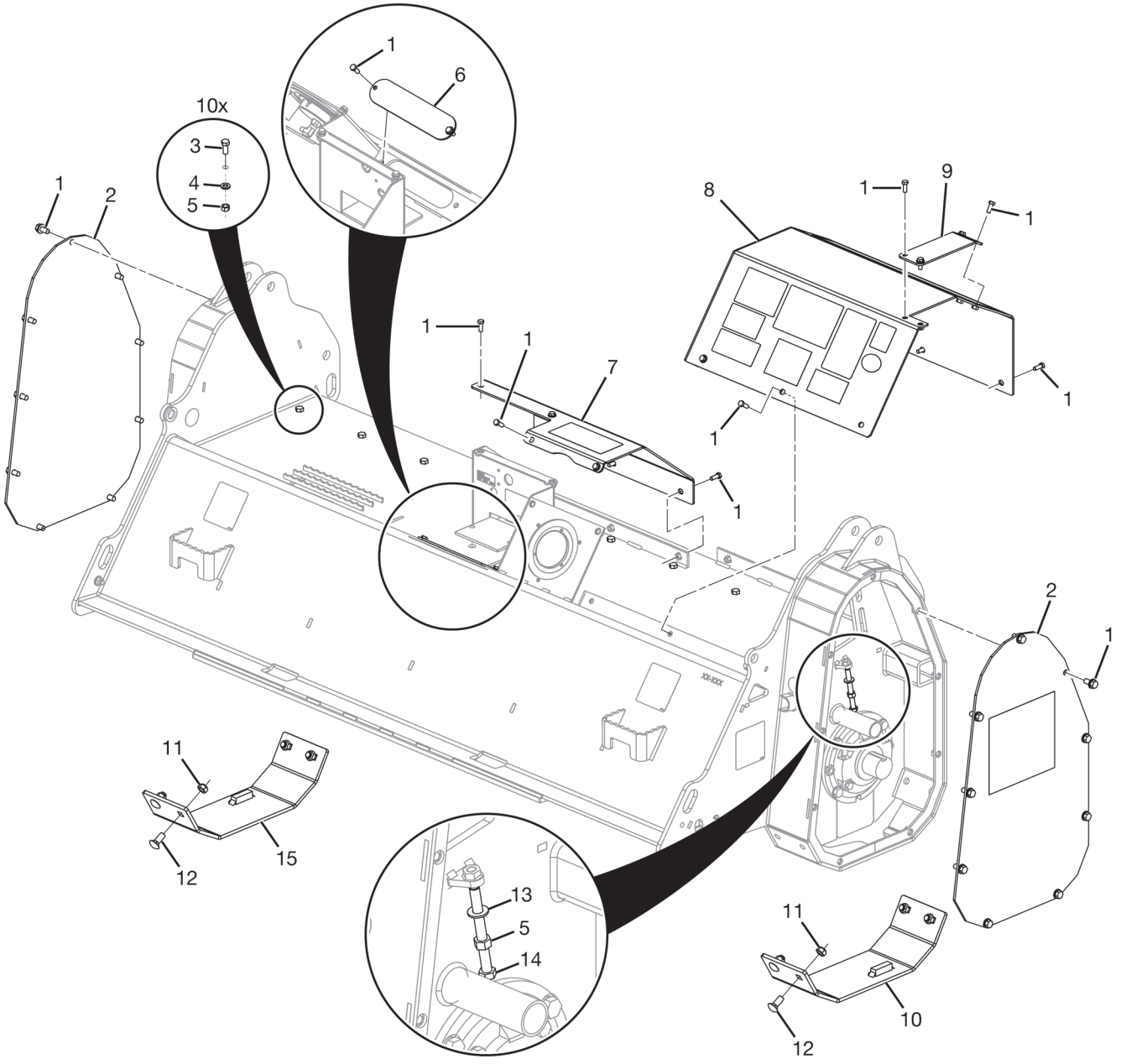
Troubleshooting

PROBLEM	CAUSE	SOLUTION
Excessive Vibration	Broken or missing teeth.	Replace teeth.
	Mud and/or debris wrapped around the rotor.	Clean the Battle Ax.
	Faulty drive line bearing.	Replace bearing(s).
	Faulty overhung load adapter.	Replace bearing(s).
	Faulty rotor bearing.	Replace bearing(s).
	Damage to rotor (includes bent end of shafts, missing balance weights, or actual rotor deformity from striking rocks, etc.)	Consult factory.
Uneven Cutting	Teeth dull or worn excessively.	Replace teeth.
	Engine RPM too slow.	Adjust machine RPM to full throttle.
	Travel speed too fast.	Reduce ground speed.
Rotor Will Not Turn	Faulty drive line bearing.	Replace bearing(s).
	Faulty rotor bearing.	Replace bearing(s).
	Belt damaged.	Replace belt.
	Belt slipping.	Clean or replace belt.
		Adjust tension.
Oil Leak At Hydraulic Control Valve Cover.	Pinched case drain hose.	Check hose.
	Disconnected case drain hose.	Reconnect hose.


LOFTNESS

PARTS IDENTIFICATION

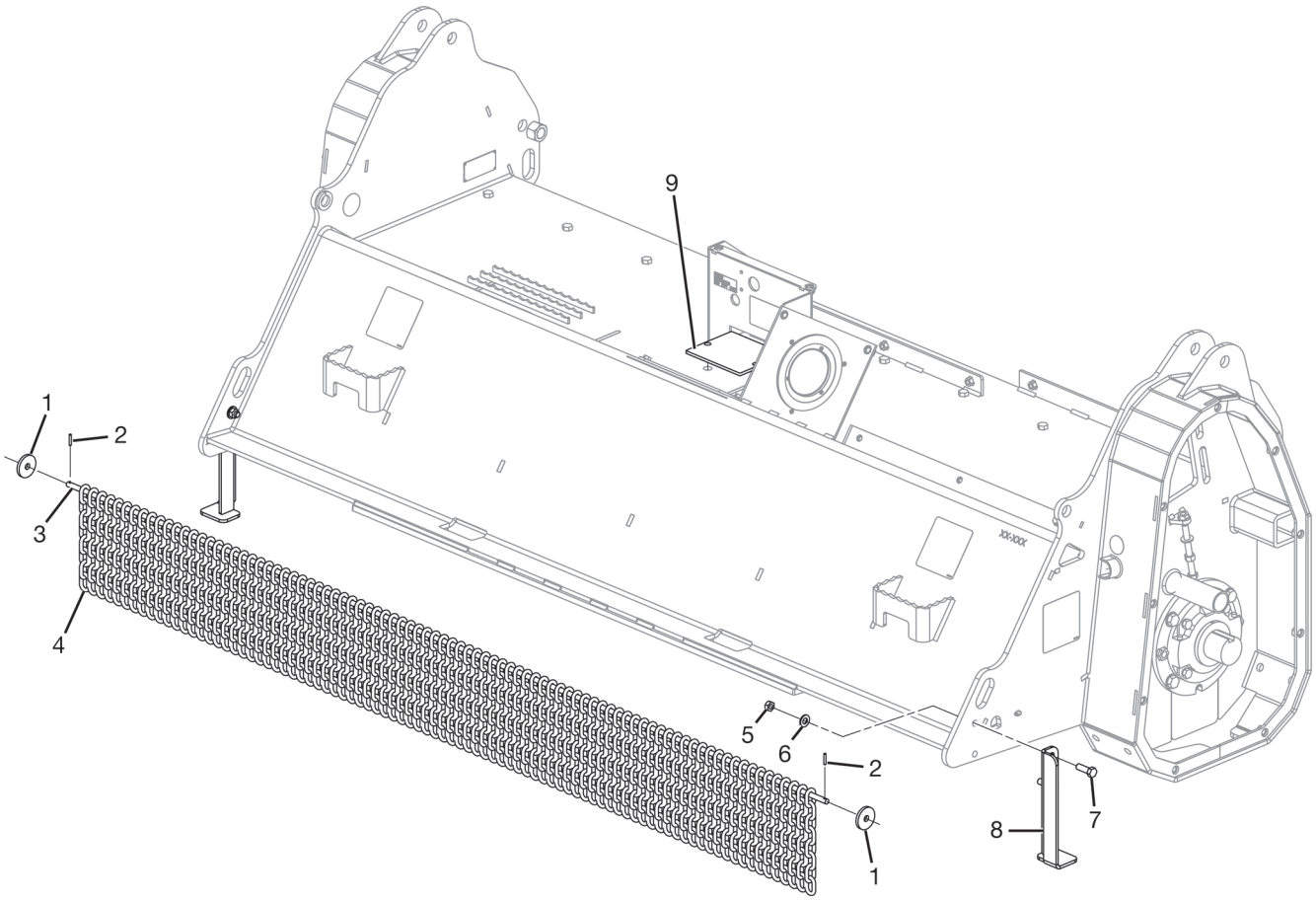
Covers; Skids; Belt Adjustment



Covers; Skids; Belt Adjustment

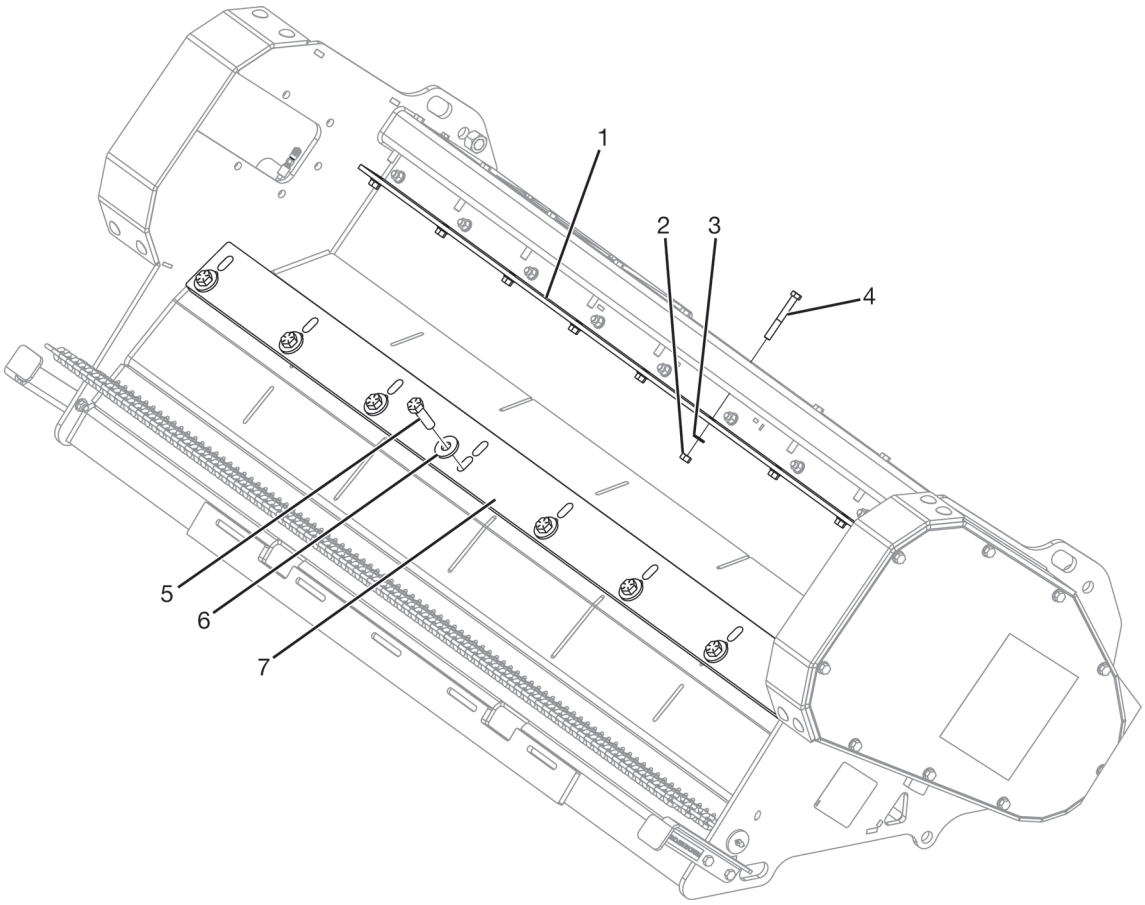
#	QTY.	PART #	DESCRIPTION
1	37	N26748	BOLT, 1/2" X 1" SER FLG
2	2	209157	PLATE, BELT COVER
3	9	4012	BOLT, 1/2" X 1-1/4" GRADE 5 (71")
	10	4012	(84")
4	9	N37780	WASHER, NORD-LOCK 1/2" SP (71")
	10	N37780	(84")
5	10	4250	NUT, STANDARD 1/2 (71")
	11	4250	(84")
6	1	217014	PLATE, COVER
7	1	217049	COVER, CENTER
8	1	217007	COVER, MOTOR W/DECALS
9	1	217013	PLATE, MOTOR COVER ACCESS
10	1	209150	SKID, W/BRACE DRIVE
11	8	4055	NUT, LOCK 5/8" TOP
12	8	4386	BOLT, CARRIAGE 5/8" X 1-1/2"
13	1	4068	WASHER, 1/2" SAE FLAT
14	1	N27483	BOLT, 1/2" X 5" GR 5 FL TH
15	1	209183	SKID, W/BRACE DRIVEN

Deflector Chains, Stands, and Spacer Plate



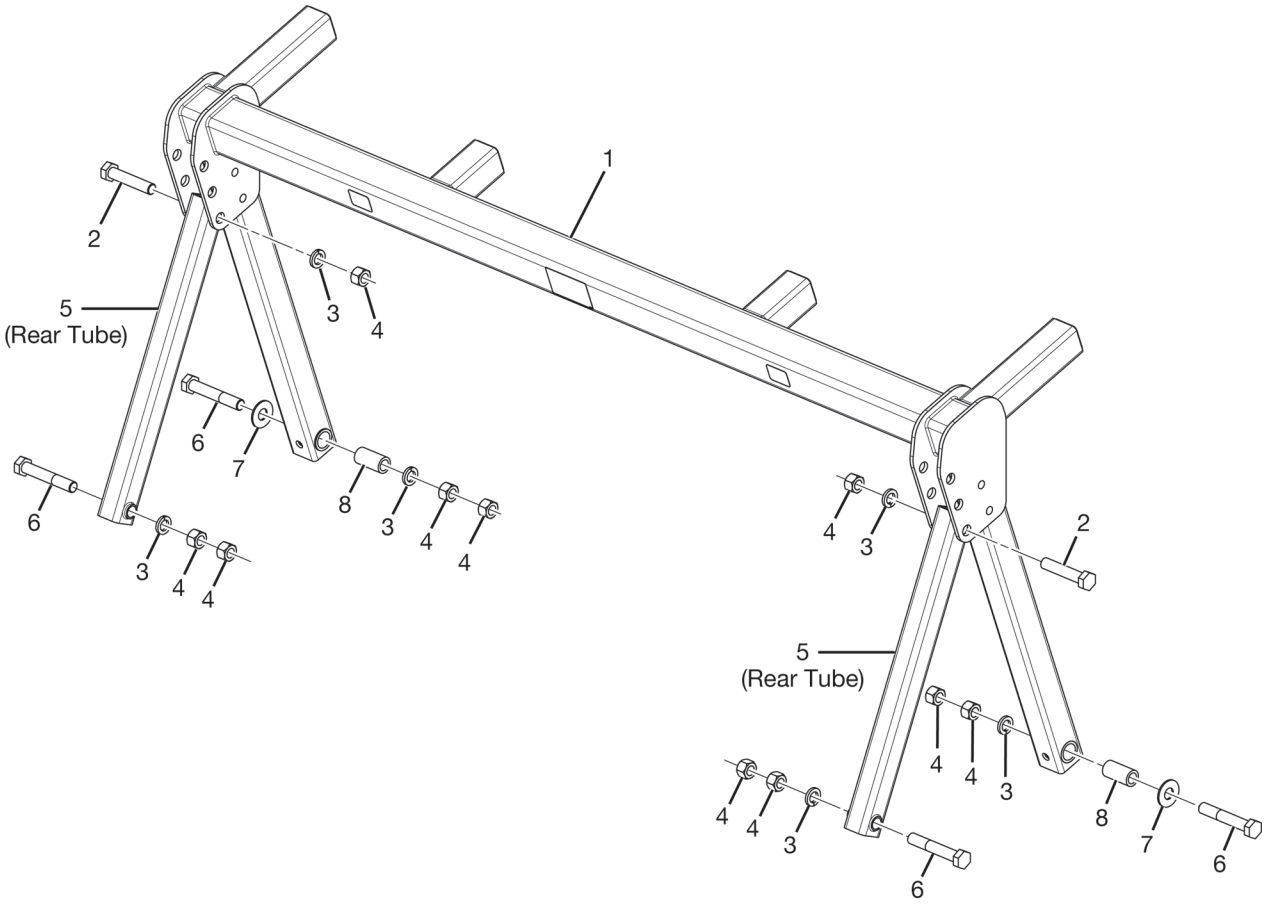
#	QTY.	PART #	DESCRIPTION
1	2	4074	WASHER, 2" OD X 1/2" ID X 1/4"
2	2	4375	PIN, ROLL 3/16" X 1"
3	1	209127	ROD, CARBIDE 77.5 CHAIN (71")
	1	209220	ROD, CARBIDE 90.5 CHAIN (84")
4	75	N15589	CHAIN, CARBIDE AX REAT (71")
	88	N15589	(84")
5	4	4054	NUT, LOCK 1/2" TOP
6	4	4068	WASHER, 1/2" SAE FLAT
7	4	4013	BOLT, 1/2" X 1-1/2" GRADE 5
8	2	206993	STAND, SHIPPING W/ DECAL
9	1	207844	PLATE, SPACER MANIFOLD

