



Timber Ax

Skid-Steer Mounted Tree Shredder

53AXH 63AXH 73AXH 83AXH

Owner's Manual
(Originating w / Serial Number 01-792)



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

LOFTNESS ™

LOFTNESS SPECIALIZED EQUIPMENT, INC.

WARRANTY POLICY

**The warranty policy begins upon delivery of the unit to the original customer.
All Loftness products have a one (1) year warranty policy.**

If any Loftness product is used as a rental unit, the warranty period extends for only 30 days from the delivery date to the original customer.

Loftness Specialized Equipment, hereinafter referred to as LOFTNESS, a manufacturer of quality machinery since 1956, 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.

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. 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.

WARRANTY REQUIREMENTS

Warranty registration form must be filled out and returned to Loftness Specialized Equipment to validate all future warranty claims.

LIMITATIONS OF WARRANTY

All Products – 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:

All Shredders, Axes, Cutters & Mowers – Rotor Balance: Critical rotor balance can be affected by conditions beyond LOFTNESS' control, such as the operation of a shredder beyond the Company's rated capacity, improper knife replacement, missing knives, striking foreign objects, lack of lubrication, etc. Any failure resulting from running in as "out-of-balance" condition, such as, but not limited to bearing and or drive-line failure, metal fatigue, cracks, etc. will be considered abuse and will not be covered under warranty. LOFTNESS may elect to have an area representative evaluate the condition of the machine before warranty is considered.

To receive 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.

EXCLUSIONS OF WARRANTY

Except as otherwise expressly stated herein, LOFTNESS makes no representation or warranty of any kind, expressed or implied, and makes no warranty of merchantability in respect to its machinery and/or attachments and makes no warranty that its machinery and/or attachments are fit for any particular purpose. LOFTNESS shall not be liable for incidental or consequential damages for any breach of warranty, including but not limited to inconvenience, rental or replacement equipment, loss of profits or other commercial loss. Upon purchase the buyer assumes all liability, 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.

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SPECIALIZED EQUIPMENT. UNLIMITED INNOVATION.

650 South Main Street
Hector, MN 55342 USA
loftness.com 320-848-6266
US & Canada 800-828-7624



International: 320-848-6266 Fax: 320-848-6269 Parts Fax: 320-848-6055 E-mail: info@loftness.com Web Address: www.loftness.com

WARRANTY REGISTRATION

Dealer No.: _____
Dealer Name: _____ Dealer Phone: _____
Shipping Address: _____
Mailing Address: _____
City: _____ State: _____ Zip: _____
Invoice No.: _____ Part No.: _____
Model No.: _____ Serial No.: _____

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FOLLOWING INFORMATION MUST BE FILLED IN COMPLETELY FOR WARRANTY:

Customer:
Last Name: _____ First _____ Middle Initial _____

Mailing Address: _____

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City: _____ State: _____ Zip: _____

County: _____ Warranty (Delivered) Date

Phone: _____ Month _____ Day _____ Year _____

DEALER

The machine was properly set up, adjusted and inspected before delivery. The following items were explained to the purchaser.

- * How to operate machine properly as shown in the owner's manual.
- * The importance of safety precaution, safety equipment and preventative maintenance.
- * Loftness Warranty for this machine.

X

Dealer's Signature

Date

PURCHASER

I have received and reviewed the operator's manual for the above machine and understand the proper and safe operation as well as the applicable warranty outlined therein.

A customer's manual is included with each machine.

The unit was delivered to me in satisfactory condition.

X

Purchaser's Signature

Date

Customer Copy

LOFTNESS

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Hector, MN 55342 USA
loftness.com 320-848-6266
US & Canada 800-828-7624



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Mailing Address: _____

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City: _____ State: _____ Zip: _____

County: _____ Warranty (Delivered) Date

Phone: _____ Month _____ Day _____ Year _____

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- * The importance of safety precaution, safety equipment and preventative maintenance.
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Purchaser's Signature

Date

Loftness Copy

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Warranty

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Owner Information

Thank you for your decision to purchase a Timber Ax Skid-steer Mounted Tree Shredder from Loftness. It has been designed to provide years of profitable and dependable service. 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 Timber Ax is an effective, reliable machine used for maintaining grass, weeds, brush and trees. It efficiently cuts and mulches up to 6" diameter material with as little as 38 hydraulic horsepower, and intermittently cuts larger diameter material. The blades cut and pulverize the grass, weeds and brush. The shredder deposits cut material over the entire width-of-cut, which eliminates bunching or windrowing behind the machine.

The shredder rotor is equipped with two rows of stationary cutting knives, plus an adjustable cutter bar that restricts the feed rate of the material being shredded. The more powerful systems can use a wider opening to increase the feed rate.

The Timber Ax can be attached to any skid-steer with an auxiliary hydraulic system of 21-54 GPM, which has a standard universal skid-steer hitch

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.

Introduction

Serial Number Location



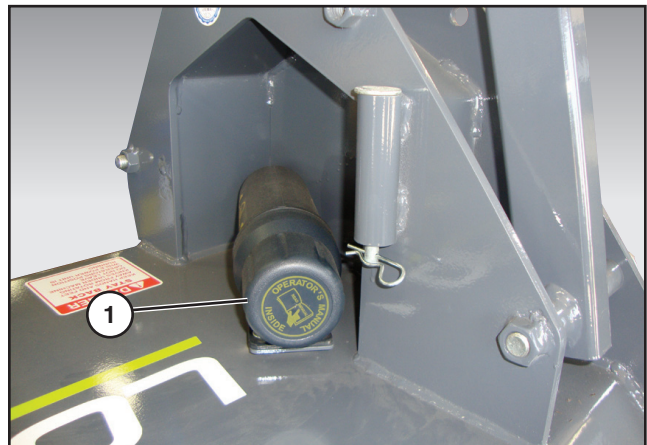
The arrow above indicates the location of the serial number tag.



The serial number is also stamped into the frame, on top of the hitch support.

Always use your model and serial number when requesting information or when ordering parts. Refer to the Ordering Code chart on page 4 to find your model number.

Manual Storage



Keep the owner's manual and the entire documentation packet in the storage compartment (1) provided on your Timber Ax. The owner's manual must be available for all operators.

Timber Ax Features

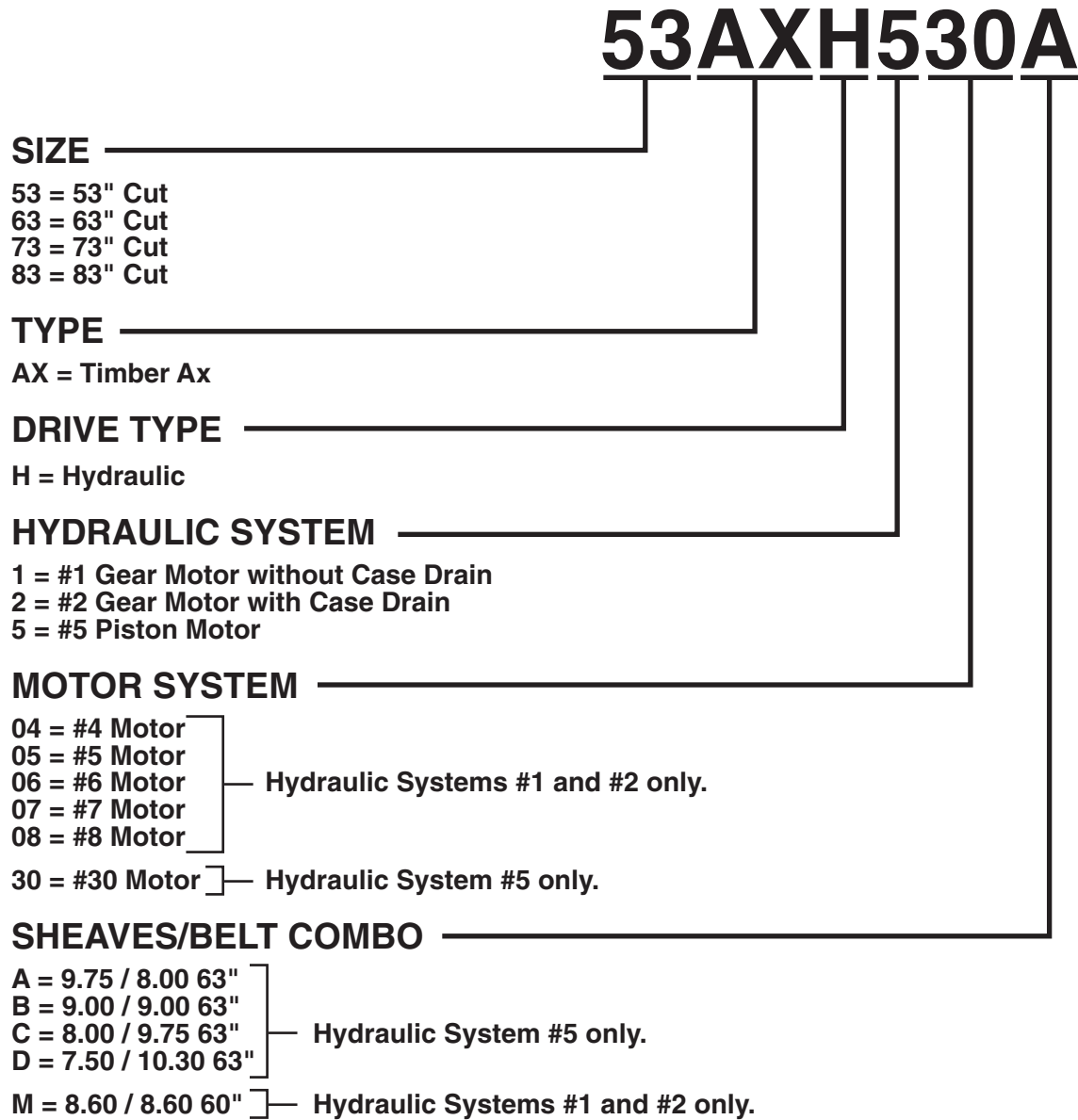
- Standard Front Skid-Steer Mount
- Motors Sized for 22-42 GPM
- High-Efficiency Gear-type Motor, or High pressure Piston-type Motor
- Dual Cross-over Relief Valve Protection
- Upward Rotor And Knife Rotation; Ridged, Pocket-style Knife Mounts
- Premium Strength Steel Body & Rotor
- Bearing Anti-wrap Protection
- 2-3/16 Inch Rotor Bearings
- External HD Bearing Block
- 3-Groove Banded Belt for Hydraulic Systems #1 and #2, 4-Groove Banded Belt for Hydraulic System #5
- Single Belt Drive
- Automatic Tension System
- Manual Adjust Pusher Bar
- Claw Hooks on Pusher for Positioning Material
- Adjustable Shear Bar
- Skid Shoes - Adjustable 1 to 3 inches
- Steel Deflector Chains
- Rubber-Mounted Pressure Gauge
- Hydraulic Hose Holder
- Knife Sharpening without Detachment

Introduction


Ordering Code

Timber Ax (Example)

The ordering code will consist of two number (machine size), two letters (body type), one letter (drive type), one number (hydraulic system), two numbers (motor number), and one letter (sheaves/belt combo). An example for a Timber Ax of this type would be shown below.



Safety First

	Safety Alert Symbol <p>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.</p>
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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.

	WARNING: IMPROPER OPERATION OF THIS MACHINE CAN CAUSE DEATH OR SERIOUS INJURY. BEFORE USING THIS MACHINE, MAKE CERTAIN THAT EVERY OPERATOR: <ul style="list-style-type: none">• Is instructed in safe and proper use of the machine.• Reads and understands the Manual(s) pertaining to the machine.• Reads and understands ALL Safety Decals on the machine.• Clears the area of other persons.• Learns and practices safe use of machine controls in a safe, clear area before operating this machine on a job site.
---	---

Owner's Responsibility

Because of the potential safety hazard to eyes from hydraulic leaks and/or flying debris, "**USE OF PROTECTIVE EYEWEAR IS ABSOLUTELY MANDATORY**" for operator and others in the work area.

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.

Flying debris can gather on the skid-steer 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.

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 and/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 6.

Safety Instructions

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 this manual carefully. Become thoroughly familiar with the controls and proper use of the machine. Insure that all operators know how to stop the unit by disengagement of the controls using the "Mandatory Shut-Down Procedure" on page 6.
- It is the owner's responsibility for communicating all information on the safe use and proper maintenance of this machine.
- Never allow children to operate equipment. Allow adults to operate the equipment only after receiving the proper instructions. Keep the area of operation clear of all unauthorized persons.
- Remove from area of operation all foreign objects such as sticks, wire, rocks, etc., that might become tangled in the rotor, causing damage to the machine or thrown from the attachment striking other objects.

- Never attempt to make any adjustments while the engine is running or the key is in the "ON" position of the skid-steer loader. Before leaving the operator's position, disengage power to the attachment and remove ignition key.
- Disengage hydraulic valve and place skid-steer controls in neutral or park before starting engine.

Safety Instructions for Operation and Maintenance

The following safety warnings are used here and on the Timber Ax. Become familiar with them before operating this machine.

CAUTION:

- Failure to follow safety, operating, and maintenance instructions could result in death or serious injury to the operator or bystanders, poor operation, or costly breakdown.
- Become familiar with and know how to use all safety devices and controls on the attachment before attempting to operate the unit. Know how to stop the unit before starting it.
- Do not start, operate, or work on this machine until you have carefully read and thoroughly understand the contents of this manual and the operator's manual for your loader.
- Keep children, spectators and other workers off and away from the machine while it is operating or engine is running. Do not carry passengers.
- Before inspecting, cleaning, lubricating, adjusting or servicing any part of the attachment, always exercise the "Mandatory Shut-Down Procedure" on page 6. After service has been performed, be sure to restore all guards, shields and covers to their original position.
- Read and observe all warnings decals on the machine before attempting to operate the attachment. Do not attempt to operate this machine 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.

Safety Instructions

- The operator must not use drugs or alcoholic drinks which would impair his alertness or coordination while working. An operator who is taking prescription drugs must get medical advice to determine if he can safely operate a machine.
- Before using the attachment on a new job site, check the rules and regulations at the location. The rules may include an employer's work safety requirements.
- Make sure all controls, (levers, pedals and switches), are in NEUTRAL position before starting the loader engine.
- To prevent serious personal injury from escaping high pressure fluid, never attempt to inspect, service or disassemble any part of the hydraulic system until all pressure has been relieved from the system. Do not use your hands to check for hydraulic leaks.
- Keep your feet on the pedals, (floor plates) seat belt fastened snugly and seat bar lowered, (if equipped), when operating the attachment.
- Never operate the attachment in a lifted position. Work only on the surface that the loader is standing on.
- Do not operate the attachment above the rated RPM.



DANGER:

- **DANGER:** Before leaving the operator's position for **ANY** reason or allowing anyone near the attachment, always exercise the following "Mandatory Shut-Down Procedure" on page 6.



WARNING:

- Keep all guards, shields and decals in place.
- Always repair or replace any damaged front guard chains.
- Keep hands, feet and clothing away from moving components.
- Do not wear loose or baggy clothing around rotating machinery. Machine must be clear of people, tools, and other objects before engaging hydraulic valve.
- Before working under any hydraulically controlled implement, be certain it is securely blocked!
- Because of the potential safety hazard to eyes from hydraulic leaks and/or flying debris, "USE OF PROTECTIVE EYEWEAR IS ABSOLUTELY MANDATORY" for operator and others in the work area.
- Always use an approved roll bar and seatbelt for safe operation. Overturning a loader without a roll bar and seatbelt can result in injury or death.
- Use the handholds and step plates when getting on and off the loader to prevent falls. Keep steps and platform cleared of mud and debris.
- Operate the attachment only from the operator's seat.

Safety Instructions

Operation Safety

Because this machine will be operated in a potentially hazardous environment, it is **ABSOLUTELY MANDATORY** that you read and follow these safety precautions.

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.
- 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 Timber Ax back while an assistant checks for clearance. Repeat this process in the other settings to determine which positions are usable with your power unit.
- Stay alert for hidden hazards or traffic. Do not carry passengers.
- Never operate the attachment without good light or visibility.
- After striking a foreign object, be sure to exercise the “Mandatory Shut-Down Procedure” on page 6. Thoroughly inspect the attachment for any damage before restarting and operating the machine.
- Repeated impact of knives with ground or hard objects can cause excessive wear and damage to the skid-steer or attachment. Be sure to maintain recommended ground clearance as specified in this manual.
- Should excessive vibration occur, disengage hydraulic valve immediately. Do not continue operation of the attachment until the problem has been detected and corrected. Be sure to exercise the “Mandatory Shut-Down Procedure” on page 6.
- Disengage power to the attachment when transporting or not in use.
- When transporting the attachment on the road at day or night, provide adequate warning to the operators of other vehicles.
- Never park on a steep incline.
- Do not leave equipment in raised position.
- **DO NOT** allow **ANY** people or animals within 300 feet of the work area while operating this machine.
- **THOROUGHLY** clear the work area of **ALL** foreign objects such as bottles, rocks, wire, etc. before starting the machine.
- **ALWAYS** operate the attachment level with the ground (front to rear).
- **NEVER** operate the attachment over 2 feet above the ground.

WARNING:

- Never operate the attachment without guards, shields, plates or other safety precaution devices in place. Shields are for your protection, please keep all shields in place.
- Always cut in an up and down direction on slopes. To avoid loss of control and to prevent overturn, never cut across the slope.
- Reduce speed when turning.
- Do not operate on extremely steep slopes.
- Before servicing or adjusting the attachment, or removing material from it, be sure to exercise the “Mandatory Shut-Down Procedure” on page 6.
- Be sure the rotor has stopped completely before checking knives.
- Be especially careful not to touch attachment parts which might be hot from operation. Allow such parts to cool before attempting to maintain, adjust, or service.

DANGER:

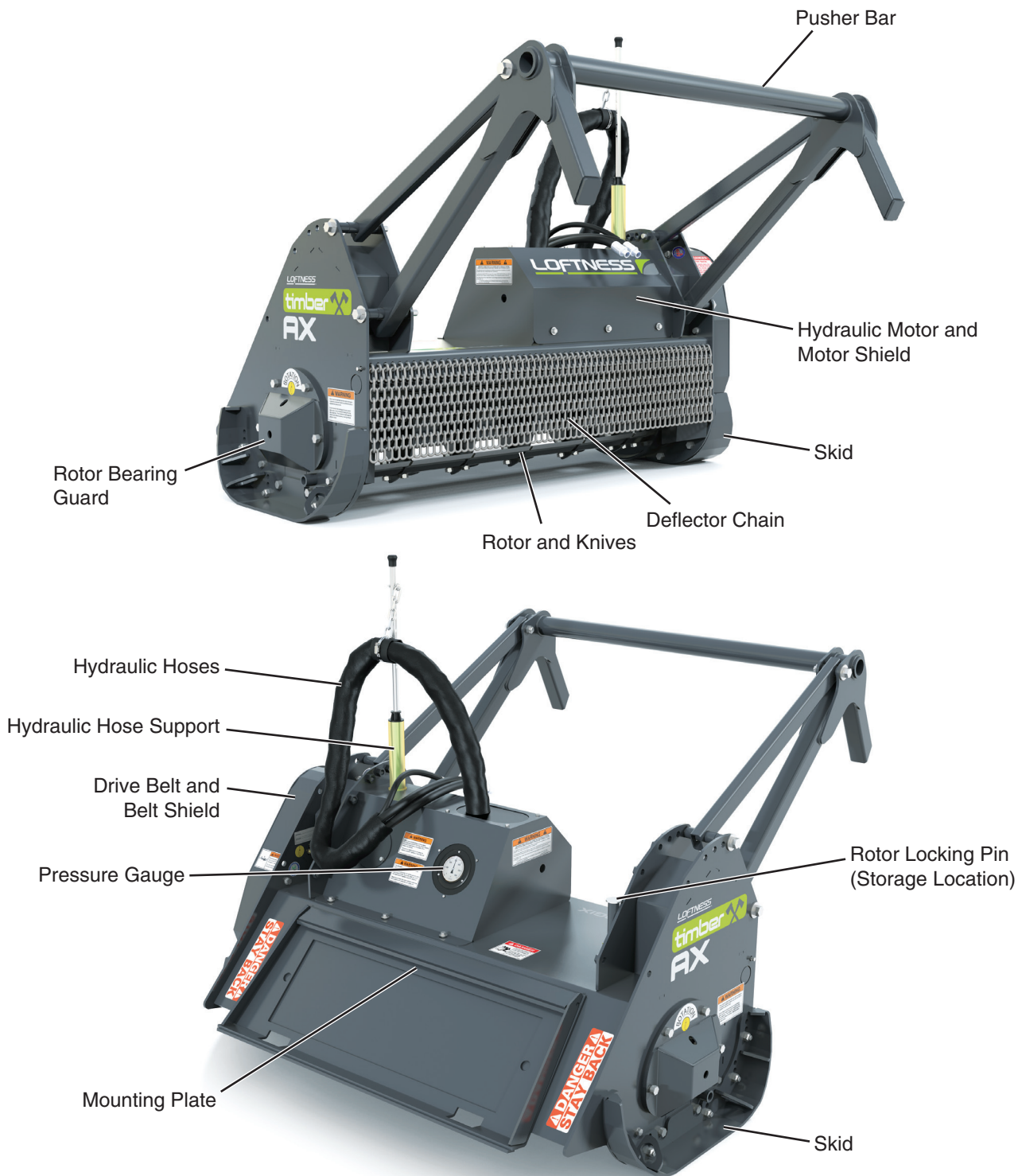
- Never get off skid-steer while it is in motion!
- Keep hands and feet out! Do not step on or climb over the unit while machine is in operation, or engine is running. Do not carry passengers.