Recutters



#	QTY.	PART #	DESCRIPTION
1	1	209122	RECUTTER, BOLT-IN 71H (71")
	1	209221	RECUTTER, BOLT-IN 84 (84")
2	9	4503	NUT, STANDARD 1/2" FN THD GR 8 (71")
	10	4503	(84")
3	9	N37780	WASHER, NORD-LOCK 1/2" SP (71")
	10	N37780	(84")
4	9	4975	BOLT, 1/2" X 4" FN TH GR 8 (71")
	10	4975	(84")
5	7	N16349	BOLT, 3/4 X 2-1/2 FN TH GR 8 (71")
	8	N16349	(84")
6	7	4479	WASHER, 2OD X 3/4ID X 1/4TK (71")
	8	4479	(84")
7	1	209126	PLATE, RECUTTER 71 (71")
	1	209219	PLATE, RECUTTER 84 (84")

Pusher, Fixed



#	QTY.	PART #	DESCRIPTION
1	1	209222	PUSHER, 71 W/DECALS (71")
	1	209128	PUSHER, 84 W/DECALS (84")
2	2	N17023	BOLT, 1-14 X 5" GR. 8 FN. THR
3	6	4166	WASHER, 1" LOCK
4	8	4490	NUT, 1"-14UNF STANDARD
5	2	209142	TUBE, PUSHER SHORT W/BUSHING
6	4	N28583	BOLT, 1 X 6" FN TH GR 8
7	2	4356	WASHER, 1" FLAT
8	2	207334	BUSHING, FIXED PUSHER

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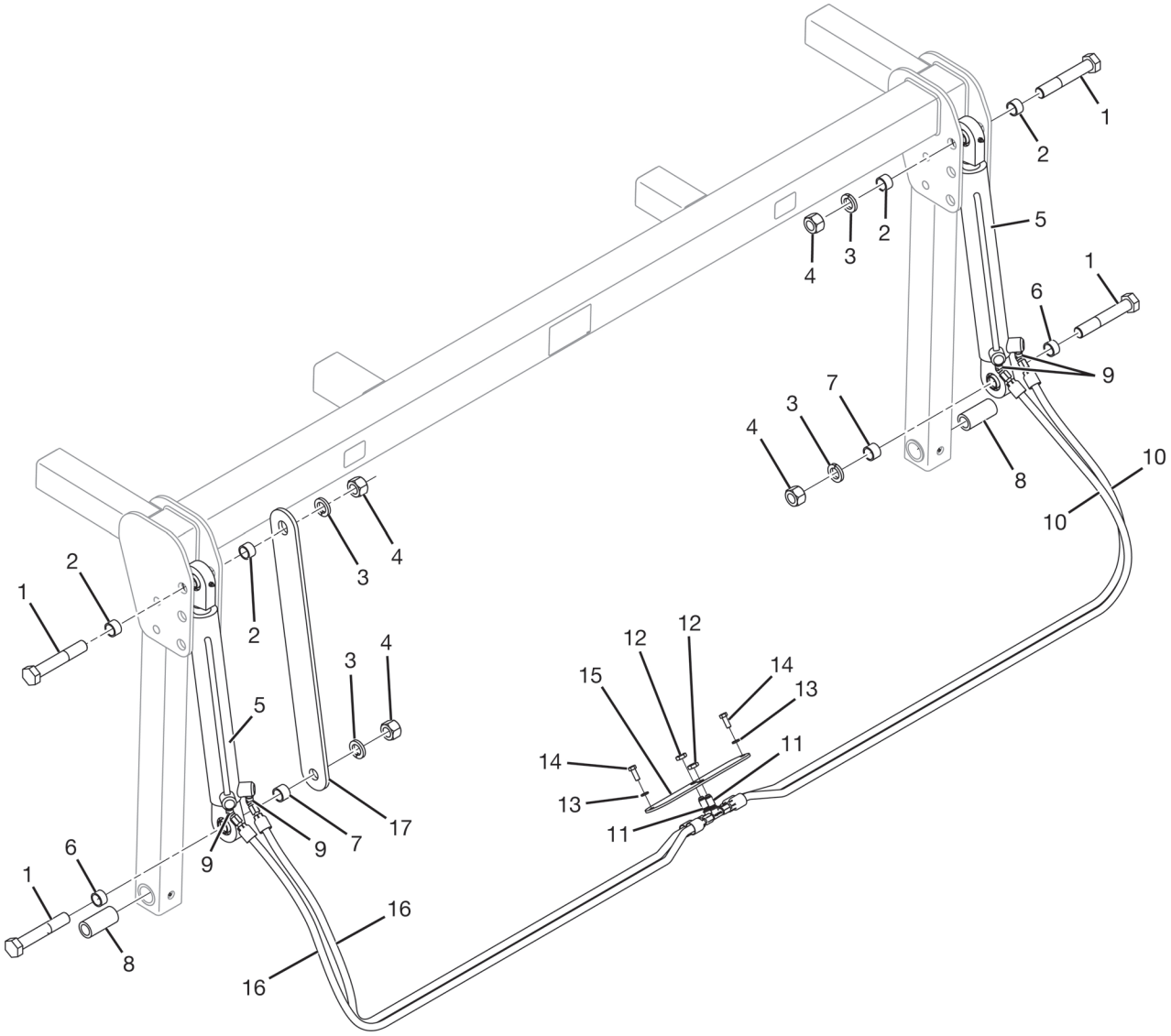
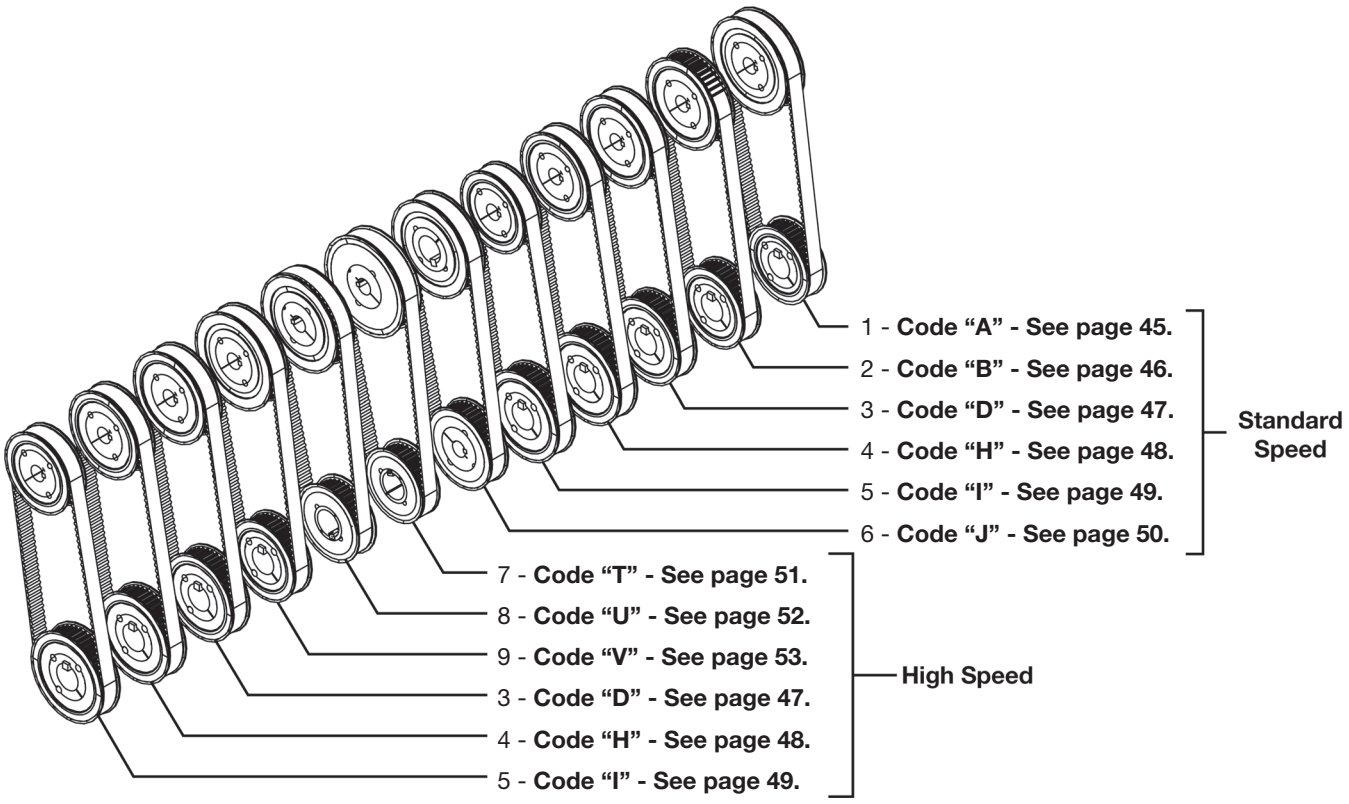
Pusher, Hydraulic



Pusher, Hydraulic

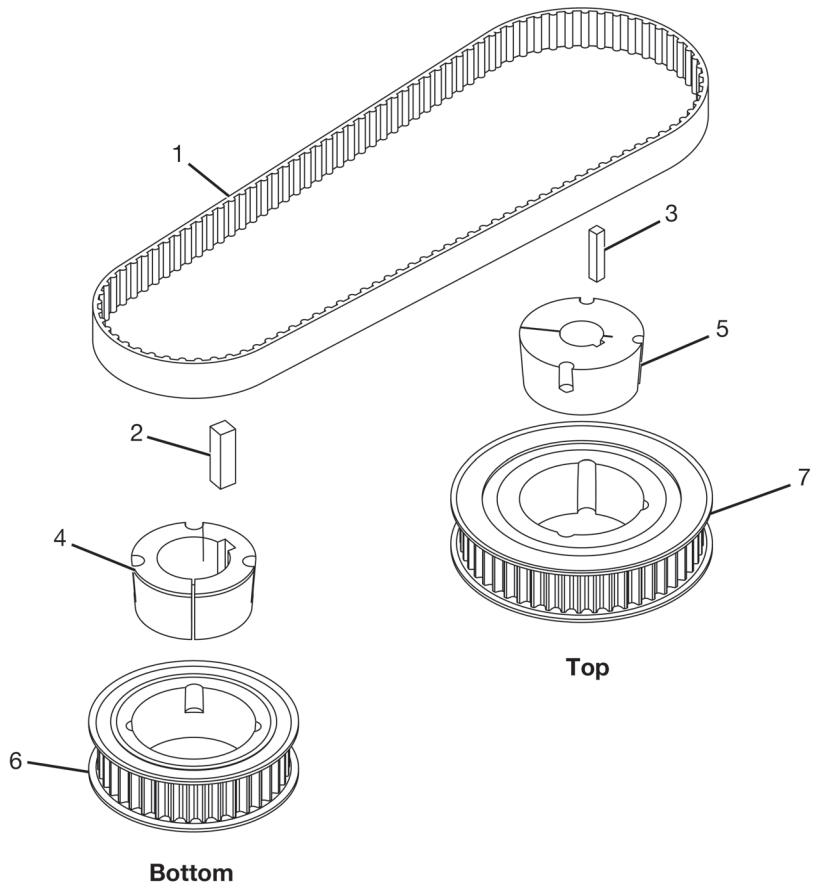
#	QTY.	PART #	DESCRIPTION
1	4	N28583	BOLT, 1 X 6" FN TH GR 8
2	4	207322	BUSHING, 1.010ID X .75
3	4	4166	WASHER, 1" LOCK
4	4	4490	NUT, 1"-14UNF STANDARD
5	2	207326	CYLINDER, 2.25BORE 1.5ROD 14ST
6	2	209193	BUSHING, 1.01 ID X .67 LONG
7	2	209141	BUSHING, 1.01 ID X .86 LONG
8	2	207213	BUSHING, PUSHER HYD
9	4	N14115	ELBOW, 45 DEG - 6MOR - 6MJIC
10	2	209185	HOSE, 3/8 78 -6FJIC -6FJIC
11	2	200796	TEE, BULKHEAD -6 MJIC
12	2	N24780	NUT, LOCK BULKHEAD -6
13	2	N16470	WASHER, 3/8 NORDLOCK
14	2	4195	BOLT, 3/8" X 1" GRADE 5
15	1	207253	PLATE, BULKHEAD
16	2	209139	HOSE, 3/8 58 -6FJIC -6FJIC (71")
	2	209227	HOSE, 3/8 71 -6FJIC -6FJIC (84")
17	1	206521	BAR, SHIP BXL PUSHER W/DECAL

Belt and Sprocket Options



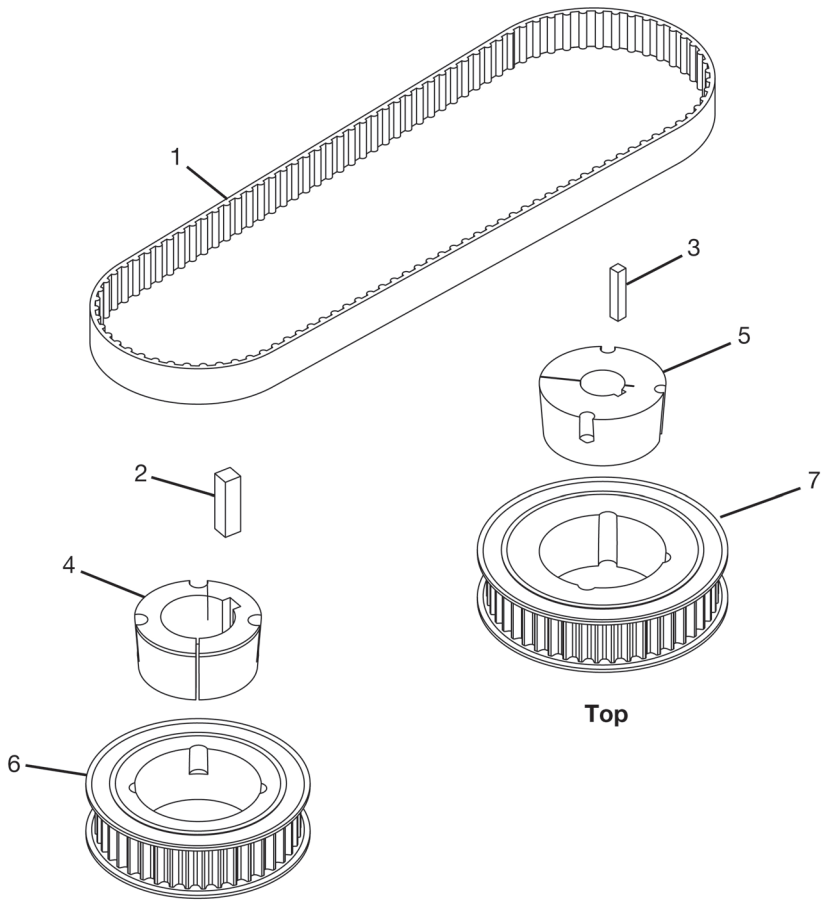
#	QTY.	PART #	DESCRIPTION
1	1	207284	BELT ASSY, 37MM A
2	1	207279	BELT ASSY, 37MM B
3	2	207280	BELT ASSY, 37MM D
4	2	207189	BELT ASSY, 37MM H
5	2	207281	BELT ASSY, 37MM I
6	1	207282	BELT ASSY, 37MM J
7	1	208429	BELT ASSY, 37MM T
8	1	207283	BELT ASSY, 37MM U
9	1	207285	BELT ASSY, 37MM V

Belt Assembly, 48T 38B 37MM 1568 - Code “A” (207284)



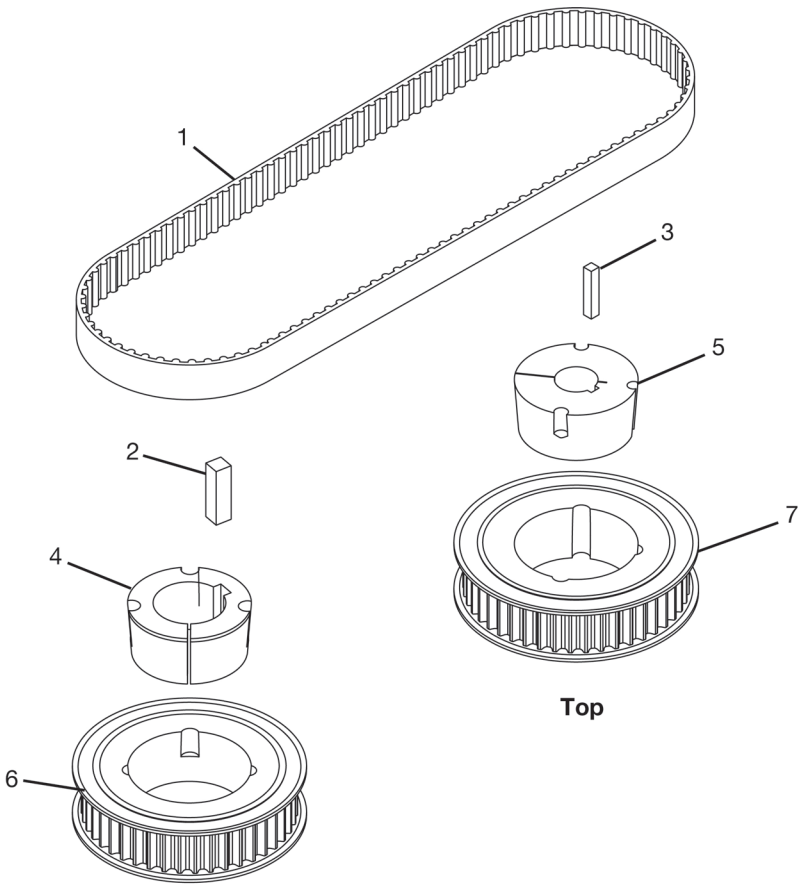
#	QTY.	PART #	DESCRIPTION
1	1	N34646	BELT, POLY CHAIN 14MM 1568 X 37
2	1	200499	KEY, 5/8" X 2-1/4"
3	1	7121-03	KEY, 3/8" X 2"
4	1	207190	BUSHING, TPLK 2-1/2 3020
5	1	N20805	BUSHING, 1-1/2" TPL 3020
6	1	N38490	SPROCKET, 14MM 38 TOOTH 37
7	1	N38492	SPROCKET, 14MM 48 TOOTH 37

Belt Assembly, 45T 40B 37MM 1568 - Code “B” (207279)



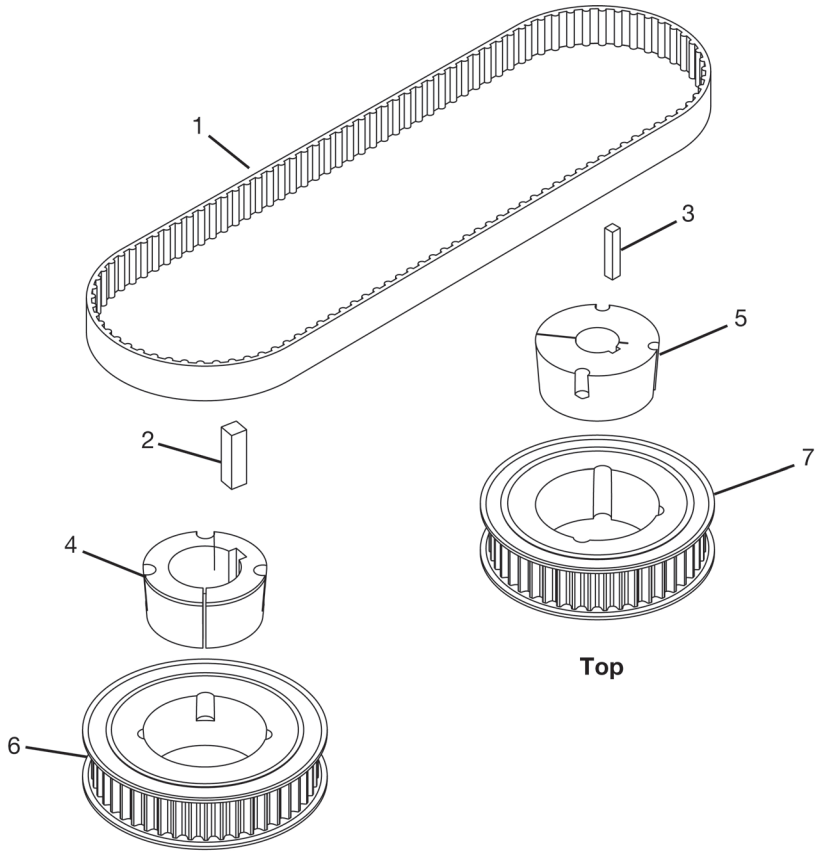
#	QTY.	PART #	DESCRIPTION
1	1	N34646	BELT, POLY CHAIN 14MM 1568 X 37
2	1	200499	KEY, 5/8" X 2-1/4"
3	1	7121-03	KEY, 3/8" X 2"
4	1	207190	BUSHING, TPLK 2-1/2 3020
5	1	N20805	BUSHING, 1-1/2" TPL 3020
6	1	N38491	SPROCKET, 14MM 40 TOOTH 37
7	1	N47578	SPROCKET, 14MM 45 TOOTH 37

Belt Assembly, 45T 43B 37MM 1568 - Code “D” (207280)



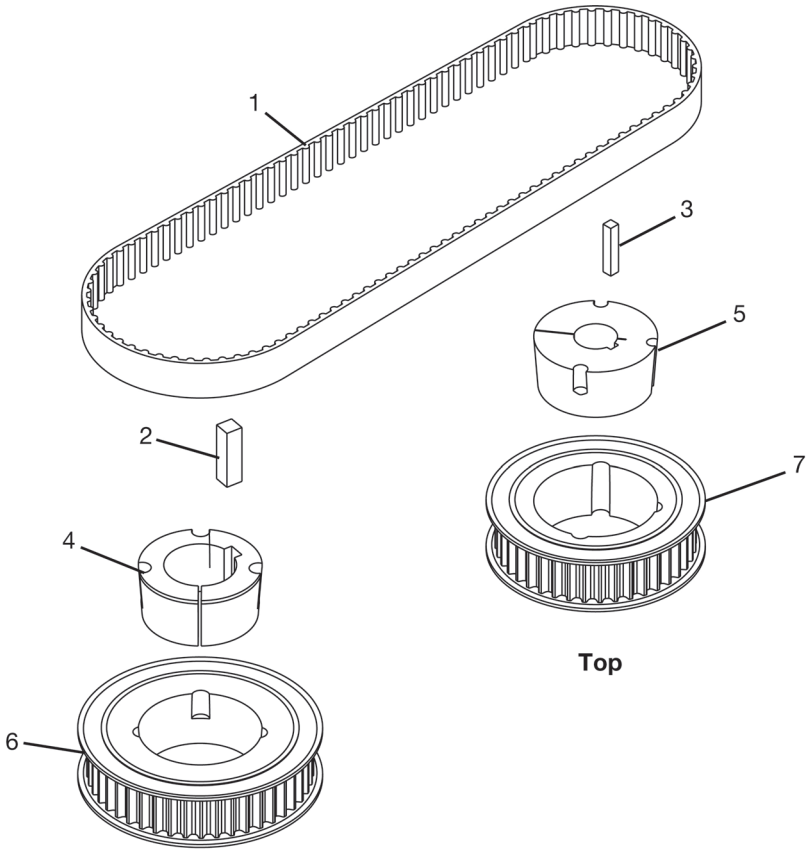
#	QTY.	PART #	DESCRIPTION
1	1	N34646	BELT, POLY CHAIN 14MM 1568 X 37
2	1	200499	KEY, 5/8" X 2-1/4"
3	1	7121-03	KEY, 3/8" X 2"
4	1	207190	BUSHING, TPLK 2-1/2 3020
5	1	N20805	BUSHING, 1-1/2" TPL 3020
6	1	N34647	SPROCKET, 14MM 43 TOOTH 37
7	1	N47578	SPROCKET, 14MM 45 TOOTH 37

Belt Assembly, 43T 45B 37MM 1568 - Code “H” (207189)



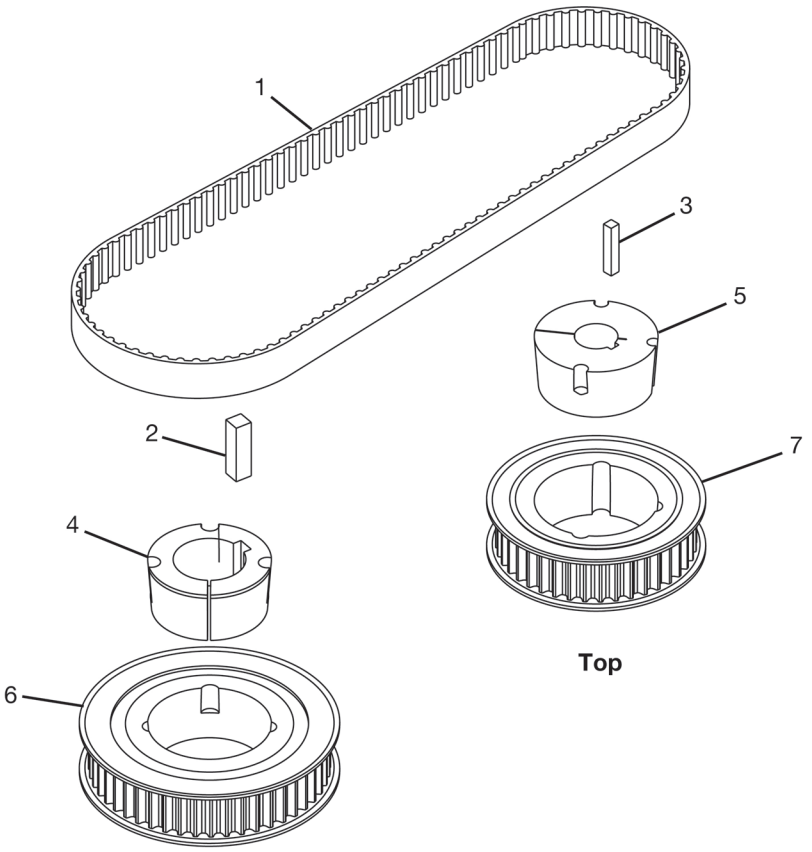
#	QTY.	PART #	DESCRIPTION
1	1	N34646	BELT, POLY CHAIN 14MM 1568 X 37
2	1	200499	KEY, 5/8" X 2-1/4"
3	1	7121-03	KEY, 3/8" X 2"
4	1	207190	BUSHING, TPLK 2-1/2 3020
5	1	N20805	BUSHING, 1-1/2" TPL 3020
6	1	N47578	SPROCKET, 14MM 45 TOOTH 37
7	1	N34647	SPROCKET, 14MM 43 TOOTH 37

Belt Assembly, 40T 45B 37MM 1568 - Code “I” (207281)



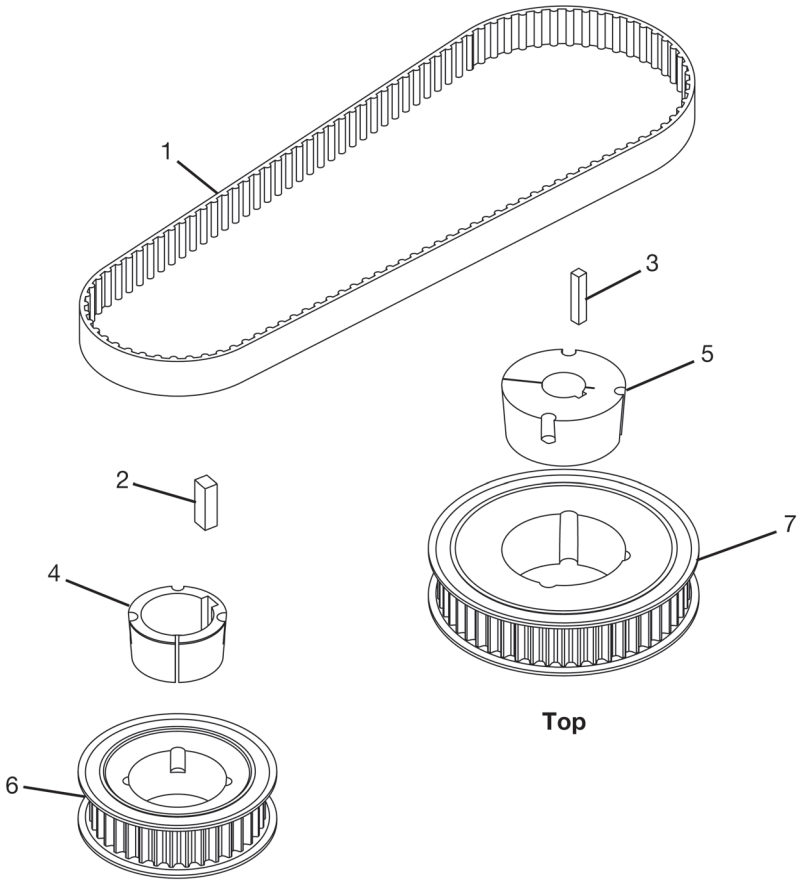
#	QTY.	PART #	DESCRIPTION
1	1	N34646	BELT, POLY CHAIN 14MM 1568 X 37
2	1	200499	KEY, 5/8" X 2-1/4"
3	1	7121-03	KEY, 3/8" X 2"
4	1	207190	BUSHING, TPLK 2-1/2 3020
5	1	N20805	BUSHING, 1-1/2" TPL 3020
6	1	N47578	SPROCKET, 14MM 45 TOOTH 37
7	1	N38491	SPROCKET, 14MM 40 TOOTH 37

Belt Assembly, 40T 48B 37MM 1568 - Code “J” (207282)



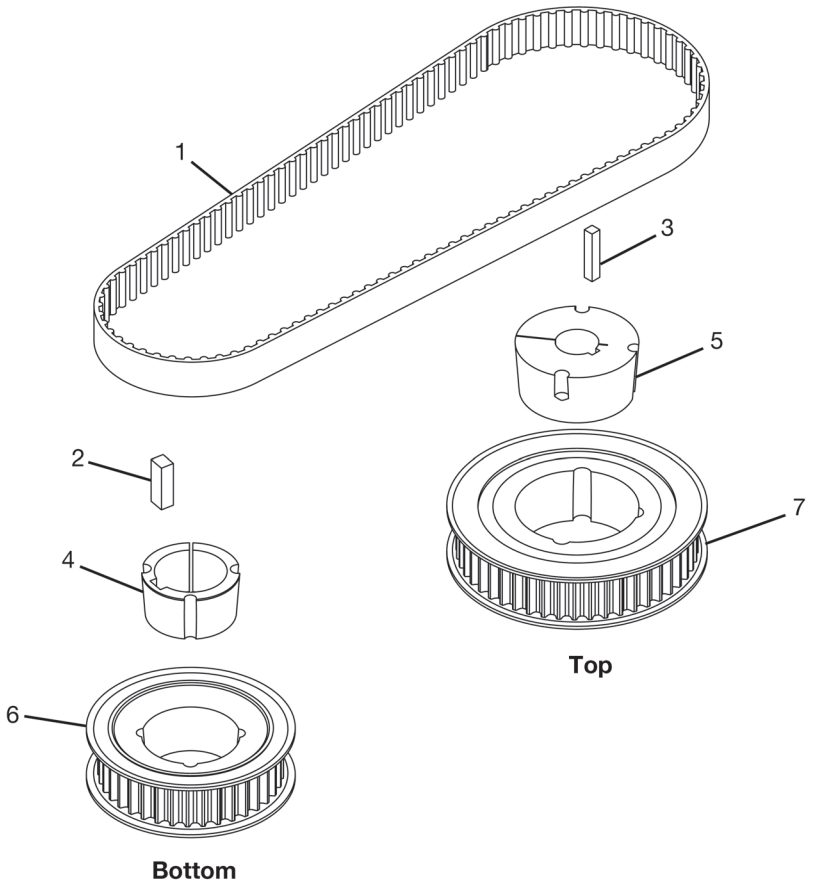
#	QTY.	PART #	DESCRIPTION
1	1	N34646	BELT, POLY CHAIN 14MM 1568 X 37
2	1	200499	KEY, 5/8" X 2-1/4"
3	1	7121-03	KEY, 3/8" X 2"
4	1	207190	BUSHING, TPLK 2-1/2 3020
5	1	N20805	BUSHING, 1-1/2" TPL 3020
6	1	N38492	SPROCKET, 14MM 48 TOOTH 37
7	1	N38491	SPROCKET, 14MM 40 TOOTH 37