Hydraulic Safety

- The hydraulic system is under high pressure. Make sure all lines and fittings are tight and in good condition. These fluids escaping under high pressure can have sufficient force to penetrate skin and cause serious injury.
- Never check for leaks by using any part of your body to feel for escaping fluid.
- When high pressure fluid escapes, it can be almost invisible, yet have enough pressure to penetrate the skin and enter the blood stream. Never attempt to use hands to search for suspected oil leak. If injured by escaping fluid, consult a doctor at once! Serious reaction or infection can occur if proper medical treatment is not obtained immediately.

Safety Instructions

Timber Ax Identification



Safety Decal Locations

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



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

⚠ 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

3

⚠ 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

4

⚠ WARNING ⚠

IMPROPER CONNECTION TO THE POWER UNIT'S HYDRAULIC SYSTEM COULD CAUSE SERIOUS COMPONENT DAMAGE AND PERSONAL INJURY.

This attachment can be configured with different components to operate on a variety of power units, with or without case drain connections.

It is absolutely **MANDATORY** that you refer to your **OPERATOR'S MANUAL** for Set-up Instructions and Pressure Ratings that apply to the components used on this unit.

The dealer/owner will be responsible for any damage caused by improper connection to the power unit.

For technical assistance call Loftness/US Attachments at 800-828-7624
International: 320-848-6266 www.loftness.com

Part No. N16454

5

⚠ DANGER



ALWAYS OPERATE CUTTER HEAD AS LOW AS POSSIBLE.

LIFTING OR TILTING BACK INCREASES THE RISK FROM FLYING DEBRIS.

N13863

Part No. N13863

Safety Instructions

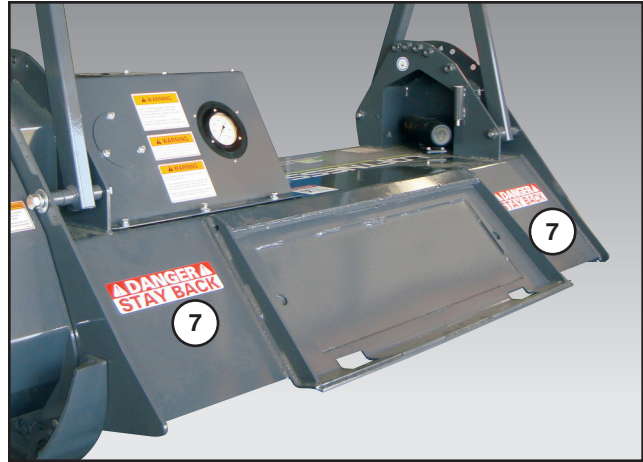
Safety Decal Locations (Cont'd)



6



Part No. N28386



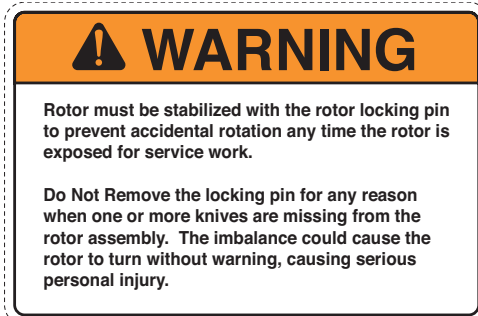
7



Part No. 4334



8



Part No. N16759

Safety Decal Locations (Cont'd)



9

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: IF YOU DO NOT HAVE AN OPERATOR'S MANUAL, CONTACT YOUR DEALER OR

**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.

Part No. 4256

10

WARNING

**Rotating parts hazard.
Can cause serious injuries or death.**

Do not operate machine without shields attached.

PN 4189

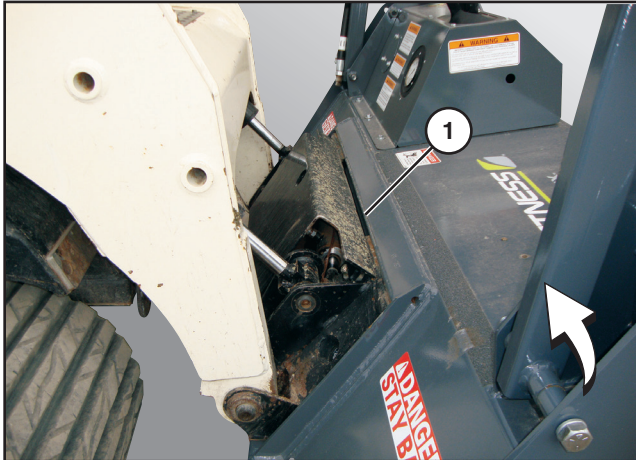
Part No. 4189



Set-up Instructions

Installing the Timber Ax to the Skid Loader

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

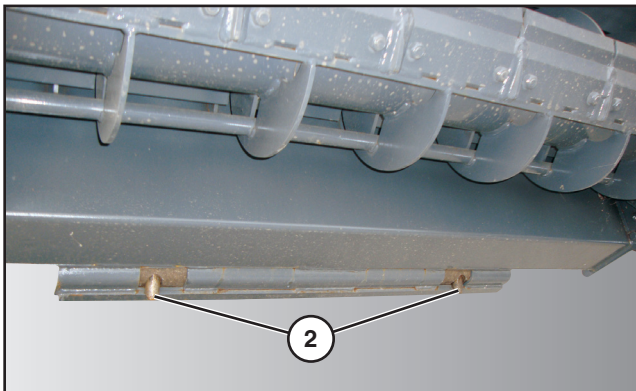


Tilt the loader mounting plate ahead. Drive forward with the loader and hook the top edge of the loader mounting plate under the top flange (1) on the Timber Ax mounting plate. Be careful not to damage the locking levers on the loader mounting plate.

Tilt the loader mounting plate back until the Timber Ax mounting plate is firmly against the loader mounting plate, but **DO NOT** lift the attachment off the ground.



WARNING: Before you leave the operator's seat: Lower the lift arms, put the attachment on the ground. Stop engine and remove ignition key. Engage the parking brake.

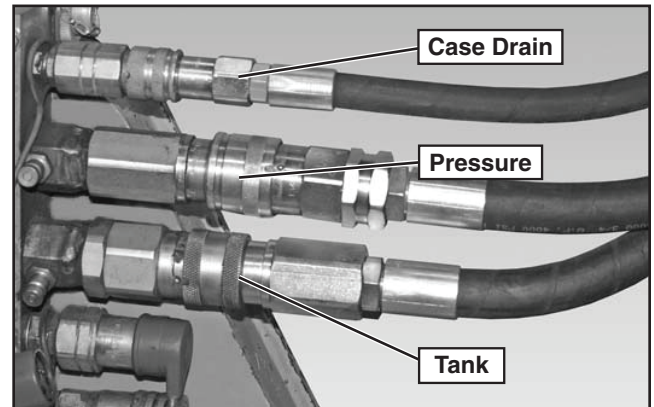


Locking-wedge pins (2) must extend through the holes in attachment-mounting plate.



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



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

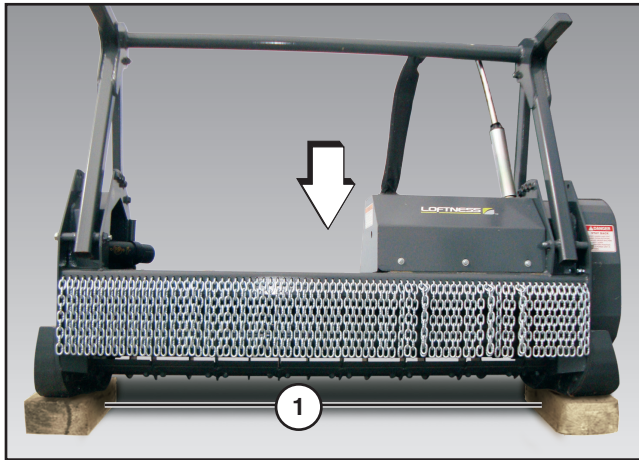
Install the Timber Ax quick couplers to the loader's hydraulic system.

NOTE: The case drain quick coupler of the Timber Ax must be connected to the loader's auxiliary hydraulic system for proper operation of the attachment.

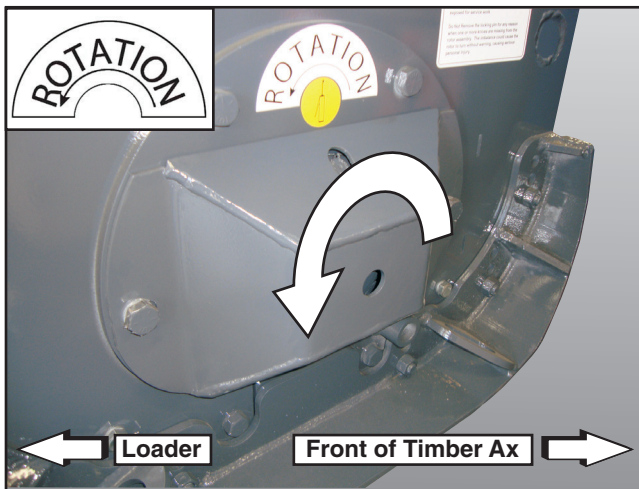
NOTE: Case drain not required for #1 Motor system.

Set-up Instructions

Checking Rotor Rotation



Raise the Timber Ax off the ground and place blocks (1) underneath the skids. Lower the Timber Ax down on the blocks.

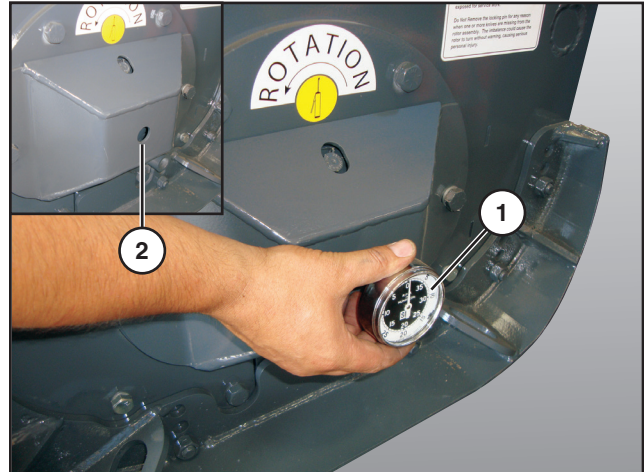


Engage the loader auxiliary hydraulics, the rotor should start rotating in a reverse direction. The rotation should be counterclockwise as viewed from the right side of the Timber Ax.

NOTE: If the rotor is rotating backward, reverse the quick couplers (not supplied) on the Timber Ax hydraulic hoses. Re-install the couplers (not supplied) on the loader and test for correct rotor rotation.

Checking Rotor Speed

NOTE: To order a Diagnostic Gauge Kit use # N16340.



NOTE: The electronic or mechanical tachometer shown above is not supplied with the Timber Ax.

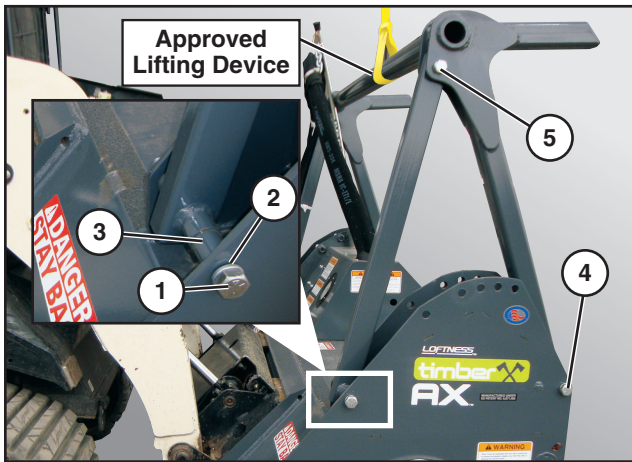
Use an electronic or mechanical tachometer (1) (access (2) thru the bearing guard) to check the rotor speed.

Test the rotor RPM with loader engine at full throttle.

See "Motor and Sheave Selection Chart" on pages 28, 29, and 30 for rotor RPM. If it is outside this recommended range, it may be necessary to disconnect the Timber Ax and test the hydraulic output of the loader with a flow meter to see if it corresponds with the factory specifications.

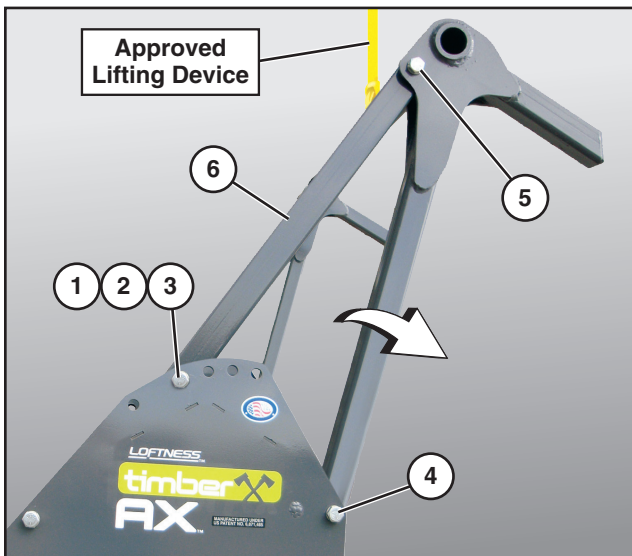
Set-up Instructions

Pusher Bar Adjustment



NOTE: Adjusting the pusher bar requires two people or the use of an approved lifting device to support the push bar as it is being adjusted.

Remove bolt (1), washer (2), and bushing (3) from the lower storage position. Loosen the two bolts (4 & 5) to allow the pusher bar to pivot forward. Repeat procedure on opposite side.

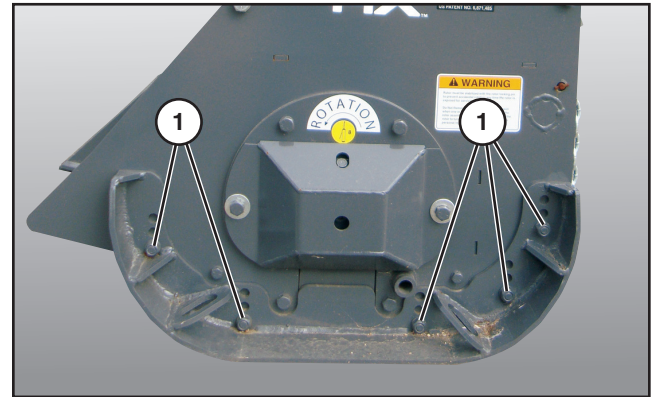


Move the pusher bar forward.

Align the rear arm (6) with the desired hole from the front as shown.

Install bushing (3), washer (2), and bolt (1) and tighten securely against the frame. Tighten bolts (4 & 5). Repeat procedure on opposite side.

Skid Adjustment




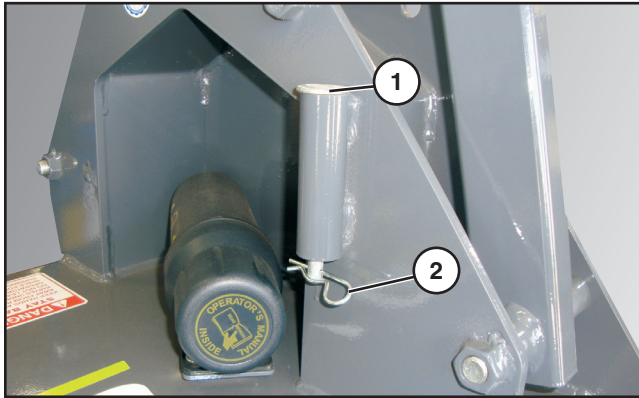
NOTE: The skid(s) can be adjusted to increase or decrease the distance between the ground and the rotor.

Remove the five nuts (1) and raise or lower the skid to the desired height. Re-install the five nuts and tighten securely against the skid.

Set-up Instructions

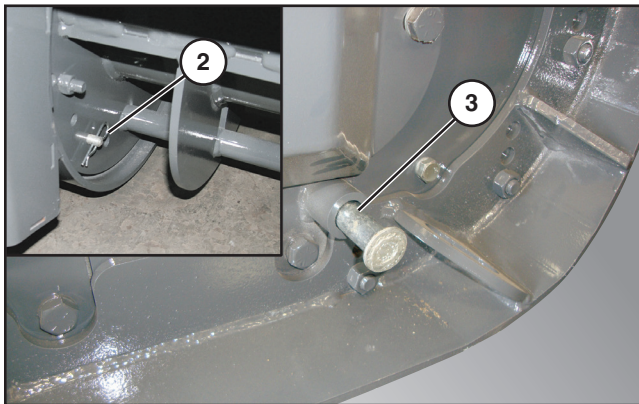
Rotor Locking Pin Installation

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




The rotor lock pin (1) with clip (2) is stored on the frame inside the right side arm.


Use the rotor lock pin to keep the rotor from spinning when performing any work or maintenance on the rotor or knives, or when transporting the Timber Ax.



Remove the rotor lock pin and clip from the storage position and insert pin into the locking hole (3) on right side of the unit. Push the pin in completely and secure with clip (2) from the inside the rotor as shown.

Return the pin to its storage position and secure with the clip before operating the Timber Ax, or when work or maintenance is finished.

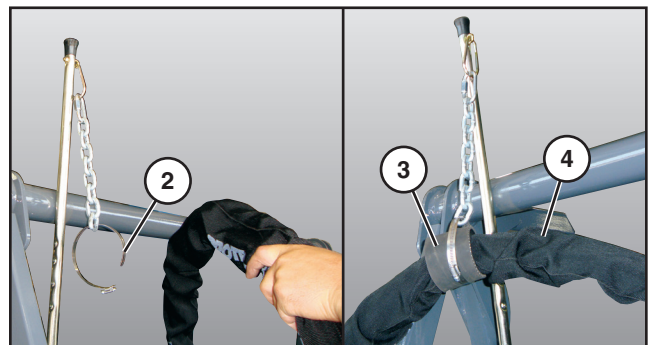
 **CAUTION:** Do not operate the Timber Ax with the locking pin inserted into the locking hole. Severe damage to the Timber Ax could occur.

 **WARNING:** Do not remove the locking pin for any reason when one or more knives are missing from the rotor assembly. The imbalance could cause the rotor to turn without warning causing serious personal injury.

Hose Holder Installation



Put threaded rod on end of hose holder (1) through the hole on top of the motor shield. Attach nut from the inside of the motor shield (remove hole cover on motor shield for access). Tighten with wrench.