Belt Assembly, 50T 35B 37MM 1568 - Code “T” (208429)



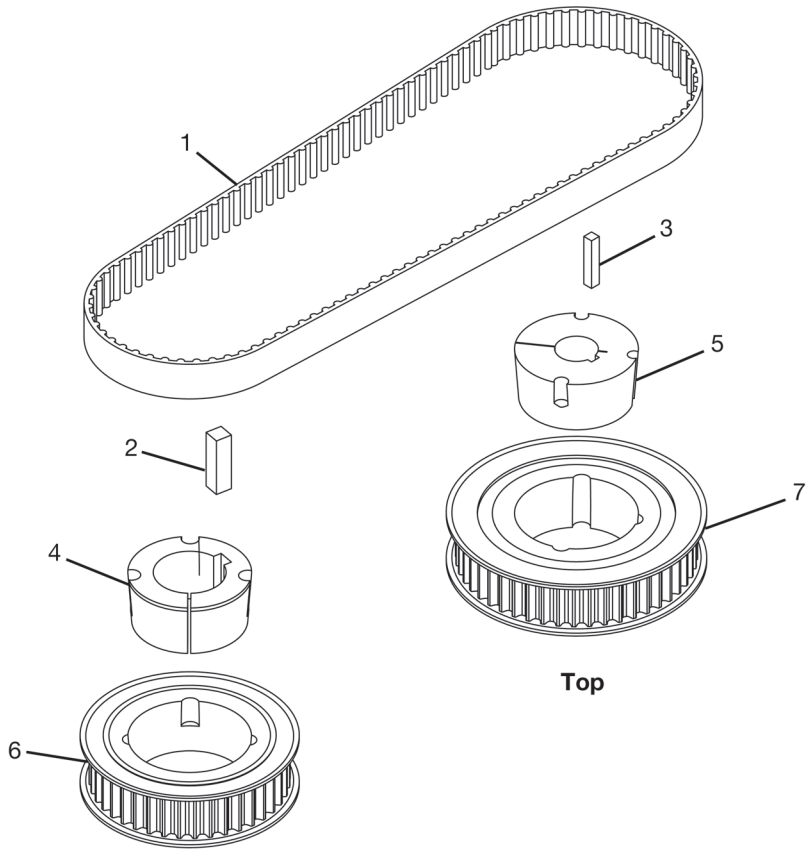
#	QTY.	PART #	DESCRIPTION
1	1	N34646	BELT, POLY CHAIN 14MM 1568 X 37
2	1	208430	KEY, 1/2 X 5/8 X 1.75 LONG
3	1	7121-03	KEY, 3/8" X 2"
4	1	206657	BUSHING, 2-1/2IN TPL 2517
5	1	N20805	BUSHING, 1-1/2" TPL 3020
6	1	203001	SPROCKET, 14MM 35 TOOTH 37
7	1	N38471	SPROCKET, 14MM 50 TOOTH 37

Belt Assembly, 48T 37B 37MM 1568 - Code “U” (207283)



#	QTY.	PART #	DESCRIPTION
1	1	N34646	BELT, POLY CHAIN 14MM 1568 X 37
2	1	208430	KEY, 1/2 X 5/8 X 1.75 LONG
3	1	7121-03	KEY, 3/8" X 2"
4	1	206657	BUSHING, 2-1/2IN TPL 2517
5	1	N20805	BUSHING, 1-1/2" TPL 3020
6	1	203003	SPROCKET, 14MM 37 TOOTH 37
7	1	N38492	SPROCKET, 14MM 48 TOOTH 37

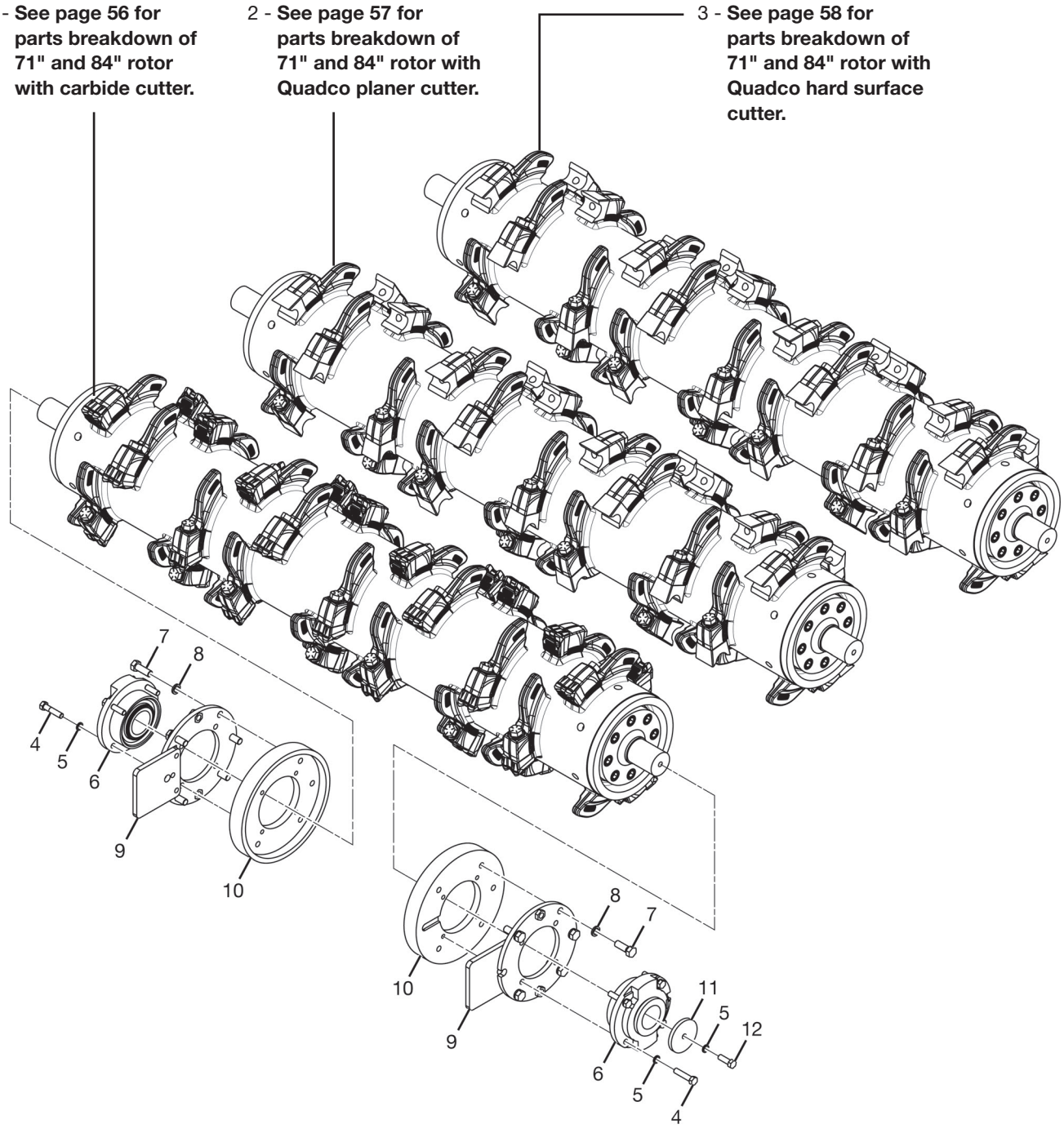
Belt Assembly, 48T 40B 37MM 1568 - Code “V” (207285)



#	QTY.	PART #	DESCRIPTION
1	1	N34646	BELT, POLY CHAIN 14MM 1568 X 37
2	1	200499	KEY, 5/8" X 2-1/4"
3	1	7121-03	KEY, 3/8" X 2"
4	1	207190	BUSHING, TPLK 2-1/2 3020
5	1	N20805	BUSHING, 1-1/2" TPL 3020
6	1	N38491	SPROCKET, 14MM 40 TOOTH 37
7	1	N38492	SPROCKET, 14MM 48 TOOTH 37

Rotor Assembly;

71" Rotor with Carbide Cutter **(209132)***; 71" Rotor With Quadco Planer Cutter* **(209146)***;*
71" Rotor With Quadco Hard Surface Cutter **(209148)***;*
84" Rotor with Carbide Cutter **(209196)***; 84" Rotor With Quadco Planer Cutter* **(209200)***;*
84" Rotor With Quadco Hard Surface Cutter **(209202)**



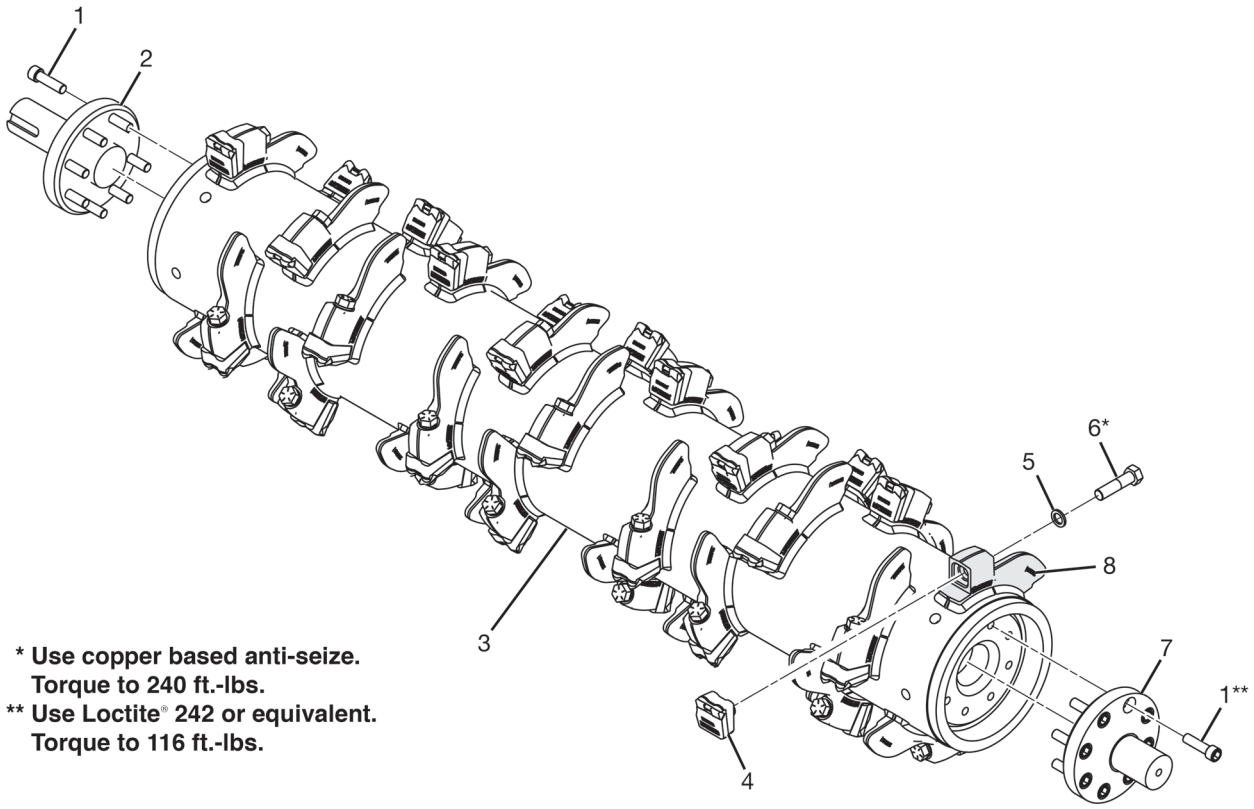
Rotor Assembly;

71" Rotor with Carbide Cutter **(209132)***; 71" Rotor With Quadco Planer Cutter* **(209146)***;*
71" Rotor With Quadco Hard Surface Cutter **(209148)***;*
84" Rotor with Carbide Cutter **(209196)***; 84" Rotor With Quadco Planer Cutter* **(209200)***;*
84" Rotor With Quadco Hard Surface Cutter **(209202)**

#	QTY.	PART #	DESCRIPTION
1	1	209133*	ROTOR, BH W/CARBIDE (71")
	1	209197*	(84")
2	1	209147**	ROTOR, BH W/QUADCO PLANER (71")
	1	209201**	(84")
3	1	209149***	ROTOR, BH W/QUADCO HS (71")
	1	209203***	(84")
4	8	N20043	BOLT, 1/2" X 2-1/4" FN TD GR 8
5	9	N16472	WASHER, 1/2 NORDLOCK
6	2	207180	BEARING, 2-1/2
7	10	N13747	BOLT, 5/8" X 1-3/4" FN TH GR 8
8	10	N16473	WASHER, 5/8 NORDLOCK
9	2	209177	MOUNT, 2-1/2 BEARING WELDMENT
10	2	207183	ANTIWRAP, CARBIDE 11, 2.5 BRG"
11	1	209614	PLATE, BEARING RET 3.500 OD
12	1	4435	BOLT, 1/2" X 1-1/2" FN TD GRADE 8

*** See page 56 for parts breakdown of 71" and 84" rotor with carbide cutter.**
**** See page 57 for parts breakdown of 71" and 84" rotor with Quadco cutter.**
***** See page 58 for parts breakdown of 71" and 84" rotor with Quadco hard surface cutter.**

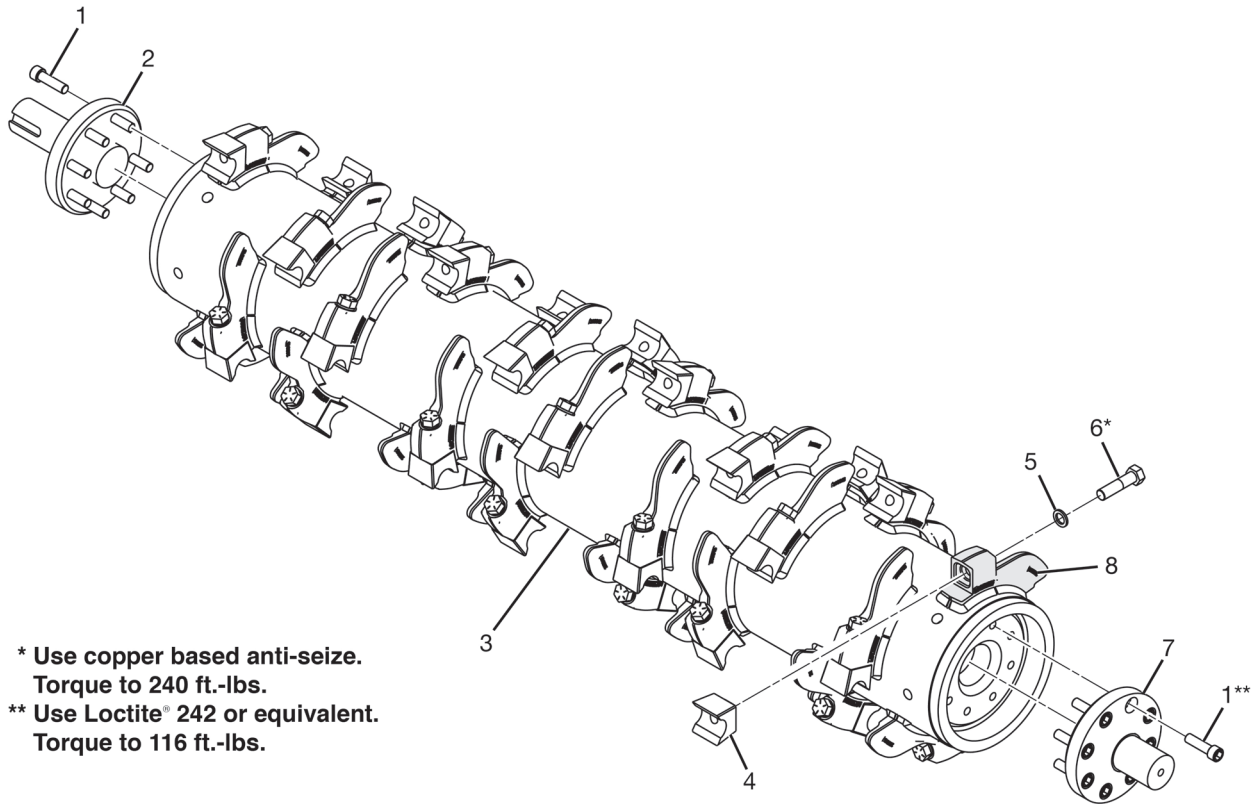
Rotor, with Double Carbide Teeth - 71" (209133), 84" (209197)



*** Use copper based anti-seize. Torque to 240 ft.-lbs.**
**** Use Loctite® 242 or equivalent. Torque to 116 ft.-lbs.**

#	QTY.	PART #	DESCRIPTION
1	16	N38265	BOLT, SHCS 5/8 X 2-1/4 FN GR 8
2	1	207155	WASHER, DRIVE 2.500 BOLT-ON
3	1	209134	ROTOR, BH W/O CUTTER (71")
	1	209198	(84")
4	36	N49090	TOOTH, BATTLE AX CARBIDE (71")
	42	N49090	(84")
5	36	N16474	WASHER, 3/4 NORDLOCK (71")
	42	N16474	(84")
6	36	N21308	BOLT, 3/4" X 3" FN THRD GR 8 (71")
	42	N21308	(84")
7	1	207156	WASHER, DRIVEN 2.500 BOLT-ON
8	36	203315	HOLDER, BATTLEAX (71")
	42	203315	(84")

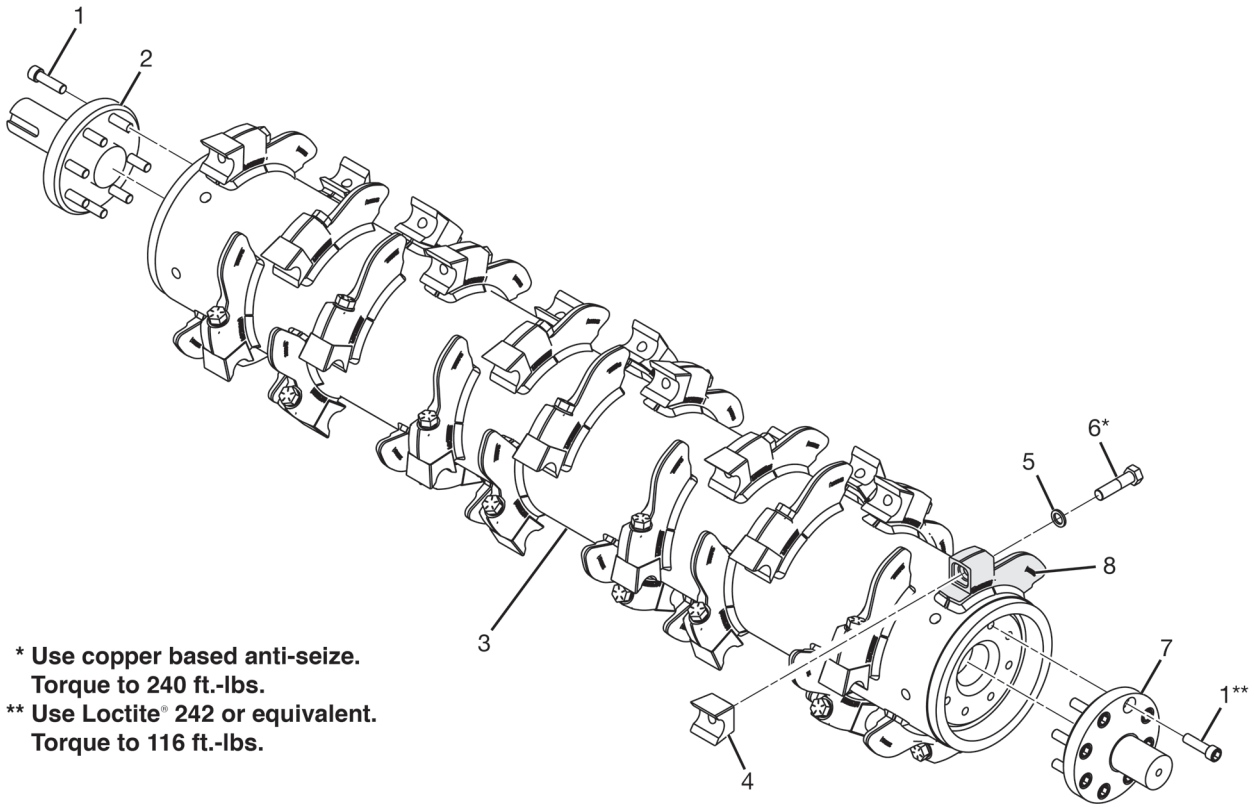
Rotor, with Quadco Planer Teeth - 71" (209147), 84" (209201)



*** Use copper based anti-seize. Torque to 240 ft.-lbs.**
**** Use Loctite® 242 or equivalent. Torque to 116 ft.-lbs.**

#	QTY.	PART #	DESCRIPTION
1	16	N38265	BOLT, SHCS 5/8 X 2-1/4 FN GR 8
2	1	207155	WASHER, DRIVE 2.500 BOLT-ON
3	1	209134	ROTOR, BH W/O CUTTER (71")
	1	209198	(84")
4	36	N49366	TOOTH, BA QUADCO PLANER (71")
	42	N49366	(84")
5	36	N16474	WASHER, 3/4 NORDLOCK (71")
	42	N16474	(84")
6	36	N21308	BOLT, 3/4" X 3" FN THRD GR 8 (71")
	42	N21308	(84")
7	1	207156	WASHER, DRIVEN 2.500 BOLT-ON
8	36	203315	HOLDER, BATTLEAX (71")
	42	203315	(84")

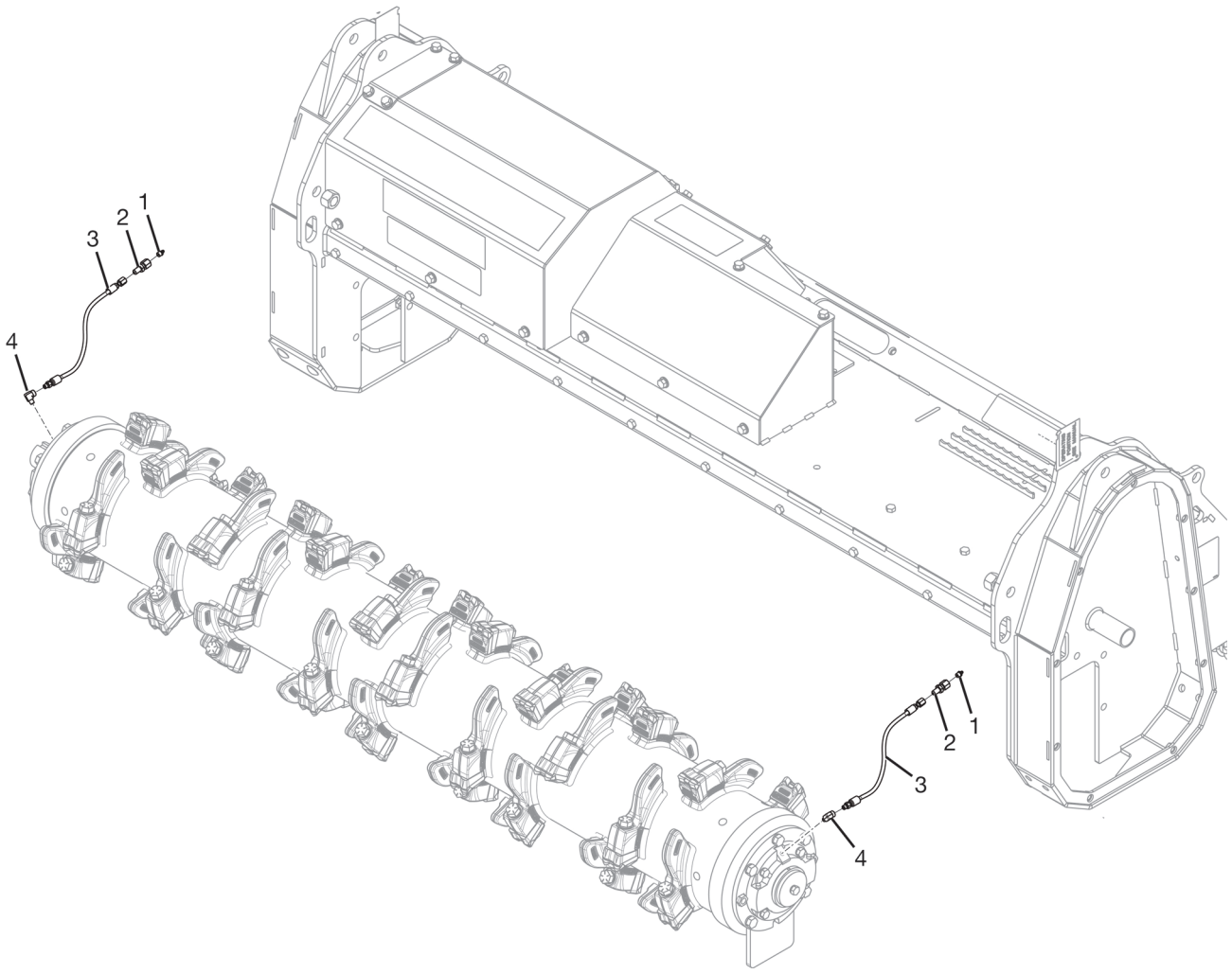
Rotor, with Quadco Hard Surface Teeth - 71" (209149), 84" (209203)



*** Use copper based anti-seize. Torque to 240 ft.-lbs.**
**** Use Loctite® 242 or equivalent. Torque to 116 ft.-lbs.**

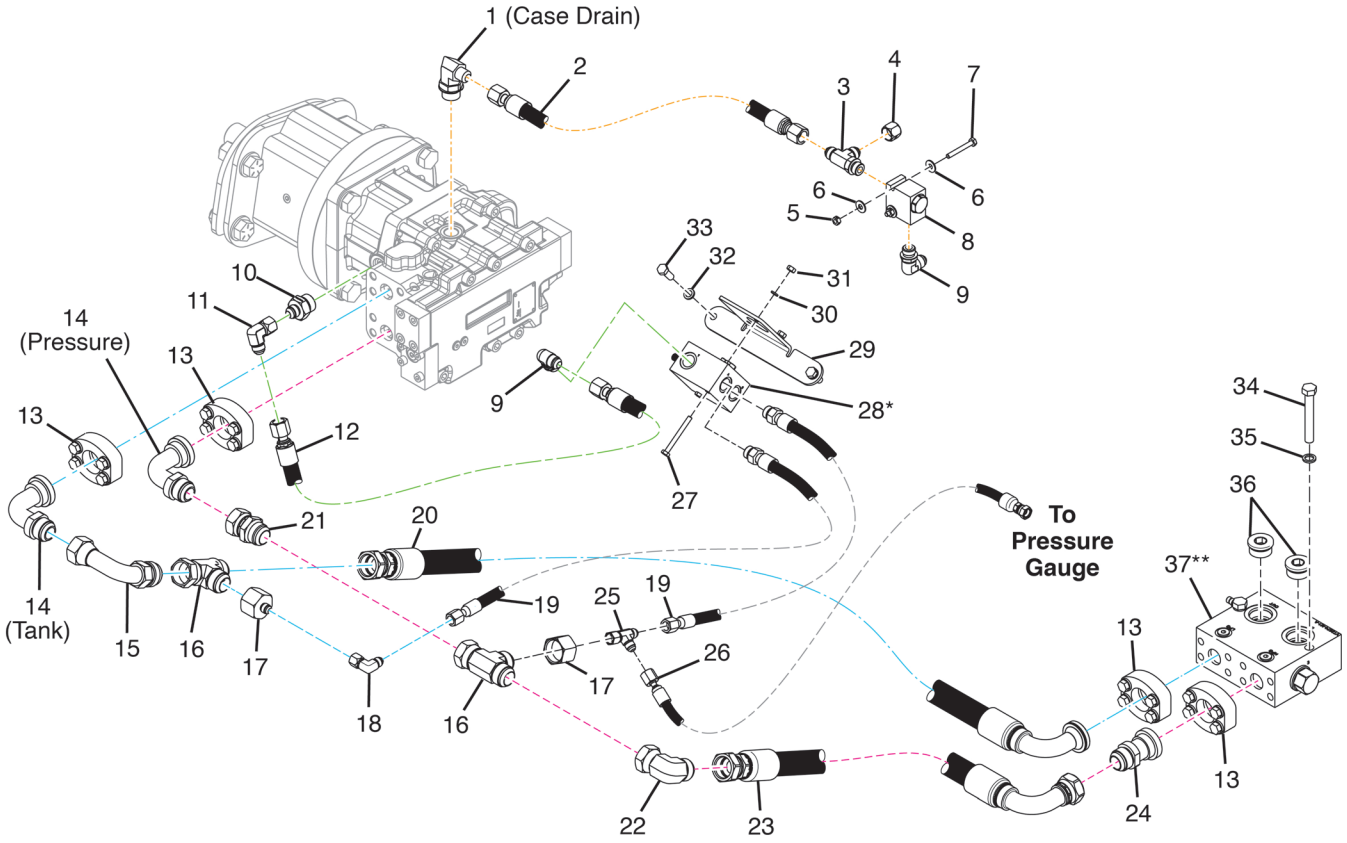
#	QTY.	PART #	DESCRIPTION
1	16	N38265	BOLT, SHCS 5/8 X 2-1/4 FN GR 8
2	1	207155	WASHER, DRIVE 2.500 BOLT-ON
3	1	209134	ROTOR, BH W/O CUTTER (71")
	1	209198	(84")
4	36	203014	TOOTH, BA QUADCO HARD SURFACE PLANER (71")
	42	203014	(84")
5	36	N16474	WASHER, 3/4 NORDLOCK (71")
	42	N16474	(84")
6	36	N21308	BOLT, 3/4" X 3" FN THRD GR 8 (71")
	42	N21308	(84")
7	1	207156	WASHER, DRIVEN 2.500 BOLT-ON
8	36	203315	HOLDER, BATTLEAX (71")
	42	203315	(84")

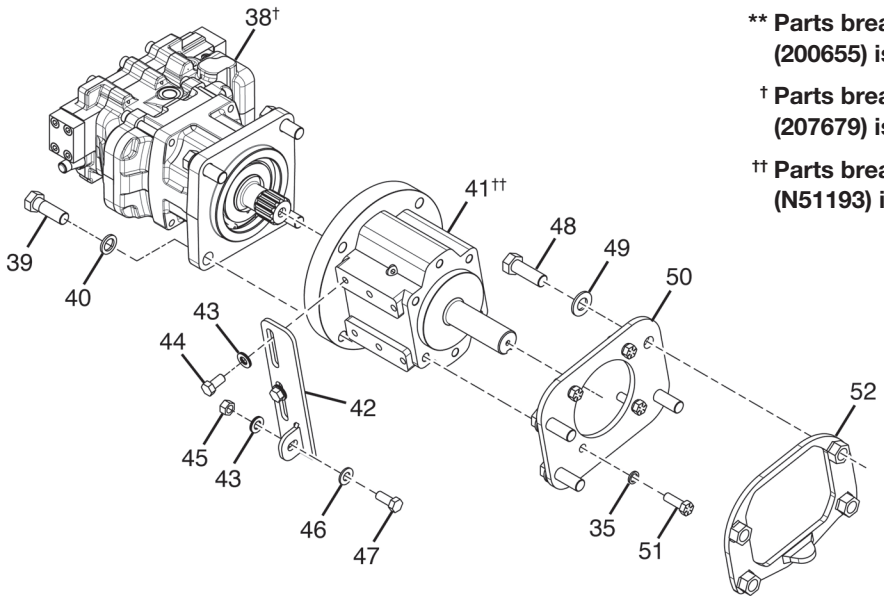
Lubrication



#	QTY.	PART #	DESCRIPTION
1	2	N17007	GREASEZERK, 1/8" NPT
2	2	4304-10	BULKHEAD, FITTING-GREASE HOSE
4	2	4304	HOSE, GREASE 1/8" X 15"
5	2	4472	ELBOW, 1/8" 90 DEG.STREET

Motor Assemby, #41 Closed 6000PSI (207201)