Open hose clamp (2) on hose holder and remove rubber hose protector. Wrap rubber hose protector (3) around hose sleeve (4) and tighten hose clamp around hose protector as shown.

NOTE: Minimum slack in the hose should be maintained between the hose clamp and motor cover before tightening the clamp. This will allow the hose stick to move back and forth, but allowing the maximum hose length between clamp and skid loader.

Getting Started

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

Operate the Timber Ax as low to the ground as possible without the teeth striking ground or other obstructions. Because of the high speed of the teeth, the life of the teeth will be reduced if it is operated in rocky terrain or in areas where many obstacles are present. The Timber Ax deposits cut material over the entire width-of-cut, which eliminates bunching or windrowing behind the machine.



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 Timber Ax increases the risk of flying debris.



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



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



WARNING: Flying debris can gather on the skid-steer 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.



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

Operation



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

NOTE: Operate the Timber Ax as low to the ground as possible without the blades striking ground or other obstructions.



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



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

Lower the Timber Ax until the skids contact the ground. Engage the auxiliary hydraulics. Move the loader and Timber Ax forward and begin shredding.

NOTE: Various shredding conditions, and desired finished cut appearance, will determine proper ground speed. Heavy brush will require a forward stop and go movement to allow the Timber Ax to properly shred the brush.



General Maintenance

To ensure efficient operation, you should inspect, lubricate, and make necessary adjustments and repairs at regular intervals. Parts that are starting to show wear should be ordered ahead of time, before a costly breakdown occurs and you have to wait for replacement parts. Keep good maintenance records, and adequately clean your Timber Ax after each use.

When reassembling components, always use new lock nuts and a thread-locking compound to insure against vibration loosening. Use an anti-seize compound on all bearing/shaft contacts.

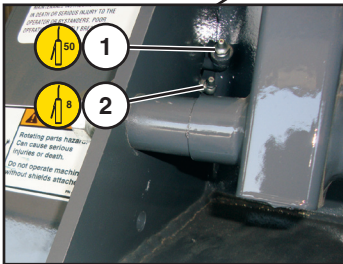
Proper lubrication is important. Too little lubricant will cause premature failure of a bearing. Too much lubrication usually causes high operating temperature and early failure of seals. Follow all lubrication instructions and schedules included in this section.

H O U R S	SERVICE POINTS	SERVICE REQUIRED					
		C H E C K	C L E A N	C H A N G E	G R E A S E	A D J U S T	O I L
Every 8	Machine		X				
	Loose Bolts					X	
	Hoses and Wiring	X					
	Oil Leaks	X					
	Rotor Bearing				X		
	Knives	X					
Every 50	Belt Tensioner				X		
	Pusher Bar (if equipped)				X		
Every 100	Belt Tension	X					
	Safety Labels	X					
	Drive Belt	X					
Every 500	Overhung Load Adapter	X					X

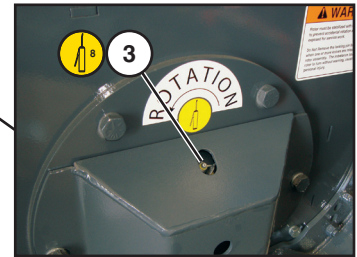
Maintenance

Lubrication

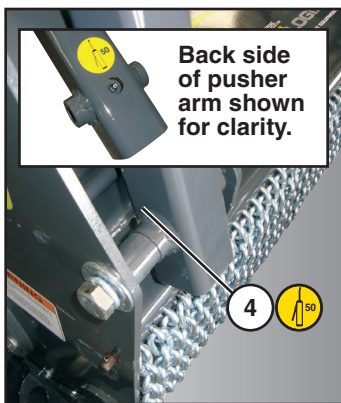
Grease Point Location



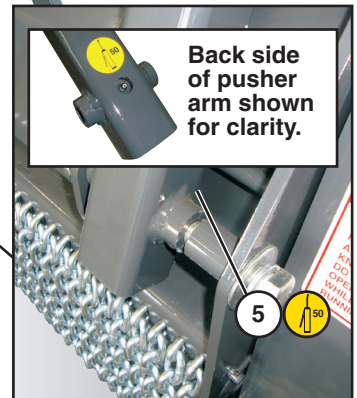
Belt Tensioner, left
Rotor Bearing, left



Rotor Bearing, right



Pusher Bar, right

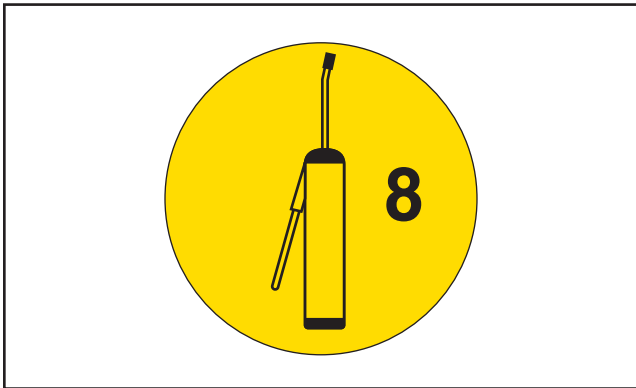


Pusher Bar, left

Grease Points Location (Cont'd)

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

NOTE: *Replace any broken or missing grease fittings. Be sure to clean fittings before greasing.*



NOTE: *Lubricate the grease point every "X" hours indicated on the decal adjacent to the grease point.*

Numbers below after "Location" correspond to grease point locations on opposite page.

See "Timber Ax Identification" on page 10 for component location and identification.

• Belt Tensioner Grease Fitting

Location: (1) - Left side of the Timber Ax, at the base of the rear push bar arm support, adjacent to the motor shield. Top fitting.

NOTE: *Remove the belt cover when lubricating the fitting. Visually inspect the idler pulley components while lubricating. Do Not over lubricate the idler tensioner shaft.*

NOTE: *Over-lubricating may be transferred to the belt, causing the belt to slip, resulting in loss of rotor RPM speed and loss of power to the rotor.*

Interval: Every 50 hours of operation.

• Rotor Bearings Grease Fittings

Location: (2) Left side: Left side of the Timber Ax, at the base of the rear push bar arm support, adjacent to the motor shield. Bottom fitting.

(3) Right side: Located on the right side of the Timber Ax, at the top of the bearing guard.

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

Interval: Daily or every 8 hours of operation.

• Pusher Bar Grease Fittings

Location: (4, 5) - Located on the lower end of the pusher arms on the front side of the Timber Ax, both left and right side. Grease fitting is located on the back side of each pusher arm (see detailed photo on opposite page).

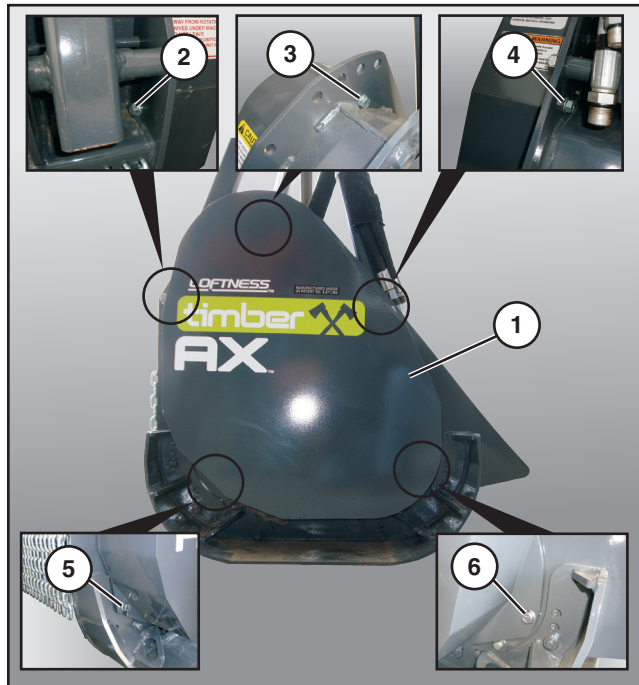
Interval: Every 50 hours of operation.

Overhung Load Adapter

NOTE: *If replacing bearings or seals in the overhung load adapter, be certain to refill with 6 oz. of hydraulic fluid after reassembly.*

Maintenance

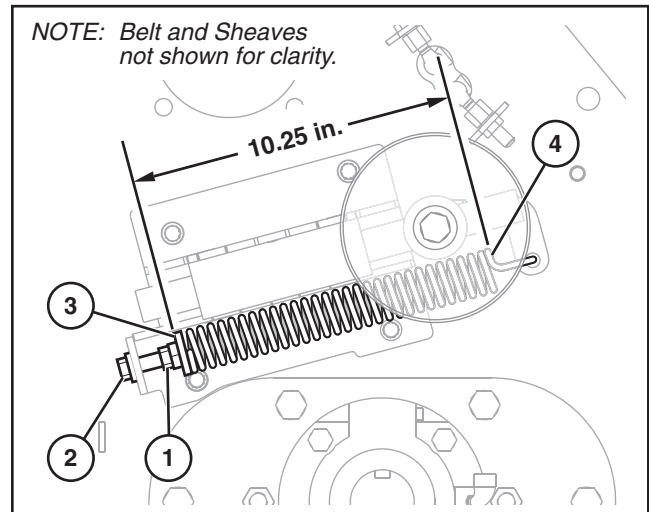
Belt Cover Removal



Remove the five bolts securing the drive belt cover (1)

NOTE: Two bolts (5, 6) are removed from the outside of the unit and three bolts (2, 3, 4) are removed from the inside of the frame.

Belt Adjustment



Loosen jam nut (1).

Turn adjustment bolt (2) clockwise to increase spring tension.

Turn adjustment bolt counterclockwise to decrease spring tension when replacing drive belt.

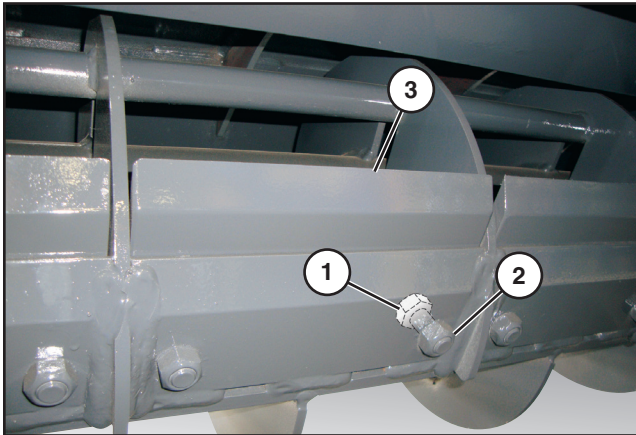
Remove the belt while belt tension is released.

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

Turn the adjustment bolt clockwise until the distance from the collar (3) to the end of the spring (4) is approximately 10-1/4". Tighten jam nut (1).

Knife Replacement

Insert rotor lock pin. Refer to “Rotor Locking Pin Installation” on page 18.



Remove the 5/8" bolts (1), lock nut (2), and knife (3).

When re-installing new knife, the bolt must be inserted through the knife mount from inside the rotor to allow the nut to be on the outside as shown above.

Apply a thread-locking compound to the nut and tighten to torque values listed in chart on “Torque Specifications” on page 65.

IMPORTANT: *If a knife is replaced, the knife on the opposite side of rotor must also be replaced to maintain the balance.*



CAUTION: *Do not operate the Timber Ax with a missing knife. The rotor will become out of balance when spinning and severe damage to the Timber Ax could occur.*

Knife Sharpening

The Timber Ax knives need to be kept sharp for the most effective operation. Sharpening intervals will vary based on usage and operator skill level. Daily inspection and touch up is recommended. Use a 7" to 9" diameter angle grinder for the most efficient method of sharpening knives on the machine.

As the condition of the knives deteriorates to the point where hand grinding is no longer adequate, consider replacing a complete set of knives with a spare set that have been resurfaced in a machine shop. This practice of rotating in a complete set of precision sharpened knives will help maintain the same balance and performance as a new machine.

NOTE: *Knives will only need to be discarded when they no longer extend beyond the divider ribs between the knife pockets.*

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



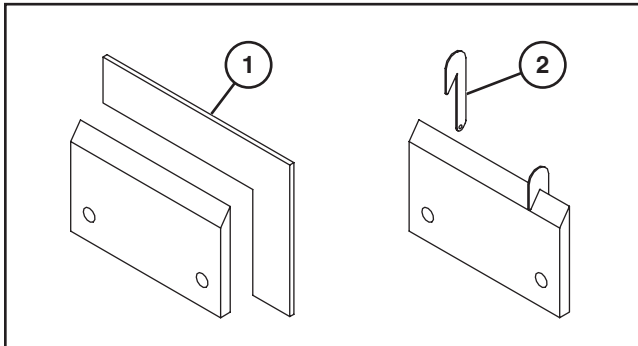
CAUTION: *Install the rotor locking pin before attempting to remove or sharpen the knives.*



WARNING: *Rotor must be stabilized with the locking pin to prevent accidental rotation any time the rotor is exposed for service work. Do not remove the locking pin for any reason when one or more knives are missing from the rotor assembly. The imbalance could cause the rotor to turn without warning causing serious personal injury.*

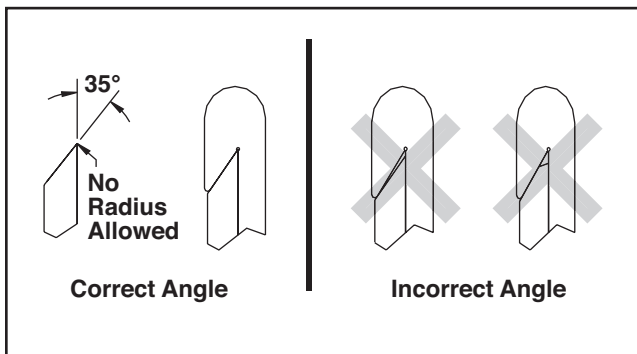
Maintenance

Knife Sharpening (Cont'd)



Check the cutting edge after sharpening with a square (1) to insure a continued straight cutting surface.

Use a knife angle gauge (2) to check for the proper angle.



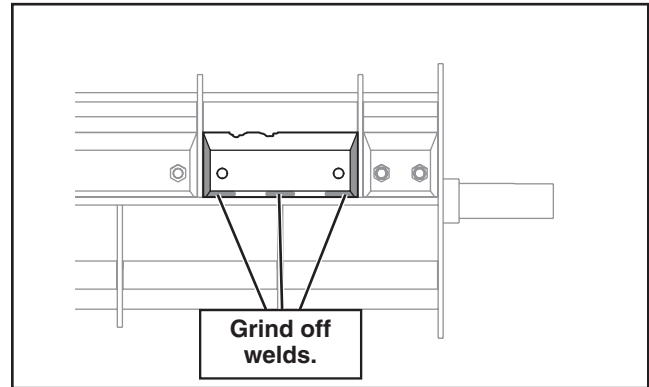
NOTE: Sharpen each knife equally to maintain rotor balance. Always return knife to its original location if it has been removed from the rotor for sharpening.

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

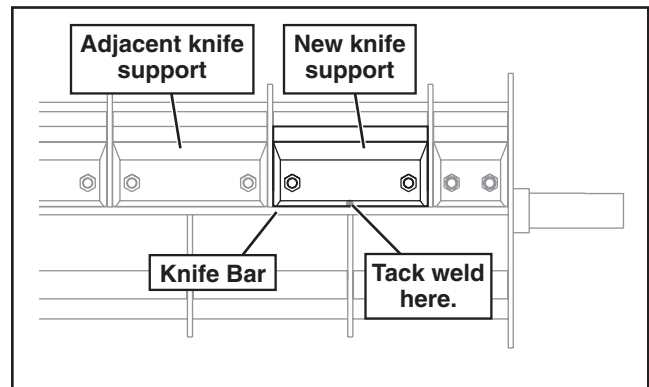
NOTE: When re-sharpening using a hand grinder, avoid overheating the knife by lightly grinding each knife, moving across the entire row of knives before returning to the first tooth to repeat the procedure.

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

Knife Support Replacement

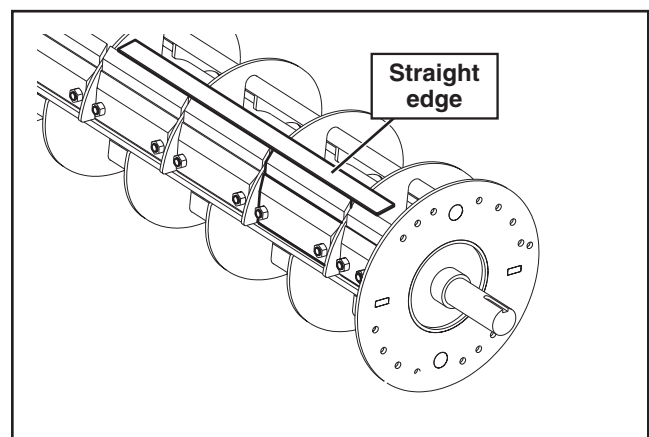


To remove broken knife support grind off all welds.



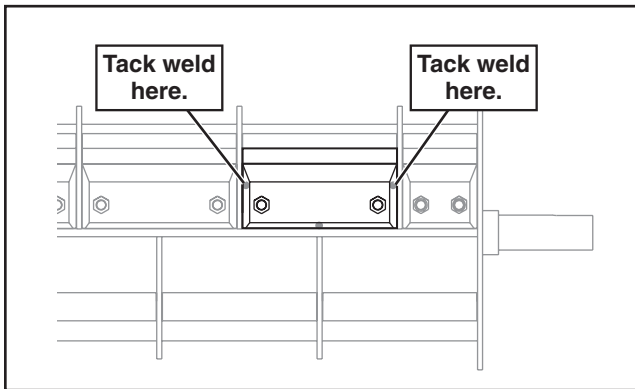
Attach knife to knife support, aligning the back edge of the replacement knife support with the adjacent knife support.

Tack weld the center of the knife support to the knife bar.

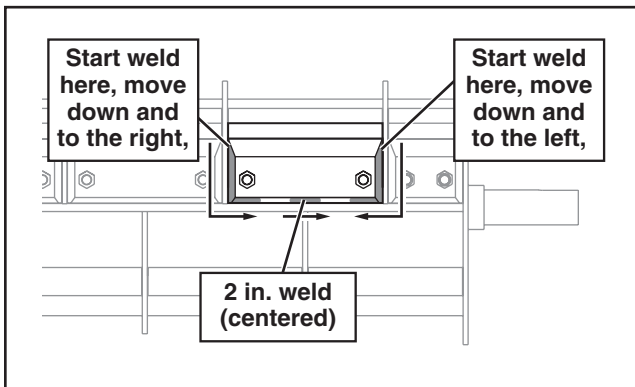


Hold a straight edge across the back edge of the knives to check that all knives are aligned.

Knife Support Replacement (Cont'd)



Tack weld the knife support in two places after aligning the knives.



Start welding at the top and weld downward around the corner as shown. To maintain rotor balance, make multiple welding passes to fill the beveled weld area to match the factory welds.

Finish with a 2 in. weld centered on knife support.

IMPORTANT: Rotor will need to be balanced after replacement of any knife supports.

Storage

End of Season

- Clean entire Timber Ax thoroughly.
- Clean belt and pulleys, relax the belt tension.
- Lubricate all parts of the machine. See “Lubrication” on page 22.
- Make a list of all worn or damaged parts and replace them.
- Paint all parts that are worn or rusted.
- Store Timber Ax in a clean, dry area.
- Review the Timber Ax operator’s manual.

Beginning of the Season

- Review the Timber Ax operator’s manual.
- Lubricate all parts of the machine. See “Lubrication” on page 22.
- Tighten all bolts, nuts, and set screws. See “Torque Specifications” on page 65.
- Adjust belt tension. See “Belt Adjustment” on page 24.
- Replace all damaged, worn or missing decals.
- Install the Timber Ax on a skid-steer and test for proper operation.