*** Parts breakdown of item 28 (200699) is on page 68.**

**** Parts breakdown of item 37 (200655) is on page 69.**

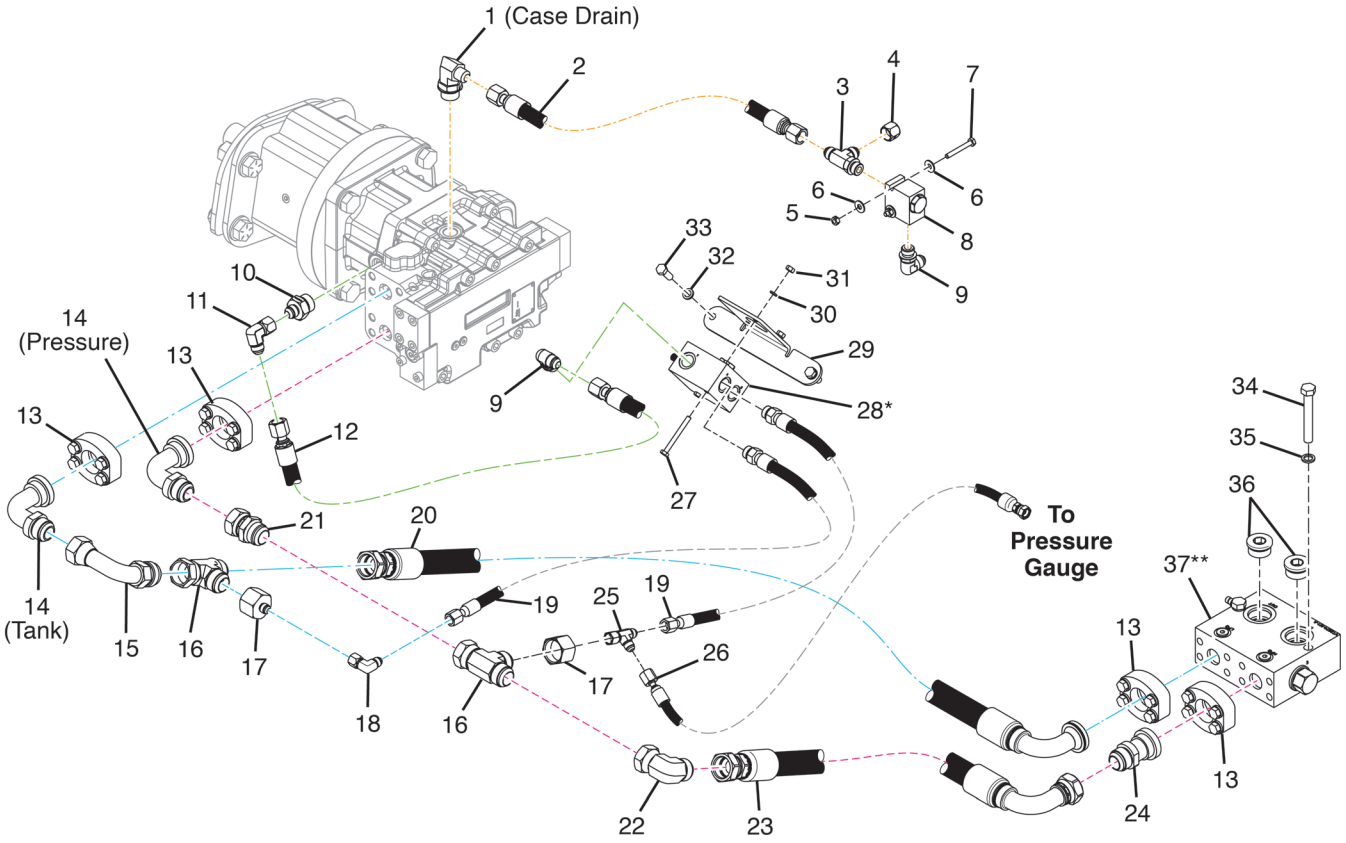
† Parts breakdown of item 38 (207679) is on page 67.

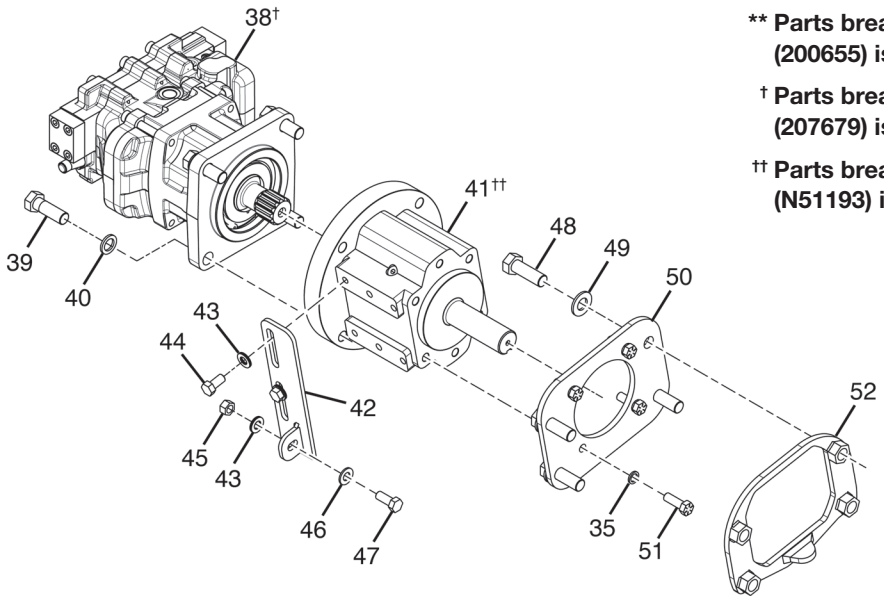
†† Parts breakdown of item 41 (N51193) is on page 66.

Motor Assemby, #41 Closed 6000PSI (207201)

#	QTY.	PART #	DESCRIPTION
1	1	N26333	ELBOW, 90 DEG - 8MJC - 12MOR
2	1	207342	HOSE, 1/2 36 -8FJIC -8FJIC
3	1	N11953	TEE, 8MJIC-8MOR-8MJIC
4	1	N21385	CAP, 8FJIC
5	2	4050	NUT, 1/4" LOCK
6	4	3183	WASHER, FLAT 1/4"
7	2	N16072	BOLT, 1/4" X 2" GR. 5 FULL THD
8	1	N157054	VALVE, RELIEF 100PSI
9	2	N11952	ELBOW, 90 DEG - 08MJIC - 08MOR
10	1	N29731	ADAPTER, 8MJC - 12MOR
11	1	N24827	ELBOW, 90 DEG - 8FJC - 8MJC
12	1	207114	HOSE, 1/2 X 24 -8FJIC-8FJIC
13	4	N20288	KIT, SPLIT FLANGE SFXK-16
14	2	N20818	ELBOW, 90DEG 16MJIC-16 CODE 62
15	1	N28903	ELBOW, 90DG TUBE 16MJIC-16FJIC
16	2	N19272	TEE, 16MJIC-16FJIC-16MJIC
17	2	N30420	ADAPTER, -16MJIC -6MJIC
18	1	N29078	ELBOW, 90 DEG - 6MJIC - 6FJIC
19	2	207112	HOSE, 3/8 24 -6FJIC-8MORB
20	1	207835	HOSE, 1 36 -16FJIC -16CD6290
21	1	N19271	ADAPTER, 16MJIC - 16FJIC SWVL
22	1	N19270	ELBOW, 90 DEG - 16MJC - 16FJC
23	1	207845	HOSE, 1 38 -16FJIC -16FJIC90
24	1	N21497	ADAPTER, -16MJIC-16 CODE 62
25	1	N37279	TEE, -6MJIC-6FJIC-6MJIC
26	1	207113	HOSE, 1/4 X 31 -4FPSW -6FJIC
27	2	4003	BOLT, 1/4" X 2-1/2" GRADE 5
28	1	200699	FLUSHING LOOP
29	1	207129	MOUNT, FLUSH LOOP
30	2	N16468	WASHER, 1/4 NORDLOCK
31	2	4230	NUT, STANDARD 1/4"
32	2	N16470	WASHER, 3/8 NORDLOCK

Motor Assemby, #41 Closed 6000PSI (207201) - (Cont'd)





*** Parts breakdown of item 28 (200699) is on page 68.**

**** Parts breakdown of item 37 (200655) is on page 69.**

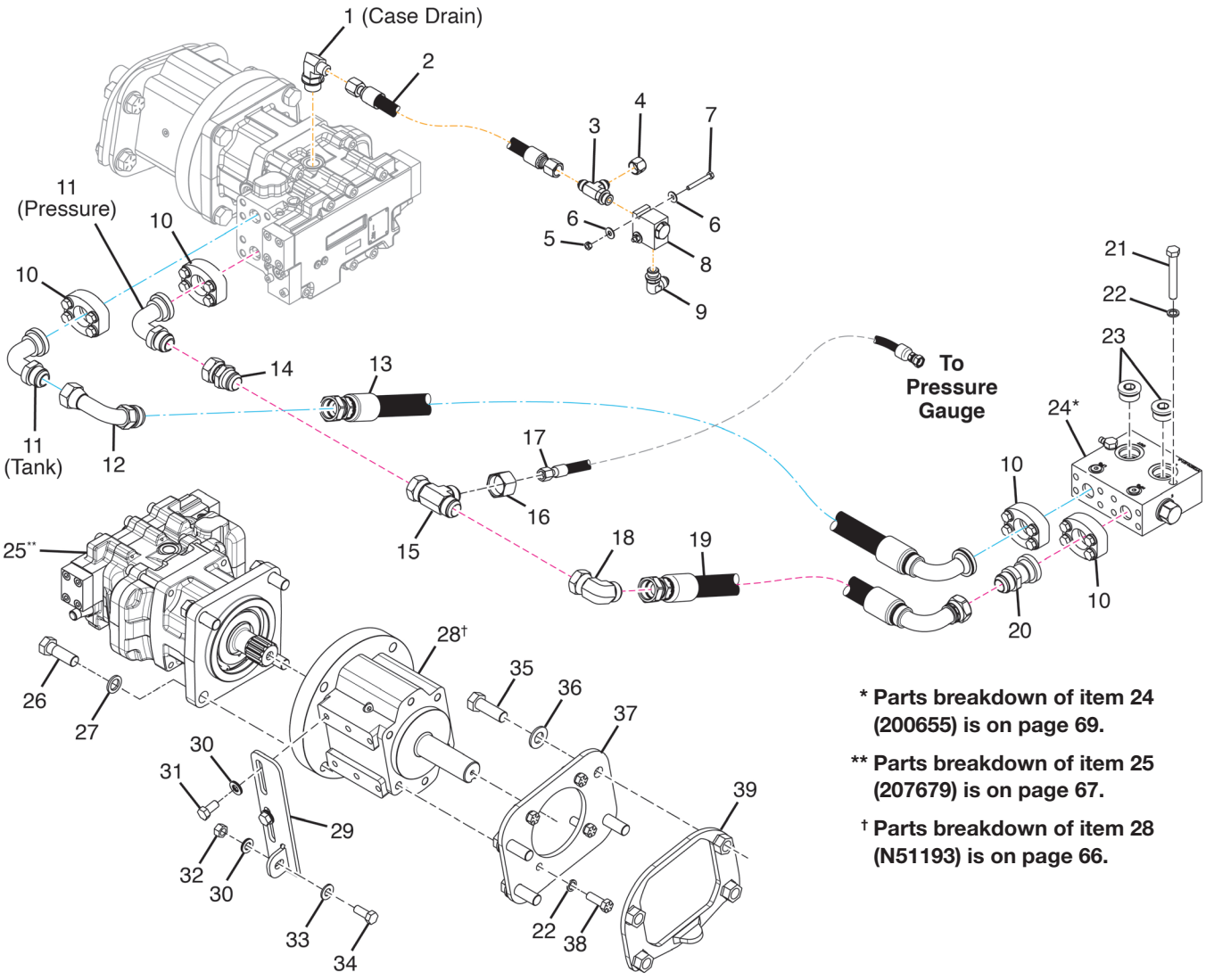
† Parts breakdown of item 38 (207679) is on page 67.

†† Parts breakdown of item 41 (N51193) is on page 66.

Motor Assemby, #41 Closed 6000PSI (207201) - (Cont'd)

#	QTY.	PART #	DESCRIPTION
33	2	4195	BOLT, 3/8" X 1" GRADE 5
34	2	208081	BOLT, 1/2 X 3-1/2 GRD 5 FL THD
35	6	N16472	WASHER, 1/2 NORDLOCK
36	2	N28284	PLUG, 16MOR HOLLOW HEX
37	1	200655	MANIFOLD, RELIEF 5000PSI,CHECK
38	1	207679	MOTOR, VARIABLE 90CC-110CC
39	4	208781	BOLT, 3/4" X 2-1/4" GRADE 8
40	4	N16474	WASHER, 3/4 NORDLOCK
41	1	N51193	OHLA, 900 W C TO D ADAPTER
42	1	215875	BRACKET, SUPPORT MOTOR ASSY
43	3	N37780	WASHER, NORD-LOCK 1/2" SP
44	2	4011	BOLT, 1/2" X 1" GRADE 5
45	1	4250	NUT, STANDARD 1/2
46	1	4068	WASHER, 1/2" SAE FLAT
47	1	4012	BOLT, 1/2" X 1-1/4" GRADE 5
48	4	4343	BOLT, 3/4" X 2-1/4" FN TH GR 8
49	4	N28567	WASHER, 3/4 NORDLOCK SP
50	1	N41636	PLATE, MOUNT MOTOR
51	4	4466	BOLT, 1/2" X 1-1/2" GRADE 8
52	1	N45488	PLATE, WELDMENT MOTOR

Motor Assemby, #48 6000PSI (207828)



*** Parts breakdown of item 24 (200655) is on page 69.**

**** Parts breakdown of item 25 (207679) is on page 67.**

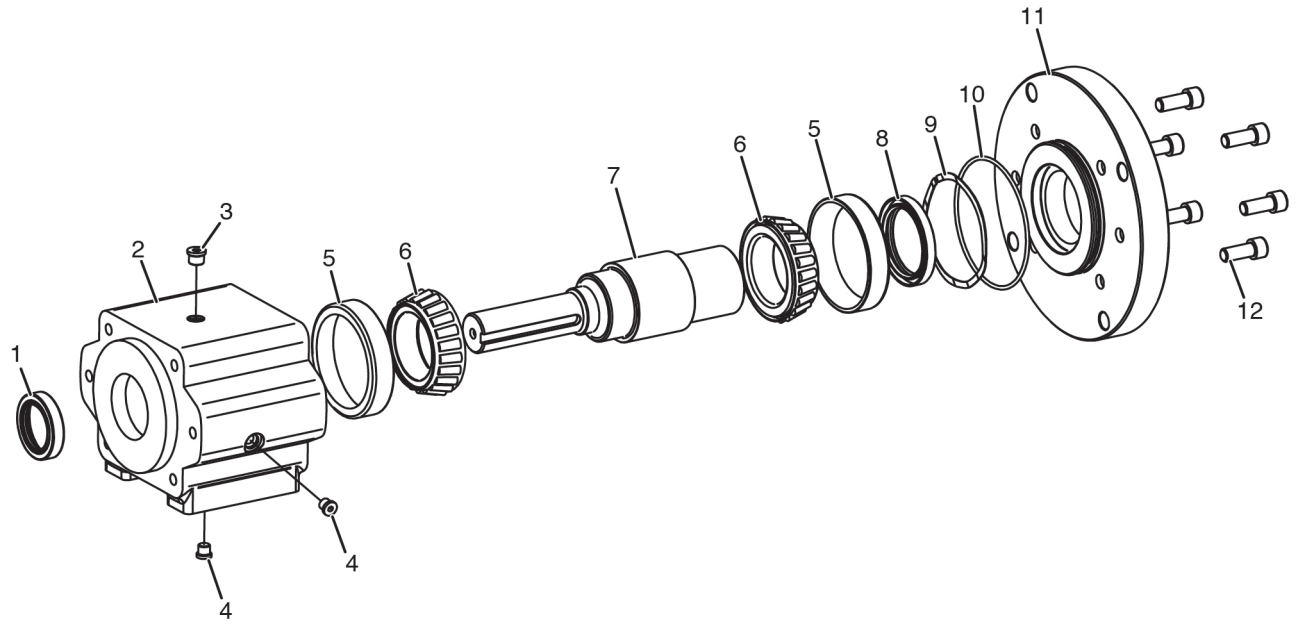
† Parts breakdown of item 28 (N51193) is on page 66.

#	QTY.	PART #	DESCRIPTION
1	1	N26333	ELBOW, 90 DEG - 8MJC - 12MOR
2	1	207342	HOSE, 1/2 36 -8FJIC -8FJIC
3	1	N11953	TEE, 8MJIC-8MOR-8MJIC
4	1	N21385	CAP, 8FJIC
5	2	4050	NUT, 1/4" LOCK
6	4	3183	WASHER, FLAT 1/4"
7	2	N16072	BOLT, 1/4" X 2" GR. 5 FULL THD

Motor Assemby, #48 6000PSI (207828)

#	QTY.	PART #	DESCRIPTION
8	1	N157054	VALVE, RELIEF 100PSI
9	1	N11952	ELBOW, 90 DEG - 08MJIC - 08MOR
10	4	N20288	KIT, SPLIT FLANGE SFXK-16
11	2	N20818	ELBOW, 90DEG 16MJIC-16 CODE 62
12	1	N28903	ELBOW, 90DG TUBE 16MJIC-16FJIC
13	1	207835	HOSE, 1 36 -16FJIC -16CD6290
14	1	N19271	ADAPTER, 16MJIC - 16FJIC SWVL
15	1	N19272	TEE, 16MJIC-16FJIC-16MJIC
16	1	N30420	ADAPTER, -16MJIC -6MJIC
17	1	207113	HOSE, 1/4 X 31 -4FPSW -6FJIC
18	1	N19270	ELBOW, 90 DEG - 16MJC - 16FJC
19	1	207845	HOSE, 1 38 -16FJIC -16FJIC90
20	1	N21497	ADAPTER, -16MJIC-16 CODE 62
21	2	208081	BOLT, 1/2 X 3-1/2 GRD 5 FL THD
22	6	N16472	WASHER, 1/2 NORDLOCK
23	2	N28284	PLUG, 16MOR HOLLOW HEX
24	1	200655	MANIFOLD, RELIEF 5000PSI,CHECK
25	1	207679	MOTOR, VARIABLE 90CC-110CC
26	4	208781	BOLT, 3/4" X 2-1/4" GRADE 8
27	4	N16474	WASHER, 3/4 NORDLOCK
28	1	N51193	OHLA, 900 W C TO D ADAPTER
29	1	215875	BRACKET, SUPPORT MOTOR ASSY
30	3	N37780	WASHER, NORD-LOCK 1/2" SP
31	2	4011	BOLT, 1/2" X 1" GRADE 5
32	1	4250	NUT, STANDARD 1/2
33	1	4068	WASHER, 1/2" SAE FLAT
34	1	4012	BOLT, 1/2" X 1-1/4" GRADE 5
35	4	4343	BOLT, 3/4" X 2-1/4" FN TH GR 8
36	4	N28567	WASHER, 3/4 NORDLOCK SP
37	1	N41636	PLATE, MOUNT MOTOR
38	4	4466	BOLT, 1/2" X 1-1/2" GRADE 8
39	1	N45488	PLATE, WELDMENT MOTOR

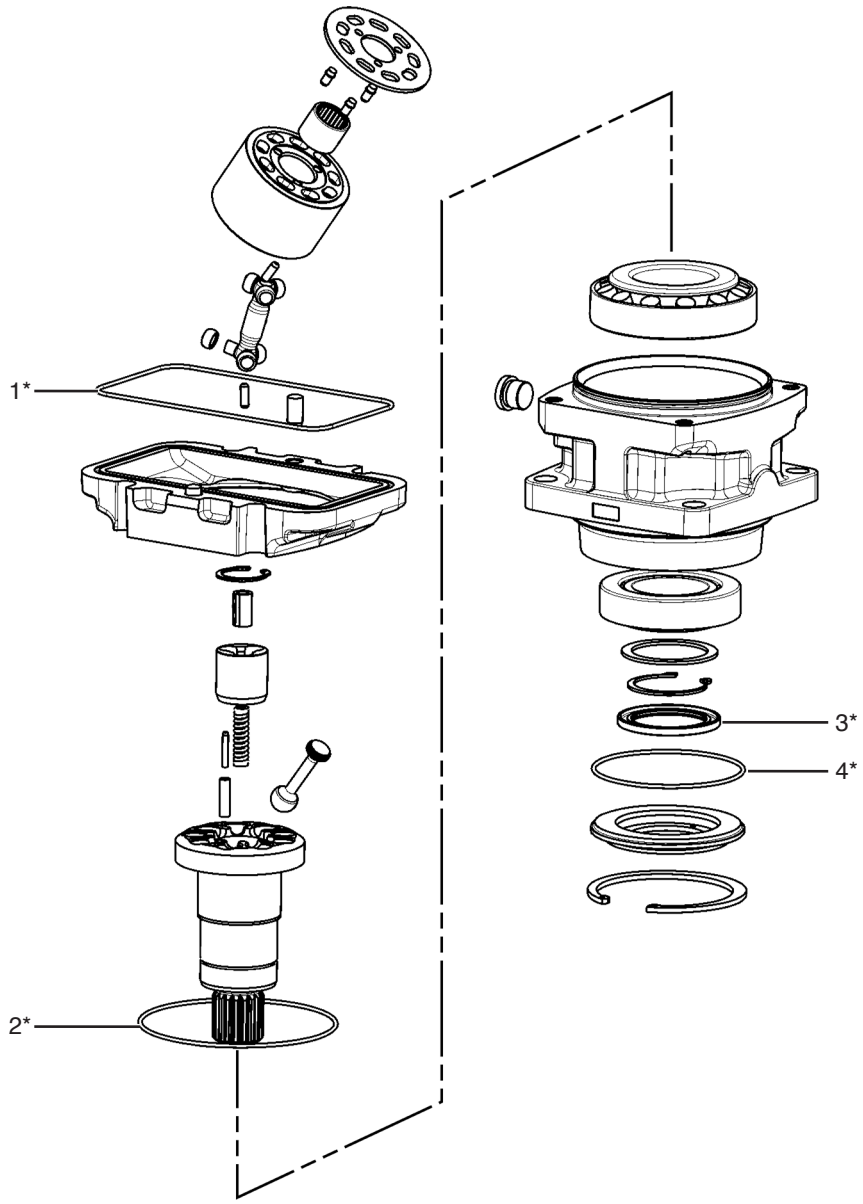
Overhung Load Adapter (N51193)



NOTE: Hydraulic oil capacity is approximately 6 oz.

#	QTY.	PART #	DESCRIPTION
1	1	200020	FRONT SEAL, WITH TOOL
2	1	N/A	HOUSING 900
3	1	N14118	PLUG #6 BOSS
4	2	N16578	PLUG #4 BOSS
5	2	N34130	BEARING CUP
6	2	N34131	BEARING CONE
7	1	N/A	SHAFT 915-13S
8	1	N38542	REAR SEAL
9	2	N38541	WAVE SPRING SSB-0433
10	1	N38543	O-RING 2-248
11	1	N/A	REAR ADAPTER PLATE
12	6	N28529	SCREW SHCS 0.500-13 X 1.25 LG

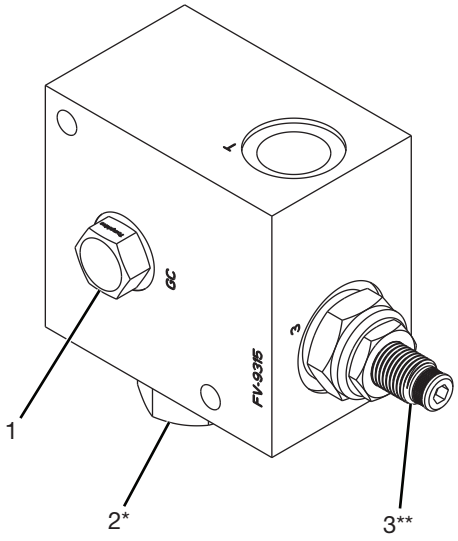
Hydraulic Motor, Variable 90cc to 110cc (207679)

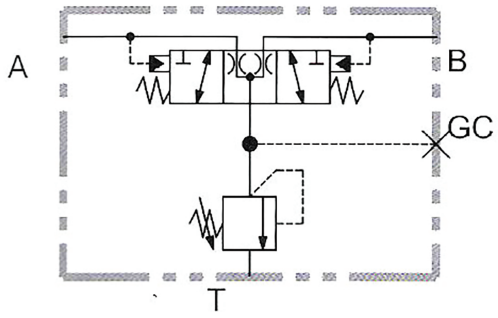


NOTE: *Other items included in kit should only be replaced by authorized service center.*

#	QTY.	PART #	DESCRIPTION
*	1	N28376	SEAL KIT (Includes Items 1, 2, 3, and 4)
1	1	-	O-RING 194.1 X 3 V80 / 220 X 3 V80
2	1	-	O-RING 144.5 X 3 V70 / 168 x 3 V70
3	1	-	SHAFT SEAL 60 X 80 X 6
4	1	-	O-RING 114.5 X 3 V80

Manifold, Closed Loop Flushing (200699)



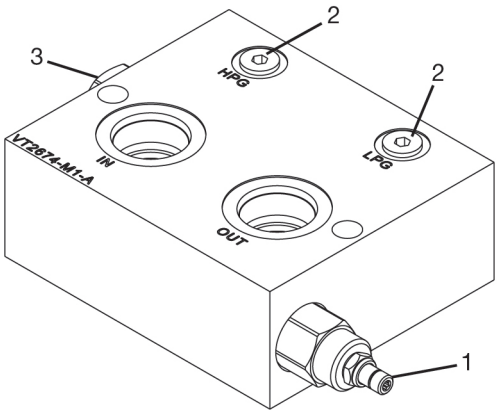


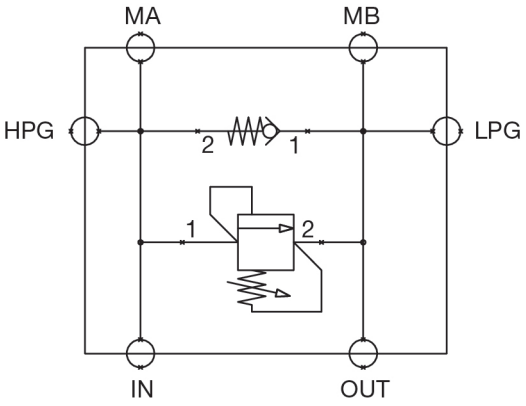
*** Use item 4, part number 207139, for seal kit for item 2.**

**** Use item 5, part numbr 207140, for seal kit for item 3.**

#	QTY.	PART #	DESCRIPTION
1	1	N28286	PLUG, 6MOR HEX
2	1	207115*	CARTRIDGE, SHUTTLE HOT OIL
3	1	207116**	VALVE, RELIEF
4	1	207139	KIT, SEAL (Not Shown) - *for cartridge 207115*
5	1	207140	KIT, SEAL (Not Shown) - *for relief valve 207116*

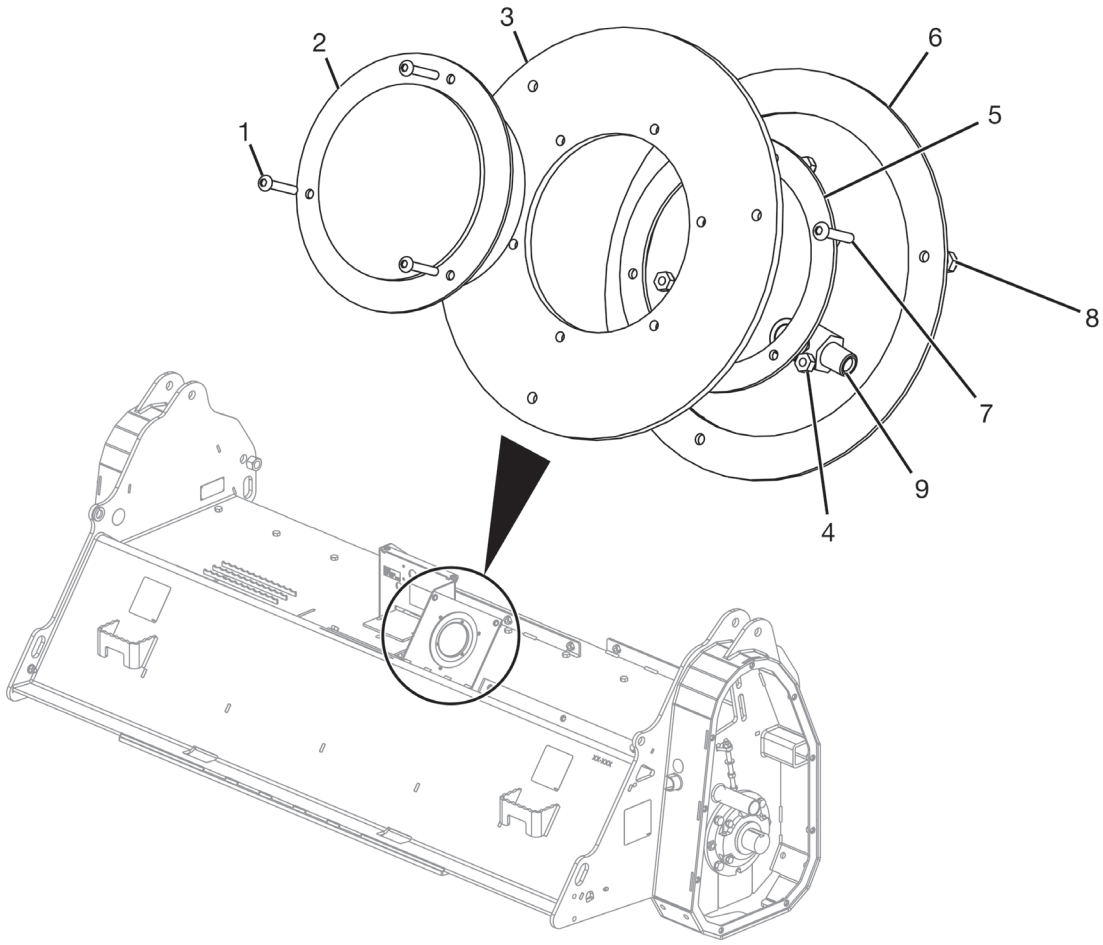
Manifold, Relief 5000 PSI, Check (200655)





#	QTY.	PART #	DESCRIPTION
1	1	N28099	VALVE, RELIEF 5000PSI
2	2	N14118	PLUG, 6MOR HEX
3	1	200695	VALVE, CHECK

Pressure Gauge



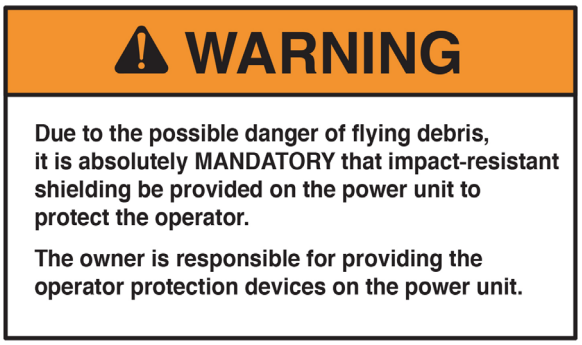
#	QTY.	PART #	DESCRIPTION
1	3	N16132	BOLT, BHCS #8-32 X 1
2	1	205041	GAUGE, 0-6000PSI 4" PRESS
3	1	N16332	FLANGE, MOUNT GAUGE
4	3	N16133	NUT, NYLON INSERT #8
5	1	N16331	FLANGE, MOUNT GAUGE #8
6	1	N16335	FLANGE, MOUNT #10
7	3	N16333	BOLT, BHCS #10-32 X 1
8	3	N16334	NUT, NYLON INSERT #10
9	1	N16162	ELBOW, 1/4" BLK 90 DEG STREET

Machine Decals and Signs

NOTE: *All safety related decals are also shown in the Safety Instructions Section along with their location on the machine. See "Safety Decal Locations" on page 8.*

Check and replace any worn, torn, hard to read or missing decals on your machine.