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

Maintenance

Motor and Sheave Selection Chart

Motor System #1 (Without Seal)

MOTOR SYSTEM #1 (without Seal)					
GPM	FIXED DISPLACEMENT MOTOR NUMBER	DISPLACEMENT	LOFTNESS PART NUMBER	ROTOR RPM	TOP SHEAVE (LOFTNESS NUMBER) BOTTOM SHEAVE (LOFTNESS NUMBER) BELT LENGTH (LOFTNESS NUMBER)
21	4	48cc (2.95ci)	N10910	1562	8.60 Top Sheave (N16134) 8.60 Bottom Sheave (N16134) 60" 3BX Belt (N15556) Model code "M"
22				1637	
23				1711	
24				1785	
25	5	56cc (3.44ci)	N10911	1595	8.60 Top Sheave (N16134) 8.60 Bottom Sheave (N16134) 60" 3BX Belt (N15556) Model code "M"
26				1659	
27				1722	
28				1786	
29	6	65cc (3.94ci)	N10912	1615	8.60 Top Sheave (N16134) 8.60 Bottom Sheave (N16134) 60" 3BX Belt (N15556) Model code "M"
30				1671	
31				1727	
32				1782	
33	7	73cc (4.46ci)	N10913	1624	8.60 Top Sheave (N16134) 8.60 Bottom Sheave (N16134) 60" 3BX Belt (N15556) Model code "M"
34				1673	
35				1722	
36				1771	
37				1821	
38	8	84cc (5.10ci)	N10914	1635	8.60 Top Sheave (N16134) 8.60 Bottom Sheave (N16134) 60" 3BX Belt (N15556) Model code "M"
39				1678	
40				1721	
41				1764	
42				1807	

Motor System #2 (With Seal)

MOTOR SYSTEM #2 (with Seal)					
GPM	FIXED DISPLACEMENT MOTOR NUMBER	DISPLACEMENT	LOFTNESS PART NUMBER	ROTOR RPM	TOP SHEAVE (LOFTNESS NUMBER) BOTTOM SHEAVE (LOFTNESS NUMBER) BELT LENGTH (LOFTNESS NUMBER)
21	4	48cc (2.95ci)	N20280	1562	8.60 Top Sheave (N16134) 8.60 Bottom Sheave (N16134) 60" 3BX Belt (N15556) Model code "M"
22				1637	
23				1711	
24				1785	
25	5	56cc (3.44ci)	N16455	1595	8.60 Top Sheave (N16134) 8.60 Bottom Sheave (N16134) 60" 3BX Belt (N15556) Model code "M"
26				1659	
27				1722	
28				1786	
29	6	65cc (3.94ci)	N16456	1615	8.60 Top Sheave (N16134) 8.60 Bottom Sheave (N16134) 60" 3BX Belt (N15556) Model code "M"
30				1671	
31				1727	
32				1782	
33	7	73cc (4.46ci)	N16457	1624	8.60 Top Sheave (N16134) 8.60 Bottom Sheave (N16134) 60" 3BX Belt (N15556) Model code "M"
34				1673	
35				1722	
36				1771	
37				1821	
38	8	84cc (5.10ci)	N16458	1635	8.60 Top Sheave (N16134) 8.60 Bottom Sheave (N16134) 60" 3BX Belt (N15556) Model code "M"
39				1678	
40				1721	
41				1764	
42				1807	

Maintenance

Motor System #5 (With Seal)

MOTOR SYSTEM #5 (with Seal)					
GPM	FIXED DISPLACEMENT MOTOR NUMBER	DISPLACEMENT	LOFTNESS PART NUMBER	ROTOR RPM	TOP SHEAVE (LOFTNESS NUMBER) BOTTOM SHEAVE (LOFTNESS NUMBER) BELT LENGTH (LOFTNESS NUMBER)
22	30	60cc (3.66ci)	N20840	1658	9.75 Top Sheave (N18974) 8.00 Bottom Sheave (N20809) 63" 4B5V Belt (N23204) Model code "A"
23				1733	
24				1809	
25				1884	
26	30	60cc (3.66ci)	N20840	1608	9.00 Top Sheave (N20806) 9.00 Bottom Sheave (N20806) 63" 4B5V Belt (N23204) Model code "B"
27				1669	
28				1731	
29				1793	
30				1855	
31				1917	
32	30	60cc (3.66ci)	N20840	1624	8.00 Top Sheave (N20809) 9.75 Bottom Sheave (N18974) 63" 4B5V Belt (N23204) Model code "C"
33				1674	
34				1725	
35				1776	
36				1826	
37				1877	
38	30	60cc (3.66ci)	N20840	1710	7.50 Top Sheave (N28104) 10.30 Bottom Sheave (N20811) 63" 4B5V Belt (N23204) Model code "D"
39				1756	
40				1801	
41				1846	

Troubleshooting

PROBLEM	POSSIBLE CAUSE	SOLUTION
Excessive Vibration	Broken or missing knife.	Replace knife.
	Mud and/or debris wrapped around the rotor.	Clean the machine.
	Bearing malfunction.	Check and replace faulty rotor and drive line bearings.
	Damage to rotor (includes bent end of shafts, missing balance weights, or actual rotor deformity from striking rocks, etc.)	Consult factory.
Uneven Cutting	Knives dull or worn excessively.	Sharpen or replace knives.
	Engine RPM too slow.	Adjust machine RPM to full throttle.
	Ground speed too fast.	Reduce ground speed and increase rotor speed.
Rotor Will Not Turn	Bearing malfunction.	Check and replace.
	Belt damaged.	Replace belt.
	Belt slipping.	Clean or replace belt. Adjust tension.

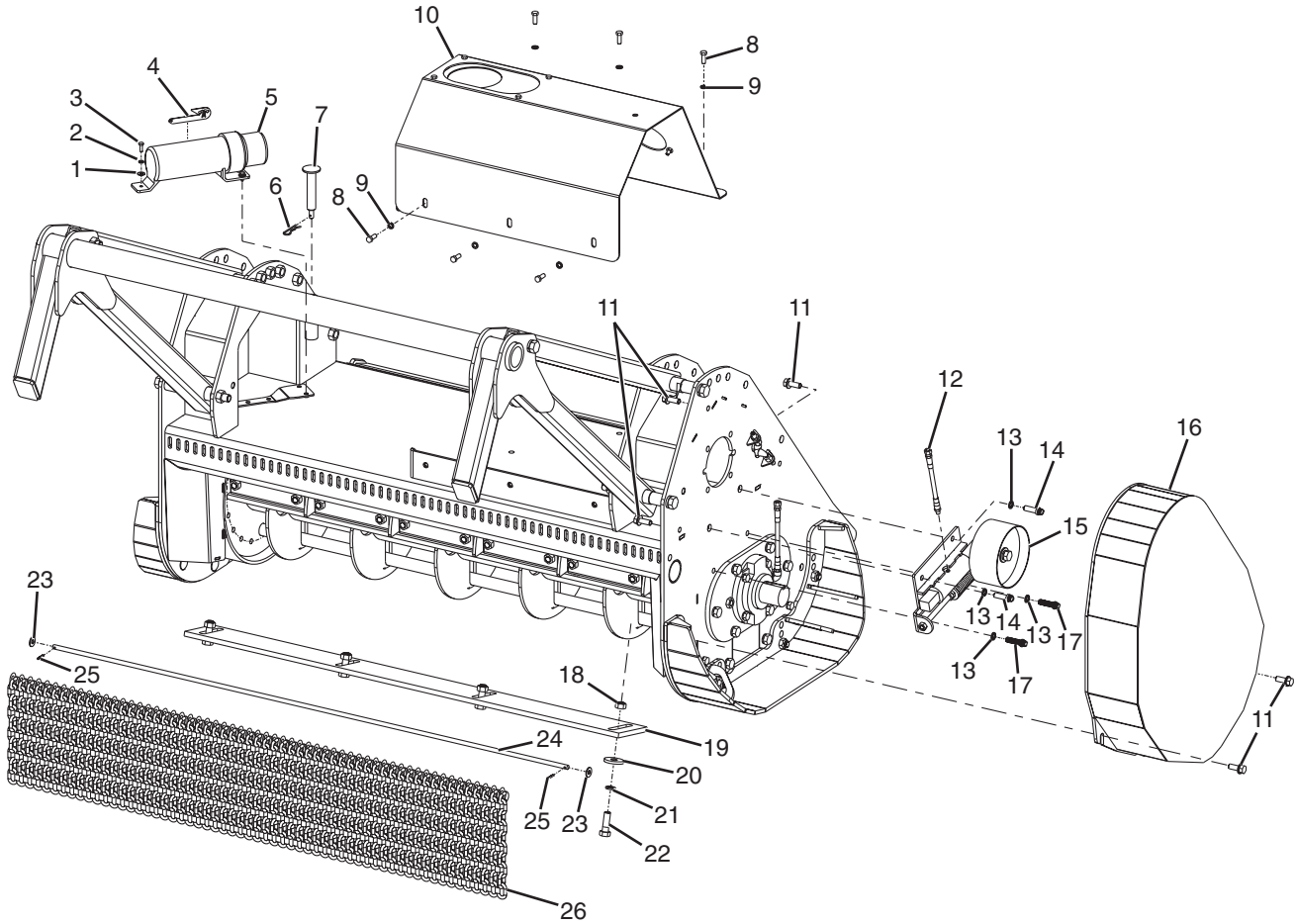




PARTS IDENTIFICATION

Parts Identification

Timber Ax, Body Assembly



#	QTY.	PART #	DESCRIPTION
1	3	4460	WASHER, FLAT 1/4"
2	3	4231	WASHER, LOCK 1/4"
3	3	4340	BOLT, 1/4" X 3/4" GRADE 5
4	1	N13996	GAUGE, ANGLE KNIFE TIMBER AX
5	1	N19600	HOLDER, 01-315A STND. MANUAL
6	1	4336	CLIP, HAIRPIN 1/8" X 2-1/4"
7	1	N16442	PIN, ROTOR LOCK
8	6	4195	BOLT, 3/8" X 1" GRADE 5
9	6	N16470	WASHER, 3/8 NORDLOCK
10	1	N32062	SHIELD, AXH MOTOR W/O GAUGES

Parts Identification

Timber Ax, Body Assembly (Cont'd)

#	QTY.	PART #	DESCRIPTION
11	5	N18360	BOLT, 1/2" X 1-1/4" SERATED FLANGE
12	2	4304	HOSE, 15' GREASE W/FITTINGS
13	4	N16472	WASHER, 1/2 NORDLOCK
14	2	N28502	BOLT, 1/2" X 1-1/2" GRADE 8
15	1	N32030	TENSIONER, BELT 4 BAND
16	1	N32036	COVER, TIMBER AX SHORT BELT
17	2	N31536	BOLT, 1/2 X 1-3/4 12 PT GRD8
18	4	4057	NUT, 5/8" FINE THREAD TOP LOCK
19	1	N13942	PLATE, 53" CUTTER
	1	N13898	PLATE, 63" CUTTER
	1	N13796	PLATE, 73" CUTTER
	1	N13922	PLATE, 83" CUTTER
20	4	4062	WASHER, 2" OD X 11/16" ID X 1/4T
21	4	N16473	WASHER, 5/8 NORDLOCK
22	4	4042	BOLT, 5/8" X 2" FN TH GR 8
23	2	4064	WASHER, FLAT 3/8"
24	1	N16216	ROD, CHAIN 53"
	1	N16215	ROD, CHAIN 63"
	1	N16018	ROD, CHAIN 73"
	1	N16214	ROD, CHAIN 83"
25	2	4375	PIN, ROLL 3/16" X 1"
26	59	N23194	CHAIN, 5/16 DEFLECTOR 10 LINK - 53"
	69	N23194	CHAIN, 5/16 DEFLECTOR 10 LINK - 63"
	79	N23194	CHAIN, 5/16 DEFLECTOR 10 LINK - 73"
	89	N23194	CHAIN, 5/16 DEFLECTOR 10 LINK - 83"

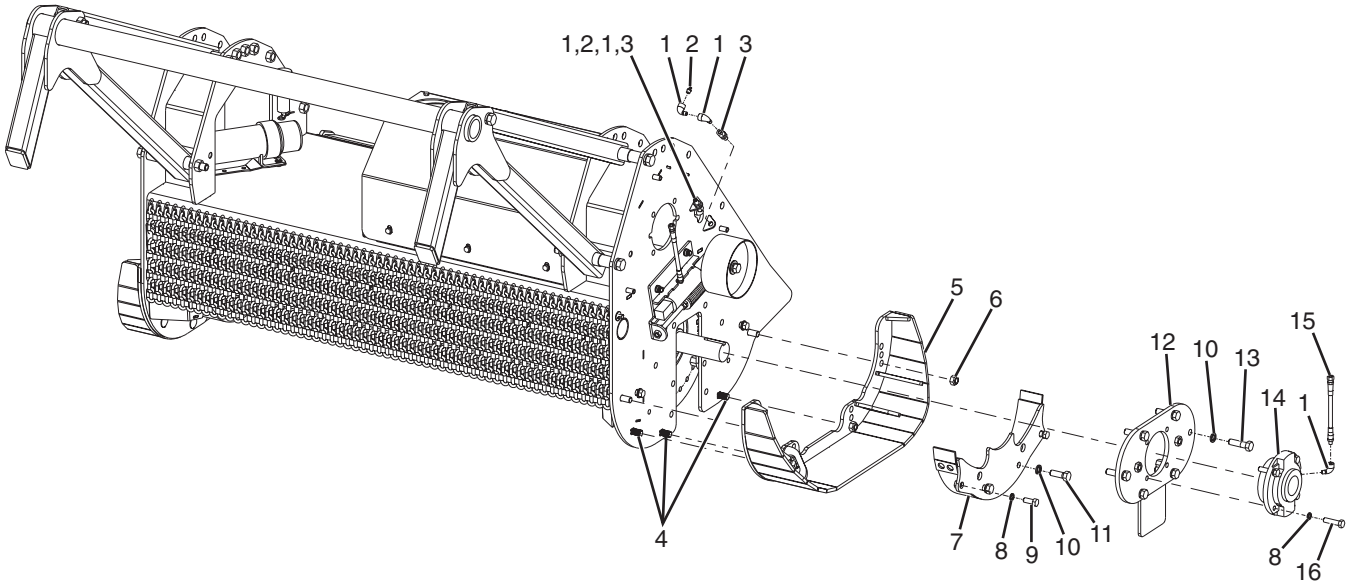
Parts Identification

Body, Right Side

#	QTY.	PART #	DESCRIPTION
1 Not a replacement part.	1	N32040	BODY, 53" TIMBER AX SHORT
	1	N31522	BODY, 63" TIMBER AX SHORT
	1	N31519	BODY, 73" TIMBER AX SHORT
	1	N31525	BODY, 83" TIMBER AX SHORT
2	1	N20542	SKID, RIGHT ADJ AXH 3" SHORT
3	5	4055	NUT, LOCK 5/8" TOP
4	3	4386	BOLT, CARRIAGE 5/8" X 1-1/2"
5	1	N13943	ROTOR, 53" W/KNIVES
	1	N13899	ROTOR, 63" W/KNIVES
	1	N13831	ROTOR, 73" W/KNIVES
	1	N13923	ROTOR, 83" W/KNIVES
6	1	N20525	ANTIWRAP, AXH SPLIT BOTTOM
7	6	N16472	WASHER, 1/2" NORDLOCK
8	2	4012	BOLT, 1/2" X 1 - 1/4" GRADE 5
9	8	N16473	WASHER, 5/8" NORDLOCK
10	2	N13747	BOLT, 5/8" X 1-3/4" GR 8 FN TH
11	1	N16445	BUSHING, 2-3/16 ID" X 2-3/4"OD
12	1	N16417	BEARING, 2-3/16" PILOT ROLLER
13	1	4085	PIN, ROLL 3/16" X 3/4"
14	1	4075	WASHER, 2-5/8" OD BEARING RETAINING
15	1	4076	WASHER, 1/2" EXT CNTSK LOCK
16	1	N20577	GUARD, AXH SHORT BEARING
17	6	4494	BOLT, 5/8" X 2-1/4" GRADE 8 FINE THREAD
18	1	4468	SCREW, 1/2"-20UNF X 1-1/4" FN TD FL HD CAP
19	4	N16475	BOLT, 1/2" X 2" FN TD GRADE 8
20	1	N20573	MOUNT, AXH SMALLER BEARING

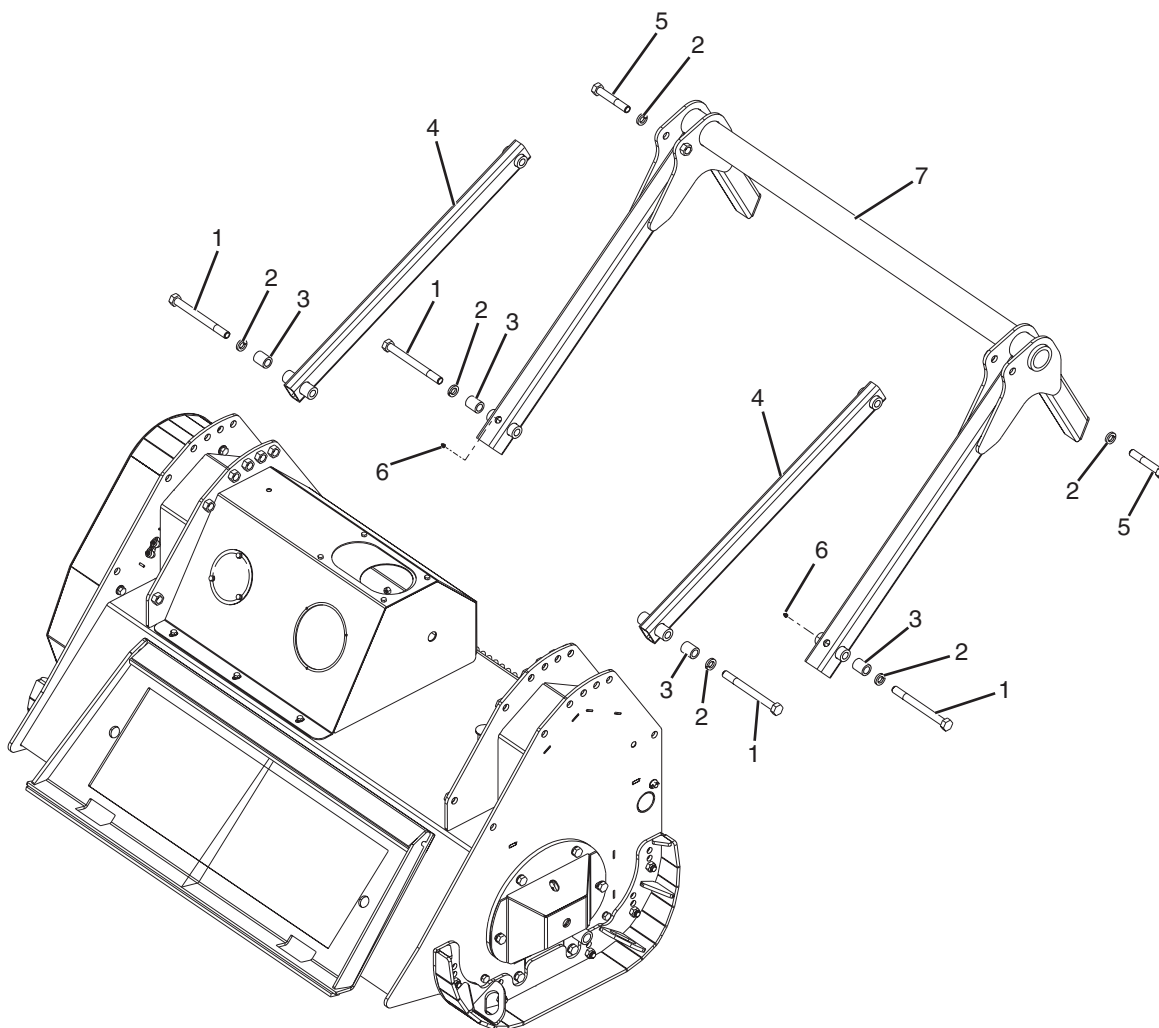
Parts Identification

Body, Left Side



#	QTY.	PART #	DESCRIPTION
1	5	4472	ELBOW, 1/8" 90 DEG.STREET
2	2	N17007	GREASE ZERK, 1/8" NPT
3	2	4304-10	BULKHEAD, FITTING-GREASE HOSE
4	3	4386	BOLT, CARRIAGE 5/8" X 1-1/2"
5	1	N32035	SKID, LEFT ADJ AXH 3" SHORT
6	5	4055	NUT, LOCK 5/8" TOP
7	1	N20525	ANTIWRAP, AXH SPLIT BOTTOM
8	6	N16472	WASHER, 1/2 NORDLOCK
9	2	4012	BOLT, 1/2" X 1 - 1/4" GRADE 5
10	8	N16473	WASHER, 5/8 NORDLOCK
11	2	N13747	BOLT, 5/8" X 1-3/4" GR 8 FN TH
12	1	N32041	MOUNT, AXH SMALLER BEARING
13	6	4494	BOLT, 5/8" X 2-1/4" GRADE 8 FINE THREAD
14	1	N16417	BEARING, 2-3/16" PILOT ROLLER
15	1	4304	HOSE, 15' GREASE W/FITTINGS
16	4	N16475	BOLT, 1/2" X 2" FN TD GRADE 8

Pusher Bar



#	QTY.	PART #	DESCRIPTION
1	4	4960	BOLT, 3/4" X 8" GRADE 5
2	6	4287	WASHER, 3/4" LOCK
3	4	N20414	BUSHING, AXH PUSHER SPACER
4	2	N19048	ARM, CARBIDE PUSHER MECHANICAL
5	2	4244	BOLT, 3/4" X 4-1/2" GRADE 5
6	2	4105	GREASE-ZERK, 1/4" SCREW-IN
7	1	N21094	PUSHER, 51" CARBIDE AND TIMBER AX
	1	N20100	PUSHER, 61" CARBIDE AND TIMBER AX
	1	N20167	PUSHER, 71" CARBIDE AND TIMBER AX
	1	N20169	PUSHER, 81" CARBIDE AND TIMBER AX

Parts Identification

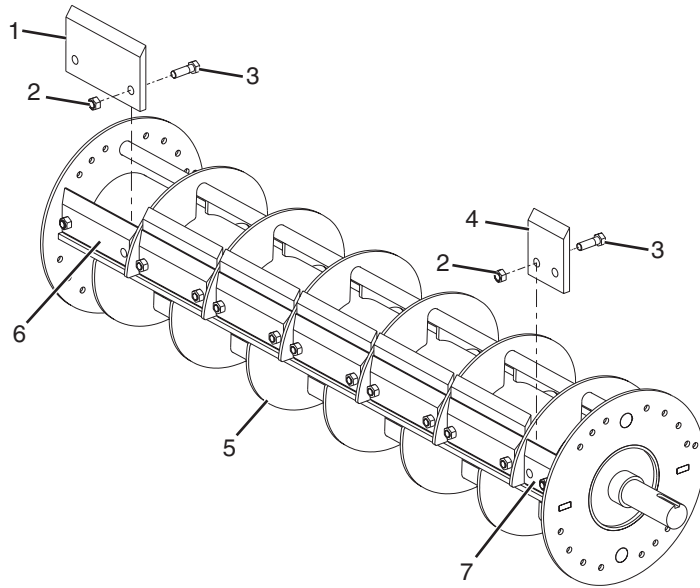
Rotor, with Knives

To order a complete 53" rotor alloy knife kit (Items 1, 2, 3, 4), use part number N15920.

To order a complete 63" rotor alloy knife kit (Items 1, 2, 3, 4), use part number N15921.

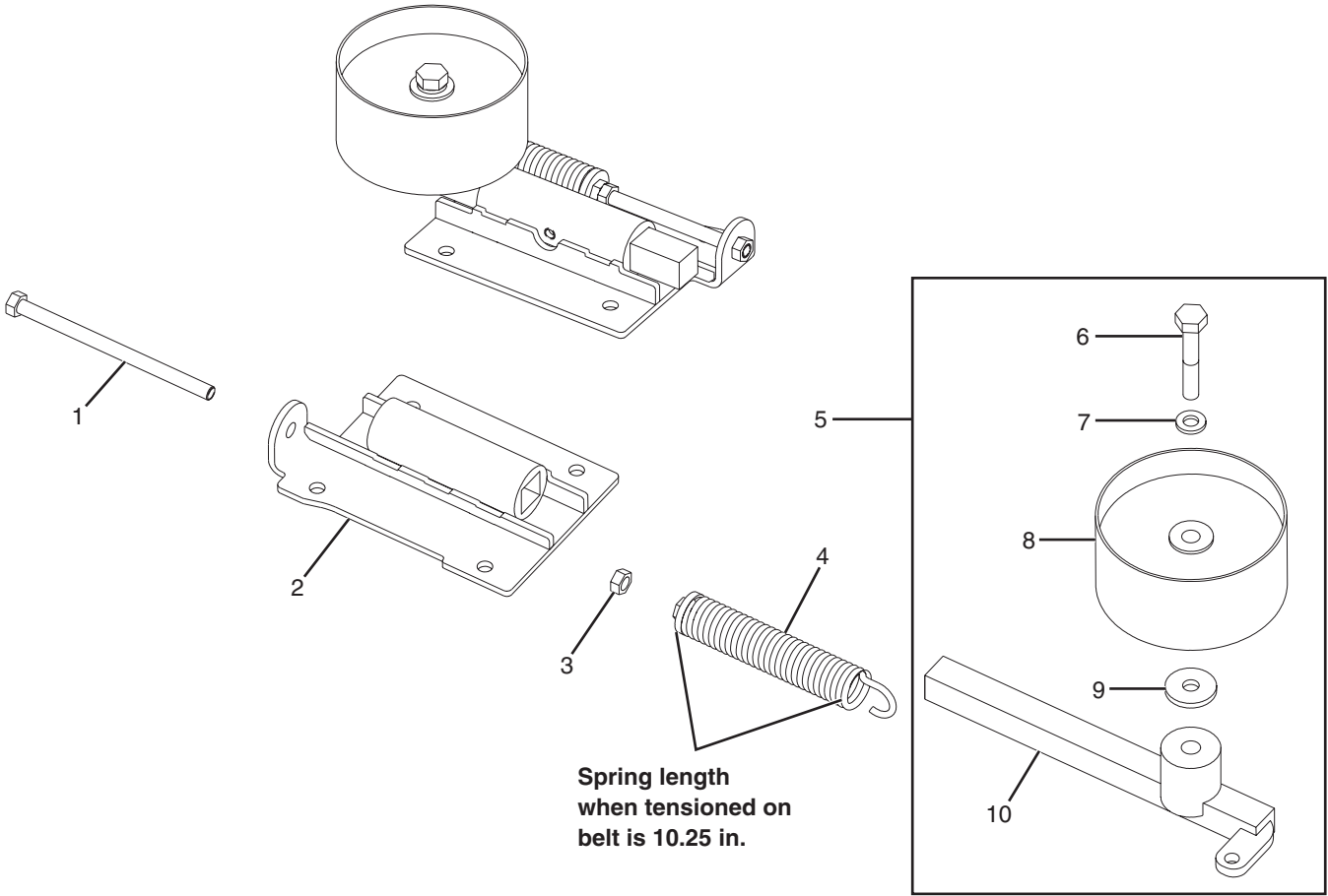
To order a complete 73" rotor alloy knife kit (Items 1, 2, 3, 4), use part number N15922.

To order a complete 83" rotor alloy knife kit (Items 1, 2, 3, 4), use part number N15923.



#	QTY.	PART #	DESCRIPTION
1	10	N17037	KNIFE, 9-5/8" X 5/8" ALLOY MAT (53")
	12	N17037	(63")
	14	N17037	(73")
	16	N17037	(83")
2	24	4057	NUT, 5/8" FINE THREAD TOP LOCK (53")
	28	4057	(63")
	32	4057	(73")
	36	4057	(83")
3	24	4042	BOLT, 5/8" X 2" FINE THRD. GR. 8 (53")
	28	4042	(63")
	32	4042	(73")
	36	4042	(83")
4	2	N17038	KNIFE, 4-5/8" X 5/8" ALLOY MAT
5	1	N13944	ROTOR, 53" W/O KNIVES
	1	N13900	ROTOR, 63" W/O KNIVES
	1	N13832	ROTOR, 73" W/O KNIVES
	1	N13924	ROTOR, 83" W/O KNIVES
6	1	N13828	SUPPORT, 10" KNIFE (SERVICE PART)
7	1	N13829	SUPPORT, SHORT KNIFE (SERVICE PART)

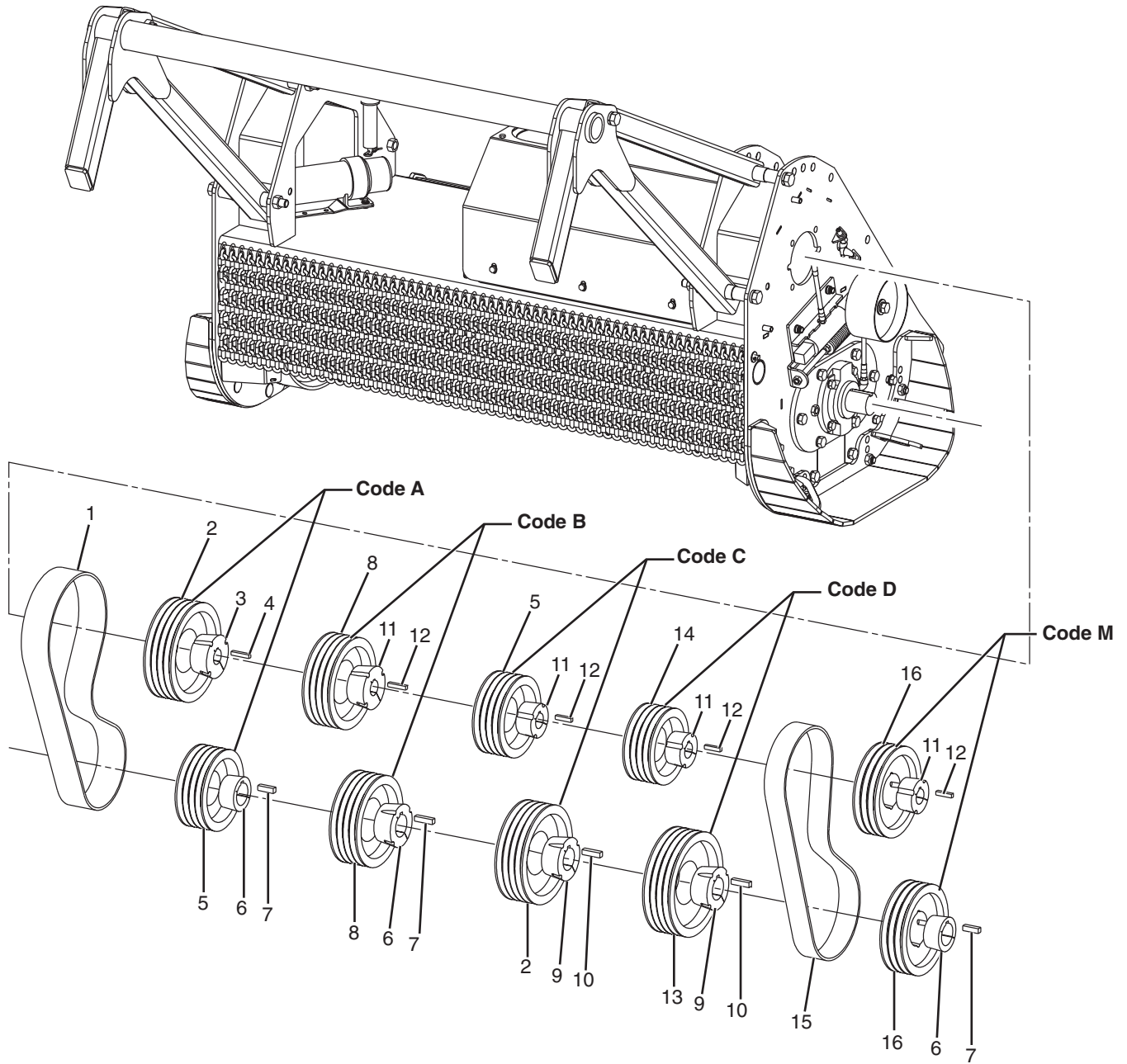
Belt Tensioner (N32030)



#	QTY.	PART #	DESCRIPTION
1	1	N24596	ROD, THREADED 1/2 X 7.66 W/NUT
2	1	N32029	BASE, BELT TIGHT SQ SLIDE
3	1	4250	NUT, STANDARD 1/2"
4	1	N24211	SPRING, BELT TIGHTENER
5	1	N32032	SLIDE, BELT TIGHT SQ ASSY CCH
6	1	N31827	BOLT, 5/8" X 2-3/4" GRADE 8
7	1	N16473	WASHER, 5/8 NORDLOCK
8	1	N10508	PULLEY, IDLER BELT 6-1/2" OD X 5/8" BORE
9	VARIES	N28269	WASHER, HARDENED 5/8 1-3/4OD
10	1	N32031	SLIDE, WLDMNT CCH SQ BELT TENSN

Parts Identification

Motor and Sheave Options

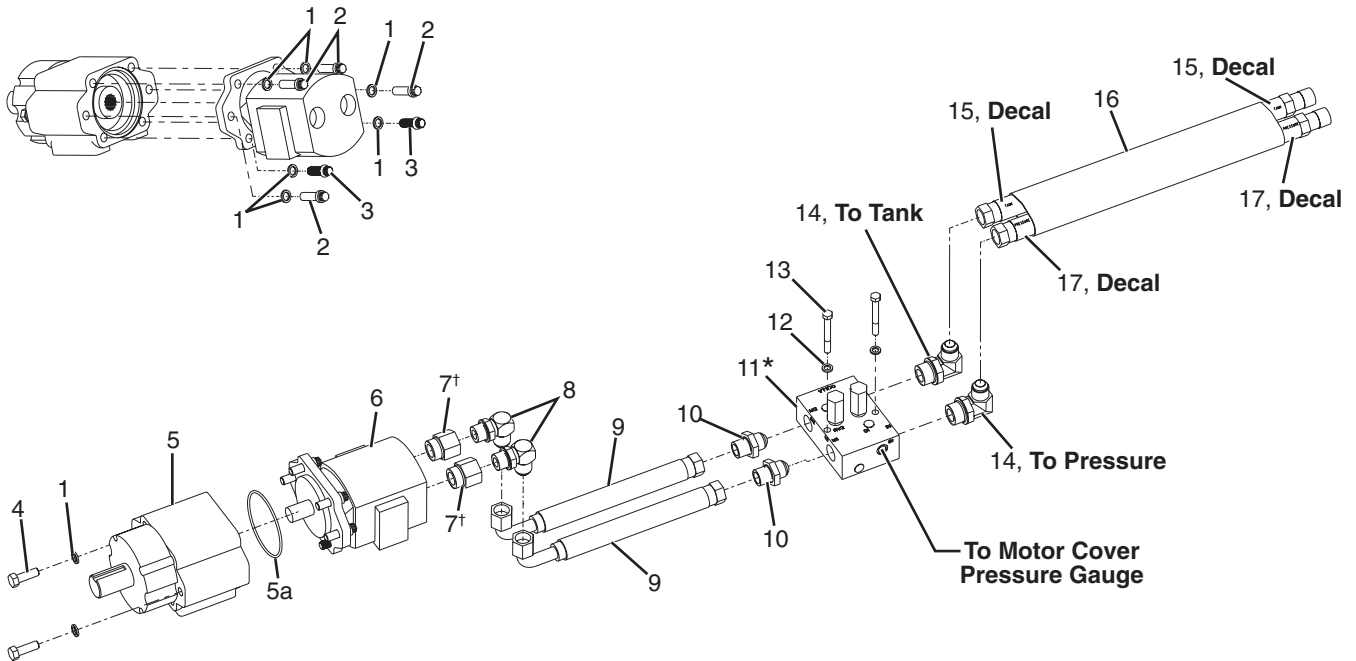


Motor and Sheave Options

#	QTY.	PART #	DESCRIPTION
1	1	N23204	BELT, 4/5VX 63 GOODYEAR
2	2	N18974	SHEAVE, 4/5V X 9.75 DIA
3	1	N20805	BUSHING, 1-1/2" TPL 3020
4	1	7121-03	KEY, 3/8" X 2 "
5	2	N20809	SHEAVE, 4/5V X 8.0 DIA
6	3	8165	BUSHING, 2-3/16" TPL. DOD. 117715
7	3	N27290	KEY, 1/2" X 1-3/4" EXTRA HARDENED
8	2	N20806	SHEAVE, 4/5V X 9.00 DIA
9	2	N18975	BUSHING, 2-3/16" TPL 1/2" KEY 117121
10	2	7122-04	KEY, 1/2" X 2 "
11	4	8126	BUSHING, 1-1/2" TAPERLOCK KEYED
12	4	7121-02	KEY , 3/8" X 1-3/4"
13	1	N20811	SHEAVE, 4/5V X 10.30-3020
14	1	N28104	SHEAVE, 4/5V X 7.5-2517
15	1	N15556	BELT, 3/ BX 60 GOODYEAR
16	2	N16134	SHEAVE, 3B X 8.6" PD TAPERLOCK

Parts Identification

System #1 Motor Assembly, #105 Open - No Case Drain

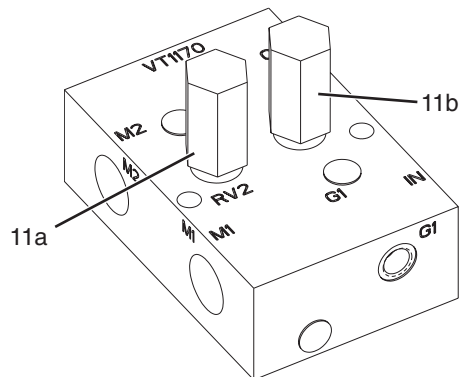


NOTE: The overhung load adapter is equipped with a special “high pressure mechanical seal”, eliminating the need for a case drain. Send the complete adapter back to the factory for all repairs.

These motors do not use a shaft seal

† Item 7 adapters are only used for motor part numbers N10913 and N10914.

* Item 11 (N13862) parts breakdown.



NOTE: Relief valve seal kit available (not shown). See parts list for part number.