Part No. N17013



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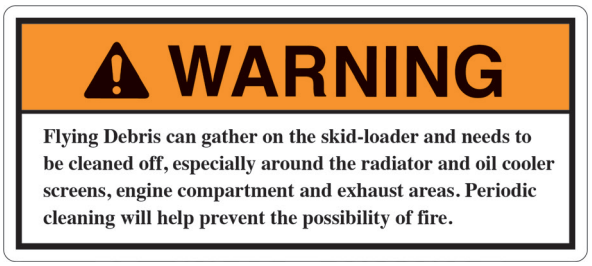

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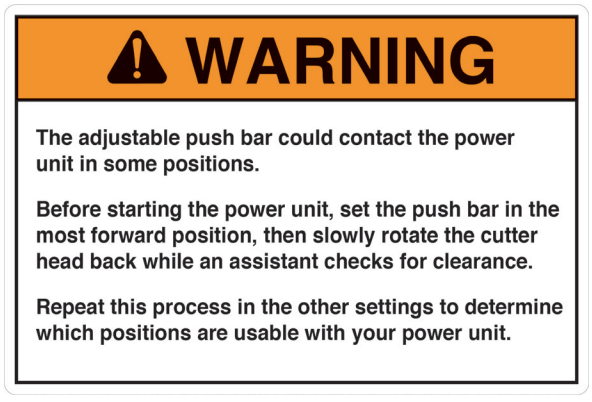

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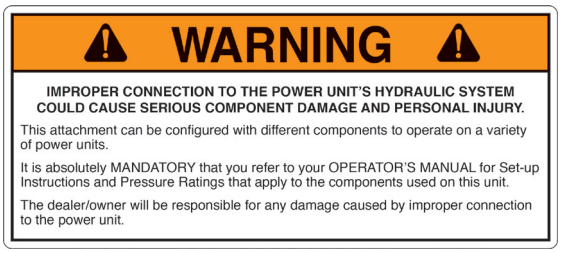

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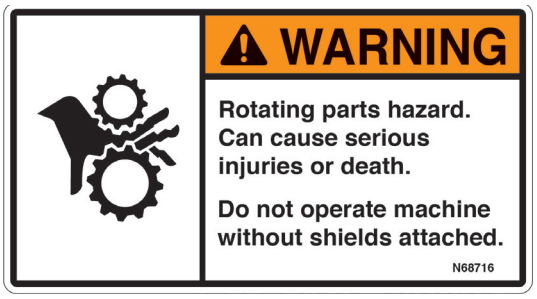


Part No. N28386

Part No. 4334

Part No. 203264

Machine Decals and Signs (Cont'd)

Part No. N23506

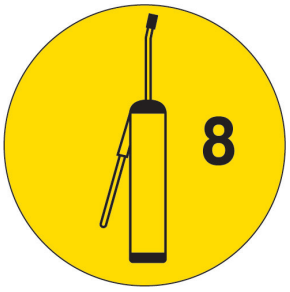
Part No. N68724

Part No. 208824

Part No. 200491

Part No. N29769

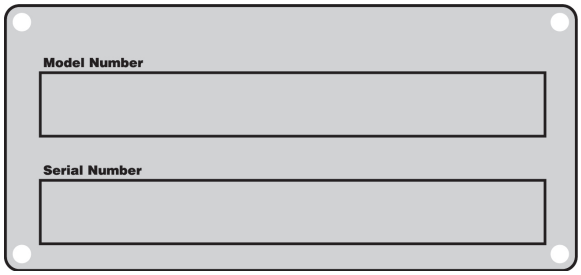
Part No. N28010



Part No. 214428

Machine Decals and Signs (Cont'd)

Part No. N13721



Part No. 209499

Part No. N13517

Part No. 4138

Part No. N28576

LOFTNESS™
VMLOGIX™
VEGETATION MANAGEMENT EQUIPMENT

Part No. 215883

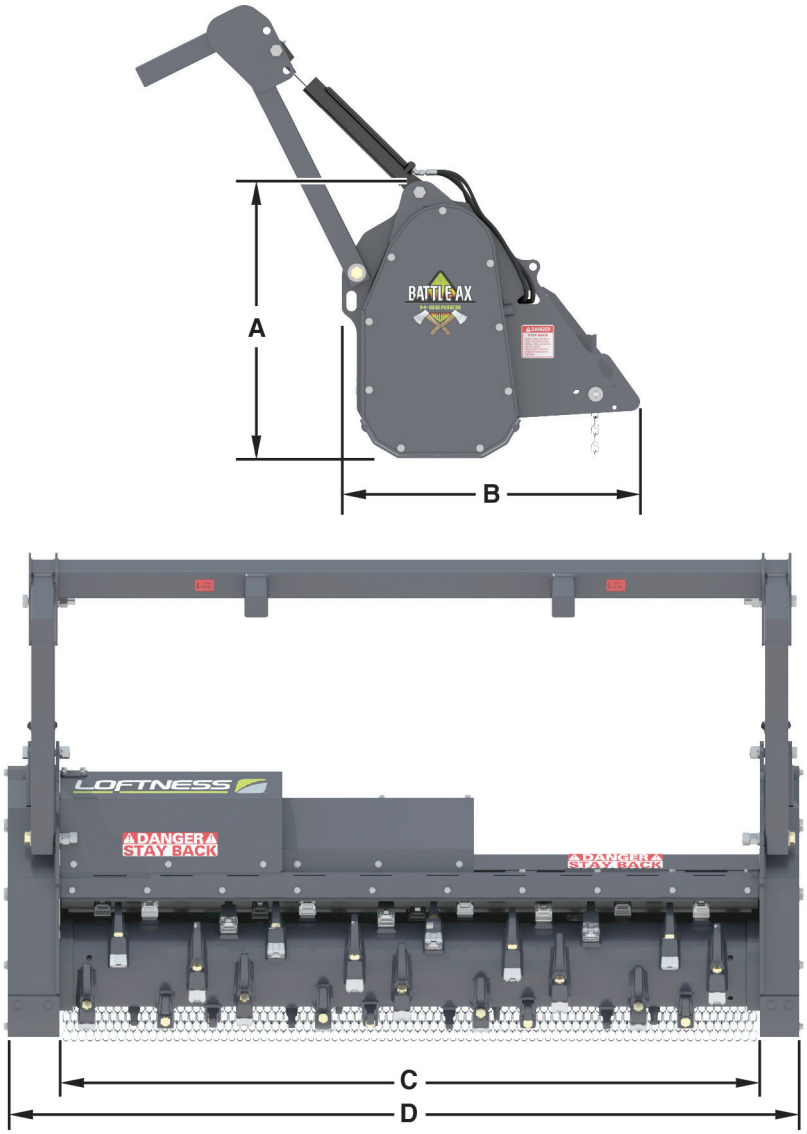

LOFTNESS

Specifications

DESCRIPTION	BATTLE AX H SERIES
Cutting Width	71 in. (180.4 cm)
	84 in. (213.4cm)
Operating Capacity	6 in. (15.2 cm) Continuous
	10 in. (25.4 cm) Intermittent
Capacity Monitor	Pressure Gauge
Motor	Variable Displacement Piston Type Motor
Rotor Bearing	2.50 in. Piloted Double Taper
Rotor Tip Diameter	17 in. (43.2 cm)
Sprockets	Taperlock
Belt	14 mm x 37 Synchronous
Mount	Mounts for Select Power Units
Shear Bar	Adjustable
Pusher Bar	Adjustable Rigid Bar, or Hydraulic
Knives	Double Carbide Teeth
	Quadco Planer Teeth, Sharpenable (Optional)
	Quadco Planer Teeth Hardened (Optional)
Skid Shoes	Replaceable
Deflector	Steel Chain
Anti-Wrap Protection	Bearing

Appendix

Dimensions



DESCRIPTION	BATTLE AX H SERIES	
	71	84
Operating Height (A)	37.56 in. (95.40 cm)	
Overall Length (B)	40.37 in. (102.54 cm)	
Cutting Width (C)	70.94 in. (180.18 cm)	83.94 in. (213.20 cm)
Overall Width (D)	88.25 in. (224.16 cm)	101.25 in. (257.175 cm)
Number Of Knives	36	42
Weight	3,440 lb. (1,561 kg)	3,792 lb. (1,720 kg)
Crated Weight	3,614 lb. (1,640 kg)	3,992 lb. (1,811 kg)

Torque Specifications

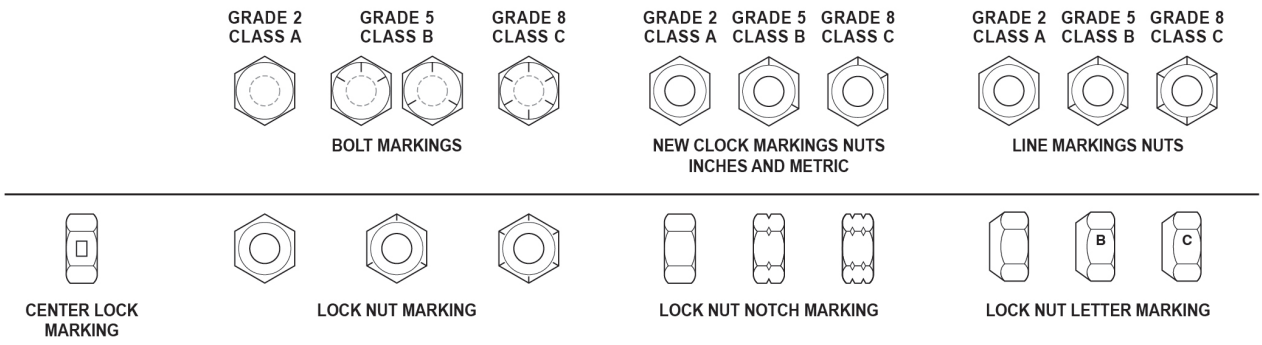
Inches Hardware and Lock Nuts

TORQUE CHARTS

Minimum Hardware Tightening Torques

Normal Assembly Applications
(Standard Hardware and Lock Nuts)

SAE Gr. 2	SAE Grade 5		SAE Grade 8		LOCK NUTS			
Nominal Size	**Unplated or Plated Silver**	**Plated W / ZnCr Gold**	**Unplated or Plated Silver**	**Plated W / ZnCr Gold**	**Unplated or Plated Silver**	**Plated W / ZnCr Gold**	**Grade W / Gr. 5 Bolt**	**Grade W / Gr. 8 Bolt**
1/4	55 in.-lb. (6.2 N•m)	72 in.-lb. (8.1 N•m)	86 in.-lb. (9.7 N•m)	112 in.-lb. (12.6 N•m)	121 in.-lb. (13.6 N•m)	157 in.-lb. (17.7 N•m)	61 in.-lb. (6.9 N•m)	86 in.-lb. (9.8 N•m)
5/16	115 in.-lb. (13 N•m)	149 in.-lb. (17 N•m)	178 in.-lb. (20 N•m)	229 in.-lb. (26 N•m)	250 in.-lb. (28 N•m)	324 in.-lb. (37 N•m)	125 in.-lb. (14 N•m)	176 in.-lb. (20 N•m)
3/8	17 ft.-lb. (23 N•m)	22 ft.-lb. (30 N•m)	26 ft.-lb. (35 N•m)	34 ft.-lb. (46 N•m)	37 ft.-lb. (50 N•m)	48 ft.-lb. (65 N•m)	19 ft.-lb. (26 N•m)	26 ft.-lb. (35 N•m)
7/16	27 ft.-lb. (37 N•m)	35 ft.-lb. (47 N•m)	42 ft.-lb. (57 N•m)	54 ft.-lb. (73 N•m)	59 ft.-lb. (80 N•m)	77 ft.-lb. (104 N•m)	30 ft.-lb. (41 N•m)	42 ft.-lb. (57 N•m)
1/2	42 ft.-lb. (57 N•m)	54 ft.-lb. (73 N•m)	64 ft.-lb. (87 N•m)	83 ft.-lb. (113 N•m)	91 ft.-lb. (123 N•m)	117 ft.-lb. (159 N•m)	45 ft.-lb. (61 N•m)	64 ft.-lb. (88 N•m)
9/16	60 ft.-lb. (81 N•m)	77 ft.-lb. (104 N•m)	92 ft.-lb. (125 N•m)	120 ft.-lb. (163 N•m)	130 ft.-lb. (176) N•m	169 ft.-lb. (229 N•m)	65 ft.-lb. (88 N•m)	92 ft.-lb. (125 N•m)
5/8	83 ft.-lb. (112 N•m)	107 ft.-lb. (145 N•m)	128 ft.-lb. (174 N•m)	165 ft.-lb. (224 N•m)	180 ft.-lb. (244) N•m	233 ft.-lb. (316 N•m)	90 ft.-lb. (122 N•m)	127 ft.-lb. (172 N•m)
3/4	146 ft.-lb. (198 N•m)	189 ft.-lb. (256 N•m)	226 ft.-lb. (306 N•m)	293 ft.-lb. (397 N•m)	319 ft.-lb. (432 N•m)	413 ft.-lb. (560 N•m)	160 ft.-lb. (217 N•m)	226 ft.-lb. (306 N•m)
7/8	142 ft.-lb. (193 N•m)	183 ft.-lb. (248 N•m)	365 ft.-lb. (495 N•m)	473 ft.-lb. (641 N•m)	515 ft.-lb. (698 N•m)	667 ft.-lb. (904 N•m)	258 ft.-lb. (350 N•m)	364 ft.-lb. (494 N•m)
1	213 ft.-lb. (289 N•m)	275 ft.-lb. (373 N•m)	547 ft.-lb. (742 N•m)	708 ft.-lb. (960 N•m)	773 ft.-lb. (1048 N•m)	1000 ft.-lb. (1356 N•m)	386 ft.-lb. (523 N•m)	545 ft.-lb. (739 N•m)



Torque Specifications (Cont'd)

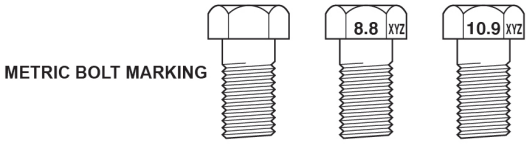
Metric Hardware and Lock Nuts

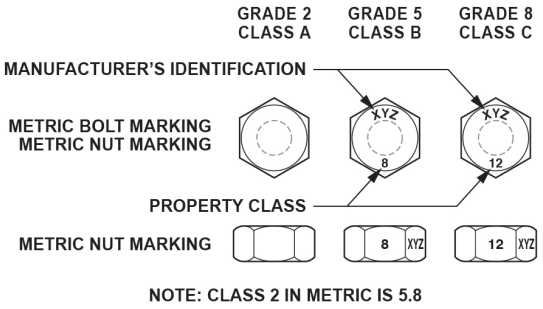
TORQUE CHARTS

Minimum Hardware Tightening Torques

Normal Assembly Applications
(Metric Hardware and Lock Nuts)

	Class 5,8		Class 8,8		Class 10,9		Lock nuts
Nominal Size	**Unplated or Plated Silver**	**Plated W / ZnCr Gold**	**Unplated or Plated Silver**	**Plated W / ZnCr Gold**	**Unplated or Plated Silver**	**Plated W / ZnCr Gold**	**Class 8 W / CL. 8,8 Bolt**
M4	1.7 N•m (15 in.-lb.)	2.2 N•m (19 in.-lb.)	2.6 N•m (23 in.-lb.)	3.4 N•m (30 in.-lb.)	3.7 N•m (33 in.-lb.)	4.8 N•m (42 in.-lb.)	1.8 N•m (16 in.-lb.)
M6	5.8 N•m (51 in.-lb.)	7.6 N•m (67 in.-lb.)	8.9 N•m (79 in.-lb.)	12 N•m (102 in.-lb.)	13 N•m (115 in.-lb.)	17 N•m (150 in.-lb.)	6.3 N•m (56 in.-lb.)
M8	14 N•m (124 in.-lb.)	18 N•m (159 in.-lb.)	22 N•m (195 in.-lb.)	28 N•m (248 in.-lb.)	31 N•m (274 in.-lb.)	40 N•m (354 in.-lb.)	15 N•m (133 in.-lb.)
M10	28 N•m (21 ft.-lb.)	36 N•m (27 ft.-lb.)	43 N•m (32 ft.-lb.)	56 N•m (41 ft.-lb.)	61 N•m (45 ft.-lb.)	79 N•m (58 ft.-lb.)	30 N•m (22 ft.-lb.)
M12	49 N•m (36 ft.-lb.)	63 N•m (46 ft.-lb.)	75 N•m (55 ft.-lb.)	97 N•m (72 ft.-lb.)	107 N•m (79 ft.-lb.)	138 N•m (102 ft.-lb.)	53 N•m (39 ft.-lb.)
M16	121 N•m (89 ft.-lb.)	158 N•m (117 ft.-lb.)	186 N•m (137 ft.-lb.)	240 N•m (177 ft.-lb.)	266 N•m (196 ft.-lb.)	344 N•m (254 ft.-lb.)	131N•m (97 ft.-lb.)
M20	237 N•m (175 ft.-lb.)	307 N•m (226 ft.-lb.)	375 N•m (277 ft.-lb.)	485 N•m (358 ft.-lb.)	519 N•m (383 ft.-lb.)	671 N•m (495 ft.-lb.)	265 N•m (195 ft.-lb.)
M24	411 N•m (303 ft.-lb.)	531 N•m (392 ft.-lb.)	648 N•m (478 ft.-lb.)	839 N•m (619 ft.-lb.)	897 N•m (662 ft.-lb.)	1160 N•m (855 ft.-lb.)	458 N•m (338 ft.-lb.)





NOTE: CLASS 2 IN METRIC IS 5.8

www.loftness.com

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