Parts Identification

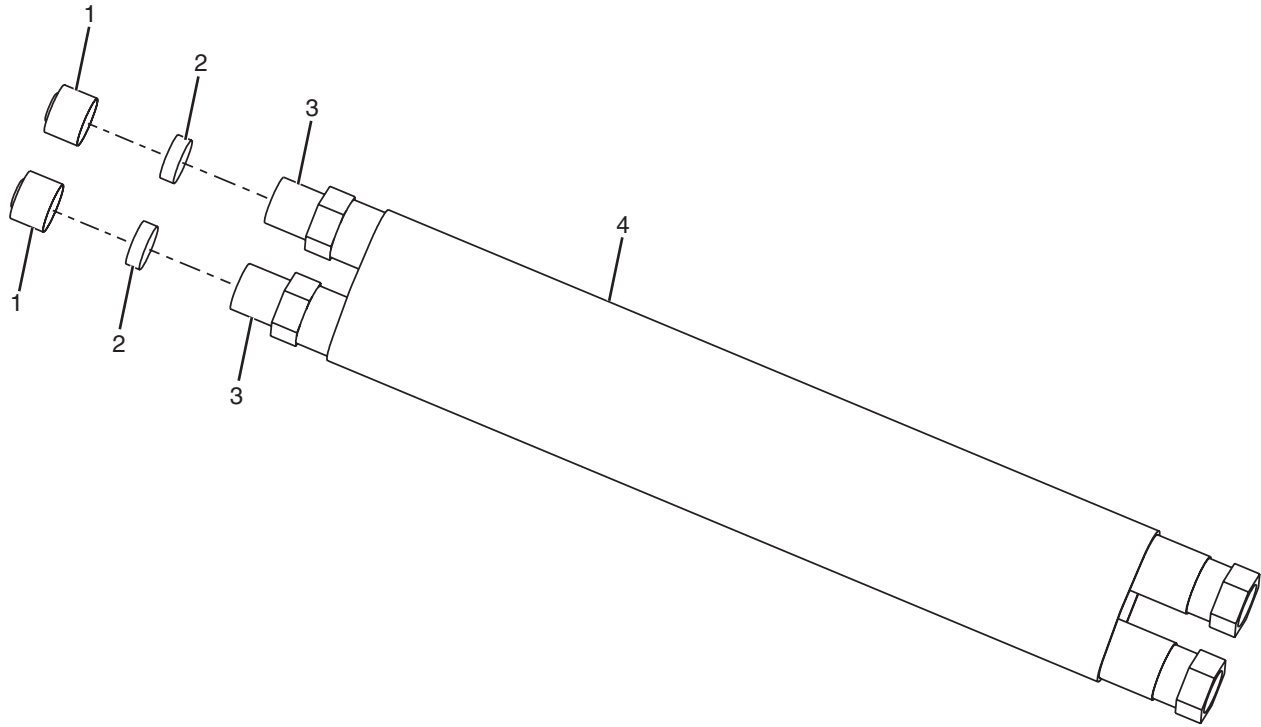
System #1 Motor Assembly, #105 Open - No Case Drain

#	QTY.	PART #	DESCRIPTION
1	8	N16472	WASHER, 1/2 NORDLOCK
2	4	N28502	BOLT, 1/2" X 1-1/2" GRADE 8
3	2	N31534	BOLT, 1/2 X 1-1/4 12 PT GRD8
4	2	4013	BOLT, 1/2" X 1-1/2" GRADE 5
5	1	N10533	ADAPTER, OVERHUNG LOAD MOTOR
5a	1	N32072	O-RING, #243 OHNG LD ADAPTOR (INCLUDED W/N10533)
6	1	N10910	MOTOR, COMMERCIAL #4 21-24GPM
	1	N10911	MOTOR, COMMERCIAL #5 25-28GPM
	1	N10912	MOTOR, COMMERCIAL #6 29-32GPM
	1	N10913	MOTOR, COMMERCIAL #7 33-37GPM
	1	N10914	MOTOR, COMMERCIAL #8 38-42GPM
7†	2	N11694	ADAPTER, 16MOR - 12FOR
8	2	N11945	ELBOW, 90 DEG1-1/16M O-RING TO 1-1/16 JIC
9	2	N13871	HOSE, 3/4" X 44"-12FJX90-12FJX
10	2	N13881	ADAPTER, 16MOR - 12MJIC
11	1	N13862	BODY, VALVE CROSS PORT RELIEF
-	1	N17035	KIT, RELIEF VALVE SEAL (NOT SHOWN)
11a	1	N13877	VALVE, RELIEF 500 PSI (INCLUDED WITH N13862)
11b	1	N13878	VALVE, RELIEF 3400 PSI (INCLUDED WITH N13862)
12	2	N16470	WASHER, 3/8 NORDLOCK
13	2	4007	BOLT, 3/8" X 3" GRADE 5
14	2	N13876	ELBOW, 90 DEG - 16MOR - 12MJIC
15	2	N24823	DECAL, TANK
16	1	N31529	KIT, AX SLEEVED HOSE NO CASE DRAIN
17	2	N24822	DECAL, PRESSURE

† Item 7 adapters are only used for motor part numbers N10913 and N10914.

Parts Identification

Kit, Sleeved Hose (N31529)

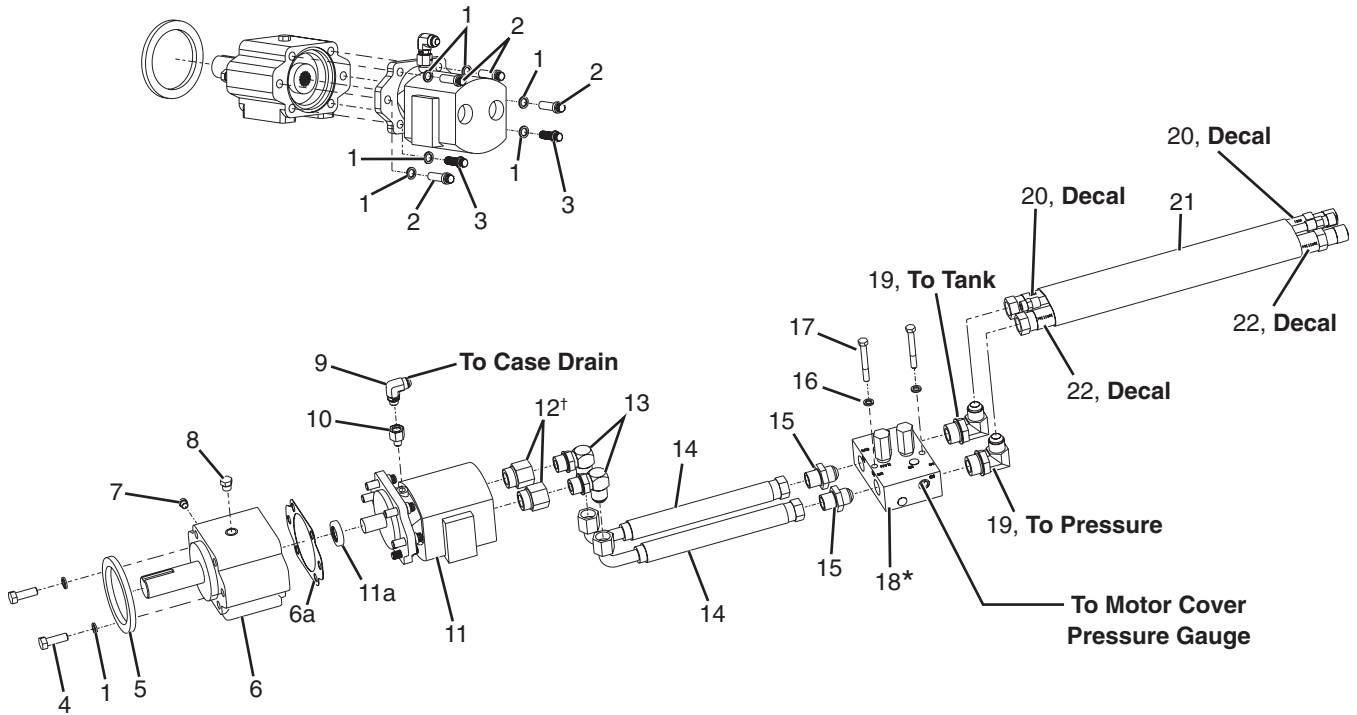


#	QTY.	PART #	DESCRIPTION
1	2	N15893	CAP, 3/4 ALUMINUM HOSE
2	2	N32001	PLUG, 1.00 X .3125
3	2	N15944	HOSE, 3/4" X 102" - 12FJIC-12MOR
4	1	N15999	SLEEVE, HOSE 4.75 X 7' 6"

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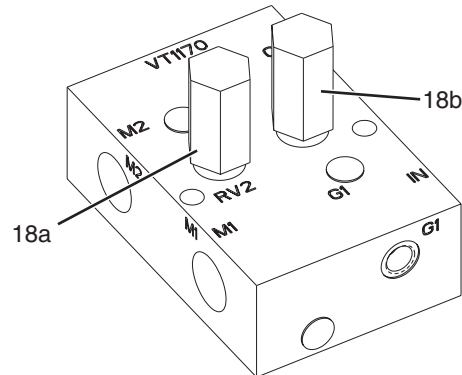
Parts Identification

System #2 Motor Assembly, #205 Open - With Case Drain



† Item 12 adapters are only used for motor part numbers N16457 and N16458.

* Item 18 (N13862) parts breakdown.



NOTE: Relief valve seal kit available (not shown). See parts list for part number.

#	QTY.	PART #	DESCRIPTION
1	8	N16472	WASHER, 1/2 NORDLOCK
2	4	N28502	BOLT, 1/2" X 1-1/2" GRADE 8
3	2	N31534	BOLT, 1/2 X 1- 1/4 12 PT GRD8
4	2	4013	BOLT, 1/2" X 1-1/2" GRADE 5

Parts Identification

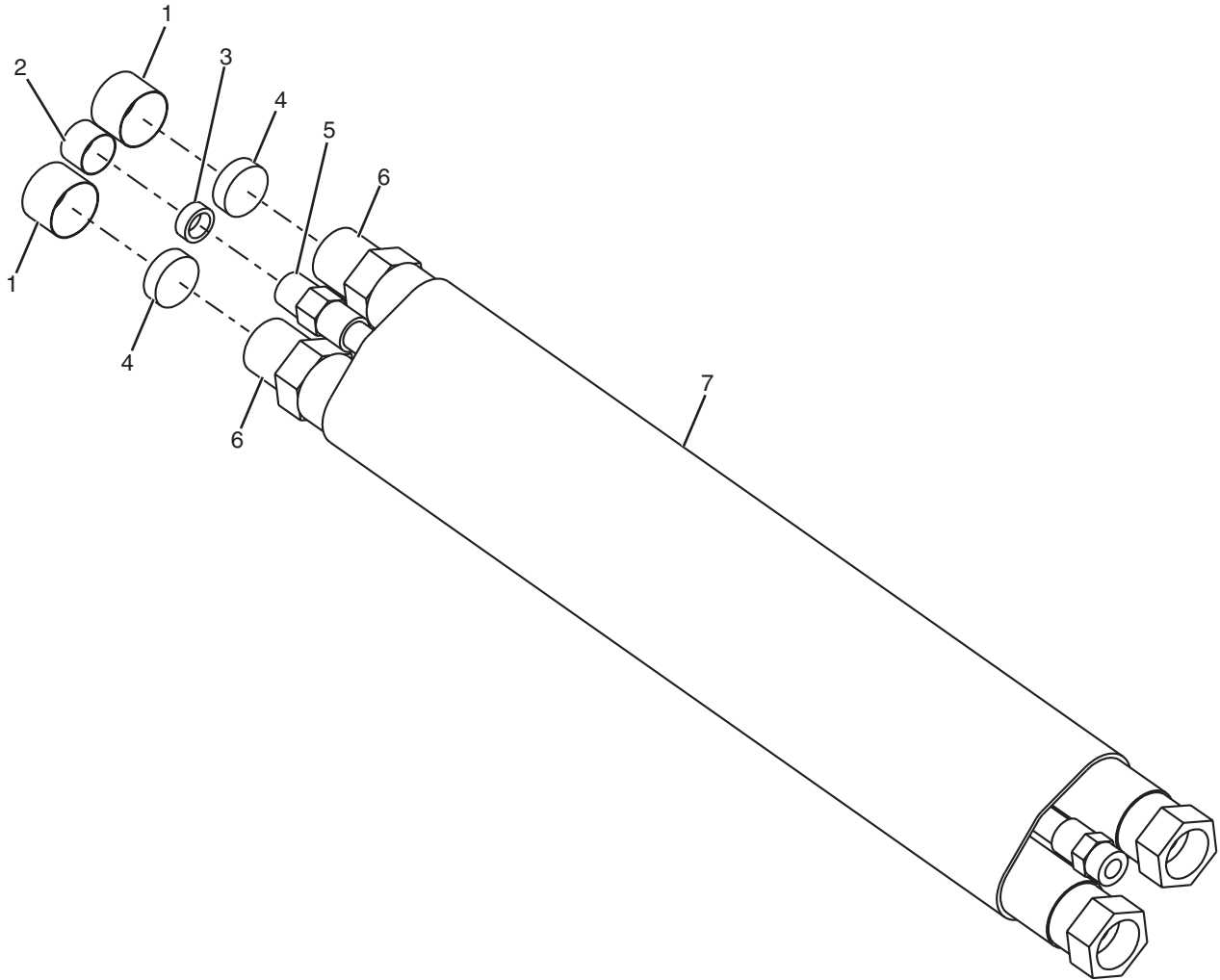
System #2 Motor Assembly, #205 Open - With Case Drain (Cont'd)

#	QTY.	PART #	DESCRIPTION
5	1	N16573	ADAPTOR, OVERHUNG LOAD 3/8
6	1	N16416	ADAPTER, OVERHUNG LOAD MOTOR #2
6a	1	N14158	GASKET, LOAD ADAPT 600 SERIES (INCLUDED W/N16416)
7	1	N16578	PLUG, 4MOR HOLLOW HEX
8	1	N14118	PLUG, 6MOR HEX
9	1	N17003	ELBOW, 90 DEG - 8MJIC - 6MOR
10	1	N17002	ADAPTER, 4MP - 6FOR (#4, #5, & #6 MOTORS)
	1	N16075	ADAPTER, 4MOR - 6FOR (#7 MOTOR)
	1	N31512	ADAPTER, 4MOR - 6FOR MOD. (#8 MOTOR)
11	1	N20280	MOTOR, COM #4 W/SEAL 21-24GPM
	1	N16455	MOTOR, COM #5 W/SEAL 25-28GPM
	1	N16456	MOTOR, COM #6 W/SEAL 29-32 GPM
	1	N16457	MOTOR, COM #7 W/SEAL 33-37GPM
	1	N16458	MOTOR, COM #8 W/SEAL 38-42GPM
11a	1	N14160	SEAL, MOTOR SHAFT (#4, 5, & 6 MOTORS)
	1	N14161	SEAL, MOTOR SHAFT (#7 & 8 MOTORS)
12†	2	N11694	ADAPTER, 16MOR - 12FOR
13	2	N11945	ELBOW, 90 DEG 1-1/16M O-RING TO 1-1/16M JIC
14	2	N13871	HOSE, 3/4" X 44"-12FJX90-12FJX
15	2	N13881	ADAPTER, 16MOR - 12MJIC
16	2	N16470	WASHER, 3/8 NORDLOCK
17	2	4007	BOLT, 3/8" X 3" GRADE 5
18	1	N13862	BODY, VALVE CROSS PORT RELIEF
-	1	N17035	KIT, RELIEF VALVE SEAL (NOT SHOWN)
18a	1	N13877	VALVE, RELIEF 500 PSI (INCLUDED WITH N13862)
18b	1	N13878	VALVE, RELIEF 3400 PSI (INCLUDED WITH N13862)
19	2	N13876	ELBOW, 90 DEG - 16MOR - 12MJIC
20	2	N24823	DECAL, TANK
21	1	N15998	KIT, TIMBER AX AND CARBIDE SLEEVED HOSE
22	2	N24822	DECAL, PRESSURE

† Item 12 adapters are only used for motor part numbers N16457 and N16458.

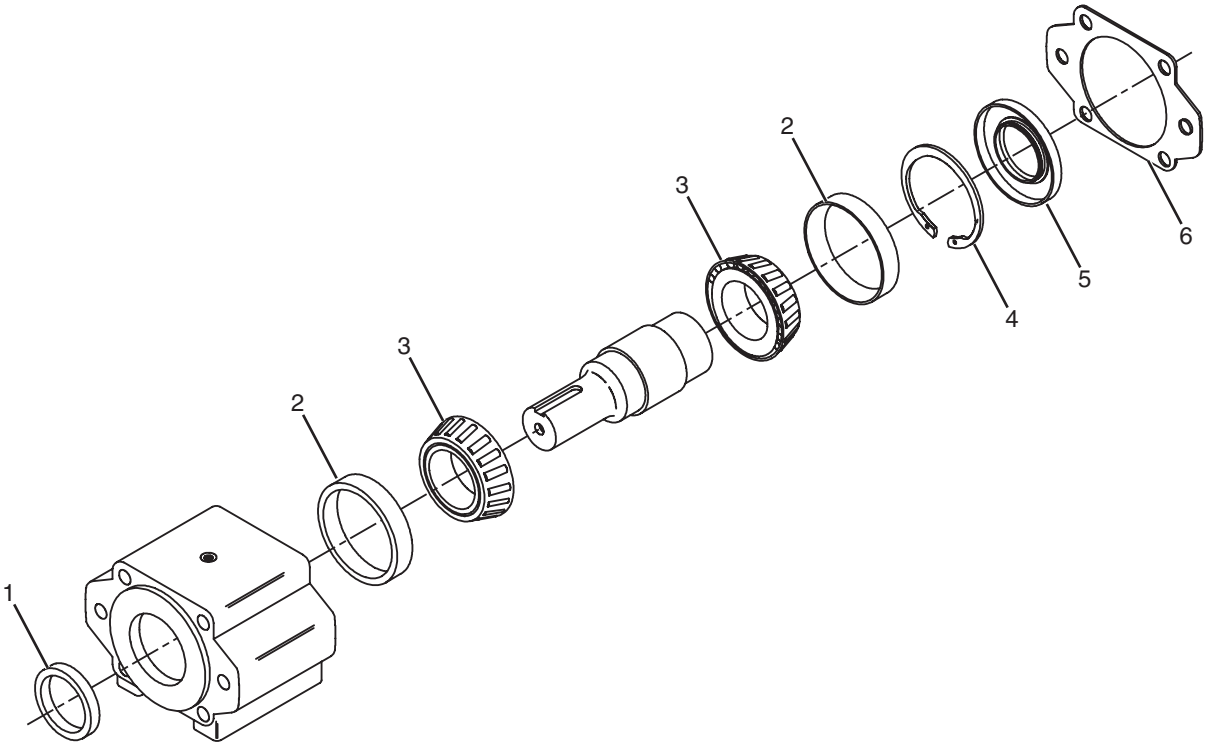
Parts Identification

Kit, Sleeved Hose (N15998)



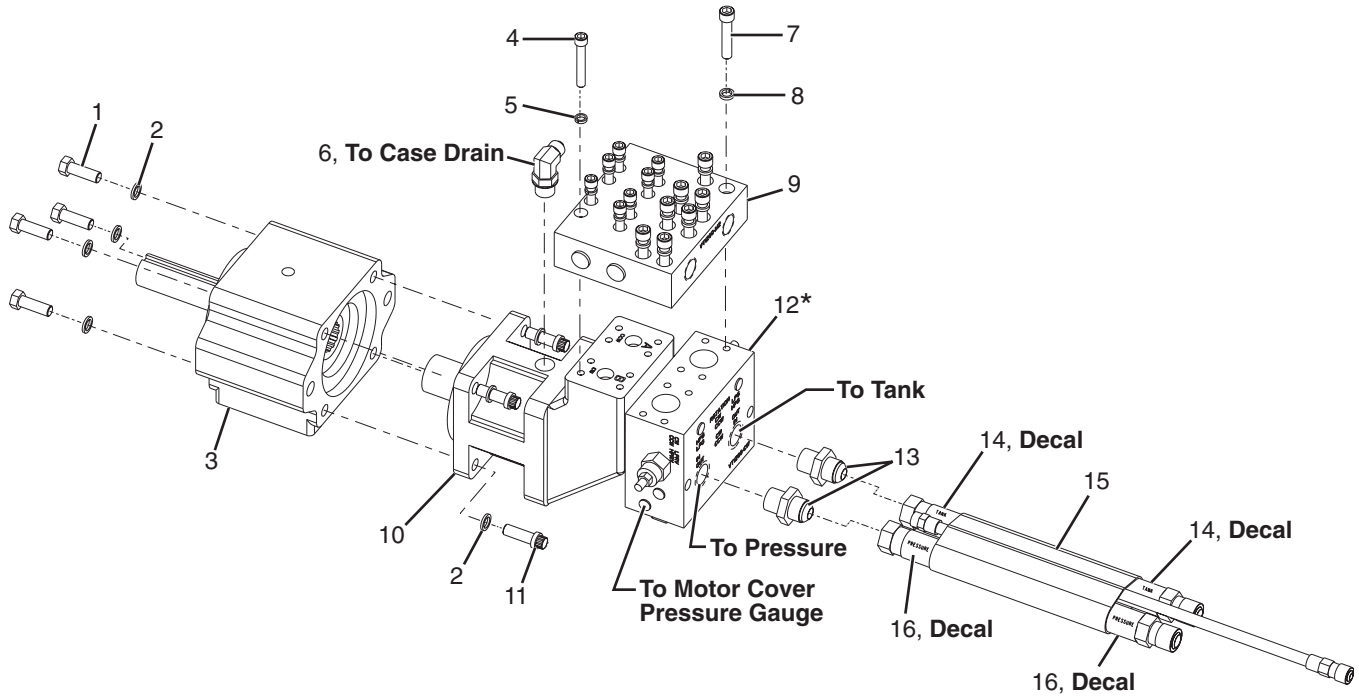
#	QTY.	PART #	DESCRIPTION
1	2	N15893	CAP, 3/4 ALUMINUM HOSE
2	1	N15895	CAP, 1/2 ALUMINUM HOSE
3	1	N32002	PLUG, 3/8 SCH 40 X .25
4	2	N32001	PLUG, 1.00 X .3125
5	1	N15945	HOSE, 1/2" X 126" 8FJX X 8MORB
6	2	N15944	HOSE, 3/4" X 102"-12FJIC-12MOR
7	1	N15999	SLEEVE, HOSE 4.75 X 7'6"

Overhung Load Adapter (N16416)

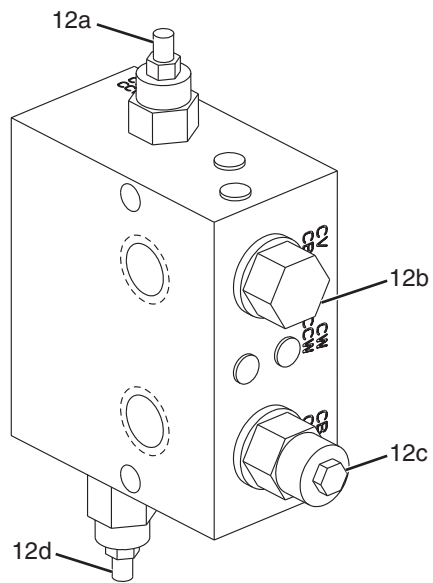


#	QTY.	PART #	DESCRIPTION
1	1	N14151	SEAL, FRONT (1.50" I.D. X 2.13" O.D. X .312" THK)
2	2	N14152	CUP, BEARING
3	2	N14153	CONE, BEARING
4	1	N14156	RING, RETAINING
5	1	N14157	SEAL, REAR (55MM X 90MM X 10MM)
6	1	N14158	GASKET

Parts Identification



* Item 12 (N21669) parts breakdown.



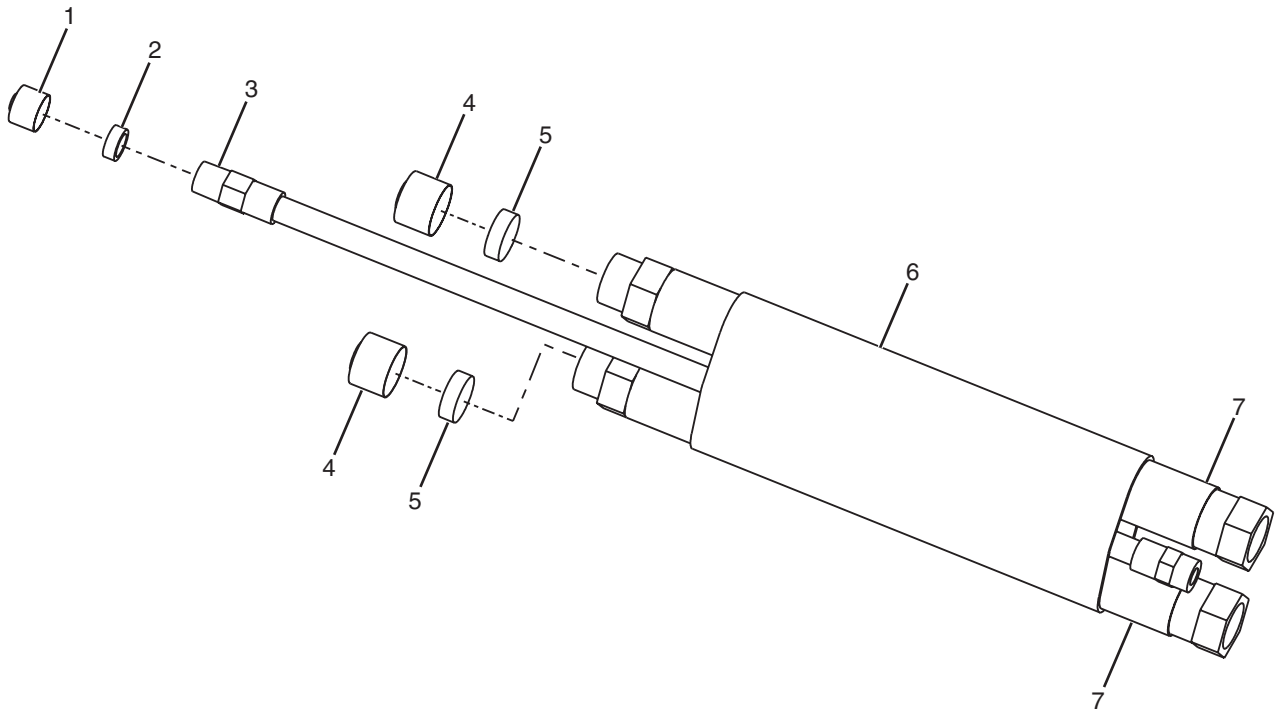
Parts Identification

System #5 Motor Assembly, #530 Open

#	QTY.	PART #	DESCRIPTION
1	4	4013	BOLT, 1/2" X 1-1/2" GRADE 5
2	8	N16472	WASHER, 1/2 NORDLOCK
3	1	N20901	ADAPTER, 900 SER LOAD 4.5 SHAFT
4	8	N21914	BOLT, SHCS 3/8" X 2-1/2" GRADE 5
5	8	N21916	WASHER, HIGH COLLAR LOCK 3/8"
6	1	N16173	ELBOW, 90 DEG - 8-MJC - 10MOR
7	8	N21915	BOLT, SHCS 7/16" X 2- 1/4" GRADE 5
8	8	N21917	WASHER, HIGH COLLAR LOCK 7/16"
9	1	N20976	BLOCK, VALVE
10	1	N20840	MOTOR, VOAC 60
11	4	N28502	BOLT, 1/2" X 1-1/2" GRADE 8
12	1	N21669	VALVE, OPEN LOOP CW
12a	1	N28100	RELIEF, LOW PRESSURE 1000PSI
12b	1	N28102	VALVE, CHECK PILOT OPERATED
12c	1	N28103	VALVE, COUNTERBALANCE
12d	1	N28099	RELIEF, HIGH PRESSURE 5000PSI
13	2	N13881	ADAPTER, 16MOR -12MJIC
14	2	N24823	DECAL, TANK
15	1	N31530	KIT, AX SLEEVED HOSE 530 SYS
16	2	N24822	DECAL, PRESSURE

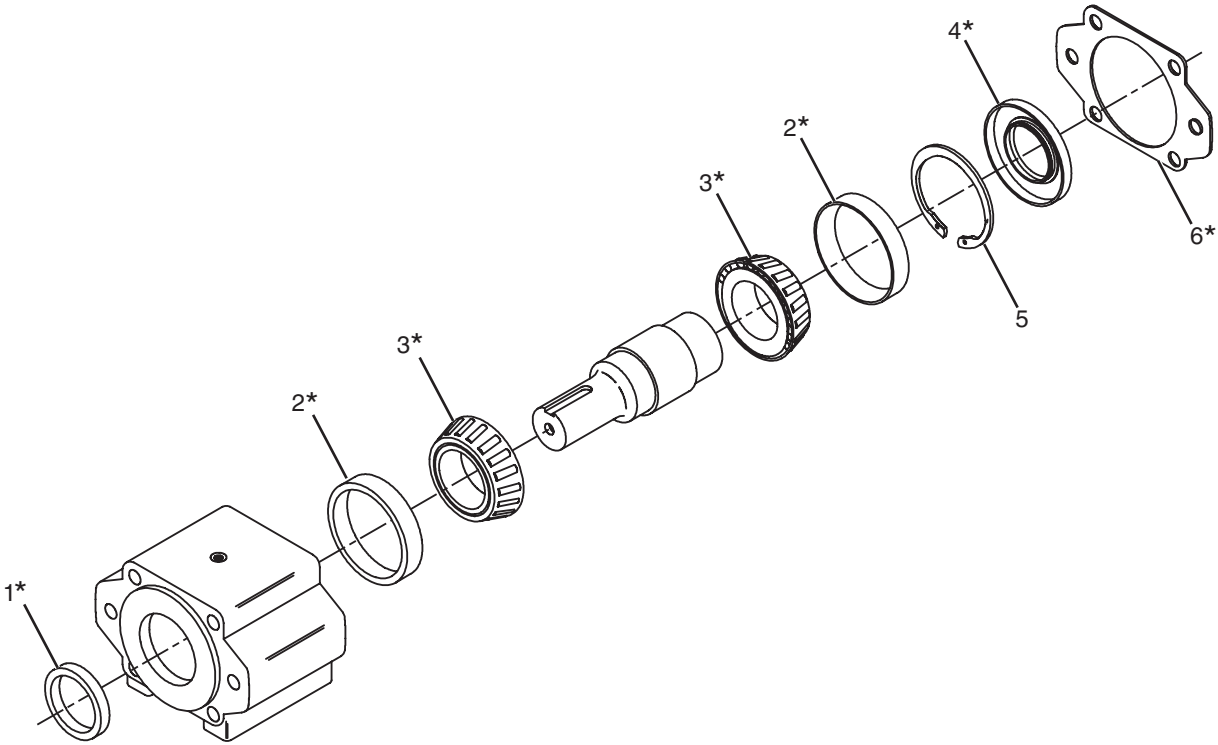
Parts Identification

Kit, Sleeved Hose (N31530)



#	QTY.	PART #	DESCRIPTION
1	1	N15895	CAP, 1/2 ALUMINUM HOSE
2	1	N32002	PLUG, 3/8 SCH 40 X .25
3	1	N15945	HOSE, 1/2" X 126" 8FJX X 8MORB
4	2	N15893	CAP, 3/4 ALUMINUM HOSE
5	2	N32001	PLUG, 1.00 X .3125
6	1	N15999	SLEEVE, HOSE 4.75 X 7' 6"
7	2	N20388	HOSE, 3/4 X 114" HYD W/O SLEEVE (-12 FJIC X -12 MBO)

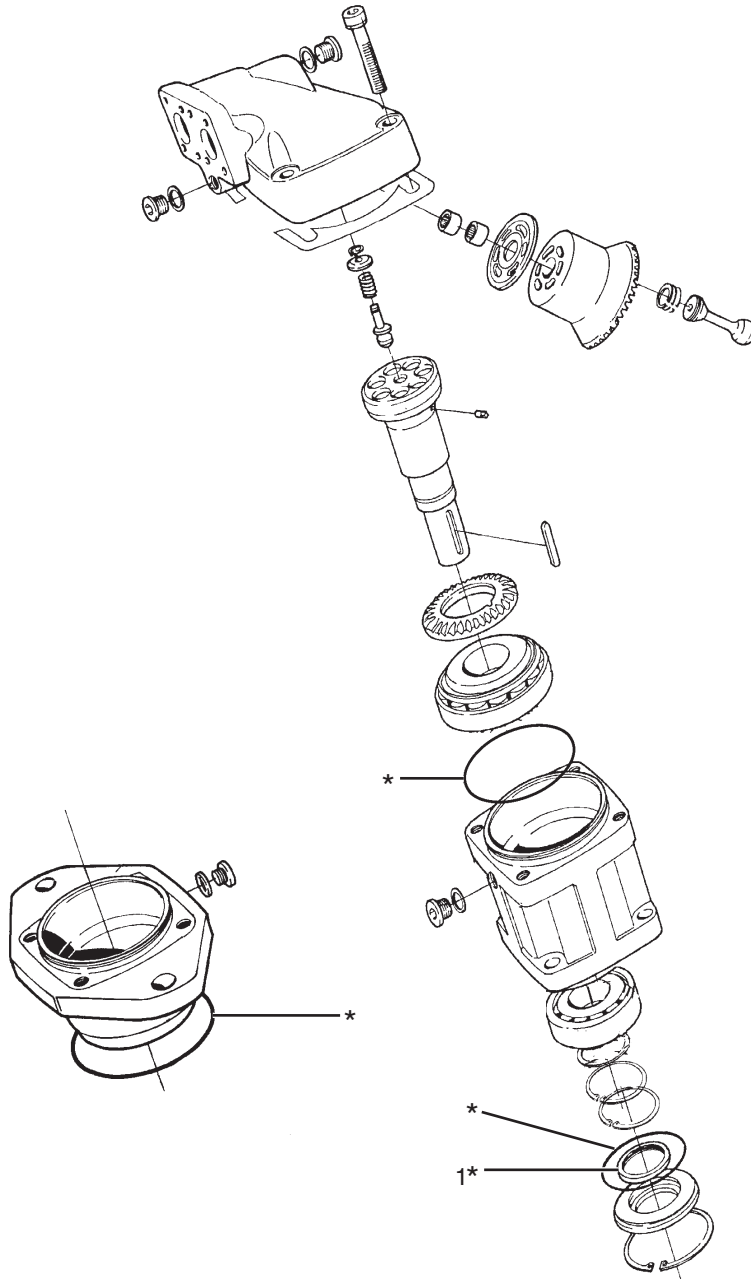
Overhung Load Adapter (N20901)



#	QTY.	PART #	DESCRIPTION
*	1	N28566	SEAL KIT (Includes Items 1, 2, 3, 4, and 6.)
1	1	N28447	SEAL, FRONT
2	2	N34130	CUP BEARING
3	2	N34131	CONE BEARING
4	1	N28448	SEAL, REAR
5	1	N34132	RETAINING RING
6	1	N14159	GASKET

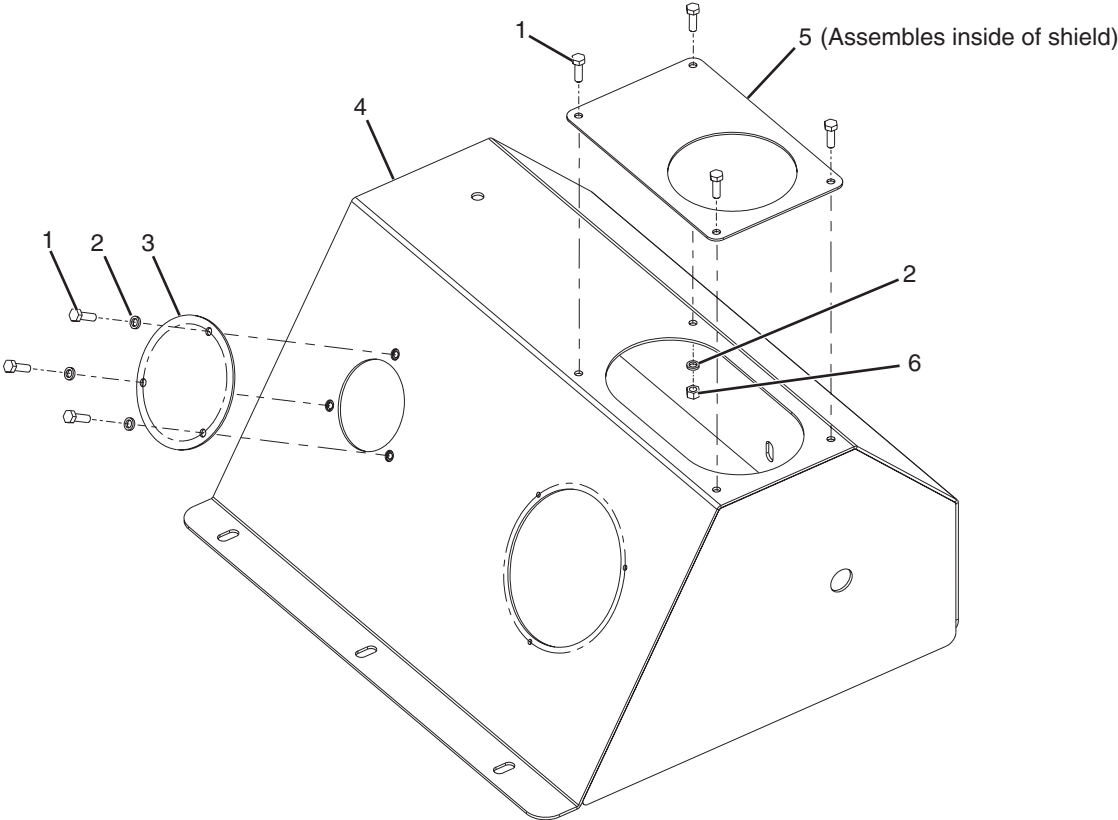
Parts Identification

Motor Assembly, VOAC 60 (N20840)



#	QTY.	PART #	DESCRIPTION
*	1	N28563	SEAL KIT (Items with asterisk are included in seal kit.)
1*	1	N28173	SHAFT SEAL 45 X 65 X 7

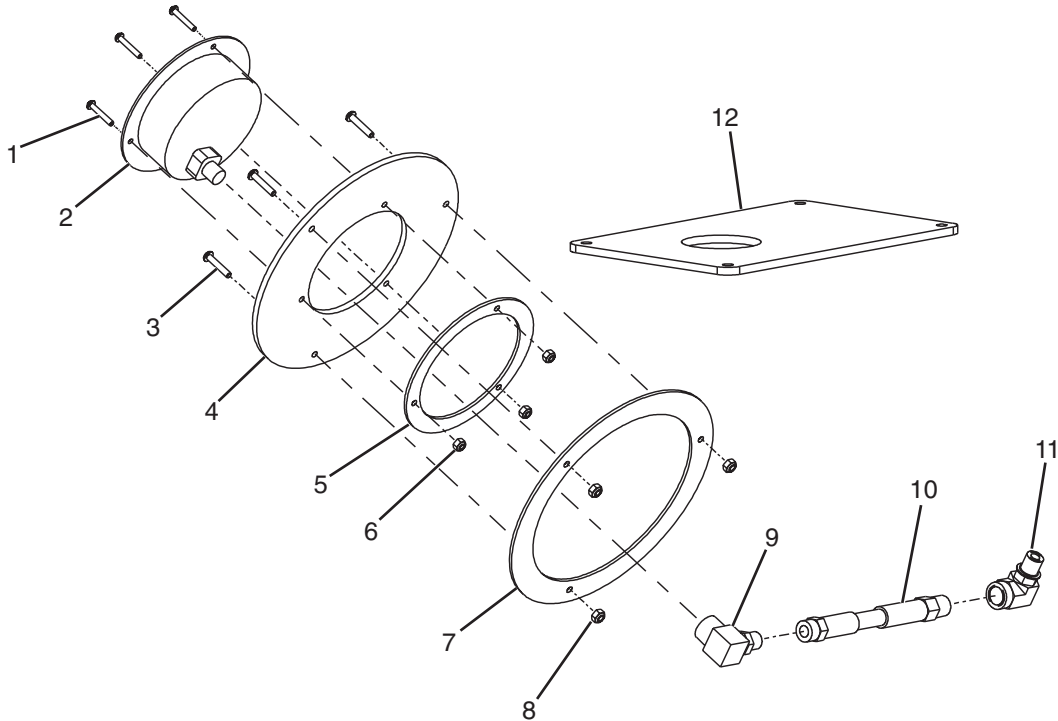
Shield, AXH Motor w/o Gauges (N32062)



#	QTY.	PART #	DESCRIPTION
1	7	4203	BOLT, 5/16" X 1" GRADE 5
2	7	N16469	WASHER, 5/16 NORDLOCK
3	1	N20198	COVER, CARBIDE MOTOR SHIELD HOLE
4	1	N32063	SHIELD, AXH MOTOR W/O GAUGES
5	1	N20753	FLANGE, AXH MOTOR SHIELD
6	4	4237	NUT, 5/16" STANDARD

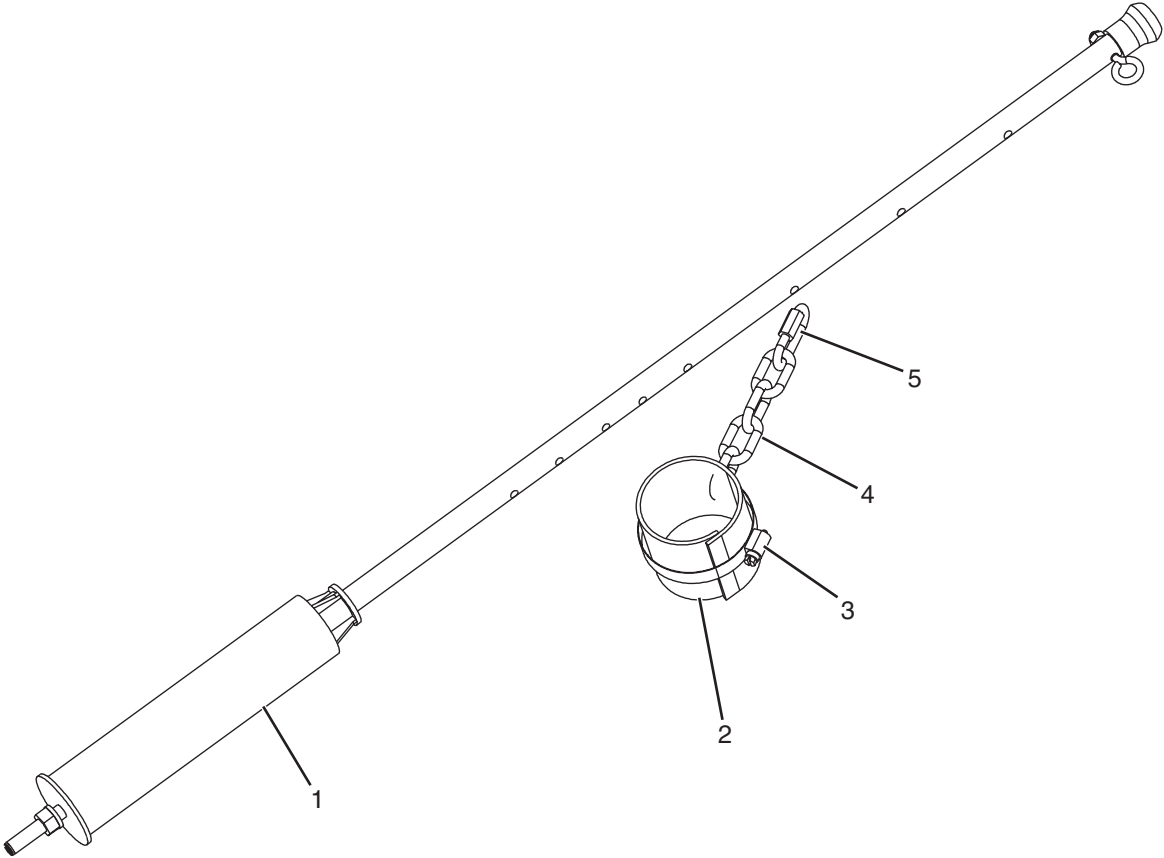
Parts Identification

Gauge



#	QTY.	PART #	DESCRIPTION
1	3	N16132	BOLT, BHCS #8-32 X 1
2	1	N16163	GAUGE, 0-6000 PSI 4" PRESS
3	3	N16333	BOLT, BHCS #10-32 X 1
4	1	N16332	FLANGE, MOUNT GAUGE
5	1	N16331	FLANGE, MOUNT GAUGE #8
6	3	N16133	NUT, NYLON INSERT #8
7	1	N16335	FLANGE, MOUNT #10
8	3	N16334	NUT, NYLON INSERT #10
9	1	N16162	ELBOW, 1/4" NPT 90 DEG STREET
10	1	N16067	HOSE , 1/4" X 24" X 5000 PSI
11	1	N16066	ELBOW, 6 MOR -6FP/90 DEG
12	1	N20752	FILLER, AXH MOTOR SHIELD RUBBER

Holder, Hose Stick and Chain (N20403)



#	QTY.	PART #	DESCRIPTION
1	1	N15956	HOLDER, HOSE WITH EXTRA HOLES
2	1	N15939	PROTECTOR, RUBBER 3" HOSE
3	1	N15938	CLAMP, 3-1/2" HOSE
4	1	N20218	CHAIN, HOSE SUPPORT 4-LINK
5	1	N15247	LINK, 1/4" CHAIN CONNECTOR

Parts Identification

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 11.

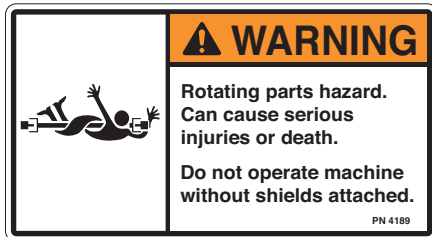
Check and replace any worn, torn, hard to read or missing decals on your machine.

NOTE: To order a complete Timber Ax Decal kit use part number N21843.

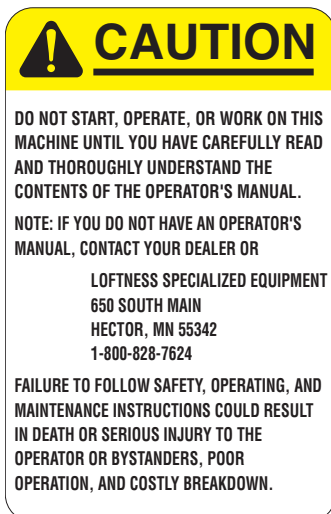
Part No. N28386



Part No. 4189



Part No. 4256



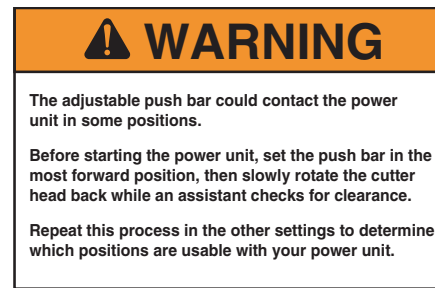
Part No. 4334



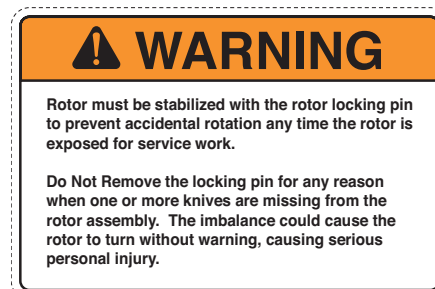
Part No. N13863



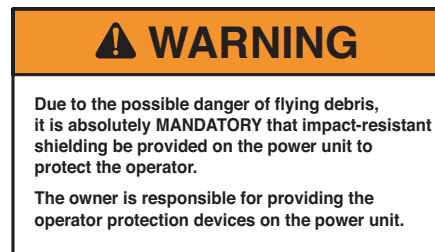
Part No. N17014



Part No. N16759

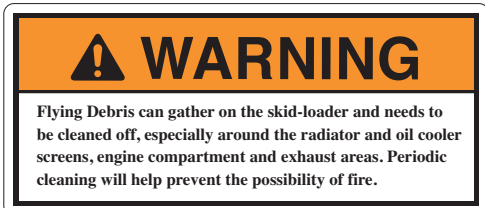


Part No. N17013

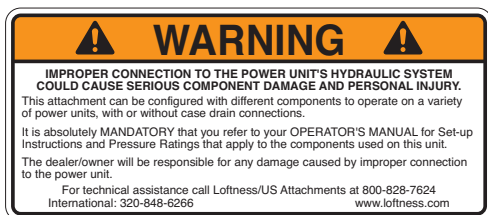


Machine Decals and Signs (Cont'd)

Part No. N20661

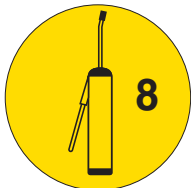


Part No. N16454

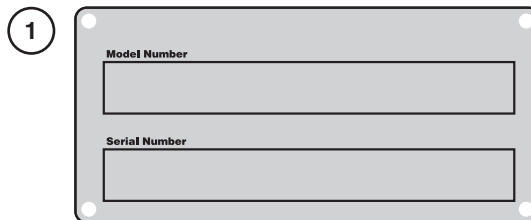
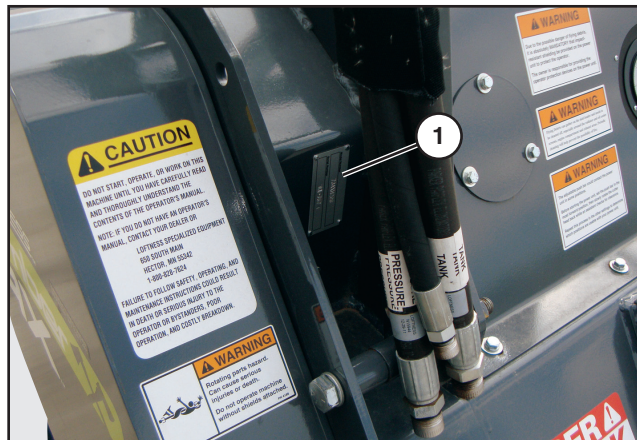
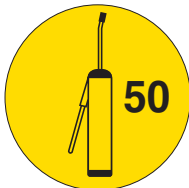


NOTE: Grease point decals, N28010 and N28012, are shown in their locations in the Lubrication section. See "Grease Point Location" on page 22.

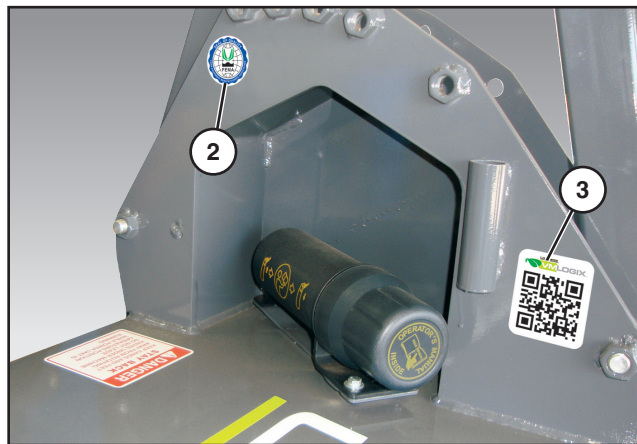
Part No. N28010



Part No. N28012



Part No. N13721



Parts Identification

Machine Decals and Signs (Cont'd)



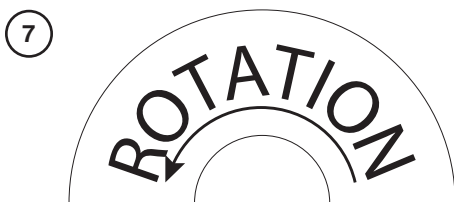
Part No. N13517



Part No. N28525



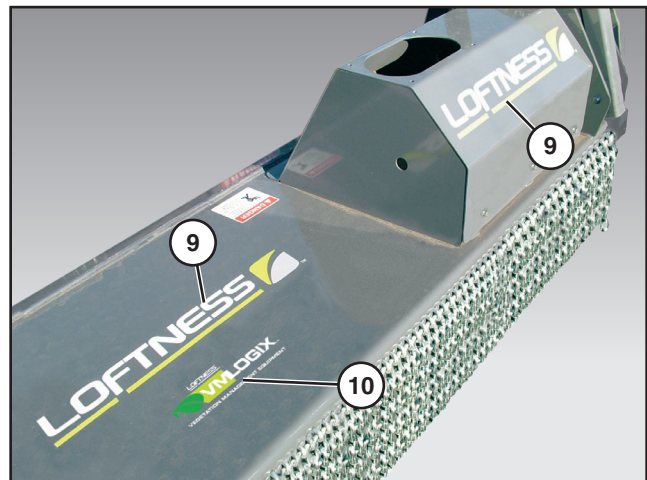
Part No. N18385



Part No. N13872



Part No. N28526



Part No. N26973



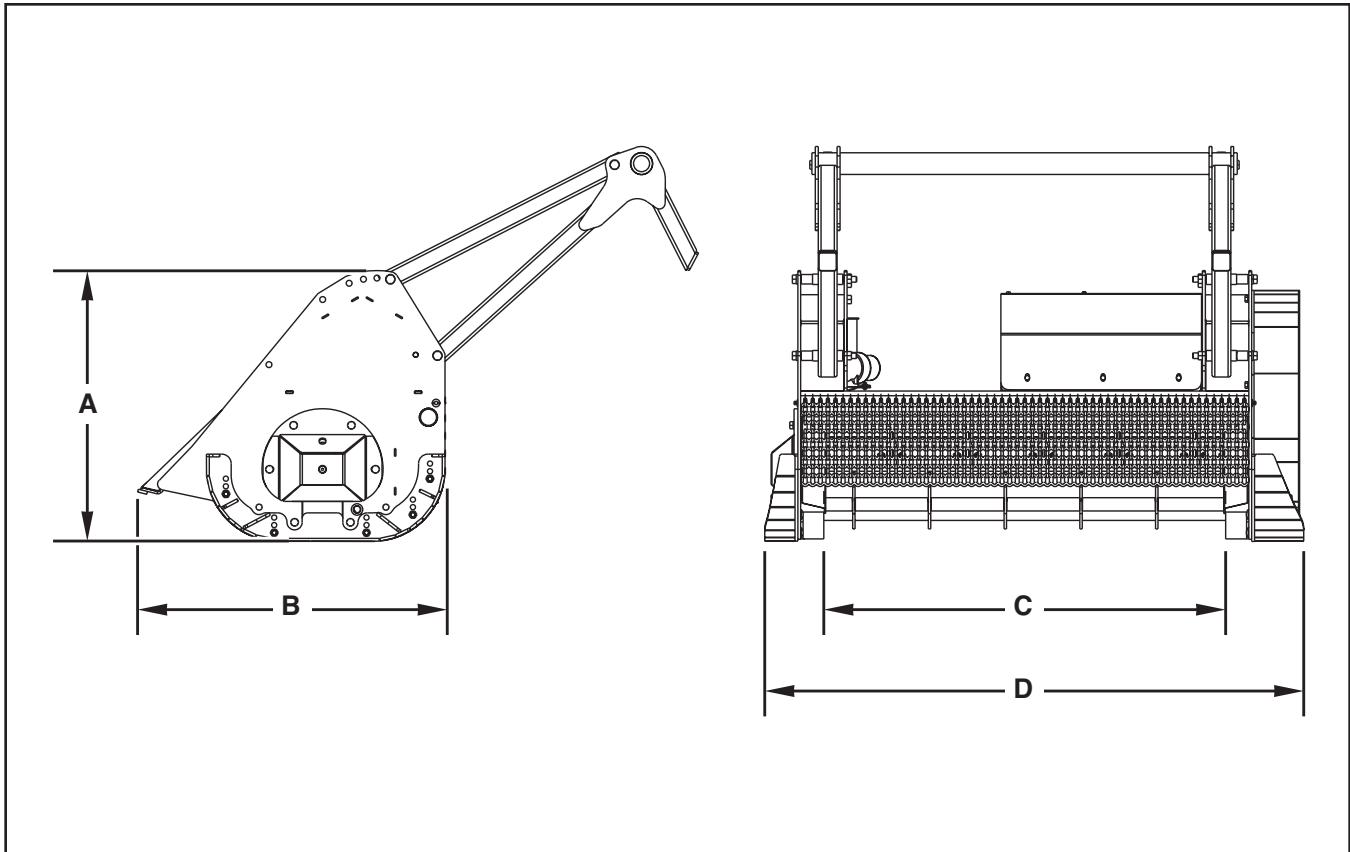
Part No. N28576

Specifications

DESCRIPTION	TIMBER AX
Cutting Width	53 in. (134.62 cm)
	63 in. (160.02 cm)
	73 in. (185.42 cm)
	83 in. (210.82 cm)
Operating Capacity	6 in. (15.2 cm) Continuous
	Intermittently cuts larger diameter material
Capacity Monitor	Pressure Gauge
Motor	Fixed Piston (#5 Hydraulic System)
	Fixed Gear motor without case drain (#1 Hydraulic System)
	Fixed Gear motor with case drain (#2 Hydraulic System)
Rotor Bearing	2.1875 in. Piloted Double Taper
Rotor Tip Diameter	17 in. (43.2 cm)
Sheaves	Taperlock
Belt	Four Band 5VX Type or Three Band 3BX Type
Belt Tightener	Spring Loaded Tensioner
Mount	Universal Skid Type
Shear Bar	Adjustable
Pusher Bar	Adjustable Ridgid Bar
Knives	Hardened Alloy Steel Blades
Skid Shoes	Adjustable 1 in. (2.5 cm) - 3 in. (7.6 cm)
Deflector	Steel Chain
Anti-Wrap Protection	Bearing

Appendix

Dimensions



DESCRIPTION	Timber Ax			
	53	63	73	83
Cutting Width (C)	53 in. (134.62 cm)	63 in. (160.02 cm)	73 in. (185.42 cm)	83 in. (210.82 cm)
Overall Width (D)	71.19 in. (180.82 cm)	81.19 in. (206.20 cm)	91.19 in. (231.62 cm)	101.19 in. (257.02 cm)
Operating Height (A)	35.75 in. (90.81 cm)	35.75 in. (90.81 cm)	35.75 in. (90.81 cm)	35.75 in. (90.81 cm)
Overall Length (B)	40.61 in. (103.15 cm)	40.61 in. (103.15 cm)	40.61 in. (103.15 cm)	40.61 in. (103.15 cm)
Number Of Knives	12	14	16	18
Weight	2,098 lb. (951.64 kg)	2,271 lb. (1,030.11 kg)	2,416 lb. (1,095.88 kg)	2,632 lb. (1,193.86 kg)
Crated Weight	2,415 lb. (1,095.43 kg)	2,695 lb. (1,222.43 kg)	2,775 lb. (1,258.71 kg)	3,000 lb. (1,360.78 kg)

Torque Specifications

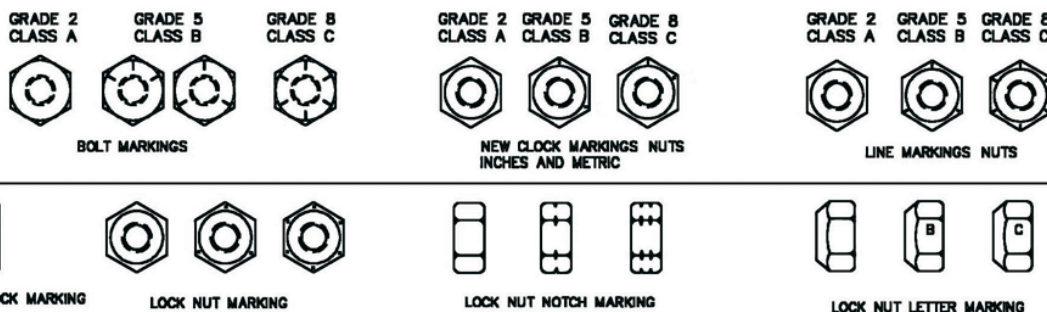
Inches Hardware and Lock Nuts

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			
	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)



Appendix

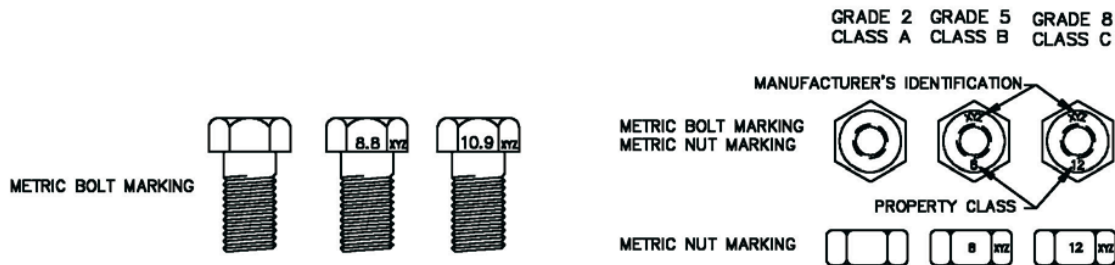
Torque Specifications (Cont'd)

Metric Hardware and Lock Nuts

TORQUE CHARTS Minimum Hardware Tightening Torques

Normal Assembly Applications
(Metric Hardware and Lock Nuts)

Nominal Size	Class 5,8		Class 8,8		Class 10,9		Lock nuts Class 8 W / CL. 8,8 Bolt
	Unplated or Plated Silver	Plated W / ZnCr Gold	Unplated or Plated Silver	Plated W / ZnCr Gold	Unplated or Plated Silver	Plated W / ZnCr Gold	
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.)	131 N•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.)





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Printed in USA
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